

## Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 10/21)

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### Section 1. Contact and Recipient Information

#### Requester Information

This is the person requesting technical assistance or a post-closure modification review, that his or her liability be clarified or a specialized agreement and is identified as the requester in Section 7. DNR will address its response letter to this person.

Last Name Beaster	First Karl	MI	Organization/ Business Name Enbridge Energy, Limited Partnership
Mailing Address 11 East Superior Street, Suite 125			City Duluth
			State MN
			ZIP Code 55802
Phone # (include area code) (715) 718-1040	Fax # (include area code)	Email karl.beaster@enbridge.com	

The requester listed above: (select all that apply)

- Is currently the owner
  Is considering selling the Property  
 Is renting or leasing the Property
  Is considering acquiring the Property  
 Is a lender with a mortgagee interest in the Property  
 Other. Explain the status of the Property with respect to the applicant:

#### Contact Information (to be contacted with questions about this request)

Select if same as requester

Contact Last Name	First	MI	Organization/ Business Name
Mailing Address			City
			State
			ZIP Code
Phone # (include area code)	Fax # (include area code)	Email	

#### Environmental Consultant (if applicable)

Contact Last Name Linnemanstons	First Leo	MI	Organization/ Business Name AECOM
Mailing Address 1650 Deming Way, Suite 100			City Middleton
			State WI
			ZIP Code 53562
Phone # (include area code) (608) 828-8208	Fax # (include area code)	Email leo.linnemanstons@aecom.com	

### Section 2. Property Information

Property Name Enbridge Energy Superior Terminal		FID No. (if known) 816010580
BRRTS No. (if known) 02-16-589282	Parcel Identification Number	
Street Address 2800 East 21st Street	City Superior	State WI
		ZIP Code
County Douglas	Municipality where the Property is located <input checked="" type="radio"/> City <input type="radio"/> Town <input type="radio"/> Village of Superior	Property is composed of: <input type="radio"/> Single tax parcel <input checked="" type="radio"/> Multiple tax parcels
		Property Size Acres 560

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1. Is a response needed by a specific date? (e.g., Property closing date) Note: Most requests are completed within 60 days. Please plan accordingly.

- No  Yes

Date requested by: \_\_\_\_\_

Reason:  
\_\_\_\_\_  
\_\_\_\_\_

2. Is the "Requester" enrolled as a Voluntary Party in the Voluntary Party Liability Exemption (VPLE) program?

- No. **Include the fee that is required for your request in Section 3, 4 or 5.**  
 Yes. **Do not include a separate fee.** This request will be billed separately through the VPLE Program.

Fill out the information in Section 3, 4 or 5 which corresponds with the type of request:

**Section 3. Technical Assistance or Post-Closure Modifications;  
Section 4. Liability Clarification; or Section 5. Specialized Agreement.**

**Section 3. Request for Technical Assistance or Post-Closure Modification**

Select the type of technical assistance requested: [Numbers in brackets are for WI DNR Use]

- No Further Action Letter (NFA) (Immediate Actions) - NR 708.09, [183] - Include a fee of \$350. Use for a written response to an immediate action after a discharge of a hazardous substance occurs. Generally, these are for a one-time spill event.
- Review of Site Investigation Work Plan - NR 716.09, [135] - **Include a fee of \$700.**
- Review of Site Investigation Report - NR 716.15, [137] - **Include a fee of \$1050.**
- Approval of a Site-Specific Soil Cleanup Standard - NR 720.10 or 12, [67] - **Include a fee of \$1050.**
- Review of a Remedial Action Options Report - NR 722.13, [143] - **Include a fee of \$1050.**
- Review of a Remedial Action Design Report - NR 724.09, [148] - **Include a fee of \$1050.**
- Review of a Remedial Action Documentation Report - NR 724.15, [152] - **Include a fee of \$350**
- Review of a Long-term Monitoring Plan - NR 724.17, [25] - **Include a fee of \$425.**
- Review of an Operation and Maintenance Plan - NR 724.13, [192] - **Include a fee of \$425.**

Other Technical Assistance - s. 292.55, Wis. Stats. [97] (For request to build on an abandoned landfill use Form 4400-226)

- Schedule a Technical Assistance Meeting - **Include a fee of \$700.**
- Hazardous Waste Determination - **Include a fee of \$700.**
- Other Technical Assistance - **Include a fee of \$700.** Explain your request in an attachment.

Post-Closure Modifications - NR 727, [181]

- Post-Closure Modifications: Modification to Property boundaries and/or continuing obligations of a closed site or Property; sites may be on the GIS Registry. This also includes removal of a site or Property from the GIS Registry. **Include a fee of \$1050, and:**
- Include a fee of \$300 for sites with residual soil contamination; and
- Include a fee of \$350 for sites with residual groundwater contamination, monitoring wells or for vapor intrusion continuing obligations.

Attach a description of the changes you are proposing, and documentation as to why the changes are needed (if the change to a Property, site or continuing obligation will result in revised maps, maintenance plans or photographs, those documents may be submitted later in the approval process, on a case-by-case basis).

**Section 4. Request for Liability Clarification**

Select the type of liability clarification requested. Use the available space given or attach information, explanations, or specific questions that you need answered in DNR's reply. Complete Sections 6 and 7 of this form. [Numbers in brackets are for DNR Use]

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- "Lender" liability exemption clarification - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of \$700.**

Provide the following documentation:

- (1) ownership status of the real Property, and/or the personal Property and fixtures;
- (2) an environmental assessment, in accordance with s. 292.21, Wis. Stats.;
- (3) the date the environmental assessment was conducted by the lender;
- (4) the date of the Property acquisition; for foreclosure actions, include a copy of the signed and dated court order confirming the sheriff's sale.
- (5) documentation showing how the Property was acquired and the steps followed under the appropriate state statutes.
- (6) a copy of the Property deed with the correct legal description; and,
- (7) the Lender Liability Exemption Environmental Assessment Tracking Form (Form 4400-196).
- (8) If no sampling was done, please provide reasoning as to why it was not conducted. Include this either in the accompanying environmental assessment or as an attachment to this form, and cite language in s. 292.21(1)(c)2., h.-i., Wis. Stats.:
  - h. The collection and analysis of representative samples of soil or other materials in the ground that are suspected of being contaminated based on observations made during a visual inspection of the real Property or based on aerial photographs, or other information available to the lender, including stained or discolored soil or other materials in the ground and including soil or materials in the ground in areas with dead or distressed vegetation. The collection and analysis shall identify contaminants in the soil or other materials in the ground and shall quantify concentrations.
  - i. The collection and analysis of representative samples of unknown wastes or potentially hazardous substances found on the real Property and the determination of concentrations of hazardous waste and hazardous substances found in tanks, drums or other containers or in piles or lagoons on the real Property.

- "Representative" liability exemption clarification (e.g. trustees, receivers, etc.) - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of \$700.**

Provide the following documentation:

- (1) ownership status of the Property;
- (2) the date of Property acquisition by the representative;
- (3) the means by which the Property was acquired;
- (4) documentation that the representative has no beneficial interest in any entity that owns, possesses, or controls the Property;
- (5) documentation that the representative has not caused any discharge of a hazardous substance on the Property; and
- (6) a copy of the Property deed with the correct legal description.

- Clarification of local governmental unit (LGU) liability exemption at sites with: (select all that apply)

- hazardous substances spills - s. 292.11(9)(e), Wis. Stats. [649];
- Perceived environmental contamination - [649];
- hazardous waste - s. 292.24 (2), Wis. Stats. [649]; and/or
- solid waste - s. 292.23 (2), Wis. Stats. [649].

❖ **Include a fee of \$700, a summary of the environmental liability clarification being requested, and the following:**

- (1) clear supporting documentation showing the acquisition method used, and the steps followed under the appropriate state statute(s).
- (2) current and proposed ownership status of the Property;
- (3) date and means by which the Property was acquired by the LGU, where applicable;
- (4) a map and the ¼, ¼ section location of the Property;
- (5) summary of current uses of the Property;
- (6) intended or potential use(s) of the Property;
- (7) descriptions of other investigations that have taken place on the Property; and
- (8) (for solid waste clarifications) a summary of the license history of the facility.

