Operations and Maintenance Plan (O&M Plan)
Pipeline Maintenance Projects

May 2016
## Pipeline Operations and Maintenance Emergency Contacts
### Chippewa National Forest - Leech Lake Band of Ojibwe – Enbridge

<table>
<thead>
<tr>
<th>Organization</th>
<th>Name</th>
<th>Phone</th>
<th>Office Address</th>
<th>Email</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enbridge Energy, Company</strong></td>
<td>24 hour Emergency Number</td>
<td>1-800-858-5253</td>
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<tr>
<td><strong>Leech Lake Band of Ojibwe</strong></td>
<td>Department of Public Safety</td>
<td>1-888-622-9225 or (218) 335-8277</td>
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<tr>
<td></td>
<td>Duane Oothoudt, Emergency Coordinator</td>
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<tr>
<td></td>
<td>Richard Robinson, DRM Director</td>
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<td></td>
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<td>(218) 335-7417 office (218)-308-0806 cellular</td>
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<td></td>
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<td>Steven Frick, Reality Specialist</td>
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<td></td>
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<tr>
<td><strong>Organization</strong></td>
<td><strong>Contact</strong></td>
<td><strong>Phone</strong></td>
<td><strong>Office Address</strong></td>
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<td><strong>Comments</strong></td>
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<td><strong>CNF</strong></td>
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<td>Karen Johnson</td>
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Updated 5/4/16
ENBRIDGE ENERGY LIMITED PARTNERSHIP
CHIPEWNA NATIONAL FOREST
LEECH LAKE BAND OF OJIBWE
PIPELINE OPERATIONS AND MAINTENANCE PLAN

Revision 4 - May 2016

Synopsis:
Description: logo updates, text updates, phone number updates, definition updates, seed mix updates, added pipeline information, add Appendix A & B, plan review and updates, Cass Lake Tactical plan purpose, emergency contact list and O&M Contact list updated. New booklets are provided with these changes/revisions made.

Since the signing of the Decision Memo which categorically excludes most O&M work it was decided to revise the language and formatting in the overall document. Changes to the content are as follows:

- Update Enbridge and CNF logo’s in addition to the LLBO office address changes throughout plan
- Updated continuous pipelines number from four to six
- Add a description and table with the pipeline diameter, location and date constructed
- Add Anomaly, Anomaly Investigation, Maintenance Dig, Pipeline Integrity Field Assessment definitions and update Invasive Plants and Noxious Plants definitions
- Update section 2.2.8 describing the pipe and pipe coating inspection and repair including the steps to the execution of a maintenance dig.
- Add paragraph referencing the Cass Lake Tactical Plan
- Updates for 3.3 include referencing Table 6 and where to direct questions regarding invasive and/or noxious plants.
- Changed title of Section 3.8 from Spill Prevention, Containment, and Countermeasure Plan to Spill Prevention and Containment Plan
- Updated seed mix and plant list tables
- Appendix A - Incorporate the Alberta Clipper special use permit
- Appendix B - Contact List for 2016
- Update DRM Director cellular phone number to 218-252-9256 and CNF Permit Administrator phone number to 218-546-3109
- Remove Bobby Henderson from contact lists and replace with Lisa Becker.
- Appendix C - Incorporate the updated drawings from the Enbridge Environmental Mitigation Plan

These changes have been reviewed and agreed upon.

Date: 7/17/2016

Karen Johnson
ROW Specialist, Enbridge Energy Partners
James Anklam  
Environmental Analyst, Enbridge Energy Partners

Christine Brown  
Lands Program Manager, Chippewa National Forest

Levi Brown  
Environmental Land Director, Leech Lake Band of Ojibwe
Section 1

INTRODUCTION

Enbridge Energy, Limited Partnership (Enbridge) is required to perform operations and maintenance on its pipeline system within the Chippewa National Forest (CNF). The purpose of this Operations and Maintenance Plan (O&M Plan) is to ensure that O&M activities are in compliance with various land use policies and environmental laws. This O&M Plan defines a communication plan, notification and review procedures, environmental mitigation measures and project Best Management Practices (BMPs).

A significant portion of the CNF lies within the boundaries of the Leech Lake Reservation. In accordance with Section 101 (d)(2) of the National Historical Preservation Act (NHPA), the Tribal Council established a Tribal Historic Preservation Office (THPO). All projects on National Forest System lands (NFS lands) managed by the CNF that are within the boundaries of the Leech Lake Reservation (LLR) must be reviewed by the THPO. Enbridge is committed to working with the Leech Lake Band of Ojibwe toward compliance with the NHPA.

Enbridge operates and maintains several liquid hydrocarbon transmission pipelines that traverse the CNF in northern Minnesota (refer to Figures 1 through 4). Western Canadian crude oil and natural gas liquids are transported through the Enbridge systems to refining centers in the mid-western United States and eastern Canadian provinces. Currently Enbridge has six continuous pipelines through the CNF and LLR. These pipelines were installed over a period of years starting in 1950 and are currently authorized to be operated and maintained under Special Use Permit CAL 4019-02 (refer to Appendix A). The permanent right-of-way maintained by Enbridge for the operation and maintenance of the pipelines ranges from 25 to 80 feet wide through NFS lands. The following pipelines, with the initial date they were installed, are located within the boundaries of the CNF and LLR.

<table>
<thead>
<tr>
<th>Line</th>
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<td>Line 1</td>
<td>20”/18”</td>
<td>1950</td>
</tr>
<tr>
<td>Line 2</td>
<td>26”</td>
<td>1954</td>
</tr>
<tr>
<td>Line 3</td>
<td>34”</td>
<td>1962/1963</td>
</tr>
<tr>
<td>Line 4</td>
<td>36”/48”</td>
<td>1973/2001</td>
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<tr>
<td>Line 13</td>
<td>20”</td>
<td>2009</td>
</tr>
<tr>
<td>Line 67</td>
<td>36”</td>
<td>2009</td>
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Enbridge pipelines enter the CNF at Mile Post (MP) 955.76 located in Section 15, Township 145N, Range 31W, Cass County, extending east a distance of 174,715 feet (33.1 miles), exiting CNF lands at MP 988.84 located in Section 36, Township 145N, Range 26W Itasca County. The pipelines reenter CNF lands at MP 994.19 located in Section 2, Township 144N, Range 25W Itasca County, extending east a distance of 5597 feet (1.06 miles), terminating at MP 995.25 located in Section 1, Township 144N, Range 25W Itasca County.
Enbridge pipelines enter the LLR at Mile Post MP 950.82 located in Section 13, Township 145N, Range 32W, Hubbard County, exiting LLR lands MP 993.86 located in Section 35, Township 145N, Range 25W, Itasca County. The pipelines have one entry and exit of the LLR for a total length of 55.69 miles of LLR Lands based on the Administrative Boundary provided by MNDNR.

Activities on NFS lands must comply with provisions specified in the National Environmental Policy Act (NEPA), Section 106 of NHPA, and the Endangered Species Act (ESA) (see definitions). The O&M Plan is a requirement in the Special Use Permit under Section VII. Other Provisions, E. Operating Plan.

In 2003, and most recently in 2009, an environmental review was conducted to identify areas of known or potential environmental sensitivity. This environmental review included a biological, cultural resource and hydrological review. Sensitive areas that were identified during the environmental review may require additional review and implementation of mitigation measures in addition the BMP's identified in this plan. The following waterways were not included in the environmental review; the Pike Bay Channel, Sucker Lake Creek, Six Mile Lake Creek, Nushka Lake and the Mississippi River. Additional issues associated with the paved bike trail area lead to additional review. All areas are listed on Table 1.

Contact:
The CNF has a designated Permit Administrator who acts on behalf of the Authorized Officer in the administration of the Special Use Permit. The Permit Administrator is the primary point of contact. The Authorized Officer has the authority to issue, grant, amend, renew, suspend, or revoke special use authorizations which may be necessary for operations and maintenance activities (discussed further in Section 2). Likewise, Enbridge has designated a primary point of contact for the CNF who has decision-making authority similar to the CNF’s Authorized Officer. Table 4 provides a listing of key personnel.

Operations and Maintenance Plan Structure:
The O&M Plan is organized in five main sections, as follows:

1) Introduction;
2) Anticipated Operation and Maintenance Activities;
3) Environmental Protection Measures;
4) CNF and LLBO Review Process Guidance; and
5) O&M Plan Acceptance.

For purposes of this O&M Plan, operations and maintenance activities are categorized as ordinary or extraordinary or emergency activities. Ordinary activities are those tasks that may be anticipated in advance or expected to occur regularly as a part of the on-going maintenance and safe operation of the pipeline. Extraordinary activities are similar events or emergencies that require immediate attention. This document provides a detailed discussion of the various environmental BMP's that Enbridge will implement for operations and maintenance activities. These BMP's may be common to several different operations and maintenance activities. For example, to the extent an activity creates soil disturbance, Enbridge will implement erosion and sediment control measures.
As needed, the O&M Plan will be periodically updated to reflect future conditions or changes in pipeline operations. The frequency of the updates will be discussed during annual meetings in the beginning of each year, usually in the early spring, between Enbridge, CNF, and LLBO officials.

Enbridge’s Environmental and Right-of-Way designate will be responsible for incorporating updates and recommended changes to the O & M Plan.

Please see Appendix B for a list of staff personnel for Enbridge, LLBO, and the CNF.
DEFINITIONS

**Anomaly** – A change to the interior or exterior of the pipeline that is identified by sophisticated inspection tools. Anomalies that have been known to require repair in the past include damage from third party excavation, corrosion, cracking or denting.

**Anomaly Investigation** – Physical examination of the pipeline to determine if an anomaly requires a repair or if other action is required.

**Authorized Officer** - Any Forest Service employee who has the delegated authority to issue, grant, amend, renew, suspend, or revoke special use authorizations. This would be a Regional Forester, Forest Supervisor, or District Ranger.

**Categorical Exclusion** - A category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency and for which, neither an environmental assessment nor an environmental impact statement is required.

**Cathodic Protection** - A technique used to reduce the corrosion of a metal surface by making it the cathode of an electrochemical cell. This technique is applied by installing a network of metal rods (anodes) in the ground, wired to a rectifier, and used to make the potential for metal loss occur on the anodes and not the pipeline. This is known as an “impressed system.” In the case where the metal rods are wired directly to the pipeline, the configuration is known as a “sacrificial anode system.”

**Cultural Resource** - The physical remains of past human cultural systems in places or sites of importance in human history or prehistory.

**Diameter at Breast Height (DBH)** - The diameter of a standing tree at a point four feet six inches from ground level.

**Extraordinary Activities** - Emergencies or similar events that require immediate attention.

**Endangered Species Act of December 28, 1973 (ESA)** – The Secretary of Agriculture is directed to “establish and implement a program to conserve fish, wildlife, and plants," including Federally listed species (16 U.S.C. 1534 et seq.). Section 7 directs Federal departments and agencies to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitats.

**Historic Properties** – Includes buildings, structures, districts, objects and sites included in, or eligible for inclusion in, the National Register of Historic Places. The term includes artifacts, records, and remains related to such properties, and properties of traditional religious and cultural importance to Indian tribes that meet the National Register Criteria in 36 CFR part 60.

**Forest Plan** - A long-range plan for management of a designated area of National Forest System lands. This Plan will provide management direction for all management programs and practices, resource uses, and resource protection measures on these lands.

**Heavily Silt-Laden** - A water quality descriptor meaning, in general terms, that visible settling of sediment is evident after a few minutes in a clear glass jar.
**Invasive Plants** – Plants as identified by Table 6 of the O&M Plan, usually non-native, that colonizes a plant community and displaces native or more desirable plants, reducing diversity and wildlife habitat. When such plants are introduced into a new area they often lack the biological agents (insects, diseases, etc.) that control them in their native environment.

**Looping** - The technique of laying an additional pipeline alongside an existing one when additional capacity is desired.

**Maintenance Dig** - Physical examination of the pipeline to determine if an anomaly requires a repair or if other action is required. See also Pipeline Integrity Field Assessment.

**Merchantable Timber** - A tree greater than or equal to five inches in diameter at breast height.

**Milepost**: Locations along the pipeline are referenced by milepost. The pipelines traverse the Chippewa National Forest from west to east by mileposts 955 to 989, respectively (refer to Figures 1 through 4).

**National Forest System Lands (NFS Lands)** - National Forests, National Grasslands, and other related lands for which the Forest Service is assigned administrative responsibility.

**National Pollution Discharge Elimination System (NPDES) Permit**: These permits regulate the discharge of wastewater generated during operation and maintenance of the pipeline including trench dewatering.

**National Environmental Policy Act (NEPA)** - The purposes of this Act are to declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council of Environmental Quality. NEPA is a law of disclosure. Agencies must disclose to decision makers and the public what society gains or loses with each decision.

**Noxious Plants** – Those plant species, as identified by Table 6 of the O&M Plan, designated as noxious by the secretary of Agriculture or the responsible State official. Noxious plants generally possess one or more of the following characteristics: aggressive and difficult to manage, poisonous, toxic, parasitic, a carrier or host of serious insects or disease, and being native or new to or not common to the United States or parts thereof (Forest Service manual, section 2090.5).

**Permit Administrator** - A Forest Service employee who acts on the behalf of the Authorized Officer in the administration of the Special Use Permit.

**Pigs** - An inspection tool used to internally inspect pipeline integrity.

**Pipeline Integrity Field Assessment** - Physical examination of the pipeline to determine if an anomaly requires a repair or if other action is required. Often times referred to as a “maintenance dig”.

**Right-of-Way** - Land authorized to be used or occupied for the construction, operation, maintenance, and termination of a project or facility passing over, upon, under, or through such land.

**Scraper Trap** - An above ground device attached to the pipeline used to introduce internal inspection or cleaning tools;
**Section 106 of the National Historical Preservation Act (NHPA)** – A law which requires federal agencies to take into account the effects of actions on historic properties and affords the SHPO, THPO, and Advisory Council on Historic Preservation a reasonable opportunity to comment. The responsibilities extend to all federal agencies, and all kinds of federal actions, including those carried out by non-federal parties under federal permit, license, or funding.

**Special Use Permit** - A special use authorization that provides permission, without conveying an interest in land, to occupy and use NFS lands or facilities for specified purposes. A copy of Enbridge’s Special Use Permit is provided in Appendix A.

**State Historic Preservation Officer (SHPO)** – Administers the historic preservation program in the State.

**Traditional Cultural Property** - A property that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community’s history, (b) are important in maintaining the continuing cultural identity of the community.

**Tribal Historic Preservation Officer (THPO)** – Is appointed by a federally recognized Indian tribe that has assumed the responsibility of the SHPO on tribal land under Section 101(d)(2) of NHPA. The THPO must be consulted in lieu of or on equal footing with SHPO for projects occurring on or affecting historic properties on tribal land. NHPA defines tribal lands as all land within the exterior boundaries of a reservation.
Section 2

ANTICIPATED OPERATION AND MAINTENANCE ACTIVITIES

This section provides a description of the various operations and maintenance activities that are anticipated in order to maintain and safely operate Enbridge’s pipelines within NFS and LLR lands. The O&M Plan primarily addresses ordinary operations and maintenance activities. These activities vary in complexity. Ordinary operations and maintenance activities fall within four general categories:

- No Disturbance Activities – Section 2.1;
- Minor Disturbance Activities – Section 2.2; and
- Disturbance Activities – Section 2.3
- Extraordinary Activities – Section 2.4.

