CITY OF SUPERIOR
C. Reiss Dock
RFQ #23-17-PL

ADDENDUM **#5**

DATE: April 28, 2023

TO: Prospective Applicants

Bid Opening Date: **Tuesday, May 2, 2023, at 2:00 PM**

This addendum modifies the Proposal Documents for the above listed project. The addendum consists of 63 pages.

Acknowledge receipt of the Addenda by signing the Addenda Acknowledgment form included within the proposal documents. Failure to do so may subject the Proposer to disqualification.

Clarifications and answers to questions received:

1. Q: Will Interzone 954 be acceptable as a coating alternate? Data sheet attached.

   A: Specification Section 35 42 13.21, paragraphs 2.1 and 2.2 are updated clarifying coatings and substitution request requirements.

2. Q: 22% moisture content be difficult to obtain as the mill cuts the timbers "green" so initially they have a moisture content of around 40%. The timber will dry out over time, will that be acceptable?

   A: Specification Section 35 42 13.23, Paragraph 2.01.C. is modified to clarify moisture content requirements.

3. Q: Please confirm the loads in the soil anchor schedule have been factored since they are labeled as Ultimate loads. There is an ASD equation in the notes which leads us to question if the pile loading is 95 kips allowable tension or 47.5 kips allowable tension?

   A: Soil anchor loads shown in 'Soil Anchor Schedule' on M002 are required ALLOWABLE loads. See attached revised plan sheet. See Specification 35 42 34.20 for additional requirements.

4. Q: Questions related to the dredging contract:

   a. What is the planned quantity coming to this project site?

   - What portion of the planned dredge material is considered to be contaminated?

   b. What is the anticipated duration it will take the dredge to be received on site?

   - Which months will this occur?

   c. What type of material is it?

d. What will the moisture content of it be, when placed onto the C Reiss Dock (for the civil contractor to go place)?

A: a. 39000 CY total, 27,000 CY of which is considered to be contaminated. All of it is to be handled and treated as if contaminated though.

b. 4-6 weeks occurring immediately after dredging is allowed to occur in the spring.

c. Material is a silty organic material for the top 3 feet approximately, and silty clay native material for the bottom 3 feet approximately. These are averages.

d. Dredging contractor will be responsible for dewatering material prior to transferring to Site Civil Contractor

5. Q: Schedule. It appears that the excess excavated material from the Rail Track Work SOW, is intended to be placed in the onsite berm. The dredge material, by default of the new March 24th completion date, will possibly arrive late spring/early summer 2024. Meaning the excavation for the rail will be hindered by NOT having the dredge sooner and making the June 30th completion date impossible to hit. Please consider this and provide direction.

A: A spring completion of the dredging should not have an impact on the timeline of completion for the rail. It should also be noted that completion of the disposal berm is not required for substantial completion. Dates will remain as stated.

6. Q: Please clarify plan for the "Pad for Office". Is this provided at some later date, but NOT under this contract?

a. Civil drawings call it an office drawing and the plumbing drawings indicate a trailer. Please clarify for us what is to be included.

A: This Response is pending as it is still under review, response will be provided in future addendum.

7. Q: Plan sheet M302 Detail 1

a. Is the Breaker Run and Void Fill shown, to be paid under bid item #B6?

b. Note indicates "Existing Concrete Checkered Panels to be Removed as Required" :

- Is this a pay item, or is this incidental to the soil anchors?

- Is the concrete to be replaced and if so, which pay item?

c. The "Remove Organics to Native Soil (Common Excavation)" note:

- What is your planned quantity for this?

- Which pay item does it fall under (A17, B2, or B3?)

A: (a) Breaker Run bid Item has been added to Schedule C (Addendum 3)

(b) Concrete panel removal associated with the installation of the Tie Rod Anchors or Soil Anchors

are incidental to the respective Tie Rod Anchors or Soil Anchors bid items. Concrete panels are not planned to be replaced.

(c) Excavation Common-Onsite Disposal bid item has been added to Schedule C. (Addendum 3)

8. Q: Do we have 1500 psf at the site of the truck scale? If not, what are the Engineer's recommendations to get the required bearing capacity?

A: Please reference the Geotechnical Reports containing foundation recommendations and capacities.

9. Q: What are the plans for the scale weight data? i.e., are we expected to:

a. Provide a basic output to a PC and the Owner will take it from there? If so, what is the preferred output string and method? OR

b. Are we expected to offer a data management solution? If so, there will be a lot of questions that we will need to have answered in order to be sure to offer the system they expect.

A: Expectation is that basic output to PC will be provided for Owner.

10. Q: Regarding Dock Wall: The spec calls for all the wales etc. to be galvanized. Spec section 35 42 13.20 section 2.5. Can you verify?

A: Specification Section 35 42 13.20, Paragraph 2.5.A.1 revised for clarification related to galvanizing.

11. Q: On the civil drawings there are notes for removing storm sewer pipe and removing hydrants. Which pay items are these paid under?

A: Bid form and Specification Section 02 41 13 have been modified to include removals of storm sewer pipe and existing hydrants.

12. Q: On the Asphalt Salt Pad. What is the importance of the height of the asphalt berm? Is the shape of the asphalt berm important or can it be slightly different?

A: Shape may be altered. The importance is creating a berm to contain stormwater runoff from salt storage.

13. Q: There is a note on C2.02 for a Railing at the Truck Scale. Please clarify what is expected here. Location of railing, length, height, material type, etc.

A: Such information with site plan showing final location and details for the scale and other necessary equipment location, shall be furnished by the contractor, distributor, or installer for review prior to commencement of construction.

14. Q: On C2.02 a Proposed Pump House is mentioned. Please confirm if this is to be included in this project? If so, provide details.

A: This note has been removed from Sheet C2.02.

15. Q: C4.01 references Directional Drilling for installation of a 4" steel casing. Do you mean Jack and Bore?

A: No.

16. Q: C4.02 seems to indicate a 1" water service to the future office pad. Please clarify if any 1" water service is to be provided in this bid or not? If so, please provide a bid item.

A: Paragraph 1.02.A.1 of Specification 33 12 12, has been revised to include sizes as dictated by the plans. Bid item for 1" water service has been added to the bid form.

17. Q: SWLP electrical primary extension and utility fees and cost.

a. Who will carry this work scope?

b. What bid item will receive this cost.

A: Contractor shall complete primary electrical extension request to SWL&P. Extension request and follow up coordination shall by the Contractor shall be included in the "Site Electrical" bid item. Owner will pay for SWL&P Utility Extension costs.

18. Q: Spec Section 13-34-19 List the following as acceptable building manufacturers: (See image below)

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Acceptable Metal Building System Manufacturers:
1. Butler Manufacturing (Standard of Quality).
2. Nucor Building Systems.
3. Rhino Metal Building.
4. American Steel Buildings.
5. Allied Steel Buildings.
6. Burke Steel Buildings.
7. Armstrong Steel Buildings.

When you go to the roof and exterior siding systems, only Butler Manufacturing is shown as approved. (See image below)

2.06 METAL ROOF SYSTEM

A. Metal Roof System: Butler Manufacturing "VSR II™" roof system.

2.07 METAL WALL SYSTEM

A. Exterior Metal Wall System: Butler Manufacturing™ "Butlerib® II" wall system.

Would comparable systems from one of the other building manufacturers approved for building systems, work for metal roof and wall systems?

A: Proposed products or manufacturers submitted prior to the questions due date during bidding have been addressed within addendum(s). Submittals of products or manufacturers with request of "or-equal" designation after contract award will be reviewed by Engineer and determined to be acceptable or not acceptable according to specifications and Engineer's opinion. Therefore, bid price assuming said acceptance of "or-equal" products, not addressed prior to bidding would be at bidders own risk.

19. Q: What will the stability be of the dredge material when placed by dredge contractor on the dock? In past projects a paint filter test was used, but vibration caused the material to liquify in haul trucks. We recommend considering a slump test requirement on the dredge material, to ensure dredge material will not destabilize in transit.

A: Dredged material will be dewatered by the Dredging Contractor prior to being stockpiled for Site Civil Contractor to transport to on-site disposal berm.

20. Q: Please see the attached substitution request for the sectional door on the C. Reiss Dock project. Please review and let us know if there are any questions or concerns.

A: Clopay Building Products (Clopay 3722) has been added to Specification Section 08 36 13, Paragraph 2.01A

21. Q: Please see the attached substitution request for Overhead Doors.

A: Clopay Building Products (Clopay 3722) has been added to Specification Section 08 36 13, Paragraph 2.01A

22. Q: Please see the questions regarding electrical items below.

a. What wiring do we need run from the rail scale to the Scale House?

b. Is this wiring furnished by others or by contractor for the rail scale?

c. Who terminates wiring at the scale and scale house? Nothing is shown on R110 or R111.

d. Do we need to supply any fiber equipment?

e. What fiber connectors do we need to supply?

f. What size of conduit do we need to furnish and install for the truck scale?

g. Who supplies the cable and wiring for the truck scale.

h. What cable types do we work with for the truck scale?

i. What do we need to supply for boxes, etc. for the truck scale?

A:

a. Contractor shall coordinate wiring with scale vendor on wire size and number of wires.

b. Contractor shall coordinate scope of work with scale Vendor as the wiring from the scale-to-scale house might be in their scope of work.

c. Coordinate work with scale Vendor as to what falls withing their scope. The balance of work will fall under the Contractors.

d. Scale instrument shall have the ability to connect with external PC software located in the office building. Contractor shall coordinate communication cables required with scale vendor.

e. Scale instrument shall have the ability to connect with external PC software located in the office building. Contractor shall coordinate communication cables required with scale vendor.

f. Conduit size for truck scale dependent upon proposed truck scale manufacturer requirements.

g. Contractor shall supply cable and wiring for the truck scale.

h. Cable types to be determined by proposed truck scale manufacturer requirements.

i. Box requirements for truck scale dependent upon proposed truck scale manufacturer requirements.

23. Q: Will polyclad 777 be an acceptable alternate for the sheet pile coating?

A: Specification Section 35 42 13.21, paragraphs 2.1 and 2.2 are updated clarifying coatings and substitution request requirements.

24. Q: Specifications state the sheet pile to be coated as singles. Will owner allow coating in pairs? Does the pile cap and/or double channel waler require galvanization or shop coating?

A: No. Sheet piles to be coated as singles per Specification Section 35 42 13.21 1.3 D. Cap channel and waler do not require coating.

25. Q: We are proposing to use alternatives for 1 1/4" B.A.D. and the open grade. Please see attached and let me know if these are acceptable.

A: Spec Section 32 11 23, paragraph 2.01.B.1 has been added: "Minnesota DOT Class 5 or Michigan DOT 22A aggregate gradations are also acceptable for Dense Graded Base aggregates. Dense Graded Base aggregate gradations that are within reason of the specified gradations will be considered by the Engineer for approval. Sieve analysis of material is required prior to use."
The open graded aggregate alternative gradations are acceptable. Sieve analysis of actual material will be required prior to use.

26. Q: The bidding documents indicate this project falls under the Heavy Highway Agreement. There has been pressure from the Great Lakes Floating Reps 150 that whether the contractor constructs this project off water or off land the rates outlined in the GLFA would be required. See attached agreement/ rates. Please clarify what work this pertains and if these rates are to be incorporated into the bidding documents.

A: These rates will not be required.

27. Q: For the concrete strip located on the east side of the access road near the dock, it is shown to be 5' wide and 6' wide on pages C1.02/C1.03/C1.04 and C2.02/C2.03/C2.04, but the width notes are in conflict between the C1.XX and C2.XX sheets. Section 32 13 14 mentions the bid item as "Concrete Strip, 5-Feet Wide". Is the concrete strip 5-feet wide everywhere? What is the height of the concrete strip? Reinforcing details? Joint details?

A: This response is pending as it is still under review, response will be provided in future addendum.

28. Q: A milestone completion date of March 25, 2024, states completion of dock wall. Can it be specified what is required in this? (Sheet piling, tiebacks, soil anchors, continuous beam pour, timber fender, etc) Does this include touch up coating? Touch up coating is not feasible in cold weather months.

A: Dock Wall milestone completion shall be defined as a fully operational dock wall that can safely receive a vessel for delivering stone product. Upon completion, contractor shall notify the Engineer who will conduct a "punch list" walkthrough to identify minor items of work remaining. Punch list items will need to be complete by final overall project completion date. Touch up coating would classify as punch list item.

29. Q: Are the AZ-26 sheets accepted under Buy American standard? (See attached Buy American Statute)

A: Addendum 4, Question/Response #2 has clarified that "Buy America" provisions apply, not "Buy American". Contractor shall be responsible for certifying materials provided meet the "Buy America" provisions. See Addendum 3, Question/Response #34 for using AZ-26 as an acceptable alternative for sheet piling profile.

30. Q: How are connection welds to be handled between galvanized coating and dock wall? All steel and iron finishes are to be hot dip galvanized (35 42 13.20 – 2.5A). Is this correct with the amount of field welding to be done. What is the purpose of having all materials field welded and galvanized? Galvanizing needs to be ground off prior to welding.

A: Specification Section 35 42 13.20, Paragraph 2.5.A.1 revised for clarification related to galvanizing.

31. Q: Can it be clarified how waler, pile wall cap, fender angles, other metal fabrications are to be coated?

A: Specification Section 35 42 13.20, Paragraph 2.5.A.1 revised for clarification related to galvanizing.

32. Q: How are obstructions to be handled that are not identified on the sonar? Would this be considered additional work?

A: Driving obstructions not identified in the survey will be addressed on a case-by-case basis. Specification section 02 41 13 and Sheet M001 are modified to provide separate out underwater sonar survey and driveline clearing into separate bid items. Underwater Driveline Survey (Lump Sum) bid item has been added. The driveline clearing will be broken out into two different bid items to allow for more flexibility in pricing since the quantity of clearing required is unknown. Driveline Clearing (1 LF - 260 LF.) has been added for clearing work up to 260 lineal feet in cumulative quantity. A second bid item (Driveline Clearing (261 LF -2600 LF) will be used to pay for driveline clearing for each additional lineal foot that exceeds the initial 260 lineal feet of cumulative quantity.

33. Q: Underwater Driveline Clearing has a quantity of 1000 LF, are certain areas found to be problematic? Why is the full quantity of dock wall not listed in this quantity?

A: (Revised response to Question previously addressed in Addendum #3) ~~Quantity has been revised to 2,600 LF~~. Revised. See Addendum 5, Question/Response #32.

34. Q: We need some clarifications on the "Underwater Driveline Clearing" requirements?

a. Relating to bid item quantity: The way the note on drawing M001 reads, the entire length (2,600'+/) should be surveyed and cleared. However the bid item is only for 1,000 LF. Can you clarify if only a certain portion of the wall needs to be cleared and where that is? Or revise quantity if necessary to whole wall length.

b. Is there a depth below mudline at which we are no longer responsible for obstructions? Or are we responsible for any obstruction encountered all the to the toe of the sheet pile?

A: (Revised response to Question previously addressed in Addendum #3) ~~Quantity has been revised to 2,600 LF~~. Revised. See Addendum 5, Question/Response #32.

Contract Documents – Bid Form

1. Item has been added for removal of existing hydrants.

2. Item has been added for removal of existing storm sewer pipe.

3. Schedule A, “Excavation Common – Onsite Disposal” quantity revised to 61,300 CY.

4. Item has been added for 1” water service.

5. Underwater Driveline Survey (Lump Sum) bid item has been added to schedule C. The driveline clearing will be broken out into two different bid items to allow for more flexibility in pricing since the quantity of clearing required is unknown. Driveline Clearing (1 LF - 260 LF) has been added to Schedule C, for clearing work up to 260 lineal feet in cumulative quantity. A second bid item, Driveline Clearing (261 LF -2600 LF) has been added to schedule C and will be used to pay for driveline clearing for each additional lineal foot that exceeds the initial 260 lineal feet of cumulative quantity.

Contract Documents – Section 11.9 – Prosecution and Progress

1. Clarification has been added to describe what milestone completion of dock wall entails.

Technical Specifications – Section 02 41 13 – Selective Site Demolition

1. Modified to provide separated out underwater sonar survey and driveline clearing into separate bid items.

2. Modified to add removal of existing hydrants and storm sewer pipe.

Technical Specifications – Section 08 36 13 – Upward Acting Section Doors

1. Clopay Building Products (Clopay 3722) has been added to Specification Section 08 36 13, Paragraph 2.01A

Technical Specifications – Section 13 34 19 – Metal Building Systems

1. Paragraph 1.02.A.1 has been revised to change the lump sum item name to Maintenance Building.

Technical Specifications – Section 13 34 19.10 – Prefabricated Buildings

1. This specification section has been added to the Contract Documents.

Technical Specifications – Section 32 11 23 – Aggregate Base Courses

1. Paragraph 2.01.B.1 has been added: "Minnesota DOT Class 5 or Michigan DOT 22A aggregate gradations are also acceptable for Dense Graded Base aggregates. Dense Graded Base aggregate gradations that are within reason of the specified gradations will be considered by the Engineer for approval. Sieve analysis of material is required prior to use."

Technical Specifications – Section 33 10 00 – Water Utilities

1. PVC pipe material has been removed from specification. DIP shall be used for dry hydrant installation. See revised specification attached.

