

OGDENSBURG BRIDGE AND PORT AUTHORITY
FACILITIES COMMITTEE MEETING AGENDA
MONDAY, MARCH 27, 2023 – 5:00 PM

1) Business Items

a) Port of Ogdensburg

- i) Port Dock Expansion project update- Discussion from FVD Engineering (FOTH) on Dual Bid Option for the Project. (20 min)

b) Ogdensburg International Airport

- i) Signage (Bridge to Airport Route) and
- ii) Wayfinding Discussion with Julie Margot of Margot Designs (20 min)
- iii) GSE (Ground Support Equipment) building proposed relocation
- iv) EV Chargers update
- v) Solar Canopies update

c) Commerce Park:

d) Childcare Initiative update

e) Heavy Industrial Park

f) Solar Farm general discussion

2) Other Such Matters

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March 7, 2023

TO: Steve Lawrence – Ogdensburg Bridge and Port Authority
CC: Susan Nilson and Scott Skuncik – FVD Engineering Services S.C.
FR: Mark Salehi and Troy Gawronski – FVD Engineering Services S.C.
RE: Terminal Expansion Dual Design Option
Port of Ogdensburg

Introduction

This memo provides an update on the terminal expansion design and dredging of the channel and berth at the Port of Ogdensburg (Port).

FVD Engineering Services S.C. (Foth) and Tisdell Associates (Tisdell) began working with the Ogdensburg Bridge & Port Authority (OB&PA) in 2016 to provide engineering, permitting, and construction phase services. The Work Schedule, included in the New York Department of Transportation (NYDOT) Grant Agreement (Contract No. DR37079), describes the project as the expansion of the OB&PA's main dock facility by 500 feet to provide additional berth capacity for St. Lawrence Seaway vessels. The additional berth, in concert with the dredging, will allow for significant increase economic activity at the Port. There is no proposed change to this scope of work; however, due to changes in the U.S. Army Corps of Engineers' (USACE) dredging project, the OB&PA is required to re-evaluate the design and costs associated with the terminal expansion to move forward with this key project.

The OB&PA is currently the Non-Federal sponsor for the Ogdensburg Harbor Federal Navigation Improvement Project (FNIP) that was planned by the USACE (Buffalo District Office). As the Non-Federal sponsor of the FNIP, OB&PA permitted and planned to have a 100-foot wide by 500 foot long channel berthing area dredged to support activities at the proposed dock wall expansion.

With the USACE and OB&PA, collectively, deepening the navigable waterway to a depth of -27 feet low water datum (LWD), all Federal and Non-Federal channel depths along the Port's current and future dock terminal face would be the same. Deepening the channel depth in the Lower East Federal Entrance Channel, adjacent to the Port's existing dock terminal and expansion, will continue to result in reduced vessel costs, decreased port facility commodity handling costs, decreased dock congestion, and increased business opportunities. Unfortunately, due to limited bidder interest and bid pricing that exceeded the USACE's available funding, the USACE has placed the FNIP on hold and as such the OB&PA is now planning to advance the terminal expansion prior to the FNIP and is required to consider a portion of the berth deepening as part of this project.

The original construction phasing for the projects included the FNIP dredging the non-federal berth including the side slope in the terminal expansion area prior to the construction of the terminal. Now that the FNIP is on hold, Foth considered the requirements for pre-excavation/dredging of the area within and adjacent to the terminal structure given that the till and rock elevations are anticipated to require blasting to achieve the target depths. Blasting after the terminal is completed will require offsets from the structure and presents significant risks. Therefore, to attain berth clearance, the drilling, blasting, and dredging must be conducted prior to pile installation.

The costs for this blasting and dredging work were considered part of the cost share as the Non-Federal sponsor; and now that this work must be conducted as part of the OB&PA terminal expansion, Foth has updated the construction cost estimate and also considered alternatives to minimize the dredging work associated with the terminal in advance of the FNIP. The structural design alternatives were evaluated for achieving the design criteria, minimizing required pre-dredging, and in consideration of the changes in material and installation costs. Based on limited contractor availability in this area and costs of construction increasing significantly since the original project estimate was prepared in 2018, there are grave concerns over the available budget for construction. Foth has evaluated additional design options and considered the minimum dredging that must be included in the terminal construction and presents our findings in the following sections.

