

US Army Corps
of Engineers

Detroit District

Public Notice

Applicant: Sleeping Bear Dunes National Lakeshore,
National Park Service

In Reply Refer To: Corps File No. LRE-2024-00265-56-S24

Date: November 22, 2024
Expires: December 12, 2024

Proposed Dock Removal & Replacement, Dredging, Beach Nourishment and Mooring Buoys in Lake Michigan, Leelanau County, Michigan

Applicant: Sleeping Bear Dunes National Lakeshore, National Park Service
c/o Robert Bertschy
9922 West Front Street
Empire, Michigan 49630

Project Location: In Lake Michigan and shoreline areas located on North Manitou Island, Leland Township, Leelanau County, Michigan, 49653 (Section 34, Township 32N, Range 14W).

Federal Authority: The applicant has applied for a Department of the Army permit under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act.

State Authority: Section 401 of the Clean Water Act requires that all discharges of dredged or fill material must be certified by the State as complying with applicable effluent limitations and water quality standards. Coastal Zone Management Certification (or waiver thereof) is required from the State of Michigan if this proposed activity would occur within the designated coastal zone.

Project Description: As shown on the attached plans, the applicant proposes to initially dredge, by mechanical means, 20,000 cubic yards of sediment from a 1,235 foot long by 538-foot-wide area of the lakebed to a bottom elevation of 567.00 feet (IGLD 1985)(Sheets 10-12). During the dredging operations, approximately ninety-two (92) 12-inch diameter pilings would be extracted from a 124 foot long by 53-foot-wide offshore area of the lakebed (Sheet 5). If needed to restore navigation to the area up to 86,500 cubic yards of additional sediment could be removed from the existing dock area to facilitate the natural littoral drift process.

The dredged material would be loaded onto a barge and transported for placement along the southern shoreline (downdrift) of the existing dock. The dredged material

would be deposited as beach nourishment along a 3,700 linear foot by 344.5-foot (average width) segment of Lake Michigan's shoreline between the Ordinary High Water Mark (OHWM) elevation of 581.5 feet (IGLD 85) and 4 feet below the Low Water Datum (LWD) elevation of 577.5 feet per the following specifications (Sheets 13-15):

- Station 0+00 to Station 5+00 = 487 foot long by 262-foot-wide area;
- Station 5+00 to Station 10+00 = 482 foot long by 258-foot-wide area;
- Station 10+00 to Station 15+00 = 500 foot long by 282-foot-wide area;
- Station 15+00 to Station 20+00 = 500 foot long by 296-foot-wide area;
- Station 20+00 to Station 25+00 = 468 foot long by 350-foot-wide area;
- Station 25+00 to Station 30+00 = 502 foot long by 376-foot-wide area;
- Station 30+00 to Station 35+00 = 501 foot long by 388-foot-wide area;
- Station 35+00 to Station 37+00 = 169 foot long by 544-foot-wide area.

Construct a new 490 foot long by 13.2 foot wide open-pile dock with an 84 foot long by 13.2-foot-wide horizontal T-section at the waterward end (Sheets 7, 18-19). The dock would be supported by 14-inch diameter steel piles spaced 12 feet on center, (6) 12-inch battered piles, and a steel angle-supported concrete deck constructed at a top elevation of 584.00 feet (Sheets 8-9). Upon completion, the dock would include extruded fenders, a navigational light, and have a length of 454 feet extending waterward from the OHWM (Sheet 7 and 18).

Install two (2) single-point 24-inch diameter mooring buoys with a 25-foot chain anchored by a 3-foot wide by 3-foot tall (3,000-pound) concrete weight located 150 feet from the north and south end of the dock's T-section (Sheets 7 & 20).

Once the newly constructed dock is operational, demolish and remove the existing 428 foot long by 285-foot-wide T-shaped dock and associated infrastructure (i.e., sheet pile, support piles, and concrete) from the waterway (Sheet 4). Subsequently, an existing 213 foot long by 29-foot (average width) emergent wetland located to the north of the existing dock may be indirectly affected by changing shoreline processes because of the dock's removal (Sheet 10).

On an annual basis, mechanically dredge up to 8,000 cubic yards of sediment from the authorized dredge area for a combined total of 40,000 cubic yards over a five-year period. The spoils from maintenance dredging may be (1) disposed along the shoreline as beach nourishment within the authorized area, (2) disposed in uplands offsite, or (3) repurposed in upland areas on the island. The purpose of the proposed work is the removal of an existing dock and the construction of a new dock that will require less maintenance dredging to maintain navigability, and to provide a safe and functional dock structure for visitors and National Park Service employees to access North Manitou Island.

Avoidance & Minimization: The applicant has stated the following concerning avoidance and minimization of impacts to Waters of the United States:

The following alternative options were considered for the project but were dismissed due to the design either not meeting the park's needs or not being cost-effective.

Option 1: Leave the existing dock in its current form but add a rock revetment along the north and east sides of the dock which would protect boats from wave energy and prevent sediment accumulation in the dock area. This option does not eliminate the need for dredging because sediment would continue to build up on the north side of the rock revetment. The rock revetment would have a large impact area within Lake Michigan and would make reaching the north side of the dock difficult for larger vessels such as the NPS landing craft and privately owned ferries/boats. Due to the reasons listed, Option 1 was deemed a non-feasible option for the dock redesign.

Option 2: Remove the sheet pile T-structure and replace it with a pile-supported dock. The area to the north would be dredged to allow access to the north side of the dock. This design would reduce the impact area within Lake Michigan by reducing the footprint from the current dock. However, due to the smaller design, the dock would lose capacity, limiting the number of boats that can moor at the dock. Removal of the sheet pile T-structure and replacing the dock in the same location (even with a flow-through structure) is expected to continue substantial sediment accretion and require frequent dredging. Due to the reduced docking space, the requirement for continued dredging, and the loss of dock access for at least a year during construction, Option 2 was deemed a non-feasible option for the dock design.

Option 3: This option is identical to Option 1 but with the addition of a breakwater on the south side of the dock. Similar to Option 1, the rock revetments would protect docks and boats from waves and prevent sediment build up in the dock area. This design does not eliminate the need for dredging since the north side of the rock revetment would interfere with littoral drift by accumulating sediment. The rock revetments would also have a large footprint within Lake Michigan and would make access to the north [and south side] of the dock difficult for larger boats. For these reasons, Option 3 is not feasible.

The Corps has not verified the adequacy of the applicant's avoidance and minimization statement at this time.

Compensatory Mitigation: The applicant has stated the following concerning compensatory mitigation for unavoidable impacts to Waters of the United States:

The applicant has stated that compensatory mitigation is not necessary or appropriate for the proposed work because: There will be no net loss due to the removal of the

existing dock and the historical dock piles [infrastructure] offsetting the impacts from the installation of the new dock below the OHWM.

The Corps has not verified the adequacy of this mitigation proposal at this time.

Other Authorizations:

A permit is required from the Michigan Department of Environment, Great Lakes, and Energy under applicable provisions of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451. The State file number is 45-North Manitou Island-Leland.

Comments: We are publishing this notice in compliance with Title 33 Code of Federal Regulations Parts 320-332. Comments on the project should be e-mailed but may also be submitted in writing and postmarked or delivered by the expiration date of this public notice. Comments of a positive or negative nature may be submitted. All responses must refer to file number LRE-2024-00265-56-S24. We will interpret a lack of response as meaning that there is no objection to the permit application. Comments should be filed with:

Kerrie E. Kuhne
Chief, Western Section
Regulatory Branch
Corps of Engineers, Detroit District
477 Michigan Avenue
Detroit, Michigan 48226-2550

Comments may be e-mailed to: Kristi.M.DeFoe@usace.army.mil, but must include a name and mailing address.

Public Hearing: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

Evaluation: The decision whether to issue the Department of the Army permit will be based on evaluation of the probable impacts of the proposed activity on the public interest. That decision will reflect the national concerns for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and

wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

This activity involves the discharge of dredged or fill material into waters of the United States. Therefore, the U.S. Army Corps of Engineers' evaluation of the impact of the activity on the public interest will include application of the guidelines promulgated by the Administrator of the Federal Environmental Protection Agency, under the authority of Section 404(b)(1) of the Clean Water Act.

Endangered Species: We will review this application for the potential impact on threatened or endangered species pursuant to Section 7 of the Endangered Species Act as amended.

The following species are, or potentially are present at the project site or vicinity: Federally threatened Pitcher's thistle (*Cirsium pitcheri*). The applicant proposes to implement mitigation measures specific to the Pitcher's thistle as approved by the U.S. Fish and Wildlife Service's Biological Opinion in September 2024. We invite information and/or comments regarding the potential presence of, or impacts to, any listed species or critical habitat.

Cultural Resources: The District Staff has reviewed existing information on historic properties potentially affected by the proposed project, including the National Register of Historic Places (NRHP). Historic and cultural resources within the project area include:

- North Manitou Island Life-Saving Station – listed in the NRHP;
- Cottage Row Historic District – eligible for listing in the NRHP;
- Manitou Island Association Farm Complex/Village District – eligible for listing in the NRHP. The SHPO Project Number is ER23-974.

The District Engineer invites responses to this public notice from federal, state and local agencies, historical and archaeological societies, Indian tribes, and other parties likely to have knowledge of or concerns with historic properties in the area.

Additional Information: This public notice and drawings are also available for viewing/printing at: <https://www.lrd.usace.army.mil/Submit-ArticleCS/Regulatory-Notices/>. Questions concerning this application may be directed to Kristi DeFoe at the Corps of Engineers address listed above, or telephone number (313) 226-7718.




FOR THE DISTRICT ENGINEER:

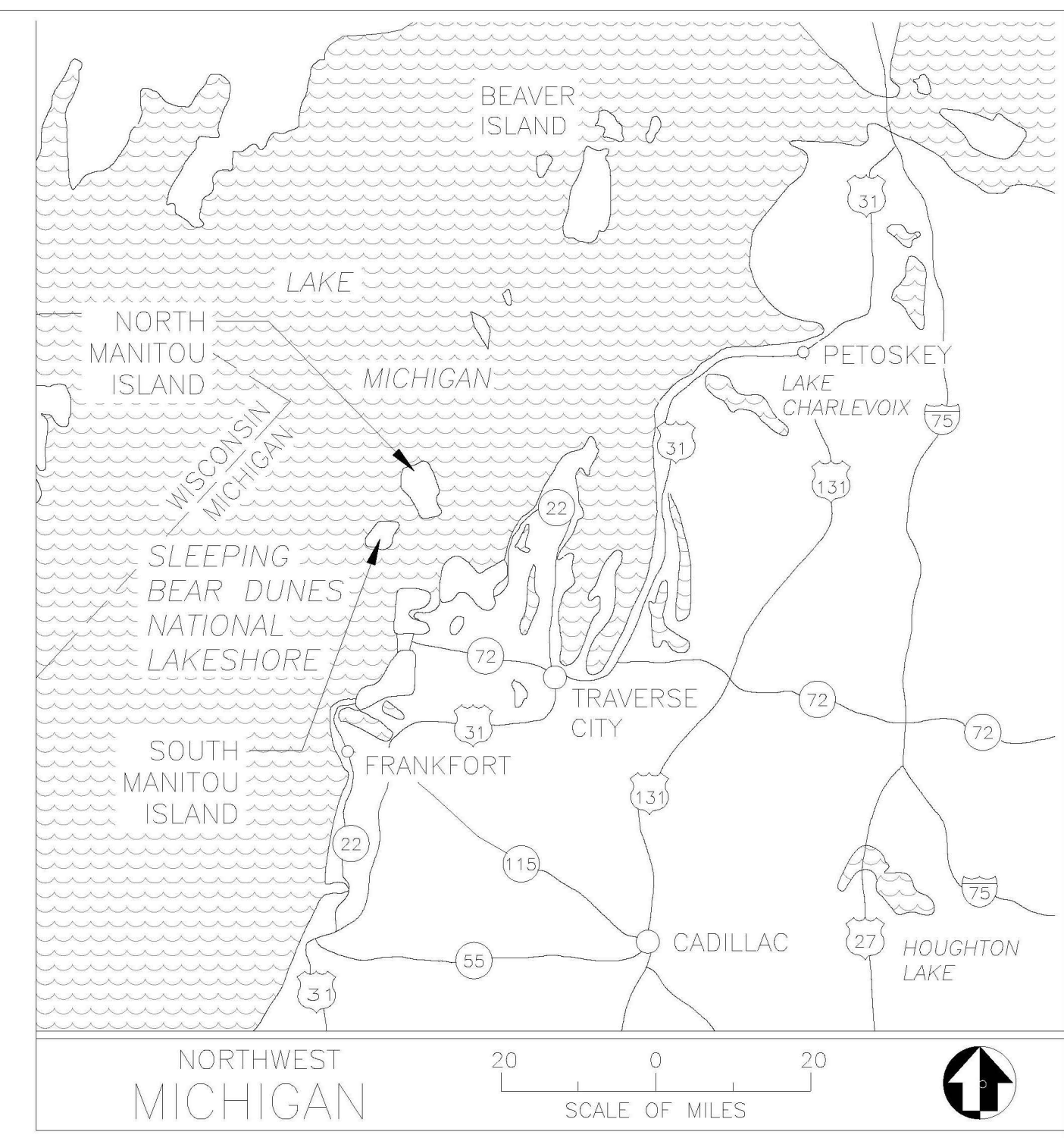
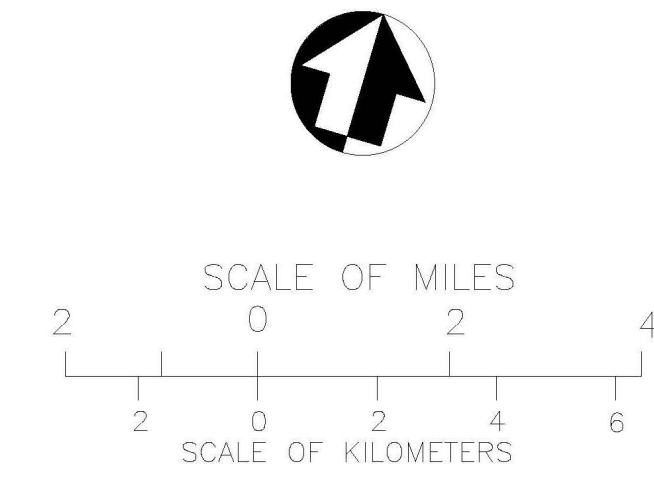
Kerrie E. Kuhne
Chief, Western Section
Regulatory Branch

NOTICE TO POSTMASTERS:

We request that the above notice be conspicuously and continuously posted for the time period of this notice.

