ENBRIDGE ENERGY, LIMITED PARTNERSHIP'S SCOPING COMMENTS

I. INTRODUCTION

Enbridge Energy, Limited Partnership ("Enbridge" or "Company") respectfully submits its comments to provide suggested clarifications, corrections and changes to the Draft Scoping Decision Document ("DSDD") for the Line 3 Replacement Pipeline Project ("L3R" or the "Project"). Enbridge believes that the DSDD is largely consistent with the applicable statutes, rules, and Commission Orders, and provides suggested changes to ensure the environmental impact statement ("EIS") provides the Commission with appropriate information for consideration in its certificate of need ("CN") and route permit decisions for L3R. These comments are organized as follows:

I. Introduction
II. Evaluation of Alternatives
III. Modified Designs and Layouts: System Alternatives
IV. Modified Designs and Layouts: Route Alternatives
V. Study of No Action Alternative
VI. L3R's Relationship to Sandpiper ("SPP")
VII. Environmental, Social and Economic Analyses
VIII. Cumulative Effects and Identification of Phased and Connected Actions
IX. Special Studies or Research
X. Permits and Approvals Required
XI. Conclusion

To assist the reviewing agencies in responding to these Comments, Appendix A contains a proposed Final Scoping Decision Document that provides redlined suggested changes to the DSDD.

II. EVALUATION OF ALTERNATIVES

The EIS will review and compare Enbridge's Proposed Route with other alternatives proposed for the Project. As discussed below, Enbridge's route selection process is comprehensive and dynamic. Enbridge's current Proposed Route includes over 50 major and minor changes from the first-submitted Proposed Route responding to landowner, environmental, and agency concerns. Enbridge will continue to evaluate alternatives proposed during the scoping period to determine whether they should also be incorporated into Enbridge's Proposed Route.

Not all proposals are viable. The Minnesota Environmental Policy Act ("MEPA") and the Environmental Quality Board's ("EQB") rules specifically contemplate that not every

"alternative" proposed during scoping will be studied in the EIS. Specifically, MEPA states that the EIS should discuss "appropriate alternatives to the proposed action."[1] As stated in the DSDD, Minn. R. 4410.2300(G) provides further clarification that an alternative may be excluded from the EIS if:

- it would not meet the underlying need for or purpose of the project;
- it would likely not have any significant environmental benefit compared to the project as proposed; or
- another alternative, of any type, that will be analyzed in the EIS would likely have similar environmental benefits but substantially less adverse economic, employment, or sociological impacts.

In order to establish whether a proposed alternative should be further evaluated in the EIS, it is important that the criteria used to evaluate those alternatives are supported by the record and consistent with a "description of the project in detail" as required under MEPA.[2] For example, a proposal that does not meet the need for or purpose of the Project should not be studied in the EIS.

Further, because this EIS will take the place of the alternative form of MEPA environmental review traditionally completed as part of the pipeline route permit proceeding, Section 3.1 should mention that route alternatives should also be evaluated for consistency with the applicable criteria found in Minn. R. 7852.1400.

Section 3.1.1 of the DSDD provides additional discussion of the criteria the agencies plan to use to determine whether an alternative included in the scope of the EIS could be eliminated from further EIS analysis. Specifically, the DSDD states: "The purpose of the project is to address safety and integrity concerns of the existing Line 3 Pipeline."[3] Significantly, however, as currently drafted, this formulation of purpose and need for L3R is incomplete and should be revised in the Final Scoping Decision Document ("FSDD").

---

[1] Minn. Stat. § 116D.04, subd. 2a. *See also Friends of the Riverfront v. DeLaSalle High Sch.*, No. A06-2222, 2007 WL 4110617 (Minn. Ct. App. Nov. 20, 2007) ("Because none of the alternative options is consistent with the definition of the project, however, we conclude that the city was not required to consider any of them."); *Mayo Found. v. Surface Transp. Bd.*, 472 F.3d 545 (8th Cir. 2006) (stating that an agency is "not required . . . to consider alternatives that would frustrate the very purpose of the project. . . . [A]n alternative is unreasonable if it does not fulfill the purpose of the project").

[2] Minn. Stat. §116D.04, subd. 2a.

[3] DSDD at 5.

The following Sections II.A.-F. provide additional detail regarding the Project's purpose and need from the CN Application. The proposed FSDD attached as Appendix A provides a more comprehensive purpose and need statement in Section 3.1.1.

A. Overview of Project Purpose and Need.

In its CN Application, Enbridge provided a lengthy and in-depth discussion of the factors driving the need for the Project. As explained in detail in the CN Application, the Project's purpose is to accomplish three goals:

> The Project will address the existing Line 3's integrity risks by replacing a pipeline with a large number of integrity anomalies[4] with a new pipeline constructed with the latest technology and materials. In doing so, the Project will avoid the large number of integrity digs currently forecasted to be required on the existing Line 3 over the next 15 years, as well as the related landowner and environmental impacts.
>
> By restoring the existing Line 3's historical operating capabilities, the Project will reduce ongoing and forecasted apportionment to the refining industry in PADD II, Eastern Canada, and the Gulf Coast, including the Flint Hills and Northern Tier Energy refineries in Minnesota.
>
> The restored operational flexibility will allow Enbridge to more efficiently operate the Enbridge Mainline System, optimize its pipeline system, and reduce power utilization on a per barrel basis.[5]

Achieving these goals will help to ensure the future adequacy, reliability, and efficiency of energy supply to Enbridge's customers and, as a result, the people of Minnesota and neighboring states. As explained in more detail below, to accomplish these goals:

1. The Project must connect with existing infrastructure at Clearbrook, Minnesota, and Superior, Wisconsin, thereby integrating with and making use of an existing, complex system that has been an integral part of meeting energy needs in Minnesota, the Midwest, and beyond for more than 50 years.

---

[4] An anomaly is a generic term referring to dents, scratches, and other imperfections that need to be excavated to determine if a repair is needed. Anomalies do not refer to a leak, instead, listing anomalies found during an in-line inspection is one of the first steps in preventing leaks.

[5] CN Application at 3-1.

2. The Project must restore the historical operating capacity of the line to continue to efficiently and reliably meet those same energy needs.

As proposed by Enbridge, the Project meets both of these needs.

B. History of Line 3 and the Enbridge Mainline System.

The existing Line 3 was constructed between 1962 and 1969, is more than 1,000 miles long, and extends from Alberta, Canada, to Superior, Wisconsin.[6] Over the course of its history, the line has transported various types of crude oil, depending on shipper demand.[7] The average annual capacity of the existing Line 3 has likewise varied over its years of operation.[8] In the past, the existing Line 3 had transported in the range of 760,000 barrels per day ("bpd").[9] However, because of identified corrosion and long-seam cracking on the line, Enbridge voluntarily reduced its operating pressure such that the line currently transports only 390,000 bpd.[10, 11]

Because of its geographic location, the existing Line 3 has played and continues to play an important and integral role in delivering crude oil to (i) Minnesota Pipe Line Company's ("MPL") interconnecting facilities at Clearbrook, for redelivery to Minnesota refineries, and (ii) the Superior Terminal, for delivery to refineries in the United States and Canada.[12] If the Project did not connect to Clearbrook and Superior, deliveries to the refineries that are served by those locations would be apportioned or reduced such that the refineries would have to rely on other forms of transportation, such as rail.

---

[6] CN Application at 1-5.

[7] CN Application at 1-6.

[8] CN Application at 1-6.

[9] CN Application at 1-6. When it issued a Presidential Permit for the line in 1991, the U.S. Department of State recognized that the existing Line 3 transported in the range of 760,000 bpd. *Id.*

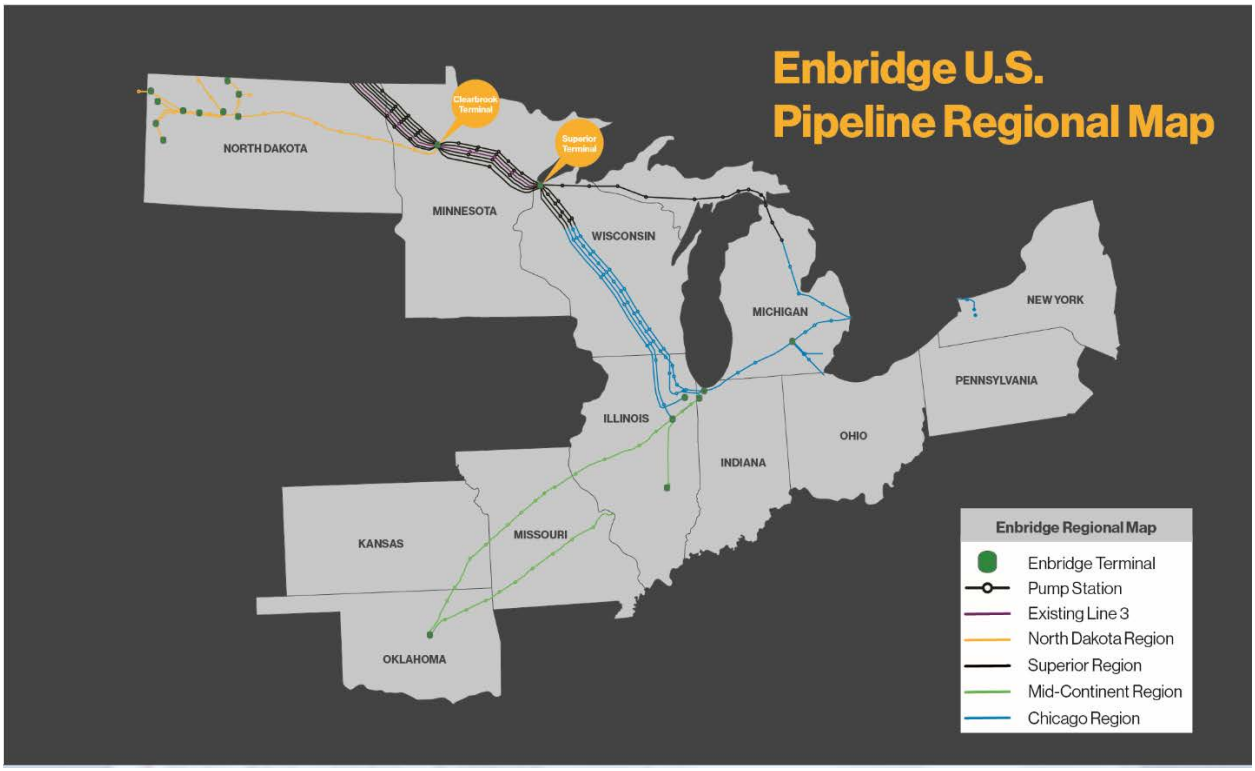
[10] CN Application at 1-7.

[11] Further, both the DSDD and EAW state that "the increased pipeline diameter restores Line 3 to its historical operating capacity of 760,000 bpd from its current capacity of 390,000." This is not accurate. The change in pipeline diameter from 34 inches to 36 inches is not what results in a capacity of 760,000 bpd. As Enbridge explained in its CN Application, the existing Line 3 has the ability to transport 760,000 bpd; however, because of integrity issues, Enbridge has voluntarily chosen not to do so. Further, Enbridge chose to use 36-inch pipe (rather than 34 inch) for the Project because 36-inch pipe is standard in the industry and is more energy efficient than 34-inch pipe at the same flow rate. CN Application, at 5-2.

[12] CN Application at 1-6. MPL owns the only pipelines serving the two Minnesota refineries, and the Enbridge facilities at Clearbrook are the only pipelines serving MPL. The MPL System currently has four pipelines and can transport approximately 465,000 bpd of crude oil. It is the primary source of crude oil supplies for the two Minnesota refineries. (http://www.minnesotapipeline.com/minnesota-pipe-line-reliability-project/.) After MPL's Reliability Project is completed, capacity on its Line 4 will increase from 165,000 to approximately 350,000 bpd. *Id.*

Like the existing Line 3, the Project will be part of the Enbridge Mainline System, which transports crude oil from the Western Canadian Sedimentary Basin to refineries in the United States and eastern Canada and consists of pipelines in North Dakota, Minnesota, Wisconsin, Illinois, Indiana, Michigan, and New York. Together with its market extension pipelines, the Enbridge Mainline System comprises more than 15,000 miles of liquid petroleum pipelines, constitutes the world's longest crude petroleum and petroleum liquids pipeline network, and is an essential component of meeting energy needs in the Midwest and beyond. For example, in 2014, Enbridge transported more than 74 percent of the crude oil imported from Canada and consumed in the Midwest.[13] Figure 1 shows the Enbridge Mainline System and interconnected Enbridge pipelines in the Midwest. Figure 8.3.E-1 shows the broader pipeline systems and refineries connected to the extensive pipeline network in North America. Finally, Table 8.3.E-2 lists the refineries that are served directly or indirectly by the Enbridge Mainline System. As shown in that table, the Enbridge Mainline System directly or indirectly serves refineries with a total capacity of more than 8 million bpd.

Figure 1: Enbridge U.S. Pipeline Regional Map



[13] CN Application at 1-3 – 1-4.

Figure 8.3.E-1: Pipeline and Refinery Map (A full size of this map is enclosed as Appendix J).

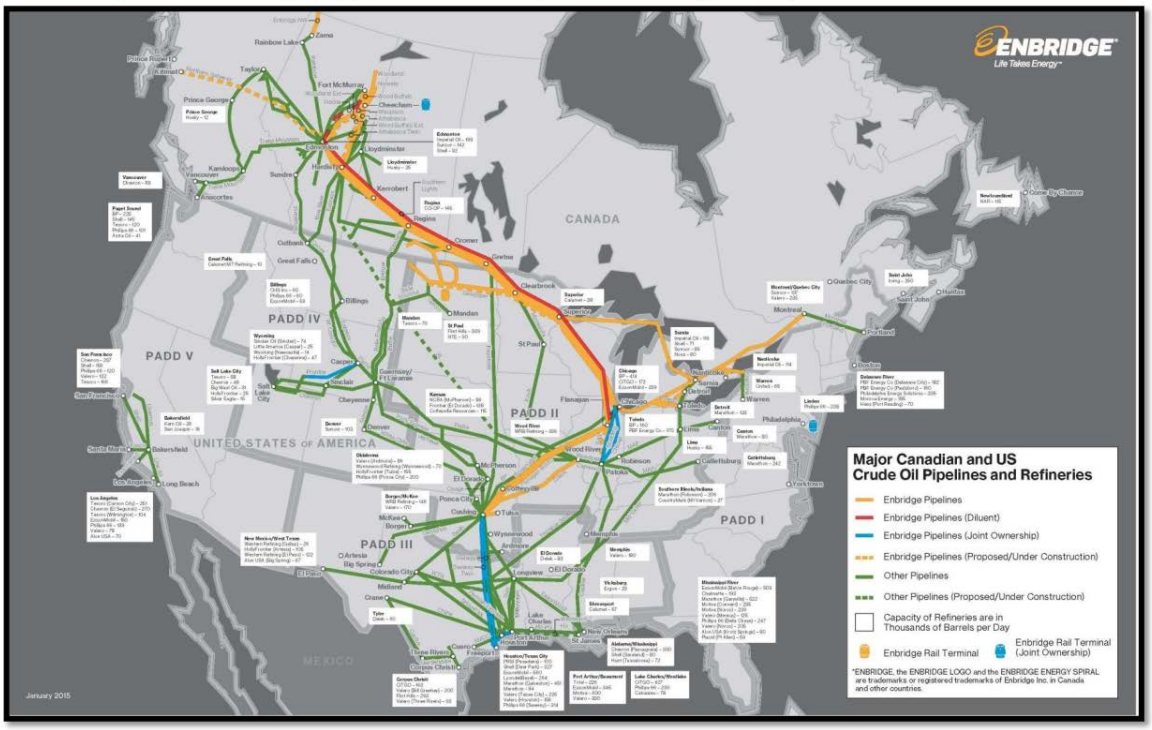


Table 8.3.E-2 Refineries Served Directly or Indirectly by Enbridge Systems				
Refinery	**Location**	**Capacity (barrels/day)**	**Connected Directly from Enbridge**	**Connected Indirectly**
Petroleum Administration for Defense District ("PADD") II - Minnesota and Wisconsin				
Northern Tier Energy	St. Paul Park, Minnesota	89,500		Yes
Flint Hills Resources	Rosemount, Minnesota	270,000		Yes
Calumet	Superior, Wisconsin	38,000	Yes	
Total		**397,500**		
PADD II - Illinois and Indiana				
ExxonMobil	Joliet, Illinois	238,600	Yes	
CITGO	Lemont, Illinois	172,000	Yes	
BP	Whiting, Indiana	413,500	Yes	
Total		**824,100**		
PADD II - Kentucky and Southern Illinois and Indiana				
Marathon	Robinson, Illinois	212,000		Yes
WRB Refining	Wood River, Illinois	336,000		Yes

Table 8.3.E-2
Refineries Served Directly or Indirectly by Enbridge Systems

Refinery	Location	Capacity (barrels/day)	Connected Directly from Enbridge	Connected Indirectly
Marathon	Catlettsburg, Kentucky	242,000		Yes
Total		**790,100**		
PADD II - Michigan and Ohio				
BP-Husky Refining	Toledo, Ohio	135,000	Yes	Yes
PBF Energy	Toledo, Ohio	160,000		Yes
Marathon	Detroit, Michigan	123,000	Yes	Yes
Marathon	Canton, Ohio	80,000		Yes
Husky	Lima, Ohio	155,000		Yes
Total		**653,000**		
PADD I – Pennsylvania				
United Refining	Warren, Pennsylvania	65,000		Yes
Ontario				
Imperial Oil	Nanticoke, Ontario	113,500	Yes	
Imperial Oil	Sarnia, Ontario	119,000	Yes	
Shell Canada	Corunna, Ontario	77,000	Yes	
Suncor	Sarnia, Ontario	85,000	Yes	
Nova Chemicals (Canada)	Corunna, Ontario	80,000	Yes	
Total		**474,500**	**Yes**	
PADD III – Cushing				
CVR Energy	Coffeyville, Kansas	115,000	Yes	
WRP Refining	Borger, Texas	146,000		Yes
Phillips 66	Ponca City, Oklahoma	200,000		Yes
HollyFrontier	El Dorado, Kansas	138,000	Yes	
NCRA	McPherson, Kansas	86,000	Yes	
HollyFrontier	Tulsa, Oklahoma	155,300	Yes	
Valero	Ardmore, Oklahoma	86,000		Yes
Valero	Sunray, Texas	156,000		Yes

Table 8.3.E-2 Refineries Served Directly or Indirectly by Enbridge Systems				
Refinery	**Location**	**Capacity (barrels/day)**	**Connected Directly from Enbridge**	**Connected Indirectly**
CVR Energy	Wynnewood, Oklahoma	70,000		Yes
HollyFrontier	Artesia, New Mexico	105,000		Yes
Total		**1,257,300**		
PADD III – United States Gulf Coast				
PRSI	Pasadena, Texas	100,000	Yes	
Deer Park Refining	Deer Park, Texas	327,000	Yes	
ExxonMobil	Baytown, Texas	560,500	Yes	
Lyondell Basell	Houston, Texas	263,800	Yes	
Phillips 66	Sweeny, Texas	247,000	Yes	
Valero	Houston, Texas	88,000	Yes	
Valero	Texas City, Texas	225,000	Yes	
Marathon	Texas City, Texas	451,000	Yes	
Marathon	Texas City, Texas	84,000	Yes	
Total	Port Arthur, Texas	225,500		Yes
ExxonMobil	Beaumont, Texas	344,600		Yes
Motiva	Port Arthur, Texas	600,300		Yes
Valero	Port Arthur, Texas	330,000		Yes
Total		**3,816,700**		

Line 3 has played an integral role in the Enbridge Mainline System since it was placed into service in the 1960s. Accordingly, it is essential to the purpose and need for L3R to continue to be able to serve the same markets to which the existing Line 3 interconnects today.

C. Purpose: Address Line 3's Integrity Risks.

1. Pipeline Maintenance.

Safe and reliable operations are the foundation of Enbridge's business, and maintaining pipeline safety through its integrity management program is essential. Over the last decade, Enbridge has transported almost 12 billion barrels of crude oil and has done so with a safe

delivery record better than 99.999 percent. However, Enbridge continues to strive towards a 100 percent safe delivery record.[14] To work towards this goal, Enbridge has a pipeline maintenance program designed to provide a comprehensive, measured, and individualized approach to integrity analysis that identifies each pipeline's current, and predicts its future, integrity risks.[15] As part of this program, all pipelines in the Enbridge Mainline System undergo regular inspections and preventative maintenance.[16]

Enbridge's program is operated pursuant to comprehensive federal regulations that require pipeline operators to develop and maintain an integrity management plan ("IMP").[17] The IMP and all documents generated by it must be maintained for inspection and audit oversight by the U.S. Department of Transportation, Pipeline Hazardous Materials Safety Administration ("PHMSA").[18] Per the regulations, pipeline operators are required to develop a written IMP that identifies all pipeline segments that could affect a high consequence area ("HCA"), conduct a baseline integrity assessment of those segments to ensure their integrity, and establish an on-going integrity assessment process tailored to individual pipeline needs.[19] The federal regulations also require pipeline operators to conduct integrity assessments using in-line inspection ("ILI") tools, external corrosion direct assessment, or other acceptable methods, at least once every five years. Operators are also required to develop individualized inspection schedules based on each pipeline segment's specific integrity needs, which may require more frequent inspections.[20]

Enbridge has invested heavily in system integrity management since its beginnings in 1949, and Enbridge's integrity management program meets or exceeds the requirements of the federal regulations. For example, although the federal regulations require pipeline operators to develop an IMP that applies to pipeline segments that could affect an HCA, Enbridge applies its IMP system-wide. Thus, in the United States, although only 32 percent (103 miles) of the existing Line 3 is considered to be located in or able to affect an HCA, Enbridge's heightened standards apply the IMP to the entire 324 miles of Line 3 in the United States.[21]

Enbridge's integrity management program is focused on three goals: (a) preventing integrity threats; (b) monitoring conditions; and (c) mitigation:[22]

---

[14] CN Application at 1-7.

[15] CN Application at 1-7.

[16] CN Application at 1-7.

[17] CN Application at 3-3.

[18] CN Application at 3-3.

[19] CN Application at 3-3.

[20] CN Application at 3-4.

[21] CN Application at 3-4 – 3-5.

[22] CN Application at 3-5.

- To prevent integrity threats, among other things, Enbridge: collects data and assesses pipeline conditions and its environment; uses coatings and cathodic protection to combat corrosion; works to reduce pressure cycling, which is a known cause contributing to pipeline fatigue and cracking; and requires its vendors to meet stringent quality standards.[23]

- To monitor pipeline conditions, Enbridge uses multiple comprehensive diagnostic capabilities, including: the most sensitive ILI tools available; hydro-testing during pipe manufacturing, pipeline commissioning, and ILI verification studies; on-line sensors; surveys; non-destructive testing; and regularly scheduled maintenance and monitoring.[24]

- To mitigate integrity threats, Enbridge employs a broad range of mitigation measures, including operating a state-of-the-art control center, reducing operating pressures, undertaking a "dig and repair," or replacing a pipeline.[25] As noted above, thousands of "digs and repairs" (or, "integrity digs") are currently forecasted to be required on Line 3 in the United States over the next several years. An integrity dig involves stripping topsoil, excavating to expose the pipe, cleaning and inspecting the pipe, replacing a pipe segment as necessary, recoating the pipe, backfilling the trench, and restoration.[26]

Pipeline replacement is considered if the number of integrity digs projected is, among other things, overly burdensome to landowners, economically infeasible, or impractical. It is a calculated decision that takes into consideration the costs and benefits to landowners, the environment, ongoing operations, and customers given the circumstances of a specific pipeline.[27] The benefits of pipeline replacement as a maintenance tool include:

- Elimination of existing and future integrity risks requiring repair. Thus, the number of required integrity digs is greatly reduced.

- Operation of the line at its intended capabilities, with corresponding benefits to shippers and their customers.

---

[23] CN Application at 3-6 – 3-7.

[24] CN Application at 3-8. For additional details on the ILI tools used by Enbridge, see pages 3-9 and 3-10 of the CN Application.

[25] CN Application at 3-10.

[26] CN Application at 3-11.

[27] CN Application at 3-15.

- Use of up-to-date and state-of-the-art pipeline design knowledge, manufacturing, and quality assurance and control methodologies.[28]

2. Line 3's Integrity Risks and Replacement Analysis.

Enbridge has gathered extensive integrity data on Line 3 throughout its years of operation. This data shows a high number of integrity anomalies – specifically, corrosion and long-seam cracking.[29] Of all of the pipelines that Enbridge operates, Line 3 has the most integrity anomalies.[30] Line 3 has also experienced a number of failures through its history (although none since Enbridge imposed voluntary pressure restrictions on the line).

Thus, Line 3 requires a high level of integrity monitoring and an extensive on-going integrity dig and repair program.[31] For example, between 2000 and 2014, Enbridge completed 108 ILI tool runs on Line 3. In addition, to ensure safe and reliable operation of Line 3, Enbridge implemented a voluntary long-term pressure reduction of the discharge of all pump stations in 2008. In 2010, Enbridge extended the pressure restriction across all of Line 3 and, in 2012, Enbridge voluntarily reduced Line 3's maximum operating pressure to align with the pressure restriction.[32]

Approximately 4,000 integrity digs in the United States alone are currently forecasted for the existing Line 3 over the next 15 years to even maintain its current, reduced level of operation.[33] This would result in year-after-year impacts to landowners and the environment and could result in repeated impacts to the same landowners and environmental features.[34] Although the existing Line 3 could continue to be safely operated through the current maintenance plan, the dig and repair program will impact lands and landowners for the foreseeable future but will not restore the historical operating capabilities of the line.[35]

[28] CN Application at 3-15.

[29] CN Application at 1-7.

[30] CN Application at 3-2.

[31] CN Application at 1-7.

[32] CN Application at 3-16.

[33] CN Application at 1-7.

[34] CN Application at 1-8.

[35] CN Application at 1-8.

3. The Line 3 Replacement Program.

The Project is a major component of Enbridge's Line 3 maintenance-driven replacement program ("Replacement Program"). Given the integrity risks described above and the associated maintenance impacts, after substantial analysis, Enbridge determined that the Replacement Program is the most efficient and least invasive approach to maintaining Line 3's integrity.[36] The Replacement Program will replace the existing Line 3 from Alberta, Canada, to Superior, Wisconsin, at an estimated cost of approximately $7.5 billion. The Project will serve the same purpose and need as the existing Line 3, which is the transportation of crude oil from Canada to Enbridge's existing Clearbrook Terminal near Clearbrook, Minnesota, and to the Superior Terminal facility near Superior, Wisconsin.[37] Enbridge filed its application for the Canadian portion of the Replacement Program in November 2014, and it has now been approved by Canada's National Energy Board.[38]

D. Purpose: Restore Historical Operating Capabilities.

1. Demand for Western Canadian Sedimentary Basin Crude Oil.

Minnesota and its neighboring states in PADD II rely heavily on crude oil from the Western Canadian Sedimentary Basin to meet refining demand; for example, in 2014, more than 76% of the crude oil refined in the upper Midwest (including Minnesota) came from Canada.[39] In the same year, Enbridge's pipelines transported more than 53 percent of Canadian crude oil production to the United States, which accounted for approximately 15 percent of total imported crude into the United States.[40] However, United States demand for Canadian crude oil transported on the Enbridge Mainline System has increased in recent decades and, as a result, demand continues to exceed available pipeline capacity.[41] Thus, refiners continue to have to meet their refining needs through other transportation means, such as rail and truck.

Demand for reliable and efficient pipeline capacity into and through Minnesota will continue, and any decrease in capacity or increase in demand downstream will negatively affect the reliability and efficiency of supply to Minnesota and neighboring states.[42] When demand

[36] CN Application at 1-8.

[37] CN Application at 1-1.

[38] *See* National Energy Board Report, Enbridge Pipelines Inc., Docket No. OH-002-2015, Volume 1: Our Decisions and Recommendations (April 2016) (finding that the Replacement Program "is in the overall Canadian public interest," that the new pipeline "will be built to modern standards and will operate with improved safety a reliability").

[39] CN Application at 3-21.

[40] CN Application at 3-22.

[41] CN Application at 3-21.

[42] CN Application at 3-21.

for pipeline capacity exceeds supply, Enbridge declares apportionment. As discussed in more detail below, apportionment generally results in shippers receiving less access to pipeline capacity or crude oil than they require.[43]

2. Reducing Apportionment.

Enbridge is a common carrier. This means that it is generally required to treat all similarly situated customers the same on the Enbridge Mainline System. When demand for pipeline capacity exceeds the actual capacity of the pipelines within the Enbridge Mainline System, Enbridge has to declare apportionment. When a pipeline is under apportionment, all shippers, such as refiners, receive less capacity for transportation of their needed crude oil supplies than they initially requested.[44] Specifically, if barrels nominated for a specific crude type exceed the capacity of the pipelines that transport that crude type, apportionment is declared, and the available pipeline capacity is allocated amongst the shippers on a pro rata basis.[45] When shippers do not receive their needed crude oil supplies via pipeline, they have to transport product via other methods, such as rail or truck, and generally at a higher cost.

The Enbridge Mainline System has been apportioned frequently since 2011. In April of 2015, when the CN Application was filed, the Enbridge Mainline System was apportioned.[46] Even with the additional 230,000 bpd of capacity added from Enbridge's Line 67 Phase 2 Project, without the Project, apportionment is anticipated to continue to be an issue, and, if refinery demand increases in Minnesota or elsewhere, apportionment may occur at even higher levels.[47]

Replacing Line 3 and restoring its capacity is expected to effectively reduce predicted apportionment to Minnesota refineries to below 5 percent through 2030.[48] Thus, the Project as proposed will provide direct benefits to Minnesota by dramatically reducing apportionment of deliveries to Minnesota's two refineries and refineries throughout PADD II, Eastern Canada, and the Gulf Coast.[49]

---

[43] CN Application at 3-22.

[44] CN Application at 3-22.

[45] CN Application at 3-23.

[46] CN Application at 3-23.

[47] CN Application at 3-25.

[48] CN Application at 3-27. For additional detail on projected apportionment, see Table 3.5.2-4 on page 3-28 of the CN Application.

[49] CN Application at 3-29. Notably, to provide these benefits to Minnesota refiners, the Project must make deliveries at Clearbrook.

3. Shipper Support Demonstrates Project Need.

Enbridge's customers – the shippers (including refiners) that use Enbridge's pipelines – support the Project as proposed by Enbridge because it will reduce apportionment and provide them with needed pipeline reliability and operational flexibility. Enbridge's shippers have demonstrated their support by agreeing to fund the Project through payment of an agreed-upon barrel charge on Enbridge Mainline shipments. The Project, like all Enbridge projects, is privately funded through agreement between Enbridge and its shippers.[50] Enbridge also received the support of the Canadian Association of Petroleum Producers, which represents a number of the largest shippers on the Enbridge Mainline System, as well as support from regional refineries served by Line 3.[51]

E. Purpose: More Efficient Operation of Pipeline System.

The Project is designed to be in mixed service, transporting both light and heavy crude oil, which will allow Enbridge the flexibility to continually rebalance the light and heavy crude allocations to the various Enbridge Mainline System pipelines to ensure available system capacity is utilized in the most efficient manner. The ability to continually balance the system to operate in the most efficient manner results in the following important benefits to shippers, refiners, and Enbridge:

1. Enables Enbridge to better respond to variable refinery needs;
2. Reduces power requirements on the Enbridge Mainline System;
3. Minimizes the impact of planned maintenance on the Enbridge Mainline System to shippers and refiners;
4. Allows Enbridge to better respond to unplanned disturbances to the North American crude oil network; and
5. Allows Enbridge to better respond to potential future variations in volume and crude oil demand.[52]

For example, replacing Line 3 with a 36-inch diameter pipe, as proposed, will offer power savings at all flow rates when compared to a 34-inch pipe. Specifically, at a capacity of 760,000 bpd, the Project will save 108 gigawatt hours ("GWh") of energy as compared to the power required to move the same volume on a 34-inch pipeline. Saving 108 GWh equates to an annual reduction of over 74,000 metric tons of CO_2 emissions within Minnesota. Figure 3.7.2-1

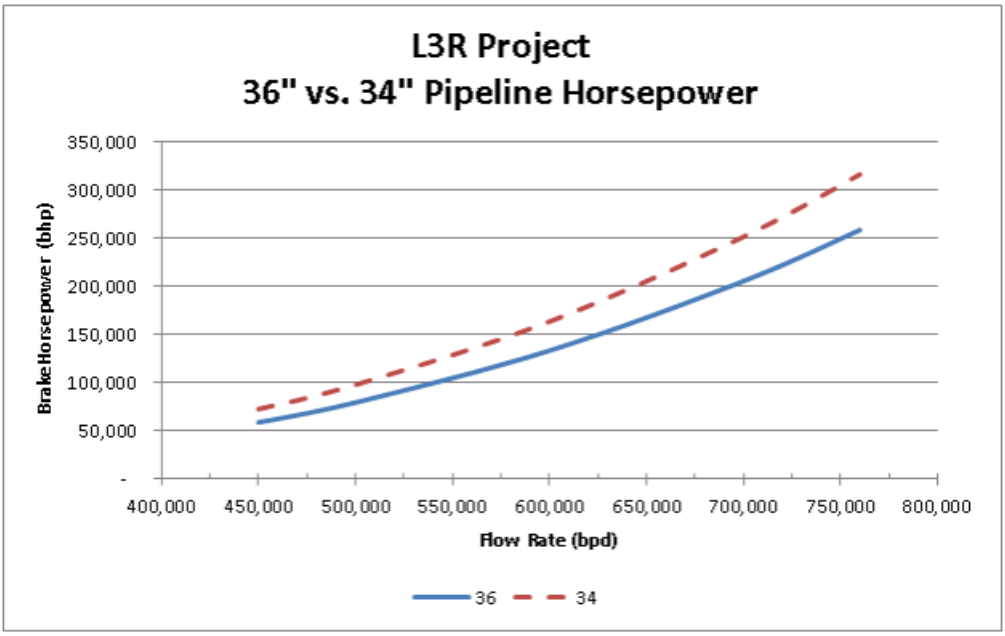
[50] CN Application at 3-29.

