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THE DALLAS FLOODWAY EXTENSION

COMMUNICATION

FROM

THE ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS), THE DEPARTMENT OF THE ARMY

TRANSMITTING

THE ENVIRONMENTAL IMPACT STATEMENT FOR THE DALLAS FLOODWAY EXTENSION IN TEXAS

PART 2 OF 2

APRIL 23, 2009.—Referred to the Committee on Transportation and Infrastructure and ordered to be printed

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US Army Corps
of Engineers
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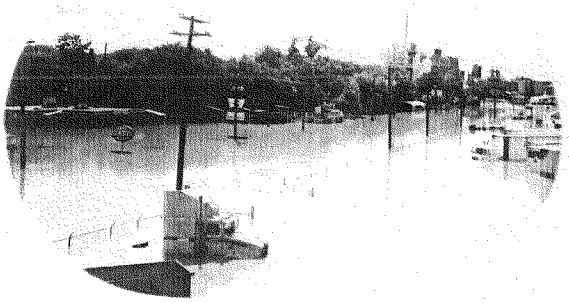
GENERAL REEVALUATION REPORT AND INTEGRATED ENVIRONMENTAL IMPACT STATEMENT

DALLAS FLOODWAY EXTENSION

TRINITY RIVER BASIN, TEXAS

VOLUME II

FEBRUARY 1999



(981)

APPENDIX J

HAZARDOUS, TOXIC AND RADIOLOGICAL WASTES (HTRW)

(983)

APPENDIX J

HAZARDOUS, TOXIC AND RADIOLOGICAL WASTE (HTRW)

PROJECT DESCRIPTION

General

The Dallas Floodway Extension, as recommended by the U.S. Army Corps of Engineers, Fort Worth District, calls for flood protection to the city of Dallas, south of the downtown area. The proposed alignment of the Dallas Floodway Extension consists of constructing lower/upper overbank swales with wetland cells, left/right bank levees, and sump areas. All are shown on the enclosed project map (Figure 1), and on individual site maps in Sections J-1 through J-6.

Lower/Upper Overbank Swale

The lower overbank swale will extend 3.3 miles downstream from the west side of Highway 75 (Central Expressway) to 2,000 ft. below Loop 12, entirely along the east bank of the Trinity River. The swale was designed with a slope of .0005 ft./ft. and varying widths. The upper overbank swale extends 1.5 miles downstream from the confluence of Cedar Creek to the river crossing west of Highway 75.

Wetland Cells

Numerous wetland cells are situated inside both lower and upper swales to provide additional flood capacity, recreational value, and wildlife habitat. The interconnected cells vary in size and shape and are generally 1 - 3 ft. in depth.

Lamar Street Levee

The left bank levee, situated between the Union Pacific Railroad (UPRR) and the Trinity River, was designed for Standard Project Flood (SPF) protection plus 2 ft. freeboard. The SPF design has a total length of 2.5 miles with a slope of 3.5 ft. horizontal to 1 ft. vertical and typical height of about 27 ft. including freeboard.

Lamar Street Sumps

Numerous sumps will be located along the length of Lamar Street Levee to control exterior drainage through the levees. The sumps vary in size and are generally 6 - 10 ft. in depth.

Central Wastewater Treatment Plant/Cadillac Heights Levee

The right bank levee, extending from the Cedar Crest and 11th Street intersection downstream to the Central Wastewater Treatment Plant, was designed by Albert H. Halff Associates for SPF protection. The SPF design has a total length of 1.5 miles and a typical height of about 25 ft. including freeboard.

PROJECT SITE HTRW OVERVIEW

General

The Dallas Floodway Extension can be characterized as an urban area, with industrial, commercial, retail, and residential land usage. The floodplain also contains hardwood bottom land, marshes, old gravel quarries, former municipal landfills, and residential and industrial dump sites.

Methodology

Several HTRW studies and site investigations have been conducted by the Corps using A-E firms. All site investigations performed for the Corps were in accordance with ER 1165-2-132, dated 26 June 1992. The objective of these investigations is to facilitate early identification and appropriate consideration of HTRW problems in reconnaissance, feasibility, and ultimately, preconstruction engineering and design (PED), land acquisition, construction, and, operations, maintenance, repair, replacement, and rehabilitation (OMRRR) phases of the project. The firms were: Albert H. Halff Associates, Inc., February 1993; Environmental Science & Engineering, Inc., August 1993; Freese and Nichols, Inc., May 1995; Geo-Marine, Inc., April 1997; and Tetra Tech NUS, Inc., September 1998. Each firm was contracted by the Corps to conduct the site investigations. Specific tasking was stated in the scope-of-work and was determined by extensive review of any information pertaining to HTRW within a given area. Such information was often in the form of site visits and inspections, aerial photographs, prior sampling events, site investigation reports, regulatory compliance and inspection records, notice-of-violations (NOVs), registered or unregistered complaints, etc. The information was obtained through numerous site visits as well as correspondence and research of Environmental Protection Agency (EPA) and Texas Natural Resource Conservation Commission (TNRCC) records. Several regulatory files were examined with notable investigations conducted by Ecology & Environment, Inc., McCulley, Frick & Gilman, Inc., Entec, Inc., and Brockette, Davis, Drake, Inc.

The original scopes of work for each site investigation specified sample parameters, procedures, methods, locations and sample media. However, changes in project feature alignment, inability to obtain rights-of-entry, and the continuing emergence of independent site investigation data, directly affected decisions on the scoping of investigations. Typically, Corps sampling events involved use of invasive investigative techniques such as a rotary drilling rig, Geo-Probe, piezometers, hand augering, sediment and surfacewater sampling. Soil, sediment, surfacewater, and groundwater were then retained for laboratory analysis. Analysis generally consisted of any or all of the following: volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides/PCBs, cyanide, and metals. Several sites were investigated in this manner. Oftentimes, right-of-entry could not be obtained so sample locations had to be moved off-site or abandoned altogether.

The suspected HTRW areas are shown on Figure 1 and are described in the sections attached to Appendix J. They are also summarized in Section J-5 of this appendix, Dallas Floodway Extension HTRW Waste Classifications. As noted above, numerous investigations have been conducted by the Corps of Engineers and others. The pertinent portions of these reports have been extracted and are included in Sections J-1 through J-4 and in Section J-6. Section J-6 includes the most recent site investigation conducted by Tetra Tech NUS, Inc., in September 1998. Section J-1 contains the Geo-Marine site investigation conducted in April 1997. Section J-2 contains the Freese and Nichols site investigation from May 1995 and a figure from National Soil Services. Section J-3 contains the Environmental Science and Engineering site investigation from August 1993. Section J-4 contains a site investigation conducted by Albert H. Halff in June 1993. Section J-5, contains summaries of each site, a review of HTRW areas along the Dallas Floodway Extension, and various items of correspondence with the EPA and the TNRCC. Due to the numerous investigations used in compiling this HTRW summary a variety of name and numbering conventions have been used to identify the various sites. The area numbers (1 through 15) used in this narrative will be used consistently throughout Appendix J and the figures presented in Sections J-1 through J-6. The figures referenced in this summary are from the original report. Within a section some figures may be omitted. The following is a brief overview of each area.

Area 1 - Praxair

Praxair, formerly occupied by Union Carbide Linde Gas Division, is an active industrial facility that repackages gasses and reconditions gas cylinders. It is located along Lamar Street at the upstream end of the project, on the left bank of the Trinity River. The Area 1 site plan and corresponding sample locations are shown in Figure 1 of Section J-1. An abandoned lime pit, located behind the property, was used in the manufacturing of acetylene gas during the period of Linde Gas operation. The facility was noted as having had one leaking petroleum storage tank (LPST). The LPST has been removed and the site has obtained closure compliance with state regulations. The Corps site investigation involved composite sampling of shallow soils within the acetylene lime pit, with chemical analysis for priority pollutant organics and inorganics. No prior sampling of the acetylene pit is known to have occurred.

Area 2 - Tri-Gas / Occidental Chemicals

This area, located southwest of Lamar Street, consists of an industrial gas facility (Tri-Gas) and an active silicates plant which produces liquid and solid sodium silicate (Occidental Chemicals). It is shown in Figure 2 of Section J-1. During a recent site visit, an environmental sampling crew was noted at the Tri-Gas facility. It was determined that at least two abandoned lime pits, located behind the Tri-Gas plant, which had been used in the manufacturing of acetylene gas, were apparently undergoing closure in compliance with state regulations. It was also determined that the facility had contained one LPST which had been removed with closure status pending. At Occidental Chemicals, a limited prior investigation has been conducted at a two-acre inactive landfill located on the east-southeastern side of the property. The landfill reportedly contains the following industrial non-hazardous Class I wastes: 4200 cu.yds. (est.) alkaline product wastes, floor sweepings, and empty caustic containers; 3000 lbs (est.) asbestos piping; and 50-100 (est.) empty 5-gallon paint thinner cans. An Ecology and Environment, Inc., report stated that ponded water on the landfill had been sampled with results indicating elevated levels of lead contaminants as well as high pH/alkalinity. Inspection reports obtained from the EPA noted discoloration in surface water and soils near the Trinity River, indicating a possible breakout of leachate into the river. However, no action by the EPA was taken. The landfill had been in operation from 1941 to 1971, and was capped in 1984 with an eventual no further action (NFA) recommended at the site. The June 1997 Corps site investigation conducted by Geo-Marine, Inc. was to involve sampling at two locations along the proposed levee and sumps. However, right-of-entry was not obtained at the time of the investigation.

Area 3 - Dallas Public Schools (Formerly Proctor & Gamble)

The former Proctor & Gamble plant, now partially demolished, is located along Lamar Street. The Area 3 site plan and corresponding sample locations are shown in Figure 3 of Section J-1. The proposed levee and sump area encompass a large portion of the eastern half of the property, within the vicinity of the warehouse. Environmental records from TNRCC indicated landfilling had occurred behind the plant warehouse and dated back to the late 1940's. A geophysical survey and extensive sampling was conducted by Brockette, Davis, Drake, Inc. Elevated concentrations of mercury, selenium, and zinc were noted in the report. A deed record map was also reviewed at the TNRCC regional office. Indications were that prior operations at the facility have resulted in contamination of the entire complex east of the Union Pacific Railroad tracks (which parallel Lamar Street). Contaminants shown on the map consisted of heavy metals, total petroleum hydrocarbons (TPH), and acids. In addition, at least one leaking underground storage tank (LUST) has been documented, resulting in a release of toluene into the groundwater and soil. Reports at TNRCC indicated the release had occurred along the northern portion of the facility. Additional research has indicated the possibility of more such occurrences on-site. However, their locations have not been specifically identified. The June 1997 Corps site investigation involved soil and groundwater sampling of the proposed sump areas on each side of the railroad tracks as well as background sampling upgradient along Lamar Boulevard.

Area 4 - Trinity Recycling (Formerly Okon Metals)

This active metals recycling facility, located along Lamar Street, has been in operation since the 1950s. The Area 4 site plan and corresponding sample locations (SD0401, SB0401, and SB0402) are shown in Figure 4 of Section J-1. The Corps site investigation involved soil and groundwater sampling at two locations within the proposed sump area at the back of the property, with one location being in the vicinity of an alleged cyanide spill. TNRCC records indicated an anonymous unsubstantiated claim that dumping of the spent cyanide solution, which had been used for extraction of gold, had occurred near a smelter shed. However, the exact location of the release was not known. In addition, a sediment sample was taken from a ponded area within the sump, and background levels of priority pollutant organics and inorganics were sampled from adjoining city of Dallas property.

Area 5 - Gravel Pits

Numerous water filled gravel pits are located throughout the project area and are listed below.

Ponds Near Trinity Recycling

These three former gravel pits are located across the railroad tracks from Trinity Recycling on city of Dallas property. A site plan and corresponding sample locations (SD0402 through SD0407) are shown in Figure 4 of Section J-1. Limited information is available concerning the ponds. The Corps site investigation involved using a boat to obtain sediment samples from six locations within the ponds and a background soil/groundwater sample (SB0403). No prior sampling of the ponds is known to have occurred.

Pond Near Interstate 45

This former gravel pit is located west of and adjacent to I-45 and south-southeast of Proctor and Gamble. It is shown in Figure 5 of Section J-1. Limited information is available concerning the pond. The Corps site investigation involved using a boat to obtain bottom sediment samples from three locations within the pond. No prior sampling of the pond is known to have occurred.

Dixie Metals Pond

This small ponded area is located at the base of the south end of Dixie Metals Landfill. It is shown in Figure 6 of Section J-1. The Dixie Metals pond has received a large amount of fill material in the past few years. In 1995, Entact, Inc. conducted verification sampling around the perimeter of a slurry wall which surrounds the Dixie Metals Landfill and approximately one-half of the pond. Three soil samples were taken from an excavated area, now filled with water, marking the present pond location. The report entitled Remedial Action Plan Final Report and Engineer's Certification, Dixie Metals Facility, Dallas, Texas dated May 19, 1995, by Entact, Inc. was reviewed for this appendix. The recent Corps site investigation was to involve wading into the pond to obtain a sediment sample. However, changes in proposed sump locations resulted in this sites elimination as an area of concern.

Linfield Landfill Pond

This pond is located west of and adjacent to Linfield Landfill. The Linfield Landfill Pond site plan and corresponding sample locations are shown in Figure 7 of Section J-1 and in Figure 2 of Section J-2. For several years, extensive dumping of trash has occurred primarily at the northwestern end of the former gravel pit. A 1995 Corps site investigation was conducted by Freese and Nichols, Inc. in which sediment and surface water were sampled for priority pollutant organics and inorganics. The recent Corps site investigation involved using of a boat to obtain additional samples of bottom sediment since dumping of trash has continued to occur in the area.

Area 6 - Valley Steel & W.E. Grace Manufacturing Company

These industrial facilities are located on opposite sides of U.S. Highway 75 near Lamar Street. A site plan and corresponding sample locations are shown in Figure 8 of Section J-1 and in Figure 3-3 of Section J-3. The addition of fill in low areas to the south and excavation of shallow ditches draining run-off to a northerly located sump is proposed by the Corps for both properties. A small sump area is proposed at the northern tip of Valley Steel.

According to Valley Steel files, while engaging in steel pipe thread cleaning operations, acid and caustic wastes had been improperly disposed in unlined pits on the facility. A study conducted in 1973 identified high concentrations of sulfates, manganese, iron, oil and grease in groundwater and soils at Valley Steel. Limited information is available on W.E. Grace, a steel component manufacturing facility. Soil and groundwater sampling was conducted in 1993 by Environmental Science and Engineering, Inc., for the Corps at W.E. Grace and in the vicinity of Valley Steel. The 1997 Corps site investigation was to involve soil and groundwater sampling at one location within the sump area at Valley Steel. However, requests for right-of-entry to Valley Steel were denied at both prior and recent site investigations.

Area 7 - Dallas Demolition Company

This site is a landfilled area located near Martin Luther King Boulevard along the west bank of the Trinity River. A site plan and corresponding sample locations are shown in Figure 3-4 of Section J-3. The Dallas Demolition Company has been extensively landfilled with construction debris dating back to at least the 1970's. In 1992, a Maxim Engineering site investigation was conducted at Dallas Demolition. The investigation involved drilling of numerous test borings with some soil and groundwater sampling. No additional investigations from this site are known to exist.

Area 8 - Vacant Land Near Dal-Chrome

This thickly vegetated and undeveloped sump area is bordered by Sargent Road, Dal-Chrome Company Inc., and several residential buildings. It is shown in Section J-1 on Figure 9. Prior investigations at the adjacent Dal-Chrome site included sampling for background metals concentrations at locations fairly close to the property line with Area 8. Elevated levels of lead were found to exist in these shallow surface soils. The Corps site investigation was to involve composite sampling of surface soils at two locations within the sump area. However, right-of-entry was not obtained at the time of the site investigation.

Area 9 - Energy Conversion Systems & Darling International

This site is located off the 1100 block of Sargent Road, to the north of the Central Wastewater Treatment Plant. It is shown in Section J-1, Figure 10. Previous occupants of the southern half of Area 9 (presently owned and operated by Darling International Inc.) were N.L. Industries, a secondary lead smeltering facility, and Valcar Enterprises, Beatrice Company, and Lone Star Rendering, all animal fat rendering plants. Other adjacent properties include Dixie Metals (now Exide Corporation), a former secondary lead smelter, and the Union Pacific Railroad. Occupants of property to the north (presently owned by Energy Conversion Systems) included Superior Industries and Mainland Land and Equipment Company.

During preparation of the draft GRR, a number of documents were researched at TNRCC. These included a Baseline Risk Assessment Report and a Corrective Measures Study Report conducted on behalf of a group of businesses collectively known as the Sargent Road Client Group. These businesses make up the southern portion of Area 9. These documents noted the presence of hazardous levels of lead in soils resulting from smeltered slag and broken battery casings that had been buried in pits extensively throughout the southern portion of Area 9. The areas with hazardous levels of lead were located away from the project features. Aerial photographs indicate the northern portion of Area 9 had also been continuously landfilled with industrial waste during the same time period. Presumably the waste consisted of lead slag and battery casings. In addition, three LPSTs were noted on the Darling International property.

After release of the draft GRR and prior to preparation of the final GRR, follow-on site visits in the

vicinity of Area 9 identified construction of an apparent landfill cap over the lead-contaminated soils was underway in the southern portion of Area 9 (Darling International). Examination of TNRCC files was conducted to determine the purpose and nature of these activities. The examinations revealed new documents that confirm the presence of lead at hazardous levels in this area in close proximity to the Cadillac Heights levee alignment. Given a similar site history, it is likely that hazardous levels of lead exist on the northern adjacent portion of Area 9 (Energy Conversion Systems), where current owners are preparing to conduct investigations.

A May 1998 site visit also identified construction by the City of Dallas of an adjacent 120-inch interceptor line. The interceptor runs parallel to theTrinity River and between the river and Area 9.

Area 10 - Vacant Land

Area 10 is located along the swale alignment north of the Dallas Central Wastewater Treatment Plant (CWWTP) between Sargent Road and the Trinity River. It is shown in Section J-1, Figure 10. Historical data indicates Area 10 was formerly utilized by the city as dumping grounds. Visual reconnaissance of the site noted numerous piles of surface debris which generally consisted of household garbage and other municipal wastes, as well as broken battery casings. Additionally, Area 10 lies downgradient from the leaking petroleum storage tanks (LPSTs) and unregulated lead smelter waste of Area 9. The Corps site investigation was to involve soil and groundwater sampling at three locations along the swale alignment. However, right-of-entry was not obtained during the time of the site investigation. No prior investigations were available for this site.

Area 11 - Municipal Sludge Disposal Lagoon E

Area 11 is located directly along the swale alignment, between the northeast side of the CWWTP levee and the Trinity River. It is shown in Section J-4, Figure 3. The site is an inactive serpentine shaped sludge lagoon which was used for disposal of municipal sewage sludge. Since the early 1970s Lagoon E has not been in use. A prior site investigation was conducted by Albert H. Halff Associates, Inc. in 1992. Development of a closure plan followed with the report entitled, Closure Plan Municipal Sludge Disposal Lagoon E, Central Wastewater Treatment Plant, Dallas, Texas, dated, June 1993, by Albert H. Halff Associates, Inc. This report was reviewed for this appendix. Sampling at Lagoon E included sludge samples taken from hand augering in the lagoon, soil borings with subsequent monitoring well construction, and background sampling.

Area 12 - Union Pacific Railroad Landfill

Area 12 is located northeast of Linfield Landfill, entirely on UPRR property (formerly Southern Pacific Railroad). It is shown in Figure 13 of Section J-1. Visual reconnaissance of the site noted surface expressions of landfilled trenches and scattered material, which generally consisted of construction debris. Corps site investigation work was to involve soil and groundwater sampling at two locations along the swale alignment and a geophysical survey to determine the lateral and vertical extent of the landfill. Several attempts at obtaining right-of-entry into this area had been denied by the Southern Pacific Railroad. No prior investigations of this site were available.

Area 13 - Linfield Landfill

This landfill is bordered by UPRR property to the north, a gravel quarry/pond to the southwest, Sleepy Hollow Golf Club to the south and the Trinity River to the east. Figure 1 of Section J-2 shows the location of landfilled waste types and permanent monitoring wells at Linfield. Formerly operated by the City of Dallas, Linfield Landfill was closed in 1975. Following its closure, it was placed on the EPA Comprehensive Environmental Responsibility Compensation and Liability Information System (CERCLIS) list. During the period of EPA oversight, several groundwater monitoring events occurred. Although various contaminants were detected, the concentrations were considered low and showed a general declining trend. Subsequently, the site was removed from CERCLA regulatory status and "no further action" was declared due its low

potential for a impacting human health or the environment. The "no further action" status at Linfield Landfill is indicative of it being removed from CERCLA regulatory status. As is the case with all suspected CERCLA sites, Linfield Landfill remains on the CERCLIS listing, signifying that it was, in the past, a potential CERCLA site. The current regulatory status of Linfield landfill has been discussed extensively with EPA and TNRCC. These contacts are covered in the paragraphs titled COORDINATION later in this report. Unless future investigations indicate there is a currently undetected release from Linfield Landfill, this status is expected to stand. Measures to prevent a release during and after construction of the swale are discussed in the SUMMARY OF ANALYTICAL RESULTS.

Presently, the landfill is occupied by a tree salvaging business. Landfilled materials from west to east (down gradient) include: brush, demolition debris, municipal and incinerated commercial wastes, and industrial liquid waste trenches. Since 1995, extensive dumping of off-site excavated rock from Dallas Area Rapid Transit (DART) construction has occurred on the western end, along the proposed swale alignment. Historical research conducted during the Initial Assessment indicated that the site had been under investigation since 1972. At that time, a USGS investigation determined that contamination was present in the groundwater due to the liquid waste pits. Groundwater contaminants included: grease, oils, solvents, acids, dyes, inks, and thinners. In 1982 the city of Dallas installed five monitoring wells around the landfill perimeter, and for several years has sampled them annually. A 1995 Corps site investigation was conducted by Freese and Nichols, Inc., in which two temporary monitoring wells were installed in the proposed swale alignment and then sampled. Sample locations from the 1995 site investigation are shown in Figure 2 of Section J-2. An additional Corps investigation was performed in 1998 by Tetra Tech NUS, Inc., to fully characterize the nature and extent of landfilled materials and groundwater contamination within the limits of the proposed swale alignment. A total of 28 borings were installed and 15 groundwater samples were collected. Sample locations from the 1998 site investigation are shown in Figure 1 of Section J-6.

Area 14 - Open Dump Near Linfield

This area is located due west of Linfield Landfill and south of the pond. It is shown in Section J-2, Figure 2. Visual reconnaissance of the site noted numerous piles of surface debris which generally consisted of household garbage and other municipal wastes. Like Linfield Landfill, Area 14 has recently received an extensive amount of dumped rock spoil from DART tunnel construction. This area was included in the 1995 site investigation with one temporary monitoring well installed and sampled - in what was then the proposed Joppa alignment of the swale.

SUMMARY OF ANALYTICAL RESULTS

General

Analytical results are displayed in Sections J-1 through J-4 and in Section J-6, and the more significant ones are briefly summarized below. A detailed fact sheet for each site is contained in Section J-5. The fact sheet lists the results of all available testing and presents the maximum concentration of each contaminant detected at the site. Based on this summary, a waste classification was assigned to each result using appropriate federal and state waste classification regulations. A more detailed explanation of this process is contained in the Introduction to Section J-5.

Area 1 - Praxair

Corps site investigation results (Geo-Marine, Inc.) are shown in Section J-1, Table 9, Page J-46, and Section J-5, Pages 2-4. Several low parts per billion (ppb) semi-volatile organic analytes (SVOCs) were tentatively identified in sediment from the old acetylene pit. None of the concentrations were elevated enough to be considered significant. Of the eight RCRA metals tested in soil, barium and lead were present at levels that slightly exceeded two times the background with concentrations of 110 and 38 parts per million (ppm). Statistically, more sampling would be needed to make accurate comparisons of field sample concentrations with background levels. Other detected inorganics (arsenic, total chromium, and mercury) had concentrations

close to background and were not high enough to be considered significant.

To eliminate the potential of encountering any unforseen HTRW upon excavation of the sump area, future sampling is recommended in the next project phase. Contaminants encountered from prior site investigations can then be more accurately characterized in nature and extent by field screening (i.e. immunoassay field testing) in conjunction with cone penetrometer sampling rigs. Investigation costs are shown in Table 1.

Final disposition is anticipated to be relocation of approximately 10% of soil to the McCommas Bluff, Avalon, or Itasca Landfills. This soil would be mildly contaminated and disposed as Class I Non-hazardous waste. Disposal costs are shown in Table 1. All remaining soils are clean and can be used as fill, placed in spoil piles on-site or hauled off-site.

Area 2 - Tri-Gas / Occidental Chemicals

Due to lack of right-of-entry, no sampling was performed at Tri-Gas or at Occidental Chemicals.

The nature and extent of wastes deposited in the landfill at Area 2 have resulted in avoidance of the southeastern sump in the project design. Thus, no associated HTRW costs are anticipated in this portion of Area 2.

To eliminate the potential of encountering any unforseen HTRW upon excavation of the north and west sump areas, future sampling is recommended in the next project phase. Contaminants encountered from prior site investigations can then be more accurately characterized in nature and extent by field screening (i.e. immunoassay field testing) in conjunction with cone penetrometer sampling rigs. Investigation costs are shown in Table 1. All remaining soils are clean and can be used as fill, placed in spoil piles on-site or hauled off-site.

Final disposition is anticipated to be relocation of approximately 30% of soil to the McCommas Bluff, Avalon, or Itasca Landfills. This soil would be mildly contaminated and disposed as Class I Non-hazardous waste. Disposal costs are shown in Table 1. All remaining soils are clean and can be used as fill, placed in spoil piles on-site or hauled off-site.

Area 3 - Dallas Public Schools (Formerly Proctor & Gamble)

Corps site investigation results are shown in Section J-1, Table 10, Pages J-49 to J-54, and Section J-5, Pages 7-9. The only significant contaminant in soil was the volatile organic analyte (VOC) acetone present in numerous samples at concentrations ranging from 380 ppb to below detection limit (<11 ppb). Generally, results of RCRA metals analysis indicated concentrations in soil to be within or slightly above background levels for all metals. The greatest deviation from background occurred at two locations with elevated levels of barium at 150 ppm and lead at 96 ppm. These total concentrations are not high enough to be considered significant. Elevated inorganic concentrations in groundwater were noted for all RCRA metals with the exception of silver and mercury. One field sample located in the sump (sample no. SB0302) contained three metals that exceeded the Safe Water Drinking Act (SWDA) Maximum Contaminant Levels (MCLs): arsenic (56 ppb), chromium (110 ppb), and lead (300 ppb). The sample SB0305, located across the railroad tracks from SB0302, also contained one metal (lead at 40 ppb) that exceeded SWDA MCLs. However, these standards are set for drinking water supplies, and there is no known or anticipated future usage of drinking water from the shallow aquifer at this site.

The vast extent and wide variety of contaminants within the deed recorded area across the tracks have resulted in avoidance of the northeastern sump in the project design. Thus, no associated HTRW costs have been established for this portion of the site.

A proposed sump beneath a large warehouse and two sets of railroad tracks is located in Area 3 and

will be excavated during construction. Since the presence of elevated contaminants in soil and groundwater appear to pose a possible environmental threat, concerns could be warranted if contaminated soil and seepage are allowed to remain in the sump. Presently, insufficient data is available to fully determine the extent of contaminants within this sump area. Additional site investigation sampling is therefore recommended in the next project phase. Contaminants encountered from prior site investigations can then be more accurately characterized in nature and extent by field screening (i.e. immunoassay field testing) in conjunction with cone penetrometer sampling rigs. Investigation costs are shown in Table 1.

Final disposition is anticipated to be relocation of approximately 10% of soil to the McCommas Bluff, Avalon, or Itasca Landfills. This soil would be mildly contaminated and disposed as Class I Non-hazardous waste. Disposal costs are shown in Table 1. All remaining soils are clean and can be used as fill, placed in spoil piles on-site or hauled off-site.

Area 4 - Trinity Recycling (Formerly Okon Metals)

Corps site investigation results are shown in Section J-1, Table 11, Pages J-57 to J-59 and Section J-5, Pages 10-12. As in the case with Area 3, the main organic contaminant in soils throughout the site was acetone. Measurable concentrations were present in all samples, including background, at levels ranging from 80 ppb to 13 ppb. A sediment sample was also taken at one location with ponded water. Results indicated several SVOCs at low ppm levels. None of the soil samples elsewhere exhibited this extensive range of SVOC contaminants. However, these contaminants were not present at concentrations high enough to be considered hazardous. Results of inorganics analysis indicated concentrations in soil to be within or slightly above background levels for all metals with the exception of lead. In soil and sediment sampled from four locations, high concentrations of lead were noted with a maximum level of 2000 ppm. These total concentrations are potentially high enough for the material to exceed TCLP criteria for classification of hazardous waste.

The only organic contaminant in groundwater was the VOC chlorobenzene, present in one sample at a concentration of 150 ppb. Elevated inorganic concentrations in groundwater were noted for arsenic (10 ppb), barium (270 ppb), chromium (43 ppb), and lead (2300 ppb). The background groundwater sample only showed the occurrence of barium at 200 ppb. The high ppb detection of lead in groundwater is significant in that it was collected from the same boring location as that of the maximum soil lead concentration. The depth to groundwater at this location was only 3.5 feet below ground surface. Thus, it appears that high concentrations of lead have become mobile in the shallow aquifer at this site.

The probability of lead contamination at Area 4 have resulted in its avoidance in the project design.

Area 5 - Gravel Pits

Ponds Near Trinity Recycling

Results from the recent Corps site investigation are shown in Section J-1, Table 11, Pages J-60 to J-62, and Section J-5, Pages 13-16. Organics analysis of sediment indicated acetone in all samples with concentrations ranging from 590 ppb to 53 ppb. Although acetone is a common laboratory contaminant, analysis of trip and equipment blanks indicated much lower concentrations of this constituent, when present at all. Based on knowledge of industrial activities along Lamar Street, the presence of acetone in pond sediment in low to mid ppb concentrations is probably indicative of its upstream usage as a solvent at these facilities. The chemical has been used for several years and has migrated off-site, probably by way of surface run-off through drainage ditches and/or dumping in the ponds. Other organic contaminants were toluene at 97 ppb and 2-butanone at 47 ppb. Toluene and 2-butanone are also common laboratory contaminants but were not detected in trip and equipment blanks. For those reasons these values should all be considered valid. Slightly elevated inorganics included: arsenic, barium, chromium, and mercury. More significant are lead levels of 33, 36, 50, and 52 ppm measured from sediment samples.

Presently, insufficient data is available to fully determine the extent of contaminants in the pond. Additional site investigation sampling is therefore recommended. Investigation costs are shown in Table 1.

Construction of project features in this area will most likely involve removal of bottom sediment along the levee alignment and placement of fill in portions of these gravel pits. Based on this plan of action and prior disposal practices in the area, final disposition is anticipated to be relocation of approximately 50% of this waste to the McCommas Bluff, Avalon, or Itasca Landfills. The sediment would be mildly contaminated and disposed as Class I Non-hazardous waste. Disposal costs are shown in Table 1. All remaining soils are clean and can be used as fill, placed in spoil piles on-site or hauled off-site.

Pond Near Interstate 45

Results from the recent Corps site investigation are shown in Section J-1, Table 12, Pages 66-67, and Section J-5, Pages 13-16. Organics analysis of sediment indicated acetone in all samples with concentrations ranging from 130 ppb to 65 ppb. Although acetone is a common laboratory contaminant, analysis of trip and equipment blanks indicated much lower concentrations of this constituent, when present at all. Since acetone is a widely used solvent and not known to occur naturally, its occurrence in low to mid ppb concentrations is probably due to runoff from upstream industrial facilities along Lamar Street. Slightly elevated inorganics included: arsenic, barium, chromium, and mercury. Total lead concentrations were 40 ppm, 58 ppm, and 72 ppm.

Presently, insufficient data is available to fully determine the extent of contaminants in the pond. Additional site investigation sampling is therefore recommended. Investigation costs are shown in Table 1.

Construction of project features in this area will most likely involve removal of bottom sediment along the levee alignment and placement of fill in portions of these gravel pits. Based on this plan of action and prior disposal practices in the area, final disposition is anticipated to be relocation of approximately 50% of this waste to the McCommas Bluff, Avalon, or Itasca Landfills. The sediment would be mildly contaminated and disposed as Class I Non-hazardous waste. Disposal costs are shown in Table 1. All remaining soils are clean and can be used as fill, placed in spoil piles on-site or hauled off-site.

Dixie Metals Pond

Due to lack of right-of-entry, the Corps did not sample this site. Presently, insufficient data is available to fully determine the extent of contaminants in the pond.

Although this site does not contain any project features, its proximity to Cadillac Heights Levee warrants future investigation. Presently, insufficient data is available to fully determine the extent of any contamination in the pond. Additional site investigation sampling is therefore recommended. Investigation costs are shown in Table 1.

Linfield Landfill Pond

Results of the 1995 Corps site investigation are shown in Section J-1, Table 13, in Section J-2, Tables 1 and 2 (labeled Sample IA-3), and in Section J-5, Pages 13-16. In sediment sampled from one location, the total concentration of lead was 370 ppm. Other RCRA metals arsenic, barium and chromium were detected at low to mid ppm concentrations but are not considered significant. Organic detects consisted of acetone at 290 ppb and carbon disulfide at 32 ppb. The presence of acetone in low to mid ppb concentrations is probably indicative of its upstream usage as a solvent at industrial facilities and/or dumping in the area.

Construction of the concrete lined swale at the adjacent Linfield Landfill will most likely involve the placement of fill along the gravel pits eastern shoreline, partially filling it in. Although sediment and surface water from the pit did not appear to pose an environmental threat in 1995, the recent high ppm levels of metals in sediment are of potential concern. Presently, insufficient data is available to fully determine the

extent of contaminants in the pond. Additional site investigation sampling is therefore recommended. If elevated barium and lead are confirmed in sediment and surface water, contaminants could ultimately seep into the swale and impart the need for adequate protection from seepage (i.e. slurry wall, concrete lining, etc.). Investigation costs are shown in Table 1.

Area 6 - Valley Steel & W.E. Grace Manufacturing Company

Valley Steel

Analytical results of the 1993 Corps site investigation (Environmental Science and Engineering, Inc.) are shown in Section J-3, Tables 4-2 to 4-4, and Section J-5, Pages 17-18. Of the eight RCRA metals tested in soil, barium, chromium, lead and selenium were present at levels that exceeded two times the background sample. Statistically, more sampling would be needed to make accurate comparisons of field sample concentrations with background levels. Cyanide was also detected in soil sample 6-1 ALT (32.8 ppm) but was not present in the laboratory duplicate taken from the same depth, and is not considered significant for that reason. In addition, cyanide was not detected in groundwater at that same location.

RCRA metals test results for groundwater from Valley Steel also resulted in insignificant concentrations with slight detections of some RCRA metals, but at concentrations below background levels. One SVOC, di-n-butyl phthalate, was detected at about the same concentration as background. However, this compound is often associated with laboratory induced contamination. No other significant organic/inorganic concentrations were detected in this area.

It should be noted that during the time of this investigation, right-of-entry to Valley Steel could not be obtained. Thus, samples were collected off-site but adjacent to Valley Steel and probably should not be considered representative of on-site conditions. Additional attempts at obtaining right-of-entry during the recent site investigation were denied by the property owners.

Past records and visual observation of Valley Steel indicate that the area with potential for contamination most likely is situated towards the west end of the property line. In this area, the Corps has proposed to add fill material and construct a shallow ditch to improve drainage into northerly located sump areas. The shallow drainage ditch connecting the filled area to the sump has the possibility of creating an exposure pathway if elevated contaminants are present in soil. Thus it is recommended for future sampling. Investigation costs are shown in Table 1.

Final disposition is anticipated to be relocation of approximately 5% of soil to the McCommas Bluff, Avalon, or Itasca Landfills. This soil would be mildly contaminated and disposed as Class I Non-hazardous waste. Disposal costs are shown in Table 1. All remaining soils are clean and can be used as fill, placed in spoil piles on-site or hauled off-site.

W.E. Grace Manufacturing Company

Analytical results of the 1993 Corps site investigation are shown in Section J-3, Tables 4-2 to 4-4, and Section J-5, Pages 17-18. Of the eight RCRA metals tested in soil, lead was present at 89.3 ppm, a level higher than two times background. Statistically, more sampling would be needed to make accurate comparisons of field sample concentrations with background levels. RCRA metals tested in groundwater from W.E. Grace resulted in a significant exceedance of twice background for arsenic, barium, cadmium, chromium, and lead. No other significant organic/inorganic concentrations in soil and groundwater were detected in this area. The significantly elevated metals in groundwater at this site exceed drinking water standards for some metals, as shown in Section J-3. However, these standards are set for drinking water supplies, and there is no known or anticipated future usage of drinking water from the shallow aquifer at this site. Additionally, they do not exceed hazardous waste levels set forth by RCRA. Unless groundwater is anticipated to come into contact with surface drainage pathways as a result of the shallow excavated ditch, the level of concern for this site is anticipated to be low.

As in the case with Valley Steel, the Corps has proposed to construct a shallow ditch in conjunction with adding fill material to prevent ponding of water and improve drainage to the northerly situated sump areas. The shallow drainage ditch connecting the filled area to the sump has the possibility of creating an exposure pathway if elevated contaminants are present, and is therefore recommended for future sampling. Investigation costs are shown in Table 1.

Final disposition is anticipated to be relocation of approximately 5% of soil to the McCommas Bluff, Avalon, or Itasca Landfills. This soil would be mildly contaminated and disposed as Class I Non-hazardous waste. Disposal costs are shown in Table 1. All remaining soils are clean and can be used as fill, placed in spoil piles on-site or hauled off-site.

Area 7 - Dallas Demolition Company

Analytical results from the Maxim Engineering site investigation are shown in Section J-3, Tables 4-10 and 4-11, and Section J-5, Pages 21-24. Elevated VOC concentrations in soil included: chloroform at 6.2 ppm, and methylene chloride at 1.2 to 1.4 ppm. At one location, the pesticides chlordane and dieldrin were detected at concentrations of 1.1 and 3.0 ppm. No other organics were present in soil. The only significant inorganic concentration was that of mercury (8 ppm). Other inorganic concentrations in soil were comparable to those found at background locations.

Elevated concentrations of organics in groundwater consisted of: the VOC 1,1,1-trichloroethane at 56 ppb, SVOCs 1,2-dichlorobenzene at 9 ppb, and bis 2-ethylhexyl phthalate (a common lab contaminant) at 5 ppb, and the pesticide a-BHC at 15 ppb. These concentrations were all considered insignificant since they were only slightly above detection limits. No significant inorganic concentrations were detected at this site.

VOCs constitute the major concern identified by of this study. According to Federal Regulation 40 CFR 268.43, soils with chloroform concentrations > 5.6 ppm need to be treated before disposal. Another significant detect was methylene chloride. While this VOC is commonly attributed to laboratories, its presence in elevated concentrations exceeds that which is normally expected to be laboratory induced. The low ppm levels of pesticides reported in the investigation could warrant greater concern if they are prevalent at the site. However, it should be noted that of the 155 total soil samples obtained in this investigation, only 4 were analyzed for priority pollutants. Likewise, only 1 of 7 groundwater samples were analyzed for priority pollutants. Also, no QA/QC was available for review.

Thus, the limited testing and numerous contaminants identified by the Maxim Engineering site investigation, coupled with the location being directly along the swale alignment, warrant further site investigation at Dallas Demolition. Contaminants encountered from the prior site investigation can then be more accurately characterized in nature and extent by field screening (i.e. immunoassay field testing) in conjunction with cone penetrometer sampling rigs. Investigation costs are shown in Table 1.

Final disposition is anticipated to be relocation of approximately 10% of soil to the McCommas Bluff, Avalon, or Itasca Landfills. This soil would be mildly contaminated and disposed as Class I Non-hazardous waste. Disposal costs are shown in Table 1. All remaining soils are clean and can be used as fill, placed in spoil piles on-site or hauled off-site.

Area 8 - Vacant Land Near Dal-Chrome

Due to lack of right-of-entry, no sampling was conducted in the vacant land along Sargent Road. However, recent removal of the proposed sump areas along the Cadillac Heights Levee have resulted in elimination of this site from the project design.

Area 9 - Energy Conversion Systems & Darling International

No Corps of Engineers investigations have been performed in this area. The available data has been obtained from several reports contained in TNRCC files and address only the southern portion of Area 9 (Darling International). Extracts from these reports are contained in Section J-5, pages 22 and 24. These reports indicate very high levels of lead (61,500 ppm), some of which are hazardous. Investigations are planned by the property owners for the northern portion of Area 9 (Energy Conversion Systems). This data will be obtained as it becomes available. However, extensive landfilling of this area is evident from aerial photography and appears to have occurred during the same time period as the landfilling to the south. The results are likely to be similar. Based on the data for the 120-inch interceptor line, soils outside of Area 9 have elevated lead levels, but they are not at hazardous concentrations. It appears that the very high lead contamination is present within Area 9 and has not migrated beyond its limits. Any off-site migration would be due to surface runoff and re-deposition of the sediment in adjacent Area 10. It is unlikely that the sediment would be hazardous with respect to lead.

Presently, insufficient data is available to fully document the extent of contamination along the levee alignment. Construction in these areas risk encountering buried lead slag and battery casings along the levee alignment. In any event, the available data substantiate that care must be taken during advanced engineering and design. Final design of the Cadillac Heights levee must be based upon the data currently available and data being developed by others, as well as additional sampling and testing to determine the optimum alignment. While the preference would be to avoid areas of high concentrations altogether, alternatives might include keeping the current alignment, relocating along Sargent Road, or relocating toward the river. Final design will seek to avoid any sites with hazardous wastes. If this cannot be accomplished, then the local sponsor has been advised and is aware of the fact that costs for removal and/or remediation of hazardous wastes are a 100% local cost. If areas with hazardous wastes can be avoided, the levee alignment will consider minimizing disturbance of known contaminants, costs for special wastes handling and disposal, and impacts on natural resources. Additional site investigation and sampling is therefore recommended. Investigation costs are shown on Table 1.

Based on the above discussion, final disposition of excavated soils at Area 9 is anticipated to be relocation of approximately 50% of the soils to the McCommas Bluff, Avalon, or Itasca landfills. Disposal costs are shown in Table 1. All remaining soils are assumed to be clean and can be used as fill, placed in spoil areas or hauled off-site.

Area 10 - Vacant Land

Due to lack of right-of-entry, no sampling was conducted at this site.

Since Area 10 is situated directly along the swale alignment, a Phase I site investigation is recommended. Contaminants encountered during this initial phase can then be more accurately characterized in nature and extent by field screening (i.e. immunoassay field testing) in conjunction with cone penetrometer sampling rigs. Investigation costs are shown in Table 1.

Final disposition is anticipated to be relocation of approximately 10% of soil to the McCommas Bluff, Avalon, or Itasca Landfills. This soil would be mildly contaminated and disposed as Class I Non-hazardous waste. Disposal costs are shown in Table 1. All remaining soils are clean and can be used as fill, placed in spoil piles on-site or hauled off-site.

Area 11 - Central Wastewater Treatment Plant Municipal Sludge Disposal Lagoon E

Analytical results of the 1993 Lagoon E closure plan (Albert Halff Associates, Inc.) are shown in Section J-4, Tables I, II, IV, and V, and Section J-5, Pages 27-29. The closure plan indicated that Lagoon E contains sludge with detectable concentrations of each of the metals analyzed except arsenic, molybdenum, and selenium. Maximum total metals concentrations in sludge were as follows: 363 ppm barium, 49.8 ppm

cadmium, 280 ppm chromium, 154 ppm copper, 635 ppm lead, 7.5 ppm mercury, 469 ppm nickel, 25.8 ppm silver, and 668 ppm zinc. When subjected to TCLP analyses, none of these metals exceeded hazardous concentrations. Sludge samples analyzed for organics resulted in slight detects of the SVOCs: bis(2-ethylhexyl) phthalate and di-n-butyl phthalate. Both are suspected laboratory contaminants. Slightly elevated VOCs included: 1.3 ppm acetone, 3.3 ppm methylene chloride, 0.021 ppm toluene, 0.128 chlorobenzene, 0.032 ppm ethyl benzene, and 0.067 ppm xylene. None of these were classified as hazardous by RCRA standards.

Analysis of native soil surrounding Lagoon E indicated no detectable VOCs or SVOCs. Inorganics were found in all soil samples and included the metals: barium, chromium, copper, nickel and zinc. Only two samples did not contain any detectable concentrations of lead. Comparison of these total metals concentrations with regional background levels, as published by the USGS Professional Paper 1270, resulted in all metals falling within their documented ranges. Groundwater analysis indicated no detectable concentrations of VOCs or SVOCs. The only detectable inorganic encountered was barium in two locations at 1.1 and 1.9 ppm.

Lagoon E is situated directly along the swale alignment and will be excavated during construction. Thus, final disposition is anticipated to be dewatering and treatment of groundwater, if needed, and relocation of approximately one-third of soil to the McCommas Bluff, Avalon, or Itasca Landfills. The closure plan indicated that Lagoon E sludge would most likely be classified as Class I non-hazardous waste. Disposal costs are shown in Table 1. All remaining soils are clean and can be used as fill, placed in spoil piles on-site or hauled off-site.

Area 12 - Union Pacific Railroad Landfill

Due to lack of right-of-entry, no sampling or geophysical survey was conducted at this site.

Since Area 12 is situated directly along the swale alignment, and the portion situated directly within the swale alignment will be excavated during construction, a Phase I site investigation is recommended. Contaminants encountered during this initial phase can then be more accurately characterized in nature and extent by field screening (i.e. immunoassay field testing) in conjunction with cone penetrometer sampling rigs. If contaminants are determined to be present in such amounts as to pose a potential environmental threat, additional leachate protection features such as a slurry wall should be considered. Investigation costs are shown in Table 1.

Final disposition is anticipated to be relocation of approximately 5% of soil to the McCommas Bluff, Avalon, or Itasca Landfills. This soil would be mildly contaminated and disposed as Class I Non-hazardous waste. Disposal costs are shown in Table 1. All remaining soils are clean and can be used as fill, placed in spoil piles on-site or hauled off-site.

Area 13 - Linfield Landfill

Historically high analytical results from the five City of Dallas perimeter wells are shown in Table 3 of Section J-2, and Section J-5, Pages 31-34. Generally, the data has shown a declining trend in concentrations in the past 15 years with inorganics now at or below detection levels. All constituents have been at non-hazardous concentrations.

Analytical results of the 1995 Corps site investigation (Freese and Nichols, Inc.) are shown in Section J-2, Tables 1 and 2, and Section J-5, Pages 31-34. Elevated inorganic concentrations were detected in the groundwater samples with lead levels of 5.8 and 6.5 ppm, respectively. This data is potentially significant in that these levels appear to exceed the TCLP concentration criteria for classification of hazardous waste (lead $\geq$ 5.0 mg/L). With the exception of two SVOCs which are primarily associated with laboratory contamination, the only other organics were slight elevated levels of phenanthrene and chlorobenzene, both at non-hazardous concentrations. However, these groundwater samples were not analyzed using the TCLP test method 1311

required to by 40 CRF 261.24 to meet the definition of hazardous waste due to toxicity; therefore, the groundwater results from this investigation cannot be used for making a hazardous waste determination. Analytical results of soil indicated no detectable concentrations of organics and only slightly elevated inorganic concentrations of arsenic, barium, cadmium and chromium, none at potentially hazardous concentrations.

The 1998 site investigation (Tetra Tech NUS, Inc.) was designed to fully characterize the nature and extent of landfilled materials and groundwater contamination within the limits of the proposed swale alignment. A total of 28 borings were installed on a 200-foot grid (i.e., approximately one boring per acre) following TNRCC recommendations contained in Section J-5 for visually classifying the landfilled materials. Boring locations are shown on Figure 1 of Section J-6. Subsurface profiles for the site are shown on Figures 2 through 4 of Section J-6. All landfilled materials visually classified as municipal solid waste. Two soil samples were collected from within the landfilled materials based on elevated volatile organic screening levels. These samples were analyzed for the TCLP parameters listed in 40 CFR 261.24. Results are summarized on Table 1 of Section J-6. Chlorobenzene and methyl ethyl ketone were the only organic constituents detected, and they were at non-hazardous concentrations. Lead was the only metal detected at a potentially hazardous concentration of 119 mg/Kg in one soil sample; TCLP analysis of this sample, however, showed the concentration to be non-hazardous at 0.040 mg/L. Groundwater samples were collected from within the landfilled materials in 14 of the borings and were analyzed for the full suite of TCLP parameters listed in 40 CFR 261.24 using the TCLP test method 1311. They were also analyzed for corrosivity in accordance with 40 CRF 261.22. Results are summarized on Table 2 of Section J-6. One groundwater sample contained trichloroethylene at 0.0021 mg/L. Seven groundwater samples contained benzene at a maximum concentration of 0.052 mg/L. Thirteen groundwater samples contained chlorobenzene at a maximum concentration of 0.079 mg/L. No other organic constituents were detected. All detected organic constituents were at non-hazardous concentrations. Metals detected were arsenic, barium, lead, selenium, and silver. All metals were at non-hazardous concentrations. One groundwater sample was collected from beneath the landfill and was analyzed for the full suite of TCLP parameters using the TCLP test method 1311. Barium was the only constituent detected, and it was at a non-hazardous concentration. The pH of all 15 groundwater samples was within the non-hazardous range.

Combined 1995 and 1998 site investigation results coupled with existing information on waste types within the landfill allow for the following assumptions regarding waste classification and disposal: 1) landfilled wastes and associated soil classify as non-hazardous municipal solid waste and can be disposed of as non-hazardous municipal solid waste; and 2) the groundwater within and beyond the landfill limits is only moderately contaminated and can be disposed of as non-hazardous municipal solid waste. Disposal costs are shown in Table 1.

During construction a number of measures are proposed to prevent a release and to limit the amount of contaminated soil, groundwater, and solid waste that must be handled. Excavation will be limited to that required to construct the swale plus the protection measures required to protect the wastes left in place after construction is complete. A slurry wall is proposed to isolate the portion of the landfill that will not be disturbed, which also contains the liquid waste pits, from the construction area. This should limit the amount of groundwater occurring as leachate that will have to be handled and minimize the risk of a release and exposure during construction. The contractor will be required to implement runoff controls, construct sumps to collect rain falling inside the excavation, provide protection to prevent floodwater from entering the excavation, provide daily cover over exposed solid wastes at the end of the day, etc. These requirements, and many more, are outlined in the May 30, 1995, letter from TNRCC contained in Section J-5. The goal of all of these measures is to prevent a release during construction. When construction of the swale is completed a cap will be placed over any remaining solid wastes and slope protection, such as concrete lining the channel or placing gabbions, will be put in place to protect environmental receptors throughout the life of the project.

Area 14 - Open Dump Near Linfield

Analytical results of the 1995 Corps site investigation are shown in Section J-2, Tables 1 and 2, and

Section J-5, Pages 35-36. Elevated inorganic concentrations in groundwater were noted for all RCRA metals. The field sample, IA-4, contained five metals that exceeded the SWDA MCLs: arsenic (380 ppb), cadmium (118 ppb), chromium (210 ppb), lead (700 ppb), mercury (60 ppb), selenium (290 ppb), and silver (370 ppb). No organic concentrations were detected in groundwater at this site.

Analytical data of soil indicated slightly elevated concentrations for all RCRA metals except selenium. Elevated SVOC concentrations of pyrene (6.4 ppm), phenanthrene (4.8 ppm), fluoranthene (7.2 ppm), and chrysene (4.6 ppm) were noted but were only slightly above detection limits (4 ppm) and not high enough to be considered significant.

Although Area 14 is located near the proposed concrete lined portion of the swale, it will not be affected by project construction. Thus, no investigation or disposal costs have been assigned to Area 14.

OTHER INVESTIGATION AREAS - SWALE, SUMPS, AND LEVEES

To eliminate the potential of encountering any unforseen HTRW upon excavation of the lower/upper overbank swale, additional sump areas, and levee inspection trenches in areas other than those addressed above, field screening is recommended. Test kits are available for a wide variety of parameters, are inexpensive, and can be used virtually anywhere. Special emphasis should be placed on screening gravel pits, drainage ditches, and other topographic features where contaminants could accumulate over time. Another alternative that can be utilized in areas with suitable access is cone penetrometer sampling with the Site Characterization and Analysis Penetrometer System (SCAPS). This fairly recent innovation in in-situ investigative technology allows the sampling crew to perform quick analysis of organics, soil stratigraphy, and resistivity. Since this truck mounted unit is fully capable of soil and groundwater sampling, it can be used in conjunction with immunoassay testing to perform analysis on other parameters. Investigation costs are shown in Table 1.

COST ESTIMATE SUMMARY

General

The cost estimate presented in Table 1 is the synthesis of several cost estimates prepared either in-house by the Fort Worth District or by one of several A-E firms that have conducted investigations at the proposed Dallas Floodway Extension. The A-E cost estimates are contained in the original reports and are typically "order of magnitude" estimates rather than final, detailed estimates. As the project has matured and potential HTRW sites have been identified, the features and alignment have been changed to avoid problem areas. Thus, some of the costs identified in the A-E cost estimates have been eliminated. Consequently the cost estimates have been modified, based primarily on judgement and experience, to reflect the current project.

Area specific assumptions for the cost estimate summary are noted in the SUMMARY OF ANALYTICAL RESULTS section. Some more specific cost issues relating to the summary are discussed below.

The total amount of excavation in each of the areas suspected of having contamination was determined and is presented in the table. Using this, an estimate was made of how much of the total excavation would be contaminated and require disposal as Class 1 non-hazardous industrial waste, Class 2 non-hazardous industrial waste, or non-hazardous municipal solid waste. The percentage and resulting cubic yards of contaminated wastes are presented in Table 1. A unit price of $40/CY for Class 1 and Class 2 wastes and $25/CY for municipal solid waste was used to determine transportation and disposal costs for each site. A unit price of $0.20/gal was used for disposal of the groundwater associated with Linfield Landfill. All of these unit prices are based on discussions with transportation companies, landfill operators and treatment companies.

The investigation costs are based on the recommendations contained in the June 1997 Geo-Marine report, but have been modified by district personnel. Investigation costs shown as COMPLETED TO DATE reflect costs incurred for ongoing investigations from April through September 1998.

The possibility of encountering groundwater exists in many of the project areas. It is anticipated that groundwater will not be impacted to the point that treatment will be needed. The water will be removed and disposed of, as needed.

COORDINATION

Coordination with the SWD HTRW Design Center at Tulsa District, the Environmental Protection Agency Region VI (EPA) and the TNRCC has been on-going throughout the development of the DFE. Most of the contacts with regulators have been informal and were made as part of the regulatory records research. Following the decision to route the swale through Linfield landfill several phone calls were made between the Fort Worth District and the TNRCC to determine what TNRCC's requirements would be to accomplish this. A letter was received on 30 May 1995 outlining their requirements for construction through Linfield landfill. A copy is included in Section J-5.

A peer review of the entire DFE GRR was conducted by the Tulsa District in August 1997. Appendix J HTRW was reviewed by the Planning Division and the HTRW Design Center. Their comments were incorporated into the draft GRR submitted to HQUSACE in the fall of 1997.

Since September 1997, EPA and TNRCC have been consulted concerning the funding, cleanup options and liability releases available through the EPA Brownfields Program and the TNRCC Voluntary Cleanup Program. In January 1998 additional phone conversations have been held with EPA and TNRCC to confirm the regulatory status of the Linfield Landfill in light of HQUSACE comments on the draft GRR. Both agencies were clear that regulation of any activities in Linfield Landfill are the responsibility of the TNRCC. A memorandum to files documenting both of these conversations was prepared and is included in Section J-5.

On 5 & 6 February 1998, an engineer from Tulsa District, with extensive experience in landfill closure and design, reviewed the DFE GRR Appendix J to assess the HTRW investigations conducted to date and the proposed construction techniques and waste handling procedures for construction of the swale through the Linfield landfill. The results of this review are included in Section J-5.

On 11 February 1998, a meeting was held with the TNRCC Municipal Solid Waste Division to discuss removal of Linfield landfill and TNRCC recommendations on how to accomplish this in light of currently available data. This meeting was attended by representatives from the Fort Worth District, the Southwestern Division and the City of Dallas. Several TNRCC representatives were present including the person who signed the 30 May 1995 letter and a waste classifications specialist who had recently come from the RCRA enforcement portion of TNRCC. The following resulted from this meeting:

1. TNRCC is the responsible regulatory agency to work with.
2. The 30 May 1995 guidance was still accurate.
3. Handling the wastes as municipal solid waste is reasonable pending further characterization of the landfill materials.
4. Removal and separate treatment of the leachate is reasonable.
5. TNRCC provided additional suggestions on how to investigate the landfill, dispose of the wastes and properly close the landfill wastes that will remain after completion of construction.

The results of this meeting are documented in a trip report which is enclosed in Section J-5. This trip report was forwarded to TNRCC for their information. A response from TNRCC was requested to ensure that the minutes were accurate and that the Fort Worth District understood the guidance they had provided. A copy of this letter, dated 6 March 1998, is enclosed in Section J-5. A letter, dated 9 March 1998, was received

from the City of Dallas, in which they reiterated their understanding that "Any material encountered with the Dallas Floodway Extension that are classified as hazardous substance as defined under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) would be solely the City's responsibility." See Section J-5 for a copy of this letter.

Further coordination between the Fort Worth District and the Municipal Solid Waste Division of the TNRCC took place during development of the 1998 site investigation plan for Linfield Landfill. This coordination is documented in a memorandum dated 22 June 1998, which is enclosed in Section J-5 and was also forwarded to the TNRCC on 6 July 1998 for their information. A revision to this original investigative approach was similarly coordinated with the TNRCC and is documented in a letter sent on 12 August 1998. A copy of this letter is also enclosed in Section J-5. The TNRCC verbally agreed with the results and conclusions of the September 1998 Linfield Landfill site investigation on 15 December 1998 upon review of a faxed summary of the investigation results.

Based on currently available data, all of the wastes that will be removed during construction of the Dallas Floodway Extension are non-hazardous wastes, with all costs being cost sharable.

CONCLUSIONS

As expected, the Dallas Floodway Extension has a number of potential HTRW concerns associated with it. Most of the high risk sites have been identified based on review of historic records, interviews with local officials, site visits and searching federal and state environmental agency files. Some, but not all, of these sites have been investigated to determine if a release has occurred to the environment. Where investigations were not conducted, this was due to the current landowner not granting right of entry. Where problems have been identified, such as the landfills at Oxy Chemical (Area 2) and Dallas Public Schools (Area 3), project features have been eliminated or relocated to avoid or minimize these problems.

RECOMMENDATIONS

The District will continue developing plans for more site-specific investigations using TNRCC recommendations for site characterization and waste classification. As we schedule investigations, our Real Estate Division is pursuing the necessary rights-of-entry. Results of these investigations will be presented in a Design Documentation Report prior to preparation of plans and specifications for the project.

The goal of these investigations will be to determine if contamination is present and, if present, to identify the degree, vertical extent, and areal extent of the contamination. If results reveal HTRW contamination, th first course of action will be to seek avoidance of the identified site. If avoidance is not achievable, then the City of Dallas is aware of their sole financial resposibility for cleanup of identified HTRW materials.

Table 1

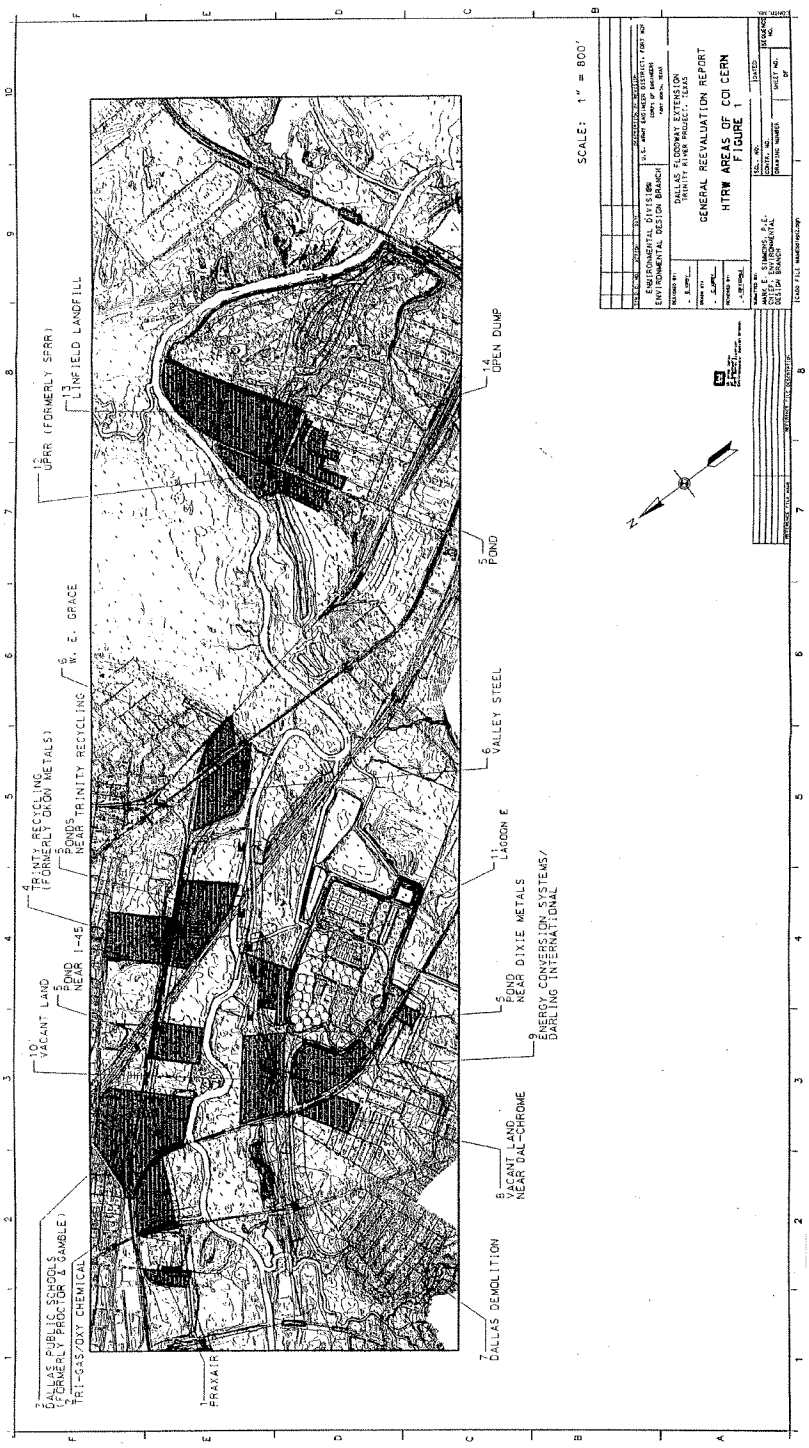
Non-Hazardous Wastes Requiring Special Handling and Disposal

		SOLIDS					LIQUIDS			
Area	Name	Total Excavated Material CY	Contaminated Material %	Contaminated Material CY	Transportation & Disposal Unit Cost $/CY	Transportation & Disposal Cost $	Liquids Gal	Liquids Unit Cost $/Gal	Liquids Total Cost $	Investigations $
1	Praxair	65,658	10	6,566	40	262,632				102,600
2	Tri-Gas/Oxy Chem	59,740	30	17,922	40	716,880				115,800
3	Dallas Public Schools	75,023	10	7,502	40	300,092				132,300
4	Trinity Recycling	-	0	-	40	-				-
5	Various Ponds/Gravel Pits									
	Linfield Landfill Pond	-	0	-	40	-				10,000
	Pond near Dixie	-	0	-	40	-				10,000
	Pond near Trinity	20,000	50	10,000	40	400,000				141,100
	Pond near I-45	10,000	50	5,000	40	200,000				94,000
6	Valley Steel/W. E. Grace	12,407	5	620	40	24,814				32,000
7	Dallas Demolition	106,667	10	10,667	40	426,668				168,000
8	Vacant land @ Dal Chrome	-	0	-	40	-				-
9	En. Conv. Sys. & Darling Int.	5,926	50	2,963	40	118,520				50,000
10	Vacant land Near ECS & DI	184,847	10	18,485	40	739,388				167,500
11	Lagoon E	55,000	33	18,150	40	726,000				-
12	UPRR Landfill	127,138	5	6,357	40	254,276				168,000
13	Linfield Landfill	282,168	100	282,168	25	7,054,200	5,400,000	0.20	1,080,000	189,000
14	Open Dump Near Linfield	-	0	-	40	-				-
15	Priority 2 & 3 Sites	1,846,296	5	92,315	40	3,692,592				259,600
	Subtotal					14,916,062			1,080,000	1,639,900
	Contingency @ 20%					2,983,212			216,000	327,980
	Total					17,899,274			1,296,000	1,967,880

Investigation Subtotal	1,639,900
Contingency @ 20%	327,980
Investigation Total	1,967,880
Completed to Date	406,000
To be Completed	1,561,880

Summary

Cost Shared Waste Disposal	$ 19,195,274
Investigation Costs	$ 1,967,880
Total Shared Amount	$ 21,163,154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GENERAL REEVALUATION REPORT
HTRW AREAS OF CONCERN
FIGURE 1
DALLAS FLOODWAY EXTENSION
TRINITY RIVER PROJECT, TEXAS
ENVIRONMENTAL DESIGN BRANCH
1 FRAXAIR
2 TRI-GAS/OXY CHEMICAL
3 DALLAS PUBLIC SCHOOLS (FORMERLY PROCTOR & GAMBLE)
4 TRINITY RECYCLING (FORMERLY DIXON METALS)
5 PONDS NEAR TRINITY RECYCLING
5 POND NEAR I-45
6 W. E. GRACE
6 VALLEY STEEL
7 DALLAS DEMOLITION
8 VACANT LAND NEAR DAL-CHROME
9 ENERGY CONVERSION SYSTEMS/ DARLING INTERNATIONAL
10 VACANT LAND
11 LAGOON E
5 POND NEAR DIXIE METALS
12 JPRR (FORMERLY SPRR)
13 LINFIELD LANDFILL
14 OPEN DUMP
5 POND

SECTION J-1

(1005)

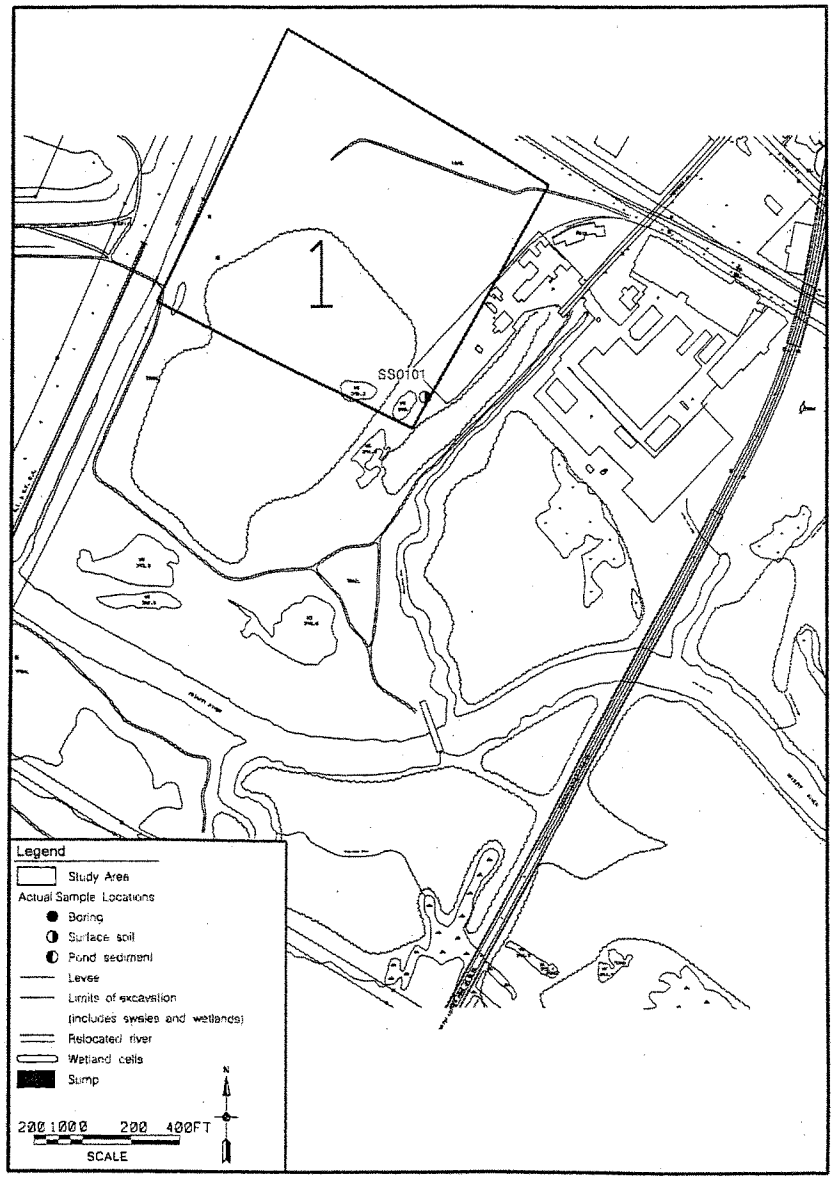

Figure 1. Area 1 Site Plan with Actual Sampling Location and Construction Elements.

f:/ed/kirby_c/proj/civil/dfe/ch4/9 Jul. 10, 1997 13:55:33

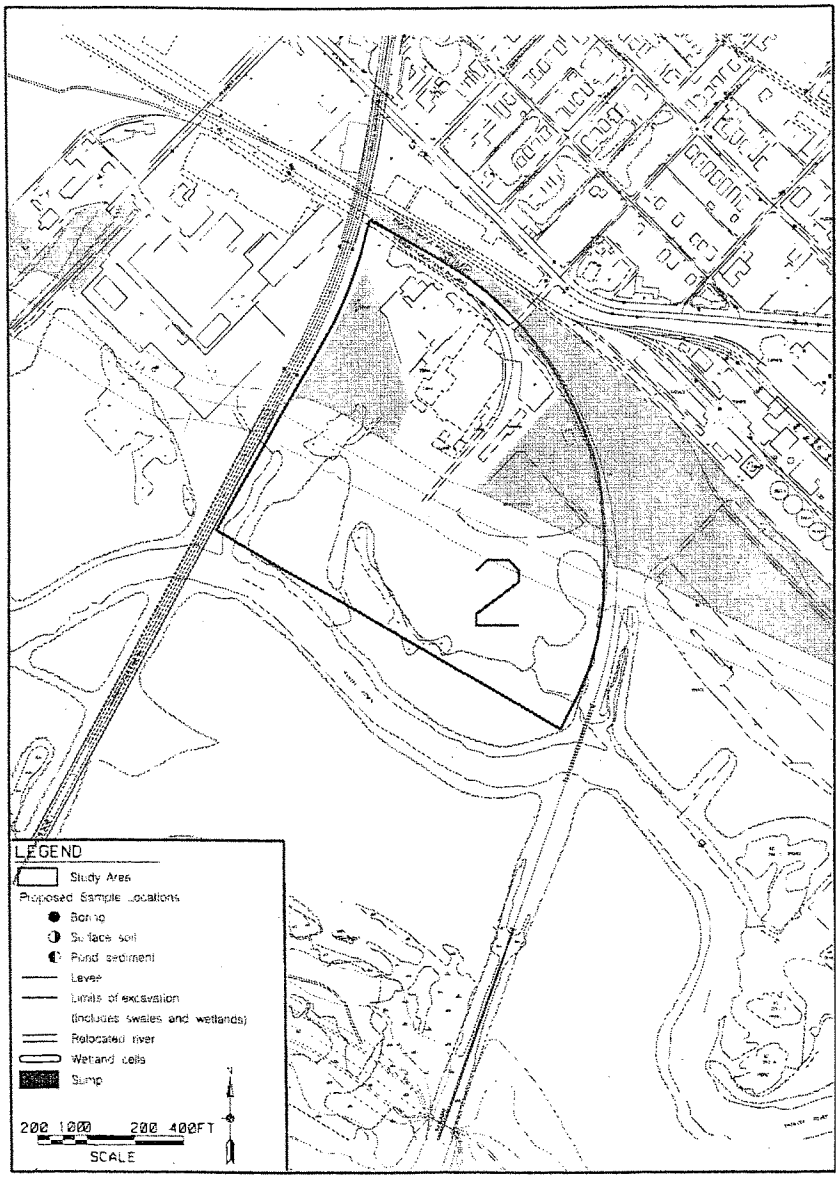

Figure 2. Area 2 Site Plan with Proposed Sampling Locations and Construction Elements.

f:/ed/kirby_c/proj/civil/dfe/ch2/9 Jul. 11, 1997 10:06:03

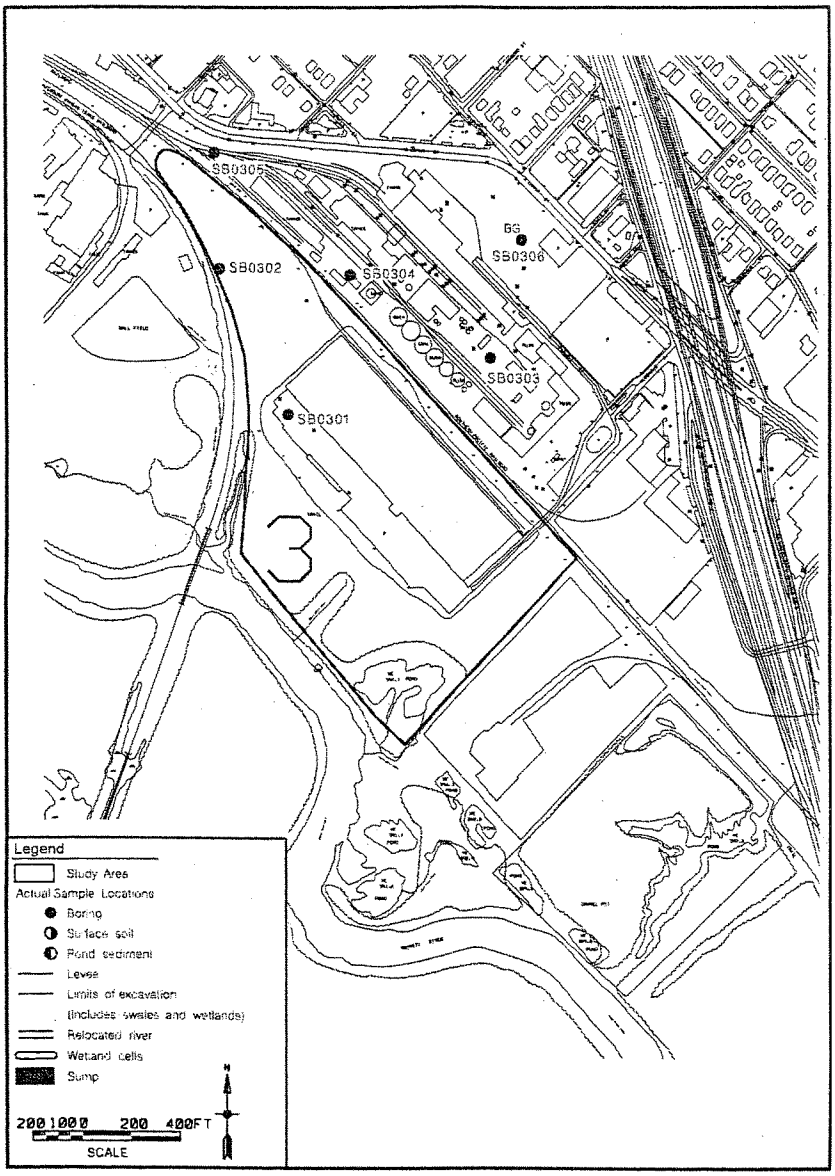

Figure 3. Area 3 Site Plan with Actual Sampling Location and Construction Elements.

f:/ed/kirbv_c/proj/civil/dfe/ch4/9 Jul. 10, 1997 14:57:08

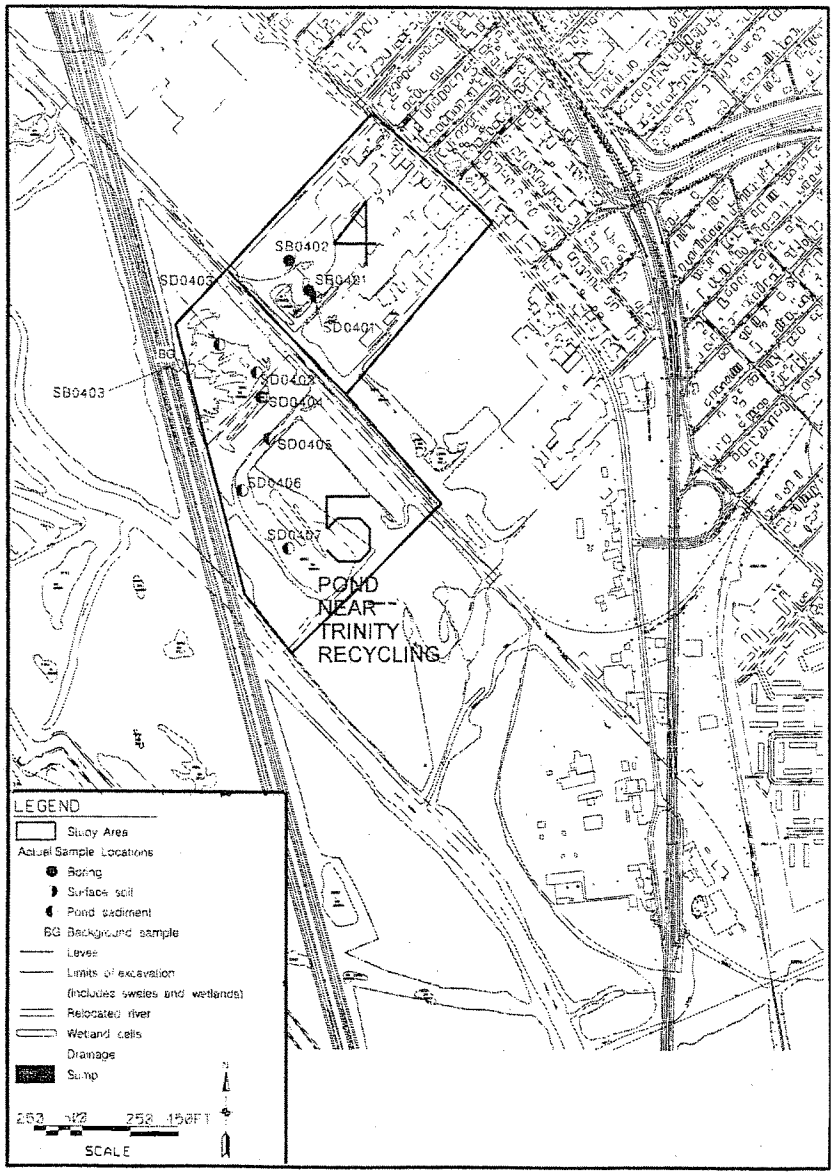

Figure 4. Aeras 4 and 5 Site Plan with Actual Sampling Locations and Construction Elements.

f:/ed/kirby_c/proj/civil/dfe/ch4/9 Jul. 11, 1997 10:10:52

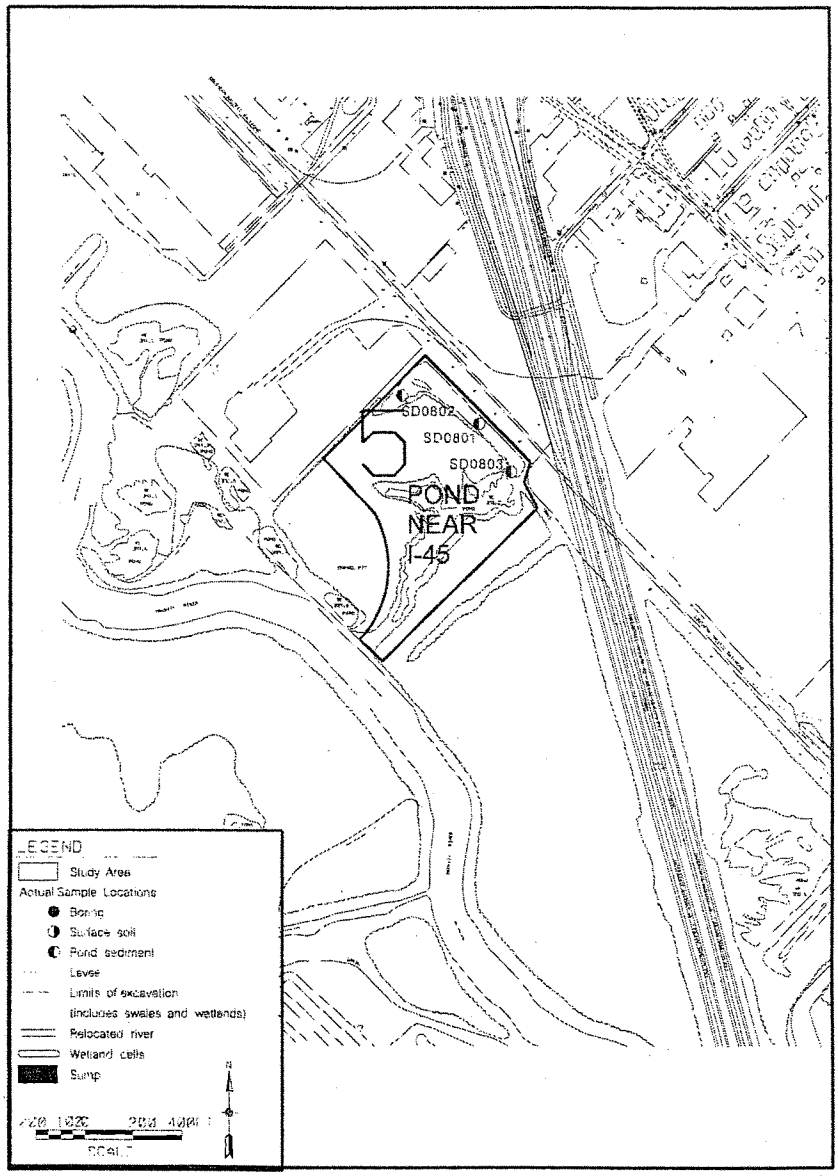

Figure 5. Area 5 Site Plan with Actual Sampling Locations and Construction Elements.

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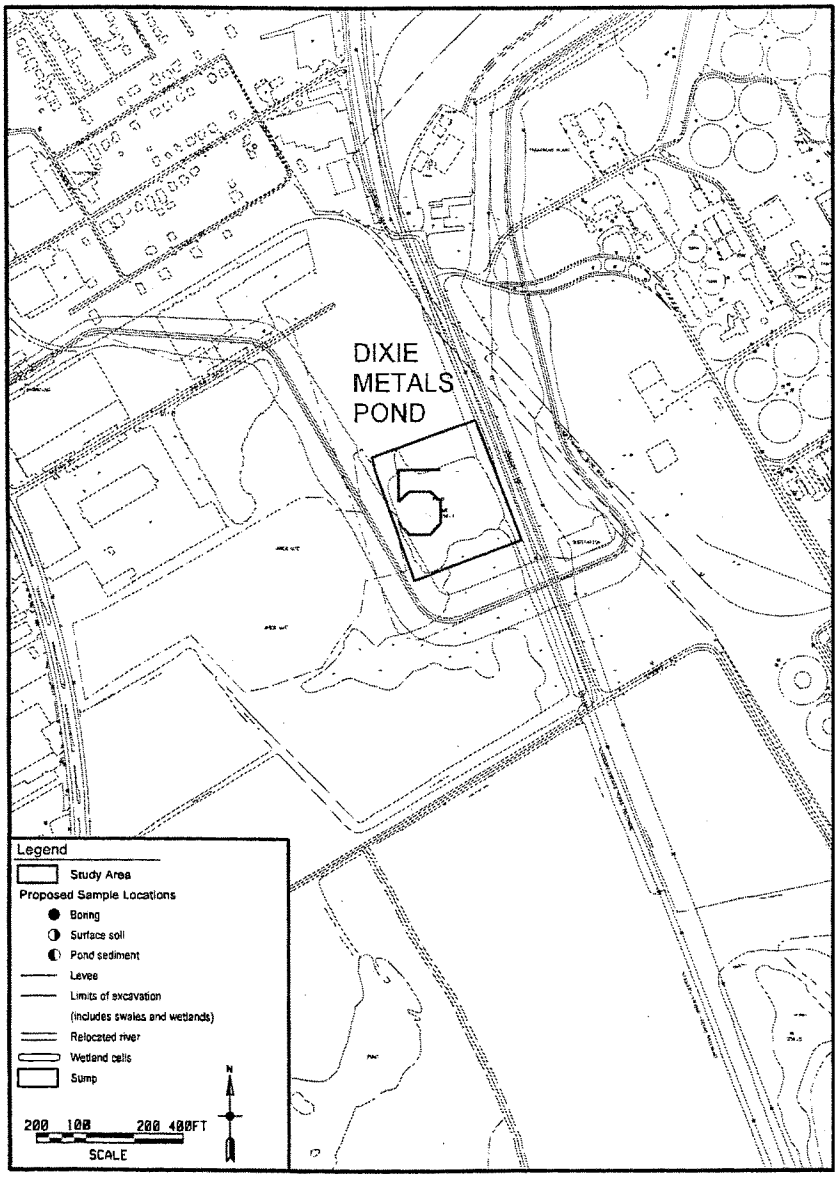

Figure 6. Area 5 Site Plan with Proposed Sampling Location and Construction Elements.

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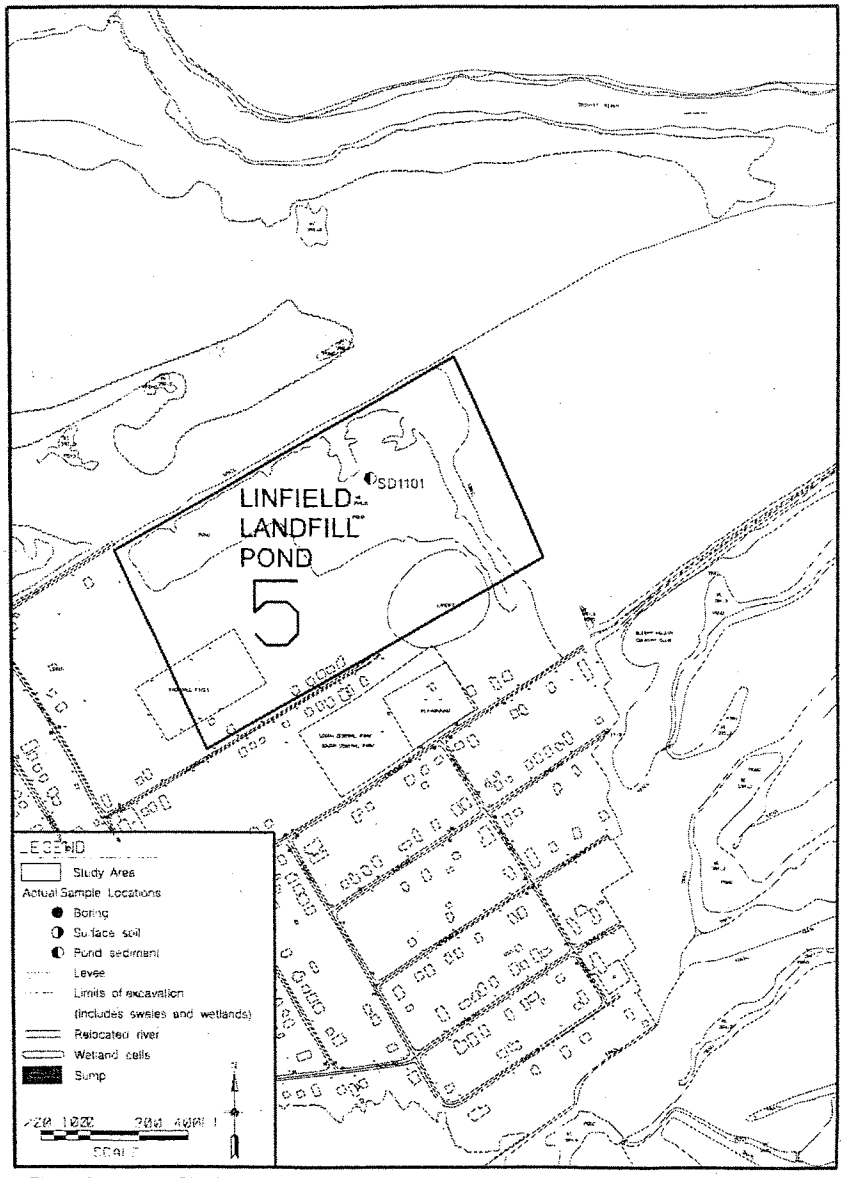

Figure 7. Area 5 Site Plan with Actual Sampling Location and Construction Elements.

f:/ed/kirby_c/proj/civil/dfe/ch4/9 Jul. 10, 1997 16:06:08

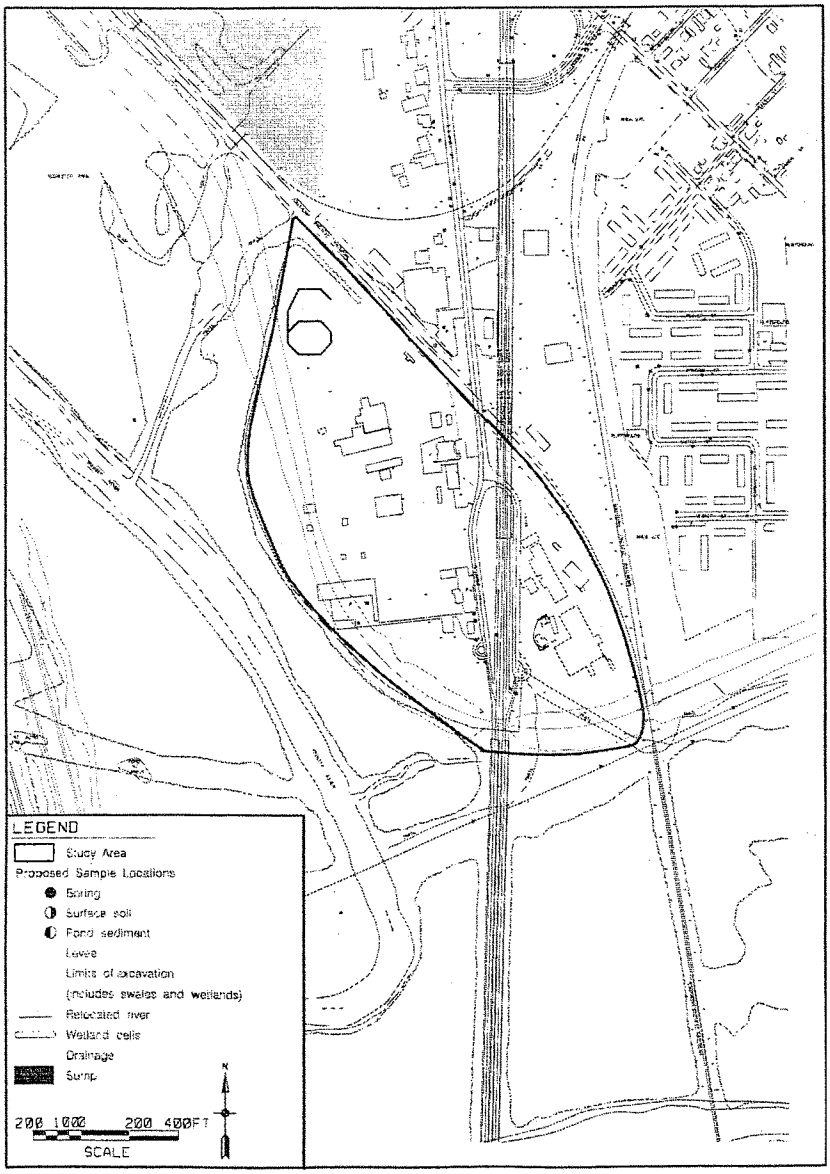

Figure 8. Area 6 Site Plan with Proposed Sampling Location and Construction Elements.

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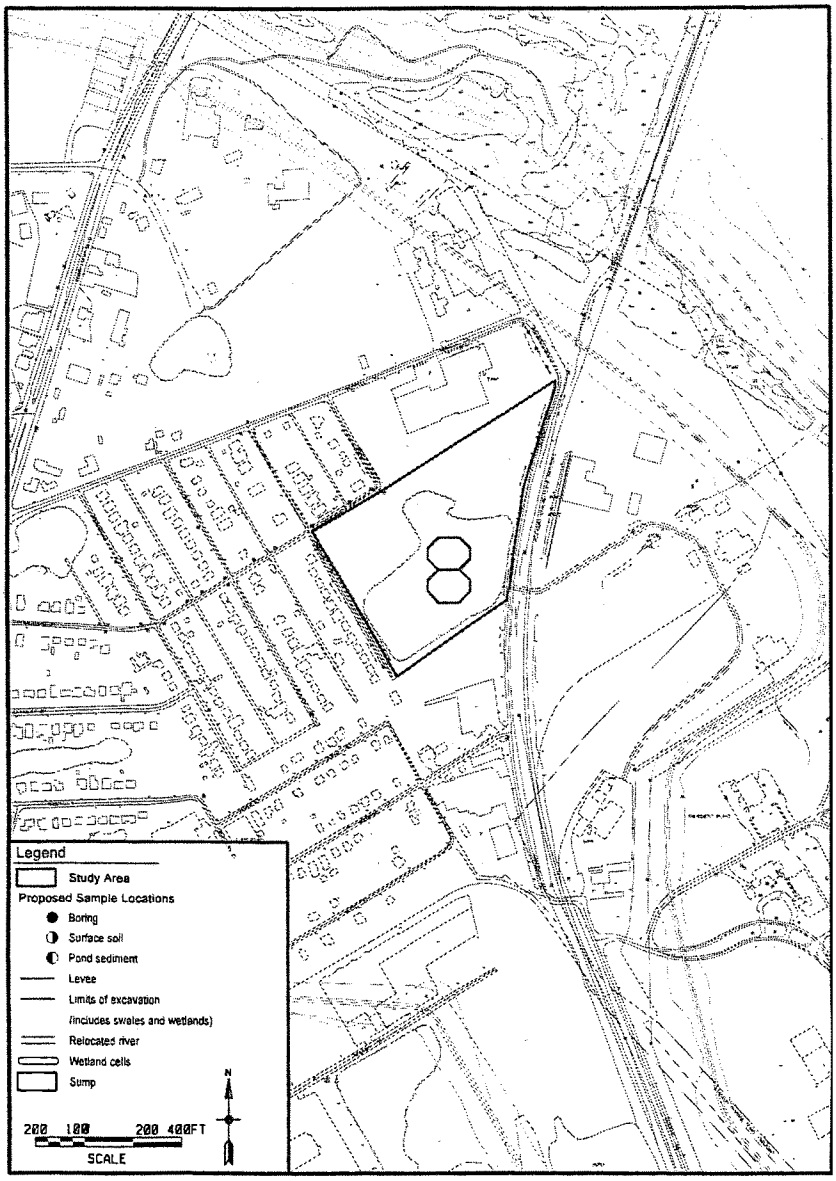

Figure 9. Area 8 Site Plan with Proposed Sampling Locations and Construction Elements.

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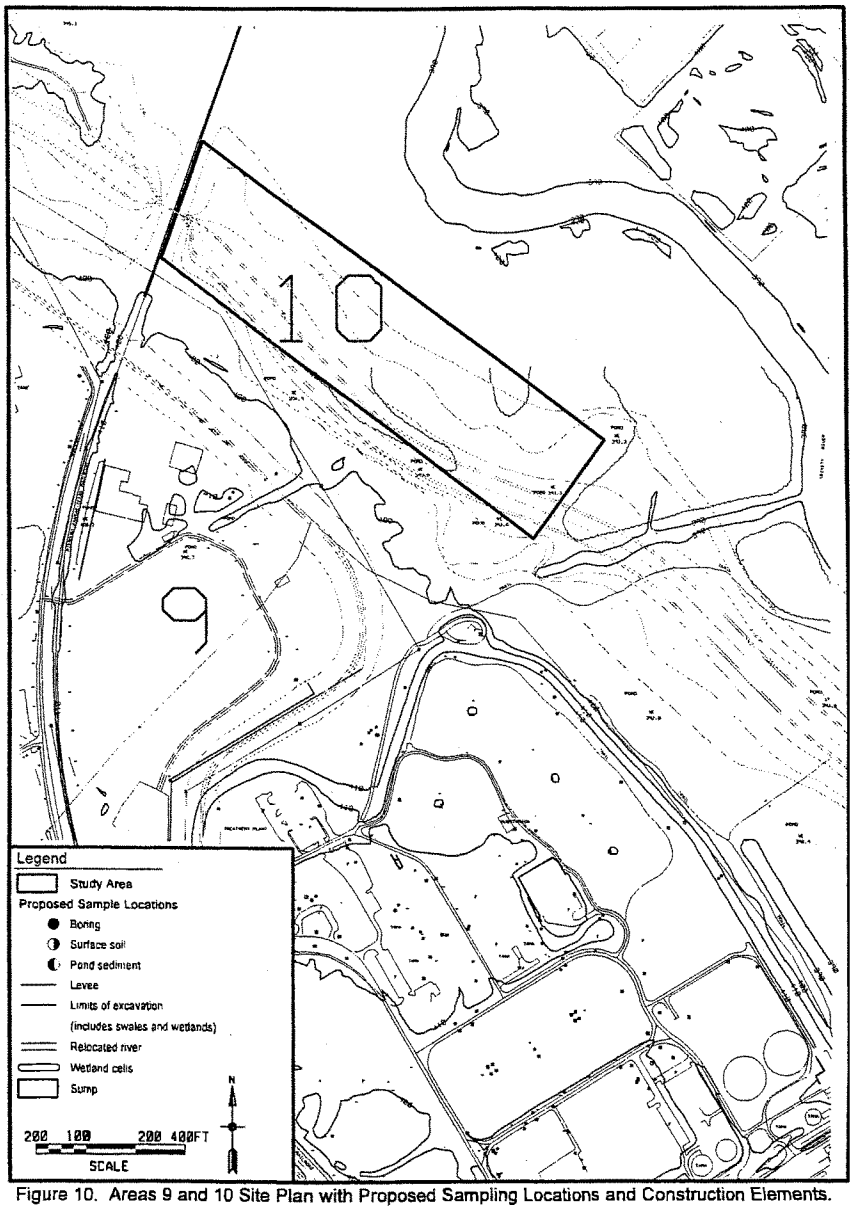

Figure 10. Areas 9 and 10 Site Plan with Proposed Sampling Locations and Construction Elements.

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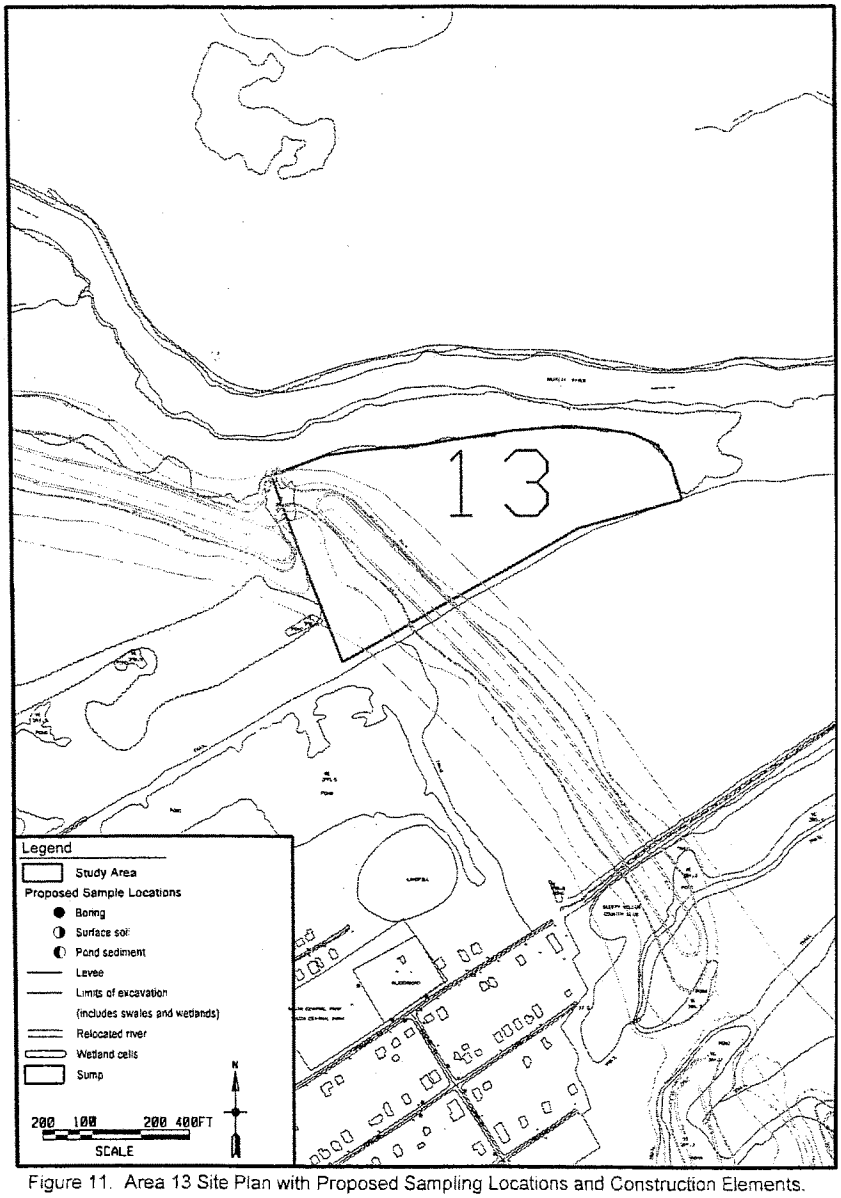

Figure 11. Area 13 Site Plan with Proposed Sampling Locations and Construction Elements.

f:/ed/kirby_c/proj/civil/dfe/ch2/9 Jul. 10, 1997 13:27:52

Table 9

Summary of Analytical Results
Area 1

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SS0101				
Arsenic	7.8		0.76	mg/kg
Barium	110		3.0	mg/kg
Benzo(a)anthracene	89	J	500	ug/kg
Benzo(a)pyrene	100	J	500	ug/kg
Benzo(b)fluoranthene	270	J	500	ug/kg
Benzo(ghi)perylene	83	J	500	ug/kg
bis(2-Ethylhexyl)phthalate	200	J	500	ug/kg
Chromium (Total)	21		1.5	mg/kg
Chrysene	120	J	500	ug/kg
Fluoranthene	150	J	500	ug/kg
Indeno(1,2,3-cd)pyrene	72	J	500	ug/kg
Lead	38		0.76	mg/kg
Mercury	0.03		0.03	mg/kg
Phenanthrene	73	J	500	ug/kg
Pyrene	200	J	500	ug/kg

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

Table 10

Summary of Analytical Results
Area 3

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SB030100				
Arsenic	3.9		0.59	mg/kg
Barium	33		2.4	mg/kg
Chromium (Total)	4.2		1.2	mg/kg
Lead	6		0.59	mg/kg
Sample Number: SB030104				
Acetone	380		40	ug/kg
Arsenic	3.6		0.6	mg/kg
Barium	55		2.4	mg/kg
Chromium (Total)	5.2		1.2	mg/kg
Lead	7		0.6	mg/kg
Mercury	0.048		0.024	mg/kg
Sample Number: GW0301				
Acetone	53		10	ug/l
Barium	74		20	ug/l
Selenium	11		5	ug/l
1,2-Dichlorothene	1.2	J	5	ug/l

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

Table 10 (cont'd)

Summary of Analytical Results
Area 3

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SB030202				
Arsenic	5.7		0.57	mg/kg
Barium	86		2.3	mg/kg
Chromium (Total)	20		1.1	mg/kg
Lead	96		0.57	mg/kg
Mercury	0.18		0.023	mg/kg
Selenium	1.6		0.57	mg/kg
Sample Number: SB030211				
Acetone	66		12	ug/kg
Arsenic	5.3		0.58	mg/kg
Barium	49		2.3	mg/kg
Benzo(b)fluoranthene	180	J	380	ug/kg
Chromium (Total)	13		1.2	mg/kg
Fluoranthene	49	J	380	ug/kg
Lead	7.1		0.58	mg/kg
Sample Number: GW0302				
Arsenic	56		5	ug/l
Barium	740		20	ug/l
Chromium (Total)	110		10	ug/l
Lead	300		50	ug/l
Methylene chloride	1.4	J	5	ug/l
Selenium	14		5	ug/l

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

Table 10 (cont'd)

Summary of Analytical Results
Area 3

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SB030304				
Arsenic	2.4		0.62	mg/kg
Barium	95		2.5	mg/kg
Chromium (Total)	4.2		1.2	mg/kg
Lead	6.8		0.62	mg/kg
Sample Number: SB030310				
Acetone	13		12	ug/kg
Arsenic	5		0.6	mg/kg
Barium	150		2.4	mg/kg
Chromium (Total)	6		1.2	mg/kg
Lead	9.1		0.6	mg/kg
Sample Number: GW0303				
Acetone	19	B	10	ug/l
Barium	47		20	ug/l

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

Table 10 (cont'd)

Summary of Analytical Results
Area 3

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SB030402				
Arsenic	7.4		0.55	mg/kg
Barium	54		2.2	mg/kg
Chromium (Total)	16		1.1	mg/kg
Lead	78		0.55	mg/kg
Mercury	0.099		0.022	mg/kg
Sample Number: SB030416				
Arsenic	2.7		0.59	mg/kg
Barium	30		2.4	mg/kg
Benzo(b)fluoranthene	150	J	390	mg/kg
Chromium (Total)	4		1.2	mg/kg
Lead	7.2		0.59	mg/kg
Sample Number: GW0304				
1,2-Dichlorobenzene	24		10	ug/l
2-Chlorophenol	2.4	J	10	ug/l
Arsenic	26		5	ug/l
Barium	21		20	ug/l
Acetone	8.9	J,B	10	ug/l
1,2-Dichloroethene	1.6	J	5	ug/l

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

Table 10 (cont'd)

Summary of Analytical Results
Area 3

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SB030502				
Arsenic	4.2		0.57	mg/kg
Barium	59		2.3	mg/kg
Chromium (Total)	12		1.1	mg/kg
Lead	7.1		0.57	mg/kg
Sample Number: SB030512				
Acetone	5.2	J	11	ug/kg
Arsenic	9.2		0.57	mg/kg
Barium	13		2.3	mg/kg
Chromium (Total)	5.7		1.1	mg/kg
Lead	3.1		0.57	mg/kg
Methylene chloride	1.2	J	5.7	ug/kg
Sample Number: GW0305				
Barium	52		20	ug/l
Lead	40		5	ug/l
Selenium	6.5		5	ug/l
Trichloroethene	1.7	J	5	ug/l

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

Table 10 (cont'd)

Summary of Analytical Results
Area 3

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SB030602				
Arsenic	4.8		0.57	mg/kg
Barium	30		2.3	mg/kg
Chromium (Total)	14		1.1	mg/kg
Lead	7.3		0.57	mg/kg
Selenium	1.3		0.57	mg/kg
Sample Number: SB030612				
Acetone	12		12	ug/kg
Arsenic	34		0.58	mg/kg
Barium	8		2.3	mg/kg
Chromium (Total)	10		1.2	mg/kg
Lead	2.8		0.58	mg/kg
Sample Number: GW0306				
2-Chlorophenol	3.5	J	10	ug/l
Barium	36		20	ug/l
Selenium	6		5	ug/l

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

Table 11

Summary of Analytical Results
Area 4

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SB040101				
Arsenic	3.2		0.58	mg/kg
Barium	34		2.3	mg/kg
Chromium (Total)	7.6		1.2	mg/kg
Lead	21		0.58	mg/kg
Sample Number: SB040116				
Acetone	13		12	ug/kg
Arsenic	4.6		0.58	mg/kg
Barium	62		2.3	mg/kg
Cadmium	17		0.58	mg/kg
Chlorobenzene	1.4	J	5.8	ug/kg
Chromium (Total)	27		1.2	mg/kg
Lead	560		0.58	mg/kg
Mercury	1.5		0.023	mg/kg
Silver	3.6		1.2	mg/kg
Sample Number: GW0401				
1,2-Dichlorobenzene	24		10	ug/l
Arsenic	7.9		5	ug/l
Barium	270		20	ug/l
Benzene	4.7	J	5	ug/l
Chlorobenzene	150		5	ug/l

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

Table 11 (cont'd)

Summary of Analytical Results
Area 4

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SB040202				
Arsenic	16		0.58	mg/kg
Barium	160		2.3	mg/kg
Cadmium	15		0.58	mg/kg
Chromium (Total)	75		1.2	mg/kg
Lead	2000		0.58	mg/kg
Silver	4		1.2	mg/kg
Sample Number: SB040212				
Acetone	72		12	ug/kg
Arsenic	3.3		0.58	mg/kg
Barium	23		2.3	mg/kg
Chromium (Total)	12		1.2	mg/kg
Lead	210		0.58	mg/kg
Methylene chloride	5.9		5.8	ug/kg
Sample Number: GW0402				
Arsenic	10		5	ug/l
Barium	200		20	ug/l
Chromium (Total)	43		10	ug/l
Lead	2300		5	ug/l

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

Table 11 (cont'd)

Summary of Analytical Results
Area 4

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SB040302				
Arsenic	5.1		0.58	mg/kg
Barium	76		2.3	mg/kg
Chromium (Total)	10		1.2	mg/kg
Lead	20		0.58	mg/kg
Sample Number: SB040309				
Acetone	80		12	ug/kg
Arsenic	4.8		0.62	mg/kg
Barium	66		2.5	mg/kg
Chromium (Total)	7.6		1.2	mg/kg
Cyanide	0.91		0.62	mg/kg
Lead	11		0.62	mg/kg
Sample Number: GW0403				
Barium	210		20	ug/l

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

Table 11 (cont'd)

Summary of Analytical Results
Area 4-5

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SD0401				
Acetone	36		17	ug/kg
Toluene	8.7		8.3	ug/kg
Phenanthrene	150	J	550	ug/kg
Fluoranthene	560		550	ug/kg
Pyrene	870		550	ug/kg
Benzo(a)anthracene	930		550	ug/kg
Bis(2-Ethylhexyl)phthalate	760		550	ug/kg
Chrysene	1000		550	ug/kg
Benzo(b)fluoranthene	2900		550	ug/kg
Benzo(a)pyrene	1400		550	ug/kg
Indo(1,2,3-cd)pyrene	1000		550	ug/kg
Dibenzo(a,h)anthracene	400	J	550	ug/kg
Benzo(ghi)perylene	1100		550	ug/kg
Silver	2.3		1.7	mg/kg
Arsenic	3.9		0.83	mg/kg
Barium	71		3.3	mg/kg
Cadmium	6.6		0.83	mg/kg
Chromium (Total)	24		1.7	mg/kg
Lead	310		0.83	mg/kg
Mercury	0.27		0.033	mg/kg
Sample Number: SD0402				
2-Butanone	47		28	ug/kg
Arsenic	9.5		1.4	mg/kg
Barium	120		5.7	mg/kg
bis(2-Ethylhexyl)phthalate	110	J	940	ug/kg
Carbon disulfide	7.7	J	14	ug/kg
Chromium (Total)	17		2.8	mg/kg
Lead	50		1.4	mg/kg
Mercury	0.086		0.057	mg/kg

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

Table 11 (cont'd)

Summary of Analytical Results
Area 5

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SD0403				
2-Butanone	100		30	ug/kg
Acetone	590		30	ug/kg
Arsenic	7.5		1.5	mg/kg
Barium	110		6.1	mg/kg
Benzo(b)fluoranthene	390	J	1000	ug/kg
bis(2-Ethylhexyl)phthalate	160	J	1000	ug/kg
Carbon disulfide	8.4	J	15	ug/kg
Chromium (Total)	12		3	mg/kg
Lead	36		1.5	mg/kg
Sample Number: SD0404				
Acetone	140		26	ug/kg
Arsenic	9.4		1.3	mg/kg
Barium	72		5.3	mg/kg
bis(2-Ethylhexyl)phthalate	100	J	870	ug/kg
Chromium (Total)	9		2.6	mg/kg
Lead	23		1.3	mg/kg
Toluene	97		13	ug/kg
Sample Number: SD0405				
2-Butanone	8.6	J	18	ug/kg
Acetone	86		18	ug/kg
Arsenic	9.6		0.91	mg/kg
Barium	98		3.6	mg/kg
Benzo(a)anthracene	64	J	600	ug/kg
Benzo(a)pyrene	75	J	600	ug/kg
Benzo(b)fluoranthene	340	J	600	ug/kg
Benzo(ghi)perylene	61	J	600	ug/kg
bis(2-Ethylhexyl)phthalate	210	J	600	ug/kg
Chromium (Total)	13		1.8	mg/kg
Chrysene	84	J	600	ug/kg
Fluoranthene	150	J	600	ug/kg
Lead	33		0.91	mg/kg
Mercury	0.054		0.036	mg/kg
Pyrene	100	J	600	ug/kg

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

Table 11 (cont'd)

Summary of Analytical Results
Area 5

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SD0406				
Acetone	190		22	ug/kg
Arsenic	12		1.1	mg/kg
Barium	120		4.4	mg/kg
Benzo(b)fluoranthene	350	J	730	ug/kg
Bis(2-Ethylhexyl)phthalate	190	J	730	ug/kg
Chromium (Total)	15		2.2	mg/kg
Fluoranthene	100	J	730	ug/kg
Lead	52		1.1	mg/kg
Mercury	0.067		0.044	mg/kg
Pyrene	83	J	730	ug/kg
Sample Number: SD0407				
Acetone	53		18	ug/kg
Arsenic	6.5		0.91	mg/kg
Barium	98		3.6	mg/kg
Benzo(a)pyrene	63	J	600	ug/kg
Benzo(b)fluoranthene	320	J	600	ug/kg
Bis(2-Ethylhexyl)phthalate	240	J	600	ug/kg
Chromium (Total)	10		1.8	mg/kg
Chrysene	70	J	600	ug/kg
Fluoranthene	120	J	600	ug/kg
Lead	28		0.91	mg/kg
Mercury	0.054		0.036	mg/kg
Pyrene	85	J	600	ug/kg
Toluene	4.5	J	9.1	ug/kg

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

Table 12

Summary of Analytical Results
Area 5

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SD0801				
2-Butanone	14	J	23	ug/kg
Acetone	130		23	ug/kg
Arsenic	15		1.2	mg/kg
Barium	110		4.6	mg/kg
Benzo(a)anthracene	85	J	770	ug/kg
Benzo(a)pyrene	110	J	770	ug/kg
Benzo(b)fluoranthene	110	J	770	ug/kg
Benzo(k)fluoranthene	180	J	770	ug/kg
Bis(2-Ethylhexyl)phthalate	420	J	770	ug/kg
Chromium (Total)	20		2.3	mg/kg
Chrysene	100	J	770	ug/kg
Fluoranthene	190	J	770	ug/kg
Lead	58		1.2	mg/kg
Mercury	0.12		0.046	mg/kg
Pyrene	200	J	770	ug/kg
Sample Number: SD0802				
Acetone	98		23	ug/kg
Arsenic	11		1.2	mg/kg
Barium	100		4.6	mg/kg
Benzo(a)anthracene	250	J	770	ug/kg
Benzo(a)pyrene	180	J	770	ug/kg
Benzo(b)fluoranthene	430	J	770	ug/kg
Benzo(ghi)perylene	180	J	770	ug/kg
Benzo(k)fluoranthene	240	J	770	ug/kg
Bis(2-Ethylhexyl)phthalate	450	J	770	ug/kg
Chromium (Total)	15		2.3	mg/kg
Chrysene	230	J	770	ug/kg
Fluoranthene	400	J	770	ug/kg
Indeno(1,2,3-cd)pyrene	140	J	770	ug/kg
Lead	72		1.2	mg/kg
Mercury	0.14		0.046	mg/kg
Phenanthrene	130	J	770	ug/kg
Pyrene	430	J	770	ug/kg

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

Table 12 (cont'd)

Summary of Analytical Results
Area 5

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SD0803				
Acetone	65		23	ug/kg
Arsenic	9.3		1.1	mg/kg
Barium	94		4.5	mg/kg
Benzo(a)anthracene	140	J	750	ug/kg
Benzo(a)pyrene	170	J	750	ug/kg
Benzo(b)fluoranthene	400	J	750	ug/kg
Benzo(ghi)perylene	100	J	750	ug/kg
Bis(2-Ethylhexyl)phthalate	620	J	750	ug/kg
Chromium (Total)	14		2.3	mg/kg
Chrysene	190	J	750	ug/kg
Fluoranthene	250	J	750	ug/kg
Lead	40		1.1	mg/kg
Phenanthrene	130	J	750	ug/kg
Pyrene	310	J	750	ug/kg
Toluene	4.7	J	11	ug/kg

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

Table 13

Summary of Analytical Results
Area 5

Parameter	Reported Result	Qualifier	Quantitative Limit	Unit
Sample Number: SD1101				
2-Butanone	10	J	48	ug/kg
Acetone	290		48	ug/kg
Anthracene	93	J	1600	ug/kg
Arsenic	12		2.4	mg/kg
Barium	210		9.5	mg/kg
Benzo(a)anthracene	310	J	1600	ug/kg
Benzo(a)pyrene	370	J	1600	ug/kg
Benzo(b)fluoranthene	720	J	1600	ug/kg
Bis(2-Ethylhexyl)phthalate	580	J	1600	ug/kg
Carbon disulfide	32		24	ug/kg
Chromium (Total)	16		4.8	mg/kg
Chrysene	330	J	1600	ug/kg
Fluoranthene	730	J	1600	ug/kg
Indeno(1,2,3-cd)pyrene	190	J	1600	ug/kg
Lead	370		2.4	mg/kg
Mercury	0.14		0.095	mg/kg
Phenanthrene	270	J	1600	ug/kg
Pyrene	930	J	1600	ug/kg

Qualifiers: J = Estimated Value B = Also Present in Laboratory Blank

SECTION J-2

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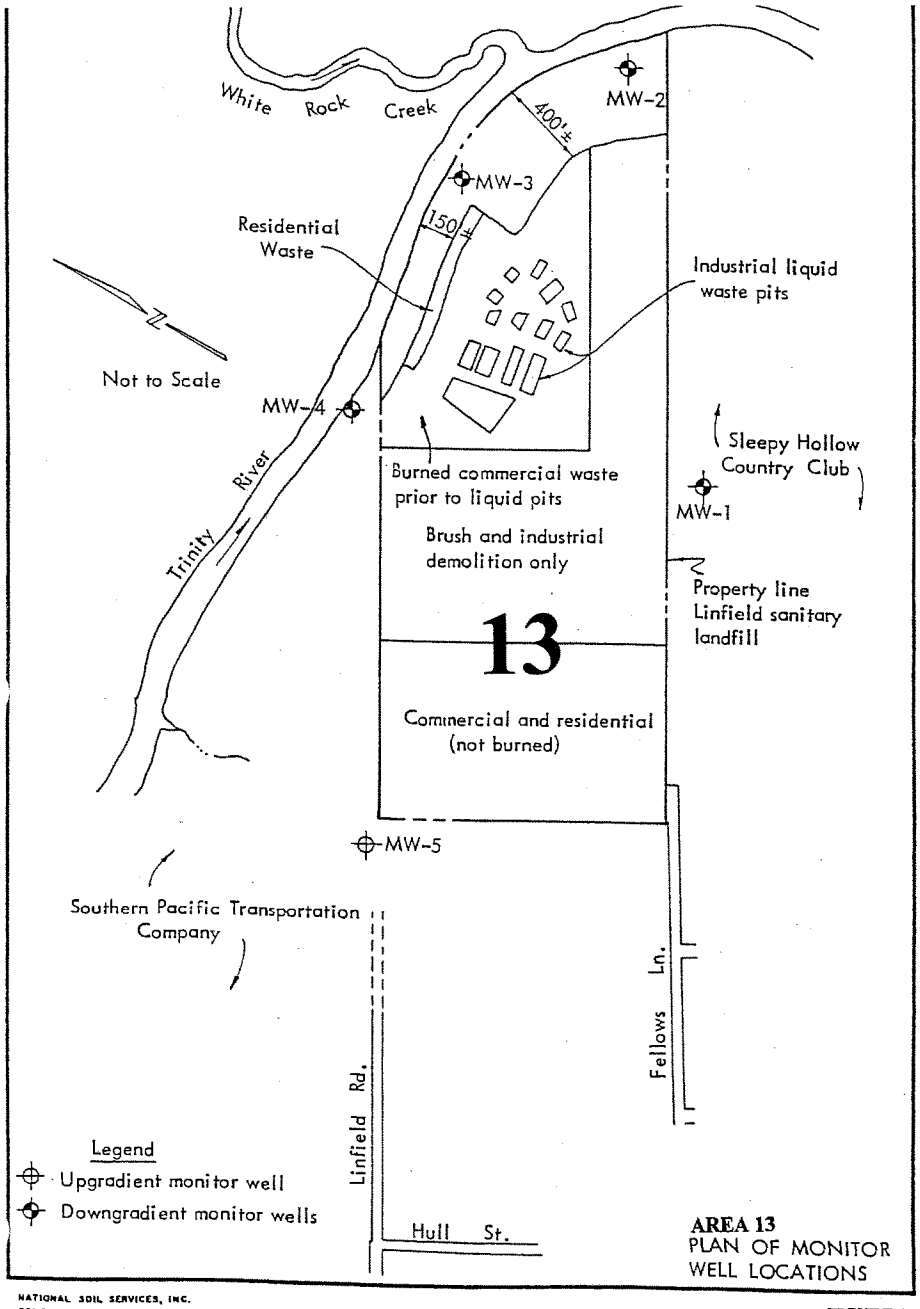
White Rock Creek
MW-2
400'±
MW-3
150'±
Residential Waste
Industrial liquid waste pits
Not to Scale
MW-4
Trinity River
Sleepy Hollow Country Club
MW-1
Burned commercial waste prior to liquid pits
Brush and industrial demolition only
Property line Linfield sanitary landfill
13
Commercial and residential (not burned)
MW-5
Southern Pacific Transportation Company
Linfield Rd.
Fellows Ln.
Legend
Upgradient monitor well
Downgradient monitor wells
Hull St.
AREA 13
PLAN OF MONITOR WELL LOCATIONS
NATIONAL SOIL SERVICES, INC.
CONSULTING ENGINEERS.

FIGURE 1

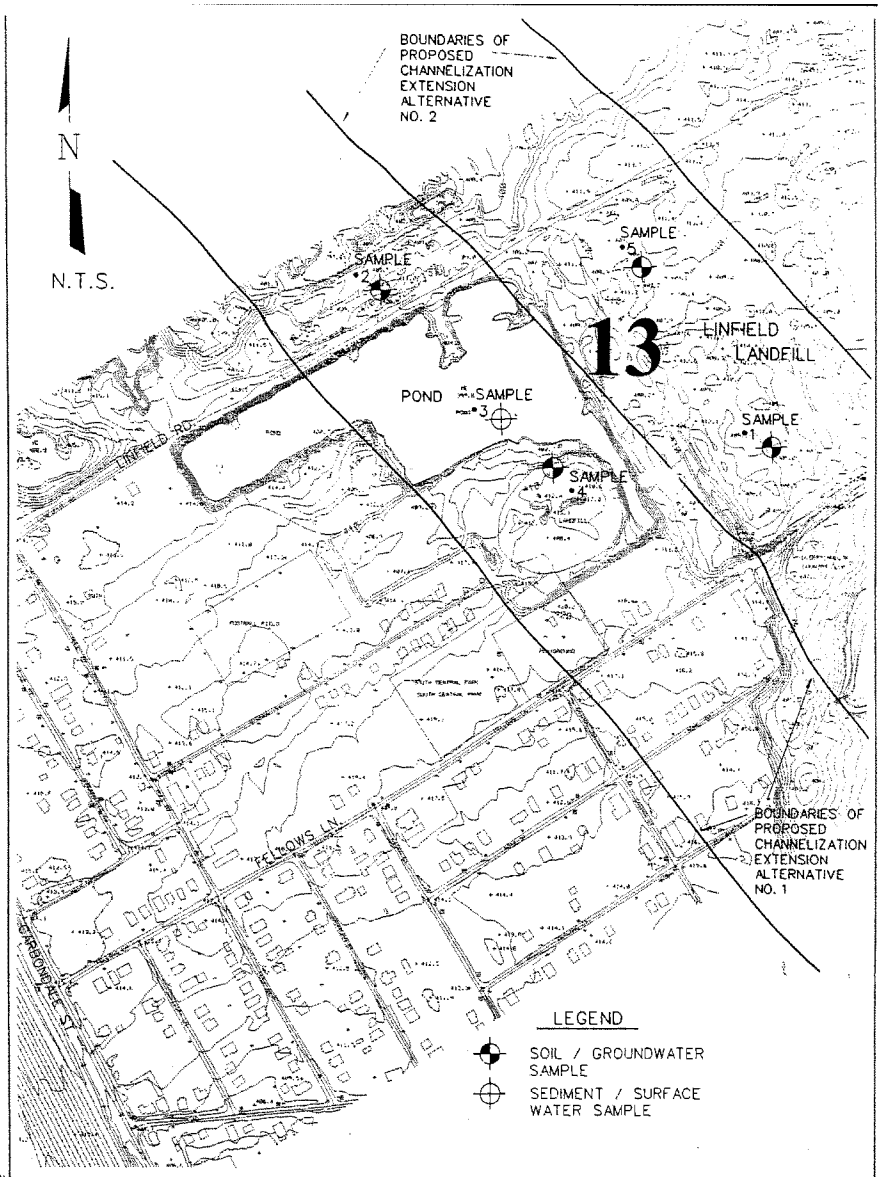

FIGURE 2
SAMPLE LOCATION AND TOPOGRAPHIC MAP
U.S. ARMY CORPS OF ENGINEERS - FORT WORTH DISTRICT
DALLAS FLOODWAY EXTENSION INVESTIGATION

TABLE 1

US ARMY CORPS OF ENGINEERS – FORT WORTH DISTRICT
DALLAS FLOODWAY EXTENSION – HAZARDOUS AND TOXIC WASTE INVESTIGATION

SUMMARY OF REPORTED SOIL PARAMETER LEVELS

TEST PARAMETERS	SAMPLE LOCATIONS IA-1	PQL	IA-3	PQL	IA-4	PQL	IA-5	PQL	IA-0	PQL	CLASS 1 TCLP*20	CLASS 1 LEVEL*20
Metals (mg/Kg)												
Arsenic	2.9	1.0	1.9	1.0	2.2	1.0	1.8	1.0	6.9		100.0	36.0
Barium	29	1.0	16	1.0	71	1.0	15	1.0	88.0		2000.0	2000.0
Cadmium	4.0	1.0	1.3	1.0	5.4	1.0	2.7	1.0	ND	1.2	20.0	10.0
Chromium	9.8	2.0	4.9	2.0	10	2.0	5.9	2.0	14.0		100.0	100.0
Lead	ND	10.0	26	10.0	19	10.0	ND	10.0	22.1		100.0	30.0
Mercury	ND	0.3	ND	0.3	0.5	0.3	ND	0.3	0.25		20.0	4.0
Selenium	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.6	20.0	20.0
Silver	ND	2.0	ND	2.0	2.6	2.0	ND	2.0	ND	1.2	100.0	100.0
VOCs (EPA 8260 – ug/Kg)	NONE REPORTED ABOVE PQLs											
SVOCs (EPA 8270 – ug/Kg)												
Pyrene	ND	770	ND	810	6400	4000	ND	790	6220	406		
Phenanthrene	ND	1500	ND	1600	4800	4000	ND	790	3630	406		
Fluoranthene	ND	770	ND	810	7200	4000	ND	790	3650	406		
Chyrsene	ND	770	ND	810	4600	4000	ND	790	2620	406		
Acenapthene	ND	770	ND	810	ND	4000	ND	790	554	406		
Flourene	ND	770	ND	810	ND	4000	ND	790	781	406		
Anthracene	ND	770	ND	810	ND	4000	ND	790	1370	406		
Benzo(a)anthracene	ND	770	ND	810	ND	4000	ND	790	2840	406		
Benzo(k)fluoranthene	ND	770	ND	810	ND	4000	ND	790	3140	406		
Benzo(a)pyrene	ND	770	ND	810	ND	4000	ND	790	1880	406		
Indeno(1,2,3-cd)pyrene	ND	770	ND	810	ND	4000	ND	790	1270	406		
Benzo(g,h,i)perylene	ND	770	ND	810	ND	4000	ND	790	799	406		
CYANIDE (EPA 9010)	None Reported above PQLs											
HERBICIDES (EPA 8150	None Reported Above PQLs											
PESTICIDES & PCBs (EPA 8080 – ug/Kg)												
Dieldrin	ND	1.44	ND	16.1	ND	14.5	ND	14.5	17			
WASTE CLASSIFICATION	Municipal		Municipal		Municipal		Municipal		Municipal			

PQL – Practical Quantitation Limit
ND – Compound Level Not Reported Above PQL

Note: Reported levels were compared with a TCLP X 20 and Class I Threshold X 20 value to account for mechanical dilution with the TCLP Method

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TABLE 2

US ARMY CORPS OF ENGINEERS – FORT WORTH DISTRICT
DALLAS FLOODWAY EXTENSION – HAZARDOUS AND TOXIC WASTE INVESTIGATION

SUMMARY OF REPORTED GROUNDWATER PARAMETERS VERSUS
TCLP TOXICITY AND TNRCC CLASS I WASTE LEVEL THRESHOLDS

TEST PARAMETERS	SAMPLE LOCATIONS IA–1	PQL	IA–3	PQL	IA–4	PQL	IA–5	PQL	IA–0	PQL	* TCLP	CLASS 1 LEVEL
METALS (mg/L)												
Arsenic	0.13	0.01	0.01	0.01	0.02	0.01	0.96	0.02	0.38		5.0	36.0
Barium	7.86	0.02	0.07	0.02	2.16	0.02	3.80	0.02	25.3		100.0	2000.0
Cadmium	0.10	0.02	ND	0.02	0.08	0.02	0.36	0.02	0.118		1.0	10.0
Chromium	0.42	0.02	ND	0.02	0.21	0.02	0.70	0.02	2.72		5.0	100.0
Lead	5.8*	0.1	0.20	0.1	0.7	0.1	6.50*	0.1	6.96*		5.0	30.0
Mercury	0.009	0.001	ND	0.001	0.06	0.01	0.12	0.01	0.0014		0.2	4.0
Selenium	ND	0.005	ND	0.005	0.29	0.02	ND	0.02	0.006		1.0	20.0
Silver	0.02	0.02	ND	0.02	0.37	0.02	0.19	0.02	0.044		5.0	100.0
VOC's (EPA 8260 – ug/L)												
Chlorobenzene	ND	5.0	ND	5.0	ND	5.0	9.0	5.0	ND			70,000
SVOC's (EPA 8270 – ug/L)												
Bis(2–Ethylhexyl)phthalate	89	57	ND	11	ND	20	ND	57	ND	1000		30,000
Di–n–octylphthalate	63	57	ND	11	ND	20	71	57	ND	1000		
Phenanthrene	60	57	ND	11	ND	20	ND	57	ND	1000		
CYANIDES (EPA 9010 – mg/L)	0.01	0.01	ND	0.01	ND	0.01	ND	0.01	0.01			
HERBICIDES (8150)	None Reported above PQLs											
PCBs (EPA 8080)	None Reported above PQLs											
PESTICIDES (EPA 8080)	None Reported above PQLs											
WASTE CLASSIFICATION	Hazardous		Municipal		(see IA–0)		Hazardous		Hazardous			

PQL – Practical Quantitation Limit
ND – Compound Level Not Reported Above PQL
* – Parameter level exceeds TCLP level

TABLE 3

HISTORICAL HIGH DETECTS - LINFIELD LANDFILL DALLAS FLOODWAY EXTENSION			
Parameter	Units	Well No.	Year
Arsenic	0.08 mg/L	MW-2	1984
Cadmium	0.17 mg/L	MW-5	1993
Chromium	0.121 mg/L	MW-5	1994
Iron	40.3 mg/L	MW-2	1998
Lead	0.15 mg/L	MW-4	1983
Manganese	18.4 mg/L	MW-2	1994
Selenium	0.5 mg/L	MW-4	1983
Cyanide	0.28 mg/L	MW-1	1989
Conductivity	5650 umhos	MW-4	1983
Chloride	1070 mg/L	MW-1	1998
Sulphate	5650 mg/L	MW-4	1983
Nitrate	22 mg/L	MW-3	1989
Phenolpthalene	0.54 mg/L	MW-4	1989
pH	7.7	MW-5	1986

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DALLAS FLOODWAY EXTENSION

HTRW WASTE CLASSIFICATIONS

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February 19, 1998 Letter to TNRCC with enclosed MFR, Subject: Environmental Compliance Regulatory Issues Associated with Excavating Materials from Linfield Landfill - Dallas Floodway Extension (DFE) Project 49

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Introduction

Attached are fact sheets for fourteen potential HTRW sites located in or near the proposed Dallas Floodway Extension project, which our Initial Assessment indicates may contain hazardous wastes, industrial wastes or municipal solid wastes.

Available data for each site, derived from a variety of sources, is summarized. Where chemical testing data is available, it has been used to classify the wastes from each site as municipal solid waste, Class 1 industrial non-hazardous waste, Class 2 industrial non-hazardous waste or hazardous waste. Where data is not available, review of historic activities at the site, data from adjacent sites, data from similar sites and judgement have been used to project a waste classification.

Waste classification is based on the wastes either being a listed waste or a characteristic waste (i.e. ignitable, corrosive, reactive or toxic). The waste classifications presented in this document are based primarily on results from Toxicity Characteristic Leaching Procedure (TCLP) analysis. Most of the sites have analyses for total concentration only, which do not reliably indicate what TCLP test results would be. To guide waste classification efforts, the total concentrations for solids (i.e. soils, sludge, sediment, etc.) have been used with the TCLP "20 Times" rule to assign a classification. In the process of conducting the TCLP test, the total concentration is reduced by a factor of 20, hence the "20 Times" rule. For example, if the TCLP test result for lead is 5.0 mg/l or greater, the waste is a hazardous waste based on RCRA criteria. Unless the sample has a total lead concentration of 100 mg/kg or greater, it is not possible for the sample to test as a hazardous waste. To classify liquids, the total concentrations were compared directly to the TCLP concentrations with no reduction using the "20 Times" rule. This same methodology has been used for determining Class 1 and Class 2 assignments, based on the Texas Administrative Code (TAC) Chapter 335 Subchapter R.

On several occasions DFE project features were sited in areas that were found to have materials classified as hazardous waste located on the property. With only one exception, Linfield landfill, all project features impacting these areas have been relocated. The site data for the areas that have been avoided is presented in this report for information purposes.

1. Site Name: Praxair (Formerly Union Carbide Linde Gas Division)

2. Project Features at Site: A levee and a sump are proposed in the southwestern portion of this property in the vicinity of a former UST and an abandoned lime pit.

3. Site History: This facility is used for repackaging industrial gases from bulk cylinders and containers. According to records, the facility disposed of trichloroethane and caustic paint sludge in a UST on the site which had been previously used for gasoline. The UST was removed in 1984, with surface water and soil samples taken in the area of excavation (data not available for review). No leak testing was conducted on the tank during removal. The UST site was designated as closed by the Texas Water Commission (TWC) on March 11, 1986. The abandoned lime pit is located behind the facility and was used as a lime disposal area during the manufacturing of acetylene gas. Specific information on the content of waste (other than lime) was not available for the pit. Historic records research also suggests much of this area is underlain by "suspect fill".

4. Investigations: Surface water and soil sampling around the UST was conducted during tank removal in 1984 (unknown firm). The June 1997, Corps site investigation (Geo-Marine) involved soil sampling of the abandoned lime pit in the proposed sump area. A sample was analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and RCRA metals.

A. By Others: UST investigated in 1984 during tank removal.
- Six soil and one surface water sample taken in and around the tankhold.
- Sludge sample taken from tank with results indicating hazardous concentration of lead (13.96 mg/l) and pH 11.6.

(1) Sample Locations: 6
(2) Soil Test Results: Range of concentrations, mg/kg

Parameter	Values	Waste Class
Arsenic	7-31	Class 2
Barium	20-90	Class 2
Chromium	2-74	Class 2
Lead	8-404	Class 1 -See Remark (a.) Below
No PCBs or dioxins detected		

(3) Surface Water Samples: 1
(4) Water Test Results: Range of concentrations, mg/l

Parameter	Values	Waste Class
Arsenic	2-7 -See Remark (b.) Below	Class 1
Barium	2-7	Class 2

Chromium	2-7 -See Remark (b.) Below	Class 1
Lead	2-7 -See Remark (b.) Below	Class 1

No PCBs or dioxins detected

B. By SWF: Investigated in June 1997 by Geo-Marine.
- One surface soil sample taken from lime pit.

(1) Sample Locations: 1
(2) Soil Test Results: Concentration, ug/kg, unless noted otherwise

Parameter	Value	Waste Class
Fluoranthene	150	Class 2
Chrysene	120	Class 2
Phenanthrene	73	Class 2
Pyrene	0.200	Class 2
Indeno(1,2,3-cd)pyrene	72	Class 2
Benzo(a)anthracene	89	Class 2
Benzo(a)pyrene	100	Class 2
Benzo(b)fluoranthene	270	Class 2
Benzo(ghi)perylene	83	Class 2
Bis(2-Ethylhexyl)phthalate	200	Class 2
Arsenic	7.8 mg/kg	Class 2
Barium	110 mg/kg	Class 2
Chromium	21 mg/kg	Class 2
Lead	38 mg/kg	Class 1
Mercury	30	Class 2

(3) Monitoring Wells: NA
(4) Water Test Results: NA

5. Waste Classification:

A. Soil: 5% Class 1 industrial non-hazardous waste; 95% Class 2 industrial non-hazardous waste
Basis: TAC Chapter 335 Subchapter R

B. Sediment: NA
Basis:

C. Surface Water: Class 1 industrial non-hazardous waste
Basis:TAC Chapter 335 Subchapter R

D. Groundwater:
Basis:

E. Solid Waste: NA
Basis:

F. Leachate: NA
Basis:

6. Remarks:
(a.) Based on SWF experience, total lead concentration of 404 mg/kg would not likely result in TCLP Pb > 5.0 mg/l. Thus, material is anticipated to be categorized as Class 1 or Class 2 industrial non-hazardous waste. In all events, as we have demonstrated to date avoidance will be practiced if any hazardous waste is encountered.
(b.) Specific concentrations for this parameter were not available, but reportedly ranged as shown - with the average concentration being 4.5 mg/l. If this average value is used, then TCLP results for As, Cr, and Pb are < 5.0 mg/l. Thus, the material is anticipated to be categorized as Class 1 or Class 2 industrial non-hazardous waste.

1. Site Name: Tri-Gas / Occidental Chemical

2. Project Features at Site: A levee passes through the southern portion of both properties in the vicinity of two lime pits, an LPST, and an industrial landfill. The sump area, situated at Tri-Gas, is at or very near the lime pits and LPST. The landfill is located east of Occidental Chemical Company and is situated at or very near to the levee alignment.

3. Site History: The area consists of an industrial gas facility (Tri-Gas) and an active silicates plant which produces liquid and solid sodium silicate (Occidental Chemicals). The LPST and lime pits have been removed and capped, respectively, with closure status pending from the TNRCC. The 2-acre landfill was in operation from 1941-1971 and capped in 1984. It reportedly contains the following Class 1 wastes: 4200 cu.yds. (est.) alkaline product wastes, floor sweepings, and empty caustic containers; 3000 lbs (est.) asbestos piping; and 50-100 (est.) empty 5-gallon paint thinner cans.

4. Investigations: At Tri-Gas, drilling was conducted in February 1998 (Rone Engineers) to obtain compliance with state closure regulations. Samples were taken and analyzed for priority pollutant organics and inorganics, but were not made available for our review. Other environmental investigations were conducted at the Occidental Chemical landfill by Ecology and Environment, Inc., in January 1986. Their report stated that ponded water on the landfill had been sampled and results indicated elevated levels of lead contamination, as well as high pH/alkalinity. Inspection reports obtained from the EPA noted discoloration in surface water and soils near the Trinity River, indicating a possible breakout of leachate into the river. However, no action was taken at the time. The landfill was capped in 1984, with an eventual no further action (NFA) recommended for the site.

A. By Others: Limited investigations of the landfill by EPA, and Ecology and Environment, Inc., in 1985-1986.

- Ponded water sampled from landfill with results indicating elevated lead contamination and high pH/alkalinity.
- Visually classified wastes as: alkaline products wastes, alkaline floor sweepings, empty caustic containers, asbestos piping, and empty paint thinner cans.
- Landfill content appears to be consistent with Class 1 industrial nonhazardous waste.
- No leachate samples taken from landfill.

(1) Borings: NA
(2) Soil Test Results: NA
(3) Monitoring Wells: NA
(4) Water Test Results: NA

B. By SWF: None

- Right-of-entry not obtained

(1) Borings: NA

(2) Soil Test Results: NA
(3) Monitoring Wells: NA
(4) Water Test Results: NA

5. Waste Classification:

A. Soil: 5% Class 1 industrial non-hazardous; 95% Class 2 industrial non-hazardous Waste
Basis: Knowledge of past landfill use

B. Sediment: NA
Basis:

C. Surface Water:
Basis:

D. Groundwater: Class 2 industrial non-hazardous waste
Basis: Knowledge of past landfill use

E. Solid Waste: All Class 1 industrial non-hazardous Waste
Basis: Knowledge of past landfill use

F. Leachate: All Class 1 industrial non-hazardous waste
Basis: Knowledge of past landfill use

6. Remarks:

1. **Site Name:** Dallas Public Schools (Formerly Proctor & Gamble)

2. **Project Features at Site:** Levee and a sump are located in the southwestern half of the property, at or very close to a landfill where commercial wastes were placed. Any landfilled materials encountered in the sump area or levee inspection trench will be removed. Average landfill depth is about 15 feet. The vast majority of the landfilled materials were placed southwest (outside) of the sump and levee alignment.

3. **Site History:** The landfill was closed prior to October 1973. It received a mixture of commercial wastes (i.e., Crisco cans, broken glass, bricks, steel rods, and concrete), burned commercial wastes (mainly plastic containers) and possible unknown wastes from industrial plant operations. Northeastern portion of the property (between the railroad and Lamar Street) contained the main Proctor & Gamble plant with numerous USTs, ASTs, buried pipelines, trenches, etc. In general, the plant has a long history of having generated and disposed of commercial and industrial wastes throughout the entire northeastern portion of the property.

4. **Investigations:** Drilling was conducted in April 1990 (unknown firm) to confirm the landfill boundaries as determined by a geophysical survey (unknown firm and date). Samples were taken and analyzed for priority pollutant inorganics (i.e., heavy metals). Numerous other environmental investigations have occurred in the northeastern portion of the property outside the area of the project features. The June 1997, Corps site investigation (Geo-Marine) involved soil and groundwater sampling of the proposed sump area on each side of the railroad tracks as well as background sampling upgradient along Lamar Boulevard. The samples were analyzed for VOCs, SVOCs, pesticides/PCBs, cyanide, and RCRA metals.

A. By Others: Landfill investigated in April 1990.

- Thirty-five borings drilled and sampled within the landfill (outside the area of excavation).
- Visually classified wastes as clean fill dirt containing: concrete, bricks, metal rods, plastic and metal cans, and incinerated plastic debris.
- Landfill content appears to be consistent with Class 1 and Class 2 industrial non-hazardous wastes
- No leachate samples were taken from the landfill.

(1) Borings: 35

(2) Soil Test Results: Maximum Concentration, mg/kg

Parameter	Value	Waste Class
Arsenic	68	Class 1
Silver	0.92	Class 2
Beryllium	4.6	Class 2
Cadmium	1.8	Class 2
Chromium	88	Class 2

Copper	220	Class 2
Mercury	11	Hazardous -See remark (a.) below
Nickel	110	Class 2
Lead	260	Class 1 -See remark (b.) below
Selenium	38	Hazardous -See remark (a.) below
Thallium	440	Class 2
Zn	2000	Class 2

(3) Monitoring Wells: None
(4) Water Test Results: None

B. By SWF: Investigated in June 1997 by Geo-Marine.
- Six borings drilled to depth of groundwater or refusal.
- Visually classified wastes (upper 10 feet) as sand, sandy clay, and clayey sand soil fill.

(1) Borings: 6
(2) Soil Test Results: Maximum Concentration, mg/kg

Parameter	Value	Waste Class
Acetone	0.38	Class 2
Methylene Chloride	0.0012	Class 2
Fluoranthene	0.049	Class 2
Benzo(b)fluoranthene	0.180	Class 2
Arsenic	34	Class 2
Barium	150	Class 2
Chromium	20	Class 2
Lead	96	Class 1
Selenium	1.6	Class 2
Mercury	0.18	Class 2

(3) Monitoring Wells: 6 Temporary monitoring wells sampled
(4) Water Test Results: Maximum Concentration, ug/l

Parameter	Value	Waste Class
Acetone	53	Class 2
Methylene Chloride	1.4	Class 2
1,2 Dichloroethene	1.6	Class 2
Trichloroethene	1.7	Class 2
2-Chlorophenol	3.5	Class 2
1,2-Dichlorobenzene	2.4	Class 2
Arsenic	56	Class 2
Barium	740	Class 2
Chromium	110	Class 2

Mercury	ND	
Lead	300	Class 2
Selenium	14	Class 2

5. Waste Classification:

A. Soil: 5% Class 1 industrial non-hazardous; 95% Class 2 industrial non-hazardous waste
Basis: TAC Chapter 335 Subchapter R

B. Sediment: NA
Basis:

C. Surface Water: NA
Basis:

D. Groundwater: Class 2 Industrial non-hazardous waste
Basis: TAC Chapter 335 Subchapter R

E. Solid Waste: NA
Basis:

F. Leachate: NA
Basis:

6. Remarks:

(a.) Based on these two indicators the entire known location of the landfill will be avoided if possible. If the landfill cannot be avoided and project features are sited there, additional sampling and testing, including TCLP, will be performed to accurately assign waste classifications. If further sampling and testing reveals hazardous wastes, the site will be avoided.
(b) Based on SWF experience, total lead concentration of 260 mg/kg would not likely result in TCLP Pb > 5.0 mg/l. Thus, material is anticipated to be categorized as Class 1 or Class 2 industrial non-hazardous waste. If further sampling and testing reveals hazardous wastes, the site will be avoided.

1. Site Name: Trinity Recycling (Formerly Okon Metals)

2. Project Features at Site: Currently there are no project features on this site. A levee passes adjacent to the site and a sump will also likely be located adjacent to the site, but an exact location for these features has not been determined.

3. Site History: This active metals recycling facility, located along Lamar Street, has been in operation since the 1950's. TNRCC records indicated an anonymous, unsubstantiated claim that dumping of the spent cyanide solution, which had been used for extraction of gold, had occurred near a smelter shed. The exact location of the release was not known.

4. Investigations:

A. By Others: None

B. By SWF: The Corps site investigation involved soil and groundwater sampling at two locations within a proposed sump area, now deleted from the project, at the back of the property, with one location being in the vicinity of an alleged cyanide spill. In addition, a sediment sample was taken from a ponded area within the sump. The samples were analyzed for VOCs, SVOCs, pesticides/PCBs, cyanide, and RCRA metals.

(1) Borings: Two, converted to temporary monitoring wells, were drilled
(2) Soil Test Results: Results in mg/kg unless noted otherwise.

Parameter	Value	Waste Class
As	16	Class 2
Ba	160	Class 2
Cd	17	Class 1
Cr	75	Class 2
Pb	2,000	Class 1 - See remark (a.) below
Hg	1.5	Class 1
Ag	4	Class 2
Acetone	72 ug/l	Class 2
Chlorobenzene	1.4 ug/l	Class 2
Methylene Chloride	5.9 ug/l	Class 2

(3) Monitoring Wells: Four
(4) Water Test Results: Results in ug/l

Parameter	Value	Waste Class
As	10	Class 2
Ba	270	Class 2

Cr	43	Class 2
Pb	2,300	Class 1
Benzene	4.7	Class 2
Chlorobenzene	150	Class 2

(5) Sediment Sample: One taken
(6) Sediment Test Results: Results in ug/kg

Parameter	Value	Waste Class
As	3.9	Class 2
Ba	71	Class 2
Cd	6.6	Class 2
Cr	24	Class 2
Pb	310	Class 2
Hg	0.27	Class 2
Ag	2.3	Class 2
Acetone	36	Class 2
Toluene	8.7	Class 2
Phenanthrene	150	Class 2
Fluoranthene	560	Class 2
Pyrene	870	Class 2
Benzo(a)anthracene	930	Class 2
Bis(2-ethylhexyl)phthalate	760	Class 2
Chrysene	1,000	Class 2
Benzo(b)fluoranthene	2,900	Class 2
Benzo(a)pyrene	1,400	Class 2
Indo(1,2,3-cd)pyrene	1,000	Class 2
Dibenzo(a,h)anthracene	400	Class 2
Benzo(ghi)perylene	1,100	Class 2

5. Waste Classification

A. Soil: Class 1 non-hazardous industrial waste
Basis: TAC Chapter 335 Subchapter R

B. Sediment: Class 2 non-hazardous industrial waste
Basis: Class 1 non-hazardous industrial waste

C. Surface Water: NA
Basis:

D. Groundwater: Class 1 industrial non-hazardous waste
Basis: TAC Chapter 335 Subchapter R

6. Remarks:

(a.) Based on SWF experience, a total lead concentration of 2000 mg/kg would not likely result in TCLP Pb > 5.0 mg/l. Thus, the material is anticipated to be categorized as Class 1 or Class 2

industrial non-hazardous waste. Presently, there are no project features located on this site. If this changes, further sampling and testing will be conducted. If the testing reveals hazardous wastes, the site will be avoided.

1. Site Name: Various Ponds / Gravel Pits

2. Project Features at Site: These sites are possible uncontrolled fill areas located throughout the Dallas Floodway Extension project area. Two of the ponded areas, I-45 and Trinity Recycling, are situated along the alignment of the Lamar Street Levee. The remaining two ponds, Dixie Metals and Linfield Landfill, have no project features passing through them, though project features are in their vicinity (i.e., Cadillac Heights Levee and lower swale, respectively).

3. Site History: The I-45, Trinity Recycling, and Linfield Landfill ponds are in vegetated, undeveloped, and/or semi-rural areas and have resulted from remnant gravel quarrying operations. The Dixie Metals pond had not been a gravel pit, but rather an excavated area that probably contained contaminated soil. In all cases, the pits have been partially filled in with random fill, such as rock or dirt spoil material, residential wastes, and other unknown wastes. Water also continues to accumulate in the pits. With the exception of Dixie Metals, the sites have all been steadily used as dumping areas for an indefinite amount of time. In the last 3 years, Linfield Landfill Pond and Dixie Metals Pond have received a substantial amount of rock and dirt spoil material. No other information is available pertaining to their site history.

4. Investigations: The Spring 1995 SWF site investigation (Freese and Nichols) involved sampling at Linfield Landfill Pond. The 1997 Geo-Marine investigation involved sampling at Linfield Landfill Pond, I-45 Pond and Trinity Recycling Ponds. The samples were analyzed for VOCs, SVOCs, cyanide, and RCRA metals. One other sampling event at Dixie Metals Pond was conducted before the excavation filled with water.

A. By Others:

(1) Surface Soil Samples: 3

(2) Soil Test Results: Dixie Metals Pond; Entact, Inc., May 1995; Maximum Concentration, mg/kg

Parameter	Value	Waste Class
Lead	500.3	Class 1 -See remark (a.) below

B. By SWF:

- Investigated in 1995 by Freese & Nichols
- Sediment content appears to be consistent with municipal solid waste.

(1) Sediment Samples: 1

(2) Soil Test Results: Linfield Landfill Pond; Freese and Nichols, Inc., 1995; Concentration, mg/kg

Parameter	Value	Waste Class
Arsenic	1.9	Class 2
Barium	16	Class 2

Cadmium	1.3	Class 2
Chromium	4.9	Class 2
Lead	26	Class 2

No organics were detected in sediment at this site

(3) Surface Water Samples: 1
(4) Water Test Results: Linfield Landfill Pond; Freese and Nichols, Inc., 1995; Concentration, mg/l

Parameter	Value	Waste Class
Arsenic	0.01	Class 2
Barium	0.07	Class 2
Lead	0.20	Class 2

No organic concentrations were detected in groundwater at this site

(5) Sediment Samples: 3
(6) Soil Test Results: Pond Near I-45; Geo-Marine, Inc., 1997; Maximum Concentration, ug/kg

Parameter	Value	Waste Class
Acetone	130	Class 2
2-Butanone	14	Class 2
Fluoranthene	400	Class 2
Chrysene	230	Class 2
Phenanthrene	130	Class 2
Pyrene	430	Class 2
Toluene	4.7	Class 2
Indeno(1,2,3-cd)pyrene	140	Class 2
Benzo(a)anthracene	250	Class 2
Benzo(a)pyrene	180	Class 2
Benzo(b)fluoranthene	430	Class 2
Benzo(k)fluoranthene	240	Class 2
Benzo(ghi)perylene	180	Class 2
Bis(2-Ethylhexyl)phthalate	620	Class 2
Arsenic	15 mg/kg	Class 2
Barium	110 mg/kg	Class 2
Chromium	20 mg/kg	Class 2
Mercury	0.14 mg/kg	Class 2
Lead	72 mg/kg	Class 1

(7) Sediment Samples: 1
(8) Soil Test Results: Linfield Landfill Pond; Geo-Marine, Inc., 1997; Concentration, ug/kg

Parameter	Value	Waste Class
Acetone	290	Class 2
2-Butanone	10	Class 2
Fluoranthene	730	Class 2
Anthacene	93	Class 2
Chrysene	330	Class 2
Phenanthrene	270	Class 2
Pyrene	930	Class 2
Indeno(1,2,3-cd)pyrene	190	Class 2
Benzo(a)anthracene	310	Class 2
Benzo(a)pyrene	370	Class 2
Benzo(b)fluoranthene	720	Class 2
Bis(2-Ethylhexyl)phthalate	580	Class 2
Carbon Disulfide	32	Class 2
Arsenic	12 mg/kg	Class 2
Barium	210 mg/kg	Class 2
Chromium	16 mg/kg	Class 2
Mercury	0.14 mg/kg	Class 2
Lead	370 mg/kg	Class 1 -See Remarks Below

(9) Sediment Samples: 1
(10) Soil Test Results: Trinity Recycling Pond; Geo-Marine, Inc., 1997; Maximum Concentration, ug/kg

Parameter	Value	Waste Class
Acetone	590	Class 2
Toluene	8.7	Class 2
2-Butanone	100	Class 2
Fluoranthene	560	Class 2
Chrysene	1000	Class 2
Phenanthrene	150	Class 2
Pyrene	870	Class 2
Indeno(1,2,3-cd)pyrene	1000	Class 2
Benzo(a)anthracene	930	Class 2
Benzo(a)pyrene	1400	Class 2
Benzo(ghi)perylene	1100	Class 2
Benzo(b)fluoranthene	2900	Class 2
Dibenzo(a,h)anthracene	400	Class 2
Bis(2-Ethylhexyl)phthalate	760	Class 2
Carbon Disulfide	8.4	Class 2
Arsenic	12 mg/kg	Class 2
Barium	120 mg/kg	Class 2
Chromium	24 mg/kg	Class 2

Mercury	0.27 mg/kg	Class 2
Lead	310 mg/kg	Class 1 - See Remarks Below
Silver	2.3 mg/kg	Class 2

5. Waste Classification:

A. Soil: Class 2 industrial non-hazardous waste
Basis: TAC Chapter 335 Subchapter R

B. Sediment: NA
Basis:

C. Surface Water: NA
Basis:

D. Groundwater: Class 2 industrial non-hazardous waste
Basis: TAC Chapter 335 Subchapter R

E. Solid Waste: NA
Basis:

F. Leachate: NA
Basis:

6. Remarks:

(a.) Based on SWF experience, total lead concentration of 310-500 mg/kg would not likely result in TCLP Pb > 5.0 mg/l. Thus, material is anticipated to be categorized as Class 1 or Class 2 non-hazardous waste. If later tests confirm the wastes to be hazardous the site will be avoided.

1. Site Name: Valley Steel & W.E. Grace Manufacturing Company

2. Project Features at Site: The addition of fill in low areas to the south and excavation of shallow ditches draining run-off to a northerly located sump are proposed by the Corps for both properties. A small sump area is proposed at the northern tip of Valley Steel.

3. Site History: These industrial facilities are located on opposite sides of U.S. Highway 75 near Lamar Street. According to Valley Steel files, while engaging in steel pipe thread cleaning operations, acid and caustic wastes had been improperly disposed in unlined pits on the facility (unknown locations). Limited information is available on W.E. Grace, a steel component manufacturing facility.

4. Investigations:

A. By Others: A study conducted in 1973 identified high concentrations of sulfates, manganese, iron, oil and grease in groundwater and soils at Valley Steel. This study is not currently available.

B. By SWF: Soil and groundwater sampling was conducted in 1993 by Environmental Science and Engineering, Inc. at W.E. Grace and in the vicinity of Valley Steel. The samples were analyzed for VOCs, SVOCs, pesticides/PCBs, cyanide, and RCRA metals. The 1997 Corps site investigation program was to have involved soil and groundwater sampling at one location within the sump area at Valley Steel. However, requests for right-of-entry to Valley Steel were denied.

(1) Borings: Four, converted to temporary monitoring wells, were drilled
(2) Soil Test Results: Results in mg/kg

Parameter	Value	Waste Class
As	2.66	Class 2
Ba	45.3	Class 2
Be	ND	
Ca	6,800	Class 2
Cd	ND	
Cr	10.8	Class 2
Cu	42.7	Class 2
Fe	20,900	Class 2
Pb	89.3	Class 1 - See remark (a.) below
Mg	ND	
Mn	314.0	Class 2
Hg	0.02	Class 2
Ni	ND	
K	ND	

Se	0.267	Class 2
Ag	0.61	Class 2
Na	ND	
V	ND	
Zn	56.8	Class 2
Methylene Chloride	17.7	Class 2

No SVOAs, pesticides or PCBs detected.

(3) Monitoring Wells: Four
(4) Water Test Results: Results in ug/l

Parameter	Value	Waste Class
As	1.20	Class 2
Ba	70.9	Class 2
Cd	ND	
Cr	3.33	Class 2
Pb	1.77	Class 2
Hg	ND	
Se	2.9	Class 2
Ag	ND	Class 2
Cyanide	ND	
Di-n-butyl phthalate	35.0	Class 2
Methylene Chloride	17.7	Class 2

No pesticides or PCBs detected

5. Waste Classification

A. Soil: Class 1 non-hazardous industrial waste
Basis: TAC Chapter 335 Subchapter R

B. Sediment: NA
Basis:

C. Surface Water: NA
Basis:

D. Groundwater: Class 2 industrial non-hazardous waste
Basis: TAC Chapter 335 Subchapter R

6. Remarks -

(a.) Based on SWF experience, total lead concentration of 310-500 mg/kg would not likely result in TCLP Pb > 5.0 mg/l. Thus, material is anticipated to be categorized as Class 1 or Class 2 non-hazardous waste. If later tests confirm the wastes to be hazardous the site will be avoided.

1. Site Name: Dallas Demolition

2. Project Features at Site: This site is a landfilled area located near Martin Luther King Boulevard along the west bank of the Trinity River. The swale passes through an extensively landfilled portion (approx. 1200 ft by 300 ft) of Dallas Demolition in the Trinity River Floodplain.

3. Site History: The Dallas Demolition Company has been extensively landfilled with construction debris dating back to at least the 1970's. The dumping area, and the business location in general, received miscellaneous debris from construction sources, as well as unknown sources. The nature and extent of deposited wastes have not been characterized to date. No other information is available pertaining to site history.

4. Investigations: In 1992, a Maxim Engineering site investigation was conducted at Dallas Demolition. The investigation involved drilling numerous temporary monitoring wells with groundwater measurement, however, few samples were retained for analysis. No additional investigations from this site are known to exist.

A. By Others: Limited investigations of the landfill by Maxim Engineering, 1992.
- Only 4 of 155 total soil samples were analyzed for priority pollutants; only 1 of 7 groundwater samples were analyzed for priority pollutants.
- Visual classification indicates construction debris-type fill from the ground surface to approximately 6 - 9 ft below ground surface (bgs).
- Visually classified soil lithology as a mixture of fill material and brown/gray clay or sandy clay to 9 - 10 bgs.
- Landfill content appears to be consistent with Type IV Municipal Waste.
- A groundwater mound is present in the middle of the site with a general gradient to the east and west.

(1) Borings: 25

(2) Soil Test Results: Maximum Concentration, mg/kg

Parameter	Value	Waste Class
Methylene Chloride	1.411	Class 2
Cloroform	6.2	Class 2
Chlordane	3.0	Class 1
Dieldrin	1.1	Class 1
Barium	105.0	Class 2
Cadmium	7.5	Class 2
Chromium	18.0	Class 2
Copper	15.2	Class 2
Lead	234.0	Class 1 -See remark (a.) below
Mercury	8.0	Class 1 -See remark (b.) below

Nickel	18.3	Class 2
Zinc	117.0	Class 2

(3) Temporary Monitoring Wells: 1
(4) Water Test Results: Concentration, ug/l

Parameter	Value	Waste Class
1,1,1-Trichloroethane	36	Class 2
Bis (2-Ethylhexyl)Phthalate	5.0	Class 2
1,2-Dichlorobenzene	9.0	Class 2
a-BHC	15.3	Class 2
Zinc	10.0	Class 2

B. By SWF: NA
(1) Borings: NA
(2) Soil Test Results: NA
(3) Monitoring Wells: NA
(4) Water Test Results: NA

5. Waste Classification:

A. Soil: Class 1 industrial non-hazardous
Basis:TAC Chapter 335 Subchapter R

B. Sediment: NA
Basis:

C. Surface Water: NA
Basis:

D. Groundwater: Class 2 industrial non-hazardous waste
Basis: TAC Chapter 335 Subchapter R

E. Solid Waste: All Type IV Municipal
Basis: Visual Classification and knowledge of history of landfill use

F. Leachate: Class 2 industrial non-hazardous waste
Basis: Knowledge of landfill use

6. Remarks:

(a) Based on SWF experience, a total lead concentration of 234 mg/kg would not likely result in TCLP Pb > 5.0 mg/l. Thus, material is anticipated to be categorized as Class 1 or Class 2 industrial non-hazardous waste. If further sampling and testing reveals hazardous wastes, the site will be avoided.

(b) Based on SWF experience, a total mercury concentration of 8.0 mg/kg would not likely result in TCLP Hg > 5.0 mg/l. Thus, material is anticipated to be categorized as Class 1 or Class 2 industrial non-hazardous waste. If further sampling and testing reveals hazardous wastes, the site will be avoided.

1. **Site Name:** Vacant Land Near Dal-Chrome

2. **Project Features at Site:** This vacant site is located southeast and adjacent to Dal-Chrome. It was originally recommended as a sump area along the Cadillac Heights levee portion of the project. However, it was later determined that sump areas were not needed on that side of the river, so it was removed from the project.

3. **Site History:** This thickly vegetated and undeveloped sump area is bordered by Sargent Road, Dal-Chrome Company, Inc. (a chrome plating facility), and several residential buildings. Dal-Chrome was noted in the environmental records as a CERCLA site, with no further remedial action planned (NFRAP). No other information is available pertaining to site history.

4. **Investigations:** Prior investigations at the adjacent Dal-Chrome site included sampling for background metals concentrations at locations fairly close to this sites' property line. Elevated levels of lead were found to exist in the shallow surface soils. No investigations directly within the vacant land are known to exist.

   A. By Others: NA
   (1) Borings: NA
   (2) Soil Test Results: NA

   B. By SWF: NA
   (1) Borings: NA
   (2) Soil Test Results: NA
   (3) Monitoring Wells: NA
   (4) Water Test Results: NA

5. **Waste Classification:**
   A. Soil: NA
   Basis:
   B. Sediment: NA
   Basis:
   C. Surface Water: NA
   Basis:
   D. Groundwater: NA
   Basis:
   E. Solid Waste: NA
   Basis:
   F. Leachate: NA
   Basis:

6. **Remarks:** There are no project features on this site.

1. Site Name: Energy Conversion Systems / Darling International, Inc.

2. Project Features at Site: This site is located off the 1100 block of Sargent Road, to the north of the Central Wastewater Treatment Plant. Cadillac Heights Levee passes through the northeastern portions of the adjoining properties at, or very close to, the vicinity where lead slag and battery casings were landfilled in pits.

3. Site History: Previous occupants of the southern half of this site, N.L. Industries (a secondary lead smeltering facility), had buried smeltered slag and broken battery casings in pits extensively throughout this site and onto adjoining properties (i.e., Valcar and UPRR). Other smelters in the area, such as Dixie Metals, may have also contributed to the extremely high lead contamination present in the area. N.L. Industries had been in operation from approximately 1940 to 1978 and had disposed of the lead in an open landfill prior to the 1960s. The site is presently occupied by an animal fat rendering plant, Darling International Inc. (formerly Valcar Enterprises, Beatrice Company and Lone Star Rendering). Occupants of property to the north (presently owned by Energy Conversion Systems) included Superior Industries and Mainland Land and Equipment Company. In general, the smeltering plants in the area have a long history of having generated and disposed of commercial and industrial wastes (mostly lead slag and associated lead containing plant wastes) throughout the entire site.

4. Investigations: The site has been extensively investigated by government agencies and firms throughout the past resulting in numerous inspections, sampling events, risk assessments, corrective measures reports, etc. Since this area has been recommended for avoidance, the Corps has not taken part in any investigations in this area.

A. By Others: Evaluated under EPA's CERCLA (Superfund) in 1980's and TWC/TNRCCs RCRA from 1991 to present.

- EPA "Potential Hazardous Waste Site Inspection Report", dated July 1980, describes area as former open dump/landfill with inadequate leachate collection. Samples analyzed for heavy metals.

- EPA Superfund enforcement action in early 1980s resulted in concrete cap placed over a portion of the contaminated region. Cap was inspected and found to be cracked and opened up with exposed lead slag, and battery casings that had been deposited beneath.

- Following site inspection and soil/surfacewater sampling event (maximum total Pb 129,000 mg/kg), City of Dallas informed the TWC Central Office (Austin) in 1991 of lead slag deposits so appropriate enforcement action could be taken.

- Numerous investigations follow including: historical research, inspections, risk assessment, corrective measures study, corrective measures implementation plan, etc.

- Numerous soil borings drilled with detailed chemical analysis of soil lead contamination (at depths to Austin Chalk) throughout southern portion of site.

- Numerous monitoring wells installed and groundwater sampled throughout southern portion (Darling International) to characterize nature and extent of metals as well as contamination resulting from 3 LPSTs. Groundwater direction was to the southeast. Chemical data confirmed that lead and other metals are not mobile in groundwater at the site (analytical data unavailable). Contaminants associated with LPSTs were found to be below applicable TNRCC regulatory levels. Closure status of the three LPSTs is presently unknown.

- Analysis of aerial photographs shows widespread dumping throughout the northern as well as southern portions of the site. Presumably the waste consisted of lead slag and battery casings.

- Southern portion of site undergoing corrective action to date with capping and monitoring of lead contaminated waste in vicinity of Darling International.

(1) Borings: 37
(2) Soil Test Results: Maximum Concentration, mg/kg; Report by McCulley, Frick & Gilman, Inc.

Parameter	Value	Waste Class
Lead	61,500	Hazardous -See remark (a.) below
Lead	3965	Class 1 -See remark (b.) below

(3) Monitoring Wells: 10
(4) Water Test Results: Maximum Concentration, ug/l; Report by McCulley, Frick & Gilman, Inc.

Parameter	Value	Waste Class
TPH	14.5 mg/l	Class 2
Benzene	<1.0	Class 2
Toluene	2.8	Class 2
Ethylbenzene	7.9	Class 2
Xylene	50.1	Class 2

B. By SWF: NA

(1) Borings: NA
(2) Soil Test Results: NA
(3) Monitoring Wells: NA
(4) Water Test Results: NA

5. Waste Classification:

A. Soil: Class 1 industrial non-hazardous waste
Basis: TAC Chapter 335 Subchapter R

B. Sediment: NA
Basis:

C. Surface Water: NA
Basis:

D. Groundwater: Class 2 Industrial non-hazardous waste
Basis: TAC Chapter 335 Subchapter R

E. Solid Waste: NA
Basis: Avoidance of the landfill

F. Leachate: NA
Basis: Avoidance of the landfill

6. Remarks:

(a.) Sample taken away from project levee alignment.
(b.) Based on SWF analytical results of lead investigations, total lead concentration of 3965 mg/kg would not likely result in TCLP Pb > 5.0 mg/l. Thus, material is anticipated to be categorized as Class 1 or Class 2 Non-hazardous Waste. If further sampling and testing reveals hazardous wastes, the site will be avoided.

1. Site Name: Vacant Land Near Energy Conversion Systems / Darling International, Inc.

2. Project Features at Site: This site is located off the 1100 block of Sargent Road, to the north of the Central Wastewater Treatment Plant, and northeast of Energy Conversion Systems / Darling International, Inc. The upper swale passes through this vacant land at, or very close to, the vicinity where hazardous industrial lead slag was placed in landfilled pits.

3. Site History: This site is under ownership of UPRR and the City of Dallas. Previous occupants to the southwest of this site include N.L. Industries (a secondary lead smeltering facility), and Valcar Enterprises, an animal fat rendering plant. Prior to the 1960s, N.L. Industries had buried smeltered slag and broken battery casings in pits extensively throughout Valcar and onto adjoining sites, at or very close to the swale location in this site.

4. Investigations: The site was investigated during the risk assessment conducted for Energy Conversion Systems / Darling International. No SWF investigation has been conducted at the site due to lack of right-of-entry.

A. By Others: McCulley, Frick & Gilman, Inc.

- Numerous soil borings drilled with detailed chemical analysis of soil lead contamination (at depths to Austin Chalk) throughout southeastern portion of site adjacent to Darling International.

- Adjoining property to this site undergoing corrective action to date with capping and monitoring of lead contaminated waste.

(1) Borings: 20
(2) Soil Test Results: Maximum Concentration, mg/kg; Report by McCulley, Frick & Gilman, Inc.

Parameter	Value	Waste Class
Lead	2660	Class 1 -See Remark (a.) Below

(3) Monitoring Wells: NA
(4) Water Test Results: NA

B. By SWF: NA

(1) Borings: NA
(2) Soil Test Results: NA
(3) Monitoring Wells: NA
(4) Water Test Results: NA

5. Waste Classification:

A. Soil: Class 1 industrial non-hazardous waste
Basis: TAC Chapter 335 Subchapter R

B. Sediment: NA
Basis:

C. Surface Water: NA
Basis:

D. Groundwater: Class 2 industrial non-hazardous waste
Basis: TAC Chapter 335 Subchapter R

E. Solid Waste: Type I Municipal Waste
Basis: See Remark (b.)

F. Leachate: NA
Basis:

6. Remarks:

(a.) This sample was taken approximately 100 feet west of the project swale alignment. Based on SWF analytical results of lead investigations, total lead concentration of 2660 mg/kg would not likely result in TCLP Pb > 5.0 mg/l. Thus, material is anticipated to be categorized as Class 1 or Class 2 Non-hazardous Waste. If further sampling and testing reveals hazardous wastes, the site will be avoided.

(b.) Based on interviews, the site apparently contains a surface battery dump of unknown size and location. Efforts to locate it have not been successful to date.

1. Site Name: Lagoon E at the Dallas Central Wastewater Treatment Plant

2. Project Features at Site: The swale passes through and will remove the majority of Lagoon E.

3. Site History: Lagoon E is a serpentine shaped lagoon which was used for disposal of municipal sludge from the 1930's until the early 1970's. It is located in the northeast portion of the plant, within the floodplain of the Trinity River.

4. Investigations:

A. By Others: Investigated in 1993 by Albert H. Halff Associates under contract to the City of Dallas. Collected samples of the sludge, soils and groundwater.

(1) Borings: Five, converted to monitoring wells
(2) Soil Test Results: Results are in mg/kg

Parameter	Value	Waste Class
Ba	206	Class 2
Cd	ND	
Cr	36.5	Class 2
Cu	11.6	Class 2
Pb	12.9	Class 2
Hg	ND	
Ni	21.0	Class 2
Ag	ND	
Zn	34.9	Class 2

No VOC or SVOC detected

(3) Monitoring Wells: Five
(4) Water Test Results: Maximum values in mg/l

Parameter	Value	Waste Class
Ba	1.9	Class 2
Cd	ND	
Cr	ND	
Cu	ND	
Pb	ND	
Hg	ND	
Ni	ND	
Ag	ND	
Zn	ND	

No VOC or SVOC detected

(5) Sludge Test Results: Results in mg/kg unless noted otherwise

Parameter	Value	Waste Class
pH	8.1 - 8.6	Class 2
Reactivity	ND	
Ignitability	>212° F	Class 2
As	ND	Class 2 - See TCLP data below
Ba	363	Class 2 - See TCLP data below
Cd	49.8	Class 2 - See TCLP data below
Cr	280	Class 2 - See TCLP data below
Cu	154	Class 2
Pb	635	Class 2 - See TCLP data below
Hg	7.5	Class 2 - See TCLP data below
Mo	ND	
Ni	469	Class 2
Se	ND	Class 2 - See TCLP data below
Ag	25.8	Class 2 - See TCLP data below
Zn	668	Class 2
Bis(2-ethylhexl)phthalate	21	Class 2
Di-n-butyl phthalate	15	Lab contaminant
Acetone	0.19	Class 2
Methylene Chloride	3.3	Class 2
Toluene	0.021	Class 2
Chlorobenzene	0.128	Class 2
Ethyl benzene	0.032	Class 2
Xylenes	0.067	Class 2

No Fecal Coliform, Salmonella, pesticides, herbicides, acid extractables detected

(6) TCLP Analyses

Parameter	Value	Waste Class
As	ND	
Ba	0.53	Class 2
Cd	ND	
Cr	0.01	Class 2
Pb	0.05	Class 2
Hg	ND	
Se	ND	
Ag	ND	

B. By SWF: None

5. Waste Classification

A. Soil: Class 2 non-hazardous industrial waste
Basis: TAC Chapter 335 Subchapter R

B. Sediment: NA
Basis:

C. Surface Water: NA
Basis:

D. Groundwater: Class 2 industrial non-hazardous waste
Basis: TAC Chapter 335 Subchapter R

E. Sludge: Class 2 industrial non-hazardous waste
Basis: TAC Chapter 335 Subchapter R

6. Remarks -

1. Site Name: Union Pacific Railroad (UPRR)

2. Project Features at Site: The swale will pass through this site.

3. Site History: The Union Pacific Railroad landfill is located northeast of Linfield Landfill, entirely on UPRR property (formerly Southern Pacific Railroad). Visual reconnaissance of the site noted surface expressions of landfilled trenches and scattered material, which generally consisted of construction debris, i.e. broken concrete, rebar, tile, scrap metal, etc.

4. Investigations: Investigation work has been proposed at two locations along the swale alignment along with a proposed geophysical survey to determine the lateral and vertical extent of the landfill. Attempts at obtaining right-of-entry into this area had been denied by the Southern Pacific Railroad. No prior investigations of this site were available.

A. By Others: None

B. By SWF: None

5. Waste Classification

A. Soil: Class 2 non-hazardous industrial waste.
Basis: Visual inspection of site and knowledge of surrounding sites.

B. Sediment: NA
Basis:

C. Surface Water: NA
Basis:

D. Groundwater: Class 2 industrial non-hazardous waste.
Basis: Visual inspection of site and knowledge of surrounding sites.

E. Solid Waste: Primarily construction debris, which can be segregated and placed in a Type IV municipal landfill, with possibly some Class 2 industrial non-hazardous wastes, which can be placed in a Type I Municipal landfill with a special waste trench.
Basis: Visual inspection of site and knowledge of surrounding sites.

6. Remarks -

1. Site Name: Linfield Landfill

2. Project Features at Site: Swale passes through western end of landfill where commercial and residential wastes were placed. At the center of the swale all of the landfill materials will be removed . The thickness of the landfill materials left in place will increase from the center toward the edges of the swale.

3. Site History: Closed in 1975. Received a mixture of commercial and residential wastes, burned commercial wastes, brush and industrial demolition debris and industrial liquids which were placed in pits. Landfill is currently being used for disposal of tailings from DART tunnel construction and placement of tree trimming debris

4. Investigations:

A. By Others: Evaluated under CERCLA in February 1980 and given a "no further action" status by EPA. In 1982 five monitoring wells were installed by National Soil Services around the perimeter of the landfill. Monitored semi-annually from 1982 to 1984. Monitored annually from 1985 to present (1998). In general, while contamination is present, it shows a decreasing trend.

(1) Borings: None
(2) Soil Test Results: NA
(3) Monitoring Wells: 5
(4) Water Test Results: Maximum values in mg/l

Parameter	Value	Waste Class
pH	5.91 - 7.7	NA
Sp. Cond.	5650	NA
Chlorides	1070	NA
Sulfates	5650	NA
Nitrates	9.8	NA
Phenols	0.540	NA
As	0.021	Class 2
Cd	0.17	Class 2
Cr	0.121	Class 2
Fe	40.3	NA
Pb	0.15	Class 2
Mn	18.4	NA
Se	0.500	Class 2
CN-	0.28	Class 2
TOC	44	NA

B. By SWF: Investigated in Spring 1995 by Freese and Nichols. Two borings were drilled

two feet into insitu soils. Visually classified wastes as soil fill, concrete, scrap metal, clay pipe fragments, plastic debris, rope and ceramic tile fragments. Landfill content appears to be consistent with municipal solid waste. Leachate tested as potentially hazardous for lead (5.8 & 6.5 mg/l).

(1) Borings: 2
(2) Soil Test Results: Maximum values in mg/Kg

Parameter	Value	Waste Class
As	2.9	Class 2
Ba	29	Class 2
Cd	4.0	Class 2
Cr	9.8	Class 2
Pb	ND	NA
Hg	ND	NA
Se	ND	NA
Ag	ND	NA

No VOA, SVOA, Cyanide, pesticides, herbicides or PCBs detected.

(3) Monitoring Wells: 2 temporary
(4) Water Test Results: Maximum values in mg/L

Parameter	Value	Waste Class
As	0.96	Class 2
Ba	7.86	Class 2
Cd	0.36	Class 2
Cr	0.70	Class 2
Pb	6.5	RCRA Hazardous
Hg	0.12	Class 2
Se	ND	NA
Ag	0.19	Class 2
Chlorobenzene	0.009	Class 2
Bis(2-Ethylhexyl)phthalate	0.089	Class 2
Phenanthrene	0.060	NA
Cyanide	0.01	Class 2

No pesticides, herbicides or PCBs detected.

C. By SWF: Investigated in September 1998 by Tetra Tech NUS. Twenty-eight (28) borings were drilled into insitu soils. Visually classified landfilled wastes as municipal solid waste. Two soil samples collected from within landfilled materials tested as non-hazardous due to toxicity. Fourteen (14) groundwater samples collected from within landfilled materials and

one (1) groundwater sample collected from beneath the landfill tested as non-hazardous using TCLP test method 1311 for toxicity characteristic parameters.

(1) Borings: 28
(2) Soil Test Results: Maximum values in mg/Kg

Parameter	Value	Waste Class
As	ND	NA
Ba	947	Municipal
Cd	3.6	Municipal
Cr	21	Municipal
Pb	119	Municipal
Pb TCLP	0.040 mg/L	Municipal
Hg	3.6	Municipal
Se	0.40	Municipal
Ag	ND	NA
Chlorobenzene	0.091	Municipal
Methyl ethyl ketone	0.014	Municipal

No SVOA, pesticides or herbicides detected.

(3) Monitoring Wells: 15 temporary
(4) Water Test Results: Maximum values mg/L

Parameter	Value	Waste Class
pH	6.49-8.18	NA
As	0.247	Municipal
Ba	1.5	Municipal
Cd	ND	NA
Cr	ND	NA
Pb	0.119	Municipal
Hg	ND	NA
Se	0.058	Municipal
Ag	0.13	Municipal
Trichloroethylene	0.0021	Municipal
Benzene	0.052	Municipal
Chlorobenzene	0.079	Municipal

No SVOA, pesticides, or herbicides detected.

5. Waste Classification:

A. Soil: Municipal solid waste

Basis: 30 TAC Chapter 330 Subchapter A, 30 TAC 335 Subchapter R

B. Sediment: NA
Basis:

C. Surface Water: NA
Basis:

D. Groundwater: Municipal solid waste
Basis: 30 TAC Chapter 330 Subchapter A, 30 TAC 335 Subchapter R

E. Solid Waste: Municipal
Basis: 30 TAC 330 Subchapter A, visual classification, knowledge of landfill history

F. Leachate: Municipal solid waste
Basis: 30 TAC Chapter 330 Subchapter A, 30 TAC 335 Subchapter R

6. Remarks - Waste classifications are based on combined results of 1995 and 1998 investigations and landfill history. Water sample results for 1998 investigation supercede results for 1995 investigation because 1995 samples were not analyzed using TCLP test method 1311, required for designating waste as being hazardous due to toxicity. Municipal solid waste classification is derived from 1998 conclusion that landfill contains municipal solid waste, as defined in 30 TAC 330 Subchapter A, and test results for corrosivity and TCLP resulted in non-hazardous concentrations, as defined in 40 CFR 261.22 and 261.24, respectively.

1. Site Name: Open Dump Near Linfield Landfill

2. Project Features at Site: This site is an uncontrolled fill area located south and adjacent to Linfield Landfill Pond. The swale passes through an extensive portion (approx.1200 ft by 600 ft) of Linfield Landfill, located northeast of the open dump area, along the lower western portion of the Trinity River Floodplain. If this site is purchased as part of the project, and currently that is not proposed, the wastes and/or contaminated material encountered at this site will likely be covered, contained, and left in place, since project features do not effect this area. Previously, the site had been situated within the Joppa swale alignment. However, the swale alignment was rerouted through Linfield Landfill and this site was removed from the project.

3. Site History: This sparsely vegetated and undeveloped dumping area has been landfilled with residential waste, construction debris, and rock spoil. The site had been steadily used as a dumping grounds for an unknown amount of time. In the last 5 years, it has received a substantial amount of rock spoil from DART construction as cover material. No other information is available pertaining to the sites history.

4. Investigations: The Spring 1995 Corps site investigation (Freese and Nichols) involved one temporary monitoring well - in what was then the proposed Joppa alignment of the swale.

A. By Others: NA
(1) Borings: NA
(2) Soil Test Results: NA

B. By SWF: Investigated in 1995 by Freese and Nichols.
- One temporary monitoring well drilled two feet into insitu soils.
- Visually classified wastes as rock spoil, concrete, residential waste, and construction debris.
- Landfill content appears to be consistent with municipal solid waste.
- Elevated inorganic concentrations in groundwater were noted for all RCRA metals.

(1) Borings: 1
(2) Soil Test Results: Concentration, mg/kg

Parameter	Value	Waste Class
Fluoranthene	7.2	Class 2
Chrysene	4.6	Class 2
Phenanthrene	4.8	Class 2
Pyrene	6.4	Class 2
Arsenic	2.2	Class 2
Barium	71	Class 2
Silver	2.6	Class 2
Cadmium	5.4	Class 2

Chromium	10	Class 2
Mercury	0.5	Class 2
Lead	19	Class 2

(3) Temporary monitoring Wells: 1
(4) Water Test Results: Concentration, mg/l

Parameter	Value	Waste Class
Arsenic	0.02	Class 2
Barium	2.16	Class 2
Cadmium	0.08	Class 2
Chromium	0.21	Class 2
Lead	0.70	Class 2
Mercury	0.06	Class 2
Selenium	0.29	Class 2
Silver	0.37	Class 2

No organic concentrations were detected in groundwater at this site

5. **Waste Classification:**
   - **A. Soil:** Class 2 industrial non-hazardous waste
     Basis: TAC Chapter 335 Subchapter R
   - **B. Sediment:** NA
     Basis:
   - **C. Surface Water:** NA
     Basis:
   - **D. Groundwater:** Class 2 industrial non-hazardous waste
     Basis: TAC Chapter 335 Subchapter R
   - **E. Solid Waste:** NA
     Basis: Visual observation of landfilled wastes (i.e., residential, construction debris, and rock spoil).
   - **F. Leachate:** NA
     Basis:

6. **Remarks:** No project features are currently anticipated at this site.

John Hall, *Chairman*
Pam Reed, *Commissioner*
R. B. "Ralph" Marquez, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

May 30, 1995

U.S. Army Corps of Engineers (COE)
P.O. Box 17300
Ft. Worth, Texas 76102-0300
Attn: CESWF-ED-E/Jim Drysdale

RE: Channelization of Trinity River through Linfield Sanitary Landfill (Closed Landfill)

Dear Mr. Drysdale:

During recent phone conversations with various personnel of the Texas Natural Resource Conservation Commission (TNRCC), you indicated that the City of Dallas is considering exhuming waste from the above referenced site and channelizing a portion of the Trinity River through the landfill site.

In addition, you noted that hazardous waste may have been deposited at the site and that elevated levels of lead were detected in recently obtained leachate samples.

This letter provides some guidance in regards to regulatory issues associated with the proposed activities on this closed site. Prior to any construction activities, a plan detailing the proposed activities must be submitted to the TNRCC Municipal Solid Waste Division for review and approval, as required by 30 Texas Administrative Code (TAC) Section (§) 330.255(a) which states:

> "The owner or operator shall submit any plans for proposed construction activities or structural improvements located on closed MSWLF units or MSW sites and not associated with approved solid waste disposal activities, with supporting documentation in accordance with subsection (b) of this section, to the executive director for review and approval."

Prior to the submittal of the plan, it is recommended that you schedule a meeting with TNRCC personnel in Austin. This meeting would include representatives from both Industrial & Hazardous Waste and Municipal Solid Waste Divisions to address planned activities.

P.O. Box 13087 • Austin, Texas 78711-3087 • 512/239-1000

The following is a summary of minimum requirements which need to be addressed in the submitted plan:

1. A site plan of the landfill that shows the area that will be affected by excavation/construction related activities and the fill areas;

2. Details of the location of the proposed channel and any structures on the landfill site;

3. A waste sampling and analysis plan (A soil boring survey shall be conducted characterizing type of waste, depth of waste, underlaying soil strata, prevailing geologic/hydrogeologic conditions, and existing groundwater levels. Groundwater and leachate samples shall be collected and analyzed for constituents. Boring logs shall be prepared and submitted with supporting details.);

4. A calculation sheet prepared and showing total volume of waste to be excavated/relocated during construction activities (Excavated materials shall not be used for embankment or any other purposes except disposal to an approved disposal facility. A copy of an agreement/contract, showing that disposal of excavated materials shall be at an approved landfill, shall be submitted.);

5. Notification given to the public, adjacent land owners, and local emergency officials regarding waste excavation/ relocation activities (Also, TNRCC Region 4 office, located in Duncanville, shall be notified prior to the beginning of waste excavation/relocation activities. Methods for notification prior to the start of each waste relocation event shall be specified.);

6. A Contingency Plan developed to cease waste removal operations specified in the event weather conditions, nuisance odors or air monitoring indicate an impact on off-site areas is imminent;

7. A plan for daily cover of all exposed waste at the end of each day;

8. Appropriate measures to contain rainfall surface run-off from the active working face in the event of inclement weather (All rainfall surface run-off from the active face shall be disposed of at a permitted facility.);

9. Liners provided at all the exposed side walls of excavated surfaces (Soil and Liner Quality Control Plan (SLQCP) shall be developed in accordance with 30 Texas Administrative Code (TAC) Section (§) 330.205. Soils and Liner Evaluation Report (SLER) shall be prepared and submitted in accordance with 30 TAC § 330.206.);

10. Nuisance odor control measures to be implemented at site to minimize the effect of waste relocation on the operation of local businesses, adjacent property owners, and the general public using routes of transportation in the vicinity of the site (The measures may include, but not be limited to, spraying of exposed waste and/or application of soil cover to the exposed waste surfaces to minimize odors and the attraction of vectors. A plan shall be developed to control air pollution related problems describing measures to be taken in the event of occurrence of objectionable odors.);

11. On-site combustible gas detection equipment (Concentration of methane gas (CH_4) shall not exceed Lower Explosive Limit (LEL), 5% methane by volume in air.);

12. Control of ponded water in operational areas to avoid its becoming a nuisance;

13. Control of windblown waste and litter in accordance with 30 TAC § 330.120;

14. A construction schedule showing dates and time of day that work in the landfill area will take place;

15. A weather monitoring station established at the site (Measurements of meteorological parameters such as wind speed, wind direction, temperature, and wind chill, if necessary, shall be taken hourly and recorded during each waste relocation event.);

16. Air monitoring at the site on a daily basis during each waste relocation event (The ambient air shall be monitored for the following: Hydrogen Sulfide (H_2S), Methane (CH_4), Carbon dioxide (CO_2), and Oxygen (O_2). Air monitoring shall be performed using direct reading instruments and readings shall be documented on a daily basis. Direct reading of the instruments shall be used by the site engineer to determine whether to continue waste relocation activities. Air monitoring shall be performed downwind from the designated relocation area. Procedures for air sampling at the site shall also be specified.);

17. A status report of work activities of each waste relocation event to include quantity of waste relocated, air monitoring results, and any anticipated problems that might arise as a result of changing weather conditions (These status reports shall be submitted on a weekly basis to the TNRCC during each waste relocation event for review and documentation purposes.);

18. Provide all remaining exposed waste surfaces, at the end of construction activities, with a final cover in accordance with 30 TAC § 330.251;

19. Perform Post-Closure Care Maintenance in accordance with 30 TAC § 330.254.

If you have any questions regarding this letter, please contact Mr. Sam Coyner at (512) 239-2519.

Sincerely,

H. Thomas Collins, P.E., Team Leader
Landfill Remediation Team
Compliance and Enforcement Section
Municipal Solid Waste Division

HTC\sjc

cc: TNRCC Region 4 Office
Vic Ramirez, TNRCC ECL
TNRCC I&HW Waste Evaluation Section
Ada Lichaa, TNRCC MSW Corrective Action
City of Dallas

CESWF-EV-D (200-1a)

13 January 1998
Simmons/rg/8-9923/1630

MEMORANDUM FOR FILES

SUBJECT: Dallas Floodway Extension (DFE), Record of Conversation with Environmental Protection Agency (EPA), and Texas Natural Resource Conservation Commission (TNRCC), Concerning Regulatory Status of Linfield Landfill

1. On 9 January 1998, the undersigned contacted Carlos Sanchez, an RPM with the Superfund Division, and Stan Hitt, Director of the Brownfields Program. Both work at EPA Region VI. On 12 January 1998, I also contacted Chuck Epperson, Chief of the Voluntary Cleanup Section with TNRCC. I discussed the current regulatory status of Linfield Landfill with all three and the impact construction of the swale would have on this status. I told each of them:

a. Linfield Landfill is a CERCLIS site with a current "No Further Action Status".

b. The swale will pass through the western end of the landfill removing about 25% of its volume.

c. The wastes that will be removed are municipal solid wastes, but that industrial wastes, including liquid industrial wastes, were disposed of in the eastern end of the landfill.

d. Testing by CESWF in the landfill has identified lead in the leachate at levels slightly above hazardous levels.

e. The CSEWF proposes to:

(1) Isolate the portion of the landfill not required for construction from that portion that will be disturbed.

(2) Remove and dispose of all wastes, including the leachate as required, in accordance with applicable laws.

(3) Reclose the landfill, ensuring no future releases from the landfill occur.

2. I contacted Mr. Sanchez (a former CESWF employee currently involved in the West Dallas Lead Smelter Superfund Projects) who felt that EPA would have little interest in revisiting the Linfield Landfill. It had been assessed while on the CERCLIS and was determined not to be a problem. He confirmed that future regulation of the landfill was the responsibility of the TNRCC.

