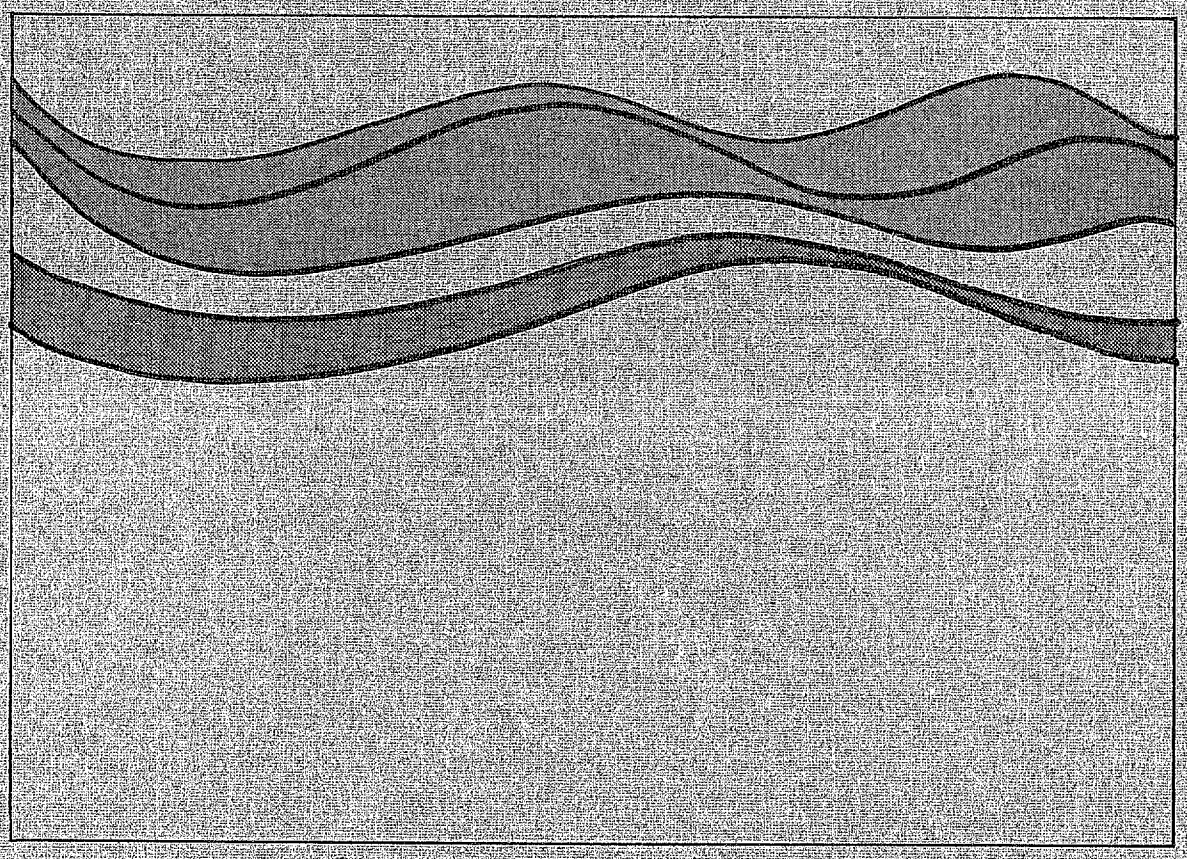
VILLAGE OF L'ANSE

MARINA FEASIBILITY / REDEVELOPMENT REPORT



SEPTEMBER 1986

LUNDBERG, CARLSON AND ASSOCIATES

MARINA FEASIBILITY/ REDEVELOPMENT REPORT

VILLAGE OF L'ANSE
Baraga County, Michigan

September 1986

Prepared For
Village of L'Anse

Prepared By
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914 West Baraga Avenue
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Sponsored By
Village of L'Anse
and
Downtown Development Authority

Assisted By
Village of L'Anse
Marina Advisory Committee
and
Division of Land Resource Programs
Michigan Department of Natural Resources

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The project consists of an evaluation of the existing municipal-owned boat mooring and launching facilities in L'Anse, Michigan, for the purpose of determining the physical and economic feasibility of their redevelopment.

The Village of L'Anse and vicinity is picturesque, surrounded by northern hardwood and coniferous forests, and looks over the panorama of Keweenaw Bay. Lake Superior, the largest of all fresh water lakes, provides a valuable resource for fishing, boating, and swimming. The lake, along with the region's rugged physiography and climate, provides L'Anse with the potential of offering recreational facilities and programs not feasible in many parts of the state or nation.

Situated adjacent to Lake Superior, L'Anse has long served as a harbor. A large dock was constructed in the early 1870's to accommodate ore and freight shipments. Fishing has always been important in the area. Today, L'Anse is highly regarded for its climate and the beauty of the surrounding area. Tourism has been on the rise over the past 25 years and is now considered one of its major industries. Harboring and boat launch facilities would be a desirable addition to the community by providing needed recreational public access to Lake Superior, promoting waterfront development, and enhancing the local image.

In March, 1984, the Village of L'Anse requested engineering services for the preparation of a marina feasibility/redevelopment study. An ad hoc marina advisory committee was appointed by the Village Council to oversee the study.

II. PROJECT LOCATION

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The Village of L'Anse (1980 pop. 2500) is located in north central Baraga County near the head of Kewenaw Bay on Lake Superior's southern shore. This is about a days drive from metropolitan Chicago, Detroit, and Minneapolis. The principal approach is via Highway U.S. 41, a major Upper Peninsula arterial.

The project site is located in Section 5, T50N-R33W in the Village of L'Anse (latitude north 46 degrees 45'30", longitude West 88 degrees 28'20", as detailed by USLS Chart #14971 published by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Ocean Survey. Vicinity and location maps are given in Figures 1 and 2.