LEGEND

- NATIONAL LAKESHORE BOUNDARY
- COUNTY LINE
- PAVED ROAD
- - - UNPAVED ROAD
- - - TRAIL
- CREEK
- V.C. VISITOR CENTER
- HQ. PARK HEADQUARTERS
-  RANGER STATION
-  PICNIC AREA
-  CAMPGROUND
- - - PASSENGER FERRY ROUTE



ABBREVIATIONS

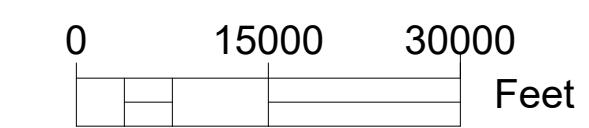
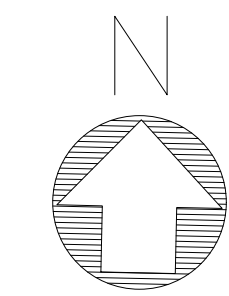
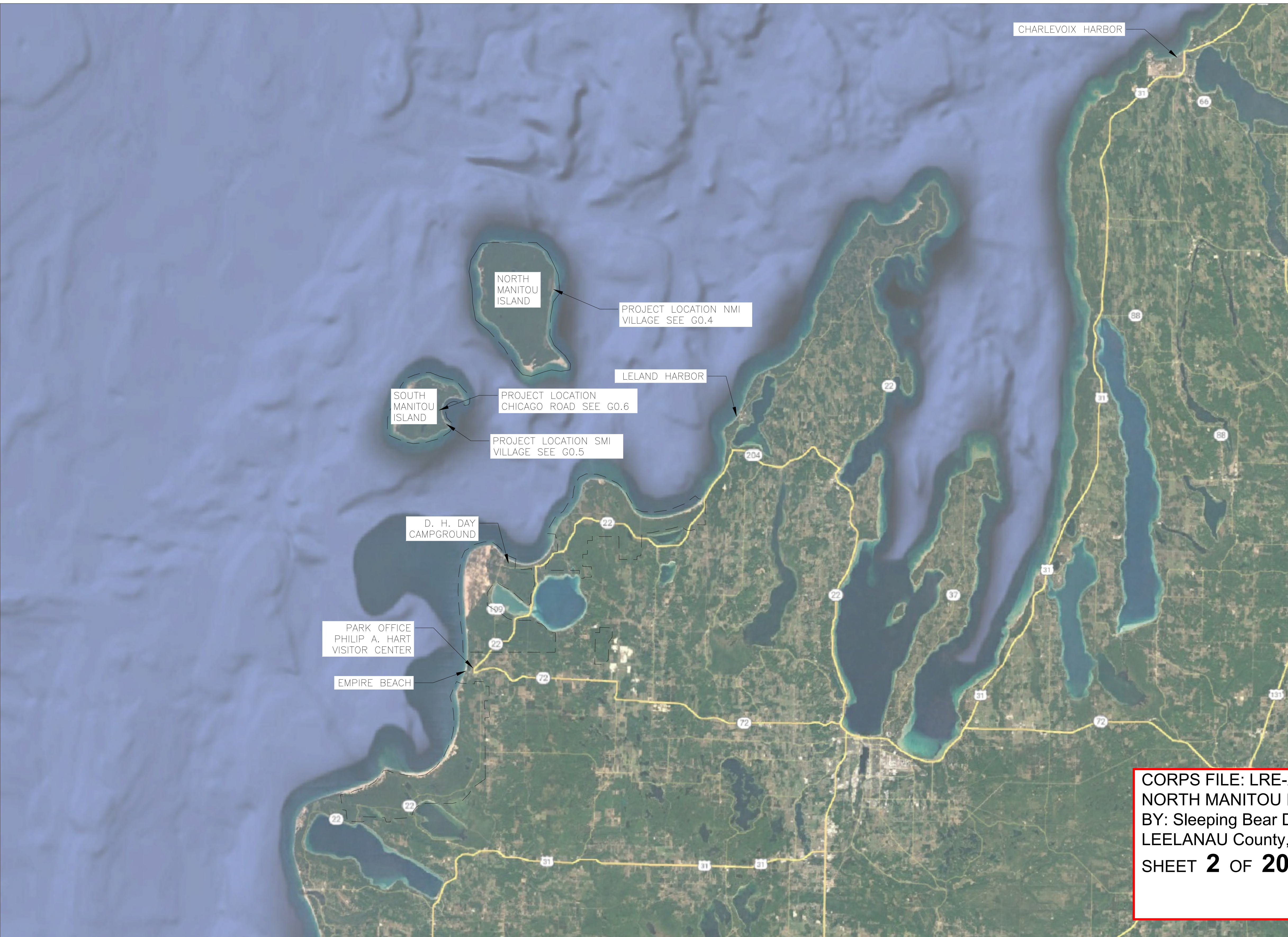
- CP CONTROL POINT
- CS CURB STOP
- DIA DIAMETER
- ELEV ELEVATION
- EL ELEVATION
- FFE FINISHED FLOOR ELEVATION
- IV ISOLATION VALVE
- LF LINEAR FEET
- OPT OPTION
- TYP TYPICAL
- WM WATERMAIN
- WSL WATER SERVICE LINE

CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
 BY: Sleeping Bear Dunes National Lakeshore, National Park Service
 LEELANAU County, MI
SHEET 1 OF 20 **LAKE MICHIGAN**

NOTE
 PLANSET FOR PERMITTING BY UNITED STATES ARMY CORPS OF ENGINEERS. NOT FOR CONSTRUCTION.

SLEEPING BEAR DUNES NATIONAL LAKESHORE

	DRAFT DESIGN DEVELOPMENT	COVER SHEET	DRAWING NO. 634 177759
	UNITED STATES DEPARTMENT OF THE INTERIOR	FACILITY REHABILITATION ON MANITOU ISLANDS	PKG. NO. 31 87 29
	NATIONAL PARK SERVICE DENVER SERVICE CENTER	SLEEPING BEAR DUNES NATIONAL LAKESHORE REGION: MIDWEST COUNTY: LEELANAU STATE: MICHIGAN	SHEET 1 OF 165

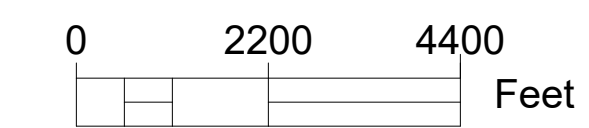
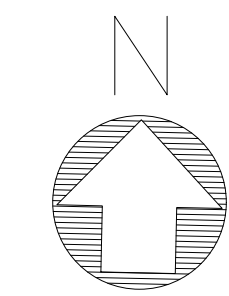
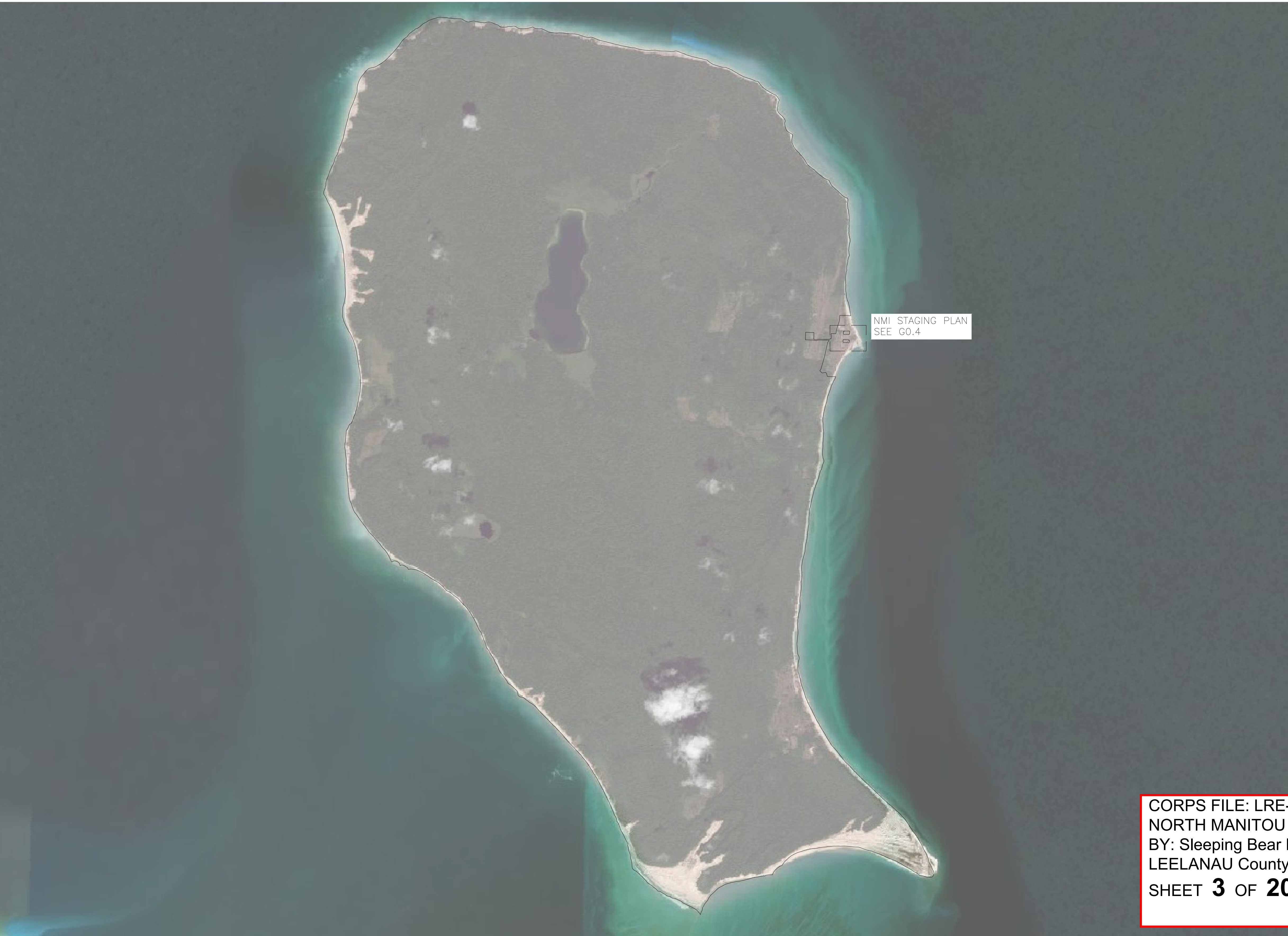


LEGEND:
 - - - - - SLEEPING BEAR DUNES NATIONAL LAKESHORE BOUNDARY

CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
 BY: Sleeping Bear Dunes National Lakeshore, National Park Service
 LEELANAU County, MI
SHEET 2 OF 20
 LAKE MICHIGAN

1 PROJECT VICINITY MAP
 G0.1 1" = 15000'

FINAL CONSTRUCTION DOCUMENTS		TITLE OF SHEET		DRAWING NO.
A/E FIRM	DESIGNED:	PROJECT VICINITY MAP		634
PRIME:	MHO	FACILITY REHABILITATION		177759
VHB	WILLIAMSBURG, VA	ON MANITOU ISLANDS		PMIS/PKG NO.
SUB:	BRG	SLEEPING BEAR DUNES NATIONAL LAKESHORE		SLBE-318729
AMI	TECH. REVIEW:			SHEET
SUPERIOR, WI	WPK			3 of 188
	DATE:			
	10/02/2024			



LEGEND:

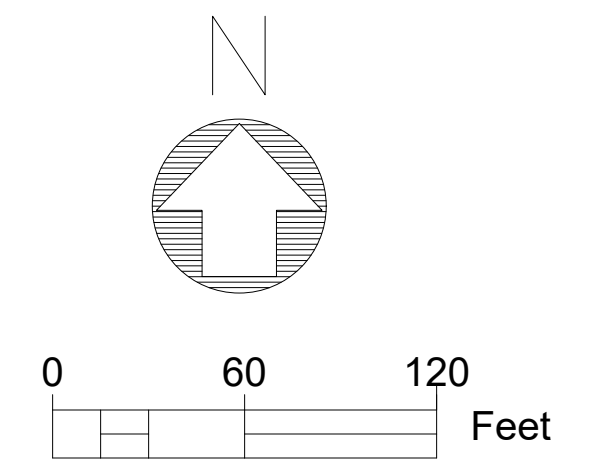
XXXXXX WILDERNESS BOUNDARY

CORPS FILE: LRE-2024-00265-56-S24
 NORTH MANITOU ISLAND - REHABILITATION PROJECT
 BY: Sleeping Bear Dunes National Lakeshore, National Park Service
 LEELANAU County, MI
SHEET 3 OF 20 LAKE MICHIGAN

1 NMI STAGING PLAN
 G0.2 1" = 2200'

FINAL CONSTRUCTION DOCUMENTS		SUB SHEET NO		TITLE OF SHEET		DRAWING NO.	
A/E FIRM	DESIGNED:	G0.2		STAGING PLAN		634	
PRIME:	MHO					177759	
VHB WILLIAMSBURG, VA	BRG					PMIS/PKG NO. SLBE-318729	
SUB:	TECH. REVIEW:	G0.2		FACILITY REHABILITATION ON MANITOU ISLANDS		SHEET	
AMI SUPERIOR, WI	WPK					4 of 188	
	DATE:			SLEEPING BEAR DUNES NATIONAL LAKESHORE			
	10/02/2024						

z:\2021\212085 nps vrb facility rehab on manitou islands slbe\permitting and environmental compliance\permitting plansets\CAD\mri usace\CT1.0 NMI DOCK DEMO PLAN.dwg

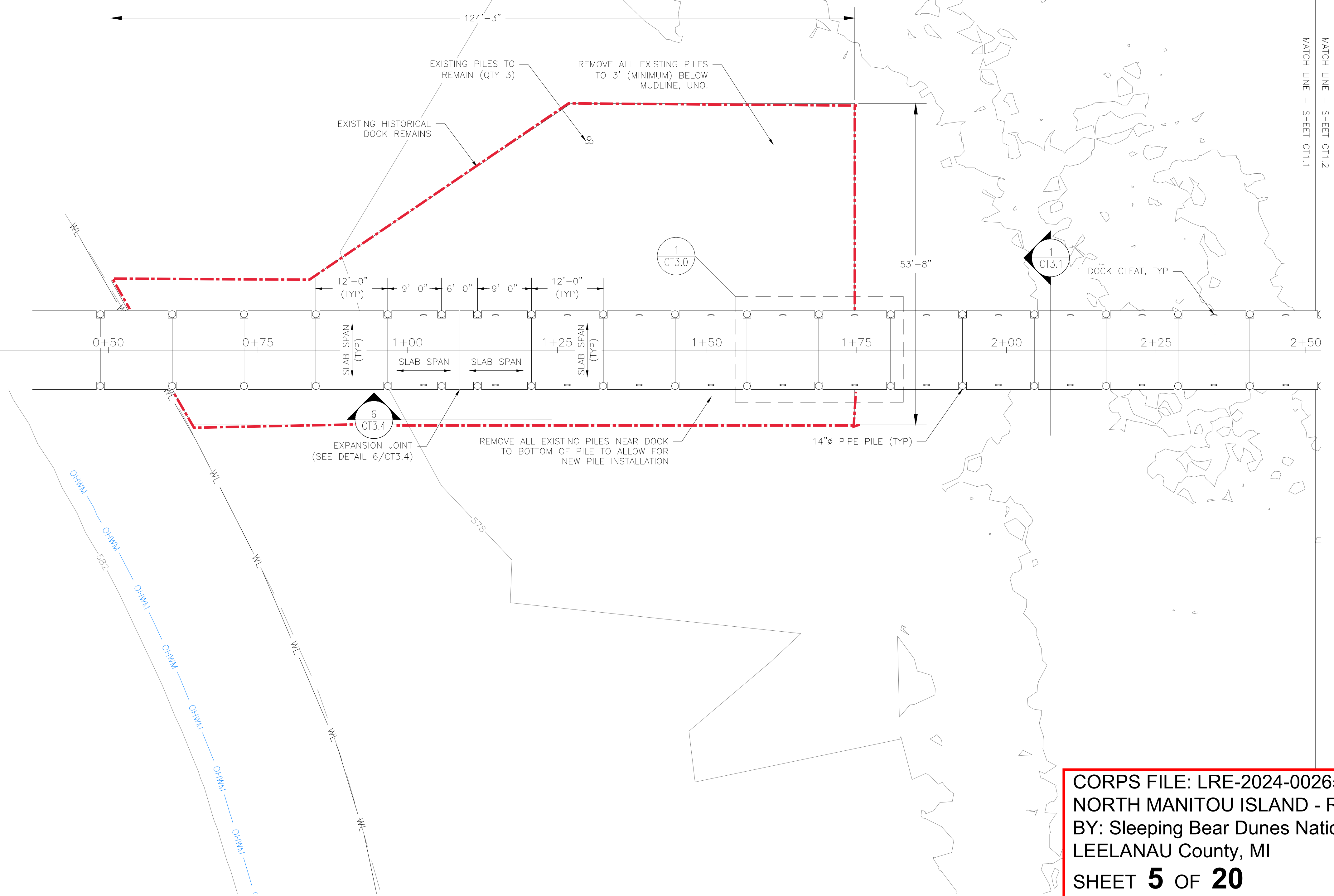
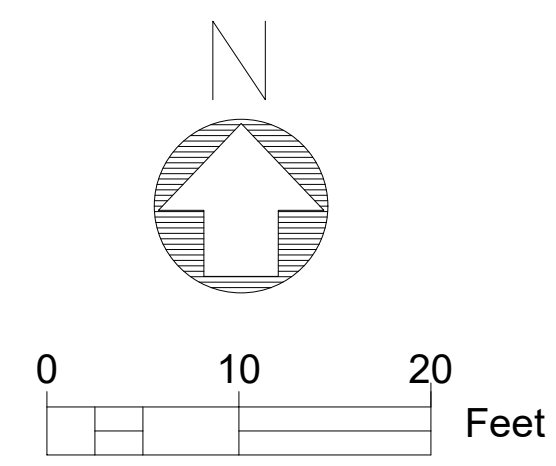


CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
BY: Sleeping Bear Dunes National Lakeshore, National Park Service
LEELANAU County, MI
SHEET 4 OF 20
LAKE MICHIGAN

UNDERGROUND UTILITY LOCATIONS SHOWN ARE BASED UPON VARIOUS RECORD UTILITY MAPS IN CONJUNCTION WITH VISIBLE EVIDENCE GATHERED DURING THE TIME THE FIELD SURVEY WAS PERFORMED. THEREFORE, ALL UNDERGROUND UTILITY LOCATIONS SHOULD BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

THIS DRAWING ONLY REFLECTS AND VERIFIES THE FIELD SURVEY DATA OF THOSE FEATURES AND CONDITIONS PRESENT AS OF MAY 7, 2023.

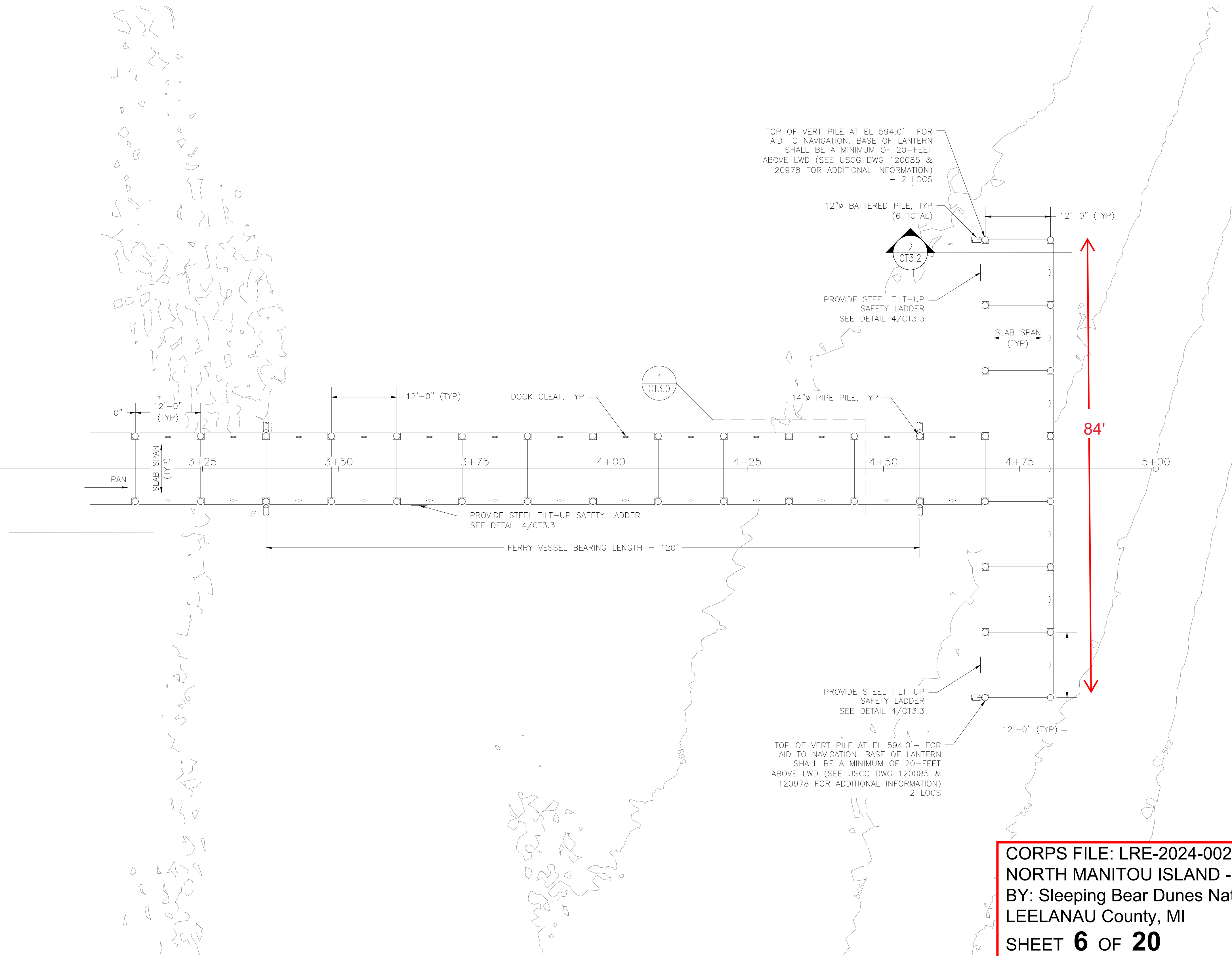
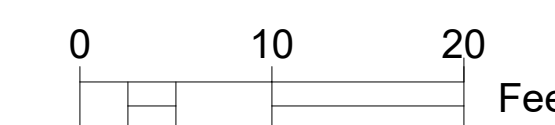
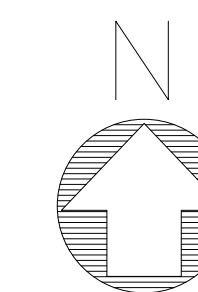
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PRIME:	MHO				177759
VHB WILLIAMSBURG, VA	BRG	CT1.0	FACILITY REHABILITATION ON MANITOU ISLANDS		PMIS/PKG NO. SLBE-318729
SUB:	TECH. REVIEW:		SLEEPING BEAR DUNES NATIONAL LAKESHORE		SHEET
AMI SUPERIOR, WI	WPK				39 of 188
	DATE:				
	10/02/2024				



1 NMI DOCK PLAN
CT1.1 1" = 10'-0"

CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
 BY: Sleeping Bear Dunes National Lakeshore, National Park Service
 LEELANAU County, MI
SHEET 5 OF 20
 LAKE MICHIGAN

FINAL CONSTRUCTION DOCUMENTS			TITLE OF SHEET		DRAWING NO.
A/E FIRM	DESIGNED:	SUB SHEET NO.	NMI DOCK PLAN FACILITY REHABILITATION ON MANITOU ISLANDS SLEEPING BEAR DUNES NATIONAL LAKESHORE		634
PRIME:	MHO	---			177759
VHB WILLIAMSBURG, VA	BRG	CT1.1			PMIS/PKG NO. SLBE-318729
SUB:	TECH. REVIEW:				SHEET
AMI SUPERIOR, WI	WPK			40 of 188	
	DATE:				
	10/02/2024				



TOP OF VERT PILE AT EL 594.0'- FOR
AID TO NAVIGATION. BASE OF LANTERN
SHALL BE A MINIMUM OF 20'-FEET
ABOVE LWD (SEE USCG DWG 120085 &
120978 FOR ADDITIONAL INFORMATION)
- 2 LOCS

12"Ø BATTERED PILE, TYP
(6 TOTAL)

2
CT3.2

PROVIDE STEEL TILT-UP
SAFETY LADDER
SEE DETAIL 4/CT3.3

SLAB SPAN
(TYP)

84'

DOCK CLEAT, TYP

1
CT3.0

14"Ø PIPE PILE, TYP

PROVIDE STEEL TILT-UP SAFETY LADDER
SEE DETAIL 4/CT3.3

FERRY VESSEL BEARING LENGTH = 120'

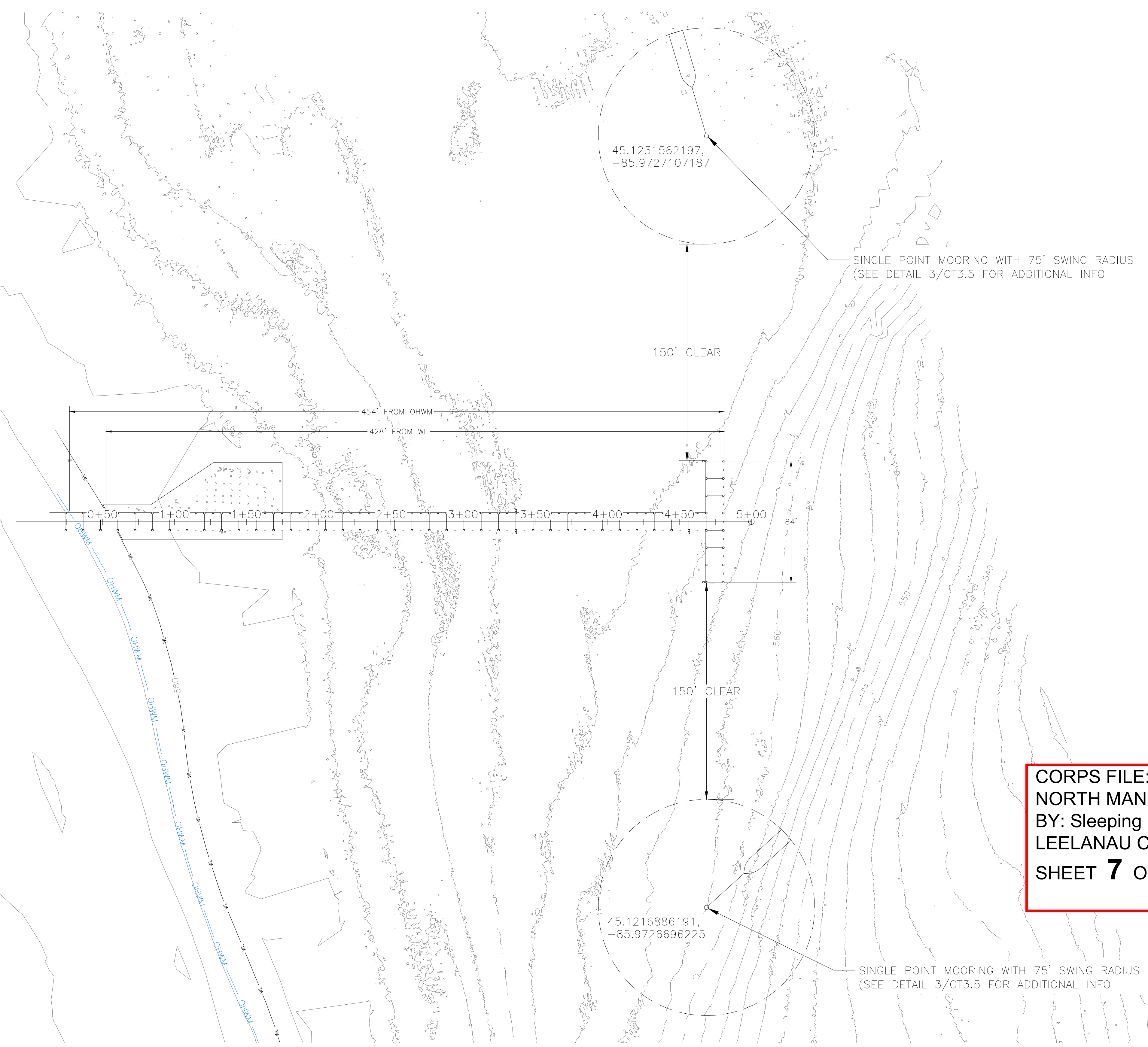
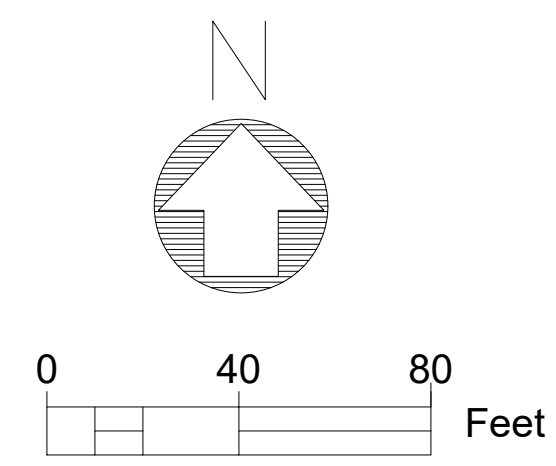
PROVIDE STEEL TILT-UP
SAFETY LADDER
SEE DETAIL 4/CT3.3

TOP OF VERT PILE AT EL 594.0'- FOR
AID TO NAVIGATION. BASE OF LANTERN
SHALL BE A MINIMUM OF 20'-FEET
ABOVE LWD (SEE USCG DWG 120085 &
120978 FOR ADDITIONAL INFORMATION)
- 2 LOCS

CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
BY: Sleeping Bear Dunes National Lakeshore, National Park Service
LEELANAU County, MI
SHEET 6 OF 20
LAKE MICHIGAN

1 NMI DOCK PLAN
CT1.2 1" = 10'-0"

FINAL CONSTRUCTION DOCUMENTS		TITLE OF SHEET		DRAWING NO.
A/E FIRM	DESIGNED:	NMI DOCK PLAN		634
PRIME:	MHO	FACILITY REHABILITATION		177759
VHB	WILLIAMSBURG, VA	ON MANITOU ISLANDS		PMIS/PKG NO.
SUB:	BRG	SLEEPING BEAR DUNES NATIONAL LAKESHORE		SLBE-318729
AMI	TECH. REVIEW:	SHEET		41 of 188
SUPERIOR, WI	WPK	SHEET		
	DATE:	SHEET		
	10/02/2024	SHEET		