Technical Specifications – Section 33 12 12 – Water Services

1. Paragraph 1.02.A.1 has been revised to include sizes as dictated by the plans.

Technical Specifications – Section 35 42 13.20 – Metal Fabrications

1. Paragraph 2.5.A.1 revised for clarification related to galvanizing.

Technical Specifications – Section 35 42 13.21 – High Performance Coatings

1. Paragraphs 2.1 and 2.2 are updated clarifying coatings and substitution request requirements.

Technical Specifications – Section 35 42 13.23 – Heavy Construction Timber

1. Paragraph 2.01.C. is modified to clarify moisture content requirements.

Plan Sheet – G-001

1. List of Sheets amended have been rev clouded.

Plan Sheet – C-202

1. Note regarding to pump house has been removed.

Plan Sheet – C-402

1. Dry hydrant profile has been revised (change in material)

Plan Sheet – C-801

1. Detail 4 has been revised.

Plan Sheet – C-804

1. Fence Details have been revised.

Plan Sheet – M-001

1. Pre-construction underwater survey notes added.

Plan Sheet – M-002

1. Soil anchor loads shown in 'Soil Anchor Schedule' on M002 are required ALLOWABLE loads. See attached revised sheet.

Attachments:

1. Revised Bid Form
2. Revised Contract Documents – Section 11.9 – Prosecution and Progress
3. Revised Technical Specifications – Section 02 41 13 – Selective Site Demolition

4. Revised Technical Specifications – Section 08 36 13 – Upward Acting Section Doors
5. Revised Technical Specifications – Section 32 11 23 – Aggregate Base Courses
6. Revised Technical Specifications – Section 33 10 00 – Water Utilities
7. Revised Technical Specifications – Section 33 12 12 – Water Services
8. Revised Technical Specifications – Section 35 42 13.20 – Metal Fabrications
9. Revised Technical Specifications – Section 35 42 13.21 – High Performance Coatings
10. Revised Technical Specifications – Section 35 42 13.23 – Heavy Construction Timber
11. Revised Plan Sheet G-001
12. Revised Plan Sheet C-202
13. Revised Plan Sheet C-402
14. Revised Plan Sheet C-801
15. Revised Plan Sheet C-804
16. Revised Plan Sheet M-001
17. Revised Plan Sheet M-002
18. Earthwork Summary Table for Site Civil Work

END OF ADDENDA TEXT

Revised Bid Form - Addendum 5

ITEM #	ITEM NAME	UNITS	QUANTITY	$/UNIT	EXTENSION
SCHEDULE A - SITE CIVIL WORK					
A1	MOBILIZATION	LS	1		
A2	TRAFFIC CONTROL	LS	1		
A3	SILT FENCE	LF	5000		
A4	SILT CURTAIN	LF	310		
A5	INLET PROTECTION	EACH	3		
A6	EROSION MAT CLASS 1 TYPE B	SY	25000		
A7	STRAW BALE DITCH CHECK	EACH	42		
A8	STONE TRACKING PAD	EACH	1		
A9	TEMPORARY DIVERSION BERM	LF	2700		
A10	INTERIM MANUFACTURED PERIMETER CONTROL	LF	2500		
A11	5 MIL. POLYLINER WITH 6" CRUSHED WASHED STONE	SY	1100		
A12	REMOVE RETAINING WALL	LF	475		
A13	REMOVE ABANDONED PETROLEUM LINE, 8-INCH	LF	680		
A14	REMOVE EXISTING HYDRANT	EA	2		
A15	REMOVE EXISTING STORM SEWER PIPE	LF	100		
A16	REMOVE ASPHALTIC SURFACE	SY	135		
A17	REMOVE CONCRETE CURB & GUTTER	LF	24		
A18	CLEARING AND GRUBBING	LS	1		
A19	EXCAVATION COMMON - ONSITE DISPOSAL	CY	61300		
A20	GEOGRID TYPE SR	SY	24400		
A21	BASE AGGREGATE DENSE, 1 1/4-INCH	TON	10400		
A22	TACK COAT	GAL	1500		
A23	HMA PAVEMENT, 3 MT 58-34 S	TON	12		
A24	HMA PAVEMENT, 4 MT 58-34 S	TON	16		
A25	HMA PAVEMENT, 3 MT 58-34 V	TON	2100		
A26	CONCRETE STRIP, 5-FEET WIDE	SY	1260		
A27	CONCRETE PAVEMENT, 8-INCH	SY	100		
A28	CONCRETE CURB & GUTTER	LF	24		
A29	CHAIN LINK FENCE, 6-FEET	LF	7216		
A30	TOPSOIL	TON	4300		
A31	SEED, FERTILIZER, AND MULCH	SY	50000		
A32	STEEL CASING PIPE, 4-INCH	LF	161		
A33	DRY HYDRANT ASSEMBLY	EACH	1		
A34	WATER SERVICE, HDPE, 2-INCH	LF	1620		
A35	WATER SERVICE, HDPE, 1-INCH	LF	50		
A36	SEPTIC TANK	LS	1		

A37	FLARED END SECTION WITH TRASH GUARD, 30-INCH	EACH	2		
A38	STORM SEWER PIPE, REINFORCED CONCRETE CLASS III, 30-INCH	LF	110		
A39	BENTONITE COLLAR	EACH	2		
A40	TURF REINFORCEMENT MATTING, CLASS III, TYPE B	SY	260		
A41	SITE ELECTRICAL	LS	1		
A42	BUILDINGS	LS	1		
A43	TRUCK SCALE	LS	1		
SCHEDULE B - RAIL TRACK WORK					
B1	SELECT BORROW	TON	31878		
B2	EXCAVATION COMMON - OFFSITE DISPOSAL	CY	27720		
B3	EXCAVATION COMMON - ONSITE DISPOSAL	CY	47940		
B4	BASE AGGREGATE DENSE 3/4 - INCH	TON	82		
B5	BASE AGGREGATE DENSE 1-1/4 - INCH	TON	26,965		
B6	BREAKER RUN	TON	700		
B7	TACK COAT	GAL	75		
B8	HMA PAVEMENT 3 MT 58-34 S	TON	150		
B9	HMA PAVEMENT 4 MT 58-34 S	TON	150		
B10	CULVERT PIPE CORRUGATED STEEL 18-INCH	LF	50		
B11	CULVERT PIPE CORRUGATED STEEL 24-INCH	LF	50		
B12	ADJUSTING MANHOLE FRAME AND RING CASTING	EACH	1		
B13	POSTS WOOD 4x6 INCH x 14-FOOT	EACH	4		
B14	SIGNS TYPE II REFLECTIVE H	SF	33		
B15	MARKING STOP LINE EPOXY, 24-INCH	LF	24		
B16	TRAFFIC CONTROL	LS	1		
B17	GEOTEXTILE FABIC TYPE SAS	SY	34,100		
B18	TURNOUT (No. 9)	EACH	6		
B19	STEEL CASING PIPE, 15-INCH	LF	110		
B20	CULVERT PIPE STEEL 15-INCH	LF	65		
B21	CULVERT PIPE STEEL 18-INCH	LF	105		
B22	FLARED END SECTION, 18-INCH	EACH	2		
B23	FLARED END SECTION, 24-INCH	EACH	2		
B24	SANITARY SEWER, 8-INCH	LF	130		
B25	RAILROAD CAR SCALE	LS	1		

B26	DERAIL SLIDING WITH WHEEL CROWDER	EACH	1		
B27	CONSTRUCT TRACK	TF	7,828		
B28	CROSSING TIMBER	TF	147		
SCHEDULE C - DOCK WALL WORK					
C1	SOIL ANCHOR ENGINEERING	LS	1		
C2	BASE AGGREGATE OPEN-GRADED	TON	11600		
C3	UNDERWATER DRIVELINE SURVEY	LS	1		
C4	UNDERWATER DRIVELINE CLEARING (1 LF – 260 LF)	LF	260		
C5	UNDERWATER DRIVELINE CLEARING (261 LF – 2600 LF)	LF	2340		
C6	STEEL SHEET PILES	SF	133310		
C7	STEEL H-PILES	LF	4550		
C8	TIMBER FENDERS	LF	2610		
C9	CAST STEEL BOLLARDS	EACH	13		
C10	WALE AND ANCHOR HARDWARE ASSEMBLIES	LF	2610		
C11	SOIL ANCHORS	EACH	140		
C12	TIEROD ANCHORS	EACH	277		
C13	PILE WALL CAP	LF	2610		
C14	WEEP DRAINS	EACH	44		
C15	SAFETY LADDERS	EACH	12		
C16	EXCAVATION COMMON – ONSITE DISPOSAL	CY	2200		
C17	BREAKER RUN	TON	4900		
C18	BASE AGGREGATE DENSE 1-1/4 - INCH	TON	4500		
	Alternate				
B27	CONSTRUCT TRACK – NEW RAIL	TF	7828		

Total Schedule A: $_____
Total Schedule A in written words:

_____

Total Schedule B: $_____
Total Schedule B in written words:

_____

Total Schedule C: $_____
Total Schedule C in written words:

_____

BID TOTAL – Schedule A, B, and C: $_____
Bid Total in written words:

_____

Total Alternate Item: B27: $_____

Total Alternate Item B27 in written words:

_____

11.9 PROSECUTION AND PROGRESS

Prosecution and Progress shall be accomplished in accordance with WisDOT Standard Specifications 2023, Section 108, unless otherwise set forth in the Special Provisions.

Unless otherwise set forth in the Special Specifications, upon receipt of "Notice to Proceed" from the Owner, work under this contract shall commence immediately and be substantially completed by June 30, 2024, and final completion shall be required by November 1, 2024.

A Milestone Completion Date shall be met for the full completion of the Dock Wall. This Milestone shall be met by March 25, 2024, and shall be complete, in accordance with the Contract Documents, so that the Work can be utilized for the purposes of which it is intended.

Dock Wall milestone completion shall be defined as a fully operational dock wall that can safely receive a vessel for delivering stone product. Upon completion, contractor shall notify the Engineer who will conduct a "punch list" walkthrough to identify minor items of work remaining. Punch list items will need to be complete by final overall project completion date. Touch up coating would classify as punch list item.

The Work included within Substantial Completion shall include the completion of the Stormwater Pond, Rail, Buildings, and Scales.

Substantial completion shall mean: The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of the Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion of such Work.

SECTION 02 41 13

SELECTIVE SITE DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes
   1. Complete or partial removal and disposal or salvage of at grade, above grade, and below grade structures and miscellaneous items.

B. Related Sections
   1. Section 31 23 00 – Excavation and Fill.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment
   1. Bid Items have been provided for demolition and removal items. Payment at the Bid Unit Price will be considered compensation in full for all Work necessary to complete the Bid Item in full, including removal, salvage, storage, and disposal.
   2. Measurement will be based upon the units as listed below for items removed, abandoned, or salvaged complete as specified. No measurement will be made of any removals that are not required. The actual quantity removed multiplied by the appropriate Bid Unit Price will be compensation in full for all Work and costs of the following Bid Items:
      a. **Underwater Driveline Survey**: Lump Sum.
      b. **Underwater Driveline Clearing (Range)**: Lineal Foot, measured along the sheet pile driveline.
      c. **Remove Abandoned Petroleum Line, 8-inch**: Lineal Foot.
      d. **Remove Existing Hydrant**: Each, including below grade stem and appurtenances.
      e. **Remove Storm Sewer Pipe**: Lineal Foot, without regard to size.
      f. **Remove Asphaltic Surface**: Per square yard without regard to thickness, including integral bituminous curb.
      g. **Remove Concrete Curb and Gutter**: Per lineal foot, no matter the type.
      h. **Remove Retaining Wall**: Per lineal foot, measured at ground level, not matter the height.
         1) Note: it shall be the responsibility of the Bidder to evaluate the existing retaining walls on site, prior to bidding.
      i. Removal of existing concrete panels on site required for proposed site work will be incidental.
      j. Removal of fencing will be incidental.
      k. Saw cutting will be incidental.
      l. Bulkheading and abandoning of existing pipe will be incidental.
      m. Salvage and reinstallation of signs and mailboxes will be incidental.
      n. Removal of railroad track will be incidental and shall include removal of rail, ties, and other appurtenances.
   3. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction," 2022 Edition (WisDOT Spec.) and supplements
   1. 204 – Removing or Abandoning Miscellaneous Structures.

1.04 DEFINITIONS

A. Remove: To take away or eliminate from the Site by any method selected by the Contractor, including disposal of material.

B. Salvage: To dismantle, disassemble, or remove carefully without damage so the item can be re-assembled, replaced, or reused in a workable condition equal to that existing before removal.

C. Abandon: To fill, bulkhead, or close off pipes and structures so that no settlement or flow can occur.

1.05 REGULATORY REQUIREMENTS

A. Conform to WisDOT Spec. 204.3.1.3, with the following modifications:
   1. Dispose of all materials designated for removal outside the Site at locations selected by Contractor.
   2. Stockpile or temporarily store materials designated for salvage at locations provided by Contractor.

1.06 SCHEDULING

A. Prior to starting Work, submit for review by the Engineer and approval by the Owner, a schedule showing the commencement, order, and completion dates of the various parts of this Work.

B. Fill holes or depressions resulting from removal or salvage immediately.

C. Provide temporary surface restoration for traffic continuity where removal or salvage operations are completed within streets, driveways, or parking lots.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 GENERAL

A. Dispose of all items removed, except for those items identified to be salvaged or recycled. Said disposal shall be in accordance with all laws, regulations, statutes, etc.

B. Perform removal work without damage to adjacent retained work. Where such Work is damaged, the Contractor shall patch, repair, or otherwise restore same to its original condition at no expense to the Owner.

C. Remove debris from the work area as often as necessary, but not less than at least once at the end of each workday. Debris shall be placed in approved containers to prevent the spread of dust and dirt.

D. Execute the Work in a careful and orderly manner with the least possible disturbance to the public and occupants of buildings.

E. Fill holes resulting from removals consistent with Section 31 23 00.

3.02 EXAMINATION

A. Meet with owners of signs to determine requirements for salvage, storage, and replacement.

3.03 PROTECTION

A. Take all necessary precautions to adequately protect personnel and public and private property in the areas of Work. All Site fencing shall be in place prior to the start of any removal work.

B. All street signs, traffic control signs, guy wires, mailboxes, posts, wood fence, etc. which may interfere with construction shall be removed, stored safely, and replaced.

C. Approved barriers or warning signs shall be provided as necessary.

D. Provide and maintain temporary protection of existing structures designated to remain where removal work is being done, connections made, materials handled, or equipment moved.

E. Do not close or obstruct walkways or roadways. Do not store or place materials in passageways or other means of egress. Conduct operations with minimum traffic interference.

F. Take reasonable precautions to limit damage to existing turf.

G. Holes or depressions created by removals shall not be left open for more than 1 day. Any hole within 10 feet of sidewalks shall be filled, suitably marked, or covered immediately.

H. Avoid disturbance to any material beyond the limits required for new construction.

3.04 SAWING PAVEMENT

A. Concrete Pavement: Saw along the removal line to a depth of 1/3 of the thickness of the concrete prior to breaking off the pavement.

B. Bituminous Pavement: Saw along the removal line to a minimum depth of 3 inches prior to breaking off the pavement.

3.05 REMOVE CONCRETE PAVEMENT / PANELS

A. Remove in accordance with WisDOT Spec. 204.3.2.2, except as modified below:
   1. Saw cut concrete pavement and concrete base prior to mechanical pavement removal equipment. Remove concrete in such a manner that the remaining pavement is not damaged.
   2. Prior to restoring trench areas, the edges of the trench shall be trimmed back to a vertical face on a straight line which is parallel with the centerline of the trench.

3.06 REMOVE BITUMINOUS PAVEMENT, PATH, DRIVEWAY

A. Remove in accordance with WisDOT Spec. 204.3.2.2, except as modified below:
   1. Saw cut bituminous pavement at the removal limits prior to that removal, unless otherwise approved by the Engineer.
   2. Prior to restoring trench areas, the edges of the trench shall be trimmed back to a vertical face on a straight line which is parallel with the centerline of the trench.

3.07 REMOVE CURB AND GUTTER

A. Saw cut at removal limits.

B. Concrete Curb and Concrete Curb and Gutter: Do not disturb any material beyond the limits required to form for new construction (assumed 12-inches maximum from the back of new work and 6-inches beyond the edge of new driveways).

3.08 REMOVE CONCRETE SURFACING

A. Work includes sidewalks, pedestrian ramps, medians, and driveways.

B. Saw cut concrete surfacing prior to removal.

C. Remove concrete in such a manner that the remaining surfacing is not damaged.

D. When removing existing sidewalks, the Contractor shall not disturb any material beyond the limits required for new construction (assumed as 6-inches maximum beyond and 8-inches maximum below existing grade).

E. When removing existing driveways, the Contractor shall not disturb any material beyond the limits required to form for new construction (assumed 12-inches maximum from the back of new Work and 6-inches beyond the edge of new driveways).

F. Prior to restoring trench areas, the edges of the trench shall be trimmed back to a vertical face on a straight line which is parallel with the centerline of the trench.

3.09 REMOVE BITUMINOUS SURFACING

A. Work includes pathways and driveways.

B. Saw cut bituminous surfacing to full depth at the limits of partial removal prior to that removal, unless otherwise approved by the Engineer.

C. Remove bituminous in such a manner that the remaining surfacing is not damaged.

D. Prior to restoring trench areas, the edges of the trench shall be trimmed back to a vertical face on a straight line which is parallel with the centerline of the trench.

E. When removing existing pathways and driveways, the Contractor shall not disturb any material beyond the limits required to form for new construction (assumed 12-inches maximum from the back of new work and 6 inches beyond the edge of new driveways).

3.10 REMOVE RETAINING WALL

A. Avoid damage to sections of wall to remain.

B. Dispose of materials off Site at a predetermined location.

C. Remove wall in its entirety, including footings and tiebacks.

3.11 UNDERWATER DRIVELINE SURVEY

A. The contractor shall complete a pre-construction sonar imaging survey of the proposed driveline to identify the nature and location of possible obstructions to installation of new sheet pile. Work includes all labor, materials, tools, equipment, and incidentals necessary to document and communicate potential obstructions and removal work plan to Engineer for review and approval as part of the pre-construction imaging survey.
   1. GPS integrated Multibeam System is the required type of sonar imaging survey. Alternatives to be considered by Engineer if findings can be easily verified by an independent 3rd party.

3.12 UNDERWATER DRIVELINE CLEARING

A. Contractor shall attempt to limit soil excavated with sheet pile drive line clearing, but any excavated soil shall be assumed to be contaminated and disposed of within the designated on-site disposal berm location. If significant quantities of soil are excavated, then field evaluations and quantities will determine whether disposal berm location has adequate capacity for this use. If required, offsite disposal of contaminated soil would be considered additional work. All other removed drive line clearing material shall be legally disposed of offsite by the contractor. Clearing work not approved by Engineer shall be deemed incidental to the installation of the sheet piling. No additional payment for this work will be made.

3.13 REMOVE ABANDONED PETROLEUM LINE

A. Existing petroleum lines on property shall be removed from the oil/water separator according to Ch. ATCP 93560 WAC requirements and the Materials Management Plan requirements.

3.14 REMOVE STORM SEWER PIPE

A. Remove in accordance with WisDOT Std. Spec. 204.

3.15 REMOVE EXISTING HYDRANT

A. Remove in accordance with WisDOT Std. Spec. 204, except as modified below:
   1. Remove above grade utility as well as below grade hydrant stem and appurtenances.

3.16 SALVAGE AND REINSTALL

A. Salvage operations conform to WisDOT Spec. 204.3.1.3.

B. Signs

1. In no case shall a traffic sign or street sign be removed or disturbed by Contractor without prior notification being given to Engineer and then only after satisfactory arrangements have been made for a temporary installation or its disposition
    a. Street identification signage shall be maintained at all times due to its importance to the 911 Emergency Response System.
    b. Remove and salvage all posts, A-frame angle brackets, stringers, as well as the nuts, bolts, and washers.
    c. Exercise reasonable care against damage to in-place signs during storage and installation.
    d. Remove signs damaged during construction and replace with new signs.

C. Fences
    1. Salvage and store fence and post material where they are in conflict with the Work.
    2. After completion of Work, reinstall fence to the condition existing prior to removal.
    3. Install temporary snow fence or similar barrier at the end of the working day while the permanent fence is removed.

3.17 FIELD QUALITY CONTROL

A. Salvaged items to be reinstalled shall be of the same shape, dimension, location, and quality of the original item prior to construction.

B. Items damaged during removal or salvaging operations shall be replaced with new material of equal type and quality of the damaged item when it was new.

3.18 DISPOSING OF MATERIAL

A. Conform to WisDOT Spec. 204.3.1.3.

B. Dispose of all materials outside of the Site at disposal location selected by Contractor in compliance with state and local regulations. Burying of material and debris is not allowed within the Site.

END OF SECTION

SECTION 08 36 13

UPWARD ACTING SECTIONAL DOORS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes
   1. Upward Acting Sectional Doors.
   2. Operators and controls.

B. Related Sections
   1. 06 10 00 – Rough Carpentry.
   2. Division 26.

1.02 PRICE AND PAYMENT PROCEDURES

A. All Work and Costs of this Section shall be incidental to the Project and included in the appropriate Bid Item associated with the Work.

1.03 SUBMITTALS

A. Shop drawings required, including details of door, door track, and operator.

B. Manufacturers' descriptive literature and installation instructions.

C. Manufacturers' maintenance and operating instructions for the door and operator.

1.04 WARRANTY

A. 1-year limited warranty for all materials and installation.

B. Exterior and interior skins shall be warranted for 5-years against delamination from the insulation.

PART 2 PRODUCTS

2.01 APPROVED MANUFACTURERS

A. The listed manufacturers shall meet or exceed the specification listed.
   1. Raynor Manufacturing Co.: TriCore™ Optima.
   2. Overhead Door Corporation: Thermacore Door, 596 Series.
   3. Wayne-Dalton Corporation: Thermospan Door, Model 200-20.
   4. Midland Garage Door: 3-inch energy saver door with 20-gauge flush panels and full vision section.
   5. Dor Craft Quality Sectional Garage Doors distributed by Industrial Door Co, Inc.: Thermo Craft Model 2400 with full-view sections.
   6. Clopay Building Products: Clopay 3722

2.02 EXTERIOR DOORS

A. Sections: 2-inch minimum thick with a roll-formed 20-gauge galvanized steel embossed with a textured pattern exterior and interior skin, and a thermal break. All sections reinforced with backup plates and pre-punched for attachment of hardware.