FIGURE 1
GENERAL VICINITY MAP

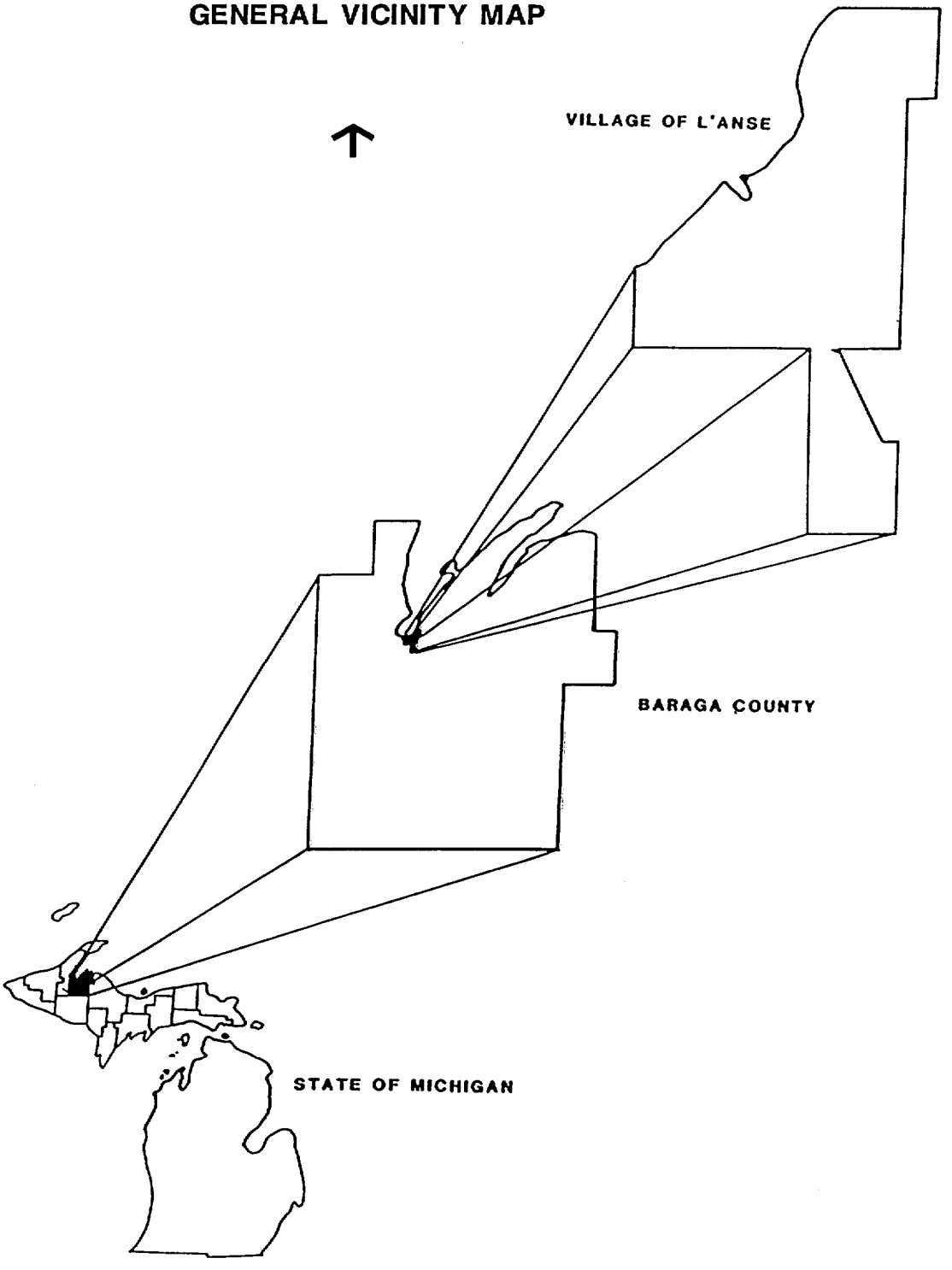
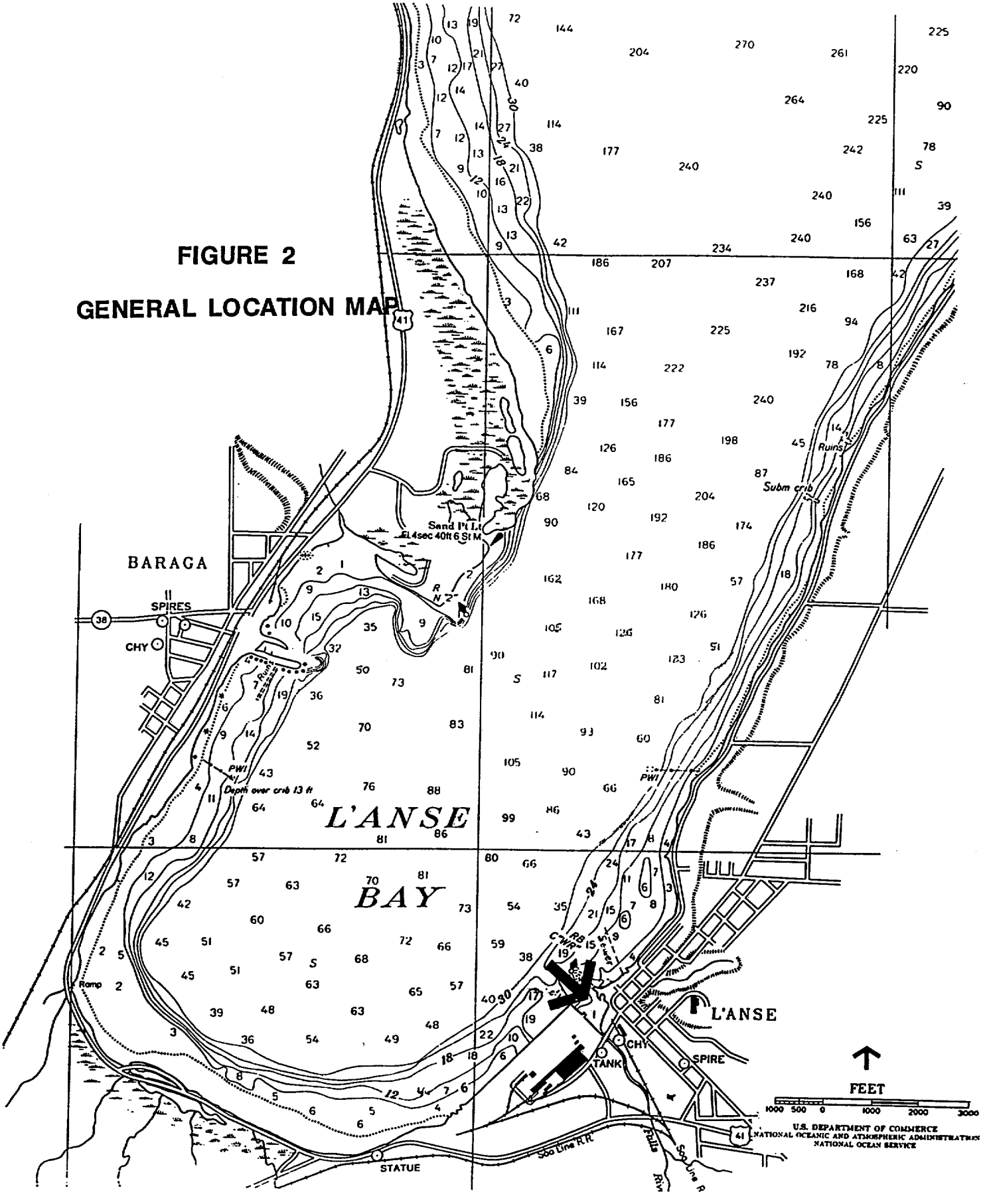


FIGURE 2

GENERAL LOCATION MAP



III. SITE ANALYSIS

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EXISTING CONDITIONS

At the present time, the marina and boat launch areas are constructed in the L'Anse harbor, a u-shaped basin that opens to Lake Superior. The Falls River empties into the harbor basin from the south along the Celotex Corporation's wood bulkhead (Old Ford Dock). The entrance to the marina and the launch area have been filled with sand, making use of the facilities nearly impossible because of tne shallow water. The marina was used extensively after its construction in the 1960's until the sedimentation problem became more pronounced. Since it has not been economically feasible to continually dredge the basin, the marina along with the boat ramp, have been neglected since the mid 1970's. Currently the marina area represents an eyesore to the community in its unusable state.

Original plans of the marina construction were not available. However, the Village of L'Anse and the Department of Natural Resources, Waterways Divison, provided information and/or plans and bid documents relative to the 1971 boat launch ramp project.

Constructed in the 1960's, the marina consists of two adjoining steel sheet piling bulkheads (160 feet and 144 feet) a timber pile bulkhead section (134 feet) and a continuous steel sheet

pile extension wall (155 feet) that juts from the wood bulkhead to the marina entrance. Total area is approximately 25,150 square feet. A small 12 foot wide boat launch ramp is situated about midway along the timber bulkhead. It is serviced by a gravel roadway and small turning/maneuvering area.

An above water inspection indicated that, with the exception of some minor rust and the jacking of several of end piles of the extension wall near the marina entrance (due to ice uplift), the steel sheet pilings are in generally good condition. The narrow wood catwalk over the steel extension wall is deteriorated and unsafe, especially toward the end of the wall where most of the walkway's plank boards are missing.

The timber bulkhead appears to be in fair condition, both above and immediately below the waterline, with no evidence of tilting one way or the other. As with the steel wall components, an underwater inspection is recommended to reveal and assess evidence of any structural damage or deterioration.

The central interior of the marina, as well as its entrance and the areas around the two launch ramps, were observed to contain submerged bars or deposits of sand at depths shallow enough to impede navigation (1 to 5 feet). Adding to the navigational difficulties, portions of the marina interior were found to have growths of seaweed.

Immediately to the northwest behind the marina boat ramp turning/maneuvering area is a broken concrete slab and rubble rip rap breakwater that projects about 180 feet into the bay. In addition to protecting the harbor from north and east wind and wave action, the structure serves as a barrier to sediment transport.

The shore areas flanking either side of the breakwater, as well as the newer launch ramp (1971), are protected from wave action by concrete rip rap revetements.

The area between the breakwater and the marina appears to be gravel fill over a rubble base. Several small caving ground areas exist behind the timber bulkhead where earth backfill has been undermined. This is probably due to material filtering, overtopping by wave runup, or a combination of the two. Continued neglect of these sinks will result in further fill settlement and accelerated deterioration of the bulkhead due to surface runoff entering the holes. (The space behind the structure should be sloped or guttered to divert water runoff away from the area.)

The newer larger boat launch ramp, constructed in 1971, is in good condition.

