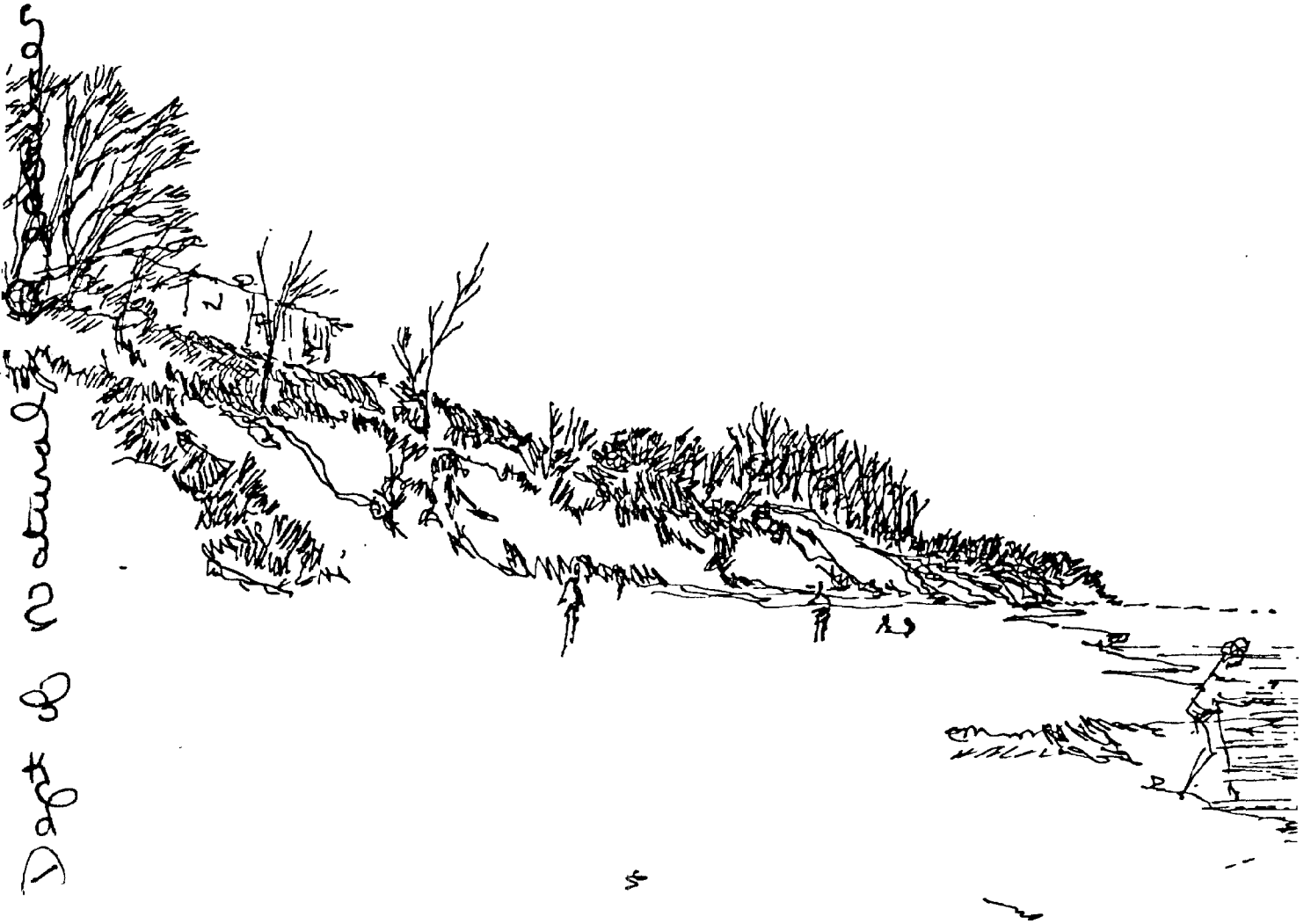


GLENLORD BEACH PARK

DEVELOPMENT PLAN AND SITE DESIGN

MICHIGAN
OCZM GRANT #NA-80-AA-H-CZ157.
SUBTASK 4D-4.3

LINCOLN TOWNSHIP, MICHIGAN

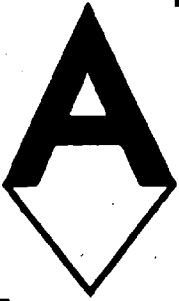


Dept of Natural Resources

SB
485
.L56
G54
1982

PREPARED BY:

ABONMARCHE CONSULTANTS, INC.
95 WEST MAIN STREET
BENTON HARBOR, MI 49022
(616) 927-2295
JULY, 1982



ABONMARCHE CONSULTANTS, INC.

95 W. MAIN STREET • BENTON HARBOR, MICHIGAN 49022 • PHONE: (616) 927-2295

July 15, 1982

Lincoln Township Parks Commission
Township Hall
2055 W. John Beers Road
Stevensville, Michigan 49127

Ladies and Gentlemen;

It is with pleasure that we transmit herewith our final report on the "Glenlord Beach Park Development Plan and Site Design."

This report provides, we believe, a realistic assessment of the opportunities for providing a successful beach park development. Your input has ensured that the proposed development meets the community's needs in a realistic manner.

We trust our work and this report reflect the goals you hold for Glenlord Beach Park. We've enjoyed the excellent cooperation you have given in this study, and appreciate the opportunity to be of service.

Very truly yours,

ABONMARCHE CONSULTANTS, INC.

Ronald E. Schultz, P.E.
Manager

RES/6

U. S. DEPARTMENT OF COMMERCE NOAA
COASTAL SERVICES CENTER
2234 SOUTH HOPSON AVENUE
CHARLESTON, SC 29405-2413

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LINCOLN TOWNSHIP

BERRIEN COUNTY

2055 W. John Beers Rd.

P.O. DRAWER L

TELEPHONE 616 429-1589

STEVENSVILLE, MICHIGAN 49127

July 20, 1982

Mr. Chris A. Shafer, Chief
Great Lakes Shorelands Section
Land Resources Programs Division
Michigan Department of Natural Resources
Box 30028
Lansing, Michigan 48909

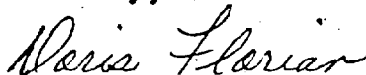
Dear Mr. Shafer;

Please be advised that the Lincoln Township Parks Commission, at a regular meeting on July 6, 1982 accepted and adopted the Glenlord Beach Park Development Plan and Site Design as prepared by Abonmarche Consultants, Inc. At this meeting, the Parks Commission passed a resolution selecting Phase I of this plan as proposed in the study for implementation in fiscal year 1982 - 83.

The Lincoln Township Parks Commission wishes to express its gratitude to you and your staff for your cooperation and assistance in making this project possible. We look forward to working with you in taking this project from a plan to creating a fine shoreland recreational facility.

Thank you for your assistance.

Sincerely,



Doris Florian, Chairman
Lincoln Township Parks Commission

FINANCIAL ASSISTANCE FOR THIS PROJECT

WAS PROVIDED BY THE

COASTAL ZONE MANAGEMENT ACT

ADMINISTERED BY THE OFFICE OF

COASTAL ZONE MANAGEMENT,

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

AND

THE MICHIGAN COASTAL MANAGEMENT PROGRAM

ADMINISTERED BY THE

DEPARTMENT OF NATURAL RESOURCES,

DIVISION OF LAND RESOURCE PROGRAMS

AND

LINCOLN TOWNSHIP, MICHIGAN

GLENLORD BEACH PARK
DEVELOPMENT PLAN AND SITE DESIGN
LINCOLN TOWNSHIP, MICHIGAN

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1.0 INVENTORY AND ANALYSIS OF EXISTING SITE CHARACTERISTICS

1.1 LOCATION

Glenlord Beach Park is a 1.96 acre parcel located on Lake Michigan in Section 16 of Lincoln Township. The 1.96 acres are supplemented by an adjacent 66' road right-of-way restricted to park use by the Berrien County Road Commission. The park is located at the western terminus of Glenlord Road. The township acquired the property in 1953.

The property provides 198 feet of Lake Michigan beach frontage backed by a 35-45' bluff. Historically, the beach and bluff area have sustained some serious erosion problems present in times of high lake water and severe storms.

Glenlord Beach Park is one of six Lake Michigan beaches in the Twin Cities metropolitan area. The metropolitan area contains approximately 90,000 people. Since there are relatively few beaches available to serve the resident population as well as tourists, Glenlord Park experiences heavy use. Glenlord Park's nearness to major roads provides a unique opportunity for the township to promote Glenlord Beach Park as a major Twin City tourist attraction. The regional and local location of the park is shown on figure no. 1 on page 3. An Existing Conditions Plan of the Glenlord Beach Park is shown on figure no. 2 on page 4.

1.2 VEGETATION AND WILDLIFE

Much of the park has been continually disturbed by mankind while enjoying the recreational qualities of the Lake Michigan shoreline. All portions of the park have been disturbed, and except for the heavy vegetative cover in the southern portion of the bluff area, vegetation has been taken from its natural state for some active recreational or motor transportation use.

1.2 VEGETATION AND WILDLIFE (Cont'd)

Due to the unrestricted automobile access to the majority of upland park area, little plant growth, other than mature trees, is evident. Pedestrian traffic along the bluff face and walkway has largely eliminated much of the vegetation which could stabilize the erosible nature of the soils.

1.3 SOILS

The park contains three soil types. The shoreline is classified as beach sand; the bluff area as udorthents and udipsamments of 18-19% slope and the majority of the park as oakville fine sand with 0-6% slope. These soil types are characterized as well-drained sandy soils with fair potential for recreational and landscaping purposes.

