



ENBRIDGE ENERGY, LLC
LINE 5 WISCONSIN SEGMENT RELOCATION PROJECT
HYDROSTATIC TEST PLAN

Revision 2

August 2021

**LINE 5 WISCONSIN SEGMENT RELOCATION PROJECT
HYDROSTATIC TEST PLAN
TABLE OF CONTENTS**

<u>SECTION</u>	<u>Page</u>
1.0 INTRODUCTION	1
2.0 WATER REQUIREMENTS	1
3.0 WATER APPROPRIATION	3
4.0 WATER DISCHARGE AND TESTING	3

LIST OF TABLES

Table 2-1	Mainline Hydrostatic Test Water Appropriation Rivers and Estimated Volumes	2
Table 2-2	Proposed HDD and DPI Discrete Pipeline Test Segments	2

LIST OF FIGURES

Figure 4-1	Hydrostatic Test Dewatering Structure	5
Figure 4-2	White River (Outfall 001)	6
Figure 4-3	Marengo River (Outfall 002)	7
Figure 4-4	Tyler Forks (Outfall 003)	8

1.0 INTRODUCTION

Enbridge Energy, Limited Partnership (“Enbridge”) has submitted applications to the Wisconsin Department of Natural Resources (“WDNR”) and the U.S. Army Corps of Engineers for permits to construct approximately 41.1 miles of new, 30-inch outside diameter pipeline and associated appurtenances in Bayfield, Ashland and Iron Counties, Wisconsin to replace an existing segment of pipeline. As part of the construction process, Enbridge will hydrostatically test the new pipeline in accordance with the U.S. Department of Transportation pipeline safety regulations, Title 49 CFR Part 195.302(a) requirements, Enbridge testing specifications, and applicable permit conditions to verify the integrity of the pipeline before placing the pipeline into service. Hydrostatic testing will be conducted using water as the test medium and will include mainline segment testing as well as optional "pretesting" of segments to be installed using the horizontal directional drill (“HDD”) or direct pipe installation (“DPI”).

Enbridge proposes to acquire hydrostatic test water from surface water sources along the pipeline route in accordance with State of Wisconsin regulations and required permits. The pipeline will be tested in discrete segments/sections, determined by factors such as hydraulics, operating pressure, pipe class locations, and terrain conditions (i.e., elevation). Water may be transferred from one test section to another for testing the pipeline and associated appurtenances. The start dates for water withdrawal and hydrostatic testing will be dependent on receipt of all applicable permits/authorizations and pipeline construction progress.

2.0 WATER REQUIREMENTS

Stream flows in the Project area are known to vary significantly from base flow conditions to high water conditions, depending on time of year and rainfall/snowmelt events. To the extent practicable, Enbridge will avoid water withdrawals during periods of extremely low flow conditions due to factors such as drought. Enbridge will monitor water flow conditions at the respective intake locations prior to appropriation and will work with the respective agencies to establish minimum flow thresholds at each proposed intake location to protect downstream use and aquatic life. If surface water is unavailable, Enbridge will acquire water from available alternate sources, such as municipal sources.

Enbridge has identified potential water sources to be used for filling each pipe test section. These sources were selected based on the size of the waterbody, the estimated flow available for appropriation, the proximity to construction test section breaks, and to allow flexibility in selecting sources based on conditions at the time of testing. Enbridge’s proposed appropriation sources, along with the estimated volume of water required are listed in Table 2-1. Water volumes discussed below include the nominal volume needed plus 15% contingency. Enbridge proposes to use municipal water sources to test discrete pipeline segments, such as HDD and DPI segments. Municipal water will be collected and disposed at a licensed treatment facility.

Table 2-1 Mainline Hydrostatic Test Water Appropriation Sources and Estimated Volumes		
Intake ID Number	Proposed Source	Potential Appropriation Volume (gallons) ^{a/}
001	White River Reservoir	8,700,000
002	Marengo River	8,700,000
003	Tyler Forks River	8,700,000
^{a/} Appropriation volumes may vary depending on the availability of water, construction progress, and final test sections. The maximum volume of water that would be acquired from any single source is listed.		

