

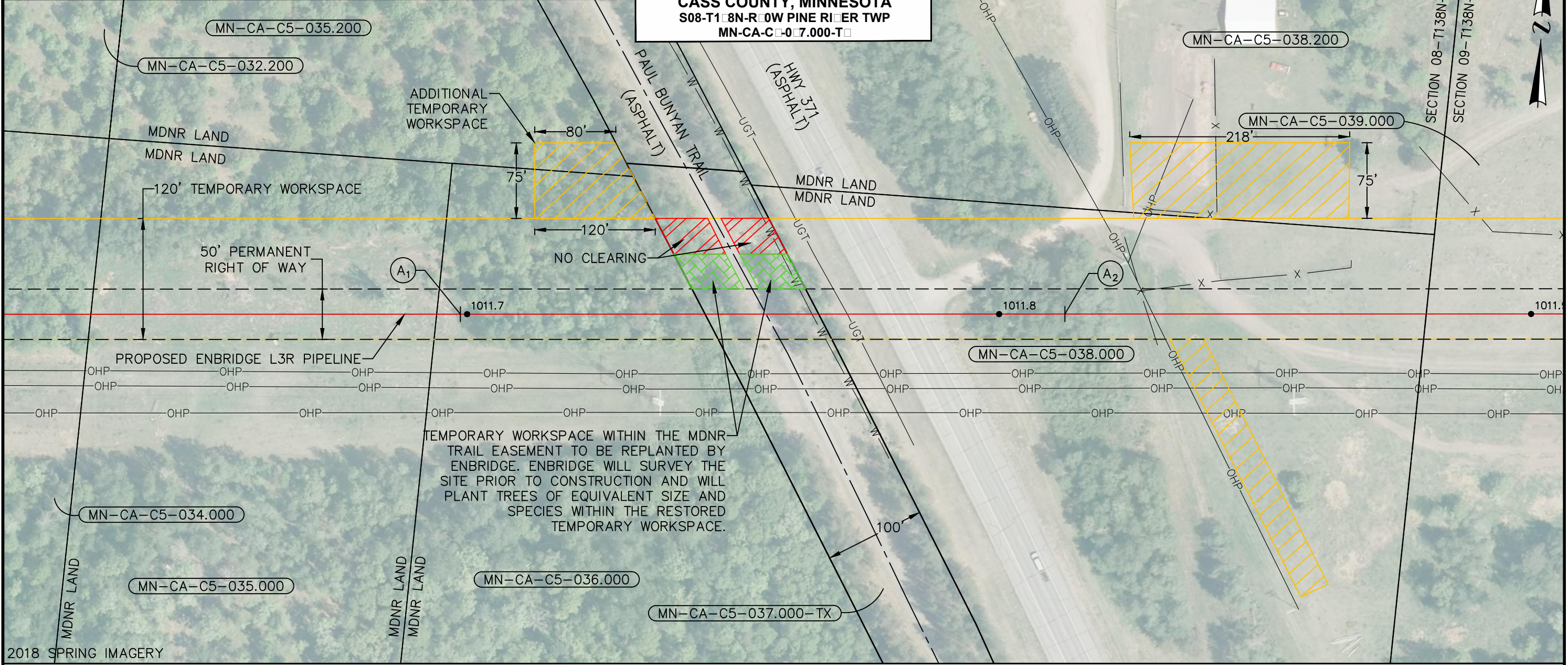
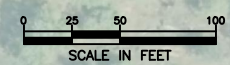
Attachment I

Site-Specific Crossing and Restoration Plans

- Paul Bunyan State Trail
- Willard Munger State Trail
- Little Otter Creek Aquatic Management Area

PROPRIETARY AND CONFIDENTIAL – CRITICAL ENERGY INFRASTRUCTURE INFORMATION,
 NOT SUBJECT TO PUBLIC DISCLOSURE PURSUANT TO 18 CFR PART 388 AND/OR
 SUBJECT TO CONTRACTUAL CONFIDENTIALITY REQUIREMENT

