MARKET GREEN MASTER PLAN

Borough of Marcus Hook - Delaware County, PA

prepared by:

Thomas Comitta Associates, Inc.
Town Planners & Landscape Architects
West Chester, Pennsylvania

June 14, 1996

AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
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SUMMARY OF DESIGN COORDINATION FOR THE CANOPY ENCLOSURE OF THE MARKET SQUARE MEMORIAL PARK STAGE

Borough of Marcus Hook - Delaware County, PA

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Pennsylvania Coastal Zone Management Program

BOROUGH OF MARCUS HOOK
MARKET GREEN LANDSCAPE PLAN AND
MARKET SQUARE MEMORIAL PARK CANOPY DESIGN
SEPTEMBER 30, 1996

CZM PROJECT NUMBER 95-PD.05__

A REPORT OF THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION TO THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION PURSUANT TO NOAA AWARD NO. NA57OZ0253

This project was financed in part through a Federal Coastal Zone Management Grant from the Pennsylvania Department of Environmental Protection, with funds provided by NOAA. The views expressed herein are those of the author(s) and do not necessarily reflect the views of NOAA or any of its subagencies.

SUMMARY OF DESIGN COORDINATION
FOR THE CANOPY ENCLOSURE OF THE
MARKET SQUARE MEMORIAL PARK STAGE
Borough of Marcus Hook - Delaware County, Pennsylvania

June 14, 1996

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SUMMARY OF DESIGN COORDINATION
FOR THE CANOPY ENCLOSURE OF THE
MARKET SQUARE MEMORIAL PARK STAGE
Borough of Marcus Hook - Delaware County, Pennsylvania

June 14, 1996

Introduction

This report represents a summary of the design coordination efforts related to the Canopy Enclosure of the Stage at Market Square Memorial Park. The detailed design of the Bandshell type structure can now proceed. Two plans are enclosed for Bandshells provided by Cedar Forest Products Co., the same company which furnished the picnic pavilion/shelter that was constructed on the east side of the park in 1987.

The open air park stage is used by performers throughout the summer at the Marcus Hook Summer Musical Festival and at various special events sponsored by the Borough in the spring and fall. The true value of the stage will be realized when it is enclosed by a bandshell to protect performers from the weather and to enhance sound quality.

Existing Conditions and Facility Analysis

The existing stage is elevated above grade by approximately 21 inches. Easy access is provided by four 10 foot wide steps on the west side of the stage. The stage orients to the large "green" on the east side where people of all ages can appreciate the performances. The rectangular elevated stage measures 24'-1¾" x 30'-1½". It is surrounded by sidewalks that connect to the overall pedestrian circulation system of the park.

Refer to Figure 1., Location Map, for the approximate location of the elevated stage in the park. Refer to Figure 2., Existing Conditions and Facility Analysis Plan, for the dimensions and design considerations related to adding the bandshell to the existing stage.

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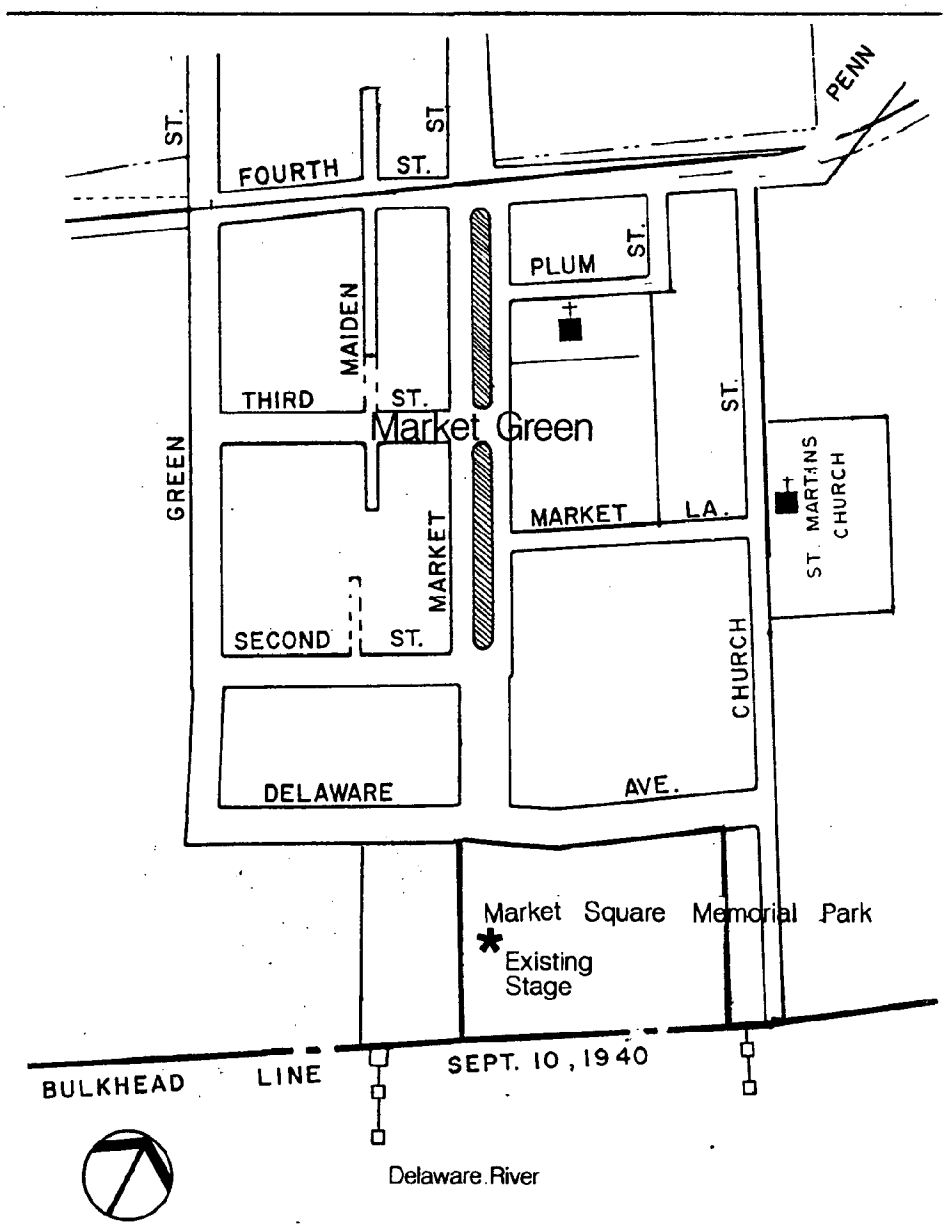
Figure 1. Location Map