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- Lease liability clarification - s. 292.55, Wis. Stats. [646]

❖ **Include a fee of \$700 for a single Property, or \$1400 for multiple Properties and the information listed below:**

- (1) a copy of the proposed lease;
- (2) the name of the current owner of the Property and the person who will lease the Property;
- (3) a description of the lease holder's association with any persons who have possession, control, or caused a discharge of a hazardous substance on the Property;
- (4) map(s) showing the Property location and any suspected or known sources of contamination detected on the Property;
- (5) a description of the intended use of the Property by the lease holder, with reference to the maps to indicate which areas will be used. Explain how the use will not interfere with any future investigation or cleanup at the Property; and
- (6) all reports or investigations (e.g. Phase I and Phase II Environmental Assessments and/or Site Investigation Reports conducted under s. NR 716, Wis. Adm. Code) that identify areas of the Property where a discharge has occurred.

General or other environmental liability clarification - s. 292.55, Wis. Stats. [682] - Explain your request below.

❖ **Include a fee of \$700 and an adequate summary of relevant environmental work to date.**

- No Action Required (NAR) - NR 716.05, [682]

❖ **Include a fee of \$700.**

Use where an environmental discharge has or has not occurred, and applicant wants a DNR determination that no further assessment or clean-up work is required. Usually this is requested after a Phase I and Phase II environmental assessment has been conducted; the assessment reports should be submitted with this form. This is not a closure letter.

- Clarify the liability associated with a "closed" Property - s. 292.55, Wis. Stats. [682]

❖ **Include a fee of \$700.**

- Include a copy of any closure documents if a state agency other than DNR approved the closure.

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Use this space or attach additional sheets to provide necessary information, explanations or specific questions to be answered by the DNR.

### Section 5. Request for a Specialized Agreement

Select the type of agreement needed. Include the appropriate draft agreements and supporting materials. Complete Sections 6 and 7 of this form. More information and model draft agreements are available at: [dnr.wi.gov/topic/Brownfields/lgu.html#tabx4](http://dnr.wi.gov/topic/Brownfields/lgu.html#tabx4).

- Tax cancellation agreement - s. 75.105(2)(d), Wis. Stats. [654]

❖ **Include a fee of \$700, and the information listed below:**

- (1) Phase I and II Environmental Site Assessment Reports,
- (2) a copy of the Property deed with the correct legal description.

- Agreement for assignment of tax foreclosure judgement - s.75.106, Wis. Stats. [666]

❖ **Include a fee of \$700, and the information listed below:**

- (1) Phase I and II Environmental Site Assessment Reports,
- (2) a copy of the Property deed with the correct legal description.

- Negotiated agreement - Enforceable contract for non-emergency remediation - s. 292.11(7)(d) and (e), Wis. Stats. [630]

❖ **Include a fee of \$1400, and the information listed below:**

- (1) a draft schedule for remediation; and,
- (2) the name, mailing address, phone and email for each party to the agreement.

### Section 6. Other Information Submitted

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Identify all materials that are included with this request.

Send both a paper copy of the signed form and all reports and supporting materials, and an electronic copy of the form and all reports, including Environmental Site Assessment Reports, and supporting materials on a compact disk.

Include one copy of any document from any state agency files that you want the Department to review as part of this request. The person submitting this request is responsible for contacting other state agencies to obtain appropriate reports or information.

- Phase I Environmental Site Assessment Report - Date: \_\_\_\_\_
- Phase II Environmental Site Assessment Report - Date: \_\_\_\_\_
- Legal Description of Property (required for all liability requests and specialized agreements)
- Map of the Property (required for all liability requests and specialized agreements)

Analytical results of the following sampled media: Select all that apply and include date of collection.

- Groundwater     Soil     Sediment     Other medium - Describe: \_\_\_\_\_

Date of Collection: \_\_\_\_\_

- A copy of the closure letter and submittal materials
- Draft tax cancellation agreement
- Draft agreement for assignment of tax foreclosure judgment
- Other report(s) or information - Describe: \_\_\_\_\_

For Property with newly identified discharges of hazardous substances only: Has a notification of a discharge of a hazardous substance been sent to the DNR as required by s. NR 706.05(1)(b), Wis. Adm. Code?

- Yes - Date (if known): \_\_\_\_\_
- No

**Note:** The Notification for Hazardous Substance Discharge Form - Non-Emergency Only (Form 4400-225) is accessible through the RR Program Submittal Portal application. Directions for using the form and the Submittal Portal application are available on the [Submittal Portal web page](#).

**Section 7. Certification by the Person who completed this form**

- I am the person submitting this request (requester)
- I prepared this request for: Enbridge Energy  
Requester Name

I certify that I am familiar with the information submitted on this request, and that the information on and included with this request is true, accurate and complete to the best of my knowledge. I also certify I have the legal authority and the applicant's permission to make this request.

Leo B. Linnemanston  
Signature

4-28-2022  
Date Signed

Senior Project Hydrogeologist  
Title

(608) 828-8208  
Telephone Number (include area code)



AECOM  
1350 Deming Way  
Suite 100  
Middleton, WI 53562

T: +1-608-836-9800  
aecom.com

April 28, 2022

Mr. John Sager  
Wisconsin Department of Natural  
Resources  
2984 Shawano Avenue  
Green Bay, WI 54313-6727

**Surface Soil PFAS Investigation Work Plan  
Enbridge Energy Superior Terminal  
2800 East 21<sup>st</sup> Street  
Superior, Wisconsin  
BRRTS No. 02-16-589282, FID# 816010580  
AECOM Project No. 60683192**

Dear Mr. Sager:

On the behalf of Enbridge Energy, Limited Partnership (Enbridge), AECOM Technical Services, Inc. (AECOM) is providing the Wisconsin Department of Natural Resources (WDNR) the following work plan for investigating Per- and Polyfluoroalkyl Substances (PFAS) in surface soils at the above referenced facility. The work plan is provided in response to the WDNR's "Responsible Party (RP)" letter dated February 28, 2022, and prepared in general accordance with Chapter NR 716, Wisconsin Administrative Code (WAC), requirements.

Enbridge proposes to conduct the PFAS site investigation at the Superior Terminal (Terminal) in a phased approach. The purpose of this initial phase is to evaluate the potential of PFAS in soil associated with the storage and historic use of aqueous film-forming foam (AFFF) for fire suppression at the Terminal. Based on the results of this investigation, subsequent investigation phases may be conducted to evaluate the impacts of PFAS at the Terminal.

## Involved Parties

### **Responsible Party**

Enbridge Energy, Limited Partnership (Enbridge)  
11 East Superior Street, Suite 125  
Duluth, Minnesota 55802  
Contact: Karl Beaster, PG, Senior Environmental Advisor  
[Karl.beaster@enbridge.com](mailto:Karl.beaster@enbridge.com)  
(715) 718-1040

**Environmental Consultant**

AECOM Technical Services, Inc. (AECOM)  
Leo Linnemanstons, PG, Senior Project Manager  
1350 Deming Way, Suite 100  
Middleton, Wisconsin 53562  
[leo.linnemanstons@aecom.com](mailto:leo.linnemanstons@aecom.com)  
(608) 828-8208

**Proposed Drilling Subcontractor**

Dakota Technologies, Inc  
5001 Boone Avenue North  
New Hope, Minnesota 55428  
(763) 424-4803

**Buried Utilities Clearance Subcontractor**

Northwestern Surveying & Engineering  
603 Chestnut Street  
Cloquet, Minnesota 55720  
(218) 444-9394

**Laboratory Subcontractor**

PACE Analytical Laboratory  
1700 Elm Street SE  
Minneapolis, Minnesota 55414  
(612) 607-1700  
WDNR Certification: 999407970

**Site Description**

The Terminal is located at 2800 East 21<sup>st</sup> Street, Superior, Wisconsin in Douglas County (see Figure 1) and is approximately 560 acres in size, which occupies portions of Sections 30 and 31, Township 49N, Range 13W and Section 36, Township 49N and Range 14W. Figure 2 shows the layout of the Terminal.