Trees suitable for such well-drained sandy soils include, Red Pine, Eastern White Pine, Jack Pine, Norway Spruce, Black Spruce, and Black Cherry. For hedges and windbreaks, Tatarian Honeysuckle, Autumn-Olive, and Lilacs make excellent choices for soil compatability.

The sandy soils pose slight to severe difficulties for constructing picnic, playground, or other active play areas. There are also some moderate constraints for normal lawn and landscaping due to the droughty nature of the soil.

1.4 TOPOGRAPHY

The upland topography ranges from 634' at the south entrance corner, sloping northwesterly to a bluff edge elevation of about 620 feet. The gentle slope provides a natural path for surface drainage throughout the length of the site. The topography also minimizes the time and costs for construction of road and parking areas.

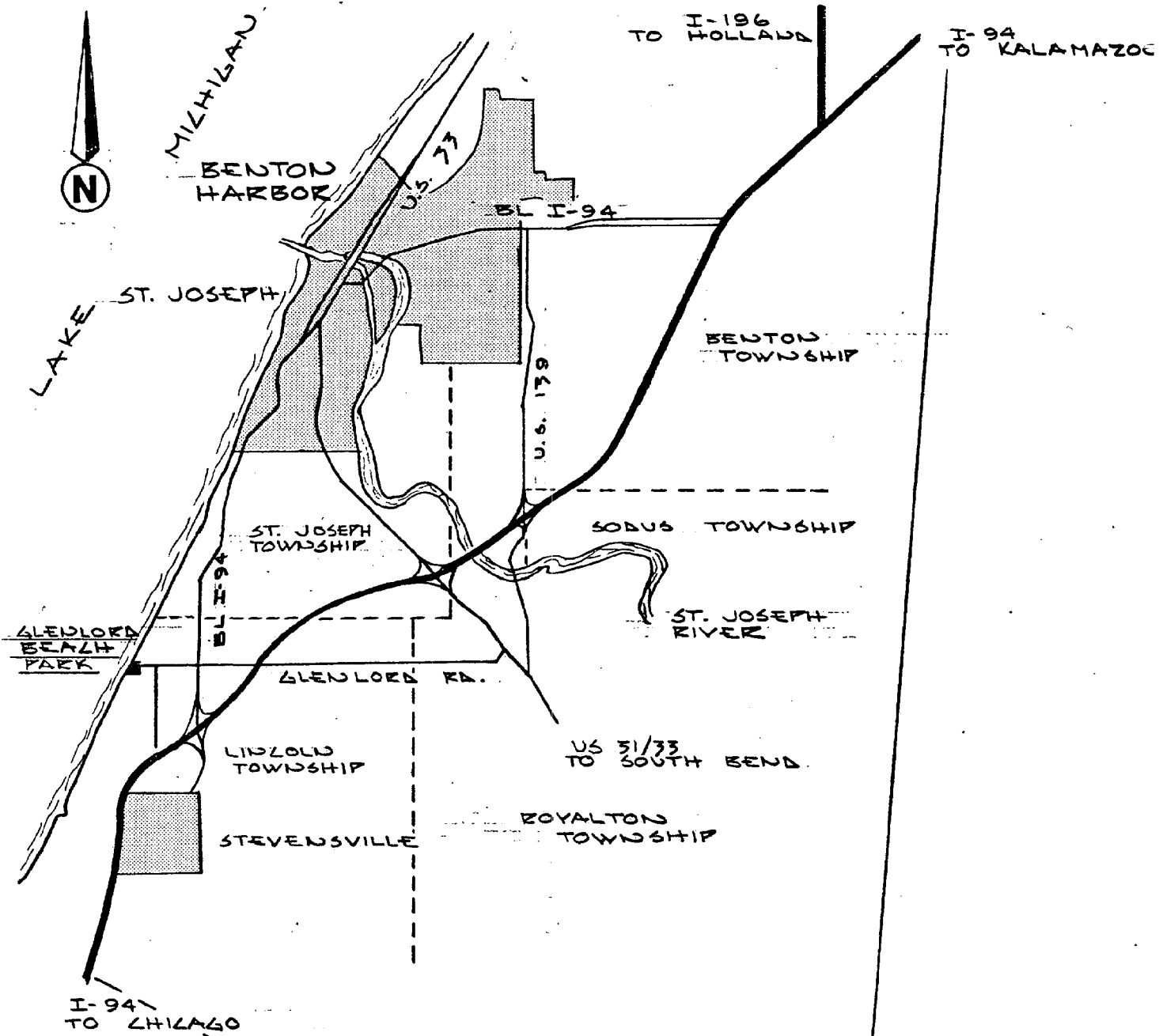
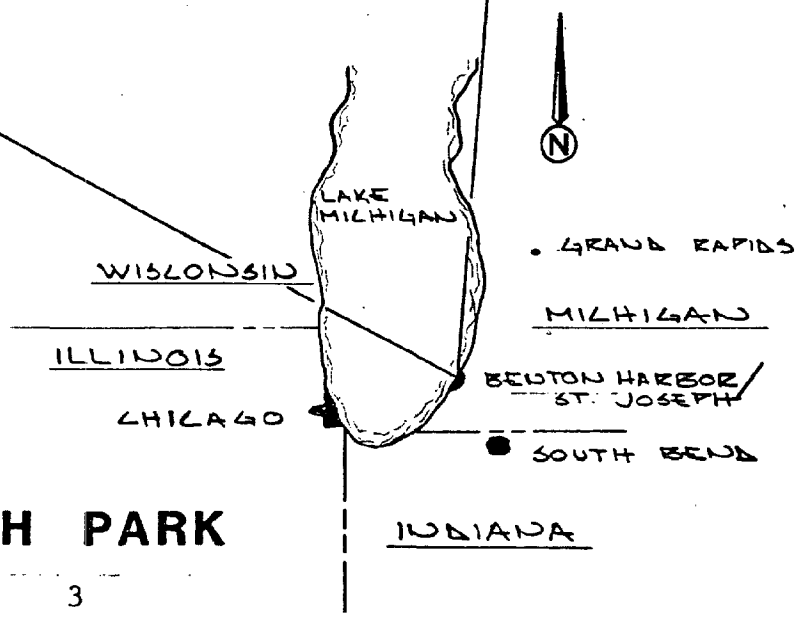