Not to Scale



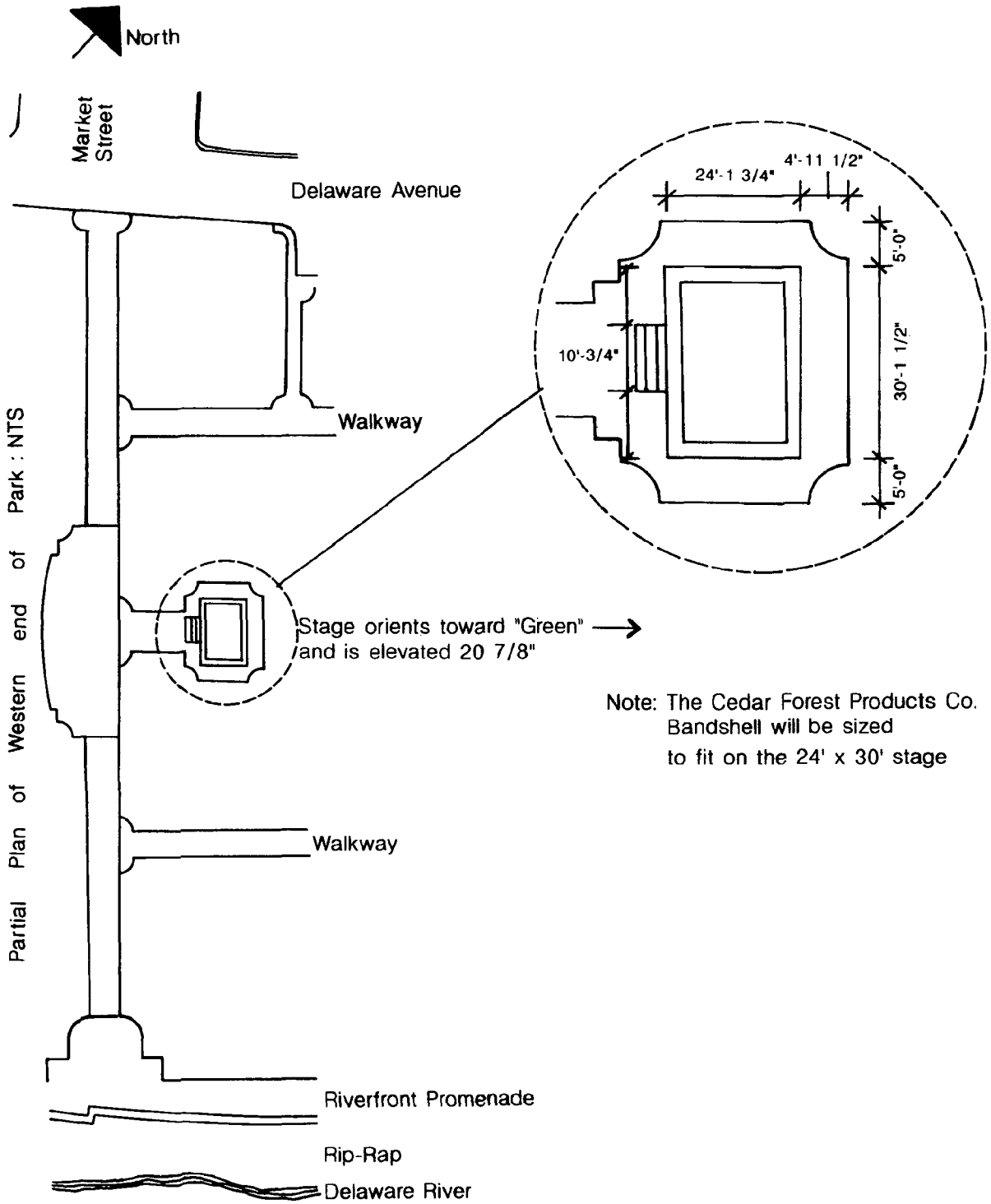


Figure 2.

Existing Conditions and Facility Analysis

CANOPY ENCLOSURE
MARKET SQUARE MEMORIAL PARK STAGE
Borough of Marcus Hook - Delaware County, Pennsylvania

SUMMARY OF DESIGN COORDINATION
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Canopy Plans

After considering several alternative canopy enclosures including a tent like structure and a small scale custom designed replica of the Market Square Head House, the Borough Council chose the Bandshell provided by Cedar Forest Products Co. (CFPC) as the preferred canopy enclosure. A Bandshell from Appleton, Wisconsin was considered as a point of departure.

Working with General Recreation, Inc. (GRI) of Newtown Square, Pa., two bandshell options were considered initially -- Model P-1440 and Model P-1848. However, since neither of these options worked perfectly on the existing stage, a custom designed bandshell will be required. Until the time that exact engineering measurements and details are prepared during the next stage of design, GRI has furnished a Bandshell Plan P-1912 which has been reduced to 11"x17" and enclosed as Figure 3.

CFPC will furnish detailed working drawings with an actual order. The working drawings could then be included in an overall Project Manual which could be sent to prospective contractors for bidding purposes.

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AUTHORIZED BY:
REVIEWED BY: [illegible]
DATE TO SHOP:

REFERENCE TO QUOTE #:
DATED:

GENERAL NOTES:

1. ALL CONSTRUCTION TO MEET STATE & LOCAL BUILDING CODE REQUIREMENTS.
2. ASSUMED SOIL BEARING CAPACITY = 3,000 P.S.F. ALL FOOTINGS TO BEAR ON UNDISTURBED SOIL.
3. CONSULT WITH A LOCAL REGISTERED STRUCTURAL ENGINEER IF SOIL BEARING CONDITIONS ARE OTHER THAN ABOVE.
4. CONCRETE TO BE 3,000 P.S.I. COMPRESSIVE STRENGTH IN 28 DAYS.
5. REINFORCING STEEL TO BE A.S.T.M. A-305 DEFORMED.

THE FOLLOWING WILL BE THE RESPONSIBILITY OF OTHERS:

A. ALL CONSTRUCTION SURVEYING AND FIELD VERIFICATION OF ALL DIMENSIONS.
B. DESIGN, EXCAVATION AND CONSTRUCTION OF THE STRUCTURE(S) FOUNDATION MUST BE VERIFIED BY A REGISTERED STRUCTURAL ENGINEER.
C. PROVIDE AND INSTALL ALL CONCRETE, REINFORCING STEEL, & ANCHOR BOLTS
D. UNLOAD ALL TRUCK(S) DELIVERING CEDAR FOREST PRODUCTS MATERIALS.
E. ERECTION OF THE STRUCTURE(S).

INFORMATION & ORDERING
GENERAL RECREATION, INC.
P.O. BOX 406
NEWTOWN SQUARE, PA 19073
PHONE: 610-353-3332
800-726-4793
FAX #610-353-5161

Cedar Forest Products Co.
107 WEST COLDEN - BOX 98
POLO, ILLINOIS 61064
(815)-946-3994
(815)-946-2479 FAX

OWNER	STRUCTURE/ DRAWN BY/ DATE	JOB #
NAME:	BANDSHELL	P-1912
ADDRESS	SCOTT D. DUNSETH	
CITY/ST	JUNE 4, 1996	

SUMMARY OF DESIGN COORDINATION
FOR THE CANOPY ENCLOSURE OF THE
MARKET SQUARE MEMORIAL PARK STAGE
Borough of Marcus Hook - Delaware County, Pennsylvania

June 14, 1996

Financial Analysis and Outline Specifications

General Recreation Inc., has furnished a cost estimate with outline specifications. Pages 7 to 9 relate to Model #P-1912. A summary of the costs is as follows:

Model # P-1912

Base Price as described on page 7	$24,325.00
Price Estimate for Unloading, Storage, Assembly, Base Shoe, Anchor Bolts, and Erection/Installation	11,000.00
Estimate for Engineering/Construction Administration	2,650.00
Total	$37,975.00

Options for Model #P-1912

Appleton Wisconsin Style Wing Rooms (two (2)) only if slab of the existing stage is enlarged	$22,850.00
Sliding Doors for Rear of Bandshell	$ 1,950.00

(See page 10 for Appleton model)

Please note that the above cost estimates are exclusive of electrical work, including Electrical Engineering and Electrical Contracting.

When the Canopy Enclosure/Bandshell is the subject of detailed plans and specifications, working drawings will be furnished with the order of one of the above choices.

GENERAL RECREATION, INC. • P.O. Box 406 • Newtown Square, PA 19073 • 610-353-3332 • 800-726-4793

PRICE QUOTATION

DUE DATE: 06/14/96

QUOTE #: 9150
DATE: 06/14/96
SALESPERSON: GARRY HELMUTH

BILL TO:
THOMAS COMITTA ASSOCIATES, INC.
18 WEST CHESTNUT STREET
WEST CHESTER, PA 19380
ATTN: JEAN AKERS

SHIP TO:
PLEASE ADVISE

PROJECT NAME: MARCUS HOOK, PA
TELEPHONE: 610 696-3896
CONTACT:

TERMS: TO BE DETERMINED
TO BE SHIPPED: COMMON CARRIER
F.O.B.: DELIVERED
SHIP DATE: 4 TO 6 WEEKS A.R.O.