[51] CN Application at 3-30.

[52] CN Application at 3-31 – 3-32.

from the CN Application illustrates the approximate power consumption for a 36-inch and a 34-inch pipeline at varying throughputs.[53]

Figure 3.7.2-1: Power Consumption of 36-inch vs. 34-inch Pipeline



F. To Meet the Identified Project Purposes and Need, the Project must Connect to Other Replaced Segments of Line 3, Deliver to Clearbrook and Superior, and Restore Line 3's Historical Operating Capacity.

To accomplish the Project purposes identified above, the Project must continue to serve the same essential role that the existing Line 3 does in the Enbridge Mainline System. First, the Project must connect with other segments of the existing Line 3 in North Dakota, which ultimately connects to the Canadian portion of the Replacement Program. Second, the Project must continue to make deliveries at the Clearbrook Terminal for refineries in Minnesota. Minnesota refineries are currently served via Line 3 deliveries at the Clearbrook Terminal; a proposal that does not make deliveries at Clearbrook would reduce service to Minnesota refineries. Third, the Project must continue to make deliveries at Superior to serve the Superior Calumet refinery and other refineries in the Midwest states.[54] Fourth, the Project must restore Line 3's historical operating capabilities to 760,000 bpd. Considering the purpose and need for the Project, Enbridge identified the following requirements during the Project's route development process:

[53] CN Application at 3-34.

[54] CN Application at 1-5.

> The Project must cross into Minnesota in Kittson County to connect with the segment of the existing Line 3 being replaced in North Dakota, which ultimately connects to the Canadian portion of the Replacement Program.
>
> The Project must interconnect with other Enbridge and third-party pipelines at and make deliveries to Clearbrook. The Project must connect to the existing Enbridge Clearbrook Terminal in Clearbrook, Minnesota. This enables Line 3 to interconnect with MPL's system at Clearbrook for further delivery of crude supplies to Minnesota refineries and to interconnect with other Enbridge pipelines at Clearbrook.
>
> The Project must exit Minnesota in Carlton County and connect to the Superior Terminal. The Project must exit Minnesota in Carlton County, Minnesota, and connect with the 14-mile segment of the existing Line 3 being replaced in Wisconsin, which connects to existing Enbridge facilities at Superior. Continued deliveries to the existing Enbridge facilities is essential so that volumes transported on the Project can be injected into the Enbridge Mainline System for deliveries to refineries in Wisconsin, elsewhere in PADD II, and beyond.[55]

An alternative that does not meet these requirements would fail to meet the Project's need of providing a safe, reliable, and adequate supply of crude petroleum to Minnesota refineries and other states, and would not be constructed. The existing Line 3 is part of a complex system of pipelines and associated facilities which, together, have successfully provided service for more than 50 years, and the Project must be an efficient and reliable part of this system in order to continue to meet the energy needs of Minnesota and the region.

III. MODIFIED DESIGNS AND LAYOUTS: SYSTEM ALTERNATIVES

Once Section 3.1.1 is updated to more comprehensively and accurately describe the purpose and need for the Project, the System Alternatives discussed in Section 3.4 of the DSDD should be reevaluated. Consistent with this underlying purpose and need, an alternative should be studied in the EIS only if it:

- Addresses the integrity issues on the existing Line 3 pipeline;
- Crosses into Minnesota in Kittson County;
- Makes deliveries at Clearbrook, Minnesota;

[55] Route Permit Application at 6-2.

- Exits Minnesota in Carlton County;
- Makes deliveries at Superior, Wisconsin; and
- Transports 760,000 bpd.

A proposed "alternative" that does not meet each of the criteria above would not meet the underlying purpose of and need for the Project. Further, Enbridge will not build an alternative that does not meet each of these objectives. Studying "alternatives" that do not meet the Project purpose and need is inconsistent with MEPA and would unnecessarily require additional resources from Minnesota's agencies, the applicant, the intervenors, and the public. Specifically, Table 1 of the DSDD lists the following "alternatives" that do not meet the Project purpose and need:

- SA-03: does not enter Minnesota in Kittson County or make deliveries at Clearbrook.
- SA-04: does not enter Minnesota in Kittson County or make deliveries at Clearbrook or Superior.
- SA-05: does not enter Minnesota in Kittson County or make deliveries at Clearbrook or Superior.
- SA-06: does not enter Minnesota in Kittson County or make deliveries at Clearbrook.
- SA-07: does not enter Minnesota in Kittson County or make deliveries at Clearbrook.
- SA-08: does not enter Minnesota in Kittson County or make deliveries at Clearbrook or Superior.
- SA-03-as amended L3- RA-10: does not make deliveries at Clearbrook.[56]

[56] In its Comments and Recommendations discussing route alternatives received during SPP's initial scoping period, dated July 16, 2014, the Department of Commerce, Energy Environmental Review and Analysis ("DOC-EERA") agreed that the "system alternatives" did not meet the Project's need and were not appropriate for further study:

> Because the proposed system alternatives are not alternative routes for meeting the purpose of the project as identified in the permit application, EERA does not believe that these alternatives are appropriate for further consideration. . . .
>
> ***

To the extent additional "alternatives" have been or will be proposed that do not meet the Project's purpose and need, such proposals are not appropriate alternatives to the Project.[57] Because they are not appropriate alternatives to the Project, the FSDD should note that they were considered and eliminated from further study in the EIS.

IV. MODIFIED DESIGNS AND LAYOUTS: ROUTE ALTERNATIVES

Enbridge's route selection process is comprehensive and dynamic. The Proposed Route was developed based on a multi-disciplinary team approach in which extensive analysis and evaluation work has been performed, using expertise in pipeline routing, federal and state regulations, environmental planning, biology, land use, socioeconomic impact assessment, and pipeline construction. In addition, Enbridge gathered valuable input from local government officials and permitting agencies with knowledge of the surrounding areas. Enbridge developed and refined the L3R Application Proposed Route to reflect discussions with landowners and agencies that have occurred since North Dakota Pipeline Company LLC filed its SPP Route Permit Application in 2013. Since filing the L3R CN and Route Permit Applications, Enbridge has continued to work extensively with landowners, state agencies and other stakeholders along its Proposed Route to address their concerns.

Through those discussions and listening sessions, Enbridge has modified its Proposed Route to further avoid and minimize landowner and environmental impacts associated with the Project. From November 2013 to the filing of the L3R Route Permit Application in April 2015, Enbridge accepted and adopted dozens of route adjustments based on landowner, agency and environmental concerns. From April 2015 to its September 30, 2015 Scoping Comments, Enbridge further recommended that the Commission include nine additional route alternatives and six wider route width locations for further environmental review.

Since September 2015, Enbridge has continued to work with affected landowners, state agencies and other stakeholders. Those ongoing efforts have resulted in a number of additional suggested route alternatives as well as adjustments that modify previously-submitted route

---

> In addition, several system alternatives suggest placing the pipeline adjacent to or within the interstate rights-of-way. Federal Highway Administration and MnDOT right-of-way accommodation policies prohibit longitudinal placement of utility facilities within the fenced area of the Interstate Highway System. Currently a 345 kV High Voltage Transmission Line permitted by the Commission is being built along I-94 between Moorhead and Monticello, Minnesota, limiting the opportunity for further longitudinal placement adjacent to that highway's right-of-way.

Comments and Recommendations at 16.

[57] In reference to the System Alternatives, the Commission has previously recognized that "a project must be more than hypothetical; it must have a reasonable prospect of coming to fruition. As discussed in length above and in the ALJ Report, there is no record evidence that any of the remaining alternatives has a meaningful likelihood of being constructed." *See* Sandpiper Order Granting Certificate of Need with Conditions at 28.

alternatives. Additionally, Enbridge incorporated several of its previously-recommended route alternatives in the L3R EAW Proposed Route, rendering further study of these segments as "alternatives" unnecessary. Appendix B contains a table and map illustrating the changes Enbridge has made to its Proposed Route to address landowner, agency and environmental impacts. In total, Enbridge had made over 50 centerline adjustments and incorporated more than 20 route alternatives to further avoid and minimize potential impacts from the Project. The current Proposed Route has been improved through landowner input, with over 94% of landowners signing an easement.

Table 1 summarizes the additional route alternatives that Enbridge requests be included for further study in the EIS and route permit hearings.

Table 1: Summary of Enbridge's Requested Route Alternatives for Further Study

Route Alternative	Included in September 30, 2015 Comments	Requested for Study in EIS as a Route Alternative[58]	Explanation
L3-RA-01	Yes	No	L3-RA-01 was included in the L3R EAW Proposed Route and no longer needs to be studied separately as a route alternative.
L3-RA-02	Yes	No	Enbridge requests that L3-RA-02 be replaced with L3-RA-02 Amended Route Alternative, and that L3-RA-02 not be studied in the EIS.
L3-RA-02 Amended Route Alternative	No	No	Enbridge requests that L3-RA-02 Amended Route Alternative be incorporated into Enbridge's L3R Proposed Route for study in the EIS. Enbridge requests that L3-RA-02 Amended Route Alternative replace L3-RA-02, as it reflects further input from area landowners. Supporting data is included in Appendix C.
L3-RA-03	Yes	No	Enbridge is no longer requesting that L3-RA-03 be studied in the EIS. Enbridge has worked with the landowner to address the concerns originally prompting introduction of L3-RA-03.

[58] Note that Enbridge is requesting that potential impacts associated with RAs that have been incorporated into the Applicant's Proposed Route be studied in the EIS as part of the Applicant's Proposed Route, not as separate RAs.

L3-RA-04	Yes	No	Enbridge requests that L3-RA-04 be replaced with L3-RA-04 Amended Route Alternative, and that L3-RA-04 not be studied in the EIS.
L3-RA-04 Amended Route Alternative	No	No	Enbridge requests that the L3-RA-04 Amended Route Alternative be incorporated into Enbridge's Proposed Route for study in the EIS. Enbridge requests that L3-RA-04 Amended Route Alternative replace L3-RA-04, as it reflects further input from area landowners. Supporting data has been submitted in Appendix C.
L3-RA-05	Yes	No	Enbridge requests that L3-RA-05 be replaced with L3RA-05 Amended Route Alternative, and that L3RA-05 not be studied in the EIS.
L3-RA-05 Amended Route Alternative	No	Yes	Enbridge requests that L3-RA-05 Amended Route Alternative be studied in the EIS. Supporting data has been submitted in Appendix C.
L3-RA-06	Yes	No	L3RA-06 was included in the L3R EAW Proposed Route and no longer needs to be studied separately as a route alternative.
L3-RA-07	Yes	No	Based on additional due diligence, Enbridge has determined that L3-RA-07 is not practical from a land rights or constructability perspective and no longer requests that L3-RA-07 be studied in the EIS.
L3-RA-08	Yes	No	Enbridge requests that L3-RA-08 be replaced with L3-RA-08 Amended Route Alternative, and that L3-RA-08 not be studied in the EIS.
L3-RA-08 Amended Route Alternative	No	No	Enbridge requests that L3-RA-08 Amended Route Alternative be incorporated into Enbridge's Proposed Route for study in the EIS. Enbridge requests that L3-RA-08 Amended Route Alternative replace L3-RA-08, as it reflects further input from area landowners. Supporting data is included in Appendix C.

L3-RA-09	Yes	No	L3-RA-09 was included in the L3R EAW Proposed Route and no longer needs to be studied separately as a route alternative.
Blandin	No	Yes	Enbridge requests that Blandin Route Alternative be studied in the EIS. Supporting data is included in Appendix C.

Appendix C includes supporting information for each of the Table 1 route alternatives requested for inclusion in the L3R Proposed Route or for further study as a route alternative in the EIS. As required in Minn. R. 7852.1400, Appendix C includes maps, a description of the route alternative, its purpose, and an analysis of the impacts of the route alternatives compared to the corresponding section of the L3R May 2016 Proposed Route.

Enbridge has also made minor centerline shifts since submitting its L3R EAW Proposed Route. These centerline adjustments are described in Appendix D. In addition, Enbridge has identified a number of locations along its L3R EAW Proposed Route where an expanded route width, beyond the 750 feet contemplated in the DSDD, is required to accommodate additional temporary workspace. Appendix E contains a table and maps showing each of these expanded route width locations.

Enbridge respectfully requests that (i) the L3RA-02 Amended Route Alternative, L3RA-04 Amended Route Alternative, and L3RA-08 Amended Route Alternative described in Appendix C, the centerline adjustments listed in Appendix D, and the expanded route widths listed in Appendix E be incorporated into the L3R Proposed Route and (ii) Enbridge's L3R Proposed Route, as updated in this filing, and the L3-RA-05 Amended Route Alternative and Blandin Route Alternative as described in Appendix C be included for further study in the EIS.

Appendix A, Enbridge's proposed FSDD, lists the RAs that Enbridge requests be included for further analysis in the EIS as well as RAs that other parties have suggested that remain relevant based on the L3R Proposed Route.

V. STUDY OF NO ACTION ALTERNATIVE

The DSDD includes the study of a No Action Alternative in the EIS. Under the No Action Alternative, the EIS will evaluate the impacts if the Project as proposed is not developed. The DSDD states that this alternative "assumes the pipeline will not be replaced and that current maintenance and integrity digs will continue."[59] In addition to current maintenance and integrity digs, however, the No Action Alternative could also require the replacement of large segments of the existing Line 3. Because these segment replacements would not restore the historical operating capabilities of the pipeline, Enbridge does not view this as a reasonable

[59] DSDD at 13.

alternative to the Project as proposed and has not developed detailed engineering and design plans for segment replacements. However, Enbridge anticipates that, without full replacement of Line 3, segment replacement could be required and should be included in the environmental review. The large-scale segment replacements would not occur in the pipeline's existing trench, but would be within Enbridge's existing ROW or a half-mile thereof. Accordingly, Enbridge has proposed language in the attached Appendix A reflecting evaluation of these additional potential impacts of the No Action Alternative.

VI. L3R'S RELATIONSHIP TO SPP

Section 4.2 of the DSDD summarizes L3R's relationship to the SPP. In light of the fact that the L3R and SPP Minnesota Public Utilities Commission regulatory processes now appear to be on a similar timeline, Enbridge studied the issue of which pipeline should be installed first if they are constructed during the same season and determined that L3R should be constructed first between Clearbrook, Minnesota and Superior, Wisconsin.

Because construction of the SPP tanks at the proposed Clearbrook West Terminal has a longer projected construction timeline than the mainline pipe construction, constructing L3R in the first trench could facilitate a slightly earlier in-service date for L3R. Shortening the time during which the existing Line 3 continues to operate addresses the integrity concerns on that line and avoids additional excavations and repairs associated with its continued operation. Accordingly, Enbridge plans to construct L3R using the SPP centerline and construction footprint design (refer to EAW Figures 6-2a to 6-2f) between Clearbrook and the Wisconsin border. While the EAW presented quantitative workspace requirements and resource impacts assuming that SPP would be constructed before L3R for the purposes of addressing the cumulative impacts analysis for L3R and SPP, in the scenario where L3R is constructed first, the L3R impacts from the existing Clearbrook Terminal to the Wisconsin border would be the same as the impacts described for SPP in the L3R EAW. This is also consistent with the descriptions of the "one pipe" scenario presented in the L3R Route Permit Application.[60]

Enbridge requests that the FSDD and EIS reflect that, between Clearbrook and the Wisconsin border, L3R will be constructed first in the centerline shown for SPP in the EAW. Data required to review this construction sequencing and centerline placement in the EIS has already been provided in the EAWs and associated Route Permit Applications.

VII. ENVIRONMENTAL, SOCIAL, AND ECONOMIC ANALYSES

Enbridge reviewed the planned methodologies and data sources as proposed and/or described in the DSDD's section on detailed environmental, social and economic analysis.[61] Overall, the discussion appears to be comprehensive and consistent with the applicable

[60] *See* Route Permit Application Section 7.0.

[61] DSDD at TOC, § 4.4.

statutory and rule requirements. Enbridge provides a number of minor comments and recommendations intended to clarify or further develop the proposal contained in the DSDD. Because many of the suggestions are simply additions or corrections to applicable data sources, those changes are reflected in the proposed revisions to the DSDD contained in Appendix A. The remaining items are discussed below.

A. Regional Analysis Area and Alignment Analysis Area.

Section 4.3 of the DSDD states that publicly available data will be used to compare routes and that the scale of analysis will include a regional analysis area ("RAA") and an alignment analysis area ("AAA"). DOC-EERA's Scoping Comments dated November 30, 2015 included an Attachment 1A that provided additional detail regarding the data sources and analysis to be used for the RAA and AAA. Enbridge recommends that the FSDD include a similar appendix. (See Appendix F of these scoping comments for DOC-EERA's previous Attachment 1A.)

B. Cultural Resources.

1. Scope and Methodologies.

Enbridge recommends revising the Cultural Resources section to clarify the intended scope and provide additional detail regarding the proposed methodologies for evaluating cultural values and treaty areas. This section currently states:

> Cultural resources include archaeological resources, historic resources, cultural values (including Traditional Cultural Properties [TCPs]) and treaty areas. Archaeological resources include historic and precontact artifacts, structural ruins, or earthworks and are often partially or completely below ground. Historic resources include extant structures, such as buildings and bridges, as well as districts and landscapes. Potential impacts to cultural resources will be evaluated across the preferred route and route alternatives.[62]

Cultural resources, as defined in the state and federal guidelines, are typically clearly delineated places that can be evaluated and managed. Enbridge suggests that DOC-EERA clarify how cultural values and treaty areas will be evaluated, similar to the clarification provided for evaluation of archaeological resources and historic resources.

With regard to cultural values, the description notes that these may include TCPs but does not describe what other resources may be evaluated. Enbridge understands that TCPs are

[62] DSDD at 20.

specific locations that can (i) represent cultural values, (ii) be assessed as cultural resources using the state and federal guidelines, and (iii) be managed when met with a well-defined project or undertaking. DOC-EERA should explain how potential impacts to the broad concept of "values" would be further evaluated in the environmental document. DOC-EERA should also explain how potential impacts to treaty areas would be evaluated. For both, DOC-EERA should explain the methods that it will use to identify cultural values and treaty areas and how it will collect information to evaluate potential impacts to these resources as defined.

2. Data Sources.

Enbridge recommends three changes to this section. First, the current description of the cultural resource field survey reports is inaccurate. The DSDD reads as follows:

> Information concerning cultural resources will be obtained from the cultural resources survey that is being conducted for the Applicant's Preferred Route. It is anticipated that the survey report will include information regarding archaeological sites, historic resources, and properties of cultural value for the Applicant's Preferred Route. The Minnesota State Historic Preservation Office (SHPO) maintains records of known archaeological and historic resources, which will be consulted for the route alternatives. The Minnesota SHPO inventory files to be reviewed include: History/Architecture Inventory, History/Architecture Reports, Archaeological Sites, and Archaeological Reports. In addition, historical maps (General Land Office, USGS, etc.), aerial imagery and online libraries will be used for additional information.[63]

The cultural resources surveys do not "include information regarding . . . properties of cultural value" as distinct from archaeological sites or historic resources. In the final scoping decision, Enbridge suggests this scope section be revised to more accurately represent its survey efforts.

Second, as noted above, it is unclear how DOC-EERA intends to scope and collect information on cultural values or treaty areas. Enbridge suggests that its process for identifying and evaluating cultural values and treaty areas be defined and the sources intended to be used be listed.

Third, Enbridge notes that because DOC-EERA plans to use Enbridge's field survey results for cultural resources along the Proposed Route and plans to use SHPO records of known sites along route alternatives, the number of previously unidentified cultural resource sites will be higher along the Proposed Route than along the route alternatives and will leave

[63] DSDD at 20.

the impression that the route alternatives may have lesser impacts; however, this is artificial due to comparisons of dissimilar data sets. The comparison between the Proposed Route and each route alternative will, therefore, not be equitable, and results will need to be extrapolated to comparative densities along both routes. Enbridge suggests that this qualifier be noted in the final scoping decision. Alternatively, DOC-EERA could use SHPO records of known sites to compare the Proposed Route and alternatives and note the additional survey data available for the Proposed Route.

C. Rare and Unique Natural Resources.

DOC-EERA states that federally-listed threatened and endangered species data would be collected from the U.S. Fish & Wildlife Services ("USFWS") Information, Planning, and Conservation System ("IPaC") at the county level. Enbridge collected its information on listed species and critical habitat by consulting the USFWS Field or Regional Office's county lists. Enbridge has observed that differences can occur between Field or Regional Office county lists and IPaC information, and suggests that the final scoping decision recommend collecting listed species information directly from, or confirming with, the Field or Regional Office county lists to be consistent with Enbridge methodologies and data.

Also, the DSDD does not state an intention to use Enbridge's field survey results for protected flora resources along the Proposed Route. Enbridge suggests that this information be included, similar to how DOC-EERA is planning to use Enbridge's cultural resources field survey information. As with the cultural resources field survey information, the number of identified biological resource sites will be higher along the Proposed Route than along the route alternatives where no survey work has been completed, which will convey an artificially greater impact. The comparison between the Proposed Route and each route alternative will therefore need to be extrapolated to comparative densities along both routes. Enbridge suggests that this qualifier be noted in in the final scoping decision.

VIII. CUMULATIVE EFFECTS AND IDENTIFICATION OF PHASED OR CONNECTED ACTIONS

First, to the extent necessary, Enbridge notes that the cumulative impacts of L3R and SPP should address the scenario of L3R being constructed on the SPP centerline and utilizing the SPP construction footprint with SPP construction following thereinafter, as discussed in section V above.

Second, Enbridge notes that the DSDD identifies that the impacts of high-voltage transmission lines and substations needed to serve proposed pump stations will be analyzed both in the cumulative impacts section (4.7) and phased or connected actions section (6.0). Section 6.0 of the DSDD explains that the EIS will describe and include the impacts of several new proposed transmission lines that would supply electric power to the new pipeline pump stations. Enbridge has requested electric service needed to serve the four new L3R pump stations south and east of Clearbrook from Great River Energy, in partnership with certain of its member retail distribution cooperatives. These four transmission line projects are described in

Question 6e of the Scoping EAW, which correctly refers to their separate permitting and environmental review documentation processes. Enbridge agrees that the cumulative effects of these four transmission lines should be studied in the EIS consistent with the DSDD, as they may be considered components of a pipeline network within the meaning of EQB rules. Further, the substations at each pump station, which will be fed by the transmission lines and which will be owned and operated by Enbridge, should be studied in the EIS as equipment to be located within the pump stations.

IX. SPECIAL STUDIES OR RESEARCH

Section 5.0 identifies several "Special Studies or Research" items that will be completed and/or incorporated into the EIS.

As to the Emergency Response Plan (#3), the source of the study or information is not clear. Enbridge recommends that DOC-EERA incorporate information provided by Enbridge on its Integrated Contingency Plan ("ICP") and Emergency Response Action Plan(s) ("ERAP"). The ICP and ERAP(s) meet or exceed all local, state, and federal requirements, including United States Department of Transportation, Pipeline Hazardous Material Safety Administration ("PHMSA") pipeline regulations specified in 49 C.F.R. Parts 194 and 195, as well as applicable Occupation Safety and Health Administration, United States Coast Guard, and American Pipeline Institute national technical standards. Enbridge submits that conducting a special study on the Emergency Response Plan is an unnecessary duplication of an already heavily-regulated body of work. That said, Enbridge encourages the incorporation of components of its robust emergency response planning documents in the EIS.

As to the "independent assessment of the technical and economic feasibility of System Alternatives as described above in Section 3," the source of the proposed assessment or information therein is not clear and should be identified. Further, while the DSDD identifies that "alternative sites are not being considered" (Section 3.2), in section 3.4 the DSDD indicates that several so-called "System Alternatives" will be the subject of this study. For the reasons explained above, many of these purported alternatives should not be studied further.

X. PERMITS AND APPROVALS REQUIRED

A. Concurrent Development of CN and Route Permit with EIS.

Section 7.0 of the DSDD should be revised to note that the information required for the CN and Route Permit Applications is being developed concurrently with the EIS. Currently, section 7.0 of the DSDD states, in relevant part, that "[n]o permits have been designated to have all information developed concurrently with the preparation of the EIS . . . ." However, this misstates the applicable law. Minn. Stat. § 116D.04 states only that "final decisions shall be made by the appropriate governmental units on those permits which were identified as required and for which information was developed concurrently with the preparation of the environmental impact statement." Similarly, Minn. Rule 4410.2100, Subp. 6(C) requires identification of all permits for which "information" was "gathered concurrently with EIS

preparation."[64] Neither the statute nor the rule requires that "all information" be developed concurrently.

In addition, the Minnesota Court of Appeals held that "an EIS must be completed as part of the certificate of need proceedings."[65] As interpreted by the Court of Appeals, MEPA requires that the information developed for and contained in the EIS be utilized in the permit decision making process.[66] Similarly, the Commission itself ordered that the EIS "address[] issues related to the certificate of need and routing permit dockets."[67] The DSDD itself acknowledges, "some permit information may be collected and reviewed concurrently with the EIS preparation" for the CN and Route Permit.

Thus, pursuant to the plain language of statute and rule, both the CN and route permit should be identified as permits for which "information will be gathered concurrently with EIS preparation."

B. Additional Permit Corrections and Clarifications.

Enbridge's proposed revisions to the DSDD provide a number of additional corrections and clarifications to the required permits listed in Section 7.0.

---

[64] If either the legislature or the EQB meant these provisions to apply only to permits for which *all* information was developed concurrently with the EIS, they would have stated this express limitation. *See* Minn. Stat. § 645.08(3) (establishing the presumption that the legislature restricts "general words" in their meaning by "preceding particular words").

[65] *In re North Dakota Pipeline Company LLC*, 869 N.W.2d 693, 698 (Minn. Ct. App. 2015).

[66] *Id.* at 698-99.

[67] Order Joining Need and Routing Dockets, Ordering ¶ 3.

XI. CONCLUSION

Enbridge respectfully requests that DOC-EERA and the Commission incorporate into the Final Scoping Decision Document the additional information, corrections and clarifications identified in these comments.

Dated: May 26, 2016

Respectfully submitted,

/s/ *Christina K. Brusven*

Christina K. Brusven (# 0388226)
Patrick D.J. Mahlberg (# 0388028)
FREDRIKSON & BYRON, P.A.
200 South Sixth Street, Suite 4000
Minneapolis, Minnesota 55402-1425
Telephone: (612) 492-7412
Fax: (612) 492-7077

Attorneys for Enbridge Energy, Limited Partnership

58634502

Appendix A

Enbridge's Proposed Final Scoping Decision Document

Enbridge's Proposed ~~Draft~~Final Scoping Decision Document for Line 3 Replacement Pipeline Project PUC Docket ~~NO~~Nos. PL-9/PPL-15~~-~~-137/CN-14-916

Minnesota Department of Commerce
Energy Environmental Review and Analysis
Draft April 8, 2016

Table of Contents

1.0 Introduction 4
1.1 Purpose of the Draft Scoping Decision Document 5
1.2 Description of the Proposed Project 5
1.3 Regulatory Process 5
1.4 Procedural History 6

2.0 Environmental Review Process 6
2.1 Environmental Impact Statement Scoping 6

3.0 Alternatives 7
3.1 Evaluation of Alternatives 7
3.1.1 Criteria for Evaluating Alternatives included in an EIS 8
3.2 Alternative Sites ~~9~~10
3.3 Alternative Technologies 10
3.3.1 Rail 10
3.3.2 Truck ~~10~~11
3.4 Modified Designs and Layouts: System Alternatives ~~10~~11
3.5 Modified Designs and Layouts: Route Alternatives ~~14~~15
3.5.1 Description of Applicant's Preferred Route and Associated Facilities ~~14~~15
3.5.2 Route Alternatives ~~15~~16
3.6 Modified Scale or Magnitude ~~15~~19
3.7 Alternatives Incorporating Reasonable Mitigation Measures ~~16~~19
3.8 No Action Alternative ~~16~~19

4.0 Environmental Impact Statement Content ~~16~~19
4.1 General EIS Format and Approach ~~16~~19
4.2 Line 3 Replacement Project's Relationship to Sandpiper Pipeline Project ~~16~~19
4.3 Data and Analysis ~~16~~19
4.4 Detailed Environmental, Social and Economic Analysis ~~18~~21
4.4.1 Human Settlement ~~18~~21
4.4.2 Transportation and Public Services ~~20~~23
4.4.3 Economics ~~21~~24
4.4.4 Cultural Resources ~~22~~26
4.4.5 Natural Environment ~~23~~26
4.4.6 Rare and Unique Natural Resources ~~25~~29
4.4.7 High Consequence Areas and Natural Disaster Hazard Areas ~~26~~30
4.5 Impacts of Routine Construction and Operation ~~27~~30
4.6 Method for Assessing Impacts of Crude Oil Releases ~~27~~31
4.6.1 Large Volume Spill General Methods ~~28~~31
4.6.2 Small Leaks ~~29~~32
4.7 Cumulative Effects ~~29~~32

5.0 Special Studies or Research ~~30~~33

6.0 Identification of Phased or Connected Actions ~~31~~34

7.0 Government Permits and Approvals ~~31~~34

8.0 Environmental Impact Statement Schedule ~~34~~0

Tables

TABLE 1 Description of System Alternatives 11
TABLE 2 Description of Route Alternatives
TABLE ~~2~~3 Permits and Approvals Required 32
TABLE ~~3~~4 Tentative Schedule 34

Figures

FIGURE 1 Illustration of Alignment Analysis Area 14

Appendices

Appendix A Figures

Appendix B Preliminary Table of Contents

1.0 Introduction

The purpose of an Environmental Impact Statement (EIS) is "to provide information for governmental units, the proposer of the project, and other persons to evaluate proposed projects which have the potential for significant environmental effects, to consider alternatives to the proposed projects, and to explore methods for reducing adverse environmental effects."[1]

The purpose of the scoping process, in turn, is "to reduce the scope and bulk of an EIS before the preparation of the EIS, identifying only those potentially significant issues relevant to the proposed project, define the form, level of detail, content, alternatives, timetable for preparation and preparers of the EIS, and to determine the permits for which information will be developed concurrently with the EIS."[2] "All projects requiring an EIS must have an EAW [Environmental Assessment Worksheet] filed with the RGU [responsible governmental unit]. The EAW shall be the basis for the scoping process."[3]

The Minnesota Environmental Policy Act (MEPA) states that: "[w]here there is potential for significant environmental effects resulting from any major governmental action, the action shall be preceded by a detailed environmental impact statement prepared by the responsible governmental unit."[4]

For this project, the "major governmental action" is a decision by the Minnesota Public Utilities Commission (PUC) to grant or deny a Certificate of Need (CN)[5] and a Route Permit[6] for Enbridge Energy, Limited Partnership's (Enbridge's or Applicant's) proposed Line 3 Replacement (L3R) Project (referred to as "L3R Project" or the "project"). This EIS will inform both PUC decisions on whether to issue a CN and, if need is found, whether to issue a Route Permit. Before issuing a Route Permit, the PUC must decide whether to issue a CN. The EIS will also inform other governmental agencies on a host of environmental and regulatory permits required for the project.

[1] Minn R. 4410.2000, subp. 1.

[2] Minn. R. 4410.2100, subp. 1.

[3] Minn. R. 4410.2100, subp. 2.

[4] Minn. Stat. § 116D.04, subd. 2a.

[5] See Minn. Stat. § 216B.243, subp. 2; Minn. R. Ch. 7853 (https://www.revisor.mn.gov/statutes/?id=216b.243).

[6] See Minn. Stat. § 216G.02, subd. 2; Minn. R. Ch. 7852 (https://www.revisor.mn.gov/statutes/?id=216G.02).