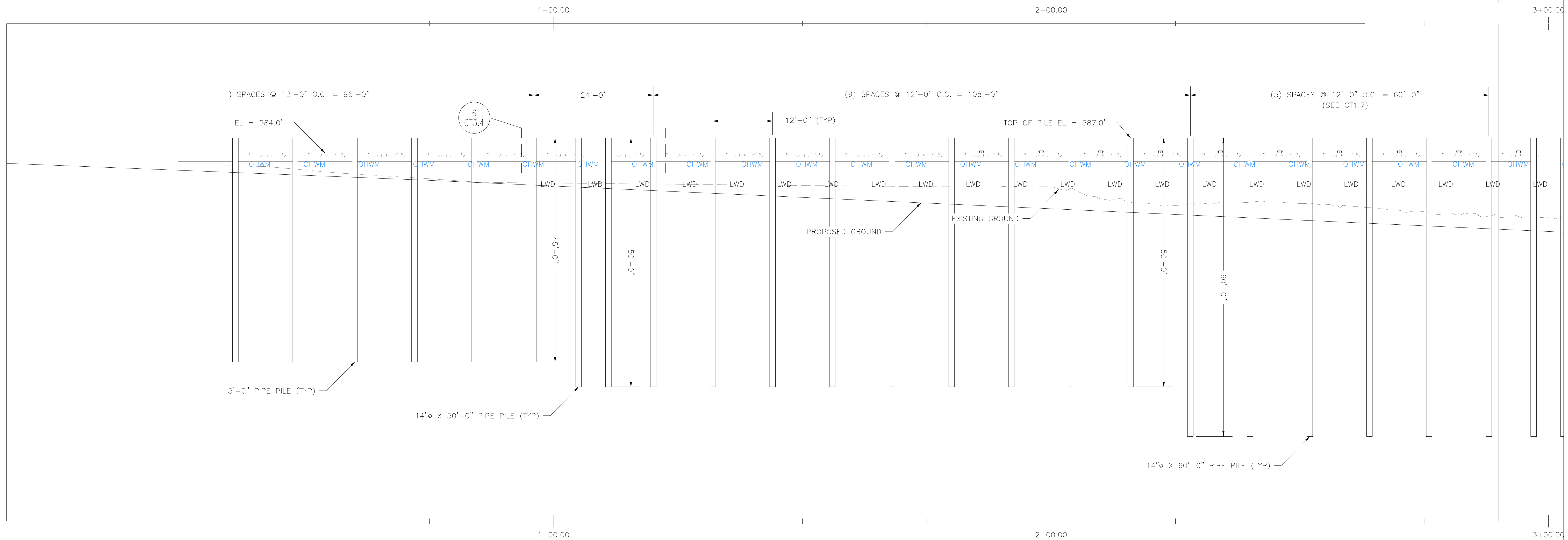


CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
 BY: Sleeping Bear Dunes National Lakeshore, National Park Service
 LEELANAU County, MI
SHEET 7 OF 20
 LAKE MICHIGAN

45.1216886191,
-85.9726696225

1 NMI DOCK - SINGLE POINT MOORING PLAN
 CT1.5 1" = 40'-0"

FINAL CONSTRUCTION DOCUMENTS		TITLE OF SHEET		DRAWING NO.
A/E FIRM	DESIGNED:	NMI DOCK MOORING PLAN		634
PRIME:	MHO	FACILITY REHABILITATION		177759
VHB	WILLIAMSBURG, VA	ON MANITOU ISLANDS		PMIS/PKG NO.
SUB:	BRG	SLEEPING BEAR DUNES NATIONAL LAKESHORE		SLBE-318729
AMI	TECH. REVIEW:			SHEET
SUPERIOR, WI	WPK			44 of 188
	DATE:			
	10/02/2024			

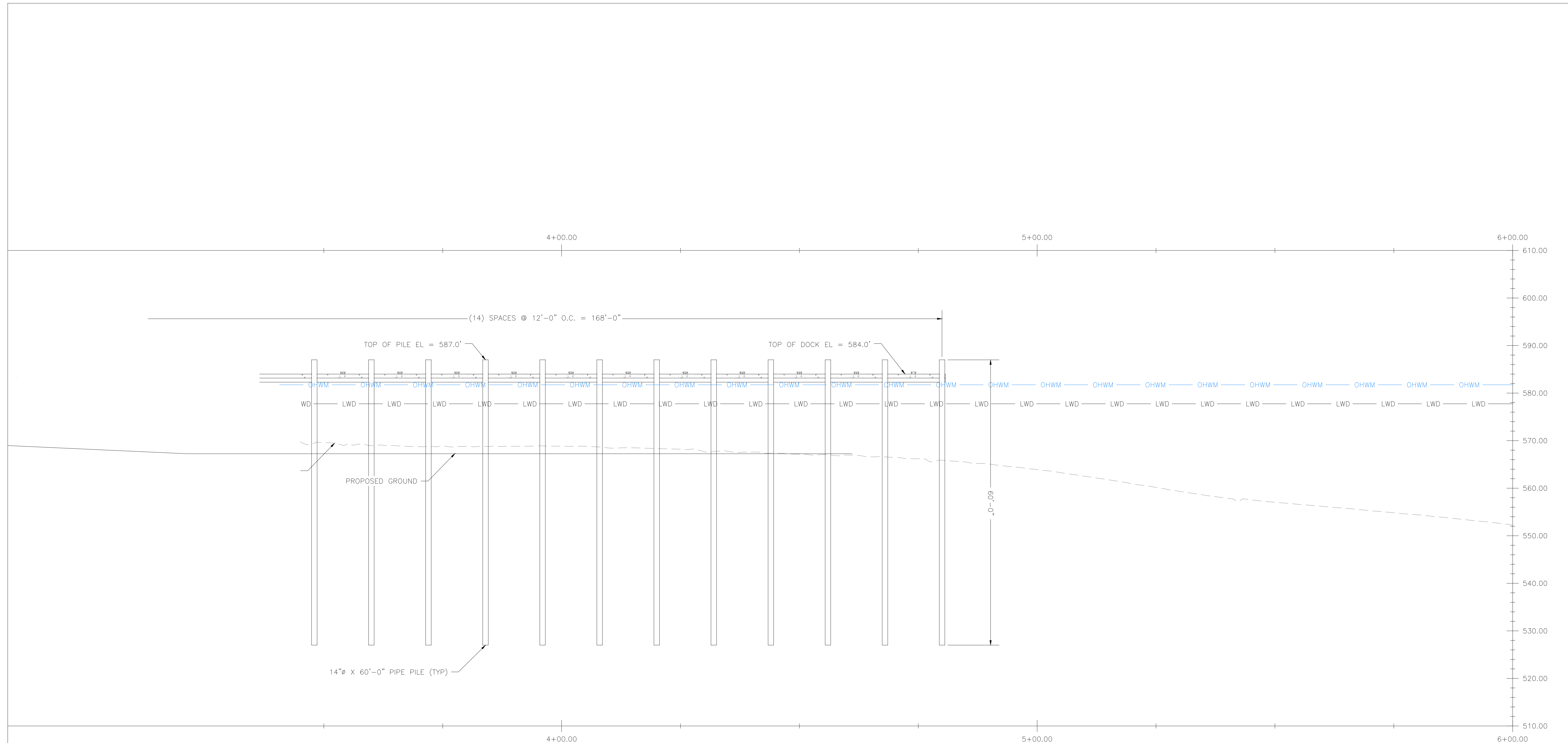


1 NMI DOCK PROFILE
CT1.6 1" = 10'-0"

- BATTER PILES NOT SHOWN FOR CLARITY
- ABUTMENT SCOUR STONE NOT SHOWN FOR CLARITY

CORPS FILE: LRE-2024-00265-56-S24
 NORTH MANITOU ISLAND - REHABILITATION PROJECT
 BY: Sleeping Bear Dunes National Lakeshore, National Park Service
 LEELANAU County, MI
SHEET 8 OF 20 LAKE MICHIGAN

FINAL CONSTRUCTION DOCUMENTS		TITLE OF SHEET		DRAWING NO.
A/E FIRM	DESIGNED:	NMI DOCK PROFILE		634
PRIME:	MHO	FACILITY REHABILITATION		177759
VHB	WILLIAMSBURG, VA	ON MANITOU ISLANDS		PMIS/PKG NO.
SUB:	BRG	SLEEPING BEAR DUNES NATIONAL LAKESHORE		SLBE-318729
AMI	TECH. REVIEW:			SHEET
SUPERIOR, WI	WPK			45 of 188
	DATE:			
	10/02/2024			

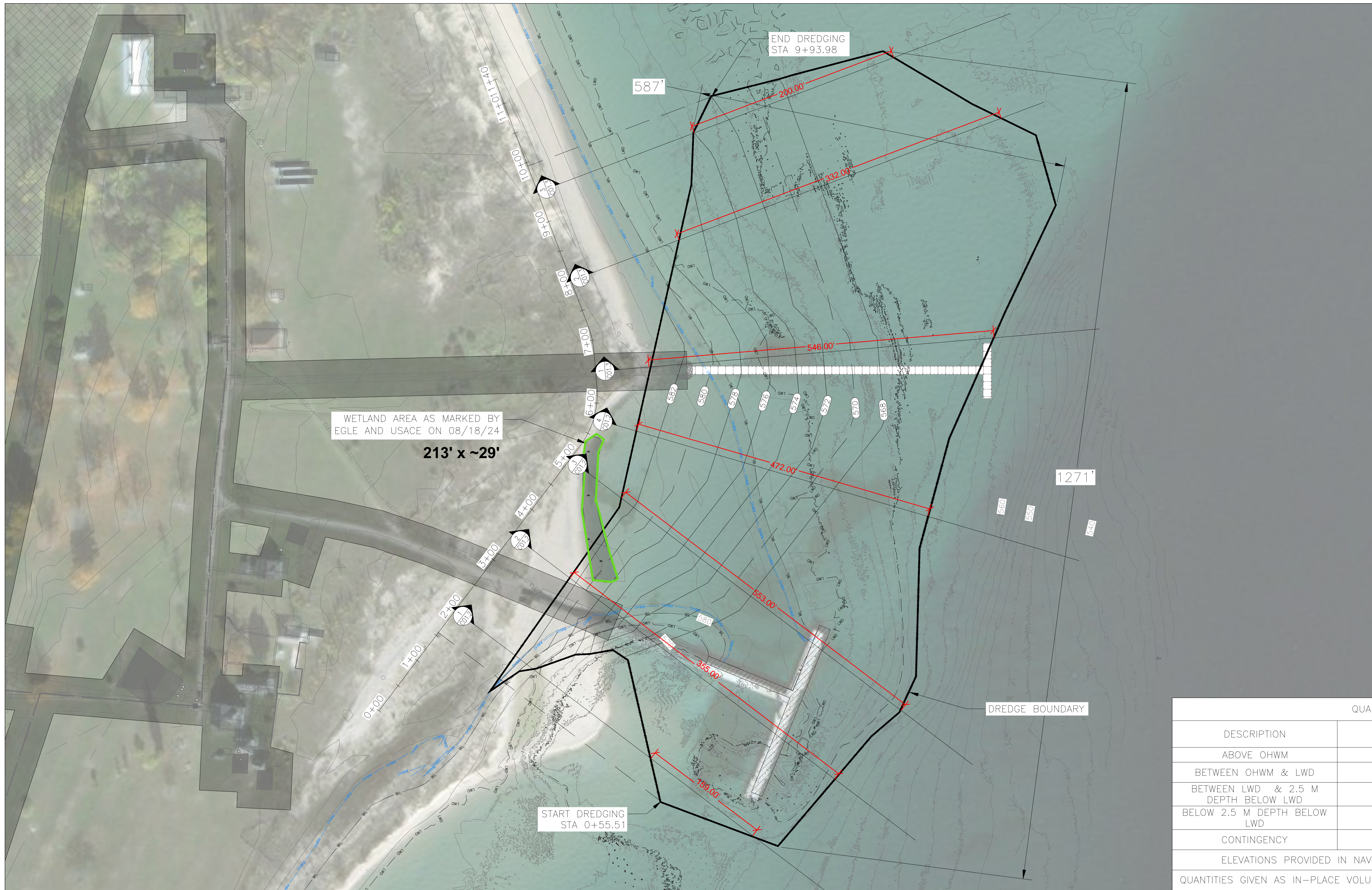


1 NMI DOCK PROFILE
 CT1.7 1" = 10'-0"
 1. BATTER PILES NOT SHOWN FOR CLARITY

CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
BY: Sleeping Bear Dunes National Lakeshore, National Park Service
LEELANAU County, MI
SHEET 9 OF 20
LAKE MICHIGAN

FINAL CONSTRUCTION DOCUMENTS			TITLE OF SHEET		DRAWING NO.
A/E FIRM	DESIGNED:	SUB SHEET NO.	NMI DOCK PROFILE FACILITY REHABILITATION ON MANITOU ISLANDS SLEEPING BEAR DUNES NATIONAL LAKESHORE		634
PRIME:	MHO	---			177759
VHB WILLIAMSBURG, VA	BRG	CT1.7			PMIS/PKG NO. SLBE-318729
SUB:	TECH. REVIEW:				SHEET
AMI SUPERIOR, WI	WPK			46 of 188	
	DATE:				
	10/02/2024				

8/11/2023 2:04 PM z:\2021\212085 nps vhb facility rehab on manitou islands site\permitting and environmental compliance\permitting plansets\CAD\mri usace\CO1.1 NMI DREDGE PLAN - ALT. BID.dwg



N

DREDGING LEGEND:

- PROPOSED CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- REMOVE EXISTING DOCK
- PROPOSED DOCK
- GROUNDWATER CONTAMINATION
- WILDERNESS BOUNDARY
- OHWM
- LWD

ORDINARY HIGH WATER MARK = 581.75 NAVD88
 LOW WATER DATUM = 577.75 NAVD88
 2.5 M BELOW LOW WATER DATUM

QUANTITIES FOR USACE			
DESCRIPTION	ELEVATION (FT, NAVD88)	CY	SF
ABOVE OHWM	> 581.75	29700	104000
BETWEEN OHWM & LWD	581.75 TO 577.75	13700	69900
BETWEEN LWD & 2.5 M DEPTH BELOW LWD	577.75 TO 569.55	24000	185500
BELOW 2.5 M DEPTH BELOW LWD	< 569.55	8100	215200
CONTINGENCY	N/A	21000	N/A
ELEVATIONS PROVIDED IN NAVD88. IGLD 1985 IS 0.25 FT BELOW NAVD88.			
QUANTITIES GIVEN AS IN-PLACE VOLUME. ALLOW SWELL FACTOR OF 20% FOR PLACEMENT.			

UNDERGROUND UTILITY LOCATIONS SHOWN ARE BASED UPON VARIOUS RECORD UTILITY MAPS IN CONJUNCTION WITH VISIBLE EVIDENCE GATHERED DURING THE TIME THE FIELD SURVEY WAS PERFORMED. THEREFORE, ALL UNDERGROUND UTILITY LOCATIONS SHOULD BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

THIS DRAWING ONLY REFLECTS AND VERIFIES THE FIELD SURVEY DATA OF THOSE FEATURES AND CONDITIONS PRESENT AS OF MAY 7, 2023.

