MACKINAC ISLAND AND OLD MILL CREEK
NATURE EXHIBITS AND BOARDWALK

JAN 1986

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MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

January 3, 1986

TO: Mike Kessler, Division of Land Resource Programs

FROM: David A. Armour, Mackinac Island State Park Commission

SUBJECT: Mackinac Island and Old Mill Creek Nature Exhibits and Boardwalk

Enclosed are five copies of the final report of the project.

Dave

SB482 .M52 M33 1986

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MACKINAC ISLAND AND OLD MILL CREEK
NATURE EXHIBITS AND BOARDWALK

COASTAL MANAGEMENT PROGRAMS
DIVISION OF LAND RESOURCE PROGRAMS
DEPARTMENT OF NATURAL RESOURCES
STATE OF MICHIGAN

Submitted by

MACKINAC ISLAND STATE PARK COMMISSION
MACKINAC ISLAND, MICHIGAN

January 3, 1986

Total Project	$16,990.22
Coastal Management Program (Provided by the Coastal Zone Management Act of 1972 administered by the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration)	7,000.00
Mackinac Island State Park Commission	9,990.22

David A. Armour, Acting Director
Project Supervisor

January 3, 1986

MACKINAC ISLAND AND OLD MILL CREEK NATURE EXHIBITS AND BOARDWALK

Final Report
by
David A. Armour, Acting Director
Project Supervisor

Mackinac Island State Park, a National Historic Landmark, comprises 1,700 acres. The park contains many unique natural and geological features. A network of roads and trails provides access to the 750,000 annual visitors.

Old Mill Creek is a 625 acre park near Mackinaw City, Michigan and includes a late eighteenth-century sawmilling community. Several miles of nature trails have been constructed and are used by 75,000 visitors a year.

The project involved the design of a nature trail and a boardwalk near a small wetland on the north end of Mackinac Island and the design of twenty-seven nature displays. The project also involved selecting and enlarging color photographs for installation at the British Landing Information Center and the Old Mill Creek Interpretive Center.

Due to the short time available to complete the project we focused on design rather than fabrication. Some partial fabrication was done, but time did not permit their completion. The construction of the trail and boardwalk and the lamination and installation of the displays will await future funding.

Under this grant the nature trail was staked out and walkway and steps were designed for Friendship Alter Overlook. Also, at Croghan Water an overlook and boardwalk were designed and staked out. Plans of both these projects are attached.

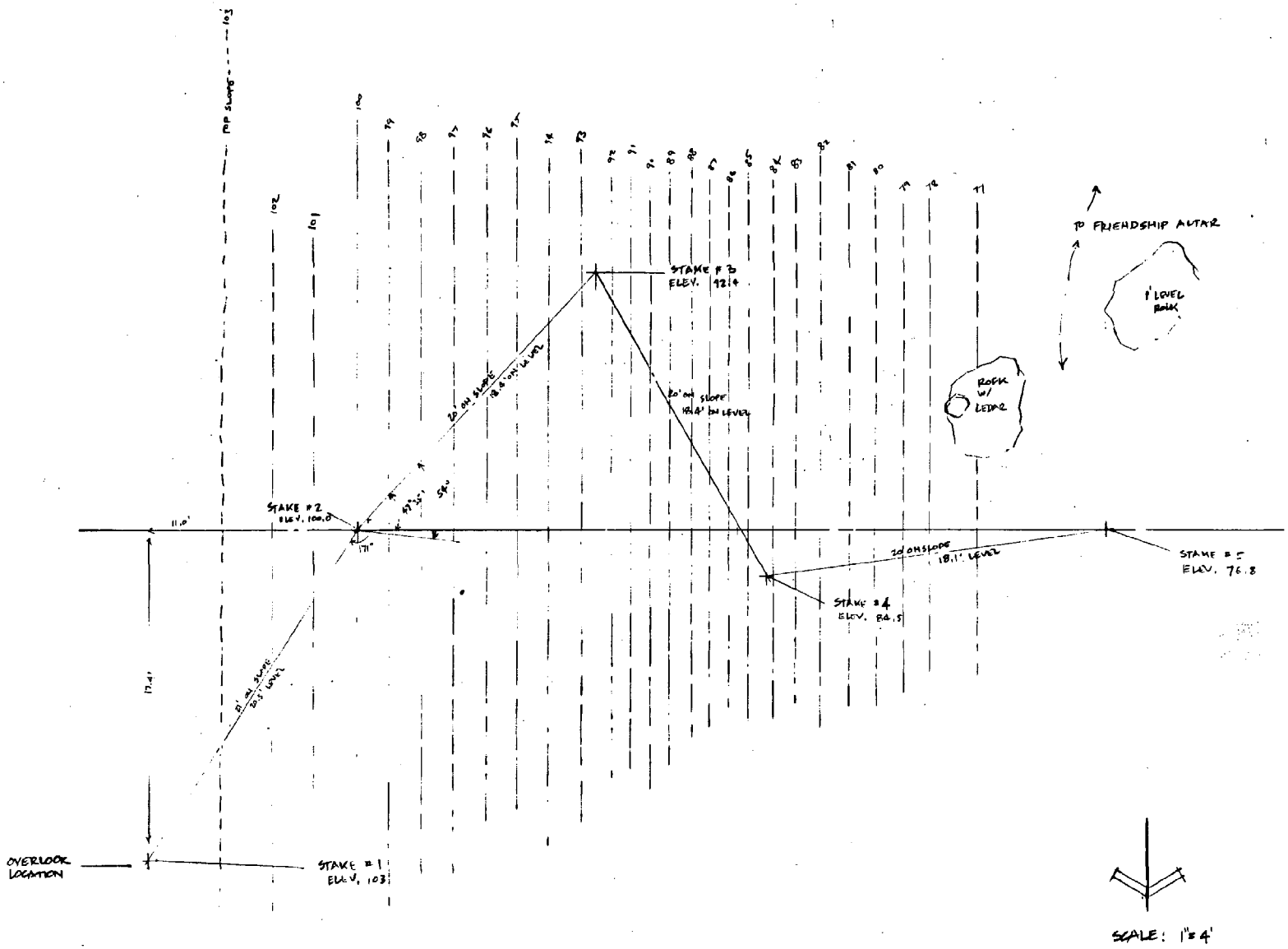
Most of the time was devoted to the research and design of twenty-seven nature displays. All the texts were written and most of the art work was completed. Ten displays were completed and were silk screened with special inks for eventual lamination in plexiglas. Copies of a number of these displays are attached.

Steel for the display stands was received, but the stands have not yet been fabricated.

Photographs for the visitor centers were selected. Those for Old Mill Creek were enlarged and printed by Meteor Photo, but time did not permit the completion of the photos for Mackinac Island. The design and planning proved to be more time consumming than first anticipated, consequently the Mackinac Island State Park Commission expended $2,990.22 more than was necessary to match the Federal funds.