Predominant soil type found in the area is sand. According to field observations of the Environmental Protection Agency, Great Lakes National Program Office, of sediment samples taken in May, 1981, the Falls River channel near the Celotex Corporation dock (in 4 feet of water) had a sandy bottom with some silt. A sampling site near the boat launch/marina entrance (in 3 feet of water) indicated sand with little silt.

Access to the project area is provided by Baraga Avenue from the south, Front Street, which parallels the lake north of the business district, and the Celotex Corporation plant access road, which parallels the base of the harbor. All three roads are bituminous surfaced roadways in good condition. Ample unimproved gravel parking for cars and trailers exists in the area, most of which is located south of the larger launch ramp between the harbor and the Celotex Corporation plant access road. Minimal parking is available off of Front Street between the marina and the municipal park.

Utilities existing on or near the site include water, sanitary sewer, storm sewer, and electricity. The marina and parking areas are currently serviced by several overhead lights.

Most of the property was conveyed to the Village by the Ford Motor Company in 1954 and by the Celotex Corporation in 1968. However, a portion of the shore between the Falls River outlet

and the marina entrance, some of which was created by fill as a part of the 1971 boat launch ramp project, remains to be acquired.

Enhancing the existing marina/launch ramp is the proximity of the downtown business district with available goods and services and the municipal waterfront park immediately east of the marina. A major upgrade is planned for the park in 1986-87.

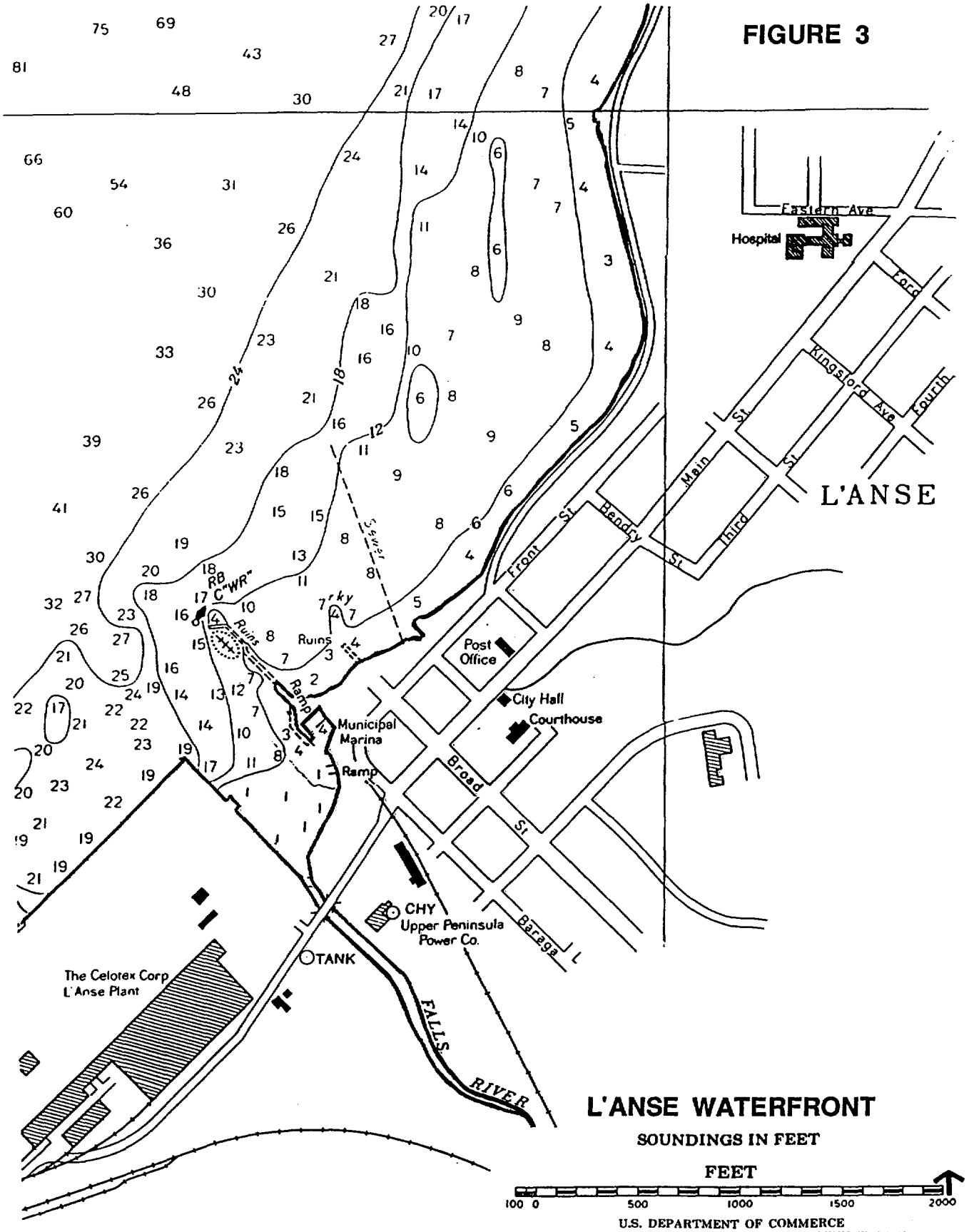
PROBLEM IDENTIFICATION

The problem at hand is the shallow water adjacent to the entrance of the existing marina and launch facilities which makes launching and navigation difficult or impossible. Sediment transported and deposited into the harbor basin area is from two major sources; the Falls River and longshore transport along the Lake Superior shoreline from the north. The annual accumulation from each is unknown but will vary from year to year depending on a number of factors. For example, past operation of the the Falls River hydroelectric dam several miles upstream to reduce peak flows tended to decrease the amount of sediment washed down river. However, the dam has not been operational for a number of years and peak flows now undoubtedly carry sediment to the river's mouth. The question as to the annual volume of sediment transported to the basin area by each source can only be determined after values are established for several variables or

a series of annual profile surveys made of the beach and near-shore areas. Identification and analysis of the variables required for determining longshore transport rate are beyond the scope or intent of this study. However, based on evaluations of the bottom contours presented in the NOAA navigational charts of L'Anse Bay and L'Anse nearshore area, a determination of the direction of sediment transport was made. The actual distribution of the sediment load within the harbor basin is the result of wave action brought on by strong winds generally from the west or northwest. The critical fetch (that line of direction which will produce the largest wave) comes from the northwest for the marina basin area (see Appendix A).

Figure 3 illustrates the existing downtown L'Anse waterfront and the nearshore bottom contours around the L'Anse harbor including the Falls River mouth and the basin area. The change in direction of the bottom contours around the old dock and existing breakwater indicates that the prevailing direction of sediment transport along the shore is from north to south. Barriers to sediment transport tend to deposit material on their updrift sides. The bottom depths, which are 6 to 12 feet deep on the north side of the old dock, drop off on the southern side of the dock to 20 to 24 feet deep near the Celotex dock. The sediment that does cross the breakwater is most likely moved toward the harbor basin by westerly and northwesterly waves.

FIGURE 3



L'ANSE WATERFRONT

SOUNDINGS IN FEET

FEET

100 0 500 1000 1500 2000

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

The longshore transport of material is dependent on the amount of material present for movement and the prevailing or mean direction and strength of wave and or nearshore current. (The Kewenaw Bay Hydrographic Study - Final Report, Coastal Dynamics, Inc. (1985), found that storm generated currents in the Kewenaw Bay probably never exceed 0.25 ft/sec, clearly not enough to markedly effect sediment transport). The Summary of Synoptic Synoptic Materiological Observations for Great Lakes Areas (1975) report published by NOAA for the Keewenaw Bay area indicates that over an annual period the overwater winds are about equally likely to come from any direction. We can surmise that because of the increased fetch distance and greater average depths, winds from the north will create significantly more breaker action than equivalent winds from the west or southwest. This greater breaker action will suspend more sediment, resulting in a greater capacity for longshore transport from north to south based on the incident angle of the wave front.

Winds from the west or south do not have the fetch distance available (less than two miles) to generate major waves. Wave action, thus, is not significant enough to move sediment past the deep water adjacent to the Celotex dock towards the basin area (see Figure 3). However, waves from those directions do have an affect on the sediment distribution within the harbor basin.

