US Army Corps of Engineers
St Paul District

Public Notice

APPLICANT: Ross Peterson - Enbridge Energy, Limited Partnership

ISSUED: November 13, 2020
EXPIRES: November 28, 2020

REFER TO: MVP-2020-02230-SJW

SECTION: 404 - Clean Water Act

1. APPLICATION FOR PERMIT TO temporarily discharge fill material into 0.57 acre of wetland, and permanently discharge dredged and/or fill material into 0.95 acre of wetlands to increase the capacity of Pool 2 at the Enbridge Energy, Limited Partnership (Enbridge) Superior Terminal located in Superior, Wisconsin.

2. SPECIFIC INFORMATION

AGENT

Rachael Shetka
BARR Engineering
P.O. Box 1025
Neenah, WI 54957-1025

PROJECT LOCATION: The project site is located in Section 36, Township 49 North, Range 14 West, Douglas County, Wisconsin. The approximate UTM coordinates are N 571812.467031, E5170415.80036. Latitude 46.683446, Longitude -92.060946.

DESCRIPTION OF PROJECT: The Enbridge Energy, Limited Partnership (Enbridge) Superior Terminal is located in Superior, Wisconsin. Originally constructed in 1950, the Superior Terminal is adjacent to the Nemadji River which flows into Allouez Bay on Lake Superior. The Superior Terminal contains 45 tanks with an aggregate capacity of approximately 10 million barrels. The Superior Terminal has an existing pond, referred to as Pool 2, which is used to contain potential crude oil releases. Currently, Pool 2 has a maximum capacity of approximately 488,000 gallons. In the event that a crude oil release would occur and Pool 2 could not contain the volume, crude oil could potentially flow directly off the property into an unnamed tributary that flows into the Nemadji River, resulting in numerous effects to the aquatic ecosystem.

The purpose of the proposed project is to increase the total containment capacity of Pool 2 by 9,000,000 gallons. As stated in the application, Enbridge can add approximately 3,000,000 gallons of capacity in Pool 2 by raising the height of the existing berm. Therefore, an additional dam is necessary downstream of Pool 2 with the capacity of approximately 6,000,000 gallons to achieve the desired total capacity of 9,000,000 gallons. The project figures are shown on the attached figures labeled MVP-2020-02230-SJW: Page 1 of 15 through 15 of 15.

The project would include the redevelopment of the existing berms and dam located around Pool 2 to increase containment capacity. The contractor plans to salvage and reuse existing riprap at the berm and dam locations to the extent practicable during redevelopment. The existing berms and dam were constructed using native soils, which primarily consist of clay. A discharge culvert is located on the existing dam consisting of two inverted 36-inch steel pipes that maintain the water level in Pool 2. These discharge culverts were designed to allow for oil/water separation. The redevelopment in Pool 2 will include the following activities:

- Widening of the existing access roads from 12 feet to 15 feet;
- Dewatering and dredging of the existing Pool 2;
- Constructing taller berms around Pool 2 (north and west berms); and
- Upgrading the dam on the south side of the pool.

The proposed north and west berms will also include 12 foot steel culverts and riprap. The dam redevelopments will include guardrails with energy absorbing terminals and upgrades to the culvert including 30 foot steel pipes and stilling basin, a steel platform, a concrete spillway, and valves. The area around the dam will also be lined with riprap. The slope on the east side of Pool 2 is eroding and requires repairs to protect existing utility poles and guy wires. Enbridge will complete a geotechnical investigation consisting of cone penetrometer test and soil borings and installing an inclinometer to monitor the slope movement rate and to help understand the depth of the failure (which currently appears relatively shallow) prior to finalizing the slope repair design. Slope repair will likely include installation of a retaining wall, such as sheetpile, to support the containment berm for the adjacent tank, if needed. Then, Enbridge will regrade the slope to be flatter and stabilize with vegetation.

In addition, the project would include the construction of a new dam downstream of Pool 2 that will include 30 foot steel culverts and stilling basin, a steel platform, a concrete spillway, and valves. The dam will be lined with riprap, and a new 15' wide roadway will be constructed to provide access to the dam. The purpose of this dam will be to create a new containment pond (Pool 2A) downstream of Pool 2 to increase containment capacity and prevent any crude oil release from Enbridge property. Enbridge will construct Pool 2A and the associated dam prior to Pool 2 redevelopment activities in order to provide sediment control during upstream construction.

The sequence of events associated with the proposed work is as follows:

- Following mobilization, install erosion and sediment control Best Management Practices (BMPs);
- Complete tree clearing and grubbing within the limits of the project area prior to any other land disturbing activity;
- Remove and salvage topsoil and riprap to the extent practicable;
- Construct the new dam downstream of Pool 2 including a 15 foot wide access road;
- Complete redevelopment work on dam, berms, access roads and Pool 2 upstream of Pool 2A and complete slope repair work;
- Complete final grading of the entire project area as needed; and
- Stabilize and reseed disturbed project area upon completion, as appropriate.

QUANTITY, TYPE, AND AREA OF FILL: The proposed project would result in the temporary discharge of fill material into 0.57 acre of wetland, and the permanent discharge of dredged and/or fill material into 0.95 acre of wetlands. The permanent impacts associated with the project would occur from the filling/conversion of the wetlands/waterways into a containment pond. Temporary impacts associated with the proposed project would occur from the placement of fill material/matting which will be used for equipment staging. The wetlands within the review area are located within the Great Lake Region Watershed (HUC #04010301).

The proposed aquatic resource impact totals and types are as follows:

Type:	Impacts:
Pond/Open Water	0.57 acre (temporary)
Fresh (wet) Meadow	0.93 acre
Shallow Marsh	0.02 acre

VEGETATION IN AFFECTED AREA: The wetlands within the review area which would be impacted as a result of the proposed work are comprised of a mix of Fresh (wet) Meadow, and Shallow Marsh type wetlands. In addition, a pond/open water system was also identified within the review area.

SURROUNDING LAND USE: The proposed project site is situated within the limits of the City of Superior, near the Nemadji River. The proposed work location is situated in the southern portion of the Enbridge Energy, Superior Terminal site. Lands situated immediately adjacent to the project site are comprised of a mix of undeveloped wetlands and uplands, with little to no tree cover within the immediate vicinity of the project site. In addition, there is a golf course located immediately southwest of the project site.

THE FOLLOWING POTENTIALLY TOXIC MATERIALS COULD BE USED AT THE PROJECT SITE: Use of equipment such as loaders, bull dozers, excavators, and large trucks could result in minor spills of gas, oil, fuel oil, or other petroleum products.

THE FOLLOWING PRECAUTIONS TO PROTECT WATER QUALITY HAVE BEEN DESCRIBED BY THE APPLICANT: The contractor will install erosion and sediment BMPs in accordance with NR 151.11(8) prior to commencing ground disturbing activities. These BMPs will be maintained until final stabilization to prevent pollutants from reaching downstream aquatic resources.

MITIGATION: Enbridge intends to fulfill wetland mitigation requirements through the purchase of advanced credits from the Wisconsin Wetland Conservancy Trust (WWCT) In-Lieu Fee Program.

3. FEDERALLY-LISTED THREATENED OR ENDANGERED WILDLIFE OR PLANTS OR THEIR CRITICAL HABITAT

None were identified by the applicant or are known to exist in the permit area. However, Douglas County is within the known or historic range of the following Federally-listed species:

- Canada lynx (*Lynx canadensis)* – Threatened
- Gray wolf *(Canis lupus)* - Endangered
- Northern long-eared bat *(Myotis septentrionalis)* – Threatened
- Kirtland's warbler *(Setophaga kirtlandii)* – Endangered
- Piping plover *(Charadrius melodus)* – Endangered
- Rufa red knot *(Calidris canutus rufa)* – Threatened
- Fassett's locoweed *(Oxytropis campestris var. chartacea)* - Threatened

This application is being coordinated with the U.S. Fish and Wildlife Service. Any comments it may have concerning Federally-listed threatened or endangered wildlife or plants or their critical habitat will be considered in our final assessment of the described work.

4. JURISDICTION

This application is being reviewed in accordance with the practices for documenting Corps jurisdiction under Sections 9 & 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act.

5. STATE SECTION 401 WATER QUALITY CERTIFICATION

WATER QUALITY CERTIFICATION. This Public Notice has been sent to the Wisconsin Department of Natural Resources and is considered by the District Engineer to constitute valid notification to that agency for Section 401 water quality certification. A permit will not be granted until the Wisconsin Department of Natural Resources has issued or waived Section 401 certification.

6. HISTORICAL/ARCHAEOLOGICAL

This public notice is being sent to the National Park Service and the State Archaeologist for their comments. The Corps will review information on known cultural resources and/or historic properties within and adjacent to the project area. The Corps will also consider the potential effects of the project on any properties that have yet to be identified. The results of this review and the Corps' determination of effect will be coordinated with the State Historic Preservation Officer independent of this public notice. Any adverse effects on historic properties will be resolved prior to the Corps authorization, or approval, of the work in connection with this project.

7. PUBLIC HEARING REQUESTS

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, in detail, the reasons for holding a public hearing. A request may be denied if substantive reasons for holding a hearing are not provided or if there is otherwise no valid interest to be served.

8. PUBLIC INTEREST REVIEW

The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects. Among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production and, in general, the needs and welfare of the people. Environmental and other documents will be available for review in the St. Paul District Office.

The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Indian tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public

interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

REPLIES/COMMENTS

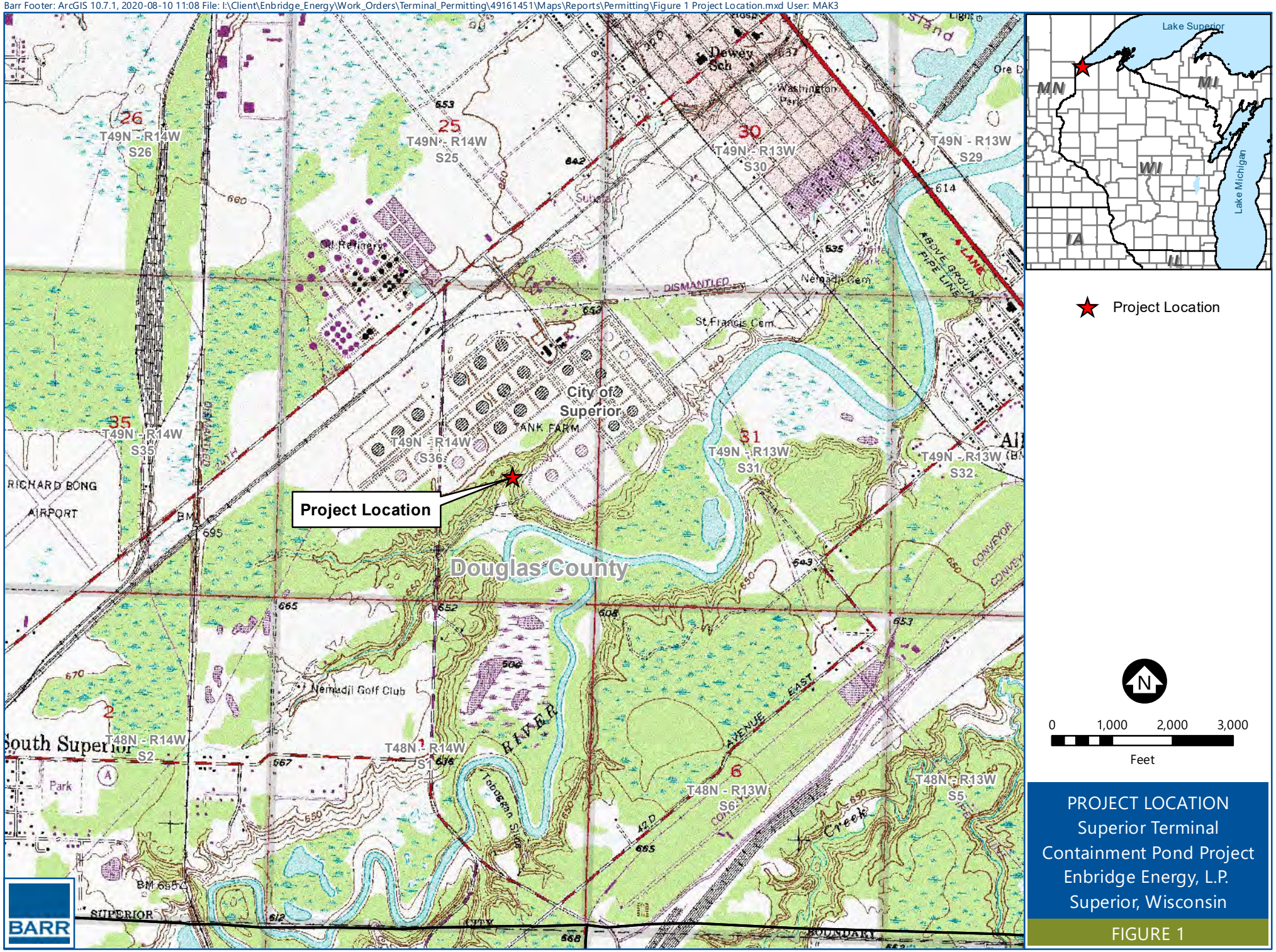
Interested parties are invited to submit to this office written facts, arguments, or objections by the expiration date indicated above. These statements should bear upon the suitability of the location and the adequacy of the project and should, if appropriate, suggest any changes believed to be desirable. Comments received may be forwarded to the applicant.

Replies may be sent to Sam Woboril at samuel.j.woboril@usace.army.mil.

IF YOU HAVE QUESTIONS ABOUT THE PROJECT, contact Sam Woboril in our Stevens Point field office at (651) 290-5878 *or* by email at samuel.j.woboril@usace.army.mil.

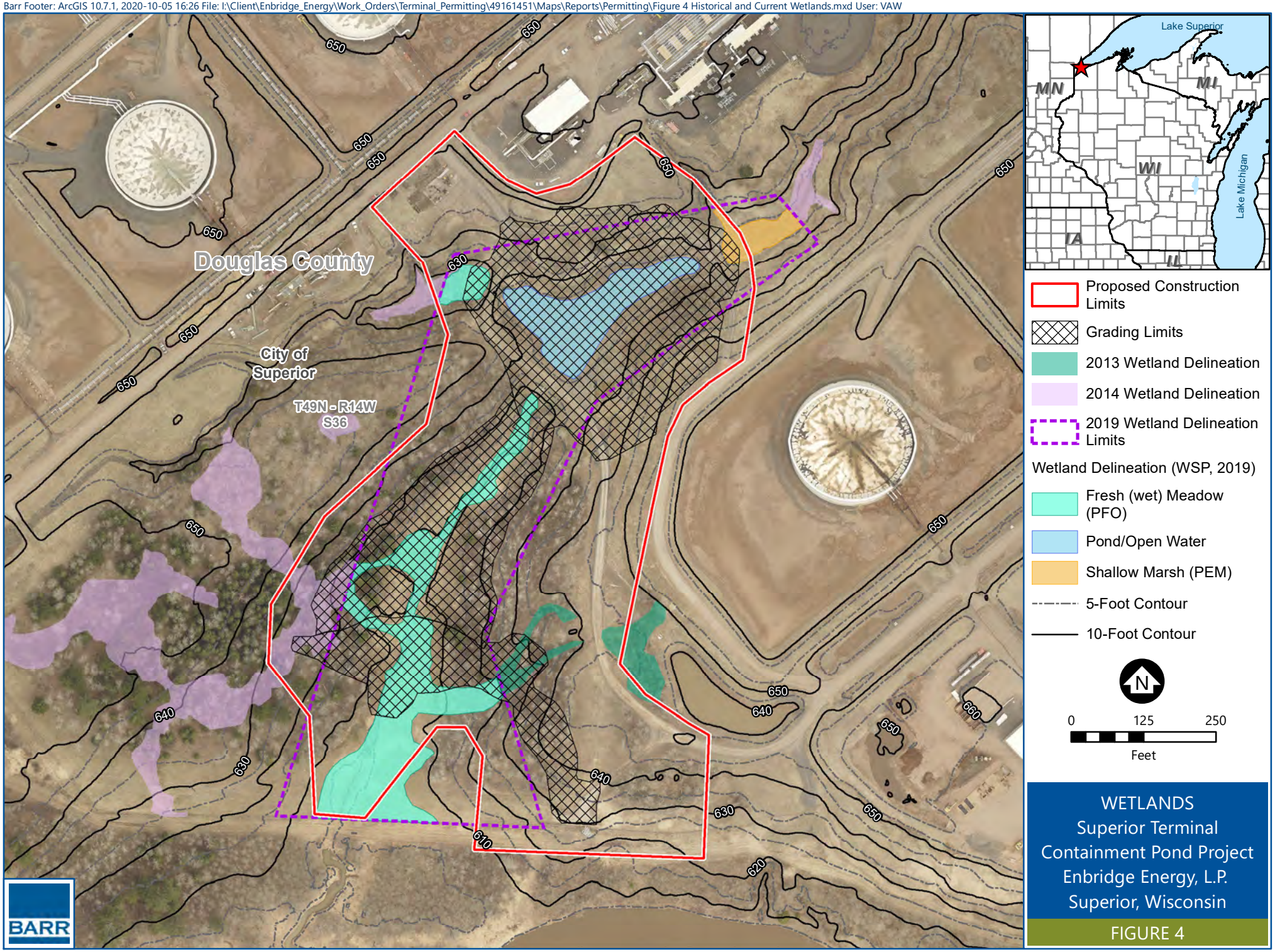
Enclosures:
Project figures labeled MVP-2020-02230-SJW: Page 1 of 15 through 15 of 15.

