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

May 14, 2026
Application No. C20260014

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

Construction of a shore protection project, in Lake Michigan, at 691 Sheridan Road, Winnetka, Illinois 60093

LTC 008002392236, 180 N. LaSalle Street, Suite 3400, Chicago, Illinois 60601, has applied for an Illinois Department of Natural Resources, Office of Water Resources permit for the construction of a shore protection project, in Lake Michigan, at 691 Sheridan Road, Winnetka, Illinois 60093.

The existing shore protection at the site includes a steel sheetpile wall east of the toe of bluff, a stone and steel wall at the toe of bluff, an off-shore stone breakwater connected to the north neighbor's pier, and a stone revetment at the landward end of the north neighbor's pier. The proposed shore protection includes a quarrystone revetment at the toe of bluff and an off-shore quarrystone breakwater extension. The revetment will have a crest elevation of 591 ft. and a face slope of 1:1. The breakwater extension will be 35 ft. long, extending to the south from the existing breakwater. The breakwater extension will have a crest elevation of 585 ft. and face slopes of 1:1.5. The existing steel sheetpile wall east of the toe of bluff will be cut down to an elevation just above lakebed clay. The existing stone and steel wall at the toe of bluff will be demolished and buried in the proposed revetment, with all organic material removed from the site. The existing stormwater outfall will be relocated into the toe of the proposed revetment, with a splash stone surround. The existing stone stairs from the north neighbor's pier will be reoriented to the west within the proposed revetment. New stone stairs will extend from the existing bluff stairs to the beach within the proposed revetment. 2,160 tons 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 **June 22, 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:

April 17, 2026

Please find enclosed a permit application for shore protection for the property located at 691 Sheridan Road, Winnetka, Illinois, 60093, owned by LTC 008002392236. Proposed work includes enhancement to an existing breakwater protected beach system with extension of a breakwater, revetment, removal of a seawall and 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 his property. The homeowner wants to provide a higher level of shore protection for the property and reduce lakebed downcutting that allows larger waves to break near or at the bluff toe causing erosion of the bluff and tableland. The homeowner also wants the beach more open by removing an old steel sheetpile wall east of the bluff toe. During the recent high lake levels, waves were overtopping the seawall and impacting the bluff toe.

Project Description

This application is for a breakwater protected beach system comprised of a 35' quarrystone breakwater extension to the south. The newly placed crest stone will be at elevation 585' with random stone placement with slopes of 1:1.5. The new stone will tie into the existing breakwater at a distance of 125' offshore from the existing steel seawall. A new revetment will be constructed at the bluff toe with a crest elevation of 591' to match the south neighbor's existing revetment for a cohesive structure with a slope of 1:1. The existing stone and steel wall at the bluff toe will be demolished and buried in the new revetment (with all organics removed from the site, timbers, etc.). The crest will be random placement stone. Stone stairs (3' - 5' wide pending stone size) will be constructed through the revetment extended down from the existing bluff stairs to the beach. The existing stairs from the north neighbor's pier for pedestrian access will be reoriented to the west as part of the new construction. The stormwater outfall will be relocated to the toe of the south end of the revetment with splash stone surround. The easternmost steel seawall will be cut down to an elevation just above lakebed clay. Sand will be placed in accordance with the IDNR guidelines.

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 here in the nearshore (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 wave impact west of the seawall and the bluff toe. During the record low lake level in 2013, this site had a wide beach. The loss of sand allows for stormwaves to impact and overtop the seawall.

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 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 that groins are losing their effectiveness at holding a sandy beach during average to high lake levels. To retain a sand covering of the nearshore lakebed (where downcutting is most active), as well as to protect the bluff toe, SA has designed a breakwater extension to help retain more 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 for longer durations. The shoreline at 691 Sheridan Road has been impacted by the recent extreme increase in water level evidenced by waves overtopping seawall and scouring the lakebed immediately east of it. 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 lake 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.

Design Options
The site at 691 Sheridan Road, Winnetka has been inspected and options for shore protection were determined using desktop coastal engineering, site conditions from the current 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, as well as the uncertainty of future lake levels, it is prudent to engineer and design systems 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 beach and bluff in its existing state with a low steel seawall. As the beach at this site is intermittent based on storms and lake levels, lakebed erosion will continue and allow larger stormwaves to impact the coastline further lowering the lakebed and eventually causing destabilization of the seawall. The existing, low steel seawall is still functional but too low to prevent erosion during storms and higher lake levels. Over time, the beaches along Illinois' North Shore coastline have continued to narrow due to being in a sand starved system.

Option 1: The next level of shore protection at this site is to construct a revetment. This option would not help retain sand cover in the bay which helps to reduce lakebed downcutting. Over time, as erosion of the lakebed occurs, a revetment would eventually be destabilized starting from the base of the structure toe.

Option 2 (selected option): Due to the existing conditions and width of the property at 691 Sheridan Road, there are not many viable options for retaining more sand in a sustainable manner other than extending the existing breakwater spur to reduce the gap between the south breakwater and the spur. The proposed plan to extend the existing spur 35' to the south reduces the nominal breakwater gap for this bay to around ~70' and will help retain sand helping to protect the lakebed clay as well as allow for safer access and usability of the beach. A new revetment will be installed as a second line of defense to Lake Michigan storms.

Public Benefits of Sandy Beaches
The Great Lakes represent 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 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 protect the lakebed from erosion that causes larger stormwaves to impact the shore.
7) Beaches are far safer for swimmers and boaters than a coast lined with seawalls or revetments, especially in an emergency.

Impacts to Downdrift Properties
The downdrift section of coastline is protected by quarrystone breakwaters, revetments and steel groins. There should be no negative impact on the downdrift properties.

Impact to Littoral Drift System
The proposed plan for this site includes the extension of a quarrystone breakwater, a quarrystone revetment and placement of sandfill as required for permit. As the breakwater extension will not extend farther offshore than the existing breakwater and will be filled to 20% over its sand holding capacity and monitored for 5 years, sand will not be stolen from the littoral drift system.

The existing section of Lake Michigan shoreline at 691 Sheridan Road, Winnetka is fully engineered with quarrystone breakwaters, revetments and steel groins. The adjacent properties to the north and south both have breakwater protected beaches. 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 by the project. Access will be improved with a more stable beach and stair access will be maintained for beach walkers. The proposed beach will 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 water craft will not be impacted as the proposed breakwater will not extend farther offshore than the adjacent structure to the north.

Impact on Natural Resources
Quarrystone structures in the nearshore waters of Lake Michigan and sandy beaches improve native species 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 from the USACE.

Description and Schedule of Proposed Activity
All of the proposed work will be completed via marine access. A barge will deliver materials and machinery to the site. Pending the water depth at the time of construction, some of the work will be completed from the barge and some will be completed by a backhoe working from land. 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.

Type and Quantity of Fill/Measures Taken to Avoid Impact/Erosion and Sediment Control Plan
All materials will be clean and from inland quarries. 1,385 tons of quarried quartzite will be placed in the structures. 2,160 tons of clean sand will be placed. New acreage of stone placed on the lakebed east of the OHWM is approximately 0.032 acres.

Summary
All of the above-described activities and plans follow LMRGP terms and conditions. All of 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 (LeCrone)
LTC 008002392236 (J. Ferraro)

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 691 Sheridan Road in Winnetka, Illinois 60093. 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 breakwaters, revetments and steel sheetpile groins.