On February 1, 2016, the PUC — the RGU for this EIS[7] — issued an order authorizing Minnesota Department of Commerce – Energy Environmental Review and Analysis (DOC- EERA) staff to prepare a combined EIS for the CN and the Route Permit. The order also requested DOC-EERA to administer the EIS process in consultation with the PUC's Executive Secretary, the ~~MDNR and the~~ Minnesota Department of Natural Resources (MDNR) and the Minnesota Pollution Control Agency (MPCA) to best meet the requirements of the MEPA and Chapter 4410 of the Minnesota Rules.

1.1 Purpose of the ~~Draft~~Final Scoping Decision Document

The ~~Department of Commerce-Energy Environmental Analysis and Review (~~DOC-EERA~~)~~ staff, with the assistance of the ~~Minnesota Department of Natural Resources (MDNR) and the Minnesota Pollution Control Agency (~~MDNR and the MPCA~~)~~, have prepared this ~~Draft~~Final Scoping Decision Document (~~DSDD~~FSDD) for the proposed L3R Project. The purpose of this document is to identify impacts of the proposed project, alternatives to the proposed project, and impacts of any alternatives to be addressed in the EIS. In addition to identifying impacts and alternatives, this document also provides a proposed outline for the EIS and a tentative schedule for the environmental review process. ~~This DSDD is a companion document to~~ The Scoping EAW~~, which~~ describes the proposed project in more detail and summarizes significant environmental impacts of the proposed project.[8]

1.2 Description of the Proposed Project

Enbridge proposes to construct and operate the L3R Project. The project replaces Enbridge's existing 34-inch-diameter pipeline with a new 36-inch-diameter pipeline and associated facilities. The existing pipeline currently transports crude oil from the Joliette Valve in Pembina County, North Dakota, to Clearbrook, Minnesota, and terminates at an existing terminal in Superior, Wisconsin. As proposed, L3R will follow the existing Enbridge mainline corridor west of Clearbrook and be co-located with the proposed Sandpiper Pipeline east of Clearbrook to Superior. The ~~increased pipeline diameter~~L3R Project restores Line 3 to its historical operating capacity of 760,000 barrels per day (bpd) from its current reduced capacity of 390,000 bpd. The L3R route is approximately 363 miles long, of which 337 miles are in Minnesota, replacing 282 miles of the existing Line 3 pipeline. Associated facilities include four new pump stations east of Clearbrook and expansion of existing pump stations west of

[7] See Minn. R. 4410.4400, subp. 24.

[8] The Scoping EAW is available on e-dockets using docket number 15-137(https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showeDocketsSearch&searchType=new) and on the DOC-EERA website (http://www.mn.gov/commerce/energyfacilities/Docket.html?Id=34079).

Clearbrook. The existing Line 3 will be permanently deactivated and remain in place following construction of the new L3R pipeline.

The proposed route for the L3R Project is a significant change from its current location, following the proposed Sandpiper route east of Clearbrook, rather than Enbridge's mainline corridor as it does currently.[9] The L3R and Sandpiper pipeline routes can be seen on Figures 1 and 2 in Appendix A.

1.3 Regulatory Process

To construct and operate a crude oil pipeline greater than 6 inches in diameter in Minnesota, Enbridge must apply for and receive a CN approval and a Route Permit from the PUC. Other permits required from state and federal agencies are listed in Section 7 of this document.

1.4 Procedural History

On April 24, 2015, Enbridge submitted ~~a~~ CN and Route Permit applications for the L3R. Consistent with the Applicant's notification to PUC on May 30, 2014, in the Sandpiper route proceeding, the L3R route parallels the Sandpiper route between Clearbrook, Minnesota and Superior, Wisconsin. The PUC accepted the L3R applications as complete on July 1, 2015.

Because the project is proposed to be partially co-located with the Sandpiper project, the procedural history is extensive.[10] Prior to the order issued on February 1, 2016, by the PUC requesting DOC-EERA to conduct an EIS, the PUC and DOC-EERA held 14 public scoping meetings in 10 of the 12 counties crossed by the proposed L3R Project in August 2015.

On February 1, 2016, the PUC issued its written orders establishing a process for conducting the Line 3 hearings.[11] In relevant part, the order (1) jointly referred the CN and the Route Permit to the Office of Administrative Hearings, (2) affirmed its Order Finding Application Substantially Complete and Varying Timelines; Notice of and Order for Hearing (August 12, 2015) except as inconsistent with the present order and the PUC Notice of Hearing issued in the routing docket, and (3) ordered preparation of an EIS covering need and routing issues pursuant to Minnesota Statutes Chapter 116D and Minnesota Rules Chapter 4410.

2.0 Environmental Review Process

[9] From Clearbrook, Minnesota to Superior, Wisconsin, L3R is proposed to be co-located with Sandpiper Pipeline project~~,~~ (Docket No. PL6668/CN-13-473 and PPL-13-474, respectively).

[10] See the complete procedural history for Sandpiper on e-dockets using docket numbers 13-473 and 13-474.

[11] See Document ID: 20161-117136-01.

Environmental review in Minnesota is administered through Minnesota Rules Chapter 4410. The process broadly encompasses scoping for the EIS and preparation of a Draft EIS (DEIS) and a Final EIS (FEIS), with opportunities for public review and comment. When the final scope for the EIS has been approved by the RGU and the EIS Preparation Notice has been issued, the RGU has 280 days to complete the environmental review process.

2.1 Environmental Impact Statement Scoping

Scoping is the first step in development of an EIS. According to Minnesota Rule 4410.2100, subpart 1, the purpose of scoping is "…to reduce the scope and bulk of an EIS, identify only those potentially significant issues relevant to the proposed project, define the form, level of detail, content alternatives, time table for preparation of the EIS, and to determine the permits for which information will be developed concurrently with the EIS."[12]

In addition to information in the EAW, the draft scope includes information from past orders issued by the PUC and public input received through numerous filings, public meetings and comment periods as well as informal discussions with tribes, the public and various state and federal agencies. Relevant information from the Sandpiper record is also included due to the co-location of L3R and Sandpiper east of Clearbrook. Additional information or alternatives resulting from the scoping process will be addressed in the final scoping decision.

Public scoping review and comment period on the DSDD ~~will be~~were conducted in accordance with Minnesota Rule 4410.2100. A 45-day scoping comment period[13] ~~will begin~~began on April 11, 2016 when the Notice of Availability for the DSDD ~~is~~was published in the *Minnesota Environmental Quality Board (EQB) Monitor*. Twelve scoping meetings ~~will be~~were held during the 45-day comment period, which ended on May 26, 2016, providing an opportunity for the public and federal, state, tribal and local government agencies to comment on the DSDD.

DOC-EERA staff ~~will prepare~~prepared a Comment Summary Report and ~~propose~~proposed a Final Scope based on comments received during the process. The Final Scoping Decision Document (FSDD) ~~will identify~~identifies all alternatives to be considered in the EIS and ~~will be~~ approved by the PUC. A notice of availability of the FSDD will be published in the *EQB Monitor*.

The Scoping EAW for this project ~~is available and has been~~was circulated with ~~this DSDD~~the publication of the DSDD in accordance with Minnesota Rule 4410.1500, and also made available for public review in county libraries along the proposed route and route alternatives. The purpose of the Scoping EAW is to help inform the scoping process by describing the

[12] See Minn. R. 4410.2100, subp. 1.

[13] Minn. R. 4410.2100, subp. 3, requires a 30-day minimum scoping period, extended in this case to 45 days to accommodate scoping meetings in multiple counties crossed by the proposed and alternative routes.

proposed project and providing initial information on potential impacts along the Applicant's preferred route. Accordingly, the Scoping EAW, as further amended by this FSDD, reflects the updated route for which the Applicant is seeking a Route Permit.

3.0 Alternatives

3.1 Evaluation of Alternatives

Pursuant to Minnesota Rule 4410.2300(G), an EIS must compare the potentially significant impacts of the proposal with those of other reasonable alternatives to the proposed project. The EIS must address one or more of each of the following types of alternatives or provide a concise explanation of why no alternative of a particular type is included in the EIS:

- Alternative sites,
- Alternative technologies,
- Modified designs or layouts,
- Modified scale or magnitude,
- Alternatives incorporating reasonable mitigation measures identified through comment periods for EIS scoping or the DEIS, and
- No Action Alternative.

The alternatives that ~~will be considered during the DEIS~~were proposed as part of the scoping process are identified in Section 3 (~~Table~~Tables 1 and 2) of this document. The public ~~may~~had an opportunity to comment on these alternatives and propose additional alternatives during the 45-day comment period on the DSDD. DOC-EERA ~~will apply~~applied the criteria in Minnesota Rule 4410.2300(G) in determining whether ~~additional~~all of the alternatives ~~not already~~ identified in Section 3 ~~will~~would be included for analysis in the DEIS. DOC-EERA also considered whether the requirements of Minn. R. 7852.1400 were satisfied.

Minnesota Rule 4410.2300(G) states that an alternative may be excluded from analysis in the EIS if:

- it would not meet the underlying purpose of the project,
- it would likely not have any significant environmental benefit compared to the project as proposed, or
- another alternative, of any type, that will be analyzed in the EIS would likely have similar environmental benefits but substantially less adverse economic, employment or sociological impacts.

3.1.1 Criteria for Evaluating Alternatives included in an EIS

All alternatives that will be carried forward for consideration in the EIS ~~will be~~are identified in the FSDD. Not all alternatives included in the final scope, however, must be evaluated in detail in the EIS. Alternatives included in the scope of the EIS that were considered but eliminated based on information developed through the EIS analysis must be discussed briefly and the reasons for their elimination must be stated.

DOC-EERA ~~will use~~used the following criteria in determining whether (under Minnesota Rule 4410.2300(G)) an alternative included in the scope of the EIS could be eliminated based on information developed through the EIS analysis.

1. The alternative must meet the underlying purpose of the project.

   There are three primary purposes of the project:

   ~~The purpose of the project is~~ (A) to address safety and integrity concerns of the existing Line 3 pipeline~~.~~ by replacing a pipeline that has a large number of integrity anomalies;

   (B) to restore the existing Line 3's historical operating capabilities, thereby reducing ongoing and forecasted apportionment to the refining industry in PADD II, Eastern Canada, and the Gulf Coast, including the Flint Hills and Northern Tier Energy refineries in Minnesota; and

   (C) to allow Enbridge to more efficiently operate the Enbridge Mainline System, optimize its pipeline system, and reduce power utilization on a per-barrel basis.

   Thus, any route alternative that does not enter, deliver within, and exit Minnesota at the three geographical locations identified below in order to interconnect with other replaced portions of Line 3 at the North Dakota and Wisconsin borders, and to continue deliveries to Minnesota Pipe Line Company at the Clearbrook Terminal, would not meet the purpose or objective of this replacement Project.

   - **The Project must cross into Minnesota in Kittson County.** The Project must cross into Minnesota in Kittson County, Minnesota, and connect with the segment of Line 3 being replaced in North Dakota, which ultimately connects to the Canadian portion of the Replacement Project.

   - **The Project must interconnect with other Enbridge and third-party pipelines at and make deliveries to Clearbrook.** The Project must connect to the existing Enbridge Clearbrook Terminal in Clearbrook, Minnesota. This enables L3R to interconnect with Minnesota Pipe Line Company's system at Clearbrook for further delivery of crude supplies to Minnesota refineries and to interconnect with other Enbridge pipelines at Clearbrook.

   - **The Project must exit Minnesota in Carlton County and connect to the Superior Terminal.** The Project must exit Minnesota in Carlton County, Minnesota, and

connect with the 18-mile segment of Line 3 being replaced in Wisconsin, which then connects to existing Enbridge facilities at Superior, Wisconsin. Continued delivery to the Enbridge facilities in Superior is essential so that volumes transported on the Project can be injected into the Enbridge Mainline System for delivery to refineries in Wisconsin, elsewhere in PADD II, and beyond.

2. The alternative must be reasonable.

   DOC-EERA intends to assess reasonableness of the alternatives based on the technical feasibility, costs, reliability, energy demand, overall state energy needs and the appropriateness of the size, type and timing of the alternative compared to Applicant's proposed project.

3. The alternative would have significant environmental benefits compared to the applicant's proposed route.

   Examples of environmental criteria that may be used during alternatives evaluation in the DEIS include but are not limited to:

   A. Wells and aquifers: number of wells and aquifers within alternative corridor

   B. Waterbodies: quality, context, number of rivers, lakes, creeks and drainages crossed by each alternative

   C. Wetlands: acres, types, number of crossings

   D. Rare Resources: Natural Heritage Information System (NHIS) data impacted by each alternative (by number or acreage)

   E. Land Management/Ownership: number of acres of tribal lands, or federal or state parks/recreation impacted by each alternative

   F. Land Use Cover Type: acreage of agriculture, forestry, urban, etc.

   G. Cultural Resources: number of sites, National Register of Historic Places eligibility, impacts within the project corridor, Traditional Cultural Properties, subsistence areas

   H. Co-location: number of miles co-located with other utility or roadway infrastructure by each alternative

   I. High Consequence Areas (HCAs): Number of HCAs crossed by each alternative as defined by the Pipeline and Hazardous Materials Safety Administration (PHMSA) criteria for hazardous liquid pipelines. Focus on *unusually sensitive ecological resources*.[14]

[14] *Unusually sensitive ecological areas* include locations where critically imperiled species can be found, areas where multiple examples of federally listed threatened and endangered species are found and areas where migratory water birds concentrate.

4. The alternative would have similar environmental benefits but substantially less adverse economic, employment or sociological impacts compared to the applicant's proposed route.

   Examples of economic, employment or sociological criteria that may be used to analyze the alternatives during evaluation in the DEIS include but are not limited to:

   A. Project cost
   B. Number of jobs due to construction
   C. Full-time jobs as a result of construction
   D. Induced impacts
   E. Displacement
   F. HCAs: Number of HCAs crossed by each alternative as defined by PHMSA criteria for hazardous liquid pipelines. Focus on populated areas and drinking water sources.[15] Populated areas include both high population areas (called "urbanized areas" by the US Census Bureau) and other populated areas (areas referred to by the US Census Bureau as a "designated place").

3.2 Alternative Sites

Line 3 is an existing pipeline and is already transporting crude oil to Clearbrook, Minnesota, and Superior, Wisconsin; therefore, other alternative sites are not being considered as they will not address safety and integrity concerns.

3.3 Alternative Technologies

3.3.1 Rail

The transport of oil by rail involves moving oil from where it is produced to an oil-train terminal for temporary storage and subsequent transport by rail to an interconnection point or refinery where it may be processed into petroleum products. Oil transport begins at each production well. At these wells, oil is loaded onto trucks or transported by gathering pipelines to oil terminals for temporary storage and transfer to other modes of transportation (railroads, trucks and pipelines) for delivery to destination points, typically refineries that process the raw material into various finished products. Oil terminal facilities may be designed specifically for pipelines, unit trains, manifest trains, truck terminals or a combination thereof.

[15] *Drinking water sources* include those supplied by surface water or wells and where a secondary source of water supply is not available. The land area in which spilled hazardous liquid could affect the water supply is also treated as an HCA.

Because Line 3 is an existing pipeline and is already transporting crude oil to Clearbrook, Minnesota, and Superior, Wisconsin, a rail alternative will not address pipeline safety and integrity concerns. However, rail will be looked at as an alternative to continuing to operate the Line 3 pipeline.

3.3.2 Truck

Transporting crude oil by tanker truck is another potential alternative to constructing the proposed project. Tanker trucks are commonly used to move crude oil from wellhead locations not served by pipeline gathering systems to aggregation points and storage facilities. Typically oil tanker trucks are used where the travel distances are not significant.

Line 3 is an existing pipeline and is already transporting crude oil to Clearbrook, Minnesota, and Superior, Wisconsin; therefore, a trucking alternative will not address pipeline safety and integrity concerns. However, trucking will be looked at as an alternative to continuing to operate the Line 3 pipeline.

3.4 Modified Designs and Layouts: System Alternatives

System Alternatives were developed during the previous Sandpiper and Line 3 scoping meetings. ~~The EIS will evaluate~~DOC-EERA evaluated the System Alternatives in ~~the~~ Table 1: Description of System Alternatives and Figure 1 (in Appendix A).

TABLE 1
Description of System Alternatives

System Alternative (SA)	Description	Length (approximate miles)	States Crossed (number)	Counties Crossed (number)
SA-03 Viking-North Branch-Superior	Begins in Tioga, ND, at the Beaver Creek Station and follows System Alternative-Applicant route east into MN. Just west of Crookston, MN, it turns south and follows the Viking Pipeline. In Clay County, MN, it continues southeast following the Viking Pipeline toward North Branch, MN. It then turns north to Superior, WI, following existing pipeline corridors.	700	3	25
SA-04 Alliance-Chicago	Begins in Tioga, ND, at the Beaver Creek Station and follows SA-Applicant route east to McHenry County, ND. SA-04 turns southeast and follows the Alliance Pipeline and proceeds generally southeast through MN, IA, and IL to its termination point in Joliet, IL.	940	4	48
SA-05 Alliance-Enbridge-Chicago	Begins in Tioga, ND, at the Beaver Creek Station and follows Applicant's preferred route east to McHenry County, ND, where it intersects with the Alliance Pipeline and travels southeast to Richland County, ND, where it turns south and follows the I-29 corridor. In Deuel County, SD, SA-05 intersects with the Northern Border Pipeline and travels southeast across MN and IA to Poweshiek County, IA, where it intersects with an Enbridge pipeline and continues east through IL to its termination point in Joliet, IL.	1,000	5	50
SA-06 RR-Alliance-MinnCann-TC-Superior	Begins in Tioga, ND, at the Beaver Creek Station and follows SA-Applicant route east to Grand Forks County, ND, where it follows the railroad corridor southeast to Wahpeton, ND. It then travels southeast along MN Highway 9 until it intersects with the Alliance Pipeline and continues southeast to just southwest of Willmar, MN. It then turns east and continues southeast toward the Twin Cities Metropolitan area where it intersects with the MinnCan Pipeline and continues to the vicinity of the Flint Hills Refinery in Rosemount, MN. It then turns north and follows existing pipelines to North Branch where it continues north following Interstate 35 to Carlton County, MN, where it turns generally east and follows SA-Applicant to Superior, WI.	800	3	33
SA-07 I-29-Magellan-MinnCan-TC-Superior	Begins in Tioga, ND, at the Beaver Creek Station and follows SA-Applicant route east to Grand Forks, ND, where it intersects with I-29 corridor and travels south to Fargo, ND. It then continues traveling southeast along the Magellan Pipeline corridor toward Alexandria, MN. At Alexandria, it turns south toward Willmar, MN, and then turns southeast toward the Twin Cities Metropolitan area where it intersects with the MinnCan Pipeline and continues to the vicinity of the Flint Hills Refinery in Rosemount, MN. It then turns north and follows existing pipelines to North Branch where it continues north following Interstate 35. It then continues to Carlton County, MN where it turns generally east and follows SA-Applicant to Superior, WI.	810	3	34

SA-08 I-29-I-94-TC	Begins in Tioga, ND, at the Beaver Creek Station and follows SA-Applicant route east to Grand Forks, ND, where it intersects with I-29 corridor and travels south to Fargo, ND. It continues traveling southeast along the I-94 corridor toward the Twin Cities Metropolitan area. Just northwest of Maple Grove, MN, it turns east and follows an existing pipeline generally east across the north suburbs before turning south and following another existing pipeline across the east suburbs before terminating in Rosemount, MN.	635	3	27
~~SA-03-as modified L3-RA-10~~	~~This alternative is a modification to the system alternative SA-03. Routing proceeds south along SA-03, then east along CSAH 40, then to Clay county T-367, south along the Minnkota Power Cooperative Transmission Line, and then south on CSAH 7 to meet up with the SA-03 route.~~	~~263~~	~~3~~	~~10~~
SA-03-as amended L3- RA-10	This alternative is a variation of the Sandpiper SA-03 Modified. The route would proceed from ~~the west: southeast on SA-03 Modified, northeast on US-169 to avoid Milaca, east on MN-23 to the intersection with MN-65, then cross country to CSAH 11 to avoid Mora, north on CSAH 11 to reconnect with MN-23, and then east on MN-23 to connect with the SA-03 Modified~~Line 3 and go south to follow SA-03, turns east to Park Rapids and follows SA-03 AM south to Milaca, MN where it follows Hwy-23 to Hinckley, MN and then follows SA-03AM to the point where it rejoins the Applicant's Proposed Route.	382	3	15
~~L3-RA-01~~	~~This alternative would modify the centerline and route of the Applicant's April 2015 preferred route where it crosses mostly agricultural land. This alternative deviates from the April 2015 Route at milepost (MP) 27.4 W in Kittson County, MN, and rejoins the route at MP 27.9 W, in Marshall County, MN.~~	~~0.55~~	~~1~~	~~1~~
~~L3-RA-02~~	~~This alternative would modify the centerline and route of the Applicant's April 2015 preferred route where it crosses mostly agricultural land.~~	~~2.04~~	~~1~~	~~1~~
~~L3-RA-03~~	~~This alternative would modify the centerline and route of the Applicant's April 2015 preferred route where it crosses mostly agricultural land.~~	~~7.31~~	~~1~~	~~1~~
~~L3-RA-04~~	~~This alternative exits the Clearbrook Terminal on the north side of the facility. From that point, it turns west and then turns and runs south to rejoin the Applicant's preferred route south of the Terminal and Deep Lake.~~	~~2.52~~	~~1~~	~~1~~
~~L3-RA-05~~	~~This alternative would modify the centerline of the Applicant's preferred route where it crosses mostly forested land with some agricultural land.~~	~~13.01~~	~~1~~	~~1~~
~~L3-RA-06~~	~~This alternative would modify the centerline of the Applicant's preferred route where it crosses mostly agricultural land.~~	~~0.39~~	~~1~~	~~1~~
~~L3-RA-07~~	~~This alternative would modify the centerline of the April 2015 Route where it crosses a mix of forested, open, and agricultural land.~~	~~1.45~~	~~1~~	~~1~~
~~L3-RA-08~~	~~This alternative would modify the centerline of the April 2015 Route where it crosses a mix of forested, open, and agricultural land.~~	~~7.19~~	~~1~~	~~1~~
~~L3-RA-09~~	~~This alternative would modify the centerline of the April 2015 Route where it crosses mostly forested land.~~	~~0.60~~	~~1~~	~~1~~

~~L3-RA-10~~	~~This alternative is a variation of Sandpiper SA-03 Modified. The route would proceed from the west: southeast on SA-03 Modified, northeast on US-169 to avoid Milaca, east on MN-23 to the intersection with MN-65, then cross country to CSAH 11 to avoid Mora, north on CSAH 11 to reconnect with MN-23, and then east on MN-23 to connect with the SA-03 Modified route.~~	~~42~~	~~1~~	~~3~~
~~L3-RA-11~~	~~This alternative would replace Line 3 in its current location.~~	~~282~~	~~3~~	~~12~~

Line 3 is an existing pipeline and is already transporting crude oil to Clearbrook, Minnesota, and Superior, Wisconsin. None of the System Alternatives transports crude oil to Clearbrook, Minnesota, and Superior, Wisconsin. Therefore, these System Alternatives will not address pipeline safety and integrity concerns or otherwise meet the purpose and need for the Project. The EIS will describe why the System Alternatives were eliminated from further review.

3.5 Modified Designs and Layouts: Route Alternatives

Route alternatives identified during previous scoping meetings for the Line 3 and Sandpiper pipelines will be evaluated in the EIS. These are shown on Figure 2 in Appendix A.

3.5.1 Description of Applicant's Preferred Route and Associated Facilities

Enbridge has applied to the PUC for a CN and Route Permit to replace 282 miles (within Minnesota) of the existing Line 3 pipeline to transport crude oil at an enhanced capacity of 760,000 bpd from the Joliette Valve in Pembina County, North Dakota, to the Wisconsin border (and subsequently to Superior, Wisconsin). See Figure 2 in Appendix A.

- x Pump stations: The L3R Project includes three new pumps adjacent to existing pump stations west of Clearbrook, and a new pump station at the Clearbrook Terminal. Four new pump station sites will be constructed between Clearbrook and the Minnesota/Wisconsin border. Mainline valves, metering, monitoring equipment, substations and associated electric facilities would also be installed at all facilities. In addition, the L3R Project includes a new PIG launcher and receiver traps at the Backus Pump Station.
- x Mainline valves: The L3R Project includes ~~27~~30 mainline ~~safety~~ valves. These valves are located along the pipeline to monitor and ~~manually~~remotely control flow as a measure of safety and efficiency.
- x Cathodic protection: Cathodic protection systems would be installed along buried pipelines to mitigate the threat of external corrosion for buried metallic structures and maintain safe operation and integrity of pipelines.
- x Pipe/material storage yards: Enbridge would temporarily use off-right-of-way (ROW) areas for pipe and material storage and to receive rail deliveries (rail sidings). In addition, construction contractors would require off-ROW contractor yards to park equipment and stage construction activities.
- x Access roads: The project would require the use of a variety of public roads, existing privately owned roads, modifications to existing roads and construction of new access roads to provide access to the project site during construction. Enbridge would obtain landowner permission, conduct environmental surveys and obtain applicable environmental permits and clearances prior to constructing roadway modifications or new access. Permanent access roads would be constructed to each mainline valve.

The existing Line 3 originates in Canada and crosses the United States-Canada border near Neche, North Dakota. It continues through North Dakota to the Clearbrook Terminal near Clearbrook, Minnesota, and terminates at the Enbridge Superior Terminal near Superior, Wisconsin.

Once the new Line 3 becomes operational, the old Line 3 will be deactivated and remain in place in compliance with 49 Code of Federal Regulations (C.F.R.) Part 195, paragraphs 195.59 and 195.402. Enbridge will:

- Safely disconnect the existing Line 3 from all operating facilities such as pump stations and terminals;
- Purge the existing Line 3 of all combustibles;
- Seal the ends of the pipeline segments left in place; and
- File a report to identify where the pipeline is abandoned wherever it crosses over, under or through a commercially navigable waterway.[16], [17]

Enbridge's procedures will also incorporate the American Society of Mechanical Engineers' (ASME's) B31.4-2012, paragraph 457 guidelines on abandoning a piping system through:

- Purging the line of the transported liquid and vapor with an inert material and sealing the ends; and
- Ensuring that the line is disconnected from all sources of transported liquid, such as other pipelines, meter stations, control lines and other appurtenances.

Enbridge proposes the L3R Project to generally follow the existing Line 3 pipeline along the Enbridge mainline system ROW from the North Dakota-Minnesota border in Kittson County to and including the Clearbrook Terminal in Clearbrook. From Clearbrook, the project turns south to generally follow an existing third-party pipeline ROW to the Park Rapids, Minnesota, area, and then turns east to generally follow other existing electric transmission lines to the Minnesota-Wisconsin border in Carlton County. The L3R Project is proposed to be co-located with the Sandpiper pipeline east of Clearbrook.

Enbridge is requesting a route width of 750 feet (375 feet on each side of the L3R centerline). The same route width of 750 feet will be applied to other alternatives being evaluated in the EIS.

3.5.2 Route Alternatives

~~All 11~~Eleven proposed route alternatives (LA-RA-01 through L3-RA-11) ~~will be accepted for evaluation in the EIS~~were proposed as part of the L3R 2015 scoping process. Additionally, ~~the~~there were 53 routes accepted by the PUC in its order from August 25,

[16] 49 C.F.R. 195.402.

[17] Operations & Maintenance Enforcement Guidance Part 195 Subpart F Enbridge Energy, Limited Partnership Pipeline Routing Permit Application April 2015 MPUC Docket No. PL-9/PPL-15-137 Section 8.0 8-2.

2014, for the Sandpiper pipeline~~ will also be evaluated in the EIS~~.[18] As part of the ~~53~~scoping process, an additional 6 route alternatives ~~approved, 23 have been incorporated into the preferred route by Enbridge. The remaining 30~~were proposed for either Sandpiper or L3R and are applicable to the L3R route. Of the total route alternatives ~~will be considered in the EIS. This EIS includes 57 alignment modifications (CM-01 through CM-57) that will be accepted for incorporation into the Applicant's~~suggested, Enbridge has incorporated 25 route alternatives into its L3R preferred route. DOC-EERA has further identified a number of route alternatives that can be scoped out of the EIS based on information developed through the scoping process.

~~The EIS will also consider any new route alternatives that are developed during the scoping process through public and agency involvement. Route alternatives to be carried forward for evaluation in the EIS must be approved by the PUC.~~
Table 2 reflects the alternative routes that have been proposed for L3R. Table 2 further describes whether each route alternative will be carried forward for evaluation in the EIS. Route alternatives to be reviewed in the EIS are also shown in Appendix A, Figure 2.

[18] See Sandpiper Alternative Route Summary report, e-docket id number 20148-102500-02.

TABLE 2 (L3R)
Description of Route Alternatives

Route Alternative (RA)	Description	Length (approximate miles)	States Crossed (number)	Counties Crossed (number)	Recommended for Study as RA in EIS?[19]
RA-01	Co-locating the proposed pipeline with the existing line 81 would reduce habitat fragmentation and there would be fewer cumulative effects	3.76	1	1	No. Only applicable to the Sandpiper Proposed Route.
RA-02	Route alternative requested to move pipeline further away from property owner house, wants pipeline to be 700 feet away from home instead of 200 feet.	1.61	1	1	No. Only applicable to the Sandpiper Proposed Route.
RA-03	Route alternative requested to minimize impacts to agricultural research sites. Avoidance of "Field 18" and moving north to drainage ditch in "Field 17" to make sure field 18 can still be used in future research	1.88	1	1	No. Only applicable to the Sandpiper Proposed Route.
RA-04	Route alternative to avoid an overhead power line.	0.23	1	1	No. Only applicable to the Sandpiper Proposed Route.
RA-05	Route alternative requested to accommodate refinement of facility design at the Clearbrook West Terminal.	0.33	1	1	No. Only applicable to the Sandpiper Proposed Route.
RA-06	The pipeline should be routed to the north around the lakes area.	205.52	1	5	Yes

[19] Potential impacts associated with RAs that have been incorporated into the Applicant's Proposed Route will be studied in the EIS as part of the Applicant's Proposed Route, not as separate RAs.

TABLE 2 (L3R)
Description of Route Alternatives

Route Alternative (RA)	Description	Length (approximate miles)	States Crossed (number)	Counties Crossed (number)	Recommended for Study as RA in EIS?[19]
RA-01	Co-locating the proposed pipeline with the existing line 81 would reduce habitat fragmentation and there would be fewer cumulative effects	3.76	1	1	No. Only applicable to the Sandpiper Proposed Route.
RA-02	Route alternative requested to move pipeline further away from property owner house, wants pipeline to be 700 feet away from home instead of 200 feet.	1.61	1	1	No. Only applicable to the Sandpiper Proposed Route.
RA-03	Route alternative requested to minimize impacts to agricultural research sites. Avoidance of "Field 18" and moving north to drainage ditch in "Field 17" to make sure field 18 can still be used in future research	1.88	1	1	No. Only applicable to the Sandpiper Proposed Route.
RA-04	Route alternative to avoid an overhead power line.	0.23	1	1	No. Only applicable to the Sandpiper Proposed Route.
RA-05	Route alternative requested to accommodate refinement of facility design at the Clearbrook West Terminal.	0.33	1	1	No. Only applicable to the Sandpiper Proposed Route.
RA-06	The pipeline should be routed to the north around the lakes area.	205.52	1	5	Yes
RA-07	The pipeline should be routed with existing pipelines along highway 2. (Enbridge's mainline)	179.82	1	7	No. As described in Enbridge's Route Permit Application, this alternative presents substantial constraints, including the inability to obtain permanent easements, significant construction constraints, and potentially greater human and environmental impacts.[20]

[20] Route Permit Application at 6-21 – 6-27.