Based on the City of Superior Zoning Map, the Terminal property and surrounding land north and west is zoned Manufacturing-2 (M2). Property located to the east and south of the Terminal is zoned Suburban (SUB) and One Family Residential (R1B). The Dome Petroleum natural gas facility borders the Terminal to the north, and the Husky Asphalt Terminal borders the Enbridge Terminal to the northwest across East 21<sup>st</sup> Street. The Nemadji River runs immediately south and east of the Terminal. Two railroad yards are located near the site; one approximately one mile south and the other approximately 0.75 miles west. An airport is present approximately 1.5 miles west of the Terminal.

**Background Information**

Enbridge (formerly known as Lakehead Pipeline Company) expanded an oil pipeline system from Canada to their existing Superior Terminal property in 1950. The Terminal has been the site of multiple petroleum (predominantly crude oil) releases in its nearly 70-year history. Previous historical release sites have been and may continue to be encountered during future construction and maintenance activities at the Terminal. Following the establishment of regulatory reporting requirements in 1978, new spills and releases were reported to the WDNR in accordance with Wisconsin Statutes Chapter 292.11 the Wisconsin Spill Law. Enbridge has worked closely with the WDNR to develop a facility-wide Site Investigation and Response Action Plan (SI/RAP) for the Terminal. This

SI/RAP document was submitted to the WDNR on July 17, 2014, with an Addendum published on August 15, 2017.

On October 7, 2020, the WDNR sent a letter to Responsible Parties (RPs) that had an open contamination site on the DNR's Bureau for Remediation and Redevelopment Tracking System (BRRTS). The purpose of this letter was to urge RPs to assess emerging contaminants, such as PFAS, and their potential impacts.

On January 21, 2022, Enbridge provided the following account to the WDNR describing that aqueous film-forming foam (AFFF) containing PFAS was historically stored at the terminal and had been discharged through annual fire suppression training and a small fire incident in 2012 (See Figure 2):

*AFFF was stored from the early 1990s until 2014 at the terminal in a portable tank trailer within an enclosed building in the northwestern portion of the terminal. The AFFF in this tank trailer would be used to test a tank fire suppression in the form of a foam/water mixture during annual trainings. During these trainings, the portable unit containing AFFF would be moved to the desired location and piping connected from the unit to a water line/manifold system near the specific tank being tested. The foam/water mixture would then be injected into the tank rim fire suppression system to deluge the top of the tank. Following the test, the foam residue was left in place on the tank rim/top and sides, and eventually washed out via precipitation events.*

*It is estimated that between 10 and 20 tanks total since the early 1990s would have been used for training purposes, generally located in the central portion of the terminal. Operations personnel did indicate that Tanks 30 through 45, located in the northeast area of the terminal, were not used for the annual training events.*

*In 2012, a small excavation fire occurred on the site approximately northeast of Tank 13 for which AFFF was deployed.*

As a result of that notification to the WDNR, Enbridge received a Responsible Party (RP) letter dated February 28, 2022. The RP letter notified Enbridge of their responsibilities and outlined the required steps to investigate and address potential contamination under the WAC Chapter NR700 rule series. In April 2022, Enbridge retained AECOM to assist with the investigation activities and regulatory reporting.

## Site Characteristics

The geologic information provided below was summarized from the *Enbridge Superior Terminal SI/RAP* (Barr, 2014).

The topography of the site and the general area around the site is relatively flat. The Nemadji River is present on the south and southeast side of the property in a broad incised valley. On the south side of the property, a small tributary stream and ephemeral gullies are present that discharge to the Nemadji River. The Nemadji River flows toward the east/northeast in the vicinity of the site, and discharges to Superior Bay of the St. Louis River within the Superior Harbor. The St. Louis River discharges to Lake Superior.

Surficial geology in the region consists of Pleistocene-age glacial deposits of the Miller Creek Formation (Clayton, 1984). The Miller Creek Formation is composed of clayey glacial till, wave modified till, and glacial-lacustrine deposits. The glacial-lacustrine deposits are the uppermost surficial deposits in the region and were deposited in a water-logged state during high stages of Glacial Lake Duluth with subsequent isolated erosion and proglacial stream deposition associated with what is now incised Nemadji River channel (Clayton, 1984) located approximately ¾-mile southeast of the Terminal. The Miller Creek Formation overlies the Copper Falls Formation which is also a glacial till that is Pleistocene in age. The Copper Falls Formation contains sandy glacial till interbedded with sand and gravel deposited by melt-water streams (Clayton, 1984).

The regional bedrock geology consists of sandstone of the Precambrian-age Bayfield Formation. Depth to bedrock in the Terminal area is greater than 150 feet (Young and Skinner, 1974).



Locations of regional geologic cross sections prepared from the well drillers logs and deep geotechnical borings advanced at the Terminal are shown on Figure 3. Cross Section A-A' (Figure 4) trends northwest to southeast across the Terminal and crosses the Nemadji River. Cross Section B-B' (Figure 5) trends southwest to northeast across the Terminal roughly parallel to the flow of the Nemadji River and extends to the Superior Harbor. These sections show that the surficial clay layer is present across the entire region at a thickness generally exceeding 130 feet, decreasing to 50 feet within the Lake Superior basin. River valleys, ravines, or other topographic lows do not extend below the bottom of the clay layer.

Locations of local geologic cross sections prepared from the monitoring well installations and deep geotechnical borings advanced at the Terminal are shown on Figure 6. Cross Section C-C' (Figure 7) trends northwest to southeast across the Terminal and crosses the Nemadji River. Cross Section D-D' (Figure 8) trends southwest to northeast across the Terminal roughly parallel to the flow of the Nemadji River. The local cross sections depict the surface expression of the secondary containment dikes and other major surface features at the Terminal. The cross sections indicate the thickness of the clay layer in the site vicinity is 100 to greater than 140 feet thick. Depth to bedrock is greater than 260 feet below ground surface (bgs) based on the depth of water supply well VE 161. Groundwater levels in shallow site monitoring wells are at higher elevations than water levels in the deep water supply wells completed in hard pan and/or silty sand soil below the clay. The water levels in the deep water supply wells are also lower than surface water features. This indicates that the vertical groundwater gradient is downward, which is common where material with a low hydraulic conductivity overlies material with a higher hydraulic conductivity.

Based on observations from numerous maintenance excavations and during the installation of soil borings and monitoring wells at the Terminal, the majority of the shallow soil encountered at the site consists of the glacial-lacustrine, red-brown clay, except where fill material has been imported. Fill soils are typically associated with granular backfill material around piping and other infrastructure. Areas of granular fill material are localized around specific structures and are not laterally extensive across the site. Additionally, granular fill is not present along most piping and is not present beneath all structures.

Depth to groundwater at the Terminal varies between approximately 1 and 8 feet bgs, dependent on location, as measured in monitoring wells located at the terminal. Twenty-eight (28) monitoring wells are currently present at the Terminal. Twelve (12) of the wells are located between the Terminal and the Nemadji River or a tributary stream of the river. The wells were installed between 1999 and 2019 as part of the Terminal monitoring program, these site wells are sampled once a year and water level measurements are recorded. The local groundwater flow at the Terminal, based on the data obtained from ongoing monitoring at these wells, varies across the Terminal based on location and proximity to the Nemadji River and the small tributary stream and ephemeral gullies present on the south side of the Terminal. The dominant local flow direction is to the east, toward Lake Superior and generally along the Nemadji River which borders the Terminal on the south and southeast. The incised stream located on the southwest portion of the property influences local flow toward the southwest.

## Field Investigation

To evaluate the presence of PFAS in soil related to the use of AFFF at the Terminal, the initial site investigation will include the following components:

- Surface Soil Samples (31 locations): one surface soil sample is planned to be collected from within the secondary containments of ASTs numbered 1-29. These sample locations will be preferentially selected within the secondary containments to be from the lowest elevations following the apparent surface water drainage patterns. In addition, surface soil samples will also be collected at each of the two buildings in which AFFF and associated AFFF dispersal equipment were stored. These sample locations will be

focused on the areas or paths that AFFF equipment would likely travel into and out of those storage areas.