Financial Summary

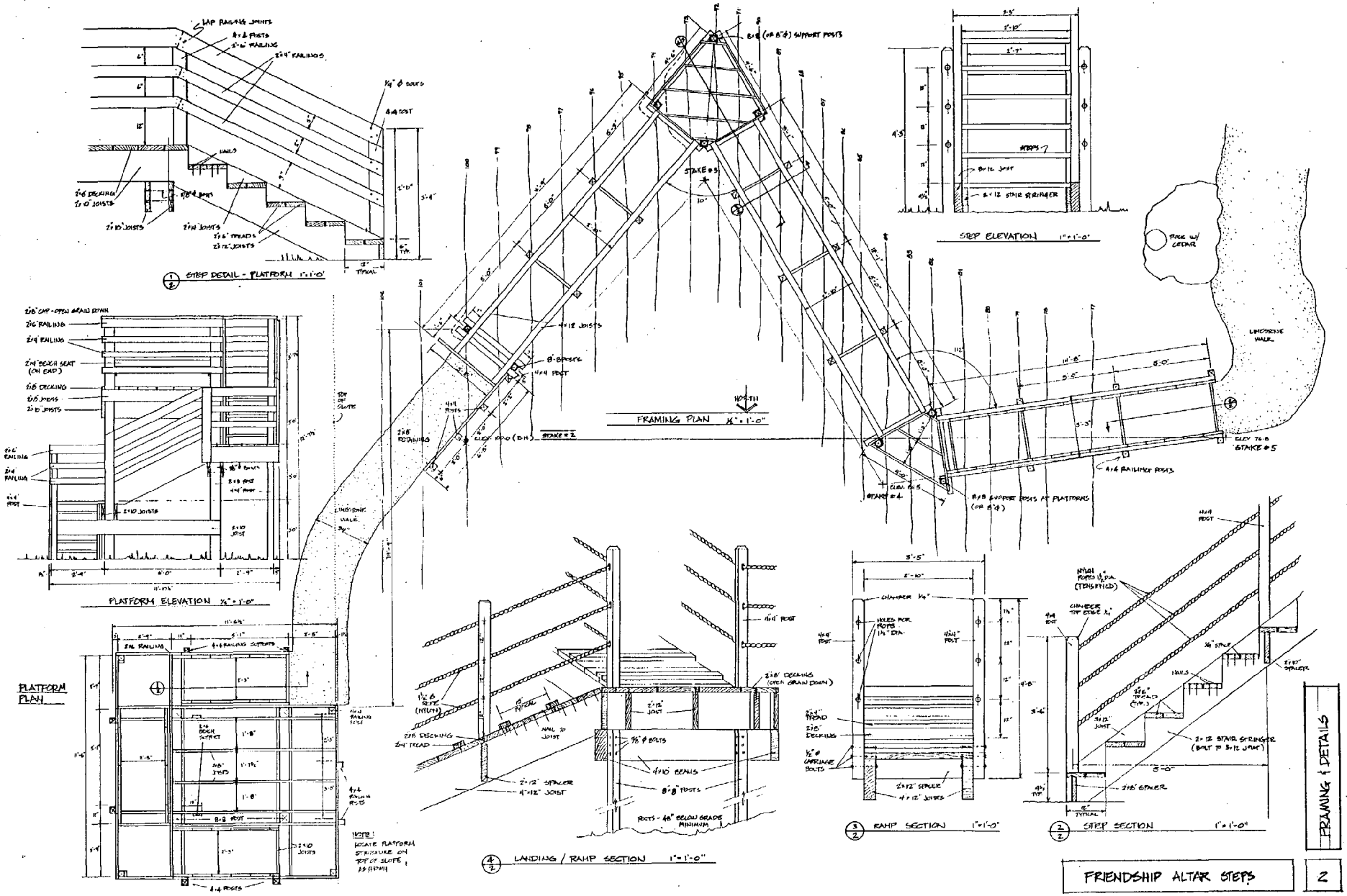
Salaries	$11,043.37
Contract Design	3,605.73
Supplies and Materials	2,341.12
TOTAL	$16,990.22



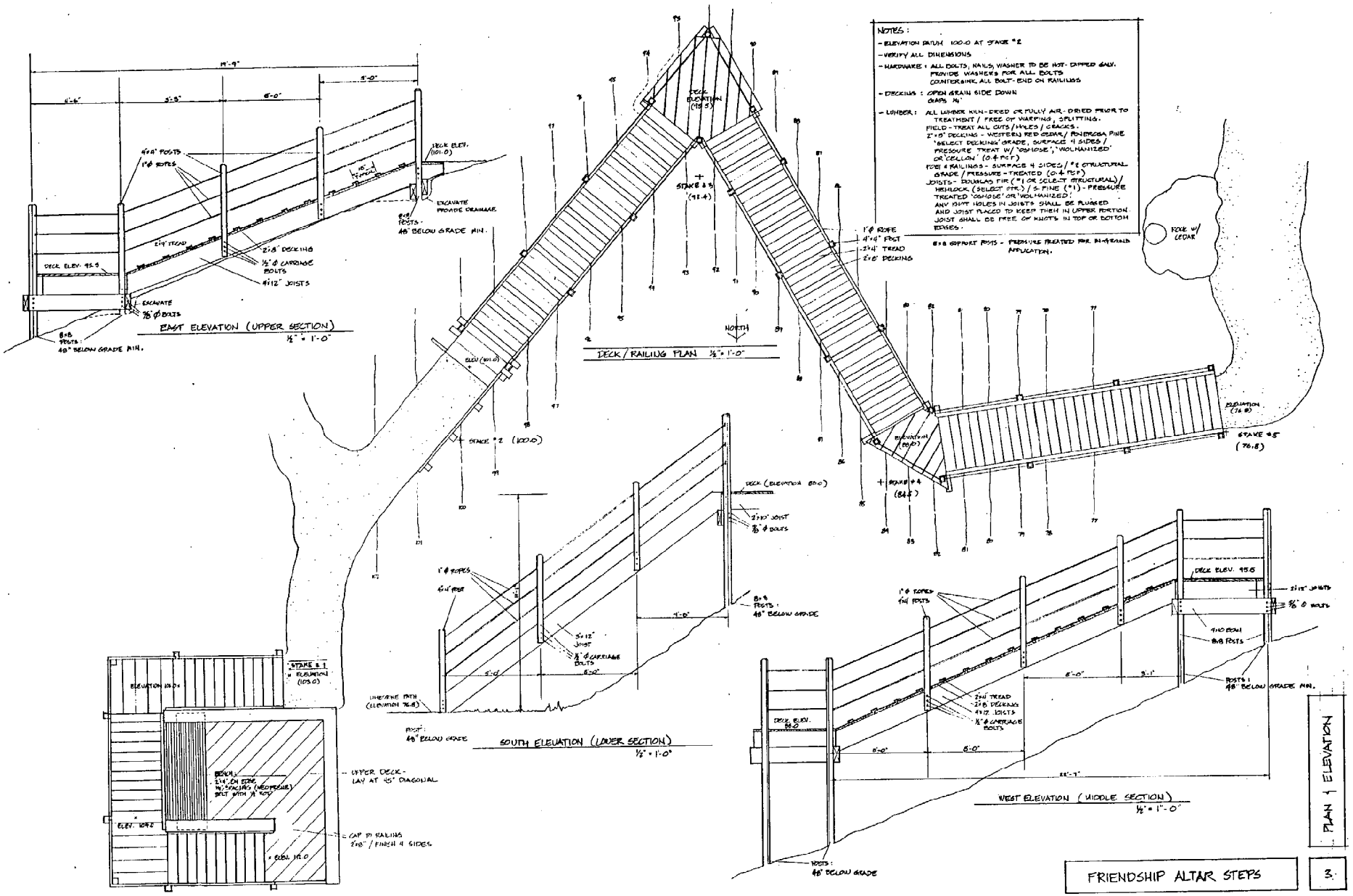
FRIENDSHIP ALTAR STEPS

STAKE LOCATION

1



STEP DETAIL - PLATFORM 1"=1'-0"
PLATFORM ELEVATION 1/4"=1'-0"
PLATFORM PLAN
FRAMING PLAN 1/4"=1'-0"
STEP ELEVATION 1"=1'-0"
LANDING / RAMP SECTION 1"=1'-0"
RAMP SECTION 1"=1'-0"
STEP SECTION 1"=1'-0"
NOTE: LOCATE PLATFORM STRUCTURE ON TOP OF SLOPE, AS SHOWN
FRAMING & DETAILS
FRIENDSHIP ALTAR STEPS
2