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 bypass. 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

Enhancement 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:	574.5 ft (average)
Crest Width:	7 ft
Average Armor Size:	4 tons
"B" Stone	400 lbs to 1200 lbs
Slope:	1:1.5
Tons/linear feet:	21 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):	8.4 ft
• Nearshore Slope:	± 1:30
• Design Wave Period (T):	9.9 s **
• Depth at Structure Toe DHW (Ds):	8'
• 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 2 - 6 ton armorstone built on a 1:1.5 slope. 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 4.7 tons is predicted for random placement stone and 2.5 tons for special placement based on the 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 30 miles to the south of Winnetka. 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 wave length of 184 ft (using 1/25 Lo) to 18 ft based on a 9.9-second wave with a wave length 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 2, Appendix) is attached. 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 wave length 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 help 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 3, 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 Winnetka lakeshore is considered sediment starved. Sand deposits were measured near this site (Elm Street in Winnetka) from the backshore to a depth of 6.1 m (20 ft). Sand deposits were 2 – 3' to a distance of 250 ft from shore (Shabica & Pranschke, 1994), tapering to negligible at 500', then thickening to 2 – 4' father offshore. Also, the site is underlain by highly-erodible, cohesive glacial clay-till. See Shabica survey data and cross-section showing loss of lakebed sand in 1991. Calculated sand deposits at this site are 81.2 cubic meters per meter 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 691 Sheridan Road, Winnetka 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.

References

Anglin, C.D., and K. J. Macintosh, *Southport Marina, Kenosha, Wisconsin: Design and Construction of Breakwaters, in Coastal Engineering for the Great Lakes*, a short course, University of Wisconsin, March 11-13, 1991.

W.F Baird & Associates and Warzyn Engineering, 1986, *Shoreline Development at Forest Park, Lake Forest, Illinois, Model Studies*, Unpublished Final Report to the City of Lake Forest.

Chrzastowski, M.J. and C.B. Trask, 1995, Illinois State Geological Survey, Open File Series, 1996-7, 57 p. plus eight appendices.

Chrzastowski, M.J. and C.B. Trask, 1996, *Review of the City of Lake Forest Final Report for the 1995 beach and nearshore monitoring program, Forest Park Beach, Lake Forest, Illinois*: Illinois State Geological Survey, Open File Series, 1996-6, 57 p. plus eight appendices.

Chrzastowski, M.J., 2005, *Chicagoland Geology and the Making of a Metropolis*, Illinois State Geological Survey Open File Series OFS 2005-9.

Johnson, Charles, 1997, USACE, Chicago, personal communication.

LandOwner Resource Centre, Canadian Wildlife Service, Ontario Ministry of Natural Resources, 1999, *Improving Fish Habitat,* Extension Notes: Ontario, LRC 45.

Meadows, Guy; Mackay, S.; Goforth, R.; Mickelson, D.; Edil, T.; Fuller, J.; Guy, D.; Meadows, L.; Brown, E.; Carman, S.; Liebenthal, D.; 2005, *Cumulative Habitat Impacts of Nearshore Engineering,* Journal of Great Lakes Research; vol.31, Supplement 1, 2005, pp.90-112.

Nairn, Robert B. 1997, *Cohesive Shores,* Shore & Beach Vol. 65 No. 2: 17-21.

Resio, Donald T. and Charles L. Vincent, 1976, *Design Wave Information For The Great Lakes: Technical Report 3, Lake Michigan*.

Shabica, C.W., F. Pranschke and M. Chrzastowski. 1991, *Survey of Littoral Drift Sand Deposits Along the Illinois Shore of Michigan from Fort Sheridan to Evanston*, Illinois/Indiana Sea Grant Program, IL-IN-SG-R-91-3.

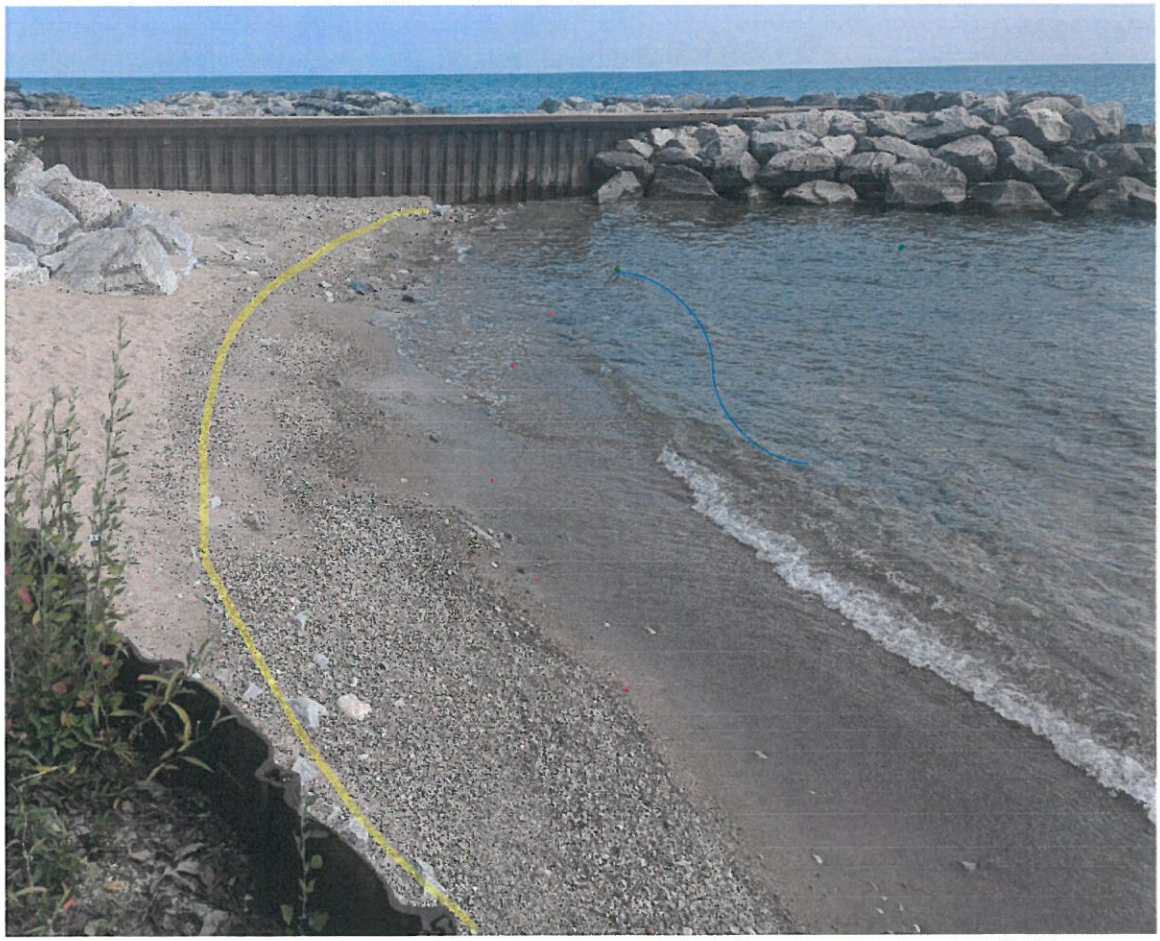
Shabica, C.W., F. Pranschke, 1994, *Survey of Littoral Drift Sand Deposits Along the Illinois and Indiana Shores of Lake Michigan*, U.S. Geological Survey Symposium Volume, Journal of Great Lakes Research, vol. 20, no.1, pp 61-72.

Shabica, Charles and Assoc., 1997, *Lake Bluff Beach Monitoring and Mitigation Report 5*, US Army Corps of Engineers, Chicago District.

US Army Corps of Engineers, 1984, *Shore Protection Manual*, Coastal Engineering Research Center, Vicksburg, Mississippi.