3. I contacted Mr. Hitt because he oversees the Brownfields Program for EPA Region VI.

a. I asked him about a "comfort letter" for Linfield Landfill. He stated

CESWF-EV-D
SUBJECT: Dallas Floodway Extension (DFE), Record of Conversation With Environmental Protection Agency (EPA), and Texas Natural Resource Conservation Commission (TNRCC), Concerning Regulatory Status of Linfield Landfill

that this site would fall under the Brownfields Initiative, but that a "comfort letter" would likely be issued once the construction was complete. He stated landfills are very complex and full of surprises, so EPA is reluctant to issue one before construction is complete.. He also confimed that the TNRCC Voluntary Cleanup (VCP) program was the appropriate framework to go through, and that any liability release from TNRCC would be honored by EPA as well, since they have a Memorandum of Agreement (MOA) in-place to recognize each others liability releases.

b. I asked him if EPA would be willing to provide us a letter saying that, if the Corps followed the construction process outlined above in para 2.e., EPA would anticipate requiring no additonal actions by the Corps to address the remainder of the landfill. He was receptive to this idea. He made it clear that this would not be binding, and that once further investigations were conducted, revisions may be required. I offered to ghost-write a letter for him and send it via e-mail. He agreed to staff it through EPA to see what could be done.

4. I contacted Mr. Epperson, head of the TNRCC VCP. He was also receptive to considering Linfield Landfill under the VCP, as well as any other sites in the DFE project. I explained that we had contacted the TNRCC Industrial & Hazardous Waste, Waste Evaluation Section, in May 1995, to determine what actions were necessary concerning construction in or on a landfill. He felt that our approach, as described in para 2.e., was sound and that, if we complied with the May 1995 letter, we should not have any problems. He cautioned that work in landfills is always complex and that the TNRCC may require ground-water monitoring after construction to ensure no new releases occur as the result of our activities.

5. In summary:

a. The EPA has little interest in regulating this site under their CERCLA authority.

b. The TNRCC is the regulatory agency that will regulate this site.

c. The proposal to deal only with those wastes generated by construction of the swale, with no requirement to remediate the remainder of Linfield Landfill is reasonable and, in principle, acceptable to EPA and TNRCC.

6. Questions on the above should be directed to the undersigned at (817) 978-9923, EXT 1630.

Mark E. S

MARK E. SIMMONS P.E.
Chief, Environmental Design Branch

CESWF-EV-D
SUBJECT: Dallas Floodway Extension (DFE), Record of Conversation With Environmental Protection Agency (EPA), and Texa. Natural Resource Conservation Commission (TNRCC), Concerning Regulatory Status of Linfield Landfill

CF:
CESWF-EV (M. Ensch)
CESWF-PM (M. Mocek)
CESWF-PM-C (B. Fickel)
CESWF-PM-C (G. Rice)
CESWF-EC-TP (K. Craig)
CESWF-EV-DI (D. Perrin)
CESWF-EV-DI (J. Drysdale)

TRIP REPORT
REVIEW OF LINFIELD LANDFILL AND OTHER HTRW SITES
DALLAS FLOODWAY EXTENSION PROJECT

I. REVIEW OF APPENDIX J

A. Previous Investigations. The previous investigations have consisted of preliminary assessments with 1 to 6 soil borings, sediment samples, and groundwater samples per site. The purpose of the preliminary assessment is to determine the presence and nature of contaminants at a site. The previous site investigations have been limited by Right of Entry and weather problems. The previous investigations are adequate and should be continued on all of the sites when weather and right of entries permit.

B. Future Investigations. The preliminary assessment investigations should continue on the previously univestigated sites. The preliminary assessments should be performed using methods similar to the previous investigations. Consideration should be given to skipping the preliminary assessment and performing a more detailed investigation if there is a high likelihood of finding contamination. Investigations to determine the nature and extent of contamination should be conducted on sites where contaminants above regulatory standards were discovered. The recommended investigation would consist of soil borings 10 ft. deep on 200 ft. centers along the levees. Borings should be drilled in a grid pattern on 200 ft. centers for the sump and swale excavation areas. These borings should be drilled to a depth of 5 ft. below the bottom of the sump or swale. Groundwater samples should be taken and elevations recorded when groundwater is encountered. Also, additional soil boring and groundwater sampling should be performed 200 to 400 ft. past the edge of the excavation. When planning borings outside the excavated areas, consideration should be given to the potential localized change in groundwater flow direction near a sump or swale excavation. The purpose of the additional borings would be to determine if contamination exists outside the excavation which could seep into the sump or swale during or after construction. A direct push rig used in conjunction with an on site lab would be the quickest and most efficient method of performing the investigation. The direct push rig and onsite lab provide immediate test results allowing the onsite geologist/engineer to make informed decisions on additional boring locations required to fully characterize a site. The onsite lab should be capable of analyzing both soil and groundwater for all contaminants of concern. The direct push rig could be a cone penetrometer (CPT) rig or Geoprobe/Earthprobe rig mounted on an all-terrain vehicle. CPT rigs can provide valuable soil classification and hydraulic conductivity information, however most CPT rigs are large and would not be able to access the majority of these sites. A CPT rig should only be considered in locations accessible to large conventional rotary rigs. Due to accessibility, the Geoprobe/Earthprobe type units would probably be the best choice for most of these projects. Most Geoprobe/Earthprobe type rigs also have limited augering capabilities for areas where direct push tools cannot be used. However, conventional rotary rigs should be used when investigating the interior of a landfill because direct push tools can be damaged when hard irregular shaped objects are encountered in a landfill. This investigation technique has been used by the Tulsa District many times with excellent results. The investigations have been performed using both types of direct push rigs mentioned above

and have been performed by both contractors and District personnel. These investigations were performed faster and were less expensive than similar investigations using convention methods (rotary rig and offsite lab). Information gathered during any geotechnical or environmental investigations could be used by either discipline. Investigations by either discipline should be coordinated to avoid duplication of work.

C. Waste Classification. The current waste classifications in Appendix J are reasonable. They could be refined if additional background soil borings could be performed in the area. The background information could be particularly useful in determining acceptable concentrations of metals. The quantities need to be refined using information from the additional investigations. Soil contamination is usually limited to the area immediately around the source of contamination. however groundwater contamination can extend well beyond the source in sandy or gravelly areas. Therefore, the future investigations should be designed to locate all groundwater contamination in or near the sumps and swales and determine the most efficient method of dealing with the groundwater (containment or collection and treatment/disposal).

D. Disposal Alternatives. The waste classifications and disposal methods identified in Appendix J are reasonable. Contaminated soil and landfill waste will be disposed of in a hazardous waste (RCRA) landfill or a municipal solid waste landfill (MSWLF), depending on the classification of the waste. Incineration is another method of disposing or treating solid waste. Tulsa District is using a thermal desorption process at Longhorn Army Ammunition Plant (LHAAP) to remove contaminants from soil. However, incineration or thermal desorption is probably not an acceptable treatment method because acquiring an air permit in Dallas for this treatment process would be difficult and maybe impossible. Testing of any waste disposed of offsite will likely be required to determine the appropriate disposal facility. The operators of the MSWLF should require testing to protect themselves if testing is not required by TNRCC. Onsite disposal of the Class 1 Nonhazardous solid waste may be an option and will be discussed below. Any hazardous solid waste should be taken offsite for disposal. Construction of a RCRA landfill for onsite disposal would be cost prohibitive and permits in a floodplain would probably be impossible to acquire. TNRCC and the wildlife agencies will not allow contaminated groundwater to seep into the sump and swale areas during or after construction. Therefore, contaminated groundwater must be contained using some type of impermeable barrier where excavation in areas with contaminated groundwater is required. Construction controls should be used to minimize collection of surface runoff in excavations through contaminated areas. However, all surface runoff and groundwater that collect in contaminated areas should be pumped into portable storage tanks and be analyzed to determine the required disposal or treatment method. TCLP analysis should be adequate but TNRCC will have to concur.

II. LINFIELD LANDFILL

A. Slurry Trench. Any slurry trench should be keyed into the low permeability rock even in areas that are predominantly clay to avoid the potential underseepage through sand or gravel lenses. The geotechnical borings do not identify the top of rock elevation along the entire length of the wall. Borings should be conducted to locate the top of rock. Also, the slurry trench should

be extended approximately perpendicular to the sump or swale an adequate distance to prevent contaminated groundwater from seeping around the wall. This is particularly important for any wall constructed upgradient of a sump or swale. Construction of a conventional slurry trench through landfill debris will be difficult. Keeping the trench open and preventing the loss of slurry (even if panel construction is used) could be difficult due to the large number and size of voids that can exist in landfills. Test wells could be placed in the landfill to determine the hydraulic conductivity and design the slurry for the trench. The wells could also be used for leachate sampling or monitoring. Other barriers to considered in addition to or in place of conventional slurry trenches are sheet pile walls with sealed joints or walls consisting of synthetic liners.

B. Cover System. No synthetic covers are required for MSWLF's if the landfill does not have a synthetic bottom liner, according to 30 TAC Chapter 330, Subchapter J. The landfill cover must have a permeability equal to or less than the bottom liner of the landfill and cannot be greater than $1*10^{-5}$. At a minimum, the landfill cover should consist of 2 ft. of compacted clay with 6 in. of topsoil. Since the swale will be constructed to carry Trinity River flood flows, TNRCC may require the use of a synthetic liner as added protection. However, a concrete lined channel through the landfill may satisfy them. This is a point that could be negotiated.

C. Slope Protection. Adequate protection should be designed to prevent erosion of the cover due to river velocities and/or rainfall runoff down the sideslopes. A properly designed and constructed concrete lined channel will provide adequate protection. The top of the slope should be bermed or graded to prevent uncontrolled runoff down the slope if the concrete lining does not extend to the top of the slope. Topsoil and adequate grass cover could provide enough protection from runoff if the grading is done properly.

D. Waste Disposal and Classification. Collection, removal, treatment, and offsite disposal of leachate and solid waste were addressed in Paragraph I. Testing of the waste will probably not be required if permission is given to relocate the waste on the existing landfill. Any new landfill created on the golf course or other area on the project will have to meet the requirements of any new MSWLF permitted by TNRCC.

E. Worker Protection. Worker protection and protection of the public will be required and should consist of stationary air monitoring stations, weather stations, and portable air monitoring equipment. In addition, nuisance odors must be controlled and not permitted to impact surrounding neighborhoods.

III. DISPOSAL IN NEW OR EXISTING LANDFILL.

A. Disposal in New Landfill. According to TNRCC regulations, any new landfill located in the golf course receiving Class 1 Nonhazardous Waste must be permitted, designed, and operated like any new MSWLF. The construction of a new landfill to meet current criteria would likely exceed the cost of offsite disposal. In addition, TNRCC will not permit a MSWLF in a 100-year floodplain unless specific written approval is requested and received.

B. The best disposal option would be to seek permission to relocate the excavated waste in another portion of the landfill. TNRCC does not generally approve of this practice and 30 TAC 330.955 does not allow this practice. However, if Dallas owned the portion of the landfill where the waste would be moved and the COE designed an adequate cap, TNRCC may be receptive to relocation of the waste. The potential cost savings are worth negotiating with TNRCC for relocation of the waste on the existing landfill. TNRCC should be told the waste will be moved to an area of the existing landfill that is above the 100-year floodplain. Also, a minimum of 2 ft. of compacted clay and 6 in. of topsoil will be placed over the relocated waste and graded with slopes of 3 to 5%. The use of a geomembrane and possibly a drainage layer in addition to the compacted clay could be used as a negotiating point. A minimum of 18 inches of coversoil is required when a geomembrane is used.

IV. DEALINGS WITH TNRCC

A. Personnel and Organizations. The appropriate people and organizations have been identified and are listed on the last page of the May 30, 1995 letter addressed to Jim Drysdale. The people I have dealt with on the LHAAP projects are Michael Moore, Diane Poteet, and Alvie Nichols of the Superfund Section. Also, Richard Anderson was the person who reviewed the technical design aspects of the landfill caps. All of these people followed the regulations closely but were fair and easy to work with. However, they probably will not work on any part of the Dallas Floodway Extension unless they have changed sections or a CERCLA site is encountered.

B. Past Landfill Experiences. I have designed or reviewed the design of landfills caps or covers in Arkansas, Oklahoma, and Texas. The excavation of three landfills under a new runway is the only Tulsa District project I am aware of in the last five years which required a substantial amount of waste excavation and relocation. The project was located at Altus AFB, Oklahoma. The waste was excavated and sorted according to PID readings. All groundwater or rainwater collected in the excavation was pumped into portable storage tanks, tested, and disposed of properly. Based on interviews with people involved with the project, all of the water collected was determined to be clean and did not require special disposal procedures. The 10th Street Superfund Site, in Oklahoma City, required excavation and relocation of PCB contaminated soil within the existing landfill. The excavation was continued until tests on the soil in the bottom and on the sidewalls of the excavation had levels of PCB less than 25 ppm. Water that collected in the excavation was drummed and tested. This water was clean and did not require special disposal. The only project I worked on in Texas which was remotely similar was the LHAAP landfill caps. One of the landfills is in the 100-year floodplain of Harrison Bayou, however no extensive relocation of waste was required. Some minor amounts of waste were moved or relocated to make grading of the cap easier. Small piles were leveled and the edges of the landfill were reshaped to place the geosynthetic layers.

RANDEL MEAD, P.E.
Geotechnical Engineer
Tulsa District, Corps of Engineers
February 10, 1998

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF

February 19, 1998

Environmental Design Branch
Environmental Division

Mr. H. Thomas Collins, P.E.
Permits Section, Municipal Solid Waste Division
Texas Natural Resources Conservation Commission
MC-124
P.O. Box 13087
Austin, Texas 78711-3087

Dear Mr. Collins:

Enclosed are minutes of our February 11, 1998 meeting in which we discussed the Dallas Floodway Extension project and how it will impact Linfield landfill. Please review the minutes to ensure they are accurate and that we understand your guidance. If the minutes are correct, it is requested that you provide a written response to that effect.

If you have questions concerning the minutes, or if you need additional information, please contact the undersigned at telephone 817/978-9923, extension 1630. We look forward to hearing from you and working with you in the future.

Sincerely,

Mark E. Simmons, P.E.
Chief, Environmental Design Branch

CESWF-EV-D (200-1a)

19 February 1998
Simmons/rg/8-9923/1630

MEMORANDUM THRU CESWF-EV (MIKE ENSCH)

FOR FILES

SUBJECT: Environmental Compliance Regulatory Issues Associated with Excavating Materials from Linfield Landfill -- Dallas Floodway Extension (DFE) Project

1. On 11 February 1998, Fort Wort District and Southwestern Division Office personnel and a city of Dallas representative met with Texas Natural Resources Conservation Commission (TNRCC) staff. A list of meeting participants is presented in enclosure 1. This meeting was arranged at the request of the Corps of Engineers for two primary purposes: (1) brief TNRCC on the above referenced project; and (2) seek their input on anticipated regulatory requirements resulting from the Corps proposal to construct a chain of wetlands through the closed Linfield landfill, located in the southern portion of Dallas, Texas.

2. William Fickel, Director, Civil Works Programs, first provided a project overview to familiarize TNRCC staff with pertinent project features and general information regarding ongoing planning activities. The writer, who is Chief, Environmental Design Branch, followed, offering background details on history of the Linfield landfill, HTRW investigations and testing the Corps has conducted to date, and coordination undertaken with EPA and others. I reiterated the purpose of this meeting was to obtain TNRCC recommendations to assure compliance with applicable Federal, State, and local waste disposal laws and regulations. The Corps was particularly interested in determining that TNRCC was the responsible agency for monitoring compliance efforts, how they would classify the waste materials, what the applicable procedural requirements for removal and replacement of the waste materials at another site would be, and to gain information concerning any special requirements for handling the lead-containing leachate contained within the landfill. Thomas Collins, TNRCC, stated that guidance contained within their letter of 30 May 1995, which was fully coordinated within TNRCC, was still valid. An open question and answer exchange then ensued between the meeting participants.

3. Highlights on the informal guidance offered by TNRCC staff regarding various questions and issues raised are summarized below:

a. Linfield landfill is classified as a pre-RCRA site, based on the time frame it was closed. As such, in TNRCC's view, they have responsibility for monitoring any actions involving disturbance of the waste materials. They did state it was highly unlikely that the landfill would ever be regulated under CERCLA again. The TNRCC was unable to find any record of this landfill in their database, nor any record of landfill permits (the Corps and the city of Dallas will attempt to research this issue).

b. Existing materials in-place at the Lindfield landfill are not considered RCRA materials; however,

they should be characterized to determine their waste characteristics for proper disposal after excavation. Not enough information is presently known to classify the materials.

c. Concurred that the lead-containing leachate could be removed by using well points and/or constructing sumps and then pumping the leachate to holding tanks where it could be tested and, if necessary, treated to meet acceptable levels for disposal. Final disposal of the leachate at the city of Dallas Central Wastewater Treatment Plant is anticipated.

d. Agreed there are three possible options for disposal of the solid wastes: (1) haul the solid waste materials to an authorized Type I landfill such as McComas Bluff or Avalon; (2) place the solid waste materials in a new landfill to be permitted and constructed downstream on an adjacent golf course (which is to be abandoned when the DFE Project is built); or (3) place the solid waste materials on top of the undisturbed portion of Linfield landfill. The McCommas Bluff landfill is a Type I municipal landfill and is located a few miles from the project site. The Avalon landfill is a Type I municipal landfill with a dedicated special waste trench, and is able to also accept some industrial wastes. It is located about 30 miles from the project site. Cost estimates presented in the draft GRR report are based on hauling the solid waste material to the Avalon site. Wastes may be split for disposal at both landfills. The TNRCC cautioned strongly that placing the solid waste materials in a new landfill in the golf course area or on top of the undisturbed portion of Linfield landfill would require going though a permitting process similar to opening a new landfill, which could take in excess of 2 years to complete and might not be successful. They suggested significant public and political issues often make this option impossible.

e. Recommended we consider providing filter fabric, as a separator between the landfill cap and the slope protection (i.e. gabbions or rip rap), on the side slopes of the swale.

f. Agreed that one test boring/ acre should be sufficient for initial characterization of Linfield landfill. Visual classification and test results would determine if more investigations on a tighter grid spacing are warranted.

g. A work plan will be submitted by the Corps to TNRCC for their review/comment/ concurrence to initially screen the site. The plan will include a site-specific safety and health plan, field investigation plan and waste management plan. Reminded the Corps that we would need proper equipment to test for methane and hydrogen sulfide gas when the site was opened.

h. Noted it was important to coordinate with the city of Dallas as regards using the McComas Bluff landfill and/or the Central Wastewater Treatment Plant for disposal of wastes. We must ensure their permit requirements are met before disposal.

CESWF-EV-D
SUBJECT: Environmental Compliance Regulatory Issues Associated with Excavating Materials from Linfield Landfill -- Dallas Floodway Extension (DFE) Project

i. The TNRCC does not see any air regulations relevant to the project except for site safety precautions during site investigation work and project excavation, due to the possibility of methane and other explosive gases.

j. The Corps will provide the Region 4 office copies of all documents and correspondence provided to the TNRCC Austin office.

4. At the conclusion of the meeting, it was mutually agreed that the Corps would prepare meeting notes outlining our understanding of the guidance offered by the TNRCC staff and forward these notes to them for review and to confirm their accuracy and completeness. Fort Worth District requested, and the TNRCC staff agreed to provide, a formal written response on their findings after review of the memo. The following primary points of contact were established for future exchanges of information:

a. General Coordination: Thomas Collins, Permits Section, Municipal Solid Waste Division, TNRCC.

b. Wastes Classification: Gerry Bolmer, Special Waste Coordinator, Municipal Solid Waste Division, TNRCC.

c. Mark Simmons, Chief, Environmental Design Branch, Environmental Division, Fort Worth District, Corps of Engineers.

Mark E. P

MARK E. SIMMONS, P.E.
Chief, Environmental Design Branch

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
n Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

March 6, 1998

Mark E. Simmons, P.E.
Chief, Environmental Design Branch
Department of the Army
Fort Worth District, Corps of Engineers
P.O. Box 17300
Fort Worth, TX 76102-0300

Re: Minutes of February 11, 1998 Meeting
Dallas Floodway Extension (DFE) Project

Dear Mr. Simmons:

The Texas Natural Resource Conservation Commission (TNRCC) is in receipt of your letter dated February 19, 1998. After review of the minutes of the above referenced meeting, the TNRCC finds that the content is as discussed. The air regulations issue as outlined on page 3, paragraph "i" should be revisited with the Air Permits Division due to the possibility gases from the closed Linfield Landfill could be present.

If you have any questions or comments concerning this correspondence, please contact Mr. Gerry Bolmer, Ground-Water Protection Team, at (512) 239-6781.

Sincerely,

Bryan W. Dixon, P.E., Director
Municipal Solid Waste Division
Texas Natural Resource Conservation Commission

BWD/JDA/geb

cc: William A. Robinson, TNRCC Regulatory Section
TNRCC Region 4 Office/ Arlington - Sam Barrett, Waste Section Manager
MSW Reader File

P.O. Box 13087 • Austin, Texas 78711-3087 • 512/239-1000 • Internet address: www.tnrcc.state.tx.us

printed on recycled paper using soy-based ink

CITY OF DALLAS

March 9, 1998

Mr. William Fickel, Jr.
Director of Civil Works, CESWF-PM-C
U.S. Army Corps of Engineers, Fort Worth District
P.O. Box 17300
Fort Worth, Texas 76102-0300

RE: The Trinity River Corridor, Dallas Floodway Extension Project

Dear Bill Fickel:

I appreciate the continued efforts of the Fort Worth District to complete the Draft General Reevaluation Report and EIS for public disclosure. As you are aware, the City of Dallas has scheduled an important bond election for the Trinity River Corridor on May 2, 1998 that includes the Dallas Floodway Extension Project. We feel it is very important for the U.S. Army Corps of Engineers to release this draft report in a timely fashion before the bond election date. Also, the report would be basis for the City, the Fort Worth District, and several other involved agencies to speak from the same reference on project details.

The City understands that the preliminary Draft General Reevaluation Report is receiving Headquarters review and subsequent approval is required before the report can be released to the public. Regarding one of Headquarters' issues on Hazardous, Toxic, and Radioactive Waste (HTRW), the City is aware of Engineering Regulation 1165-2-132. Any materials encountered with the Dallas Floodway Extension Project that are classified as hazardous substance as defined under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) would be the City's responsibility. In the event that hazardous sites are encountered with project construction, avoidance measures can be pursued with project modifications. The City also understands that the recent revisions to the draft report have not increased the City's cash requirement of $24.7 million as presently estimated for the project.

TRINITY RIVER CORRIDOR PROJECT / PUBLIC WORKS AND TRANSPORTATION 320 E. JEFFERSON BOULEVARD DALLAS, TEXAS 75203 TELEPHONE 214/948-4202 FAX 214/948-4239

CESWF-EV-D (200-1a)

22 June 1998
Perrin/rg/8-3221/1641

MEMORANDUM THRU CESWF-EV-D (MARK SIMMONS)

FOR FILES

SUBJECT: Waste Classification for Linfield Landfill, Dallas Floodway Extension (DFE) Project

1. Reference:

a. Memorandum for Files (CESWF-EV-D), 19 February 1998, subject: Environmental Compliance Regulatory Issues Associated with Excavating Materials from Linfield Landfill, Dallas Floodway Extension (DFE) Project.

b. Memorandum for Record (MFR) (CESWF-EV-DI), 27 April 1998, subject: Feasibility Phase, Hazardous, Toxic, and Radioactive Waste (HTRW) Investigations, Dallas Floodway Extension (DFE) Project Study.

2. The purpose of this memorandum is to document telephone conversation between the writer and Mr. Gerry Bolmer, Special Waste Coordinator, Municipal Solid Waste Division, Texas Natural Resource Conservation Commission (TNRCC), 19 June 1998.

3. I called Mr. Bolmer to discuss the investigative approach for classifying buried wastes and leachate materials at Linfield Landfill. I explained the purpose of this next investigative phase as being an effort to obtain data necessary to address HQUSACE comments for the GRR. These data should address the following:

a. Determine if the landfill leachate is hazardous;

b. Fully characterize buried wastes and leachate for disposal purposes; and

c. Quantify the amount of leachate and buried wastes to be removed for construction of the swale.

4. Mr. Bolmer and I agreed leachate samples are the only samples to be collected. These samples should be analyzed for the full suite of TCLP constituents listed in 40 CFR 261.24. Waste material can be classified visually. Mr. Bolmer emphasized that a complete written descriptive record of visual observations of all waste encountered in each boring is very important for TNRCC to classify this material. Field judgment should be used in collecting any samples of waste. These samples should be collected only if suspicious materials are encountered which would lead the sampler to think they might be hazardous (i.e., drums, sludge, car batteries, etc.). Visual classification can be performed using soil borings; trenches are not necessary and are not recommended. No samples need to be collected of the underlying in situ materials at this time.

5. Ref 1.a., documents TNRCC's investigative approach for initial characterization of the landfill as being one boring per acre. This approach equates to an approximate spacing of 200 feet between borings across the site. Mr. Bolmer and I agreed that only about half of these borings would be necessary to obtain data needed to address HQUSACE's comments. I faxed Mr. Bolmer a proposed boring layout (attached) for his comments. He agreed with the layout and the proposed number of borings for this next effort. Should results of this next investigative effort support keeping the proposed swale alignment at this location, then additional borings to complete the 200-foot grid spacing across the swale area will be required to provide enough visual descriptive data for TNRCC to classify the buried waste.

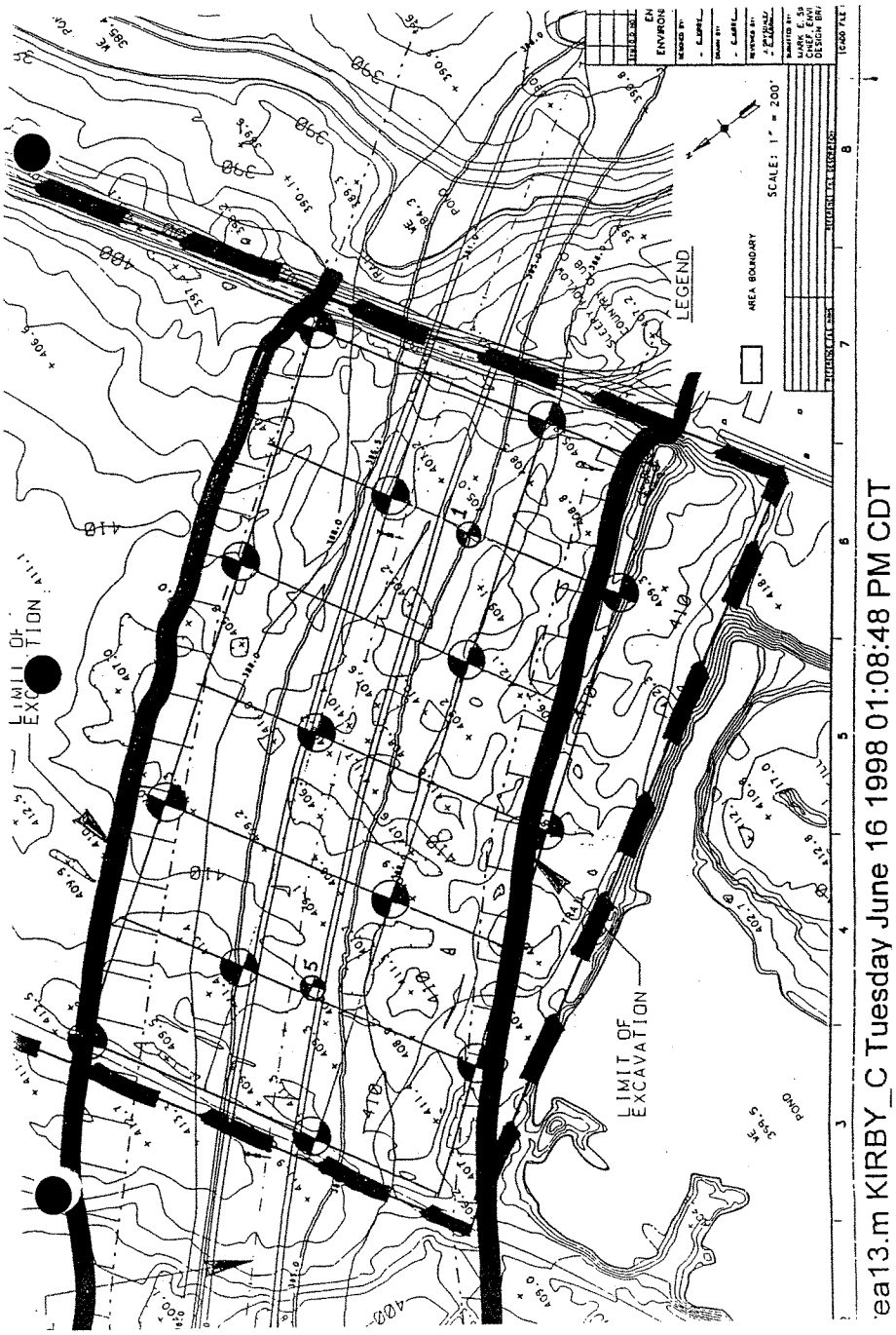
CESWF-EV-D
SUBJECT: Waste Classification for Linfield Landfill, Dallas Floodway Extension (DFE) Project

6. Mr. Bolmer and I briefly discussed the potential source(s) of the hazardous constituents in the leachate. He explained that the most likely source for hazardous leachate is industrial waste buried in the eastern half of the landfill. Right now, the TNRCC is using information contained in the few records for the site which indicate the western end of the landfill was used for municipal waste disposal. As long as no landfilled hazardous wastes are encountered during investigations of this portion of the site, the TNRCC will continue to classify this portion of the landfill as municipal solid waste.

7. In accordance with requirements of 30 TAC 330.255, Post-Closure Land Use for municipal solid waste landfills, borings through a final cover are prohibited unless authorized by the TNRCC. Prior to performing any investigations on Linfield Landfill, Mr. Bolmer requested a letter be sent to him fully describing the proposed investigation and requesting authorization to proceed. I agreed to provide him this information.

Deborah C. Perrin

DEBORAH C. PERRIN, P.G.
Team Leader, Investigations Section
Environmental Design Branch


LEGEND
AREA BOUNDARY
LIMIT OF EXCAVATION
LIMIT OF EXCAVATION
SCALE: 1" = 200'
ea13.m KIRBY_C Tuesday June 16 1998 01:08:48 PM CDT

August 12, 1998

Environmental Design Branch
Environmental Division

Mr. Gerry Bolmer
Special Waste Coordinator
Municipal Solid Waste Division
Texas Natural Resource Conservation Commission
MC-124
P.O. Box 13087
Austin, Texas 78711-3087

Dear Mr. Bolmer:

This letter is in reference to the subsurface investigations to be performed by the U.S. Army Corps of Engineers, Fort Worth District, at Linfield Landfill in Dallas, Texas, in August 1998, as part of the planning efforts for designing the Dallas Floodway Extension project. Proposed investigations were submitted to you in a letter dated July 1, 1998, and consisted of 14 borings designed to penetrate the entire thickness of buried waste for the purpose of visually classifying waste material and obtaining leachate samples for analysis. The purpose of this letter is to propose additional investigative efforts as discussed between Deborah Perrin and yourself telephonically on July 27, 1998.

Due to year end funding considerations, and the potential impact this site may have on the design of the Dallas Floodway Extension project, personnel at the Corps of Engineers have opted to perform a more extensive investigation at Linfield Landfill to fully characterize the buried waste and to begin developing stratigraphic and hydrogeologic data for the site. Therefore, the investigative effort has been expanded to include an additional 14 borings to be drilled to 40- and 60-foot depths. Proposed boring locations and corresponding depths are shown on the enclosed boring layout.

The revised plan for investigation will begin with drilling the 14 shallow borings first. Estimated final depth of these borings is 25 feet. These borings will be completed into the first clay layer encountered beyond the bottom of the waste materials, at which point a slotted PVC pipe and disposable bailer will be used for collecting a leachate sample from each boring. Following completion of the 14 shallow borings, 9 40-foot borings and 5 60-foot borings will be drilled using 8 three-fourths of an inch outside diameter hollow-stem augers. An 8-inch diameter threaded PVC casing will be placed into the clay layer underlying the site and will be grouted in-place from the bottom of the casing. The grout will be allowed to set up for a minimum of 8 hours before the boring will be advanced to its final depth of either 40 or 60 feet. Soil samples of natural material will

be collected every 5 feet or change in lithology and will be tested for geotechnical parameters only. A ground-water sample will be collected from each boring using a slotted PVC pipe and disposable bailer. Although ground-water samples collected from beneath the landfill are not expected to be characteristic of ground water at the site, chemical analysis of these samples will provide an indication of any gross ground-water contamination beneath the landfill. Upon completion of sampling, each boring will be grouted from the bottom up using a bentonite grout mixture, and the PVC surface casing will be grouted in-place. All investigation-derived waste generated from the drilling and sampling event will be containerized and characterized in accordance with 30 TAC Subchapter R requirements, then will be disposed of off-site.

Personnel at the Corps of Engineers understand that additional investigative efforts beyond those described in this letter will be required to fully characterize hydrogeologic conditions for the site. These efforts will be designed using data obtained from this investigative effort and will be coordinated with you for approval in the future.

Please address any questions or comments regarding this request to Ms. Deborah Perrin, U.S. Army Corps of Engineers, Fort Worth District, ATTN: CESWF-EV-DI, P.O. Box 17300, Fort Worth, Texas, 76102-0300. Ms. Perrin's telephone number is (817) 978-3221, extension 1641. It will be assumed no response from your office within 14 days of receipt of this letter will be concurrence to proceed with this effort.

Sincerely,

/s/

William Fickel, Jr.
Chief, Environmental Division

Enclosure

Copy Furnished With Enclosure:

Mr. Sid Slocum
Water Program Manager
Texas Natural Resource Conservation Commission
Region 4
1101 East Arkansas Lane
Arlington, Texas 76010-6499

CESWF-EV-DI PERRIN

CESWF-EV-D SIMMONS

CESWF-EV FICKEL

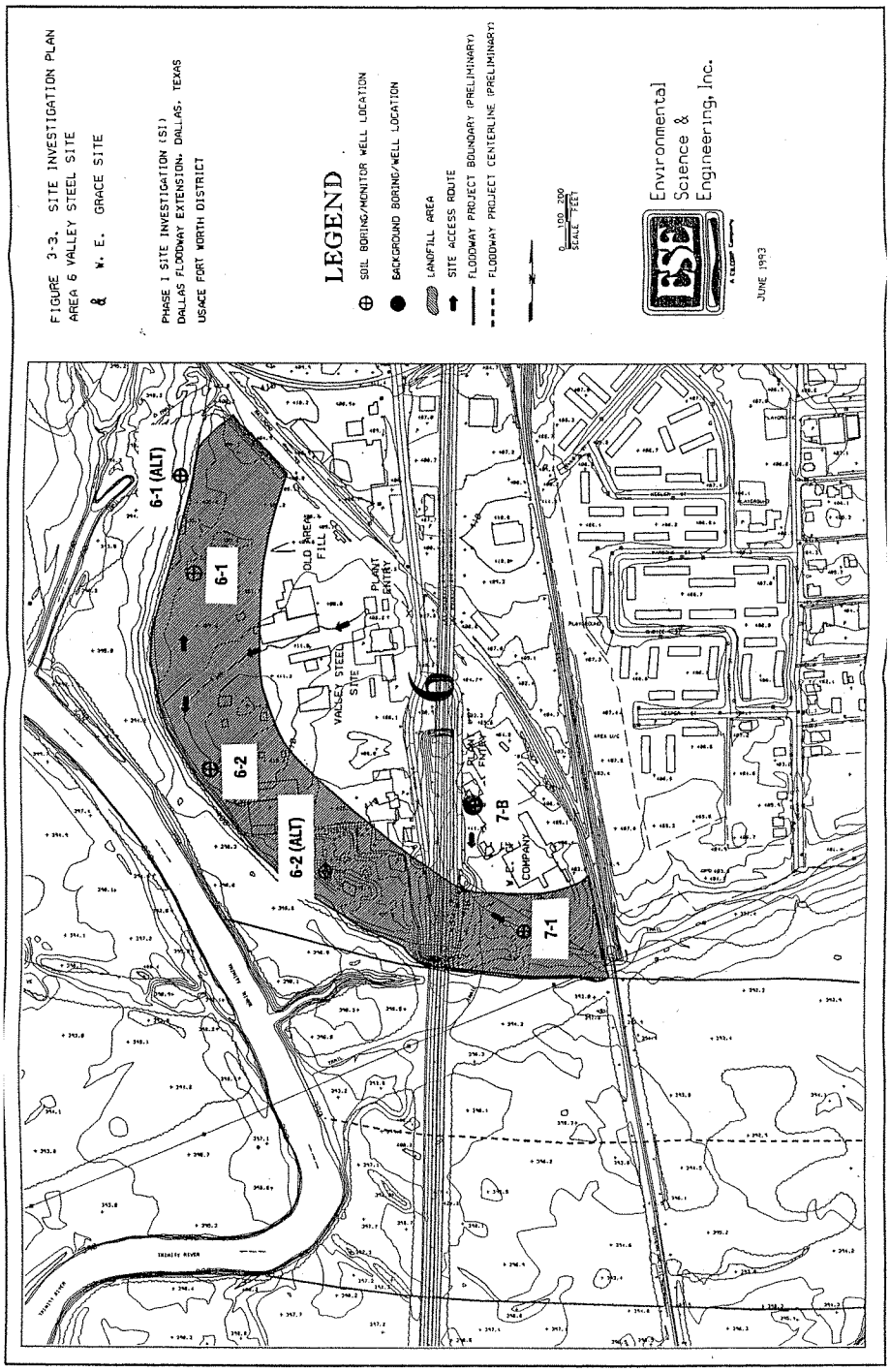


FIGURE 3-3. SITE INVESTIGATION PLAN
AREA 6 VALLEY STEEL SITE
& W. E. GRACE SITE
PHASE I SITE INVESTIGATION (SI)
DALLAS FLOODWAY EXTENSION, DALLAS, TEXAS
USACE FORT WORTH DISTRICT
LEGEND
SOIL BORING/MONITOR WELL LOCATION
BACKGROUND BORING/WELL LOCATION
LANDFILL AREA
SITE ACCESS ROUTE
FLOODWAY PROJECT BOUNDARY (PRELIMINARY)
FLOODWAY PROJECT CENTERLINE (PRELIMINARY)
0 100 200
SCALE - FEET
Environmental
Science &
Engineering, Inc.
JUNE 1993
6-1 (ALT)
6-1
6-2
6-2 (ALT)
7-1
7-B
OLD AREA 6 FILL
PLANT ENTRY
VALLEY STEEL SITE
W.E. GRACE COMPANY
TRINITY RIVER

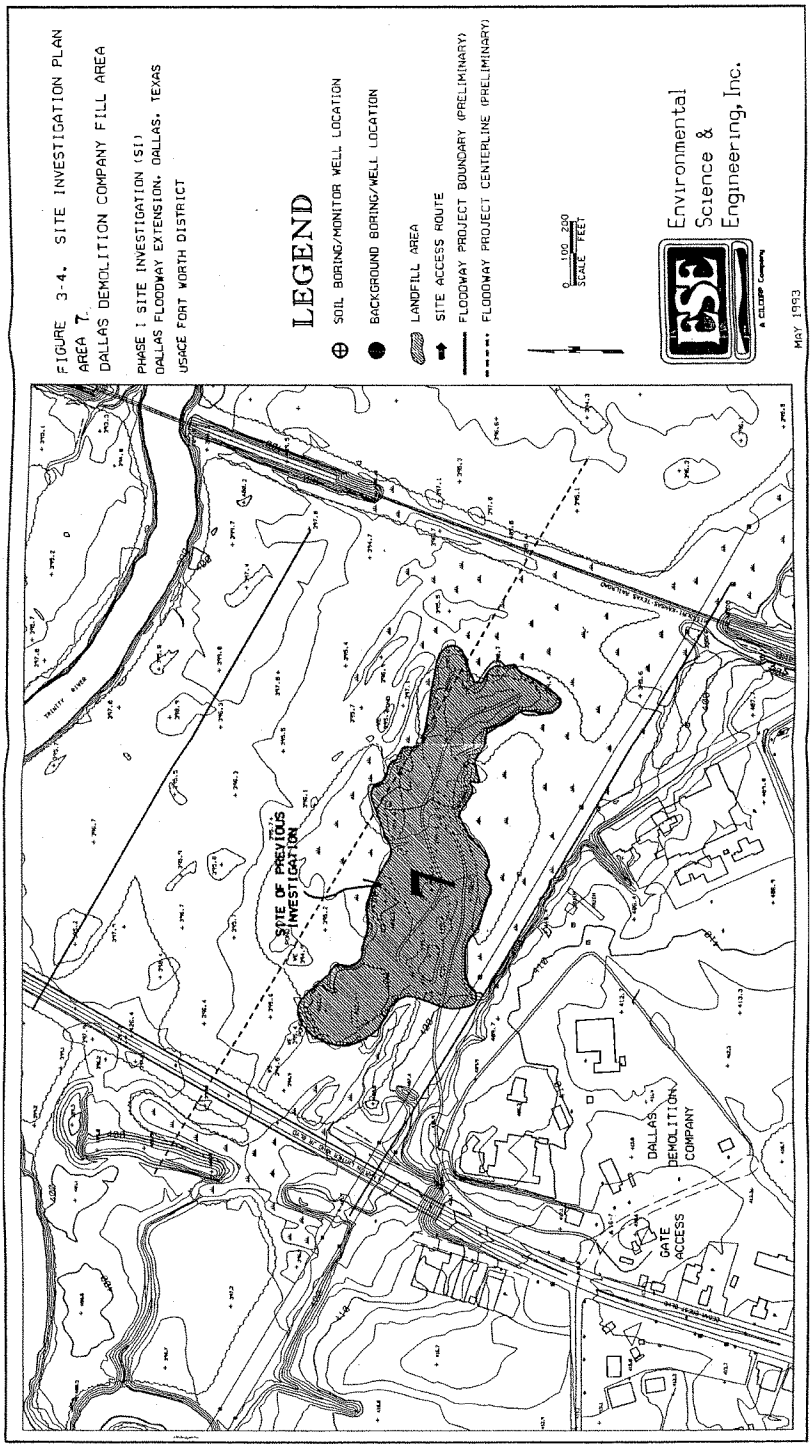


FIGURE 3-4. SITE INVESTIGATION PLAN
AREA 7.
DALLAS DEMOLITION COMPANY FILL AREA
PHASE I SITE INVESTIGATION (SI)
DALLAS FLOODWAY EXTENSION, DALLAS, TEXAS
USACE FORT WORTH DISTRICT
LEGEND
SOIL BORING/MONITOR WELL LOCATION
BACKGROUND BORING/WELL LOCATION
LANDFILL AREA
SITE ACCESS ROUTE
FLOODWAY PROJECT BOUNDARY (PRELIMINARY)
FLOODWAY PROJECT CENTERLINE (PRELIMINARY)
0 100 200
SCALE - FEET
Environmental
Science &
Engineering, Inc.
A CH2M HILL Company
MAY 1993
SITE OF PREVIOUS INVESTIGATION
7
DALLAS DEMOLITION COMPANY
GATE ACCESS

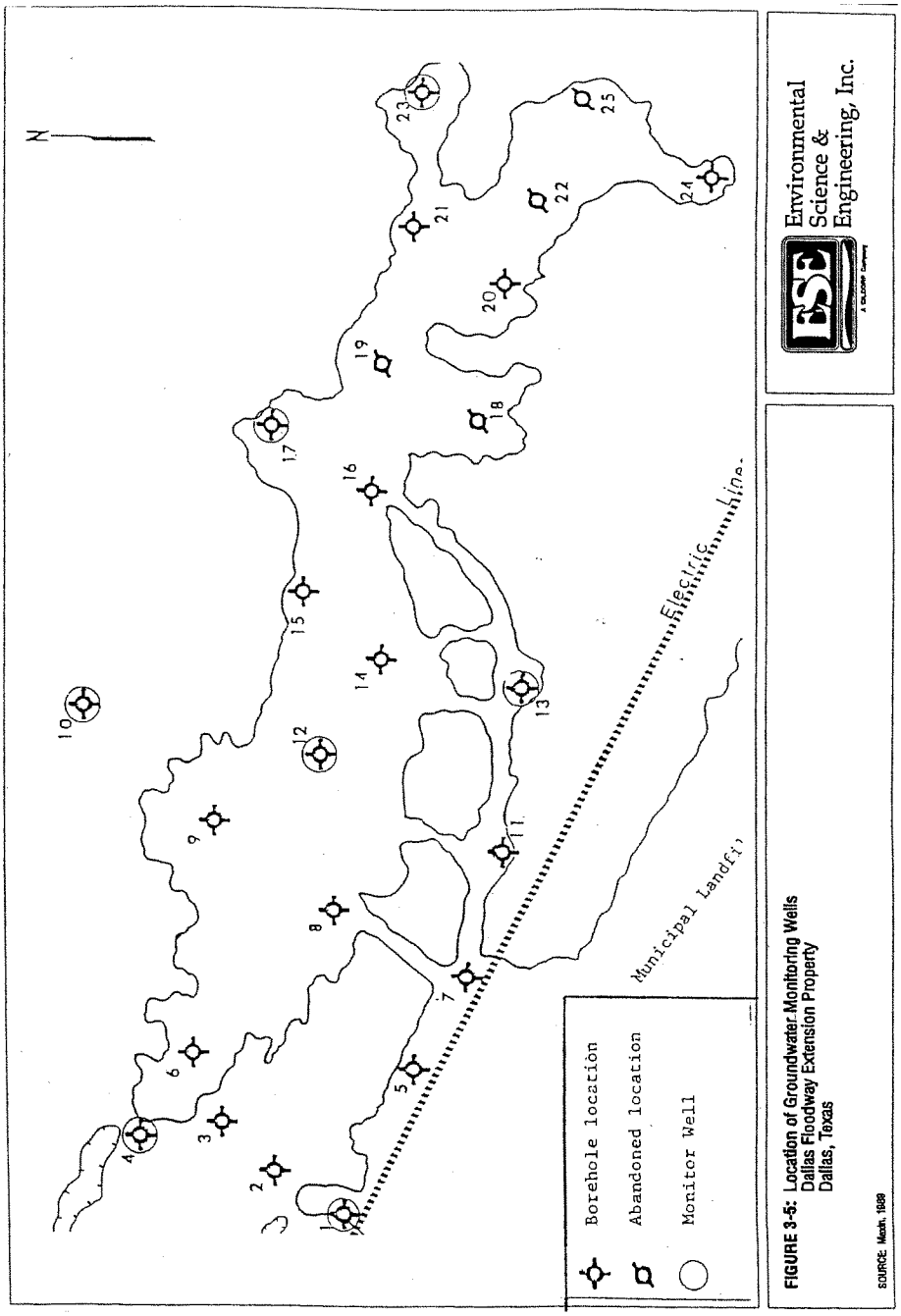

N
Borehole location
Abandoned location
Monitor Well
Municipal Landfi
Electric line
Environmental
Science &
Engineering, Inc.
FIGURE 3-5: Location of Groundwater Monitoring Wells
Dallas Floodway Extension Property
Dallas, Texas
SOURCE: Mesch, 1988

TABLE 4-2
Laboratory Analysis Data Results for Background Soil and Groundwater Samples
Area of Investigation #6/7 - Valley Steel/WE Grace Equipment Co. Site
Dallas Floodway Extension Site Investigation

PARAMETER (Soil in mg/kg) (Water in ug/l)	Background Soil and Groundwater Sample ID and Location Numbers			
	FTWS-15 7-B 0'-2'	FTWS-22 7-B 6'-8'	FTWS-22 7-B Dup 6'-8'	FTWW-12 Well 7-B 8'-18'
VOAs:				
Methylene Chloride	NRQ	17.7	14.6	ND
SVOAs:				
Di-N-Butylphthalate	NRQ	ND	ND	35.0
PESTICIDE/PCBs (All analytes)	NRQ	ND	ND	ND
CYANIDE	NRQ	ND	ND	ND
TAL METALS [1]:				
Aluminum	NRQ	NRQ	NRQ	NRQ
Arsenic	0.548	0.80	1.20	ND
Barium	8.96	5.57	8.88	70.9
Beryllium	NRQ	NRQ	NRQ	NRQ
Cadmium	ND	ND	ND	ND
Calcium	NRQ	NRQ	NRQ	NRQ
Chromium	3.19	2.38	3.33	ND
Cobalt	NRQ	NRQ	NRQ	NRQ
Copper	NRQ	NRQ	NRQ	NRQ
Iron	NRQ	NRQ	NRQ	NRQ
Lead	1.19	1.49	1.77	ND
Magnesium	NRQ	NRQ	NRQ	NRQ
Manganese	NRQ	NRQ	NRQ	NRQ
Mercury	ND	ND	ND	ND
Nickel	NRQ	NRQ	NRQ	NRQ
Potassium	NRQ	NRQ	NRQ	NRQ
Selenium	0.267	ND	ND	2.9

TABLE 4-2
Laboratory Analysis Data Results for Background Soil and Groundwater Samples
Area of Investigation #6/7 - Valley Steel/WE Grace Equipment Co. Site
Dallas Floodway Extension Site Investigation

PARAMETER (Soil in mg/kg) (Water in ug/l)	Background Soil and Groundwater Sample ID and Location Numbers			
	FTWS-15 7-B 0'-2'	FTWS-22 7-B 6'-8'	FTWS-22 7-B Dup 6'-8'	FTWW-12 Well 7-B 8'-18'
Silver	ND	ND	ND	ND
Sodium	NRQ	NRQ	NRQ	NRQ
Vanadium	NRQ	NRQ	NRQ	NRQ
Zinc	NRQ	NRQ	NRQ	NRQ

LEGEND:

ND = Not Detected
NRQ = Not Requested

(1) Only eight RCRA Toxicity Characteristic (TC) metals analyzed for Area 6/7 investigation, in accordance with USACE authorization.

Source: ESE, 1993

48817

1115

Table 4-3
Laboratory Analysis Data Results for Soil Samples
Area of Investigation #6/7 - Valley Steel/WE Grace Equipment Co. Site
Dallas Floodway Extension Site Investigation

PARAMETER (Units in mg/kg, dry wt basis)	Soil Sample ID and Location Numbers								
	FTWS-15 7-B 0'-2'	FTWS-22 7-B 6'-8'	FTWS-23 7-B 6'-8' Dup	FTWS-14 7-1 2'-4'	FTWS-19 6-1 ALT 0'-2'	FTWS-20 6-1 ALT 5'-7'	FTWS-21 6-1 ALT 5'-7' Dup	FTWS-17 6-2 ALT 0'-2'	FTWS-18 6-2 ALT 11'-13'
VOAs (All analytes)	NRQ				NRQ			NRQ	
Methylene Chloride	NRQ	17.7	14.6	ND	NRQ	ND	ND	NRQ	ND
SVOAs (All analytes)	NRQ	ND	ND	ND	NRQ	ND	ND	NRQ	ND
PESTICIDE/PCB (All analytes)	NRQ	ND	ND	ND	NRQ	ND	ND	NRQ	ND
CYANIDE	NRQ	ND	ND	ND	NRQ	ND	32.8	NRQ	ND
TAL METALS [1]:									
Aluminum	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ
Arsenic	0.548	0.800	1.20	ND	2.34	2.66	2.31	0.83	1.28
Barium	8.96	5.57	8.88	ND	45.3	13.2	15.0	21.8	11.6
Beryllium	NRQ	NRQ	NRQ	ND	NRQ	NRQ	NRQ	NRQ	NRQ
Cadmium	ND	ND	ND	?	ND	ND	ND	ND	ND

4/30/2009

Table 4-3
Laboratory Analysis Data Results for Soil Samples
Area of Investigation #6/7 - Valley Steel/WE Grace Equipment Co. Site
Dallas Floodway Extension Site Investigation

PARAMETER (Units in mg/kg,dry wt basis)	Soil Sample ID and Location Numbers								
	FTWS-15 7-B 0'-2'	FTWS-22 7-B 6'-8'	FTWS-23 7-B 6'-8' Dup	FTWS-14 7-1 2'-4'	FTWS-19 6-1 ALT 0'-2'	FTWS-20 6-1 ALT 5'-7'	FTWS-21 6-1 ALT 5'-7' Dup	FTWS-17 6-2 ALT 0'-2'	FTWS-18 6-2 ALT 11'-13'
Calcium	NRQ	NRQ	NRQ	6,800	NRQ	NRQ	NRQ	NRQ	NRQ
Chromium	3.19	2.38	3.33	ND	10.8	5.68	6.80	4.56	4.19
Copper	NRQ	NRQ	NRQ	42.7	NRQ	NRQ	NRQ	NRQ	NRQ
Iron	NRQ	NRQ	NRQ	20,900	NRQ	NRQ	NRQ	NRQ	NRQ
Lead	1.19	1.49	1.77	89.3	11.6	5.19	6.11	4.33	2.10
Magnesium	NRQ	NRQ	NRQ	ND	NRQ	NRQ	NRQ	NRQ	NRQ
Manganese	NRQ	NRQ	NRQ	314.0	NRQ	NRQ	NRQ	NRQ	NRQ
Mercury	ND	ND	ND	0.02	ND	ND	ND	ND	ND
Nickel	NRQ	NRQ	NRQ	ND	NRQ	NRQ	NRQ	NRQ	NRQ
Potassium	NRQ	NRQ	NRQ	ND	NRQ	NRQ	NRQ	NRQ	NRQ
Selenium	0.267	ND	ND	ND	NRQ	NRQ	NRQ	NRQ	NRQ
Silver	ND	ND	ND	ND	0.61	ND	ND	ND	ND
Sodium	NRQ	NRQ	NRQ	ND	NRQ	NRQ	NRQ	NRQ	NRQ
Vanadium	NRQ	NRQ	NRQ	ND	NRQ	NRQ	NRQ	NRQ	NRQ

Table 4-3
Laboratory Analysis Data Results for Soil Samples
Area of Investigation #6/7 - Valley Steel/WT. Grace Equipment Co. Site
Dallas Floodway Extension Site Investigation

PARAMETER (Units in mg/kg, dry wt. basis)	Soil Sample ID and Location Numbers								
	FTWS-15 T-8 0'-2'	FTWS-22 T-8 4'-8'	FTWS-23 T-8 6'-8' Dup	FTWS-14 T-1 2'-4'	FTWS-19 6-1 ALT 0'-2'	FTWS-20 6-1 ALT 5'-7'	FTWS-21 6-1 ALT 5'-7' Dup	FTWS-17 6-2 ALT 0'-2'	FTWS-18 6-2 ALT 11'-13'
Zinc	NRQ	NRQ	NRQ	56.8	NRQ	NRQ	NRQ	NRQ	NRQ

LEGEND:

ND = Not Detected
NRQ = Not Requested

(1) Only eight RCRA TC metals analyzed for Area 6/7 investigations, in accordance with USACE direction.

Source: ESE, 1993.

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4/30/2009

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Table 4-4
Laboratory Analysis Data Results for Groundwater Samples
Area of Investigation #6/7 - Valley Steel/WE Grace Equipment Co. Site
Dallas Floodway Extension Site Investigation

PARAMETER (Units in microgram/liter)	Groundwater Sample ID and Location Numbers				
	FTWW-12 Well 7-B 15'-25'	FTWW-11 Well 7-1 13.5'-23.5'	FTWW-15 Well 6-1 ALT 2.5'-12.5'	FTWW-16 Well 6-1 ALT 2.5'-12.5' Dup	FTWW-14 Well 6-2 ALT 10'-20'
VOAs (All analytes)	ND	ND	ND	ND	ND
SVOAs:					
Di-N-Butylphthalate	35.0	ND	13.0	14	65.4
PESTICIDE/PCBs (All analytes)	ND	ND	ND	ND	ND
CYANIDE	ND	ND	ND	ND	ND
TAL DISSOLVED METALS:(1)					
Aluminum	NRQ	167,000	NRQ	NRQ	NRQ
Arsenic	ND	26.4	ND	ND	ND
Barium	70.9	1,440	57.6	46.5	32.6
Beryllium	NRQ	15.6	NRQ	NRQ	NRQ
Cadmium	ND	15.2	ND	ND	ND
Calcium	NRQ	211,000	NRQ	NRQ	NRQ
Chromium	ND	255.0	ND	ND	ND
Cobalt	NRQ	249.0	NRQ	NRQ	NRQ
Copper	NRQ	74.5	NRQ	NRQ	NRQ
Iron	NRQ	515,000	NRQ	NRQ	NRQ

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Table 4-4
Laboratory Analysis Data Results for Groundwater Samples
Area of Investigation #6/7 - Valley Steel/WE Grace Equipment Co. Site
Dallas Floodway Extension Site Investigation

PARAMETER (Units in microgram/liter)	Groundwater Sample ID and Location Numbers				
	FTWW-12 Well 7-B 15'-25'	FTWW-11 Well 7-1 13.5'-23.5'	FTWW-15 Well 6-1 ALT 2.5'-15.5'	FTWW-16 Well 6-1 ALT 2.5'-12.5' Dup	FTWW-14 Well 6-2 ALT 10'-20'
Lead	ND	177.0	ND	ND	ND
Magnesium	NRQ	32,300	NRQ	NRQ	NRQ
Manganese	NRQ	14,500	NRQ	NRQ	NRQ
Mercury	ND	0.3	ND	ND	ND
Nickel	NRQ	441.0	NRQ	NRQ	NRQ
Potassium	NRQ	39,800	NRQ	NRQ	NRQ
Selenium	2.90	NRQ	2.30	1.7	ND
Silver	ND	NRQ	ND	ND	ND
Sodium	NRQ	97,400	NRQ	NRQ	NRQ
Vanadium	NRQ	673.0	NRQ	NRQ	NRQ
Zinc	NRQ	897.0	NRQ	NRQ	NRQ

LEGEND: ND = Not Detected
NRQ = Not Requested

(1) All groundwater samples except TMW 7-1 were analyzed for 8 RCRA TC metals; TMW 7-1 included the TAL metals analyte list.

Source: ESE, 1993

4/30/2009

Table 4-10
Historical Data Results for Soil Samples
Area of Investigation #10 - Dallas Demolition Company Site
Dallas Floodway Extension Site Investigation

PARAMETER (Units in mg/kg, dry wt basis)	Soil Sample ID and Location Numbers			
	#1 15'-16'	#7 6'-7'	#12 3'-4'	#13 6'-7'
VOAs:				
Methylene chloride	1.22	1.411	ND	ND
Chloroform	6.2	ND	ND	ND
SVOAs (All analytes)				
PESTICIDES/PCBs:				
Chlordane	ND	ND	3.0	ND
Dieldrin	ND	ND	1.1	ND
TAL METALS:				
Barium	28.3	10.0	18.2	105.0
Cadmium	ND	ND	7.5	1.1
Chromium	4.3	14.6	11.3	18.0
Copper	3.0	8.8	15.0	15.2
Lead	4.3	16.1	84.0	234.0
Mercury	ND	ND	8.0	ND
Nickel	5.5	18.3	15.4	13.4
Zinc	9.8	19.9	117.0	60.6

LEGEND:

ND = Not Detected

Source: Maxim Engineers, Inc., 1989

Table 4-11
Historical Data Results for Groundwater Samples
Area of Investigation #10 - Dallas Demolition Company Site
Dallas Floodway Extension Site Investigation

PARAMETER (Units in microgram/liter)	Groundwater Sample ID and Location Numbers
	TMW #10
VOAs:	
1,1,1-Trichloroethane	36
SVOAs:	
Bis (2-Ethylhexyl)Phthalate	5.0
1,2-Dichlorobenzene	9.0
PESTICIDE/PCBs:	
a-BHC	15.3
TAL METALS:	
Zinc	10.0

LEGEND:

ND = Not Detected

Source: Maxim Engineers, Inc., 1989

SECTION J-4

(1123)

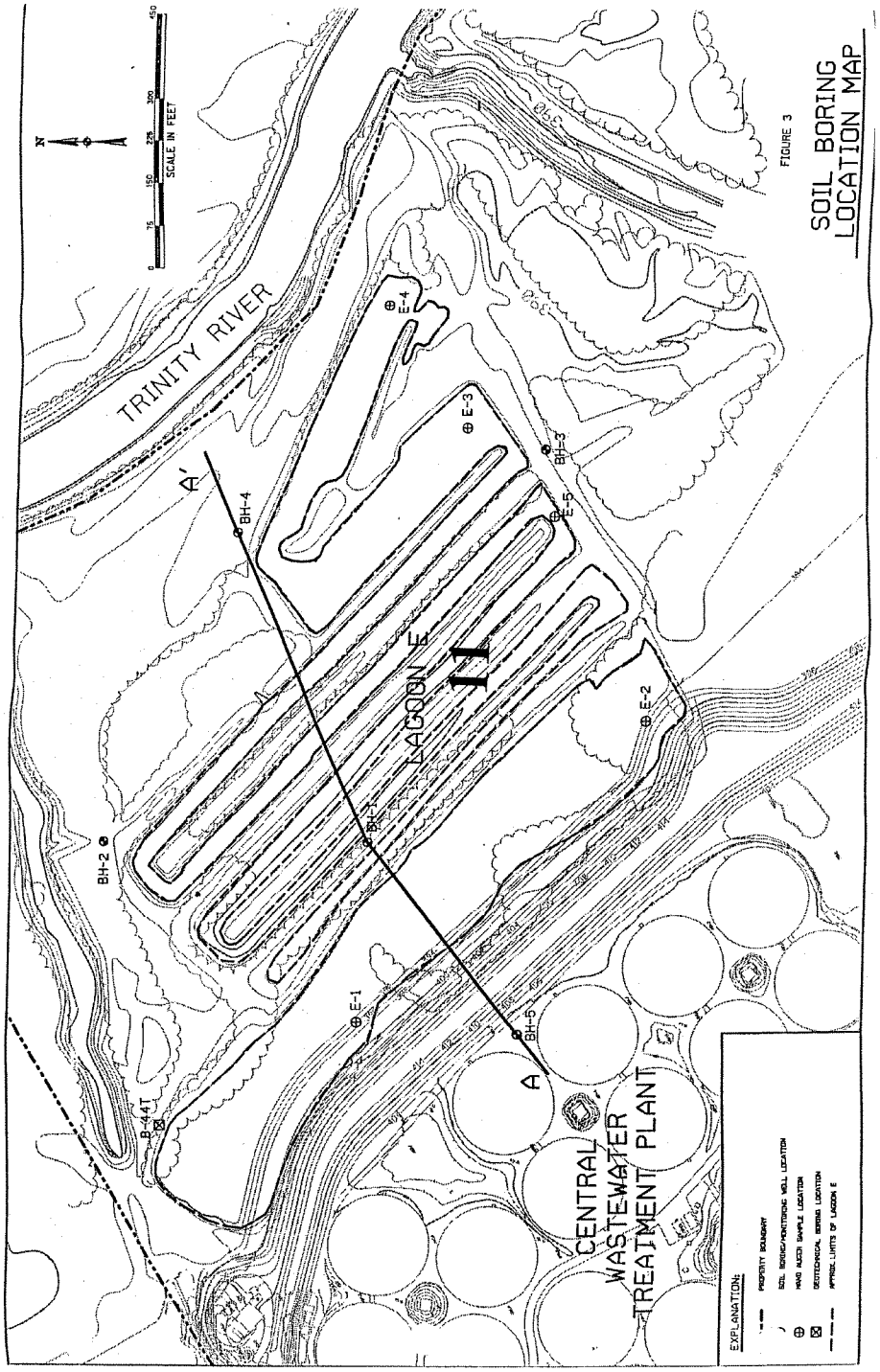

SOIL BORING
LOCATION MAP
FIGURE 3
N
SCALE IN FEET
0
75
150
225
300
450
TRINITY RIVER
LAGOON E
CENTRAL
WASTEWATER
TREATMENT PLANT
A
A'
BH-1
BH-2
BH-3
BH-4
BH-5
B-4 T
E-1
E-2
E-3
E-4
E-5
EXPLANATION:
PROPERTY BOUNDARY
SOIL BORING/MONITORING WELL LOCATION
HAND AUGER SAMPLE LOCATION
GEOTECHNICAL BORING LOCATION
APPROX. LIMITS OF LAGOON E

TABLE I

Lagoon E Closure Plan
Central Wastewater Treatment Plant
Dallas, Texas

Sludge Analyses Totals [1]

	E-1	E-2	E-3	E-5
Reactivity - Cyanide[b]	BDL	BDL	BDL	BDL
Reactivity - Sulfide[b]	BDL	BDL	BDL	470
pH	8.6	8.2	8.1	8.1
Ignitability (Flash Point)	>200° F	>200° F	>212° F	>212° F
Metals[b]				
Arsenic	BDL	BDL	BDL	BDL
Barium	250	184	359	363
Cadmium	1.6	23.9	49.8	49.1
Chromium	24.4	215	258	280
Copper	92.3	128	154	145
Lead	310	635	507	383
Mercury	7.5	0.58	1.4	2.4
Molybdenum	BDL	BDL	BDL	BDL
Nickel	19.1	45.2	338	469
Selenium	BDL	BDL	BDL	BDL
Silver	11.8	25.8	11.8	6.4
Zinc	668	522	106	96.2
Fecal Coliform	BDL	BDL	NA	NA
Salmonella	Neg	Neg	NA	NA
Pesticides[b]	BDL	BDL	BDL	BDL
Herbicides[b]	BDL	BDL	BDL	BDL
Acid Extractables	BDL	BDL	BDL	BDL

TABLE I (continued)

Parameter[a]	E-1	E-2	E-3	E-5
Base Neutral Extractables[b]				
Bis(2-ethyl-hexl) phthalate	BDL	21	BDL	BDL
Di-n-butyl phthalate	14*	15*	BDL	BDL
Volatiles[b]				
Acetone	0.19**	1.3**	BDL	BDL
Methylene chloride	0.14**	3.3**	BDL	BDL
Toluene	BDL	BDL	0.021	BDL
Chlorobenzene	BDL	BDL	0.128	0.073
Ethyl benzene	BDL	BDL	0.032	BDL
Xylenes	BDL	BDL	0.067	BDL

Notes: (1) No sludge was encountered in boring E-4; therefore, a sample from E-4 was not submitted for analysis.

a All detectable concentrations reported by laboratory for each parameter included in table.

b Concentrations expressed in parts per million.

BDL Indicates concentrations of compound specified were below analytical method detection limits.

NA Indicates the sample was not analyzed for the analyte specified.

Neg Indicates the analytical results were negative for the analyte specified.

* Probable laboratory contamination (See Appendix A)

** Result is not blank corrected. Process blank exhibited 0.013 ppm Acetone and 0.022 ppm Methylene Chloride.

TABLE II

Lagoon E Closure Plan
Central Wastewater Treatment Plant
Dallas, Texas

Sludge Analyses - TCLP Metals(1)

Parameter	E-1	E-2	E-3	E-5
Arsenic[a]	BDL	BDL	BDL	BDL
Barium[a]	0.53	0.41	BDL	BDL
Cadmium[a]	BDL	BDL	BDL	BDL
Chromium[a]	BDL	0.01	BDL	BDL
Lead[a]	0.03	0.05	BDL	BDL
Mercury[a]	BDL	BDL	BDL	BDL
Selenium[a]	BDL	BDL	BDL	BDL
Silver[a]	BDL	BDL	BDL	BDL

Notes: (1) No sludge was encountered in boring E-4; therefore, a sample from E-4 was not submitted for analysis.
a Concentrations reported in parts per million.
BDL = Indicates compound concentrations were below analytical method detection limit.

TABLE IV

Lagoon E Closure Plan
Central Wastewater Treatment Plant
Dallas, Texas

Soil Analyses Totals

Parameter	BH-1 10.0-12.5	BH-1 40.0-42.5	BH-2 10.0-12.5	BH-2 35.0-37.5	BH-3 10.0-12.5	BH-3 27.5-30.0	BH-4 10.0-12.5	BH-4 30.0-32.5	BH-5 15.0-17.5	BH-5 20.0-21.5
Total Metals[a]										
Barium	122	74.8	76.5	52.7	136.2	170	120	143	206	89.7
Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chromium	31.6	22.1	28.4	22.1	33.0	25.4	36.5	24.8	16.6	15.7
Copper	11.5	10.0	9.8	10.0	9.8	10.9	11.6	8.1	4.2	3.1
Lead	10.7	6.6	9.8	8.3	11.2	9.6	6.6	12.9	BDL	BDL
Mercury	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nickel	16.4	13.3	16.3	13.3	16.8	19.1	16.6	21.0	12.7	9.2
Silver	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Zinc	34.5	28.2	29.4	28.2	30.7	28.7	34.9	25.9	19.8	13.8
Volatile Organics[a]	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Base/Neutral Extractables[a]	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

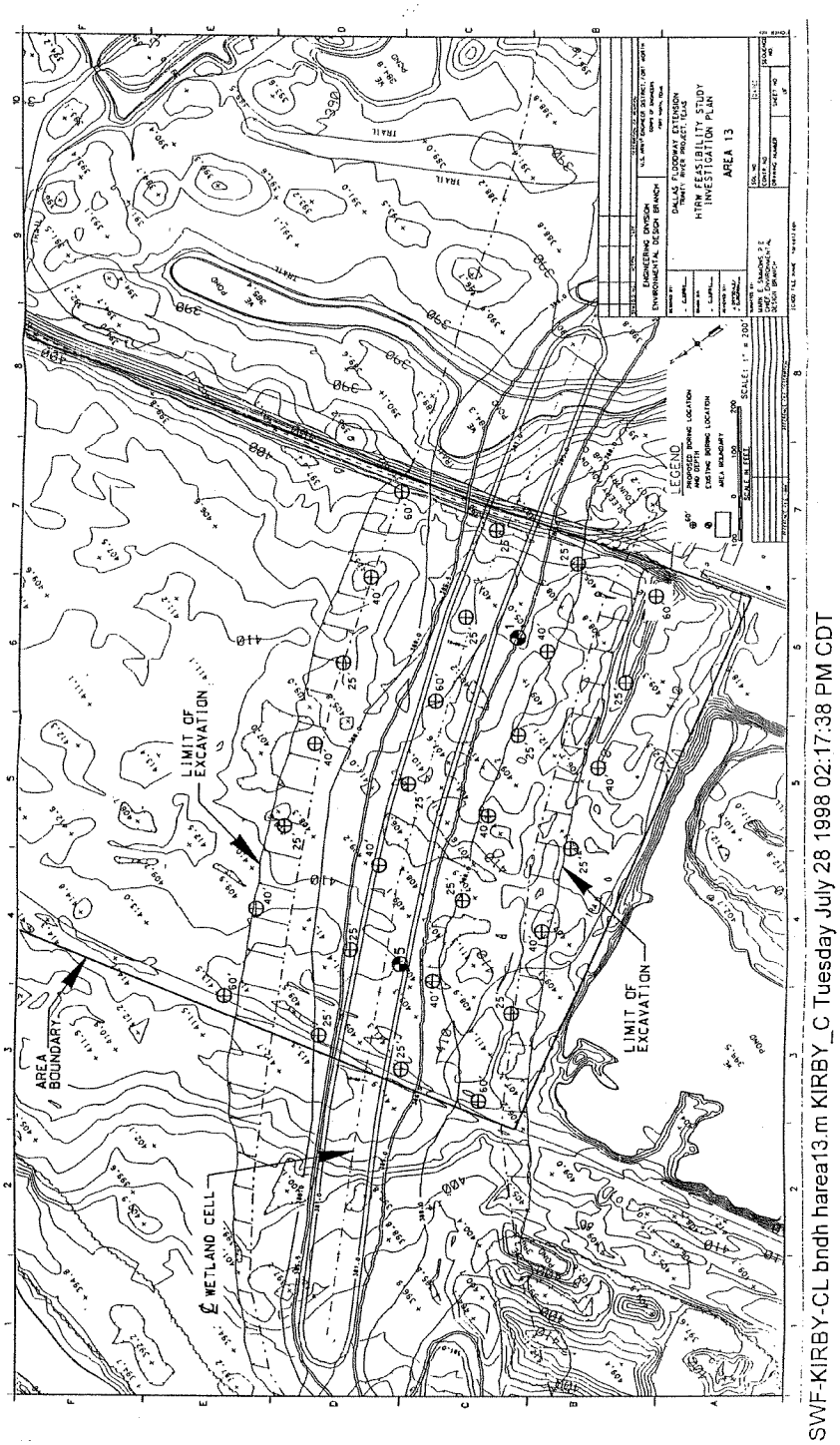
Notes: a All depths expressed in feet.
Concentrations expressed in milligrams per kilogram.
BDL = indicates compound concentrations were below analytical method detection limits.

TABLE V
Lagoon E Closure Plan
Central Wastewater Treatment Plant
Dallas, Texas

Groundwater Analyses

Parameter	BH-1	BH-2	BH-3	BH-4	BH-5
Total Metals[a]					
Barium	1.1	BDL	1.9	BDL	BDL
Cadmium	BDL	BDL	BDL	BDL	BDL
Chromium	BDL	BDL	BDL	BDL	BDL
Copper	BDL	BDL	BDL	BDL	BDL
Lead	BDL	BDL	BDL	BDL	BDL
Mercury	BDL	BDL	BDL	BDL	BDL
Nickel	BDL	BDL	BDL	BDL	BDL
Silver	BDL	BDL	BDL	BDL	BDL
Zinc	BDL	BDL	BDL	BDL	BDL
Volatile Organics[a]	BDL	BDL	BDL	BDL	BDL
Base/Neutral Extractables[a]	BDL	BDL	BDL	BDL	BDL

Notes: Concentrations reported in milligrams per kilogram.
BDL = Indicates compound concentrations were below analytical method detection/ quantification limits.


AREA 13
LEGEND
LIMIT OF EXCAVATION
LIMIT OF EXCAVATION
AREA BOUNDARY
℄ WETLAND CELL
SCALE: 1" = 200'
SWF-KIRBY-CL bndh harea13.m KIRBY_C Tuesday July 28 1998 02:17:38 PM CDT

SECTION J-6

(1133)

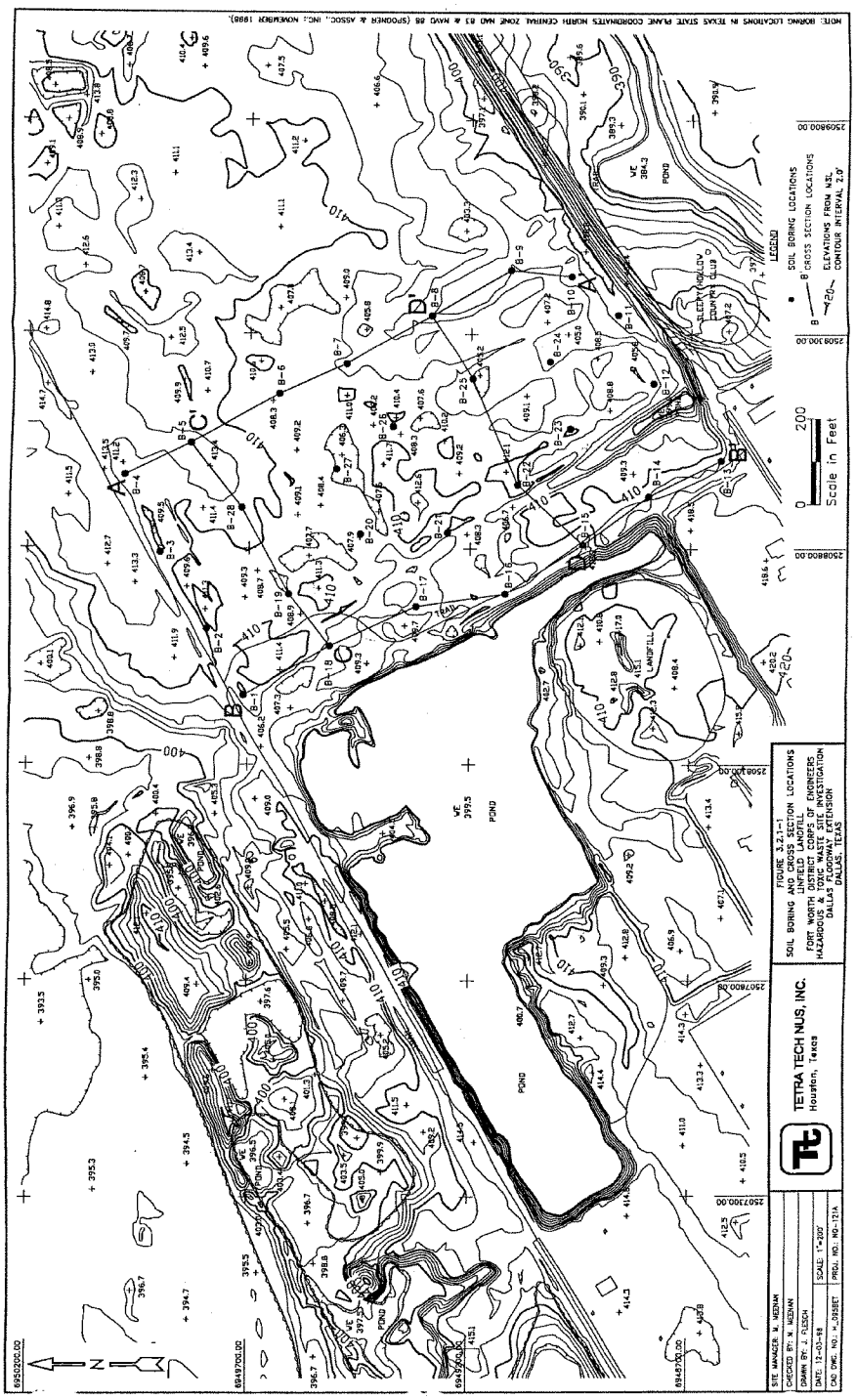

TETRA TECH NUS, INC.
Houston, Texas
FIGURE 3.2.1-1
SOIL BORING AND CROSS SECTION LOCATIONS
LINFIELD LANDFILL
FORT WORTH DISTRICT CORPS OF ENGINEERS
HAZARDOUS & TOXIC WASTE SITE INVESTIGATION
DALLAS FLOODWAY EXTENSION
DALLAS, TEXAS
LEGEND
SOIL BORING LOCATIONS
CROSS SECTION LOCATIONS
ELEVATIONS FROM MSL
CONTOUR INTERVAL 2.0'
Scale in Feet
0
200
SITE MANAGER: M. MEENAN
CHECKED BY: M. MEENAN
DRAWN BY: J. FLESCH
DATE: 12-03-98
SCALE: 1"=200'
CAD DWG. NO.: H_095BET
PROJ. NO.: NO-121A
NOTE: BORING LOCATIONS IN TEXAS STATE PLANE COORDINATES NORTH CENTRAL ZONE NAD 83 & NAVD 88 (SPOONER & ASSOC., INC.; NOVEMBER 1988).
POND
LANDFILL
TRAIL
SLEEPY HOLLOW COUNTRY CLUB

Figure 1

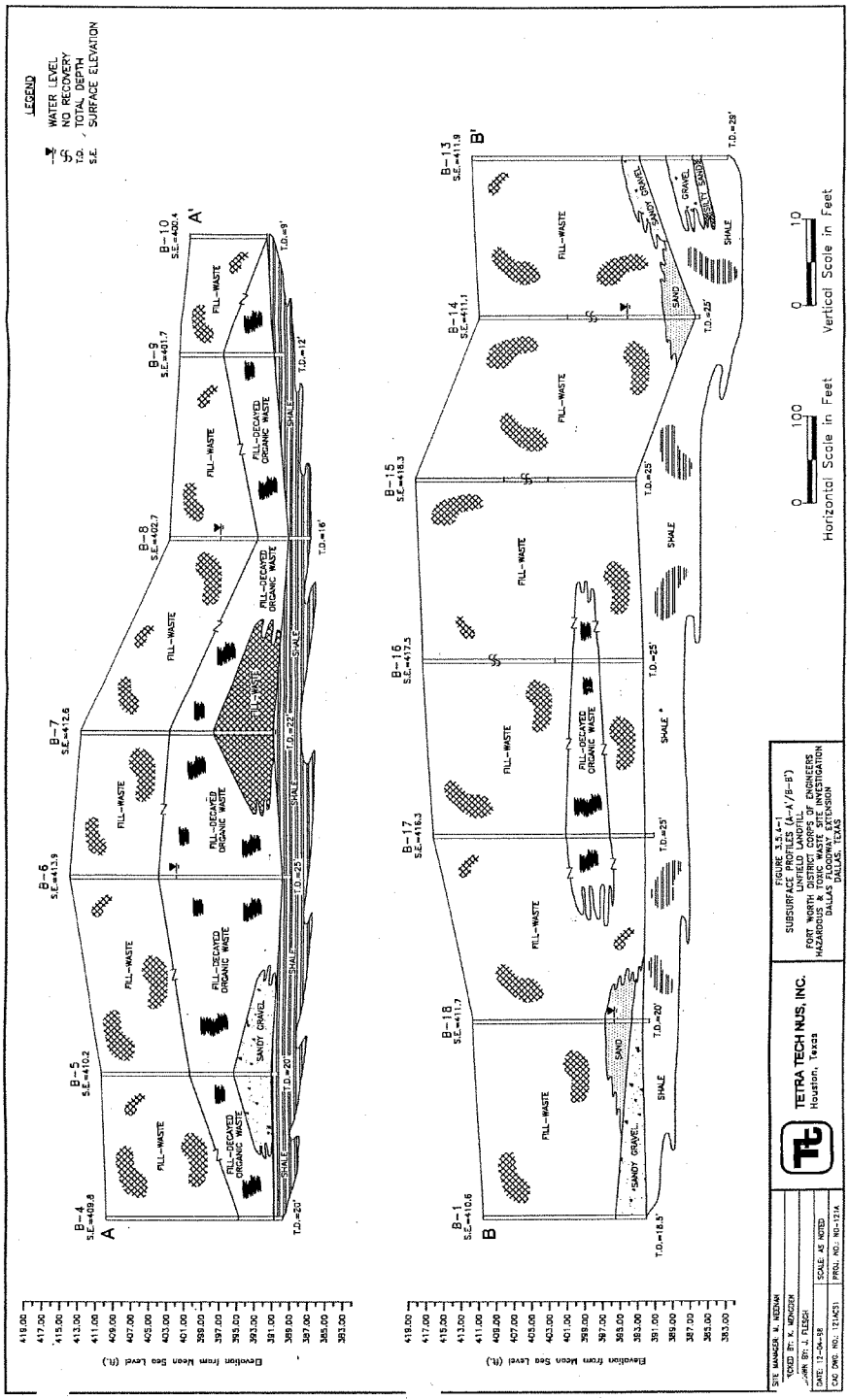

LEGEND
WATER LEVEL
NO RECOVERY
T.D. TOTAL DEPTH
S.E. SURFACE ELEVATION
A
A'
B
B'
B-4 S.E.=409.8
B-5 S.E.=410.2
B-6 S.E.=413.9
B-7 S.E.=412.6
B-8 S.E.=402.7
B-9 S.E.=401.7
B-10 S.E.=400.4
B-1 S.E.=410.6
B-18 S.E.=411.7
B-17 S.E.=416.3
B-16 S.E.=417.5
B-15 S.E.=418.3
B-14 S.E.=411.1
B-13 S.E.=411.9
FILL-WASTE
FILL-DECAYED ORGANIC WASTE
SANDY GRAVEL
SAND
SHALE
T.D.=20'
T.D.=25'
T.D.=16'
T.D.=12'
T.D.=9'
T.D.=18.5'
T.D.=29'
Elevation from Mean Sea Level (ft.)
Horizontal Scale in Feet
Vertical Scale in Feet
FIGURE 3.5.4-1
SUBSURFACE PROFILES (A-A'/B-B')
LINFIELD LANDFILL
FORT WORTH DISTRICT CORPS OF ENGINEERS
HAZARDOUS & TOXIC WASTE SITE INVESTIGATION
DALLAS FLOODWAY EXTENSION
DALLAS, TEXAS
TETRA TECH NUS, INC.
Houston, Texas
SITE MANAGER: M. NEEDHAM
CHECKED BY: K. MENGGER
DRAWN BY: J. FLESCH
DATE: 12-04-98
SCALE: AS NOTED
CAD DWG. NO.: 121AC51
PROJ. NO.: NO-121A

Figure 2

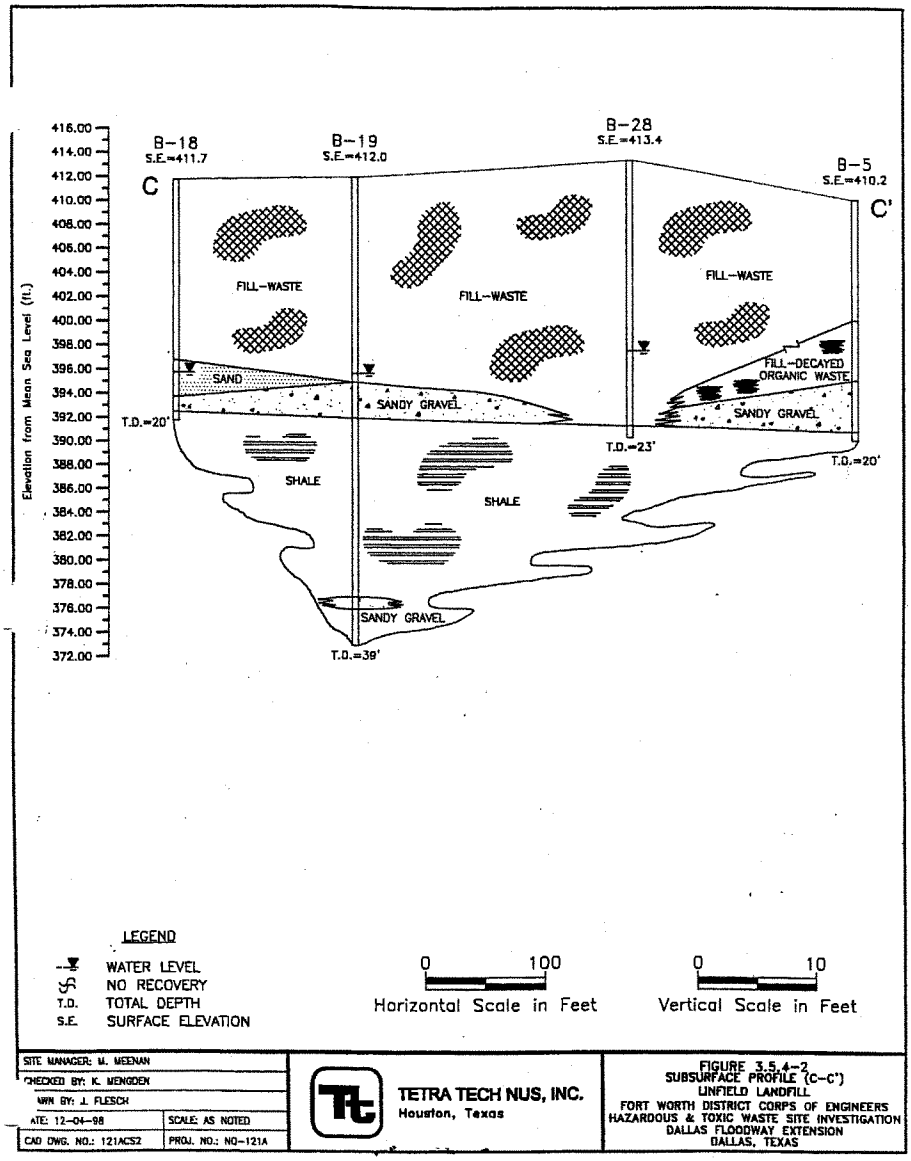

B-18
S.E.=411.7
B-19
S.E.=412.0
B-28
S.E.=413.4
B-5
S.E.=410.2
C
C'
Elevation from Mean Sea Level (ft.)
416.00
414.00
412.00
410.00
408.00
406.00
404.00
402.00
400.00
398.00
396.00
394.00
392.00
390.00
388.00
386.00
384.00
382.00
380.00
378.00
376.00
374.00
372.00
FILL-WASTE
FILL-WASTE
FILL-WASTE
SAND
SANDY GRAVEL
FILL-DECAYED ORGANIC WASTE
SANDY GRAVEL
T.D.=20'
T.D.=23'
T.D.=20'
SHALE
SHALE
SANDY GRAVEL
T.D.=39'
LEGEND
WATER LEVEL
NO RECOVERY
T.D. TOTAL DEPTH
S.E. SURFACE ELEVATION
0 100
Horizontal Scale in Feet
0 10
Vertical Scale in Feet
SITE MANAGER: M. MEENAN
CHECKED BY: K. MENGDEN
DRN BY: J. FLESCH
DATE: 12-04-98
SCALE: AS NOTED
CAD DWG. NO.: 121ACS2
PROJ. NO.: NO-121A
TETRA TECH NUS, INC.
Houston, Texas
FIGURE 3.5.4-2
SUBSURFACE PROFILE (C-C')
LINFIELD LANDFILL
FORT WORTH DISTRICT CORPS OF ENGINEERS
HAZARDOUS & TOXIC WASTE SITE INVESTIGATION
DALLAS FLOODWAY EXTENSION
DALLAS, TEXAS

Figure 3

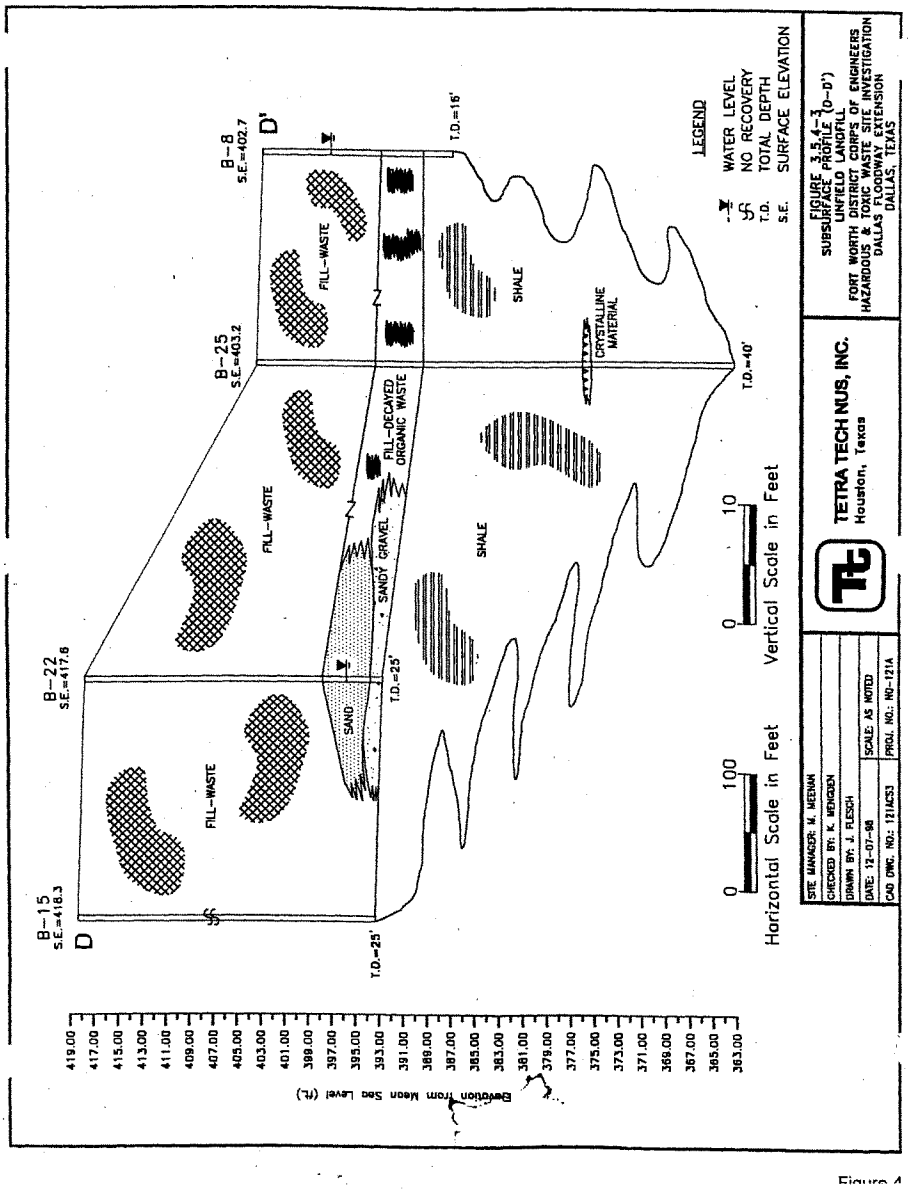

B-15
S.E.=418.3
B-22
S.E.=417.8
B-25
S.E.=403.2
B-8
S.E.=402.7
D
D'
FILL-WASTE
SAND
GRAVEL
FILL-DECAYED ORGANIC WASTE
SHALE
CRYSTALLINE MATERIAL
T.D.=-25'
T.D.=25'
T.D.=40'
T.D.=16'
LEGEND
WATER LEVEL
NO RECOVERY
T.D. TOTAL DEPTH
S.E. SURFACE ELEVATION
Horizontal Scale in Feet
Vertical Scale in Feet
Elevation from Mean Sea Level (ft.)
TETRA TECH NUS, INC.
Houston, Texas
SITE MANAGER: M. MEINAR
CHECKED BY: K. MEHIGAN
DRAWN BY: J. FLESCH
DATE: 12-07-98
SCALE: AS NOTED
CAD DWG. NO.: 121AC53
PROJ. NO.: NO-121A
FIGURE 3.5.4-3
SUBSURFACE PROFILE (C-C', D-D')
LINFIELD LANDFILL
FORT WORTH DISTRICT CORPS OF ENGINEERS
HAZARDOUS & TOXIC WASTE SITE INVESTIGATION
DALLAS FLOODWAY EXTENSION
DALLAS, TEXAS

Figure 4

TABLE 1

ANALYTICAL RESULTS-SOIL

Linfield Landfill, Dallas Texas

Parameter	Regulatory TCLP Concentration (40 CFR 261.24) (mg/L)	Action Level (20 x TCLP) (mg/kg)	Analytical Results (mg/kg)	
			LLF-BH19-10-15	LLF-BH20-20-25
VOLATILE COMPOUNDS				
Benzene	0.5	10	<0.005	<0.005
Carbon tetrachloride	0.5	10	< 0.005	< 0.005
Chlorobenzene	100	2000	0.016	0.091
Chloroform	6.0	120	< 0.005	< 0.005
1,2-Dichloroethane	0.5	10	< 0.005	< 0.005
1,1-Dichloroethylene	0.7	14	< 0.005	< 0.005
Methyl ethyl ketone	200	4000	< 0.010	0.014
Tetrachloroethylene	0.7	14	< 0.005	< 0.005
Trichloroethylene	0.5	10	< 0.005	< 0.005
Vinyl chloride	0.2	4	< 0.005	< 0.005
SEMIVOLATILE COMPOUNDS				
o-Cresol	200	4000	< 5.0	< 12
m- and p-Cresol	200	4000	< 5.0	< 12
1,4-Dichlorobenzene	7.5	150	< 5.0	< 12
2,4-Dinitrotoluene	0.13	2.6	< 5.0	< 12
Hexachlorobenzene	0.13	2.6	< 5.0	< 12
Hexachlorobutadiene	0.5	10	< 5.0	< 12
Hexachloroethane	3.0	60	< 5.0	< 12
Nitrobenzene	2.0	40	< 5.0	< 12
Pentachlorophenol	100	2000	< 12	< 29
Pyridine	5.0	100	< 5.0	< 12
2,4,5-Trichlorophenol	400	8000	< 12	< 29
2,4,6-Trichlorophenol	2.0	40	< 5.0	< 12
PESTICIDES				
Chlordane	0.03	0.6	< 0.033	< 0.033
Endrin	0.02	0.4	< 0.0033	< 0.0033
Heptachlor	0.008	0.16	< 0.0017	< 0.0017
Lindane	0.4	8	< 0.0017	< 0.0017
Methoxychlor	10	200	< 0.017	< 0.017
Toxaphene	0.5	10	< 0.017	< 0.017
HERBICIDES				
2,4-D	10	200	< 0.120	< 0.120
2,4,5-TP(Silvex)	1.0	20	< 0.012	< 0.012
METALS				
Arsenic	5.0	100	< 6.2	< 4.8
Barium	100	2000	92	947
Cadmium	1.0	20	3.6	2.4
Chromium	5.0	100	21	19
Lead	5.0	100	93	119(1)
Mercury	0.2	4.0	0.39	3.6
Selenium	1.0	20	< 0.51	0.40
Silver	5.0	100	< 1.2	< 0.97

Note:

(1) Since lead was detected at a concentration greater than the action level of 100 mg/kg, the sample was analyzed for TCLP lead, and the resulting concentration was 0.040 mg/l lead.

TABLE 2

ANALYTICAL RESULTS-WATER

Linfield Landfill, Dallas Texas

Parameter	Regulatory TCLP Concentration (40 CFR 261.24) (mg/L)	Analytical Results (mg/L)			
		LLF-GW02	LLF-GW03	LLF-GW06	LLF-GW08
VOLATILE COMPOUNDS					
Benzene	0.5	0.0057	0.0063	0.033	< 0.002
Carbon tetrachloride	0.5	< 0.002	< 0.002	< 0.002	< 0.002
Chlorobenzene	100	0.044	0.035	0.025	0.018
Chloroform	6.0	< 0.002	< 0.002	< 0.002	< 0.002
1,2-Dichloroethane	0.5	< 0.002	< 0.002	< 0.002	< 0.002
1,1-Dichloroethylene	0.7	< 0.002	< 0.002	< 0.002	< 0.002
Methyl ethyl ketone	200	< 0.002	< 0.002	<0.010	<0.010
Tetrachloroethylene	0.7	< 0.002	< 0.002	< 0.002	< 0.002
Trichloroethylene	0.5	< 0.002	< 0.002	< 0.002	0.0021
Vinyl chloride	0.2	< 0.002	< 0.002	< 0.002	< 0.002
SEMIVOLATILE COMPOUNDS					
o-Cresol	200	< 0.050	< 0.050	< 0.050	< 0.050
m- and p-Cresol	200	< 0.050	< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	7.5	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	0.13	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobenzene	0.13	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	0.5	< 0.050	< 0.050	< 0.050	< 0.050
Hexachloroethane	3.0	< 0.050	< 0.050	< 0.050	< 0.050
Nitrobenzene	2.0	< 0.050	< 0.050	< 0.050	< 0.050
Pentachlorophenol	100	< 0.120	< 0.120	< 0.120	< 0.120
Pyridine	5.0	< 0.050	< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	400	< 0.120	< 0.120	< 0.120	< 0.120
2,4,6-Trichlorophenol	2.0	< 0.050	< 0.050	< 0.050	< 0.050
PESTICIDES					
Chlordane	0.03	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.02	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Heptachlor	0.008	< 0.00025	< 0.00025	< 0.00025	< 0.00025
Lindane	0.4	<0.00025	<0.00025	<0.00025	<0.00025
Methoxychlor	10	< 0.0025	< 0.0025	< 0.0025	< 0.0025
Toxaphene	0.5	< 0.025	< 0.025	< 0.025	< 0.025
HERBICIDES					
2,4-D	10	< 0.0012	< 0.0012	< 0.0012	< 0.0012
2,4,5-TP(Silvex)	1.0	< 0.00012	< 0.00012	< 0.00012	< 0.00012
METALS					
Arsenic	5.0	< 0.05	0.202	0.142	0.247
Barium	100	0.50	0.54	0.34	0.56
Cadmium	1.0	< 0.05	< 0.05	< 0.05	< 0.05
Chromium	5.0	< 0.1	< 0.1	< 0.1	< 0.1
Lead	5.0	0.078	0.092	0.042	< 0.03
Mercury	0.2	< 0.001	< 0.001	< 0.001	< 0.001
Selenium	1.0	< 0.05	< 0.05	< 0.05	< 0.05
Silver	5.0	< 0.1	0.13	0.12	0.12
pH (CORROSIVITY FIELD/LAB)		(1)/6.93	(1)/6.95	(1)/6.95	(1)/6.54

(1) pH result not recorded due to field equipment malfunction.

TABLE 2
(Continued)
ANALYTICAL RESULTS-WATER

Linfield Landfill, Dallas Texas

Parameter	Regulatory TCLP Concentration (40 CFR 261.24) (mg/L)	Analytical Results (mg/L)			
		LLF-GW11	LLF-GW12	LLF-GW14	LLF-GW16
VOLATILE COMPOUNDS					
Benzene	0.5	< 0.002	< 0.002	< 0.002	0.0016
Carbon tetrachloride	0.5	< 0.002	< 0.002	< 0.002	< 0.002
Chlorobenzene	100	0.0087	0.0031	0.0056	0.0073
Chloroform	6.0	< 0.002	< 0.002	< 0.002	< 0.002
1,2-Dichloroethane	0.5	< 0.002	< 0.002	< 0.002	< 0.002
1,1-Dichloroethylene	0.7	< 0.002	< 0.002	< 0.002	< 0.002
Methyl ethyl ketone	200	< 0.010	< 0.010	< 0.010	< 0.010
Tetrachloroethylene	0.7	< 0.002	< 0.002	< 0.002	< 0.002
Trichloroethylene	0.5	< 0.002	< 0.002	< 0.002	< 0.002
Vinyl chloride	0.2	< 0.002	< 0.002	< 0.002	< 0.002
SEMIVOLATILE COMPOUNDS					
o-Cresol	200	< 0.050	< 0.050	< 0.050	< 0.050
m- and p-Cresol	200	< 0.050	< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	7.5	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	0.13	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobenzene	0.13	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	0.5	< 0.050	< 0.050	< 0.050	< 0.050
Hexachloroethane	3.0	< 0.050	< 0.050	< 0.050	< 0.050
Nitrobenzene	2.0	< 0.050	< 0.050	< 0.050	< 0.050
Pentachlorophenol	100	< 0.120	< 0.120	< 0.120	< 0.120
Pyridine	5.0	< 0.050	< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	400	< 0.120	< 0.120	< 0.120	< 0.120
2,4,6-Trichlorophenol	2.0	< 0.050	< 0.050	< 0.050	< 0.050
PESTICIDES					
Chlordane	0.03	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.02	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Heptachlor	0.008	< 0.00025	< 0.00025	< 0.00025	< 0.00025
Lindane	0.4	< 0.00025	< 0.00025	< 0.00025	< 0.00025
Methoxychlor	10	< 0.0025	< 0.0025	< 0.0025	< 0.0025
Toxaphene	0.5	< 0.025	< 0.025	< 0.025	< 0.025
HERBICIDES					
2,4-D	10	< 0.0012	< 0.0012	< 0.0012	< 0.0012
2,4,5-TP(Silvex)	1.0	< 0.00012	< 0.00012	< 0.00012	< 0.00012
METALS					
Arsenic	5.0	0.086	0.218	0.056	< 0.05
Barium	100	0.80	1.0	0.20	1.5
Cadmium	1.0	< 0.05	< 0.05	< 0.05	< 0.05
Chromium	5.0	< 0.1	< 0.1	< 0.1	< 0.1
Lead	5.0	0.107	0.100	0.071	0.073
Mercury	0.2	< 0.001	< 0.001	< 0.001	< 0.001
Selenium	1.0	0.058	0.052	< 0.05	< 0.05
Silver	5.0	< 0.1	< 0.1	< 0.1	< 0.1
pH (CORROSIVITY FIELD/LAB)		6.49/7.68	6.51/7.51	6.67/7.70	6.92/7.65

TABLE 2
(Continued)
ANALYTICAL RESULTS-WATER

Linfield Landfill, Dallas Texas

Parameter	Regulatory TCLP Concentration (40 CFR 261.24) (mg/L)	Analytical Results (mg/L)			
		LLF-GW18	LLF-GW19	LLF-GW20	LLF-GW21
VOLATILE COMPOUNDS					
Benzene	0.5	< 0.002	< 0.002	0.052	0.0052
Carbon tetrachloride	0.5	< 0.002	< 0.002	< 0.002	< 0.002
Chlorobenzene	100	0.029	< 0.002	0.079	0.0097
Chloroform	6.0	< 0.002	< 0.002	< 0.002	< 0.002
1,2-Dichloroethane	0.5	< 0.002	< 0.002	< 0.002	< 0.002
1,1-Dichloroethylene	0.7	< 0.002	< 0.002	< 0.002	< 0.002
Methyl ethyl ketone	200	< 0.010	< 0.010	< 0.010	< 0.010
Tetrachloroethylene	0.7	< 0.002	< 0.002	< 0.002	< 0.002
Trichloroethylene	0.5	< 0.002	< 0.002	< 0.002	< 0.002
Vinyl chloride	0.2	< 0.002	< 0.002	< 0.002	< 0.002
SEMIVOLATILE COMPOUNDS					
o-Cresol	200	< 0.050	< 0.050	< 0.050	< 0.050
m- and p-Cresol	200	< 0.050	< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	7.5	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	0.13	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobenzene	0.13	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	0.5	< 0.050	< 0.050	< 0.050	< 0.050
Hexachloroethane	3.0	< 0.050	< 0.050	< 0.050	< 0.050
Nitrobenzene	2.0	< 0.050	< 0.050	< 0.050	< 0.050
Pentachlorophenol	100	< 0.120	< 0.120	< 0.120	< 0.120
Pyridine	5.0	< 0.050	< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	400	< 0.120	< 0.120	< 0.120	< 0.120
2,4,6-Trichlorophenol	2.0	< 0.050	< 0.050	< 0.050	< 0.050
PESTICIDES					
Chlordane	0.03	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.02	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Heptachlor	0.008	< 0.00025	< 0.00025	< 0.00025	< 0.00025
Lindane	0.4	< 0.00025	< 0.00025	< 0.00025	< 0.00025
Methoxychlor	10	< 0.0025	< 0.0025	< 0.0025	< 0.0025
Toxaphene	0.5	< 0.025	< 0.025	< 0.025	< 0.025
HERBICIDES					
2,4-D	10	< 0.0012	< 0.0012	< 0.0012	< 0.0012
2,4,5-TP(Silvex)	1.0	< 0.00012	< 0.00012	< 0.00012	< 0.00012
METALS					
Arsenic	5.0	< 0.05	< 0.05	< 0.05	< 0.05
Barium	100	0.32	0.2	0.42	1.1
Cadmium	1.0	< 0.05	< 0.05	< 0.05	< 0.05
Chromium	5.0	< 0.1	< 0.1	< 0.1	< 0.1
Lead	5.0	0.088	< 0.03	0.119	0.105
Mercury	0.2	< 0.001	< 0.001	< 0.001	< 0.001
Selenium	1.0	0.079	< 0.05	< 0.05	0.052
Silver	5.0	< 0.1	< 0.1	< 0.1	< 0.1
pH (CORROSIVITY FIELD/LAB)		6.79/7.57	8.18/6.8	7.27/7.79	7.17/7.50

TABLE 2
(Continued)
ANALYTICAL RESULTS-WATER

Linfield Landfill, Dallas Texas

Parameter	Regulatory TCLP Concentration (40 CFR 261.24) (mg/L)	Analytical Results (mg/L)		
		LLF-GW24	LLF-GW26	LLF-GW28
VOLATILE COMPOUNDS				
Benzene	0.5	< 0.002	< 0.002	0.0036
Carbon tetrachloride	0.5	< 0.002	< 0.002	< 0.002
Chlorobenzene	100	0.0085	0.0023	< 0.002
Chloroform	6.0	< 0.002	< 0.002	< 0.002
1,2-Dichloroethane	0.5	< 0.002	< 0.002	< 0.002
1,1-Dichloroethylene	0.7	< 0.002	< 0.002	< 0.002
Methyl ethyl ketone	200	< 0.010	< 0.010	< 0.010
Tetrachloroethylene	0.7	< 0.002	< 0.002	< 0.002
Trichloroethylene	0.5	< 0.002	< 0.002	< 0.002
Vinyl chloride	0.2	< 0.002	< 0.002	< 0.002
SEMIVOLATILE COMPOUNDS				
o-Cresol	200	< 0.050	< 0.050	< 0.050
m- and p-Cresol	200	< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	7.5	< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	0.13	< 0.050	< 0.050	< 0.050
Hexachlorobenzene	0.13	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	0.5	< 0.050	< 0.050	< 0.050
Hexachloroethane	3.0	< 0.050	< 0.050	< 0.050
Nitrobenzene	2.0	< 0.050	< 0.050	< 0.050
Pentachlorophenol	100	< 0.120	< 0.120	< 0.120
Pyridine	5.0	< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	400	< 0.120	< 0.120	< 0.120
2,4,6-Trichlorophenol	2.0	< 0.050	< 0.050	< 0.050
PESTICIDES				
Chlordane	0.03	< 0.005	< 0.005	< 0.005
Endrin	0.02	< 0.0005	< 0.0005	< 0.0005
Heptachlor	0.008	< 0.00025	< 0.00025	< 0.00025
Lindane	0.4	< 0.00025	< 0.00025	< 0.00025
Methoxychlor	10	< 0.0025	< 0.0025	< 0.0025
Toxaphene	0.5	< 0.025	< 0.025	< 0.025
HERBICIDES				
2,4-D	10	< 0.0012	< 0.0012	< 0.0012
2,4,5-TP(Silvex)	1.0	< 0.00012	< 0.00012	< 0.00012
METALS				
Arsenic	5.0	< 0.05	< 0.05	0.16
Barium	100	0.9	0.35	0.5
Cadmium	1.0	< 0.05	< 0.05	< 0.05
Chromium	5.0	< 0.1	< 0.1	< 0.1
Lead	5.0	0.03	0.111	0.05
Mercury	0.2	< 0.001	< 0.001	< 0.001
Selenium	1.0	< 0.05	< 0.05	< 0.05
Silver	5.0	< 0.1	< 0.1	< 0.1
pH (CORROSIVITY FIELD/LAB)		6.9/8.09	7.38/7.80	7.43/8.12

APPENDIX K

COST ESTIMATING

(1145)

APPENDIX K

COST ESTIMATING

This appendix provides a detailed cost estimate for the Recommended Plan. Estimates are presented in the standard Code of Accounts from the MCACES Models Database. Table K-1 presents a comparative summary between the costs as shown in the MCACES, at April 1998 price levels, and the costs as updated to reflect October 1998 price levels. These updated (October 1998) costs are used in the final project economic analyses and cost apportionment calculations, as presented in Chapter 6 of the main report. Documentation for these summaries is presented by detailed account number. The MCACES estimate does not include the costs of the previously constructed non-Federal levees; however, these costs are shown in table K-1.

Table K-1
Project Cost Summary - Recommended Plan
(April 1998 price levels vs. October 1998 price levels)

Account No.	Description	Construction (April 1998)	Contingency (April 1998)	Total (April 1998)	Total (October 1998)
01	Lands and Damages	$20,227,500	$5,025,400	$25,252,900	$25,895,000
02	Relocations	$4,575,300	$1,228,700	$5,804,000	$5,905,600
06	Fish and Wildlife Facilities	$377,300	$94,300	$471,600	$479,900
09	Channels and Canals	$24,014,000	$5,304,800	$29,318,800	$29,832,000
11	Levees and Floodways	$13,626,800	$3,305,500	$16,932,300	$17,228,900
16	Recreation Facilities	$4,068,200	$1,226,300	$5,294,500	$5,387,200
18	Cultural Resource Preservation	$750,000	$187,500	$937,500	$950,000
30	Planning, Engineering and Design	$9,842,600	$1,832,800	$11,675,400	$11,879,800
31	Construction Management	$5,366,800	$1,341,700	$6,705,500	$6,825,900
	Totals	**$82,848,300**	**$19,547,200**	**$102,395,500**	**$104,184,300**
	Compatible Non-Federal Levees	$23,120,000	$0	$23,120,000	$23,120,000
	Total Project Costs	$105,968,300	$19,547,200	$125,515,500	$127,304,300

GENERAL NARRATIVE

This estimate was prepared using current guidelines and directives. All quantities of work required for the construction cost estimate were determined by the designers and the estimate of costs for Accounts No. 01, 06, 30 ,31 and 32 were determined by the appropriate parties within the Fort Worth District, or by others who were acting for these parties, and will be identified in other sections of the narrative. The estimate is organized as required by EC-110-2-538, Civil Works Project Cost Estimating - Code of Accounts as amended by CERM-FC, dated 29 Sep 1989, Subject Civil Works Construction Estimating.

Direct cost unit prices were developed by the estimators or based on the Corps of Engineers Unit Price Book where this was expedient. In some instances prices from widely published estimating guides were used as were prices from previous projects with comparable items of construction cost.

The estimate for the Dallas Floodway Extension was created in MCACES version 5.30. It utilizes the most recent Unit Price Book, Crew Database, Equipment rates and current wage rates and materials costs. The estimate was prepared in the current Code of Accounts. Utilizing all levels of the Code of Accounts caused the overall cost of some items to be "broken up" into different account areas. As an example, the piping cost is a combination of account 0203180201, Trenching (and backfill), account 0203180203, Bedding, and account 0203181501, Piping. The items primarily affected are piping (as explained) and concrete structures (concrete and reinforcing shown separately). To figure the cost of an item, it is necessary to sum all items in the various accounts that are identified by the same station number (i.e.Cadillac (STA. 94+00) 15" SS) to identify the cost of the 15" Sanitary Sewer at Sta. 94+00 on the Cadillac Levee. For ease in applying varying contingency amounts, two estimates were prepared. The first estimate was prepared without contingencies and the second with the contingencies applied as separate fields in the prime contractors markup. This method of applying contingencies is the reason for the use of so many prime contractors codes.

The following sections provide information on the development of costs for the various cost account codes presented in the MCACES.

Account 01 - Real Estate

Costs for this account were supplied by Real Estate Division. Property values included in the cost estimate are based on a Gross Appraisal dated April 14, 1997, prepared by a Fort Worth District Staff Appraiser. The appraisal was reviewed and approved by a Reviewing Appraiser in Corps of Engineers Headquarters, Washington, DC on May 30, 1997. The appraisal was supplemented to provide a value estimate for mitigation lands and the supplement was approved after a verbal delegation of authority from HQUSACE. Data from this supplement has been included in the following cost estimates. Contingencies range from 10% to 25%, as per guidance.

Account 02 - Relocations

The extent to which existing facilities are expected to be affected by this project were determined by detailed surveys and field investigations. Relocation requirements and related quantities were developed by the Relocations Unit of the Civil Design Branch and coordinated through the City of Dallas and the various utility owners.

Some underground pipe and other structures will be required. For this a large amount of trenching and other excavation will be necessary. The estimated excavation direct cost unit price used is made up of three things; the cost of more difficult work near the bottom of the excavation, the cost between this and the surface of the ground and the cost of backfilling or disposing of all excavated material. Contingencies range from 25% to 40% for this account.

Account 06 - Fish and Wildlife (Environmental Restoration) Features

Costs for this account were developed and furnished by elements of Environmental Division. The estimate was prepared anticipating the use of current practices for the establishment of vegetation in the project and mitigation areas. Prices include initial development for improvement of bottomland hardwoods, conversion of grasslands to bottomland hardwoods, and fencing/signage. Contingencies of 25%, based on findings in previously constructed projects, were used. The amounts attributed to each project feature are shown separately in Appendix F.

Account 09 - Channels and Canals, and
Account 11 - Levees and Floodwalls

The items of work and the respective quantities used in the estimate of cost presented under these account codes are considered reliable for this stage of design and were priced accordingly. Allowances for contingencies were based on there being only routine construction problems other than those discussed in this narrative.

The prices developed are based on using ordinary construction methods and equipment routinely owned by or available to contractors capable of handling projects of this magnitude. It has been assumed that not all the work will be on one contract or handled by one contractor, but it has been assumed that regardless of the contractual arrangements large and well equipped organizations will be needed.

Ground water is to be expected, but is considered to be manageable without extremely expensive arrangements such as well point systems.

Different kinds of equipment, such as off-road and highway hauling equipment, would likely be used. A 15% compaction rate was used to calculate quantities of material needed for complete in place measurements of fill.

Excess material was estimated as being disposed of beyond the project limits. The maximum one-way haul to a disposal site is 13.5 miles. The minimum haul on the job is 0.1 mile. The average haul for all materials is approximately 5.5 miles.

A contingency of 25% - 35% is recommended for Accounts 09 and 11.

Account 14 - Recreation Facilities

The quantities used and the items of work listed under this account code were considered reliable for this stage of design and were priced accordingly.

The quantities of concrete and reinforcing steel cause the hike and bike trail to be a big item. Although both items appear to be correct, the weight of reinforcing steel could be reduced considerably if #3 bar at 0.376#/lf were used in lieu of the #4 bars at 0.668/lf, but the total direct cost of the reinforcing steel, complete in place, could be expected to be only 2.3% less than the cost of #4 bars at 0.668#/lf upon which the estimate is based. This is because it costs much more per pound to tie and place the very light # 3 bars.

Because of the conservative design, a 20% is allowed for contingencies on Account 14.

Account 30 - Planning, Engineering, and Design

Costs for this account were developed by applicable elements of the Fort Worth District and reflect and appropriate level of detail. Costs are consistent with historical data from other projects of a similar size and detail. A contingency of 25% was used for this line item and is considered adequate.

Account 31 - Construction Management

Costs for this account were based on an anticipated length of construction and adjusted based on historical data for jobs of this size and scope. A contingency of 25% was used for this line item and is considered adequate.

DALLAS FLOODWAY EXTENSION LPP

Designed By: CESWF-EC
Estimated By: CESWF-EC-CE

Prepared By: SEARS/KEENE/MASSEY

Preparation Date: 04/02/98
Effective Date of Pricing: 04/02/98

Sales Tax: 0.00%

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001. ACQUISITION BY LOCAL SPONSOR.....3
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03. Real Estate Condemnatn Documents
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CC. LAMAR STREET LEVEE

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03. Real Estate Analysis Documents
01. Real Estate Planning Documents
001. PLANNING BY LOCAL SPONSOR.....5
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001. CONDEMNATIONS BY LOCAL SPONSOR.....5
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05. Real Estate Appraisal Documents
001. APPRAISALS BY LOCAL SPONSOR.....5
002. REVIEW OF LOCAL SPONSOR.....5
06. Real Estate PL 91-646 Asst. Docs
001. PL 91-646 ASST BY LOCAL SPONSOR.....5
002. REVIEW OF LOCAL SPONSOR.....5
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01_AA CHAIN OF WETLANDS									
01_AA.23 Constructn Contract(s) Documnts									
D1_AA.23.03 Real Estate Analysis Documents									
01_AA.23.03_ 01 Real Estate Planning Documents									
01_AA.23.03_ 01_001 PLANNING BY LOCAL SPONSOR		2,000	0	0	0	0	400	2,400	
01_AA.23.03_ 01_002 REVIEW BY LOCAL SPONSOR		500	0	0	0	0	100	600	
TOTAL Real Estate Planning Documents		2,500	0	0	0	0	500	3,000	
01_AA.23.03_ 02 Real Estate Acquisition Documnts									
01_AA.23.03_ 02_001 ACQUISITION BY LOCAL SPONSOR		63,000	0	0	0	0	12,600	75,600	
01_AA.23.03_ 02_002 REVIEW OF LOCAL SPONSOR		5,400	0	0	0	0	1,080	6,480	
TOTAL Real Estate Acquisition Documnts		68,400	0	0	0	0	13,680	82,080	
01_AA.23.03_ 03 Real Estate Condemnatn Documents									
01_AA.23.03_ 03_001 CONDEMNATIONS BY LOCAL SPONSOR		72,000	0	0	0	0	18,000	90,000	
01_AA.23.03_ 03_002 REVIEW OF LOCAL SPONSOR		1,800	0	0	0	0	450	2,250	
TOTAL Real Estate Condemnatn Documents		73,800	0	0	0	0	18,450	92,250	
01_AA.23.03_ 05 Real Estate Appraisal Documents									
01_AA.23.03_ 05_001 APPRAISALS BY LOCAL SPONSOR		20,000	0	0	0	0	2,000	22,000	
01_AA.23.03_ 05_002 REVIEW OF LOCAL SPONSOR		3,000	0	0	0	0	300	3,300	
TOTAL Real Estate Appraisal Documents		23,000	0	0	0	0	2,300	25,300	
01_AA.23.03_ 15 Real Estate Payment Documents									
01_AA.23.03_ 15_001 PAYMENTS BY LOCAL SPONSOR (LAND)		9,643,200	0	0	0	0	2,410,800	12,054,000	
01_AA.23.03_ 15_002 PAYMENTS-LOCAL SPONSOR (DAMAGES)		964,320	0	0	0	0	241,080	1,205,400	
01_AA.23.03_ 15_004 REVIEW OF LOCAL SPONSOR		5,000	0	0	0	0	1,250	6,250	
TOTAL Real Estate Payment Documents		10,612,520	0	0	0	0	2,653,130	13,265,650	
01_AA.23.03_ 17 RealEstate LERRD Crediting Docs		1,000	0	0	0	0	100	1,100	

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	QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
TOTAL Real Estate Analysis Documents	1.00		10,781,220	0	0	0	0	2,688,160	13,469,380	13469380
TOTAL Constructn Contract(s) Documnts	1.00	EA	10,781,220	0	0	0	0	2,688,160	13,469,380	13469380
TOTAL CHAIN OF WETLANDS			10,781,220	0	0	0	0	2,688,160	13,469,380	
01_BB CADILLAC HEIGHTS SPF LEVEE										
01_BB.23 Constructn Contract(s) Documnts										
01_BB.23.03 Real Estate Analysis Documents										
01_BB.23.03_ 01 Real Estate Planning Documents										
01_BB.23.03_ 01_001 PLANNING BY LOCAL SPONSOR			4,000	0	0	0	0	800	4,800	
01_BB.23.03_ 01_002 REVIEW BY LOCAL SPONSOR			1,000	0	0	0	0	200	1,200	
TOTAL Real Estate Planning Documents			5,000	0	0	0	0	1,000	6,000	
01_BB.23.03_ 02 Real Estate Acquisition Documnts										
01_BB.23.03_ 02_001 ACQUISITION BY LOCAL SPONSOR			70,000	0	0	0	0	14,000	84,000	
01_BB.23.03_ 02_002 REVIEW OF LOCAL SPONSOR			6,000	0	0	0	0	1,200	7,200	
TOTAL Real Estate Acquisition Documnts			76,000	0	0	0	0	15,200	91,200	
01_BB.23.03_ 03 Real Estate Condemnatn Documents										
01_BB.23.03_ 03_001 CONDEMNATIONS BY LOCAL SPONSOR			24,000	0	0	0	0	6,000	30,000	
01_BB.23.03_ 03_002 REVIEW OF LOCAL SPONSOR			600	0	0	0	0	150	750	
TOTAL Real Estate Condemnatn Documents			24,600	0	0	0	0	6,150	30,750	
01_BB.23.03_ 05 Real Estate Appraisal Documents										
01_BB.23.03_ 05_001 APPRAISALS BY LOCAL SPONSOR			22,000	0	0	0	0	2,200	24,200	
01_BB.23.03_ 05_002 REVIEW OF LOCAL SPONSOR			3,200	0	0	0	0	320	3,520	
TOTAL Real Estate Appraisal Documents			25,200	0	0	0	0	2,520	27,720	
01_BB.23.03_ 06 Real Estate PL 91-646 Asst. Docs										
01_BB.23.03_ 06_001 PL 91-646 ASST BY LOCAL SPONSOR			10,000	0	0	0	0	2,500	12,500	
01_BB.23.03_ 06_002 REVIEW OF LOCAL SPONSOR			1,000	0	0	0	0	250	1,250	
TOTAL Real Estate PL 91-646 Asst. Docs			11,000	0	0	0	0	2,750	13,750	

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	QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
01_BB.23.03_ 15 Real Estate Payment Documents										
01_BB.23.03_ 15_001 PAYMENTS BY LOCAL SPONSOR (LAND)			2,059,870	0	0	0	0	514,968	2,574,838	
01_BB.23.03_ 15_002 PAYMENTS-LOCAL SPONSOR (DAMAGES)			205,987	0	0	0	0	51,497	257,484	
01_BB.23.03_ 15_003 PAYMENTS-LOCAL SPONSOR (PL91-646			2,415,830	0	0	0	0	603,958	3,019,788	
01_BB.23.03_ 15_004 REVIEW OF LOCAL SPONSOR			3,000	0	0	0	0	750	3,750	
TOTAL Real Estate Payment Documents			4,684,687	0	0	0	0	1,171,172	5,855,859	
01_BB.23.03_ 17 RealEstate LERRD Crediting Docs			1,000	0	0	0	0	100	1,100	
TOTAL Real Estate Analysis Documents			4,827,487	0	0	0	0	1,198,892	6,026,379	
TOTAL Constructn Contract(s) Documnts	1.00	EA	4,827,487	0	0	0	0	1,198,892	6,026,379	6026379
TOTAL CADILLAC HEIGHTS SPF LEVEE			4,827,487	0	0	0	0	1,198,892	6,026,379	
01_CC LAMAR STREET LEVEE										
01_CC.23 Constructn Contract(s) Documnts										
01_CC.23.03 Real Estate Analysis Documents										
01_CC.23.03_ 01 Real Estate Planning Documents										
01_CC.23.03_ 01_001 PLANNING BY LOCAL SPONSOR			2,000	0	0	0	0	400	2,400	
01_CC.23.03_ 01_002 REVIEW BY LOCAL SPONSOR			500	0	0	0	0	100	600	
TOTAL Real Estate Planning Documents			2,500	0	0	0	0	500	3,000	
01_CC.23.03_ 02 Real Estate Acquisition Documnts										
01_CC.23.03_ 02_001 ACQUISITION BY LOCAL SPONSOR			147,000	0	0	0	0	29,400	176,400	
01_CC.23.03_ 02_002 REVIEW OF LOCAL SPONSOR			12,600	0	0	0	0	2,520	15,120	
TOTAL Real Estate Acquisition Documnts			159,600	0	0	0	0	31,920	191,520	
01_CC.23.03_ 03 Real Estate Condemnatn Documents										
01_CC.23.03_ 03_001 CONDEMNATIONS BY LOCAL SPONSOR			108,000	0	0	0	0	27,000	135,000	
01_CC.23.03_ 03_002 REVIEW OF LOCAL SPONSOR			2,600	0	0	0	0	650	3,250	
TOTAL Real Estate Condemnatn Documents			110,600	0	0	0	0	27,650	138,250	
01_CC.23.03_ 05 Real Estate Appraisal Documents										
01_CC.23.03_ 05_001 APPRAISALS BY LOCAL SPONSOR			46,000	0	0	0	0	4,600	50,600	

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
01_CC.23.03_ 05_002	REVIEW OF LOCAL SPONSOR			6,800	0	0	0	0	680	7,480	
	TOTAL Real Estate Appraisal Documents			52,800	0	0	0	0	5,280	58,080	
01_CC.23.03_ 06	Real Estate PL 91-646 Asst. Docs										
01_CC.23.03_ 06_001	PL 91-646 ASST BY LOCAL SPONSOR			5,000	0	0	0	0	1,250	6,250	
01_CC.23.03_ 06_002	REVIEW OF LOCAL SPONSOR			500	0	0	0	0	125	625	
	TOTAL Real Estate PL 91-646 Asst. Docs			5,500	0	0	0	0	1,375	6,875	
01_CC.23.03_ 15	Real Estate Payment Documents										
01_CC.23.03_ 15_001	PAYMENTS BY LOCAL SPONSOR (LAND)			3,165,230	0	0	0	0	791,308	3,956,538	
01_CC.23.03_ 15_002	PAYMENTS-LOCAL SPONSOR (DAMAGES)			316,523	0	0	0	0	79,131	395,654	
01_CC.23.03_ 15_003	PAYMENTS-LOCAL SPONSOR (PL91-646			800,000	0	0	0	0	200,000	1,000,000	
01_CC.23.03_ 15_004	REVIEW OF LOCAL SPONSOR			4,000	0	0	0	0	1,000	5,000	
	TOTAL Real Estate Payment Documents			4,285,753	0	0	0	0	1,071,438	5,357,191	
01_CC.23.03_ 17	RealEstate LERRD Crediting Docs			2,000	0	0	0	0	200	2,200	
01_CC.23.03_ 18	Real Estate All Other Documents										
	TOTAL Real Estate Analysis Documents			4,618,753	0	0	0	0	1,138,363	5,757,116	
	TOTAL Constructn Contract(s) Documnts	1.00	EA	4,618,753	0	0	0	0	1,138,363	5,757,116	5757116
	TOTAL LAMAR STREET LEVEE			4,618,753	0	0	0	0	1,138,363	5,757,116	
	TOTAL Lands and Damages	1.00	EA	20,227,460	0	0	0	0	5,025,415	25,252,875	25252875
02	Relocations										
02_03	Cemetery, Utilities, & Structure										
02_03.18	Utilities										
02_03.18.02	Site Work										
02_03.18.02_ 01	Trench Excavation										
02_03.18.02_ 01_001	CADILLAC (STA 94+00) 15" SS	296.00	CY	2,829	481	99	341	19	1,508	5,277	17.83
02_03.18.02_ 01_002	CADILLAC (STA 102+00) 8" SS	158.00	CY	1,510	257	53	182	10	805	2,817	17.83
02_03.18.02_ 01_003	CADILLAC (STA 112+00) 10" SS	210.00	CY	2,007	341	70	242	13	1,070	3,744	17.83
02_03.18.02_ 01_004	CADILLAC (STA 98+00) 8" SS	79.00	CY	755	128	27	91	5	402	1,408	17.83
02_03.18.02_ 01_005	CADILLAC (STA 34+00) 15" SS	300.00	CY	2,868	487	101	346	19	1,528	5,348	17.83
02_03.18.02_ 01_006	CADILLAC (STA 81+00) 12" SS	356.00	CY	3,403	578	119	410	23	1,813	6,347	17.83
02_03.18.02_ 01_007	CADILLAC (STA 43+00) 12" SS	213.00	CY	2,036	346	71	245	13	1,085	3,797	17.83

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			QUANTY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
02_03.18.02_	01_008	CADILLAC (STA 26+00) 10" SS	185.00 CY	1,768	301	62	213	12	942	3,298	17.83
02_03.18.02_	01_009	CADILLAC (STA 66+00) 10" SS	798.00 CY	7,628	1,297	268	919	51	4,065	14,226	17.83
02_03.18.02_	01_010	CADILLAC (STA 75+80) 12" SS	168.00 CY	1,606	273	56	194	11	856	2,995	17.83
02_03.18.02_	01_011	CADILLAC (STA 66+00) 24" SD	445.00 CY	4,253	723	149	513	28	2,267	7,933	17.83
02_03.18.02_	01_014	CADILLAC (STA 112+00) 24" SD	222.00 CY	2,122	361	74	256	14	1,131	3,958	17.83
02_03.18.02_	01_015	CADILLAC (STA 111+00) 72" SD	533.00 CY	5,095	866	179	614	34	2,715	9,502	17.83
02_03.18.02_	01_019	CADILLAC (STA 10+00) 54" SD	5778.00 CY	55,228	9,389	1,939	6,656	366	29,431	103,008	17.83
02_03.18.02_	01_020	CADILLAC (STA 62+00) 8" WATER	296.00 CY	2,829	481	99	341	19	1,508	5,277	17.83
02_03.18.02_	01_021	CADILLAC (STA 43+50) 6" WATER	326.00 CY	3,116	530	109	376	21	1,661	5,812	17.83
02_03.18.02_	01_023	CADILLAC (STA 26+00) 8" WATER	296.00 CY	2,829	481	99	341	19	1,508	5,277	17.83
02_03.18.02_	01_024	LAMAR (STA 27+00-34+00) 10" SS	672.00 CY	6,423	1,092	225	774	43	3,423	11,979	17.83
02_03.18.02_	01_025	LAMAR (STA 70+00) 12" SS	179.00 CY	1,711	291	60	206	11	912	3,191	17.83
02_03.18.02_	01_026	LAMAR (STA 90+00) 24" SS	262.00 CY	2,504	426	88	302	17	1,335	4,671	17.83
02_03.18.02_	01_027	LAMAR (STA 106+00) 15" SS	148.00 CY	1,415	240	50	170	9	754	2,638	17.83
02_03.18.02_	01_028	LAMAR (STA 117+00) 48" SS	9533.00 CY	91,120	15,490	3,198	10,981	604	48,558	169,951	17.83
02_03.18.02_	01_029	LAMAR (STA 25+00) 54" SD	289.00 CY	2,762	470	97	333	18	1,472	5,152	17.83
02_03.18.02_	01_030	LAMAR (STA 47+00) 48" SD	311.00 CY	2,973	505	104	358	20	1,584	5,544	17.83
02_03.18.02_	01_031	LAMAR (STA 77+50) 24" SD	333.00 CY	3,183	541	112	384	21	1,696	5,937	17.83
02_03.18.02_	01_032	LAMAR (STA 77+50) 30" SD	150.00 CY	1,434	244	50	173	10	764	2,674	17.83
02_03.18.02_	01_033	LAMAR (STA 77+50) 42" SD	1359.00 CY	12,990	2,208	456	1,565	86	6,922	24,228	17.83
02_03.18.02_	01_034	LAMAR (STA 77+50) 60" SD	4252.00 CY	40,642	6,909	1,427	4,898	269	21,658	75,803	17.83
02_03.18.02_	01_035	LAMAR (STA 119+00) 66" SD	3378.00 CY	32,289	5,489	1,133	3,891	214	17,207	60,223	17.83
02_03.18.02_	01_036	LAMAR (STA 27+00) 12" SD	133.00 CY	1,271	216	45	153	8	677	2,371	17.83
02_03.18.02_	01_037	LAMAR (STA 24+60) 8'x8' BOX CULV	3044.00 CY	29,096	4,946	1,021	3,506	193	15,505	54,267	17.83
02_03.18.02_	01_038	LAMAR (STA 134+00) 7'x7' BX CULV	9133.00 CY	87,297	14,840	3,064	10,520	579	46,520	162,820	17.83
		TOTAL Trench Excavation		418,993	71,229	14,707	50,493	2,777	223,279	781,477	
02_03.18.02_	03	Pipe Bedding									
02_03.18.02_	03_001	CADILLAC (STA 94+00) 15" SS	35.00 CY	743	126	26	90	5	248	1,238	35.37
02_03.18.02_	03_002	CADILLAC (STA 102+00) 8" SS	15.20 CY	323	55	11	39	2	108	538	35.37
02_03.18.02_	03_003	CADILLAC (STA 112+00) 10" SS	22.00 CY	467	79	16	56	3	156	778	35.37
02_03.18.02_	03_005	CADILLAC (STA 34+00) 15" SS	35.00 CY	743	126	26	90	5	248	1,238	35.37
02_03.18.02_	03_006	CADILLAC (STA 81+00) 12" SS	34.00 CY	722	123	25	87	5	241	1,203	35.37
02_03.18.02_	03_007	CADILLAC (STA 43+00) 12" SS	23.00 CY	489	83	17	59	3	163	814	35.37
02_03.18.02_	03_008	CADILLAC (STA 26+00) 10" SS	19.00 CY	404	69	14	49	3	134	672	35.37
02_03.18.02_	03_011	CADILLAC (STA 112+00) 24" SD	49.00 CY	1,041	177	37	125	7	347	1,733	35.37
02_03.18.02_	03_012	CADILLAC (STA 111+00) 72" SD	72.00 CY	1,529	260	54	184	10	509	2,547	35.37
02_03.18.02_	03_016	CADILLAC (STA 10+00) 54" SD	361.00 CY	7,668	1,304	269	924	51	2,554	12,770	35.37
02_03.18.02_	03_017	CADILLAC (STA 62+00) 8" WATER	37.00 CY	786	134	28	95	5	262	1,309	35.37
02_03.18.02_	03_018	CADILLAC (STA 43+50) 6" WATER	41.00 CY	871	148	31	105	6	290	1,450	35.37
02_03.18.02_	03_019	CADILLAC (STA 26+00) 8" WATER	37.00 CY	786	134	28	95	5	262	1,309	35.37
02_03.18.02_	03_020	LAMAR (STA 27+00-31+00) 10" SS	69.00 CY	1,466	249	51	177	10	488	2,441	35.37
02_03.18.02_	03_021	LAMAR (STA 70+00) 12" SS	19.00 CY	404	69	14	49	3	134	672	35.37
02_03.18.02_	03_022	LAMAR (STA 90+00) 24" SS	36.00 CY	765	130	27	92	5	255	1,273	35.37
02_03.18.02_	03_023	LAMAR (STA 106+00) 15" SS	6.00 CY	127	22	4	15	1	42	212	35.37
02_03.18.02_	03_024	LAMAR (STA 117+00) 48" SS	13.00 CY	276	47	10	33	2	92	460	35.37
02_03.18.02_	03_025	LAMAR (STA 25+00) 54" SD	55.00 CY	1,168	199	41	141	8	389	1,946	35.37
02_03.18.02_	03_026	LAMAR (STA 47+00) 48" SD	24.00 CY	510	87	18	61	3	170	849	35.37

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
02_03.18.02_ 03_027	LAMAR (STA 77+50) 24" SD	74.00	CY	1,572	267	55	189	10	524	2,618	35.37
02_03.18.02_ 03_028	LAMAR (STA 77+50) 30" SD	30.00	CY	637	108	22	77	4	212	1,061	35.37
02_03.18.02_ 03_029	LAMAR (STA 77+50) 60" SD	354.00	CY	7,519	1,278	264	906	50	2,504	12,522	35.37
02_03.18.02_ 03_032	LAMAR LEVEE (STA 119+00) 66" SD	167.00	CY	3,547	603	125	427	24	1,181	5,907	35.37
02_03.18.02_ 03_033	LAMAR (STA 27+00) 12" SD	14.50	CY	308	52	11	37	2	103	513	35.37
02_03.18.02_ 03_034	LAMAR (STA 77+50) 48" SD	266.00	CY	5,650	961	198	681	37	1,882	9,409	35.37
02_03.18.02_ 03_035	CADILLAC (STA 66+00) 10" SS	82.00	CY	1,742	296	61	210	12	580	2,901	35.37
02_03.18.02_ 03_036	CADILLAC (STA 66+00) 24" SD	98.00	CY	2,082	354	73	251	14	693	3,467	35.37
02_03.18.02_ 03_037	CADILLAC (STA 75+80) 12" SS	17.00	CY	361	61	13	44	2	120	601	35.37
TOTAL Pipe Bedding				44,707	7,600	1,569	5,388	296	14,890	74,450	
02_03.18.02_ 06 Manholes											
02_03.18.02_ 06_001	CADILLAC (STA 94+00)	1.00	EA	2,549	433	89	307	17	849	4,245	4244.65
02_03.18.02_ 06_002	CADILLAC (STA 102+00)	1.00	EA	3,392	577	119	409	22	1,130	5,648	5647.87
02_03.18.02_ 06_003	CADILLAC (STA 112+00)	3.00	EA	10,175	1,730	357	1,226	67	3,389	16,944	5647.87
02_03.18.02_ 06_005	CADILLAC (STA 34+00)	1.00	EA	3,392	577	119	409	22	1,130	5,648	5647.87
02_03.18.02_ 06_006	CADILLAC (STA 81+00)	2.00	EA	6,783	1,153	238	817	45	2,259	11,296	5647.87
02_03.18.02_ 06_007	CADILLAC (STA 43+00)	1.00	EA	2,553	434	90	308	17	850	4,251	4251.35
02_03.18.02_ 06_008	CADILLAC (STA 26+00)	1.00	EA	3,392	577	119	409	22	1,130	5,648	5647.87
02_03.18.02_ 06_009	CADILLAC (STA 66+00)	6.00	EA	20,349	3,459	714	2,452	135	6,777	33,887	5647.87
02_03.18.02_ 06_010	CADILLAC (STA 75+80)	2.00	EA	6,783	1,153	238	817	45	2,259	11,296	5647.87
02_03.18.02_ 06_020	LAMAR (STA 27+00-31+00)	1.00	EA	3,392	577	119	409	22	1,130	5,648	5647.87
02_03.18.02_ 06_021	LAMAR (STA 70+00)	1.00	EA	3,392	577	119	409	22	1,130	5,648	5647.87
02_03.18.02_ 06_022	LAMAR (STA 90+00)	1.00	EA	3,392	577	119	409	22	1,130	5,648	5647.87
02_03.18.02_ 06_023	LAMAR (STA 106+00)	1.00	EA	3,392	577	119	409	22	1,130	5,648	5647.87
02_03.18.02_ 06_033	LAMAR (STA 27+00)	1.00	EA	3,392	577	119	409	22	1,130	5,648	5647.87
TOTAL Manholes				76,324	12,975	2,679	9,198	506	25,420	127,101	
02_03.18.02_ 98 ROAD R/R CADILLAC (SARGENT RD)											
02_03.18.02_ 98_001	ROAD GRADING	1111.00	SY	1,324	225	46	160	9	441	2,205	1.98
02_03.18.02_ 98_002	LIME STAB SUBGRADE	489.00	SY	1,530	260	54	184	10	510	2,548	5.21
02_03.18.02_ 98_003	BASE COURSE	99.00	CY	1,410	240	50	170	9	470	2,349	23.73
02_03.18.02_ 98_004	2" HMAC	44.00	TON	11,731	1,994	412	1,414	78	3,907	19,535	443.98
TOTAL ROAD R/R CADILLAC (SARGENT RD)		1111.00	SY	15,995	2,719	561	1,928	106	5,327	26,637	23.98
02_03.18.02_ 99 ROAD REMOV & REPLACE											
02_03.18.02_ 99_001	FILL	29028	CY	95,909	16,304	3,366	11,558	636	31,943	159,716	5.50
02_03.18.02_ 99_002	LIME SUBGRADE	3305.00	SY	6,829	1,161	240	823	45	2,275	11,373	3.44
02_03.18.02_ 99_003	BASE COURSE	745.00	CY	22,167	3,768	778	2,671	147	7,383	36,914	49.55
02_03.18.02_ 99_004	8" CONCRETE PAVEMENT	685.00	CY	149,027	25,335	5,231	17,959	988	49,635	248,174	362.30
02_03.18.02_ 99_005	REMOVE CONC PAVMNT	685.00	CY	11,643	1,979	409	1,403	77	3,878	19,389	28.30

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		QUANTY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
	TOTAL ROAD REMOV & REPLACE	19830 SY	285,574	48,548	10,024	34,415	1,893	95,113	475,566	23.98
	TOTAL Site Work		841,592	143,071	29,540	101,420	5,578	364,030	1,485,231	
02_03.18.15	Mechanical									
02_03.18.15_	01 Pipe and Fittings									
02_03.18.15_ 01_001	CADILLAC (STA 94+00) 15" SS	300.00 LF	5,416	921	190	653	36	1,804	9,019	30.06
02_03.18.15_ 01_002	CADILLAC (STA 102+00) 8" SS	200.00 LF	1,357	231	48	164	9	452	2,260	11.30
02_03.18.15_ 01_003	CADILLAC (STA 112+00) 10" SS	250.00 LF	2,517	428	88	303	17	838	4,191	16.76
02_03.18.15_ 01_005	CADILLAC (STA 34+00) 15" SS	300.00 LF	5,414	920	190	652	36	1,803	9,015	30.05
02_03.18.15_ 01_006	CADILLAC (STA 81+00) 12" SS	450.00 LF	6,298	1,071	221	759	42	2,098	10,488	23.31
02_03.18.15_ 01_007	CADILLAC (STA 43+00) 12" SS	240.00 LF	3,360	571	118	405	22	1,119	5,595	23.31
02_03.18.15_ 01_008	CADILLAC (STA 26+00) 10" SS	220.00 LF	2,214	376	78	267	15	737	3,687	16.76
02_03.18.15_ 01_011	CADILLAC (STA 112+00) 24" SD	300.00 LF	28,855	4,905	1,013	3,477	191	9,610	48,051	160.17
02_03.18.15_ 01_012	CADILLAC (STA 111+00) 72" SD	200.00 LF	50,043	8,507	1,757	6,031	332	16,667	83,336	416.68
02_03.18.15_ 01_016	CADILLAC (STA 10+00) 54" SD	3200.00 LF	485,019	82,453	17,024	58,450	3,215	161,540	807,701	252.41
02_03.18.15_ 01_017	CADILLAC (STA 62+00) 8" WATER	200.00 LF	2,873	488	101	346	19	957	4,785	23.93
02_03.18.15_ 01_018	CADILLAC (STA 43+50) 6" WATER	220.00 LF	2,153	366	76	259	14	717	3,585	16.30
02_03.18.15_ 01_019	CADILLAC (STA 26+00) 8" WATER	200.00 LF	2,819	479	99	340	19	939	4,694	23.47
02_03.18.15_ 01_020	LAMAR (STA 27+00-31+00) 10" SS	800.00 LF	13,669	2,324	480	1,647	91	4,552	22,762	28.45
02_03.18.15_ 01_021	LAMAR (STA 70+00) 12" SS	200.00 LF	4,881	830	171	588	32	1,626	8,129	40.65
02_03.18.15_ 01_022	LAMAR (STA 90+00) 24" SS	220.00 LF	11,388	1,936	400	1,372	75	3,793	18,964	86.20
02_03.18.15_ 01_023	LAMAR (STA 106+00) 15" SS	150.00 LF	5,379	914	189	648	36	1,791	8,957	59.71
02_03.18.15_ 01_024	LAMAR (STA 117+00) 48" SS	300.00 LF	32,633	5,548	1,145	3,933	216	10,869	54,343	181.14
02_03.18.15_ 01_025	LAMAR (STA 25+00) 54" SD	150.00 LF	24,949	4,241	876	3,007	165	8,309	41,547	276.98
02_03.18.15_ 01_026	LAMAR (STA 47+00) 48" SD	200.00 LF	30,167	5,128	1,059	3,635	200	10,047	50,237	251.19
02_03.18.15_ 01_027	LAMAR (STA 77+50) 24" SD	450.00 LF	12,990	2,208	456	1,565	86	4,326	21,632	48.07
02_03.18.15_ 01_028	LAMAR (STA 77+50) 30" SD	150.00 LF	6,206	1,055	218	748	41	2,067	10,335	68.90
02_03.18.15_ 01_029	LAMAR (STA 77+50) 60" SD	2050.00 LF	365,626	62,156	12,833	44,062	2,423	121,775	608,876	297.01
02_03.18.15_ 01_032	LAMAR LEVEE (STA 119+00) 66" SD	1200.00 LF	302,388	51,406	10,614	36,441	2,004	100,713	503,565	419.64
02_03.18.15_ 01_033	LAMAR (STA 27+00) 12" SD	150.00 LF	3,648	620	128	440	24	1,215	6,075	40.50
02_03.18.15_ 01_035	CADILLAC (STA 66+00) 10" SS	950.00 LF	9,560	1,625	336	1,152	63	3,184	15,921	16.76
02_03.18.15_ 01_036	CADILLAC (STA 66+00) 24" SD	450.00 LF	12,990	2,208	456	1,565	86	4,326	21,632	48.07
02_03.18.15_ 01_037	CADILLAC (STA 75+80) 12" SS	200.00 LF	2,800	476	98	337	19	932	4,662	23.31
02_03.18.15_ 01_038	LAMAR (STA 77+50) 42" SD	950.00 LF	86,300	14,671	3,029	10,400	572	28,743	143,716	151.28
	TOTAL Pipe and Fittings		1,523,909	259,064	53,489	183,646	10,101	507,552	2,537,762	
02_03.18.15_	03 Valves/Gates (incl Conc Risers)									
02_03.18.15_ 03_001	CAD (STA 94) 15" GATE VALVE	1.00 EA	8,398	1,428	295	1,012	56	2,797	13,986	13986
02_03.18.15_ 03_002	CAD (STA 102) 8" GATE VALVE	1.00 EA	6,168	1,049	217	743	41	2,054	10,272	10272
02_03.18.15_ 03_003	CAD (STA 112) 10" GATE VALVE	1.00 EA	7,065	1,201	248	851	47	2,353	11,765	11765
02_03.18.15_ 03_005	CAD (STA 34) 15" GATE VALVE	1.00 EA	8,676	1,475	305	1,046	58	2,890	14,448	14448
02_03.18.15_ 03_006	CAD (STA 81) 12" GATE VALVE	1.00 EA	7,752	1,318	272	934	51	2,582	12,909	12909
02_03.18.15_ 03_007	CAD (STA 43) 12" GATE VALVE	1.00 EA	9,377	1,594	329	1,130	62	3,123	15,615	15615
02_03.18.15_ 03_008	CAD (STA 26) 10" GATE VALVE	1.00 EA	8,743	1,486	307	1,054	58	2,912	14,560	14560

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
02_03.18.15_ 03_011	CAD (STA 112) 24"x24" FLAP GATE	1.00	EA	14,019	2,383	492	1,689	93	4,669	23,346	23346
02_03.18.15_ 03_012	CAD (STA 111) 72" FLAP GATE	1.00	EA	33,721	5,733	1,184	4,064	224	11,231	56,155	56155
02_03.18.15_ 03_017	CAD (STA 62) 8" AIR RELEASE VALV	1.00	EA	573	97	20	69	4	191	954	953.56
02_03.18.15_ 03_018	CAD (STA 43+50) 6" COMBO AIR REL	1.00	EA	388	66	14	47	3	129	646	645.74
02_03.18.15_ 03_019	CAD (STA 26) 8" COMBO AIR RELEAS	1.00	EA	572	97	20	69	4	191	953	953.36
02_03.18.15_ 03_021	LAMAR (STA 70) 12" SLUICE GATE	1.00	EA	9,574	1,628	336	1,154	63	3,189	15,944	15944
02_03.18.15_ 03_022	LAMAR (STA 90) 24" SLUICE GATE	1.00	EA	14,756	2,509	518	1,778	98	4,915	24,574	24574
02_03.18.15_ 03_023	LAMAR (STA 106) 15" SLUICE GATE	1.00	EA	9,644	1,639	338	1,162	64	3,212	16,059	16059
02_03.18.15_ 03_024	LAMAR (STA 117 48" SLUICE GATE	1.00	EA	34,702	5,899	1,218	4,182	230	11,558	57,790	57790
02_03.18.15_ 03_025	LAMAR (STA 25) 54" SLUICE/FLAP	1.00	EA	22,412	3,810	787	2,701	149	7,464	37,322	37322
02_03.18.15_ 03_026	LAMAR (STA 47) 48" SLUICE/FLAP	1.00	EA	20,591	3,500	723	2,481	136	6,858	34,290	34290
02_03.18.15_ 03_029	LAMAR (STA 77+50) 60" SLUICE/FLP	1.00	EA	36,000	6,120	1,264	4,338	239	11,990	59,951	59951
02_03.18.15_ 03_030	LAMAR (STA 24+60) 8' SLUICE GATE	1.00	EA	33,319	5,664	1,170	4,015	221	11,097	55,486	55486
02_03.18.15_ 03_031	LAMAR (STA 134) 7'x7' BoX CULV	1.00	EA	33,163	5,638	1,164	3,997	220	11,045	55,227	55227
02_03.18.15_ 03_032	LAMAR LEVEE (STA 119) 66" SLUICE	1.00	EA	47,108	8,008	1,653	5,677	312	15,690	78,449	78449
02_03.18.15_ 03_033	LAMAR (STA 27) 12" SLUICE GATE	1.00	EA	6,649	1,130	233	801	44	2,215	11,073	11073
02_03.18.15_ 03_034	CAD (STA 66+00) 10" GATE VALVE	1.00	EA	7,065	1,201	248	851	47	2,353	11,765	11765
02_03.18.15_ 03_035	CAD (STA 75+80) 12" GATE VALVE	1.00	EA	7,752	1,318	272	934	51	2,582	12,909	12909
TOTAL Valves/Gates (incl Conc Risers)				388,186	65,992	13,625	46,780	2,573	129,289	646,445	
TOTAL Mechanical				1,912,095	325,056	67,115	230,427	12,673	636,841	3,184,207	
02_03.18.16 Electrical											
02_03.18.16_99A	ELECTRICAL TOWER - 138 KV	1.00	EA	30,000	5,100	1,053	3,615	199	9,992	49,959	49959
02_03.18.16_99B	FIBER OPTICS - CADILLAC MTS	100.00	LF	207	35	7	25	1	97	373	3.73
02_03.18.16_99C	FIBER OPTICS - LAMAR LEVEE	100.00	LF	207	35	7	25	1	97	373	3.73
02_03.18.16_99D	CAD (STA 97+50) 8" SS DEMO PIPE	100.00	LF	1,008	171	35	121	7	336	1,678	16.78
02_03.18.16_99E	CAD (STA 44+00) WOOD POWER POLE	2.00	EA	2,796	475	98	337	19	1,304	5,028	2514.00
02_03.18.16_99F	CAD (STA 45+00) WOOD POWER POLE	1.00	EA	1,398	238	49	168	9	652	2,514	2514.00
02_03.18.16_99G	CAD (STA 47+70) WOOD POWER POLE	1.00	EA	1,398	238	49	168	9	652	2,514	2514.00
02_03.18.16_99H	CAD (STA 66) RELOCATE 4-WIRE ELE	600.00	LF	8,333	1,417	292	1,004	55	2,775	13,877	23.13
02_03.18.16_99I	CAD (STA 61+50) WOOD POWER POLE	2.00	EA	2,796	475	98	337	19	1,304	5,028	2514.00
TOTAL Electrical				48,142	8,184	1,690	5,802	319	17,207	81,344	
TOTAL Utilities				2,801,829	476,311	98,344	337,648	18,571	1,018,078	4,750,781	
02_03.47 Structures											
02_03.47.03 Concrete											
02_03.47.03_ 01 Concrete											
02_03.47.03_ 01_009	CADILLAC (STA 120+00) HEADWALL	10.70	CY	7,450	1,267	262	898	49	2,481	12,407	1159.52
02_03.47.03_ 01_010	CADILLAC (STA 120+00) C & G	1000.00	LF	7,803	1,327	274	940	52	2,599	12,995	12.99
02_03.47.03_ 01_011	CADILLAC (STA 112+00) HEADWALL	3.70	CY	3,273	556	115	394	22	1,090	5,450	1473.10
02_03.47.03_ 01_012	CADILLAC (STA 111+00) HEADWALL	21.90	CY	10,890	1,851	382	1,312	72	3,627	18,135	828.10

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
02_03.47.03_ 01_013	CADILLAC (STA 111+00) C & G	1400.00	LF	10,921	1,857	383	1,316	72	3,637	18,187	12.99
02_03.47.03_ 01_014	CADILLAC (STA 91+00) HEADWALL	10.70	CY	7,301	1,241	256	880	48	2,432	12,158	1136.27
02_03.47.03_ 01_015	CADILLAC (STA 91+00) C & G	1000.00	LF	7,801	1,326	274	940	52	2,598	12,991	12.99
02_03.47.03_ 01_016	CADILLAC (STA 10+00) HEADWALL	14.10	CY	9,425	1,602	331	1,136	62	3,139	15,696	1113.18
02_03.47.03_ 01_026	LAMAR (STA 47+00) HEADWALL	11.60	CY	8,013	1,362	281	966	53	2,669	13,343	1150.28
02_03.47.03_ 01_029	LAMAR (STA 77+50) HEADWALL	16.50	CY	10,790	1,834	379	1,300	72	3,594	17,968	1088.97
02_03.47.03_ 01_030	LAMAR 24+60 - 8'Box Culv W/Demo	274.00	CY	74,191	12,612	2,604	8,941	492	24,710	123,550	450.91
02_03.47.03_ 01_031	LAMAR (STA 134) 7'BX CULV/RipRap	628.50	CY	155,783	26,483	5,468	18,773	1,033	51,885	259,425	412.77
02_03.47.03_ 01_032	LAMAR LEVEE (STA 119+00) HOWALL	19.20	CY	12,284	2,088	431	1,480	81	4,091	20,457	1065.44
TOTAL Concrete				325,925	55,407	11,440	39,277	2,160	108,552	542,762	
02_03.47.03_ 02 Reinforcing Steel											
02_03.47.03_ 02_030	LAMAR (STA 24+60) 8'x8' BOX CULV	58944	LB	27,144	4,614	953	3,271	180	9,040	45,202	0.77
02_03.47.03_ 02_031	LAMAR (STA 134+00) 7'x7' BX CULV	127910	LB	58,903	10,013	2,067	7,098	390	19,618	98,090	0.77
TOTAL Reinforcing Steel				86,046	14,628	3,020	10,369	570	28,659	143,293	
02_03.47.03_99A Service Bridge											
02_03.47.03_99A_001	CADILLAC (STA 94+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_002	CADILLAC (STA 102+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_003	CADILLAC (STA 112+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_005	CADILLAC (STA 34+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_006	CADILLAC (STA 81+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_007	CADILLAC (STA 43+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_008	CADILLAC (STA 26+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_009	CADILLAC (STA 66+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_011	CADILLAC (STA 112+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_012	CADILLAC (STA 111+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_013	CADILLAC (STA 111+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_015	CADILLAC (STA 75+80)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_021	LAMAR (STA 70+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_022	LAMAR (STA 90+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_023	LAMAR (STA 106+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_024	LAMAR (STA 117+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_025	LAMAR (STA 25+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_026	LAMAR (STA 47+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_029	LAMAR (STA 77+50)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_030	LAMAR (STA 24+60)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_031	LAMAR (STA 134+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_032	LAMAR LEVEE (STA 119+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
02_03.47.03_99A_033	LAMAR (STA 27+00)	110.00	SF	9,586	1,630	336	1,155	64	3,193	15,964	145.13
TOTAL Service Bridge				220,481	37,482	7,739	26,570	1,461	73,433	367,167	
TOTAL Concrete				632,453	107,517	22,199	76,217	4,192	210,644	1,053,222	

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	QUANTY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
TOTAL Structures		632,453	107,517	22,199	76,217	4,192	210,644	1,053,222	
TOTAL Cemetery, Utilities, & Structure		3,434,281	583,828	120,543	413,865	22,763	1,228,722	5,804,003	
TOTAL Relocations		3,434,281	583,828	120,543	413,865	22,763	1,228,722	5,804,003	
06 Fish and Wildlife Facilities									
06_03 Wildlife Facilities & Sanctuary									
06_03.71 Fences									
06_03.71.02 Site Work									
06_03.71.02_ 01 Barbed Wire Fence									
06_03.71.02_ 01_001 Barbed Wire Fence	31680 LF	63,363	10,772	2,224	7,636	420	21,104	105,519	3.33
TOTAL Barbed Wire Fence		63,363	10,772	2,224	7,636	420	21,104	105,519	
TOTAL Site Work		63,363	10,772	2,224	7,636	420	21,104	105,519	
TOTAL Fences		63,363	10,772	2,224	7,636	420	21,104	105,519	
06_03.72 Signs									
06_03.72.02 Site Work									
06_03.72.02_ 01 Signs									
06_03.72.02_ 01_001 Signs		10,000	1,700	351	1,205	66	3,331	16,653	
TOTAL Signs		10,000	1,700	351	1,205	66	3,331	16,653	
TOTAL Site Work		10,000	1,700	351	1,205	66	3,331	16,653	
TOTAL Signs		10,000	1,700	351	1,205	66	3,331	16,653	
06_03.73 Habitat and Feeding Facilities									
06_03.73.02 Site Work									
06_03.73.02_ 01 Trees									
06_03.73.02_ 01_001 SELECTIVE THINNING (IMP)	463.00 AC	37,040	6,297	1,300	4,464	246	12,337	61,683	133.22
06_03.73.02_ 01_002 MAST TREES (IMP)	1175.00 EA	35,250	5,993	1,237	4,248	234	11,740	58,702	49.96
06_03.73.02_ 01_003 TREE PLANTING W/SITE PREP (IMP)	1175.00 EA	35,250	5,993	1,237	4,248	234	11,740	58,702	49.96
06_03.73.02_ 01_004 SHEAR,RAKE, PILE & BED (IMP	50.00 AC	8,000	1,360	281	964	53	2,664	13,322	266.45

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
06_03.73.02_ 01_005	300 TREES/150 SEEDLINGS PER ACRE	233.00	AC	69,900	11,883	2,453	8,424	463	23,281	116,404	499.59
TOTAL	Trees			185,440	31,525	6,509	22,347	1,229	61,763	308,813	
06_03.73.02_ 02	Shrubs										
06_03.73.02_ 02_001	SHREDDING/DISKING (CONV)	233.00	AC	9,320	1,584	327	1,123	62	3,104	15,521	66.61
TOTAL	Shrubs			9,320	1,584	327	1,123	62	3,104	15,521	
TOTAL	Site Work			194,760	33,109	6,836	23,471	1,291	64,867	324,333	
06_03.73.06	Wood and Plastic										
06_03.73.06_ 01	Wood Feeders										
06_03.73.06_ 01_001	PASSERINE NEST BOXES (IMP)	270.00	EA	8,100	1,377	284	976	54	2,698	13,489	49.96
06_03.73.06_ 01_002	PASSERINE NEST BOXES (IMP)	233.00	EA	6,990	1,188	245	842	46	2,328	11,640	49.96
TOTAL	Wood Feeders			15,090	2,565	530	1,818	100	5,026	25,129	
TOTAL	Wood and Plastic			15,090	2,565	530	1,818	100	5,026	25,129	
TOTAL	Habitat and Feeding Facilities			209,850	35,675	7,366	25,289	1,391	69,893	349,463	
TOTAL	Wildlife Facilities & Sanctuary			283,213	48,146	9,941	34,130	1,877	94,327	471,634	
TOTAL	Fish and Wildlife Facilities			283,213	48,146	9,941	34,130	1,877	94,327	471,634	
09	Channels and Canals										
09_01	Channels										
09_01.99	Associated General Items										
09_01.99.02	Site Work										
09_01.99.02_ 03	Pipe Drains:										
09_01.99.02_ 03_001	OTLT STR - DNSTRM WTLNDS-EXC	12160	CY	140,694	23,918	4,938	16,955	933	46,859	234,297	19.27
09_01.99.02_ 03_002	SD BOXES - DNSTREAM WETLANDS	8.00	CY	6,800	1,156	239	819	45	2,265	11,324	1415.50
09_01.99.02_ 03_003	18" RIPRAP - DNSTREAM WETLANDS	950.00	SY	40,042	6,807	1,405	4,826	265	13,337	66,683	70.19
09_01.99.02_ 03_004	FILTER FABRIC - DNSTREAM WETLAND	950.00	SY	2,555	434	90	308	17	851	4,254	4.48
09_01.99.02_ 03_005	18" RIPRAP - INLET UPPER WETLAND	504.00	SY	21,244	3,611	746	2,560	141	7,075	35,377	70.19
09_01.99.02_ 03_006	18" RIPRAP - OUTLT UPPER WETLAND	417.00	SY	17,577	2,988	617	2,118	116	5,854	29,270	70.19
09_01.99.02_ 03_007	18" RIPRAP - OUTFALL CEDER CREEK	291.00	SY	12,266	2,085	431	1,478	81	4,085	20,426	70.19
09_01.99.02_ 03_008	36" RCP UPPER WETLANDS	1880.00	LF	124,672	21,194	4,376	15,024	826	41,523	207,617	110.43

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
	TOTAL Pipe Drains:			365,849	62,194	12,841	44,088	2,425	121,849	609,247	
09_01.99.02_ 06	Seeding										
09_01.99.02_ 06_002	TURFING - UPPER WETLANDS	33.00	AC	79,200	13,464	2,780	9,544	525	26,378	131,892	3996.71
09_01.99.02_ 06_005	TURFING - DOWNSTREAM WETLANDS	69.00	AC	165,600	28,152	5,813	19,956	1,098	55,155	275,773	3996.71
	TOTAL Seeding			244,800	41,616	8,592	29,501	1,623	81,533	407,665	
09_01.99.02_ 10	Excavation and Embankment:										
09_01.99.02_ 10_CCC	EXC,HAUL,WASTE (FLD CTRL) LOWER*	199571	CY	900,704	153,120	31,615	108,544	5,970	299,988	1,499,940	7.52
09_01.99.02_ 10_CCD	EXC,HAUL,WASTE (ENV REST) LOWER*	314285	CY	1,418,431	241,133	49,787	170,935	9,401	472,422	2,362,110	7.52
09_01.99.02_ 10_CCF	EXC,HAUL,WASTE (FLD CTRL) IH-45	217852	CY	983,210	167,146	34,511	118,487	6,517	327,467	1,637,337	7.52
09_01.99.02_ 10_CCH	EXC,HAUL (FLD CTRL) LOWER SWALE*	533762	CY	1,130,988	192,268	39,698	136,295	7,496	376,686	1,883,432	3.53
09_01.99.02_ 10_DDD	EXC,HAUL (FLD CTRL) UPPER SWALE*	518491	CY	1,052,848	178,984	36,955	126,879	6,978	350,661	1,753,305	3.38
09_01.99.02_ 10_DDE	EXC,HAUL (FLD CTRL) IH-45	69365	CY	140,853	23,945	4,944	16,974	934	46,912	234,561	3.38
09_01.99.02_ 10_DDL	EXC,HAUL,WASTE(ENV REST) UPPER *	222211	CY	1,001,861	170,316	35,165	120,734	6,640	333,679	1,668,396	7.51
09_01.99.02_ 10_EED	FILL (FLD CTRL) LOWER	85930	CY	54,067	9,191	1,898	6,516	358	18,008	90,038	1.05
09_01.99.02_ 10_EEE	FILL (FLD CTRL) IH-45	60317	CY	37,951	6,452	1,332	4,574	252	12,640	63,200	1.05
09_01.99.02_ 10_GGA	EXC,HAUL NO-HAZ MAT'L-AREA 7	10667	CY	426,680	0	0	0	0	85,336	512,016	48.00
09_01.99.02_ 10_GGB	EXC,HAUL NO-HAZ MAT'L-AREA 10	18485	CY	739,400	0	0	0	0	147,880	887,280	48.00
09_01.99.02_ 10_GGC	EXC,HAUL NO-HAZ MAT'L-AREA 11	18150	CY	726,000	0	0	0	0	145,200	871,200	48.00
09_01.99.02_ 10_GGD	EXC,HAUL NO-HAZ MAT'L-AREA 12	6357.00	CY	254,280	0	0	0	0	50,856	305,136	48.00
09_01.99.02_ 10_GGE	EXC,HAUL NO-HAZ MAT'L-AREA 13	282168	CY	7,054,200	0	0	0	0	1,410,840	8,465,040	30.00
09_01.99.02_ 10_GGF	EXC,HAUL NO-HAZ MAT'L-AREA 15	92315	CY	3,692,600	0	0	0	0	738,520	4,431,120	48.00
09_01.99.02_ 10_GGG	REM/TRANS LEAD LEACHATE-AREA 13	5400000	GAL	1,080,000	0	0	0	0	216,000	1,296,000	0.24
	TOTAL Excavation and Embankment:			20,694,072	1,142,555	235,904	809,937	44,547	5,033,096	27,960,111	
	TOTAL Site Work			21,304,721	1,246,365	257,338	883,526	48,594	5,236,478	28,977,023	
09_01.99.03	Concrete										
09_01.99.03_ 01	Concrete										
09_01.99.03_ 01_001	INLET STR - DOWNSTREAM WETLANDS	112.00	CY	47,600	8,092	1,671	5,736	315	15,854	79,268	707.75
09_01.99.03_ 01_002	OTLET STR - DOWNSTREAM WETLANDS	7.00	CY	2,975	506	104	359	20	991	4,954	707.75
09_01.99.03_ 01_003	INLET STR - UPPER CHAIN WETLANDS	224.00	CY	95,200	16,184	3,342	11,473	631	31,707	158,536	707.75
09_01.99.03_ 01_004	OUTLT STR - UPPER CHAIN WETLANDS	10.00	CY	4,250	723	149	512	28	1,416	7,078	707.75
	TOTAL Concrete			150,025	25,504	5,266	18,080	994	49,967	249,836	
09_01.99.03_ 02	Reinforcing Steel										
09_01.99.03_ 02_001	INLET STR - DOWNSTREAM WETLANDS	11200	LB	5,158	877	181	622	34	1,718	8,589	0.77
09_01.99.03_ 02_002	OTLET STR - DOWNSTREAM WETLANDS	616.00	LB	284	48	10	34	2	94	472	0.77

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
09_01.99.03_ 02_003	INLET STR - UPPER CHAIN WETLANDS	22400	LB	10,315	1,754	362	1,243	68	3,436	17,178	0.77
09_01.99.03_ 02_004	OUTLT STR - UPPER CHAIN WETLANDS	924.00	LB	426	72	15	51	3	142	709	0.77
TOTAL	Reinforcing Steel	1.00		16,182	2,751	568	1,950	107	5,390	26,948	26948
TOTAL	Concrete			166,207	28,255	5,834	20,030	1,102	55,357	276,784	
09_01.99.05	Metals										
09_01.99.05_ 99	ASSOCIATED GENERAL ITEMS										
09_01.99.05_ 99_001	TRASHRACK -DOWNSTREAM WETLAND	4.00	EA	8,340	1,418	293	1,005	55	2,778	13,889	3472.15
09_01.99.05_ 99_002	MANHOLE COVER-DOWNSTREAM WETLAND	4.00	EA	4,660	792	164	562	31	1,552	7,760	1940.07
09_01.99.05_ 99_003	TRASHRACK -UPPER CHAIN WETLAND	8.00	EA	16,680	2,836	585	2,010	111	5,555	27,777	3472.15
09_01.99.05_ 99_004	MANHOLE COVR-UPPER CHAIN WETLANC	8.00	EA	9,320	1,584	327	1,123	62	3,104	15,521	1940.07
TOTAL	ASSOCIATED GENERAL ITEMS			39,000	6,630	1,369	4,700	258	12,989	64,947	
TOTAL	Metals			39,000	6,630	1,369	4,700	258	12,989	64,947	
TOTAL	Associated General Items			21,509,928	1,281,251	264,541	908,256	49,954	5,304,824	29,318,754	
TOTAL	Channels			21,509,928	1,281,251	264,541	908,256	49,954	5,304,824	29,318,754	
TOTAL	Channels and Canals			21,509,928	1,281,251	264,541	908,256	49,954	5,304,824	29,318,754	
11	Levees and Floodwalls										
11_01	Levees										
11_01.02	Drainage										
11_01.02.03	Concrete										
11_01.02.03_ 01	Concrete										
11_01.02.03_ 01_005	SLUICE STR - CADILLAC HTS	2791.00	CY	871,378	148,134	30,585	105,010	5,776	290,221	1,451,104	519.92
11_01.02.03_ 01_006	FLOODGATES - CADILLAC HTS	1931.00	CY	195,939	33,310	6,877	23,613	1,299	65,259	326,296	168.98
11_01.02.03_ 01_007	FLOODGATES - LAMAR LEVEE	812.00	CY	82,394	14,007	2,892	9,929	546	27,442	137,210	168.98
11_01.02.03_ 01_008	SLUICE STR - LAMAR LEVEE	2339.00	CY	730,259	124,144	25,632	88,004	4,840	243,220	1,216,099	519.92
TOTAL	Concrete			1,879,970	319,595	65,987	226,555	12,461	626,142	3,130,709	
11_01.02.03_ 02	Reinforcing Steel										
11_01.02.03_ 02_005	SLUICE STR - CADILLAC HTS	384242	LB	176,943	30,080	6,211	21,323	1,173	58,933	294,663	0.77
11_01.02.03_ 02_006	FLOODGATES - CADILLAC HTS	272921	LB	125,680	21,366	4,411	15,146	833	41,859	209,295	0.77
11_01.02.03_ 02_007	FLOODGATES - LAMAR LEVEE	113680	LB	52,350	8,899	1,837	6,309	347	17,436	87,178	0.77

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
11_01.02.03_ 02_008	SLUICE STR - LAMAR LEVEE	339600	LB	156,386	26,586	5,489	18,846	1,037	52,086	260,429	0.77
TOTAL	Reinforcing Steel	1.00	LB	511,359	86,931	17,949	61,624	3,389	170,313	851,565	851565
TOTAL	Concrete			2,391,329	406,526	83,936	288,179	15,850	796,455	3,982,274	
11_01.02.05	Metals										
11_01.02.05_ 01	Gates										
11_01.02.05_ 01_001	FABRICATED GATES - CADILLAC HTS	42277	LB	147,547	25,083	5,179	17,781	978	49,142	245,709	5.81
11_01.02.05_ 01_002	FABRICATED GATES - LAMAR LEVEE	18360	LB	64,076	10,893	2,249	7,722	425	21,341	106,706	5.81
TOTAL	Gates			211,623	35,976	7,428	25,503	1,403	70,483	352,415	
11_01.02.05_ 04	Handrailing										
11_01.02.05_ 04_016	HAND RAILING - CADILLAC HTS	1491.00	LB	5,144	874	181	620	34	1,713	8,566	5.75
11_01.02.05_ 04_017	HAND RAILING - LAMAR LEVEE	946.00	LB	3,264	555	115	393	22	1,087	5,435	5.75
TOTAL	Handrailing			8,408	1,429	295	1,013	56	2,800	14,001	
11_01.02.05_ 99	ASSOCIATED ITEMS										
11_01.02.05_ 99_005	RODNEY HUNT GATE & FRM - CAD HTS	84000	LB	349,440	59,405	12,265	42,111	2,316	116,384	581,922	6.93
11_01.02.05_ 99_006	RODNEY HUNT HOIST (12) CAD HTS	9600.00	LB	39,936	6,789	1,402	4,813	265	13,301	66,505	6.93
11_01.02.05_ 99_007	ROD HUNT FLAP GATE (12) CAD HTS	24000	LB	99,840	16,973	3,504	12,032	662	33,253	166,263	6.93
11_01.02.05_ 99_008	9" WATERSTOPS - CAD HTS	1904.00	LF	21,545	3,663	756	2,596	143	7,176	35,879	18.84
11_01.02.05_ 99_009	LADDERS (94 VLF) - CADILLAC HTS	940.00	LB	1,647	280	58	199	11	549	2,743	2.92
11_01.02.05_ 99_010	48" HANDRAIL (448 LF)- CAD HTS	2464.00	LB	8,501	1,445	298	1,024	56	2,831	14,156	5.75
11_01.02.05_ 99_011	W-BEAMS - CADILLAC HTS	9600.00	LB	16,800	2,856	590	2,025	111	5,595	27,977	2.91
11_01.02.05_ 99_012	RUBBER J-SEAL - CADILLAC HEIGHTS	302.00	LF	2,567	436	90	309	17	855	4,275	14.16
11_01.02.05_ 99_013	NEOPRENE GASKETS - CADILLAC HTS	302.00	LF	604	103	21	73	4	201	1,006	3.33
11_01.02.05_ 99_014	SCREW JACK SUPP - CADILLAC HTS	5.00	EA	875	149	31	105	6	291	1,457	291.43
11_01.02.05_ 99_015	LOAD BINDERS - CADILLAC HTS	10.00	EA	750	128	26	90	5	250	1,249	124.90
11_01.02.05_ 99_016	ASPHALT @ GATES - CADILLAC HTS	0.60	CY	144	24	5	17	1	48	240	399.75
11_01.02.05_ 99_018	FLOODGATE HINGES - CADILLAC HTS	25.00	EA	55,650	9,461	1,953	6,706	369	18,535	92,674	3706.95
11_01.02.05_ 99_019	TURNBUKLES - CADILLAC HTS	13.00	EA	975	166	34	117	6	325	1,624	124.90
11_01.02.05_ 99_020	PORTABLE WINCHES - CADILLAC HTS	4.00	EA	4,460	758	157	537	30	1,485	7,427	1856.81
11_01.02.05_ 99_021	STAINLESS STEEL - CADILLAC HTS	1600.00	LB	6,800	1,156	239	819	45	2,265	11,324	7.08
11_01.02.05_ 99_022	MISCELLANEOUS - CADILLAC HTS	250.00	LB	613	104	21	74	4	204	1,020	4.08
11_01.02.05_ 99_023	RUBBER J-SEAL - LAMARR LEVEE	90.50	LF	769	131	27	93	5	256	1,281	14.16
11_01.02.05_ 99_024	NEOPRENE GASKETS - LAMAR LEVEE	90.50	LF	181	31	6	22	1	60	301	3.33
11_01.02.05_ 99_025	SCREW JACK SUPP - LAMAR LEVEES	2.00	EA	350	60	12	42	2	117	583	291.43
11_01.02.05_ 99_026	LOAD BINDERS - LAMAR LEVEE	4.00	EA	300	51	11	36	2	100	500	124.90
11_01.02.05_ 99_027	ASPHALT @ GATES - LAMAR LEVEE	0.40	CY	96	16	3	12	1	32	160	399.75
11_01.02.05_ 99_028	FLOODGATE HINGES - LAMAR LEVEE	12.00	EA	26,712	4,541	938	3,219	177	8,897	44,483	3706.95
11_01.02.05_ 99_029	TURNBUKLES - LAMAR LEVEE	5.00	EA	375	64	13	45	2	125	624	124.90

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
11_01.02.05_ 99_030	PORTABLE WINCHES - LMAR LEVEE	2.00	EA	2,230	379	78	269	15	743	3,714	1856.81
11_01.02.05_ 99_031	STAINLESS STEEL -LAMAR LEVEE	834.00	LB	3,545	603	124	427	23	1,181	5,903	7.08
11_01.02.05_ 99_032	MISCELLANEOUS - LAMAR LEVEE	250.00	LB	613	104	21	74	4	204	1,020	4.08
11_01.02.05_ 99_033	RODNEY HUNT GATE & FRM - LAMAR	64500	LB	268,320	45,614	9,418	32,335	1,778	89,367	446,833	6.93
11_01.02.05_ 99_035	RODNEY HUNT HOIST (10) LAMAR	8800.00	LB	36,608	6,223	1,285	4,412	243	12,193	60,963	6.93
11_01.02.05_ 99_036	ROD HUNT FLAP GATE (10) LAMAR	20400	LB	84,864	14,427	2,979	10,227	562	28,265	141,324	6.93
11_01.02.05_ 99_037	9" WATERSTOPS - LAMAR	1301.00	LF	14,722	2,503	517	1,774	98	4,903	24,516	18.84
11_01.02.05_ 99_038	LADDERS (152 VLF) - LAMAR	2012.00	LB	3,526	599	124	425	23	1,174	5,872	2.92
11_01.02.05_ 99_039	48" HANDRAIL (493 LF)- LAMAR	2215.00	LB	7,642	1,299	268	921	51	2,545	12,726	5.75
11_01.02.05_ 99_040	W-BEAMS - LAMAR	12000	LB	21,000	3,570	737	2,531	139	6,994	34,971	2.91
TOTAL ASSOCIATED ITEMS				1,082,999	184,110	38,013	130,512	7,178	360,703	1,803,515	
TOTAL Metals				1,303,030	221,515	45,736	157,028	8,637	433,986	2,169,932	
TOTAL Drainage				3,694,358	628,041	129,672	445,207	24,486	1,230,441	6,152,206	
11_01.03 Care & Diversion of Water											
11_01.03.02 Site Work											
11_01.03.02_ 01 Excavation											
11_01.03.02_ 01_001	SLURRY TRENCH THROUGH LANDFILL	76600	SF	1,244,566	211,576	43,684	149,983	8,249	414,515	2,072,573	27.06
11_01.03.02_ 01_002	PUMP, DIVERT THRU PIPE			373,500	63,495	13,110	45,010	2,476	124,398	621,989	
TOTAL Excavation				1,618,066	275,071	56,794	194,993	10,725	538,912	2,694,562	
TOTAL Site Work				1,618,066	275,071	56,794	194,993	10,725	538,912	2,694,562	
TOTAL Care & Diversion of Water				1,618,066	275,071	56,794	194,993	10,725	538,912	2,694,562	
11_01.04 Permanent Access Roads & Parking											
11_01.04.02 Site Work											
11_01.04.02_ 04 Road Surfacing											
11_01.04.02_ 04_001	GRAVEL ROAD - CADILLAC NTS	5530.00	CY	164,401	27,948	5,770	19,812	1,090	54,755	273,776	49.51
11_01.04.02_ 04_002	GRAVEL ROAD - LAMAR LEVEE	7592.00	CY	235,297	40,001	8,259	28,356	1,560	78,368	391,840	51.61
TOTAL Road Surfacing				399,698	67,949	14,029	48,168	2,649	133,123	665,616	
TOTAL Site Work				399,698	67,949	14,029	48,168	2,649	133,123	665,616	
TOTAL Permanent Access Roads & Parking				399,698	67,949	14,029	48,168	2,649	133,123	665,616	
11_01.99 Associated General Items											

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
11_01.99.02	Site Work										
11_01.99.02_ 06	Seeding										
11_01.99.02_ 06_001	TURFING - LAMAR LEVEE SUMPS	33.00	AC	79,200	13,464	2,780	9,544	525	26,378	131,892	3996.71
11_01.99.02_ 06_003	TURFING - LAMAR LEVEE	80.00	AC	192,000	32,640	6,739	23,138	1,273	63,947	319,737	3996.71
11_01.99.02_ 06_004	TURFING - CADILLAC HTS	46.00	AC	110,400	18,768	3,875	13,304	732	36,770	183,849	3996.71
	TOTAL Seeding			381,600	64,872	13,394	45,987	2,529	127,096	635,478	
11_01.99.02_ 09	Clearing										
11_01.99.02_ 09_001	Clearing - LAMAR LEVEE	82.00	AC	139,400	23,698	4,893	16,799	924	46,428	232,142	2831.01
11_01.99.02_ 09_003	Clearing - CADILLAC HTS	50.00	AC	85,000	14,450	2,984	10,243	563	28,310	141,550	2831.01
	TOTAL Clearing			224,400	38,148	7,876	27,042	1,487	74,739	373,693	
11_01.99.02_ 10	Excavation and Embankment:										
11_01.99.02_ 10_001	EXCVTN,HAUL-LAMAR SUMPS (SLUICE	4900.00	CY	9,860	1,676	346	1,188	65	3,284	16,419	3.35
11_01.99.02_ 10_002	FILL-LAMAR LEVEE SUMPS (SLUICE)	3283.00	CY	2,102	357	74	253	14	700	3,501	1.07
11_01.99.02_ 10_006	EXCVTN,HAUL-LAMAR LEVEE SUMPS	549790	CY	1,097,161	186,517	38,510	132,219	7,272	365,420	1,827,099	3.32
11_01.99.02_ 10_007	FILL-LAMAR LEVEE SUMPS	174.00	CY	109	19	4	13	1	36	182	1.05
11_01.99.02_ 10_EEA	EXC,HAUL CADILLAC HEIGHTS LEVEE	33030	CY	66,195	11,253	2,323	7,977	439	22,047	110,235	3.34
11_01.99.02_ 10_EED	FILL CADILLAC HEIGHTS LEVEE	598448	CY	376,543	64,012	13,217	45,377	2,496	125,411	627,057	1.05
11_01.99.02_ 10_FFA	EXC,HAUL LAMAR LEVEE	45142	CY	90,984	15,467	3,194	10,964	603	30,303	151,515	3.36
11_01.99.02_ 10_FFB	FILL LAMAR LEVEE	997280	CY	646,537	109,911	22,693	77,914	4,285	215,335	1,076,676	1.08
11_01.99.02_ 10_GGA	EXC,HAUL NO-HAZ MAT'L-AREA 1	6566.00	CY	262,640	0	0	0	0	52,528	315,168	48.00
11_01.99.02_ 10_GGB	EXC,HAUL NO-HAZ MAT'L-AREA 2	17922	CY	716,880	0	0	0	0	143,376	860,256	48.00
11_01.99.02_ 10_GGC	EXC,HAUL NO-HAZ MAT'L-AREA 3	7502.00	CY	300,080	0	0	0	0	60,016	360,096	48.00
11_01.99.02_ 10_GGD	EXC,HAUL NO-HAZ MAT'L-AREA 5	10000	CY	400,000	0	0	0	0	80,000	480,000	48.00
11_01.99.02_ 10_GGE	EXC,HAUL NO-HAZ MAT'L-AREA 5	5000.00	CY	200,000	0	0	0	0	40,000	240,000	48.00
11_01.99.02_ 10_GGF	EXC,HAUL NO-HAZ MAT'L-AREA 6	620.00	CY	24,800	0	0	0	0	4,960	29,760	48.00
11_01.99.02_ 10_GGG	EXC,HAUL NO-HAZ MAT'L-AREA 9	2963.00	CY	118,520	0	0	0	0	23,704	142,224	48.00
	TOTAL Excavation and Embankment:			4,312,411	389,214	80,361	275,907	15,175	1,167,121	6,240,188	
	TOTAL Site Work			4,918,411	492,234	101,632	348,936	19,191	1,368,955	7,249,359	
11_01.99.13	Special Construction										
11_01.99.13_ 99	PUMP HOUSE AND PUMPS										
11_01.99.13_ 99_001	PUMP HOUSE	1.00	EA	31,840	5,413	1,118	3,837	211	10,605	53,023	53023
11_01.99.13_ 99_002	6500 GPM PUMP CAPACITY	1.00	EA	70,600	12,002	2,478	8,508	468	23,514	117,570	117570
	TOTAL PUMP HOUSE AND PUMPS	1.00	EA	102,440	17,415	3,596	12,345	679	34,119	170,593	170593

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	QUANTY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
TOTAL Special Construction		102,440	17,415	3,596	12,345	679	34,119	170,593	
TOTAL Associated General Items		5,020,851	509,648	105,227	361,281	19,870	1,403,074	7,419,952	
TOTAL Levees		10,732,974	1,480,709	305,723	1,049,649	57,731	3,305,550	16,932,335	
TOTAL Levees and Floodwalls		10,732,974	1,480,709	305,723	1,049,649	57,731	3,305,550	16,932,335	
14 Recreation Facilities									
14_00 Recreation Facilities									
14_00.18 Utilities									
14_00.18.16 Electrical									
14_00.18.16_01 ACCESS PT - LOOP 12		29,168	4,959	1,024	3,515	193	13,601	52,459	
14_00.18.16_01A ACCESS PT - ROCHESTER PARK		32,383	5,505	1,137	3,902	215	15,100	58,241	
14_00.18.16_01B ACCESS PT - IH 20		26,048	4,428	914	3,139	173	12,146	46,847	
TOTAL Electrical		87,598	14,892	3,075	10,556	581	40,846	157,548	
TOTAL Utilities		87,598	14,892	3,075	10,556	581	40,846	157,548	
14_00.22 Parking Lots and Service Roads									
14_00.22.02 Site Work									
14_00.22.02_08 Base Course									
14_00.22.02_08_001 SUBGRADE	988.00 SY	52,553	8,934	1,845	6,333	348	21,004	91,018	92.12
14_00.22.02_08_002 6" LIME SUBGRADE	11368 SY	51,378	8,734	1,803	6,192	341	20,534	88,983	7.83
14_00.22.02_08_003 FLEX BASE	2060.00 CY	29,349	4,989	1,030	3,537	195	11,730	50,831	24.68
TOTAL Base Course		133,281	22,658	4,678	16,062	883	53,269	230,831	
14_00.22.02_10 Paving									
14_00.22.02_10_001 CONCRETE	1716.00 CY	23,392	3,977	821	2,819	155	9,349	40,513	23.61
14_00.22.02_10_002 REINFORCING STEEL	126272 LB	47,516	8,078	1,668	5,726	315	18,991	82,294	0.65
TOTAL Paving		70,908	12,054	2,489	8,545	470	28,340	122,806	
14_00.22.02_14 CURB									
14_00.22.02_14_ -	2700.00 LF	19,521	3,319	685	2,352	129	7,802	33,809	12.52

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		QUANTY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
	TOTAL CURB		19,521	3,319	685	2,352	129	7,802	33,809	
14_00.22.02_ 15	SIDEWALK									
14_00.22.02_ 15_001	CONCRETE	164.00 CY	11,795	2,005	414	1,421	78	4,714	20,428	124.56
14_00.22.02_ 15_002	REINFORCING STEEL	12104 LB	4,555	774	160	549	30	1,820	7,888	0.65
	TOTAL SIDEWALK		16,350	2,779	574	1,970	108	6,535	28,317	
	TOTAL Site Work		240,060	40,810	8,426	28,930	1,591	95,945	415,763	
	TOTAL Parking Lots and Service Roads		240,060	40,810	8,426	28,930	1,591	95,945	415,763	
14_00.71	Activity Guides and Controls									
14_00.71.06	Wood and Plastic									
14_00.71.06_ 02	Kiosks									
14_00.71.06_ 02_001	CONCRETE	44.10 CY	5,064	861	178	610	34	2,024	8,770	198.86
14_00.71.06_ 02_002	AGGREGATE BASE	55.80 CY	1,660	282	58	200	11	664	2,875	51.53
14_00.71.06_ 02_003	SUBGRADE	333.30 SY	285	48	10	34	2	114	494	1.48
14_00.71.06_ 02_004	5'x 5' PREFAB STRUCTURE	6.00 EA	3,000	510	105	362	20	1,199	5,196	865.95
	TOTAL Kiosks		10,009	1,702	351	1,206	66	4,000	17,335	
	TOTAL Wood and Plastic		10,009	1,702	351	1,206	66	4,000	17,335	
	TOTAL Activity Guides and Controls		10,009	1,702	351	1,206	66	4,000	17,335	
14_00.72	Day Use Areas									
14_00.72.02	Site Work									
14_00.72.02_99A	EQUESTRIAN TRAILS									
14_00.72.02_99A_001	CLEAR AND GRUB	8.20 AC	13,940	2,370	489	1,680	92	5,571	24,143	2944.25
	TOTAL EQUESTRIAN TRAILS		13,940	2,370	489	1,680	92	5,571	24,143	
14_00.72.02_99B	NATURE TRAIL									
14_00.72.02_99B_001	CLEAR AND GRUB	2.40 AC	4,080	694	143	492	27	1,631	7,066	2944.25
	TOTAL NATURE TRAIL		4,080	694	143	492	27	1,631	7,066	

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
14_00.72.02_99C	HIKE AND BIKE TRAIL										
14_00.72.02_99C_001	TRAIL EXCAVATION	11722	CY	28,036	4,766	984	3,379	186	11,205	48,555	4.14
14_00.72.02_99C_002	COMPACTION OF SUBGRADE	105600	SY	86,456	14,698	3,035	10,419	573	34,554	149,734	1.42
14_00.72.02_99C_003	REINFORCING STEEL	728957	LB	335,685	57,066	11,783	40,453	2,225	134,164	581,376	0.80
14_00.72.02_99C_004	CONCRETE PAVEMENT	11722	CY	1,911,107	324,888	67,080	230,307	12,667	763,815	3,309,864	282.36
	TOTAL HIKE AND BIKE TRAIL			2,361,283	401,418	82,881	284,558	15,651	943,737	4,089,528	
	TOTAL Site Work			2,379,303	404,482	83,514	286,730	15,770	950,939	4,120,737	
14_00.72.06	Wood and Plastic										
14_00.72.06_ 01	PICNIC SHELTER										
14_00.72.06_ 01_001	11' x 14' STRUCTURE	19.00	EA	58,520	9,948	2,054	7,052	388	23,389	101,351	5334.28
14_00.72.06_ 01_002	CONCRETE SLAB	49.40	CY	5,659	962	199	682	38	2,262	9,802	198.41
14_00.72.06_ 01_003	REINFORCING STEEL	5396.00	LB	2,485	422	87	299	16	993	4,304	0.80
14_00.72.06_ 01_004	PREFAB PICNIC TABLE	34.00	EA	27,200	4,624	955	3,278	180	10,871	47,108	1385.53
	TOTAL PICNIC SHELTER	19.00	EA	93,864	15,957	3,295	11,312	622	37,515	162,564	8556.02
14_00.72.06_ 02	REST STOP SHELTER										
14_00.72.06_ 02_001	10' x 10' STRUCTURE	10.00	EA	20,000	3,400	702	2,410	133	7,993	34,638	3463.82
14_00.72.06_ 02_002	CONCRETE SLAB	19.20	CY	2,200	374	77	265	15	879	3,809	198.41
14_00.72.06_ 02_003	REINFORCING STEEL	2095.00	LB	965	164	34	116	6	386	1,671	0.80
14_00.72.06_ 02_004	8'PREFAB BENCH	10.00	EA	3,000	510	105	362	20	1,199	5,196	519.57
	TOTAL REST STOP SHELTER	10.00	EA	26,164	4,448	918	3,153	173	10,457	45,314	4531.43
14_00.72.06_ 03	PICNIC PAVILLIONS										
14_00.72.06_ 03_001	CONCRETE	148.00	CY	17,010	2,892	597	2,050	113	6,798	29,459	199.05
14_00.72.06_ 03_002	AGGREGATE BASE	200.00	CY	5,951	1,012	209	717	39	2,378	10,306	51.53
14_00.72.06_ 03_003	SUBGRADE	1200.00	SY	995	169	35	120	7	397	1,722	1.44
14_00.72.06_ 03_004	30'x60' PREFAB STRUCTURE	6.00	EA	69,288	11,779	2,432	8,350	459	27,692	120,001	20000
	TOTAL PICNIC PAVILLIONS			93,243	15,851	3,273	11,237	618	37,267	161,489	
	TOTAL Wood and Plastic			213,272	36,256	7,486	25,701	1,414	85,239	369,367	
	TOTAL Day Use Areas			2,592,575	440,738	90,999	312,431	17,184	1,036,178	4,490,105	
14_00.99	Associated General Items										
14_00.99.02	Site Work										