Extraordinary activities and Emergency activities are situations where Enbridge will respond immediately or where action is required within the next several days to ensure continued safe operation of the pipeline. Extraordinary activities are outlined in Section 2.4.

“No Disturbance” activities (outlined in section 2.1) do not require advanced notification or approval from the CNF and LLR. For Minor Disturbance activities the BMP’s (BMP’s) employed are outlined in Section 3 of the O&M Plan. Projects categorized as Disturbance Activities will require submittal of project-specific information. Notification, review, approval, and post inspection for these activities will be coordinated jointly by Enbridge, CNF, and LLBO.

Where advance notification is required, the following information will be provided:

- Description, Location and Timing: Included in the notification will be a description of the type of activity, location in both Section/Township/Range and Milepost and anticipated/estimated timeframe for completion.

- Potential Environmental Impacts: An overview of potential impacts that could result from the activity;

- Activity-Specific Construction Techniques & Mitigation Measures: A listing of specific or unique measures that may apply; and

- General Environmental Protection Measures (refer to Section 3): A listing of environmental BMP’s covered in Section 3 that will be implemented as needed to fit the specific location and nature of the activity.

A summary of the sensitive areas requiring additional review for maintenance activities in the CNF is provided in Table 1 and notification procedures are provided in Table 5.
2.1 No Disturbance Activities

No Disturbance Activities are those that result in essentially no ground disturbance, the project sites can be readily accessed from existing Forest Service or other public access roads, and the activities will not impact streams, wetlands, or other known sensitive features. Enbridge will implement BMP’s discussed in the O&M Plan. For example, see “General Measures” in Section 3.

- **Advance Notification:** Advance notification will not be required by Enbridge for No Disturbance Activities.

2.1.1 Simple Maintenance and Housekeeping:

- **Description:** When Enbridge is informed about minor concerns on its right-of-way, steps will be taken to rectify the situation. Such matters may include removing “third-party” trash, repairing bent or broken pipeline markers, routine mowing of road ditches and road crossing markers, inspecting complaints or other reports, and similar low impact “housekeeping” activities on the right-of-way and/or that occur on or near road right-of-ways or access points.

- **Potential Environmental Impacts:**
  - None are anticipated

- **Activity Specific Construction Techniques and Mitigation Measures:**
  - Typically not required

- **General Environmental Protection Measures (refer to Section 3):**
  - General Measures

2.1.2 “Non-Invasive” Integrity Surveys:

- **Description:** Both under regulatory requirements (U.S. DOT) and as sound business management, Enbridge undertakes various pipeline integrity surveys that, by themselves, cause essentially no environmental disturbance. Acting on findings of such surveys, such as excavating the pipeline for physical inspection or repair is covered elsewhere in the O&M Plan. Such surveys include routine aerial patrols (typically via helicopter) or internal pipeline inspections via electronic tools (“pigs” see definition). Additionally, Enbridge may have staff or contractors conducting other on-site inspections or walkovers of the right-of-way.

- **Potential Environmental Impacts:**
  - None Anticipated

- **Activity Specific Construction Techniques and Mitigation Measures:**
  - Typically none

- **General Environmental Protection Measures (refer to Section 3):**
  - General Measures
2.1.3 Washing and Painting Existing Facilities:

- **Description:** Washing and painting of existing aboveground facilities is part of Enbridge’s normal maintenance. Potential locations on NFS and LLR lands include existing valve sites, and possibly other minor facilities along the right-of-way. Washing may utilize high-pressure water and detergent. Painting may involve limited sandblasting. Such facilities are within existing Enbridge’s right-of-way or are easily accessed from roads.

- **Potential Environmental Impacts:**
  - Typically none

- **Activity Specific Construction Techniques and Mitigation Measures:**
  - Solvents are not to be used within 100 feet of a water body. Store paint, solvents, or any other hazardous materials securely and not within 100 feet of a water body;
  - Contain and recover sandblast material;
  - Avoid erosion associated with washing or painting activities; and
  - Limit wash water run-off (overland flow) to right-of-way.

- **General Environmental Protection Measures (refer to Section 3):**
  - General Measures
  - Spill Containment and Countermeasure

2.2 Minor Disturbance Activities

Minor Disturbance Activities are those that have minor or short-term environmental impact, are not directly impacting known sensitive sites or resources (e.g., in-stream work, sensitive species, outlines in Table 1), and result in limited or localized ground disturbance. It also includes activities involving clearing of vegetation which results in minor or localized impacts. Activities are described further below. Activities involving disturbance clearing or extensive ground disturbance will require additional review by the CNF and LLR (See Section 2.3 Disturbance Operations and Maintenance Activities).

- **Advance Notification:** Enbridge will provide the CNF Permit Administrator with a 7 day advance notification for Minor Disturbance Activities, and will provide project information outlined in Section 1 including description, location, timing, potential environmental impacts, activity specific construction techniques, mitigation measures, and general environmental protection measures.

- **CNF and LLR Approval:** The CNF and LLBO will provide Enbridge with either a request for more information or the project may proceed once the seven day notification period has passed.

2.2.1 ATV Barrier, Fencing, or Other Access Barrier Installation or Repair:

- **Description:** Enbridge may construct, or agree to maintain or repair, various barriers at or near road crossings to limit unauthorized all-terrain vehicles (ATV) or other vehicle traffic on the right-of-way. If a new barrier is required on NFS lands, Enbridge would coordinate in advance with CNF and LLR regarding design, installation, and maintenance matters.
Potential Environmental Impacts:
- Localized clearing, grading, rutting, erosion, or other disturbance
- Erosion if poorly installed or maintained

Activity Specific Construction Techniques and Mitigation Measures:
- Minimize impact area and equipment traffic
- Access site from roadway and right-of-way
- Restore and revegetate the barrier or area as needed to aid long-term stability

General Environmental Protection Measures (refer to Section 3):
- General Measures
- Erosion and Sediment Control
- Permanent Erosion and Site Restoration

2.2.2 Civil Survey, Close Interval Survey, or Other Right-of-Way Surveys:

Description: Enbridge or its contractors may conduct civil surveys from time to time to collect information on the pipeline, topography, and surface features on the right-of-way. Civil surveys will normally be conducted by walking the right-of-way, but ATV or light vehicle traffic may be required in some areas. Limited brush removal may also occur to establish line-of-sight.

Enbridge also periodically conducts “close interval surveys” to assess the operation of cathodic protection on the pipeline. This is a portion of the pipeline system dedicated to corrosion prevention. A close interval survey is a method of monitoring the performance of the cathodic protection system from one point to another along the pipeline. The survey typically entails two to three people walking the right-of-way with backpack equipment taking soil and other electric potential readings. Minor brush removal might be necessary and ATV or other light vehicle traffic is possible, though normally not necessary. A close interval survey provides information where the pipeline protective coating is in need of repair. Typically, coating anomalies require subsequent excavation, inspection, and repair (see Section 2.2.8).

Enbridge may also employ other non-invasive surveys or reconnaissance, for example in advance of maintenance work or major projects. Such surveys also would typically involve foot traffic and possible ATV or light vehicle traffic.

Potential Environmental Impacts:
- Minor vegetation clearing
- Rutting or other disturbance from ATV or vehicle traffic
- Spread of invasive and/or noxious plants

Activity Specific Construction Techniques and Mitigation Measures:
- Minimize impact area and equipment traffic
- Access from existing Forest Service or public roadways whenever possible

General Environmental Protection Measures (refer to Section 3):
- General Measures
- Control of Invasive and/or Noxious Plants
2.2.3 Pipeline Marker and Survey Monument Installation and Repair:

**Description:** Markers indicating the pipeline’s location are required by DOT pipeline safety regulations at road crossings, certain stream crossings, and other locations. The markers indicate the presence of the pipeline, provide basic information (e.g., indicating the presence of a high pressure pipeline), and a phone number for pipeline emergencies or other inquiries. Installation or repair of the markers requires minimal clearing and a small diameter borehole. Access by ATV or light vehicles or equipment is typically required for non-road crossing marker locations.

Enbridge may also install GPS survey monuments, typically consisting of a simple steel rod and plastic cap assembly. They are normally located on or near the right-of-way at selected road crossings. Minor clearing of vegetation may be required and they are installed by setting in a small hole or hammering into place.

**Potential Environmental Impacts:**
- Minor vegetation clearing
- Rutting or other disturbance from ATV or vehicle traffic
- Spread of invasive and/or noxious plants

**Activity Specific Construction Techniques and Mitigation Measures:**
- Minimize impact area and equipment traffic
- Access from roadways whenever possible

**General Environmental Protection Measures (refer to Section 3):**
- General Measures
- Control of Invasive and/or Noxious Plants

2.2.4 Cathodic Protection Installation and Repair:

**Description:** Enbridge installs and maintains cathodic protection systems to protect the pipeline from corrosion. A cathodic protection system typically consists of a rectifier and a “ground bed” of sacrificial anodes buried near the pipeline. Anodes are inert metal rods. The rectifier converts AC to DC power and creates a very low voltage gradient such that the pipeline is a cathode, and the metal rods are anodes. Anodes corrode and cathodes do not, therefore the pipeline is protected from corrosion. Because the system requires a power source, the installations are typically located near roads. Anodes are usually buried in trenches from 50 to 500 feet in length. Enbridge may have other cathodic systems in place, such as a product known as “Anode-Flex,” which is a cable buried alongside the pipeline, often for long distances.

Installation of new facilities (e.g., a new anode bed or a lengthy Anode-Flex cable) would be considered Disturbance Activities for purposes of this O&M Plan. Maintenance and repair or upgrades of existing cathodic protection systems within the existing, maintained right-of-way are considered Minor Disturbance Activities that will result in minimal environmental disturbance. Limited excavation may be required. Such work would typically be conducted by a track- or rubber-tired hoe or tractor, or a trench excavating machine, and be completed in one to three days.

Cathodic protection systems may also include test leads, which are simply electrical connections to the pipeline used to conduct system performance surveys. Test leads may
require repair, or additional test leads may be installed. Installation and repair requires excavation of the pipeline (typically 10 feet wide by 3 to 6 feet deep). This work is usually completed in one day.

**Potential Environmental Impacts:**
- Minor vegetation clearing
- Rutting or other soil disturbance from equipment, ATV or vehicle traffic, or from localized excavation
- Spread of invasive and/or noxious plants

**Activity Specific Construction Techniques and Mitigation Measures:**
- Minimize impact area and equipment traffic
- Access from roadways whenever possible

**General Environmental Protection Measures (refer to Section 3):**
- General Measures
- Erosion and Sediment Control (if applicable)
- Dewatering
- Permanent Erosion and Site Restoration
- Control of Invasive and/or Noxious Plants

### 2.2.5 Minor Installations at Existing Facilities:

**Description:** Enbridge may add miscellaneous piping, communication, electrical or other equipment or small buildings at existing valve sites. These activities may involve grading, excavation, or other potential disturbances, but would be within Enbridge’s right-of-way in the immediate area of the existing valves. If more substantial work is planned, such as a significant expansion of the pump station, or the installation of a new valve, these activities would be considered Disturbance Activities for purposes of the O&M Plan.

**Potential Environmental Impacts:**
- Minor vegetation clearing if at a valve site
- Soil disturbance from grading or excavation, and from equipment.
- Spread of invasive and/or noxious plants

**Activity Specific Construction Techniques and Mitigation Measures:**
- Maintain work to existing developed facility or valve site area
- Minimize total impact area and equipment traffic

**General Environmental Protection Measures (refer to Section 3):**
- General Measures
- Erosion and Sediment Control
- Dewatering
- Permanent Erosion and Site Restoration
- Spill Containment and Countermeasure
- Control of Invasive and/or Noxious Plants

### 2.2.6 Sub-Surface Investigations:

**Description:** On rare occasions, Enbridge may need to conduct soil borings on or near the right-of-way to investigate subsurface geotechnical and/or environmental conditions. These
borings may be required in the planning stages of a construction project or as part of a remedial investigation. Standard drilling rigs are used where access and soil conditions are adequate, while low ground pressure ATV-type rigs will be used in or near a wetland areas, soft soils or other sensitive areas. If off-right-of-way clearing is necessary, Enbridge will coordinate in advance with CNF and LLBO to determine any special requirements. Borings and proper abandonment (i.e., grouting) will be done in accordance with the Minnesota Department of Health’s standards. In some instances, the borehole may be completed with a monitoring or recovery well. In this instance, long-term access to the well as part of a monitoring or remediation program may be required.

◆ Potential Environmental Impacts:
  o Rutting or soil disturbance from the drill rig
  o Bore hole cuttings and grout cement if improperly handled or disposed
  o Spread of invasive and/or noxious plants

◆ Activity Specific Construction Techniques and Mitigation Measures:
  o Pre-plan bore holes and minimize impact area from drill rig
  o In situations with soft soils or in wetlands where excessive rutting will occur use low ground pressure equipment, construction mats, or complete borings under frozen ground conditions.
  o Minimize total impact area and other equipment traffic
  o Remove or appropriately disperse drill cuttings; cleanup and remove excess grout cement.

◆ General Environmental Protection Measures (refer to Section 3):
  o General Measures
  o Erosion and Sediment Control (if applicable)
  o Permanent Erosion and Site Restoration (if applicable)
  o Control of Invasive and/or Noxious Plants
  o Streams and Wetlands

2.2.7 Routine Right-of-Way Clearing and Brushing:

◆ Description: To conduct required aerial and visual inspection of the right-of-way, to maintain a safe and apparent corridor, and to allow access for maintenance activities as described in the O&M Plan or emergencies, Enbridge periodically clears vegetation from the existing right-of-way. Clearing typically includes brushing equipment traveling down the existing right-of-way, which may consist of tracked or rubber-tired equipment to cut brush and trees, and hand-held brush saws or other manual methods. Small cuttings will be left in place, non-merchantable timber and slash will be disposed of in upland areas or hauled off-site, or chipped and evenly spread on the right-of-way. If burning is proposed, Enbridge will consult with CNF, LLBO, and other authorities to obtain necessary authorization or permits.

If merchantable timber is to be cleared on NFS and LLR lands, Enbridge will coordinate with each agency.

On CNF land Enbridge will purchase the timber from the CNF with a Forest Products Sale Permit. If on non CNF Land within CNF boundaries, Enbridge will coordinate with the landowner.

◆ Potential Environmental Impacts:
  o Rutting or soil disturbance from equipment
  o Erosion on slopes
  o Impact to wildlife
Spread of invasive and/or noxious plants

Activity Specific Construction Techniques and Mitigation Measures:
- No herbicides will be used on NFS and LLR lands unless authorized in writing in advance by the CNF and the LLBO.
- Clearing equipment does not normally cause excessive soil disturbance in upland areas. For wetland areas, low ground pressure equipment (ATVs and the like) will be utilized or clearing will occur in winter when soils are frozen.
- Routine clearing activities will not be conducted between April 15 and August 1 to avoid potential disturbance to wildlife nesting activities.
- Impacts to visual screening of sensitive feature crossings shall be minimized.
- Steep slopes and slopes leading to water bodies will be cleared by hand, leaving adequate herbaceous or low shrub cover to avoid erosion.

