Illinois Department of Natural Resources
JB Pritzker, Governor • Natalie Phelps Finnie, Director
One Natural Resources Way • Springfield, Illinois 62702-1271
www.dnr.illinois.gov

Office of Water Resources, Michael A. Bilandic Building, 160 N. LaSalle St., S-703, Chicago, IL 60601

December 9, 2025

Illinois Department of Natural Resources, Office of Water Resources
Revised Public Notice

Construction of a breakwater-protected beach system, in Lake Michigan, at 2789 Oak Street, Highland Park, Illinois 60035

This notice replaces the notice issued on November 4, 2025, and extends the comment period through January 12, 2026.

DRLSCOAK LLC, 2789 Oak Street, Highland Park, Illinois 60035, has applied for an Illinois Department of Natural Resources, Office of Water Resources permit for the construction of a breakwater-protected beach system, in Lake Michigan, at 2789 Oak Street, Highland Park, Illinois 60035.

The proposed breakwater-protected beach system is comprised of a shore-perpendicular steel groin with a cap, and an offshore quarrystone breakwater at the lakeward end of the groin. The groin cap elevation tapers from elevation 585 at the lakeward end up to elevation 588 at the landward end. The groin projects 85 feet lakeward from the existing toe-of-bluff, then projects 20 feet on an angle to the northeast. The breakwater is 125 feet long, and projects to the north from the lakeward end of the groin. The breakwater crest elevation is 585, width is 11 feet, and side slopes are 1:1.5. The project includes stairs to provide pedestrian access over the landward end of the groin. 1,315 cubic yards of clean, quarried sand will be placed as pre-mitigational fill for the project. All proposed offshore structures are located within 125 feet from the base of the bluff. All elevations are International Great Lakes Datum 1985-adjusted (IGLD-85). The proposed project will be reviewed using the Department's Part 3704 Rules. A location map and plans are attached to this notice.

No work is to start on this project unless and until such a time that the permit is issued.

Inquiries and comments regarding the proposed project can be directed to Eric Otto, Senior Water Resources Engineer, of the Chicago Office at IDNR/OWR, 160 N. LaSalle Street, Suite S-703, Chicago, Illinois 60601 or eric.otto@illinois.gov.

An expanded version of the public notice can be viewed at https://dnr.illinois.gov/waterresources/publicnotices.html.

The signatures, email addresses, and phone numbers of the applicant, co-applicant (if any), and authorized agent (if any) are redacted from this public notice. The mailing addresses and phone numbers of adjoining and adjacent property owners are redacted from this public notice.

Comments will be accepted through **January 12, 2026**.

Shabica & Associates, Inc.

Teralyn Pompeii, PE
Chief, Regulatory Branch
U.S. Army Corps of Engineers, Chicago District
231 S. LaSalle Street, Suite 1500
Chicago, IL 60604

Dear Ms. Pompeii: October 21, 2025

Please find enclosed a permit application for shore protection for the property located at 2789 Oak Street, Highland Park, Illinois, 60035, owned by DRLSCOAK LLC. Proposed work includes construction of a breakwater protected beach system with sandfill.

A *Design of Shoreline Erosion Protection* report has been attached to this cover letter as the coastal design specifications component of this permit. All references, photographs and figures referred to in the cover letter and the following report can be found in the Appendix. The proposed activity complies with the approved Illinois Coastal Management Program (ICMP) and will be conducted in a manner consistent with such policies.

Project Purpose Statement
The property owner has retained Shabica & Associates (SA) to design and engineer an enhanced shore protection system for their property. This project will be constructed on the lakefront of 2789 Oak Street, Highland Park, where the homeowners want to provide a higher level of shore protection for the property, help reduce lakebed downcutting that push the locus of wave energy farther offshore, and help reduce larger waves breaking closer to shore near or at the bluff toe. The property recently had a revetment installed in 2024 (LRC-2023-679 LMRGP) as required by the municipality to increase the factor of safety for bluff. The owner now would like to enhance the shore protection system.

Project Description
This application is for a breakwater protected system comprised of a steel groin with a cap that tapers up from 585' lakeward to 588' landward. The groin will project 85 feet east of the bluff toe then angle to the northeast an additional 20'. A 125' quarrystone breakwater projects north from the steel groin. The crest elevation of the breakwater will be 585' with slopes of 1:1.5. Stairs will be implemented to provide pedestrian access over the steel groin. Sandfill will be placed in accordance with the IDNR regulations. 860 cubic yards of quarried stone and 1,315 cubic yards of sand will be placed for this project.

Coastal Geology
This section of coastline has historically lost sand due to lakebed downcutting, especially during prolonged periods of low lake levels. Sand deposits are thin to non-existent in the nearshore with thin sand deposits farther offshore (Figure 1, Appendix) and scientists estimate that the rate of lakebed erosion averages 6 inches per year (Nairn, 1997). The net result is similar to the effects of global warming and rising sea level on marine coasts. This includes deeper water nearshore, larger stormwaves and progressively narrower beaches as the nearshore lakebed continues to erode. This has resulted in bluff toe erosion along the property, especially during average to high lake levels. During the record low lake level in 2013, this site had narrow beaches while neighboring sites had wider beaches. Then with the rapid rise in lake level, a large quantity of sand was taken offshore leaving this site depleted of most sand.

The Illinois Lake Michigan shoreline is considered "sediment starved" by coastal scientists. This is in contrast to East Coast and Gulf Coast open ocean shores where tens of thousands of tons of sand are found in the nearshore system that help provide a primary line of defense against stormwaves. On most Great Lakes shores including southern Lake Michigan, natural sand beaches are not able to protect the lakeshore (exceptions may be during very low lake levels like 1964 or 2013). Large quantities of sand have been trapped or diverted offshore by municipal structures that extend over 1,000 feet into the lake. Today, the main sand supply is wave erosion of the nearshore glacial clay lakebed that contains only about 10% sand (Shabica and Pranschke, 1994). The result is steel groins are losing their effectiveness at holding a sandy beach during average to high lake levels. To help retain sand covering of the nearshore lakebed (where downcutting is most active), as well as to protect the revetment and bluff toe, SA has designed a pocket beach system to help hold sand, as necessary, to protect the lakebed and bluff during higher lake levels.

If beach and nearshore sand is lost, degradation of the nearshore ecosystem will result. Meadows et al., (2005) reports an increase in zebra mussels *Dreissena polymorpha*, and a decrease in native zooplankton in waters where the lakebed is eroding clay and rocks. In comparison, a nearshore area with 100% sand cover supports a species-rich community. The report concludes, "it [is] nonetheless clear that sand-based areas were characterized by sufficient shallow water fish CPUE and species richness to suggest that these are important habitats within the context of the Great Lakes Basin and not simply 'wet deserts' as they are often considered."