FIGURE 1

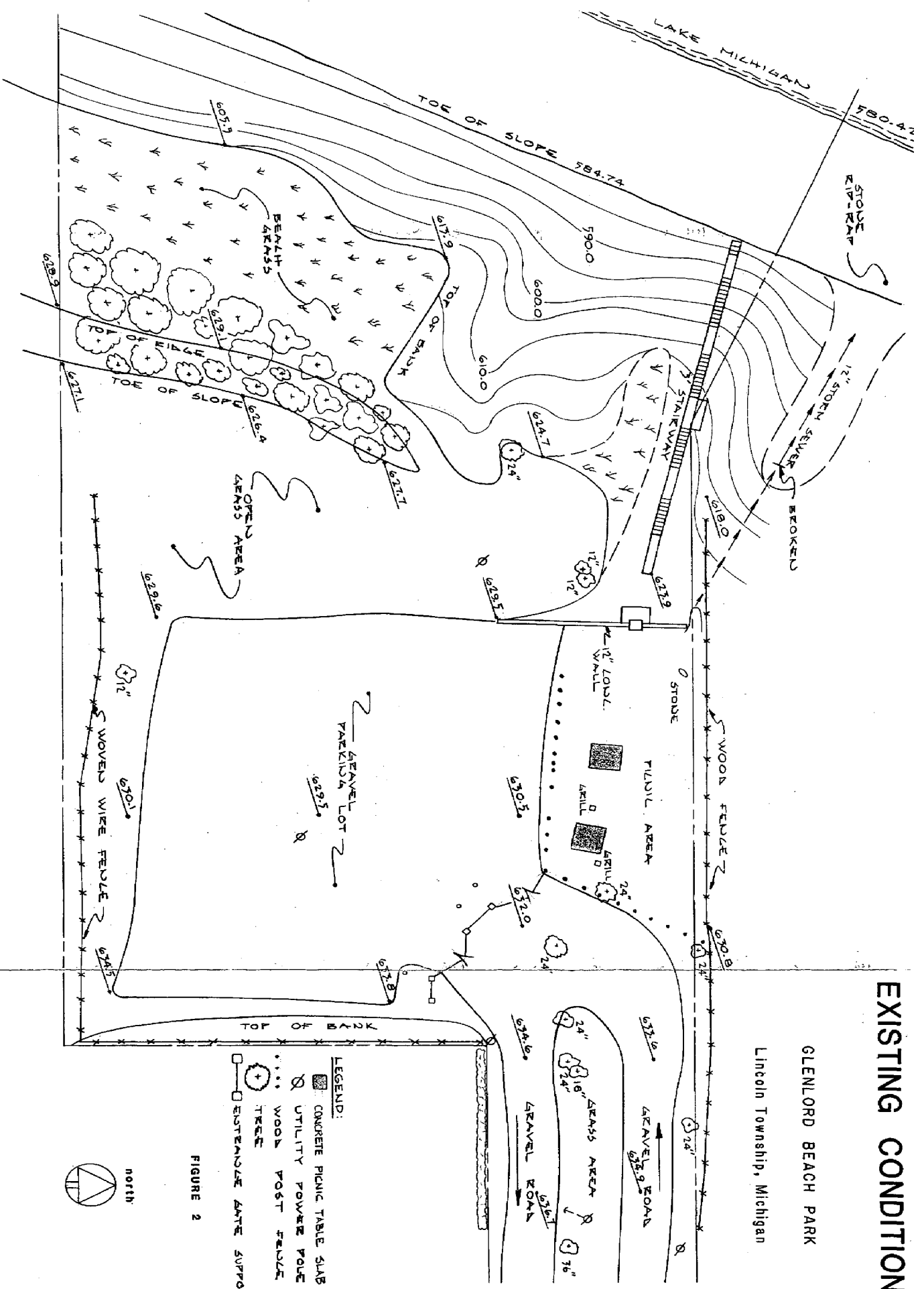
SITE LOCATION
GLENLORD BEACH PARK



EXISTING CONDITIONS

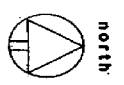
GLENLORD BEACH PARK

Lincoln Township, Michigan



- LEGEND:
- CONCRETE PICNIC TABLE SLAB
 - UTILITY POWER POLE
 - WOOD POST FENCE
 - TREE
 - EXISTENCE ANTE SUPPORTS

FIGURE 2



ABONMARCHÉ CONSULTANTS, INC.
BENTON HARBOR, MICHIGAN

1.4 TOPOGRAPHY (Cont'd)

The bluff is the dominant topographic feature of the park. The bluff rises about 35-45' from the beach and provides an excellent view while posing some serious erosion and safety problems. The bluff will be dealt with in more specific detail in terms of stabilizing the bluff from erosion while providing a people oriented place to observe the scenic vista. Figure no. 2 on page 4 shows the existing condition and topography of the park.

1.5 HYDROLOGY

Surface drainage is collected at the northwest corner of the park in a storm sewer drainage pipe. This pipe continues off-site to Lake Michigan. Surface run-off of storm water which can cause severe erosion problems, does not seem to be a problem except on the northerly portions of the bluff area.

The park property is covered under the State of Michigan Coastal Zone Management Act. This law established certain minimum building restrictions for shoreline property susceptible to erosion. It also prohibits certain structures within that portion of the shoreline which potentially can be eroded away in the ensuing 20 years. State studies have determined a bluff line set back of 85' for the park property. An additional 30' is recommended as a safety measure. All construction within this zone will require prior approval of the State Department of Natural Resources, Division of Land Resources Programs. The preliminary design plan will take into account all DNR requirements and be prepared accordingly.

1.6 AESTHETICS

The aesthetics of two "scenes" can be viewed from within the park. The first is the aesthetics or "scenes" of the park from various positions within the park. The second is the aesthetics or "scenes" viewed off-site from points within the park.

1.6 AESTHETICS (Cont'd)

As one enters the beach, the scene is not the most pleasing. The overuse of the park, unregulated use of vehicles, and vandalism has made the facility less than a pleasing invitation to the park. It is evident to even the most casual user, that some maintenance and selective improvements are required to improve the visual appeal of the park.

Looking off-site provides another visual impression. Since the park is surrounded by a residential neighborhood, it requires some treatment to screen and isolate the park from the residents. Recommendations for these purposes are incorporated in the design plans.

The beach, without question, provides the most aesthetic view. The scene of a sunset on Lake Michigan is breathtaking. Summer beach play is also a refreshing visual pleasure. To enhance these aesthetics, it will be necessary to provide some type of "people place", such as, a bluff top platform or pavilion.

1.7 HISTORIC SIGNIFICANCE

Glenlord Beach Park has almost a 30 year history of local significance, even though it is not considered significant in terms of state or national criteria. Purchased by the Township in 1953 from the Lippi Family, the park has a long history of providing Lake Michigan access for township residents, tourists, and others from surrounding communities. Additionally, a 0.10 acre parcel on the northerly park property line was donated to Lincoln Township by James and Mary Ball.

1.8 EXISTING PARK DEVELOPMENT

There is currently a moderate level of development which consumes about 80% of the available land area. This development does not fully utilize the potentials of the site and in some

1.8 EXISTING PARK DEVELOPMENT (Cont'd)

cases is causing misuse or underuse of the beach.

A majority of the park is devoted to the gravel access road and parking area. The township has expanded and periodically regravelled the road and parking area as traffic and space needs have required.

In the central area along the northern boundary, a picnic area has been constructed. The picnic area is separated from the parking area by wooden posts and contains two concrete slabs, (a field inspection on April 29, found these slabs removed), cooking grills, and picnic tables. The western border of the picnic area is a 12' concrete retaining wall which also incorporates a stormwater drainage pipe.

For beach access, a 3' wide stairway (in need of repair) is located in the northwestern corner near the northern park boundary. This location causes some problems with beach users, as it quays outward from the stairway and intrudes onto adjacent property. This situation is documented by the study of social scientists, which have observed human behavior in public places. This study has documented the tendency of people to move outward in nearly equal directions from a central entrance. Relocation of the stairway to a more centralized location will tend to channel people in a pattern more appropriate to the size of the parcel. This will limit the natural tendency for trespassing by beach users over the northern park boundary.

1.9 IMPACT ON SURROUNDING DEVELOPMENT

The park has several impacts on surrounding properties. The major impact is people. -- The volume of people using the park and their means of access via the automobile, litter,

1.9 IMPACT ON SURROUNDING DEVELOPMENT (Cont'd)

noise, dust, and vandalism are all symptoms of people problems associated with recreation facilities of this nature.

While supervision through a park ranger can control this to a limited extent, people problems cannot be completely controlled. Considered in the park plan will be adequate vegetative buffers, and access controls required to mitigate these problems. The park designs take into account reasonable methods to minimize negative influences on surrounding properties and for controlling access to the park.

1.10 SUMMARY

Glenlord Beach Park offers many assets for providing a truly unique beach facility. Its location can, if chosen by the township, provide a tourist attraction which can generate user fees. Many municipalities already levy user fees to defray development and maintenance costs.

The present level of use has exceeded the present capacity of the entrance and parking area. The location of the stairway to the beach has invited unknowing users onto adjacent private property.

Droughty soils suitable to only the most hearty vegetation has eliminated almost all ground cover from the parking, road, and bluff roadways. Absence of screening of the park property with vegetation, has not isolated the park from surrounding property.

The inability to secure the entranceway has contributed to vandalism, litter problems, and other nonauthorized use of the park.

Many of these issues can be addressed through design changes of the park facilities. The site designs will evaluate options and make recommendations to mitigate the above issues.

2.0 EVALUATION OF SHORELINE AND BLUFF EROSION

2.1 EROSION DUE TO WAVE ATTACK

The Glenlord Beach Park is located in an area with relatively small vegetated dunes. The dunes rise about 40 feet above lake level. Further north of the park extensive bluffs of glacial drift exist up to heights of 100 feet, while further south the dunes are similar in nature to those at the park. In general, the bluff erosion due to wave attack is very serious along a stretch of at least 6 miles south of the breakwaters protecting the Benton Harbor approach channel. The erosion has been caused partially by these breakwaters that reduce the (north to south) net longshore sediment transport and cause beach and bluff erosion south of the breakwaters leaving the bluff more prone to wave attack. Another cause for the bluff erosion is the relatively high lake levels during the past 20 years.

The beach and bluff at Glenlord Beach Park located about 4 miles south of the Benton Harbor breakwaters has been relatively unaffected. At neighboring properties the bluff faces are steep and devegetated indicating frequent erosion by waves, whereas the bluff at the park is still vegetated with only minor erosion of the bluff toe due to wave attack. The erosion extends to about 8 feet up the bluff. It is difficult to fully understand the reasons for the varying erosion pattern. Possibly the eroding high bluffs about 1 mile north of the park supply so much sand to the longshore current that it has a stabilizing effect on the beach at Glenlord Beach Park.

2.2 EROSION DUE TO FOOT TRAFFIC

A major cause of the bluff erosion at the park is the unregulated foot traffic. There is direct access for vehicular traffic close to the top of the bluff and also direct

2.2 EROSION DUE TO FOOT TRAFFIC (Cont'd)

access for people to the beach via the bluff face. As a result, numerous foot paths have been created and the vegetative cover, mainly beach grass, has been damaged severely. It has weakened the stability of the bluff and the bluff face is more susceptible to failure under unfavorable conditions.

The stairways at the north side of the park, although intact, have evidently functioned marginally.

2.3 EROSION DUE TO STORM SEWER PIPE

A storm sewer pipe draining excess water from the county highway and from the parking area of the park is located at the far north side of Glenlord Beach Park. Presently, it is broken at the top of the bluff causing considerable overland flow during severe rainfall. A large gully has formed down the bluff which in turn has stimulated play activities and further damage to the vegetative cover on the bluff face.

2.4 BLUFF RECONSTRUCTION AND STABILIZATION

The major causes of the bluff erosion at Glenlord Beach Park are uncontrolled pedestrian traffic, the broken storm sewer pipe and wave attack at the toe. The latter is potentially the most serious problem, but fortunately, this type of erosion has thus far been limited at the Park and presently it does not seem necessary to take mitigation measures. There is a significant possibility that in the next five years wave attack will cause further erosion and as a result destabilization of the bluff face. Therefore, it is recommended that bluff erosion at the Park as well as at neighboring properties be watched closely. The necessary measures, such as, the installation of groins, Z-walls or a stone revetment can then be taken subsequently.