Additional ASTs, identified as Tanks 30 to 45, are located in a separate area to the east of Grand Avenue and do not have a history of fire training where AFFF would have been discharged. Therefore, these AST locations are not included as part of this investigation.

- Hydraulic Probe Boring (1 location): a direct push soil probe boring will be conducted through the backfill of the former excavation at the 2012 AFFF discharge location. A soil sample will be collected from the native soils encountered at base of the former excavation and second sample will be collected approximately 2 ft below the first sample. The hydraulic probe boring is planned to not exceed 20 ft bgs.

### *Pre-Field Planning*

Prior to the start of soil sampling activities, AECOM will conduct a site reconnaissance to evaluate field conditions and determine locations for the proposed soil samples. Based on actual site conditions, field sampling methods may need to be adjusted, but they are still expected to be consistent with the methods described in this work plan.

### *Health and Safety Plan*

A site-specific Health and Safety Plan (HASP) will be prepared for the field work to meet both AECOM and Enbridge Health and Safety requirements, processes, and procedures. The HASP will contain a summary of known site contaminants and other site hazards, emergency resources available, personnel protection equipment, decontamination procedures, and emergency procedures recommended for this project.

### *Utility Locating*

Public utility locate calls will be made and utility locate tickets will be obtained from Digger's Hotline prior to ground disturbance. Because the Terminal is an active crude oil facility with significant buried infrastructure, Enbridge Ground Disturbance Standards will be followed. This includes conducting 4-way sweeps around borings that extend greater than 12 inches below ground surface. Where necessary, borings will be located away from marked infrastructure in areas that have been swept for subsurface utilities.

### *General PFAS Sampling Considerations*

There are potential cross contamination issues associated with PFAS sampling due to the presence of these compounds in many commercial products. Therefore, AECOM PFAS-certified sampling teams will conduct the PFAS monitoring events. AECOM certification requires attending an internal PFAS sampling training course and reviewing the AECOM PFAS Sampling Guidance document designed to make AECOM samplers aware of the products known to have tested positive for PFAS compounds, as well as identifying PFAS-free products that are appropriate to use in the sampling environment.

AECOM will verify that the drilling subcontractor is following PFAS-free drilling protocols and providing PFAS-free materials for the project.

### *Surface Soil Sampling*

At each location, a decontaminated shovel or hand trowel will be used to clear surface stone or gravel, if present, to expose underlying fine-grained soils. The shovel will then be used to dig a plug of soil to a depth of approximately 6 inches bgs, such that the total depth of excavation is less than 12 inches. The soil sample location and soil plug will be photographed, and its geographic location recorded using a hand-held GPS unit. For laboratory analysis, a grab soil sample will be collected from the body of the soil plug. Following collection of the soil sample, the soil plug will be placed back into its hole and the surface restored.

### *Hydraulic Probe Boring*

A truck mounted hydraulic probe rig will be used to conduct one soil boring near the 2012 excavation where AFFF is reported to have been deployed. Prior to the start of the boring, this location will be cleared for buried utilities to a depth approved by Enbridge Operations. Once the borehole location is cleared, hydraulic push probe methods will be used to continue this boring to a maximum depth of 20 feet bgs.

AECOM will classify soil from the boring according to the Unified Soil Classification System (USCS). Because of the presence of red clay and nearby surface waters, perched groundwater may infiltrate these boreholes. If present, the depth to water will be noted relative to the ground surface, and the boring will proceed to its planned depth. The soil sample location will be photographed, and its geographic location recorded using a hand-held GPS unit. For laboratory analysis, a grab soil sample will be collected from the selected soil intervals. Once soil sampling is completed, the soil boring will be abandoned by backfilling with bentonite in accordance with Chapter NR141, WAC.

### *Laboratory Analyses*

Soil samples for laboratory analysis will be transferred, with a decontaminated stainless-steel spoon or nitrile gloves, to appropriate laboratory-supplied containers, labeled, and maintained on ice in insulated coolers. Samples will be shipped overnight in the cooler, on ice, under chain-of-custody protocol to the WDNR PFAS certified laboratory for analyses.

Soil samples will be analyzed for the Wisconsin list of 33 PFAS using EPA modified Method 537.1 isotope dilution. The samples will be analyzed on a standard (15-day) turn-around-time (TAT). Level/Tier IV quality control reporting will be provided by the lab. Due to the use of the isotope dilution method, Matrix Spike/Spike Duplication (MS/MSD) analysis will not be requested.

### *Quality Assurance*

Standard sampling protocols for PFAS compounds include the use of field and equipment blanks due to the possible ubiquitous nature of these compounds including the potential presence of these compounds in sampling equipment and supplies, and to assess the possibility of cross-contamination during sampling, transport, and sample storage. Due to the use of the isotope dilution method, Matrix Spike/Spike Duplicate (MS/MSD) analysis will not be requested. As such, the following Quality Assurance samples will be collected for this project:

Field Blank: One field blank will be collected during the soil sample collection activities. The field blank will be collected by pouring laboratory-certified PFAS-free water into a laboratory-provided sampling container.

Equipment Blank: One equipment blank will be obtained by pouring laboratory certified PFAS free water over the decontaminated sampling equipment and collecting the water in a laboratory provided bottle.

Water Blank: One sample of the water used by the driller will be collected and tested as a water blank. The water blank sample will be collected to characterize the wash water used during the decontamination process.

These blank samples will be shipped to the laboratory with the field samples. AECOM will provide laboratory data validation review using procedures described in the National Functional Guidelines for High Resolution Superfund Method Data Review (EPA, April 2016), as appropriate.

### *Equipment Decontamination*

Decontamination of the stainless-steel soil sampling equipment will be performed between the collection of each soil sample and will consist of removing solids from the equipment, washing with Alconox, and then triple rinse

with PFAS-free water. Decontamination of the drilling rig and down-hole equipment will also include steam cleaning before and after conducting the direct push soil probe boring.

*Investigation Derived Waste*

Excess soil generated during the advancement of the soil boring will be contained and stored in the Superior Terminal Soil Management Area. A composite waste characterization sample will be collected and analyzed. Pending receipt of the waste characterization laboratory results, the contaminated material will be transported off the property and properly disposed offsite at a licensed disposal facility.

**Sample Notification and Site Investigation Report**

AECOM will notify the WDNR (via WDNR Form 4400-249) within ten business days after receiving the sampling results and completing the data validation review. The report will generally follow NR 716.15 requirements, which includes, project contacts, site and background information, investigation methods, sampling and analysis requirements, field and analysis results, and conclusions and recommendations. Tables summarizing laboratory results and figures that include sample locations will be included. The required soil boring form and well/borehole abandonment form will be completed and attached to the report.

**Project Schedule**

Scheduling for initial field tasks is anticipated to commence upon receipt of concurrence of the proposed scope of work from the WDNR. A Subsurface Investigation report in general conformance to NR 716 will be submitted to the WDNR within 60 days of receipt of the analytical data.

<b>Project Phase</b>	<b>Date</b>
Responsible Party Notification Letter Received	February 28, 2022
Work Plan Submitted to WNDR for Review	April 2022
Surface Soil Sampling	June 2022
Analytical Receipt	July 2022
Draft Site Investigation Report	August 2022

Enbridge will notify the WDNR of significant changes to the site investigation schedule.

**Concurrence**

Enbridge requests that WDNR provide written comments and concurrence with the scope of work presented in this site investigation work plan. The Work Plan review fee and Technical Assistance Form 4400-237 will be submitted to the WDNR separately.

If you have any questions, please contact Leo Linnemanstons at (608)828-8208.

Sincerely,

AECOM Technical Services, Inc.