Coastal Climate

One of the largest factors in determining the scope of a project is analyzing current lake levels and climatic conditions. Over the past several years, larger-than-normal stormwaves have impacted the shoreline of Lake Michigan. The shoreline at 2789 Oak Street has been impacted by the recent extreme increase in water level evidenced by waves overtopping and infiltrating the existing revetment and the deflation of the sand. These stormwaves, in combination with a severe rebound in Lake Michigan water levels, have exacerbated the nearshore erosion along the lakefront. Changes in weather patterns and lake levels affect the intensity of storms. Unfortunately, it is not possible to predict future Lake Michigan water levels and how the changing lake levels will impact the shoreline.

The **Illinois State Water Survey, Prairie Research Institute** report on *Potential Impacts of Climate Change on Water Availability* (http://www.isws.illinois.edu/iswsdocs/wsp/climate_impacts_012808.pdf) states that:

> *"Scientists cannot predict future Illinois climatic conditions with confidence. The historical climate and hydrological records since the nineteenth century show that climate has changed significantly in the past and, even without human interference, could change significantly in the future."*

The Illinois State Water Survey goes on to graph future precipitation models, illustrating conditions that are wetter or drier than previous historic extremes. Either scenario is likely to cause loss of property due to stormwave erosion from either lakebed downcutting and/or larger stormwaves. Currently, Lake Michigan has risen over 6' since January of 2013 leading to an almost total loss of the nearshore sandy beach.

Design Options

The site at 2789 Oak Street in Highland Park has been inspected and options for shore protection were determined using desktop coastal engineering, site conditions from the 2025 bathymetric survey, studying local prototypes, and several years of observations of the deteriorating shoreline conditions at this site. Given the sand loss over the last several years including during extreme low lake levels, as well as the uncertainty of future lake levels, it is prudent to engineer and design a system that will anticipate greater lakebed downcutting, higher amounts of beach erosion, more extreme storm events with larger waves, and potential loss of land.

Do Nothing Option: The option of "Do Nothing" results in leaving the eroding beach and lakebed littered with cobble in the nearshore. Lakebed erosion will continue and allow larger stormwaves to impact the coastline further lowering the lakebed and eventually causing destabilization of the revetment. Over time, the beaches along Illinois' North Shore coastline have continued to narrow due to being in a sand starved system.

Option 1: Breakwater Island. An island breakwater was studied at this site. The result would be a fluctuating beach with a tombolo at times and minimal beach during higher lake levels. The homeowner did not select this option.

Preferred Option: Breakwater Protected Pocket Beach. At this site, the homeowner found that the pocket beach would better protect the lakebed east of their property. This option will greatly reduce lakebed downcutting as well as make the lakebed safer for recreation by maintaining sand cover over the cobbles.

Public Benefits of Sandy Beaches

The Great Lakes represent one of the most important natural resource in the United States. Sandy beaches play an important role in keeping the lakes clean and safely accessible. Furthermore, a sandy beach makes a better ecotone (transitional environment) for flora and fauna than seawalls and revetments. Summary arguments supporting a sandy beach system include:

1) Beaches are filters for non-point source runoff.
2) Beaches help reduce lakebed downcutting, a source of fine clay pollutants.
3) Beaches support endangered species such as sea rocket, marram grass, and seaside spurge.
4) Beaches make better wildlife habitat than actively eroding bluffs or seawalls.
5) Stone headlands make better fish habitat than eroding lakebed clay.
6) Beaches are far safer for swimmers and boaters than a coast lined with seawalls or revetments, especially in an emergency.
7) Beaches, unlike most steel or concrete seawalls, are not visual pollution.

Impact to Downdrift Properties

The downdrift section of coastline is protected by quarrystone revetments and steel groins with minimal, exposed, ephemeral beaches (sand and cobble) with the exception of the property immediately to the south where a permit was recently issued for a quarrystone revetment. There should be no negative impact on the downdrift properties.

Impact to Littoral Drift System

The proposed plan for this site includes the construction of a quarrystone breakwater shore connected with a steel groin and placement of sandfill as required for permit. As the breakwater system will be about 50' west of the lakeward ends of the existing groin to the north owned by the Village of Highwood and will be filled to 20% over its sand holding capacity and monitored for 5 years, sand will be not stolen from the littoral drift system.

The existing section of Lake Michigan shoreline at 2789 Oak Street, Highland Park is almost fully engineered with steel groins, as well as quarrystone revetments and breakwaters. The nearest structure to the north is the Village of Highwood's groin that projects approximately 150' east of the bluff toe helping to protect the municipal water plant. The shore protection structure to the south is an approximately 145' steel groin on the neighbor's south property line.

Based on our experience, the proposed breakwater will have positive impact on the surrounding shoreline by breaking wave energy near the shoreline. It will not negatively impact the littoral system after the sandfill is placed (anticipated quantity plus 20% overfill). According to the former Illinois State Coastal Geologist (Chrzastowski, 2005), "the design to contain placed sand is becoming necessary because of reduced volume of littoral sand in transport." He further states, "beach-cell systems may represent the future for beaches along much of the Illinois bluff coast from Waukegan south to Evanston."

The beach system will be nourished with sand including a 20% overfill placed north and south of the system. The IDNR regulations for structures that will retain sand require pre- and post-construction surveys, as well as surveys at the one and five-year intervals. This requirement will help assure that a sand equilibrium is met and that the new project is gaining and losing sand at a similar rate to neighboring properties.

Impact on Public Uses

Public access will not be negatively impacted by the project. There will be quarrystone stairs constructed over the landward end of the proposed groin. The proposed beach will help provide a safe place for boaters and swimmers in distress. Fishing will not be impacted negatively, as the underwater area of the quarrystone protection will create an improved fish habitat. Navigation of watercraft will not be impacted as the proposed breakwaters will extend only up to 125 feet east of the bluff toe.

Impact on Natural Resources

Quarrystone structures in the nearshore waters of Lake Michigan and sandy beaches improve native habitat. The LandOwner Resource Centre with support from the Canadian Wildlife Service and the Ontario Ministry of Natural Resources states that, "unstable shorelines can release silt that can choke nearby aquatic habitats." Additionally, underwater structures such as artificial reefs constructed of large boulders and clean riprap material "in large water bodies, such as the Great Lakes . . . are often the best method of creating habitat." As stated above, according to Meadows, et al., 2005, "a nearshore area with 100% sand cover support[s] a species rich community." As the design does not impact the bluff and vegetation, the local terrestrial wildlife will continue to inhabit this property.

Type of Permit

The scope of this project requires an LMRGP.

Description and Schedule of Proposed Activity

All the proposed work will be completed via marine access. A barge will deliver materials and machinery to the site. The majority of the work will be completed by a backhoe working from the beach. Pending the water depth at the time of construction, some of the work will be completed from the barge as necessary. All stone and sand will be delivered by barge to the site. Work will not begin until all necessary permits have been received. This work will require approximately 8 weeks to complete.

Type and Quantity of Fill/Measures Taken to Avoid Impact/Erosion and Sediment Control Plan

All material will be clean and from inland quarries. 2,150 tons of quarried quartzite will be placed in the structures. 1,650 tons of clean sand will be placed. Acreage of stone placed on the lakebed east of the OHWM is approximately 0.118 acres.