Options for Terminal Structure

In 2017, Foth prepared an alternatives analysis considering circular cell cofferdams, circular cell cofferdams with mooring dolphin, arch cell cofferdams with independent dolphins, and a combination wall with steel sheets and socketed king piles for the 500 linear foot berth expansion. The circular cell cofferdams, with the mooring dolphin, was determined to be the preferred alternative and advanced to 75% design drawings in 2018. Foth has since continued to advance these drawings and specification package and are at approximately 95%.

Given the changes in material costs and contractor pricing, Foth recently revisited the structural alternatives analysis for the terminal expansion and recommends that an additional option be considered for design: an O-Pile system, which is presented as Option 2 below.

Option 1: Cell Construction with Dredging Prior to Construction

In this option, dredging will be performed prior to bulkhead construction. Dredging is expected to require drilling and blasting and will be completed at the face of the bulkhead to a depth of -27 feet plus 2 feet overdredge allowance for a width of 20 feet x 500 feet. The remainder of the berth (80 feet x 500 feet) will be dredged to -20-feet LWD, with hope that the FNIP will complete the dredging to -27-feet LWD in the future. The seaway embankment is assumed to be stable at a 2H to 1V slope from the toe of dredging up the embankment. Dredging for this option requires removal of soft sediment, till and rock layers. Blasting is expected to be required prior to dredging of the till and rock layers, further supporting the need to complete the dredging to the target depth prior to the construction of the terminal expansion.

This cellular cofferdam option was originally proposed by Foth in 75% design drawings in 2018. In this scenario, the seaward sheets (front of the cells) will be installed to the final dredged depth with an underwater grouting placed behind the sheets to seal the toe. Steel sheets at the back of the cells up to a few feet behind the junction piles, will be driven to refusal: either the top

of remaining till or bedrock. A typical section from the 75% design drawing is shown as Figure 1. An overall Draft Plan Sheet is included as Attachment 1 (Cell Design Sheet S-100).

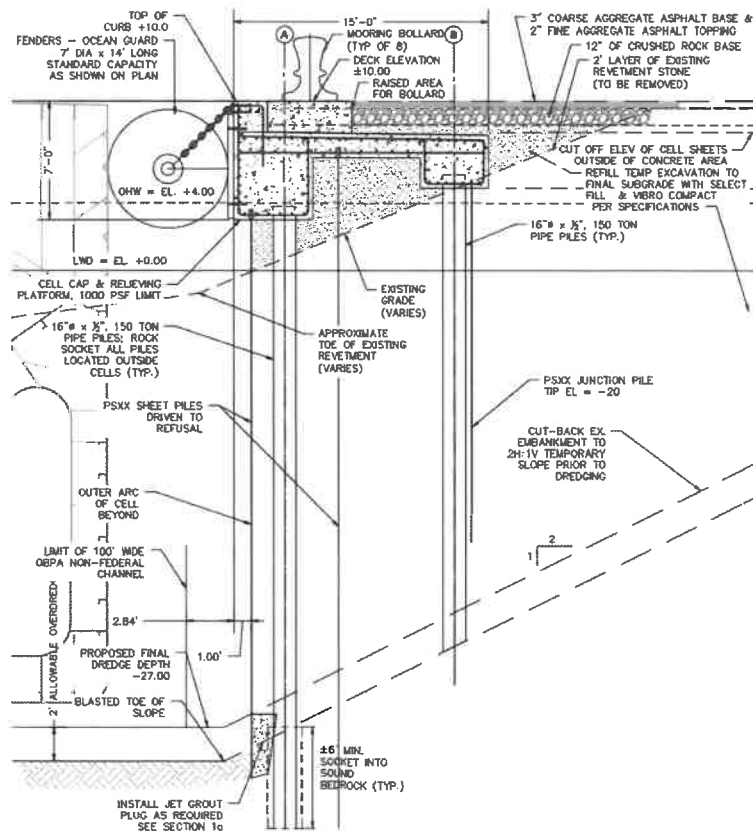


Figure 1: Dredging Prior to Construction of Cellular Bulkhead (Option 1)

Option 2: O-Pile Construction with Dredging Prior to Construction

In this option, dredging will also be performed in advance of bulkhead construction. The extent of dredging and composition of materials is the same as Option 1.