TABLE 2 (L3R)
Description of Route Alternatives

Route Alternative (RA)	Description	Length (approximate miles)	States Crossed (number)	Counties Crossed (number)	Recommended for Study as RA in EIS?[19]
RA-01	Co-locating the proposed pipeline with the existing line 81 would reduce habitat fragmentation and there would be fewer cumulative effects	3.76	1	1	No. Only applicable to the Sandpiper Proposed Route.
RA-02	Route alternative requested to move pipeline further away from property owner house, wants pipeline to be 700 feet away from home instead of 200 feet.	1.61	1	1	No. Only applicable to the Sandpiper Proposed Route.
RA-03	Route alternative requested to minimize impacts to agricultural research sites. Avoidance of "Field 18" and moving north to drainage ditch in "Field 17" to make sure field 18 can still be used in future research	1.88	1	1	No. Only applicable to the Sandpiper Proposed Route.
RA-04	Route alternative to avoid an overhead power line.	0.23	1	1	No. Only applicable to the Sandpiper Proposed Route.
RA-05	Route alternative requested to accommodate refinement of facility design at the Clearbrook West Terminal.	0.33	1	1	No. Only applicable to the Sandpiper Proposed Route.
RA-06	The pipeline should be routed to the north around the lakes area.	205.52	1	5	Yes
RA-07	The pipeline should be routed with existing pipelines along highway 2. (Enbridge's mainline)	179.82	1	7	No. As described in Enbridge's Route Permit Application, this alternative presents substantial constraints, including the inability to obtain permanent easements, significant construction constraints, and potentially greater human and environmental impacts.[20]
RA-08	The pipeline should be routed with existing Great Lakes pipelines that run generally south of Hwy 2 through Beltrami, Cass, Itasca and St Louis Counties.	174.22	1	8	No. As described in Enbridge's Route Permit Application, this alternative presents substantial constraints, including the inability to obtain

					permanent easements, significant construction constraints, and potentially greater human and environmental impacts.[21]
RA-09	Alternative route starting in Section 11 of Itasca Township in Clearwater County and Hattie Township in Hubbard County to avoid the Big LaSalle Lake area.	8.05	1	2	Yes
RA-10	Big La Salle Creek alternative, lack of access near crossing of LaSalle Creek could result in delayed spill response times, suggest moving route to a crossing that is more accessible	6.83	1	2	Yes
RA-11	Route Alternative proposed to accommodate a landowner request to avoid the lake.	0.90	1	1	No. Further refined and included in L3R Application Proposed Route on April 24, 2015.
RA-12	Route alternative is being requested to remove a temporary workspace from adjacent land.	0.34	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.
RA-13	Route alternative requested to route through North Dakota Pipeline Company land recently purchased.	0.18	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.
RA-14	Route alternative being requested because two property owners want the pipeline further away from structures.	1.57	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.
RA-15	Twin Lakes route alternative, lack of access near Twin Lakes and Shell river could result in delayed spill response times. Twin Lakes are identified as wild rice lakes by the PCA.	9.46	1	1	Yes
RA-16	This route alternative was proposed to avoid the Crow Wing WMA due to easement restrictions.	10.46	1	3	No. Included in L3R Application Proposed Route on April 24, 2015.

[21] Route Permit Application at 6-21 – 6-27.

RA-17	Route Alternative being proposed to avoid a large wetland complex in Foot Hill State Forest.	0.41	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.
RA-18	Route alternative requested to accommodate changes to engineering design to add a pipeline inspection gauge launcher and receiver trap.	0.18	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.
RA-19	Route alternative requested that the pipeline be constructed near an existing fence line.	1.11	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.
RA-20	DNR requested a wider route south of the Spire Valley Fish Hatchery to minimize impacts the hatchery.	1.25	1	1	No. Expanded route width no longer necessary based on revised centerline included in L3R Application Proposed Route on April 24, 2015.
RA-21	DNR recommended the Aitkin County Power Line as a route alternative to eliminate concerns regarding Sandy River fisheries and wild rice habitat as well as trout stream habitat. This would also avoid 3.1 miles of WMA's and follows existing corridor.	53.88	1	3	Yes
RA-22	DNR recommended a route alternative that would avoid critical habitat in the Big Sandy lake watershed as well as Grayling Marsh WMA, McGregor WMA, Lawler WMA and Salo Marsh WMA.	38.82	1	2	Yes
RA-23	This route alternative was proposed to follow the Aitkin County Soo Line Trail.	31.13	1	1	Yes
RA-24	Commenter proposing route alternative to minimize forest fragmentation and avoid old growth forests in the Hill River State Forest.	1.65	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.
RA-25	Commenter would like the route to move to the east across wetland (former rice paddy areas) to preserve all high land for future building plans.	0.61	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.
RA-26	Commenter would prefer route alternative that would veer south and southeast from the intersection of US Highway 169 and CSAH 3 west of Palisade.	3.41	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.
RA-27	DNR is recommending that the analysis includes the Soo line to avoid the McGregor SNA and the Sandy River watershed.	13.23	1	1	Yes
RA-28	Commenter suggested a route alternative that turns south in Aitkin County and meets back with the proposed route to the east.	3.50	1	1	Yes

RA-29	Commenter suggested a route alternative suggested accommodating landowner request related to future home sites along the road.	0.66	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.
RA-30	Route alternative requested to avoid bending the pipeline in the road ditch which could impact the integrity of the roadway.	0.07	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.
RA-32	Commenter is requesting that the pipeline be located on Aitkin County Tax forfeit land which avoids mature trees.	0.45	1	1	No. Applicant has worked with landowner to resolve issues prompting RA-32.
RA-33	Commenter would like the pipeline moved east to the back edge of his property where it joins with the Peat Plant.	1.80	1	1	Yes
RA-34	Commenter suggesting shifting the pipeline north into the tree line.	2.22	1	1	Yes
RA-35	Commenter suggesting route alternative that would cut south on township road 270th and traverse east until it meets with the proposed route.	1.72	1	1	Yes
RA-36	Commenter suggesting a route alternative to shift the pipeline to the north into tree line.	0.38	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.
RA-37	Commenter suggesting Route Alternative that would parallel Hwy 210 after mile marker 550 then turn south to reconnect with the proposed route south of Cloquet.	38.68	1	2	Yes
RA-38	Commenter suggested a Route Alternative to avoid the Salo Marsh WMA.	6.73	1	2	No. Unlikely to have any significant environmental benefit given Applicant's May 26, 2016 incorporation of L3-RA-08 Amended Route Alternative, which avoids Salo Marsh WMA.
RA-39	Commenter would prefer route alternative that veers south of proposed route near Salo Marsh WMA Impoundment to avoid mineral development land.	9.01	1	2	No. Unlikely to have any significant environmental benefit given Applicant's May 26, 2016 incorporation of L3-RA-08 Amended Route Alternative, which avoids the mineral development land at issue in RA-39.

RA-40	Commenter suggested a route to use county land to the north of property owners land near Section 4, Township 47N, Range 21W in Carlton County.	1.04	1	1	No. RA-40 no longer connects to the Proposed Route or any other RA.
RA-41	Commenter suggested shifting the pipeline south to avoid a beaver dam.	0.61	1	1	No. Unlikely to have any significant environmental benefit given Applicant's May 26, 2016 incorporation of L3-RA-08 Amended Route Alternative, which avoids the beaver dam at issue in RA-41.
RA-42	Commenter requesting to co-locate pipeline with an existing power line corridor.	3.48	1	1	Yes
RA-43	Commenter suggesting to move pipeline to north side of Hwy 61, co-locating it with a utility corridor.	3.08	1	1	Yes
RA-44	Commenter suggested following and existing utility corridor on the north side of Highway 61 to avoid the Blackhoof watershed.	7.66	1	1	Yes
RA-45	Commenter suggested following south side of Highway 61 to avoid the Blackhoof Watershed	7.13	1	1	Yes
RA-46	Commenter suggested shifting the pipeline to the south, running parallel to County Road 61.	1.91	1	1	Yes
RA-47	Route alternative requested moving the pipeline south to avoid a grove of trees.	0.85	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.
RA-48	Commenter suggested shifting the pipeline to the other side of I-35 to avoid cutting off access road.	1.28	1	1	No. Unlikely to have any significant environmental benefit given Applicant's May 26, 2016 incorporation of L3-RA-09, which avoids the access road at issue in RA-48.
RA-49	Commenter requested to follow the south sides of I-35 and Highway 61 to distance pipeline from multiple properties.	5.96	1	1	Yes
RA-50	Commenter requested to reduce the number of Blackhoof River crossings.	0.56	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.

RA-51	Commenter proposed shifting the pipeline north to follow the tree line and distance it from homesteads.	1.41	1	1	Yes
RA-52	Commenter proposed shifting the pipeline north to follow the tree line and distance it from homesteads.	0.84	1	1	Yes
RA-53	This alternative was proposed to avoid multiple crossings of an overhead power line.	0.20	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.
RA-54	Commenter suggested locating the pipeline closer to an existing natural gas line.	0.31	1	1	No. Included in L3R Application Proposed Route on April 24, 2015.
SA-03-AM (as modified)	Pipeline should avoid lakes area and follow existing pipelines.	225	1	11	Yes
SA-03-as modified L3-RA-10	This alternative is a modification to the system alternative SA-03. Routing proceeds from the Clearbrook terminal and follows SA-03 AM south to Milaca, MN where it follows Hwy-23 to Hinckley, MN and then follows SA-03 AM to the point where it rejoins the Applicant's Proposed Route.	263	3	10	Yes
SA-03-as amended L3-RA-10	This alternative is a variation of the Sandpiper SA-03 Modified. The route would proceed from Line 3 and go south to follow SA-03, turns east to Park Rapids and follows SA-03 AM south to Milaca, MN where it follows Hwy-23 to Hinckley, MN and then follows SA-03AM to the point where it rejoins the Applicant's Proposed Route.	382	3	15	No. Does not meet the purpose and need for the Project because it does not connect to the existing pipeline system at Clearbrook, Minnesota.
L3-RA-01	This alternative was proposed to improve the constructability at Highway 75 by changing the crossing angle alignment. The new alignment crosses at a more perpendicular angel, which will minimize the length of the road bore needed of crossing under the highway.	0.55	1	1	No. Incorporated Applicant's EAW Proposed Route on April 11, 2016.
L3-RA-02	This alternative was proposed accommodate a landowner request to move a portion of the L3R pipeline crossing their property.	2.1	1	1	No. Requestor revised this request and resubmitted it as L3-RA-02 Amended Route Alternative.

L3-RA-02 Amended Route Alternative	This alternative was proposed as an amendment to L3-RA-02 to incorporate additional minor modifications to L3-RA-02 to further address a landowner request.	2.04	1	1	No. Incorporated into Applicant's Proposed Route on May 26, 2016.
L3-RA-03	This alternative was proposed to address landowner concerns.	7.31	1	1	No. Requestor withdrew request for further study of this alternative.
L3-RA-04	This alternative exits the Clearbrook Terminal on the north side of the facility. From that point, it turns west and then turns and runs south to rejoin the L3R Proposed Route south of the Terminal and Deep Lake. The alternative was proposed in response to comments received from landowners located on the existing Enbridge Mainline System right-of-way near Clearbrook, Minnesota.	2.50	1	1	No. Requestor revised this request and resubmitted it as L3-RA-04 Amended Route Alternative.
L3-RA-04 Amended Route Alternative	This alternative exits the Clearbrook Terminal on the north side of the facility. From that point, it turns west and then turns and runs south to rejoin the L3R Proposed Route south of the Terminal and Deep Lake. This alternative amends L3-RA-04 in response to further input received from landowners located on the existing Enbridge Mainline System right-of-way near Clearbrook, Minnesota.	2.52	1	1	No. Incorporated in Applicant's Proposed Route on May 26, 2016.
L3-RA-05	This alternative avoids the Eastern Wild Rice Watershed and removes any hydrologic connection to Lower Rice Lake. This alternative would modify the centerline of the Proposed Route where it crosses mostly forested land with some agricultural land.	13.0	1	1	No. Requestor revised this request and resubmitted it as L3-RA-05 Amended Route Alternative.
L3-RA-05 Amended Route Alternative	This alternative avoids the Eastern Wild Rice Watershed and removes any hydrologic connection to Lower Rice Lake. This alternative would modify the centerline of the Proposed Route where it crosses mostly forested land with some agricultural land. This alternative amends L3-RA-05 to improve constructability and address landowner requests.	12.9	1	1	Yes
L3-RA-06	This alternative was proposed at the request of a landowner to avoid gravel deposits. The alternative modifies the centerline of the Proposed Route where it crosses mostly agricultural land.	0.39	1	1	No. Included in Applicant's EAW Proposed Route on April 11, 2016.

L3-RA-07	This alternative was proposed to address landowner concerns.	1.45	1	1	No. Requestor withdrew request for further study of this alternative.
L3-RA-08	This alternative was proposed in response to concerns raised by the MDNR and Kennecott Exploration Company ("Kennecott") in the Sandpiper routing process. MDNR raised concerns regarding potential impacts of the route on active state mineral leases held by Kennecott in Carlton County. This alternative avoids the mineral leases and nearby Salo Marsh WMA. It also addresses nearby landowner concerns and engineering constraints. This alternative is intended to address concerns prompting submittal of RA-38, RA-39, RA-40, and RA-41.	7.2	1	1	No. Requestor revised this request and resubmitted it as L3-RA-08 Amended Route Alternative.
L3-RA-08 Amended Route Alternative	This alternative was proposed in response to concerns raised by the MDNR and Kennecott Exploration Company ("Kennecott") in the Sandpiper routing process. MDNR raised concerns regarding potential impacts of the route on active state mineral leases held by Kennecott in Carlton County. This alternative avoids the mineral leases and nearby Salo Marsh WMA. It also addresses nearby landowner concerns and engineering constraints. This alternative is intended to address concerns prompting submittal of RA-38, RA-39, RA-40, and RA-41.This alternative amends L3-RA-08 to improve constructability and address landowner requests.	7.7	1	1	No. Included in Applicant's Proposed Route on May 26, 2016.
L3-RA-09	This alternative was proposed to accommodate the HDD crossing of I-35 in response to a landowner request to move a portion of the Proposed Route crossing their property.	0.60	1	1	No. Included in Applicant's EAW Proposed Route on April 11, 2016.
L3-RA-10	This alternative is a variation of Sandpiper SA-03 Modified. The route would proceed from the west: southeast on SA-03 Modified, northeast on US-169 to avoid Milaca, east on MN-23 to the intersection with MN-65, then cross country to CSAH 11 to avoid Mora, north on CSAH 11 to reconnect with MN-23, and then east on MN-23 to connect with the SA-03 Modified route.	42	1	3	No. Unlikely to have significant environmental benefit as compared to another alternative, since SA-03-as amended L3-RA-10 includes and would otherwise be duplicative of L3-RA-10.

L3-RA-11	This alternative would replace Line 3 in its current location (*i.e.*, an in-trench replacement).	282	3	12	No. As described in Enbridge's Route Permit Application, this is not a viable alternative due to 1) increased human and environmental impacts; 2) additional workspace requirements; 3) increased wetland and waterbody impacts; 4) extended open trenches; 5) increased safety risks and construction challenges; and 6) increased operational impacts.[22]
Red Lake Fen RA	This alternative was proposed to avoid a potential calcareous fen in Red Lake County that was identified by NDPC during field survey (the "Red Lake Fen").	1.8	1	1	No. Only applicable to Sandpiper Proposed Route.
Blandin RA	This alternative was proposed to avoid a conservation easement held by MDNR on lands owned by Blandin Paper Company ("Blandin"). The conservation easement objective is to maintain forest land and minimize development.		1	1	Yes

[22] Route Permit Application at 6-9 – 6-20.

3.6 Modified Scale or Magnitude

The EIS will not be evaluating alternatives of different pipe dimensions or different pipe metal thickness. Due to engineering requirements and requirements under PHMSA, this EIS will not address variations in different pipe dimensions or different pipe metal thickness as an alternative; pipe thickness will be discussed as a mitigation option.

3.7 Alternatives Incorporating Reasonable Mitigation Measures

This alternative type is not typically applied to large linear projects. Some element of reasonable mitigation measures will be evaluated with the alternatives identified in Section 3.

3.8 No Action Alternative

The EIS will describe the expected condition if the project is not developed with respect to the potential environmental and socioeconomic effects outlined in Section 4 of this document. The No Action Alternative assumes the pipeline will not be replaced and that current maintenance and integrity digs will continue. The No Action Alternative further contemplates that, absent full replacement, large segments of the existing Line 3 could be required to be replaced. These large-scale segment replacements would not occur in the pipeline's existing trench, but would be within Enbridge's existing ROW or a half-mile thereof.

4.0 Environmental Impact Statement Content

4.1 General EIS Format and Approach

According to Minnesota Rule 4410.2000, subp. 1, "The purpose of an EIS is to provide information for government units, the proposer of the project, and other persons to evaluate proposed projects which have the potential for significant environmental effects, to consider alternatives to the proposed projects, and to explore methods for reducing adverse environmental effects."

A preliminary table of contents for the EIS is provided in Appendix B.

4.2 Line 3 Replacement Project's Relationship to Sandpiper Pipeline Project

Separate approvals are needed from the PUC for the Sandpiper Project and the L3R Project. Each project will have its own EIS, and the cumulative impacts of each project will

be addressed in both EISs. If the Applicants' preferred route for each project is approved, Sandpiper and L3R will be co-located from Clearbrook, Minnesota, to Superior, Wisconsin. Due to the likelihood that the two pipelines will be constructed in the same season, Enbridge has requested that the EIS evaluate potential impacts, assuming that L3R will be constructed first along the centerline and within the construction footprint shown for Sandpiper in the EAW, and Sandpiper constructed second using the L3R centerline and construction footprint between Clearbrook and the Wisconsin border.

4.3 Data and ~~Analysis~~Analyses

"Data and analyses in the EIS shall be commensurate with the importance of the impact and the relevance of the information to making a reasoned choice among alternatives and to the consideration of the need for mitigation measures .... Less important material may be summarized, consolidated or simply referenced."[~~19~~23]

If information about potentially significant environmental effects is essential to a reasoned choice among alternatives and is not known, cannot be obtained, or the means to obtain it is not known, the EIS will include a statement that such information is incomplete or unavailable and will explain the relevance of the information in evaluating potential impacts or alternatives; summarize existing credible scientific evidence that is relevant to evaluating the potential significant environmental impacts; and evaluate such impacts from the preferred route and route alternatives based upon theoretical approaches or research methods generally accepted in the scientific community.[~~20~~24]

No field-level data collection will be performed for any of the route alternatives. Field data for the Applicant's preferred route has been completed by the Applicant. Publicly available data will be used to compare routes and will include existing federal, state and local government sources. Where Enbridge's field data is analyzed, the alternatives analyses may convey an artificially higher potential resource impact along the Preferred Route. The EIS will identify this issue where appropriate.

The scale of analysis will include a regional analysis area (RAA) to describe resources and potential impacts that may occur beyond the area of disturbance for construction and the permanent ROW, and an alignment analysis area (AAA). Analysis areas are outlined for each resource type in Appendix C. The AAA is focused on the land and alignment of various facilities within the proposed route width, as illustrated in Figure 1. The route width is the

[~~19~~23] Minn. R. 4410.2300(H).

[~~20~~24] See Minn. R. 4410.2500.

broadest area of land at 750 feet across and spans possible locations of pipelines, temporary construction and the permanent ROW.

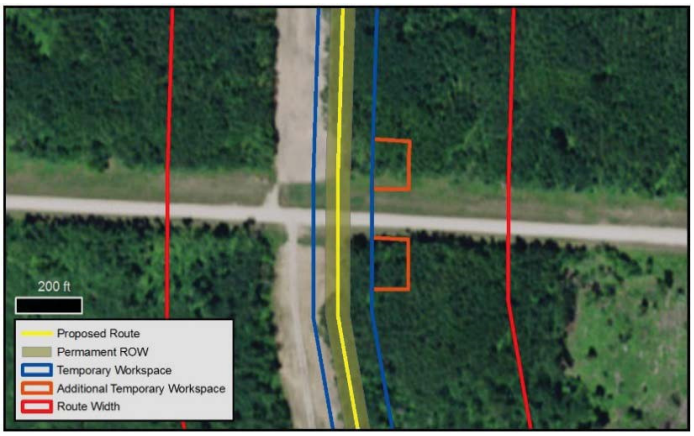


FIGURE 1 Illustration of Alignment Analysis Area

The RAA is generally measured from the proposed route centerline of the AAA; analysis at this regional scale is intended to put the resources in perspective, such as noting that a particular wetland in the AAA is part of a larger complex or that prime farmland extends throughout the area. Quantitative analysis at this regional scale will count, measure or otherwise present features a certain distance beyond the alignment centerline. The RAA will vary depending on the resource, but will be applied equally across all alternatives for a particular resource. For example, the RAA for some resources may be the entire county and for others may be a specified distance from the centerline (details can be found in Appendix C). Resources within the AAA and RAA will be presented, along with information on quality and function of those resources, and potential impacts of the preferred and alternative routes analyzed.

The L3R Route Permit Application includes the location of:

- Pipeline construction and permanent ROW,
- Extra work/staging areas,
- Access roads,
- Pipe and contractor yards, and
- Aboveground facilities (pump stations).

Detailed pipeline construction and operation features are not available for the route alternatives accepted for analysis. General pipeline construction and pump station spacing will be analyzed using the same spatial footprint as the Applicant's preferred route.

4.4 Detailed Environmental~~, Social and~~ Economic, Employment and Socioeconomic Analysis

Potential ~~social,~~ environmental ~~and~~, economic, employment and socioeconomic effects of the proposed project have been identified and described in the Scoping EAW. These are broad categories that will be further developed throughout the ~~scoping of the~~ EIS in accordance with Minn. R. 4410.2300(H). Mitigation measures that could reasonably be applied to eliminate or minimize adverse environmental effects will be identified in the EIS.

A draft outline of the EIS is provided in Appendix B.

4.4.1 Human Settlement

Qualitative comparison of route alternatives will be conducted for property values, human populations and income comparisons. Local land use plans will be identified. Potential aesthetic impacts will be addressed using federal guidelines applicable to federal forest areas and other unique aesthetic viewsheds that could be altered. Sensitive human settlement noise receptors will be assessed using state standard methods. Land type conversion as a result of project construction will be analyzed across all routes and route alternatives.

4.4.1.1 Data Sources Identified

The 2010 United States census data will be the primary source data for demographic, housing and property value analysis. Supplemental data will be obtained from local and regional land use plans, development plans and discussions with local officials for zoning and land use analysis. Visual resource analysis will use USFS guidelines. Noise impacts will be assessed according to state standards on identified receptors. Environmental justice analysis will use Minnesota Department of Employment and Economic Development 2010, United States census datasets and the most recent American Community Survey of the US Census Bureau. Zoning and land use will be assessed qualitatively to identify possible current and future conflicts.

4.4.1.2 Housing

Evaluation of residential housing impacts includes an estimate of the number of homes within a certain distance of the pipeline and any displaced homes. Impacts to homes as a result of changes in access resulting from construction will also be evaluated. Any residences or other buildings located within the Applicant's preferred route and other route alternatives will be identified. The potential for a resulting displacement of residences or other human activities will be assessed. The location and proximity of

residences or other structures will be reviewed using aerial photography and analysis and proximity tools in ArcGIS.

4.4.1.3 Property Values

Relative differences in property values among route alternatives will be assessed. The construction and operation of a pipeline system can have effects on existing property values. Property values are influenced by site-specific factors and local and national market conditions. Existing literature and datasets will be used to assess effects.

4.4.1.4 Population

Current and projected future distribution of human populations will be characterized. The sizes and distribution of incorporated areas will be summarized.

4.4.1.5 Environmental Justice

Disproportionately high and adverse impacts on minority and low-income populations with respect to human health and the environment will be assessed.

4.4.1.6 Income

Income levels in the counties of the project region, including all route alternatives, will be described. Median income levels among the major population groups will be compared.

4.4.1.7 Planning and Zoning

Minnesota statutes provide local governments with zoning authority to promote public health and general welfare and Minnesota Statute Section 299J.05 provides for pipeline setback ordinances. County records will be reviewed to determine existing land use plans and zoning ordinances or development codes along the Applicant's preferred route and other route alternatives to determine whether location of the proposed facilities is consistent with current zoning and ongoing land uses.

4.4.1.8 Aesthetics

Aesthetic and visual resources include the physical features of a landscape such as land, water, vegetation, animals, and structures. Resources will be identified within an RAA consistent with USFS guidelines for visual resource analysis. The impact assessment will also describe visual changes that will occur if the pipeline and associated facilities are built. Where adverse visual effects are identified, mitigation measures will be addressed. The relative scenic value or visual importance of these features will be assessed and impacts assessed based on distance to project structures, viewshed perspective, and duration of view impairment. The location and proximity of these resources to the project will be reviewed using spatial analysis tools in ArcGIS.

4.4.1.9 Noise

The potential for long-term noise impacts from operation of pump stations and associated substations will be assessed by considering the sound level increase over existing levels. Receptors, such as homes, that may be impacted by changes in noise levels as a result of pump stations will be evaluated for compliance with the state noise standard.

4.4.1.10 Existing Contaminated Sites

Documented sites of environmental contamination will be assessed. The greatest potential for impact would be the inadvertent excavation of preexisting environmental contaminants. To determine the potential presence of preexisting contamination, data will be collected from the US Environmental Protection Agency (EPA) Facility Registration Service (FRS). This exchange network is a partnership among states, tribes, territories and the EPA to facilitate the exchange of environmental information throughout the country. Readily available Minnesota databases residing with Minnesota Department of Transportation (MnDOT), MPCA, Minnesota Department of Agriculture, and other state agencies will also be obtained. For route comparison purposes, counts of sites with preexisting contamination (if any) will be developed using spatial analysis tools within ArcGIS.

4.4.2 Transportation and Public Services

Public service features include schools, medical facilities, religious facilities, fire and police stations and transportation networks (such as roads, airports and railroads), which serve the daily needs of residents in the community. These important features are located throughout all of the route alternatives the EIS will consider.

4.4.2.1 Data Sources Identified

The data used to establish baseline community features will be derived from a variety of federal, state and local sources. Data for emergency services will be collected from the US Geological Survey (USGS) National Structures Datasets (NSD); cemeteries and church data will be derived from ESRI and other sources; highway data will be collected from USGS Topologically Integrated Geographic Encoding and Referencing (TIGER) data (and other sources); airport data will be collected from the Federal Aviation Administration's (FAA's) National Flight Data Center (and other sources); and schools data will be acquired from Minnesota databases.

Counts of features will be developed using spatial analysis tools within ArcGIS. Roadway crossings will be quantified and classified as state, federal, county and local. Roads intersecting route alternatives will be quantified by road class designation. Utility crossings of route alternatives pursuant to state regulations for a Utility Permit will be quantified.

Emergency service plans will be identified and qualitatively discussed for each route alternative area, and a tabulation of plans and characteristics will be compared to emergency response plans from the Applicant for identifying gaps and inconsistencies per state and federal rules. Airport types and locations will be quantitatively compared, as will schools and churches.

4.4.2.2 Roadways

Comparison of route alternatives with various road classes will be performed. Compatibility of the proposed pipeline crossings of roads with MnDOT's utility accommodation policy will be performed to ensure that the proposed project, if constructed and operated, would not interfere with the flow of traffic or the safe operation of vehicles.

4.4.2.3 Public Utilities

To assess the potential impact of the Applicant's preferred route and other route alternatives on public utilities that serve residents and businesses in the project area, existing electric and natural gas utilities that could be crossed or affected by the proposed project will be identified. Presence of power-generating facilities located in the vicinity of route alternatives will also be reviewed.

4.4.2.4 Emergency Services

Law enforcement agencies, city and community fire departments, volunteer fire departments, rural fire departments, and fire protection districts along the Applicant's preferred route and other route alternatives will be identified. Hospitals, emergency response centers, emergency medical services and ambulance districts will also be identified. Potential impacts will be evaluated particularly as they relate to accidental spill releases.

4.4.2.5 Airports

The locations of airports and private landing strips in the vicinity of all of the route alternatives will be identified. Setbacks and other requirements of these facilities will be evaluated.

4.4.3 Economics

Regional economies for the preferred and alternative routes in Minnesota will be evaluated for their regional and project-specific importance. An overview of the region-wide financial contribution of these economies will be provided. Mapping will be used to show the regional locations of land areas contributing to these economies. Evaluation of economic impacts will include cost estimates of the preferred route and alternatives and impacts to local and regional economies.

4.4.3.1 Data Sources Identified

The 2011 USGS National Land Cover Database and additional detailed information on existing land use and zoning will be obtained from counties and municipalities crossed by the route alternatives. Information from the United States Census Bureau will be used to identify tribal lands. Information on prime and unique farmland will be obtained from Natural Resources Conservation Service (NRCS), and information on parcels participating in the Farm Service Agency Conservation Reserve Program will be obtained from the US Department of Agriculture (USDA). Information on US Army Corps of Engineers (USACE), US Department of Interior, and other federal recreational and public use areas will be obtained. This will include landscape-scale conservation systems such as the tallgrass prairie conservation area. Readily available database information will also be obtained from the USGS Gap Analysis Program (federal lands), Minnesota Geospatial Information Office (MnGeo), Minnesota Department of Agriculture (agricultural resource types), MDNR (forest inventory data, forest stewardship sites, minerals, county tax-forfeit lands, public use recreation designations and tourism centers), University of Minnesota 2011 Forest Products Industry Report, and Minnesota Office of Tourism.

Land cover datasets will be used to divide areas into the four major economic land uses in the region. This will be presented at a regional scale. Qualitative comparison will be made for the predominant economies in the project region and the relative differences among route alignments.

Recreation and tourism data will be obtained from sources such as MDNR, Minnesota Department of Employment and Economic Development, the University of Minnesota Tourism Center, and Minnesota Department of Revenue Leisure and Hospitality Industry reports.

4.4.3.2 Agriculture

Agricultural areas, including prime farmland and crops in the project region, will be described. Both short- and long-term impacts and mitigation of pipeline construction and operation will be analyzed, including potential impacts to potatoes, wild rice, specialty crops, and organic and transitional operations.

4.4.3.3 Forestry

Timber resources and forest areas in the project region will be described and mapped, including ownership. Potential impacts to the forest products economy will be discussed, particularly regarding land permanently removed from forestry by the pipeline ROW as well as access concerns for ongoing forest management activities.

4.4.3.4 Mining

Minnesota's mining resources include ferrous and nonferrous metals, high-quality granite, limestone, sand and gravel, and peat. Locations and types of mining resources, active mines, and readily available mineral lease data will be mapped and summarized for the project region, and potential impacts discussed.

4.4.3.5 Recreation and Tourism

Regional tourism, including public recreation lands, percent of housing serving as vacation/second homes, and other special use areas will be identified. Centers of tourism economy will be identified, including destination locations, such as the Brainerd Lakes area. The economic impact of recreational tourism regionally and locally will be analyzed within the RAA.

4.4.4 Cultural Resources

Cultural resources include archaeological resources, historic resources, cultural values (including Traditional Cultural Properties), and treaty areas. Archaeological resources include historic and precontact artifacts, structural ruins, or earthworks and are often partially or completely below ground. Historic resources include extant structures, such as buildings and bridges, as well as districts and landscapes. Cultural values include [suggest DOC-EERA provide]. Treaty areas will include [suggest DOC-EERA provide.] Potential impacts to cultural resources will be evaluated across the preferred route and route alternatives.

4.4.4.1 Data Sources Identified

Information concerning cultural resources will be obtained from the cultural resources survey that is being conducted for the Applicant's preferred route. It is anticipated that the survey report will include information regarding archaeological sites~~,~~ and historic resources~~, and properties of cultural value~~ for the Applicant's preferred route. The Minnesota State Historic Preservation Office (SHPO) maintains records of known archaeological and historic resources, which will be consulted for the route alternatives. The Minnesota SHPO inventory files to be reviewed include: History/Architecture Inventory, History/Architecture Reports, Archaeological Sites and Archaeological Reports. In addition, historical maps (General Land Office, USGS, etc.), aerial imagery and online libraries will be used for additional information.

4.4.4.2 Archaeological, Historical and Cultural Resources

Counts and categories of the resources within the Applicant's preferred route and the route alternatives will be developed using spatial analysis tools within ArcGIS. Direct and indirect impacts to cultural resources will be evaluated for resources in the AAA. Appropriate mitigation measures to reduce impacts from pipeline construction and operation and accidental releases will be recommended as necessary.

Cultural resources that are eligible, listed or unevaluated for listing in the Minnesota State Historic Sites Network and the Minnesota State Register of Historic Places will be included in the impacts assessment. In addition, impacts to resources that are eligible, listed or unevaluated for listing in the NRHP will also be assessed. The National Historic Preservation Act (NHPA) defines the term "historic property" to include districts, sites, buildings, structures, landscapes, and objects included in or eligible for the NRHP (54 US Code 300308).

4.4.5 Natural Environment

Natural environment broadly encompasses air, water and biological resources.

4.4.5.1 Data Sources Identified

Natural land cover data sources are the 2011 USGS National Land Cover Database, USGS National Gap Analysis Program (GAP) Land Cover Data Portal, locations of Wildlife Management Areas (WMAs), Waterfowl Production Areas (WPAs) and DNR prairie conservation easements. Water resources data will be obtained from readily available databases residing with state and federal sources, including MnGeo, waterbody data from the USGS National Hydrography Flowline and Waterbody Database (NHD), US National Atlas Water Feature Line dataset, EPA's Impaired Streams Database, and the US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) database and Minnesota NWI update. Where database information is readily available, wetlands will be tagged as associated with the MPCA wetland quality monitoring program, state or federal wetland banking program, and MPCA watershed-based TMDL Implementation Plan or WRAP areas in or near the routes. Wetlands that have a calcareous fen or are designated as wild rice wetlands will be tagged. Readily available databases will be used to tag wetlands associated with Minnesota Wetland Conservation Act or other state or federally funded easement and management plans.