B. Full Glazed Aluminum Sash Panels
   1. 1/2 inch (12.5 mm) Double Strength Insulating Glass

C. End Stiles: 16-gauge minimum.

D. Insulation: CFC and HCFC Free insulation either polyurethane or polystyrene with a minimum overall R-value of 14.5.

E. Hinges and Fixtures: Heavy-duty commercial double ended and long stem roller galvanized steel hinges. 3-inch rollers with steel rims and case-hardened raceways and ball bearings.

F. Weather seals: Rubber tube seals fitted inside section joints. PVC bull type strip at bottom.

G. Wind Load: ANSI/ASMA 102 standards and as required by code.

H. Finish and Color:
   1. 2-coat baked-on polyester finish.
      a. Exterior and interior color to be selected from manufacturer's standard colors.

2.03 TRACK AND ACCESSORIES

A. 3-inch wide galvanized steel standard or lift clearance track, provide 2 braced supports per track.

B. All required hardware.

C. Weatherstrip: Manufacturers standard jamb and head.

D. Spring: 100,000 cycle life.

2.04 ELECTRIC DOOR OPERATORS

A. Electric Operator: Center mounted draw bar assembly, adjustable safety friction clutch; brake system actuated by independent voltage solenoid controlled by motor starter; enclosed gear driven limit switch; enclosed magnetic cross line reversing starter; mounting brackets and hardware. Provide means to disengage motor to allow manual operation in event of power failure.

B. Motor shall be minimum 3/4 horsepower, 120volt, continuous duty with instant reverse and automatic reset thermal overload. Motor shall be UL listed.

C. Disconnect Switch: Factory mount disconnect switch on equipment.

D. Motor Type: NEMA MG1.

E. Wiring Terminations: Furnish terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated.

F. Control Station: Standard three button (open-close-stop) momentary pressure type, control for each electric operator; 24 volt circuit, surface mounted.

G. Remote door controls: Provide 2 remote control devices per door.

H. Safety Edge: At bottom of door panel, full width; electro-mechanical sensitized type, wired to reverse door upon striking object; hollow neoprene covered to provide weatherstrip seal.

I. Photoelectric Sensor: Furnish system which detects obstruction and reverses door without requiring door to contact obstruction.

PART 3 EXECUTION

3.01 INSPECTION

A. Inspect substrate openings and structures for compliance and do not commence Work until everything is satisfactory.

3.02 INSTALLATION

A. Install per manufacturer's instructions and recommendations.

B. Install door straight, plumb, and level and in a weather tight manner.

C. Coordinate Work with other trades.

D. Operator's push button stations, leading edge shall be installed by the electrical contractor.

E. Electrical contractor to provide electricity to a box next to operator.

3.03 CLEANUP

A. Make final adjustments so doors are in good operating condition.

B. Touch up paint on any areas scratched or chipped during the installation.

C. Remove all debris at conclusion of installation.

END OF SECTION

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SECTION 32 11 23

AGGREGATE BASE COURSES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes
   1. Requirements for aggregate base course on a prepared subgrade.

B. Related Sections
   1. Section 31 23 13 - Subgrade Preparation.
   2. Section 31 32 19 – Geosynthetic Soil Stabilization and Layer Separation.
   3. Section 32 12 01 - Flexible Paving.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment
   1. A Bid Item has been provided for **Base Aggregate Open-Graded**. Measurement will be by ton of material placed, as determined from weight tickets submitted to the Engineer. Deductions may be made for contaminated aggregate or unrecovered aggregate deposited outside of the plan limits. Payment by the ton shall include compensation for preparing the foundation; and for stockpiling, placing, shaping, compacting, and maintaining the base.
   2. A Bid Item has been provided for **Base Aggregate Dense 3/4-Inch**. Measurement will be by ton of material placed, as determined from weight tickets submitted to the Engineer. Deductions may be made for contaminated aggregate or unrecovered aggregate deposited outside of the plan limits. Payment by the ton shall include compensation for preparing the foundation; and for stockpiling, placing, shaping, compacting, and maintaining the base.
   3. A Bid Item has been provided for **Base Aggregate Dense 1 1/4-Inch**. Measurement will be by ton of material placed, as determined from weight tickets submitted to the Engineer. Deductions may be made for contaminated aggregate or unrecovered aggregate deposited outside of the plan limits. Payment by the ton shall include compensation for preparing the foundation; and for stockpiling, placing, shaping, compacting, and maintaining the base.
   4. A Bid Item has been provided for **Breaker Run**. Measurement will be by ton of material placed, as determined from weight tickets submitted to the Engineer. Deductions may be made for contaminated aggregate or unrecovered aggregate deposited outside of the plan limits. Payment by the ton shall include compensation for preparing the foundation; and for stockpiling, placing, shaping, compacting, and maintaining the base. If the Contractor substitutes select crushed material allowed under WisDOT Spec 311.2, the Contractor will be paid for that material at the Breaker Run Unit Price.
   5. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction," 2022 Edition (WisDOT Spec.) and supplements
   1. 301 – Base, Subbase, and Subgrade Aggregate.
   2. 305 – Dense-Graded Base.
   3. 310 – Open-Graded Base.
   4. 311 – Breaker Run.
   5. 312 – Select Crushed Material.

1.04 SUBMITTAL

A. Submit gradation report on sample of aggregate base to be used.

1.05 SEQUENCING AND SCHEDULING

A. Construct aggregate base only after all of the following have been completed:
   1. Subgrade has been corrected for instability problems and successfully passed a test rolling test performed by the Contractor and witnessed by the Engineer.
   2. Subgrade has been checked for conformance to line and grade tolerances (stringline).

PART 2 PRODUCTS

2.01 MATERIALS

C. Reiss Dock Company has aggregate material available for use from their Duluth Property. If Contractor so chooses, this material may be delivered to the site via the St. Louis Bay, by C. Reiss Dock Company. At such point, responsibility would be placed on the Contractor to crush material to the specified sizes for on-site use, and sieve analysis would be required prior to approval for use.

Bidders are encouraged to contact Christian Zuidmulder, regarding potential use of C. Reiss Dock Materials.

Christian Zuidmulder
Vice President of Operations
The C. Reiss Co.
Fox River Terminals.
Whitehaven Silica.
Office 920.436.7600 ext. 101
Cell 920.562.2982
christian.z@thecreiss.com

A. Base, Subbase, and Subgrade Aggregate: Conform to WisDOT Spec. 301.

B. Dense-Graded Base: Conform to WisDOT Spec. 305.
   1. Minnesota DOT Class 5 or Michigan DOT 22A aggregate gradations are also acceptable for Dense Graded Base aggregates. Dense Graded Base aggregate gradations that are within reason of the specified gradations will be considered by the Engineer for approval. Sieve analysis of material is required prior to use.

C. Open-Graded Base: Conform to WisDOT Spec. 310.

D. Breaker Run: Conform to WisDOT Spec. 311.

E. Select Crushed Material: Conform to WisDOT Spec. 312.

PART 3 EXECUTION

3.01 PREPARATION

A. Prepare the subgrade in accordance with Section 31 23 13.

B. Subgrade to be completed and approved by the Engineer prior to installation of aggregate base.

3.02 CONSTRUCTION REQUIREMENTS

A. Conform to WisDOT Spec. 301.3.
   1. Compaction shall be at least 95 percent of its maximum standard Proctor dry density.
   2. After the base course has been placed, compacted, and tested, it is the contractor's responsibility to maintain the base course in a suitable condition for paving.
   3. Each roadway area shall be proof rolled with a fully loaded tandem-axle dump truck and observed for signs of poor performance by a geotechnical engineer or experienced soils technician. All soft areas should be dug out and corrected in accordance with Section 31 23 00, and as directed by the Engineer.
      a. See Section 31 23 13 for Subgrade Preparation requirements.

3.03 FIELD QUALITY CONTROL

A. The Contractor shall have an independent testing laboratory sample the aggregate base materials, and perform QC gradation, fracture, liquid limit, and plasticity testing in accordance with each respective AASHTO test method as listed in WisDOT Spec 301.2.3 of each base aggregate size, source or classification, and type at the following frequencies:
   1. One stockpile test before placement including gradation, fracture, and plasticity.
   2. Conduct one gradation test per lot. One lot is defined as 3000 tons of material placed. The contractor may include partial quantities of less than or equal to 750 tons with the previous lot. For partial lots exceeding 750 tons, notify the engineer who will direct additional testing to represent that partial lot.
   3. One fracture test for each gradation test. When the fracture 4-point running average is above the lower warning limit, the testing frequency may be reduced to one fracture test per ten gradation tests or fraction thereof. The reduced test frequency applies only as long as the running average remains above the lower warning limit.
   4. One plasticity and liquid limit test for the first gradation test. Thereafter, perform one plasticity check, per ten gradation tests or fraction thereof. If the soil cannot be rolled into a 3 mm-diameter thread, then it is non-plastic (NP) and the complete test need not be performed; report the plasticity Index as NP. If the material can be rolled into a thread, then perform both complete tests to determine the liquid limit and the plasticity index.

B. Moisture/Density Tests: Contractor shall test as frequent as they feel necessary to meet specifications, but at a minimum of 1 test per 5 stations. Breaker Run and Base Aggregate Dense Open Graded excluded from Density testing.
   1. The owner will provide verification testing as necessary.

C. Line and Grade Tolerance: The final aggregate base surface will be checked for conformance to specified tolerances by the "stringline" method prior to approval to pave the surface. Grade shall be ± 0.03 feet of grade.

3.04 PROTECTION

A. Keep aggregate base free of ruts and irregularities.

B. Place water on aggregate base for dust control as required to eliminate nuisance conditions for adjacent properties.

END OF SECTION

SECTION 33 10 00

WATER UTILITIES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes
   1. Water main pipe, hydrants, valves, fittings, and miscellaneous appurtenances.

B. Related Sections
   1. Section 31 23 00 - Excavation and Fill.
   2. Section 33 05 05 - Trenching and Backfilling.
   3. Section 33 05 17 - Adjust Miscellaneous Structures.
   4. Section 33 05 23.16 - Utility Pipe Jacking.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment
   1. A Bid Item has been provided for **Dry Hydrant Assembly**. Measurement will be based on units of each Hydrant Assembly installed. Payment at the Bid Unit Price shall include all labor, materials, and equipment necessary to complete the work as specified and shown in the plans including excavation, dewatering, strainer and strainer cap assembly, pipe bedding and cover materials, PVC pipe, pipe fittings, valve, and valve box, backfill, compaction, steamer hose connection, steel bollards, DIP Pipe from water source to Dry Hydrant location, including necessary fittings and sleeves, strapping to existing dock wall, and all related work.
   2. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. American Water Works Association (AWWA)
   1. C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
   2. C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems.
   3. C111 - Rubber-Gasket Joints for Ductile Iron Pressure Pipe and Fittings.
   4. C116 - Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings.
   5. C150 - Ductile-Iron Pipe, Centrifugally Cast.
   6. C151 - Standard for Ductile-Iron Pipe, Centrifugally Cast.
   7. C153 - Standard for Ductile-Iron Compact Fittings.
   8. C502 – Dry-Barrel Fire Hydrant.
   9. C504 - Rubber-Seated Butterfly Valves.
   10. C515 - Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service
   11. C550 - Protective Interior Coatings for Valves and Hydrants.
   12. C600 - Installation of Ductile-Iron Water Main and Their Appurtenances.
   13. C651 - Disinfecting Water Mains.

B. American Society of Testing and Materials (ASTM)
   1. A48 - Gray Iron Castings.

2. A126 - Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
3. A307 - Carbon Steel Bolts and Studs, 60,000-PSI Tensile Strength.
4. A536 - Standard Specification for Ductile Iron Castings.
5. A674 - Standard Practice for Polyethylene Encasement for Ductile Iron Pipe for Water or Other Liquids.
6. C578 - Specification for Rigid, Cellular Polystyrene Thermal Insulation.
7. D1784 - Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (PVC) Compounds.
8. F477 - Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

C. National Electrical Manufacturers Association (NEMA)
1. WC 70 - Non-Shielded Power Cables Rated 2,000 Volt or Less for the Distribution of Electrical Energy.

1.04 SUBMITTALS

A. Submit Product Data for the following items consistent with Section 01 33 00:
1. Pipe, fittings, valves, and hydrants.
2. Joint restraint and corrosion resistant coatings.
3. Tracer wire.

1.05 SEQUENCING AND SCHEDULING

A. Notify the Owner and City of Superior WPL, a minimum of 48 hours prior to performing Work.

B. Successfully complete required test and inspections before restoration of surface.

PART 2 PRODUCTS

2.01 DUCTILE IRON PIPE AND FITTINGS (DIP)

A. General Requirement: AWWA C151/A21.51.

B. Cement-mortar lining conforming to AWWA C104/A21.4.

C. Pipe: ductile iron pipe and fittings shall be thickness class 52. Pipe shall be polyethylene wrapped

D. Fittings: shall be cement lined ductile iron fittings furnished with mechanical joints. Fittings shall be 250 psi rated water working pressure. Mega Lug retainer glands shall be used on all fittings. Fittings shall be polyethylene wrapped.

E. Joints
1. Mechanical Joint Pipe and Fittings: Mechanical joint pipe and fittings shall conform to AWWA C110, AWWA C111, and ANSI B16.1.
2. Rubber Gasket Joint Pipe and Fitting: Rubber gasket joint pipe and fittings shall conform to AWWA C111 or ANSI 21.51 for cast or ductile iron pipe. Lubricant for jointing shall be as approved by the pipe manufacturer.

2.02 BOLT ASSEMBLIES

A. Tee-Head Bolts

1. General: Conform to ANSI/AWWA C111/A21.11.
2. Fluorocarbon Resin Coating: FluoroKote No. 1® (by Metal Coating Corp.); NSS Industries Cor-Blue bolt coating, or approved equal.
3. No other bolts are approved for use with mechanical joint restraints.

B. Stainless Steel Bolts
1. General: Conform to requirements of ASTM F593 and ASTM F594, Alloy Group 1, 2, or 3.
2. Approved for use as exterior bolts for hydrants and gate valves.

C. Carbon Steel Bolts
1. General: Conform to requirements of AWWA C515 and ASTM A307.
2. Fluorocarbon Resin Coating: FluoroKote#1® (by Metal Coating Corp.), NSS Industries Cor-Blue bolt coating, or approved equal.
3. Approved for use as exterior bolts for hydrants and gate valves.

2.03 DRY HYDRANT

A. General Requirements:
1. Dry barrel (conventional) hydrants may not be used due to excess suction loss and the necessity that they be absolutely airtight.
2. A recessed hydrant or flush mount hydrant (below ground-level connection) may be specified for use in areas with special needs, such as in a high vandalism area or for low profile and esthetic needs. It may be used with the 45° or straight dry hydrant head assembly,

B. Two 2-1/2 inch hose connections.

C. One 4-1/2 inch steamer.

D. National standard operating nut.

E. 5-inch valve opening.

F. 6-inch mechanical joint pipe connection.

G. Break-off flange with breakable rod coupling.

H. 8'–0" cover.

I. 16-inch high traffic section.

J. Nozzle caps attached to hydrant with metal chains.

K. Exterior Bolt Assemblies: Conform to Part 2 – Bolt Assemblies.

L. Fiberglass Flag: Hydrafinder Hydrant Marker, or approved equal:
1. White fiberglass rod, with 4 red reflective bands without a bulb end.
2. 54-inches long, 3/8-inch diameter.

M. Hydrants placed where the ground water table is less than 8 feet below the ground surface shall have the drain holes plugged and shall be equipped with a tag stating the need for pumping after use.

N. Color: Painted Waterous Enamel No. V1814-R at the place of manufacture.

O. After installation and testing is complete, the “field coat” of paint shall be applied with a brush.

2.04 DRY HYDRANT HEAD

A. The hydrant sleeve shall be made of bronze, brass, aluminum alloy or other durable, non-corrosive metal. Sleeve must be permanently affixed inside a PVC head using epoxy adhesive and stainless-steel bolts.

B. The hydrant head shall be able to accept a 6 inch NHT (American National Fire Hose Thread) connection to provide maximum supply. Hydrant (6 inch) head shall conform to ASTM 2466.

C. All hydrants shall contain a removable head strainer and stainless steel snap ring that can be removed without special tools. The strainer shall be conical in shape to maximize straining area. All hydrants shall use a rubber "0" ring between the threaded sleeve and PVC head.

2.05 DRY HYDRANT CAP

A. The cap shall be of snap-on/snap-off design and removable without special tools. It shall be joined with a steel cable or chain and be permanently attached to the dry hydrant head. The cap shall be hard plastic or of same metal as NHT connection for maximum corrosion resistance.

2.06 STRAINER

A. The strainer shall be fabricated from PVC material compatible with the pipe. Individual inlet holes shall not exceed 3/8-inch diameter. All components, including pins, shall be non-corrosive. Manufactured well screens shall be corrosion resistant. Screens and strainers shall have a minimum open area of 4 times the pipe cross sectional area.

B. A strainer may be formed by drilling 1/4 inch to 3/8 inch diameter holes with a minimum of one hole diameter between the holes in PVC pipe. Drill holes shall be deburred and the pipe cleaned before putting the strainer into service. The screens or strainers shall be capped with a removable end cap.

2.07 END CAP

A. The end cap must be easily removed without special tools. Perforations are recommended in the end cap, also, to improve flow conditions into the strainer and for jetting action for silt cleanout.

2.08 DRY HYDRANT PIPING

A. The pipe material may be iron or steel. No more than two 90-degree elbows shall be used in the entire pipe system. Pipe shall be 6 inches nominal diameter or larger. The pipe shall be fitted with intake screen or strainer and standard fire truck hose adapters for quick connect/release operations acceptable to the local fire department.

B. The depth at which the pipe is installed shall be below the frost-free depth for the area.

2.09 DRY HYDRANT PIPE INTAKE

A. The pipe intake depth shall be calculated from the design water elevation plus pipe diameter plus 2 feet. The intake screen should have a minimum opening of 4 times the pipe cross sectional area. Where the intake is more than 3 feet off the bottom, a trash rack may be used in lieu of a screen.

B. A dry hydrant installation shall provide for a positive slope toward the water source. In pits or impoundment's, the intake screen or strainer shall be supported and secured at least two feet above the pool bottom. The intake shall be at least 4 feet beyond the earth slope.

C. To avoid a vortex or whirlpool during pumping, the top of the inlet pipe shall be at least 2.0 feet below the design water level unless a special design is prepared to prevent vortex.

2.10 DRY HYDRANT PUMP LIFT

A. The top of the fire truck pumping connection or centerline of pump (whichever is higher) shall be no more than 15 feet in elevation above the bottom of the fire protection pool or stream surface during drought conditions.

B. The fire truck connection shall be approximately 24 inches above the ground surface, but never higher than the intake of the using fire truck.

C. The total lift (pumping head) shall not exceed 20 feet when all losses are totaled. Pumping head for each site shall include head loss from screen or strainer, elbows, line friction, elevation (static head), and hard rubber or flexible suction hose to the fire truck.

2.11 GATE VALVE AND BOX

A. General Requirement: AWWA C515 or C509.

B. Non-rising stem (NRS), opening by turning counterclockwise, 2 inches square operating nut.

C. O-ring seals.

D. Mechanical joint ends conforming to AWWA C111/A21.11.

E. Exterior Bolt Assemblies: Conform to Part 2 – Bolt Assemblies.

F. All internal and external surfaces of the valve body and bonnet shall have a fusion bonded epoxy coating complying with ANSI/AWWA C550 and C116/A21.16.

G. Spray exterior nuts and bolts of valve and restraints using a bituminous coal tar as supplied by the manufacturer.

H. Wrap gate valves according to Part 2 - Polyethylene wrap.

I. Spur gear actuator for valves 16-inches and larger.

J. Valve Boxes
   1. 3-piece, ductile iron, screw-type.

2. Adjustable for 7-1/2 foot depth of cover.
3. Valve and box considered as integral units.
4. 5-1/4 inch diameter shafts.
5. "Stay put" type drop covers, "WATER" on top with extended skirts.