Enbridge intends to install the pipeline using trenchless techniques (i.e., HDD or DPI) at 13 locations, listed in Table 2-2. All pipe installed via HDD and DPI will be pretested prior to installation. After installation, these sections will then be welded to the rest of the mainline and included in the mainline pressure tests. Crossings utilizing conventional boring methods (non-HDD) do not require a pre-installation pressure test. Enbridge intends to use water from municipal sources for the discrete HDD or DPI test segments and will haul water to and from the site for purposes of testing the pipe sections. Water may be used for multiple pretests and will be trucked from location to location. Water for these sections will be collected and discharged at a licensed water treatment facility.

Table 2-2 Proposed HDD and DPI Discrete Pipeline Test Segments		
Test Segment	Approximate Pipeline Segment Length (ft)	Estimated Total Water Required (gal)
White River	4,479	170,700
Deer Creek	1,790	69,500
Marengo River	2,013	78,100
Brunsweler River	2,809	107,100
Hwy13/Canadian National Railroad	2,007	76,500
Trout Brook	2,356	91,400
Billy Creek	1,788	69,400
Silver Creek	3,465	132,100
Krause Creek	2,092	81,200
Bad River	1,788	68,200
Tyler Forks River	1,851	71,800
Potato River	3,496	133,300
Vaughn Creek	2,072	80,400

3.0 WATER APPROPRIATION

Prior to hydrostatically testing the pipeline, Enbridge will use cleaning pigs and a small volume of water to remove mill scale and other loose debris from the pipe. The materials recovered will be disposed of at an approved facility. Wash water would be handled according to permits or disposed at an approved facility. Water treatment processes will be utilized to clean the discharge water to meet the requirements of the DNR Water Use General Permit and/or other applicable permits. Once the pipeline segment has been cleaned, a bi-directional pig will be inserted into the pipeline, the line will be filled with water behind the pig.

As part of the hydrostatic testing, Enbridge will fill the pipeline using water withdrawn from the appropriation source through a screened floating/suspended appropriation structure, which will pull water from the surface. The proposed intake structures will not require any streambed disturbance and, will therefore not impede navigation. The intake structures can be easily installed and/or removed as necessary depending on the conditions at that time. Enbridge proposes withdrawal rates ranging from 1,000-3000 gallons per minute, but the withdrawal rate will not exceed 10 percent of the flow volume of the water source or other permitting limitations. Enbridge will adhere to water withdrawal restrictions in accordance with applicable permit conditions to maintain adequate flow rates to support downstream water use and aquatic life in the source waters.