The O-Pile system is a structural alternative to the cellular cofferdams. In this scenario, a series of interlocking pipe piles combined with rock anchors will be installed. The pipe piles will be socketed into the bedrock by approximately 6 feet. With the socketed piles in place, underwater grouting will not be required in this option. A typical section is presented on Figure 2. An overall Draft Plan Sheet is included as Attachment 2 (O-Pile Design Sheet S-100A).

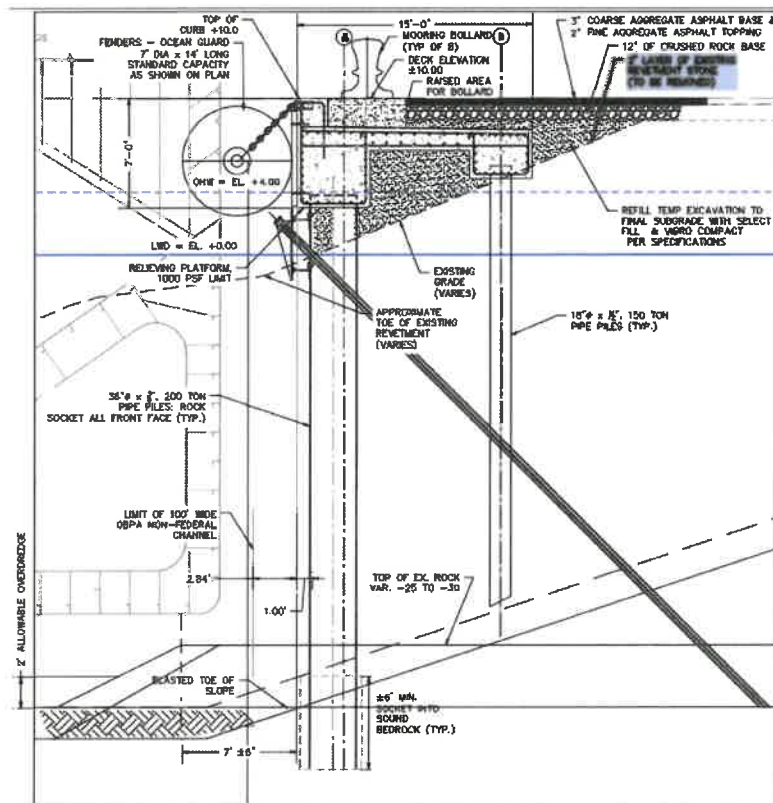
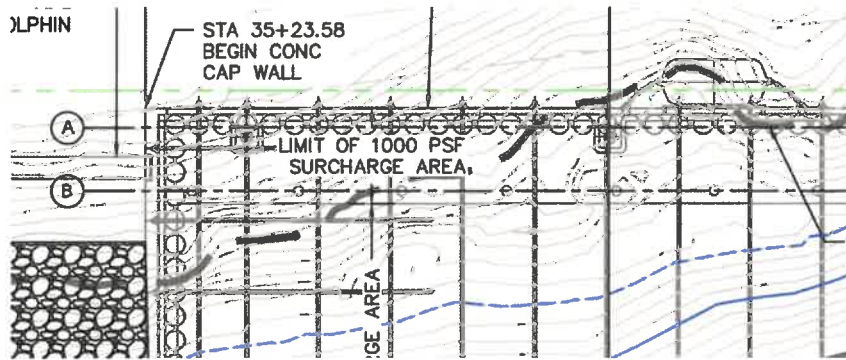


Figure 2: Dredging Prior to Construction Plus Interlocking Piles (Option 2)

Comparison of Structural Options

Foth has determined that both the cellular cofferdam and O-Pile system are appropriate structural solutions for the terminal expansion at this location. They each have advantages as well as constructability challenges, requiring different installation equipment and templates. Based on preliminary discussions with contractors, it appears that there is no clear preference between the two systems and that the pricing will be highly dependent on the material costs, experience and equipment of each contractor. The advantage for advancing and bidding both designs provides for a larger contractor pool available to bid on the project, which in turn should provide for more competitive pricing to construct the project.