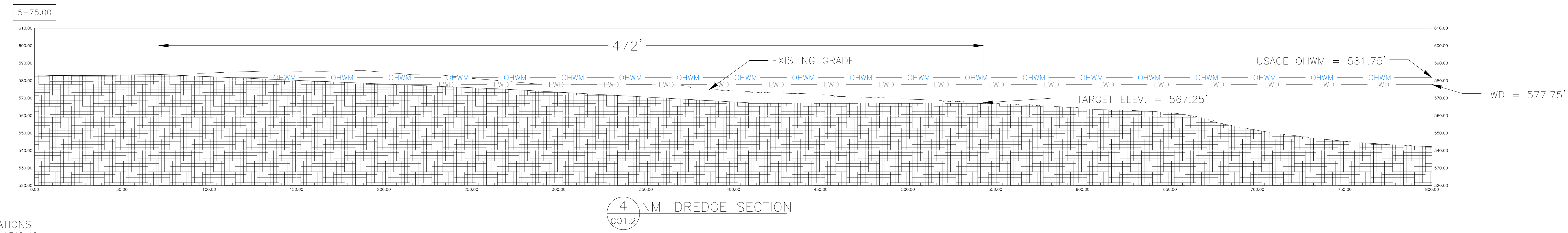
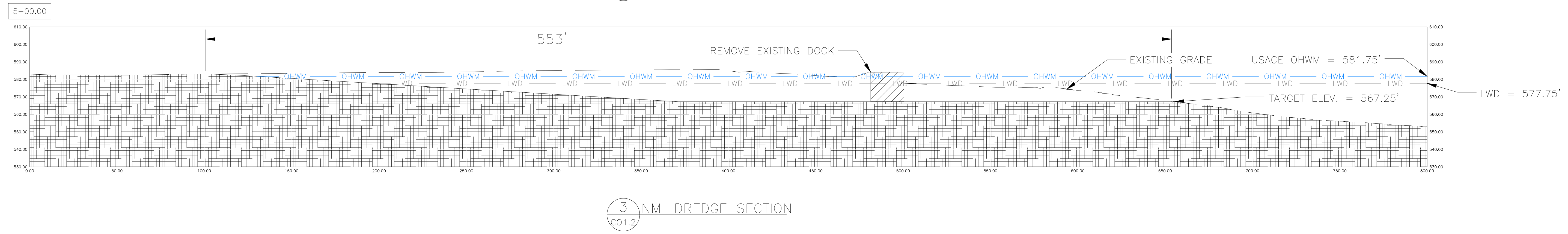
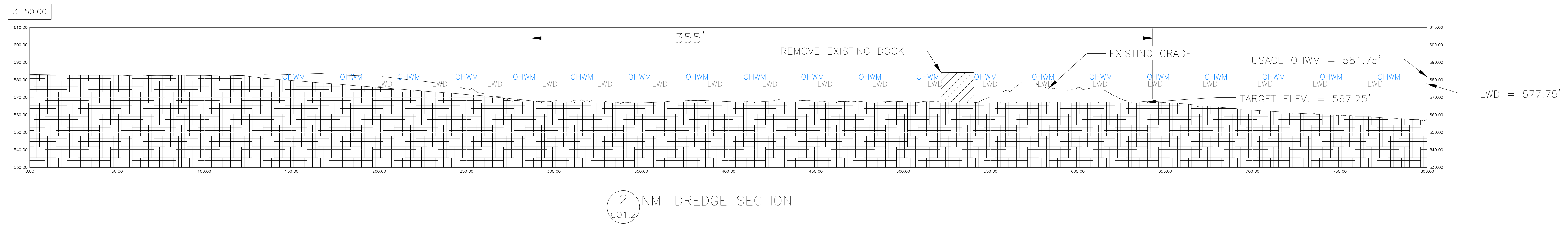
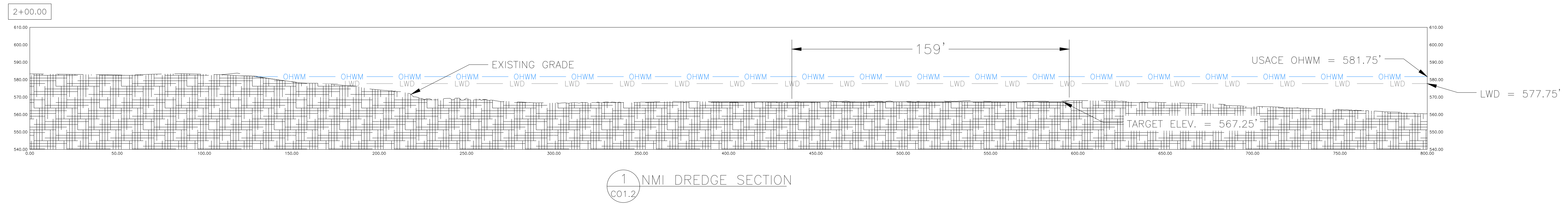
CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
BY: Sleeping Bear Dunes National Lakeshore, National Park Service
LEELANAU County, MI
SHEET 10 OF 20 **LAKE MICHIGAN**

DREDGING

- DISPOSE OF ALL DREDGE MATERIAL AS SHOWN ON PLANS AND IN ACCORDANCE WITH ALL PERMITS.
- DISPOSED MATERIAL IN CONTAINMENT SITE SHALL BE UNIFORMLY GRADED.
- ALL WORK PERFORMED DURING THE CONTRACT SHALL PROVIDE AND MAINTAIN ENVIRONMENTAL PROTECTIVE MEASURES AS DETERMINED BY REGULATORY AGENCIES.
- THE CONTRACTOR SHALL COORDINATE WORK WITH DOCK OWNERS TO MINIMIZE INTERFERENCES IN THE CHANNEL OR SLIP.
- DREDGING OPERATIONS ADJACENT TO EXISTING STRUCTURES SHALL BE DONE WITH CARE TO ENSURE THE STABILITY OF PIERS, BULKHEADS, AND OTHER STRUCTURES. ANY DAMAGE TO EXISTING STRUCTURES SHALL BE REPORTED TO THE OWNERS REPRESENTATIVE IMMEDIATELY AND ANY REPAIRS REQUIRED SHALL BE COMPLETED AT NO EXTRA COST TO THE OWNER.
- THE CONTRACTOR SHALL DREDGE SITE TO THE LIMITS SHOWN ON THE PLANS AND ACCORDANCE TO THE SPECIFICATIONS.
- MARINE SURVEYS WILL BE PERFORMED BY ENGINEER BEFORE AND AFTER DREDGE OPERATIONS FOR MEANS OF PAYMENT. ENGINEER WILL USE TIN MODELING METHOD TO DETERMINE VOLUMES REMOVED.
- NO PAYMENT FOR DREDGE MATERIAL REMOVED OUTSIDE DREDGE LIMITS WILL BE MADE BY OWNER.
- CONTRACTOR SHALL MAKE ALLOWANCES IN BID TO INCLUDE ADDITIONAL COSTS IN OVER DREDGING TO OBTAIN MINIMUM DEPTHS.

FINAL CONSTRUCTION DOCUMENTS			
A/E FIRM	DESIGNED:	SUB SHEET NO	TITLE OF SHEET
PRIME: VHB WILLIAMSBURG, VA	MHO	001.1	DRAWING NO. 634 177759 PMIS/PKG NO. SLBE-318729 SHEET 57 of 188
SUB: AMI SUPERIOR, WI	BRG		
	TECH. REVIEW: WPK DATE: 10/02/2024		

8/11/2023 2:04 PM z:\2021\212085 nps vhb facility rehab on manitou islands sbe\permitting and environmental compliance\psets\CAD\mri - ALT. BID.dwg



UNDERGROUND UTILITY LOCATIONS SHOWN ARE BASED UPON VARIOUS RECORD UTILITY MAPS IN CONJUNCTION WITH VISIBLE EVIDENCE GATHERED DURING THE TIME THE FIELD SURVEY WAS PERFORMED. THEREFORE, ALL UNDERGROUND UTILITY LOCATIONS SHOULD BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

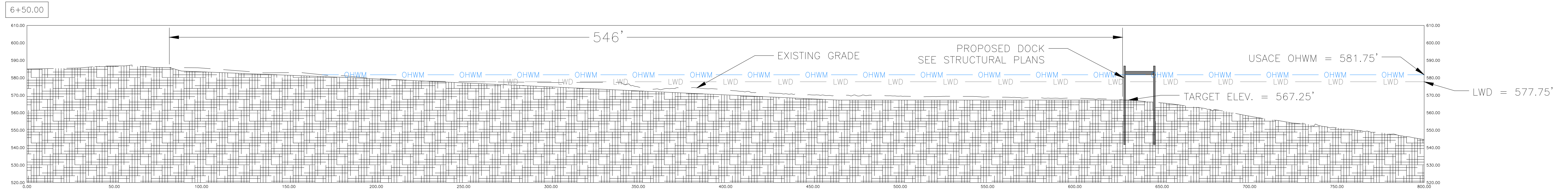
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CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
BY: Sleeping Bear Dunes National Lakeshore, National Park Service
LEELANAU County, MI
SHEET 11 OF 20
LAKE MICHIGAN

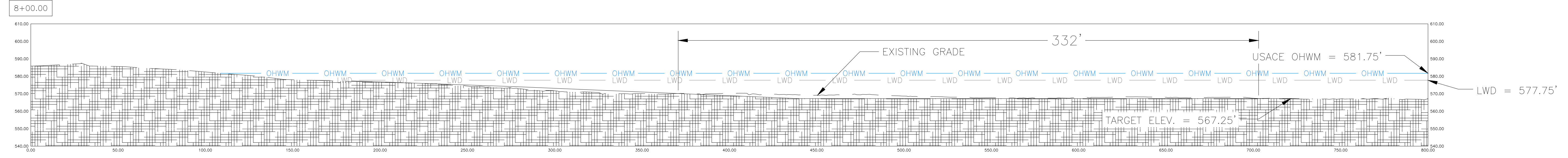
FINAL CONSTRUCTION DOCUMENTS

A/E FIRM: PRIME: VHB WILLIAMSBURG, VA	DESIGNED: MHO BRG	SUB SHEET NO: C01.2	TITLE OF SHEET	DRAWING NO. 634 177759
SUB: AMI SUPERIOR, WI	TECH. REVIEW: WPK	DATE: 10/02/2024		PMIS/PKG NO. SLBE-318729
				SHEET 58 of 188

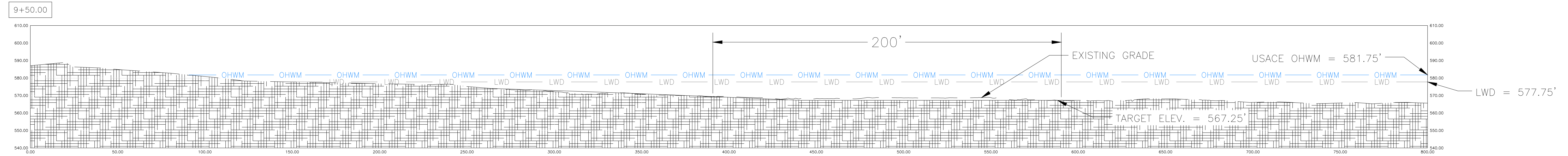
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1 NMI DREDGE SECTION
C01.3



2 NMI DREDGE SECTION
C01.3



3 NMI DREDGE SECTION
C01.3

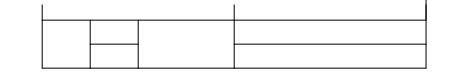
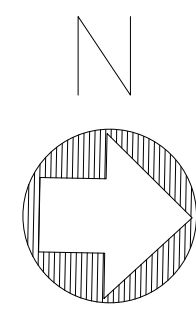
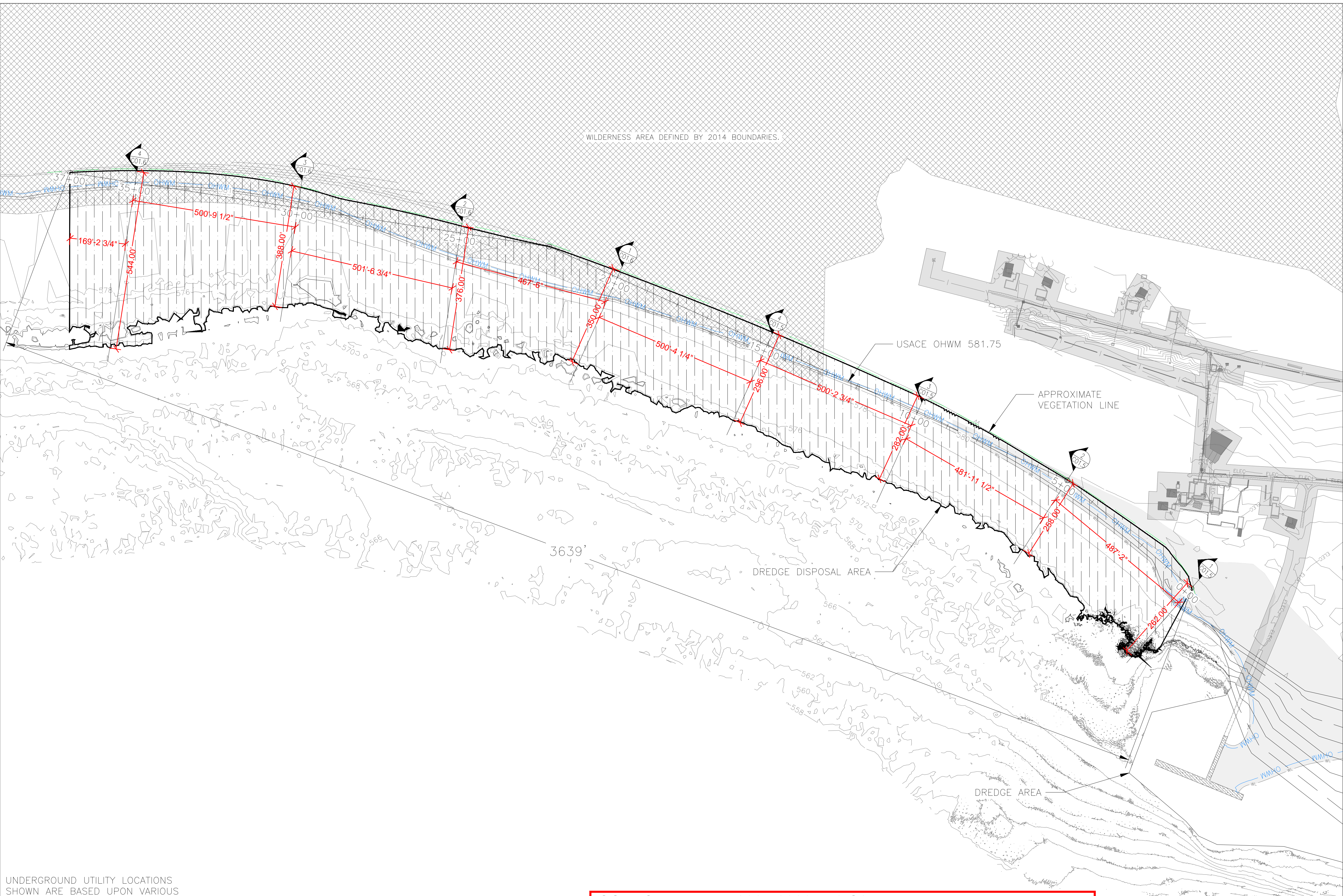
CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
BY: Sleeping Bear Dunes National Lakeshore, National Park Service
LEELANAU County, MI
SHEET 12 OF 20 **LAKE MICHIGAN**

UNDERGROUND UTILITY LOCATIONS SHOWN ARE BASED UPON VARIOUS RECORD UTILITY MAPS IN CONJUNCTION WITH VISIBLE EVIDENCE GATHERED DURING THE TIME THE FIELD SURVEY WAS PERFORMED. THEREFORE, ALL UNDERGROUND UTILITY LOCATIONS SHOULD BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

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FINAL CONSTRUCTION DOCUMENTS			TITLE OF SHEET	DRAWING NO.
A/E FIRM	DESIGNED:	SUB SHEET NO.		634
PRIME:	MHO	C01.3		177759
VHB WILLIAMSBURG, VA	BRG			PMIS/PKG NO. SLBE-318729
SUB:	TECH. REVIEW:			SHEET
AMI SUPERIOR, WI	WPK		59 of 188	
	DATE:			
	10/02/2024			

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DREDGING LEGEND:

- PROPOSED CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING DOCK
- PROPOSED DOCK
- WILDERNESS BOUNDARY

UNDERGROUND UTILITY LOCATIONS SHOWN ARE BASED UPON VARIOUS RECORD UTILITY MAPS IN CONJUNCTION WITH VISIBLE EVIDENCE GATHERED DURING THE TIME THE FIELD SURVEY WAS PERFORMED. THEREFORE, ALL UNDERGROUND UTILITY LOCATIONS SHOULD BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

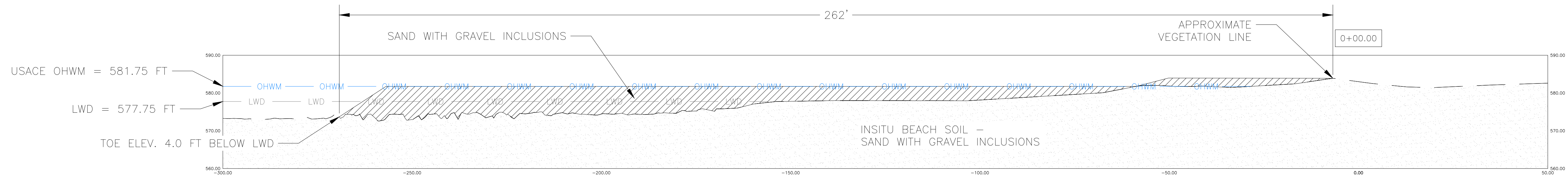
THIS DRAWING ONLY REFLECTS AND VERIFIES THE FIELD SURVEY DATA OF THOSE FEATURES AND CONDITIONS PRESENT AS OF MAY 7, 2023.

CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
BY: Sleeping Bear Dunes National Lakeshore, National Park Service
LEELANAU County, MI
SHEET 13 OF 20 **LAKE MICHIGAN**

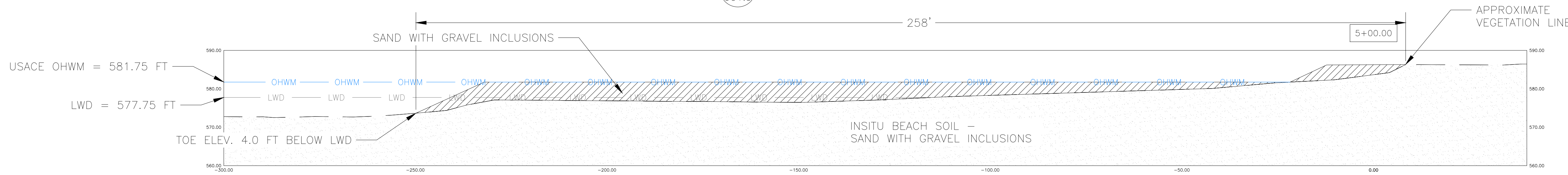
FINAL CONSTRUCTION DOCUMENTS

A/E FIRM: PRIME: VHB WILLIAMSBURG, VA	DESIGNED: MHO	SUB SHEET NO. C01.4	TITLE OF SHEET	DRAWING NO. 634
SUB: AMI SUPERIOR, WI	TECH. REVIEW: BRG	DATE: 10/02/2024		PMIS/PKG NO. SLBE-318729
				SHEET 60 of 188

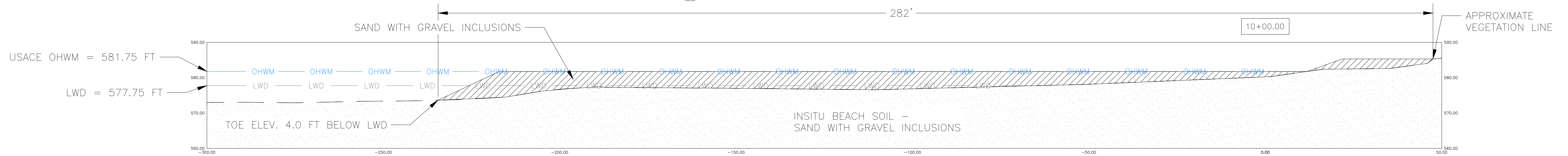
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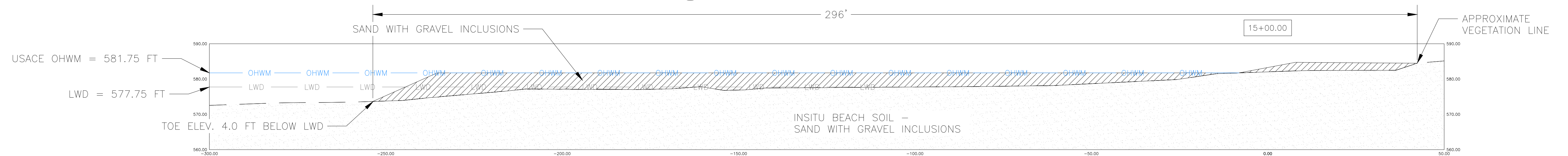
1 NMI DREDGE DISPOSAL SECTION
C01.5



2 NMI DREDGE DISPOSAL SECTION
C01.5



3 NMI DREDGE DISPOSAL SECTION
C01.5



4 NMI DREDGE DISPOSAL SECTION
C01.5

UNDERGROUND UTILITY LOCATIONS SHOWN ARE BASED UPON VARIOUS RECORD UTILITY MAPS IN CONJUNCTION WITH VISIBLE EVIDENCE GATHERED DURING THE TIME THE FIELD SURVEY WAS PERFORMED. THEREFORE, ALL UNDERGROUND UTILITY LOCATIONS SHOULD BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

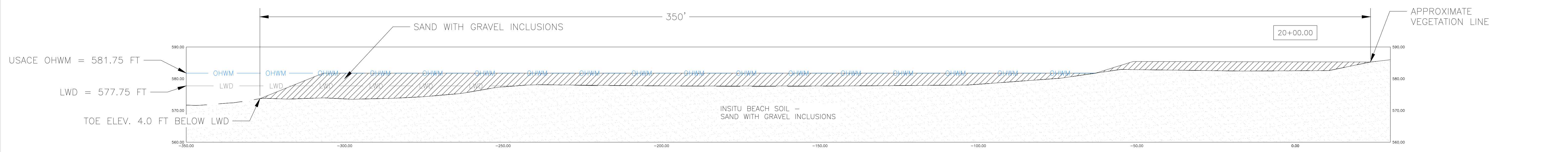
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CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
BY: Sleeping Bear Dunes National Lakeshore, National Park Service
LEELANAU County, MI
SHEET 14 OF 20 **LAKE MICHIGAN**

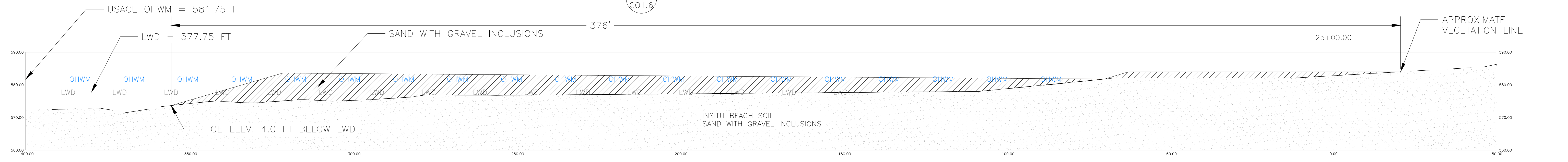
FINAL CONSTRUCTION DOCUMENTS

A/E FIRM PRIME: VHB WILLIAMSBURG, VA	DESIGNED: MHO BRG	SUB SHEET NO. C01.5	TITLE OF SHEET	DRAWING NO. 634 177759
SUB: AMI SUPERIOR, WI	TECH. REVIEW: WPK	DATE: 10/02/2024		PMIS/PKG NO. SLBE-318729
				SHEET 61 of 188

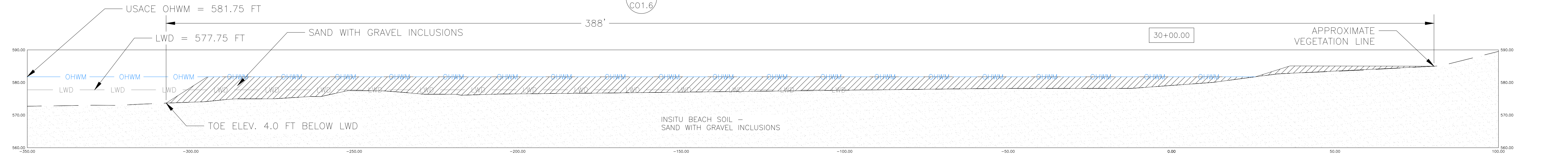
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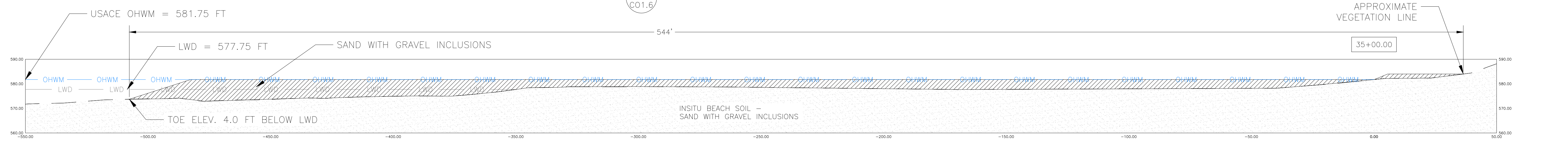
1 NMI DREDGE DISPOSAL SECTION
C01.6



2 NMI DREDGE DISPOSAL SECTION
C01.6



3 NMI DREDGE DISPOSAL SECTION
C01.6



4 NMI DREDGE DISPOSAL SECTION
C01.6

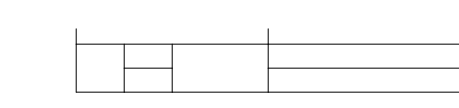
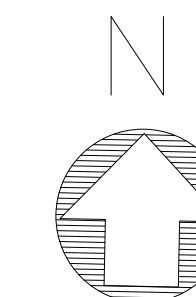
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CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
BY: Sleeping Bear Dunes National Lakeshore, National Park Service
LEELANAU County, MI
SHEET 15 OF 20
LAKE MICHIGAN

A/E FIRM		DESIGNED:	SUB SHEET NO	TITLE OF SHEET	DRAWING NO.
PRIME: VHB WILLIAMSBURG, VA		MHO	C01.6		634
SUB: AMI SUPERIOR, WI		BRG			177759
		WPK			PMIS/PKG NO. SLBE-318729
		DATE: 10/02/2024			SHEET 62 of 188

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SWPPP LEGEND:

—□— BIOROLL OR SILT FENCE

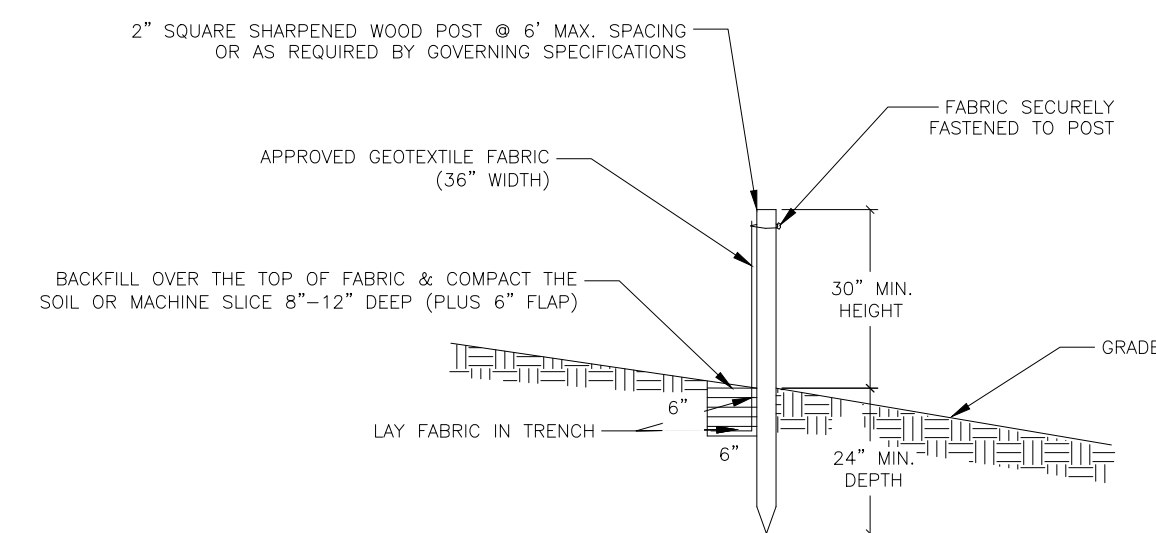
CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
BY: Sleeping Bear Dunes National Lakeshore, National Park Service
LEELANAU County, MI
SHEET 16 OF 20 **LAKE MICHIGAN**

UNDERGROUND UTILITY LOCATIONS SHOWN ARE BASED UPON VARIOUS RECORD UTILITY MAPS IN CONJUNCTION WITH VISIBLE EVIDENCE GATHERED DURING THE TIME THE FIELD SURVEY WAS PERFORMED. THEREFORE, ALL UNDERGROUND UTILITY LOCATIONS SHOULD BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

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FINAL CONSTRUCTION DOCUMENTS			
A/E FIRM	DESIGNED:	SUB SHEET NO	TITLE OF SHEET
PRIME: VHB WILLIAMSBURG, VA	MHO		
SUB: AMI SUPERIOR, WI	BRG	CO1.7	
	WPK		
	DATE: 10/02/2024		
			DRAWING NO. 634 177759 PMIS/PKG NO. SLBE-318729 SHEET 63 of 188

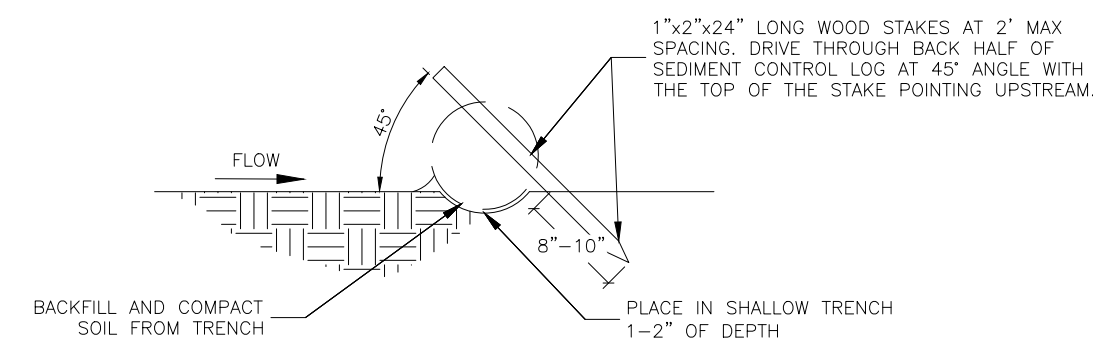
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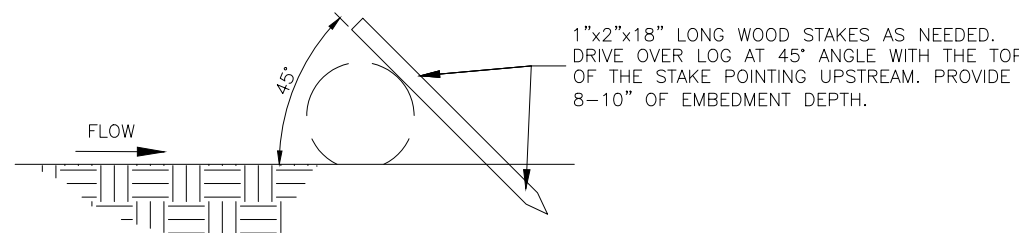
NOTES:

1. POST SPACING SHALL NOT EXCEED 6 FEET.
2. POST TO BE ON LOWER SIDE OF SLOPE (TOWARD PROPERTY BOUNDARY OR POND SIDE) AND FENCE UPSTREAM.
3. GEOTEXTILE FABRIC SHALL BE "MIRAFI" TYPE OR APPROVED EQUAL.
4. TRENCH SHALL BE A MIN. OF 6 INCHES DEEP BY 6 INCHES WIDE.
5. MACHINE SLICED METHOD IS ACCEPTABLE.
6. SEE EROSION CONTROL PLAN OR SWPPP FOR REPAIR AND MAINTENANCE.