Summary

All of the above-described activities and plans will follow IPP terms and conditions. All the proposed work adheres to the guidelines prescribed by the Illinois Environmental Protection Agency and its Anti-Degradation Assessment. U.S. Fish & Wildlife Service and the State Historic Preservation Office will be updated on all relevant correspondence. If you have any questions, please feel free to call me at the phone number below.

Sincerely,

Jon Shabica
Vice President

C: IDNR/OWR (Otto)
IEPA (Gove)
U.S. Fish & Wildlife Service

DESIGN OF SHORELINE EROSION PROTECTION

Introduction

The following report summarizes assumptions and design criteria for a quarrystone breakwater system and sandfill mitigation to help reduce erosion and protect the property located at 2789 Oak Street in Highland Park, Illinois. The design is based on the drawings included in the permit application to the U.S. Army Corps of Engineers.

The site lies within a nearly completely engineered section of suburban lakeshore that is typically protected with revetments and steel sheetpile groins that may hold narrow beaches.

This section of coast is sand-starved due to municipal and military structures (littoral barriers) constructed over the past 100 years that extend lakeward beyond the littoral zone and reduce sand bypassing. According to the Illinois State Geological Survey, there is almost no sand moving along this section of coast. All structures in the area have been steadily losing their effectiveness at holding beach sand. This problem is exacerbated by lakebed erosion. In many cases where all the sand has been lost, the adjacent bluffs have begun to erode. To provide adequate protection for the upland property, solutions have typically been of two types: breakwater- or groin-anchored beaches to protect the bluffs, or large quarrystone revetments placed against the toe of the bluff that prevent stormwave erosion but at the expense of the beach.

Project Description

Construction of a quarrystone breakwater system and sandfill mitigation are proposed that fulfill the design requirements of 20-year stormwave erosion protection. The proposed system is designed for all lake level conditions.

Summary Specifications

Using the Army Corps of Engineers Shore Protection Manual (1984), performance of nearby prototypes and other sources, the following specifications were developed for this site (elevations are based on IGLD 1985):

Stone Breakwater Specifications	
Lakeward Crest Elevation:	585 ft
Toe of Structure:	574 ft (average)
Crest Width:	11 ft
Average Armor Size:	4.5 tons
"B" Stone	600 lbs to 1200 lbs
Slope:	1:1.5
Tons/linear feet:	21.5 tons

Assumptions	
• Design High Water (DHW):	582.5 ft *
• Design Water Level:	580.0 ft
• Design Low Water (DLW):	577.5 ft *
• Existing clay till elevation at breakwater toe:	573.0 ft
• 20-yr lakebed erosion at toe of breakwater:	3 ft**
• Design wave height (Hs):	8.9' ft
• Nearshore Slope:	± 1:30
• Design Wave Period (T):	9.9 s **
• Depth at Structure Toe DHW (Ds):	8.5'
• Design Deepwater Wave (Ho):	18.0'
• Design Wave Length (Lo):	501.8'
• Structure Porosity:	37%

* DHW includes 2 ft storm setup; DLW is equivalent to Low Water Datum

** Resio & Vincent, 1976

Stone Breakwater Stability, Armorstone

The proposed quarrystone breakwater will be constructed with an armor layer of 3 -6 ton armorstone built on a slope of 1:1.5. The lakeward face will be 2-layer random placement and the landward face will be special placement. Overtopping of the structure is expected during storms and higher water levels.

For a quarrystone breakwater, structural integrity may depend on the ability of the foundation to resist the erosive scour by the highest waves. Therefore, it is suggested that the selected design wave height H_s for such structures be based on the design wave height H being the average height of the top 10 percent of waves expected during an extreme event. Based on the deepwater significant wave height H_s corrected for refraction and shoaling.

The stability number (K_d) is primarily affected by the depth of the stone foundation and toe protection below the still water level and the depth of the structure.

The equation below is Hudson's formula and is used to determine the armor stone weight needed to support a particular structure.

$W = (W_r * H_s^3) / ((K_d[W_r/W_w]-1) * \cot(\beta))$
W = weight of individual armor units in lbs
W_r = Unit weight of armor units
W_w = unit weight of water
H_s = the design wave height for the structure
K_d = the design stability coefficient for rubble and toe protection
β = the angle of incline of the structure

Quartzite armorstone is recommended as it is highly durable and is locally available in most gradations under 6 tons. Hudson's formula was used to estimate armorstone size. An armorstone of 3.4 tons is predicted for special placement stone based on design conditions.

Shoreline / Bathymetry

Bathymetric surveying was performed on August 27, 2025. Survey notes: Lake conditions at the time of survey were waves of 1 foot or less. Bathymetric survey was performed using a Trimble R10 GPS Receiver along with a Hydrolite-TM Single Beam Echosounder. Survey was performed tied to Trimble's VRS Now Network, data points were collected in NAV88 datum and converted to IGLD 1985.

Water Levels

The following table summarizes water level data representing daily highest extremes measured at Calumet Harbor, Illinois, approximately 32 miles to the south of Highland Park. Note: Low water datum = 577.5 ft (IGLD 1985).

Lake Level	LWD	IGLD 1985
Record High	+5.5	583.0
Record Low	-1.4	576.1

Project Supporting Data

To help facilitate project review, SA offers the following supporting data based on standard coastal engineering practices:

1. **Sediment Transport Around Structure** The structure is designed to lie within the surf zone (zone of breaking waves), therefore allowing sediment transport around the structure. The range of breaking wave heights is from 7.4 ft based on a 6-second wave with a wavelength of 184 ft (using 1/25 Lo) to 18 ft based on a 9.9-second wave with a wavelength of 501.8 ft (Resio and Vincent, 1976). The commonly accepted zone of sediment transport is to 18 ft (depth of closure) in this section of Lake Michigan, which is a function of the design wave parameters. Based on this data, once the structure has been filled with sand, it will continue to bypass littoral drift sand. Survey monitoring will be conducted, as required by the IDNR, to assure that the system performs as designed.

   The IDNR requires sand fill in areas where sediment will be trapped by the new system. Sand volume quantities have been calculated as shown in the permit drawings. As required by the IDNR, a 20% overfill will be added to the calculated volume. Additionally, the new pre- and post-construction monitoring will be performed and submitted to the IDNR to verify the impacts to the system.

2. **Effect on Adjacent Shorelines** A wave diffraction diagram (Figure 4, Appendix) has been included to show how wave energy is broken down around breakwaters. Using a refracted incident wave angle of 90 degrees (USACE, Shore Protection Manual), with average and design waves, there will be a decrease in wave energy on adjacent properties. The wave diffraction pattern shows that the coefficient of diffraction (K) reduces the wave energy to a distance of about ½ the wavelength downdrift and does not have an impact further downdrift. For the average 6-second wave, that distance of reduced wave energy is about 90 ft and for the design wave, the protected distance is about 250 ft. This protected area close to the structure has diminished wave energy that will in turn reduce erosion in the area.