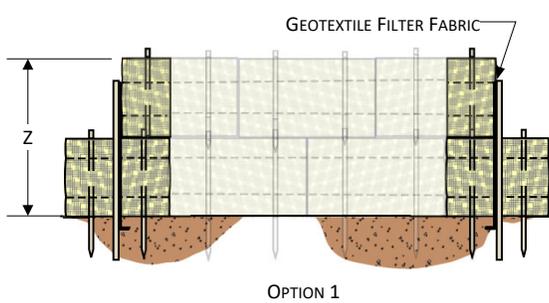
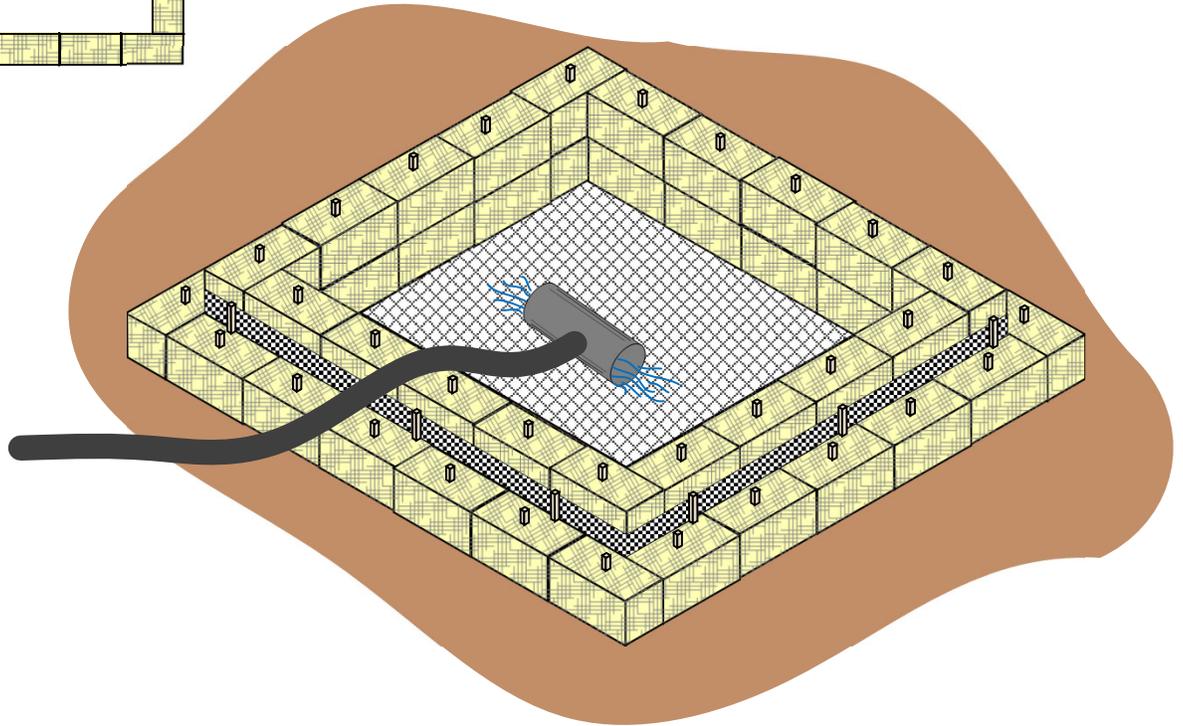
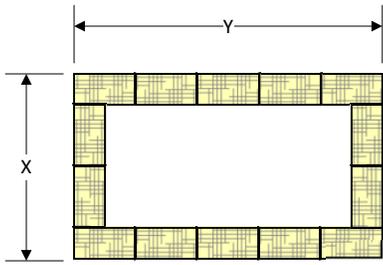
The total water volume required for mainline testing purposes is approximately 8.7 million gallons. Due to construction progress variability and water availability at the time of the test, test sections will be finalized by Enbridge immediately prior to testing. To provide flexibility for mainline hydrotesting, Enbridge has identified the sources as listed in Table 2-1. The total volume appropriated from all combined sources will not exceed 8.7 million gallons, but may be appropriated from any combination of the three sources listed in Table 2-1. Source water may be used for more than one mainline test segment. Headers will be installed on both ends of each test section, and transfer lines will be installed between each test section to transfer water into and out of each independent test section. Source water will remain separated during the hydrotests and will be returned to the river system from which it was appropriated. Where test sections require different volumes of water, additional water may be pumped to the section being tested, or excess water may be discharged at the designated outfall location. Testing the pipe in this manner would reduce the total amount of water needed for hydrostatic testing of the pipe but will result in more than one discharge event per outfall location.