General Environmental Protection Measures (refer to Section 3):
- General Measures
- Road Protection Measures
- Erosion and Sediment Control (if applicable)
- Streams and Wetlands
- Spill Containment and Countermeasure
- Control of Invasive and/or Noxious Plants

2.2.8 Pipe and Pipe Coating Inspection and Repair:

Description: Enbridge maintains several systems to protect and maintain the integrity of the pipeline. Sophisticated inspection tools monitor both the interior and exterior of the pipelines. When data from these inspections indicate a change or anomaly, that requires a closer look, a maintenance dig is performed to physically examine the integrity of the pipe segment and determine if a repair or other action is needed. The pipeline is subject to regulation under PHMSA standards and pipeline integrity testing is performed regularly as part of Enbridge’s integrity program. There are 6 separate lines located in the ROW within the CNF and LLR. In 2017 Enbridge is currently planning on 7 inspection tool runs through pipelines within the CNF and LLR and 11 inspection tool runs are scheduled to run through pipelines within the CNF and LLR in 2018. The actual number of tool runs for 2017 and 2018 may vary based upon various factors. Surveys of these systems and pipeline inspections will occasionally identify areas where physical inspection of the pipe or its coating is required. Such work requires that heavy equipment, such as a backhoe, access the site and excavate a ditch approximately 20 feet wide (to safely allow worker access), by about eight feet deep along the length of the pipe segment needing inspection. If coating problems are identified, the old coating is removed via scraping and sandblasting, and new coating applied. If the pipe itself is in need of repair, Enbridge may weld sleeves onto the pipeline, or in some cases remove defective sections and install a new section of pipe. The inspection and repair criteria follow strict DOT and industry standards.

There are seven steps to the execution of a maintenance digs:

- **Marking the dig site** - Temporary markers identify the access route and location of the excavation. The area is stripped of topsoil, which is stored separately from the subsoil.
- **Excavation** - Using machinery such as a backhoe, the subsoil surrounding the pipeline is carefully removed and stockpiled.
Cleaning and coating removal - A crew cleans the pipe and removes its protective coating to prepare for a detailed visual inspection.

Inspection - Qualified technicians inspect the pipe to determine if repairs are required.

Maintenance and repair - If needed, repairs are made to the exposed section of pipe. These range from cleaning, to halt early signs of corrosion, to replacing sections of pipe. Once this work is complete, welds are tested and the section inspected to ensure repairs meet government and industry standards.

Recoating - Once the pipe is repaired, it is recoated to protect against corrosion from water and soil.

Backfill and cleanup - The excavation is backfilled and the affected landscape restored. Depending on the time of year the work is completed, restoration may have to wait. The site will be monitored after project completion and additional restoration may be performed to fully restore the landscape.

Inspection and repair excavations less than 200 continuous feet are considered Minor Disturbance Activities for purposes of the O&M Plan. Those greater are considered Disturbance Activities.

Potential Environmental Impacts:
- Soil disturbance from equipment traffic and excavation work
- Mixing of topsoil
- Erosion and sedimentation
- Spread of invasive and/or noxious plants

Activity Specific Construction Techniques and Mitigation Measures:
- Access work area from existing Forest Service or public roads and down the right-of-way in consideration of shortest distance and impact. Alternate access, such as a forest trail or abandoned railroad grade, if feasible, may be requested in situations to lessen environmental impact and/or shorten the access route. Any alternate access will be subject to CNF and LLBO review and approval.
- Limit area of impact to the extent possible, and within the existing pipeline right-of-way.
- Sandblasting residual may be left in the excavation site if it is not greater than 5 cubic yards per 40 foot section of pipe cleaned. Coating waste should be removed from wetlands and areas where the water table is present in the ditch. The sandblasting material must be a type which has been evaluated by the Minnesota Pollution Control Agency (e.g., Black Beauty or Black Jack).
- Assure erosion control measures are installed and maintained as needed.
- Implement site restoration measures, recognizing seeding windows or other time/season constraints, and provide follow-up monitoring to assure proper restoration and successful revegetation (refer to Section 3).

General Environmental Protection Measures (refer to Section 3):
- General Measures
- Road Protection Measures
- Control of Invasive and/or Noxious Plants
- Erosion and Sediment Control
- Streams and Wetlands
- Dewatering
2.3 Disturbance Activities

When Enbridge is planning work which may be considered a Disturbance Activity, Enbridge will consult with CNF and LLBO and provide project information outlined in Section 1 including description, location, timing, potential environmental impacts, activity specific construction techniques, mitigation measures and general environmental protection measures. CNF, LLBO, and Enbridge can work toward developing a coordinated timeline. Many Disturbance Activities will also likely require that Enbridge obtain additional environmental permits or approvals.

- **Advance Notification:** Enbridge will provide the CNF Permit Administrator and LLBO with an advanced notification.

- **CNF and LLBO Approval:** Once notification is received, a coordinated timeline will be developed.

Sections 2.1 and 2.2 are descriptions of routine maintenance activities necessary to operate a crude oil transmission pipeline. Described below are activities requiring more intensive environmental review and planning:

- **Major Pipe Coating Inspection and Repair Programs.** Major pipe coating inspection and repair may require excavation of continuous pipeline segments in excess of 200 feet and may involve excavation or use of workspace outside the permanent right-of-way. Activities outside the permanent right-of-way require a Temporary Special Use Permit.
  - Installation of a New Valve or Other Aboveground Facility on CNF and LLR Land.
  - Replacement of Pipe Exceeding 200 feet.
  - New Pipeline or Station Construction. Work of this magnitude triggers a more intensive environmental review requiring other agency, tribal, and individual property owner involvement. Enbridge would allow for the permitting process accordingly; and
  - In-Stream or Other Known Sensitive Work Sites. Operations and maintenance work can have the potential to directly impact streams or other particularly sensitive features. These activities may require other agency and tribal environmental review, consulting and permitting, triggering the Disturbance Activity category.

2.4 Extraordinary Activities (Emergencies)

Extraordinary Activities require an immediate attention or with the next several days to ensure continued safe operation of the pipeline. The CNF and LLBO will be notified and apprised of the Extraordinary Activity; however, the maintenance activity will be performed to maintain the integrity of the pipeline. To avoid confusion, it should be clear that pipeline integrity inspection results can trigger Routine or Extraordinary Activities dependent upon the amount of metal loss, position of dents discovered, and other factors effecting pipeline integrity.
Enbridge Energy’s Emergency Hotline 1-800-858-5253

In the event of an emergency along the pipeline system, Enbridge is prepared to rapidly respond, and to coordinate with relevant agencies to protect public health and the environment. An emergency is defined here as a pipeline rupture, integrity inspection indication results, or any other symptom that may cause an imminent risk to human health or the environment.

In the event an emergency situation occurs within NFS and LLR lands, the CNF Permit Administrator and LLBO Department of Public Safety will be notified and apprised of the situation within 8-hours of taking remedial action. Enbridge will implement procedures within the O&M Plan as feasible during emergency response activities and, via consultation with CNF and LLBO, will work to address environmental concerns, including those that may arise during post-emergency activities, restoration, and follow-up. The CNF and the LLBO will be copied on written correspondence with relevant state and federal regulatory agencies regarding the extraordinary activity.

The following website is available for a spill responder person to use for access to Enbridge’s Emergency Response Action Plan: http://www.emergencyresponderinfo.com/ER-Plans. Request for access to the website can be made by following the link provided.

In addition to Enbridge’s standard procedures for emergency response along the pipeline, there is also a Tactical Response Plan along Cass Lake including nearby Pike Bay and Alleys Bay. The purpose of the Tactical Response Plan is to provide Enbridge with a response plan to provide the necessary information to respond quickly and effectively to an incident, at or near the pipeline crossing along Cass Lake. The Tactical Response Plan is developed to maximize the protection of the public’s health and safety, and environmentally sensitive areas that could potentially be affected.
Section 3

ENVIRONMENTAL PROTECTION – STANDARD MEASURES

This section describes BMP’s that Enbridge and/or its contractors will implement for operations and maintenance work within the CNF and LLR. The principles and practices contained herein help ensure environmental protection and regulatory compliance. It must also be recognized that each project is unique and site specific, therefore implementation of these BMP’s must be tailored to project-specific circumstances such as the local setting, scale of the proposed work, and CNF, and LLR or other regulatory requirements.

The standard environmental protection measures are organized into the following sections:

3.1 General Measures
3.2 Road Protection Measures
3.3 Control of Invasive and/or Noxious Plants
3.4 Erosion and Sediment Control
3.5 Streams and Wetlands
3.6 Trench Dewatering
3.7 Permanent Erosion Control and Site Restoration
3.8 Spill Containment and Countermeasure

3.1 General Measures

Protection of the environment, compliance with regulatory requirements, and maintaining good relations with land managing agencies are of utmost importance to Enbridge. Through careful planning and proper implementation of protective measures and BMP’s these goals can be met. Toward this end, Enbridge will:

- Contact the CNF and LLBO in advance of projects as specified in Section 2 and Table 2. Advise the CNF Permit Administrator and the LLBO on the scope of the work;

- For minor disturbance and disturbance activities, if requested Enbridge will designate an environmental representative or inspector who will monitor O&M activities in the field for compliance with this O&M Plan. If an activity will cause environmental damage the environmental representative or inspector will have the authority to stop the activity until the corrective actions can be implemented;

- Identify and obtain necessary regulatory permits and approvals;
Provide the Leech Lake Band of Ojibwe a written notification of the proposed work at the following address:

Director of Resource Management  
Leech Lake Band of Ojibwe  
6530 Hwy 2 NW  
Cass Lake, MN 56633

Leave work sites in an organized and safe manner at the end of each workday;

Trash and construction waste should be collected and contained on a daily basis. Wastes must be properly stored and disposed in accordance with applicable regulations and at approved solid waste facilities. In no case are wastes to be left along the right-of-way or buried in the trench. Consult Enbridge's Waste Management Plan and the Environment Department staff for further information if particular waste management issues arise;

By the request of CNF or LLBO, Enbridge or its Agent will monitor the success of the restoration sites. Monitoring of these sites will be a communal effort between CNF/LLBO/Enbridge.

Conduct work within Enbridge’s right-of-way. Since right-of-way widths may vary tract to tract, Enbridge will verify this information in advance. In the event the proposed activity cannot be accomplished in the right-of-way a Variance, Temporary Special Use Permit or Approval will be needed;

If requested, Enbridge will clearly stake and flag the limits of the right-of-way and any approved extra workspace, if utilized, in the field prior to initiating work; and

Access of the maintenance area will be by use of existing federal, state, and local roads, unless approved by the CNF and LLBO. All access roads will be restored to their pre-maintenance condition. Road modifications such as blading, filling, and widening of curves will not be allowed unless specifically approved by the CNF and LLBO in writing, and is in concurrence with the Tribal Historic Preservation Officer (THPO).

As a reference to this section, schematics detailing Operations and Maintenance BMP’s are presented in Appendix C.

3.2 Road Protection Measures

3.2.1 Equipment Transportation:
Tracked vehicles used on O&M projects will be transported to the work site on rubber-tired trailers. At paved road crossings, tracked vehicles will cross on rubber mats, tires, plywood sheets, steel plates, or similar protective materials to prevent damage to the road surface.
3.2.2 Erosion Control:
Where applicable, temporary sediment barriers will be installed at the base of slopes adjacent to roads to minimize the possibility of sedimentation to the roadway. Ingresses and egresses to the right-of-way will be maintained in a condition which will minimize the potential for tracking mud onto the roads. Where relevant, a combination of any or all of the following – matting, culvert installation, or crushed stone pads placed on geotextile fabric, will be installed at access points. If excess mud is tracked onto a roadway, it will be shoveled off as soon as possible and placed in a sediment containment area.

3.2.3 Road Closures:
If it is necessary to temporarily close roads during O&M activities, the following measures will be used. Roads will be identified by road signs and barricades which indicate detours and closings. “Road Closed Ahead” and “Detour Ahead” signs will be placed on the roadside at nominal 500 foot intervals beginning 1,500 feet from the closure and detour intersection. Detour signs will be used as needed to clearly identify the detour route. If the road must remain open for residential access, then a “Road Closed to Thru Traffic” sign will be used at the barricade location. Barricades left in place during nighttime hours will be equipped with reflectors and warning lights. Signs and barricades will be removed shortly after the maintenance activity has been completed.

In general, the amount of time needed to cross a road and restore it to its original condition will be limited to 24 hours. Road closure extensions to 48 hours may be approved by the CNF and the LLBO on a case-by-case basis. At roads that provide access to private land within the CNF and LLR, private landowners will be notified of the proposed schedule for road closures, and bringing equipment, such as steel plates, will be available at the work site to allow landowner passage, if requested.

In the event of an emergency, state and local emergency responders (local police, fire department, medical as well as the Leech Lake Department of Public Safety) will be provided 72 hours advanced notice of road closure. In all other instances (non-emergency), a two-week advance notice will be issued to the Leech Lake Department of Public Safety.

3.3 Control of Invasive and/or Noxious Plants
Use of the pipeline corridor for maintenance purposes may increase the establishment of invasive and/or noxious plants and the continued spread of established weed populations. A list of pipeline O&M terrestrial noxious and invasive plants is included on Table 6. Construction equipment from areas outside the local community as well as unauthorized vehicle use may act as vectors for the spread of invasive and/or noxious plants. As such, during the CNF review process for Minor Disturbance and Disturbance Activities, Enbridge requests the CNF advise on the presence of invasive and/or noxious plants in the area(s) to be disturbed, and as necessary, field locate the plants of concern. If invasive and/or noxious plants are present, the following measures will be taken: Enbridge will be required to remove invasive and/or noxious plant populations prior to maintenance to avoid seed development and dispersal; this can be done by burning or mowing. Enbridge will be required to clean construction equipment before it is used in the project area or when traveling from an area of known invasive and/or noxious plant populations to another area where such populations do not exist.
During restoration and stabilization of work areas, invasive and/or noxious plants could also be introduced to the project area by the seed used for revegetation, or in straw mulch or straw bales used for erosion control. In order to avoid the introduction of invasive and/or noxious plants, weed-free straw will be used for mulching and erosion control, and weed-free seed will be used during revegetation. Questions about invasive and/or noxious plants can be directed to the Enbridge Superior Region environmental contact listed in Appendix B.

3.4 Erosion and Sediment Control

3.4.1 Topsoil Segregation:

Topsoil segregation may be an important aspect of work requiring excavation. It is also usually the first soil disturbance to occur and hence erosion control measures must begin.

Topsoil is an important resource to conserve, and also improves the potential for establishing good vegetative cover upon completion of work. When topsoil is greater than 2-inches thick, to prevent mixing with subsoil during construction the topsoil will be stripped in areas that will be excavated or significantly disturbed. The following guidelines should be followed:

- Attempt to strip topsoil to the depth it is present. In some areas, topsoil may be only a few inches thick while in others areas it may exceed two feet or more. Check the depth in the field by shovel or with machinery dug test pits;

- There is generally a visible change in color and texture between topsoil and subsoil. Proper removal of topsoil is usually apparent when the colors of both topsoil and subsoil become visible in approximately equal proportions as topsoil is bladed off by equipment;

- Topsoiling methods include 1) trench line only; 2) ditch plus spoil side; and 3) full right-of-way;

- Trench line only is recommended in non-agricultural areas or areas with a heavy sod layer that facilitates separation and recovery of topsoil when ready to backfill;

- Trench line only is required in wetland areas where stripping is feasible (e.g. where soils are firm enough); and

- Topsoil piles must be well separated from subsoil piles; the base of the piles should be three feet or more apart.