From a cost perspective, Foth has prepared the following comparative construction budget estimates.

Option	Bulkhead Cost	Backfilling on Embankment (due to 2:1 dredge slope)	Berth Dredging to -20' LWD 100'X500'	Additional Blasting/Dredge/Hauling Cost (20' x 500' in front of bulkhead to -27' LWD)	Total Cost	Draft @ HWL (ft)	Allowable Surcharge (psf)
Option 1: Dredging Prior to Cells	\$18M	\$400K	500K	\$1.5M	\$20.4M	27	3000
Option 2: Dredging Prior to Interlocking Pipe Piles	\$17.7M	\$400K	500K	\$1.5M	\$20.1M	27	3000

The difference in estimated costs between the cellular cofferdam system and the O-Pile system is fairly small. Given the relative unpredictability for bidding, a significant marine infrastructure project in this location, Foth recommends that the OB&PA consider advancing both designs to an Issued for Bid set of documents.

Public Bidding Strategy

Foth and Steve Lawrence (OB&PA) recently met with representatives from the NYDOT on February 28, 2023, to discuss options for bidding two different terminal expansion designs. NYDOT was supportive of the idea and indicated that bidding more than one design has been completed on historical projects and would be acceptable to proceed forward on this path. They further stated that it helps capturing market response and volatility in the market. In some cases, bidding two projects resulted in saving significant cost and making projects feasible. The discussion included possible strategies for completing bidding which meet NYDOT requirements. The strategy would be to bid both options at the same time, each as a separate/standalone bid package. OB&PA could then evaluate the responses to each and decide which is in the best interest of OB&PA to award. This approach will allow contractors to bid on both options, or if one aligns better with their preferred means and methods, it will be represented in their bid pricing, and they are not obligated to bid on both packages.

Pricing to Complete the O-pile Design

Foth is prepared to advance the above-described O-pile design drawings and specifications package upon receipt of OB&PA's agreement. The scope of services would include development of required design drawings to construct the O-pile design, development of the engineering specifications, and development of the narrative describing the bidders' instructions to be compliant with public bidding requirements. Foth proposes to complete this described scope of services on a time and materials basis. The estimated time and materials cost to complete the O-pile design is \$85,500. If OB&PA is in agreement with advancing the second design, Foth will forward an Addendum to our Agreement for Services for finalization prior to advancing the work.