It is important to note that shallow water has existed in the harbor basin for some time and is not a recent phenomenon. According to several Village officials and local residents, there was an apparent substantial increase of sand and silt deposits in the harbor basin shortly after the dam ceased operating in the 1960's and the waters were released.

Just prior to the 1971 boat launch construction, a sandbar was known to have been located near the southern shore. The sand deposit extended from near the outlet of the Falls River to the location of the present boat launch facility (according to the original construction plans). A considerable portion of this sandbar was dredged during construction of the launching ramp. It was felt at the time that since the Falls River dam was no longer functional and that the river had apparently redug its channel through the backup area, resilting of the harbor basin was unlikely. Within two years of the ramp's construction, however, the sandbar was gone and the dredged area and the inlet to the marina were filled with sediment making them essentially unusable for boating. Much of the sediment redistribution appears to have occurred during one major storm in the early 1970's. Redistribution, as opposed to transported deposition is used in this analysis since most of the sediment moved during the storm would have been in the harbor basin prior to the storm. It is surmised that storm wave action shifted this existing material from the sandbar and shallow areas to adjacent deeper places such as the boat launch area and the marina entrance.

IV. SITE DESIGN CONCEPTS

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Three sites and four alternatives were evaluated based on construction costs, maintenance requirements, and general desirability. Costs are based on rough approximations since detailed costs estimates would necessitate use of data derived from site surveys, soil borings, and offshore soundings. However, these costs can be used for comparison of the various alternatives. Costs for the selected alternatives are presented in tabular form at the end of this section.

Alternative site selections were based on the Village's Coastal Zone Management Project Agreement with the Department of Natural Resources and direction from the L'Anse Marina Advisory Committee. A site north of the existing basin area (Alternative I), a new entrance to the existing marina (Alternative II), and development of the existing basin area (Alternatives III-A and III-B) were selected for evaluation and comparison. Figure 4 shows the location of the alternative sites.

ALTERNATIVE SITE I

Alternative I involves the construction of a marina and a new launch facility north of Bendry Street as shown in Figure 5. Several features exist which make this an undesirable location and which would add significantly to the cost. The roadway

FIGURE 4

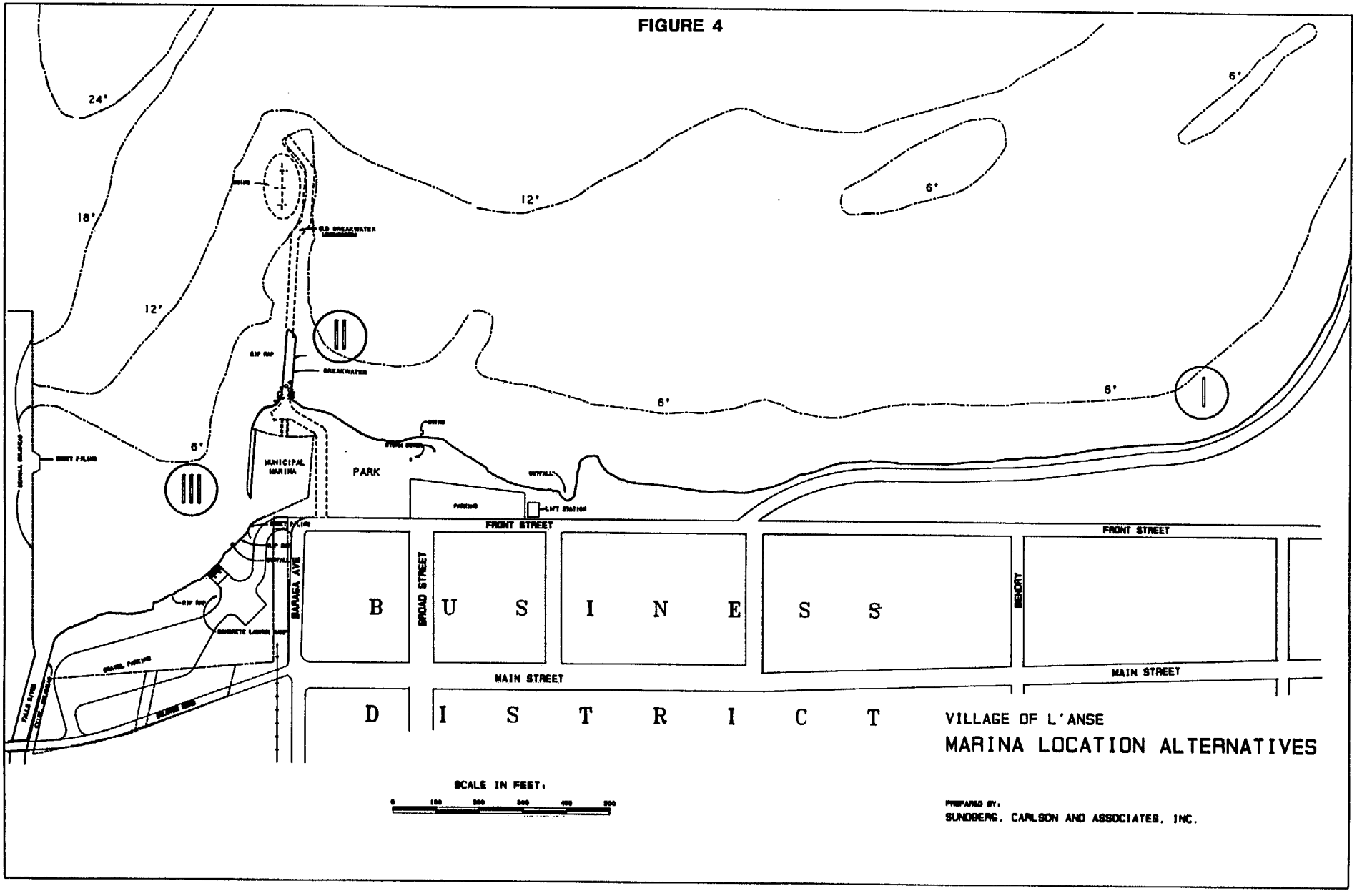
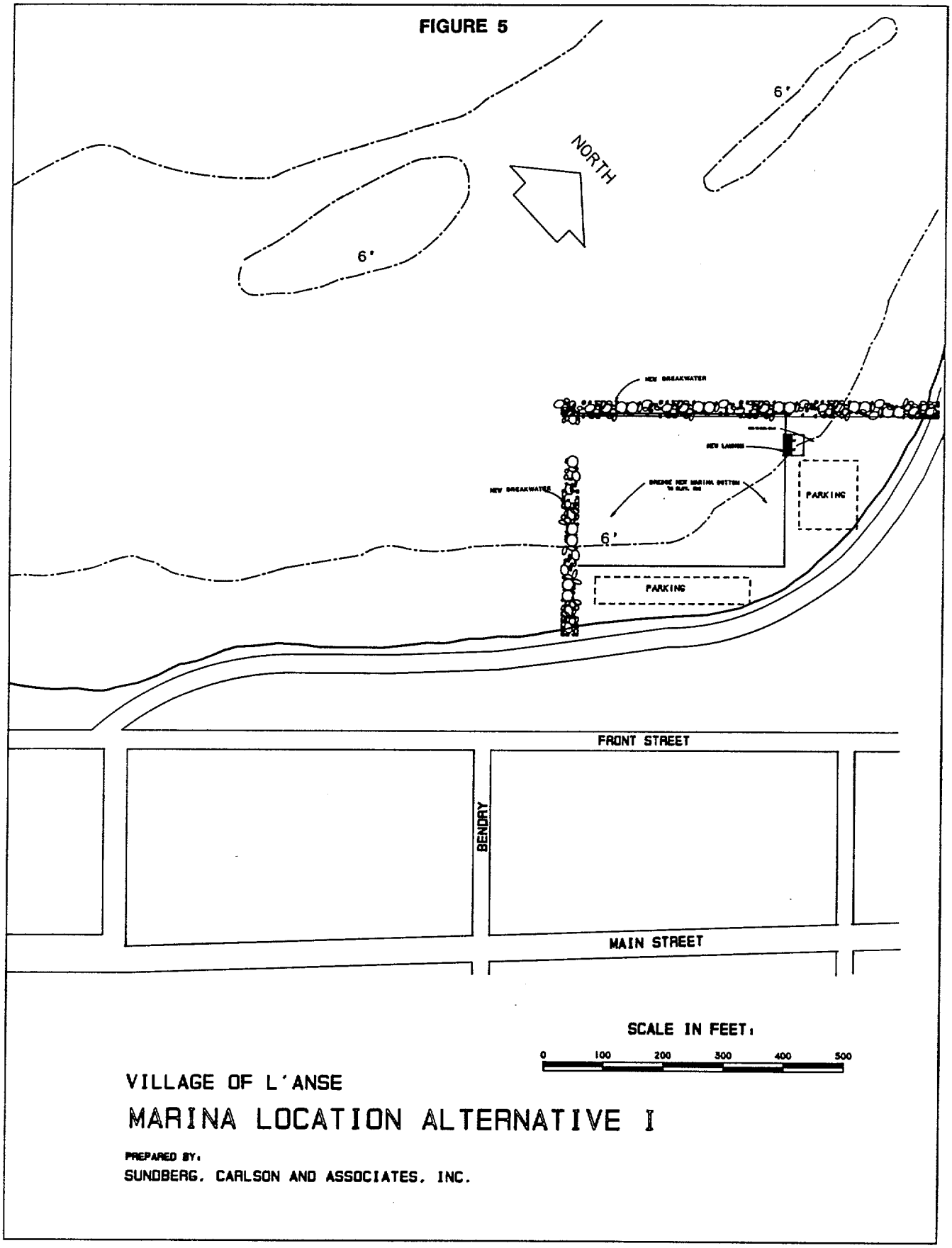