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
14_00.99.02_99A	SIGNAGE										
14_00.99.02_99A_	-			10,000	1,700	351	1,205	66	3,997	17,319	
	TOTAL SIGNAGE			10,000	1,700	351	1,205	66	3,997	17,319	
14_00.99.02_99B	150 LF PEDESTRIAN BRIDGES										
14_00.99.02_99B_001	PRESTRESSED"C" BEAMS	600.00	LF	23,070	3,922	810	2,780	153	9,220	39,955	66.59
14_00.99.02_99B_002	CONCRETE CAP	12.67	CY	3,489	593	122	420	23	1,394	6,042	476.86
14_00.99.02_99B_003	CONCRETE - ABUTMENT	37.20	CY	11,382	1,935	399	1,372	75	4,549	19,712	529.89
14_00.99.02_99B_004	CONCRETE - 42" COLUMN	35.60	CY	9,802	1,666	344	1,181	65	3,918	16,976	476.86
14_00.99.02_99B_005	CONCRETE - DECK	55.60	CY	11,636	1,978	408	1,402	77	4,651	20,152	362.45
14_00.99.02_99B_006	REINFORCING STEEL	19698	LB	9,071	1,542	318	1,093	60	3,625	15,710	0.80
14_00.99.02_99B_007	18" DRILLED SHAFT	240.00	LF	7,361	1,251	258	887	49	2,942	12,748	53.12
14_00.99.02_99B_008	42" DRILLED SHAFT	240.00	LF	19,921	3,387	699	2,401	132	7,962	34,501	143.75
14_00.99.02_99B_009	PIPERAIL	5142.00	LB	17,697	3,008	621	2,133	117	7,073	30,649	5.96
	TOTAL 150 LF PEDESTRIAN BRIDGES	2.00	EA	113,427	19,283	3,981	13,669	752	45,334	196,446	98223
	TOTAL Site Work			123,427	20,983	4,332	14,874	818	49,330	213,765	
	TOTAL Associated General Items			123,427	20,983	4,332	14,874	818	49,330	213,765	
	TOTAL Recreation Facilities			3,053,670	519,124	107,184	367,998	20,240	1,226,300	5,294,515	
	TOTAL Recreation Facilities			3,053,670	519,124	107,184	367,998	20,240	1,226,300	5,294,515	
18	Cultural Resource Preservation										
18_00	Cultural Resource Preservation			750,000	0	0	0	0	187,500	937,500	
	TOTAL Cultural Resource Preservation	1.00		750,000	0	0	0	0	187,500	937,500	937500
30	Planning, Engineering and Design										
30_11	Project Cooperatn Agreemnt (PCA)										
30_11.01	Initial Draft PCA Package										
30_11.01.01	Initial Draft PCA			4,000	0	0	0	0	1,000	5,000	
30_11.01.02	Fed/Non-Fed AllocatnOfFunds Tabl			1,600	0	0	0	0	400	2,000	
30_11.01.03	Deviation Report			800	0	0	0	0	200	1,000	
30_11.01.04	Certification of Legal Review			4,000	0	0	0	0	1,000	5,000	
30_11.01.05	MSC Review Comments			1,600	0	0	0	0	400	2,000	
	TOTAL Initial Draft PCA Package	1.00		12,000	0	0	0	0	3,000	15,000	15000

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
30_11.02	Final Draft PCA Package										
30_11.02.01	Final Draft PCA			4,000	0	0	0	0	1,000	5,000	
30_11.02.02	Fed/Non-Fed AllocatnOfFunds Tabl			1,600	0	0	0	0	400	2,000	
30_11.02.03	Deviation Report			800	0	0	0	0	200	1,000	
30_11.02.04	Certification of Legal Review			1,600	0	0	0	0	400	2,000	
30_11.02.05	SponsrFinac Plan&Stmt ofFinacCap			1,600	0	0	0	0	400	2,000	
30_11.02.06	Projct Fact Sht/Projct Data Sht			2,400	0	0	0	0	600	3,000	
30_11.02.07	Computation of Cost Sharing			1,600	0	0	0	0	400	2,000	
30_11.02.08	Final Draft 3rd Party Sub-Agreem			1,600	0	0	0	0	400	2,000	
30_11.02.09	MSC Review Comments			800	0	0	0	0	200	1,000	
	TOTAL Final Draft PCA Package	1.00		16,000	0	0	0	0	4,000	20,000	20000
30_11.03	Min.of HQUSACE PCA ReviewComMeet			2,400	0	0	0	0	600	3,000	
30_11.04	Executed PCA										
30_11.04.01	MSC Approved PCA	1.00		1,600	0	0	0	0	400	2,000	2000.00
30_11.04.02	HQUSACE Approved PCA	1.00		1,600	0	0	0	0	400	2,000	2000.00
30_11.04.03	ASA(CW) Approved PCA	1.00		1,600	0	0	0	0	400	2,000	2000.00
30_11.04.04	OMB Approved PCA	1.00		1,600	0	0	0	0	400	2,000	2000.00
30_11.04.05	Local Sponsor Executive PCA	1.00		1,600	0	0	0	0	400	2,000	2000.00
30_11.04.06	ASA(CW) Executed PCA	1.00		1,600	0	0	0	0	400	2,000	2000.00
	TOTAL Executed PCA	1.00		9,600	0	0	0	0	2,400	12,000	12000
30_11.05	Escrow Agreement										
30_11.05.01	HQUSACE Approved Escrow Agreemnt	1.00		4,000	0	0	0	0	1,000	5,000	5000.00
30_11.05.02	Executed Escrow Agreement	1.00		4,000	0	0	0	0	1,000	5,000	5000.00
	TOTAL Escrow Agreement	1.00		8,000	0	0	0	0	2,000	10,000	10000
30_11.06	Initial Draft PCA Amendment Pkg.										
30_11.06.01	Initial Draft PCA Amendment	1.00		3,200	0	0	0	0	800	4,000	4000.00
30_11.06.02	Amended Fed/Non-Fed Allocatn of	1.00		800	0	0	0	0	200	1,000	1000.00
30_11.06.03	Amended Deviation Report	1.00		800	0	0	0	0	200	1,000	1000.00
30_11.06.04	Amended Certificatn of Legl Revw	1.00		1,600	0	0	0	0	400	2,000	2000.00
30_11.06.05	Initial Draft Amendment MSC	1.00		1,600	0	0	0	0	400	2,000	2000.00
	TOTAL Initial Draft PCA Amendment Pkg.	1.00		8,000	0	0	0	0	2,000	10,000	10000
30_11.07	Final Draft PCA Ammendment Pkg.										
30_11.07.01	Final Draft PCA Amendment	1.00		1,600	0	0	0	0	400	2,000	2000.00
30_11.07.02	Amended Fed/Non-Fed Allocatn of	1.00		800	0	0	0	0	200	1,000	1000.00

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
30_11.07.03	Amended Deviation Report	1.00		800	0	0	0	0	200	1,000	1000.00
30_11.07.04	Amended Certificatn of Legl Revw	1.00		800	0	0	0	0	200	1,000	1000.00
30_11.07.05	Ammended Sponsr's Financing Plan	1.00		800	0	0	0	0	200	1,000	1000.00
30_11.07.06	Amended Project Fact Sheet/Proj.	1.00		800	0	0	0	0	200	1,000	1000.00
30_11.07.07	Computatn ofAmended Cost Sharing	1.00		800	0	0	0	0	200	1,000	1000.00
30_11.07.08	Amended Final Draft 3rd Party	1.00		800	0	0	0	0	200	1,000	1000.00
30_11.07.09	Final Draft Amendmt MSC Revw Com	1.00		800	0	0	0	0	200	1,000	1000.00
	TOTAL Final Draft PCA Ammendment Pkg.	1.00		8,000	0	0	0	0	2,000	10,000	10000
30_11.08	Minutes of HQUSACE PCA Amendmnt	1.00		2,400	0	0	0	0	600	3,000	3000.00
30_11.09	Executed PCA Amendment										
30_11.09.01	MSC Approved PCA Amendment	1.00		1,600	0	0	0	0	400	2,000	2000.00
30_11.09.02	HQUSACE Approved PCA Amendment	1.00		1,600	0	0	0	0	400	2,000	2000.00
30_11.09.03	ASA(CW) Approved PCA Amendment	1.00		1,600	0	0	0	0	400	2,000	2000.00
30_11.09.04	OMB Approved PCA Amendment	1.00		1,600	0	0	0	0	400	2,000	2000.00
30_11.09.05	Local Sponsr Exe. PCA Amendment	1.00		1,600	0	0	0	0	400	2,000	2000.00
30_11.09.06	ASA(CW) Executed PCA Amendment	1.00		1,600	0	0	0	0	400	2,000	2000.00
	TOTAL Executed PCA Amendment	1.00		9,600	0	0	0	0	2,400	12,000	12000
30_11.10	Amendments to Escrow Agreement										
30_11.10.01	HQUSACE Approved Amended Escrow	1.00		2,400	0	0	0	0	600	3,000	3000.00
30_11.10.02	Executed Amended Escrow Agreemnt	1.00		1,600	0	0	0	0	400	2,000	2000.00
	TOTAL Amendments to Escrow Agreement	1.00		4,000	0	0	0	0	1,000	5,000	5000.00
	TOTAL Project Cooperatn Agreemnt (PCA)	1.00		80,000	0	0	0	0	20,000	100,000	100000
30_12	Project Management Plan (PMP)										
30_12.02	Revisions to PMP	1.00		16,000	0	0	0	0	4,000	20,000	20000
	TOTAL Project Management Plan (PMP)	1.00		16,000	0	0	0	0	4,000	20,000	20000
30_18	Gnrl Reevaln Rep (GRR) 97/98										
30_18.01	Engineering Analysis/Report										
30_18.01.01	Surveys&Mapp'g Except Real Estat	1.00	ea	22,000	0	0	0	0	5,500	27,500	27500
30_18.01.03	Hydrology and Hydraulic Studies	1.00	ea	102,000	0	0	0	0	25,500	127,500	127500
30_18.01.04	Engineering and Design Analysis	1.00	ea	176,000	0	0	0	0	44,000	220,000	220000
30_18.01.05	Geotechnical Studies Report	1.00	ea	84,000	0	0	0	0	21,000	105,000	105000
	TOTAL Engineering Analysis/Report	1.00	ea	384,000	0	0	0	0	96,000	480,000	480000

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
30_18.02	Socio/Economic Analysis/Report										
30_18.02.01	Economic Analysis/Report	1.00	ea	60,000	0	0	0	0	15,000	75,000	75000
30_18.02.02	Social Studies/Report	1.00	ea	4,000	0	0	0	0	1,000	5,000	5000.00
30_18.02.04	Ability to Pay Report	1.00	ea	4,000	0	0	0	0	1,000	5,000	5000.00
	TOTAL Socio/Economic Analysis/Report	1.00	ea	68,000	0	0	0	0	17,000	85,000	85000
30_18.04	Environmental Studies Documents										
30_18.04.02	Biological Assessment	1.00	EA	12,800	0	0	0	0	3,200	16,000	16000
30_18.04.04	Environmntl Impact Statmnt (EIS)	1.00	EA	51,200	0	0	0	0	12,800	64,000	64000
30_18.04.05	Coordinatn Documts w/Other Agenc	1.00	EA	4,400	0	0	0	0	1,100	5,500	5500.00
30_18.04.07	Mitigation Analysis Report	1.00	EA	12,800	0	0	0	0	3,200	16,000	16000
30_18.04.08	Fish & Wildlife Coordnat'n Act	1.00	EA	20,000	0	0	0	0	5,000	25,000	25000
30_18.04.09	Section 404(b)(1) Analysis Reprt	1.00	EA	12,800	0	0	0	0	3,200	16,000	16000
30_18.04.10	401 State Water Quality Certifcn	1.00	EA	8,800	0	0	0	0	2,200	11,000	11000
30_18.04.11	Record of Decision (ROD)	1.00	EA	4,400	0	0	0	0	1,100	5,500	5500.00
30_18.04.12	Section 103 Evaluation	1.00	EA	4,400	0	0	0	0	1,100	5,500	5500.00
30_18.04.13	Statement of Findings (SOF)	1.00	EA	8,400	0	0	0	0	2,100	10,500	10500
	TOTAL Environmental Studies Documents	1.00	ea	140,000	0	0	0	0	35,000	175,000	175000
30_18.05	HTRW/RCRA Studies Report										
30_18.05.01	HTRW Assessment Report	1.00	EA	21,200	0	0	0	0	5,300	26,500	26500
30_18.05.02	HTRW Site Inspection Report	1.00	EA	21,200	0	0	0	0	5,300	26,500	26500
30_18.05.03	HTRW Remedial Investigations	1.00	EA	536,800	0	0	0	0	134,200	671,000	671000
	TOTAL HTRW/RCRA Studies Report	1.00	EA	579,200	0	0	0	0	144,800	724,000	724000
30_18.06	Culturl Resource Studies Documts										
30_18.06.01	Survey Field Report	1.00	EA	12,800	0	0	0	0	3,200	16,000	16000
30_18.06.02	Data Collectn & Analysis Report	1.00	EA	50,000	0	0	0	0	12,500	62,500	62500
30_18.06.03	National Register Eligibility	1.00	EA	4,000	0	0	0	0	1,000	5,000	5000.00
30_18.06.06	Mitigation Plan Report	1.00	EA	2,000	0	0	0	0	500	2,500	2500.00
30_18.06.07	Memorandum of Agreement	1.00	EA	2,000	0	0	0	0	500	2,500	2500.00
	TOTAL Culturl Resource Studies Documts	1.00	EA	70,800	0	0	0	0	17,700	88,500	88500
30_18.07	Cost Estimates										
30_18.07.01	GRR-Study Cost Estimates	1.00	EA	2,000	0	0	0	0	500	2,500	2500.00
30_18.07.02	PED Cost Estimate	1.00	EA	2,000	0	0	0	0	500	2,500	2500.00
30_18.07.03	Project Cost Estimate	1.00	EA	12,000	0	0	0	0	3,000	15,000	15000
30_18.07.04	OMRR&R Cost Estimate Updates	1.00	EA	2,000	0	0	0	0	500	2,500	2500.00

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
30_18.07.05	Fully Funded Cost Estimate	1.00	EA	2,000	0	0	0	0	500	2,500	2500.00
30_18.07.06	All Other Cost Estimates	1.00	EA	2,000	0	0	0	0	500	2,500	2500.00
	TOTAL Cost Estimates	1.00	EA	22,000	0	0	0	0	5,500	27,500	27500
30_18.08	Public Involvement Document										
30_18.08.01	Notice of Public Meeting	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_18.08.02	Minutes of Public Meeting	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_18.08.03	Public Comments Report	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_18.08.04	Newsletters	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_18.08.05	All Other Public Involvmnt Docs.	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
	TOTAL Public Involvement Document	1.00	EA	40,000	0	0	0	0	10,000	50,000	50000
30_18.09	Plan Formulatn & Evaluatn Reprts	1.00	EA	6,000	0	0	0	0	1,500	7,500	7500.00
30_18.10	Draft Report Documentation										
30_18.10.01	Review Conference Documents	1.00	EA	18,000	0	0	0	0	4,500	22,500	22500
30_18.10.02	In-House Review Comments	1.00	EA	32,000	0	0	0	0	8,000	40,000	40000
30_18.10.03	Public Review Comments	1.00	EA	500,000	0	0	0	0	125,000	625,000	625000
30_18.10.04	Projct Guidance Memorandum (PGM)	1.00	EA	130,000	0	0	0	0	32,500	162,500	162500
30_18.10.05	All Other GRR Documents	1.00	EA	80,000	0	0	0	0	20,000	100,000	100000
	TOTAL Draft Report Documentation	1.00	EA	760,000	0	0	0	0	190,000	950,000	950000
30_18.11	Final Report Documentation										
30_18.11.01	Division Commanders Notice	1.00	EA	4,000	0	0	0	0	1,000	5,000	5000.00
30_18.11.02	All Other Final Report Documents	1.00	EA	4,000	0	0	0	0	1,000	5,000	5000.00
	TOTAL Final Report Documentation	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_18.13	All Other Studies/Investigations	1.00	EA	104,000	0	0	0	0	26,000	130,000	130000
30_18.15	Management										
30_18.15.01	AE Contract Documents	1.00	EA	4,000	0	0	0	0	1,000	5,000	5000.00
30_18.15.02	Study Funds Control Documents	1.00	EA	22,000	0	0	0	0	5,500	27,500	27500
30_18.15.03	Trip Reports	1.00	EA	12,800	0	0	0	0	3,200	16,000	16000
30_18.15.04	Coordination Documents	1.00	EA	76,000	0	0	0	0	19,000	95,000	95000
30_18.15.05	Minutes of Technical Review Conf	1.00	EA	4,000	0	0	0	0	1,000	5,000	5000.00
30_18.15.06	All Other Management Documents	1.00	EA	3,200	0	0	0	0	800	4,000	4000.00
	TOTAL Management	1.00	EA	122,000	0	0	0	0	30,500	152,500	152500
30_18.99	PRIOR TO 1996 (INCL PPMD)	1.00		2,251,000	0	0	0	0	0	2,251,000	2251000

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
	TOTAL Gnrl Reevaln Rep (GRR) 97/98	1.00	ea	4,555,000	0	0	0	0	576,000	5,131,000	5131000
30_20	Project Design Memorandum										
30_20.01	Engineering Analysis/Report										
30_20.01.01	Surveys&Mapp'g Except Real Estat	1.00	EA	372,000	0	0	0	0	93,000	465,000	465000
30_20.01.03	Hydrology and Hydraulic Studies	1.00	EA	24,000	0	0	0	0	6,000	30,000	30000
30_20.01.04	Engineering and Design Analysis	1.00	EA	628,800	0	0	0	0	157,200	786,000	786000
30_20.01.05	Geotechnical Studies Report	1.00	EA	80,800	0	0	0	0	20,200	101,000	101000
	TOTAL Engineering Analysis/Report	1.00	EA	1,105,600	0	0	0	0	276,400	1,382,000	1382000
30_20.02	Socio/Economic Analysis/Report										
30_20.02.01	Economic Analysis/Report	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_20.02.04	Ability to Pay Report	1.00	EA	4,000	0	0	0	0	1,000	5,000	5000.00
	TOTAL Socio/Economic Analysis/Report	1.00	EA	12,000	0	0	0	0	3,000	15,000	15000
30_20.04	Environmental Studies Documents										
30_20.04.02	Biological Assessment	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_20.04.05	Coordinatn Documts w/Other Agenc	1.00	EA	800	0	0	0	0	200	1,000	1000.00
30_20.04.07	Mitigation Analysis Report	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_20.04.08	Fish & Wildlife Coordnat'n Act	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_20.04.09	Section 404(b)(1) Analysis Reprt	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_20.04.10	401 State Water Quality Certifcn	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_20.04.11	Record of Decision (ROD)	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_20.04.12	Section 103 Evaluation	1.00	EA	800	0	0	0	0	200	1,000	1000.00
30_20.04.13	Statement of Findings (SOF)	1.00	EA	800	0	0	0	0	200	1,000	1000.00
	TOTAL Environmental Studies Documents	1.00	EA	12,000	0	0	0	0	3,000	15,000	15000
30_20.05	HTRW/RCRA Studies Report										
30_20.05.01	HTRW Assessment Report	1.00	EA	20,000	0	0	0	0	4,000	24,000	24000
30_20.05.02	HTRW Site Inspection Report	1.00	EA	20,000	0	0	0	0	4,000	24,000	24000
30_20.05.03	HTRW Remedial Investigations	1.00	EA	441,620	0	0	0	0	88,324	529,944	529944
	TOTAL HTRW/RCRA Studies Report	1.00	EA	481,620	0	0	0	0	96,324	577,944	577944
30_20.06	Culturl Resource Studies Documts										
30_20.06.01	Survey Field Report	1.00	EA	48,000	0	0	0	0	12,000	60,000	60000
30_20.06.02	Data Collectn & Analysis Report	1.00	EA	440,000	0	0	0	0	110,000	550,000	550000

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
30_20.06.03	National Register Eligibility	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_20.06.04	No Effects Determination	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_20.06.05	No Adverse Effects Determination	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_20.06.06	Mitigation Plan Report	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_20.06.07	Memorandum of Agreement	1.00	EA	4,000	0	0	0	0	1,000	5,000	5000.00
30_20.06.08	One Percent Waiver	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
	TOTAL Culturl Resource Studies Documts	1.00	EA	512,800	0	0	0	0	128,200	641,000	641000
30_20.07	Cost Estimates										
30_20.07.01	PDM-Study Cost Estimates	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_20.07.02	PED Cost Estimate	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_20.07.03	Project Cost Estimate	1.00	EA	14,400	0	0	0	0	3,600	18,000	18000
30_20.07.04	OMRR&R Cost Estimate Updates	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_20.07.06	All Other Cost Estimates	1.00	EA	800	0	0	0	0	200	1,000	1000.00
	TOTAL Cost Estimates	1.00	EA	20,000	0	0	0	0	5,000	25,000	25000
30_20.08	Final Report Documentation										
30_20.08.01	Minutes of Review Conference	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_20.08.02	In-House Review Comments	1.00	EA	32,000	0	0	0	0	8,000	40,000	40000
30_20.08.03	Public Review Comments	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_20.08.04	All Other Report Documents	1.00	EA	10,400	0	0	0	0	2,600	13,000	13000
	TOTAL Final Report Documentation	1.00	EA	52,000	0	0	0	0	13,000	65,000	65000
30_20.09	All Other Studies/Invest (re/rec	1.00	EA	52,000	0	0	0	0	13,000	65,000	65000
30_20.11	Management										
30_20.11.01	AE Contract Documents	1.00	EA	4,000	0	0	0	0	1,000	5,000	5000.00
30_20.11.02	Coordination Documents	1.00	EA	24,000	0	0	0	0	6,000	30,000	30000
30_20.11.03	Minutes of Technical Review Conf	1.00	EA	2,400	0	0	0	0	600	3,000	3000.00
30_20.11.04	All Other Management Documents	1.00	EA	9,200	0	0	0	0	2,300	11,500	11500
	TOTAL Management	1.00	EA	39,600	0	0	0	0	9,900	49,500	49500
	TOTAL Project Design Memorandum	1.00		2,287,620	0	0	0	0	547,824	2,835,444	2835444
30_23	Constructn Contracts(s) Documnts										
30_23.01	Plans and Specifications (P&S)										
30_23.01.01	Field Investigation Report	1.00	EA	12,000	0	0	0	0	3,000	15,000	15000
30_23.01.02	Plans and Specifications	1.00	EA	386,400	0	0	0	0	96,600	483,000	483000
30_23.01.03	Permits for Construction	1.00	EA	16,000	0	0	0	0	4,000	20,000	20000

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
30_23.01.04	BCO Review Certification	1.00	EA	4,000	0	0	0	0	1,000	5,000	5000.00
	TOTAL Plans and Specifications (P&S)	1.00	EA	418,400	0	0	0	0	104,600	523,000	523000
30_23.04	Environmental Studies Documents										
30_23.04.01	Coordinatn Documts w/Other Agenc	1.00	EA	800	0	0	0	0	200	1,000	1000.00
30_23.04.03	Mitigation Analysis Report	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_23.04.04	Fish & Wildlife Coordnat'n Act	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_23.04.05	401 State Water Quality Certifcn	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_23.04.06	Section 404(b)(1) Analysis Reprt	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_23.04.07	Record of Decision (ROD)	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_23.04.09	Planning RCRA Permits	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_23.04.10	NPDES Permit	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_23.04.11	Air Emissions Permits	1.00	EA	4,000	0	0	0	0	1,000	5,000	5000.00
	TOTAL Environmental Studies Documents	1.00	EA	28,800	0	0	0	0	7,200	36,000	36000
30_23.05	HTRW Studies/Report										
30_23.05.02	USACE HTRW Study/Report	1.00	EA	819,950	0	0	0	0	163,990	983,940	983940
	TOTAL HTRW Studies/Report	1.00	EA	819,950	0	0	0	0	163,990	983,940	983940
30_23.06	Culturl Resource Studies Documts										
30_23.06.01	Site Investigation Surveys	1.00	EA	480,000	0	0	0	0	120,000	600,000	600000
30_23.06.02	National Register Eligibility	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_23.06.03	No effects Determination	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_23.06.04	No Adverse Effects Determination	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_23.06.05	Mitigation Plan Report	1.00	EA	12,000	0	0	0	0	3,000	15,000	15000
30_23.06.06	Memorandum of Agreement	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_23.06.07	One Percent Waiver	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
	TOTAL Culturl Resource Studies Documts	1.00	EA	512,800	0	0	0	0	128,200	641,000	641000
30_23.07	Cost Estimates										
30_23.07.01	Contract Cost Estimates	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_23.07.02	PED Cost Estimate	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_23.07.03	Project Cost Estimate	1.00	EA	14,400	0	0	0	0	3,600	18,000	18000
30_23.07.04	OMRR&R Cost Estimate Updates	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_23.07.06	All Other Cost Estimates	1.00	EA	800	0	0	0	0	200	1,000	1000.00
	TOTAL Cost Estimates	1.00	EA	20,000	0	0	0	0	5,000	25,000	25000
30_23.08	Other Studies/Investigations	1.00	EA	40,000	0	0	0	0	10,000	50,000	50000

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
30_23.09	Contract Award Documents										
30_23.09.01	Contract Negotiatn/Award Documnt	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_23.09.02	CBD Announcement	1.00	EA	3,200	0	0	0	0	800	4,000	4000.00
30_23.09.03	Advertised/RFP Contract	1.00	EA	3,200	0	0	0	0	800	4,000	4000.00
30_23.09.04	Davis Bacon Wage Rates	1.00	EA	3,200	0	0	0	0	800	4,000	4000.00
30_23.09.05	Abstract of Bids/Record of Negot	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_23.09.06	Reasonable Contract Cost Estimat	1.00	EA	9,600	0	0	0	0	2,400	12,000	12000
30_23.09.07	Awarded Contract	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_23.09.08	Notice to Proceed	1.00	EA	4,800	0	0	0	0	1,200	6,000	6000.00
	TOTAL Contract Award Documents	1.00	EA	48,000	0	0	0	0	12,000	60,000	60000
30_23.10	Eng & Design During Const Docs	1.00	EA	400,000	0	0	0	0	100,000	500,000	500000
30_23.14	Management Documents										
30_23.14.01	AE Contract Documents	1.00	EA	4,000	0	0	0	0	1,000	5,000	5000.00
30_23.14.02	Amendments to Plans & Specficatn	1.00	EA	24,000	0	0	0	0	6,000	30,000	30000
30_23.14.03	Coordination Documents	1.00	EA	64,000	0	0	0	0	16,000	80,000	80000
30_23.14.04	All Other Management Documents	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
	TOTAL Management Documents	1.00	EA	100,000	0	0	0	0	25,000	125,000	125000
30_23.15	Local Sponsor Project Coordnat'n	1.00	EA	16,000	0	0	0	0	4,000	20,000	20000
	TOTAL Constructn Contracts(s) Documnts	1.00	EA	2,403,950	0	0	0	0	559,990	2,963,940	2963940
30_24	Value Engineerng Analysis Docmnt										
30_24.01	Value Engineer'n Screen'n/Studie	1.00	EA	40,000	0	0	0	0	10,000	50,000	50000
30_24.02	Value Engineer'n Related Redesgn	1.00	EA	28,000	0	0	0	0	7,000	35,000	35000
	TOTAL Value Engineerng Analysis Docmnt	11.00	EA	68,000	0	0	0	0	17,000	85,000	7727.27
30_25	Project or Functional Element										
30_25.01	Physical Closeout Documents										
30_25.01.01	Minutes of Final Inspection	1.00	EA	2,400	0	0	0	0	600	3,000	3000.00
30_25.01.02	Project Dedication Ceremony	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
	TOTAL Physical Closeout Documents	1.00	EA	10,400	0	0	0	0	2,600	13,000	13000
30_25.02	Project Fiscal Closeout Documnts										
30_25.02.01	Local Sponsor Audit	1.00	EA	4,000	0	0	0	0	1,000	5,000	5000.00
30_25.02.02	USACE Audit	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000

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		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
30_25.02.03	Final Accounting Report	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
	TOTAL Project Fiscal Closeout Documnts	1.00	EA	20,000	0	0	0	0	5,000	25,000	25000
30_25.03	Final Project or Funct'nl Elemnt										
30_25.03.01	Cash Paymt to Balnce Cost Shar'n	1.00	EA	1,600	0	0	0	0	400	2,000	2000.00
30_25.03.02	OMRR&R Manual	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_25.03.03	Written Notice of Completion and	1.00	EA	2,400	0	0	0	0	600	3,000	3000.00
	TOTAL Final Project or Funct'nl Elemnt	1.00	EA	12,000	0	0	0	0	3,000	15,000	15000
	TOTAL Project or Functional Element	1.00	EA	42,400	0	0	0	0	10,600	53,000	53000
30_26	Programs & Project Managmt Dcmnt										
30_26.01	Project Coordination Documents	1.00	EA	100,000	0	0	0	0	25,000	125,000	125000
30_26.02	Funds Control Documents	1.00	EA	36,000	0	0	0	0	9,000	45,000	45000
30_26.03	Trip Records	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_26.04	Upward Reporting Documents	1.00	EA	16,000	0	0	0	0	4,000	20,000	20000
30_26.05	Budgetary Documents	1.00	EA	28,000	0	0	0	0	7,000	35,000	35000
30_26.06	Project Authorization Documents	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_26.07	Annual Notification Letter to	1.00	EA	4,000	0	0	0	0	1,000	5,000	5000.00
30_26.08	Fact Sheets	1.00	EA	12,000	0	0	0	0	3,000	15,000	15000
30_26.09	Corrspndnce (Congress'nl, State)	1.00	EA	16,000	0	0	0	0	4,000	20,000	20000
30_26.10	Schedule and Cost Changes(SACCR)	1.00	EA	12,000	0	0	0	0	3,000	15,000	15000
30_26.11	Project Work Directives	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_26.12	Project Closeout Coordinatn Docs	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_26.13	Qrtrly Cost Reprts to Local Spon	1.00	EA	8,000	0	0	0	0	2,000	10,000	10000
30_26.99	GRR (FY97 & FY98)	1.00	EA	125,600	0	0	0	0	31,400	157,000	157000
	TOTAL Programs & Project Managmt Dcmnt	1.00	EA	389,600	0	0	0	0	97,400	487,000	487000
	TOTAL Planning, Engineering and Design	1.00		9,842,570	0	0	0	0	1,832,814	11,675,384	11675384
31	Construction Management										
31_23	Construction Contracts										
31_23.11	Supervision and Administration										
31_23.11.01	Prjt Office Supervn and Adminstn			4,266,000	0	0	0	0	1,066,500	5,332,500	
31_23.11.03	District Office S&A Documents			1,100,800	0	0	0	0	275,200	1,376,000	
	TOTAL Supervision and Administration			5,366,800	0	0	0	0	1,341,700	6,708,500	
	TOTAL Construction Contracts			5,366,800	0	0	0	0	1,341,700	6,708,500	

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	QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	OTHER	TOTAL COST	UNIT
TOTAL Construction Management	1.00	EA	5,366,800	0	0	0	0	1,341,700	6,708,500	6708500
TOTAL DALLAS FLOODWAY EXTENSION LPP	1.00	EA	75,200,896	3,913,058	807,931	2,773,898	152,564	19547152	102,395,500	********

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Sat 16 Jan 1999 Tri-Service Automated Cost (...ring System (TRACES) 16:14:58
Eff. Date 04/02 PROJECT FLDWY3: DALLAS ...DWAY EXTENSION LPP ERROR PAGE 1
ERROR REPORT WITH CONTINGENCIES

No errors detected...

* * * END OF ERROR REPORT * * *

LABOR ID: DFWTEX EQUIP ID: FEDC95 Currency in DOLLARS CREW ID: FEDC95 UPB ID: FEDC95

01_AA. CHAIN OF WETLANDS	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
01. Lands and Damages									
01_AA. CHAIN OF WETLANDS									
01_AA.23. Constructn Contract(s) Documnts									
01_AA.23.03. Real Estate Analysis Documents									
01_AA.23.03_ 01. Real Estate Planning Documents									
01_AA.23.03_ 01_001. PLANNING BY LOCAL SPONSOR									
USR RE < >				0.00	0.00	0.00	2000.00	2000.00	
	1.00	LS		0	0	0	2,000	2,000	2000.00
01_AA.23.03_ 01_002. REVIEW BY LOCAL SPONSOR									
USR RE < >				0.00	0.00	0.00	500.00	500.00	
	1.00	LS		0	0	0	500	500	500.00
01_AA.23.03_ 02. Real Estate Acquisition Documnts									
TOTAL ACQUISITION BY LOCAL SPONSOR				0	0	0	63,000	63,000	
TOTAL REVIEW OF LOCAL SPONSOR				0	0	0	5,400	5,400	
01_AA.23.03_ 03. Real Estate Condemnatn Documents									
TOTAL CONDEMNATIONS BY LOCAL SPONSOR				0	0	0	72,000	72,000	
TOTAL REVIEW OF LOCAL SPONSOR				0	0	0	1,800	1,800	
01_AA.23.03_ 05. Real Estate Appraisal Documents									
TOTAL APPRAISALS BY LOCAL SPONSOR				0	0	0	20,000	20,000	
TOTAL REVIEW OF LOCAL SPONSOR				0	0	0	3,000	3,000	
01_AA.23.03_ 15. Real Estate Payment Documents									
Land Payments									
PL 91-646 Payments									
Damage Payments									
Other Payments									
01_AA.23.03_ 15_001. PAYMENTS BY LOCAL SPONSOR (LAND)									
USR RZ < >				9000000	643200.00	0.00	0.00	9643200.00	
	1.00	LS		9000000	643,200	0	0	9,643,200	9643200
TOTAL PAYMENTS-LOCAL SPONSOR (DAMAGES)				0	0	0	964,320	964,320	

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01_AA. CHAIN OF WETLANDS	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
TOTAL REVIEW OF LOCAL SPONSOR				0	0	0	5,000	5,000	
TOTAL RealEstate LERRD Crediting Docs				0	0	0	1,000	1,000	
TOTAL Constructn Contract(s) Documnts	1.00	EA		9000000	643,200	0	1,138,020	10,781,22010781220	
TOTAL CHAIN OF WETLANDS				9000000	643,200	0	1,138,020	10,781,220	

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01_BB. CADILLAC HEIGHTS SPF LEVEE	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
01_BB. CADILLAC HEIGHTS SPF LEVEE									
01_BB.23. Constructn Contract(s) Documnts									
01_BB.23.03. Real Estate Analysis Documents									
01_BB.23.03_ 01. Real Estate Planning Documents									
TOTAL PLANNING BY LOCAL SPONSOR				0	0	0	4,000	4,000	
TOTAL REVIEW BY LOCAL SPONSOR				0	0	0	1,000	1,000	
01_BB.23.03_ 02. Real Estate Acquisition Documnts									
TOTAL ACQUISITION BY LOCAL SPONSOR				0	0	0	70,000	70,000	
TOTAL REVIEW OF LOCAL SPONSOR				0	0	0	6,000	6,000	
01_BB.23.03_ 03. Real Estate Condemnatn Documents									
TOTAL CONDEMNATIONS BY LOCAL SPONSOR				0	0	0	24,000	24,000	
TOTAL REVIEW OF LOCAL SPONSOR				0	0	0	600	600	
01_BB.23.03_ 05. Real Estate Appraisal Documents									
TOTAL APPRAISALS BY LOCAL SPONSOR				0	0	0	22,000	22,000	
TOTAL REVIEW OF LOCAL SPONSOR				0	0	0	3,200	3,200	
01_BB.23.03_ 06. Real Estate PL 91-646 Asst. Docs									
TOTAL PL 91-646 ASST BY LOCAL SPONSOR				0	0	0	10,000	10,000	
TOTAL REVIEW OF LOCAL SPONSOR				0	0	0	1,000	1,000	
01_BB.23.03_ 15. Real Estate Payment Documents									
Land Payments									
PL 91-646 Payments									
Damage Payments									
Other Payments									
01_BB.23.03_ 15_001. PAYMENTS BY LOCAL SPONSOR (LAND)									
USR R2 < >				2000000	59870.00	0.00	0.00	2059870.00	
	1.00	LS		2000000	59,870	0	0	2,059,870	2059870
TOTAL PAYMENTS-LOCAL SPONSOR (DAMAGES)				0	0	0	205,987	205,987	

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01_BB. CADILLAC HEIGHTS SPF LEVEE	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
01_BB.23.03_ 15_003. PAYMENTS-LOCAL SPONSOR (PL91-646									
USR R2 < >				2000000	415830.00	0.00	0.00	2415830.00	
	1.00	LS		2000000	415,830	0	0	2,415,830	2415830
TOTAL REVIEW OF LOCAL SPONSOR				0	0	0	3,000	3,000	
TOTAL RealEstate LERRD Crediting Docs				0	0	0	1,000	1,000	
TOTAL Constructn Contract(s) Documnts	1.00	EA		4000000	475,700	0	351,787	4,827,487	4827487
TOTAL CADILLAC HEIGHTS SPF LEVEE				4000000	475,700	0	351,787	4,827,487	

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01_CC. LAMAR STREET LEVEE	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
01_CC. LAMAR STREET LEVEE									
01_CC.23. Constructn Contract(s) Documnts									
01_CC.23.03. Real Estate Analysis Documents									
01_CC.23.03_ 01. Real Estate Planning Documents									
TOTAL PLANNING BY LOCAL SPONSOR				0	0	0	2,000	2,000	
TOTAL REVIEW BY LOCAL SPONSOR				0	0	0	500	500	
01_CC.23.03_ 02. Real Estate Acquisition Documnts									
TOTAL ACQUISITION BY LOCAL SPONSOR				0	0	0	147,000	147,000	
TOTAL REVIEW OF LOCAL SPONSOR				0	0	0	12,600	12,600	
01_CC.23.03_ 03. Real Estate Condemnatn Documents									
TOTAL CONDEMNATIONS BY LOCAL SPONSOR				0	0	0	108,000	108,000	
TOTAL REVIEW OF LOCAL SPONSOR				0	0	0	2,600	2,600	
01_CC.23.03_ 05. Real Estate Appraisal Documents									
TOTAL APPRAISALS BY LOCAL SPONSOR				0	0	0	46,000	46,000	
TOTAL REVIEW OF LOCAL SPONSOR				0	0	0	6,800	6,800	
01_CC.23.03_ 06. Real Estate PL 91-646 Asst. Docs									
TOTAL PL 91-646 ASST BY LOCAL SPONSOR				0	0	0	5,000	5,000	
TOTAL REVIEW OF LOCAL SPONSOR				0	0	0	500	500	
01_CC.23.03_ 15. Real Estate Payment Documents									
Land Payments									
PL 91-646 Payments									
Damage Payments									
Other Payments									
01_CC.23.03_ 15_001. PAYMENTS BY LOCAL SPONSOR (LAND)									
USR R2 < >				3000000	165230.00	0.00	0.00	3165230.00	
	1.00	LS		3000000	165,230	0	0	3,165,230	3165230
TOTAL PAYMENTS-LOCAL SPONSOR (DAMAGES)				0	0	0	316,523	316,523	
TOTAL PAYMENTS-LOCAL SPONSOR (PL91-646				0	0	0	800,000	800,000	

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01_CC. LAMAR STREET LEVEE		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
	TOTAL REVIEW OF LOCAL SPONSOR				0	0	0	4,000	4,000	
	TOTAL RealEstate LERRD Crediting Docs				0	0	0	2,000	2,000	
01_CC.23.03_ 18. Real Estate All Other Documents										
	TOTAL Constructn Contract(s) Documnts	1.00	EA		3000000	165,230	0	1,453,523	4,618,753	4618753
	TOTAL LAMAR STREET LEVEE				3000000	165,230	0	1,453,523	4,618,753	
	TOTAL Lands and Damages	1.00	EA		16000000	1,284,130	0	2,943,330	20,227,460	20227460

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02. Relocations									
02_03. Cemetery, Utilities, & Structure									
02_03.18. Utilities									
02_03.18.02. Site Work									
02_03.18.02_ 01. Trench Excavation									
02_03.18.02_ 01_001. CADILLAC (STA 94+00) 15" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil 192 CY/Hr (147M3)	296.00	CY	CODET	3.10 917	6.46 1,912	0.00 0	0.00 0	9.56 2,829	9.56
02_03.18.02_ 01_002. CADILLAC (STA 102+00) 8" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil 192 CY/Hr (147M3)	158.00	CY	CODET	3.10 490	6.46 1,021	0.00 0	0.00 0	9.56 1,510	9.56
02_03.18.02_ 01_003. CADILLAC (STA 112+00) 10" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil 192 CY/Hr (147M3)	210.00	CY	CODET	3.10 651	6.46 1,356	0.00 0	0.00 0	9.56 2,007	9.56
02_03.18.02_ 01_004. CADILLAC (STA 98+00) 8" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	79.00	CY	CODET	245	510	0	0	755	9.56
02_03.18.02_ 01_005. CADILLAC (STA 34+00) 15" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	300.00	CY	CODET	930	1,938	0	0	2,868	9.56
02_03.18.02_ 01_006. CADILLAC (STA 81+00) 12" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	356.00	CY	CODET	1,103	2,299	0	0	3,403	9.56
02_03.18.02_ 01_007. CADILLAC (STA 43+00) 12" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	213.00	CY	CODET	660	1,376	0	0	2,036	9.56
02_03.18.02_ 01_008. CADILLAC (STA 26+00) 10" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	185.00	CY	CODET	573	1,195	0	0	1,768	9.56

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02_03. Cemetery, Utilities, & Structure	QUANTY UOM CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.02_ 01_009. CADILLAC (STA 66+00) 10" SS							
02000 0000 Site Work							
02200 0000 Earthwork							
02221 0000 Trenching, Backfilling, And Compaction							
02221 1000 Trenching And Continuous Footing Excavation							
02221 1600 By Hydraulic Excav. - 2 Cy							
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil		3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	798.00 CY CODET	2,473	5,154	0	0	7,628	9.56
02_03.18.02_ 01_010. CADILLAC (STA 75+80) 12" SS							
02000 0000 Site Work							
02200 0000 Earthwork							
02221 0000 Trenching, Backfilling, And Compaction							
02221 1000 Trenching And Continuous Footing Excavation							
02221 1600 By Hydraulic Excav. - 2 Cy							
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil		3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	168.00 CY CODET	521	1,085	0	0	1,606	9.56
02_03.18.02_ 01_011. CADILLAC (STA 66+00) 24" SD							
02000 0000 Site Work							
02200 0000 Earthwork							
02221 0000 Trenching, Backfilling, And Compaction							
02221 1000 Trenching And Continuous Footing Excavation							
02221 1600 By Hydraulic Excav. - 2 Cy							
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil		3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	445.00 CY CODET	1,379	2,874	0	0	4,253	9.56
02_03.18.02_ 01_014. CADILLAC (STA 112+00) 24" SD							
02000 0000 Site Work							
02200 0000 Earthwork							
02221 0000 Trenching, Backfilling, And Compaction							
02221 1000 Trenching And Continuous Footing Excavation							
02221 1600 By Hydraulic Excav. - 2 Cy							
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil		3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	222.00 CY CODET	688	1,434	0	0	2,122	9.56
02_03.18.02_ 01_015. CADILLAC (STA 111+00) 72" SD							
02000 0000 Site Work							
02200 0000 Earthwork							
02221 0000 Trenching, Backfilling, And Compaction							
02221 1000 Trenching And Continuous Footing Excavation							

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil 192 CY/Hr (147M3)	533.00	CY	CODET	3.10 1,652	6.46 3,443	0.00 0	0.00 0	9.56 5,095	9.56
02_03.18.02_ 01_019. CADILLAC (STA 10+00) 54" SD									
02000 0000 Site Work 02200 0000 Earthwork 02221 0000 Trenching, Backfilling, And Compaction 02221 1000 Trenching And Continuous Footing Excavation 02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil 192 CY/Hr (147M3)	5778.00	CY	CODET	3.10 17,908	6.46 37,321	0.00 0	0.00 0	9.56 55,228	9.56
02_03.18.02_ 01_020. CADILLAC (STA 62+00) 8" WATER									
02000 0000 Site Work 02200 0000 Earthwork 02221 0000 Trenching, Backfilling, And Compaction 02221 1000 Trenching And Continuous Footing Excavation 02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil 192 CY/Hr (147M3)	296.00	CY	CODET	3.10 917	6.46 1,912	0.00 0	0.00 0	9.56 2,829	9.56
02_03.18.02_ 01_021. CADILLAC (STA 43+50) 6" WATER									
02000 0000 Site Work 02200 0000 Earthwork 02221 0000 Trenching, Backfilling, And Compaction 02221 1000 Trenching And Continuous Footing Excavation 02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil 192 CY/Hr (147M3)	326.00	CY	CODET	3.10 1,010	6.46 2,106	0.00 0	0.00 0	9.56 3,116	9.56
02_03.18.02_ 01_023. CADILLAC (STA 26+00) 8" WATER									
02000 0000 Site Work 02200 0000 Earthwork 02221 0000 Trenching, Backfilling, And Compaction 02221 1000 Trenching And Continuous Footing Excavation 02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil 192 CY/Hr (147M3)	296.00	CY	CODET	3.10 917	6.46 1,912	0.00 0	0.00 0	9.56 2,829	9.56

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.02_ 01_024. LAMAR (STA 27+00-34+00) 10" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	672.00	CY	CODET	2,083	4,340	0	0	6,423	9.56
FOR PIPE REMOVAL									
02_03.18.02_ 01_025. LAMAR (STA 70+00) 12" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	179.00	CY	CODET	555	1,156	0	0	1,711	9.56
02_03.18.02_ 01_026. LAMAR (STA 90+00) 24" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	262.00	CY	CODET	812	1,692	0	0	2,504	9.56
02_03.18.02_ 01_027. LAMAR (STA 106+00) 15" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	148.00	CY	CODET	459	956	0	0	1,415	9.56
02_03.18.02_ 01_028. LAMAR (STA 117+00) 48" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	9533.00	CY	CODET	29,546	61,575	0	0	91,120	9.56
02_03.18.02_ 01_029. LAMAR (STA 25+00) 54" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	289.00	CY	CODET	896	1,867	0	0	2,762	9.56
02_03.18.02_ 01_030. LAMAR (STA 47+00) 48" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	311.00	CY	CODET	964	2,009	0	0	2,973	9.56
02_03.18.02_ 01_031. LAMAR (STA 77+50) 24" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	333.00	CY	CODET	1,032	2,151	0	0	3,183	9.56
02_03.18.02_ 01_032. LAMAR (STA 77+50) 30" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	150.00	CY	CODET	465	969	0	0	1,434	9.56

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.02_ 01_033. LAMAR (STA 77+50) 42" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	1359.00	CY	CODET	4,212	8,778	0	0	12,990	9.56
02_03.18.02_ 01_034. LAMAR (STA 77+50) 60" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	4252.00	CY	CODET	13,178	27,464	0	0	40,642	9.56
02_03.18.02_ 01_035. LAMAR (STA 119+00) 66" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	3378.00	CY	CODET	10,470	21,819	0	0	32,289	9.56
02_03.18.02_ 01_036. LAMAR (STA 27+00) 12" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil				3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	133.00	CY	CODET	412	859	0	0	1,271	9.56
02_03.18.02_ 01_037. LAMAR (STA 24+60) 8'x8' BOX CULV									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 1000 Trenching And Continuous Footing Excavation									

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil 192 CY/Hr (147M3)	3044.00	CY	CODET	3.10 9,434	6.46 19,662	0.00 0	0.00 0	9.56 29,096	9.56
02_03.18.02_ 01_038. LAMAR (STA 134+00) 7'x7' BX CULV									
02000 0000 Site Work 02200 0000 Earthwork 02221 0000 Trenching, Backfilling, And Compaction 02221 1000 Trenching And Continuous Footing Excavation 02221 1600 By Hydraulic Excav. - 2 Cy									
L MIL A4 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil 192 CY/Hr (147M3)	9133.00	CY	CODET	3.10 28,306	6.46 58,991	0.00 0	0.00 0	9.56 87,297	9.56
02_03.18.02_ 03. Pipe Bedding									
02_03.18.02_ 03_001. CADILLAC (STA 94+00) 15" SS									
02000 0000 Site Work 02200 0000 Earthwork 02221 0000 Trenching, Backfilling, And Compaction 02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader Without Compaction	35.00	CY	CODLB	6.62 232	7.67 269	6.95 243	0.00 0	21.24 743	21.24
02_03.18.02_ 03_002. CADILLAC (STA 102+00) 8" SS									
02000 0000 Site Work 02200 0000 Earthwork 02221 0000 Trenching, Backfilling, And Compaction 02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader Without Compaction	15.20	CY	CODLB	6.62 101	7.67 117	6.95 106	0.00 0	21.24 323	21.24
02_03.18.02_ 03_003. CADILLAC (STA 112+00) 10" SS									
02000 0000 Site Work 02200 0000 Earthwork 02221 0000 Trenching, Backfilling, And Compaction 02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader Without Compaction	22.00	CY	CODLB	6.62 146	7.67 169	6.95 153	0.00 0	21.24 467	21.24

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.02_ 03_005. CADILLAC (STA 34+00) 15" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	35.00	CY	CODLB	232	269	243	0	743	21.24
02_03.18.02_ 03_006. CADILLAC (STA 81+00) 12" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	34.00	CY	CODLB	225	261	236	0	722	21.24
02_03.18.02_ 03_007. CADILLAC (STA 43+00) 12" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	23.00	CY	CODLB	152	176	160	0	489	21.24
02_03.18.02_ 03_008. CADILLAC (STA 26+00) 10" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	19.00	CY	CODLB	126	146	132	0	404	21.24
02_03.18.02_ 03_011. CADILLAC (STA 112+00) 24" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	49.00	CY	CODLB	324	376	341	0	1,041	21.24

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.02_ 03_012. CADILLAC (STA 111+00) 72" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	72.00	CY	CODLB	476	553	500	0	1,529	21.24
02_03.18.02_ 03_016. CADILLAC (STA 10+00) 54" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	361.00	CY	CODLB	2,389	2,770	2,509	0	7,668	21.24
02_03.18.02_ 03_017. CADILLAC (STA 62+00) 8" WATER									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	37.00	CY	CODLB	245	284	257	0	786	21.24
02_03.18.02_ 03_018. CADILLAC (STA 43+50) 6" WATER									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	41.00	CY	CODLB	271	315	285	0	871	21.24
02_03.18.02_ 03_019. CADILLAC (STA 26+00) 8" WATER									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	37.00	CY	CODLB	245	284	257	0	786	21.24

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.02_ 03_020. LAMAR (STA 27+00-31+00) 10" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	69.00	CY	CODLB	457	529	480	0	1,466	21.24
02_03.18.02_ 03_021. LAMAR (STA 70+00) 12" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	19.00	CY	CODLB	126	146	132	0	404	21.24
02_03.18.02_ 03_022. LAMAR (STA 90+00) 24" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	36.00	CY	CODLB	238	276	250	0	765	21.24
02_03.18.02_ 03_023. LAMAR (STA 106+00) 15" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	6.00	CY	CODLB	40	46	42	0	127	21.24
02_03.18.02_ 03_024. LAMAR (STA 117+00) 48" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	13.00	CY	CODLB	86	100	90	0	276	21.24

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.02_ 03_025. LAMAR (STA 25+00) 54" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	55.00	CY	CODLB	364	422	382	0	1,168	21.24
02_03.18.02_ 03_026. LAMAR (STA 47+00) 48" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfillling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	24.00	CY	CODLB	159	184	167	0	510	21.24
02_03.18.02_ 03_027. LAMAR (STA 77+50) 24" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	74.00	CY	CODLB	490	568	514	0	1,572	21.24
02_03.18.02_ 03_028. LAMAR (STA 77+50) 30" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	30.00	CY	CODLB	199	230	209	0	637	21.24
02_03.18.02_ 03_029. LAMAR (STA 77+50) 60" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	354.00	CY	CODLB	2,343	2,716	2,460	0	7,519	21.24

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.02_ 03_032. LAMAR LEVEE (STA 119+00) 66" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	167.00	CY	CODLB	1,105	1,282	1,161	0	3,547	21.24
02_03.18.02_ 03_033. LAMAR (STA 27+00) 12" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	14.50	CY	CODLB	96	111	101	0	308	21.24
02_03.18.02_ 03_034. LAMAR (STA 77+50) 48" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	266.00	CY	CODLB	1,760	2,041	1,849	0	5,650	21.24
02_03.18.02_ 03_035. CADILLAC (STA 66+00) 10" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	82.00	CY	CODLB	543	629	570	0	1,742	21.24
02_03.18.02_ 03_036. CADILLAC (STA 66+00) 24" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	98.00	CY	CODLB	649	752	681	0	2,082	21.24

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.02_ 03_037. CADILLAC (STA 75+80) 12" SS									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
02221 8000 Backfill Trenches-Sand Bedding W/O Compaction									
B MIL A2 <02221 8001 > Sand Bedding w/Sm FEnd Loader				6.62	7.67	6.95	0.00	21.24	
Without Compaction	17.00	CY	CODLB	112	130	118	0	361	21.24
02_03.18.02_ 06. Manholes									
02_03.18.02_ 06_001. CADILLAC (STA 94+00)									
02000 0000 Site Work									
02550 0000 Site Utilities									
02560 0000 Waste Water Collection									
02560 5000 Manholes, Concrete, 4 Ft (1.2M) Dia.									
02560 5100 Cast In Place, 8 In (21Cm) Thick									
B MIL A2 <02560 5103 > 4'Dia x 8'Deep CIP Manhole				1200.94	367.94	980.00	0.00	2548.88	
8"(20cm)Tk, (1.2M)Dia x (2.4M)Dp	1.00	EA	CODEJ	1,201	368	980	0	2,549	2548.88
02_03.18.02_ 06_002. CADILLAC (STA 102+00)									
02000 0000 Site Work									
02550 0000 Site Utilities									
02560 0000 Waste Water Collection									
02560 5000 Manholes, Concrete, 4 Ft (1.2M) Dia.									
02560 5100 Cast In Place, 8 In (21Cm) Thick									
B MIL A2 <02560 5103 > 4'Dia x 8'Deep CIP Manhole				1597.17	489.34	1305.00	0.00	3391.51	
8"(20cm)Tk, (1.2M)Dia x (2.4M)Dp	1.00	EA	CODEJ	1,597	489	1,305	0	3,392	3391.51
02_03.18.02_ 06_003. CADILLAC (STA 112+00)									
02000 0000 Site Work									
02550 0000 Site Utilities									
02560 0000 Waste Water Collection									
02560 5000 Manholes, Concrete, 4 Ft (1.2M) Dia.									
02560 5100 Cast In Place, 8 In (21Cm) Thick									
B MIL A2 <02560 5103 > 4'Dia x 8'Deep CIP Manhole				1597.17	489.34	1305.00	0.00	3391.51	
8"(20cm)Tk, (1.2M)Dia x (2.4M)Dp	3.00	EA	CODEJ	4,792	1,468	3,915	0	10,175	3391.51
02_03.18.02_ 06_005. CADILLAC (STA 34+00)									
02000 0000 Site Work									
02550 0000 Site Utilities									
02560 0000 Waste Water Collection									

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02560 5000 Manholes, Concrete, 4 Ft (1.2M) Dia.									
02560 5100 Cast In Place, 8 In (21Cm) Thick									
B MIL A2 <02560 5103 > 4'Dia x 8'Deep CIP Manhole				1597.17	489.34	1305.00	0.00	3391.51	
8"(20cm)Tk, (1.2M)Dia x (2.4M)Dp	1.00	EA	CODEJ	1,597	489	1,305	0	3,392	3391.51
02_03.18.02_ 06_006. CADILLAC (STA 81+00)									
02000 0000 Site Work									
02550 0000 Site Utilities									
02560 0000 Waste Water Collection									
02560 5000 Manholes, Concrete, 4 Ft (1.2M) Dia.									
02560 5100 Cast In Place, 8 In (21Cm) Thick									
B MIL A2 <02560 5103 > 4'Dia x 8'Deep CIP Manhole				1597.17	489.34	1305.00	0.00	3391.51	
8"(20cm)Tk, (1.2M)Dia x (2.4M)Dp	2.00	EA	CODEJ	3,194	979	2,610	0	6,783	3391.51
02_03.18.02_ 06_007. CADILLAC (STA 43+00)									
02000 0000 Site Work									
02550 0000 Site Utilities									
02560 0000 Waste Water Collection									
02560 5000 Manholes, Concrete, 4 Ft (1.2M) Dia.									
02560 5100 Cast In Place, 8 In (21Cm) Thick									
B MIL A2 <02560 5103 > 4'Dia x 8'Deep CIP Manhole				1204.02	368.88	980.00	0.00	2552.91	
8"(20cm)Tk, (1.2M)Dia x (2.4M)Dp	1.00	EA	CODEJ	1,204	369	980	0	2,553	2552.91
02_03.18.02_ 06_008. CADILLAC (STA 26+00)									
02000 0000 Site Work									
02550 0000 Site Utilities									
02560 0000 Waste Water Collection									
02560 5000 Manholes, Concrete, 4 Ft (1.2M) Dia.									
02560 5100 Cast In Place, 8 In (21Cm) Thick									
B MIL A2 <02560 5103 > 4'Dia x 8'Deep CIP Manhole				1597.17	489.34	1305.00	0.00	3391.51	
8"(20cm)Tk, (1.2M)Dia x (2.4M)Dp	1.00	EA	CODEJ	1,597	489	1,305	0	3,392	3391.51
02_03.18.02_ 06_009. CADILLAC (STA 66+00)									
02000 0000 Site Work									
02550 0000 Site Utilities									
02560 0000 Waste Water Collection									
02560 5000 Manholes, Concrete, 4 Ft (1.2M) Dia.									
02560 5100 Cast In Place, 8 In (21Cm) Thick									
B MIL A2 <02560 5103 > 4'Dia x 8'Deep CIP Manhole				1597.17	489.34	1305.00	0.00	3391.51	
8"(20cm)Tk, (1.2M)Dia x (2.4M)Dp	6.00	EA	CODEJ	9,583	2,936	7,830	0	20,349	3391.51

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.02_ 06_010. CADILLAC (STA 75+80)									
02000 0000 Site Work									
02550 0000 Site Utilities									
02560 0000 Waste Water Collection									
02560 5000 Manholes, Concrete, 4 Ft (1.2M) Dia.									
02560 5100 Cast In Place, 8 In (21Cm) Thick									
B MIL A2 <02560 5103 > 4'Dia x 8'Deep CIP Manhole 8"(20cm)Tk, (1.2M)Dia x (2.4M)Dp	2.00	EA	CODEJ	1597.17 3,194	489.34 979	1305.00 2,610	0.00 0	3391.51 6,783	3391.51
02_03.18.02_ 06_020. LAMAR (STA 27+00-31+00)									
02000 0000 Site Work									
02550 0000 Site Utilities									
02560 0000 Waste Water Collection									
02560 5000 Manholes, Concrete, 4 Ft (1.2M) Dia.									
02560 5100 Cast In Place, 8 In (21Cm) Thick									
B MIL A2 <02560 5103 > 4'Dia x 8'Deep CIP Manhole 8"(20cm)Tk, (1.2M)Dia x (2.4M)Dp	1.00	EA	CODEJ	1597.17 1,597	489.34 489	1305.00 1,305	0.00 0	3391.51 3,392	3391.51
02_03.18.02_ 06_021. LAMAR (STA 70+00)									
02000 0000 Site Work									
02550 0000 Site Utilities									
02560 0000 Waste Water Collection									
02560 5000 Manholes, Concrete, 4 Ft (1.2M) Dia.									
02560 5100 Cast In Place, 8 In (21Cm) Thick									
B MIL A2 <02560 5103 > 4'Dia x 8'Deep CIP Manhole 8"(20cm)Tk, (1.2M)Dia x (2.4M)Dp	1.00	EA	CODEJ	1597.17 1,597	489.34 489	1305.00 1,305	0.00 0	3391.51 3,392	3391.51
02_03.18.02_ 06_022. LAMAR (STA 90+00)									
02000 0000 Site Work									
02550 0000 Site Utilities									
02560 0000 Waste Water Collection									
02560 5000 Manholes, Concrete, 4 Ft (1.2M) Dia.									
02560 5100 Cast In Place, 8 In (21Cm) Thick									
B MIL A2 <02560 5103 > 4'Dia x 8'Deep CIP Manhole 8"(20cm)Tk, (1.2M)Dia x (2.4M)Dp	1.00	EA	CODEJ	1597.17 1,597	489.34 489	1305.00 1,305	0.00 0	3391.51 3,392	3391.51
02_03.18.02_ 06_023. LAMAR (STA 106+00)									
02000 0000 Site Work									
02550 0000 Site Utilities									
02560 0000 Waste Water Collection									
02560 5000 Manholes, Concrete, 4 Ft (1.2M) Dia.									

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02560 5100 Cast In Place, 8 In (21Cm) Thick									
B MIL A2 <02560 5103 > 4'Dia x 8'Deep CIP Manhole 8"(20cm)Tk, (1.2M)Dia x (2.4M)Dp	1.00	EA	CODEJ	1597.17 1,597	489.34 489	1305.00 1,305	0.00 0	3391.51 3,392	3391.51
02_03.18.02_ 06_033. LAMAR (STA 27+00)									
02000 0000 Site Work 02550 0000 Site Utilities 02560 0000 Waste Water Collection 02560 5000 Manholes, Concrete, 4 Ft (1.2M) Dia. 02560 5100 Cast In Place, 8 In (21Cm) Thick									
B MIL A2 <02560 5103 > 4'Dia x 8'Deep CIP Manhole 8"(20cm)Tk, (1.2M)Dia x (2.4M)Dp	1.00	EA	CODEJ	1597.17 1,597	489.34 489	1305.00 1,305	0.00 0	3391.51 3,392	3391.51
02_03.18.02_ 98. ROAD R/R CADILLAC (SARGENT RD)									
02_03.18.02_ 98_001. ROAD GRADING									
02000 0000 Site Work 02600 0000 Paving And Surfacing 02611 0000 Crushed Stone Paving 02611 1000 Prepare And Roll Subbase									
MIL A2 <02611 1002 > GRADE ROAD	1111.00	SY	XSGRA	0.44 493	0.41 458	0.34 373	0.00 0	1.19 1,324	1.19
02_03.18.02_ 98_002. LIME STAB SUBGRADE									
02000 0000 Site Work 02600 0000 Paving And Surfacing 02610 0000 Paving 02610 1000 Lime Stabilized Subgrade Based On Existing Soil									
MIL A2 <02610 1001 > 6"Tk, Lime Stabilized Subgrade (15cm) Thick, 25#(11Kg)/SY	489.00	SY	COFCJ	0.59 290	0.53 260	0.81 398	0.00 0	1.94 947	1.94
02600 0000 Paving And Surfacing 02611 0000 Crushed Stone Paving 02611 1000 Prepare And Roll Subbase									
MIL A2 <02611 1002 > SUBGRADE PREP	489.00	SY	XSGRA	0.44 217	0.41 201	0.34 164	0.00 0	1.19 583	1.19
02_03.18.02_ 98_003. BASE COURSE									
02000 0000 Site Work 02600 0000 Paving And Surfacing 02611 0000 Crushed Stone Paving									

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02611 2000 Roadway Base Courses									
02611 2000 Basic Cost Items									
MIL A2 <02611 2001 > BASE COURSE				3.39	6.71	4.14	0.00	14.25	
	99.00	CY	XSABA	336	665	410	0	1,410	14.25
02_03.18.02_ 98_004. 2" HMAC (XASPA)									
MIL A2 < > ASPH FINISHER, 10'W/SCREED,PNEUM				0.00	51.77	0.00	0.00	51.77	
	37.45	HR	A30BG003	0	1,939	0	0	1,939	51.77
MIL A2 < > STR SWEEPER, 7'W/SPRINKER				0.00	1.56	0.00	0.00	1.56	
	37.45	HR	B15MB002	0	59	0	0	59	1.56
MIL A2 < > Small Tools				0.00	1.45	0.00	0.00	1.45	
	74.89	HR	XMIXX020	0	109	0	0	109	1.45
MIL A2 < > ROLLR,STATIC,S/P,13T,84"W,11TIRE				0.00	14.71	0.00	0.00	14.71	
	37.45	HR	R30CA001	0	551	0	0	551	14.71
MIL A2 < > ROLLER,STATIC,3WHL,S/P, 12T,84"W				0.00	13.23	0.00	0.00	13.23	
	74.89	HR	R30IG008	0	991	0	0	991	13.23
MIL A2 < > FLATBED, 8'x 16.0' (ADD TRK)				0.00	0.63	0.00	0.00	0.63	
	37.45	HR	T40XX016	0	23	0	0	23	0.63
MIL A2 < > TRK,HWY, 24,500 GVW, 4X2, 2 AXLE				0.00	13.37	0.00	0.00	13.37	
	37.45	HR	T50FO011	0	501	0	0	501	13.37
MIL A2 < > TRK,HWY, 24,500 GVW, 4X2, 2 AXLE				0.00	13.37	0.00	0.00	13.37	
	37.45	HR	T50FO011	0	501	0	0	501	13.37
MIL A2 < > Outside Laborers, (Semi-Skilled)				11.81	0.00	0.00	0.00	11.81	
	262.13	HR	X-LABORER	3,096	0	0	0	3,096	11.81
MIL A2 < > Outside Equip. Operators, Medium				16.06	0.00	0.00	0.00	16.06	
	112.34	HR	X-EQOPRMED	1,804	0	0	0	1,804	16.06
MIL A2 < > Outside Equip. Operators, Medium				16.56	0.00	0.00	0.00	16.56	
	37.45	HR	X-EQOPRMED	620	0	0	0	620	16.56
MIL A2 < > Outside Truck Drivers, Heavy				11.68	0.00	0.00	0.00	11.68	
	37.45	HR	X-TRKDVRHV	437	0	0	0	437	11.68
USR A2 < > HMAC				0.00	0.00	25.00	0.00	25.00	
	44.00	TON		0	0	1,100	0	1,100	25.00

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.02_ 99. ROAD REMOV & REPLACE									
02_03.18.02_ 99_001. FILL									
02000 0000 Site Work									
02200 0000 Earthwork									
02226 0000 Site Excavation And Fill									
02226 1000 Excavation By Dozer Moved 150 Ft (45M) And									
L MIL A2 <02226 1004 > Exc & Fill, D-8K Dozer w/U-Blade				0.72	2.58	0.00	0.00	3.30	
300 HP, Move 150' and Stockpile	29028	CY	CODTK	20,981	74,927	0	0	95,909	3.30
02_03.18.02_ 99_002. LIME SUBGRADE									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02610 0000 Paving									
02610 1000 Lime Stabilized Subgrade Based On Existing Soil									
B MIL A2 <02610 1001 > 6"Tk, Lime Stabilized Subgrade				0.67	0.60	0.80	0.00	2.07	
(15cm) Thick, 25#(11Kg)/SY	3305.00	SY	COFCJ	2,204	1,981	2,644	0	6,829	2.07
02_03.18.02_ 99_003. BASE COURSE									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02610 0000 Paving									
02610 1000 Lime Stabilized Subgrade Based On Existing Soil									
02611 2000 Basic Cost Items									
B MIL A2 <02611 2001 > Graded Crushed Agg Rdwy Base Crs				2.50	4.95	22.30	0.00	29.75	
	745.00	CY	XSABA	1,864	3,689	16,614	0	22,167	29.75
02_03.18.02_ 99_004. 8" CONCRETE PAVEMENT									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02614 0000 Portland Cement Concrete Paving									
02614 1000 Concrete Paving									
02614 1100 Material Cost Included 4500 Psi Concrete At									
B MIL A2 <02614 1102 > 8"(20cm) Concrete Pavement				69.21	23.10	125.25	0.00	217.56	
4,500 PSI Concrete at Spreader	685.00	CY	COKCF	47,406	15,825	85,796	0	149,027	217.56
02_03.18.02_ 99_005. REMOVE CONC PAVMNT									
02000 0000 Site Work									
02110 0000 Demolition									
02112 0000 Selective Demolition									
02112 1000 Miscellaneous Removals									

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02_03. Cemetery, Utilities, & Structure		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02112 1200 Concrete Pavement										
L MIL A2 <02112 1203 >	Demo 7" to 24" Thk Conc Pavement (17.8cm) to (61cm), Reinforced	685.00	CY	CODEF	11.43 7,827	5.57 3,816	0.00 0	0.00 0	17.00 11,643	17.00
02_03.18.15. Mechanical										
02_03.18.15_ 01. Pipe and Fittings										
02_03.18.15_ 01_001. CADILLAC (STA 94+00) 15" SS										
02000 0000 Site Work 02450 0000 Utility Pipelines 02452 0000 Reinforced Concrete Pipe 02452 1000 Reinforced Conc. Pipe Class 3 Without Gaskets 02452 1000 Reinforced Class III Concrete Pipe										
USR A2 <02452 1002 >	15"(38cm) Dia Cl III Conc Pipe Reinforced without Gaskets	300.00	LF	XTBCB	2.97 891	2.73 820	12.35 3,705	0.00 0	18.05 5,416	18.05
02_03.18.15_ 01_002. CADILLAC (STA 102+00) 8" SS										
02000 0000 Site Work 02450 0000 Utility Pipelines 02464 0000 Plastic Pipe 02464 1000 Drainage Pipe										
USR A2 <02464 1003 >	8"(21cm) ABS Plastic Drain Pipe Truss Type	200.00	LF	XTBCA	1.95 389	1.44 288	3.40 680	0.00 0	6.79 1,357	6.79
02_03.18.15_ 01_003. CADILLAC (STA 112+00) 10" SS										
02000 0000 Site Work 02450 0000 Utility Pipelines 02464 0000 Plastic Pipe 02464 1000 Drainage Pipe										
USR A2 <02464 1004 >	10"(25cm) ABS Plastic Drain Pipe Truss Type	250.00	LF	XTBCA	2.88 721	2.14 534	5.05 1,263	0.00 0	10.07 2,517	10.07
02_03.18.15_ 01_005. CADILLAC (STA 34+00) 15" SS										
02000 0000 Site Work 02450 0000 Utility Pipelines 02464 0000 Plastic Pipe 02464 1000 Drainage Pipe										
B MIL A2 <02464 1006 >	15"(38cm) ABS Plastic Drain Pipe Truss Type	300.00	LF	XXPLB	6.71 2,013	2.34 701	9.00 2,700	0.00 0	18.05 5,414	18.05

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.15_ 01_006. CADILLAC (STA 81+00) 12" SS									
02000 0000 Site Work									
02450 0000 Utility Pipelines									
02464 0000 Plastic Pipe									
02464 1000 Drainage Pipe									
B MIL A2 <02464 1005 > 12"(31cm) ABS Plastic Drain Pipe				5.19	1.81	7.00	0.00	14.00	
Truss Type	450.00	LF	XXPLB	2,335	813	3,150	0	6,298	14.00
02_03.18.15_ 01_007. CADILLAC (STA 43+00) 12" SS									
02000 0000 Site Work									
02450 0000 Utility Pipelines									
02464 0000 Plastic Pipe									
02464 1000 Drainage Pipe									
B MIL A2 <02464 1005 > 12"(31cm) ABS Plastic Drain Pipe				5.19	1.81	7.00	0.00	14.00	
Truss Type	240.00	LF	XXPLB	1,246	434	1,680	0	3,360	14.00
02_03.18.15_ 01_008. CADILLAC (STA 26+00) 10" SS									
02000 0000 Site Work									
02450 0000 Utility Pipelines									
02464 0000 Plastic Pipe									
02464 1000 Drainage Pipe									
B USR A2 <02464 1004 > 10"(25cm) ABS Plastic Drain Pipe				2.88	2.13	5.05	0.00	10.06	
Truss Type	220.00	LF	XTBCA	634	469	1,111	0	2,214	10.06
02_03.18.15_ 01_011. CADILLAC (STA 112+00) 24" SD									
02000 0000 Site Work									
02450 0000 Utility Pipelines									
02464 0000 Plastic Pipe									
02464 1000 Drainage Pipe									
02452 1000 Reinforced Class III Concrete Pipe									
USR A2 <02452 1004 > 24"(61cm) Dia Cl III Conc Pipe				4.77	4.39	19.70	0.00	28.85	
Reinforced without Gaskets	1000.00	LF	XTBCB	4,768	4,387	19,700	0	28,855	28.85
02_03.18.15_ 01_012. CADILLAC (STA 111+00) 72" SD									
02000 0000 Site Work									
02450 0000 Utility Pipelines									
02464 0000 Plastic Pipe									
02464 1000 Drainage Pipe									
02452 1000 Reinforced Class III Concrete Pipe									
USR A2 <02452 1011 > 72"(183cm) Dia Cl III Conc Pipe				56.49	51.98	141.75	0.00	250.21	
Reinforced without Gaskets	200.00	LF	XTBCB	11,297	10,396	28,350	0	50,043	250.21

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.15_ 01_016. CADILLAC (STA 10+00) 54" SD									
02000 0000 Site Work									
02200 0000 Earthwork									
02224 0000 Horizontal Boring - Casing Only									
02224 1000 Roadwork									
B MIL A2 <02224 1003 > 54" Dia Horiz Boring, Roadwork				15.72	24.36	134.90	0.00	174.99	
3/8" (122cm) Casing	200.00	LF	CLADR	3,145	4,873	26,980	0	34,997	174.99
B MIL A2 <02452 1009 > 54"(137cm) Dia C1 III Conc Pipe				44.72	15.71	80.20	0.00	140.63	
Reinforced without Gaskets	3200.00	LF	UOEHC	143,095	50,286	256,640	0	450,021	140.63
02_03.18.15_ 01_017. CADILLAC (STA 62+00) 8" WATER									
02000 0000 Site Work									
02110 0000 Demolition									
02112 0000 Selective Demolition									
02112 8000 Sewer & Water Pipe Removal No Excavation, W/									
L CIV A2 <02112 8001 > Demo Pipe to 12" Dia				3.72	1.62	0.00	0.00	5.34	
Water/Sewer Pipe	200.00	LF	XXPLA	744	324	0	0	1,067	5.34
02450 0000 Utility Pipelines									
02464 0000 Plastic Pipe									
02464 2000 Pressure Pipe									
02464 2100 Pvc, Class 200 Sdr=21									
02464 2100 Basic Cost Items									
B MIL A2 <02464 2107 > 8" Dia SDR 21 PVC Pressure Pipe				1.23	0.25	7.55	0.00	9.03	
(20cm) Dia, Class 200	200.00	LF	XPLUD	247	50	1,510	0	1,806	9.03
02_03.18.15_ 01_018. CADILLAC (STA 43+50) 6" WATER									
02000 0000 Site Work									
02110 0000 Demolition									
02112 0000 Selective Demolition									
02112 8000 Sewer & Water Pipe Removal No Excavation, W/									
L CIV A2 <02112 8001 > Demo Pipe to 12" Dia				2.78	1.21	0.00	0.00	3.99	
Water/Sewer Pipe	220.00	LF	XXPLA	612	266	0	0	878	3.99
M MIL A2 <02464 2106 > 6" Dia SDR 21 PVC Pressure Pipe				0.96	0.04	4.80	0.00	5.79	
(15cm) Dia, Class 200	220.00	LF	XPLUC	211	8	1,056	0	1,275	5.79
02_03.18.15_ 01_019. CADILLAC (STA 26+00) 8" WATER									
02000 0000 Site Work									
02110 0000 Demolition									
02112 0000 Selective Demolition									

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02_03. Cemetery, Utilities, & Structure	QUANTY UOM CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02112 8000 Sewer & Water Pipe Removal No Excavation, W/							
L CIV A2 <02112 8001 > Demo Pipe to 12" Dia		3.72	1.62	0.00	0.00	5.34	
Water/Sewer Pipe	200.00 LF XXPLA	744	324	0	0	1,068	5.34
B MIL A2 <02464 2107 > 8" Dia SDR 21 PVC Pressure Pipe		1.00	0.20	7.55	0.00	8.75	
(20cm) Dia, Class 200	200.00 LF XPLUD	201	40	1,510	0	1,751	8.75
02_03.18.15_ 01_020. LAMAR (STA 27+00-31+00) 10" SS							
02000 0000 Site Work							
02110 0000 Demolition							
02112 0000 Selective Demolition							
02112 8000 Sewer & Water Pipe Removal No Excavation, W/							
L CIV A2 <02112 8001 > Demo to 12" Dia		3.48	1.51	0.00	0.00	4.99	
Water/Sewer Pipe	800.00 LF XXPLA	2,784	1,211	0	0	3,995	4.99
02000 0000 Site Work							
02450 0000 Utility Pipelines							
02464 0000 Plastic Pipe							
02464 1000 Drainage Pipe							
B MIL A2 <02464 1004 > 10"(25cm) ABS Plastic Drain Pipe		1.48	0.51	10.10	0.00	12.09	
Truss Type	800.00 LF XXPLB	1,182	411	8,080	0	9,673	12.09
02_03.18.15_ 01_021. LAMAR (STA 70+00) 12" SS							
02000 0000 Site Work							
02110 0000 Demolition							
02112 0000 Selective Demolition							
02112 8000 Sewer & Water Pipe Removal No Excavation, W/							
L CIV A2 <02112 8001 > Demo Pipe to 12" Dia		5.02	2.18	0.00	0.00	7.20	
Water/Sewer Pipe	200.00 LF XXPLA	1,004	437	0	0	1,441	7.20
02000 0000 Site Work							
02450 0000 Utility Pipelines							
02464 0000 Plastic Pipe							
02464 1000 Drainage Pipe							
B MIL A2 <02464 1005 > 12"(31cm) ABS Plastic Drain Pipe		2.12	0.74	14.35	0.00	17.20	
Truss Type	200.00 LF XXPLB	423	147	2,870	0	3,441	17.20
02_03.18.15_ 01_022. LAMAR (STA 90+00) 24" SS							
02000 0000 Site Work							
02110 0000 Demolition							
02112 0000 Selective Demolition							
02112 8000 Sewer & Water Pipe Removal No Excavation, W/							

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
L CIV A2 <02112 8003 > Demo Pipe 21" to 24" Dia				10.45	4.55	0.00	0.00	15.00	
Sewer/Water Pipe	220.00	LF	XXPLA	2,299	1,000	0	0	3,299	15.00
02000 0000 Site Work									
02450 0000 Utility Pipelines									
02464 0000 Plastic Pipe									
02464 1000 Drainage Pipe									
B MIL A2 <02464 1006 > 24"(61cm) ABS Plastic Drain Pipe				4.58	1.59	30.60	0.00	36.77	
Truss Type	220.00	LF	XXPLB	1,007	350	6,732	0	8,089	36.77
02_03.18.15_ 01_023. LAMAR (STA 106+00) 15" SS									
02000 0000 Site Work									
02110 0000 Demolition									
02112 0000 Selective Demolition									
02112 8000 Sewer & Water Pipe Removal No Excavation, W/									
L CIV A2 <02112 8002 > Demo Pipe 15" to 18" Dia				6.97	3.03	0.00	0.00	10.00	
Sewer/Water Pipe	150.00	LF	XXPLA	1,046	455	0	0	1,500	10.00
02000 0000 Site Work									
02450 0000 Utility Pipelines									
02464 0000 Plastic Pipe									
02464 1000 Drainage Pipe									
B MIL A2 <02464 1006 > 15"(38cm) ABS Plastic Drain Pipe				3.19	1.11	21.55	0.00	25.85	
Truss Type	150.00	LF	XXPLB	479	167	3,233	0	3,878	25.85
02_03.18.15_ 01_024. LAMAR (STA 117+00) 48" SS									
02000 0000 Site Work									
02110 0000 Demolition									
02112 0000 Selective Demolition									
02112 8000 Sewer & Water Pipe Removal No Excavation, W/									
L CIV A2 <02112 8004 > Demo Pipe 27" to 48" Dia				22.27	9.69	0.00	0.00	31.95	
Sewer/Water Pipe	300.00	LF	XXPLA	6,680	2,906	0	0	9,586	31.95
02000 0000 Site Work									
02450 0000 Utility Pipelines									
02464 0000 Plastic Pipe									
02464 1000 Drainage Pipe									
B MIL A2 <02464 1006 > 48"(122cm) ABS Plastic Drain Pip				9.51	3.31	64.00	0.00	76.82	
Truss Type	300.00	LF	XXPLB	2,853	993	19,200	0	23,046	76.82

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.15_ 01_025. LAMAR (STA 25+00) 54" SD									
02000 0000 Site Work									
02110 0000 Demolition									
02112 0000 Selective Demolition									
USR A2 <02112 0001 > Demo 54" Conc Pipe				28.50	10.02	0.00	0.00	38.51	
	150.00	LF	UOEHC	4,275	1,502	0	0	5,777	38.51
02000 0000 Site Work									
02450 0000 Utility Pipelines									
02452 0000 Reinforced Concrete Pipe									
02452 1000 Reinforced Conc. Pipe Class 3 Without Gaskets									
02452 1000 Reinforced Class III Concrete Pipe									
B MIL A2 <02452 1009 > 54"(137cm) Dia Cl III Conc Pipe Reinforced without Gaskets	150.00	LF	UOEHC	37.60 5,640	13.21 1,982	77.00 11,550	0.00 0	127.81 19,172	127.81
02_03.18.15_ 01_026. LAMAR (STA 47+00) 48" SD									
02000 0000 Site Work									
02110 0000 Demolition									
02112 0000 Selective Demolition									
USR A2 <02112 0001 > Demo 48" Conc Pipe				24.88	8.74	0.00	0.00	33.62	
	200.00	LF	UOEHC	4,976	1,749	0	0	6,725	33.62
B MIL A2 <02452 1008 > 48"(122cm) Dia Cl III Conc Pipe Reinforced without Gaskets	200.00	LF	UOEHC	36.90 7,379	12.97 2,593	67.35 13,470	0.00 0	117.21 23,442	117.21
02_03.18.15_ 01_027. LAMAR (STA 77+50) 24" SD									
02000 0000 Site Work									
02110 0000 Demolition									
02112 0000 Selective Demolition									
02452 1000 Reinforced Conc. Pipe Class 3 Without Gaskets									
02452 1000 Reinforced Class III Concrete Pipe									
USR A2 <02452 1004 > 24"(61cm) Dia Cl III Conc Pipe Reinforced without Gaskets	450.00	LF	XTBCB	4.75 2,136	4.37 1,966	19.75 8,888	0.00 0	28.87 12,990	28.87
02_03.18.15_ 01_028. LAMAR (STA 77+50) 30" SD									
02000 0000 Site Work									
02110 0000 Demolition									
02112 0000 Selective Demolition									
02452 1000 Reinforced Conc. Pipe Class 3 Without Gaskets									
02452 1000 Reinforced Class III Concrete Pipe									
B MIL A2 <02452 1005 > 30"(76cm) Dia Cl III Conc Pipe Reinforced without Gaskets	150.00	LF	UOEHC	10.19 1,529	3.58 537	27.60 4,140	0.00 0	41.38 6,206	41.38

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.15_ 01_029. LAMAR (STA 77+50) 60" SD									
02000 0000 Site Work									
02110 0000 Demolition									
02112 0000 Selective Demolition									
02452 1000 Reinforced Conc. Pipe Class 3 Without Gaskets									
02452 1000 Reinforced Class III Concrete Pipe									
B MIL A2 <02452 1009 > 60"(152cm) Dia Cl III Conc Pipe				57.24	20.11	101.00	0.00	178.35	
Reinforced without Gaskets	2050.00	LF	UOEHC	117,341	41,235	207,050	0	365,626	178.35
02_03.18.15_ 01_032. LAMAR LEVEE (STA 119+00) 66" SD									
02000 0000 Site Work									
02110 0000 Demolition									
02112 0000 Selective Demolition									
02112 8000 Sewer & Water Pipe Removal No Excavation, W/									
L CIV A2 <02112 8004 > Demo Conc Pipe > 36"				39.27	17.09	0.00	0.00	56.36	
Sewer/Water Pipe, No Excavation	1200.00	LF	XXPLA	47,124	20,503	0	0	67,628	56.36
B MIL A2 <02452 1011 > 66"(168cm) Dia Cl III Conc Pipe				61.29	21.54	112.80	0.00	195.63	
Reinforced without Gaskets	1200.00	LF	UOEHC	73,552	25,848	135,360	0	234,760	195.63
02_03.18.15_ 01_033. LAMAR (STA 27+00) 12" SD									
02000 0000 Site Work									
02110 0000 Demolition									
02112 0000 Selective Demolition									
02112 8000 Sewer & Water Pipe Removal No Excavation, W/									
L CIV A2 <02112 8001 > Demo Pipe to 12" Dia				5.00	2.18	0.00	0.00	7.18	
Water/Sewer Pipe	150.00	LF	XXPLA	750	326	0	0	1,076	7.18
B MIL A2 <02452 1001 > 12"(31cm) Dia Cl III Conc Pipe				2.38	0.41	14.35	0.00	17.14	
Reinforced without Gaskets	150.00	LF	CODEK	357	62	2,153	0	2,572	17.14
02_03.18.15_ 01_035. CADILLAC (STA 66+00) 10" SS									
02000 0000 Site Work									
02450 0000 Utility Pipelines									
02464 0000 Plastic Pipe									
02464 1000 Drainage Pipe									
B USR A2 <02464 1004 > 10"(25cm) ABS Plastic Drain Pipe				2.88	2.13	5.05	0.00	10.06	
Truss Type	950.00	LF	XTBCA	2,736	2,027	4,798	0	9,560	10.06

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.15_ 01_036. CADILLAC (STA 66+00) 24" SD									
02000 0000 Site Work									
02450 0000 Utility Pipelines									
02464 0000 Plastic Pipe									
02464 1000 Drainage Pipe									
02452 1000 Reinforced Class III Concrete Pipe									
USR A2 <02452 1004 > 24"(61cm) Dia Cl III Conc Pipe				4.75	4.37	19.75	0.00	28.87	
Reinforced without Gaskets	450.00	LF	XTBCB	2,136	1,966	8,888	0	12,990	28.87
02_03.18.15_ 01_037. CADILLAC (STA 75+80) 12" SS									
02000 0000 Site Work									
02450 0000 Utility Pipelines									
02464 0000 Plastic Pipe									
02464 1000 Drainage Pipe									
B MIL A2 <02464 1005 > 12"(31cm) ABS Plastic Drain Pipe				5.19	1.81	7.00	0.00	14.00	
Truss Type	200.00	LF	XXPLB	1,038	361	1,400	0	2,800	14.00
02_03.18.15_ 01_038. LAMAR (STA 77+50) 42" SD									
02000 0000 Site Work									
02450 0000 Utility Pipelines									
02464 0000 Plastic Pipe									
02464 1000 Drainage Pipe									
02452 1000 Reinforced Class III Concrete Pipe									
USR A2 <02452 1007 > 42"(106cm) Dia Cl III Conc Pipe				17.99	16.55	56.30	0.00	90.84	
Reinforced without Gaskets	950.00	LF	XTBCB	17,090	15,726	53,485	0	86,300	90.84
02_03.18.15_ 03. Valves/Gates (incl Conc Risers)									
02_03.18.15_ 03_001. CAD (STA 94) 15" GATE VALVE									
02000 0000 Site Work									
02550 0000 Site Utilities									
02555 0000 Water Distribution Lines									
02555 3000 Cast Iron Gate Valves With Boxes									
B MIL A2 <02555 3007 > 15"(38cm) Cast Iron Gate Valve				302.27	105.20	815.00	0.00	1222.46	
Includes Box	1.00	EA	XXPLB	302	105	815	0	1,222	1222.46
03000 0000 Concrete									
03200 0000 Concrete Reinforcement									
03210 0000 Reinforcing Steel									
03210 2000 Beams, Columns And Walls									
03210 2000 Basic Cost Items									

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.20	0.00	0.25	0.00	0.45	
	3100.00	LB	SIWRC	620	8	775	0	1,403	0.45
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(VALVE TOWER)				241.26	3.05	128.15	0.00	372.46	
	15.50	CY	SIWRC	3,739	47	1,986	0	5,773	372.46
02_03.18.15_ 03_002. CAD (STA 102) 8" GATE VALVE									
02000 0000 Site Work									
02550 0000 Site Utilities									
02555 0000 Water Distribution Lines									
02555 3000 Cast Iron Gate Valves With Boxes									
B MIL A2 <02555 3003 > 8"(21cm) Cast Iron Gate Valve				132.52	57.66	380.00	0.00	570.17	
Includes Box	1.00	EA	XXPLA	133	58	380	0	570	570.17
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.20	0.00	0.25	0.00	0.45	
	2000.00	LB	SIWRC	400	5	500	0	905	0.45
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(GATE VALVE RISER)				241.26	3.05	128.15	0.00	372.46	
	12.60	CY	SIWRC	3,040	38	1,615	0	4,693	372.46
02_03.18.15_ 03_003. CAD (STA 112) 10" GATE VALVE									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
02555 3000 Cast Iron Gate Valves With Boxes									
B MIL A2 <02555 3004 > 10"(25cm) Cast Iron Gate Valve				255.97	89.08	690.00	0.00	1035.05	
Includes Box	1.00	EA	XXPLB	256	89	690	0	1,035	1035.05
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.20	0.00	0.25	0.00	0.45	
	2055.00	LB	SIWRC	411	5	514	0	930	0.45
USR A2 <03311 0001 > CONCRETE(GATE VALVE RISER)				241.03	3.05	128.15	0.00	372.23	
	13.70	CY	SIWRC	3,302	42	1,756	0	5,100	372.23

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.15_ 03_005. CAD (STA 34) 15" GATE VALVE									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
02555 3000 Cast Iron Gate Valves With Boxes									
B MIL A2 <02555 3007 > 15"(38cm) Cast Iron Gate Valve				373.49	129.98	1000.00	0.00	1503.47	
Includes Box	1.00	EA	XXPLB	373	130	1,000	0	1,503	1503.47
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.20	0.00	0.25	0.00	0.45	
	3100.00	LB	SIWRC	620	8	775	0	1,403	0.45
USR A2 <03311 0001 > CONCRETE(GATE VALVE RISER)				241.03	3.05	128.15	0.00	372.23	
	15.50	CY	SIWRC	3,736	47	1,986	0	5,770	372.23
02_03.18.15_ 03_006. CAD (STA 81) 12" GATE VALVE									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
02555 3000 Cast Iron Gate Valves With Boxes									
B MIL A2 <02555 3005 > 12"(31cm) Cast Iron Gate Valve				300.00	104.41	800.00	0.00	1204.41	
Includes Box	1.00	EA	XXPLB	300	104	800	0	1,204	1204.41
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.21	0.00	0.25	0.00	0.46	
	2820.00	LB	SIWRC	586	7	705	0	1,299	0.46
USR A2 <03311 0001 > CONCRETE(GATE VALVE RISER)				241.03	3.05	128.15	0.00	372.23	
	14.10	CY	SIWRC	3,399	43	1,807	0	5,248	372.23
02_03.18.15_ 03_007. CAD (STA 43) 12" GATE VALVE									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
02555 3000 Cast Iron Gate Valves With Boxes									
B MIL A2 <02555 3005 > 12"(31cm) Cast Iron Gate Valve				300.00	104.41	800.00	0.00	1204.41	
Includes Box	1.00	EA	XXPLB	300	104	800	0	1,204	1204.41
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.21	0.00	0.25	0.00	0.46	
	3520.00	LB	SIWRC	732	9	880	0	1,621	0.46
USR A2 <03311 0001 > CONCRETE(GATE VALVE RISER)				241.03	3.05	128.15	0.00	372.23	
	17.60	CY	SIWRC	4,242	54	2,255	0	6,551	372.23

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.15_ 03_008. CAD (STA 26) 10" GATE VALVE									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
02555 3000 Cast Iron Gate Valves With Boxes									
B MIL A2 <02555 3004 > 10"(25cm) Cast Iron Gate Valve				256.04	89.11	690.00	0.00	1035.15	
Includes Box	1.00	EA	XXPLB	256	89	690	0	1,035	1035.15
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.21	0.00	0.25	0.00	0.46	
	3320.00	LB	SIWRC	690	9	830	0	1,529	0.46
USR A2 <03311 0001 > CONCRETE(GATE VALVE RISER)				241.03	3.05	128.15	0.00	372.23	
	16.60	CY	SIWRC	4,001	51	2,127	0	6,179	372.23
02_03.18.15_ 03_011. CAD (STA 112) 24"x24" FLAP GATE									
02000 0000 Site Work									
02500 0000 Site Drainage									
02520 0000 Storm Drains									
USR A2 <02520 0001 > 24"x24" FLAP GATE				835.00	0.00	1675.00	0.00	2510.00	
	1.00	EA		835	0	1,675	0	2,510	2510.00
USR A2 <02520 0002 > 24"x24" SLUICE GATE AND HOIST				1675.00	0.00	3350.00	0.00	5025.00	
	1.00	EA		1,675	0	3,350	0	5,025	5025.00
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.20	0.00	0.25	0.00	0.45	
	3060.00	LB	SIWRC	612	8	765	0	1,385	0.45
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(GATE TOWER)				241.03	3.05	128.15	0.00	372.23	
	13.70	CY	SIWRC	3,302	42	1,756	0	5,100	372.23
02_03.18.15_ 03_012. CAD (STA 111) 72" FLAP GATE									
02000 0000 Site Work									
02500 0000 Site Drainage									
02520 0000 Storm Drains									
USR A2 <02520 0001 > 72" FLAP GATE				2515.00	0.00	5025.00	0.00	7540.00	
	1.00	EA		2,515	0	5,025	0	7,540	7540.00
USR A2 <02520 0002 > 72" SLUICE GATE AND HOIST				5025.00	0.00	10050.00	0.00	15075.00	
	1.00	EA		5,025	0	10,050	0	15,075	15075

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.20	0.00	0.25	0.00	0.45	
	4800.00	LB	SIWRC	960	12	1,200	0	2,172	0.45
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(GATE TOWER)				241.03	3.05	128.15	0.00	372.23	
	24.00	CY	SIWRC	5,785	73	3,076	0	8,934	372.23
02_03.18.15_ 03_017. CAD (STA 62) 8" AIR RELEASE VALV									
15000 0000 Mechanical									
15050 0000 Basic Materials And Methods									
15102 0000 Flap And Flush Valves									
15102 1000 Cast Iron Body - Flanged									
B CIV A2 <15102 1003 > 8" CI, Flange Flap & Flush Valve				188.00	4.61	380.00	0.00	572.61	
	1.00	EA	MPLUJ	188	5	380	0	573	572.61
02_03.18.15_ 03_018. CAD (STA 43+50) 6" COMBO AIR REL									
15000 0000 Mechanical									
15050 0000 Basic Materials And Methods									
15102 0000 Flap And Flush Valves									
15102 1000 Cast Iron Body - Flanged									
B CIV A2 <15102 1002 > 6" CI, Flange Flap & Flush Valve				126.66	3.10	258.00	0.00	387.76	
	1.00	EA	MPLUJ	127	3	258	0	388	387.76
02_03.18.15_ 03_019. CAD (STA 26) 8" COMBO AIR RELEAS									
15000 0000 Mechanical									
15050 0000 Basic Materials And Methods									
15102 0000 Flap And Flush Valves									
15102 1000 Cast Iron Body - Flanged									
B CIV A2 <15102 1003 > 8" CI, Flange Flap & Flush Valve COMBO AIR RELEASE VALVE				187.88	4.61	380.00	0.00	572.48	
	1.00	EA	MPLUJ	188	5	380	0	572	572.48
02_03.18.15_ 03_021. LAMAR (STA 70) 12" SLUICE GATE									
02000 0000 Site Work									
02500 0000 Site Drainage									
02520 0000 Storm Drains									
USR A2 <02520 0002 > 12" SLUICE GATE VALVE				409.40	5.18	800.00	0.00	1214.58	
	1.00	EA	SIWRC	409	5	800	0	1,215	1214.58

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.20	0.00	0.25	0.00	0.45	
	3540.00	LB	SIWRC	708	9	885	0	1,602	0.45
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(GATE RISER)				250.48	3.17	128.15	0.00	381.80	
	17.70	CY	SIWRC	4,434	56	2,268	0	6,758	381.80
02_03.18.15_ 03_022. LAMAR (STA 90) 24" SLUICE GATE									
02000 0000 Site Work									
02500 0000 Site Drainage									
02520 0000 Storm Drains									
USR A2 <02520 0002 > 24" SLUICE GATE VALVE				2159.29	27.31	4210.00	0.00	6396.60	
	1.00	EA	SIWRC	2,159	27	4,210	0	6,397	6396.60
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.20	0.00	0.25	0.00	0.45	
	3540.00	LB	SIWRC	708	9	885	0	1,602	0.45
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(GATE RISER)				250.48	3.17	128.15	0.00	381.80	
	17.70	CY	SIWRC	4,434	56	2,268	0	6,758	381.80
02_03.18.15_ 03_023. LAMAR (STA 106) 15" SLUICE GATE									
02000 0000 Site Work									
02500 0000 Site Drainage									
02520 0000 Storm Drains									
USR A2 <02520 0002 > 15" SLUICE GATE VALVE				513.51	6.50	1000.00	0.00	1520.00	
	1.00	EA	SIWRC	514	6	1,000	0	1,520	1520.00
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.20	0.00	0.25	0.00	0.45	
	3440.00	LB	SIWRC	688	9	860	0	1,557	0.45
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(GATE RISER)				250.48	3.17	128.15	0.00	381.80	
	17.20	CY	SIWRC	4,308	54	2,204	0	6,567	381.80

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.15_ 03_024. LAMAR (STA 117 48" SLUICE GATE									
02000 0000 Site Work									
02500 0000 Site Drainage									
02520 0000 Storm Drains									
USR A2 <02520 0002 > 48" SLUICE GATE VALVE				3433.94	43.44	6700.00	0.00	10177.37	
	1.00	EA	SIWRC	3,434	43	6,700	0	10,177	10177
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.20	0.00	0.25	0.00	0.45	
	10600	LB	SIWRC	2,120	27	2,650	0	4,797	0.45
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(GATE RISER)				241.03	3.05	128.15	0.00	372.23	
	53.00	CY	SIWRC	12,775	162	6,792	0	19,728	372.23
02_03.18.15_ 03_025. LAMAR (STA 25) 54" SLUICE/FLAP									
02000 0000 Site Work									
02500 0000 Site Drainage									
02520 0000 Storm Drains									
USR A2 <02520 0002 > 54" SLUICE GATE VALVE & FLAP GAT				5607.94	70.94	11300.00	0.00	16978.88	
	1.00	EA	SIWRC	5,608	71	11,300	0	16,979	16979
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.21	0.00	0.25	0.00	0.46	
	2340.00	LB	SIWRC	486	6	585	0	1,078	0.46
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(GATE RISER)				241.03	3.05	128.15	0.00	372.23	
	11.70	CY	SIWRC	2,820	36	1,499	0	4,355	372.23
02_03.18.15_ 03_026. LAMAR (STA 47) 48" SLUICE/FLAP									
02000 0000 Site Work									
02500 0000 Site Drainage									
02520 0000 Storm Drains									
USR A2 <02520 0002 > 48" SLUICE GATE VALVE				3302.98	41.78	6700.00	0.00	10044.76	
	1.00	EA	SIWRC	3,303	42	6,700	0	10,045	10045
USR A2 <02520 0003 > 48" FLAP GATE				1630.76	20.63	3350.00	0.00	5001.39	
	1.00	EA	SIWRC	1,631	21	3,350	0	5,001	5001.39

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.21	0.00	0.25	0.00	0.46	
	2340.00	LB	SIWRC	486	6	585	0	1,078	0.46
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(GATE RISER)				250.48	3.17	128.15	0.00	381.80	
	11.70	CY	SIWRC	2,931	37	1,499	0	4,467	381.80
02_03.18.15_ 03_029. LAMAR (STA 77+50) 60" SLUICE/FLP									
02000 0000 Site Work									
02500 0000 Site Drainage									
02520 0000 Storm Drains									
USR A2 <02520 0002 > 60" SLUICE GATE VALVE & FLAP GAT				6186.54	78.25	12555.00	0.00	18819.79	
	1.00	EA	SIWRC	6,187	78	12,555	0	18,820	18820
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.21	0.00	0.25	0.00	0.46	
	7400.00	LB	SIWRC	1,538	19	1,850	0	3,408	0.46
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(GATE RISER)				241.03	3.05	128.15	0.00	372.23	
	37.00	CY	SIWRC	8,918	113	4,742	0	13,773	372.23
02_03.18.15_ 03_030. LAMAR (STA 24+60) 8' SLUICE GATE									
02000 0000 Site Work									
02500 0000 Site Drainage									
02520 0000 Storm Drains									
USR A2 <02520 0002 > 8'x7' SLUICE GATE				1435.55	18.16	4370.00	0.00	5823.71	
	1.00	EA	SIWRC	1,436	18	4,370	0	5,824	5823.71
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.20	0.00	0.25	0.00	0.45	
	11900	LB	SIWRC	2,380	30	2,975	0	5,385	0.45
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(GATE RISER)				241.03	3.05	128.15	0.00	372.23	
	59.40	CY	SIWRC	14,317	181	7,612	0	22,111	372.23

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.15_ 03_031. LAMAR (STA 134) 7'x7' BoX CULV									
02000 0000 Site Work									
02500 0000 Site Drainage									
02520 0000 Storm Drains									
USR A2 <02520 0002 > 7'x7' SLUICE GATE				1350.96	17.09	4300.00	0.00	5668.05	
	1.00	EA	SIWRC	1,351	17	4,300	0	5,668	5668.05
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.20	0.00	0.25	0.00	0.45	
	11900	LB	SIWRC	2,380	30	2,975	0	5,385	0.45
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(GATE RISER)				241.03	3.05	128.15	0.00	372.23	
	59.40	CY	SIWRC	14,317	181	7,612	0	22,111	372.23
02_03.18.15_ 03_032. LAMAR LEVEE (STA 119) 66" SLUICE									
02000 0000 Site Work									
02500 0000 Site Drainage									
02520 0000 Storm Drains									
USR A2 <02520 0002 > 66" SLUICE GATE VALVE				4610.00	0.00	9210.00	0.00	13820.00	
	1.00	EA		4,610	0	9,210	0	13,820	13820
USR A2 <02520 0003 > 66" FLAP VALVE				2305.00	0.00	9605.00	0.00	11910.00	
	1.00	EA		2,305	0	9,605	0	11,910	11910
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.20	0.00	0.25	0.00	0.45	
	9240.00	LB	SIWRC	1,848	23	2,310	0	4,181	0.45
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(GATE RISER)				241.03	3.05	128.15	0.00	372.23	
	46.20	CY	SIWRC	11,136	141	5,921	0	17,197	372.23
02_03.18.15_ 03_033. LAMAR (STA 27) 12" SLUICE GATE									
02000 0000 Site Work									
02500 0000 Site Drainage									
02520 0000 Storm Drains									
USR A2 <02520 0002 > 12" SLUICE GATE VALVE & FLAP GAT				411.56	5.21	800.00	0.00	1216.77	
	1.00	EA	SIWRC	412	5	800	0	1,217	1216.77

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.21	0.00	0.25	0.00	0.46	
	2340.00	LB	SIWRC	486	6	585	0	1,078	0.46
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(GATE RISER)				241.03	3.05	128.15	0.00	372.23	
	11.70	CY	SIWRC	2,820	36	1,499	0	4,355	372.23
02_03.18.15_ 03_034. CAD (STA 66+00) 10" GATE VALVE									
02000 0000 Site Work									
02550 0000 Site Utilities									
02555 0000 Water Distribution Lines									
02555 3000 Cast Iron Gate Valves With Boxes									
B MIL A2 <02555 3004 > 10"(25cm) Cast Iron Gate Valve				255.97	89.08	690.00	0.00	1035.05	
Includes Box	1.00	EA	XXPLB	256	89	690	0	1,035	1035.05
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.20	0.00	0.25	0.00	0.45	
	2055.00	LB	SIWRC	411	5	514	0	930	0.45
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE(GATE VALVE RISER)				241.03	3.05	128.15	0.00	372.23	
	13.70	CY	SIWRC	3,302	42	1,756	0	5,100	372.23
02_03.18.15_ 03_035. CAD (STA 75+80) 12" GATE VALVE									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
02555 3000 Cast Iron Gate Valves With Boxes									
B MIL A2 <02555 3005 > 12"(31cm) Cast Iron Gate Valve				300.00	104.41	800.00	0.00	1204.41	
Includes Box	1.00	EA	XXPLB	300	104	800	0	1,204	1204.41
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.21	0.00	0.25	0.00	0.46	
	2820.00	LB	SIWRC	586	7	705	0	1,299	0.46
USR A2 <03311 0001 > CONCRETE(GATE VALVE RISER)				241.03	3.05	128.15	0.00	372.23	
	14.10	CY	SIWRC	3,399	43	1,807	0	5,248	372.23

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02_03. Cemetery, Utilities, & Structure	QUANTY UOM CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.16. Electrical							
02_03.18.16_99A. ELECTRICAL TOWER - 138 KV							
03000 0000 Concrete							
USR A2 <16000 0001 > ELECTRICAL TOWER		0.00	0.00	0.00	30000.00	30000.00	
	1.00 LS	0	0	0	30,000	30,000	30000
02_03.18.16_99B. FIBER OPTICS - CADILLAC HTS							
16000 0000 Electrical							
16700 0000 Communications							
16795 0000 Fiber Optics Cable And Accessories For Data							
16795 1000 Fiber Optic Cable 62.5 Microns							
16795 1000 Basic Cost Items							
B MIL EL <16795 1003 > Fib Optic Outdoor Aerial/Duct Ca		0.57	0.00	1.50	0.00	2.07	
ASSUME Direct Burial	100.00 LF EELEB	57	0	150	0	207	2.07
02_03.18.16_99C. FIBER OPTICS - LAMAR LEVEE							
16000 0000 Electrical							
16700 0000 Communications							
16795 0000 Fiber Optics Cable And Accessories For Data							
16795 1000 Fiber Optic Cable 62.5 Microns							
16795 1000 Basic Cost Items							
B MIL EL <16795 1003 > Fib Optic Outdoor Aerial/Duct Ca		0.57	0.00	1.50	0.00	2.07	
ASSUME Direct Burial	100.00 LF EELEB	57	0	150	0	207	2.07
02_03.18.16_99D. CAD (STA 97+50) 8" SS DEMO PIPE							
02000 0000 Site Work							
02200 0000 Earthwork							
02221 0000 Trenching, Backfilling, And Compaction							
02221 1000 Trenching And Continuous Footing Excavation							
02221 1600 By Hydraulic Excav. - 2 Cy							
L MIL A2 <02221 1602 > Trench, 2 CY Hyd Excav, Med Soil		3.10	6.46	0.00	0.00	9.56	
192 CY/Hr (147M3)	70.00 CY CODET	217	452	0	0	669	9.56
02000 0000 Site Work							
02450 0000 Utility Pipelines							
02464 0000 Plastic Pipe							
02464 1000 Drainage Pipe							
USR A2 <02464 1003 > 8"(21cm) DEMO SS		1.95	1.44	0.00	0.00	3.39	
Truss Type	100.00 LF XTBCA	195	144	0	0	339	3.39

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.16_99E. CAD (STA 44+00) WOOD POWER POLE									
16400 0000 Service And Distribution									
16413 0000 Pole Line Construction									
16413 1000 Wood Pole, Class 3, Yellow Pine Penta-Treated									
16413 1000 Basic Cost Items									
16413 1000 Basic Cost Items									
MIL EL <16413 1003 > Wood Pole, Cl 3,Pine,Treated,35' (10.7M),Machine Dig & Set	2.00	EA	EELEJ	183.16	38.28	810.33	0.00	1031.77	
				366	77	1,621	0	2,064	1031.77
16413 0000 Pole Line Construction									
16413 2000 Wood Crossarm, Complete With All Hardware And									
16413 2100 Single Arm Construction									
MIL EL <16413 2101 > 3-1/2"x 4-1/2"x 5'7",Single Arm Wood Crossarm,w/Hardware &Braces	2.00	EA	EELEJ	37.09	7.75	93.75	0.00	138.60	
				74	16	188	0	277	138.60
16413 0000 Pole Line Construction									
16413 3000 Guying									
16413 3100 Down Guy									
MIL EL <16413 3101 > Down Guy for 25'To 40' Pole	2.00	EA	EELEJ	146.77	30.68	50.00	0.00	227.45	
				294	61	100	0	455	227.45
02_03.18.16_99F. CAD (STA 45+00) WOOD POWER POLE									
16400 0000 Service And Distribution									
16413 0000 Pole Line Construction									
16413 3000 Guying									
16413 3100 Down Guy									
16413 1000 Basic Cost Items									
MIL EL <16413 1003 > Wood Pole, Cl 3,Pine,Treated,35' (10.7M),Machine Dig & Set	1.00	EA	EELEJ	183.16	38.28	810.33	0.00	1031.77	
				183	38	810	0	1,032	1031.77
16413 0000 Pole Line Construction									
16413 2000 Wood Crossarm, Complete With All Hardware And									
16413 2100 Single Arm Construction									
MIL EL <16413 2101 > 3-1/2"x 4-1/2"x 5'7",Single Arm Wood Crossarm,w/Hardware &Braces	1.00	EA	EELEJ	37.09	7.75	93.75	0.00	138.60	
				37	8	94	0	139	138.60
16413 0000 Pole Line Construction									
16413 3000 Guying									
16413 3100 Down Guy									
MIL EL <16413 3101 > Down Guy for 25'To 40' Pole	1.00	EA	EELEJ	146.77	30.68	50.00	0.00	227.45	
				147	31	50	0	227	227.45

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.18.16_99G. CAD (STA 47+70) WOOD POWER POLE									
16400 0000 Service And Distribution									
16413 0000 Pole Line Construction									
16413 3000 Guying									
16413 3100 Down Guy									
16413 1000 Basic Cost Items									
MIL EL <16413 1003 > Wood Pole, Cl 3,Pine,Treated,35' (10.7M),Machine Dig & Set	1.00	EA	EELEJ	183.16	38.28	810.33	0.00	1031.77	
				183	38	810	0	1,032	1031.77
16413 0000 Pole Line Construction									
16413 2000 Wood Crossarm, Complete With All Hardware And									
16413 2100 Single Arm Construction									
MIL EL <16413 2101 > 3-1/2"x 4-1/2"x 5'7",Single Arm Wood Crossarm,w/Hardware &Braces	1.00	EA	EELEJ	37.09	7.75	93.75	0.00	138.60	
				37	8	94	0	139	138.60
16413 0000 Pole Line Construction									
16413 3000 Guying									
16413 3100 Down Guy									
MIL EL <16413 3101 > Down Guy for 25'To 40' Pole	1.00	EA	EELEJ	146.77	30.68	50.00	0.00	227.45	
				147	31	50	0	227	227.45
02_03.18.16_99H. CAD (STA 66) REOCATE 4-WIRE ELE									
USR A2 < > REMOVE 4-WIRE AERIAL	600.00	LF		1.51	0.34	0.00	0.00	1.85	
				906	204	0	0	1,110	1.85
16000 0000 Electrical									
16050 0000 Basic Materials And Methods									
16120 0000 Wire And Cable									
16120 3000 15 Kv Cable									
16120 3340 15KV Non-Shielded Single Conductor									
L AF A2 <16120 3342 > Copper, 3/0 15KV Non-Shielded	0.60	MLF	EELEJ	6648.87	1389.60	4000.00	0.00	12038.47	
				3,989	834	2,400	0	7,223	12038
02_03.18.16_99I. CAD (STA 61+50) WOOD POWER POLE									
16050 0000 Basic Materials And Methods									
16120 0000 Wire And Cable									
16120 3000 15 Kv Cable									
16120 3340 15KV Non-Shielded Single Conductor									
16413 1000 Basic Cost Items									
MIL EL <16413 1003 > Wood Pole, Cl 3,Pine,Treated,35' (10.7M),Machine Dig & Set	2.00	EA	EELEJ	183.16	38.28	810.33	0.00	1031.77	
				366	77	1,621	0	2,064	1031.77

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
16000 0000 Electrical									
16400 0000 Service And Distribution									
16413 0000 Pole Line Construction									
16413 2000 Wood Crossarm, Complete With All Hardware And									
16413 2100 Single Arm Construction									
MIL EL <16413 2101 > 3-1/2"x 4-1/2"x 5'7",Single Arm Wood Crossarm,w/Hardware &Braces	2.00	EA	EELEJ	37.09 74	7.75 16	93.75 188	0.00 0	138.60 277	138.60
16413 0000 Pole Line Construction									
16413 3000 Guying									
16413 3100 Down Guy									
MIL EL <16413 3101 > Down Guy for 25'To 40' Pole	2.00	EA	EELEJ	146.77 294	30.68 61	50.00 100	0.00 0	227.45 455	227.45
TOTAL Utilities				953,340	623,411	1,195,079	30,000	2,801,829	
02_03.47. Structures									
02_03.47.03. Concrete									
02_03.47.03_ 01. Concrete									
02_03.47.03_ 01_009. CADILLAC (STA 120+00) HEADWALL									
02000 0000 Site Work									
02260 0000 Slope Protection									
02261 0000 Rip Rap									
02261 1000 Random - Filter Stone Dumped From Trucks -									
B MIL A2 <02261 1002 > 24" Rip Rap	38.50	CY	COETF	7.98 307	6.64 256	27.60 1,063	0.00 0	42.22 1,625	42.22
L MIL A2 <02261 1002 > BEDDING	14.60	CY	COETF	6.28 92	5.23 76	23.02 336	0.00 0	34.53 504	34.53
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE HEADWALL	10.70	CY	SIWRC	367.86 3,936	4.65 50	124.75 1,335	0.00 0	497.27 5,321	497.27
02_03.47.03_ 01_010. CADILLAC (STA 120+00) C & G									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02620 0000 Curbs And Gutters									
02620 2000 Curb And Gutter Combined									

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
B MIL A2 <02620 2001 > 6" x 24" Conc Gutter w/6" Curb				4.43	0.57	2.80	0.00	7.80	
Formwork, Rebar, and Finishing	1000.00	LF	XCBGA	4,432	571	2,800	0	7,803	7.80
02_03.47.03_ 01_011. CADILLAC (STA 112+00) HEADWALL									
02000 0000 Site Work									
02260 0000 Slope Protection									
02261 0000 Rip Rap									
02261 1000 Random - Filter Stone Dumped From Trucks -									
B MIL A2 <02261 1002 > 24" Rip Rap				8.00	6.65	27.60	0.00	42.25	
	25.90	CY	COETF	207	172	715	0	1,094	42.25
B MIL A2 <02261 1002 > BEDDING				6.28	5.23	23.05	0.00	34.56	
	9.80	CY	COETF	62	51	226	0	339	34.56
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE HEADWALL				367.86	4.65	124.75	0.00	497.27	
	3.70	CY	SIWRC	1,361	17	462	0	1,840	497.27
02_03.47.03_ 01_012. CADILLAC (STA 111+00) HEADWALL									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE HEADWALL				367.86	4.65	124.75	0.00	497.27	
	21.90	CY	SIWRC	8,056	102	2,732	0	10,890	497.27
02_03.47.03_ 01_013. CADILLAC (STA 111+00) C & G									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02620 0000 Curbs And Gutters									
02620 2000 Curb And Gutter Combined									
B MIL A2 <02620 2001 > 6" x 24" Conc Gutter w/6" Curb				4.43	0.57	2.80	0.00	7.80	
Formwork, Rebar, and Finishing	1400.00	LF	XCBGA	6,202	799	3,920	0	10,921	7.80
02_03.47.03_ 01_014. CADILLAC (STA 91+00) HEADWALL									
02000 0000 Site Work									
02260 0000 Slope Protection									
02261 0000 Rip Rap									
02261 1000 Random - Filter Stone Dumped From Trucks -									

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
B MIL A2 <02261 1002 > 24" Rip Rap				7.98	6.64	27.60	0.00	42.22	
	38.50	CY	COETF	307	256	1,063	0	1,625	42.22
B MIL A2 <02261 1002 > BEDDING				6.30	5.24	23.05	0.00	34.59	
	14.60	CY	COETF	92	77	337	0	505	34.59
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE HEADWALL				354.00	4.48	124.75	0.00	483.23	
	10.70	CY	SIWRC	3,788	48	1,335	0	5,171	483.23
02_03.47.03_ 01_015. CADILLAC (STA 91+00) C & G									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02620 0000 Curbs And Gutters									
02620 2000 Curb And Gutter Combined									
B MIL A2 <02620 2001 > 6" x 24" Conc Gutter w/6" Curb Formwork, Rebar, and Finishing	1000.00	LF	XCBGA	4.43 4,430	0.57 571	2.80 2,800	0.00 0	7.80 7,801	7.80
02_03.47.03_ 01_016. CADILLAC (STA 10+00) HEADWALL									
02000 0000 Site Work									
02260 0000 Slope Protection									
02261 0000 Rip Rap									
02261 1000 Random - Filter Stone Dumped From Trucks -									
B MIL A2 <02261 1002 > 24" Rip Rap				7.98	6.64	27.60	0.00	42.22	
	47.20	CY	COETF	377	313	1,303	0	1,993	42.22
B MIL A2 <02261 1002 > BEDDING				6.30	5.24	23.05	0.00	34.59	
	17.90	CY	COETF	113	94	413	0	619	34.59
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE HEADWALL				354.00	4.48	124.75	0.00	483.23	
	14.10	CY	SIWRC	4,991	63	1,759	0	6,813	483.23
02_03.47.03_ 01_026. LAMAR (STA 47+00) HEADWALL									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
02261 1000 Random - Filter Stone Dumped From Trucks -									

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
B MIL A2 <02261 1002 > 24" Rip Rap				7.98	6.64	27.60	0.00	42.22	
	43.50	CY	COETF	347	289	1,201	0	1,836	42.22
B MIL A2 <02261 1002 > BEDDING				6.30	5.24	23.05	0.00	34.59	
	16.50	CY	COETF	104	86	380	0	571	34.59
USR A2 <03311 0001 > CONCRETE HEADWALL				354.00	4.48	124.75	0.00	483.23	
	11.60	CY	SIWRC	4,106	52	1,447	0	5,605	483.23
02_03.47.03_ 01_029. LAMAR (STA 77+50) HEADWALL									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
02261 1000 Random - Filter Stone Dumped From Trucks -									
B MIL A2 <02261 1002 > 24" Rip Rap				7.98	6.64	27.60	0.00	42.22	
	50.90	CY	COETF	406	338	1,405	0	2,149	42.22
B MIL A2 <02261 1002 > BEDDING				6.30	5.24	23.05	0.00	34.59	
	19.30	CY	COETF	122	101	445	0	668	34.59
USR A2 <03311 0001 > CONCRETE HEADWALL				354.00	4.48	124.75	0.00	483.23	
	16.50	CY	SIWRC	5,841	74	2,058	0	7,973	483.23
02_03.47.03_ 01_030. LAMAR 24+60 - 8'Box Culv W/Demo									
02000 0000 Site Work									
02110 0000 Demolition									
02112 0000 Selective Demolition									
USR A2 <02112 0001 > REMOVE CONCRETE BOX CULVERT				18.60	15.47	0.00	0.00	34.07	
	201.00	CY	COETF	3,739	3,110	0	0	6,849	34.07
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > 8'x8' BOX CULVERT				157.99	2.00	85.79	0.00	245.77	
	274.00	CY	SIWRC	43,288	548	23,506	0	67,342	245.77
02_03.47.03_ 01_031. LAMAR (STA 134) 7'BX CULV/RipRap									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
02261 1000 Random - Filter Stone Dumped From Trucks -									
B MIL A2 <02261 1002 > 24" Rip Rap				8.00	6.65	27.60	0.00	42.25	
	54.90	CY	COETF	439	365	1,515	0	2,320	42.25

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
B MIL A2 <02261 1002 > BEDDING				6.30	5.24	23.05	0.00	34.59	
	20.90	CY	COETF	132	110	482	0	723	34.59
USR A2 <03311 0001 > 7'x7' BOX CULVERT 600LF				157.99	2.00	85.79	0.00	245.77	
W/3'FILL	378.00	CY	SIWRC	59,719	755	32,429	0	92,903	245.77
USR A2 <03311 0001 > WINGWALLS				166.70	2.11	85.79	0.00	254.60	
W/29' FILL	19.50	CY	SIWRC	3,251	41	1,673	0	4,965	254.60
USR A2 <03311 0001 > 7'x7' BOX CULVERT 300LF				157.99	2.00	77.56	0.00	237.54	
W/29' FILL	231.00	CY	SIWRC	36,495	462	17,916	0	54,873	237.54
02_03.47.03_ 01_032. LAMAR LEVEE (STA 119+00) HOWALL									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
02261 1000 Random - Filter Stone Dumped From Trucks -									
B MIL A2 <02261 1002 > 24" Rip Rap				7.98	6.64	27.60	0.00	42.22	
	54.00	CY	COETF	431	358	1,490	0	2,280	42.22
B MIL A2 <02261 1002 > BEDDING				6.30	5.24	23.05	0.00	34.59	
	21.00	CY	COETF	132	110	484	0	726	34.59
USR A2 <03311 0001 > CONCRETE HEADWALL				354.00	4.48	124.75	0.00	483.23	
	19.20	CY	SIWRC	6,797	86	2,395	0	9,278	483.23
02_03.47.03_ 02. Reinforcing Steel									
02_03.47.03_ 02_030. LAMAR (STA 24+60) 8'x8' BOX CULV									
03000 0000 Concrete									
03200 0000 Concrete Reinforcement									
03210 0000 Reinforcing Steel									
03210 2000 Beams, Columns And Walls									
03210 2000 Basic Cost Items									
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.21	0.00	0.25	0.00	0.46	
	58944	LB	SIWRC	12,254	153	14,736	0	27,144	0.46
02_03.47.03_ 02_031. LAMAR (STA 134+00) 7'x7' BX CULV									
03000 0000 Concrete									
03200 0000 Concrete Reinforcement									
03210 0000 Reinforcing Steel									
03210 2000 Beams, Columns And Walls									
03210 2000 Basic Cost Items									

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.21	0.00	0.25	0.00	0.46	
FOR 600' LENGTH	67100	LB	SIWRC	13,950	174	16,775	0	30,900	0.46
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.21	0.00	0.25	0.00	0.46	
FOR WINGWALLS	1950.00	LB	SIWRC	405	5	488	0	898	0.46
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6				0.21	0.00	0.25	0.00	0.46	
FOR 300' LENGTH	58860	LB	SIWRC	12,237	153	14,715	0	27,105	0.46
02_03.47.03_99A. Service Bridge									
02_03.47.03_99A_001. CADILLAC (STA 94+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_002. CADILLAC (STA 102+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_003. CADILLAC (STA 112+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_005. CADILLAC (STA 34+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.47.03_99A_006. CADILLAC (STA 81+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_007. CADILLAC (STA 43+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_008. CADILLAC (STA 26+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_009. CADILLAC (STA 66+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_011. CADILLAC (STA 112+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_012. CADILLAC (STA 111+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_013. CADILLAC (STA 111+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_015. CADILLAC (STA 75+80)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_021. LAMAR (STA 70+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_022. LAMAR (STA 90+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_023. LAMAR (STA 106+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02_03.47.03_99A_024. LAMAR (STA 117+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_025. LAMAR (STA 25+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_026. LAMAR (STA 47+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_029. LAMAR (STA 77+50)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_030. LAMAR (STA 24+60)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_031. LAMAR (STA 134+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									

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02_03. Cemetery, Utilities, & Structure	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_032. LAMAR LEVEE (STA 119+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
02_03.47.03_99A_033. LAMAR (STA 27+00)									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0002 > SERVICE BRIDGE				57.17	0.72	29.25	0.00	87.15	
	110.00	SF	SIWRC	6,289	80	3,218	0	9,586	87.15
TOTAL Structures				387,598	12,716	232,139	0	632,453	
TOTAL Cemetery, Utilities, & Structure				1340937	636,126	1,427,218	30,000	3,434,281	
TOTAL Relocations				1340937	636,126	1,427,218	30,000	3,434,281	

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06_03. Wildlife Facilities & Sanctuary	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06. Fish and Wildlife Facilities									
06_03. Wildlife Facilities & Sanctuary									
06_03.71. Fences									
06_03.71.02. Site Work									
06_03.71.02_ 01. Barbed Wire Fence									
06_03.71.02_ 01_001. Barbed Wire Fence									
02000 0000 Site Work									
02700 0000 Site Improvements									
02712 0000 Wire And Misc Metal Fences									
02712 4000 Barbed Wire Fences									
02712 4300 Barbed Wire Fence (Based On Post At 10 Ft Ctrs.,									
B MIL A2 <02712 4301 > Barbed Wire, Std 3 Strand Fence	31680	LF	ULABL	0.70 22,100	0.24 7,682	1.06 33,581	0.00 0	2.00 63,363	2.00
TOTAL Fences				22,100	7,682	33,581	0	63,363	
06_03.72. Signs									
06_03.72.02. Site Work									
06_03.72.02_ 01. Signs									
TOTAL Signs				0	0	0	10,000	10,000	
TOTAL Signs				0	0	0	10,000	10,000	
06_03.73. Habitat and Feeding Facilities									
06_03.73.02. Site Work									
06_03.73.02_ 01. Trees									
TOTAL SELECTIVE THINNING (IMP)	463.00	AC		0	0	0	37,040	37,040	80.00
TOTAL MAST TREES (IMP)	1175.00	EA		0	0	0	35,250	35,250	30.00
TOTAL TREE PLANTING W/SITE PREP (IMP)	1175.00	EA		0	0	0	35,250	35,250	30.00
TOTAL SHEAR,RAKE, PILE & BED (IMP	50.00	AC		0	0	0	8,000	8,000	160.00
TOTAL 300 TREES/150 SEEDLINGS PER ACRE	233.00	AC		0	0	0	69,900	69,900	300.00

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06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.73.02_ 02. Shrubs										
	TOTAL SHREDDING/DISKING (CONV)	233.00	AC		0	0	0	9,320	9,320	40.00
06_03.73.06. Wood and Plastic										
06_03.73.06_ 01. Wood Feeders										
	TOTAL PASSERINE NEST BOXES (IMP)	270.00	EA		0	0	0	8,100	8,100	30.00
	TOTAL PASSERINE NEST BOXES (IMP)	233.00	EA		0	0	0	6,990	6,990	30.00
	TOTAL Habitat and Feeding Facilities				0	0	0	209,850	209,850	
	TOTAL Wildlife Facilities & Sanctuary				22,100	7,682	33,581	219,850	283,213	
	TOTAL Fish and Wildlife Facilities				22,100	7,682	33,581	219,850	283,213	

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09_01. Channels	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
09. Channels and Canals									
09_01. Channels									
09_01.99. Associated General Items									
09_01.99.02. Site Work									
09_01.99.02_ 03. Pipe Drains:									
09_01.99.02_ 03_001. OTLT STR - DNSTRM WTLNDS-EXC									
02000 0000 Site Work									
02200 0000 Earthwork									
02226 0000 Site Excavation And Fill									
02226 1000 Excavation By Dozer Moved 150 Ft (45M) And									
L MIL A2 <02226 1004 > Exc & Fill, D-8K Dozer w/U-Blade 300 HP; EXCAVATION	12160	CY	CODTK	0.38 4,663	1.37 16,652	0.00 0	0.00 0	1.75 21,315	1.75
L MIL A2 <02226 1004 > Exc & Fill, D-8K Dozer w/U-Blade 300 HP; FILL	11580	CY	CODTK	0.55 6,356	1.96 22,699	0.00 0	0.00 0	2.51 29,055	2.51
02000 0000 Site Work									
02450 0000 Utility Pipelines									
02452 0000 Reinforced Concrete Pipe									
02452 1000 Reinforced Conc. Pipe Class 3 Without Gaskets									
02452 1000 Reinforced Class III Concrete Pipe									
B MIL A2 <02452 1006 > 36"(91cm) Dia Cl III Conc Pipe Reinforced without Gaskets	2120.00	LF	UOEHC	7.00 14,833	2.46 5,212	33.15 70,278	0.00 0	42.61 90,323	42.61
09_01.99.02_ 03_002. SD BOXES - DNSTREAM WETLANDS									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > STORM DRAIN BOXES (CONC, STEEL, COVER)	8.00	CY		542.00 4,336	0.00 0	308.00 2,464	0.00 0	850.00 6,800	850.00
09_01.99.02_ 03_003. 18" RIPRAP - DNSTREAM WETLANDS									
02000 0000 Site Work									
02260 0000 Slope Protection									
02261 0000 Rip Rap									
02261 1000 Random - Filter Stone Dumped From Trucks -									
B MIL A2 <02261 1002 > Rip Rap, 10# to 100# Pieces Random, Dumped from Truck	950.00	SY	COETF	7.94 7,546	6.61 6,277	27.60 26,220	0.00 0	42.15 40,042	42.15

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09_01. Channels	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
09_01.99.02_ 03_004. FILTER FABRIC - DNSTREAM WETLAND									
02000 0000 Site Work									
02500 0000 Site Drainage									
02512 0000 Underslab Drainage									
B MIL A2 <02512 2001 > Plastic Filter Fabric				0.82	0.52	1.35	0.00	2.69	
Underground Drain Lines	950.00	SY	ULABF	782	490	1,283	0	2,555	2.69
09_01.99.02_ 03_005. 18" RIPRAP - INLET UPPER WETLAND									
02000 0000 Site Work									
02500 0000 Site Drainage									
02512 0000 Underslab Drainage									
02261 1000 Random - Filter Stone Dumped From Trucks -									
B MIL A2 <02261 1002 > Rip Rap, 10# to 100# Pieces				7.94	6.61	27.60	0.00	42.15	
Random, Dumped from Truck	504.00	SY	COETF	4,003	3,330	13,910	0	21,244	42.15
09_01.99.02_ 03_006. 18" RIPRAP - OUTLT UPPER WETLAND									
02000 0000 Site Work									
02500 0000 Site Drainage									
02512 0000 Underslab Drainage									
02261 1000 Random - Filter Stone Dumped From Trucks -									
B MIL A2 <02261 1002 > Rip Rap, 10# to 100# Pieces				7.94	6.61	27.60	0.00	42.15	
Random, Dumped from Truck	417.00	SY	COETF	3,312	2,755	11,509	0	17,577	42.15
09_01.99.02_ 03_007. 18" RIPRAP - OUTFALL CEDER CREEK									
02000 0000 Site Work									
02500 0000 Site Drainage									
02512 0000 Underslab Drainage									
02261 1000 Random - Filter Stone Dumped From Trucks -									
B MIL A2 <02261 1002 > Rip Rap, 10# to 100# Pieces				7.94	6.61	27.60	0.00	42.15	
Random, Dumped from Truck	291.00	SY	COETF	2,311	1,923	8,032	0	12,266	42.15
09_01.99.02_ 03_008. 36" RCP UPPER WETLANDS									
02000 0000 Site Work									
02500 0000 Site Drainage									
02512 0000 Underslab Drainage									
02261 1000 Random - Filter Stone Dumped From Trucks -									
02452 1000 Reinforced Class III Concrete Pipe									
B MIL A2 <02452 1006 > 36"(91cm) Dia Cl III Conc Pipe				24.54	8.62	33.15	0.00	66.32	
Reinforced without Gaskets	1880.00	LF	UOEHC	46,137	16,213	62,322	0	124,672	66.32

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09_01. Channels	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
09_01.99.02_ 06. Seeding									
09_01.99.02_ 06_002. TURFING - UPPER WETLANDS									
02000 0000 Site Work 02800 0000 Landscaping 02810 0000 Seeding									
USR A2 <02810 0001 > TURFING				1735.00	0.00	665.00	0.00	2400.00	
	33.00	AC		57,255	0	21,945	0	79,200	2400.00
09_01.99.02_ 06_005. TURFING - DOWNSTREAM WETLANDS									
02000 0000 Site Work 02800 0000 Landscaping									
USR A2 <02800 0001 > TURFING				1735.00	0.00	665.00	0.00	2400.00	
	69.00	AC		119,715	0	45,885	0	165,600	2400.00
09_01.99.02_ 10. Excavation and Embankment:									
09_01.99.02_ 10_CCC. EXC,HAUL,WASTE (FLD CTRL) LOWER*									
02000 0000 Site Work 02200 0000 Earthwork 02226 0000 Site Excavation And Fill 02226 2000 Excavation By Push Loaded ScrapEr Choose 02226 2500 Sp Scraper Cap. 35 Bcy (26.6Bm3)									
L MIL A2 <02226 2513 > Excav w/Push Loaded SP Scraper 35 BCY, 4.5 Cycles Per Hour	199571	CY	CODSK	0.98 195,061	3.54 705,643	0.00 0	0.00 0	4.51 900,704	4.51
09_01.99.02_ 10_CCD. EXC,HAUL,WASTE (ENV REST) LOWER*									
02000 0000 Site Work 02200 0000 Earthwork 02226 0000 Site Excavation And Fill 02226 2000 Excavation By Push Loaded ScrapEr Choose 02226 2500 Sp Scraper Cap. 35 Bcy (26.6Bm3)									
L MIL A2 <02226 2513 > Excav w/Push Loaded SP Scraper 35 BCY, 4.5 Cycles Per Hour	314285	CY	CODSK	0.98 307,182	3.54 1,111,249	0.00 0	0.00 0	4.51 1,418,431	4.51
09_01.99.02_ 10_CCF. EXC,HAUL,WASTE (FLD CTRL) IH-45									
02000 0000 Site Work 02200 0000 Earthwork 02226 0000 Site Excavation And Fill 02226 2000 Excavation By Push Loaded ScrapEr Choose 02226 2500 Sp Scraper Cap. 35 Bcy (26.6Bm3)									

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09_01. Channels	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
L MIL A2 <02226 2513 > Excav w/Push Loaded SP Scraper				0.98	3.54	0.00	0.00	4.51	
35 BCY, 4.5 Cycles Per Hour	217852	CY	CODSK	212,929	770,281	0	0	983,210	4.51
09_01.99.02_ 10_CCH. EXC,HAUL (FLD CTRL) LOWER SWALE*									
02000 0000 Site Work									
02200 0000 Earthwork									
02226 0000 Site Excavation And Fill									
02226 2000 Excavation By Push Loaded ScrapEr Choose									
02226 2500 Sp Scraper Cap. 35 Bcy (26.6Bm3)									
L MIL A2 <02226 2513 > Excav w/Push Loaded SP Scraper				0.46	1.66	0.00	0.00	2.12	
35 BCY, 4.5 Cycles Per Hour	533762	CY	CODSK	244,943	886,045	0	0	1,130,988	2.12
09_01.99.02_ 10_DDD. EXC,HAUL (FLD CTRL) UPPER SWALE*									
02000 0000 Site Work									
02200 0000 Earthwork									
02226 0000 Site Excavation And Fill									
02226 2000 Excavation By Push Loaded ScrapEr Choose									
02226 2500 Sp Scraper Cap. 35 Bcy (26.6Bm3)									
L MIL A2 <02226 2513 > Excav w/Push Loaded SP Scraper				0.44	1.59	0.00	0.00	2.03	
35 BCY, 4.5 Cycles Per Hour	518491	CY	CODSK	228,032	824,815	0	0	1,052,848	2.03
09_01.99.02_ 10_DDE. EXC,HAUL (FLD CTRL) IH-45									
02000 0000 Site Work									
02200 0000 Earthwork									
02226 0000 Site Excavation And Fill									
02226 2000 Excavation By Push Loaded ScrapEr Choose									
02226 2500 Sp Scraper Cap. 35 Bcy (26.6Bm3)									
L MIL A2 <02226 2513 > Excav w/Push Loaded SP Scraper				0.44	1.59	0.00	0.00	2.03	
35 BCY, 4.5 Cycles Per Hour	69365	CY	CODSK	30,507	110,346	0	0	140,853	2.03
09_01.99.02_ 10_DDL. EXC,HAUL,WASTE(ENV REST) UPPER *									
02000 0000 Site Work									
02200 0000 Earthwork									
02226 0000 Site Excavation And Fill									
02226 2000 Excavation By Push Loaded ScrapEr Choose									
02226 2500 Sp Scraper Cap. 35 Bcy (26.6Bm3)									
L MIL A2 <02226 2513 > Excav w/Push Loaded SP Scraper				0.98	3.53	0.00	0.00	4.51	
35 BCY, 4.5 Cycles Per Hour	222211	CY	CODSK	216,967	784,894	0	0	1,001,861	4.51

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09_01. Channels	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
09_01.99.02_ 10_EED. FILL (FLD CTRL) LOWER									
02000 0000 Site Work									
02200 0000 Earthwork									
02226 0000 Site Excavation And Fill									
02226 1000 Excavation By Dozer Moved 150 Ft (45M) And									
L MIL A2 <02226 1005 > Exc & Fill, D-9H Dozer w/U-Blade				0.15	0.48	0.00	0.00	0.63	
410 HP, Move 150' and Stockpile	85930	CY	CODTN	12,700	41,367	0	0	54,067	0.63
09_01.99.02_ 10_EEE. FILL (FLD CTRL) IM-45									
02000 0000 Site Work									
02200 0000 Earthwork									
02226 0000 Site Excavation And Fill									
02226 1000 Excavation By Dozer Moved 150 Ft (45M) And									
L MIL A2 <02226 1005 > Exc & Fill, D-9H Dozer w/U-Blade				0.15	0.48	0.00	0.00	0.63	
410 HP, Move 150' and Stockpile	60317	CY	CODTN	8,915	29,037	0	0	37,951	0.63
TOTAL EXC,HAUL NO-HAZ MAT'L-AREA 7	10667	CY		0	0	0	426,680	426,680	40.00
TOTAL EXC,HAUL NO-HAZ MAT'L-AREA 10	18485	CY		0	0	0	739,400	739,400	40.00
TOTAL EXC,HAUL NO-HAZ MAT'L-AREA 11	18150	CY		0	0	0	726,000	726,000	40.00
TOTAL EXC,HAUL NO-HAZ MAT'L-AREA 12	6357.00	CY		0	0	0	254,280	254,280	40.00
TOTAL EXC,HAUL NO-HAZ MAT'L-AREA 13	282168	CY		0	0	0	7,054,200	7,054,200	25.00
TOTAL EXC,HAUL NO-HAZ MAT'L-AREA 15	92315	CY		0	0	0	3,692,600	3,692,600	40.00
TOTAL REM/TRANS LEAD LEACHATE-AREA 13	5400000	GAL		0	0	0	1,080,000	1,080,000	0.20
09_01.99.03. Concrete									
09_01.99.03_ 01. Concrete									
09_01.99.03_ 01_001. INLET STR - DOWNSTREAM WETLANDS									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
USR A2 <03300 0001 > CONCRETE				332.50	0.00	92.50	0.00	425.00	
	112.00	CY		37,240	0	10,360	0	47,600	425.00

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09_01. Channels	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
09_01.99.03_ 01_002. OTLET STR - DOWNSTREAM WETLANDS									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
USR A2 <03300 0001 > CONCRETE				332.50	0.00	92.50	0.00	425.00	
	7.00	CY		2,328	0	648	0	2,975	425.00
09_01.99.03_ 01_003. INLET STR - UPPER CHAIN WETLANDS									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
USR A2 <03300 0001 > CONCRETE				332.50	0.00	92.50	0.00	425.00	
	224.00	CY		74,480	0	20,720	0	95,200	425.00
09_01.99.03_ 01_004. OUTLT STR - UPPER CHAIN WETLANDS									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
USR A2 <03300 0001 > CONCRETE				332.50	0.00	92.50	0.00	425.00	
	10.00	CY		3,325	0	925	0	4,250	425.00
09_01.99.03_ 02. Reinforcing Steel									
09_01.99.03_ 02_001. INLET STR - DOWNSTREAM WETLANDS									
03000 0000 Concrete									
03200 0000 Concrete Reinforcement									
03210 0000 Reinforcing Steel									
03210 1000 Footings And Slabs									
L MIL A2 <03210 1001 > Gr 50 Resteel,Ftgs & Slabs,#3-#6				0.21	0.00	0.25	0.00	0.46	
	11200	LB	SIWRC	2,328	29	2,800	0	5,158	0.46
09_01.99.03_ 02_002. OTLET STR - DOWNSTREAM WETLANDS									
03000 0000 Concrete									
03200 0000 Concrete Reinforcement									
03210 0000 Reinforcing Steel									
03210 1000 Footings And Slabs									
L MIL A2 <03210 1001 > Gr 50 Resteel,Ftgs & Slabs,#3-#6				0.21	0.00	0.25	0.00	0.46	
	616.00	LB	SIWRC	128	2	154	0	284	0.46

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09_01. Channels	QUANTY UOM CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
09_01.99.03_ 02_003. INLET STR - UPPER CHAIN WETLANDS							
03000 0000 Concrete							
03200 0000 Concrete Reinforcement							
03210 0000 Reinforcing Steel							
03210 1000 Footings And Slabs							
L MIL A2 <03210 1001 > Gr 50 Resteel,Ftgs & Slabs,#3-#6		0.21	0.00	0.25	0.00	0.46	
	22400 LB SIWRC	4,657	58	5,600	0	10,315	0.46
09_01.99.03_ 02_004. OUTLT STR - UPPER CHAIN WETLANDS							
03000 0000 Concrete							
03200 0000 Concrete Reinforcement							
03210 0000 Reinforcing Steel							
03210 1000 Footings And Slabs							
L MIL A2 <03210 1001 > Gr 50 Resteel,Ftgs & Slabs,#3-#6		0.21	0.00	0.25	0.00	0.46	
	924.00 LB SIWRC	192	2	231	0	426	0.46
09_01.99.05. Metals							
09_01.99.05_ 99. ASSOCIATED GENERAL ITEMS							
09_01.99.05_ 99_001. TRASHRACK -DOWNSTREAM WETLAND							
05000 0000 Metals							
05500 0000 Metal Fabrication							
USR A2 <05500 0001 > TRASHRACK		0.00	0.00	0.00	2085.00	2085.00	
	4.00 EA	0	0	0	8,340	8,340	2085.00
09_01.99.05_ 99_002. MANHOLE COVER-DOWNSTREAM WETLAND							
02000 0000 Site Work							
02500 0000 Site Drainage							
02520 0000 Storm Drains							
USR A2 <02520 0001 > MANHOLE COVERS		0.00	0.00	0.00	1165.00	1165.00	
	4.00 EA	0	0	0	4,660	4,660	1165.00
09_01.99.05_ 99_003. TRASHRACK -UPPER CHAIN WETLAND							
05000 0000 Metals							
05500 0000 Metal Fabrication							
USR A2 <05500 0001 > TRASHRACK		0.00	0.00	0.00	2085.00	2085.00	
	8.00 EA	0	0	0	16,680	16,680	2085.00

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09_01. Channels	QUANTY UOM CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
09_01.99.05_ 99_004. MANHOLE COVR-UPPER CHAIN WETLAND							
05000 0000 Metals							
05500 0000 Metal Fabrication							
02520 0000 Storm Drains							
USR A2 <02520 0001 > MANHOLE COVERS	8.00 EA	0.00	0.00	0.00	1165.00	1165.00	
		0	0	0	9,320	9,320	1165.00
TOTAL Associated General Items		1853164	5,339,319	305,285	14012160	21,509,928	
TOTAL Channels		1853164	5,339,319	305,285	14012160	21,509,928	
TOTAL Channels and Canals		1853164	5,339,319	305,285	14012160	21,509,928	

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11_01. Levees	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
11. Levees and Floodwalls									
11_01. Levees									
11_01.02. Drainage									
11_01.02.03. Concrete									
11_01.02.03_ 01. Concrete									
11_01.02.03_ 01_005. SLUICE STR - CADILLAC HTS									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE				230.95	0.00	81.26	0.00	312.21	
	2791.00	CY		644,581	0	226,797	0	871,378	312.21
11_01.02.03_ 01_006. FLOODGATES - CADILLAC HTS									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
03311 1000 Concrete Placement									
USR A2 <03311 1001 > FLOODGATE CONCRETE				45.86	0.00	55.61	0.00	101.47	
	1931.00	CY		88,556	0	107,383	0	195,939	101.47
11_01.02.03_ 01_007. FLOODGATES - LAMAR LEVEE									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
03311 1000 Concrete Placement									
USR A2 <03311 1001 > FLOODGATE CONCRETE				45.86	0.00	55.61	0.00	101.47	
	812.00	CY		37,238	0	45,155	0	82,394	101.47
11_01.02.03_ 01_008. SLUICE STR - LAMAR LEVEE									
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
USR A2 <03311 0001 > CONCRETE				230.95	0.00	81.26	0.00	312.21	
	2339.00	CY		540,192	0	190,067	0	730,259	312.21

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11_01. Levees	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
11_01.02.03_ 02. Reinforcing Steel									
11_01.02.03_ 02_005. SLUICE STR - CADILLAC HTS									
03000 0000 Concrete 03200 0000 Concrete Reinforcement 03210 0000 Reinforcing Steel 03210 1000 Footings And Slabs									
L MIL A2 <03210 1001 > Gr 50 Resteel,Ftgs & Slabs,#3-#6	384242	LB	SIWRC	0.21 79,884	0.00 999	0.25 96,061	0.00 0	0.46 176,943	0.46
11_01.02.03_ 02_006. FLOODGATES - CADILLAC HTS									
03000 0000 Concrete 03200 0000 Concrete Reinforcement 03210 0000 Reinforcing Steel 03210 2000 Beams, Columns And Walls 03210 2000 Basic Cost Items									
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6 FLOODGATES	272921	LB	SIWRC	0.21 56,740	0.00 710	0.25 68,230	0.00 0	0.46 125,680	0.46
11_01.02.03_ 02_007. FLOODGATES - LAMAR LEVEE									
03000 0000 Concrete 03200 0000 Concrete Reinforcement 03210 0000 Reinforcing Steel 03210 2000 Beams, Columns And Walls 03210 2000 Basic Cost Items									
L MIL A2 <03210 2001 > Gr 50 Resteel,Bm,Clmn,Wall,#3-#6 FLOODGATES	113680	LB	SIWRC	0.21 23,634	0.00 296	0.25 28,420	0.00 0	0.46 52,350	0.46
11_01.02.03_ 02_008. SLUICE STR - LAMAR LEVEE									
03000 0000 Concrete 03200 0000 Concrete Reinforcement 03210 0000 Reinforcing Steel 03210 1000 Footings And Slabs									
L MIL A2 <03210 1001 > Gr 50 Resteel,Ftgs & Slabs,#3-#6	339600	LB	SIWRC	0.21 70,603	0.00 883	0.25 84,900	0.00 0	0.46 156,386	0.46

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11_01. Levees	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
11_01.02.05. Metals									
11_01.02.05_ 01. Gates									
11_01.02.05_ 01_001. FABRICATED GATES - CADILLAC HTS									
05000 0000 Metals 05500 0000 Metal Fabrication 05650 0000 Marine Fabrications									
USR A2 <05650 0001 > FABRICATED GATES	42277	LB		0.48 20,293	0.00 0	3.01 127,254	0.00 0	3.49 147,547	3.49
11_01.02.05_ 01_002. FABRICATED GATES - LAMAR LEVEE									
05000 0000 Metals 05500 0000 Metal Fabrication 05650 0000 Marine Fabrications									
USR A2 <05650 0001 > FABRICATED GATES	18360	LB		0.48 8,813	0.00 0	3.01 55,264	0.00 0	3.49 64,076	3.49
11_01.02.05_ 04. Handrailing									
11_01.02.05_ 04_016. HAND RAILING - CADILLAC HTS									
05000 0000 Metals 05500 0000 Metal Fabrication 05521 0000 Pipe And Tube Railing									
USR A2 <05521 0001 > HANDRAIL	1491.00	LB		1.17 1,744	0.00 0	2.28 3,399	0.00 0	3.45 5,144	3.45
11_01.02.05_ 04_017. HAND RAILING - LAMAR LEVEE									
05000 0000 Metals 05500 0000 Metal Fabrication 05521 0000 Pipe And Tube Railing									
USR A2 <05521 0001 > HANDRAIL	946.00	LB		1.17 1,107	0.00 0	2.28 2,157	0.00 0	3.45 3,264	3.45
11_01.02.05_ 99. ASSOCIATED ITEMS									
11_01.02.05_ 99_005. RODNEY HUNT GATE & FRM - CAD HTS									
05000 0000 Metals 05500 0000 Metal Fabrication									
USR A2 <05500 0001 > GATE & FRAME W/80' SEATED HEAD	84000	LB		0.57 47,880	0.00 0	3.59 301,560	0.00 0	4.16 349,440	4.16

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11_01. Levees	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
11_01.02.05_ 99_006. RODNEY HUNT HOIST (12) CAD HTS									
05000 0000 Metals									
05500 0000 Metal Fabrication									
USR A2 <05500 0001 > HOIST				0.57	0.00	3.59	0.00	4.16	
	9600.00	LB		5,472	0	34,464	0	39,936	4.16
11_01.02.05_ 99_007. ROD HUNT FLAP GATE (12) CAD HTS									
05000 0000 Metals									
05500 0000 Metal Fabrication									
USR A2 <05500 0001 > FLAP GATE AND FRAME				0.57	0.00	3.59	0.00	4.16	
	24000	LB		13,680	0	86,160	0	99,840	4.16
11_01.02.05_ 99_008. 9" WATERSTOPS - CAD HTS									
03000 0000 Concrete									
03250 0000 Concrete Accessories									
03253 0000 Waterstops									
03253 2000 Rubber									
B MIL A2 <03253 2003 > Wtrstop,Rub Ctr Bulb,3/8"T x 6"W				5.58	0.08	5.65	0.00	11.32	
	1904.00	LF	ACARA	10,629	159	10,758	0	21,545	11.32
11_01.02.05_ 99_009. LADDERS (94 VLF) - CADILLAC HTS									
05000 0000 Metals									
05500 0000 Metal Fabrication									
05521 0000 Pipe And Tube Railing									
05521 3000 Ladder - Vertical									
B MIL A2 <05521 3001 > 15"(51cm)Wide Vert Steel Ladder Primed				0.23	0.01	1.51	0.00	1.75	
	940.00	LB	SIWSC	216	12	1,419	0	1,647	1.75
11_01.02.05_ 99_010. 48" HANDRAIL (448 LF)- CAD HTS									
05000 0000 Metals									
05500 0000 Metal Fabrication									
05521 0000 Pipe And Tube Railing									
USR A2 <05521 0001 > 48" PIPE HANDRAIL				1.17	0.00	2.28	0.00	3.45	
	2464.00	LB		2,883	0	5,618	0	8,501	3.45
11_01.02.05_ 99_011. W-BEAMS - CADILLAC HTS									
05000 0000 Metals									
05100 0000 Structural Metal Framing									
05120 0000 Structural Steel									

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11_01. Levees	QUANTY UOM CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
USR A2 <05120 0001 > W-BEAMS		0.78	0.00	0.97	0.00	1.75	
	9600.00 LB	7,488	0	9,312	0	16,800	1.75
11_01.02.05_ 99_012. RUBBER J-SEAL - CADILLAC HEIGHTS							
05000 0000 Metals							
USR A2 <05000 0001 > RUBBER J-SEAL		4.25	0.00	4.25	0.00	8.50	
	302.00 LF	1,284	0	1,284	0	2,567	8.50
11_01.02.05_ 99_013. NEOPRENE GASKETS - CADILLAC HTS							
05000 0000 Metals							
USR A2 <05000 0001 > NEOPRENE GASKETS		0.00	0.00	2.00	0.00	2.00	
	302.00 LF	0	0	604	0	604	2.00
11_01.02.05_ 99_014. SCREW JACK SUPP - CADILLAC HTS							
05000 0000 Metals							
05100 0000 Structural Metal Framing							
05120 0000 Structural Steel							
USR A2 <05120 0001 > SCREW JACK SUPPORTS		78.00	0.00	97.00	0.00	175.00	
	5.00 EA	390	0	485	0	875	175.00
11_01.02.05_ 99_015. LOAD BINDERS - CADILLAC HTS							
05000 0000 Metals							
USR A2 <05000 0001 > LOAD BINDERS		25.00	0.00	50.00	0.00	75.00	
	10.00 EA	250	0	500	0	750	75.00
11_01.02.05_ 99_016. ASPHALT @ GATES - CADILLAC HTS							
02000 0000 Site Work							
02600 0000 Paving And Surfacing							
02612 0000 Bituminous Concrete Paving							
02612 1400 Surface Courses							
B MIL A2 <02612 1401 > ASPHALT		44.86	35.18	160.00	0.00	240.04	
3774#/CY (2242Kg/M3),Ctrl Plant	0.60 CY XASPA	27	21	96	0	144	240.04
11_01.02.05_ 99_018. FLOODGATE HINGES - CADILLAC HTS							
02000 0000 Site Work							
USR A2 <05000 0001 > HINGES		0.50	0.00	3.00	0.00	3.50	
	15900 LB	7,950	0	47,700	0	55,650	3.50

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11_01. Levees		QUANTY UOM CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
11_01.02.05_ 99_019. TURNBUKLES - CADILLAC HTS								
	USR A2 <05000 002 > TURNBUCKLES		25.00	0.00	50.00	0.00	75.00	
		13.00 EA	325	0	650	0	975	75.00
11_01.02.05_ 99_020. PORTABLE WINCHES - CADILLAC HTS								
02000 0000 Site Work								
	USR A2 <14000 0001 > PORTABLE WINCHES		160.00	0.00	955.00	0.00	1115.00	
		4.00 EA	640	0	3,820	0	4,460	1115.00
11_01.02.05_ 99_021. STAINLESS STEEL - CADILLAC HTS								
02000 0000 Site Work								
	USR A2 <05000 0001 > STAINLESS STEEL		0.50	0.00	3.75	0.00	4.25	
		1600.00 LB	800	0	6,000	0	6,800	4.25
11_01.02.05_ 99_022. MISCELLANEOUS - CADILLAC HTS								
02000 0000 Site Work								
	USR A2 <05000 0001 > MISCELLANEOUS ITEMS		0.17	0.00	2.28	0.00	2.45	
		250.00 LB	43	0	570	0	613	2.45
11_01.02.05_ 99_023. RUBBER J-SEAL - LAMARR LEVEE								
02000 0000 Site Work								
	USR A2 <05000 0001 > RUBBER J-SEAL		4.25	0.00	4.25	0.00	8.50	
		90.50 LF	385	0	385	0	769	8.50
11_01.02.05_ 99_024. NEOPRENE GASKETS - LAMAR LEVEE								
02000 0000 Site Work								
	USR A2 <05000 0001 > NEOPRENE GASKETS		0.00	0.00	2.00	0.00	2.00	
		90.50 LF	0	0	181	0	181	2.00
11_01.02.05_ 99_025. SCREW JACK SUPP - LAMAR LEVEES								
05000 0000 Metals								
05100 0000 Structural Metal Framing								
05120 0000 Structural Steel								
	USR A2 <05120 0001 > SCREW JACK SUPPORTS		78.00	0.00	97.00	0.00	175.00	
		2.00 LB	156	0	194	0	350	175.00

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11_01. Levees	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
11_01.02.05_ 99_026. LOAD BINDERS - LAMAR LEVEE									
05000 0000 Metals									
USR A2 <05000 0001 > LOAD BINDERS				25.00	0.00	50.00	0.00	75.00	
	4.00	EA		100	0	200	0	300	75.00
11_01.02.05_ 99_027. ASPHALT @ GATES - LAMAR LEVEE									
05000 0000 Metals 05100 0000 Structural Metal Framing 05120 0000 Structural Steel 02612 1400 Surface Courses									
B MIL A2 <02612 1401 > ASPHALT				44.86	35.18	160.00	0.00	240.04	
3774#/CY (2242Kg/M3),Ctrl Plant	0.40	CY	XASPA	18	14	64	0	96	240.04
11_01.02.05_ 99_028. FLOODGATE HINGES - LAMAR LEVEE									
05000 0000 Metals									
USR A2 <05000 0001 > HINGES				0.50	0.00	3.00	0.00	3.50	
	7632.00	LB		3,816	0	22,896	0	26,712	3.50
11_01.02.05_ 99_029. TURNBUKLES - LAMAR LEVEE									
USR A2 <05000 002 > TURNBUCKLES				25.00	0.00	50.00	0.00	75.00	
	5.00	EA		125	0	250	0	375	75.00
11_01.02.05_ 99_030. PORTABLE WINCHES - LMAR LEVEE									
05000 0000 Metals									
USR A2 <14000 0001 > PORTABLE WINCHES				160.00	0.00	955.00	0.00	1115.00	
	2.00	EA		320	0	1,910	0	2,230	1115.00
11_01.02.05_ 99_031. STAINLESS STEEL -LAMAR LEVEE									
05000 0000 Metals									
USR A2 <05000 0001 > STAINLESS STEEL				0.50	0.00	3.75	0.00	4.25	
	834.00	LB		417	0	3,128	0	3,545	4.25
11_01.02.05_ 99_032. MISCELLANEOUS - LAMAR LEVEE									
05000 0000 Metals									
USR A2 <05000 0001 > MISCELLANEOUS ITEMS				0.17	0.00	2.28	0.00	2.45	
	250.00	LB		43	0	570	0	613	2.45

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11_01. Levees	QUANTY UOM CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
11_01.02.05_ 99_033. RODNEY HUNT GATE & FRM - LAMAR							
05000 0000 Metals							
05500 0000 Metal Fabrication							
USR A2 <05500 0001 > GATE & FRAME W/80' SEATED HEAD		0.57	0.00	3.59	0.00	4.16	
	64500 LB	36,765	0	231,555	0	268,320	4.16
11_01.02.05_ 99_035. RODNEY HUNT HOIST (10) LAMAR							
05000 0000 Metals							
05500 0000 Metal Fabrication							
USR A2 <05500 0001 > HOIST		0.57	0.00	3.59	0.00	4.16	
	8800.00 LB	5,016	0	31,592	0	36,608	4.16
11_01.02.05_ 99_036. ROD HUNT FLAP GATE (10) LAMAR							
05000 0000 Metals							
05500 0000 Metal Fabrication							
USR A2 <05500 0001 > FLAP GATE AND FRAME		0.57	0.00	3.59	0.00	4.16	
	20400 LB	11,628	0	73,236	0	84,864	4.16
11_01.02.05_ 99_037. 9" WATERSTOPS - LAMAR							
03000 0000 Concrete							
03250 0000 Concrete Accessories							
03253 0000 Waterstops							
03253 2000 Rubber							
B MIL A2 <03253 2003 > Wtrstop,Rub Ctr Bulb,3/8"T x 6"W		5.58	0.08	5.65	0.00	11.32	
	1301.00 LF ACARA	7,263	109	7,351	0	14,722	11.32
11_01.02.05_ 99_038. LADDERS (152 VLF) - LAMAR							
05000 0000 Metals							
05500 0000 Metal Fabrication							
05521 0000 Pipe And Tube Railing							
05521 3000 Ladder - Vertical							
B MIL A2 <05521 3001 > 15"(51cm)Wide Vert Steel Ladder Primed		0.23	0.01	1.51	0.00	1.75	
	2012.00 LB SIWSC	463	26	3,038	0	3,526	1.75
11_01.02.05_ 99_039. 48" HANDRAIL (493 LF)- LAMAR							
05000 0000 Metals							
05500 0000 Metal Fabrication							
05521 0000 Pipe And Tube Railing							

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11_01. Levees	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
USR A2 <05521 0001 > 48" PIPE HANDRAIL				1.17	0.00	2.28	0.00	3.45	
	2215.00	LB		2,592	0	5,050	0	7,642	3.45
11_01.02.05_ 99_040. W-BEAMS - LAMAR									
05000 0000 Metals									
05100 0000 Structural Metal Framing									
05120 0000 Structural Steel									
USR A2 <05120 0001 > W-BEAMS				0.78	0.00	0.97	0.00	1.75	
	12000	LB		9,360	0	11,640	0	21,000	1.75
TOTAL Drainage				1751806	3,227	1,939,325	0	3,694,358	
11_01.03. Care & Diversion of Water									
11_01.03.02. Site Work									
11_01.03.02_ 01. Excavation									
11_01.03.02_ 01_001. SLURRY TRENCH THROUGH LANDFILL									
02000 0000 Site Work									
02200 0000 Earthwork									
02221 0000 Trenching, Backfilling, And Compaction									
USR A2 <02221 0001 > BENTONITE SLURRY				0.09	0.00	0.50	0.00	0.59	
	76600	SF		6,894	0	38,300	0	45,194	0.59
02200 0000 Earthwork									
02225 0000 Bulk Excavation									
02225 1000 Site Excavation									
02225 1400 Excavation By Drag Line Includes Casting Or									
02225 1410 1-1/2 Cy Bucket									
L MIL A2 <02225 1414 > Bulk Site Excavation, Unclass				0.55	0.84	0.00	0.00	1.39	
1-1/2 CY Bucket Drag Line	76600	SF	UOEHE	42,130	64,160	0	0	106,290	1.39
03000 0000 Concrete									
03300 0000 Cast-In-Place Concrete									
USR A2 <03300 0001 > CONCRETE				9.34	0.00	4.93	0.00	14.27	
	76600	SF		715,444	0	377,638	0	1,093,082	14.27
TOTAL PUMP, DIVERT THRU PIPE				46,700	77,800	249,000	0	373,500	
TOTAL Care & Diversion of Water				811,168	141,960	664,938	0	1,618,066	

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11_01. Levees	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
11_01.04. Permanent Access Roads & Parking									
11_01.04.02. Site Work									
11_01.04.02_ 04. Road Surfacing									
11_01.04.02_ 04_001. GRAVEL ROAD - CADILLAC HTS									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02619 0000 Gravel Surfacing									
B MIL A2 <02619 1001 > Gravel Surfacing, Delivered				3.87	3.56	22.30	0.00	29.73	
	5530.00	CY	COFGA	21,398	19,684	123,319	0	164,401	29.73
11_01.04.02_ 04_002. GRAVEL ROAD - LAMAR LEVEE									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02611 0000 Crushed Stone Paving									
02611 1000 Prepare And Roll Subbase									
B MIL A2 <02611 1002 > Subgrade Prep				0.43	0.40	0.00	0.00	0.84	
Prepare and Roll Subbase	11474	SY	XSGRA	4,978	4,617	0	0	9,596	0.84
02600 0000 Paving And Surfacing									
02619 0000 Gravel Surfacing									
B MIL A2 <02619 1001 > Gravel Surfacing, Delivered				3.87	3.56	22.30	0.00	29.73	
	7592.00	CY	COFGA	29,376	27,024	169,302	0	225,702	29.73
TOTAL Permanent Access Roads & Parking				55,753	51,325	292,621	0	399,698	
11_01.99. Associated General Items									
11_01.99.02. Site Work									
11_01.99.02_ 06. Seeding									
11_01.99.02_ 06_001. TURFING - LAMAR LEVEE SUMPS									
02000 0000 Site Work									
02800 0000 Landscaping									
02810 0000 Seeding									
USR A2 <02810 0001 > TURFING				1735.00	0.00	665.00	0.00	2400.00	
	33.00	AC		57,255	0	21,945	0	79,200	2400.00

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11_01. Levees	QUANTY UOM CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
11_01.99.02_ 06_003. TURFING - LAMAR LEVEE							
02000 0000 Site Work							
02800 0000 Landscaping							
02810 0000 Seeding							
USR A2 <0281D 0001 > TURFING		1735.00	0.00	665.00	0.00	2400.00	
	80.00 AC	138,800	0	53,200	0	192,000	2400.00
11_01.99.02_ 06_004. TURFING - CADILLAC HTS							
02000 0000 Site Work							
02800 0000 Landscaping							
02810 0000 Seeding							
USR A2 <02810 0001 > TURFING		1735.00	0.00	665.00	0.00	2400.00	
	46.00 AC	79,810	0	30,590	0	110,400	2400.00
11_01.99.02_ 09. Clearing							
11_01.99.02_ 09_001. Clearing - LAMAR LEVEE							
02000 0000 Site Work							
02100 0000 Site Preparation							
02102 0000 Clearing And Grubbing							
USR A2 <02102 0001 > CLEARING		0.00	0.00	0.00	1700.00	1700.00	
	82.00 AC	0	0	0	139,400	139,400	1700.00
11_01.99.02_ 09_003. Clearing - CADILLAC HTS							
02000 0000 Site Work							
02100 0000 Site Preparation							
02102 0000 Clearing And Grubbing							
USR A2 <02102 0001 > CLEARING		0.00	0.00	0.00	1700.00	1700.00	
	50.00 AC	0	0	0	85,000	85,000	1700.00
11_01.99.02_ 10. Excavation and Embankment:							
11_01.99.02_ 10_001. EXCVTN,HAUL-LAMAR SUMPS (SLUICE							
02000 0000 Site Work							
02200 0000 Earthwork							
02226 0000 Site Excavation And Fill							
02226 1000 Excavation By Dozer Moved 150 Ft (45M) And							
L MIL A2 <02226 1004 > Exc & Fill, D-8K Dozer w/U-Blade		0.44	1.57	0.00	0.00	2.01	
300 HP, Move 150' and Stockpile	4900.00 CY CODTK	2,157	7,703	0	0	9,860	2.01

11_01. Levees	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
11_01.99.02_ 10_002. FILL-LAMAR LEVEE SUMPS (SLUICE)									
02000 0000 Site Work 02200 0000 Earthwork 02226 0000 Site Excavation And Fill 02226 1000 Excavation By Dozer Moved 150 Ft (45M) And									
L MIL A2 <02226 1004 > Exc & Fill, D-8K Dozer w/U-Blade 300 HP, Move 150' and Stockpile	3283.00	CY	CODTK	0.14 460	0.50 1,642	0.00 0	0.00 0	0.64 2,102	0.64
11_01.99.02_ 10_006. EXCVTN,HAUL-LAHAR LEVEE SUMPS									
02000 0000 Site Work 02200 0000 Earthwork 02226 0000 Site Excavation And Fill 02226 1000 Excavation By Dozer Moved 150 Ft (45M) And									
L MIL A2 <02226 1004 > Exc & Fill, D-8K Dozer w/U-Blade 300 HP, Move 150' and Stockpile	549790	CY	CODTK	0.44 240,038	1.56 857,123	0.00 0	0.00 0	2.00 1,097,161	2.00
11_01.99.02_ 10_007. FILL-LAMAR LEVEE SUMPS									
02000 0000 Site Work 02200 0000 Earthwork 02226 0000 Site Excavation And Fill 02226 1000 Excavation By Dozer Moved 150 Ft (45M) And									
L MIL A2 <02226 1004 > Exc & Fill, D-8K Dozer w/U-Blade 300 HP, Move 150' and Stockpile	174.00	CY	CODTK	0.14 24	0.49 85	0.00 0	0.00 0	0.63 109	0.63
11_01.99.02_ 10_EEA. EXC,HAUL CADILLAC HEIGHTS LEVEE									
02000 0000 Site Work 02200 0000 Earthwork 02226 0000 Site Excavation And Fill 02226 2000 Excavation By Push Loaded ScrapEr Choose 02226 Z500 Sp Scraper Cap. 35 Bcy (26.8m3)									
L MIL A2 <02226 2513 > Excav w/Push Loaded SP Scraper 35 BCY, 4.5 Cycles Per Hour	33030	CY	CODSK	0.43 14,335	1.57 51,860	0.00 0	0.00 0	2.00 66,195	2.00
11_01.99.02_ 10_EED. FILL CADILLAC HEIGHTS LEVEE									
02000 0000 Site Work 02200 0000 Earthwork 02226 0000 Site Excavation And Fill 02226 1000 Excavation By Dozer Moved 150 Ft (45M) And									
L MIL A2 <02226 1005 > Exc & Fill, D-9N Dozer w/U-Blade 410 HP, Move 150' and Stockpile	598448	CY	CODTN	0.15 88,451	0.48 288,093	0.00 0	0.00 0	0.63 376,543	0.63

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11_01. Levees	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
11_01.99.02_ 10_FFA. EXC,HAUL LAMAR LEVEE									
02000 0000 Site Work									
02200 0000 Earthwork									
02226 0000 Site Excavation And Fill									
02226 1000 Excavation By Dozer Moved 150 Ft (45M) And									
02226 2500 Sp Scraper Cap. 35 Bcy (26.6Bm3)									
L MIL A2 <02226 2513 > Excav w/Push Loaded SP Scraper				0.44	1.58	0.00	0.00	2.02	
35 BCY, 4.5 Cycles Per Hour	45142	CY	CODSK	19,704	71,279	0	0	90,984	2.02
11_01.99.02_ 10_FFB. FILL LAMAR LEVEE									
02000 0000 Site Work									
02200 0000 Earthwork									
02226 0000 Site Excavation And Fill									
02226 1000 Excavation By Dozer Moved 150 Ft (45M) And									
L MIL A2 <02226 1005 > Exc & Fill, D-9H Dozer w/U-Blade				0.15	0.50	0.00	0.00	0.65	
410 HP, Move 150' and Stockpile	997280	CY	CODTN	151,886	494,651	0	0	646,537	0.65
TOTAL EXC,HAUL NO-HAZ MAT'L-AREA 1	6566.00	CY		0	0	0	262,640	262,640	40.00
TOTAL EXC,HAUL NO-HAZ MAT'L-AREA 2	17922	CY		0	0	0	716,880	716,880	40.00
TOTAL EXC,HAUL NO-HAZ MAT'L-AREA 3	7502.00	CY		0	0	0	300,080	300,080	40.00
TOTAL EXC,HAUL NO-HAZ MAT'L-AREA 5	10000	CY		0	0	0	400,000	400,000	40.00
TOTAL EXC,HAUL NO-HAZ MAT'L-AREA 5	5000.00	CY		0	0	0	200,000	200,000	40.00
TOTAL EXC,HAUL NO-HAZ MAT'L-AREA 6	620.00	CY		0	0	0	24,800	24,800	40.00
TOTAL EXC,HAUL NO-HAZ MAT'L-AREA 9	2963.00	CY		0	0	0	118,520	118,520	40.00
11_01.99.13. Special Construction									
11_01.99.13_ 99. PUMP HOUSE AND PUMPS									
TOTAL PUMP HOUSE	1.00	EA		0	0	0	31,840	31,840	31840
TOTAL 6500 GPM PUMP CAPACITY	1.00	EA		0	0	0	70,600	70,600	70600
TOTAL Associated General Items				792,920	1,772,436	105,735	2,349,760	5,020,851	
TOTAL Levees				3411647	1,968,948	3,002,619	2,349,760	10,732,974	
TOTAL Levees and Floodwalls				3411647	1,968,948	3,002,619	2,349,760	10,732,974	

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14_00. Recreation Facilities	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
14. Recreation Facilities									
14_00. Recreation Facilities									
14_00.18. Utilities									
14_00.18.16. Electrical									
14_00.18.16_ 01. ACCESS PT - LOOP 12									
16000 0000 Electrical									
16050 0000 Basic Materials And Methods									
16111 0000 Conduits									
16111 3000 Conduit Installed By Direct Burial - In									
16111 3100 Pvc Conduit - Glued Couplings Schedule 40									
L MIL EL <16111 3107 > 1"PVC Sch 40 Conduit w/Cplg				0.78	0.00	0.40	0.00	1.18	
Direct Burial, Glued Coupling	5280.00	LF	EELEC	4,128	0	2,112	0	6,240	1.18
16050 0000 Basic Materials And Methods									
16120 0000 Wire And Cable									
16120 1000 600 Volt Branch Wire									
16120 1700 600 Volt Feeder Wire, Single Str Copper									
M MIL EL <16120 1704 > No 8-Type THWN				209.40	1.11	130.00	0.00	340.51	
600V Cu,Sgl Strd,Pl in Cnd	5.30	MLF	EELEF	1,110	6	689	0	1,805	340.51
M MIL EL <16120 1705 > No 6-Type THWN				252.31	1.34	180.00	0.00	433.65	
600V Cu,Sgl Strd,Pl in Cnd	15.92	MLF	EELEF	4,017	21	2,866	0	6,904	433.65
16000 0000 Electrical									
16400 0000 Service And Distribution									
16411 0000 Underground Service									
16411 4000 Electrical Handholes - Sizes Shown Are Inside									
MIL EL <16411 4001 > 24"x 24"x 30",Elect Handholes				789.00	355.75	112.00	0.00	1256.75	
	8.00	EA	ALABN	6,312	2,846	896	0	10,054	1256.75
16400 0000 Service And Distribution									
16430 0000 Metering									
16430 1000 Revenue Metering									
16430 1100 Meter Socket (Base)									
B CIV EL <16430 1118 > 1Ph,3W, Meter				42.84	0.20	115.00	0.00	158.05	
Including Socket Cover & Device	1.00	EA	EELEB	43	0	115	0	158	158.05
16000 0000 Electrical									
16500 0000 Lighting									
16510 0000 Lighting Fixtures Per Ce Std Dwg 40-06-04 Feb									
16510 4000 Exterior-High Intensity Discharge Fixtures									
16510 4020 Enclosed Heavy Duty Integrally Ballasted									

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14_00. Recreation Facilities	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
B MIL EL <16510 4021 > 150W HPS Pole-Mtd Fixture				52.81	8.01	165.00	0.00	225.82	
	4.00	EA	EELEK	211	32	660	0	903	225.82
16500 0000 Lighting									
16570 0000 Poles And Standards									
16570 2000 Roadway Poles - Steel Round, Tapered, Galvanize-									
16570 2100 Single Member Arms									
16570 2110 One Arm Per Pole									
L MIL EL <16570 2114 > Rd Tpr Stl Rdwy Pole,1-6'Arm,35'				265.95	55.58	1230.37	0.00	1551.91	
Incl Foundation & Grounding	2.00	EA	EELEJ	532	111	2,461	0	3,104	1551.91
14_00.18.16_01A. ACCESS PT - ROCHESTER PARK									
16000 0000 Electrical									
16050 0000 Basic Materials And Methods									
16111 0000 Conduits									
16111 3000 Conduit Installed By Direct Burial - In									
16111 3100 Pvc Conduit - Glued Couplings Schedule 40									
L MIL EL <16111 3107 > 1"PVC Sch 40 Conduit w/Cplg				0.78	0.00	0.40	0.00	1.18	
Direct Burial, Glued Coupling	8000.00	LF	EELEC	6,255	0	3,200	0	9,455	1.18
16050 0000 Basic Materials And Methods									
16120 0000 Wire And Cable									
16120 1000 600 Volt Branch Wire									
16120 1700 600 Volt Feeder Wire, Single Str Copper									
M MIL EL <16120 1704 > No 8-Type THWN				209.40	1.11	130.00	0.00	340.51	
600V Cu,Sgl Strd,Pl in Cnd	5.30	MLF	EELEF	1,110	6	689	0	1,805	340.51
M MIL EL <16120 1705 > No 6-Type THWN				252.31	1.34	180.00	0.00	433.65	
600V Cu,Sgl Strd,Pl in Cnd	15.92	MLF	EELEF	4,017	21	2,866	0	6,904	433.65
16000 0000 Electrical									
16400 0000 Service And Distribution									
16411 0000 Underground Service									
16411 4000 Electrical Handholes - Sizes Shown Are Inside									
MIL EL <16411 4001 > 24"x 24"x 30",Elect Handholes				789.00	355.75	112.00	0.00	1256.75	
	8.00	EA	ALABN	6,312	2,846	896	0	10,054	1256.75
16400 0000 Service And Distribution									
16430 0000 Metering									
16430 1000 Revenue Metering									
16430 1100 Meter Socket (Base)									
B CIV EL <16430 1118 > 1Ph,3W, Meter				42.84	0.20	115.00	0.00	158.05	
Including Socket Cover & Device	1.00	EA	EELEB	43	0	115	0	158	158.05

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14_00. Recreation Facilities	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
16000 0000 Electrical									
16500 0000 Lighting									
16510 0000 Lighting Fixtures Per Ce Std Dwg 40-06-04 Feb									
16510 4000 Exterior-High Intensity Discharge Fixtures									
16510 4020 Enclosed Heavy Duty Integrally Ballasted									
B MIL EL <16510 4021 > 150W HPS Pole-Mtd Fixture				52.81	8.01	165.00	0.00	225.82	
	4.00	EA	EELEK	211	32	660	0	903	225.82
L MIL EL <16570 2114 > Rd Tpr Stl Rdwy Pole,1-6'Arm,35'				265.95	55.58	1230.37	0.00	1551.91	
Incl Foundation & Grounding	2.00	EA	EELEJ	532	111	2,461	0	3,104	1551.91
14_00.18.16_01B. ACCESS PT - IH 20									
16000 0000 Electrical									
16050 0000 Basic Materials And Methods									
16111 0000 Conduits									
16111 3000 Conduit Installed By Direct Burial - In									
16111 3100 Pvc Conduit - Glued Couplings Schedule 40									
L MIL EL <16111 3107 > 1"PVC Sch 40 Conduit w/Cplg				0.78	0.00	0.40	0.00	1.18	
Direct Burial, Glued Coupling	2640.00	LF	EELEC	2,064	0	1,056	0	3,120	1.18
16050 0000 Basic Materials And Methods									
16120 0000 Wire And Cable									
16120 1000 600 Volt Branch Wire									
16120 1700 600 Volt Feeder Wire, Single Str Copper									
M MIL EL <16120 1704 > No 8-Type THWN				209.40	1.11	130.00	0.00	340.51	
600V Cu,Sgl Strd,Pl in Cnd	5.30	MLF	EELEF	1,110	6	689	0	1,805	340.51
M MIL EL <16120 1705 > No 6-Type THWN				252.31	1.34	180.00	0.00	433.65	
600V Cu,Sgl Strd,Pl in Cnd	15.92	MLF	EELEF	4,017	21	2,866	0	6,904	433.65
16000 0000 Electrical									
16400 0000 Service And Distribution									
16411 0000 Underground Service									
16411 4000 Electrical Handholes - Sizes Shown Are Inside									
MIL EL <16411 4001 > 24"x 24"x 30",Elect Handholes				789.00	355.75	112.00	0.00	1256.75	
	8.00	EA	ALABN	6,312	2,846	896	0	10,054	1256.75
16400 0000 Service And Distribution									
16430 0000 Metering									
16430 1000 Revenue Metering									
16430 1100 Meter Socket (Base)									
B CIV EL <16430 1118 > 1Ph,3W, Meter				42.84	0.20	115.00	0.00	158.05	
Including Socket Cover & Device	1.00	EA	EELEB	43	0	115	0	158	158.05

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14_00. Recreation Facilities	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
16000 0000 Electrical									
16500 0000 Lighting									
16510 0000 Lighting Fixtures Per Ce Std Dwg 40-06-04 Feb									
16510 4000 Exterior-High Intensity Discharge Fixtures									
16510 4020 Enclosed Heavy Duty Integrally Ballasted									
B MIL EL <16510 4021 > 150W HPS Pole-Mtd Fixture				52.81	8.01	165.00	0.00	225.82	
	4.00	EA	EELEK	211	32	660	0	903	225.82
L MIL EL <16570 2114 > Rd Tpr Stl Rdwy Pole,1-6'Arm,35'				265.95	55.58	1230.37	0.00	1551.91	
Incl Foundation & Grounding	2.00	EA	EELEJ	532	111	2,461	0	3,104	1551.91
TOTAL Utilities				49,122	9,050	29,427	0	87,598	
14_00.22. Parking Lots and Service Roads									
14_00.22.02. Site Work									
14_00.22.02_ 08. Base Course									
14_00.22.02_ 08_001. SUBGRADE									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02610 0000 Paving									
02610 1000 Lime Stabilized Subgrade Based On Existing Soil									
MIL A3 <02610 1001 > 6"Tk, Lime Stabilized Subgrade				0.59	0.53	0.81	0.00	1.94	
(15cm) Thick, 25#(11Kg)/SY	11368	SY	COFCJ	6,732	6,052	9,242	0	22,027	1.94
02600 0000 Paving And Surfacing									
02611 0000 Crushed Stone Paving									
02611 1000 Prepare And Roll Subbase									
MIL A3 <02611 1002 > SUBGRADE PREP				0.44	0.41	0.34	0.00	1.19	
	988.00	SY	XSGRA	439	407	332	0	1,177	1.19
02611 0000 Crushed Stone Paving									
02611 2000 Roadway Base Courses									
02611 2000 Basic Cost Items									
MIL A3 <02611 2001 > FLEX BASE				3.39	6.71	4.14	0.00	14.25	
	2060.00	CY	XSABA	6,989	13,832	8,528	0	29,349	14.25
14_00.22.02_ 08_002. 6" LIME SUBGRADE									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02610 0000 Paving									
02610 1000 Lime Stabilized Subgrade Based On Existing Soil									

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14_00. Recreation Facilities	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
MIL A3 <02610 1001 > 6"Tk, Lime Stabilized Subgrade				0.59	0.53	0.81	0.00	1.94	
(15cm) Thick, 25#(11Kg)/SY	11368	SY	COFCJ	6,732	6,052	9,244	0	22,029	1.94
MIL A3 <02611 2001 > FLEX BASE				3.39	6.71	4.14	0.00	14.25	
	2060.00	CY	XSABA	6,989	13,832	8,528	0	29,349	14.25
14_00.22.02_ 08_003. FLEX BASE									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02610 0000 Paving									
02610 1000 Lime Stabilized Subgrade Based On Existing Soil									
02611 2000 Basic Cost Items									
MIL A3 <02611 2001 > FLEX BASE				3.39	6.71	4.14	0.00	14.25	
	2060.00	CY	XSABA	6,989	13,832	8,528	0	29,349	14.25
14_00.22.02_ 10. Paving									
14_00.22.02_ 10_001. CONCRETE									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02614 0000 Portland Cement Concrete Paving									
02614 1000 Concrete Paving									
02614 1100 Material Cost Included 4500 Psi Concrete At									
MIL A3 <02614 1101 > 6"(15cm) Concrete Pavement				0.86	0.29	12.48	0.00	13.63	
4,500 PSI Concrete at Spreader	1716.00	CY	COKCF	1,477	493	21,423	0	23,392	13.63
14_00.22.02_ 10_002. REINFORCING STEEL									
03000 0000 Concrete									
03200 0000 Concrete Reinforcement									
03210 0000 Reinforcing Steel									
03210 1000 Footings And Slabs									
MIL A3 <03210 1001 > Gr 50 Resteel,Ftgs & Slabs,#3-#6				0.12	0.00	0.25	0.00	0.38	
	126272	LB	SIWRC	15,746	202	31,568	0	47,516	0.38
14_00.22.02_ 14. CURB									
14_00.22.02_ 14_ -.									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02620 0000 Curbs And Gutters									
02620 1000 Curbs									
02620 1100 Concrete - Cast In Place									

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14_00. Recreation Facilities	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
AF A3 <02620 1103 > Concrete Curb, 2'				0.00	0.00	7.23	0.00	7.23	
	2700.00	LF	N/A	0	0	19,521	0	19,521	7.23
14_00.22.02_ 15. SIDEWALK									
14_00.22.02_ 15_001. CONCRETE									
03000 0000 Concrete									
03200 0000 Concrete Reinforcement									
03210 0000 Reinforcing Steel									
03210 1000 Footings And Slabs									
MIL A3 <03210 1001 > Gr 50 Resteel,Ftgs & Slabs,#3-#6				0.12	0.00	0.25	0.00	0.38	
	5964.00	LB	SIWRC	744	10	1,491	0	2,244	0.38
03300 0000 Cast-In-Place Concrete									
03311 0000 Normal Weight Structural Concrete									
03311 1000 Concrete Placement									
03311 1100 Place 3000 Psi Concrete FoundaTion By Method									
03311 1160 Slab On Grade									
MIL A3 <03311 1164 > Pour Slab on Gr,>= 6", Dir Chute >= (15 cm) Place 3000 PSI Conc				4.00	0.24	54.00	0.00	58.24	
	164.00	CY	ALABE	656	39	8,856	0	9,551	58.24
14_00.22.02_ 15_002. REINFORCING STEEL									
03000 0000 Concrete									
03200 0000 Concrete Reinforcement									
03210 0000 Reinforcing Steel									
03210 1000 Footings And Slabs									
MIL A3 <03210 1001 > Gr 50 Resteel,Ftgs & Slabs,#3-#6				0.12	0.00	0.25	0.00	0.38	
	12104	LB	SIWRC	1,509	19	3,026	0	4,555	0.38
TOTAL Parking Lots and Service Roads				55,000	54,772	130,288	0	240,060	
14_00.71. Activity Guides and Controls									
14_00.71.06. Wood and Plastic									
14_00.71.06_ 02. Kiosks									
14_00.71.06_ 02_001. CONCRETE									
03200 0000 Concrete Reinforcement									
03210 0000 Reinforcing Steel									
03210 1000 Footings And Slabs									
03311 1100 Place 3000 Psi Concrete FoundaTion By Method									
03311 1160 Slab On Grade									

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14_00. Recreation Facilities	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
B MIL A3 <03311 1164 > Pour Slab on Gr,>= 6", Dir Chute				55.22	3.30	56.30	0.00	114.82	
>= (15 cm) Place 3000 PSI Conc	44.10	CY	ALABE	2,435	146	2,483	0	5,064	114.82
14_00.71.06_ 02_002. AGGREGATE BASE									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02611 0000 Crushed Stone Paving									
02611 2000 Roadway Base Courses									
02611 2000 Basic Cost Items									
B MIL A3 <02611 2001 > Graded Crushed Agg Rdwy Base Crs				2.50	4.95	22.30	0.00	29.75	
	55.80	CY	XSABA	140	276	1,244	0	1,660	29.75
14_00.71.06_ 02_003. SUBGRADE									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02611 0000 Crushed Stone Paving									
02611 1000 Prepare And Roll Subbase									
M A3 <02611 1002 > SUBGRADE PREP				0.44	0.41	0.00	0.00	0.86	
Prepare and Roll Subbase	333.30	SY	XSGRA	148	137	0	0	285	0.86
14_00.71.06_ 02_004. 5'x 5' PREFAB STRUCTURE									
02000 0000 Site Work									
USR A3 <13000 0001 > 5' x 5' PREFAB STRUCTURE				240.00	0.00	260.00	0.00	500.00	
	6.00	EA		1,440	0	1,560	0	3,000	500.00
TOTAL Activity Guides and Controls				4,163	559	5,287	0	10,009	
14_00.72. Day Use Areas									
14_00.72.02. Site Work									
14_00.72.02_99A. EQUESTRIAN TRAILS									
14_00.72.02_99A_001. CLEAR AND GRUB									
02000 0000 Site Work									
02100 0000 Site Preparation									
02102 0000 Clearing And Grubbing									
02102 1700 Site Clearing, Clear Trees w/335hp Dozer									
USR A3 <02102 1702 > Site Clearing				0.00	0.00	0.00	1700.00	1700.00	
12" Dia w/335 HP Dozer	8.20	AC		0	0	0	13,940	13,940	1700.00

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14_00. Recreation Facilities	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
14_00.72.02_99B. NATURE TRAIL									
14_00.72.02_99B_001. CLEAR AND GRUB									
02000 0000 Site Work									
02100 0000 Site Preparation									
02102 0000 Clearing And Grubbing									
02102 1700 Site Clearing, Clear Trees w/335hp Dozer									
USR A3 <02102 1702 > Site Clearing				0.00	0.00	0.00	1700.00	1700.00	
12" Dia w/335 HP Dozer	2.40	AC		0	0	0	4,080	4,080	1700.00
14_00.72.02_99C. HIKE AND BIKE TRAIL									
14_00.72.02_99C_001. TRAIL EXCAVATION									
02000 0000 Site Work									
02200 0000 Earthwork									
02226 0000 Site Excavation And Fill									
02226 1000 Excavation By Dozer Moved 150 Ft (45M) And									
L MIL A3 <02226 1005 > Exc & Fill, D-9H Dozer w/U-Blade				0.56	1.83	0.00	0.00	2.39	
410 HP, Move 150' and Stockpile	11722	CY	CODTN	6,584	21,451	0	0	28,036	2.39
14_00.72.02_99C_002. COMPACTION OF SUBGRADE									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02611 0000 Crushed Stone Paving									
02611 1000 Prepare And Roll Subbase									
B MIL DJ <02611 1002 > Subgrade Preparation				0.42	0.39	0.00	0.01	0.82	
Prepare and Roll Subbase	105600	SY	XSGRA	44,418	41,192	0	846	86,456	0.82
14_00.72.02_99C_003. REINFORCING STEEL									
03000 0000 Concrete									
03200 0000 Concrete Reinforcement									
03210 0000 Reinforcing Steel									
03210 1000 Footings And Slabs									
B MIL A3 <03210 1001 > Gr 50 Resteel,Ftgs & Slabs,#3-#6				0.21	0.00	0.25	0.00	0.46	
	728957	LB	SIWRC	151,550	1,895	182,239	0	335,685	0.46
14_00.72.02_99C_004. CONCRETE PAVEMENT									
02000 0000 Site Work									
02600 0000 Paving And Surfacing									
02614 0000 Portland Cement Concrete Paving									
02614 1000 Concrete Paving									

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14_00. Recreation Facilities	QUANTY UOM CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
02614 1100 Material Cost Included 4500 Psi Concrete At							
B MIL A3 <02614 1101 > 6"(15cm) Concrete Pavement		75.19	25.10	62.75	0.00	163.04	
4,500 PSI Concrete at Spreader	11722 CY COKCF	881,347	294,205	735,556	0	1,911,107	163.04
14_00.72.06. Wood and Plastic							
14_00.72.06_ 01. PICNIC SHELTER							
14_00.72.06_ 01_001. 11' x 14' STRUCTURE							
02000 0000 Site Work							
USR A3 <13000 0001 > 11' x 14' PICNIC SHELTER		1470.00	0.00	1610.00	0.00	3080.00	
	19.00 EA	27,930	0	30,590	0	58,520	3080.00
14_00.72.06_ 01_002. CONCRETE SLAB							
02600 0000 Paving And Surfacing							
02614 0000 Portland Cement Concrete Paving							
02614 1000 Concrete Paving							
02614 1100 Material Cost Included 4500 Psi Concrete At							
03311 1160 Slab On Grade							
B MIL A3 <03311 1164 > Pour Slab on Gr,>= 6", Dir Chute		54.97	3.29	56.30	0.00	114.56	
>= (15 cm) Place 3000 PSI Conc	49.40 CY ALABE	2,716	163	2,781	0	5,659	114.56
14_00.72.06_ 01_003. REINFORCING STEEL							
03000 0000 Concrete							
03200 0000 Concrete Reinforcement							
03210 0000 Reinforcing Steel							
03210 1000 Footings And Slabs							
L MIL A3 <03210 1001 > Gr 50 Resteel,Ftgs & Slabs,#3-#6		0.21	0.00	0.25	0.00	0.46	
	5396.00 LB SIWRC	1,122	14	1,349	0	2,485	0.46
14_00.72.06_ 01_004. PREFAB PICNIC TABLE							
02000 0000 Site Work							
02700 0000 Site Improvements							
02731 0000 Recreational Facilities							
USR A3 <02731 0001 > PREFAB PICNIC TABLE		200.00	0.00	600.00	0.00	800.00	
	34.00 EA	6,800	0	20,400	0	27,200	800.00

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14_00. Recreation Facilities	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
14_00.72.06_ 02. REST STOP SHELTER									
14_00.72.06_ 02_001. 10' x 10' STRUCTURE									
02000 0000 Site Work									
USR A3 <13000 0001 > 10' x 10' REST STOP SHELTER				955.00	0.00	1045.00	0.00	2000.00	
	10.00	EA		9,550	0	10,450	0	20,000	2000.00
14_00.72.06_ 02_002. CONCRETE SLAB									
02700 0000 Site Improvements 02731 0000 Recreational Facilities 03210 1000 Footings And Slabs 02614 1100 Material Cost Included 4500 Psi Concrete At 03311 1160 Slab On Grade									
B MIL A3 <03311 1164 > Pour Slab on Gr,>= 6", Dir Chute >= (15 cm) Place 3000 PSI Conc	19.20	CY	ALABE	54.97 1,055	3.29 63	56.30 1,081	0.00 0	114.56 2,200	114.56
14_00.72.06_ 02_003. REINFORCING STEEL									
02000 0000 Site Work 02700 0000 Site Improvements 02731 0000 Recreational Facilities 03210 1000 Footings And Slabs									
L MIL A3 <03210 1001 > Gr 50 Resteel,Ftgs & Slabs,#3-#6	2095.00	LB	SIWRC	0.21 436	0.00 5	0.25 524	0.00 0	0.46 965	0.46
14_00.72.06_ 02_004. 8'PREFAB BENCH									
02000 0000 Site Work 02700 0000 Site Improvements 02731 0000 Recreational Facilities									
USR A3 <02731 0001 > 8' PREFAB BENCH	10.00	EA		100.00 1,000	0.00 0	200.00 2,000	0.00 0	300.00 3,000	300.00
14_00.72.06_ 03. PICNIC PAVILLIONS									
14_00.72.06_ 03_001. CONCRETE									
02700 0000 Site Improvements 02731 0000 Recreational Facilities 03210 1000 Footings And Slabs 02614 1100 Material Cost Included 4500 Psi Concrete At 03311 1160 Slab On Grade									
B MIL A3 <03311 1164 > Pour Slab on Gr,>= 6", Dir Chute >= (15 cm) Place 3000 PSI Conc	148.00	CY	ALABE	55.32 8,187	3.31 490	56.30 8,332	0.00 0	114.93 17,010	114.93