1 SILT FENCE DETAIL
C01.8



DETAIL FOR TYPES: STRAW, WOOD FIBER OR COIR
NOT FOR USE ON HARD SURFACES



DETAIL FOR TYPES: WOOD CHIP, COMPOST OR ROCK
MAY BE USED ON HARD SURFACES. NO STAKES IF SHOWN ON HARD SURFACES.

NOTES:

1. SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1 FOOT FOR DITCH CHECKS OR 2 FEET FOR OTHER APPLICATIONS.
2. PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.

2 BIOROLL DETAIL
C01.8

UNDERGROUND UTILITY LOCATIONS SHOWN ARE BASED UPON VARIOUS RECORD UTILITY MAPS IN CONJUNCTION WITH VISIBLE EVIDENCE GATHERED DURING THE TIME THE FIELD SURVEY WAS PERFORMED. THEREFORE, ALL UNDERGROUND UTILITY LOCATIONS SHOULD BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

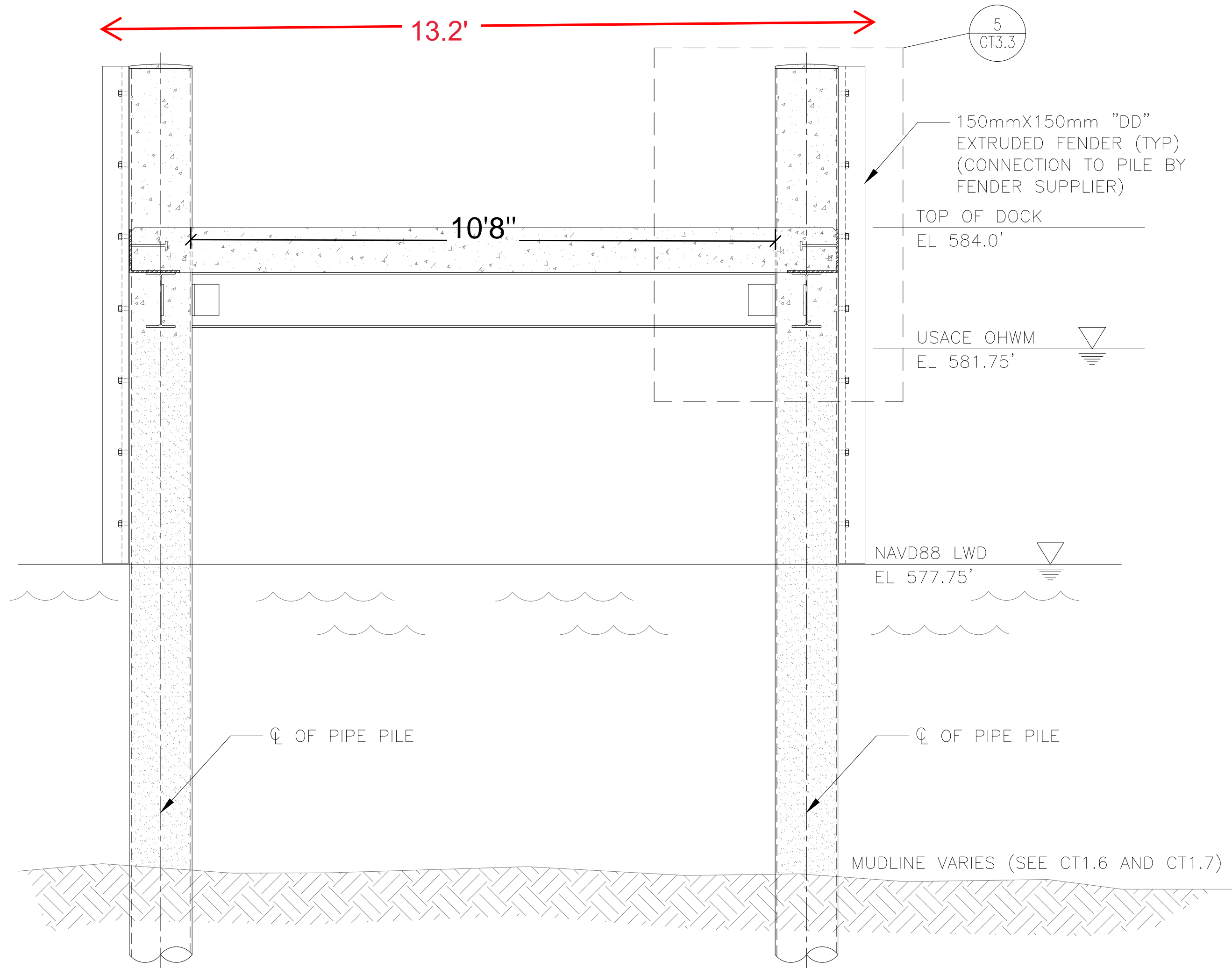
THIS DRAWING ONLY REFLECTS AND VERIFIES THE FIELD SURVEY DATA OF THOSE FEATURES AND CONDITIONS PRESENT AS OF MAY 7, 2023.

CORPS FILE: LRE-2024-00265-56-S24
 NORTH MANITOU ISLAND - REHABILITATION PROJECT
 BY: Sleeping Bear Dunes National Lakeshore, National Park Service
 LEELANAU County, MI
 SHEET **17** OF **20** LAKE MICHIGAN

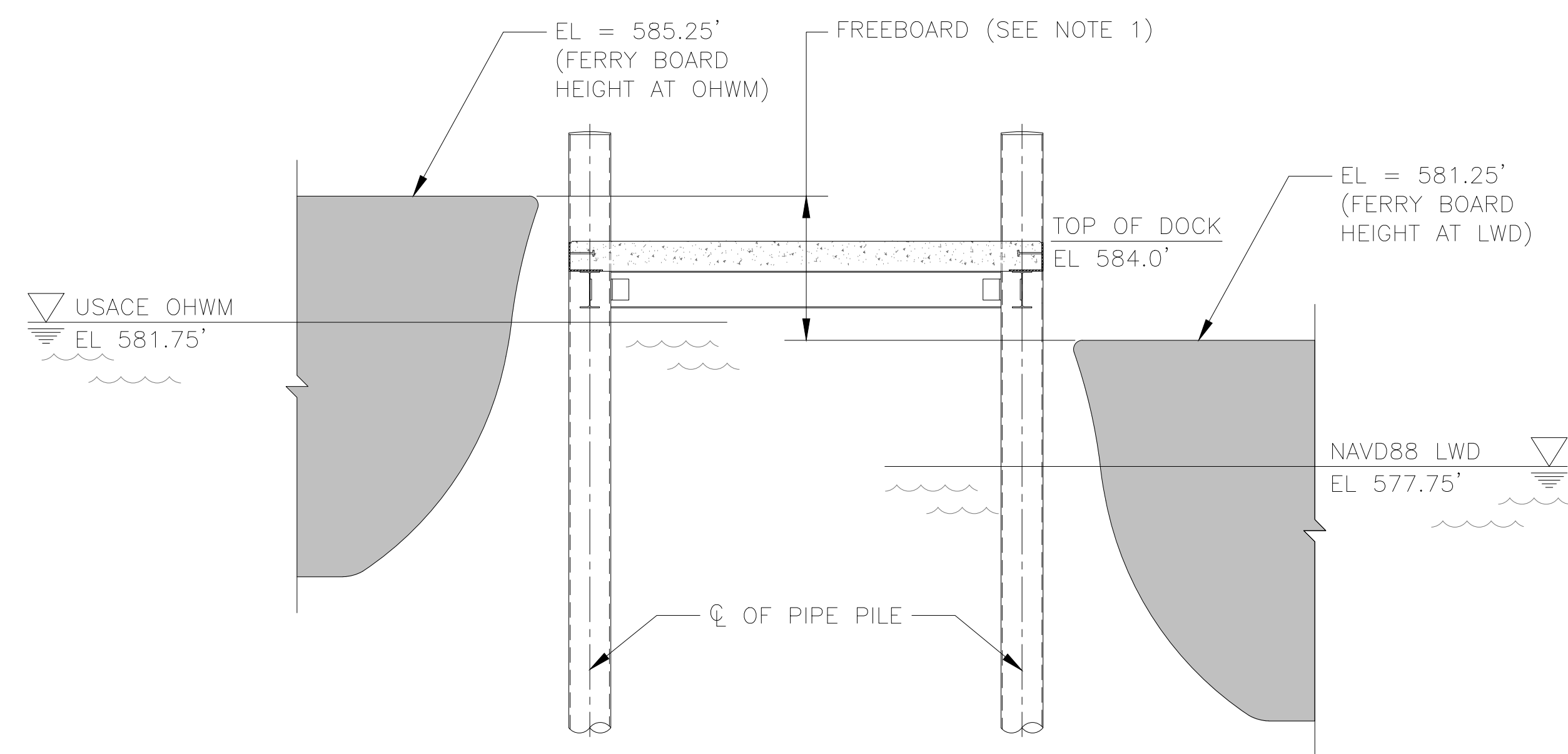
FINAL CONSTRUCTION DOCUMENTS

A/E FIRM	DESIGNED:	SUB SHEET NO
PRIME:	MHO	
VHB	2/1/2/2	
WILLIAMSBURG, VA	BRG	
SUB:	TECH. REVIEW:	C01.8
AMI	WPK	
SUPERIOR, WI	DATE:	
	10/02/2024	

8/11/2023 2:04 PM z:\2021\212085 nps vhb facility rehab on manitou islands slbe\permitting and environmental compliance\psets\CAD\mri usace\CT3.1 TYPICAL DOCK DETAILS.dwg

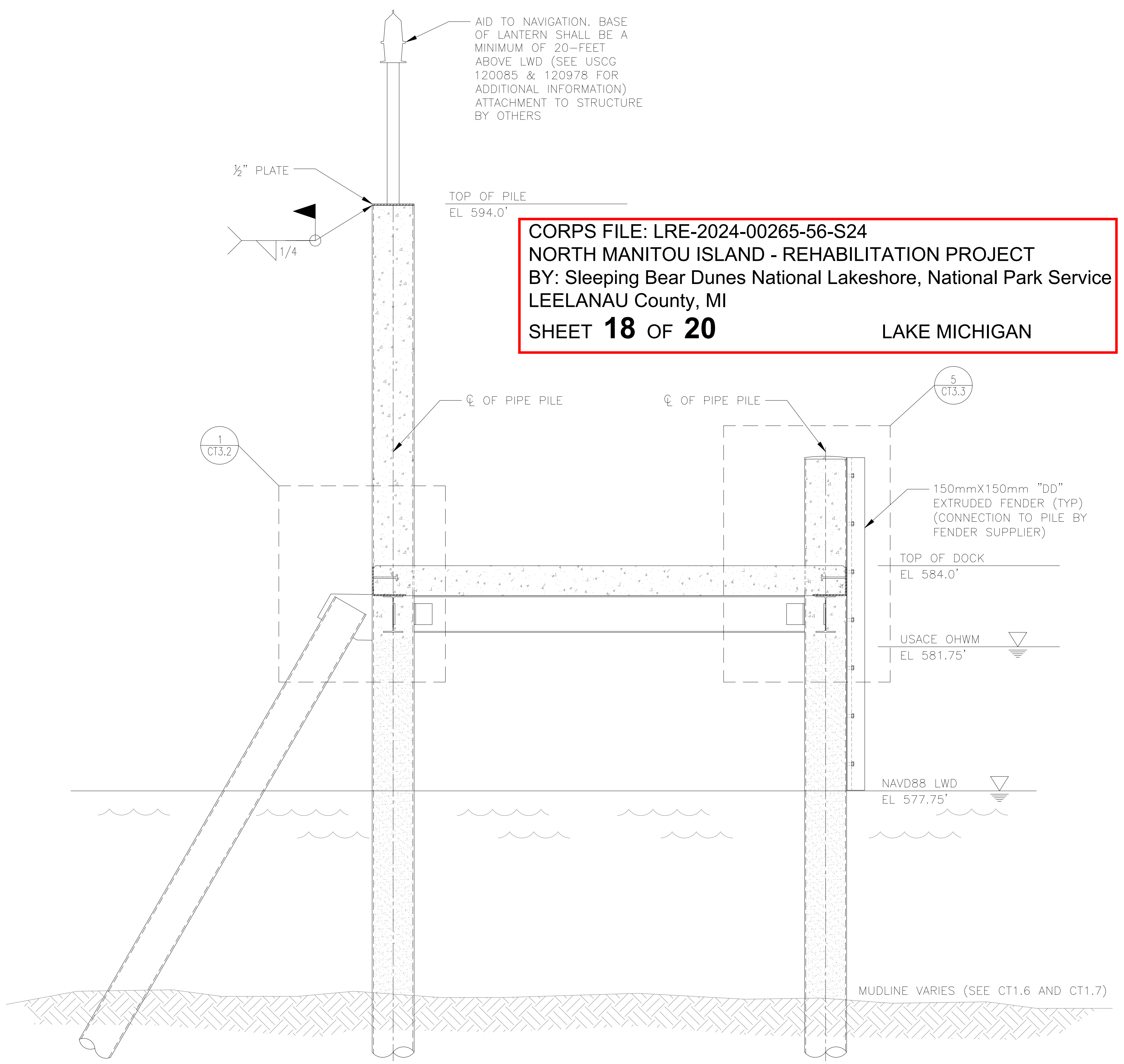


1 TYPICAL DOCK SECTION
CT3.1 1" = 20'-0"



3 FERRY BOARD HEIGHT SECTION AT DOCK
CT3.1 1" = 40'-0"

- DIFFERENTIAL BETWEEN BOARD HEIGHT (3.5 FT ABOVE WATERLINE) AND DOCK DEPENDANT ON WATERLINE ELEVATION. FREEBOARD VARIES BETWEEN (+)10" (HIGH WATER LEVEL) AND (-)8" (LOW WATER LEVEL). POSITIVE DIMENSION INDICATES STEP DOWN AND NEGATIVE DIMENSION INDICATES STEP UP WHEN DEBOARDING TENDER TUG.
- FREEBOARD DETERMINATION BASED ON HIGH WATER LEVEL OF 581.75' AND LOW WATER LEVEL OF 577.75'