4.0 WATER DISCHARGE AND TESTING

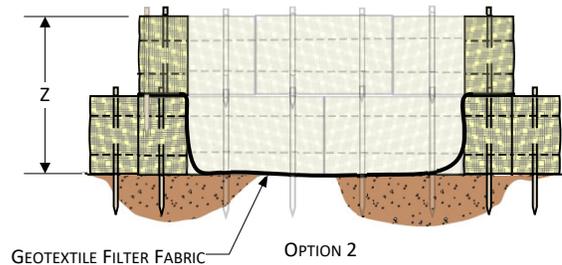
After testing is completed, compressed air will be pumped into the pipeline in front of the pigs, pushing the water back towards the appropriation/fill end of the pipeline. Water will be discharged into a dewatering/energy dissipation structure (figure 4-1) located near the appropriation source at the proposed discharge outfalls shown on figures 4-2 through 4-4 and in accordance with permit conditions and Enbridge's Environmental Protection Plan ("EPP"). The discharge rate will be monitored and adjusted as necessary to prevent erosion and/or sediment transport into sensitive resource areas and to prevent downstream flooding. Water will not be discharged directly into the source waterbody unless specifically authorized by the applicable hydrostatic test water discharge permits. All hydrostatic testing activities will be monitored by environmental and/or craft inspectors and the appropriation/discharge rates adjusted as necessary.

Enbridge will collect samples of the discharge water and analyzed the samples in association with the conditions of the respective permits. Proper care will be taken to ensure appropriate collection, treatment,

and transport of samples. Only properly trained individuals will be allowed to collect discharge samples for analysis. The samples will be representative of the monitored discharge.



PERSPECTIVE VIEW



NOTES

1. SIZE AND DIMENSION OF DEWATERING STRUCTURE WILL VARY DEPENDING ON THE VOLUME AND RATE OF DISCHARGE. STAGGER PLACEMENT OF STRAW BALES WHEN TWO ROWS ARE USED.
2. COVER THE BASE OF THE DISCHARGE STRUCTURE EITHER WITH STRAW BALES (OPTION 1) OR LINE WITH GEOTEXTILE FABRIC (OPTION 2).
3. PROVIDE SUPPORT TO ENSURE THAT DISCHARGE PIPE DOES NOT REST ON STRAW BALES.
4. PLASTIC SHEETING, WOODEN MATS OR STEEL PLATES MAY ALSO BE USED, AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR, TO PREVENT EROSION, STREAMBED SCOUR, SUSPENSION OF SEDIMENTS OR EXCESSIVE STREAMFLOW.
5. PREVENT EROSION, STREAMBED SCOUR, SUSPENSION OF SEDIMENTS AND EXCESSIVE STREAMFLOW BY PROPER DESIGN OF STRUCTURE, REGULATING THE WATER DISCHARGE RATE AS WELL AS USE OF ENERGY DISSIPATION DEVICE(S) AND SEDIMENT BARRIERS, AS NECESSARY.

For environmental review purposes only.