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14_00. Recreation Facilities	QUANTY UOM CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
14_00.72.06_ 03_002. AGGREGATE BASE							
02000 0000 Site Work							
02600 0000 Paving And Surfacing							
02611 0000 Crushed Stone Paving							
02611 2000 Roadway Base Courses							
02611 2000 Basic Cost Items							
B MIL A3 <02611 2001 > Graded Crushed Agg Rdwy Base Crs		2.50	4.95	22.30	0.00	29.75	
	200.00 CY XSABA	500	990	4,460	0	5,951	29.75
14_00.72.06_ 03_003. SUBGRADE							
02000 0000 Site Work							
02600 0000 Paving And Surfacing							
02611 0000 Crushed Stone Paving							
02611 1000 Prepare And Roll Subbase							
B A3 <02611 1002 > SUBGRADE PREP		0.43	0.40	0.00	0.00	0.83	
Prepare and Roll Subbase	1200.00 SY XSGRA	516	479	0	0	995	0.83
14_00.72.06_ 03_004. 30'x60' PREFAB STRUCTURE							
02000 0000 Site Work							
USR A3 <13000 0001 > 30' x 60' PREFAB PAVILLION		0.00	0.00	0.00	11548.00	11548.00	
	6.00 EA	0	0	0	69,288	69,288	11548
TOTAL Day Use Areas		1143711	360,947	999,762	88,154	2,592,575	
14_00.99. Associated General Items							
14_00.99.02. Site Work							
14_00.99.02_99A. SIGNAGE							
14_00.99.02_99A_ -.							
02000 0000 Site Work							
02700 0000 Site Improvements							
02722 0000 Signage, Traffic							
USR A3 <02722 0001 > SIGNAGE-BASED ON SIGNAGE PER		0.00	0.00	0.00	10000.00	10000.00	
ACCESS POINT ON GREENBELT	1.00 LS	0	0	0	10,000	10,000	10000

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14_00. Recreation Facilities	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
14_00.99.02_99B. 150 LF PEDESTRIAN BRIDGES TOTAL PRESTRESSED"C" BEAMS	600.00	LF		4,620	0	18,450	0	23,070	38.45
14_00.99.02_99B_002. CONCRETE CAP									
02700 0000 Site Improvements									
02722 0000 Signage, Traffic									
02611 1000 Prepare And Roll Subbase									
02611 2000 Basic Cost Items									
03311 1160 Slab On Grade									
B MIL A3 <03311 1164 > Pour Slab on Gr,>= 6", Dir Chute >= (15 cm) Place 3000 PSI Conc	12.67	CY	ALABE	155.63 1,972	9.31 118	110.40 1,399	0.00 0	275.34 3,489	275.34
14_00.99.02_99B_003. CONCRETE - ABUTMENT									
02700 0000 Site Improvements									
02722 0000 Signage, Traffic									
02611 1000 Prepare And Roll Subbase									
02611 2000 Basic Cost Items									
03311 1160 Slab On Grade									
B MIL A3 <03311 1164 > Pour Slab on Gr,>= 6", Dir Chute >= (15 cm) Place 3000 PSI Conc	37.20	CY	ALABE	184.52 6,864	11.04 411	110.40 4,107	0.00 0	305.96 11,382	305.96
14_00.99.02_99B_004. CONCRETE - 42" COLUMN									
02700 0000 Site Improvements									
02722 0000 Signage, Traffic									
02611 1000 Prepare And Roll Subbase									
02611 2000 Basic Cost Items									
03311 1160 Slab On Grade									
B MIL A3 <03311 1164 > Pour Slab on Gr,>= 6", Dir Chute >= (15 cm) Place 3000 PSI Conc	35.60	CY	ALABE	155.63 5,540	9.31 332	110.40 3,930	0.00 0	275.34 9,802	275.34
14_00.99.02_99B_005. CONCRETE - DECK									
02700 0000 Site Improvements									
02722 0000 Signage, Traffic									
02611 1000 Prepare And Roll Subbase									
02611 2000 Basic Cost Items									
03311 1160 Slab On Grade									
B MIL A3 <03311 1164 > Pour Slab on Gr,>= 6", Dir Chute >= (15 cm) Place 3000 PSI Conc	55.60	CY	ALABE	93.34 5,190	5.59 311	110.35 6,135	0.00 0	209.28 11,636	209.28

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14_00. Recreation Facilities	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
14_00.99.02_99B_006. REINFORCING STEEL									
03000 0000 Concrete									
03200 0000 Concrete Reinforcement									
03210 0000 Reinforcing Steel									
03210 1000 Footings And Slabs									
L MIL A3 <03210 1001 > Gr 50 Resteel,Ftgs & Slabs,#3-#6				0.21	0.00	0.25	0.00	0.46	
	19698	LB	SIWRC	4,095	51	4,925	0	9,071	0.46
14_00.99.02_99B_007. 18" DRILLED SHAFT									
02000 0000 Site Work									
02350 0000 Piles, Caissons, And Cofferdams									
02351 0000 Drilled Caissons									
02351 1000 Caisson In Stable Ground No Casing Or Ground									
02351 1000 Basic Cost Items									
B MIL A3 <02351 1001 > 18"(46cm) Dia Caisson, No Casing Stable Ground, No Ground Water	240.00	VLF	CLADN	13.33	11.79	5.55	0.00	30.67	
				3,199	2,830	1,332	0	7,361	30.67
14_00.99.02_99B_008. 42" DRILLED SHAFT									
02000 0000 Site Work									
02350 0000 Piles, Caissons, And Cofferdams									
02351 0000 Drilled Caissons									
02351 1000 Caisson In Stable Ground No Casing Or Ground									
02351 1000 Basic Cost Items									
B CIV A3 <02351 1005 > 42"(106cm) Dia Caisson No Casing Stable ground, No Ground Water	240.00	VLF	CLADN	27.80	24.60	30.60	0.00	83.00	
				6,673	5,904	7,344	0	19,921	83.00
14_00.99.02_99B_009. PIPERAIL									
05000 0000 Metals									
05500 0000 Metal Fabrication									
05521 0000 Pipe And Tube Railing									
05521 1000 Welded Pipe Railing - 3 Ft(.92M) High									
05521 1000 Basic Cost Items									
B MIL A3 <05521 1003 > 2-1/2"D Welded Pipe Hdrl,2-Rail 3'H (.92M)w/Shop Paint	5142.00	LB	SIWSC	1.10	0.06	2.28	0.00	3.44	
				5,659	314	11,724	0	17,697	3.44
TOTAL Associated General Items				43,812	10,270	59,346	10,000	123,427	
TOTAL Recreation Facilities				1295808	435,598	1,224,110	98,154	3,053,670	
TOTAL Recreation Facilities				1295808	435,598	1,224,110	98,154	3,053,670	

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18_00. Cultural Resource Preservation		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
18. Cultural Resource Preservation										
	TOTAL Cultural Resource Preservation				0	0	0	750,000	750,000	
	TOTAL Cultural Resource Preservation	1.00			0	0	0	750,000	750,000	750000

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30_11. Project Cooperatn Agreemnt (PCA)		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
30. Planning, Engineering and Design										
30_11. Project Cooperatn Agreemnt (PCA)										
30_11.01. Initial Draft PCA Package										
	TOTAL Initial Draft PCA				0	0	0	4,000	4,000	
	TOTAL Fed/Non-Fed AllocatnOfFunds Tabl				0	0	0	1,600	1,600	
	TOTAL Deviation Report				0	0	0	800	800	
	TOTAL Certification of Legal Review				0	0	0	4,000	4,000	
	TOTAL MSC Review Comments				0	0	0	1,600	1,600	
	TOTAL Initial Draft PCA Package	1.00			0	0	0	12,000	12,000	12000
30_11.02. Final Draft PCA Package										
	TOTAL Final Draft PCA				0	0	0	4,000	4,000	
	TOTAL Fed/Non-Fed AllocatnOfFunds Tabl				0	0	0	1,600	1,600	
	TOTAL Deviation Report				0	0	0	800	800	
	TOTAL Certification of Legal Review				0	0	0	1,600	1,600	
	TOTAL SponsrFinac Plan&Stmt ofFinacCap				0	0	0	1,600	1,600	
	TOTAL Projct Fact Sht/Projct Data Sht				0	0	0	2,400	2,400	
30_11.02.07. Computation of Cost Sharing 902 Limit, Ability to Pay, Territories Waiver as Applicable										
	TOTAL Computation of Cost Sharing				0	0	0	1,600	1,600	
	TOTAL Final Draft 3rd Party Sub-Agreem				0	0	0	1,600	1,600	
	TOTAL MSC Review Comments				0	0	0	800	800	
	TOTAL Final Draft PCA Package	1.00			0	0	0	16,000	16,000	16000
	TOTAL Min.of HQUSACE PCA ReviewComMeet				0	0	0	2,400	2,400	
30_11.04. Executed PCA										
	TOTAL MSC Approved PCA	1.00			0	0	0	1,600	1,600	1600.00
	TOTAL HQUSACE Approved PCA	1.00			0	0	0	1,600	1,600	1600.00

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30_11. Project Cooperatn Agreemnt (PCA)		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
	TOTAL ASA(CW) Approved PCA	1.00			0	0	0	1,600	1,600	1600.00
	TOTAL OMB Approved PCA	1.00			0	0	0	1,600	1,600	1600.00
30_11.04.05. Local Sponsor Executive Certificate of Authority, and Lobbying Certificate	PCA									
	TOTAL Local Sponsor Executive PCA	1.00			0	0	0	1,600	1,600	1600.00
	TOTAL ASA(CW) Executed PCA	1.00			0	0	0	1,600	1,600	1600.00
	TOTAL Executed PCA	1.00			0	0	0	9,600	9,600	9600.00
30_11.05. Escrow Agreement										
	TOTAL HQUSACE Approved Escrow Agreemnt	1.00			0	0	0	4,000	4,000	4000.00
	TOTAL Executed Escrow Agreement	1.00			0	0	0	4,000	4,000	4000.00
	TOTAL Escrow Agreement	1.00			0	0	0	8,000	8,000	8000.00
30_11.06. Initial Draft PCA Amendment Pkg.										
	TOTAL Initial Draft PCA Amendment	1.00			0	0	0	3,200	3,200	3200.00
30_11.06.02. Amended Fed/Non-Fed Allocatn of Funds Table										
	TOTAL Amended Fed/Non-Fed Allocatn of	1.00			0	0	0	800	800	800.00
	TOTAL Amended Deviation Report	1.00			0	0	0	800	800	800.00
	TOTAL Amended Certificatn of Legl Revw	1.00			0	0	0	1,600	1,600	1600.00
30_11.06.05. Initial Draft Amendment Review Comments	MSC									
	TOTAL Initial Draft Amendment MSC	1.00			0	0	0	1,600	1,600	1600.00
	TOTAL Initial Draft PCA Amendment Pkg.	1.00			0	0	0	8,000	8,000	8000.00
30_11.07. Final Draft PCA Ammendment Pkg.										
	TOTAL Final Draft PCA Amendment	1.00			0	0	0	1,600	1,600	1600.00
30_11.07.02. Amended Fed/Non-Fed Allocatn of Funds Table										

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30_11. Project Cooperatn Agreemnt (PCA)		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
	TOTAL Amended Fed/Non-Fed Allocatn of	1.00			0	0	0	800	800	800.00
	TOTAL Amended Deviation Report	1.00			0	0	0	800	800	800.00
	TOTAL Amended Certificatn of Legl Revw	1.00			0	0	0	800	800	800.00
30_11.07.05. Ammended Sponsr's Financing Plan & Statement of Finicial Capability										
	TOTAL Ammended Sponsr's Financing Plan	1.00			0	0	0	800	800	800.00
30_11.07.06. Amended Project Fact Sheet/Proj. Data Sheet										
	TOTAL Amended Project Fact Sheet/Proj.	1.00			0	0	0	800	800	800.00
30_11.07.07. Computatn ofAmended Cost Sharing 902 Limit, Ability to Pay, Territories Waiver as Applicable										
	TOTAL Computatn ofAmended Cost Sharing	1.00			0	0	0	800	800	800.00
30_11.07.08. Amended Final Draft 3rd Party Sub-Agreements										
	TOTAL Amended Final Draft 3rd Party	1.00			0	0	0	800	800	800.00
	TOTAL Final Draft Amendmt MSC Revw Com	1.00			0	0	0	800	800	800.00
	TOTAL Final Draft PCA Ammendment Pkg.	1.00			0	0	0	8,000	8,000	8000.00
30_11.08. Minutes of HQUSACE PCA Amendmnt Review Committee Meetings										
	TOTAL Minutes of HQUSACE PCA Amendmnt	1.00			0	0	0	2,400	2,400	2400.00
30_11.09. Executed PCA Amendment										
	TOTAL MSC Approved PCA Amendment	1.00			0	0	0	1,600	1,600	1600.00
	TOTAL HQUSACE Approved PCA Amendment	1.00			0	0	0	1,600	1,600	1600.00
	TOTAL ASA(CW) Approved PCA Amendment	1.00			0	0	0	1,600	1,600	1600.00
	TOTAL OMB Approved PCA Amendment	1.00			0	0	0	1,600	1,600	1600.00
30_11.09.05. Local Sponsr Exe. PCA Amendment Certificate of Authority, and Lobbying Certificate										

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30_11. Project Cooperatn Agreemnt (PCA)		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
	TOTAL Local Sponsr Exe. PCA Amendment	1.00			0	0	0	1,600	1,600	1600.00
	TOTAL ASA(CW) Executed PCA Amendment	1.00			0	0	0	1,600	1,600	1600.00
	TOTAL Executed PCA Amendment	1.00			0	0	0	9,600	9,600	9600.00
30_11.10. Amendments to Escrow Agreement										
30_11.10.01. HQUSACE Approved Amended Escrow Agreement										
	TOTAL HQUSACE Approved Amended Escrow	1.00			0	0	0	2,400	2,400	2400.00
	TOTAL Executed Amended Escrow Agreemnt	1.00			0	0	0	1,600	1,600	1600.00
	TOTAL Amendments to Escrow Agreement	1.00			0	0	0	4,000	4,000	4000.00
	TOTAL Project Cooperatn Agreemnt (PCA)	1.00			0	0	0	80,000	80,000	80000

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30_12. Project Management Plan (PMP)		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
30_12. Project Management Plan (PMP)										
	TOTAL Revisions to PMP	1.00			0	0	0	16,000	16,000	16000
	TOTAL Project Management Plan (PMP)	1.00			0	0	0	16,000	16,000	16000

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30_18. Gnrl Reevaln Rep (GRR) 97/98		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
30_18. Gnrl Reevaln Rep (GRR) 97/98 not including PPMD										
30_18.01. Engineering Analysis/Report	TOTAL Surveys&Mapp'g Except Real Estat	1.00	ea		0	0	0	22,000	22,000	22000
30_18.01.03. Hydrology and Hydraulic Studies Report	TOTAL Hydrology and Hydraulic Studies	1.00	ea		0	0	0	102,000	102,000	102000
30_18.01.04. Engineering and Design Analysis Report with Preliminary Drawings	TOTAL Engineering and Design Analysis	1.00	ea		0	0	0	176,000	176,000	176000
	TOTAL Geotechnical Studies Report	1.00	ea		0	0	0	84,000	84,000	84000
	TOTAL Engineering Analysis/Report	1.00	ea		0	0	0	384,000	384,000	384000
30_18.02. Socio/Economic Analysis/Report	TOTAL Economic Analysis/Report	1.00	ea		0	0	0	60,000	60,000	60000
	TOTAL Social Studies/Report	1.00	ea		0	0	0	4,000	4,000	4000.00
	TOTAL Ability to Pay Report	1.00	ea		0	0	0	4,000	4,000	4000.00
	TOTAL Socio/Economic Analysis/Report	1.00	ea		0	0	0	68,000	68,000	68000
30_18.04. Environmental Studies Documents (EA, EIS, SEIS)	TOTAL Biological Assessment	1.00	EA		0	0	0	12,800	12,800	12800
30_18.04.04. Environmntl Impact Statmnt (EIS) or Supl. Environmental Impact Statement (SEIS)	TOTAL Environmntl Impact Statmnt (EIS)	1.00	EA		0	0	0	51,200	51,200	51200
	TOTAL Coordinatn Documts w/Other Agenc	1.00	EA		0	0	0	4,400	4,400	4400.00
	TOTAL Mitigation Analysis Report	1.00	EA		0	0	0	12,800	12,800	12800
30_18.04.08. Fish & Wildlife Coordnat'n Act Report										

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30_18. Gnrl Reevaln Rep (GRR) 97/98		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
	TOTAL Fish & Wildlife Coordnat'n Act	1.00	EA		0	0	0	20,000	20,000	20000
	TOTAL Section 404(b)(1) Analysis Reprt	1.00	EA		0	0	0	12,800	12,800	12800
	TOTAL 401 State Water Quality Certifcn	1.00	EA		0	0	0	8,800	8,800	8800.00
	TOTAL Record of Decision (ROD)	1.00	EA		0	0	0	4,400	4,400	4400.00
	TOTAL Section 103 Evaluation	1.00	EA		0	0	0	4,400	4,400	4400.00
	TOTAL Statement of Findings (SOF)	1.00	EA		0	0	0	8,400	8,400	8400.00
	TOTAL Environmental Studies Documents	1.00	ea		0	0	0	140,000	140,000	140000
30_18.05. HTRW/RCRA Studies Report										
	TOTAL HTRW Assessment Report	1.00	EA		0	0	0	21,200	21,200	21200
	TOTAL HTRW Site Inspection Report	1.00	EA		0	0	0	21,200	21,200	21200
	TOTAL HTRW Remedial Investigations	1.00	EA		0	0	0	536,800	536,800	536800
	TOTAL HTRW/RCRA Studies Report	1.00	EA		0	0	0	579,200	579,200	579200
30_18.06. Culturl Resource Studies Documts										
	TOTAL Survey Field Report	1.00	EA		0	0	0	12,800	12,800	12800
	TOTAL Data Collectn & Analysis Report	1.00	EA		0	0	0	50,000	50,000	50000
	TOTAL National Register Eligibility	1.00	EA		0	0	0	4,000	4,000	4000.00
	TOTAL Mitigation Plan Report	1.00	EA		0	0	0	2,000	2,000	2000.00
	TOTAL Memorandum of Agreement	1.00	EA		0	0	0	2,000	2,000	2000.00
	TOTAL Culturl Resource Studies Documts	1.00	EA		0	0	0	70,800	70,800	70800
30_18.07. Cost Estimates										
	TOTAL GRR-Study Cost Estimates	1.00	EA		0	0	0	2,000	2,000	2000.00
	TOTAL P&D Cost Estimate	1.00	EA		0	0	0	2,000	2,000	2000.00
	TOTAL Project Cost Estimate	1.00	EA		0	0	0	12,000	12,000	12000
	TOTAL OMRR&R Cost Estimate Updates	1.00	EA		0	0	0	2,000	2,000	2000.00
	TOTAL Fully Funded Cost Estimate	1.00	EA		0	0	0	2,000	2,000	2000.00

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30_18. Gnrl Reevaln Rep (GRR) 97/98		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
	TOTAL All Other Cost Estimates	1.00	EA		0	0	0	2,000	2,000	2000.00
	TOTAL Cost Estimates	1.00	EA		0	0	0	22,000	22,000	22000
30_18.08. Public Involvement Document										
	TOTAL Notice of Public Meeting	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL Minutes of Public Meeting	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL Public Comments Report	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL Newsletters	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL All Other Public Involvmnt Docs.	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL Public Involvement Document	1.00	EA		0	0	0	40,000	40,000	40000
	TOTAL Plan Formulatn & Evaluatn Reprts	1.00	EA		0	0	0	6,000	6,000	6000.00
30_18.10. Draft Report Documentation										
	TOTAL Review Conference Documents	1.00	EA		0	0	0	18,000	18,000	18000
	TOTAL In-House Review Comments	1.00	EA		0	0	0	32,000	32,000	32000
	TOTAL Public Review Comments	1.00	EA		0	0	0	500,000	500,000	500000
	TOTAL Projct Guidance Memorandum (PGM)	1.00	EA		0	0	0	130,000	130,000	130000
	TOTAL All Other GRR Documents	1.00	EA		0	0	0	80,000	80,000	80000
	TOTAL Draft Report Documentation	1.00	EA		0	0	0	760,000	760,000	760000
30_18.11. Final Report Documentation										
	TOTAL Division Commanders Notice	1.00	EA		0	0	0	4,000	4,000	4000.00
	TOTAL All Other Final Report Documents	1.00	EA		0	0	0	4,000	4,000	4000.00
	TOTAL Final Report Documentation	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL All Other Studies/Investigations	1.00	EA		0	0	0	104,000	104,000	104000
30_18.15. Management										
	TOTAL AE Contract Documents	1.00	EA		0	0	0	4,000	4,000	4000.00
	TOTAL Study Funds Control Documents	1.00	EA		0	0	0	22,000	22,000	22000

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30_18. Gnrl Reevaln Rep (GRR) 97/98		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
	TOTAL Trip Reports	1.00	EA		0	0	0	12,800	12,800	12800
	TOTAL Coordination Documents	1.00	EA		0	0	0	76,000	76,000	76000
	TOTAL Minutes of Technical Review Conf	1.00	EA		0	0	0	4,000	4,000	4000.00
	TOTAL All Other Management Documents	1.00	EA		0	0	0	3,200	3,200	3200.00
	TOTAL Management	1.00	EA		0	0	0	122,000	122,000	122000
30_18.99. PRIOR TO 1996 (INCL PPMD)										
USR < >					2000000	251000.00	0.00	0.00	2251000.00	
		1.00	LS		2000000	251,000	0	0	2,251,000	2251000
	TOTAL PRIOR TO 1996 (INCL PPMD)	1.00			2000000	251,000	0	0	2,251,000	2251000
	TOTAL Gnrl Reevaln Rep (GRR) 97/98	1.00	ea		2000000	251,000	0	2,304,000	4,555,000	4555000

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30_20. Project Design Memorandum		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
30_20. Project Design Memorandum										
30_20.01. Engineering Analysis/Report	TOTAL Surveys&Mapp'g Except Real Estat	1.00	EA		0	0	0	372,000	372,000	372000
30_20.01.03. Hydrology and Hydraulic Studies Report	TOTAL Hydrology and Hydraulic Studies	1.00	EA		0	0	0	24,000	24,000	24000
30_20.01.04. Engineering and Design Analysis Report with Preliminary Drawings	TOTAL Engineering and Design Analysis	1.00	EA		0	0	0	628,800	628,800	628800
	TOTAL Geotechnical Studies Report	1.00	EA		0	0	0	80,800	80,800	80800
	TOTAL Engineering Analysis/Report	1.00	EA		0	0	0	1,105,600	1,105,600	1105600
30_20.02. Socio/Economic Analysis/Report	TOTAL Economic Analysis/Report	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL Ability to Pay Report	1.00	EA		0	0	0	4,000	4,000	4000.00
	TOTAL Socio/Economic Analysis/Report	1.00	EA		0	0	0	12,000	12,000	12000
30_20.04. Environmental Studies Documents (EA, EIS, SEIS)	TOTAL Biological Assessment	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL Coordinatn Documts w/Other Agenc	1.00	EA		0	0	0	800	800	800.00
	TOTAL Mitigation Analysis Report	1.00	EA		0	0	0	1,600	1,600	1600.00
30_20.04.08. Fish & Wildlife Coordnat'n Act Report	TOTAL Fish & Wildlife Coordnat'n Act	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL Section 404(b)(1) Analysis Reprt	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL 401 State Water Quality Certifcn	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL Record of Decision (ROD)	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL Section 103 Evaluation	1.00	EA		0	0	0	800	800	800.00

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30_20. Project Design Memorandum		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
	TOTAL Statement of Findings (SOF)	1.00	EA		0	0	0	800	800	800.00
	TOTAL Environmental Studies Documents	1.00	EA		0	0	0	12,000	12,000	12000
30_20.05. HTRW/RCRA Studies Report										
	TOTAL HTRW Assessment Report	1.00	EA		0	0	0	20,000	20,000	20000
	TOTAL HTRW Site Inspection Report	1.00	EA		0	0	0	20,000	20,000	20000
	TOTAL HTRW Remedial Investigations	1.00	EA		0	0	0	441,620	441,620	441620
	TOTAL HTRW/RCRA Studies Report	1.00	EA		0	0	0	481,620	481,620	481620
30_20.06. Culturl Resource Studies Documts										
	TOTAL Survey Field Report	1.00	EA		0	0	0	48,000	48,000	48000
	TOTAL Data Collectn & Analysis Report	1.00	EA		0	0	0	440,000	440,000	440000
	TOTAL National Register Eligibility	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL No Effects Determination	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL No Adverse Effects Determination	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL Mitigation Plan Report	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL Memorandum of Agreement	1.00	EA		0	0	0	4,000	4,000	4000.00
	TOTAL One Percent Waiver	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL Culturl Resource Studies Documts	1.00	EA		0	0	0	512,800	512,800	512800
30_20.07. Cost Estimates										
	TOTAL PDM-Study Cost Estimates	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL PED Cost Estimate	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL Project Cost Estimate	1.00	EA		0	0	0	14,400	14,400	14400
	TOTAL OMRR&R Cost Estimate Updates	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL All Other Cost Estimates	1.00	EA		0	0	0	800	800	800.00
	TOTAL Cost Estimates	1.00	EA		0	0	0	20,000	20,000	20000

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30_20. Project Design Memorandum		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
30_20.08. Final Report Documentation										
	TOTAL Minutes of Review Conference	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL In-House Review Comments	1.00	EA		0	0	0	32,000	32,000	32000
	TOTAL Public Review Comments	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL All Other Report Documents	1.00	EA		0	0	0	10,400	10,400	10400
	TOTAL Final Report Documentation	1.00	EA		0	0	0	52,000	52,000	52000
	TOTAL All Other Studies/Invest (re/rec	1.00	EA		0	0	0	52,000	52,000	52000
30_20.11. Management										
	TOTAL AE Contract Documents	1.00	EA		0	0	0	4,000	4,000	4000.00
	TOTAL Coordination Documents	1.00	EA		0	0	0	24,000	24,000	24000
	TOTAL Minutes of Technical Review Conf	1.00	EA		0	0	0	2,400	2,400	2400.00
	TOTAL All Other Management Documents	1.00	EA		0	0	0	9,200	9,200	9200.00
	TOTAL Management	1.00	EA		0	0	0	39,600	39,600	39600
	TOTAL Project Design Memorandum	1.00			0	0	0	2,287,620	2,287,620	2287620

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30_23. Constructn Contracts(s) Documnts		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
30_23. Constructn Contracts(s) Documnts										
30_23.01. Plans and Specifications (P&S)										
	TOTAL Field Investigation Report	1.00	EA		0	0	0	12,000	12,000	12000
	TOTAL Plans and Specifications	1.00	EA		0	0	0	386,400	386,400	386400
	TOTAL Permits for Construction	1.00	EA		0	0	0	16,000	16,000	16000
	TOTAL BCO Review Certification	1.00	EA		0	0	0	4,000	4,000	4000.00
	TOTAL Plans and Specifications (P&S)	1.00	EA		0	0	0	418,400	418,400	418400
30_23.04. Environmental Studies Documents										
	TOTAL Coordinatn Documts w/Other Agenc	1.00	EA		0	0	0	800	800	800.00
	TOTAL Mitigation Analysis Report	1.00	EA		0	0	0	1,600	1,600	1600.00
30_23.04.04. Fish & Wildlife Coordnat'n Act Report										
	TOTAL Fish & Wildlife Coordnat'n Act	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL 401 State Water Quality Certifcn	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL Section 404(b)(1) Analysis Reprt	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL Record of Decision (ROD)	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL Planning RCRA Permits	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL NPDES Permit	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL Air Emissions Permits	1.00	EA		0	0	0	4,000	4,000	4000.00
	TOTAL Environmental Studies Documents	1.00	EA		0	0	0	28,800	28,800	28800
30_23.05. HTRW Studies/Report										
	TOTAL USACE HTRW Study/Report	1.00	EA		0	0	0	819,950	819,950	819950
	TOTAL HTRW Studies/Report	1.00	EA		0	0	0	819,950	819,950	819950

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30_23. Constructn Contracts(s) Documnts		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
30_23.06. Culturl Resource Studies Documts										
	TOTAL Site Investigation Surveys	1.00	EA		0	0	0	480,000	480,000	480000
	TOTAL National Register Eligibility	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL No effects Determination	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL No Adverse Effects Determination	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL Mitigation Plan Report	1.00	EA		0	0	0	12,000	12,000	12000
	TOTAL Memorandum of Agreement	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL One Percent Waiver	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL Culturl Resource Studies Documts	1.00	EA		0	0	0	512,800	512,800	512800
30_23.07. Cost Estimates										
	TOTAL Contract Cost Estimates	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL PED Cost Estimate	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL Project Cost Estimate	1.00	EA		0	0	0	14,400	14,400	14400
	TOTAL OMRR&R Cost Estimate Updates	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL All Other Cost Estimates	1.00	EA		0	0	0	800	800	800.00
	TOTAL Cost Estimates	1.00	EA		0	0	0	20,000	20,000	20000
	TOTAL Other Studies/Investigations	1.00	EA		0	0	0	40,000	40,000	40000
30_23.09. Contract Award Documents										
	TOTAL Contract Negotiatn/Award Documnt	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL CBD Announcement	1.00	EA		0	0	0	3,200	3,200	3200.00
	TOTAL Advertised/RFP Contract	1.00	EA		0	0	0	3,200	3,200	3200.00
	TOTAL Davis Bacon Wage Rates	1.00	EA		0	0	0	3,200	3,200	3200.00
	TOTAL Abstract of Bids/Record of Negot	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL Reasonable Contract Cost Estimat	1.00	EA		0	0	0	9,600	9,600	9600.00
	TOTAL Awarded Contract	1.00	EA		0	0	0	8,000	8,000	8000.00

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30_23. Constructn Contracts(s) Documnts		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
	TOTAL Notice to Proceed	1.00	EA		0	0	0	4,800	4,800	4800.00
	TOTAL Contract Award Documents	1.00	EA		0	0	0	48,000	48,000	48000
	TOTAL Eng & Design During Const Docs	1.00	EA		0	0	0	400,000	400,000	400000
30_23.14. Management Documents										
	TOTAL AE Contract Documents	1.00	EA		0	0	0	4,000	4,000	4000.00
	TOTAL Amendments to Plans & Specficatn	1.00	EA		0	0	0	24,000	24,000	24000
	TOTAL Coordination Documents	1.00	EA		0	0	0	64,000	64,000	64000
	TOTAL All Other Management Documents	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL Management Documents	1.00	EA		0	0	0	100,000	100,000	100000
30_23.15. Local Sponsor Project Coordnat'n Team Participation Documents										
	TOTAL Local Sponsor Project Coordnat'n	1.00	EA		0	0	0	16,000	16,000	16000
	TOTAL Constructn Contracts(s) Documnts	1.00	EA		0	0	0	2,403,950	2,403,950	2403950

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30_24. Value Engineerng Analysis Docmnt		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
30_24. Value Engineerng Analysis Docmnt										
	TOTAL Value Engineer'n Screen'n/Studie	1.00	EA		0	0	0	40,000	40,000	40000
	TOTAL Value Engineer'n Related Redesgn	1.00	EA		0	0	0	28,000	28,000	28000
	TOTAL Value Engineerng Analysis Docmnt	11.00	EA		0	0	0	68,000	68,000	6181.82

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30_25. Project or Functional Element		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
30_25. Project or Functional Element Closeout and Local Sponsor Assumption of OMRR&R										
30_25.01. Physical Closeout Documents	TOTAL Minutes of Final Inspection	1.00	EA		0	0	0	2,400	2,400	2400.00
	TOTAL Project Dedication Ceremony	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL Physical Closeout Documents	1.00	EA		0	0	0	10,400	10,400	10400
30_25.02. Project Fiscal Closeout Documnts	TOTAL Local Sponsor Audit	1.00	EA		0	0	0	4,000	4,000	4000.00
	TOTAL USACE Audit	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL Final Accounting Report	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL Project Fiscal Closeout Documnts	1.00	EA		0	0	0	20,000	20,000	20000
30_25.03. Final Project or Funct'nl Elemnt Closeout and Local Sponsor Assumption of OMRR&R										
30_25.03.01. Cash Paymt to Balnce Cost Shar'n Per Final Accounting	TOTAL Cash Paymt to Balnce Cost Shar'n	1.00	EA		0	0	0	1,600	1,600	1600.00
	TOTAL OMRR&R Manual	1.00	EA		0	0	0	8,000	8,000	8000.00
30_25.03.03. Written Notice of Completion and Local Sponsor Assumption of OMRR&R	TOTAL Written Notice of Completion and	1.00	EA		0	0	0	2,400	2,400	2400.00
	TOTAL Final Project or Funct'nl Elemnt	1.00	EA		0	0	0	12,000	12,000	12000
	TOTAL Project or Functional Element	1.00	EA		0	0	0	42,400	42,400	42400

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30_26. Programs & Project Managmt Dcmnt		QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
30_26. Programs & Project Managmt Dcmnt										
	TOTAL Project Coordination Documents	1.00	EA		0	0	0	100,000	100,000	100000
	TOTAL Funds Control Documents	1.00	EA		0	0	0	36,000	36,000	36000
	TOTAL Trip Records	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL Upward Reporting Documents	1.00	EA		0	0	0	16,000	16,000	16000
	TOTAL Budgetary Documents	1.00	EA		0	0	0	28,000	28,000	28000
	TOTAL Project Authorization Documents	1.00	EA		0	0	0	8,000	8,000	8000.00
30_26.07. Annual Notification Letter to Local Sponsor for Cost Sharing Funding Requirements										
	TOTAL Annual Notification Letter to	1.00	EA		0	0	0	4,000	4,000	4000.00
	TOTAL Fact Sheets	1.00	EA		0	0	0	12,000	12,000	12000
	TOTAL Corrspndnce (Congress'nl, State)	1.00	EA		0	0	0	16,000	16,000	16000
	TOTAL Schedule and Cost Changes(SACCR)	1.00	EA		0	0	0	12,000	12,000	12000
	TOTAL Project Work Directives	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL Project Closeout Coordinatn Docs	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL Qrtrly Cost Reprts to Local Spon	1.00	EA		0	0	0	8,000	8,000	8000.00
	TOTAL GRR (FY97 & FY98)	1.00	EA		0	0	0	125,600	125,600	125600
	TOTAL Programs & Project Managmt Dcmnt	1.00	EA		0	0	0	389,600	389,600	389600
	TOTAL Planning, Engineering and Design	1.00			2000000	251,000	0	7,591,570	9,842,570	9842570

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31_23. Construction Contracts	QUANTY	UOM	CREW ID	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
31. Construction Management									
31_23. Construction Contracts									
31_23.11. Supervision and Administration									
31_23.11.01. Prjt Office Supervn and Adminstn									
Project Office Operations Documents									
All Other Project Office Documentation									
USR R2 < > PERSONNEL				4000000	95040.00	0.00	0.00	4095040.00	
	1.00	LS		4000000	95,040	0	0	4,095,040	4095040
USR R2 < > OFFICE TRAILER				0.00	0.00	0.00	36560.00	36560.00	
	1.00	LS		0	0	0	36,560	36,560	36560
USR R2 < > VEHICLES				0.00	0.00	0.00	100800.00	100800.00	
	1.00	LS		0	0	0	100,800	100,800	100800
USR R2 < > TESTING (CONTRACTING OUT TO LABS				0.00	0.00	0.00	33600.00	33600.00	
	1.00	LS		0	0	0	33,600	33,600	33600
31_23.11.03. District Office S&A Documents									
Technical Management S&A									
All Other District Office S&A									
USR R2 < >				1000000	100800.00	0.00	0.00	1100800.00	
	1.00	LS		1000000	100,800	0	0	1,100,800	1100800
TOTAL Supervision and Administration				5000000	195,840	0	170,960	5,366,800	
TOTAL Construction Contracts				5000000	195,840	0	170,960	5,366,800	
TOTAL Construction Management	1.00	EA		5000000	195,840	0	170,960	5,366,800	5366800
TOTAL DALLAS FLOODWAY EXTENSION LPP	1.00	EA		30923656	10118644	5,992,812	28165784	75,200,896	75200896

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APPENDIX L

CORRESPONDENCE

(1311)

CITY OF DALLAS

January 14, 1999

Colonel James S. Weller
District Engineer
U.S. Army Corps of Engineers, Fort Worth District
P.O. Box 17300
Fort Worth, Texas 76102-0300

RE: Dallas Floodway Extension Project: GRR/EIS Letter of Assurance

Dear Colonel Weller:

This is in response to your request for a sponsor letter of assurance concerning the U.S. Army Corps of Engineers' (Corps) Dallas Floodway Extension (DFE) Project and concurrence with the DFE Programmatic Agreement as outlined in your letter dated December 9, 1998.

The City fully supports and appreciates the efforts of the Corps and the Assistant Secretary of the Army (Civil Works) in adopting the Locally Preferred Plan as the Federally Supportable Plan, and therefore, the Recommended Plan. The City also appreciates the Corps' adoption and adherence to Section 351 of the 1996 Water Resources Development Act that extends credit for past City construction of the portions of the Rochester Park Levee and the Central Wastewater Treatment Plant Levee deemed compatible with the subject DFE Project.

The DFE project has an estimated total project cost of approximately $127.6 million, of which an estimated $21.8 million would be the non-Federal share after application of the aforementioned credit. The City understands the cost sharing requirements and has the financial capability to provide its share of the total project cost. The City's voters passed the Trinity River Corridor Projects bond referendum on May 2, 1998. The ten-year, $246 million referendum includes $24.7 million specifically for the City's local share of the DFE project cost.

The City has reviewed the Programmatic Agreement signed on October 8, 1998, between the Corps, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation. The City of Dallas agrees with the content and language of the Programmatic Agreement that the planned undertakings by the Corps' Fort Worth District have appropriately considered possible impacts to potentially significant resources within

OFFICE OF THE CITY MANAGER CITY HALL DALLAS, TEXAS 75201 TELEPHONE 214/670-3302

the project area. Therefore, the City supports the Corps' Fort Worth District, in completing their responsibilities under Section 106 of the National Historic Preservation Act.

I appreciate the continued pursuit of the Fort Worth District to implement the Dallas Floodway Extension Project and look forward to the project cooperation agreement that is scheduled to be signed by the City and the Corps during the Fall of 2000. This flood control project is the cornerstone to the City's efforts to transform the Trinity River Corridor to be a safe and attractive amenity for our public.

Sincerely,

Ryan S. Evans
Assistant City Manager

DD/GA/c:\data\dfe\memo\assurance.ltr

c: Honorable Ronald Kirk, Mayor
Teodoro J. Benavides, City Manager
David C. Dybala, P.E., Director of Public Works and Transportation
Larry Scalf, Assistant City Attorney, City Attorney
Jim Anderson, Historic Preservation Team, Planning & Development

Jan 19 99 04:09p USDA 254-742-9859 p.1

USDA NRCS Natural Resources Conservation Service

Attn: Soils Section, 101 S. Main Street, Temple, Texas 76501-7682

FAX

Date: 1-19-99

Number of pages including cover sheet: 3

To: Bill Colbert

Phone: 817-978-3026

Fax phone: 817-978-9947

CC:

From: Mike Lounge

Phone: (254) 742-9858

Fax phone: (254) 742-9859

REMARKS: ☐ Urgent ☑ For your review ☐ Reply ASAP ☐ Please comment

AD FORM 1006 for Dallas Floodway Extension Project

United States Department of Agriculture
Natural Resources Conservation Service
101 South Main
Temple, Texas
76501-7682

January 19, 1999

Bill Colbert
Department of the Army
Fort Worth District, Corps of Engineers
Fort Worth, Texas

Dear Bill,

Enclosed is a completed From AD-1006 Farmland Conversion Impact Rating for the Dallas Floodway Extension Project. Since the prime farmland soils portion of the project area is currently in a non-agricultural use (golf course), no prime farmland is involved in this project.

If I can be of further assistance, call me at 254-742-9858.

Sincerely,

Mike Risinger
Soil Scientist

The Natural Resources Conservation Service works hand-in-hand with The American people to conserve natural resources on private lands

AN EQUAL OPPORTUNITY EMPLOYER

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 1-19-1999
Name Of Project Dallas Floodway Extension	Federal Agency Involved U.S. Army Corps of Engineers
Proposed Land Use Floodway Swale / Wetlands / Open Space / Rec.	County And State Dallas County Texas
PART II *(To be completed by SCS)*	Date Request Received By SCS

Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply – do not complete additional parts of this form). Yes ☐ No ☒ | Acres Irrigated | Average Farm Size

Major Crop(s)	Farmable Land In Govt Jurisdiction Acres: %	Amount Of Farmland As Defined In FPPA Acres: %
Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Date Land Evaluation Returned By SCS

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	105			
B. Total Acres To Be Converted Indirectly	157			
C. Total Acres In Site	262			
PART IV *(To be completed by SCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*				
PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points			
1. Area In Nonurban Use 60%		9		
2. Perimeter In Nonurban Use 75%		8		
3. Percent Of Site Being Farmed 0%		0		
4. Protection Provided By State And Local Government		0		
5. Distance From Urban Builtup Area 500 feet		0		
6. Distance To Urban Support Services 4 (< 5 m.)		0		
7. Size Of Present Farm Unit Compared To Average none		0		
8. Creation Of Nonfarmable Farmland		0		
9. Availability Of Farm Support Services		5		
10. On-Farm Investments		0		
11. Effects Of Conversion On Farm Support Services		0		
12. Compatibility With Existing Agricultural Use		0		
TOTAL SITE ASSESSMENT POINTS	160	22		
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland *(From Part V)*	100			
Total Site Assessment *(From Part VI above or a local site assessment)*	160			
TOTAL POINTS *(Total of above 2 lines)*	260			

Site Selected: Date Of Selection: Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

(See instructions on reverse side) Form AD-1006 (10-83)

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO ATTENTION OF

October 28, 1998

Environmental Division

Mr. Bob Anderson
National Park Service
1709 Jackson Street
Omaha, Nebraska 68102

Dear Mr. Anderson:

We recently determined that your office has been given responsibility for maintaining records of property or facility acquisitions with funds appropriated under the Land and Water Conservation Act (LWCA). On October 26, Mr. Bill Colbert of my staff discussed with you a proposed flood damage reduction, recreation and ecosystem restoration project proposal along the Trinity River in Dallas, Texas. The U.S. Army Corps of Engineers has completed a Draft General Reevaluation Report and Integrated Environmental Impact Statement for the Dallas Floodway Extension. Public and agency comment on the proposal was initiated on May 7, 1998, and closed on August 14, 1998. Consolidated Department of Interior (DOI) comments were provided by letter dated July 7, 1998.

To our knowledge, the project would not impact any properties or facilities that were acquired with LWCA funds. However, no comments were provided by DOI to confirm our presumption. I have included a copy of the original notice to the public which includes a description of the proposed actions as well as a map showing approximate location of proposed features. Your discussion with Mr. Colbert indicated that your office should be able to conduct a quick review of the proposal. We appreciate your assistance in expediting completion of this action. Should you have any questions regarding this request, please contact Mr. Bill Colbert at (817) 978-3026.

Sincerely,

William Fickel, Jr.
Chief, Environmental Division

Enclosure

United States Department of the Interior

NATIONAL PARK SERVICE
Midwest Support Office
1709 Jackson Street
Omaha, Nebraska 68102-2571

IN REPLY REFER TO:
48-00015(MWSO-P/G)

NOV 6 1998

Mr. William Fickel, Jr.
Chief, Environmental Division
Fort Worth District
Army Corps of Engineers
Department of the Army
P.O. Box 1730
Fort Worth, Texas 76102-0300

Dear Mr. Fickel:

Thank you for your letter of October 28 and its accompanying "Notice of Availability" related to the proposed Dallas floodway extension within the Trinity River Basin. This information was helpful in our understanding the extent of this project and its potential impacts on recreation facilities and parklands within the study area.

We reviewed this proposal with respect to the Land and Water Conservation Fund (L&WCF) and Urban Park and Recreation Recovery programs and found that one L&WCF assisted park, Woodland Springs Park, exists within the study area. It is our opinion, however, that the proposed flood protection project will not have a negative impact on this L&WCF assisted site.

Thank you for the early coordination on this proposed project. Any questions you have may be directed to me at 402-221-3358.

Sincerely,

Robert Anderson
Program Leader - Grants

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

January 6, 1998

Mr. Michael G. Ensch
Chief, Environmental Division
Department of The Army
P.O. Box 17300
Fort Worth, Texas 76102-0300

Re: U.S. Army Corps of Engineers Dallas Floodway Extension Flood Damage Reduction Project

Dear Mr. Ensch:

The following staff of the Texas Natural Resource Conservation Commission has reviewed the above-referenced project and offer the following comments:

Water Quality Division:

The Data Collection Section has reviewed information regarding a general conformity review on the U.S. Army Corps of Engineers Dallas Floodway Extension Flood Damage Reduction Project. Although we do not anticipate significant long-term environmental impacts from this project as long as construction and waste disposal activities associated with it are completed in accordance with applicable local, state, and federal environmental permits and regulations. However, it is recommended that the applicant take necessary steps to insure that best management practices to control runoff from construction sites be utilized to prevent impact to surface and groundwater.

If you have questions regarding water quality comments, please feel free to contact Mr. Clyde Bohmfalk, Watershed Management Team, at (512) 239-1315.

Thank you for the opportunity to review this project. If I may be of further service, please call me at (512) 239-1486.

Sincerely,

Kathy Beyer
Office of Policy and Regulatory Development

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

September 18, 1997

Environmental Division

Ms. Cindy Jorgensen
Intergovernmental Relations Division
Texas Natural Resource Conservation Commission
P.O. Box 13087
Austin, Texas 78711-3087

Dear Ms. Jorgensen:

Thank you for your response dated September 8, 1997 regarding a general conformity review on the U.S. Army Corps of Engineers Dallas Floodway Extension flood damage reduction project. I appreciate the time you spent to evaluate the proposed project for air quality impacts.

Your communication indicated that the proposed project would likely require certification under Section 401 of the Clean Water Act. As was subsequently discussed and concurred upon between Mr. Mark Fisher and Mr. Billy Colbert of our respective staffs, our intention is to proceed under Section 404(r) with this project. Section 404(r) of the Clean Water Act waives the requirement for the Corps of Engineers to obtain a State Water Quality Certificate provided that information on the effects of the discharge of dredged or fill material into waters of the United States, including the application of the Section 404(b)(1) guidelines, are included in an environmental impact statement (EIS) on the proposed project. Section 404(r) also requires that the EIS be submitted to Congress before the actual discharge takes place or prior to authorization or appropriation of funds for project construction.

A draft EIS is being prepared and scheduled for public and agency review following internal policy review. Your office will be provided with copies and an opportunity to comment upon release for public review. Should your agency have comments on the draft EIS, they will be considered in the finalization of the Section 404(b)(1) analysis.

If you have any further questions regarding the air quality or water quality impacts of the proposed project, please contact Dr. Hank Jarboe (817) 978-3248 or Mr. Billy Colbert (817) 978-3026 of my Ecological Section. Thank you for your time in this matter.

Sincerely,

Paul M Hathorn

for Michael G. Ensch
Chief, Environmental Division

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
[illegible]n Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

September 8, 1997

Michael G. Ensch
Department of the Army
Fort Worth District, Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

Re: General Conformity Review/Flood Damage Reduction Project/Dallas County

Dear Mr. Ensch:

The following staff of the Texas Natural Resource Conservation Commission (TNRCC) has reviewed the above-referenced project and offer the following comments:

Office of Policy and Regulatory Development:

The Office of Policy and Regulatory Development has reviewed the above-referenced project for General Conformity impacts in accordance with 40 CFR Part 93 and Chapter 101.30 of the TNRCC General Rules. The proposed project is located in Dallas County, which is classified as a moderate ozone nonattainment area. Therefore, general conformity rules apply. However, the proposed project should not produce significant emissions increases of ozone precursor emissions. Therefore, a general conformity analysis will not be required.

Although any demolition, construction, rehabilitation or repair project will produce dust and particulate emissions, these actions pose no significant impact upon air quality standards. The minimal dust and particulate emissions can easily be controlled with standard dust mitigation techniques by the construction contractors.

If you have any questions regarding air quality, please feel free to contact Mr. Charles Mueller, Manager, Policy Coordination and Development Section, at (512) 239-1916.

Water Quality Division:

The Standards and Assessment Section has reviewed the above-referenced project. As you are probably aware, this project will likely require a certification, under Section 401 of the Clean Water Act, from the TNRCC, that this project will not result in violations of the Texas Surface Water Standards or other applicable state law. The TNRCC feels that properly designed and constructed wetlands can be very environmentally beneficial. The agency staff

look forward to reviewing this project in the context of that certification.

If you have any questions regarding water quality, please feel free to contact the agency's 401 coordinator, Mark Fisher, at (512) 239-4586.

Thank you for the opportunity to review this project. If I may be of further service, please call me at (512) 239-3518.

Sincerely,

Cindy Jorgensen

Cindy Jorgensen
Intergovernmental Relations Division

CESWF-EV-EE

5 August 1997
Dr. Jarboe/8-3248

MEMORANDUM FOR FILE

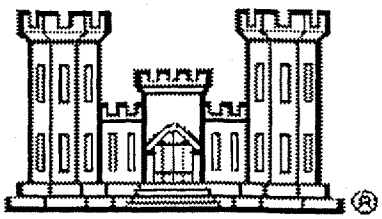
SUBJECT: Interagency Coordination for the Dallas Floodway Extension Flood Control Project Air Quality Impacts/Compliance. TNRCC Response Delay Inquiry.

1. Ms. Jorgenson, Agency Coordinator of the TNRCC Office of Air Quality (512-239-3503) was contacted 4 August 1997 regarding a response for letter dated 23 June 1997 forwarded from TNRCC Arlington Office (Mr. Mike Delacruz- 817-469-6750) regarding air quality compliance for the DFE project.

2. Ms. Jorgenson was recontacted 5 August 1997 regarding response letter. She indicated she had seen the letter prior to moving offices, but as of now it was lost. She requested a facsimilie transmission of a copy of the letter and a response would be compiled and mailed the date of this telephone conversation. A copy of the letter was transmitted to her office at 512-239-3335.

Dr. Hank Jarboe
Environmental Resource Specialist
Ecological Resources Section

ENVIRONMENTAL RESOURCES
819 TAYLOR STREET, 13A18
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300
(CESWF-EV-EE)



US Army
Corps of
Engineers

DATE: August 5, 1997

PAGES: 3

TO:
Name: Ms. Cindy Jorgenson
Office: TNRCC, Office of Air Quality, Federal Agency Coordinator
Telephone #: 512-239-3503
Facsimile #: 512-239-3335

FROM:
Name: Dr. Hank Jarboe
Office: CESWF - EV-EE
Telephone #: 817-978-3248
Facsimile #: 817-978-7539

REMARKS:
Cindy, here is a photocopy of the letter we sent June 23. Verbal communication with Mr. Mike Delacruz of your Arlington Office was conducted prior to composition of this letter. Thank you for your time. ---Hank

Authorization Signature_____

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO ATTENTION OF:

June 23, 1997

Environmental Division

Mr. Jesse Macias
Texas Natural Resource and Conservation Commission
1101 East Arkansas Lane
Arlington, Texas 76010

Dear Mr. Macias:

The U.S. Army Corps of Engineers is proposing to construct a flood damage reduction project in the Dallas Floodway Extension of Dallas, Texas. The proposed project includes an off-channel swale (Chain of Wetlands), consisting of an upper and lower section averaging 400 feet and 600 feet in width, respectively. In addition to the Chain of Wetlands swale, the plan would include the construction of earthen levees on both sides of the river. One levee would extend from the existing Dallas Floodway East Levee to the Rochester Park Levee. The east levee would be about 3 miles long and average 21 feet in height. The other levee would extend from near the confluence of Cedar Creek and the Trinity River downstream to the Central Wastewater Treatment Plant on the west. The west levee would run approximately 2.3 miles and average 20 feet in height. The Chain of Wetlands and levees would impact approximately 600 acres of land. A map of the project area is enclosed.

In accordance with the National Environmental Policy Act (NEPA), Council of Environmental Quality (CEQ) and Engineering Regulations (ER) 200-2-2, the Corps of Engineers is preparing an Environmental Impact Statement (EIS) to address the environmental impacts of the proposed project.

The Corps anticipates no significant contribution to existing regulated air pollutants from either project construction activities or project implementation. There will be no on site storage of petroleum or petroleum based by-products and no stationary sources emitting regulated air pollutants. Construction debris will not be burned on site. A potential mobile emitting source would be the diesel-powered construction equipment. Particulates from dust in the disturbed areas may also be generated causing temporary impacts during construction activites.

Computer simulation models have been run to determine the influence of tree removal on regulated pollutants. Based upon these evaluations, we believe that the Dallas Floodway Extension Project, as proposed, would not affect the State's ability to meet air quality compliance and that no further analysis is necessary.

Mr. Mark Delacruz of your staff has been been contacted regarding the air quality issues of this proposed project. If you have any questions that Mr. Delacruz cannot answer, please contact Dr. Hank Jarboe of my staff. Thank you for your time in this matter.

Sincerely,

Michael G. Ensch
Chief, Environmetal Division

Enclosure

TEXAS HISTORICAL COMMISSION

George W. Bush • *Governor*
John L. Nau, III • *Chairman*
Curtis Tunnell • *Executive Director*
The State Agency for Historic Preservation

HISTORY PROGRAMS DIVISION

April 30, 1998

Dept. of the Army
Corps of Engineers, Fort Worth District
Attn: Michael Ensch
P.O. Box 17300
Fort Worth, TX 76102-0300

Re: Dallas Floodway Extension Project, Dallas, Dallas Co., TX (N25)

Dear Mr. Ensch:

The State Historic Preservation Office [SHPO] reviewed the state undertaking referenced above under Section 106 of the National Historic Preservation Act, 36 CFR 800. The SHPO's National Register Division reviews properties to determine their historical significance.

The National Register Division conducted a review of the following properties by applying state and federal criteria for historical designation:

- Six properties in the vicinity of the Dallas Floodway Extension Project, Dallas, Dallas Co., TX
  - A-6, 2836 & 2838 Alex St.
  - A-7, A-9, 2 buildings at 3040 Morrell St.
  - A-12, 519 Pontiac
  - A-16 2708 11th St.
  - A-36, (?) South Lancaster

These properties are **NOT ELIGIBLE** for listing in the National Register of Historic Places. No further review of this undertaking as it affects this property is required. **For questions about this review contact Gregory Smith, History Programs Division, 512/463-6013.**

It is possible that buried cultural remains may be present in the project area. If such materials are encountered during construction or disturbance activities, work should cease in the immediate area; work may continue in the project area where no cultural materials are present. Please contact the SHPO's Division of Antiquities Protection at 512/463-6096 to consult on further actions that may be necessary to protect the cultural remains. Thank you for your interest in the cultural heritage of Texas, and for your compliance with this federal review process.

Sincerely,

Gregory W. Smith, Historian,
for James W. Steely, DSHPO
National Register Division

P.O. Box 12276 • Austin, TX 78711-2276 • 512/463-6100 • Fax 512/475-4872 • TDD 1-800-735-2989

Advisory Council On Historic Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

Reply to: 12136 West Bayaud Avenue, #330
Lakewood, Colorado 80226

December 22, 1997

Archie D. Pollock III
Major, Corps of Engineers
Fort Worth District
P.O. Box 17300
Fort Worth, TX 76102-0300

REF: *Dallas Floodway Extension Project, Dallas County, TX*

Dear Major Pollock:

Thank you for your letter of November 6, 1997, notifying us of the referenced undertaking. We look forward to participating in consultation for the development of a programmatic agreement. Please send us all pertinent information about the undertaking and a proposed schedule for completion of the consultation effort so that we may adjust our schedules accordingly.

If we can be of assistance, please contact me at (303) 969-5110.

Sincerely,

Alan Stanfill
Historic Preservation Specialist
Western Office of Planning and Review

TEXAS
HISTORICAL
COMMISSION

George W. Bush • *Governor*
John L. Nau, III • *Chairman*
Curtis Tunnell • *Executive Director*
The State Agency for Historic Preservation

October 28, 1997

Michael Ensch
Chief, Planning Division
Dept. of the Army
Ft. Worth District, Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

Re: Draft report: *Archeological, Architectural, Archival, and Geoarcheological Investigations of the Proposed Dallas Floodway Extension Project, Dallas County, Texas.* (COE-FWD, F2)

Dear Mr. Ensch:

Thank you for the opportunity to review the above-referenced draft report. Overall, the report is thorough, well organized, and well written. The geomorphological and archival studies provide information that is used to craft creative specific recommendations for completing cultural resources investigations for this project. We concur with the majority of the authors' recommendations.

Specifically, this office concurs that the following sites within the project footprint are ineligible for inclusion in the National Register of Historic Places (NRHP) due to high levels of disturbance and poor integrity: 41DL69, 70, 84, 220, and 317. However we will be unable to concur that site 41DL104 is ineligible until the other plotted location of the site is examined. If nothing is found at that location, we would concur that the site probably has been destroyed.

This office does *not* concur that the following sites are eligible for inclusion in the NRHP because their potential to address important research questions has not been established: 41DL318, 319, 320, 337, 338, 355, 356, and 357. The results of the recent site visits for some of these sites did not identify where shell was coming from or if associated artifacts were present. the authors are relying on original site records from Skinner's 1991 work, which identified the shell lenses, but did not involve test excavations. In our opinion, the NRHP eligibility status of these sites is currently unknown. We recommend that a comprehensive plan for testing of these sites should be developed in order to establish their data potential.

We concur with the authors' conclusion that the best way to complete consultation for this large-scale, multi-year project would be to develop a Programmatic Agreement. We look forward to assisting the COE in preparation of such a document.

Regarding sites within the APE, but outside of the project footprint, we concur with all of the authors conclusions. Specifically, we concur that site 41DL223 is ineligible for inclusion in the NRHP (because it is a log structure moved to this site with no cultural deposits present) and that all other sites should be considered of unknown eligibility pending further testing.

DIVISION OF ANTIQUITIES PROTECTION
P.O. Box 12276 • Austin, TX 78711-2276 • 512/463-6096 • Fax 512/463-8927 • TDD 1-800-735-2989

Please contact Bill Martin at 512/463-5867 for archeological concerns and Mr. Greg Smith of the National Register Division at 512/463-6013 for architectural concerns.

Sincerely,

James E. Bruseth, Ph.D.
Deputy State Historic Preservation Officer

JEB/wam

cc: Ms. Melissa Green, Geo-Marine, Inc.

TEXAS HISTORICAL COMMISSION

George W. Bush • *Governor*
John L. Nau, III • *Chairman*
Curtis Tunnell • *Executive Director*

The State Agency for Historic Preservation

September 23, 1997

Michael Ensch
Chief, Planning Division
Dept. of the Army
Ft. Worth District, Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

Re: Cultural Resource Investigations for the Proposed Dallas Floodway Extension Area (COE-FWD, F2)

Dear Mr. Ensch:

Thank you for the opportunity to review the above-referenced draft plan for identifying, evaluating, and treating historic properties that may be affected by the proposed levee, wetlands, and sump construction along the floodplain and terraces of the Trinity River. After reviewing the document, we concur with your conclusion that the best way to complete consultation for this large-scale, multi-year project would be to develop a Programmatic Agreement. We look forward to assisting you in preparation of such a document.

We understand that a revised report on the initial investigations completed by Geo-Marine, Inc., is being sent to us for review. Therefore, we will refrain from commenting on the specific eligibility recommendations until we receive the revised version of Appendix H. If we may be of further assistance, please contact Bill Martin of our staff at 512/463-5867.

Sincerely,

William A. Martin

for James E. Bruseth, Ph.D.
Deputy State Historic Preservation Officer

JEB/wam

DIVISION OF ANTIQUITIES PROTECTION
P. O. Box 12276 • Austin, TX 78711-2276 • 512/463-6096 • Fax 512/463-8927 • TDD 1-800-735-2989

December 7, 1998

Executive Office

SUBJECT: Forwarding Copy of Signed Programmatic Agreement for the Dallas Floodway Extension Project, Dallas, Texas

The Honorable Gary McAdams
President - Wichita & Affiliated Tribes
P.O. Box 729
Anadarko, Oklahoma 73005

Dear Mr. McAdams:

We are providing you a copy of the Programmatic Agreement (PA) prepared by the U.S. Army Corps of Engineers, Fort Worth District (CESWF), for a multi-phase / multi-year project in and adjacent to the Trinity River, as part of our responsibilities under the Section 106 of the *National Historic Preservation Act*. This project will construct new levees, add to existing levees, add water control features, and will channelize a portion of the Trinity River within the city limits of Dallas, Texas, for flood control. The PA stipulates responsibilities and treatments for archeological resources located within the project area which are eligible for the National Register of Historic Places and may be adversely impacted by the project. The PA was signed by District Engineer for the Fort Worth District on August 26, 1998, by the Texas Historic Preservation Officer on September 9, 1998, and was formally accepted by the Advisory Council on Historic Preservation on October 8, 1998.

We are providing a copy of the PA to you for your concurrence with conditions stipulated in the document. We would appreciate your signature in the block provided as an indication that you have reviewed the document and agree that the planned actions by CESWF have appropriately considered any potential impacts to potentially significant resources within our project area. Please return a copy of the signed document to our offices when completed for our files. A copy of this letter and the PA are being furnished to your tribal Native American Indian Graves Protection and Repatriation Coordinator. If you have any questions, please contact Mr. Stephen P. Austin in the CESWF Environmental Branch at 817-978-6385.

Sincerely,

Enclosure

James S. Weller
Colonel, U.S. Army Corps of Engineers
District Engineer

Copy Furnished with Enclosure:

Mr. Virgil Swift
NAGPRA Coordinator
Wichita & Affiliated Tribes
P.O. Box 729
Anadarko, Oklahoma 73005

Mr. Austin/rbp/8-6385
METZ CESWF-EV-EC
HATHORN CESWF-EV-E
JOHNS, CESWF-EV
FICKEL CESWF-EV
RICE, CESWF-PM-C
MOCEK, CESWF-PM
MCCARTHY, CESWF-XO
LEEMAN, CESWF-DD
WISE, CESWF-DD
WELLER, CESWF-DE

December 7, 1998

Executive Office

SUBJECT: Forwarding Copy of Signed Programmatic Agreement for the Dallas Floodway Extension Project, Dallas, Texas

The Honorable Elmo Clark
President - Caddo Tribe of Oklahoma
P.O. Box 487
Binger, Oklahoma 73009

Dear Mr. Clark:

We are providing you a copy of the Programmatic Agreement (PA) prepared by the U.S. Army Corps of Engineers, Fort Worth District (CESWF), for a multi-phase / multi-year project in and adjacent to the Trinity River, as part of our responsibilities under the Section 106 of the *National Historic Preservation Act*. This project will construct new levees, add to existing levees, add water control features, and will channelize a portion of the Trinity River within the city limits of Dallas, Texas, for flood control. The PA stipulates responsibilities and treatments for archeological resources located within the project area which are eligible for the National Register of Historic Places and may be adversely impacted by the project. The PA was signed by District Engineer for the Fort Worth District on August 26, 1998, by the Texas Historic Preservation Officer on September 9, 1998, and was formally accepted by the Advisory Council on Historic Preservation on October 8, 1998.

We are providing a copy of the PA to you for your concurrence with conditions stipulated in the document. We would appreciate your signature in the block provided as an indication that you have reviewed the document and agree that the planned actions by CESWF have appropriately considered any potential impacts to potentially significant resources within our project area. Please return a copy of the signed document to our offices when completed for our files. A copy of this letter and the PA are being furnished to your tribal Native American Indian Graves Protection and Repatriation Coordinator. If you have any questions, please contact Mr. Stephen P. Austin in the CESWF Environmental Branch at 817-978-6385.

Sincerely,

Enclosure

James S. Weller
Colonel, U.S. Army Corps of Engineers
District Engineer

Copy Furnished with Enclosure:

Mr. Stacey Halfmoon
NAGPRA Coordinator
Caddo Tribe of Oklahoma
P.O. Box 487
Binger, Oklahoma 73009

Mr. Austin/rbp/8-6385
METZ CESWF-EV-EC
HATHORN CESWF-EV-E
JOHNS, CESWF-EV
FICKEL CESWF-EV
RICE, CESWF-PM-C
MOCEK, CESWF-PM
MCCARTHY, CESWF-XO
LEEMAN, CESWF-DD
WISE, CESWF-DD
WELLER, CESWF-DE

December 7, 1998

Executive Office

SUBJECT: Forwarding Copy of Signed Programmatic Agreement for the Dallas Floodway Extension Project, Dallas, Texas

The Honorable Virginia Combrink
President - Tonkawa Tribe of Oklahoma
P.O. Box 70
Tonkawa, Oklahoma 74653

Dear Ms. Combrink:

We are providing you a copy of the Programmatic Agreement (PA) prepared by the U.S. Army Corps of Engineers, Fort Worth District (CESWF), for a multi-phase / multi-year project in and adjacent to the Trinity River, as part of our responsibilities under the Section 106 of the *National Historic Preservation Act*. This project will construct new levees, add to existing levees, add water control features, and will channelize a portion of the Trinity River within the city limits of Dallas, Texas, for flood control. The PA stipulates responsibilities and treatments for archeological resources located within the project area which are eligible for the National Register of Historic Places and may be adversely impacted by the project. The PA was signed by District Engineer for the Fort Worth District on August 26, 1998, by the Texas Historic Preservation Officer on September 9, 1998, and was formally accepted by the Advisory Council on Historic Preservation on October 8, 1998.

We are providing a copy of the PA to you for your concurrence with conditions stipulated in the document. We would appreciate your signature in the block provided as an indication that you have reviewed the document and agree that the planned actions by CESWF have appropriately considered any potential impacts to potentially significant resources within our project area. Please return a copy of the signed document to our offices when completed for our files. A copy of this letter and the PA are being furnished to your tribal Native American Indian Graves Protection and Repatriation Coordinator. If you have any questions, please contact Mr. Stephen P. Austin in the CESWF Environmental Branch at 817-978-6385.

Sincerely,

Enclosure

James S. Weller
Colonel, U.S. Army Corps of Engineers
District Engineer

Copy Furnished with Enclosure:

Mr. Don Patterson
NAGPRA Coordinator
Tonkawa Tribe of Oklahoma
P.O. Box 70
Tonkawa, Oklahoma 74653

Mr. Austin/rbp/8-6385
METZ CESWF-EV-EC
HATHORN CESWF-EV-E
JOHNS, CESWF-EV
FICKEL CESWF-EV
RICE, CESWF-PM-C
MOCEK, CESWF-PM
MCCARTHY, CESWF-XO
LEEMAN, CESWF-DD
WISE, CESWF-DD
WELLER, CESWF-DE

December 7, 1998

Executive Office

SUBJECT: Forwarding Copy of Signed Programmatic Agreement for the Dallas Floodway Extension Project, Dallas, Texas

The Honorable Juanita Pahdopony
Tribal Administrator - Commanche Tribe
P.O. Box 908
Lawton, Oklahoma 73002

Dear Ms. Pahdopony:

We are providing you a copy of the Programmatic Agreement (PA) prepared by the U.S. Army Corps of Engineers, Fort Worth District (CESWF), for a multi-phase / multi-year project in and adjacent to the Trinity River, as part of our responsibilities under the Section 106 of the *National Historic Preservation Act*. This project will construct new levees, add to existing levees, add water control features, and will channelize a portion of the Trinity River within the city limits of Dallas, Texas, for flood control. The PA stipulates responsibilities and treatments for archeological resources located within the project area which are eligible for the National Register of Historic Places and may be adversely impacted by the project. The PA was signed by District Engineer for the Fort Worth District on August 26, 1998, by the Texas Historic Preservation Officer on September 9, 1998, and was formally accepted by the Advisory Council on Historic Preservation on October 8, 1998.

We are providing a copy of the PA to you for your concurrence with conditions stipulated in the document. We would appreciate your signature in the block provided as an indication that you have reviewed the document and agree that the planned actions by CESWF have appropriately considered any potential impacts to potentially significant resources within our project area. Please return a copy of the signed document to our offices when completed for our files. A copy of this letter and the PA are being furnished to your tribal Native American Indian Graves Protection and Repatriation Coordinator. If you have any questions, please contact Mr. Stephen P. Austin in the CESWF Environmental Branch at 817-978-6385.

Sincerely,

Enclosure

James S. Weller
Colonel, U.S. Army Corps of Engineers
District Engineer

Copy Furnished with Enclosure:

Ms. Phyllis Attocknie
NAGPRA Coordinator
Commanche Tribe
P.O. Box 908
Lawton, Oklahoma 73002

Mr. Austin/rbp/8-6385
METZ CESWF-EV-EC
HATHORN CESWF-EV-E
JOHNS, CESWF-EV
FICKEL CESWF-EV
RICE, CESWF-PM-C
MOCEK, CESWF-PM
MCCARTHY, CESWF-XO
LEEMAN, CESWF-DD
WISE, CESWF-DD
WELLER, CESWF-DE

December 7, 1998

Executive Office

SUBJECT: Forwarding Copy of Signed Programmatic Agreement for the Dallas Floodway Extension Project, Dallas, Texas

The Honorable XXXXXX
City of Dallas
XXXXXX
Dallas, Texas 75XXX

Dear Mr. XXXXXXX:

We are providing you a copy of the Programmatic Agreement (PA) prepared by the U.S. Army Corps of Engineers, Fort Worth District (CESWF), for a multi-phase / multi-year project in and adjacent to the Trinity River, as part of our responsibilities under the Section 106 of the *National Historic Preservation Act*. As you are aware, this project will construct new levees, add to existing levees, add water control features, and will channelize a portion of the Trinity River within the city limits of Dallas, Texas, for flood control. The PA stipulates responsibilities and treatments for archeological resources located within the project area which are eligible for the National Register of Historic Places and may be adversely impacted by the project. The PA was signed by District Engineer for the Fort Worth District on August 26, 1998, by the Texas Historic Preservation Officer on September 9, 1998, and was formally accepted by the Advisory Council on Historic Preservation on October 8, 1998.

We are providing a copy of the PA to you for your concurrence with conditions stipulated in the document. We would appreciate your signature in the block provided as an indication that you have reviewed the document and agree that the planned actions by CESWF have appropriately considered any potential impacts to potentially significant resources within our project area. Please return a copy of the signed document to our offices when completed. If you have any questions, please contact Mr. Stephen P. Austin in the CESWF Environmental Branch at 817-978-6385.

Sincerely,

Enclosure

James S. Weller
Colonel, U.S. Army Corps of Engineers
District Engineer

Mr. Austin/rbp/8-6385
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MCCARTHY, CESWF-XO
LEEMAN, CESWF-DD
WISE, CESWF-DD
WELLER, CESWF-DE

CESWF-DE 7 December 1998

MEMORANDUM FOR Commander, Headquarters U.S. Army Corps of Engineers, ATTN: CECW-AG (Paul D. Rubenstein), 20 Massachusetts Avenue, NW, Washington, DC 20314

SUBJECT: Forwarding Copy of Signed Programmatic Agreement for the Dallas Floodway Extension Project, Dallas, Texas

1. The U.S. Army Corps of Engineers, Fort Worth District (CESWF) has been consulting with the Texas State Historic Preservation Officer (TXSHPO) and the Advisory Council on Historic Preservation (ACHP) to develop a Programmatic Agreement (PA) for the Dallas Floodway Extension Project (Enclosure). The project is a multi-phase / multi-year project and will construct and add existing levees for flood control, add water control features, and will channelize a portion of the Trinity River within the city limits of Dallas, Texas.

2. Because the project has the potential to adversely impact archeological resources within the project area eligible for the *National Register of Historic Places* (NRHP), CESWF entered into consultation with the TXSHPO and ACHP as part of our responsibilities under Section 106 (16 U.S.C. 470*f*) of the *National Historic Preservation Act* (P.L. 89-665 *et seq.*). That consultation has resulted in the referenced PA prepared per the authority at 36 C.F.R. § 800.13 and signed by District Engineer for the Fort Worth District on August 26, 1998, by the Texas Historic Preservation Officer on September 9, 1998, and formally accepted by the Advisory Council on Historic Preservation on October 8, 1998.

3. The PA stipulates that the planned actions by CESWF have appropriately considered any impacts to potentially significant resources within our project area boundaries and further specifies any necessary additional actions by CESWF with regard to the treatment, preservation, and mitigation of, identified and unknown NRHP historic properties.

4. We are providing your office a copy of the PA for your files. If you have any questions, please contact Mr. Stephen P. Austin in the CESWF Environmental Branch at 817-978-6385.

Enclosure

JAMES S. WELLER
COLONEL, EN
COMMANDING

Mr. Austin/rbp/8-6385
METZ CESWF-EV-EC
HATHORN CESWF-EV-E
JOHNS, CESWF-EV
FICKEL CESWF-EV
RICE, CESWF-PM-C
MOCEK, CESWF-PM
MCCARTHY, CESWF-XO
LEEMAN, CESWF-DD
WISE, CESWF-DD
WELLER, CESWF-DE

PROGRAMMATIC AGREEMENT

BETWEEN THE U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT,

THE ADVISORY COUNCIL ON HISTORIC PRESERVATION

AND THE

TEXAS HISTORIC PRESERVATION OFFICER

REGARDING THE DALLAS FLOODWAY EXTENSION PROJECT

WHEREAS the U.S. Army Corps of Engineers, Fort Worth District (CESWF) proposes to extend the Dallas Floodway south along the Trinity River floodplain between Corinth Street and Interstate Hwy. 20, to include construction, renovation, and extension of levees, development of a chain of wetlands with central linear lakes, construction of a series of sumps to contain storm water runoff, and rechannelize approximately 800m (2,600ft) of the Trinity River where it intersects Interstate 45, and which will be referred to herein as the Dallas Floodway Extension Project; and

WHEREAS the CESWF has determined that the Dallas Floodway Extension Project may have adverse effects on historic properties as defined at Section 301 (5) of the National Historic Preservation Act as amended (16 U.S.C. 470w-5); and

WHEREAS because the project is multi-phased over a four year period, has varying degrees of surface and subsurface disturbance, includes a variable identified resource base of historic and prehistoric archaeological sites, and may have an adverse effect on buried cultural resources, the CESWF has elected to comply with Section 106 of the National Historic Preservation Act (16U.S.C. 470f) through execution and implementation of a Programmatic Agreement (PA) pursuant to 36 CFR 800.13; and

WHEREAS the purposes of this PA are to expedite the 106 process by adjusting the relationship between the CESWF and the TXSHPO in the formulation and review of actions related to the DFE Project. This may be accomplished through an agreed upon program of continual interaction and collaboration between the CESWF and the TXHPO on cultural resources discovery and evaluation processes, as well as potential data recovery/mitigative measures. These factors, as well as laboratory procedures and special analyses, and interim reports of findings to other concurring parties, will be covered in stipulations of the PA. Reports on findings will be generated at each project stage although acceptance of a final draft will not be a requisite for continuing work. Problem resolution will be by teleconference; and

WHEREAS the CESWF has consulted with the Advisory Council on Historic Preservation (Council) and the Texas Historic Preservation Officer (TXHPO) in accordance with 36 CFR 800.13 to develop this PA; and

WHEREAS the CESWF pursuant to Section 101(d)(6)(B) of NHPA has invited the Caddo, Tonkawa, Wichita and Comanche tribes of Oklahoma to participate in the consultation in this Programmatic Agreement (PA); and

WHEREAS the CESWF, the TXHPO, and the Council have also invited the City of Dallas to participate in the consultation and to concur in this PA; and

WHEREAS the CESWF and the Council have provided for public involvement of this PA in accordance with 36 CFR 800.13 (c) by Public Scoping Meetings and published public notice; and

NOW, THEREFORE, the CESWF, the Council and TXHPO agree that the CESWF, upon decision to proceed with the DFE Project, shall ensure the following stipulations are implemented in order to take into account the effects of the DFE Project on historic properties.

STIPULATIONS

The CESWF shall ensure that the following stipulations are implemented:

I. General Investigative Requirements

A.) Any modification to the project footprint formulated and presented in the October 1997 Draft EIS will result in a reappraisal by CESWF in consultation with the TXHPO of the known cultural resources that will be subjected to direct or indirect impact by the project.

B.) Once the final construction design has been established, a definitive evaluation will be made on any of the seven previously reported prehistoric archaeological sites (41DL318, 41DL319, 41DL337, 41DL338, 41DL355, 41DL356 and 41DL357) or the historic landfill site (41DL320) that may be impacted by the construction project. The design and implementation of any necessary definitive evaluation (Attachment I) and/or data recovery /mitigative measures (Attachment II) will be carried out prior to beginning construction);

C.) A systematic intensive survey of the upper 80cm in the immediate proposed levee footprint will be completed prior to construction. The purpose of the program will be to search for historic archaeological deposits using a combination of shovel testing and remote sensing devices. Search efforts will be concentrated on high site potential loci identified in or indicated from archival sources. Any resource identified during the procedure will be evaluated for significance as a contributor in the study of historic development and landscape utilization through a specific research design and strategy (Attachment I);

D.) A systematic survey program of deposits below 80cm will be undertaken during the Plans and Specifications Phase prior to beginning construction. This program will be implemented on project footprint terrain that will incur impact below 80cm, ie., sumps, chain of lakes (central channel), river channel realignment (upper 5m). The program may involve the use of probes,

coring devices, backhoe, trackhoe, or a combination of these, to identify buried soil horizons and fossil surfaces with high potential for associated buried cultural deposits. The program will include the evaluation of identified sites in accordance with Appendix I. The mitigation of damages through extensive testing and/or data recovery to any significant resource determined eligible for the NRHP will follow the process outlined in Attachment II;

E.) A monitoring program by a professional archaeological team will be implemented throughout the Construction Phase of the project. Any unanticipated resource encountered will be documented and evaluated in consultation with the TXHPO pursuant to 36CFR800.4 and in accordance with Appendix I, with all those determined to be eligible for the National Register being further subjected to mitigative measures in accordance with Attachment II to minimize loss;

F.) Project review and oversight will primarily rely on review of work in progress, with incremental preparation of interim reports of findings presented in draft and final form for general distribution. In addition, quarterly progress reports written in telegraphic style with tables and figures will be provided to all parties to this agreement;

G.) All information and results of investigations will be the subject of professional technical reports that will be distributed to regional libraries and research facilities. In addition, an edition of the results will be written as a synthesis for distribution to the non-technical public and student population. One-hundred copies of each final report volume will be produced and disseminated broadly to university libraries, state offices and interested parties. Each volume will have a separate management abstract that briefly describes the need for the project, the nature of the cultural investigations and the results of those studies. The abstract will be less than 40 pages in length, printed and bound in manuscript format, and written in a manner that will reach the widest population of readers possible.

II. Treatment of Significant Archaeological Resources

A.) The evaluation and/or data recovery (mitigation) programs in Attachments I and II were developed by the CESWF in consultation with the TXHPO. The programs are responsive to the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48FR44734-37) and take into account the Council's publication Treatment of Archaeological Properties (draft, 1980).

B.) Minimum content of programs covered in Attachment I and Attachment II. The CESWF has ensured the program specifies, at a minimum:

1. A detailed research design and orientation based on prevailing themes and issues that will be addressed through testing or data recovery, with a discussion of why they are relevant;
2. A discussion of the field methodology aspects of the research strategy, with an explanation of how it is integrated with the research issues and themes, as well as a means to amend the recovery strategy, when necessary;
3. A discussion of the analytical techniques and how the results will be applied to the

resolving research issues and themes;

4. The process of model reformulation through periodic incorporation of project data will have a positive effect through increased effectiveness on continued site and component evaluation, as well as on calculating the level of effort in ongoing data recovery/mitigative procedures;

5. Refinements and reformulation of the research design and orientation, as well as the proposed strategy and analytical processes to test the models, will be presented to the TXHPO for a 15 day review prior to initiation of new fieldwork;

6. A discussion of the methods and process to be used in both management and the dissemination of data;

7. The proposed disposition of recovered materials and records;

8. The process for involving the interested public in the dissemination of data;

9. The plan for keeping the tribes informed during testing and data recovery operations;

10. A proposed schedule for field, laboratory and preliminary report production shall be developed for each testing and data recovery plan.

C.) NAGPRA. Pursuant to Section 3(c) of NAGPRA and 43CFR10.5, the CESWF in consultation with the Caddo, Tonkawa, Wichita and Comanche tribes will develop and implement a Plan of Action regarding the management and disposition of Native American Cultural Items. CESWF will ensure that the Plan of Action meets the standards set forth in Attachment C, "Standards for Preparation of NAGPRA Plans of Action." The CESWF will draft a plan for review and comment by the Tribes, who will be given 30 days from receipt to propose modifications.

D.) Curation. Except as provided in Stipulation II. C, CESWF shall ensure that all materials and records resulting from the archaeological investigations are curated in accordance with 36CFR Part 79 by an institution or organization selected by CESWF in consultation with the Council, TXHPO and the tribes.

IV. Disputes and Resolution

A.) Should any party to this PA dispute or object to any action carried out or proposed by the CESWF with respect to the DFE Project or implementation of this PA, the CESWF shall consult with the objecting party to resolve the dispute or objection. If after initiating such consultation the CESWF determines that resolution cannot be made through consultation, the CESWF shall forward all information relevant to the dispute or objection to the Council, including the position of the CESWF relative to the dispute. The Council shall exercise one of the following options within 30 days after receipt of the pertinent documentation:

1.) Advise the CESWF that the Council concurs in the proposed CESWF final decision, whereupon the CESWF will respond to the objection accordingly;

2.) Provide the CESWF with recommendations, which the CESWF shall take into consideration in reaching a final decision regarding a response to the dispute or objection; or

3.) Notify the CESWF that the Council will comment pursuant to 36CFR800.6(b), and proceed to comment. The resulting comment shall be taken into account by the CESWF in accordance with 36CFR800.6(c)(2) and Section 110 (1) of NHPA.

B.) Should the Council not exercise one of the above options within 30 days after receipt of all pertinent documentation, the CESWF may assume Council concurrence with the CESWF response to the dispute or objection.

C.) The CESWF shall take into account any Council recommendations or comments provided in accordance with this stipulation with reference only to the subject of the objection; the CESWF responsibility to carry out all actions under this PA that are not the subjects of the dispute or objection shall remain unchanged.

D.) At any time during implementation of the measures stipulated in this PA, should a dispute or objection pertaining to this PA be raised by a member of the public, the CESWF shall notify the parties to this PA and take the dispute/objection into account, consulting with the disputee/objector and, should the disputee/objector so request, with any of the parties to this PA to resolve the dispute.

V. Amendments

Any party to this PA may propose to the CESWF that the PA be amended, whereupon the CESWF shall consult with the Council and other parties to this PA to consider such an amendment. 36CFR800.13 shall govern the execution of any such amendment.

VI. Termination

A.) If the CESWF determines that it cannot implement the terms of this PA, or if the TXHPO or Council determines that the PA is not being properly implemented, the CESWF, TXHPO or Council may propose to the other parties to this PA that it be terminated.

B.) The party proposing to terminate this PA shall so notify all concurring parties to this PA, explaining the reasons for termination and affording them at least thirty (30) days to consult and seek alternatives to termination.

C.) Should such consultation fail and the PA be terminated, the CESWF shall either:

1. Consult in accordance with 36CFR800.13 to develop a new PA; or
2. Request the comments of the Council pursuant to 36CFR800.5(e)(6).

VII. Expiration

This Programmatic Agreement shall continue in force until such time as the CESWF completes all excavation and construction activity and all DFE Project objectives are operational, which will

include maintenance and stabilization actions which may be required for five years following completion of construction.

VIII. Execution

Execution and implementation of this Programmatic Agreement by the CESWF and the Council, and implementation of its terms, provides confirmation that the CESWF district has afforded the Council and TXHPO an opportunity to comment on the Dallas Floodway Extension Project and its effects on historic properties, and that the CESWF has taken into account the effects of the Dallas Floodway Extension Project on historic properties.

UNITED STATES ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT

By: _____ Date: 26 Aug 98

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____ Date: 10/8/98

TEXAS HISTORIC PRESERVATION OFFICER

By: _____ Date: 9-9-98

CONCUR:

City of Dallas

By: _____ Date: _____

Caddo Tribe of Oklahoma

By:_____ Date:_____

Tonkawa Tribe of Oklahoma

By:_____ Date:_____

Wichita Tribe of Oklahoma

By:_____ Date:_____

Comanche Tribe

By:_____ Date:_____

ATTACHMENT I

PHASE 2 TESTING AND EVALUATION INVESTIGATIONS IN THE DFE PROJECT AREA

Introduction

The CESWF has formulated a baseline framework from the results of the initial DFE cultural investigations. The framework will be the primary control for the levels of effort and fundamental procedures to be utilized by the project during the early stages of investigation. More detailed research objectives and thematic contexts will be required by each successive project element, and these will elaborate upon, test and result in periodic reformulations of the basic framework. As the reliable data base develops and expands, the ability to readily evaluate a property within the context of an archaeological cultural milieu is obtained.

Research Design

The contextual relationships between and among sites or components of a project inventory figure heavily in the process by which they are evaluated in terms of NRHP eligibility. Each component exist in a broad array of both organizational and abstract analytical contexts. However, for purposes of site or component evaluation, the body of interrelated research themes and issues that are based on the results of prior investigations in the project sub-region is available as a contextual apparatus. Research over the past thirty years and earlier addressed the establishment of a reliable cultural chronology with varying degrees of success., More recent work has concentrated on such behavior oriented themes as changes in settlement-subsistence systems, locational strategies, site typology, site formation processes (taphonomy), rudimentary social organization and structure, among others, although the fundamental issue of cultural stratigraphy remains an important component of research. A synthesis of research efforts in the project vicinity is presented elsewhere (Cliff et al. 1998). The models discussed in the cultural resources report, as well as the issues and themes recognized by the Texas Historical Commission and discussed in their regional planning document (Kenmotsu and Perttula 1993), should be utilized as an evaluation framework for archaeological resources. Consideration should also be given to the findings reported in major syntheses by Story et al. (1990) on the cultural ecology of the project area.

In addition to cultural contextual considerations, sites and components within multiple horizontally and/or vertically stratified sites must meet minimal standards to be considered an eligible candidate for the National Register. Since the relationship between and among artifacts is essential to identifying patterns of behavior, such as activity areas and tool kit analyses, the irretrievable loss of provenience of a relatively small number of artifacts in an assemblage or component will severely limit the value of the assemblage in model testing or reformulation. Consequently, the deposits that contain the artifacts should be *in situ* and the artifact patterns should be as intact as possible given the variety of bioturbative and mechanical natural processes

to which they may have been variably effected. If the disturbance is great enough to entirely obscure or destroy the artifact distributional pattern or if the material from several related components are inextricably mixed, the component or components and artifact patterns must be considered unreliable on all but the most basic analytical levels.

The evaluation process must take into account a wide variety of conditions and criteria other than intact cultural materials and *in situ* deposits. Component composition and chronological position become important factors when weighing the value of sites and components against one another. The field study will be supplemented by archival investigations designed to link the historic site to specific families and/or activities. Those components that have intact deposits and can provide key information on the development of historic contexts and themes may be considered eligible for inclusion to the NRHP, and consequently subject to possible mitigative action per Attachment II.. Since data recovery is the most time consuming effort, the components providing the greatest body of reliable information and range of data over relative horizontal space will be given greatest priority. Priority will then be provided to components that can address specific questions or may be essential in addressing and clarifying specific themes or issues. These sites or components may have fewer variables; however, the information generated from these components will be necessary in formulating explanatory models of culture change, etc.

Research Strategy

Phase 2 (testing and evaluation) field methodology and procedures must be oriented to acquiring the data necessary to fulfill the objectives laid out in the research design. Techniques employed may vary with the type of resource being evaluated. For example, the use of a metal detector may be an invaluable aide for investigation of some historic period resources, but have very limited value at others. The use of 10cm or thicker arbitrary levels may be effective in acquiring samples from identified single component prehistoric sites, but their use may be counterproductive in the evaluation of identified multiple horizontally oriented overlapping lenticular artifact distributions typical of multiple stratified prehistoric sites. In addition, many of these latter site class either have been subjected to varying degrees of post-depositional bioturbation or later occupations may have disturbed the distribution left by earlier occupants through intensive site use practices, such as digging storage/refuse pits or hearths/firepits and post holes for structures, among others. As a consequence, the research strategy employed may be oriented toward identifying occupational or walking surfaces rather than horizons, since horizons are frequently post-depositional characteristics imposed on the matrix that may or may not be due, in part, to incorporated cultural debris.

Although standardization, per se, may be considered the ideal pursued in evaluation methodology, the occurrence variability noted above clearly indicates it would not be prudent in all cases. However, guidelines or standards that set minimum and maximum parameters for various evaluation factors are generally recognized throughout the investigative community, as well as state and federal agencies. Such characteristics as controls for horizontal and vertical provenience, establishing definitive horizontal shape (configuration), orientation and size of an

occupation, screen size and technique (water, dry), feature treatment and recordation, among others. The following testing strategy will be applicable to all known archaeological sites considered potentially eligible for inclusion to the National Register of Historic Places (listed in Stipulation I. B.), as well as those historic and prehistoric archaeological sites that will be located during the intensive pre-construction survey investigations and determined potentially eligible:
1. Horizontal dimensions (site delineation) will be established using shovel test excavations or trenching along a standard north oriented grid, with units placed at minimum-maximum intervals of five to 20 meters depending on site characteristics. On sites with deeply buried cultural deposits, coring may be used to identify the surface which can subsequently be reached for testing through removal of overburden by backhoe or other mechanical means.

2. All shovel test units in the upper 100cm of matrix will have horizontal dimensions of 50cm by 50cm. At sites where cultural deposits begin at or below 100cm, trenching may be utilized for vertical delineation of components.

3. Shoring or further horizontal expansion will be necessary before testing operations can proceed at components below 135cm. Mechanical means should be employed to remove overburden that is 40cm or more thick. However, the stripping should be monitored by professional archaeologists to assure that unidentified resources are not destroyed by the process.

4. Once the surface of the uppermost cultural horizon is reached in each test unit, the depth below surface of the stratigraphic sequence, including cultural horizons, will be measured from a permanent datum. Differential variability across a distribution indicates intrasite (component) patterning is present. The intact components that contain higher levels of identifiable and definable activity clusters are evaluated as having greater scientific value; consequently, they are more likely to be eligible for inclusion to the NRHP.

5. Each component in a multiple stratified archaeological site must be recognized for it's potential contribution to modeling past human behavior. Consequently, it is likely that given the moderately high potential that most sites will contain multiple components, some of those components may be determined not eligible, while others at the same locus (horizontal) may be determined eligible.

6. At a minimum, all Phase 2 investigations at a specific locus will require:

a. horizontal and vertical extent of each identified component and/or occupational horizon. At stratified multiple component sites, the surface elevation of each relative to current ground surface should be established;

b. per every 1500 sq. m of horizontal distribution, the minimum excavation of 10 sq. meters of surface area will be undertaken in higher artifact density areas identified during delineation procedures. At least four of the units should be contiguous in order to evaluate potential horizontal variability (activity areas), with maximum horizontal provenience of one sq. m and maximum vertical provenience by occupation layer or 10cm arbitrary level maintained;

c. special samples, such as charcoal, faunal or floral materials, will be collected, bagged and stabilized separately, and matrix samples for flotation will be recovered from all other cultural

features encountered, (e g., hearths, firepits, storage or refuse pits, post molds);

d. for sites with no readily apparent natural or cultural stratigraphy, a minimum of one test unit (one meter square) will be excavated in arbitrary five centimeter control levels to search for changes and concentrations in artifact frequency that may relate to living surfaces;

e. sediment and pollen columns should be taken from an intact profile for later analyses, with special efforts made to isolate and/or bracket those from identified components;

f. a 20cm contour interval (maximum) topographic map will be generated for each site, with all pertinent observations, natural setting and the investigative efforts clearly indicated. The surface of each buried component will be plotted using a permanent surface datum and data points below surface for generation and presentation as a three dimensional GIS layer;

g. scaled profile drawings and descriptions of at least one wall of each test unit will be made, as well as scaled drawings in profile and planform of all observed features. Photographic coverage of all profiles, features and plans will also be maintained;

h. A bag list for all samples taken will be maintained in the field, as well as photographic record forms.

7. All material recovered from Phase 2 field investigations will be stabilized and/or washed and/or dried for analyses and curation. Analyses will be by recognized standard categories so that the information can be readily compared to other samples. Analyses of faunal and floral materials will be carried out at a level which considers a wide array of applications, such as seasonality, environmental reconstruction, climatic change, subsistence strategies, energy/caloric contribution and total diet composition. All materials will be labeled and curated in accordance with Texas Archaeological Research Laboratory guidelines.

8. A preliminary report will be produced on the testing procedures, analyses and results at each locus where Phase 2 investigations were carried out. The report, which will essentially be in the format of a site description, will discuss the results of the analyses, chronological implications, and the evaluation (NRHP eligibility) of the site and/or a specific component or components at a locus in contributing to the body of knowledge and understanding of past inhabitants of the area. In addition, comparisons with other known local or regional sites and/or components should be considered. The description will include a discussion of the testing operations, presentation of the topographic map and a discussion of the topographic setting, discussion of the stratigraphic profile, sequence and soil processes, discussions of the artifactual and cultural materials recovered and the analytical procedures used, the presence or absence of activity patterns or clusters (intrasite/intra-component variability). In addition, the description will provide conclusions as to NRHP eligibility and recommendations on whether additional investigations will provide essential new data. The level of effort for mitigating the adverse effect on an NRHP eligible site or component will be included in the recommendations.

The preliminary report will be geared to the dissemination of primary information and presentation of Phase 2 site/component evaluation results. The project has been designed in order that laboratory and report production processes will be undertaken in tandem with field investigations. The preparation and analyses of special samples, such as floral, faunal, pollen, sediment and charcoal for dating, may take a relatively lengthy time to complete. In addition, the

results of these studies are most effective in comparative analyses that precedes syntheses, although they are also utilized to explain factors like the activities and rationale of an occupation or possibly the time of year and the prevailing climatic conditions. The preliminary report will note whether special samples were recovered from a site/component and their status in the ongoing analytical process..

9. A final report on the testing operations will be produced upon completion of testing operations and prior to initiating construction. This report will incorporate the findings from all phase 2 investigations in two formats. The initial format will be primarily presentation of the testing program research design and strategy, site specific data presentation and recommendations for additional work, if necessary. The results of all special samples will be incorporated in each site report, which will include a segment on site interpretation and integration into a larger research paradigm. The second format will concentrate on a synthesis of the phase 2 investigations and a reformulation of the model and research issues or themes explicit in the research design, such as changing settlement patterns and subsistence strategies, adjustments to climatic maximums and minimums, other so-called 'mid-range' themes such as demographics and social structure or organization, ... , as well as environmental reconstruction and change. Any Phase 3 data recovery operations at specific components tested during the Plans and Specifications phase or Phase 3 mitigation actions undertaken at sites located and evaluated during the Construction phase must address the issues and themes of the reformulated research design.

ATTACHMENT II

PHASE 3 DATA RECOVERY AND MITIGATIVE ACTIONS AT HISTORIC PROPERTIES IN THE DFE PROJECT AREA

Mitigation will take place through two separate processes: 1) as planned procedures resulting from the anticipated loss of data from an identified historic property during projected construction; 2) as salvage operations following on-site evaluation of resources located during construction monitoring and are subsequently determined to be historic properties. The former will follow the evaluation program discussed in Attachment I, and the data recovery strategy will be determined by the results of the testing and the specific themes and research elements which can be addressed through additional investigations at particular loci or components. The field procedures and laboratory analyses will be contingent on the testing results, which will be incorporated into the reformulated research design for Northeast Texas.

By contrast, the mitigation program followed during construction would include many aspects of phase 2 testing and phase 3 data recovery, although all work would be accomplished under crisis management conditions. As a consequence, this latter program would potentially suffer persistent time constraints, which will give it a 'salvage archaeology' character. However, the project contains enough elements to insure that in most instances land moving activities in an area could be routed to an alternate work location until mitigative plans are implemented for any significant cultural resources discovered during construction. *To insure that maximum flexibility is maintained, the construction contractor will be required to identify alternate work areas for each project element.*

Primary concerns during this phase 3 operation is with the excavated areas associated with sumps, diversion channel and chain of wetlands construction. The location of sites through the monitoring of trenching actions is generally not highly successful due to a variety of factors, such as pore water intrusion (water in the matrix of soil horizons), smearing of surfaces by machinery, inability to sample using screens, inaccessibility of close inspection, among others. However, since the areas to be disturbed are not limited to a narrow trench, the potential for identifying an unanticipated archaeological component may be enhanced since a greater surface area will be open for inspection. In addition, a considerable body of locational data would have been generated on the nature of the deposits and cultural components by the investigations during the preceding Plans and Specifications phase.

The sumps, which will average 10 acres in size, will be located above the current floodplain along the edge of the valley wall in areas that have been artificially filled during and by historic use of the area. However, historic and prehistoric surfaces and deposits are believed to be present below the fill, and historic period surfaces or features may be present within the fill. The sumps will extend to between 10 and 15 feet (3 to 4.6m) below surface; consequently, the upper four to five meters of deposits will be removed or severely disturbed. Once the boundaries have been established, a coring and/or trenching program will be undertaken to identify buried deposits and

fossil surfaces. Any historic or prehistoric cultural deposits located by the procedures will be examined to determine potential eligibility. Any site or component determined to be potentially eligible will be evaluated by Phase 2 testing procedures, with subsequent Phase 3 data recovery carried out on components determined to be historic properties. Any potentially significant resources discovered by the construction monitoring team may require Phase 2 testing and Phase 3 data recovery programs as mitigative measures.

The diversion channel, which is approximately 365 meters in length and 70 meters in width, will effect deposits to at least 12 meters below surface. The upper deposits will be sampled during activities covered in the general plan and Phase 2 investigations, with a core sampling plan to identify fossil horizons and evaluate site potential also part of the planned general investigation. However, with the exception of potential testing and data recovery operations on deeply buried archaeological sites (ie., below three meters) identified from the coring program, Phase 3 work will undertaken after identification during construction monitoring.

By contrast, the Chain of Wetlands will essentially be shallow, but will include a central channel or lake that is 20 meters wide and has a maximum depth of three meters. Construction of the central channel will disturb deposits to between three and four meters below surface. The planned program includes: a Phase 1 intensive survey of the upper meter of deposits and a sampling plan for the lower three meters using cores to identify high site potential fossil surfaces and cultural deposits, followed by trenching to inspect the deposits; a Phase 2 testing and evaluation operation at any significant cultural deposits located, and; Phase 3 data recovery at any eligible property that will be adversely effected by construction. However, the linear character of the 20 meter wide central lakes will tend to bisect a variety of buried fossil features, e.g., floodplain rises, relict levees, cut-off meanders (oxbow lakes), that may have associated cultural components. Consequently, Phase 2 and Phase 3 operations may be necessary as mitigative measures of significant resources located by the construction monitoring team.

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

May 7, 1998

REPLY TO
ATTENTION OF:

NOTICE OF AVAILABILITY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT

Draft General Reevaluation Report and Integrated Environmental Impact Statement, Dallas Floodway Extension, Trinity River Basin, Texas.

All interested parties are hereby notified that the U.S. Army Corps of Engineers, Fort Worth District, has prepared a draft report with an integrated Environmental Impact Statement (EIS) addressing proposed activities to provide flood damage reduction and environmental restoration within the Trinity River Basin, City of Dallas, Dallas County, Texas.

Authority. This Notice of Availability is being issued to interested parties in accordance with the National Environmental Policy Act (NEPA) of 1969, Public Law (PL) 91-190, as amended, and the implementing regulations in Engineering Regulation (ER) 200-2-2. Flood damage reduction studies were conducted under the authority of Section 301 of the Rivers and Harbors Act of 1965.

Purpose and Background. Historic flooding and damages were investigated and details of their effects are included in this report. The primary project study area extends along the Trinity River from the existing Dallas Floodway to the confluence of Five Mile Creek, a distance of approximately 9.5 miles. The entire area experienced severe property damages in May 1989 and May 1990 flood events. Two thousand five hundred and fifty structures are located within the existing hydrologic condition Standard Project Floodplain of the study area. Based on January 1997 prices, these structures are estimated to sustain equivalent annual damages of approximately $6.5 million.

Proposed Action and Alternatives. A wide range of structural and non-structural flood control measures evolved from the analysis of available economic, environmental, engineering, and social data during the course of this study. Non-structural alternatives include flood proofing, relocation, and permanent evacuation. The structural alternatives analyzed during the preliminary screening included channelization, clearing and grubbing, detention dams, swales, levees and combination plans. Additionally, variations of the final concept were analyzed to ensure that the solution was properly located and sized to provide the highest net annual benefits. Alternative plans identified and evaluated included the "No-Action" alternative.

Construction of two 1,200-foot bottom width swales was found to produce the greatest net benefits. This swale plan, extending from the existing Dallas Floodway downstream

to approximately 2,000 feet below Loop 12, a total length of 4.8 miles, and separated at Interstate Highway (IH) 45, was identified as the National Economic Development (NED) Plan.

Public opposition to the adverse environmental impacts to forested lands associated with the NED Plan prompted the local sponsor, the city of Dallas, to request investigation of alternatives that would be less environmentally detrimental. The Federally Supportable Plan (FSP) includes the Chain of Wetlands, which provides flood damage reduction and environmental restoration; the Lamar Levee and sumps which provide Standard Project Flood protection; the Cadillac Levee which provides 100-yr flood protection; and the realignment of the Trinity River through the Interstate Highway 45 bridge to reduce structural damage to the bridge, recreation and environmental mitigation. The Locally Preferred Plan (LPP) is similar to the FSP except that the Cadillac Levee would be sized to provide Standard Project Flood (800-yr frequency event) protection. See Figure 1 for location of proposed project features. The scale precludes depiction of the proposed 20 miles of 10-foot wide, concrete trail and 5 miles of natural surface nature trails. The proposed recreation plan also includes at least 9 access areas and three pedestrian bridges across the river channel.

The Chain of Wetlands would be multipurpose in nature, acting to route flood waters and to provide environmental benefits to numerous wildlife species during non-flood events. A total of seven wetland cells comprise the upper and lower chains roughly bounded by the IH-45 crossing of the flood plain. Treated effluent from the Central Wastewater Treatment Plant would be used to optimize wetland values within the system. The footprint of the constructed chain of wetlands complex would include approximately 123 acres of emergent wetland, 45 acres of permanent water, and 102 acres of grassland-forbland interfacing with the wetlands.

The Lamar Street Levee would extend over a total length of 16,419 feet. The average height of the levee would be 17.6 feet and it would have a maximum height of 31.0 feet. The Lamar Levee would require five sumps varying in size from 1.68 to 17.10 acres with a total surface area of 40.86 acres to accommodate interior drainage.

The Cadillac Levee (FSP) would tie into the existing Central Wastewater Treatment Plant Levee and would be approximately 5,838 feet in length. It would have an average height of 5.2 feet and a maximum height of 16.1 feet. The FSP levee would contain a 400 foot long section of floodwall between the livestock barn and main plant structures at the Dallas Packing Plant. The Cadillac Levee (LPP) would be 11,191 feet long with an average height of 14.9 feet and a maximum height of 25.75 feet.

The proposed relocation of the Trinity River at the IH-45 crossing would result in realignment of about 3,300 feet (2,000 feet west of and 1300 feet east of the IH-45 Bridge) of existing river channel. The new channel would have an average depth of 15 feet with an average bottom slope that is zero from beginning to end. The channel would have a 30-foot bottom width, 3H:1V side slopes and a top width of approximately 180 feet. The existing channel would be filled to the existing top of bank elevation of 396.0

DALLAS FLOODWAY EXTENSION

PROJECT LANDS AND OPEN SPACE

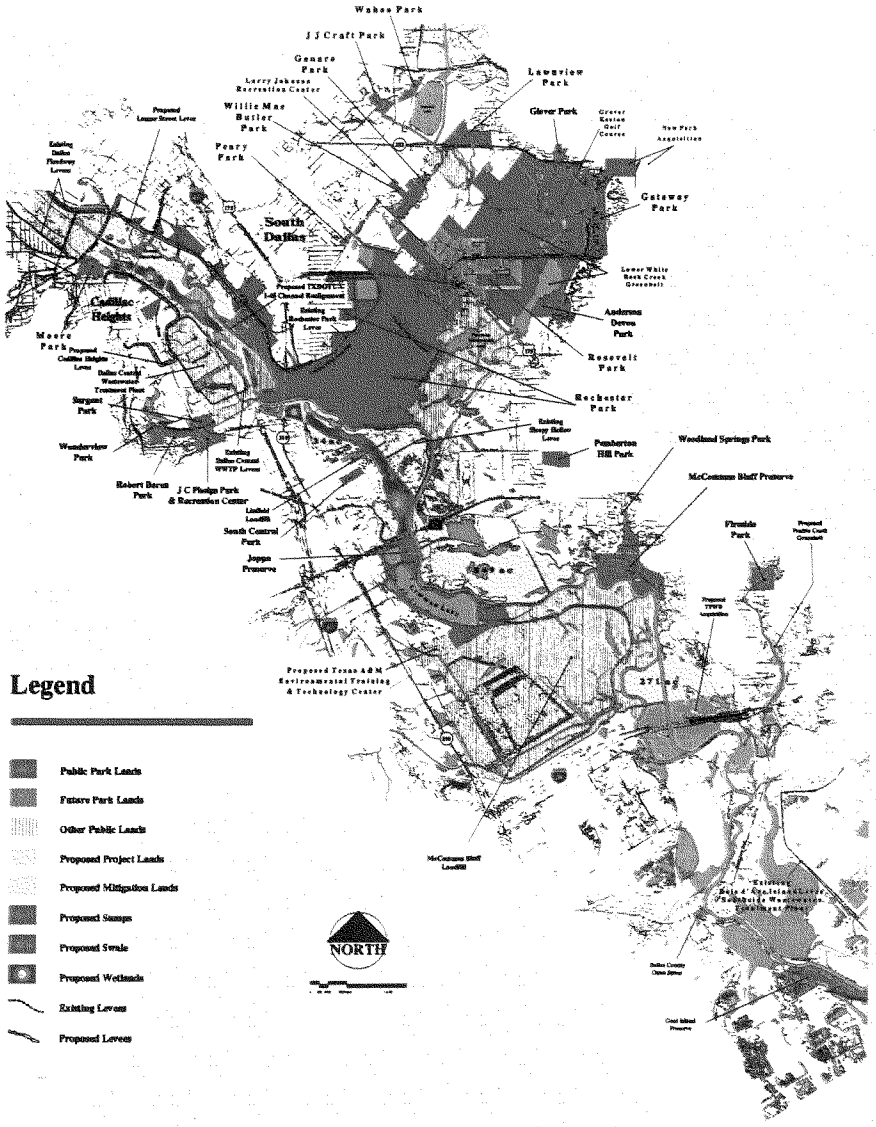

FIGURE 1

U.S. ARMY CORPS OF ENGINEERS

to approximately 2,000 feet below Loop 12, a total length of 4.8 miles, and separated at Interstate Highway (IH) 45, was identified as the National Economic Development (NED) Plan.

Public opposition to the adverse environmental impacts to forested lands associated with the NED Plan prompted the local sponsor, the city of Dallas, to request investigation of alternatives that would be less environmentally detrimental. The Federally Supportable Plan (FSP) includes the Chain of Wetlands, which provides flood damage reduction and environmental restoration; the Lamar Levee and sumps which provide Standard Project Flood protection; the Cadillac Levee which provides 100-yr flood protection; and the realignment of the Trinity River through the Interstate Highway 45 bridge to reduce structural damage to the bridge, recreation and environmental mitigation. The Locally Preferred Plan (LPP) is similar to the FSP except that the Cadillac Levee would be sized to provide Standard Project Flood (800-yr frequency event) protection. See Figure 1 for location of proposed project features. The scale precludes depiction of the proposed 20 miles of 10-foot wide, concrete trail and 5 miles of natural surface nature trails. The proposed recreation plan also includes at least 9 access areas and three pedestrian bridges across the river channel.

The Chain of Wetlands would be multipurpose in nature, acting to route flood waters and to provide environmental benefits to numerous wildlife species during non-flood events. A total of seven wetland cells comprise the upper and lower chains roughly bounded by the IH-45 crossing of the flood plain. Treated effluent from the Central Wastewater Treatment Plant would be used to optimize wetland values within the system. The footprint of the constructed chain of wetlands complex would include approximately 123 acres of emergent wetland, 45 acres of permanent water, and 102 acres of grassland-forbland interfacing with the wetlands.

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The Cadillac Levee (FSP) would tie into the existing Central Wastewater Treatment Plant Levee and would be approximately 5,838 feet in length. It would have an average height of 5.2 feet and a maximum height of 16.1 feet. The FSP levee would contain a 400 foot long section of floodwall between the livestock barn and main plant structures at the Dallas Packing Plant. The Cadillac Levee (LPP) would be 11,191 feet long with an average height of 14.9 feet and a maximum height of 25.75 feet.

The proposed relocation of the Trinity River at the IH-45 crossing would result in realignment of about 3,300 feet (2,000 feet west of and 1300 feet east of the IH-45 Bridge) of existing river channel. The new channel would have an average depth of 15 feet with an average bottom slope that is zero from beginning to end. The channel would have a 30-foot bottom width, 3H:1V side slopes and a top width of approximately 180 feet. The existing channel would be filled to the existing top of bank elevation of 396.0

NGVD to a point just downstream of the bridge. The remainder of the existing channel would remain unfilled and connected to the Trinity River for recreational access and aquatic habitat diversity.

Disposal of clean surplus material would occur in a previously disturbed surface mine site. Disposal of clean fill would be within an approximate 1000 acre site in the city of Dallas bounded by Post Oak Road, Pleasant Run Road, East Wintergreen Street, and Cottonwood Creek. The site is located across from the Southside Wastewater Treatment Plant located near the Southern Dallas County border.

An environmental mitigation plan for the FSP would involve acquisition of 1,135 acres in additional project lands, and would consist of grassland preservation, conversion of grassland to bottomland hardwood areas, and habitat improvement on existing bottomland hardwood areas. Environmental mitigation for the LPP would require acquisition, habitat development and management of 1,179 acres. The mitigation lands would be located within the Trinity flood plain within the general vicinity of the proposed project.

Public Meeting. A Public Meeting will be held Tuesday, June 9, 1998 in the Magnolia Ballroom of the Ramada Plaza Hotel, 1011 South Akard Street, Dallas, Texas. Information related to the project will be available as well as personnel from the U. S. Army Corps of Engineers to discuss various aspects of the proposed plan beginning at 5:00 p.m. Beginning at 7:00 p. m., after a brief project overview, the public and agencies will be afforded the opportunity to formally comment on the Draft EIS.

The official closing date for the receipt of comments is 45 days from the date on which the notice of availability of the Draft GRR/EIS appears in the Federal Register which is anticipated to be on or about May 15, 1998.

Copies of the Draft General Reevaluation Report and integrated EIS are available for review at the U.S. Army Corps of Engineers, P.O. Box 17300, 819 Taylor Street, Fort Worth, Texas 76102-0300. Copies have also been distributed to libraries in Dallas, Texas. The main text of the draft GRR/EIS is also available for review on the Fort Worth District Internet Home Page at http://www.swf.usace.army.mil/. For further information, contact Mr. Gene T. Rice, Jr., Project Manager, at U.S. Army Corps of Engineers, Fort Worth District, CESWF-PM-C, P.O. Box 17300, Fort Worth, Texas 76102-0300 or call at (817) 978-2110.

James S. Weller
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District Engineer

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APPENDIX M

SUPPLEMENTAL DATA

(1397)

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

09 NOV 1998

REPLY TO
ATTENTION OF

MEMORANDUM FOR DIRECTOR OF CIVIL WORKS

SUBJECT: Dallas Floodway Extension, Dallas, Texas

We have evaluated your request to recommend a Standard Project Flood (SPF) level of protection for the subject project. The basis for our evaluation is your memorandum dated August 18, 1998, and supplemental data provided by your Planning Division.

The Dallas Floodway Extension Project was authorized by Section 301 of the River and Harbor and Flood Control Act of 1965. The project would extend from the existing Dallas Floodway downstream about 9 miles to Five Mike Creek. The project developed in the current General Reevaluation Report includes a chain of wetlands plus setback levees along both banks of the Trinity River. Except for the levee protecting the Cadillac Heights neighborhood, all the levees provide a SPF level of protection at a high degree of reliability. The Cadillac Heights levee would only provide 100-year level of protection at a 34 percent reliability.

I concur in your recommendation to provide SPF protection for the entire Dallas Floodway Extension project for the following reasons. First, the alternative levee for the Cadillac Heights neighborhood does not meet Federal Emergency Management Agency standards for protecting the area from a 100-year flood, nor does it provide an acceptable level of reliability, particularly when compared with other project elements. Second, the alternative levee for Cadillac Heights exposes this area to increased flooding due to the construction of other project levees. Exposing this minority and low-income community to the disproportionately high and adverse impacts of such flooding is not appropriate. Finally, Congress has already authorized the project, including the Cadillac Heights levee, at a SPF level of protection. For the reasons noted above, the project providing a consistent SPF level of protection is not an exception to policy. The project is the Federal Supportable Plan and subject to normal cost sharing.

Joseph W. Westphal
Assistant Secretary of the Army
(Civil Works)

DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
WASHINGTON, D.C. 20314-1000

SA8082101

REPLY TO
ATTENTION OF:

CECW-PC

18 AUG 1998

MEMORANDUM FOR Assistant Secretary of the Army for Civil Works

SUBJECT: Dallas Floodway Extension, Dallas, Texas - Request For Exception

1. PURPOSE: To submit my recommendation regarding a request for policy exception to selection of the National Economic Development (NED) plan, for the Dallas Floodway Extension, Dallas, Texas project. In this specific case, the request is really for an exception to the Federally Supported Plan (FSP) and not the NED Plan. The FSP is a smaller element of the NED plan that is combined with incrementally justified elements in the form of levees. HQUSACE and ASA(CW) acceptance of the FSP was accomplished at an Alternative Formulation Briefing (AFB) held in June 1997. The Locally Preferred Plan (LPP) is a plan that increases the level of protection of the Cadillac Heights levee, to a height and level of protection that is consistent with most of the other FSP levees, but which is not incrementally justified. As such, this request for exception is to the FSP and not the NED plan; but in concept it should be viewed as the same, since the FSP is the basis for cost sharing.

2. BACKGROUND:

a. The existing Federal flood damage reduction project at Dallas, Texas, consists of two levees (East Levee and West Levee) that were designed to provide protection to the downtown Dallas community, from the Standard Project Flood (SPF), which was then estimated as a flood that would have an Annual Chance of Exceedance (ACE) of approximately 0.11% (approximately a 900-year event). These levees were authorized for construction by the Rivers and Harbors Acts of March 2, 1945 and May 17, 1950. Construction of these levees was completed in 1960. Since that time, development in the upstream basin and vegetative growth (forestation) in the channel downstream of the two levees, have resulted in a significant lowering of the provided level of protection. At this time, the levees only provide protection from the 0.4% ACE (250-year) flood. In addition the Dallas community has grown to the east, downstream of the existing Federal project. Local communities constructed several non-Federal levees to provide partial protection to these areas. These levees are the Central Waste Water Treatment Plant (CWWTP) and the Rochester Park Levees. These levees currently provide protection from the approximate 0.7% ACE (140-year) flood. Other areas, including the Cadillac Heights Community and the Lamar Street Community, have no structured flood protection. Flooding would occur in these communities with as low as a 20% ACE (5-year) flood.

b. The Dallas Floodway Extension, Dallas, Texas study was authorized by Section 301 of the River and Harbor and Flood Control Act of 1965. The proposed project would extend from the downstream end of the existing Dallas Floodway Flood Control Project. The recommended plan consists of a 3.7-mile-long swale with a 400 to 600-foot bottom width and excavated wetlands and tree plantings (environmental restoration features) within the swale to form a "chain of wetlands." This plan would incorporate existing non-Federal levees at Rochester Park and the Central Wastewater Treatment Plant, and would add two new levees at Lamar Street and Cadillac Heights. The levees would have an average height of 21 feet and would be about three miles long.

CECW-PC 18 AUG 1998
SUBJECT: Dallas Floodway Extension, Dallas, Texas - Request For Exception

c. A request for exception was initiated by a 3 June 1998, CESWF-PM-C memorandum, subject: Dallas Floodway Extension, Dallas, Texas - Request For Exception (enclosure 1). This request was endorsed by the Southwestern Division Commander on 8 July 1998 (enclosure 2). If approved, this exception would allow the LPP to be fully cost shared, in lieu of the non-Federal sponsor providing 100 percent of all costs that are greater than the FSP.

3. DISCUSSION: The following provides pertinent information regarding the FSP and the LPP.

a. Federally Supportable Plan (FSP). The FSP would restore SPF level of protection to the existing Federal levees, would provide the same to the Lamar Street Community, but would only provide protection from the 1.0% ACE (100-year) flood for the Cadillac Heights Community. With implementation of the FSP, a flood event greater than the 1.0% ACE flood would overtop at the Cadillac Heights levee and subject the community to a real possibility of loss of life. The Cadillac Heights levee, being lower, would overtop prior to the other higher levees. A 1.0% ACE flood would likely overtop the proposed Cadillac Heights FSP levee. About 131 residential and 29 commercial structures would incur damages, putting approximately 328 people at risk. The maximum flood depth, which is measured at the lowest protected structure, would be 10.7 feet. A Standard Project Flood would overtop the FSP at the Cadillac Heights levee by over 9 feet. About 215 residential and 66 commercial structures would incur damages, putting approximately 538 people at risk. The maximum flood depth would be approximately 20 feet.

b. Locally Preferred Plan (LPP). The LPP would provide the same level of protection to the Cadillac Heights Community as would be provided to the East, West, and Lamar Street Levees. Current risk and uncertainty modeling programs, which calculate levels of confidence only up to a 0.2% ACE (500-year) flood, shows that these levees would provide protection from the 0.2% ACE (500-year) flood, with confidence levels varying from 86% to 92%. They would pass the SPF with lesser confidence levels.

It is likely that the LPP will be the recommended plan in the final report, as the sponsor is not willing to implement the FSP. The non-Federal sponsor is fully aware that the LPP would provide a lesser, but consistent level of protection for the four leveed areas. In all cases, the level of protection that would be provided by the LPP would be far greater than that provided without a project. The community is willing to accept this trade-off condition. The Sponsor, and community at large, do not feel that the Federally Supported Plan is implementable because of the social impacts that are evident; that is, providing a lower level of protection, and higher risk of loss of life, to the low-income, minority community of Cadillac Heights.

c. Options for the Selected Plan: There are three viable options that should be considered for the project.

OPTION 1. Construct the FSP with traditional cost sharing (75% Federal; 25% non-Federal).

OPTION 2. Construct the LPP at 100 percent non-Federal cost above the FSP level.

OPTION 3. Construct the LPP at full traditional cost sharing (75% Federal; 25% non-Federal).

18 AUG 1998

CECW-PC
SUBJECT: Dallas Floodway Extension, Dallas, Texas - Request For Exception

In selecting an option, the first question is whether the FSP is really implementable. The FSP is engineeringly feasible, economically justified, and environmentally acceptable, but it is clearly not socially acceptable from the local sponsor's point of view. Even though the FSP is considered implementable from the Federal perspective, I believe Option 3 should still be selected, as the increase in Federal cost is relatively small ($1,197,200), and this economic cost should not be weighed against the added social cost of Option 2. I believe that the District and Division are correct in their warning that in selecting Option 2, the Federal Government would open itself to severe criticism by the American public. By selecting the LPP, emphasis would be placed on lives, people, equality and implementability. Other than maximizing benefits, all other goals and objectives would be met with the selection of Option 3.

4. RECOMMENDATION FOR EXCEPTION: I recommend that the Locally Preferred Plan (LPP), be the federally selected plan and that the exception be granted, providing full cost sharing per Option 3, above. Not only is the FSP socially unacceptable from the sponsor's point of view, I believe that there is a risk in selecting a plan that would result in an increased risk to life in a low income, minority community, while providing a higher level of protection and lower risk to life for the rest of the community. Additional basis for this recommendation is provided in the enclosed District/Division request for exception.

FOR THE COMMANDER:

2 Encls
as

RUSSELL L. FUHRMAN
Major General, USA
Director of Civil Works

CESWD-ETP-S (CESWF-PM-C/03 June 1998) (1105-2-100) 1st End
Mr. Gerrity//214-767-2310
SUBJECT: Dallas Floodway Extension, Dallas, Texas - Request For Exception

8 JUL 1998

Commander, U.S. Army Engineer Division, Southwestern, ATTN: CESWD-ETP-S, 1114 Commerce Street, Dallas, Texas 75242-0216

FOR Commander, U.S. Army Corps of Engineers, ATTN: CECW-PC, 20 Massachusetts Ave. NW, Washington, DC 20314-1000

1. The city of Dallas has expressed the desire to assure social equity in the construction of flood damage prevention measures in urban areas along the Dallas Floodway. The subject exception request is forwarded for your review and processing to the Assistant Secretary of the Army (Civil Works) for his approval. The requested exception would provide a Standard Project Flood (SPF) levee at Cadillac Heights instead of the 100 - year levee currently included in the Federally Supported Plan (FSP). The primary beneficiaries of the increased protection would be low-income and minority residents along this reach.

2. The proposed increased levee height is not incrementally justified. However, there are valid, overriding and compelling reasons favoring the selection of the larger Locally Preferred Plan (LPP), as outlined in the district's request.

3. I strongly support the request for exception to the FSP. I recommend that the exception be granted and that the cost sharing for the SPF-levee at Cadillac Heights (LPP) is the same as for the FSP.

4. If you have any questions, please contact Mr. John Gerrity, CESWD-ETP-S, (214)767-2310.

SIGNED

Encl
nc

DONALD R. HOLZWARTH
Colonel, EN
Commanding

CF:
CESWD-PPM (w/encl)
CESWF-PM-C (wo encl)

16

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO ATTENTION OF
CESWF-PM-C

3 June 1998

MEMORANDUM FOR Commander, Southwestern Division, 1114 Commerce Street, Dallas, TX 75242-0216

SUBJECT: Dallas Floodway Extension, Dallas, Texas - Request For Exception

1. Reference memorandum, CESWF-PM to USACE, ATTN: CECW-AR, 31 October 1997, subject: Dallas Floodway Extension, Dallas, TX, General Reevaluation Report (GRR) and Integrated Environmental Impact Statement (EIS).

2. Purpose: This document presents supporting rationale for the request for an exception by the Assistant Secretary of the Army (Civil Works) to allow Federal participation in a Locally Preferred Plan (LPP) for the subject project in accordance with paragraph 5.16.c of ER 1105-2-100.

3. Sponsor: City of Dallas, Texas.

4. Background: Continued extensive urbanization throughout the Trinity River watershed is a significant factor influencing both the current and future flood problems. Various Federal and non-Federal flood control projects have been constructed to alleviate the flooding problems. Federal projects which have significantly reduced the threat to life and property include the Fort Worth and Dallas Floodways and six reservoirs. These various projects are shown in the enclosed figure EP-1.

a. Existing Dallas Floodway Flood Control Project: The existing Dallas Floodway Flood Control Project, completed in 1960, protects downtown Dallas. The levee system extends along the Trinity River upstream from the AT&SF Railroad bridge (River Mile 497.37). The East Levee is 11.7 miles long. The West Levee is 10.9 miles long. The Dallas Floodway includes an improved channel and various pumping plants, pressure conduits, and drainage structures. The levees were designed to convey the Standard Project Flood (SPF). The SPF was estimated as a flood with a peak discharge of 226,000 cubic feet per second (cfs) with greater than a 900-year level of protection. Since construction, the project flood flow capacity has diminished, and the level of protection is no longer adequate. The East Levee now protects against floods with a 0.4 percent chance of exceedance with an 83 percent level of confidence, while the West Levee now protects against floods with a 0.2 percent chance of exceedance with an 83 percent level of confidence.

b. Authorized Dallas Floodway Extension Project: Construction of the Dallas Floodway Extension (DFE) was authorized by the River and Harbor and Flood Control Act of 1965 (P.L. 89-298) as one of five projects in the Trinity River project. As authorized, the DFE would extend about nine miles from the downstream end of the existing Dallas Floodway to Five Mile Creek,

including the lower end of White Rock Creek. The authorized plan includes about 9.6 miles of tributary channel improvements.

In 1981, the authorized plan was reevaluated in a General Design Memorandum (GDM). The GDM recommended channels and levees for flood protection, and designated approximately 5,000 acres between the levees as a greenbelt-recreation area. The floodway was designed to convey the SPF, or 270,000 cfs. The total cost of the recommended plan was estimated at $199.2 million (1997 prices). In 1985, work was terminated on the DFE following the failure of a city of Dallas bond election intended to support the project. No further action was pursued regarding reauthorization; therefore, the 1965 plan remains the Authorized Plan.

c. The General Reevaluation Study: Major flooding in 1989 prompted the City to restart the DFE project development. A general reevaluation, initiated in FY91, determined that the originally authorized project is no longer justified. In the draft General Reevaluation Report (GRR), the purpose of the DFE is to restore the authorized flood capacity of the existing Dallas Floodway, and to provide flood damage reduction benefits, environmental restoration features and recreation amenities to the study area.

The draft GRR and EIS was submitted by the referenced memorandum for Washington level policy compliance review. Report completion is scheduled for May 1998. $450,000 has been allocated for FY98 to complete the GRR phase.

5. National Economic Development (NED) Plan: The NED plan consists of 1200-foot bottom width swales, separated at Interstate 45, and designated as upper and lower swales. The first cost of the NED Plan is approximately $59.2 million, including $50.0 million attributable to flood control and $9.2 million to recreation. Average annual flood control benefits of $13.6 million are provided by this plan, yielding a flood control benefit-cost ratio of 2.46. Total net annual flood control benefits for the NED Plan are $8.0 million.

One of the most controversial issues that surfaced with the NED Plan was the overwhelming public opposition to the plan because of its adverse impact on environmental resources within the study area, and the vast amount of mitigation required for implementation. The plan would eliminate over 725 acres of mature bottomland hardwoods, would fragment the remaining habitat, and would require the purchase and management of approximately 3,200 acres of mitigation land. Land acquisition of this magnitude within an urban area would be challenging due to a lack of readily available resources. Widespread public opposition to the NED Plan, based primarily on environmental concerns, caused the City to doubt the NED Plan was implementable. The magnitude of these adverse impacts and oppositions led the City to seek a more environmentally sensitive plan.

Another controversial issue regarding the NED Plan deals with the beneficiaries -- downstream residents versus the Central Business District (CBD). A large portion of the benefits (74 percent) attributable to the NED Plan would be experienced along the existing Dallas Floodway, a Federal levee project located immediately upstream of the current study area which protects the CBD, and not within the actual study area being targeted for flood damage reduction.

6. Federally Supportable Plan: The Federally Supportable Plan (FSP), also known as the Chain-of-Wetlands-Plus-Levees Plan, includes the development of the Chain of Wetlands, incorporation and modification of non-Federal levees, construction of new flood damage reduction levees, and construction of new recreation facilities which are compatible with the regional recreation master plan, including hike/bike trails, equestrian trails, canoe launches and pavilions. These separable elements are described below.

a. Chain of Wetlands: The Chain of Wetlands consists of swales (shallow ditches or overflow channels) separated at Interstate Highway 45. The upper swale would have a 400-foot width and would extend from Cedar Creek to the oxbow lake at Interstate Highway 45, a distance of about 1.5 miles. The lower swale would have a 600-foot width and extend from Interstate Highway 45 to Loop 12, a distance of about 2.2 miles. It would be aligned through the Linfield Landfill and Sleepy Hollow Golf Course to minimize impacts to adjacent historic neighborhoods and bottomland hardwood trees situated in forested areas along the river. Excavated wetlands and vegetative plantings would be added as environmental restoration features to form the "Chain of Wetlands." A Congressional amendment to the original authorization will be needed to add the environmental restoration purpose.

b. Non-Federal Levees: Flooding and increased public pressure led the City to construct the Rochester Park Levee and improve the existing Central Wastewater Treatment Plant (CWWTP) Levee. Both are along the alignment of the authorized DFE project.

(1) CWWTP Levee: The CWWTP Levee is along the west bank. It was upgraded in 1993 at a cost of $14,220,000. The design was based on coordination with the Corps to ensure that the levee would be physically compatible with the authorized project. The upgraded levee currently provides protection from floods corresponding to a one percent probability of occurrence, with a confidence level of 66 percent. No modifications to this levee are proposed as part of the FSP.

(2) Rochester Park Levee: The Rochester Park Levee is along the east bank. It was constructed between 1991 and 1993 at a cost of $12,738,000. It was built generally following the alignment proposed in the authorized plan. The levee currently provides protection from floods corresponding to a one percent probability of occurrence, with a confidence level of 63 percent. Modifications to this levee are proposed, as discussed below.

(3) Water Resources Development Act of 1996 Section 351: Section 351 modifies the authorized project to include the Rochester Park and the CWWTP levees and allow the costs to be included in the project costs, and credited against the non-Federal share, to the extent the work is compatible with the project and required for construction of the project as determined by Assistant Secretary of the Army for Civil Works (ASA(CW)). The draft GRR recommends that the CWWTP Levee and a portion of the Rochester Park Levee be included in the FSP, with credit granted accordingly. Part of the Rochester Park Levee is not recommended for credit because it is not necessary for the construction of the FSP. The creditable portion of the Rochester Park Levee is estimated at $8,900,000.

c. New Levees: This plan would include construction of two new earthen levees, the Lamar Street Levee on the east bank and the Cadillac Heights Levee on the west bank.

(1) Lamar Street Levee: The Lamar Street Levee would extend on the east bank from the existing Dallas Floodway East Levee to the Rochester Park levee, a distance of 2.9 miles. This levee has an average height of 21 feet. About 1,000 feet of the existing Rochester Park levee would be raised about one foot. About 4,500 feet of the Rochester Park levee would be made unnecessary by the Lamar Street levee. The levee would provide protection from floods corresponding to a 0.2 percent probability of occurrence, with a confidence level of 92 percent. Analysis has shown that the levee providing maximum NED contributions is larger than the LPP, as shown in the enclosed Figure 5-2 (as shown in the draft GRR). As per Planning Guidance Letter 97-10, no attempt was made to identify the larger levee which maximizes benefits.

(2) Cadillac Heights Levee: The Cadillac Heights Levee would extend on the west bank from near Cedar Creek to the CWWTP, a distance of 5,838 feet long (1.1 miles). The top-of-levee elevations would range from 412.5 to 416.3 feet. The average levee height is 5.2 feet, with a maximum height of 16.1 feet. A 400-foot long concrete floodwall would be constructed to protect the main structures of a meat packing plant located upstream of the Missouri-Kansas-Topeka railroad. This levee/floodwall system would protect against a 115,200 cfs flood with a one percent chance of exceedance (100-year level of protection) at a 50 percent level of confidence. This height is considered to be the optimum height from an NED perspective, as indicated by the optimization curve shown in Figure 5-1 (as shown in the draft GRR).

d. Environmental Impacts: The plan would eliminate about 146 acres of mature bottom land hardwood forest, cause minimal fragmentation, and require the purchase of 1,135 acres of mitigation land at a cost of approximately $4.0 million.

CESWF-PM-C
SUBJECT: Dallas Floodway Extension, Dallas, Texas - Request For Exception

e. Costs and Benefits: The estimated economic flood control only project costs for the FSP are shown in the following table:

Project Element	Construction	LERRD	Total
Chain of Wetlands	$42,565,000	$13,469,000	$56,034,000
Cadillac (100-year)	2,203,000	2,272,000	4,475,000
Lamar (SPF)	9,897,000	8,116,000	18,013,000
Subtotal	$54,665,000	$23,857,000	$78,522,000
Non-Federal Work			
CWWTP	$14,030,000	$ 190,000	$14;220,000
Rochester (compatible)	8,144,000	756,000	8,900,000
Subtotal	$22,174,000	$ 946,000	$23,120,000
Total Project	$76,839,000	$24,803,000	$101,642,000

The plan has a total investment cost of $105,482,000 for flood control only and a flood control benefit-cost ratio of 1.81. In addition to the flood control features, $5,542,000 is proposed for environmental restoration, and $7,318,000 for recreation. The total financial cost of the FSP is $118,490,000.

7. LPP: City concerns about flood damage reduction in the Cadillac Heights area resulted in formulation of the LPP. The sponsor desires a level of protection greater than the FSP in this area. The City has requested that an exception be granted to include the Cadillac Heights Levee at a height that would protect against the SPF as part of the plan recommended for Federal action with Federal participation in the added height. Additional components/modifications to the FSP are detailed below:

a. Raising the Cadillac Heights Levee: The LPP will provide a level of flood protection to the Cadillac Heights area that is consistent with the SPF level of protection provided upstream and across the channel. The length of the Cadillac Heights Levee would increase to 11,891 feet (2.25 miles), with top-of-levee elevations varying from 421.5 to 426.0 feet. The average height would be 14.9 feet with a maximum height of 25.75 feet. The levee would provide protection from floods with a flow of 201,000 cfs, which has an exceedance probability of 0.2 percent (a 500-year flood), with a confidence level of 91 percent. Increasing the Cadillac Heights level of protection from the one percent exceedance level to SPF decreases the level of protection in the existing Dallas Floodway from a 900-year to 800-year level of protection, which are both rare, infrequent events.

b. Raising the CWWTP Levee: The City, after considering two options, elected not to pursue raising the CWWTP to provide SPF protection. One option, referred to as the "long option", included raising the entire CWWTP Levee to SPF levels. The preferred alternative, referred to as the "short option" and included in the LPP, involves raising only a portion of the CWWTP Levee to provide SPF protection to the Cadillac Heights neighborhood, but NOT providing SPF protection to the CWWTP. The City's decision to support the short option was based on several factors. The city's commitment to providing much needed protection to the people in the Cadillac Heights neighborhood was a driving force, and necessitated the inclusion of a levee in this area. The perception of many of the lower income, minority residents downstream of the existing Dallas Floodway is that flood damage risks to their lives and property were increased, due to the Dallas Floodway levees, in order to protect the businesses upstream. From an economic perspective, the "short option" provides greater annual benefits than the "long option". The "long option", while providing increased protection to the CWWTP, provides less protection in the upstream Dallas Floodway. Comparatively, the "short option" raises SPF flood elevations at the downstream end of the existing Dallas Floodway about 0.65 feet less than the "long option". The "short option", in conjunction with the Chain of Wetlands and the SPF Lamar levee, increases the protection to the CWWTP from the current 140-year level to about the 500-year level. Furthermore, in the event of a flood greater than about the 500-year frequency, the flooding of the CWWTP would in essence be a safety valve for the upstream Dallas Floodway levee. Comparatively, the "long option" would remove this safety valve and the critical low point in the levee system would be around the upstream Central Business District (CBD). In addition, since the "long option" would primarily benefit only the CWWTP, the incremental cost of this option over the "short option" was assumed to be entirely a non-Federal responsibility. The City did not deem this $3.5 million cost increase justifiable for an increase in protection from the 500-year level to the SPF level.

c. Environmental Impacts: No significant incremental environmental impacts to critical natural resources, such as bottomland hardwoods and/or wetlands, have been identified for increasing the Cadillac Heights levee height to the SPF level. Mitigation requirements for the SPF levee are not expected to increase significantly over those required for the one percent levee height.

d. Costs and Benefits: The estimated economic flood control only project costs for the LPP are shown in the following table. The LPP total project costs (financial) are estimated at $91,156,000 for construction and $32,003,000 for LERRD. The total cost is estimated at $123,159,000, which is $4,670,000 greater than the FSP. For the flood control features only, the total investment cost is $110,779,000, the average annual cost is $8,937,000, the average annual benefits are $13,051,000, the average annual net benefit is $4,114,000, and the benefit-cost ratio is 1.46. Raising the Cadillac Heights levee to provide SPF protection reduces flood protection upstream along the existing Dallas Floodway by $2,164,000 annually (primarily to businesses in the CBD) while increasing the level of protection behind the levee by $83,500 annually (primarily to residences in Cadillac Heights).

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SUBJECT: Dallas Floodway Extension, Dallas, Texas - Request For Exception

Project Element	Construction	LERRD	Total
Chain of Wetlands	$42,565,000	$13,469,000	$56,034,000
Cadillac (SPF)	3,661,000	5,452,000	9,113,000
Lamar (SPF)	9,897,000	8,116,000	18,013,000
Subtotal	$56,123,000	$27,037,000	$83,160,000
Non-Federal Work			
CWWTP	$14,030,000	$ 190,000	$14,220,000
Rochester (compatible)	8,144,000	756,000	8,900,000
Subtotal	$22,174,000	$ 946,000	$23,120,000
Total Project	$78,297,000	$27,983,000	$106,280,000

8. Urban Flood Protection: Paragraph 5.17.c of ER 1105-2-100 states that the documentation required by Paragraph 5-17.a of ER 1105-2-100 is also required for seeking a granted exception for plans providing greater than 100-year protection. The following subparagraphs describe each portion of Paragraph 5-17.a as it applies:

a. Urban Area: Neither the FSP nor the LPP would leave urban areas within the post-project 100-year flood plain, although the confidence limits applied to the protection of Cadillac Heights are rather low. The FSP does, however, leave a portion of the study area subject to flooding from major events above the one percent probability of exceedance, including the Cadillac Heights area. Other areas such as below White Rock Creek (Reach 1) are still subject to flooding during rare events, but these are sparsely populated in comparison to Cadillac Heights. The LPP provides SPF protection to an additional major damage center. With implementation of the LPP, 287 structures would no longer be at risk from the SPF event within the Cadillac Heights area. With the FSP, 207 structures would no longer be at risk from the 100-year flood within the same area, but 271 structures would be subject to inundation in SPF events (Note: 16 structures would be removed from the SPF floodplain as a result of the chain of wetlands construction).

b. Incremental Costs: Increasing the height of the Cadillac Heights Levee and modifying the CWWTP Levee would change the first costs, annual cost, annual benefits, and benefit-cost ratios for the flood control only features of the two plans as shown in the following table. Costs and benefits for other features, including environmental restoration and recreation features, would not change. As a total system, the FSP has net flood damage reduction benefits of $6,817,000, with a benefit-to-cost ratio of 1.81. Comparatively, the LPP has net annual flood control benefits of $4,114,000, with a Benefit-Cost Ratio (BCR) of 1.46. The average annual flood control net benefits would decrease about $2,700,000, or about 40 percent.

CESWF-PM-C
SUBJECT: Dallas Floodway Extension, Dallas, Texas - Request For Exception

Benefit-Cost Comparison of Federally Supportable Plan and LPP
Flood Control Only
(October 1997 prices, 7.125% interest, 50-year period of analysis)

Project Alternatives Include Land/Mitigation & HTRW Costs	FSP	LPP	Difference
INVESTMENT			
Estimated First Cost	$78,521,600	$83,159,400	$4,637,800
Interest During Construction	$3,840,600	$4,499,800	$659,200
Cost of Non-Federal Levees	$23,120,000	$23,120,000	$0
Investment Cost	$105,482,200	$110,779,200	$5,297,000
ANNUAL CHARGES			
Interest	$7,779,300	$8,169,900	$390,600
Amortization	$228,200	$239,700	$11,500
Operation/Maintenance ($/year)	$441,000	$527,000	$86,000
Replacements	$0	$0	$0
TOTAL ANNUAL CHARGES	**$8,448,500**	**$8,936,600**	**$488,100**
ANNUAL BENEFITS			
Inundation Reduction	$5,337,000	$5,286,800	($50,200)
Insurance Subsidy	$94,200	$94,200	$0
Existing Dallas Floodway	$8,790,800	$6,626,400	($2,164,400)
IH-45 Proposal	$1,043,500	$1,043,500	$0
TOTAL BENEFITS	**$15,265,500**	**$13,050,900**	**($2,214,600)**
NET BENEFITS	**$6,817,000**	**$4,114,300**	**($2,702,700)**
BENEFIT-COST RATIO	**1.81**	**1.46**	**-0.35**

The costs shown include LERRD and mitigation costs. The prevailing Federal interest rate of 7.125 percent was applied. A project life of 50 years was assumed. The total difference in investment cost of $5,297,000, or an increase of 5 percent, allows for a project to be constructed which stresses social equality for Cadillac Heights residents, compared to upstream existing reaches and also to those residing on the east side of the river. Furthermore, it addresses the issue of existing negative impacts in the study area being a result of project implementation upstream, while restoring flood protection back to original levels in the upstream reaches.

c. Cost Sharing Impacts: Tables 6-7 through 6-9, as shown in the draft GRR, present the cost apportionment calculations for the Recommended Plan and the LPP. Table 6-10 shown below (extracted from the draft GRR) reflects the cost apportionment for the Recommended Plan. The total cost of this plan was estimated at $118.5 million. As shown, the Federal cost, prior to application of the levee credit, would total approximately $78.8 million (66.5 percent), while the non-Federal cost would equal approximately $39.6 million (33.5 percent).

Table 6-10
Cost Apportionment Data for Recommended Plan

Purpose	Federal Cost	Non-Federal Cost	Total Cost
Flood Damage Reduction	$71,584,000	$34,045,500	$105,629,500
Environmental Restoration	$3,602,000	$1,939,600	$5,541,600
Recreation	$3,659,200	$3,659,200	$7,318,400
Sub-Total	$78,845,300	$39,644,200	$118,489,500
Percentage	66.5	33.5	100
Credit for Compatible Non-Federal Construction	$22,174,000	($22,174,000)	
Total	$101,019,300	$17,470,200	$118,489,500
Uncredited Compatible Non-Federal Construction		$0	

Table 6-11 (extracted from the draft GRR) shows the cost apportionment for the Locally Preferred Plan, should an exception be approved for full Federal participation in the implementation of the LPP. The total cost of the LPP was estimated at $123.2 million, a difference of $4.7 million compared to the Recommended Plan. With an approved exception, and prior to application of the levee credit, the Federal share was calculated to be approximately $80.0 million (65 percent), while the non-Federal share was estimated at $43.1 million (35 percent). Table 12 (extracted from the draft GRR) shows the cost apportionment for the LPP in the absence of an exception, and the additional incremental sponsor cost to construct the Locally Preferred Plan. The Federal share of the LPP in this scenario, and prior to application of the levee

credit, was calculated to be approximately $78.8 million (64%), while the non-Federal share was estimated at $44.3 million (34%).

Table 6-11
Cost Apportionment Data for Locally Preferred Plan - With Exception

Purpose	Federal Cost	Non-Federal Cost	Total Cost
Flood Damage Reduction (FSP)	$72,781,300	$37,517,900	$110,299,200
Environmental Restoration	$3,602,000	$1,939,600	$5,541,600
Recreation	$3,659,200	$3,659,200	$7,318,400
Sub-Total	$80,042,500	$43,116,700	$123,159,200
Percentage	65	35	100
Credit for Compatible Non-Federal Construction	$22,174,000	($22,174,000)	
Total	$102,216,600	$20,942,600	$123,159,200
Uncredited Compatible Non-Federal Construction		$0	

Table 6-12
Cost Apportionment Data for Locally Preferred Plan - Without Exception

Purpose	Federal Cost	Non-Federal Cost	Total Cost
Flood Damage Reduction (FSP)	$71,584,000	$34,045,500	$105,629,500
Environmental Restoration	$3,602,000	$1,939,600	$5,541,600
Recreation	$3,659,200	$3,659,200	$7,318,400
Sub-Total for Recommended Plan	$78,845,300	$39,644,200	$118,489,500
Additional Sponsor Cost to Construct Recommended Plan	$0	$4,669,700	$4,669,700
Sub-Total for Recommended Plan	$78,845,300	$44,313,900	$123,159,200
Percentage	64	36	100
Credit for Compatible Non-Federal Construction	$22,174,000	($22,174,000)	
Total	$101,019,300	$22,139,900	$123,159,200
Uncredited Compatible Non-Federal Construction		$0	

d. National Flood Insurance Program (NFIP): Flood prone areas within the 100-year floodplain of the watershed were identified by Federal Emergency Management Agency (FEMA) in March 1984. The city of Dallas enrolled in the National Flood Insurance Program's Emergency Program since June 19, 1970, and the Regular Program since July 23, 1971, and currently holds 2,833 flood insurance policies valued at $146,577,700. The LPP will not reduce non-Federal eligibility requirements for the NFIP, since both the FSP and LPP remove the same amount of structures from the 100-year FEMA floodplain.

e. Disaster Relief: The LPP has the potential to reduce future net subsidized reimbursements for flood losses, both insured and uninsured relative to the FSP. If flood events occur which are over and above the design level, the Cadillac Heights Levee, as formulated in the FSP, is subject

to flanking and overtopping. All structures being protected by the levee would be inundated, some by water levels at catastrophic levels. Disaster declaration would be a certainty, as would tremendous negative publicity against the Corps, and the city of Dallas.

f. Local Planning Environment: It is unlikely that the LPP would significantly change the local planning environment relative to the FSP. Both plans would remove the restrictions usually reserved for areas which flood at recurrence intervals more frequent than the one percent chance flood.

(1) With-project Residual Risk and Induced Damages: Annual residual damages in the Cadillac Heights Levee area are $100,500 with the one percent levee and $17,100 with the SPF levee. Annual residual damages for the proposed project area are $6,025,700 with the one percent levee and $8,240,400 with the SPF levee. There are no changes in residual damages associated with modifying the CWWTP levee.

(2) Floodplain Development: No changes in the floodplain development with the LPP relative to the FSP are anticipated.

9. Residual Risk Reduction: Paragraph 5.17.c of ER 1105-2-100 states that the documentation required by Paragraph 5-17.b of ER 1105-2-100 is also required for seeking a granted exception for plans providing greater than 100-year protection. During major floods, residents typically have little warning, less than a day's notice, to evacuate. It is not uncommon for areas flooded to remain inundated up to a week or more.

a. Features to Reduce Structural Failure: The Cadillac Heights levee in the LPP is less likely to overtop and fail due to its increased height relative to the FSP. The probability of exceeding the design is reduced from one percent to approximately 0.125 percent in any given year.

b. Features to Reduce Hazard of Overtopping: The 100-year Cadillac Heights Levee would be designed with the initial overflow area located along Cedar Creek, upstream of the protected reach. The area would be fully inundated prior to any overtopping of the levee structure. Thus, no catastrophic type failure would take place. The SPF Cadillac Heights Levee would perform in a similar manner, but at SPF levels.

c. Non-Structural Measures to Reduce Residual Risk: There are no non-structural measures planned which would reduce residual flood risk.

10. Special Conditions Which Remain Critical: This documentation is required by Paragraph 5-17.c of ER 1105-2-100 to address special considerations that are critical and are not fully captured in the residual risk analyses.

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SUBJECT: Dallas Floodway Extension, Dallas, Texas - Request For Exception

a. Flood Characteristics:

(1) Historical Floods: A number of major floods have been recorded in the study area prior to and since the turn of the century. The flood of record occurred in May 1908 and had an estimated peak discharge of 184,000 cubic feet per second at the Dallas gage. This flood caused the death of 11 persons and produced over $5 million (1908 dollars) in damage. The following table presents the frequencies of floods since 1957. Frequencies for flood events prior to 1957, when construction of dams/reservoirs within the upstream watershed was completed, are not comparable to frequencies computed after this construction, and are not included in this table. None of these floods would overtop the proposed Cadillac Heights levee at either elevation.

Time of Significant Flood Event	Dallas Gage Discharge (CFS)	Frequency (Year)
May 1957	75,300	28-yr.
May 1966	42,100	6-yr.
May 1969	67,000	20-yr.
Nov 1981	37,400	5-yr.
May 1989	58,700	15-yr.
May 1990	82,300	35-yr.
Dec 1991	62,200	17-yr.

The flood of October 1981 sustained damages estimated at $15.2 million (1981 dollars). The flood of May 1990 damaged or destroyed about 200 homes and businesses in Rochester Park and 24 homes in South Dallas. Damages exceeded $30 million (1990 dollars) in Dallas.

(2) H&H Analyses: As extensive urbanization has taken place upstream of the study area, the stage versus frequency curve has continued an upward shift. Increased runoff due to the change in imperviousness, as well as reduced valley storage, are major causes of this upward shift. Increased roughness downstream has also contributed to the shift. Public perception, however, remains strong that upstream Corps projects are major contributors to the problem, and only equal protection will remedy the issue.

The effect of future upstream development on increasing runoff over time was considered in the analyses. Future runoff was computed for the year 2050. For the Cadillac Heights Levee, the 100-year flood is estimated to rise 0.4 feet, and SPF is expected to rise 0.5 feet.

(3) Transfer of Damages: The completed Dallas Floodway project, which ends about one mile upstream of the proposed Cadillac Heights Levee, was designed to provide an SPF level of protection. The Dallas Floodway channels convey flood waters downstream more quickly and the levees confine flood waters which previously spread out over the upstream floodplain. Both factors have raised the downstream water surfaces and led to more severe flooding in the Dallas Floodway Extension area, including the Cadillac Heights area, when flood events occur.

(4) Concentration of Damages: The proposed Lamar Levee (immediately across the channel) is justified at the SPF level. Implementing the Cadillac Heights Levee at a comparatively lower height would cause flood damages to concentrate in the Cadillac Heights area when flood events exceed the one percent probability of exceedance.

(5) Flood Warning Times: The SPF hydrograph indicates an approximate 14-hour time difference between overtopping of a 100-year levee and overtopping of the SPF levee at Cadillac Heights. This additional time provided by the added levee height could be critical to evacuation procedures. Furthermore, and perhaps more importantly, the public's perception of a levee project is generally that of "total" protection, with little understanding of the different levels of risk associated with different levee heights. The false sense of "total" security yields the potential for a higher risk of loss of life associated with the 100-year levee.

b. Characteristics of Protected Area: The Cadillac Heights levee protects an urban area with a mix of commercial, residential, and public infrastructure facilities. However, the primary beneficiaries of the increased flood protection would be local residents in the reach. The sponsor's commitment to providing equal protection to the residents is highlighted by their desire to pursue higher flood protection for Cadillac Heights, while electing not to pursue increased flood protection to the city-owned Central Wastewater Treatment Plant.

c. Concerns of Others:

(1) City of Dallas: This request for exception is critical to the sponsor, the city of Dallas, and its public involvement efforts. The sponsor is very concerned about the social inequity and public acceptability issues that construction of the FSP could generate. Social inequity is already an issue due to perceptions that the Dallas Floodway project shifted flood damages from the central business district to low-income and minority neighborhoods. Over the years, repeated flooding has caused losses of life and led to significant financial losses to residences, businesses, and infrastructure in the DFE area. Repeated flooding has created undesirable physical conditions within the area forcing some people and businesses to relocate from the area. Such conditions have also prevented economic growth and adversely affected community economic health. The Cadillac Heights area is a low income minority residential neighborhood and light industrial area.

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(2) Transportation Interests: The Texas Department of Transportation initiated a Major Investment Study of the traffic congestion in the Dallas area in June 1996. This study recommends improvements estimated to cost in excess of $1 billion, including a roadway (Trinity Parkway Reliever) within the existing floodway and extending southward, utilizing a portion of the proposed Dallas Floodway Extension project. Construction of the SPF levee around the Cadillac Heights area would protect existing roads, as well as any new improvements, from catastrophic flood events.

11. Options:

a. Construct LPP at 100 Percent Non-Federal Cost above FSP Level: Construction of only the FSP would open up the City and the Corps to severe criticism from local citizens as well as National organizations such as the NAACP. The social inequity issue is so strong that the sponsor has acknowledged it will be forced to purse the LPP without regard to cost sharing differences. The total cost difference to the sponsor, with exception versus without an exception, is $1,197,200. To the sponsor, this may be a small additional price to pay in order to avoid the potential problems. There is some concern by the City that the FSP may not be an implementable project.

b. Construct LPP at Full Federal Cost Share above FSP Level: Given the data provided above, and acknowledging that the FSP would be extremely difficult to implement, this option has many reasons for being selected. Other than maximizing benefits, all other goals and objectives are being full achieved with this project. Emphasis is being placed on lives, people, equality, and implementability.

12. Recommendation: Based on the compelling evidence provided, I recommend that the request for exception to the FSP be granted, and that the LPP be constructed at full Federal cost share above the FSP level.

Encl

JAMES S. WELLER
Colonel, EN
Commanding

CF:
CECW-PC
CECW-AR

5. Clarifications and Supplemental Data Needs.

a. A good clear map showing existing project and the various features of the extension project. Need to show the chain of wetlands and each levee element of the project, with names.

Response: See maps sent by Federal Express.

b. Some sort of table or list which shows the design discharge and level of protection of the original project as authorized; flow capacity (discharge) and level of protection that the system deteriorated to over time (current conditions); flow capacity (discharge) and level of protection that the system would continue to deteriorated to over time (say in project year 50); design discharge and level of protection is for the Federally Supportable Plan (FSP); and design discharge and level of protection for the Locally Preferred Plan (LPP). If the levels of protection are different for the various levees, please provide that information for each levee. Trying to find out how conditions changed, how they change with the FSP and LPP, and how they change when we add the Cadillac Heights levee.

Response: The requested data is provided in the table below. This should be sufficient to develop a general understanding of the changing conditions. Some additional clarification is needed regarding the Cadillac Heights addition. As a last added element, the Cadillac Heights levee only changes conditions in the reaches upstream of the area, and this occurs only for the LPP height, i.e., the FSP causes no adverse impact to upstream design water surfaces.

Dallas Floodway Extension
Flow Capacity and Level of Protection
for Various Scenarios

Scenario	Flow Capacity (cfs)		Level of Protection	
Dallas Floodway (1960)	226,000 (design)		SPF	
Authorized Extension Project	270,000 (design)		SPF	
Current Conditions	212,000		550-yr (Floodway only)	
Year 2050 without Project	192,000		400-yr (Floodway only)	
Year 2000 with FSP	Cadillac	Remainder	Cadillac	Remainder
	115,200	269,200	100	SPF
Year 2000 with LPP	269,200		SPF	

c. Information on the level of confidence on the various levees. The Fort Worth District memorandum provides data on the discharge, level of protection, and "level of confidence" of some of the levees. Need similar data for the levees in the FSP and the LPP. Over the phone the other day you said the Cadillac Heights levee in the Federally Supportable Plan (100-year) has a

48% confidence level. Some of this data may be in Paragraph 3b of the Fort Worth District's memorandum.

Response: Two tables have been extracted from the DFE draft report, and are provided below. The reaches corresponding to the numbers are: (1) Five Mile Creek to White Rock Creek, (2) White Rock confluence area, (3) Rochester Park, (4A) Lamar Street Area, (4B) Oakland Channel, (5) Cadillac Heights, (6) Central Wastewater Treatment Plant, (7) Dallas Floodway East Levee, and (8) Dallas Floodway West Levee.

Please note that table D-34 shows the level of confidence for passage of the 100-year event is only 34%, and not the 48% as stated in your comment. Also, the tables provide no confidence levels for the SPF. The model used for the computation, HEC-FDA, does not provide this information primarily because the SPF varies in frequency from watershed to watershed.

Table D-34
Project Performance by Reach For
Chain of Wetlands with SPF Lamar and 100-Year Cadillac Levees

		Expected Annual Target Stage Exceedance Probability		Long Term Risk (Years)			Conditional Non-Exceedance Probability by Event					
Reach	Target Stage	Median	Expected	10	25	50	10%	4%	2%	1%	.4%	.2%
1	395.70	0.193	0.201	0.8935	0.9963	1.0000	0.0521	0.0004	0.0000	0.0000	0.0000	0.0000
2	401.88	0.042	0.049	0.3977	0.7185	0.9208	0.9480	0.4314	0.1153	0.0093	0.0012	0.0001
3	levee	0.000	0.000	0.0027	0.0068	0.0135	1.0000	1.0000	0.9999	0.9958	0.9805	0.9313
4A	levee	0.001	0.001	0.0098	0.0243	0.0481	1.0000	1.0000	0.9992	0.9799	0.9257	0.8004
4B	levee	0.007	0.010	0.0956	0.2222	0.3950	1.0000	0.9878	0.8835	0.5022	0.2639	0.1041
5	levee	0.010	0.014	0.1317	0.2974	0.5063	0.9998	0.9630	0.7739	0.3360	0.1446	0.0472
6	levee	0.002	0.003	0.0334	0.0815	0.1563	1.0000	0.9996	0.9904	0.8812	0.7082	0.4699
7	levee	0.000	0.000	0.0036	0.0090	0.0179	1.0000	1.0000	0.9999	0.9945	0.9759	0.9165
8	levee	0.000	0.000	0.0045	0.0111	0.0221	1.0000	1.0000	0.9998	0.9926	0.9679	.8952

Table D-35
Project Performance by Reach For
Chain of Wetlands with SPF Lamar and Cadillac Levees

Reach	Target Stage	Expected Annual Target Stage Exceedance Probability		Long Term Risk (Years)			Conditional Non-Exceedance Probability by Event					
		Median	Expected	10	25	50	10%	4%	2%	1%	.4%	.2%
1	395.70	0.197	0.204	0.8977	0.9967	1.0000	0.0461	0.0004	0.0000	0.0000	0.0000	0.0000
2	401.88	0.042	0.049	0.3977	0.7185	0.9208	0.9480	0.4314	0.1153	0.0093	0.0012	0.0001
3	levee	0.000	0.000	0.0026	0.0065	0.0130	1.0000	1.0000	0.9999	0.9952	0.9780	0.9243
4A	levee	0.000	0.000	0.0032	0.0079	0.0157	1.0000	1.0000	0.9999	0.9952	0.9783	0.9244
4B	levee	0.007	0.010	0.0956	0.2222	0.3950	1.0000	0.9878	0.8835	0.5022	0.2639	0.1041
5	levee	0.000	0.000	0.0034	0.0085	0.0170	1.0000	1.0000	0.9999	0.9940	0.9732	0.9101
6	levee	0.002	0.004	0.0402	0.0975	0.1855	1.0000	0.9993	0.9854	0.8421	0.6424	0.3973
7	levee	0.000	0.000	0.0022	0.0055	0.0110	1.0000	1.0000	0.9996	0.9884	0.9526	0.8586
8	levee	0.000	0.001	0.0068	0.0168	0.0333	1.0000	1.0000	0.9998	0.9884	0.9518	0.8555

d. Need to know if the levels of protection claimed for the plans are based on current hydrology, future hydrology (50th year), or some average over time. Need to understand what we are saying on the levels of protection and are we consistent among the individual levees.

Response: All levels of protection cited in the request for exception are based on Year 2000 hydrology. For the report, Year 2050 hydrology was used only in the development of Average Annual Equivalents. The LPP will provide essentially the same level of protection (SPF) to all reaches except reach 6 (Central Wastewater Treatment Plant). The FSP also provides roughly the same level of protection to all reaches except reach 6 and reach 5 (Cadillac Heights). A slight drop in confidence levels to reaches 7 and 8 occurs if the LPP is constructed (a drop from approximately 90 percent to 86 percent for the 0.2 percent event).

6. Additional Areas of Possible Federal Interest.

a. The FSP claims that the Cadillac Heights levee will provide a 100-year level of protection. On the phone the other day I was told that the levee of confidence in this level of protection is only 48%. How does this level compare with the level of confidence we are providing in the existing project and at the other levees for the FSP and LPP? How does this level compare with other projects in the Fort Worth District or Corps-wide standards?

Response: If the 100-year Cadillac Heights levee were constructed, it would be the only urban flood levee within the Fort Worth District to have a design level lower than SPF.

b. If the Cadillac Heights levee only has a confidence level of 48%, does the area still need to have flood insurance. My understanding is that protection against the 100-year flood with only a 48% confidence level would not meet risk based standards for claiming the area does not need flood insurance. If the area really does not have 100-year protection then getting to that level, reducing non-Federal eligibility requirements for the National Flood Insurance Program, and reducing future net subsidized reimbursements for flood losses would be in the Federal interest. It has been a factor in other NED exceptions. What would be the levee height that would meet FEMA standards? Is it the LPP levee or some other levee height? What would that levee cost?

Response: The 100-year Cadillac Heights levee was derived during the optimization process, without regard to the FEMA certification requirements. For the Cadillac Heights levee to meet FEMA's requirements, it would have to be approximately 3 feet higher than formulated for the FSP. Additional analysis would be required to accurately estimate the additional cost of a levee of this height.

c. In looking at Cadillac Heights should we really be looking at it like it is a separable decision? I know we look at projects this way. Formulate making economic decision on each of the parts. But is Cadillac Heights a separable element? It seems to me that based on all that I have heard about what the affect this levee has on upstream hydraulics and protection, or what has been said about upstream levees making conditions worse at Cadillac Heights, that the Cadillac Heights area can't really be separated out the way we have done the analysis. I would like to make sure that we really do not have a case where the other levees (either upstream or as part of the Dallas Floodway Extension) cause the flooding problems at the Cadillac Heights area to get worse, and that we really have a case of mitigation for the effects of other elements of the project.

Response: It is the District's belief that the Cadillac Heights levee is a separable element from an economic and hydraulic perspective. The Cadillac Heights levee is not being constructed for mitigation of other elements. In fact, the area actually receives benefits even with no levee being constructed. This is a result of the increased conveyance achieved by the chain of wetlands element. However, the question of its political separability is viable. Public comments examined at this point indicate a strong public belief that the lower (100-year) Cadillac Heights levee, as proposed in the FSP, was designed as a safety valve to protect the Central Business District and the north side of the Trinity at the total expense and sacrifice of the minority population in the poorer Cadillac Heights neighborhood.

September 3, 1998

Mr. Gene T. Rice, Jr
Project Manager, ATTN: CESWF-PM-C
U.S. Army Corps of Engineers, Fort Worth District
P.O. Box 17300,
Fort Worth, Texas 76102-0300

Re: Dallas Floodway Extension Project: Cadillac Heights

Dear Mr. Rice:

As you requested, the following is demographic information regarding the Cadillac Heights neighborhood as it compares to the overall City, including Cadillac Heights. The numbers represent 1990 Census Bureau statistics with the following exceptions. Questions #1 and #7 represent North Central Texas Council of Government figures that are approximately one year old. Questions #2 and #3 represent Dallas County Appraisal District figures that also are about one year old.

		CADILLAC HEIGHTS	CITY OF DALLAS
1.	Number of homes?	416	479,622
2.	High and low for the price of the homes?	$53,500/$3,960	$11,949,900/NA
3.	The average appraised value of a house?	$17,500	$64,700
4.	Percent homeowners?	51.5%	44.1%
5.	Percent single-family units?	64.9%	47.5%
6.	Percent multi-family units?	31.0%	50.4%
7.	Number of persons?	1,168	1,052,300
8.	Percent persons under 18 years of age?	35.5%	25.0%
9.	Percent persons over 65 years of age?	6.8%	9.7%
10.	Total percent hispanic?	58.0%	20.3%
11.	Total percent black?	40.9%	29.5%
12.	Total percent white?	1.0%	47.7%
13.	Total percent without a high school degree?	73.4%	26.5%
14.	Total percent unemployed?	9.1%	7.4%
15.	Average income?	$15,089	$27,489
16.	Percent households on public assistance?	35.4%	5.7%
17.	Number of persons below poverty level?	46.6%	17.8%
18.	Other Federal assistance?	N/A	N/A

The City is strongly committed to providing the same level of flood protection for the economically depressed minority neighborhood of Cadillac Heights as we are providing

for neighborhoods across the river and upstream. The City does not want to further the social

and economic inequities that would result with a 100-year Cadillac Heights levee. I appreciate the continued efforts to gain full Federal cost sharing support for the Locally Preferred Plan (LPP).

Sincerely,

Peter H. Vargas
Director, Trinity River Corridor Project

c: Gavino Sotelo, Interim City Manager
Ryan Evans, Assistant City Manager
Mary Suhm, Assistant City Manager
David Dybala, Director of Public Works

APPENDIX N

PUBLIC AND AGENCY REVIEW COMMENTS AND RESPONSES

(1425)

PUBLIC COMMENTS AND RESPONSES ON
DRAFT GENERAL REEVALUATION REPORT AND
ENVIRONMENTAL IMPACT STATEMENT
DALLAS FLOODWAY EXTENSION

	COMMENTS FROM	DATE	PAGE
1.	Environmental Protection Agency	Aug 5	N-2
2.	Vincent Hendricks	Aug 12	N-13
3.	D.J. Young	Aug 14	N-14
4.	Linda Pelon	Aug 8	N-15
5.	Charles Briner	Aug 12	N-18
6.	Charles Allen	Aug 13	N-21
7.	Anna Albers	Aug 14	N-29
8.	Campbell B. Read	Aug 2	N-66
9.	J.D. Meyer	Aug 14	N-68
10.	Tim Dalbey	Aug 14	N-70
11.	Cleal Watts	Jul 17	N-159
12.	Official Transcript - Public Mtg.	June 26	N-164
13.	James B. Blackburn	Aug 23	N-233
14.	Edward C. Fritz	May 11	N-281
15.	TCONR, Sierra Club, Audubon Society & Dallas Historic Tree Coalition	May 30	N-284
16.	TCONR, Sierra Club, & Audubon Society	July 9 & Aug 11	N-285
17.	Roy Williams	Jun 9	N-316
18.	Richard Guldi	Jun 9	N-317
19.	James D. Flood	Jun 9	N-318
20.	Joanne Hill	Aug 10	N-319
21.	Loyal Gordon Bassett II	Undated	N-321
22.	Ralph G. Yoas, P.E.	Aug 11	N-322
23.	Vincent Hendrick	Undated	N-324
24.	Kelly, Hart and Hallman	July 9	N-325
25.	James Costello	Aug 13	N-331
26.	Roy A. Hudson	Jun 25	N-336
27.	Dallas City Packing, Inc.	Jun 16	N-338
28.	League of Women Voters	Jun 9	N-340
29.	James D. Flood	Aug 13	N-343
30.	Texas Parks & Wildlife Department	Aug 10	N-345
31.	U.S. Dept. of the Interior	Jul 7	N-348
32.	State of Texas & Bureau of Econ. Geol.	Jun 25	N-353
33.	Zonneke Cross	Jul 8	N-355
34.	Save Open Space	Aug 13	N-356
35.	League of Women Voters	Jun 29	N-359
36.	Vincent Hendricks	Aug 14	N-375
37.	American Institute of Architects (Dallas)	Aug 14	N-376
38.	William Henning	Jun 16	N-378
39.	Robert Croysdale	Undated	N-379
40.	Campbell B. Read, Ph.D.	Jul 12	N-380
41.	Joe Stokes	Aug 5	N-381
42.	Raymond H. Davis	Jul 7	N-382
43.	Lisa Black	Jul 11	N-383
44.	Sandra Youngblood	Jul 20	N-384
45.	Steve Houser	Jun 12	N-385
46.	Michelle & Kor Knijnenburg	Undated	N-386
47.	Paul Parker	Jun 10	N-387
48.	Texas Trails Network, Inc.	Aug 14	N-389
49.	Trinity Improvement Association	Aug 10	N-392
50.	Joe Wells	Jun 9	N-393
51.	City of Dallas	Aug 12	N-395
52.	Michael M. Daniel, P.C.	Undated	N-400

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

AUG 8 5 1998

Colonel James S. Weller
District Engineer
Fort Worth District
U.S. Army, Corps of Engineers
P.O. Box 17300
Fort Worth, TX 76102-0300

Dear Colonel Weller:

In accordance with our responsibilities under Section 309 of the Clean Air Act, the National Environmental Policy Act (NEPA), and the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the U.S. Environmental Protection Agency (EPA) Region 6 office in Dallas, Texas, has completed its review of the General Reevaluation Report (GRR) and Draft Environmental Impact Statment (DEIS) for the Dallas Floodway Extension, Trinity River Basin, Dallas County, Texas. The Fort Worth District Corps of Engineers (COE), in cooperation with the City of Dallas, has prepared this report and DEIS to address proposed activities to provide flood damage reduction, environmental restoration, and to investigate recreational needs and opportunities within the Trinity River Basin.

1. Our review and comments are limited to the scope of the NEPA analysis related to this Congressionally authorized Federally assisted flood control project. We understand that other problems and needs, such as transportation planning, are not part of the authorized plan. Flood control is not dependent upon transportation needs. However, all Federal agencies have an obligation to fulfill their NEPA responsibilities for actions significantly affecting the environment and are required to consider and conduct appropriate NEPA analysis when such actions are ripe for public review and comment. Therefore, implementation of any subsequent Federal transportation project affecting the Dallas Floodway Extension should be fully evaluated under NEPA prior to alternative plan selection and construction.

The Draft GRR and DEIS document the results of the reevaluation of a previously authorized flood control project within the Dallas Floodway Extension floodplain of the Trinity River Basin in the southeast city limits of Dallas, Texas. The Dallas Floodway Extension is one of five local flood protection projects authorized in 1965 for Standard Project Flood (SPF) level construction as part of a basinwide plan of improvement for the Trinity River and its tributaries.

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1. Text within the Final GRR/EIS has been supplemented to further clarify that other agencies are developing proposals that might ultimately effect the planning area. We concur that other work proposed in the area is independent of flood control and that transportation proposals within the area would be subject to separate NEPA analysis

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The DEIS contains information pertaining to several plans that have evolved over time, and have been evaluated against each other to produce a Recommended Plan. The Recommended Plan is the Federally Supportable Plan (FSP) with the additional Interstate Highway (IH)-45 river channel realignment project added as a component to the final actions. The Recommended Plan can be interpreted to be the Preferred Alternative under NEPA. An environmental mitigation plan for the Recommended Plan is also included and would involve acquisition of 1,135 acres in additional project lands consisting of grassland preservation, conversion of grassland to bottomland hardwood areas, and habitat improvement in existing bottomland hardwood areas.

2. EPA rates this proposed action as "EC-2," i.e., EPA has "Environmental Concerns and Requests Additional Information in the Final EIS." Although the DEIS appears to be comprehensive, thorough, and to adequately address the impacts associated with the preferred action and the alternatives, we have identified several environmental concerns that need to be included in the Final EIS (FEIS) to complement and to more fully insure compliance with the requirements of NEPA and the CEQ regulations. Our classification will be published in the Federal Register according to our responsibility under Section 309 of the Clean Air Act, to inform the public of our views on proposed Federal actions.

Detailed comments are enclosed with this letter which more clearly identify our concerns and the informational needs requested for incorporation into the FEIS. If you have any questions, please contact Mike Jansky of my staff at (214) 665-7451 for assistance.

3. EPA appreciates the opportunity to review the DEIS. We request that you send our office five copies of the FEIS at the same time that it is sent to the Office of Federal Activities, EPA, 401 M Street S.W., Washington, D.C. 20460.

Sincerely yours,

Robert D. Lawrence, Chief
Office of Planning and Coordination
Compliance Assurance and Enforcement Division

Enclosures

2. Concerns have been addressed as indicated by response to detailed comments.

3. The copies will be provided as requested.

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DETAILED COMMENTS
GENERAL REEVALUATION REPORT (GRR) AND
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
DALLAS FLOODWAY EXTENSION, TRINITY RIVER BASIN, TEXAS

Background

The GRR and DEIS prepared by the U.S. Army Corps of Engineers (Corps), Fort Worth District, in cooperation with the City of Dallas, documents the results of the reevaluation of a previously authorized flood control project within the Dallas Floodway Extension floodplain of
4. the Trinity River Basin in the southeast city limits of Dallas, Texas. The Dallas Floodway Extension is one of five local flood protection projects authorized in 1965 for Standard Project Flood (SPF) level construction as part of a basin wide plan of improvement for the Trinity River and its tributaries. The DEIS contains information pertaining to several plans that have evolved over time, and have been evaluated against each other to produce a Recommended Plan. The Recommended Plan is the Federally Supportable Plan (FSP) with the additional Interstate Highway (IH)-45 river channel realignment project added as a component to the final actions.

The Recommended Plan can be interpreted to be the Preferred Alternative under the National Environmental Policy Act (NEPA) and includes: 1) an excavated chain of wetlands;
5. 2) flood control swales, measuring 400 and 600 bottom foot widths respectfully, to minimize the environmental impacts on local forested areas; 3) a SPF levee protecting the Lamar Street area; 4) a 100-year levee protecting the Cadillac Heights area; 5) non-Federal levees identified by previous projects, to be used as credit towards project costs under the Water Resources Development Act (WRDA) of 1996; 6) vegetative plantings as environmental restoration features, as well as the inclusion of several recreation facilities; and 7) Trinity River channel realignment at IH-45.

An environmental mitigation plan is included for the Recommended Plan and involves
6. acquisition of 1,135 acres in additional project lands, and would consist of grassland preservation, conversion of grassland to bottomland hardwood areas, and habitat improvement in existing bottomland hardwood areas.

Specific Comments

1. EIS Contents

Reference, General: Appendices to the GRR and DEIS should be designated as part
7. of the EIS where relevant. Under the designation system that the document employs, none of the appendices are indicated as part of the EIS (noted with an asterisk). Appendices A, C, F, G, H, I, and J appear to be relevant to the EIS analysis. Please correct this deficiency in the Final EIS (FEIS).

4. The recommended plan is the FSP which, after further review, has been determined to be the plan identified as the Locally Preferred Plan in the Draft EIS.

5. Environmental or "ecosystem restoration" includes the excavated chain of wetlands and vegetative plantings adjacent to the wetlands. As noted in response to comment # 4., after further review it has been determined that the recommended plan includes SPF protection for the Cadillac Heights Levee also. Additional tree and shrub plantings on 1179 acres are proposed as part of the environmental mitigation plan requirement for riparian/bottomland hardwood forested losses, including forested wetlands, caused by the project.

6. The FSP is currently the recommended mitigation plan consists of 1,179 acres of mitigation.

7. Concur

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2. EIS Alternatives Designation and Description

Reference, General : The DEIS's description of multiple alternatives and sub-options, many of which are not under consideration and were not evaluated in the EIS, has the potential to confuse members of the public. This situation is compounded by the confusing format of the document. It may be very difficult for the public to determine exactly what actions are being proposed, and the probable environmental impacts of these actions. At a minimum, the FEIS should provide a time line of the various plans, clearly identify active alternatives for the purposes of NEPA analysis, indicate a Preferred Alternative, and maintain consistent terminology throughout the document. For example, summary tables (such as Table 4-23) that compare sub-alternatives to the alternatives in which they are included are unnecessarily confusing. Please address this concern in the FEIS.

8.

3. Trinity River Channel Realignment Hydraulic Effects

Reference, p. 4-71, and Appendix A, pp. A-25 to A-26: The document states that realignment of the Trinity River channel at IH-45 "would have no hydraulic effect" on the proposed projects but does not provide any analytical evidence to support this statement. Appendix A analysis should be referred to in discussing potential hydraulic effects. Please discuss in the FEIS.

9.

4. Emergent Wetlands

Reference, p. 4-42, p-4-74: The proposed "dependable water source" for the Chain of Wetlands is effluent from the Central Wastewater Treatment Plant. Potential impacts to created emergent wetlands (e.g. water quality, flora, fauna) associated with the use of wastewater effluent as a water source should be discussed. The FEIS should also address impacts to existing forested wetlands that would result from creation of the Chain of Wetlands emergent wetlands.

10.

5. Aquatic Resources

Reference, p. 4-74: Realignment of the Trinity River at IH-45 would result in a loss of 8 acres of existing river channel. Although the DEIS states that impacts on aquatic resources due to construction of the Trinity River channel realignment will be temporary, it does not provide specific details or analysis of what these impacts will be. Potential impacts to downstream resources (both temporary and longer term) should be addressed. The FEIS should address any potential impacts on pre-existing uses of Trinity River water. These concerns should be incorporated in the FEIS.

11.

6. Water Quality

Reference, p. 4-77: The DEIS states that an increase in Biological Oxygen Demand

N

8. Although the heart of the analysis is the comparisons of impacts associated with the alternatives, we believe that it is important to indicate the impacts associated with each of the features as well. The Table 4-23 has been modified to distinguish alternatives from sub-alternatives or measures.

9. Agree. Appendix A has been referenced.

10. Additional discussion has been added to paragraph 4 of page 4-77 of the document to indicate the potential impacts of the wastewater treatment water on the proposed wetlands. Impacts to forested wetlands from the Chain of wetlands (and other features) is clarified in Table 4-23 and discussion was added to the first paragraph of draft page 4-79 to indicate the impacts to forested wetlands attributable to the chain of wetlands.

11. Details of temporary impacts locally and downstream have been added.

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(BOD) will be a temporary impact only during construction activities. There would also be
12. temporary turbidity impacts during construction of wetland outflow points. Additionally, high BOD impacts on the Trinity River are expected during heavier flow discharge from the created wetlands into the Trinity. The frequency and severity of these impacts, at a minimum, should be described and analyzed. The potential impacts on aquatic habitat and fisheries as a result of water quality impacts should be more fully addressed in the FEIS.

7. Bottomland Hardwood Forests

13. **Reference, p. 2-16:** The document describes the Great Trinity Forest in the Environmental Setting section but does not delineate how much of the impacted bottomland hardwood acreage and lost acreage are part of the Trinity Forest, if any. It is not clear whether or not the Great Trinity Forest bottomlands will be impacted by the preferred action. If none of the bottomland hardwoods within the Trinity Forest are to be impacted, this should be considered a positive and beneficial feature of the project and documented in the FEIS.

14. **Reference, pp. 4-82 to 4-85:** The discussion of proposed project impacts to bottomland hardwood forests indicates the number of acres of forest that would be impacted (154.6 acres, p.4-83), but not the types of impacts that are expected (clearing, grading, filling, etc.). An indication of the total amount of acres covered by bottomland hardwood tree species within the project area is also not presented, although the document indicates a percentage of forest saved as compared to the National Economic Development (NED) Plan. The document should describe and analyze potential impacts of the proposed levees on bottomland hardwood forests. In particular, the removal of water sources (overbank flows) from areas behind the levees could affect any bottomland hardwood forests that may occur behind these levees. The FEIS should also acknowledge that a high percentage of the bottomland hardwood forests would be considered jurisdictional wetlands and potential impacts would require additional Clean Water Act (CWA) Section 404 analysis. Please address this concern in the FEIS.

8. Bottomland Hardwood Forest Fish and Wildlife

15. **Reference, p. 4-84:** The DEIS provides limited discussion of impacts to bottomland hardwood forest wildlife. A specific analysis of the types of impacts associated with the project on fish and wildlife should be incorporated in the FEIS. Impact analysis provided by the U.S. Fish and Wildlife Service (USFWS) should also be provided in the FEIS.

9. Threatened and Endangered Species

16. **Reference, p. 2-20, Table 2-4; p. 4-87; Appendix L:** The listing of threatened and endangered species found in Dallas County is inconsistent between p.2-20, Table 2-4, the discussion on page 4-87, and the Appendix L correspondence from the USFWS. Please correct this inconsistency and clarify in the FEIS.

12. Additional analysis related to frequency and severity of operational impacts of the wetlands has been added.

13. Impacts are discussed in Chapter 4. All forest impacts delineated occur within the defined limits of the "Great Trinity Forest".

14. The impacts discussed are those related to the actual removal of forest due to clearing and grading for all proposals except the NED plan. The NED plan also includes impacts due to diminishment of values to wildlife due to breaking up the forested area of the White Rock Creek floodplain into two separate areas. This type impact would not occur with the recommended plan. Total forested area and other existing conditions are described in Chapter 2. Additional discussion of impacts to levees, particularly, those from separation from mainstem river overbank flooding has been included. Wetland impacts have been fully explained in the revised report. No additional Section 404 analysis is required.

15. Clarification of impacts to wildlife have been incorporated into the FEIS.

16. Table 2-4 includes a more complete list of threatened or endangered species that might temporarily inhabit the Dallas County area. Information on page 4-87 of the draft EIS, discusses only those species that are known to nest or occupy suitable habitat within the County on a more permanent basis. This information is identical to that provided by the USFWS in their draft Coordination Act report. Clarification has been added to draft page 4-87.

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10. Impacts Analysis -Geology and Soils

17. **Reference, pp. 4-74 through 4-88:** This resource area is not evaluated in the document. In particular, erosion issues should be addressed. Please discuss in the FEIS.

17. Erosion issues have been addressed in the FEIS.

11. Transportation Impacts Analysis

18. **Reference, p. 4-74 through 4-88:** This impact is not fully evaluated in the DEIS. In particular, potential impacts due to channel realignment at IH-45 should be addressed. Please address this concern in the FEIS.

18. Transportation impacts would not occur as a result of the channel realignment at the I-45 bridge; however, allowing the threat to the major transportation corridor to continue would ultimately result in substantial impacts to use of the bridge. Also, other alternatives considered such, as strengthening the piers or refurbishing the bridge by shifting structural support locations, would result in extensive periods of time when the structure would be unusable.

12. Land Use Impacts Analysis

19. **Reference, pp. 4-74 through 4-88:** This resource area is not clearly evaluated in the DEIS. Existing land use and ownership should be fully described. In particular, land use in river bank areas and bottomland hardwood tracts should be addressed. The ownership and status of lands proposed for acquisition, as well as ownership and management after acquisition, should be described. The FEIS should also state whether the lands proposed for acquisition will be removed as potential commercial or residential development areas. The DEIS acknowledges that increased development in the area of the proposed new levees swales is likely but does not analyze whether this will impact additional hardwood resources. Please address this concern in the FEIS.

19. Land use impacts have been more fully discussed in the FEIS.

13. Noise Impacts Analysis

20. **Reference, pp. 4-74 through 4-88; p. 6-11:** This impact needs to be more fully evaluated in the document. In particular, noise from construction during project implementation, and changes in existing noise contours and absorption due to new structures (i.e. levees) should be addressed. Please address in the FEIS.

20. Discussion has been added to FEIS to elaborate on potential noise impacts.

14. Visual and Aesthetic Impact Analysis

21. **Reference, p. 4-74 through 4-88:** This impact is not evaluated in the DEIS. The potential visual and aesthetic impacts due to proposed new structures (e.g. levees) should be evaluated. Please address in the FEIS.

21. Visual impacts have been added to the FEIS.

15. Utilities Impacts Analysis

22. **Reference, pp. 4-74 through 4-88:** This impact needs to be more fully evaluated in the DEIS. Analysis of potential impacts on utilities should be addressed in the main body of the document. The numerous impacts to utility resources (on sewer lines, storm drains, water lines, electric transmission tower relocation, fiber optic cables) should be discussed explicitly as part of the NEPA analysis. The potential impacts of utility relocations and changes should

22. Discussion on impacts to utilities has been incorporated more fully into the FEIS.

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be analyzed as part of the FEIS. Please incorporate this impact analysis into the FEIS.

16. Hazardous Material Impacts Analysis

23. **Reference, pp. 4-74 through 4-88:** The analysis for hazardous materials is limited. Hazardous materials data is contained in Appendix J, but should also be discussed in the main body of the FEIS. Please address this issue and incorporate into the FEIS.

24. **Reference, p. 2-22 and Appendix J:** The number of hazardous material sites within the project area is inconsistently stated. Page 2-22 lists nine (9) "areas" of potential contamination while Appendix J lists 14 areas. Please correct this discrepancy in the FEIS.

25. **Reference, Appendix J, p. J-8:** Data for some of the areas indicated in the document is said to be insufficient to determine extent and types of contaminants. These areas should be more fully analyzed. Some of the document's conclusions are unsubstantiated. For example, p. J-8 describing Area 2 states that "all remaining soils are clean and can be used as fill" but does not provide analysis that supports this conclusion. Another example is for Area 10 (p. J-13) in which the Corps reaches the conclusions that soils will be mildly contaminated and disposed as Class I Non-hazardous waste, but no sampling was conducted at this site and a Phase I site investigation was not completed. These areas need strengthening. Full discussion on these concerns should be incorporated in the FEIS.

17. Fill Material Disposal Site

26. **Reference Appendix B, Project Location Map following p. B-6:** The referenced map indicates a "proposed disposal site for excess excavated material." This site is not mentioned or evaluated anywhere else in the document. Please clarify in the FEIS.

18. Revised Alignment

27. **Reference, p. 4-36:** According to the DEIS, within the swale would be created a Chain of Wetlands designed to create fish and wildlife habitat in the swale. This section states that the alignment would impact 280 acres of bottomland hardwoods. However, this does not match any alternatives listed in Table 4-25. The relationship of the "Revised Alignment" to the other alternatives should be made clear. Please clarify in the FEIS.

19. Environmental Restoration

Reference, p. 4-37: According to the DEIS, it is proposed that the Chain of Wetlands be managed as moist soil units to optimize fish and wildlife habitat. The plan would create 123 acres of emergent wetlands. This would involve pumping water from the Central Wastewater Treatment Plant to provide a dependable source of water at all times of the year. The wetlands would be flooded and drawn down at various times of the year. We do not object to this idea as

23. HTRW impacts on project and impacts of proposed project have been incorporated into FEIS.

24. Discrepancy has been addressed on number of known HTRW sites.

25. HTRW discussions have been updated to indicate rational behind conclusions drawn and documented at this phase of planning.

26. Proposed disposal site discussions were added to the main report text. Although the local sponsor is responsible for securing a disposal site, the tentatively identified site for disposal of surplus clean material was discussed in the 404 (b)(1) analysis in Appendix F.

27. The acreage referenced on page 4-36 was based upon preliminary analysis early in the planning stages. The information was further refined after completion and reconfirmation of mapping and final design of project footprints. The acreage and impacts shown on Tables 4-23 and 4-25 represent our best estimate of impacts to resources identified.

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it would have many benefits. Our only concern is long-term management. This will require installing and maintaining pumps and controlling the water levels in the swale. We understand
28. the City of Dallas would be responsible for this on-going management. There may be need to develop a written agreement between the Corps and the City to establish clear commitments for the logistical, technical, and financial aspects of the long-term management. Please address in the FEIS.

20. Wetlands

Reference, Appendix C: The detailed drawings of the Chain of Wetlands show gradual slopes for the wetland benches adjacent to each pond. This should create good quality wetlands. To further increase habitat diversity, we recommend creating micro-relief in these wetland areas
29. by making irregularities or small shallow depressions a few inches deep and a few feet in diameter. Five or ten such depressions per acre could be placed at irregular intervals where it is feasible to do so. Grading could be done at the same time the swale are constructed. If the wetlands need to be kept free of woody vegetation for conveyance purposes, then mowing should be minimized (annually or less). Planting or seeding of desirable species should be done to ensure high diversity. Various native species of caric sedge (*Carex* spp.), flatsedge (*Cyperus* spp.), spikerush (*Eleocharis* spp.), and smartweed (*Polygonum* spp.) are recommended.

21. NED Plan

Reference, p. 4-91: The original NED plan would impact over 500 acres of bottomland
30. hardwoods (BLH), 147 of which would be the "high quality" pecan-oak BLH. This would also cause significant fragmentation of the riparian forest on the east side of the river. We are pleased that this alternative "was deemed unfavorable by the local sponsor."

22. Summary

Reference, p. 4-91 and p. 4-49: The DEIS states that the "Chain of Wetlands Plus
31. Levees Plan " would impact about 600 acres of environmental resources..." It is not clear what this means. We cannot find where the report details these impacts. Please clarify in the FEIS.

23. Forest Mitigation Plan

Reference, p. 4-86 and F-38: The DEIS indicates that three alternatives for compensatory mitigation are proposed. Plan C would include 208 acres of conversion of grassland to bottomland hardwoods and enhancement of 756 acres of forest. This is the only
32. alternative that would adequately compensate for impacts, and is the one we recommend. We have no concerns for planting bare root seedlings (300 trees and 150 shrubs per acre) instead of containerized trees and shrubs, since the cost would be much less. There should be annual monitoring of survival for at least five years. After five years, there should be at least 100 trees and 50 shrubs per acre surviving in good health, or replanting should be required. Causes of any

28. A statement has been added that indicates that a management plan would be required to be developed and agreed to by City of Dallas for the ecosystem restoration and mitigation proposals.

29. The basic design of the wetlands as shown in Appendix C would provide substantial benefit to moist soil vegetation, wetland plants and the organisms that would utilize the complex. During development of the grading plan during later planning stages, the additional features suggested would be incorporated where feasible. In addition, the operation and maintenance features would be incorporated into the management plan addressed in comment 28.

30. The Federally Supportable Plan, the Locally Preferred Plan and the combination Non-structural Plan would all result in significantly less impact to bottomland hardwood forest area and values associated with this important resource.

31. Page 4-91 of the Draft EIS has no discussions about acreage of impacts. The information shown on page-49 was preliminary as indicated in response to comment 27. Detailed analysis of the final array of alternatives is discussed and displayed in Tables 4-23 and 4-25.

32. The criteria indicated for establishment of the bottomland hardwood forest are reasonable and consistent with those that would be necessary to assure long term establishment of a forest environment that would mitigate projected losses.

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excessive mortality should be determined (e.g. beavers, flood, drought, etc.). Seedlings should planted at irregular spacing, not in straight, even rows. Hard mast trees (oaks, pecan, walnut) should account for 50% of the trees planted. The goal should be to achieve maximum diversity of native trees and shrubs suitable for the soil and moisture regime of the mitigation area. Please address this concern in the FEIS.

25. Mitigation Location

33. The location of the proposed mitigation areas with respect to the impact sites is very good (within Dallas County, along the Trinity River). On-site compensation is preferable to off-site because the wetland functions will be replaced in nearly the same area as they were lost. The Trinity River riparian corridor below Dallas will be more continuous and better protected with the on-site proposal.

26. Water Quality and Recreation

34. **Reference, Appendix I (Recreation):** The FEIS should include a section on fishing, as it has done for various other categories of recreation. The FEIS should recognize that the West Fork of the Trinity is under a fish consumption ban, i.e., persons are prohibited from possession of any species of fish from Beach Street in Fort Worth to I-20. This situation is not expected to change in the near future, although it should improve over the long-term. The situation is not likely to change with the proposed project. This is an important consideration in terms of the proposed emphasis on improving recreational resources in the project area. Appendix J presents a variety of data and information related to toxic substances within the project area. Some portions of the study area appear relatively contaminated, and notations are made that the area will be avoided. However, a discussion is needed tying all of the data together and assessing cumulative effects of toxics on the project area, including those contributed through nonpoint source pathways, particularly lead contamination. Cumulative impact analysis should be included in the FEIS.

27. Clean Water Act (CWA) Section 404

35. **Reference, Appendix F, p. F-41, and pp. F-52 to F-59:** The Recommended Plan requires CWA Section 404 analysis due to proposed dredge and fill activities. Although the Corps of Engineers does not issue itself 404 permits, it must meet the legal requirements of the CWA. Accordingly, a Section 404 (b)(1) analysis was completed. It is noted that there are "unresolved issues related to Trinity River realignment at IH-45" that are not described. Please identify in the FEIS.

28. The National Historic Preservation Act, Section 106

Reference, p.4-87 and Appendix H: The DEIS indicates that 8 sites within the project area are eligible for National Register of Historic Places (NRHP) listing.

33. We concur that unavoidable impacts should be mitigated as close to the location of the losses as feasible.

34. This section has been amended.

35. The issues have been resolved and the notation about the unresolved issues has been removed.

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Correspondence from the Texas Historical Commission (Texas SHPO) indicates that a Programmatic Agreement is necessary due to the large number (190+) of total potential sites
36. in the project area and immediate surroundings. The DEIS notes that the Texas SHPO did not concur with the Corps finding of 8 eligible sites, and recommends a comprehensive testing program to determine eligibility. The DEIS states that consultation with the SHPO is ongoing and "would continue throughout the project" (p. 4-88.) Consultation should be completed prior to the issuance of the FEIS and documentation incorporated in the FEIS. Please address this concern in the FEIS.

29. Environmental Justice Analysis

Over the past two decades, there has been increasing concern over environmental impacts in minority and low-income populations. To address these concerns, President Clinton signed Executive Order 12898, "Federal Actions to Address Environmental Justice (EJ) in Minority Populations and Low-Income Populations" (hereafter, EO) on February 11, 1994.

NEPA mandates that Federal agencies fully consider environmental factors when proposing activities, programs, and policies which have the potential to significantly affect the human environment. Although social and economic impacts have always been a consideration in
37. NEPA reviews, the Executive Order highlights the necessity to better integrate the consideration of human health, social, and economic effects into the NEPA process. The EO calls for collection and analysis of information on race, national origin, income level and other appropriate information for areas surrounding projects that have expected environmental, health and economic effect on those populations.