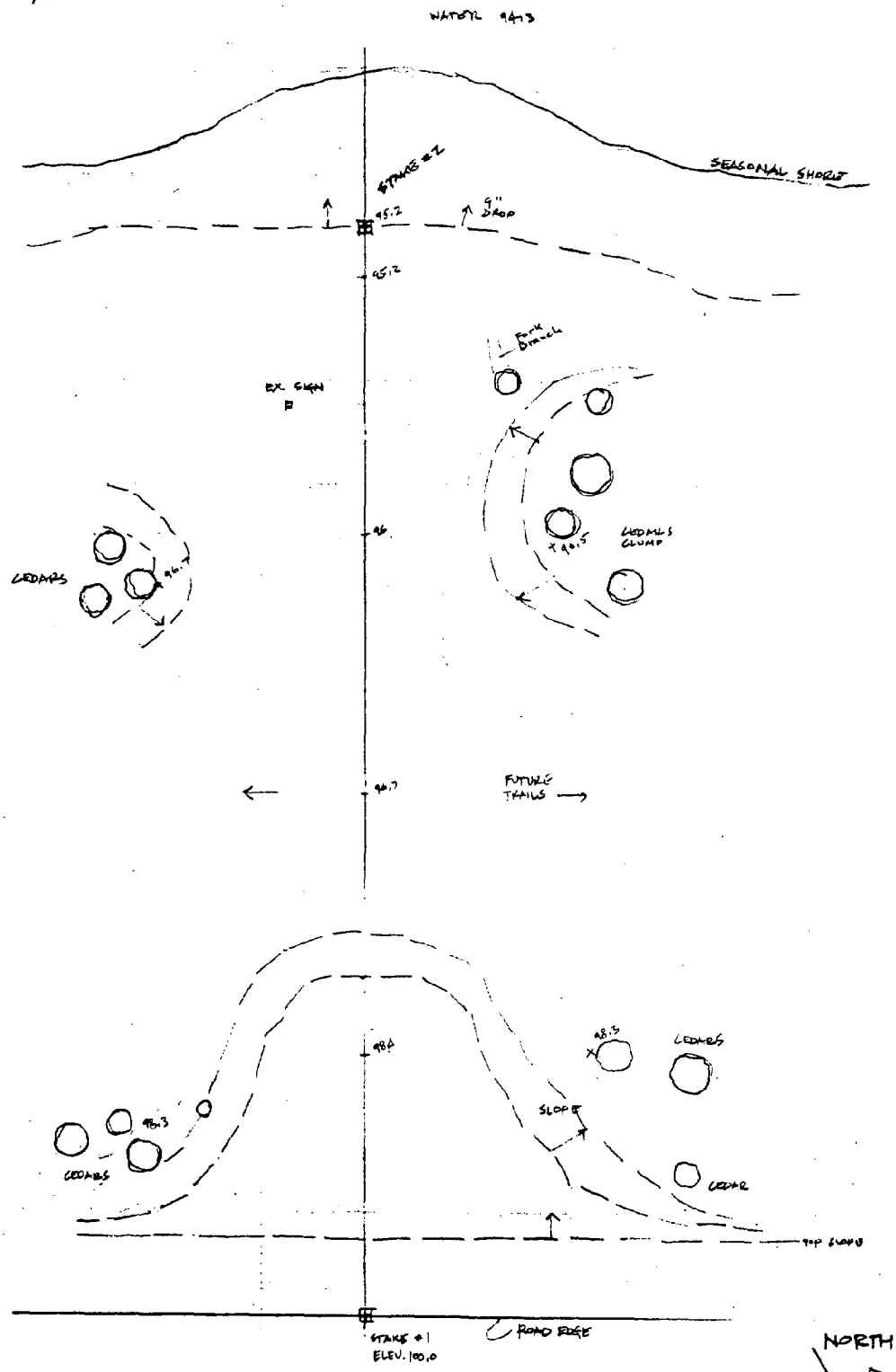
NOTES:

- ELEVATION DATUM 100.0 AT STAKE #2
- VERIFY ALL DIMENSIONS
- HARDWARE: ALL BOLTS, NAILS, WASHER TO BE HOT-DIPPED GALV. PROVIDE WASHERS FOR ALL BOLTS COUNTERSINK ALL BOLT-END ON RAILINGS
- DECKING: OPEN GRAIN SIDE DOWN GAPS 1/4"
- LUMBER: ALL LUMBER KILN-DRIED OR FULLY AIR-DRIED PRIOR TO TREATMENT / FREE OF WARPING, SPLITTING. FIELD-TREAT ALL CUTS / HOLES / CRACKS. 2"x8" DECKING - WESTERN RED CEDAR / PONDEROSA PINE 'SELECT DECKING' GRADE, SURFACE 4 SIDES / PRESSURE TREAT W/ 'OSMOSE', 'WOLMANIZED' OR 'CELLON' (0.4 PCF) POST & RAILINGS - SURFACE 4 SIDES / #2 STRUCTURAL GRADE / PRESSURE-TREATED (0.4 PCF) JOISTS - DOUGLAS FIR (#1 OR SELECT STRUCTURAL) / HEMLOCK (SELECT STR.) / S-PINE (#1) - PRESSURE TREATED 'OSMOSE' OR 'WOLMANIZED'. ANY IGNOT HOLES IN JOISTS SHALL BE PLUGGED AND JOIST PLACED TO KEEP THEM IN UPPER PORTION. JOIST SHALL BE FREE OF KNOTS IN TOP OR BOTTOM EDGES.

8x8 SUPPORT POSTS - PRESSURE TREATED FOR IN-GROUND APPLICATION.

CROGHAN WATER OVERLOOK | EXISTING CONDITIONS (1)

SCALE: 1/4" = 1'-0"

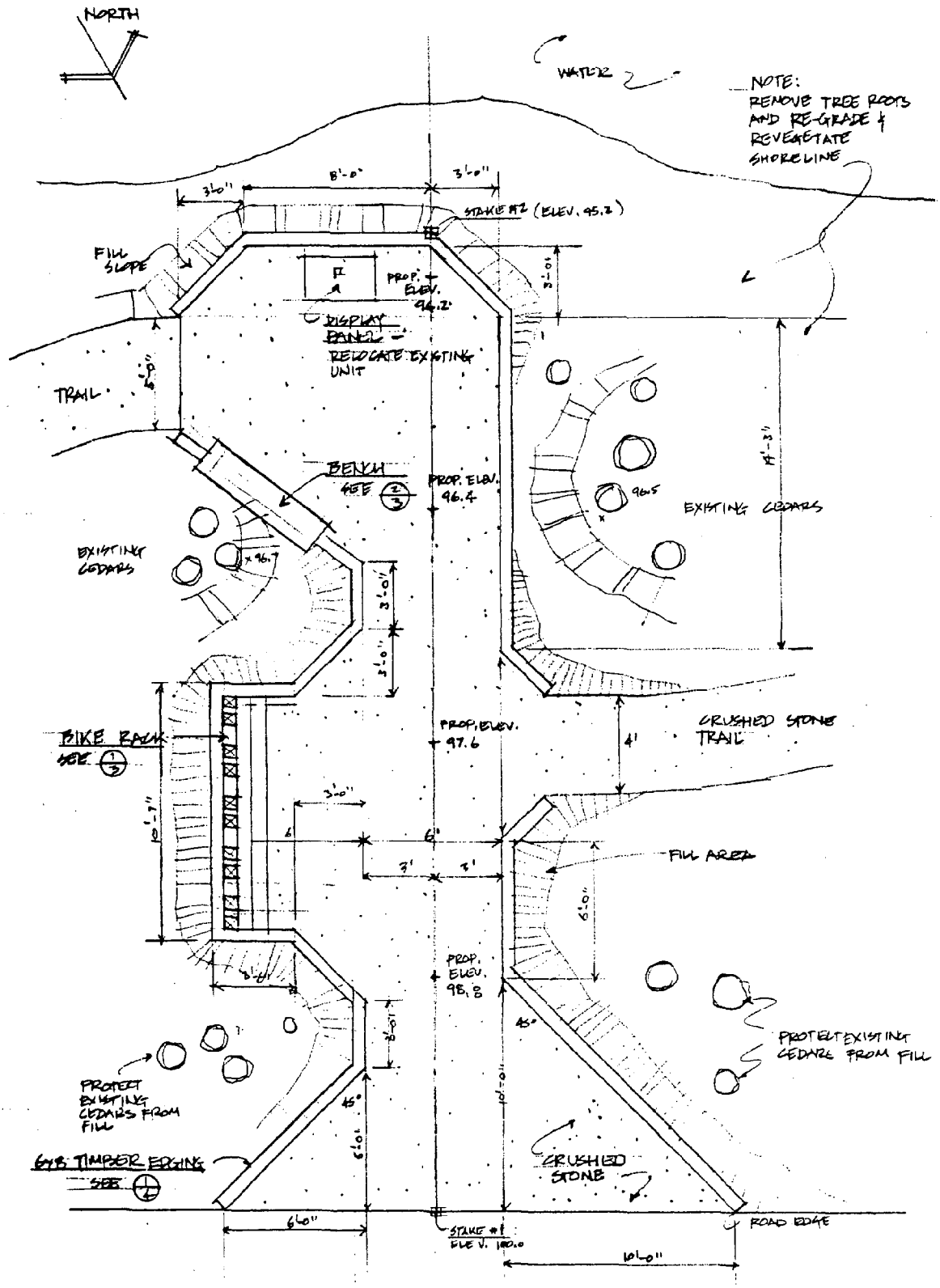


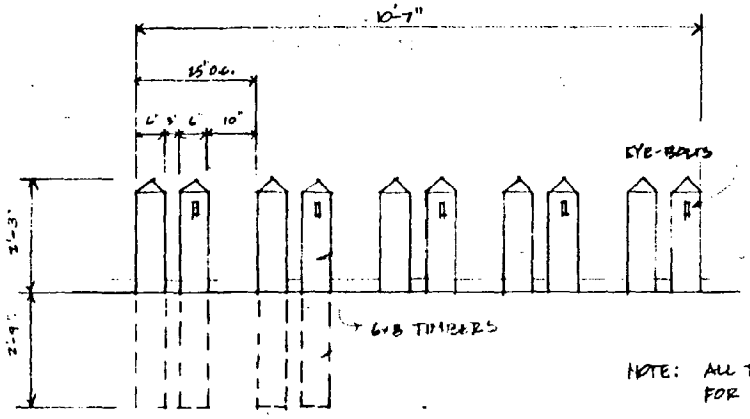
BRITISH LANDING ROAD

CROGHAN WATER OVERLOOK — SITE PLAN

(2)