24'
18'
12'
12'
6'
6'
6'
6'
6'
OLD BREAKWATER
BREAKWATER
MUNICIPAL MARINA
PARK
FRONT STREET
FRONT STREET
BARAGA AVE
BROAD STREET
BERRY
B U S I N E S S
MAIN STREET
MAIN STREET
D I S T R I C T
VILLAGE OF L'ANSE
MARINA LOCATION ALTERNATIVES
SCALE IN FEET:
0 100 200 300 400 500
PREPARED BY:
SUNDBERG, CARLSON AND ASSOCIATES, INC.

FIGURE 5



VILLAGE OF L'ANSE

MARINA LOCATION ALTERNATIVE I

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cannot be easily relocated because of an adjacent hillside requiring construction in the waterway area. Utilities would have to be extended to the site and adequate parking would not be readily available for the marina and launch. Also, the construction of a marina away from the downtown area would have two significant impacts. The existing marina and launch area would become more of an eyesore and would be a long term liability unless dismantled. This is important to the image of the community, especially in view of the proposed improvements to the waterfront park located adjacent to the existing marina. Secondly, transient boaters would find this site much less convenient for the purchase of goods and services than a marina located adjacent to the downtown business district.

Because this site is not benefited by an existing sediment transport barrier it is expected that annual dredging costs would be higher with this alternative than with Alternatives III-A or III-B. While base costs would be comparable to those listed under III-A and III-B, the longer fetch distance from the north, would require the breakwater at this site to be somewhat higher due to the larger design wave from this direction.

In view of the aforementioned negative features, this site is not considered for further evaluation.

ALTERNATIVE SITE II

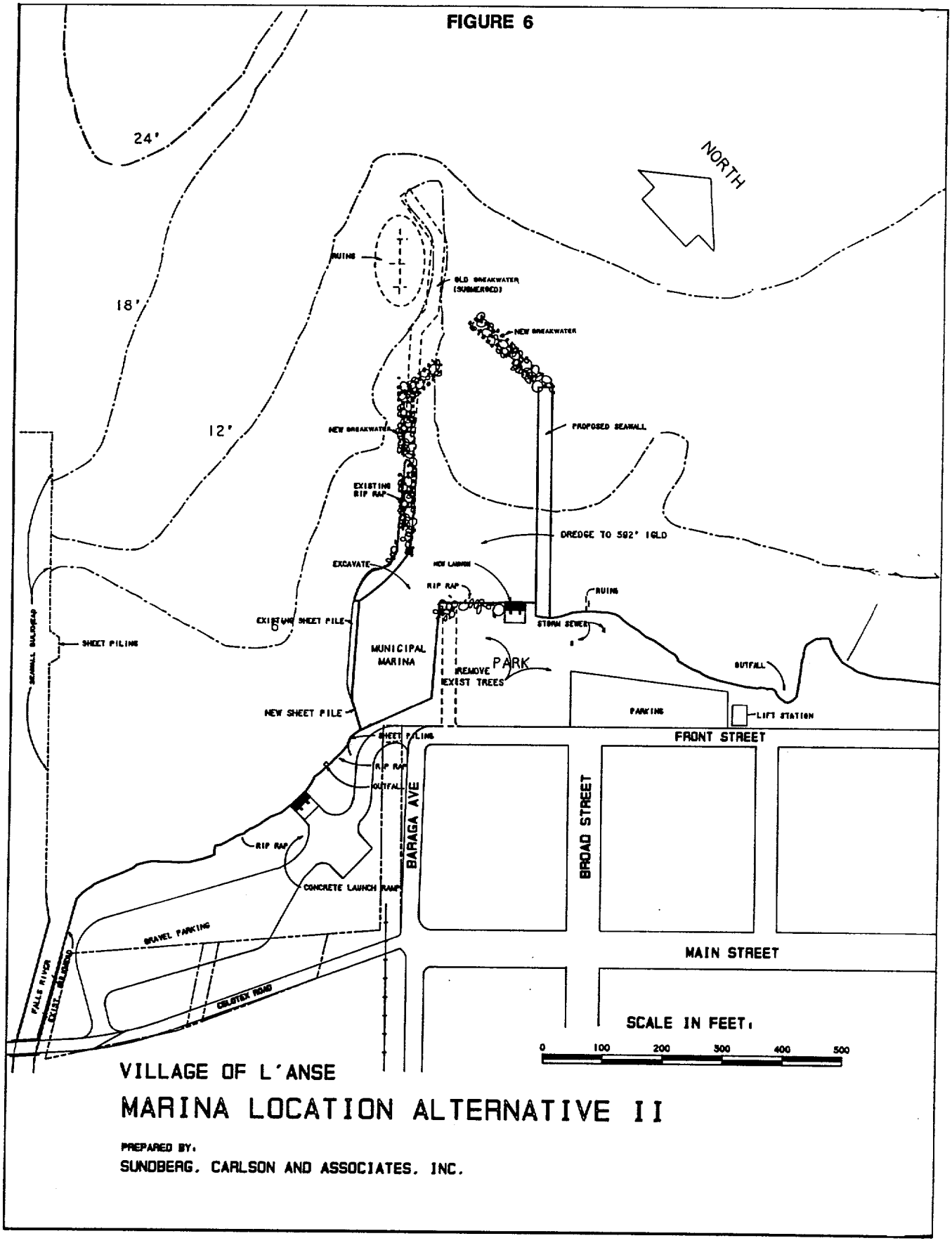
This alternative contemplates the use of the existing marina area with an outlet to the north side of the breakwater area. Again, by locating to the north of the existing breakwater this alternative is subject to northerly waves and the resultant longshore sediment transport. As shown in Figure 6, this alternative drastically reduces the size of the existing waterfront park and eliminates the use of the existing launch facility which would continue to be susceptible to sediment choking unless periodically dredged. Construction of a new launch ramp within the new marina is assumed.

The construction of this alternative would result in a cramped and inefficient marina, the loss of a substantial portion of the waterfront park, and an outlet susceptible to longshore sediment deposition. As with Alternative I, breakwater construction costs would be significantly higher due to the larger design wave which would come from the north. This alternative is not recommended for further study.

ALTERNATIVES III-A AND III-B

These alternatives both contemplate use of the existing marina. Alternative III-A utilizes the existing launch facility while Alternative III-B provides for a relocation of the launch.