Leo B. Linnemanstons, PG  
Project Manager / Hydrogeologist  
AECOM  
[leo.linnemanstons@aecom.com](mailto:leo.linnemanstons@aecom.com)



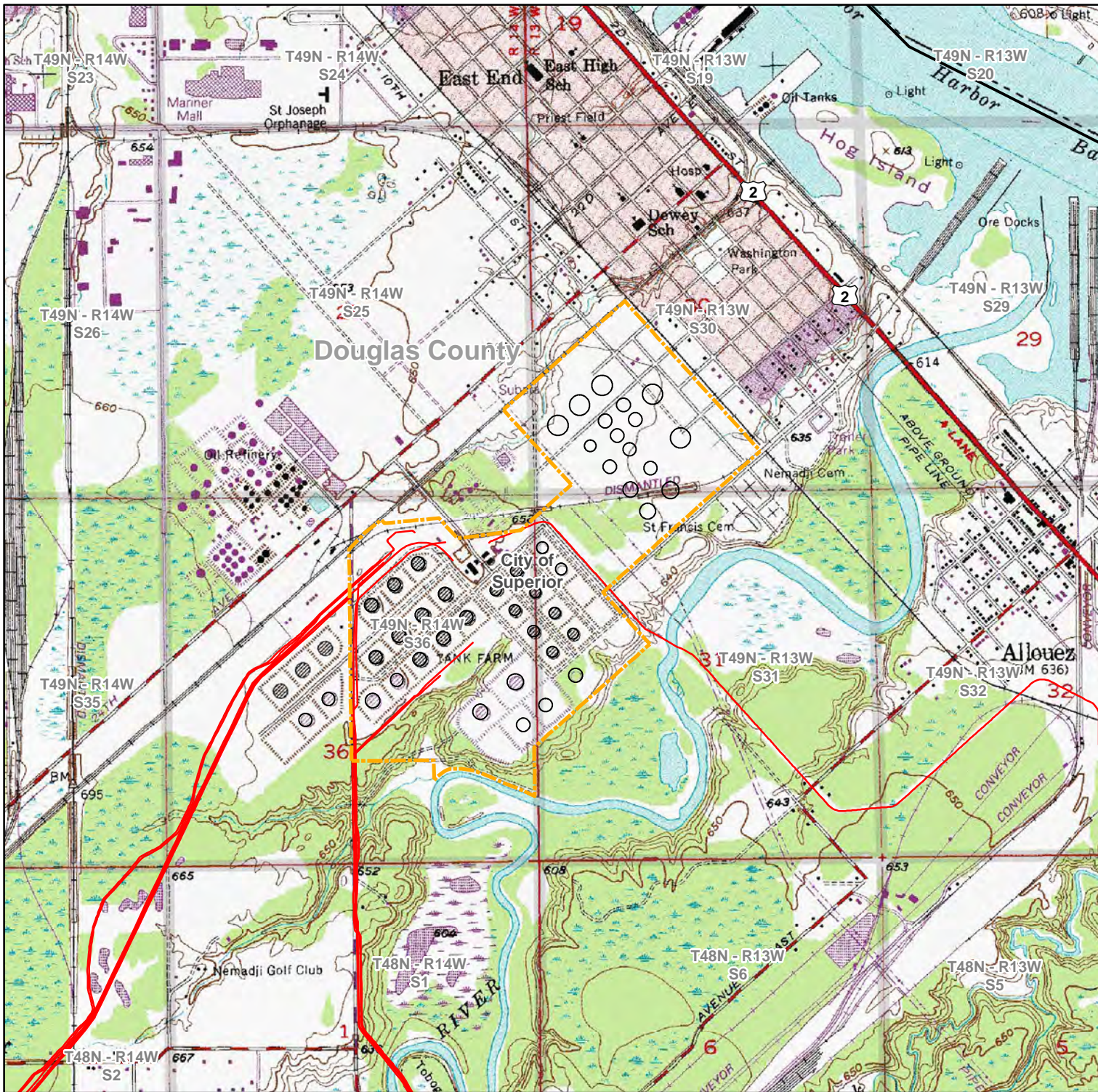
David Henderson, P.E.  
Senior Project Engineer  
AECOM  
[dave.henderson@aecom.com](mailto:dave.henderson@aecom.com)

Attachments:

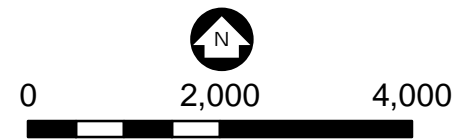
- Figure 1 Site Location Map
- Figure 2 Site Features and Potential AFFF Discharge Areas
- Figure 3 Regional Cross-Section Locations A-A' and B-B'
- Figure 4 Regional Cross-Section A-A'
- Figure 5 Regional Cross-Section B-B'
- Figure 6 Local Cross-Section Locations C-C' and D-D'
- Figure 7 Local Cross-Section C-C'
- Figure 8 Local Cross-Section D-D'

Cc: Karl Beaster, Senior Environmental Advisor, Enbridge  
Bryan Stiemsma, Technical Manager, Enbridge  
Nick Larabel, Environmental Advisor, Enbridge