According to the DEIS, the project area does include minority populations. The DEIS document states that "the proposed project would not result in disproportionate adverse impacts to minority or low income populations" (pp. F-42-43.) The flood control should provide a beneficial effect to community cohesion and public safety. However, there is not detailed decription of how the analysis was conducted. We have enclosed a copy of the EPA Final guidance on NEPA implementation of the EO. Please document your EJ analysis in the FEIS.

36. Memorandum of Agreement documenting how cultural and historic issues would be addressed prior to and during any construction has been prepared and agreed to by the State Historic Preservation Office, local sponsor, and the Corps of Engineers. A copy of this MOA and documentation of concurrence by responsible parties has been added to the final EIS.

37. Written Corps of Engineer policy has not been formulated to address Environmental Justice issues; however, the discussion of Environmental Justice has been reviewed for compliance by higher level review. A more detailed discussion of Environmental Justice including how the analysis was conducted was included in Chapter 6 of the GRR/EIS than was provided on pages F-42 and F-43.

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August 14, 1998

Mr. Gene Rice
Project Manager, Dallas Floodway Extension
U.S. Army Corps of Engineers
P.O. Box 17300
Ft. Worth, Texas 76102-0300

Dear Mr. Rice,

Enclosed are a number of individual reports commenting on the Draft Trinity River General Reevaluation Report and Integrated Environmental Impact Statement. I am hand-delivering the following reports on August 14, 1998 from:

- Vincent Hendricks, 6827 Coronado, Dallas, Texas, 75214;
- D.J. Young, 3600 Fairfax, Dallas, Texas 75209;
- Linda Pelon, 3015 Nutting Drive, Dallas, Texas 75227;
- Charles Briner, 8924 Capri Drive, Dallas, Texas, 75238;
- Charles Allen, 615 South Montclair Avenue, Dallas, Texas, 75208;
- Anna M. Albers, Charles Miller, Vijay Barnabas, 201 N. Edgefield Avenue, Dallas, Texas 75208;
- Campbell Read, 5839 Monticello, Dallas, Texas, 75206;
- J.D. Meyer, 4502 Gaston, Apt. 321, Dallas, Texas,
- Tim Dalbey, 2719 Santa Cruz, Dallas, Texas 75227.

Please contract me if you have any questions at (214) 942-7852.

Sincerely,

Anna M. Albers

Anna M. Albers

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4/30/2009

Vincent Hendricks
6827 Coronado
Dallas, Texas
7 5 2 1 4

August 12, '98

Dept. of the Army
Ft. Worth District,
Corps of Engineers

Greetings:

I find a good many surprises in the Draft General Re-evaluation Report and Environmental Impact Statement, some major. Elsewhere in the world there is a change in the thrust of flood protection, away from structural to non-structural. This is not adequately considered for areas of Dallas in the floodplain where flooding has been a continuing problem, e.g. Cadillac Heights neighborhood and business strips behind the levees. The EIS does not take into account the effect of increased structural protection for the areas that are so flood-prone on the risk of flooding in the Central Business District. If this cost were put into buyout of these properties and relocation then this expense would be more realisticly stated. As it is Cadillac Heights is still not protected anyway since the leveés protecting Lamar St. are slated to be raised to the 800 year level, but those protecting (?) Cadillac Heights are only to the 100 year level, and don't go around the whole area, so flood water would go over and around them. How could this be considered real protection?

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3.

I know the Trinity River is much smaller than the Mississippi, and no doubt the Yangzee River, but the disasters there are certainly attesting to the unpredictability of swollen rivers--At a horrendous cost in damages and restoration, not to mention the much greater cost of human life and health. Factoring these considerations in reveals that the bottom line in any flood control and environmental project is much more than just cost figures, as it would be in more predictable projects.

4.

Sincerely,
Vincent Hendricks
(214) 324-8723

P.S. I am familiar with the positions of the Texas Committee on Natural Resources, the Sierra Club, the Audubon Society, and the Dallas League of Women Voters and concur with and support them.

5.

N

1. The Corps of Engineers evaluated removal of structures within the study area and determined this solution to be uneconomical, thereby eliminating this option from further consideration by the Corps. Furthermore, the Dallas City Council stated in October 1996 that the buy-out of structures within the Cadillac Heights area would not be considered further

However, in the final array of alternatives presented in the General Re-evaluation Report/Environmental Impact Statement (GRR/EIS), a combination structural/non-structural plan was investigated to determine the feasibility of a buyout of the Cadillac Heights neighborhood in conjunction with a chain of wetlands and a Lamar Levee. The results, shown in table 4-21 of the GRR/EIS, show that a buyout of 7 structures in the 10-year zone and a maximum buyout of 24 structures in the 25-year flood zone would be economically feasible; however, these plans do not provide the maximum annual net economic benefits of all plans (structural and non-structural) investigated, and would therefore not warrant Federal participation.

2. Construction of the DFE project would provide a greater level of protection to the Central Business District than is currently provided. The effect on the water surface elevation at the downstream end of the existing Floodway, with implementation of the Federally Supportable Plan, would be a decrease of approximately 1.4 feet. (Plates A-25 through A-38 in Appendix A present water surface profiles for various plans investigated.) Therefore, no additional cost for flood protection is anticipated in the existing Floodway due to the DFE project.

3. After the release of the draft GRR/EIS, the Assistant Secretary of the Army (Civil Works) determined that the plan providing Standard Project Flood (SPF) levels of protection to both the Lamar Street and Cadillac Heights areas, denoted as the Locally Preferred Plan (LPP) in the Draft GRR/EIS, should be the Federally Supportable Plan (FSP), and therefore the Recommended Plan. The final GRR/EIS reflects this decision.

4. Floods certainly have the potential to cause horrendous damages in terms of both economic cost and human life and health. Although it cannot be predicted at what date in the future flooding might occur, current hydrologic and hydraulic modeling techniques can provide statistical data to predict the level of flooding for a given rainfall event. Federal law requires analyses utilizing economic costs and benefits to determine the feasibility of proposed projects.

5. Your concurrence with these organizations is noted.

14 August 1998

Mr. Gene T. Rice, Jr. (CESWF-PM-C)
U. S. Army Corps of Engineers
P. O. Box 17300
Ft. Worth TX 76102-0300

Re: Environment Impact Statement, Dallas Floodway Extension, Trinity River Basin

Dear Mr. Rice:

1. I have many concerns about the EIS from the US Army Corps of Engineers. It appears to be a study of a plan, rather than addressing the Environmental Impact of the Trinity River as well as the contiguous land and its residents.

Just a few of the issues the EIS does not adequately address:

2. The Great Trinity Forest. Your report appears to have down-sized the largest urban hardwood forest in the country. Page F-2 states "Air quality is closely related to trees", page F-4 states "Bottomlands serve several functions", yet there is no true mitigation for the trees to be removed during the project. Habitat for wildlife will be destroyed for which there is no mitigation.

3. Hazardous, Toxic & Radiological Waste. The EIS acknowledges the possibility of such waste in the Linfield Landfill. It is an uncontrolled landfill. Consequently, there could be "surprises" requiring substantial excavation and waste relocation. The statement does not contain acceptable studies of landfills that will be disturbed.

4. Upstream project implications. Additional levees to the north and a tollroad downtown between the existing levees is not mentioned. These projects would surely change the water levels all along the Trinity River, even raising the levels. Are you sure that this plan with all of its contingencies will not exacerbate flooding in the Dallas area?

5. Non-structural solutions. All around the country non-structural solutions are being studied by Corp. of Engineers as an alternative to levees. Why does this statement not include such a study? A voluntary buy-out and relocation program should be addressed.

These concerns and many others about the Trinity River Project could be remedied with more emphasis on non-structural solutions. Floods cannot be controlled. They can only be managed and minimized with effective, modern projects. Move people and property out of Harm's Way.

Your truly,

D. J. Young
3600 Fairfax
Dallas TX 75209

1. The GRR/EIS documents the investigations required to identify water and water related land resource needs within the study area, and presents the plan formulation process used to determine the most engineeringly, economically, and environmentally feasible solution to these needs. The Environmental Impact Statement has been integrated into the document in accordance with 33 Code of Federal Regulations (CFR) Parts 230 and 325.

2. The "Great Trinity Forest" was described within the EIS, as defined by the city of Dallas. The value or importance of the forest or individual trees was not downsized or underestimated within the study area. Proposed mitigation for forest land includes avoidance of impacts to almost 1,200 acres that would be cause by implementation of the National Economic Development (NED) Plan. The levees were located to minimize impacts to the forested areas to the extent practicable, and a plan to fully mitigate unavoidable losses was developed in coordination with the U.S. Fish and Wildlife Service (USFWS), who is the recognized Federal authority on fish and wildlife habitat values. The Coordination Act Report developed by the USFWS supports the proposed mitigation plan and is included in Appendix G of the GRR/EIS.

3. At the time the Draft GRR/EIS was released, additional testing was occurring in the Linfield Landfill. This testing is complete and the results are included in Appendix J of the Final GRR/EIS. Further testing of sites will be scheduled during the next phase of design should the project be approved. If such tests reveal HTRW contaminants, the first course of action will be to seek avoidance of the identified sites.

4. Preliminary analyses provided to the Corps by the Texas Department of Transportation (TxDOT) regarding the proposed tollway indicates that no increase in water surface elevations are anticipated in the DFE area. Impacts of construction upstream of the study area will be reviewed and minimized by the Corridor Development Certificate (CDC) process and the Record of Decision (ROD) signed in 1987.

5. See response to comment #1 on page N - 13.

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Linda Pelon
Parkdale Heights N. A.
3015 Nutting Dr.
Dallas, Texas 75227

August 8, 1998

Mr. Gene T. Rice, Jr.
Project Manager
U. S. Army Corps of Engineers
Fort Worth District
CESWF-PM-C
P. O. Box 17300
Fort Worth, Texas 76102-0300

Dear Mr. Rice:

There are many troubling issues in the General Reevaluation Report and Integrated Environmental Impact Statement (April 1998 Draft) for the Dallas Floodway Extension in the Trinity River Basin. The purpose of this letter is to express concern about issues involving cultural resources, environmental resources, and secondary impacts.

Questions regarding impact of the floodway extension on Lower White Rock Creek have been asked in most public meetings by many individuals representing organizations concerned with the fate of this section of the Great Trinity Forest. This area contains a wealth of environmental and cultural features which are considered protected resources. It was the consensus of the Economic Development Committee of the TRCCC to preserve this area and develop ecotourism and historic tourism projects as the engine for economic revitalization of the southern sector communities sharing this area (Piedmont-Scyene, Parkdale, Urbandale, Pemberton Hill, Rochester Park, and Joppa). Community leaders were given the same vague answer each time we asked about impacts on Lower White Rock Creek. We were told "the impact will be minimal". .We requested a definition of "minimal" at City Council open mikes and at TRCCC quarterly meetings. This issue was never addressed. Arguably, concerned citizens and community leaders were stonewalled on this issue. We now see from the EIS map labeled Figure 2-1, Water Resources Project, that an authorized COE project of the Dallas Floodway Extension includes this area. We deeply resent the deliberate withholding of this information from citizens most concerned about this area. We are officially requesting a written response addressing all known impacts, including secondary impacts, on Lower White Rock Creek from Scyene Road south to the

1.

N

1.While the original authorization for the Dallas Floodway Project included considerable construction within the lower White Rock Floodplain, under the FSP, the only project proposal being considered is the possibility of conducting some of the environmental mitigation on a 25 acre site near the confluence of White Rock Creek with the Trinity River.

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confluence of White Rock Creek with the Trinity River. This includes the areas of Joppa, Rochester Park, and Pemberton Hill. We are under the impression that it was illegal for the City of Dallas and the Corps of Engineers to withhold this information which could have dramatically impacted the result of the bond election until after the vote. In fact, it was our understanding that there was a legal obligation to make the EIS available for review for several weeks prior to the vote on the levee issue. Please provide a written response to this important issue.

2.

There are also concerns that the EIS does not adequately inventory environmental resources threatened by this floodway extension project. The Dallas Historic Tree Coalition is developing the Great Trinity Forest Historic Tree Trail. Most of the trees nominated as historic trees for this trail are in the project area. These include The Trinity River Burr Oak near the Lamar Street Bridge, The Belle Starr Outlaw Hitching Post Tree near Prairie Creek, The Freedman Post Oak Grove in Joppa, and The Beeman Pecan Grove located at the Grover Keeton Golf Course. The impact on these important environmental resources was not evaluated in the EIS and no attempt was made to identify other trees worthy of historic tree status. In addition, it appears your inventory of wetlands is incomplete. A tour can be arranged to help you recognize these resources and include them on your maps.

3.

There are many concerns regarding cultural resources. It is alarming to note that many archeological sites were not evaluated because of a lack of access. It is your responsibility to acquire the access necessary to complete your evaluations. Some very important sites, such as Pemberton Hill, are easily accessed since the City of Dallas has easements for a sewer interceptor line crossing the property. It is my understanding from talking with Mr. Bill Pemberton that prehistoric mounds were discovered on his Pemberton Hill property during the required investigations for the sewer interceptor line. These mounds are not documented in the floodway extension EIS. In addition, the historical importance of the spring at Pemberton Hill is not documented in the EIS. This spring was identified by historians as a place where Sam Houston camped on the journey to Bird's Fort to negotiate a treaty with Texas Indians. A historic walnut tree near the spring has a metal stake in the trunk which marked the water level of the Great Flood of 1908. This tree is eligible for the Great Trinity Forest Historic Tree Trail. The lack of effort invested in fully investigating the Pemberton Hill sites may be used as a benchmark for the effort you have invested in evaluating protected resources in harm's way. Many preservations find this section of the EIS incomplete and unacceptable.

4.

Finally, as we discussed in our conversation on July 30, 1998, the Comanche Nation should be included in the process of identifying and evaluating cultural resources. A major Comanche trail is shown crossing the Trinity just south of the project area in northern Ellis county. A 1997 proclamation by the Comanche Nation for the dedication of the Indian Marker Tree (Gateway Park on Lower White Rock Creek) recognized the importance of this

5.

2. The National Economic Development Plan as identified would significantly impact resources of the Lower White Rock Creek area; however, the FSP would have no direct, negative impacts on the White Rock Creek area. Environmental mitigation, as currently proposed, would require the conversion of about 25 acres of existing grassland/shrubland located near the confluence of White Rock Creek with the Trinity to bottomland hardwood forest through extensive tree planting and management. It is also estimated that the FSP, if implemented, would result in the reduction of the extent of the 100-yr floodplain in this area by approximately 60 acres. These areas are located along the extreme fringes of the existing 100-yr floodplain, primarily along tributaries draining residential and business development on the West side of the floodplain.

3. The Grover Keeton Golf Course is located at least 1.5 miles from the closest feature of the proposed project. The Trinity River Burr Oak lies midway between the proposed wetland/swale and the Trinity River and at a sufficient distance that it would not be directly or indirectly impacted by the project. Neither that tree nor any other oak tree within the vicinity of the Lamar Street Bridge would be removed or indirectly impacted by the proposed project. The post oak groves located in the Joppa Community are located on high ridges that would not be impacted by the proposed project. A wetland delineation was completed and wetland acreage for the proposed project area was included in the report. Tables have been clarified to show extent of wetlands.

4. The U.S. Army Corps of Engineers recognizes that there are a large number of archeological sites located within the area identified as the area of potential effect (APE). While some of these archeological properties were not accessible, the Corps of Engineers is not dismissing their potential significance. The inclusion of the large APE and the identification of archeological properties within that area is a required step in identifying which specific properties could be impacted by the project undertaking. Because the majority of the archeological properties are outside of any direct impacts by the planned construction, and the overall project will have no identified effect on these properties, there is no compelling reason to conduct additional assessments or testing on these particular archeological properties. We have therefore initiated a systematic testing of the identified archeological properties within the project area which potentially could be impacted, to determine the *National Register of Historic Places* (NRHP) (36 CFR 60) eligibility.

5. The U.S. Army Corps of Engineers welcomes the comments of the Comanche Nation and those of other Native American tribal groups. We have previously informed the Native American groups with a historic association to the region about the planned project and actively sought their comments and concerns. We continue to welcome their

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area as a preferred Comanche campsite. The former Comanche Tribal Chairman, Wallace Coffey, and the current Acting Tribal Administrator, Juanita Pahdopony, have visited this area and expressed interest in its significance to their cultural heritage. Correspondence with the Comanche Tribe should be addressed to Ms. Pahdopony.

Your attention and quick response to these issues is appreciated. Please ccontact me at (214) 301-9324 to arrange tours of undocumented resources or for assistance with accessing some of the properties you have been unable to access for evaluation.

Sincerely,

Linda Pelon

Linda Pelon
Vice President,
Environmental Issues
Parkdale Heights N. A.

Enclosures:

Comanche Proclamation
Dept. of Interior map of historical transportation corridors
Reflections on Comanche-Texas Relations, A paper by
Bill Neeley, Comanche Tribal Historian
Pecans and Prehistory by Dr. Grant Hall, Archeologist (Texas Tech)

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participation and input into the identification of resources of significance to tribal values which are within our project area and could be impacted as a result of this project. This comment provided two maps to indicate a historic presence and attachment to the project area. However, the Comanche trail shown on one of the provided maps is actually showing a trail identified as "Indian Trail" crossing the Brazos River somewhere north of Abilene, Texas. The second trail on the same map is shown as a fort trail between old Fort Worth and Fort Washita. Neither are within the project area. The other map was part of the National Park Service's Common Heritage Corridors project to recognize historic transportation routes such as expedition, stage lines, railroads, and former Native American Indian trails as part of the system for transporting humans across the landscape. The Comanche Trail shown on the NPS map indicates a trail to the south of Dallas County and again, outside of our project area.

Date: August 12, 1998

To: Department of the Army, Corps of Engineers, Ft. Worth District
P.O. Box 17300, Ft. Worth, Texas 76102-0300

Attention: Gene T. Rice, Jr., P.E., Project Manager GRR/EIS Dallas Floodway Extension Project

From: Charles Briner
8924 Capri Drive, Dallas, Texas 75238
Phone 214-348-3339

Subject: Comments on draft GRR/EIS Report, Dallas Floodway Extension

My comments on the General Reevaluation Report and Integrated Environmental Impact Statement for the Dallas Floodway Extension Project for the Trinity River Basin, Texas, dated April 1998, follow:

1. 1. The most significant shortcoming of the Dallas Floodway Extension Draft Reevaluation Report and Integrated Environmental Impact Statement is that it fails to consider economic and environmental effects of the toll road which almost certainly will be constructed inside the levees of the existing Dallas Floodway. For example, the fill and the flood walls where the road goes under the existing low bridges would likely restrict flow of flood waters at the bridges despite partially compensating lakes elsewhere, thus raising flood levels upstream and perhaps restricting the flow downstream. In that case the flood reduction benefits to reaches 7 and 8 which do much to cost justify the project could well be reduced making the project economically unsound (BCR less than 1). Therefore the whole project,
2. including the toll road, must be studied as one entity to get an accurate financial justification for a Floodway Extension. It is basically one project though different agencies are performing different portions of it.

3. 2. The Report does not clearly state the flood frequency protection level of the extant Dallas Floodway levees, neither as of 1998 nor after the project is completed. Surely the flooding of the Dallas CBD would be an environmental impact. The only obvious clear statement is found on page 5-1 where it states in reference to the Cadillac Heights 100-year levee: "A key engineering constraint limits the levee from any further increase in height without adverse impacts upstream." "Hydraulic analyses indicate that a higher levee in the Cadillac Heights area begins to cause an increase in the upstream SPF profile, which is the design profile for the existing Dallas Floodway." That implies that Cadillac Heights is a safety valve to be flooded to save the CBD from an SPF. In the future as Cadillac Heights undergoes industrial development resulting from the levee the potential damages from an SPF will rise creating demands for higher levees there in the future, which will in turn create a demand for higher levees in the existing Dallas Floodway to maintain present flood protection. If the locally preferred alternative levee for Cadillac Heights is approved then this need for increased protection in the Dallas Floodway would probably be needed now if the above quotation is true.

4. 3. In the cost benefit section no costs seem to be included for the loss of thousands of trees, while another section quantifies the amount of pollution reduction provided by the trees. In a non-attainment area such as Dallas decreased pollution does have significant value which is lost when levees and swales or chains of wetlands are constructed. This value is not accounted for. (Perhaps the mitigation lands would make up for this. However

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1. And 2. See response to comment #4 on page N-14. Additionally, the Environmental Protection Agency (EPA) has concurred, in the second paragraph on page N-2, that the DFE flood control components are not dependent upon transportation needs, and that the Environmental Impact Statements for future projects will assess the impacts of those projects on the DFE area. The Final EIS for DFE has been revised to include cumulative impacts of the tollroad and other reasonably foreseeable proposals to the extent possible, with known design information.

3. See response to comment #2 on page N - 13. The proposed project performances (FSP and LPP as identified in the draft EIS) are presented in Tables D-34 and D-35 in Appendix D, which show the annual non-exceedance probabilities by reach. See response to comment #3 on page N - 13 for clarification that the draft plan LPP is currently the recommended plan. For clarification, the following table is provided.

Plan	East Levee Breach Elev.	SPF WSEL* at Downstream End of Existing Floodway
Baseline	423.0	426.0
FSP	425.2**	423.5
LPP	425.2**	424.6

** WSEL = Water Surface Elevation*
*** The higher breach elevation for the TFSP and LPP is due to the tie-in of the proposed SPF Lamar Levee to the East Levee of the existing Floodway and consequential abandonment of the existing East Levee Floodwall, which represented the breach point under existing conditions.*

As shown, under baseline conditions, an SPF event would overtop the existing East Levee by 3 feet. However, with implementation of the LPP, for example, the SPF event would be contained within the existing Floodway.

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we have no assurance that the mitigation will even be near the urban area which needs the pollution reduction.) Furthermore it is assumed that the trees in the project area would be lost anyway if the project were not built - not necessarily true because many of these trees could be in a State Park or city recreational areas. The Forrest Service has a formula for the valuation of trees which gives substantial value to trees, particularly hardwoods, and particularly in urban or recreational areas.

5. 4. The Nonstructural Analysis of Cadillac Heights in Table D-26 shows a BC ratio of better than one for Cadillac Heights buyout for 50%, 20% and 10% flood zones. Thus these buyouts would be economical. Why is not a combination plan studied which would buyout the property in those zones and place a levee further back from the river. This levee on higher ground would have less height and be cheaper to construct. By widening the river between the levees more conveyance of flood waters would be provided and the flood crest upstream in reaches 7 and 8 could be reduced. The vast majority of the flood reduction benefits come from reducing flooding in the Dallas CBD or reach 7, so it seems reasonable that this would be beneficial. Perhaps the increase in benefits to reach 7 and 8 would more than compensate for buying out Cadillac Heights to the 4% zone.

6. Table D-26 also does not seem to make sense because the annual benefits for the buyouts of the 1% and 2% zones are less than the benefits for the buyout of the 4% zone even though many more structures are removed from flood damages by the 1 and 2% zone buyouts.

7. 5. In the Nonstructural Analysis of Cadillac Heights Page D-38 states that the Cadillac Heights levee plan would provide 90 percent of the benefits of the evacuation of the 10 percent ACE flood frequency zone. However when comparing the net benefits shown in table D-26 the levee plan benefits of $96,600 are only 52% of 10% zone buyout plan benefits. Thus the buyout plan would seem much more beneficial.

8. 6. The construction of levees results in an increase in the level of SPF and 1% floods down stream due to the loss of valley storage, which violates the rule against such increases. There seems to be no calculation of how much, if any, the swales or chain of wetlands increases downstream floods by moving water downstream faster.

9. 7. There appears to be no allowance in the plan for decrease in flood protection due to accumulation of silt in the wetlands. Past history indicates that the City of Dallas seldom finds funds for the maintenance of floodways. Thus it would seem prudent to design in adequate safety factors.

10. 8. In public hearings on the project we had been told by the COE that the chain of wetlands would reduce the SPF level by 3.5 feet in the existing floodway. This was significant because the original cause for concern was that present levees were significantly below SPF protection and the central business district could be flooded resulting in truly catastrophic damages. The chain of wetlands alone would have given SPF protection to the CBD of Dallas.

Next we were told that the proposed levees would negate much of the CBD flood protection for an SPF. The figure mentioned was that only slightly over one foot of added protection would be provided, and this would not be up to SPF protection even without the freeboard usually desired.

The difference between these two alternatives is about two and one-half feet, which implies massive differences in damages suffered by the CBD in an SPF event. That is the existing floodway would be overtopped in the latter case.

N

4.The air quality projections were made with the presumption that the environmental mitigation would be located near the location of the proposed project impacts. The assumptions made during the study were that forest size and quality would increase over time without the project for the very reasons you stated and because of the public interest in preserving the flood plain forests in the area. We are aware of different methodologies that can be used to provide economic valuation of existing forest lands; however, we performed our evaluation using non-monetary methods developed by the U.S. Fish and Wildlife Service, which is the recognized federal authority on fish and wildlife resources impact assessment and ecosystem mitigation development. The Service's Habitat Evaluation Procedures provides an accepted means to evaluate impacts and develop appropriate mitigation.

5. Buyout of the 50%, 20%, or 10% zones would not result in a linear evaculation sufficient of levee construction. Additional buyout, as well as utility relocation and HTRW concerns were also constraints used to obtain the most practical and efficient levee alignment.

6. Table D-26 has been revised to properly report the costs and benefits for the 50-year and 100-year floones.

7. Referenced text has been revised to clarify the feasibility of the various plans.

8. As stated on page 6-12 of the document, the downstream water surface elevation would increase by approximately 0.15 feet (< 2 inches) for the 1 percent (100-year) flood and 0.3 feet (<4 inches) for the SPF flood. Comparatively, the SPF flood depth, under existing conditions, would be approximately 50 feet, or 35 feet above normal elevation of the river. Therefore, the DFE project would be adding less than 4 inches to this depth of 50 feet. Additionally, the Dallas Floodway Extension was authorized in 1965 as a part of a system of basinwide Trinity River Projects. Other projects contained in the authorization which have already been constructed include Joe Pool and Ray Roberts Lakes. While DFE, as a single element of the system, may cause an increase in downstream peak discharges, it must be viewed as part of the overall system. Shown below is an estimate of the SPF peak discharge below Five Mile Creek (near IH-20) for three scenarios:
a. without projects authorized in 1965 -- SPF = 283,600 cfs
b. with Joe Pool and Ray Roberts (current) -- SPF = 264,700 cfs

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In inspecting the benefits analysis in table 4-15 the annual benefits shown for reach 7 (including the CBD) is only 5% less when the SPF levees are added to the chain of wetlands. This small decrease in the new levees case does not appear to be correct if what we were told about the SPF overtopping the CBD levees is correct.

11. How much do the new Lamar and Cadillac Heights levees really increase the flood levels compared to the chain of wetlands alone and where do the annual benefits for reach 7 really come from? This is very important because benefits in reach 7 is the main reason that the project is feasible.

c. with reservoirs AND DFE -- SPF = 271,800 cfs

As a system, the Trinity River projects authorized in 1965 actually reduce the estimated SPF peak discharge by 11,800 cfs, or approximately 4%.

The calculation of increased flow velocities with the chain of wetlands in place results in the lowering of peak flood water surfaces. This lowering of water surfaces results in the reduction of valley storage and is combined with the reduction of valley storage due to blocking of flood storage by levees. Both valley storage reduction factors are accounted for in the computation of the increased peak flood water surfaces downstream.

9. As the non-Federal sponsor, the City of Dallas assumes the responsibility of operation and maintenance of the project. The Corps assures that proper maintenance is being performed through a comprehensive inspection program. Inspections are performed annually by Corps personnel, with detailed inspections performed every 5 years.

10. As shown in table D-17 the low point for the existing floodway levees will effectively be 2 feet higher due to connection of the Lamar Levee in the alternative plans.

11. Using the Standard Project Flood as a baseline for comparison, the water surface elevation at the downstream end of the existing Floodway, with the chain of wetlands only, would be approximately elevation 422.5, with a critical breach elevation of 423 -- a difference of 0.5 feet. For the locally preferred alternative, the SPF water surface elevation is increased to elevation 424.6. However, the critical breach elevation is also increased to 425.2. This is due to the fact that the Lamar levee is essentially a continuation of the East levee, thus eliminating the floodwall at the downstream end of.the East levee. The annual benefits attributable to Reach 7 is a result of increased protection to the Central Business District.

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In the interest of protecting the valuable assets of my homeland, where my ancestors are buried, and in the interest of future generations yet to come, I submit the following comments.

1. The Draft General Reevaluation Report (GRR) should not be combined with the Draft Environmental Impact Statement (EIS). Combining these reports has created a physically unwieldy document and served to obscure the pertinent details. Separate reports should present the project development in a GRR and the current final version
2. of the proposed project in an EIS. Why was the document not available for review before the May 2nd bond election in the City of Dallas? Was the timing of the document's release only two weeks later only a coincidence? This did not allow the citizens of the City of Dallas a proper opportunity to educate themselves concerning the proposed project before casting their vote. I can only suppose that an ignorant electorate served the purposes of the Corps of Engineers better than an informed
3. citizenry did. The syllabus of the report should be cross-referenced to the report itself and the appendices, and the report should cite references and use footnotes
4. throughout where necessary. The specific permits required from the Environmental Protection Agency (EPA) and the Texas Natural Resource Conservation Commission (TNRCC) should be included in detail, not merely referred to at most.

5. Non structural flood damage reduction methods were eliminated from consideration far too early in the planning stages, and were never seriously considered as a real alternative system of achieving the multiple objectives of flood damage control,
6. economic development, environmental protection and recreation. The construction of the Cadillac Heights and Lamar Street levees would constrict the floodplain, canceling whatever benefits in conveyance that might result from the proposed swale excavations. This does not add or restore flood protection to the Dallas Central Business District, and actually reduces the effectiveness of existing protective
7. measures. The loss of valley storage represented by these levees contradicts the original intent of the North Central Texas Council of Governments (NCTCOG or COG) Corridor Development Certification (CDC) process, which is to not encroach upon or fill in the one hundred-year floodplain. If the City of Dallas, which receives more benefits from the CDC process than other participating entities, directly contravenes the floodplain regulations of the CDC, other participants will be encouraged to ignore the CDC process, negating its benefits altogether. These benefits are significant for the City of Dallas, and should not be sacrificed for the

1. See response to comment #1 on page N - 14.

2. The Fort Worth District did not withhold the release of the draft GRR/EIS. The release was delayed due to revisions determined by higher Corps authority to be needed for clarification before the official release on May 15, 1998. However, the report was available in the Dallas Public Libraries and Public Works departments for review prior to the May 2 election. Additionally, the text of the main report was made available on the Internet and notices were sent to 2000 people prior to the bond election.

3. The format used follows Engineering Regulation 200-2-2.

4. As stated in the report on page 6-9, the proposed project would require compliance under Section 404 of the Clean Water Act. A Section 404 (b)(1) evaluation has been conducted. Since the project report will be sent to Congress, the project meets the requirements of Section 404 (r) which obviates the need for water quality certification from the State of Texas. The Texas Natural Resource Conservation Commission (TNRCC) has been informed of this through written communication as indicated in Appendix L - Correspondence. The TNRCC has also informed the Corps that a Conformity Analysis for air quality need not be performed for the project as proposed. Prior to any construction, an evaluation will be conducted to determine whether a Stormwater Pollution Prevention Plan is required or whether compliance with terms of Section 404 are sufficient. The sponsor would be required to obtain from TNRCC any water rights permits necessary to utilize the existing effluent water from the Central Wastewater Treatment Plant within the proposed wetland restoration project.

5. See response to comment #1 on page N - 13.

6. See response to comment #2 on page N - 13 and #10 on page N - 20.

7. The CDC process allows that variances from the common permit criteria may be issued for public projects deemed to be in the overall regional public interest, as determined by the jurisdiction's policy making body. This project certainly represents the overall regional public interest in providing a very broad scope of flood damage reduction benefits, environmental diversity, and recreational opportunities in light of a very minor increase in flood water surfaces downstream of the project.

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sake of this project. The report should not tout the benefits of a regional floodplain management plan while detailing the ways in which that plan will be ignored. The

8. proposed Lamar Street levee as designed would have a low spot near I45 and Hatcher Street requiring the City of Dallas personnel to lay sandbags to close the gap in the levee in the event of a flood situation. This is an expensive, extensive levee which is only as effective as a pile of sandbags which may or may not be placed in a timely,

9. effective manner. Other areas require numerous floodgates, subject to mechanical failure, which must be closed in a timely and coordinated manner prior to high water events to avoid flooding. These floodgates, if closed in time, will interrupt vehicular and railroad traffic in much of the project area, and if not closed, will flood much of

10. the project area. The lowest portion of the proposed levee system, designed to be overtopped first in a flood event, is near the Central Wastewater Treatment Plant (CWTP). Overtopping in this area would interrupt wastewater treatment for much of the City of Dallas, would require expensive repairs to resume wastewater treatment and would contaminate the river and surrounding areas with raw sewage.

11. The full extent of the hazardous and toxic waste contamination in the project area is not fully known, but much more contamination is expected to be found. The actual cost of the necessary clean up, which will be paid for by the City of Dallas, has been

12. underestimated and may well exceed the funds available. The disturbance of these areas to excavate swales and rechannel the river will expose buried contaminants and redistribute these contaminants in the local environment to the detriment of public health. Further, the use of these contaminated soils to build levees will distribute the contamination more widely, the transport of excess contaminated soils will spread the risk to public health over a greater area, and the disposal of contaminated soils will necessitate the creation of additional hazardous and toxic waste sites, the proposed location of which has not been disclosed. These contaminated soils can be spread as air born dusts during excavation, transport and disposal. The contaminated soils exposed in the swale excavations, rechanneled river section and levees will be acted upon by rainfall, water percolating through the exposed soils and by the river itself, allowing toxic substances to migrate throughout the local area and into the river. This puts local health at risk and will negatively affect water quality in a river that is already seriously impacted. Specifically, excavating through the Linfield landfill will expose an unknown but significant quantity of hazardous and toxic wastes which will not be adequately contained by proposed slurry barriers.

13. This project will have a negative effect on air quality resulting from the loss of oxygen producing capability and capacity to remove carbon dioxide from the atmosphere due to forest destruction and removal within the project area. The percentage of trees in the City of Dallas which would be destroyed by the proposed

8. The proposed Lamar Street Levee would not have a low spot requiring the use of sandbags on the levee. As described on pages A-21 and A-22 in Appendix A of the GRR/EIS, some of the floodplain area north of U.S. 175 (Central Expressway and C.F. Hawn Freeway) would remain subject to the SPF at elevation 414.8 because of Trinity River flood water ponding back into this area from the lower portion of the White Rock Creek drainage basin, and due to the alignment of the downstream end of the existing Rochester Park Levee. Because some low-lying areas are below elevation 414.8, the Hatcher Street underpass at Central Expressway would be subject to the SPF. The approximate street level at this underpass is elevation 413.0; therefore, sandbagging would be the most appropriate method of closure for a height of 2 to 3 feet.

9. In the event of a flood of such a magnitude as to require closure of the floodgates, vehicular and railroad traffic will be interrupted regardless of whether or not the proposed project is built.

10. Two SPF levee options were considered regarding the CWWTP, as described on page 4-49 of the draft GRR. One option (Long Option) was to encircle the CWWTP and provide SPF protection to the entire plant. The other option (Short Option), was to raise only the corner of the levee at the plant entrance. The short option, in combination with the chain of wetlands and the SPF Lamar Levee, would provide approximately 500-year protection to the CWWTP, compared to the current 140-year level of protection. Due to the increased cost of the Long Option, and the decreased benefits which would result in the existing Dallas Floodway, the city chose to support the short option.

11. See response to comment #3 on page N - 14. The City of Dallas is aware of their sole financial responsibility for cleanup of identified HTRW materials, as seen in a letter from the City dated March 9, 1998, which is included in the GRR/EIS in Appendix J.

12. Extensive coordination with the Texas Natural Resources Conservation Commission and the EPA have been pursued and will continue through any construction to ensure adherence to all applicable laws and regulations regarding excavation, transport, and disposal of hazardous and toxic materials.

13. Implementation of the proposed FSP would include mitigation for the loss of trees. Overall impacts of the project to air quality would be insignificant.

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project is significant, whether it is three percent or one percent, because our area is already failing to meet public health standards for air quality and we cannot afford to make it worse by any percentage. The proposed mitigation does not even begin to offset the loss of atmospheric amelioration provided by the existing forest until near the end of the project life span, and this is totally dependent on the success of the mitigation measure, about which success there are serious doubts.

14. The proposed swales are designed to be watered with wastewater effluent from the Central Wastewater Treatment Plant (CWTP). Swales C, B and A are designed to flow to the northwest and empty into Cedar Creek. Swale D would empty into the outfall of the CWTP, while Swales E, F and G would empty south into Honey Springs Branch. The pollutants present in the wastewater effluent would contaminate an even larger area than it does at present, settling in the swales as toxic sludge, contaminating Cedar Creek and Honey Springs Branch, and increasing the area of river already negatively affected by wastewater effluent. The effluent would also leach out contaminants as it moves through the swale excavations, adding to the pollutants discharged at the swale outfalls. The effects on Cedar Creek and Honey Springs Branch would be to impose a toxic barrier between aquatic life upstream in
15. the tributary and aquatic life in the river itself. Also, water quality will be negatively affected by allowing a livestock barn to remain inside the proposed levees. The livestock will deposit nitrogenous wastes in the floodplain, which will seep into the groundwater and be washed into the nearest body of water and the river itself, affecting local and downstream water quality.

16. The first comment on the sections of the report dealing with environmental resources, mitigation and restoration must be that this material is spread throughout the massive document and its appendices, making it very hard to find out exactly what is actually in the report. I can only attribute this to gross incompetence on the part of the preparers, which I find difficult but not impossible to believe, or to a conscious desire to obscure this information and make it as difficult as possible to understand. What is
17. the ratio of land affected by the project to mitigation lands, and what is the basis for using that ratio to determine how much mitigation land is necessary? Why is the
18. egret and heron rookery on Rector Street not included in the analysis of environmental resources within the project area when the Corps has been aware of its existence for years and the rookery is located right where a proposed levee is planned to be built? Why is there no comprehensive documentation of vertebrate and other
19. animal species actually to be found within the project area? Why are endangered and
20. threatened species of plants and animals besides birds not mentioned or listed in the report? Why is yaupon included as a plant species to be used for environmental
21. restoration when it is not an original native species of the project area? What

N

14. The effluent from the Central Wastewater Treatment Plant is permitted for discharge into the Trinity River based upon meeting specified criteria. The use of the water for the wetlands would not reduce the criteria. While the upstream discharge into Cedar Creek at the confluence with the Trinity River would result in an additional reach of river being effected by the water from the treatment plant, a toxic barrier would not be formed. The effluent water currently flows through a lake and discharge channel prior to emptying into the river. Fishermen observed using the lake claim to catch largemouth bass and catfish from the current system. Prior to development of the wetland swales, any contaminants within the soil would be removed, thereby negating the potential for leaching of contaminants.

15. The meat packing facility currently lies within the flood plain. The facility is currently operating under intense rules to protect the integrity of the food products it produces. The proposed project would protect all of the facility except a temporary animal holding area. Animal wastes would be tended to daily as they would be in the future. Therefore, no additional impacts are expected to be caused to the groundwater or adjacent water bodies by the provision of protection to the meat packing facility.

16. The environmental information in the Draft EIS was conspicuously located in various Chapters of the report as referenced in the Table of Contents and the Index. There was no attempt to confuse the reader.

17. Habitat mitigation was determined by use of the Fish and Wildlife Service's Habitat Evaluation Procedures. The method does not rely on "ratios" but rather quantifies habitat values, based upon measurable habitat structural features lost as a result of the project and evaluates mitigation alternatives for their potential to offset impacts. The proposed mitigation plan by the U.S. Fish and Wildlife Service was reviewed and was modified to use fewer numbers of containerized trees and more bare-root seedlings within the habitat management areas that would be acquired. There would be less cost to follow this mitigation procedure including the acquisition of an additional 25 acres of land that would be necessary to obtain the same overall habitat output as would be obtained with the Services plan.

18. The report has been modified to include reference to the location and importance of the rookery. The rookery has been known to be in the area for several years and in fact the information was used to align the portion of the proposed levee in that area to avoid the rookery. If favorable tree growth occurs and the rookery

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22. guarantee exists that the local sponsor will be able to fulfill the extensive mitigation maintenance responsibilities and requirements when the sponsor has not been able to maintain its mitigation efforts near the CWTP? The trees planted near the CWTP sumps, which are erroneously termed wetland cells, as mitigation for the wooded areas destroyed for the creation of those sumps have been allowed to die from lack of maintenance. Is this cavalier attitude on the part of the local sponsor acceptable when the proposed mitigation for this project will require extremely extensive maintenance efforts? What consequences would result from the local sponsor's inability to maintain the mitigation measures other than the failure of those measures? Do any of
23. the proposed mitigation lands contain unacceptable features such as landfills? The proposed artificial "wetlands" will never function as well in an ecological fashion as
24. natural wetlands, which have not been fully documented in the project area. The field surveys of ecological resources were incomplete, which is quite inexcusable considering the length of time spent in preparing this report. Excessive reliance on literary sources of information and inadequate efforts to document the actual ecological resources has resulted in a flawed an inaccurate report.

25. The actual recreation plan is not immediately identifiable. Out of date reference material of the most general nature and other material that is not part of the actual recreation plan obscure the actual plan, which seems to be some miles of trails, some pavilions and parking areas. Where are the actual locations of the trails, pavilions and parking areas? This project should be coordinated with the local sponsor's plan
26. to build several canoe launches, which include parking areas, to develop multiple purpose "nodes" or trailheads in order to avoid duplication of efforts and to minimize the harmful effects of construction in this environmentally sensitive area. The
27. identification of recreational needs does not specifically include paddlesports, only hiking, biking and equestrian pursuits. The ten and twelve year old reference material in the report does not reflect recent trends and increases in interest and participation in paddlesports on a local, regional and national level. The Corps is
28. aware of myself and my company, Trinity River Expeditions, which provides canoes, equipment and both guided and unguided canoe trips in the project area, and yet I was never contacted by the Corps and no mention was made in the report of my ongoing commercial recreational activities on the river. In fact, my company provides one of the major organized recreational activities along the river in the project area, commercial or otherwise. I have over 20 years of personal and professional canoeing experience on the Trinity River, and it would only seem reasonable for the Corps to take advantage of the unique source of information which I represent.

The report states that several sites that may have cultural and historical significance were not surveyed because they were located on the river and access was not

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expands into the area of the proposed levee prior to construction, efforts would be made to further limit impacts to the rookery. The U. S. Fish and Wildlife Service has recommended that should construction impacts impinge on the rookery, that construction be conducted during the no-breeding season to avoid violation of the Migratory Bird Treaty Act and to reduce impacts to the rookery.

19. It has been determined that a general listing of species that are known to occur as permanent or temporary residents adds little information that is used in the ultimate decision process. It was determined that the wisest use of economic resources available was to map or otherwise determine extent of important resources that the species would utilize, conduct habitat evaluations with the U.S. Fish and Wildlife Service and devise an appropriate mitigation plan so that use of the area by species that would be expected in the corridor would continue into the future.

20. Listing of federally listed threatened or endangered species was based upon information provided by the U.S. Fish and Wildlife Service. No federally listed threatened or endangered plants, amphibians, mammals or reptiles are known to inhabit the study area.

21. Yaupon, *Ilex vomitoria*, is a plant native to Texas that is recognized for its fall and winter fruit bearing capacity. As such it provides much needed food for resident and migratory birds during the cooler months. The plant was recommended by the U.S. Fish and Wildlife Service as one of many other fruit bearing shrubs and trees to be included in the overall environmental mitigation plan. Final selection of species to be used would be made during final planning for the project.

22. Prior to construction of a Federal project, the sponsor must sign an agreement to provide operation, maintenance, repair, rehabilitation and replacement (OMRR&R) for the project after completion. Periodic inspections are performed by the Corps to ensure adherence to the OMRR&R requirements. Numerous factors effect the initial survival of planted trees. The CWWTP mitigation effort has been hampered by both drought and floods, however, the sponsor has diligently pursued correction of the mitigation efforts. In addition, mitigation as part of the proposed federal project would be jointly implemented by the Corps of Engineers and the sponsor. The mitigation areas would not be turned over to the sponsor for long term operation and maintenance until successfully established. The Corps would also provide at least annual inspection of the mitigation areas and deficiencies would be documented and the sponsor would be required to correct.

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23. Known landfills were not considered for potential environmental mitigation lands. Prior to acquisition of any lands for mitigation, a preliminary assessment screening would be conducted to ensure that wildlife would not be enticed into contaminated areas.

24. While it is likely that "artificial" wetlands would not perform every ecological function on the same level as natural wetlands, much about design and operation of wetlands has been learned during the last 20-30 years. Results of this research as understood by representatives of resource agencies was utilized in the design of the chain of wetlands proposed. The system would contain sufficient water control structures to allow modification of operational procedures as experience with the system evolves over time. The use of adaptive management procedures would result in development of as much ecosystem benefits as possible within the welland complex. As a further matter of clarification, the chain of wetlands were proposed to be built to restore welland losses caused by previous modifications in the Upper Trinity River basin. These emergent wetlands are not proposed as part of the environmental mitigation for losses that would result from the currently proposed Dallas Floodway Extension Project. Ecological resources of the project area were determined from literature, information provided by the public during scoping and on-site field investigations.

25. A Value Engineering (V.E.) study is scheduled to be performed prior to final design of this project. This study will address all aspects of the proposed recreation features to determine the optimum plan which can be implemented

26. See response to #25 above. Canoe launches have been determined to be stand alone items which do not warrant Federal participation. Canoe launches would be a 100% non-Federal expense.

27. See response to #25 above.

28. The Corps is aware of your company, and the study may have benefitted from your expertise. We believe that the most current data available was used for the analysis.

N

29. possible. Again, the Corps is aware of my company, which offers access to most areas situated along the river, as I have been attending the Environmental and Recreational Advisory Committee (ENRAC) meetings for some years now. The Corps cultural resource personnel should have informed the subcontractor who performed the pertinent surveys of my company's services. My company can provide access on a regular basis to sites such as the remains of the navigation lock near McCommas Bluff. A canoe survey of the river would seem a most reasonable way to view the river and riparian areas in the project area, and would reveal information, which would not otherwise be apparent. For example, there is a concrete structure on the east bank of the river upstream of I-45 which I have observed for many years and estimate at some 40 to 80 years in age, and which may have some historic significance. This structure was not mentioned in the report, and it is inexcusable that this and other historic cultural resources in the area were not inventoried. The railroad trestles in the project area have significant architectural value along the river and White Rock Creek. The impact of the proposed project on the many known and expected archaeological sites spanning some 10,000 years of human activity in the project area would be detrimental in the extreme. Prior excavations near the CWTP, similar to the planned swale excavations, were conducted without proper monitoring and documentation of the archaeologically significant artifacts uncovered, which may have included human remains. The proposed project may well have similar consequences, and valuable information about our area will be lost or rendered useless to future generations. There is no specific plan to address the loss of these resources, much less to conserve or prevent that loss altogether.

30. The proposed plans for rechannelization of the river beneath I-45 would create a significant obstruction to navigation of the river. My business, Trinity River Expeditions, conducts guided and unguided canoe trips on this section of river beneath I-45 on a regular basis. No provisions were made in this plan for portage routes or other means of altering the effects of this safety hazard and impediment to navigation, and no accounting was made of the financial losses to my business as a result of this obstruction.

31. The proposed diversion of the river channel beneath I-45 is not justified, and the alternatives listed do not seem to have the accurate costs presented. I have personally inspected the piers supporting the bridge in the river channel and I cannot find any structural problems with them. The report says that damage may occur to the bridge at high river levels, yet there is no visible evidence of any effect on the bridge from all of the previous high river levels since the bridge was constructed. The report states that part of the bridge was damaged and had failed some years back, but the

29. The U.S. Army Corps of Engineers took into consideration the numerous remnant structures along the Trinity River and made a careful consideration of any potential historical significance or associations for these resources. We also considered the potential for the planned project to impact these resources and if the particular resource met the criteria the criteria for evaluation as provided in 36 CFR 60 (*National Register of Historic Places* (NRHP)) and as discussed in National Register Bulletin 15 (*How to Apply the National Register Criteria for Evaluation*) (U.S. Department of the Interior, 1995). We have consulted with the Texas State Historic Preservation Officer and have determined that the majority of these structures do not demonstrate significant associations with major events, are not associated with important historic persons, not of significant or unique architecture or engineering design, not the work of a master, and do not represent a significant amount of information or data which would be lost as part of the proposed project. Several structures are considered to be possibly eligible for listing in the NRHP but are either not within the project construction area or will not be impacted by the project's undertaking. The structures noted by the commentor have been added to our inventory and addressed for NRHP eligibility and potential impacts. The archeological properties noted by the commentor are being assessed further with regard to NRHP eligibility. We have no knowledge of previous excavations at the Central Wastewater Treatment Plant and cannot provide a reply.

30. Proposed construction of the realignment of the Trinity River at the IH-45 crossing would begin at the downstream end of the new channel and continue upstream to the tie-in point with the river. No obstruction of the existing channel would be necessary during this construction period. Very minimal delays to navigation might occur only during the initial diversion of the river to the new channel.

31. The final sentence of the first paragraph in the "CHANNEL REALIGNMENT PROPOSAL AT IH-45 BRIDGE" section, page 4-69 of the draft GRR/EIS, states the location of the damage. "...a 1984 flood event .... precipitated a fracture in one of the bridge columns supporting the section spanning the river." The investigation was performed to determine whether a structural reinforcement of the columns or realignment of the river would be the most effective way of protecting the bridge, and thereby reducing the risk of catastrophic failure.

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location of the damage was not disclosed in the report, implying by non disclosure that the failure had not happened anywhere near the river. Where did this damage and/or failure occur and why was this location not stated in the report? If the bridge

32. is somehow threatened, weakened or damaged near the river, why is there no mention in the report of any plan to repair the damaged or weakened part of the structure? The least expensive way to protect the piers from possible damage in the future would be to reinforce or "armor" the existing piers, not to dig an entirely new channel through an ecologically sensitive riparian bottomland hardwood area containing known archaeological sites requiring extremely expensive mitigation efforts to attempt to offset the consequent environmental and archaeological damage and loss. It is beyond belief that digging a new channel would be the least expensive alternative as is presented in tbe report. The costs are given as lump sums, not broken down or explained so that a reader could determine what the components of those costs are. Evidently there is no memorandum of understanding or agreement between

33. the Corps and the Texas Department of Transportation (TXDOT), or if there is, why was it not included in the report? Indeed, why is the Corps undertaking a project that should be the responsibility of TXDOT alone?

34. The economic analysis of the proposed project is seriously flawed. No economic cost is placed on the loss of environmental value, loss of air quality, loss of climatic amelioration, loss of water quality, and the environmental damage that will be among the consequences of the proposed project. The economic costs of the threat to public

35. health from the disturbance of contaminated soils were not analyzed while the annual

36. economic benefits of the recreation plan are greatly overestimated. An example of the flawed analysis is the estimate of the number and value of vehicles per housing unit that would be affected by a flood event. The assumptions of the analysis are

37. based on Metropolitan Statistical Area figures, with the smallest statistical unit being an entire county. Some areas within each county, and within Dallas County, are economically depressed or disadvantaged and would not correspond with a countywide average of vehicle numbers, age and value per housing unit. The actual depreciation of the existing vehicles in the project area is certainly more than the fifty-percent assumed in the report. It is an unreasonable assumption that each housing unit in the project area will have a vehicle that is actually worth seven thousand dollars as is stated in the report, especially considering some housing units are unoccupied. The most useful part of the economic analysis reveals that the

38. overall net debt of the City of Dallas is too high. The only means of financing greater per capita debt such as will be incurred by participation in this project would be a tax increase, which is not a likely political scenario.

32. As shown in the GRR/EIS beginning on page 4-69, armoring of the piers was investigated as an alternative to the channel realignment. The environmental impacts of the channel realignment alternative are included in the "ENVIRONMENTAL IMPACTS OF ALTERNATIVES" section, beginning on page 4-74.

33. There is no memorandum of understanding or agreement between the Corps and TxDOT. The realignment of the river at the IH-45 crossing, as described beginning on page 4-69 of the draft GRR/EIS, was investigated following a request by TxDOT during the EIS scoping process. The realignment proved to be economically feasible and was added to the Federally Supportable Plan and the LPP and will be cost shared between the Federal government and the non-Federal local sponsor, the City of Dallas . Any agreement between the sponsor and TxDOT as to funding of the non-Federal share for this work effort is outside the jurisdiction of the Corps.

34, 35. The project was evaluated using the most current effective and *proven* methodologies and available. Not all damages can be adequately assessed an a monetary basis. The COE recognizes the significance of non-economic based impacts and incorporates these into the plan formulation process using other methods.

36. As stated in the Residential Vehicles section of the Economics Appendix, the relationship between the structure value and the vehicle value is not proportional. The objective is to develop a method that mimics a plausible trend based on the region and not the neighborhood. The formula used employs a very conservative approach to account for anomalies such as the probability of the vehicle's presence during a flood. Further, the baseline value is assumed to be 10 percent of the structure as opposed to the commentor's claimed 50 percent. This conservative approach allows the formula to be used in studies throughout the Dallas-Fort Worth Metroplex and prevents the overstatement of damages and benefits.

38. Thank You for your opinion on the financial capabilities of your city.

39. Finally, I offer the comment that all studies concerning the river, floodplain and tributaries should be coordinated. The effects of all the flood damage reduction projects, highway and other projects currently under study are cumulative in their effects of the floodplain hydrology and ecology. Certainly the effects of the Trinity Tollroad Extension into the Dallas Floodway Extension project area should be considered concurrently, as should the planned projects in the Dallas Floodway proper, the Elm Fork project, the West Fork Corridor Transportation Study, the Northwest Corridor Transportation Study and the Loop 12/I-35E Corridor Transportation Study. The segmentation of these studies and projects does not consider their cumulative effects and gives the wrong impression that they are not connected, when in fact they are all dealing with aspects of the same watersbed and floodplains.

These comments are submitted with the intention of preserving the valuable assets of my ancestral homeland. If I didn't care so much about my home river, I wouldn't go to this much trouble.

Sincerely,

Charles Allen
Owner-Operator, Trinity River Expeditions
615 South Montclair Avenue
Dallas, Texas 75208
214-941-1757

Board Member, Dallas County
Save Open Space Organization

Committee Member, City of Dallas
Trinity River Corridor Citizens Committee

39. Appropriate coordination has occurred between Federal, State, local government entities, and the public. Analysis of potential future impacts of any proposed road constructions remains the responsibility of the proponents of such construction. The FEIS includes discussions of cumulative impacts related to reasonably foreseeable project proposals.

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Review of the Draft Trinity River General Reevaluation Report and Integrated Environmental Impact Statement

Submitted by:
Anna M. Albers for
Trinity River Action Coalition
Charles Miller for
Concerned Citizens of Cadillac Heights
Vijay Barnabas for
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201 N. Edgefield Avenue
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214-942-7852

August 11, 1998

Anna M. Albers
August 14, 1998

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Review of Draft Trinity River General Reevaluation Report and Integrated Environmental Impact Statement (EIS)

Points of Concern for Draft EIS, Dallas Floodway Extension

1. Not enough time to review; request 90 day extension.
2. The modeling based on out-dated topographical and FEMA flood maps. Topographic map prepared 1977. Some FEMA flood maps were updated in 1986. No FEMA maps have been updated to reflect massive illegal and legal filling along tributary streams, including White Rock Creek, Hwy 310, Southern Dallas, and Trinity River.
3. COE leaving about a 1 mile break in levee at downstream end of western Floodway and new proposed levee will flood Moore Park and the low lying neighborhood across 8th Ave and neighborhood below Townview Magnet School, adjacent to existing levee. This break will apparently act as safety valve. However, this will cause low-lying neighborhoods to flood that have not flooded in past.
4. In addition to the break in levee, COE leaving low spot 600 feet below DART bridge so will have controlled overtopping if have catastrophic flood. Leaving low spot at Hatcher and Lamar under 175 bridge that will have to be sandbagged assuming work crews can get to spot during flood. In 1997, severe rainstorm flooded Hatcher, preventing rescue vehicles from leaving Firehouse.
5. COE plans call for only constructing 100 year levee around Cadillac Heights, and not extending levee to connect to high ground southwest of Cadillac Heights. Acknowledge that Cadillac Heights will be flooded at southwest end if more than 100 year flood but state that this flooding would act as warning so can evacuate neighborhood, and this will happen even with an 800-year levee. Plans do not remove flood damages. Instead, if more industry moves into Cadillac Heights will cause greater flood damages because industries built behind the levees will assume they are "protected" behind levee.
6. CWWTP and Rochester Park levees will not be raised to SPF levels. These levees will be overtopped if have more than 140 or 110 year floods. These areas are being used as the escape valves for floods greater than 140 or 110-year floods. During the campaign, voters were told that these levees would be raised.
7. Construction of swale with Lamar levee and short levee at Cadillac Heights will reduce flood protection to downtown by _____ ft.
8. Absolutely no hydraulic or hydrologic studies to determine effect of building more levees on neighborhoods along 8th St, downriver such as Joppe and Floral Farms, Pleasant Grove and tributaries.
9. There has been no discussion of impact of building tollway inside levees on flood levels downstream, upstream, etc.; Dallas County Open Space Parks, tributaries. The tollroad issue is scarcely mentioned in the report.
   A comprehensive analysis on the combined affects of building channels, levees and a tollway must be done now, since the City Council has voted to place the tollroad inside the levees. The City of Dallas should know now the effect of building these structures that will result in a reduction of flood storage capacity.

1. Following a number of requests to extend the time period for public review, the comment period was extended to a total of 91 days from the time the Notice of Availability was printed in the Federal Register.

2. The Hydrologic and Hydraulic modeling is based on 1991 topographic data, as discussed on page A-13 of the GRR/EIS and is currently used throughout the Upper Trinity River system. No FEMA maps were needed or used in the preparation of the GRR/EIS.

3. The Recommended Plan will provide a small increment of flood benefits for properties along Cedar Creek that are subject to flooding from the Trinity River. A potential levee placed across Cedar Creek to provide a high level of flood protection from the Trinity River is impractical due to the size and configuration of the Cedar Creek drainage basin. Such a levee, while protecting properties along Cedar Creek from floodwaters of the Trinity River, would also prevent runoff from the Cedar Creek drainage basin from entering the Trinity River during a flood event. The result would be worse flooding on Cedar Creek since sufficient space to store the required runoff volume is not available. Alternatives to extend the proposed levees between Cedar Creek and the damageable properties along Cedar Creek are impractical due to the close proximity of these properties to the creek.

4. See response to comment #10 on page N - 20. Access to the Hatcher Street underpass can be made from S.H. 175 under flooding conditions due to the raised level of the highway.

5. Subsequent to the release of the draft GRR/EIS, the Assistant Secretary of the Army (Civil Works) has determined that the plan providing SPF levels of protection to both the Lamar Street and Cadillac Heights areas, denoted as the Federally Supportable Plan in the draft GRR/EIS, should be the Federally Supportable Plan, and therefore the Recommended Plan. Revisions to the GRR/EIS have been made to reflect this decision. It is imperative, however, that

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10. There is no discussion or acknowledgment of location of sumps and detention ponds along new levees.
11. Environmental restoration was not approved in original authorizing legislation; must get approval from Congress.
12. Purchase and location of mitigation land not specified; purchase must be specified by Congress.
13. Water quality section omits lead, chromium, other heavy metal contamination, and other pollution that has been found in Trinity river water and channel soil. Also, there is nothing in the EIS about EPA ban on eating fish caught in Trinity River. A number of additional HWTR sites omitted. Apparently, the costs to clean up this pollution are not estimated or included in the EIS. See previous Trinity River committee's report. The COE has not sampled any sites immediately adjacent to and upwind (northeast) and along and in the River channel, of the now closed Dixie Metals and Exide Industries, or the operating chromium recycling plant for lead, mercury, chromium, arsenic pollution. Since lead, chromium, and other pollutants have been found, the COE must do tests to determine the extent of pollution in the areas, so that alternate routes can be selected if the proposed levees are built.
14. Locations of historical, cultural and archeological sites not fully detailed or included in analysis..
15. EIS not required if tollroad built and so no future modeling of effect of tollway on flooding. May do Environmental Assessment which is much less rigorous. So far, not know if one done for George Bush Tollway, even though this will affect Trinity River flood levels downriver, within the City of Dallas.
16. No documentation of how the EIS complies with Environmental Justice Act or other requirements.
17. No acknowledgment of effects of new levees planned for Southern Dallas County or around McCommas Bluff Landfill.
18. EIS incorrectly states that the City of Dallas has begun repairing slumping levee walls in Dallas Floodway. No money for maintenance in bond passed.
19. Does not address upgrade of Dallas ozone to "severe" category and effect on building a tollway inside the levee. Underestimates amount of air pollution forest removes and did not include herbaceous vegetation in analysis.
20. Size of Great Trinity Forest understated by several thousand acres; it is much larger that area City of Dallas adopted.
21. The EIS does not address all the issues raised at the public scoping meeting.

Syllabus

The City Council approved the Locally Preferred Plan (LPP) that includes the Chain of Wetlands plus Levees, the included Standard Project Flood (SPF) levees protecting Lamar St. and Cadillac Heights, and recreation facilities.

flood control measures, such as levees, be designed so that if the design capacity is exceeded, a safe and controlled inundation of the protected area is assured. This applies to any level of protection for which the levee is designed. A gradual and controlled inundation insures that a catastrophic failure similar to a dam breach does not occur, which could produce high velocity flows and result in much greater damages to the flooded area. Early warning of a potentially damaging flood event will not be by the actual flooding, but by the flood crest forecast provided by the National Weather Service's River Forecast Center.

6. A short length of the existing Rochester Park Levee will be raised slightly at the juncture of the proposed Lamar Street Levee and the Rochester Park Levee. The remaining portion of the existing Rochester Park Levee downstream of the Union Pacific Railroad bridge will not need to be raised, but will become an integral part of the Lamar Street Levee and provide SPF protection to the Rochester Park area as well as the Lamar Street area as explained on page A-21and shown on Plate A-33 and Plate A-34. The Central Wastewater Treatment Plant Levee will not be raised. Both the CWWTP and Rochester Park levees will realize an increase in flood protection due to the lowering of the flood peak elevations by the chain of wetlands combined with the proposed levees. This can be seen by comparing the 500-year flood profiles on Plate A-30 and Plate A-34.

7. Selection of the SPF levee option, as recommended in this final report, will reduce the SPF profile by 1.4 feet. The critical breach elevation is increased by 2.2 feet, resulting in a cumulative effect of 3.6 feet.

8. There are insufficient flood damages in those areas to support such action from a Federal perspective.

9. See response to comment #4 on page N - 14.

10. A discussion of the interior drainage analyses has been added to the report, beginning on page 4-49. Additional information has been added to Chapter 6.

11. Correct. Environmental or ecosystem restoration was not an authorized project purpose in 1965. Congressional legislation adding restoration as a project purpose will have to be passed prior to implementation of restoration measures.

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12. Mitigation was authorized by previous law. The Corps supports the location of the mitigation lands close to the source of the impacts as identified in the recommended plan.

13. Water quality section addresses known water quality constituents of concern that could be influenced by this proposed project.. Texas Department of Health closed Segment 0805, 0806,and 0841 to consumption of fish in 1990. This information was also added to discussions on water quality.

14. Routinely, archeological site specific locations are not included in reports or documents made available for general public distribution for reasons of site protection and preservation. An in-depth discussion of all identified and currently unidentified properties, and those historic properties previously identified as having potential NRHP significance, was the subject of a cultural resources study to support the DEIS and was made available to the State Historic Preservation Office.

15. Any road construction that might be proposed would require modification to existing flood damage reduction projects, affect navigable waters or result in fills in waters of the United States and would be reviewed for potential to adversely increase flooding on the Trinity River within the study area. Further, the Corps will not allow any modification to the existing floodway or proposed floodway extension that would decrease the existing flood damage reduction benefits or threaten the integrity of the system.

16. Compliance with Executive Order 12898 was discussed thoroughly on pages 6-10 and 6-11 of the Draft EIS.

17. McCommas Bluff Landfill has been modeled as completed, as discussed on page 3-8 and on page A-14.

18. Phase I improvements to the existing Dallas Floodway levees and channels are described on pages A-11 and A-14.

19. The change in status of the areas compliance with ozone criteria has been changed in the final report. The proposed project does not include the tollroad. Identification of impacts to air quality associated with future road construction would be incumbent to the agency proposing the construction. Modeling of beneficial effects of forest on air quality was applied appropriately. Herbaceous benefits are not known sufficient to model; however, the contributions of vegetation other than by trees would ultimately

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22. Instead, according to the Draft EIS, an 800 year levee will be built along Lamar St., and only a 100 year levee will be built partially around Cadillac Heights. The incremental difference in cost to build an 800 year levee around Cadillac Heights, unless the COE approves an exception, will be borne by the Dallas . During the bond election campaign, the voters were told that these levees would be the same size and made no mention of the taxpayers paying additional costs.

23. This appears to be a clear example of environmental racism, since the 100 year levee, if built, would be overtopped that the 800 year Lamar Street levee. How much is the difference in cost? Is conducting a voluntary buyout in Cadillac Heights and the lower Lamar area and providing 5 years of flood insurance less expensive than paying for the difference of building an 800 year levee?

COE Cost Calculations

24. A brief analysis of costs on this page finds that the costs do not add up, and are difficult to understand. Total first (construction) costs for the Federally Supportable Plan and Locally Preferred Plan seem to be overstated and costs are not clear. Total first costs for the Locally Preferred Plan are not stated. Also, the total costs, *after* deduction of approved credit for part of Rochester Park and CWWTP levees, for each plan do not agree. These costs should be the same; the only changes appear to be the allocation of the percentage of federal and local costs.

Unresolved issues: environmental restoration, hazardous waste clean-up, recreation mitigation

25. Issues dealing with Congressional authorization to purchase mitigation land and the clean-up of hazardous wastes in the levee and channel footprints need to be resolved as soon as possible. This is especially needed so that people whose homes and businesses are going to be displaced by levees, sumps (detention ponds) channels and roads can be notified as soon as possible and take appropriate action. Also, since Dallas taxpayers are going to

26. pay all hazardous waste clean-up costs, unless the route is changed, these costs should be determined up-front as much as possible. This is especially crucial since communities like Joppe may be directly affected if the COE and the City decides not to go through the Linfield Landfill and re-route through the Joppe community.

27. The COE has said that actions would be taken to mitigate (off-set) clear-cutting forest and environmental damage caused by building levees and the swale/chain of wetlands. Apparently the cost of environmental restoration was not approved in the original authorizing legislation, and Congress must approve an amendment to the original authorization and funding before any restoration can take place. Action should be taken as soon as possible to resolve this funding.

show even less impacts to air quality because the proposed project area would be coverd with some vegetation.

20. See response to comment #2 on page N - 14.

21. Significant Issues raised during National Environmental Policy Act public scoping for this proposed project were taken into consideration during plan formulation and impact assessment. Not all recommendations provided by the public could be incorporated in the proposed project although they were considered.

22. The Federally Supportable Plan (FSP) identified in the FEIS has been defined to be the plan which includes SPF levees along Lamar and Cadillac Heights, and is the desired project of the local sponsor, the City of Dallas. The levees would provide equal levels of protection.

23. The total difference in cost between the Tentative Federally Supportable Plan (TFSP, which includes the 100-year Cadillac Heights Levee) and the LPP which has been designated the Federally Supportable and Recommended Plan in the FEIS would be approximately $4.7 million. The question of whether or not this cost difference is more or less expensive than a voluntary buyout and flood insurance acquisition plan, however, is not the only consideration in choosing between a structural and non-structural plan. According to current regulations, the economic benefits are not calculated in the same way for these two types of alternatives. Application of the "Benefit Methodology", as presented on page 4-6 of the draft GRR/EIS, to stand alone non-structural plans results in infeasible solutions.

24. The costs presented in the Syllabus are consistent with the costs shown in Chapter 6 of the Final GRR/EIS.

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28. Costs seem to vary in different sections of the report. In the syllabus, the mitigation plan calls for acquisition of 1,135 acres of additional costs for recreation areas, including bottomland forest, grassland preservation, conversion of grassland to bottomland hardwood areas, and habitat improvement at a cost of $4.4 million.

29. Who will pay? The proponents of the bond election campaign implied that the federal government would pay for environmental restoration and mitigation. Will the Dallas Taxpayers have to pay this cost or will any be done at all?

The extent of HTRW (hazardous wastes) contamination and the clean-up costs are unknown at the time of this report. However, this is a non-federal responsibility and the City of Dallas is completely responsible for the costs of cleaning up whatever contamination is found. If further testing this summer finds more hazardous waste sites, including Linfield Landfill, the first consideration will be realignment of the project areas, and if that is not feasible, the City of Dallas will be required to clean the site prior to project construction. Additional HTRW sites may be found during construction, and the City will be responsible for those clean-up costs as well.

30. Instead of purchasing land in southern Dallas along the Trinity River for recreation area to mitigate environmental damages, the COE is considering purchasing land at a remote site, such as Lake Livingston. If the city decides to purchase land closer that might be more expensive, the federal share would be the lesser of the cost of purchasing land at the remote or closer site. The City of Dallas should purchase mitigation and recreation land as close as possible to the areas directly affected. One possible site is the Pemberton Hill area.

31. These issues of determining the extent and cost of HTRW sites, a new swale/levee alignments due to contamination, restoring and mitigating for loss of habitat and for recreation need to be resolved and specified in the EIS.

Chapter 3

32. Although the study criteria and land-use changes have been updated to a certain extent, and the topographical maps last updated in 1991, the models used do not reflect current on- the-ground conditions, and consequently, any hydraulic, hydrologic, and economic calculations based on that data are incorrect. Hundreds of structures and at least a thousand acres of trees have been removed from throughout the study areas, not just from Roosevelt Heights and Floral Farms, and this is not addressed in the modeling. The models also do not consider the tremendous growth in adjacent suburbs, or the conversion of thousands of acres of rural land to urban/suburban areas.

33. An updated on-the-ground survey of every structure throughout the study areas needs to be done, as does an actual survey of the area of forests cut down to make way for utility,

25. We understand the importance of resolving the issues discussed in the most expeditious manner. However, complex projects such as this one require significant review by higher Corps authorities and Congressional interests to determine conformance to applicable policies, regulations and laws.

26. See response to comment #2 on page N - 14.

27. See response to comment #25 above.

28. Due to the integration of the General Reevaluation Report and the EIS, the document contains the plan formulation process required by current planning regulations. Therefore, costs presented in the "Initial Screening of Alternatives" sections in Chapter 4 were not developed to the same level of detail as the costs presented in Chapter 6, which presents the final Recommended Plan.

29. Environmental restoration would be cost shared on a 65% Federal / 35% non-Federal basis. Environmental mitigation would be cost shared in the same ratio as the flood control measures. The non-Federal cost share for flood control is a minimum of 25% and a maximum of 50%, and is dependent upon the costs for lands, easements, rights of way, relocations, and disposal areas (LERRD), which are non-Federal responsibilities. In other words, if the costs for LERRDs are less than 25% of the total cost of flood control measures, then an additional non-Federal cash contribution would be required. Conversely, if the costs for LERRDs are greater than 50%, then a reimbursement to the non-Federal sponsor would be required. If the costs for LERRDs for flood control are within the range of 25% to 50%, then no adjustments are required.

30. Resource agencies have recommended that the mitigation area be located as close to the source of the impact as reasonably possible. The mitigation proposal outline by the United States Fish and Wildlife Service meets that criteria. During advanced design studies, the development of the final mitigation plan would be reviewed to make adjustments based upon availability of land, its ability to be managed for fish and wildlife mitigation and other factors. If additional or substitute lands are necessary, the suggestion to consider additional floodplain lands in the White Rock Creek basin near Pemberton Hill would be evaluated.

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sewer, and other easements, and along the straightened river channel, beginning at the Corinth Street Bridge and continuing approximately south of the Central Waste Water Treatment Plant along the CWWTP swales.

34. Additionally, the COE needs to survey all flood plain fill sites in the 100 year floodplain within the City limits to determine whether the City is complying with federal floodplain and wetland regulations. The COE, the North Central Texas Council of Governments (NCTCOG), or their designated agents, also need to survey all floodplain areas filled since 1993 to since determine if the appropriate area governments are complying with the Corridor Development Certificate (CDC) process. The NCTCOG and a number of Metroplex cities adopted this process in 1993 to control development in the 100-year floodplain along the Trinity River.

Chapter 2

35. The report states that the Trinity watershed drains a 17,900 sq. mile area, but that it only addresses the "study area" between the confluence of the Trinity River and the confluence of Five Mile Creek, near the Trinity River and I-20, and the downtown end of the existing floodway. This study area for the Dallas Floodway Extension is artificially set, and should be integrated and comprehensive to include the conditions and government and other plans for the Upper Trinity study area, and to include tremendous development throughout the Trinity River watershed that is converting thousands of acres from rural to urban areas, and is removing large areas from storing flood waters. This issue is not addressed in the report.

36. The COE's economic, hydraulic and hydrolic models need to been adjusted to account for the tremendous development along the upper Trinity River watershed, including around the towns of Gainesville, Nacona, Muenster, St. Jo, Carrolton, Denton, etc. A hydraulic analysis reflecting the integrated plans need to be completed.

37. Additionally, it appears that the levees planned by the City of Dallas in far south Dallas, close to the waste water treatment plant or the levee extension planned around the McCommas Bluff landfill are not considered in the EIS. These levees must be considered as they will remove more area from the floodplain and back up and raise flood waters when constructed. Another area within the 100 year floodplain that must be factored in is the Floral Farms area where the City is planning to fill at least 50 acres in the 100 year floodplain in the old Floral Farms neighborhood. The City began buying out this neighborhood in the 1980's because of flooding, and it is about 1/4 mile east of the Simpson Stuart and Hwy 310 intersection and about 1 mile south from Loop 12 and the Trinity River. A hydraulic study needs to be conducted to determine how these fillings will affect the swales and levees.

Existing Rochester Park and Central Wastewater Treatment Plant (CWWTP) Levees

31. See response to comment #3 on page N - 14.

32. The current hydrologic and hydraulic models were approved for use in this study by the Upper Trinity River Feasibility Study (UTRFS) Executive Committee in January 1996. The model was also reviewed and approved by the city and their consulting engineers. While the models were developed in the mid-1990's, conditions used were forecast the the Baseline Year 2000.

33. An updated topographic survey is being scheduled for the next phase of detailed design, scheduled to begin following approval of the GRR/EIS.

34. Determination of compliance with CDC process is a local responsibility.

35. The entire drainage area of the Trinity River watershed is approximately 17,900 square miles. For purposes of this study, roughly the upper third of the overall watershed (about 6,275 square miles), extending from its headwaters near Olney, Texas, to the confluence of Five Mile Creek in southeastern Dallas was addressed in detail, with regards to hydrologic conditions. However, direct and significant impacts of the proposed project would not extend beyond the quoted "study area" between the downstream end of the existing Dallas Floodway and the confluence of Five Mile Creek.

Of the 6, 275 square miles of applicable watershed area addressed in this study, 1,970 square miles are situated upstream from Eagle Mountain Dam, 429 square miles are situated upstream from Benbrook Dam, 232 square miles are situated upstream from Joe Pool Dam, 1,660 square miles are situated upstream from Lewisville Dam, and 695 square miles are situated upstream from Grapevine Dam. The latter four of these impoundments, which impact 3,016 total square miles of the watershed (48 percent of that applicable to the Dallas Floodway Extension study) are designed to provide significant flood control benefits. Although it is not operated primarily as a flood control project, Eagle Mountain Dam, which impacts 31 percent of the watershed applicable to the Dallas Floodway Extension study, provides for a significant degree of rare-event flood

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control. Hydrologic conditions in the immediate study area are controlled by the portion of the watershed downstream from these major dams, about 1, square miles of watershed, primarily within the Metroplex.

The expected impacts of both future urbanization and future losses of presently available valley storage were evaluated in significant detail during this study, especially regarding the portion of the watershed situated downstream from the major dams. Future growth in the areas upstream from those projects would gradually have a measurable impact upon operation of those projects; however, it would not be reasonable to assume that the anticipated expansion of urbanization in these "headwater" areas would have a significant impact on the magnitude of rare-event flood discharges in the foreseeable future, in the immediate study area in south Dallas.

38. Runoff from the towns of Gainesville, Nocona, Muenster, St. Jo, and Denton (except that which progresses northward into the Red River) is collected within Ray Roberts Lake, and subsequently within Lewisville Lake, both of which effectively "control" the rare flood events. Over long periods of time (several decades) it may become necessary to make minor alterations in the operation procedures at these projects, in order to maintain the desired degree of flood control. Again, however, it would not be reasonable to assume that the anticipated expansion of urbanization in these "headwater" areas would have a significant impact on the magnitude of rare-event flood discharges in the foreseeable future, in the immediate study area in south Dallas.

Future urbanization in the vicinity of Carrollton would have a measurable hydrologic impact within the immediate study area, since runoff from that area is fully "uncontrolled". These expected impacts were evaluated in significant detail during this study.

37. See response to your comment identified as # 17. The city of Dallas supplied the Corps with a location map and description of permitted fill sites within the study area and these have already been considered in the analyses.

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38. The EIS states that the Rochester Park levee, built to a standard of SPF water surface plus 4 feet, now only provides approximately 110 year flood event protection, and the CWWTP levees provide 140 year protection. Reasons for these declines need to be stated, and measures specified that will prevent any these and any future levees' protection from declining. Additionally, the EIS needs to specify who will be responsible for restoring and maintaining flood protection structures, including these, and any future structures.

39. Also stated in the EIS is that a COE study finds that the areas east of the underpass at Hatcher Street and South Central Expressway will be flooded before the Rochester Park levee is overtopped in a 100 year flood event. Measures to remove people from this area prior to and after proposed levee construction is completed need to be specified in the EIS.

Air quality

40. Although air quality is briefly mentioned, the EIS does not address the future upgrade of Dallas non-compliance with federal ozone standards to "severe," which Region 6 Environmental Protection Agency and City staff say will happen within the next two years. Therefore, the air pollution reduction qualities of the forests and herbaceous vegetation is understated. Also, calculations by an expert, , find that the forest removes _____ of air pollution in Dallas. Further, in _____, the U.S. Forest Service conducted a study of air pollution reduction in Chicago, Ill., and found that the urban forest provides $42 million in air pollution reduction each year. Chicago's urban forest is much smaller than the urban forest in Dallas.

Water Quality

41. The EIS does not address Trinity River water quality sufficiently, and minimizes water pollutants, and should be revised to reflect current water quality conditions. Absolutely no mention is made of the U.S. Environmental Protection Agency ban on eating fish caught from the Trinity River. This ban results from Trinity River water pollution including chlordane and lead. The EIS only reports on pollution generally attributed to sewage discharge, fecal coliform, into the Trinity and it's tributaries, and lawn fertilizer components, including nitrite-nitrate, orthophosphorus, and total phosphorum, are mentioned.

No mention is made of heavy metals, chlordane, PCB's or other pollutants found in the Trinity river, although water quality testing has found these substances, or leachate draining into the river and tributaries from closed or active landfills, especially those containing toxic substances. Screening levels, and actual values, whether or not the pollutants exceed the screening or criteria, must be reported and used in determining river water quality

38. The Rochester Park Levee was designed and constructed prior to the completion of the current hydraulic and hydrologic models. As stated on pages A-9, A-10, and A-11, the Rochester Park Levee was designed using data from the previous study based on use of the LRD-1 hydraulic model and floodplain conditions from the 1960's which was the most up to date information available at the time the levee was designed. The current study indicates significantly higher water surface elevations for the various flood frequencies than the older study. This is due primarily to increases in runoff characteristics in the upper drainage basin and increased hydraulic roughness due to the growth of dense vegetation in the floodplain. The recent improvements made to the CWWTP levee by the City of Dallas was designed using current data as described on page A-12. See response to comment # 22. On page N - 33.

39. The existing Rochester Park Levee would not be overtopped in a 100-year flood event. The 100-year (1 percent chance) flood event floodplain areas for with and without the Recommended Plan (LPP) are shown on Plate A-41.

40. Existing and future air quality conditions are addressed in the EIS.

41. Existing water quality was addressed sufficiently to allow necessary analysis of potential impacts of the proposed project.

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42. The water quality section omits lead, chromium, other heavy metal contamination, and other pollution that have been found in Trinity river water and channel soil. Also, there is nothing in the EIS about EPA ban on eating fish caught in Trinity River. A number of additional HWTR sites omitted. Apparently, the costs to clean up this pollution are not estimated or included in the EIS. See previous Trinity River committee's report.

43. The COE has not apparently sampled any sites immediately adjacent to and upwind (northeast) and along and in the River channel, of the now closed Dixie Metals and Exide Industries, or the operating chromium recycling plant for lead, mercury, chromium, arsenic pollution. Since lead, chromium, and other pollutants have been found, the COE must do tests to determine the extent of pollution in the areas, so that alternate routes can be selected if the proposed levees are built.

44. No mention is made of the impact on water quality when water pollutants are "stirred up" and displaced during construction of levees, sumps, sump pumps, or other structures, including building highways or tollroads inside the levees.

45. No mention is made of the impact on stormwater and water quality from the constructed highways and/or tollroads inside the levees and related traffic users, including automobiles and tractor trailers. Pollutants emitted will include oil, antifreeze, gasoline and others, and will wash off the tollroads/highways into the Trinity River. How much will this stormwater runoff and increased pollution increase storm water fees paid by Dallas taxpayers and the City of Dallas? How will this stormwater runoff affect fish and wildlife resources?

46. The EIS does not address the actual impact of the Corridor Development Certificate program on floodplain development, mitigation for loss of valley storage, or assess the functioning of that program.

Vegetative Quality

47. Although the Dallas forest is about 8,500 to 10,000 acres in size, the EIS greatly understates the size of the urban forest and wetland areas in Dallas at only 5,456 acres forest, and 500 acres of wetlands. It is not known what this acreage is based on. The actual size of the Dallas urban forest and wetlands, not just that included in the Great Trinity Forest, must accurately surveyed and used in determining federal and local mitigation and recreation actions. Dallas has the largest urban forest in the United States, which is bounded on the north by Scyene and I-30, Hwy 310 to the west, Jim Miller to the east, and extends across I-20 in the south. The Dallas City Council needs to reevaluate the resolution and increase the size of the "approved" forest and wetland areas to the actual acreage.

42. See response to comment #13 on page N - 32..

43. See response to comment #3 on page N - 14.

44. Water quality impacts are discussed in the body of the EIS within the Section 404 (b) (1) analysis. Hazardous wastes would be handled to prevent introduction to uncontaminated areas. Tollroads are not proposed in this project.

45. Tollroads are not proposed in this project.

46. The Corridor Development Certificate (CDC) Process aims to stabilize flood risk along the Trinity river. The CDC process does not prohibit floodplain development, but ensures that any development that does occur in the floodplain will not raise flood water levels or reduce flood storage capacity. Under the CDC process, local governments retain ultimate control over floodplain permitting decisions, but other communities along the Trinity River Corridor are given the opportunity to review and comment on projects in their neighbor's jurisdiction. See response to comment #7 on page N - 21.

47. See response to comment #2 on page N - 14.

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48. The purpose of the Vegetative Quality Map, Figure 2-5 is unclear and does not appear to accurately reflect the actual forests, wetlands and other features. Also, is this figure a photograph or an artist's rendition? What is the basis for the information reflected in the figure? Why are some urban areas colored in and others not? Was a topographical survey conducted and what was the date of the survey. The map does not accurately reflect the high quality forest in Rochester Park, and other areas along the Trinity River and tributaries.

49. Nothing mentioned in the EIS of the U.S. Environmental Protection Agency regulations regarding filling in wetlands, and other permits from other agencies that the COE must obtain before channelizing the river, filling in wetlands, cutting down forests, reducing valley storage, and other requirements that must be met before levees, channels and lakes can be constructed in the existing and proposed Floodway Extension.

Fish and Wildlife Resources

50. This section minimizes the disruption of fish and wildlife resources that will occur during construction of the channel, wetlands, levees, sumps and sump pumps, and lakes.

51. No mention is made of the impact on stormwater and water quality from the constructed highways and/or tollroads inside the levees and related traffic users, including automobiles and tractor trailers. Pollutants emitted will include oil, antifreeze, gasoline and others, and will wash off the tollroads/highways into the Trinity River. How much will this stormwater runoff and increased pollution increase storm water fees paid by Dallas taxpayers and the City of Dallas? How will this stormwater runoff affect fish and wildlife resources?

52. No mention is made of the loss of fish and wildlife habitat that will be lost and is directly attributable to the construction of sumps (detention ponds) and sump pumps on the city side of the levees.

Threatened and Endangered Species

53. No details are given about how these species will be identified and protected, or how plans for levees, sumps, sump pumps, highways, "wetlands," or other flood damage reduction structures will be modified to protect identified species.

Cultural Resources

54. List of affected archeological, cultural, historical sites appears incomplete. Although a description of sites is included, however, no mention is made of how plans for levees, sump pumps, detention ponds, "wetlands" or other proposed structures will be modified to protect cultural resources in the path of these structures.

48. Figure 2-5, VEGETATIVE COVER MAP, depicts the vegetative cover of the portion of the study area that would be directly impacted by the alternatives evaluated. The classifications was performed by combining satellite imagery and field visits as described in Appendix F, pages F-6 and F-7. The vegetative and land use cover types are overlain over a map of the area which includes roadways to assist in interpreting the locations of the mapped areas. The background road matrix also has a purple tinge to reflect that it part of the urbanized area. The blank areas on the map were not verified for land cover because they are outside of the area of potential impact. The study area was mapped from aerial photography flown in February 1991 as described on page 3-8 of the Draft EIS. Extensive multi-agency field efforts combined with review of photographs and satellite imagery were used to determine vegetative cover types. Based upon information collected, the high quality forests were mapped accurately.

49. Steps for compliance with environmental regulations were discussed in Chapter 6 pages 6-9 and 6-10 of the Draft EIS.

50. The referenced section is included in Chapter 2, "DESCRIPTIVE OVERVIEW", which presents a description of existing conditions and is not intended to present the impacts of various alternatives. The plan formulation and evaluation process is included in Chapters 4 and 5 of the document.

51. See response to comment #50 above.

52. See response to comment #50 above. The existing resources described in this Chapter included the areas that would be impacted by the proposed levees including sumps necessary for them to function properly. The impacts determined and shown in Tables 4-25 and 4-26 include not only the levees but their associated sumps.

53. See response to comment #50 above. Threatened and Endangered species that might migrate through the area were identified in consultation with the U.S. Fish and Wildlife Service. It was also determined that neither of these species would be adversely impacted by the proposed project as discussed on page 4-87 of the draft EIS.

54. See response to comment #50 above. See also Response 4 on page N - 16 with regard to a complete list of archeological, cultural, and historical sites.

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Hazardous, Toxic, and Radiological Waste

55. List of hazardous, toxic and radiological waste appears incomplete. No mention is made of how public health will be protected when these sites are identified and cleaned-up. What will happen if and when construction begins and contaminated landfills and other hazardous waste sites are found? Will all work be halted until these sites are cleaned up? How much additional cost will be created because of delay to clean-up these sites? Who will pay the additional costs?

Recreational Resources

56. How will recreational resources, already in short supply in this area, be affected and how will loss of these resources be mitigated? Mitigation lands need to be purchased with Dallas on the Trinity and/or tributary streams. Linear corridors along streams and the Trinity, that the City of Dallas needs to identify and preserved for recreational use, must be protected from harm during any construction process for flood damage reduction structures. Non-structural solutions including habitat restoration along these corridors must be integral part in reducing flood damages.

Chapter 3 - Identification of Problems and Needs

Historical Flood Data

57. Although the draft EIS/GRR reports that continued urbanization throughout the watershed is a significant factor influencing current and future flood problems, it does not address how this urbanization will be controlled to reduce flood damages. This program, called the Corridor Development Certificate (CDC) program was agreed to by a number of area cities to control development along the Trinity River. Development is continuing virtually unchecked throughout the watershed, and it appears that a flood plain development certificate program is not being adhered to by member cities. This program does not consider the thousands of acres of farmland that have been converted to urban areas, and thus is not reliable.

58. The report states that FEMA identified flood prone areas within the 100-year flood plain in 1984. Because of the tremendous development in the Dallas area and Trinity Watershed, these maps are seriously outdated and do not reflect current on-the-ground conditions. Any studies based on these maps is therefore incorrect. FEMA officials have stated that the floodplain maps are out of date.

59. Tables 3-3, 3-4, 3-5 and 3-6 appear based on out-dated topographical and economic data, including properties that have been bought and demolished by the City of Dallas for flooding or code-enforcement or other reasons, and buildings that are not in use or abandoned. Therefore, any economic model or estimates of expected annual damages or

55. Additional HTRW testing will be conducted prior to final design of project features in order to determine the nature and extent of HTRW materials which could be affected by construction. Should these materials be found, the first course of action will be to realign and/or redesign the features to avoid these areas. If HTRW material is discovered during construction, work at the affected site will be halted until clean-up of the material has been accomplished by the local sponsor. It is anticipated that several construction efforts throughout the project will be conducted simultaneously so that overall project delays can be minimized.

56. The project recommended for implementation would result in an increase in recreation features throughout the project area, as described in Appendix I and on pages 6-7 and 6-8 in Chapter 6. Furthermore, the acquisition of environmental mitigation lands in the immediate study area is recommended in the Final EIS.

57. The Regional EIS, published by the Corps in 1988, identified the increase in flood levels along the Trinity as a two fold problem -- (1) loss of valley storage due to placement of fill within the floodplain, and (2) increased runoff due to urbanization. The Corridor Development Certificate process was implemented by nine cities along the Trinity River Corridor. Local Floodplain Ordinances were modified to place strict controls on the placement of fill within the 100-year floodplain along the Trinity River corridor. The CDC process does not, however, address the urbanization aspects of the problem, nor does it pertain to tributaries with drainage areas less than 100 square miles.

58. FEMA is currently reviewing the updated floodplain mapping that is based on the same data as the analysis presented in the GRR/EIS.

59. Use of property can change rapidly. The values presented are representative to a specific moment in time during the study. While some may have been abandoned, others have been restored and occupied during the recent past. Although a building is not in use it no less represents an improvement to the land and is taxed as such. Abandoned buildings are evaluated as vacant structures without contents.

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benefits based on these out-dated conditions overstates the number and value of structures and benefits throughout the reaches in the study area.

60. The hydrologic and hydraulic models have not been updated to reflect current conditions along the river channel south of the existing Dallas Floodway. The EIS states that these models are based on 1991 topographical maps. Beginning in 1994, the City of Dallas cut down about 500 to 1,000 acres of forest and destroyed wildlife habitat in these areas along the river for a variety of utility easements and because, supposedly, the forest just south of Corinth posed a "health hazard." These areas which have been clear-cut include the area immediately east of the DART bridge to the Martin Luther King bridge extend from Corinth to about 1 mile south of the City of Dallas Waste Water Treatment Plant. The models do not reflect these conditions.

61. Regarding the models themselves, no information is given about the models beyond stating which ones were used. It is not stated when the models were last updated and reviewed or provide other related information to reflect on-the-ground conditions in the study area. Apparently, according to the EIS, the topographic models were updated to reflect the 1977 conditions, and then updated to reflect addition of two city landfills completed after 1977. Apparently, a separate HEC-2 model for the confluence of White Rock Creek and the Trinity River including the low-lying residential areas around Rochester Park were created. It is unclear whether these models were run as the results are not stated to determine the amount of the flood waters these areas store. These model acronyms need to be defined and the models explained more clearly.

62. Although it appears that the hydrological and hydraulic models for the Upper Trinity Feasibility Study were used to model conditions in the proposed Dallas Floodway Extension area, models using current, on-the-ground conditions were not done. Models used are outdated, and need to be updated to reflect current, 1998, conditions. These models do not reflect the tremendous amount of illegal fill with-in and out of the 100-year river and stream floodplain within the study area.

63. These models likewise do not reflect City of Dallas plans to fill in about 50 acres in the Floral Farms neighborhood to construct an educational/industrial office park, or the new levees the City plans to build around the McCommas Bluff and southern Dallas landfills. The model does not reflect all of the active and closed private or public landfills in the study area.

64. Instead of making a comprehensive study of the Trinity River, including the Dallas Floodway Extension and other areas in the Upper Trinity Feasibility Study, it appears that the COE is trying to piecemeal these projects instead of doing an integrated study. The EIS needs to reflect the integrated conditions, including actions the COE, cities and/or other governmental bodies will take up-river from the City of Dallas.

60. Removal of trees or other woody vegetation within the existing Dallas Floodway, which includes any areas upstream of the DART Rail Line bridge, is required for proper maintenance of the floodway. Analysis of aerial photos taken in 1991 and 1996 indicate no measurable changes to vegetative cover in the floodplain between the DART bridge and MLK Blvd bridge.

61. Detailed descriptions of models used are given in Appendix A. See response to comment #32 on page N - 35. A separate HEC-2 model for White Rock Creek was not developed and was not needed to determine floodplain areas and storage for the effects of flooding from the Trinity River. The flooding from the Trinity River is the controlling factor for areas well above the limits of the study along White Rock Creek.

62. See response to comment #32 on page N - 35.

63. See response to comment #37 on page N - 36.

64. There are several proposals within the Upper Trinity area that suggest an attempt to piecemeal projects. The Dallas Floodway Extension is autonomous, it meets the test of separability. The project stands alone on the economic benefits that would be derived if constructed. The project proposal also has a different authority than flood damage reduction and ecosystem restoration studies being conducted on the Floodway and North Stemmons area. Those Corps of Engineer project proposals and others in the Upper Trinity River are being addressed by a programmatic EIS in preparation. The major linkage between these alternatives and the DFE is hydrology and hydraulics. Because of this linkage, updated hydrology and hydraulic models were developed for the Upper Trinity Basin including areas upstream of Dallas as well as the Dallas Floodway and proposed Floodway Extension. The information from these models was utilized in developing and evaluating effectiveness of project alternatives. The new models will also be used subsequently in evaluation of new project proposals upstream of the proposed Floodway Extension. The proposals in the Upper Trinity Study will not decrease flood damage reduction benefits gained by the proposed DFE.

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65. The EIS does not include results of any hydrologic and hydraulic studies to determine the effects building levees and swales on those residents living downstream or on tributaries immediately below the project area or along the Dallas Floodway. Therefore, nothing is known about the affects of building the levee and swales on these areas, which include parts of southern Dallas, Pleasant Grove, Five Mile or Pleasant Run Creeks among others.

66. Also, the EIS does not address the combined effect of the constructing the proposed Trinity tollway inside the levees on these residents, downtown, West Dallas, the Industrial warehouse area or Oak Cliff. Also, apparently no modeling has been done to determine

67. the effects (affects) on the proposed Floral Farms development or Joppe Preserve or building levees, swales or highways.

68. Although the hydrological and hydraulic models were updated in 1991, and may have reflected a full range of water surface profiles based on existing stream conditions, these are now out-of-date, given the tremendous development and filling along stream corridors and throughout the watershed in the City of Dallas and surrounding cities.

69. Further, these analyses of flood reduction benefits have apparently been made based on a 50-year period of analysis to determine future damages and benefits. This time period is unrealistic, given the out-dated conditions of the Central Waste Water Treatment Plant (CWWTP) and Rochester Park levees. Updated in 1991 to provide 800-year "protection," for 50 years, in 1997 the COE reported that the CWWTP levee now provides 140-year "protection," about 6 years after construction. According to the COE in 1997, The Rochester Park Levee, constructed in 1991 at a cost of $13 million to provide 800-year "protection" for 50 years, now only provides 100-year protection, about 6 six years after construction. A calculation shows that the Rochester Park neighborhood is 8 times more likely to flood than when the levee was constructed.

Given the virtually unchecked development in the Trinity River watershed, including along the Trinity River and tributaries in the City of Dallas, and the City's continued poor maintenance of the existing Dallas Floodway, these costs and benefits need to be calculated based on a 6-year period, not a 50-year period, which would make the annual costs much higher and not cost-effective for building levees and swales. Given development throughout the Trinity River, using a six year period to determine damages and benefits may be too long a period, resulting in overstated costs.

70. The EIS does not provide any information about actions the COE will take to ensure that these proposed levees and swales will last 50 years and that the City of Dallas will properly maintain any new structures.

71. The EIS does not contain a complete, updated list of individual properties documenting those that could suffer flood damages in the 1-800 year floodplain, or a list of properties that would be "protected" with construction of proposed levees, swale and tollway and that were used in the economic, hydraulic and hydrological modes.

65. See response to comment #8 on page N - 19.

66. See response to comment #4 on page N - 14 and response to comment #1 on page N - 18.

67. See response to comment #4 on page N - 14.

68. See response to comment #32 on page N - 35.

69. The Hydrologic model used to plan and design the Rochester Park and CWWTP levees was developed prior to completion of the comprehensive Upper Trinity River Hydrologic Model used for this study. In addition, the flood of 1989 generated a great sense of urgency among the residents and the city responded in good faith with the tools available. The selected period of analysis is based on a reasonable life expectancy of the project, assuming adherence to the agreed upon Operation and Maintenance requirements. The effects of increases in urbanization are also a factor, and are treated appropriately through the use of a "future conditions" analysis. Therefore, a 50 year period of analysis is considered reasonable. See also response to comment #38 on page N - 37.

70. See response #22 on page N - 24

71. Listing of individual structures and or properties within each flood zone for each project alternative would provide information on a micro-scale, however, the summary information provided is more appropriate to understanding the overall flooding problems and potential solutions. The detailed information is available to the public upon request.

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72. The EIS does not contain a thorough analysis of voluntary buyout option to reduce flood damages, although such analysis is required by federal law.

Environmental Needs

73. The EIS states that environmental conditions, including wetlands bottomland forests are based on 1987 conditions found in report issued in 1987. This report does not reflect current conditions. Plans for levees, swales and tollroads will destroy wetlands, bottomland forests, and wildlife habitat for constructing temporary structures that will last an unknown period of time, estimated at about 6 years or less given the status of the CWWTP and Rochester Park levees.

Chapter 4

74. This chapter structure is confusing, as it is now, it appears that it mixes in results from previous studies with the current GRR/EIS plans, including levees, and various swale designs evaluated. These studies and results of analyses need to be clearly specified. Results from constructing the preferred or recommended plans should be clearly given, as should differences between them.

75. Flood control projects that "solve" problems in one area and worsen them in other areas should not be allowed, no matter the "overriding public interest," nor should projects where costs exceed the benefits. The meaning of both statements needs to be clearly defined, as they imply that it is acceptable to construct structures that will worsen flood conditions in other areas. Any proposed Dallas Floodway Extension projects that do not meet the federal criteria need to be specified, and these projects should not be done. It appears that the Locally Preferred Plan of constructing an 800-year levee, and allowing placement of a tollway within the levees, will worsen flooding and remove any benefits of constructing other flood structures.

76. Also, the EIS states that projects must have a project life of at least 50 years. None of the projects proposed will meet this requirement, given the conditions that have caused the of the CWWTP and Rochester Park levees, built in 1991, to be already out-dated, less than 6 years after construction, and the continuing tremendous development in the upper Trinity River watershed. Therefore, a shorter time period, not to exceed 10 years, should be used to determine the economic feasibility of the plans.

77. No analysis was performed for the EIS of City of Dallas floodplain management efforts to control future development of the floodplain and insure that existing flood problems do not worsen. Although the City of Dallas is a participant in a regional floodplain development program called the Trinity River Corridor Development Certificate (CDC), there are serious doubts that the City of Dallas is complying and enforcing CDC program

72. See response #1 on page N - 13.

73. The section referenced a study completed in 1987 that indicated that few herbaceous wetlands occurred within the overall upper Trinity River. The purpose of the statements were to indicate the scarcity of these resources compared to what occurred historically. The text has been modified to indicate that there have also been losses of important bottomland hardwoods and that resources should be protected, mitigated, or improved when possible during project implementation. Existing conditions were used for project planning as indicated in response #48 on page N - 39. The estimated project life for structures proposed by this report including the levees, chain of wetlands and channel realignment at the I-45 bridge is 50 years. No tollways are proposed for construction by the Corps of Engineers.

74. See response to comment #1 on page N - 14. Chapters 4 and 5 of the document present the plan formulation process undertaken to derive the Recommended Plan, which is presented in Chapter 6.

75. The Dallas Floodway Extension was originally authorized in conjuction with numerous flood control reservoirs. Construction of the proposed project in conjunction with other previously authorized Corps of Engineers projects result in a lower peak water surface elevation downstream than what would have occurred prior to implementation of the projects.

76. Federal guidelines dictate the period of analysis to be used in the economic evaluation of flood control projects. The current Federal interest rate and price levels were used in the analysis. Baseline hydraulic conditions, developed in conjunction with the North Central Texas Council of Governments and the Upper Trinity River Executive Committee, and projected conditions 50 years in the future were used to determine average annual economic benefits.

77. The following requirements are contained in the local cooperation agreement to be signed by the local sponsor prior to implementation of a Federal project:

> *Prevent future encroachments on project lands, easements, and rights-of-way which might interfere with the proper functioning of the project. Prescribe and enforce regulations to prevent obstruction of or encroachment on the Project that would reduce the level of protection it affords or that would hinder operation or maintenance of the Project.*

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requirements. Therefore, the COE should evaluate Dallas's floodplain management program for Trinity River development This is especially needed since the City of Dallas is actively encouraging filling in the Trinity River and tributary streams floodplain. in southern Dallas and north of the existing Dallas Floodplain.

78. Further, it does not appear the COE has included costs in the EIS for relocating vital public utilities that the City of Dallas allowed to be built immediately adjacent to the Trinity River channel. An analysis of costs must be included in the EIS for relocation of these public utilities, most of which have been constructed since 1994, include power and sewage collector lines that will have to be moved to construct levees and swale, according to the EIS. The EIS should state who will be financially responsible for paying for these relocation costs. These costs should be included and will further reduce any benefit gained, if any, from constructing levees and swale/COWs.

79. There is no mention in the EIS of the U.S. Environmental Protection Agency and Federal Emergency Management Agency permits that are required to fill in the floodplain, displace wetlands in the path of levees/swales/COWs.

80. The EIS states that levees must be constructed on both sides of the river channel due to induced damages that would occur on the opposite bank. However, instead of constructing the Cadillac Heights levee, will cause and worsen flooding along Cedar Creek and in Cadillac Heights, all structures below the 100-year floodplain or up to the naturally occurring bluffs, could be removed. This would include Cadillac Heights, Moore Park and some structures along the Cedar Creek floodplain. This would negate the need for a Cadillac Heights levee, which will not protect Cadillac Heights.

81. The EIS incorrectly states that there are no federal monies to buyout properties within the 100-year floodplain for permanent evacuation. This is not the case, COE funds have and are being used in other local cities, like Arlington, Tx. Houston, Tx., to buyout and remove structures. Other funds are available for residential and/or commercial/industrial properties from the Federal Emergency Management Agency (FEMA), for both disaster and pre-disaster relocations, and from U.S. Housing and Urban Development Community Development Block Grant funds. City of Dallas stormwater fees, relocation and general funds can also be used to fund a fair buyout and relocation program. An analysis of these other fund sources needs to be presented, and why these were not presented in the EIS.

82. It is unclear whether the Uniform Relocation Assistance Program referred to in the EIS is a federal, state or City of Dallas program. This should be clearly stated, and a description of the program provided. The citation and description of this program should be given, including who is responsible for these costs and what the program includes needs to be clearly stated, and a copy of the ordinance or regulation placed in the appendix.

The meaning of the statement "It is recognized that individual structures may be selected

78. A list of utilities requiring relocation is presented in table C-1 in Appendix C, "CIVIL / STRUCTURAL DESIGN AND RELOCATIONS". The costs of these relocations have been included in the detailed economic analyses, as seen in tables in Chapter 6. Utility relocations are part of LERRDs, which are a non-Federal responsibility. These costs are non-Federal costs, and are counted toward the non-Federal share of the project.

79. See response to comment #49 on page N - 39.

80. Table D-26 shows that a buyout of this magnitude is not feasible. An evaluation based on property type also shows that the benefits generated by the feasible buy-out plans are obtained from the industrial structures and not the residential.

81. The EIS does not state that there are no federal monies to buyout properties. The evaluation of non-structural evacuation plans by flood zone, as presented in table 4-8 on page 4-35, showed that these plans were economically infeasible. Furthermore, the Dallas City Council stated in October 1996 that the buyout of structures within the Cadillac Heights area would not be considered further.

82. The Uniform Relocation Assistance Program is a general term which is applied to the program established by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Public law 91-646, as amended by Public Law 100-17, April 1987). This is a Federal law which applies to all Federal and Federally assisted real property acquisition, including the DFE project. The City of Dallas will be responsible for implementation, in accordance with the Federal statute, as they acquire the necessary real property for DFE. The guidelines for implementation are contained in 49 CFR 24 (March 2, 1989, with amendments June 14, 1991 and July 27, 1992). Regulations such as these are not typically included, in their entirety, in a GRR or EIS.

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83. for evacuation in conjunction with other flood control measures" needs to be explained. The structures affected that would be purchased for recreation use and evacuated need to be specified, as should whomever is responsible financially for purchasing these structures. Dallas voters were told that no residential or other property would be bought and demolished.

84. The EIS should describe COE engineering and design manuals used, and also, formulation criteria and regulations and document how these requirements were met, including those for flood control channels, outlet works, embankment, streamflow routing, backwater computations, cost estimates, environmental mitigation, environmental restoration, recreation features, etc. and those used in developing alternative plans.

85. The methodology for initial screening of alternatives is unclear, as is how the determination that only 7 commercial/industrial structures were eligible for removal. Also, apparently, no analysis of residential structures was preformed. The criteria and requirements for performing the analysis, how and why residential and commercial/industrial structures were included or omitted from the analysis need to be specified. An analysis of removal of residential structures needs to be preformed, including the monetary results of reducing flood damages from the removal of residential structures.

86. Common sense says that there should be a correlation of reducing flood damages to removal of structures. Therefore, removal of all industrial/commercial structures and residential structures, not just 7, from the 2-,5-,10- and 100-year flood zones in all reaches should be included in the analysis. It appears that only reaches 2, 6, and 5 were used in the analysis. An explanation of why the other reaches were not included need to be included in the methodology. An analysis of purchasing structures in the 100-year floodplain on the south side of the Trinity, including Cadillac Heights, Moore Park and along the Cedar Creek should be performed.

87. All alternatives should be evaluated in conjunction with construction of the proposed tollroad to determine the least environmental impact. Selection of any alternative as less damaging is otherwise not valid. Constructing levees, swales and tollroads within the floodway, which is proposed, is the most damaging environmentally of all options proposed, as well as the most costly.

88. There are no economic or hydrological or hydrolic analyses of the effect of building a tollway within the levee on river corridor and tributary residents or areas adjacent and down river of the existing levees, proposed Dallas Floodway Extension or the swale. No alternative should be selected or constructed until such analysis is performed. Since these are primarily minority and/or low-income neighborhoods in the study area, this is a clear case of environmental racism.

83. There are a very limited number of structures which would be evacuated for proper levee placement and alignment. However, it is not envisioned that any structures would be purchased solely to allow additional recreational features to be incorporated into the project.

84. Engineering design procedures, computer programs, design manuals and planning policy guidelines are cited in the various technical appendices.

85. See comment #80 on page N - 44. All structures within the 100-year floodplain were evaluated for the nonstructural plan. Since there are very few residential structures located in the most frequent flood zones the benefits are being generated by the commercial and industrial structures. The benefits presented in feasible plans shown in table D-26 are from industrial structures.

86. Common sense is correct, removal does constitute flood damage reduction. However, the benefits must outweigh the costs. All reaches except 3 were evaluated for nonstructural measures. Only the feasible results were presented. The complete results are available at our office. The criteria used in given on page D-14.

87. See response to comment #4 on page N - 14 and comment # 1 on page N - 2. Cumulative impacts of reasonably foreseeable project proposals was included in the final GRR/EIS.

88. See response to comment #4 on page N - 14..

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89. The summary of levee alternatives is incomplete. No analysis of the costs and effect on flood levels of construction of 100-year or 800-year levees and with selected relief channel, chain of wetlands (COWs), or swale is presented. No analysis of costs or affect on flood levels of construction of 100-year or 800-year levees, swale/channel (COWs), and tollway is presented.

90. Only flood reduction plans that provide positive net benefits should be implemented. It is not acceptable to construct structures that will raise water surface elevations in the existing Dallas Floodway. Any calculations of water surface elevations is incomplete and incorrect unless the placement of the tollway within the levees is factored into the analysis. No flood damage reduction structures should be constructed that will cause harm to the Joppe or other river corridor residents and neighborhoods, including construction of the swale/COWs through Joppe.

91. Use of the Upper Trinity River Feasibility Study model to calculate flood damages and economic impact of alternatives in the proposed Dallas Floodway Extension is inappropriate since it does not reflect actual on-the-ground conditions in the Study area, including tremendous amount of illegal and legal fill in the study area and immediately south of Loop 12, along the Trinity River and White Rock flood plains. It also does not factor in construction of the tollway within the levees into the analysis. Cost data needs to be updated to 1998 costs to reflect the most recent prices and level of development.

92. The inclusion of the COWs plus 800-year levees is confusing and needs to be justified, given that COE has already determined the construction of the 800-year Lamar and Cadillac Heights levees will raise flood levels in the existing Dallas Floodway.

93. The analysis of alternatives is not comprehensive, and does not include several options that will provide equal or greater flood damage reduction to both the existing and proposed Dallas Floodway, including
- digging out the existing Dallas Floodway to remove sediment deposited from floods;
- raising and repairing existing levees;
- widening the distance between the levees;
- digging detention ponds above and in the Dallas Floodway;
- combining the above with buyout and removal of structures in the 100-year floodplain below Corinth St.;
- moving the proposed Lamar and Cadillac Heights levees further apart to avoid constricting the river channel and stay out of the forest and wildlife habitat;
- buy all of the DID/Proctor Gamble site, and dig a detention pond on the entire site, and construct a diversion channel to connect the river to the detention pond.

The reason for tying the Lamar Street levee to the Rochester Park levee needs to be clearly specified. If it is so the City of Dallas can receive financial credit for its'

89. The levee alternatives to which it is assumed you are referring, which are presented on page 4-13 and table 4-3, were part of the initial screening process early in the plan formulation process, and were evaluated without regard to a swale or chain of wetlands. As Chapter 4 is intended to present a chronological review of the formulation process, the evaluations of levees in conjunction with the chain of wetlands are presented later within the chapter.

90. See response to #4 on page N - 14, and to comment #89 above regarding the chronological nature of Chapter 4.

91. See response to #90 above.

92. The COE has determined that construction of 800-year Lamar and Cadillac Heights levees (recommended plan) will lower flood levels in the existing Dallas Floodway, when constructed in conjunction with the chain of wetlands. See response to comment #2 on page N -13.

93. It should be emphasized that the current DFE investigation is a reevaluation of an authorized project meant to provide flood protection to the Dallas Floodway *Extension* area. While some of the alternatives presented in the comment dealing with structural improvements within the existing Dallas Floodway may provide lower water surface elevations in the existing Floodway, protection to the DFE area would not be improved. Non-structural evacuation plans have been investigated and determined to be infeasible or non-implementable by the city. The locations of the proposed Cadillac Heights and Lamar Levees have been set with many engineering and environmental constraints, including efforts to minimize impacts to the environmental resources while providing flood control benefits. For example, relocating the proposed Lamar Levee further from the river would necessitate the acquisition and removal of numerous structures on the northeast side of the railroad tracks for construction of the required sumps.

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94. construction, then this connection should not be done. Instead of constructing the Lamar Levee and connecting it east through the Trinity River/Hwy 310 overpass, to the Railroad, and then to the Rochester Park levee, it appears that it could end much earlier, if it is constructed at all.

Low-lying Rochester Park neighborhoods outside the Rochester Park levee, could be protected with tying the levee to the adjacent eastern railroad and Hwy 310 embankments and placing a flood-gate at Hatcher. Regardless of whether the Lamar Levee is constructed, the Rochester Park levee could be extended west to tie on to the railroad trestle, preventing flood waters from going around the east side Rochester Park levee. The could be the most economical and effective solution to remove flooding from these areas and would restore valley storage and prevent floodwaters from backing up.

95. The planned Cadillac Heights levee will not protect residents in Cadillac Heights, Moore Park, or along the Cedar Creek floodplain, but instead, plans will deliberately use them and their neighborhoods as the "safety valves" to prevent catastrophic flooding on the southern side of the river. Also, these plans are made without considering the impact of constructing a tollway within the levees, which will constrict water flow and raise flood levels. Since, according to Mr. Gene Rice, project manager, there are no plans to buy out Moore Park residents and flooding there will worsen, this is a clear case of environmental injustice.

96. All costs and benefits for any solutions are rendered meaningless since the proposed tollway constructed within the levees will force millions of gallon of flood waters downstream, raise flood levels within the Dallas Floodway, and affect the hydrological, hydrolic, and economic calculations. Plans for constructing the tollway within the levees will negate any supposed benefit gained from constructing the swale/COWs/levees. An analysis of the effects of constructing levees/swales/COWs/tollroads on water surface levels within the existing Dallas Floodway must be done and provided in the EIS. Since any flood reduction benefits will be wiped out by constructing an 800-year Cadillac Heights levee, measures that will be taken to maintain or lower flood levels if the tollroad is built must be included. Also, measures that will be taken to ensure that flood levels will not raise because of upriver and watershed development need to be specified.

97. The best possible solution should be used regardless of cost, as people's lives are worth more than doing things the cheap way, such as the City of Dallas refusal to pay for construction of long levees because it costs $3.5 million more than the short levee option. This is another case of environmental racism, as the City would most likely pay for any amount for protection of downtown, the industrial and hospital districts, or neighborhoods north of downtown. Any conclusion that flood losses would be reduced by constructing levees is incorrect. Actually, flood damages will be increased by allowing industry to move into the neighborhood and other areas "protected" by levees, since the levees will fail at some time in the future.

94. The alignment of the Lamar Levee has been designed to maximize the economic benefits of the existing Rochester Park Levee while providing SPF flood protection for the Rochester Park area and as many of the residences and business along Lamar St. as possible.

95. See response to comment #3 on page N - 30 . See response to comment #3 on page N - 13. See response to comment #4 on page N - 14.

96. See response to comment #4 on page N - 14.

97. See responses to comment #2 on page N - 13, and to comment #10 on page N - 22.

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98. The statistics about the level of protection provided by the raised CWWTP levees are not valid, given the low confidence level of 66 percent. Current plans will use the CWWTP as another "safety valve," for floods over 140-year level, along with the Rochester Park and Moore Park neighborhoods. The EIS needs to clearly state that the Moore Park neighborhood will continue to flood and that the COE plans to leave residents in the flood waters since there are no provisions planned to protect Moore Park residents, according to the DFE Project Manager. Moore Park and neighborhood residents south of 8th street in the floodplain need to be bought out. It is disgusting that the COE and the City of Dallas have no regard for these residents or concern about their safety, since these residents will be deliberately left to suffer the ravages of flooding and there is not even the appearance of "protecting" them with levees/swales/COWs.

99. The levees that the COE will break in the event of catastrophic floods that threaten downtown need to be specified in the EIS. This is not unreasonable given the 1993 Mississippi floods where the COE broke a number of levees to relieve threats of catastrophic flood levels in St. Louis and New Orleans.

100. By not raising the CWWTP levee to SPF level on all sides results in its' becoming a very expensive "safety valve" to relieve catastrophic flooding. Instead of building the Cadillac Heights Levee, that will not protect the residents, the funds could be better spent in buying out Cadillac Heights residents/businesses and then raising the CWWTP levees.

101. It appears that the air quality impacts and improvements through pollution removal by forests is understated. Apparently, calculations did not include air quality benefits from all vegetation, including forests. Federal officials in Chicago have determined that the forests provide about $40 million of air pollution reduction yearly. Preserving the tree canopy in Dallas is essential in reducing air pollution to enable the City of Dallas to meet federal Clean Air Act requirements.

102. It is not clear why the federal government is giving credit to the City of Dallas for building leyees, CWWTP and Rochester Park levees when they lasted less than 6 years and no longer provide the designed protection, which was to last for 50 years. Nothing is stated about the effects of not raising the Rochester Park levees from 110-to 800-year flood protection levels. This neighborhood is now 8 times more likely to flood than when these levees were built. An analysis of the effects of not raising the levees compared to buying out the neighborhood and knocking down the levees needs to be performed and presented in the EIS. Also, since no analysis has been done of the effect on flood levels and

103. neighborhoods along and below the project area and on the tributaries, one must be performed now to ensure that these areas are not placed in increased risk of flooding.

104. Through leaving the Rochester Park Levees in the same condition, the Rochester Park neighborhood serves as another expensive "safety valve" to relieve catastrophic flooding at a terrible cost in human suffering, as are the neighborhoods that will be "unprotected"

98. See response to comment #10 on page N - 22 regarding the improved protection to the CWWTP with implementation of the Recommended Plan. Implementation of the Recommended Plan will reduce water surface in the vicinity of Moore park by 2-feet for the 100-year event. As a result, damages would begin at about the 25-year event with the project in-place, as opposed to the 10-year event under existing conditions. Therefore, the potential damage to properties is reduced because they are now located in a less frequent flood zone. Buy out of the structures is not economically feasible and therefore not in the Federal Interest. However, the City retains the option to incorporate a buyout of this neighborhood or implement a voluntary buyout plan independent of the proposed project.

99. There are no intentions to break a levee in the event of catastrophic floods. However, provisions for controlled inundation of protected areas in the least hazardous locations are designed into the Lamar Levee, for example, as specified on page A-22, Appendix A.

100. See response to comment #10 on page N - 22.

101. See response on page N - 32 to your comment identified as #19.

102. Credit for the advanced construction of the Rochester Park Levee and modifications to the CWWTP Levee was provided by Section 351 of the Water Resources Development Act of 1996. See response to comment #38 on page N - 37 and comment #6 on page N - 31.

103. The proposed project will not worsen the flooding in the area within the existing floodway or the area upstream of Loop 12. The recommended plan with SPF levees will raise the SPF flood elevation at Loop 12 approximately 0.3 feet (4 inches) and the 100-year flood elevation approximately 0.16 feet (2 inches). However the current SPF flood depth at Loop 12 is approximately 50 feet. (This is shown in the draft GRR/EIS on plate A-35.) The raise in water surface would be negligible at the East Fork/ Main Stem of the Trinity River confluence.

104. See response to comment #6 on page N - 31.

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by constructing the Lamar and Cadillac Heights levees and a tollroad inside the levees, forcing more flood waters onto Rochester Park and up the tributaries. The plans for removing flood damages from the Rochester Park neighborhood needs to be included in this EIS.

105. Table 4-14 needs an explanation of how costs were derived and what the table means. The difference in Col. A, B and C are not clear. Also, it appears that costs for HTRW clean-up are very understated, especially since DART has spent millions cleaning-up HTRW during the Central Expressway line. Also, environmental restoration will likely be required after HTRW sites are cleaned-up.

106. Table 4-15 and 4-16 are not supported with a complete listing of properties, including street number and address. This support should appear in the appendices.

107. Again, the evaluation results of various options is meaningless since the calculations do not factor in the placement of the tollroad within the levees, and are based on out-dated flood maps and economic, hydraulic and hydrological models that do not reflect current on-the-ground conditions.

108. All land bought for environmental and recreation mitigation should be purchased within the City of Dallas, preferably on the Trinity River itself, or on land adjacent to Trinity and tributary floodplain, such as the Pemberton Hill farm on White Rock Creek.

Chapter 5

109. No analysis or documentation is provided to document the assumption that economic benefits in this chapter would include the "addition of insurance subsidy benefits, defined as the annual savings in operating expenses for the administration of the flood insurance program, due to implementation of the proposed program." How many businesses and residential property owners in the project area actually have flood insurance? How man of these are in the 100-year or less flood plain. What is the basis for this assumption?

Cadillac Heights Levee

110. Apparently, the COE has no concern about the effect of leaving the levee at 100-year levee or, conversely, raising the levee to an 800 year levee. If the levee is left at the 100 year levee, and the Lamar Street at 800 year levee, in the case of a flood greater than a 100 year flood, the Cadillac Heights levee will be overtopped much sooner than the 800 year levee. This evidences concerns that the COE is not concerned about Cadillac Heights at all, since it will use this levee as the control valve to prevent flooding in downtown.

105. As stated previously, Chapter 4 presents the plan formulation process used to derive the final Recommended Plan. As such, the costs presented in this chapter do not reflect the same level of detail as that presented in Chapter 6, where the final Recommended Plan is described. Table 4-14 presents *preliminary* comparative data between three alternatives investigated as potential Locally Preferred Plans, and shows the effect of incorporating the authorized credit for compatible portions of the Rochester Park and CWWTP levees, as authorized in Section 351 of WRDA 1996. Descriptions of these plans are provided on pages 4-53 and 4-54.

106. The appendices were written to provide documentation of the detailed analyses final array of alternatives and do not include all preliminary evaluation data.

107. See response to comment #1 on page N - 18 and response to comment #32 on page N - 35.

108. See response to comment #56 on page N – 40.

109. It is assumed that all persons within the 100-year floodplain have flood insurance because persons maintain the insurance based on economic conditions. With the exception of requirements of mortgage companies carrying insurance is voluntary. The primary basis for this assumption is that society bears some portion of the burden for flood damage weather flood insurance is secured or not. This is borne through loan subsidies, emergency relief agencies etc.

110. Federal regulations require that the plan recommended for implementation be the plan that maximizes net annual economic benefits, unless certain provisions are met which allow deviation from this plan. The plan now known as the Federally Supportable Plan (FSP) includes provisions for SPF protection at Cadillac Heights.

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111. Conversely, the COE's own engineering studies show that increasing the levee height over 100 year flood "begins to cause adverse impacts upstream. Hydraulic analyses indicate that a higher levee in the Cadillac Heights area begins to cause an increase in the upstream SPF profile, which is the design profile for the existing Dallas Floodway. As shown in the incremental analysis of the SPF levee for Cadillac Heights, the economic analysis is extremely sensitive to changes in the upstream conditions, primarily due to the billions of dollars in property being protected by the Dallas Floodway. Thus, any increase in upstream water surface for the SPF design flow immediately squelches any hope of higher net benefits for the Cadillac Heights Levee." Measures to prevent such an increase should be specified.

112. The "Conclusion" drawn in the "Optimization of the Lamar and Cadillac Heights Levees" section seems deliberately confusing and statements made directly conflict others in the section. The Table 5-1 is confusing and be stated in terms of 100, 500 or specified year levee, since the rest of this section uses these terms. The following statements are contradictory and confusing, and need to be clarified.
"Net benefits continue to increase as the Cadillac Heights Levee increases, fueled by a unique scenario where benefits and costs decrease for a higher levee around Cadillac Heights. "
This conflicts with "However, at a height roughly equal to that of the levee currently being proposed as part of the Federally Supportable Plan, hydraulic impacts upstream result in an abrupt downturn in the total benefits being achieved."

113. In essence, any increase in the Cadillac Heights Levee over the 100 year level, which is the Federally Supportable Plan, "results in an abrupt downturn" in the protection to the existing Dallas Floodway. It is not acceptable to construct any structures that will raise flood levels or to apply for a "variance" to do so. It is also not acceptable to construct structures whose main purpose is to relieve flooding so that developers can buy out neighborhoods for industrial users, who will benefit by not having to pay for levees, swales or other structures that the federal and local taxpayers finance.

114. This is not a comprehensive evaluation or plan to reduce flood damages, instead, it is a piecemeal attempt that tries to treat the Dallas Floodway Extension as an area unrelated to the Dallas Floodway Extension or actions upriver in the Trinity River Watershed. A comprehensive plan should be developed. This plan places developers and industry before the welfare of residents and property owners. It is also an abuse of fiscal responsibility since the EIS states that building the 800-year Cadillac Heights levee will reduce flood protection to downtown and the Dallas Floodway. This plan could also be illegal under federal law, since the main purpose is to build levees to redeem floodplain land for development.

115. Unless the COE has done an actual survey and analysis of the holders of federal flood insurance in the project area, and can support the conclusion, it is inappropriate to state

111. The Federally Supportable Plan (FSP), in conjunction with the chain of wetlands and the SPF Lamar Levee and an SPF levee at Cadillac Heights, would *not* decrease the existing level of protection in the existing Dallas Floodway.

112. The purpose of the referenced section was to show the approximate height at which the Cadillac Heights levee would maximize net annual benefits. Elevation 412.15 equates to the 100-year levee. As described in the sections preceding the "Conclusion" section, an overall excess of excavated material is expected from construction of this project, and the cost of hauling and disposing of this material is greater than the cost of placing the material in a levee. Therefore, for a given length of levee, lower heights actually *increase* construction costs. Additionally, adverse hydraulic impacts to the existing Floodway begin to be significant only after the Cadillac Heights levee rises above about the 100-year elevation. As shown in figure 5-1, the NET benefits are, therefore, optimized at about the 100-year (412.15) elevation.

113. When viewed as a complete plan, construction of the DFE FSP project would result in *increased* protection to the existing Floodway. See response to comment #111 above and to comment #2 on page N -13. The benefits, and justification, for construction of the proposed project were based on the protection of the structures currently in place.

114. The current investigation undertaken for the DFE project was initiated in 1991 as a reevaluation of an already authorized project. Future projects upstream of this area will not be allowed to adversely impact this project. See response to comment #4 on page N - 14 and to #113 above.

115. See response to comment #109 on page N - 49.

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that
"... implementation of either the FSP or the LPP would produce an annual savings in administration of the flood insurance programs operating expenses." This statement implies that property owners in the study area hold flood insurance.

116. Again, construction of levees and a tollroad within the levees will negate any benefits of building swales/COWs, and this is a waste of taxpayer money. There is no economic justification, regardless of the cost, for constructing levees/swales/COWs/tollroads, or levees that will raise flood levels upstream. The request for exception should be denied to build an 800-year Cadillac Heights levee, since it will raise flood levels. Again, Cadillac Heights, Moore Park and other low-lying neighborhoods, in the floodplain, should be bought out in an equitable manner, and relocated to higher ground. This would obviate the need for a Cadillac Heights levee and provide a lasting solution for reducing flood damages.

117. Any economic conclusions that building any type of levees will reduce flood damages are meaningless, since the construction of the proposed tollroad is not included in any of the calculations. Also, since construction of an 800-year Cadillac Heights levee will raise
118. flood levels downtown and in the Dallas Floodway, the resulting flood damages from overtopping the existing levees need to be clearly calculated and reported in the EIS.

> "The Federally Supportable Plan would not fully offset the adverse hydraulic impacts to the residential areas in the Floodway Extension area that have resulted from construction of upstream portions of the existing Dallas Floodway and from upstream changes in watershed development."

119. The conclusion that LPP would fully offset these impacts" is not valid, or is valid only for a snap-shot in time, given the continuing, virtually unrestricted development in the northern Trinity River watershed. Given the failure of the CWWTP and Rochester Park levees to provide 800-year flood protection for 50 years, as designed, such a conclusion is meaningless. These levees provided designed protection for less than 6 years.
120. Also, to construct the plan Dallas prefers, the City will have to obtain a waiver and "variance" of federal and regional flood plain development regulations to raise flood levels.

121. The Dallas preferred plan will raise flood levels as constructed, and upstream development will not be contained. Therefore, the heart of the matter is that these measures will not provide long-lasting flood damage relief, and is why taxpayer monies should not be spent for a temporary stop-gap solution, no matter what the City of Dallas wants.

122. Federal and local taxpayer dollars should not be spent unless long-term solutions are used. Additionally, any economic conclusions are also not valid since the voluntary buyout option and other options were limited up-front because the City of Dallas dictated what

116. See response to comment #4 on page N - 14. to comment #3 on page N - 30, and to comment #113 on page N - 50. See also response to comment #98 on page N - 48.

117. See response to comment #4 on page N - 14.

118. See response to comment #113 on page N - 50.

119. The CWWTP levee improvements completed by the City of Dallas in 1996 was originally designed for the 100-year flood plus 3 feet and it currently provides that level of protection as described on page A-12 of Appendix A. See response to comment #38 on page N - 37, also response #69.

120. See response to comment #7 on page N - 21.

121. See response to comment #113 on page N - 50. Impacts of construction upstream of the study area will be reviewed and minimized by the CDC process and the Record of Decision signed in 1987.

122. See response to comment #113 on page N - 50 and to comment #1 on page N - 13.

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solutions would be used. Therefore, the plans Dallas wants to use should not be constructed since flood levels will be increased.

123. All other options should be thoroughly reviewed, including the voluntary buyout and relocation option, as required by law. Additionally, all data in the models should be up-dated to reflect actual on-the-ground conditions, including removal of the forest and neighborhood structures throughout the study area. Unless this is not done, conclusions reached continue to be not valid, and overstate the economic and other benefits of building levees/swales/COWs.

124. There is no cost data to support building a flood wall to protect one business in Cadillac Heights. How much more will this cost? Will the levee footprint have to be relocated at this site? Will there be any reduction in flood "protection" benefits to Cadillac Heights or other area? Federal dollars should not be spent to "protect" businesses that deliberately locate in the floodplain.

Chapter 6

Chain of Wetlands (COWs) and Channel Realignment at IH-45

125. The proposed movement of the Trinity River channel is also a prime example of fiscal irresponsibility. This will cost millions of dollars that should be spent to buyout and remove residents from the danger of flooding. Instead, the project proposed will fail in the next big flood; as shown in the 1993 and other Mississippi floods, because it is impossible to control the river and where it goes. In the meantime, this is a tremendous waste of taxpayer dollars.

126. The EIS does not contain a detailed description of how the proposed wetlands will be constructed, maintained, or operated, and does not specify costs for building, operating, and maintaining these wetlands. Additionally, there is no health risk data presented in the EIS from using sewage water, which will no doubt provide excellent mosquito habitat, to keep the wetlands wet, and this needs to be developed, as does an assessment of how many people will be willing to recreate next to shallow ponds of sewage water.

127. HTRW costs appear to be deliberately understated, since only lead-containing leachate in the Linfield landfill is addressed. There are other commercial and industrial sites that are contaminated with HTRW.

128. The basis for determining the building, operation and maintenance costs should be provided, as well as clear statements about what kind of maintenance and how frequently it is needed, who will do it, and pay for it.

Lamar Levee

123. See response to comment #1 on page N - 13 and to comment #33 on page N - 35.

124. The costs for this floodwall have been incorporated into the costs for the TFSP. The floodwall was deemed necessary to reduce the footprint of an earthen levee at that location, and to remove the need to purchase and/or relocate the business currently at the site. No reduction in flood protection would be caused by this floodwall.

125. The investigation conducted to ascertain feasibility of this river realignment, as presented on pages 4-69 through 4-71, showed that this alternative was economically justified. The alternative was subsequently approved as an addition to the FSP.

126. See response to comment #14 on page N - 23.

127. See response to comment #3 on page N - 14.

128. A breakdown of operation, maintenance, repair, rehabilitation and replacement (OMRR&R) costs has been provided in the final GRR/EIS.

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129. The plan for this Levee, if it is built, will tightly constrict the Trinity River channel and raising flood levels, Another option should be evaluated and used, as previously stated.

130. The reason for tying the Lamar Street levee to the Rochester Park levee needs to be clearly specified. If it is so the City of Dallas can receive financial credit for its' construction, then this connection should not be done. Instead of constructing the Lamar Levee and connecting it east through the Trinity River/Hwy 310 overpass, to the Railroad, and then to the Rochester Park levee, it appears that it could end much earlier, if it is constructed at all.

Cadillac Heights Levee

131. Again, HTRW sites and costs are understated, and no sampling has been conducted to determine the existence of HTRW sites between Dixie Metals, Exide Industries, the chromium recycling plant and the river, or in the river channel, and to the northeast of those plants. This is crucial, since the wind blows predominately to the northeast, and lead, and other metals have been found in Cadillac Heights. In fact, the entire neighborhood should be designated a Superfund Site. Measures that will be taken to protect residents from the most likely contaminated dirt that will "fly" during construction need to be specified. Also, water testing and river channel soil in this area has found lead and chromium and other pollutants; this is not disclosed in the EIS. Lead smelters, and other industries, legally dumped hazardous waste throughout south and west Dallas for about 40 years, until federal environmental laws were enacted in the 1970's. Plants like Exide Industries and Dixie Metals operated for 40 years, and were not closed down until the late 1980's.

132. It is unconscionable to tell Cadillac Heights residents that they will be protected by the levee, and then to deliberately construct one that the COE knows will allow floodwaters to go around the end and then flood the neighborhood. It is not acceptable to give residents the illusion that they are "protected" from flooding, and to release floodwaters through "control overtopping" into their neighborhoods to prevent catastrophic failure of the levees.

133. During the Trinity River bond elections, Cadillac Heights and Lamar residents and industrial/commercial property owners were evidently mislead when they were told none would be relocated because of construction of the levee, swale, and COW's. However, apparently structures will in fact be "relocated" to construct the levees. Whether these are residential or industrial/commercial structures needs to be specified, as does the exact location of the properties.

134. Also omitted from the EIS is a clear map and list of the exact locations of the proposed sumps and sump pumps, and properties that will be "relocated" to construct these.

129. Several alignments were considered for the Lamar Levee, as shown in figure 4-11, page 4-45, and described on pages 4-43 and 4-44. The Lamar Levee, as proposed, moves the critical breach point of the East Levee of the existing Dallas Floodway from the floodwall at the downstream end of the Floodway to a higher elevation near Houston Street. In doing so, this levee provides approximately $1.5 million of incremental annual benefits to the existing Floodway.

130. See response to comment #94 on page N - 47.

131. See response to comment #3 on page N - 14 and comment #12 on page N - 22.

132. See response to comment #5 on page N - 30.

133. Yes, some commercial structures will be impacted by the location of the levee. The current alignment would affect the property just West of MLK Blvd. and those along Rector and the intersection of Rector and Keist Blvd. The Lamar Levee would also impact some structures west of Lamar Street. Please refer to the plates in Appendix C which show the current proposed levee alignments.

134. Delineations of the sumps were mistakenly omitted from the figures in the main section of the draft report. These locations are shown in Appendix C, however. No structures will require relocation due to construction of the sumps. Further optimization of the sumps has been performed at the request of higher Corps authority, and has been incorporated into the final GRR/EIS.

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Recreation Amenities

135. These plans for levees, swales, COWs and tollroads will destroy wildlife habitat, cultural, historical and archeological sites, and old-growth bottomland hardwood forests that cannot be replaced. It also destroy Dallas's once-in-a-generation opportunity to preserve and restore the natural habitat along the Trinity River and create a world-class recreation area. These plans are the most environmentally damaging of all of the plans considered. It makes a mockery of stated environmental preservation efforts.

Operation, Maintenance, Repair, Replacement and Rehabilitation

136. It is very unlikely that the City of Dallas will comply with any requirements or local agreement to insure operation and maintenance in the Dallas Floodway Extension, given the City's clear record of not maintaining the existing Dallas Floodway.

Environmental Compliance

137. The conclusion drawn that there are "no feasible alternatives to conducting activities within the 100-year floodplain of the Trinity River, and measures have been considered to minimize impacts to the floodplain through project design." is not valid. Other alternatives were not fully evaluated, and all are rendered meaningless since the proposed tollroad was not factored in to any calculations.

138. Since no sampling of river water and bottom was not carried out, and there is documentation of lead, chromium and other pollutants in the river, it is not possible to state that the EIS complies with Section 404 Clean Water Act.

Section 9 and 10 Rivers and Harbors Act

139. The EIS does not comply with this Act as flood levels will actually increase throughout Dallas, including within the Dallas Floodway and proposed Dallas Floodway Extension. It

140. will severely harm the environment. Use of the Environmental Impact Statement and Record of Decision as a rationalization to allow a "variance from the criteria,,, will serve the best public interest" is not acceptable. The EIS is already out-of-date, and is superseded by all federal floodplain regulation. This is self-serving since it will allow a

141. project whose main purpose is to benefit the COE by providing another construction project, and developers and construction firms who also have a vested interest in constructing levees, etc. since they will financially benefit from these projects.

Environmental Justice

142. This plan is a clear example of Environmental Injustice since it will allow construction of "flood control" structures that will raise flood levels throughout the river and will harm

135. The project features listed that are proposed by the Corps would impact riparian forest that is estimated, based upon review of aerial photos of the area, to be less than fifty years old on average. Not even individual trees were located within the proposed alignments that could be called "old growth" in the classic sense. The alignments were carefully selected following several years of evaluation of existing resources to minimize impacts to the forest in general and the older, higher quality forest in specific. It is correct that, if a decision is made to construct the project, resources would be lost that are irreplaceable within that area. However, after coordination with other resource agencies, it has been determined that losses to some values of the existing woodlands can be mitigated within the area immediately downstream of the proposed project. In addition, the wetland complex proposed within the chain of wetlands would provide some of the functions currently occurring within the area.

The planning process has demonstrably resulted in a proposal that supports preservation of environmental resources. The NED plan would have caused severe impacts at least three times more damaging to bottomland hardwood forests than the current plan. In addition it would have completely severed the existing forest within the White Oak Creek flood plain. Complete channelization and realignment of the Trinity River would also have caused significantly more impacts to the environmental resources of the area. Further, the 2000-foot-wide vegetation management plan that called for clearing undergrowth and tree limbs up to a height of 20+ feet would also cause significant alteration and adverse modification to the forest and forest values that would be more damaging overall than the proposed plan.

136. See response to comment #22 on page N - 24.

137. A full slate of alternatives was evaluated. As indicated in the report, non-structural alternatives were evaluated and were not found to be supportable. The proposed tollroad was not factored in because it is not a component of the flood damage reduction plan proposed by the Corps as part of the DFE project.

138. Sufficient data exist from Corps sampling, other investigations, and actions conducted in the area to develop the Section 404 (b)(1) analysis to document compliance with Section 404 is attainable for the recommended plan.

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139. See response to comment #113 on page N - 50.

140. The Record of Decision (ROD) for the Final Regional Environmental Impact Statement, Trinity River and Tributaries was referenced to indicate that a framework has been developed to address the cumulative impacts from individual Section 404 of the Clean Water Act and Sections 9 and 10 of the Rivers and Harbors Act. The proposed project does not meet the stringent criteria laid out in that ROD; however, a complete evaluation of that ROD and the EIS it was based upon was done primarily to address the myriad of unrelated, individual proposals that would "reclaim" flood plain lands, making them developable without further causing undue impacts to existing developments and to provide equal opportunities for others to effectively develop their flood plain lands. The presence of existing residents and commercial developments located at the downstream end of the area covered by the referenced EIS and ROD, many of which have been placed to the flood plain or receive more frequent flooding as a result of upstream development, constitutes a condition that needs careful consideration. If this project were presented as an individual permit action for review under Section 404 and Section 10, the proposal would meet the variance tests due to the extremely small increases in downstream elevations for the 100 yr and SPF events and it would provide protection for existing residential and commercial areas.

141. The investigation was conducted in accordance with all applicable Federal, State, and local regulations, policies, and laws. Furthermore, this project cannot and will not be implemented without the approval and participation of the non-Federal sponsor.

142. See response to comment #113 on page N - 50 and comment #1 on page N - 13.

149. There is no analysis in the EIS of the effects of climate changes that are now occurring, and how these will affect rainfall. Given that global warming is now scientifically accepted, with the increase in severe weather and rainfall, this needs to be addressed in the EIS. This is essential, given the increase in severe flooding throughout the United States that has been occurring during the 1990's. Impacts on water levels and valley storage are understated. The destruction of ecological resources and it's impact is understated.

Economic Analysis

150. The conclusions reached in this section are not valid since they do not include the construction of the tollroad and its' effect on flood levels. Also, the conclusions are based on out-dated data contained in the models.

151. Costs for HTRW clean-up and cultural resource preservation and mitigation are understated.

152. The City of Dallas should not receive any financial credit for constructing the non-federal Rochester Park and CWWTP levees, since they do not provide the designed protection.

153. Costs for removal of all the public utilities, sewers, etc. need to be specified.

154. The lack of locating sumps behind the Cadillac Heights levee need to be fully explained.

155. What will protect Dallas residents from flooding if the city receives 5 or more inches of rain at one time, within 8 hours, on the ground side of the levees?

Chapter 7

156. See the above comments. This Dallas Floodway Extension plan should not be adopted. The reasons for this action are specified fully above. The over-riding reason is that these calculations do not take the proposed tollroad into account in any way, rendering the analyses and modeling invalid. The plan also perpetuates an environmental injustice on river corridor residents, through causing and increasing flood levees and potential.

Appendices

157. See previous comments about the modeling preformed. Clarification is needed as to whether the HEC-1 model was calibrated to existing on-the-ground conditions and actual flood levels during the 1989, 1990 and 1991 flood levels. Even though a calibration may have been done, this calibration is not accurate at this time, given the tremendous development and urbanization of farm land in the wetland, and filling in the floodplain that has occurred since that time. As the EIS states, "a direct (perfect) calibration would not necessarily represent present day or projected baseline conditions" because of urbanization

149. The magnitude of the proposed project is extremely minor in comparison to the deforestation and other naturally occurring factors such as "El Nino" that have been implicated in altering climate on a global basis. It needs to be recognized that although some trees would be removed, the majority of the project area would be revegetated with native grasses and wetland communities. The area would be photosynthetically active and not a biological desert.

150. See response to comment #4 on page N - 14. See also response #32 on page N - 35..

151. Comment noted.

152. Credit to the non-Federal sponsor for advanced construction of the compatible portions of the Rochester Park Levee and the CWWTP Levee were authorized by Congress in Section 351 of the Water Resources Development Act of 1996.

153. A list of utilities requiring relocation is presented in table C-1 in Appendix C, "CIVIL/STRUCTURAL DESIGN AND RELOCATIONS". The costs of these relocations have been included in the detailed cost estimates in Appendix K and in the detailed economic analyses, as seen in tables 6-5 through 6-7 in Chapter 6.

154. In contrast to the terrain on the northeast (landward) side of the proposes Lamar Street Levee alignment, that on the southwest (landward) side of the proposed Cadillac Heights Levee is generally several feet higher in topographic elevation. Major sump facilities would be necessary along the proposed Lamar Street Levee, since the flows along the Trinity River would fairly frequently (and for extended periods of time) cause significant enough stages, so as to prevent the passage of normal surface runoff from the landward side of the levee to be passed through the proposed outlet sluice structures. This is the basic "check valve" feature of those structures, which prevents the river from spilling into the areas intended for flood protection, while providing for a means of drainage when the river stages are reduced (which is the much more common situation to be expected during local runoff events).

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Since the existing terrain is so much higher on the landward side of the proposed Cadillac Heights Levee, it is possible to drain the interior runoff through the sluice structures without encountering significant tailwater pressure, for all but the more rare stages along the Trinity River. In other words, for almost all anticipated event scenarios, even very shallow ("sheet flow") depths on the landward side of the proposed Cadillac Heights Levee would be at a higher elevation than the coinciding Trinity River stage, allowing for the interior area to drain through the "check valve". This results in a condition whereby it is not necessary to temporarily store any significant interior runoff volume during the passage of even the design level ("100" year frequency) flood event.

Long term statistics of mean daily flows along the Trinity River were carefully inspected in order to establish a level of confidence in the design assumptions. A direct comparison was made between the historic frequency of given flowrates along the Trinity River (each producing a given river stage) and the coinciding magnitude of local precipitation. This analysis clearly indicates, from an historical standpoint, that significant local precipitation has not occurred during the days when the Trinity River was at a significant stage, relative to the operation of the proposed outlet sluice structures. Similarly, it clearly indicates that on the days experiencing significant local precipitation, the Trinity River has been at even more insignificant stages. The historical record definitely indicates that major sump storage facilities along the proposed Cadillac Heights Levee are not absolutely necessary for the design conditions.

155. The interior drainage facilities, whose function it is to protect properties on the landward side of the proposed levees, are designed to handle at least the "100-year" frequency runoff event. The precipitation pattern for that hypothetical event is one which produces 2.79 inches of rain in the most intensive one-hour period, 3.83 inches of rain in the most intensive two-hour period, 4.95 inches of rain in the most intensive four-hour period, 5.76 inches of rain in the most intensive six-hour period, and 6.35 inches of rain in the most intensive eight-hour period.

156. See the above responses. Approval and/or adoption of the Dallas Floodway Extension project will be determined by higher Corps authority, by Congressional legislation to add environmental restoration and recreation as project purposes, and by the local sponsor's willingness to participate in the implementation of the project. See response to comment #4 on page N - 14 and comment #113 on page N – 50.

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an conditions of valley storage. The rate of urbanization and the impact on valley storage is understated. There has been tremendous growth in northern Dallas, suburbs, and the headwaters of the watershed.

158. Information needs to be provided about how the models operate, including how frequently they are reviewed and updated. These models should be updated to reflect actual levee heights in the Dallas Floodway, Rochester Park and CWWTP. Left as is, these levees will be overtopped. Also, the models need to be updated to reflect major filling in the

159. floodplain along Hwy 310, the White Rock Creek and tributary floodplains, since this reduces the amount of valley storage within the area.

160. Plans that rely on emergency sandbagging during floods and leave low points in levees, like at Hatcher and Hwy 310, need to be rethought and other alternatives evaluated. The methods for emergency crews to reach Hatcher Street in a flood to sandbag under the bridge needs to be stated, since within the past 11/2 years emergency fire and rescue vehicles were unable to leave the fire house located on Hatcher a few blocks east of Hwy 310 because of street flooding. Rather than tying the proposed Lamar Levee to the Rochester Park levee, it could be tied into the embankment of the Hwy 310 bridge over the Trinity River. Rochester Park residents need to be relocated. Leaving a notch 600 feet south of the DART bridge to allow "controlled overtopping" is not acceptable, as it will threaten at least the Moore Park and Cadillac Heights neighborhoods.

161. Tables A-1, A-6, A-7, A-10, A-18 are omitted. This information in the appendices is too technical and needs to be simplified so the casual reader can understand the process. The Bernouli Equation needs to be fully defined and explained.

162. The EIS does not address deliberate flood releases from upriver reservoirs to prevent failure of the dams. These occurs frequently and should be included in the analyses even though these occur because of upriver rain storms throughout the watershed. A tailwater flow rate greater than 20,000 cfs needs to be used in the models, given the frequency of reservoir water releases.

163. It is unclear how design plans for sumps and levees can move forward without knowledge of storm sewers' locations. If the City of Dallas does not have the plans, how will these be located. What will be the impact on costs if sumps must be significantly increased, deepened, if significantly increased outlet sluice capacities are required? Who pays? How can any modeling, calculating or storage and outlet sluice capacities, engineering or planning be done with incomplete data? The location of sumps and sluices is still not specifically stated, and the attached maps are not clear.

164. Modeling that uses the design crests on Dallas Floodway levees overstate valley storage capacities. Again, Dallas has not and will likely not repair damaged crest heights, as no funds have been approved or allocated for this purpose. The project to improve flow

157. See response to comment #32 on page N - 35.

158. Engineering user's manuals for the various models are available to provide information on how they operate. The models have been approved for use in the ongoing Corridor Development Certificate Process (CDC) and will be updated periodically following the approval of any projects that are subject to the CDC process. The models and levee overtopping analysis currently reflects the actual levee heights for the Rochester Park Levee and the CWWTP Levee. The models and overtopping analysis for the Dallas Floodway Levee currently reflects the Phase 1 improvements to the Dallas Floodway and the original design grade for levee crests as described on pages A-10 and A-11 in Appendix A.

159. See response to comment #33 on page N - 35. See response to comment #4 on page N - 30 and response to comment #94 on page N - 47. The notch in the Lamar Street Levee as described on page A-22 in Appendix A will provide for overtopping at the least hazardous location. An overtopping of the Lamar Street Levee would have no adverse effect on neighborhoods in the Moore Park area or the Cadillac Heights area because they are on the opposite side of the river from the Lamar Street Levee.

160. Flood levels on any stream as large as that of the Trinity River rise relatively slowly. River forecasting has become increasing accurate, thus allowing for sandbagging to take place before flood water rises to this level. Regarding the Cedar Creek area, please refer to the response to your comment #3 on page N - 30.

161. The omission of any tables in your copy of the report must have been the result of reproduction and/or assembly errors. The appendices are intended to document the technical aspects of the study, and, by necessity, must therefore contain technical terminology and data. The Bernouli Equation is a common engineering equation which can be found in many textbooks and manuals.

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162. The prevailing (limited) steady state release rate used in evacuating water from the flood control pools of the major flood control reservoirs was used as the basis for the Trinity River conditions at the time of potentially intense localized precipitation affecting interior drainage facilities. This flowrate, 15,000 cubic feet per second (cfs) at the "Dallas" streamflow gage, was assumed to be supplemented with 5,000 cfs from uncontrolled Trinity River inflows downstream from the major flood control dams for a total interior drainage design tailwater flowrate of 20,000 cfs. Such a mean daily flowrate has been exceeded on 110 days over the 37.3-year historical analysis period (on about 0.81 percent of the recorded days). In terms of recurrence frequency for this flowrate along the Trinity River, it would roughly coincide to something slightly less than a "2-year" frequency discharge under proposed project conditions. Further detail regarding the assessment of coincidental (Trinity River and interior drainage) hydrologic conditions is presented in the prior responses to comment # 154 on page N - 57.

In case the commenter has misconstrued the application of the 20,000 cfs Trinity River flowrate, the design of the proposed levees is based on flowrates more than ten times greater than that used in assessing the effects upon passage of interior runoff through the outlet sluice structures.

163. See response to comment #134 on page N - 53 and comment #78 on page N - 44. Costs for sumps are considered flood control costs and will be cost shared in the same ratio as other flood control costs.

164. Crest heights on Dallas Floodway levees are only used for overtopping analysis and not for computation of valley storage. The project to improve channel flow conditions and restore Dallas Floodway crest heights has been funded for the downstream sections up to Houston Street. The remaining levee crests could be restored gradually over time by reallocation of annual maintenance funds. Maintenance of the levee design crest height is a City of Dallas maintenance responsibility as stated on page A-11 of Appendix A.

conditions within the Trinity River channel in the Dallas Floodway has already been completed. More funds have not been approved to extend the project within the Dallas Floodway.

165. The effect of removing herbaceous and forest cover on air quality is vastly understated, given that Dallas has been upgraded to a serious violator of ozone standards, and will be upgraded to severe violator status before the year 2000. The effect on air quality of

166. building tollroads on levees is not addressed; the effect on water quality and storm water discharge increases and increased air pollution are not mentioned. Since development of an additional tree canopy would be beneficial, why would any plans be selected that

167. require destruction of the existing forests. Moving the proposed levees further apart would remove the levees out of the forest, if they are ever constructed. .

168. Another option to evaluate is upstream detention ponds constructed along the Trinity River channel throughout the watershed, even north of Dallas. Recent studies show that these could help slow water velocity. Studies of the Mississippi floods found that straight levees with no vegetation in between them, along the river channel, increased water velocity and resulted in levees washing out from the bottom and breaking and severe scouring of surrounding land; in some cases ruining farmlands because of severe deposits of sand and silt from the scouring.

169. Since the proposed tollroad is mentioned several times throughout the EIS, it is not understandable why economic, hydraulic or hydrological models that include this tollroad were not run.

170. What is going to happen to the COWs during drought conditions such as are occurring now? How much will it cost to construct a dependable water source, and maintain and operate it. If the COWs will only function during overbank flow elevations during floods, what is the purpose of constructing them. The EIS implies that streams will be diverted to maintain the wetlands and keep them wet. Which streams will be diverted, how much will this cost to construct and maintain channels connecting the streams to the COWs.

171. The EIS incorrectly states that "forested areas within the study area are currently protected by extensive regulations. The tree ordinance only protects trees on new commercial, residential, or industrial sites, or on existing sites larger than one acre. Trees on private land, including existing residences, are not protected. There are not sufficient city staff to enforce the tree ordinance effectively.

172. Likewise, the Corridor Development Certificate program is not enforced, and does not effectively regulate Trinity River floodplain development within Dallas. Only one mitigation site, close to Northwest Highway (Loop 12) and IH 35 has been observed, even though a tremendous amount of floodplain has been filled and developed commercially. What leads the COE to conclude that Dallas is or will comply with the CDC process since

165. See response to comment #4 on page N - 19.

166. Analysis of air quality impacts of any proposed roadway is the responsibility of the proponent agency. See response to comment #1 on page N -18.

167. Increased tree canopy cannot be considered as the only solution to all air and water quality problems within the area. There are many other steps that can and are being taken to moderate air and water quality problems such as increased pollution control equipment on automobiles and stationary sources and increased efficiencies in treatment of domestic and industrial effluents and more recently for storm water runoff. Increased tree canopies can cause problems as well. Some research indicates that oak trees could increase ozone production in an area. More tree growth on the flood plain within the study area could increase backwater flooding with the existing Dallas Floodway. The removal of trees within the swales adequately demonstrates this principle by significantly reducing the backwater flooding (by as much as 3 feet). The recommended plan attempts to balance all beneficial and adverse features such that the residents and businesses within the area can be protected against catastrophic flooding. In addition, the project as proposed would include environmental mitigation that would ultimately result in development on a larger forested area downstream of the project than would be impacted by the proposals. In essence more trees would ultimately result from development of the project.

168. Detention ponds have been considered as alternatives and found to be not economically feasible due to the volume of excavation from the floodplain that would be required to reduce the peak flood levels. The existing Dallas Floodway Levees as designed have been in place for over 40 years and have endured several significant flood events. There has been no scour noted on the levees during that time due to water velocity since the floodway has a sound vegetative grass cover maintained continuously. Agricultural levees are generally designed, constructed, and maintained to much lower standards than levees designed to protect residential and commercial structures.

169. See response to comment #4 on page N - 14. See also response to comment #1 on page N - 18.

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170. The plan formulation process for the environmental restoration features within the chain of wetlands is presented on pages 4-37 through 4-42, and on pages F-20 through F-29 in Appendix F. As described, during drought conditions, treated effluent from the CWWTP would be utilized to maintain the wetlands. The cost for developing this water source was estimated at approximately $200,000, with annual operating and maintenance of $15,000. As indicated, the wetlands will not function only during periods of overbank flow. The EIS does not imply that streams will be diverted to maintain the wetlands. However, a Value Engineering study will be conducted during the next phase of detailed design to determine if flows from the Trinity River might better be utilized as a water source for the wetland cells downstream of the CWWTP.

171. The regulations currently providing protection of existing forest in the study area include the Section 404 and CDC processes. Protection was meant to include scrutiny during public reviews that would continue to require that flood plain forests be impacted only when necessary and that adequate mitigation for those unavoidable losses be required.

172. See response to comment #7 on page N - 21.

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it is applying for a variance and exception from this and federal regulations, including the River and Harbors Act, so that flood control structures can be built in Dallas that will raise Trinity River flood levels? If the following is correct, why is the COE even considering constructing levees and allowing tollroads that will reduce valley storage and raise flood levels. "Hydraulic criteria applicable to the DFE area include that no rise in the 100-year or SPF elevations would be allowed, the maximum allowable loss in storage capacity for 100-year and SPF discharges will be 0% and 5:, respectively ..."

173. The benefit of cleaning up trash, debris and removal of hazardous waste in the project footprint should not be considered in evaluating the alternatives. This is something the City of Dallas should do anyway, regardless of the construction of flood control structures, so this should be considered a sunk cost. Dallas should spend money on this instead of building levees, swales and tollroads.

174. The proposed projects will result in a disproportionate impacts on minority residents and neighborhoods along the river corridor. It is disingenuous to state otherwise, given the mostly minority and poor residents in West Dallas, Oak Cliff, and South Dallas living in areas either adjacent to existing levees or who will live next to new levees, especially since a proposed tollroad would be built on new and exiting levees along the river channel. Also, this statement cannot be made since the location of the sumps is still not specified. Also not specified is the location of the proposed tollroad, which will apparently run to the east of the proposed Lamar Levee up to Corinth, which will go through a number of business/industrial properties and may also go through adjacent neighborhoods. This is clearly a case of environmental injustice and racism.

175. All mitigation lands should be purchased within the City of Dallas, and should maximize purchase of forested floodplain land or land immediately adjacent to the floodplain. This should be done regardless of any increased cost.

176. Since the COE has performed no pollution sampling, including heavy metals and other pollutants, in the Trinity River channel, and limited sampling of properties in the levee footprints, it is premature to assume the fill will be clean and plan for its' disposal. The basis for reporting the estimations of reported results needs to be given. Any sampling done needs to include a full screening for heavy metals, solvents, PCBs, and petroleum products. Results need to be clearly explained, including defining chemical symbols. Any soil containing lead or other pollutants above the allowed limits should be properly disposed of in hazardous waste landfills.

177. Any fill resulting from levee/swale/COWs construction should not be placed within the 100-year floodplain of the river and tributaries. It is unacceptable to construct a landfill on the Sleepy Hollow golf course to receive fill taken from constructing levees/swales/COWs since this will remove a significant area from valley storage and force more floodwaters on downriver neighborhoods and communities. This will also destroy a valuable recreational

173. The cost of cleanup was included if allowed by Corps of Engineer regulations.

174. See response to comment #16 on page N - 32.

175. The acquisition of environmental mitigation lands in the immediate study area is recommended in the document.

176. See response to comment #3 on page N - 14.

177. No landfill is proposed on the Sleepy Hollow Golf Course. See response to comment #3 on page N - 14.

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asset for the surrounding communities. It is not known whether any toxic substances will be released from the levee construction sites, since evidently no soil borings have been taken from the proposed footprints of the Cadillac Heights and Lamar Levees, or between the Dixie Metals and Exide Industries sites and the river channel.

178. Additionally, since water quality tests have already found lead, chlordane and other heavy metals in the river water, it is incorrect to state that water quality standards will not be exceeded as they already exceed existing standards. The EPA prohibited eating fish caught in the Trinity at least 10 years, and has not lifted the ban. There are also more

179. closed legal and illegal landfills along the Trinity that could be leaching hazardous and other wastes into the river. These need to be identified and sampled prior to any construction occurring. Therefore, it is not accurate to say that the proposed projects would not violate the Toxic Effluent Standards of Sec. 307 of the Clean Water Act. It is

180. doubtful that placing slurry walls at the Linfield Landfill will contain hazardous waste releases/leachate into the Trinity River during a major flood event. Rather than avoiding known highly contaminated sites in the path of the Lamar Levee, these sites should be

181. cleaned up and the waste property disposed of in hazardous waste landfill. Cleaning up hazardous waste pollution is extremely expensive, but it should be done anyway.

182. The water chemistry analysis doe not addressed the heavy metals contained in the sewage effluent from the CWWTP. These metals will accumulate in the wetlands and then wash into the Trinity River during the next flood. Although the EIS states there are no adverse health effects, how is this known since no sampling for lead or other hazardous wastes has been done along the river channel, especially in the Cadillac Heights area.

183. Appendix J-2 does not identify where Areas 1, 2, 3, 4, 5 are located.

184. The language in the appendices is too technical and needs to be simplified so the casual can understand the process.

185. Since the COE apparently relied on other agencies' assessments of whether threatened or endangered species done over 10 years ago, it needs to perform a current assessment as habitat has changed significantly since then.

186. Appendix J, Figure 1 Area 1 through Figure 11 Area 13 are not clear and do not adequately show locations and addresses of borings made. The figures do not show borings taken from surface soil, swales, COWs, levees, sumps.

187. A list of the street numbers and street names used to calculate property at risk of flooding and that will be protected from levees/swales/COWs needs to be included in the appendices.

178. See response to comment #12 on page N - 22.

179. See response to comment #3 on page N - 14.

180. See response to comment #3 on page N - 14.

181. See response to comment #3 on page N - 14. The clean-up of hazardous materials required for implementation of this project would be a non-Federal responsibility.

182. See response to comment #14 on page N - 23.

183. The locations of these areas are shown in figure 1, immediately prior to Section J-1, and in Section J-1 of Appendix J.

184. The appendices are intended to document the technical aspects of the study and, by necessity, must therefore contain technical terminology and data.

185. Information on Federally listed threatened or endangered species was obtained from the U.S. Fish and Wildlife Service, the Federal Agency responsible by law for the Endangered Species Act.

186. See response to comment #3 on page N - 14.

187. A list of these addresses is available at the Fort Worth District. This level of detail is not required for this report.

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188. The effluent from the CWWTP needs to be thoroughly analyzed for heavy metals and other pollutants, and the results reported.

189. Appendix K - Cost documents do not reflect total costs of each sump, sluice gate, levee, swale, COWs, or other structures. The itemized listing needs to be summarized in tables for each structure. Current format is not sufficient. All costs need to be accurately allocated, including direct and indirect costs.

188. See response to comment #14 On page N - 23.

189. Appendix K presents a very detailed cost estimate of each item in the proposed project. The narrative presented on pages K-1 through K-4 describe the method by which these cost estimates were calculated and presented. As stated in the narrative on page K-2, the estimate is organized as required by EC-110-2-533, Civil Works Project Cost Estimating - Code of Accounts, as amended, dated 29 Sep 1989, Subject Civil Works Construction Estimating.

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From: "C.B. Read" <cread@mail.smu.edu>
Organization: SMU
To: cread@mail.smu.edu
Date sent: Sun, 2 Aug 1998 23:12:32 CDT
Subject: Comments on Draft EIS, Dallas Floodway Extension
Priority: normal

From: Campbell B. Read
5839 Mooticello
Dallas, TX 75206

To: U.S.Army Corps of Engineers
Fort Worth District Office
Fort Worth, Texas

Attention: Mr Gene Rice

COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT, DALLAS FLOODWAY EXTENSION

1. 1) I endorse the comments made jointly to USACE by Texas Committee on Natural Resources, Dallas County Audubon Society and the Sierra Club on the Draft EIS on the Dallas Floodway Extension (DFE). Some of the following reflects those comments.

2. 2) The Draft EIS is grossly biased in favor of structural solutions to flooding problems. Nonstructural solutions have received inadequate consideration. In particular, voluntary buy-out and relocation of residents of the floodplain on an individual basis, house by house, has received little or no attention.

3. Something like 175 to 200 acres of trees will be destroyed by the construction of the swale and the new Lamar St and Cadillac Heights levees. But the effect of felling them on the air quality of Dallas is not discussed at all. Air quality is being made worse by the increased burning of fossil fuels worldwide and in Dallas in particular. Air is the breath of life because it has oxygen in it and oxygen is produced by plants. Most of all oxygen is produced by trees and the felling of so many acres of trees will reduce the amount of oxygen that our citizens will have to breathe. I ask the USACE to respond to the discussion of this issue in David Suzuki's book "A Sacred Place" in the context of the NED, the LPP and nonstructural solutions to flooding problems along the Trinity River. How much oxygen will be lost to the air in Dallas through the loss of these trees ?

4. 3) The Texas Department of Transportation (TxDoT) plans to construct a raised tollroad between the current levees in the Dallas Floodway, and a levee along Luna Road and the Elm Fork is proposed by the City of Dallas. TxDoT has released preliminary estimates of the length, height and width of the proposed tollroad (inappropriately termed a Parkway by the City of Dallas). This massive proposed development in the floodway immediately upstream of the DFE is bound to affect the hydrology of the Trinity River and to impact the flooding problems in the DFE in its present state as well as under the NED or the LPP. Yet no mention is made of the effect of

1. Your concurrence with comments by these organizations is noted.

2. See response to comment #1 on pages N - 13.

3. The adverse impacts of tree removal resulting from the proposed project and alternatives on the quality of air in Dallas is discussed in the Draft EIS in the section entitled "Air Quality" on pages 4-79 through 4-82. Contrary to the information provided in the comment, most of all oxygen breathed by terrestrial organisms is produced by microscopic plants which live in the oceans. The adverse impacts of the proposed project on the amount of available atmospheric oxygen would be insignificant.

4. See response to comment #4 on page N - 14.

the proposed upstream tollroad and levee construction on any of these plans in the Draft EIS. A full and proper assessment needs to be made.

4) The Draft EIS indicates the presence under the NED and LPP of a gap on the southwest bank of the Trinity River between the present levee in the Dallas Floodway (ending near the Corinth Street Viaduct) and the beginning of the proposed Cadillac Heights levee to the east of Moore Park. The following points need to be pursued:

5. a) Has the USACE studied in detail the forthcoming changes in the risk of flooding to residents of the Moore Park neighborhood under the NED and the LPP as compared with the DFE as it is currently ? By "changes" is meant increase or decrease in the risk of flooding due to the construction of the swale and of the Lamar Street and Cadillac Heights levees; see Figures 4-10 and 4-13 in the Draft EIS. The EIS should give clear predicted estimates of such changes.

6. b) Prior to the Trinity River Bond Election on May 2, 1998, Mayor Ron Kirk declared that he intended for the City of Dallas to give citizens on the south side of the river in the DFE the same protection from flooding that citizens on the north side would receive. But Moore Park residents apparently are to be excluded from receiving this kind of protection. Since the Moore Park residents who are and/or will be at risk of flooding are Afro-American, the City and the USACE (with the support of Dallas County) appear to be involved in another instance of environmental racism and environmental injustice. The USACE should not be involved in a plan(that administers such injustice or that gives the appearance of so doing.

7. I remain in favor of nonstructural solutions in the DFE, but if we have to have levees and swales, then we should all residents in the floodplain equitably. The USACE needs to address this issue.

8. 5) What is going to be the effect of the NED and/or the LPP on residents and businesses downstream from South Loop 12 ? No discussion of this appears in the Draft EIS. In particular, how will the resultant hydrology downstream from South Loop 12 be affected by various points where the floodplain has been filled in, for example along Hwy 310 between S.Loop 12 and Simpson Stuart Road, and by proposed projects to fill in the floodplain, as at Floral Farms ?

Sincerely yours,
Campbell B. Read
Vice-President for Conservation
Dallas County Audubon Society

5. See response to comment #3 on page N - 30.

6. See response to comment #3 on page N - 30.

7. See response to comment #1 on page N - 13.

8. Discussions of the N.E.D. Plan were not as detailed as the LPP or the TFSP in the GRR/EIS since neither the Corps nor the local sponsor is recommending the N.E.D. plan for construction. However, this plan must be presented because it is the plan that was found that maximizes net annual economic benefits. The N.E.D. plan also is used to determine the local sponsor's cost sharing responsibilities in accordance with Federal regulations. The downstream effects of the TFSP and the LPP are comparable. See response to comment #103 on page N -48 and response to comment #37 on page N -36.

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SAVE THE TRINITY RIVER AND FOREST
by J.D. Meyer

The planned building of tollroads, artificial lakes and levees along the Trinity River would do much more harm than good to the people of Dallas and the environment. Instead we could develop the Trinity River area as a money-making ecotourist zone and live up to the myth of the Texas frontier spirit. It is time to quit cursing the Trinity River for becoming the victim of neglect and overflowing within its floodplain.

1. First of all, the Army Corps of Engineers' report admits that it took 35 years for those trees along the Trinity to reach their grand height--many would be destroyed to build this tollroad. The Trinity is not just a river but the largest urban forest in the U.S. Statistics that
2. discuss the relatively small percentage of tree number that would be lost in relation to Dallas County neglect the volume of trees that would be destroyed within its core bordered by Loop 12. Statistics citing tree number include mere saplings that are shorter than me as well as those towering trees along the Trinity. Why do we need massive trees? Because they produce
3. oxygen and remove carbon. The DFW area is growing at an unprecedented rate--gaining over a 100,000 people per year. And with these people are lots of cars belching smog; those who construct highways needs to assess the damage to zones of large trees. Dallas has received ozone warnings from the federal government. An ill-planned tollroad now could result in the banning of future highway projects in the future if the air gets worse. This becomes a strong likelihood if the largest trees in Dallas are devastated.
4. Secondly, the artificial lakes would be filled chiefly with drinking water despite our drought--a luxury that we can't afford. These artificial lakes are planned to serve as a hydroplaning effect for flooding river waters to bounce along faster and away from downtown. Do we really need to be removing drinking water from the Metroplex regardless of our present drought? With our population boom, we are going to need more drinking water--not less. Furthermore, it seems rather bizarre to add water to a region of flooding--certainly not the most parsimonious alternative.
5. Thirdly, the extra levees would take flood water away from the floodplain and send it to areas that haven't been hit by floods before. The 8th Street and Corinth DART Station is just one area that would be endangered if these levees are built. And all of that cement in the floodplain would reduce the ability of those lands to absorb water.

Our alternative is to develop the Trinity River and Forest into a money-making ecotourist center. I know the Trinity
6. River is basically beautiful because I go on canoe trips there. We would like boat ramps and trail maintenance. Critics miss the forest for the occasional litter.

1. The DFE project, as presented in the Draft GRR/EIS, does not propose construction of a tollroad.

2. Acres of trees and numbers of trees per acre were used to quantify impacts that could be directly or indirectly caused by the proposed project alternatives. Percentages were used to give the readers a feeling of the overall significance of the losses in comparison to existing conditions.

3. See response to comment #3 On page N - 66.

4. The DFE project as presented in the draft GRR/EIS does not propose construction of artifical lakes; however, the project does include ecosystem restoration including a chain of wetlands that would have shallow and deep water habitats. Treated waste water effluent from the Central Waste Water Treatment Plant, not domestic drinking water, has been proposed as a source of water to augment existing natural occurring runoff and overbank flows from the River.

5. See response to comment #8 on page N - 19.

6. Boat ramps are not included in the proposed project as they are stand alone items which could be built independent of the construction of the Federal project.

ut nobody's job description includes any groundskeeping of the
rinity River. It's like code enforcement; city maintenance
mployees are more likely to pick up litter in rich
eighborhoods than in poor ones. The Trinity is a wilderness
iver in the classic sense--rich in wildlife and plant
life--plus the Army Corps of Engineers admit that the water
quality is improving. Furthermore, I have seen the horror
of a stretch of stripped trees along the Trinity between I-35
and Corinth. This section was straightened; an odd island
has formed in the middle thereby making it look more like a
boulevard than a river. Shrub-like baby willows have grown
back where their mighty ancestors once grew. Will city
maintenance workers be sent to regularly slash these
seed-rich trees? Why not send city maintenance workers or hire
a landscape company armed with leaf rakes, knee-high boots,
and the like to pick up litter in the water and drag away
abandoned tires? The illegality of dumping receives more
enforcement when trash is actually removed; start with the
tires near the 2nd Avenue crossing. Why not plant water
hyacinths at the mouths of sewers to absorb more nitrogen from
waste? Or is that too much respect to give to a demonized river?

In conclusion, I have a dream of motels filling with
outdoorsmen of all kinds--canoeists, hikers, bird-watchers,
photographers, etc. I see these same people flocking to
local restaurants and convenience stores often on the south
side of Dallas. I see kids going on field trips with their
teachers to the Trinity Forest. Furthermore, I see less
money being spent to help the environment rather than to hurt it.
In short, I see a new type of business for Dallas that could
give us a fresh, nature-friendly, public image that we can
show off to the rest of our nation.

7.

Boat ramps would be a 100 percent non-Federal expense. Furthermore, maintenance of any Federal project would be the responsibility of the non-Federal sponsor.

7. Artificial spread of water hyacinth is prohibited by law.

Review Comments on Draft GRR/EIS Dallas Floodway Extension dated April 1998

Syllabus - Locally Preferred Plan (LPP) was chain of wetlands adopted by Dallas City Council (DCC 8/28/96) with levees and swales. Plan adopted by DCC (3/26/97) includes Standard Project Flood (SPF) levees for Lamar Street and Cadillac Heights. Does not include Recreation Facilities, to be added to plan.

Water Resources Development Act (WRDA) of October 1996 allowed credit toward non-Federal share of total project cost for Central Waste Water Treatment Plant (CWWTP) levee and Rochester Park levee. These were constructed by the City after 1989-90 floods. These provided $23.1 million minus $0.9 million non-credit totalling $22.2 million for City credit.

Federally Supported Plan (FSP) chain of wetlands, SPF levee for Lamar Street, and levee at 100 year level of protection for Cadillac Heights plus a floodwall. FSP sets limits for Federal participation. Exceptions from Assistant Secretary of the Army (Civil) due to social equity issues, will allow Federal participation in SPF level of protection for Cadillac Heights levee. Therefore, LPP = FSP with full cost sharing. Explain the social equity issues applicable to Cadillac Heights (page 2, Syllabus, 2nd paragraph, 6th line). 1.

Net amount of benefits $11.8 million with a Benefit Cost Ratio (BCR) of 2.3:1 (para 3, page 2). On page 1 (para. 2) Corps of Engineers (CE) includes 2,550 structures located within SPF hydrologic setting and based on 1997 prices structure damages equivalent to $6.5 million. Figures seem inflated by 78.5 percent. Furthermore, many of these structures are abandoned unoccupied, damaged, direlict and vandalized, and some structures obliterated from view by burial beneath landfill along west side of Lamar street. Cost apportionment unclear as to which part is Federal and local ($78.8 million Federal, $39.6 2. 3.

1

1. See response to comment #16 on page N - 32.

2. The damages prevented are derived by using a statistical frequency and structure value and contents.

3. The designations of which costs are Federal ($78.8 million) and which are non-Federal ($39.6 million) for the Recommended Plan have been included in the Syllabus.

As correctly stated in the comment, the non-Federal cost apportionment for the Recommended Plan, after the credit, of approximately $17.4 million. The total cost estimate for the LPP is $123.2 million, which includes $23.1 million for the compatible portions of the Rochester Park and CWWTP levees, as described in the Syllabus of the Draft GRR/EIS.

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million local [?], total $118.4 million). Therefore, with credit from WRDA local costs $17.4 million (?). LPP cost estimate at $123.2 million including $22.2 million local (sic. $23.1 million) (para. 4, page 2). EIS fails to provide sufficient

4. details about social equity exception, including appropriate laws and regulations. Without this exception Federal share capped at FSP. Only difference is the height of the levee from 100 year to SPF, and if not accepted local government pays for extra height added to Cadillac Heights levee. Exception was granted, cost $80 million Federal, $43.1 million local cost prior to application of credit equalling $20.9 million. Again, it fails to explain the exception and the public laws or regulations pertaining to such exceptions.

5. Recommended Plan (RP), again unclear, whether this plan is the same as the Federal Plan (FSP), this should be clarified. Under whatever plan,

6. mitigation lands include 1,135 acres consisting of grassland, conversion of grassland to bottomland hardwood forests and existing hardwood improvements estimated to cost $4.4 million. This does not explain the amount of bottomland hardwood forests that has been removed by the project or the existing wetlands under present conditions that will be displaced by this project.

7. After describing several project costs above (para. 6, page 2), "current estimated cost of authorized improvements to the DFE is $199.2 million with total annualized benefits raised to $13 million (at this rate it will take years 15.3 years without growth to recuperate cost with/without a severe flood). However, above the project was described at $123 million with annualized benefits of $11.8 million, or 10.4 years. It fails to show which figures are correct?

Continuing on from the last paragraph at the bottom of page 2 to page 3

2

4. See response to comment #1 on page N - 70.

5. See response to comment #3 on page N - 13.

6. The environmental mitigation plan including 1,179 acres of acquisition, forest development or improvement was recommended for the Federally Supportable Plan in the Final EIS.

7. Paragraph 6, page 2, of the Syllabus compares the ***authorized*** project for the Dallas Floodway Extension, which was authorized by Section 301 of the Rivers and Harbors Act of 1965, to the current Recommended Plan proposed for implementation (the FSP), As such, all figures are correct for their respective project.

the Syllabus, under current economic conditions the authorized (FSP) has negative net benefits of $4.1 million with a BCR of 0.76:1. Then, the CE writes, "the Recommended Plan, presented herein would yield benefits of ca. $20.9 million, net annual benefits of $11.8 million and a BCR of 2.3:1 if the project is accepted." The LPP would yield total amount of benefits of $18.7 million, with net annual benefits of $9.2 million and a BCR of 1.96:1. These are the figures they have to prove in the plan. They fail to show which are the correct set of figures. 8.

Areas of controversy, page 3 of Syllabus; environmental groups disapprove because too many trees removed. This is tremendously understated, and too simplistic, trees are but one aspect of the disapproval of the DFE project, that will be brought out in this review of the GRR/EIS. 9.

GRR/EIS, page 3 of Syllabus states: "impacts to forests, climate, air quality, water quality, fish and wildlife habitat have been investigated." It is the position of this review that the previously listed environmentally sensitve items are incomplete, have had only cursory to no investigation, and the previous statement "investigated" can not be adequately supported. Furthermore, this type of word play covering sensitive and essential items to be covered within an EIS is lazy and unprofessional. The Syllabus does not contain any written summation about any one of the previously listed environmentally sensitive topics listed in the Syllabus with reference to any of the approriate appendices. This indicates that the Syllabus was written before all of the appendices were done and that they were incorporated into the report at the last minute before the due date deadline. This further indicates that the writer or compiler of the Syllabus did not have the time to go over the appropriate appendices and summarize their findings for 10.

8. See response to comment #7 on page N - 71. The comment is incorrect in denoting "..(FSP).." as the authorized plan. Furthermore, the comment inaccurately quotes the Syllabus. Again, all figures are correct for the respective plans which are presented.

9. There are indeed many objections raised during the review of this Draft GRR/EIS; however, the majority of the issues raised during scoping pointed toward loss of bottomland hardwood forests, and impacts associated with parameters attributed to forests such as air quality, fish and wildlife resources, and water quality. The objections appear to be related to a preference for a non-structural alternative that would result in the removal of residences from Cadillac Heights.

10. The comments are noted. The methods to assess the impacts of the proposed projects and its alternatives on air quality and aquatic habitat utilized the most current information and modeling techniques available (See Literature Citations at the end of Appendix F, pages F-50 and F-51). Redundancies in additional data collection at the expense of the taxpayer was determined to be unwarranted. Executive Order 12250, Leadership and Coordination of Nondiscrimination Laws delegates authority to the Attorney General of the United States approval of rules, regulations, and orders of general applicability functions that were vested in the President by Section 602 of the Civil Rights Act of 1964 and Section 902 of the Education Amendments of 1972. Executive Order 12875, Enhancing Intergovernmental Partnership, was written to reduce the cumulative effect of unfunded regulatory mandates on the budgets of State, local, and tribal governments, through increasing requirements of the federal regulatory agencies in promulgating regulations and through increasing the flexibility for waivers from the regulatory or statutory requirements. Compliance with Executive Order 12898, Environmental Justice, was discussed on page 6-10 of the Draft EIS. The proposed project is in compliance with all three of these Executive Orders .

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incorporation into the Syllabus in a summary integrated manner. This review shall point out the analytical or lack of analyses in this EIS, according to the environmental issues and shall clearly show the disapproval goes beyond trees stated on page 3. Furthermore, the stated Fish and Wildlife mitigation plan that was developed to fully mitigate impacts to bottomland hardwood habitat shall also be reviewed. As an example of omissions to the generalized statement, "...have been investigated," also include Cultural Resources (report only includes a literature search and background work), E.O. 12250, E.O.12875, and E.O. 12898 (concerning quality of life, health, and economic issues), and environmental justice in minority and low income populations.

11. Page 3, other unprofessional and unquantified statements such as, "all other impacts considered neglible," is again a casual brief dismissal of topics supposed to be covered in an EIS and addressed. Other impacts such as CERCLA related issues from the metal plants, and the (sic.) "meat packing plant," which is a meat rendering plant, which is different from a meat packing plant. Obviously the CE writers of this GRR/EIS do not evidently know the difference, or, carefully did not address and omitted the issue which needs to be addressed.

Page 4, Syllabus, Unresolved issues: environmental restoration not considered a project purpose invoking 1965 Trinity River Tributaries

12. Basinwide Study before NEPA. This needs clarification and the Federal law quoted. This Federal action pertains to now, and funding now, and amendments have been in place for environmental restoration inclusion. This needs to be explained in the text. Then, the GRR/EIS follow up as environmentally sensitive by a request to original authorization adding environmental restoration as a project purpose. This is required by law due to the Federal action. The EIS must clarify what is meant by environmental

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11. Information presented in the syllabus is based upon detailed discussions in the main report. Impacts have not been casually dismissed. The proposed mitigation by acquisition of 1,179 acres for forest development is significant. Any contaminants located within the footprint of the proposed project features would be removed and disposed of in appropriate manner. The net impact from that cleanup would be positive on the area. There is a "meat packing plant" located along the proposed Cadillac Heights levee alignment that required careful planning to minimize impacts to in order to avoid disruption of a vital element of the local economy. The "rendering plant" is located downstream from the meat packing plant and would be protected by the proposed levee. The rendering plant is also a contributor to the local economy. The odors from this plant and the adjacent Central Wastewater Treatment Plant are sometimes objectionable to the local community, however, the building of the levee neither adds to nor subtracts from the odor produced by either facility.

12. As stated in the "PROJECT AUTHORITY" section, page 1-1 of the Draft GRR/EIS, authorization for the Dallas Floodway Extension project was contained in Section 301 of the Rivers and Harbors Act approved October 27, 1965 (Public Law 89-298). As stated in the "UNRESOLVED ISSUES" section of the Syllabus, however, authorization for environmental restoration was not included in Public Law 89-298. Furthermore, no amendments are in place at this time to include environmental restoration as a project purpose in the originally authorized project. See response to comment #11 on page N - 31. The chain of wetlands proposal is clearly justified as environmental restoration. The impacts to forested wetlands and bottomland hardwood forests from swale and levee development would be achieved through acquisition of and intense management of a 1,179-acre area for the recommended plan.

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restoration and not Federally mandated, the swale is an impact.

The EIS indicates that hazardous, toxic, radioactive waste (HTRW) occurs in the project area. Clean up is a non-Federal responsibility, in other words it is the City of Dallas responsibility before project can proceed. The EIS should

13. delineate what are the HTRW problems, safety issues, procedures for review, and comments that include the HTRW problems (Linfield Landfill, Grace Metals), etc. which are not included in this EIS? The HTRW contributors need to be brought into the text as well as the cost of the testing and clean up, and specify how much of the money in the recently passed Bond Proposition 11 goes towards the clean up of this problem. The land in the swale alignment will be redistributed along the levees and the heavy metals (for example lead [Pb]) will be exposed on the levees for reintroduction by erosion into the local communities such as Cadillac Heights and Lamar Street and the Trinity river.

Page 4 of Syllabus continued. This draft GRR/EIS already admits insufficient data and knowledge available to determine the extent of the HTRW problem, cleanup, within the project. CE scheduled further tests for summer

14. of 1998, after this EIS. Again, the EIS part of this report certainly can not move forward based on such a lack of insufficient and missing data. If further tests find HTRW CE claims several options: 1) re-alignment of the project, 2) if CE project can not avoid HTRW site(s), City required to clean up site(s) prior to construction of the project (two sites already known Linfield Landfill, Grace Co. metals plant; the Linfield Landfill has monitoring wells put at the site by the City, City not forthcoming about the monitoring wells and may require court injunction for the City to relinquish the data). These are the only Federal alternatives provided in the EIS. However, other alternatives are

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13. See response to comment #3 on page N - 14.

14. See response to comment #3 on page N - 14.

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15. recommended in this review, such as buy-out programs along Lamar Street and Cadillac Heights and clearance of landfills permitted by the CE and the City along this part of the Trinity river floodway that impede and restrict conveyance of the Trinity river through the narrowest part (3,282 ft 1 [km] of the the upper Trinity floodplain drainage. In essence this part of the Trinity river is a natural constriction created by limestone bedrock on both sides of the river and for maximum conveyance of flood waters through this narrow reach no development should occur from the north end of the DFE project as designed to south of McCommas bluff.

16. Continuing in the Syllabus, page 4, Federal offsite remote mitigation suggested but not detailed. This needs to be included for an EIS. According to the Federal language in this EIS, if local government wants more costly area nearby DFE project area City has to pick up the cost should Federal project decide on remote area such as Lake Livingston near Houston. This is unacceptable, and appears that the Federal managers are blackmailing the City of Dallas to spend more money at the taxpayers expense. The Federal

17. government needs to remember they would not have this project if the City of Dallas was not the local sponsor. The City of Dallas, whether it is aware of this or not, does not necessarily need the CE to design this project. The City of Dallas does need Federal permits (such as Section 404) if the City plans to do anything in the floodway, but the City can hire it's own engineering firm to carry out the City's business as they did on the Rochester and CWWTP levees for a much lower cost of only ca. $23 million. The two levees the City built combined are larger than the proposed levees in the CE DFE project and cost much less. Due to Federal overhead cost and bureaucracy Federal projects can cost up to 75 percent more than local projects.

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15. See response to comment #1 on page N - 13 regarding buyout alternatives.

16. The recommendation in the GRR/EIS is for acquisition of mitigation lands within the study area.

17. The Federal government is fully aware of the requirements for non-Federal cooperation in the implementation of a Federal project.

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18. Recreation plan is not detailed due to questionable Federal cost, subject to further analysis and review to determine if Federal cost participation is unacceptable. This is one of the major mayorial platforms for passing the bond proposition. This also provides another indication of the unpreparedness and incompleteness of this GRR/EIS on the part of the CE to cram this EIS through the buresaucratic process without a thorough analysis of all the variables that are part of this complex project. These variables have to be worked out before the next design phase of the project, or the CE and the City will not know what to design, therefore creating costly overrides based on redesign after redesign.. The EIS should detail how the CE came up with the
19. mitigation area of 1,135 acres (sic.) (1,179 acres) and report the ratio of project construction land to mitigation land set aside.

Chapter 1 Introduction Comments

Landfill information provided by the Texas Natural Resources
20. Conservation Committee (TNRCC). Summarize the number of landfills, location, contents, and other information germane to the DFE project and appropriate for this EIS. EIS should indicate where are the existing landfills are located and their contents in the DFE. Appendix I (HTRW) describes landfills at nearly all 17 sites investigated.

Previous acquisition and removal of residential structures in the Roosevelt Heights and Floral Farms housing subdivisions (Second Avenue and
21. Bruton road) briefly mentioned. There is no description of what agency sanctioned this buy-out. If the City conducted this buy-out, why did they not get credit for this as they did for the Rochester Park levee and the CWWTP

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18. See response to comment #25 on page N - 25.

19. Details of the mitigation plan are discussed in Chapter 4, pages 4-85 through 4-87, Appendix F and in Appendix G.

20. Chapter 1 presents introductory information only, such as project authority, study participants and coordination, study purpose and need, prior studies, etc., and is not intended to present existing conditions data. The results of an "Initial Assessment for the Evaluation of Hazardous and Toxic Wastes" study are presented on page 2-22 in Chapter 2, "DESCRIPTIVE OVERVIEW".

21. The acquisition and removal of the referenced structures was conducted at the discretion of the city of Dallas, and was not part of a Corps project. No requests for credit toward the non-Federal share of a Federal project were submitted, and economic justification for these buyouts was not investigated. Section 351 of WRDA 1996 contains the Congressional authorization for credit for the construction of the Rochester Park and CWWTP levees.

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22. levee? If buy-out was acceptable to a previous flood project why isn't buy-out a viable option to the DFE project (pages 1-2)?

In Chapter 1 of this GRR/EIS the CE lists 20 Federally involved studies on the upper part of the Trinity river since 1962, plus nine other supposedly non-Federal studies, although 5 of these non-Federal studies were conducted by North Central Texas Council of Governments (NCTCOG), that may have involved Federal funds. In all 29 studies in 36 years, none of the studies are quoted for adding any environmental analyses that could be used for this study indicating all the previous tax dollar funding went towards some sort of planning document, but no funds went towards any sort of environmental

23. analyses. What is the total cost to the taxpayers of all these previous studies?

Chapter 2, Overview Comments

24. Page 2-1, mentions the East Fork of the Trinity river in the Upper Trinity river study region, this is incorrect. The Upper Trinity river study region begins above the DFE. The DFE is a study region. The East Fork is considered in the Lower Trinity river study region that begins at the southern

25. end of the DFE. The White Rock creek drainage is omitted from, and should be

26. considered as part of the DFE, and is in the DFE. Delete the last sentence in paragraph 3, "The East Fork..." Lake Worth is omitted from map with Federal

27. lakes and was the first Federal lake in the area. Delete Lake Lavon and Lake

28. Ray Hubbard on map as well, for these two lakes are in the East Fork drainage

29. (Figure 2-4). Add Bachman Lake to non-Federal lakes on this map as well. The

30. word usage of sewage treatment plant in the singular is incorrect when there are several within the basin.

22. See response to comment #21 on page N -76 and comment #1 on page N - 13.

23. The total cost of these previous studies is not known, and is not necessary for this investigation.

24. The comment is correct in that the East Fork of the Trinity River is not part of the Upper Trinity River study area. The Upper Trinity River study area is defined as all of the Trinity River watershed upstream of the Malloy Bridge crossing in southeast Dallas County. The DFE study area is contained within the overall Upper Trinity River study area. The word "Upper" has been removed from paragraphs 2 and 3 on page 2-1. Furthermore, the first sentence of paragraph 2, has been revised to state, "The Trinity River, in the vicinity of the study area, is composed...". The last sentence of the same paragraph has been revised to state, "The East Fork, although not specifically within the study area, rises....". The first sentence of the third paragraph on page 2-1 has been revised to state, "Within the area described above, the Trinity River Basin....".

The East Fork Trinity River was inadvertently included in the Upper Trinity Study. The East Fork is included in the portion of the Trinity River referred to as the Middle Trinity. The Upper Trinity Study region lies upstream of the confluence of the Elm Fork and the Main Stem of the Trinity River.

25. Only the major forks of the Trinity River are discussed in the referenced paragraph. The White Rock Creek drainage area was not listed separately. Others that are in the area but not listed include Five Mile Creek and Ten Mile Creek.

The lower White Rock Creek drainage basin was included in the DFE analysis. See response to comment #61 on page N - 41.

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26. The description is of the Trinity River Basin and the major forks which come together to form the main stem of the Trinity River. Lake Worth is not a federal project.

27. Authorization for Lake Worth came from the State of Texas by certified filing No. 757 on 27 June 1914. Lake Worth was constructed and is owned and operated by the City of Fort Worth. Construction began in 1912 and the dam was completed in October 1914.

28. The location map includes other areas outside the study area for clarification as to location. Therefore, the map will not be revised to delete these features.

29. Other non-Federal lakes are omitted on the location map, as the map is not big enough to show all non-Federal lakes. These lakes, like Bachman Lake, were not large enough to be included on the map.

30. The comment is correct. The singular use of the word "plant" was unintentional, as several treatment plants are within the basin. This error has been corrected.

N - 78

31. Another interesting point on the map is noted where East Fork Increment I was denoted as an existing CE project, as well as East Fork Increment II, as another CE authorized project. These two actions need to be referenced. In text, the total drainage basin above Five Mile Creek is equal to

32. 6,275 mi^2 that includes the DFE. Then two figures are presented for the confluence of the West Fork and the Elm Fork of 6,061 and 6,106 mi^2 with terrain elevations within the basin between 380 to 1,200 ft. above sea level. Which figure for the drainage area should be used? Then, assuming the lower drainage basin figure is valid a total of 214 mi^2 falls within the DFE? Does this area include the White Rock Creek drainage and the Cedar Creek drainage and what other drainages, please clarify. Map is sloppy and uninformative.

Then, writers go into details about the Trinity river with a depth of 30 ft., top width of 200 ft. with a mean discharge of 2,000 ft^3 sec. over a 37 year period from 1955-1992. The river channel has an average bottom slope of 2.6

33. ft. p/mi. What is unclear and not stated is the annual and seasonal amount of regulated flow from each lake with a control dam and the amount of annual and seasonal flow each lake contributes to the mean discharge and flow of the Trinity river. Extreme high waters behind dams is often let out in emergency situations to protect property etc. enhancing flooding downstream.

Study Area defined as area between the confluence of the Trinity river and Five Mile creek on the south near I-20, and up White Rock creek drainage to I-30 at Samuel road and Ferguson road, and the end of the Dallas Floodway Levee Project in the existing floodway at the north end. This area is not well indicated on map in Figure 2-3, omitting Five Mile creek, highways 75 and 175,, unclear where existing levees are located, as well as the floodway. On this map

34. numerous circles are plotted the legend describes as sub-area numbers. What

31. This highly developed agricultural area was, and still is, subject to frequent and prolonged flood conditions and considerable flood damages. The proposed solution included a channel and levee improvements along this reach of the East Fork. It was found that the channel and levee project had a favorable benefit to cost ratio and all listed purposes were economically justified. Construction of Increment Number I occurred in 1984. Increment Number II was not constructed due to a lack of local sponsorship, and is inactive.

32. The text clearly identifies the 6,275-square mile drainage area as applying to the area at the confluence of Five Mile Creek and the Trinity River. Text also clearly identifies the drainage area at the confluence of the Elm Fork and West Fork as 6,061 square miles and the drainage area at the Dallas Gage as 6,106 square miles. The drainage area of 6,275 square miles includes the White Rock Creek and Cedar Creek drainage areas. The drainage area map is provided to show a general layout of the entire basin.