2.4 BLUFF RECONSTRUCTION AND STABILIZATION (Cont'd)

The following measures should be taken to re-establish the bluff face and to prevent bluff erosion due to foot traffic and the broken sewer pipe:

- Repair and proper installation of the storm sewer pipe. Details of the construction are given on figure no. 3 on page 12.
- Filling of all gullies with beach sand; especially the large gully at the north side, requires substantial filling. Lasting protection of this part of the bluff can only be achieved if the neighboring property owner will cooperate.
- Extensive planting of beach grass on the bluff face and brambles and juniper, or construction of a fence at the bluff toe to discourage foot traffic up the bluff.

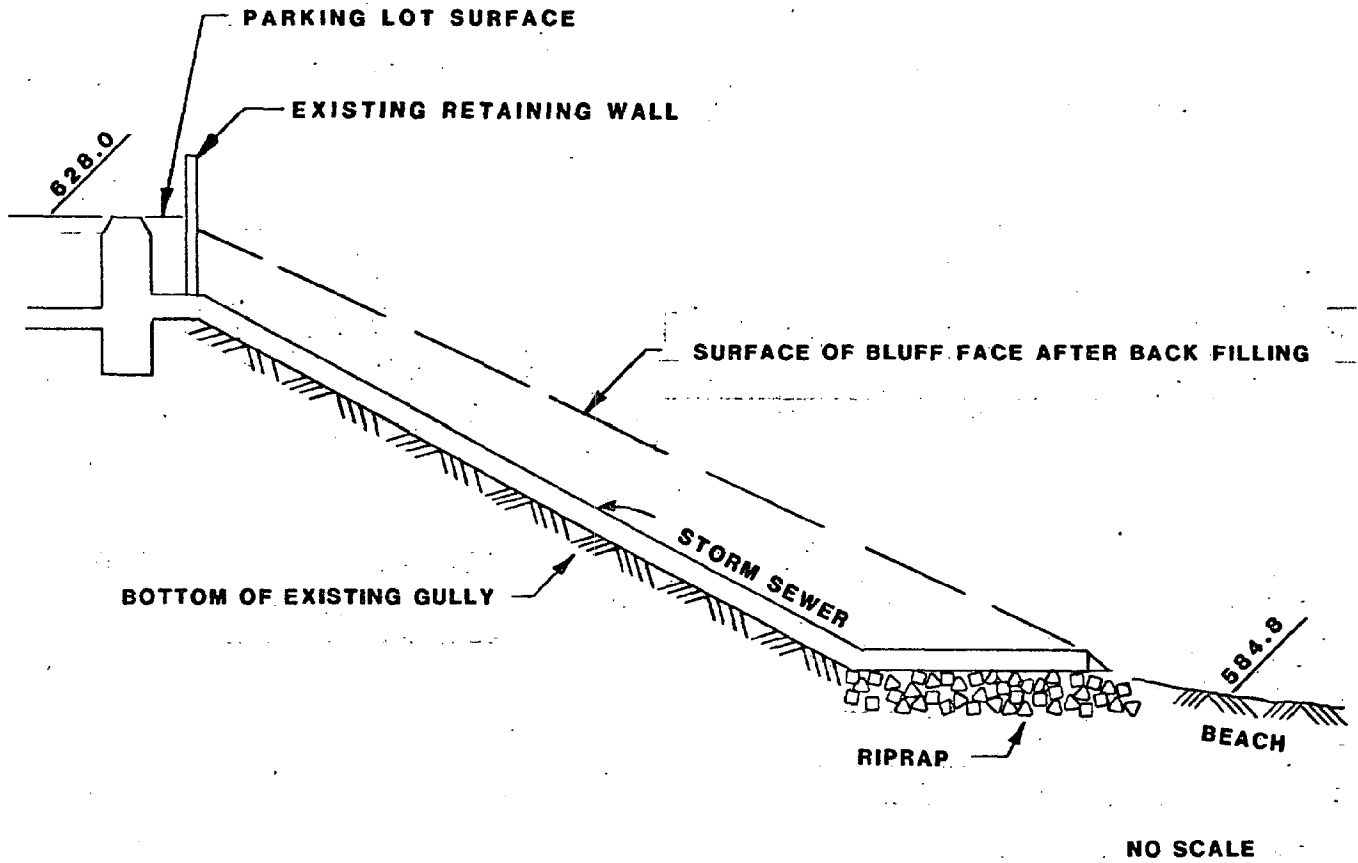


FIGURE 3

CROSS SECTION OF
STORM SEWER PIPE REPAIR

ABONMARCHE CONSULTANTS, INC.
BENTON HARBOR, MICHIGAN

3.0 ANALYSIS OF RECREATION POTENTIAL OF PARK SITE

3.1 LOCAL RECREATION NEEDS

Lincoln Township is one of the most successful and futuristic governments in Southwestern Michigan. In 1978, both the township's Planning Commission and Parks & Recreation Commission completed in-depth studies of the township's future needs. The township Park & Recreation Plan evaluated the need for new land for recreational development as well as improvements for existing facilities. The Parks & Recreation Commission has followed this Plan in completing various activities programmed on an annual basis.

This report and the site design for Glenlord Beach Park is identified as an activity for the 1981-82 budget year.

The township has approximately 375 acres of publically owned Parks & Recreation lands, including 305 acres of the state-owned Grand Mere area. In addition, there is almost 50 acres devoted to privately owned recreational uses. According to the Park & Recreation Plan, the township was deficient by 90 acres in 1977 and will be 290 acres deficient in the year 2000. Several acquisition proposals are identified to remedy this deficiency.

The recommendations within the Plan specify that the "Primary emphasis of the Lincoln Township Parks & Recreation Commission shall be, development and improvement of existing park and recreation areas. Existing park sites shall be developed, according to a site plan to maximize the recreational potential."

Specific recommendations for Glenlord Beach Park include:

- That all site improvements be durable, vandal proof, and easily maintainable.

3.1 LOCAL RECREATION NEEDS (Cont'd)

- That increased security of the park be provided.
- That intensive law enforcement be used to resolve misuse problems.
- Picnic tables, cooking grills, and benches be installed.
- Aesthetic improvements of the beach area be initiated.

3.2 SUITABILITY OF PARK SITE

The suitability of the park has been thoroughly evaluated in the township's Land Use and Park & Recreation Plans. A 30-year history of actual public use has also documented the growing need and intensive use of the park. The question in designing the Park Plan is not one of suitability, but a question of gaining maximum use without straining the capacity of the park. As the intensity of use is increased, the suitability of the park becomes more and more questionable in terms of maintenance costs, people problems, and impacts on surrounding neighbors. The design considers, as much as possible, methods to mitigate these problems.

3.3 SUMMARY

The park is suitable for intense development and upon completion will conform to the recommendations of the Lincoln Township Park & Recreation Plan dated November, 1978.

4.0 SITE DESIGN BACKGROUND AND ALTERNATIVES

4.1 BACKGROUND AND ALTERNATIVES CONSIDERED

Glenlord Beach Park does not have an extensive list of alternative recreation uses. The single use of the facility has to be water recreation. Any other use of the park has to be subordinate and complimentary to beach activities. This decision was made early in the design process promoted by the intensive use of the park for water recreation and the limited area which could be appropriately used for other purposes.

The park must be designed to serve increasingly more people. Presently, the park is used to a capacity determined by the number of parking spaces in the parking lot. All new designs consider increasing the number of parking spaces which will ultimately provide greater potential for use.

Only compatible uses, such as, picnicing and a look-out area can be reasonably added to the existing development. No other uses should be allowed, since they will conflict with water recreation.

With these major design principles established, a site design team met on-site to develop a single design plan. The team consisted of civil engineers, landscape architects, and land use planner, plus engineers specializing on erosion control. The findings and recommendations of the team follow and are graphically portrayed on the attached design plan.

4.2 BEACH ACCESS

Beach access via the stairway has caused people to intrude onto adjacent property. Although the stairway appears sound, several improvements or repairs are warranted. The stairway should be removed and relocated to the center of the property