K. Valve box adaptor to be included with valve box installation.

L. Provide valve stem risers according to Details on the Drawings.

2.12 CONDUCTIVITY STRAP

A. As specified by the pipe manufacturer.

2.13 JOINT RESTRAINT

A. Mechanical Joint Restraint: Not allowed on existing cast iron pipe
1. Ductile iron conforming to ASTM A536.
2. Working Pressure: Minimum 250 psi.
3. EBAA Iron, Inc. Megalug, Star Pipe Stargrip, or approved equal.
4. Casting body and wedge assemblies coating
a. Fusion bonded epoxy per ANSI/AWWA C116/A2.
b. or approved equal.

B. Tie Rods: 3/4-inch diameter rods stainless steel or fusion bonded epoxy coated.

2.14 POLYETHYLENE WRAP

A. Material: Polyethylene film conforming to AWWA C105/A21.5 and ASTM A674, tube form.

B. Color: Black.

C. Film Marking Requirements: Conform to AWWA C105/A21.5 and ASTM A674, including AWWA/ASTM standard, corrosion protection warning and applicable range of nominal pipe diameter size(s) every 2-feet along its length.

2.15 INSULATION

A. Polystyrene Insulation: Extruded type conforming to ASTM C578, Type VI, VII, or V.

2.16 TRACER WIRE

A. Conform to the applicable requirements of NEMA WC3, WC5, and WC7.

B. Shall be Underwriters Laboratories (UL) listed for use in direct burial applications (e.g. USE, UF, or tracer wire).

C. Conductor: Minimum No. 12 AWG – Copper Clad Steel Tracer Wire rated to 30 volts.

D. Outside Identification: Volts (or V), AWG size, UL and designation (ex. "tracer wire").

PART 3 EXECUTION

3.01 PREPARATION

A. Conform to the requirements of Section 33 05 05.

3.02 INSTALLATION OF PIPE

A. Install pipe and fittings in accordance with the manufacturer's instructions and with the details shown on the Drawings.

B. Permanently support, remove, relocate, or reconstruct existing utility pipes, cables, structures, or other appurtenances when they obstruct the line, grade, or location of the pipe or appurtenance.

C. Remove foreign matter or dirt from the inside of pipe.

D. All jointing of mechanical joint pipe and push-on joint pipe in accordance to AWWA C600.

E. Outside of the spigot and the inside of the bell, wire brush, wipe clean and dry. Keep pipe ends clean until joints are made.

F. Lay and maintain pipe and appurtenances to the alignment, grade, and location shown on the Drawings. No deviation from the Drawing alignment, grade, or location is allowed, unless approved by the Engineer. No pipe shall be laid in water or when the trench conditions are unsuitable for such Work.

G. Provide conductivity throughout the water system by use of conductivity strap, except for HDPE and PVC water main pipe.

H. Precautions are to be taken to prevent debris or groundwater from entering the pipe being laid.

I. Installing Fittings
   1. General Requirements: AWWA C600.
   2. Set and jointing to existing pipe and fittings as specified for cleaning, laying, and joining pipe.
   3. Spray exterior ductile iron nuts, bolts, and joint restraint bolts using a bituminous coal tar as supplied by the manufacturer.

J. Dead End Lines
   1. Install plug tapped for a 1-inch corporation at all stubs.
   2. Extend a temporary section of 1-inch copper to above grade for flushing and testing.
   3. Install a temporary curb stop on the 1-inch copper bleed off above ground.
   4. Remove all but 12 inches of the temporary copper and backfill trench after flushing and testing is completed.
   5. Crimp over short stub to keep the corporation clean.

K. Wrap all ductile iron pipe and fittings with polyethylene wrap.

L. Backfilling: Conform to Section 33 05 05.

3.03 INSTALLATION OF HYDRANT

A. Location determined by Engineer. A grade stake and location stake will be provided by the Engineer before the hydrant may be set.

B. Set on 8-inch concrete block, or approved equal concrete base.

C. Brace according to Drawings.

D. After each hydrant has been set, place around the base of the hydrant not less than 1 cubic yard of Class A round washed rock with a minimum diameter of 3/4-inch. Carefully place 2 layers of polyethylene, minimum 4 mm thickness each, over the rock to prevent backfill material from entering voids in the drain rock.

E. Wrap the hydrant assembly with polyethylene wrap to the bottom of the break off flange.

F. Maintain hydrants in a plumb position during the backfilling operation.

G. Attach a fiberglass marker to the hydrant using an existing flange bolt located at the back of the hydrant.

H. Furnish 1 additional marker for each hydrant to the Owner.

3.04 INSTALLATION OF VALVE

A. Set and joint valves to new pipe in the manner as specified for cleaning, laying, and jointing pipe. Location to be determined by the Engineer.

B. Valves and boxes shall be supported on an 8-inch concrete block as shown on the Drawings.

C. Maintain valve box centered and plumb over the operating nut of the valve.

D. Set top of valve box flush with the existing surface to provide 12 inches of upward adjustment.

E. Wrap gate valves with polyethylene wrap.

3.05 POLYETHYLENE WRAP

A. Corrosion protection shall be provided for all ductile iron pipe by use of polyethylene wrap. Before installing the polyethylene wrap the exterior of the pipe shall be free of foreign material. The polyethylene wrap shall be cut approximately 2 feet longer than that of the pipe section. After assembling the pipe joint, the polyethylene shall be overlapped approximately 1 foot and sealed at all joints with approved adhesive tape. Additional taping shall be used at 3-foot intervals along the pipe. Any rips, punctures or other damage to the polyethylene shall be repaired immediately with adhesive tape.

B. When fittings cannot be practically wrapped in a tube, a flat sheet or split tube shall be used. All seams shall be securely taped.

C. The bedding and cover material shall be placed with care so as to prevent damage to the polyethylene wrap. Any rips or punctures in the wrap shall be repaired immediately.

3.06 ANCHORAGE

A. Brace hydrants securely against undisturbed soil using precast concrete block. Use mechanical joint restraints or rod all joints from main line tee to hydrant gate valve, then from gate valve to hydrant.

B. Restrain all bends and fittings with mechanical joint restraints.

C. Where lines terminate with plugs, restrain the plug and next 2 joints with mechanical joint restraints or tie rods in conjunction with the blocking, as directed by the Engineer. The number of rods required is as follows:

Pipe Size	No. of 3/4 Inch Rods
6 Inches	2
8 Inches	2
12 Inches	4
16 Inches	6
18 Inches	6
20 Inches	8
24 Inches	10

3.07 INSULATION

A. Review insulation installation with Engineer
   1. Place insulation between water pipe and sanitary pipe when water main or service is within 1-foot above or below the sanitary pipe.
   2. Place insulation between storm sewer pipe and water main or water service when pipes are separated by less than 2-feet.

3.08 TRACER WIRE

A. Attach to bolt on break off flange of all hydrants, valves, and curb stops. Contractor will furnish and install cast bronze ground clamp to be installed on curb stop just below the cap on the standpipe.

B. Splice shall be accomplished by joining the 2 bare ends of the wires with either a copper mechanical split bolt compression fitting or a crimp-type compression sleeve for copper connections. No other connection is allowed.

C. All joined splices and connections shall be fully enclosed using a 3M Brand Scotchfil™ Electrical Insulation Putty, or approved equal. The putty shall be fully sealed and bonded on all sides.

D. Splices shall not be more frequent than 1 splice per 250 feet.

E. Tracer wire shall be laid below all pipe, fittings, and hydrants.

3.09 PROTECTION

A. Existing valves and hydrants shall be operated by the Owner, unless under emergency situations.

B. Securely plug all water main openings promptly before suspension of Work at any time to prevent earth or other substances from entering the water main.

C. Mark valve boxes and structures susceptible to being hit by construction or vehicular traffic.

END OF SECTION

SECTION 33 12 12

WATER SERVICES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes
   1. Construction of water service pipe, corporation stops, curb stops and boxes, and all appurtenances.

B. Related Sections
   1. Section 33 05 05 - Trenching and Backfilling.
   2. Section 33 10 00 - Water Utilities.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment
   1. **Water Service, HDPE**: Measurement by lineal foot, of the size dictated on plans, measured along the axis of the pipe, from centerline of the water main to termination as shown on the Drawings with no regard to intervening fittings. Payment at the Bid Unit Price per foot shall include cost of all pipe, fittings, laying, excavation, backfilling, and testing
      a. Placement and compaction of the aggregate material around the corporation stop and gooseneck is incidental to the service line.
      b. Supplying and installing wooden markers or fence a post is incidental to the service line.
   2. Corporation Stop and stainless-steel saddle to be included in the Bid Unit Price for each Water Service.
   3. Curb Stop and Box to be included in the Bid Unit Price for each Water Service.
      a. For services located within driveway pavements areas, a 6 inch gate valve box top section shall be included.
   4. Bedding and cover stone, backfill, placement, compaction, and removal of excess trench material to be included in the Bid Unit Price for each Water Service.
   5. Connections to existing water services, including any required sleeves or reducers to be included in the Bid Unit Price for each Water Service.
   6. Dewatering shall be considered incidental to the installation of each Water Service.
   7. Tracer Wire: Shall be considered incidental to the installation of each Water Service.
   8. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. Standard Specifications for Sewer and Water Construction in Wisconsin, Latest Edition (Standard Specifications).

B. American Society of Testing and Materials (ASTM)
   1. B88 - Class K Copper Water Service Pipe.
   2. A674 - Standard Practice for Polyethylene Encasement for Ductile Iron Pipe for Water or Other Liquids.

3. D3035 - Standard Specification for Polyethylene (PE) Plastics Pipe (DR-Pr) Based on Controlled Outside Diameter.
4. F1290 - Standard Practice for Electrofusion Joining Polyolefin Pipe and Fittings.

C. American Water Works Association (AWWA)
1. C105 - American National Standard for Polyethylene Encasement for Ductile Iron Pipe Systems.
2. C900 - AWWA Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 Inches through 12 Inches, for Water Distribution.
3. C901 - AWWA Standard for Polyethylene (PE) Pressure Pipe and Tubing, 1/2 Inch (13 mm) Through 3 Inches (76 mm), for Water Service.

1.04 SUBMITTALS

A. Submit the Product Data for the following items consistent with Section 01 33 00:
1. Pipe and fittings.
2. Corporation stop and curb boxes.
3. Service saddles.

1.05 SEQUENCING AND SCHEDULING

A. Install sanitary sewer, water main, and all pipe deeper than the services prior to the installation of the services.

B. Perform testing of new water main prior to reconnecting existing services.

C. Notify the Owner a minimum of 48 hours prior to performing Work.

PART 2 PRODUCTS

2.01 PIPE BEDDING AND COVER

A. Bedding and cover material shall conform to Section 33 05 05 – Trench Excavation and Backfill and the details on the Drawings.

2.02 SERVICE PIPE

A. High Density Polyethylene (HDPE) Pipe: CTS SDR9 conforming to AWWA C901 and ASTM D2737 CTS, DR9/PC 200 for sizes less than 4 inches.

2.03 CORPORATION STOP

A. Approved Manufacturers: Mueller No. B-25008N, or approved equal.

B. Threaded on outlet for compression type fitting.

C. Threaded on inlet end with standard tapered corporation cock thread.

D. Saddles are required on all PVC and HDPE water main.

2.04 CURB STOP

A. Approved Manufacturers: Mueller No. B-25219N, Mueller No. B-25155, or approved equal.

B. Same size and connection type for inlet and outlet.

C. Compression type fitting utilizing stainless steel pipe insert.

D. Full opening through the valve body with no smaller restriction allowed.

2.05 CURB BOX

A. Approved Manufacturers: Mueller H-10300-N, Mueller H-10302-N, or approved equal.

B. Adjustable in height from 78 inches to 90 inches.

C. Stationary rods.

D. 1-1/4 inch upper section.

2.06 SERVICE SADDLES

A. Stainless steel.

B. For use on PVC C900: Smith-Blair 372, or approved equal.

2.07 TRACER WIRE

A. Conform to the requirements of Section 33 10 00.

2.08 MAGNESIUM GROUNDING ROD ANODE

A. Conform to the requirements of Section 33 10 00.

PART 3 EXECUTION

3.01 INSTALLATION

A. Governing Code: Wisconsin Plumbing Code and any local ordinances that may apply.

B. Trench excavation and preparation: Conform to Section 33 05 05.

C. New services shall be connected at the locations shown on the Drawings or if not shown as directed by the Engineer.

D. Water Service Line
   1. Parallel and upstream of the sewer service line in the same trench where feasible.
   2. Terminate water service as shown on Drawings or as directed by the Engineer.

E. Corporation Stop
   1. Tap into main only when water main is under pressure.
   2. Use 2 layers of pipe tread sealant tape on corporations as a thread lubricant and sealant, or product approved by Owner.
   3. Support corporation with 1/2 cubic yard 3/4-inch crushed stone chips per Chapter 8.43 of the Standard Specifications.

F. Curb Box
   1. Support on full size pre-cast segmental manhole block.
   2. Place in a plumb, vertical position.
   3. Install to elevation matching finished grade.
   4. Grade stakes will be furnished to establish elevations.
   5. Wrap curb box with pipe encasement conforming to Section 33 10 00.

G. Tracer Wire
   1. Install tracer wire with all water services.
   2. Install tracer wire below pipe.
   3. Dead end tracer wire with approved connector at the curb box.
   4. Install tracer wire connection boxes at the hydrants per the Drawings.

H. All trenches shall be backfilled and compacted in accordance with Section 33 05 05.

3.02 FIELD QUALITY CONTROL

A. Do not backfill trench until the service has been inspected and approved by the Engineer.

B. Pressure Testing: All water services will be pressure tested in conjunction with the water main, conforming to Section 33 10 00.

C. Tracer Wire Testing: Demonstrate the electrical continuity of tracer wire.

3.03 PROTECTION

A. Mark Each Curb Box
   1. Solid wood post extending 4 feet above grade until end of Project.
   2. Metal fence post extending 4 feet above grade.

B. Mark the End of the Utility Services
   1. Solid 4 inches by 4 inches by 8 feet wood post extending 4 feet above grade.
   2. Metal fence post extending 4 feet above grade.

END OF SECTION

SECTION 35 42 13.20

METAL FABRICATIONS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Miscellaneous steel framing and supports.
2. Steel weld plates and angles.
3. Steel Pipe Jackets.
4. Steel Bar Grating.
5. Safety Ladders.
6. Pile Wall Cap.
7. Wale and Anchor Hardware Assemblies.

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment
1. A Bid Item has been provided for **Safety Ladders.** Measurement will be by each item acceptably completed. The work to be performed under this item shall consist of furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing the item, complete in place, as shown on plans, as specified in these special provisions, and as directed by the Engineer.
2. A Bid Item has been provided for **Pile Wall Cap.** Measurement will be by linear foot acceptably completed as measured along centerline of the wall cap along the dock wall. The work to be performed under this item shall consist of furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing the item, complete in place, as shown on plans, as specified in these special provisions, and as directed by the Engineer.
3. A Bid Item has been provided for **Wale and Anchor Hardware Assemblies.** Measurement will be by linear foot acceptably completed as measured along the face of the dock wall. This section includes all plates, structural steel shapes, bolts, nuts, washers, weldments, and other steel accessories shown on the plans and details as needed to complete assemblies, connections, and details. The work to be performed under this item shall consist of furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing the item, complete in place, as shown on plans, as specified in these special provisions, and as directed by the Engineer.
4. A Bid Item has been provided for **Weep Drains.** Measurement will be by each item acceptably completed. The work to be performed under this item shall consist of furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing the item, complete in place, as shown on plans, as specified in these special provisions, and as directed by the Engineer.

1.3 SUBMITTALS

A. Shop Drawings:
1. Detail fabrication and erection of each metal fabrication, connection assembly, and weldment.

2. Include plans, elevations, sections, and details of metal fabrications and their connections.

1.4 QUALITY ASSURANCE

A. Fabricator Qualifications: A firm experienced in producing metal fabrications similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce the required units.

B. Welding: Qualify procedures and personnel according to the following:
   1. AWS D1.1, "Structural Welding Code-Steel."
   2. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

1.5 PROJECT CONDITIONS

A. Field Measurements:
   1. Verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings.
   2. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Established Dimensions:
   1. Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating metal fabrications without field measurements.
   2. Coordinate construction to ensure that actual dimensions correspond to established dimensions.
   3. Allow for trimming and fitting.

PART 2 PRODUCTS / MATERIALS

2.1 MATERIALS GENERAL

A. Metal Surfaces, General:
   1. For metal fabrications exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes.
   2. Do not use materials with exposed pitting, rolled trade names, or roughness.

2.2 FERROUS METALS

A. Structural Steel Shapes: W-shapes and WT-shapes complying with ASTM A992.

B. Steel Plates, Angles, and Bars: ASTM A36/A36M, and ASTM A572 Gr. 50 as noted.

C. Steel Tubing: HSS Cold-formed steel tubing complying with ASTM A500, Gr. B.

D. Steel Pipe: ASTM A53, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.

E. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

2.3 FASTENERS

A. General:
   1. Provide zinc-plated fasteners with coating complying with ASTM B633, Class Fe/Zn 5. Select fasteners for type, grade, and class required.

B. Bolts and Nuts:
   1. Regular hexagon-head bolts, ASTM A325, Grade A; with hex nuts, ASTM A563 and, where indicated, flat washers.

C. Plain Washers:
   1. Round, carbon steel, ASME B18.22.1.

2.4 FABRICATION

A. General:
   1. Preassemble items in the shop to greatest extent possible.
   2. Use connections that maintain structural value of joined pieces.
   3. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges. Remove sharp or rough areas on exposed surfaces.
   4. Weld corners and seams continuously. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals. Obtain fusion without undercut or overlap. Remove welding flux immediately. Finish exposed welds smooth and blended.
   5. Form seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
   6. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
   7. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.

2.5 FINISHES

A. Steel and Iron Finishes:
   1. Hot-dip galvanize items as indicated to comply with ASTM A123/A123M or ASTM A153/A153M as applicable.
      a. Tie Rods, Anchor Coupler Assemblies, Fender Bolts, Sheet Tie Bolts, and Slip-side Sheet Backer Plates.

B. Preparation for Protective Coating/Shop Priming:
   1. Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 6 “Commercial Blast Cleaning” requirements for metal fabrications exposed to environment.

PART 3 EXECUTION

3.1 INSTALLATION, GENERAL

A. Fastening to In-Place Construction:
   1. Provide anchorage devices and fasteners where necessary for securing metal fabrications to in-place construction.

B. Cutting, Fitting, and Placement:

1. Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

C. Field Welding: Comply with the following requirements:
   1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   2. Obtain fusion without undercut or overlap.
   3. Remove welding flux immediately.
   4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

3.2 CLEANING AND TOUCH UP

A. Touch up surfaces and finishes after erection.
   1. Galvanized Surfaces:
      a. Clean field welds, bolted connections, damaged and abraded areas and repair galvanizing to comply with the ASTM A780.

END OF SECTION

SECTION 35 42 13.21

HIGH PERFORMANCE COATINGS

PART 1 GENERAL

1.1 SUMMARY

A. Related Sections
   1. Section 35 42 13.19 - Steel Piling

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment
   1. All costs related to High Performance Coatings will be considered incidental to the installation of the Steel pile it is applied on.
   2. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.3 SCOPE OF WORK

A. The work included in this section consists of furnishing all materials, transportation, labor, equipment, and incidentals necessary to clean, and coat steel sheet pile bulkhead wall with a two-part epoxy coating system. All work shall be performed in the dry condition. Work will be performed in accordance with the Steel Structures Painting Council. (SSPC).

B. The coating system will be moisture tolerant. Other applicable publications include: Shop, Field & Maintenance Painting (SSPC-PA1), Near-White Blast Cleaning (SSPC-SP10) and Power Tool Cleaning to Bare Metal (SSPC-SP11).

C. Steel sheet pile (SSP) bulkhead shall be cleaned to SSPC-SP10 and given protective coating to west facing water side surfaces from top of sheet to elevation 591'.0. Payment for this item will be calculated as per square foot, of exposed face of steel acceptably completed. The city will obtain the measured quantity by multiplying the length of wall as shown on the plans by the height of the coating required.