3. **Wave Reduction in Rubble-Mound Structures** The Iribarren number (ξ), or surf similarity number, is used to determine the wave reflection coefficient. For rubble-mound structures, wave reflection (and wave energy) is reduced by one half or more (0.2 to 0.53) (Figure 5, Appendix). For example, a wave reflection of 0.25 means that the wave energy is reduced by 75%. The range of wave reflection for beaches peaks at about 0.44. The range for plane slopes, however, quickly rises to 0.5 and peaks at .91. This illustrates that rubble-mound structures reduce wave energy almost as well as beaches.

Lakebed Erosion

Lakebed erosion, active in water depths of 10 ft or less, is a design component of this plan. This section of the Lake Forest lakeshore is considered sediment starved. Sand deposits were measured at Ravine Drive in Highland Park from the backshore to a depth of 7 m (23 ft). Nearshore sand deposits averaged negligible from shore to 250 feet offshore, then grew to up to 4' thick going out 1,500 feet (Shabica & Pranschke, 1994). Also, the site is underlain by highly-erodable, cohesive glacial clay-till. See Shabica survey data and cross-section showing loss of lakebed sand from 1975 to 1989. Calculated sand deposits at this site are 119 cubic yards per foot of lakeshore to a depth of 4 meters. According to Robert Nairn, approximately 200 m^3 of sand cover per meter of lakeshore (out to a depth of 4 m) is necessary to protect the underlying cohesive profile from lakebed erosion under most conditions. Sand and coarser sediments represent typically less than 15% of the material eroding from the lakebed and bluffs.

Using the historic rate of lakebed downcutting of 0.15 ft/yr (Nairn, 1997), an irreversible lowering of the nearshore lakebed clay of approximately 3.0 ft over a 20-year period is predicted in unprotected areas. With the stone breakwater, revetment and sandfill installed, the lakebed erosion will be reduced.

Project Monitoring

As the performance of shore protection structures cannot be predicted with absolute certainty, the shore protection system for 2789 Oak Street, Highland Park will be inspected as required by IDNR guidelines. This includes topographic and hydrographic surveys beginning at an elevation of 581.5 ft (IGLD 1985) and progressing to 300 ft lakeward of the lakeward end of the project, within the north and south property lines. Additionally, all structures should be inspected to assure that they continue to meet design specifications.

2024 Google Earth Image (Approximate Property Lines in Yellow)

References

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APPENDIX
2789 Oak St., Highland Park • October 21, 2025

October 21, 2025 Photo looking south from the water plant.
Quarrystone revetment was constructed in 2024 (LRC-2023-679 LMRGP)

October 21, 2025 Photo looking north along the revetment toward the water plant

FIGURE 1

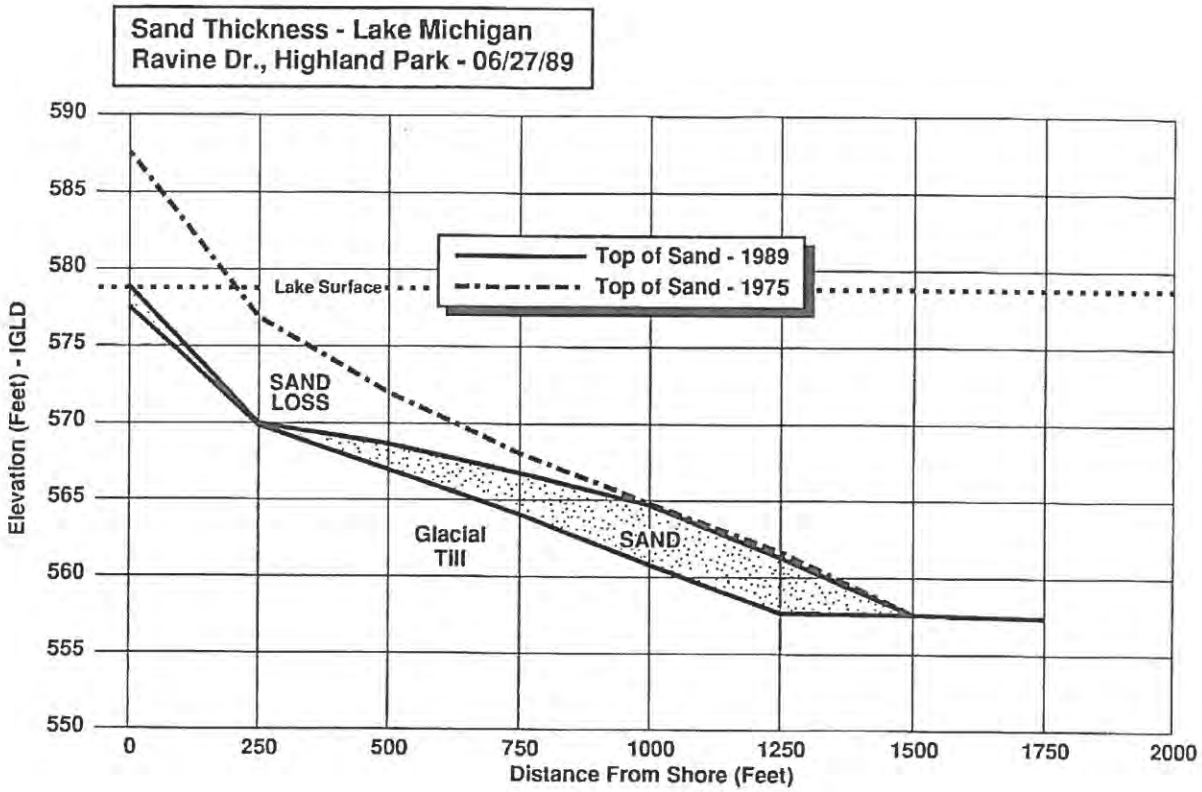

Sand Thickness - Lake Michigan
Ravine Dr., Highland Park - 06/27/89
Top of Sand - 1989
Top of Sand - 1975
Lake Surface
SAND LOSS
Glacial Till
SAND
Elevation (Feet) - IGLD
Distance From Shore (Feet)
590
585
580
575
570
565
560
555
550
0
250
500
750
1000
1250
1500
1750
2000