3.4.2 Temporary Erosion Control Measures:

Temporary erosion control measures include temporary slope breakers, sediment barriers, and mulch. Each of these controls is described below. A few key principles apply in all cases for temporary control measures:
They must be properly installed;
They must be installed immediately after initial disturbance;
They must be reinstalled where required (such as after backfill);
They must be inspected and properly maintained throughout construction until permanent erosion control is established and/or restoration is complete.

**Temporary Slope Breakers:**

Also known as temporary berms, diversion berms, or water bars, these act to divert water away from disturbed areas and to reduce runoff velocities down steep slopes. Typical materials for construction include soil berms, sand bags, silt fence, or staked hay bales. Temporary slope breakers should be installed in general accordance with the following the following spacing:

<table>
<thead>
<tr>
<th>Slope %</th>
<th>Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-15</td>
<td>300</td>
</tr>
<tr>
<td>15-30</td>
<td>200</td>
</tr>
<tr>
<td>&gt;30</td>
<td>100</td>
</tr>
</tbody>
</table>

Site specific conditions such as highly erodible, sandy soils may warrant a more frequent spacing for slope breakers.

Temporary slope breakers are illustrated in Appendix C and should be constructed according to the following specifications:

- Soil berms are to be installed with a two to eight percent outslope, with a four foot base and a height of 1.5 feet;
- Soil berms are to be constructed of compacted earth (not topsoil, except for surface of permanent berms);
- The outfall of temporary slope breakers should be directed toward appropriate energy dissipating devices (e.g., well vegetated area, silt fence, rock apron), and off the construction area if possible; and
- Slope breakers are to be regularly inspected and maintained as necessary.

If the length of the slope is less than the distance of the required spacing noted above, no slope breakers are required.

Berms are also effective control measures in the following areas:

- Immediately above disturbed areas to prevent upslope runoff from reaching the site; and
- At the base of slopes leading to streams or wetlands to contain and divert runoff and sediment.

**Temporary Sediment Barriers:**

Temporary sediment barriers act to stop the flow of sediment. Typical materials include silt fences or staked hay bales, and are illustrated in Appendix C. Temporary sediment barriers should be installed as follows:
At the base of approaches to streams and wetlands;
- Between the edges of the disturbed area and water bodies;
- At other sloped areas with water bodies downslope;
- At the base of sloped approaches to road crossings; and
- As necessary to hold sediment on site.

Sediment barriers must be regularly inspected (typically weekly and within 24 hours of significant rainfall). When the depth of sediment reaches 1/3 of the height of a sediment barrier, the barrier will be replaced and/or the sediment removed. Ineffective sediment barriers will be promptly repaired or replaced (within 24 hours upon discovery). Sediment barriers will be removed from an area when it is successfully restored.

Finally, it should also be noted that undisturbed vegetation acts as an effective sediment barrier. Wherever possible, leave a buffer of undisturbed vegetation between disturbed areas and potential receptors of off-site sediment (water bodies, wetlands, roads, etc.).

**Mulch:**
Mulch acts to stabilize the soil surface. Mulch does not prevent flow, but does limit soil movement and the availability of soil to enter runoff. Typical materials include straw or hay, or erosion control fabrics such as “curlex” or jute blanket.

When required, the typical location and application rates for mulch include:
- Before seeding if final clean-up will be delayed longer than 10 days or if construction is interrupted for extended periods;
- All slopes within 100 feet of wetlands and waterbodies at a rate of 2-3 tons per acre;
- Other locations as needed at 2 tons per acre to cover >75% of the ground surface; and
- Slopes >8%.

Mulch should be crimped or otherwise anchored, and erosion control fabric will be installed on recontoured stream banks and other steep slopes. The fabric will be properly anchored according to manufacturer's specifications.

### 3.5 Streams and Wetlands

The requirements and procedures covered in this document provide guidance for work near streams, and in and near wetlands.

**General:**
- No equipment is to be washed or lubricated within 100 feet of streams or wetlands;
- Maintenance crews will have sufficient supplies of absorbent and barrier materials on-hand to allow the rapid containment and recovery of any spills;
- Use sediment barriers, installed across the full width of the right-of-way parallel to the stream or wetland immediately after clearing as described in Section 3.4 and Appendix C. Straw bales
located across the active portion of the work area may be removed during the day when work is being conducted, will be replaced each night to prevent the flow of spoil into a stream;
  o Follow dewatering measures outlined in Section 3.6;
  o The guidelines in Section 3.8 under “Spill Prevention, Containment, and Countermeasures” will be followed;
  o Use trench plugs at stream and wetland crossings to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody. Trench plugs must be of sufficient size to withstand upslope water pressure.

**Wetlands:**
Due to the typically unstable nature of soils in wetlands, and to preserve wetland hydrology and function, special practices are necessary for some operations and maintenance activities.
  o To avoid excessive disruption of wetland soils, topsoil segregation will be limited to the area over the proposed excavation and stored separately from the subsoil. Where topsoil segregation is generally not possible in exceedingly unstable or inundated wetlands - cut vegetation and trees off at ground level, leaving root systems intact and remove from the wetland;
  o If the right-of-way is stable, work can proceed as in upland areas. If the surface is unstable such that rutting, soil compaction or soil mixing may occur, low ground pressure equipment will be used or construction equipment will be operated from timber mats or temporary timber rip-rap (which will be removed upon completion of the work);
  o Equipment passage through wetlands will be limited to only the amount necessary to complete the O&M activity;
  o Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries, where topographic conditions permit. If topographic conditions do not permit a 50 foot setback, these areas must be at least 10 feet from the wetland’s edge.
  o Up to 12 inches of topsoil is to be segregated where feasible to enhance natural revegetation;
  o If trench dewatering is required, discharge must prevent heavily silt laden waters from entering adjacent wetlands. Use geotextile filter bags or a hay bale structure, or discharge the water into an adjacent well-vegetated upland (refer to the figures in Appendix C). If discharge reaches a surface water body, contact Enbridge’s Environment Department to implement the requirements in the NPDES Permit;
  o Restore original contours during cleanup and restoration. Return segregated topsoil to the original horizon. No crown is to be left over the trench. However, in winter, crowning is typically required due to frozen soil conditions and final grading may occur as weather permits;
  o Make an effort to complete all work, clean-up and restoration as quickly as possible;
  o Wetlands generally revegetate naturally. If no standing water is present, annual ryegrass may be planted at a rate of 40 pounds per acre. No fertilizer or lime should be applied in wetlands.

### 3.6 Trench Dewatering

Trench dewatering will be conducted in a manner such that no heavily silt-laden water flows into streams, wetlands, or other water bodies ("heavily silt-laden" means in general terms, that you can see settling of sediment after a few minutes in a clear glass jar). As a means to minimize the suspended solids in the dewatering effluent, the pump intake can be placed in a sump in the bottom of the trench. Another effective option is to install well points around the site to intercept groundwater
prior to entering the trench. Well point discharges typically have far lower suspended solid levels compared to direct trench dewatering.

Discharges will be directed to a well-vegetated upland area, as practicable, with an appropriate energy dissipation device (such as a sheet of plywood). If vegetation is sparse and/or discharge is near a stream or wetland, discharge should be directed to a sediment filter bag or a hay bale dewatering structure. In winter, discharges may also be directed to snow berms. Whenever possible, the point of discharge should be directed well away from any streams or wetlands, with the exception of dewatering discharges from wetlands which may be returned to the same wetland if permitted by the regulatory agency. Dewatering structures and techniques are illustrated in the figures in Appendix C.

3.7 Permanent Erosion Control and Site Restoration

Permanent soil erosion and sediment control, and site restoration should begin as soon as possible upon completion of the work. Extraneous debris must be removed. This includes trash, excess rock, timber, slash, and other construction debris. Timber and slash will be disposed of in accordance with CNF and LLBO direction. Final grading should restore pre-construction contours, topsoil and drainages, unless directed otherwise by the CNF and LLBO. A crown may be left over the trench in upland areas (not wetlands).

After final grade, slopes are to be stabilized with erosion control structures as necessary to ensure long-term restoration and stability. These can include the following:

- Permanent slope breakers (berms) installed according to the design and spacing provided previously for temporary slope breakers;
- Berms, erosion control fabric, rip-rap, mulch and other measures installed as necessary on stream banks and sloped approaches to streams and wetlands (see previous section on Streams and Wetlands);
- Drainage ditches and intermittent streams restored with erosion control blanket on slopes over 30%;
- Banks and slopes prepared and seeded with appropriate seed mixes as soon as possible; apply erosion control blanket or mulch after seeding; and
- Shape swales so the bottom is flat. Previously vegetated swales are to be seeded and mulched.
- Compacted soils should be tilled or chisel plowed to loosen and increase water infiltration. Grading and tilling should be conducted with the contour to minimize downslope channeling.
- As with temporary control measures, permanent erosion control features must be inspected and maintained as necessary. The success of revegetation should also be monitored and corrective measures taken if results are poor.
- The figures in Appendix C illustrate typical erosion control measures applied during final site cleanup and restoration.
- Seeding, planting, fertilizing, and other steps to restore vegetative cover are extremely important, and should be implemented as outlined below. The seedbed is to be prepared using a disk, cultivator, drag, rake, or other equipment to loosen the soil. Seed will be applied uniformly at rates specified by the CNF approved seed mix provided in Table 5, and incorporated into the top one inch of soil. A seed drill is a preferred method for seeding larger areas. If broadcast or
Hydoseeding is used, seed will be applied at double the recommended rate. The seeding window for the permanent seed mix is April 1 – September 1. No soil amendments will be used. If seeding is outside the timing window for the permanent mix, a temporary cover, such as annual oats or cereal rye will be planted. The following permanent seed mix is specified for use on NFS and LLR lands within the CNF and LLR:

- For unsaturated wetlands, seeding will consist of either annual oats or rye at a rate of 40 pounds per acre. For saturated wetlands, no seeding will be conducted and the area will revegetate with the seed bank present in the soils. No fertilizer or soil amendments will be applied in wetlands.
- Temporary cover will be seeded with 80 pounds per acre (drilled rate) of annual oats or rye. No oil amendments will be used with the seeding of temporary cover. Where broadcast or hydoseeding is used, the drilled rate will be doubled.
- Permanent revegetation of the right-of-way after winter work will be accomplished by dormant seeding of winter wheat or seeding during the next growing season.

### 3.8 Spill Prevention and Containment Plan

Many activities require the use of heavy equipment and hazardous materials on the right-of-way. Where heavy equipment or hazardous materials are used, Enbridge will be required to follow the measures outlined in this section.

Potential sources of spills include tank leaks, machinery and equipment failure, and fuel handling and transfer operations. To prevent spills from occurring, all workers handling fuels and other regulated substances will be competent to follow spill prevention procedures. Furthermore, all workers who handle fuels and other regulated substances will be competent to quickly and effectively contain and cleanup spills.

**Spill Response Equipment:**

Where heavy equipment and/or hazardous materials are used on O&M projects, each work crew will be supplied with spill response kits containing a sufficient quantity of absorbent and barrier materials to adequately contain and recover foreseeable spills. These kits may include, but are not limited to: drip pans, buckets, absorbent pads, containment booms, straw bales, absorbent clay, sawdust, floor-drying agents, shovels and spill containment barriers. Also, tools and materials to stop the flow of leaking tanks and pipes will be kept on site. Such equipment includes, but is not limited to: plugs of various sizes, a hammer, assorted sizes of metal screws with rubber washers, a screwdriver, and plastic tape. Plastic sheeting will also be available for placing below and on top of temporarily stored contaminated soils and materials. All on-site personnel will be informed of the locations of spill control equipment and materials, and will have them readily accessible during O&M activities.

**Construction Equipment Inspection:**

Hoses, pipes, valves, and tanks will be regularly inspected for leaks and deterioration. Deterioration or leaks that are identified will be fully repaired prior to resuming use of the equipment on the project.

**Storage of Petroleum Products:**

The logistics of pipeline O&M may at times require temporary storage of fuels and other petroleum products at a work site. Prior to O&M activities, areas in which aboveground petroleum storage tanks may be established will be identified.
Fuels, lubricants, waste oil, and any other regulated substances will be stored in aboveground tanks only. Storage tanks and containers will conform to all applicable industry codes. A secondary containment structure in the form of sand bags, straw bales, or earthen dikes will be constructed and utilized at each fuel storage site. These structures will provide a containment volume equal to 150 percent of the volume of the largest storage vessel and provide at least one foot of freeboard. Earthen containment dikes will be constructed with slopes no steeper than 3:1 (horizontal to vertical) to limit erosion and provide structural stability. Secondary containment areas will be lined with seamless plastic sheeting and will be compatible with the material stored. Secondary containment areas will not have drains. If the secondary containment area is visibly free of contaminants and sheen, precipitation may be drawn off as necessary and sprayed on the surrounding area.

Vehicle maintenance wastes will be stored and disposed of in accordance with applicable environmental regulations. In addition, materials containing oils, fuels, and other regulated substances (e.g., rags, filters) will be stored and disposed of in accordance with applicable environmental regulations. Material Safety Data Sheets will be available for all hazardous materials.

**Refueling:**

If fuel handling or transfer is necessary during an O&M project, fuels will be dispensed by authorized personnel during daylight hours only in upland areas that are more than 100 feet from wetlands and waterbodies. Fuel dispensing operations will not be left unattended. Tanker trucks transporting fuel to on-site equipment will travel only on approved access roads and the permanent right-of-way.

Portable equipment may be refueled in wetlands using sealed containers with a capacity of no more than 5 gallons. Only the amount of fuel needed to refuel heavy equipment, up to a maximum of 300 gallons, will be allowed to enter wetlands or other sensitive refueling areas. Absorbent materials will be placed directly below the refueling operation to contain any drips or small releases that may occur.

**Spill Containment and Cleanup:**

In the event of a spill, the source of the spill will be identified and contained immediately. Spill sites will be evacuated as necessary to safeguard human health. Evacuation parameters will include consideration for the potential of fire, explosion, and hazardous gases. Flowing spills will be contained and/or absorbed before reaching surface waters or wetlands. Absorbent material(s) will be placed over spills to minimize spreading and to reduce its penetration into the soil. For large spills on land, pooled material will be pumped into tank trucks as soon as possible. Workers or, if necessary, an emergency response contractor will excavate all contaminated soil. The spilled material and the contaminated soil will be treated and disposed of in accordance with all applicable federal, state, and local requirements. Smaller spills on land will be cleaned up with absorbent materials. Contaminated soil or other materials associated with these releases will also be collected and disposed of in accordance with applicable regulations.

For spills on surface waters and/or in inundated wetlands, floating booms and skimmer pumps will be used to contain and recover released materials. Noticeably contaminated soils on stream banks and in wetlands will be excavated and placed on and covered by plastic sheeting in bermed areas away from the area. For reportable spills in wetlands or water bodies, the National Response Center and CNF Permit Administrator will be notified. An emergency response contractor will be secured to further contain and clean up the spill.
Contaminated Materials:
All contaminated soils, absorbent materials, and other wastes will be disposed of in accordance with all applicable federal, state, and local regulations.