APPENDIX
691 Sheridan, Winnetka • April 17, 2026

2025 Google Earth Image (Approximate Property Lines in Yellow)



2025 Photo shows beach and sorting of materials delineating the visual OHWM

APPENDIX
691 Sheridan, Winnetka • April 17, 2026

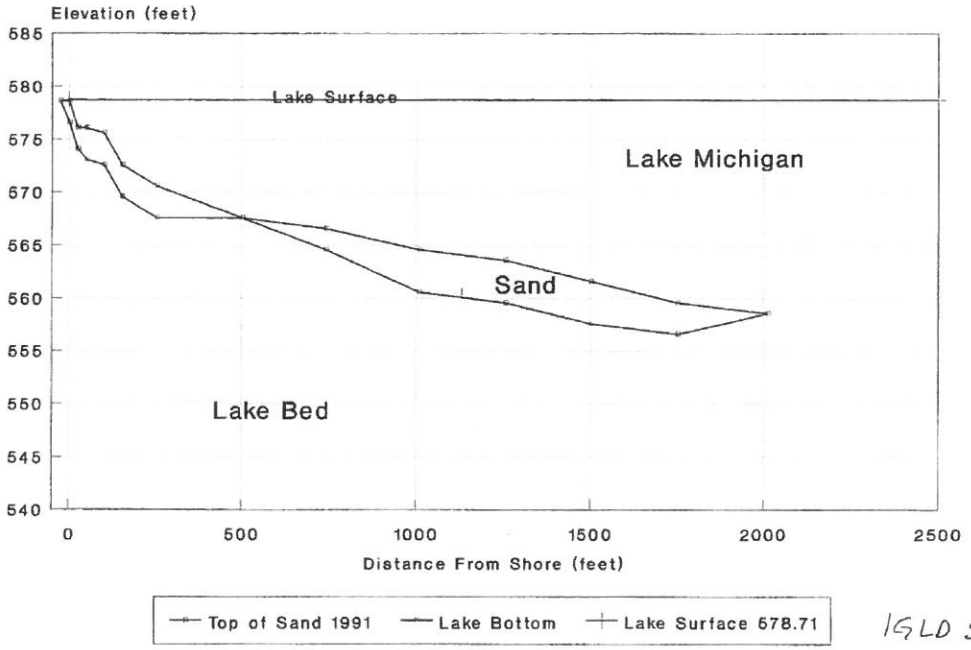
2025 Photo looking south shows existing seawall to be removed
and existing stormwater outfall to be relocated west (yellow arrow)

2025 photo looking northeast shows existing north pier and breakwater spur

APPENDIX
691 Sheridan, Winnetka • April 17, 2026

FIGURE 1

Lake Michigan Nearshore Sand Deposits
Winnetka - Elm Street 09/13/91
(Cross-section Sand Volume: 200 CuYd/Ft)



IGLD 55

APPENDIX
691 Sheridan, Winnetka • April 17, 2026

FIGURE 2

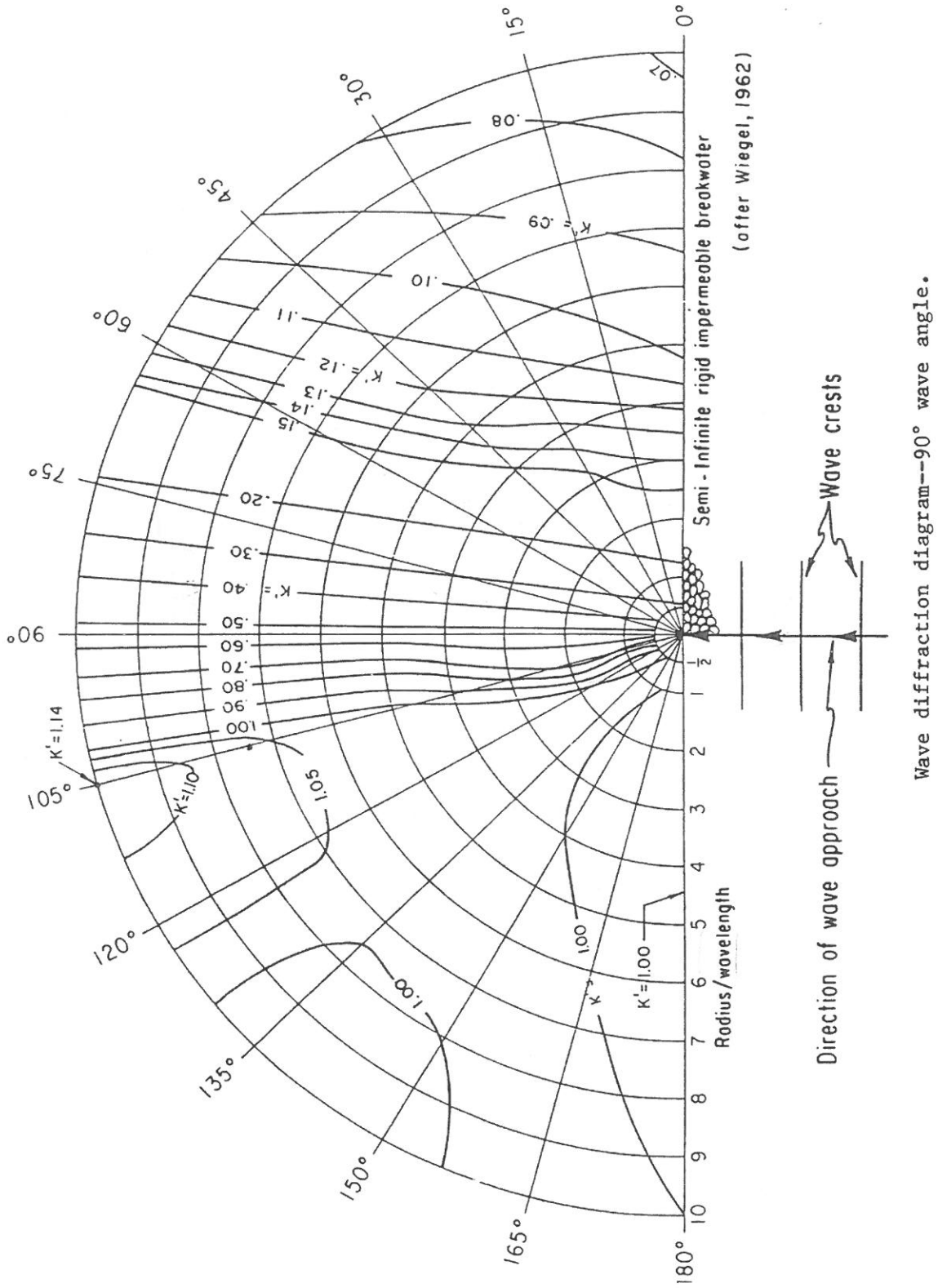
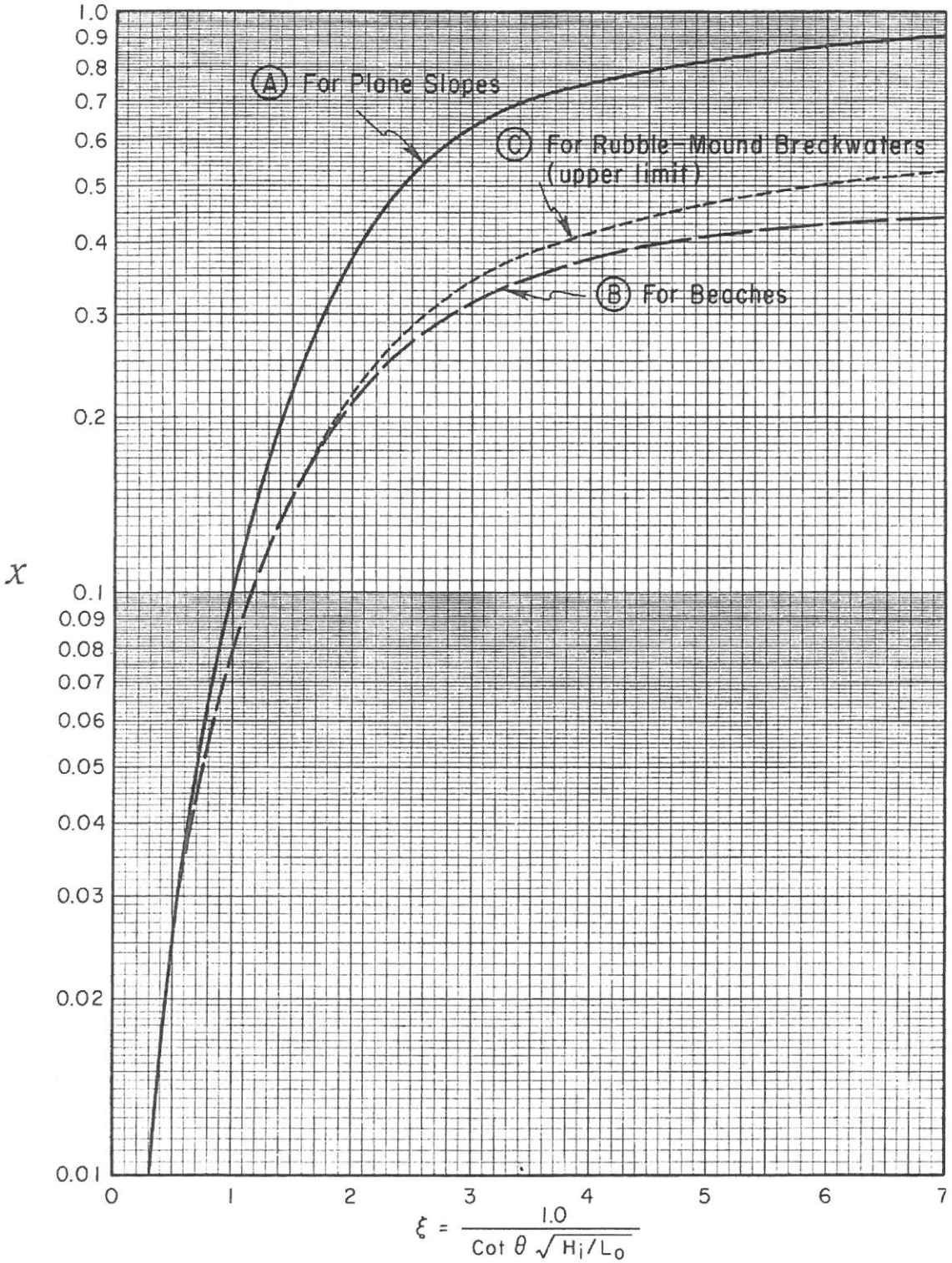