33. At the immediate study area, a "controlling" discharge of 15,000 cubic feet per second (cfs) is used as the basis for decision-making with regards to the gradual elimination of stored floodwaters in the major flood control reservoirs (Benbrook, Joe Pool, Grapevine, and Ray Roberts/Lewisville Lakes). The actual amounts which are released by each project, for specific seasons of the year, have varied considerably over the years, in relation to the positioning and magnitude of severe storm precipitation. For purposes of this particular study, the variations by project site and season had no impact on the design of either the levees or the interior drainage facilities.

The US Army Corps of Engineers' operational scheme at the major flood control dams is to attempt to fully prevent exceedence of the assigned targets at each of several gaging points in the Metroplex area. However, during severe events, stages in the major flood control reservoirs can rise to the point that fully uncontrolled releases escape over the emergency spillways at each project. Such instances have been fairly rare.

34. This figure was replaced with a clearer, more easily understood figure. No circles are included in figure 2-3. However, figure 2-2 presents a map of the Upper Trinity River Basin and includes circles and sub-area numbers. These numbers represent the various sub-basin areas used in the hydrologic analysis of the basin.

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do these mean, if not discussed delete from this section? Map is sloppy.

35. In the climatological section page 2-4, omitted. The year 1997 was a record or near record rainfall year as well, depending on where the gauging station is located, and this should be included for there was no devastating flood in the DFE. This should be included. It would be helpful to provide days a

36. year and the frequency of heavy rainfalls in 24 hour periods over the basin, receiving > 4 or 5 inches or some arbitrary value that will bring the Trinity river up in the DFE in less than a 72 hour period. It has been the observation

37. of many, that once the impounded waters in lakes fill to a critical level, water has to be let out, and when heavy rains from non-impounded runoff over the entire basin combine with the released impounded waters the DFE fills up rapidly and floods which is not evident in your climatological data and did not occur during this past year of record or near record rainfall because precipitation was spread more evenly through time.

38. Basin physiography and geology (page 2-9) is not located in east central Texas, north central Texas is more appropriate. Most of the upper Trinity river basin flows over Cretaceous age limestone bedrock. The DFE and a large portion of the Trinity river drainage falls in the Cretaceous Period at the end of the Mesozoic Era dating from 100 Ma at Benbrook reservoir to the now famous Cretaceous/Tertiary (K/T) boundary site southeast of Waco at 65 Ma (AAPG & SEPM, 1984, Field Trip to K/T Boundary). The DFE falls in the Lower Austin through Upper Austin Member of the Gulfian (local stage), Senonian Stage of the Upper Cretaceous (Dallas Geological Society, 1983). Faults are a common occurrence throughout all the Austin Members (Dallas Geological Society, 1965: 94-95), contrary to the claim in the GRR/EIS of, "there are no faults." The GRR/EIS as written so far indicates write up consists of plagiarized

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35. The commenter brings up a very good point in noting that the occurrence of a "wet year" does not necessarily correlate with the occurrence of significant flooding. Although 1997 is recognized as one of those "wet years", it was not known for having produced wide-ranging and yet highly intensive precipitation over the watershed areas which impacts flooding along the Trinity River in Dallas.

36. The commenter's suggestion is appreciated. However, it should be noted that there are many precipitation gages scattered throughout the subject watershed, each having recorded numerous and yet highly variable thundershowers over many years. It is not reasonable, within our current context in this study effort, to provide such a thorough assessment of recorded precipitation. Further complicating the subject is the fact that flooding in the vicinity of the Dallas Floodway Extension project can be produced as the result of numerous combinations of precipitation events. Most of the basic data which would have to be compiled and evaluated is within the annual and monthly volumes of published records by the US Department of Commerce's National Weather Service (NWS).

In order to simplify the analysis, it is common practice to evaluate future, hypothetical runoff events based on statistical precipitation depth data which has already been assessed by the NWS and the National Oceanic and Atmospheric Administration (NOAA). These entities have produced summary data which provides a relationship between the depth, duration, and frequency of precipitation, as well a method of adjusting the so-called "point" rainfall to an areal average value to be applied on selected watershed areas, for instance. Their data was used directly in establishing the hypothetical storm runoff for the subject study. Precipitation data for the specific storms which have produced the more significant floods within the Metroplex was also considered in the development and calibration of the hydrologic "rainfall-to-runoff" models used in the subject study.

37. The commenter's observations are correct. The climatological data is presented in order to provide some general ideas of both severe weather conditions and events in the historical record and the average conditions to be expected in the future. Please refer to the prior response to Comment # 35, regarding the recent climatological history.

38. Geologic structural features within the project area do not pose a significant threat to the integrity of the project.

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39. excerpts, plus cut and pasted sections from previous reports, and does not provide any current or new information. This report needs to provide published references with dates to back up statements of fact.

40. Existing Dallas Floodway Levees, (page 2-10, para. 1) states,

"due to changes in the floodplain and the backwater effects on the downstream end of the Dallas Floodway levees risk of overtopping of these levees has become a major consideration...the Dallas Floodway system is included in this investigation."

This explanation is inadequate, not backed up or substantiated, and this is not

41. an investigation report, this is supposed to be an EIS where the results of investigations are to be reported. The Dallas Floodway levees held for 1990

42. flood that was claimed by TV news (Channel 8) to be a 65 year flood event not SPF level flood, however water was within <2 ft. of overtopping the downtown Dallas levee along Industrial Blvd.

43. The issue we are all concerned with is the conveyance of floodwaters through the DFE narrows. The lack of conveyance is mostly due to development of all the lakes in the upper part of the basin above the confluence having to let enormous outflows occur simultaneously when heavy rains cover the entire basin. This combined with normal storm water drainage runoff within the basin, the tremendous amount of development (paved areas covering soil absorption of rain water) in the upper basin, as well as all the impediments within the DFE makes for a continual flood situation in the DFE. The developments within the upper basin are going to continue and runoff from these developments will only increase through time (see Hooke, 1994, Geological Society of America Today, 4, 9: 217, 224-225).

44. One solution to create increased conveyance through the DFE would be to remove all the illegal landfills and the landfills the CE and the City has

39. The GRR/EIS, as written to the point to which the reviewer's comments have been applicable, was intended to present introductory data, such as the authority under which this investigation was conducted, and general descriptions of the study area. Much of these data are, by necessity, of a historical nature, such as climatological statistics. Furthermore, use of previously published Federal documents does not constitute plagiarism, as such documents are not copyrighted.

40. This statement is included here as a general statement of findings since this section is a "descriptive overview" and is further explained in Appendix A.

41. See response to comment #1 on page N - 13.

42. The U.S.G.S. computed the peak discharge for the 1990 flood occurring on May 3, 1990 as 82,300 cfs with a stage reading of 47.10 feet at the Dallas Gage. This corresponds to a peak water surface elevation of 415.12 feet at the gage. The gage is located at the Commerce Street bridge. This water surface is 14.28 feet below the levee crest elevation of 429.4 feet at this location. This peak discharge is computed as approximately a 33-year flood (3 percent exceedance frequency) as shown on Plate A-6. The flood also produced a peak water surface at the downstream end of the existing floodway of 413.9 feet which is 9.1 feet below the crest of East Levee floodwall of 423.0 feet.

43. Conveyance is defined in terms of the characteristics of the floodplain at a point along the river. The factors influencing conveyance of flow are the floodplain flowage area, the shape of the flowage area, and the floodplain roughness. Therefore the conveyance characteristics of the DFE area have nothing to do with upstream lakes. The upstream Corps lakes, however, greatly reduce the peak discharges of flood events due to their combined storage of runoff for which they are designed.

44. Complete removal of landfills within the study area would be cost prohibitive. Landfills or other topographic features having a measurable influence on the floodplain were either represented in the 1991 topographic survey or incorporated into the models later as discussed in Appendix A.

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permitted along Lamar Street (left bank descending side of floodway) and the landfills near and around the CWWTP (right bank descending side of the floodway). These land areas consumed by these landfills have considerably constricted the DFE area. The constriction is further enhanced by the narrow and shallow location of the Cretaceous bedrock through this reach of the river.

At the Dallas Area Rapid Transit (DART) bridge across the Trinity river a short distance above the the DFE area, limestone bedrock benches along the right bank protruded into the floodway at a depth of 12-15 ft. forcing the Trinity channel to the left bank where the channel was cut approximately 60 ft. deep filled by Quaternary sediments. The hour glass shape of the basin above and below the DFE indicates that the bedrock within the DFE has been resistive to erosion for the past 65+ million years and forms a natural constriction (barrier) of the floodway where the DFE project is planned.

Other impediments within the DFE include the McCommas Bluff Landfill, Linfield Landfill, Rochester Park Levee, CWWTP Levees, Southeast Sewage Treatment Plant (SESTP) levees, White Rock Lake sludge fill at I-20, DART landfill along White Rock creek drainage between Lawnview and Military Parkway, Middlefield road levee, other older landfills along Second Avenue, Scyene, Military Parkway, landfill and channelization of the White Rock creek drainage to accomodate utility power plant, railroad track raised grade between Lamar and the left bank and other landfills detected in Appendix J, to list a few of the impediments omitted from the CE maps and should be added for a complete representation of the DFE project area. The displacement of flood
45. waters by the relatively new Rochester and CWWTP levees have raised flood levels in unprotected areas downstream and the amount of this displacement is

45. The construction of the Rochester Park Levee and the CWWTP levee improvement project have influenced the storage of flood water only up to flood events slightly greater than the 100-year event. The storage effects of these projects for events of 100-year and less are so insignificant as to be barely measurable. The 500-year and SPF events currently would overtop these levees, therefore, there would be no storage effects for these events. However, the conveyance effects of these projects have been documented in Appendix A under the discussions for the Baseline Model and the Existing Conditions Model. Water surface profiles are provided on Plates A-27, A-28, A-29, and A-30.

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not covered in the GRR/EIS.

46. All other impediments should be included as well, these ioclude the road systems, and the built up railroad right of ways that cross the drainages perpendicular to flows and restricts conveyance.and enhances flooding. Most of the roads have inadequate bridges impeding conveyance of flood waters. Bruton road built on a raised roadbed that diagonally crosses the White Rock creek drainage has only three short bridges in 1.5 miles for the water to pass through. Highway 175 and Second Avenue parallel each other on raised roadbeds that cross the White Rock creek drainage perpendicular to the flow. Highway 175 has only three short bridges over no channels, while Second Avenue has shorter bridges not in alignment with Hwy 175 bridges and is directed perpendicular to flow which impedes the conveyance of flowing water enhancing flooding. There are other roads and right of ways that could

47. be improved such as Loop 12, that would undoubtedly enhance conveyance through the DFE and these need to be included as a viable alternative combined with the others listed above in this EIS, and as written are omitted, not shown, therefore is not considered as an alternative. The landfills and the

48. continuation of landfilling in the DFE cause lack of conveyance and the removal of the landfills would only enhance conveyance. The Lamar and

49. Cadillac Heights levees add to the constriction of the floodway by narrowing the floodway causing backup of flood waters. Furthermore, the constriction can cause increased flow speed (Venturi effect) through the DFE in non-flood conditions, increasing the erosive power of the river downstream. Other flow impediments directly downstream from the DFE hinder conveyance and enhance flooding in the DFE (for example, McCommas Bluff meander and

46. See response to comment #61 on page N - 41. Highway and railroad bridges and embankments have been included in the models as discussed in Appendix A.

47. Conveyance improvements for the Loop 12 bridge were investigated and found to have very slight benefits. These improvements were eliminated from consideration because they were not economically feasible.

48. Removal of landfills would indeed improve conveyance within the floodplain, but at a very high cost. This is especially true where hazardous wastes are concerned. Large scale removal of landfills is not economically feasible.

49. The Lamar and Cadillac Heights Levees do cause the floodplain to be constricted and cause flood waters to rise but the rise is more than compensated for by the flood lowering effect of the chain of wetlands.

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landfill and the Southeast Sewage Treatment Plant on an opposite meander of

50. the river). Buy-outs of Cadillac Heights and Lamar Street and clearance of the landfills lining the floodway will enhance conveyance through the DFE. The City bought out Roosevelt Heights and Floral Farms residences previously, why is this fact omitted from the GRR/EIS as an alternative also applicable to Cadillac Heights and Lamar Street? It should be explained why the City did not get credit towards this project for these buy-outs. The City should strictly

51. enforce no dumping in the DFE and develop the DFE as a huge green zone within the City of Dallas such as other cities have (Stanley Park, Vancouver; Mt. Airy Forest, Cincinnati; Central Park, New York, to name a few other cities) and develop southern Dallas business with the view of this green area as a central focal point that would enhance the quality of life issues for the City. Recently, the National Weather Service has found that due to the paving over of cities and lack of green areas creates the heat island effect causing higher temperatures, less effective rainfall, less air flow, pollution highs, and other ramifications on city microclimates that are receiving further study. This GRR/EIS does not mention or discuss any quality of life issues normal to any well written and thorough EIS studies.

52. Use of the HEC-2 hydraulic model is an old conservative model that under represents flood dynamics (Geological Society of America Today, 1994) and other flood models should be used as alternatives to check against 100 year and SPF flood levels. The brief mention of the LRD-1 model re-enforced the use of the HEC-2 model without providing any tables for comparative basis.

53. Top paragraph page 2-11, under Existing Dallas Floodway Levees - current hydraulic study compiled SPF water surface elevation at AT&SF

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50. See response to comment #21 on page N - 76.

51. The comments are noted. Significant discussion on issues pertinent to the "quality of life" are discussed throughout the DFE DEIS. The project as proposed, provides several beneficial impacts which would help preserve and maintain the quality of life without significant adverse impacts to the environment. Flood damage reduction would prevent potential loss of life, preserve jobs, and maintain neighborhood integrity (See DFE DEIS Environmental Justice, Page 6-10). Additionally, there are recreational features that would be incorporated into the project which will improve the quality of life (See DFE DEIS Recreation Amenities, Page 6-7).

52. See response to comment #32 on page N - 35.

53. Water surface profiles are shown on Plates A-25 through A-38 in Appendix A.

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Railroad bridge of 426.0 ft and a 500 year flood level water surface elevation at 422.4 ft. asl. What are the SPF, 500 year, and 100 year water surface elevation profiles through the DFE?

54. Page 2-11, under Existing Rochester Park Levee - reference is made to surface elevations at Hatcher Street and South Central Expressway underpass that would allow for flood waters to enter areas protected by Rochester Park Levee. Why, because elevations of the levee are lower at this point? Need a map of the area under discussion with levee surface elevations. A levee at Hatcher Street, South Central Expressway, and Rochester Park Levee is incorrect as described. Therefore, computed flood levels may be incorrect. However, in the GRR/EIS Rochester Park Levee is considered to provide 110 year level of flood protection. What are the surface elevations of the Rochester Park Levee from the west (Trinity river side), south to southeast (White Rock creek side), to the northeast side? GRR/EIS states that the

55. Rochester Park Levee is north of Highway 175, this is incorrect.

56. Existing CWWTP Levee - EIS states levee survived flood of 1990, but this is not entirely correct, levee improvements were not completed and the area flooded. TV news coverage showed flood waters surrounding the plant. The levee upgrade to elevation of 415.0 ft. asl compares closely with water surface profiles in this report and upgrade created 140 year level of flood protection. Therefore, FSP only provides 100 year protection as stated previously. In what way does the 415 ft. asl compare closely with this report? This needs to be explained.

57. Existing Sleepy Hollow Country Club Levee (SHCL) (page 2-12) has a small 10 ft. high levee that provides a 10 year level of protection. What are the surface elevations of this levee? These elevations need to be included. Loop 12

54. The existing Rochester Park Levee does not form a complete loop or tie to high ground equal to the height of the levee. The levee alignment is shown on Plate A-41 as a light blue dotted line. Hatcher Street and Central Expressway are shown to indicate where this underpass is located relative to the gap in the levee. Floods would initially enter the levee protected area through the Hatcher Street underpass to the east side of Central Expressway and over the C.F.Hawn Freeway into the Rochester Park area. The entire Rochester Park Levee was constructed to a crest elevation of 417.0 feet but terminates on the Trinity River side at a natural ground elevation of 415.5 near the intersection of Lamar Street and Haven Street.

55. The GRR/EIS states "flood waters would begin to inundate those areas protected by the Rochester Park Levee north of the C.F. Hawn Freeway". The existing Rochester Park Levee provides a small increment of flood protection for areas north of the C.F. Hawn Freeway even though the levee itself does not extend north of C.F. Hawn Freeway.

56. The word "survived" is used to mean that flood waters did not overtop the levee and flood the interior of the levee protected area and damage the plant structures. As stated the CWWTP levee improvements were designed by Halff Associates, Inc. The design of the improved levee crest height was based on there own hydraulic analysis but it agrees with the analysis presented in the GRR/EIS. See also the response to comment #6 on page N - 31 for explanation of CWWTP levee protection level.

57. The levee crest elevation is approximately 399.0 feet.

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58. roadbed is perpendicular to the flow of the Trinity river and two bridges are the only means of conveyance. This could be improved for more conveyance and should be considered as an alternative to enhance conveyance.

59. Environmental Setting (page 2-12) under General - first paragraph discusses 1957 levees along West Fork, not really pertinent to EIS. If EIS is going to discuss West Fork levees, what about the Elm Fork levees and others, not sure the point to this? Then, description goes into the DFE and attempts to

60. describe environmental green areas, wetlands, as "some," which renders the large wetlands and wooded tracks (92 %) in the DFE as insignificant. If the past 29 reports funded by tax dollars were of any use the CE could provide an accounting for the development of the wetlands and forest acreage and how they have changed or developed in the last 36 years that they have studied the area in the last 41 years since the levees were constructed. The wording in the

61. GRR/EIS uses the "Great Trinity Forest," which does not exist as any legal entity and is more a colloquial term and should not be used. Land owned by landowners, plats, street locations, or MAPSCO references would be more appropriate. Where are the boundaries of the "Great Trinity Forest" on the map in Figure 2-5? Environmental analysis is in Appendix F. The contents of

62. Appendix F should be summarized in this section, and references to detailed analyses in the Appendix should be referenced in this part of the report. Again, this indicates the lack of timing in preparing this report and not incorporating the information in the appendices.

63. Last three paragraphs on page 2-12, beginning with Air Quality - first paragraph makes no statement about air quality warnings in regards to air pollution and statements of non-compliance with the Clean Air Act issued by

58. See the response to comment #47 on page N - 83.

59. The statements included in this section (General) are summary in nature and are not fully inclusive. Additional information related to existing projects are discussed on pages 2-10 and 2-11 of the Draft EIS. These projects were included in the discussion because they are part of the existing condition within the area that has hydraulic and other relationships to the proposed project area.

60. The statement actually is in reference to the existing Dallas Floodway Project area not the Dallas Floodway Extension "DFE" area. The use of the word "some" was to generally state that there have been some trees that regrown along the existing floodway channel and along wetter areas of the floodway. The remainder of the paragraph points out that wetlands, bottomland hardwoods, gravel pits and open fields exist within the Dallas Floodway Extension study area. Those resources were described in more detail on pages 2-16 through 2-20.

61. The City Council of Dallas has adopted the name "Great Trinity Forest" for that area roughly defined on page 2-12. The boundaries of the Great Trinity Forest are not marked on Figure 2-5, as that map represents a smaller area than does the Great Trinity Forest. Whether or not it is a legal term, the use of the term Great Trinity Forest has become prevalent by supporters of preservation of the bottomland forests of the study area. See response to comment #2 on page N - 14.

62. Contents of Appendix F are included in this section.

63. First paragraph under "Air Quality" in the draft EIS clearly states that the area is classified as a non-attainment area for ozone. Air quality has not been glossed over, in fact considerable efforts were made to quantify potential impacts from removal of trees within the proposed project area. In addition, coordination with Texas Natural Resource Conservation Committee, indicates that the project, as proposed, would not further complicate the State's Implementation Plans for alleviating air quality concerns in the area. See letter from TNRCC in Appendix L.

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the Environmental Protection Agency (EPA) to the City of Dallas and surrounding areas of the Metroplex. The air quality in Dallas is a problem that is glossed over in this EIS.

64. The second paragraph is brief and out of context. It is just a list, albeit a brief abbreviated list of pollution standards as recognized by TNRCC. What about the standards of the EPA? How does this relate to actual air quality samples taken in the DFE? There are many variables to consider for air quality such as seasonality, prevailing winds, daily temperature regimes to take into consideration, covering spans of years, which the EPA has data on the air pollution and air quality, or they could not issue warnings to the City.

65. The third paragraph attempts to build a case that trees (alluding to the trees in the DFE?) inhibit air flow upwind of a building. This is not a useful analogy and does not apply to the DFE. The City of Dallas creates a "heat island" effect (daily buildup of humidity, CO, CO_2, SO_2, NO_2, O_3, surface heating and retainment of heat from reflected light off glass, heat absorbed by concrete and asphalt, which in effect creates a small "greenhouse effect" over the city) doming the city which is obvious by the higher temperatures reported on nightly TV weather reports (Channel 5 the most informative) recorded at Love Field closer into the central city than most weather stations. In the warmer months April - October (7 months) the City of Dallas "heat island" effect can be on the average $5\text{-}10^0$ F warmer than the surrounding less developed areas within the Metroplex. Large tracts of trees can provide a sink for carbon gases (C) and respire oxygen (O). Only disturbed area undergrowths provide dense thickets to impede air circulation. It is a fact that trees help remove air pollution. The values provided in the UFORE table are general values, and no

64. The second paragraph is not a list of air quality standards, it is a list of average reported values during 1995 and 1996. A classification of "non-attainment" is ascribed after monitored gaseous air pollutant concentrations are compared to, and determined to exceed EPA standard concentrations. We assume the values presented in the aforementioned section are very accurate in relation to the actual air quality samples since placement of the air quality monitors are in, and around the proposed project area. The average gaseous air pollutant concentrations presented are concentrations averaged from samples taken several times a day, every day of the year. The air pollutant values that are presented are average concentrations which take into consideration concentration fluctuations that can result from seasonality, prevailing winds and daily temperatures. As you indicated, there are several factors which affect air quality within an area. The proposed project would only influence a few of these, for more than a temporary time period. The modeling done during this study was based upon existing and projected future with and without project conditions for tree canopy coverage.

65. In the third paragraph of the section entitled "Air Quality" on page 2-12, reference is made to the disturbance of air currents by the presence of trees only as part of a general overview of the influence of trees on criteria air pollutants. The statement is accurate and has been well documented by several reputable researchers engaged in this field of study (See Section entitled "Air Quality" in Appendix F, pages F-1 and F-2). Large tracts of trees can provide a significant sink for carbon and respire oxygen only if the trees are not mature, otherwise this cycle is reversed. The values provided in the UFORE table are very specific for the Dallas area. Information in the UFORE table was derived using DFE vegetation data collected in 1997. Gaseous air pollutant extraction coefficients of trees used in the UFORE model were determined using information collected in the proximity of the DFE.

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reference is given to the date of these values. No actual air samples were taken within the DFE to quantify air quality within the DFE detailed project or the study area.

66. From the content in Table 2-2, under area of existing "Great Trinity Forest" is definitely within the project area, but how were these figures derived? Writers need to provide data relevant to the project instead of a general listing by some other agency or organization that do not directly apply to this project. From Table 2-2, it is interesting to note that such a small undeveloped natural area of less than 6,000 acres can provide nearly 10 percent of the air pollution removal within the City of Dallas. Imagine the air pollution removal power if the City developed nine more areas (<55,000 acres) of similar size. Table 2-2 also shows that the area within detailed project improves in every aspect across the row by approximately 43 percent without the project,[1] although time is not provided. However, no figures are provided that include the project that would delete trees and decrease the ability of the forest in the DFE to remove air pollution.

67. Water Quality - (page 2-15) only two paragraphs on water quality quoting other sources with no specific data collected in or near known problem areas within the DFE renders the subject of water quality deficient and inadequate, especially when there are so many potential and actual polluters in the DFE as detailed in HTRW Appendix J.

68. Vegetative Cover (page 2-16) - soil is understated, classified as Trinity clay, a general floodplain soil, but many other types of soil occur in the study area. Cliff et al. (1998: 8-10) at least consulted several county soil surveys and describe and list 25 various soil types in the study area. There is no indication in this report that the Natural Resources Conservation Service (NRCS, old Soil

66. The Great Trinity Forest area was defined on page 2-12 of the draft EIS. The trees within the Great Trinity Forest remove approximately 10 percent of the pollutants that are removed by all the trees within the City of Dallas under existing conditions. The area that would be impacted by the project, accounting for projected increases in forest canopy in the without-project scenario account for less than 2 per cent of the pollutant removal attributable to trees. Impacts associated with removal of the trees with the project alternatives is provided in Table 4-24 on page 4-82. The information there indicates that the impacts from the locally preferred plan would be less than 1 percent of the pollutants removed by all the trees in Dallas. Further the inclusion of the environmental mitigation for fish and wildlife resources were shown to totally mitigate air pollutant losses attributable to forest as well.

67. Incorporation by reference is an acceptable means to reduce the magnitude of the document according to the President's Council on Environmental Quality (CEQ) regulations.

68. The statement is true that, as stated, the predominant soil in the study area is classified as frequently flooded Trinity Clay as identified by the Soil Survey of Dallas County, Soil Conservation Service, 1980.

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Conservation Service [SCS]) Dallas County reference was ever consulted for classification of soils along the Trinity river because Frio and Houston soil types are most common, with patches of other various soil types including wetland hydric soils. Soil maps should be provided and soil analysis conducted especially in areas that may be sensitive to CERCLA (Comprehensive Environmental Response Compensation and Liability Act) and RCRA (Resource Conservation and Recovery Act) regulations for the CE's own protection.

69. There is no map of the "Great Trinity Forest" even though they refer to it many times in the text. No calculation in Table 2-3 of acreage consumed by all the landfills in the DFE detailed project or study area. The landfills have little or no vegetation growing on the surfaces. On the map (Figure 2-5) grass and forbs are detailed where the Linfield Landfill is located while other landfills are denoted as landfills and not as grass and forb areas. The "Great Trinity Forest" is not defined in Figure 2-5, yet covers 5,956 acres covered by 92 percent woodland. This indicates that the boundaries of the "Great Trinity Forest" is known because the acreage was determined and measured. Where are these acres? One of the best examples of the constriction of the Trinity river in the DFE is shown in Figure 2-5, where the river flows between the

70. Rochester Park Levee and the CWWTP Levee and the floodway is less than 3/4 of a mile wide since the building of the levees. Again, the figures presented in Table 2-3 were taken from lists, and ride and walk through limited surveys and not derived from any in the field Habitat Evaluation (HEP) process. Other

71. inadequacies in Figure 2-5 include omission of the perennially wet area known locally as "Blue Lake," a borrow pit northeast of Bruton and Second Avenue as well as the semi-aquatic borrow area for Rochester Park Levee in

69. The vegetative cover map did not include the entire Great Trinity Forest as identified on page 2-12. Your analysis is correct that most of the landfills were denoted as landfill; however, the vegetative cover of the Linfield Landfill was specifically cover-typed to disclose the impacts to vegetation that might be affected by project alternatives.

70. Various sources of information were utilized to determine land cover. Site visits and detailed studies including habitat evaluation procedures were utilized within the study area.

71. The errors identified are corrected in the final map, however these omissions from the mapping did not downplay the impacts described as being attributable to the project alternatives because none of the proposed project features would impact these areas.

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the White Rock drainage. Page 2-19, provides a general description of vegetation, Figure 2-5 inadequately represents wetland vegetation and open water areas.

72. Fish (aquatic) Resources refers to "several studies that verify stream fisheries have improved during the last twenty years," but no references are provided and no data provided in this report. In the last twenty years major fish kills have been common along the upper reaches of the river from pollution and the City has warned people against eating fish from waters in the DFE, although nothing is posted along the river or area water bodies about pollution and contaminated fish. Only recently, within the last year, the City has put up new no dumping signs and gates with locks on fences in DFE areas where they do not want people to dump their rubbish. Prior to this anyone could drive into the area, such as down Linfield street to the end of the landfill and dump rubbish in the area. However, on any given day many people fish the DFE waters to supplement their diet with fish from these waters. No data is summarized in this section from the Appendix F indicating that any new data on fish was collected for this EIS. No statement about the fish population characteristics, just an incomplete list of some of the fish that could be compiled from any source. Many birds such as owls and others are not listed

73. on page 2-20, again a list that could be attained from any source and no data from the DFE study area collected. Absolutely no mention of fresh water

74. mollusks (Howells and others, 1996) that once were common to the Trinity river, perhaps these no longer inhabit the river due to pollution and sedimentation turbidity. Fish propagate the mollusks and the lack of mollusks indicates a lack of fish population diversity, or depleted unhealthy fish populations (Jorgenson and Sharp, 1971; Burch, 1973)

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72. The citations supporting information in the section entitled "Fish (Aquatic) Resources" can be found in "Aquatic Resources", Appendix F, pages F-8, F-9, F-50, and F-51. Published reports of other resource agencies provided the information presented in Appendix F. Since the water quality of the river has not worsened from the time of the last fish population survey, it is not likely fish population structure has changed. Significant adverse impacts to existing fisheries in the project area were not anticipated and therefore additional information entailing expensive fish population surveys was not warranted. The section entitled "Aquatic Resources" in Appendix F describes fish and invertebrate communities. Community structure mentioned in this section refers to the population assemblages of various aquatic organisms.

73. Several hundred bird species likely inhabit the study area as well as the entire region at one time or another. No threatened or endangered bird species are known to utilize the area. The rookery located near Rector Street was identified early in the study and proposed levee alignments were routed to avoid direct encroachment onto that rookery.

74. Documenting historical information on freshwater mussel assemblages in the Trinity River adjacent to the project area is not germane to a discussion of project impacts. A more effective indication of impacts was to examine the potential effects of the project on aquatic invertebrates presently known to inhabit the Trinity River. This information can be found Appendix F, Page F-9 of the DFE, GRR.

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75. Cultural Resources - the area of potential effect (APE) is considered the entire study area that includes Reaches 1-6, as defined previously and is too large for the Federal undertaking. At this level of analysis the APE should have also included Reaches 7 and 8 that include the entire Central Business District (CBD) of Dallas.as discussed in Chapter 4 of the GRR/EIS, but, discussion of Reaches 7 and 8 have been omitted throughout the first three chapters. The omission of Reaches 7 and 8 in the APE indicates that these reaches were probably added sometime in 1997 after the Cultural Resources contract in April. It seems that the Cultural Resources members of the CE study team were unaware of this inclusion, because they would have included Reaches 7 and 8 as part of the APE in the Cultural Resources contract. If these reaches were known at the time of the contract why were these reaches (7 and 8) not included as part of the APE?

76. Earlier literature searches revealed eight historic properties previously recorded within the detailed project area, seven prehistoric and one historic. The contracted report (Cliff et al., 1998) includes more recently reported historic properties within the detailed study area and also includes the historic Joppa community background, which was then, not part of earlier planned projects (ie. NED Plan). This chapter provides no summary of Appendix H, the Cultural Resources Appendix. Furthermore, Appendix H is a brief version of the contracted report (Cliff et al. 1998) that was contracted to Geo-Marine, Inc. (GMI) of Plano in 1997. The GMI report (1998) contracted by the CE provides a thorough literature search, field checking, some limited backhoe trenching, and electric conductivity logs from bore holes in an attempt to find paleosols that may have potential for buried prehistoric sites. From the report it

75. We agree that the area of potential effect (APE) was large and included areas where no identified impacts would be occurring. The large APE was necessary to understand the range and complexity of potential resources in the project area and to ascertain if project construction could have a broad negative effect on surrounding historic properties. The non-inclusion of reaches 7 and 8 as part of the APE was justified early in the planning process because no construction or other impacts have been identified in that portion of the Trinity River as part of this specific undertaking. Therefore the central business district area was not considered for an assessment of National Register of Historic Places (NRHP) eligible, or potentially eligible, properties.

76. & 77. The Commenter remarks that the discussion of potentially significant properties such as the Joppa community are not included in the National Economic Development (NED) section of the DEIS. Since there will be no impacts to any of the National Register of Historic Places (NRHP) eligible, or potentially eligible, properties identified as part of the Joppa community, and therefore no recognized economic impacts associated with these historic properties, there was no discussion.

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77. appears that prehistoric sites 41DL318, 319 and 357 are probably one site, and 41DL337, 338, 355 and 356 is probably one site. The historic dump site 41DL320 is within the access and easement zones of the Lamar Street levee toe and or a sump (see Appendix C).

78. The planned construction of the chain of wetlands with the levees is to enhance flood water conveyance through the DFE. The increased constriction of the DFE will also enhance the flow through the floodway, therefore, potentially increasing the erosion potential of the river downstream. The chain of wetlands is designed along the right bank of the Trinity river to convey flood waters. The prehistoric site 41DL350 (Cliff et al. 1998: Table 5, Figure 5) is exposed from erosion along the right bank of the Trinity river less than 1,000 ft. south, of the south end of the project. The increased flow capacity of the Trinity river through the DFE and the chain of wetlands will increase the erosion of this site. In a well designed APE, it is this type of site that will be directly impacted as a result of this project by the increased flow capacity and velocity of the river and therefore increasing the erosion capability of the Trinity river as well. The swale - Chain Of Wetlands (COW) alignment outlets water directly towards the site situated precariously on the exposed right bank of the existing river setting. Site 41DL350 was not evaluated (Cliff et al., 1998: Table 5) in the contracted report. This site should be included in this Federal undertaking and any further Cultural Resources work related to this EIS and the project. Therefore, it appears that four known historic property areas ([1] 41DL 320; [2] 41DL 337, 338, 355, 356; [3] 41DL318, 319, 357; [4] 41DL350) will be impacted by the project and shall receive further investigation in accord with the standards and guidelines set forth in 36 CFR Part 800 concerning any Federal undertaking.

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78. The U.S. Army Corps of Engineers is aware of the archeological site 41DL350 and its location outside of the project construction area. The archeological site is subject to erosion but not as a result of the actions associated with this project as a component of a Federal undertaking. The project as proposed is not expected to increase flow rates or velocity enough to cause erosion downstream of the project area.

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79. Furthermore, it appears that the northern three historic properties within the detailed project area may be buried 4 ft. or deeper, under modern alluvium and fill (Cliff et al., 1998: Table 5). However, it is curious, that in the four trenches excavated (Cliff et al., 1998: Appendix C, Trenches 4-7) in and around the 41DL337,338,355,356 site cluster, no artifacts were observed or reported, and an anomalous young ^{14}C date (A.D. 590-665) was obtained from probe DF-16 at 310-370 cm below the surface (Cliff et al., 1998: Table 15) in the same vicinity of the site cluster. This may indicate previous sediment disturbance, percolation of organic sludge from the CWWTP, chemical contamination, or various combinations of different factors. A strategy of backhoe trenching perpendicular to stream channels with detailed mapping down through the detailed project area using the depth of the swale as detailed in the hydraulic engineering maps (Appendix A) in order to detect if any undisturbed deposits exist might have been more productive. Furthermore,

80. the depth of the swale with it's chain of wetlands (GRR/EIS, Appendix A) at it's deepest excavated levels (non-landfill) is approximately 12 feet (3.4 meters), but the soil probes average depth (n=17) is 9 meters (30 feet), far exceeding the necessary testing depth. It seems that the government funds expended by the CE for the Cultural Resources work in the DFE probably cost the taxpayers $60,000 - $90,000 and very little information was gained from the government's approach.

81. It is possible that the alignment and depth of the chain of wetlands in the swale can be designed to avoid the known historic properties as described above, but, however, based on current information it is doubtful the impact the project will have on 41DL350 can be avoided. This historic property should be included in further Cultural Resources Section 106 compliance work and

79. The commenter notes that the preliminary exploration of four archeological sites (41DL337, 41DL338, 41DL355, and 41DL356) yielded little archeological information and a potentially misleading radiocarbon date. The U.S. Army Corps of Engineers believes these issues are being adequately addressed in the ongoing archeological testing of all of the four referenced sites as well as the three archeological sites (41DL318, 41DL319, and 41DL357) which were just completed. As the reports of these investigations are completed, the U.S. Army Corps of Engineers will make the determinations for any additional work required on these archeological properties depending on their National Register of Historic Places (NRHP) eligibility and our ability to provide appropriate avoidance or protection measures.

80. The U.S. Army Corps of Engineers disagrees with the comment that the geoarcheological research was excessive, cost inefficient, and that the U.S. Army Corps of Engineers is demonstrating a fiscal irresponsibility with taxpayer funds. The geologic soil probes were designed to contact potential alluvial surfaces which have been identified in the Upper Trinity River as representing potential former human occupation locations. Since the lower or oldest of these surfaces is generally identified as being found approximately five to eight meters (16 to 26 feet) below the present ground surfaces in the project area, it was only logical to extend the depth of the probe an additional meter so as to capture the entirety of the geologic sequence. While the extension of the geologic soil probes to depths below the planned impact zones may seem excessive, it provides important data regarding where these surfaces may appear during any potential project construction reaching those depths from this project or future projects. We are sure the commenter can agree that it is much more cost efficient to utilize soil probes extending to the depths completed than to attempt to excavate trenches utilizing heavy equipment to excavate to the depth of the project limits only (three to five meters (10 to 16 feet)).

81. See response to comment #78 on page N - 92 with regard to impacts on archeological site 41DL350.

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the Programmatic Agreement.

82. It also interesting that AR Consultants, Inc. was the contractor hired by the City to conduct Cultural Resources monitoring work for the Rochester Park Levee borrow area (Skinner, et al. 1990), and the CWWTP Levee (Skinner et al. 1991, Skinner and Whorton, 1995) borrow areas. No historic properties were recorded in the borrow areas indicating no buried cultural resources in the large amounts of acreage (>100 acres) disturbed by borrowing on both sides of the Trinity river. This is highly suspect along major river floodplains in the area and may reflect the level and diligence of the monitoring work that was done. However, the CE probably should have considered the lack of buried Cultural Resources in the floodplain from the above work before having the GMI trench the APE areas of the floodplain. Cultural Resources were only located in an outflow channel (Cell C area of COW, Appendix C) at the CWWTP (later improvement project, 1995), and the earlier recorded sites near and along the Rochester Park Levee (41DL69 and 70).

83. It is also curious that no further work was required by the City through consultation with the Texas Historical Commission (THC) based on the work by AR Consultants, Inc. at the CWWTP levee improvement work. This may indicate that the properties were considered ineligible for inclusion in the National Register of Historic Places (NRHP), or non-coordination by the City with the State, which would be in violation of the Texas Antiquities Code. Unfortunately, the THC response in the (Correspondence Appendix L) GRR/EIS does not make it clear if previous coordination with the City occurred regarding this work. However, if the City had coordinated with the THC previously, and the THC concurred that the clustered sites including 41DL318, 319, 357, and the other cluster 41DL337, 338, 355, 356 were ineligible, they

82. Commenter notes that the cultural resources work by a previous cultural resources firm in the project planning area was suspect and may have been inadequate. Commenter also notes that the U.S. Army Corps of Engineers should have considered this previous work and its findings before committing its contractor to completing additional work in the same vicinity. The comment is contradictory, however, the U.S. Army Corps of Engineers is satisfied that going forward with the subsequent work was in the best interests of all concerned parties.

83. The U.S. Army Corps of Engineers is unable to comment on any contractual agreement between the City of Dallas, its contractors, or their consultation efforts with the Texas Historical Commission, nor can we comment on the City of Dallas's fiscal responsibilities pertaining to the project. However, since the archeological sites of concern to the Commenter are being systematically tested for National Register of Historic Places (NRHP) eligibility by the U.S. Army Corps of Engineers in consultation with the Texas State Historic Preservation Officer (TXSHPO), we believe any concerns with the previous work should be addressed by the current efforts.

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would not require any further work by the Federal government at these historic properties. However, in the THC letter of October 1997 (Correspondence Appendix L) they claim further work (test excavations) is required at these properties (archeological sites) listed above to determine the NRHP status of these properties. It is clear that the City did not follow through with their agency coordination responsibility with the THC. Therefore, the costs of the surveys paid for by the City were a waste of taxpayer money, because the intent of the work, necessary by law under State and Federal law (Regulatory Permit), never resolved any compliance issues for the City. Had the THC considered the sites potentially eligible, or eligible for inclusion in the NRHP at the time, it would have been incumbent upon the City to pay for the additional costly work of test excavations to determine eligibility or mitigating the properties if eligible for inclusion in the NRHP.

84. Additionally, it is also curious the lack of involvement by the Fort Worth District CE in the permit process for these actions by the City, which would have required a Federal Permit and response coordination letters between the THC and the CE. This probably needs further investigation. Now, it is up to the Federal government to do the work, while very little useful information has come out of the work so far paid for by the taxpayers. TCONR would like to be

85. involved as an interested party in the Programmatic Agreement that will be developed concerning Cultural Resources during this undertaking. Please mail correspondences and reports for review to TCONR, 4144 Cochran Chapel Road, Dallas, Texas 75209.

86. Finally, three potentially historic railroad (RR) bridges and one historic pump station (to be determined) were not included in the Cultural Resources report on the DFE. The RR bridges (photographs 1-3) should be included in the

84. The outfall at the CWWTP was permitted and consultation completed with the Texas State Historic Preservation Officer (TXSHPO). The recorded archeological sites were noted to have potentially intact portions but not in the areas of planned impact. The project was monitored and no disturbances to intact archeological sites noted. The request by Trinity Council on Natural Resources (TCONR) to be involved as an interested party for the Programmatic Agreement (PA) was received too late to include them in the PA consultation. However, we will attempt to extend every courtesy and accommodation to TCONR with regard to specific areas of concern regarding the management and treatment of historic properties potentially impacted by our project actions.

85. TCONR is included in the Project mailing list.

86. The U.S. Army Corps of Engineers notes that the three railroad bridges referenced by the Commenter were not directly addressed as part of the cultural resources report prepared by Cliff et al. (1998). The bridges were provided structure numbers (B-269 - the Santa Fe bridge, B-726 - the Missouri, Kansas and Texas bridge, and B-412 - the Southern Pacific bridge), but were only provided with a preliminary assessment that each bridge required further assessment to determine potential eligibility to the National Register of Historic Places and more information regarding the actual project impacts to these resources. The U.S. Army Corps of Engineers has revisited the bridges and is coordinating the results with the Texas State Historic Preservation Officer (TXSHPO). The sewage lift pump building identified by the Commenter was omitted from the cultural resources report (Cliff et al. 1998) because it did not appear on any maps as an extant structure. We apologize for the omission. The structure is now being recorded and assessed by staff from the U.S. Army Corps of Engineers and the results will be coordinated with the TXSHPO.

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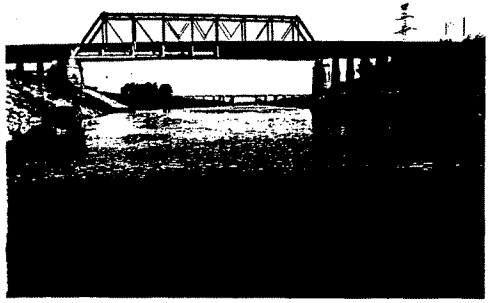
Cultural Resources section of the GRR/EIS and were omitted. The northern bridge (Photograph 1) on the edge of the project area represents an old (cf.) Pratt Through-Truss type railroad bridge (Comp and Jackson, 1977) previously used by the AT&SF RR (MAPSCO, 1992: 45) and has been abandoned alongside the DART rail bridge. There has been discussion of incorporating this bridge



Photograph 1. Old AT&SF RR bridge that compares favorably to an historic Pratt Through-Truss RR bridge across the Trinity. View to north, DART rail bridge behind AT&SF bridge at the northern end of the DFE project. The Works Project Administration (WPA) Corinth Street bridge (potentially historic) in the distance at the northern end of the project area or southern end of the Dallas Floodway Luna road levee project. Also notice the river channel has been widened recently by the City (last two years) and the lack of vegetation which will be characteristic scenery along the river after the Dallas Floodway and Luna road levee project is constructed (compare to Photograph 2 and 3 below). The latter flood project was also passed in the bond issue 2 May 1998. The Corinth street bridge can be considered in the southern end of the latter project. As can be seen in this photograph the DFE begins at the railroad bridge, the Dallas Floodway Luna road Levee project ends at the RR bridge and the proposed toll road passes through both boundaries. All three projects are inter-connected and an EIS should address all three projects (see map). Taken 6/13/98, 7:45 AM

87.

87. The two federal flood damage reduction studies are linked from a hydrology and hydraulics sense. The two projects however have separate authorization and each project stands on its own merits. The ongoing studies being conducted on the Dallas Floodway and the Floodway Extension use a common data base for hydrology and models developed for the Upper Trinity River Feasibility Study. The Dallas Floodway modifications being investigated would be evaluated and presented to the public through its own NEPA documentation. The various road proposals are being presented by a different agency than the Corps. Some of the proposed alignments are being considered that would include use of existing levees and the Lamar Street Levee if it is constructed. The Corps of Engineers would be strongly involved in criteria development that might result in a favorable decision to allow TXDOT to use the levees, however, the ultimate decision on the alignment will not be made by the Corps of Engineers. The Corps can say no to the proposal to use the levees, but the Corps can not make the ultimate decision to use the levee alignment as it resides with TXDOT. Further TXDOT has already stated publicly in their MIS report, that an EIS would be performed by them if the decision to utilize the levees goes forward.

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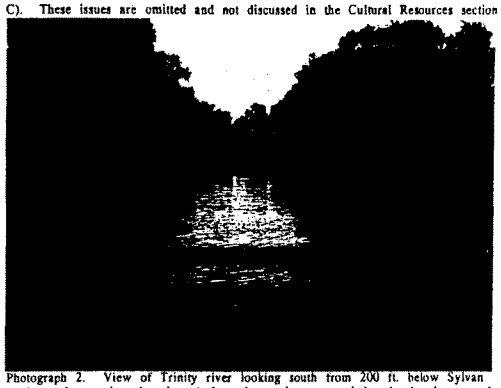
88. into the developing trail Master Plan in the area by various agencies (GRR/EIS, Figure 4, Appendix I). It is not clear in Appendix I if this bridge is incorporated into the proposed trail system. However, any Federal

89. undertaking altering this bridge and abutments will require Historic Architectural Engineering Record (HAER) documentation, minimally Level 4 recordation and coordination with the Texas Historical Commission (THC). This may also include abutment work for any of the other historic RR bridges downstream where levee work, sumps, sluice gates, and easements are involved up to the railroad grade in and around the RR bridges (see Appendix C). These issues are omitted and not discussed in the Cultural Resources section



Photograph 2. View of Trinity river looking south from 200 ft. below Sylvan road to characterize the river before the projects passed by the bond proposal and for comparison to the stark contrast of channelization and deforestation of bottomland hard woods shown in Photograph 1 above. At present cottonwoods, elms, and willows line the narrow river channel creating habitat for waterbirds such as herons and egrets wading along the shore while other birds such as killdeer, blackbirds, grackles, cardinals, to name a few make use of the same habitat. Taken 6/13/98 7:30 AM.

88. The bridge is not proposed to be included in the project recreation plan.

89. The Commenter suggests that a Historic American Engineering Record (HAER) Level IV recordation is minimally required for the three railroad bridges. While the U.S. Army Corps of Engineers appreciates the Commenter's recommendation of a level of recordation as mitigation for impacts, the decision on an appropriate level of recordation, if required, would be the subject of consultation between our offices, the Texas State Historic Preservation Officer (TXSHPO), the Advisory Council on Historic Preservation (ACHP), and the appropriate interested parties.

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Photograph 3. View to the south on the Trinity river above Corinth street bridge. Recent (last three years) widening of the Trinity river channel by the City permitted by the Fort Worth CE Regulatory Section to approximately 200 ft. bottom width. Notice the levee to the left, shallow water with a gravel bar on the left, and bedrock exposed on the right with no vegetation. Compare this Photograph with Photograph 2 above. This Photograph provides a characteristic view of the future Trinity river environmentally sterile scenery and waterway after construction of the Dallas Floodway Luna Road Levee project that was passed in the bond election. Taken 6/13/98 8:00 AM.

of the GRR/EIS.

The small western tributary Cedar creek flows into the Trinity just above the MLK bridge (Photograph 4) along the right bank. This small tributary is very shallow flowing over bedrock and choked with woody vegetation and dead tree debris. Approximately 100 ft. up the creek it turns left (south) and a large beaver den was observed on the right bank. At the time of the survey a Grahams Water Snake was also occupying the beaver den (Photograph 5). Bottomland hardwood forests contribute dead wood for

90. habitats and ground cover for many other types of animals not considered or

90. The Habitat Evaluation Procedures developed by the U.S. Fish and Wildlife Service were utilized. These procedures utilize models for species of fish and wildlife that inhabit the area and are representative of the vegetative cover types being studied and therefore the impacts or benefits of a proposed action would be representative of a wide diversity of wildlife species that utilize that vegetative cover type.

Photograph 4. View to the west of confluence of Cedar creek along the right bank of the Trinity river above the MLK bridge. The channel is very shallow and almost represents a perched stream bed above the current Trinity river channel that has incised a deeper channel. Taken 6/13/98 8:30 AM

Photograph 5. View of Grahams Water Snake among fallen tree debris piled at beaver den excavated into the banks of Cedar creek near the confluence with the Trinity river. Taken 6/13/98 8:30 AM.

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discussed in Appendices F and G (Environmental, USFWS). No levee is planned

91. for Cedar creek. However, the flooding possibilities for Cedar creek and the residents of Moore park (MAPSCO, 1992: 55) is not discussed in the GRR/EIS. No elevations or topographic maps are provided to indicate SPF or 100 year flood levels in this area or the entire DFE DPA area.

92. The second historic RR bridge (Photograph 6) compares favorably to a Parker Through-Truss with polygonal top-chord for strength south of the mouth of Cedar creek, south of MLK bridge, and north of I-45 bridge, used by UP RR (MAPSCO, 1992: 56).

Photograph 6. View to the south of the second historic RR bridge cf. Parker Through-Truss with polygonal chords spanning the Trinity river located between MLK and I-45 bridges, runs parallel to Sargent road and turns east across the river. Also notice the narrow channel of the Trinity river with bottomland hardwood forests along the river.

Across and downstream from Cedar creek on the left bank of the Trinity river the historic City Dump site of 41DL320 (Photograph 7) is located on the

91. See response to comment #3 on page N -30. Floodplain area maps are provided in Appendix A on Plates A-39 through A-42. Water surface elevations are provided on Plates A-25 through A-38.

92. See response to comment #86 on page N - 95 regarding the assessments of the railroad bridges. The referenced archeological site (41DL320), a City of Dallas refuse area, is currently being assessed by the U.S. Army Corps of Engineers to determine the extent, if any, of the project's potential impact on the site.

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banks and extends eastward into sump, easement and levee footprint project areas (U.S. Army Corps of Engineers, 1992, Cliff and others, 1998). This historic

93. property will need further evaluation and coordination with the THC before the project proceeds.

Photograph 7. Historic Dallas Dump (site designation 41DL320) from the early 1900's to 1940. This dump supposedly existed when area was booming with the beginning of the Proctor and Gamble factory (1920) for cottonseed oil production and owned hundreds of bottomland acreage, the beginning of the CWWTP (1912), and Miller's crossing was operational and represented the only bridge spanning the Trinity in south Dallas at the oxbow downstream. Prominent affluent Dallas citizens such as Kahn, Sigel, Sanger, and Marcus lived in grand houses of Prairie, Progressive and Craftsmen architectural styles designed by the architect H. A. Overbeck in the Edgemont community lined what is today MLK, and some are preserved in the second oldest NRHP District in Dallas located at South Boulevard and Park Row. Many of the people are buried at the Oakland cemetery that lived in this area at the time and the grand Art Deco buildings were built in Fair Park by 1936 for the Texas Centennial (Holmes and Gerald, 1992). This dump was active during this time and potentially holds many artifacts from this active period of Dallas history. Taken 6/13/98 8:40 AM. View to the northeast from up a channelized outlet to Trinity river of 15 ft. of eroding deposit. From the Lamar side the dump has been repeatedly looted over the years as it remains unprotected by the City.

93. See response to comment #86 on page N - 95 regarding the assessments of the railroad bridges. The referenced archeological site (41DL320), a City of Dallas refuse area, is currently being assessed by the U.S. Army Corps of Engineers to determine the extent, if any, of the project's potential impact on the site.

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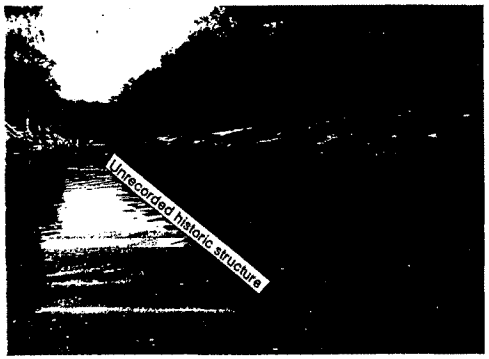
94. Descending the bottomland hardwood forest covered floodplain and river banks (Photograph 8) another historic structure (Photograph 9) that compares favorably to a pump station was observed on the left bank of the river. This potentially historic structure was not recorded in any previous surveys and exists in the vicinity of Sump 3, and north of the I-45 new channel and bridge. This site may also be impacted by the relocation of pipelines, utility lines, and easements and lies across from the CWWTP. This potentially historic site needs to be assessed and included in the Cultural Resources part of the EIS.



Photograph 8. View to north up the river of bottomland hardwood forest covering the Trinity river floodplain and banks. Limestone bedrock and shale with a seep exposed along the left bank (right in photograph). Opening along left bank in distance location of the unrecorded historic structure described above. Compare the forested river in this photograph to Photograph 3 above without the forest. Taken 6/13/98 9:45 AM.

Descending the river from the historic structure described above the

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94. See response to comment #86 on page N - 95 regarding the assessments of this structure.

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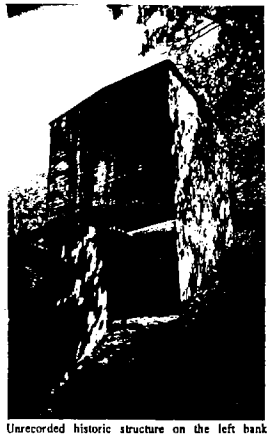

Photograph 9. Unrecorded historic structure on the left bank of the river. Taken 6/13/98 9:45 AM.

river channel straightens and passes under the I-45 bridge at an acute angle (Photograph 10). This is the part of the river channel that will be filled in and a new channel excavated to the west. The channelized redirection of the river is to guide the river under the I-45 bridge where the bridge concrete supports were engineered to structurally withstand high river flows. Even though the river has always flowed in it's present path (historic river maps), it seems the Federal highway bridge (built by TXDOT) when built (1970's) limited the number of more structurally sound supports across the river or put them in the wrong place. Presently, it was observed (6/13/98) that the upriver side of the existing concrete pillar sets (northernmost of six pillars in a row), of which there are three, one set in the middle of the existing channel were

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Photograph 10. View to the south down the Trinity river channel that will be filled in through the I-45 bridge. Taken 6/13/98 10:00 AM. a new channel created westward at an unknown distance because of inconsistencies in the report describing the distance anywhere from 150 to 300 ft.

nicked and worn smooth by passing river flows. The northern most pillar of the set of pillars in the middle of the river was the most damaged. The attrition damage was mostly within five feet above the present pool level of the river. This indicates that the continuous flow of the sediment laden Trinity river below river pool elevations of 385 ft asl or lower is causing most of the damage to the existing pillars. The continuous minimal flow of 700-800 cfs (at low flow times during the present drought) and other flow regimes are controlled by the CE outlet of waters from the reservoirs higher up in the basin. The continuous flow with high sediment content can act as a constant wet abrasive against the coarse cement pillars, wearing them away after repeated years of

95. constant abrasion. Periodic high flood flows with large debris may not have the effect implied in this GRR/EIS. The CE may inadvertently be creating the structural problem with their controlled outflow from reservoirs and the structural damage may not be due to floods as implied in this report. Other alternatives beside channelization and armoring need to be explored but were not considered in this GRR/EIS. Armoring was considered more expensive than the channeling which was not detailed or explained.

96. The present plan to fill in the river channel and move it west does not fix the bridge supports if they are already weakened to the point there is a structural safety problem for the bridge as implied in the GRR/EIS. Therefore, if a safety structural problem exists this needs further discussion in the report and statements from TXDOT incorporated into the report. Moving the channel to the west will prevent any further wearing away of the northern pillar of the middle set of pillars but will not strengthen weakened pillars.

South of the new channelized area the Trinity river creates a large westward oxbow that cuts westward almost to the I-45 bridge (MAPSCO, 1992: 56). On the outermost curve of the oxbow the CWWTP outflow into the Trinity river occurs (Photograph 11). The highly chlorinated discharge waters are fished by people from the area to supplement their diet. These waters do not meet the TNRCC standards for fecal coliform 64 percent of the time (8 months out of the year). These same waters are going to be pumped through over three miles of swales (Chain Of Wetlands,[COW]).

Within this oxbow four Cultural Resources sites (41DL317, 318, 319, 357) have been recorded that include the historic bridge site of Miller's Ferry and later Miller's bridge. The Miller's Ferry bridge site 41DL317 (Photograph 12) is considered ineligible for inclusion in the NRHP according to the THC

95. The US Army Corps of Engineers' operational scheme at the major flood control dams is to attempt to fully prevent exceedence of the assigned targets at each of several gaging points in the Metroplex area. However, during severe events, stages in the major flood control reservoirs can rise to the point that fully uncontrolled releases escape over the emergency spillways at each project. Such instances have been fairly rare.

96. As stated in the discussion of the river realignment at IH-45, beginning on page 4-69 of the Draft GRR/EIS, a fracture in one of the bridge columns supporting the section spanning the river was caused by massive accumulations of driftwood in this narrow span following a 1984 flood event. The purpose of the river realignment would be to reduce the risk of damage to, or catastrophic failure of, the bridge columns and reduce or eliminate the cost of continual maintenance to remove the debris and periodically repair the structure. The referenced archeological site (41DL317) consists of the former Miller's Ferry Bridge site only. No identification of the actual location of the Miller's Ferry has been found. The location of the road with the same name as the original ferry crossing do not necessarily correspond. Therefore, the assessment of the Miller's Ferry Bridge site (41DL317) as an ineligible site is correct. However, and as always in these types of ambiguous historic archeological locations, the U.S. Army Corps of Engineers will treat the area according to the applicable section of 36 CFR § 800.11 regarding discoveries of unexpected historic properties.

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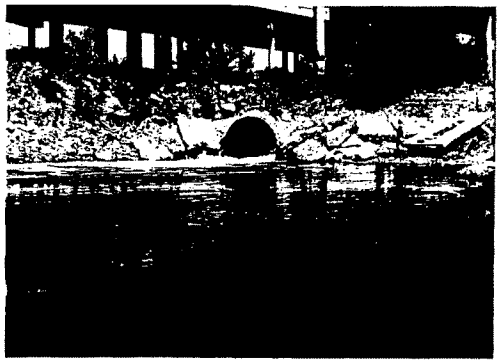

Photograph 11. Outflow of CWWTP treated sewage water on the outer bend of the oxbow near the I-45 bridge. Notice individual fishing the treated sewage waters. Observed 6/13/98, 11:00 AM, the smell of chlorine from the treated waters filled the air, the chlorine content of the treated water is never discussed, nor the water quality of the treated waters.

97. (Appendix L) due to disturbance, however only the bridge is considered and

98. not the site itself which has almost a one hundred year history and never has been investigated. If this project impacts an historic site along the oxbow the ineligible assessment should be reconsidered. Some of the steel pilings of the bridge still remain on the right bank of the river. These pilings have been distributed downstream of the site and should not be taken as representative of the sites' location. The historic crossing site operated as a ferry across the river for almost 50 years before the bridge was ever built.

99. The last of the historic RR bridges (Photograph 13) omitted from the report is located downstream from the oxbow and Hwy. 310

97. Chlorine is used as part of the disinfection process at the Central Waste Water Treatment Plant; however, the effluent is dechlorinated prior to leaving the facility. Plant officials indicate no problems related to chlorine use occurred on June 13, 1998, indicating that any chlorine odor that might have been detected should not have been from the treated effluent.

98. See response to comment #96 on page N - 105.

99. See response to comment # 86 on page N - 95.

Photograph 12. View to south on the outer curve of the oxbow just downstream from the CWWTP outflow with some of the Miller's bridge steel pilings lying on the right bank of the river. Taken 6/13/98 11:15 AM.

(old Lamar St. or the newly titled S. M. Wright Frwy. bridge) bridge on the north end of a large eastern meander bend in the river north of the Linfield Landfill (LL). This bridge and it's abutments are hidden in the heavy bottomland hardwood forest (bhf) canopy surrounding the railroad tracks where COW Cells E and F are split by the railroad line. The previous photographs provide a glimpse of the bhf along the Trinity river and some of the Cultural Resources omissions in the GRR/EIS.

100. Page 2-12, Hazardous, Toxic and Radiological Waste (HTRW). Albert Halff Associates, Inc. mentioned for assessing HTRW in project area, but no details of analyses, literature referenced, or agency named, that was sponsoring the assessment. The HTRW work should be summarized here from data presented in Appendix J supporting any HTRW statements. None of the data in Appendix

100. See response to comment #3 on page N - 14.

Photograph 13. The third historic railroad bridge across the Trinity compares favorably to a Warren Through-Truss (Comp and Jackson, 1977) used by SP RR (MAPSCO, 1992; 56). View to south of bottomland hardwood forests along the river, taken 6/13/98 11:30 AM.

J is summarized here. The data compiled in the so called "follow up studies" (after the Halff study) should be summarized, referenced, and presented here as well. This is unacceptable. Previously, in the Syllabus section of the

101. GRR/EIS, the CE claims it is up to the City of Dallas to clean up whatever HTRW related sites it created, such as the Linfield Landfill. However, it is up to the owners, past and present to clean up the heavy metals, PCB's and any other created by them while they owned the property and as a result of their industry (ie. Grace Metals site area 6 and lead smeltering areas 8 and 9 for example in Appendix J). Just as in the west Dallas lead smelter it was up to the various owners to pay for the clean up of the site, in the end not the City. As presented and admitted in Appendix J the HTRW work is incomplete and

101. From a Federal perspective, the land on which a Federal project is constructed must be free of hazardous and toxic waste prior to construction. During the land acquisition process, which is a non-Federal responsibility, the local sponsor may make whatever provisions, with the current owner, deemed necessary for the clean up of the HTRW material.

102. further work is scheduled making this GRR/EIS incomplete and not finished. The HTRW work presented in this GRR/EIS is locational and descriptive without sufficient sampling data to assess the total HTRW problems within the DFE. None of the HTRW work has been incorporated into the text of this EIS. There is no discussion of how the contaminated excavated 1.9 million cubic yards of dirt will be separated from the uncontaminated excavated 1.3 million cubic yards of excavated dirt that will be needed to build the two levees for the LPP. Most of the swale alignment has not been sampled for HTRW (Figure 1, Appendix J).

103. Socioeconomic Conditions (page 2-23), is too general and has no application specifically to the DFE project. What are the socio-economic conditions in the study area and the detailed project area? What will be the

104. impact of the project on the communities in the DFE in regards to Environmental Justice and Minority Populations E.O. 12250, 12898? What are the quality of life issues raised by this project. What are the quality of life issues related to other alternatives such as a buy-out? Does the quality of life improve when homes and businesses are stuck behind a levee? Should the

105. project go through and the levees built, where will the borrows be placed to repair the inevitable levee repair problems? Most repairs made by borrowing soil near the break on the river side, but also occur on the non-river side creating semi-annual bug and mosquito infested pools of water often filled with trash (for example the trash along Industrial Avenue and the west Dallas levees non-river side). Where will the borrow pits for repairs on the new levees be located? Perhaps in the Trinity river floodway disrupting more of the environment? In the environmental section above, the trees were considered as an inhibitor to air flow, but describing businesses behind the

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102. See response to comment #3 on page N - 14.

103. The information as presented is to the level of detail needed for the project.

104. See response to comment # 142 on page N - 55.

105. Suitable material for any required repair would have to come from an approved source.

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106. north - south oriented Lamar Street levee as having better air flow is ludicrous. The air flow for residents in Cadillac Heights encircled on the west by high topography and enclosed by a levee will receive less air flow. So, the

107. residents of Cadillac Heights and the businesses along Lamar Street will have approximately >20 ft. levees (above present surface) constructed from excavated buried soils along the right bank of the river that are potentially contaminated (heavy metals, PCB's, old treated waste before new CWWTP) from past industrial and waste use, that will be re-exposed along the right bank of the river, placed around the people of Cadillac Heights and along Lamar street as well as impeding the flow of air. The health risks that have to be considered

108. by Executive Order (E.O.) 12250 and 12898 have not been mentioned as yet. The GRR/EIS does not address the potential health risks from HTRW brought out in Appendix J in relation to Executive Order (E.O.) 12250, 12878, and 12898, and the corresponding supplements. Four short paragraphs at the end of Chapter 6 on E.O. 12878 is insufficient for the identified HTRW contaminants and their potential for multiple health related issues created by this project, as well as the the swale that will be filled with sewage water from the CWWTP that does not meet TNRCC standards for fecal coliform 67 percent of the time.

109. Page 2-23, the Recreational Resources on maps mostly not related to project specifically and more a presentation of a grand plan in which the Federal government is not really a part of this grand plan, and as stated in the syllabus not decided as part of the FSP or LPP.

110. Page 2-24, GRR/EIS states, "6,000 acres of parks, open spaces and natural areas exist in 80 mi^2 section of county that includes the study area is inaccurate. Previously, in the environmental write up 6,000 acres already

111. exists in the study area alone. Table 2-5 does not include Dallas County Parks

106. The Draft GRR/EIS neither states nor implies that the businesses behind the Lamar Levee have better air flow than businesses, or residences, in any other area. The only discussion of air flow in the chapter to which the comment is referring is located in the last paragraph on page 2-12, in which the effect of trees on air quality, and air flow, in a local climate is discussed in general terms.

107. See response to comment #3 on page N - 14. Hazardous and toxic waste will not be used in the construction of levees but will be disposed of in accordance with all applicable laws and regulations if required.

108. The proposed project would result in a cleanup of contaminants along the foot print of project features and therefore would not induce the health risks alleged. Flood protecting the area would not force individuals to stay in the area either. The risks to health and safety from flooding are greater than the risks to health and safety that would exist after ongoing cleanups by others continues, the cleanups associated with the project features and the reduction to safety resulting from the flood protection.

109. See response to comment #50 on page N - 39.

110. See response to comment #50 on page N - 39.

111. The recreation analysis used a larger baseline study area to determine availability of recreation resources and determination of recreational needs.

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and Open Spaces areas. Throughout Appendix I parks or natural areas are

112. shown but many of the areas depicted have no access or limited access in Figure 2, Appendix I. The areas depicted are not posted as parks or nature preserves and entry ways for public access is non-existent. For example, Table 2, lists 122 "facilities," but only 29 are shown in Figure 2. Where are the rest of the "facilities?" Questionnaire survey at eight recreation facilities

113. returned an average of 16 respondents per facility in the study area and is totally an inaccurate statistical representation of the population in the study area or the greater population of Dallas that may use the area for recreation.

114. Three more common recreational uses not listed in Table 5 (Appendix I) include: canoeing, nature trails, and education is not even considered for Dallas ISD. This area could be an outdoor classroom for the children of the DISD because it is large enough to capture many of the natural variability in the region[1] to provide a wide perspective for children on the environment in Dallas as well as surrounding communities. In the informal survey walking was rated as the highest activity. The list does not really consider all of the potential outdoor recreation that could be conducted in a wooded parkland such as the study area, because the writers are of a mind set only to consider normative parks at lakes in the CE district that they manage.

115. Figure 5 cost sharing portion of recreation plan not labeled. The three costs analyses provided at the end of Appendix I is for 20 mile trail, however, Figure 4 is full of other amenities that look good but that are not part of the FSP or the LPP. Recreation map with only the FSP and LPP funded recreation is needed. If funded (approximately $4 million proposed) the recreation association with the FSP is ony 20 miles of 10 ft. wide trails and that is all.

According to the GRR/EIS Trinity River State Park (TRSP) - authorized

112. Figure 2 was not intended to be all inclusive. Facilities are located within the boundaries of the large study area but not all were mapped. Recreational demand analysis has to include the larger area but recreational features that could be provided with this proposed project must be limited to the immediate project area.

113. Other information was used in the study as well. The Halff master plan recommends educational uses that are beyond the scope of federal participation. The proposed plan has recreational and nature trails that are compatible with the Halff master plan including nature studies.

114.The proposed recreation plan differs substantially from those normally provided at Corps of Engineers lakes. For example, lake recreational areas typically provide camping, which has not been proposed for the Dallas Floodway Extension project. Basically what has been proposed is a recreational trail system that is minimally intrusive to environmental resources and other compatible uses.

115. Figure 5 has been revised per Corps Headquarters to remove the area just southwest of Hwy. 175 and the Lemmon Lake area from the shaded portion which contains cost shareable recreation features. Subsequent reductions have been made to the length of cost shareable hike/bike trails and to the length of the cost shareable equestrian trails. In addition, the number of cost shareable access points have been reduced to six. A Value Engineering study will be completed during the next phase of detailed design to determine the optimum recreation plan which can be implemented.

116. but not funded since 1983. No property has been acquired and in reality park will probably never exist under present situation. At present TRSP a moot point because Texas Park and Wildlife Department (TPWD) has not acquired any land and does not have funds to do so.

117. The Land Use section (page 2-27) is explained in four written lines and is not meaningful as written, expand on, or delete.

118. The Transportation section (page 2-27) should address transportation in the study area and the detailed project, instead of listing all the major Interstate highways in the City. How will the levees effect traffic in the detailed study area and citizens access to shopping, and other necessary necessities?

119. Lands In Public Ownership (page 2-28) does not provide a map with the City of Dallas only lands as described.

120. Landfills (page 2-28) GRR/EIS does not provide a detailed map of landfills. The way the GRR/EIS is written, this paragraph agrees with the fact that landfills, especially Linfield Landfill creates a significant impediment in the floodplain as stated above, which hinders conveyance, but ignores any remedies and contributes to more landfilling of the Trinity river floodplain adding landfill to the Sleepy Hollow Golf Course (34 acres) and 1,000+ acres to the southeast at I-45, Post Oak and Wintergreen roads (Appendix F)..

Chapter 3 Identification of Problems and Needs

In this section the study is broken into 8 Reaches for hydraulic purposes. Total annual flood losses in study area estimated at $20.8 million using 1993 prices at 8%. Hydrology and Hydraulic (H/H) models based on

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116. The Trinity River State Park has not been deauthorized by the State and therefore it is important to recognize the importance of that potential.

117. Land use description has been revised in report.

118. See response to comment #50 on page N - 39.

119. Most of the sites referenced are well known and marked on maps published for commercial distribution. In addition, most of these sites are identified on Appendix page I-21, Figure 4.

120. The Draft GRR/EIS does not recommend adding a landfill at the Sleepy Hollow Golf Course. Locations of landfills within the project area are identified on several maps in the report. The costs associated with removing existing landfills would be significantly higher than the costs of the recommended plans and other alternatives discussed. The Draft GRR/EIS recommends adding a small amount of fill at the borrow site from which approximately 6 feet of overburden was probably removed during the operation of the Linfield Landfill. The material that would be used on this site would be clean of contaminants and would be replanted with trees as part of the bottomland hardwood mitigation.

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aerials flown in 1991 with an estimated accuracy of 0.5 ft. Some impediment factors influencing H/H conditions in HEC 2 model include Southside Sewage Treatment Plant Levee, McCommas Bluff Landfill and Swale, Rochester Park Levee, CWWTP Levee, DART OC-2 Rail Line Bridge, Dixie Metals Company Landfill, Linfield Landfill (contamination not mentioned and it is contaminated), Dallas Floodway Channel and Levee modification, and various small permitted (and illegal) fill areas along Lamar Street, although not mentioned, as well are landfills behind CWWTP by DART, additional landfills in

121. the Linfield Landfill vicinity, up the White Rock drainage to list a few, as well as those described in Appendix J. Other impediments such as raised railroad beds, raised roadbeds, narrow bridge openings or lack of openings in roadways to convey water not mentioned.

122. Passage of the WRDA of 1996, Section 351, enabled the City to use Rochester Park and CWWTP Levees as credit for Federal involvement. Something in this Act also made it possible for the CE to invoke Reaches 7 and 8 in the CBD so that this project would be ecomically feasible. What in the ACT made this possible? Provide Section 351 of WRDA as an Appendix, so that the public can read contents of the Act and explain why invoking the Act made it possible for this project to go forward.

123. Economics section claims 2,550 structures within SPF limits at a value of $841 million, or on average $329,804 per structure at January 1997 prices. Of these 2,275 are family housing made up of 95% single family dwellings. Table 3-4 (page 3-9) revised damages from HEC-FDA (define and spell out FDA) at $19.8 million. Last paragraph refers to Table 3-6 and SPF damages at $6.5 million in primary study area and $13 million in the secondary study area.

121. See response to comment #61 on page N - 41. All highway and railroad bridges and embankments were modeled per the 1991 topography and as-built bridge plans as discussed in Appendix A. Some bridges were analyzed for bridge improvements but none were found to be economically feasible.

122. Section 351 of WRDA 1996 is provided on page 3-10 of the Draft GRR/EIS. The passage of this Act had no influence on the inclusion of Reaches 7 and 8 in the economic evaluation of the project. As stated in the first paragraph on page 3-4, "...preliminary analysis revealed significant hydraulic correlations between the extension area and the leveed area upstream. Consequently, about eight miles of the existing Dallas Floodway was included in the study area."

123. The HEC-FDA acronym is defined in the first paragraph of the "Economics" section on page 3-9, as "Hydrologic Engineering Center-Flood Damage Assessment". A review of the outline of this chapter, as seen in the Table of Contents, and the "General" section on page 3-2, reveals that the "EXISTING CONDITIONS ANALYSES" was broken into three chronological phases. Table 3-4 presents the existing conditions expected average annual damages, as computed in the 1994-1996 investigative period, at October 1995 price levels. Table 3-6 presents revised expected average annual damages computed following passage of WRDA 1996, at January 1997 price levels. The confusion over $19.6 million versus $19.5 million in annual damages stems from a typographical error in the last paragraph on page 3-10. Expected annual damages for the secondary study area is stated to be $13.0 million, instead of $13.1 million as shown in Table 3-6. This error has been corrected.

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The combined annual damages are claimed to exceed $19.6 million. If one adds the primary and secondary damages as described they come to $19.5 million and in Table 3-4 $0.3 million under the total expected damages.

124. Reaches 7 and 8 include areas of CBD in Dallas above the DFE detailed study area. CE expanded area northward to incorporate more structures and property value in order to make project economically feasible (pages 3-4 to 3-7). In previous plans CBD was not included. Reach 7 east levee of the Dallas Floodway includes the Central Business District (CBD) with 2,885 structures at $4.8 billion (Dallas is pretty cheap). Reach 8 west levee of Dallas Floodway levee system includes 6,900 residential structures, and 800 other structures totalling 7,700 structures and is even cheaper valued at $934 million. Therefore, a total of approximately $5.75 billion is assumed under these two Reaches in this study and it is implied in the GRR/EIS the project will add a level of SPF protection if completed. It is difficult from the documentation in this report to understand if flooding problems in the DFE effect the CBD? Why wasn't the CBD areas effected by floodwaters included in Tables 3-5 and 3-6?

125. Identification of recreation needs - none proposed or funds definitely alotted to project as stated earlier in report. Most facilities are undeveloped, in planning stages, or inaccessible. Four of the top nine "most popular" recreation activities include freshwater boating, fishing, swimming, pool swimming which are not really practical in project area due to poor water conditions, snags and vegatation obstructions. Recreation list should be applicable to fit the nature of the area and recreational items such as salt water boating should be omitted. One problem for recreationist unique to this situation is the uniqueness of the river setting in such a major urban setting if left alone and the creativity it will take to develop recreation suited for such

124. As stated in the first paragraph on page 3-4, "...preliminary analysis revealed significant hydraulic correlations between the extension area and the leveed area upstream. Consequently, about eight miles of the existing Dallas Floodway was included in the study area." The structures in Reaches 7 and 8 are included in Tables 3-5 and 3-6.

125. Identification of recreational needs is one step in the planning process . We would be remiss not to include the recreational demands identified by the State Texas Outdoor recreation Plan. The recreation plan proposed is compatible with the uses you have identiifed.

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a situation which does not fit the categories provided in the tables presented. For example, no nature or natural hiking is included, nature and wildlife education is not provided. This area is an outdoor classroom on nature for this area and school children in the DISD and surrounding areas should be introduced to the many natural and human urban problems and solutions this area has to offer. Teachers in the DISD or those that are responsible for the curriculum in the DISD should incorporate this area into the classroom curriculum. This area can be as educational or more so than the Dallas Zoo, Dallas Museum of Natural History and any of the other classroom outings DISD students are exposed to throughout their education. Because, in addition to the river, nature, plants, animals, there are other aspects such as cultural history through time, urban sociology and the use of rivers, and many other educational items that could be taught. If the DISD can contract for a curriculum to be written on the Freedman Cemetery along Central Expressway and Lemmon to be incorporated in the classroom teachings they can certainly incorporate the animals, plants, aquatic life, cultural history (eg. the Joppa community), civics, sociology, and urban planning curriculum involved with just a river through a city.

126. If the area was opened up for conveyance of floodwaters instead of constriction of floodwaters by swales, levees, landfills, raised roadbeds, and proposed tollroads flooding would be less of a problem. If the parks were

127. developed for access in the areas designated as park land and open space and not reduced as stated in the last paragraph page 3-13, this area would become highly attractive to the citizens of Dallas.

The intent of this paragraph does not appear to be in earnest with the rest of the plan. The last sentence attempts to define and list facilities that

126. See response to comment #49 on page N - 83.

127. Chapter 3 of the Draft GRR/EIS is intended to identify the problems and needs of the area. The last paragraph on page 3-13 expresses the fact that, "...In recent years, park land and open space have become increasingly scarce as available sites have been reduced." The recreation plan, as proposed in the document, would be consistent with locally adopted recommendations for long range development of a "Great Trinity Forest Park" within the Floodway Extension area, as described beginning on page 6-7, and in Appendix I.

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128. need upgrading and renovation (page 3-13). The recreation in Tables 3-7, 3-8, and 3-9 have little to do with recreation benefits as a result of this project. Specifically, what are the direct recreation benefits as a result of this project? Region 4 is a 15 county area and not really applicable to the project. CE has to relate the recreation benefits of this project to the overall benefit of area within the larger Region 4.

129. Page 3-18, City of Dallas and Dallas County Open Space Board plans to acquire land? When? Where? They are always planning to acquire land. Are these parcels of land in the DFE? Two paragraphs on page 3-18 have nothing

130. to do with the project. All of the recreation top paragraphs on page 3-19 have nothing to do with the project. NCTCOG functions as a liaison between cities,

131. but it is doubtful that at this point tens of thousands of acres of open space are being preserved within the river corridor as stated, if so where? Unless the EIS demonstrates where the open spaces are being preserved, this statement is nothing more than political.

132. As stated on page 3-19, 3-20, especially the last paragraph on page 3-20, the report makes the point, "...natural habitat in the area has given way to increased urbanization, making the remaining natural habitat more important ... and future actions should focus on protecting and enhancing the remaining natural environment of the area." This statement makes the point in the GRR/EIS that the project should not go through because the natural environment will be significantly altered.

133. Furthermore, (page 3-19, last paragraph) the CESWF illegally got away with no set aside mitigation areas for Joe Pool Lake and Lake Ray Roberts, although reluctantly CESWF developed a mitigation area for Cooper Lake

128. Chapter 3 of the Draft GRR/EIS is intended to identify the problems and needs of the area, and it not intended to identify or evaluate alternatives. The recreation plan, as proposed in the document, would be consistent with locally adopted recommendations for long range development of a "Great Trinity Forest Park" within the Floodway Extension area, as described beginning on page 6-7, and in Appendix I.

129. Putative proposals for acquisition of park lands is not a part of this proposed project.

130. These paragraphs describe the common goals of the cities and counties with jurisdiction along the Trinity River, including the area investigated in the Draft GRR/EIS, and shows the regional efforts to develop a system of parks, recreational areas, and linear trails.

131. Comment noted.

132. The planning process used to derive the proposed DFE project attempted to minimize impacts to existing environmental resources while providing the maximum amount of annual net economic benefits. Environmental restoration was incorporated into the design, and a mitigation plan was developed in coordination with the appropriated Federal agencies for any impacts caused by implementation of the project.

133. Both of these Corps of Engineer projects were planned, designed and authorized prior to specific authority (WRDA 86) was provided to the Corps to mitigate for fish and wildlife resources. No overriding public or agency comments were provided on these projects that developed or showed a strong interest in requesting specific authority from Congress to provide environmental mitigation.

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(White Oak Creek Mitigation Area, WOCMA) as the last item of a fifty year project that still may not be completed, which started long before the two previously mentioned lakes. Several law suits forced the CE to develop the WOCMA mitigation area (25,000 acres). The mitigated land represents a ratio of approximately 1.3:1 acres of mitigated land to project land (19,300 acres). Therefore, the statement pertaining to the two lakes above developed before the CESWF had to mitigate is incorrect.

Chapter 4 and 5 Plan Formulation and Selection of Recommended Plan

134. General comments: these two chapters (91 pages plus maps, and 16 pages) should be taken out and put under another cover as a stand alone report, as well as chapters 2 (28 pages and maps) and 3 (20 pages and maps). In fact, all 153 pages including maps represent the development of the Recommended Plan (RP) but not the RP that was voted on by the taxpayers 2 May 1998. This report (GRR) should have been available to the voters before

135. the election describing the development of the plan(s) as was stated by a letter from the City of Dallas stuck in the back of Appendix J where it states the GRR should have been made available in a timely fashion before the bond election so even the City could be informed of what was planned, which is a violation of 40 CFR 1500.5 a-j (Westview Publishing, 1992). The GRR/EIS came out after the bond election. The GRR is inadequate, as pointed out in some of the various

136. review comments above and below. The EIS, according to CFR Title 40, 1502-1502.25 (ibid.) should reflect the RP impact on the environment as written in Chapter 6. This is the plan that the EIS should be based on and the impacts to the environment from implementing such a plan. According to 40 CFR

134. See response to comment #1 on page N - 14. Furthermore, the Draft GRR/EIS is a reevaluation of a previously authorized plan (Section 301 of the Rivers and Harbors Act of 1965) for the Dallas Floodway Extension and was never intended to include all items proposed in the city of Dallas bond election.

135. See response to comment #2 on page N - 21.

136. See response to comment #1 on page N - 14.

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1502.2,.6,.12 an EIS shall incorporate the interdisciplinary analytical results from scientific analytical work and the social sciences into an accurate and adequate summary of the data concerning major issues, conclusions and controversy including those issues raised by the public. The CE used a team

137. composed minimally of 30+ high paid full time individuals (minimum pay $45,000.00) that were assigned to this project and put this report together. Many have worked on aspects of this project for years at an astronomical cost to taxpayers ($50 million for the NED plan alone). This GRR/EIS report does not represent an EIS, instead it represents a self serving Federal project planning document by the CESWF with Environmental Assessment (EA) level documentation done completely in-house (except for one lateral Federal supporting agency) by topical section Federal managers (see Table 7-1) instead of expert field technicians and specialists. The GRR/EIS lacks outside input,

138. and interagency coordination input (Appendix L with only one letter each from only two agencies). The EIS should have been contracted out to some professional environmental firm. The CESWF is not capable of doing an in-house EIS, they lack the physical facilities, bowever they adequately possess the contractual ability. Only two outside contractors had limited (a redundant Cultural Resources survey for the third time; limited, inadequate and incomplete HTRW sampling) input into the GRR/EIS.

139. The cost to the taxpayers for each copy of this 900+ page report is estimated at $125.00 per report (Gene Rice, 9 June 1998 CE Public Meeting), and clearly violates CFR Title 40 1500.4 a-l, 1502.7 (ibid.). The regulation, 1502.7 clearly states that the EIS should not exceed 150 pages and 300 pages for more complex unusual plans. This is not an unusual plan, a borrow ditch (swale) in

137. The EIS was completed in accordance with Federal regulations for implementing the procedural provisions of the National Environmental Policy Act of 1969 (NEPA), as amended. The compliance of the document with these regulations has been reviewed and deemed adequate by the appropriate agencies.

138. Public scoping, which included invitation to other agencies to suggest areas to address during the planning process, coordination with EPA on guidance on how to conduct the NEPA process and prepare the draft EIS, coordination with the federal and state fish and wildlife resource agencies, TNRCC, SHPO, Halff Associates, and numerous other sources was continued through the entire process.

139. See response to comment #1 on page N - 13 and #1 on page N - 14. Every effort was made to reduce the size of the combined GRR/EIS length through incorporation of items 1500.4 (b-h) and, (j-k). The Corps did not impose a requirement on Commenters to keep comments as specific as possible (1500.4 (l)) hoping to not stifle expression of legitimate concerns by the public. The text of Section 1502.7 uses the word "normally" in describing the number of pages within an EIS.

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the floodplain to build two levees and channelization of the river. What is clear from all of the developmental background provided is the lack of creativity in solving the problem of conveyance by alternatives such as buy-outs, conveyance basins in the upper Floodway, and by removing, restricting, and deterrance enforcement of landfills by both the City and the Federal Regulatory section of the CESWF.

140. However, this is not the plan that was passed by voters that includes a toll road inside the levees through the DFE into the Dallas Floodway that also included channel widening of the Trinity river (borrow) for the Luna Road Levee (LRL). Environmental Impact Statements should be prepared as holistic documents about the environment that is going to be impacted by the Federal undertaking(s). Two of the three aspects of Proposition 11 in the bond package that passed are Federal projects and the third (toll road) requires Federal involvement at the Regulatory level. A bond package was sold to and passed by voters that included the DFE connected to Dallas Floodway channel widening with levees up the southern portion of the Elm Fork, and a toll road inside the levees up through the completed DFE and the Dallas Floodway levee projects. An EIS should consider the environmental impact of the three interrelated projects on the environment, and should not be broken up by project or the agency responsible for building each project. The cost to do an EIS for each project as a separate entity is astronomical to the taxpayers and to separate projects that are interconnected and overlap with each other is also deceiving the public. Furthermore, this EIS makes no statement relative to the

141. toll road that is planned to go through the DFE inside the levees. The entire justification for the DFE project was the lack of conveyance and the backup effect of water in the DFE jeopardizing the CBD with flooding. To put a toll road

140. See response to comment #134 on page N - 117.

141. See response to comment #4 on page N - 14.

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on each side of the river inside the levees would displace floodwaters and create another flooding problem caused by lack of conveyance. The DFE supposedly relieves the flooding problem, only to make room for another project in the Floodway, the toll road that would create flooding problems again. This represents a conflict of interest for the Federal government.

142. Therefore, the impedance created by the toll road (raised road grade built out into the floodway, high concrete flood walls) inside the levees would be a violation of the Rivers and Harbors Act of 1899, impeding the navigable waters of the United States. The CE would have to permit such an action under Section 10, but can not issue such a permit because it would increase the potential for flooding in the same floodway that they are trying to clear and lessen the potential for flooding.

143. Turning to more specific comments on these two chapters: Planning Objectives (page 4-1, first bullet in para. 3) makes no mention of protection of property which is the economic basis for the entire project.

144. Second bullet (page 4-1), "the channel portion of the Trinity River is largest (longest) remaining natural channel within Dallas." Absolutely, so the City should leave the river alone and apply for "scenic waterways exclusion" within National Park Service and apply for ISTEA funds to develop it as such with native natural trails, parks, cultural history and remove the contaminated landfill impediments and encroaching development out of the floodplain into a safe zone above the SFP level flood elevations of approximately 425 ft. asl.

145. Third bullet is incorrect. CE is not in the business of preserving or protecting cultural resources, but the CE is in the business of complying with 36 CFR Part 800 concerning an undertaking and mitigating the impact to

142. See response to comment #4 on page N - 14.

143. The first bulleted paragraph on page 4-1 states that one of the planning objectives for the study is to "...Reduce flood damages..." which is the economic basis for the flood control portion of the project.

144. Is a recommendation to the City and not a comment on the draft EIS.

145. The planning objective to preserve and/or protect historically and culturally significant areas signifies the desire to not only *mitigate* cultural impacts but to strive to *avoid* (preserve and/or protect) these impacts if possible.

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cultural resources eligible or potentially eligible for listing in the National Register of Historic places (NRHP).

146. Page 4-2. The mention of General Investigation Plan (GIP) is the first time in this report and it fails to explain what this has to do with the present project.

147. The first bullet, under planning contraints says, "...solve problems in one area but compound them (problems) in others should be avoided, unless overriding public interest favors implementation of such a plan." (emphasis supplied). A compounded problem is the admitted enhancement of flooding created by this project south of Loop 12 and further downstream. Floodwater backup is still possible in CBD, in part because of constriction and lack of opening up bridges on roads perpendicular to the flow. Included in the backup of floodwaters involves the increased volume of floodwater reaching the DFE once the upstream levees are built that were also included in the bond election such as the seven mile long Luna Road levee. The Dallas Floodway channel widening, sumps, and levees should be

148. included as part of this EIS for the DFE project. Segmenting the upper project in the Dallas Floodway from the DFE project when they essentially abut onto one another is incorrect and the need for the CE to do so needs to be explained. The EIS fails to provide justification for this segmentation. The 2 May 1998

149. Dallas vote passed (by only 1.2%) also included Upper Trinity Luna Road levees, but the EIS fails to discuss the impact of the new levees on towns downstream such as Wilmer-Hutchins, Seagoville, etc. These represent separate towns that were not included in the vote. The H&H has not been discussed for these towns downstream. The impact of floodwaters at the same flood intervals (1 year, 5

146. The General Investigation *Program* is merely the Federal program under which the funding for this study is appropriated.

147. See response to comment #3 on page N - 18 and comment #8 on page N - 19. With over 2,500 structures in the SPF zone, the protection provided by the DFE project to currently unprotected areas would clearly outweigh the minor water surface elevation increases downstream of the project. In addition, approximately 10,000 structures in the upstream reaches would receive added flood protection from implementation of the project.

See response to comment #7 on page N - 21. Studies for potential levees in the Luna Rd./N. Stemmons area have not been completed. Any potential downstream effects of these levee plans on the Dallas Floodway and the Recommended Plan would be fully documented at the completion of these studies.

148. The DFE study is a reevaluation of a previously authorized project for the DFE area. The impacts of the proposed plan on the existing Dallas Floodway have been included in the analyses. Furthermore, the Phase I improvements completed by the city of Dallas in the Dallas Floodway have been incorporated into the hydraulic models.

149. See response to comment #8 on page N - 19.

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year, 10 year, 15 year 25 year, 50 year, 100 year, 500 year, SPF flood) should be provided for these areas downstream of the DFE project, so, as stated on page 4-2 and mentioned above the compounded problems downstream can be discussed. No reference is made documenting the downstream impact that admits the projects will raise the flood levels downstream.

150. Page 4-2, (last para.) does not explain or provide the exception the Assistant Secretary of the Army for Civil Works (ASA CW) granted for a project of less scope than the NED Plan. This is pertinent to the whole DFE project. Without a proper exception the DFE project could not go forward in any form.

151. Page 4-3, (second bullet, first para.) alternative plans must be evaluated. Where? No coverage is provided. A total of 73,000 acres is considered within the Designated Project Area (DPA) or affected area. The plan is designed to last 50 years. Mitigation area for DFE detailed project area is listed by the

152. government at possibly 1,135 acres, then later changed (Appendix F) to 1,179 acres, plus other values. Even though the total acreage of impacts by the DFE project is 2,774 acres.

153. Under Environmental And Social Criteria (page 4-3), the CE can not improve the quality of certain cultural resources, only avoid, impact, assess, and mitigate impact if warranted, unless the alternative is no project. The EIS omits a discussion of Federal requirements under the National Historic Preservation Act of 1966, as amended 1992, plus the Clean Water Act. All the bullets are only considerations and nothing has been included to ensure that these measures shall be taken by the Federal government or City.

154. Page 4-4 (second para.) "...environmental restoration was not a desired project feature of either the local sponsor or special interest groups...focus of all environmental concerns was directed primarily toward minimization of

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150. See response to comment #3 on page N - 13.

151. A review of the outline of this chapter, as seen in the Table of Contents, reveals that the paragraph to which this comment refers is included in the "FORMULATION AND EVALUATION *CRITERIA*" section, which is intended to merely describe the criteria by which the investigation was conducted. The screening and evaluation of alternatives begins later in the chapter. We are not able to concur with your conclusion that 73,000 acres are within the designated project area. The area of detailed study was approximately 6,000 acres. Nor can we find that the project would impact 2,774 acres. The TFSP would impact approximately 385 acres and the LPP would impact about 425 acres.

152. Mitigation for the LPP as outlined in the Draft GRR/EIS and FSP as identified in the final GRR/EIS would require 1179 acres and the mitigation requirement for the TFSP as outlined would be 1135 acres.

153. See response to comment #151 on page N - 122 .

154. This paragraph is contained in the "INITIAL SCREENING OF ALTERNATIVES" section, and as stated in the first sentence of the paragraph, refers to the initial plan formulation investigations conducted from 1991 through 1993. The comment omits an important phrase in the quoted reference. The complete sentences contained in the draft GRR/EIS state that (italics added), "*During this time frame*, environmental restoration was not a desired project feature of either the local sponsor or special interest groups. *During this period*, the focus of all environmental concerns was directed primarily toward minimization of impacts to bottomland hardwoods."

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impacts to bottomland hardwood ." This is just inaccurate, the swale is a project impact (a borrow ditch inside the floopdplain), the desire to pump treated sewage water through the swale that is contaminated above the standards of the TNRCC 67 percent of the time with fecal coliform (plus other chemicals such as chlorides and hydroxides) is the CE's plan to actually extend CWWTP sludge pits outside their land limits and into the floodplain sanctioned by the CE who does need a permit to do this, however, the CWWTP could never do this because they would have to get a permit from the CE. This is not environmental restoration, and anyone that thinks so is misinformed. The Federal government is involved in an undertaking that will impact the existing environment. Therefore mitigation is the required solution for this impact, not this type of fecal sludge restoration.

155. No action Plan (page 4-4, para. 4) contains a table of flood year and flood surface elevation in the DFE since 1962 when Congress first appropriated funds for study. Actual flood damages would be appropriate here. The City of Dallas could provide these figures and the number and dollar amount of Federal Flood Insurance claims attainable from FEMA. EIS assumes people living in this area have flood insurance and made claims to FEMA. Therefore, this "estimate" is questionable, because it is highly likely that people in this area did not make claims because they have no flood insurance. A more appropriate and better statistic would be the number of the households in the DFE that have flood insurance and would participate in claims to FEMA. The Flood table should also show the years when the various lake flows higher up in the drainage entered into the total drainage net.

Under Flood Management (page 4-4, last para.) the CE considers, "Floodplain management the most effective means to control future

155. Neither the referenced paragraph nor the referenced page contains a table of flood year and flood surface elevations in the DFE.

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development of the floodplain and insure existing flood problems do not worsen." The section is inadequate as written. If floodplain management is the most effective means to control development and flood damage the CE should not have permitted landfills in the DFE that have exacerbated the problem of constriction in a naturally narrow corridor. The EIS does not provide the current City zoning in the DFE and subdivision regulations for the DFE. The Corridor Development Certificate (CDC) is introduced for the first time without explaining what the CDC is or the agency (NCTCOG) that awards the certificate and the process required for a certificate. Because this is a Federal project does it therefore transcend the CDC agreement between cities? This needs to be explained and clarified. It is obvious that the City has no floodplain management guidelines in practice or the DFE would never have gotten to it's current constricted state. Up until recently anyone that wanted to dump rubbish drove to the floodplain and did so anywhere they wanted. Recently the City has signed the area and added locks to some of the gates where landfills are located. This is management too late too little and since they signed onto the DFE study as a sponsor. In the explanation of what the CDC is all appropriate agency(s) should be included.

Flood warning (page 4-5, top), it is unclear that a flood warning system is in place in habitable areas of the DFE. These warning systems, if they exist, should be indicated on a map and explained how they work.

Relocation (page 4-6), claim is made, "each of the structures within the study area was analyzed on an individual basis..." EIS does not clarify how many structures and the location of these structures relative to the DFE and the various flood levels under the protection of the Recommended Plan. EIS should include households in Cadillac Heights and businesses along Lamar Street and

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156. We believe the information presented in the section entitled "Flood Plain Management" provides adequate support to justify the conclusion stated. Further support for the conclusion presented in this section is located in Appendix F, the section entitled "Executive Order 11988 Flood Plain Management", pages F-40 and F-41.

157. The CDC is a local initiative that is coordinated by the NCTCOG.

158. The CDC process is an agreement between the cities and will be followed.

159. See response to comment #157 above.

160. The warning system consists primarily of public notification and is coordinated by the River Levee District, City of Dallas.

161. Non structural plans were evaluated sufficiently.

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in Cadillac Heights that fall within the various elevations of the flood zones. It would be hard to relocate the old Proctor and Gamble plant used by DISD. The Relocation alternative does not really fit the project as a viable alternative so discussion should be invoked about the impracticality of this alternative. Instead, more attention should have been paid to the buy-out alternative.

162. It is clear in Appendix C and J that the CE possesses maps with very fine scales (one inch to 200 feet) that can provide all the structures within the various flood zones. The maps provided in Plates A-39 to A-42 lack sufficient detail and are not of the quality common to CE reports that provide detailed topographic maps that accompany the various water level flood profiles (Appendix A Plates A25 - A38). These maps should have been included for the DFE showing the project alignment with housing and business structures (in the 100 ft. and SPF level flood zones for the FSP, LPP, RP).

163. What is disturbing about the profile illustrated on Plate A-38 depicts the Dallas Floodway Modification Channel will be excavated 20 ft. deeper (into bedrock, emphasis added) than the present channel, potentially creating enormous storage capacity in the upper reach of the Dallas Floodway Luna Road Levee (LRL) future project. If this deeper and wider channel (basin) is to be excavated in the Dallas Floodway above the DFE the hydrology models in the DFE do not reflect this enhanced storage capacity. This needs further discussion and clarification.

164. EIS sensitive and topical issues need to be mapped on the same scale and level of detail as shown in Appendix C. The environmentally sensitive bottomland hardwood forests (BLH or BHF, wetlands), Hazardous, Toxic, Radiological Waste (HTRW) (sample locations, known contaminated locations) and Cultural Resources (historic properties) can be mapped along the levee

162. The floodplain area maps on Plates A-39 through A-42 provide an easily readable overview of the floodplain within the entire study area. These plates were originally plotted with structures indicated on them to a scale of 1 inch equals1200 feet and were approximately 30 inches x 36 inches in overall size. These larger maps were displayed in public meetings but were considered too large to present in the format of the report. If this map were displayed similarly as a single map at the suggested scale of 1 inch equals 200 feet it would be approximately 15 feet x 18 feet.

The horizontal line with arrows below the note Dallas Floodway Channel Modification has apparently been mistaken as an excavation depth. This line with arrows is used to indicate the downstream limit of the channel modification. The excavation depth is shown above this note as an extension of the line labeled Thalweg. The Thalweg is the lowest point in the channel. The excavation depth of the channel improvement at this location is elevation 471.0 feet and is approximately the same as it was prior to the channel improvement.

163. Plate A-38 does not depict the existing Dallas Floodway being excavated 20 feet deeper than the present channel. The Commenter apparently mistook the line (with arrows) below the note saying "DALLAS FLOODWAY CHANNEL MODIFICATION" as an excavation depth. Furthermore, the channel modifications in the existing Floodway, constructed by the city of Dallas, have been incorporated into the DFE hydraulic models.

164. The level of detail shown in Appendix C for engineer drawings is more detailed than is necessary to adequately depict the impacts to bottomland hardwood forests, show the sites of possible and confirmed HTRW etc. The impact assessment utilized scale drawings superimposed through computer methodology over the vegetative cover maps. Showing all maps at the level of detail requested would add little meaningful information to the decision-maker and would add several hundred pages to the length of the report.

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alignments, channel and swale as well as the utilities lines and pipes shown in Appendix C. These are the upfront issues germane to an EIS that have to be dealt with and should have been included in this EIS. The various study inputs into this EIS need to get on the same page and reference the same detailed scale maps instead of having a plethora of various maps and scales developed with in section for each section's own purpose.

This is an in-house report and obviously illustrates the study sections are not in synch when it comes to the larger holistic EIS. It is obvious from the detailed mapping in the appendices that detailed GIS and CADD maps (Appendix C and J) exist and the above study subjects need to be incorporated into this EIS on these types of maps. Although the maps in Appendix C need to widen their perspective, add street titles and other landmarks more clearly and include the Trinity river alignment per section and the surroundings.

165. Permanent Evacuation (page 4-6), or a form of buy-out is not discussed as an alternative with feasible or infeasible possibilities. No discussion is provided of the number of structures, cost, or economic criteria. Table 3-5 for Reach 5, 294 structures are listed within Cadillac Heights and 181 structures for Reach 4A along Lamar Street. But there is no map showing which structures are in the project footprint and the various flood probability levels. Invoking

166. the high value economics of CDB Reaches 7 and 8 and the potential high cost of damages from flooding at approximately $5.4 billion to these Reaches, it is hard to imagine that a buy-out of housing and businesses in the DFE, opening up flow conveyance by removal of critical parts of landfills that impede flow and opening up other impediments such as raised roadbeds and road bridges can cost so much that makes this alternative not cost beneficial. The 1950's levees

165. The first iteration of three non-structural alternatives investigated in the study is included in the "***Analysis Results - Individual Structure Evacuation***" section, beginning on page 4-6, and in Table 4-1. This evaluation was performed as part of the Initial Screening of Alternatives, and due to its infeasibility, detailed maps were not included in the document.

166. Improving flow conveyance by removal of a portion of the Linfield Landfill is a part of the FSP. The excavation and disposal cost of this relatively small portion of a single landfill site is a significant percentage of the total project cost. This feature enhances the efficiency afforded by the wetland swales due to the added flow conveyance area, shorter flow path, and the landfill's critical location in the floodplain. However, this excavation represents a very small percentage of the total volume of landfills in the study area and the actual benefits derived from the excavation alone is very small relative to the high cost of removal and disposal. The conclusion is that removal of landfills and excavation in general for the purpose of adding flood damage reduction benefits is not economically justified.

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167. in the Dallas Floodway stopped short of this area leaving this area prone to flooding and property damage, devaluation of property, neglect for 40 years, City zoning that neglected and ignored residential communities, landfills, indiscriminate trash dumping, a huge sewage treatment plant, and the location of low profile high polluting industries that need cheap access to water. The discontinuation of the Federal levees in the Dallas Floodway and the City zoning practices in the DFE, can be argued as a violation of Title VI of the 1964 Civil Right Act where for prejudicial reasons the dicontinuation of the Dallas Floodway levees violated the rights of on e of the oldest racially mixed sections of Dallas. Due to the discontinuation of the levees in the Floodway properties in the DFE were damaged from flooding and devalued to levels, especially residential properties, that are so low that they do not represent properties of high enough value to provide a high enough cost benefit to justify buy-out and removal from harms way. This is double jeopardy. These issues need to be discussed in more than four paragraphs in an Environmental Justice section that also includes potential Title VI violations of the Civil Rights Act of 1964..

168. In Chapter 3, Reach 2 is described incorrectly as north of I-30 with 90 structures. Reaches are not clearly shown in Figure 3-1. With Reaches 7 and 8

169. of the CDB included as stated previously in this report buy-out in the DFE would be an economically feasible alternative. Removal of the structures in Reaches 4A and 5 would increase conveyance and make the two proposed levees

170. unnecessary. No BCR figures are provided for the following non-structural alternatives: 1) buy-out only in Reaches 4A and 5, 2) buy-out in Reaches 4A and 5 with swale, 3) buy-out Reaches 4A and 5 and removal of major constrictions and landfills, 4) buy-out Reaches 4A and 5 without swale and

167. The issues you address adequately represent the challenges faced with projects such as these. Our findings, based upon the research and study efforts we have conducted, lead us to the opposite conclusion: not providing flood protection would continue the jeopardy to the businesses and residents of the flood prone area. Providing protection would enable individuals to live without fear of need to evacuate when rainfalls start. It would also enable them to obtain loans to do improvements to their properties and make a better life than is now possible. The breach to Environmental Justice would occur should the government abandon a project proposal that can eliminate the problems you have addressed. A legal opinion was obtained which states TITLE VI of the Civil Rights Act of 1964 does not apply to this project as no grants to non-Federal entities are involved.

168. The description of Reach 2 is correct and should be properly interpreted as "...Includes a portion of the White Rock Creek Tributary from the upstream end at I-30 to its confluence with the Trinity River at Linfield Street...."

169. Few structures in Reaches 4A and 5 are in the effective flow zones of the floodplain. The farther away from the river channel an obstruction is, the less of an effect that structure has on impeding the flow; therefore, removal of these structures would have a minimal benefit due to added conveyance area. The economic benefit of buyouts and relocations is further reduced by the high cost of relocating the business or resident, demolition and cleanup of the structure sites, and the loss of the benefits of protecting the structure. The future land use is also a factor for buyout sites because if the floodplain land were not maintained clear, then future re-growth of vegetation will negate the benefit of structure removal. Additionalyh, if a project is infeasible, addding more cost to the project will not make it feasible.

170. See response to comment # 169.

opening up of roadway bridges (Loop 12, Bruton, Second Avenue), with removal of major constrictions and landfills, 5) buy-out and removal of partial prominent constrictors (ex. Linfield Landfill protrudence on meander into floodplain) and minor landfills that take up water storage, to list a few non-structural alternatives. In addition a swale could be added to the last two alternatives as well but the alignment would be different with the removal of structures and landfills.

171. Under Benefit Methodology the EIS does not clarify if methodology pertains to permanent evacuation (buy-out). The EIS should include buy-out

172. alternatives and the cost assessments should reflect the one time buy-out of the properties with structures along Reaches 4A and 5. The benefits should be cost accounted to property damage lessened in Reaches 7 and 8 as well by increasing the conveyance through Reaches 4A and 5. The cost assessment should also show the lack of damage to areas in Reaches 4A and 5 after removal. If the buy-out and opening of conveyance cost $3 billion with Reaches 7 and 8 included at $5.4 billion the BCR ratio would be 1.8:1. The figures for buy-out provided in this GRR/EIS are far less than these amounts.

173. Furthermore, some detailed discussion is needed explaining the use of Reaches 7 and 8 for economic justification for the DFE project and the use of the same Reaches for economic justification for the Dallas Floodway LRL project which shows the overlapping interrelatedness of the two projects and the reason for an integrated holistic environmental impact statement for the two floodway projects and the toll road that goes them.

174. With the evacuation completed no further damages could be claimed in these areas, thereby releasing the City and FEMA from continued additional

175. cost when flooded. Furthermore, the location of Reach 4A (page 3-7) is

171. Reference to the Table of Comments and to the method of outline used in the document reveals that "***Benefit Methodology***" is a sub-section of "***Permanent Evacuation***", which confirms its applicability to the permanent evacuation analyses.

172. The $5.4 billion figure represents the total value of Reaches 7 and 8, which already have a high level of flood protection. The benefit of improved conveyance due to removal of structures and/or fill downstream of Reaches 7 and 8 must be compared to the increment of added flood protection afforded to Reaches 7 and 8. This increment of flood protection represents a very small percentage of the total value of $5.4 billion. See response to comment # 1 on page N - 13.

173. See response to comment # 124 on page N - 14. No economic justification for a Luna Road Levee has been presented in this GRR/EIS. Plans for a Luna Road levee are incomplete and under current investigation.

174. See response to comment #1 on page N - 13.

175. Description corrected to reflect westerly direction rather than north.

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described inaccurately. The cost benefit methodology assumes flood insurance

176. subsidy but does not consider the uninsured. The EIS needs to clarify the uninsured as well as the insured for each reach in the DFE DPA. The EIS does not establish how many properties with structures have flood insurance. Therefore, without flood insurance property damage can be total without insurance to rebuild. The EIS needs to consider multi-family dwellings as well.

177. Thus, according to Table 3-5 buy-out of Reach 4A with 107 single family structures, 6 multi-family structures, and 68 commercial properties would cost $44.7 million. In Reach 2 a buy-out would include according to Table 3-5, 68 single family, 3 multi-family structures and 19 commercial properties for $7 million. A grand total of $51 million. This is considerably less than the $127 million part of the bond issue slated for the DFE. However in Table 4-1 the report lists only a total of seven structures with a cost of $1.45 million. The EIS does not explain how these few structures were selected and where they are located. Nor does the EIS detail the total number of structures within the DFE DPA that are in jeopardy of the 100 year flood and higher floods. The EIS fails

178. to demonstrate that a buy-out would cause less damages in Reaches 7 and 8 and therefore a favorable BCR. According to the low cost of the structures shown in Table 4-1 the BCR should have been much higher relative to less damages in Reaches 7 and 8 the .

179. Analysis results (pages 4-6, 4-7) Individual Structure Evacuation - Table 4-1 provides analysis of only selected structures in Reaches 2 and 5 as mentioned above. Reach 2 as described on page 3-4 of the EIS is north of I-30 is incorrect. The GRR/EIS omits Reach 4A which should have been included in this table as well. According to the tables provided in the GRR/EIS structures in this Reach are more germane to the project and flood damages to structures

176. Current methodology assumes all properties within the 100-year floodplain are insured. In the case of uninsured residents the costs associated with assistance would be borne by the public in the form of low subsidized loans and public assistance. All property types were evaluated for both structural and nonstructural plans.

177. Values included in table 3-5 are based on the economic replacement cost of the structures and contents. These figures do not include the value of the land nor the cost of demolition. Further, project justification is not based on the amount of funds available for project implementation. The seven structures presented represent the only structures throughout the floodplain that a buyout plan would be economically justified on a structure by structure basis.

178. See response to comment #169 on page N - 127.

179. See response to comment #168 on page N - 127 regarding description of Reach 2. The entire floodplain was initially evaluated to identify areas where a buyout would be economically feasible. The results in table 4-1 represent only the structures throughout the floodplain that a buyout plan would be economically justified on a structure by structure basis.

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in Reach 2. The GRR/EIS fails to provide footprint maps of these structures in relation to the various flood levels. The GRR/EIS fails to provide this data when describing structures in or out of the DFE DPA project. Without structural footprint maps that include flood limits superimposed on topographical elevations it is impossible to comprehend the flood limits and damage to property as discussed in the GRR/EIS. The statement, "The

181. investigated alternative yielding the greatest net benefits is shown shaded in the table." Shading includes Reaches 2 and 5 combined totalling seven structures is incorrect according to Table 3-5 listing existing conditions. There is a total of 384 structures in Reaches 2 and 5 as compared to 475 structures in Reaches 4A and 5. If there are only seven structures in harms way of flooding within the DFE it appears that there are no big flood problems in the DFE. Explain what Reach 2 has to do with the DFE DPA project when Reaches 4A and 5 are the critical reaches.

182. Furthermore, in the first paragraph, page 4-7, the CE logic is flawed. The annual damages of 5 (Reach 2) commercial structures (not described, assumed) equals $154,300.00. The report does not consider that once these few structures have been eliminated the damages go away, therefore saving in 10 years $1,543,000.00 and in 50 years $7.72 million in potential claimed damages.

183. In Reach 5 (2nd para., page 4-7) according to Table 3-5 there are 66 commercial structures not 2 as stated. The GRR/EIS fails to identify the two structures for buy-out in Reach 5 and how the damages were calculated when reporting the annual damages totalling $419,000.00. The footprint of the other 64 commercial structures needs to be provided along with the two selected providing the topographic elevations with the various flood heights superimposed on the topography. The term "first cost" used in Table 4-1 needs

180. See response to comment #162 on page N - 125 and comment #165 on page N - 126.

181. Table 4-1 shows that a total of only 7 structures are *economically justified* (meaning that benefits exceed costs) for acquisition, in accordance with current Federal economic methodologies for determining feasibility.

182. The economic evaluations were performed in accordance with applicable Federal regulations and policies regarding non-structural flood damage reduction projects.

183. Table 3-5 presents total floodplain investments by reach. The analysis presented on pages 4-6 and 4-7, and Table 4-1, was performed in accordance with applicable Federal regulations and policies regarding non-structural flood damage reduction projects, and shows that only 2 of these structures were economically justified for acquisition and removal in Reach 5. See response to comment #165 on page N - 126.

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184. further explanation. The evacuation benefits ratio of 8:1 is higher than any of the others and alludes to the success of such a plan (buy-out) over structural in the long run. The GRR/EIS states that evacuation (buy-out) is a viable alternative that needs further investigation, "...benefits derived in this reach (5) signal the need for additional investigation to obtain empirical flooding evidence associated with the contents in these structures."

185. Summary (3rd para., page 4-7), GRR/EIS describes evacuation found only economically feasible for 7 commercial structures, first time that 7 commercial structures is stated without identifying the structures. The GRR/EIS totally disregards the people that live and work within Reaches 4A and 5. This appears to be highly selective, inaccurate, biased (discriminatory), and does not relate clearly the reality of the properties with structures in these Reaches and the others close by to the DFE project. Most of the buy-out properties the CE recognizes are businesses and industrial and not residential properties within the area.

186. Uniform Relocation Assistance Program (URAP) (4th para., page 4-7), concerning displaced property owners compensated a maximum of $22,000.00 allowable, refers to residential properties. The GRR/EIS listed only commercial structures for evacuation, therefore no allowance is necessary for residents in the flood prone areas, and therefore not applicable to the DFE project is incorrect and needs further explanation. The GRR/EIS does not explain however, how the maximum cost allowable is calculated. If a $150,000.00 single family house structure, or several were in jeopardy, it is preposterous that the maximum allowable cost would be $22,000.00. This definitely needs to be explained and clarified further. The GRR/EIS does not provide a cost by cost

184. The term "first costs" refers to the total estimated economic costs that would be required for implementation of the project. A benefit-to-cost ratio (BCR) of 8:1 indicates that this alternative has economic benefits that outweigh the costs of implementing the plan. However, Federal regulations dictate that selection of plans are based on net annual benefits and not BCR values. Table 4-1 presents an economic analysis of non-structural alternatives only and, in itself, does not allude to the "success" of this plan over structural plans.

185. The analysis did not disregard residential structures. However, the analysis showed that no residential structures were economically justified for acquisition.

186. The referenced paragraph in the draft GRR/EIS presents a general discussion of the Uniform Relocation Assistance Program (URAP). The maximum allowable compensation of $22,000 for residential structures, under URAP, is not the maximum cost for the acquisition of a residence, but is meant to cover moving expenses, temporary lodging, etc., as discussed on page 4-7. Maximum relocation expenses have not been set for commercial and industrial properties.

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187. assessment of the flood prone structures in Reaches 4A, 5 and 2 within the LPP. The cost appraisal per structure should be in the Real Estate Appendix (E).

188. Property values were based on the assumption no HTRW contaminants exist (Appendix E-5). However, clearly in Appendix J, HTRW contamination was found for seventeen (sic. 14) known sites that were investigated. Not all areas have been investigated especially in the upper swale alignment and the groundwater. The HTRW severity problems vary and will have an effect on property values (depleting values) which is not calculated (page E-2) into the cost benefit ratios. The cost of the landfill area to the southeast (Post Oak road,

189. I-45, Wintergreen, MAPSCO, 1992: 78-79), landfill in the Golf Course, landfill for existing landfills, and mitigation lands is not considered.

190. Furthermore, by using the CE stated cost allowable according to URAP at $22,000.00 per structure and considering the existing conditions given in Table 3-5; the following costs for evacuation of: Reach 5 with 228 single family structures would only cost a little over $5 million to buy-out, Reach 4A $2.35 million, Reach 2 $1.5 million, Reach 1 $1.61 million for a total of $10.5 million. Reache 4B is east of Lamar Street and Reach 3 is behind the Rochester Levee and above the 100 year flood. The commercial structures do not receive money as stated under URAP. That leaves 121 multi-family structures and the amount allowable for these is not stated in this section or the Real Estate Appendix. The cost allowable for multi-family structures should be presented in the GRR/EIS. This is tremendously less expensive than the Recommended Plan. This would certainly effect the BCR ratio and should receive further consideration.

191. The specific recreation design (5th para., page 4-7; Chapter 6 page 18) is not considered because the BCR ratio is greater than 1.0. Therefore, delete

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187. The Real Estate Plan is not intended to address all flood-prone properties in the study reaches. Values for all structures which receive flood damages are included in the Economics database. The Real Estate Plan evaluates the cost of those lands and structures which will have to be acquired for construction, operation and maintenance of the project features. Values for these properties are determined through a gross appraisal, not individual property appraisals. It is not appropriate to list estimated values on a property-by-property basis in a GRR.

188. The assumption that all project lands will be free from HTRW materials when assessing land values is in accordance with Real Estate Policy Guidance Letter No. 1 - Appraisal of Lands Containing Hazardous and Toxic Wastes. Prior to implementation of a Federal project, the non-Federal sponsor is responsible for providing lands free of HTRW materials.

189. Real Estate costs have been included for use of the required disposal site as well as for mitigation lands. These costs are part of the Real Estate cost estimate.

190. As stated in comment #186 on page N - 131 the maximum allowable compensation of $22,000, under URAP, is not the maximum cost for the acquisition of a residence, but is meant to cover moving expenses, temporary lodging, etc., as discussed on page 4-7.

191. A review of the Table of Contents reveals that the referenced paragraph is in the "INITIAL SCREENING OF ALTERNATIVES" section, and is not intended to represent the final Recommended Plan, as presented in Chapter 6 of the Draft GRR/EIS. Recreation can only be constructed on lands acquired for other project purposes, such as flood damage reduction or ecosystem restoration. Due to the very limited area that would be acquired with this alternative, a specific recreation plan was not formulated.

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recreation from the Syllabus and the long Appendix Ibecause it is not part of the Federal project and cost of recreation is the sponsors. However, the City's recreation plan that is part of this project needs to be included for impacts to the environmeot, Cultural Resources and HTRW.

192. Investigated Structoral Alternatives (page 4-8 to 4-13) - Channel Plans were abandoned so long ago they should be deleted.

193. Levee Plans (page 4-13) - SPF levee height varies from 17 to 31 feet (Appendix C) along Lamar Street (Reach 4A). The surface profile elevations along the footprint are provided graphically in Appendix C, however the levee profiles need to be represented along with the hydrologic profiles in Appendix A. There are so many varying heights discussed throughout the report as to the correct SPF elevation, 100-year flood elevation and corresponding levee heights, that the eatire report needs to be scanned for consistency with regards to the RP plan and the major flood protection levee feature elevations in that plan. The 100 year levee is on average 15 feet high indicating a 12 foot difference in height between SPF and 100 year levee levels. Cadillac Heights (Reach 5) SPF levee height varies by 25 feet and the 100 year levee 15 feet high, again the levee surface elevations are not provided along with the hydrologic model profiles in Appendix A. Levees providing 100 year

194. protection would raise downstream water surface elevations 0.3 feet (3.6inches). SPF levees would raise surface water elevations downstream 0.6 to 2.0 feet (6 inches to 24 inches). Therefore, a relief channel or swale would be required to offset effects to existing floodway. Although, it is unclear which floodway the CE is writing about, the Dallas Floodway or the DFE, or both.

No downstream water surface elevation statistical variance is provided

192. In accordance with Federal planning regulations, the document is intended to present the plan formulation process conducted to derive the Recommended Plan. The channel plans investigated were included in the "INITIAL SCREENING OF ALTERNATIVES" to show these alternatives were studies early in the planning process.

193. The levee crest elevations for the Recommended Plan and the Locally Preferred Plan *are* provided along with the hydraulic model profiles in Appendix A, Plates A33 through A38.

194. The initial investigations of levees, during the early screening process, were conducted for stand-alone levees. As stated on page 4-13, the levees alone would raise water surface elevations "at the downstream end of the *existing* Floodway" by the stated amounts. Existing Floodway refers to the Dallas Floodway.

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195. for the 100 year flood after levee construction. An upper and lower limit should be provided. The same applies to the water surface elevation variance downstream for the SPF levee after construction. The downstream raise in surface elevations are real, significant, and should be defined. The GRR/EIS does not define where the downstream rise in surface elevations will occur. This needs to be clarified as pertaining to the immediate end of the project south of Loop 12 as well as the entire Lower Trinity river corridor. It should be made clear that the short length of the levees (less than 3 miles) further convicts the floodwaters through the DFE creating a raise to the surface elevation of the floodwaters downstream and flow speed. Otherwise, the floodwaters would expand out into the DFE area and not cause a surface rise in downstream floodwater surface elevations. If properties with structures were

196. removed and key constrictions lessened the floodwaters would have additional room for expansion enhancing the conveyance of floodwaters in a more timely manner. Opening up road bed impediments would also further enhance conveyance of floodwaters. These alternatives should be included in the CE non-structural/structural models. In Table 4-3 all SPF levees and all 100 year

197. events have negative net benefits and the SPF BCR is 0.5 way below 1.0 as needed for the project to proceed (page 4-13). Therefore, it is inconceivable that the project can go forward.

198. Vegetation Management (page 4-13) as written does not make sense. An overstory of trees consisting of 20 feet is impossible if clearing occurs for 1,000 feet on both sides of a centerline (2,000 foot total width) without determining the limits of what is considered understory. However, clearing the understory seems expensive although no cost estimates are provided. Once

195. See response to comment #8 on page N - 19.

196. See response to comment #166 on page N - 126 and response to comment #169 on page N - 127.

197. As stated in response to comment #194 on page N - 133, Table 4-3 presents *preliminary* results of stand-alone levee alternatives. These preliminary results show potential feasibility of individual levees, but infeasibility for a *system* of SPF levees. Further evaluations, presented later in Chapter 4 through Chapter 6, show that in conjunction with the chain of wetlands, an SPF Lamar Levee and a 100-year Cadillac Heights Levee would be feasible. This combination of features represents the Recommended Plan, as presented in the Draft GRR/EIS. However, subsequent to the release of the Draft GRR/EIS, the Assistant Secretary of the Army (Civil Works) has determined that the plan providing SPF levels of protection to both the Lamar and Cadillac Heights areas, denoted as the Locally Preferred Plan in the draft GRR/EIS, should be the Federally Supportable Plan, and therefore the Recommended Plan. Revisions to the GRR/EIS have been made to reflect this decision.

198. The Vegetation Management Plan simply would result in the removal of all living and dead vegetation up to a height of 20 feet above the flood plain for a distance 1000 linear feet to each side of the river. If the vegetation is less than 20 feet tall, it would be entirely removed, if it were taller than 20 feet, the trunk and the portion of the tree taller than 20 feet would remain. A key component of the bottomland hardwood forest is represented by the richness of structure that exists in the total vertical profile from forest floor to top of the canopy. An initial determination was made that the impacts would be so significant to bottomland hardwood forest that the alternative should not be considered further. In addition, as you have indicated, operation and maintenance would be expensive due to the extensive investments of man and equipment power. For this alternative to continually provide the protection, the regrowth of vegetation would have to be kept constantly in check.

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the dense secondary understory growth that presently exists from habitat disturbances in the DFE floodplain was removed and maintained it would enhance the conveyance and the parkland bottomland hardwood appearance of the DFE. This alternative needs further consideration with the first cost provided followed by the maintenance costs. Further discussion is needed pertaining to the understory vegetation and definitions of what should be removed. The very dense thickets that grow in disturbed areas is not necessarily environmentally useful for birds and other animals and can cause restricted conveyance snags in the river and along the floodplain. Dense understory vegetation growth was not considered in the HEP evaluations and discussions provided in Appendices F and G. The GRR/EIS does not consider this alternative or combinations of this alternative, with for example, buy-outs, opening of road bridges, and removal of landfills.

199. In Table 4-4 (page 4-14) clarify which swale is used in the NED Plan.

200. Lower Overbank Swale reference to extending from U.S. Highway 75 (Central Expy) incorrect. Lamar Street turns into South Central Expy. after crossing the Lamar Street bridge now titled S.M. Wright Freeway or Highway 310. For clarity this reference should be designated Highway 310.

201. Lower Overbank Swale slope gradient of 0.0005 is preposterous. Figure 4-5 does provide a cross-sectional perspective, but lacks view direction or cardinal directions. None of the swale plans in Table 4-4 are to used in the upcoming proposed plan, therefore delete, or put in a separate GRR report.

202. These "maybe" plans are a waste of reviewers limited time for reviewing this EIS. Pages 4-8 through 4-22 (top) on past history of the evolution of the planning for structural study alternatives needs to be taken out and put in a stand alone report. Such long explanations are most likely needed for peer

199. Table 4-4 is part of the "INITIAL SCREENING OF ALTERNATIVES" section, and presents the analysis of swale alternatives investigated to derive the NED plan. (A review of the chapter outline in the Table of Contents, page *ii*, shows the various non-structural and structural alternatives investigated during the initial screening process) The last sentence of the last paragraph on page 4-14 shows that the 1,200-foot bottom width (BW) swale would produce the greatest net benefits of all the alternatives investigated during the 1991-1993 initial screening period. The "Summary of 1991-1993 Preliminary Investigations" section, page 4-21, shows that this alternative was designated as the NED Plan and was carried forward in the plan formulation process.

200. The text has been revised for clarity, as indicated in the comment.

201. See response to comment #1 on page N - 14 and comment #192 on page N - 133.

202. See response to comment #1 on page N - 14 and comment #192 on page N - 133.

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·d supervisor reviews at the CE Division (Dallas) and CE Headquarters Washington D.C.), demonstrating to them, that the local CE District satisfied heir (CE Division and Headquarters) National bias for structural alternatives and to justify the massive amount of public funds spent on studying phases of

203. this project. It is the law that the public has a right to review how public funds are spent by the government(s). We are requesting that the amount of Federal money spent on Planning Study phases of this project by the CE District, Division, and Headquarters be included in the GRR and made public. The amount of expenditures for planning should be compared to the amount of Federal public funds spent on the EIS part of this project. Then, an honest accounting of the amount the City has contributed to the planning of this project (including new job hires specifically for this project, etc.) should be added to their cost accounting and made public as well. This should be compared to the expenditures on the EIS. Then, summarized in a simple 2x2 table showing Federal, City, Planning, EIS.

204. On page 4-22, 19 July 1993 at a meeting the CE denied City credits and no mention of buy-out of Roosevelt Heights and Floral Farms as a credit item. GRR/EIS does not explain why the CE did not credit these buy-outs to the City. The GRR/EIS needs to clarify and discuss the local sponsor legislative approval the City needed to seek for the project to proceed and the agency providing the necessary approval. The CE denial of credits were denied at this meeting, but accepted currently, GRR/EIS does not explain why they are accepted now.

205. Second bullet (page 4-22) should precede the one above. Explain and clarify initial guidance.

206. Final Analysis of NED Plan - GRR/EIS does not provide the dates of the updated aerial photos used for the NED Plan in the DFE. According to the

203. The study is ongoing and a total expenditure is not yet available. The estimated cost of the Fort Worth District's efforts through Draft the GRR/EIS is been approximately $5.1 million. An analysis of the city's expenditures will need to be requested from the city.

204. See response to comment #21 on page N - 76. WRDA 1996 had not been enacted into legislation at the time of the meeting on 19 July 1993. The passage of this Act was discussed on page 3-10 of the Draft GRR/EIS.

205. The order of the bullets is irrelevant. "Initial guidance" refers to guidance received from Headquarters, U.S. Army Corps of Engineers, dated August 21, 1992, regarding use of risk-based analysis.

206. The date of the updated aerial photography was February 1991, as discussed on page 3-8.

accounts in the GRR/EIS, this review assumes they must pre-date 1992.

207. Landfilling in the DFE DPA (see landfilling described in Appendix J for sites investigated) has gone on at an alarming rate since 1992, partly due to CE floodplain permits and violations of the CDC that the City participates in (if a developer fills in the floodplain they have to remove same amount). CE permit actions or whatever permit action applies to landfilling within the DFE DPA should be listed in the EIS portion of this report as part of the history and literature search included in a well written EIS. This is as germane to an EIS as the Planning project history of the DFE is to the GRR. It is not clear in this

208. report if the pre-1992 aerial photographs used for determining H&H models include some of the major changes in the DFE DPA such as the final Rochester Levee and borrow area, the final CWWTP levee and borrow areas, the DART landfill, the many small landfills that presently exist along Lamar Street, the McCommas Bluff Landfill levee, Southeast Landfill Levee, and the White Rock Creek Sludge Landfill to name a few. In the report (page 4-22) the H&H model

209. used for the NED Plan was the Upper Trinity River Study model. The dates of the aerial photographs for the Upper Trinity River Basin should be provided as well because these determine the flood levels in the DFE DPA. Aerial photographs seven years old are probably outdated for determining the H&H of the Upper Trinity River with the fast pace of the changes that have occurred within the floodway.

210. Third bullet (page 4-22) references statistical probabilities without confidence intervals. The GRR/EIS fails to provide statistical confidence intervals about the probabilties. This is usually provided as plus or minus factors. According to the report the incremental year floods (1 yr., 2 yr., 5 yr., 10 yr., 25 yr., 50 yr., 100 yr., 500 yr., SPF 1,000+ yr.) equal the corresponding

207. Your comment is noted. A historical listing of all permit actions in the proposed project area is not relevant to the proposed action and therefore is not warranted. If this information is desired, the relevant resource agencies should be queried to provide the desired documentation.

208. The last paragraph and bullets on page 3-8 of the draft GRR/EIS describe the projects included in the hydraulic model used for this phase of the investigation.

209. See response to comment #206 on page N - 136. Updated topography will be obtained during the next phase of detailed design should the project be approved to that stage.

210. Confidence limits are addressed on page A-24 of Appendix A under "Risk and Uncertainty Analysis".

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probabilities given as percentages (99%, 50%, 20%, 10%, 4%, 2%, 1%, 0.2%, 0.001%) of flooding by chance. When these incremental floods are put into real surface flood elevations that include the statistical confidence intervals it will show that the amount of overlap at one standard deviation is substantial and at two standard deviations (99 percent confidence) the elevations can not be segregated especially when the difference between levee heights for the 100 year levee and the SPF levee are within 12 feet as previously written and commented on in this review.

211. The GRR/EIS fails to provide the 1990 flood surface elevations topographically, but does provide one profile graphic in Appendix A. This should be provided as a modern datum profile for the DFE DPA. The 1990 flood

212. was reported in the local media as a flood that fit somewhere within the 1-2% probabilities as described in this report. However in this report the 1990 flood was considered less than a 35 year event (Appendix A, Plate A-25). This flood surface water elevations was less than two feet below the levees at the southern end of the Floodway with levees in the profiles that are suppose to be 426 ft asl. The 1908 flood was also recorded as a large flood event that reached the lower elevations of Oakland Cemetery (see 1917 topographic map, scale 1:50,000 on file at the CE), perhaps larger than the 1990 event, as well as a large flood in the 1950's. These three major floods in less than 100 years would indicate that these floods belong in the 2 - 4% probability range, however they were devastating to Dallas and the DFE DPA. Oakland Cemetery elevations exceed 420 feet asl and the proposed SPF levee heights may be sufficient but a confidence level about the variance should be applied.

213. Recreation Plan (page 4-21) should only be included in the Federal discussion if Federally funded. If the sponsor pays the whole amount it should

211. Comment noted.

212. See response to comment #42 on page N - 81.

213. A review of the Table of Contents shows that the referenced paragraph is in the "INITIAL SCREENING OF ALTERNATIVES" section, and is not intended to represent the final Recommended Plan, as presented in Chapter 6 of the Draft GRR/EIS. As stated in Chapter 6, beginning on page 6-7, recreation is included in the Recommended Plan, with applicable Federal cost sharing, as shown in Tables 6-10 through 6-12 of the draft GRR/EIS.

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e attached as an appendix because it came about as a result of the Federal project and therefore any impacts by the City's recreation plan to Cultural Resources, the environment, and HTRW contamination would also be paid by the City, spelled out in a Memorandum Of Agreement (MOA). The GRR/EIS needs to state whether Recreation is included or not. As previously stated funding for recreation is doubtful because the project exceeded a BCR of 1:0. If funded, the GRR/EIS needs to provide a recreation plan as the trail described in Appendix I, and previously commented on in this review. The rest of the Recreation as presented in Appendix I is window dressing for this report, however interesting from the overall planning aspect of the DFE study area and should be included in the stand alone GRR. In Table 4-5 the shaded row

214. should be labeled the NED plan. The cost and the economics of the sponsor paying for the recreation is not included in this GRR/EIS.

215. Investigated Structural Alternative (1st para., page 4-27) smaller projects such as swales would provide no upstream benefits but have benefits in the DFE DPA. Clarify why swales in the upper reaches do not provide benefits. Previously, the entire justification of this project was based on the backwater flood effect from the DFE and this project is suppose to provide relief for the upstream portions including the CBD. Here, as written, the swales do not provide relief upstream of the CBD, therefore why would they provide relief downstream? This needs further explanation, otherwise swales are not justified as a flood prevention feature. Take the swale out of the project, that supplies the dirt to build the levees, makes the project not viable. GRR/EIS does not explain what benefits would be lost.

216. The GRR/EIS briefly mentions the Linfield Landfill in the third paragraph (page 4-27). In this short paragraph the GRR/EIS does not provide

214. See response to comment #199 on page N - 135 and comment #213 on page N - 138.

215. Following the initial screening of alternatives and subsequent "In-Progress Review Meeting", described on page 4-22, the process of optimizing alternatives was initiated. The ***"Revised Swale Plans Investigated"*** section, on page 4-27, presents the results of investigations conducted to determine the optimum size of swale which would yield the maximum net economic benefits. The smaller width swales would not provide *"..as many upstream benefits..."* as the 1,200-foot swale, as stated in the first paragraph, but would convey flood waters through the DFE area more efficiently than under existing conditions, and would therefore yield economic benefits. These smaller swales were investigated due to the significant environmental impacts of the 1,200-foot swale. As shown in Table 4-6, all the swale alternatives were feasible.

216. Due to the lengthy nature of this study, the plan formulation process was described as succinctly as possible. Appendix J presents the final plans, and the investigations done for the final plans were not complete during the preliminary plan formulation process. The alignment of the 300-foot upper swale would follow the alignment of the 1,200-foot upper swale, as shown in Figure 4-6. Figure 4-8 presents the revised alignments in the lower swale. Presentation of levels of protection was not deemed necessary for this table.

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any information on the HTRW contaminants in the Linfield Landfill (Appendix J). The GRR/EIS fails to provide a brief history when the Linfield Landfill (LL) was created and what agency created the Landfill. This part of the GRR/EIS fails to incorporate information provided in Appendix J. Figure 4-8 provides no upper swale alignment which has always been considered in any of the CE plans for the DFE. GRR/EIS provides the various swale plans woithout providing the level of protection by the different alignments.

217. GRR/EIS does not provide any description of the contaminated areas within the Joppa community (5th para., page 4-27) as shown in Appendix J.

218. GRR/EIS does not provide the method for determining 10 trees per acre (6th para., page 4-27), or what kind of trees, or the size of the trees.

219. Table 4-6 (page 4-28) shows a 47 percent increase in the cost of the "Chain of Wetlands" over the 300'/500' Linfield Swale. The "Chain of Wetlands" (COW) was described as only up to 2 feet deeper in some areas. The GRR/EIS does not explain the astronomical difference in cost between the two projects. Then, due to the much higher cost of the "Chain of Wetlands" only a 0.1 drop in the BCR, but a $1.7 million dollar increase in net benefits needs to be explained.

220. Then, in Figure 4-9 the upper swale shown as 400 ft. bottom width, approximately 13,160 ft. long, and 2 ft. deep. The lower swale is described as 600 ft. bottom width, approximately 13,160 ft. long, and 2 ft. deep (page 4-27). With the variance of depth for the wetlands described as 2 feet deeper the total excavation of this project will minimally exceed $1x10^6$ yd^3 of excavated floodplain soil redistributed in the two levees. The swale through LL is described with a maximum depth of 30 ft. and a minimum depth of 9 ft. deep which tremendously exceeds the 2 ft. depth described previously. This part of

217. Appendix J presents the final plans recommended for possible implementation, and the investigations done for the final plans were not complete during the preliminary plan formulation process.

218. The provision of 10 trees per acre was a preliminary estimate, prior to detailed habitat analysis. It has been determined that ten trees per acre could be planted and allowed to grow to maturity without adversely affecting hydraulic efficiencies of the COW. The type of trees has not been determined but probably would be hard mast producing trees that can tolerate temporary inundation.

219. The preliminary cost estimate for the Chain of Wetlands included the costs for deeper excavation and disposal of material, planting of trees and grasses, and addition of pipes and small water control structures to interconnect the wetlands and regulate water elevations within each cell. The difference in net benefits between the Chain of Wetlands and the 300'/500' *Linfield* Swale, which have the same alignments, is only $0.8 million, which is explained by the additional conveyance area resulting from the wetlands. A difference in BCR (of 0.3) is inconsequential, as selection of alternatives is based on net benefits, not BCR.

220. The early plan formulation efforts as presented on Figure 4-9 were subsequently refined leading to the final recommended plan fully described in Appendix C and Chapter 6.

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ie GRR/EIS does not incorporate the information provided in Appendix C
vhere 3.2 million cubic yards will be removed from swale excavations. The
GRR/EIS provides no surface elevations of this alignment and needs to explain
these descrepancies, or further incorporate Appendix C and delete this
discussion altogether.

221. Table 4-7 shows the COW with SPF Levees. The levees appear to cost $32.6 million, a whooping $10 million more than the credit the City of Dallas got for the two levees they had built and completed three years ago. The GRR/EIS needs to explain this higher cost difference. In fact the cost of the Federal levees far exceed the cost of the two levees of similar size built by the City. This cost difference needs to be explained.

222. The GRR/EIS (page 4-28) reads as if the COW was in the NED Plan, as well as previous plans, and it should clarify whether this concept was part of the previous plans. Originally, there was the 1200 ft. NED Plan swale, then various versions of the western swale alignment, then the addition of the levees, and then the addition of the "Chain of Wetlands." The GRR/EIS is not consistent

223. with the plans they describe in the GRR part of this document, according to Figure 4-10, the COW developed within the swale alignments exceed the widths of the each respective swale (400 ft. upper, 600 ft. lower).

224. The GRR/EIS needs to explain the negative amounts shown in Table 4-7 where the Annual Cost of the COW with SPF Levees will cost more annually than the Net Benefits the project provides by a ratio of 1.7:1. This indicates that the GRR/EIS needs to explain how the Annual Benefit for the above alternative were calculated. Whatever the explanation, it has been lost in the

225. myriad of alternatives and benefit juggling previously described. The latest plan, the RP is the one that counts, and the benefits derived from that plan are

221. The cost of the Rochester Park Levee and the CWWTP Levee modification was approximately $27 million, according to information provided by the city of Dallas. Additionally, the CWWTP Levee modification involved raising an existing levee, and was not an entirely new levee. Differences may also be explained by the difference in real estate costs estimated for the city's levees versus the proposed levees.

222. The planning process, by nature, is an iterative process through which various measures, or alternatives, are investigated to derive the optimum plan. The initial screening of alternatives resulted in the preliminary determination that a 1,200-foot bottom width swale should be further investigated, as stated and shown on page 4-21. Variations on this measure were then investigated, as presented on pages 4-27 and 4-28. One of these variations, in conjunction with the sponsor's desire to add wetland features to the plan, was the chain of wetlands.

223. Again, the alternatives presented in the plan formulation process were investigated in order to derive the final Recommended Plan; as such, the final plans may not be identical to the preliminary plans.

224. Net Benefits, by definition, equals the Annual Benefits minus the Annual Costs. As shown in Table 4-7, the Annual Benefits ($11.5 million) exceed the Annual Costs ($7.2 million), thereby producing the Net Benefits of $4.3 million. A comparison of Annual Costs to Net Benefits is inappropriate.

225. The Recommended Plan, and the environmental impacts thereof, are certainly important elements of the EIS. However, as stated, the Draft GRR/EIS is an integrated document, in accordance with 33 CFR Parts 230 and 325 (ER 200-2-2) and must, therefore, describe the planning process used to derive the Recommended Plan.

what is important.

226. The GRR/EIS is vague and unclear about how much the RP cost (Table 4-7) when the cost of a 1,200 ft. swale that is longer wider and deeper, requires more mitigation area, requires land acquisition to dump excavated material, land acquisition to develop the swale, etc. is only about half the cost of the proposed plan. With ease three of the proposed upper swales and two of the proposed lower swales would fit in the 1,200 ft. NED plan at twice the depth. In the RP the excavated material has two alignments for the excavated material that can be placed at much less cost, and the mitigation area required is much smaller because the project area is much smaller.

227. The GRR/EIS needs to clarify if the cost of other alternatives reflect today's prices as in the RP, or reflect prices when the plans were devised such as in 1992 for the 1,200 ft. NED Plan. This is brought into question in Table 4-4 and Table 4-7 that have different dollar amounts $43.8 and $47.5 million for the 1,200 ft. swale.

228. The GRR/EIS needs to explain the omission of the TXDOT I-45 channel realignment that has received no discussion in the text or included in the cost accounting up to this point. The GRR/EIS needs to explain the three channels

229. that are shown in Figure 4-10 or at least incorporate into the discussion Appendices (C, F) that detail the channelization. At the lower end of the upper swale a channelized portion of the river is shown west of the existing channel and a pipeline connecting the lowest swale with the upper swale right next to each other. Wetlands are shown as Open Space/Undeveloped Land, "wetlands" to the southwest of this proposed channelized part. In order to create less environmental impact the GRR/EIS should consider connecting the swale to

226. The Recommended Plan (RP) is not included in Table 4-7. As stated, this section of the document includes preliminary analyses of alternatives and does not represent the detailed analysis and design performed for the Recommended Plan, as presented in Chapter 6 and in the appendices. A comparison of the costs for the 1,200-foot swale in Table 4-7 with the costs for the Recommended Plan in Chapter 6 is invalid due to the different price levels (October 1995 vs. October 1997) and levels of detail involved in the designs.

227. The italicized portion of the heading for each table in the document shows the price levels, Federal interest rate, and period of analysis used in the economic analysis contained within that particular table. The outline of the document, as presented in the Table of Contents, also reflects the chronological presentation of the investigations.

228. The proposal by TxDOT for realignment of the river at the IH-45 bridge was presented during the EIS scoping process in December 1996, which is beyond the chronological date of the analysis presented on page 4-28.

229. The details of the channels in the Recommended Plan are presented in Chapter 6 and in the appendices mentioned. The channelized portion of the river at IH-45 was unintentionally shown on this figure at this point in the document. This figure has been revised to remove this channelized area at IH-45.

The proposed chain of wetland swales cannot be hydraulically connected to the existing CWWTP swales because of the large differences in the excavation depths and the design water levels between them. The proposed swales and the existing swales are already "connected" in terms of their close proximity, which enhances the flow continuity between them since both have similar floodplain roughness characteristics.

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the already existing wetlands that were created as borrow for the CWWTP Levees. This would also lessen the cost of the project, maximize land that has already been disturbed, lessen the impact to the forest and create less mitigation.

230. The CE needs to explain in the GRR/EIS why they are doing TXDOT's work for them by channelizing the Trinity River shown in Figure 4-10. The GRR/EIS needs to clarify which agency is paying for this work, and the cost involved. So far in the text, the channelization has not shown up in the cost accounting. The channel appears to be approximately 300 ft. wide and 2,640 ft. (1/2 mile) long. The GRR/EIS does not discuss where the material excavated from this channel will be placed, either in the planned levees or at some other depocenter. However, in Appendix C the channelized portion of the Trinity river is fully discussed and the existing channel will be filled in (see Photograph 10 and discussion on pages 33-35). Again the information provided in the Appendices is not incorporated and organized well into the body of the text. The GRR/EIS provides no discussion of an MOA or MOU

231. (Memorandum of Agreement or Understanding) being composed between the two agencies for such an undertaking which is the normal protocol for work exchanges between two government agencies. There is no correspondence with TXDOT provided in Appendix L. This part of the project should be shown as a reduction from the overall project cost if TXDOT is paying, and included in the project cost if the taxpayers are paying with the bond money that was passed on the 2 May 1998 election. The GRR/EIS needs to clearly state who is paying for this work.

232. The GRR/EIS should state the real purpose for this channelization which has to do with some wearing away of the concrete supports by flood

230. The channelized portion of the river at IH-45 was unintentionally shown on this figure at this point in the document. This figure has been revised to remove this channelized area at IH-45. See response to comment #33 on page N - 27. Again, the information provided in the appendices pertains to the Recommended Plan and the LPP, as presented in Chapter 6 of the draft GRR/EIS.

231. See response to comment #33 on page N - 27.

232. The explanation of the river realignment at IH-45 was presented on page 4-69 and on page A-25 and A-26 in Appendix A of the Draft GRR/EIS.

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debris hitting the upstream end of the concrete pillars supporting the I-45 bridge. When the bridge was built highway engineers planned that the channel would pass to the southwest where they built larger pillars and abutments that would withstand debris from floods. It is hard to understand why they placed the reinforced pillars where they did when historic maps (1917 topographic maps surveyed in 1908) show the present flow pattern of the Trinity River has been stable since at least 1917 or earlier, and admitted as such in Appendix A. TXDOT, or the CE is taking it upon themselves, to simply alter the flow of the Trinity River to go where the CE claims without supporting documentation that the bridge is weak and poses a danger in it's present condition. The CE just states that supports were built where the river should go through the bridge and the CE will fill in the existing channel. Although there are no reports from structural engineers or any other detailed report in the GRR/EIS from any other agency that details, indeed, the bridge is weak and this work has to be done. The river channelization combined with

233. the new swale, a naturally narrow channel, new narrow channel, and the already existing disturbed borrows to the southwest will potentially alter and erode the oxbow that has been there since before the land was occupied by settlers and upset the river aquatic ecology. The oxbow is there naturally for a reason although not explained in the geotechnical (Appendix B) part of this report. The erosion would create a channel between 1,000 to 2,000 ft. wide filled with sediment bars creating shallows for more flood debris to pile up under the I-45 bridge, restrict aquatic mobility up the river, and ultimately impede conveyance.

234. Furthermore, the GRR/EIS fails to recognize that the Cultural Resources sites 41DL 317, 318, 319, 357 located on the oxbow may be subject to

233. The I-45 channel realignment would minimally alter the existing meander pattern of the river and has been sized to closely approximate the capacity of the existing river channel. The dominant river discharges that have the greatest influence on channel geomorphology have not been significantly altered. In addition, the wetland swales have been designed and located so as not to disturb the existing dense forest on the overbanks of the oxbow channel area, thereby limiting the near bank flow velocities. Therefore, no additional erosion in this area is expected.

234. See response to comment #96 on page N - 105.

erosion and disturbance as a result of the alignment of the southern most swale in the upper swale alignment directing floodwaters at the sites (see Figure 5 in Cliff et al., 1998, and compare to Figure 4-10 in the GRR/EIS). Even if the CE can avoid these sites by designing the project around the sites they are still going to be impacted as a result of the undertaking and further testing and mitigation is going to be needed. Therefore, Phase II test excavations are necessary at these sites to determine if they represent one large site or three separate sites and to determine the NRHP eligiblity status of the sites.

235. Additionally, the channelization of the Trinity river and the swale at the southern end of the northern swale alignment will impact Cultural Resources sites 41DL 337, 338, 355, 356 where the old CWWTP outflow channel is located (see Figure 5 in Cliff et al., 1998, and compare to Figure 4-10 in the GRR/EIS). Again, this will require Phase II test excavations at these sites to determine their NRHP eligibility.

236. In Figure 4-10 of the GRR/EIS the use of the terms Great Trinity Forest, Trinity State Park and The Trinity Trail are erroneously used because these entities do not exist at present nor during the last six years since the development of the NED Plan. This leads to confusion and misconceptions.

237. Throughout the GRR/EIS it is hard to correlate project features with landmarks because in all figures displaying certain project features the text describes the features relative to the roads, highways and streets that have been mostly omitted from the maps. The project should be overlaid onto Mapsco type street coordinates, or if streets, highways and railroads are used in the text they should be labeled accordingly.

238. In the GRR/EIS Figure 4-10 there are two gaps remaining in the levees after the planning stage that are unexplained. A small gap occurs along the

235. See response to comment #4 on page N - 16.

236. See response to comment #66 on page N - 88.

237. New figures have been used in the final GRR/EIS.

238. The Lamar Street Levee ties into the existing East Levee of the Dallas Floodway. A gap in the figure is unintentional at this location. The current proposed swales combined with the proposed levees *will* provide a small increment of flood benefits for properties along Cedar Creek that are subject to flooding from the Trinity River. A potential levee placed across Cedar Creek to provide a high level of flood protection from the Trinity River is impractical due to the size and configuration of the Cedar Creek drainage basin. Such a levee, while protecting properties along Cedar Creek from flood waters of the Trinity River would also prevent runoff from the Cedar Creek drainage basin from entering the Trinity River during a flood event. The result would be worse flooding on Cedar Creek since sufficient space to store the required runoff volume is not available. Alternatives to extend the proposed levees between Cedar Creek and the damageable properties along Cedar Creek are impractical due to the close proximity of these properties to the creek.

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left side of the floodplain at the north end of the proposed Lamar Street Levee between the existing southern end of the Dallas Floodway Levee where floodwaters can migrate northeastward flooding businesses along Industrial Boulevard and Lamar Street. A huge gap occurs on the right side of the floodplain between the southernmost extent of the Dallas Floodway Levee and the planned Cadillac Heights Levee. The confluence of Cedar Creek is left open for floodwaters to backup and flood Moore Park and Cadillac Heights, therefore no level of protection is provided. Figure 4-10 is very similar to Figure 6-1 in

239. the Recommended Plan except the Cadillac Heights Levee is reduced further providing even less protection. Therefore, the GRR/EIS fails in all of it's descriptions of protection and benefits to provide protection and prevent loss of property for Cadillac Heights making all the BCR highly suspect.

240. The GRR/EIS briefly describes and considers for the first time in this long account of the evolution of the DFE plans a buy-out when it comes to the Locally Preferred Plan (LPP). In the LPP a buy-out of the entire 100 year flood zone consisting of 508 structures. The GRR/EIS does not relate the number of structures and the cost to the figures presented in Figure 3-5. GRR/EIS does

241. not provide any footprint map(s) of structures within the 100 yr. flood zone, or SPF level flood zone for any of the Reaches as produced on the CE in-house GIS maps. These maps should be provided for clarity when discussing land,

242. easements and right of way(s) (LER) in Appendix E (Real Estate). Topographic

243. elevation lines are omitted as well within the Reaches and structures within the 100 or SPF flood zone. These elements should all be included in a well written EIS and provided in the first Appendix on the physical geography, geology, street maps, railroads, etc.

The way this GRR/EIS non-structural part is written it lacks the

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239. It is correct that Figure 4-10 and 6-1 in the draft GRR/EIS were similar, except that the Cadillac Heights Levee are reduced. Subsequent to the release of the draft GRR/EIS, the Assistant Secretary of the Army (Civil Works), has determined that the plan providing SPF levels of protection to both the Lamar Street and Cadillac Heights areas, denoted as the Locally Preferred Plan in the draft GRR/EIS, should be the Federally Supportable Plan, and therefore the Recommended Plan. Revisions have been made in the final GRR/EIS to reflect this decision.

240. The non-structural analysis shown on page 4-35 and Table 4-8 is the second iteration of three non-structural plans investigated in the document. The first is shown in Table 4-1, page 4-8, and the third is presented later in the document, beginning on page 4-72, as a combination structural / non-structural plan. Table 3-5 presents the total floodplain investment, by reach, under existing conditions. The structures in Table 4-8 would be included in these structures.

241. Due to the infeasibility of all the non-structural alternatives, detailed maps of the footprints of the structures was not deemed necessary.

242. Figures 1 and 2 in Appendix E provide property line boundaries for those properties affected by the Recommended Plan.

243. See response to comment 241 on page N - 146.

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244. that the other structural alternatives receive and it appears the lusions are known before the plan is laid out (pages 4-35,36). The cost ided in the third alternative "0-100 year flood zone" (page 4-36), at $60 lion is certainly cheaper than the amount that was passed in the bond ction. The GRR/EIS fails to compare this non-structural alternative to the ecommended Plan (RP).

245. Furthermore, the GRR/EIS fails to provide a cost break down of the 378 tructures, 88 commercial, 39 industrial, 3 public, or a list of the (508) properties which is common on government projects. The GRR/EIS fails to show the footprint of where these 508 properties are located relative to the 100 year or SPF flood elevations and in which Reaches they are located. The GRR/EIS at a minimum fails to include among the 508 properties which properties are within Reaches 4A and 5, the most critical in the DFE plan. The GRR/EIS fails to use the Reaches delimited earlier in the report, therefore, what good do they serve if they are not going to be used in the text. Therefore, delete the entire Reach text that does not apply to the DFE. GRR/EIS needs to provide the LPP or RP by Reach with structures for the DFE Detailed Project Area only.

246. Table 4-8 which is applicable to a buy-out, the annual costs are listed as $5.8 million after the cost of the buy-out at $60 million. The GRR/EIS does not explain what the annual cost is for after the buy-out and once the structures are removed. The GRR/EIS needs to justify these costs and where and what the money is going to be spent on annually.

The GRR/EIS still contains no mention of other non-structural/ structural alternatives or other creative ways to reduce flood potential in the DFE.

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244. The analysis shows that a buyout of structures by flood zone would not be economically justified. Although the cost to which the comment refers ($60 million) is less than that passed in the bond election, lowest cost is not the criteria by which the selection of a Recommended Plan is made. Maximum annual net benefits is the major criteria used. The "0-100 Year" buyout plan would have *negative* annual net benefits of $4.5 million, thereby making it infeasible.

245. The entire study area is evaluated during the plan formulation process. The study area remains constant while the plan formulation focus shifts to the area in which a viable alternative has been identified.

246. "Annual Costs" are not over and above the "First Costs". The project first costs are converted to an annual basis, using a 50-year period of analysis and the current applicable Federal interest rate. Economic benefits for a project are also annualized so that a direct comparison of annual benefits to annual costs can be made to determine "Net Benefits" ("Annual Benefits" minus "Annual Costs").

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247. 1) opening up existing impediments to the river flow such as roadbeds, increasing openings of existing bridges (Loop 12), removing parts of landfills and lessening landfill impedance for conveyance;

248. 2) subterranean conduit conveyance of water downstream and possibly using the Super-Conducting Super Collidor (SSC) underground tunnel as a bypass for floodwater to Richland Chambers Reservoir (water from this reservoir is used by Tarrant County Water District), or the Trinity lower down

249. 3) upstream West Fork as well as the Elm Fork conveyance basins and additional subterranean sumps in the Dallas Floodway;

250. 4) pumping floodwaters up the East Fork of the Trinity river to Lake Ray Hubbard reservoir (Dallas County Water District). This is not too far fetched because water from Cooper Lake reservoir is pumped from east Texas (Bowie County) to Dallas County, and water from Richland Chambers reservoir (Navarro County) is pumped to Tarrant county (as was seen this summer with the water line break from the reservoir to Fort Worth);

251. 5) Use of natural or borrow pits downstream for detention or stilling basins ponds that can be used as a system of small reservoirs for irrigation in south Dallas and Ellis County.

252. 6) Or, a combination of any of the above, would recycle the water where it would be put to good use as opposed to just pushing the flood downstream effecting the economics and lives of those cities and towns lower in the Trinity river corridor as was the case in the 1989 and 1990 floods when heavy rains in the Upper Trinity River Basin including the DFE combined with substantial rains and runoff in the middle reach causing catastrophic floods in the lowest part of the basin. In the previously mentioned floods almost all floodwater was lost into the Gulf and none was put to good use, therefore,

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247. See response to comment #47 and #48 on page N - 83, comment #121 on page N - 113, and comment #166 on page N - 126.

248. The capacity of an underground conduit would not provide any significant benefits to the DFE area. Diversion of polluted floodwater to reservoirs from which municipal water supplies are drawn would induce higher water treatment costs.

249. See response to comment #168 on page N - 127.

250. Diversion of water for flood damage reduction for the Trinity River by means of pumping is not economically feasible. As you indicate, providing augmentation to available local water supplies by pumping from other sources has been found feasible in some cases.

251. Storm water detention must be located upstream of the damage reach in order to provide benefits to that reach.

252. A flood that causes damage is an excess amount of water that cannot be used in a given amount of time unless it can be stored for future use. There are limited uses for floodwater under these conditions. Needs for surface runoff such as water supply, irrigation, and power generation, are generally met by non-damaging runoff events.

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loosing a valuable resource.

253. The GRR part of the GRR/EIS is a government planning document, and as such, reflects a CE District agency in charge of the nation's waters in their District carrying out the National policy. The National policy is not stated anywhere in this document. It is highly doubtful that the National policy would allow the CE District to issue permits for landfills within a HTRW contaminated, highly constricted variable floodplain prone to flooding if the CE carried out the National policy in a responsible manner. This area shows the lack of management and planning by the City and individual developers armed with CE permits creating the landfills that constrict the flow, built single purpose levees further constricting the flow, and the overwhelming majority of the City of Dallas taxpayers did not create this problem. Through shortsightedness, lack of knowledge of the area, no planning by City or the Federal government, and mismanagement by the agency's and elected officials it should be up to them at their cost to remove the problem, not the taxpayers. They share no liability for their errors of judgement and management. The

254. GRR/EIS must list the permits issued to various individuals and agency's within the DFE as part of the background history of the EIS part of this report. The GRR/EIS provides no Appendix for the CE Regulatory Section and omits any discussion of this part of their work altogether, indicating that the Planning Division and the Operations Division at the CE do not communicate. The permit history should extend back through whenever the CE started issuing permits for stretches of river in the DFE since the study began (ca. 1962) and any

255. landfills that presently exist without a permit should be removed, the owners fined, and the landfill(s) removed at the owner's cost.

Chain Of Wetlands (COW), page 4-36 (1st paragraph), "Second the city's

253. There is no single national policy to cover the complex situation within the study area. The proposal has been reviewed for compliance with local and national Corps of Engineers policy and has been reviewed by multiple agencies during the NEPA process. The proposed plan is in compliance with national policies to provide flood damage reduction benefits in an environmentally sensitive manor.

254. See response to comment #207 on page N - 137.

255. Comment noted.

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256. desire to add project features which would restore some of the corridors fish and wildlife habitat qualities...a series of connected wetland pools within the open grass-lined swales." The GRR/EIS fails to describe the fish and aquatic habitat or any of it's qualities, therefore the fish and aquatic habitat qualities can not be restored when they are unknown. The GRR/EIS fails to explain how this will be done. A series of connected wetland pools on the average 2 feet deep will not restore the corridors fish and wildlife habitat. In hot summers like the present 1998 summer the swale will be a dry weeded ditch. The CE does

257. not provide the amount of CWWTP treated pumped water that will be needed to flow into the swales under the high temperature and evaporative conditions prevalent in the summer of 1998 for instance. The GRR/EIS fails to include the

258. cost to taxpayers of pumping CWWTP treated sewage water in very hot and low rainfall seasons and years such as 1998 when more water is needed. The Trinity river in the DFE is the major wetland with rich vegetation, associated aquatic life, although stressed from HTRW contamination, the lack of dissolved oxygen (high algal bloom content, turtle shells covered with algae), high siltation (total lack of bivalves [asiades] , gastropods unknown) from constant outlet flows from reservoirs upstream (10,000 - 20,000 cfs Appendix A) that need to discharge the relatively high flows in order to flush the drainage of fecal colliform from sewage treatment plants in the drainage basin. The GRR/EIS does not provide any solutions for cleaning up the water quality of the Trinity river through the DFE that receives all the water from the developed cities upstream. The GRR/EIS does not incorporate the results of

259. HTRW (Appendix J) site locations or even potential HTRW sites in areas where there has been known pollution such as the old Waste Water Treatment sludge ponds in Cell C of the swale (COW). The GRR/EIS HTRW section does not show

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256. Appendix F, page F-9 provides a description of fish and aquatic h[illegible] the proposed project area. Aquatic habitat in the project area will not be sign[illegible]ntly impacted by the proposed project and will therefore require no mitigation for aquatic habitat. The chain of wetlands would provide habitat for fisheries and serve as a corridor during periods of high river flow.

257. Pumping capacity has been designed to allow for continual pumping at such a time when maximum surface evaporation and transpiration are occurring in the wetlands in order to maintain desired water levels in the wetlands. Pumping capacity has also been designed to allow refilling of the wetland system within a few weeks following a wetland water level drawdown for maintenance and management purposes.

258. As stated in Appendix A, releases from upstream reservoirs are not constant. Releases are limited to a combined total of 13,000 to 15,000 cfs and are only required for sufficient time to evacuate the flood storage in the reservoirs following a flood event.

259. See response to comment #3 on page N - 14.

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260. CWWTP outlet upstream and existing sludge pits in the area since 1912, the old Fair Park sewerage outlet across from the CWWTP, the chrome recycling plant, the metal plants, Two lead smelters, the meat-rendering plant, and other nearby areas on Sargent Road that were fenced with high barbed wire fences in 1992 with no entrance warning signs posted due to contamination. The HTRW (Appendix J) admits the work of locating polluted areas and sampling is not complete. This work needs to be incorporated into a completed EIS. Again, this demonstrates the incompleteness of this document.

261. There is no discussion or an appendix on water quality. This issue of water quality certainly needs to be included especially with the swale receiving treated sewage water from the CWWTP 67 percent of the time and the treated sewage water does not meet the TNRCC standards 67 percent of the time for fecal colliform and who knows what other chemicals (such as chlorides and fluorides). Another area not included in the GRR/EIS is presently a DART

262. landfill along Sargent road that covers some of the contamination when landfilling operations began in 1992. This landfill is an obstacle to the Cadillac Heights RP levee alignment not considered or updated in the GRR/EIS. The GRR/EIS does not even recognize many of the HTRW areas due to lack of field work and analyses.

263. Each landowner and business that comes under the National Pollution Discharge Elimination System (NPDES) should be listed in the EIS and verfication should be provided that each has a plan and NPDES permit. Clean

264. up the water in the Trinity river and the river will do even better, the proposed project in the GRR/EIS does not demonstrate any contributing factor to the quality of the natural aquatic habitat, or wildlife habitat quality within the DFE DPA.

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260. See response to comment #3 on page N - 14.

261. Water quality is discussed in the main report and in appendix f as necessary to demonstrate existing water quality and to determine the effects the proposed project would have on water quality as required by NEPA and implementing regulations. The water quality of the wastewater treatment plant has been reviewed and adequate for the proposed use of improving the functions of the proposed COW without adversely affecting fish and wildlife resources.

262. See response to comment #3 on page N - 14.

263. Improving the water quality of the Trinity River is a concern that is being addressed by EPA, TNRCC and others. The primary purposes of the proposed project is to provide flood damage reduction, recreation and environmental restoration without causing additional impacts to water quality. Improving water quality is not a project purpose, however, it is believed that use of the effluent as proposed should result in slight improvement of the effluent water as it passes through the system prior to being placed into the Trinity River. Listing of each discharger into the river would provide no overall benefit to the analysis. Enforcement of NPDES lies with other agencies than the Corps of Engineers.

264. The purpose of the chain of wetlands is described on page 4-36 and the results of analysis conducted and described on pages 4-36 through 4-41 show that the chain of wetlands would provide a net gain of 184.57 average annual habitat units over just constructing the swales (Table 4-10). This demonstrates that significant wildlife habitat, primarily for migratory and resident birds would accrue due to the environmental restoration proposed.

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265. The GRR/EIS revised alignment discussion on pages 4-36 and 4-37 refers to tree quality issues without reference to, or demonstrating any Habitat Evaluation Procedures (HEP) or incorporating the information provided in Appendices F and G. These types of analyses use sampling techniques of representative habitats within a project area to measure Average Annual Habitat Units (AAHU) making up an Habitat Suitability Index (HSI). These measures are basic procedures in a proper EIS. The way the GRR/EIS is written there is a difference in the tree quality in the different alignments suggesting lesser tree and environmental value for proposed alignment, therefore less mitigation is needed. Without an HEP field analysis these environmental evaluations have no basis or data to support such claims. GRR/EIS does not describe or measure the area of previous disturbance and regrowth from abandonment creating less habitat value. If the area was left alone it would improve unless disturbed appearance is due to contamination, but the GRR/EIS provides no thorough and incomplete soil analyses in Appendix I..

266. Environmental Restoration (Wetlands) on page 4-37 as titled is misleading and a misnomer. GRR/EIS does not provide evidence of what needs to be restored. Nothing has been written in the GRR/EIS that requires restoration because the discussion is still in the GRR planning part of the report. A better title might be "Development of a Synthetic Managed Sewage Sludge Pit As A Wetland." GRR/EIS makes erroneous claim on page 4-37 (3rd

267. para.) "literature on wetland development in the Trinity River Basin," provides no references to the literature claimed. Literature references throughout the GRR/EIS are entirely missing except in a few Appendices and these are limited. GRR/EIS makes reference to spring and migratory

265. The entire area being evaluated for the alignment had been mapped for vegetative cover type including predominant tree types within the bottomland hardwood forest. Field data including data necessary to conduct an analysis with the U.S. Fish and Wildlife Service's Habitat Evaluation Procedures for the area had been conducted jointly with the U.S. Fish and Wildlife Service. This information was used to estimate the mitigation require for the different alignments discussed. One of the assumptions used in the HEP analysis was that the bottomland hardwood forest would improve over time in the absence of other disturbances.

266. Environmental needs including the need for restoration of emergent wetlands lost from past actions was described on page 3-19 and 3-20.

267. Literature was reviewed but not cited. General issues related to wetlands do not require specific citation.

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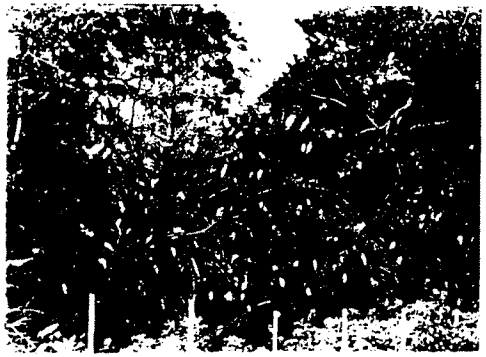
268. waterfowl, but none are listed, and makes no mention of the local avian populations such as the heron rookery on Rector Street at the east end and north side of Midwest Engines property (Photograph 14). One sentence in Appendix G mentions the rookery but no details towards the end. This rookery contains several hundred adult and young herons and egrets that was once larger with more birds (in 1992), but since DART built their facility and the present property owner has changed the amount of birds at the rookery is less, although still highly significant. To list a few of the rookery birds observed in two hours in June 1998 and photo documented: rare White ibis (Photograph 15), Black-crowned night herons, snowy egrets, cattle egrets, Great white egrets, Little blue herons and according to Appendix C the Cadillac Heights levee alignment will impact the rookery.



Photograph 14. The Rector street heron and egret rookery, June 1998.

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268. The rookery is well known and the project would not impact as currently proposed. See additional discussion to comment #18 on page N - 23.

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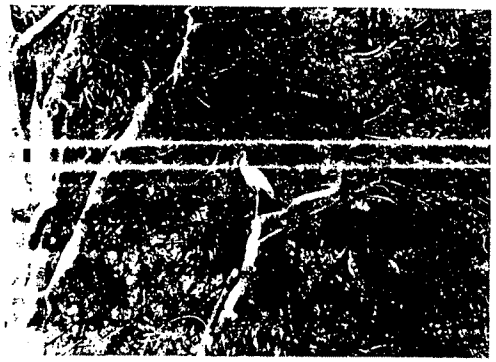

Photograph 15. Rare White Ibis at the Rector street rookery June 1998.

269. GRR/EIS on page 4-37 (4th para.), reference is made to 8,000 cfs flow would create overbank conditions great enough to flood wetlands and that this condition occurs 67 percent of the time. This is not substantiated by flow hydrographs in Appendix A. Appendix A datas not incorporated in the text or referenced in this regard. This is a very high percentage, in that, 67 percent of the time the Trinity river is out of it's banks. This is incorrect. The GRR/EIS does not back up this statement with any data. The data could be easily obtained from gauging stations which is not provided, as well as the times of the year this high flows occur. In 1998, the Trinity river in the DFE has only been out of it's banks a few times and not since March, already indicating the average is below 67 percent.

270. Another alternative not considered would include the upper basin reservoir control dams releasing enough water monthly to flood the swale

269. A complete review of the referenced paragraph would reveal that (italics added for emphasis) "...approximately 67% of the time, there would be sufficient water available under natural conditions, *during the spring and early summer*.....However, such a flooding event would occur only *5% of the time during August*... (and) *approximately 40% of the time during the October to January period*."

270. Existing water rights within the State of Texas place a low priority on use for fish and wildlife values. It is uncertain that the alternative to use existing water supply from upstream reservoirs can be used without concern that the City of Dallas might lose some of its existing water rights. The evaluations conducted indicate that the use of the CWWTP as makeup water for the wetlands would not cause violations of criteria for protecting aquatic life in the wetlands.

The upstream reservoirs that have flood control storage are required to release that storage as soon as practical following a flood event. The remaining conservation pool storage is allocated for municipal water supplies and is subject to the water rights of the local governing authority. Flood control storage will not be available for release year round on a monthly basis and will usually not be available for release during the dry months of the year.

providing natural water flows instead of the chemically treated sewage waste water from the CWWTP. This would also purge and regenerate the entire floodway. Perhaps this is less feasible although this was not considered as an alternative if and when the swale is excavated.

271. GRR/EIS (page 4-37 and page 4-38) incorrectly over emphasizes the amount of land, an increase of 123 acres of wetland from pumping as opposed to 83 acres is an increase of 48.2 percent in acreage and 515 percent increase in habitat units (117 to 19 HU). Although the Habitat Units is an unknown quantity. The GRR/EIS uses Habitat Unit (HU) for the first time without a reference or incorporating Appendices F and G, defining in a loose manner what is meant by HU as pertains to the Trinity river and the DFE DSA.

272. The GRR/EIS does not discuss the sump areas. Appendix C locates five along Lamar street but does provide the specifications and drawings.

273. In Appendix P (Environmental) (page F-59) under item (e) only 373 acres are accounted for environmentally while 184 acres of the 557 acres impacted is not accounted for in the total area by the levees (2), swale, and channelization. Sumps are not accounted for in this regard and their omission needs to be explained. An additional 1,000+ acres is needed for deposit of excess

274. excavated material totalling 3.2 million cubic yards of dirt. Of the 3.2 million cubic yards 1.3 million cubic yards is needed for the levees and 1.9 million cubic yards is contaminated. The landfill is located in the vicinity of Post Oak road, Wintergreen and I-45 (MAPSCO, 1992 78-79). The landfill that will be placed here represents an impact and needs to be included as an environmental impact and mitigated accordingly. The area also has to be

275. assessed for Cultural Resources. There is no mention of where the

276. contaminated 1.9 cubic yards of fill will go specifically. McCommas Bluff

271. We concur that percentages were inaccurate, as stated in the comment. These percentages have been corrected in the Final GRR/EIS. The percentage increases were stated in error. The text was changed to indicate that providing pumping increases the size of the wetlands by 48.2% and the habitat units(HU) by 515%. Habitat units, which is a term developed by the USFWS as quantification term for estimating habitat outputs or values through the use of the Habitat Evaluation Procedures. The value is calculated by multiplying the habitat suitability of a specific area times the number of acres within the area. Habitat suitability determined from models is a numerical value from 0 to 1.0 with one representing the theoretical best habitat within the ecoregion.

272. Discussion of interior drainage/sumps has been added to Chapter 4 and Chapter 6. Additionally, the appropriate figures have been revised to show the sump areas.

273. There are a total of 424.58 acres impacted by the chain of wetlands, the two levees and associated sumps and the channel realignment at the I-45 bridge for the recommended plan. Open water totaling 51.3 acres was not included in the draft text on page F-59. The errors on page F-59 have been corrected.

274. The proposed disposal site for excess material from excavation of the chain of wetlands is located downstream near the Dallas County boundary. This site has previously been approved for disposal of sediment from White Rock Lake. No new impacts requiring mitigation are expected to occur over those previously addressed in the decision making process to utilize the heavily disturbed abandoned mining pits for disposal of excess materials from the proposed project.

275. The site identified for disposal of surplus clean material was previously used for disposal of dredged material removed from White Rock Lake. This site was previously investigated and no significant impacts environmental or cultural resources would occur from placing additional fill at this site. No additional archeological survey would be required. The U.S. Army Corps of Engineers will complete all Section 106 coordination on any other alternative disposal sites that might be identified in the future for use by the current project. The use of existing disposal sites would not have an effect on historic properties eligible for the National Register of Historic Places (NRHP) if the site does not expand or impact additional areas which can be shown to have a potential for intact historic properties.

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landfill and others are mentioned but there is not any correspondence suggesting the CE has even contacted these landfills for permission to use the landfills. Furthermore, often additional costs are assessed by landfills for accepting such a large amount of fill. These issues need to be discussed in detail in an EIS. The highly contaminated landfill from such areas as Linfield

277. Landfill (see Appendix J, TNRCC letter of 1994) and lead smelter areas needs to be discussed further in terms of deposition site and standards for CERCLA related materials. There is no discussion of how the CE will determine the

278. contaminated areas from the non-contaminated areas when they excavate the swale, sumps, and clear for the levee right of ways. So far, admittedly in Appendix J the HTRW work is incomplete and further sampling and analyses need to be completed. Furthermore, areas within the swale alignment have

279. not been sampled. The Geotechnical work is incomplete as well (Appendix B).

280. The EIS is obviously not complete.

281. According to the Environmental appendix a total of 2,770 acres of the DFE study area will be impacted by the project which includes the mitigation areas. For Cultural Resources the mitigation areas represent an undertaking by discing, plowing, raking, grubbing, and planting much of the acreage in the 1,179 acres described as mitigation areas. Much of the environmental information in hidden away in Appendix F and not incorporated into the text and this is what an EIS is all about.

282. USFWS did the HEP analysis for the CE and is hidden away in Appendix G and not incorporated into the body of the text which again is what an EIS is all about. No detail maps are provided that locate where the HEP analyses were conducted. No description of the sample size for AAHU to determine HSI. Very little discussion of the environment other than normalized topical literature

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276. As presented in Table 1, page J-19 in Appendix J, of the Draft GRR/EIS, a total of approximately 478,700 cubic yards of "Contaminated Material" was estimated. This material was classified as non-hazardous based on current data. The only HTRW material tentatively identified was lead leachate from Linfield Landfill. Additional testing in Linfield Landfill, completed in November 1998, has shown that there are no hazardous levels of materials in the area of the landfill which would be impacted by the DFE project. These data have been incorporated into Appendix J, with resulting cost apportionment changes reflected in Chapter 6 of the main report. Discussions with the Avalon landfill were conducted in the development of disposal costs; however, construction could not begin for at least three years while awaiting project approval, so a definitive agreement for use of the landfill was not pursued. Final agreements for use of the disposal area would be the responsibility of the local sponsor.

277. See response to comment #3 on page N - 14.

278. See response to comment #3 on page N - 14 and comment #12 on page N - 22.

279. The level of detail presented is appropriate for this stage of design. Additional testing and analysis will be completed during the next phase of detailed design should the project go forward.

280. The level of detail presented is appropriate for this stage of design. Additional testing and analysis will be completed during the next phase of detailed design should the project go forward.

281. The information in Appendix F indicates the LPP would impact 424 acres of habitat and that 1,179 acres would be required to mitigate the losses from the impacts. This same information is disclosed in the main text of the report. Some technical information used to develop environmental resource baseline and impact information was not included in the main text but was displayed in Appendix F which is more technical in nature.

282. Corps of Engineers and U.S. Fish and Wildlife Service jointly conducted the habitat evaluation procedures. The results of the overall process were documented by the U. S. Fish and Wildlife Service in their draft Fish and Wildlife Coordination Act Report, which is included in Appendix G. Detailed information related to sample sites, field data, and computer analysis were not included in the report but maintained in office files.

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and no in depth study of the environment was conducted. The BHF and the

283. environment in the DFE is 40-50 years old and represents a regrowth of forest and wildlife habitat when most of BHF have been cleared in the state and across the country. It is rather presumptuous for the CE to assume what plants and animals occur in this environment. This is why this environment needs detailed study in the field, because we, and the CE, do not know what plants and animals make up this urban forest. Very little direct observation and field work went into the HEP analyses. Many of the cited works in Appendix F do not show up in the references, and this one of the only sections of the report where references are provided.

284. In Appendix G the mitigation area is not evaluated. The types of vegetation is in the mitigation areas need to be discussed. If mitigation areas are to be in-like-kind the high amount of plantings need to be discussed further. The total project impact 557 acres project features, 34 acres landfill in

285. golf course, 1,000+ acres comes to total impact comes to approximately 1,600 acres. The land set aside to mitigate for the project only represents 1,179 acres, or less than a 1:1 ratio (0.73:1) and is too small of a mitigation area relative to the project size. The mitigation area needs to be increased and lands up the White Rock creek drainage could be added if available.

286. It is not until one reads the Section 404 permit form at the back of the Environmental Appendix that one reads 64 percent of the time CWWTP exceeds the TNRCC standards for fecal colliform with values as high as 8,900 fecal colliform per 100 ml (3.5 oz.). This is the type of fecal matter percentages that will be pumped through the swale COW. This needs further discussion along with water quality issues.

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283. Multiple studies have been conducted in the past that document plants or animal species are expected to occur within the project area. The area of the proposed construction has been heavily impacted in the past and most of the area is covered by cottonwood, ash and mulberry which are not unusual in regrowth forests in the area. Species lists of plants were also taken as part of the field data at each habitat evaluation site. Rather than being presumptuous, the Corps has made extensive evaluations of the forest areas within the proposed project footprints and has developed, in conjunction with resource agencies, a mitigation plan that would provide for preservation and improvement of 1,179 acres of bottomland hardwood forest within the immediate area.

284. Appendix G, contains the draft Fish and Wildlife Service report detailing important information about existing resources and project impacts. As stated in this reviewers comment #282, the basic mitigation plan was developed and presented to the Corps for consideration in that report.

285. It has been determined that approximately 162 acres of existing bottomland hardwood resources would be lost if the FSP/LPP/Recommended PLan were implemented. The mitigation ratio for woodlands is more on the order of 7.2 to 1. If all the mixed grass forblands were considered to be reverting to bottomland hardwood forest in the without-project scenario, then the mitigation ratio would still exceed 3.1 to 1. All of this grassland would not naturally revert to bottomland hardwood, however. For example, the grassland identified as cover for the Linfield Landfill will not because its elevation is too high and the impervious clay top would prevent tree growth. Also the borrow area adjacent to the landfill lacks suitable topsoil to promote growth of forest. The mitigation was based upon impacts identified and management improvements that could be expected to occur on the mitigation lands identified. The mitigation plan was jointly developed with the U.S. Fish an d Wildlife Service using the Service's Habitat Evaluation Procedures and the plan recommended by the Corps is substantially in conformity with the plan included in their report. We cannot justify acquiring and managing additional lands for the mitigation plan.

286. The Section 404 (b)(1) analysis located at the end of Appendix F indicates that fecal coliform concentrations within segment 0805 of the Trinity River, not the CWWTP effluent, exceeds the criteria 36% of the time. The effluent from the CWWTP is disinfected prior to its releases into the receiving waters.

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287. The HTRW Appendix J is incomplete and represents major environmental issues not discussed or incorporated into the body of the text in the GRR/EIS. Fourteen HTRW sites were described in the appendix and there are actually 17. Only 26 new samples were taken for this EIS. Admittedly too few in the appendix. Admittedly, the results of the tests taken were not complete. More sites especially in the upper swale need to be sampled. Groundwater samples are lacking. The Linfield Landfill (LL) needs further sampling. The CE has not done the required work needed to comply with the dated TNRCC requirements. The LL is still on the EPA CERCLA list. No input or correspondence from the EPA is provided. The text does not incorporate what is in the HTRW appendix. The appendix is basically an incomplete search and find report with incomplete and insufficient data. HTRW in the DFE is a big problem with lead contamination as high as 129,000 parts per million in Area 9 and over 2,000 parts per million in some of the areas described in Appendix J. The entire subject needs further in depth discussion in an EIS. This is not done.

288. Overall the EIS is too long. According to 40 CFR 1502.7 an EIS should not be any longer than 150 pages and 300 pages for more complex issues. This GRR/EIS is over 900 pages of text, maps, charts, and graphs. It is not clearly written, many inconsistencies about project parameters and details are continually misused. This is not an EIS, it is a planning document with the environment considered as in an Environmental Assessment. An EIS should address a single plan and it's impact on the environment. The EIS should summarize the findings of study aspects as they pertain to the environmental impact of the project not just add lengthy descriptions as provided herein.

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287. See response to comment #3 on page N - 14. The results shown in the HTRW appendix have been incorporated into the cost estimate in Appendix K, and in the economic analyses in Chapter 6.

288. See response to comment #1 on page N - 14.

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July 17, 1998

Mr. Gene T. Rice, Jr.
Project Manager, at the U. S. Army Corps of Engineers
Fort Worth District, CESWF-PM-C
P.O. Box 17300
Fort Worth, TX 76102-0300

RE Comments or Additional Information on the DEIS

The Trinity River And Dallas Alternatives Against A Catastrophic Flood

Dear Sir:

Dallas needs and should get the most Bang For The Buck.

Our protection proposal for the Maximum Probable Event for approximately the same dollar investment will reap an increase protection from 226,000 cubic feet per second to 449,000 cfs - 81%.

For approximately the expenditure, why not protect for the whole calamity.

We are a four generation 100,000,000 plus cubic yard flood control family.

The existing flood protection offered by the Dallas Trinity Floodway is approximately 226,000 cubic feet per second, cfs. The current flood plan, is a Corps of Engineers, Standard Flood Plan. It increases the flood protection to approximately 269,000 cfs which is approximately a 15% increase above the existing flood protection.

1. The optimum flood study by the Corps of Engineers to meet the Maximum Probable Event increases the existing flood protection of 226,000 cfs up to 449,000 cfs. This is approximately an 81% increase above the existing flood protection and approximately 67% above the Standard Food Plan with approximately 269,000 cfs flood protection.

In the past fifty years Dallas has made phenomenal growth and has geometrically increased its exposure to potential loss due to extreme flows of the Trinity River. The Dallas Floodway simply, has almost half the flow capacity of a maximum potential of rainfall events.

By comparing Dallas at the maximum flow of the Trinity River, the recent floods of the Mid West, and the South Dakota floods, although serious and causing appropriations of $8,000,000,000, would be more comparatively referred to, as a "Spring Rise".

Dallas would seem a more wise community to plan and build a flood control system capable of withstanding the greatest flood potential. Time spent on a plan for less than the maximum exposure, could be spending time without Catastrophic Loss protection. Then more time, much heart break, and much more expense would be required to rebuild to the proper plan at a future date.

According to the Marvin Springer report to the Park Board, December of 1969, page 17, quoting reports of the U. S. Geological Survey, there were two significantly high Trinity River flows. There was a 184,000 cubic feet per second flow in 1908 and an 111,000 cfs flow in 1942. These flows occurred from a single event up to approximately 10 inches of rainfall.

Using a single, a double, or triple compounded rainfall events as are experienced in several parts of the country in recent years, has provided good reason for the Corp of Engineers to consider Maximum Probable

1

N -

1. The current study by the Corps of Engineers, as presented in the draft GRR/EIS, did not investigate alternatives to provide flood protection against flows of 449,000 cfs. Major factors as stated in the comment, which make the investigation of protection against Project Maximum Flood (PMF) or Maximum Probable Events impractical include the extremely low probability of such an event actually occurring and the high probability that should such an event occur, destruction of property protected by the levees would occur from the massive interior rainfall and flooding that would occur before the river actually overtopped the levees.

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Event flows of the Trinity River through the Dallas floodway. This would cause a setting into the Dallas Floodway Plan an increase of the flood flow almost two and one half times the current capacity

A flow of 184,000 cubic feet per second in 1908, and 111,000 cfs are two of the highest flood flows of the Trinity River Floodway through Dallas, in the last 94 years. Studies by the Corps of Engineers show that a Maximum Probable Event similar to those that have struck other areas in the US, could yield a rainfall event or events that would cause a flow through the Dallas Floodway of 449,000 cfs.

A Maximum Probable Event would be a Catastrophic flood water flow which would exceed twice the flood water flow ever experienced by the Trinity River Floodway in Dallas. It would be expected that both the Dallas and the West Dallas low lying areas, landside of the levees, would not only flood, but would flow more flood water through their low lying parts of the city, than has ever flowed between the levees in the floodway. Few people can really comprehend the devastation of raging flood waters such as are allowed in the Standard Floodway Plan.

2. Why should the design criteria of the published plan be, an 800 year Standard Flood Plan, and limit the rainfall to approximately a fourteen inch rainfall event or flood water flow of 269,000 cfs when our meteorologists have expressed a Maximum Potential Event of slightly more than a thirty inch rain fall event that can yield a flood water flow of 449,000 cfs?

How can a Standard Flood Plan be equated into the Dallas Floodway design with the city's potential catastrophic loss?
What happens to the rest of the flood water? Would we call this happening a Standard Catastrophic Event?

Why is this potential catastrophic flooding to the City of Dallas not figured as seriously as that of a dam using the Maximum Probable Event?

What in your design criteria allows this oversight of the potential loss of life and property?

One must remember that a single, a succession or compounded heavy rainfall events would fill the upstream reservoirs and they would have no more storage for flood water. The elevated reservoir simply passes the flood water through the emergency spillway. Under these conditions, the flood protection of Dallas would depend directly upon the Trinity River Floodway flow capacity.

Cooperation, efforts, and costs to build vast regions of the city can be wiped out in a few short hours following failure of the Trinity River Floodway to carry the flows brought on by such accumulation of floodwater of a Maximum Probable Event. The flow capacity in excess to the Trinity River Floodway in Dallas would breach the upstream sections of the levee in the city and then flow through the city and then downstream.

A good example of this potential flood of the City Dallas would be the East Fork of the Trinity River. South of I-20 the East Fork of the Trinity River has suffered heavy flooding a couple of times in the last ten years. Each time the flood waters breached the upstream section of the levee. The heavy flood waters then flowed through the intended flood protected area on the east side. The flood waters then proceeded to breach the levee to flow back into the East Fork Floodway again.

Economic channelization associated with elevating the plain around the marginal existing levees could eliminate all risk. According to the Corps of Engineers, over topping of the levee with flood water represents approximately 95% of the levee failures, while foundation failures cause approximately 5% of the levee failures.

Unusual meteorological events of exceptionally heavy rainfall resulting in great flood water flows that supposedly happens once in a millennium, seems to have happened several times in different places in the U.S. in the last few years. It seems we are experiencing a change of climate. If one of these unusually heavy

2. See response to your comment #1 on page N - 159. The criteria for Federal participation in the implementation of a flood control project states that the annualized economic benefits of any improvements must exceed the annualized costs of the improvements.

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rain fall events happened in our Trinity River Water Shed, Dallas would encounter a catastrophic loss of its assets, most notably the loss of lives and the disrupting of lives and the loss of property, unnecessarily.

Weighting our Meteorologist information statistically, lesser flows than the Maximum Probable Event, but greater than the 800 year Standard Flood Plan in all likelihood would be a catastrophic flood in Dallas, and could occur anytime approximately twice or more before the next Maximum Probable Event or a Once In Millennium flood.

When consideration is given to the horrendous loss potential, as compared to the very small cost of a properly planned and executed flood protection system to protect the city from any loss, it would seem that the time had arrived to spread this message to the citizens of Dallas and request Federal Aid for assistance in the protection of lives and property from catastrophic flood damage resulting from the changing climate, an act of God.

Any less than flood protection from the Maximum Probable Event is a piece of a plan. To take a piece if you can't get the whole protection, in the case of Dallas is probably bargaining for human lives. It does, however, put considerable responsibility on the citizens of the city of Dallas to come up with the best plan.

3. Is there any agenda more serious than putting this maximum flood protection system into place for the protection of lives and then property?

It would seem that these requirements should be met with the best plan and commence execution, foremost, then start to incorporating other projects around the New Trinity Floodway.

Planning of the floodway, for secondary uses, should follow a simple, dependable, low cost "Life" flood protection system. In doing so reasonable assurance could be expected that improvements for secondary uses would remain in place with little financial burden to the owners.

4. If the Trinity River at I-20 is still considered in the Principal Area for flood control, then we actually have no contiguous study of a Downstream Area for the Trinity River Floodway serving South Dallas and south of Dallas. Nor do we utilize the back water drainage areas of such streams as White Rock Creek, Five Mile Creek, etc.

5. A close look shows that a flat flood water gradient of the 100 year or 400 year flood water gradient, could be lowered and not be allowed to rise steeply as it does now, in the areas of the Southside Waste Water Treatment Plant, Mc Commas Bluff, and near Central Waste Water Treatment Plant. This newer lower flood water gradient could yield a lowering of the 100 year or 400 year flood water gradient several feet in the area of down town Dallas. While there are alternate considerations to develop this flood way configuration, to a lowered channel profile, it could represent a substantial increase in flood flow through Dallas. In combination with a width increase, it is possibly to allow 449,000 cfs and flood protection up to the Maximum Probable Event.

Construction and development of the Down Stream Area south of I-20 would probably be necessary to maintain 449,000 CFS flood water flow well beyond the principal protection area, the City of Dallas. A study establishing a lower drainage gradient and greater flood water storage can mean a considerable increase of flood water flow through this Down Stream Area from the Principal Protection Area, the Dallas floodway. Studies of this area would be expected to reveal the required much better than planned flood water flow for the Dalles Floodway. There would also be the bonus of additional flood control for Cadillac Heights, Roosevelt Heights, and other area tributaries, as White Rock Creek and Five Mile Creek, etc.

Check List for a "Life" Flood Protection System

6. Have all three areas been checked extensively enough?

3. The current study presents the development of a plan providing the maximum amount of flood protection which yields the greatest amount of net annual economic benefits, and which strives to minimize adverse impacts to environmental resources. As stated in the response to your comments #1 and #2 on pages N - 159 and N - 160, alternatives to protect against the PMF would be impractical.

4. The study area of the DFE project is described on page 2-2 of the draft GRR/EIS.

5. No additional flood damage reduction measures downstream of the proposed project have ben found to be economically feasible.

6. The study area has ben evaluated extensively and the plan yielding maximum benefits was defined as the NED plan within the EIS.

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Up Stream Area sufficiently?
Within the Principle Protection Area?
Down Stream Area? Interstate 20 should represent the beginning of the Down Stream Area. This area development would continue drainage, but also could commence storage of flood water at some safe distance downstream from the City of Dallas.

7. Has the minimum gradient and adequate cross section been incorporated from the principal area to the lowest possible downstream control? Has the Trinity River downstream been modeled sufficiently to utilize valley storage to maintain or reduce a flood water crest of this Maximum Probable Event magnitude?

8. Are all downstream flood storage areas being incorporated and are land owners compensated with amenities that are not particularly expensive ?

9. Are agriculture areas tax free in the flood plain?

10. Are there allocations for Homestead of Farmstead flood protective mounds?

11. There are handsome bonuses that come with the simplest excavation plan. Have these been incorporated into the entire floodway?

12. Is there adequate swale development at the minimum existing gradient?
The size of cross section of the swale greatly increased the flow of flood water.
By lowering the profile, and maintaining the height of the crest, considerable more cfs flow is achieved with no forfeiture of safety to the flood structure during a flood.
By flattening the gradient of the swale, the floodwater velocity can be controlled. During high flow requirements the velocity will increase as the swale fills and the channel core develops. At a lower flow requirement the velocity will reduce as the cross section of the swale is reduced, with lesser flow.

13. Raising the elevation of the area landside of the levees has several bonuses:
Increasing the elevation of the back water flood plain can be a hazardous remediation plan at the same time that it is a levee, a highway, an increased flood protected area and a better drained area.
Increasing the elevation of the area land side of the levee makes available elevated developed property.
Raising the elevation from the levee toward the land side can lend to construction methods of very high earth moving production.
A most recent line of earth movers, of a small single spread, would be expected to produce up to 5,000 cubic meters per hour.

Compared with the current "800 year Standard Flood Plan", a well planned and executed project of considerably more floodway excavation that is utilized adjacent, or nearly adjacent to the floodway could possibly even cost less money.

In recent years Dallas has had the opportunity to witness catastrophic losses due to flooding as there was on the Red River in Minneaota that cost several billion dollars. Dallas need not make the same mistake as this area and other communities who were devastated with floods. With this experience, Dallas has what they had now, an option to save human lives and billions of dollars.

To quote Mr. Trinity River himself, Charles Lively, "There was nothing major done to improve the Trinity Rive for thirty -five years, and that's not progress."