Additional databases for identification and assessment of lake, stream and river resources may include DNR Public Waters Inventory, DNR LakeFinder, DNR Hydrography, Minnesota Trout Streams, Statewide Altered Watercourse, Federal Emergency Management Agency (FEMA) Floodplain, 305b Assessments of Stream Conditions, MPCA sentinel lake designations, TMDL watersheds and waterbodies, Outstanding Resource Value Waters, and Watershed District and Watershed Management Organization boundaries. The MPCA's Index of Biological Integrity will be used to evaluate the quality of rivers and streams crossed by the preferred and alternative routes. Number of lakes and counts of river and stream crossings of various designations will be used for comparing routes.

Karst and other geologic landform datasets will be used to assess groundwater sensitive areas. Minnesota Department of Health, Minnesota Geological Survey, MnGeo, and DNR Data Deli databases will be used to assess the proximity of routes to groundwater sensitive areas, wells and source protections areas.

Potential impacts to resources will be quantified using spatial analysis tools in ArcGIS. Appropriate mitigation measures to reduce impacts from pipeline construction and operation and accidental releases will be recommended.

4.4.5.2 Air Quality

Air quality impacts associated with construction and operation of the proposed project and associated facilities include emissions from fugitive dust, fossil-fuel fired equipment, and pipeline and tank evaporation losses. The air quality impacts analysis will include a review and estimate of the emission inventory of all criteria pollutant, greenhouse gas and hazardous air pollutant emissions related to construction and operation of the proposed project and alternatives. Air quality impacts will be reviewed in light of federal and state local air pollution standards and regulatory requirements, where applicable. Where no regulatory standards can be applied, comparative thresholds will be used. The identification of air quality impacts will take into consideration other factors such as the uniqueness of a particular location and existing environmental conditions.

4.4.5.3 Water Resources: Quality, Watersheds and Floodplains

Streams and rivers, lakes, groundwater, and floodplains will be identified and compared across route alignments. Additionally, special resources for which federal and state laws govern restoration and protection will be identified. This includes outstanding resource value waters, sentinel lake watersheds, impaired waters for which state and federal monies are being spent, and resources being protected and restored under Minnesota's Constitutional Amendment for Clean Water, Land and Legacy. Measures to minimize adverse effects include using sound erosion control and stormwater management practices and reducing floodplain encroachment and increases in the height of the regional (100-year and 500-year) floodplain elevation. Properly minimizing adverse effects requires assessment of existing conditions such as water quality, fishery resources, floodplain functions and values, watershed stability, potential undesirable outcomes to these conditions, and proposed measures to minimize the adverse effects.

The extent to which erosion control and stormwater management measures, that is best management practices (BMPs) or specific erosion control and stormwater management commitments, are proposed depends on a variety of factors, including construction timeframe and the extent of water and floodplain resources in the project's area of effect.

4.4.5.4 Wild Rice and Other Tribal Resources

Wild rice is an important resource in northern Minnesota and a key part of Ojibwe culture. Wild rice is very susceptible to disturbance in all habitats (lake, river or wetland) and sensitive to temperature changes, contaminants or hydrology changes, all of which on their own or in combination could affect germination and production of rice beds.

Construction and restoration-related impacts due to sedimentation could also affect wild rice germination rates and reduce production. The EIS will compare the potential for these impacts due to the proposed route and other alternatives.

4.4.5.5 Wetlands

Wetlands will be identified according to the NWI and Minnesota NWI updates where available. USDA NRCS Farm Service Agency data may be readily available. Special feature wetlands will be identified as wild rice wetlands, calcareous fens, and state or federal wetland bank sites.

Wetland boundaries are available for the Applicant's preferred route from wetland boundary determinations or delineations conducted in accordance with the USACE, the agency that authorizes Section 404 wetland permits.

4.4.5.6 Natural Communities and Habitat

Native flora and wildlife habitat will be characterized in the overall project region, within the RAA and AAA. GAP land cover, ecological subsections and public designated areas for wildlife such as WMAs and federal, state and locally identified conservation or habitat areas will be identified.

4.4.5.7 Soil Resources

Soil orders in the project region will be summarized and mapped. To determine potential impacts to major soil classifications, soils data will be obtained from the NRCS's Major Land Resource Areas (MLRA) database. Acreage of soil orders and some lower order classifications along each route alternative will be estimated using spatial analysis tools in ArcGIS. The Digital General Soil Map of the United States or STATSGO2 will aid in development of particular soil quality information.

4.4.6 Rare and Unique Natural Resources

Biological resources with special protection and management will be analyzed as a distinct subset of natural environment. These include state and federally listed threatened and endangered species, state natural heritage sites, species of greatest conservation need (SGCN), state scientific and natural areas, and Minnesota Biological Survey sites of Biodiversity Significance.

4.4.6.1 Data Sources Identified

Natural heritage data will come from MDNR's NHIS, and include spatial data on listed species. Scientific and natural area locations will come from the MDNR data sources. GAP land cover and methods from Tomorrow's Habitat for the Wild and Rare will be used to identify SGCN habitat. Each of these features will be quantified according to the number intersected by the AAA. Regional-scale comparison will vary based upon the available dataset. Data will be available on a county basis except that determination of SGCN habitat polygons will be based on analysis within 5 miles of the alignments. Information concerning rare and unique natural resources will also be obtained from the biological field surveys that is being conducted for the Applicant's preferred route.

4.4.6.2 State and Federally Listed Threatened and Endangered Species

To determine impacts on state and federally listed threatened and endangered species, data will be collected from the USFWS Information, Planning, and Conservation System (IPaC) at the county level. In addition, USFWS Species Fact Sheets, USFWS Critical Habitat data, and Natural Heritage data will also be reviewed.

4.4.6.3 State Natural Heritage Sites

In addition to listed species location data, NHIS licensed data provides for identification of high-quality native plant communities, animal aggregations, and other important ecological and landform features. These data will be analyzed using ArcGIS to spatially plot their locations in relation to the Applicant's Preferred Route and route alternatives. Data displayed on maps or in tables will be in compliance with the data privacy requirements of the NHIS license.

4.4.6.4 Species of Greatest Conservation Need

Minnesota's State Wildlife Action Plan identifies SGCN habitat. The associated land use cover data will be obtained and used to assess impacts to SGCN habitat.

4.4.6.5 State Scientific and Natural Areas

Minnesota's geospatial data on scientific and natural areas will be obtained. These data will be analyzed using ArcGIS to spatially plot their locations in relationship to the Applicant's preferred route and alternatives.

4.4.7 High Consequence Areas and Natural Disaster Hazard Areas

The consequences of an inadvertent release of product (natural gas, crude oil, refined products, etc.) from a pipeline can vary, depending on where the release occurs and the product involved. These releases may adversely impact or damage human health and safety, the environment and personal property.

HCAs are areas and features where a release may have the most significant adverse consequences. HCAs for hazardous liquid pipelines include:

- Populated areas – including both high population areas (called "urbanized areas" by the US Census Bureau) and other populated areas (areas referred to by the US Census Bureau as a "designated place").
- Drinking water sources – including those supplied by surface water or wells and where a secondary source of water supply is not available. The land area in which spilled hazardous liquid could affect the water supply is also treated as an HCA.
- Unusually sensitive ecological areas – including locations where critically imperiled species can be found, areas where multiple examples of federally listed threatened and endangered species are found, and areas where migratory water birds concentrate.

Natural Disaster Hazard Zones are areas that present a higher risk of failure in the event of a flood or landslide. These Natural Disaster Hazard Zones are defined as being Low, Medium or High risk.

4.5 Impacts of Routine Construction and Operation

In the analysis of route alternatives, AAA impacts will be discussed as construction or operationally related. Opportunities for avoiding impacts by adjusting the ROW will be evaluated. Construction-related impacts will be identified by reviewing the Applicant-proposed project description details. Impacts could result from access to facilities and services, vehicle emissions and fugitive dust, noise, erosion and sedimentation, soil compaction, construction solid waste/hazardous waste, vibration and vegetation clearing. Construction material sources (borrow sites) and major utility adjustments are possible sources of additional construction-related impacts that would be considered.

The project will require the use of heavy equipment to clear land, dig ditches, install and backfill pipe, construct ancillary facilities and revegetate. These impacts would occur wherever the route is located. However, these impacts can be mitigated by construction measures, such as limiting construction work hours, using BMPs to control soil erosion, minimizing the removal of vegetation and remediating soil compaction and other soil disturbances. The potential spread of invasive species due to construction and the movement of equipment along the project route will be evaluated. Mitigation measures necessary to reduce the spread of invasive species will be identified.

Operational impacts can exist for the life of the project. These changes could be aesthetic/viewshed-based, land use restrictions, vegetative cover change in the managed ROW and associated habitat, drainage patterns, soil quality and loss of resources. Some

impacts that are unavoidable can be mitigated, such as recovery of cultural artifacts and filled wetlands.

4.6 Method for Assessing Impacts of Crude Oil Releases

Various approaches to evaluate the impacts of a crude oil release (large volume and small or pinhole leaks) will be applied to the preferred and alternative route alignments. Impact assessments will be based on literature reviews of large and small release volumes, including relevant case studies; a general analysis of impacts from a release to resources along the preferred and alternative routes, including impacts to groundwater; the probability of a release; and site-specific modeling of representative sites that can be used to make general comparisons to other locations. Resources to be considered in the analysis include but are not limited to residential structures, populated areas, water and biological resources, cultural resources and HCAs.

4.6.1 Large Volume Spill General Methods

Large volume spill analysis will consist of spill modeling and a summary and application of methods of spill impacts analyses from other projects, such as the Keystone XL Pipeline EIS, and the Ecological and Human Health Risk Assessment of Pipeline Releases along the Line 3 Pipeline in Canada. Spill incident findings and remediation efforts from investigations near Bemidji, Minnesota, by the USGS, and the National Transportation Safety Board report on the Marshall, Michigan, spill, and other case studies will be used in the analysis.

The Applicant will provide data on maximum spill volumes, spill frequency and the types of crude oil being transported based on the proposed engineering and operations for the pipeline. This information will be applied to all large volume spill impact analysis methods. An estimated large volume spill footprint will be established based on these data and methods from other current or recent past investigations, including those used by Exponent in a review of the Keystone XL Pipeline Final EIS. The methods will consider general geomorphic conditions in Minnesota to develop a general spill footprint. The analysis will also include the review of data on crude oil releases from the PHMSA database.

4.6.1.1 Large Volume Spill Modeling

Spill modeling will be conducted by RPS ASA, a global science and technology consulting firm specializing in environmental modeling, using OILMAPLAND and SIMAP modeling software. OILMAPLAND is a land and surface water spill model system (two-dimensional) that simulates oil and chemical releases from pipelines and storage facilities, providing a modeling tool for oil spills that occur on land and then migrate to streams and lakes. SIMAP provides detailed predictions of the three-dimensional trajectory, fate, biological

effects, and other impacts of spilled oil and fuels in aquatic environments. Both modeling programs meet PHMSA regulatory requirements.

To assess potential impacts associated with an accidental release, the Applicant will provide maximum spill volume estimates at seven representative sites along the preferred and alternative routes assuming a complete pipeline rupture. Data generated from modeling representative sites will be used to make broad environmental comparisons among and across routes in areas with similar features. At five of the seven sites, OILMAPLAND (the two-dimensional oil spill trajectory and dispersion model) will be used to estimate the potential spread of a projected maximum crude oil spill across land and into nearby watercourses and waterbodies. At two of the seven sites, SIMAP (the three-dimensional oil spill trajectory, dispersion and vertical mixing model) will be used to estimate the potential spread of the maximum crude oil spill across land and into nearby watercourses and waterbodies as well as the potential mixing of oil and sediment in the water column.

The models will be run for a set of scenarios that include the following crude oil types: light sweet Bakken crude oil, Cold Lake Blend and Cold Lake Winter Blend. These crude oils represent a range of oil densities and chemical compositions. Additional modeling parameters include seasonal variation to capture water flow volumes (high flow, low flow, and snow/ice covered), and a 24-hour model run with outputs at 6, 12 and 24 hours. The combinations of model inputs will result in more than 40 modeling scenarios from which to analyze potential impacts to resources along route alternatives.

4.6.2 Small Leaks

Small or pinhole leaks will be evaluated qualitatively through a combination of literature review and relevant case studies. Factors for evaluation will include volume of the release, the length of time for detection and the types of effects on groundwater, surface water and soils. Types of remediation and recovery, if applicable, will also be presented.

Potential impacts to shallow groundwater resulting from small (pinhole) leaks will be assessed qualitatively using the key findings of work done previously in Exponent's risk assessment of the Keystone XL Pipeline. Exponent used a numerical hydrocarbon spill screening model (HSSM) to evaluate a small leak from a high-pressure crude oil pipeline. The model considered a small leak of approximately 28 bpd and determined it would reach the ground surface within several months and that a partitioned benzene plume resulting from the leak could potentially travel up to 600 feet downgradient. To be conservative, potential groundwater resources within 1,000 feet of the potential centerline of the pipelines will be qualitatively assessed. The assessment will focus on areas where groundwater within 1,000 feet is influent to streams or other waterbodies or where shallow groundwater wells are present. Minnesota data layers used to analyze potential leaks will include source water protection areas and groundwater sensitive areas.

4.7 Cumulative Effects

Cumulative effects are those that result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions and are to be addressed pursuant to Minnesota Rule 7852.1900, subpart 3, for pipeline routing. The purpose of the cumulative effects analysis is to identify any proposed project effects that, when combined with other effects to resources in the region, may cumulatively become significant through incremental impacts. Adverse impacts that cannot be avoided as well as irreversible and irretrievable commitments of resources also will be presented.

The cumulative effects methodology will:

- Identify other actions affecting the resources, ecosystems (including aquatic ecosystems) and human settlements of concern;
- Characterize impacted resources identified in terms of their response to withstand change and capacity to withstand stress;
- Identify the important cause-and-effect relationships between human activities and resources; and
- Modify alternatives to mitigate significant cumulative effects.

Not all actions would have cumulative effects in all resource areas. Potential effects for such actions will be discussed in terms of the potentially affected resources. When the effects of a reasonably foreseeable action cannot be quantified, qualitative assessments will be provided. Past and present projects and their effects will be included as part of the baseline status of environmental resources presented in the analysis of alternatives.

In addition, the environmental document will take into account the potential cumulative impacts of both the Sandpiper and L3R Project, including impacts relative to the ROW needed to co-locate the two lines between Clearbrook and Superior along the preferred route and all alternatives.

As proposed, the Sandpiper Project will construct a new ~~612~~616-mile oil pipeline extending from Beaver Lodge Station, south of Tioga, North Dakota, to a new terminal facility at Clearbrook, Minnesota, and then on to an Enbridge affiliate's terminal and tank farm in Superior, Wisconsin. The proposed project includes approximately ~~300~~303 miles of new pipeline in Minnesota. The project will use a 24-inch-diameter pipeline from North Dakota to Clearbrook and a 30-inch-diameter pipeline from Clearbrook to the Wisconsin terminal. The project will also include construction of a new oil terminal with two 150,000 barrel tanks and pump station (Clearbrook West), just west of the existing terminal and storage tanks in Clearbrook and a pipeline inspection gauge launcher and receiver ~~types~~traps and mainline valve facilities at Pine River, Minnesota.

If a route permit is issued for the preferred route of the Sandpiper pipeline, the L3R pipeline will be adjacent to Sandpiper east of Clearbrook to the Minnesota-Wisconsin border; the existing Line 3 pipeline will be permanently deactivated and remain in place.[~~21~~25]

Cumulative impacts of high-voltage transmission lines and substations needed to serve proposed L3R pump stations also will be analyzed. Other reasonably foreseeable projects will be identified by searching local land use plans, current permit applications and approved, but not built, projects in the areas of the preferred and alternative routes.

5.0 Special Studies or Research

The EIS will incorporate the results of the following special studies:

1. Sandpiper Pipeline and Line 3 Replacement Projects: Assessment of Accidental Releases: Technical Report
2. Sandpiper Pipeline and Line 3 Replacement Projects: Assessment of Potential Pinhole Release on Groundwater
3. Emergency Response Plan
4. An independent assessment of the technical and economic feasibility of System Alternatives as described above in Section 3.

[Suggest DOC-EERA provide a more detailed description of each proposed study.]

6.0 Identification of Phased or Connected Actions

The EIS will describe and include the impacts of several new proposed transmission lines that would supply electric power to the new pipeline pump stations for this project. The Sandpiper pipeline will be discussed in how it may be viewed as a phased or connected action based on the construction schedule; however, pursuant to Minnesota Rule 4410.2000, subpart 4, the complete analysis for that project will be conducted separately.

7.0 Government Permits and Approvals

The EIS will identify all known required permits and approvals. Some permit information may be collected and reviewed concurrently with the EIS preparation. ~~However, the EIS will~~

[~~21~~25] See Chapter 6 of the Line 3 Replacement Route Permit Application to the Minnesota Public Utilities Commission.

~~not necessarily contain all the information needed for a~~As Ordered by the Commission and consistent with Minn. R. 7852.1500, the EIS is being prepared for consideration in the Commission's decision ~~on~~in the CN and Route Permit. No permits ~~have been designated to have all information developed concurrently with the preparation of this EIS per Minnesota Rule 4410.2100, subpart 6(C), nor will any~~will require a record of decision pursuant to Minnesota Rule 4410.2100, subpart 6(D).

Table ~~2~~3 provides a list of known federal, state and local approvals, certifications and financial assistance required for the project.

TABLE ~~2~~3
Permits and Approvals Required

Unit of Government	Type of Application	Status	Reason Required
US Army Corps of Engineers (USACE) – St. Paul District and MPCA	Section 10/404 Individual Permit and associated state 401 Individual Water Quality Certification	Application submitted and determined complete (~~December 17~~January 28, 2016)~~2015)~~	Authorizes discharge of dredged and fill material into waters of the United States, including wetlands, and crossing of navigable waters of the United States.
US Fish and Wildlife Service (USFWS)	Section 7 ESA Consultation (Federal endangered species)	Consultation ongoing	Establishes conservation measures and authorizes, as needed, take of federally protected species
	Bald Eagle Removal Permit	Pending submittal	Allows for removal of a known bald eagle nest in proximity to construction activities
Minnesota Public Utilities Commission (PUC)	Certificate of Need	Application submitted	Determines need for the pipeline, including questions of size, type and timing
	Route Permit	Application submitted	Authorizes construction of the pipeline along a specific route, subject to certain conditions
Minnesota Department of Natural Resources (MDNR)	License to Cross Public Waters	Application submitted	50 year license that allows for crossing of public waters with proposed utility
	License to Cross Public Lands	Application submitted	50 year license that allows for crossing of public lands with proposed utility
	Water Appropriation Permit – Pipeline and Facilities	Pending submittal	Authorizes withdrawal and use of water from surface or ground sources
	State Endangered Species Permit and Avoidance Plan	Pending submittal	Outlines plans for avoidance, minimization, and mitigation of take of state-listed species
	Osprey Nest Disturbance Permit	Pending submittal	Allows for removal of a known osprey nest
	Fen Management Plan	Pending submittal	Outlines plans for avoidance, minimization, and mitigation of impacts to fens
Minnesota Pollution Control Agency (MPCA)	Clearbrook ~~West~~ Terminal – ~~Option A Registration Permit and New Source Performance Standards Notifications and Submittals~~Synthetic Minor Individual State Operation Permit	Pending submittal	Authorizes operation of the terminal and compliance demonstration requirement for new sources of air emissions under the CAA

TABLE ~~2~~3
Permits and Approvals Required

Unit of Government	Type of Application	Status	Reason Required
	NPDES Individual Construction Stormwater, Hydrostatic Test,	Pending submittal	Authorizes ground disturbance with approved protection measures to manage soil erosion and
	and Trench Dewatering Permit – Pipeline Construction		hydrotesting activities; and removal of water that may accumulate in pipeline trench
	NPDES General Construction Stormwater Coverage – Facilities	Pending submittal	Authorizes ground disturbance with approved protection measures to manage soil erosion and stormwater discharge on construction site
	NPDES General Construction Stormwater Coverage – Pipeyards, Staging Areas, and Contractor Yards	Under review	Authorizes ground disturbance with approved protection measures to manage soil erosion and stormwater discharge on construction site
Minnesota State Historic Preservation Office (SHPO	Cultural Resources Consultation, NHPA Section 106 Clearance	Consultation ongoing	Ensures adequate consideration of impacts to significant cultural resources
Minnesota Department of Agriculture (MDA	Agricultural Protection Plan	Consultation initiated	Establishes measures for agricultural protection
Minnesota Department of Transportation (MnDOT)	Road Crossing Permits	Pending submittal	Authorizes crossings of state-jurisdictional roadways
Minnesota Department of Health (MDH) and Wrenshall, Oklee and Sundruds Court Drinking Water Supply Management Area	Drinking Water Supply Management Area/Wellhead Protection Area Consultation	Consultation only (in progress)	Ensures pipeline construction and operation are compatible with goals of relevant plans
Mississippi Headwaters Board	Local Land Use Review	Consultation only (in progress)	Ensures compatibility with land use plan
Red Lake ~~and~~, Wild Rice, and Middle-Snake-Tamarac Watershed Districts	Watershed District Permits	Pending submittal	Authorizes crossing of legal drain and ditches within watershed
Minnesota Board of Water and Soil Resources/WCA Local Governmental Units	Notice of Intent to Utilize Federal Approvals for Utilities Project Exemption	Notice submitted	Notice of use of exemption required
Local/County	Permits pertaining to off-ROW yard use	Pending submittal	Ensures compatibility with relevant land use plans

8.0 Environmental Impact Statement Schedule

A *tentative* schedule for development and issuance of the EIS is outlined in Table ~~3~~4. The schedule is contingent upon a number of factors; unforeseen circumstances may alter it.

TABLE ~~3~~4
Tentative Schedule

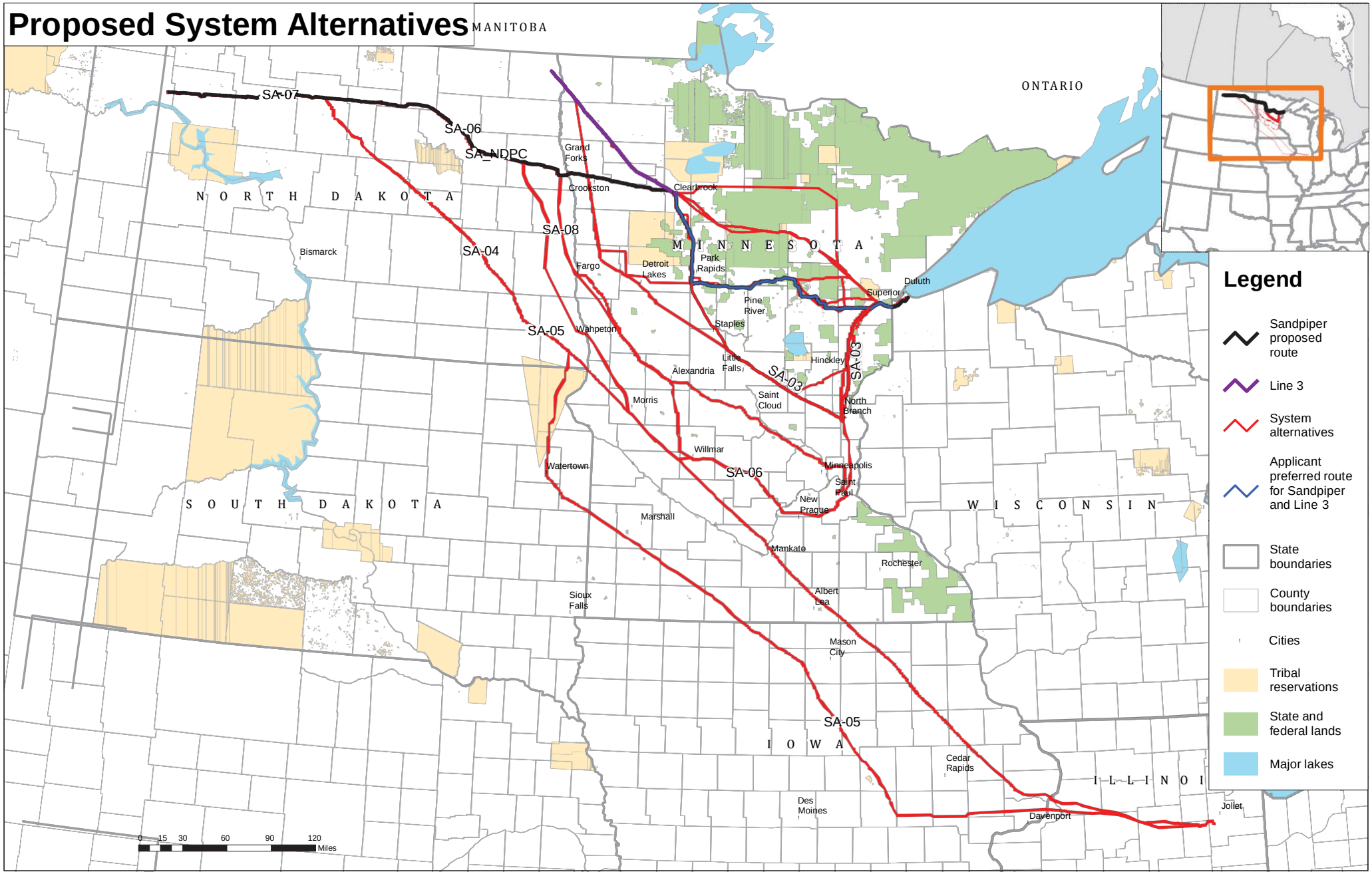
Scoping EAW and Draft Scoping Decision Document issued	April 11, 2016
Public Scoping Meeting(s)	April-May 2016
Close of Public Comment Period	May 26, 2016
Final Scoping Decision Document	June 2016
EIS Preparation Notice Published (start of 280-day EIS process)	August 2016
Draft EIS Issued for Public Review and Comment	January 2017
Final EIS Issued	May 2017
EIS Adequacy Determination	June 2017

Appendix A

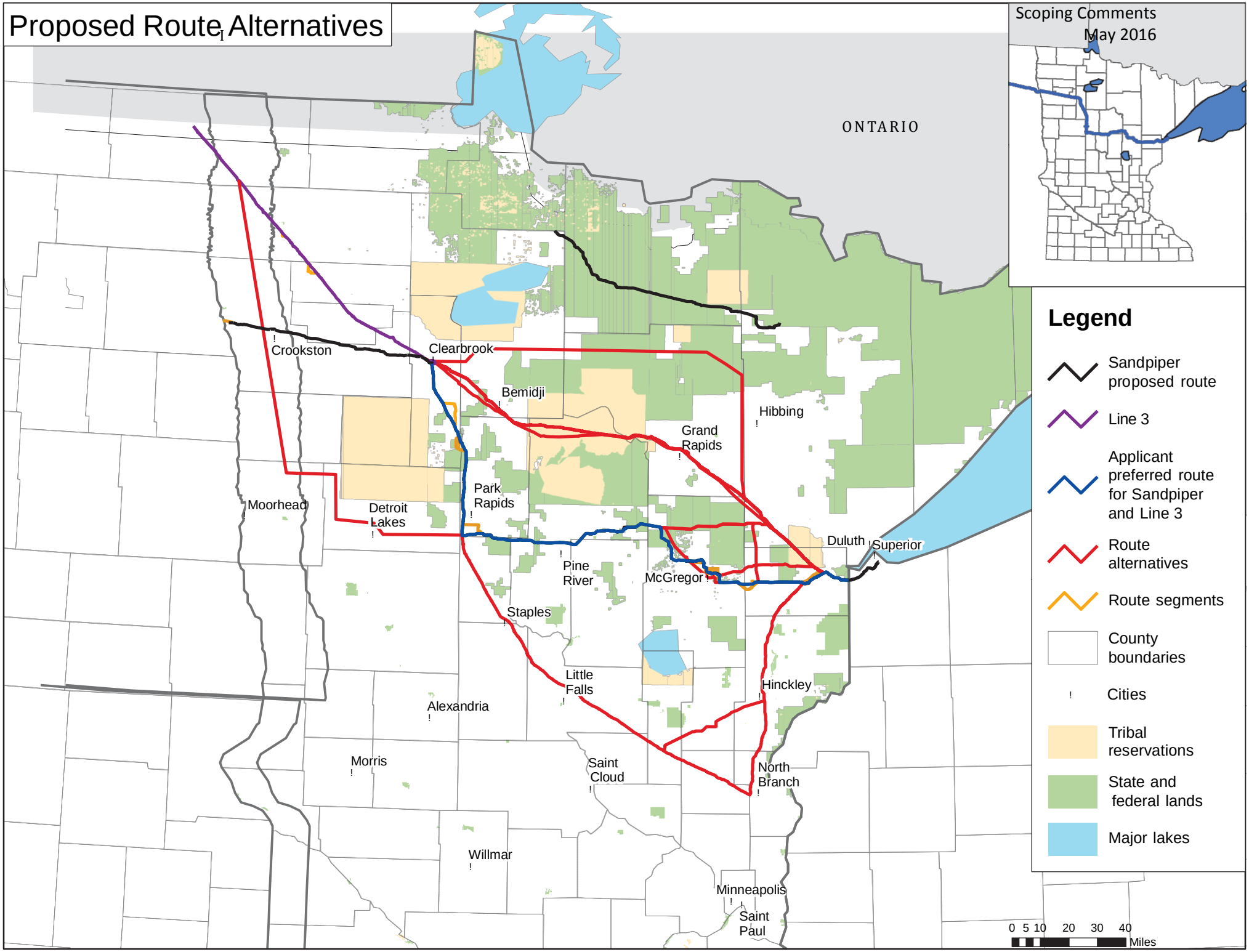
Figures

Figure 1: Line 3R ~~Previously Accepted~~ System Alternatives

Figure 2: Line 3R ~~Previously Accepted~~ Route Alternatives


Proposed System Alternatives
MANITOBA
ONTARIO
NORTH DAKOTA
SOUTH DAKOTA
MINNESOTA
IOWA
WISCONSIN
ILLINOIS
SA-07
SA-06
SA_NDPC
SA-08
SA-04
SA-05
SA-03
Grand Forks
Crookston
Clearbrook
Bismarck
Fargo
Detroit Lakes
Park Rapids
Duluth
Superior
Pine River
Staples
Wahpeton
Little Falls
Alexandria
Hinckley
Morris
Saint Cloud
North Branch
Willmar
Watertown
Minneapolis
Saint Paul
New Prague
Marshall
Mankato
Rochester
Albert Lea
Sioux Falls
Mason City
Cedar Rapids
Des Moines
Davenport
Joliet
0 15 30 60 90 120 Miles
Legend
Sandpiper proposed route
Line 3
System alternatives
Applicant preferred route for Sandpiper and Line 3
State boundaries
County boundaries
Cities
Tribal reservations
State and federal lands
Major lakes

Proposed Route Alternatives



Appendix B

Preliminary Table of Contents

A draft outline of the contents for the EIS, subject to change, is provided below:

I. Cover Sheet
II. Table of Contents
III. Acronyms, Abbreviations, and Definitions
IV. List of Preparers
V. Executive Summary

I. General Description of Project
   A. Project Description
   B. Project Purpose
   C. Project Costs
   D. Project Schedule
   E. Project Permits and Approvals
   F. Construction and Operation Methods
   G. Decommissioning of Line 3 Pipeline
II. Regulatory Framework
III. Alternative Screening
   A. ~~* * *~~Screening Criteria and Process
   B. Proposed Alternatives
   C. Comparison of Alternatives
   D. Alternatives Dismissed from the EIS and reasoning
   E. Alternatives Carried Forward
IV. Route Alternatives
   A. No Action Alternatives
   B. Applicant's Preferred Route
   C. Route Alternatives
V. Affected Environment, Potential Impacts, and Mitigation Measures
   A. Human Settlements
      1. Planning and Zoning
         a. County and Local Comprehensive Planning and Zoning
         b. Overlay Districts
         c. Existing and Future Land Use
         d. Watershed Districts/Watershed Management Organizations
      2. Noise
      3. Aesthetics/Visual Resources
      4. Housing
         a. Displacement
         b. Property Values
      5. Transportation and Public Services
         a. Roads and Highways

b. Utilities
c. Emergency Services
d. Airports
6. Environmental Justice
7. Public Health and Safety
a. Existing Contaminated Sites
b. Solid Waste
c. Waste Disposal
d. Hazardous Materials and Hazardous Waste Generation
e. Decommissioning
f. Spill Analysis and Environmental Impacts
i. Large spills
ii. Pinhole Leaks

B. Parks, Trails, and Recreational Areas
1. Federal Recreational Areas
2. State Parks and State Forests
3. Wildlife and Aquatic Management Areas
4. Scientific and Natural Areas
5. State Designated Rivers
6. State Canoe and Boating Routes (Water Trails)
7. State, Regional, and Local Bicycle and Pedestrian Trails
8. Snowmobile Trails
9. Scenic Byways