QTY.	ITEM NUMBER	DESCRIPTION	PRICE	TOTAL
1	P-1912	CEDAR FOREST PRODUCTS - CUSTOM BANDSHELL AS PER DRAWING #P-1912, 30' WIDE BY 24' DEEP, ROOF SLOPE IS 4/12. *COLUMNS: LAMINATED KILN-DRIED SOUTHERN YELLOW PINE, CCA TREATED FOR INGROUND INSTALLATION (EXISTING SLAB WILL HAVE TO BE DRILLED TO ACCOMMODATE COLUMNS) *ROOF DECKING: #1 - 2" X 6" SOUTHERN YELLOW PINE, TONGUE AND GROOVE WITH V-GROOVES ON FINISH FACE *FASCIA: #2 AND BETTER SOUTHERN YELLOW PINE, CCA TREATED *ROOFING: CLASS "A" FIBERGLASS SHINGLES WITH 20 YEAR WARRANTY, #15 FELT, STYLE "D" ROOF EDGE *BACK WALL: 5" X 8" - 5-PLY GLU-LAMINATED DECORATIVE GRADE INLAND RED CEDAR *MISCELLANEOUS: ALL NAILS AND FASTENERS NEEDED ABOVE GROUND SUPPLIED WITH BUILDING PACKAGE *CEDAR FOREST PRODUCTS WORKING DRAWINGS FURNISHED WITH ORDER. **********CONTINUED**********	$24325.00	$24325.00

SUBTOTAL:
FREIGHT:
6% SALES TAX:

TOTAL:

QUOTE VALID FOR 30 DAYS BY: GARRY HELMUTH

TO CONFIRM ORDER, PLEASE SIGN AND RETURN TO OUR OFFICE

SIGNATURE _____

GENERAL RECREATION, INC. • P.O. Box 406 • Newtown Square, PA 19073 • 610-353-3332 • 800-726-4793

PRICE QUOTATION

DUE DATE: 06/14/96

QUOTE #: 9150 A
DATE: 06/14/96
SALESPERSON: GARRY HELMUTH

BILL TO:
THOMAS COMITTA ASSOCIATES, INC.
18 WEST CHESTNUT STREET
WEST CHESTER, PA 19380
ATTN: JEAN AKERS

SHIP TO:
PLEASE ADVISE

PROJECT NAME: MARCUS HOOK, PA
TELEPHONE: 610 696-3896
CONTACT:

TERMS: TO BE DETERMINED
TO BE SHIPPED: COMMON CARRIER
F.O.B.: DELIVERED
SHIP DATE: 4 TO 6 WEEKS A.R.O.

QTY.	ITEM NUMBER	DESCRIPTION	PRICE	TOTAL
		**********CONTINUED**********		
		***OPTIONS:		
1		"APPLETON, WISCONSIN" STYLE WING ROOM CONNECTED TO EACH SIDE OF #P-1912 BAND-SHELL. WING ROOMS CONSTRUCTED OF 5" BY 8" 5-PLY GLU-LAMINATE. DECORATIVE GRADE INLAND RED CEDAR, #1 - 2" X 6" SOUTHERN YELLOW PINE, TONGUE AND GROOVE ROOF DECKING, INLAND RED CEDAR 2" X 8" FASCIA. ROOFING MATERIAL IS CLASS "A" 20 YEAR FIBERGLASS SHINGLES WITH #15 FELT AND STYLE "D" ROOF EDGE. EXTERIOR DOORS PRIMED 18 GAUGE METAL WITH 16 GAUGE METAL FRAME WITH DOUBLE CYLINDER LOCKS, PUSH PULL AND CLOSER. ALL FASTENERS AND NAILS SUPPLIED FOR ABOVE GROUND. EACH WING ROOM IS 8' WIDE AT FRONT, 4' WIDE AT REAR AND 20' LONG. EXISTING SLAB WOULD HAVE TO BE ENLARGED FOR WING ROOMS TO BE ADDED TO BANDSHELL. PRICE FOR BOTH - ADD TO BANDSHELL	$22850.00	
		**********CONTINUED**********		

SUBTOTAL:
FREIGHT:
6% SALES TAX:

TOTAL:

QUOTE VALID FOR 30 DAYS BY: GARRY HELMUTH

TO CONFIRM ORDER, PLEASE SIGN AND RETURN TO OUR OFFICE

SIGNATURE _____

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PRICE QUOTATION

DUE DATE: 06/14/96

QUOTE #: 9150 B
DATE: 06/14/96
SALESPERSON: GARRY HELMUTH

BILL TO:
THOMAS COMITTA ASSOCIATES, INC.
18 WEST CHESTNUT STREET
WEST CHESTER, PA 19380
ATTN: JEAN AKERS

SHIP TO:
PLEASE ADVISE

PROJECT NAME: MARCUS HOOK, PA
TELEPHONE: 610 696-3896
CONTACT:

TERMS: TO BE DETERMINED
TO BE SHIPPED: COMMON CARRIER
F.O.B.: DELIVERED
SHIP DATE: 4 TO 6 WEEKS A.R.O.

QTY.	ITEM NUMBER	DESCRIPTION	PRICE	TOTAL
		**********CONTINUED**********		
1		SLIDING DOORS FOR REAR OF BANDSHELL TO CLOSE OFF OPENING. STEEL DOORS WITH CEDAR PANELING ATTACHED TO MATCH REAR INTERIOR OF BANDSHELL - ADD TO BANDSHELL PRICE	$1950.00	
1		PA ENGINEER SEAL (ADD $400.00 TO ABOVE BANDSHELL PRICE)		
1		COMBINATION SEAL AND CALCULATIONS (ADD $720.00 TO ABOVE BANDSHELL PRICE)		
		***ADD PA SALES TAX IF APPLICABLE. ***PRICING INCLUDES SHIPPING CHARGES. PRICING DOES NOT INCLUDE UNLOADING, STORAGE, ASSEMBLY, ERECTION OR INSTALLATION OF BUILDING PACKAGE.		

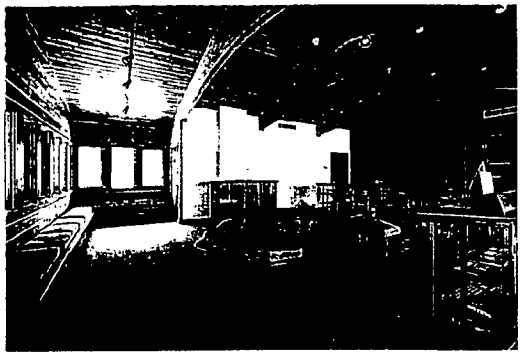
SUBTOTAL: _____
FREIGHT: _____
6% SALES TAX: _____

TOTAL: _____

QUOTE VALID FOR 30 DAYS BY: GARRY HELMUTH

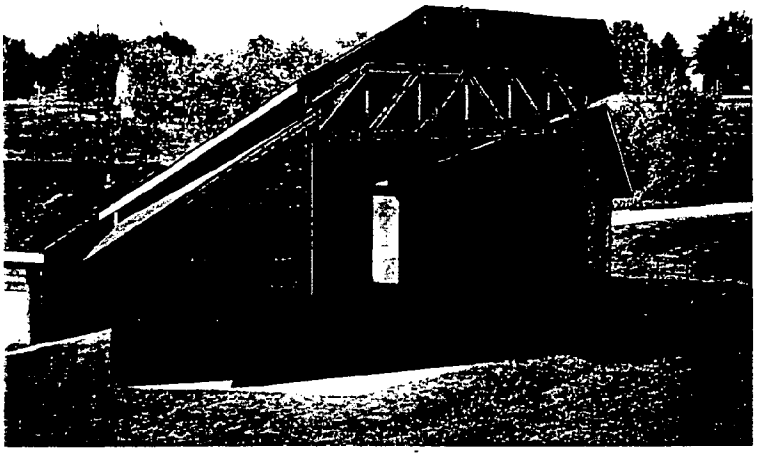
TO CONFIRM ORDER, PLEASE SIGN AND RETURN TO OUR OFFICE

SIGNATURE _____



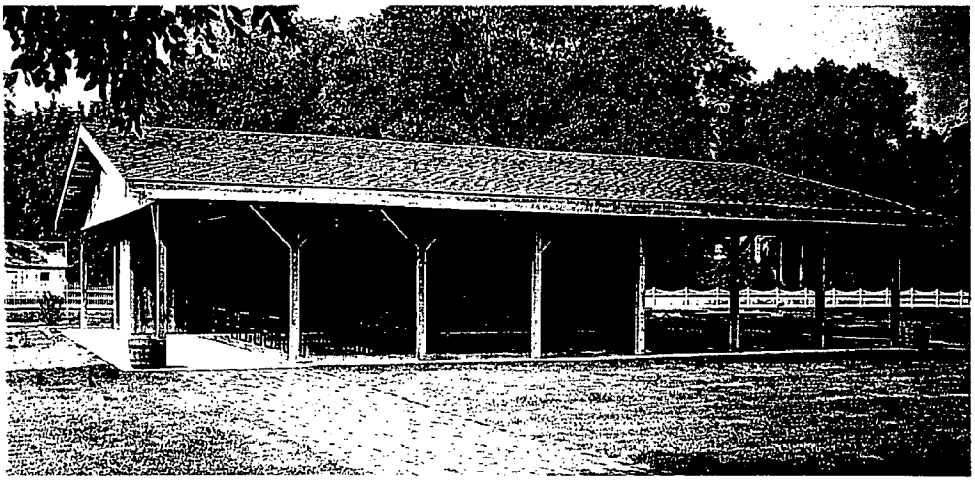
Cedar Rock Visitor Center
Quasqueton, Iowa