MASTER PLAN

GLENLORD BEACH PARK
Lincoln Township, Michigan

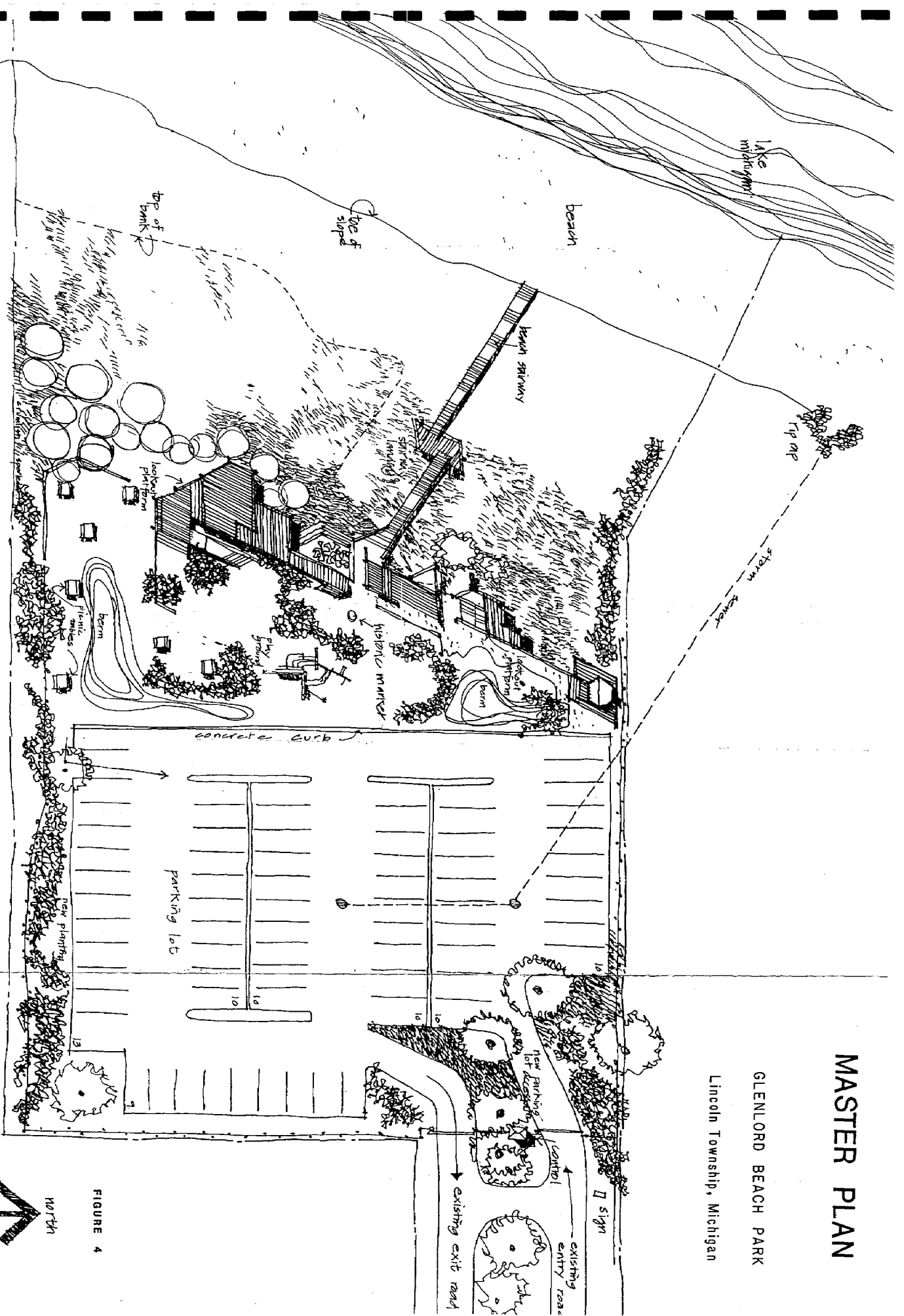


FIGURE 4



illustrative site plan @ 1"=50'
albermarche consultants, inc.
benton harbor, michigan.

4.2 BEACH ACCESS (Cont'd)

in the eroded "gully" area. The remaining portion of the "gully" should be stabilized by planting dune grass or a similar ground cover to hold the sand bluff in place. All other pedestrian access to the beach should be prohibited and controlled, so the only access to the beach is through the stairway.

4.3 BLUFF RECONSTRUCTION AND STABILIZATION

The northern eroded area (where the current stairway now stands) should be filled and the bluff re-established. This will require substantial fill and extensive plantings to stabilize the bluff. The contour should follow the step down contour of the bluff on the southerly end of the park.

4.4 ACTIVITY AREAS

The park currently has three activity areas: 1) access and parking, 2) picnicing, and 3) access and beach. It is recommended that one additional activity be included -- a look-out or passive sitting, walking, and observation area.

Relocation of the picnic area is required to provide additional parking. Moving this area to the south bluff top will nearly double the size of the picnic area, as well as tie together the look-out and beach access stairway.

4.5 PARKING

The current parking area is at capacity throughout peak times during the summer. Also, the gravel surface has no provisions to line up cars in an organized parking pattern. Thus, the first person to park sets the parking pattern for all who follow. Usually this results in underutilized portions of the parking lot.

4.5 PARKING (Cont'd)

Recommendations for the parking area include:

1. Regraveling and leveling of the surface with improved stormwater drainage pipes to the northwest corner
2. Expansion of the lot into the area now used for picnicing.
3. Arrangement of parking spaces and roadways by use of parking bumpers.
4. Expanding or more accurately squaring off the present boundaries of the lot.
5. Eventual surfacing of the parking lot with asphalt pavement to further control parking, improve drainage, and reduce maintenance costs.

4.6 ACCESS CONTROL

Probably the most critical design issue is one of security and access control. Since the park is fenced, access control can and is currently being done. The present unsightly pipe gates are recommended for removal. In place of these gates, and located at the end of the dual lane park entrance, it is recommended that a wire mesh fence with two gates be constructed. A turn around would be required before the fence to allow visitors arriving at nonauthorized times an easy exit. This system would increase security by making the entrance impassible for both cars and people.

A guard house or ticket-taker house could be constructed just inside the fence for receiving park user fees, if charged.

The access road deserves some treatment with plantings. Presently, the lane has beautiful, mature trees, but a visitor is distracted by the absence of, and unsightly underbrush. Some removal of this underbrush and replanting with hedge rows would improve the visual invitation of the park.

4.7 BUFFERS AND FENCE ROW PLANTING

In an earlier section, suitable plants for wind breaks and hedges were listed. It is suggested, that the south and east fence rows be planted to screen neighboring properties. Park personnel should be informed of proper maintenance of these hedge rows and annually prune the rows to assure maximum growth and aesthetics.

4.8 PLANTING AND LANDSCAPING

Access road and fence row plantings have been described in earlier sections and should not be considered the only plants which are necessary. Additional plantings should be made to enhance the relocated picnic area. Also, extensive planting should be done to stabilize the sandy soils of the bluff face, especially, the north bluff upon reshaping.

Again, only the most hearty vegetation can withstand the droughty soil, and careful selection should be made of any plants for compatability.

4.9 NEW CONSTRUCTIONS

Two new construction projects should be considered along with the relocation or building of a new stairway. Bluff walkways or look-out facilities should be built on the top of the ridge or intermediate step on the central and southern portions of the park bluff. This will serve two useful purposes:

1. It allows a look-out viewing point and sitting area for persons who do not wish to climb the stairway to view the beach.
2. It provides a place for parents to watch youngsters while they play on the beach and in the water.

4.9 NEW CONSTRUCTION (Cont'd)

This level is also isolated from the bluff top, which should be reserved for picnic purposes. Both areas will require extensive stabilization of the sandy soil and will probably require treated wood walkways and decking. Wood benches should be constructed on the look-out platforms in appropriate locations.

This concept could be carried out over the total length of the bluff face and used to limit beach access to the central stairway. An additional benefit would be the stabilizing of the bluff by allowing planting to remain undisturbed.

Lastly, the park provides no washroom or bathhouse facilities, although portable restroom facilities are provided during summer months. Construction and maintenance costs of these types of facilities are quite high in addition to requiring a high degree of security. Since the park has operated successfully on a portable restroom facility basis over the past years, it is recommended that this type of operation be continued. The preferred location of the portable restroom facilities is in a location in the northwest portion of the parking lot area. A concrete base with wood dividing walls should be constructed to house the portable restroom facilities.

4.10 SUMMARY

Recommendations made to enhance the use of the park are summarized as follows:

- Removal and relocation of the stairway.
- Relocation of picnic area.
- Expansion of, leveling of, and installation of parking bumpers for the parking lot.
- Filling and re-establishing the northern bluff.

4.10 SUMMARY (Cont'd)

- Screening of south and east rows with extensive plantings.
- Constructing an entrance control fence and guard house.
- Removal and replanting the entrance lanes.
- Constructing look-out point walkways or sitting areas.
- Construction of a bluff top picnic area.
- Construction of an asphalt pavement parking lot and entrance drive.
- Construction of a bathhouse enclosure.

The recommended actions are each found in the park design master plan (see figure no. 4 page 16.

4.11 SITE DESIGN ALTERNATIVES

Several alternatives for site design for Glenlord Beach Park were prepared and reviewed in public workshops with the Lincoln Township Park Commission. The designs concern four (4) major park development areas:

- I. Erosion Control.
- II. Parking Entrance Access.
- III. Beach Access.
- IV. Parking, Playground and Look-out Areas.

A Master Plan of the Park is shown on figure 4 on page 16 of this study. A description of the recommendations in the Master Plan follows:

I. EROSION CONTROL

Three (3) major areas for erosion control protection must be considered:

1. Storm Sewer Repair and Extension.
2. Bluff Fencing.
3. Bluff Fill and Planting.

I. EROSION CONTROL (Cont'd)

Storm Sewer Repair and Erosion

Repair of the broken storm sewer must be performed to prevent further erosion in the northwestern corner of the park. Fill with dune grass plantings should be placed over the repaired pipe. Additionally, concrete rip-rap should be placed at the existing pipe discharge point on the beach. At the parking lot, two manholes with inlet covers should be constructed to improve the drainage. An extension of the storm sewer pipe would be provided between the manholes. Figure no. 3 on page 12 illustrates a cross section of the storm sewer pipe discharge down the bluff.

Bluff Fencing

A major cause of surface erosion on the bluff face is the movement of people. Construction of a fence across the top of the bluff will reduce the erosion effects from the movement of people by directing them to use the stairway to the beach. Further discussions of the fencing and related cost estimates are contained in the look-out platform section of this report.

Bluff Fill and Plantings

The third major construction item recommended to reduce erosion is to stabilize the existing bluff with placement of fill and dune grass plantings. The areas to be filled and planted are those presently eroded by the movement of people down the bluff face. These areas are located in the center and northerly portions of the bluff.

II. PARK ACCESS

Several park access entranceways were developed through discussions with the Lincoln Township Park's Commission and Architects and Engineers. The selected park access alternative is shown in the Master Plan and is further described below.