**Figures**

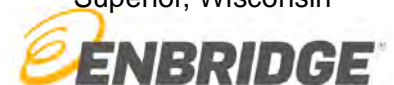


- ★ Site Location
- Enbridge Pipelines
- - - Terminal Property Boundary

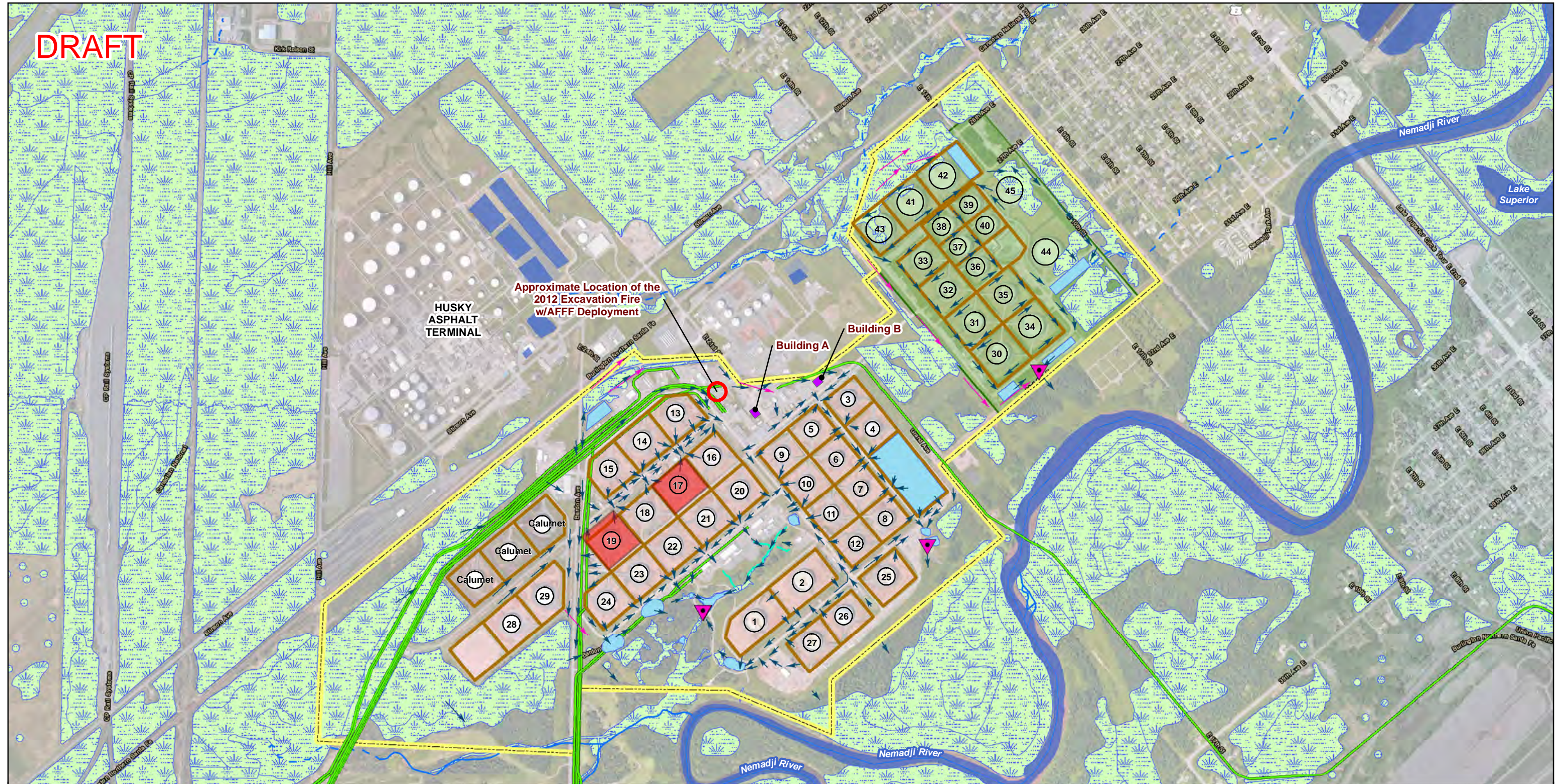


Feet  
 1 Inch = 2,000 Feet  
 Figure 1

**SITE LOCATION**  
 Superior Terminal  
 Enbridge Energy, L.P.  
 Superior, Wisconsin



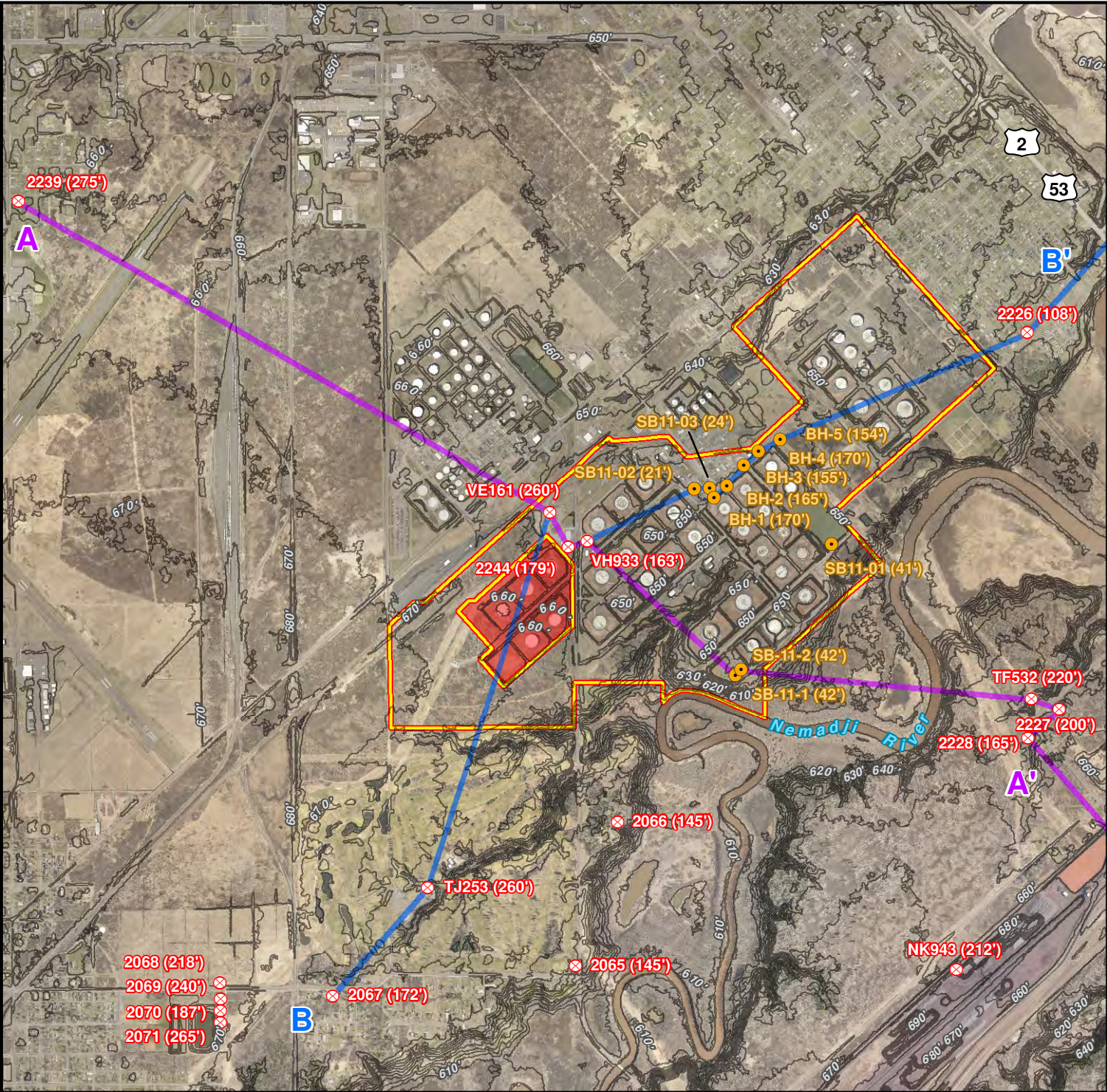
**DRAFT**



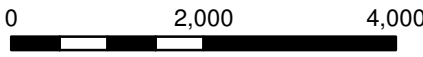
<p>Drawn: WSP 9/14/2021 Approved: WSP 9/14/2021 Project #: 12345678.901</p>	<p>Map Location</p>	<p>Coordinate System: NAD 1983 StatePlane Wisconsin North FIPS 4801 Feet</p>	<p><b>Legend</b></p> <ul style="list-style-type: none"> <li>○ AST w/Tank ID</li> <li>▼ WPDES Outfalls</li> <li>→ Surface Flow Direction</li> <li>→ Culvert Flow Direction</li> <li>→ Drainage Channel</li> <li>— Containment Berm</li> <li>— Pipeline</li> <li>■ Waterbody</li> <li>■ Pond</li> <li>■ Wetland</li> <li>■ AFFF Storage Building</li> <li>■ AFFF Tank Rim System Tested</li> <li>■ Area w/No AFFF Discharged</li> <li>■ Terminal Property Boundary</li> </ul> <p><i>National Hydrography Dataset</i></p> <ul style="list-style-type: none"> <li>— Stream/Ditch</li> <li>— Intermittent Stream</li> <li>— Perennial Stream</li> </ul> <p><small>Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors</small></p>	<p><b>FIGURE 2</b> PIPELINE INFRASTRUCTURE AND AFFF DISCHARGE</p> <p>SUPERIOR TERMINAL</p> <p>DOUGLAS COUNTY, WI ENBRIDGE PIPELINE (LAKEHEAD) LLC</p>
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Barr Footer: ArcGIS 10.2.1, 2014-03-20 10:44 File: L:\Client\Enbridge\_Energy\Work Orders\Spill Response Investigation\49161104\Maps\Figure5\_Regional\_Cross Section Locations\_8x11.mxd User: hmk



- Subject Property Boundary
  - Non-Enbridge Owned Property
  - Area Water Supply Wells
  - Geotechnical Borings
  - 5-Foot Contours
- Cross Sections**
- A - A'
  - B - B'
- SB-11-1 & SB-11-2 (EPC) 06/29/11  
SB11-01 & SB11-02 (AET) 07/25/11



Feet  
1 Inch = 2,000 Feet  
Douglas County Imagery Circa May, 2013  
City of Superior LIDAR Data Circa 2008  
Figure 3

**REGIONAL  
CROSS SECTION LOCATIONS  
A - A' and B - B'  
SUPERIOR TERMINAL  
Enbridge Energy, L.P.  
Superior, Wisconsin**