This tribute to America's legendary architect, Frank Lloyd Wright, is characterized by low profile and horizontal expression. The single low pitch structure features continuous timbers, a long deck and a band of windows, capturing the closeness Wright felt with nature.



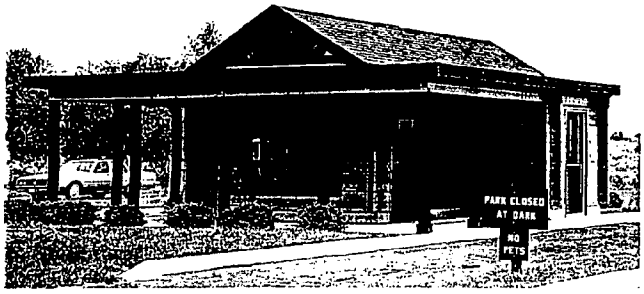
Bandshell
Appleton, Wisconsin

The fan-shape, close-in wing and dramatic, 40' free-span truss put this Cedar Forest bandshell in perfect harmony with its natural surroundings.



John Deere Historic Site
Grand Detour, Illinois

Designed by the Deere Company and crafted by Cedar Forest, this picnic pavilion features rugged timber trusses and rustic cedar paneling. Local tradesmen helped build it. A picturesque setting for tourists to appreciate the history around them.



Thousand Islands State Park
Plattsburgh, New York

Cedar Forest adapted the Park's original drawings for this building, and directed the interdepartmental efforts of Parks, Recreation and Historic Preservation, speeding approval and construction. A model of cooperation between public and private sectors.

Figure 4.
Bandshell Photo From Catalogue

Pennsylvania Coastal Zone Management Program

BOROUGH OF MARCUS HOOK
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1996

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MARKET GREEN MASTER PLAN
Borough of Marcus Hook - Delaware County, Pennsylvania

June 14, 1996

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MARKET GREEN MASTER PLAN
Borough of Marcus Hook - Delaware County, Pennsylvania

June 14, 1996

Introduction

Originally established as part of the "Old Market Square" in a charter of 1701, the Market Green represents a unique linear open space in the Borough of Marcus Hook, Delaware County, Pennsylvania. This Master Plan is part of an on-going redevelopment process aimed at improving the neighborhood amenities in the Market Square Redevelopment Area. Appendix A, the "Project Background" narrative provides an overview relative to the Market Square Redevelopment Area, Market Green, and Market Square Memorial Park.

The Market Green, an island within Market Street, between 4th Street and 2nd Street, is the gateway to the Borough's riverfront along the Delaware River. Market Green, shown in the Location Map, Figure 1., creates an avenue or boulevard character typical to a Traditional Neighborhood of historic significance.

The Borough of Marcus Hook has commissioned this Master Plan to protect and enhance this "green connection" to the Market Square Memorial Park which adjoins the River. The Master Plan has been developed to match the land's physical capability with a landscape development scheme for the future.

The focus of the Market Green Master Plan is a careful analysis and documentation of existing conditions along the tree-lined "Avenue." Serious consideration has been given to the future use and appearance of the "green space" and its role in the redevelopment of the Market Square neighborhood.

The final design solution for the Market Green proposes a historically appropriate conservation and adaptive reuse program. A financial analysis of the final design solution has been conducted to assist in the implementation and phasing of the Master Plan. Cost estimates have been prepared for all recommendations, as well as proposed phasing schemes and the prioritization of those phases.

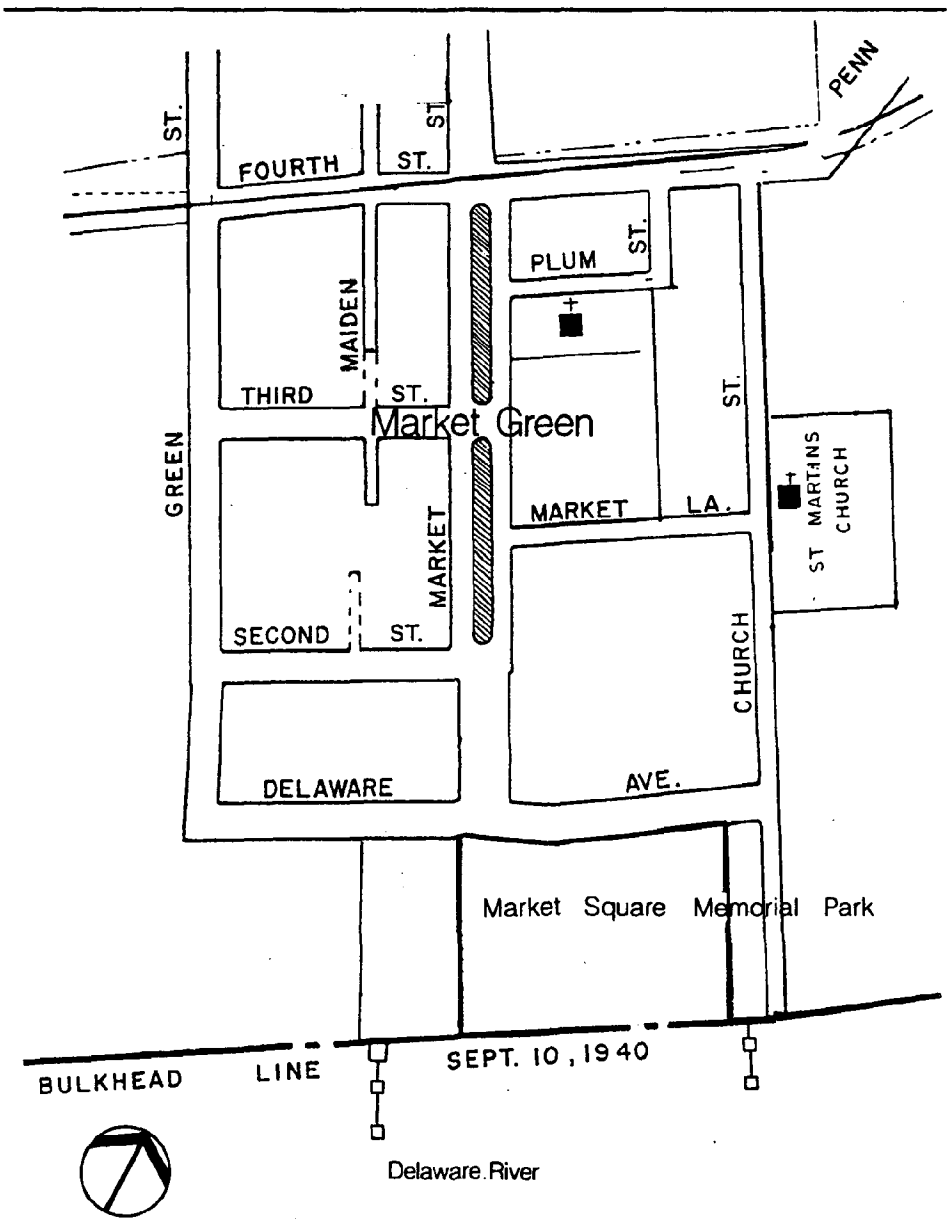
Overall, the Market Green Master Plan proposes improvements to a key focal point in the historic and aesthetic setting of the Borough of Marcus Hook.