Barr Footer: ArcGIS 10.7.1, 2020-08-10 11:08 File: I:\Client\Enbridge_Energy\Work_Orders\Terminal_Permitting\49161451\Maps\Reports\Permitting\Figure 1 Project Location.mxd User: MAK3



PROJECT LOCATION
Superior Terminal
Containment Pond Project
Enbridge Energy, L.P.
Superior, Wisconsin

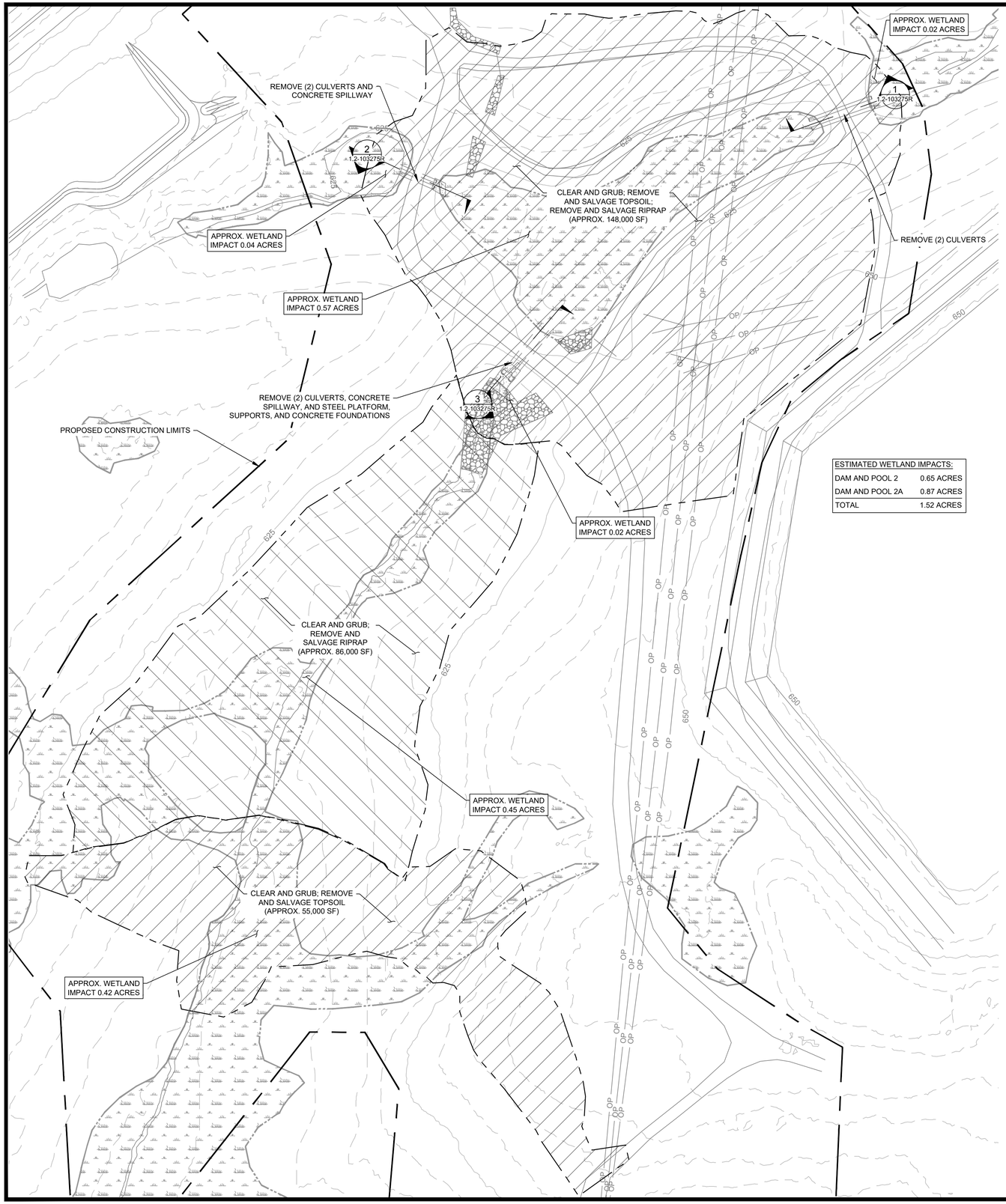
FIGURE 1



BARR

WETLANDS
Superior Terminal
Containment Pond Project
Enbridge Energy, L.P.
Superior, Wisconsin

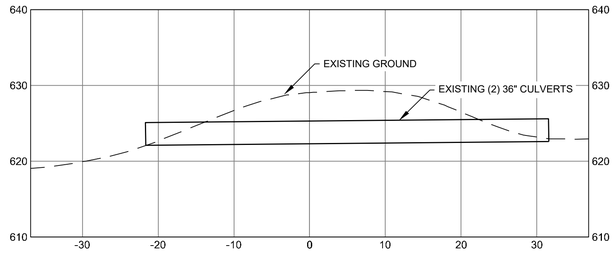
FIGURE 4



ESTIMATED WETLAND IMPACTS:	
DAM AND POOL 2	0.65 ACRES
DAM AND POOL 2A	0.87 ACRES
TOTAL	1.52 ACRES

LEGEND:

- EXISTING ROAD OUTLINE
- 650 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- OP EXISTING OVERHEAD POWER
- EXISTING WETLAND
- EXISTING RIPRAP
- PROPOSED CONSTRUCTION LIMITS



1 EXISTING NORTH BERM
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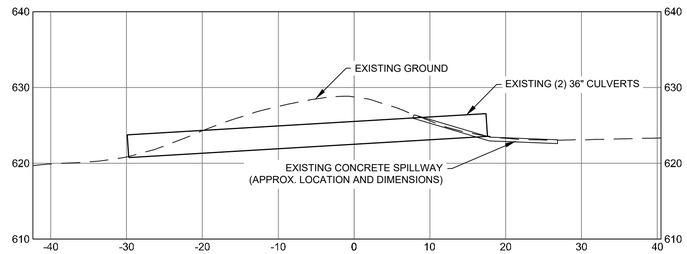

2 EXISTING WEST BERM
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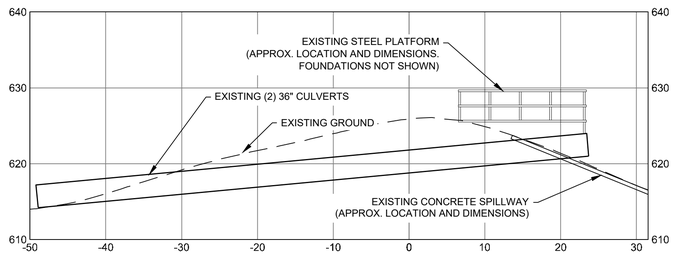


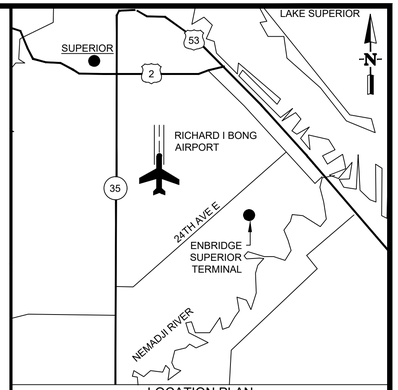
3 EXISTING DAM 2
1"=10'-0"

WISCONSIN
KAITLIN T. WERNER
E-40484
DULUTH
MN
PROFESSIONAL ENGINEER

Kaitlin Werner
10/08/2020

0 10 20 30
1" = 10'-0"

0 50 100 150
1" = 50'-0"



LOCATION PLAN

SECTION THIRTY-SIX (36), TOWNSHIP FOURTY-NINE (49) NORTH, RANGE FOURTEEN (14) WEST, DOUGLAS COUNTY WISCONSIN

SURVEY NOTES:

1. SITE SURVEY PERFORMED ON MAY 4, 2020 BY NORTHWESTERN SURVEY AND ENGINEERING.
2. COORDINATE SYSTEM CORRESPONDS TO NORTH AMERICAN DATUM OF 1983 (NAD83) WISCONSIN STATE PLAN, NORTH ZONE, US SURVEY FEET. VERTICAL DATUM CORRESPONDS TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

CONSTRUCTION NOTES:

1. CONTRACTOR IS REQUIRED TO PROVIDE DEWATERING/DIVERSION PLAN.

REV:	PROJECT TITLE:	SEQ #:
0.B	SUPERIOR TERMINAL PONDS	-
AFE: 20014688	PROJ NO: -	
WP NO: -		

REV	REVISION DESCRIPTION	DATE BY	CHK APPR
0.A	ISSUED FOR 90% REVIEW	2020-09-01 BARR/JMD	BARR/KTW B. ERICKSON
0.B	ISSUED FOR PERMITTING	2020-09-30 BARR/JMD	BARR/KTW B. ERICKSON

FOR REMOVAL

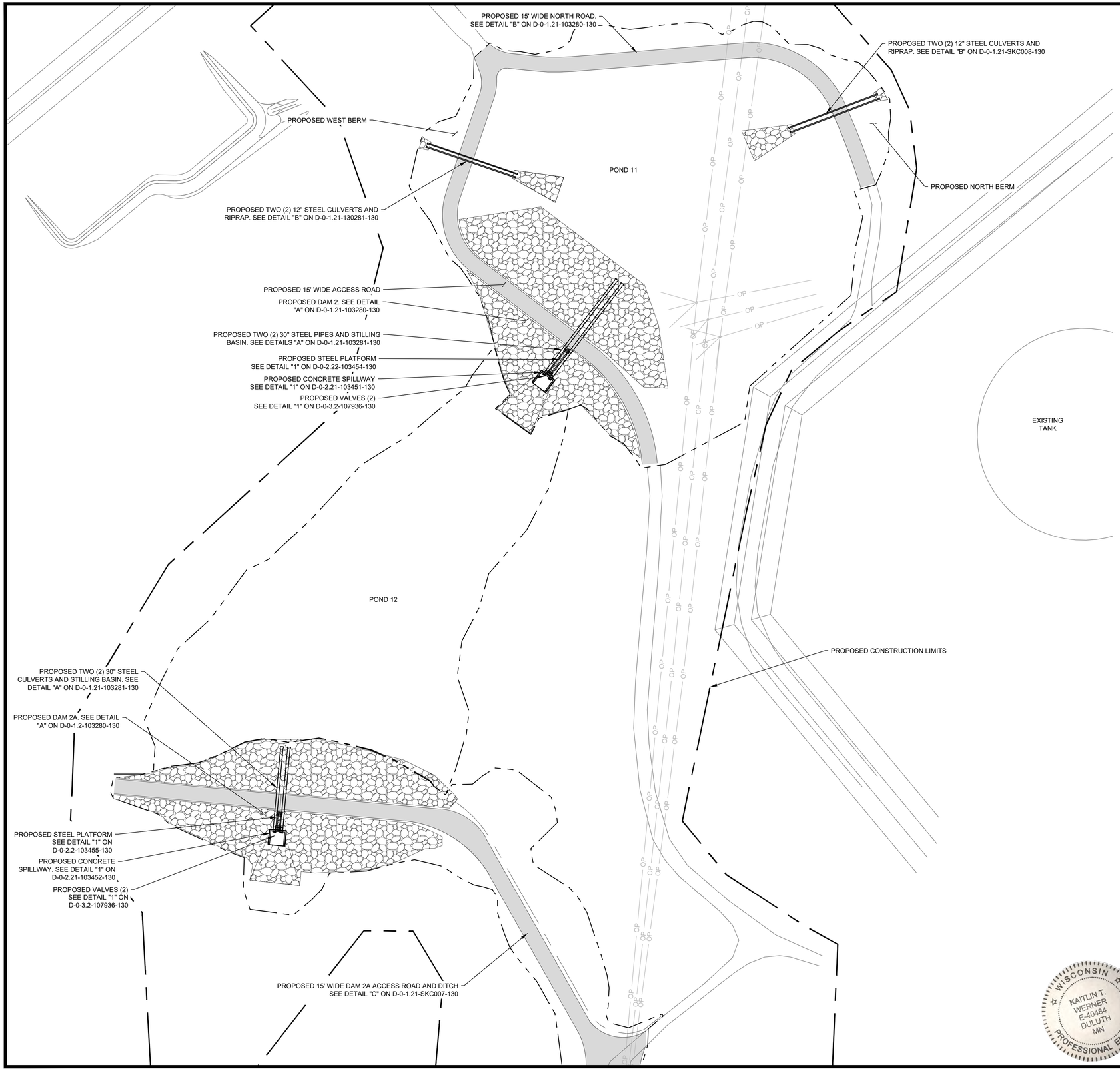
REFERENCE DRAWINGS

REV NO	REVISION DESCRIPTION	DATE BY	CHK	APPR

ENBRIDGE

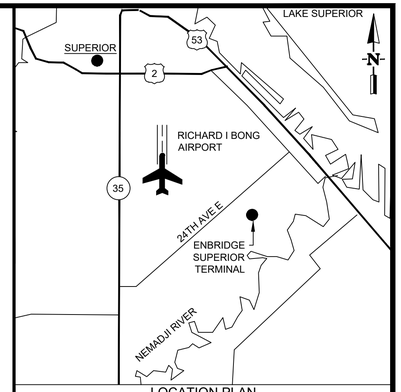
SUPERIOR (WI) TERMINAL
TERMINAL CONTAINMENT PONDS
CIVIL
EXISTING AND REMOVAL PLAN

BY: JMD	CHK: BID	ENG. : K. WERNER	ENB APPR: B. FIXSEN
DATE: 2020-06-25		SCALE: 1"=50'-0"	STATUS: DESIGN
DWG NO.: D-0-1.2-103275R-130			REV NO: 0.B



LEGEND:

- EXISTING ROAD OUTLINE
- EXISTING OVERHEAD POWER (OP)
- PROPOSED CULVERT
- PROPOSED ROAD
- PROPOSED RIPRAP
- PROPOSED WORK EXTENT
- PROPOSED CONSTRUCTION LIMITS



LOCATION PLAN

SECTION THIRTY-SIX (36), TOWNSHIP FOURTY-NINE (49) NORTH, RANGE FOURTEEN (14) WEST, DOUGLAS COUNTY WISCONSIN

SURVEY NOTES:

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GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR IS REQUIRED TO FIELD VERIFY LOCATION OF ALL EXISTING BURIED UTILITIES.
2. CONTRACTOR TO SUPPORT ALL EXISTING UTILITIES PER REQUIREMENTS.
3. REFER TO THE ENVIRONMENTAL PROTECTION PLAN FOR SITE RESTORATION.