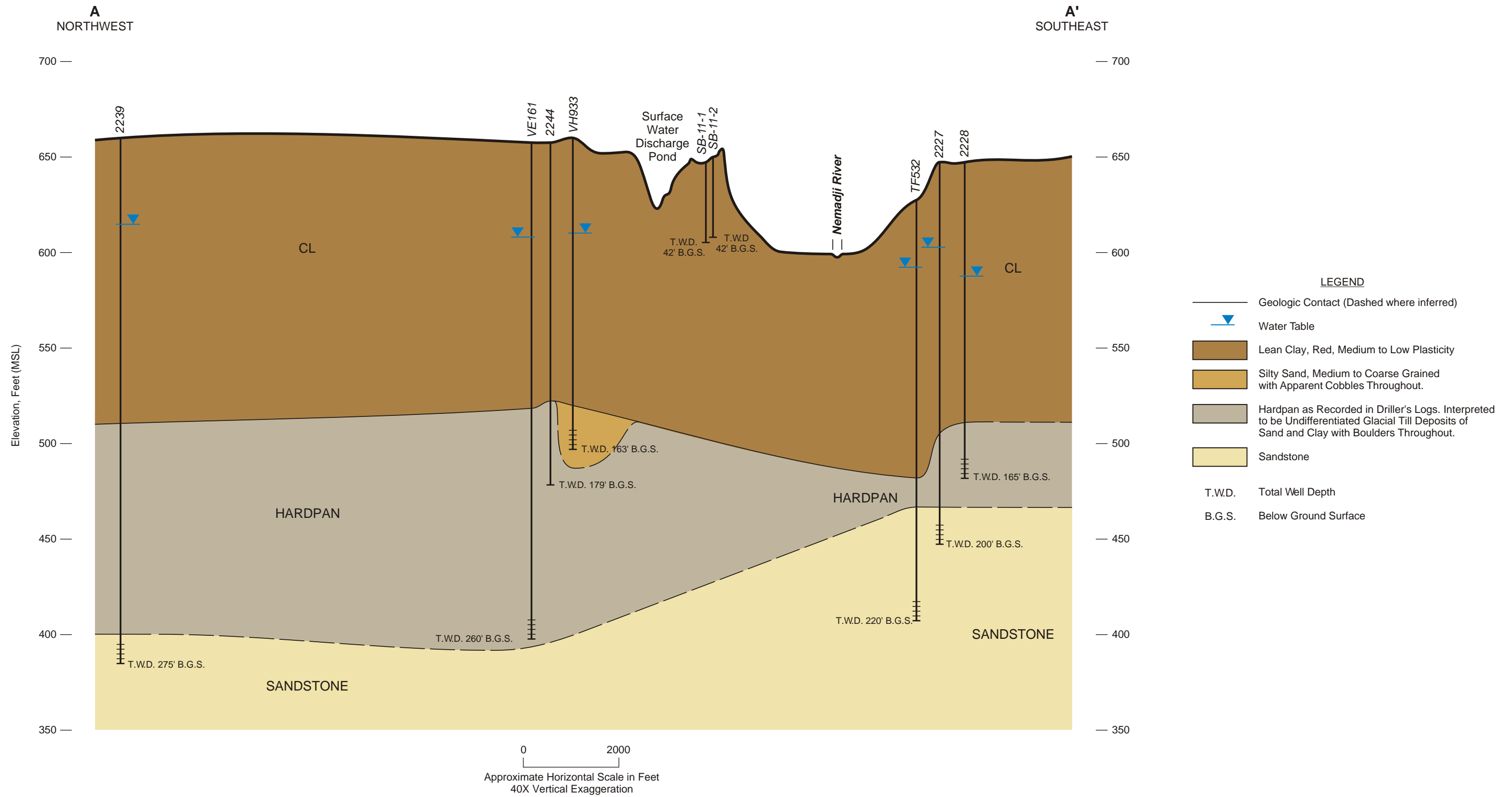


Figure 4  
REGIONAL CROSS SECTION A-A'  
Enbridge Energy, L.P.  
Superior, Wisconsin



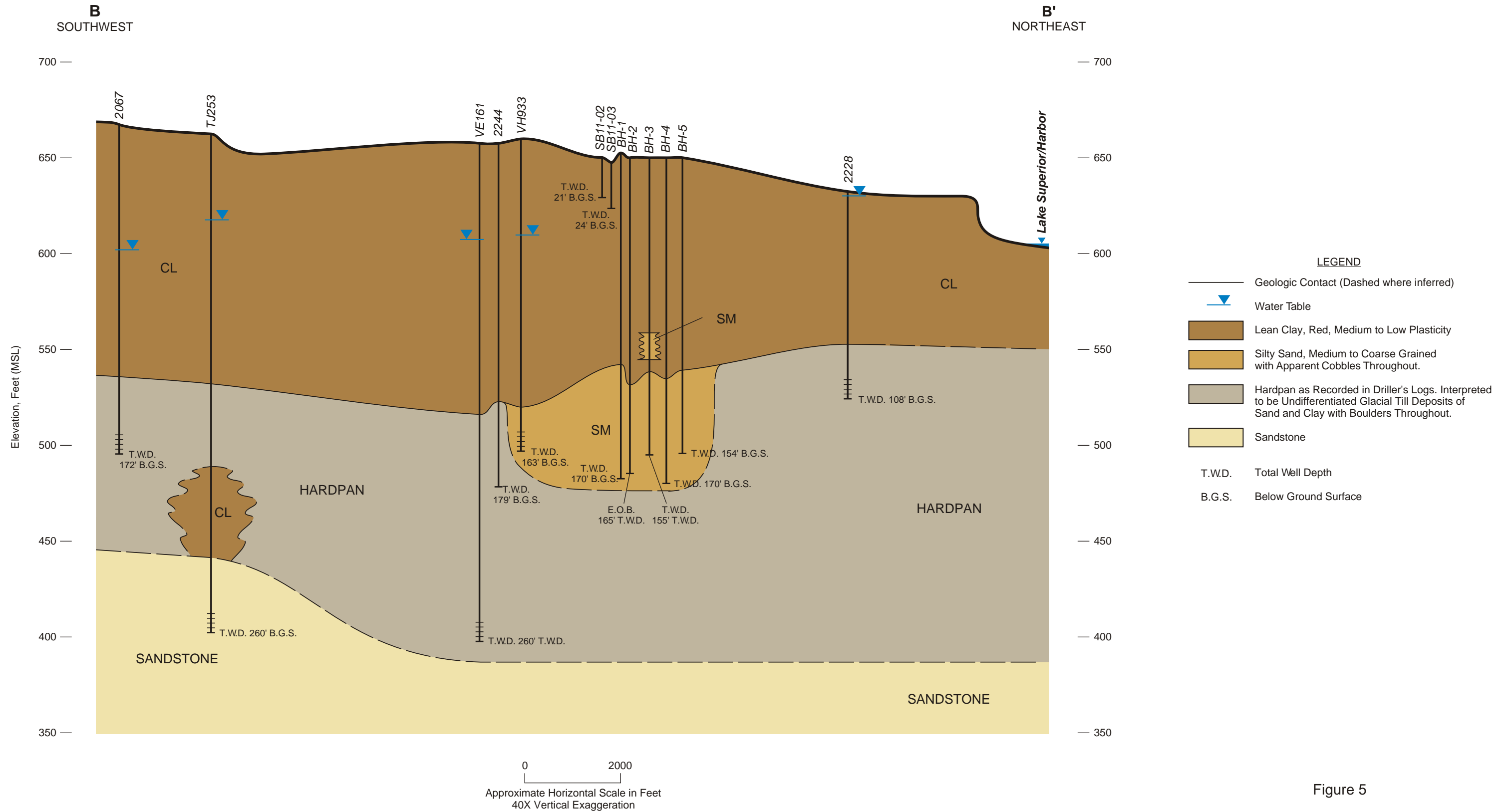
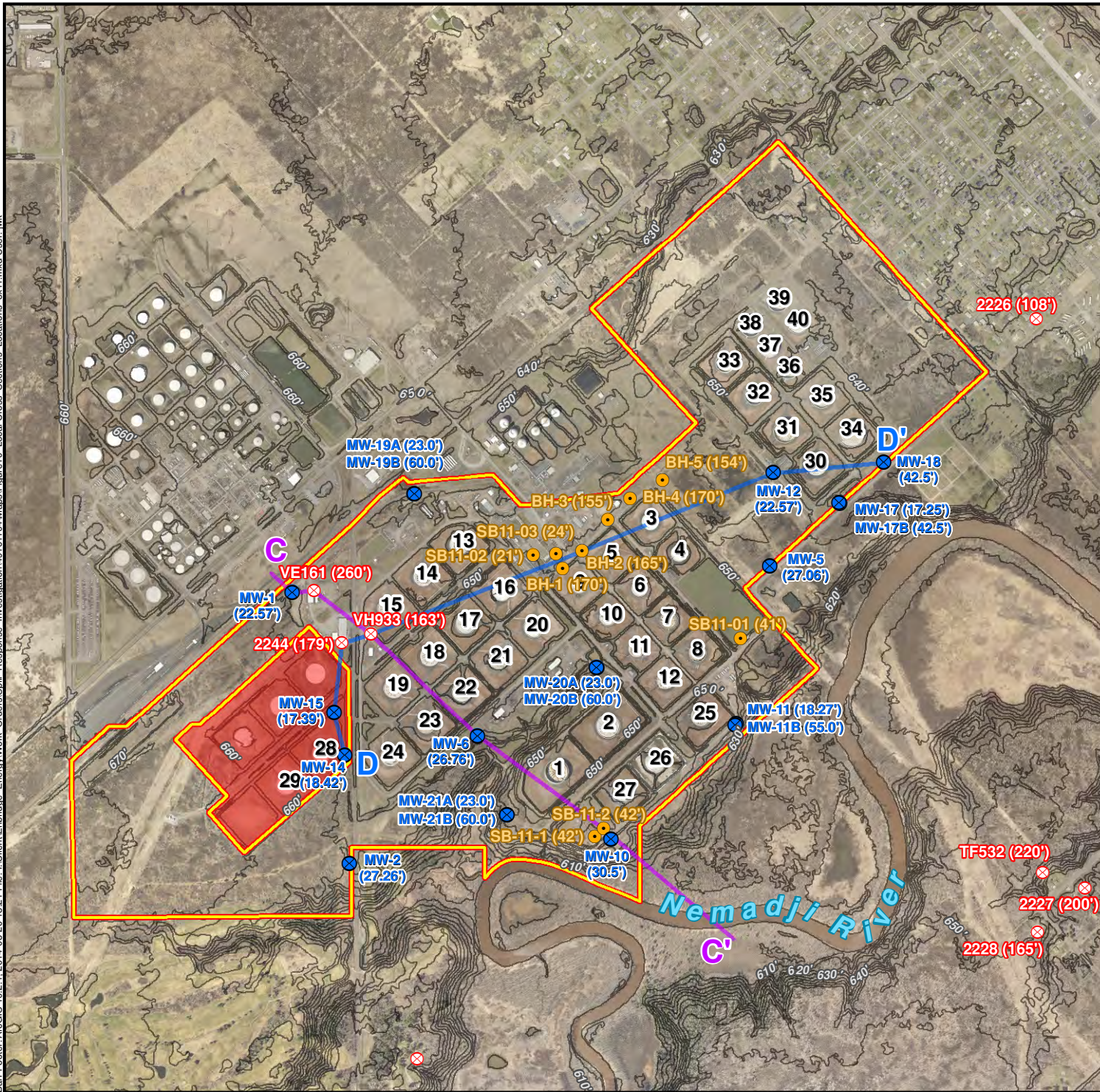