MARKET GREEN MASTER PLAN
Borough of Marcus Hook - Delaware County, Pennsylvania

June 14, 1996

Figure 1. Location Map

Not to Scale



MARKET GREEN MASTER PLAN
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June 14, 1996

Existing Conditions

The Market Green consists of two elongated grass plots containing 23 London Planetrees. The "Avenue" or "Boulevard" form of Market Green separates the directional traffic lanes of Market Street of southbound to the west, and northbound to the east. Market Green extends from 2nd Street to 4th Street in a uniform manner, except that a war memorial is located at one end section near 3rd Street.

The London Planetrees, Platanus x acerifolia, which exist near the curbed edges of the two grassed islands are the remnants of a double row of tree plantings which once lined the open market along Market Street. Currently, gaps occur in the spacing of the remaining trees due to the removal of dead trees over the years. The existing trees are in varying stages of decline.

The grass strips have been reseeded occasionally and contain a mix of turf grasses and typical broadleaf weeds. Considering the varying amounts of shade and competition from tree roots, the grass groundcover is functioning fairly well.

The existing soil conditions were determined through soil test results from the Penn State University soil labs. In 1990, Penn State Extension Agents took four soil samples from the grass plots that comprise the Market Green. The soil tests indicated a soil pH of 7.8, an excessively alkaline condition. The alkaline pH level is detrimental to many plant species growth and, specifically, excessive for the optimum pH level for London Planetrees. The build-up of salts, particularly from the use of winter road salt applications, is considered the cause of the high pH. The soil tests also indicated excessively high levels of Calcium which would restrict the availability of Phosphorus, an essential macronutrient for plant growth. This imbalance of nutrients and soil pH explains the condition of decline which is evident in the London Planetrees in the Market Green.

The buildings which flank Market Green to the east and west, consist primarily of residential dwellings and vacant spaces. Some areas have been cleared of former structures as part of the redevelopment process. Local commercial establishments, residential housing units, and a Church are among the existing building uses which form the two "street walls" of lower Market Green.

Site Analysis

The Market Green, oriented perpendicular to the nearby Delaware River, is on an approximate northwest to southeast axis. Located in the southern portion of Delaware County, the seasonal temperature range and overall macroclimate are representative of southeastern Pennsylvania and northern Newcastle County, Delaware.

Soil test results summarized in the Introduction indicate excessive levels of Calcium and an extreme alkaline soil pH in the grass plots of the Green. Penn State Cooperative Extension Agents have determined the poor soil conditions to be primarily the result of road salt accumulations. Excessive salt build-up is detrimental to plant growth and results in an underlying soil condition which is less than favorable for the maintenance of the existing trees. Considerable corrective measures are required to improve the soil conditions and create a favorable growing environment. Recommendations for actual soil treatments are incorporated in the Master Development Plan section of this report.

The poor soil condition of the Market Green is due in part to the continual application of de-icing salts along Market Street during the winter. Plowed snow which is piled onto the Green contains the road salt residual from the street surface. Applications from the salt trucks also result in some road salt landing in the grass plots. Excessive salt build-up in the soil result in slower water drainage in the soil column, phosphorus deficiencies due to excessive calcium levels, and an imbalance to the soil pH. These factors all create conditions which limit favorable plant growth. Recommendations for road salt applications and other possible snow removal methods are incorporated into the Master Development Plan section of this report.

The soil surface of the grass plots is higher than the curb which edges the Market Green. As a result, positive surface water drainage is achieved. The presence of a turfgrass cover and tree canopy greatly enhances the ability of the soil surface to retain rain water and limit surface water runoff.

Spatial Analysis, Views Into and Out From the Site

Figure 2., the Existing Conditions and Site Analysis Plan, which is attached, depicts the spatial qualities of the site through a series of photographs. Of particular note is the significant statement made by the trees to provide the "old shade" character to the space and to reinforce the "Avenue" appearance missing in typical suburban streetscapes.

The intrinsic values of Market Green which are most noteworthy include:

- the spatial attributes of the "Avenue" or "Boulevard" character, to reinforce the gateway to the Delaware River;
- the historical significance of the two tree-lined grass plots to help "anchor" the head house space between Market Green and Market Square Memorial Park;
- the simplicity of the open green space as a visual statement and relief in what is a fairly dense neighborhood of buildings;

- the scale of the space as a relatively small open space, typical in small towns which were developed in America from the 1840's to 1940's;
- the role of the Market Green in reinforcing the Traditional Neighborhood character of the Market Square Redevelopment Area; and
- the potential for Market Square to be conserved for its passive open space value, with a minor adaptive reuse in the form of seating/rest areas.

The Market Green, bounded on the east and west sides by the one way vehicular traffic lanes of Market Street, is flanked by existing sidewalks. The only accommodation for pedestrians on the Market Green itself, consists of a three and one-half (3½) foot wide asphalt walkway crossing the grass plot near Market Lane. Although additional pedestrian walkways would reduce the amount of green in the two islands, opportunities exist for some expanded pedestrian features such as benches and bench pads.

MARKET GREEN MASTER PLAN
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Master Development Plan

Two Master Development Plans are attached. The Borough will have the choice to replant some or all of the trees, depending on the budget considerations.

Figure 3., Master Development Plan 'A', is a conservative plan which involves the addition of eight (8) London Plane trees to "fill-in" the missing canopy. It also depicts crosswalks leading to new sidewalk paver areas and a Market Square Head House memorial plaza and plaque. The overall notion of the Plan is to maintain the peaceful, quiet and passive nature of the Market Green to acknowledge its historical significance.

Master Development Plan 'B', Figure 4., is also focused on the passive attributes of the Market Green. However, rather than to rely on the existing trees to last, it promotes a complete replanting of 24 new Hackberry Trees. One cost estimate is for the new trees at a 3-3½ inch caliper size, the other is for the new trees at 5-5½ inch caliper.

Both plans will involve curb cuts and replacements to sections of curbing which is broken or otherwise deteriorated. Although relatively common, the curbing serves to elevate the Market Green and distinguish the space from the adjoining streets.

From a "big picture" standpoint, the preservation of the Market Green will help to mitigate adverse effects of non-point source water pollution from stormwater runoff. In other words, by maintaining the two grass plots and by adding new vegetative cover, positive infiltration of water will occur into the ground, and no additional non-point source pollutants will be introduced.

Relative to street lights, the Market Green should continue to be illuminated by existing lighting on either side of Market Street. If benches are ever placed in Market Green, then low level security lighting could be added. The overall concept with street lighting is to retain the "quiet" wash of lighting from adjoining lights, to further reinforce the passive nature of the space.

Cost data related to the two plans is provided on page 7.