The entrance maximizes use of available parking space with a total of 72 car parking spaces. The entrance guard building, entrance fence and gates, and turn-around are located in line with the eastern property line near the northerly right-of-way. No existing trees would be removed. Some hedges and low trees would be planted near and around the guard house to improve the entrance aesthetics.

III. BEACH ACCESS

Several alternatives for beach access were reviewed and discussed. These alternatives included:

1. Repair existing stairway.
2. Construct new stairway (per Master Plan on Figure 4)

Repair Existing Stairway

This alternative would construct new handrails along the existing stairway and replace the deteriorated steps throughout the stairway. Some fencing would also be added to direct pedestrian movement toward the stairway. This alternative could be performed at a minimal cost.

Construct New Stairway

This beach access alternative (Master Plan) is preferred due to the capacity of the stairway to reduce erosion by limiting movement of people on the bluff face.

Construct New Stairway (Cont'd)

The simplified design would more easily allow for structural repairs to the walkway should severe bluff erosion be experienced. This alternative is shown on the Master Plan and also on a schematic plan of the bluff (figures 6 and 9).

IV. PARKING, PLAYGROUND AND LOOK-OUT AREAS

Parking

The recommended parking lot layout is shown on the Master Plan. The layout includes construction of a curb along the outer limits of the parking lot; the addition of trees in the parking lot; and the placement of asphalt pavement over the gravel base. The storm sewer drainage construction/repair is discussed in the erosion control section of this report.

Playground

Due to the limited size of the park, few alternatives are available for playground and picnic area design. Some vegetation cover and low level mounds are recommended to improve aesthetics and provide buffers from the parking lot. Additionally, several picnic tables and cooking grills should be provided throughout the playground area.

The portable restrooms are to be located near the northerly park property lines adjacent to the parking lot. The northerly park location is the preferred alternative due to its close proximity to the beach access walkway and distant location from the playground/picnic area. The playground is shown in detail on the Master Plan.

Look-Out Areas

Several alternatives for look-out areas were reviewed and discussed with Lincoln Township, and landscape and erosion specialists. The developed plan is shown on the Master Plan. The look-out areas would be constructed of pressure treated lumber and be elevated for optimum view of the beach. In addition to the look-out platforms, bluff fenc-

Look-Out Areas (Cont'd)

ing to limit erosion by persons walking over the bluff face and planting of trees and shrubs in appropriate locations would be performed. A schematic view of the playground and look-out areas is shown in figures 7 and 8.

4.12 ESTIMATED CONSTRUCTION COSTS

The estimated construction costs for the Glenlord Beach Park project have been broken down into two phases. These phases correspond to the amount of funding which Lincoln Township has applied for from the two federal grant agencies.

Phase I

1. Repair and reconstruct storm sewer, place rip-rap and fill, and dune grass planting on bluff face	\$ 13,500
2. Regrade and pave (asphalt) parking lot, add curb at lot perimeters, add tree islands	22,000
3. Construct parking lot access with fencing, guard house, and landscaping	6,500
4. Construct stairway to beach	\$ 8,500
5. Construct bluff fencing and portable restroom enclosure	2,500
6. Engineering and administration	<u>4,600</u>
	\$ 57,600

Phase II (Master Plan)

1. Construct look-out platforms	\$ 18,000
2. Construct berm, plantings, play structure, picnic tables, cooking grills, parking lot lighting	12,000
3. Engineering, administration	<u>2,000</u>
	\$ 32,000
ESTIMATED TOTAL PROJECT COSTS	\$ 89,600

PHASE I

GLENLORD BEACH PARK

Lincoln Township, Michigan

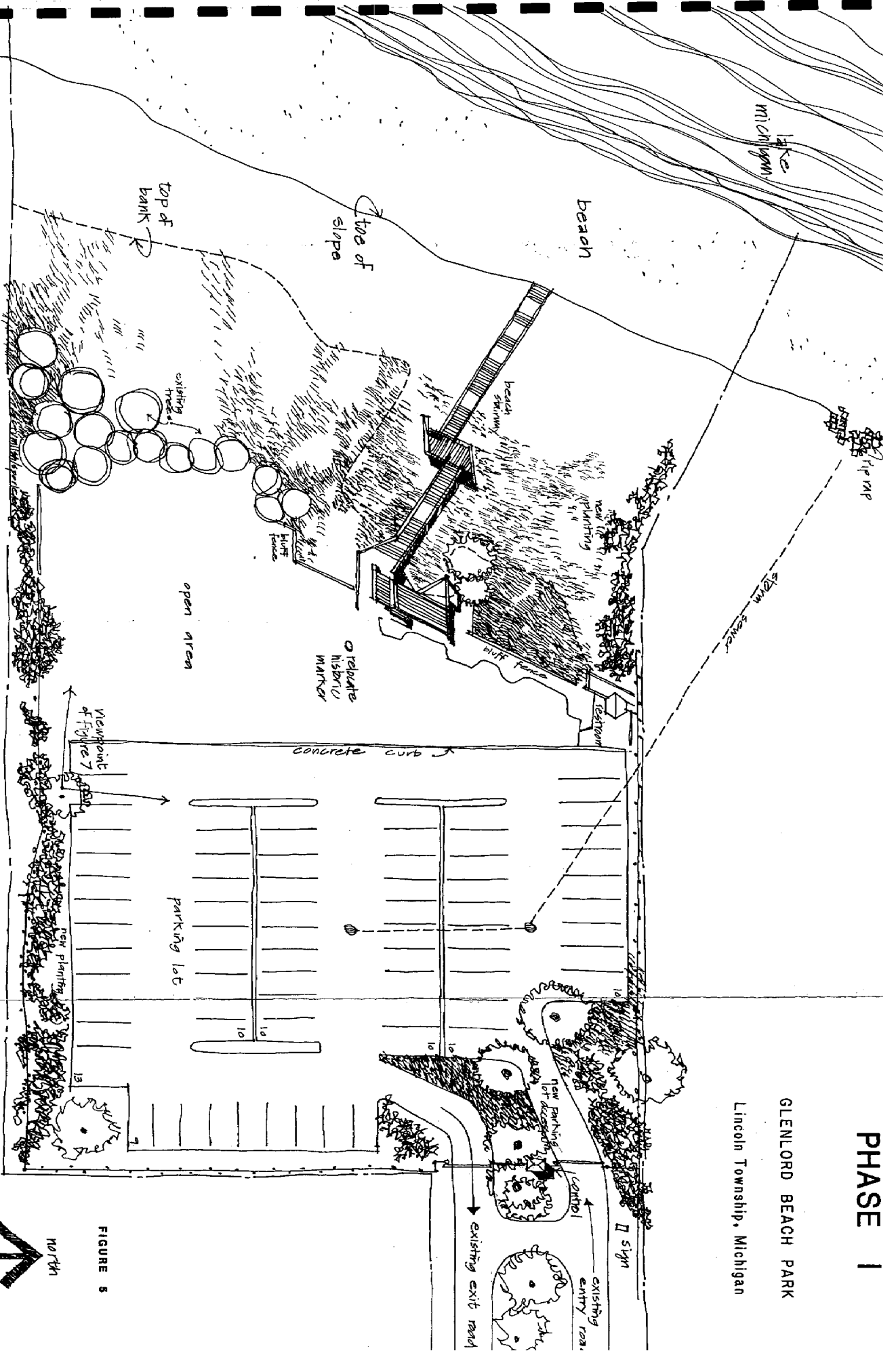


FIGURE 5

illustrative site plan @ 1"=30'
albermarche consultants, inc.
Benton Harbor, Michigan

SCHEMATIC VIEW OF
BEACH AND BLUFF

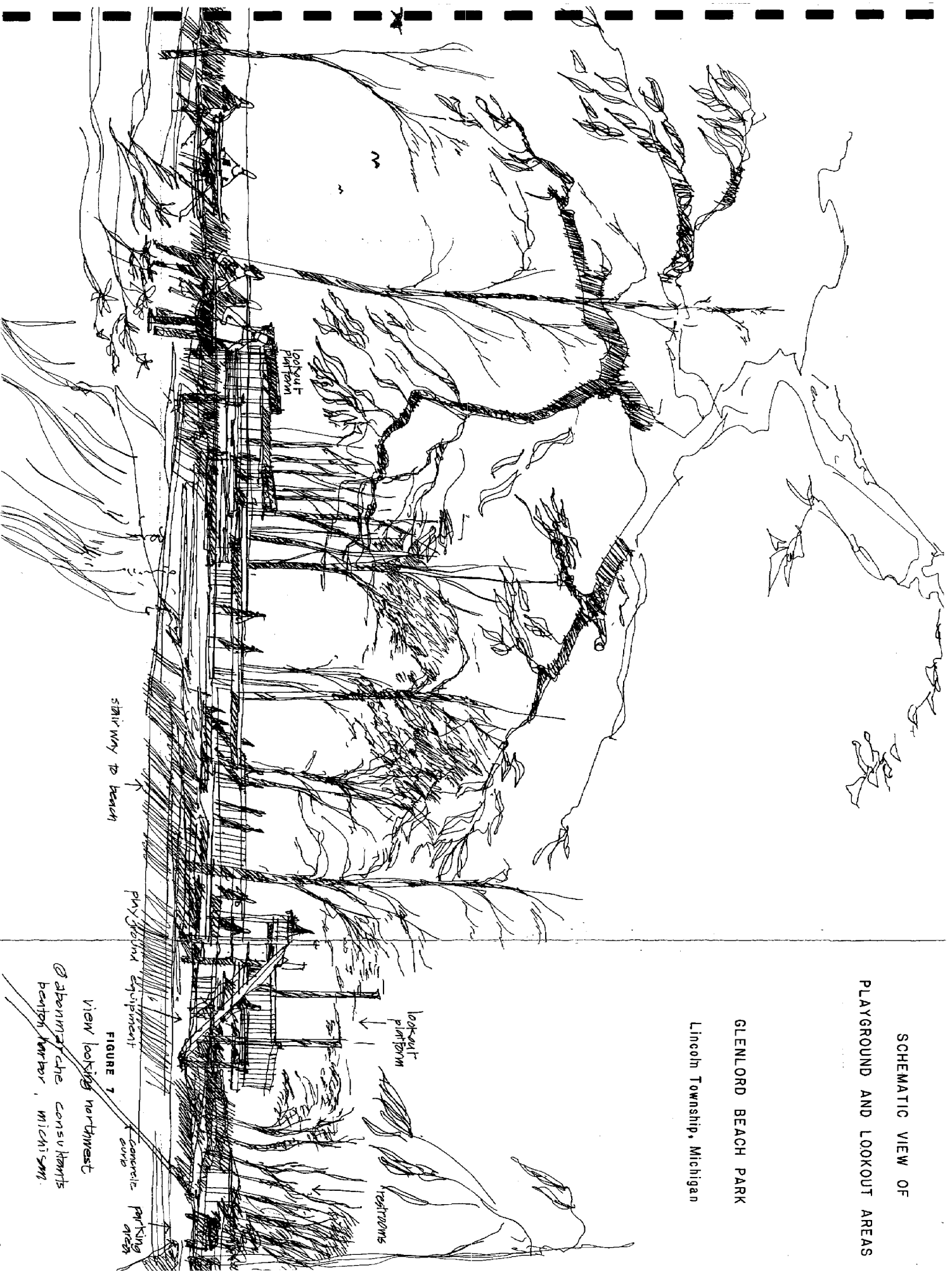
GLENLORD BEACH PARK
Lincoln Township, Michigan