**PAUL BUNYAN TRAIL
 STATE TRAIL
 CASS COUNTY, MINNESOTA
 S08-T18N-R0W PINE RIVER TWP
 MN-CA-C07.000-T**



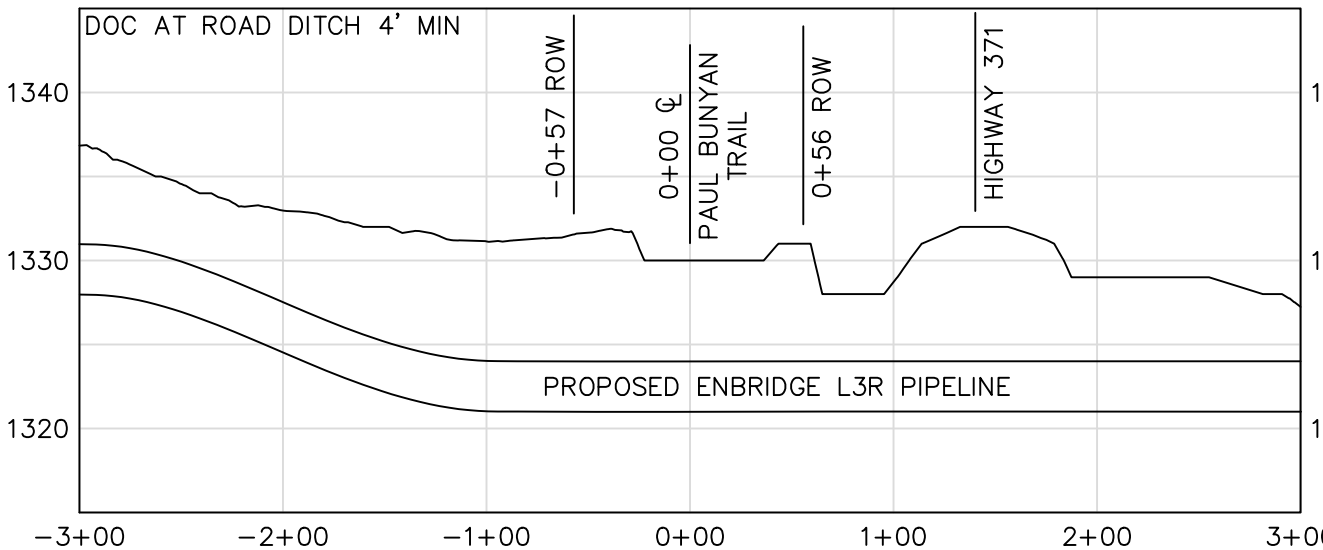
GENERAL NOTES:

- CROSSING INSTALLATION SHALL BE IN ACCORDANCE WITH APPLICABLE PERMIT REQUIREMENTS
- ELEVATIONS SHOWN ARE REFERENCED TO THE NAVD88

LEGEND

	PROPOSED ENBRIDGE L3R PIPELINE
	PERMANENT RIGHT OF WAY
	TEMPORARY WORKSPACE
	CENTERLINE OF STATE TRAIL
	UNDERGROUND TELEPHONE
	OVERHEAD POWER
	WATER LINE
	FENCE
	TRAIL RIGHT OF WAY
	TRACT BOUNDARY
	MINNESOTA DEPARTMENT OF NATURAL RESOURCES (MDNR) PROPERTY BOUNDARY
	ADDITIONAL TEMPORARY WORKSPACE
	TRACT ID

PROFILE (A₁-A₂)



0	ISSUED FOR PERMIT APPLICATION	AJJ	10/2020	JMH	JMH
NO.	REVISION-DESCRIPTION	BY	DATE	CHK'D	APP'D

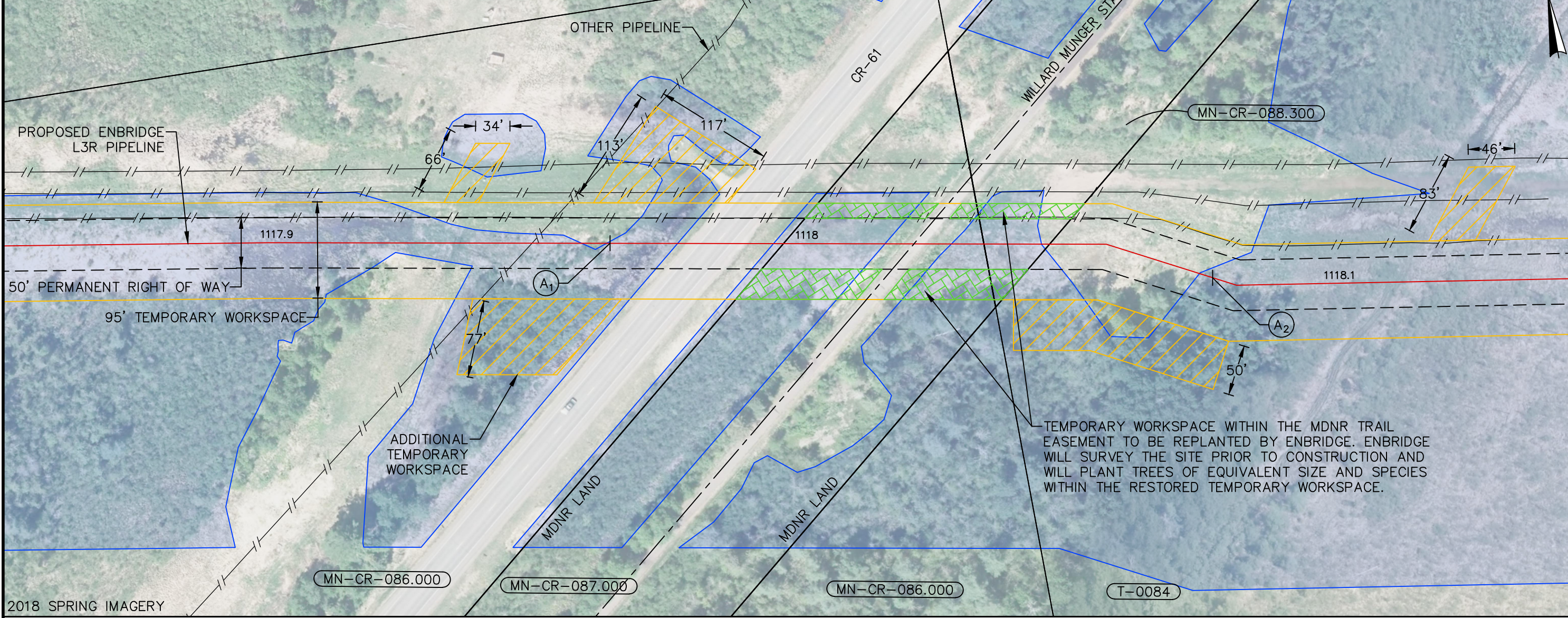
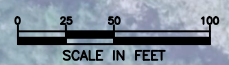