MARKET GREEN MASTER PLAN
Borough of Marcus Hook - Delaware County, Pennsylvania

June 14, 1996

Financial Analysis

Cost Estimates

Master Development Plan 'A'

1. Demolition	
14 trees	$14,000.00
36 feet of curb	1,000.00
2. New Trees (To "Fill-In the Gaps")	
8 London Plane at $1,200 each (5-5½" cal.)	9,600.00
3. Replacement Trees	
14 London Plane at $1,200 each	16,800.00
4. Turfgrass Establishment and Soil Reconditioning	7,200.00
5. Crosswalk Line Striping	495.00
6. Disabled Curb Cuts	3,200.00
7. Curb Replacement	2,000.00
8. Street Repair at Curb Edge	2,000.00
9. Sidewalk Pavers	4,000.00
10. Market Square Head House Sign/Plaque	2,900.00
Sub-total	$63,195.00
Pre-Design Congingency	12,639.00
Design & Engineering Fees (including Bid Administration and Construction Administration)	9,000.00
Total	84,834.00
SAY	85,000.00

MARKET GREEN MASTER PLAN
Borough of Marcus Hook - Delaware County, Pennsylvania

June 14, 1996

Cost Estimates

Master Development Plan 'B'	with Smaller Trees	with Larger Trees
1. Demolition		
24 trees	$22,000.00	$22,000.00
36 feet of curb	1,000.00	1,000.00
2. New Trees		
24 Hackberry at $350 each (3-3½" cal.)	8,400.00	
24 Hackberry at $1,200 each (5-5½" cal.)		28,800.00
3. Turfgrass Establishment and Soil Reconditioning	7,200.00	7,200.00
4. Crosswalk Line Striping	495.00	495.00
5. Disabled Curb Cuts	3,200.00	3,200.00
6. Curb Replacement	3,000.00	3,000.00
7. Street Repair at Curb Edge	3,000.00	3,000.00
8. Sidewalk Pavers	4,000.00	4,000.00
9. Market Square Head House Sign/Plaque	2,900.00	2,900.00
Sub-total	$54,195.00	$74,595.00
Pre-Design Congingency	10,839.00	14,919.00
Design & Engineering Fees	7,800.00	10,700.00
Total	72,834.00	100,214.00
SAY	$73,000.00	$101,000.00

MARKET GREEN MASTER PLAN
Borough of Marcus Hook - Delaware County, Pennsylvania

June 14, 1996

Priorities and Phasing

Four (4) Phases are noted on each of the Master Development Plans 'A' and 'B' to suggest a sequence for construction. After the Borough selects Plan 'A' or Plan 'B', the phasing will be governed by budget considerations.

MARKET GREEN MASTER PLAN
Borough of Marcus Hook - Delaware County, Pennsylvania

June 14, 1996

Appendix A - Project Background (Narrative)

The Project Background (Narrative), attached as pages A-2 and A-3.

PROJECT BACKGROUND

On June 5, 1995, the Borough of Marcus Hook executed a Grant Agreement with the Pennsylvania Department of Environmental Resources for the preparation of a master plan for the Market Green open space and design or selection of a canopy for the Market Square Memorial Park stage to be partially funded by a grant from the Coastal Zone Management Program. The grant agreement is effective from July 1, 1995 until September 30, 1996.

MARKET SQUARE REDEVELOPMENT AREA

Completion of the Market Green land development plan will provide a blueprint for the future landscaping of this unique open space. Both the "green" and Market Square Memorial Park are located within the Market Square Redevelopment Area. The redevelopment planning process was concluded in 1985 and the plan adopted in September of that year. The Market Square neighborhood displays historically significant architectural detailing and development patterns which make it desirable to current and future residents searching for affordable housing in a charming neighborhood. Through the implementation of the redevelopment plan the Borough has eliminated many non-conforming land uses and has completed plans for new housing development on reclaimed land. Critical to the redevelopment process is the continuing emphasis on improving neighborhood amenities, namely Market Square Memorial Park and Market Green. The park and other neighborhood improvements has represented a statement to residents, investors, and developers that the Borough government is strongly committed to restoring and improving the Market Square neighborhood as a residential area. The park has brought new life to the neighborhood and is a sense of pride for the entire community.

Market Green

The Market Green is a remnant of the 1701 "Old Market Square" which included properties facing on Market Street, 4th Street, Church Street and the Delaware River bank, as well as the open market area. This traditional market-waterfront-community center retains its original layout with a number of 18th and 19th century structures reflecting its history.

Residents of the area petitioned William Penn for the establishment of a local market, to be held in the long open area still visible today on Market Street. This area is referred to as the Market Green. The charter for the market was granted in 1701, one of only three (Chester and Philadelphia also obtained market charters) such privileges issued by the Proprietor, William Penn. Prior to 1800, a two-story market house was erected similar to Philadelphia's Head House. The second floor of the structure was demolished in 1869-1870 and the weekly trade in foods, goods and livestock gradually died out. What was left of the building succumbed to a fire in the 1870's.

Market Square Memorial Park

Market Square Memorial Park is the crown jewel of the Borough's park system. It is situated along the banks of the Delaware River with outstanding views of the waterfront. Park lands were purchased and assembled in 1984 and 1985 and four phases of park development have occurred since 1986. Project costs have totalled $1.1 million and represents an investment of slightly over $420 per capita.

MARKET GREEN MASTER PLAN
Borough of Marcus Hook - Delaware County, Pennsylvania

June 14, 1996

Appendix B - Outline Specifications

Specifications and details for the proposed trees are included on each Master Development Plan 'A' and 'B'.

All curb replacements and disabled curb cuts, crosswalk line striping, street repair, and turfgrass establishment shall be in accordance with Form 408 Specifications of the Pennsylvania Department of Transportation. Sidewalk Paver specifications, although subject to the detailed design phase which should follow this Master Plan effort, are generally addressed on pages B-5 and B-6. The E.P. Henry Interlocking Pavers are recommended for the sidewalks and at the Head House Memorial Plaza.

Relative to soil reconditioning, pages B-2 through B-4 provide recommendations based on the results of Penn State's soils analysis. The addition of sulfur, superphosphate and the application of a general fertilizer are recommended.

PENNSTATE

(215) 565-9070

Cooperative Extension
Delaware County

Rose Tree Park
1521 North Providence Road
Media, PA 19063

March 15, 1990

Mr. Bruce Dorbian
Township Manager
Boro of Marcus Hook
10th and Green Sts.
Marcus Hook, PA 19061

Dear Bruce,

When Susan and I met with Mayor Jim Jackson and the Marcus Hook Shade Tree Commission we agreed that, in addition to the survey of the Boro's street trees, we would collect soil samples of the area of the Sycamores at the foot of Market Street.

Enclosed are the test results from the Penn State University soil labs. As you can easily see, the underlying soil conditions are less than favorable for the maintenance of the existing trees, let alone the planting of new street trees.

Four soil samples were taken. Sample 'A' [Field MHA] and sample 'B' [MHB] were taken from actual planting sites,.corresponding with the two former planting holes on the south side of the planting area adjacent to 4th street.(the upper area). Sample 'C' [MHC] was taken from the same general area [6-7 sites throughout that upper planting area]. Sample 'D' [MHD] was a random sampling from the lower planting area.

As you can readily see, the pH is excessively alkaline, caused by salt build-up The soil test recommends a pH of 6.5 for Sycamores. Therefore, our recommendation is ,taking an average pH reading, the application of 1 3/4 pounds of Sulfur per 100 square feet. That is a considerable dosage and it will take quite some time to begin to bring the pH down, but the excessive salt levels certainly indicate why the trees have died and replacements have not succeeded either. The excessive salt levels also explain the high Calcium levels. Additionally, there is little Phosphorus available, thus the recommendation of superphosphate [0-20-0] at a rate of 2 pounds per 100 square feet. Because the general nutrition level is so poor, the application of 5-10-5 at a rate of 3 pounds per 100 square feet has been made.

This is a lot of soil correction, at a considerable cost to your program. But as I am sure you know, without good soil, little can be expected to grow. We look forward to continued cooperation between our two organizations.

Sincerely,

Sara Pilling

Sara Pilling
Extension Project Assistant

cc: M. Hoffman

An Equal Opportunity University

College of Agriculture, U.S. Department of Agriculture, and Pennsylvania Counties Cooperating

02/28/90	0744	014452	DELAWARE	00	MHC	UNSPECIFIED
DATE	LAB NO.	SERIAL NO.	COUNTY	ACRES	FIELD	SOIL

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF AGRICULTURE
MERKLE LABORATORY - SOIL TESTING
UNIVERSITY PARK, PA 16802
(814 863-0841)

SOIL TEST REPORT FOR:

COPY SENT TO:

SARA PILLING
29 GARRETT AVE
ROSEMONT PA 19010

00000

SOIL NUTRIENT LEVELS:

		LOW	MEDIUM	HIGH	EXCESSIVE
Soil pH		XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			
Phosphate	(P)	XXX			
Potash	(K)	XXXXXXXXXX			
Magnesium	(MG)	XXXXXXXXXXXXXXX			
Calcium	(CA)	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			

RECOMMENDATIONS FOR: LANDSCAPE,TO PLANT,PH 6.5

See Back For Comments

MG AND CALCIUM ADJUSTMENT LB/100 SQ.FT.