FIGURE 6
© Alburn Airsne consultants, inc
Beachon Harbor, Michigan

SCHEMATIC VIEW OF
PLAYGROUND AND LOOKOUT AREAS

GLENLORD BEACH PARK
Lincoln Township, Michigan



stairway to beach

playground equipment

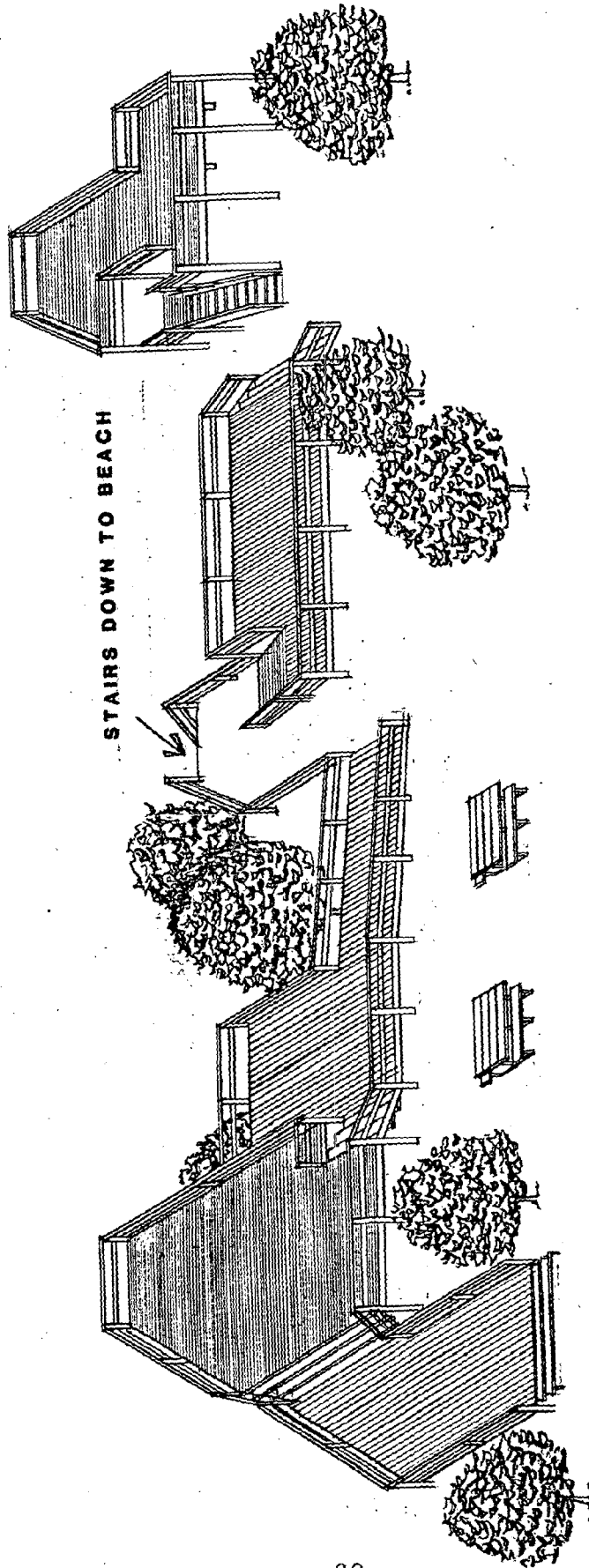
lookout platform

restrooms

FIGURE 7

view looking northwest

© Aborn & Che Consultants
Beaumont Harbor, Michigan

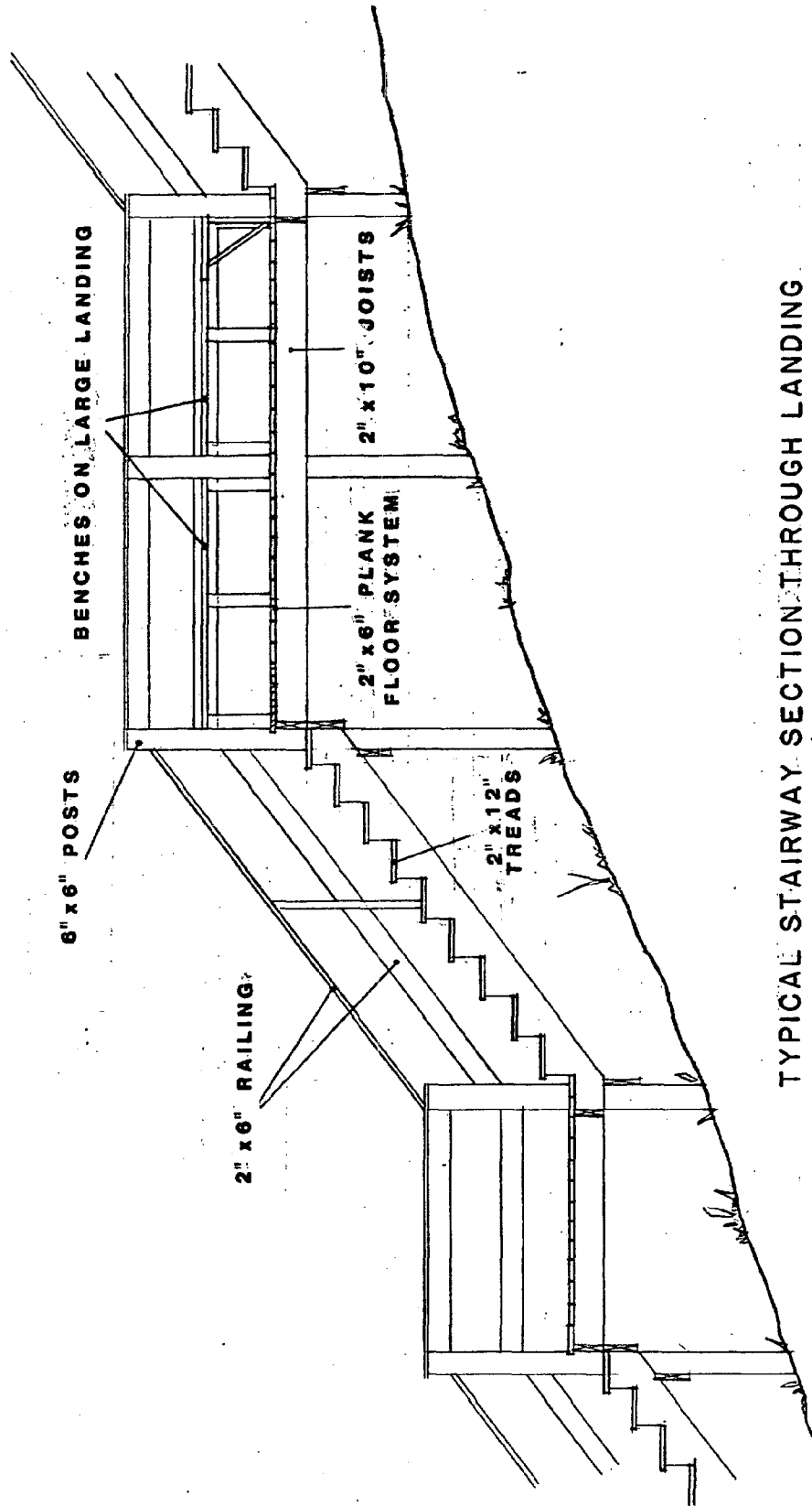


STAIRS DOWN TO BEACH

AXONOMETRIC - LOOKOUT PLATFORMS
SHOWING STEP UP/DOWN AREAS

FIGURE 8

ABONMACHE CONSULTANTS, INC.
BENTON HARBOR, MICHIGAN



TYPICAL STAIRWAY SECTION THROUGH LANDING

FIGURE 9

ABONMACHE CONSULTANTS, INC.
 BENTON HARBOR, MICHIGAN

5.0 IMPLEMENTATION STRATEGY

Development of park improvements and erosion control measures will be contingent upon the financial resources available. Township funds are limited. County funding is not available at this time and is not likely to become available. (see attached letter on page 37).