DWN. BY: AJJ	DATE: 10/2020	ENBRIDGE L3R PIPELINE PRIMARY METHOD – BORE CROSSING OF PAUL BUNYAN TRAIL ENBRIDGE MP 1011.8 CASS COUNTY, MINNESOTA	
CHK.			
PROJ. ENGR.			
PROJ. MGR.			
CLIENT APP.		SCALE: NOTED	DWG. NO.: B-93-5.81-MDNR-PB-0

FOR ENVIRONMENTAL REVIEW PURPOSES ONLY

PROPRIETARY AND CONFIDENTIAL – CRITICAL ENERGY INFRASTRUCTURE INFORMATION,
 NOT SUBJECT TO PUBLIC DISCLOSURE PURSUANT TO 18 CFR PART 388 AND/OR
 SUBJECT TO CONTRACTUAL CONFIDENTIALITY REQUIREMENT

**WILLARD MUNGER TRAIL
 STATE TRAIL
 CARLTON COUNTY, MINNESOTA
 S1-T48N-R17W TWIN LAKES TWP
 MN-CR-087.000**



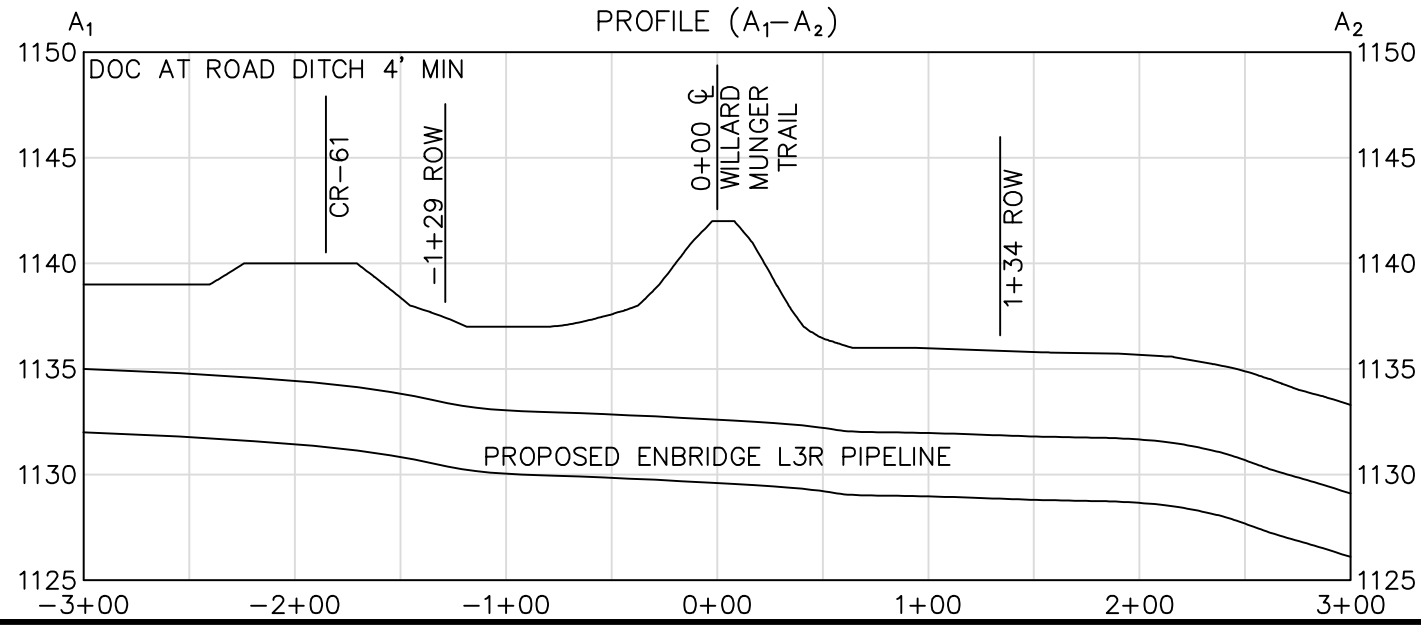
2018 SPRING IMAGERY