REV:	PROJECT TITLE:	SEQ #:
0.B	SUPERIOR TERMINAL PONDS	-

AFE: 20014688	PROJ NO: -
WP NO: -	

REV	REVISION DESCRIPTION	DATE BY	CHK APPR
0.A	ISSUED FOR 90% REVIEW	2020-09-01 BARR/JMD	BARR/KTW B. ERICKSON
0.B	ISSUED FOR PERMITTING	2020-09-30 BARR/JMD	BARR/KTW B. ERICKSON

REFERENCE DRAWINGS

REV NO	REVISION DESCRIPTION	DATE BY	CHK	APPR

ENBRIDGE

SUPERIOR (WI) TERMINAL
TERMINAL CONTAINMENT PONDS
CIVIL
PLOT PLAN

BY: JMD	CHK: BID	ENG. : K. WERNER	ENB APPR: B. FIXSEN
DATE: 2020-06-25		SCALE: 1"=50'-0"	STATUS: DESIGN

DWG NO.:	REV NO:
D-0-1.2-103275-130	0.B

WISCONSIN KAITLIN T. WERNER E-40484 DULUTH MN PROFESSIONAL ENGINEER

Kaitlin Werner
10/08/2020

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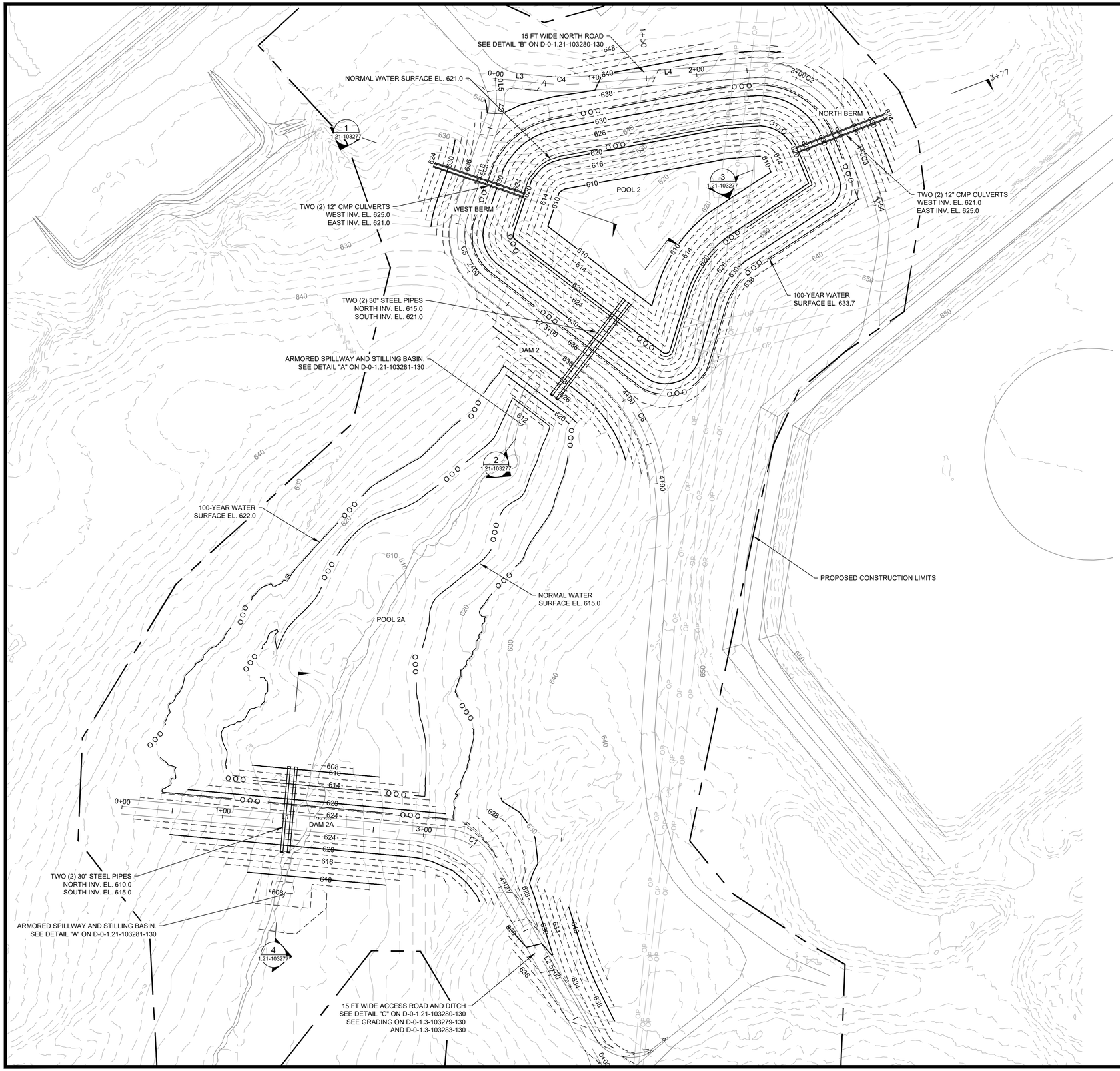
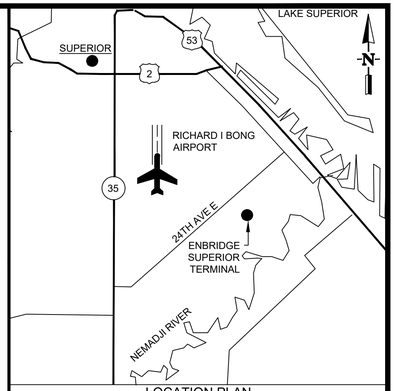
1" = 50'-0"



LEGEND:

- ROAD/DAM CENTERLINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING OVERHEAD POWER
- PROPOSED WATER SURFACE
- PROPOSED CONSTRUCTION LIMITS



LOCATION PLAN

SECTION THIRTY-SIX (36), TOWNSHIP FOURTY-NINE (49) NORTH, RANGE FOURTEEN (14) WEST, DOUGLAS COUNTY WISCONSIN

SURVEY NOTES:

1. SITE SURVEY PERFORMED ON MAY 4, 2020 BY NORTHWESTERN SURVEY AND ENGINEERING.
2. COORDINATE SYSTEM CORRESPONDS TO NORTH AMERICAN DATUM OF 1983 (NAD83) WISCONSIN STATE PLAN, NORTH ZONE, US SURVEY FEET. VERTICAL DATUM CORRESPONDS TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

EST. POND VOLUMES		
POOL	BELOW NORMAL WATER LEVEL VOL. (M GAL)	BELOW 100-YEAR WATER LEVEL VOL. (M GAL)
2	2.11	7.21
2A	1.52	4.93

EST. QUANTITIES	
COMMON EXCAVATION*	24,600 CY
TOPSOIL STRIPPING	28,000 SY
1" WELL-GRADED GRAVEL**	250 CY
4" MAX PIT-RUN**	990 CY
LIGHT RIPRAP**	2,070 CY
EX-LIGHT RIPRAP**	130 CY
3-INCH AGGREGATE**	950 CY
BEDDING MATERIAL (SAND)**	990 CY
EX. HEAVY RIPRAP**	130 CY
HEAVY RIPRAP**	130 CY
30" STEEL PIPE	420 LF
12" CMP	380 LF

* ASSUMING EXCAVATING 1 FT BELOW EXISTING AND A 1:1 SIDE SLOPE TRENCH TO EXCAVATE EXISTING CULVERTS
** IN-PLACE

Kaitlin Werner
10/08/2020

0 50 100 150
1" = 50'-0"

REV:	PROJECT TITLE:	SEQ #:
0.B	SUPERIOR TERMINAL PONDS	-
AFE: 20014688	PROJ NO: -	
WP NO: -		

REV	REVISION DESCRIPTION	DATE BY	CHK APPR
0.A	ISSUED FOR 90% REVIEW	2020-09-01 BARR/JMD	BARR/KTW B. ERICKSON
0.B	ISSUED FOR PERMITTING	2020-09-30 BARR/JMD	BARR/KTW B. ERICKSON

REFERENCE DRAWINGS

REV NO	REVISION DESCRIPTION	DATE BY	CHK	APPR

ENBRIDGE

SUPERIOR (WI) TERMINAL
TERMINAL CONTAINMENT PONDS
CIVIL
SITE AND GRADING PLAN

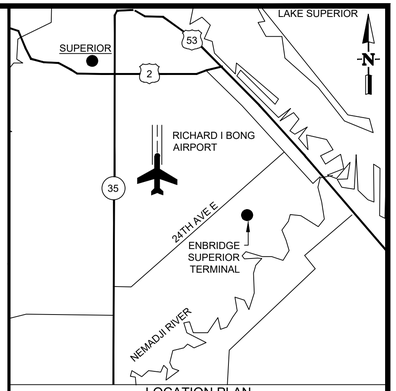
BY: JMD	CHK: BID	ENG. :K. WERNER	ENB APPR: B. FIXSEN
DATE: 2020-06-25		SCALE: 1"=50'-0"	STATUS: DESIGN
DWG NO.: D-0-1.21-103276-130			REV NO: 0.B

LEGEND:

- EXISTING ROAD OUTLINE
- EXISTING OVERHEAD POWER
- PROPOSED CULVERT
- PROPOSED CONSTRUCTION LIMITS
- PROPOSED ROAD
- PROPOSED RIPRAP
- PROPOSED TOPSOIL, SEED, AND EROSION CONTROL BLANKET
- PROPOSED STAGING AREA
- PROPOSED STOCKPILE AREA
- PROPOSED SILT FENCE
- ROAD/DAM CENTERLINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED WATER SURFACE
- EXISTING SLOPE
- PROPOSED SLOPE

EST. QUANTITIES

TOPSOIL AND SEED	14,100 SY
EROSION CONTROL BLANKET	14,100 SY
SILT FENCE	150 LF
STONE CHECK DAM	1 EA



LOCATION PLAN

SECTION THIRTY-SIX (36), TOWNSHIP FOURTY-NINE (49) NORTH, RANGE FOURTEEN (14) WEST, DOUGLAS COUNTY WISCONSIN

MATERIAL NOTES:

1. EROSION CONTROL BLANKET SHALL BE CLASS 1 TYPE A EROSION CONTROL MAT PER WISDOT STD. SPEC. SECTION 628.

REV:	PROJECT TITLE:	SEQ #:
0.B	SUPERIOR TERMINAL PONDS	-
AFE: 20014688	PROJ NO: -	
WP NO: -		

REV	REVISION DESCRIPTION	DATE BY	CHK APPR
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REFERENCE DRAWINGS

REV NO	REVISION DESCRIPTION	DATE BY	CHK	APPR

WISCONSIN
KAITLIN T. WERNER
E-40484
DULUTH
MN
PROFESSIONAL ENGINEER

Kaitlin Werner
10/08/2020

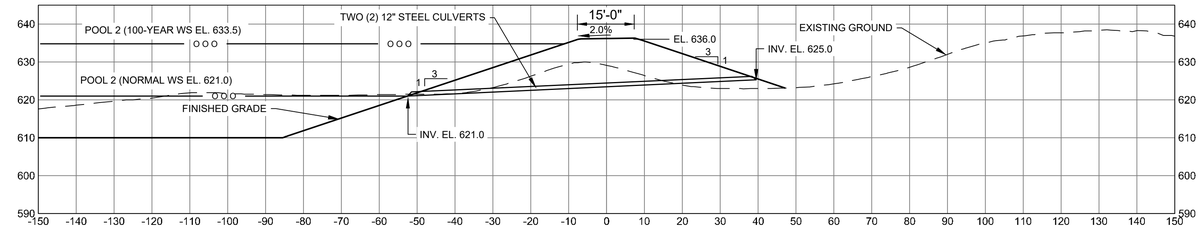
0 60 120 180
1" = 60'-0"

ENBRIDGE

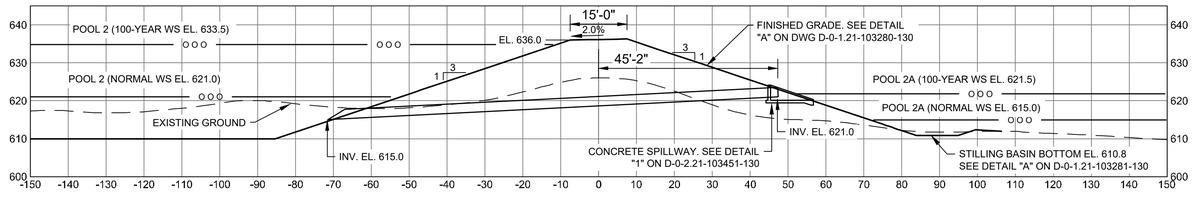
SUPERIOR (WI) TERMINAL
TERMINAL CONTAINMENT PONDS
CIVIL
EROSION AND SEDIMENTATION CONTROL PLAN

BY: JMD	CHK: BID	ENG. : K. WERNER	ENB APPR: B. FIXSEN
DATE: 2020-06-25		SCALE: 1"=60'-0"	STATUS: DESIGN

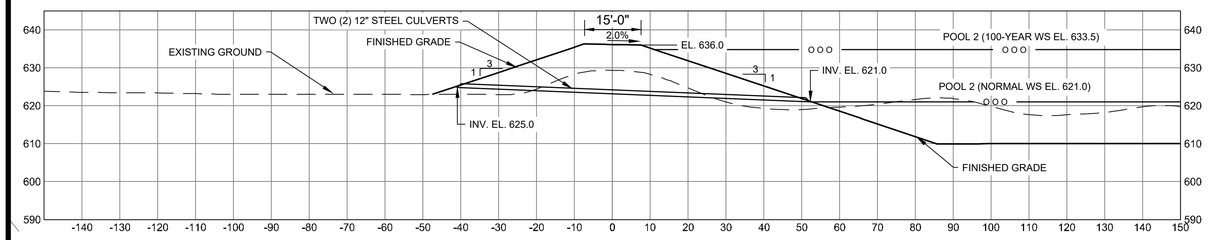
DWG NO.: D-0-1.21-103286-130 REV NO: 0.B



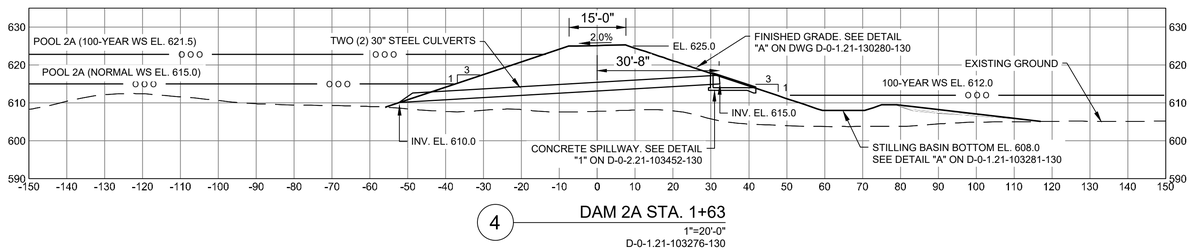
1 WEST BERM STA. 1+00
1"=20'-0"
D-0-1.21-103276-130



2 DAM 2 STA. 3+37
1"=20'-0"
D-0-1.21-103276-130



3 NORTH BERM STA. 3+77
1"=20'-0"
D-0-1.21-103276-130



4 DAM 2A STA. 1+63
1"=20'-0"
D-0-1.21-103276-130

LEGEND:

- EXISTING GROUND
- FUTURE GROUND
- PROPOSED WATER SURFACE

REV:	PROJECT TITLE:	SEQ #:
0.B	SUPERIOR TERMINAL PONDS	-
AFE: 20014688	PROJ NO: -	
WP NO: -		

REV	REVISION DESCRIPTION	DATE BY	CHK APPR
0.A	ISSUED FOR 90% REVIEW	2020-09-01 BARR/JMD	BARR/KTW B. ERICKSON
0.B	ISSUED FOR PERMITTING	2020-09-30 BARR/JMD	BARR/KTW B. ERICKSON