FIGURE 6



VILLAGE OF L'ANSE

MARINA LOCATION ALTERNATIVE II

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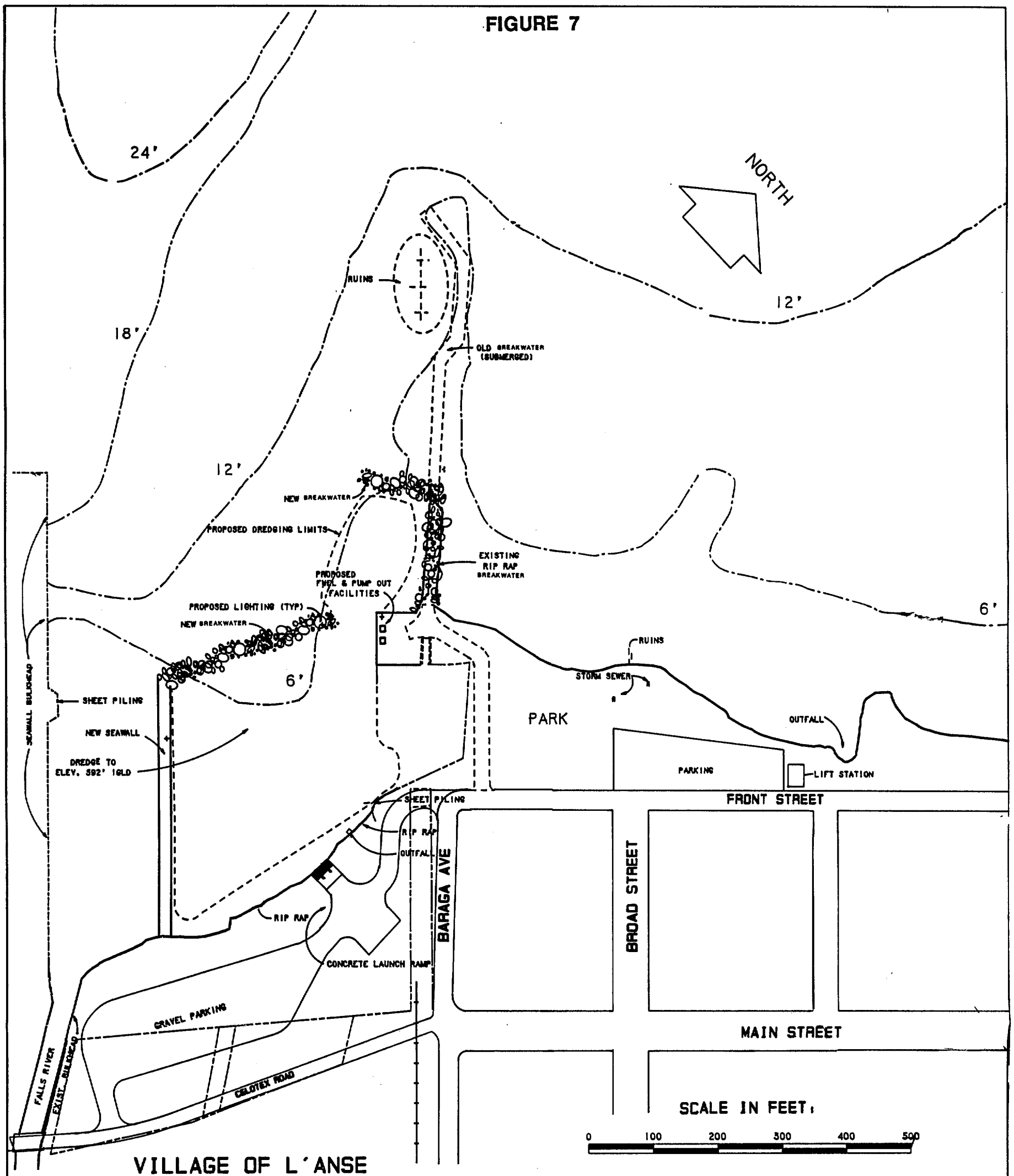
Figures 7 and 8 depict the proposed layouts of Alternative III-A and III-B respectively. Both configurations make effective use of the existing breakwater for protection from wave action and longshore sediment transport from the north. A comparison reveals that the Alternative III-A design provides significantly more protected marina area than that of Alternative III-B. However, the additional breakwater construction is significantly more costly. By providing an area for disposal of the dredged materials under Alternative III-B, dredging costs under this scheme are significantly reduced. An added cost to Alternative III-B is the relocation of the launch facility. This is estimated at $10,000 which is considered a minor cost when compared to the dredging and breakwater costs.

Preliminary base construction costs for Alternatives III-A and III-B are presented at the end of this section. Included are costs to construct the protected harbor area including dredging, breakwater, revetment, relocating the launch facility and miscellaneous construction items. These are the base items necessary to provide a marina and launch area which are protected from river and longshore sediment inundation while providing barrier protection from damaging wave action.

Base Construction Costs are as follows:

Alternative III-A	$ 681,800.00
Alternative III-B	$ 552,650.00

FIGURE 7



VILLAGE OF L'ANSE

MARINA LOCATION ALTERNATIVE III - A

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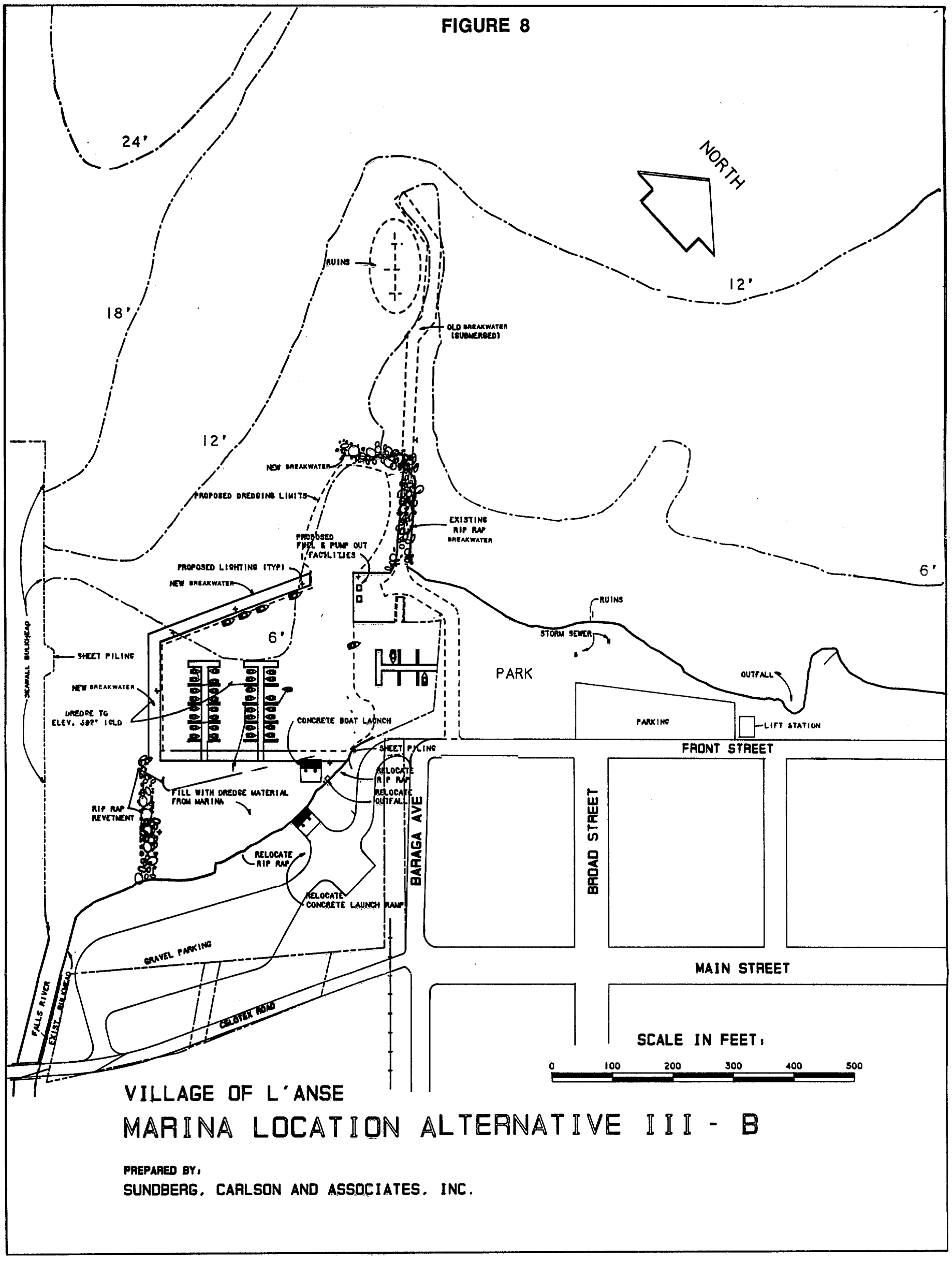
FIGURE 8



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MARINA LOCATION ALTERNATIVE III - B

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It is recommended that Alternative III-B be pursued. As proposed, this alternative will provide approximately 50 slips and is 80% of the cost of Alternative III-A. If future demand dictates, the proposed fill area could be dredged for extensions of the main piers for additional slips. This would allow the community to invest additional funds only as demand warrants.