PH ADJUSTMENT LB/100 SQ.FT.

(MgSO4) EPSOM SALTS: NONE — 1,2

CALCITIC LIMESTONE (0-3% MG): NONE

(CaSO4) GYPSUM: NONE — 3,4

PLANT NUTRIENT NEEDS: LBS/100 SQ.FT.

5-10-10		5-10-5		10-10-10
NONE	+	1.5	+	NONE
0-20-0		**21-53-0**		**AMMONIUM NITRATE**
2.5	+	NONE	+	NONE

MESSAGES:

* IF SOIL PH IN LABORATORY RESULTS IS GREATER THAN 6.5, USE SULFUR (SEE TABLE ON BACK) TO LOWER PH TO DESIRED LEVEL OF 6.5.
* THE ABOVE LIME AND FERTILIZER RECOMMENDATIONS ARE FOR THIS SOIL SAMPLE AND THIS SEASON ONLY. PLANT NUTRIENT RECOMMENDATIONS ARE FOR FERTILIZERS CONTAINING SPECIFIC RATIOS OF NITROGEN (N), PHOSPHATE (P2O5) AND POTASH (K2O). AS AN EXAMPLE 5-10-10 CONTAINS 5% N, 10% P2O5, AND 10% K2O. IF FERTILIZERS WITH THE RATIOS SHOWN ARE NOT AVAILABLE, CONTACT YOUR LOCAL GARDEN CENTER OR FERTILIZER SUPPLIER FOR THE APPROPRIATE SUBSTITUTION.

LABORATORY RESULTS:

7.8	46	0.0	0.25	0.9	9.0	10.1	2.4	8.9	89.1
SOIL pH	P lb/A	ACIDITY	K	Mg	Ca	CEC	K	Mg	Ca
		EXCHANGEABLE CATIONS (meq/100 g)					% SATURATION		

OTHER TESTS:

SOIL09 TREES: ORNAMENTALS,XMAS,WOODLOT

COMMENTS

1. To be most effective, all recommended limestone and/or fertilizer should be incorporated 6 to 8 inches into the soil prior to planting. If plants or crop is established, apply recommended materials to the surface and water area well.

2. If 11 to 20 pounds of limestone are recommended, divide the amount by two and apply in two applications six months apart. If 21 or more pounds are recommended, divide the amount by three and make three applications at six month intervals.

3. If 3 or more pounds of $MgSO4$ (Epsom salts) are recommended, divide. the amount by two and make separate applications at four month intervals. If an alternative magnesium source is used, apply an amount equal to the equivalent of 10.5% Mg in $MgSO4$;; only one application should be needed.

4. Lime and fertilizer are recommended in pounds of material per each 100 square feet of area to be treated. Use the following conversions to convert from pounds per

   100 square feet to other units or area sizes:

   pounds per 100 sq. ft. x 10 = pounds per 1000 sq. ft.
   pounds per 100 sq. ft. x 435 = pounds per acre

5. Lime and fertilizer are recommended in pounds of material per each 100 sq. ft. of area: for band length or number of spots (individual trees)

   that can be treated with the recommended amounts shown; use the following equations:

   Band lenght in ft. = (100 sq. ft.) / (Band width in ft.)
   Individual plants (spots) = (100 sq. ft.) (area of circle)
   area of circle in sq. ft. = 1.0 ft. dia. = 0.75 sq. ft.
   1.5 ft. dia. = 1.75 sq. ft.
   2.0 ft. dia. = 3.00 sq. ft.
   3.0 ft. dia. = 7.00 sq. ft.

6. Amount of sulfur needed to lower soil pH to optimum level.
   (See front of report for soil pH and optimum pH)

FROM CURRENT SOIL PH	TO OPTIMUM SOIL PH	SULFUR (lb/100 sq ft)	FROM CURRENT SOIL PH	TO OPTIMUM SOIL PH	SULFUR (lb/100 sq ft)
8.0	7.5	0.50	7.0	6.5	0.75
	7.0	1.00		6.0	1.25
	6.5	2.00		5.5	2.50
	6.0	3.00			
		4.00			
	5.5				
7.5	7.0	0.75	6.5	6.0	1.00
	6.5	1.25		5.5	1.75
	6.0	2.50			
	5.5	3.50	6.0	5.5	1.50

Apply sulfur at the above rates for a loam soil. On heavier soils (silt loams) use one third more than the amount shown. On lighter soils (sandy loams) use one-half of the amounts shown.
If aluminum or ferrous sulfate is used to lower pH, multiply the above amounts by 2.5. Follow the same suggestions as above for soil types. If 4 or more pounds are needed, divide the amount in half and make two applications six months apart.

EP HENRY PAVING STONES

SPECIFICATION FOR INTERLOCKING PAVING STONES

PART 1 - GENERAL

1.1 SUBMITTALS - Submit samples of each type, color, texture and pattern of unit paver indicated, representative of the range of colors for the project. Sample(s) shall completely represent all patterns required, as directed by Engineer/ Architect.

1.2 PRODUCT HANDLING - Interlocking paving stones shall be delivered and unloaded at jobsite in such a manner that no damage occurs to the product during hauling, handling or unloading at the jobsite.

PART 2 - PRODUCT INFORMATION

2.1 Interlocking paving stones shall be in accordance as shown on these plans, where designated. These products shall be as manufactured by E. P. Henry Corporation, P.O. Box 615, Woodbury, N. J. 08096, Phone (609) 845-6200 or, out of 609 area, 1-800-44-HENRY, FAX 609-845-0023.

2.2 MATERIALS

A. All interlocking paving stones shall be in accordance with those shown on these plans, where designated. They shall be produced with the DuraFace process as manufactured by E. P. Henry or approved equal. For aesthetic purposes, E. P. Henry does not DuraFace Old Towne Cobble nor 12x12 Village Squares.
B. Pavers shall have a minimum compressive strength of 8,000 PSI and a maximum absorption of 5% when tested in accordance with ASTM C-140. Manufacturer shall submit a current test report. Pavers shall meet or exceed the requirements of ASTM C-936.
C. Materials used to manufacture interlocking concrete paving stones shall conform to the following:

   1. Cement - ASTM C-150 Portland Cement Type II
   2. Aggregates - ASTM C-33 (washed, graded sand and limestone, no expanded shale or lightweight aggregates)

D. Size, shape, design and colors shall be in accordance with details as noted on plans.

PART 3 - INSTALLATION OF INTERLOCKING CONCRETE PAVING STONES

3.1 The base should be designed and constructed in accordance with ICPI TEK Bulletin 2.

A. The final base elevations shall not deviate more than 3/8" under a 10' long straight edge.

B. The bedding course shall be screeded loose to a uniform thickness of either 1" to 1½", taking care that moisture content remains constant and the density is loose and constant until concrete pavers are laid and compacted.
C. Supply and installation of the sand bedding course is the responsibility of the paving stone installer.

3.2 Installation should start from a corner or straight edge and proceed forward over the undisturbed sand laying course.

3.3 Paving work shall be plumb, level and true to line and grade; be installed to properly coincide and align with adjacent work and elevations.

A. Set concrete pavers hand tight with a maximum joint-width of 3/16 inch (5mm), being careful not to disturb sand bedding course. Maintain straight bond lines. Draw units from 4 or more cubes at a time to blend color. Fill gaps at edge restraints that exceed 3/8 inch (10 mm) with pieces cut to fit from full size unit pavers.
B. Vibrate concrete pavers into bedding course with a low amplitude plate vibrator capable of a 3,000 - 5,000 pound compaction force for 6 cm pavers and 4000 - 6000 pound compaction force for 8 cm pavers.
C. Spread dry coarse washed sand and fill joints immediately after vibrating pavers into bedding course. Sweep and vibrate sand into joints until they are completely filled, then remove surplus sand.

3.4 Cut concrete units with motor-driven masonry saw to provide clean, sharp, unchipped edges. Cut units to provide pattern indicated and to fit adjoining work neatly. Chisel cutting is not acceptable. No cut segment shall be smaller than one third of a unit on high volume streets or port areas unless restrained by a full unit border.