TEMPORARY WORKSPACE WITHIN THE MDNR TRAIL EASEMENT TO BE REPLANTED BY ENBRIDGE. ENBRIDGE WILL SURVEY THE SITE PRIOR TO CONSTRUCTION AND WILL PLANT TREES OF EQUIVALENT SIZE AND SPECIES WITHIN THE RESTORED TEMPORARY WORKSPACE.

- GENERAL NOTES:**
- CROSSING INSTALLATION SHALL BE IN ACCORDANCE WITH APPLICABLE PERMIT REQUIREMENTS
 - ELEVATIONS SHOWN ARE REFERENCED TO THE NAVD88

LEGEND

	PROPOSED ENBRIDGE L3R PIPELINE
	OTHER PIPELINE
	PERMANENT RIGHT OF WAY
	TEMPORARY WORKSPACE
	CENTERLINE OF STATE TRAIL
	TRACT BOUNDARY
	MDNR LAND
	MINNESOTA DEPARTMENT OF NATURAL RESOURCES (MDNR) PROPERTY BOUNDARY
	WETLAND
	ADDITIONAL TEMPORARY WORKSPACE
	TRACT ID



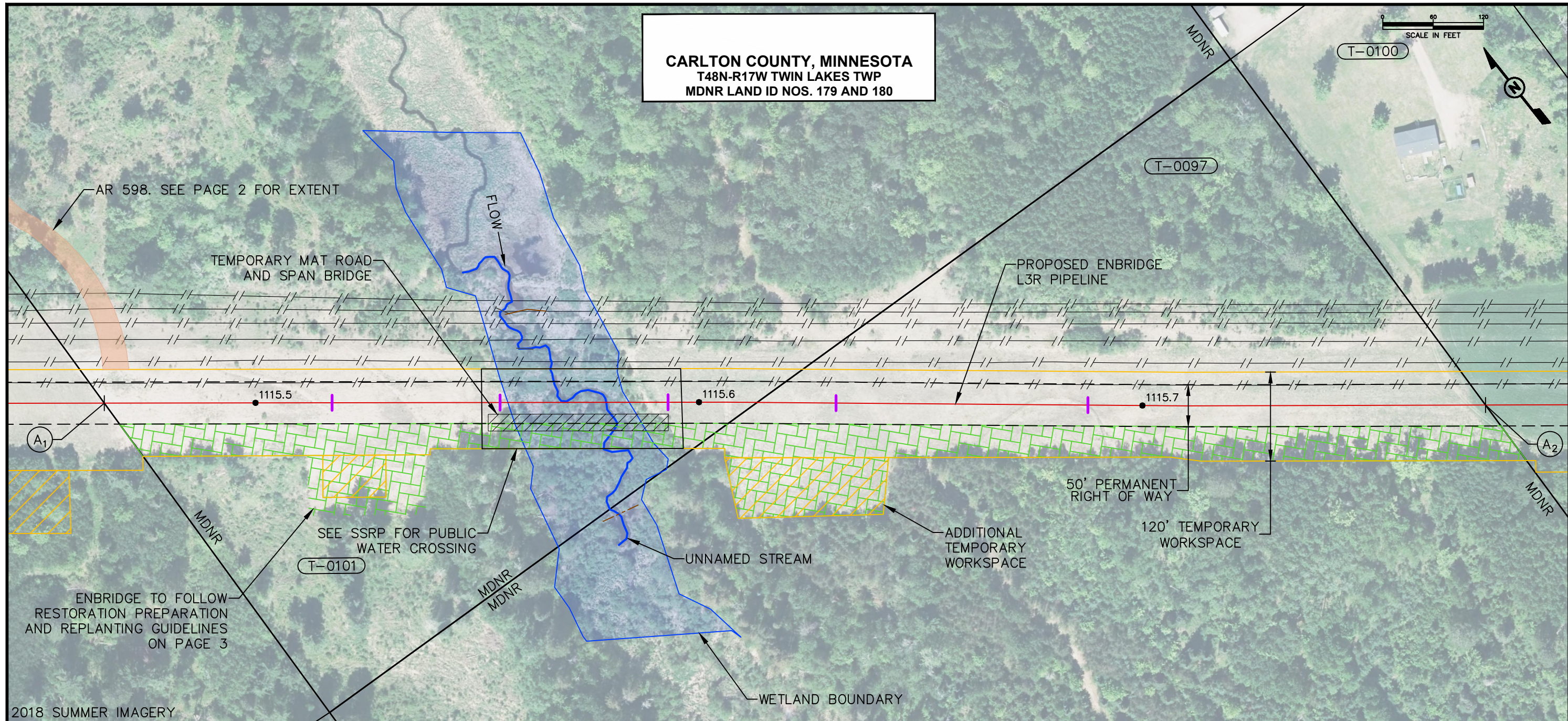
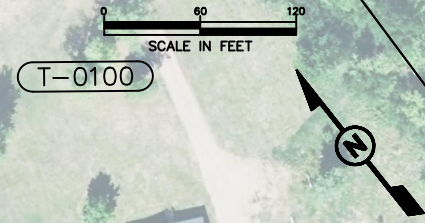
0	ISSUED FOR PERMIT APPLICATION	AJJ	10/2020	JMH	JMH
NO.	REVISION-DESCRIPTION	BY	DATE	CHK'D	APP'D