When we consider the "800 Year Standard Flood Plan" Dallas could incorporate it and continue to have luck for some time by not encountering a historically heavy meteorological event of approximately 14 + inches of rain.

However, we must be encouraged. Now there are many more new facts that were not available just three to five years ago. Unlike the Midwest and other parts of the country, Dallas has been fortunate to be able to sleep on a Trinity River upgrade plan, and look at all the new facts and the old ones related through these years.

7. The design of the chain of wetlands swales has been optimized from the standpoint of economic benefits and environmental impacts.

8. Downstream flood storage has been accounted for. To our knowledge, there is no program in operation that is providing land owners compensation for preserving existing downstream water storage areas.

9. While tax rates set on agricultural lands are usually based upon the value of the lands production, we know of no agricultural lands that are exempt from

10. The intent of questions 9. And 10 is unclear in how they pertain to evaluation of alternatives within this study.

11. The plan was developed to maximize net economic benefits while minimize adverse impacts to environmental resources.

12. See response to comment # 7 on page N - 162..

13. Raising the elevation of the areas protected by proposed levees would reduce the direct economic benefit of constructing the levee while incurring huge costs to fill and relocate existing infrastructure and buildings. This concept could also negatively impact interior flood protection measures and existing storm drainage systems, and therefore, has not economic viability.

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The Maximum Probable Event flood protection package reflects our best effort for adequate safe flood protection for the City of Dallas.

14. A final question, are we really reflecting no delays because of a shortage of money or delays because of the need to arrive at the best plan?

Cleal Watts, President
H F Const Co., Inc.
PO Box 181867
Dallas, TX. 75218-8867
Tel 214-328-1665 FAX 214-328-2772

14. Implementation of a Federal project is dependent upon the completion of technical reviews, policy compliance reviews, agency reviews, and public reviews to derive the best plan in accordance with applicable laws, regulations, and policies.

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LONGVIEW (903) 234-0853

Date: June 26, 1998 **Cause No.:** **Job Reference No.:**

Recipient: Ms. Yvonne Vegas

Witness(es): Public Meeting

Case Name: U.S. Army Corps of Engineers Public Forum on Dallas Floodway Project

To get this to you promptly, we are sending it without taking time to write you a personal note.

☐ The attached Original deposition, after being signed and notarized by the witness on the corrigendum page, is to be retained in your custody as agreed upon for use in accordance with the Texas Rules of Civil Procedure. Please notify all counsel of any changes and/or corrections noted on the corrigendum page by the witness.

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4/30/2009

U.S. Army Corps of Engineers Public Forum
on Dallas Floodway Extension Project

Ramada Plaza Hotel
1101 S. Akard Street
17:07 Dallas, Texas
June 9, 1998

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PROCEEDINGS

JON HEIMBURGER: It's my understanding that there's a possibility some of the wetlands or -- and/or forest mitigation land could be located outside of this project area further south along the Trinity. I do not believe this is a good idea for this project. Even if it is slightly cheaper to do in this method, it will put a greater burden on the City of Dallas for maintenance for whichever entity maintains the mitigation land, and this is a rather complicated project that is integrating a lot of different agencies, both the flood conveyance, the levees, transportation and recreation.

Dallas did have a bond program where the citizens were voting to help support this and it is being presented as an integrated package. Many people understood that the mitigation land would be part of the additional forest and recreation package. So since this is such a complicated and integrated project, it would be much better to keep that in the area to where it benefits the other portions, such as recreation and the natural forest in

1. See response to comment #30 on page N - 34.

18:24 the area, which is another aside which a large number of citizens are supporting. Thank you.

2. LOIS DAY: I just wanted to say that the mitigation of land needs to be

18:52 local and not downstream. The immediate area is where we're eliminating open space and trees and that's where the mitigation needs to occur from the standpoint of air quality as well as

3. open space for recreation. And I'm also

18:52 concerned about heavy metal contaminants in the sludge that's going to be dredged from the Trinity, and there's some conflict about the accuracy of the City's information on that and some reports that the EPA has done that need to

18:52 be brought to light. And also the level of lead contamination in Cadillac Heights that remains is a concern as to whether that's been done adequately. So that's it.

4. CHARLES ALLEN: I have

18:53 concerns about several areas of the EIS. First, my concerns about the flood control aspects of it concerning the swale. The original purpose for the swale was for flood control for the central business district. The

18:54 levee plan was incorporated at the City's

2. See response to comment #30 on page N - 34.

3. See response to comment #3 on page N - 14.

4. See response to comment #92 on page N - 46 .

request but it erases the flood control benefits of the swale. The report itself recognizes if the Cadillac Heights levee is built to the same standard as the central business district that projected although rare but expected flood levels would increase in the central business district. If the Cadillac
5. Heights levee is built to the 100-year standard, it would serve no purpose most years yet would be over topped by a flood event to be expected within a decade or so. Hydrologic analysis does not take into account the effects
6. of continued construction and the addition of more impervious services in the water shed. Participation in the Council of Governments' ordered development certificate has not halted construction or fulfilled these duties even in
7. the 100-year flood plane and not all communities in the water shed participated. This also applies specifically to the study area of this report in that the effects of runoff from proposed highways that are
8. intimately connected to this project are not considered, both from the effects on water quality and flood damage reduction.

5. See response to comment #8 on page N - 19.

6. See response to comment #36 on page N - 36.

7. See response to comment #34 on page N - 35.

8. See response to comment #32 on page N - 35.

The current report baseline conditions also depend on the widening of the mainstem channel upstream of Corinth Street as far upstream as possible, the effects of which would be extremely damaging to the repairing habitat and would have an extreme negative impact on water quality which is more often waste water effluent than natural flow.

From an environmental standpoint, the bottomland deciduous forest is the most diverse habitat in Texas and the most threatened. The effects on air quality in Dallas, whether the affected percentage of trees in Dallas is 1 percent or 3 percent, our net loss for the coming decade is the oxygen-producing capacity of that forest. This is in an area already failing to meet public federal health standards concerning air quality. The mitigation plans recommended in the EIS are the least expensive in terms of initial plant materials required, which is partially paid for with federal money but requires the most maintenance from the local sponsor who must pay for the maintenance. The U.S. Fish & Wildlife Service advises using more

9. See responses to comments #44 & 45 on page N - 38.

10. See response to comment #40 on page N - 37 and response to comment #165 on page N - 61.

11. See response to comment #30 on page N - 34.

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mature planting at a higher initial cost with a greater chance of surviving.

From a recreational standpoint, the reference material is 10 to 12 years old and shows its age. It does not reflect recent recreational trends in river usage. The identification of recreational needs does not specifically include paddle sports along with hiking, biking, and equestrian pursuits. A more recent survey by the Dallas Parks and Recreation show 10 percent of the respondents answering in favor of greater boating access. While a local sponsor is building canoe, they should be coordinated with multipurpose nodes or trail heads incorporated in the recreation plan to minimize the duplication of effort and to minimize the size of the impact in the sensitive area. The Dallas County trail plan is an example of more current reference material for -- I should say not for -- but reflecting current needs.

Another major concern is the segmentation of studies in this region concerning projects dealing with the flood plane. All the studies in this area should be

12. See response to comment #25 on page N - 25.

13. See response to comment #64 on page N - 41.

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19:00 coordinated. The effects of all the flood control, highway, and other projects currently under study are cumulative in their effect on the flood plain, hydrology, and ecology. I would also like to say that some areas identified as difficult to gain access to, to reach -- could be accessed more easily through use of my company's services, Trinity River Expeditions. Thank you very much. I will be submitting written comments before the June 10th deadline. Thank you.

COL. WELLER: Good evening. I would like to welcome you to the public meeting on the Dallas Floodway Extension, General Reevaluation Review Report, and the Environmental Impact Statement.

Tonight we've done things a little different in terms of having what's called an open house, starting at about 5:00 this afternoon, and had some Corps employees had some displays set up, gave folks an opportunity to come here earlier and discuss the project and hopefully get a lot of your questions answered. I hope that folks were able to take advantage of that. If not, at the

19:02 conclusion of tonight's meeting there will be some folks that will still be here for a little while as we start to take things down and you can take an opportunity to ask further
19:03 questions if you would like.

Could I have the next slide, please. The purpose of tonight's meeting is to receive public comments. We're not really here to in this forum answer your questions or
19:03 respond to your questions that people will make on the court record officially as part of this process. But we do want to take advantage of this opportunity to hear from the public, hear what you have to say about this project, and --
19:03 more about that later.

Hopefully when you came through by the front desk you were able to pick up a card and some other information, a card like this to fill out. This will serve a couple
19:03 purposes: One, if you would like to speak, we annotated these in the order they were received and that's the order we'll call folks to talk tonight. It will also serve as an opportunity to get your name on a mailing list for future
19:04 mailings on this and other projects. And also

we had copies of the slides, which you're welcome to take with you. It has some background information on the Dallas Floodway Extension, very short summary of what you see in the book on the tables in the back, the very thick notebook, which you can still request copies of if you're interested. But this is a brief summary. The last slide has a copy of the address to request information and also to submit comments.

There was also a notice of availability on the GRR that was in the mail to most folks, I think, that were already on our mailing list. Those of you that did not receive that, you're welcome to pick that up on your way out tonight if you haven't done so already.

Let's go ahead and go to the next slide, please.

Let me just talk briefly about the procedures for tonight's meeting. Again, the purpose is to receive your comments and input and not to answer questions at this time; although the folks around at the boards have been trying to explain things and answer

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questions in that format already this evening.

All comments and input will be given consideration during the finalization of the EIS. I was asked the question a few minutes ago, "How does this process work?" Every comment becomes a part of the official record. We have a court reporter here taking down verbatim the words spoken in this might. You can also submit written comments. The period to do that is through the 10th of July. That's when the comment period will be closed. It's our responsibility at that point to take all these comments and respond to them as we work through this EIS process.

Everyone that would like to speak, we will make sure you get an opportunity to speak. We will at this point limit comments to five minutes per person. We have Mrs. Marsicano sitting in the front, hand raised. She may be hard to see, but she will hold up a sign that says "one minute" then "time out."

The microphone that we would ask you to come up to talk from is up here in the front. When you do that, one of the first

things I would like you to do is state your name and the organization you represent and then make your comment. The purpose of stating your name is so we can get that in the official record of tonight's activities.

Now if I could have the next slide, please.

What I would like to do is briefly summarize the Dallas Floodway Extension project. This project was originally authorized by Congress in 1965 and was part of a basin-wide improvement for the Trinity River and tributaries. The slide talks to the four authorized purposes: Navigation, flood control, recreation, and fish and wildlife. I'll expand on those a little bit more later in the presentation.

Next slide, please.

The plan -- a plan was presented in 1981 as a project that represented the standard project flood. That's what SPF represents in that first bullet, standard project flood. And the bullets under that discuss what was involved in that 1981 report. The plan included mitigation and recreation.

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Next slide, please.

In the 1980's, due to lack of support and sponsorship by the City of Dallas, the plan was not further pursued. It wasn't until the flooding in the '89-90 time frame that renewed interest in the study was found. A reevaluation study was initiated by the Corps in 1991 and a NOI, or notice of intent, to prepare an EIS was issued on May 15, 1991.

Next slide, please.

The City of Dallas, in 1991, constructed levees on the Rochester Park and Cadillac Heights levees. Alternative formulation and evaluation continued in the period '91 to '96, but due to time and change conditions, a new NOI was issued on November 1, 1996. Normally a draft EIS would have issued within a year or two of the original NOI. Because of the long and complex project formulation process, which included extensive public involvement, the new notice of intent to prepare an EIS was issued.

Next slide, please.

Between 1991 and 1993, numerous alternative measures and combinations of

measures were considered. These include non-structural plans, channel plans, levee plans, vegetation management plans, swale plans.

Next slide, please.

The '93 to '96 time frame was a plan formulation phase devoted to work authorization and selection of alternatives. This phase of the study involved extensive input from the various citizens committees and other interested parties to regularly schedule meetings and a number of public meetings. The 1200-foot bottom width swale identified as the National Economic Development plan at this time. National Economic, or NED, plan is the plan that maximizes net economic benefits of a project. The NED plan was used by the City of Dallas to aid in identifying a Locally Preferred Plan or LPP -- Locally Preferred Plan.

Next slide, please.

Planning objectives for the Locally Preferred Plan included non-structural alternatives, minimizing impacts to bottomland hardwoods, providing some level of protection

19:10 to Lamar Street and Cadillac Heights as existing Dallas Floodway, and avoiding disturbing or dividing the Joppa neighborhood.

Next slide, please.

19:10 Non-structural plans were considered. Permanent evacuation is what a non-structural plan is. But currently Corps criteria do not allow buyout on a structure-by-structure basis. We evaluated this for the 2, 5, 10, and 100-year flood zones. No economically feasible non-structural plan was identified for the entire study area. Small incremental non-structural plans were found to be economically feasible for the Cadillac Heights neighborhood.

Next slide, please.

The realigned swale alternatives. A 300-foot upper and 500-foot lower swales were less environmentally damaging than the NED but still economically feasible. We moved to the west to minimize impacts to the Great Trinity Forest and this led to the identification of the Chain of Wetlands Plan that many of you are familiar with.

Next slide, please.

These two resolutions adopted by the City of Dallas helped identify the preferred alternatives by the City of Dallas, the Locally Preferred Plan. City selection was a two-step process, one focusing on the Chain of Wetlands and the other on the addition of levees.

Next slide, please.

The Chain of Wetlands in the upper reach was from the confluence with Cedar Creek to the large oxbow just downstream of I-45. It was approximately 1.5 miles in length. The area of excavation varies and undulates, but averages about 400 feet in width. The average depth of wetlands in the levee is about two feet.

Next slide, please.

In the lower reach, from just downstream of the large oxbow below I-45 to the Trinity River just upstream of Loop 12, approximately 4.3 miles in length, area of excavation varies but averages about 600 feet in width. Average depth is about eight feet.

In 1965, the Congressional authorization for the Dallas Floodway Extension

19:12 included fish and wildlife, flood damage reduction as project purposes. It does not include the multiobjective outputs that the Chain of Wetlands would provide. These outputs or benefits include habitat diversity, natural flood damping, groundwater recharge, water fowl and shore and wading bird habitat and water quality improvements. Authorization for these project purposes would be required and is proposed to be achieved under the umbrella purpose of echo system restoration.

Next slide, please.

This discusses the Lamar Street levee. The length, 3.1 miles; average height, 18 feet; maximum height, 31 feet.

Next slide, please.

The Cadillac Heights levee area. The Federally Supportable Plan has a length of levee that's 1.1 miles long, has an average height of 5 feet and maximum levee height of 16 feet. The Locally Preferred Plan varies a little bit. It has a length of 2.25 miles, average height of 15 feet, and a maximum height of 26 feet. The difference in size and level of protection of the Cadillac Heights levee

component of the proposal represents the only difference between the Locally Preferred Plan and Federally Supportable Plan.

It needs to be recognized that a waiver is being requested by the City of Dallas which would allow the Corps to participate in the Locally Preferred Plan. It should also be recognized that although not shown in the slides, the Recreation Plan, as well as the Habitat Mitigation Plan, would be essentially the same as the Locally Preferred Plan or the Federally Supportable Plan.

Next slide, please.

This shows the schedule going back to the Notice of Intent published on November 1, 1996, and then talking about where we are today in terms of what happened in May with the issuance of the Draft Reevaluation Report and EIS to the public. The bullet second from the bottom which says comments will be accepted until 10 July 1998, and we expect the final EIS to be issued sometime in the spring/summer of 1999. As you can see, this is a lengthy process.

Now we're about ready to get

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started on the public comment period. I would like to remind you again that we're going to limit you to five minutes. We will do that in the order that the cards were received. And at the conclusion of all the cards that I've got, I'll ask again if there's anyone who would like to make comments and we'll try to take you in that order.

At this point we have 19 cards, so we're talking about probably well over an hour to get through 19 folks, but -- by the time we get folks up and down to the mike. I would remind you again to state your name and any organization you represent when you come to the mike.

The first speaker, first person who's asked to talk, is Mattie Nash. Please come to the mike, please.

AUDIENCE: She had to leave.

COL. WELLER: Second is James Flood.

JAMES FLOOD: My name is Jim Flood. There's one disadvantage to arriving early, and that's you get to be first on the list or near to be first.

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14.

One of the first things I would like to say is I don't think 30 days is long enough time for a public response. I would like to see that extended to at least 90 days. And I would like to thank you for allowing me the opportunity to speak.

I own a home less than five miles from the Trinity River in the southeast sector of the City of Dallas. I will submit additional comments at a later time, but would like to say at this time that I adopt the comments of the Dallas T. Connor Group, the Lone Star Chapter of the Sierra Club, and the Dallas County Audubon Society.

15.

I would also like to comment at this time on the plight of many of the long-time residents of Cadillac Heights. The Dallas Floodway Plan to build a levee around part of that neighborhood and not implement a fair and just voluntary buyout program is to condemn those minority citizens to additional hazards due to pollution and a virtual stab-in-the-back sellout by industrialization. The Cadillac Heights levee is nothing short of "ghettoization" by taxpayer dollars and a

16.

14. See response to comment #1 on page N - 30.

15. See response to comment #5 on page N – 13.

16. See response to comment # 7 on page N - 283.

19:18 backward-thinking flood control plan and is a final insult to what little dignity is left of those residence in that polluted flood plane^ . Thank you.

19:18 COL. WELLER: Mr. Lee Alcorn is the next speaker.

LEE ALCORN: Thank you. My name is Lee Alcorn, President of Dallas NAACP. I would like to thank the Corps for bringing

19:18 this information to us and provide us the opportunity to share our concerns about the project.

17. I had talked with some of the people around the room in reference to the

19:18 non-structural approach and I wanted to make sure that we had given full consideration to the non-structural approach to this particular project and whether or not it is something that the local Corps is doing. We had some

19:19 information the national Corps is promoting non-structural approach to flood control. So I would like to just really understand that there is no conflict between what's happening here and what the policy is on a national basis.

19:19 Also there seemed to be no

17. See response to comment #1 on page N - 13.

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information available in reference to the effect of building roads in between the levees. It seems that nobody on your staff had that information currently. Whenever this information does become available, I would like to have access to the effects of roads inside the levees.

Also whether or not there is any environmental concern for building flood protection from levees for people living in an environmentally unsafe area. It doesn't make much sense to me to provide flood protection for people who are living in an environmentally unsafe area, whether or not there's any coordination between the Corps and the EPA in reference to Cadillac Heights. And if we could develop some kind of -- get some kind of assessment from the EPA in reference to this kind of protection for people who are in an environmentally unsafe area.

The buyout options, I would like to know whether or not the buyout options have been finalized, whether or not there is any further consideration for buyouts. The information that I got from a couple of people

18. See response to comment #4 on page N - 14.

19. See response to comment # 7 on page N - 283.

20. See response to comment #1 on page N - 13.

around the room suggest that because Cadillac Heights is not a compact neighborhood that the feasibility of the economics of buying them out would not be feasible. I don't understand how when you're talking about people who have been in a neighborhood for 50 years you would have compact neighborhood. If you had a compact neighborhood, that would mean you would have a pre-developed -- or a neighborhood that had somehow been already programmed. And I don't think that nowadays you would have people that would be in the neighborhood where you have a compact neighborhood build in the flood plane. So it just don't make much sense to me to say that because people in Cadillac Heights are not in a compact neighborhood it's just economically non-feasible to be able to provide a buyout for these people.

21. And finally, whether or not -- I haven't read the EIS and whether or not in the EIS study does it talk about the effects of upstream development and what kind of effect that would have on the proposed program that we are in the midst of now.

So that's essentially my

21. See response to comment #36 on page N - 36.

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19:21 concern, and I hope that the public will be
22. able to continue to provide -- be able to have
input with this project because we -- a number
of us have some concerns about this on its face
19:21 and hopefully we'll be able to voice our
concerns and have our concerns somehow
mitigated through this process. Thank you.
COL. WELLER: Next speaker
is Mr. Barnabas.
19:22 VIJAY BARNABAS: My name is
Vijay Barnabas. I'm with a couple of different
groups. I represent Citizens For Safe
Environment, the Trinity River Action Coalition
and Save the Trinity.
19:22 And I've three points I want to
23. make. The first one is I have not had a chance
to read the complete EIS but I did read the
section about the financial condition of the
City and I'm a little perturbed about the
19:22 complete turnaround in that section compared to
the draft EIS. I believe that turnaround calls
into question the integrity of the entire
report.
For those of you who don't know
19:22 what I'm talking about, the draft EIS, which

22. The public comment period was extended to a total of 91 days to provide additional opportunity for commenting on the Draft EIS.

23. See response to comment #77 on page N - 300.

was released prior to the current one, in the section describing the financial condition of the City, at the end it talked about all the different factors and things you look at to assess the financial condition of the City. And it concluded that it was not advisable for the City of Dallas to take on new debt at this time because, among other reasons, the amount of debt per capita was too high.

Now in the new EIS -- in fact, this is not the new EIS, this is an errata sheet, it says based on this analysis, the City of Dallas appears to have room to expand their debt load to accommodate new capital projects. Apparently the reason was -- for the prior version was that it was based on dated and incorrect information. My concern is that if a draft report was allowed to be released with such an error, how is one to have any confidence that the rest of the report is any good? I mean, isn't it possible where the EIS now says there will be no negative impact that, in reality, there might be a negative impact? How could the Corps of Engineers assure the public that there are no other errors of such

magnitude and that the rest of the report is not based on dated and incorrect information?

The second point I have is a specific thing on the current plan. There is a gap where the current levee system ends and where the new Cadillac Heights levee would begin. My concern is that through the gap is where the flood water would come through and inundated Moore Park and Cadillac Heights from the back side. And then, ironically, because the levee is there, it won't allow the water to drain back into the river. And the final point I have to make is that I don't believe that there have been any studies done to determine what the effects or impacts of building all of these things, the levees and swales and chains of wetlands, what impact that would have on downstream communities.

Thank you for your time.

COL. WELLER: Mrs. Anna Albers is the next speaker.

ANNA ALBERS: My name is Anna Albers and -- my name is Anna Albers and I'm speaking on behalf of a number of Trinity River Action Coalition members. I want to echo

24. See response to comment # 3 on N - 30.

25. See response to comment #8 on page N - 19.

26. See response to comment #1 on page N - 30.

19:25 1 the request for an extension and a comment
2 period. Thirty days is not sufficient time.
3 We would like to ask for an additional 90 days.
4 We're joined by the Sierra Club, NAACP, Audubon
19:26 5 Society, some T. Connor members, Citizens for a
6 Safe Environment, the Dallas Historic Tree
7 Coalition, and Save the Trinity. So -- the
8 report is much, much larger, I guess, and more
9 complicated than some of us thought. And so we
19:26 10 want to have the opportunity to visit with the
11 people who know more about it than we do.
27. 12 I would also like to echo
13 concerns about out-of-date information being
14 used in the Corps report. From what I gather,
19:26 15 the modeling is based on a topographic map
16 prepared in 1977 and FEMA flood maps, some of
17 which were updated in 1986 and so some go back
18 as far as 1977. And one of my concerns is that
19 none of these have been updated to reflect a
19:27 20 massive, illegal, and legal filling along
21 Highway 310, White Rock Creek, and in southern
22 Dallas; the project area in general.
28. 23 It bothers me that there has
24 been absolutely no hydrology study to determine
19:27 25 the effects of building more levees on

27. See response to comment #2 on page N - 30.

28. See response to comment #8 on page N - 31.

19:27 neighborhoods along 8th Street, Joppa, Floral Farms, neighborhoods below Loop 12 where the
29. swale is going to shoot out water. And there's absolutely no discussion of the impact of
19:27 building the tollway inside the levees on flood levels downstream or upstream, on tributaries, and I do not see how you can proceed any further without doing an engineering study at this time to determine the combined effects.
19:28 To me it's a waste of taxpayers' money for you to go any further until you've made this determination. We should know now the effects of building that highway. And it is going to be a significant impact if that bench is going
19:28 to be 120 feet out from each side of the levee and 20 feet down. That's a tremendous amount of water that's going to be displaced along an 11-mile stretch of time -- of levee.

30. And there's also no
19:28 acknowledgment of the location of the sumps and detention ponds that are going to be on the outside of the levee. And from your map over here, we were told that if there are people living where those sumps are going to be that
19:28 they're going to have to move out and I think

29. See response to comment #9 on page N - 31.

30. See response to comment #10 on page N - 31.

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19:28 that should be addressed right now. These people should be told that they're going to have to get out and make way for sumps and highways and other things.

19:29 COL. WELLER: Next speaker is Mr. J.C. Morris.

J.C. MORRIS: My name is J.C. Morris and I'm by myself on the property -- next to the flood plane of the Elm
19:29 Fork River. I'm very concerned about the
31. totality of this project. Instead of segmenting it into just this floodway, how you can know what your floodway will handle or not handle by the volume and such that will be
19:29 changed with levees built on the tributaries, the West Fork, the Elm Fork, and this type of thing. And it's -- it puzzles me to try to find these things out. They're not mentioned
32. in this report, that I can see, to an extent.
19:30 It is very lengthy and very difficult to go through. I also would like to have more time if I could to go through it. But it's a question I think that should be answered is how can you determine what you're going to do with
19:30 this part of the floodway as a separate segment

31. See response to comment #64 on page N - 41.

32. See response to comment #1 on page N - 30.

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19:30 from the Elm Fork and the West Fork. Thank you very much.

COL. WELLER: Mr. Joe Wells is the next.

19:30 JOE WELLS: I'm Joe Wells

33. and I also would like to concur with and adopt, once they're submitted in writing, the Sierra

34. Club and T. Connor written comments. I also want to join in the request, as a citizen

19:31 volunteer who has a real job, additional time to try to do a good job of reviewing a lengthy document. And providing the best input that citizens can, I think requires an extension of the comment period. I support that.

19:31 My comments tonight -- I'm going to provide some written comments and I'll turn

35. those in. I want to focus on the omission of the reference to the Parkway proposal which proposes to put an eight-lane freeway within

19:31 the existing levee system and on a levee that's proposed and studied in this environmental impact statement which from my understanding from the National Environmental Policy Act requires coordination of federal projects and

19:31 activities and a review of all the effects of

33. See response to comment #5 on page N - 13.

34. See response to comment #1 on page N - 30.

35. See response to comment #9 on page N - 31.

those activities and projects. And the roadway project and this floodway extension are really one and the same. The hydrologic effect of one effects the planning for the other and vice versa. To do an adequate job of looking at the overall cumulative impacts of the project, you're going to have to look at the roadway and understand what the designs -- what the "hydrolic" and other environmental impacts are going to be of the roadway.

36. In addition to that, I wanted to say a little bit about air quality issues that I was able to in a preliminary way review in the EIS. In addition to the lack of omitting reference to the roadway which has some pretty obvious air quality concerns and if it gets addressed we would want to comment on those concerns.

37. You don't address, from what I can tell, any of the impact of the development that will occur in flood plane areas that are currently flood plane you're taking out of the flood plane by constructing and extending the levee system in terms of what the air emissions would be.

36. See response to comment #1 on page N -393.

37. See response to comment #40 on page N - 37 and response to comment #2 on page N - 394.

19:32 Mr. Tatum in the Dallas Morning
News seemed to indicate in a very strong
editorial there would be a lot more industry
coming to Cadillac Heights. They already have
19:32 a meat rendering plant, a chromium recycling
facility. If that's the case, I think your EIS
needs to look at what the potential air
emission also in commercial developments in
areas that once were flood plane but would be
19:33 developed because of your levee system will be.
38. You take credit for the proposed restoration of
vegetation and the quality of vegetation to be
restored in some of the mitigation areas and
I -- you also acknowledge the lack or the
19:33 decline in the air emission reduction for
vegetation that will be destroyed through the
construction of the project. The destruction
happens at the time of construction, but the
restoration happens over a long period of time.
19:33 And so I think it's optimistic to think that
the benefits will actually be what they are
stated in the environmental impact study as far
as the restoration, particularly if the
restoration were less than the City of Dallas
19:33 which doesn't have a particularly good record

38. See response to comment #2 on page N - 394.

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of maintaining the floodway or restoring natural areas. With that I'll leave my written comments and I appreciate this opportunity.

COL. WELLER: Thank you.

Our next speaker is Ms. Mary Vogelson.

MARY VOGELSON: I'm short. I'm Mary Vogelson and I'm speaking on behalf of the League of Women Voters in Dallas. This is a draft of some of our comments. We will be 39. make more details. If we can have more time, it would be greatly appreciate. We have been steered through some environmental hydrologists who we have been recommending to look at this project if we can have a little more time.

40. Briefly the Corps -- the League has concerns with the Dallas Floodway Extension Project that center around issues of the Corps' compliance with and furtherance of the Clean Air Act and Clean Water Action Plan, the Clean Water Act. And the executive order is 1289812250, 12875, 12962 -- I don't think you need the whole litany of those environmental judgments, justice and executive orders. Also Title 6 under the 1965 Civil Rights Act.

We also call your attention to

39. See response to comment #1 on page N - 20.

40. See responses to comments #1, 3, & 4 on page N - 340 and N - 341 and Comment # 1 on page N - 400.

41.

19:35 1 the Corps' Challenge 21 initiative and related
2 items that environmental protection could be
3 threatened in the very large rookery along the
4 Cadillac Heights area. I have been checking
19:35 5 the maps tonight but we were alerted to that by
6 U.S. Fish & Wildlife.
7 The Clean Water Act and the
8 Clean Water Action Plan seem to be ignored by
9 many elements of this project. The Trinity
42. 19:35 10 River is currently one of the 40 percent of the
11 rivers nationwide still unfishable, unswimmable
12 and undrinkable. The EPA listed it as highly
13 vulnerable to stressors such as pollutant
14 loadings. Pardon the jargon, but it's faster.
19:35 15 The river is up to 96 waste water effluent
16 during low-water drought months, which is a
17 large part of the year. The plan to place a
18 levee around Cadillac Heights and locate a meat
19 packing plant's livestock barns on the inside
19:36 20 of the levee next to the river leaves many
21 questions regarding the Corps' commitments to
22 the Clean Water Act.
43. 23 The Wall Street Journal reports
24 of May 13 that Texas is one of the states where
19:36 25 the TMDL assessments are not being made by the

41. See responses to comments # 2, 3 on page N - 340.

42. See response to comment #1 on page N - 340.

43. See response to comment #6 on page N - 341.

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TNRCC and should the City be forced to change, relocate businesses, limit land uses or engage in costly cleanup retention programs as a result of compliance monitoring by the TNRCC, it would be a shame to have the DFE project cause further tax dollars to be spent here.

44. Not part of but definitely associated with the DFE project is the City's plan to cooperate in the building and sponsoring of an eight-lane toll road constructed on the east side of the DFE levee extension on Lamar Street partly on the river side. The USACE/DFE project already places the Lamar levee as close to the river as possible. We have made repeated suggestions to have the alignment moved away from the river. Under Challenge 21 we notice you are building

45. more urban levees in some areas but they are never closer together, they are wider apart.

Others concerns the City has -- and I will skip -- is the extremely poor record

46. of maintaining, operating, and complying with environmental regulations. I have to stop. If I may just quickly wind up and say we do not comply with our storm water runoff rules at all and the increased siltation is very damaging

44. See response to comment #3 on page N - 340..

45. See response to comment #3 on page N - 340.

46. See response to comment #9 on page N - 341.

47.
19:37 and we wonder if the Corps thinks its project will fair better. We also do not have any staff qualified to monitor, operate, and manage wetlands.

19:37 COL. WELLER: Our next speaker is Mr. Ed Fritz.

EDWARD C. FRITZ: I'm Edward C. Fritz. My nickname is Ned. And I'm speaking this evening for the Texas Committee
19:38 on Natural Resources. We have, along with the Sierra Club and the Audubon Society, already filed a preliminary set of comments on this which we want to amplify not only tonight but
48. in the remaining period by July 10.

19:38 A couple of the points that we want to amplify include environmental justice. We have met many times with people of Cadillac Heights and the people who represent them and the people of south Dallas and we're very
19:38 concerned about the way that the City of Dallas in particular, and the Army Corps by doing anything practically that the City says, are negotiating around to where they can slip through this terrible project have been doing.
19:39 And it's not fair to do the way they have

47. See response to comment #9 on page N - 341.

48. See response to comment #1 on page N - 13..

particularly with regard to running over the modern approach, which has been supported by even the president's interagency committee including the former general in the Army Corps of Engineers of non-structural flood plane management and, particularly, voluntary buyouts.

49. Now before I get to the voluntary buyouts in greater detail, another one of the things that we want to add is to our statement, and I will hand you a copy of it this very evening, is what Joe Wells mentioned is the City is not finished with Cadillac Heights, the Henry Tatum article, which admits that the point of this -- of this levee and swale business is to get rid of the -- well, he didn't say it that way. He just said to put in business, industry, commerce, so forth, in behind them. This is the precise thing that the Army Corps' general and others have said many times and almost every flood plane management expert in the United States except those employed by the Army Corps in a project which will make more money for them or for the water interest is the wrong way to go, to put

49. See response to comment #1 on page N - 13.

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industry in place of people.

50. Now very quickly, we have just been down to the river this afternoon and there we saw where the Heights -- where the Cadillac Heights levee would go, thousands of egrets and heron of all kind still nesting there. The putting in of a swale and the putting in of levees would ruin the environment down that way and therefore we are very concerned about this project and hope that it will be -- that the renewal of the final environmental impact

51. statement will be very, very much better. And we have the statement of the -- of the Trinity River card or citizen's committee here that recommends the non-structural flood control approach alternative. And we think that the Army Corps has brushed off the economic considerations and practically neglected this system entirely, this new method, and we hope that the new environmental impact statement will be extra fair on that. If not, we will very closely scrutinize it and get your figures straight. Thank you. I'll give you the -- my statement with regard to Henry Tatum's statement and a copy of his now.

50. See response to comment #18 on page N - 23.

51. See response to comment #1 on page N - 13.

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19:42 COL. WELLER: Our next speaker is Ms. Joanne Hill.

JOANNE HILL: Many people in this room have spent a long time studying this issue; some over 20 years, some of us a shorter time. I was on the steering committee of the Trinity River Corridor Citizens' Committee, a committee of over 400 people who came with a vision plan. I currently serve as chair of the Great Trinity Forest Park. It is with that in mind I make these comments:

First of all, the citizens of Dallas were promised that the mitigation money for the environmental damage done in the corridor would be used for the Great Trinity Forest Park. It's my understanding that Washington is urging us to -- urging you to send the money to Johnson county. We want it in the Great Trinity Forest where it was promised and where it's needed. In addition to that, we want the recreation money authorized for use in that corridor where it should be used.

Mr. Fritz talked about the rookery. We went down there today. It appears

52. See response to comment #30 on page N - 34.

53. See response to comment #25 on page N - 25.

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that the levee would go right through. There
54. are thousands of birds down there, not only
great egrets, lesser egrets, there are heron,
great blue heron, and a pair of black-crowned
night herons which were very visible from the
road. And that seems to me a terrible
degradation.

55. In addition, we cannot be
concerned with just the trees that are down
there, we are certainly concerned with the
people in Cadillac Heights and will continue to
push for an environmental justice solution for
those people. And we have been studying this
for a long time. The Trinity River Citizens --
Corridor Citizens Committee came up with a
wonderful relocation plan, and we would like to
see that the people who want to move out of
that area, before they're bought out by
industries at pennies on the dollar, get a
chance to have environmental equity for a
change. Thank you.

COL. WELLER: Our next
speaker is Mr. Jim Carrillo.

JIM CARRILLO: Good evening.
My name is Jim Carrillo representing myself as

54. See response to comment #18 on page N - 23.

55. See response to comment #1 on page N - 13.

19:45 a resident of Dallas. I would like to make four comments:

56. First of all, I would like to commend you on the Recreation Plan as it's been shown. It's a tremendous asset you can bring to the Trinity River corridor. However, I would like to make some comments regarding that.

Number one, the trails in the corridor must be recognized that many of those trails that are being proposed are major trails that impact a much greater area that serve as spine trails for a much larger system of trails throughout our region, and as such those trails must be recognized as significant trails and should be what the current standards recommend, which is 12 feet in width.

57. I would also ask that you continue to be sensitive to the forested portions of the Great Trinity Forest and respect those areas and those trails, not go through those areas.

58. I would like to also reiterate what Joanne just said regarding the mitigation. The mitigation, as you proposed it, here links

56. See response to comment #25 on page N - 25.

57. See response to comment #25 on page N - 25 and response to comment #2 on page N - 14.

58. See response to comment #30 on page N - 34.

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and creates a linkage along the entire Trinity River corridor through this area. That is something that is very important to the citizens of Dallas and should be -- that should be taken forward to Washington and should be -- the mitigation should occur in this area.

That concludes my comments.

COL. WELLER: Next speaker is Mr. David Morgan.

DAVID MORGAN: My name is David Morgan. I concur that the mitigation for the project should preferably be located in the immediate area, in the immediate vicinity of Loop 12 or down into the south part of Dallas County. And also that the Texston (phonetic) MIS for the Trinity Parkway has been approved as a locally preferred concept by the City of Dallas and Dallas County and utilizes the Lamar Street levee as the embankment for a portion of the roadway. With the passage of the City bond program, a planning of the Trinity Parkway should be incorporated with Lamar Street levee plan and design. Thank you.

COL. WELLER: Our next speaker is Mr. Charles Allen. Mr. Allen here?

59. See response to comment #30 on page N - 34.

60. See response to comment #1 on page N - 18.

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19:47 AUDIENCE: He made a statement earlier.

COL. WELLER: Next speaker is Mr. Cecil Armstrong.

19:48 CECIL ARMSTRONG: How do you do? My name is Cecil Armstrong. I wasn't going to say anything, but I was thinking about it, I live in the Cadillac Heights area and I'm not one to fight against progress, but I'm definitely concerned about the environmental concerns for the Cadillac area, for the simple reason is if we put a levee in the Cadillac area with the highways going across it, we already have a problem with lead in that area and I think that would kind of like enhance the area more so for environmental concerns. And I'm more concerned about that because I live in that area and I do have children in that area and I'm more concerned about their well-being and the health and, like I say, I'm not fighting against progress, but I think my children comes first about health concerns and things of that nature. I want to voice concern about that area. If it's going to be a buyout, let it be a buyout. If it's going to be -- if

61.

61. The proposed DFE project has no impact on the current health conditions within the Cadillac Heights area.

it's not going to be a buyout, we need to have someone come down there and really check the
62. situation, environmental -- economic inflatable (sic) to check the environment because we do need trees, we do need -- check that lead and things in that nature down in that area, because I do have children and I'm concerned more about them than having highways and buildings and things of that nature.

I would like to see the economic development in that area because it is a poor
63. area, but I think health comes before anything, for industrial or anything. So if you want in that area, we got to stay in that area with levees blocking us in and with highways going across us with -- got the DART rail, DART station coming up in that area, all that carbon monoxide and things coming in on us, got to be a buyout or either we've got to have somebody come down there and check aggressively, sincerely check every lot that's down there for lead to protect our children and the old people that lives down in that area. Thank you.

MR. FRITZ: Attaboy.

COL. WELLER: Next speaker

62. See response to comment #1 on page N - 13.

63. See response to comment # 1 on page N - 13.

is Mr. David Gray.

DAVID GRAY: Hello. My name is David Gray. I'm speaking for the Sierra Club. We'll submit our detailed comments at a later time. Sierra Club adopts all the comments of Ned Fritz and T. Connor, the Dallas Audubon Society, and the League of Women Voters.

I would like if I may to read several excerpts from your EIS. As would be expected, river and creek segments which have had trees and shrubs removed have been channelized, lined with levees or heavily developed are less desirable and the least utilized by area canoeist, bicyclists, hikers and bird watchers. Also, without exception, the recreational master plans and sector plans of the cities and counties with jurisdiction along the Trinity River call for utilization of the flood plane for open space, linear parks, access areas, active and passive use areas, interpretive areas, natural areas, urban wilderness areas and a system of linked hike, biking, and equestrian troops. In summary, natural habitat in the area has given way to

64. See response to comment #5 on page N - 14.

19:51 increased organization making the remaining natural habitat more important. Accordingly, future action should focus on protecting and enhancing the remaining natural environment of the area.

The channel portion of the Trinity River is possibly the largest remaining natural channel within Dallas. Flood control projects would solve problems in one area but compound them in others should be avoided.

This sounds great.

65. Unfortunately, this report is incomplete. The report erroneously admits consideration of toll roads. But for purposes of comparison, I'll not consider impacts of the toll road tonight.

If we could have a plan that meets all the planning objectives without

66. cutting trees, digging swales, or building levees, and that relocates citizens out of a toxic polluted environment and costs less in construction costs and much less in maintenance costs, that would be a win, win, win plan for social, environmental, and economic considerations.

This EIS does not contain an

65. See response to comment #1 on page N - 18.

66. The plan formulation activities conducted during this study indicate that the recommended plan is the most economically, engineeringly and environmentally feasible project that can be implemented by the Corps under existing planning constraints.

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19:52 adequate non-structural alternative. The
67. combination alternative plan is insufficient
and incomplete. It does not represent a viable
non-structural plan. I will try to suggest how
19:53 such an alternative might be constructed. The
outputs of the recommended plan Chain of
68. Wetlands are met natural without cost by a
non-structural approach. We don't have to pay
for those benefits. The recommended plan
19:53 allows benefits from the existing floodway
reach in order to make the plan economically
feasible.
In the same manner, we can add
those benefits to a non-structural plan by
19:53 adding additional flood capacity to the
existing levees. That capacity could be
achieved through conveyance basins as proposed
by Texstop (phonetic) and the City of Dallas or
raising existing levees or other upstream
19:53 means. The cost of the swales are
approximately the same as the voluntary buyout.
The cost of the levees is approximately the
same as the conveyance basis. Therefore, a
couple of -- therefore, a complete
19:53 non-structural plan is feasible and is not

67. See response to comment #1 on page N - 13.

68. See response to comment #1 on page N - 13 and response to comment #1 on page N - 284.

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contained in the EIS.

69. We also request additional time for comments since most of this massive data compiled for this plan was not made available even though we had requested it.

MR. FRITZ: Attaboy.

COL. WELLER: Next speaker is Mr. Campbell Read.

CAMPBELL READ: My name is Campbell Read and I'm here to speak on behalf of Dallas County Audubon Society as well as Save the Trinity, the Trinity River Action 70. Coalition, and also trustee of Texas Committee on Natural Resources. I want to echo the remarks made by several others with regard to 71. an extension of the time period for comments, and comments by others on a proper in-depth analysis of non-structural solutions which appears to be lacking in the draft statement. 72. And comments by others on the need, the important need to include the effect of upstream flood plane filling such as the proposed toll road between the levees and the Stemmons corridor and even upstream from that, what is going to be the effect of a proposed

69. See response to comment #1 on page N - 30.

70. See response to comment #1 on page N - 30.

71. See response to comment #1 on page N - 13.

72. See response to comment #4 on page N - 14.

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levee along Luna Road? What is going to be the effect of the proposed upper arm of the Trinity Park where the Texas Department of Transportation plans along the West Fork in the flood plane of the West Fork? And on the effects of the floodway extension plan on downstream communities, both business and residences below Loop 12.

I'm very excited by the discovery of the rookery this afternoon. As a representative of the Audubon Society, I would like to point out the destruction of a rookery like that would be a violation of the Migratory Birds Treaty Act, so it would be a violation of federal law if we were to destroy that.

And the closing of the common period on July 10th, or whenever it might be, would not substitute further violations of that Act if we were to find such rookeries or other nesting areas for wild birds in the Great Trinity Forest that might be impacted or affected by the floodway extension plan. The end of the comment period would not affect a violation that might occur. We need to be very much aware of that as we proceed. And I hope

73. Impacts of reasonably foreseeable project proposals have been addressed in the Final EIS.

74. See response to comment #8 on page N - 19.

75. See response to comment #18 on page N - 23.

76. See response to comment #1 on page N - 30 and response to comment #18 on page N -23.

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that the Corps will take into account the existence of this rookery in its final impact statement.

77. Finally, is there going to be a cost to the City of Dallas or the county for the construction of a levee in lead-contaminated areas like Cadillac Heights? Who's going to pay the cost of that? Is it not the case that the Corps requires a clean up of the contamination before the -- before construction of a levee would go ahead?

And we will have some comments in writing later. Thank you.

MR. FRITZ: Attaboy.

COL. WELLER: The next speaker is Mr. Craig Holcomb.

CRAIG HOLCOMB: Good evening. I'm Craig Holcomb. I'm the chairman 78. of the Trinity River Corridor Citizens Committee. Basically at this point I think it's important to address the issue of locally preferred alternative. Structural flood relief is a locally preferred alternative. The Dallas City Council has -- that's the elected representatives, has voted for that. The

77. See response to comment #3 on page N - 14 and response to comment #11 on page N - 22.

78. On May 2, 1998, the citizens of the City of Dallas did pass a bond election. One of the propositions on the bond election was for the City's share of the cost of the recommended project.

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voters of the City of Dallas have voted for that. Generally speaking, in a democracy, that is how we decide what is the locally preferred alternative.

I am speaking tonight basically because I felt like that point of view might get short tripped. Certainly when I hear other speakers give evidence as fact of Henry Tatum's op-ed piece on the op-ed piece of the morning news, I don't take anybody on the op-ed page as fact. It's opinion. But more importantly, the report that the committee sent out certainly said that voluntary buyout was the preferred alternative. What is not being addressed is we have not had hoards of people volunteering to not be bought out. I have attended numerous meetings in those neighborhoods, and the fact of the matter is they are much more interested in crime protection and fixing potholes and code enforcement and better parks than they are in flood protection, at least in my experience in those meetings.

The voluntary buyout -- "A," there hasn't been a lot of volunteers; and "B," we have never had the funds specifically

79. See response to comment #12 on page N - 287.

80.

identified that would be used for that. The questions that are being raised about the environment are serious questions and they deserve serious timely responses. However, it also must be pointed out that many of the people raising those questions and asking for a delay are opposed to the levees, period. At least one of the current speakers tonight has said repeatedly on television and in the newspaper, and I've seen him on television, that after the election that they would use any means possible to stop the levees. Now I hope the Corps will treat their questions with the respect they deserve, but I also hope the Corps will not let delay tactics and questions ad infinitum delay providing flood protection for the people and businesses who have been waiting over 30 years. Thank you.

COL. WELLER: Mr. Leon Ervin, Jr., is the next speaker.

LEON ERVIN, JR.: Thank you. Good afternoon. I'm inclined to agree with Mr. Holcomb. I also served in flood control for a long time. Leon Ervin, Jr. I represent the South Central Civic League. I'm

81.

80. See response to comment #1 on page N - 30.

81. See response to comment #1 on page N - 30 and On May 2, 1998, the citizens of the City of Dallas did pass a bond election. One of the propositions on the bond election was for the City's share of the cost of the recommended project.

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20:00 also a member of the Dallas Homeowners League.
Truthfully, what I am seeing here and what I'm hearing, and I want the Corps to recognize this as well, first of all, we
20:01 have a group of people that served on these committees that are still here and that are raising the questions just as I am right now. Number one, this thing should have been over when the election was over as far as some of
20:01 the things that are taking place.

82. What we have seems like, if you will just look around the room, from the southern sector you find very, very few. The Trinity River is cut up in three sections.
20:01 Area 3 seems to be the topic. Cadillac Heights happens to be in that area. We have people that have been called in supposed to be very important people in our area, and I have to state this, and no offense toward the
20:01 gentlemen, the NAACP, supposed to be a powerful organization, and it is, in its perspective, but I defy being used to represent a people that it has not represented as a equal part in this flood control.
20:02 Where was it when we needed

82. Thank you for your comment.

20:02 it -- and I have to say this: I'm not talking
about the gentleman, but where was it or the
representative when we were fighting trying to
get things done in the southern sector? As I
20:02 said before, no offense to him, but we have
people that are shrewd. They use any way, any
means and tactics to tear down, destroy, and
hold back. The southern sector too long has
been denied its equal share in the southern
20:02 sector. The people deserve the protection.
83. To the gentleman that's
concerned about the cleanup, the lead and
whatnot in the area, we have canvassed the
whole southern area. Believe it or not, about
20:02 five people in the whole Cadillac Heights area
was interested in getting out. Just like they
cleaned up west Dallas, they will clean up that
84. area as well. The people deserve the
protection. And the Trinity River will always
20:02 perish and suffer even upstream until something
is done in the southern sector. We need mainly
the water to flow in the lower sector, whatever
means, but the people deserve that protection
and we want everybody to have it.
20:03 And the truth is we had -- we

83. Your support of the need to provide flood protection to the study area is noted.

84. On May 2, 1998, the citizens of the City of Dallas did pass a bond election. One of the propositions on the bond election was for the City's share of the cost of the recommended project.

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had a bond package that went through. It has passed. And I see no need for us fighting right now, in words or other means, to handicap or stop anything from taking place in south Dallas. The whole southern area deserves more, it deserves better. And everybody that's "complainting" doesn't have any interest in south Dallas. It's not so much south Dallas, it's who lives there. We need your support. Let whatever takes place or has been voted upon by the people take its course. Thank you.

COL. WELLER: Our next speaker is Mr. Mason Brown, III.

MASON BROWN, III: I'm Trey Brown, Big City Crushed Concrete, Incorporated. We're a concrete recycling facility located adjacent to the floodway project. We at Big City Crushed Concrete and the businesses along the Lamar Street corridor approve of the floodway extension as proposed and we appreciate the protection the proposed levees provide for us the futures of our businesses and the careers and livelihoods of our numerous employees. Thank you.

COL. WELLER: The last card

85. Thank you for your comment.

that I have, and I'm getting a signal from the back that there are no other cards, is there someone else who would like to speak? If you would like a card -- I've got one more person to announce but if you would like to talk we'll get you next.

The last speaker that I have a card for is Mr. Roy Williams.

86. ROY WILLIAMS: I would like to say good evening to the Corps and the people that are gathered here. Listening at the last speaker, and this isn't what I came to address, I really came to address the issues and try to stay within that peripheral, but it appears that a lot of misinformation is coming out. A lot of people in Cadillac Heights are going to be relocated and moved out of that desolate, third-world condition. They have been begging for years to be moved out of there, and I think it's deplorable when a citizen would stand up and make a statement as such to misinform the general public. If I'm under a car and the car has landed on my chest, I don't care what person come and relieves the car off my chest, just get it off my chest.

86. See response to comment # 66 on page N - 209. This plan would provide an SPF level of protection to over 2,500 strictures in the DFE area and will increase the protection to over 10,500 structures in the vicinity of the existing Dallas Floodway.

That's what people in Cadillac Heights are saying. It's no mystery. These people have been in a deplorable situation for over 40 years and they were forced there by racism and they want relief. They begged time and time and time -- when Mr. Holcomb was on City Council, going back as far as Jack Evans being the mayor, coming forward to our present, no one has made any effort, no community grant money has ever been earmarked, by the City -- maybe by HUD but not into the City -- but to go into Cadillac Heights even when Mr. Holcomb was on the City Council.

So there's a lot of disinformation being given out here today. We know why. It's still business as usual, and a lot of people are sent in here to misinform, to dissuade the effort by those of us that have been working in the trenches trying to get relief for poor people. This city has a history for not looking out for its poor, its downtrodden, its disenfranchised and its left out. By that I know because I was the lead plaintiff in fourteen one redistricting, as Mr. Holcomb know. We had to take them into

federal court to do the right thing as far as how the Dallas City Council is elected.

Five poor mothers from west Dallas had to take them into court to get a fair housing scenario. And this situation probably will not escape either without going to federal court. We are willing to go to court if necessary to make you stand up to some of the legislation that has been passed down by Jimmy Carter and also updated by William Clinton. So here is my comment to the Corps Army of Engineers, Fort Worth, Texas.

Can I ask for an extension of time? I don't know how much time -- since I'm the last speaker evidently.

COL. WELLER: You're not the last.

ROY WILLIAMS: No one told me there was a time limit.

COL. WELLER: I announced that at the beginning.

ROY WILLIAMS: I was not here.

COL. WELLER: I apologize. There is a five-minute time limit.

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ROY WILLIAMS: Well, anyway, working almost nonstop since the first of January, U.S. Corps Army of Engineers, restored the levee from Fresno to Chico along the northern course from Del Notra to Santa Cruise in January '97 during rain. Over 55 contracts were awarded to repair these levees. This is a report from the news release on December 2, 1997 from the U. S. Corps of Engineers in California Department of Water Resource News. Another Associated Press article concerning the damages of California, Governor Pete Wilson said, and I quote, after looking at many counties and their levees, the preliminary damage estimate has hit 775 million, end of quote.

Associated article in the Illinois News, February 26, 1997 relates businesses in river hamlet of Cleveland are shattered. The roads are submerged under several feet of water and many of the residents who refused to flee are living in the upper floors of potential submerged homes. Many of the residents -- the lookout is certainly not good said Darryl Parks, the emergency services

coordinate for northwest Henry County. Mississippi River tributary broke through a second levee about 20 miles upstream and up to 150 residents were urged to leave their home. The levee was too far gone to fortify with sandbags. We would have to put up an eight-foot wall of sandbags. The way the water is going through there you could never begin to stop it said K. B. Melton, fire chief of the City.

COL. WELLER: Wrap up.

ROY WILLIAMS: Yes. Can I, please, since I didn't know what the time element was, nobody told me --

AUDIENCE: No.

COL. WELLER: Give you two minutes to wrap up. Please track two minutes.

ROY WILLIAMS: -- and the great Dr. Harold Reimer (phonetic), professor in the agriculture economics (inaudible) at the University of Missouri maintained a few basic principles, one is that water in excess cannot be made to disappear, a city can build levees, but to keep water in and supposedly out of the area being protected but it will go somewhere

perhaps cresting over a downstream levee or gushing preexisting or newly self-created flood plane and the more levees that are constructed the more certain it is that they would prove inadequate in a future year of excessive water.

I could go on giving examples and expert opinions on the destruction from damaged levees but my main concern is with the residents of Cadillac Heights. The leadership of Dallas has ignored the mostly poor minority residents who were forced to live in Cadillac Heights by the law of 1940, the support segregation --

COL. WELLER: One minute.

ROY WILLIAMS: The Trinity River project have a price tag of 246 million. The proposal will spend 54.7 million to build new levees supposedly to protect Cadillac Heights and Lamar Street. As we already know from experience, this will not protect them.

Another concern I have is that the toxic --

COL. WELLER: Sir, you're out of time, please.

ROY WILLIAMS: -- as well

as the contaminated dirt dredged up from the swales to make a levee. The --

COL. WELLER: The time --

ROY WILLIAMS: -- that the toxic dirt placed on levee sites will not injure them or their children's health. Thank you.

COL. WELLER: The time limit certainly does not limit anyone from submitting whatever they would like to submit, unlimited pages, to the record, at a later date. Thank you.

Could you please make sure you state your name.

ANNIE MALCOLM: My name is Annie Malcolm and I'm going to speak on behalf of Save Open Space, because save open space wants to go on record to request that the mitigation lands be kept in the City of Dallas and in the Great Trinity Forest and not go elsewhere, because it's part of the consensus that we developed for this whole project to keep the Great Trinity Forest intact.

And then I want to also just for myself say that I want to reiterate the

87.

87. See response to comment #30 on page N - 34.

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20:12 importance of the trail system within the floodway extension area as an important
88. component of the overall trail system within Dallas County and within the region as part of
20:13 the Great Trinity Trail. Thank you very much.

NEELY KERR: My name is Neely Kerr and I would like to clear up some
89. kind of misconception here about studying of non-structural alternatives. That was I
20:13 specialty many years on this Trinity River committee, and we were sort of led to believe that Dallas really isn't doing that while, in fact, recently they have done this on the middle section of Five Mile Creek. In 1944 the
20:13 Parks Department proposed two creeks in parks, Dixie Creek and Five Mile. Five Mile they impinged upon. There was a danger of people being swept way because there was not only flooding but a velocity problem. The City of
20:13 Dallas implemented a buyout program, 41 structures were removed. These were public meetings, people could go to them, they were wonderful, but they were a relocation, not buyout. The DISD was called in to help the
20:14 children relocate.

88. See response to comment #25 on page N - 25.

89. See response to comment #1 on page N - 13.

20:14 During the Trinity River meeting, although I and others asked for the buyout -- this relocation program to be presented, what was available, the people never 20:14 heard about it. So I don't know how the people can reject that which they did not hear about. So when they study, by who about what process was this all done by? Thank you.

BUD MELTON: My name is Bud 20:14 Melton and I represent Texas Trails Network. I

90. notice the board over there mentions all-weather trails. And in the push to meet federal budgets, I know oftentimes the term "all-weather" gets adjusted a little bit and 20:14 concrete might become asphalt and I want to make sure whatever trails are put down there are the kind of trails that will last and not be eroded by water. Asphalt doesn't do well in water.

91. 20:15 Also, as far as the width is concerned, I note that the width in the report says 10 feet and the regional standard that's been adopted for the North Central Texas area is 12 1/2 feet. And I certainly think that the 20:15 experience that Dallas has had in the past with

90. See response to comment #25 on page N - 25.

91. See response to comment #25 on page N - 25.

20:15 putting down narrow trails then discovering that they're overused and unsafe warrants being very persistent about that 12 foot, 12 1/2 foot width.

20:15 Also you mentioned you've listed
92. four miles of mountain bike trails. And frankly I think four miles of trails, which is about 15 minutes of riding, is not going to be sufficient for most off-road bicyclists. And
20:15 also I would like to see that any mitigation
93. properties that are purchased be kept in Dallas County and, if possible, utilized as potential extensions of trails wherever that's possible or appropriate. Thank you.

20:16 COL. WELLER: Is there anyone else who would like to make a comment?

NANCY BATEMAN: My name is Nancy Bateman and I'm here as a citizen of the
94. United States and a citizen of Dallas and I
20:16 endorse the comments put forward by T. Connor, Sierra Club, Audubon, and the League of Women Voters.

In looking over the proposal put forward by the Corps, which they call their
20:16 environmental impact statement, I find an

92. See response to comment #25 on page N - 25..

93. See response to comment #30 on page N - 34.

94. See response to comment #5 on page N - 13.

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amazing amount of strange commentary that doesn't seem to be relating directly to some of the environmental issues and a lot of strange omissions with regard to map and drainage and
95. other things. For example, in the overview comments there is a whole series of rivers and lakes that are shown as part of the system whereas they're not. For example, they claim that the upper Trinity River study region begins -- excuse me -- the East Fork of the Trinity River is in the upper Trinity River, and this is incorrect. The upper Trinity River study actually begins above this plan area. The Dallas Floodway Extension area, and this is a study region, not a particular land area.

96. Similarly, with the Great Trinity Forest, there's no such thing specifically defined. It's a yet unknown entity, but it's constantly referred to as a viability entity in your material. There's a
97. lot of information that seems to be an association of other reports which are not cited. And as a scientist I find this extremely difficult to read and comprehend when I can't check the materials that you have

95. The Upper Trinity River Basin is defined as all of the Trinity River Watershed upstream of the Malloy Bridge crossing in southeast Dallas County.

96. See response to comment #2 on page N - 14.

97. The findings as put forth in this document are the results of work performed for and by members of the project team.

obviously put forward here.

98. So I encourage you to extend the study period, allow us all to have a little more time to read through your eight some inches of material presented, 30 or 40 days is totally insufficient to allow the citizens to really provide any good consumption and review.

COL. WELLER: Can I get a show of hands of other folks who would like to make comments? My court reporter's hands may be about to give out. If I've only got one more I'll continue.

RON DAVIS: My name is Ron Davis and I'm also representing the Dallas NAACP. We would specifically like a definition of the EPA's role in this whole project. We are aware of the conspicuous absence of the EPA here tonight. And in this comment period, we would formally like the Corps to define the role of the EPA, what relationship the EPA has had with the Corps in addressing some of the problems we're concerned with, especially the problems related to Cadillac Heights and the environment and concerns there. And we would like some type of written response, either from

98. See response to comment #1 on page N - 30.

99. Coordination has been maintained with other regulatory agencies. A representative of EPA was present at the meeting, however, written rather than verbal comments were provided on this document during the comment period.

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20:19 the Corps or the EPA, to talk about implementation of its responsibility to ensure a safe environment for members of the City of Dallas. Thank you.

20:19 COL. WELLER: One last chance. I don't see any hands or anybody standing up.

I would like to thank you for your attendants here tonight. Remind you the 20:19 address is on the back of the slide package if you care to submit any written comments for the record. I would also like to take this opportunity to thank the Corps employees of the Fort Worth district who worked so hard and 20:19 prepared for tonight's meeting. I thought this was a great effort and a good way to inform the public of where we stand at this time.

I would like to thank you for coming. Good evening.

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THE STATE OF TEXAS X

COUNTY OF DALLAS X

This is to certify that I, Ronald R. Cope, a Certified Shorthand Reporter in and for the State of Texas, Registered Professional Reporter and Certified Realtime Reporter, reported in shorthand the proceedings had at the time and place set forth, and that the above and foregoing pages contain a full, true, and accurate transcript of the said proceedings.

GIVEN UNDER MY HAND AND SEAL OF OFFICE on this the 21st day of June, 1998.

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400 Premier Place
5910 North Central Expressway
Dallas, Texas 75206-5190

Agy No 16852
Job Ref No _____

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August 13, 1998

Via FEDEX Delivery

Gene T. Rice, Jr.
Project Manager
U.S.Army Corps of Engineers
Fort Worth Division
P.O.Box 17300
Fort Worth, Texas 76102-0300

Re: Supplemental Comments of the Texas Committee On Natural Resources Regarding the Proposed DFE Project

Dear Mr. Rice:

Enclosed you will find the above referenced Supplemental Comments of the Texas Committee On Natural Resources Regarding the Proposed DFE Project. It is our understanding that these comments must be in your possession by Friday, August 14, 1998. Therefore we are sending these materials by FEDEX guaranteed 10:00AM delivery.

If you have any questions please contact me at 713-524-1012.

Sincerely,

James B. Blackburn, Jr. /sc

James B. Blackburn, Jr.

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SUPPLEMENTAL COMMENTS OF THE TEXAS COMMITTEE ON NATURAL RESOURCES REGARDING THE PROPOSED DFE PROJECT

COMMENTS SUBMITTED TO:
U.S. ARMY CORPS OF ENGINEERS FORT WORTH DISTRICT

COMMENTS SUBMITTED BY:
JIM BLACKBURN
BLACKBURN & CARTER
3131 EASTSIDE, #450
HOUSTON, TEXAS 77098

COMMENTS SUBMITTED ON AUGUST 14, 1998

4/30/2009

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COMMENTS ON
THE PROPOSED DALLAS FLOODWAY EXTENSION (DFE) PROJECT

This document is the second set of supplemental comments of the Texas Committee on Natural Resources (TCONR) with regard to the Draft Environmental Impact Statement (DEIS) for the proposed Dallas Floodway Extension (DFE) project. Unless noted otherwise, all comments are with regard to the Recommended Plan.

These comments are divided into several parts. There are comments regarding the 1988 Record of Decision on the Trinity River Regional project and the variance process established therein. There are comments regarding the relationship of the DFE and the Trinity River Parkway Project, specifically including cumulative and secondary impact issues as well as a discussion of connected actions. There are comments regarding that failure of the Corps to fully disclose the negative impacts to the Great Trinity Forest and its wetland values and functions. There are comments regarding interaction of the proposed project with the Linfield Landfill. There are comments regarding the environmental justice issues associated with this proposed action and its impact on the Cadillac Heights neighborhood. There are comments regarding changes and additions to federal flood plain management and protection policy. There are detailed comments by Dr. Philip B. Bedient on certain hydrologic and hydraulic aspects of the analysis. Finally, there are comments regarding non-structural alternatives.

1. 1988 RECORD OF DECISION AND VARIANCE PROCESS

In the mid 1980s, the Fort Worth District of the U.S. Army Corps of Engineers completed a document titled Final Regional Environmental Impact Statement, Trinity River and Tributaries. A Record of Decision (ROD) was issued with regard to this Regional EIS on April 29, 1988, and was signed by Col. John Schaufelberger of the Fort Worth District. The geographic area that is covered by this ROD includes the geographic area affected by the proposed DFE project that is the subject of these comments. The following excerpts from the ROD are relevant to the proposed DFE project:

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"Based on my consideration of the data developed and presented in both the Draft and Final Regional EISs and my careful consideration of all public input, I have determined that, for the purposes of the Regional EIS study area, my Regulatory Program will be henceforth based on the following criteria. The baseline to be used in analyzing permit applications will be the most current hydraulic and hydrologic model of the specific site in question. The burden of proof of compliance with these criteria rests with the permit applicant. **Variance from the criteria would be made only if public interest factors not accounted for in the Regional EIS overwhelmingly indicate that the 'best overall public interest' is served by allowing such a variance." (emphasis added)**

"A. Hydraulic Impacts - Projects within the SPF [Standard Project Flood] Flood Plain of the Elm Fork, West Fork and Main Stem. The following maximum allowable hydraulic impacts will be satisfied . . .

1. No rise in the 100-year or SPF elevation for the proposed condition will be allowed.

2. The maximum allowable loss in storage capacity for the 100-year and SPF discharges will be 0% and 5% respectively. . ."

The relevancy of this ROD is that the proposed DFE project violates the criteria set forth in this ROD. According to the Draft EIS:

". . . The analysis indicates that a reduction in valley storage in the project reach would result in an increase in the peak discharges. This increase has been computed and is expressed in terms of an increase in the peak water surface profile downstream of the project. The water surface profile elevations would be increased an average of 0.15 feet for the 1 percent chance flood and 0.3 feet for the SPF. Based upon these small increases and the very limited potential for flood damages downstream of the project, a variance from the criteria requiring mitigation for reduction of valley storage and no allowable rise in the 1 percent chance flood and SPF elevations should be allowed. The variance from these requirements, as stated in the Corridor Development Certificate Manual and the Trinity River Environmental Impact Statement Record of Decision, would be further justified in light of the very broad ranging economic benefits accruing to the residents, commercial activities and public service facilities within the project reach as well as upstream of the project reach. Careful consideration of these factors indicate that the best overall public interest would be served by allowing such a variance" (Draft EIS, p. 6-12).

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TCONR urges in these comments that the analysis and consideration of the Regional EIS and the 1988 ROD in the Draft EIS is both incomplete and contrary to law. The statement quoted above fails as full disclosure of the cumulative impact variance issue and it fails to apply the correct test regarding public interest (overwhelming vs. best overall). The statement quoted above is conclusionary with regard to the variance issue and does not fully inform the decision-maker of the variance process or of the role of the Corridor Development Certificate process in the issuance of a variance. To the extent that the Corps has sole authority to issue a variance, it must do so only when public interest factors not otherwise considered in the Regional EIS **overwhelmingly** indicate that the variance is in the best overall public interest. Such is simply not the case with regard to the DFE project.

1.

1. The statement is intended to be conclusionary.

A. THE CORRIDOR DEVELOPMENT CERTIFICATE PROCESS

The Regional EIS and the associated ROD gave birth to the Corridor Development Certificate (CDC) process. The CDC process was initiated in the early 1990s and was formalized with the adoption of the CDC manual in 1993. The CDC process is composed of cities along the Trinity as well as the North Central Texas Council of Governments and the Fort Worth District of the Corps of Engineers. This coordinated program of cooperative flood plain management exists from Fort Worth through Dallas along the Trinity River and includes all cities with jurisdiction along the Trinity River and its major tributaries.

This management system is an important and key aspect of flood plain damage reduction on the Trinity River and its tributaries. This CDC process is established on the principles adopted in the 1988 ROD; including specifically the criteria of (1) no rise in the 100 year and SPF flood levels, and (2) no more than 0% and 5% loss of valley storage for the 100 year and SPF events, respectively (see CDC Manual, Common Permit Criteria). Each of the cities along the Trinity have incorporated these criteria into their flood plain management ordinances and regulations. A functional, coordinated floodplain management program such as CDC is unique in Texas and perhaps in the United States.

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2. There has not been a variance granted by the Corps to the ROD since it was adopted in 1988 and there have been no variances to the CDC requirements since adoption by all the municipalities in 1993. This process of protecting the water surface elevations and valley storage within the Trinity River System is important and respected. The decision of the Corps of Engineers and the City of Dallas to seek a variance from these requirements raises major policy issues regarding the integrity of the CDC program and the willingness of other communities to restrict flood plain development and flood level rise in the future. The role of the Fort Worth District of the Corps of Engineers is critical to the success of the CDC program. If a variance is granted in this case, then the integrity of the program will be compromised and Trinity River flood damage reduction programs will suffer.

3. In the context of the Draft EIS, full disclosure has not occurred regarding the success of the 1988 ROD in preventing cumulative impacts and water level rise on the Trinity River. The Draft EIS does not fully disclose the existence of, importance of and success of the CDC process that implements the ROD. There has not been full disclosure of the number of variances - none - that have been granted from the 1988 ROD and from the CDC criteria. There has not been full disclosure of the importance of the variance process to the continued success of the CDC process. There has not been full disclosure in the Draft EIS of the importance of the ROD and CDC process to the long-term safety and viability of the communities adjacent to the Trinity River. There has not been full disclosure of the effect that granting this variance will have in undermining the integrity of the flood damage reduction program currently in effect on the Trinity River through the 1988 ROD and the CDC process.

B. FAILURE TO DEMONSTRATE OVERWHELMING PUBLIC INTEREST

According to the 1988 ROD, a variance to the ROD's criteria should only be issued when public interest factors overwhelmingly indicate that the variance is in the public interest. It is the position of TCONR that the EIS and/or the technical documents must support a conclusion that the

2. There have been variances granted to the ROD where flood damage reduction projects would reduce threats to life and property at existing developments.

3. The intent of the Draft EIS was to address the impacts of the proposed project and alternatives. The hydrology model used for existing conditions reflect the ultimate benefits that have been and will continue to evolve from the CDC & ROD.

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proposed DFE is overwhelmingly in the public interest. No such showing has been made in either the draft EIS or in the associated technical reports. Indeed, the only mention of public interest factors is found in the section of the DEIS quoted above which limits its discussion to economic benefits and fails to discuss any negative aspects. That segment is conclusionary, fails to address all public interest factors and fails to articulate a defensible basis for making a public interest decision.

Factors to be considered in identifying the public interest are found in the regulations of the Corps of Engineers at 33 CFR 320.4(a). Essentially, the public interest test is a balancing test - one that identifies the pluses and minuses of a proposal and attempts to weigh those against one another. There are many factors that are identified in the regulations, including conservation, aesthetics, economics, general environmental concerns, wetlands, fish and wildlife values, flood hazards, flood plain values, land use, recreation, and in general, the needs and welfare of the people. It is a broad, general balancing test.

Under the regulatory policies set out in 33 CFR 320.4(a), a permit is to be issued unless it is shown to be contrary to the public interest. However, the 1988 ROD from the Trinity River Regional study changed this balancing test. Rather than there being a presumption that the project meets the public interest test unless shown otherwise as set out in 320.4(a), the 1988 ROD requires that a project must be determined to be "overwhelmingly in the public interest" prior to a variance being granted. This 1988 ROD test is a difficult test and not a simple balancing test. This 1988 ROD creates a strong and difficult burden that must be met by the proponent of a variance from the criteria established by the 1988 ROD.

The language in the 1988 ROD was not chosen lightly. The Fort Worth District fully understood the words that were chosen. Col. Schaufelberger and/or the staff of the Fort Worth District knew that they were altering the burden of proof regarding public interest as expressed in 320.4(a). This 1988 ROD was written with the full knowledge that political pressure would be brought to bear on the district in the future and that simple economics should not be enough to alter

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this ROD. This ROD was intended to require a rigorous analysis of the public interest of a project because the cumulative rise in the Trinity River flood elevations had to be prevented.

TCONR argues that specific factual disclosures must be made regarding the inputs that the Fort Worth District considered in determining that a variance from the 1988 ROD is "overwhelmingly in the public interest." TCONR asserts that several public interest factors argue against the granting of the variance, including (1) the impact of the variance on the CDC process specifically and upon flood plain management generally within the Trinity Corridor, (2) the impact of the variance in destroying a portion the Great Trinity Forest, and (3) the impact of the variance when considered in light of the contamination in Cadillac Heights. Each of these issues is discussed in greater detail. However, the primary point is that the burden is on the Corps to document the basis for finding that the granting of the variance is **overwhelmingly** in the public interest, a burden that TCONR does not believe has been or can be met with regard to the DFE project.

4.

4. Providing flood protection to over 2,500 existing structures in the Dallas Floodway Extension area, which currently have no protection, and increasing protection to over 10,000 existing structures within the reaches of the existing Dallas Floodway weighs heavy in the determination that granting the variance is not just within the public interest but is "overwhelmingly" in the public interest.

1. NEGATIVE IMPACT ON CDC PROCESS

First, TCONR asserts that the impact of a variance on the CDC process is a key element of the "overwhelming public interest" test. Specifically, TCONR believes that the flood plain management activities and flood plain development regulations within the Trinity Corridor would be negatively impacted by the granting of a variance to the City of Dallas for the DFE project. By such an action, the Corps would have opened the floodgates of the variance process, thereby undermining that which the 1988 ROD established. At the least, the Corps should require the DFE project to be subjected to the CDC process prior to completion of the Final EIS and prior to a determination of whether or not a variance is in the overall public interest or not. The results of the CDC review process should be part of the official record and included in the Final EIS.

TCONR additionally asserts that if this analysis of the negative effect of the granting of a variance upon the CDC process is correct, Executive Order 11988 regarding flood plains also

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5. would be violated by the proposed DFE project. This violation would add another flood-related public interest issue arguing against the overwhelming acceptability of the DFE project.

5. The project is in full compliance with Executive Order 11988.

2. NEGATIVE IMPACT ON THE GREAT TRINITY FOREST

Second, TCONR asserts that the impact of a variance on the Great Trinity Forest must be considered as a negative factor in the public interest balancing test. As will be discussed later,
6. TCONR believes that full disclosure of the impacts of the project upon the Great Trinity Forest has not occurred in the Draft EIS. It is clear that the Great Trinity Forest is a unique urban resource. It is clear that a swale will be cut through this forest as part of the proposed DFE project. It is clear that floodwaters will cause additional damage beyond the construction limits of the swale. It is clear that these destroyed and lost portions of the Great Trinity Forest are either classified as wetlands or perform wetland functions and possess wetland values. It is clear that conservation, wetland, fish and wildlife and general aesthetic public interest parameters are negatively impacted by the harm to the Great Trinity Forest.

6. Impacts to forest lands have been fully disclosed and a mitigation plan to fully compensate resource losses has been developed.

3. NEGATIVE IMPACT ON ENVIRONMENTAL JUSTICE CONCERNS

Third, TCONR asserts that environmental justice issues are raised with regard to the levee protection for Cadillac Heights. Cadillac Heights is currently zoned industrial. Cadillac Heights is currently contaminated with lead. It is misleading if not an outright misrepresentation for the documentation associated with the DFE project to speak in terms of protection of the residential
7. viability of Cadillac Heights. This area has been lost as a residential neighborhood, a fact well known to the City of Dallas.

7. Disagree, no individual would be required to remain in the area at anytime as a result of project implementation.

This environmental justice issue will be discussed in detail in later sections of these comments. The point, however, is that in determining whether this DFE project is overwhelmingly in the public interest, it is important to fully disclose and understand how this project interacts with development patterns and public health. In the case of Cadillac Heights, people should not be

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encouraged to live amidst this contamination. Instead, they should be given a chance to live without contamination through buy out programs. To the extent that the DFE project causes persons to continue to live in a contaminated area, the project is certainly contrary to the public interest.

4. PUBLIC INTEREST SUMMARY

8. In summary, TCONR strongly believes that the proposed DFE project is not overwhelmingly in the public interest. Full and fair disclosure of the impacts of the proposed DFE project on the CDC process, the Great Trinity Forest and environmental justice concerns in Cadillac Heights will identify significant negative public interest concerns about the DFE project. TCONR believes that when these factors are considered together in light of the project's proposed benefits, a fair and unbiased decision-maker cannot, in good conscience, find an overwhelming public interest in granting a variance from the 1988 ROD. Without such a finding, this project must be rejected.

II. CONSIDERATION OF THE PROPOSED TRINITY PARKWAY PROJECT, THE GREAT TRINITY FOREST MASTER PLAN AND OTHER TRINITY RIVER CORRIDOR PROJECTS

9. A second major concern of TCONR regarding the proposed DFE project is its relationship with other improvements in the Trinity Corridor, including the proposed Trinity Parkway Project, the Great Trinity Forest Master Plan and other improvements. TCONR believes and argues that the proposed DFE project, the proposed Trinity Parkway Project, the proposed Great Trinity Forest Master Plan and other Trinity River improvements are inextricably linked and that the impacts of these projects should be analyzed together in one EIS. In this regard, it is important to understand some of the background of these projects as well as the legal concepts that are associated with the analysis of impacts from these interdependent projects.

8. See response to comment #4 page N - 242.

9. Reasonably foreseeable project descriptions and the cumulative impacts resulting from them have been incorporated into the final report. However, commonly assumed future projects must withstand the test of affects upon the proposed Dallas Floodway Extension project. The Corps of Engineers retains regulatory control over any future projects which may affect the Trinity floodway.

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A. INTERDEPENDENCIES, SCOPE AND THE DEIS

In May 1998, the City of Dallas held a bond election. As part of that bond election, Proposition 11 titled "Trinity River Corridor Project" was included. As shown in Figure 1, Proposition 11 included the proposed DFE project, the Elm Fork Levee, various transportation improvements including the Trinity Parkway, the Great Trinity Forest Master Plan and the Chain of Lakes plan. Together, these projects represented a commitment of $246 million by the City of Dallas to these Trinity Corridor projects. In a document titled "Capital Improvement Program, 1998 Capital Bond Program Summary In-Brief, Election: May 2, 1998", the projects to be implemented by this bond issue were discussed. This document is attached to these comments as Appendix A. TCONR specifically requests that all documents appended to these comments be included in the official record of this decision-making process.

Figure 1

PROPOSITION 11: TRINITY RIVER CORRIDOR PROJECT

Program Category	Amount Allocated
Dallas Floodway Extension	$24,700,000
Elm Fork Levee	$30,000,000
Transportation Improvements	$118,000,000
Great Trinity Forest	$41,800,000
Chain of Lakes	$31,500,000

TCONR is also submitting a document titled "Interdependencies" as Appendix B. This document was prepared and circulated by the City of Dallas regarding the bond issue. As can be seen on the document's summary matrix in Figure 2, the City of Dallas has identified numerous interdependencies among the various projects that have been proposed by the City of Dallas and included in the bond issue. It is the very fact that these projects are intertwined that gives rise to the concern that these impacts should be considered together in a single EIS.

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Figure 2

INTERDEPENDENCIES	Dallas Floodway Extension (DFE)				Chain of Lakes (& existing levees)	Elm Fork Levee	Woodall Rodgers Extension	Trinity Parkway	Great Trinity Forest	Trinity Trails
	Wetlands	Levees								
		Cadillac Heights	Lamar	Rochester Park (existing)						
1. Land acquisition funds included in the Great Trinity Forest will be utilized for environmental restoration/mitigation	X	X	X						X	
2. A portion of the Lamar Street Levee is required for the Trinity Parkway			X					X		
3. Cadillac Heights and the Lamar Street levees, and approximately 1000' of the existing Rochester Levee will be improved using excavated materials from the wetlands	X	X	X	X						
4. U.S. Army Corps of Engineers (USACE) will assist the Texas Department of Transportation (TxDOT) in analysis of Hazardous, Toxic and Radioactive Waste sites, if any			X	X	X			X		X
5. USACE will assist TxDOT and/or the North Texas Tollway Authority in hydraulic and hydrological analyses of the Trinity Parkway, Woodall Rodgers Extension and Luna Road	X	X	X		X	X	X	X		X
6. TxDOT aerial topographic surveying within the Trinity River Corridor will assist the USACE	X	X	X	X	X	X	X	X	X	X
7. Recreational facilities, including trails funded by the city, USACE and TxDOT meet matching funds requirements	X	X	X		X	X			X	X
8. Realignment of the Trinity River Channel at IH-45 will protect an essential bridge on a designated National Defense Highway	X									X
9. Roadway base for the Trinity Parkway constructed using excavated materials from the Chain of Lakes reinforcing existing levees			X	X	X			X		
10. Flood control capacity of the Dallas Floodway will be increased by Chain of Lakes development				X	X					
11. Elm Fork Levee constructed using excavated materials from the Chain of Lakes					X	X				
12. Chain of Lakes mitigates hydraulic impact of the Trinity Parkway					X			X		
13. Regional trails are connected with trails developed in the DFE, Chain of Lakes, Elm Fork Levee, and those upstream of the confluence of the Elm and West Forks providing linkages between residential neighborhoods, high-employment areas, recreational and transportation facilities	X	X	X	X	X	X		X	X	X
14. Great Trinity Forest likely site recipient for environmental restoration/mitigation for Trinity Parkway and DFE	X	X	X					X	X	

As is shown on the matrix, there are four aspects to the proposed DFE project - the Cadillac Heights, Lamar and Rochester Park levees as well as the wetlands project. There is also a Chain of Lakes Project that is proposed within the existing levees, the proposed Elm Fork Levee, the
10. proposed extension of Woodall Rogers Freeway, the proposed Trinity Parkway, the proposed Great Trinity Forest master plan and the proposed Trinity Trails. The concern of TCONR is that these projects, as admitted by the City of Dallas's own documents, are part of a master plan for the Trinity Corridor and are inextricably tied to one another. As such, TCONR argues that the environmental impacts of these proposed actions must be disclosed in a single decision-making document - an EIS - that addresses the significant issues associated with these multiple projects.

The issue of scope of an EIS is one of the more difficult NEPA issues. Given the complexity of the issue of scope and the large number of projects that are proposed by the City of Dallas, the issue of interdependencies will be approached in two parts. First, the issue of cumulative impacts will be addressed from a resource standpoint. In this discussion of cumulative impacts, comments will be made regarding the adequacy of disclosures in the DEIS on the proposed action and comments will be made regarding induced or secondary effects that should be included. In other words, although these comments are under a heading titled "cumulative impacts", there are criticisms and comments about the adequacy of the analysis of the impacts of the proposed DFE project included therein. Second, the issue of a comprehensive EIS as required by Kleppe v. Sierra Club is discussed.

TCONR is asserting that the failure to disclose these interconnected impacts is a fatal flaw in the DEIS on the proposed DFE project as are the deficiencies in the analysis of identified subject areas and induced effects set out below. TCONR believes that the disclosure in the DEIS is totally inadequate with respect to the proposed action. In each of the following sections, these deficiencies are discussed.

10. The master plan of the City of Dallas proposed many projects that are not inextricably linked to the proposed Dallas Floodway Extension.

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B. CUMULATIVE EFFECTS

It is well established NEPA case law that cumulative effects must be fully and fairly considered (Kleppe v. Sierra Club, 427 U.S. 390 (1975), Fritiofson v. Alexander, 772 F. 2d 1225 (5th Cir., 1985)). Cumulative effects are defined in the regulations of the Council on Environmental Quality that control agency actions regarding NEPA compliance at 40 CFR 1508.7:

> "Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or Non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

The analysis of cumulative impacts keys upon two specific inquiries. First, there must be some incremental impact of the proposed action that is of concern. And second, there must be multiple actions including **reasonably foreseeable future actions** that must be considered.

11. In these comments, TCONR is specifically alleging that the analysis of cumulative effects in the DEIS was deficient in many respects. First, the cumulative hydrologic analysis is deficient. Second, the cumulative impact upon the Great Trinity Forest is deficient. Third, the cumulative analysis of land use patterns and actions are deficient. Fourth, the cumulative analysis of air pollution effects is deficient. Each of these is discussed sequentially in the following sections.

It is particularly worth noting the comment in the DEIS at p. 6-11 which states "[T]he proposed action, including environmental mitigation, makes little or no contribution to regional trends that are of concern in assessing regional impacts". Nothing could be further from the truth or further from full disclosure.

11. See response to comment #5 on N - 284.

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1. HYDROLOGY AND WATER RESOURCE IMPACTS

The proposed DFE project is designed as a flood control project. The Dallas Levee System is along the Trinity River and is subject to the 1988 ROD that has been previously discussed. According to the cumulative impacts analysis in the DEIS at p. 6-12, the proposed DFE project will increase flood elevations on the Trinity River an average of 0.15 feet for the 100 year flood and 0.30 feet for the SPF, a sufficient cumulative impact to require that the project seek a variance from the 1988 ROD. **However, the analysis on p. 6-12 only considers past actions in association with the currently proposed DFE project. Reasonably foreseeable future actions are not considered and must disclosed in a procedurally correct EIS.** Several of the proposed Trinity Corridor Projects have direct impacts upon flood elevations that are added to the proposed DFE project impacts and must be considered as cumulative impacts in the DEIS.

a. Trinity Parkway Project

The most obvious project that will generate cumulative impacts is the Trinity Parkway Corridor. This project was included in the Trinity Corridor Bond Issue and has been the subject of a published final study report dated March, 1998. The report, titled "Study Report, Trinity Parkway Corridor", is found in Appendix C. This project is a reasonably foreseeable future action as that term is used in the definition of cumulative impacts.

There is also no doubt that this project will generate a cumulative impact on the flood levels in the Trinity River. According to the study report located in Appendix C, the Trinity Parkway will be constructed within the Dallas floodway levee system from a point just downstream of Mockingbird and will continue to a point downstream of Corinth Street. According to this study report, four lanes in each direction will be placed on fill adjacent to and within the levee system. Additionally, there are several new bridges across the Trinity River that are proposed in this document, including two crossover bridges where the Trinity Parkway changes sides of the river. The full extent of proposed bridge crossings must be identified at some point in the EIS.

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A hydrologic analysis was completed in the Trinity Parkway study although it is not clear if all of the proposed transportation projects affecting the floodplain, such as the multiple bridges, were included in this analysis or not. The results of this hydrologic analysis indicate that substantial cumulative impacts are anticipated from the construction of this Trinity Parkway project:

> "The proposed conditions model was developed by first incorporating the embankment for the proposed Split Parkway design in the model to test the impacts that the Split Parkway itself would have on the flood elevations in the study area. Results showed that the water surface elevations for the SPS and 100 year storm events would rise by 0.8 feet and 0.5 feet, respectively, over existing conditions."

There is no doubt that this project generates a rise in the water surface elevation and thereby adds to the cumulative impact that has already been identified in the DEIS. This project should certainly be considered from a cumulative hydrologic impacts standpoint.

There is no doubt that this Trinity Parkway Project as designed will require a variance from the 1988 ROD and the CDC process. As such, this project reveals the need for a second request for variance from the 1988 ROD and the CDC process. Its impacts must be considered in conjunction with the rise caused by the proposed DFE project.

b. Dallas Floodway Park Plan / Chain Of Lakes

In this same Trinity Parkway Study Report, a Dallas Floodway Park Plan is identified as being proposed by the City of Dallas. TCONR believes that this Dallas Floodway Park Plan is the same project labeled "Chain of Lakes" in the bond issue proposal. This project is relied upon by the proponents of the Trinity Parkway to offset the increase in water surface elevation that is caused by the Trinity Parkway Project. The relationship of these two projects must be thoroughly understood and disclosed in the DEIS as cumulative impacts. Maps of the Trinity Parkway Project and the DFE Recommended Plan are included here for comparison of the proposed lakes.

(THERE WERE SEVERAL MAPS INCLUDED AT THIS POINT THAT HAVE BEEN RETAINED IN THE PROJECT FILE BUT NOT DUPLICATED TO SAVE SPACE.)

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In the Trinity Parkway Study Report, the following statements are made regarding the Chain of Lakes project from a hydrologic impact standpoint:

> ". . . Modifications to eliminate the rise [in water surface elevation] were tested by considering the effects of removing the abandoned Atchison, Topeka and Santa Fe (ATSF) Railroad bridge and embankment, adding more conveyance (8 feet of depth) to the proposed floodway lakes and adding more channelization. These changes eliminated the rise in flood levels (0.0) offsetting the hydraulic impacts of the reliever roadway embankment."
>
> "Additional analysis was performed to develop an alternative which would cause no additional rise in the flood elevation with the ATSF bridge remaining in place. By increasing the conveyance of some lakes from 8 to 12 feet and adding more channelization to the model, this alternative also resulted in 0.0 feet rises. Valley storage for this initial analysis has a 2% loss for the 100 year and 1% loss for the SPS [Standard Project Storm]."

According to the 1988 ROD, no loss in valley storage for the 100 year event is allowed. Therefore, given all of the favorable assumptions made by the proponents of the Trinity Parkway and offsetting Chain of Lakes, a need will still exist to seek a second variance from the 1988 ROD. TCONR considers this situation to be unacceptable.

c. Additional Bridge Crossings

In the Trinity Parkway Document, several additional bridge crossings are identified. Bridge crossings must be placed on pilings within the flood plain and have the potential to increase flood elevations and cause a loss of valley storage. New bridge crossings are identified at Singleton Blvd, IH-30, and IH-35, at the least. These bridge crossings are reasonably foreseeable future actions and they certainly have the potential to generate incremental hydrologic impacts that must be considered.

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d. The Elm Fork Levee

The Elm Fork Levee is proposed as a joint project of the City of Dallas and the U.S. Army Corps of Engineers. It was voted upon as part of the Dallas bond issue. It is directly related to the proposed DFE project in that the levee is proposed on the Elm Fork of the Trinity River upstream from the proposed DFE project. The Elm Fork Levee is proposed to provide SPF protection to 800 acres of floodplain within the Stemmons North Industrial District, generally along Luna Road from Royal Lane to the vicinity of California Crossing and east to Bachman Lake. This project will utilize material excavated from the Chain of Lakes project (which is intended to mitigate the flood impacts from the Trinity Parkway).

Again, there is the potential for this project to increase water surface elevations downstream, thereby giving rise to the potential of cumulative hydrologic impacts. It is incrementally related and is a reasonably foreseeable future action.

e. Conclusion

The request for the variance for the proposed DFE project as analyzed in the DFE is only the "tip of the iceberg" of cumulative effects. The DEIS is deficient in its analysis of cumulative hydrologic effects because it failed to consider the projects identified above.

The need to conduct this cumulative impacts analysis is not trivial. The City of Dallas, at times in conjunction with the U.S. Army Corps of Engineers, has proposed massive changes to the physical features of the Trinity Floodway system. Nothing less than the flood control security of the Trinity River Basin, the integrity of the 1988 ROD and the integrity of the CDC process are at stake.

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2. THE GREAT TRINITY FOREST

The second area where there are massive cumulative impacts from the proposed DFE project is regarding the Great Trinity Forest. Cumulative impacts to the Great Trinity Forest are found in the section of the DEIS titled "Ecological Resources" and is totally deficient from a NEPA standpoint. The cumulative impacts analysis presented in this document concludes that the project would impact only a small area of the Great Trinity Forest and that the proposed environmental mitigation plan could be a catalyst to ultimate acquisition and management of over 1000 acres of the area which is either currently forested or subject to conversion to bottomland hardwoods.

TCONR believes that there are numerous problems with the analysis of the impacts to the Great Trinity Forest associated directly with the proposed DFE project to which cumulative impact deficiencies must be added. This discussion starts with a critique of the analysis of direct impacts and proceeds to develop the cumulative impact concerns.

a. Deficiencies Associated with Direct Impacts

If the direct impacts are not correctly analyzed, then the incremental impacts of the proposed action can never be correctly added to other past, present and likely future actions. Without belaboring the point, the Great Trinity Forest is never identified or discussed as a coherent entity within the DEIS. The Great Trinity Forest is the ecological community of concern with regard to the impacts of the proposed DFE project. The Great Trinity Forest is an incredible urban resource. However, a reader would never understand this fact if she only were depending upon the disclosure in the DEIS.

In the DEIS discussion of the Environmental Setting, bottomland vegetation and wetlands are discussed but there is no mention of the Great Trinity Forest. Neither is the Great Trinity Forest mentioned in the discussion of fish and wildlife resources. The Great Trinity Forest is not identified as a cultural resource and the proposed Trinity River State Park is only mentioned in

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passing in the recreational resources section. The description of Trinity River State Park is vague in the DEIS whereas it is much clearer in the attached document titled "The Great Trinity Forest Park Master Plan", prepared for the City Council of the City of Dallas in association with the Texas Parks and Wildlife Commission.

In the discussion of impacts, there is an analysis that quantifies the loss of bottomland hardwoods. However, this analysis underrepresents that true losses that would occur. There is no analysis of the losses associated with the rechannelization of the IH-45 bridge that is now included as part of the proposed action and there is no quantification of the losses associated with the operation of the swale during flood times. This forest has evolved without open channels coursing through it. By opening swales through the forest, the flood velocities are greatly increased, thereby causing additional losses in the forest adjacent to these swales.

What is missing from the DEIS, however, is more than quantification. This forest that is to be impacted by this proposed DFE project is called the "Great Trinity Forest", yet it is impossible to gain any understanding of its greatness from the DEIS. The Dallas bond issue booklet calls this forest the "Great Trinity Forest". The City of Dallas/Texas Parks and Wildlife Master Plan calls this forest the "Great Trinity Forest". Yet, in the ecology and fish and wildlife sections of the DEIS, the term "Great Trinity Forest" is not found in the affected environment or environmental effects sections.

A primary deficiency of the DEIS is that it fails to fully and fairly disclose the resource that is being impacted by the proposed DFE project. From reading the DEIS, it is impossible to know that a resource called the "Great Trinity Forest" is being partially cut down for flood control purposes. The DEIS must identify for the decision-maker the resource that is being impacted. If it is indeed a "great" resource, then the DEIS must explain this greatness.

TCONR has extensive knowledge about and belief in the greatness of the Great Trinity Forest. One of the principal concerns of TCONR is that this "Great Trinity Forest" is being

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unnecessarily destroyed and that other alternatives exist that could avoid this harm. This "great" resource is proposed for destruction because the existing and proposed levees push the water surface elevation higher and some type of relief is required. The relief that has been proposed is to cut down the forest at the bottom of the levee system to let more water flow through it, thereby creating channels and lowering flood levels to some extent. While the DEIS calls these channels "swales" and "wetland creation projects", these channels are first and foremost hydrologic conduits that have the effect of destroying part of the "Great Trinity Forest", thereby affecting a nationally important urban resource. The DEIS simply does not tell all the facts in this regard.

b. Impacts from the Great Trinity Park Master Plan

Once the incremental impacts of the proposed action are correctly analyzed, there is then the problem of cumulative impacts of the proposed action. Once again, a major deficiency exists in the characterization of this forest resource with respect to past, present and likely future actions. Of particular importance here is the relationship of the mitigation plan with the proposed master plan for the Great Trinity Park.

In Appendix F of the DEIS, a map has been compiled that identifies mitigation areas within the Great Trinity Forest where the losses associated with the proposed DFE project will be offset by either purchase and set aside of forested areas or reforestation of areas that are purchased. This map, titled "Project Mitigation Plan", shows proposed mitigation lands that are identified for reforestation or habitat improvement.

The cumulative impacts problem exists with regard to the proposed "Master Plan for The Great Trinity Forest Park", dated March 19, 1997, for the City of Dallas. This document is submitted as Appendix D and includes a map titled "Concept Plan". Numerous development projects are proposed in this "Concept Plan" for the same areas that are identified as mitigation sites in the DEIS. An overlay of the "Concept Plan" and the "Project Mitigation Plan" maps on the following pages indicates that a conflict between these two proposed actions appears to exist.

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The proposed DFE project is impacting the Great Trinity Forest. In an attempt to develop an acceptable project, the DEIS identifies that the harm will be mitigated. However, the DEIS did not tell the public or the decision-maker that other foreseeable actions may undermine this mitigation.

This is the purpose of cumulative impacts analysis - to identify and potentially prevent major resource loss by incremental actions that are pending concurrently. That is certainly the case here.

e. Conclusion

This second cumulative impacts deficiency starts with the failure to correctly characterize the affected environment and the impacts of the proposed DFE project on that resource. This is exacerbated by the failure to consider the cumulative overlap between the mitigation plan and the proposed Great Trinity Forest Park Master Plan. The bottom line is that the proposed DEIS is deficient by failing to put the Great Trinity Forest in perspective for the decision-maker. Its greatness is never explained and the net result of the proposed DFE project when added to the Master Plan is never considered.

3. LAND USE PATTERNS

The cumulative impact of the proposed action upon land use patterns is one of the most difficult types of impacts associated with this proposed DFE project. As has been explained in great detail, the proposed DFE project is part of a major redevelopment plan by the City of Dallas that includes road construction, park development and flood control at the least. There are also major investment patterns that are associated with these proposed actions. Again, the DEIS is woefully deficient, first by failing to fully and fairly identify the impacts of the proposed DFE project on adjacent land use patterns and secondly by failing to consider these incremental impacts in association with the other proposed actions that have been previously identified.

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a. Secondary or Indirect Development Associated with the Proposed DFE Project

The discussion of direct effects of the proposed DFE project is deficient in that the provision of flood control features such as levees will enable certain actions to occur that have not been included in the DEIS. If it can be stated that some related action could not occur "but for" the proposed project, then that related action must be included in a NEPA full disclosure document. These "but for" situations are identified as "indirect" effects in the CEQ regulations and are oftentimes referred to as secondary effects in the NEPA case law (see National Wildlife Federation v. Coleman, 5th Cir). These must be fully and fairly disclosed in an EIS.

In the case of this proposed DFE project, there will be development activities that are promoted by the proposed levee systems. There is no identification of these land use changes or even the potential for related land development in the DEIS. This is a major deficiency of the DEIS.

It is important that these land use changes be discussed for several reasons. First, the magnitude of the land area that is opened for development activities by the proposed DFE project is relevant to a determination of whether or not this proposed project will cause the further development of flood plain land. This certainly appears to the case in Cadillac Heights and Rochester Park and also appears to be true with regard to the Lamar Levee and downtown development as well. Such sweeping land development will have consequences, such as air pollution and social impacts that must be fully and fairly understood.

Second, the zoning of the lands behind the proposed levees should be fully and fairly set forth. The Cadillac Heights levee is being touted as a residential protection plan. However, Cadillac Heights is contaminated with lead at levels higher than residential allowances and is zoned industrial. While the residential owners may obtain some short term benefits, the real beneficiaries

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of this levee system will be non-residential users that can co-exist with the lead contamination and the zoning classification. These are the types of facts that must be disclosed in an EIS. This information should be provided for all areas protected by the levees, and the areas that are removed from the floodplain and made available for development must be identified.

Third, federal government policy regarding the role of structural flood control in inducing development of flood plains is changing. Since the 1993 floods on the Mississippi River and Missouri Rivers, the following documents have been published by the federal government:

A Unified National Program for Floodplain Management, prepared in 1994 by the Interagency Floodplain Management Task Force;

Floodplain Management Assessment, U.S. Army Corps of Engineers, June, 1995;

National Mitigation Strategy - Partnerships for Building Safer Communities, Federal Emergency Management Agency, October 16, 1995;

Report of the Governor's Task Force on Flood Plain Management, Missouri, July, 1994.

Report of the U.S. Senate Task Force on Funding Disaster Relief, March, 1995;

Sharing the Challenge: Floodplain Management Into the 21st Century, Report of the Interagency Floodplain Management Task Force, Washington, D.C., June 1994;

While there is a variety of conclusions and recommendations, these reports generally question past flood reduction policies and recommend new concepts such as buy-out as important concepts for the future. Consider the following quotations:

"Governments (Federal and State) have decided that in the long run, it is less expensive to purchase flood plain property from willing sellers than to continue repetitively paying insurance claims and/or providing disaster relief." Report of the Governor's Task Force on Flood Plain Management, Missouri, July 1994.

"It is clear to many observers of floodplain management issues that flood protection projects do encourage additional development of flood plains." Floodplain Management Assessment, U.S. Army Corps of Engineers, June 1995, p. 10-18.

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"If the anticipated availability of federal aid induces (more) individuals to locate social or economic activities in hazard-prone areas, then the total annual economic costs are higher with an aid program than without one." Report of the U.S. Senate Task Force on Funding Disaster Relief, March, 1995, p. 70.

The great weight of the evidence is simply against reclaiming flood plain land for development. However, reclaiming the land appears to be the primary rationale for choosing a levee system rather than other alternatives.

The important point is that full and fair disclosure of the effects of the levee alternative must be disclosed in order than decision-makers can have all of the information available to them in making these decisions. The role of the proposed DFE project in inducing land use changes must be fully and fairly set out.

b. Cumulative Change in Land Use Patterns

When the proposed DFE project is considered along with the other Trinity Corridor proposed improvements, a major shift in the land development patterns within the City of Dallas would occur. It is impossible to determine the extent of that change without a competent analysis by a land use expert although it seems clear that land use development will be encouraged adjacent to the Trinity River by the various levee projects and the amenity value of the Parkway, the Chain of Lakes and the Great Trinity Forest Park Master Plan. The important point is that the analysis must occur in order to make the determinations that are required by NEPA. There is no doubt that cumulative land-use changes will occur. There is no question that these changes can be analyzed and projected. Dallas is a zoned city. Plans exist. They simply must be disclosed in the DEIS.

4. AIR QUALITY

Air quality impacts are discussed in the DEIS but in the opinion of TCONR are incorrectly analyzed. Once again, secondary impacts are generated by the proposed action and must be considered. Then the cumulative air quality issue can be explored.

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However, the baseline air quality situation is not presented correctly either. Therefore, these air quality comments will be presented sequentially as critique of existing conditions analysis, critique of impacts of the proposed DFE project and cumulative impacts.

a. Existing Conditions

Dallas is currently in bad shape from an air quality standpoint and getting worse. The Dallas Region is non-attainment for ozone as indicated in the DEIS. However, the DEIS fails to note that Dallas has failed to develop an acceptable ozone attainment plan and is currently in the process of being reclassified from a serious non-attainment area to a severe non-attainment area. This means that air quality improvement plans to date have failed to improve air quality and that in fact the air quality situation has worsened. No data is presented that indicates that the number of days that the ozone stahdard is violated or that indicates the declining air quality situation in Dallas.

Of particular importance is the recent decision by the Texas Natural Resource Conservation Commission (TNRCC) to focus upon the regulation of nitrogen oxides (NO_x) to control ozone. This recent decision represents a shift in state policy and brings Texas into accord with national ozone control policies. For this reason, future Dallas area ozone control efforts will focus upon NO_x emissions and controls. Therefore, it is important that the existing conditions analysis in the DEIS identify the percentage reduction that is required with regard to NO_x as well as the relative contribution of industrial, on-road and off-road mobile sources as sources of nitrogen oxide emissions.

b. NO_x Impacts of the Proposed DFE Project

There are two aspects of the NO_x impacts of the proposed project. First, there are NO_x emissions associated with the construction activities. Second, there are NO_x emissions associated with the secondary impacts of the proposed DFE project. These will be discussed sequentially.

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i. **NO_x Emission from Construction**

The NO_x emissions associated with construction activities must be quantified. In the DEIS, the utilization of diesel-fueled heavy vehicles is identified as an impact of the proposed DFE project. These emissions are not quantified and they should be. Off-road mobile sources of NO_x are an important component of NO_x emissions. This construction project will add emissions of NO_x at a time when NO_x emissions are supposed to be reduced within the Dallas non-attainment area. This represents a direct conflict.

Second, the project is identified as affecting NO_x removal from the atmosphere by cutting the forest. Interestingly, the Great Trinity Forest is identified by that name in the air quality section of the DEIS. Here, the ability of the forest to remove air pollutants is identified, leading to the conclusion that the NO_x removal will be negatively affected and that ozone removal would be negatively affected. This loss of emission assimilative capacity must be included in the calculation of negative air pollution aspects of the project. Stated otherwise, both ozone levels and NO_x levels are negatively affected by the destruction of the forest resources and must be accounted for in the emissions inventory process.

ii. **Induced Effect - Trinity Parkway**

As discussed previously, induced or secondary effects occur when a causal relationship - otherwise expressed as a "but for" relationship - exists between proposed land use and related development. Such a relationship exists between the proposed DFE project and Trinity Parkway. According to the report in Appendix C, the Trinity Parkway will be built upon the Dallas floodway levee system. But for additional work on the Lamar levee as part of the proposed DFE project, portions of the Trinity Parkway could not be constructed as proposed above the 100 year and SPF flood elevations. But for construction of the Rochester Park levee as part of the proposed DFE project, the Trinity Parkway could not be built as proposed. Therefore, the air pollution effects of the Trinity Parkway project must be analyzed as secondary effects of the proposed DFE project.

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This issue of the contribution of the Parkway to air pollution is mentioned on page 4-79 of the DEIS. Under the discussion of future without project conditions, the DEIS states: "Addition of Parkways planned by others along existing and proposed levees could result in increases in pollutant levels." This discussion fails as full disclosure and in fact conceals and misrepresents the true relationship between the levee project and the parkway. It is simply not possible to construct the Trinity Parkway under current state funding policies if the levee system is not expanded. This functional relationship between the Parkway and the levees must be fully and fairly disclosed. It is the levee project that generates the air pollution associated with the Trinity Parkway because the Parkway could not be constructed as proposed "but for" the proposed DFE project.

Therefore, it is the position of TCONR that full disclosure of the impacts associated with the proposed DFE project requires that the air quality impacts of NO_x emissions from the four lanes in each direction of the proposed Trinity Parkway be analyzed and included in the DEIS for the proposed DFE project.

f. Cumulative NO_x Impacts

There are incremental NO_x impacts associated with the proposed action with the magnitude varying depending upon whether or not the proposed Trinity Parkway is considered as an induced impact or not. If the NO_x emissions from the proposed Trinity Parkway are not considered to be induced effects, then they certainly qualify as cumulative effects. The Trinity Parkway is currently proposed and it adds emissions to the increment generated by the proposed DFE project. TCONR asserts that the Trinity Parkway is more properly considered a secondary impact of the proposed DFE project but is primarily concerned that full and fair disclosure of the NO_x emissions occurs, regardless of whether these emissions are classified as induced effects or secondary effects.

The issue regarding cumulative NO_x emissions is complicated and important. As part of the Trinity Corridor bond issue, numerous road projects were proposed. Some may help air pollution by eliminating congestion in the "mixmaster" and increasing vehicle speeds, thereby

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changing emission patterns. Other improvements, such as the increase in lane capacities associated with IH-20, IH-35 and Highway 183 may increase total vehicle miles traveled and NO_x emissions within the key ozone hours. Until a cumulative analysis is completed, it is not possible to guess this result. That is why an environmental full disclosure document is required to analyze and quantify issues such as NO_x emissions and the attainment of the ozone standard in Dallas.

C. KLEPPE V. SIERRA CLUB AND THE COMPREHENSIVE EIS

In the case of Kleppe v. Sierra Club, supra, the U.S. Supreme Court considered the issue of cumulative impacts in the context of coal leasing projects in the upper mid-west. In this case, the Supreme Court discussed the issue of whether or not a comprehensive EIS may be required in certain situations even if there is no overall plan that is proposed. TCONR asserts that this Supreme Court case is directly on point with regard to the proposed DFE project.

Consider the following statements by the U.S. Supreme Court from the Kleppe decision:

> "We begin by stating our general agreement with [Sierra Club's] basic premise that §102(2)(C) [of NEPA] may require a comprehensive impact statement in certain situations where several proposed actions are pending at the same time. NEPA announced a national policy of environmental protection and placed a responsibility upon the Federal Government to further specific environmental goals by all practicable means, consistent with other essential considerations of national policy. (cites omitted). Section 102(2)(C) is one of the 'action-forcing' provisions intended as a directive to 'all agencies to assure consideration of the environmental impact of their actions in decision-making'. (cites omitted). By requiring an impact statement, Congress intended to assure such consideration during the development of a proposal or - as in this case - during the formulation of a position on a proposal submitted by private parties. **A comprehensive impact statement may be necessary in some cases for an agency to meet this duty. Thus, when several proposals for coal-related actions that will have cumulative or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considered together. Only through comprehensive consideration of pending proposals can the agency evaluate different courses of action."** (427 U.S. 390 at 409-410).

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TCONR submits that the factual predicate exists with regard to the proposed DFE project to require the completion of a comprehensive EIS on the Trinity River Corridor improvements proposed by the City of Dallas.

The critical question in whether or not a comprehensive EIS is required is whether or not these multiple projects are in fact proposed and currently pending or whether they are simply reasonably foreseeable. There is no question that they are reasonably foreseeable and are required to be included in a DEIS as cumulative impacts. The question under Kleppe, however, is whether or not the various actions are actually proposals.

TCONR argues that these various projects meet the legal requirement for proposals and thereby must be considered in a comprehensive EIS. Multiple projects are included in the Dallas bond issue which passed in May, 1998. The City of Dallas is proposing to construct these projects and the voters of the City of Dallas have ratified that action. As such, the projects included in the bond issue - the proposed DFE project, the proposed Trinity Parkway project, the proposed Elm Fork levee and the proposed Great Trinity Forest Master Plan - legally pass muster as proposals.

Further, these projects are in fact moving forward at this time. A final, sealed engineering study has been completed on the Trinity Parkway Project that includes the Chain of Lakes design as well as the expansions of IH-20 and IH-35 bridges as well as the construction of the new bridge extending Singleton Blvd. A completed Master Plan study exists for the Great Trinity Forest. These are not just possibilities. These projects are unfolding at this time.

The Corps of Engineers has or will have jurisdiction over every one of these proposals. At least two of these projects - the proposed DFE and the proposed Elm Fork Levee - are Corps proposals. Corps permits will be required to construct the Trinity Parkway, the Chain of Lakes project, and the bridges crossing the Trinity system as well as elements of the Great Trinity Forest Master Plan.

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It makes common sense to consider the environmental effects of these projects together. The goal of NEPA was to encourage environmentally-sound decision-making by providing the decision-maker with full disclosure. If the decision-maker is only being given part of the picture, then it is not possible to make environmentally sound decisions.

It is a relatively straightforward task to compile a comprehensive EIS on these various proposals. TCONR suggests that a tiered format be utilized as provided for under the CEQ regulations at 40 CFR 1502.20. However, it will be necessary to separate the project design reports from the EIS. TCONR would note that the format used by the Corps of Engineers in the DEIS on the proposed DFE project interfered with full disclosure and made understanding and evaluation of the proposed DFE project much more difficult than it should have been. Given the NEPA goal of full disclosure, TCONR submits that a comprehensive EIS summarizing the impacts associated with the various Trinity Corridor projects proposed by the City of Dallas is required.

III. HAZARDOUS WASTE ISSUES - LINFIELD LANDFILL AND ENVIRONMENTAL JUSTICE IN CADILLAC HEIGHTS

There are two major issues associated with the proposed DFE project that involve hazardous waste issues. The first concerns the direct impact of the proposed DFE project on the Linfield Landfill and the second involves the role of this proposed DFE project with respect to the lead contamination and environmental justice concerns within Cadillac Heights. These will be discussed sequentially.

A. LINFIELD LANDFILL

12. Due to its location within the 100 year flood plain of the Trinity River, the old Linfield Landfill represents an impediment to flood flow. The plans prepared for swale construction as part of the proposed DFE project show the swale cutting through the base of the Linfield Landfill due to the fact that it produces greater benefits (DEIS, p. 4-27). In order to allow the swale to cut through this landfill, a slurry wall has been proposed to prevent the movement of contaminated leachate

12. See response to comment #3 on N - 14.

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from the Linfield Landfill into the swale, its associated wetlands and thence to the Trinity River (DEIS, p. 6-1,2).

TCONR believes that a number of problems exist with regard to the impact of the swale construction across the Linfield Landfill. TCONR questions that the contamination has been adequately characterized in order to support a decision to open this landfill and expose its contents to a flood within the Trinity River. As indicated in the DEIS, the Linfield Landfill significantly encroaches upon the flood plain (DEIS, 2-28). What is the risk that a flood will occur during construction that will enter the opened Linfield Landfill? What are the consequences of a flood entering the Linfield Landfill and disgorging its contents downstream? That risk is never discussed in the DEIS in any meaningful manner, thereby failing to meet the full disclosure requirements because the landfill would not be open and exposed to flood flows without the swale construction. This risk should be fully examined, including an identification of downstream areas that would be affected by such contamination.

13. Perhaps more importantly, TCONR questions the viability of the slurry wall as long term solution to the problem posed by the swale cutting into the Linfield Landfill. Slurry walls are primarily relied upon as solutions during construction activities. They are primarily short term rather than longer term solutions.

14. Slurry walls have failed in many applications. There has been a failure of the slurry wall at the BFI McCarty Road Landfill in Houston, Texas, in circumstances very similar to the proposed use in the floodplain of the Trinity River. There have also been problems with slurry wall failure with the Waste Management landfill in Alvin, Texas, the BFI landfill in Livingston, Louisiana, and the PPG landfill in Lake Charles, Louisiana.

Included with these TCONR comments is the signed affidavit of Dr. H. C. Clark, found in Appendix E. Dr. Clark is an expert geologist and geophysicist who has conducted extensive studies

13. The slurry wall has a two-fold purpose. Its primary, short-term purpose is to aid in dewatering the swale excavation during construction. Its secondary, long-term purpose is to serve as a backup method of preventing leachate from entering the swale, and subsequently the Trinity River. The area of the landfill that would most likely contribute leachate to the excavation was not found to contain hazardous constituents. Additionally, the groundwater gradient is toward the northeast, down to the Trinity River, not uphill toward the excavation, although the Corps does anticipate some local dip in the gradient caused by the excavation itself.

14. Although TCONR lists four slurry walls that have failed, the vast majority of slurry walls do perform as anticipated. However, engineered solutions to problems do sometimes "fail" or fail to behave as predicted. That is the reason engineers carefully analyze a problem before suggesting a solution. The Corps intends to carefully analyze the problem of leachate entering the swale, both during its excavation, and long-term, and design and install the best possible slurry wall in order to solve that problem. On the other hand, even if there is some leakage through, beneath, or around the wall, once constructed, pumps and equipment will be on hand during construction to handle the leachate, and dispose of it properly. If there is evidence that shows a substantial leak through the wall(s), and the leachate is shown to be hazardous, steps will be taken to correct the deficiency. The Corps would like to add that of the four landfills TCONR listed, the Coastal Plains RDF, in Alvin, TX, experienced a slurry wall 'failure' due to inadequate construction, not design. The landfill is currently designing a new 100-acre expansion, and plans on using the same design for the new slurry wall.

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of landfills in Texas and Louisiana. He has taught engineering geology at Rice University and is very familiar with slurry walls. Consider the following comments from Dr. Clark:

15. "It is my professional opinion that a bentonite slurry wall such as that proposed for the Linfield Landfill on the Trinity River in Dallas is not appropriate as a long term measure for the prevention of contamination from a landfill entering the proposed swale. My opinion is based in part on general experience in groundwater contamination and on specific experience with slurry wall problems. These problems include the BFI McCarty Road Landfill in Houston which is now on the Texas leaker list [a list of those landfills that are contaminating the groundwater adjacent to the site]; the Waste Management Landfill in Alvin which has a history of slurry wall failure; and the BFI Landfill in Livingston, Louisiana, which developed an apparent slurry wall failure on its northern perimeter.

"In summary, it is my opinion that a slurry wall around the Linfield Landfill will not isolate the problem on a long term basis. My opinion is based on experience with analysis of similar situations, computations of water particle travel time and review of experimental data on slurry material lifetime."

16. In order to pass muster as a full disclosure document, the DEIS must discuss the limitations of slurry walls as a solution and must fully disclose the risks associated with the slurry walls, including risks during construction as well as risks over the life of the facility. Full disclosure would include identification of slurry wall failures in the EIS. Additionally, the consequences of the release of contamination must be disclosed, both with regard to a release during construction and with regard to failure of the slurry wall.

B. ENVIRONMENTAL JUSTICE AND CADILLAC HEIGHTS

17. Environmental justice is an extremely difficult issue. Executive Order 12898 requires that the issue of project effects upon minority and low income populations be assessed. On pp. 6-10,11 of the DEIS, the Corps analysis of environmental justice impacts is set forth. TCONR argues that this analysis misses the mark and fails to discuss key points with regard to Cadillac Heights.

15. We do not intend to install a slurry wall around the Linfield Landfill in order to isolate it. The slurry wall will simply extend along one or both sides of the swale excavation, with a short extension along the berm to the north. After the swale excavation is completed, the slurry wall will remain to serve as a backup method to contain leachate from the southeastern portion of the landfill. The primary method of preventing leachate from entering the completed swale will be a compacted, impervious clay layer lining the bottom and both sides of the swale.

16. The specifications for the construction of the swale excavation will expressly state that flood waters of the Trinity River must not be allowed into the swale excavation during construction. Possible leachate entering the excavation, or surface water runoff will be carefully collected, and disposed of properly. Once construction is complete, flood waters from the river will of course flow through the swale, as that is its intended purpose. The swale will have a compacted clay layer on the bottom as well as both sides in order to prevent flood waters from scouring out and dislodging landfill contents. Additionally, the contents of the landfill in the area of the swale have not been shown to be hazardous, and consist instead of wood, metal, rubber, glass and other construction debris.

17. See response to Environmental Protection Agency commented identified as #37 on page N - 11.

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A primary purpose of the Cadillac Heights Levee is to provide flood protection to residential areas that are currently subject to flooding. However, the DEIS and other project documents never examine the residential viability of Cadillac Heights, either from a contamination standpoint or from a zoning standpoint. As a practical matter, Cadillac Heights is no longer a viable residential community. It is contaminated with lead and zoned industrial. TCONR challenges the Corps on the assessment of dollar benefits of preserving residences in a contaminated area. Under the Corps' concept, homeowners will be encouraged to raise their children in a contaminated area that is protected from flooding. If anything, the Cadillac Heights levee will continue a pattern of minority exposure to contamination that has been decried as "unjust" in environmental justice literature.

18. The extent of the lead contamination in Cadillac Heights is substantial and is not presented either clearly or in detail in the DEIS. The following are excerpts from the Texas Natural Resource Conservation Commission report on Cadillac Heights dated August 20, 1996, which is attached to these comments as Appendix F:

> "The Texas Natural Resource Conservation Commission (TNRCC) has recently completed residential soil sampling within the Cadillac Heights neighborhood and surrounding areas. This sampling was conducted in cooperation with NL Industries, Inc. and Exide Corporation. A total of 943 soil samples were collected from 230 residential properties."
>
> "The Texas Department of Health (TDH) has reviewed the results from these samples and considers the levels of lead found in soils on 62 of the 230 residential properties within the community to be higher than levels recommended for residential yards. These elevated lead levels would not be expected to affect your health unless you ingested or inhaled sufficient quantities of the contaminated soil for an extended period of time. However, children are at greater risk because they tend to ingest more soil than adults."

If the proposed Cadillac Heights levee is constructed, the existence of the flood control project will encourage these residents to continue to live in this contaminated area. The dollar

18. None of the proposals in this document would adversely affect existing or future contamination levels.

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benefits claimed by the Corps with regard to the Cadillac Heights levee represents people continuing to live with this clearly identified health risk.

TCONR submits that the result of the Cadillac Heights levee - minority populations being exposed to higher contamination levels than the population as a whole - is precisely the problem that EO 12898 was attempting to prevent. TCONR believes that the Cadillac Heights levee project perpetuates a pattern of minority exposure to contamination levels that are higher than the population as a whole and raises substantial and significant environmental justice concerns. 19.

On the other hand, an alternative such as a buy-out solves both problems. With a buy-out, the flood damages are eliminated and the people are removed from the contamination. A buy-out clearly is preferable from an environmental justice perspective.

IV. COMPLIANCE WITH THE 404(b)(1) GUIDELINES

The proposed DFE extension must comply with the 404(b)(1) guidelines of the U.S. Environmental Protection Agency. According to the DEIS at p. 6-9, the Corps must meet the legal requirements of §404 of the Clean Water Act even though it does not issue itself a permit. TCONR does not believe that the Corps has met the procedural or substantive requirements of the 404(b)(1) guidelines. The Corps' analysis of the compliance of the proposed DFE project with the 404(b)(1) guidelines is found in Appendix F of the DEIS. The following are detailed comments on the compliance of the proposed DFE project with these important guidelines. 20.

A. DESTRUCTION OF SPECIAL AQUATIC SITES

The 404(b)(1) guidelines were passed by EPA in an attempt to maintain the physical, chemical and biological integrity of the nation's waters (40 CFR 230.1(a)). The regulations state that from a national perspective, the degradation and destruction of special aquatic sites, such as filling operations in wetlands, is considered among the most severe impacts associated with these guidelines (230.1(d)).

19. See response to comment #7 on page N - 243.

20. Disagree. The Corps of Engineers has fully complied with the requirements of the Section 404 (b)(1) guidelines.

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In the analysis of compliance with the 404(b)(1) guidelines, the Corps states that "[N]o special aquatic sites in the project area would be affected by construction" (p.F-7). This is simply not true. Special aquatic sites include wetlands (40 CFR 230.3(q-1); 40 CFR 230.41) and there are wetlands that are negatively affected by the proposed action.

TCONR believes that a major problem exists with regard to the proposed DFE project to the extent that wetland areas were never delineated from a jurisdictional standpoint within the Great Trinity Forest and the floodplain area. Rather than defining wetlands, the project team decided to concentrate on forest communities such as pecan, ash etc. TCONR does not believe that such an analysis suffices for purposes of 404(b)(1). Indeed, 404(b)(1) requires that impacts upon special aquatic sites be identified (40 CFR 230.11, 230.10(a),(c) and (d)). The failure of the Corps to clearly identify the special aquatic sites makes a determination of compliance with the 404(b)(1) guidelines virtually impossible.

TCONR is requesting that the Corps make a jurisdictional determination of the acreage of wetlands and other special aquatic sites that are affected by the proposed DFE project. Otherwise, TCONR believes that it is not possible to determine compliance with the 404(b)(1) guidelines.

B. PRACTICABLE ALTERNATIVES ANALYSIS

Under the 404(b)(1) guidelines, no destruction of special aquatic sites is to occur unless there are no practicable alternatives to the proposed action. The definition of practicable alternatives under 404(b)(1) is very different than the alternative selection procedure utilized under the Corps of Engineers benefit cost methodology. The analysis of practicable alternatives contained at p. 5-59 fails to recognize this distinction and is deficient.

The non-structural alternative is rejected in the 404(b)(1) analysis because it fails to meet project objectives. This failure is not explained and is conclusionary. If the project alternatives are

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to solve the flooding problem, then it appears that the 10 year flood buy-out does address flood damage reduction and meet project objectives. If the project objective is to solve the 100 year and SPF flood within benefit cost guidelines of the Corps of Engineers, that is another issue. The point here is that different analytical requirements exist under the 404(b)(1) guidelines than under the Corps' benefit cost analysis methodology and TCONR asserts that it is impermissible for the Corps to eliminate buy-out under the 404(b)(1) guidelines because it fails to meet Corps benefit cost methodology.

Under 404(b)(1) guidelines, the Corps is clear that cost alone is not a deciding factor in the determination of practicable alternatives.

> "The term practicable means available and capable of being done after taking into consideration cost, existing technology and logistics in light of overall project purposes." (40 CFR 230.3(q))

"Taking into consideration" means something substantially less than being dominated by. Case law developed under the 404 permit program indicates that a permit could be denied even if an applicant would lose money in association with proposed land development activity after wetland protection has occurred. In other words, special aquatic sites are not to be destroyed on the basis of simple cost benefit considerations. Otherwise, every permit applicant who might lose money could apply for and receive a 404 permit.

In the instant case, the Corps has determined that the 10 year non-structural buy-out in Cadillac Heights does not meet project objectives. The qualifying phrase "in light of overall project purposes" appears at the end of the definition and is generally used as a loophole by permit applicants who otherwise fail to meet the 404(b)(1) requirements. TCONR asserts that the Corps is utilizing this loophole and is failing to fairly evaluate "overall project purposes".

TCONR's goal is to preserve the special aquatic sites that exist in the Trinity Valley, including particularly the Great Trinity Forest, in order to protect the chemical, physical and biological integrity of the nation's waters. TCONR believes that this goal is the required result of

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the application of the 404(b)(1) guidelines. However, if the practicable alternatives test is not honestly and fairly applied, then the rigor of 40 CFR 230.10(a) is lost. By stating in a conclusionary fashion that the 10 year non-structural buy-out does not meet project objectives, the Corps has undermined the 404(b)(1) process to the detriment of the special aquatic sites intended to be protected by these guidelines.

C. MITIGATION

The mitigation that has been set forth in the proposed DFE project fails to meet the requirements of 40 CFR 230.10(d). 230.10(d) requires that appropriate and practicable steps be taken to minimize potential adverse impacts to the aquatic ecosystem. Here, there are several problems with regard to this project.

First, there has been no quantification of the acreage of special aquatic sites that will be destroyed by this project, both directly and from secondary impacts as set out in 40 CFR 230.11(h). Without a full accounting of direct and secondary losses of special aquatic sites, TCONR believes
21. it is impossible to develop an acceptable plan under 230.10(d). Such an analysis has not been prepared.

Second, emergent habitat is being offered as mitigation for the loss of bottomland hardwood special aquatic sites. This emergent habitat construction is compatible with channel excavation for flood control purposes, thereby making it convenient to construct. However, construction convenience is not the test of adequate mitigation. Adequate mitigation requires that the impacts of
22. the proposed action be compensated at some acceptable level beyond project impacts. This mitigation is preferably in kind, meaning that if bottomland hardwoods are lost, then bottomland hardwoods should be replaced.

TCONR believes that impacts to bottomland hardwoods are the most difficult to mitigate because of the time considerations in developing forests. The forests to be cut down for the

21. Impacts to special aquatic sites are described in Table 4-23, Table 4-25, 4-26, supporting text in Chapter 4 of the Final GRR/EIS as well as in Section 404 (b)(1) analysis incorporated into Appendix F.

22. Disagree. The Corps is proposing to construct emergent wetlands to restore emergent wetlands lost from other projects previously constructed in the Upper Trinity basin. Bottomland hardwood losses, including those associated with construction of the swale and chain of wetlands are proposed to be mitigated by the bottomland hardwood mitigation plan described in the report.

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proposed DFE project represent decades of growth. The loss of these aquatic resources cannot be compensated by simply planting new trees. The loss of these aquatic resources cannot be compensated by creating emergent habitat. Indeed, a comprehensive management plan is required that is absent here. The specific acreage to be acquired and managed is not indicated. No private permit applicant would be allowed to present documentation such as this and receive a permit.

23. The mitigation concept is further diminished by the fact that the areas that are identified as being potentially used for reforestation and habitat improvement are also shown as being developed for recreational purposes in the Master Plan of the Great Trinity Forest Park. TCONR questions that these two purposes are being proposed compatibly in the DEIS. At the least, a cumulative impacts analysis such as is required under both NEPA and 40 CFR 230.11(h) should have occurred prior to determining that the 404(b)(1) guidelines are met.

23. We disagree. Consultation with resource agencies indicates that only compatible recreation is being considered for mitigation areas.

D. SIGNIFICANT ADVERSE IMPACTS

TCONR believes that the proposed DFE project will result in significant adverse impacts to human health and the ecosystem. The Great Trinity Forest is a compelling resource that has significant acreage of special aquatic sites. The Great Trinity Forest is directly and significantly impacted by the proposed action in a negative manner, particularly when cumulative effects are considered. This partial destruction of the Great Trinity Forest and its associated Special Aquatic Sites represents a significant adverse impact to the aquatic ecosystem that is prohibited under 40

24. CFR 230.10(c). Additionally, the utilization of the slurry wall at the Linfield Landfill poses a significant risk to human health, both during construction and during the operational life of the slurry wall, thereby giving rise to significant adverse effects on human health and welfare in violation of 40 CFR 230.10(c).

24. Disagree. EPA has not prohibited this action through exercise of their authority under Section 404(c) of the Clean Water Act.

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V. HYDROLOGIC AND HYDRAULIC ASPECTS OF THE PROPOSED TRINITY RIVER PLAN, DALLAS, TEXAS

The comments in this section were prepared by Philip B. Bedient, Ph.D., P.E., on August 11, 1998. Dr. Bedient's Curriculum Vitae is found in Appendix G.

A. INTRODUCTION

I have based my opinion in this report upon the review of the US Army Corps of Engineers' (USACE) "General Reevaluation Report and Integrated Environmental Impact Statement - Dallas Floodway Extension" [previously referred to as the DEIS] and the Texas Department of Transportation's (TxDOT) "Study Report - Trinity Parkway Corridor" [attached to these comments as Appendix C]. The opinions expressed in this report are my own and are based upon reasonable scientific probability. The opinions are subject to change if more information and data become available in the future.

B. FINDINGS AND OPINIONS

1. The USACE report and the TxDOT report both contain separate hydraulic analyses of the proposal. Although the study areas do not overlap significantly, the results of one model clearly affect the results of the other model. Therefore, a comprehensive study of the entire area should
25. have been performed and the results of the various options should be presented in a clear and concise format. Because the reports do not cover the same areal coverage, it is difficult to surmise the true upstream and downstream effects of new levees and channel improvements.

2. From the USACE report (page 6-12): "The analysis indicates that a reduction in the valley storage in the project reach would result in an increase in the peak discharges. This increase has been computed and is expressed in terms of an increase in the peak water surface
26. profile downstream of the project. The water surface profile elevations would be increased an average of 0.15 feet for the 1 percent chance flood and 0.3 feet for the SPF." These "average"

25. Separate analysis of the DFE and TxDOT projects is possible because of the stringent hydraulic requirements which must be followed by TxDOT, if it were to be constructed. Since the TxDOT Project would be within a Federal Project, existing performance must be maintained. Also, the Record of Decision calls for no loss of valley storage within the 100-year floodplain by the TxDOT project, which equates to no downstream impact during passage of this flood event. The analysis contained in the DFE report is, therefore, valid for all reaches downstream of the existing Dallas Floodway, whether or not the TxDOT project is constructed.

26. The data requested are contained in Appendix A of the GRR/EIS.

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increases are simply reported; none of the underlying data is available in the report. It is difficult to determine the locations and magnitude of the heavy flooding without such data.

3. The paragraph from the USACE report (page 6-12) goes on to state that the increase in water surface elevation caused by the levee improvements should be ignored, despite being in
27. direct conflict with the USACE's own criteria. Any increase in the water surface elevation downstream could have potential serious negative impacts.

4. From the USACE report (page A-13): "The mapping was compiled from aerial photography in February 1991 and is said to have an accuracy of plus or minus 0.5 ft." Basically, the resolution of the vertical data only has an accuracy of a half foot. It is possible that the model miscalculated the water surface elevation by 0.5 feet due to the low resolution of the
28. mapping. Some of the cross sections need to be further ground-truthed to improve the accuracy in the areal survey.

5. From the USACE report (page A-13): "The I-45 bridge was not modeled because of several factors." Instead of entering the physical parameters of the bridge, the bridge was modeled using varying Manning's coefficients in the horizontal direction. This clearly is not the normal approach to modeling the hydraulic effects of a bridge and could be the location for potential problems in an accurate analysis of the whole system. Given the error associated with Manning's coefficients identified below, the failure to accurately model the I-45 bridge could be
29. extremely important. My recommendation is that the bridge be subjected to more careful and standard modeling approaches.

6. From the USACE report (page A-24): "The model was calibrated to the Trinity River Below Dallas Gage and to the high watermarks for the 1990 flood event. The calibration results indicated that all of the high watermarks are within 0.7 feet of the 2 percent chance flood
30. profile." It appears that they did not perform a calibration of the 1990 flood event, only a comparison to the 2 percent chance (50-year) flood. A comparison of the actual storm to a

27. The report does not state that the estimated increases in the downstream flood levels should be ignored. The report states that, because the computed increases in the water surface profiles downstream of the project are so small and the combined overall benefits of the project are so large, the project complies with the requirements for the allowance of a variance as stated in the CDC criteria and the ROD.

28. The mapping used complies with the National Map Accuracy Standards which states that the accuracy of the vertical data is within the specified range for the scale at which it is compiled. The statement that the vertical data has an accuracy of +/- 0.5 feet means that a ground point elevation on the map would have a maximum error of 0.5 feet. In other words, a point elevation could be higher or lower than the true elevation by a maximum of 0.5 feet, but it is unlikely that all points on the cross section would encounter an error of this magnitude. Cross sections taken from the mapping contain hundreds of ground points and errors in the vertical data would be assumed as randomly distributed. All uncertainty, including that as a result of mapping, has been taken into consideration during the risk and uncertainty analysis.

29. The statement that the I-45 bridge was not modeled means that it was not modeled in the normal manner because it is not a "normal" bridge as it relates to hydraulic analysis. There are three primary features of a normal bridge that impacts river flows. First, the roadway approaches to a bridge are usually elevated on fill above the floodplain and thereby cause a constriction of the flow. The I-45 bridge approaches do not constrict the floodplain. Secondly, the magnitude of the flooding events under consideration may be impacted by the deck spans of the bridge but the I-45 bridge spans are well above the SPF flood level. Thirdly, the piers of a bridge block a portion of the flowage area and cause frictional losses. The I-45 bridge crosses the floodplain on an extreme skew to the flow line of the river. This means that since the cross sections in the hydraulic model must be placed perpendicular to the flow line of the river then only a small portion of the bridge actually influences the reach of the river represented by an individual cross section that crosses the bridge alignment. Manning's roughness coefficients are often used in the industry to represent physical flow restrictions in a hydraulic model, such as is the case when modeling forested areas. Most of the bridge is adjacent to forested areas where these physical flow restrictions are represented by the use of Manning's roughness coefficients. It was deemed appropriate to represent the effects of the bridge piers in each successive cross section by the use of an increased Manning's roughness coefficient in the vicinity of the bridge rather than physically blocking the flowage area for the bridge piers. This was a conservative approach since the bridge is maintained clear of vegetation beneath the bridge for vehicular access.

30. The text clearly states both on page A-23 under "Risk and Uncertainty Analysis" and on pages A-13 & A-14 under the section "Calibration Model" that a calibration to the 1990 flood event was performed. Comparison of the 1990 flood event to the 2 percent chance flood event is important in the discussion of the Risk and Uncertainty Analysis because it provides an indication of how the uncertainty in the water surface profiles may change by flood event. It is also important to inform the reader of the

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design storm is not hydraulically useful. Plate A-7B shows a computed hydrograph compared to the observed hydrograph for the May 1990 event. Using these computed flow, it would have been relatively easy to hydraulically model the storm using HEC-2 and compared the predicted high water marks to the observed high water marks. If this calibration model run was executed, it is not presented in detail in the report. A fully detailed calibration run should be made for a number of storms and the results need to be completely documented in the report. A table including observed and modeled high water marks at various locations is typically included in such a calibration run.

7. From the USACE report (page A-24): A sensitivity analysis on storms greater than a 100-year event showed up to 2.0 feet in variation in the computed water surface elevation by adjusting the Manning's coefficients at different points in the model. Storms smaller than a 50-year event had a range of approximately 1.0 feet. The report states, "The difference between the upper an lower limits and the computed profile for the 1 percent chance flood, the 0.2 percent chance flood, and the SPF through the project reach ranges from 1.5 to 2.0 feet." The report admits that the variations in Manning's coefficients have a tremendous impact on the modeled results. It is impossible to accurately define those coefficients without a true calibration run. The need for calibration is magnified by the error associated with the selection of Manning's coefficients.

31.

8. From the TxDOT report (Trinity MTIS Table for the SPS storm): Shows the project will raise the SPF water surface elevation up to 0.15 feet. However, since this study location is upstream of the USACE study location, it is impossible to determine the exact effects of the TxDOT project on the USACE project (and vice-versa) without a comprehensive and combined study.

32.

9. Finally, I have severe reservation about the accurate modeling of the lakes and swales as described in the two reports (USACE and TxDOT). This is an extremely complex system and I

33.

probability of occurrence of an actual flood event and compare it to the probability of other flood events. "What is the relative magnitude of the flood? " is usually one of the first questions that are asked following a major flood. The results of the calibration model analysis including the high watermark locations are shown on Plates A-25 and A-26 as stated on page A-14.

31. See response to # 30 on page N - 275.

32. See response to comment # 25 on page N - 274..

33. The are no lakes included in the DFE project. The swales as part of the chain of wetlands features in the floodplain are modeled in the same manner as other areas of the floodplain with appropriate roughness values used for the various vegetation zones within the wetlands. Under flooding conditions the modeling of the swales is no more complex than any other areas of the floodplain.

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have concerns about the ability of the model to accurately represent the effects of the these swales and lakes on the overall water levels in the floodplain.

C. CONCLUSIONS

When analyzing all of the potential adverse effects of these projects together, there is too much uncertainty in the hydraulic analysis to make the project viable. The USACE project estimates an average increase in the SPF of 0.3 feet, but there is also up to 0.5 feet error in the topographic data, and potentially an additional 2.0 feet of error due to the uncertainty of the actual Manning's coefficients. Add the adverse effects of the TxDOT project and predicting the true water surface elevation at the SPF and the 100-year storm is nearly impossible, without a

34. comprehensive study that combines all aspects into a single analysis. If one does not know the exact water surface profile, it is impossible to determine the area of inundation and therefore impossible to determine the economic benefits and the benefit-cost ratio of the project.
It is my opinion that the current reports are inadequate to accurately delineate the true hydrologic and hydraulic impacts of this extremely complex project. A more thorough and comprehensive analysis needs to be performed to assess the total impacts to all locations of the entire study area.

VI. NON-STRUCTURAL ALTERNATIVES

TCONR strongly recommends that non-structural alternatives such as buy-out be restudied with regard to the Rochester Park and Cadillac Heights areas. TCONR believes that non-structural alternatives are more appropriate for the lower portion of the Trinity River flood plain, considering

35. all of the relevant factors. TCONR did not have the time or resources to retain an economic consultant to carefully review and analyze the benefit cost methodologies that are presented in the study. However, an economically viable solution must exist that preserves the Great Trinity Forest and addresses the environmental justice concerns in Cadillac Heights while solving the flooding problem.

34. Under the discussion of the Lamar Street Levee on page A-20, the design water surface profile used to determine levee crest height is described as a "most likely" value due to the inherent variability and uncertainty of various data components used in the analysis. The design water surface profiles presented in the report could also be referred to as "best estimate" values taken from the best available data sources and the best available analysis tools. The risk and uncertainty analysis is a method used to quantify the range of the uncertainty of certain data components and determine the probability that the project will perform the stated objectives. The discussion on page A-23 summarizes the basic input to the risk and uncertainty analysis for the component of the analysis related to the water surface profiles. The discussion of page A-5 summarizes the input to the risk and uncertainty analysis for the hydrologic component. Discussion of the economic data input to the risk and uncertainty analysis and the summary of project performance in terms of non-exceedance probability is provided in Appendix D.

35. Your desire for a re-study is noted.

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TCONR would call attention to Table 4-29 in the DEIS. This table presents a concise comparison of the flood control costs and benefits of the project for different alternatives. While all of the projects have a benefit to cost ratio greater than 1.0, the total costs of the project outweigh the benefit of "inundation reduction". It is hard to determine from the report what "existing Dallas floodway" benefits are but it is clear that this category is that benefit which is making the entire project cost beneficial. For example, the Federally Supported Plan will have an annual cost of $7.6 million while the inundation benefits are only $5.3 million. It is only when the "existing Dallas floodway" benefits of $8.6 million are added to the $5.3 million that the project's benefits exceed its costs.

Table 4-29 includes no non-structural alternatives. If the non-structural alternatives were included in this chart and if the "existing Dallas floodway" benefits were included, these non-structural alternatives may well have been cost beneficial as well. The point here is that non-structural alternatives such as buy-out in combination with various structural alternatives and/or other non-structural alternatives do not appear to have been fully and fairly analyzed. It also appears that different evaluation criteria were used for the non-structural alternative such as buy-out than were used for the structural alternatives.

In section II(B)(3) of these comments, several reports of the federal government were identified. These reports question that past flood control policies that made extensive use of levees and encouraged the development of flood prone areas behind these levees. Essentially, these levee projects failed in the 1993 floods on the Mississippi and Missouri Rivers, leaving extensive damage in their aftermath. These reports chronicle the failures of levees and identify the need for alternative approaches to flood control.

TCONR urges the Corps that better alternatives exist. If the benefit cost methodologies are preventing otherwise viable non-structural alternative from being considered, then address the problem at its source. The decision-makers need to know that the structure of the benefit cost rules is preventing certain types of alternatives from being fully and fairly considered if that is in fact the

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situation. Federal disaster relief liabilities combined with federal programs associated with contaminated areas should provide additional sources of funding that could add benefits. Special funding may exist to address environmental justice concerns. Joint FEMA, EPA and Corps projects may be both necessary and possible.

This proposed DFE project should be a showcase for new concepts of flood control coming out of these studies and reports, yet the proposed DFE project perpetuates antiquated ways of solving flood problems. TCONR is attaching the National Wildlife Federation's new report Higher Ground as Appendix H. This report represents some of the most recent, innovative thinking regarding federal flood policy. TCONR asks that you read this work and seriously consider how some of the excellent ideas contained in this report can be added to the thinking regarding the provision of flood control in Dallas.

VII. CONCLUSION

In conclusion, TCONR submits that the DEIS is deficient in many ways. This DEIS is extremely difficult to read and understand. The format that was chosen by the Corps appears particularly unsuited to a project as complex as the proposed DFE extension. The important policy issues for consideration by the decision-maker were never clearly articulated or identified. This document fails to achieve its principle goal of bringing important environmental issues to the attention of the decision-maker.

The cumulative effects associated with the proposed DFE project must be addressed in a comprehensive manner. From both a legal and practical viewpoint, TCONR suggests that a stand alone comprehensive EIS covering the multiple proposed projects must be completed across the various subjects. This comprehensive EIS would provide a focal point for summarizing the important issues associated with these multiple pending projects. Technical reports and studies could be included as appendices. The important point is that the cumulative impacts of multiple pending projects on key issues - hydrology, the Great Trinity Forest, land use, air quality,

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environmental justice - be fully and fairly disclosed. The goal of the document is to identify the important environmental issues for the decision-maker in an understandable, coherent fashion. That goal has not been met in the DEIS.

NEPA was established with the goal that environmental considerations would be meaningfully considered in the decision-making process. NEPA was established with the goal that alternatives that cause less environmental harm would be developed and fully and fairly evaluated. NEPA has a long term goal of humans and the environmental system living together in productive harmony. The proposed DFE project fails in all respects and should be rejected in its current form.

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TEXAS COMMITTEE ON NATURAL RESOURCES
4144 COCHRAN CHAPEL ROAD
DALLAS, TEXAS 75209
(214) 352-8370
May 11, 1998

Mr. William Fickel, Jr.
Director, Civil Works
Department of the Army
Fort Worth District, Corps of Engineers
P.O. Box 17300
Fort Worth, TX 76102-0300

Dear Mr. Fickel:

In order to provide you with further input as to policies on trails in the Trinity River Corridor, we suggest the following:

1. We favor adequate trails.

2. Trails for walking should be separate from trails for horseback riding, bicycling, motor cycling, and other vehicles.

3. Inside the forested areas, there should be nothing but walking trails, and they should be natural and narrow such as our existing path into Rochester Park from the south end of Bexar Street.

4. In forest trails, at wet places, and natural swales that flood annually, construct narrow wooden trail crossings that stand about knee-high, without having to cut any rare or large trees to put into place.

5. Road access to trailheads should be more or less perpendicular to the river, like Bexar Street now is.

6. In any event, prevent trail-builders and trail-users from picking or damaging any vegetation except alien invaders and poison ivy.

Sincerely,

Edward C. Fritz, Chair
Forest Task Force

ECF:edf

cc: Betty Svoboda

1 - 5. The recreation plan proposed for implementation was developed in coordination with local, regional, State, and Federal agencies, and would fulfill a substantial portion of Dallas' commitment to the Trinity Trail system.

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CADILLAC HEIGHTS DESERVE LIFT, NOT LEVEE
By Edward C. Fritz, Chair Emeritus
Texas Committee on Natural Resources

In a factual Op-Ed on May 6, Henry Tatum showed that Cadillac Heights is not an ideal place to live. He said when levees are built, industries will replace the houses.

The catch is that when that occurs and a higher flood than expected overtops a levee, the damages are worse than ever, and governments pay for them at higher cost to taxpayers.

6. Rather than building levees, the modern approach is to offer to each landowner a fair price to relocate on higher ground, and thereby save the costs of more levees to the economy and environment. The bought lands become parks.

Most Cadillac Heights residents close to floods and to lead and rendering plants would gladly sell. Only 23 residents of Cadillac Heights voted May 2, mostly against Proposition 11.

In Tulsa, even without pollution, all landowners eventually accepted buy-out offers. Nationally, buy-outs are taking the place of levees.

True, a 51.6% majority of the mere 74,000 Dallasites who voted May 2 favored Proposition 11, with new lakes and levees. But not many of them knew the lightly publicized fact that this nation is moving away from the levee approach.

The City Council can remedy any legal obstacle to a fair buy-out program. The Trinity River Corridor Citizens Committee so recommended on January 28, 1995, accepted by the City Council in May, 1995. Mayor Kirk has disregarded that.

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6. See response to comment #1 on page N - 13.

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Army Corps, itself, admits that new levees, by narrowing the flow of floods, would raise the major flood level upstream by 2.4 feet at West Dallas and Central Business District, almost completely undoing the effect of a swale now planned through thousands of trees downstream. Preferable to both these harsh methods, Dallas could dig lake-beds or recreation fields between existing levees to lower major flood levels.

The residents of Cadillac Heights (and Dallas) can obtain such a correction without another election. The Army Corps is at last coming out with its Draft Environmental Impact Statement.

7. The EIS attempts to evade the voluntary buy-out option by using outdated methods. For dexample, the EIS fails to evaluate environmental and social benefits of buy-outs, as recommended by the June 1994 report of the Interagency Floodplain Management Review Committee. Nationally the Army Corps is shifting to a new approach focusing on the non-structural way. Citizens can ask the Army Corps, P.O. Box 17300, Fort Worth, TX 76102-0300, to give that option a better analysis as to Cadillac Heights and Lamar Street, as required by the National Environmental Policy Act. This law gives us an opportunity to modify as bad part of the Trinity bond deal.

8. Mayor Kirk says if up-river Dallas has levees, South Dallas is entitled to the same. But many of us feel each owner in Cadillac Heights and Lamar Street should be given something better--a voluntary individual buy-out option. The Army Corps must discuss that alternative. So now is our chance to suggest a modern floodplain remedy for Dallas.

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7. The analyses of non-structural buyout alternatives were conducted in accordance with current Federal policies and guidelines. Until incorporated as implementation guidelines by Corps Headquarters, recommendations from the Interagency Floodplain Management Review Committee do not constitute modifications to the regulations by which the Fort Worth District is mandated to conduct economic analyses.

8. See response to comment #1 on page N - 13.

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May 30, 1998

Texas Committee on Natural Resources
4144 Cochran Chapel
Dallas, Texas 75209

Dallas Group, Sierra Club
Dallas County Audubon Society
Dallas Historic Tree Coalition

MAY, 15 1998

COMMENTS ON DRAFT RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT, TRINITY RIVER

PREFACE
A BETTER WAY FOR THE TRINITY

1. The draft fails to consider preferable alternatives, including the non-structural system in the floodway extension and the combination of non-structural with (1) conveyance basins(some with lakes) between the existing levees (Dallas Floodway), and (2) raising the height of the existing levees near downtown and West Dallas, with or without use of material dug from conveyance basins.

3. The ESI inadequately discusses the alternative of reducing pollution of the Trinity River and using its water for one or more of the lakes and wetlands proposed to be constructed.

4. The EIS inadequately addresses air pollution, including the impact of new roads that the City of Dallas proposes to be built between, near, and over levees, old or new.

5. On May 2, 1998, with one-tenth of the eligible voters voting, a scant majority of voters (51.6 %) passed bond Proposition 11 with local funds for tollroads and a lake between existing levees. Although TXDOT will file another EIS on that item it is so interlocked with the proposed new levees and swale that the Army Corps should discuss it adequately in its EIS now pending. The EIS fails to present social costs and benefits, as recommended on page 66 of the Interagency Galloway Report, *Organizing Floodplain Management.*

6. A social cost of the proposed levees is that the result would be the industrialization of the Cadillac Heights residential community, as admitted four days after the Dallas bond election by a lead spokesperson for the *Dallas Morning News*, most influential backer of Proposition 11. (For a copy or Mr. Tatums' article, please call (214) 739-5886).

The Army Corps should not be a tool of industrialization of a neighborhood.

7. Texas Committee on Natural Resources and other groups recommend the combination of basins and non-structural voluntary buy-outs as a preferable alternative. Otherwise, we favor the non-structural alone.

1 and 2. Conveyance basins within the existing Dallas Floodway and raising the existing levees have been considered as alternatives for providing flood damage reduction benefits for the existing Dallas Floodway Levees. However, these alternatives provide benefits only for areas adjacent to the existing levees and provide no benefits downstream in the DFE area.

3. The draft GRR/EIS contains no recommendations for the construction of lakes. The wetlands proposed for ecosystem restoration purposes were designed to utilize overbank flows from the Trinity River to the extent that such water is available. During times of low flow, an alternate source of water would be utilized to maintain the functionality of the wetland system. This alternate source of water would be treated effluent from the Central Wastewater Treatment Plant.

4. The Draft EIS covers the air quality issues associated with the project proposed by the Corps of Engineers. Air quality issues related to any proposed highway projects would be addressed by the agencies proposing to construct those projects.

5. Discussion of interrelated projects has been added to the FEIS and disclosure of cumulative impacts related to those proposals has been added. The FEIS has been modified to include discussion of cumulative impacts associated with the TXDOT proposal and other reasonably foreseeable project proposals.

6. See response to comment #7 on page N - 283.

7. See response to comment #1 on page N - 13.

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Texas Committee on Natural resources
4144 Cochran Chapel Road
Dallas, TX 75209

Dallas Group, Sierra Club

Dallas County Audubon Society

May 15, 1998

COMMENTS ON DRAFT GENERAL RE-EAVALUATION REPORT
AND EIS, TRINITY RIVER

PREFACE
A BETTER WAY FOR THE TRINITY

The Draft fails to consider preferable alternatives, including the non-structural system in the floodway extension,

1. and the combination of non-structural with (1) conveyance basins (some with lakes) between the existing levees (Dallas Floodway),

2. and (2) raising the height of existing levees near downtown and West Dallas, with or without use of material dug from conveyance basins.

3. The EIS inadequately discusses the alternative of reducing pollution of the Trinity River and using its water for one or more of the lakes and wetlands proposed to be constructed.

4. The EIS inadequately addresses air pollution, including the impact of new roads that the City of Dallas proposes to be built between, near, and over levees, old or new.

5. On May 2, 1998, with one-tenth of the eligible voters voting, a scant majority of voters (51.6%) passed bond Proposition 11 with local funds for tollroads and a lake between existing levees. Although the TXDOT will file another EIS on that item it is so interlocked with the proposed new levees and swale that the Army Corps should discuss it adequately in its EIS now pending.

1. See response to comment #1 on page N - 284.

2. See response to comment #2 on page N - 284.

3. See response to comment #3 on page N - 284.

4. See response to comment #4 on page N - 284.

5. See response to comment #5 on page N - 284.

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6. The EIS fails to present social costs and benefits, as recommended on page 86, attached, of the 1994 Interagency Galloway Report, Organizing Floodplain Management.

A social cost of the proposed levees is that the result would be the industrialization of the Cadillac Heights residential community, as admitted four days after the Dallas bond election by a lead spokesperson for the Dallas Morning News, most influential backer of Proposition 11. See attached article by Henry Tatum, DMN, May 6, 1998.

The Army Corps should not be a tool of industrialization of a neighborhood.

7. Texas Committee on Natural Resources and other groups recommend the combination of basins and non-structural voluntary buy-outs as a preferable alternative. Otherwise, we favor the non-structural, alone.

SPECIFIC COMMENTS

Deep bias for construction in the floodplain permeates the Draft Report and EIS on the Trinity River propositions that the bureaucracy would like to keep handling at federal and Dallas taxpayers' expense.

The document reveals the prejudices of the Corps against the non-structural alternative in several ways:

8. 1. It fails to analyze environmental impacts and benefits of a non-structural alternative, thus violating the National Environmental Policy Act (See p. 1-99, Report).

6. See response to comment #6 on page N - 284.

7. See response to comment #7 on page N - 284.

8. Three non-structural alternatives are presented in the draft GRR/EIS - an Individual Structure Evacuation Plan, beginning on pages 4-6; a Flood Zone Evacuation Plan, beginning on page 4-35; and, a Combination Non-Structural / Structural Plan, beginning on page 4-72. The Combination Plan was included in the Final Array of Alternatives, in accordance with Section 102(2) of the National Environmental Policy Act of 1969, as amended. The environmental impacts of this alternative are included in the "ENVIRONMENTAL IMPACTS OF ALTERNATIVES" section, beginning on page 4-74.

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9. 2. It persists in using biased old-hat formulae for calculating benefits of the non-structural approach to modern flood management (See p. 4-6 of Draft and p. 4, below).

10. 3. It fails to confront the fact that if it builds new levees, a major flood will sooner or later over-top them, as happens every year somewhere in the nation.

11. 4. Although replete with self-serving conclusions, it fails to supply data essential to an environmental impact statement, including data supporting its conclusion of a low benefit/cost ratio for non-structural alternatives. The Corps report admits on page 4-79, etc., that citizens have called for a non-structural alternative to ditches, levees, and roads between the levees. Construction should be outside the floodplain. But the report arbitrarily mixes the modern non-structural approach with a ditch, calling this a "combination non-structural alternative."

12. Army Corps officials in Fort Worth, years ago, told us that they would not calculate benefits and costs for flood zones where the landowners did not unanimously agree, in advance, that they would sell out at the prices to be offered. That is probably why the Corps report does not include a separate discussion of flood zones over 20 years in Cadillac Heights. TCONR has always objected to this requirement of unanimity. We believe in voluntary buyouts. That means that unanimity is not required. In Tulsa, the city offered prices repeatedly. Some owners stayed in the new parks. Finally, they all sold voluntarily. Dallas should be given the opportunity for an individual, voluntary relocation program, as it already performed at Roosevelt Heights. The price should be high enough to permit relocation to

9. The economic analyses of non-structural alternatives were conducted in accordance with current Federal policies and guidelines.

10. Because no plan (structural or non-structural) can guarantee 100% protection from a catastrophic flood event, the analyses conducted must compare the probability of a certain flood event occurring to the costs and benefits of protecting against such an event. The levee alternatives were developed and analyzed according to current Federal policies and guidelines regarding risk and uncertainty of overtopping to derive the plan providing the maximum net annual benefits.

11. The reports presents the *findings* of investigations conducted to develop the Recommended Plan. Detailed calculations for every preliminary alternative were not shown. However, detailed designs, estimates and impacts of the final alternatives are contained in the appendices, with the results of these efforts included in the main report.

While there have been opponents to the recommendations of the draft GRR/EIS, the Corps has analyzed stand-alone non-structural alternatives and found them to be economically infeasible. The analysis of the combination structural/non-structural plan found that the incremental buyout of a very limited number of structures in the Cadillac Heights area was economically feasible. However, the levee proposal provided greater net annual economic benefits. Furthermore, the citizens of Dallas voted on May 2, 1998, to support the proposed plan.

12. The Corps of Engineers has no authority to prohibit the City of Dallas from implementing an individual, voluntary buyout program. However, Federal participation in such a buyout would not be warranted due to the economic infeasibility of these alternatives. Furthermore, the Dallas City Council stated in October 1996 that the buyout of structures in the Cadillac Heights area would not be considered further.

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comparable housing out of the floodplain. The Corps report does not cover that alternative.

13. At p. 4-6, the report limits the benefits of the non-structural alternative to losses covered by subsidized insurance and public damages prevented. That is the old-hat backwards device of the Army Corps to prevent non-structural approaches, including voluntary buyouts, from outranking ditches and levees in benefit/cost ratios. In true life, the non-structural system also benefits the community by saving the natural floodplain (See Constanza, et al, NATURE, May, 1997), by protecting forests which have great value for recreation and for absorbing air and water pollution, and by sparing people from the suffering that floods cause to their homes and bodies.

By using the backward Corps calculations of benefits, the Report defied two modern findings:

1. In 1994, after huge damages in 1993 Mississippi VAlley floods, a presidential study committee, reported that Corps calculations of benefits for non-structural projects were biased agsinst non-structural alternatives. That was the Interagency Floodplain Management Review Committee headed by Brigadier General Gerald E. Galloway, a former official in the Army Corps. (See pp. 86-87 of that report for three references to "bias").

2. Congress in 1996 directed the Corps to review its non-structural impediments. Water Development Act of 1996, Title II, Sec. 402(d). The Corps has failed to do so.

14. The Corps Trinity report has additional biases. At p. 4-80, it claims that the air pollution absorption by the Trinity Forest

13. See response to comment #7 on page N - 283.

14. The information on page 4-80 indicates that 1.5% not 5% of the total assimilative capacity of trees in the Dallas, Texas, area. The beneficial impacts of trees on the removal of criteria air pollutants to the people of South Dallas and Oak Cliff would be insignificant due to the prevailing winds and air mixing that occurs. In addition, the entire project plan includes environmental mitigation, including acquisition and development of floodplain lands into bottomland hardwood forests. The information provided in table 4-24 clearly indicates that the mitigation plan would result in a forest thet would provide more air quality protection from forest than would occur without the project.

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is "minimal", although the report admits that this forest accomplishes 5% of the anti-pollution service of trees in Dallas. 5% may be "minimal" among all trees, but it has a meaningful effect for the people of South Dallas and Oak Cliff. The EIS should calculate and admit this.

15. The report never explains the delay in issuance originally scheduled for 1997. Actually, the Corps national office found the Draft EIS to be unsatisfactory and held it up. The Army Corps has finally come out with it, shortly before people vote on May 2, leaving little time to read all 231 pages.

16. It is now too late to analyze the Draft Report and EIS in full, except to note its bias.

17. A reason the Army Corps has evaded a fair EIS on the non-structural alternative is that City officials have not joined citizen groups in asking for coverage of that alternative, although the law requires it. Attached is a letter from the Corps incorporating that excuse.

The Reevaluation Report conflicts with the recent Corps' Challenge 21 Report, which focuses on the non-structural approach to floodplain management.

At p. 4-35, the Report claims preliminary investigation of "the feasibility of evacuation of individual structures within the study area. The investigation revealed only seven structures scatteread throughout the floodplain could be economically justified for acquisition."

This self-serving conclusion from such a biased source is not credible. The EIS should include full details and data on

15. As the comment states, the Fort Worth District did not withhold the release of the Draft GRR/EIS. The release was delayed due to revisions determined by higher Corps authority to be needed for clarification before the official release on May 15, 1998. However, the report was available in the Dallas Public Libraries and Public Works departments for review prior to the May 2 election. Additionally, the text of the main report was made available on the Internet and notices were sent to 2000 people prior to the bond election.

16. Following a number of requests to extend the time period for public review, the comment period was extended to a total of 91 days from the time the Notice of Availability was printed in the Federal Register.

17. The economic analyses of non-structural alternatives were conducted in accordance with current Federal policies and guidelines. Until incorporated as implementation guidelines by Corps Headquarters, recommendations from the Challenge 21 Report do not constitute modifications to the regulations by which the Fort Worth District is mandated to conduct economic analyses.

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this so-called investigation and reevaluation. We request all data and calculations.

We have participated in surveys of Cadillac Heights that reflected willingness to sell according to amount offered. The price should include reallocation at the same quality.

18. While by-passing any adequate social and environmental discussion of a purely non-structural alternative, the Reevaluation report directs almost 100 pages, plus numerous tables to the structural and combined structural plans, including the locally preferred plan and federally supported plan. This is another demonstration of bias.

19. The Corps report fails even to mention the recent Army Corps document, "Challenge 21", which applies millions of dollars to non-structural projects.

The Corps report conveniently avoids reference to:

20. 1. The fact, admitted in writing by the Corps, March 7, 1997, that the proposed levees would undo 2.4 feet of the 3.5 feet of flood level improvement by the swale. In a SPF at existing levees, the Report, at p. 4-13, gives smaller figures, "assuming the event occurred within the Floodway. The existing figures are lower than SPF, so the Corps figures in the Report conceal the potential damages from big new levees.

21. 2. The consensus on January 25, 1995, by the Trinity River Corridor Citizens Committee of 440 citizens, set up by Mayor Steve Bartlett, including the following:

> "City should consider and give preference to nonstructural alternatives based on social, economic, and environmental cost and benefits.

18. The draft GRR/EIS presents the plan formulation process used to derive the Recommended Plan, selected in accordance with current Federal policies and guidelines. Preliminary alternatives deemed economically infeasible, and thereby screened from further consideration, were not discussed in as great a detail as the Locally Preferred Plan and the Federally Supportable Plan, but does not constitute a bias toward any particular type of alternative.

19. See response to comment #17 on page N - 289.

20. As shown in the outline of Chapter 4 in the Table of Contents, the discussion on page 4-13 regarding *"Levee Plans Investigated"* refers to the initial screening of alternatives performed very early in the study, and is presented as part of the chronological documentation of the plan formulation process. This early phase of plan formulation utilized the hydrology model developed in the Upper Trinity River Reconnaissance Study, as indicated on page 3-2, and is not intended to be interpreted as the final analysis. Final analyses of the levees and the chain of wetlands were presented on an incremental basis in table 5-4 of the draft GRR/EIS.

21. See response to comment #12 on page N - 287.

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"City should identify areas and establish a voluntary buyout program for residences and businesses in flood-prone areas. The program should emphasize buyouts immediately after flooding, utilizing the 'window of opportunity' approach."

22. 3. Fails to discuss the impact of the City-proposed tollroads inside the levees on the floodway and floodway extension.

23. 4. Fails to discuss the proposal to construct detention ponds between the existing levees, and the economic and environmental impacts thereof. At p. 5-14, it attemps to slip responsibility to analyze the tollroad part of the Dallas bond proposition 11 entirely to a future TXDOT study, not even subject to no environmental policy act in Texas.

24. 5. Fails to discuss the impacts of the city-proposed levee near Luna Road alongside the Elm Fork.

25. 6. In an unsound attempt to make the separately unfeasible Lamar Street and Cadillac Heights levees feasible, the Corps Report combines them with the swale. Actually, the City Council approved the swale first. The impact of the combination of anti-environmental structures is overlooked in the Corps Report.

26. 7. The Corps Report fails to consider combining the non-structural approach for Lamar Street and Cadillac Heights with the creation of detention ponds ("lakes") and detention low playgrounds between and above the existing levees. Detention areas would be relatively economical and would actually lower the Standard Project Flood near Downtown Dallas and West Dallas. We recommend this as an alternative to Locally Preferred Plan and the Federally Supported Plan. The benefits, monetarily, are high, since the amount of damages to those areas would be astronomical if a flood overtops the existing levees, and the

22. See response to comment #5 on N - 284.

23. The proposal to construct ponds within the existing Dallas Floodway is being studied as part of the Upper Trinity River Project. Only preliminary analysis has been conducted to date. Any beneficial or adverse impacts of these proposals would be fully disclosed as part of the documentation of that project. The Dallas Floodway Extension proposal does not include a proposal to construct a tollroad. If the proposal to construct the tollroad utilizing features of existing or proposed Corps of Engineers constructed project features, then the Corps would conduct full analysis of the proposals and determine if the Corps needs to do further NEPA review prior to authorizing use of Corps project lands. TXDOT has indicated on page I-8 of its study report of March 1998 that the Trinity Parkway reliever route would require an Environmental Impact Statement.

24. The analysis of a levee along Luna Road is in the very preliminary stages. No alignments have been set and the economic feasibility of such a levee has not been determined. Cumulative impacts to the extent identifiable to the proposed North Stemmons study were considered as addressed in response to comment #5 on N - 284.

25. The analysis of the Lamar Street Levee and the Cadillac Heights Levee are presented on an *incremental* basis with the chain of wetlands, as shown in Table 5-4. In other words, the economic analysis determines whether or not the addition of the Lamar Street Levee would provide *incremental* benefits if the chain of wetlands were already in place. As shown in Table 5-3, the SPF Lamar Levee and the 100-year Cadillac Heights Levee provide positive incremental net annual benefits, and were therefore added to the Federally Supportable Plan, as described in the draft GRR/EIS. The environmental impacts of the final array of alternatives is discussed, beginning on page 4-74.

26. See response to comment #1 on page N - 284.

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existing levees cannot feasibly be raised because of the costs of rebuilding the bridges that are now too near the tops of the levees.

27. As early as August 8, 1996, the Army Corps published Dallas Floodway Extension Project Leaflet): "Current criteria does not allow for evaluation based on individual structures." Dallas officials claim that they cannot legally pay relocation costs to landowners. If so, all they need to do is to amend the ordinance to catch up with the times. The Corps Report overlooks these points.

EXAMPLES OF THE UNFAIRNESS OF COMBINING THE NON-STRUCTURAL ALTERNATIVE WITH THE SWALE

28. 1. In Table 4-24, Removal Ratio of Regulated Air Pollutants by Trees, the Corps chart shows a negative rate of removal of pollutants by the combination because the swale would remove thousands of trees, as would the FSP and LPP. If the Corps had calculated for a stricter non-structural alternative, the result would have been positive pollution control, because trees would increase, instead of being cut.

29. 2. In Table 4-25, Bottomland Hardwood Forest Impact Analysis, the combination plan indicates a heavier reduction than by the "chain of wetlands", alone, in total acres of trees. This does not make sense. The swale would remove the same number either way as shown in "Average number of trees per acre. Pecan/Oak and Ash/Elm. The numbers of trees remaining in a strictly non-structural plan would be much higher.

30. 3. On Table 4-26, the U.S. Fish and Wildlife Service estimated far more trees in the combination non-structural than in the chain of wetlands. The advantage would be even greater for a

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27. See response to comment #12 on page N - 287.

28. As has been shown by the benefits that would be gained by creation of the chain of wetlands from removal of trees, allowing trees to grow to any greater density within any buy-out area could cause induced flood damages upstream. A complete non-structural plan, if it could have been economically justified, would also likely require the sponsor, at substantially additional O&M costs, to restrict additional growth of forest that would reduce the hydraulic efficiency of the flood plain.

29. The combination plan, as described on page 4-72, includes the chain of wetlands, the SPF Lamar Levee, and a buyout of the 10-year flood zone in Cadillac Heights. It is understandable, therefore, that this plan would remove a greater number of trees than the chain of wetlands alone.

30. Table 4-26 was compiled by the Corps of Engineers and shows impacts in acres rather than by tree count.

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stricly non-structural alternative, as requested by many citizen groups.

31. 4. Similar reasoning applies to Table 4-26, but in reverse, because this chart applies to mitigation. The costs of mitigation of a strictly non-structural alternative should be far less than with a swale included.

32. 5. Same as 4 re Table 4-26.

33. 6. The same reasoning would apply to Table 4-29. Strangely, it indicates a lower benefit/cost ratio for the combination non-structural plan than the Federally Supported Plan, in spite of the far worse damages of the FSP to the environment, which the Corps fails to evaluate.

ADDITIONAL COMMENTS RE DRAFT EIS

34. 1. Supplementing Point 7 on Page 6 hereof, the Report ignores the alternative, requested by citizens repeatedly, including by letter from TCONR and others of March, 1997, answered by the Corps Engineer March 31, 1997. The Draft fails to discuss the combined alternative of detention basins and voluntary buy-out of floodplain structures and lands.

2. This combination includes proposed detention basins between the existing levees.

3. The analysis should include the impact of various sizes of detention basins on the SPF and other events.

4. It should also include the dimensions of such basins.

5. It should also include the flood-reduction capacity of each basin, with and without water contents, the recreational uses and the access routes for each potential basin.

31. The comment is correct that a strictly non-structural alternative should have less mitigation; however, non-structural alternatives were infeasible. The costs for mitigation were included in the evaluation of the TFSP, LPP and the Combination Plan.

32. See response to comment # 31 on page N - 293.

33. The environmental impacts of the alternatives, as described on pages 4-72 through 4-88, were incorporated into Table 4-29. The economic benefits of protecting Cadillac Heights with a levee outweighed the economic benefits of a buyout of Cadillac Heights.

34. See response to comment #7 on page N - 284.

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6. It should include a benefit/cost analysis. On March 31, 1997, the Corps brushed off detention basins further upstream, but we want a fair accounting for between existing levees, where the land is already public.

35. 7. The Report fails to evaluate the harmful impacts of swale and new levees on downstream communities and environment.

36. 8. At p. 37, the Report admits that the swale would "impact 287 acres of lower quality trees." It fails to say that these are a wide variety of native species, up to 80 feet high, such as Ash-leaved maple, American elm, Texas mulberry, Green ash, Hackberry, and Cottonwood, and below them grow Elderberry, Swamp privet, Virginia wild-rye, Polygonum, Missouri violets, and numerous other native understory species, furnishing a forest almost as rich as the higher quality closer to the river.

37. Furthermore, the Report fails to show that floodwaters tend to break out of swales toward the river, ripping out everything in between. Also, by narrowing the forest, cutting the swale would open that remaining forest to far worse damage from winds.

38. 9. The Report fails to approximate the number or value of trees that would be destroyed in cutting a 400-foot wide swale.

39. 10. At p. 4-37ff, the Report claims an increase in water habitat, but fails to provide data on present needs and future trends. Moreover, it fails to compare water habitat with the greater regional and national loss of forest habitat and inner forest species, including migratory song-birds, as bottomland forests decrease from swales and other cutting.

40. 11. At p. 4-38, of the Report the Corps evaluation does not adequately value the non-monetary costs and benefits of

35. See response to comment #8 on N - 19.

36. Description of the forest resources are included in Chapter 2 and in more detail within Technical appendices F and G. The primary difference between the higher quality and lower quality woodlands is the absence of mature hard mast producing trees from the lower quality areas. However, the extra documentation of forest quality was made as an informational guide to assist planners to avoid the highest quality forests during plan formulation. The full impacts to the forest was documented.

37. Contrary to the comment, floodwaters will not tend to break out of the swale toward the river; conversely, floodwaters will tend to break out of the river toward the swale.

The chain of wetlands swales are not expected to cause erosive flow velocities as stated in Appendix A and shown in Table A-11.

38. Table 4-25 presents the approximate number of high quality and medium quality trees which would be impacted by the "Chain of Wetlands", which includes the swale.

39. A discussion of environmental needs based upon past alterations of habitats is discussed on page 3-19 and 20 of the Draft GRR/EIS. That discussion indicates that the most significant losses have been to bottomland hardwood areas. The basis for development of the extensive forest mitigation plan was that bottomland hardwood forests have been recognized for the importance to the elements indicated.

40. The analysis documented on pages 4-38 through 4-42 was conducted to demonstrate feasibility and justification for the proposed ecosystem restoration. The non-monetary impacts associated with project features are disclosed beginning on page 4-74 of the Draft EIS.

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environmental losses and gains. The Corps should make an effort to overcome this unfairness, as recommended by the Galloway Report at pp. 86-87 and by Congress in Section 402(d)(2) of the 1986 Water Resources Development Act.

41. 12. At p. 4-38, the Report fails to consider the non-structural alternative, including voluntary buyout of landowners in Lamar St. and Cadillac Heights, and a version of that alternative which includes detention ponds between existing levees. See Consensus of Trinity River Corridor Citizens Committee, Jan. 25, 1995, Flood Subcommittee.

42. 13. At pp. 4-37 to 4-41, the Report calls it the ecosystem restoration plan, although it is mainly a conversion of forest to grassland-wetland.

43. 14. At p. 4-41, the Report slips in another admission, but never evaluates the additional costs: "...The development of any additional flood damage reduction actions that might be needed in the future." Actually, structural actions almost always lead to additional structural actions, both at the site and downstream, a fact which the report fails to account for or evaluate.

44. 15. At p. 4-42, the Report slips in a recognition, unevaluated, that "Bottomland hardwood habitat is nationally recognized for its importance." The Report does not adequately develop that fact, nor compare values between bottomland hardwood and swale.

45. 16. At p. 4-42, the next paragraph makes a conclusion of goal-achievement which is a non-sequitur for the previous paragraphs.

46. 17. At p. 4-43, the Report admits the real reason the Corps agreed to add levees (in spite of their negative effects on protection of downtown Dallas and West Dallas):

41. See response to comment #8 on page N - 286.

42. The proposed ecosystem restoration would be constructed on the foot print of the flood damage reduction swale. The swale, not the ecosystem restoration, would require removal of the forest.

43. The intent of the statement was to emphasize the criteria for the development of an ecosystem restoration plan, and does not imply that future flood damage reduction measures will be required.

44. The statement referenced was used to illustrate the point that additional emergent wetlands could be added to the restoration plan, but only at the expense of bottomland hardwoods. Again, the intent of the statement was to emphasize the criteria for the development of an ecosystem restoration plan, one of which is that restoration activities should not result in damages that would require environmental mitigation.

45. The statement that "...the development of the complete chain of wetlands would achieve the goal of maximizing emergent wetland habitat within this area without violating other developed criteria" was substantiated in the previous analyses within the "Environmental Restoration (Wetlands)" section, beginning on page 4-37.

46. The analysis of the inclusion of levees in the Locally Preferred Plan was initiated upon request of the city.

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"However, intense social and public pressure to provide added flood protection in the immediate study area comparable to that provided to the Central Business District by the existing Dallas Floodway levees prompted the city to request additional levee solutions aimed at removing more residents and businesses from flood risk." The intense pressures emanate mainly from the Mayor.

47. 18. At pp. 4-43ff, the Report fails adequately to evaluate the proposed levees, alone, separately from the swale, thereby implying that the levees, alone, would not be acceptable or feasible. See 4-43, fifth paragraph.

48. 19. At p. 4-49, the Report claims the impact of the proposed Cadillac Heights levee on the elevation ...of a standard project flood upstream, at existing levees would be an overall reduction of 1.1 feet. No computation figures are provided. This conflicts, inexplicably, with the following answers given in writing by the Ft. Worth office of the Corps.

(Written by Army Corps in response to questions from DFE workshop February 8, 1997):

Question: What are the resultant water surfaces with the chain of wetlands only and how do they compare with the levees added?

Answer: SPF flood elevations at the downstream end of the existing floodway are reduced by approximately 3.5 feet, "from existing conditions, due to the Chain of Wetlands only. The reduction in SPF flood elevations at this same point (downstream end of the existing floodway) is 1.1 feet when the short option levees are added. When the long option levees are added, the reduction in SPF elevations only 0.45 feet."

49. Later, at a town hall meeting held by Councilwoman Donna Blumer, the City's Trinity czar, Peter Vargas, answered that the toll roads would raise the major flood level by one foot. That means no improvement from LPP or FSP. The EIS fails to consider the tollroads although they have a significant impact on the flood level, pollution and noise.

47. The analysis on page 4-43 of the draft GRR/EIS refers to the development of the Locally Preferred Plan (LPP), and does not contain detailed economic analyses of the plans investigated. However, the analysis of the extent of Federal participation in the LPP, described beginning on page 4-63 in the "IDENTIFICATION OF THE FEDERALLY SUPPORTABLE PLAN" section, presents a preliminary incremental analyses of these levees. Upon identification of the LPP and the FSP, more detailed optimization analyses were conducted, as presented in Chapter 5 of the draft GRR/EIS.

48. The two statements do not conflict. The implementation of a plan including the chain of wetlands, the SPF Lamar Levee, and the short option SPF Cadillac Heights Levee (as described on page 4-49) would result in a reduction in the water surface elevation at the downstream end of the existing Floodway of 1.1 feet. (The short option vs. long option, on page 4-49, relates to the configuration of the levee around the Central Wastewater Treatment Plant, or CWWTP, and does not relate to the height of the levee).

49. See response to comment #22 on page N - 291.

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Vargas added that digging retention ponds ("lakes") would almost offset the flood rise caused by the tollroads. We answer that those ponds or basins could be dug without any of the other construction, for a beneficial net effect on the major flood level, which City officials have claimed to be the difference between a 300-year and a Standard Project Flood (about a 800 year event).

50. 20. Table 4-13 admits a benefit/cost ratio for Lamar levee that barely passes. The Report provides no data for Cadillac Heights levee. Only by quietly manipulating questionable credits from the wastewater levees and the Cadillac Heights levee does the Corps make it feasible. Table 4-16.

51. 21. At p. 4-84, the Report arbitrarily states, in the middle of a paragraph, as usual:

> "It is noted that the estimated first costs shown in this table do not include environmental restoration costs. Outputs for these features are non-monetary and are not included in the benefit/cost ratio."

52. 22. In Table 4-15, by combining swales and levees, the Corps manages to come up with net annual benefits. It never gives back-up figures to show how it does it.

53. 23. On Table 4-16, it shows "Total Project Costs of $399 million. It never shows total project benefits. Why not? It shows total annual charges. If we add the environmental restoration column, how much difference would that make in benefit/cost ratio?

54. 24. On Table 4-17, it shows cost apportionment of data. What is the ultimate benefit/cost ratio?

55. 25. Apply the last two questions to Table 4-19.

50. As stated on page 4-51, Table 4-13 presents an economic analysis of the portion of the Rochester Park Levee, constructed by the City of Dallas, which would be compatible with the proposed Lamar Levee, in accordance with Section 351 of WRDA 1996. Due to the integral nature of the Rochester Park Levee with the Lamar Levee, the economic analysis included the entire Lamar/Rochester Park Levee system. The credits for the advanced construction of the CWWTP and Rochester Park levees were Congressionally authorized in WRDA 1996 and incorporated into implementing guidelines from Corps Headquarters. No manipulation of these credits occurred. Table 4-16 presents the analyses of LPP alternatives (as complete plans - not incremental elements) after incorporation of the compatible portions of the Rochester Park and CWWTP levees.

51. It is assumed that the commentator is referring to the last paragraph on page 4-54 (instead of 4-84, which does not contain the referenced statement). The exclusion of environmental restoration costs is not an arbitrary decision, but is in accordance with Federal policies and guidelines. This exclusion is based on the fact that there is no monetary basis by which to compute the outputs of a restoration plan. Consequently, restoration alternatives are evaluated using cost effectiveness and incremental analysis techniques, as described in the "Environmental Restoration (Wetlands)" section, beginning on page 4-37.

52. Table 4-15 presents total annual benefits, by reach, for the three alternatives presented and compared in Table 4-16. The total annual benefits in Table 4-15 are shown in the Flood Control Only columns in Table 4-16.

53. Table 4-16 does not show costs of $399 million. It does show three alternatives (NED, Chain of Wetlands, and Chain of Wetlands Plus Levees) with and without recreation. Benefits are calculated on an annual basis. TOTAL ANNUAL BENEFITS are shown (highlighted) for each alternative (with and without recreation). As stated in comment #51 above, environmental restoration costs are not included in the benefit/cost ratio calculations.

54. Benefit-cost ratios for each alternative are shown in Table 4-16, based on the price levels, Federal interest rate, and period of analysis shown.

55. Total Annual Benefits and Benefit Cost Ratios are shown in Table 4-19.

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56. 26. On p. 4-72, the Report combines a non-structural "increment" with a "chain" of wetlands. We request a full non-structural calculation (a) with detention ponds between existing levees; (b) with detention ponds in areas acquired. We recommend both (a) and (b), whichever provides the higher b/c ratio.

57. 27. The same applies to Table 4-21.

58. 28. At pp. 4-74ff, the Report discusses impacts of alternatives. It fails to follow the recommendations of the 1994 Galloway Report and fails to reassess non-structural alternatives. It fails to assess our proposed alternatives in the preceding three points.

59. 29. At p. 4-74, etc., it mentions emergent "wetlands". It fails to explain any preference between "emergent" and "human-constructed". Which does it really mean?

60. 30. At pp. 4-72ff., it fails to cover adequately the categories of environmental impact that would result, along with all the species involved and the relative impacts on them.

61. 31. On p. 4-77, the acreage of impacts of a non-structural alternative on water quality completely ignores the fact that replacing (with new forest parks) the Cadillac Heights and Lamar structures, especially commercial structures now leaking contaminants into the Trinity, would have a strongly beneficial effect.

62. 32. At p. 4-71, the third paragraph avoids these items: See page 12, supra.

63. 33. The Report also ignored the following: See p. 12, supra.

64. 34. The Report at pp. 77-78 continues to lump non-structural with the swale, an incorrect association.

56. See response to comment #7 on page N - 284.

57. See response to comment #56 on page N - 298.

58. See response to comment #8 on pageN - 286 and to comment #56 on page N - 298. Until incorporated as implementation guidelines by Corps Headquarters, recommendations from the Galloway Report do not constitute modifications to the regulations by which the Fort Worth District is mandated to conduct analyses.

59. As a general rule, it would be preferable to preserve naturally occurring emerging wetlands, however, the project as documented would not impact naturally occurring emergent wetlands. Any constructed wetlands would not be "natural" but it would be preferable to have constructed emergent wetlands rather than not having them at all.

60. Relative impacts by alternatives was considered for environmental resources. The Fish and Wildlife Service's Habitat Evaluation Procedures (HEP) were used to determine extent of impacts from the alternatives and develop a recommended mitigation plan. The HEP is a well documented and widely accepted procedure to evaluate impacts to fish and wildlife species because it reflects impacts to the structure and function of the evaluated habitat type and therefore the wildlife species which utilize the habitat.

61. The non-structural plan that could be justified by the Corps would only remove a few structures from the area, mostly homes, and would do little to improve water quality. The commenter is referred to appropriate regulatory authorities to notify them of any known industrial leakage of contaminants in the area.

62. Page 4-71 does not contain three paragraphs. Therefore, the meaning and intent of the comment is unknown.

63. The comment is vague as to its meaning and intent. See the responses to comments on page N - 296.

64. The combination structural / non-structural plan was the last of three non-structural alternatives investigated for economic feasibility, and is not an incorrect association.

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65. 35. At p. 78, the Report fails to present data.

66. 36. At pp. 78-79, the Report fails to discuss its unsound conclusion that non-structural allowed no help to the aquatic habitat by reducing pollution, etc., and other "areas of controversy". (Summary, next-to-last page).

67. 37. On p. 4-78, the Report fails to acknowledge the significance of its key admission: "No decreases in forested area are expected to occur without the project."

68. 38. On p. 4-79, the Report fails to acknowledge that preserving the forest helps to clean the air.

69. 39. At p. 4-80, it inadvertently admits some help re air. It says this help is only "1.5% of the total capacity of trees in the Dallas, Texas, area." It fails to state the degree of help to South Dallas and Oak Cliff.

70. 40. At p. 4-81, it misuses the swale mixture to falsely conclude that the non-structural impacts on air quality would be "very similar to those of LPP."

71. 41. In Table 4-28, the required maintenance for non-structural would be far less (none?), if not combined with the swale.

72. 42. All these failures call for corrections in Table 4-29 which also fails to evaluate impacts on the environment.

43. Likewise as to Chapter 5.

44. At p. 5-13, the Report admits:

> "The existing Dallas Floodway (which consists of levees and channels) was built in the 1950's to the SPF level of protection. The upstream channels convey flood waters downstream more quickly and the upstream levees confine flood waters which previously spread out over the upstream floodplain. Both factors have raised the downstream water surfaces and lead to more severe flooding in the Dallas Floodway Extension area when storm events occur."

65. Comparative impacts were described for the alternatives in this section.

66. The "Combination Non-Structural / Structural Alternative" paragraph under the "Aquatic Habitat, Aquatic Invertebrates, and Fisheries" section, beginning on page 4-78, discusses the impacts to aquatic resources with implementation of the combination plan. No other non-structural alternatives were carried forward in the plan formulation process due to economic infeasibility, and were therefore not discussed in the "ENVIRONMENTAL IMPACTS OF ALTERNATIVES" section, beginning on page 4-74.

67. It is unclear as to why the referenced statement, included in the report in the last paragraph on page 4-78, is referred to in the comment as a failure to acknowledge its significance.

68. The "Air Quality" section, beginning on page 4-79, and Table 4-24, page 4-82, document the annual removal rates of regulated air pollutants by trees. Furthermore, the last sentence of the "Future Without-Project (No Action) Alternatives" section states, "The additional tree canopy that would develop would provide a slight improvement of approximately 4.1% in air pollutant removal capability above the existing conditions...".

69. The models utilized provided an accounting for the maximum impacts the removal of trees could have to the various air quality constituents. The model did not predict effects on actual air quality at any specific location.

70. The analysis on page 4-81 refers to the combination structural / non-structural plan, for which the impacts on air quality would be very similar to the LPP.

71. The analysis refers to the combination structural / non-structural plan. Stand-alone non-structural plans were deemed economically infeasible during the plan formulation process.

72. Table 4-29 presents an *economic* analysis of the Final Array of Alternatives, the impacts of which were discussed in the "ENVIRONMENTAL IMPACTS OF ALTERNATIVES" section, beginning on page 4-74.

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73. 45. The Report fails to add that construction of swale or levees in the floodway extension area would lead to more flooding in areas downstream from them, as is always true of structural approaches. This would cost more expenses to somebody, ignored in the report.

74. 46. At p. 5-14, the Report states as follows:

> "In addition, repeated flooding has created undesirable physical conditions within the area forcing some people and businesses to relocate from the area. Such conditions have also prevented economic growth and adversely affected community help."

The Report never mentions pollution of all of Cadillac Heights by lead, chromium, and other metals dumped even before houses were built.

75. 47. A p. 5-14, it finaly admits that the bond proposition includes tollroads inside levees, but evades analysis.

48. Chapter 6 obscures all these failures and fails to correct any of them.

76. 49. At p. 6-8, the Report states that the city would have to assume all operation and maintenance costs according to Corps regulations "after the completion of the project". The EIS should calculate these costs into a comparison of impacts.

77. 50. At page 6-29, the report states:

> "Finally, indicator 9 compare the percentage of direct net debt due within 5 years to total direct net debt outstanding. The city's situation indicates a weakness in this area since the current payback period is short. However, this may indicate that debt service requirements are greater than the community can afford, especialiy since current expenditures exceed revenues. The analysis of all these factors, shows that the city should not take on new debt in the very near future. The overall financial condition of the community is currently in a marginally weakened state due to the large amount of net debt outstanding."

73. See response to comment #35 on page N - 294.

74. The general environmental conditions of an area do indeed influence economic growth and community structure, however, the purpose of this study was to address the potential to reduce threat of flooding. We have no authority to conduct general contaminant cleanups, however, should the project proposals be implemented, some removal of contaminants from the area of influence of the project footprint would occur. In addition substantial investment has also recently occurred to cap and remove metal contamination from the area by others.

75. See response to comment #22 on page N - 291.

76. Annual operation, maintenance, repair, rehabilitation and replacement costs are incorporated into all economic analyses (e.g., Tables 6-5 and 6-6).

77. The data in the "FINANCIAL ANALYSIS" section of Chapter 6 in the draft GRR/EIS contained outdated material, and was inconsistent with newer information provided by the city. An errata sheet was mailed along with the draft GRR/EIS regarding this analysis, which showed that the city has the financial capability to proceed with this project. This updated information has been included in the final GRR/EIS.

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Table 8-13 should be revised accordingly. The Army Corps should make a major point of this, and should plainly reveal that the federal government should not approve the Dallas project under these circumstances.

78. 51. The Report fails to discuss basic principles of forest value, as Mike Dombeck, Chief of the U.S. Forest Service, said in his annual "State of the Forest" address, on or about April, 1998:

> "Healthy watersheds dissipate floods across floodplains increasing soil fertility and minimizing damage to lives, property, and streams.
>
> "We must protect our healthiest watersheds and restore those that are degraded. We must also continue our long tradition of protecting wild areas such as wilderness so they can remain important sources of clean water and biological diversity."

79. The EIS fails to consider new Corps policy favoring non-structural approaches, including Challenge 21, copy attached.

80. 52. The report is too dependent on the preferences of Dallas City staff and Council, thereby eliminating reasonable alternatives too early. It violates Chapter 13, EP 1165-2-1, SES 13-2b, which says:

> "b. Executive Order 11988. This Executive Order requires the Corps to provide leadership and take action to: (1) avoid development in the base (100-year) flood plain unless it is the only practicable alternative; (2) reduce the hazards and risk associated with floods; (3) minimize the impact of floods on human safety, health and welfare; and (4) restore and preserve the natural and beneficial values of the base flood plain. In this regard, the policy of the Corps is to formulate projects which, to the extent possible, avoid or minimize adverse impacts associated with use of the base flood plain and avoid inducing development in the base flood plain unless there is no practicable alternative for the development. (ER 1165-2-26)"

81. 53. It also violates Sec. 13-3, 13-4, 13-7, and 13-8, re nonstructural:

78. The values of the resources that would be impacted by this project, including those of the Great Trinity Forest were extensively addressed during project planning as evidenced by the impact minimization resulting from alignment of project features to result in the clearing of only the youngest stands of trees, within the most disturbed areas, routing the alignment through a landfill to avoid clearing of bottomland hardwood forest within the White Rock/Trinity floodplain just across the river from the landfill and routing the wetland swale through an actively used golf course rather than impact the resources on the other side of the river. In addition, rather than channelizing the entire reach of the river, which would cause extensive losses to the most mature forest and aquatic resources, the recommend plan contains only a relatively short section of channel realignment that would impact only 9 acres of mature forest. Further acknowledgment of the value of the forest is documented by the extensive resource mitigation plan calling for acquisition and development of 1,179 acres of bottomland hardwood forest.

79. Challenge 21 has not been adopted as Corps policy. Until incorporated as implementation guidelines by Corps Headquarters, recommendations from the Challenge 21 Report do not constitute modifications to the regulations by which the Fort Worth District is mandated to conduct economic analyses.

80. The project as proposed is in full compliance with Executive Order 11988.

81. The planning for this project was performed in accordance with existing Corps of Engineer policy.

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This is one more of many loose ends.

"13-3. Flood Related Planning Policy. It is the policy of the Chief of Engineers to consider in the planning process all practicable and relevant alternatives applicable to flood damage reduction. No one alternative will be pre-judged superior to any other. Consideration will be given both to measures intended to modify flood behavior (structural measures) and those intended to modify damage susceptibility by altering the ways in which people would otherwise occupy and use flood plain lands and waters (nonstructural measures)."

82. 54. It fails to resolve key issues such as the City's lack of commitment to pay for perpetual maintenance of the mitigation land on Lake Livingston, far from Dallas, and to pay its portion for restoration and the lack of an execution plan for the $78 million dollar element.

83. Conveyance basins, some to contain shallow lakes and some to be recreational fields, would lower the water level of the Standard Project Flood, thereby improving the protection of those existing levees well above the present 300-year event, near Downtown Dallas and West Dallas.

This alternative would not include any contradictory flood-raising structures such as tollroads between the levees and construction of swale and levees downstream, or a new levee along Luna Road, upstream.

Downstream from the existing levees, the conveyance or detention ponds would afford some protection from major floods, by holding back some of the flood water or hastening it through. The Corps Report should calculate and add a benefit/cost analysis.

Thus far, the City staff has estimated the City cost of a "Chain of Lakes" between the levees at $31.5 million. See Year

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82. Prior to construction of a Federal project, the sponsor must sign an agreement to provide the non-Federal share of project costs, and to provide operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) for the project after completion.

83. See response to comment #1 on page N - 294 and response to comment #168 on page N - 61. Lakes do not provide flood storage since they are almost always full of water prior to a flood event.

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in Review, Update, February, 1998. (Later claimed to pay for one "large lake", only). Dallas should pay for more conveyance lakes or modes than City staff has yet specified and for detention ponds and trails and other recreational facilities between the levees. It is far less costly than the other structural features that make up Proposition 11, the $246 million Trinity proposition in the May 2 bond vote.

84. The EIS does not address new potential environmental impact issues introduced to support new project features presented by the city. The EIS does not adequately debate alternative solutions which is a good engineering practice.

85. a. The EIS does not include costs and responsibilities for Environmental Restoration even though the study describes construction impact, e.g. forest modifications, on many environmental areas.

86. b. The EIS does not address new Dallas proposed roadways to be constructed in the interior upper walls of the levees. This item alone substantially increases the risk of pursuing the structural solution without a major restudy of numerous sections of the study.

87. c. The study limits the scope of river area to southeast of downstown Dallas and does not appear to define responsibilities for upstream and downstream effect of the LPP. Some fundamental engineering issues that can have substantial environmental impact on the so-called Locally Preferred Plan (LPP) are described in the following information. Further, these named issues seem inconsistent with expected engineering basis for floodway water control structures.

84. The GRR/EIS presents the analyses of environmental impacts which would result from implementation of the final array of alternatives, which were developed through the plan formulation process, as described in the document, and conducted in accordance with current Federal policies and guidelines.

85. The environmental restoration measures are described, beginning on page 4-37, and in Appendix F, ENVIRONMENTAL RESOURCES. The costs of these measures are included in Appendix K, COST ESTIMATING, and summarized in Table 6-1, and Tables 6-3 through 6-12.

86. See response to comment #22 on page N - 291.

87. The scope of the study was adequate to address the concerns as illustrated by the responses to comments #88-93 on page N - 304.