Attachment 1: Drawing S-100 – Cellular Bulkhead Design Layout and Section

Attachment 2: Drawing S-100A – Interlocking Pipe Piles Design Layout and Section

Attachment 1

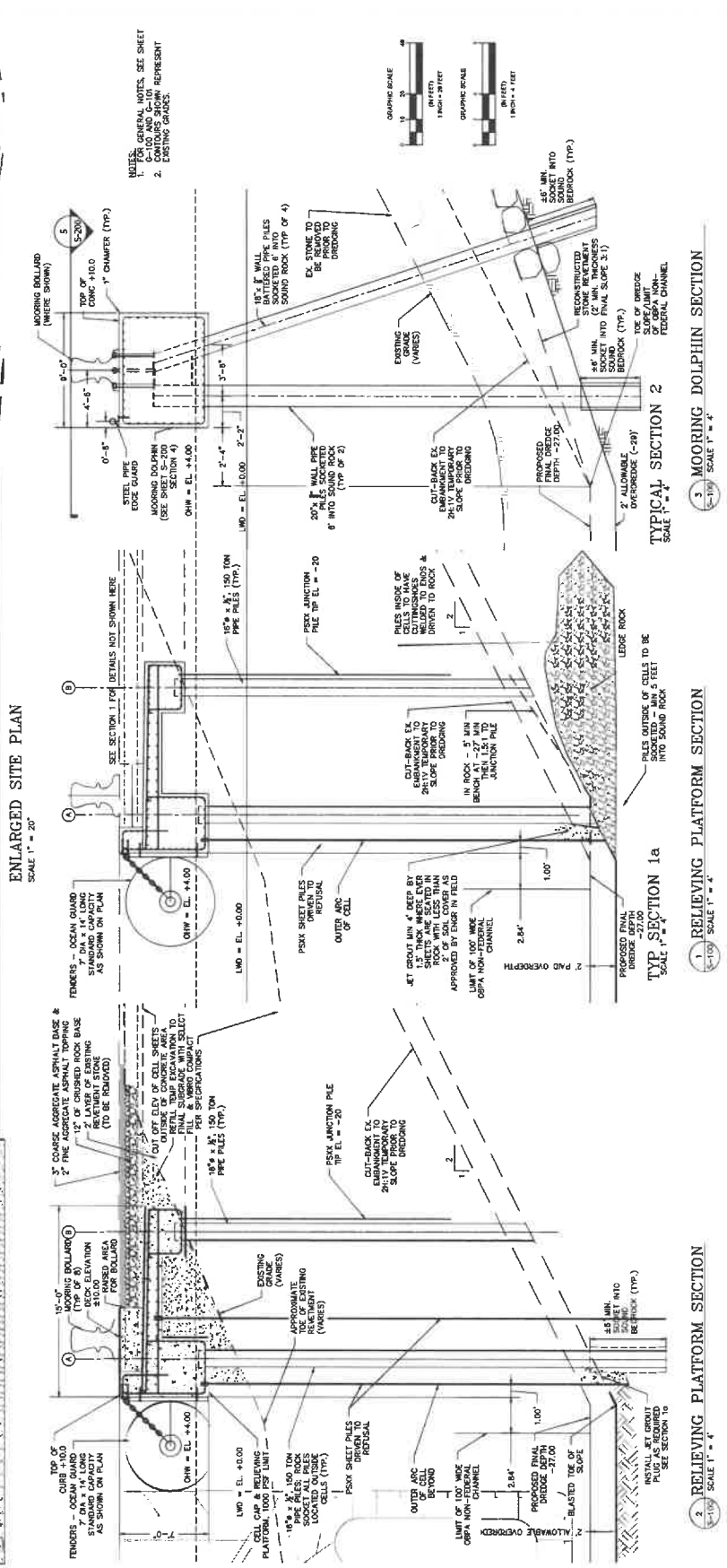
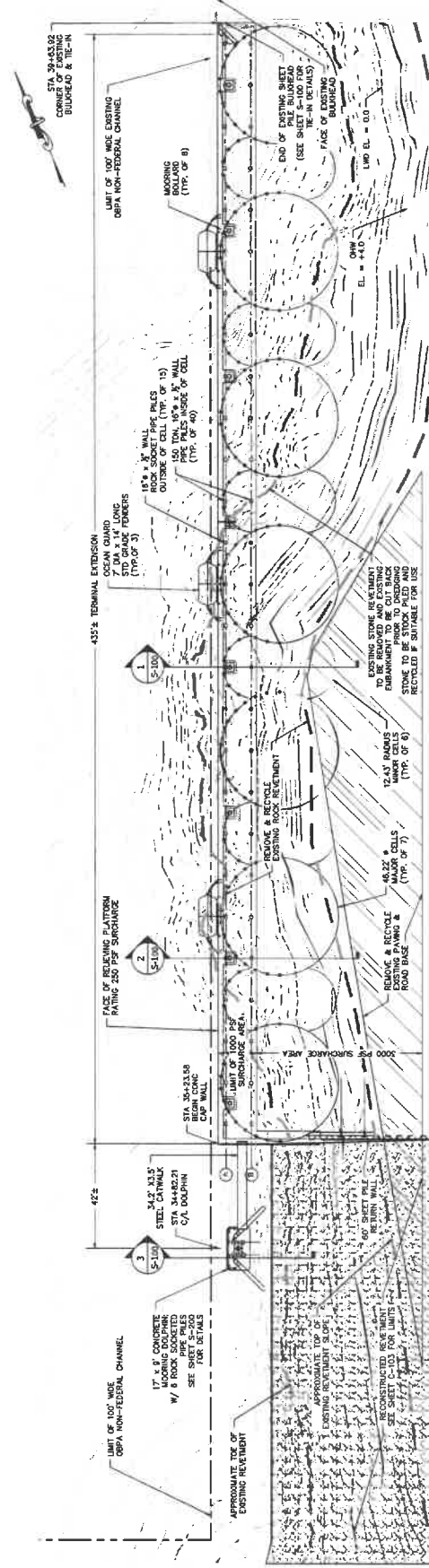
Drawing S-100 – Cellular Bulkhead Design Layout and Section