SCALE: 1/4" = 1'-0"



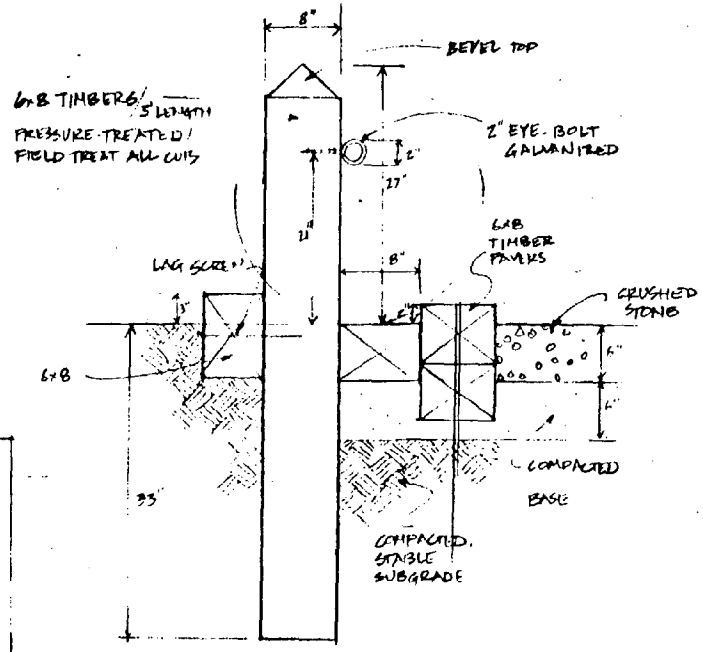


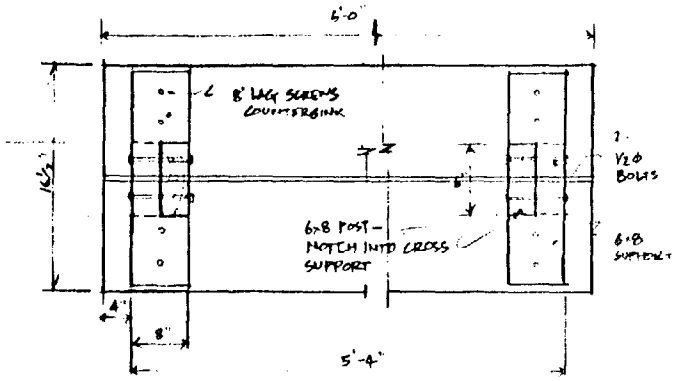
NOTE: ALL TIMBERS PRESSURE TREATED FOR IN-GROUND USE / STAIN W/ OLYMPIC #917

ELEVATION

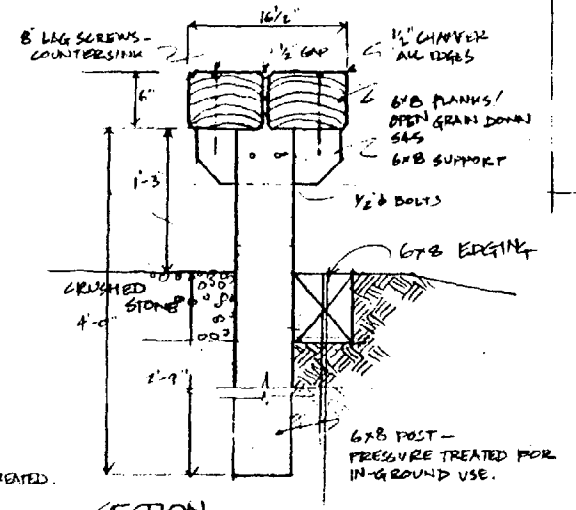
1/2"=1'-0"

1/3 BICYCLE RACK





PLAN



SECTION

NOTE: ALL WOOD PRESSURE-TREATED. FIELD-TREAT ALL CUTS. FASTENERS GALVANIZED.

2/3 BENCH

1"=1'-0"