DWN. BY: AJJ	DATE: 10/2020	ENBRIDGE L3R PIPELINE PRIMARY METHOD – BORE CROSSING OF WILLARD MUNGER TRAIL ENBRIDGE MP 1118.0 CARLTON COUNTY, MINNESOTA	
CHK.			
PROJ. ENGR.			
PROJ. MGR.			
CLIENT APP.		SCALE: NOTED	DWG. NO.: B-93-5.81-MDNR-WM-0

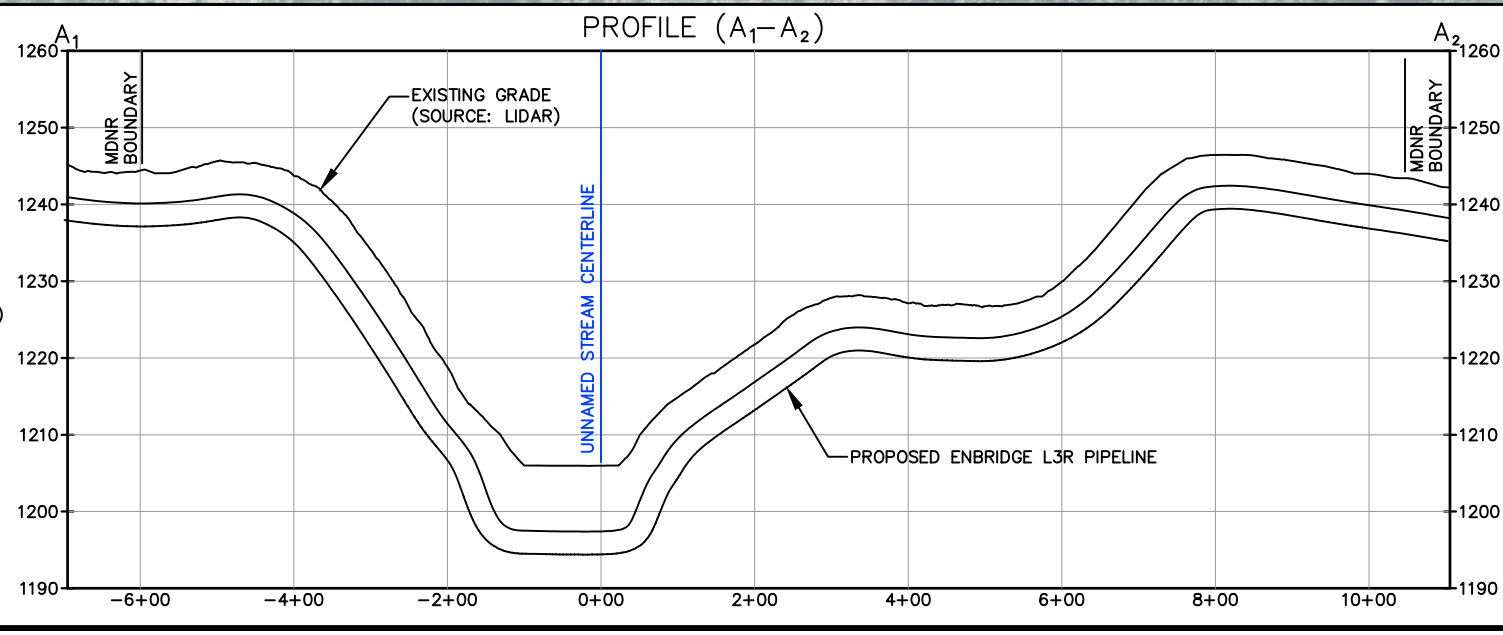
FOR ENVIRONMENTAL REVIEW PURPOSES ONLY

CARLTON COUNTY, MINNESOTA
T48N-R17W TWIN LAKES TWP
MDNR LAND ID NOS. 179 AND 180



2018 SUMMER IMAGERY

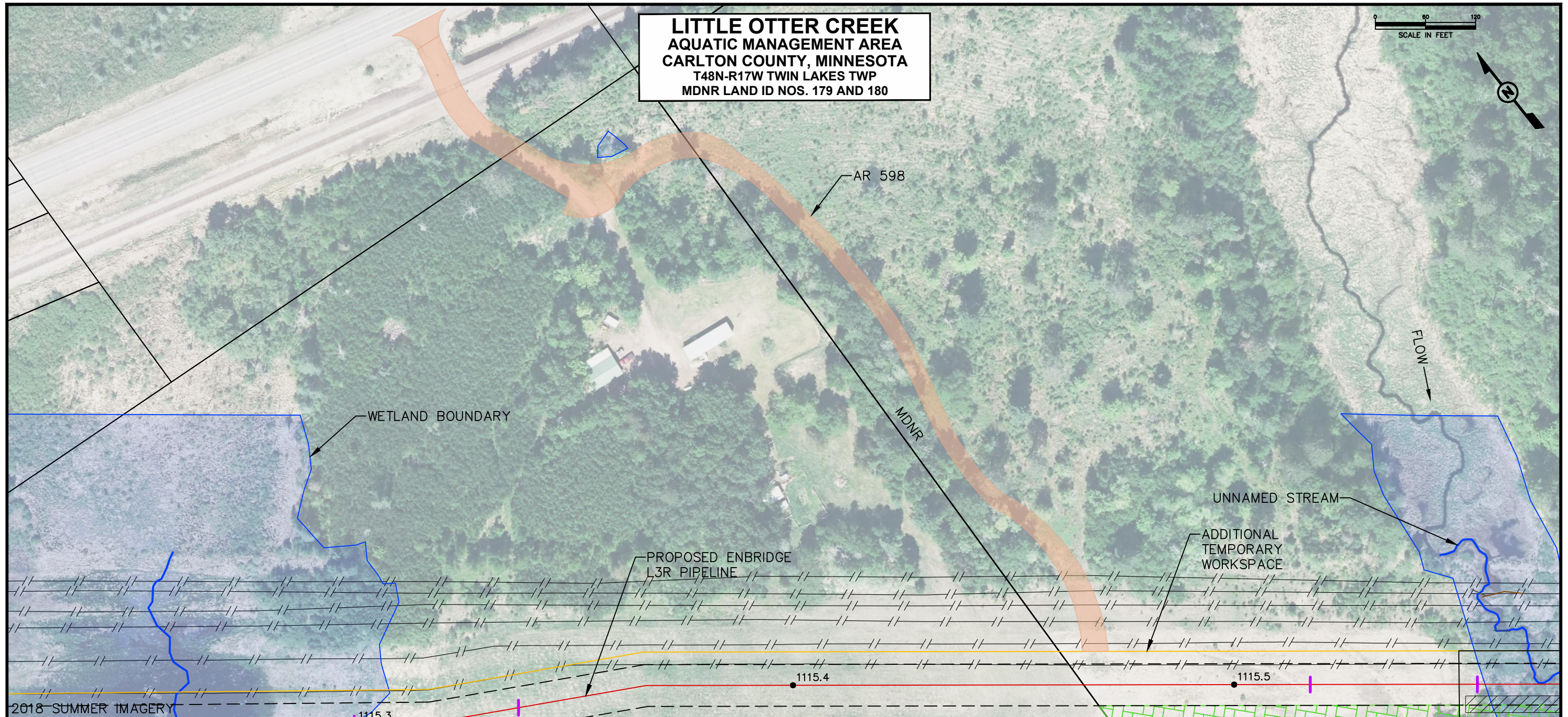
- NOTES**
- NO FEMA DIGITAL FLOODPLAIN DATA AVAILABLE
 - ENBRIDGE WILL CONSTRUCT THE PIPELINE TO A NOMINAL 4 FOOT DEPTH OF COVER ACROSS THE MDNR PARCELS, EXCEPT FOR AT THE UNNAMED STREAM AT MP 1115.6. THERE, ENBRIDGE WILL INSTALL THE PIPE TO 4.3 FEET DEPTH OF COVER BETWEEN WETLAND BOUNDARIES.
 - AREAS WHERE WOODY VEGETATION HAS PREVIOUSLY BEEN REMOVED FOR ACCESS PURPOSES, AND ARE OUTSIDE THE PROPOSED ACCESS ROAD FOOTPRINT, WILL BE REPLANTED WITH WOODY VEGETATION.
- LEGEND**
- PROPOSED ENBRIDGE L3R PIPELINE
 - OTHER PIPELINE
 - PERMANENT RIGHT OF WAY
 - TEMPORARY WORKSPACE
 - WATERBODY (ROSGEN SURVEY - THALWEG)
 - WOODY DEBRIS
 - TRACT BOUNDARY
 - MINNESOTA DEPARTMENT OF NATURAL RESOURCES (MDNR) BOUNDARY
 - TEMPORARY MAT ROAD AND SPAN BRIDGE
 - ACCESS ROAD
 - WETLAND
 - ADDITIONAL TEMPORARY WORKSPACE
 - WOODY RE-VEGETATION REPLANTING AREA
 - TRACT ID
 - TRENCH BREAKER (LOCATIONS ARE APPROXIMATE)
- FOR ENVIRONMENTAL REVIEW PURPOSES ONLY**