Spill Notification:
In the event of a large spill, Enbridge will report the spills as required to appropriate federal, state, and local agencies as soon as possible. These may include, but are not limited to the following:

- National Response Center (Washington, DC), Phone: (800) 424-8802 (24 hours)
- LLBO Division of Resources Management, Phone: (218) 335-7400 or 1-800-442-3942
- Department of Public Safety - Phone: (888) 622-9225 or (218) 335-8277
  
  DRM Director (Cass Lake, MN) Phone: (218) 335-7410 or (218) 252-9265(cellular phone)
  DRM Environmental Director (Cass Lake, MN), Phone: (218) 335-7417 or (218) 308-0806 (cellular phone)

- CNF Permit Administrator, Phone: (218) 546-3109
- CNF Lands Program Manager, Phone: (218) 335-8661

- Minnesota Pollution Control Agency, Phone: (612) 649-5451 or (800) 422-0798
This information is to be updated by the Leech Lake Band of Ojibwe and the Chippewa National Forest.

<table>
<thead>
<tr>
<th>Milepost</th>
<th>Type</th>
<th>Buffer (feet)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>952 to 958.38</td>
<td>Bike Trail</td>
<td>None</td>
</tr>
<tr>
<td>953.94 to 968.95</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>954.12</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>954.14</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>954.28</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>956</td>
<td>Pike Bay Channel</td>
<td>50</td>
</tr>
<tr>
<td>958.13 to 954.16</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>961.8</td>
<td>Raptor</td>
<td>1320</td>
</tr>
<tr>
<td>963.5</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>963.64**</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>964</td>
<td>Sucker Lake Creek</td>
<td>50</td>
</tr>
<tr>
<td>966.1**</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>967</td>
<td>Raptor</td>
<td>1320</td>
</tr>
<tr>
<td>967.4</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>967.58**</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>967.65**</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>967.9</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>968.46</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>968.5</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>968.69</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>968.8</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>968.88 to 968.95</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>974 (2 sites .8 mi. west of Bena)</td>
<td>Plant</td>
<td>500</td>
</tr>
<tr>
<td>975</td>
<td>Six Mile Lake Creek</td>
<td>50</td>
</tr>
<tr>
<td>979</td>
<td>Nushka</td>
<td>50</td>
</tr>
<tr>
<td>982.4</td>
<td>Bird</td>
<td>1320</td>
</tr>
<tr>
<td>982.6</td>
<td>Bird</td>
<td>1320</td>
</tr>
<tr>
<td>982.8</td>
<td>Bird</td>
<td>1320</td>
</tr>
<tr>
<td>983.4</td>
<td>Bird</td>
<td>1320</td>
</tr>
<tr>
<td>986</td>
<td>Mississippi River</td>
<td>50</td>
</tr>
</tbody>
</table>

*Buffer applies both up and downstream

**Outside or adjacent to corridor
## Table 2
Pipeline O&M Maintenance Notification Requirements
Chippewa National Forest

<table>
<thead>
<tr>
<th>Activity</th>
<th>Disturbance Criteria</th>
<th>CNF Comment Time</th>
<th>Notification Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Maintenance/Housekeeping</td>
<td>No Disturbance</td>
<td>No Comment Necessary</td>
<td>No</td>
</tr>
<tr>
<td>&quot;Non-invasive&quot; Integrity Surveys</td>
<td>No Disturbance</td>
<td>No Comment Necessary</td>
<td>No</td>
</tr>
<tr>
<td>Washing and Painting Existing Facilities</td>
<td>No Disturbance</td>
<td>No Comment Necessary</td>
<td>No</td>
</tr>
<tr>
<td>ATV barrier, Fencing or Other Access Barrier</td>
<td>Minor Disturbance</td>
<td>7 Days*</td>
<td>Yes</td>
</tr>
<tr>
<td>Civil Survey, Close Interval Survey, or Other Right-of-Way Surveys</td>
<td>Minor Disturbance</td>
<td>7 Days*</td>
<td>Yes</td>
</tr>
<tr>
<td>Pipeline Marker and Survey Monument Installation and Repair</td>
<td>Minor Disturbance</td>
<td>7 Days*</td>
<td>Yes</td>
</tr>
<tr>
<td>Cathodic Protection Installation and Repair</td>
<td>Minor Disturbance</td>
<td>7 Days*</td>
<td>Yes</td>
</tr>
<tr>
<td>Minor Installations at Existing Facilities**</td>
<td>Minor Disturbance</td>
<td>7 Days*</td>
<td>Yes</td>
</tr>
<tr>
<td>Routine Right-of-way Clearing and Brushing</td>
<td>Minor Disturbance</td>
<td>7 Days*</td>
<td>Yes</td>
</tr>
<tr>
<td>Sub-Surface Investigations</td>
<td>Minor Disturbance</td>
<td>7 Days*</td>
<td>Yes</td>
</tr>
<tr>
<td>Pipe &amp; Pipe Coating Inspection and Repair Less than 200 feet</td>
<td>Minor Disturbance</td>
<td>7 Days*</td>
<td>Yes</td>
</tr>
<tr>
<td>Major Pipe Coating Inspection and Repair More than 200 feet</td>
<td>Disturbance Activities</td>
<td>Coordinate Timeline</td>
<td>Yes</td>
</tr>
<tr>
<td>Installation of a New Valve or Other Above ground Facility</td>
<td>Disturbance Activities</td>
<td>Coordinate Timeline</td>
<td>Yes</td>
</tr>
<tr>
<td>Installation of New Pipe</td>
<td>Disturbance Activities</td>
<td>Coordinate Timeline</td>
<td>Yes</td>
</tr>
<tr>
<td>Hydrostatic Testing</td>
<td>Disturbance Activities</td>
<td>Coordinate Timeline</td>
<td>Yes</td>
</tr>
<tr>
<td>Environmentally Sensitive Areas</td>
<td>Disturbance Activities</td>
<td>Coordinate Timeline</td>
<td>Yes</td>
</tr>
<tr>
<td>Extraordinary Activities (Emergencies)</td>
<td>Extraordinary Activities</td>
<td>N/A</td>
<td>Contact Permit Administrator within 8 hours of taking remedial action</td>
</tr>
</tbody>
</table>

*If no comment is received from the CNF the project may proceed as planned.
**If within existing right-of-way
Table 3
Pipeline O&M Notification Requirements
Leech Lake Band of Ojibwe

<table>
<thead>
<tr>
<th>Activity</th>
<th>LLBO Response Time</th>
<th>Notification Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Maintenance/Housekeeping</td>
<td>Preapproved</td>
<td>Not subject to Section 106 of NHPA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No notification required</td>
</tr>
<tr>
<td>&quot;Non-invasive&quot; Integrity Surveys</td>
<td>Preapproved</td>
<td>Not subject to Section 106 of NHPA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No notification required</td>
</tr>
<tr>
<td>Washing and Painting Existing Facilities</td>
<td>Preapproved</td>
<td>Notification required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not subject to Section 106 of NHPA</td>
</tr>
<tr>
<td>ATV barrier, Fencing or Other Access Barrier</td>
<td>30 Days</td>
<td>Notification required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Possibly subject to Section 106 of NHPA,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Notification to Tribal members necessary</td>
</tr>
<tr>
<td>Civil Survey, Close Interval Survey, or Other Right-of-Way Surveys</td>
<td>3 Days</td>
<td>Notification required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not subject to Section 106 of NHPA</td>
</tr>
<tr>
<td>Pipeline Marker and Survey Monument Installation and Repair</td>
<td>3 Days</td>
<td>Notification required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not subject to Section 106 of NHPA</td>
</tr>
<tr>
<td>Cathodic Protection Installation and Repair</td>
<td>14 Days</td>
<td>Notification required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not subject to Section 106 of NHPA if within right-of-way*</td>
</tr>
<tr>
<td>Minor Installations at Existing Facilities</td>
<td>3 Days</td>
<td>Notification required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not subject to Section 106 of NHPA</td>
</tr>
<tr>
<td>Routine Right-of-way Clearing and Brushing</td>
<td>30 Days</td>
<td>Notification required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Notification of Tribal Members necessary</td>
</tr>
<tr>
<td>Sub-Surface Investigations</td>
<td>3 Days</td>
<td>Notification required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not subject to Section 106 of NHPA if within right-of-way*</td>
</tr>
<tr>
<td>Pipe &amp; Pipe Coating Inspection and Repair Less than 200 feet</td>
<td>14 Days</td>
<td>Notification required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not subject to Section 106 of NHPA if within right-of-way*</td>
</tr>
<tr>
<td>Major Pipe Coating Inspection and Repair More than 200 feet</td>
<td>Coordinate Timeline</td>
<td>Notification required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not subject to Section 106 of NHPA if within right-of-way*</td>
</tr>
<tr>
<td>Installation of a New Valve or Other Aboveground Facility</td>
<td>Coordinate Timeline</td>
<td>Notification required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not subject to Section 106 of NHPA if within right-of-way*</td>
</tr>
<tr>
<td>Installation of New Pipe</td>
<td>Coordinate Timeline</td>
<td>Notification required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Section 106 of NHPA required</td>
</tr>
<tr>
<td>Hydrostatic Testing</td>
<td>Coordinate Timeline</td>
<td>Notification required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Section 106 of NHPA required</td>
</tr>
<tr>
<td>Extraordinary Activities (Emergencies)</td>
<td>N/A</td>
<td>Contact Leech Lake Band of Ojibwe – Division of Resources Management and the Department of Public Safety Immediately</td>
</tr>
</tbody>
</table>

*If no comment is received from the LLBO the project may proceed as planned.
*Areas outside of the designated right-of-way are subject to consultation under Section 106 of NHPA. Allow for a minimum of 60 days depending on complexity of project.
<table>
<thead>
<tr>
<th>Seed Component</th>
<th>Seed Rate (lbs./acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grasses</strong></td>
<td></td>
</tr>
<tr>
<td>Big Bluestem (<em>Andropogon gerardii</em>)</td>
<td>2</td>
</tr>
<tr>
<td>Indian Grass (<em>Sorghastrum nutans</em>)</td>
<td>2</td>
</tr>
<tr>
<td>Little Bluestem (<em>Schizachyrium scoparium</em>)</td>
<td>1</td>
</tr>
<tr>
<td>Western Wheatgrass (<em>Pascopyrum smithii</em>)</td>
<td>3</td>
</tr>
<tr>
<td>Side Oats Grama (<em>Bouteloua curtipendula</em>)</td>
<td>2.5</td>
</tr>
<tr>
<td>Canada Wildrye (<em>Elymus canadensis</em>)</td>
<td>1.5</td>
</tr>
<tr>
<td>Switch Grass (<em>Panicum virgatum</em>)</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Total Cost per Acre</strong></td>
<td>14</td>
</tr>
<tr>
<td><strong>Forbs</strong></td>
<td></td>
</tr>
<tr>
<td>Common Milkweed (<em>Asclepias syriaca</em>)</td>
<td>0.2</td>
</tr>
<tr>
<td>Wild Bergamot (<em>Monarda fistulosa</em>)</td>
<td>0.2</td>
</tr>
<tr>
<td>Purple Coneflower (<em>Echinacea pallida</em>), Yellow Coneflower (<em>Ratibida pinnata</em>), or Long-Headed Coneflower (<em>Ratibida columnifera</em>)</td>
<td>0.1</td>
</tr>
<tr>
<td><strong>selection will be dependent on availability</strong></td>
<td></td>
</tr>
<tr>
<td>Lance-leaf Coreopsis (<em>Coreopsis lanceolata</em>)</td>
<td>0.2</td>
</tr>
<tr>
<td>Early Sunflower (<em>Heliopsis helianthoides</em>)</td>
<td>0.2</td>
</tr>
<tr>
<td>White Prairie Clover (<em>Dalea candida</em>) or Purple Prairie Clover (<em>Dalea purpurea</em>)</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>selection will be dependent on availability</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total per Acre</strong></td>
<td>1.4</td>
</tr>
<tr>
<td><strong>Cover Crop</strong></td>
<td></td>
</tr>
<tr>
<td>Oats (summer seeding) or Winter Wheat (spring seeding)</td>
<td>16</td>
</tr>
<tr>
<td>Slender Wheatgrass (<em>Elymus trachycaulus</em>)</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total per Acre</strong></td>
<td>20</td>
</tr>
<tr>
<td><strong>O&amp;M Seed Mix Total</strong></td>
<td>35.4</td>
</tr>
</tbody>
</table>

**Enbridge may select a reasonable alternative if seed is not available.
<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Habitat Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birdsfoot Trefoil</td>
<td><em>Lotus corniculatus</em></td>
<td>Open/disturbed upland</td>
</tr>
<tr>
<td>Butter and Eggs</td>
<td><em>Linaria vulgaris</em></td>
<td>Open/disturbed upland</td>
</tr>
<tr>
<td>Canada Thistle</td>
<td><em>Cirsium arvense</em></td>
<td>Open/disturbed upland</td>
</tr>
<tr>
<td>Common Buckthorn</td>
<td><em>Rhamnus cathartica</em></td>
<td>Forest and open/disturbed upland</td>
</tr>
<tr>
<td>Common Reed Grass</td>
<td><em>Phragmites australis</em></td>
<td>Wetland</td>
</tr>
<tr>
<td>Common Tansy</td>
<td><em>Tanacetum vulgare</em></td>
<td>Open/disturbed upland</td>
</tr>
<tr>
<td>Compact Dock</td>
<td><em>Rumex thrysiflora</em></td>
<td>Open/disturbed upland</td>
</tr>
<tr>
<td>Cow Vetch</td>
<td><em>Vicia cracca</em></td>
<td>Open/disturbed upland</td>
</tr>
<tr>
<td>Crown Vetch</td>
<td><em>Coronilla varia</em></td>
<td>Open/disturbed upland</td>
</tr>
<tr>
<td>Garlic Mustard</td>
<td><em>Alliaria petiolata</em></td>
<td>Forest and open/disturbed upland</td>
</tr>
<tr>
<td>Glossy Buckthorn</td>
<td><em>Frangula alnus</em></td>
<td>Wetland and open/disturbed upland</td>
</tr>
<tr>
<td>Greater Celandine</td>
<td><em>Chelidonium majus</em></td>
<td>Forest and open/disturbed upland</td>
</tr>
<tr>
<td>Grecian Foxglove</td>
<td><em>Digitalis lanata</em></td>
<td>Open/disturbed upland</td>
</tr>
<tr>
<td>Japanese Barberry</td>
<td><em>Berberis thunbergii</em></td>
<td>Forest, wetland, open/disturbed upland</td>
</tr>
<tr>
<td>Leafy Spurge</td>
<td><em>Euphorbia esula</em></td>
<td>Open/disturbed upland</td>
</tr>
<tr>
<td>Orange Hawkweed</td>
<td><em>Hieracium aurantiacum</em></td>
<td>Open/disturbed upland</td>
</tr>
<tr>
<td>Purple Loosestrife</td>
<td><em>Lythrum salicaria</em></td>
<td>Wetland</td>
</tr>
<tr>
<td>Siberian Peashrub</td>
<td><em>Caragana arborescens</em></td>
<td>Forest and open/disturbed upland</td>
</tr>
<tr>
<td>Spotted Knapweed</td>
<td><em>Centaurea stoebe</em></td>
<td>Open/disturbed upland</td>
</tr>
<tr>
<td>Wild Parsnip</td>
<td><em>Pastinaca sativa</em></td>
<td>Open/disturbed upland</td>
</tr>
</tbody>
</table>
Appendix A

Special Use Permit
Lakehead Pipe Line Company, Inc., General Partner of Lakehead Pipe Line Co., Limited Partnership of Lake Superior Place, 21 West Superior Street, Duluth, MN 55802

(hereinafter called the Holder) is hereby authorized to use or occupy National Forest System lands, to use subject to the conditions set out below, on the Chippewa National Forest. ___ acres, and/or 28.86 miles and is described below and in Exhibit A and shown on the location map, Exhibit B attached to and made a part of this permit, and is issued for the purpose of:

This permit covers 128.98 acres.右-of-Way for pipelines having the following diameters: 18", 26", 34", 36" and 48" described in Exhibit A and associated appurtenances.