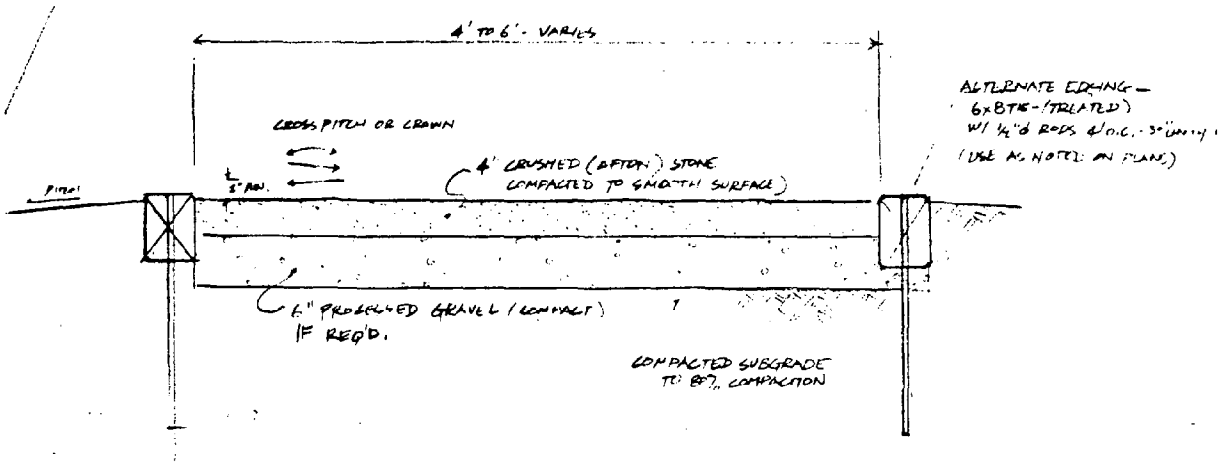
CROGHAN WATER OVERLOOK

DETAILS

3

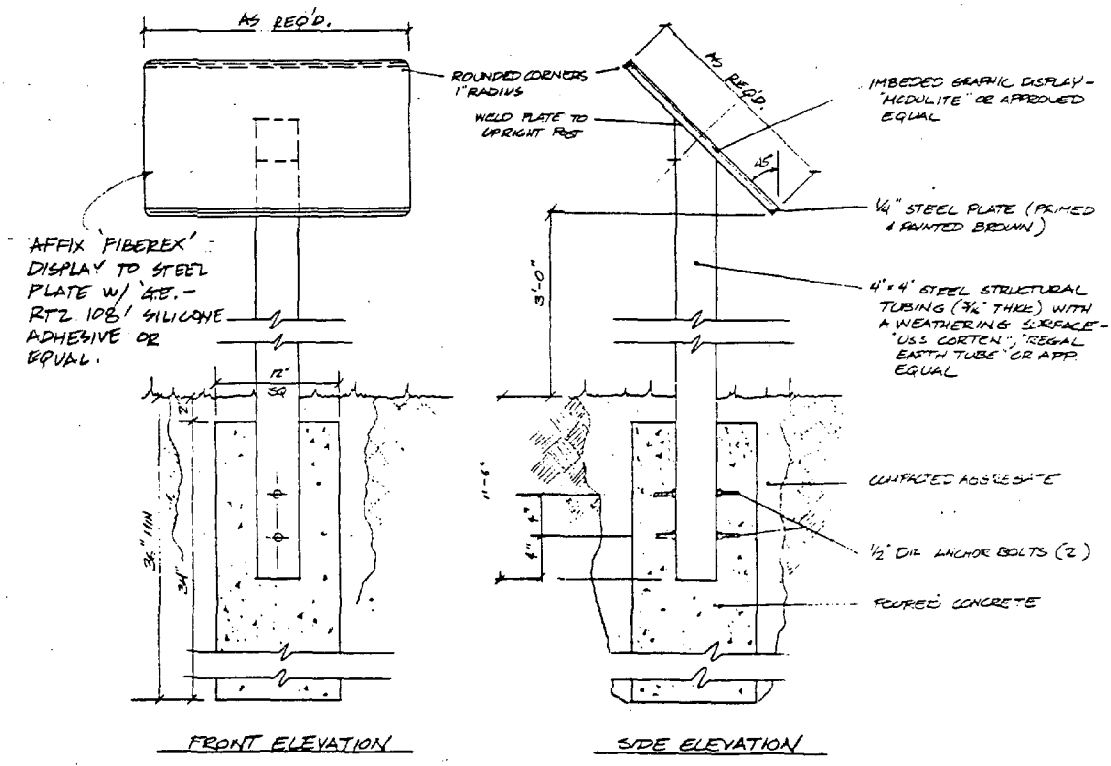
CROGHAN WATER OVERLOOK | DETAILS

4

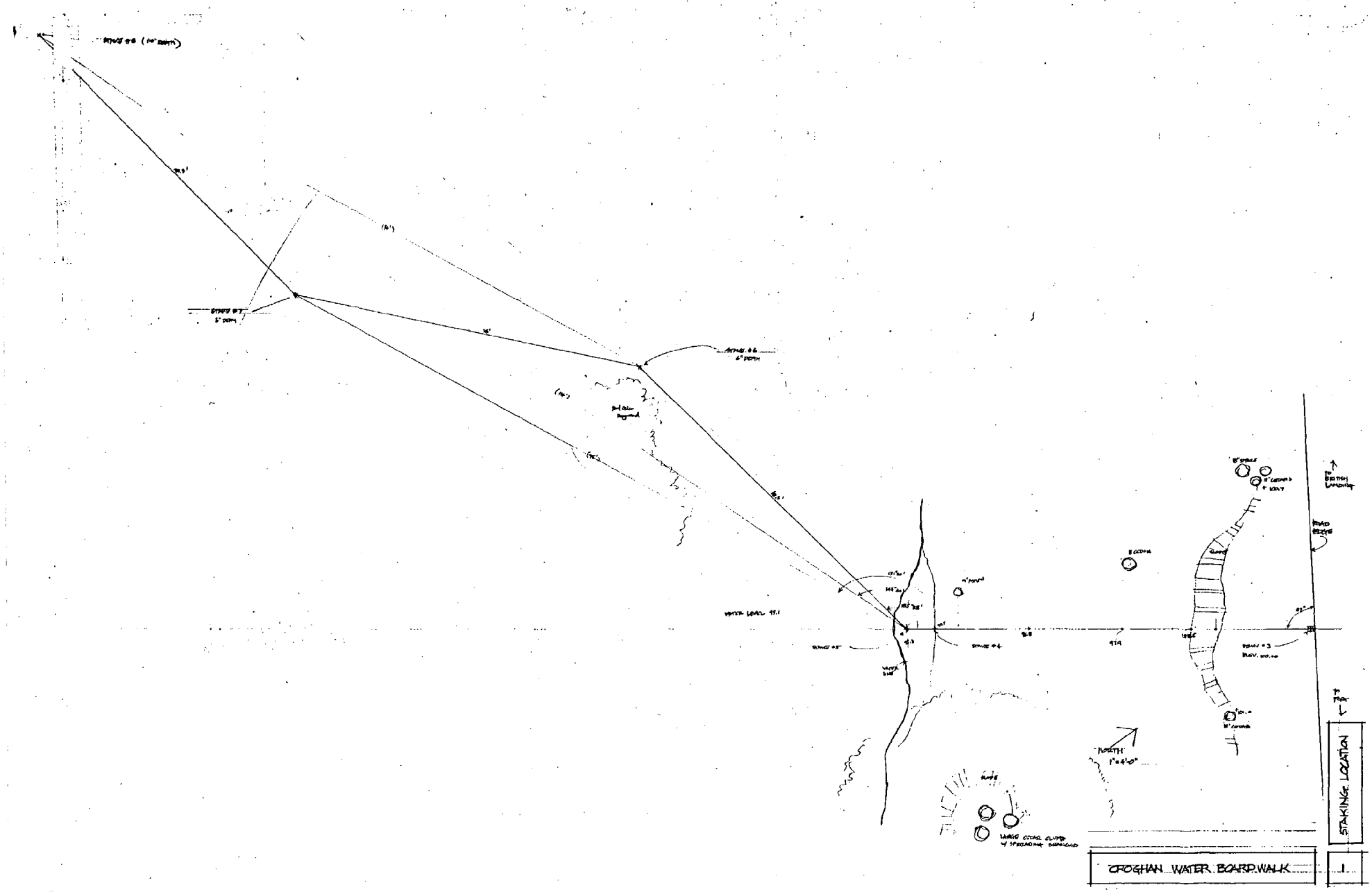


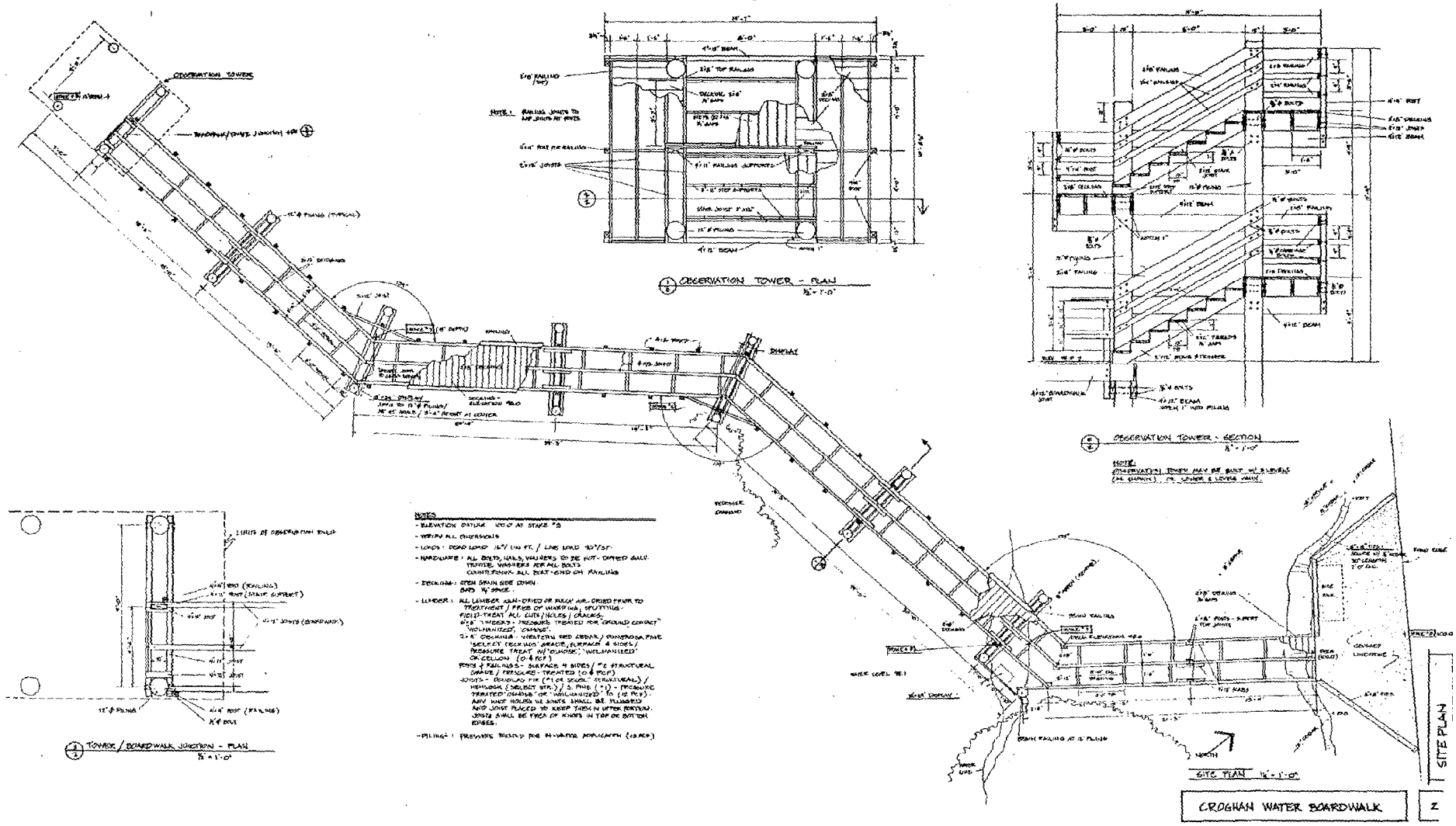
1/4 TYPICAL CRUSHED STONE WALK

1" = 1'-0"