REFERENCE DRAWINGS

REV NO	REVISION DESCRIPTION	DATE BY	CHK	APPR

ENBRIDGE

SUPERIOR (WI) TERMINAL
TERMINAL CONTAINMENT PONDS
CIVIL
SECTIONS

BY: JMD	CHK: BID	ENG. : K. WERNER	ENB APPR: B. FIXSEN
DATE: 2020-06-25		SCALE: 1"=20'-0"	STATUS: DESIGN
DWG NO.: D-0-1.21-103277-130			REV NO: 0.B

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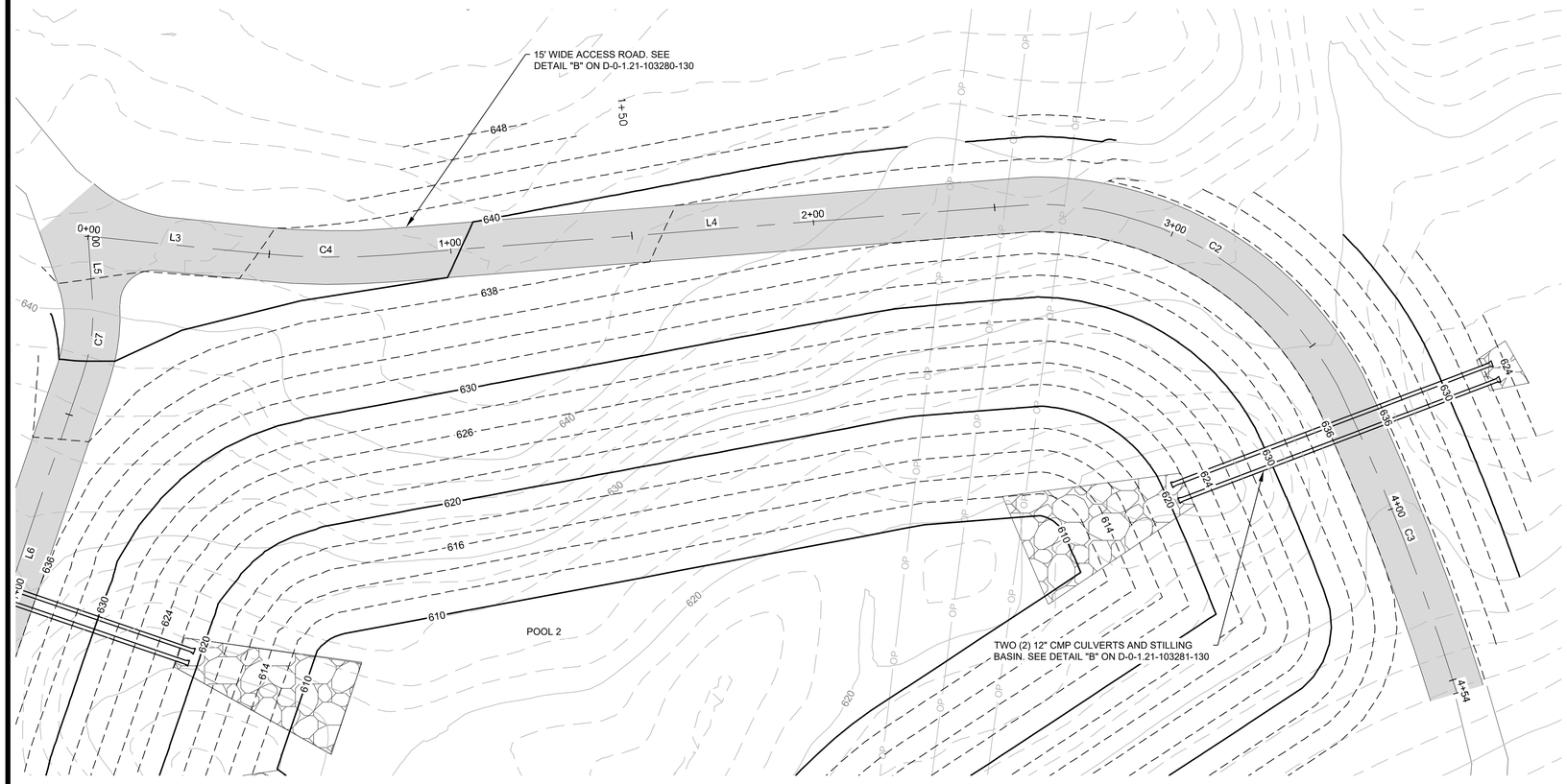
10/08/2020

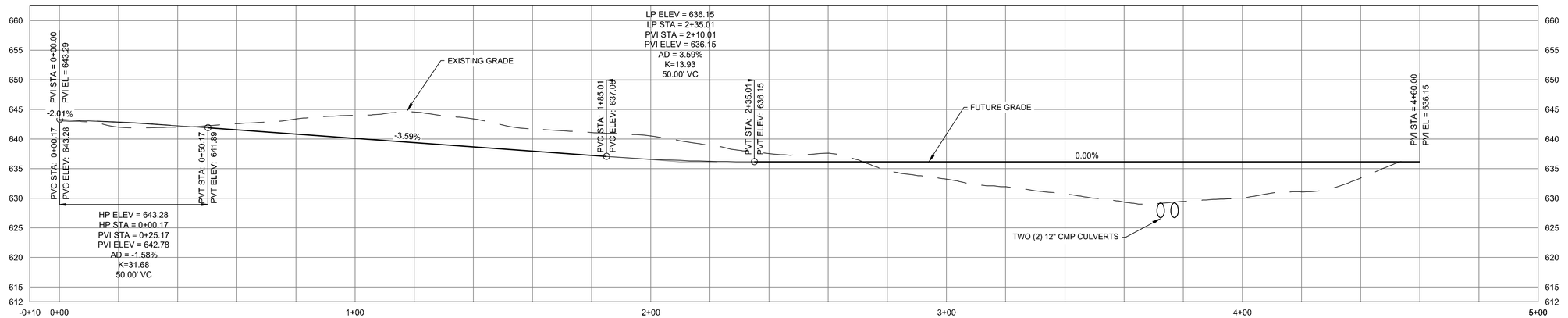
0 20 40 60
1" = 20'-0"



LEGEND:

- ROAD/DAM CENTERLINE
- 640 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 640 PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- OP EXISTING OVERHEAD POWER
- PROPOSED RIPRAP
- PROPOSED GRAVEL ROAD

SEGMENT	PB/PT NORTHING EASTING	PC/EP NORTHING EASTING	TANGENT DIRECTION	TANGENT LENGTH	PC NORTHING EASTING	PI NORTHING EASTING	PT NORTHING EASTING	RADIUS	DELTA ANGLE	CHORD LENGTH	DEG OF CURVE (CHORD)
L3	0+00.00 560008.64 1451174.93	0+47.84 560003.90 1451222.54	S84°19'07"E	47.84							
C4					0+47.84 560003.90 1451222.54	0+65.65 560002.14 1451240.26	0+83.37 560003.53 1451258.01	200.00	10.1768	35.48	28.9550
L4	0+83.37 560003.53 1451258.01	2+60.96 560017.45 1451435.06	N85°30'17"E	177.59							
C2					2+60.96 560017.45 1451435.06	3+17.72 560017.45 1451491.82	3+63.22 559967.39 1451518.56	94.66	61.8936	97.36	63.7671
C3					3+63.22 559967.39 1451518.56	4+08.56 559926.37 1451537.87	4+53.75 559883.03 1451551.21	639.98	8.1047	90.45	8.9619



NORTH ROAD
ROAD PROFILE

HORIZ. SCALE: 1"=20'-0"
VERT. SCALE: 1"=10'-0"

REV:	PROJECT TITLE:	SEQ.#:
0.B	SUPERIOR TERMINAL PONDS	-
AFE: 20014688	PROJ NO: -	
WP NO: -		

REV	REVISION DESCRIPTION	DATE BY	CHK APPR
0.A	ISSUED FOR 90% REVIEW	2020-09-01 BARR/JMD	BARR/KTW B. ERICKSON
0.B	ISSUED FOR PERMITTING	2020-09-30 BARR/JMD	BARR/KTW B. ERICKSON

REFERENCE DRAWINGS

REV NO	REVISION DESCRIPTION	DATE BY	CHK	APPR

ENBRIDGE

SUPERIOR (WI) TERMINAL
TERMINAL CONTAINMENT PONDS
CIVIL
NORTH ROAD PLAN AND PROFILE

BY: JMD	CHK: BID	ENG. :K. WERNER	ENB APPR: B. FIXSEN
DATE: 2020-06-25		SCALE: AS SHOWN	STATUS: DESIGN
DWG NO.: D-0-1.3-103278-130			REV NO: 0.B

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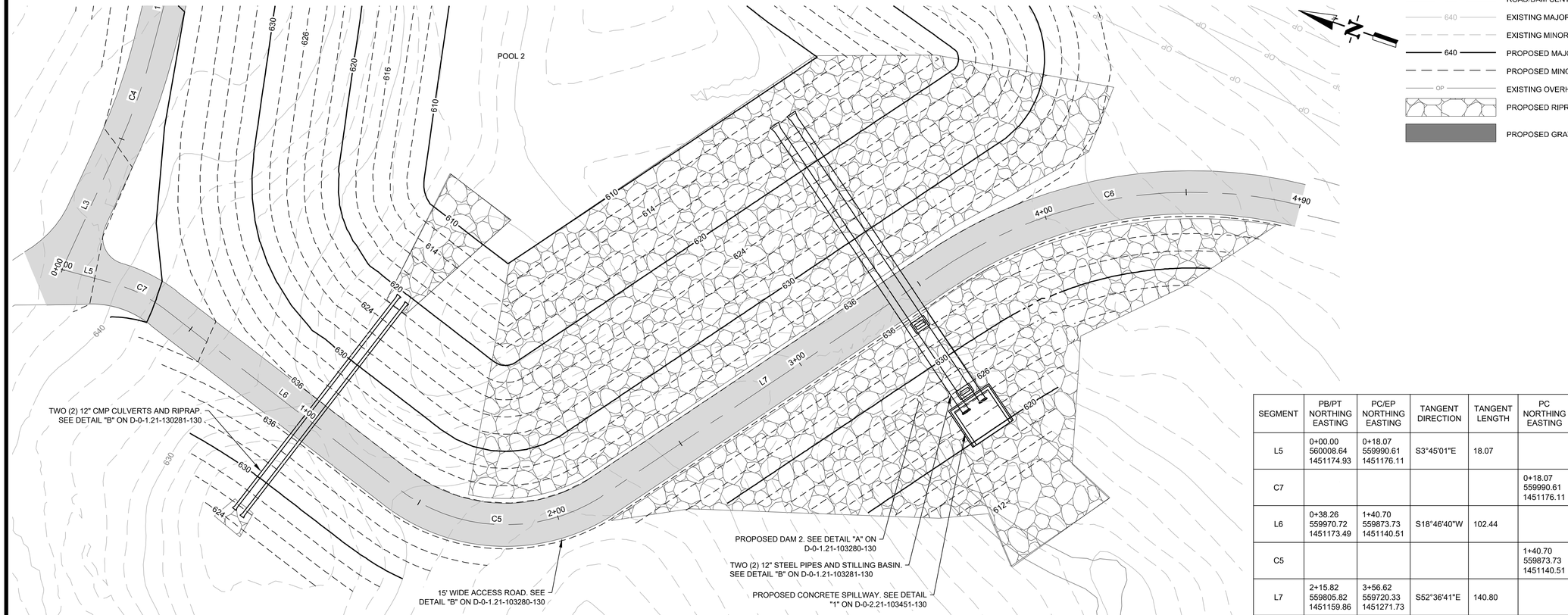
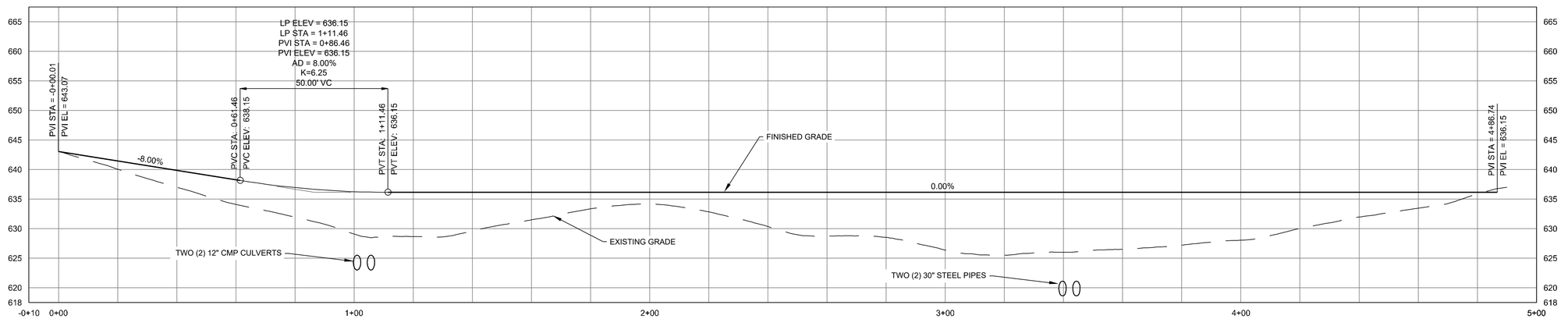
0 10 20 30
1" = 10'-0"

0 20 40 60
1" = 20'-0"



SEGMENT	PB/PT NORTHING EASTING	PC/EP NORTHING EASTING	TANGENT DIRECTION	TANGENT LENGTH	PC NORTHING EASTING	PI NORTHING EASTING	PT NORTHING EASTING	RADIUS	DELTA ANGLE	CHORD LENGTH	DEG OF CURVE (CHORD)
L5	0+00.00 560008.64 1451174.93	0+18.07 559990.61 1451176.11	S3°45'01"E	18.07							
C7					0+18.07 559990.61 1451176.11	0+28.29 559980.40 1451176.78	0+38.26 559970.72 1451173.49	51.35	22.5281	20.06	153.6813
L6	0+38.26 559970.72 1451173.49	1+40.70 559873.73 1451140.51	S18°46'40"W	102.44							
C5					1+40.70 559873.73 1451140.51	1+83.65 559833.08 1451126.67	2+15.82 559805.82 1451159.86	62.00	69.4227	70.61	107.5060
L7	2+15.82 559805.82 1451159.86	3+56.62 559720.33 1451271.73	S52°36'41"E	140.80							
C6					3+56.62 559720.33 1451271.73	4+27.71 559678.32 1451329.09	4+90.07 559607.49 1451335.15	156.38	48.8925	129.44	37.2928



DAM 2 ACCESS ROAD
ROAD PROFILE

HORIZ. SCALE: 1"=20'-0"
VERT. SCALE: 1"=10'-0"

REV:	PROJECT TITLE:	SEQ #:
0.B	SUPERIOR TERMINAL PONDS	-
AFE: 20014688	PROJ NO: -	
WP NO: -		

REV	REVISION DESCRIPTION	DATE BY	CHK APPR
0.A	ISSUED FOR 90% REVIEW	2020-09-01 BARR/JMD	BARR/KTW B. ERICKSON
0.B	ISSUED FOR PERMITTING	2020-09-30 BARR/JMD	BARR/KTW B. ERICKSON