Cathodic Protection Systems at the following locations:
T145N, R28W, Section 25, SESW and T145N, R28W, Section 36, E1/2NW, SWNE
*3,750 feet of cable buried two feet deep (10 feet in width)
*Anodes buried approx. six feet deep
*Cathodic Protection Rectifier

T145N, R30W, Section 18, NESW
*400 feet of cable buried two feet deep (10 feet in width)
*40 Anodes buried approx. 6 feet deep
*Cathodic Protection Rectifier

T145N, R28W, Section 34, NESW
*220 feet of cable buried two feet deep (10 feet in width)
*10 Anodes buried approx. 4 feet deep
*Cathodic Protection Rectifier

The above described or defined area shall be referred to herein as the “permit area”.

TERMS AND CONDITIONS

I. AUTHORITY AND GENERAL TERMS OF THE PERMIT

A. Authority. This permit is issued pursuant to the authorities enumerated at Title 36, Code of Federal Regulations, Section 251 Subpart B, as amended. This permit, and the activities or use authorized, shall be subject to the terms and conditions of the Secretary’s regulations and any subsequent amendment to them.

B. Authorized Officer. The authorized officer is the Regional Forester or a delegated subordinate officer.

C. License. This permit is a license for the use of federally owned land and does not grant any permanent, possessory interest in real property, nor shall this permit constitute a contract for purposes of the Contract Disputes Act of 1978 (41 U.S.C. 611). Loss of the privileges granted by this permit by revocation, termination, or suspension is not compensable to the holder.

D. Amendment. This permit may be amended in whole or in part by the Forest Service when, at the discretion of the authorized officer, such action is deemed necessary or desirable to incorporate new terms, conditions, and stipulations as may be required by law, regulation, land management plans, or other management decisions.
E. **Existing Rights.** This permit is subject to all valid rights and claims of third parties. The United States is not liable to the holder for the exercise of any such right or claim.

F. **Nonexclusive Use and Public Access.** Unless expressly provided for in additional terms, use of the permit area is not exclusive. The Forest Service reserves the right to use or allow others to use any part of the permit area, including roads, for any purpose, provided, such use does not materially interfere with the holder’s authorized use. A final determination of conflicting uses is reserved to the Forest Service.

G. **Forest Service Right of Entry and Inspection.** The Forest Service has the right of unrestricted access of the permitted area or facility to ensure compliance with laws, regulations, and ordinances and the terms and conditions of this permit.

H. **Assignability.** This permit is not assignable or transferable. If the holder through death, voluntary sale or transfer, enforcement of contract, foreclosure, or other valid legal proceeding ceases to be the owner of the improvements, this permit shall terminate.

I. **Permit Limitations.** Nothing in this permit allows or implies permission to build or maintain any structure or facility, or to conduct any activity unless specifically provided for in this permit. Any use not specifically identified in this permit must be approved by the authorized officer in the form of a new permit or permit amendment.

II. **TENURE AND ISSUANCE OF A NEW PERMIT**

A. **Expiration at the End of the Authorized Period.** This permit will expire at midnight on December 31, 2017. Expiration shall occur by operation of law and shall not require notice, any decision document, or any environmental analysis or other documentation.

B. **Minimum Use or Occupancy of the Permit Area.** Use or occupancy of the permit area shall be exercised at least 365 days each year, unless otherwise authorized in writing under additional terms of this permit.

C. **Notification to Authorized Officer.** If the holder desires issuance of a new permit after expiration, the holder shall notify the authorized officer in writing not less than six (6) months prior to the expiration date of this permit.

D. **Conditions for Issuance of a New Permit.** At the expiration or termination of an existing permit, a new permit may be issued to the holder of the previous permit or to a new holder subject to the following conditions:

   1. The authorized use is compatible with the land use allocation in the Forest Land and Resource Management Plan.
   2. The permit area is being used for the purposes previously authorized.
   3. The permit area is being operated and maintained in accordance with the provisions of the permit.
   4. The holder has shown previous good faith compliance with the terms and conditions of all prior or other existing permits, and has not engaged in any activity or transaction contrary to Federal contracts, permits, laws, or regulation.

E. **Discretion of Forest Service.** Notwithstanding any provisions of any prior or other permit, the authorized officer may prescribe new terms, conditions, and stipulations when a new permit is issued. The decision whether to issue a new permit to a holder or successor in interest is at the absolute discretion of the Forest Service.

F. **Construction.** Any construction authorized by this permit may commence by NA and shall be completed by NA. If construction is not completed within the prescribed time, this permit may be revoked or suspended.
III. RESPONSIBILITIES OF THE HOLDER

A. Compliance with Laws, Regulations, and other Legal Requirements. The holder shall comply with all applicable Federal, State, and local laws, regulations, and standards, including but not limited to, the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., the Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq., the Comprehensive Environmental Response, Control, and Liability Act, 42 U.S. C. 9601 et seq., and other relevant environmental laws, as well as public health and safety laws and other laws relating to the siting, construction, operation, and maintenance of any facility, improvement, or equipment on the property.

B. Plans. Plans for development, layout, construction, reconstruction, or alteration of improvements on the permit area, as well as revisions of such plans, must be prepared by a qualified individual acceptable to the authorized officer and shall be approved in writing prior to commencement of work. The holder may be required to furnish as-built plans, maps, or surveys, or other similar information, upon completion of construction.

C. Maintenance. The holder shall maintain the improvements and permit area to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the authorized officer and consistent with other provisions of this authorization. If requested, the holder shall comply with inspection requirements deemed appropriate by the authorized officer.

D. Hazard Analysis. The holder has a continuing responsibility to identify all hazardous conditions on the permit area which would affect the improvements, resources, or pose a risk of injury to individuals. Any non-emergency actions to abate such hazards shall be performed after consultation with the authorized officer. In emergency situations, the holder shall notify the authorized officer of its actions as soon as possible, but not more than 48 hours, after such actions have been taken.

E. Change of Address. The holder shall immediately notify the authorized officer of a change in address.

F. Change in Ownership. This permit is not assignable and terminates upon change of ownership of the improvements or control of the business entity. The holder shall immediately notify the authorized officer when a change in ownership or control of business entity is pending. Notification by the present holder and potential owner shall be executed using Form FS-2700-3, Special Use Application and Report, or Form FS-2700-3a, Request for Termination of and Application for Special-Use Permit. Upon receipt of the proper documentation, the authorized officer may issue a permit to the party who acquires ownership of, or a controlling interest in, the improvements or business entity.

IV. LIABILITY

For purposes of this section, “holder” includes the holder’s heirs, assigns, agents, employees, and contractors.

A. The holder assumes all risk of loss to the authorized improvements.

B. The holder shall indemnify, defend, and hold the United States harmless for any violations incurred under any such laws and regulations or for judgments, claims, or demands assessed against the United States in connection with the holder’s use or occupancy of the property. The holder’s indemnification of the United States shall include any loss by personal injury, loss of life or damage to property in connection with the occupancy or use of the property during the term of this permit. Indemnification shall include, but is not limited to, the value of resources damaged or destroyed; the costs of restoration, cleanup, or other mitigation; fire suppression or other types of abatement costs; third party claims and judgments; and all administrative, interest, and other legal costs. This paragraph shall survive the termination or revocation of this authorization, regardless of cause.
C. The holder has an affirmative duty to protect from damage the land, property, and interests of the United States.

The holder shall be strictly liable (liability without proof of negligence) to the United States for any injury, loss, or damage arising under this authorization. Such strict liability shall be in the amount of $1 million unless the Regional Forester determines at the time of issuance of this authorization that a lesser amount of strict liability is appropriate based upon a risk assessment for the use authorized by this instrument. Liability for injury, loss, or damage to the United States in excess of the prescribed amount of strict liability shall be determined under the general law of negligence.

D. In the event of any breach of the conditions of this authorization by the holder, the authorized officer may, on reasonable notice, cure the breach for the account at the expense of the holder. If the Forest Service at any time pays any sum of money or does any act which will require payment of money, or incurs any expense, including reasonable attorney's fees, in instituting, prosecuting, and/or defending any action or proceeding to enforce the United States rights hereunder, the sum or sums so paid by the United States, with all interests, costs and damages shall, at the election of the Forest Service, be deemed to be additional fees hereunder and shall be due from the holder to the Forest Service on the first day of the month following such election.

E. With respect to roads, the holder shall be proportionally liable for damages to all roads and trails of the United States open to public use caused by the holder’s use to the same extent as provided above, except that liability shall not include reasonable and ordinary wear and tear.

F. The Forest Service has no duty to inspect the permit area or to warn of hazards and, if the Forest Service does inspect the permit area, it shall incur no additional duty nor liability for identified or non-identified hazards. This covenant may be enforced by the United States in a court of competent jurisdiction.

V. TERMINATION, REVOCATION, AND SUSPENSION

A. General. For purposes of this permit, “termination”, “revocation”, and “suspension” refer to the cessation of uses and privileges under the permit.

“Termination” refers to the cessation of the permit under its own terms without the necessity for any decision or action by the authorized officer. Termination occurs automatically when, by the terms of the permit, a fixed or agreed upon condition, event, or time occurs. For example, the permit terminates at expiration. Terminations are not appealable.

“Revocation” refers to an action by the authorized officer to end the permit because of noncompliance with any of the prescribed terms, or for reasons in the public interest. Revocations are appealable.

“Suspension” refers to a revocation which is temporary and the privileges may be restored upon the occurrence of prescribed actions or conditions. Suspensions are appealable.

B. Revocation or Suspension. The Forest Service may suspend or revoke this permit in whole or part for:

1. Noncompliance with Federal, State, or local laws and regulations.
2. Noncompliance with the terms and conditions of this permit.
3. Reasons in the public interest.
4. Abandonment or other failure of the holder to otherwise exercise the privileges granted.

C. Opportunity to Take Corrective Action. Prior to revocation or suspension for cause pursuant to Section V (B), the authorized officer shall give the holder written notice of the grounds for each action and a reasonable time, not to exceed 90 days, to complete the corrective action prescribed by the authorized officer.
D. **Removal of Improvements.** Prior to abandonment of the improvements or within a reasonable time following revocation or termination of this authorization, the holder shall prepare, for approval by the authorized officer, an abandonment plan for the permit area. The abandonment plan shall address removal of improvements and restoration of the permit area and prescribed time frames for these actions. If the holder fails to remove the improvements or restore the site within the prescribed time period, they become the property of the United States and may be sold, destroyed or otherwise disposed of without any liability to the United States. However, the holder shall remain liable for all cost associated with their removal, including costs of sale and impoundment, cleanup, and restoration of the site.

VI. **FEES**

A. **Termination for Nonpayment.** This permit shall automatically terminate without the necessity of prior notice when land use rental fees are 90 calendar days from the due date in arrears.

B. The holder shall pay annually in advance a sum determined by the Forest Service to be the fair market value of the use granted by this authorization. The initial payment is set at $0 for the remainder of the calendar year. Subsequent payments shall be determined by the use of an annual fee schedule. The Forest Service may adjust the amount of payment annually by an appropriate indexing factor to reflect more nearly the fair market value of the use. At certain intervals the Forest Service shall review the fee and adjust the fee as necessary to assure that it is commensurate with the fair market value of the authorized rights and privileges, as determined by appraisal or other sound business management principles.

C. **Payment Due Date.** The payment due date shall be the close of business on January 1 of each calendar year payment is due. Payments due the United States for this use shall be deposited at USDA Forest Service, FILE 71652, P.O. Box 60,000, San Francisco, CA 94160-1652 in the form of a check, draft, or money order payable to “USDA Forest Service.” Payments shall be credited on the date received by the designated Forest Service collection officer or deposit location. If the due date for the fee or fee calculation statement falls on a non-workday, the charges shall not apply until the close of business on the next workday.

D. **Late Payment Interest, Administrative Costs and Penalties.** Pursuant to 31 U.S.C. 3717, et seq., interest shall be charged on any fee amount not paid within 30 days from the date the fee or fee calculation financial statement specified in this authorization becomes due. The rate of interest assessed shall be the higher of the rate of the current value of funds to the U.S. Treasury (i.e., Treasury tax and loan account rate), as prescribed and published by the Secretary of the Treasury in the Federal Register and the Treasury Fiscal Requirements Manual Bulletins annually or quarterly or at the Prompt Payment Act rate. Interest on the principal shall accrue from the date the fee or fee calculation financial statement is due.

In the event the account becomes delinquent, administrative costs to cover processing and handling of the delinquency will be assessed.

A penalty of 6 percent per annum shall be assessed on the total amount delinquent in excess of 90 days and shall accrue from the same date on which interest charges begin to accrue.

Payments will be credited on the date received by the designated collection officer or deposit location. If the due date for the fee or fee calculation statement falls on a non-workday, the charges shall not apply until the close of business on the next workday.

Disputed fees are due and payable by the due date. No appeal of fees will be considered by the Forest Service without full payment of the disputed amount. Adjustments, if necessary, will be made in accordance with settlement terms or the appeal decision.

If the fees become delinquent, the Forest Service will:

- Liquidate any security or collateral provided by the authorization.
If no security or collateral is provided, the authorization will terminate and the holder will be responsible for delinquent fees as well as any other costs of restoring the site to its original condition including hazardous waste cleanup.

Upon termination or revocation of the authorization, delinquent fees and other charges associated with the authorization will be subject to all rights and remedies afforded the United States pursuant to 31 U.S.C. 3711 et seq. Delinquencies may be subject to any or all of the following conditions:

Administrative offset of payments due the holder from the Forest Service.

Delinquencies in excess of 60 days shall be referred to United States Department of Treasury for appropriate collection action as provided by 31 U.S.C. 3711 (g), (1).

The Secretary of the Treasury may offset an amount due the debtor for any delinquency as provided by 31 U.S.C. 3720, et seq.)

VII. OTHER PROVISIONS

A. Members of Congress. No Member of or Delegate to Congress or Resident Commissioner shall benefit from this permit either directly or indirectly, except when the authorized use provides a general benefit to a corporation.

B. Appeals and Remedies. Any discretionary decisions or determinations by the authorized officer are subject to the appeal regulations at 36 CFR 251, Subpart C, or revisions thereto.

C. Superior Clauses. In the event of any conflict between any of the preceding printed clauses or any provision thereof and any of the following clauses or any provision thereof, the preceding printed clauses shall control.

D. Oil and Gas Pipelines. In addition to the annual land rental fee, the holder shall, upon demand, pay to the United States such sums as the Forest Service shall determine to be required to reimburse the United States for all administrative and other costs incurred directly or indirectly by the United States in processing each application, including environmental studies, and in monitoring the construction, operation, maintenance, and termination of the pipeline or related facility or portions thereof. Additional extraordinary costs of monitoring such activities as construction, reconstruction, relocation, restoration and rehabilitation of environmental damage caused by the holder’s activities or by presence of the pipeline or related facility shall be determined by the Forest Service on the basis of actual expenditure and will be paid by holder upon demand.