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88. I. The new publicly announced LPP recommendation for roadways to be built into the upper interior levee walls does not appear to have been factored into the EIS.

Engineering considerations to cut the levee wall structure to construct an unknown load bearing roadway will initiate multi-directional stress to the levee walls. This type construction will likely promote side wall cavitation until the levee restablizes, and entertain turbulent sheer flow along the upper levee wall--increasing the potential of flood waters in almost any amount to breach the levees.

89. II. The Geographical Study Area is limited to the southeast section of downtown Dallas. p. 2-2.

This limits the scope of the study detail to the defined area of southern Dallas, southeast of Downtown Dallas with the resultant need to detail study both impact from upstream flood water staging, i.e. before actual flow, and downstream discharge control.

90. III. The EIS addresses Debris Control as part of remedial construction for the IH 45 overpass. p. 4-69.

The construction of roadways within the levee structure now must include expanding debris control mechanisms, e.g. fan jetties, upstream from the roadways.

91. IV. The EIS omits responsibility of Hazardous, Toxic, Radiological Waste removal costs. p. 7-3.

This statement to decline federal responsibility for HTRW costs offers considerable project construction responsibility to Dallas in-view of the study identified chemical and solid waste areas in the flood plain before recreational areas can be opened.

88. The project proposed in the draft GRR/EIS does not include recommendations for construction of roadways to be built into the upper interior levee walls.

89. The scope of the study area as described represents the primary area of focus where flood damage reduction measures would be implemented. Impacts to the river corridor both upstream and downstream have been considered.

90. The project proposed in the draft GRR/EIS does not include recommendations for construction of roadways within the levees.

91. At the time the Draft GRR/EIS was released, additional testing was being pursued in the Linfield Landfill. This testing has been completed and the results are included in Appendix J of the final GRR/EIS. Further testing of sites is scheduled during the next phase of design. If such tests reveal HTRW contaminants, the first course of action will be to seek avoidance of the identified sites. The City of Dallas is aware of their sole financial responsibility for cleanup of identified HTRW materials, as seen in a letter from the City, dated March 9, 1998, which is included in the GRR/EIS at the back of Appendix J.

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92. V. The EIS notes the consideration Environmental Restoration is not included in the report. p. 7-3.

This appears to be a serious omission of an engineering study of almost any size environmental entity. One did not find any reason for the omission and must wonder why it was neglected if so.

93. The EIS should recognize that all it would take to legalize payment of relocation value to sellers of structures in floodprone areas is an amendment to the Dallas ordinance, as long recommended by TRCCC. See Attachment B - Area 3.

The Corps Report consistently avoids reference to:

94. 1. The fact, admitted in a Response by the Corps, to questions asked Feb. 8, 1997, that the proposed levees would undo 2.4 feet of the 3.5 feet of flood level improvements by the swale. This is a significant weakness of the project.

95. 2. The consensus on January 25, 1995, by the Trinity River Corridor Citizens Committee of 440 citizens, set up by Mayor Steve Bartlett, including the following:

> "City should consider and give preference to nonstructural alternatives, based on social, economic and environmental costs and benefits."
>
> "City should identify areas and establish a voluntary buyout program for residences and businesses in flood-prone areas. The program should emphasize buyouts immediately after flooding, utilizing the 'window of opportunity' approach."

Edward C. Fritz, Chair
Forest Task Force

92. Item f. of the "Conclusions" section states that environmental restoration was not included *as a project purpose in the original language of the 1965 authorization for this project*, and notes that the authorization would have to be amended to add environmental restoration as a project purpose.

93. From a Federal standpoint, the legalization of payment by the City of Dallas of relocation value to sellers of structures in flood-prone areas does not affect the economic infeasibility of the non-structural buyout alternatives, as presented in the Draft GRR/EIS.

94. See response to comment #20 on page N - 290.

95. See response to comment #21 on page N - 290.

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4/30/2009

Texas Committee on Natural Resources
4144 Cochran Chapel Road
Dallas, TX 75209

Dallas Group, Sierra Club

Dallas County Audubon Society

July 9, 1998

SUPPLEMENTAL COMMENTS ON DRAFT GENERAL RE-EAVALUATION REPORT AND EIS, TRINITY RIVER

INTRODUCTION

This is a supplement to our comments previously mailed to you. Among other items, we add:

1. 1. Failure of the DEIS to present a factual, rational basis for summary rejection of the voluntary buy-out alternative.

2. 2. Assessments by an editorial staffer in Dallas Morning News, May 8, 1998, that the result of the City of Dallas LPP for levees at Cadillac Heights would be to attract business buildings. See Article and Statement of Edward C. Fritz submitted to you with his oral statement at your hearing June 9, 1998 at the Ramada Plaza Hotel, incorporated herein by reference, and also attached hereto, along with other attachments.

3. 3. Your inadequate coverage of planned Trinity Parkway/Freeway impacts evaluation. We adopt statement of Joe Wells, June 9, 1998, incorporated herein by reference.

4. 4. Your inadequate coverage of Clean Water Act, Clean Water Action Plan, Clean Air Act, Environmental Justice Executive Orders, Challenge 21 documents, etc. We adopt the comments of Mary Vogelson on behalf of League of Women Voters of Dallas, incorporated by reference herein.

5. 5. Your failure to cover adequately all benefits and costs, including cumulative.

6. 6. Your failure to cover adequately the costs and responsibilities for environmental restoration and other factors.

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1. Rejection of non-structural alternatives was based on economic infeasibility, in accordance with current Federal policies and guidelines.

2. The economic feasibility of the SPF Lamar Levee and the 100-year Cadillac Heights Levee was based on the current structures to be protected, in accordance with current Federal policies and guidelines. Future development would be at the discretion of the city of Dallas.

3. See response to comment #22 on page N - 291.

4. Project as proposed is in compliance with these laws and executive orders.

5. The economic benefits and costs of the recommended plan is presented in Chapter 6 of the document, as well as in Appendix D, ECONOMICS, and Appendix K, COST ESTIMATING.

6. The benefits and costs of the ecosystem restoration features are presented in Chapter 6 of the document, and in Appendix F, ENVIRONMENTAL RESOURCES, and Appendix K, COST ESTIMATING.

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7. 7. Your failure to cover adequately the environmental losses that swales and levees would inflict, including a rookery of thousands of herons and egrets of at least six species which might be impaired by the Trinity Flooway Extension Project.

8. 8. Your failure to cover the methods and values of voluntary buyouts and relocations of landowners in areas of floodplain risk, even if they do not yet all agree, before analysis, to sell on terms mentioned in advance, or of final EIS.

DISCUSSION

1. FAILURE OF THE DEIS TO PRESENT FACTUAL, RATIONAL BASIS FOR REJECTION OF VOLUNTARY BUYOUT ALTERNATIVE.

In his opening comments at the June 9 public hearing, Colonel James S. Weller indicated an underlying assumption for rejecting the voluntary buyout alternative. He said that the Corps would not accept a structure-by-structure buyout. We request a copy of that statement in full. Many factors are involved:

9. a. Total willingness of landowners to sell should not be a prerequisite to a buyout program.

At the early occasion when a community or agency decides upon a buyout program, not all of the landowners may feel willing to sell. The exact compensation for acquisition and relocation may not be known. A landowner may not yet realize the pros and cons of living on in a partially abandoned community. A landowner may not yet know the availability of and desirability of housing or other land outside the floodplain. The community government may be able to encourage potential sellers by

7. Environmental losses attributable to the project proposals have been documented. Information related to the rookery that the Cadillac levee was alignment to miss, has been included in the final EIS.

8. See response to comment #1 on page N - 13.

9. Federal participation in a buyout plan is predicated upon economic feasibility of such a plan. The stand-alone, non-structural buyout plans investigated in this study did not show economic feasibility; therefore, Federal participation is not warranted.

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educational methods, as did the City of Tulsa in its successful Mingo Creek Project.

10. b. For the Army Corps to impose a prerequisite that all landowners in a program must agree to sell in advance would be certain to eliminate numerous communities from federal cost-sharing in spite of the outstanding federal benefits for adopting voluntary buyout programs over outmoded levee or other construction projects in floodplains.

11. c. Total acquisition of all lands is not essential to a viable buyout program. Some landowners can remain on site without eliminating the superiority of converting the area, in general, to parkland. Even in Dallas, an example of incomplete acquisition is Roosevelt Heights, a floodplain that once caused frequently repetitive flights from floods. There, three landowners persisted in remaining when everyone else had moved to higher ground. The City of Dallas has not done all it could to induce the remaining landowners to sell; nor to utilize the predominantly open space as parkland; but still, the advantages of sparing many people from flooding have been tremendous.

12. d. As for the citizen-proposed voluntary buyout in Cadillac Heights, near the Trinity River, a substantial percentage of landowners are anxious to sell at a reasonable price plus relocation costs. Those who do not yet agree to sell (no price having been given to them) are mostly on relatively high ground, near the 100-year flood level, where no flood has reached them in the 30 years or so that they have lived there. As occurred in Tulsa, they may choose to remain on site for a while, and then decide to sell. Meanwhile, the costs to the City

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10. See response to comment #9 on page N - 307.

11. See response to comment #9 on page N - 307.

12. See response to comment #9 on page N - 307.

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of maintaining their streets in present condition, and maintaining garbage and other services, would hardly become large enough to undo the advantages of not having to construct levees, and to pay for insurance and other damages that might still occur if all the residents were given no opportunity to sell, and floods strike the area in spite of the proposed new levees.

13. e. In Cadillac Heights, a majority of the voters in the 1998 City bond election voted against Proposition 11, the Trinity levee and swale proposition. This result further supports a poll that we made in the community that a majority, if not all, of the landowners would sell at a reasonable compensation.

14. f. Dallas should offer reasonable compensation for the costs of relocation, including moving and purchase of comparable housing on higher ground. In the bond campaign, some of the advocates of swale and levee construction claimed that City ordinances do not provide for such compensation. Even if so, that could be changed by a vote of the City Council or the people. It would be fair and beneficial to the City and to residents and owners in other floodplain communities where floods cause damages.

15. g. It would be unwise to claim that these considerations have been foreclosed by the Dallas bond election of May 2, 1998. The vote for Proposition 11 was only 1.56% above the vote against. Besides, the advocates, some of whom would profit by building swales and levees, or by constructing business buildings behind the proposed levees, raised more money for their campaign than did the citizens who opposed the issue. Furthermore, the

13. See response to comment #9 on page N - 307.

14. See response to comment #9 on page N - 307. As stated previously, the Dallas City Council stated in October 1996 that acquisition of structures in Cadillac Heights would not be considered further.

15. See response to comment #9 on page N - 307.

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Dallas Morning News and the other advocates of Proposition 11 failed to provide fair coverage of the reasons for taking the more modern approach of non-structural floodplain management.

16. h. Although the Galloway Report, at page 86 and elsehwere, pointed out the bias of Army Corps computations of benefits and costs for non-structural approaches, and recommended a review, and although Congress, in 1986, called for such a review of Corps methods, the Corps has failed to provide an adequate review, and has persisted in its outmoded techniques in the Trinity DEIS.

i. Attached are p. 23 of Corridor Wide Flood Damage Reduction adopted by Dallas City Council in May, 1995, and pages 1 and 2 of Attachment B - Area 3, both items approved by consensus by the Trinity River Corridor Citizens Committee established by Mayor Steve Bartlett, City of Dallas.

j. The DEIS has failed miserably to cover any or all of these points.

Edward C. Fritz, Spokesperson for the three addressees

16. Until incorporated as implementation guidelines by Corps Headquarters, recommendations from the Galloway Report do not constitute modifications to the regulations by which the Fort Worth District is mandated to conduct economic analyses.

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ATTACHMENT B - AREA 3

PROPOSAL AND RECOMMENDATIONS FOR VOLUNTARY RELOCATION AND BUYOUT PROCEDURES FOR RESIDENTS AND BUSINESSES IN THE FLOOD PLAIN

The City of Dallas should develop and offer a voluntary buyout and relocation program as a viable option to use in reducing the danger of flooding and flood damages in the flood plain outside of the levee system. Through offering a voluntary relocation program to residents and businesses whose property is identified as at risk of or having flooded, the City could:

- provide decent and safe housing and business facilities to residents and business owners whose properties have been repeatedly flooded; and
- revitalize existing residential and business areas outside the flood plain through the voluntary relocation of residents and businesses that are already in the flood plain.

Voluntary Relocation Program

The City of Dallas should develop and make available to the public comprehensive procedures for notifying affected residents and businesses about the voluntary relocation program and their eligibility for it. This notification should include written notice in both English and Spanish to all property owners, private residences, apartments and businesses in the area, community public meetings, posting of signs in the neighborhood, and bilingual notices in area newspapers and radio/TV. Notices should also be posted in public facilities, such as libraries and recreation centers, and in other suggested locations.

If residents choose to relocate from areas flooding, funds should be provided to preserve significant historical and cultural locations identified by the community. A community support program, including assistance with changing school districts, obtaining business permits, or other problems, should be developed and offered to those choosing to relocate. Currently owned and/or occupied residential and business property taxes should be frozen at the current rate in areas targeted for revitalization until the property changes ownership or occupancy or for a set period of time.

Voluntary relocation program, funded either totally or in part by a City of Dallas bond sale, should include several options for both owners and renters of property that floods or is in the floodplain.

Property owners should be offered:

- Financial incentives and payment for the relocation of existing structurally sound property either within the same neighborhood or to another neighborhood out of the floodplain;
- Financial incentives and payment of a fair market price, based on comparable properties outside of the flooded areas, for purchase and demolition of properties that are not structurally sound, to enable individuals to purchase comparable properties outside of the floodplain.
- Financial incentives, including property tax abatements, low interest loans and/or grants to individuals wishing to relocate to encourage the purchase and renovation of existing housing and business properties in targeted neighborhoods and areas outside of the floodplain;
- Funds for the purchase and renovation of both privately and publicly owned residential and business properties, including those owned by the City of Dallas, FDIC, or other government agencies, in targeted neighborhoods.

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Texas Committee on Natural Resources
4144 Cochran Chapel Road
Dallas, TX 75209

Dallas Group, Sierra Club

Dallas County Audubon Society

August 11, 1998

I. The Draft EIS fails to address adequately the impacts of the projects on old-growth and re-growth forests, plants, animals, and related recreation, and on aquatic life. Examples include:

1. A. Ruination of natural river life in the new channel proposed for relieving the error in constructing the I-45 bridge under the biased concept that citizens would support canal construction under a different part of the I-45 bridge.

2. B. Ruination of the forest along a new channel and both banks of the existing channel to alter the course of the river under I-45 bridge.

3. C. Subjection of the remaining forest to increased disasters from winds as a result of narrowing the forest by digging a 300-500 foot wide swale (mainly the upper section) through the already narrowed forest. Even the avoidance of some old-growth forest between the swale and the river would leave the remainder more subject to wind impact.

4. D. Same as C except change wind impacts to floodwater flow impacts.

5. II. The Draft EIS fails to consider the impacts of the projects on many species of animals, particularly those with deep-forest habitats. Some of these species are the Red-shouldered hawk (which nests there), the species of thrush (which nest there, winter there, or migrate through), the ring-tailed cat, and the beaver. Many species do not recover from the loss of forest,

1. Impacts of project proposals have been addressed in FEIS.

2. Impacts of project proposals have been addressed in FEIS.

3. Trees growing in flood plain situations are always subject to extreme conditions. There is little evidence of wind throw along the edge of the forest within the area now. In addition, should a storm damage portions of the remaining forest, the land would still be managed for forest and regeneration would proceed as in any managed forest situation.

4. The construction of the project features as proposed would not increase velocities through the remaining woodlands sufficient to cause measurable impacts or inordinate tree losses.

5. Analysis of potential impacts to wildlife habitat in the project area was performed in coordination with the U.S. Fish and Wildlife Service using procedures consistent with the forested habitat within the project area. The procedures used models for several species that are representative of the wildlife populations inherent to the forested areas that would be impacted

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even where trees are planted for mitigation. The loss of such species has severe impacts on humans, as well as the general environment, because the Great Trinity Forest is attractive to many humans for observing deep forest species.

You cannot adequately mitigate for loss of species by increasing other species, such as ducks.

6. III. The Draft EIS fails to provide ways to save key biotic communities such as the Cadillac Heights rookery.

The EIS fails to discuss key wildlife and plant communities outside, as well as inside the floodplain. An example is the rookery alongside Rector Street on private property in Cadillac Heights. This rookery is inhabited by thousands of egrets and herons of many species. It is in danger of serious impairment by private tree-cutting, poisons in the existing soils nearby, and by other causes, human and inhuman. The project proposes a levee near or through the rookery. EIS fails to provide for protection of the rookery. Protection solutions include acquisition by the public and measures to prevent any impairment.

Hundreds of the birds were killed by poisonous substances in the soil in July, 1998. Some of us observed about 50 of the dead and dying birds in one morning. Numerous others died.

7. IV. The EIS fails to discuss the increasing volume of floodwaters throughout the world, including China this year, because of global warming and other natural causes.

8. V. The EIS fails to consider and to ensure environmental justice.

Cadillac Heights and other communities involved in the project include minorities, both Hispanic and African-American.

N-

6. While there may be other threats to the rookery from others, the proposed alignment of the Cadillac levee would avoid the rookery as it currently exists. Should the rookery expand into the area of the proposed construction, the alignment will be reevaluated, and if not possible to relocate to avoid, construction would be limited to the non-nesting period as recommended by the U.S. Fish and Wildlife Service.

7. The hydrologic analysis was conducted using procedures described in Appendix A, beginning on page A-2.

8. The project is in compliance with the Executive Order dealing with Environmental Justice.

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e project tai s to provide fair consideration for them, that is an option for landowners to sell for a reasonable market value plus cost of relocation. If new levees are buit, the community will be further infiltrated, or dominated, by business structures.

9. Also, the EIS fails to remedy the presence of poisons in the soil, including lead and chromium. There is little point in providing a new levee without providing protection from poisons. The same applies to bad odors from nearby meat rendering plants.

10. VI. The DEIS fails to present adequate quantification of the benefits of a non-structural alternative to the protection of natural floodplains of the Trinity. The DEIS fails to present quantification of the losses resulting from further development and deprivation of the floodplain.

The Galloway Report, at pages 85-87, calls for better methods of quantification. Congress in 1996 directed the Army Corps to review its methods of assessing such benefits and losses. The DEIS fails to reflect such advances.

In May, 1997, Nature Magazine, Robert Costanza and other scientists and economists assessed minimum values for floodplains and other ecosystems, the value of the world's ecosystem services and natural capital. This approach is widely acclaimed. The EIS should apply it to the Trinity River Project.

11. VII. The DEIS fails to assess adequately the losses as a result of having structures in floodplains, even if behind levees.

The book, Higher Ground, published by the National Wildlife Federation, 1998, shows losses which the DEIS fails to consider,

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9. Removing lead, chromium and any other metals is not a project purpose.; however, project implementation would be done in a manner so that the metals would not be increased or introduced into adjacent areas causing increases in concentrations.

10. Recommendations for various methods of analyses do not constitute modifications to the regulations by which the Corps is mandated to conduct economic analyses.

11. The analyses contained in the draft GRR/EIS were conducted in accordance with current Federal policies and regulations. See response to comment #10 page N - 314.

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and points out advantages of buy-out approaches. The EIS should discuss these aspects.

VIII.To the extent they do not conflict with our comments, we
12. adopt the following comments sent or being sent to you or attached hereto:

1. Michael Daniels.
2. Dr. Campbell Read.
3. Texas Committee on Natural Resources by James Blackburn.
4. Dallas Observor, August 6, 1998, by Jim Schutze.
5. Tim Dalbey.

Edward O. Fritz David Gray Dr. Campbell Read

12. Your concurrence with the comments of these individuals and organizations is noted.

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FROM : Panasonic FAX SYSTEM PHONE NO Jun. 09 1998 05:56PM

To. The U.S., Army Corp of Engineers
Fort Worth Texas 76102-0300

From Roy Williams June 9, 1998
Dallas Texas 75248

"Working almost non stop since the 1st of January, the U.S. Army Corps of Engineers has restored the levees from Fresno to Chico and along the North Coast from Del Norte to Santa Cruz damaged in January 1997 during rains. Over 55 contracts were awarded to repair these levees."
This is a quote from a news release on Dec. 2, 1997 from The U.S. Corps of Engineers and California Dept. of Water Resources NEWS

In another Associated Press article concerning the damage to California ,Governor Pete Wilson said "after loo g at many counties and their levees, the preliminary damage estimates have hit $775 million"

An Associated Press Article in The Illinois News from Feb.26, 1997 relates:
Businesses in the Rock River hamlet of Cleveland are shattered. The roads were submerged under several feet of water. And many of the residents who refuse to flee are living in the upper floors of partially submerged homes.
"The out look is certainly not good now," said Darrel Park, emergency services coordinator for Northwest Ha County.

The Mississippi River tributary broke through a SECOND LEVEE about 20 miles upstream and up to 150 residents were urged to leave their homes. The Levee was too far gone to fortify with sand bags. "We would have to put up an 8 foot wall of sandbags. The way the water's going through there, you could never begin to stop it," said K.B.Melton, fire chief of the city

From his paper entitled *FLOOD PLAINS, LEVEES, and the GREAT BASIN*, Dr. Harold Breimyer, Professor Emeritus in Agricultural Economics at the University of Missouri maintains,

"A few basic principles are easily set forth. One is that water in excess cannot be made to disappear. A city can build levees to keep water in and, supposedly, out of the area being protected. But it will go somewhere, perhaps cresting over a downstream levee or gushing pre-existing or newly SELF CREATED FLOOD PLAINS And the more levees that are constructed, the more certain it is that they will prove inadequate in a future year of excess water"

I could go on giving examples and expert opinions on the destruction from damaged levees, but my main concern is with the residents of Cadillac Heights. The leadership of Dallas has ignored the mostly poor and minority residents who were forced to live in Cadillac Heights by laws of the 1940's that supported segregation.

1. The Trinity River Project has a price tag of $246 million. be proposal will spend $54.7 million to build new levees, supposedly to protect Cadillac Heights and Lamar St. As we already know from experience this will not protect them.

2. Another concern I have is the toxic soil already in that area as well as the contaminated dirt dredged up from the swale to make the levees
Who will assure these families that the toxic dirt placed from the levee site will not injure their or their children's health

Thank You,
Roy Williams

1. Because no plan can guarantee 100% protection from a catastrophic flood event, the analyses conducted must compare the probability of a certain event occurring to the costs and benefits of protecting against such an event. The levee alternatives were developed and analyzed according to current Federal policies and guidelines regarding risk and uncertainty of overtopping to derive the plan providing the maximum net annual benefits.

2. Extensive coordination with the Texas Natural Resources Conservation Commission (TNRCC) and the Environmental Protection Agency (EPA) have been pursued, and will continue through construction, to ensure adherence to all applicable laws and regulations regarding excavation, transport, and disposal of hazardous and toxic materials.

June 9, 1998
7228 LaSobrina Dr
Dallas, Tx 75248

US Army Corp of Engineers
P O Box 17300
Fort Worth, TX 76102-3000

Subject: A BETTER WAY FOR THE TRINITY

The current plan for levees along the Trinity River is unbelievably short sighted.

1. - If roads are built inside the levees, they will be impassable in the event of a flood. They will be expensive to clean after a flood.

- Levees are ugly. Haven't you even driven outside the levees along the Mississippi River? All you can see is a dirt hill. Do you really want this for the city of Dallas? Not a good idea.

Please rethink the entire concept. I favor a series of small lakes and no toll roads.

Thank you,

Richard Guldi

1. The GRR/EIS does not contain recommendations for a tollroad within the levees. This possibility is being considered by the City of Dallas, the Texas Department of Transportation, and the North Texas Transit Authority. The recommendation for levees is based on the net annual economic benefits which would be derived from this plan, in accordance with current Federal policies and regulations. You recommendation for a restudy is noted.

09 June 1998

RE: General Reevaluation Report and Integrated Environmental Impact Statement

Public Meeting statement to the U.S. Corps of Engineers

Thank you for allowing me the opportunity to speak.

My name is James D. Flood.

I own a home less than five miles from the Trinity River in the SE sector of the city of Dallas.

1. I will submit additional comments at a later time , but would like to say at this time that I adopt the comments of the Dallas TCONR group, the Lone Star Chapter of the Sierra Club, and the Dallas County Audubon Society.

2. I would also like to comment, at this time, on the plight of many of the long time residents of Cadillac Heights. The Dallas Floodway Plan to build a levee around part of that neighborhood and not implement a fair and just voluntary buyout program is to condemn those minority citizens to additional hazards due to pollution and a virtual stab-in-the-back sellout by industrialization. The Cadillac Heights levee is nothing short of ghettoization by taxpayer dollars and a backward-thinking flood control plan and is the final insult to what little dignity is left of those residents in that polluted floodplain.

Thank you.

Sincerely,

James D. Flood

James D. Flood
221 S. Acres Dr.
Dallas, TX 75217-7803

1. Your concurrence with the comments of these organizations is noted.

2. The economic analyses of stand-alone non-structural buyout options, as presented in the GRR/EIS, shows that these alternatives are economically infeasible, or provide minimal net annual economic benefits; therefore, Federal participation would not be warranted.

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4/30/2009

August 10, 1998

Gene Rice
U.S. Corp of Engineers
Project Manager
CESWF-PM-C
P.O. Box 17300
Ft. Worth, TX 76102-0300

Dear Mr. Rice

T is etter is in response to the Environmental Impact Statement issued by the Corps concerning the Floodway Extension Project in Dallas, TX.

My major concerns are the following:

1. Outdated and insufficient analysis.

2. Violations of the Clean Water Act, Clean Air Act and the National Environmental Policy Act and the Clean Air Act.

3. Inadequate economic values placed on riparian habitats and impact on quality of life.

4. Planned inundation of Hatcher Street.

5. Lack of full disclosure of secondary impacts such as White Rock Creek and Floral Farms.

6. The use of words like "previously disturbed historical sites" - all historical sites would be protected whether they have been "previously disturbed" or not.

7. The lack of committment for funds as promised to Dallas voters in the Dallas Bond Proposal for purchase of lands in the Great Trinity Forest Park in Dallas.

8. The lack of committment to recreation funds in the floodway extention area.

9. The proposal to reduce the trails from 12½ feet to 10 feet and pave with asphalt instead of concrete.

10. The lack of an environmentally friendly solution to the problems of home owners in Cadillac Heights.

11. The possible disruption of the Egret/Heron Rookery on both sides of Rector road.

12. The alledged "protection" of chemical plants and polluting packing houses which should be moved out of reach of the ential floodin .

1. The analyses conducted provided a means by which a comparison of alternatives could be made to determine the Recommended Plan, in accordance with current Federal policies and guidelines. Upon approval of the report, further investigations and design efforts will be performed to develop plans and specifications based on updated data.

2. Subsequent to the release of the draft GRR/EIS, further coordination with state and Federal agencies have concluded that all plans are in full compliance with these Acts.

3. It has been the Corps experience that use of non-monetary analysis such as the U.S. Fish and Wildlife Services' Habitat Evaluation Procedures provides a means to give equal consideration to the values of and the project alternative impacts to riparian habitats.

4. Inundation of Hatcher Street has not been "planned". Inundation of Hatcher Street will occur in the event of an approximate 140-year flood under existing conditions without implementation of the Recommended Plan. Inundation of the portion of Hatcher Street that is north of U.S. Hwy 175 will occur in the event of an approximate 500-year flood with the Recommended Plan in place. The portion of Hatcher Street that is south of U.S. Hwy 175 will be protected from the SPF flood event by the Recommended Plan.

5. See response to comment #61 on page N - 41.

6. Typically, the use of the notation that a site has been previously disturbed denotes that the research value (data capability) has been diminished or eliminated by such disturbance. If an archeological site can no longer produce sufficient data, then it is generally no longer eligible for the *National Register of Historic Places* and does not need to be considered further for either protection, preservation, or mitigation measures.

7. The GRR/EIS recommends acquisition of mitigation lands in the study area for the DFE project. However, it must be remembered that the DFE project is only one of several projects approved by Dallas voters on May 2, 1998. Of the $246 million approved for Proposition 11, $41.8 million was included for the Great Trinity Forest.

8. The GRR/EIS recommends a recreation plan for the DFE area, as described in Chapter 6 and in Appendix I, RECREATION. However, as stated in the "UNRESOLVED ISSUES" section of the Syllabus, this plan is subject to further analysis and review to determine the optimum plan, which will determine the level of Federal participation. Additionally, until a Project Cooperation Agreement is signed following the preparation of plans and specifications, neither the Federal Government nor the City of Dallas is committed to the expenditure of funds for this project.

9. A Value Engineering study is scheduled for the next phase of design which will entail an analysis of the entire recreation plan to determine the optimum implementable plan.

10. The recommended plan, as presented in the GRR/EIS, was derived in accordance with ent Federal policies and guidelines.

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Page 2S Comments - Joanne Hill:

13. Ten spending of $126 Million dollars on "flood protection" which would actually provide minimal objectives to the area.

14. The ommission of an analysis of the impact a proposed "parkway" would have in this area which is schedule to be built on the levee.

15. The conflicting alignments for all the Cadillac Heights levee proposals.

16. The environmental justice issues which are raised by ringing an already polluted community with a levee condemming residents to live in an area zoned industrial leaving them at the mercy of developers who will be able to buy their properties at pennies on the dollar. The area, of course, is Cadillac Heights.

17. The possibility that livestock would be left on the river side of the levee in Cadillac Heights and moved through flood gates when the Trinity rises. Livestock and chemical plants have no place on the edge of any river.

18. Inadequate evaluation of historical and cultural preservation sites.

19. The abandonment of Sargeant Rd. which cuts off access of residents to local parks, Loop 12, I45 and 175.

20. The granting of a waiver for the Corridor Development Certificate which would undermine years of regional planning and violate the "Common Vision Plan".

21. The lack of a master plan which would show how individual pieces fit together and impact areas both upstream and downstream.

22. The lack of inclusion of all affected Native American Nations and tribes.

Joanne Hill
4518 Ridge Rd.
Dallas, TX 75228
214/353-9984

P.S. 23. The piping of water from the Waste Water Treatment plant into Cedar Creek.

11. See responses to U. S. Department of Interior's comment #7 on page N - 350 and Texas Parks and Wildlife Department's comment #4 on page N - 346.

12. Your concern an opinion is noted, however the non structural analysis conducted by the Corps does not support federal action to remove all the commercial structures in the project area.
13. As shown on Tables 6-5 and 6-6, the recommended plan provides positive net annual economic flood control benefits, meaning that the annual economic flood control benefits exceeds the annual economic flood control costs.

14. Cumulative impacts of reasonably foreseeable projects have been included in the final GRR/EIS.

15. Several alignments for the Cadillac Heights Levee were investigated during the plan formulation process. The Recommended Plan includes the recommended alignment.

16. The project as proposed is in full compliance with the Executive Order on Environmental Justice.

17. Under without-project conditions, the livestock and chemical plants would remain in their current locations. Implementation of the proposed project would provide added protection to these elements.

18. Continued evaluation of historic and cultural sites will be performed during the next detailed design phase, and construction activities will be monitored to minimize or mitigate impacts to these resources.

19. Access to these areas would not be eliminated but may necessitate some additional travel time and distance by some residents.

20. See response to comment #7 on page N - 21.

21. The GRR/EIS constitutes a Master Plan is so far as the DFE study area is concerned because of the many interrelated parts. See also response to comment #1 on page N - 18 and response to comment #103 on page N - 48.

22. All Native American Indian tribal authorities and groups with historical associations to the region, including the Caddo Tribe of Oklahoma, the Comanche Tribe, the Tonkawa Tribe of Oklahoma, and the Wichita and Affiliated Tribes, were provided information letters in October, 1997, and were asked to initiate consultation on any issues of significance. The referenced tribal authorities have also been provided an opportunity to concur with the October 8, 1998 Programmatic Agreement (PA) prepared as part of the Section 106 (*16 United States Code (USC) 470f*) of the *National Historic Preservation Act of 1966, as amended*) consultation for any archeological properties which may be impacted by the proposed undertaking.

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4/30/2009

Mr. Cesar T. Rice, Jr.
Project Manager
U.S. Army Corps of Engineers
Fort Worth District, CESWF-PM-C
P.O. Box 17300
Fort Worth, TX 76102-0300

Loyd Gordon Bassett II
3010 Honeysuckle Drive
Garland, TX 75041

Dear Sir:

1. I would like to give my input regarding the trail recommendations along the southern Trinity River corridor. In my opinion, the current plan there is too little trail dedicated to mountain bike use. I would like to have a shared use policy that is similar to Cedar Hill. Thank you.

Sincerely,

Loyd Gordon Bassett II

1. A Value Engineering study will be performed during the next phase of detailed design to determine the optimum implementable recreation plan. Your recommendations are noted.

5221 Whispering Oaks Dr
Dallas TX 75236
August 11, 1998

Gene T. Rice JR, Project Manager
US Army Corps of Engineers
PO Box 17300
Fort Worth TX
76102-0300

Re: GRER/EIS Dallas Flood-Way Extension Project

1. I generally support the comments of the Texas Committee on Natural Resources, the Dallas Lone Star Sierra Club and the Dallas Audubon Society concerning the reference project. These comments have been furnished to you previously.

However, I want to add some personal observations of my own. My home and my place of employment are on opposite sides of the Trinity River. Therefore, I cross the river at least twice each work day. Having done this for almost 10 years I have seen the river flood, block many highways and ruin homes. I have seen it as a mere trickle with a few stagnant ponds much as it is now. I keep wondering what, if anything, can be done to improve this situation.

2. The Dallas Flood-Way Extension Project proposes many alterations to the river channel and freeways (or toll roads) in or near the flood plain. Recent weather phenomena and continuous physical changes proposed for the drainage basin call all of this into question in my opinion. Here is why.

3. • Parks inside the levees downtown. Who wants to use a park closed in by high speed travel arteries on each side? What about the constant noise; the ever present exhaust fumes, pollutants washed into the river with each moderate rainfall, disease sources? I certainly will not take my grandchildren there to play.

4. • The proposal suggests upstream fresh water will be used to flush the lakes after a runoff. Considering the state is in the midst of a major drought and heat wave with many cities enforcing water conservation, is this really practical? I'm aware of pump capacity issues etc., but public relations will dictate that this flushing not be done. It's a waste of fresh water anytime.

5. • As more of the drainage basin is paved, more water will come down the river faster in major rainstorms. More investments on property near the river will give rise to more protection and/or reimbursement. Requests. This process will feed on itself.

1. Your concurrence with the comments of these organizations is noted.

2. The GRR/EIS contains no recommendations for freeways (or toll roads). This possibility is being considered by the City of Dallas, the Texas Department of Transportation, and the North Texas Tollway Authority. Furthermore, the only channel modification proposed in the GRR/EIS would entail realignment of the river at the IH-45 bridge.

3. The GRR/EIS contains no recommendations for parks within the existing Floodway, near downtown.

4. The GRR/EIS contains no recommendations for lakes. The only pumping of water proposed in the document would involve utilization of treated effluent from the Central Wastewater Treatment Plant to maintain the functionality of the proposed wetlands during times of low flow in the Trinity River.

5. Impacts of construction upstream of the study area will be reviewed and minimized by the Corridor Development Certificate (CDC) process and the Record of Decisions (ROD) signed in 1987.

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6. The travel arteries inside or on the levees will absorb some of the current downtown congestion. However this area will flood. Its not a matter of if it will flood. It is a question of how much, how often and for how long. The consummate frustration and repair expense staggers the imagination.

7. As a Professional Engineer working in telecommunications I will leave the technical evaluation of the aforementioned issues to those more qualified. However, as a practical person with a science and technology background, the Dallas Flood-Way Extension Project does not make sense economically or socially and it does not appear to be a long term solution to anything.

Ralph G. Yoas, PE
972-283-9159

cc: Texas Committee on Natural Resources
4144 Cochran Chapel Rd
Dallas TX
75209-1504

6. The GRR/EIS contains no recommendations for travel arteries inside or on the levees. This possibility is being considered by the City of Dallas, the Texas Department of Transportation, and the North Texas Tollway Authority.

7. The analyses presented in the GRR/EIS were conducted in accordance with current Federal policies and guideline. The recommended plan is shown to have net annual economic benefits and is in compliance with applicable National Economic Policy Act requirements.

Green[illegible]

Thanks for the copy of the GRR/EIS. You all have done a lot of good work. I think most of it will serve us all well, though I don't agree with some of the major decisions on what to do. My hope is that out of all this effort and contending will come a substantial broad consensus that will have us all working effectively toward long term goals that we all will agree upon and be proud of.

Sincerely,
Vince Hendricks

N - 324

KELLY, HART & HALLMAN
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TELEPHONE (817) 332-2500
TELECOPY (817) 878-9280

July 9, 1998

Mr. Gene T. Rice, Jr. (CESWF-PM-C)
U.S. Army Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

Re: Draft GRR/EIS – Dallas Floodway Extension Project

Dear Mr. Rice:

1. The following comments are submitted on behalf of Dr. Robert F. McFarlane, the owner of certain property in Anderson County, Texas, known as the Big Woods on the Trinity, in response to the *Notice of Availability of the Draft General Reevaluation Report and Integrated Environmental Impact Statement for the Dallas Floodway Extension Project* (draft GRR/EIS) filed in the Federal Register on May 15, 1998. The purpose of these comments is to identify a cost-effective downstream mitigation alternative that was not formally evaluated by the U.S. Army Corps of Engineers (Corps) in the draft GRR/EIS.

GRR/EIS Evaluation of Downstream Mitigation Alternatives

Appendix F of the draft GRR/EIS (relating to "Environmental Resources") contains an analysis of various downstream mitigation alternatives. The draft GRR/EIS substantially relies upon a prior U.S. Fish & Wildlife Service (F&WS) inventory of lands within the Trinity River Basin in determining the availability of downstream mitigation alternatives for further evaluation (GRR/EIS, p. F-34). The draft GRR/EIS then evaluates the cost-effectiveness of five of the sites identified in the previous F&WS inventory (GRR/EIS, p. F-35) and concludes that mitigation in the immediate project area is justifiable and appropriate because the long-term operational and maintenance costs associated with downstream alternatives will overcome the benefits of lower initial acquisition cost (GRR/EIS, p. F-38). The primary factor cited by the Corps as increasing the long-term costs is the need to maintain an observable physical presence on-site over the life of the mitigation project (GRR/EIS, p. F-37)

The F&WS inventory of lands relied upon by the Corps in determining the availability of downstream mitigation alternatives is the May, 1992, *Planning Aid Report on the Fish and Wildlife Resources of the Lower Trinity River Basin, Texas* (Lower Trinity Survey). The Lower Trinity Survey, in turn, appears to rely upon a 1985 inventory of priority bottomland hardwood sites. Three of the five downstream areas identified in the Lower Trinity Survey and evaluated for cost-effectiveness in the draft GRR/EIS are located within Anderson County, Texas (*i.e.*, the 9,446-acre "Big Lake" site, the 1,510-acre "Confluence of Catfish & Beaver Creeks" site, and the 921-acre "Hagen Bottoms" site). A fourth downstream alternative in Anderson County was

1. The recommended mitigation plan, as presented in the GRR/EIS, and as desired by the local sponsor, Environmental Protection Agency, U. S. Fish and Wildlife Service, Department of Interior and several other commenters includes acquisition of mitigation lands within the immediate study area. The information contained in you enclosures will be maintained for reference should any additional analysis become necessary in the future.

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identified in the Lower Trinity Survey (*i.e.*, the 8,601-acre "Boone Fields" site), but it was not evaluated for cost-effectiveness in the draft GRR/EIS.

In rejecting the downstream mitigation alternatives based on a lack of cost-effectiveness, the GRR/EIS states:

> "It needs to be made clear that the information developed to compare the cost efficiency of acquiring potential mitigation lands downstream within the Middle Trinity Basin as opposed to acquiring the lands jointly evaluated by the Corps and the U.S. Fish and Wildlife Service and recommended by the U.S. Fish and Wildlife Service, is based upon review of existing information documented during the Lower Trinity River study and does not reflect the degree of technical precision that was obtained during detailed studies of the lands recommended by the U.S. Fish and Wildlife Service. The actual management (tree planting, thinning, fencing, number of nest boxes to be provided) may vary substantially, however, these needs and their subsequent costs cannot be determined without detailed on-site evaluations including field data for the Habitat Evaluation Procedures." (GRR/EIS, p. 36 - 37).

It is apparent from the GRR/EIS that the Corps would welcome additional information regarding the availability and cost-effectiveness of downstream mitigation alternatives. One such alternative is the Big Woods on the Trinity in Anderson County.

Big Woods on the Trinity

The Big Woods on the Trinity is owned by Dr. Robert F. McFarlane and spans approximately 4,500 acres along the Trinity River in Anderson County (see enclosed project map). Much of the Big Woods on the Trinity coincides with the "Boone Fields" bottomland hardwood preservation site identified in Appendix B of the Lower Trinity Survey. Several other Appendix B priority bottomland hardwood sites (*e.g.*, Big Lake site, Catfish and Beaver Creeks site, Hagen Bottoms site, and Tehuacana Creek site), as well as several Appendix C existing wildlife management areas (*e.g.*, Gus Engling Wildlife Management Area, Richland Creek Wildlife Management Area, and Big Lake Wildlife Management Area), are in close proximity to the Big Woods on the Trinity (see enclosed area map).

The basic habitat types include both upland and bottomland forests interspersed with sloughs, oxbows, and a variety of emergent wetlands. The topography of the land is quite diverse, since it was formed from actions of the Trinity River. The northeastern upland sections include old river beds, banks, and bottoms resulting from a millennia of river course changes. The southwestern bottomland section lies within the current floodplain of the Trinity River.

The soils in the Big Woods on the Trinity are also of extreme variation, again due to the action of the Trinity River. The floodplains are fairly uniform blackland clays, but the central and northern sections are a mixture of clays, loams, and almost pure fine sands.

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Bottomland communities along the Trinity, such as those found in the Big Woods on the Trinity, are considered by the Texas Parks and Wildlife Department to be some of the highest quality and most productive wildlife habitats in Texas. A variety of wildlife species are present including white-tailed deer, numerous fur bearers, and birds. Waterfowl are seasonally abundant, and the area provides shelter and resting sites for numerous neotropical migratory birds.

Mitigation Bank

One of the primary objectives of Dr. McFarlane is the restoration and enhancement of bottomland communities in the Big Woods on the Trinity. Mitigation banking is viewed as a principal means of achieving this objective, and Dr. McFarlane is currently developing the Big Woods on the Trinity Mitigation Bank (BWTMB) with the expert assistance of Mr. Terry Anderson of Advanced Ecology, Inc., in Center, Texas. A proposed Site Development Plan and draft Memorandum of Agreement will be completed during July of 1998.

The initial phase of the BWTMB will consist of 412 acres adjacent to the Trinity River on the west side of the property. The long-term objectives of the BWTMB are to restore and enhance the functioning of selected wetland processes and to restore and sustain a vegetative community that closely approximates the native, self-sustaining plant communities previously associated with the pre-settlement Trinity River floodplain. The natural resource management approach includes restoring and sustaining such floodplain plant communities as mature bottomland hardwoods, mixed bottomland hardwoods and prairie savannahs, and herbaceous marsh complexes. The lands will be protected by appropriate deed restrictions and conservation easements to ensure their long-term development and continued status as natural ecological areas.

The initial 412-acre BWTMB is a portion of a much larger land base and natural resource management project. Other areas within the Big Woods on the Trinity are currently being utilized for individual off-site mitigation projects. For example, Pinnacle Gas Corporation is preparing a 50-acre mitigation site, and Texas Utilities is negotiating authorization to develop additional portions of the property. Up to 2,500 additional acres of bottomland habitat are currently available for future mitigation projects. These may be utilized either as individual projects within the Big Woods on the Trinity or formally appended to the proposed BWTMB.

Cost-Effective Mitigation Alternative

The Big Woods on the Trinity has the strong potential for habitat improvement that is necessary to provide some, if not all, of the mitigation needed for the Dallas Floodway Extension project. Extensive evaluation of the existing habitat has been conducted in support of the current owner's efforts to develop individual mitigation projects and to establish the proposed BWTMB. The Corps and F&WS are strongly encouraged to contact Mr. Terry Anderson with Advanced Ecology, Inc. to obtain any field data or other information that may be necessary to further evaluate the habitat potential of the Big Woods on the Trinity.

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Although portions of the Big Woods on the Trinity are located within an area previously identified by the F&WS in the Lower Trinity Survey, the Corps did not formally evaluate the property prior to concluding in the draft GRR/EIS that downstream mitigation alternatives are not cost-effective. In contrast to the conclusion reached in Appendix F of the draft GRR/EIS, it is fully expected that the Annual Cost/AAHU Gain associated with acquiring and developing land in the Big Woods on the Trinity would not exceed $ 2,500.00 *inclusive of* the labor and materials necessary to prepare the site, establish the mitigation forest, provide protective fencing, and place nesting boxes. The anticipated cost is not only substantially less than that presented in the draft GRR/EIS for the downstream alternatives evaluated by the Corps, but it also includes expense items specifically excluded from the Corps' cost-effectiveness analysis (GRR/EIS, p. F-36).

As a result, the projected cost to provide the entire 1,135 acres of mitigation recommended by the Corps under the federally supportable plan (FSP) could be reduced by more than 36% through the acquisition of credits in the BWTMB. A savings of approximately 48% could be realized over the F&WS recommended FSP.

Cost Comparison Between Recommended Habitat Plans and the Big Woods on the Trinity, Anderson County

Habitat Plan	Plan Cost	Acreage	BWTMB Cost	Comparison
U.S. Corps:				
LPP	$4,659,390.00	1,179.00	$2,947,500.00	63.26%
FSP	$4,446,853.00	1,135.00	$2,837,500.00	63.81%
NED	N/A	N/A	N/A	N/A
U.S. F&WS:				
LPP	$5,554,607.00	1,154.00	$2,885,000.00	51.94%
FSP	$5,327,515.00	1,110.50	$2,776,250.00	52.11%
NED	$14,296,736.00	3,200.00	$8,000,000.00	55.96%

2. More importantly, the sponsors of the Trinity Floodway Extension project would have no continuing operational and maintenance responsibilities, including such tenuous obligations as installing and maintaining control structures and pumping systems to deliver a long-term source of water (*e.g.*, sewage treatment plant effluent) to the proposed "chain of wetlands" during naturally dry months. The BWTMB would fully assume all operational and management obligations and maintain a permanent on-site presence.

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2. The "chain of wetlands" is proposed for ecosystem restoration purposes and are not meant to satisfy any portion of the environmental mitigation requirements of the proposed project.

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Conclusion

Dr. McFarlane certainly recognizes and appreciates that downstream mitigation alternatives may be less desirable to the project sponsors because of the aesthetic and recreational benefits associated with an urban chain of wetlands. Nonetheless, it may be necessary for the Corps to reconsider the premise that all downstream mitigation alternatives have long-term operational and maintenance costs that will overcome the benefits of lower initial acquisition cost. The Big Woods on the Trinity is a viable downstream alternative that would enable the project sponsors to realize substantial savings and eliminate altogether the long-term operational and maintenance responsibilities associated with the currently proposed mitigation plans. Sufficient lands are currently available within in the Big Woods on the Trinity to provide some, if not all, of the necessary mitigation.

Thank you for the opportunity to provide these comments regarding the draft GRR/EIS. As always, should you have any questions or desire further information regarding the Big Woods on the Trinity, please do not hesitate to contact me, Mr. Anderson or Dr. McFarlane.

Respectfully yours,

John J. Doty

Enclosures (3)

cc: Thomas J. Cloud, Jr.
U.S. Fish & Wildlife Service
711 Stadium Drive, Suite 252
Arlington, Texas 76011

Peter H. Vargas
Director, Trinity River Corridor Project
320 East Jefferson, Suite 101
Dallas, Texas 75203
Tel: (214) 948-4202

Terry Anderson
Advanced Ecology, Inc.
Rt. 7, Box 382
Center, Texas 75935
Tel: (409) 598-9588

Dr. Robert F. McFarlane
1021 South Sycamore
Palestine, Texas 75801

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Advanced Ecology, Inc.
ENVIRONMENTAL CONSULTANTS

Terry Anderson, A.C.F.
President

• Wetland Determinations / Delineations
• Endangered & Threatened Species
• Site Assessments
• Wildlife Management

Route 7, Box 262, Center, Texas 75935
Tel. 409/598-9388
FAX 409/598-9579

8 August 1998

Mr. Gene T. Rice Jr.
US Army Corps of Engineers
PO Box 17300
Fort Worth, Texas 76102-0300

Re: Draft GRR/EIS – Dallas Floodway Extension Project

Dear Mr. Rice,

On 8 July 1998, comments were provided on behalf of Dr. Robert F. McFarlane concerning mitigation opportunities within the Trinity Basin, particularly regarding the *Dallas Floodway Extension Project*. Advanced Ecology Inc. (AEI) has worked in detail with Dr. McFarlane on developing the natural resources of Big Woods on the Trinity for a number of years. If I can provide you with any additional information regarding mitigation opportunities, don't hesitate to call. You can receive additional information by contacting Terry Anderson at our Center office 800.780.9105 or Doug Ridenour at our Arlington office 817.588.3076.

Sincerely,

Terry Anderson, ACF
President
Wildlife Biologist

cc: Robert F. McFarlane
John Vay

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9266 Biscayne Blvd.
Dallas, TX 75218
August 13, 1998

VIA FEDERAL EXPRESS OVERNIGHT MAIL

USAED, Ft. Worth
Attn: Mr. Gene Rice (CESWF-PM-C)
P.O. Box 17300
Ft. Worth, TX 76102-0300

Re: Draft General Reevaluation Report and Integrated Environmental Impact Statement for the Dallas Floodway Extension, Trinity River Basin, Dallas County, Texas

Pursuant to 40 CFR Part 1503, this is to provide you with comments regarding the adequacy of the above-referenced document (hereinafter the DEIS), and regarding the merits of the alternatives discussed in the DEIS. For the reasons described below, the DEIS is inadequate, and the recommended plan identified in the DEIS is without merit. This is also to notify you that the DEIS is incomplete and that it does not comply with regulations promulgated under the National Environmental Policy Act (NEPA). Accordingly, as further described below, the purpose of the comment period is thwarted by the DEIS. Therefore, I respectfully request the Corps of Engineers ("COE") to prepare a revised draft Environmental Impact Statement ("EIS") which complies with the NEPA regulations. Once this revised draft EIS is prepared, I request that the COE hold an additional public comment period before a final EIS is issued.

I. The DEIS is inadequate and violates NEPA regulations

The DEIS is inadequate and in violation of NEPA regulations for the reasons set forth in the following enumerated paragraphs.

1. 1. 40 CFR Section 1502.14 describes the comparative analysis of the proposal and the alternatives as the "heart of the environmental impact statement." However, the DEIS's description of multiple alternatives and sub-options, many of which are not under consideration and which were not evaluated in the DEIS is beyond comprehension. For example, summary tables (such as Table 4-23) that compare sub-alternatives to the alternatives in which they are included make no sense at all. Moreover, it is impossible
2. to tell which appendices (some of which, presumably, support the comparative analysis), are to be part of the final Environmental Impact Statement (hereinafter the FEIS), and this failure to cite incorporated appendices is a violation of the regulations. See 40 CFR Section 1502.18 (requires appendices to be incorporated by reference) and see section 1502.21 ("incorporated material shall be cited in the [EIS] and its contents briefly described"). Put plainly, the DEIS is so confusing that it is fundamentally flawed;

1. The GRR/EIS documents the investigations required to identify water and water related land resource needs within the study area, and presents the plan formulation process used to determine the most engineeringly, economically and environmentally feasible solution to these needs. Table 4-23 has been revised. The Environmental Impact Statement has been integrated into the document in accordance with 33 CFR (Code of Federal Regulations) Parts 230 and 325 (ER 200-2-2). Your request for a revised draft EIS is noted.

2. In accordance with the EPA comments and recommendations, dated 5 August 1998, the appropriate appendices were noted with an asterisk in the Final EIS (FEIS). There are no issues indicated in the comments submitted by the EPA, or herein, which would require that another revised draft EIS be released and another public comment period be undertaken prior to preparation of the FEIS. All issues contained in the EPA comments, and reiterated herein, were addressed in the FEIS.

consequently, the public comment process for the DEIS is thwarted. That is, it is impossible to comment on the DEIS because the DEIS is impossible to decipher. The U.S. Environmental Protection Agency (EPA) in its comments on the DEIS has also found the document confusing. See Letter from R. Lawrence, Chief Office of Planning and Coordination, EPA Region 6, to Col. James S. Weller U.S. Army Corps of Engineers ("COE") (August 5, 1998) (Exhibit 1, enclosed) at paragraphs 1 and 2 of the "Detailed Comments" enclosed with that letter ("Under the designation system that the document employs, none of the appendices are indicated as part of the EIS...." and "It may be very difficult for the public to determine exactly what actions are being proposed, and the probable environment impacts of these actions."). In that 40 CFR Section 1502.10 (emphasis added) says that

> [a]gencies shall use a format for environmental impact statements which will encourage good analysis and clear presentation of the alternatives including the proposed action....,

the confusing and fundamentally flawed DEIS is in violation of the National Environmental Policy Act (NEPA) regulations. Accordingly, because the DEIS is in violation of Sections 1502.18 and 1502.21, because the DEIS is confusing and does not meet the Section 1502.10 standard, and because the confusing nature of the DEIS effectively prohibits the public (myself included) from making "specific" comments as required by Section 1503.2, I hereby respectfully request that a revised draft EIS be prepared and that the public be notified that there will be an opportunity for the public to comment on this revised draft EIS before it becomes final. I have complete faith that the COE will see the fairness of my request for a revised draft EIS and for another comment period, and that the COE will comply; nevertheless, out of an abundance of caution, I offer the following comments with the caveat that these comments are based on my understanding of the DEIS which may be imperfect due to the circumstances described in this paragraph.

3. 2. The DEIS says that realignment of the Trinity River channel at IH-45 "would have no hydraulic effect" on the proposed projects, but the DEIS does not provide any analytical evidence to support this statement. See Detailed Comments enclosed with Exhibit 1 at p. 2. Accordingly, it is not possible for the public to make specific comments on the merits of this element of the alternatives considered, and the intentions of Sections 1503.2 and 1503.3 are thwarted. That is, the DEIS does not give the public an opportunity to view the analytical evidence in draft form since there is a gap in the draft language, so it is impossible to comment. Therefore, I reiterate my request that a revised draft EIS be prepared and that the public be notified that there will be another opportunity for the public to comment on the revised draft EIS before it is finalized. The following paragraphs (number 3 through 29) identify similar gaps in the draft language, and based

3. As recommended in the EPA comments, the analysis was discussed in the FEIS. A revised draft EIS and another comment period prior to the FEIS is not warranted.

on these gaps and the impossibility of commenting on draft language which is not there, I, once again, reiterate my request for a revised draft EIS and another comment period.

4. 3. The DEIS says that the Chain of Wetlands will use effluent from the Central Wastewater Treatment Plant as a "dependable water source," but it provides no analysis with respect to the dependability of this source or the potential impacts to created emergent wetlands associated with the use of wastewater effluent as a water source. See id.

5. 4. The realignment of the Trinity River at I-45 would result in the loss of eight acres of existing river channel, but the DEIS does not provide specific details or analysis of what these impacts will be. See id.

6. 5. High Biological Oxygen Demand (BOD) impacts on the Trinity River are expected during heavier flow discharge from the created wetlands into the Trinity. The DEIS does not describe the frequency and severity of these impacts. See Detailed Comments enclosed with Exhibit 1 at pp. 2-3.

7. 6. It is not clear whether the Great Trinity Forest bottomlands will be impacted by the recommended plan identified in the DEIS. See id.

8. 7. The DEIS does not describe or analyze the types of impacts on the bottomland hardwood forests that are expected. In particular, the DEIS does not address the impact on hardwoods that the removal of water sources (overbank flows) from areas behind the levees might have. See id.

9. 8. The DEIS does not provide adequate discussion of impacts to bottomland hardwood forest wildlife or to fish. See id.

10. 9. The listings of threatened and endangered species are inconsistent. See id.

11. 10. through 29. To the extent that they identify gaps in the information and analysis presented in the DEIS, paragraphs numbers 10 through 29 of the Detailed Comments enclosed with Exhibit 1 are incorporated herein by reference, and these paragraphs are offered in support of my request for a revised draft EIS and an additional public comment period.

II. The recommended plan identified in the DEIS is without merit

According to the Dallas Morning News, a 1986 COE report [I hereby request that you add the referenced 1986 COE report to the administrative record.] based on a study that began in 1984 "included careful analysis of satellite data, which detected a

4. through 11. See responses to comments provided by Environmental Protection Agency on pages N - 4 through N - 11. Enclosures to this letter will be retained in project files.

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12. major problem [in the floodplain upstream of the proposed Dallas Floodway Extension]: thousands of acres of once-pristine rural floodplain that could soak up heavy rain were being turned into virtual parking lots that repel water like a raincoat, sending the water ultimately to the river." "Troubled Waters," Dallas Morning News (September 29, 1993) at 15A (this newspaper article is Exhibit 2, enclosed). Fearing that development could worsen floods along the Trinity, the COE, in cooperation with local governments, imposed tighter rules on floodplain development. Id. The News went on to quote a local expert who said that "People have been allowed to reclaim land in the Trinity floodplain for years without compensating for it... The net effect is to throw more water into the floodplain, raising the level of water of people downstream..." The extended levees and swales described as the recommended plan in Chapter 6 of the DEIS will create an opportunity for further development in the floodplain--the DEIS essentially admits this development may take place, but does not give these indirect impacts adequate consideration as is required by NEPA. See 40 CFR Section 1508.8. Development will reduce the ability of the land to absorb runoff. The consequence of this development will be to, once again, cause flooding for people downstream. Accordingly, the recommended plan is without merit.

13. In the wake of the devastating floods which took place in about 1993, the Administration's flood control philosophy changed from constructing levees (which had generally failed to control the floods) to converting towns and farmlands to wetlands where rivers could spread out. See "U.S. Considers Scrapping Levees for Flood Control," The New York Times (August 28, 1993) pp. 1 and 6 (Exhibit 3 enclosed). Please reconsider the alternatives in light of the philosophy described in the New York Times article--it makes no sense to repeat past mistakes by building more levees. Please select an alternative that does not create more levees, but instead buys out developed areas, thereby creating more wetlands where the river can spread out.

Please give these comments your thoughtful consideration. If you have any questions, please write to me at the above address.

Sincerely yours,

James E. Costello

Endorses

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12. Cumulative impacts attributable to reasonably foreseeable actions of others and indirect impacts related to this project proposal have been modified in the FEIS. In addition proposed construction within the flood plan upstream of the study area would continue to be reviewed and minimized by the Corridor Development Certificate (CDC) process and the Record of Decision signed in 1987.

13. Until incorporated as implementation guidelines by Corps Headquarters, the philosophy described in the New York Times does not constitute a modification to the policies and guidelines by which the Fort Worth District is mandated to conduct project analyses.

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4/30/2009

LIST OF EXHIBITS

1. Letter from R. Lawrence, Chief Office of Planning and Coordination, EPA Region 6, to Col. James S. Weller U.S. Army Corps of Engineers (August 5, 1998) (Includes Detailed Comments which are enclosed with the letter).

2. Dallas Morning News (September 29, 1993) (this newspaper article appears on pages 1A, 14A, 15A, and 16A).

3. "U.S. Considers Scrapping Levees for Flood Control," The New York Times (August 28, 1993) pp. 1 and 6

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6/25/1998

Mr. Gene T. Rice, Jr., Project Manager
Dallas Floodway Extension Project
U.S. Army Corps of Engineers
P O Box 17300
Fort Worth TX 76102-0300

RE: Comments GRR/EIS Report

Dear Gene:

1. I support the comments sent you by the Texas Committee on Natural Resources, the Dallas Group, Sierra Club, and the Dallas County Audubon Society on the GRR/EIS Report concerning the Dallas Floodway Extension Project..

2. Non-structural alternatives, with or without conveyance basins, and raising existing levees, is much preferred over adding new levees and swales.

Below are some further personal comments.

3. Any meaningful study of the Trinity should answer the question: What is the river's function in the ecosystem of North Central Texas and the relationship of man to that purpose? The federal government is specific on this issue—the environment must be properly considered in any action affecting a public waterway.[1] The GRR/EIS Report is too heavily oriented toward economic development, levees, and swales.

4. There is lack of coordination with other political entities evidenced in the report.

5. For example, the GRR/EIS omits analysis of the TXDOT plan to construct a toll road within the existing floodway , extending southward through a portion of the Dallas Floodway Extension Project. This is part of the Study Area of the COE. The GRR/EIS report merely mentions it in passing[2] and makes no further comment.

6. Frankly, the idea of a toll road inside the levee is absurd. It adds to the river elevation in the floodway corridor, jeopardizes existing levees, threatens the CBD, is a tremendous source of noise and air pollution, is an obstruction in the flood plain, and

[1] National Environmental Policy Act of 1969.
[2] GRR/EIS Report, Page 5-14, paragraph 2.

1. Your concurrence with the comments of these organizations is noted.

2. See the response to comment #1 on page N - 13. Raising existing levees would not provide flood protection to the Dallas Floodway Extension area.

3. The investigations and analyses presented in the draft GRR/EIS have been conducted in accordance with current Federal policies and guidelines.

4. The participants in this study are shown in the "PARTICIPANTS AND COORDINATION" section, beginning on page 1-1, and in the "PUBLIC INVOLVEMENT" section in Chapter 6.

5. Cumulative impacts of reasonably foreseeable proposals, including the Trinity Parkway/Freeway have been incorporated into the GRR/EIS.

Comments received from the Environmental Protection Agency (EPA), dated 5 Aug 1998, state their understanding that transportation planning is not part of the flood control project, and that the flood control project is not dependent upon transportation needs. Their comments also state that, *"...any subsequent Federal transportation project affecting the DFE should be fully evaluated under NEPA prior to alternative plan selection and construction."*

6. The draft GRR/EIS makes no recommendations for construction of a toll road within the levees. A thorough review of all design plans for construction within the existing Floodway will be conducted to ensure compliance with all applicable Federal policies and guidelines prior to issuance of a permit.

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endangers lives. The State also plans to extend a toll road inside the levees along the West Fork of the Trinity, as part of the regional transportation program. How can the COE sanction such an idea and stay within the federally mandated guidelines?[1] COE opposition to this travesty is essential.

Rivers flood , as a natural course of events. Consequently, the prudent and modern approach is to allow the river freedom to establish its own course. Therefore, we should discourage building in the flood plain. Others use the non-structural approach with the sanction and cooperation of the COE, and it works! Why can't we?

Thank you very much for this opportunity to comment.

Sincerely,

Roy A. Hudson
P O Box 764592
Dallas TX 75376-1592
(214) 350-8102

[1]GRREIS Report, Page 5-9; Sect. 9810 Rivers and Harbors Act of 1969

7. See response to comment #1 on page N - 13.

DALLAS CITY PACKING, INC.

3048 MORRELL STREET
214-948-3801

CHUCK WAGON BRAND

DALLAS, TEXAS 75203-4088
FAX 214-942-2036

U.S. GOVERNMENT INSPECTED MEATS

June 16, 1998

James S. Weller
Colonel, Corps of Engineers
Fort Worth District
P.O. Box 17300
Fort Worth, Texas 76102-0300

Re: Comments on the Trinity Floodway Extension Project

Dear Colonel Weller:

Our company, Dallas City Packing, Inc., is a food processing business located in the Cadillac Heights area of southern Dallas. We appreciate all the time and effort which both the Corps of Engineers and the City of Dallas have spent in working on this project for the improvement of the Trinity River Basin. We would respectfully like to offer the following comments on the Dallas Floodway Extension Project.

We realize how important the Trinity River Floodway Extension Project is to south Dallas and to Dallas as a whole. Located where we are, this flood control project is very important to Dallas City Packing, Inc., also. Being in the perishable food business, we depend upon a safe and clean manufacturing facility.

We have been at this location for 54 years. We provide employment which supports 100 families, 80% of whom are minorities. We are proud to be able to provide the employment which supports these families. Many of them live in the south Dallas area. We want to remain here in business at this location. We want to be able to preserve these jobs in the south Dallas area. These 100 jobs translate to 100 families, which means that 400-500 people are counting on our business as their source of income. Many small grocers and other businesses both large and small depend upon us as a source of supply. We are an integral part of the tax base for the City of Dallas.

1. We are in favor of the Federally Supportable Plan for this project. As we understand it, the FSP provides for a levee which runs from the existing Dallas Floodway to the Central Wastewater Treatment Plant Levee. This levee would change to a floodwall in the vicinity of our property which would protect our business from flooding without disturbing our operation. This is very important to us.

1. Subsequent to the release of the draft GRR/EIS, the Assistant Secretary of the Army (Civil Works) has determined that the plan providing SPF levels of protection to both the Lamar Street and Cadillac Heights areas, denoted as the Locally Preferred Plan (LPP) in the draft GRR/EIS, is designated the Federally Supportable Plan (FSP), and therefore the Recommended Plan. Revisions to the GRR/EIS have been made to reflect this decision.

2. We understand that at the current time, the Locally Preferred Plan does not include the floodwall option. City of Dallas officials have assured us that this is just a matter of having the time for the plans for the LPP to be modified to include the floodwall in a manner similar to the FSP. Once the LPP is modified to incorporate a floodwall similar in design and location to the one in the FSP we will be in support of that plan. As the LPP stands, however, we are strongly opposed to it as the levee would destroy our property and our business.

We ask you to please be sensitive to our needs, as we trust you will, in the final planning of this project. We will need your help and support in insuring that the final plans for both the FSP and the LPP contain an alignment of the levee inclusive of a floodwall which protects our business and preserves the much needed jobs in this section of the city. We need our business to be able to function in a whole and complete manner as it has for the last 54 years.

We thank you and the Corps of Engineers along with the City of Dallas in advance for your help in reaching the much needed goal of flood control for south Dallas. We also thank you for working with us here at Dallas City Packing, Inc. in order to preserve our business and the jobs we provide which are so crucial to the south Dallas area.

Sincerely,

Milton Rubin
President

Alan Rubin
Vice-President

David Meyers
Vice-President

cc: Mr. Gene T. Rice, Jr.
Project Manager

2. The Cadillac Levee design will be reviewed and considered during the next phase of detailed design, in conjunction with continued HTRW testing and an update of topographic surveying data. Your recommendation and support for a modification is noted.

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4/30/2009

June 9, 1998

TO: USACE
PO Box 17300
Ft. Worth, Tx. 76102-0300

FROM: Mary Vogelson MBV
League of Women Voters of Dallas
9316 Guernsey Lane
Dallas, Tx. 75230

RE: Draft GRR/EIS for the Dallas Floodway Extension Project

The following are brief draft notes for this public hearing, June 9, 1998. More detailed comments will follow.

The Dallas League of Women Voters has concerns regarding the DFE project that center around the issues of the USACE's compliance with and furtherance of:

a) the Clean Water Act and the Clean Water Action Plan;

b) the Clean Air Act, considering the city's current "serious non-attainment status" coupled with its overall future plans for this area;

c) the Executive Orders 12898, 12250, 12875, 12962, 11514, 11735, 11988, 11990, 11991, et al. concerning environmental justice and related concerns under Title VI of the 1965 Civil Rights Act;

d) the Corps' Challenge 21 initiative and related items such environmental protection of the threatened very large rookery in Cadillac Heights area.

1. The Clean Water Act and the Clean Water Action Plan seem to be ignored by many elements of this project. The Trinity River is currently one of the 40% of rivers nationwide that is still "unfishable, unswimmable and undrinkable" and listed by the EPA IWI as "highly vulnerable to stressors such as pollutant loadings". The River is up to 96% waste water effluent during low water/drought months - a large part of the year! The DFE plan to place a levee around Cadillac Heights (west side of River) and locate a meat packing plant's livestock barns on the inside of the levee leaves many questions regarding the Corps' commitment to clean water here. The Wall Street Journal reports (5/13/98) that Texas is one of the states where TMDL assessments are not being made by our TNRCC. Should the city be forced to change, re-locate businesses, limit land uses or engage in a costly clean-up/retention program as a result of compliance monitoring by the TNRCC, it would be a shame to have the DFE project cause even further tax dollars to be spent here.

2. The meat packing plant so carefully considered by the Corps realignment of the Cadillac Heights levee was permitted only last year by the city in a 10-25-year flood plain area. The new levee location which now threatens extinction to a large rookery in the area, is another example of disregard for riparian/wetland/water protection.

3. Not part of-but definitely associated with- the DFE project is the city's plan to cooperate in the building/sponsoring of an eight lane toll road constructed on the east side of the DFE levee extension (Lama St. side) partly on the river side. The USACE DFE project already

1. Implementation of the DFE project will not cause increased environmental impacts associated with the plant. The meat packing plant currently deals with animal wastes in adherence to Federal regulations, which would not be altered by the DFE project.

2. The levee alignment would miss the rookery as currently proposed, however the plan will be reviewed during the detailed design phase to determine if the rookery has expanded into the proposed alignment. If so, the alignment would be revised if possible to avoid parts of the rookery that would be impacted. Should avoidance be impossible, however, construction activities will be scheduled during the non-nesting season in order to comply with the Migratory Bird Treaty Act, in accordance with the comments provided by the U.S. Department of Interior, contained herein (see comment #7 on page N - 350).

3. The DFE project, as agreed upon by the EPA in their comments, *"...is not dependent upon transportation needs....Implementation of any subsequent Federal transportation project affecting the Dallas Floodway Extension should be fully evaluated under NEPA prior to alternative plan selection and construction."* As stated in response to previous suggestions to move the Lamar Levee, realignment of the Lamar Levee to the railroad would result in significant cost increases due to the required acquisition of property on the north side of the tracks for sump construction. The proposed alignment is the optimum alignment. Cumulative impacts of reasonably foreseeable proposals, including the Trinity Parkway/Freeway have been incorporated into the GRR/EIS. Until incorporated as implementation guidelines by Corps Headquarters, the Challenge 21 initiative does not constitute a modification to the policies and guidelines by which the Fort Worth District is mandated to conduct project analyses.

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places the "Lamar Levee" as close to the River as possible. We have made repeated suggestions to have the alignment moved as far away from the River as possible, i.e. along the already elevated and natural non-encroachment line of the railroad. The USACE is fully aware of these road construction plans, yet no comment is made as to how any of these possibilities comply with the Corps' own Challenge 21 initiative. The placement of new urban levees is, indeed, being done in some areas, however it is our understanding that in no case are these new levees being put closer together as the DFE proposes for Dallas.

4. In regard to environmental justice issues, these pertain mainly to the residents of Cadillac Heights. This area is adequately described in the GRR/EIS , but there is a strangely cavalier attitude about leaving homeowners to the vagaries of the market after purposefully raising their property values - which the Corps states it fully expects to happen once these homes are removed from more frequent flood damage occurrences. The fact that these homes are on highly toxic, lead polluted soils and are zoned for "heavy industrial" development looks like the Corps is a partner in enabling the city to rid itself of these poorer neighborhood inhabitants with out buy-out, flood relocation or emergency aid. Please see the attached editorial from the Dallas Morning News of 5/6/98 if there is any doubt as to the economic purposes behind the city goals for this area. Again, see your Challenge 21 initiatives.

5. Calculating the buy-out costs of this west side of the levee extension proposal; evaluating the advantage of leaving this side of the river's flood plain to flood after a buy-out and not endangering the waste-water treatment plant; and leaving out the estimates of costly environmental clean-ups, etc, have left us with a less than honest cost/benefit analysis from the current Corps report.

6. Further comments need to be made regarding the impacts to minority settlements downstream such as Joppa and Sand Branch resulting from the increased TMDL's, increased water velocities delivering waste water pollutants and odors, the soil disposal from swale construction and the lack of erosion controls on already existing problem areas (i.e., Lemmon Lake, Little Lemmon Lake). There are subsistence and recreational fishing activities that must

7. be addressed as part of the Corps' responsibility under the Clean Water Act. As a recent New York Times editorial states, if the USACE is not part of the Clean Water Action Plan, nothing will be accomplished in this area.

8. The LVWD is greatly concerned over the questions still unresolved that involve the "remote mitigation site"; the"recreation plan" without cost participation by the Corps; and to a lesser extent, the wetlands or "environmental restoration". It seems, to put it bluntly, that if Dallas is to take the environmental "hit" to part of the forest and existing wetlands, we should at lest get some of the clean-up and 1,150 acres or so mitigation restoration/preservation here!

Other concerns:

9. The City of Dallas has an extremely poor record of maintaining, operating and complying with environmental regulations.. A major contributor to problems within the present floodway, in addition to upstream construction and loss of valley storage among others, is the city's ignoring "best management practices" thus allowing large amounts of sedimentation and silt to build up and make the floodway shallower. This lack of attention to any pretense of erosion control, storm water runoff prevention or de-siltation prevention is easily observable in any part of the city. Obvious and immediate examples are apparent in that for over ten years the city has put mowing of medians, public parks, levees, etc. on a very restricted schedule. The

4. The analyses conducted in the development of the proposed project were conducted in accordance with current Federal policies and guidelines. The benefits derived from the various alternatives were based on the flood damage reduction provided to the areas previously unprotected (Cadillac Heights, Lamar, etc.) and on the additional flood protection to the upstream reaches. The project would provide comparable flood protection to the residents of Cadillac Heights as is provided elsewhere within the study area.

5. The economic analyses of buyout alternatives were conducted in accordance with current Federal policies and guidelines, and concluded that these alternatives were economically infeasible, thereby eliminating Federal participation in a buyout.

6. There would be no anticipated increase in TMDL's with the proposed project. Velocities would not increase significantly downstream of the project area. Furthermore, construction activities would be regulated by a stormwater pollution prevention plan (SWPPP) to minimize impacts downstream from the construction site.

7. Aquatic resources impacts have been addressed; the project would have minor temporary impacts to fisheries resources or access to them. Access in the future could be benefitted as a result of the proposed recreational plan.

8. While minor modifications in the environmental mitigation plan may be necessary, location of the mitigation lands adjacent to the project area has been incorporated into the commended project plan. The proposed recreation plan, are subject to further review to determine the optimum implementable plans. Your concerns are noted.

9. The appropriate assistance will be obtained to ensure that an effective operation plan is developed regarding the development and management of the wetlands. The sponsor will be required to sign an agreement to perform operation, maintenance, repair, replacement and rehabilitation of the project upon completion. Periodic inspections will be conducted to ensure compliance.

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result is that much taller grasses when finally mowed are left to lie in streets or levee sides and find their way into storm water outlets as the only clean-up repositories. All fall, all public and private yard/leaf disposal in done by "blowing" or sweeping debris into streets/storm water outlets. The second easily observable example is the now almost completely silted west end of Bachman Lake where street construction erosion and other run-off from the city-owned airport have been allowed to run uncontrolled.

The city does not have on staff any qualified wet lands, aquatic or moist soil manager or biologist who could operate and manage the proposed wetlands in order for these to be an asset and not just neglected, mosquito/snake breeding liabilities.

We point this out as an example of the city's attitude toward existing projects/requirements and thus to question how the USACE determines that this city is qualified to receive further Federal project money causing much more careful operating and management than the city currently is capable of.

10. The Corps has also updated its financial analysis of the city to Sept., 1997, and comments that the "only indicator falling into the weak range was for the amount of net debt outstanding per capita." This, along with the strong indication that the city has wide margins to raise taxes, that is we do not "tax heavily", leads to the conclusion that the city "appears to have room to expand their debt load to accommodate new capital projects." We, as citizens, are concerned that while the Corps does not fear inability to be repaid on this project, the further increased net debt projected by both the recent city wide bond programs ($127M and $548M) as well as committed dollars from previously unsold bond programs may well over commit net debt per capita unless a careful program of bond sales is followed. We suggest that the Corps should watch this progress since the city has verbally committed to starting all, and completing some of these programs within the next 5 years.

We appreciate the opportunity and cooperation of the USACE with the citizens of Dallas and look forward to completing our comments and receiving your final report soon.

10. Prior to implementation of the project, the city will be required to enter into a Project Cooperation Agreement, in which the city will have to state their ability to fully satisfy their financial requirements. Furthermore, at the beginning of every fiscal year during construction, the city will be required to place sufficient funds in an escrow account to ensure funding for that year's work efforts.

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4/30/2009

13 August 1998

James D. Flood
221 S. Acres Dr.
Dallas, TX 75217-7803

Gene T. Rice Jr.
Project Manager
Army Corps of Engineers
P.O. Box 17300
Fort Worth, TX 76102-0300

Dear Mr. Rice:

The following comments are for consideration regarding the US Army Corps of Engineers "Draft General Re-Evaluation Report and Environmental Impact Statement" for the Dallas Flood-way Extension Project.

1. 1) Over-topping of Cadillac Heights Levee:

Page A-27 states, " A preliminary plan to provide for initial over-topping of the LPP Cadillac Heights Levee in the least hazardous location has been developed". This is stated to protect the levee from washout, but presents no comment on the human, economic, and, environmental impact of such an occurrence.

2. 2) Downstream levee construction:

No mention is made of what effects downstream levee construction, specifically the Middlefield Road Levee and future levee construction around McCommas Landfill, will have on the DFE plan and projected flood levels.

3. 3) Cadillac Heights Levee, Executive Order 12898:

Table 4-22 page 4-75 states "all plans in full compliance". In part EO 12898 section 1-101 states " ...each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations ..."

The residents of Cadillac Heights are presently exposed (air and soil) to serious health hazards and risks from lead contaminated soils, a chromium recycling plant, meat packing and/or rendering plant and, the Central Wastewater (Sewage) Treatment Plant. What studies have been performed to imply that these residents are not at risk? Building a Levee and not adequately considering a voluntary buyout of all residents in the 100 year flood zone (not the 25 year FZ) in the Caddillac Heights neighborhood will disproportionately expose these residents to greater health hazards. No mention is made of the added health-care costs to these residents in any Benefit Cost Ration calculations.

Page 6-10 only mentions economics as any criteria (25 year flood zone buyout, moving the meat packing facility "...immediately adjacent to the existing location..." and, the river diversion at IH-45 to protect the bridge structure from more damage) and not adverse human health environmental effects.

1. The risk of such an event is extremely low. Impacts from the rainfall events that would be necessary to trigger the overtopping of a levee designed for SPF protection be substantial whether or not the levees were in place.

2. Since Dallas is regulating development with the CDC process, these projects should have no impact on flood levels.

3. See response to comment #1 on page N - 13 regarding a buyout of Cadillac Heights. Furthermore, the proposed project will not *increase* or *cause* disproportionate high health hazards to residents within Cadillac Heights.

No documentation or data is provided showing the health risks. EO 12898 section 1-103.a states "...each Federal agency shall develop an agency-wide environmental justice strategy... that identifies and addresses disproportionately high and adverse human health or environmental effects of its programs..." so "...improve research and data collection relating to the health of and environment of minority populations and low-income populations..." A recent (July 99) occurrence of tgirl deaths have been attributed to contaminated soils and released water.

I believe the considerations presented in the EIS are not in full compliance with EO 12898.

Thank you.

Sincerely,

James D. Flood

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4/30/2009

TEXAS PARKS & WILDLIFE

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Alvin
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ANDREW SANSOM
Executive Director

To manage and conserve the natural and cultural resources of Texas for the use and enjoyment of present and future generations

4200 SMITH SCHOOL ROAD
AUSTIN, TEXAS 78744-3291
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August 10, 1998

Colonel James S. Weller
District Engineer
U.S. Army Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

Attn: Mr. Gene T. Rice, Jr., CESWF-PM-C

Dear Colonel Weller:

This letter responds to your request for our staff's review and comments on the Draft General Reevaluation Report and Integrated Environmental Impact Statement (EIS) for the Dallas Floodway Extension, Trinity River Basin, Dallas County, Texas (ER 98/300).

1. Department staff have been involved in the assessment of potential alternatives with the U.S. Fish and Wildlife Service and in general, concur with the comments provided in the draft Fish and Wildlife Service Coordination Act Report (Appendix G). Comments in this letter are intended to supplement that report.

The following comments are provided in regard to specific portions of the EIS:

Page 3-19. Identification of Environmental Needs

2. The Department concurs with the evaluation and recommendations for acquisition as partial mitigation for impact to bottomland hardwoods. In addition, restoration and management of bottomland hardwood forests, riparian woodlands, and wetlands in the Dallas Metroplex area should occur.

3. **Page 4-37. Environmental Restoration (Wetlands)**

It is unfortunate that no viable alternative was developed to satisfy capacity needs within the floodway without further reducing the forested bottomlands. If the only feasible alternative is to create more cleared floodway, then the plan to develop a "chain of wetlands" within the flood conveyance swales would provide some habitat

1. Your concurrence with the draft Fish and Wildlife Service Coordination Act Report is noted.

2. Your concurrence with the recommendations of the draft GRR/EIS regarding acquisition of mitigation lands in the Dallas Metroplex area is noted.

3. The appropriate assistance will be obtained for the development of an effective operation and management plan for the chain of wetlands. Your recommendation of a notable authority is appreciated.

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for fish and wildlife within the floodway, and some recreation and aesthetic features. However, considerable expertise will be needed to properly manage the completed chain of wetlands. The Department recommends employment of a project manager who has advanced graduate training in aquatic and moist soil management principles. Without this expertise, the conveyance swales could easily become a management liability rather than an asset. Consultation from recognized authorities on the subject of wetland management would also be helpful. One notable authority that has provided seminars and workshops on this topic is Dr. Leigh H. Fredrickson, Gaylord Memorial Laboratory, The School of Natural Resources, University of Missouri-Columbia, Puxico, Missouri 63960. Mitigation for forest losses should be included in the calculation of compensatory mitigation for the project.

4. **Page 4-49. CWWTP Levee Tie-In**

The proposed short option for the south section of the Cadillac Heights levee may impinge on a multispecies rookery of colonial waterbirds. The Department concurs that the levee alignment be adjusted to avoid impacting this area.

5. **Page 4-69. Channel Realignment Proposal at IH-45 Bridge**

The Department does not support the proposed plan for realignment of the Trinity River channel at Interstate 45. In general, a relatively straight, uniform channel is seldom encountered in nature. The meandering aspect of a stream occurs as a result of predictable physical forces and random natural events acting on the system. Under this environment, the resulting riverine landscape provides desirable diversity of streamside vegetation, substrate, and flow characteristics (riffles, pools, runs) to support a diverse natural ecosystem. Therefore, channel modification (especially channelization) by its very nature would exert an adverse impact upon the existing biological resources existing within or near the waterway, and cause or exacerbate channel impacts downstream.

Channel modification projects destroy natural aquatic and riparian habitats through direct removal of woody vegetation along streamsides and alteration of the physical attributes affecting the stream's configuration and flow characteristics. Therefore, if channel modification is undertaken, vegetation should be replaced, and the reconstructed channel should mimic the original channel in regard to the following geomorphologic and habitat characteristics: sinuosity, gradient, bottom substrate type, pool/riffle ratio, streamside vegetation, overhead canopy vegetation, and channel width/depth/velocity characteristics.

4. The levee alignment as designed would not directly impact the rookery as is currently exists. The rookery will be evaluated during detailed studies and if it has expanded, and attempts would be made to avoid the rookery. Should avoidance be impossible, however, construction activities will be scheduled during the non-nesting season in order to comply with the Migratory Bird Treaty Act, in accordance with the comments provided by the U.S. Department of Interior, contained herein (see comment #7 on page N - 350).

5. We acknowledge your lack of support for the proposed realignment of the channel at the I-45 bridge, however, the channel reach that would be impacted lacks meanders, riffles and pools and has relatively uniform banks and channel width. The intent of the realignment is not to increase conveyance, but to avoid support piers that capture debris. Pressure caused by the debris during a previous flood flow event resulted in fracture of one of the piers. The proposed realigned channel would have similar channel configuration, including, width, length, gradient, substrate type, and velocity to the original channel. We have proposed to not backfill the lower reach of the original channel below I-45 Bridge to provide additional aquatic habitat and recreational access to the river. An additional component of the plan includes replanting of tree species common to the existing adjacent bottomland hardwood trees on the banks of the channel and over the portion of the old channel that would be filled. We believe that the resultant project would conform with the guidance you have provided to mimic the original channel characteristics.

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Channel modification planning should incorporate considerations for maintaining the above fluvial geomorphological attributes. A suggested contact is Mr. Dave Rosgen, an expert hydrologist who works with rather than against natural river processes. His advice would be important to the project both environmentally and financially. Mr. Rosgen can be contacted at the Wildland Hydrology Conference Center, 157649 U.S. Highway 160, Pagosa Springs, Colorado 81147.

6. **Page 4-85. Forest Mitigation Plan**

If forest impacts are determined to be unavoidable, restoration or replacement should be implemented according to the Corp's forest mitigation plan to plant bare-root seedlings and the recommended conditions of the Service to use state-of-the-art techniques to maximize seedling survival.

7. **Appendix F. Page F-34. Corps Analysis of Other Mitigation Alternatives**

Compensatory mitigation for further unavoidable impacts should be by acquisition of mitigation lands near the proposed project area. This should be the preferred alternative for the floodway extension project.

8. **Appendix F. Page F-39. Corps Mitigation Recommendation**

The Corps' mitigation plan for bottomland hardwood forests appears adequate. Acquisition of mitigation lands should proceed concurrently with first phases of acquisition of other project lands.

Thank you for the opportunity to provide comments on the planning of the Dallas Floodway Extension project.

Sincerely,

Larry D. McKinney, Ph.D.
Senior Director of Aquatic Resources

LDM:RCT:RGF:dab

cc: Ms. Susan Rieff
Ms. Janice Bezansen
Mr. Robert Short

6. Your concurrence with the recommended mitigation plan is noted.

7. Location of the environmental mitigation lands adjacent to other project features as recommended has been incorporated into the recommended plan.

8. The environmental mitigation plan for bottomland hardwood forests will commence concurrently to implementation of other project features.

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4/30/2009

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Post Office Box 649
Albuquerque, New Mexico 87103

July 7, 1998

ER 98/300

Colonel James S. Weller
District Engineer
(Attn: Mr. Gene T. Rice, Jr., CESWF-PM-C)
U.S. Army Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

Dear Colonel Weller:

This is in response to your request for U.S. Department of the Interior (DOI) review of the Draft General Reevaluation Report and Integrated Environmental Impact Statement for the Dallas Floodway Extension, Trinity River Basin, Dallas County, Texas. In this regard, the following specific and general comments are provided for your consideration.

General Comments

1. In general, we find that the draft General Reevaluation Report and Integrated Environmental Impact Statement (DEIS) adequately addresses existing fish, wildlife and other natural resources of interest to the DOI and the potential impacts which would occur to these resources with implementation of the proposed project. It also appears that the Corps of Engineers has appropriately applied guidelines for the sequencing of mitigation in order to offset adverse, unavoidable environmental impacts of the proposed project. Project features appear to avoid, minimize, and replace or compensate for unavoidable impacts as required by the Council on Environmental Quality guidelines.

The U.S. Fish and Wildlife Service (FWS) participated with your planning staff during baseline project evaluations and contributed substantial input during the early planning phases of this project pursuant to their consultation responsibilities under the Fish and Wildlife Coordination Act. The draft Coordination Act report is included as Appendix G in the DEIS. This report will be finalized and provided for incorporation into your final document pending your response to the FWS recommendations.

1. Your concurrence is noted.

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4/30/2009

Specific Comments

2. **Summary, Unresolved Issues.** We are concerned about the Corps' position that an alternative, remote mitigation site may be required for the Dallas Floodway Extension project. As discussed in more detail below, we believe it is inappropriate for cost alone to determine the location of mitigation, and we believe that the mitigation sites currently proposed within the project area and delineated in the draft report should be pursued.

3. Another unresolved issue not discussed in the summary is the proposed channel realignment of the Trinity River at the Interstate Highway 45 bridge. As noted in Table 4-22 of the DEIS, Texas Parks and Wildlife Department opposes this diversion plan, and the FWS has major concerns with the plan as currently proposed.

4. **Page 2-20, Threatened and Endangered Species.** Table 2-4 lists the bald eagle (*Haliaeetus leucocephalus*) as endangered. This species was downlisted to threatened on August 11, 1995. This correction should also be made to Appendix F, Table 5.

   The mountain plover (*Charadrius montanus*) is a candidate species which could migrate through the Dallas Floodway project area. Although candidate species have no protection under the Endangered Species Act, they should be considered during project planning activities.

5. **Page 3-19, Identification of Environmental Needs.** We concur with the premise of this discussion, that large Federal flood control projects and many other State and local development projects have had a drastic affect on the natural resources of the Dallas-Fort Worth Metroplex area, especially sensitive habitats such as bottomland hardwood forests, riparian woodlands, and wetlands. We agree that future actions should focus on protecting and enhancing the remaining natural environment of the area.

6. **Page 4-37, Environmental Restoration (Wetlands).** We concur that the addition of shallow-water, emergent wetlands within the flood conveyance swales would provide greater overall fish and wildlife habitat values and diversity than intensively managed (i.e., mowed) grass-lined swales. As noted above, the FWS has provided substantial input on the potential design and operation of these wetland areas based on previous experiences with emergent wetland developments in the north Texas region. However, it should also be noted that the FWS has expressed some reservations about the potential success of these wetlands, unless appropriate management measures are adequately funded and implemented by the Corps and project sponsors.

   The highly erosive nature of the clay soils within the Trinity River floodplain, the soils' physical and chemical properties, the turbidity of the river, the invasive nature of many pioneer wetland plants, trash and litter in an urban setting, and many other factors may combine to reduce the quality and effectiveness of the wetlands as a habitat and recreational feature. Provisions for a dependable water supply and water level control structures are mandatory for adequate management of the wetlands, but these features will provide little value unless they are managed

2. Your concurrence with the recommendations of the draft GRR/EIS regarding acquisition of mitigation lands near the proposed project area is noted.

3. Texas parks and Wildlife Department (TPWD), while not supporting the realignment of the Trinity River at I-45 has provided guidance to ameliorate adverse effects of this project feature. See response to TPWD comment 5. We believe that the realignment proposed is in conformance with that guidance and that the controversy with TPWD has been resolved .

4. The corrections were made in both locations within the FEIS.

5. Your concurrence is noted.

6. An operation and maintenance manual will be prepared that outlines appropriate management measures. Coordinating with the United States Fish and Wildlife Service and TPWD will be continued during preparation of operational guidance for the wetland and mitigation areas.

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appropriately. We recommend that the Corps and project sponsors seek the assistance of a wetland ecologist in the development and implementation of an operation plan for the wetlands and that the project sponsors provide committed assurances that staff and funding will be available to operate and maintain the wetlands in accordance with the recommended operation plan.

7. **Page 4-49. CWWTP Levee Tie-In.** This section of the DEIS indicates that the City of Dallas supports the short option for expanding the Central Wastewater Treatment Plant levee south of Cadillac Heights. The general route of this option is noted on Figure 4-12, and more specific levee alignments are provided in Appendix C, the Civil/Structural Design section of the draft report. Sheets C04 and C05 of Appendix C indicate that the south section of the Cadillac Heights levee may impinge on a small block of woods near the east end of Rector Street across from a warehouse area. These woods currently provide a major rookery for a variety of colonial nesting birds. At least seven species of colonial nesting birds have been observed occupying this small wooded area, including great blue heron, little blue heron, green heron, yellow-crowned night heron, great egret, snowy egret, and cattle egret. We strongly recommend that the levee alignment be adjusted to avoid impacting this rookery area. If impacts to this area cannot be avoided, it would be necessary to schedule construction activities during the non-nesting season in order to comply with the Migratory Bird Treaty Act which prohibits activities which could result in a "take" of protected species.

8. **Page 4-69. Channel Realignment Proposal at IH-45 Bridge.** This section of the DEIS notes that approximately 3,300 linear feet of the Trinity River would be realigned at the IH-45 bridge crossing at the request of the Texas Department of Transportation. The Texas Parks and Wildlife Department has stated its opposition to this proposal because of the adverse impacts it could have on the natural river processes of the Trinity. We are similarly concerned and recommend that alternatives to realignment, or at least a less drastic realignment, be considered. If channelization continues to be the preferred alternative, efforts should be directed to minimize the amount of impact to the natural river channel and associated riparian/bottomland vegetation. The amount of fill in the natural channel should be limited to only the minimum amount necessary to divert river flow, and the natural river channel should remain open at its downstream end in order to provide habitat diversity and a backwater refuge and nursery area for riverine species.

9. **Page 4-79. IH-45 Channel Realignment.** In addition to the short-term impacts associated with channelization of the Trinity River, long-term impacts to aquatic resources could occur if appropriate mitigative measures are not undertaken to avoid erosion, headcutting, or bank destabilization arising from increased flow velocities in the straightened channel. These mitigative measures are discussed in the FWS draft Coordination Act report.

10. **Page 4-85. Forest Mitigation Plan.** Implementation of either the Federally Supportable Plan or the Locally Preferred Plan would have an unavoidable impact on forested habitats of the Trinity River floodplain. Analysis of these plans using the FWS *Habitat Evaluation Procedures* indicates that approximately 1,154 acres of additional floodplain lands should be acquired and managed as

7. The current alignment was made to avoid the rookery and we believe that it currently does. However, during detailed design phase of the project, the area will be reevaluated and adjustments made as necessary and possible. Should impacts be unavoidable, construction will be scheduled during non-nesting seasons, in accordance with the Migratory Bird Treaty Act.

8. See response to comments TPWD # 5 on page N - 36 and USDI # 3 on page N - 349.

9. The realigned channel would not be straightened, but rather would have similar characteristics to the original channel as explained in response to TPWD #5 on page N - 346. Velocities are not expected to be increased because the intent is to divert the flow away from an existing structure rather than to increase the flow rate. Some initial movement of materials along the new cut channel bank is anticipated during initial phases of adjustment to meet flow conditions, however, there should not be extensive headcutting or bank destabilization resulting from the proposal.

10. The FWS has provided beneficial assistance in providing evaluations that have aided the Corps in evaluation of project alternatives and selecting a recommended plan that avoids impacts to the extent possible to the most important resources in the project area. The FWS has also provided guidance on developing the ecosystem restoration plan in addition to mitigation recommendations. During detailed design, the FWS will be provided further opportunity to assist the Corps finalize appropriate techniques as suggested to ensure appropriate survival and growth characteristics of the reforestation efforts.

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wildlife habitat to compensate for these adverse impacts. The FWS mitigation plan, discussed in the draft Coordination Act report, assumes the use of a combination of containerized trees and shrubs and seedlings for reforestation. Further analysis by the Corps indicates that approximately 1,179 acres would be required to fully compensate project impacts if bare-root seedlings were utilized in lieu of containerized plants. The Corps has chosen the latter mitigation alternative, since bare-root seedlings would be less costly to establish than containerized plants.

We concur with the Corps' selected mitigation plan with the following conditions. Bare-root seedlings should be used only for the reestablishment of bottomland hardwood vegetation on the mixed grass-forblands, with containerized trees and shrubs used within existing forested areas for stand improvement. Initial establishment of the seedlings should use state-of-the-art techniques to maximize the seedlings survival from drought and animal damage. Some available techniques include the use of growth hormones, slow release fertilizers, protective sleeves, adequate irrigation, weed control, and other measures. A 75-80 percent survival rate after two growing seasons should be attained before the reforestation is considered successful.

11. **Appendix F, Page F-34, Corps Analysis of Other Mitigation Alternatives.** This section of the DEIS evaluates various alternative locations for the acquisition and management of project mitigation lands. Several alternative sites remote to the project area were evaluated; however, the Corps' analysis determined that the potentially lower initial acquisition costs of these sites would be more than offset by the additional operational and management costs. It was also determined that acquisition of a remote mitigation site would not be consistent with project planning and mitigation objectives. We concur with the Fort Worth District's conclusion that acquisition of mitigation lands near the proposed project area, as identified in cooperation with the resource agencies and project sponsor, should be the preferred alternative for the floodway extension project.

We could not support any effort on the part of the Corps to acquire separable mitigation lands far removed from the project impact area. In accordance with the FWS *Mitigation Policy*, first priority should be given to the acquisition of lands within the project planning area. Remote mitigation sites should only be considered if reasonable, manageable lands are not available within the project area. In the case of the Dallas Floodway Extension, potential mitigation lands are available contiguous to the impact area, and these lands would meet all of the planning objectives established by the Corps, local sponsor, and natural resource agencies.

12. **Appendix F, Page F-39, Corps Mitigation Recommendation.** The Corps proposes to adopt the recommendations of the FWS draft Coordination Act report in order to mitigate the impact of the proposed project on floodplain forested habitat, with the exception that bare-root seedlings will be utilized for reforestation and 25 additional acres of grassland would be acquired for mangement to compensate for use of the seedlings in lieu of containerized trees and shrubs. The District also proposes to acquire the mitigation lands within the project area at sites coordinated with natural resource management agencies and local sponsor. We concur with the District's mitigation plan and recommend that acquisition of the mitigation lands proceed concurrently with

11. Your concurrence with the recommendations of the draft GRR/EIS regarding acquisition of mitigation lands near the proposed project area is noted. The priority for mitigation lands would be those identified during coordination with the Fish and Wildlife Service.

12. Mitigation would proceed concurrent to implementation of other project features.

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the acquisition of other project lands. As previously noted, operation and maintenance funding should also be scheduled to insure the overall success of management activities on the mitigation tracts.

We appreciate the opportunity to provide comments on this Draft General Reevaluation Report and DEIS. We trust that these comments will be of use to the Corps of Engineers during development of subsequent environmental documentation.

Sincerely,

Glenn B. Sekavec
Regional Environmental Officer

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STATE OF TEXAS
OFFICE OF THE GOVERNOR

GEORGE W. BUSH
GOVERNOR

June 25, 1998

Mr. Gene T. Rice, Jr.
U. S. Army Corps of Engineers
CESWF-PM-C, P. O. Box 17300
Fort Worth, Texas 76102-0300

RE: TX-R-19980511-0007-50-00 / DRAFT GEN. REEVAL/INTEGRATED EIS:DALLAS FLOODWAY

Dear Mr. Rice:

Your environmental impact statement for the project referenced above has been reviewed. The comments received are summarized below and are attached.

1. The Bureau of Economic Geology (BEG) commented that the EIS answers the principal environmental questions. However, BEG raised a question of whether the EIS should also address appropriate access to and disposition of sand and gravel deposits of the Trinity River Valley.

We appreciate the opportunity afforded to review this document. Please let me know if we can be of further assistance.

Sincerely,

T. C. Adams, State Single Point of Contact

TCA//yjy

Enclosures

1. See next page for detailed comment.

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BUREAU OF ECONOMIC GEOLOGY
THE UNIVERSITY OF TEXAS AT AUSTIN
University Station, Box X · Austin, Texas 78713-8924 · (512) 471-1534 · FAX (512) 471-0140
10100 Burnet Road, Bldg. 130 · Austin, Texas 78758-4497

June 17, 1998

T. C. Adams
State Single Point of Contact
Governor's Office of Budget & Planning
P.O. Box 12428
Austin, TX 78711

RE: TX-R-19980511-0007-50-00

Dear Tom,

The Bureau of Economic Geology has reviewed the Draft General Reevaluation Report and Integrated Environmental Impact Statement for the DALLAS FLOODWAY EXTENSION - Trinity River Basin, Texas.

1. The report answers the principal environmental questions to engineer the floodway. However, is there a concern with utilization by a private party of the gravels and sands of Trinity River Valley terrace deposits for construction materials (page 2-10)? Even, should the plan protect the availablitly of these valuable resources for the future? Are these appropriate questions in large venture EIS Planning?

Thank yuu for the opportunity to comment.

Sincerely yours,

E. G. Wermund
Research Scientist

1. Much of the area has been minded for top soil, sand or gravel. The remaining resources on project lands would be protected as a result of acquisition. Should future demand necessitate consideration of use of these resources, their development would be subject to meeting environmental stewardship and other legal requirements of that time.

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MAY 30, 1998

U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300

DEAR SIR OR MADAME:

1. I ADOPT THE COMMENTS OF THE TEXAS COMMITTEE ON NATURAL RESOURCES, THE DALLAS GROUP, LONE STAR CHAPTER, SIERRA CLUB, AND THE DALLAS COUNTY AUDUBON SOCIETY, SENT TO YOU, ON THE DRAFT GENERAL REEVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT, DALLAS FLOODWAY EXTENSION, TRINITY RIVER BASIN, TEXAS. THE NON-STRUCTURAL ALTERNATIVE COMBINED SEPARATELY OR
2. UNCOMBINED WITH CONVEYANCE BASINS, OR RAISING EXISITING LEVEES, IS FAR MORE SAFE, MODERN AND PREFERABLE THAN ADDING NEW LEVEES AND SWALES.

SINCERELY,

Zonneke Cross

PRINT NAME: ZONNEKE CROSS

ADDRESS: 9948 LAKEMONT

CITY/STATE/ZIP: DALLAS, TX 75220

DATE: 7-8-98

1. A total of 141 individuals submitted form letters adopting comments of theTexas Committee on Natural Resources; Dallas Group, Lone Star Chapter, Sierra Club; and Dallas County Audubon Society. The referenced comments and responses beginning on page N - 312. The concurrence with the comments of these organizations is noted. The other 140 form letters have been placed in the project file but are not included in this appendix to reduce the size of the overall document as was requested by several individuals.

2. See response to comment #1 on page N - 13.

Save Open Space
P.O. Box 670407
Dallas, TX 75367

August 13, 1998

Mr. Gene T. Rice, Jr., P.E.
USACE, Fort Worth District
PO Box 17300
Fort Worth, Texas 76102-0300

Re.: Draft General Reevaluation and Integrated Environmental Impact Statement for the Dallas Floodway Extension Project

Dear Mr. Rice:

Save Open Space offers the following comments on the above referenced document.

1. The wetlands mitigation area should be located within Dallas County in close proximity to the project limits. The opportunity of preserving and enhancing one of the largest urban forests in the world should be pursued with vigor. The draft EIS appears to concur with this position when it states that the wetlands mitigation work "provide a catalyst to ultimate acquisition" of the Great Trinity Forest." The cost/benefit analysis of the offsite versus Dallas County site does not do justice to the importance of keeping the mitigation efforts local.

2. The draft EIS does not adequately explain how the chain of wetlands will look and function. For example, are the areas dry or wet and if wet, how deep is the water? What type of vegetation will be allowed to grow there? How will the density or characteristics of that vegetation be maintained by the City of Dallas over time? What is the breakdown of the operational and maintenance costs be for these wetlands?

3. The draft EIS does not seem to accurately reflect the complete nature of the project being constructed by Dallas through the combined efforts of TxDOT, the Corps, and others. The Trinity River project which Dallas voters approved includes a roadway/highway on the enlarged inside slopes of the levees. The hydraulic and hydrologic impacts of this highway have been addressed only in a preliminary manner by a TxDOT consultant. Their analysis apparently showed

1. The recommended location for the 1179 acres to mitigation bottomland hardwood forest impacts is in Dallas County near the location of other project features.

2. The wetlands would have a gentle bottom slope with maximum depth of 3 feet. A deeper open water area would also exist in the complex. The edges of the wetland complexes would be planted with grasses tolerant of moist conditions. The final configuration of the wetlands would be accomplished during design phase of the study. The operations manual for the project will include details to ascertain the wetlands function over time as intended. Estimated operation and maintenance cost for the wetlands is $50,000 per year including pumping costs.

3. The draft GRR/EIS presents the findings of the investigations initiated to reevaluate a previously Congressionally authorized project providing flood damage reduction to the DFE area, and does not recommend a roadway/highway. The bond package voted on by the citizens of Dallas was for several projects which the city is pursuing. As stated by the EPA in their comments, the project proposed in the draft GRR/EIS is independent of the transportation needs. Any subsequent transportation project affecting the DFE will have to comply with NEPA guidelines prior to alternative plan selection and implementation. Cumulative impacts of reasonably foreseeable proposals, including the Trinity Parkway/Freeway have been incorporated into the GRR/EIS.

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that the benefits obtained by the Corps' chain of wetlands project compensated for the construction of the roadway, canceling out the new flood reduction benefits to the properties outside the existing Dallas levees allegedly gained through this project. If this preliminary analysis is correct, then the benefit/cost computations in this draft EIS are no longer applicable. It seems to remain unproven that construction of the currently proposed City of Dallas off-channel lake within the floodway will compensate for the roadway embankment. Given that the City of Dallas considers the roadway and floodway extension project to be inseparable and interrelated, the Corps should recalculate the benefits of this project and perform a comprehensive hydrologic, hydraulic, and impact analysis of the complete Trinity project.

4. The alternative to the above suggestion is that the Corps make it clear to the City of Dallas and TxDOT that because this EIS does not include the roadway that no benefits from this project would accrue to the roadway project. It would have to stand alone in proving that it has no adverse impact upon the hydraulic benefits gained by the floodway extension project as outlined in this EIS. The resulting hydraulic conditions in the project area caused by the currently described floodway extension project would then become the baseline to which the roadway project would have to meet. If the roadway caused any adverse impact to these conditions, then mitigation would be required to restore the full benefits of the floodway extension project.

5. Save Open Space is concerned about the apparent need for a variance of the Corridor Development Certificate process, which the draft EIS states is needed for this project as currently designed. Such a variance raises questions as to whether other variances for upstream projects would be allowed and when the cumulative effects of the resulting variances would be detrimental to Dallas.

6. The discussion of air quality impacts of the project appears inadequate given that the project includes a highway.

7. Save Open Space agrees with the draft EIS' recommendation regarding the need for a program to address the preservation of prehistoric sites along the river.

8. Save Open Space supports the recommendation of the draft EIS to include environmental restoration as a project purpose.

9. Save Open Space continues to be concerned about the methodology for deciding that voluntary buyout of the Cadillac Heights area is uneconomical and not in the best interests of residents of that area. Little imagination appears to have been given to devising a

4. This comment reflects the correct process by which the DFE project is currently being handled.

5. The CDC process was initiated to minimize the impacts of future development on the downstream portions of the regional area, and to allow equitable opportunities for unrelated development projects to occur throughout the region. The CDC process was not intended to prohibit projects such as the proposed DFE project, which would provide for the best public interest. With over 2,500 structures in the SPF zone, the protection provided by the DFE project to currently unprotected areas would clearly outweigh the minor water surface elevation increases downstream of the project. In addition, approximately 10,000 structures in the upstream reaches would receive added flood protection from implementation of the project.

6. The GRR/EIS makes no recommendations for construction of a roadway.

7. Your concurrence is noted.

8. Your concurrence is noted.

9. The economic analyses regarding the non-structural buyout alternatives were conducted in accordance with current Federal policies and guidelines.

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program funded through the Corps and HUD to relocate those citizens to new housing in areas of the City that do not have floodplain and lead contaminated dirt concerns.

10. Earlier information from the Corps on this project showed that several neighborhoods would be left unprotected from the 100-year floodplain even after this project was implemented. Given that the City follows a policy to trying to protect its residents from such a flood and given the need for ensuring environmental justice, the draft EIS should be clear on the steps needed to protect all neighborhoods and homes along the project boundary from the 100-year flood.

Save Open Space appreciates the opportunity to submit these comments. This is a complex project that has long term ramifications to the City of Dallas. If you need additional information or clarification about these comments, please feel free to contact us.

Sincerely,

Jill Jordan
President

10. Corps proposals would provide some increased protection to all neighborhoods along the study area, however, not all would be protected from the 100 year flood event. The proposed project would not induce flood damages. As proposed the project would reduce water surface in the vicinity of Moore Park by 2-feet for the 100-year event. See response to comment # 98 on page N - 48.

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LEAGUE OF WOMEN VOTERS *of Dallas*

June 29, 1998

Mr. Gene T. Rice, Jr., P.E., Project Manager
USACE, Ft. Worth District
PO Box 17300
Ft. Worth, Tx. 76102-0300

Dear Mr. Rice:

The following comments are sent for your consideration in regard to the U.S. Army Corps of Engineers' (USACE) "Draft General Reevaluation and Integrated Environmental Impact Statement" (GRR/EIS) for the Dallas Floodway Extension (DFE) Project.

This very large project, costing at least $125 million, is difficult to assess. The size of the proposed area covered with structural changes is enormous. Literally everything in the city along the Trinity River Corridor from Corinth St. to the South Side Waste Water Treatment Plant (SSWWTP), where dredge material would be deposited, would be affected in some way or another. Conversely, the area being "protected" from the Standard Project Flood (SPF), defined in the flood profile, is minuscule in comparison to what would still remain in the SPF flood threatened region (GRR/EIS plate A-42).

On the Lamar Street side, virtually everything from the north of the present Rochester Levee (approximately Hawn Fwy.) up to IH-30, west to Metropolitan St. and the Fair Park grounds, and east to Mesquite would still be in the SPF flood area even if the Locally Preferred Plan (LPP) were in place. Thus the flood area remains essentially unchanged from the pre-project situation with the exception of some land around Scyene Road and Hatcher Street (note: the map is very difficult to read so some of these locations may be misplaced). The proposed new, structurally "protected" area encompasses a small section around Lamar Street (Corinth to IH-45), with a new levee parallelling the Rochester Levee and containing a "planned flood inundation" location. There would have to be some relocation buy-out to remove buildings within the levee footprint - including sump/pump (i.e., retention ponds) requirements yet to be determined.

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On the Cadillac Heights side, there would be no change in the majority of the SPF flooded area except for the Cadillac Heights neighborhood itself. Almost all of the flood reduction area is currently zoned for heavy industrial development, so there are many questions regarding the residential "protection" aspects of this plan. The Central Waste Water Treatment Plant will receive some additional flood threat reductions; however, it is the "relief" site of levee overtopping should the upstream levees be threatened .

The entire Dallas Floodway Extension (DFE) plan would cause a sizeable increase in yearly budgeted operating and maintenance costs. Yet, the economic benefits of slightly raising protection for the expensive Central Business District and providing new flood reductions for close-in commercial development are said to justify the project.

The League of Women Voters of Dallas (LWVD) has concerns regarding the DFE project that center around the issues of the USACE's compliance with and furtherance of:

A) the Clean Water Act and the Clean Water Action Plan and related items such as the city's poor operation and maintenance of large public works projects.

B) the Corps' Challenge 21 Initiative. The US Congress has expressed a planning priority for this initiative by increasing funding for these solution alternatives, some of which are: assessing flood plain changes resulting from storm water run-off; placing particular focus on non-structural solutions for flood reduction with the goal of achieving more sustainable solutions; emphasizing partnerships and Federal coordination.

C) the Executive Orders 12898, 12875, 12962, 11514, 11988, 11990, et al. concerning environmental compliance and justice, and related concerns under Title VI of the 1964 Civil Rights Act (a Federal as well as a non-Federal responsibility: GRR/EIS p.6-25);
and

D) the Clean Air Act impacts considering the city's current "serious non-attainment status" coupled with its overall future plans for this area.

A) The Clean Water Act and the Clean Water Action Plan

The Clean Water Act (CWA) seems to be ignored by many elements of this project. In addition to the CWA, the Clean Water Action Plan (CWAP) calls for more and immediate aggressive action in protecting public health through the protection of clean water supplies. The plan mandates that there be an emphasis on protecting watershed areas through cooperation among governmental agencies along with the EPA and USDA. One major CWAP goal is to reduce polluted runoff such as over-enriched nutrient loads and

1.

1. See response to comment # 138 on page N - 54, comment # 40 on page N -37, response to comment # 63 on page N - 41 and response to comment # 41 on page N - 37.

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to support the **Clean Air Act (CAA)** for reducing various nitrogen-oxygen compound (NOx) emissions from the air since about half of the latter are deposited in watersheds.

In addition, the CWA and the CWAP call for even further reductions in nitrogen compounds from point (i.e. waste water treatment plants) and non-point (i.e., fertilizers, herbicides, manure and agricultural sites) sources. Since urban storm water runoff is one of the leading causes of point source water quality deterioration, the impacts of this pollution run-off downstream into watersheds is becoming increasingly important in new monitoring programs.

The Trinity River is currently one of the 40% of rivers nationwide, and one of 146 Texas rivers and lakes still classified as "impaired". This means that the Trinity is still "undrinkable, unfishable, unswimmable" and is listed by the EPA's IWI (Index of Water Indicators) as "highly vulnerable to stressors such as pollutant loadings". The River runs up to 96% waste water effluent during low water/drought months - the larger part of some years - and could today be even drier without this effluent discharge. The 1990 chlordane health alert against consuming fish from the river is still in effect. Thus the Dallas situation is that along with compliance monitoring of our responsibility for the watershed here and downstream, we must constantly assess our clean water resource availability - especially in competition with expected higher demands due to increasing population growths in the region.

2. The DFE plans to place a levee around Cadillac Heights (west side of River) leaving the Central Waste Water Treatment Plant (CWWTP) levee at flood reduction levels below that of all old floodway and new levees. The "western floodwall" option would locate a meat packing plant's livestock barns on the inside (River side) of the levee and cross waste water interceptor sewer lines at two places generating many questions regarding the Corps' commitment to clean water.

3. In direct contradiction to the USACE (GRR/EIS p. F-16), an increase in the "loading" levels for TMDLs (Total Maximum Daily Load - see CWA section 303(d)) due to these levee constructions would certainly create a further problem for the city, to say nothing of the new threat to residents. They must contemplate not only the old possibility of sewage flooding their homes and businesses, but the new possibility of livestock loose in their midst if a flood should cause animals to be driven through USACE designed "flood gates".

4. The Locally Perferred Plan (LPP) "short" levee alignment cuts through Rector Street on its way to the Kiest/McGowan terminus and threatens extinction to a large heron rookery in the Rector Street area (GRR/EIS Append.C, map sequence 5), thus further disregarding riparian habitat/wetland/water protection

2. See response to comment # 6 on page N - 31 and responses to comments # 41 & 42 on page N - 37.

3. See response to comment # 6 on page N - 341.

4. See response to comment # 18 on N - 23.

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concerns and perhaps violating the North American Waterfowl Conservation Act.

The impact of health dangers and environmental fines to the city of a flood overtopping the CWWTP would exacerbate the TMDL problem. The nutrient (phosphorus, NOx and other toxins) loading, the growing silt-sedimentation load amounts (GRR/EIS p.F-9) and the demonstrated lack of monitoring/maintenance/operating money budgeted by the city for watershed protection/preservation indicate that the DFE project could be a major contributor toward further declines in the area's health and water quality.

The Wall Street Journal reports (5/13/98) that Texas is one of the states where TMDL assessments are not being made by our Texas Natural Resources Conservation Commission (TNRCC), and these states are now on notice by the EPA (and various threats of local lawsuits) to begin such monitoring immediately. The city could face large fines, be forced to re-locate businesses, limit land uses, engage in costly clean-up/retention programs or institute expensive waste-water treatment improvements as a result of compliance monitoring by the TNRCC.

A recent New York Times editorial (Mar.1, 1998) states: "Another ambitious element of the (Clean Water Action) plan seeks to add 100,000 acres a year to the nation's declining inventory of valuable wetlands. To do so, however, the (plan) must win the cooperation of the Army Corps of Engineers, which oversees wetlands policy and has been parceling the land out bit by bit to developers. One of the more attractive features of the (plan) strategy is that it promises to involve every Federal agency in the fight for cleaner water. Without the corps, the strategy will be incomplete." (Emphasis is the LWV author's). The GRR/EIS (p. 4-84) states that "roughly 50% of the land that would be impacted by the Federally Supportable Plan (FSP) would be considered wetlands by USACE determinations."

5.

It would be a shame, and one would think in direct contradiction to the" Challenge 21" initiative (discussed below), to have the DFE project cause further city tax dollars to be spent mitigating rather than being part of a sustainable clean water/watershed/ wetlands protection solution.

OPERATION AND MAINTENANCE CONCERNS:

The City of Dallas, with the seeming exception of levee sump/pump operations, has an extremely poor record of maintaining, operating and complying or concerning itself with environmental regulations. Watershed protection requirements in the DFE are obviously not a priority since, in addition to the already existing meat packing plant, the city recently permitted a meat rendering plant in Cadillac Heights on the river.

6.

5. The statement in the report refers to determination that 50 percent of the forested areas are wetlands. This was clarified in the final EIS.

6. See response to comment # 70 on page N - 42 and response to comment # 15 on page N - 23.

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A major contributor to lowered protection offered by the present floodway is the degradation in height of about 600 feet in length of the present levees due to poor city maintenance (GRR/EIS p. 2-10). In addition to upstream construction and loss of valley storage (see the Corridor Development Certificate-CDC-requirements), the city's ignoring "best management practices" has allowed large amounts of city generated sedimentation and silt to build up and make the floodway shallower. This inability to bring budget attention to erosion control, storm water runoff prevention or siltation prevention is easily observable in any part of the city. For over ten years, the city has put mowing of medians, public parks, levees, etc. on a very restricted schedule. The result is that much taller grasses when finally mowed are left to lie in streets or on levee sides and find their way into storm sewer outlets as the only "clean-up" repositories. Each Fall, public and private yard/leaf disposal is accomplished by "blowing" or sweeping enormous amounts of debris into streets/storm water gutters without hinderance from any city regulators.

Another observable example is the now almost completely silted and sediment filled east end of Bachman Lake where street construction erosion and other, often toxic run-off from the city-owned airport have been allowed to run uncontrolled. The city had made promises and delayed for years other, costly lake/floodway channel dredging or widening projects that are now slowly being accomplished. However, the city seems unable to implement/enforce less expensive and less toxic run-off prevention solutions. There is no monitoring or concern in the city's own departments as they continue to use heavy spraying of both herbicides and pesticides along creeks, riverbanks and streets.

Further degradation of water quality occurs when waste-water sewers overflow into streams and creeks since these sewer lines are most often located in stream bottoms for "gravity flow" reasons. As storm water surges run into and overload the faulty/broken waste- water sewer collection pipes, doubly polluted water pours out of waste-water sewer line man holes - sometimes for days - after heavy rains. The city has been collecting storm water permitting fees since 1991/92 from all property owners in Dallas with very little upgrading of the waste water treatment/ storm water disposal infrastructure or source point pollution/siltation prevention throughout the city.

Please note that the city, per the Dallas Morning News of 6/16/98, has alerted the citizens to the fact that we must increase water utility rates for the next several years "to keep pace with customer demand and to fix the city's aging water and sewer system" and "to meet current debts and to continue supporting capital improvements." It will be costly to try to rectify this long inactivity in our budget responsibilities.

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The Corps seems cognizant of at least some of these storm water runoff problems (GRR/EIS p.A-7) as they pertain to the DFE project area. It notes that "there (is) simply too low of a degree of confidence that these older and assumably poorly maintained sewer lines could sustain (sic) under the pressure created during high river stages. The systems appear to be fairly complex, ... making it difficult to clearly establish their capacities and reliabilities. THE UNCERTAINTIES REGARDING THESE FACILITIES WILL HAVE TO BE SIGNIFICANTLY REDUCED, AND PREFERABLY ELIMINATED, PRIOR TO ACTUAL IMPLEMENTATION OF THE TWO LEVEE PROJECTS." (Emphasis is the LWV author's).

The GRR/EIS states that if the areas proposed for levee protection must allow existing (if you can find them) storm sewers to drain into sumps, then deepening and enlarging sumps or increasing outlet sluice capacities would be required "to insure
7. the desired degree of interior flood damage protection." How many homes and business structures would be removed in these situations? Since these neighborhoods, particularly Cadillac Heights areas, are at already low-lying levels, could there be further O&M costs involved for pumping into outlets to achieve the "desired degree" of flooding protection?

In light of the above USACE concerns, it seems evident that there will be considerable cost and time involved before eliminating "uncertainties regarding these facilities". The city and the Corps have stated a target of completing the DFE within the next 5-8 years, so we question the dedication to have these issues resolved "prior to actual implementation."

The currently "unresolved" design options for the swale areas pose a problem for riparian and human residential/commercial inhabitants. If the "wetlands swale restoration" design is approved, the project calls for supplemental water to be supplied with CWWTP effluent which the Corps assumes is of sufficiently good quality (GRR/EIS p.F-9). It is interesting that for such a vital part of the plan, the Corps only took the verbal report of the Dallas Water Utilities Department to verify effluent quality.

If the "dry swale" design is approved, the loss of water quality and riparian habitats due to cutting trees and mowing large open grassy areas, hotter water temperatures, etc. which has already occurred with the swales attached to the CWWTP would
8. be greater (GRR/EIS p F-10). The promise to the citizens of how to make these additional swales (or wetlands?) an asset - and not mosquito/snake breeding liabilities with further health threats - is not seriously addressed by this report or by the city, which presently does not even employ a wetlands or moist soils management expert/biologist.

The additional maintenance and operating costs for all of the DFE plan would be just the beginning of a considerable burden on the city budget, since the whole corridor development proposal

7. See response to comment # 134 on page N - 53.

8. See response to comments # 126 on page N -52 and # 22 on N - 24.

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(see below) would greatly strain an already recalcitrant city. The fact that the Corps will submit an O&M manual (GRR/EIS p. A-25), with requirements for the District Engineer to inspect and to ensure compliance with "CFR 208.10", ignores the fact that the city plans to complete ALL the Trinity River Corridor proposals (roads, levees, chain-of-lakes, channels, etc.) before
9. negligence in the O&M program could be adequately assessed. There seems to be, therefore, no real enforcement threat or non-compliance penalty from the federal agency once construction has been completed. The USACE should demand, at least, that the city budget for, and hire immediately, a qualified engineering "superintendent" (who has the above noted qualifications/expertise) to manage such moist soils projects throughout the planning and construction phases as well as later.

IT IS INTERESTING TO NOTE THAT THE USACE HAS INCLUDED DETAILED ASSESSMENTS OF THE CITY'S ABILITY TO BE - OR AT LEAST AT THIS POINT "APPEAR" TO BE - FINANCIALLY RESPONSIBLE AS A PARTNER IN THIS DFE PROJECT (Corps letter with revised analysis dated May 20, 1998). IT IS CURIOUS THAT THIS SAME CONCERN IS NOT SHOWN IN ASSESSING WHETHER THE CITY'S PAST RECORD AND THEREFORE FUTURE INCLINATION TO OPERATE AND MAINTAIN MASSIVE PUBLIC WORKS PROJECTS JUSTIFIES SPENDING MORE OF THE TAXPAYERS' FEDERAL DOLLARS. SURELY IT OUGHT TO BE A PRIORITY IN THE USACE GRR/EIS TO EVALUATE THE
10. CAPABILITIES AND INCLINATIONS OF NON-FEDERAL SPONSORS TO SUPPORT SUCH PROJECTS, BASED ON THEIR PAST HISTORIES AND PRESENT WILLINGNESS TO ABLY STAFF OPERATIONS, BEFORE RECOMMENDING FURTHER FEDERAL CAPITAL FUNDING BE PROVIDED.

B): Challenge 21

PARTNERSHIPS AND FEDERAL CO-ORDINATION:

The Dallas LWV is greatly puzzled in regard to the USACE's participation and/or silence in the city of Dallas' piecemeal approach to the entire Trinity River Corridor. Not part of - but definitely associated with - the DFE project is the city's plan
11. to cooperate in the building or sponsoring of an eight lane toll road constructed on the east side of the DFE levee extension (Lamar St. side) on the river side. This toll road would be an extension of the eight lane divided road that would start at St. Hwy. 183 and divide along both levees inside the present floodway system, rejoining just below Corinth Street to consolidate on the east side levee extension.

As part of the ongoing USACE study in the Dallas floodway, there is now a Corps study/ discussion of a 300 foot benched channel ditch throughout the entire floodway. Further, and also known to the Corps, is the city's plan to place a series of lakes (actually borrow pits for obtaining fill material to support the toll road on the inside of the floodway levees at the 100-year flood levels), off channel and also located in the present floodway. There is a proposal to add a levee up the Elm Fork, and another to channel White Rock Creek south of IH-30 through some of the most beautiful hardwood forest habitats (GRR/EIS p.A-13,

9. See response to comment # 22 on page N - 24.

10. See response to comment # 77 on page N - 300.

11. See response to comment # 64 on page N - 41.

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map 2-1 for authorized projects). Certainly we have a new idea of "multi-objective" project in this corridor!

Since the early days of the Kessler Report in Dallas, the concept of lakes in the Trinity River has been thwarted by the existence of deep strata of permeable soil levels. Would the "chain of lakes" be possible? Would their proposed flushing with clean water, pumped from the Elm fork, further degrade the area's
12. total water quality and waste our water resources? Would the lakes alone operate as detention basins that would sufficiently lower conveyance and offer flood reductions to the extent we do not need the 300' channel or DFE project at its fullest? Is it the Corps' practice to continue to put before the public one piecemeal project after another, each attempting to undo the damage from the previous work? Do we prevent "negative impacts" to federal projects by adding more federal projects? Is this a Challenge 21 "permanent" solution?

The fact that the area's Corridor Development Certificate (CDC) agreement and the hydraulics/hydrology analysis have never been evaluated with respect to present levee floodway/road impacts has not prevented the USACE from tacitly endorsing the engineering plans for the city to pursue this road concept through both TxDOT and the public voting processes. Indeed, during the Major Transportation Investment Study (MTIS) process conducted by TxDOT, city bond campaign, and DFE discussions, the
13. USACE has stated that it is being constantly included and has continuously participated in the multi- agency, city-coordinated Dallas Trinity River Plan. To pursue the DFE project without some consideration of the cumulative effects of the upstream road proposal (with the "chain of lakes"), its location on the Lamar levee and the further impacts on the CDC criteria indicates that either we are wasting a lot of time and money planning for an impossible situation, or we will be forced to build an imprudent project because we have spent so much time and money on it.

The GRR/EIS (p.6-12) on the DFE project indicates that there will be a loss of valley storage resulting in "an increase in the peak discharges" in the project reach, that would be "expressed in terms of an increase in the peak water surface profile downstream of the project" in contradiction of the CDC rules. Indeed, the USACE seems to feel that there should be no question about allowing this variance in the CDC requirements (under the very heading of "cumulative effects") since there are such strong economic benefits resulting from the project, while the city might regret the short-term benefit lasting only until our upstream neighbors wish to also get "waivers".

Loss of valley storage was so important to the Trinity River's EIS Record of Decision (ROD) report that the CDC included it as a major item to prevent. Dallas today is in a levee breaching/overtopping and flood threatening situation because upstream neighbors have felt free to institute the same poor flood reduction strategies of our early history: i.e., structural

12. The Chain of Lakes is not proposed to be constructed as a part of this project. Also see response to comment # 79 on page N - 301.

13. See response to comment # 7 on page N - 21.

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solutions of filling and levying that increase downstream silting and water heights/velocities.

The North Central Texas Council of Governments (COG) spent many years in careful negotiations to craft the CDC process in an attempt to stop the damage downstream (to Dallas and beyond) caused by the cumulative effects of upstream construction, such as loss of valley storage. Is the Corps prepared in this instance to set a precedent of allowing variances to these requirements for Dallas? How many other well justified variances
14. add up to the need for future, more strict CDC requirements and - yet again - threats to Dallas? Can Dallas think, with impunity and Corps backing, that our compliance standards should somehow be less demanding than our neighbor's? And how does such a prospect create an economic "benefit" when so much in future corrective costs may be incurred?

What will using even more space on the inside of the levees upstream for roads mean to the present CDC and such a suggestion for this DFE variance? Will the result of these tollway studies now being evaluated, coupled with flood reduction analyses in the present floodway and the DFE project, require even further projects resulting in more flood/ habitat/wetland/water quality problems to mitigate for the damage of using a piecemeal approach to this whole corridor?

15. The DFE project already places the "Lamar Levee" as close to the River as possible. The USACE, fully aware of the above mentioned road construction plans, seems to have placed its levee alignment with great care for the most advantageous support of the toll road. We have made repeated suggestions to have the alignment moved as far away from the River as possible, i.e. along the logical non-encroachment line created by the railroad. While placement of a few new urban levees are, indeed, being built in some cities such as Grand Forks, ND, it is our understanding that in no case are these new levees being put closer together as in the DFE proposal for Dallas. The Corps states that the levee alignment may be placed closer to the River due to the" ineffective flow areas" (another term for "valley storage"?) caused by the already high abutments for the IH-45 highway road. Would the placement of the levee farther from the River not offer, at least, the opportunity for valley storage restoration to the project?

We are very interested in the suggestion that (GRR/EIS p.A-22) the Lamar Street levee is actually planned to allow low level flooding in the form of "controlled inundation of the levee
16. protected area". Is this sandbagging effort to be "controlled" by the same city personnel who are also moving livestock through the Cadillac Heights levee?

No flood reduction/increase investigations have been made as a result of the road-on-levees proposals, and similarly no discussion is made of the increase: in polluted storm water run-

14. See response to comment # 7 on page N - 21.

15. See response to comment # 129 on page N - 53.

16. See response to comment # 8 on page N - 22.

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off; in noise; and in damage to riparian habitats and new wetland ecosystems. This ignoring of the road plan and its cumulative effects (immediate area as well as up and downstream) does not create a "more effective Federal coordination of flood reduction programs" (Challenge 21). Since USDA and its Natural Resources Conservation Service (NRCS), the EPA, and USGS (US Geological Service) have been left out of the road discussion loop they certainly would not be aware from this report of any of these
17. additional and overlapping corridor plans or their possible impacts. **The National Environmental Policy Act of 1969** (NEPA, 42USC 4331(b)(3)) also calls for "coordination of Federal plans, functions programs and resources to ... attain the widest range of beneficial uses of the environment without degradation and risk to health or safety." We suggest also checking with **Executive Order (EO) 11514, sec. 2.**

NON-STRUCTURAL SOLUTIONS:

Challenge 21 calls specifically for using non-structural alternatives to achieve more sustainable solutions when planning flood reduction projects. Even **EO 11988** recognizes the responsibility to "avoid direct or indirect support of floodplain development wherever there is a practicable alternative ... and to restore and preserve the natural and beneficial values served by floodplains...". In Sec. 3, the order advises that, again "wherever practicable" alternatives to any building in the floodplain should be considered "rather than filling in land." We should like to point out that the operative standard here is "practicable", not an economically driven absolute.

Yet the USACE in the DFE project only computes economic reasons and offers policy restrictions for why it cannot offer a voluntary buy-out program for Cadillac Heights. Such a program could be accomplished in conjunction with already applicable and fair city policies. We note, however, the lack of economic analysis for previously mentioned costly environmental damages to the watershed, and the missing "costs" of the unspecified and unresolved "spot" buy-outs throughout the plan that will take place before the project can go forward. Unresolved plans, such as the increase in sump sizes for internal storm water drainage and final levee locations call such Corps statements into question.

Calculating the buy-out costs of the levee extension proposal without deducting the additionally projected properties that might be targeted; not evaluating the advantage of leaving the west side of the river's flood plain to flood after a buy-out and thus also not endangering the waste-water treatment plant; leaving out the estimates of costly environmental clean-ups; ignoring the increased urban industrial development adjacent to the levees; and not factoring in costly air quality penalties due to more mobile pollution sources with new levee roads, etc, have left us with a less than honest cost/benefit analysis in the current Corps report. Perhaps a more realistic and honest "cost"

17. See response to comment # 138 on page N - 118.

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analysis may be available when/if the entire Trinity River Corridor is finally evaluated by a seemingly reluctant Corps.

There is a most unclear statement (GRR/EIS p.C-6) referring to the LPP forcing an abandonment of almost half of Sargent Road. Sargent Road does not approach Kiest Blvd. , and half the road is south of Southerland. At its southern terminus it joins Overton St. and connects to IH-45 and also to Hwy. 310. This is a major connection for the neighborhood and the only route to Sargent
18. Park, a city park. Is this another "surprise" for the community to "discover" if the LPP is constructed and the southern half of Sargent Road is closed? It seems an interesting idea that the Corps would provide "walls" that no longer allow citizens to reach their park. This is yet another argument for buying-out the west side and leaving all the land to become park area, natural flood plain.

In every case, (GRR/EIS Appendix F), the non-structural solution or even the combination structural/non-structural alternatives offered better environmental and flood reduction benefits with certainly greater long term economic security. Better air and water quality, less threat of noise increases, less heavy industrial urban build up along the river and more park/watershed protection for the city would seem to offer more educated solutions for our future. The ROD and CDC criteria do not preclude a non-structural solution, so one wonders why the Corps is so careful to endorse a "variance" for some situations (GRR/EIS p.6-10 and the LPP) while not finding a "best overall public interest" in its own Challenge 21 recommendations.

C) ENVIRONMENTAL COMPLIANCE AND JUSTICE ISSUES

In regard to environmental justice issues, these pertain mainly to the residents of Cadillac Heights, but could also include the many South Dallas residents still left with existing flood threats. (Does this also mean yet another future project from the Rochester Levee north up White Rock Creek?) Cadillac
19. Heights is adequately described in the GRR/EIS, but there is a strangely cavalier attitude about leaving homeowners to the vagaries of the market after purposefully raising their property values - which the Corps states it fully expects to happen once these homes are removed from more frequent flood damage occurrences. Unfortunately, the fact that these homes are on highly toxic, lead polluted soils and are zoned for "I/M= industrial/manufacturing" development indicates that in truth, the property values probably will decline and loans for repairs will be difficult to obtain.

The city has been completely silent on the subject of lead clean-up for some 157 homes which do not meet the city's own residential soil standard of 250/ppm in their backyards (in 1996 the TNRCC recorded soil sample levels as high as 6,000/ppm of

18. A portion of Sargent Road would be relocated and a portion would be closed to accommodate the Cadillac Heights Levee, however, access to the neighborhoods and park would still be available.

19. The project as proposed is in compliance with the Executive Order on Environmental Justice.

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lead). The city did call in the state to accomplish a clean-up of some 60+ homes to the state's level of 550/ppm.

The impression is that, since all of this information was also made available to the Corps at numerous public meetings, the Corps is a willing partner in enabling the city to rid itself of these poorer neighborhood inhabitants without buy-out, flood relocation or emergency aid. An op-ed editorial from the Dallas Morning News of 5/6/98 (already submitted) states clearly the economic purposes behind the city goals for this area: "With a levee system protecting the area, there is every possibility the neighborhood could become a southern Dallas redevelopment site. Companies looking for reasonably priced land could purchase the remaining homes and turn the area into a planned industrial site." (Emphases is LWVD author's). Again, see your Challenge 21 initiatives.

Questions need to be asked regarding the DFE impacts to minority settlements downstream both in and outside of the city limits, such as Joppa and Sand Branch, resulting from the increased TMDL's; increased water velocities delivering waste water and other toxic pollutants and odors; the soil disposal from swale construction and the lack of city maintenance for erosion controls on already existing problem areas (i.e., Lemmon Lake, Little Lemmon Lake). There are subsistence and recreational fishing activities that must be addressed as part of the Corps' responsibility under the Clean Water Act and EO 12962. The new channel under IH-45 would certainly have an adverse impact on "aquatic systems". It is true that while the Trinity River is not a great anglers destination, whether for recreational or sustenance fishing many adjacent minority neighborhood individuals and large numbers of commuters may be found daily fishing its banks -- in spite of the health warnings, which are not posted.

The USACE (GRR/EIS p.6-10) points out that the economically, to the Corps, buy-out of only the 25-year flood plain would "leave many minority and low income individuals subject to flooding ... (and) the LPP levee would reduce adverse ... impacts of repeated flooding ...". We have previously stated that there is a concern that flood reductions to a community with high levels of chemicals, metals, odoriferous air and non-residential zoning is hardly meeting even the spirit of EO 12898. Whether the community feels that actions are being taken that leave them "walled-in" on north, east, and south, trapped in polluted soil with poor quality, smelly air and with no relocation help is a violation of the Civil Rights Act , Title VI, will be for them to decide. For the rest of us, this is not very desirable outcome of much of these proposed tax expenditures.

The Corps goes on to state that building the wetlands plan alone would offer the majority of the cost benefits to the CBD. There is a dilemma for the Corps and the city since both hardly address the minority/low income neighborhood/business problems on

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either side of the river. The GRR/EIS goes so far as to note that there would be "economic benefits ... due to the influx of recreation users of the trail system that would be constructed." Unfortunately, the Corps does not go on to tell us how this economic gain will accrue to areas that will, as a result of the DFELPP and the toll road proposal, be completely inaccessible to any trail system, the river, or indeed - as in the case of Cadillac Heights - even their local park.

There could be a benefit to the city if some clean-up of hazardous, toxic, and radiological wastes (HTRW), trash and debris were to be accomplished. But, we hasten to note that these gains would be largely for the Great Trinity Forest (GTF) Park, should this park ever become a reality. Unfortunately, the city has stated it will not take any responsibility for this "park", and the state replies that it can not. The park department has refused to negotiate at present with anyone wishing to sell land to the park. HYRW clean-up is not "environmental justice", but it may help improve water quality and the forest habitat.

EO 11593 calls on the "Federal Government (to) provide leadership in preserving, restoring and maintaining the historic and cultural environment of the Nation" in support of the **National Historic Preservation Act, NEPA,** and others. The Corps is to be applauded for its advocacy and leadership in identifying, so far, 14 archaeological and architectural sites on the Trinity River "eligible for inclusion on the National Register of Historic Places" (GRR/EIS p. 7-3,g). Is the suggested program being developed "to address the loss of these resources" in case of the DFE construction paid for by the Corps? The assumption that there is no economic value to the "loss" of these resources, and the assumption that they will, indeed, be lost is a further indication of the incomplete economic cost/benefit analysis included in this project.

There is concern that the Corps' "environmental restoration" (i.e., chain of wetlands) is not part of the present project, and that the mitigation for the wetland/forest destruction would be located far away from Dallas. Losing wetlands here, already a violation of the Corps' regulations (GRR/EIS p. 1-2, the **Wetlands Protection Act, and EO 12875 and particularly EO 11990**) only to have them "replaced" elsewhere is both an economic and environmental depravation for the city. Again, the EO 11990 mandates that FEDERAL AGENCIES "SHALL AVOID UNDERTAKING OR PROVIDING ASSISTANCE FOR NEW CONSTRUCTION LOCATED IN WETLANDS UNLESS ... THERE IS NO PRACTICABLE ALTERNATIVE TO SUCH CONSTRUCTION AND ... THAT THE ... ACTION INCLUDES ALL PRACTICABLE MEASURES TO MINIMIZE HARM TO WETLANDS ...".

We note the emphasis in these various Acts and EOs is on the imperative to use "practicable" alternatives, NOT necessarily based on the primacy of economic results alone! The agencies also are to take into account "... environmental and other pertinent factors." Once again, the question arises as to

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whether there is not a much less destructive alternative to the DFE project for protecting the floodway levees, offering relief to businesses, and improving safe, clean and affordable housing opportunities for minority and low income citizens.

D) The Clean Air Act

The city of Dallas is currently classified as in "serious non-compliance" with the Clean Air Act provisions. We are assured by our COG and the EPA that we will be moved to the category of "severe" soon. At that time, not only will ozone be monitored but the waiver we have had for NOx emissions will no longer be in effect. The Corps does admit: "Addition of (toll roads) planned by others along existing and proposed levees could result in increases in (air) pollutant levels "(GRR/EIS p. 4-79; F-12), while ignoring its own responsibility to assess its participation in providing the ground (literally) for planning this road project.

The Corps seems purposefully misleading in its evaluation of the air impacts of various DFE alternatives, especially on nearby neighborhoods. Since, as previously mentioned, the city clearly plans to develop heavily and "up-zone" extensively behind both proposed levees while adding toll roads to the levees, then
20. indeed only the "future without project (no action) alternative" would help our air quality improve. The assessment (GRR/EIS p. 4-80,81 & F-13) of all other alternatives makes no mention of either of these openly discussed construction/development goals and the use of USACE dollars to accomplish them.

No one at the Corps seems to have a nose! Along with the watershed decline, the odor from the river is noticeable at almost any time. Combine this with the rendering plant, meat packing plant, the CWWTP, the SSWWTP, etc., and it becomes immediately evident why a non-structural solution, one that does not cause local air inversion problems, is the best for this situation. Allowing the flood waters to run behind the plant (where the majority of the SPF inundation flow will continue unchanged by the DFE proposal) could also contribute to better water AND air quality in this entire sector of the city.

Some Final Thoughts and Comments:

The location of the Cadillac Heights "short" levee (LPP) is shown quite differently on various maps throughout the GRR/EIS.
21. An intelligent, final comment cannot be made when the accuracy of a levee location itself is confused on the GRR/EIS information.

The DFE originally called for a "chain of wetlands" or swales that lowered the water surface levels in the floodway 3.5 feet thus insuring SPF protection "at any given frequency" to the downtown business district, and is the only proposal" that would

20. We disagree, the project proposal has been reviewed by Texas Natural Resource Conservation Commission. Their assessment is that the project would not result in significant releases of ozone precursors.

21. The GRR/EIS provides plan formulation data from which the final alignment for the Cadillac Heights levee alignment was derived as shown in Chapter 6 and Appendix C.

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"achieve benefits from all reaches, the net benefits would be greater than the other (proposals), and it is the only (proposal) which would not adversely impact adjoining areas due to increased water surfaces for given storms" (GRR/EIS p.4-63).

The city then asked for levee extensions, partly, we now see, for purposes of having the USACE as a partner in providing the base of the extremely expensive toll road. The Lamar Street levee is said to help with this lower upstream water surface by eliminating the lowest "critical breach point" of the existing East levee. However, construction of the Cadillac Heights and Lamar Street levees reduces, or has a negative effect, on the existing floodway since these new levees constrict conveyance. This DFE -FSP leaves us with just over a foot of new protection (versus the 3.5 feet mentioned above) in the floodway.

The Lamar Street, or east, levee would still leave parts of South Dallas open to flooding threats under the Central Expressway bridge. The GRR/EIS points out that there is a "pool " of water at this location, where Hatcher St. crosses, that would occur during certain flood events and offers to support a "buyout" of those neighbors. There would also be a buyout of residences near the Moore Park location on the west levee in the footprint of the levee berm.

The benefit: cost ratios(BCR) begin to decline as do the flood reduction achievements in all reaches as each addition appears on the DFE plan. The LPP is listed as having a BCR ratio greater than 1, but much less than even the FSP for flood reduction (GRR/EIS p.4-89). Flood reduction is ostensibly the primary reason for this whole project, and requirements of the federal laws consistently reiterate the need to protect wetlands, watersheds, water quality and public safety with all "practicable alternatives" to structural solutions. Therefore, it is difficult to see why continual suggestions for structural additions, evaluated on incomplete economic assumptions, are considered to be "feasible", while the Challenge 21 non-structural, much longer-term solutions (or even voluntary buy-out offers) are not.

We should like to add that the LWVD also endorses and adopts the comments and concerns of the Texas Parks and Wildlife Department (TPWD) and the US Fish and Wildlife Department (USF&W) as noted in all of Appendix G. Special regard should be given 22. to their recommendations for GTP lands as mitigation location sites, and their objections to the 3,000 foot channelization under IH-45 (since the LPP and the IH-45 Channel diversion have the greatest negative impacts on the riparian/forest habitat).

The LWVD appreciates the USACE and federal participation in our city's growth. It is important to help our business and economic climate as well as our too-often overlooked minority and low income citizens. The Corps also can lead us in helping to protect our environment and ecology. We also appreciate that

22. Texas Parks and Wildlife Department comments have been reviewed (See Page N - 345) and their criteria related to the realignment of the channel have been addressed. The recommended location for the environmental mitigation lands as described in the project plan is adjacent to the site of the impacts as also recommended by the USFWS , EPA, City of Dallas and many individuals.

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federal dollars, like our local dollars, should be spent in a balanced and wise manner. We do not believe that this DPE plan accomplished this aim. We hope that this plan can be amended to place as high a priority on enabling our minority and low income citizens to achieve healthy, quality neighborhoods as it has in providing construction and development opportunities.

Sincerely,

Mary Vogelson

Mary Vogelson
Trinity River Chair, LWVD
214-358-1629 home/work phone
214-969-4999 fax

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4/30/2009

6827 Coronado
Dallas, Texas
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August 14, '98

Dept. of the Army
Ft. Worth District
Corps of Engineers

Re: Comments on the E.I.S.

Dear Gene Rice:

This is a supplement to my previous letter on the Draft E.I.S. I will outline more of the things I find need correcting. A good many indications manifest to me that the Trinity River Floodway Extension, although much research and planning has been reported here are some things that don't check out to me:

1. There is no mention of the proposed freeway or tollway, which is part of the total Trinity River Corridor proposition for which we narrowly gave approval at the polls. Since this is bound to have quite an effect on the function of the flood protection improvements the Corps is slated to make, it should be dealt with in the EIS. This is one of the big factors in manifesting the contradictory nature of the package deal of the Corridor planning. Another, already mentioned
2. in my other letter, is the disposition of measures dealing with levee heights and extent around Cadillac Heights, which seem to indicate that flood protection is severely compromised as the planning map is currently presented.
3. Even without the impact of the roadway, p.6-12 reports a net rise of E .3 ft. of an SPF crest when all the "improvements in flood-handling are added up--over what we now have.
4. Environmental degradation seems to be a net minus, as well and mitigation actually minimal and insufficient--not a good trade off for all the money slated to be invested here.

Sincerely,
Vincent Hendricks
Vincent Hendricks

1. The GRR/EIS has been modified to include descriptions and cumulative impacts of reasonably foreseeable project proposals including the proposed parkway.

2. Subsequent to the release of the draft GRR/EIS, the Assistant Secretary of the Army (Civil Works) has determined that the plan providing SPF levels of protection to both the Lamar Street and Cadillac Heights areas, denoted as the Locally Preferred Plan in the draft GRR/EIS, should be the Federally Supportable Plan, and therefore the Recommended Plan. Revisions to the draft GRR/EIS have been made to reflect this decision.

3. See response to comment #2 on page N - 13 and comment #35 on page N - 294.

4. The proposed plan would provide an *increase* of 123 acres of emergent wetlands for ecosystem restoration purposes. The proposed mitigation was developed in coordination with the U.S. Fish and Wildlife Service, which is the Federal regulatory agency for environmental mitigation actions.

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DAIA
Dallas Chapter
American Institute of Architects

August 14, 1998

Mr. Gene T. Rice, Jr.
Project Manager
U.S. Army Corps of Engineers
Fort Worth District
P.O. Box 17300
Fort Worth, TX 76102-0300

Re: Draft Re-Evaluation Report and EIS, Trinity River.

Dear Mr. Rice:

The Dallas Chapter, American Institute of Architects, finds the plans for the Dallas Floodway Extension flawed and politicized for including levees around Cadillac Heights. As an organization that seeks to help people lead safe and healthy lives, we deplore neighborhood plans of such a confused nature as this one.

1. CADILLAC HEIGHTS: The AIA is deeply concerned that the levee proposal presented does not respect the needs of the residents in the area.

Cadillac Heights is a neighborhood of 338 homes, of which 100 are home owners. The immediate surrounding area throws off the noxious fumes and poison generated by Dallas' central sewage treatment plant, a former lead smelter, a Chromium recycling plant, an animal rendering plant, and a meat packing business. The State has documented the toxic residue of the lead smelter polluting the residents' properties, and warned them to keep their children away from their own yards. Cadillac Heights can never become a desirable neighborhood in which to raise a family, and indeed parts of it are zoned industrial, though families live there. The nightly fumes show the City's cynical inattention and disregard for the quality of life in this disgraceful part of Dallas. There is no need to protect such an area with a levee because of the presence of homes. Rather, the City should be offering to help its residents to relocate and to be made whole in a clean and safe neighborhood.

2. The City staff states that residents do not want to be relocated. There is no basis for this statement. There has been no house to house survey to prove that fact, nor does it stand to reason that "fair market value" funds from home sales in such an area would be sufficient to purchase a home in a decent environment. Policy would have to be changed to cover the cost of replacement housing and moving expenses to allow persons forced to live on a bare margin in

2811 McKinney Avenue, Suite 20, LB 104
Dallas, Texas 75204
214/871-2788

1. The Texas Natural Resource Conservation Commission (TNRCC) has remediated lead concerns for residential yards within Cadillac Heights to safe standards. At this time, two commercial properties have been identified as having elevated levels of lead. We have been informed that both property owners are working with the TNRCC to develop a clean-up plan. Furthermore, additional testing of sites which would be impacted by the proposed project are scheduled during the next phase of detailed design. Should such tests reveal hazardous and toxic materials, appropriate actions will be taken to avoid the site. If avoidance is not possible, then the material will be removed, transported and disposed of in accordance with applicable laws and regulations. Extensive coordination with the TNRCC and the EPA will continue through construction to ensure adherence to all the laws and regulations.

2. The Corps did not conduct a door-to-door survey of Cadillac Heights residents regarding a voluntary buyout or flood protection. The Corps participated extensively, however, with the City of Dallas in its public participation process. Following the flood of May 2, 1990, the City delivered approximately 250 letters, written in both English and Spanish, to Cadillac Heights residents notifying them that a City employee would be visiting their residence to conduct a needs analysis survey. City employees visited 219 addresses and made contact at 167, for a response rate of 82 percent. Street improvement was the service need cited most often, followed by housing repair, local drainage improvements, park construction and code enforcement for high weeds. While it does not appear that the specific question, "Would you like to be bought out?" was asked, Flood Control ranked 12th in the Service Needs Priority.

With regard to the current Corps investigation, the Corps determined that a buyout would not be economically feasible. The City conducted public meetings, in English and Spanish, at which the majority of those present indicated that they wanted to remain in their homes and receive the same level of protection given other areas in Dallas. The Corps' public involvement process is described in the draft GRR/EIS, beginning on page 6-25.

this neighborhood of last resort to move to decent quarters. The Trinity River Corridor Citizen's committee of 400 recommended that citizens in this neighborhood be helped to move, not that a levee be built.

3. 2. WEST LEVEE LOCATION: The proposed levee bisects an animal processing plant, leaving half of the plant area draining surface water into the river.

4. 3. DIMINISHMENT OF THE VALLEY CAPACITY TO HANDLE FLOODWATERS: The west levee extension, together with its eastern counterpart, will shrink the current flood plain to a third of its present size. As upstream runoff increases to match population growth, the floodway extension will have to be scoured of all vegetation in order to carry increasing floods. Thus the present hopes for preserving the Great Trinity Forest would be destroyed, for the sake of the protection of life and property in the future, with the result being another ugly gash through our city like the present one. The Corps should keep a wide valley for future flood protection, rather than narrow the plain. This levee only creates a single foot of additional upstream protection for the central business district of Dallas while it reduces valley storage. It is certainly not worth the taxpayers money.

5. While there are reasoned arguments for the eastern levee, the western one will be an intrusion, not a help for our city. Misguided past actions of city staff in allowing the flood plain to be filled to the west of the central sewage plant should not be the basis for Corps policy to further limit the flood plain, or spend tax dollars for this backward looking proposal.

This is a complex proposition, with many interrelated pieces and parts. However, any successful plan must address the issues of quality of life for the citizens of Dallas, as well as the overall stewardship of the environment, for ourselves, for our children and for all future generations to come. These are our concerns. If you share our priorities, please let us know how we can work with you to create a better vision for thelapproaching millenium.

Respectfully,

Mike Wells, AIA
President, Dallas Chapter, American Institute of Architects

3. Implementation of the DFE project will not cause increased environmental impacts associated with the plant. The plant presently deals with animal wastes in adherence to Federal regulations, which would not be altered by the DFE project.

4. Upstream development will be expected to comply with the Corridor Development Certificate (CDC) process and the Record of Decision which requires no rise in the 100-year and SPF water surface elevations and limits changes in valley storage.

5. The proposed plan was developed in accordance with current Federal policies and guidelines regarding the investigation of flood damage reduction alternatives, and was not based on past actions of city staff.

6. The proposed plan was developed in accordance with current Federal policies and guidelines regarding the investigation of flood damage reduction, environmental mitigation, ecosystem restoration and recreation alternatives.

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1802
4/30/2009

1435 Kings Hwy
Dallas TX 75208

JUN 18 11 25 AM '98 6-16-98

CORPS OF ENGINEERS
FT WORTH DISTRICT

Dear Corps

1. I oppose the levee system voted by the city of Dallas. I prefer a buy out, non-structural
2. plan. The lake in the Dallas plan is no more than a reflecting pool. The hardwood forest would
3. better serve to control floods if left alone.
4. The levees do not truly protect the residents, instead increasing the magnitude of eventual flooding.

RECEIVED
William Hennings
JUN 18 1998

1. See response to comment #1 on page N - 13.

2. The GRR/EIS contains no recommendations for a lake.

3. The hydraulic models used in the investigations and analyses showed that the vegetation in the DFE area, including the Great Trinity Forest, was a major impediment to the flow of flood waters within the study area. The hardwood forest would not serve to control floods if left alone.

4. The investigations conducted during the current study, and presented in the GRR/EIS, show that the flood protection for the immediate floodway extension area and for the Central Business District would be increased by implementation of the project.

Department of the Army
Fort Worth District, Corps of Engineers
Gene T. Rice, Jr.
P.O. Box 17300
Fort Worth, Texas 76102
(817) 978-2110
(817) 978-2948 fax

Robert Croysdale
Interested Citizen

Dear Mr. Rice,

1. As a citizen of Dallas, I am very interested in seeing how we develop the Trinity River Corridor. I support your efforts to make the Floodway as efficient as possible in the transference of water away from our fair city. But I also want to see every effort made to effect an aesthetic solution that will attract people down to our most underutilized natural landmark. The possibilities for eco-tourism in that sector are quite boundless, but those opportunities dwindle in the face of a large drainage ditch that swallows up parts of the Great Trinity Forest.

2. All the mitigation money must be allotted for the purchase of the 1,400 acres in the Great Trinity Forest. We voted for this in the election, and this is the only environmental solution we want with this money!

3. In terms of recreation, we must adhere to the strictest design standards. The trails should be 12 feet wide to allow for the safe clearance of all users, including cyclists, pedestrians, and joggers. The material must be concrete, not asphalt! With asphalt trails, much more maintenance is required. Water can erode underneath the asphalt, causing cracks and breaks in the trails. Vehicles driving over asphalt leave ruts, also cracking the asphalt. Foreign objects can be embedded in hot asphalt, creating enormous safety hazards for users. If you need any visual verification of these claims, check out the White Rock Lake Trail system. As of 1995, the Dallas Park Department has ceased building any recreational trails out of asphalt. It may cost more in the initial phase, but it will save in the future with maintenance for the city.

Thank you for your time and consideration on this extremely significant project.

Sincerely yours,

Robert Croysdale

1. The project proposed for implementation in the GRR/EIS would provide greater access to the area, through construction of recreation trails and amenities. The proposed recreation plan would fulfill a substantial portion of Dallas' commitment to the regional Trinity Trails plan. As noted in the Syllabus, however, final determination of the implementable recreation plan will be made after a Value Engineering study has been performed, reviewed and approved.

2. Your opinion is noted. The final GRR/EIS recommends the acquisition of mitigation lands adjacent to other project features within the Trinity River flood plain. See response to comment # 1 on page N - 356.

3. As stated above, the final implementable recreation plan will be determined following the completion of a Value Engineering study, scheduled to be performed during the next phase of detailed design.

48817
1804
4/30/2009

Campbell B. Read
5839 Monticello
Dallas
Texas 75206
(214) 827-6217
cread@mail.smu.edu

U.S. Army Corps of Engineers
P.O. Box 17300
Fort Worth
Texas 76102-0300

July 12, 1998

Attention: Mr Gene T.Rice, Jr.

DALLAS FLOODWAY EXTENSION

DRAFT GENERAL REEVALUATION REPORT AND INTEGRATED
ENVIRON MENTAL IMPACT STATEMENT

Dear Sir,

1. This comment concerns the final paragraph on page 4-50 of the Dallas Floodway Extension General Reevaluation Report, following the heading "Central Wastewater Treatment Plant Levee"

This paragraph contains material that draws upon the scientific basis for predicting the frequency and intensity of occurrences of floods in hydrology. The paragraph contains some errors, and alludes to procedures that are not commonly used in practice.

Sincerely yours,

Campbell B. Read

Campbell B. Read, Ph.D.

1. No errors are seen in the referenced paragraph. The procedures used to derive the flood frequencies stated are in accordance with current Federal policies and guidelines and accepted engineering practices.

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1805
4/30/2009

08/05/98

Mr. Gene T. Rice, Jr.,
Project Manager,
U.S. Army Corps of Engineers,
Ft. Worth District, CESWF-PM-C,
P. O. Box 17300,
Ft. Worth,
TX 76102-0300

Dear Mr. Rice:

1. I am concerned the allocation of trail space to bicycles in the Trinity River Floodway Extension Project is inadequate. I suggest the nature trails and biking trails share trail access with each other on the natural surface trails.

It is my understanding the project proposal includes 16 miles of natural surface equestrian trails, 10 miles of natural surface nature trails, and 4 miles of natural surface off road bike trails. Considering the demand for natural surface trails for off road bicycling in Dallas, I suggest the plan adopts a shared use policy (similar to Cedar Hill State Park's policy) with the nature and off road biking trails.

As a Dallas resident, who voted in the election, I am concerned about the legacy we leave our children. The Trinity River can be an enormous asset to the city if we consider all the desires of all the people. The community's interest in cycling, both on and off road, is growing every day and we need to plan today for tomorrow's demand. Thank you for taking the time to read and consider my request.

Sincerely,

Joe Stokes
12521 Lochmeadows Drive
Dallas, Texas 75244-6631
Tel. 972-620-0435
Email: stokes@intur.net

1. The final implementable recreation plan will be determined following the completion of a Value Engineering study, scheduled to be performed during the next phase of detailed design.

48817
1806
4/30/2009

July 7, 1998

Gene T. Rice, Jr.
Project Manager
U.S. Army Corps of Engineers
FortWorth DIST. CESWF-PM-C
P.O. Box 17300
Fort Worth, Texas 76102-0300

Dear Mr. Rice:

1. Regarding the 35 day extension on the Trinity River Corridor Flood Program, I wish the Government would do something now to correct the flooding in South Dallas. Talks have gone on too long. This was supposed to have been attended to in the late 1980's. I think may be the "City Fathers" spent the money on other projects the wealthy wanted done. This is probably the hold-up. As to the City of Dallas officials spending the $51 million in Government funds designated for improvements in South DALLAS, I believe the money is ~~before~~ being MISAPPROPRIATED a little at a time.

2. I suggest not giving any funds directly to Dallas. Release money only after the CONTRACTORS have completed the work requested.

Respectfully,
Raymond H. Davis
Raymond H. Davis
11891 County Rd. 4017
Kemp, tx 75143

cc:
Congressman Ralph M. Hall
Rockwall, Texas

1. Following a number of requests to extend the time period for public review, the comment period was extended to a total of 91 days from the time the Notice of Availability was printed in the Federal Register.

Implementation of the project will begin following approval of the report, preparation of plans and specifications, and the signing of agreements with the local sponsor.

2. Project cost sharing will be handled in accordance with strict Federal policies and guidelines.

48817
1807
4/30/2009

July 11, 1998

DEAR Mr. Rice, Jr.
Hello
My NAME is LISA BLACK AND I'm WRITING IN REGARD to the DEIS.

I REALIZE that DALLAS is A GROWING CITY, AND with growth COMES CHANGE. But please CONSIDER CAREFULLY the CHANGES to be MADE IN the TRINITY RIVER AREA. I THINK it is VITAL to SAVE AS MANY TREES AS POSSIBLE, IN THAT AREA AND ALL AREAS OF DALLAS, AND to PROTECT AND PRESERVE "GREEN BELTS" AND WILD AREAS. Not only FOR the BEAUTY THEY PROVIDE but ALSO FOR the CLEANER OXYGEN RICH AIR that the growing POPULATION NEEDS. Not to MENTION that TREES ALSO help KEEP TEMPERATURES COOLER. THANK YOU

SINCERELY

Lisa Black

1. The impact of the proposed project on each of these issues is discussed in the "ENVIRONMENTAL IMPACTS OF ALTERNATIVES" section, Chapter 4 and in Appendix F.

48817
1808
4/30/2009

FORT WORTH

July 20, 1998

Mr. Gene T. Rice, Jr., Project Manager
U. S. Army Corps of Engineers
Fort Worth District
CESWF-PM-C
P. O. Box 17300
Fort Worth, TX 76102-0300

Dear Mr. Rice:

This is a follow-up conversation regarding the Dallas Floodway Draft General Reevaluation Report and Integrated Environmental Impact Statement (DEIS). As a former resident of Dallas and City of Dallas employee, it is exciting to see the proposed development especially the designated park lands.

1. One area I am specifically interested in is the area south of McCommas Bluff Preserve. According to information told me, there is a lot of historical significance by the old lock and dam. I would hope that this could be preserved and celebrated. There are old structures that serve as reminders of a younger Dallas.

If additional information is needed, please contact me at 817-871-5755.

Sincerely,

Sandra Youngblood
Assistant Director/Southwest Region
Parks and Community Services Department

SY: alNDEIS respond

PARKS AND COMMUNITY SERVICES DEPARTMENT
THE CITY OF FORT WORTH • 4200 SOUTH FREEWAY, SUITE 2200 • FORT WORTH, TEXAS 76115-1499
(817) 871-PARK • FAX (817) 871-5724

Printed on recycled paper

1. No impacts to this structure are anticipated from implementation of the proposed project, as presented in the draft and final GRR/EIS.

48817
1809
4/30/2009

June 12, 1998

U S Army Corps of Engineers
P.O. Box 17300
Ft. Worth, TX., 76102-0300

RE: C O E's misguided Trinity River Development Project in Dallas

TO WHOM IT MAY CONCERN:

I am strongly opposed to your current plans for the Trinity Development and believe that your current E.I.S. is grossly inadequate.

1. The E.I.S. could consider actually reducing pollution in the Trinity but piping water from Lake Lewisville for tiny ponds on the Trinity, makes no sense to anyone I ask. The E.I.S.
2. does not fully address the increased air pollution from the new road which is apparently going to be built BETWEEN the levees. Again, this appears to make no sense to anyone I
3. ask. It also shows extreme prejudice against the non structural approach by failing to study the benefits and environmental impact of this viable alternative.

4. The plan itself ignores what the National Corps and flood control experts currently recommend. The whole plan permeates of politics and stinks from the control of big money, instead of applying common sense and more importantly, PUBLIC INPUT, to generate a positive outcome! Don't forget that you work for the small tax payers as well as "Papa Big Bucks" and 48% of us are already against your plans! Obviously I concur
5. with the opinions of the many groups that oppose this plan and the inadequate E.I.S.

Steve Houser
16 Steel Road
Wylie, TX. 75098
972/442-1524

cc: TCONR, 4144 Cochran Chapel Road, Dallas, TX., 75209

lj/USCORPS.doc

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JUN 1 9 1998

1. The proposed project, as presented in the GRR/EIS, recommends utilizing water from the Central Wastewater Treatment Plant for the wetlands with no provisions for piping water from Lake Lewisville.

2. The proposed project, as presented in the GRR/EIS, contains no recommendations for roads between the levees.

3. See response to comment #8 on page N - 286.

4. Until incorporated as implementation guidelines by Corps Headquarters, any *recommendations* do not constitute modifications to the regulations by which the Fort Worth District is mandated to conduct analyses.

5. Your concurrence with other comments is noted.

48817
1810
4/30/2009

Gene Rice, Project Manager
U.S. Army Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

Dear Mr. Rice,

I am writing to give you my comments on the draft of the general re-evaluation report and EIS, Trinity River. Please remember the lives, present and future, that your decisions will affect.

1. • The Draft fails to consider preferable alternatives, including the non-structural system in the floodway extension, and the combination of non-structural with (a) conveyance basins (some with lakes) between the existing levees (Dallas Floodway), and (b) raising the height of existing levees near downtown and West Dallas, with or without use of material dug from conveyance basins.

2.

3. • The EIS inadequately discusses the alternative of reducing pollution of the Trinity River and using its water for one or more of the lakes and wetlands proposed to be constructed.

4. • The EIS inadequately addresses air pollution, including the impact of new roads that the City of Dallas proposes to be built between, near, and over levees, old or new.

5. • On May 2, 1998, with one-tenth of the eligible voters voting, a scant majority of voters (51.6%) passed bond Proposition 11 with local funds for tollroads and a lake between existing levees. Although the TXDOT will file another EIS on that item it is so interlocked with the proposed new levees and swale that the Army Corps should discuss it adequately in its EIS now pending.

6. • The EIS fails to present social costs and benefits, as recommended on page 86 of the 1994 Interagency Galloway Report, Organizing Floodplain Management.

• A social cost of the proposed levees is that the result would be the industrialization of the Cadillac Heights residential community, as admitted four days after the Dallas bond election by a lead spokesperson for the Dallas Morning News, a most influential backer of Proposition 11.

The Army Corps should *not* be a tool of industrialization of a neighborhood.

7. Texas Committee on Natural Resources and other groups recommend the combination of basins and non-structural voluntary buy-outs as a preferable alternative. Otherwise, we favor the non-structural option, alone.

Sincerely,

Michelle Knijnenburg
1926 Sussex Drive
Carrollton, Texas 75007

Cor Knijnenburg

1. See response to comment #1 on page N - 284.
2. See response to comment #2 on page N - 284.
3. See response to comment #3 on page N - 284.
4. See response to comment #4 on page N - 284.
5. See response to comment #5 on page N - 284.
6. See response to comment #6 on page N - 284.
7. See response to comment #7 on page N - 284.

48817
1811
4/30/2009

Paul Parker
5311 S. Lamar Street
Dallas, TX 75215

June 10, 1998

Commander, Fort Worth District
U.S. Army Corps of Engineers
P.O. Box 17300
Fort Worth, TX 76102-0300

Dear Commander,

1. Yesterday evening I attended the public forum on the Dallas Floodway Extension Project. While there, I received, from an activist group, this petition asking for an extended period of 90 days for comments. I oppose an extension, as this project has been a long time coming, with lots of delays already. I say its time to move ahead and the July 9 date seems adequate, as these groups have been involved for two years and this s just another stall tactic.

incerely,

aul Parker

1. Following a number of requests to extend the time period for public review, the comment period was extended to a total of 91 days from the time the Notice of Availability was printed in the Federal Register.

48817
4/30/2009
1812

June 8, 1998

Commander, Fort. Worth District
U.S. Army Corps of Engineers
P.O. 17300
Fort Worth, Texas 76102-0300

Dear Sir;.

Upon receipt and initial review of the Draft General Reevaluation Report and Integrated Environment Impact Statement, we found the report to be extremely complex and lengthy. Therefore, in accordance with 33 Code of Federal Regulations 230.13(a) cited below, we request that the comment period be extended for 90 days.

33 CFR 230.13(a) states that "District Commanders will consider and act on requests for time extensions to review and comment on an EIS based on timeliness of distribution of the document, prior agency involvement in the proposed action, and the actions's scope and complexity."

We feel that this is a timely extension period due to the action's scope and complexity, and our need to determine the accuracy of the information contained in the draft Environmental Impact Statement. Further, since the Dallas City Council recesses before the current end of the comment period, July 9, we feel that it is important that they be given sufficient time to review and make their comments. We appreciate your consideration.

Sincerely,

Name and Organization_____

48817

1813

4/30/2009

August 14, 1998

Mr. Gene T. Rice, Jr. (CESWF-PM-C)
USACE
PO Box 17300
Fort Worth, TX 76102-0300

Re.: TTN Dallas Floodway Extension Response

Dear Mr. Rice,

Texas Trails Network very much appreciates the efforts the U.S. Army Corps of Engineers (USACE) has made to incorporate the wide variety of issues brought forward by a diversity of interests for this very large project in the Draft General Reevaluation Report and Integrated Environmental Impact Statement.

Texas Trails Network (TTN) is a nonprofit organization committed to the development and utilization of recreational trails. TTN has been working with the North Central Texas Council of Governments and other area planning agencies to develop an extensive trails plan for North Texas.

Texas Trails Network will confine itself to responding to issues related to trail development as part of this project.

As you point out in the document, the Texas Parks and Wildlife Department has ranked the need for multi-use trails as the #1 needed recreation facility in Region 4 - North Central Texas.

1. We concur, and heartily support the inclusion of trails in the recreation component of this project. TTN also concurs with your report that river and creek segments which have had trees and shrubs removed, have been channelized, lined with levees, or heavily developed are less desirable and the least utilized by area canoeists, bicyclists, hikers and birdwatchers. We also concur that while these river segments offer recreation potential they will need to be considerably enhanced with river access points, trails, play areas, sports fields, tree and shrub plantings and

1. Your concurrence is noted.

TEXAS TRAILS NETWORK, INC.
P.O. Box 2858, Grapevine, Texas 76099 For meeting and work day information (214) 698-8733

N-

wildlife habitat improvements in order to be attractive to the recreational users of the corridor.

2. TTN is naturally very supportive of the regional goal of tying public lands and open space in order to create a regional greenway system linked by trails for hiking, bicycling, and horseback riding. Canoe trails are also a highly desired component of the greenway system. As you point out, this is an integral part of NCTCOG's Common Vision work program which is pursuing, with the aid of the National Park Service Rivers, Trails and Conservation Assistance Program, a Trinity Greenbelt of major parks linked by a regional trail system.

3. There appear to be some discrepancies regarding the types of trails and numbers of miles of each. On page 6-8, the report states that the proposed project would include 20 miles of 10-foot wide, 4 inch thick reinforced concrete on compacted subgrade, 13 miles of natural surface equestrian trails, and 5 miles of natural surface nature trails. However, at the public meeting on June 9, 1998 in Dallas, handouts listed:

Trails
- -Twenty-six miles of all weather hike/bike trails.
- -Sixteen miles of natural surface equestrian trails.
- -Ten miles of natural surface nature trails.
- -Approximately four miles of natural surface off-road bike trails.

Hopefully, these discrepancies will be clarified before final plan adoption.

4. TTN is concerned about the inadequate mileage amount for off-road bicycle trails. According to our estimates there is adequate trail mileage for a good full day's hike or horseback ride, but only enough miles for 20 minutes to one hour of off-road bicycle riding. Off-road bicycling is a very popular activity with a very involved and supportive volunteer base. We encourage you to increase the number of planned off-road bicycle trail miles that are included in this plan.

TTN concurs that concrete trails are the preferred design treatment for paved trails. While they cost more initially, the lower maintenance costs make them a better investment in the long run. Regarding width, though, TTN urges you to comply with national AASHTO guidelines, which have been adopted as *standards* by the Texas Department of Transportation. Compliance with these national guidelines and state standards will also conform with the regional NCTCOG bicycle and pedestrian facility guidelines for trail widths (adopted in December 1995), ie 3 meters (12.5' wide) for multi-use trails in urban areas.

Among the many reasons for this are:

- this will be part of Dallas' urban component of the region wide Trinity Trail System.

2. Canoe ramps were determined to be stand alone recreation facilities, which do not warrant Federal participation, in accordance with current Federal policy which allows only "minimum" recreation facilities.

3. The more comprehensive recreation plan for the area, as shown in Figure 4 in Appendix I, and presented at the public meeting, was developed in coordination with local, regional, state, and Federal agencies for compatibility with the regional Trinity Trails system. The portion of that plan which would be constructed on project lands, and would be cost sharable, is presented in Figure 5 of Appendix I, and in Chapter 6.

4. A Value Engineering study will be performed during the next phase of detailed design to determine the optimum implementable recreation plan, and will cover the entire realm of recreation features, including those mentioned in this comment.

48817
1815
4/30/2009

- It should be anticipated that these trails will be heavily utilized.

- Finally, this width accommodates a wide variety of users from walkers to in-line skaters, bicyclists to families with baby strollers, wheelchair users, the elderly with walkers, people with dogs on leashes. Adequate width is essential for the safe passage of these mixed modes.

Regarding the 4" thickness, maintenance vehicles should be anticipated along this entire corridor. Professional experience proves that 4 inches of pavement thickness will not withstand traffic of this kind. A 4-inch thick trail would quickly be damaged by any motor vehicle traffic. In our opinion, no less than 5 inches should be considered, and 6 inches thickness is more appropriate wherever maintenance vehicles are anticipated. Anything less than these thicknesses will not be a soun public investment in trail resources.

5. Finally, we want to urge that the mitigation lands for this project be in Dalla available to Dallas citizens and their guests. Locally situated mitigation lands a integral to the community support for this flood control project. It will be diffic to develop trails that serve the Dallas public if the land is purchased elsewhr negating the mitigating value of the acquisition.

Thank you for the opportunity to comment on this project.

Sincerely,

Bud Melton
Immediate Past-President and founding Board Member

cc- Joe Moore, TTN Pres.

5. The GRR/EIS recommends acquisition of mitigation lands within the immediate study area.

48817

1816

4/30/2009

TRINITY IMPROVEMENT ASSOCIATION
Leadership for the Improvement of the Trinity River Basin ... Since 1931
660 South Zang Boulevard, Dallas, Texas 75208
Telephone: 214/943-4819 • Fax 214/943-4582

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August 10, 1998

Mr. Gene T. Rice
Project Manager
U.S. Army Corps of Engineers
P. O. Box 17300
Fort Worth, TX 76102-0300

Dear Mr. Rice:

1. We have reviewed the Draft General Evaluation Report and Integrated Environmental Impact Statement, Dallas Floodway Extension, dated April 1998, and desire to provide the comments of the Trinity Improvement Association on the report. We agree with the conclusions and recommendations of the Fort Worth District Engineer contained on pages 7-2, 7-3, and 7-4 of the report.

It is our judgment that the report represents a reasonable compromise between the National Economic Development (NED) plan and local preferences, and that it will significantly reduce the threat of flood damages in the central and southern areas of the city. Concerns regarding consideration of the non-structural alternative approach to reduce flood control have been adequately addressed. We are particularly pleased at the proposal to credit the City of Dallas for the non-federal construction of the Rochester Park and Central Sewage Plant levees, currently estimated in the amount of $22.17 million.

The Fort Worth District staff is to be complimented on its study efforts which have resulted in producing this voluminous and detailed report.

Sincerely,

Charles W. Lively
Executive Vice President

Sponsoring a coordinated program of improvement for the entire Trinity River Basin including flood control, soil-water-forest conservation, navigation, reclamation, alleviation of stream pollution, conservation of wildlife, and storage of water for municipal, agricultural, industrial and recreational uses.

1. Your concurrence and comments are acknowledged. Subsequent to release of the draft GRR/EIS, it was determined that the LPP as identified in the draft was the Federally Supportable Plan and it has been identified as the recommended plan in the final GRR/EIS.

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4/30/2009

Date: June 9,1998

To: Department of the Army, Fort Worth District, Corps of Engineers
PO Box 17300, Fort Worth , Tx. 76102-0300

Attention: Gene T. Rice Jr., P.E., Project Manager GRR/EIS Dallas Floodway Extension Project.

From: Joe Wells
2726 Kingston, Dallas Tx, 75211, Ph #214 948-3714

Subject: Comments re: GRR/EIS Dallas Floodway Extension / Trinity Parkway Air Quality and Transportation Facilities impacts not addressed in Draft EIS.

Omission of Planned Trinity Parkway / Freeway Impacts Evaluation

1. The Draft EIS omits consideration of the significant environmental impacts of the Trinity Parkway freeway which the local sponsor of the Floodway Extension Project the City of Dallas plans to construct within the floodway and on the Levees being evaluated in this EIS. This omission is in not in conformance with NEPA requirements. The Corps of Engineers/Ft. Worth District is aware and has acknowledged City of Dallas, TxDOT and North Texas Tollway Authority planning related to the construction of an eight lane freeway system within the current Dallas Floodway system and the levee systems proposed in this Draft EIS in a letter dated August 7,1997 from William Fickel Director Trinity Projects. (attached) Yet the only reference in the Draft EIS mentions a "Parkway planned by others" with no consideration of the significant Hydraulic impacts (copy excerpt from Trinity Parkway MIS attached) , Air Pollution, Noise, Water Quality and Social impacts which this very significant portion of the Floodway Extension /Trinity Parkway Projects will cause. Clearly the hydraulic impacts of the Trinity Parkway Freeway system will affect the hydraulic impacts of planned Floodway Extension and vice versa. The Trinity Parkway MIS report refers to need for channelization, excavation, and fill within the current Dallas Floodway and the Floodway Extension being evaluated. (attached Joe Wells Trinity Parkway MIS comments detailing significant environmental impacts) Presumably the Fort Worth District Corps of Engineers is aware of NEPA requirements that federally supported projects not be segmented into smaller projects so as to minimize consideration of significant environmental impacts. The Floodway Extension and planning and construction of a freeway system within the floodway are all part of the same federally supported public works project. The planning for the transportation projects is being coordinated among all the agencies involved including the local sponsor the City of Dallas. The impacts of the transportation projects must be evaluated within the same EIS as the Floodway Extension in order to fully measure and evaluate the impacts of the entire project. Evaluation in two separate EIS processes fails to comply with NEPA requirements.

1. There is no proposal by the Corps of Engineers to construct the Trinity Parkway. Cumulative impacts, however, related to attributable to reasonably foreseeable project proposals has been revised in the FEIS.

Comments received from the Environmental Protection Agency (EPA), dated 5 Aug 1998, state their understanding that transportation planning is not part of the flood control project, and that the flood control project is not dependent upon transportation needs. These comments also state that, *"...any subsequent Federal transportation project affecting the DFE should be fully evaluated under NEPA prior to alternative plan selection and construction."*

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Air Quality Impacts

2. The significant regional and localized adverse air quality impacts associated with the Trinity Freeway within the Floodway transportation projects including increased Nox emissions and depending of volume of traffic, congestion and speeds VOCs , particulate and Carbon Monoxide are completely omitted from consideration in the Draft EIS. Air quality impacts which are referred to in the Draft EIS are understated. No mention or evaluation is made of the future area and stationary source emissions which will result from commercial development in areas removed from the floodplain by construction of Levees. Commercial industrial development has already been permitted and encouraged by the City of Dallas within and adjacent to the Cadillac Heights neighborhood and Lamar street areas. According to an editorial by Henry Tatum May 98 in the Dallas Morning News more commercial development in areas "protected from flooding" by the Levee Extension projects is planned. Currently a Meat Rendering Plant and Chromium Recycling facility are sources of odor and toxic emissions adversely affecting the quality of life of residents of the Cadillac Heights neighborhood. This low income minority neighborhood formerly was subjected to lead emissions from a lead smelter. The impacts of future commercial industrial development in areas taken out of the floodplain by the Floodway Extension Projects should be evaluated in the EIS.
In addition the Draft EIS claims air quality benefits due to planned preservation of project mitigation areas, when without the project it is likely the same vegetation air quality benefits will be present since the mitigation areas are within the floodplain of the Trinity River and not subject to development or removal of trees as a result of federal, state and local regulation and law. Finally the Draft EIS claims air quality benefits through restoration and improvement of mitigation area forests. No mention of the timing of this claimed benefit as compared with the certainty of the negative air quality impacts associated with the Floodway Extension /Trinity Freeway projects which at a minimum will eliminate several hundred acres of high quality hardwood bottomland forest containing thousands of trees. This decrease in air quality benefits will occur at the time of project construction and any mitigation will occur slowly thereafter if at all. If the local sponsor City of Dallas is responsible for the restoration and maintenance of mitigation areas the City of Dallas track record in maintaining the current floodway has not been good. The City of Dallas does not have proven experience or demonstrated commitment to natural area restoration.
The Draft EIS characterizes the air emissions impact of off road mobile source construction equipment as "insignificant". According to the most recent regional air emissions inventory 18% of the VOC emissions come from off road mobile sources. The Floodway Extension and Trinity Parkway / Freeway/ Chain of Lakes projects will be one of the largest public works projects ever constructed in the region and will require a large amount of earth moving equipment to be used over a period of years. The air emissions of such a project must be determined and its impact on the regions long term air pollution non attainment problem be gauged in order to assess its impact and consider alternatives fairly.

Attachments

2. The Trinity Parkway proposed by TxDOT could be constructed even if the proposed levees are not constructed. The cumulative impacts have been as addressed to air quality. The project is in compliance with the Executive Order on Environmental Justice. The proposal being considered by the GRR/EIS has been reviewed by Texas Natural Resource Conservation Commission. They have indicated that the construction of the project would not result in significant emissions of ozone creating precursors.

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CITY OF DALLAS

August 12, 1998

Mr. Gene T. Rice, Jr.
Project Manager
U.S. Army Corps of Engineers, Fort Worth District
ATTN: CESWF-PM-C
P.O. Box 17300
Fort Worth, Texas 76102-0300

RE: Dallas Floodway Extension Project; GRR/EIS Comments

Dear Mr. Rice:

Attached are the City of Dallas comments regarding the Draft General Reevaluation Report and Integrated Environmental Impact Statement.

1. I want to point out one important issue in the draft report that is identified in the attached comments for "page 4-49" and "page 6-7" of the draft report. The Locally Preferred Plan (LPP) needs to take the same approach in the vicinity of the Dallas City Packing plant as the Federally Supportable Plan (FSP). In other words, the LPP should include a floodwall/gate that results in no relocations of the Dallas City Packing plant facilities.

As this important project moves forward and the City continues to establish their interest in the LPP, we do not want any misunderstanding on our desired approach in the vicinity of Dallas City Packing. The plant employs 100 persons that are mostly local residents in an economically disadvantaged area, which would be adversely impacted.

I appreciate the continued efforts of the Fort Worth District to finalize the General Reevaluation Report and Integrated Environmental Impact Statement and look forward to our continued partnership to implement this very worthwhile project.

Sincerely,

Peter H. Vargas
Director, Trinity River Corridor Project

c: Gavino Sotelo, Interim City Manager
John Ware, City Manager
Ryan Evans, Assistant City Manager
Mary Suhm, Assistant City Manager
David Dybala, Director of Public Works

DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION OAK CLIFF MUNICIPAL CENTER 320 E. JEFFERSON BOULEVARD DALLAS, TEXAS 75203 TELEPHONE 214-948-4350

N - -

1. Final design of the Recommended Plan will be reviewed and considered during the next phase of the study, in conjunction with continued HTRW testing and an update of topographic surveying data.

CITY OF DALLAS COMMENTS
ON THE DRAFT REEVALUATION REPORT
AND INTEGRATED ENVIRONMENTAL IMPACT STATEMENT
FOR THE DALLAS FLOODWAY EXTENSION PROJECT
(AUGUST 12, 1998)

1. Page 3 of Syllabus; last paragraph: change paragraph as follows: "... proposed SPF Cadillac Heights Levee. There is strong local interest in avoiding relocation of a 54-year old meat packing facility that employs 100 persons, most of which are locally based."

2. Page 2-10; last paragraph: change paragraph as follows: "A topographic survey compiled from aerial photographs taken in February 1991 indicated that a length of about 600 feet of the east levee embankment near the AT&SF Railroad bridge has depressed to an elevation of about 422.0. As a comparison, the concrete floodwall overtopping structure located at the AT&SF Railroad Bridge is at elevation 423.0. The west levee at this location was generally at its design grade of 424.2. The survey had also indicated that other northern portions of both the east and west levee crests had depressed below the design grade. The City has required the east levee design grade at the AT&SF Railroad with work completed during 1996. The City is initiating additional work within the Dallas Floodway in late 1998 to address other levee crest deficiencies [illegible]. In view of the City's progress and continued efforts to restore levee design grade, the overtopping elevations chosen for the Dallas Floodway analysis was based on its design grade. This elevation indicates that under current conditions, the occurrence of an approximate 500-year flood event would overtop the concrete floodwall portion of the east levee."

3. Page 2-15; add a new second paragraph under "Water Quality": "The Texas Department of Health issued an aquatic life closure for a stretch of the Trinity River in January 1990 due to elevated levels of chlordane in fish tissue. This 66-mile stretch of the Trinity extends from Fort Worth to HWY20 in southern Dallas County, which includes the DFE project area. Fishing can be conducted, but no taking of fish is currently allowed. In addition, the TNRCC does not support contact recreation within the waters of Segment 805 due to continued water quality violations discussed in the above paragraph."

1. The wording in the draft GRR/EIS is considered appropriate, and adequately depicts the interest in investigating other alternatives which would not require relocation of the meat packing facility.

2. The sentences regarding the city's restoration of the levee crest deficiencies have been added, as requested. The elevation of the concrete floodwall was stated in the preceding paragraph in the draft GRR/EIS.

3. The paragraph has been added, as requested.

4.	Page 4-49;	second paragraph: change complete paragraph as follows: "A comparison of direct . . . . comparable. Due to the engineering/operation risks associated with constructing a floodwall or earthen levee on top of sewer lines, the western-earthen/floodwall option was endorsed. The details for this levee in the vicinity of Dallas City Packing is presented on page 6-7 within the paragraph entitled "Cadillac Heights Levee – LPP."
5.	Page 4-49;	third paragraph: delete entire paragraph: "Based on preceding . . . . the meat packing plant."
6.	Page 6-7;	section entitled "Cadillac Heights Levee – LPP": modify the text to mirror the same floodwall approach to the Dallas City Packing plant as presented on page 6-6 for the Recommended Plan. The only difference between the Recommended Plan and the Locally Preferred Plan in the vicinity of the Dallas City Packing plant would be the levee/floodwall height.
7.	Page 6-26;	third paragraph under "Public Workshops": change May 1997 to May 1996.
8.	Page 6-26;	sixth paragraph under "Public Workshops": change "by more than 250 people" to "by 115 people.
9.	Page 6-26;	seventh paragraph under "Public Workshops": change "by more than 250 people" to "by 135 people.
10.	Page 6-27;	first paragraph: regarding the list of agencies; delete the NCTCOG and add Dallas County and the Assistant Secretary of the Army for Civil Works.
11.	Page 6-27;	fourth paragraph: change "75 people" to "65 people".
12.	Page 6-27;	sixth paragraph: change "questions by the public" to "questions by the public, numbering 100 in attendance".
13.	Page 6-27;	seventh paragraph: change paragraph as follows: "In attendance were about 70 residents, representatives from the City of . . . ."

4. The chronological nature of the report presents the plan formulation process conducted to develop the Recommended Plan. The Western-Earthen/Floodwall option is not the same option as contained in the final plans described in detail in Chapter 6.

5. This paragraph reflects the plan formulation process, and is not intended to define the final plans.

6. See response to comment #1 on page N - 396.

7. The report has been revised, as requested.

8. The paragraph was rewritten to state, "...According to the City of Dallas, the meeting was attended by 115 people."

9. The paragraph was rewritten to state, "...According to the City of Dallas, the meeting was attended by 135 people."

10. The report was revised, as requested.

11. The paragraph was rewritten to state, "...According to the City of Dallas, the meeting was attended by 65 people."

12. The paragraph was rewritten to state, "...questions by the public, numbering 100 in attendance, according to the City of Dallas."

13. The paragraph was rewritten to state, "...According to the City of Dallas, the meeting was attended by about 70 residents, representatives from the City of..."

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14. Page 6-27; last paragraph: change paragraph as follows: "During the Fall of 1995 and continuing through the present, members of the Interagency Executive Team (ET) are met in Dallas. The ET is made up of representatives of various agencies (state and Federal) who have jurisdiction or an active role within the Trinity River Corridor. These agencies include: City of Dallas, U.S. Army Corps of Engineers, Texas Department of Transportation, Environmental Protection Agency, Texas Parks and Wildlife Department, Texas Natural Resource Conservation Commission, Fort Worth Transportation Authority, Dallas County, and the North Central Texas Council of Governments. The group acts as a coordinating team between all agencies to maximize the efforts within the river corridor."

15. Page 6-28; first paragraph: change paragraph as follows: ". . . . Texas Department of Transportation, Office of the Assistant Secretary of the Army, Dallas County, Environmental . . . ."

16. Page 6-29; replace the section of the report, "Financial Analysis," with the updated version dated May 1998.

17. Appendix I; Regarding the comparative Economic Analysis displayed for concrete, crushed granite, and asphalt recreation trails, the City fully supports the economic results that determine concrete trails as the most economical surface. The following is further discussion to support concrete trails over asphalt trails;

1. The combination of high dominance of expansive clays within northcentral Texas and the strong wet/dry climatic cycles synonymous with the region result in significant ground movement. As a result, asphalt breaks up and cracks whereas concrete performs much better.

2. Ultraviolet exposure causes decay in asphalt, such that it becomes brittle and ravels. Texas ranks much higher to other regions of the country with respect to the amount of sun exposure. Concrete exhibits no such problem.

3. Light weight (pedestrian) traffic is not sufficient to provide asphalt with a steady diet of heavy compaction (such as vehicular loading) to keep its overall integrity and achieve a long life expectancy. Concrete has no such need.

14. The report was revised, as requested.

15. The report was revised, as requested.

16. The report was revised, as requested. In addition, an errata sheet describing this modification was provided along with the draft GRR/EIS during the public review and comment period.

17. A Value Engineering study will be performed during the next phase of detailed design to determine the optimum implementable recreation plan, and will cover the entire realm of recreation features, including those mentioned in this comment.

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Appendix I (continued):

4. Asphalt performs poorly and disintegrates when exposed to water, especially trails that are located within floodplains or come into contact with local drainage. Asphalt, that is prone to lack of compaction (see item #3 above) or cracks (see item #1 above), suffer from loss of density which magnifies the adverse affect of water. On the other hand, concrete does not disintegrate or scour due to water. Concrete also has the bearing weight to hold its place when subjected to water velocities.

5. Trails will require removal of silt and debris with the use of a front-end loader after flood events. Such equipment can cause damage to asphalt, while concrete deals much better with such abrasive wear.

6. Asphalt trails are susceptible to encroachment of Bermuda grasses (dominant in this region) from the edges that eventually break up the asphalt and reduce the operating trail width. On the other hand, concrete maintains its surface edge against such aggressive turf grasses very well.

7. The multi-purpose trails proposed for the Dallas Floodway Extension (DFE) project would serve biking, in-line skating, roller-skating, stroller walking, and skate boarding interests. Such activities require a high quality surface that will maintain its integrity. Concrete can resist this need, while asphalt would be quite susceptible to cracking, pothole, surface roughness, and other issues identified above.

8. The City prefers a 12-foot wide trail width, instead of a 10-foot width. The high growth rate of in-line skating has made this trail use one of the most popular, but it requires much lateral movement which necessitates the additional width to be a safe activity compatible with the other trail users. The Dallas County Trails Plan, the North Central Texas Council of Governments, and the American Association of State Highway Transportation Officials (AASHTO) all recommend a 12-foot wide trail to safely serve multi-use recreation traffic.

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To: U.S. Army Corps of Engineers
Fort Worth District
P. O. BOX 17300
Fort Worth, Texas 76102-0300

Re: Dallas Floodway Extension Trinity River Basin
Draft General Evaluation Report and Integrated
Environmental Impact Statement

I represent several residents of the Cadillac Heights neighborhood in the City of Dallas. This comment on the proposal for the Dallas Floodway Extension is limited to the civil rights aspects of the proposal as outlined in the Draft General Evaluation Report and Integrated Environmental Impact Statement [Draft].

Prior to the approval of any application for federal assistance, the Army Corps of Engineers is required to make a determination of whether the recipient is in compliance with Title VI of the 1964 Civil Rights Act, 42 U.S.C. § 2000d, et seq [Title VI]. The pre-approval review must determine whether the location and the design of the project will result in racial discrimination. 28 CFR § § 42.407(b). The determination must be based on information sufficient to permit effective enforcement of Title VI. 28 CFR § § 42.406(a). This obligation was reemphasized in Executive Order 12898 §§ 2-2, 3-302(a).

One of the federal obligations under Title VI is to ensure that in administering a program in which there has been previous racial discrimination, there is affirmative action to overcome the effects of the prior discrimination, e.g. 32 CFR § § 195.4(b)(4). There are published reports that the existing levee system was built pursuant to an overt scheme of racial discrimination. These reports include the public statements of the Mayor of the City of Dallas, Ron Kirk.

The Draft does not comply with Title VI or the Executive Order. There is no analysis of the possible discriminatory effects of the various alternatives proposed, including the one recommended. There is no analysis of the need to remedy the effects of the prior discrimination. For example, the Draft recognizes that the lack of flood protection in the has caused dilapidation of the residential structures in Cadillac Heights and the imposition of zoning requirements which have limited growth and diminished residential values in the neighborhood [Draft 4-5]. The construction of a levee will not remedy these effects of past discrimination.

1. It is our opinion that Title VI of the Civil Rights Act does not apply to this proposed federal cost shared project.

A likely scenario under the proposed plan was set out in the Dallas Morning News editorial column written by Henry Tatum and published on May 6, 1998. Under these scenario, the residential land made cheap by the years of flooding and other abuses at the hands of the local and federal government will be acquired, on the cheap, for industrial use. Absent specific remedial measures built into the proposed plan, this is a realistic result of the Army Corps of Engineers' s proposal. There is no discussion of such an effect much less an analysis of the means necessary to avoid or mitigate the discrimination.

The Draft does not even include the basic demographic data of the ownership and occupancy of the lands affected by the proposal. More space is spent analyzing the means to ameliorate the effects of the plan on seed irrigation and duck fodder [Draft 4-37] than on the likely effects of the proposal on persons of minority racial or ethnic status [Draft 6-9].

Sincerely,

Michael M. Daniel

cc: Charles Miller

DFSCOMMN.WPD