FIGURE 3



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

Shore Protection Manual USACE

LAKE MICHIGAN REGIONAL GENERAL PERMIT (LMRGP)
Property Address: 691 Sheridan Road, Winnetka
Project: Modification to a shore protection system

AUTHORIZED ACTIVITY: The following activities are covered under this permit:

1.Installation, repair, and modification of permanent and seasonal piers/docks: Piers/docks must be constructed in accordance with the following conditions and limitations;	N/A
a.The pier/dock must be situated within 125 feet of the toe of the bluff, as determined by this office. A variance in the maximum offshore distance of a structure may be granted in cases where exceptions would be reasonable due to shoreline configuration or for specified public recreational uses. All variances will be approved by this office on a case-by-case basis;	
b.The width of the pier/dock must not be greater than 10 feet;	
c. For L-shaped or T-shaped piers/docks, the length of that portion parallel to the shoreline must not exceed 50 percent of the landowner's shoreline frontage, nor 50 feet;	
d.Piers/docks must be aligned so as not to cross the projection of property lines into the waterway or come within 10 feet of the projection of the property line. A variance in this distance may be granted where there are natural limiting features or limited shoreline available. Coordination and agreement to the variance with adjacent property owners is required. All variances must be approved by this office on a case-by-case basis. Note that a dispute over property ownership will not be a factor in the Corps decision (see 33 CFR 320.4(g));	
e.Pier/dock posts must be marked with reflective devices. If the display of lights and/or signals on any structure or work authorized herein is not otherwise provided for by law, such lights and signals as may be prescribed by the Corps and/or the U.S. Coast Guard must be installed and maintained by, and at the expense of, the permittee;	
f.Piers/docks must be constructed in a manner which will minimize obstruction to littoral drift. Pre-fill sand at a volume of 120% of the calculated capture volume of the proposed structure(s) must be provided in conjunction with the construction of the structure. A pre-construction bathymetric survey must be completed within one (1) month of the start of construction to recalculate the pre-fill sand volume to account for changes in site conditions since the original survey. Surveys more than one (1) month old will be considered if the start of construction is delayed due to weather conditions. A copy of the survey and final pre-fill sand volume must be provided to this office prior to the start of construction activities;	
g.The pier/dock, boat hoist, or boat lift must be constructed of steel or other suitable material and be securely anchored to prevent its detachment during times of high water, winds, or ice movement; and	
h. Boat ramps must not exceed 60 feet in width and be constructed of steel or other suitable material. Boat ramps constructed of asphalt are not authorized under this permit.	
2.Installation, repair, and modification of shore protection: Includes seawalls, revetments, bulkheads, groins, breakwaters, or other similar structures:	Modification to a shore protection system including breakwater extension and new revetment
a. Acceptable materials to be used include poured (formed) concrete, clean quarried stone, fabric-formed concrete, gabions, steel (piling), and clean recycled concrete chunks with the reinforcement steel removed. Rubble, asphalt, pavement, debris, and other waste product+B17:B23s may not be used for shore protection;	clean quarried stone, clean quarried sand
b.Shoreline structures must be designed to withstand the expected wave forces of the lake. Steepening of stone structure faces that include a stone toe design may be approved on a case-by-case basis;	Hudson's formula was run to help determine armorstone size, the breakwater slopes are 1:1.5, while the revetment is 1:1 as the wave energy within the bay will be reduced
c. For shoreline protection structures consisting of steel, the addition of stone may be required to reduce erosion of adjacent shorelines from reflected waves or induced eddies at the end of structures;	N/A
d. A site access plan is required. Water-based access is limited to the use of barges for transport of heavy equipment and construction materials	Barges will deliver materials and equipment to the site.
e.A contingency plan for temporary "dig-in" and sidecasting of lake substrate for access to the work area by barge is required. If temporary "dig-in" is needed, you must provide notification to this office of the change prior to sidecasting and relocating the substrate;	In the unlikely event that dig-in is necessary, no lakebed clay will be disturbed. Sand will be sidecast downdrift and the bucket will not break the surface of the water.
f. Any temporary stockpiles of sand, stone, or other construction materials must be located within the project site boundaries;	The stone stockpile will be placed within the project site boundaries

g. Revetments must be the minimum width necessary below the Ordinary High- Water Mark (OHWM) for completing the work and for structural integrity of the proposed design;	The revetment will be above the OHWM
h. Groins and breakwaters must be situated within 125 feet of the toe of the bluff, as determined by this office. A variance in the maximum offshore distance of a structure may be granted for public facilities. All variances must be approved by this office on a case-by-case basis;	All work within the project scope will be within 125' of the steel wall at the bluff toe.
i. Pre-fill sand at a volume of 120% of the calculated capture volume of the proposed structure(s) must be provided in conjunction with the construction of the structure. A pre-construction bathymetric survey must be completed within one (1) month of the start of construction to recalculate the pre-fill sand volume to account for changes in site conditions since the original survey. Surveys more than one (1) month old will be considered if the start of construction is delayed due to weather conditions. A copy of the survey and final pre-fill sand volume must be provided to this office prior to the start of construction activities; and	Sandfill has been calculated and includes 20% overfill. A pre-construction survey will be completed to help determine sand quantities at the time of construction unless otherwise agreed upon with regulators
j. Structures must provide reasonable accommodations, as determined by this office, to maintain public access to/along the shoreline.	The existing pedestrian access from the north pier will be modified and maintained
3. Maintenance of existing public harbor, public access facilities, and navigational features required for maintaining existing function:	**N/A**
a. This permit applies to once-annual maintenance dredging of areas that have received previous authorization to dredge from this office;	
b. Dredging must be limited to those areas necessary to maintain existing authorized capacity and that are actively maintained; and	
c. Maintenance includes the repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or footprint may be permitted, provided the environmental impacts resulting from such repair, rehabilitation, or replacement are minimal. This includes changes in materials, construction techniques, or current construction codes or safety standards which are necessary to implement the repair, rehabilitation, or replacement.	
4.Beach Nourishment and in-water discharge of dredged material, including beneficial use of dredged material for beach nourishment, shore protection, or ecosystem restoration:	**N/A**
a.Clean sand material from an upland source or suitable dredged material that meets the Illinois Environmental Protection Agency (IEPA) standards as outlined in the 401 Water Quality Certification (WQC) in Appendix 1 must be used for beach nourishment activities;	
b. Any temporary stockpiles of sand, stone, or other construction materials must be located within the project site boundaries;	
c.This permit applies to once-annual beach nourishment for the duration of the permit. The area(s) to receive nourishment must be approved by this office;	
d.In-water discharge of dredged material includes placement of dredged sediment in less than 18 feet of water depth and on beaches below the OHWM. Dredged material must meet IEPA standards as outlined in the 401 WQC in Appendix 1 for this permit;	
e.Materials may be placed for any purpose including disposal of excess materials, shoreline/beach nourishment, habitat creation, or other approved purpose; and	
f.Placement may not occur within, or be associated with, activities occurring in wetlands as defined in Title 33 CFR 328.3(c)(1) unless specifically approved by this office.	