D. The coating shall be applied to the individual steel sheet piles.

1.4 SUBMITTALS

A. General Submissions
   1. Work Plan.
   2. Project Schedule.
   3. Contractor Quality Control Plan.

B. Epoxy Coating Specific Submittals
   1. Certificates of conformance or compliance certifying that materials, surface preparation, coverage and thickness meet the requirements specified.
   2. Certified copies of the reports of all tests required in the standard specifications.
   3. On-site cleaning, collecting and transporting abrasive blast residue, and coating procedures as part of the Environmental Protection Plan.

4. Contractor shall furnish paint manufacturer's certification that the coating complies with coating system requirements specified. Application of coating will not be permitted until the certification has been received by the Owner's Engineer and approved by the Engineer.
5. MSDS and technical specification sheets.

1.5 ADDITIOANL INFORMATION

A. Other information may be required once field work commences. The Engineer will alert the Contractor should additional information be required.

1.6 PROCEDURE APPROVAL

A. Cleaning and coating onsite procedures shall be approved by the Engineer. Contractor shall protect adjacent surfaces from spent abrasive, cleaning residue, overspray, and splatter shall not allow these items to fall into the water or be absorbed into the soil. Proposed methods, procedures, and equipment shall be submitted with the Environmental Protection Plan as well as portable cofferdam(s) descriptions, dewatering methods, and proposed schedules.

PART 2 PRODUCTS / MATERIALS

2.1 RECOMMENDED PRODUCTS

A. Steel Sheet Pile epoxy coating products shall conform to the recommended product specifications and other requirements specified in this document. Recommended products include the following:
1. HUMIDUR® ML Solvent Free Epoxy Coating, ACOTEC USA, INC. 3200 Southwest Freeway, Suite 3300 Houston, TX 77027, Tel.713-402-6133, Fax 866-316-2882.
2. Fast Clad ER Epoxy, Sherwin Williams Company, 4767 Miller Trunk Road, Hermantown, MN 55811, Tel. 218-722-7413.

2.2 ALTERNATIVE PRODUCTS

A. A different product of equal or better quality may be substituted by the Contractor with the approval of the Engineer. Positive Proof of coating adequacy to withstand heavy ice impact and abrasion must be provided for evaluation with the bid documents. A minimum of two projects must be submitted with minimum installed duration including five winter seasons.

2.3 COMPATIBILITY

A. Primers, thinners, and coatings used in conjunction with each other should be compatible products of the same formulator (manufacturer) of the coating system.

2.4 ADDITIONAL THINNER, TINTING OR OTHER MATERIAL

A. All paint shall be prepared at the factory ready for application. The addition of thinner or other material to the paint after the paint has been shipped shall not be permitted. All tinting materials required shall be added to the paint at the time of paint manufacture. Field tinting shall not be allowed.

2.5 PRODUCT LABELS

A. All containers shall be labeled showing the exact title of the paint, the manufacturer's name, date of manufacturer, the manufacturer's batch number and the specification number and lot number if appropriate. Precautions concerning the handling and application of paint shall be shown on the label of paint and solvent containers.

2.6 PRODUCT STORAGE

A. All Products used must be stored in a secure area. They must be stored in an area within the storage temperature range suggested by the manufacturer. All other storage recommendations of the manufacturer must also be followed.

2.7 MANUFACTURER RECOMMENDATIONS

A. All other product manufacturer recommendations will be strictly followed.

PART 3 EXECUTION

3.1 CLEANING AND PREPARATION OF SURFACES

A. Abrasive Blasting
   1. All surfaces to be coated shall be abrasive blasted in accordance with SSPC SP-10 (near-white metal) and the appearance of the blast cleaned surfaces shall approximate Visual Standard SP10 of SSPC VIS 1-89. Blast cleaning shall be performed using abrasive of a size which will produce a surface profile height of 1-3 mils.
   2. Abrasive blasting will be permitted only during daylight hours unless otherwise approved by engineer and on surfaces that are not wet after blasting or before coating.
   3. Abrasive blasting will not be permitted when surfaces are less than 5 degrees F above dew point or the relative humidity is greater than eighty five percent (85%). The only exception to this will be for rough initial abrasive blasting which will be allowed during the night, pending engineer approval, and provided surfaces are cleaned and brightened the next morning with fresh light abrasive blasting to provide a near white blasted metal surface.
   4. After blasting, dust and spent abrasive shall be removed from the surfaces by air, vacuum cleaning or brushing with clean brushes made of fiber or bristle. Waste from blasting activities will be managed such that the surrounding environment (soil and water bodies) is not contaminated. Cleaning shall be approved by the coating manufacturer's technical representative. Proof of approval is required.

3.2 HIGH PRESSURE WATER BLASTING

A. High pressure water blasting (above 10,000 psi) meeting SSPC SP-10 as specified herein can be used instead of abrasive blasting. If used, water blasting shall be followed by sweep grit blasting meeting SSPC SP-10. Waste from blasting activities will be managed such that the surrounding environment (soil and water bodies) is not contaminated.

3.3 DURATION BETWEEN CLEANING AND COATING APPLICATION

A. The coating system shall be applied as soon as possible on the same day as cleaning after the blasting preparation is finished. Any cleaned surface which rusts before the application of the coating system shall be re-cleaned.

B. Steel sheet pile (SSP) bulkhead wall coating shall be performed prior to driving of new SSP.

3.4 APPLICATION METHODS

A. All painting to be performed under this contract shall be performed in conformance with the best practices of the trade, in conformance with recommendations of the coating manufacturer, and in conformance with applicable portions of the Steel Painting Council Specification SSPC-PA 1, when those specifications are not in conflict with these specifications.

B. All surfaces cleaned to bare metal shall be coated with the coating the same working day. Any cleaned surface which rusts before the application of the coating system shall be re-cleaned.

C. Apply coating system with high pressure airless spray equipment as specified by the coating manufacturer. All printed instructions from the coating system manufacturer shall be strictly followed.

D. Paint film thickness measurements will be made by the engineer's/ owner's representative. One hundred percent (100%) of all thickness measurements shall be within the specified minimum dry film thickness. Where thickness measurements fall below the specified minimum, additional applications of paint shall be made as necessary to meet the thickness required. Manufacturer's printed instructions on additional applications of paint shall be strictly followed.

E. The new SSP may be driven after eight (8) days of cure time.

F. One or two coats, total of 20 mils (minimum) dry film thickness (500 microns).

3.5 FACTORS AFFECTING APPLICATIONS OF COATINGS

A. Temperature: Coating shall not be applied when temperature of the steel or coating is below 50□F or when the air temperature is below 45 degrees F. Coating shall not be applied when the surface temperature is expected to drop to 40 degrees F before the coating has dried. Coating shall not be applied to steel which is at a temperature that will cause blistering or porosity or otherwise will be detrimental to the life of the coating. When coating is applied in hot weather, or thinned in cold weather, precautions must be taken to insure that the specified thickness of paint is obtained.

B. Moisture: Coating shall not be applied in rain; wind, snow, fog or mist, or when the steel surface temperatures are less than 5 degrees F above dew point shall not be applied on frosted or ice-coated surfaces. Follow manufacturer's recommendations for coating used.

C. Humidity: The manufacturer's instructions shall be followed regarding the acceptable humidity range for the application of the coating. Expect that no coating shall be applied when the humidity is more than 85 percent, without prior approval from the Engineer.

D. Damage: Damaged areas of coating which are detrimental to service life shall be removed, and the surface shall again be prepared and repainted with the same number of coats of coating of the same kind as the undamaged areas.

E. Continuity: To the maximum extent practical, each coat of coating shall be applied as a continuous film of uniform thickness free of pinholes. All thin spots or areas missed in the application of alternate coatings shall be reapplied and permitted to dry before the next coat is applied. Pin hole testing will be performed by the Contractor prior to requesting the

owner inspection in the intermediate coat of alternate coatings with up to a 90-volt wet sponge holiday detector. All areas containing pinholes shall be abraded lightly if required and over coated sufficiently to close these imperfections. At the owner's discretion, the inspector may witness the Contractor's pinhole testing. When more than five such areas are found in any 100 square feet of surface area, the inspector may require the entire 100 square foot area to be abraded and recoated.

3.6 COATING EXTENT

A. Steel sheet pile bulkhead are to be cleaned to SSPC-SP10 and given protective coating to harbor side exposed surfaces including knuckles from elevation 605.5' to 591.1' relative to IGLD 1985. This coating coverage applies to the finished condition.

PART 4 FIELD TESTING AND INSPECTIONS

A. Contractor shall provide and pay for the services of a qualified technical representative employed by the manufacturer of the coating system who shall:
   1. Observe and approve the Contractor's surface preparation and coating system application techniques.
   2. Test for thickness, holidays, and pin holes on random samples.
   3. Provide a written summary of the final coating product and its expected performance in a marine environment.
   4. Provide inspection and testing reports to the Contractor and Engineer.
   5. Provide testing facility and/or testing personnel's certifications .Test for thickness, holidays, and pin holes: Measure thickness by commercial film thickness gages.
   6. Test coatings of steel sheet piling and other waterfront structures for pin holes, holidays, and other defects with an electrical flaw detector when visual inspection shows that coating continuity is doubtful.
   7. Where detection of pinholes, holidays and other defects is noted, contractor shall repair areas in a manner in accordance with the manufacturer's technical representative's directions.
   8. Owner/ Engineer will provide Quality Assurance of the Contractor's technical representative.

END OF SECTION

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SECTION 35 42 13.23

HEAVY TIMBER CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes
   1. Use of heavy timbers for use as dock fendering.

B. Definitions
   1. Timbers: Lumber sized as indicated on the plan for use as dock fendering.
   2. Inspection agencies, and the abbreviations used to reference them, include the following:
      a. NELMA - Northeastern Lumber Manufacturers Association.
      b. NLGA - National Lumber Grades Authority.
      c. SPIB - Southern Pine Inspection Bureau.
      d. WCLIB - West Coast Lumber Inspection Bureau.
      e. WWPA - Western Wood Products Association.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment
   1. A Bid Item has been provided for **Timber Fenders**. Measurement will be by linear foot acceptably completed as measured along the face of the dock wall. The work to be performed under this item shall consist of furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the Timber Fenders, complete in place, as shown on plans.
      a. Item includes timber connectors.

1.03 SUBMITTALS

A. Certificates of Inspection: For exposed timber not marked with grade stamp, a letter must be issued by an independent lumber grading agency to the engineer, prior to installation.

1.04 QUALITY ASSURANCE

A. Timber Standard: Comply with ANSI/ AWC National Design Specifications. (NDS).

1.05 DELIVERY, STORAGE, AND HANDLING

A. Schedule delivery of heavy timber construction to avoid extended on-site storage and to avoid delaying the Work.

PART 2 PRODUCTS

2.01 TIMBER

A. General: Comply with DOC PS 20 and grading rules of lumber grading agencies certified by American Lumber Standards Committee Board of Review, as applicable.
   1. Factory mark each item of timber with grade stamp of grading agency.
   2. For exposed timber indicated to receive a stained or natural finish, apply grade stamps to surfaces that will not be exposed to view or omit grade stamps and provide certificates of grade compliance issued by grading agency.

B. Timber Species and Grade: White Oak; No. 1, Select Structural, or better as determined by NELMA.

C. Moisture Content: Provide timber with 22 percent maximum moisture content at time of finishing length cuts or drilling holes.

D. Dressing: Provide timber that is rough sawn (Rgh).

E. End Sealer: Manufacturer's standard, transparent, colorless wood sealer that is effective in retarding the transmission of moisture at cross-grain cuts.

2.02 TIMBER CONNECTORS

A. General: Fabricate as directed by the plans in accordance with appropriate specifications.

2.03 FABRICATION

A. Shop fabricate members by cutting to a cross-section of 12" x 12" of appropriate length. Predrilled for fasteners and assembly of units. Individual timber lengths shall not be less than 14'-0".

B. Seal Coat: After fabricating each unit, apply a saturation coat of penetrating sealer on sur- faces of each unit.

PART 3 EXECUTION

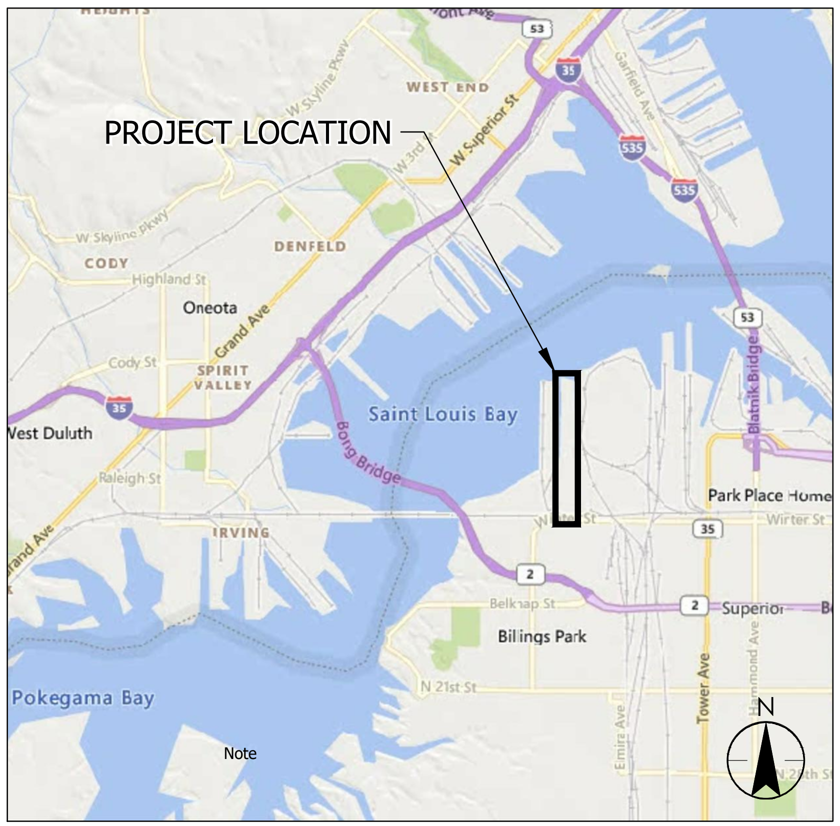
A. General: Install timber as indicated on the plans, maintaining lines and levels.

END OF SECTION

C. REISS DOCK

C. REISS COMPANY, LLC

ST. LOUIS BAY, SUPERIOR, WISCONSIN

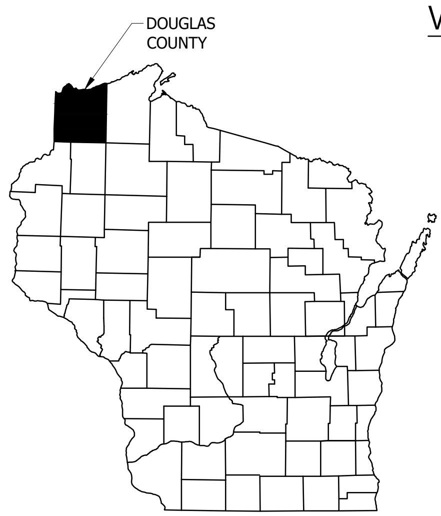


VICINITY MAP

NO SCALE

LOCATION MAP

NO SCALE



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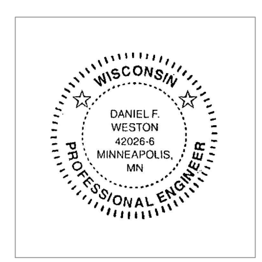
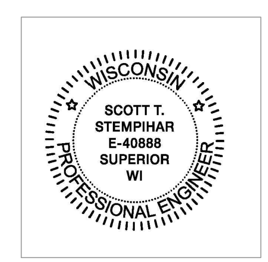
CIVIL PLANS
G0.01 - C8.03

CIVIL PLANS
BUILDING SHEETS
A001 - AB601
PLUMBING
P001 - P601

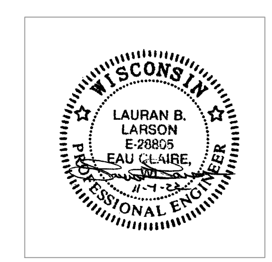


CIVIL PLANS
STRUCTURAL SHEETS
S001 - SB301

CIVIL PLANS
ELECTRICAL SHEETS
E0.01 - E6.01



RAILROAD PLANS
R001 - R602



BULKHEAD WALL IMPROVEMENTS
M001 - M503

CIVIL PLANS
MECHANICAL
M001 - MB102

THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE. THERE MAY BE OTHER UNDERGROUND UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

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TITLE SHEET

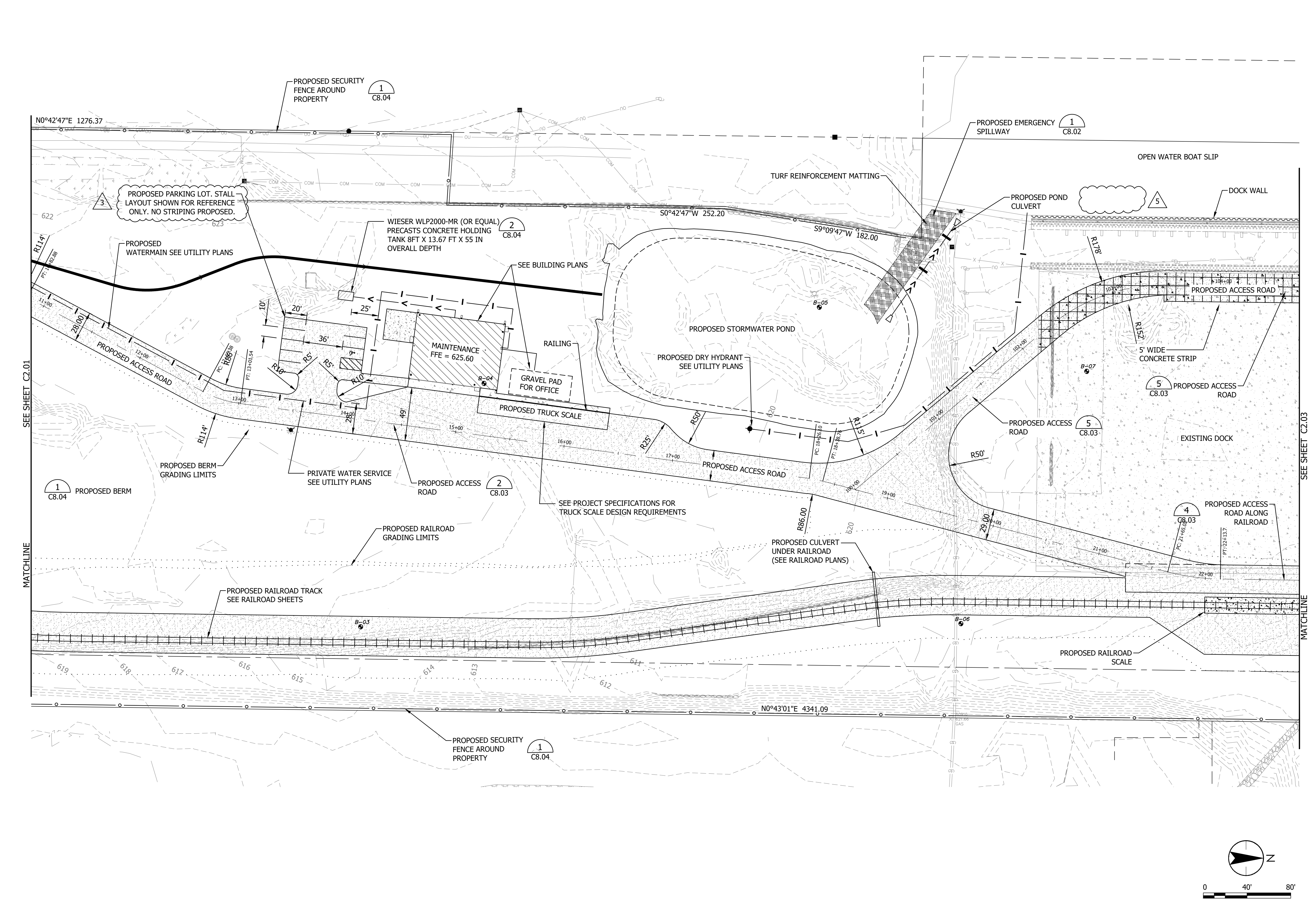
C. REISS DOCK
C. REISS COMPANY, LLC
ST. LOUIS BAY, SUPERIOR, WI

DATE OF ISSUANCE		
MARCH 10, 2023		
NO	REVISION	DATE
3	ADDENDUM	4-18-23
4	ADDENDUM	4-26-23
5	ADDENDUM	4-27-23

SURVEY	JN
DRAWN	AJR
DESIGNED	AJR
CHECKED	CJB
APPROVED	CMM
PROJ. NO.	193707141

SHEET NUMBER
G0.01

Plot Date: 04/27/2023 - 7:05pm



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SITE PLAN

C. REISS DOCK
C. REISS COMPANY, LLC
ST. LOUIS BAY, SUPERIOR, WI

DATE OF ISSUANCE
MARCH 10, 2023

NO	REVISION	DATE
3	ADDENDUM	4-18-23
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5	ADDENDUM	4-27-23