Successful development of Glenlord Beach Park will be tied to the Township's ability to leverage additional funding from Federal grant programs. Two funding programs remain available; The Coastal Zone Management Program (CZM) and the Resource Conservation and Development Program (RC&D).

5.1 COASTAL ZONE MANAGEMENT

An application for \$50,000 in construction funds has been submitted to CZM for Lincoln Township for the 1982-83 fiscal year. CZM funding for construction projects is ending. If this application is approved, it will be the last opportunity to use this program for construction.

The CZM program requires a 20% local participation. The \$50,000 request would be matched by \$12,500 from Lincoln Township resulting in a potential construction budget of up to \$62,500 for 1982-83.

CZM will fund site improvements such as: recreational improvements, rustic fencing, parking lot (no asphalt), walkways, bluff cutback and bluff and walkway revegetation.

5.2 RESOURCE CONSERVATION AND DEVELOPMENT

The Sauk Trails RC&D District Office has placed Glenlord Beach Park on a list of potential funding projects for "Critical Area Treatment Measures (Erosion and Sediment Control)". This program applies to critically eroding areas which cannot be stabilized by ordinary conservation

5.2 RESOURCE CONSERVATION AND DEVELOPMENT (Cont'd)

and management measures, and if left untouched would cause severe sediment or erosion damage. These measures may be carried out on critically eroding areas on public or private lands that:

- (1) if left untouched will adversely affect the community or the general public, and
- (2) the treated area will be maintained in trees, shrubs, and grass or other protective cover.

Eligible practices include, but are not limited to:

- (1) Critical area planting
- (2) Fencing (except boundary fences)
- (3) Grade stabilization structures
- (4) Stone Revetments - Rip-rap
- (5) Mulching
- (6) Tree planting
- (7) Terraces
- (8) Subsurface drains needed to stabilize critical areas
- (9) Asphalt parking lots - drainage

The RC&D Critical Area Program requires 25% local participation for Critical Area Treatment Measures.

Another funding resource through RC&D is for basic facilities. Under this program water-based recreation is an eligible activity. Eligible improvements include:

- (1) roads, trails, paths and walks providing access from public highways and between different parts of the development.
- (2) parking areas.
- (3) scenic overlooks, observation towers and platforms.
- (4) water, electric and sanitary facilities for the park.

The RC&D Basic Facilities Program requires a 50% local participation.

5.3 REVENUE PRODUCING POTENTIAL

Periodically, through the early summer of 1982, the park site was visited to gain a perspective of user characteristics on high use days. This was not an attempt to perform a statistical analysis; but was rather a subjective evaluation gained through observation and interview.

5.4 USER CHARACTERISTICS

At a given time, on a weekend afternoon with good weather, between 30 and 50 vehicles would be parked in the park. The vehicles were usually evenly divided between Michigan and out-of-state license plates. Michigan vehicles were generally local. Out-of-state plates were generally owned by persons who owned or rented cottages or second homes locally. Comparatively few park users arrived from outside of Berrien County for the purpose of using Glenlord Beach Park.

An average of 3 persons per vehicle arrived, and throughout the day there was a fairly slow but regular turnover. A typical stay in the park was about 4 hours and roughly a total of 80 different vehicles would arrive. Total daily usage on a weekend averaged 200 to 250 persons.

5.5 REVENUE POTENTIAL

As the park is improved, we would expect local usage to increase. However, we do not anticipate enough additional usage to justify highly structured revenue producing efforts such as, sale of user permits or concession for refreshments. A modified or part-time basis for sale of user permits on peak days and weekends only, may be feasible for producing revenue.

5.5 REVENUE POTENTIAL (Cont'd)

As most park users are staying in a local home or cottage, the revenue potential from the sale of refreshments is fairly limited, in comparison to other facilities where the day user originates outside the local area.

5.6 OPERATION AND MAINTENANCE COSTS

The recommended development strategy is designed to minimize annual maintenance.

- fencing: quality chain link fencing, properly installed, will be largely maintenance-free and have a life expectancy of approximately 20 years. There is a potential for vandalism which should promptly be repaired.
- parking lot: the proposed gravel lot may occasionally need additional gravel or some grading to fill holes. An asphalt pavement overlay would minimize maintenance for 7 to 10 years.
- walkway: the walkway is designed to be replaceable in 10 foot sections for ease of maintenance. Lower sections could be removed during the winter to minimize potential damage, or altered if severe bluff erosion is experienced.
- equipment: tables, grills and recreation equipment should be removed and stored during the off season.

Most maintenance costs the township will face, will be people related, such as, litter and vandalism. Litter and vandalism can be minimized through proper security, supervision, lighting and regularly emptied trash receptacles.

A two man crew, working three weeks a year, will be able to perform typical, annual maintenance efforts. One and one half (1½) weeks will be necessary to open the park in the spring and one and one half (1½) weeks will be necessary to close the park in the fall. During the balance of the summer, part-time student help may be necessary for cleaning and litter removal.

5.6 OPERATION AND MAINTENANCE COSTS (Cont'd)

An annual budget of \$7,500 for manpower and material should be sufficient for normal maintenance expenses.

HEAVY MAINTENANCE

2 man crew/3 weeks = 240 hours @ \$8.00/hour = \$ 1,920

OPERATIONAL MAINTENANCE

Part-time student 20 hrs./week x 15 weeks
300 hours @ \$4.50/hr = \$ 1,350

Supplies, equipment and material = \$ 4,230
\$ 7,500

The full amount allocated for supplies, equipment and material may not be used each year, however, each year's balance should be reserved and allowed to accumulate for unexpected or extraordinary maintenance costs.

LINCOLN TOWNSHIP

BERRIEN COUNTY

2055 W. John Beers Rd.

P.O. DRAWER L

TELEPHONE 616 429-1589

STEVENSVILLE, MICHIGAN 49127

EXTRACTS FROM THE MINUTES OF A REGULAR MONTHLY MEETING OF THE LINCOLN TOWNSHIP PARKS AND RECREATION COMMISSION HELD ON JULY 6, 1982.

WHEREAS, the Lincoln Township Parks and Recreation Commission adopted an overall township parks development plan in 1978. The plan evaluated the townships future needs in all park areas and recommended further study of Glenlord Park and

WHEREAS, the Lincoln Township Parks and Recreation Commission applied for and received a Michigan Coastal Zone Management Grant to provide 80% financial assistance for an indepth plan and site design of Glenlord Beach Park and

WHEREAS, the firm of Abonmarche Consultants, Inc. was retained by the Lincoln Township Parks and Recreation Commission to prepare the Glenlord Beach Park Plan and Site Design and


WHEREAS, several public workshops were held to review alternative site designs and park development recommendations. After review of the alternatives, a preliminary final report was prepared and presented to the Lincoln Township Parks and Recreation Commission, now

THEREFORE, BE IT RESOLVED, that the Lincoln Township Parks and Recreation Commission of Lincoln Township, Michigan hereby accepts and adopts the Glenlord Beach Park Development Plan and Site Design as prepared by Abonmarche Consultants, Inc.

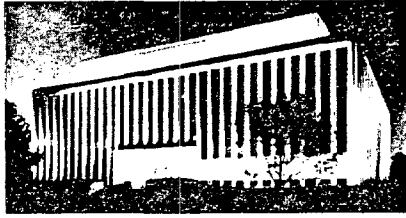
Moved by Commissioner Don Mack, supported by Commissioner Don Myers that the foregoing resolution be approved. Motion carried by the following vote on roll call. Yeas: Carol Petros, Don Mack, Don Myers, Bill Ott and Chairman Doris Florian. Nays: None.

I, Priscilla Richardson, Secretary of the Lincoln Township Parks and Recreation Commission do certify that the above is a true, compared and correct copy of a resolution of the Lincoln Township Parks and Recreation Commission of Lincoln Township, Michigan, adopted at a regular meeting held on the 6th day of July, 1982.

(Seal)


Priscilla Richardson, Lincoln Township
Parks and Recreation Commission
Secretary

BERRIEN COUNTY COURTHOUSE



BERRIEN COUNTY
PLANNING DEPARTMENT
AARON ANTHONY, DIRECTOR

OFFICE OF:
Planning Department
ST. JOSEPH, MICHIGAN 49085
TELEPHONE: 616 / 983-7111, EXT. 254

June 29, 1982

Abonmarche Consultants, Inc.
Attention: Mr. Ron Schultz
95 W. Main Street
Benton Harbor, MI 49022

Dear Mr. Schultz:

This letter is intended to bring you up to date on the issue of County participation in financial assistance for Parks and Park Development. In the past the County, through their Parks & Recreation Commission, has financially assisted various park development issues. Since the acquisition of Madeline Bertrand Park and with the economic times being what they are, this practice has been discontinued. Monies acquired for park development by the Parks & Recreation Commission will be funnelled to the new County Park. It is further anticipated that the assistance program will not be re-established in the foreseeable future.

As a result, I must regretfully say that no financial assistance is available now, nor anticipated in the near future, relative to park development, except for maintaining the County Parks System.

If you have any questions, please call me.

Sincerely,

BERRIEN COUNTY PLANNING DEPARTMENT

Aaron Anthony, Planning Director
rlc