C. Cultural Resources
1. Tribal Considerations
2. Archaeological Resources
3. Historic Resources

D. Economics
1. Agriculture
2. Forestry
3. Mining/Mineral Resources
4. Recreation and Tourism
5. Income
6. Employment

E. Natural Resources
1. Water Resources
a. Groundwater
i. Depth to Groundwater
ii. Watersheds
iii. Aquifers
iv. Wells
v. Wellhead Protection Areas and Drinking Water Supply Management Areas
b. Streams, Rivers, and Floodplains
c. Lakes and Other Waterbodies
d. Wetlands
e. Stormwater, Stormwater Discharge, and Water Appropriation
2.Geology and Soils

a. Bedrock and Surface Geology
b. Mineral Resources
c. Estimated Volume and Acreage of Soil Excavation and/or Grading
d. Paleontology
e. Unconfined/Shallow Aquifers
f. Steep Slopes
g. Soils and Soil Characteristics
h. Erosion and BMPs

3. Flora
   a. Vegetation Cover
   b. Ecological Classifications
   c. Sensitive/Native Plant Communities
   d. Noxious Weeds and Invasive Species
4. Fauna
   a. Habitat/Fragmentation
   b. Typical Wildlife
   c. Fisheries
   d. Trout Streams
   e. Migratory Birds
5. Unique Natural Resources
   a. State and Federal Threatened and Endangered Species
   b. Species of Greatest Conservation Need
   c. Minnesota County Biological Survey
   d. Sites of Biodiversity Significance
   e. Wild Rice
6. High Consequence Areas and Natural Disaster Hazard Areas as defined by PHMSA
7. Air Quality
   a. Stationary Source Emissions
   b. Mobile Source Emissions
   c. Dust and Odors

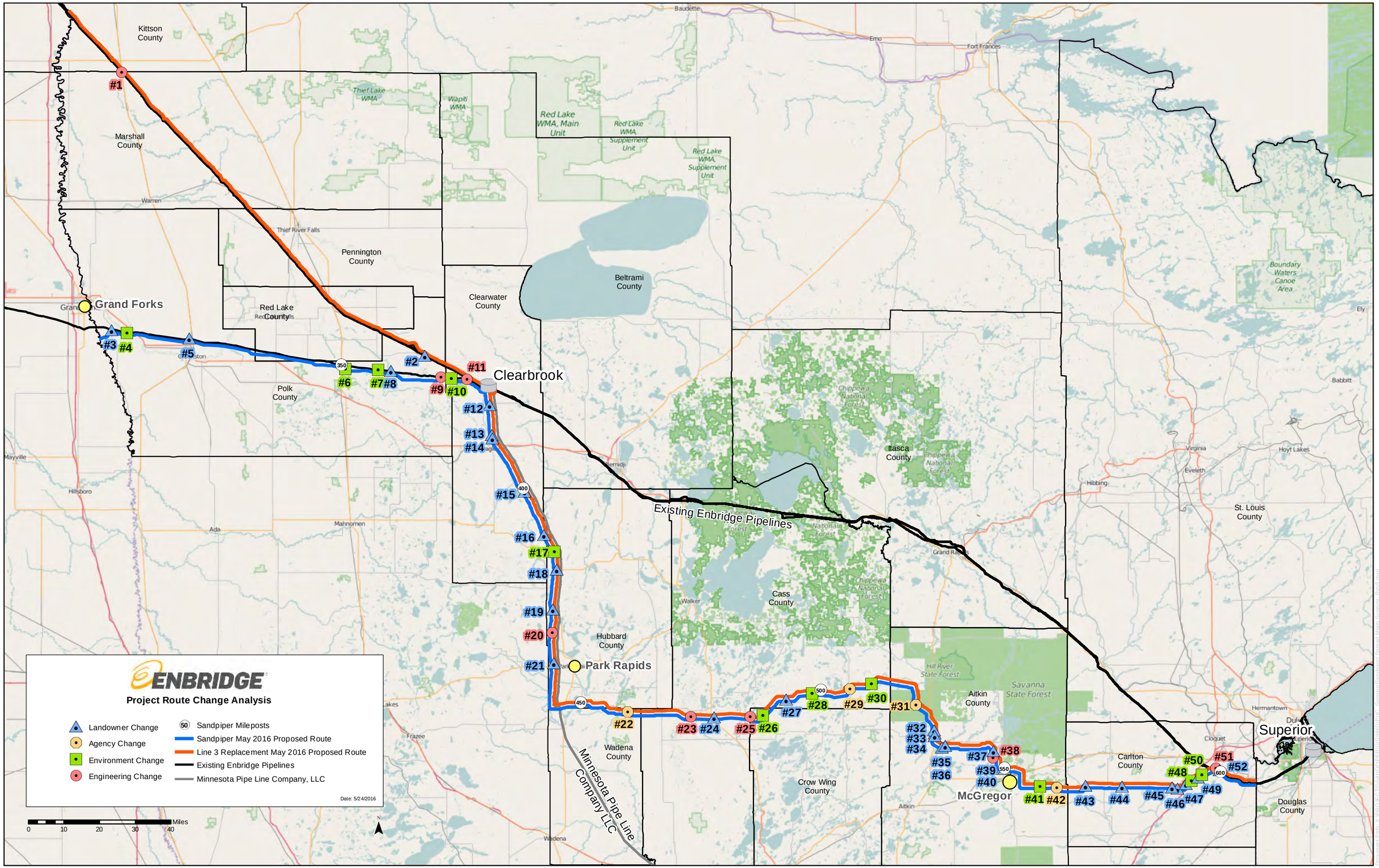
~~E~~F. Climate Change
~~F~~G. Construction Impacts
~~G~~H. Cumulative Effects

VI. Comparative Environmental Consequences by Alternative

58750944~~v1~~

Appendix B

Summary of Changes to L3R Proposed Route


ENBRIDGE
Project Route Change Analysis
Landowner Change
Agency Change
Environment Change
Engineering Change
Sandpiper Mileposts
Sandpiper May 2016 Proposed Route
Line 3 Replacement May 2016 Proposed Route
Existing Enbridge Pipelines
Minnesota Pipe Line Company, LLC
Date: 5/24/2016
Miles
0 10 20 30 40
Kittson County
Marshall County
Pennington County
Red Lake County
Polk County
Clearwater County
Beltrami County
Hubbard County
Wadena County
Cass County
Crow Wing County
Aitkin County
Itasca County
Carlton County
St. Louis County
Douglas County
Grand Forks
Park Rapids
Clearbrook
McGregor
Superior
Existing Enbridge Pipelines
Minnesota Pipe Line Company LLC
Thief Lake WMA
Wapiti WMA
Red Lake WMA, Main Unit
Red Lake WMA, Supplement Unit
Boundary Waters Canoe Area
Chippewa National Forest
Hill River State Forest
Savanna State Forest
#1 #2 #3 #4 #5 #6 #7 #8 #9 #10 #11 #12 #13 #14 #15 #16 #17 #18 #19 #20 #21 #22 #23 #24 #25 #26 #27 #28 #29 #30 #31 #32 #33 #34 #35 #36 #37 #38 #39 #40 #41 #42 #43 #44 #45 #46 #47 #48 #49 #50 #51 #52

Summary of Changes to Applicant Proposed Route from November 2013 to April 2016

Map Number	RA (if any)	Request category	Notes
1	L3RA-01	Engineering	Move pipeline west to avoid HDD
2		Landowner	Move pipeline to avoid landowners trees
3	RA-02	Landowner	Move pipeline to the south side of property at landowner's request
4		Environment	Shift centerline and extend HDD to avoid cultural ESA
5	RA-03	Landowner	Move pipeline north at landowner's request
6		Environment	Route around wetland bank
7		Environment	Neckdown to avoid impacting cultural ESA
8		Landowner	Move pipeline east at landowner's request
9	RA-04	Engineering	Move pipeline east for better road crossing
10		Environment	Move pipeline north to stay in existing Enbridge easement to avoid additional impacts to Conservation Easement on parcel
11	RA-05	Engineering	Adjust centerline to align better to needed facility entry/exit point
12		Landowner	Adjust crossing angle of MPL pipelines at MPL's request
13		Landowner	Move pipeline west to avoid impact to landowner's driveway
14		Landowner	Adjust crossing angle of MPL pipelines at MPL's request
15		Landowner	Cross under to west side of MPL pipelines at landowner's request
16	RA-11	Landowner	Move pipeline west at landowner's request
17		Environment	Move pipeline east to avoid historic contaminated soils
18		Landowner	Move pipeline east at landowner's request
19	RA-12	Landowner	Move pipeline east at landowner's request
20	RA-13	Engineering	Straighten pipeline through farm yard
21	RA-14	Landowner	Move pipeline east at landowner's request
22	RA-16	Agency	Route south to avoid Crow Wing WMA
23	RA-17	Engineering	Move pipeline north to avoid saturated wetland
24		Landowner	Move pipeline north to avoid cattle pond

25	RA-18	Engineering	Adjust pipeline to tie into Pine River Trap
26		Environment	Move pipeline north to avoid bat roosting tree
27	RA-19	Landowner	Move pipeline south of existing fence lines at landowner's request
28		Environment	Move pipeline north to avoid butternut trees
29	RA-20	Agency	Move pipeline south to avoid Spire Valley Aquatic Management Area
30		Environment	Move pipeline north to avoid bat roosting tree
31	RA-24	Agency	Route west at MDNR request to avoid Hill River old growth forest area
32		Landowner	Move pipeline east at landowner's request
33	RA-25	Landowner	Landowner request to move centerline to east side of property to avoid large trees
34		Landowner	Move pipeline east at landowner's request
35	RA-26	Landowner	Route south away from organic farms at landowner's request
36	L3RA-06	Landowner	Move pipeline northwest to avoid gravel deposits
37	RA-29	Landowner	Move pipeline to the east side of property at landowner's request
38	RA-30	Engineering	Move bends south for better constructability
39	RA-36	Landowner	Move pipeline north at landowner's request
40		Landowner	Move pipeline to the north side of property at landowner's request
41		Environment	Move pipeline south to avoid WMA impacts
42	RA-38	Agency	Re-route around Salo Marsh WMA and minimize impact to Kennecott Mineral Lease parcels
43	RA-41	Landowner	Landowner requested to route south around a beaver pond. RA-41 is no longer relevant to the Proposed Route because applicant has adopted the L3RA-08 Amended Route Alternative.
44		Landowner	Neckdown pipelines and workspace to avoid trees for landowner
45		Landowner	Move pipeline south at landowner's request
46	RA-47	Landowner	Move pipeline south out of trees at landowner's request
47	L3RA-09	Landowner	Move pipeline north at landowner's request
48	RA-50	Environment	Cross under overhead power lines for better crossing of Blackhoof River
49		Landowner	Move pipeline southeast at landowner's request - satisfies RA-51 and RA-52
50		Environment	Route away from co-location with overhead power lines to avoid a Conservation Easement
51	RA-53	Engineering	Keep line south of overhead power lines to avoid crossing them
52	RA-54	Landowner	Move pipeline to the east side of property at landowner's request

Appendix C

Enbridge's Proposed Route Alternatives

I. L3RA-02 - Amended Route Alternative

A. Description.

As shown on Figure C-1, the L3RA-02 - Amended Route Alternative deviates from the Line 3 Replacement Project ("L3R") May 2016 Proposed Route at milepost ("MP") 838.5 and rejoins the route at MP 842.2 in Marshall County, Minnesota. This alternative would modify the centerline of the L3R May 2016 Proposed Route where it crosses mostly agricultural land.

B. Purpose.

On September 30, 2015, Enbridge proposed the Viking 1 Route Alternative (listed as L3RA-02 in the DSDD) to accommodate a landowner request to move a portion of the L3R pipeline crossing their property. L3RA-02 was never formally accepted by MPUC for L3R. Enbridge has since made minor modifications to L3RA-02 to further address a landowner request, and is filing the L3RA-02 - Amended Route Alternative to replace L3RA-02.

C. Analysis of Potential Impacts.

Table C-1 below compares the impacts of the L3RA-02 - Amended Route Alternative to the corresponding segment of the L3R May 2016 Proposed Route. The L3RA-02 - Amended Route Alternative is 1.0 mile longer than the L3R May 2016 Proposed Route. The Route Alternative is located adjacent to an existing right-of-way for 0.3 mile, while the L3R May 2016 Proposed Route is adjacent to an existing right-of-way for its entire length. No residences are within 50 feet or 500 feet of the Route Alternative. No residences are within 50 feet or 500 feet of the L3R May 2016 Proposed Route. Both the Route Alternative and the L3R May 2016 Proposed Route cross less than 0.1 mile of National Wetlands Inventory ("NWI") wetlands; however, the Route Alternative crosses 1 additional individual wetland. The Route Alternative crosses 0.7 mile fewer prime farmland, and 1.7 miles more highly wind erodible soils. Both the Route Alternative and the L3R May 2016 Proposed Route cross six roads. Both routes avoid perennial waterbodies, state trails, national forest, tribal land, state forest land, state Wildlife Management Areas ("WMAs") and Aquatic Management Areas ("AMAs"), trout streams, active state mineral leases, bedrock outcrops, and railroads.

Enbridge proposes to adopt the L3RA-02 - Amended Route Alternative as part of its Proposed Route, as it does not introduce any significant impacts to environmental features as outlined in Table C-1 and accommodates a landowner request. Enbridge respectfully requests that the Minnesota Public Utilities Commission ("MPUC") accept the proposed L3RA-02 - Amended Route Alternative for further environmental analysis in the draft EIS.

Table C-1 Features Comparison of the L3RA-02 - Amended Route Alternative			
Project Features	**Unit**	**L3RA-02 - Amended Route Alternative**	**L3R May 2016 Proposed Route[a]**
Route Description			
Length of Alternative for Comparison[b]	Miles	4.7	3.7
Adjacent to Existing ROW	Miles	0.3	3.7
Greenfield Route[c]	Miles	4.4	-
Socio-economic Constraints			
Residences within 50 Feet	Number	-	-
Residences within 500 Feet	Number	-	-
Construction Constraints having Environmental Impacts			
NWI-mapped Wetlands	Miles	<0.1	<0.1
NWI-mapped Wetlands	Number	2	1
Prime Farmland	Miles	0.7	1.4
Highly Wind Erodible Soils	Miles	3.8	2.1
Perennial Waterbodies	Number	-	-
State Trails	Number	-	-
Construction Constraints in Crossing Federal, State and County Resources/Jurisdictions			
National Forest Land	Miles	-	-
Tribal Land	Miles	-	-
State Forest Land	Miles	-	-
State WMA Land	Miles	-	-
State AMA Land	Miles	-	-
Technical Constraints Having Associated Environmental Impact			
Trout Streams	Number	-	-
Active State Mineral Leases	Number	-	-
Bedrock Outcrops	Miles	-	-
Railroads Crossed	Number	-	-
Roads Crossed	Number	6	6
Other Major Issues	Number	-	-

a The comparison analysis is based solely on publicly available desktop data.
b The comparison analysis begins at MP 838.5 and ends at MP 842.2 in Marshall County.
c Greenfield locations are defined as any portion of the route that is greater than 250-feet from the centerline of a known utility or road.

ENBRIDGE

0 1,200 2,400 Feet

N

Figure C-1
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
L3RA-02 - Amended Route Alternative

- Milepost
- L3R May 2016 Proposed Route
- L3RA-02 - Amended Route Alternative
- L3R May 2016 Proposed 750-foot Route Width
- L3RA-02 - Amended Route Alternative 750-foot Route Width

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Fig_C-1_RA_Viking1_Amended.mxd

Date: (5/23/2016)

II. L3RA-04 - Amended Route Alternative

A. Description.

As shown on Figure C-2, the L3RA-04 - Amended Route Alternative deviates from the L3R May 2016 Proposed Route at MP D909.4 and rejoins the route at MP D912.3, all within Clearwater County, Minnesota. This route alternative would modify the centerline of the L3R May 2016 Proposed Route where it crosses a mix of agricultural and forested land, along with wetlands.

B. Purpose.

On September 30, 2015, Enbridge proposed the Clearbrook Route Alternative (listed as L3RA-04 in the DSDD) in response to comments received from landowners located on the existing Enbridge Mainline System right-of-way near Clearbrook, Minnesota. This route alternative was never formally accepted by MPUC for L3R. Enbridge has since made minor modifications to L3RA-04 to address landowner concerns, and is filing the L3RA-04 - Amended Route Alternative to replace L3RA-04.

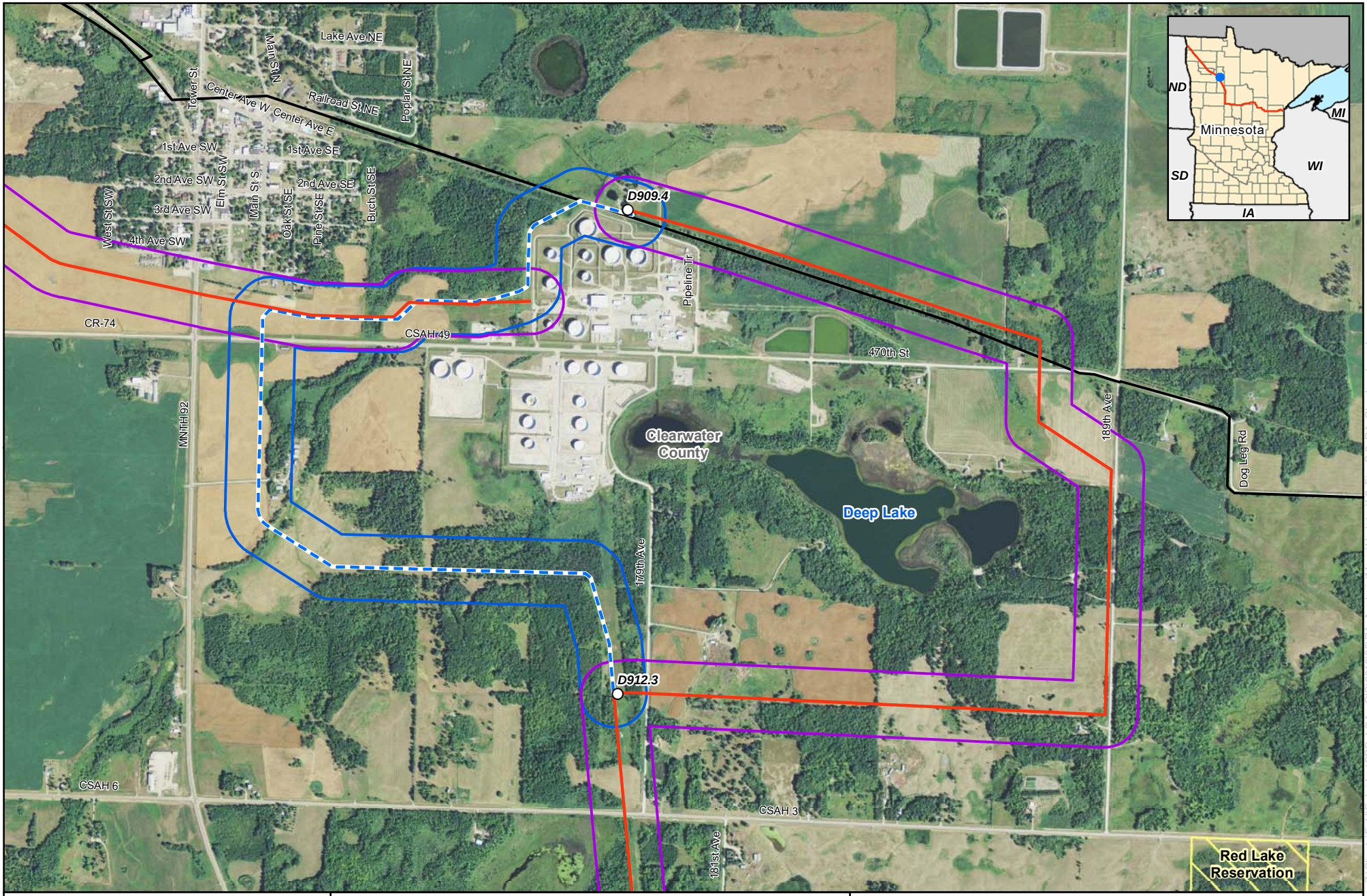
C. Analysis of Potential Impacts.

Table C-2 below compares the impacts of the L3RA-04 - Amended Route Alternative to the corresponding segment of the L3R May 2016 Proposed Route. The Route Alternative is 0.5 mile shorter than the L3R May 2016 Proposed Route. Both the Route Alternative and the May 2016 Proposed Route are adjacent to existing rights-of-way for approximately half their lengths. Eight residences are located within 500 feet of the Route Alternative; no residences are within 50 feet of the Route Alternative. Two residences are located within 500 feet of the L3R May 2016 Proposed Route and no residences are within 50 feet of the route. Both routes cross the same mileage of NWI-mapped wetlands; however, the L3R May 2016 Proposed Route crosses one more individual wetland. The Route Alternative crosses 0.3 mile more prime farmland soil and 0.2 mile more highly wind erodible soils. Both routes cross one snowmobile trail. The Route Alternative crosses three fewer roads than the L3R May 2016 Proposed Route. Both routes avoid perennial waterbodies, national forest, tribal land, state forestry land, state WMAs and AMAs, trout streams, active state mineral leases, bedrock outcrops, and railroads.

Enbridge proposes to adopt the proposed L3RA-04 - Amended Route Alternative as part of its Proposed Route, as it does not introduce any significant impacts to environmental features as outlined in Table C-2 and accommodates landowner requests. Enbridge respectfully requests that the MPUC accept the proposed L3RA-04 - Amended Route Alternative for further environmental analysis in the draft EIS.

Table C-2 Features Comparison of the L3RA-04 - Amended Route Alternative			
Project Features	**Unit**	**L3RA-04 - Amended Route Alternative**	**L3R May 2016 Proposed Route[a]**
Route Description			
Length of Alternative for Comparison[b]	Miles	2.4	2.9
Adjacent to Existing ROW	Miles	1.2	1.5
Greenfield Route[c]	Miles	1.2	1.4
Socio-economic Constraints			
Residences within 50 Feet	Number	-	-
Residences within 500 Feet	Number	8	2
Construction Constraints having Environmental Impacts			
NWI-mapped Wetlands	Miles	0.2	0.2
NWI-mapped Wetlands	Number	5	6
Prime Farmland	Miles	1.0	0.7
Highly Wind Erodible Soils	Miles	0.5	0.3
Perennial Waterbodies	Number	-	-
State Trails	Number	1[d]	1[d]
Construction Constraints in Crossing Federal, State and County Resources/Jurisdictions			
National Forest Land	Miles	-	-
Tribal Land	Miles	-	-
State Forest Land	Miles	-	-
State WMA Land	Miles	-	-
State AMA Land	Miles	-	-
Technical Constraints Having Associated Environmental Impact			
Trout Streams	Number	-	-
Active State Mineral Leases	Number	-	-
Bedrock Outcrops	Miles	-	-
Railroads Crossed	Number	-	-
Roads Crossed	Number	3	6
Other Major Issues	Number	-	-

a The comparison analysis is based solely on publicly available desktop data.
b The comparison analysis begins at MP D909.4 and ends at MP D912.3 in Clearwater County.
c Greenfield locations are defined as any portion of the route that is greater than 250-feet from the centerline of a known utility or road.
D Snowmobile trail managed by the MDNR.



ENBRIDGE

0 750 1,500 Feet

N

Figure C-2
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
L3RA-04 - Amended Route Alternative

- Milepost
- L3R May 2016 Proposed Route
- L3RA-04 - Amended Route Alternative
- L3R May 2016 Proposed 750-foot Route Width
- L3RA-04 - Amended Route Alternative 750-foot Route Width
- Snowmobile Trail
- Tribal Land

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Fig_C-2_RA_Clearbrook.mxd

Date: (5/23/2016)

III. L3RA-05 - Amended Route Alternative

A. Description.

As shown on Figure C-3, the L3RA-05 - Amended Route Alternative deviates from the L3R May 2016 Proposed Route[1] at MP D927.3 and rejoins the route at MP D937.0, all within Clearwater County, Minnesota. This alternative would modify the centerline of the L3R May 2016 Proposed Route where it crosses mostly forested land and some agricultural land.

B. Purpose.

On September 30, 2015, Enbridge proposed the Eastern Wild Rice Watershed Route Alternative (listed as L3RA-05 in the DSDD) as a route alternative for L3R in response to comments made in MPUC Docket Number PL-6668/PPL-13-473 by the White Earth Band of Ojibwe concerning SPP's crossing of the Eastern Wild Rice Watershed. Specifically, representatives of the White Earth Band of Ojibwe stated that Lower Rice Lake is the most abundant, regularly producing wild rice lake for tribal members.[2] The Route Alternative avoids the Eastern Wild Rice Watershed and removes any hydrologic connection to Lower Rice Lake. This route alternative was never formally accepted by MPUC for L3R. Enbridge has since made minor modifications to L3RA-05 to improve constructability and address landowner concerns, and is filing the L3RA-05 - Amended Route Alternative to replace L3RA-05.

---

[1] When using the term "L3R May 2016 Proposed Route" where the L3R route and the SPP route are co-located, the term reflects the SPP EAW Proposed Route that was filed with the April 2016 EAW. At that time, NDPC and Enbridge proposed to construct SPP first (the "first pipe"), followed by L3R (the "second pipe"). In Section V of this filing, NDPC and Enbridge state their current intention to install the L3R pipeline first, and then install the SPP pipeline. Therefore, this RA filing compares the L3R May 2016 Proposed Route (i.e, the SPP EAW Proposed Route) to the relevant L3R Route Alternative, so that the L3R Route Alternative and the corresponding section of the L3R Proposed Route both assume the "first pipe" scenario. As SPP and L3R are generally offset 25 to 40 feet where co-located, the switching of the order of construction would not result in significant environmental impacts.

[2] *See* Transcripts—of June 3, 2015 MPUC Proceeding, filed by the Court Reporter on June 9, 2015 (MPUC Doc. ID 20156-111285-01), *In the Matter of the Application of North Dakota Pipeline Company LLC for a Certificate of Need for the Sandpiper Pipeline Project,* MPUC Docket No. PL6668/CN-13-473 (Attorney Joe Plummer remarks at pages 176:8 – 177:2 that "The White Earth Band doesn't regularly get involved in proceedings like this. But we were spurred into action because of the proposed route… Most importantly, the wild rice lake that this proposed route goes in very close proximity of is the most abundant, regularly producing wild rice lake at White Earth and it's known as Lower Rice Lake. It's over five miles long and it's over a mile and a half wide. It's a huge rice bed. And the proposed route is going to go right in between upper and lower Rice Lake. And we believe that we can't take the chance as to whether or not a spill is going to occur, because if there was one, it's going to be catastrophic..."). As shown on Figure C-3, the L3R May 2016 Proposed Route does not cross between Upper Rice Lake and Lower Rice Lake. Nonetheless, Enbridge is proposing L3RA-05 - Amended Route Alternative to avoid the watershed related to both lakes.

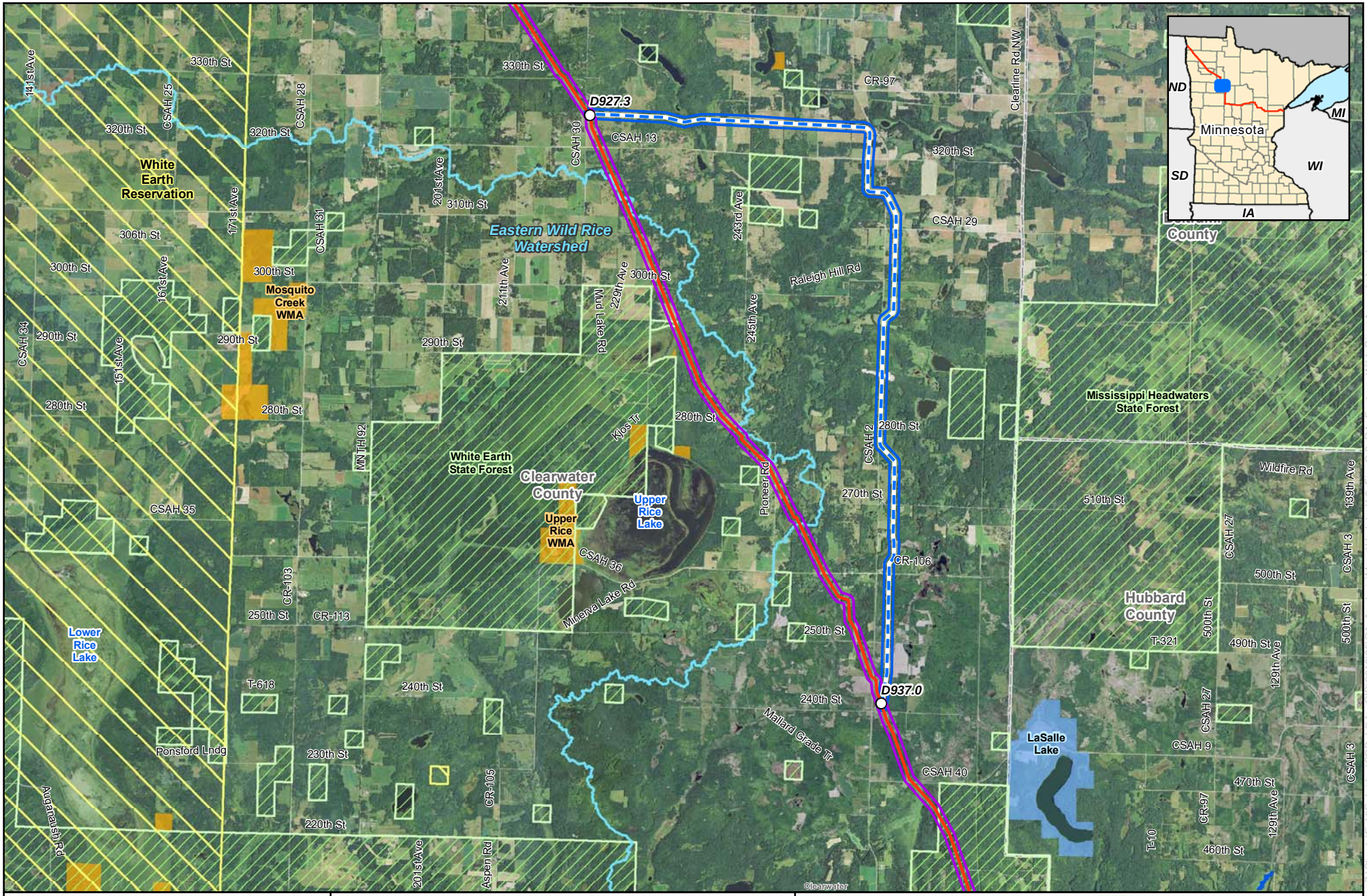
C. Analysis of Potential Impacts.

Table C-3 below compares the impacts of the L3RA-05 - Amended Route Alternative to the corresponding segment of the L3R May 2016 Proposed Route. The Route Alternative is 3.1 miles longer than the L3R May 2016 Proposed Route, and crosses 6.1 miles more greenfield land. Seven residences are within 500 feet of the Route Alternative; no residences are within 50 feet of the Route Alternative. Six residences are within 500 feet of the L3R May 2016 Proposed Route and no residences are within 50 feet of the route. The Route Alternative crosses fewer NWI-mapped wetlands than the L3R May 2016 Proposed Route, 0.8 mile versus 1.9 miles respectively, and 22 versus 34 individual wetlands respectively. The Route Alternative crosses 0.7 mile more prime farmland soil, and 0.8 mile more of highly wind erodible soils than the L3R May 2016 Proposed Route. The Route Alternative crosses one perennial waterbody while the L3R May 2016 Proposed Route avoids perennial waterbodies. The Route Alternative avoids state forestry land while the L3R May 2016 Proposed Route crosses 0.1 mile of state forestry land. The Route Alternative crosses two fewer roads than the L3R May 2016 Proposed Route. Both routes avoid state trails, national forest, tribal land, state WMAs and AMAs, trout streams, active state mineral leases, bedrock outcrops, and railroads.

Enbridge proposes that the MPUC accept the proposed L3RA-05 - Amended Route Alternative for further environmental analysis in the draft EIS as it does not introduce any significant impacts to environmental features as outlined in Table C-3 and addresses the concerns raised by the White Earth Band of Ojibwe.

Table C-3 Features Comparison of the L3RA-05 - Amended Route Alternative			
Project Features	**Unit**	**L3RA-05 - Amended Route Alternative**	**L3R May 2016 Proposed Route[a]**
Route Description			
Length of Alternative for Comparison[b]	Miles	12.9	9.8
Adjacent to Existing ROW	Miles	6.5	9.5
Greenfield Route[c]	Miles	6.4	0.3
Socio-economic Constraints			
Residences within 50 Feet	Number	-	-
Residences within 500 Feet	Number	7	6
Construction Constraints having Environmental Impacts			
NWI-mapped Wetlands	Miles	0.8	1.9
NWI-mapped Wetlands	Number	22	34
Prime Farmland	Miles	6.1	5.4
Highly Wind Erodible Soils	Miles	3.2	2.4
Perennial Waterbodies	Number	1	-
State Trails	Number	-	-
Construction Constraints in Crossing Federal, State and County Resources/Jurisdictions			
National Forest Land	Miles	-	-
Tribal Land	Miles	-	-
State Forest Land	Miles	-	0.1[d]
State WMA Land	Miles	-	-
State AMA Land	Miles	-	-
Technical Constraints Having Associated Environmental Impact			
Trout Streams	Number	-	-
Active State Mineral Leases	Number	-	-
Bedrock Outcrops	Miles	-	-
Railroads Crossed	Number	-	-
Roads Crossed	Number	9	11
Other Major Issues	Number	-	-

a The comparison analysis is based solely on publicly available desktop data.
b The comparison analysis begins at MP D927.3 and ends at MP D937.0 in Clearwater County.
c Greenfield locations are defined as any portion of the route that is greater than 250-feet from the centerline of a known utility or road.
d Land managed by the MDNR Forestry Division outside of the jurisdictional boundaries of a state forest.