GENERAL CONDITIONS:

1. The permittee must notify this office of the proposed activity by submitting a preconstruction notification (PCN) as early as possible. This office shall determine if the PCN is complete within 30 calendar days of the date of receipt. If the PCN is determined to be incomplete, this office will notify the permittee within the 30-day period to request the additional information needed to make the PCN complete. As a general rule, this office will request additional information necessary to make the PCN complete only once. However, if the permittee does not provide all requested information, this office will notify the permittee that the PCN remains incomplete and the PCN review process will not commence until all requested information is received.	
a. The permittee must not begin the activity until either:	
i. They are notified in writing by this office that the activity may proceed under the LMRGP with any special conditions imposed by this office; or	This permit submittal serves as the PCN
ii. 45 calendar days have passed from this office's receipt of the complete PCN and the permittee has not received written authorization from this office.	
2. A PCN submitted to this office must include the following information:	

a. A completed PCN application form (ENG Form 6082) may be submitted online via the Regulatory Request System at https://rrs.usace.army.mil/rrs. If the applicant does not sign the application form, notification must include a signed, written statement from the applicant designating the agent as their representative;	Signed application attached
b. Location map identifying the project site;	Attached
c. A detailed project description. Include the amount of fill in cubic yards and acres to be placed below the OHWM;	This application is for a breakwater protected beach system comprised of a 35' quarrystone breakwater extension to the south. The newly placed crest stone will be at elevation 585' and random placement with slopes of 1:1.5. The new stone will tie into the existing breakwater stone to a distance of 125' offshore from the existing steel seawall. A new revetment will be constructed at the bluff toe with a crest elevation of 591' to match the south neighbor's revetment for a cohesive structure with a slope of 1:1. The existing stone and steel wall at the bluff toe will be demolished and buried in the new revetment (with all organics removed from the site, timbers, etc.). The crest will be random placement stone. Stone stairs (3' - 5' wide pending stone size) will be constructed through the revetment extended down from the existing bluff stairs to the beach. The existing stairs from the north neighbor's pier for pedestrian access will be reoriented to the west as part of the new revetment. The stormwater outfall will be relocated to the toe of the south end of the revetment with splash stone surround. The easternmost steel seawall will be cut down to an elevation just above lakebed clay. Sand will be placed in accordance with the IDNR guidelines. Approximately 300 cubic yards of stone and 1730 cubic yards of quarried sand will be placed below the OHWM.
d. Determination of the Lake Michigan OHWM consistent with Regulatory Guidance Letter (RGL) 05-05, including the following:	
i. The determination must be made on-site through observation of the physical characteristics of the OHWM listed in RGL 05-05, section 3(b). The OHWM boundary must be flagged or otherwise indicated utilizing an adequate physical marker;	Visual OHWM was determined based on sorting of beach material
ii. Photographs of the physical characteristics used to determine the OHWM and of the flagged OHWM boundary must be provided;	Photo attached demarcating the physical characteristic for OHWM
iii. A description of the characteristics identified on-site must be included in the PCN. The format of this description is flexible but can typically be provided through data sheets, site visit memoranda, or written narrative. Applicants are encouraged to utilize Corps approved Rapid OHWM Identification Data Sheets found at: https://www.erdc.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/486085/ordinary-high-water-mark-ohwm-research development- and-training/; and	The visual OHWM was determined by the sorting of pebbles on the regular beach profile. There was no strand line the day of the observation, but the beach material was sorted and the visual OHWM was determined.
iv. Where the physical characteristics are inconclusive, misleading, unreliable, or otherwise not evident, applicants may determine the OHWM by using other appropriate means that consider the characteristics of the surrounding areas, provided those other means are reliable. Those other means may include, but are not limited to, lake and stream gage data, elevation data, and statistical evidence.	See above for OHWM
e. A statement describing how the mitigation requirement will be satisfied or why compensatory mitigation should not be required;	The project is in Lake Michigan and no mitigation is required. The system will be pre-filled with sand.
f. Project plans and any construction drawings depicting all proposed work. The plans must include the following:	
i. A plan view identifying the property boundaries and dimensions of all existing structures and prior fills, as well as dimensions of all proposed structures and fill;	Attached
ii. A cross-sectional plan that identifies the water level measured at the OHWM as it relates to each proposed activity and/or structure; and	Shown on plans
iii. The OHWM clearly depicted on the plans.	Shown on plans
g. Description of existing site conditions, including the following:	
i. On-site constructed structures such as piers, revetments, breakwaters, etc.;	This property has a quarrystone breakwater spur extending south from the north neighbor's pier, a steel seawall east of the bluff toe and a steel wall at the bluff toe

ii. Proximate structures potentially influencing site conditions or project design on and off the project site;	The property to the north has a steel and concrete pier along the property line with the breakwater spur connects to. The south property has a shore connected breakwater protected beach that helps retain sand in the bay along with a quarrystone revetment at the bluff toe and a steel seawall east of the revetment.
iii. Assessment of shoreline morphology including shoreline orientation, condition and description of shoreline (ex. beach, bluff, maintained turf lawn, recent erosion, existing vegetation), and other relevant features;	This property is oriented to the northeast. Lake level plays a drastic role on the beach at this property even though there is a breakwater to the south and a spur at the north end of this site.
iv. Recent photographs of the shoreline and project area; and	Attached
v. Applicable project history such as past permits, recent changes in site conditions or water levels, etc. Describe any significant recent storm events that may have influenced site conditions and the date that the qualitative assessment (item "h" below) was completed.	The spur breakwater was permitted by the north neighbor in 2017 (USACE #LRC2011-527 and IDNR #20170002)
h. Qualitative assessment of the habitat near the project area, including the following:	
i. Describe substrate composition, basic description of aquatic and terrestrial vegetation, and other habitat features observed or known/documented;	There is no aquatic vegetation within the bay as the wave state is to rough for visible growth. The beach area is too ephemeral for terrestrial vegetation.
ii. Distance from, and location of, nearest tributary, ravine, or other aquatic resource. If present in the project area, describe any potential impact to the aquatic resource and its flow conditions. Note that the Lake County Ravine Inventory web application depicts ravine locations. It can be found under the Lake Michigan Watershed section at this address: https://www.lakecountyil.gov/2437/Watershed-Planning-Documents;	The nearest ravine is located approximately 4,500 feet to the north.
iii. Distance from, and location of, nearest known reef/shoal or other habitat feature. If present in the project area, describe any potential impact to the habitat feature; and	There is a small limestone outcropping in the nearshore area approximately 2.4 miles to the north.
iv. Bathymetric survey conducted within the last 12 months.	Bathymetry was completed in August 2025
i. For maintenance and/or modification of an existing structure in Section 10 waters, provide the date the structure was originally constructed and a copy of the Department of the Army permit for the structure, if issued and available.	The existing project was constructed in 2020, permit attached
3. Verifications issued for activities covered under this permit are valid until the expiration date of the LMRGP (September 30, 2030). Activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon this permit will remain authorized provided the regulated portion(s) of the activity is completed within twelve months of the date of the LMRGP's expiration, modification, or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 CFR 325.7.	Noted
4. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party.	Noted
5. In the event the property associated with the work authorized by this permit is sold or transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the liabilities associated with compliance with its terms and conditions, the transferee must sign and date the last page of their authorization and forward a copy of the original authorization, along with the newly signed transferee signature page, to this office to validate the transfer of this authorization.	The permitee has been made aware of this requirement
6. The activity must be a single and complete project. The same LMRGP cannot be used more than once for the same single and complete project.	Noted
7. No activity is authorized under the LMRGP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species.	Noted
8. WQC under Section 401 of the Clean Water Act may be required from the Illinois Environmental Protection Agency (IEPA). This office may consider water quality, among other factors, in determining whether to exercise discretionary authority and require an Individual Permit. Section 401 WQC is a requirement for projects carried out in accordance with Section 404 of the Clean Water Act. Projects carried out solely in accordance with Section 10 of the Rivers and Harbors Act of 1899 may not require Section 401 WQC. The IEPA granted Section 401 certification on September 24th, 2025, with conditions, for the LMRGP. A copy of the Section 401 WQC is enclosed in Appendix 1. Conditions of the certification are hereby made conditions of this permit.	Noted