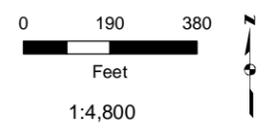


Figure 4-1
Straw Bale Dewatering Structure with Splash Pup





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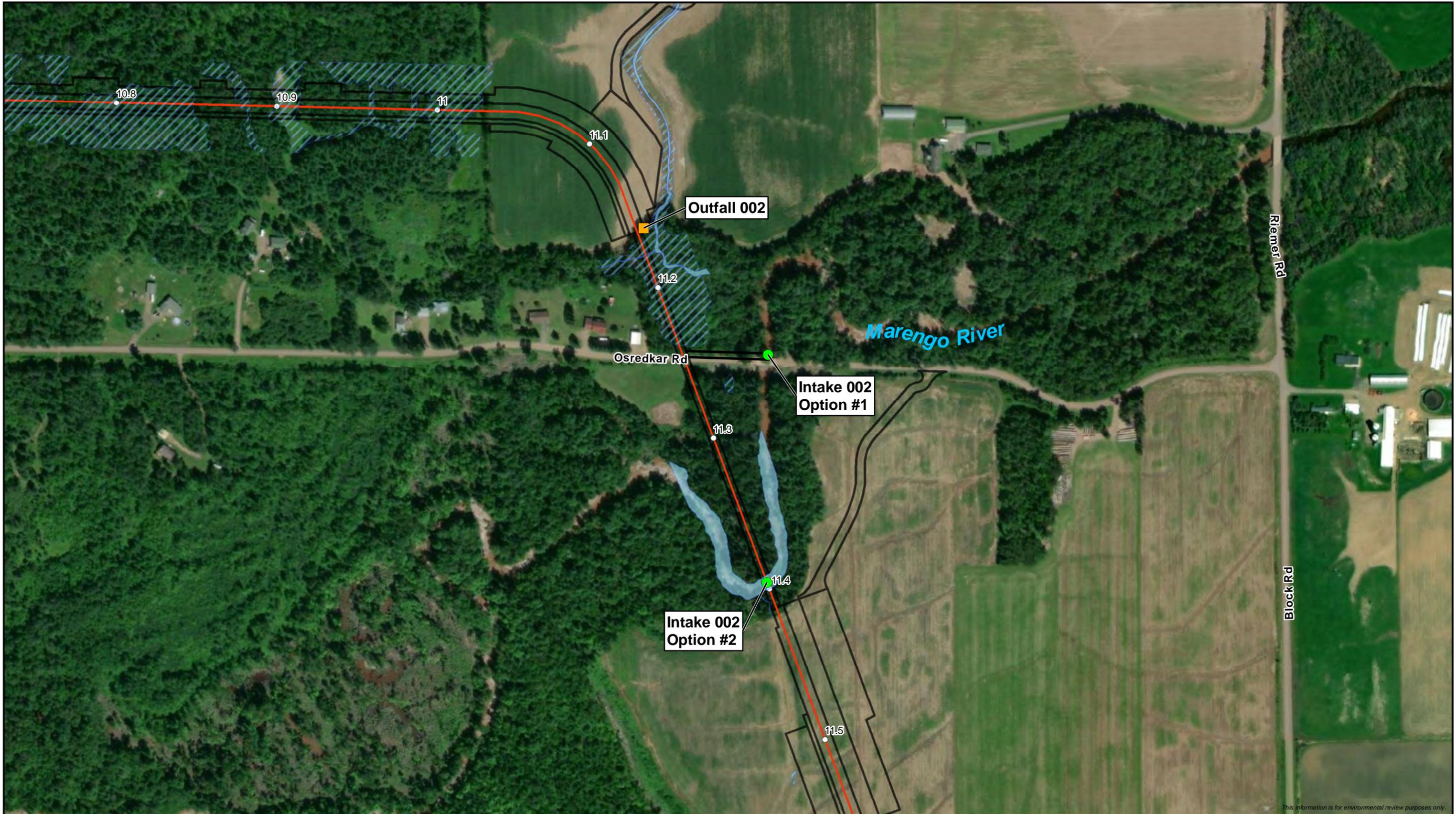


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|---------------------------|----------------------|
| Proposed Locations | Workspace |
| Intake | Delineated Waterbody |
| Outfall | Delineated Wetland |
| Milepost | |
| Proposed Centerline | |

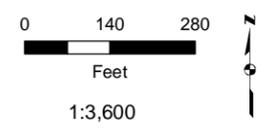


**Figure 4-2 White River
Hydrostatic Test Intake and Outfall Locations
Line 5 Wisconsin Segment Relocation Project**
Enbridge Energy





This information is for environmental review purposes only.



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|---------------------------|----------------------|
| Proposed Locations | Workspace |
| Intake | Delineated Waterbody |
| Outfall | Delineated Wetland |
| Milepost | |
| Proposed Centerline | |

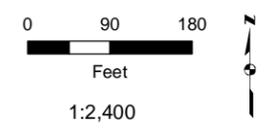


**Figure 4-3 Marengo River
Hydrostatic Test Intake and Outfall Locations**
Line 5 Wisconsin Segment Relocation Project
Enbridge Energy





This information is for environmental review purposes only.



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|---------------------------|----------------------|
| Proposed Locations | Workspace |
| Intake | Delineated Waterbody |
| Outfall | Delineated Wetland |
| Milepost | |
| Proposed Centerline | |



**Figure 4-4 Tyler Forks
Hydrostatic Test Intake and Outfall Locations**
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