REFERENCE DRAWINGS

REV NO	REVISION DESCRIPTION	DATE BY	CHK	APPR

ENBRIDGE

SUPERIOR (WI) TERMINAL
TERMINAL CONTAINMENT PONDS
CIVIL
DAM 2 ACCESS ROAD PLAN AND PROFILE

BY: JMD	CHK: BID	ENG. : K. WERNER	ENB APPR: B. FIXSEN
DATE: 2020-06-25		SCALE: AS SHOWN	STATUS: DESIGN

DWG NO.: D-0-1.3-103325-130 REV NO: 0.B

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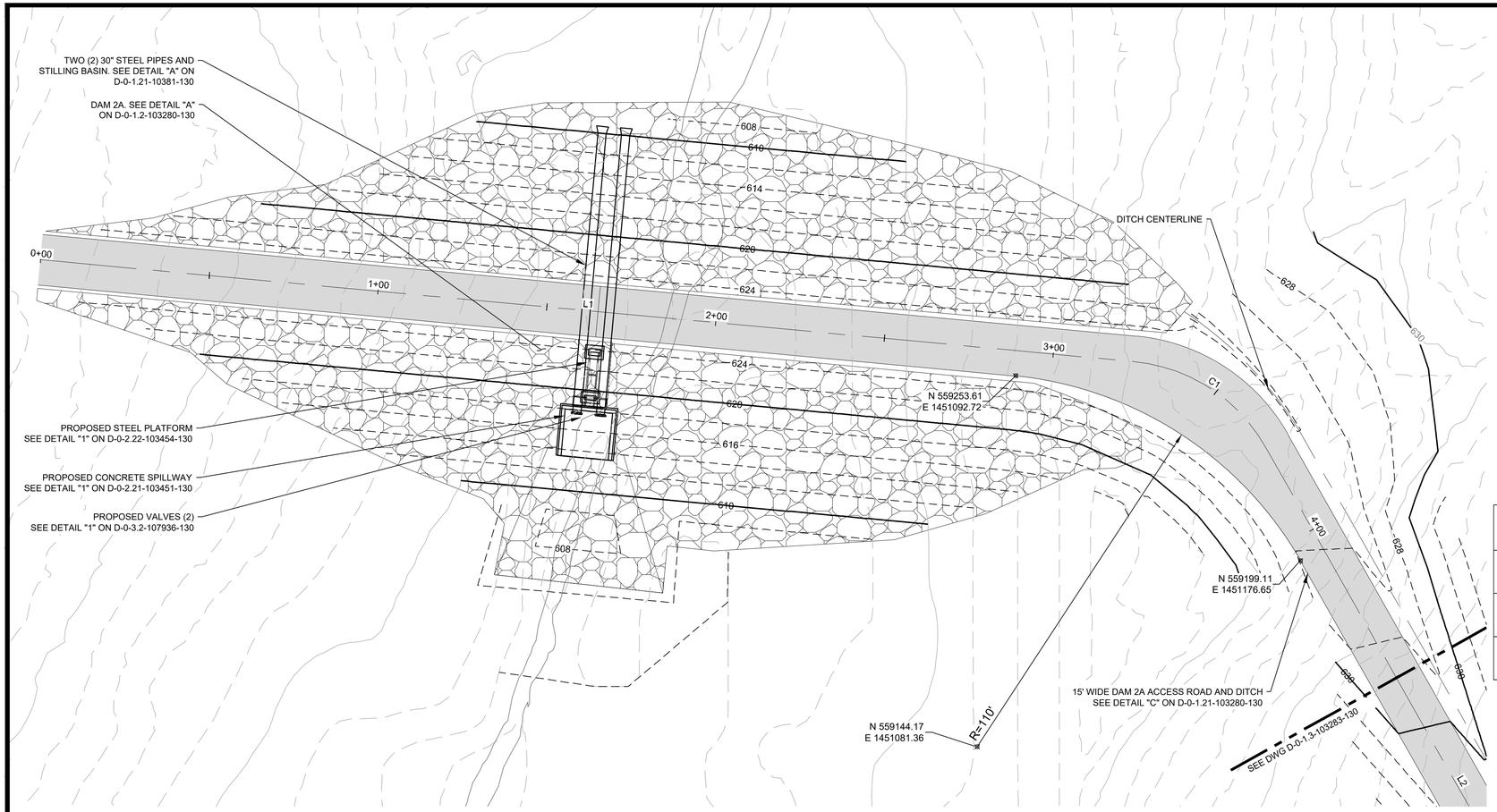
10/08/2020

0 10 20 30
1" = 10'-0"

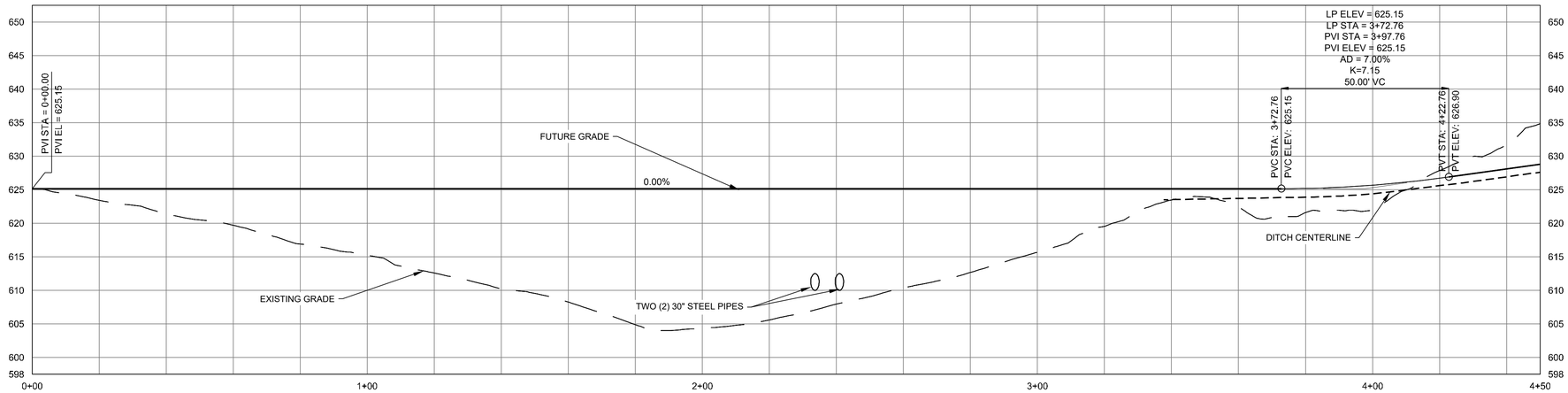
0 20 40 60
1" = 20'-0"



LEGEND:

- ROAD/DAM CENTERLINE
- 640 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 640 PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- OP EXISTING OVERHEAD POWER
- PROPOSED RIPRAP
- PROPOSED GRAVEL ROAD

SEGMENT	PB/PT NORTHING EASTING	PC/EP NORTHING EASTING	TANGENT DIRECTION	TANGENT LENGTH	PC NORTHING EASTING	PI NORTHING EASTING	PT NORTHING EASTING	RADIUS	DELTA ANGLE	CHORD LENGTH	DEG OF CURVE (CHORD)
L1	0+00.00 559287.90 1450805.12	3+23.81 559257.86 1451127.54	S84°40'38"E	323.81							
C1					3+23.81 559257.86 1451127.54	3+49.94 559255.44 1451153.56	3+71.97 559232.69 1451166.42	50.00	55.1850	46.32	0.0000
L2	3+71.97 559232.69 1451166.42	6+31.64 559006.66 1451294.26	S29°29'32"E	259.67							



DAM 2A ACCESS ROAD STA. 0+00 TO 4+50
ROAD PROFILE

HORIZ. SCALE: 1"=20'-0"
VERT. SCALE: 1"=10'-0"

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10/08/2020

0 10 20 30
1" = 10'-0"

0 20 40 60
1" = 20'-0"

REV:	PROJECT TITLE:	SEQ #:
0.B	SUPERIOR TERMINAL PONDS	-
AFE: 20014688	PROJ NO: -	
WP NO: -		

REV	REVISION DESCRIPTION	DATE BY	CHK APPR
0.A	ISSUED FOR 90% REVIEW	2020-09-01 BARR/JMD	BARR/KTW B. ERICKSON
0.B	ISSUED FOR PERMITTING	2020-09-30 BARR/JMD	BARR/KTW B. ERICKSON

REFERENCE DRAWINGS

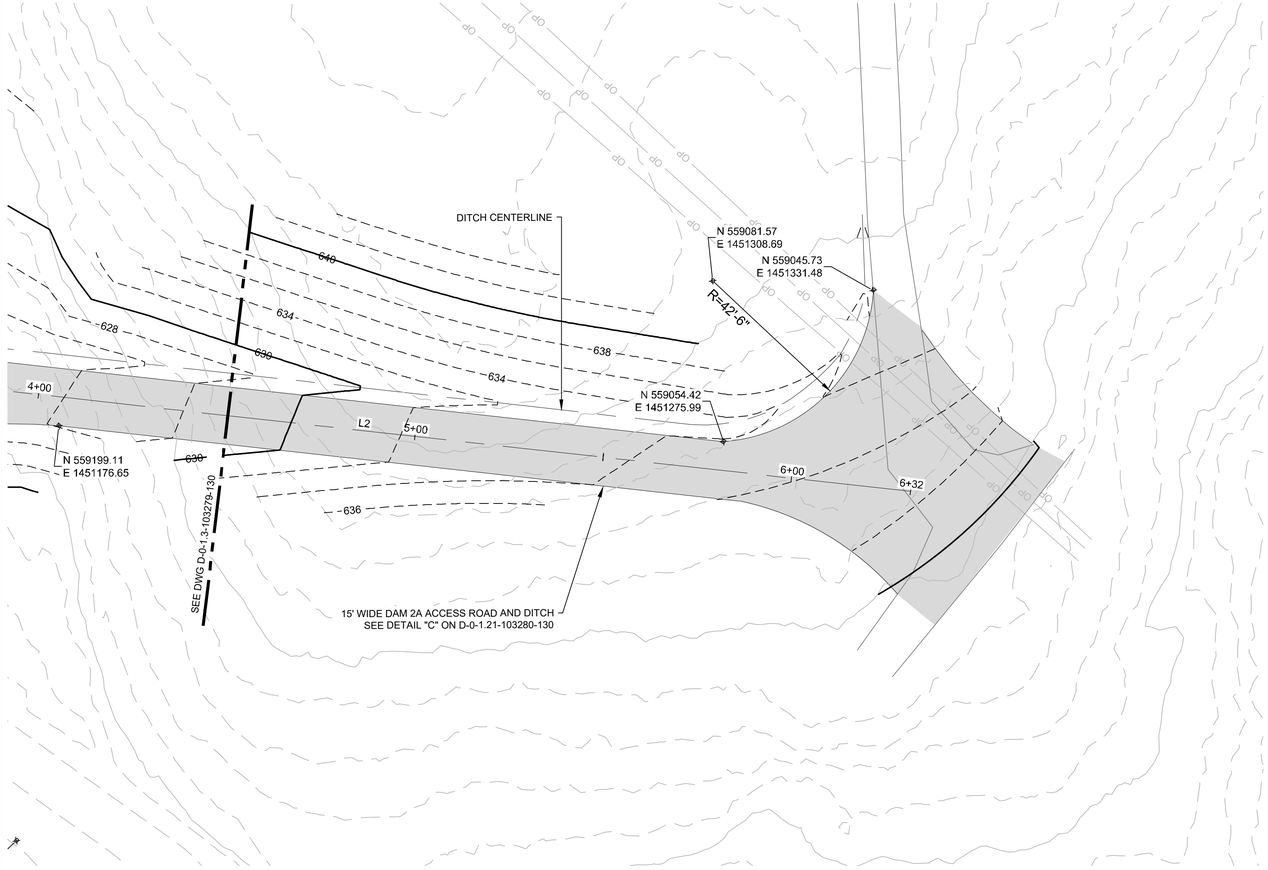
REV NO	REVISION DESCRIPTION	DATE BY	CHK	APPR

ENBRIDGE

SUPERIOR (WI) TERMINAL
TERMINAL CONTAINMENT PONDS
CIVIL
ACCESS ROAD PLAN AND PROFILE

BY: JMD	CHK: BID	ENG. : K. WERNER	ENB APPR: B. FIXSEN
DATE: 2020-06-25		SCALE: AS SHOWN	STATUS: DESIGN

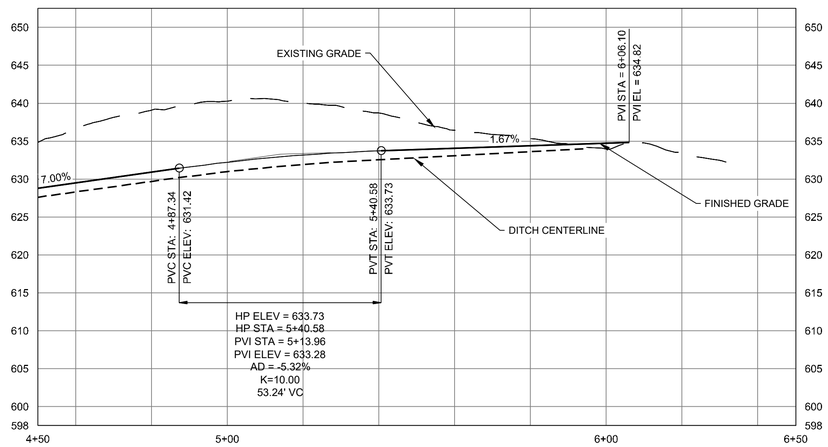
DWG NO.: D-0-1.3-103279-130 REV NO: 0.B



LEGEND:

- ROAD/DAM CENTERLINE
- 640 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 640 PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- OP EXISTING OVERHEAD POWER
- PROPOSED RIPRAP
- PROPOSED GRAVEL ROAD

SEGMENT	PB/PT NORTHING EASTING	PC/EP NORTHING EASTING	TANGENT DIRECTION	TANGENT LENGTH	PC NORTHING EASTING	PI NORTHING EASTING	PT NORTHING EASTING	RADIUS	DELTA ANGLE	CHORD LENGTH	DEG OF CURVE (CHORD)
L1	0+00.00 559287.90 1450805.12	3+23.81 559257.86 1451127.54	S84°40'38"E	323.81							
C1					3+23.81 559257.86 1451127.54	3+49.94 559255.44 1451153.56	3+71.97 559232.69 1451166.42	50.00	55.1850	46.32	0.0000
L2	3+71.97 559232.69 1451166.42	6+31.64 559006.66 1451294.26	S29°29'32"E	259.67							



DAM 2A ACCESS ROAD STA. 4+50 TO 6+50
ROAD PROFILE

HORIZ. SCALE: 1"=20'-0"
VERT. SCALE: 1"=10'-0"

REV:	PROJECT TITLE:	SEQ #:
0.B	SUPERIOR TERMINAL PONDS	-

AFE:	20014688	PROJ NO:	-
WP NO:	-		

REV	REVISION DESCRIPTION	DATE BY	CHK APPR
0.A	ISSUED FOR 90% REVIEW	2020-09-01 BARR/JMD	BARR/KTW B. ERICKSON
0.B	ISSUED FOR PERMITTING	2020-09-30 BARR/JMD	BARR/KTW B. ERICKSON

REFERENCE DRAWINGS

REV NO	REVISION DESCRIPTION	DATE BY	CHK	APPR

ENBRIDGE

SUPERIOR (WI) TERMINAL
TERMINAL CONTAINMENT PONDS
CIVIL
DAM 2A ACCESS ROAD PLAN AND PROFILE

BY: JMD	CHK: BID	ENG. :K. WERNER	ENB APPR: B. FIXSEN
DATE: 2020-06-25		SCALE: AS SHOWN	STATUS: DESIGN
DWG NO.: D-0-1.3-103283-130			REV NO: 0.B