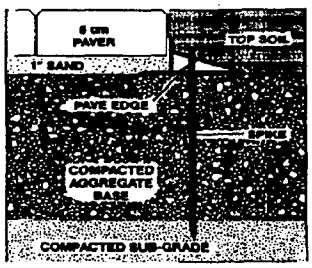
3.5 Do not allow traffic on installed concrete pavers until sand has been vibrated into joints.

3.6 The final surface elevations shall not deviate more than ¼ inch under a 10 foot long straightedge.

3.7 Install Pave Edge as manufactured by Pave Tech, Inc., Bloomington, MN, 1-800-728-3832.

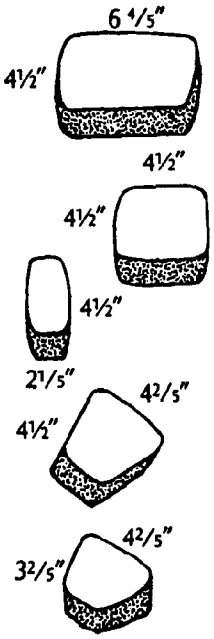
3.8 The paving stone contractor must have completed at least three projects of comparable scope within the last three years.

The above is intended as a guideline and, as such, has been kept as brief as possible. Please refer to the appropriate section of your E. P. Hardscaping Products Manual or call E. P. Henry for more detailed design information.



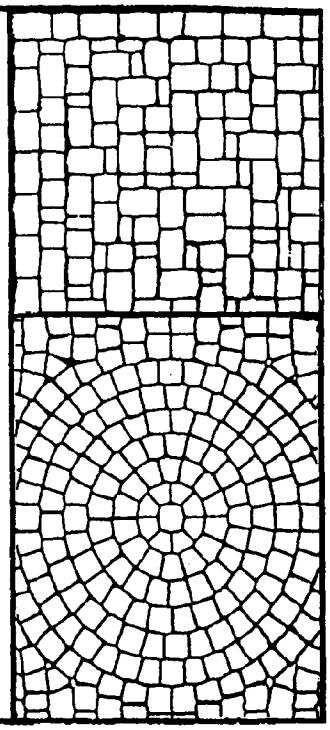
EP HENRY 201 PARK AVE., P.O. BOX 615, WOODBURY, NJ 08096
609-845-6200 ◇ PA OR DE 800-44 HENRY ◇ FAX 609-845-0023

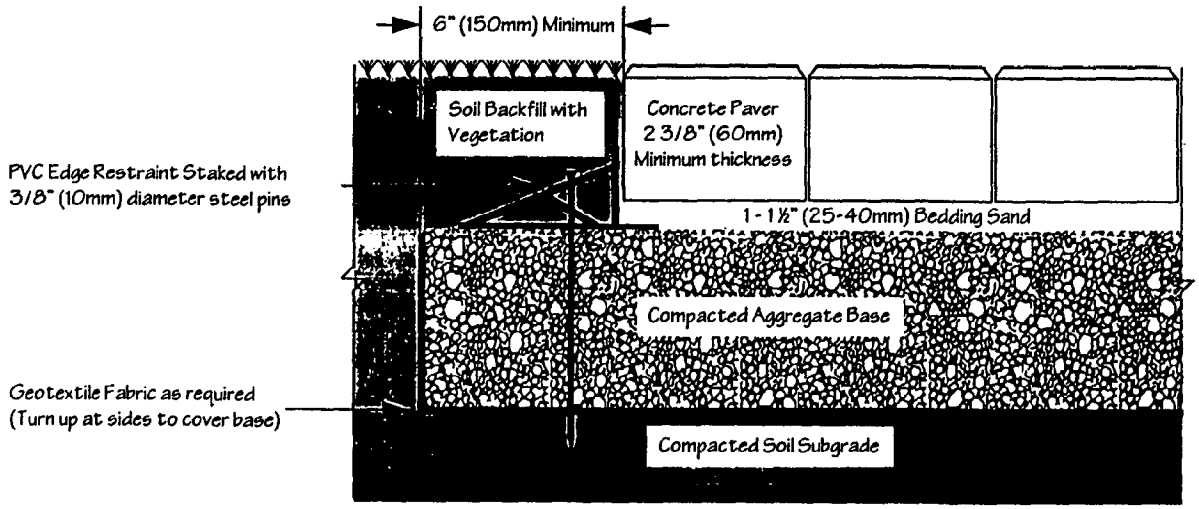
COLONIAL STONE™



Thickness: 2¾"

Pallet #1 (sold by the layer only)						
A. Large rect.						
4½" x 6 4/5"	83	4.6	384	10.4	32 Lbs.	Layer
Pallet #2 (sold by the layer only)						
B. Square						
4½" x 4½"	63	7.0	441	9.0	32 Lbs.	Layer
C. Small rect.						
4½" x 2 1/5"	5	14.1	63	0.7	32 Lbs.	Layer
Total	68			9.7		
Pallet #3 (sold by the pallet only)						
B. Square						
4½" x 4½"	33	7.0	231	N/A	32 Lbs.	Pallet
C. Small rect.						
4½ x 2 1/5"	1	14.1	14	N/A	32 Lbs.	Pallet
D. Large circle						
4½" x 4 2/5	31	7.2	224	N/A	32 Lbs.	Pallet
E. Small circle						
3 2/5" x 4 2/5"	2	9.6	21	N/A	32 Lbs.	Pallet
Total	67					





Interlocking Paver Cross-Section
Pedestrian and Light Vehicular Applications

Scale: Not to Scale | Date: 1/12/95

All materials and equipment needed to install paving stones are readily available from your E.P. Henry Paving Stone Dealer or local equipment rental store.

EP HENRY
State of the art in masonry products since 1913.

201 Park Avenue • Woodbury, New Jersey 08096 • Telephone (609) 845-6200
Fax 1 (609) 845-0023 • Out of area Call Toll Free 1 (800) 44 HENRY

MARKET GREEN MASTER PLAN
Borough of Marcus Hook - Delaware County, Pennsylvania

Appendix C Street Tree Facts:

Celtis occidentalis, Common Hackberry

A hardy native tree species in the Ulmaceae (Elm) family which typically reaches mature heights of 40 to 60 feet. This native tree withstands variable soil pH conditions and moderately wet or very dry areas making it especially suitable for use in urban locations. Hackberry transplants easily as a balled and burlapped larger tree and performs well under adverse conditions. The mature crown of Hackberry consists of a broad top with ascending and arching branches, somewhat similar in outline to the American Elm. In early Fall, a small purple fruit ripens which is relished by birds and wildlife. In addition to the species, Celtis occidentalis is also available in the nursery industry in the form of improved cultivars and hybrids.

> Celtis occidentalis 'Prairie Pride' is a rugged, compact form of Hackberry which develops a uniform oval crown, reaching heights of 40 to 50 feet. Its leaves are shiny, deep green, and leathery.
>
> Celtis x occidentalis 'Magnifica' is a hybrid Hackberry developed by Princeton Nurseries which is faster-growing with larger, glossy dark-green leaves. This hybrid tree is also very drought resistant, salt tolerant, and the roots withstand compacted urban soils.

Platanus x acerifolia 'Bloodgood', Bloodgood London Planetree

The recommended replacement tree to closely match the existing London Planetrees in the Market Green is its Bloodgood cultivar. The London Planetree is a large shade tree reaching 70 to 100 feet in height. It is very tolerant of urban conditions, heat, drought, and high pH soil conditions, and is easily transplanted and established. Its ultimate large size limits its suitability for street tree use. The straight hybrid of London Planetree (Platanus x acerifolia) has been over planted in many urban regions of the country because of its adaptability. As a result of this near monoculture status, many diseases have increased their impact on the extended London Planetree population. Cankerstain and Anthracnose are two serious diseases which can cause decline and eventual death of the trees.

This 'Bloodgood' cultivar of the hybrid London Planetree (Platanus x acerifolia) exhibits greater resistance to the disease, Anthracnose, which often affects the closely related native tree species, Sycamore or American Planetree (Platanus occidentalis).

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