FIGURE 2

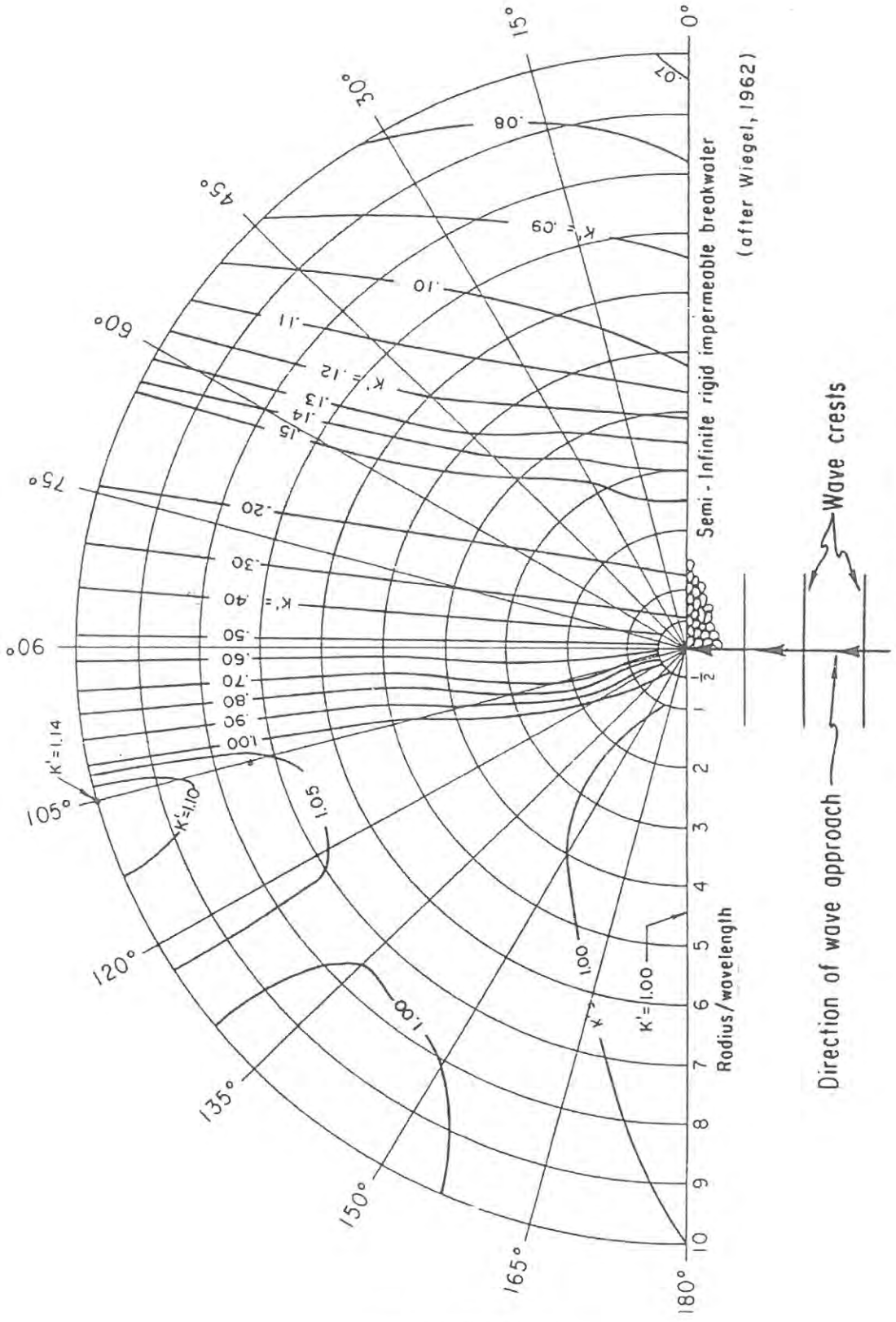
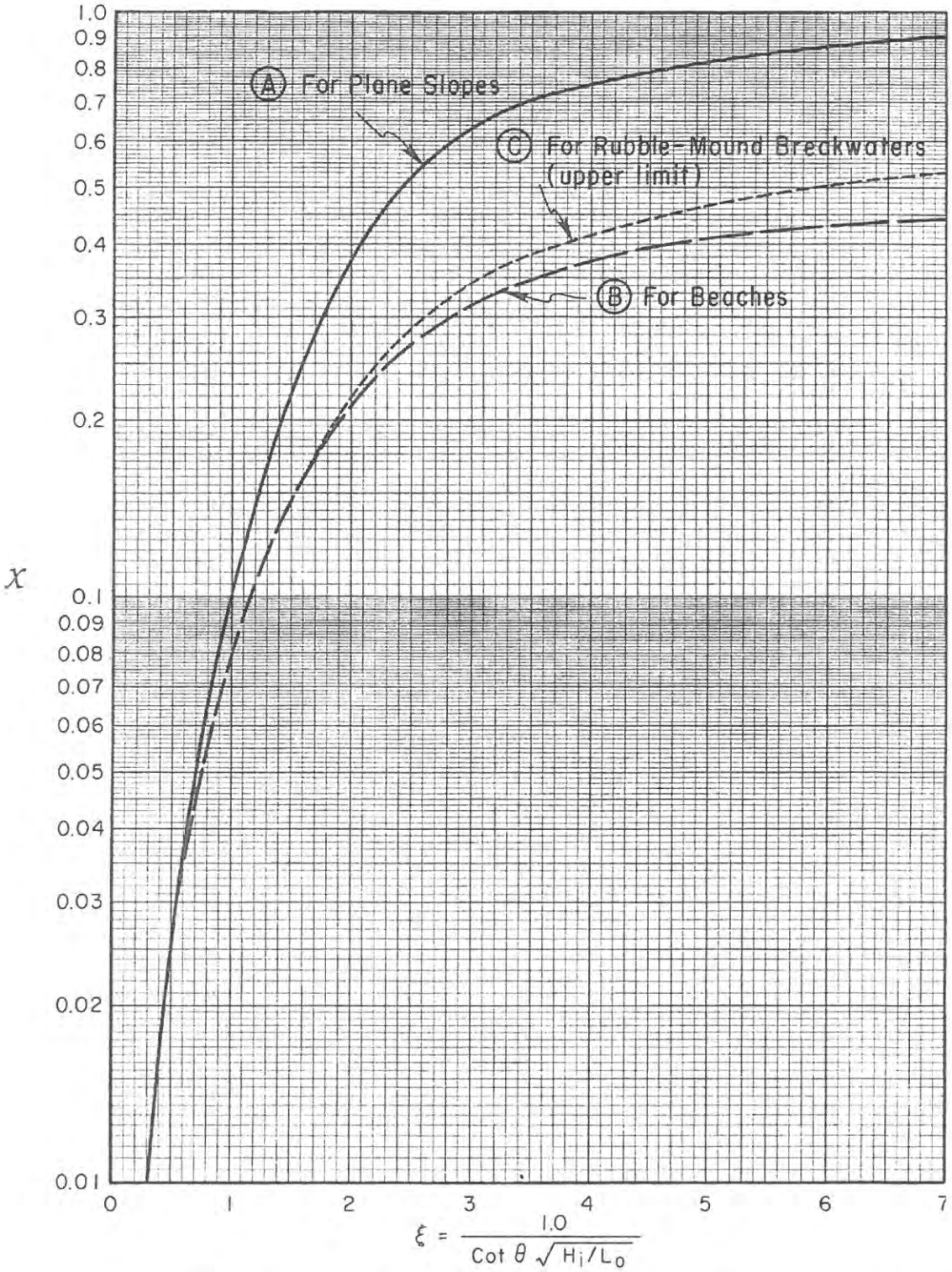

Semi - Infinite rigid impermeable breakwater
(after Wiegel, 1962)
Wave crests
Direction of wave approach
Wave diffraction diagram--90° wave angle.
Radius/wavelength
K'=1.00
K'=1.10
K'=1.14
0°
15°
30°
45°
60°
75°
90°
105°
120°
135°
150°
165°
180°

FIGURE3



Wave reflection coefficients for slopes, beaches, and rubble-mound breakwaters as a function of the surf similarity parameter ξ .