PRELIMINARY BASE COSTS

ALTERNATIVE III-A

1.	Dredging;	18,900 cu.yd.	@	$ 4.00	=	$ 113,400.00
2.	Sheet Pile;	20,100 sq.ft.	@	$ 12.00	=	$ 241,200.00
3.	Rock Breakwater;	5,800 cu.yd.	@	$ 35.00	=	$ 203,000.00
4.	Walkway Construction; (fill and concrete slab)	L.S.	@	$ 20.00	=	$ 20,000.00
	SUBTOTAL				=	$ 577,600.00
	CONTINGENCIES (10%)				=	$ 58,000.00
	ENGINEERING				=	$ 46,200.00
	BASE TOTAL				=	$ 681,800.00

ALTERNATIVE III-B

1.	Dredging;	14,300 cu.yd.	@	$ 3.50	=	$ 50,050.00
2.	Sheet Pile;	23,800 sq.ft.	@	$ 12.00	=	$ 285.600.00
3.	Rock Breakwater;	2,000 cu.yd.	@	$ 35.00	=	$ 70,000.00
4.	Rock Revetment;	190 ln.ft.	@	$200.00	=	$ 38,000.00
5.	Walkway Construction (fill and concrete slab)		@	15,000.00	=	$ 15,000.00
6.	Reconstruct Launch;	L.S.	@	10,000.00	=	$ 10,000.00
	SUBTOTAL					$ 468,650.00
	CONTINGENCIES (10%)					$ 47,000.00
	ENGINEERING					$ 37,000.00
	BASE TOTAL					$ 552,650.00

V. APPENDIX

APPENDIX A

L'ANSE MARINA STUDY

DETERMINATION OF CRITICAL FETCH AND DESIGN WAVE HEIGHT

. DESIGN LAKE LEVEL (IGLD):

A. Greater of (a) water level midway between the long-term average and the recorded maximum average monthly water level or (b) the recorded maximum monthly level of the past year.

Max. Level Past Year = 602.2

B. Add to above storm setup per Corps of Engineers = 1.3'

Design Lake Level (DLL) = 603.5

I. CRITICAL FETCH (SEE FIGURE A-1):

A. Because of the existing breakwater, the harbor basin area is protected from storms from directions east of approximately bearing 330 degrees. Three fetches were selected between bearings 325 degrees and 270 degrees for comparison. Distance between points is 1000' and depths based on those shown in Figure A-1 below low water datum (LWD) for Lake Superior = 600.0.

	FETCH		
	#1 270°	#2 300°	#3 325°
Point No.	Depth (Ft)	Depth (Ft)	Depth (Ft)
1	2	15	15
2	45	61	38
3	45	68	70
4	53	71	78
5	63	75	85
6	65	72	95
7	65	60	90
8	50	38	60
9	30	18	35
10	16		15
TOTALS =	434'	478'	581'
AVE.DEPTH =	43.4'	53.1'	58.1'
DLL ABOVE LWD=	3.5'	3.5'	3.5'
CORRECTED AVE. DEPTH =	46.9'	56.6'	61.6'

B. Critical Fetch:

Critical fetch is a combination of length and average depth. Fetch #3 has both the longest reach and the greatest average depth and thus is the critical fetch. This fetch is used to determine the design wave and period.

The following equations are per the Army Corps of Engineers' publication "Low Cost Shore Protection . . . A Guide For Engineers and Contractors" (page 49).

$$H = \frac{0.283\ U^2}{g} \tanh\left[0.530\left(\frac{gd}{U^2}\right)^{0.75}\right] \tanh\left\{\frac{0.0125\left(\frac{gF}{U^2}\right)^{0.42}}{\tanh\left[0.530\left(\frac{gd}{U^2}\right)^{0.75}\right]}\right\}$$

$$T = 2.40\ \frac{\pi U}{g} \tanh\left[0.833\left(\frac{gd}{U^2}\right)^{0.375}\right] \tanh\left\{\frac{0.077\left(\frac{gF}{U^2}\right)^{0.25}}{\tanh\left[0.833\left(\frac{gd}{U^2}\right)^{0.375}\right]}\right\}$$

Where: H = Wave height in feet ;
T = Wave period in seconds;
U = Wind speed in feet/second;
F = Fetch length in feet;
d = Average depth in feet;
g = 32.2 feet/second/second.

For:
- Wind speed for a 10 year 1 minute duration = 60 mph (88 ft/sec) for this section of Lake Superior (see figure #16 of the above publication).
- Fetch length = 10,500 feet.
- Average depth = 61.6 feet.

From the above equations for a 10 year, 1 min. wind: H = 4.0 feet
T = 3.8 sec.

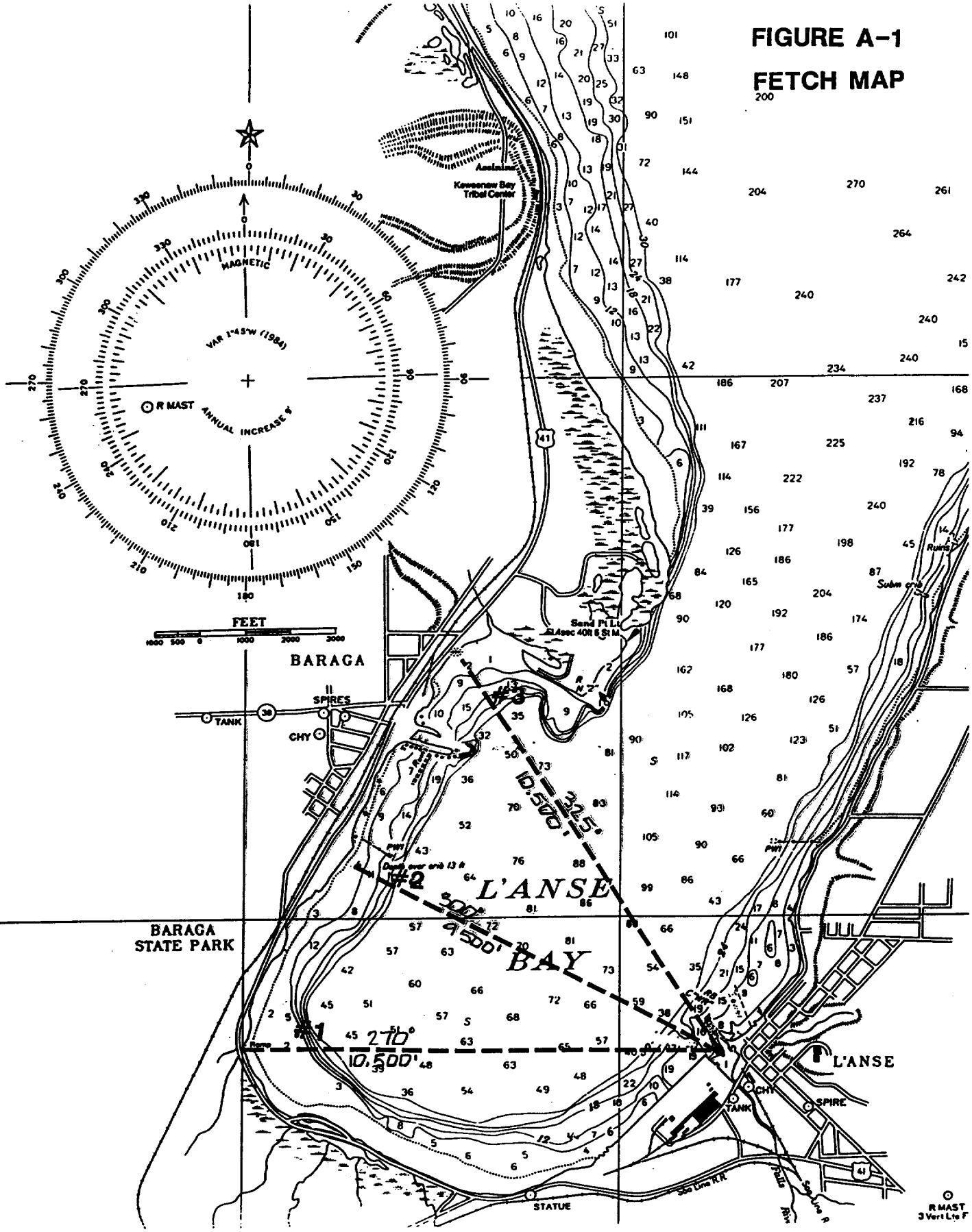
This value of wave height must be compared to the height of wave actually able to be supported by the water depth adjacent to the toe of a proposed marina breakwall. For this purpose and based on marina location alternatives presented in the body of the report is it is assumed that the toe of the breakwall will be at elevation 592.0 (8' below LWD). Since design lake level (DLL) = 603.5, depth @ structure = 603.5 - 592.0 = 11.5' = ds. From Figure 18 of the above referenced publication with a bottom slope of M = 0.05:

$ds/gT^2 = 0.025$ and $Hb/ds = 0.80$

Then Hb (wave able to be supported) = 11.5 x 0.80 = 9.2 feet.
Wave height = 4.0 is able to be supported and is therefore the design wave height.