9. On June 23rd, 2025, the Illinois Department of Natural Resources Coastal Management Program granted the Federal Consistency Determination for the LMRGP. This determination is confirmation that the activities covered under the LMRGP are consistent with the policies of the Illinois Coastal Management Program (ICMP). PDF maps of the ICMP's Zone Boundaries can be found at the bottom of the page at: www.dnr.illinois.gov/cmp/Pages/boundaries.aspx.	Noted
10. No activity is authorized under an LMRGP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied	Noted

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):
Joan M. Ferraro, Agent		Jon Shabica
Company Name (if any): LTC 008002392236	Company Name (if any):	Company Name (if any): Shabica & Associates, Inc.
Address: 180 N. LaSalle Street, Suite 3400 Chicago, IL 60601	Address:	Address: 550 Frontage Road Suite 3735 Northfield, IL 60093
Email Address:	Email Address:	Email Address:
Applicant's Phone Nos. w/area code	Applicant's Phone Nos. w/area code	Agent's Phone Nos. w/area code
Business:	Business:	Business:
Residence:	Residence:	Residence:
Cell:	Cell:	Cell:
Fax:	Fax:	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 4-17-2026

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:
Shore Protection

7. PROJECT LOCATION:
Lakefront at 691 Sheridan Road, Winnetka, IL 60093

LATITUDE: 42.11040 °N	UTMs
LONGITUDE: -87.72709 °W	Northing: 4662297.95 m Easting: 16T 439894.13 m

STREET, ROAD, OR OTHER DESCRIPTIVE LOCATION	LEGAL DESCRIPT	QUARTER	SECTION	TOWNSHIP NO.	RANGE
Lakefront at 691 Sheridan Road		SW	16	42N	13E

☒ IN OR ☐ NEAR CITY OF TOWN (check appropriate box)

Municipality Name	COUNTY	STATE	ZIP CODE	WATERWAY	RIVER MILE (if applicable)
Winnetka	Cook	IL	60093	Lake Michigan	

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 beach system comprised of a 35' quarrystone breakwater extension to the south. The newly placed crest stone will be at elevation 585' and random placement with slopes of 1:1.5. The new stone will tie into the existing breakwater stone to a distance of 125' offshore from the existing steel seawall. A new revetment will be constructed at the bluff toe with a crest elevation of 591' to match the south neighbor's revetment for a cohesive structure with a slope of 1:1. The existing stone and steel wall at the bluff toe will be demolished and buried in the new revetment (with all organics removed from the site, timbers, etc.). The crest will be random placement stone. Stone stairs (3' - 5' wide pending stone size) will be constructed through the revetment extended down from the existing bluff stairs to the beach. The existing stairs from the north neighbor's pier for pedestrian access will be reoriented to the west as part of the new revetment. The stormwater outfall will be relocated to the toe of the south end of the revetment with splash stone surround. The easternmost steel seawall will be cut down to an elevation just above lakebed clay. Sand will be placed in accordance with the IDNR guidelines.

9. PURPOSE AND NEED OF PROJECT:

To 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: 300 cu. yds; Sand: 1730 cu. yds.

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

Stone will cover +/- 0.032 acres

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

The native flora and faura (aquatic and terrestrial) will not be negatively impacted by this project. Once the project is complete, a healthier ecosystem base will be established for native flora and fauna. The littoral drift system will not be negatively impacted by this project. The modified system will be pre-filled with mitigational sand and monitored for 5 years post construction.

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

Date activity is expected to be completed: December 30, 2026

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	2-10-2026 Date
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

Shore Protection

691 Sheridan Road
Winnetka, IL 60093

Shabica & Associates, Inc.

Location of Project: 691 Sheridan Road, Winnetka, IL 60093

List of property owners (from North to South):

1. Village of Winnetka, 725 Sheridan Road, Winnetka, IL 60093

2. Adrienne Blair, 715 Sheridan Road, Winnetka, IL 60093
3. Andrew G. Bluhm, 703 and 695 Sheridan Road, Winnetka, IL 60093

4. Subject Property: LTC 008002392236, 691 Sheridan Road, Winnetka, IL 60093

5. Michael Mulhern, 667 Sheridan Road, Winnetka, IL 60093
6. Lake Michigan LLC, 657 Sheridan Road, Winnetka, IL 60093

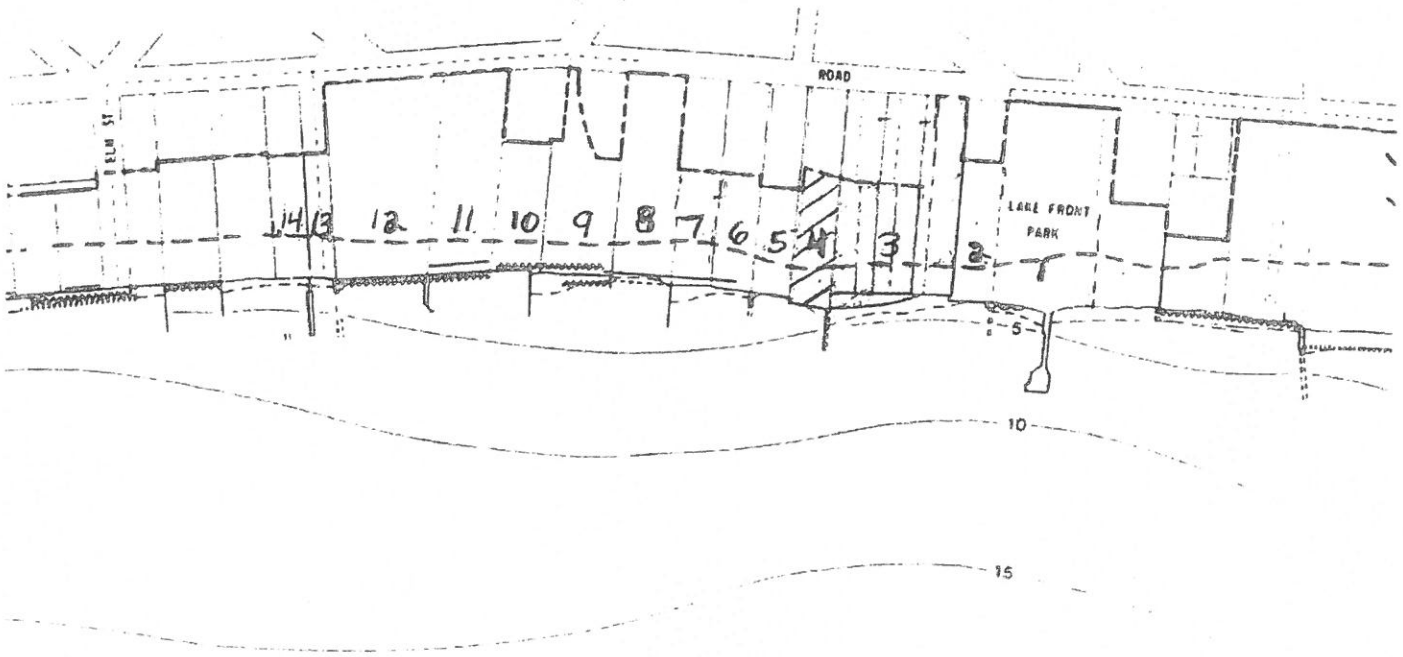
7. Peter McNerney, 655 Sheridan Road, Winnetka, IL 60093
8. Chicago Title Land Trust, 645 Sheridan Road, Winnetka, IL 60093
9. Clyde McGregor, 627 Sheridan Road, Winnetka, IL 60093
10. Joseph P. Nolan Revocable Trust, 619 Sheridan Road, Winnetka, IL 60093
11. CTLTC 8002361390, 609 Sheridan Road, Winnetka, IL 60093
12. Chicago Title Land Trust, 595 Sheridan Road, Winnetka, IL 60093
13. Village of Winnetka, 589 Sheridan Road, Winnetka, IL 60093