550 Frontage Road • Suite 3735 • Northfield, Illinois 60093 • Tel 847.446.1436 • info@shabica.com
www.shabica.com

JOINT APPLICATION FORM FOR ILLINOIS

ITEMS 1 AND 2 FOR AGENCY USE

1. Application Number	2. Date Received

3 and 4. (SEE SPECIAL INSTRUCTIONS) NAME, MAILING ADDRESS AND TELEPHONE NUMBERS

3a. Applicant's Name	3b. Co-Applicant/Property Owner Name (if needed or if different from applicant)	4. Authorized Agent (an agent is not required)
Rachel Klein Company Name (if any) DRLSCOAK LLC Address 2789 Oak Street Highland Park, IL 60035 Email Address	Company Name (if any) Address Email Address	Shabica & Associates, Inc. Company Name (if any) Shabica & Associates, Inc Address 550 Frontage Road Suite 3735 Northfield, IL 60093 Email Address
Applicant's Phone Nos. w/area code Business: Residence: Cell: Fax:	Applicant's Phone Nos. w/area code Business: Residence: Cell: Fax:	Agent's Phone Nos. w/area code Business: Residence: Cell: Fax:

STATEMENT OF AUTHORIZATION

I hereby authorize, Shabica & Associates, Inc. to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

Applicant's Signature _____ Date 10/21/25

5. ADJOINING PROPERTY OWNERS (Upstream and Downstream of the water body and within Visual Reach of Project)

Name	Mailing Address	Phone No. w/area code
a. see attached list b. c. d.		

6. PROJECT TITLE:
Breakwater-Protected Beach System

7. PROJECT LOCATION:
Lakefront at 2789 Oak Street, Highland Park, IL

LATITUDE: 42.20269 °N LONGITUDE: -87.79650 °W	UTMs Northing: 4672583.26 m Easting: 16T434257.08 m				
STREET, ROAD, OR OTHER DESCRIPTIVE LOCATION Lakefront at 2789 Oak Street	LEGAL DESCRIPT	QUARTER SE	SECTION 14	TOWNSHIP NO. 43N	RANGE 12E
☒ IN OR ☐ NEAR CITY OF TOWN (check appropriate box) Municipality Name Highland Park	WATERWAY Lake Michigan				RIVER MILE (if applicable)
COUNTY Lake	STATE IL	ZIP CODE 60035			

Revised 2010

☐ Corps of Engineers ☐ IL Dep't of Natural Resources ☐ IL Environmental Protection Agency ☐ Applicant's Copy

8. PROJECT DESCRIPTION (Include all features):

This application is for a breakwater protected system comprised of a steel groin with a cap that tapers up from 585' lakeward to 588' landward. It projects 85' east of the bluff toe then angles to the northeast an additional 20'. There will be a 125' quarrystone breakwater that projects north from the steel groin. The crest elevation will be 585' with slopes of 1:1.5. Stairs will be implemented to provide pedestrian access over the steel groin. Sandfill will be placed in accordance with the IDNR regulations. 860 cubic yards of quarried stone and 1,315 cubic yards of sand will be placed for this project.

9. PURPOSE AND NEED OF PROJECT:

To help maintain a stable beach and protect the clay lakebed and toe of the bluff

COMPLETE THE FOLLOWING FOUR BLOCKS IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

10. REASON(S) FOR DISCHARGE:

To provide adequate shore protection on a sediment starved section of lakeshore

11. TYPE(S) OF MATERIAL BEING DISCHARGED AND THE AMOUNT OF EACH TYPE IN CUBIC YARDS FOR WATERWAYS:

TYPE: Stone and sand

AMOUNT IN CUBIC YARDS:

Stone: 860 cu. yds; Sand: 1,315 cu. yds.

12. SURFACE AREA IN ACRES OF WETLANDS OR OTHER WATERS FILLED (See Instructions)

Stone will cover +/- 0.118 acres

13. DESCRIPTION OF AVOIDANCE, MINIMIZATION AND COMPENSATION (See instructions)

The coverage of the lakebed has been minimized by installing a steel sheetpile wall in place of a stone structure for the shore perpendicular portion of the breakwater. Local flora and fauna will be improved with the completed system as the lakebed is covered with cobble and has a very chaotic wave state.

14. Date activity is proposed to commence: June 1, 2026

Date activity is expected to be completed: 8 weeks

15. Is any portion of the activity for which authorization is sought now complete? Yes [ ] No [X]

NOTE: If answer is "YES" give reasons in the Project Description and Remarks section. Indicate the existing work on drawings.

Month and Year the activity was completed

16. List all approvals or certification and denials received from other Federal, interstate, state, or local agencies for structures, construction, discharges or other activities described in this application.

Issuing Agency	Type of Approval	Identification No.	Date of Application	Date of Approval	Date of Denial