FIGURE A-1

FETCH MAP



APPENDIX B

NEWSPAPER ARTICLES

THE L'ANSE SENTINEL

Marina, landfill to be researched

January 22, 1986

Two state grants were provided to Baraga County in the past few weeks to study the feasibility of some new approaches to old problems.

The Village of L'Anse received a $2,300 grant to research re-opening the old marina near downtown. According to Village Clerk Roy Kemppainen the marina was built in the late 1960s and at one time harbored 20 recreational boats. But the area was soon plagued with problems of sand drifting in and filling up the area.

"It's been at least five to ten years that it hasn't been used. It's been dredged quite a few times but it fills right back up," Kemppainen said. "We can't rent it out now. It's in such disrepair it would be hazardous."

The grant comes from a federal coastal management program and is distributed through the State Department of Natural Resources. The village and the Downtown Development Authority will match the grant to pay engineers of Sundberg and Carlson from Marquette to look at the original site and consider an alternative.

"They might have to make some kind of break for the sand, or maybe have the little inlet go out to the right instead of the left. I don't know, I'm no engineer," Kemppainen said. "There's a limited number of sites it could be built on. There's not an awful lot of land."

Kemppainen said he hopes the study will be completed by the end of the summer.

Marina alternatives on agenda

August 20, 1986

Alternatives for development of the L'Anse Marina will be discussed at a public meeting at 1 p.m. Monday, Aug. 25, at the L'Anse Village Hall. Representatives of Sundberg, Carlson & Associates of Marquette, the firm preparing the marina study, will be on hand to discuss the options.

The meeting will be conducted by the AD-HOC marina development committee, a group created by the L'Anse Village Council to oversee the study. Interested individuals and groups will be given a chance to air their comments at the meeting. The project is being partially funded by a grant from the Michigan Department of Natural Resources Coastal Management Program.

Marina to lure boaters

The Village of L'Anse and the Downtown Development Authority began finalizing plans to restore the marina at the end of Baraga Avenue near downtown L'Anse and refurbish the waterfront park.

Engineers from Sundberg, Carlson & Associates presented their ideas that will hopefully become reality within the next few years at an open meeting Monday afternoon.

The purpose of the marina would be not only for use by local boaters but to attract tourists traveling around the lake.

"There has been an increased demand for recreation boating facilities," said Engineer Harold Hayes. "It would be nice to have the demand for the slips beforehand, but in this situation people would have to find out you have a nice marina then come to it."

The engineers presented a number of proposals for the marina. The first would be to relocate it farther north, which might stop the sedimentation problems that plague the current marina, but there were numerous other problems such as property acquirement, substantial dredging, the need to build a new launch plus the old marina would become an eyesore.

The second proposal, which is the one most likely to be used, would require extending the current rock breakwall to stop sedimentation from rolling in from the north, and surrounding the marina with a quarry rock wall. The proposal would still require substantial dredging, but Hayes said this could be done in phases of possibly five feet at first, then seven feet later for larger boats. In another proposal he suggested the breakwall addition and the surrounding wall could be built in phases, but one storm could fill the entire marina area with sand.

"If you want the existing marina and ramp you should have a wall around it," Hayes said.

A fourth proposal would be to put a north entrance into the marina through the breakwall for the boaters convenience, but there would be sedimentation problems again.

Hayes said the only way to estimate how much sand is coming in and where it is from would be through years of extensive studies. His best guess was the silt was coming in from the north with a little rolling off from the Falls River. The old marina was allowed to deteriorate because of high maintenance costs, especially with the dredging, and the new walls would hopefully prevent that. Hayes said fishermen could also stand on the new walls to catch fish coming from the Falls River.

It was suggested a marina house be added to the plans, including gasoline pumps, pump out stations, electricity, showers and a laundromat. Marina committee member, Tom Deschaine, said it may be possible for local people to provide those services, or maybe the village could build a marina house and lease it to private people.

Deschaine also commented that there is a sunken boat at the end of the proposed breakwall extension which should be marked. It was suggested the next natural step after the marina is built will be big boat tours of the lake and the bay, so facilities should be added for that.

The engineers said they will prepare a final proposal in one or two weeks. The cost of dredging and building the two breakwalls was estimated at $300,000.

The engineers also showed their ideas for the waterfront park, which will be renovated by the Downtown Development Authority with help from a grant from the Department of Natural Resources and in kind services from the village.

The park will be worked on in two phases, the first including a gazebo, new playground equipment, restrooms, an archway, beach improvement, fencing and landscaping. It was decided the park should have a lakefront or nautical theme, with the fence made of wood and thick rope, the gazebo with heavy timber and the playgrond equipment with heavy timber also. Committee members stressed the park should be well-lighted as a deterrent to vandalism.

Construction on the first phase would hopefully begin next spring, with village crews doing the heavy machine work and youth corps or volunteer workers constructing some of the buildings. Before landscaping begins the drain pipe in the park would be buried deeper.

The second phase, which will not begin until the first is completed, would include planting grass where the current lakefront parking lot is and providing hiking and ski trails that would go up bayshore drive. The plan would provide for angle parking where the parking lot is now. The rough cost for both phases of the park would be $80,000.

August 27, 1986

Unveil marina concepts

The L'Anse Village Council reviewed alternatives for refurbishing the marina near downtown L'Anse.

The Downtown Development Association has already received a matching Land and Conservation Grant for construction in the Front Street Park. The group plans to build a gazebo, new playground equipment and restroom facilities with the funds. The DDA will match the $38,000 grant with cash and in-kind services from the village.

With the other work on the park the village has decided to explore the possibilities of improving the marina. Harold Hayes of Sundberg, Carlson & Associates presented a number of alternative plans to the board, including improvements suggested at an open meeting on the subject earlier this year.

The first alternative is to move the marina further north up Front Street. This would mean building a new breakwall, dredging more often and inconvenience to transient boaters who could use downtown businesses, according to Hayes. The plan would also do nothing to improve the existing marina site.

The second alternative is to build the outlet from the marina to the north of the existing marina outlet, which would also mean building a new breakwall and seawall. This option would reduce the size of the existing waterfront park and eliminate use of the current boat launch. The second option would also drastically reduce the size of the marina.

Alternatives III-A and III-B were the most strongly recommended by Hayes. III-A would mean extending the existing breakwall and bending it to the left to prevent sand from coming in from the north. It would also mean building a seawall to the right of the mouth of the Falls River and extending that seawall with more breakwall that bends to the north, to prevent sand from the Falls River from building up. Alternative III-A would mean using the current boat launch and would create a more protected marina than III-B, but additional breakwall makes it more costly than the fourth option.

Alternative III-B would entail using the dredge material to extend the beach in front of Celotex Road further out and relocating the boat launch. The breakwall would be extended and bend as before and a seawall would be built out from the new beach.

Hayes recommended Alternative III-B, partly because it is 20 percent cheaper than III-A ($552,650 compared to $681,800) and by moving the dredge material the marina could be expanded as demand warrants. Hayes still needs p...ission from the Waterways Division of the Department of Natural Resources before making a final recommendation, while the village is still looking for funding sources.

October 29, 1986