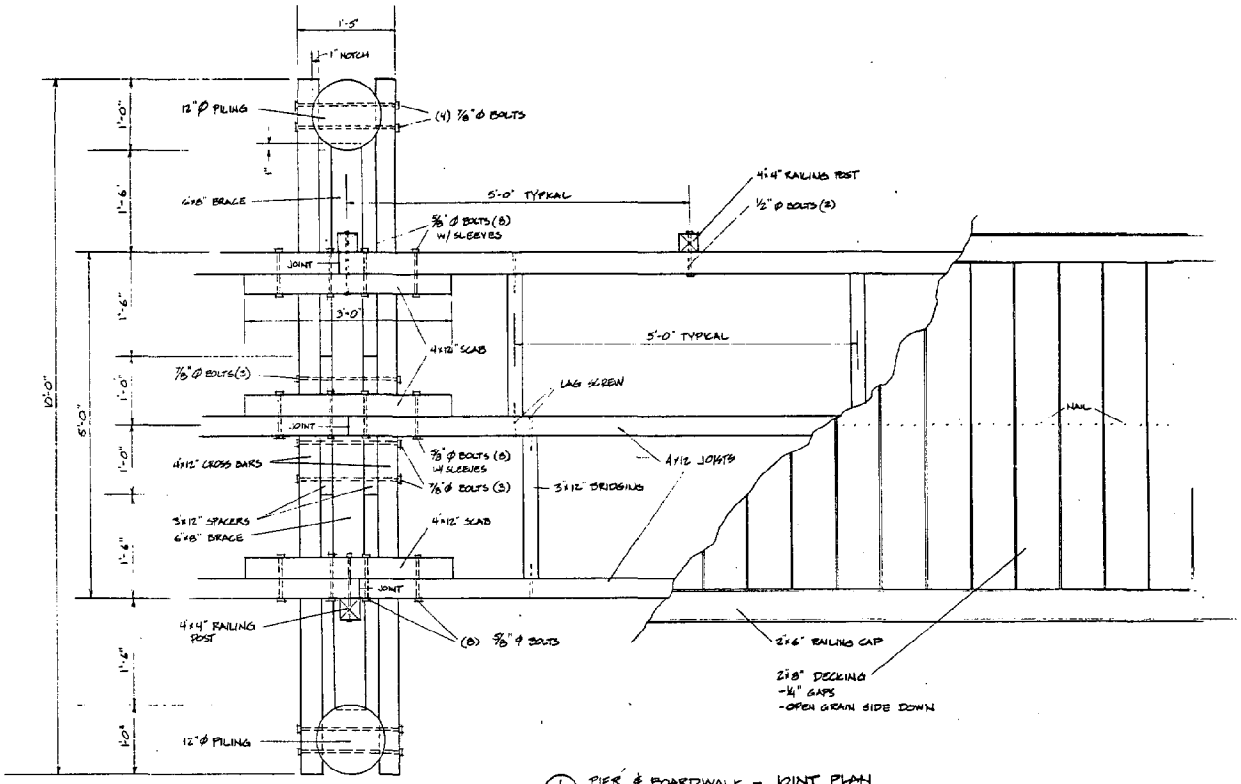
2/4 INTERPRETIVE DISPLAYS


NORTH
1" = 4'-0"
CROGHAN WATER BOARDWALK
STAKING LOCATION
1

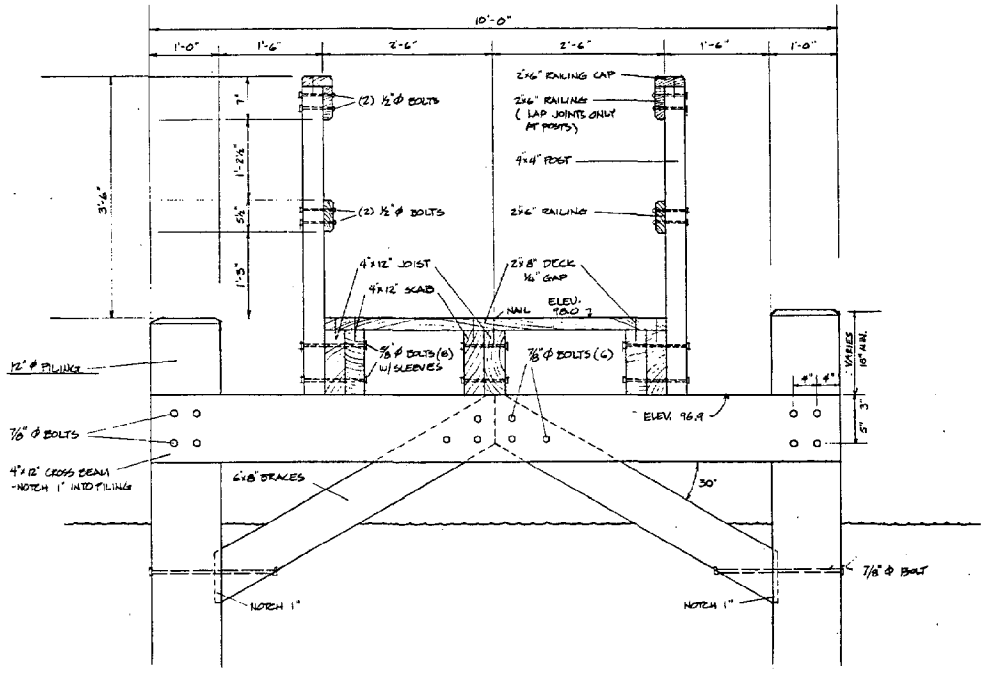


NOTES

- ELEVATION DATUM 100.0' AT STAKE #3
- VERIFY ALL DIMENSIONS
- LOADS: DEAD LOAD 15#/ LIN FT. / LIVE LOAD 40#/SF.
- HARDWARE: ALL BOLTS, NAILS, WASHERS TO BE HOT-DIPPED GALV. PROVIDE WASHERS FOR ALL BOLTS. COUNTERSINK ALL BOLT-END ON RAILING
- DECKING: OPEN GRAIN SIDE DOWN. GAPS 1/4" SPACE.
- LUMBER: ALL LUMBER KILN-DRIED OR FULLY AIR-DRIED PRIOR TO TREATMENT / FREE OF WARPING, SPLITTING. FIELD-TREAT ALL CUTS / HOLES / GRADES. 6"x6" TOWERS - PRESSURE TREATED FOR "GROUND CONTACT" "WOLMANIZED", "CHANGE". 2"x6" DECKING - WESTERN RED CEDAR / PONDEROSA PINE "SELECT DECKING" GRADE, SURFACE 4 SIDES / PRESSURE TREAT W/ "CHANGE", "WOLMANIZED" OR CELLON (0.4 PCF). POSTS & RAILINGS - SURFACE 4 SIDES / #2 STRUCTURAL GRADE / PRESSURE-TREATED (0.4 PCF). JOISTS - DOUGLAS FIR (#1 OR SELECT STRUCTURAL) / HEMLOCK (SELECT STR.) / S. PINE (#1) - PRESSURE TREATED "CHANGE" OR "WOLMANIZED" TO (12 PCF). ANY KNOT HOLES IN JOISTS SHALL BE PLUGGED AND JOIST PLACED TO KEEP THEM IN UPPER PORTION. JOISTS SHALL BE FREE OF KNOTS IN TOP OR BOTTOM EDGES.
- PILING: PRESSURE TREATED FOR IN-WATER APPLICATION (12 PCF)



1/3 PIER & BOARDWALK - JOINT PLAN
1" = 1'-0"



1/3 PIER & BOARDWALK - SECTION

DETAILS

CROGHAN WATER BOARDWALK

3

CROGHAN WATER

Since its formation, perhaps as a large sinkhole in the Island's limestone bedrock, this wetland has changed many times. Slowly but steadily this marsh is filling up with sediments washed in from the surrounding land, over time changing the pond into a forest. The plants and animals that live and die in the marsh also help to fill it in. As the water gets shallower the types of vegetation change. Croghan Water, like all wetlands, also goes through many annual, seasonal, and daily changes.