17. CONSENT TO ENTER PROPERTY LISTED IN PART 7 ABOVE IS HEREBY GRANTED. Yes [X] No [ ]

18. APPLICATION VERIFICATION (SEE SPECIAL INSTRUCTIONS)

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

Signature of Applicant or Authorized Agent — Date: 10-21-2025

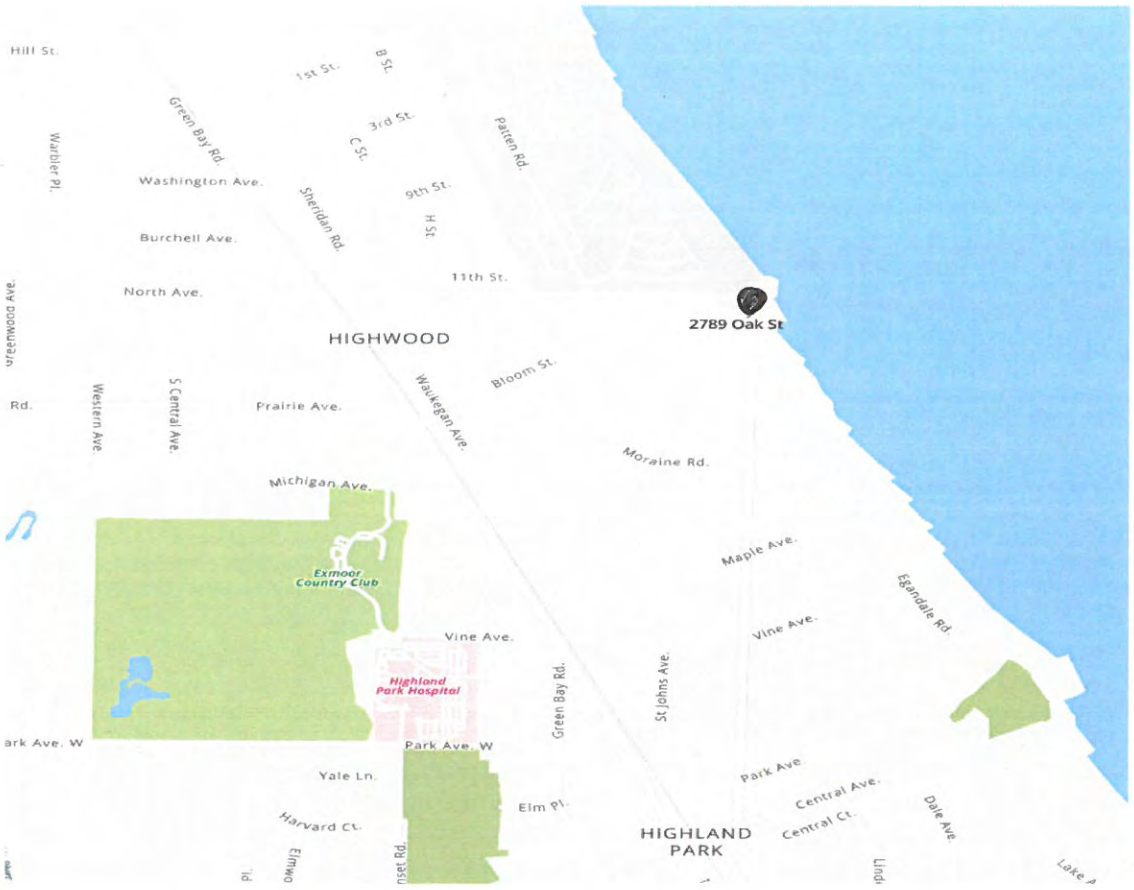
Signature of Applicant or Authorized Agent — Date

Signature of Applicant or Authorized Agent — Date

[ ] Corps of Engineers Revised 2010 [ ] IL Dep't of Natural Resources [ ] IL Environmental Protection Agency [ ] Applicant's Copy

SEE INSTRUCTIONS FOR ADDRESS

Vicinity Map



Breakwater-Protected Beach System

2789 Oak Street
Highland Park, IL 60035

Shabica & Associates, Inc.

Location of Project: 2789 Oak Street, Highland Park, IL 60035

List of property owners (from North to South):

1. Lake County Forest Preserve District,
2. Lake County Forest Preserve District,
3. City of Highwood,
4. Subject Property: DRLSCOAK LLC, 2789 Oak Street, Highland Park, IL 60035 (mailing:
5. Lot 2 Oak LLC,
6. Megan Geelhoed and Brent Ross,
7. Debra L. Learner,
8. Sarah Matthews Ludington,
9. Beverly Seifert,
10. The Land Trust Company,
11. Warren and Stephanie Hayes,
12. Kimberly A. Foglia Trust,
13. Martha and Michael Davidson,
14. Park District of Highland Park, (mailing:

550 Frontage Road • Suite 3735 • Northfield, Illinois 60093 • Tel 847.446.1436 • info@shabica.com
www.shabica.com

LOCATION MAP

Shabica & Associates, Inc.

Title: Breakwater-Protected Beach System
2789 Oak Street
Highland Park, Illinois 60035

Submittal Date: October 21, 2025

Plan Sheets: 2025.9.22 2789 Oak, Highland Park_Plan View Over Bathymetry – Sheet 1 of 4
2025.9.22 2789 Oak, Highland Park_Breakwater Cross Section - Typical, Steel Groin Profile – Sheet 2 of 4
2025.9.22 2789 Oak, Highland Park_Sand Plan View – Sheet 3 of 4
2025.9.22 2789 Oak, Highland Park_Sand Calculations – Sheet 4 of 4

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PLAN VIEW OVER BATHYMETRY

LAKE MICHIGAN

WATER LEVEL 579.0 +/-
(8-27-2025) IGLD85
(NAVD88 - 0.51' = IGLD85)

PROPOSED BREAKWATER

STEEL SHEETPILE WALL

TW 582.4

TW 582.3
TW 584.3

TW 584.3

I=582.42
I=583.12
I=583.28

15" DIP
TW 584.3
12" DIP
12" CMP

125' EAST OF BLUFF TOE

CONTOURS IGLD85 TYP.

CREST 585'

125'

SAND FILL AREA

PROPOSED STEEL GROIN

BEACH

VISUAL O.H.W.

STONE STAIRS

STAIR ACCESS OVER GROIN

573 574 575 576 577 578 579 580 582 585 588 590

18" ADS
I=587.05

APPROXIMATE PROPERTY LINE

APPROXIMATE PROPERTY LINE

LOT 1

LOT 2

SCALE: 1" = 30'

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

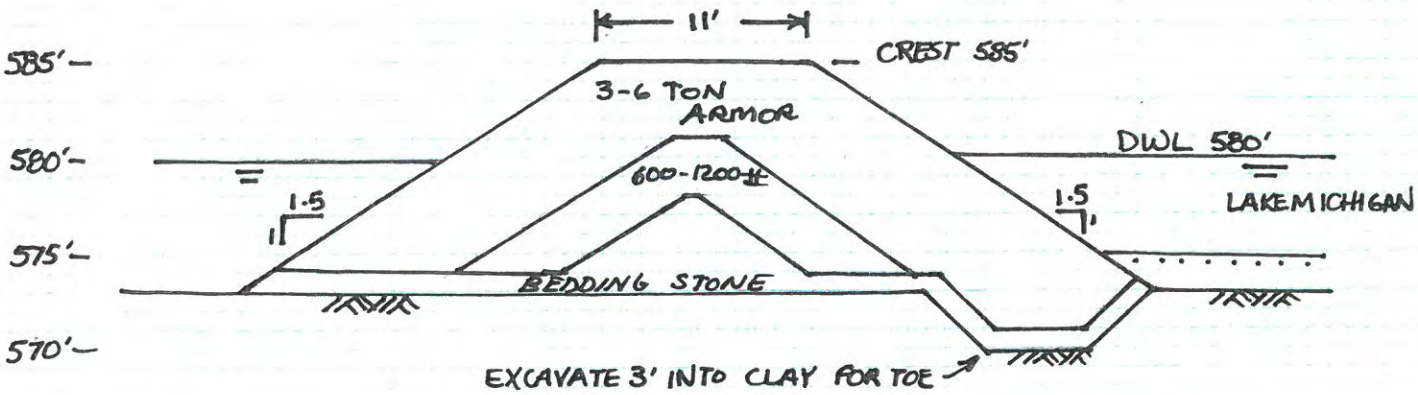
2789 OAK STREET
HIGHLAND PARK, IL. 60035