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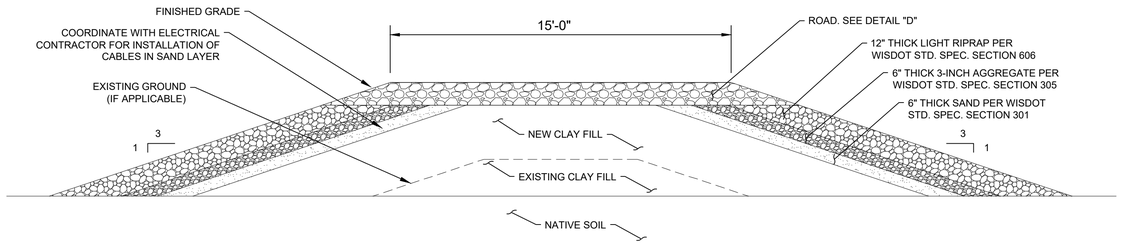
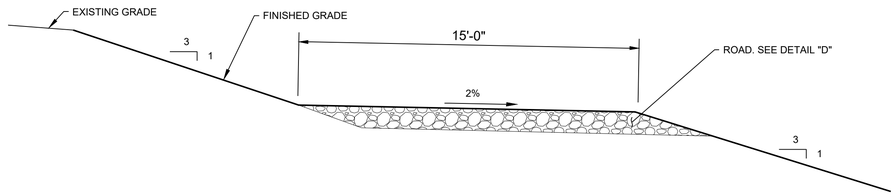
10/08/2020

0 10 20 30
1" = 10'-0"

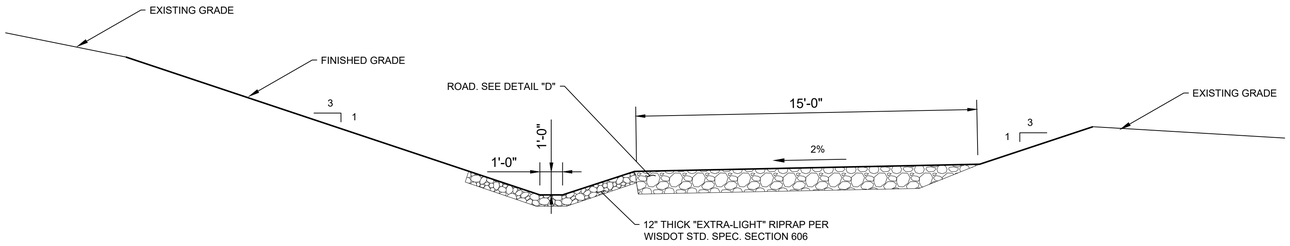
0 20 40 60
1" = 20'-0"



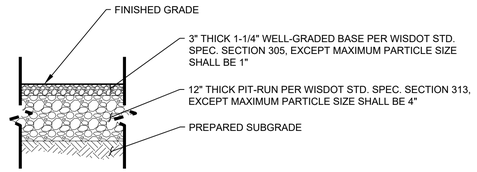
A TYPICAL DAM CROSS SECTION
NTS
D-0-1.2-103275-130



B TYPICAL NORTH ROAD SECTION
NTS
D-0-1.2-103275-130



C TYPICAL DAM 2A ACCESS ROAD SECTION
NTS
D-0-1.2-103275-130



D TYPICAL ROAD SECTION
NTS
D-0-1.2-103275-130

Kaitlin Werner
10/08/2020

REV:	PROJECT TITLE:	SEQ #:
0.B	SUPERIOR TERMINAL PONDS	-

AFE:	20014688	PROJ NO:	-
WP NO:	-		

REV	REVISION DESCRIPTION	DATE BY	CHK APPR
0.A	ISSUED FOR 90% REVIEW	2020-09-01 BARR/JMD	BARR/KTW B. ERICKSON
0.B	ISSUED FOR PERMITTING	2020-09-30 BARR/JMD	BARR/KTW B. ERICKSON

REFERENCE DRAWINGS

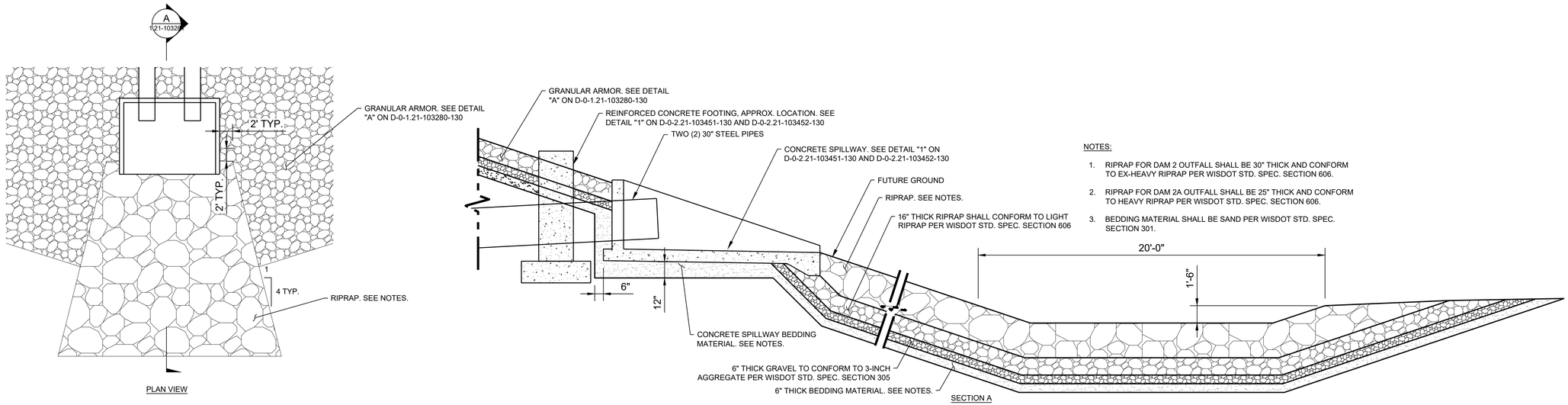
REV NO	REVISION DESCRIPTION	DATE BY	CHK	APPR

ENBRIDGE

SUPERIOR (WI) TERMINAL
TERMINAL CONTAINMENT PONDS
CIVIL
TYPICAL DAM SECTION

BY: JMD	CHK: BID	ENG. : K. WERNER	ENB APPR: B. FIXSEN
DATE: 2020-06-25		SCALE: NO SCALE	STATUS: DESIGN

DWG NO.:	REV NO:
D-0-1.21-103280-130	0.B

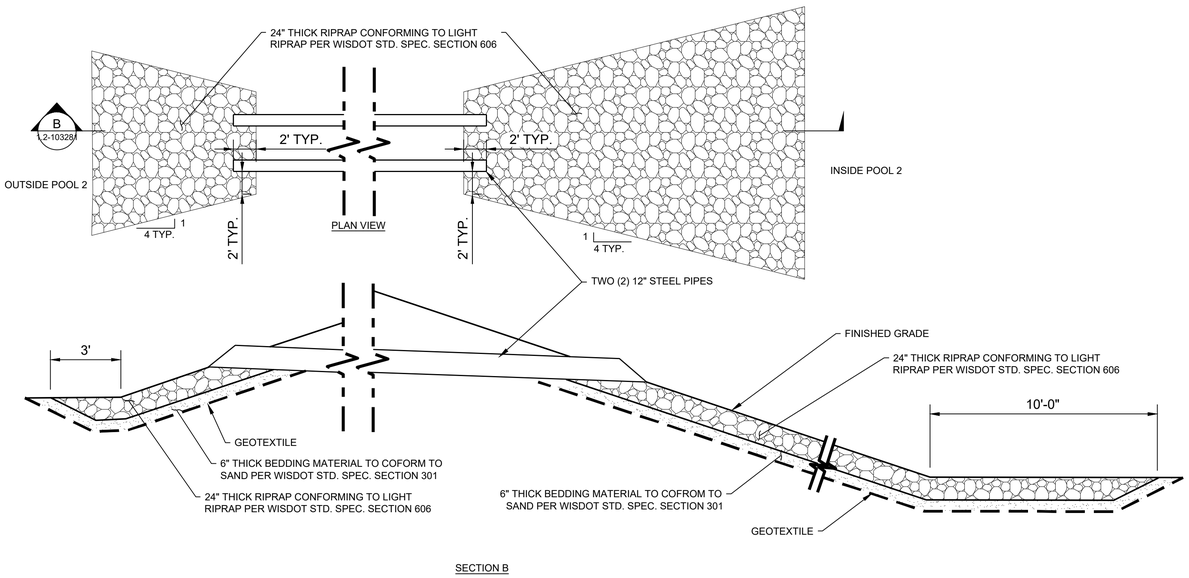


NOTES:

1. RIPRAP FOR DAM 2 OUTFALL SHALL BE 30" THICK AND CONFORM TO EX-HEAVY RIPRAP PER WISDOT STD. SPEC. SECTION 606.
2. RIPRAP FOR DAM 2A OUTFALL SHALL BE 25" THICK AND CONFORM TO HEAVY RIPRAP PER WISDOT STD. SPEC. SECTION 606.
3. BEDDING MATERIAL SHALL BE SAND PER WISDOT STD. SPEC. SECTION 301.

A TYPICAL DAM OUTLET AND STILLING BASIN

NTS
D-0-1.2-103275-130



SECTION B

B TYPICAL CULVERT INLET AND OUTLET RIPRAP

NTS
D-0-1.2-103275-130

REV:	PROJECT TITLE:	SEQ #:
0.B	SUPERIOR TERMINAL PONDS	-
AFE: 20014688	PROJ NO: -	
WP NO: -		

REV	REVISION DESCRIPTION	DATE BY	CHK APPR
0.A	ISSUED FOR 90% REVIEW	2020-09-01 BARR/JMD	BARR/KTW B. ERICKSON
0.B	ISSUED FOR PERMITTING	2020-09-30 BARR/JMD	BARR/KTW B. ERICKSON

REFERENCE DRAWINGS

REV NO	REVISION DESCRIPTION	DATE BY	CHK	APPR

ENBRIDGE

SUPERIOR (WI) TERMINAL
TERMINAL CONTAINMENT PONDS
CIVIL
DETAILS

BY: JMD	CHK: BID	ENG. : K. WERNER	ENB APPR: B. FIXSEN
DATE: 2020-06-25		SCALE: NO SCALE	STATUS: DESIGN
DWG NO.: D-0-1.21-103281-130			REV NO: 0.B

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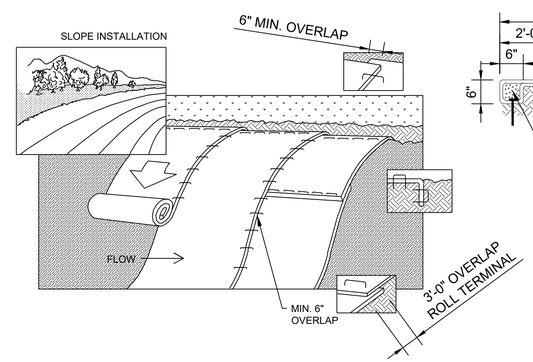
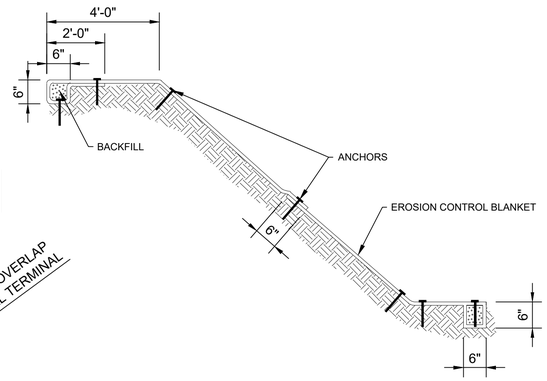
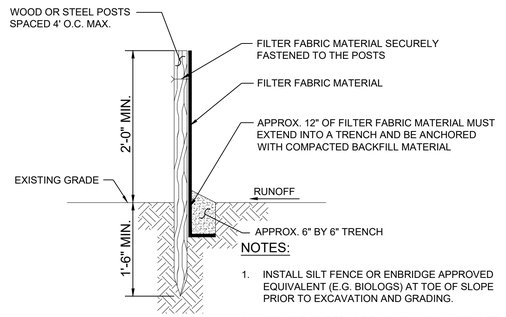
10/08/2020



A EROSION CONTROL BLANKET ANCHORING DETAIL
NTS



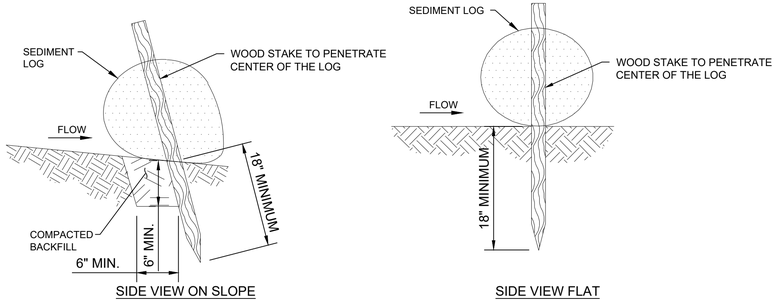
B EROSION CONTROL BLANKET TRENCHING DETAIL
NTS



NOTES:

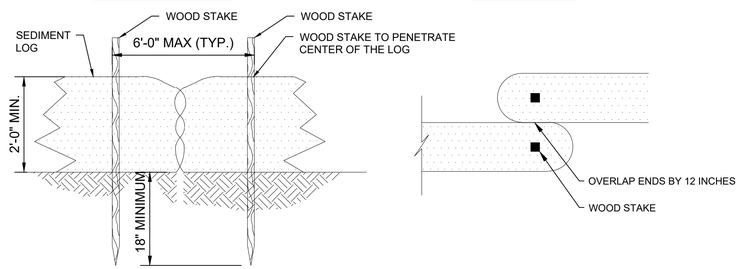
1. INSTALL SILT FENCE OR ENBRIDGE APPROVED EQUIVALENT (E.G. BIOLOGS) AT TOE OF SLOPE PRIOR TO EXCAVATION AND GRADING.
2. REMOVE SILT FENCE DURING INSTALLATION OF EROSION CONTROL BLANKET.

C SILT FENCE DETAIL
NTS



SIDE VIEW ON SLOPE

SIDE VIEW FLAT



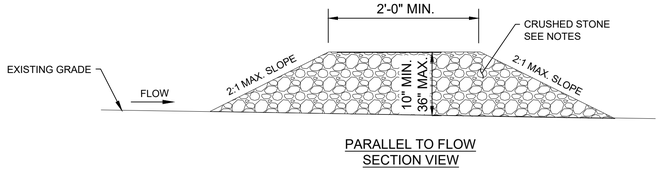
FRONT VIEW

TOP VIEW

NOTES:

1. SEDIMENT LOG SHOULD BE INSTALLED ALONG CONTOURS (CONSTANT ELEVATION).
2. NO GAPS SHALL BE PRESENT UNDER SEDIMENT LOG. PREPARE AREA AS NEEDED TO SMOOTH SURFACE OR REMOVE DEBRIS.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN REACHING 1/2 OF LOG HEIGHT.
4. SEDIMENT LOG SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIRED OR REPLACED AS REQUIRED.

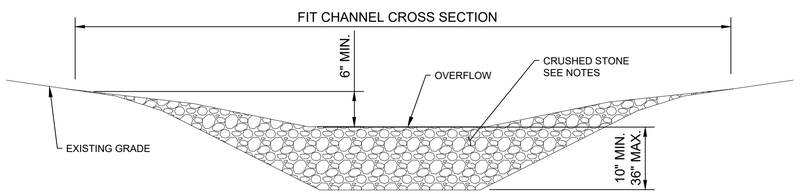
D SEDIMENT LOG DETAIL
NTS



PARALLEL TO FLOW
SECTION VIEW

NOTES:

1. STONES SHALL MEET ONE OF THE FOLLOWING:
   1.1. WELL-GRADED ANGULAR STONE WITH A D50 OF 3" OR GREATER WITH NO MORE THAN 5% PASSING THE #4 SIEVE.
   1.2. 1-FOOT LAYER OF 1" (#2) WASHED STONE OVER 3 TO 6-INCH CLEAR STONE.
   1.3. ANGULAR STONE MEETING THE GRADATION FOR WISDOT SPECIFICATION 312 SELECT CRUSH OR LOCAL EQUIVALENT.
2. IT IS ACCEPTABLE TO CONSTRUCT STONE DITCH CHECKS USING BAGS OR SOCKS FILLED WITH STONE.