Wetlands are valuable and dwindling resources in Michigan. Spend some time here to observe and enjoy the abundance of plants and wildlife and to witness the everchanging nature of Croghan Water.

A Changing Wetland...

The trees living in and around Croghan Water, already contain this year's leaves and flowers. They formed last summer and remain neatly miniaturized all winter long within the scalecovered buds. These trees must carefully time the opening of their leaves to avoid injury from the heavy frost. They can not rely just on the warming temperatures, because they might be "fooled" by the late winter thaw. The increasing length of the days is a more consistent signal to the trees. When the days are long enough the buds swell and open, the leaves expand and the flowers bloom.

The willow trees growing in the middle of the marsh are among the first trees to flower. Their very small blossoms appear before their leaves. Look for flowers in some of the other trees of Croghan Water.

Awakening Trees

Welcome to the British Landing nature trail. Many people have walked this trail and many more will follow. We hope you enjoy your walk and that you will help others enjoy this trail by remembering a few simple guidelines.

Walk quietly, using your eyes, ears and nose to experience the Island's forests.

"Take your time" - you will see more and have a safer walk.

Stay on the marked trail and you won't get lost.

Please don't pick or damage any of the Island's plants.

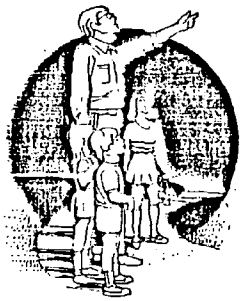
Leave the bark on the Birch trees. They will die without it.

Bicycles and horses should not be used on this foot trail.

Please deposit litter and cigarette butts in a trash receptacle.

Remember that Mackinac Island State Park is "home" to many types of wildlife and we are the guests.

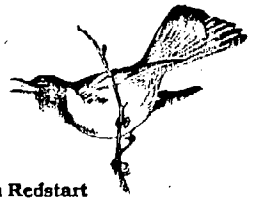
Using the Nature Trails



Here is a good spot to stop and listen for some of Mackinac Island's wildlife.

Blue Jay

Black-capped Chickadee



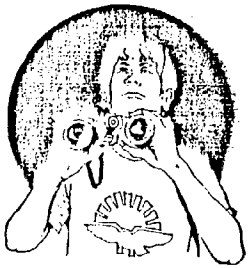
American Redstart

Many animals rely on sound to communicate among themselves and to detect danger. In the forest we often hear animals before we see them. If you are careful about the sounds you make, you are more likely to see wildlife along this trail.

Sounds to listen for include "the Chick-a-dee-dee-dee" call of the Black-capped Chickadee, the alarm call of the Blue Jay, the chattering calls of Chipmunks and Red Squirrels, the drumming of a woodpecker, and the song of the American Redstart.

Chipmunk

Red Squirrel



Binoculars, a camera and a good field guide book can be very helpful in observing, understanding and enjoying Mackinac Island's wildlife.

Observing Wildlife

Is it true that mosses grow only on the north side of trees? Take a close look at the trees along this trail. There are mosses and lichens growing almost everywhere: on the ground, on logs, on the shaded sides of trees, even on the rocks.

Lichens are the first plant to grow on bare rock. They begin the process of breaking down the rock and make it possible for mosses and other plants to move in.

Lichens are not single plants. They are a combination of a fungus and an algae. The fungus provides water, minerals and physical support while the algae produces food from the sun's energy for both itself and the fungus.

Mosses and Lichens! Everywhere!

Many species of Mackinac Island wildlife are difficult to see in the dense forest. They hear, smell or see us walk down this trail and disappear into the forest before we catch a glimpse of them. Other forest wildlife are rarely seen because they are usually active at night and spend the daylight hours sleeping. However, if you know where to look and what to look for, you can find signs of all sorts of wildlife you may not actually see.

Chips of wood at the base of the tree and large rectangular holes in the tree trunk are signs of Mackinac Island's largest woodpecker - the Pileated Woodpecker. It also indicates the tree is a home for an abundance of wood-boring insects.

On the ground, look for tracks and animal droppings called "Scat".

Piles of torn-apart pine cones stripped of their seeds are left by hungry Red Squirrels.

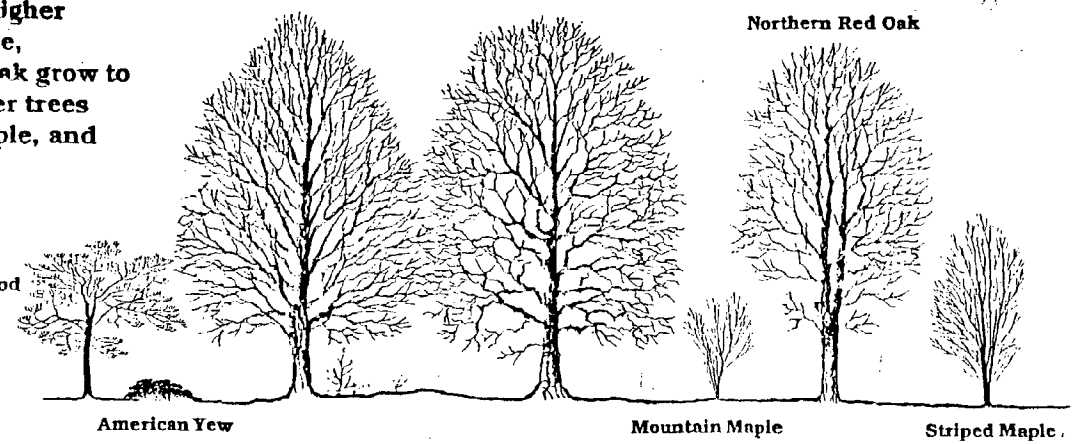
Many trees have neat rows of small pit-like holes. Yellow-bellied Sapsuckers drill these holes, returning later to feed on both the sap and insects attracted to these dripping sap pits.

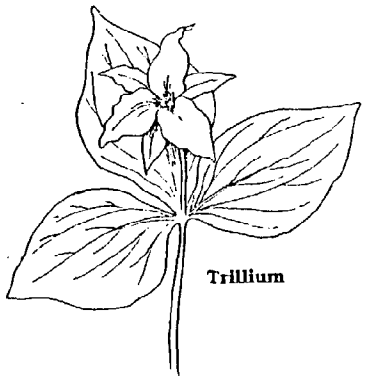
awed acorns and beechnuts e left by Grey Squirrels.

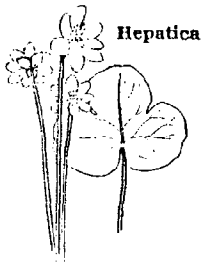
High in the hardwood trees you may see the large leafy nest used as a summer home by the Grey Squirrel. The smaller Red Squirrel usually makes its nest of grasses and shredded bark in conifer trees.

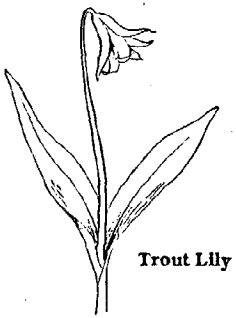
Wildlife Signs

As you walk along this trail, notice the many changes in the types of trees which make up Mackinac Island's forest. In the dry higher areas, hardwoods such as Sugar Maple, American Beech and Northern Red Oak grow to be quite large. Some common, smaller trees include Mountain Maple, Striped Maple, and Round-leaved Dogwood.