This stipulation covers reimbursement of administrative costs, as required by Public Law 93-153, and does not cover damages to property of the United States which are covered elsewhere in this permit.

E. Operating Plan. The holder shall provide an Operating Plan. The plan shall be prepared in consultation with the authorized officer or designated representative and cover operation and maintenance of facilities, dates or season of operations, and other information required by the authorized officer to manage and evaluate the occupation and/or use of the National Forest System lands. The provisions of the Operating Plan and the annual revisions shall become a part of this authorization and shall be submitted by the holder and approved by the authorized officer or their designated representative(s). This Operating Plan is hereby made a part of the authorization.

F. Width of Right-of-Way (oil and gas pipeline). The width of the right-of-way is limited to 50 feet plus the ground occupied by the pipeline.


H. Surveys, Land Corners. The holder shall protect, in place, all public land survey monuments, private property corners, and Forest boundary markers. In the event that any such land markers or monuments are destroyed in
the exercise of the privileges permitted by this authorization, depending on the type of monument destroyed, the holder shall see that they are reestablished or referenced in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the county surveyor, or (3) the specifications of the Forest Service.

Further, the holder shall cause such official survey records as are affected to be amended as provided by law. Nothing in this clause shall relieve the holder’s liability for the willful destruction or modification of any Government survey marker as provided at 18 U.S.C. 1858.

I. Revegetation of Ground Cover and Surface Restoration. The holder shall be responsible for prevention and control of soil erosion and gullying on lands covered by this authorization and adjacent thereto, resulting from construction, operation, maintenance, and termination of the authorized use. The holder shall so construct permitted improvements to avoid the accumulation of excessive heads of water and to avoid encroachment on streams. The holder shall revegetate or otherwise stabilize all ground where the soil has been exposed as a result of the holder’s construction, maintenance, operation, or termination of the authorized use and shall construct and maintain necessary preventive measures to supplement the vegetation.

J. Pesticide Use. Pesticides may not be used to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, trash fish, etc., without the prior written approval of the Forest Service. A request for approval of planned uses of pesticides will be submitted annually by the holder on the due date established by the authorized officer. The report will cover a 12-month period of planned use beginning 3 months after the reporting date. Information essential for review will be provided in the form specified. Exceptions to this schedule may be allowed, subject to emergency request and approval, only when unexpected outbreaks of pests require control measures which were not anticipated at the time an annual report was submitted.

Only those materials registered by the U.S. Environmental Protection Agency for the specific purpose planned will be considered for use on National Forest System lands. Label instructions will be strictly followed in the application of pesticides and disposal of excess materials and containers.

K. Oil and Gas Pipeline Authorization. This authorization is issued for a period of 16 years ending on December 31, 2017.

If the right-of-way project or facility is still being used for the purpose(s) previously authorized and is being operated and maintained in accordance with all the provisions of the authorizations, if renewal is allowed under then existing law, and if the use is determined to be consistent with the then existing resource management plans for the affected land, the authorized officer shall renew the authorization for a term he deems to be reasonable under the circumstances.

Abandonment of the right-of-way or noncompliance with any provision of Section 28 of the Mineral Leasing Act, as amended, or terms and conditions of this authorization may be grounds for suspension or termination of same; if (1) after due notice to the holder of the right-of-way, (2) a reasonable opportunity to comply, (3) an appropriate administrative proceeding pursuant to Title 5, United States Code, Section 554, the authorized officer determines that any such grounds exist and that suspension or termination is justified.

If the authorized officer determines that an immediate temporary suspension of activities within the right-of-way or authorized (permit) area is necessary to protect public health or safety or the environment, such activities may be curtailed prior to an administrative proceeding.
L. **Crude Oil Pipelines.** Any domestically produced crude oil transported by the permitted pipeline, except such crude oil which is either exchanged in similar quantity for convenience or increased efficiency of transportation with persons or the government of an adjacent foreign state, or which is temporarily exported for convenience or increased efficiency of transportation across parts of an adjacent foreign state and reenters the United States, shall be subject to all of the limitations and licensing requirements of the Export Administration Act of 1969 (Act of December 30, 1969; 83 Stat. 841). In addition, before any crude oil subject to this section may be exported under the limitation and licensing requirements and penalty and enforcement provisions of the Export Administration Act, the President must make and publish and express finding that such exports will not diminish the total quantity or quality of petroleum available to the United States, is in the national interest, and is in accord with the provisions of the Export Administration Act.

M. **Common-Carrier Operation, Oil and Gas Pipelines.** Pipelines and related facilities authorized herein shall be constructed, operated, and maintained as common carriers. The holder shall accept, convey, transport, or purchase without discrimination, all oil or gas delivered to the pipeline without regard to whether the oil or gas was produced from Federal lands or non-Federal lands. In the case of oil and gas produced from Federal lands or from resources on the Federal lands in the vicinity of the pipeline, The Secretary of the Interior may, after a full hearing with due notice thereof to the interested parties and proper finding of facts, determine the proportionate amounts to be accepted, conveyed, transported, or purchased. Provided, that this stipulation shall not apply to any natural gas pipeline operated by any person subject to regulation under the Natural Gas Act or by any public utility subject to regulation by a State or municipal regulatory agency having jurisdiction to regulate the rates and charges for the sale of natural gas to consumers within the State or municipality. Where natural gas is not subject to State regulatory or conservation laws governing its purchase by pipelines and offered for sale, each such pipeline shall purchase without discrimination any such natural gas produced in the vicinity of the pipeline.

N. **Archaeological-Paleontological Discoveries.** The holder shall immediately notify the authorized officer of any and all antiquities or other objects of historic or scientific interest. These include, but are not limited to, historic or prehistoric ruins, fossils, or artifacts discovered as the result of operations under this authorization, and shall leave such discoveries intact until authorized to proceed by the authorized officer. Protective and mitigative measures specified by the authorized officer shall be the responsibility of the holder.

O. **Superceded Authorization.** This authorization supersedes a special-use authorization designated: CAL4019-01, issued 10/30/1987 and DER4019-02, issued 07/07/1987.

P. **Improvement Relocation.** This authorization is granted with the express understanding that should future location of United States Government-owned improvements or road rights-of-way require the relocation of the holders improvements, such relocation will be done by, and at the expense of, the holder within a reasonable time as specified by the authorized officer.

Q. **Partnership Representative.** The holder shall furnish the authorized officer:
   1. A copy of the articles of a resolution of the partners specifically authorizing one or more of the partners to represent the authorization holder in dealings with the Forest Service if not specified in the articles of partnership.
   2. A list of the name and address of each partner.

R. **Human Remains.** In accordance with “Native American Graves Protection and Repatriation Act” 43 CFR 10, 10.4 Inadvertent Discoveries, any person who inadvertently discovers human remains, funerary objects, sacred objects, or objects of cultural patrimony on federal or tribal land will immediately cease work in the area of the discovery and make a reasonable effort to protect and secure the items. The discoverer must provide **immediate telephone notification of the discovery, with written confirmation, to the Forest Archeologist.**
According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0032.

This information is needed by the Forest Service to evaluate requests to use National Forest System lands and manage those lands to protect natural resources, administer the use, and ensure public health and safety. This information is required to obtain or retain a benefit. The authority for that requirement is provided by the Organon Act of 1807 and the Federal Land Policy and Management Act of 1976, which authorize the Secretary of Agriculture to promulgate rules and regulations for authorizing and managing National Forest System lands. These statutes, along with the "permit Permit Act, National Forest Area Permit Act, Grazing-Teve Act, Mineral Leasing Act, Alaska Public Land Act, Act of September 3, 1964, Wilderness Act, National Forest Roads and Trails Act, Act of November 15, 1973, Archaeological Resources Protection Act, and Alaska National Interest Lands Conservation Act, authorize the Secretary of Agriculture to issue authorizations for the use and occupancy of National Forest System lands. The Secretary of Agriculture's regulations at 36 CFR Part 251, Subpart B, establish procedures for issuing these authorizations.

This permit is accepted subject to the conditions set out above.

LAKEHEAD PIPE LINE COMPANY, INC.
General Partner of Lakehead Pipe Line Co.,
Limited Partnership

By: L. H. DEBFIYN
Vice President

Date: July 21, 2001

ATTEST:

The following certificate shall be executed by the Secretary or Assistant Secretary of the Corporation: I, S. Mark Curwin certify that I am the Corporate Secretary of the Corporation that executed the above permit; that who signed said permit on behalf of said Corporation was then Vice President of said Corporation; that I know his/her signature on said permit is genuine; and that said permit was duly signed, sealed, and attested to for and on behalf of said Corporation by authority of its governing body.

By: S. MAHK CJRWIN
Senior Counsel and Corporate Secretary

U.S. DEPARTMENT OF AGRICULTURE
Forest Service

By: ROBERT T. JACOBS
Regional Forester
Region 9

Date: 8/29/01
AMENDMENT FOR SPECIAL-USE AUTHORIZATION

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Amendment 1

This amendment is attached to and made a part of Special Use Permit CAL 4019-02 for an oil and gas pipeline on the Chippewa National Forest issued to Lakehead Pipe Line Company, Inc., General Partner of Lakehead Pipe Line Co., Limited Partnership on August 29, 2001 which is hereby amended as follows:


2. Add right-of-way for 11.8 miles of 36" pipeline located from Cass Lake to Bena, MN on the Chippewa National Forest and shown on Revision 1 of Exhibit A to be attached and made part of this permit. This changes acres from 127,98 to 156,31.

3. The purpose of this amendment is to change the company name and authorize the construction and maintenance of an oil pipeline. All other conditions of this permit, as amended, remain unchanged.

ENBRIDGE ENERGY, LIMITED PARTNERSHIP BY
ENBRIDGE ENERGY COMPANY, INC. T'S GENERAL PARTNER

By: [Signature]
P A U L  W. N O R G R E N
Supervisor, Right-of-Way and Attorney-in-Fact

Date: 2/04/02

U.S. DEPARTMENT OF AGRICULTURE
Forest Service

By: [Signature]
R O B E R T  T. J A C O B S
Regional Forester
Region 9

Date: 2/28/02
AMENDMENT FOR SPECIAL-USE AUTHORIZATION

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Amendment 3

This amendment is attached to and made a part of Special Use Permit CAL 4019-02 for a crude oil and a light petroleum (diluent) pipeline on the Chippewa National Forest issued to Enbridge Energy, Limited Partnership and Enbridge Pipelines (Southern Lights), L.L.C., on August 29, 2001 which is hereby amended as follows:

1. Add right-of-way to adjacent existing Enbridge easement for 18.77 miles of 36-inch diameter crude oil pipeline and 20-inch diameter light petroleum (diluent) pipelines located from Cass Lake to Ball Club, MN on the Chippewa National Forest and shown on Revision 2 of Exhibit B to be attached and made part of this permit. This changes acreage from 163.75 to 282.01.

2. Adds revised Exhibit A and Exhibit B.

3. Add additional right-of-way for a valve site located in Section 33, T145N, R26W, and located on sheet 44 of 45 in Exhibit B.

4. The holder shall be responsible for the prevention and control of noxious weeds and invasive species arising from the authorized use. For the purpose of this clause, noxious weeds and invasive species include those species recognized as such by the National Forest. When determined to be necessary by the authorizing officer, the holder shall develop a plan for noxious weed and invasive species prevention and control. Such plans must have prior written approval from the authorizing official and upon approval, shall be attached to the permit as an appendix.

5. The purpose of this amendment is to authorize the construction and maintenance of crude oil and diluent pipelines, to include above ground appurtenances and to add a clause regarding prevention and control of noxious weed and invasive species prevention and control. All other conditions of this permit, as amended, remain unchanged.

6. Pipeline construction or any on-the-ground activities authorized by this permit shall not begin until October 20, 2009.

ENBRIDGE ENERGY, LIMITED PARTNERSHIP AND ENBRIDGE PIPELINES (SOUTHERN LIGHTS), L.L.C.

By: S. MARK CURWIN
Senior Legal Counsel

Date: 10/07/2009

U.S. DEPARTMENT OF AGRICULTURE
Forest Service

By: KENT CONNAUGHTON
Regional Forester
Region 9

Date: 10/20/2009
According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082.

This information is needed by the Forest Service to evaluate requests to use National Forest System lands and manage those lands to protect natural resources, administer the use, and ensure public health and safety. This information is required to obtain or retain a benefit. The authority for that requirement is provided by the Organic Act of 1897 and the Federal Land Policy and Management Act of 1976, which authorize the Secretary of Agriculture to promulgate rules and regulations for authorizing and managing National Forest System lands. These statutes, along with the Term Permit Act, National Forest Ski Area Permit Act, Granger-Page Act, Mineral Leasing Act, Alaska Term Permit Act, Act of September 3, 1954, Wilderness Act, National Forest Road Act, and Trails Act, Act of November 16, 1973, Archeological Resources Act, and Alaska National Interest Lands Conservation Act, authorize the Secretary of Agriculture to issue authorizations for the use and occupancy of National Forest System lands. The Secretary of Agriculture's regulations at 36 CFR Part 251, Subpart B, establish procedures for issuing those authorizations.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

Public reporting burden for this collection of information, if requested, is estimated to average 1 hour per response for annual financial information, average 1 hour per response to prepare or update operation and/or maintenance plan, average 1 hour per response for inspection reports, and an average of 1 hour for each request that may include such things as reports, logs, facility and user information, sublease information and other similar miscellaneous information requests. This includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. OMB # 0596-0082.
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Exhibit A of Special Use Permit
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**Footnotes**

A) 18", 26", 34", & 36" Pipes Station 9755 (18" pipe) East

1. From Station 9755 east extending north a distance of 10 feet perpendicular from the centerline of the 26" pipeline and south a distance of 10 feet perpendicular from the centerline of the 34" pipeline (the centerlines of the 4 pipes are approximately 12 ½ to 20 feet apart or 45 feet between the centerline of the 26" pipe and the 36" pipe).

B) 18" & 26" Pipes Station 9755 (18" pipe) West

2. From Station 9755 north and west extending north a distance of 10 feet perpendicular from the centerline of the 26" pipeline and south a distance of 10 feet perpendicular from the centerline of the 18" pipeline (the centerlines of the 2 pipes are approximately 12 ½ feet apart except in the vicinity of Strawberry Lake where the pipes are approximately 40 feet apart)

C) Single 34" & 36" Pipe Station 000 West

1. From Station 9755 west extending 10 feet north from the centerline of the 34" pipeline and south a distance of 10 feet perpendicular from the 36" pipeline.

D) 48" & 36" Pipes (Loops 59, 89, and Crossovers from Mississippi River West to South of Beno) Those National Forest System lands which lie within a right-of-way 41,927 feet long and 25 feet wide extending 12 ½ feet north and south of the center line of the 48" diameter oil pipeline and 12 ½ feet east and west of the centerlines of the 36" diameter crossover oil pipelines as shown on the list of descriptions designated below and as shown on permittee plats designated "A-5.6-10502-2-204, Loop 59, Milepost 985.2 and Milepost 985.9, Rev. 2, 5-5-72" and "Lakehead Pipe Line Co., 1973 Line Looping, 48" Dia. Loop #89, Sheets 1, 2 & 3 of 3" which are on file in the Office of the Forest Supervisor, Cass Lake, MN.