PERPENDICULAR TO FLOW
SECTION VIEW

E STONE DITCH CHECK DAM
NTS

QUALITY ASSURANCE AND CONTROL:

1. THE FOLLOWING SUBMITTALS SHALL BE SUPPLIED TO ENBRIDGE FOR REVIEW PRIOR TO CONSTRUCTION:
   a. AGGREGATE GRADATION OR SIZE INFORMATION, SOURCE, AND QUALITY
   b. SEED MIX
   c. EROSION CONTROL BLANKET
   d. RESULTS OF SOIL COMPACTION TESTS. SUBMIT PRIOR TO CONSTRUCTION COMPLETION.

EROSION CONTROL BLANKET NOTES:

1. REFER TO MANUFACTURER RECOMMENDATIONS FOR STAPLE PATTERNS FOR EROSION CONTROL BLANKET SLOPE INSTALLATIONS.
2. PREPARE SOIL BY LOOSENING TOP 2-4 INCHES AND APPLY SEED PRIOR TO INSTALLING BLANKETS. GROUND SHOULD BE SMOOTH AND FREE OF DEBRIS PER THE ENBRIDGE ENVIRONMENTAL PROTECTION PLAN (EPP).
3. BEGIN (A) AT THE TOP OF THE SLOPE AND ROLL THE BLANKETS DOWN OR (B) AT ONE END OF THE SLOPE AND ROLL THE BLANKETS HORIZONTALLY ACROSS THE SLOPE (FROM BOTTOM UP IF HORIZONTAL).
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 6" OVERLAP, WITH THE UPHILL BLANKET ON TOP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 6" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART (MIN.) OR AS RECOMMENDED BY MANUFACTURER FOR TYPE OF INSTALLATION.
6. EROSION CONTROL BLANKET SHALL BE ERO-GAURD 2C (NN) OR PRE-APPROVED NATURAL FIBER EQUAL.
7. GRADE AND COMPACT SUBGRADE OF DISTURBED AREA. SUBGRADE SHALL BE UNIFORM AND SMOOTH. REMOVE ALL ROCKS, SOIL CLODS, VEGETATION OR OTHER OBJECTS SO THE INSTALLED EROSION CONTROL BLANKET WILL HAVE DIRECT CONTACT WITH SOIL SURFACE.

SEED MIX AND SEEDING NOTES:

1. SEEDING SHALL BE PER THE TABLES IN THE EPP IN EXPOSED AREAS WHERE EROSION CONTROL BLANKET IS APPLIED.
2. SEED SPECIES WITHIN THE RESTORATION SEED MIX MUST MEET THE REQUIREMENTS SPECIFIED WITHIN WISCONSIN DEPARTMENT OF TRANSPORTATION (WISDOT) STANDARD SPECIFICATIONS.
3. IN THE ENBRIDGE SUPERIOR TERMINAL WHERE THERE IS GROUND DISTURBANCE OTHER THAN WHAT IS SHOWN ON THE DRAWINGS, SEEDING SHALL BE PER THE TABLES IN THE EPP.
4. SEED SHALL BE VERIFIED WEED FREE AND SEED SOURCE TAGS OR TICKETS SHALL BE AVAILABLE UPON REQUEST.
5. THE SEED MIX SHALL INCLUDE SPECIES AND APPLICATION RATES AS RECOMMENDED BY THE EPP. NO SPECIES SUBSTITUTIONS SHALL BE ALLOWED WITHOUT PRIOR APPROVAL OF THE ENGINEER.
6. SEEDING REQUIREMENTS COULD CHANGE BASED ON LANDOWNER PREFERENCES AND SHALL BE COORDINATED WITH ENBRIDGE.

REV:	PROJECT TITLE:	SEQ #:
0.B	SUPERIOR TERMINAL PONDS	-
AFE: 20014688	PROJ NO: -	
WP NO: -		

REV	REVISION DESCRIPTION	DATE BY	CHK APPR
0.A	ISSUED FOR 90% REVIEW	2020-09-01 BARR/JMD	BARR/KTW B. ERICKSON
0.B	ISSUED FOR PERMITTING	2020-09-30 BARR/JMD	BARR/KTW B. ERICKSON

REFERENCE DRAWINGS

REV NO	REVISION DESCRIPTION	DATE BY	CHK	APPR

ENBRIDGE

SUPERIOR (WI) TERMINAL
TERMINAL CONTAINMENT PONDS
CIVIL
SITE RESTORATION DETAILS

BY: JMD	CHK: BID	ENG. : K. WERNER	ENB APPR: B. FIXSEN
DATE: 2020-05-15		SCALE: NTS	STATUS: DESIGN

DWG NO.: D-0-1.21-103282-130 REV NO: 0.B

WISCONSIN
KAITLIN T. WERNER E-40484 DULUTH MN
PROFESSIONAL ENGINEER

Kaitlin Werner
10/08/2020

THESE SPECIFICATIONS ARE IN ADDITION TO ENBRIDGE'S CONSTRUCTION SPECIFICATIONS.

1.01 UTILITY LOCATIONS

A. LOCATION AND DESCRIPTION OF UNDERGROUND UTILITIES AND STRUCTURES SHOWN ON DRAWINGS ARE APPROXIMATE AND ARE BASED ON RECORDS AVAILABLE TO OWNER OR SURFACE FEATURES INDICATING THEIR EXISTENCE. THERE MAY BE OTHER UTILITIES WITHIN PROJECT AREA THAT ARE NOT SHOWN.

B. NOTIFY AFFECTED UTILITY COMPANIES OF CONSTRUCTION OPERATIONS AT LEAST THREE WORKING DAYS BEFORE BEGINNING WORK NEAR THEIR FACILITIES. DO NOT BEGIN EXCAVATION WORK UNTIL UNDERGROUND UTILITY LOCATIONS HAVE BEEN MARKED.

C. USE CAUTION WHEN EXCAVATING SO THAT EXACT LOCATIONS OF UNDERGROUND UTILITIES, BOTH KNOWN AND UNKNOWN, MAY BE DETERMINED. PROVIDE ADEQUATE PROTECTION AND SUPPORT FOR UTILITIES DURING CONSTRUCTION OPERATIONS.

D. IF UNCHARTED OR INCORRECTLY CHARTED UTILITIES ARE ENCOUNTERED DURING EXCAVATION WORK, OR IF PROPOSED CONSTRUCTION CONFLICTS WITH EXISTING UTILITIES, GIVE PROMPT NOTICE AND SUBMIT PROPOSED SOLUTION TO OWNER FOR APPROVAL. IF REQUIRED, MAKE ARRANGEMENTS WITH UTILITY COMPANIES FOR RELOCATION OF INTERFERING UTILITIES.

E. DURING CONSTRUCTION OF IMPROVEMENTS BELOW FINISHED GRADE, IT MAY BE NECESSARY TO CROSS UNDER CERTAIN UNDERGROUND UTILITIES AND STRUCTURES. PREVENT DAMAGE TO SUCH FACILITIES. WHERE NECESSARY, DIVERT FLOW IN DRAINS OR CULVERTS SO THAT TRENCHES ARE KEPT DRY DURING WORK. WHEREVER SUCH FACILITIES ARE DISTURBED OR BROKEN, RESTORE THEM TO GOOD CONDITION AS DIRECTED BY OWNER.

1.02 TOPSOIL STRIPPING

A. TOPSOIL SHALL INCLUDE ALL FRIABLE, FERTILE, LOAM SOIL SUITABLE FOR GRASS AND PLANTS, FOUND AT SURFACE, REASONABLY FREE OF SUBSOIL, CLAY LUMPS, STONES, OBJECTS OVER 2 INCHES IN DIAMETER, WEEDS, LARGE ROOTS, ROOT CLUSTERS, AND OTHER OBJECTIONABLE MATERIAL.

B. STRIP TOPSOIL FROM PROJECT AREA TO WHATEVER DEPTHS ENCOUNTERED; PREVENT INTERMINGLING WITH UNDERLAYING SUBSOIL OR OTHER OBJECTIONABLE MATERIAL. REMOVE HEAVY GROWTHS OF GRASS FROM AREAS BEFORE STRIPPING TOPSOIL. TERMINATE STRIPPING A SUFFICIENT DISTANCE FROM TREES TO PREVENT DAMAGE TO ROOT SYSTEM.

C. STOCKPILE TOPSOIL INTENDED FOR REUSE IN STORAGE PILES AS SHOWN OR IN AREAS DESIGNATED BY OWNER. CONSTRUCT STORAGE PILES TO FREELY DRAIN SURFACE WATER. COVER OR SPRINKLE WATER ON STORAGE PILES TO PREVENT WINDBLOWN DUST. AREAS FOR STOCKPILING OF ORGANIC TOPSOIL SHALL BE SEPARATED FROM NON-ORGANIC SOIL STOCKPILES TO PREVENT CONTAMINATION.

D. EXCESS TOPSOIL SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS.

1.03 DEMOLITION AND DISPOSAL

A. REMOVE STRUCTURES, PAVEMENTS, UTILITIES, AND OTHER IMPROVEMENTS WITHIN CONSTRUCTION LIMITS AS SHOWN AND AS REQUIRED FOR CONSTRUCTION.

B. PIPES AND OTHER ITEMS DESIGNATED TO BE REMOVED SHALL BE COMPLETELY REMOVED FROM THE GROUND AND PROPERLY DISPOSED OF UNLESS OTHERWISE INDICATED.

C. OWNER SHALL HAVE FIRST RIGHT TO RETAIN ALL USEFUL SALVAGE. ALL ITEMS NOT RETAINED BY OWNER AND CONSTRUCTION DEBRIS SHALL BECOME PROPERTY OF CONTRACTOR.

D. DISPOSE OF VEGETATIVE MATERIALS, AND ALL OTHER TRASH, PAVEMENT, BASE MATERIAL, CURBING, GRAVEL, DEBRIS, ROCKS, AND FOREIGN AND EXCESS MATERIALS OFF SITE IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS.

E. PERFORM ALL REMOVALS IN A SAFE, ORDERLY MANNER, IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS.

F. CONTROL DUST RESULTING FROM DEMOLITION TO AVOID CREATION OF A NUISANCE IN THE SURROUNDING AREA. THE USE OF WATER IS NOT BE PERMITTED WHEN IT WOULD RESULT IN OR CREATE HAZARDOUS OR OBJECTIONABLE CONDITIONS SUCH AS EROSION, TRANSPORT OF SEDIMENTS INTO RIVER, POLLUTION, FLOODING OR ICE.

1.04 EXCAVATION

A. EXCAVATE MATERIALS AS REQUIRED FOR CONSTRUCTION OF SUBGRADE AND DRAINAGE TO LINES, GRADES, AND CROSS-SECTIONS SHOWN.

1.05 SUBGRADE PREPARATION

A. ALL SURFACES AND SUBGRADES EXCEPT EXCAVATION AREAS SHALL BE SCARIFIED TO A DEPTH OF 6 INCHES AND COMPACTED.

B. COMPACT SUBGRADE UNDER FLOOR SLABS, SLABS ON GRADE, SKIDS, PAVEMENTS, AND TRAFFIC OR LOAD-BEARING AREAS TO A MINIMUM OF 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. COMPACT SUBGRADE UNDER ALL OTHER AREAS TO A MINIMUM OF 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY.

C. PROOF ROLL EXPOSED EARTH SUBGRADE UNDER TRAFFIC OR LOAD-BEARING AREAS WITH A LOADED, TANDEM AXLE DUMP TRUCK TO DETECT SOFT OR YIELDING AREAS. REMOVE DEPOSITS OF FROST-HEAVE MATERIAL, UNSTABLE SOILS, TOPSOIL CONTAINING CONSIDERABLE AMOUNTS OF ORGANIC MATTER, OR OTHER UNDESIRABLE FOUNDATION MATERIAL FROM AREA OF ROADWAY FOUNDATION TO DEPTHS AS SHOWN OR AS DIRECTED. NOTIFY OWNER OF QUESTIONABLE MATERIALS. DO NOT PROCEED WITH EXTRA OR UNIT PRICE WORK UNTIL AUTHORIZED.

1.06 FILLING

A. SUITABLE MATERIAL FROM EXCAVATIONS MAY BE USED FOR CONSTRUCTION OF FILLS AND EMBANKMENTS. PLACE FILL MATERIAL IN CONFORMITY WITH LINES, GRADES, CROSS-SECTIONS, AND DIMENSIONS SHOWN.

B. SPREAD FILL IN SUCCESSIVE UNIFORM HORIZONTAL LAYERS NOT EXCEEDING 6 INCHES BEFORE COMPACTION UNLESS OTHERWISE NOTED. EACH LAYER SHALL BE WORKED TO BREAK DOWN CLODS OVER 6 INCHES IN SIZE AND TO SECURE UNIFORM MOISTURE CONTENT.

C. TEMPORARY FILL SLOPES SHALL NOT EXCEED 3:1 HORIZONTAL TO VERTICAL UNLESS OTHERWISE NOTED.

D. ROAD MATERIALS SHALL BE COMPACTED TO A MINIMUM OF 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D698.

E. EMBANKMENT CLAY FILL SHALL CONSIST OF LEAN CLAY (CL) OR FAT CLAY (CH). EMBANKMENT CLAY FILL SHALL BE FREE OF ORGANIC MATTER, DEBRIS, AND ROCKS GREATER THAN 1.5 INCHES IN DIAMETER.

F. EMBANKMENT CLAY FILL SHALL BE COMPACTED TO A MINIMUM OF 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D698. MOISTURE CONTENT SHALL BE WITHIN ± 2% OF OPTIMUM MOISTURE CONTENT.

G. EMBANKMENT FACING MATERIALS INCLUDING SAND AND AGGREGATE FILTER LAYERS MAY BE PLACED AND COMPACTED PER WISDOT STANDARD 207.3.6.2, STANDARD COMPACTION.

1.07 ROUGH GRADING

A. ENSURE POSITIVE DRAINAGE AT THE PROJECT OR PROPERTY LIMITS.

B. MINIMIZE THE CUT AND FILL VOLUMES AND THE AMOUNT OF IMPORTED MATERIAL.

C. ESTABLISH A UNIFORM, STABLE WORKING SURFACE AS REQUIRED IN THE FACILITY AREAS, PROVIDE STABLE AND CAPABLE BEARING SURFACES FOR FOUNDATIONS, PLACE FACILITY STRUCTURES AT DESIGN ELEVATIONS, PROVIDE FOR POSITIVE DRAINAGE AROUND BUILDINGS AND OTHER STRUCTURES, AND PROVIDE ADEQUATE SOIL COVER FOR UNDERGROUND UTILITIES.

D. ALLOW SURFACE WATER RUNOFF TO BE DIRECTED TO INTERCEPTION SYSTEMS.

1.08 FINISH GRADING

A. PROVIDE CONTINUOUS MAINTENANCE OF ENTIRE SUBGRADE DURING GRADING OPERATION AND PRIOR TO PLACEMENT OF SUBBASE, BASE, OR SURFACE COURSES, IF INCLUDED IN THE WORK. MAINTAIN SUBGRADE TO SPECIFIED SECTION AND IN A FIRM, SMOOTH CONDITION, REMOVING RUTS OR SURFACE IRREGULARITIES PRODUCED BY EQUIPMENT OR TRAFFIC. CORRECT SOFT OR YIELDING PLACES, HOLES, OR OTHER DEFECTS WHICH DEVELOP IN SUBGRADE BY REASON OF TRAFFIC, HAULING, POOR DRAINAGE, UNSTABLE MATERIALS, AND SIMILAR CAUSES. REMOVE SNOW AND ICE, IF ANY, FROM SUBGRADE BEFORE SUBBASE, BASE, OR SURFACE COURSE IS PLACED.

B. PROVIDE PROPER SITE DRAINAGE BY ELIMINATING UNEVEN AREAS AND LOW SPOTS, AND PROVIDE ADEQUATE SLOPES TO LEVEL AREAS, TO ENSURE RUNOFF TOWARD THE DESIGNATED DRAINAGE SYSTEM.