ENBRIDGE

0 5,000 10,000 Feet

N

Figure C-3
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
L3RA-05 - Amended Route Alternative

- Milepost
- L3R May 2016 Proposed Route (SPP EAW Proposed Route)
- L3RA-05 - Amended Route Alternative
- L3R May 2016 Proposed 750-foot Route Width
- L3RA-05 - Amended Route Alternative 750-foot Route Width
- State Forestry Land
- State Park and Recreation Area
- State Wildlife Management Area
- Tribal Land
- Eastern Wild Rice Watershed Boundary (HUC 09020108)

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Fig_C-3_RA_Eastern_Wild_Rice_Amended.mxd
Date: (5/23/2016)

IV. Blandin Route Alternative

A. Description.

As shown on Figure C-4, the Blandin Route Alternative deviates from the L3R May 2016 Proposed Route at MP D1051.6 and rejoins the route at MP D1055.5, in Aitkin County, Minnesota. This alternative would modify the centerline of the L3R May 2016 Proposed Route where it crosses mostly forested land.

B. Purpose.

Enbridge proposes the Blandin Route Alternative to avoid a conservation easement held by MDNR on lands owned by Blandin Paper Company, a Minnesota corporation ("Blandin"). The conservation easement objective is to maintain forest land and minimize development. Enbridge has met with MDNR and Blandin on separate occasions regarding the crossing of lands associated with this conservation easement to identify resource concerns.

Enbridge and MDNR discussed multiple route alternatives while considering impacts to private landowners, state land as well as other natural resources and engineering constraints. Enbridge and MDNR discussed a route alternative which follows an existing Minnesota Power transmission line corridor west of the Proposed Route, as well as another route alternative directly east of the Proposed Route that would also avoid the conservation easement. Further coordination with MDNR indicated that timber resources to the east should be avoided and that MDNR would put forth the Minnesota Power transmission line corridor as a route alternative for study in the draft EIS.

Enbridge has chosen to file this Route Alternative as it meets MDNR and Blandin's objective of avoiding the conservation easement as well as specific timber resources east of the Proposed Route. Enbridge did not file the Minnesota Power transmission line corridor as a potential route alternative, as this route alternative passes in close proximity to homes near the south side of White Elk Lake, results in hydrologic connectivity to a known wild rice lake (White Elk Lake), and introduces engineering constraints to the hydraulic operations of the pipeline. Specifically, the western portion of the route alternative traverses in the opposite direction of flow. This introduces additional stresses upon the pipeline, which would affect pipeline design and potentially operability and maintenance.

C. Analysis of Potential Impacts.

Table C-4 below compares the impacts of the Blandin Route Alternative to the corresponding segment of the L3R May 2016 Proposed Route. Both the Route Alternative and L3R May 2016 Proposed Route are 3.9 miles long. The Route Alternative contains 1.9 more miles of greenfield crossing. No residences are within 50 feet or 500 feet of the Route Alternative. Two residences are within 500 feet of the L3R May 2016 Proposed Route, and no residences are within 50 feet of the L3R May 2016 Proposed Route. The Route Alternative crosses fewer NWI-mapped wetlands than the L3R May 2016 Proposed Route, 0.2 mile versus 0.8 mile respectively, and 4 versus 5 individual wetlands respectively. The Route Alternative crosses 0.3 mile fewer of prime farmland soils, and 0.2 mile fewer of highly wind erodible soils than the L3R May 2016 Proposed

Route. Both the Route Alternative and L3R May 2016 Proposed Route cross the Blind Lake Trail. The Route Alternative crosses 0.3 mile more of Hill River State Forest land as compared to the L3R May 2016 Proposed Route. Within the Hill River State Forest, the Route Alternative crosses 1.8 fewer miles of land with MDNR forest management designation[3] as compared to the L3R May 2016 Proposed Route. The L3R May 2016 Proposed Route crosses one more road than the Route Alternative. The Route Alternative crosses one known Minnesota Natural Heritage Information System (NHIS) Element Occurrence Polygon for the four-toed salamander. The four-toed salamander is a special concern species. While species of special concern are not protected by Minnesota's Endangered Species Statute or the associated Rules, MDNR requested that Enbridge consult on this species. Both routes avoid perennial waterbodies, national forest, tribal land, state WMAs and AMAs, trout streams, active state mineral leases, bedrock outcrops, and railroads.

Enbridge proposes that the MPUC accept the proposed Blandin Route Alternative for further environmental analysis in the draft EIS.

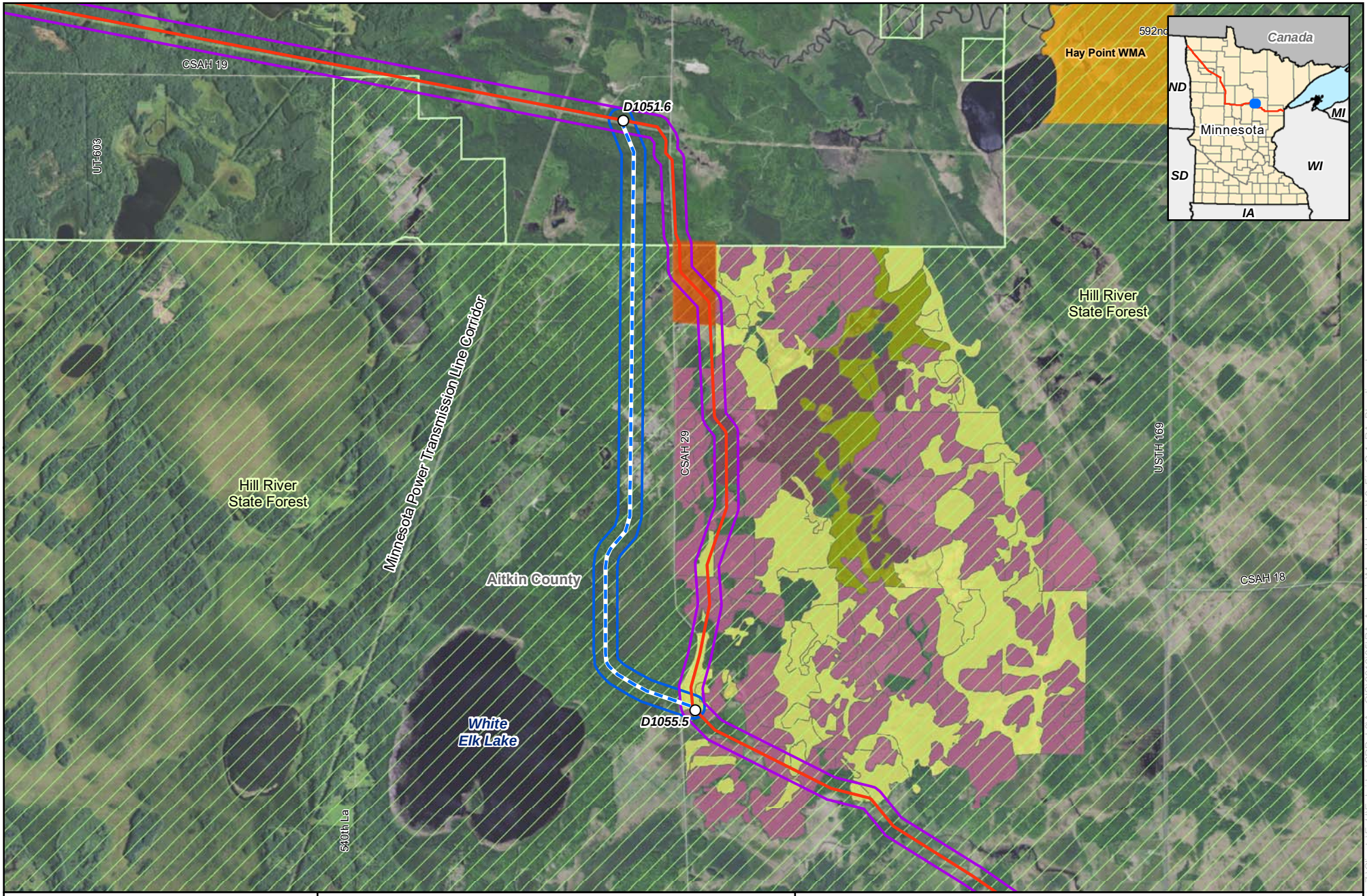
Table C-4
Features Comparison of the Blandin Route Alternative

Project Features	Unit	Blandin Route Alternative	L3R May 2016 Proposed Route[a]
Route Description			
Length of Alternative for Comparison[b]	Miles	3.9	3.9
Adjacent to Existing ROW	Miles	-	1.9
Greenfield Route[c]	Miles	3.9	2.0
Socio-economic Constraints			
Residences within 50 Feet	Number	-	-
Residences within 500 Feet	Number	-	2
Construction Constraints having Environmental Impacts			
NWI-mapped Wetlands	Miles	0.2	0.8
NWI-mapped Wetlands	Number	4	5
Prime Farmland	Miles	1.4	1.7
Highly Wind Erodible Soils	Miles	0.6	0.8
Perennial Waterbodies	Number	-	-
State Trails	Number	1[d]	1[d]
Construction Constraints in Crossing Federal, State and County Resources/Jurisdictions			
National Forest Land	Miles	-	-
Tribal Land	Miles	-	-

[3] According to MDNR Forest Inventory Management ("FIM") data in this area, polygons may be classified as Old Forest Management Complex ("OFMC"), Old-Growth Special Management Zones ("SMZ"), or Extended Rotation Forest ("ERF"). Figure C-4 shows polygons designated as OFMC, SMZ, or ERF based on the attribute called MGMT1 in the FIM data. For ERF polygons, additional designations based on the attribute called MGMT2 are indicated in parentheses.

Table C-4 Features Comparison of the Blandin Route Alternative			
Project Features	**Unit**	**Blandin Route Alternative**	**L3R May 2016 Proposed Route[a]**
State Forest Land	Miles	3.2[e]	2.9[e]
State WMA Land	Miles	-	-
State AMA Land	Miles	-	-
Technical Constraints Having Associated Environmental Impact			
Trout Streams	Number	-	-
Active State Mineral Leases	Number	-	-
Bedrock Outcrops	Miles	-	-
Railroads Crossed	Number	-	-
Roads Crossed	Number	2	3
Other Major Issues	Number	1[f]	-

a The comparison analysis is based solely on publicly available desktop data.
b The comparison analysis begins at MP D1051.6 and ends at MP D1055.5 in Aitkin County.
c Greenfield locations are defined as any portion of the route that is greater than 250-feet from the centerline of a known utility or road.
d Blind Lake Trail.
e Hill River State Forest.
f Four-Toed Salamander NHIS Occurrence.



ENBRIDGE

0 2,500 5,000 Feet

N

Figure C-4
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
Blandin Route Alternative

- Milepost
- L3R May 2016 Proposed Route (SPP EAW Proposed Route)
- Blandin - Route Alternative
- L3R May 2016 Proposed 750-foot Route Width
- Blandin - Route Alternative 750-foot Route Width
- Blandin Easement
- State Forestry Land
- State Wildlife Management Area

MDNR Forest Management Designation

- OFMC
- SMZ
- ERF (OFMC)
- ERF (SMZ)

*Refer to route alternative text for definition of OFMC, SMZ, ERF (OFMC) and ERF (SMZ).

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Fig_C-4_RA_Blandin.mxd

Date: (5/25/2016)

V. L3RA-08 - Amended Route Alternative

A. Description.

As shown on Figure C-5, the L3RA-08 - Amended Route Alternative deviates from the L3R May 2016 Proposed Route at MP D1095.4 in Aitkin County, Minnesota and rejoins the route at MP D1101.0 in Carlton County, Minnesota. This alternative would modify the centerline of the L3R May 2016 Proposed Route where it crosses mostly forest land.

B. Purpose.

On September 30, 2015, Enbridge proposed the Kennecott 2 Route Alternative (listed as L3RA-08 in the DSDD) as a route alternative for L3R in response to concerns raised by the MDNR and Kennecott Exploration Company ("Kennecott") in the SPP routing process. In its April 4, 2014 public comment letter on MPUC Docket Number PL-6668/PPL-13-474 for SPP,[4] MDNR raised concerns regarding potential impacts of the route on active state mineral leases held by Kennecott in Carlton County. The active state mineral leases of concern are located on county tax-forfeit lands.

Kennecott also submitted a proposed route alternative in MPUC Docket Number PL-6668/PPL-13-474[5] for SPP in April 2014 that avoided these active state mineral leases; this route alternative was accepted by the MPUC and advanced to SPP's routing proceeding as RA-39.[6] Following Kennecott's April 2014 submittal of RA-39, NDPC and Enbridge conducted an environmental and constructability review of RA-39 and determined that further centerline alignment was necessary from an environmental and constructability perspective. As proposed by Kennecott, RA-39 would cross the MDNR's Salo Marsh WMA, which NDPC had sought to

---

[4] Comments- Part 1 of 4, filed by the MDNR on April 4, 2014 (MPUC Doc. ID 20144-98005-01), *In the Matter of the Application of North Dakota Pipeline Company LLC for a Pipeline Routing Permit for the Sandpiper Pipeline Project*, MPUC Docket No. PL6668/CN-13-474. Also available at: Initial Filing- Appendix K- Response to Sandpiper Comment Letters, filed by Enbridge Energy, Limited Partnership on April 24, 2015 (MPUC Doc. ID 20154-109663-01), *In the Matter of the Application of Enbridge Energy, Limited Partnership for a Pipeline Routing Permit for the Line 3 Replacement Project*, MPUC Docket No. PL-9/PPL-15-137.

[5] Proposed Alternative Route Segment, filed by Kennecott on April 4, 2014 (MPUC Doc. ID 20144-98003-01), *In the Matter of the Application of North Dakota Pipeline Company LLC for a Pipeline Routing Permit for the Sandpiper Pipeline Project*, MPUC Docket No. PL6668/CN-13-474.

[6] Order Accepting Alternative Route and System Alternatives for Evidentiary Development, filed by PUC on August 25, 2014 (MPUC Doc. ID 20148-102500-02), *In the Matter of the Application of North Dakota Pipeline Company LLC for a Pipeline Routing Permit for the Sandpiper Pipeline Project*, MPUC Docket No. PL6668/CN-13-474; Comments and Recommendations of Minnesota Department of Commerce Energy Environmental Review and Analysis Staff, filed by DOC EERA on July 17, 2014 (MPUC Doc. ID 20147-101573-01), *In the Matter of the Application of North Dakota Pipeline Company LLC for a Pipeline Routing Permit for the Sandpiper Pipeline Project*, MPUC Docket No. PL6668/CN-13-474.

avoid with a SPP route alternative it submitted in April 2014 (RA-38). Through discussions with Kennecott, NDPC and Enbridge learned that, in addition to the lands Kennecott holds a mineral lease interest in, Kennecott is also interested in other property in the area (together with the mineral leased lands, the "KEX Areas of Interest"). L3RA-08 addressed Kennecott and MDNR concerns by avoiding crossings of the KEX Areas of Interest, while ensuring that NDPC and Enbridge's environmental and constructability concerns were met. This route alternative was never formally accepted by MPUC for L3R.

Enbridge has since made minor modifications to L3RA-08 to improve constructability and address landowner concerns, and is filing the L3RA-08 - Amended Route Alternative as route alternative for L3R to replace L3RA-08.

C. Analysis of Potential Impacts.

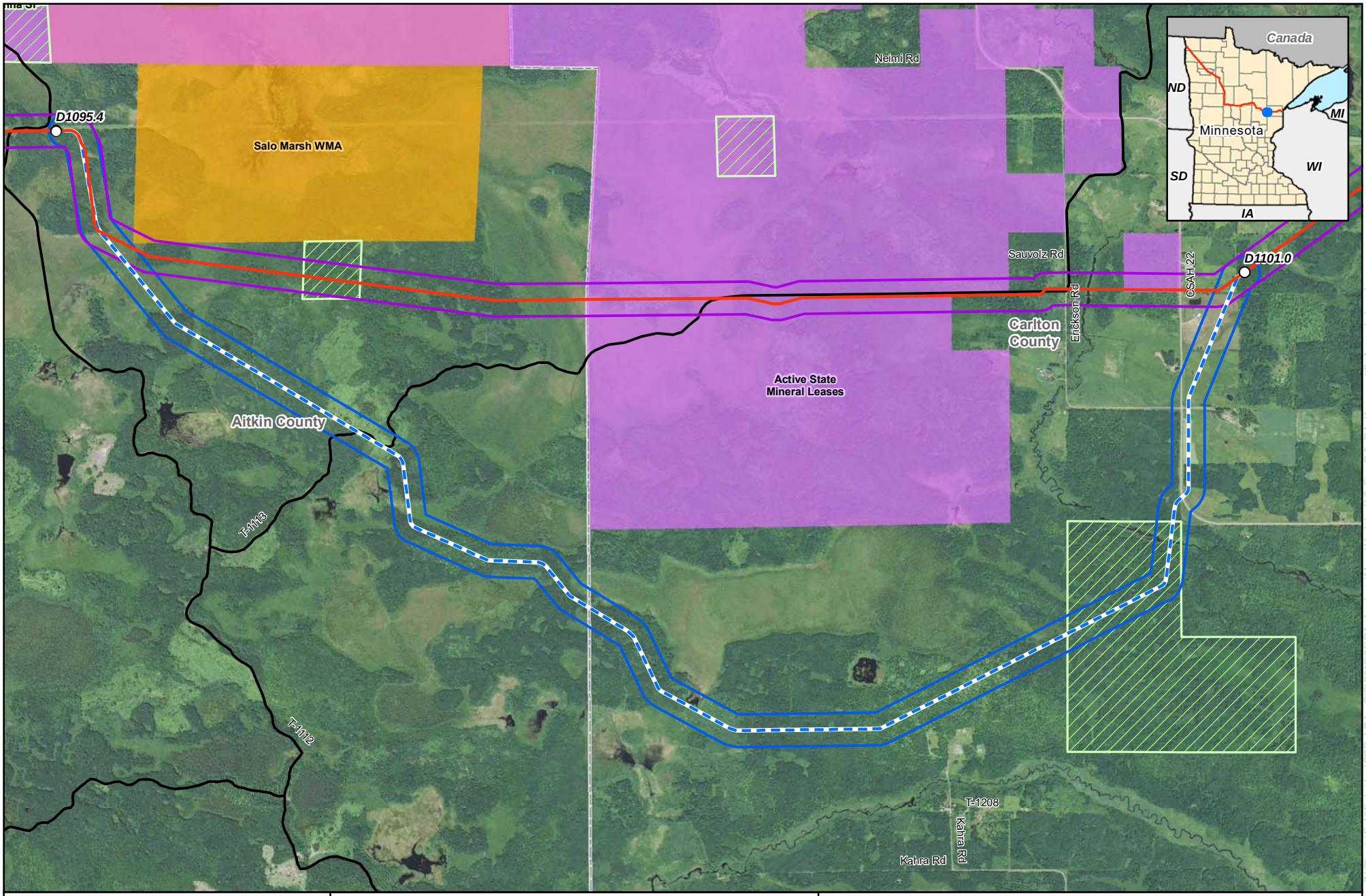
Table C-5 below compares the impacts of the L3RA-08 - Amended Route Alternative to the corresponding segment of the L3R May 2016 Proposed Route. The Route Alternative is 2.1 miles longer than the L3R May 2016 Proposed Route and crosses 3.2 miles more greenfield land. No residences are located within 50 feet or 500 feet of the Route Alternative. One residence is located within 500 feet of the L3R May 2016 Proposed Route, and no residences are within 50 feet of the route. The Route Alternative crosses 0.6 mile fewer NWI-mapped wetlands than the L3R May 2016 Proposed Route but the same number of individual wetlands. The Route Alternative crosses 1.1 miles more of prime farmland soils, and 0.1 mile fewer of highly wind erodible soils than the L3R May 2016 Proposed Route. Both routes cross the west branch of the Kettle River and three crossings of a snowmobile trail. The Route Alternative crosses 0.5 mile more of forestry land managed by the MDNR as compared to the L3R May 2016 Proposed Route. The L3R May 2016 Proposed Route crosses seven active state mineral leases while the Route Alternative avoids active state mineral leases. The L3R May 2016 Proposed Route crosses one more road than the Route Alternative. Both routes avoid national forest, state WMAs and AMAs, tribal land, trout streams, bedrock outcrops, and railroads.

Enbridge proposes to adopt the proposed L3RA-08 - Amended Route Alternative as part of its Proposed Route, as it does not introduce any significant impacts to environmental features as outlined in Table C-5 and addresses private and state concerns with pipeline development across active state mineral leases, while maintaining Enbridge's preference to avoid the Salo Marsh WMA. Enbridge respectfully requests that MPUC accept the proposed L3RA-08 - Amended Route Alternative for further environmental analysis in the draft EIS.

Table C-5
Features Comparison of the L3RA-08 - Amended Route Alternative

Project Features	Unit	L3RA-08 - Amended Route Alternative	L3R May 2016 Proposed Route[a]
Route Description			
Length of Alternative for Comparison[b]	Miles	7.7	5.6
Adjacent to Existing ROW	Miles	0.6	1.7
Greenfield Route[c]	Miles	7.1	3.9
Socio-economic Constraints			
Residences within 50 Feet	Number	-	-
Residences within 500 Feet	Number	-	1
Construction Constraints having Environmental Impacts			
NWI-mapped Wetlands	Miles	1.1	1.7
NWI-mapped Wetlands	Number	16	16
Prime Farmland	Miles	1.7	0.6
Highly Wind Erodible Soils	Miles	1.2	1.3
Perennial Waterbodies	Number	1	1
State Trails	Number	3[d]	3[d]
Construction Constraints in Crossing Federal, State and County Resources/Jurisdictions			
National Forest Land	Miles	-	-
Tribal Land	Miles	-	-
State Forest Land	Miles	0.7[e]	0.2[e]
State WMA Land	Miles	-	-
State AMA Land	Miles	-	-
Technical Constraints Having Associated Environmental Impact			
Trout Streams	Number	-	-
Active State Mineral Leases	Number	-	7
Bedrock Outcrops	Miles	-	-
Railroads Crossed	Number	-	-
Roads Crossed	Number	2	3
Other Major Issues	Number	-	-

a The comparison analysis is based solely on publicly available desktop data.
b The comparison analysis begins at MP D1095.4 in Aitkin County and ends at MP D1101.0 in Carlton County.
c Greenfield locations are defined as any portion of the route that is greater than 250-feet from the centerline of a known utility or road.
d Snowmobile trails managed by the MDNR.
e Land managed by the MDNR Forestry Division outside of the jurisdictional boundaries of a state forest.



ENBRIDGE

0 1,500 3,000 Feet

N

Figure C-5
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
L3RA-08 - Amended Route Alternative

- Milepost
- L3R May 2016 Proposed Route (SPP EAW Proposed Route)
- L3RA-08 - Amended Route Alternative
- L3R May 2016 Proposed 750-foot Route Width
- L3RA-08 - Amended Route Alternative 750-foot Route Width
- Snowmobile Trail
- State Forestry Land
- State Wildlife Management Area
- Active State Mineral Lease

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Fig_C-5_RA_Kennecott2_Amended.mxd
Date: (5/23/2016)

Appendix D

Centerline Adjustments Within the L3R May 2016 750-foot Route Width Due to Landowner and Constructability Reasons

Table D-1 Centerline Adjustments within the L3R May 2016 750-foot Proposed Route Width Due to Landowner Reasons			
Beginning Milepost	**Ending Milepost**	**Length (miles)**	**Justification**
D915.2	D915.2	<0.1	Adjust crossing angle of Minn-Cann pipelines at Minn-Cann's request
D921.2	D921.3	<0.1	Adjust crossing angle of Minn-Cann pipelines at Minn-Cann's request
D932.5	D932.5	0.1	Adjust crossing angle of Minn-Cann pipelines at Minn-Cann's request
D933.9	D934.0	0.1	Adjust crossing angle of Minn-Cann pipelines at Minn-Cann's request
D941.9	D942.0	0.1	Adjust crossing angle of Minn-Cann pipelines at Minn-Cann's request
D942.9	D943.0	<0.1	Adjust crossing angle of Minn-Cann pipelines at Minn-Cann's request
D1009.3	D1009.4	0.1	Move pipeline north to avoid cattle pond

Table D-2 Centerline Adjustments within the L3R May 2016 750-foot Proposed Route Width Due to Constructability Reasons			
Beginning Milepost	**Ending Milepost**	**Length (miles)**	**Justification**
874.6	874.7	0.1	Adjust centerline for better constructability
D951.5	D951.6	0.1	Remove bend in wetland
D956.9	D956.9	<0.1	Shift bend north
D958.6	D958.9	0.3	Adjust for better wetland and creek crossing
D1002.6	D1002.8	0.1	Move south for better wetland crossing
D1016.2	D1016.3	0.1	Adjust L3R centerline due to L3R/SPP swap
D1131.2	D1131.3	0.1	Adjust L3R to match SPP for pipeline crossing
D1134.8	D1135	0.2	Adjust centerline for better wetland crossing
D1137.5	D1137.7	0.3	Remove minor bend

Appendix E

Expanded Route Widths outside the L3R May 2016 750-foot Route Width to Accommodate Additional Temporary Workspace Areas

Table E-1 Expanded Route Widths outside the L3R May 2016 750-foot Proposed Route Width to Accommodate Additional Temporary Workspace Areas			
Milepost	**Request to Expand Route Width (Feet, Approximate)**	**Justification[a]**	**Figure Reference**
802.1	1150 x 200	Horizontal Directional Drill ("HDD") Pullstring	E-1
828.8	2320 x 250	HDD Pullstring	E-2
876.0	2200 x 200	HDD Pullstring	E-3
894.5	200 x 200	HDD Pullstring	E-4
D939.0	200 x 70	HDD Pullstring	E-5
D963.5	550 x 200	Hydrostatic Test Access	E-6
D1034.9	520 x 130	Hydrostatic Test Access	E-7
D1067.7	800 x 200	Hydrostatic Test Access	E-8
D1069.7	2000 x 200	HDD Pullstring	E-9
D1122.2	200 x 125	HDD Pullstring	E-10
D1130.2	1400 x 130	Hydrostatic Test Access	E-11
D1137.5	1900 x 200	Buffer for Route Change into Wisconsin	E-12

a The expanded route widths at hydrostatic test water appropriation sites extends an additional 50 feet into the waterbody to account for water appropriation equipment, including but not limited to water pumps and screened intake structures, that will be placed within the waterbody.

ENBRIDGE

0 150 300 Feet

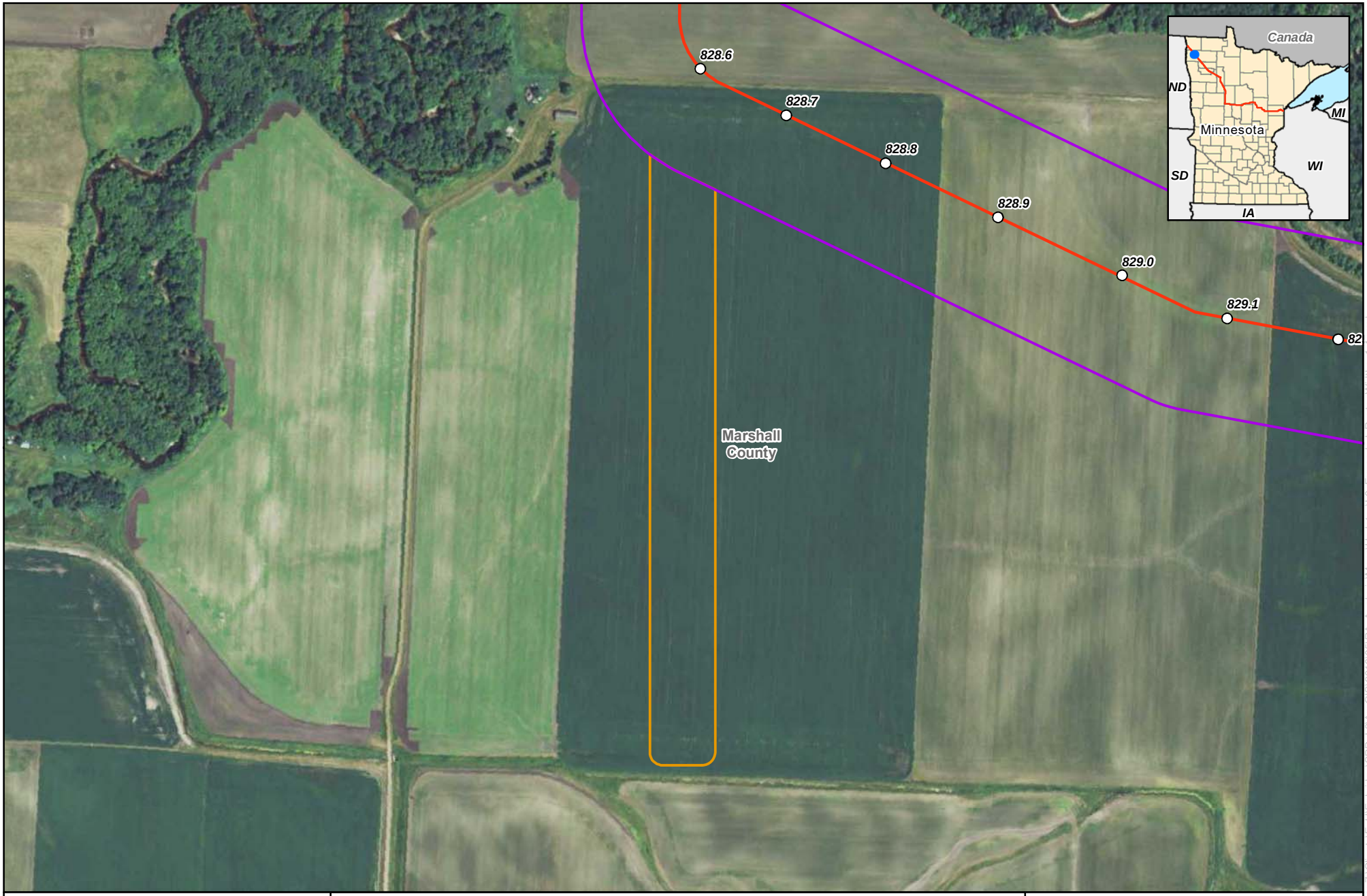
N

Figure E-1
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
Expanded Route Width - MP 802.1

- Milepost
- L3R May 2016 Proposed Route
- L3R May 2016 Proposed 750-foot Route Width
- Expanded Route Width

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Expanded_Route_Widths_1-4.mxd

Date: (5/23/2016)



ENBRIDGE

0 250 500 Feet

N

Figure E-2
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
Expanded Route Width - MP 828.8

- Milepost
- L3R May 2016 Proposed Route
- L3R May 2016 Proposed 750-foot Route Width
- Expanded Route Width

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Expanded_Route_Widths_1-4.mxd
Date: (5/23/2016)