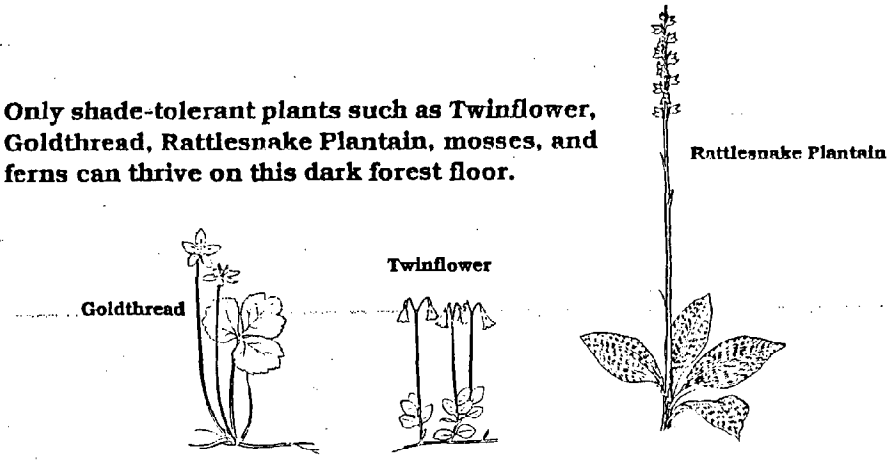
Every spring, before these trees completely open their new leaves and shade out the sun, the forest floor is covered with wildflowers in bloom. Trillium, Hepatica and Trout Lily are a few of the most common spring wildflowers. American Yew, also called Ground Hemlock, is a common shrub found throughout the Island's forest.

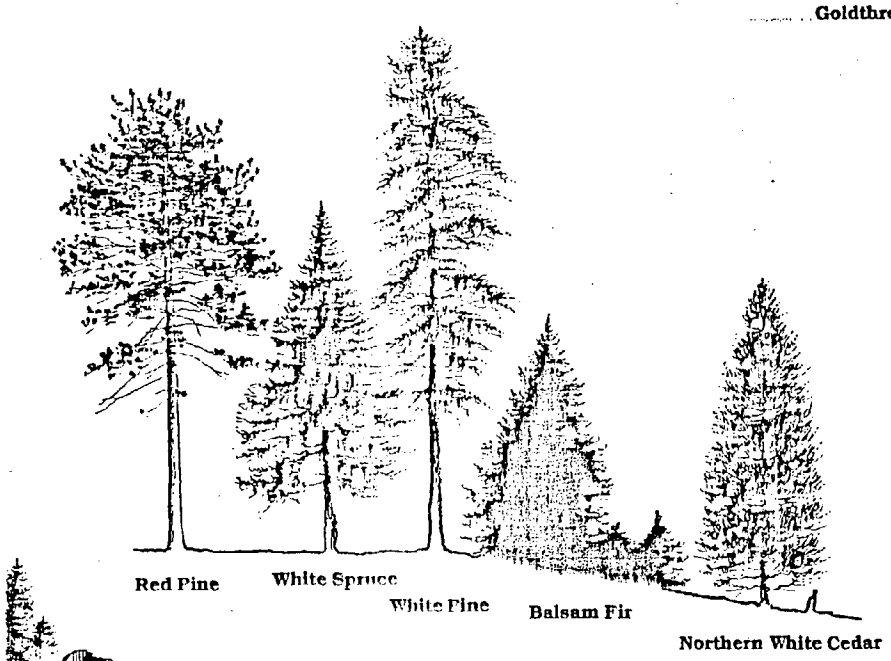
The Hardwood Forest

Mackinac Island's cool damp shoreline and lowland contain large stands of Northern White Cedar (Thuja occidentalis).

When these slow-growing Cedars with their scale-like leaves grow in dense clumps, they produce enough shade to prevent the growth of most other plants.

Only shade-tolerant plants such as Twinflower, Goldthread, Rattlesnake Plantain, mosses, and ferns can thrive on this dark forest floor.





Balsam Fir, White Spruce, Red Pine and White Pine are other conifer trees that can be seen along this trail.

All of these evergreens add to the wonderful fragrance of the north woods.

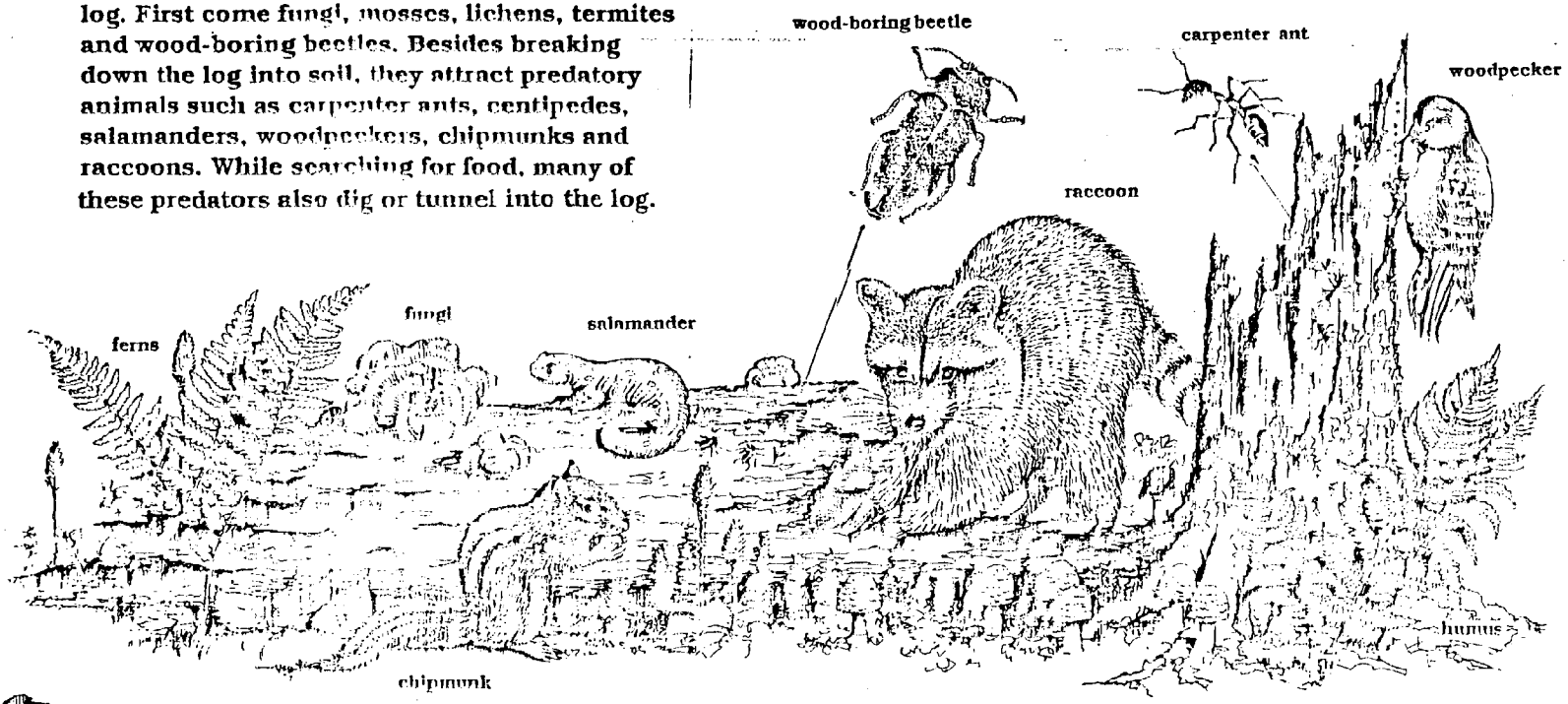
The Cedar Forest

A living tree collects and retains many materials from the environment. Energy from the sun, and water and minerals from the soil, are used to produce the bark, wood, sap and leaves.

When an old tree falls, the important process of returning nutrients to the soil begins. A succession of plants and animals invade the log. First come fungi, mosses, lichens, termites and wood-boring beetles. Besides breaking down the log into soil, they attract predatory animals such as carpenter ants, centipedes, salamanders, woodpeckers, chipmunks and raccoons. While searching for food, many of these predators also dig or tunnel into the log.

In time, the log will become hollow and then collapse to merge with the soil. Ferns and wildflowers will thrive in this rich mound of humus.

Some day a young tree will grow where this log now lies, and begin the cycle once more.



Life on a Fallen Log

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