14. Catherine Guthrie, 575 Sheridan Road, Winnetka, IL 60093

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

North

WINNETKA



LAKE MICHIGAN

LOCATION MAP

Shabica & Associates, Inc.

Title:	Construction of a breakwater protected beach system along Lake Michigan 691 Sheridan Road Winnetka, Illinois 60093
Submittal Date:	April 17, 2026
Plan Sheets:	2026.1.26 691 Sheridan Road, Winnetka_Plan View Over Bathymetry – Sheet 1 of 3 2026.1.26 691 Sheridan Road, Winnetka_Breakwater Cross Section Typical, Revetment Cross Section Typical – Sheet 2 of 3 2026.1.26 691 Sheridan Road, Winnetka_Sand Plan View & Calculations – Sheet 3 of 3

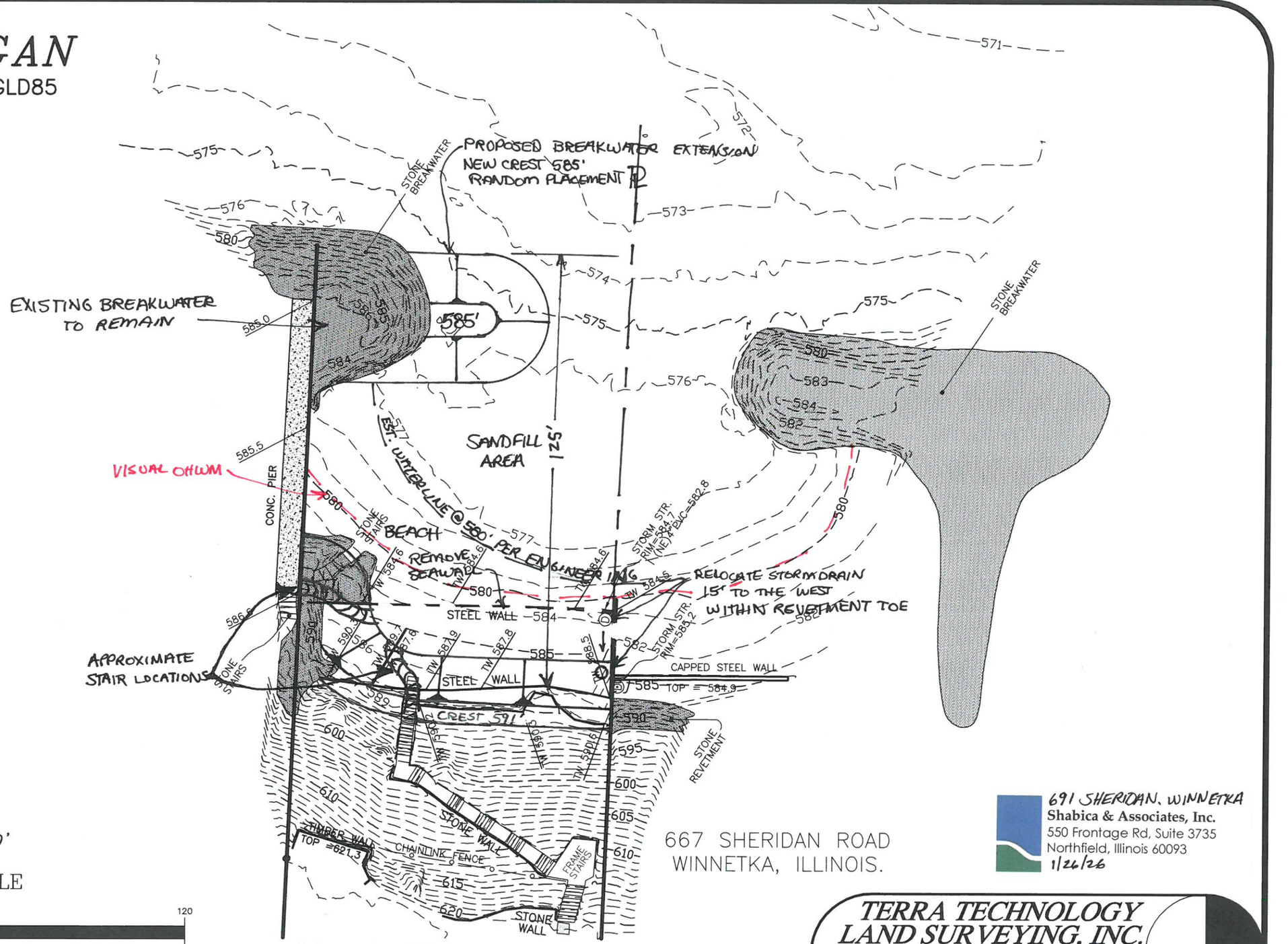
550 Frontage Road • Suite 3735 • Northfield, Illinois 60093 • Tel 847.446.1436 • info@shabica.com
www.shabica.com

PLAN VIEW OVER BATHYMETRY

LAKE MICHIGAN

WATER LEVEL = 579.0 IGLD85

(8-27-25)



SCALE: 1" = 30'

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

691 SHERIDAN ROAD
WINNETKA, ILLINOIS.

667 SHERIDAN ROAD
WINNETKA, ILLINOIS.

691 SHERIDAN, WINNETKA

Shabica & Associates, Inc.
550 Frontage Rd, Suite 3735
Northfield, Illinois 60093