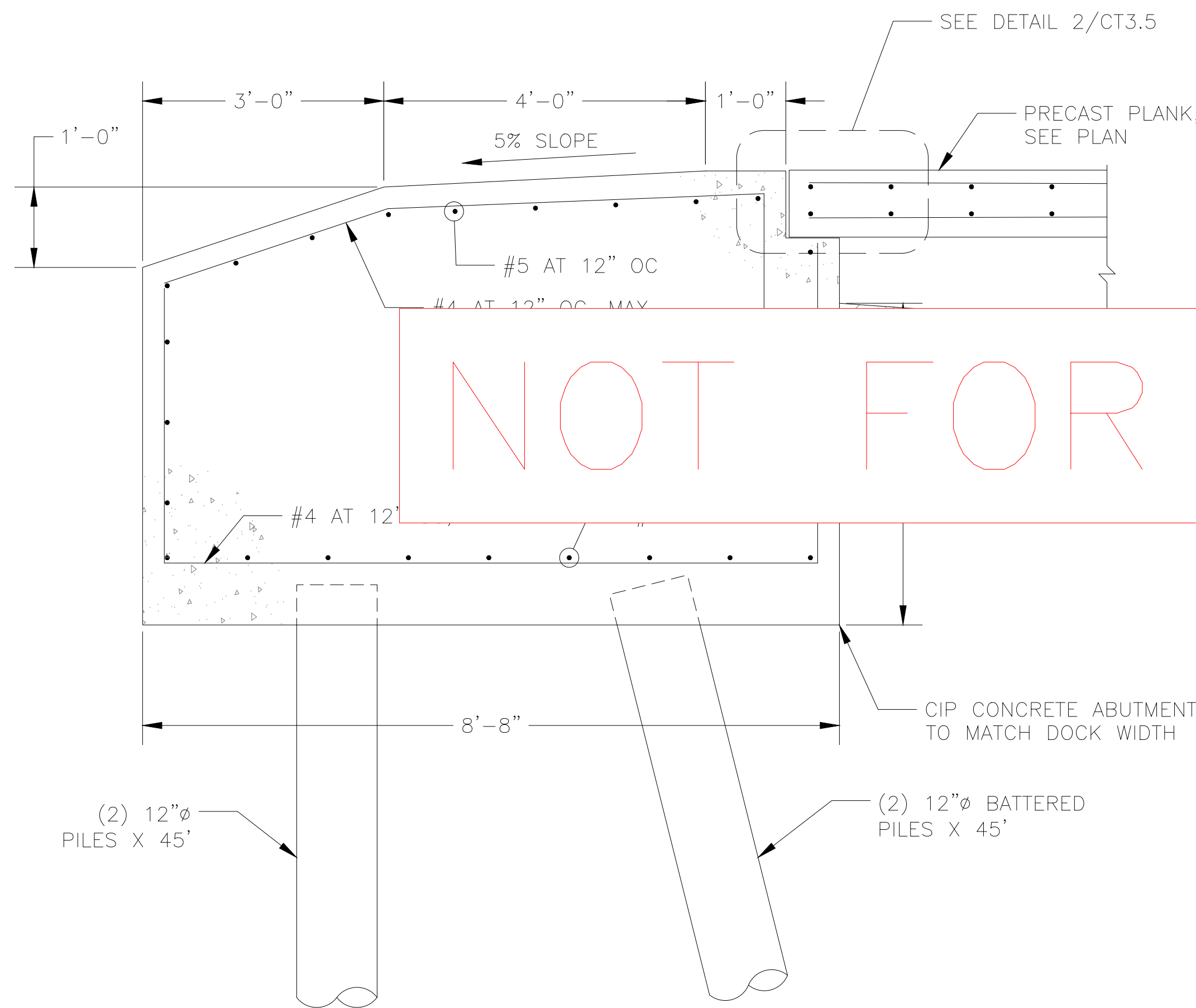


2 TYPICAL BATTER PILE SECTION WITH NAVIGATION LIGHT
CT3.1 1" = 20'-0"

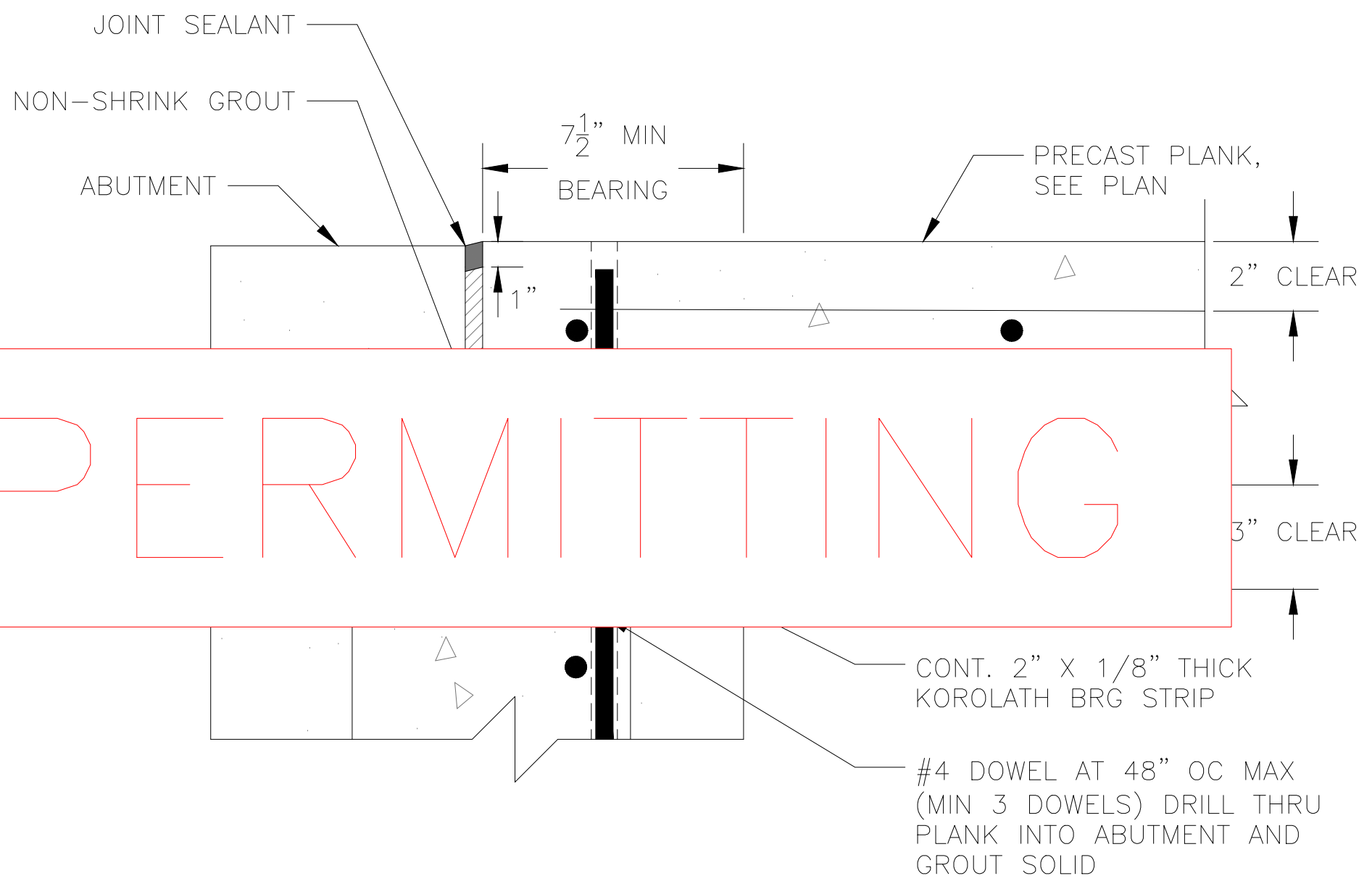
CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
BY: Sleeping Bear Dunes National Lakeshore, National Park Service
LEELANAU County, MI
SHEET 18 OF 20
LAKE MICHIGAN

FINAL CONSTRUCTION DOCUMENTS			TITLE OF SHEET	
A/E FIRM PRIME: VHB WILLIAMSBURG, VA	DESIGNED: MHO BRG	SUB SHEET NO. CT3.1	TYPICAL DOCK DETAILS	
SUB: AMI SUPERIOR, WI	TECH. REVIEW: WPK	DATE: 10/02/2024	FACILITY REHABILITATION ON MANITOU ISLANDS	
			SLEEPING BEAR DUNES NATIONAL LAKESHORE	
			DRAWING NO. 634	177759
			PMIS/PKG NO. SLBE-318729	SHEET 159 OF 188

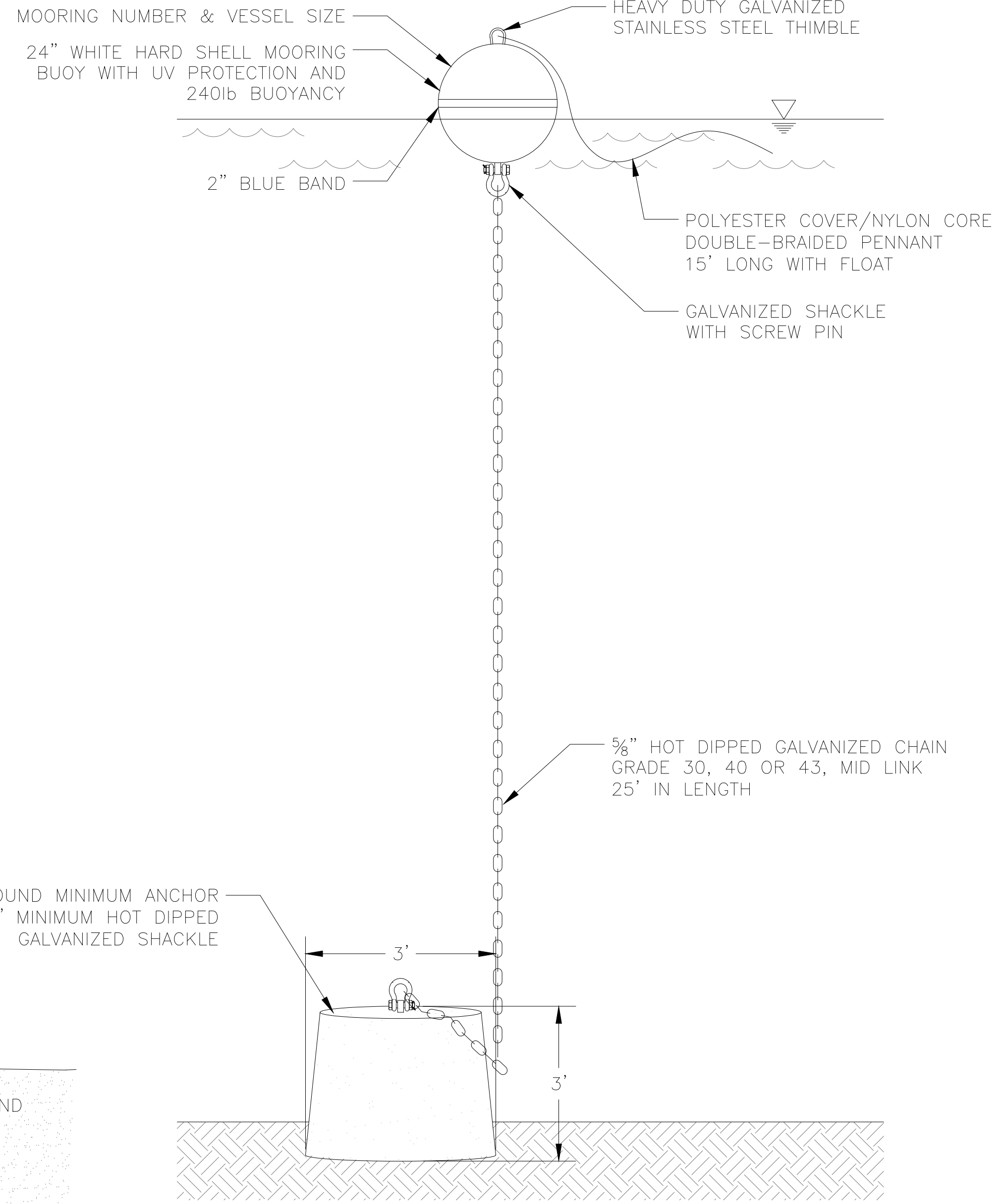
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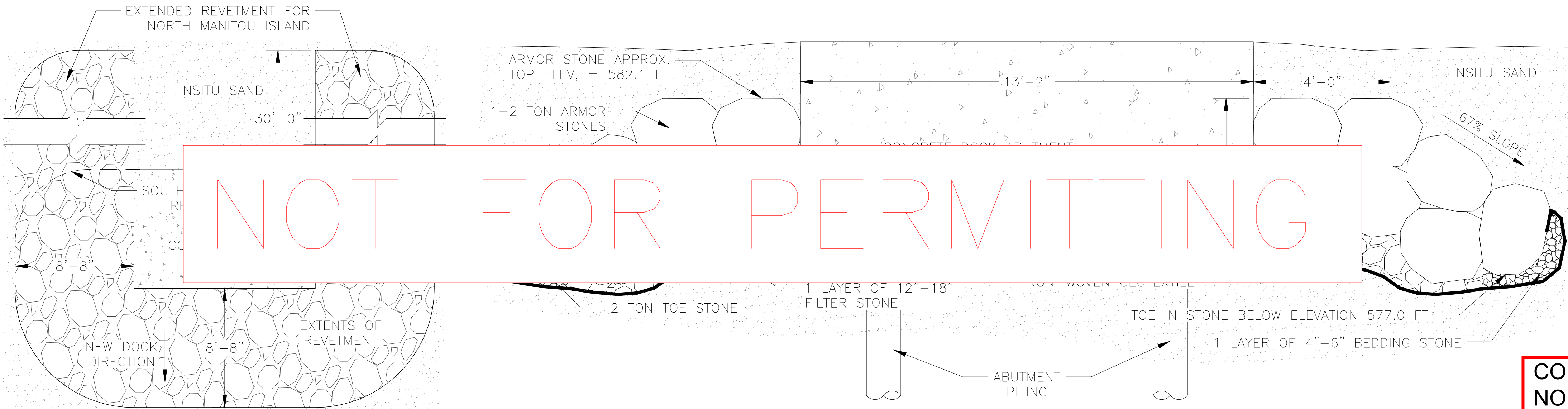
1 ABUTMENT SECTION
CT3.5 3/4" = 1'-0"



2 ABUTMENT DETAIL
CT3.5 3" = 1'-0"



3 SINGLE POINT MOORING DETAIL
CT3.5 1/2" = 1'-0"



4 ABUTMENT SCOUR STONE PLANVIEW
CT3.5 1" = 5'-0"

5 ABUTMENT SCOUR STONE SECTION
CT3.5 1" = 2'-0"

- EXISTING HISTORICAL PILING AND STRUCTURES MAY BE ENCOUNTERED AT ABUTMENT LOCATIONS. REMOVE AS REQUIRED FOR CONSTRUCTION.

CORPS FILE: LRE-2024-00265-56-S24
NORTH MANITOU ISLAND - REHABILITATION PROJECT
BY: Sleeping Bear Dunes National Lakeshore, National Park Service
LEELANAU County, MI
SHEET 20 OF 20
LAKE MICHIGAN

FINAL CONSTRUCTION DOCUMENTS		TITLE OF SHEET		DRAWING NO.
A/E FIRM	DESIGNED:	ABUTMENT & MOORING DETAILS		634
PRIME:	MHO	FACILITY REHABILITATION		177759
VHB	WILLIAMSBURG, VA	ON MANITOU ISLANDS		PMIS/PKG NO.
SUB:	BRG	SLEEPING BEAR DUNES NATIONAL LAKESHORE		SLBE-318729
AMI	TECH. REVIEW:	SHEET		163 OF 188
SUPERIOR, WI	WPK	SHEET		
	DATE:	SHEET		
	10/02/2024	SHEET		