SURVEY	JN
DRAWN	AJR
DESIGNED	AJR
CHECKED	AJR
APPROVED	AJR
PROJ. NO.	193707141

SHEET NUMBER
C2.02

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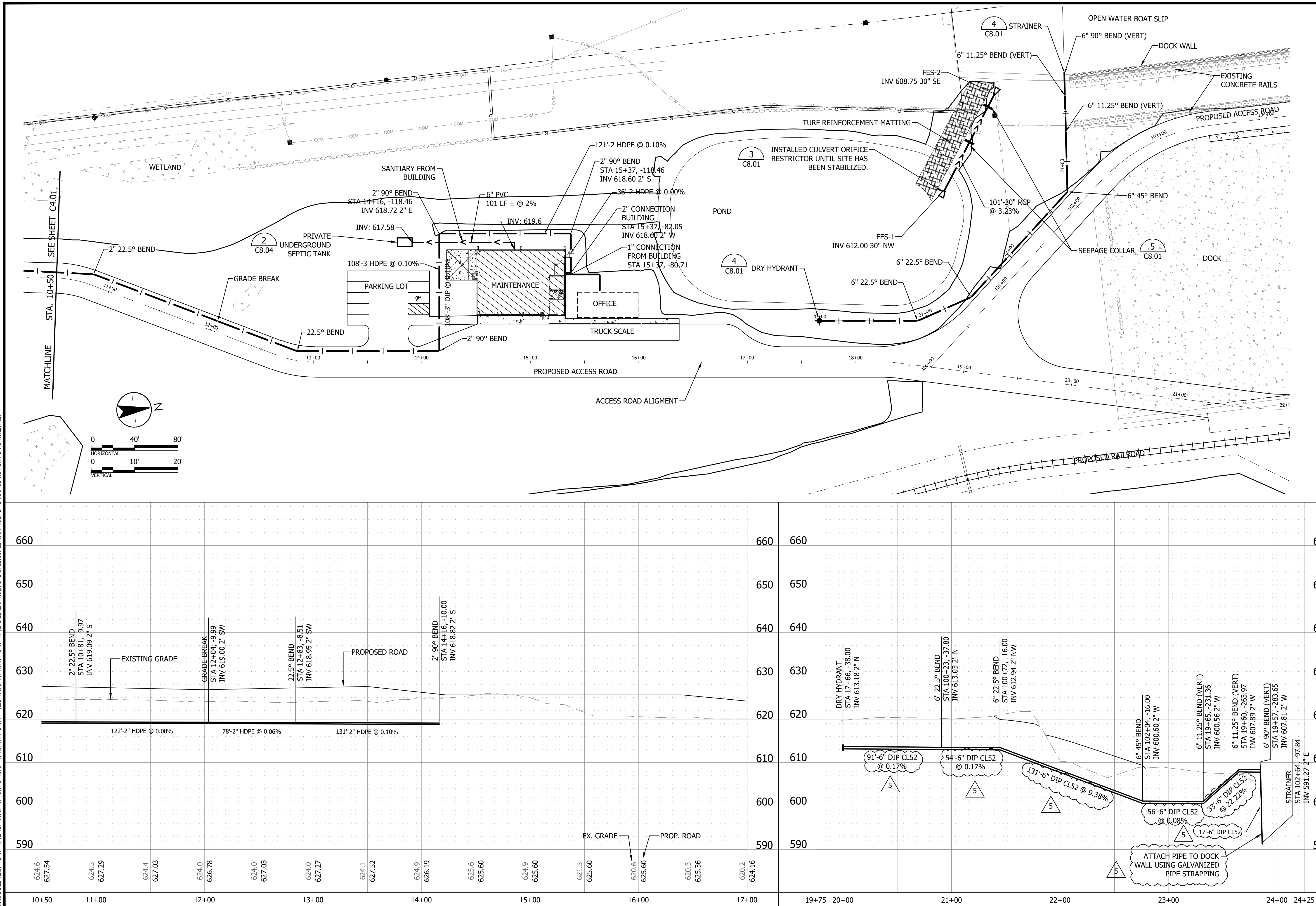

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UTILITY PLAN AND PROFILE

C. REISS DOCK
C. REISS COMPANY, LLC
ST. LOUIS BAY, SUPERIOR, WI

DATE OF ISSUANCE: MARCH 10, 2023

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3	ADDENDUM	4-18-23
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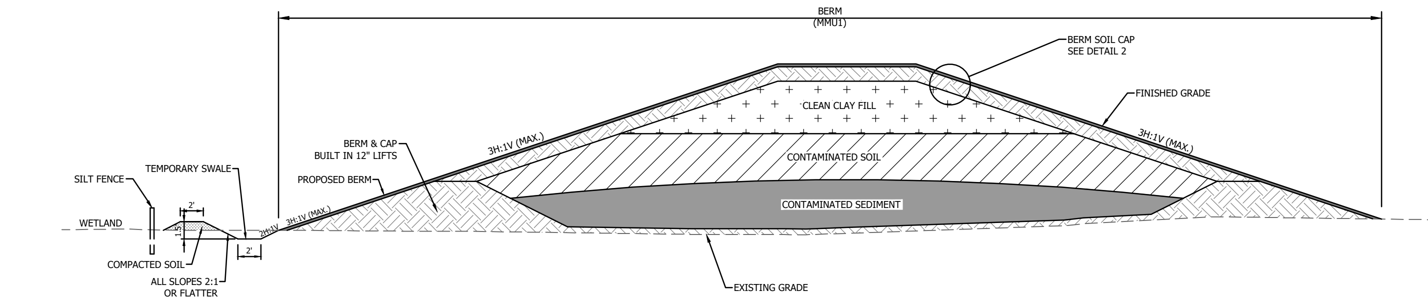
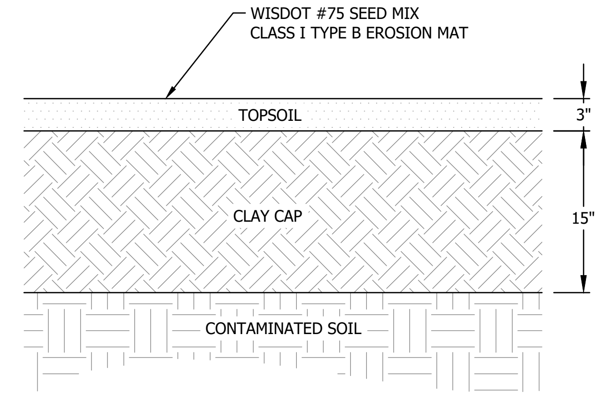
SURVEY	JN
DRAWN	AJR
DESIGNED	AJR
CHECKED	AJR
APPROVED	AJR
PROJ. NO.	193707141

SHEET NUMBER
C4.02



1 BERM TYPICAL SECTION
C3.01
C3.02
NTS



2 DISPOSAL BERM SOIL CAP
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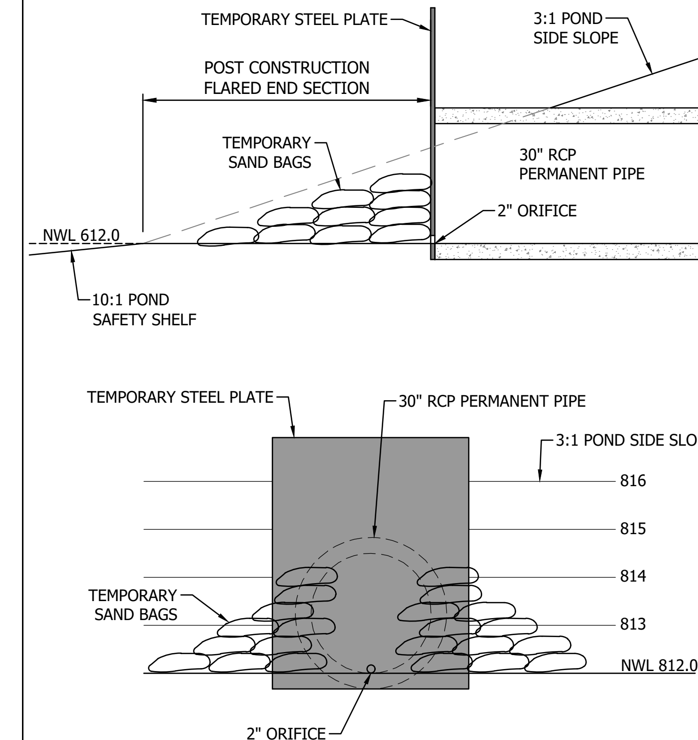
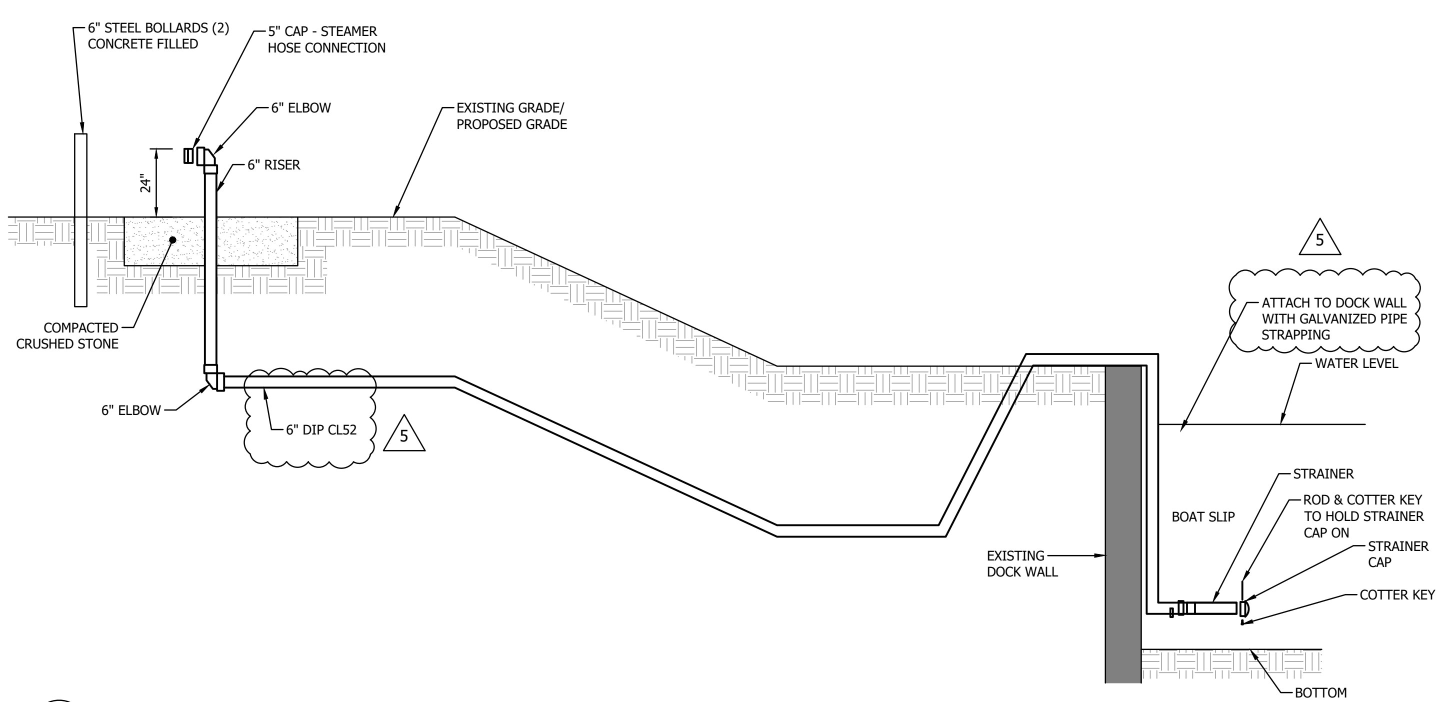


NOTE:
CONTRACTOR SHALL INSTALL THE TEMPORARY STEEL PLATE AND ORIFICE UNTIL SITE HAS BEEN STABILIZED. FOLLOWING STABILIZATION, THE CONTRACTOR SHALL CLEAN THE PIPE AND INSTALL THE CONCRETE FLARED END SECTION.

3 CULVERT ORIFICE RESTRICTOR CONSTRUCTION
C1.02
NTS



4 DRY HYDRANT
C4.02
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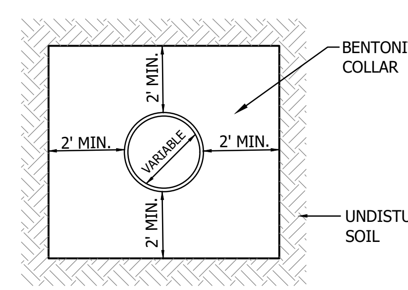

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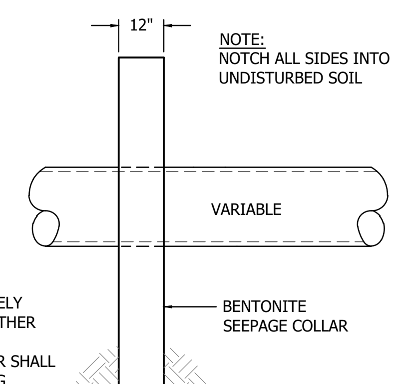


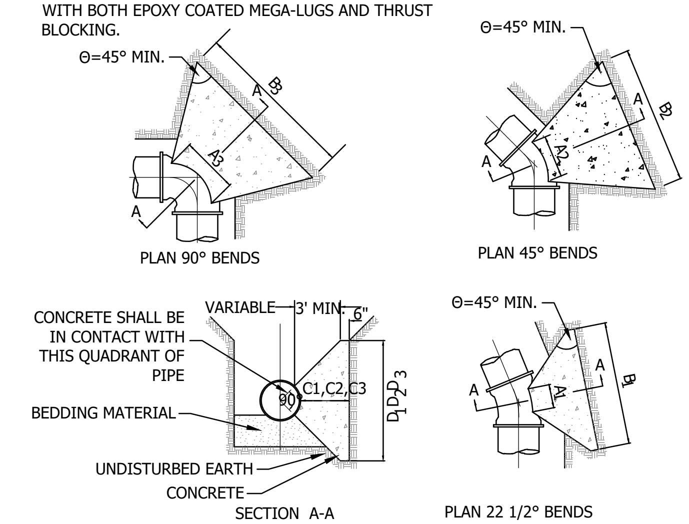
NOTE:
NOTCH ALL SIDES INTO UNDISTURBED SOIL

NOTE:
1. COLLAR MUST BE ADEQUATELY FRAMED USING WOOD OR OTHER ACCEPLABLE MATERIAL
2. BENTONITE SEEPAGE COLLAR SHALL BE CONSTRUCTED BY MIXING BENTONITE WITH ON-SITE CLAY. MIXTURE SHALL COMPOSE OF THREE 50-POUND BAGS OF BENTONITE PER CUBIC YARD OF CLAY.

5 SEEPAGE COLLAR
C4.02
NTS

NOTES:
1. SHAPE OF BACK OF BUTTRESS MAY VARY AS LONG AS POURED AGAINST FIRM UNDISTURBED EARTH.
2. DIMENSION C1,C2,C3 SHOULD BE LARGE ENOUGH TO MAKE ANGLE Θ EQUAL TO OR LARGER THAN 45°.
3. DIMENSION A1,A2,A3 SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERING WITH MJ BOLTS.
4. PROVIDE POLYETHYLENE WRAP AROUND ALL WATERMAIN FITTINGS.
5. ALL BENDS AND FITTINGS SHALL BE RESTRAINED WITH BOTH EPOXY COATED MEGA-LUGS AND THRUST BLOCKING.

BUTTRESS DIMENSIONS						
PIPE SIZE	22 1/2° BEND		45° BEND		90° BEND	
	B_1	D_1	B_2	D_2	B_3	D_3
6"	1'-5"	1'-5"	1'-5"	1'-5"	2'-1"	1'-6"
8"	1'-5"	1'-5"	2'-1"	1'-6"	2'-8"	2'-0"
12"	1'-10"	1'-10"	3'-4"	2'-0"	4'-9"	2'-6"
16"	3'-0"	2'-0"	3'-10"	3'-0"	6'-2"	3'-6"
20"	3'-6"	2'-8"	5'-6'	3'-4"	8'-4"	4'-0"
24"	4'-4"	3'-0"	6'-10"	3'-10"	9'-8"	5'-0"
30"	-	-	9'-3"	6'-0"	17'-0"	6'-0"



6 THRUST BLOCKING
NTS

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CONSTRUCTION DETAILS
C. REISS DOCK
C. REISS COMPANY, LLC
ST. LOUIS BAY, SUPERIOR, WI