2789 Oak St., HP
Shabica & Associates, Inc.
550 Frontage Rd, Suite 3735
Northfield, Illinois 60093
9/22/25

TERRA TECHNOLOGY
LAND SURVEYING, INC.
24198 ROSE AVE. LAKE ZURICH, ILLINOIS 60047
PHONE: (847) 540-8606 E-MAIL: TTLS.1@SBCGLOBAL.NET

JOB NO.: 25-0010 SURVEY DATE: 8/27/2025
DWG FILE: DATA/25/0010/SITE-BEACH.DWG

BREAKWATER CROSS SECTION · TYPICAL

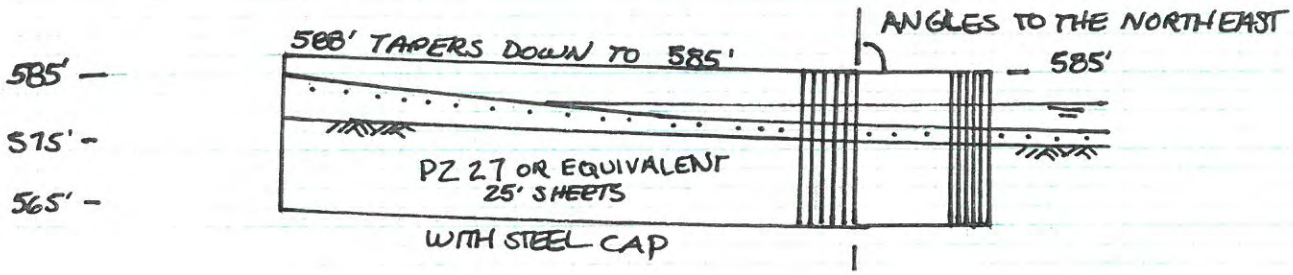


0 FEET 10

SCALE

DATUM: IGLD 1985

STEEL GROIN PROFILE



0 FEET 30

SCALE

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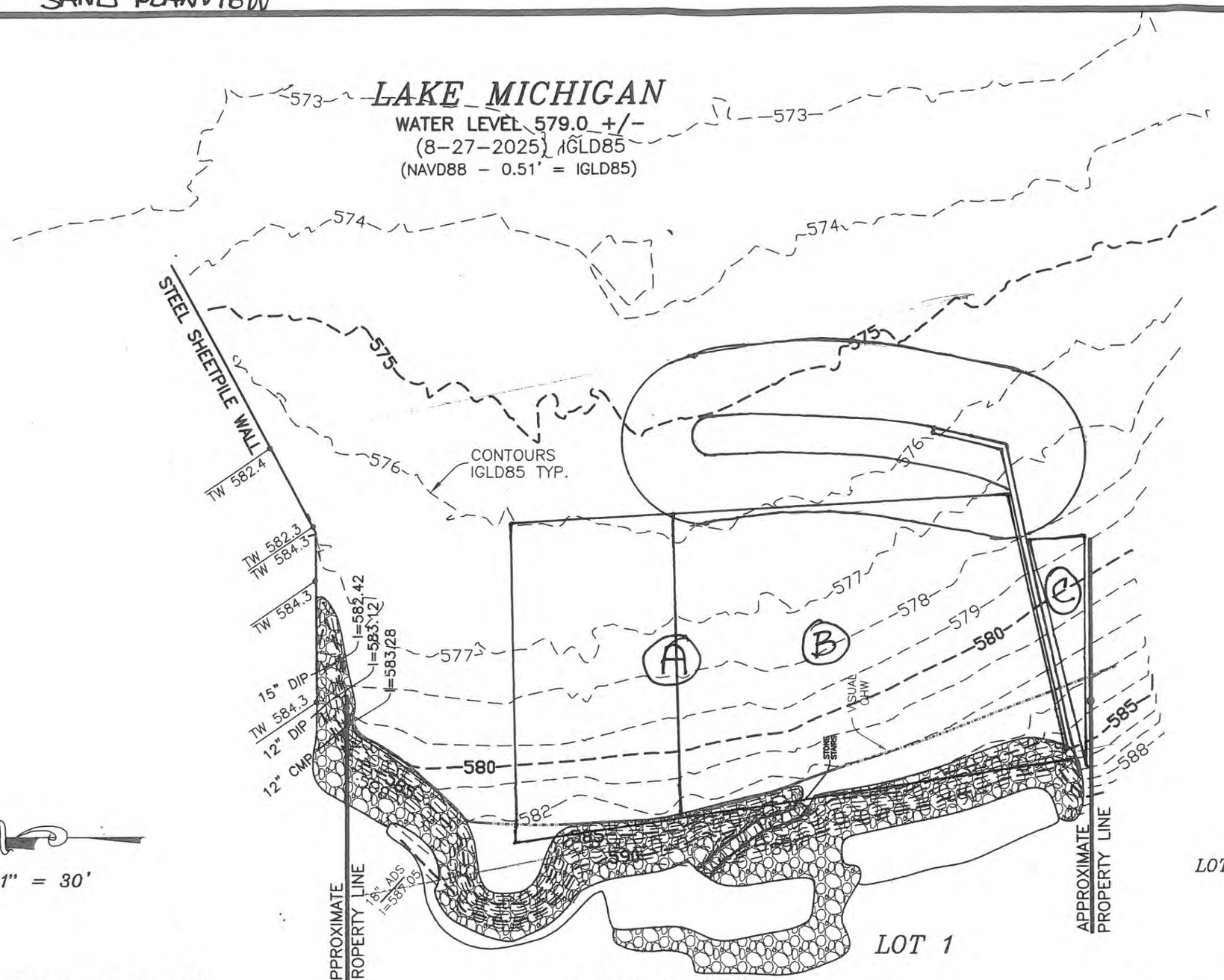
SAND PLANVIEW



SCALE: 1" = 30'

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

2789 OAK STREET
HIGHLAND PARK, IL. 60035

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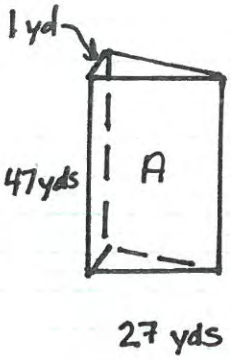
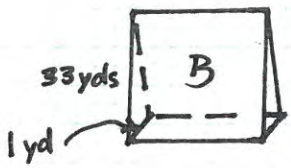
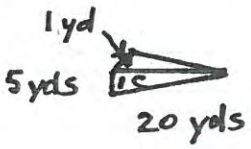
SAND CALCULATIONS



$$\frac{27 \times 74 \times 1}{2} = 634.5 \text{ cu. yds.}$$



$$\frac{27 \times 33 \times 1}{2} = 445.5 \text{ cu. yds}$$



$$\frac{5 \times 20 \times 1}{6} = 16 \text{ cu. yds.}$$

634.5 + 445.5 + 16 = 1,096 cu. yds.

1,096 x 20% OVERFILL = 219.2 cu. yds.

1,096 + 219.2 = 1,315.2 cu. yds.

1,315.2 cu.yds x 1.25 cu.yds / ton = 1644 TONS

PLACE 1650 TONS CLEAN QUARRIED SAND

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