1.09 EROSION CONTROL

A. MAINTAIN EROSION CONTROL MEASURES TO PROTECT THE PROJECT SITE AND PREVENT SEDIMENT POLLUTION OF ADJACENT WATER COURSES AND PROPERTIES. AT A MINIMUM, PROVIDE AND MAINTAIN EROSION CONTROL MEASURES AS INDICATED ON DRAWINGS AND UNTIL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

B. TIME PERIOD: INSTALL EROSION CONTROL MEASURES PRIOR TO START OF CONSTRUCTION AND MAINTAIN THEM UNTIL FINAL COMPLETION OF WORK. REMOVE AND DISPOSE OF ALL TEMPORARY EROSION CONTROLS WHEN VEGETATION HAS BEEN FULLY ESTABLISHED OR WHEN EARTHWORKS SUCH AS DIVERSION DIKES HAVE ELIMINATED THE POSSIBILITY OF SEDIMENT TRANSPORT FROM THE WORK AREA AND PRIOR TO FINAL APPLICATION FOR PAYMENT.

C. PERFORM TEMPORARY EROSION CONTROL TO CONFORM TO THE REQUIREMENTS OF OWNER, AND ANY PERMITS THAT MAY APPLY TO THE SITE, INCLUDING:

1. PROVIDE TEMPORARY EROSION CONTROLS WHERE THERE IS EVIDENCE THAT SEDIMENT IS BEING TRANSPORTED FROM THE WORK AREA, WHERE DRAINAGE FLOWS FROM THE WORK AREA, AND ELSEWHERE AS REQUIRED TO CONTROL EROSION AND SEDIMENTATION.
2. SCHEDULE OPERATIONS TO MINIMIZE THE AMOUNT OF AREA DISTURBED AND THUS SUSCEPTIBLE TO EROSION AT ANY GIVEN TIME.
3. WHEN POSSIBLE: PRESERVE EXISTING VEGETATION (ESPECIALLY ADJACENT TO SURFACE WATERS), MINIMIZE LAND-DISTURBING CONSTRUCTION ACTIVITY ON SLOPES OF 20% OR MORE, MINIMIZE SOIL COMPACTION, AND PRESERVE TOPSOIL.
4. IMMEDIATELY STABILIZE STOCKPILES AND SURROUND STOCKPILES AS NEEDED WITH SILT FENCE OR OTHER PERIMETER CONTROL IF STOCKPILES WILL REMAIN INACTIVE FOR 7 DAYS OR LONGER. REPAIR OR REPLACE BMPS WITHIN 24 HOURS OF INSPECTION OR NOTIFICATION OF A PROBLEM.
5. SWEEP/CLEAN UP ALL SEDIMENT/TRASH THAT MOVES OFF-SITE DUE TO CONSTRUCTION ACTIVITY OR STORM EVENTS BEFORE THE END OF THE SAME WORKDAY.

D. IF LAND DISTURBING ACTIVITIES TEMPORARILY CEASE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS, TEMPORARILY STABILIZE THE AREA WITH TEMPORARY SEEDING, MULCH, OR EQUIVALENT.

E. ROUTINE SITE INSPECTIONS ARE TO BE CARREID OUT AT LEAST ONCE EVERY 7 DAYS AND WITHIN 24 HOURS AFTER A RAINFALL EVENT OF 0.5 INCHES OR GREATER. KEEP INSPECTION REPORTS ON-SITE AND MAKE THEM AVAILABLE UPON REQUEST.

1.10 CULVERTS

A. CORRUGATED STEEL PIPE AND FLARED END SECTIONS WITH A MINIMUM WALL THICKNESS OF 1.6 MM (16 GA.) IN CONFORMANCE WITH ASTM A760/A760M.

B. LAYING OF PIPE

1. WHERE PRACTICABLE, BEGIN AT LOWEST POINT OF PROPOSED LINE.
2. PIPE SHALL BE LAID IMMEDIATELY FOLLOWING THE TRENCH PREPARATION AND BEDDING PROVISIONS.
3. PIPE BEDDING SHALL CONFORM TO THE REQUIREMENTS OF EMBANKMENT CLAY FILL.
4. EXERCISE CARE WHEN HANDLING PIPE. ROPES, SLINGS, OR OTHER DEVICES MUST BE USED FOR LOWERING PIPE INTO TRENCH. ONLY PIPE WHICH IS SUITABLE FOR USE IS TO REMAIN ON SITE. DAMAGED OR BROKEN PIPE SHALL BE IMMEDIATELY SEPARATED FROM ACCEPTABLE PIPE.
5. LAY PIPE UNIFORMLY TO LINE AND GRADE ON A PREPARED BED PROVIDING EVEN SUPPORT ALONG ENTIRE BARREL. AS WORK PROGRESSES, INTERIOR OF PIPE SHALL BE CLEARED OF DIRT AND DEBRIS. DO NOT LAY PIPE WHERE WATER IS ABOVE BEDDING MATERIAL EXCEPT WHERE A QUALIFIED ENGINEER DETERMINES THAT FOUNDATION IS STABLE, PIPE WILL NOT BE DISPLACED UPWARD, AND JOINT CONSTRUCTION WILL NOT BE AFFECTED BY WATER.
6. EACH PIPE SHALL BE BEDDED BY HAND OR BY EQUALLY CAREFUL MEANS TO 12-IN. COVER BEFORE LAYING SUBSEQUENT PIPES. FILL SPACE BETWEEN PIPE AND TRENCH WALL IN 6-IN. LAYERS AND MANUALLY COMPACT. PIPE SIZES LARGER THAN 15-IN. DIAMETER MAY REQUIRE MECHANICAL COMPACTION OF BEDDING MATERIAL.
7. WHEN WORK IS NOT IN PROGRESS, WATER MAY BE ALLOWED TO FLOW INTO NEWLY LAID PIPE IF PROVISIONS ARE MADE TO PREVENT DIRT FROM WASHING INTO PIPE.

C. JOINTING

1. JOINT MATERIALS AND METHODS SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS AND THE FOLLOWING PROCEDURES.
2. JOINTS SHALL BE SOIL-TIGHT.

D. ALIGNMENT AND GRADE

1. CHECK ALIGNMENT AND GRADE BY LAMPING METHOD. IF PIPE SHOWS POOR ALIGNMENT, OFFSET OR OPEN JOINTS, SAGS, OR KINKS, DEFECTS SHALL BE CORRECTED BY CONTRACTOR BEFORE FINAL ACCEPTANCE. IF CLOSER INSPECTION IS WARRANTED, OWNER MAY ARRANGE FOR TELEVISED INSPECTION.

1.11 TRENCHING

A. EXCAVATE TRENCHES SO THAT PIPE CAN BE LAID SAFELY AND ACCURATELY TO REQUIRED LINE AND GRADE. HAND EXCAVATE FOR FITTINGS AND PROJECTIONS TO ALLOW FOR PROPER JOINTING AND TO ENSURE THAT PIPE RESTS EVENLY ALONG BARREL.

B. TRENCH WIDTHS SHALL BE LIMITED AT TOP OF PIPE TO NOT LESS THAN A 6 IN. CLEARANCE ON EITHER SIDE OF BARREL TO ALLOW FOR INSTALLATION OF BEDDING MATERIAL BETWEEN PIPE AND TRENCH WALL. MAXIMUM TRENCH ABOVE TOP OF PIPE MAY BE SLOPED, STEPPED OR VERTICAL TO COMPLY WITH STATE AND FEDERAL REGULATIONS REGARDING TRENCHES.

C. MAXIMUM TRENCH WIDTH SHALL BE OUTSIDE PIPE DIAMETER PLUS 18 IN. FOR AN UNSHEATHED TRENCH, AND OUTSIDE PIPE DIAMETER PLUS 24 IN. FOR SHEATHED TRENCH.

D. DURING TRENCHING AND BACKFILLING WORK IN AREAS WITH MOISTURE SENSITIVE SOILS, DO NOT MIX WET OR GROUND WATER LADEN SOILS WITH DRIER SOILS. KEEP WET AND DRY SOILS SEPARATE TO MINIMIZE THE AMOUNT OF SOIL DRYING REQUIRED.

E. STABILITY OF TRENCHES

1. SLOPE SIDES OF TRENCHES TO ANGLE OF REPOSE OF MATERIAL EXCAVATED; OTHERWISE, PROVIDE SHEATHING AND BRACING WHERE SLOPING IS NOT POSSIBLE EITHER BECAUSE OF SPACE RESTRICTIONS OR STABILITY OF MATERIAL EXCAVATED. COMPLY WITH APPLICABLE CODES AND ORDINANCES.
2. MAINTAIN SIDES AND SLOPES OF TRENCHES IN A SAFE CONDITION UNTIL COMPLETION OF BACKFILLING. TAKE PRECAUTIONS TO PREVENT SLIDES OR CAVE-INS WHEN TRENCHES ARE MADE IN LOCATIONS ADJACENT TO MACHINERY, OR ANY OTHER SOURCE.

F. SHEATHING AND BRACING

1. PROVIDE TIGHT SHEATHING WHERE NECESSARY TO PROTECT NEARBY STRUCTURES AND PAVEMENTS, OR WHEN TRENCH SIZE MUST BE CONFINED. NOTIFY OWNER OF UNFORESEEN CONDITION THAT REQUIRES USE OF SHEATHING. SHEATHING SHALL BE DRIVEN UNLESS SOIL CONDITIONS ALLOW SETS TO BE PLACED AFTER EXCAVATING. IF PLACED AFTER EXCAVATING, VOIDS BETWEEN TRENCH WALL AND SHEATHING SHALL BE IMMEDIATELY FILLED WITH SAND.
2. REMOVAL OF SHEATHING SHALL NOT TAKE PLACE UNTIL TRENCH IS BACKFILLED. COMPACT BACKFILL BY FLOODING OR JETTING AFTER SHEATHING IS REMOVED. OBTAIN WRITTEN APPROVAL TO LEAVE SOME OR ALL OF SHEATHED SETS TO REMAIN IN PLACE; CUT OFF AND REMOVE UPPER PORTION WITHIN 2 FT OF SURFACE.

G. WET TRENCH CONDITIONS

1. ATTEMPT TO DISPOSE OF GROUND WATER OR SURFACE DRAINAGE ENTERING TRENCH BY EMPLOYING DEWATERING TECHNIQUES IN ACCORDANCE WITH OWNER'S ENVIRONMENTAL PROTECTION PROGRAM.

H. UNSTABLE TRENCH BOTTOM

1. WHEN TRENCH BOTTOM IS UNSTABLE BECAUSE OF GROUND WATER, OWNER OR A QUALIFIED ENGINEER MAY REQUIRE EXTRA EXCAVATION TO REMOVE UNSTABLE MATERIAL.

I. POOR SUBSOIL MATERIALS

1. NOTIFY OWNER WHENEVER MULCH, SAWDUST, BARK, OR OTHER MATERIAL IS ENCOUNTERED WHICH WOULD NOT FORM A SUITABLE AND PERMANENT BASE; OWNER OR QUALIFIED ENGINEER MAY ORDER IT REMOVED AND REPLACED WITH EMBANKMENT CLAY FILL UP TO BOTTOM OF NORMAL TRENCH SECTION.

J. BACKFILL

1. BACKFILL FOR CULVERTS SHALL BE SELECTED FROM RELATIVELY IMPERVIOUS MATERIAL MEETING THE REQUIREMENTS OF EMBANKMENT CLAY FILL. WHEN IMPERVIOUS MATERIAL IS NOT READILY AVAILABLE, PIT RUN, GRANULAR BACKFILL MAY BE USED FOR ALL BUT THE OUTERMOST 40 INCHES AT BOTH ENDS OF THE CULVERT, FOR WHICH ONLY IMPERVIOUS MATERIAL SHALL BE USED.
2. BACKFILLING ABOVE IN AREAS WHERE SETTLEMENT IS NOT CRITICAL MAY BE DONE FROM TOP OF TRENCH BY MECHANICAL MEANS. IN NO CASE SHALL BACKFILL MATERIAL BE DROPPED FROM SUCH A HEIGHT OR IN SUCH A VOLUME THAT ITS IMPACT WILL CAUSE DISLOCATION OR DAMAGE TO PIPING.
3. WHEN BACKFILLING IN FREEZING TEMPERATURES, COVER PIPE AND TAMP BACKFILL AROUND PIPE USING ONLY LOOSE THAWED MATERIAL. DO NOT PLACE FROZEN MATERIAL IN TRENCH WITHIN 2 FT OF TOP OF PIPE, NOR AROUND MANHOLES AND OTHER STRUCTURES.

K. COMPACTION

1. PROVIDE COMPACTION EQUIPMENT REQUIRED TO OBTAIN SPECIFIED COMPACTION. COMPACTION SHALL BE BY MECHANICAL MEANS, EXCEPT BEDDING AND INITIAL BACKFILL MAY BE HAND OR MECHANICALLY TAMPED.
2. IF BACKFILL SOIL MOISTURE CONTENT IS GREATER THAN THE OPTIMUM MOISTURE RANGE THAT WILL ALLOW CONTRACTOR TO MEET THE DENSITY REQUIREMENTS WITH A REASONABLE LEVEL OF EFFORT, CONTRACTOR SHALL AIR DRY THE SOIL OUTSIDE THE TRENCH TO ACHIEVE THE DESIRED MOISTURE RANGE PRIOR TO BACKFILL AND COMPACTION.

1.12 RIPRAP

A. DURABLE FIELD OR QUARRY STONE THAT IS SOUND, HARD, DENSE, RESISTANT TO THE ACTION OF AIR AND WATER, AND FREE OF SEAMS, CRACKS, OR OTHER STRUCTURAL DEFECTS. USE STONE PIECES WITH A LENGTH AND WIDTH NO MORE THAN TWICE THE THICKNESS.

B. EQUIPMENT-PLACED ROCK RIPRAP

1. RIPRAP SHALL BE PLACED TO FULL COURSE THICKNESS IN ONE OPERATION FROM BASE OF SLOPE UPWARD; HEIGHT OF RIPRAP SHALL NOT EXCEED 1 FT. RIPRAP SHALL BE REASONABLY HOMOGENEOUS WITH LARGER ROCKS UNIFORMLY DISTRIBUTED AND FIRMLY IN CONTACT AND SMALLER ROCKS AND SPALLS RAMMED INTO VOIDS BETWEEN LARGER ROCKS TO INTERLOCK AND FORM AN EVEN SURFACE.
2. HAND PLACEMENT WILL BE REQUIRED WHERE NECESSARY TO CORRECT OBVIOUS IRREGULARITIES AND TO PREVENT DAMAGE TO ADJACENT IMPROVEMENTS AND WHEREVER EQUIPMENT PLACEMENT METHODS ARE UNSATISFACTORY.

C. HAND-PLACED RIPRAP

1. RIPRAP SHALL BE SECURELY BEDDED WITH LARGER ROCKS FIRMLY IN CONTACT ONE TO ANOTHER. SPACES BETWEEN LARGER ROCKS SHALL BE FILLED WITH SMALLER ROCKS AND SPALLS. SMALLER ROCKS SHALL NOT BE GROUPED AS A SUBSTITUTE FOR LARGER ROCK. FLAT SLAB ROCK SHALL BE LAID ON EDGE.

1.13 SITE RESTORATION

A. IN ACCORDANCE WITH OWNER'S ENVIRONMENTAL PROTECTION PROGRAM.

REV:	PROJECT TITLE:	SEQ #:
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ENBRIDGE

SUPERIOR (WI) TERMINAL
TERMINAL CONTAINMENT PONDS
CIVIL
CIVIL SPECIFICATIONS

BY: JMD	CHK: BID	ENG. :K. WERNER	ENB APPR: B. FIXSEN
DATE: 2020-06-25		SCALE: NONE	STATUS: DESIGN

DWG NO.: D-0-1.21-103326-130 REV NO: 0.B

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Kaitlin Werner
10/08/2020