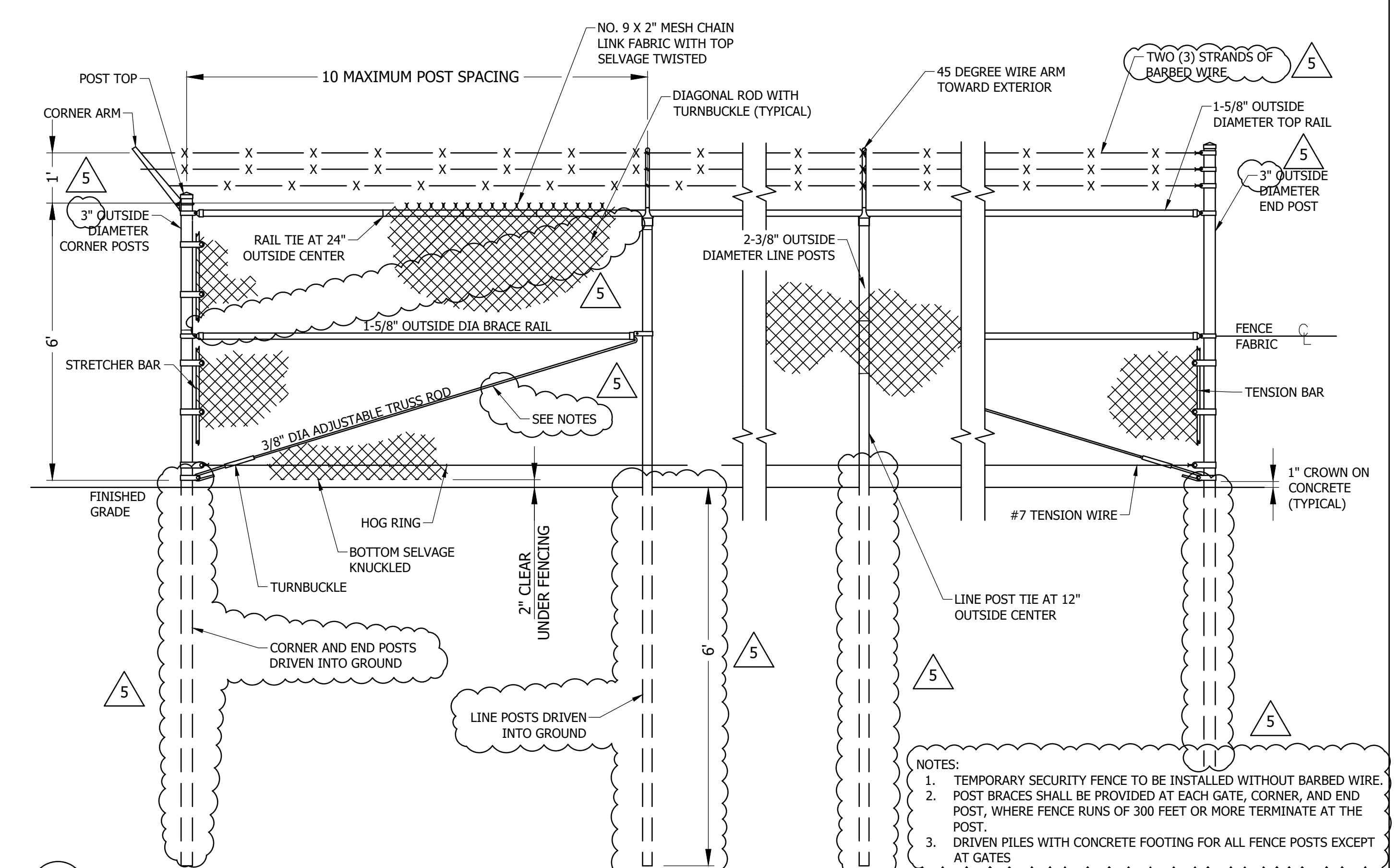
DATE OF ISSUANCE
MARCH 10, 2023

NO	REVISION	DATE
3	ADDENDUM	4-18-23
4	ADDENDUM	4-26-23
5	ADDENDUM	4-27-23

SURVEY	JN
DRAWN	AJR
DESIGNED	AJR
CHECKED	AJR
APPROVED	AJR
PROJ. NO.	193707141

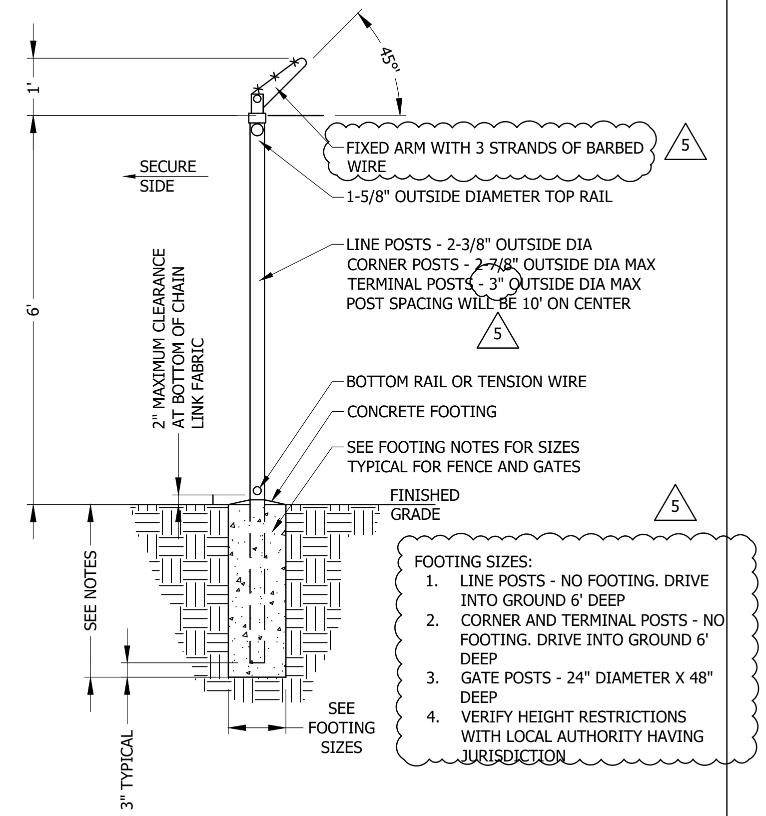
SHEET NUMBER
C8.01

Plot Date: 04/27/2023 - 7:01pm
Drawing name: V:\1937\active\193707141\03_data\gis_cad\cad\dwg\SHEETS\193707141C800.dwg
Xrefs: TB-34x22-MEQ, Security Fence



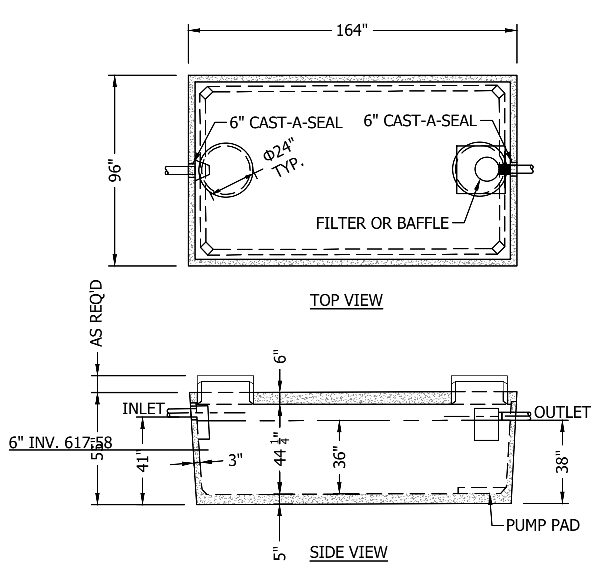
NOTES:
1. TEMPORARY SECURITY FENCE TO BE INSTALLED WITHOUT BARBED WIRE.
2. POST BRACES SHALL BE PROVIDED AT EACH GATE, CORNER, AND END POST, WHERE FENCE RUNS OF 300 FEET OR MORE TERMINATE AT THE POST.
3. DRIVEN PILES WITH CONCRETE FOOTING FOR ALL FENCE POSTS EXCEPT AT GATES

1 SECURITY FENCE
C2.01 - C2.04 NTS



FOOTING SIZES:
1. LINE POSTS - NO FOOTING. DRIVE INTO GROUND 6' DEEP
2. CORNER AND TERMINAL POSTS - NO FOOTING. DRIVE INTO GROUND 6' DEEP
3. GATE POSTS - 24" DIAMETER X 48" DEEP
4. VERIFY HEIGHT RESTRICTIONS WITH LOCAL AUTHORITY HAVING JURISDICTION

A SECURITY FENCE SECTION
NTS



DIMENSIONS:
WALL: 3"
BOTTOM: 5"

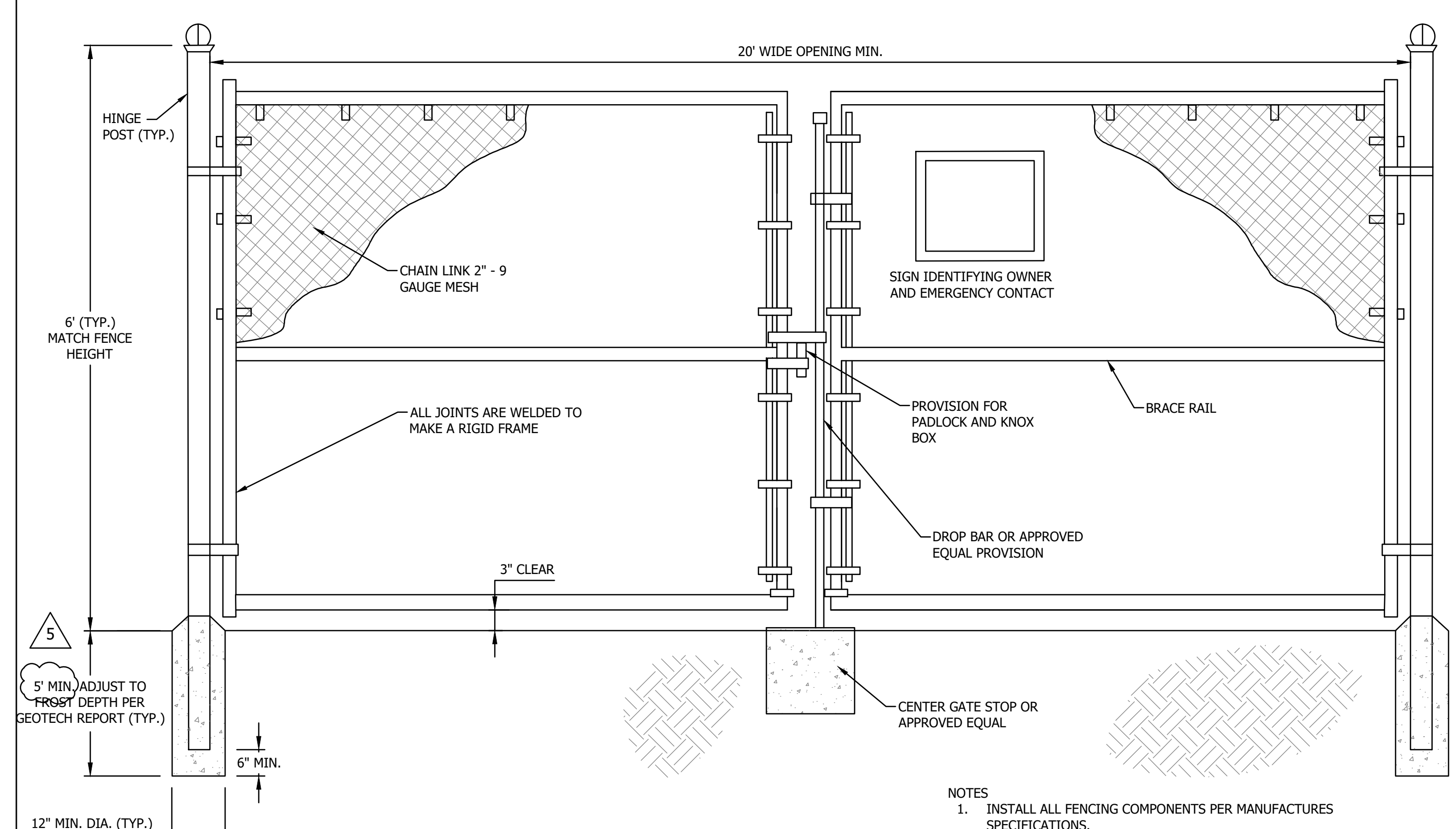
COVER: 6"
MANHOLE: 24" I.D. PRECAST CONRETE RISER
HEIGHT: 55" O.D.
LENGTH: 164" O.D.
WIDTH: 96" O.D.
BELOW INLET: 41" O.D.
LIQUID LEVEL: 36"
WEIGHT: BOTTOM 14,060 LBS.
COVER 8,170 LBS

INLET AND OUTLET:
6" CAST-A-SEAL BOOT OR EQUAL

INLET AND OUTLET BAFFLE AND FILTER:
WISCONSIN, SEE DETAIL #10
LIQUID CAPACITY: 56.27 GAL/IN
LOADING DESIGN: 8'-0" UNSATURATED SOIL
HOLDING TANK:
OUTLET HOLE PLUGGED
ACUTUAL CAPACITY: 2,138 GAL

TANK CAN BE USED AS:
SEPTIC/HOLDING/PUMP OR SIPHON
COVER: MIX DESIGN #8 (NO FIBER)
TANK: MIX DESIGN #9 (SMALL FIBER)

2 WLP2000-MR SEPTIC TANK OR EQUAL
C2.02 NTS



NOTES
1. INSTALL ALL FENCING COMPONENTS PER MANUFACTURES SPECIFICATIONS.
2. ALL FENCING AND HARDWARE SHALL BE GALVANIZED, UNLESS OTHERWISE NOTED.
3. GATE POSTS SHALL BE SET IN CONCRETE.

3 20' WIDE CHAIN LINK FENCE DOUBLE SWING GATE
C2.01 NTS

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CONSTRUCTION DETAILS

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C. REISS COMPANY, LLC
ST. LOUIS BAY, SUPERIOR, WI

DATE OF ISSUANCE
MARCH 10, 2023

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4	ADDENDUM	4-26-23
5	ADDENDUM	4-27-23

SURVEY	JN
DRAWN	AJR
DESIGNED	AJR
CHECKED	AJR
APPROVED	AJR
PROJ. NO.	193707141

SHEET NUMBER
C8.04

Plot Date: 04/27/2023 - 6:35pm
Drawing name: V:\1937\active\193707141\03_data\gis_cad\cad\dwg\SHEETS\193707141C800.dwg
Xrefs: TB-34x22-MEQ, Security Fence

ABBREVIATIONS

A.B	ANCHOR BOLT
ARCH	ARCHITECTURAL
BLDG	BUILDING
BTM	BOTTOM
BRG	BEARING
C.I.P.	CAST IN PLACE
CL	CENTERLINE
CLR	CLEAR
C.J.	CONTROL JOINT
CVR	COVER
DEMO	DEMOLITION
D	DEPTH
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DWG	DRAWING
DWN	DRAWN
EA	EACH
ELECT	ELECTRICAL
ELEV	ELEVATION
EXP	EXPANSION
EQ	EQUAL
EQUIP	EQUIPMENT
(E)	EXISTING
F.S.	FAR SIDE
F.F.	FINISHED FACE
FND	FOUNDATION
FT	FOOT/FEET
FTG	FOOTING
GALV	GALVANIZED
GA	GAGE
G.C.	GENERAL CONTRACTOR
GR	GRADE
H.S.	HIGH STRENGTH
HSS	HOLLOW STRUCTURAL SECTIONS
HORIZ	HORIZONTAL
IN	INCH/INCHES
I.D.	INSIDE DIAMETER
INT	INTERIOR
K	KIPS (1000 LBS)
L	LENGTH
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LLBB	LONG LEG BACK TO BACK
LONG.	LONGITUDINAL
MFR	MANUFACTURER
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
MISC	MISCELLANEOUS
N.S.	NEAR SIDE
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O.H.	OVERHEAD
OPP	OPPOSITE
O.D.	OUTSIDE DIAMETER
PL	PLATE
LB	POUND
P.T.	POST-TENSIONED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PROJ	PROJECTION
RAD	RADIUS
REF	REFERENCE
REV	REVISION
R	RISER
R.O.	ROUGH OPENING
SCHD	SCHEDULE
SHT	SHEET
SLBB	SHORT LEG BACK TO BACK
SIM	SIMILAR
S.C.	SLIP CRITICAL
SPEC	SPECIFICATION
THRU	THROUGH
T&B	TOP AND BOTTOM
T.O.	TOP OF
T	TREAD
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
V.I.F.	VERIFY IN FIELD
VERT	VERTICAL
WT	WEIGHT
W.W.M.	WELDED WIRE MESH
W.W.F.	WELDED WIRE FABRIC
W/	WITH
W/O	WITHOUT
W	WIDTH
W.P.	WORK POINT

MATERIAL PATTERNS

ALUMINUM
BATT INSULATION
CHECKERED PLATE
CONCRETE MASONRY UNIT
CONCRETE
DIMENSIONAL LUMBER
EARTH
GRASS
GRATING
GRAVEL
GYPSUM BOARD
PLYWOOD
RIGID INSULATION
SAND
STEEL

DRAWING NUMBER KEY

G 0 0 0 1 — S S K 0 1

DISCIPLINE:
A - ARCHITECTURAL
C - CIVIL
E - ELECTRICAL
G - GENERAL
M - MECHANICAL
P - PIPING
S - STRUCTURAL

AREA DESIGNATION:
(IF APPLICABLE)

SHEET NUMBER

SHEET TYPE:
0 - GENERAL
1 - PLANS
2 - ELEVATIONS
3 - SECTIONS
4 - LARGE SCALE VIEWS
5 - DETAILS
6 - MISCELLANEOUS
7 - MISCELLANEOUS
8 - MISCELLANEOUS
9 - 3D REPRESENTATIONS

SHEET NUMBER
DENOTES SKETCH
DENOTES DISCIPLINE

SHEET INDEX

STANDARD SYMBOLS

DETAIL CALLOUT: 1 / S501
ELEVATION CALLOUT: 1 / A301
SECTION CALLOUT: 1 / S301
ELEVATION TAG: T.O. SLAB 100'-0"
DETAIL TAG OR TITLE TAG: 1 DETAIL SCALE: 1" = 1'-0" / TITLE SCALE: 1" = 1'-0"
REVISION TAG: 1
REVISION CLOUD:
DETAIL SECTION: A A
NORTH ARROW: PROJECT NORTH / TRUE NORTH
MATCHLINE: 1/A101 / 1/A102
BREAK LINE:
PIPE BREAK:
GRID BUBBLE: 1

PROJECT INFORMATION

OWNER:
- CHRISTIAN ZUIDMULDER
  VICE PRESIDENT OF OPERATIONS
  THE C. REISS COAL CO.

  CHRISTIAN.Z@THECREISS.COM
  OFFICE: 920.436.7600

CONSULTANT:
- DAVID FRANSEEN, PE
  PROJECT MANAGER
  KRECH OJARD & ASSOCIATES, INC.

  DAVID.FRANSEEN@KRECHOJARD.COM
  OFFICE: 218.727.3282

- LAURAN LARSON, PE
  MARINE GROUP
  KRECH OJARD & ASSOCIATES, INC.

  LAURAN.LARSON@KRECHOJARD.COM
  OFFICE: 715.577.4071

PROJECT DESCRIPTION:
THE PROJECT INVOLVES THE INSTALLATION OF APPROXIMATELY 2,610 LINEAR FEET OF STEEL SHEET PILE BULKHEAD WALL ANCHORED TO THE EXISTING UPLAND CONCRETE CRANE RAIL AND SUPPORTING PILES. THE EXISTING UPLAND CRANE RAIL IS FURTHER ANCHORED BY SOIL ANCHORS ORIENTED 40 DEGREES DOWN INTO THE EXISTING DOCK SUBGRADE. THE SHEET PILE WILL BE EMBEDDED INTO THE EXISTING SOIL STRATA BELOW THE DESIGN DREDGE DEPTH OF 28 FEET BELOW THE LOW WATER DATUM. MOORING BOLLARDS, TIMBERS FENDERS, AND A HIGH-PERFORMANCE SHEET PILE COATING SYSTEM ARE INCLUDED WITHIN THE PROJECT SCOPE.

GENERAL STRUCTURAL NOTES

PROJECT DESCRIPTION:
- THE PROJECT INVOLVES THE INSTALLATION OF APPROXIMATELY 2,610 LINEAR FEET OF STEEL SHEET PILE BULKHEAD WALL ANCHORED TO THE EXISTING UPLAND CONCRETE CRANE RAIL AND SUPPORTING PILES. THE EXISTING UPLAND CRANE RAIL IS FURTHER ANCHORED BY SOIL ANCHORS ORIENTED 40 DEGREES DOWN INTO THE EXISTING DOCK SUBGRADE. THE SHEET PILE WILL BE EMBEDDED INTO THE EXISTING SOIL STRATA BELOW THE DESIGN DREDGE DEPTH OF 28 FEET BELOW THE LOW WATER DATUM. MOORING BOLLARDS, TIMBERS FENDERS, AND A HIGH-PERFORMANCE SHEET PILE COATING SYSTEM ARE INCLUDED WITHIN THE PROJECT SCOPE.