NO.	DATE	DESCRIPTION	REVISIONS
1	10/1/11	ISSUED FOR PERMITS	
2	10/1/11	REVISED PER COMMENTS	
3	10/1/11	REVISED PER COMMENTS	
4	10/1/11	REVISED PER COMMENTS	
5	10/1/11	REVISED PER COMMENTS	

DATE OF PREPARATION	BY	DATE
10/1/11	JK	10/1/11
10/1/11	JK	10/1/11
10/1/11	JK	10/1/11
10/1/11	JK	10/1/11

PROJECT NO.	SHEET NUMBER	SHEET TOTAL
0018022.10	10	10

\$-100



NOTES:
 1. FOR GENERAL NOTES, SEE SHEET 0018022.00
 2. EXISTING GRADES

1. 15' x 8' WALL ROCK SOCKET PIPE PILES OUTSIDE OF CELL (TYP. OF 15)

2. 15' x 8' WALL ROCK SOCKET PIPE PILES INSIDE OF CELL (TYP. OF 40)

3. 12.5' RADII MAJOR CELLS (TYP. OF 6)

4. 48.22' MAJOR CELLS (TYP. OF 7)

5. REMOVE & RECYCLE EXISTING ROCK RETAINMENT

6. 432' x 100' SURCHARGE AREA

7. 3000 PSF SURCHARGE AREA

8. 15'-0" MOORING BOLLARD (WHERE SHOWN)

9. TOP OF CONG. +10.0

10. 1'-0" DIA. x 14' LONG REINFORCED CONCRETE BOLLARD FOR BALLARD

11. 3" COARSE AGGREGATE ASPHALT BASE & 2" FINE AGGREGATE ASPHALT TOPPING

12. 7" DIA. x 14' LONG REINFORCED CONCRETE BOLLARD

13. 12" LAYER OF EXISTING RETAINMENT STONE (TO BE REMOVED)

14. OUT OF ELEV. OF CELL SHEETS

15. FINAL SUBGRADE WITH SELECT MATERIAL TO BE EXCAVATED PER SPECIFICATIONS

16. 15' x 8' x 150 TON PIPE PILES (TYP.)

17. PS&W JUNCTION PILE

18. CUT-BACK EX. 24" W. TEMPORARY SLOPE DREDGING

19. 4' DEEP MIN. 4' DEEP BY SHEETS ARE SEATED IN 2' OF SOIL COVER AS APPROVED BY ENG. IN FIELD

20. LIMIT OF 100' WIDE O&PA NON-FEDERAL CHANNEL

21. 2" PAD OVERDEPTH

22. 2.84'

23. 1.00'

24. 1.00'

25. 2" ALLOWABLE OVERDEPTH

26. 15' MIN. SOCKET INTO BEDROCK (TYP.)

27. 2" ALLOWABLE OVERDEPTH (TYP.)

28. 2" ALLOWABLE OVERDEPTH (TYP.)

29. 2" ALLOWABLE OVERDEPTH (TYP.)

30. 2" ALLOWABLE OVERDEPTH (TYP.)

31. 2" ALLOWABLE OVERDEPTH (TYP.)

32. 2" ALLOWABLE OVERDEPTH (TYP.)

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47. 2" ALLOWABLE OVERDEPTH (TYP.)

48. 2" ALLOWABLE OVERDEPTH (TYP.)

49. 2" ALLOWABLE OVERDEPTH (TYP.)

50. 2" ALLOWABLE OVERDEPTH (TYP.)

Attachment 2

Drawing S-100A – Interlocking Pipe Piles Design Layout and Section