Figure 5  
REGIONAL CROSS SECTION B-B'  
Enbridge Energy, L.P.  
Superior, Wisconsin





- Subject Property Boundary
  - Non-Enbridge Owned Property
  - Terminal Monitoring Wells (22.57') = Well Depth in feet
  - Area Water Supply Wells
  - Geotechnical Borings
  - 5-Foot Contours
- Cross Sections**
- C - C'
  - D - D'
- SB-11-1 & SB-11-2 (EPC) 06/29/11  
SB11-01 & SB11-02 (AET) 07/25/11



Feet  
1 Inch = 1,320 Feet  
Douglas County Imagery Circa May, 2013  
City of Superior LiDAR Data Circa 2008

Figure 6

**LOCAL  
CROSS SECTION LOCATIONS  
C - C' and D - D'  
SUPERIOR TERMINAL  
Enbridge Energy, L.P.  
Superior, Wisconsin**



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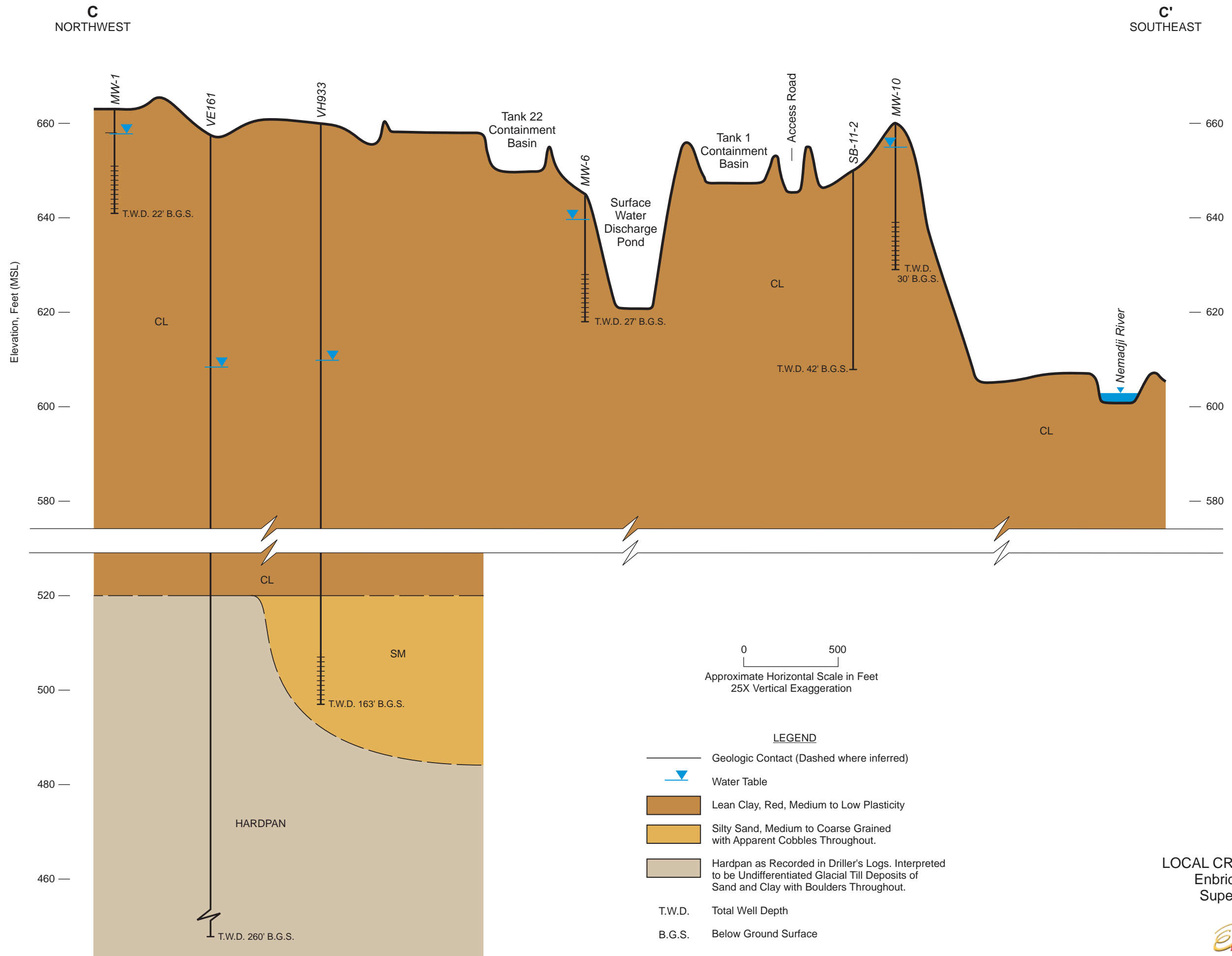


Figure 7  
LOCAL CROSS SECTION C-C'  
Enbridge Energy, L.P.  
Superior, Wisconsin



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