AC/SL 36" (AC) & 20" (SL) Pipes

Those National Forest System lands which lie within a right-of-way a distance of 10 feet perpendicular from the south from the centerline of the AC pipeline, north from the AC pipeline to the SL pipeline (the centerlines of the two pipes are approximately XX to YY feet apart), and north of the SL pipelines to the previously installed pipelines (the centerlines of the SL pipeline and the previously installed pipelines are XX to YY feet apart).

**TOTAL ALL DESCRIPTIONS ACREAGE** 271.2 acres
Appendix B

Contact List 2016
### Pipeline O&M Contact Table

#### Enbridge/CNF/LLBO

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Department</th>
<th>Contact Information</th>
</tr>
</thead>
</table>
| Alex Smith         | Enbridge Environmental Analyst    | 119 N 25th Avenue East, Superior, WI 54880
|                    |                                   | 715-398-4795 office                                     |
|                    |                                   | 715-817-8322 cellular                                   |
|                    |                                   | alex.smith@enbridge.com                                |
| Karl Beaster       | Enbridge Sr. Environmental Analyst| 119 N 25th Avenue East, Superior, WI 54880
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*Updated 8/1/16*
# Pipeline O&M Contact Table

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<thead>
<tr>
<th>Personnel</th>
<th>Department</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>
Appendix C

Enbridge Environmental Mitigation Plan (EMP)
Figures
Figure 1
Environmental Mitigation Plan
Typical Maintenance Excavation Plan View

- Erosion control devices will be placed around the disturbed work area, as necessary.
- Erosion control devices will be placed across opening at end of the day.
- Excavated subsoil will be stockpiled near the excavation within ECD’s, as necessary.
- Minimum one foot separation must be maintained between topsoil and subsoil or a physical barrier should be used.
- Stockpile topsoil separately from subsoil.

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Figure 2
Environmental Mitigation Plan
Typical Trench Box

Note: Trench boxes consist of two steel plates that hold up the sides of an excavation. The plates are held in place by steel braces.
Figure 3
Environmental Mitigation Plan
Typical Topsoil Segregation – Upland

Notes:
1. Stockpile topsoil separately from subsoil as shown or in other configurations approved by the company.
2. Minimum one foot separation must be maintained between topsoil and subsoil or a physical barrier should be used.
Figure 4
Environmental Mitigation Plan
Typical Topsoil Segregation – Wetland

NOTES:
1. Stockpile topsoil separately from subsoil as shown or in other configurations approved by the company.
2. Minimum one foot separation must be maintained between topsoil and subsoil or a physical barrier should be used.
3. To minimize wetland disturbance, work in wetlands may take place on construction mats or other approved methods.
4. All stockpiles will be placed on construction mats within saturated wetlands.
Figure 5
Environmental Mitigation Plan
Typical Temporary Berms
Perspective View

NOTES:
1. Slope breakers are permanent erosion control structures.
2. Straw bales or silt fence shall be removed after vegetation is established.
3. Lowest berm may be omitted if silt fence or straw bales are installed at that location.

AS APPROVED BY THE ENVIRONMENTAL INSPECTOR

<table>
<thead>
<tr>
<th>Slope</th>
<th>Spacing (ft)</th>
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<td>5 - 15</td>
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<tr>
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<td>&gt; 30</td>
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WELL VEGETATED AREA
ROCK APRON
2 - 8% OUTSLOPE
SILT FENCE
BERM ADJACENT TO WATERBODIES, OR SEE NOTE 3
WETLAND OR WATERBODY
EROSION CONTROL FABRIC
BERM ADJACENT TO WATERBODIES, OR SEE NOTE 3
STRAW BALE OR SILT FENCE
SILT FENCE
2 - 8% OUTSLOPE
SILT FENCE
2 - 8% OUTSLOPE
STRAW BALE OR SILT FENCE
SILT FENCE
2 - 8% OUTSLOPE
STRAW BALE OR SILT FENCE
2 - 8% OUTSLOPE
STRAW BALE OR SILT FENCE
2 - 8% OUTSLOPE
STRAW BALE OR SILT FENCE
WETLAND OR WATERBODY
NOTES:

1. Berms are permanent.
2. Straw bales or silt fence shall be removed after vegetation is established.
3. Lowest berm may be omitted if silt fence or straw bales are installed at that location.
   As approved by the environmental inspector
4. Install silt fence or straw bales at discharge end of earthen berms as necessary to
   dissipate energy and prevent erosion.

Table: Typical Spacing for Berm Waterbars

<table>
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<tr>
<td>5-15</td>
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<td>15-25</td>
<td>150</td>
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<td>&gt;25</td>
<td>&lt;100</td>
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Figure 6
Environmental Mitigation Plan
Typical Permanent Berms
Perspective View
Figure 7
Environmental Protection Plan
Typical Temporary or Permanent Berms
Cross Section View

NOTES:
1. Berms shall be constructed with 2 to 4 percent outslope.
2. Berms shall be outleted to well vegetated stable areas, silt fences, straw bales or rock aprons.
3. Berms shall be spaced as described in construction specifications.
4. Additional information included on other drawings.
5. Dimensions are guidelines and may be modified subject to field conditions.
Figure 8
Environmental Mitigation Plan
Typical Silt Fence Installation

NOTES:
1. WIRES OF MESH SUPPORT SHALL BE MIN. GAGE NO. 12.
2. FILTER FABRIC SHALL MEET THE REQUIREMENTS OF THE SPECIFICATION WITH EQUIVALENT OPENING SIZE OF AT LEAST 30 FOR NONWOVEN AND 50 FOR WOVEN. (SIEVE NO.)
3. THE POSTS USED TO SUPPORT THE SILT FENCE SHOULD BE HARDWOOD MATERIAL WITH A MINIMUM CROSS SECTIONAL AREA OF 4 INCHES SQUARE AND 4 FEET LONG. METAL POSTS SHOULD BE USED IN AREAS THAT POND WATER.

NOTES:
1. PLACE THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE.
2. ROTATE BOTH POSTS AT LEAST 180 DEGREES IN A CLOCKWISE DIRECTION TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL.
3. DRIVE BOTH POSTS A MINIMUM OF 18 INCHES IN THE GROUND AND BURY THE FLAP.
Figure 9
Environmental Mitigation Plan
Typical Straw Bale Installation

- Straw bales placed on edge butted tight
- Silt fence
- Straw bales only
- Compacted earth fill
- Hardwood stake (4 in² x 4' long)

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**Figure 10**  
Environmental Mitigation Plan  
Typical Erosion Control Blanket Installation
Figure 11
Environmental Mitigation Plan
Typical Staple Pattern for Erosion Control Fabric

For optimum results, these recommended staple pattern guides must be followed. Suggested anchoring methods vary according to the manufacturer. This chart shows how to slope lengths and how gradients affect sampling patterns.
Figure 12
Environmental Mitigation Plan
Typical Biolog Installation

Biologs should be placed and staked securely along slope contours per manufacturer's specification. Stakes should be placed 3' to 4' apart.

Runoff must not be allowed to run under or around the log.

Spacing depends on soil type and slope steepness.

Adjacent logs shall tightly abut.

Sediment, organic matter, and native seeds are captured behind the logs.

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Figure 13
Environmental Mitigation Plan
Typical Cat Tracking

CLEATED TREADS CREATE RIDGES PERPENDICULAR TO THE SLOPE.
Figure 14
Environmental Mitigation Plan
Typical Trench Breakers - Perspective View

NOTES
1. Bags will not be filled with topsoil.
2. Additional information included on other drawings.
Figure 15
Environmental Mitigation Plan
Typical Trench Breakers – Plan & Profile View

- Sandbags extended into trench wall 6" minimum
- Pipeline
- Topsoil
- Backfill Material
- Native Soils
- Slopes > 5%

NOTES
1. Sandbags will not be filled with topsoil
2. Additional information included on other drawings

DATE: 11/15/2000
REVISED: 4/10/2015
SCALE: NTS
DRAWN BY: KMKENDALL

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Figure 16
Environmental Mitigation Plan
Typical Waterbody Crossing
Open Cut - Wet Trench Method

Notes:
1. Only woody vegetation may be flush cut during initial clearing.
2. The contractor must properly install and maintain sediment control measures at the 10-foot buffer line adjacent to streams immediately after clearing and prior to initial ground disturbance. This buffer should not be confused with the 50-foot setback required for extra workspace.
**Figure 17**

Environmental Mitigation Plan

Typical Waterbody Crossing

Dam and Pump Method

**Notes:**

1. Only woody vegetation may be flush cut during initial clearing.
2. The Contractor must properly install and maintain sediment control measures at the 10-foot buffer line adjacent to streams immediately after clearing and prior to initial ground disturbance. This buffer should not be confused with the 50-foot setback required for extra workspace.

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**DATE:** 11/29/2005  
**REVISED:** 4/10/2015  
**SCALE:** NTS  
**DRAWN BY:** JPB
Figure 18
Environmental Mitigation Plan
Typical Waterbody Crossing
Flume Method

NOTES:
1. ONLY WOODY VEGETATION MAY BE FLUSH CUT DURING INITIAL CLEARING
2. THE CONTRACTOR MUST PROPERLY INSTALL AND MAINTAIN SEDIMENT CONTROL MEASURES AT THE 10-FOOT BUFFER LINE ADJACENT TO STREAMS IMMEDIATELY AFTER CLEARING AND PRIOR TO INITIAL GROUND DISTURBANCE. THIS BUFFER SHOULD NOT BE CONFUSED WITH THE 50-FOOT SETBACK REQUIRED FOR EXTRA WORKSPACE.
Figure 19
Environmental Mitigation Plan
Typical Waterbody Crossing
Directional Drill Method
Environmental Mitigation Plan
Typical Span Type Bridge

Notes:
1. Inspect bridge opening periodically and following rainfalls of over ½". Remove any debris restricting flow and deposit it at an upland site outside of floodplain.
2. If physical circumstances prohibit wood or metal ramps, earthen ramps may be used as approved.
3. Inspect bridge elevation so bridge remains supported above high bank and does not sink into bank.
4. Earthen ramp cannot be taller than 1' and cannot extend for more than 15' on either side of the crossing.
5. The bridge must span from top of bank to top of bank.
6. Additional support must be added on top of bank and under span if initial support starts to settle.
7. Sideboards will be installed on temporary bridges to minimize the potential for sediment transport. Sideboards may be constructed out of plywood, or equivalent, and affixed to the outer sides of the bridge. Geo-textile fabric, or equivalent, must also be adequately secured to the underside of the bridge to prevent material from falling through the bridge deck. The geo-textile fabric or an equivalent should be secured to the bottom of the bridge and wrapped around the sideboards in a continuous fashion.

Figure 20
ENBRIDGE
For environmental review purposes only.

DATE: 3/11/2003
REVISED: 4/10/2015
SCALE: NTS
DRAWN BY: KMK6792
C: CLIENT PROJECTS: FEE-BARR
201504-REVISED-15SCALE
FIG_20_SPAN_TYPE BRIDGE.VSD
Figure 21
Environmental Mitigation Plan
Typical Span Type Bridge
With In-stream Support

Notes:
1. Inspect bridge opening periodically and following rainfalls of over ½”. Remove any debris restricting flow and deposit it at an upland site outside of floodplain.
2. If physical circumstances prohibit wood or metal ramps, earthen ramps may be used as approved.
3. Inspect bridge elevation so bridge remains supported above high bank and does not sink into bank.
4. Earthen ramp cannot be taller than 1’ and cannot extend for more than 1½’ on either side of the crossing.
5. The bridge must span from top of bank to top of bank.
6. Additional support must be added on top of bank and under span if initial support starts to settle.
7. Sideboards will be installed on temporary bridges to minimize the potential for sediment transport. Sideboards may be constructed out of plywood, or equivalent, and affixed to the outer sides of the bridge. Geo-textile fabric, or equivalent, must also be adequately secured to the underside of the bridge to prevent material from falling through the bridge deck. The geo-textile fabric or an equivalent should be secured to the bottom of the bridge and wrapped around the sideboards in a continuous fashion.
NOTES:
1. STEEL FLUME PIPE(S) SIZED TO ALLOW FOR STREAM FLOW AND EQUIPMENT LOAD.
2. STRAW BALES SHALL BE PLACED ACROSS BRIDGE ENTRANCE EVERY NIGHT.
3. ADDITIONAL INFORMATION INCLUDED ON OTHER DRAWINGS.
Dewatering Discharge in Well Vegetated Uplands

NOTES:
1. Pump intake hose must be secured at least one foot above the trench bottom. Use floating suction hose or other similar measures to prevent sediment from being sucked from the bottom of the excavation.
2. Dewater into geotextile filter bag or straw bale dewatering structure.

Figure 23
Environmental Mitigation Plan
Typical Dewatering Measures
**Notes:**

1. Arrange the straw bales to the X and Y dimensions necessary to obtain the required storage capacity.
2. Silt fence ends must be wrapped to join two sections.
3. Install silt fence 2 inches above top of straw bale, and anchor a minimum of 8 inches straight down.
4. Silt fence post staking must be 4 feet or less.

---

**Figure 24**

Environmental Mitigation Plan

Straw Bale Dewatering Structure

---

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<th>Minimum Structure Capacity (Cubic Feet)</th>
<th>Maximum Pumping Rate (Gallons Per Minute)</th>
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<td>350</td>
</tr>
<tr>
<td>6400</td>
<td>400</td>
</tr>
</tbody>
</table>
Figure 25
Environmental Mitigation Plan
Straw Bale Dewatering Structure

NOTES:
1. Dewatering intake hose supported at least 1 foot from bottom of trench being dewatered. Use floating suction hose or other similar measures to prevent sediment from being sucked from bottom of the excavation.
2. Use a filter bag at the discharge hose end.
3. Monitor filter bag and replace as needed.
4. Construct dewatering structure to accommodate anticipated pumping rates.
5. One-bale height may be used when adequate area is available to construct appropriate sized structure.

* See Figure 24 for example of Option 1 and Option 2 designs.
Figure 26
Environmental Mitigation Plan
Straw Bale Dewatering Structure

NOTES:
1. Dewatering intake hose supported at least 1 foot from bottom of trench being dewatered. Use floating suction hose or other similar measures to prevent sediment from being sucked from bottom of the excavation.
2. Use a filter bag at the discharge hose end.
3. Monitor filter bag and replace as needed.
4. Construct Dewatering Structure to accommodate anticipated pumping rates.
5. One-bale height may be used when adequate area is available to construct appropriate sized structure.

* See Figure 24 for example of Option 1 and Option 2 designs.
Figure 27
Environmental Mitigation Plan
Typical Final Stream Bank Stabilization
Rip Rap & Erosion Control

NOTE: PLACE EROSION CONTROL BLANKET A MINIMUM OF ONE (1) FOOT UNDER RIP RAP. EXTEND EROSION CONTROL BLANKET FROM MEAN HIGH WATER LEVEL TO SEVERAL FEET BEHIND HIGH BANK.

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Figure 28
Environmental Mitigation Plan
Typical Improved Road Crossing
Directional Bore Method

NOTES
1. Procedures shown in this drawing apply to improved roads.
2. Roads must be cleaned after equipment crosses and dirt placed in spoil containment areas.
3. Temporary access materials must be removed upon project completion.
4. Additional information included on other drawings or permits.
5. Construction areas located outside road ROW.

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