A		ISSUED FOR PERMIT APPLICATION		MJT	10/2020		
NO.	REVISION-DESCRIPTION			BY	DATE	CHK'D	APP'D
ENBRIDGE							
DWN. BY:	MJT	DATE	10/2020	ENBRIDGE L3R PIPELINE CROSSING OF LITTLE OTTER CREEK AQUATIC MANAGEMENT AREA ENBRIDGE MP 1115.3-1116.0 CARLTON COUNTY, MINNESOTA			
CHK.							
PROJ. ENGR.							
PROJ. MGR.							
CLIENT APP.		SCALE	NOTED	DWG. NO.	B-93-5.81-MDNR-LOC_AMA-01		

**LITTLE OTTER CREEK
AQUATIC MANAGEMENT AREA
CARLTON COUNTY, MINNESOTA
T48N-R17W TWIN LAKES TWP
MDNR LAND ID NOS. 179 AND 180**

0 50 100
SCALE IN FEET



- NOTES**
1. NO FEMA DIGITAL FLOODPLAIN DATA AVAILABLE.
 2. AREAS WHERE WOODY VEGETATION HAS PREVIOUSLY BEEN REMOVED FOR ACCESS PURPOSES, AND ARE OUTSIDE THE PROPOSED ACCESS ROAD FOOTPRINT, WILL BE REPLANTED WITH WOODY VEGETATION.

LEGEND

	PROPOSED ENBRIDGE L3R PIPELINE
	OTHER PIPELINE
	PERMANENT RIGHT OF WAY
	TEMPORARY WORKSPACE
	WATERBODY (ROSGEN SURVEY - THALWEG)
	WOODY DEBRIS
	TRACT BOUNDARY
	MINNESOTA DEPARTMENT OF NATURAL RESOURCES (MDNR) BOUNDARY
	TEMPORARY MAT ROAD AND SPAN BRIDGE
	ACCESS ROAD
	WETLAND
	ADDITIONAL TEMPORARY WORKSPACE
	WOODY RE-VEGETATION REPLANTING AREA
	TRACT ID
	TRENCH BREAKER (LOCATIONS ARE APPROXIMATE)

A	ISSUED FOR PERMIT APPLICATION	MJT	10/2020		
NO.	REVISION-DESCRIPTION	BY	DATE	CHK'D	APP'D



DWN. BY:	MJT	DATE	10/2020
CHK.			
PROJ. ENGR.			
PROJ. MGR.			
CLIENT APP.			
SCALE		NOTED	
DWS. NO.		B-93-5.81-MDNR-LOC_AMA-02	

ENBRIDGE L3R PIPELINE
CROSSING OF LITTLE OTTER CREEK
AQUATIC MANAGEMENT AREA
ENBRIDGE MP 1115.3-1116.0
CARLTON COUNTY, MINNESOTA

FOR ENVIRONMENTAL REVIEW PURPOSES ONLY

RESTORATION PREPARATION

1. ALTERNATIVE METHODS OF DECOMPACTION OF THE HARD PACKED SOIL MAY BE UTILIZED IF THERE IS THE POTENTIAL FOR DAMAGE TO EXISTING ROOT STRUCTURE.
2. RIPPING OF ENTIRETY OF TEMPORARY ACCESS/WORK AREAS USING A BULLDOZER EQUIPPED WITH A DOWN PRESSURE POWERED RIPPER AND BLADE CAPABLE OF RIPPING A MINIMUM OF 8 INCHES OF HARD PACKED SOIL. BULLDOZER MUST ALSO BE EQUIPPED WITH LOW GROUND PRESSURE TRACKS. ACTIVITIES WILL INCLUDE SITE PREPARATION/SOIL AERATION FOR PLANTING TREES IN AREAS WHERE WOODY VEGETATION HAS PREVIOUSLY BEEN REMOVED FOR ACCESS PURPOSES, AND ARE OUTSIDE THE PROPOSED ACCESS ROAD FOOTPRINT.
3. DISTANCE BETWEEN RIPPED FURROWS SHOULD NOT EXCEED 2 FEET.
4. AR598 WILL BE MAINTAINED BY ENBRIDGE FOR PERMANENT ACCESS TO THE OPERATIONAL RIGHT-OF-WAY AND WILL NOT BE DECOMPACTED/RE-PLANTED.