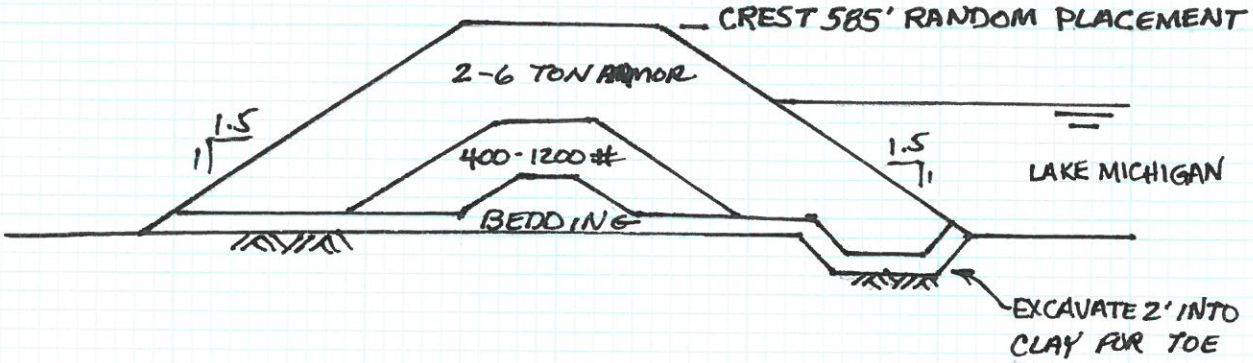
1/26/26

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

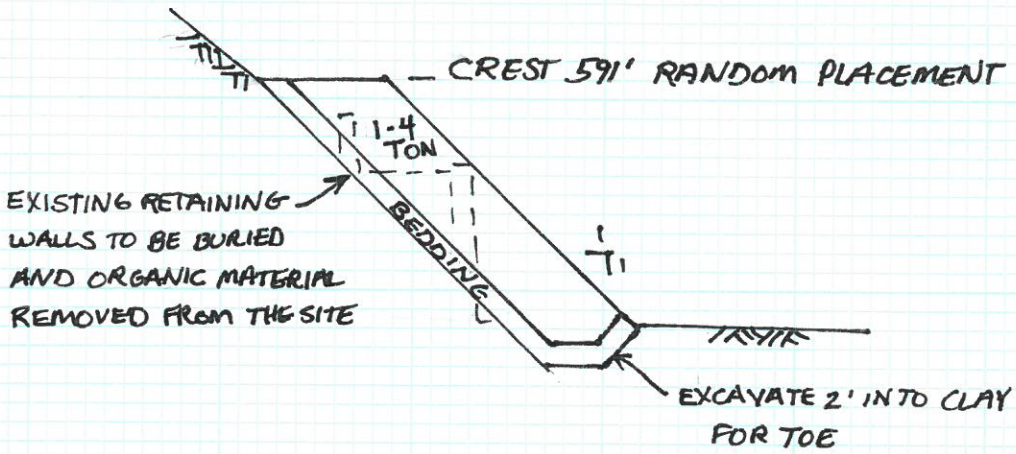
JOB NO.: 23-0028 SURVEY DATE: 8/27/2025

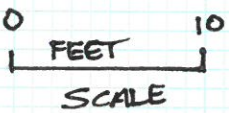
DWG FILE: DATA/23/00280/SITE-2025.DWG

BREAKWATER CROSS SECTION · TYPICAL



REVETMENT CROSS SECTION · TYPICAL





DATUM: IGLD 1985

691 SHERIDAN, WINNETKA

Shabica & Associates, Inc.
550 Frontage Rd, Suite 3735
Northfield, Illinois 60093

1|26|2026

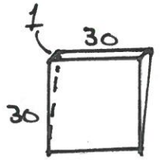
SAND PLAN VIEW & CALCULATIONS

LAKE MICHIGAN

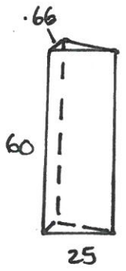
WATER LEVEL = 579.0 IGLD85

(8-27-25)

CALCULATIONS IN YARDS



$\frac{30 \times 30 \times 1}{2}$ = 450 cu. yds.



$\frac{60 \times 25 \times .66}{2}$ = 990 cu. yds.

450+990 = 1440 cu. yds.

1440 cu.yds. x 1.25 cu.yds./ton = 1800 tons

1800t. x 20% overfill = 360t.

1800+360 = 2160 tons

place 2,160 tons clean sand

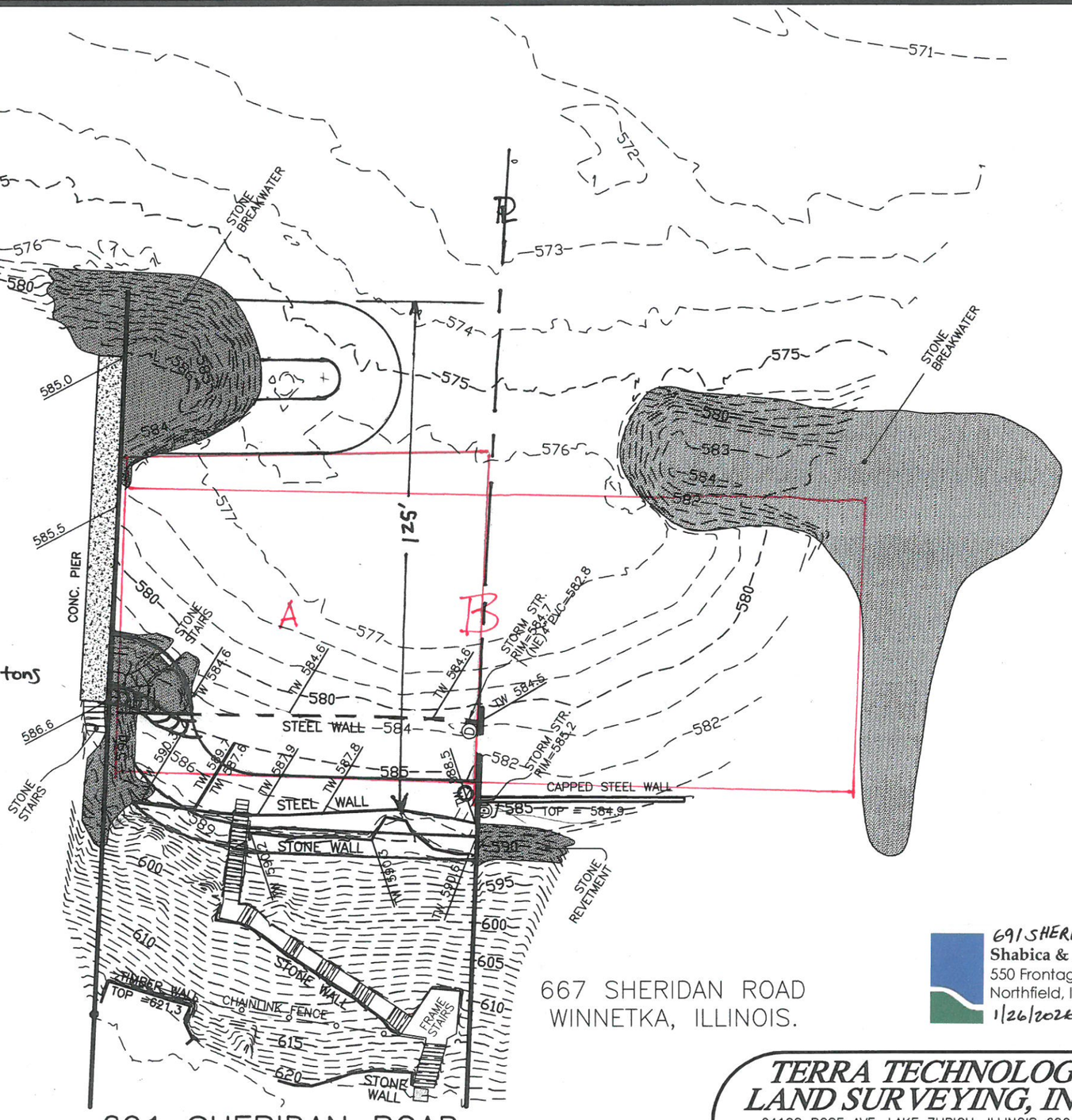
SCALE: 1" = 30'

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.



691 SHERIDAN ROAD
WINNETKA, ILLINOIS.

667 SHERIDAN ROAD
WINNETKA, ILLINOIS.

691 SHERIDAN, WINNETKA
Shabica & Associates, Inc.
550 Frontage Rd, Suite 3735
Northfield, Illinois 60093
1/26/2026

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

JOB NO.: 23-0028 SURVEY DATE: 8/27/2025
DWG FILE: DATA/23/00280/SITE-2025.DWG

Michael Mulhern
667 Sheridan Road
Winnetka, Illinois 60093

U.S. Army Corps of Engineers - Chicago District Regulatory Branch - East Section
231 South LaSalle Street, Suite 1500
Chicago, Illinois 60604

April 27, 2026

Dear Sir or Madam,

I hereby request that Shabica & Associates, Inc. be authorized to act in my behalf in placing sand on my beach area and in the bay at my property, as required by the IDNR, located at 667 Sheridan Road in Winnetka as part of the Smith project at 691 Sheridan Road in Winnetka, Illinois.

If additional information is required, please contact me at the above address.

Sincerely,

Michael Mulhern

cc: Illinois Department of Natural Resources
Illinois Environmental Protection Agency
Shabica & Associates, Inc.