GENERAL
- DESIGNED IN ACCORDANCE WITH USACE EM1110-2-2504
- DESIGN LOADS:
  - TRUCK: HS-20
  - EXCAVATOR: FUCHS MHL380 D
  - MATERIAL STOCKPILE: BULK LIMESTONE WITH TOE OF 60 FT HIGH STOCKPILE AT LEAST 60 FT BACK FROM BULKHEAD
  - MOORING BOLLARDS: 80 TON CAPACITY
  - SNOW LOAD (ASCE 7-05/2006 IBC):
    GROUND SNOW LOAD: PG = 50 PSF
    SNOW LOAD IMPORTANCE FACTOR: IS = 1.0
  - WIND LOADS (ASCE 7-05/2006 IBC):
    BASIC WIND SPEED (3 SEC. GUST) = 90 MPH / EXPOSURE: C / IMPORTANCE IW = 1.0
- ELEVATION DATUM:
  ALL ELEVATIONS SHOWN ARE RELATIVE TO NAVD88 DATUM
- CONTRACTOR SHALL ENSURE HIGH STANDARDS OF WORKMANSHIP THROUGHOUT, WITH STRICT ADHERENCE TO THE CONTRACT DOCUMENTS.
- NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THESE NOTES, THE CONTRACT DRAWINGS, OR THE GOVERNING CODE. THE ENGINEER SHALL REPLY IN WRITING. ANY RELATED WORK PERFORMED BY THE CONTRACTOR PRIOR TO RECEIVING A REPLY FROM THE ENGINEER IS AT THE CONTRACTOR'S SOLE RISK. FOR PURPOSES OF BIDDING, THE MOST STRINGENT OF THE CONFLICTING DOCUMENTS SHALL APPLY.
- VERIFY ALL EXISTING CONDITIONS; VERIFY ALL DIMENSIONS IN THE FIELD; NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONDITIONS NOT INCLUDED IN OR CONTRARY TO THE CONTRACT DOCUMENTS PRIOR TO CONSTRUCTION.
- THE STRUCTURE SHOWN IN THESE DRAWINGS IS DESIGNED TO BE STABLE AND TO RESIST LOADS ONLY IN A FULLY COMPLETED FORM. CONTRACTOR SHALL ENSURE THAT THE STRUCTURE IS ADEQUATELY BRACED AND SHORED DURING CONSTRUCTION FOR ALL TEMPORARY LOADS UNTIL ALL ELEMENTS ARE IN PLACE, AND SHALL ENSURE THAT TEMPORARY LOADINGS DO NOT EXCEED THE ALLOWABLE CAPACITY OF ANY STRUCTURAL ELEMENTS BOTH BEFORE AND AFTER THESE ELEMENTS ARE IN PLACE.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR SITE SAFETY, COORDINATION, PROCEDURES, CONSTRUCTION METHODOLOGY, SHORING, BRACING, AND SEQUENCING.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROTECTION OF EXISTING BUILDINGS, UTILITIES, EQUIPMENT, ETC. DURING CONSTRUCTION. PROVIDE TEMPORARY BRACING AND PROTECTION AS REQUIRED.
- DO NOT SCALE DRAWINGS. SEE STRUCTURAL DRAWINGS FOR DIMENSIONS; AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- ANY HOLES OR OTHER ALTERATIONS TO THE STRUCTURE WHICH ARE NOT SPECIFICALLY DETAILED ON THE CONTRACT DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- THESE DRAWINGS, AND ALL DESIGNS SHOWN WITHIN THESE DRAWINGS, ARE COPYRIGHTED BY KRECH OJARD & ASSOCIATES. DUPLICATION IS NOT PERMITTED WITHOUT WRITTEN PERMISSION. THE DESIGNS SHOWN HEREIN ARE INTENDED FOR THIS PROJECT ONLY AND MAY NOT BE USED ON ANY OTHER PROJECT OR FOR ANY OTHER PURPOSE.

STRUCTURAL STEEL AND MISCELLANEOUS METALS:
- STRUCTURAL STEEL SHALL BE ASTM A36, UNLESS NOTED OTHERWISE.
- HP PILES SHALL BE A572 GR 50.
- STRUCTURAL STEEL SHEET PILE SHALL BE ASTM A572 GR50, UNLESS NOTED OTHERWISE.
- ALL BOLTED CONNECTIONS TO A325N HIGH STRENGTH BOLTS WITH A563 NUTS AND F436 WASHERS UNLESS NOTED OTHERWISE.
- ALL WELDING ELECTRODES SHALL BE E70XX.
- FABRICATION AND ERECTION OF STRUCTURAL STEEL MEMBERS IS TO BE IN ACCORDANCE WITH THE AISC CODE OF STANDARD PRACTICE.
- ALL WELDING TO BE PERFORMED BY QUALIFIED UNDERWATER WELDERS AND SHALL CONFORM TO A.W.S. D3.6M:2010.
- UNDERWATER WELDS TO BE PRE-QUALIFIED PER AWS STANDARDS.

HELICAL ANCHORS
1. HELICAL ANCHORS CONSIST OF SQUARE OR ROUND STEEL SHAFTS THAT HAVE HELICAL PLATES OF VARYING DIAMETER AND NUMBER AT THE BASE OF THE PILE SHAFT. PILES ARE INSTALLED BY SCREWING A SHAFT WITH HELICES INTO THE GROUND TO A MINIMUM EFFECTIVE TORQUE THAT CORRESPONDS TO AN AXIAL TENSION OR COMPRESSION PILE CAPACITY. ON-SITE SOIL VARIABILITY MAY DICTATE CHANGES IN PILE CAPACITIES TO DETERMINE ALLOWABLE PILE CAPACITIES THAT MEET OR EXCEED PERFORMANCE-SPECIFIED WORKING CAPACITIES.
2. REFERENCE TWIN PORTS GEOTECHNICAL REPORT NO. 21G1417 DATED MAY 27, 2022 FOR SOIL INFORMATION.
3. ALL HELICAL ANCHORS TO MEET THE FOLLOWING:
   A. ASTM A500 GRADE B OR C PIPE SHAFT WITH HOT DIP GALVANIZED TOP SECTION AND HELICAL SECTIONS (MIN YIELD STRENGTH 60 KSI)
   B. ASTM A513 TYPE 5 SHAFT COUPLER MATERIAL (MIN YIELD STRENGTH 70 KSI)
   C. HELIX PLATES ASTM A572 GRADE 50
   D. ALL WELDING TO CAP PLATE TO CONFORM TO AWS D1
   E. DESIGNED FOR 50 YEAR SERVICE LIFE
4. HELICAL ANCHORS TO BE INSTALLED BY CONTRACTOR WITH EXPERIENCE IN DESIGN AND CONSTRUCTION OF HELICAL SCREW FOUNDATIONS. EXPERIENCES TO CONSIST OF MINIMUM 2-3 SUCCESSFUL PROJECTS USING HELICAL ANCHORS
5. FINAL ANCHOR INSTALLATION TO MEET THE FOLLOWING:
   A. HELICALS TO BE INSTALLED TO A MINIMUM BEARING DEPTH OF 10'-0" OR AS NECESSARY TO ACHIEVE LOAD.
   B. CENTERLINE OF HELICAL SHALL NOT BE MORE THAN 3 INCHES FROM INDICATED PLAN LOCATION.
   C. HELICAL PLUMBNESS SHALL BE WITHIN 2 DEGREES OF DESIGN ALIGNMENT
   D. TOP ELEVATION OF HELICAL TO BE WITHIN +1 INCH TO +2 INCH OF DESIGN VERTICAL ELEVATION
6. HITTING OF DEBRIS DURING DRILLING MAY BE ENCOUNTERED. HELICAL SHAFTS MUST BE SIZED APPROPRIATELY TO RESIST INCREASED LOADS WHILE DRILLING THROUGH DEBRIS. SHAFTS SHALL BE SIZED TO RESIST 2X THE REQUIRED INSTALLATION TORQUE.
7. HELICAL SCREW FOUNDATION SHALL BE DESIGNED TO MEET THE SPECIFIED LOADS AND ACCEPTANCE CRITERIA AS SHOWN ON THE DRAWINGS AND SPECIFICATIONS. THE CALCULATIONS AND DRAWINGS REQUIRED FROM THE CONTRACTOR SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND ACCEPTANCE. A COPY OF THE INSTALLATION LOG SHALL BE PROVIDED TO THE STRUCTURAL ENGINEER OF RECORD FOR REVIEW.

USE OF EQUIVALENT SHEET PILE STRUCTURAL SECTION:
THE BULKHEAD WALL DETAILS, TIEROD ANCHORS, SOIL ANCHORS, SPACINGS, AND MISCELLANEOUS CONNECTION HARDWARE FIXTURES ARE PREDICATED ON THE USE OF AN NZ22 SHEET PILE WIDTH MODULE. THE USE OF AN EQUIVALENT, APPROVED SHEET PILE SECTION WILL REQUIRE THAT THE CONTRACTOR ARRANGE FOR AN ENGINEERED REVISION OF THE BULKHEAD PLANS TO REFLECT THE CHANGE IN DIMENSIONS, FIXTURES, AND DETAILS PRIOR TO START OF CONSTRUCTION. THE REVISION MUST BE SEALED BY AN ENGINEER LICENSED IN THE STATE OF WISCONSIN, APPROVED BY THE ENGINEER OF RECORD, AND BECOME AN UPDATED DOCUMENT IN THE PROJECT RECORDS.

REINFORCED CONCRETE:
- MATERIALS:
  - CONCRETE @ 28 DAYS (56 DAYS OK FOR FLY ASH OR SLAG CONCRETE):

APPLICATION	f'c	w/cm	COARSE AGG.	FLY ASH	SLAG	TOTAL FLY ASH + SLAG
	(psi)	(max)	(max)	(% substituted, by mass)		
BOLLARDS	4000	0.50	1 1/2"	0-10%	15%	25% MAX.

  - CEMENT: TYPE I OR II PER ASTM C150 (TYPE III OK FOR PRECAST)
  - FLY ASH: CLASS C OR F PER ASTM C618
  - SLAG: GGBF SLAG PER ASTM C989, GRADE 100 MINIMUM.
  - CONCRETE EXPOSED TO WEATHER SHALL HAVE AIR ENTRAINMENT AS FOLLOWS:

COARSE AGG.	AIR CONTENT (+/-1.5%)
3/8"	7.5%
1/2"	7.0%
3/4" - 1"	6.0%
	5.5%

FLOATING SILT CURTAIN
1. THE CONTRACTOR WILL BE REQUIRED TO CONDUCT THE WORK IN SUCH A MANNER AS TO OBSTRUCT NAVIGATION AS LITTLE AS POSSIBLE DURING NORMAL WORKING HOURS.
2. THE CONTRACTOR WILL BE REQUIRED TO REMOVE FLOATING SILT CURTAIN (ONCE TURBIDITY IS BELOW 29 NTUS ABOVE BACKGROUND) TO NAVIGATION DURING THE EVENING AFTER NORMAL WORKING HOURS AND WILL MAINTAIN CLOSE COMMINICATION WITH THE OWNER AS TO TRAFFIC CONDITIONS AND TO ANY PROBLEMS THAT ARISE.
3. THE CONTRACTOR WILL OPERATE IN A MANNER THAT WILL CAUSE THE LEAST IMPACT TO WATERWAY NAVIGATION AND ACCOMMODATE LOCAL TRAFFIC WITHIN REASON. ANY QUESTIONS AND/OR CONCERNS SHOULD BE DIRECTED TO THE OWNER.
4. THE CONTRACTOR SHALL WORK WITH THE OWNER TO COORDINATE WITH THE HALLETT DOCK 8 FOR THE DURATION OF THE PROJECT. THE HALLETT DOCK 8 DOCK MANAGER AND CONTACT INFORMATION IS LISTED BELOW:
   - KEN DAMMER
     KDAMMER@HALLETTDOCK8.COM
     (218)-343-2784
5. TURBIDITY CONTROL MEASURES WILL BE PROPERLY MAINTAINED IN COMPLIANCE WITH FEDERAL AND STATE WATER QUALITY STANDARDS. NO WATER QUALITY MONITORING IS REQUIRED BEYOND VISUAL INSPECTION.

PRE-CONSTRUCTION UNDERWATER SURVEY

THE CONTRACTOR SHALL COMPLETE A PRE-CONSTRUCTION SONAR IMAGING SURVEY OF THE PROPOSED DRIVELINE TO IDENTIFY THE NATURE AND LOCATION OF POSSIBLE OBSTRUCTIONS TO THE INSTALLATION OF THE NEW SHEET PILE.

CONTRACTOR WILL PROVIDE IMAGING SURVEY ALONG WITH FINDINGS AND PROPOSED SCOPE OF WORK RELATED TO CLEARING ACTIVITIES TO THE ENGINEER FOR REVIEW AND APPROVAL.

1

KRECH OJARD Engineering Consulting & ASSOCIATES, INC.

MAIN OFFICE
227 WEST FIRST STREET, SUITE 500
DULUTH, MINNESOTA 55802
Ph: 218.727.3282
Fx: 218.727.1216

REGIONAL OFFICE
101 PUTNAM STREET
EAU CLAIRE, WI 54703
Ph: 715.552.7374
Fx: 715.552.7336
www.krechojard.com

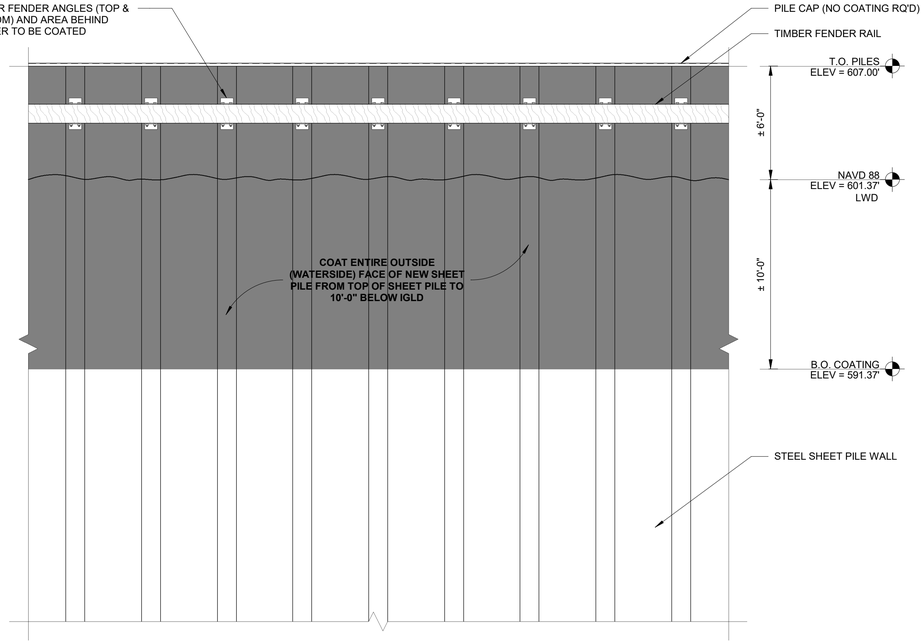
DWN BY:	CKD BY:	REV:	DATE:	DESCRIPTION:
JTF	LBL		11/18/22	ISSUED FOR CONSTRUCTION
		1	04/26/23	ADDENDA 5

C. REISS DOCK
BULKHEAD WALL IMPROVEMENTS
SUPERIOR, WISCONSIN
GENERAL STRUCTURAL NOTES & SYMBOLS

REV:
JOB No: 222009

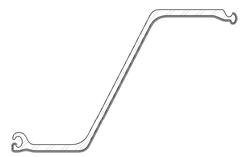
SHEET:
M001

SHEET PILE COATING ELEVATION



NOTE:
1. TOUCH UP ALL AREAS DAMAGED DURING INSTALLATION.
2. COAT BEYOND 16'-0" LENGTH TO ALLOW FOR TRIMMING OF SHEET PILE AFTER DRIVING.

SHEET PILE COATING



HOT ROLLED SHEET PILE

NOTE:
1. ALL COATINGS SHALL BE APPLIED TO EACH SHEET PILE TO EXTENTS SHOWN.

SOIL ANCHOR SCHEDULE

ANCHOR I.D.	SOIL ANCHOR ALLOWABLE TENSION DEMAND			1 COMMENTS
	SOIL	SEISMIC	SURCHARGE	
TYPE "A"	85 KIP	NA	10 KIP	ANCHORS AND DETAILING ARE ASSUMED TO BE HELICAL ANCHOR SYSTEM

NOTES:
1. ANCHOR TENSION DEMAND IS BASED ON A 40 DEGREE DOWN ANGLE. CORROSION PROTECTION IS TO PROVIDE 50 YR SERVICE LIFE.
2. PER ASCE 7-10 SECTION 12.14.3.1: SERVICE LOAD COMBINATIONS (EQ-6B) CONTROLS. ANCHOR TENSION = H_{SOIL} + 0.525 Q_{SEIS} + 0.7 L_{SURCH}
3. **SEE SPECIFICATIONS FOR ANCHOR TESTING REQUIREMENTS.**

1

CONCRETE REINFORCEMENT TENSION DEVELOPEMENT AND LAP SPLICE LENGTHS

BAR SIZE	LAP SPLICE CLASS	CONCRETE COVER = 0.75"		CONCRETE COVER = 1.00"		CONCRETE COVER = 1.50"		CONCRETE COVER = 2.00"	
		TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER
#3	A	12	12	12	12	12	12	12	12
	B	16	16	16	16	16	16	16	16
#4	A	19	15	15	12	15	12	15	12
	B	24	19	20	16	20	16	20	16
#5	A	28	21	22	17	19	15	19	15
	B	36	28	29	22	24	19	24	19
#6	A	37	29	31	24	22	17	22	17
	B	48	37	40	31	29	22	29	22
#7	A	60	48	50	38	37	28	33	25
	B	78	60	64	50	48	37	42	33
#8	A	74	57	62	48	47	36	37	29
	B	96	74	80	62	60	47	48	37
#9	A	90	69	76	58	57	44	46	36
	B	117	90	98	76	74	57	60	46
#10	A	108	83	92	70	70	54	57	44
	B	140	108	119	92	91	70	74	57
#11	A	127	98	108	83	84	64	68	53
	B	165	127	141	108	109	84	89	68

NOTES:
1. TABULATED VALUES ARE BASED ON GRADE 60 UNCOATED REINFORCING BARS AND 4000 PSI NORMAL WEIGHT CONCRETE. LENGTHS ARE IN INCHES.
2. TENSION DEVELOPMENT LENGTH AND LAP SPLICE LENGTHS ARE CALCULATED PER ACI 318-99, SECTIONS 12.2.3 AND 12.15.
3. TENSION DEVELOPMENT LENGTH = 1.0 x CLASS A LAP SPLICE.
4. FOR 3000 PSI AND 5000 PSI CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.16 AND 0.90 RESPECTIVELY.
5. BAR *c.* - c. SPACING WAS ASSUMED TO BE GREATER THAN TWICE THE CONCRETE COVER PLUS ONE BAR DIAMETER.
6. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.
7. FOR LIGHTWEIGHT AGGREGATE CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3.
8. FOR EPOXY COATED REBAR, MULTIPLY THE TABULATED VALUES BY 1.3.
9. FOR LAP SPLICE LENGTHS IN MASONRY SEE MASONRY NOTES.

KRECH OJARD Engineering Consulting & ASSOCIATES, INC.
MAIN OFFICE
227 WEST FIRST STREET, SUITE 500
DULUTH, MINNESOTA 55802
Ph: 218.727.3282
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REGIONAL OFFICE
101 PUTNAM STREET
EAU CLAIRE, WI 54703
Ph: 715.552.7374
Fx: 715.552.7536
www.krechojard.com

DWN BY: JTF | CKD BY: LBL

DATE:	REV:	DESCRIPTION:
11/18/22		ISSUED FOR CONSTRUCTION
04/26/23	1	ADDENDA 5

C. REISS DOCK
BULKHEAD WALL IMPROVEMENTS
SUPERIOR, WISCONSIN
GENERAL STRUCTURAL NOTES & SCHEDULES

REV:
JOB No: 222009
SHEET:
M002

ESTIMATED EARTHWORK SUMMARY TABLE FOR SITE CIVIL WORK		
AREA / ITEM	**CUT (CY)**	**FILL (CY)**
POND (INCLUDING CLAY LINER)	19500	3250
SWALE TO POND (INCLUDING CAP)	1500	660
DISPOSAL BERM (INCLUDING CAP)	0	85100
RAIL	47940	27720
ACCESS ROAD (DATUM)	650	5109
ACCESS ROAD AT DOCK (DATUM)	650	874
DREDGED MATERIAL	39000	0
	109240	**122713**

**Excess Fill shown represents allowable contingency for disposal berm volume*

**Volumes shown are estimates and Engineer does not guarantee accuracy.*