MISCELLANEOUS PROVISIONS:

5. WORK CANNOT BEGIN BEFORE THE GROUND HAS SUFFICIENTLY THAWED FOR SUFFICIENT RIPPING DEPTH AND SOIL RE-CONTOURING.
6. RIPPING DEPTH WILL BE MEASURED UPON INSPECTION. THIS MINIMUM DEPTH MUST BE UNIFORMLY REACHED IN ORDER TO MEET THE TERMS OF THE RESTORATION.

REQUIRED EQUIPMENT SPECIFICATIONS:


7. BULL DOZER EQUIPPED WITH DOWN PRESSURE POWERED RIPPER AND BLADE CAPABLE OF RIPPING HARD PACKED SOIL TO A MINIMUM DEPTH OF 8 INCHES. MACHINE MUST HAVE SUFFICIENT HORSEPOWER TO PULL A RIPPER THROUGH HIGHLY COMPACTED SOILS.

SEEDING GUIDELINES:

PLANTING PLAN WITHIN THE VEGETATION MANAGEMENT PLAN FOR PUBLIC LANDS AND WATERS.

REPLANTING GUIDELINES

1. FOLLOWING CONSTRUCTION, ALL WOODY RE-VEGETATION PLANTING WILL BE DONE IN ACCORDANCE WITH THE POST CONSTRUCTION VEGETATION MANAGEMENT PLAN FOR PUBLIC LANDS AND WATERS. ALSO SEE THE SITE-SPECIFIC RESTORATION PLAN FOR THE UNNAMED STREAM WITHIN THE LICENSE TO CROSS PUBLIC WATERS APPLICATION.
2. ALL TEMPORARY RIGHT-OF-WAY AND ADDITIONAL TEMPORARY WORK SPACE FROM THIS AND PREVIOUS PIPELINE INSTALLATIONS NOT CURRENTLY IN FORESTED CONDITION MUST BE PLANTED WITH A MIX OF THE FOLLOWING SPECIES:
 - WHITE PINE
 - RED OAK
 - SILVER MAPLE
 - SUGAR MAPLE
 - YELLOW BIRCH (FOCUS PLANTING IN WETTER AREAS)
3. NO ONE SPECIES CAN COMPRISE MORE THAN 25% OF PLANTINGS. ALL TREES LISTED ABOVE MUST COMPRISE A MINIMUM OF 10% BY NUMBER PLANTED.
4. TREES CAN BE BARE ROOT (MINIMUM OF 12 INCHES IN HEIGHT), OR LARGER POTTED STOCK.
5. EFFORT MUST BE MADE TO REDUCE SOIL COMPACTION PRIOR TO PLANTING.
6. RED OAK MUST HAVE PROTECTIVE 30" PROTEX PRO/GRO SOLID TUBE TREE PROTECTORS.
7. WHITE PINE MUST BE INDIVIDUALLY FENCED WITH WELDED WIRE 2X4 INCH MESH 6 FOOT HIGH FENCING, WITH A 7 FT CIRCUMFERENCE SUPPORTED BY 2 FENCE POSTS.
8. TREES SHOULD BE PLANTED RANDOMLY (NOT IN EVEN ROWS) WITH APPROXIMATELY 8 TO 10 FT SPACING FROM SURROUNDING TREES. SPECIES SHOULD ALSO BE RANDOMLY MIXED TOGETHER, WITH THE EXCEPTION OF YELLOW BIRCH WHICH SHOULD BE PLANTED IN WETTER SOILS ONLY.
9. TREES MUST BE OF MINNESOTA ORIGIN AND PURCHASED THROUGH MDNR APPROVED NURSERY.
10. ENBRIDGE WILL WORK WITH MDNR TO IDENTIFY TREES LOCATED WITHIN THE CONSTRUCTION WORKSPACE. ENBRIDGE WILL BE RESPONSIBLE FOR ACQUIRING AND PLANTING TREES OF EQUIVALENT SIZE AND SPECIES WITHIN THE RESTORED TEMPORARY WORKSPACE DURING FINAL RESTORATION. DEPENDING ON TIMING, THIS COULD REQUIRE A TEMPORARY BRIDGE OVER THE UNNAMED STREAM.

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DWN. BY:	MJT	DATE	10/2020	ENBRIDGE L3R PIPELINE CROSSING OF LITTLE OTTER CREEK AQUATIC MANAGEMENT AREA ENBRIDGE MP 1115.3-1116.0 CARLTON COUNTY, MINNESOTA	
CHK.					
PROJ. ENGR.					
PROJ. MGR.					
CLIENT APP.					
SCALE			DWG. NO.		
NOTED			B-93-5.81-MDNR-LOC_AMA-03		