ENBRIDGE

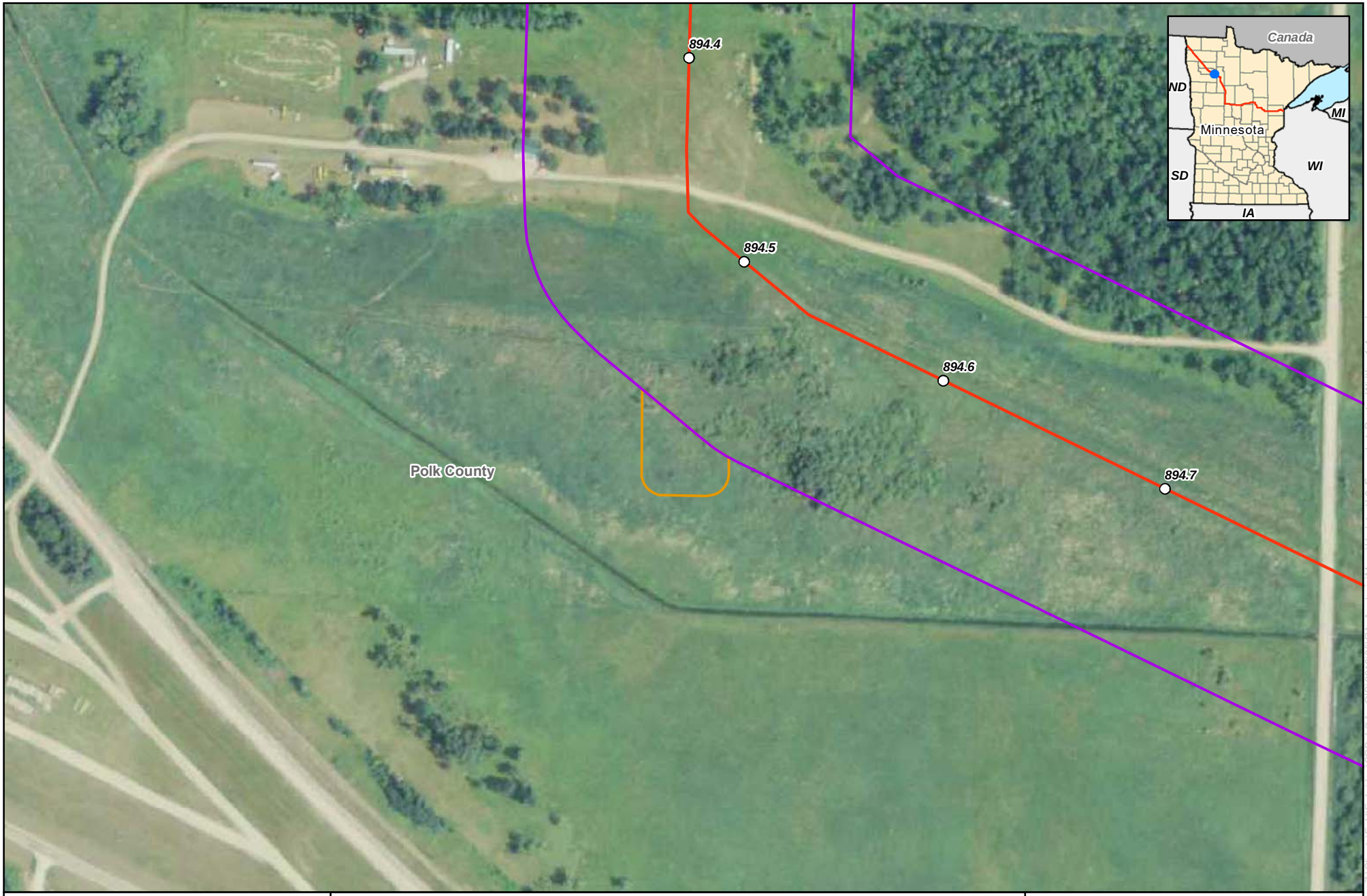
0 150 300 Feet

N

Figure E-3
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
Expanded Route Width - MP 876.0

- Milepost
- L3R May 2016 Proposed Route
- L3R May 2016 Proposed 750-foot Route Width
- Expanded Route Width

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Expanded_Route_Widths_1-4.mxd
Date: (5/23/2016)



ENBRIDGE

0 150 300 Feet

N

Figure E-4
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
Expanded Route Width - MP 894.5

- Milepost
- L3R May 2016 Proposed Route
- L3R May 2016 Proposed 750-foot Route Width
- Expanded Route Width

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Expanded_Route_Widths_1-4.mxd
Date: (5/23/2016)

ENBRIDGE

0 150 300 Feet

N

Figure E-5
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
Expanded Route Width - MP D939.0

- Milepost
- L3R May 2016 Proposed Route (SPP EAW Proposed Route)
- L3R May 2016 Proposed 750-foot Route Width
- Expanded Route Width

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Expanded_Route_Widths_5-12.mxd
Date: (5/23/2016)

ENBRIDGE

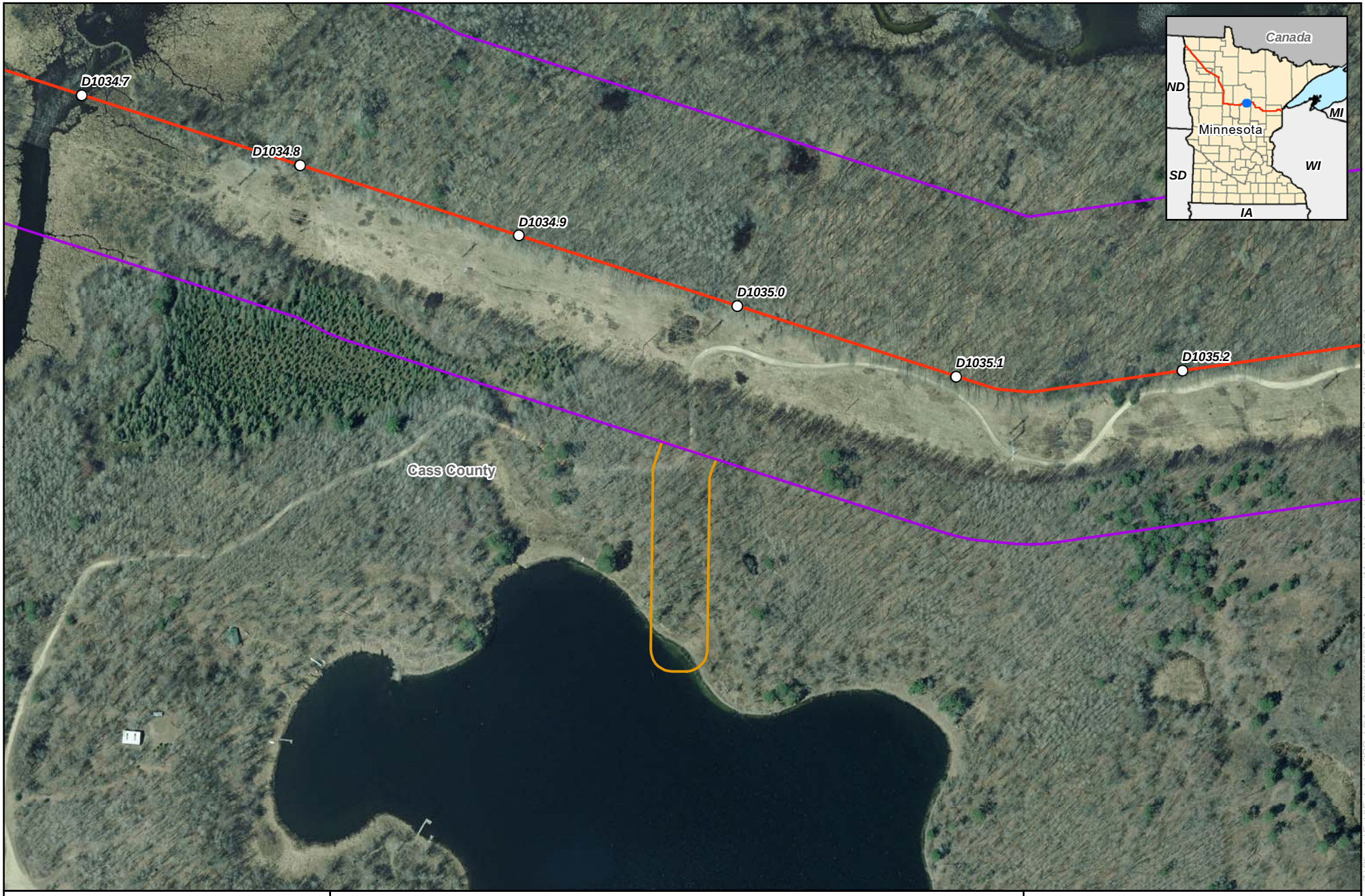
0 150 300 Feet

N

Figure E-6
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
Expanded Route Width - MP D963.5

- Milepost
- L3R May 2016 Proposed Route (SPP EAW Proposed Route)
- L3R May 2016 Proposed 750-foot Route Width
- Expanded Route Width

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Expanded_Route_Widths_5-12.mxd
Date: (5/23/2016)



ENBRIDGE

0 150 300 Feet

N

Figure E-7
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
Expanded Route Width - MP D1034.9

- Milepost
- L3R May 2016 Proposed Route (SPP EAW Proposed Route)
- L3R May 2016 Proposed 750-foot Route Width
- Expanded Route Width

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Expanded_Route_Widths_5-12.mxd
Date: (5/23/2016)

ENBRIDGE

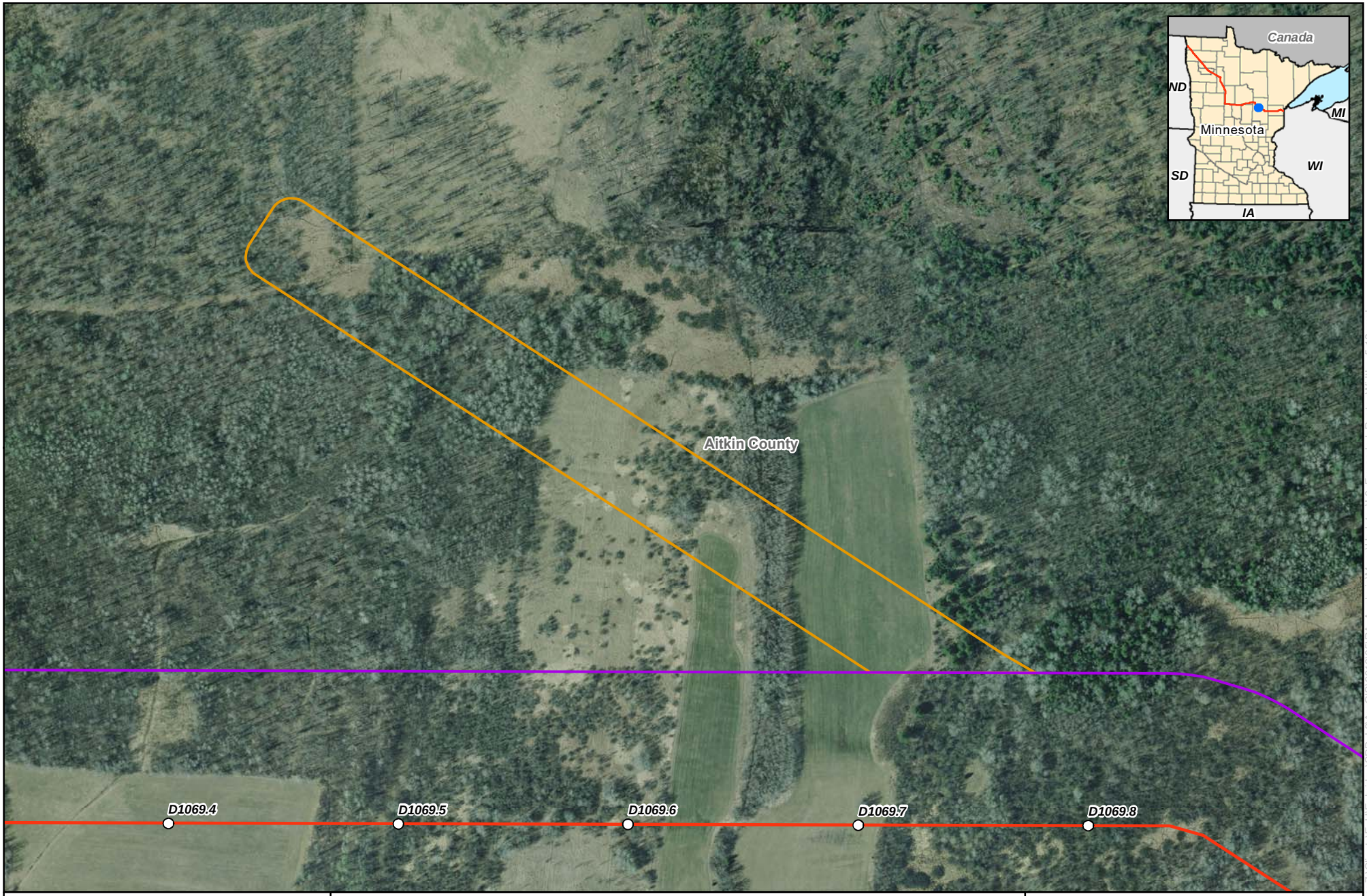
0 150 300 Feet

N

Figure E-8
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
Expanded Route Width - MP D1067.7

- Milepost
- L3R May 2016 Proposed Route (SPP EAW Proposed Route)
- L3R May 2016 Proposed 750-foot Route Width
- Expanded Route Width

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Expanded_Route_Widths_5-12.mxd
Date: (5/23/2016)



ENBRIDGE

0 150 300 Feet

N

Figure E-9
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
Expanded Route Width - MP D1069.7

- Milepost
- L3R May 2016 Proposed Route (SPP EAW Proposed Route)
- L3R May 2016 Proposed 750-foot Route Width
- Expanded Route Width

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Expanded_Route_Widths_5-12.mxd
Date: (5/23/2016)

ENBRIDGE

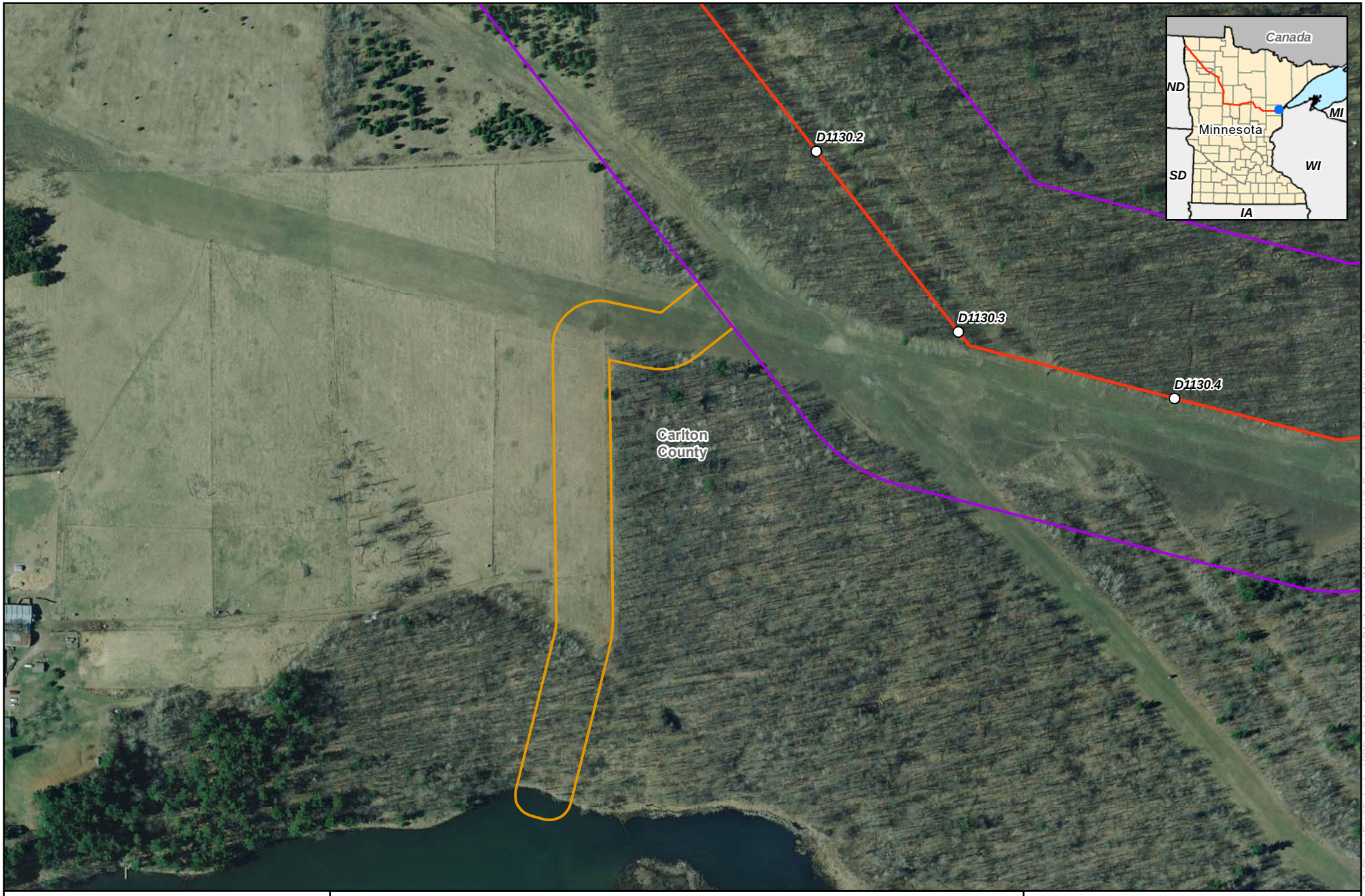
0 150 300 Feet

N

Figure E-10
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
Expanded Route Width - MP D1122.2

- Milepost
- L3R May 2016 Proposed Route (SPP EAW Proposed Route)
- L3R May 2016 Proposed 750-foot Route Width
- Expanded Route Width

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Expanded_Route_Widths_5-12.mxd
Date: (5/23/2016)



ENBRIDGE

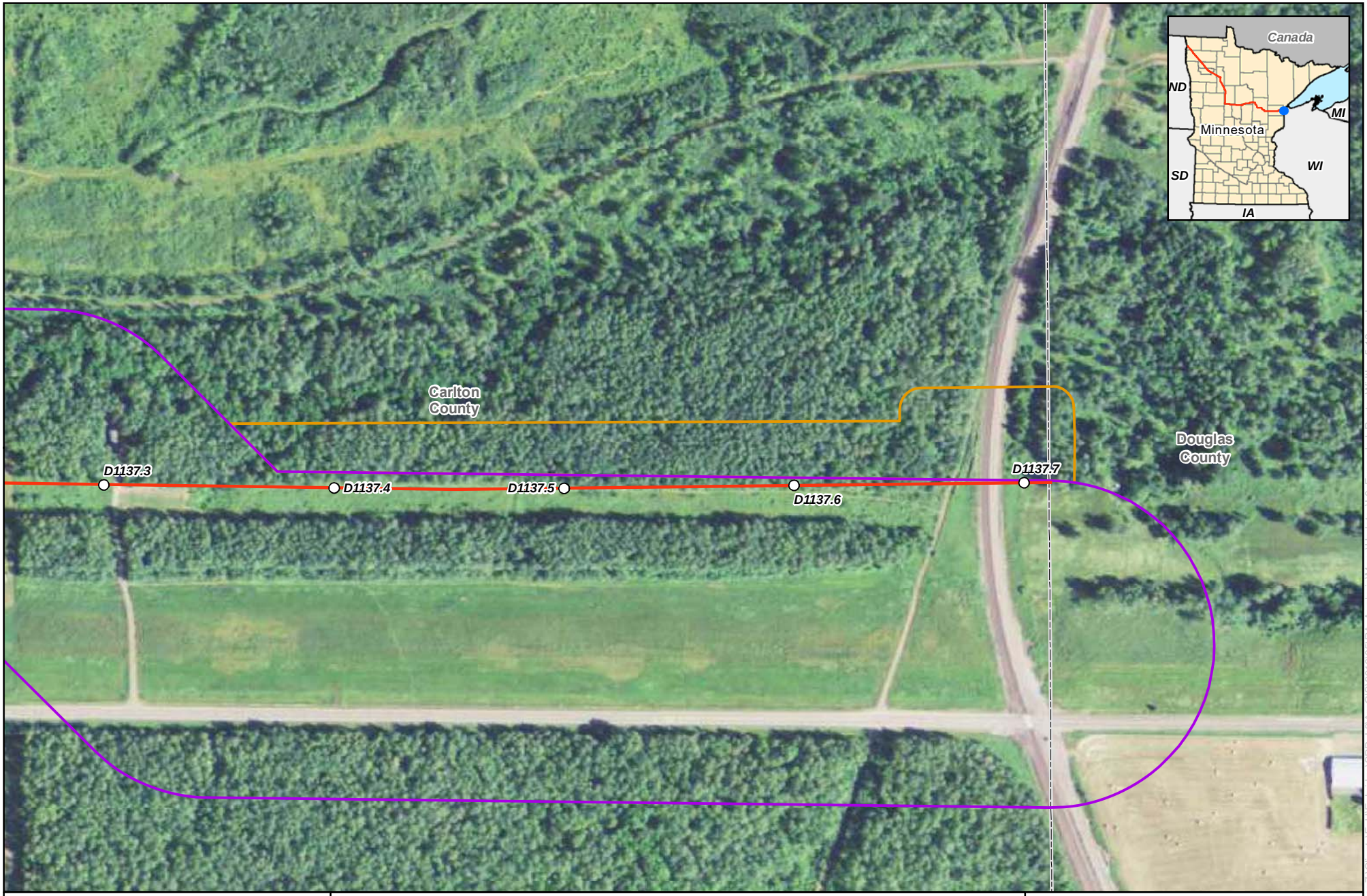
0 150 300 Feet

N

Figure E-11
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
Expanded Route Width - MP D1130.2

- Milepost
- L3R May 2016 Proposed Route (SPP EAW Proposed Route)
- L3R May 2016 Proposed 750-foot Route Width
- Expanded Route Width

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Expanded_Route_Widths_5-12.mxd
Date: (5/23/2016)



ENBRIDGE

0 150 300 Feet

N

Figure E-12
Enbridge Energy, Limited Partnership
Line 3 Replacement Project
Expanded Route Width - MP D1137.5

- Milepost
- L3R May 2016 Proposed Route (SPP EAW Proposed Route)
- L3R May 2016 Proposed 750-foot Route Width
- Expanded Route Width

Source: Z:\Clients\E_H\Enbridge\SPP_L3\ArcGIS\2016\05\RA_Analysis\Maps\Updates\L3_Expanded_Route_Widths_5-12.mxd
Date: (5/23/2016)

Appendix F

DOC-EERA Attachment 1A

Attachment 1A. Resources to be Evaluated and Assessment Methods

Major Resource	Resource Feature	Datasets and Data Sources	Quantitative Unit of Comparison	Regional Analysis Area (distance beyond centerline or counties intersected by alignment) for Project Impacts	Alignment Analysis Area (will route width, ROW, and temp const. staging be compared?) for Project Impacts	Spill Impact Analysis	Regulatory Driver (law, statute, rule, guidance plan)
Human Settlement							
	Aesthetics and Visual Resources	For Federal land crossings, apply USFS Visual Resource (Aesthetic) Management System [example application: http://www.blm.gov/style/medialib/blm/nv/nepa/ruby_pipeline_project/rod/attachment_d/appendix_p.Par.59817.File.dat/Appendix%20P%20part%201%20.pdf]	# homes/parks/reststops; #federal lands for which stnds apply	USFS standard	yes	no	MEPA criteria for analysis (M.S. 116D); USFS Guidelines
	Housing	Aerial photography + applicant's EIR	# of residential structures	1000 feet (tentatively)	yes	yes	Pipeline routing (M.R. 7852.1900)
	Noise	State noise standards and guidelines for sensitive receptors	# of sensitive receptors	per state standards	yes	no	MEPA criteria for analysis (M.S. 116D); Noise Pollution Control (M.R. 7030)
	Property Value	Minnesota County datasets applied on a county basis	none - qualitative analysis	whole county intersected by an alignment	no	no	MEPA criteria for analysis (M.S. 116D)
	Zoning and Land Use Compatibility at the Local Level	County and incorporated area records	none - qualitative for identifying permits and approvals	whole county intersected by an alignment	no	no	MEPA criteria for analysis (M.S. 116D)
	Population	US Census data, 2010; MN DEED; American Community Survey	# of incorporated areas (broken out by size class)	5 miles	yes	yes	Pipeline routing (M.R. 7852.1900)
	Income		median income	whole county intersected by an alignment	no	no	Council of Environmental Quality Guidelines;MEPA criteria for analysis (M.S. 116D)
	Environmental Justice	US Census data, 2010; MN DEED	tabulation by race classes and population	whole county intersected by an alignment	no	no	E.O. 12198; Council of Environmental Quality Guidelines; MEPA criteria for analysis (M.S. 116D)
	Existing Contaminated Sites	USEPA facility registration service; MnDOT	# units of preexisting contaminated sites	5 miles	yes	yes	Hazardous waste generation (M.R. 7045); MEPA criteria for analysis (M.S. 116D)
Transportation and Public Services							
	Roadways	State highway and county highway system files; Roads MnDOT TIS	# of crossings	none	yes	no	M.R. 8810 Utility Permit
	Public Utilities	datasets for electric, gas utilities, generating facilities, water/sewer	# of utility features	area of analysis per regulations	yes	yes	Utility Permit (M.R. 8810); Minn. Stats. 84.415 and Minnesota Rules 6135 (crossing public lands and waters)
	Emergency Services	USGS national structures dataset; MnDOT	qualitative	none	no	yes	Hazardous materials incidence response (M.R. 7514)
	Airports	FAA national flight data center, MnDOT GIS data; NAVAIDS Airports, Runways	# of airports or landing strips	per airport regulations area of analysis	yes	no	Airport zoning stnds (M.R. 8800.24)
	Schools	Mn databases; USGS GNIS Schools	# units	1 mile	yes	no	Pipeline routing (M.R. 7852.1900
	Churches (incl. cemetary)	ESRI and other sources; USGS GNIS Churches and Cemeteries	# units	1 mile	yes	no	M.S. 138 (historic sites)
Economics							
	Agriculture	2011 USGS National Land Cover Database; NRCS prime and unique farmland; agricultural land; FSA CRP; MDA (ag water quality certified farms, on-farm research farms, organic production/certification farms); GAP landcover, NRCS SSURGO data by county; USDA CropScape; MN Agricultural Statistics Division	proportion of land cover	whole county intersected by an alignment	yes	no	Protection public facilities and agricultural land M.S. 216G.07); Agricultural Impact Mitigation Plan Permit (M.S. 216B.243, subd 7); Noxious Weed Management Plan (18G.04)
	Forestry	2011 USGS National Land Cover Database; MnDNR (forest resource types, forest stewardship plan locations), MnGeo GAP land cover	proportion of land cover	whole county intersected by an alignment	yes	no	Pipeline routing (M.R. 7852.1900)
	Mining	2011 USGS National Land Cover Database; MnGeo; MnDNR GAP land cover	# mineral leases/mine permits	whole county intersected by an alignment	yes	no	Pipeline routing (M.R. 7852.1900); Surface leases (M.R. 6125.07)
	Recreation and Tourism	2011 USGS National Land Cover Database;USACE recreation and publis use areas parks, sild and scenic rivers, etc); USDI federal lands; northern tallgrass prairie reserve; Mn Office of Tourism; GAP landcover; State Trails of MN	# of recreation/tourism designated land cover types	whole county intersected by an alignment	yes	no	Pipeline routing (M.R. 7852.1900); Wild, Scenic, and Recreational Rivers (M.R. 6105)
Cultural Resources							
	Archaeological Resources	Applicant data; MN SHPO, State Historic Site Network, Register of Historic Places (state/national)	# sites intersected	SHPO stnds	yes	no	M.S. 138 (historic and archaeological sites)
	Historic Resources	Applicant data; MN SHPO, State Historic Site Network, Register of Historic Places (state/national)	# sites intersected	SHPO stnds	yes	no	M.S. 138 (historic and archaeological sites)
	Cultural Values	TCP data sources	none - qualitative discussion	none	no	no	Pipeline routing (M.R. 7852.1900)
	Treaty Areas	TCP data sources	none - qualitative discussion	none	no	no	Pipeline routing (M.R. 7852.1900)
Natural Environment							
	Air Quality	Applicant data; attainment area datasets	existence/absence of a nonattainment area	whole county intersected by an alignment	no	no	MPCA: State Implementation Plan (CAA Title I section 1 attainment); Air Emission Inventory (M.S./M.R.; 116.091, 116.07/7019.3000); MPCA: Capped Emissions Permit (M.R. 7007.1140-7007.1148)
	Wetlands	datasets: NWI/NWI Mn update; Circular 39 Classification; special feature wetlands: MPCA wetland WQ monitoring sites; wetland bank sites; Calcareous fen sites; wild rice	# units of special feature wetlands; # cowardin type classes; acres by types	5 miles	yes	yes	Wetlands Conservation Act (M.S./M.R. - 103G/8420); MEPA criteria for analysis (M.S. 116D); Pipeline routing (M.R. 7852.1900); Fen Management Plan (M.S. 103G.223); Rare Wetland Communities (M.R. 8420.0515, Subp. 3)
	Waterbodies	USGS National National hydrography Flowline and Waterbody Database, US National Atlas Water Feature Line dataset; EPA/MPCA Impaired Streams Database; PWI sitesMN Public Water Waters - Watercourses and Water Basins; ORVW sites; IBI statewide maps	# and proportion of total size	5 miles	yes	yes	Wild, Scenic, and Recreational Rivers (M.R. 6105); Outstanding Resource Value Waters (M.R. 7050.018); Public Waters (M.S. 103G.245); MEPA criteria for analysis (M.S. 116D); Pipeline routing (M.R. 7852.1900)
	Watersheds	Watershed TMDLs/Watershed Restoration and Protection Plan watersheds; MN WD and WMO jurisdictions	qualitative	5 miles	yes	yes	WRAPs/TMDLs (MPCA: CWA 103(d)); Watershed management (M.S. 103D/108/110B)
	Clean Water Funds sites	BWSR CWF study areas with defined map unit	# sites	county (BWSR database is by county)	yes	yes	Clean Water Legacy Act (M.S. 114D)
	Floodplains	FEMA maps	# sites or areas	FEMA stnds	yes	yes	Floodplain Management (M.S. 104)

Major Resource	Resource Feature	Datasets and Data Sources	Quantitative Unit of Comparison	Regional Analysis Area (distance beyond centerline or counties intersected by alignment) for Project Impacts	Alignment Analysis Area (will route width, ROW, and temp const. staging be compared?) for Project Impacts	Spill Impact Analysis	Regulatory Driver (law, statute, rule, guidance plan)
	Groundwater	MDH well and source protection areas; applicant (storage tanks per pump station or other facility projected for each alignment); Karst Features - Inventory Points; Ground Water Contamination Susceptibility in Minnesota	# sites or areas	5 miles	yes	yes	Groundwater Protection (M.S. 103H); Appropriation Permit (M.S. 103G.271)
	Soil Resources	NRCS MLRA database; STATSGO2	qualitative	none	no	yes	MPCA: NPDES/SDS Permit (M.S./M.R. - 115-116/7001, 7090)
	Natural Communities and Habitat						
	Native Flora	DNR ECS subsection (land type phase where available); DNR mapped prairie conservation easements or other mapped vegetation (excluding rare/unique); DNR ECS; MCBS Railroad Prairies; GAP landcover; DNR Calcareous Fens	# sites of mapped native flora	5 miles	yes	yes	MEPA criteria for analysis (M.S. 116D); Pipeline routing (M.R. 7852.1900); Native Prairie Bank (M.S. 84.96)
	Invasive species	MDA or County mapped areas of noxious weed infestations' MNDNR mapped invasive species areas (zebra mussels, etc)	qualitative	none	no	no	Noxious Weed Management Plan (18G.04)
	Designated Habitat	DNR State Wildlife Management Areas; WPAs; BWSR State Funded Conservation Easements; state easements; other mapped game animal special use areas; USFWS migratory bird datasets; trout streams	# of sites	5 miles	yes	yes	MEPA criteria for analysis (M.S. 116D); Wildlife Management (M.R. 6230)
Rare and Unique Resources							
	State and Federally Listed	USFWS general listed species regions and critical habitat areas; NHIS database; Critical Habitat poly; NHIS polygon and point data	# units of NHIS polygons/points; # federal habitat areas	county	yes	yes	MNDNR: Takings Permit (for Endangered or Threatened Species)(M.S./M.R. - 84.0895/6134, 6212.1800 - 6212.2300); Endangered Species Act (Section 7)
	State Natural Heritage and Other Significant Sites	NHIS database non species data (aggregation areas, etc) NHIS polygon and point data	# units	county	yes	yes	MEPA criteria for analysis (M.S. 116D); Critical Habitat (M.S./M.R. - 84.033/6136)
	Species in Greatest Conservation Need	GAP land cover/DNR SWAP datasets (2015/2016 update); Native Plant Communities; MBS Sites of Biodiversity Significance; MN Prarie Conservation Plan and Glacial Lake Agassiz features	# units	5 miles	yes	yes	Tomorrow's Habitat for the Wild and Rare; MEPA criteria for analysis (M.S. 116D)
	Scientific and Natural Areas	DNR datasets for SNAs	# units	county	yes	yes	Scientific and Natural Areas and Critical Habitat (M.S./M.R. - 84.033/6136); MEPA criteria for analysis (M.S. 116D)
High Consequence Areas							
	Populated Areas	PHMSA national pipeline mapping system	# sites and size	no	no	yes	USDOT PHMSA regulations
	Drinking Water Sources	Enbridge Energy (data restricted source)	# sites and size	no	no	yes	USDOT PHMSA regulations
	Unusually Sensitive Ecological Areas	Enbridge Energy (data restricted source)	# sites and size	no	no	yes	USDOT PHMSA regulations
	Natural disaster hazard zones	PHMSA national pipeline mapping system	# sites and size	no	no	yes	USDOT PHMSA regulations