

# TREE & SHRUB RESTORATION PLAN

BakkenLink Pipeline Project  
Billings, Dunn, and McKenzie Counties, North Dakota  
*Project #3337*

*Prepared for:*

North Dakota Public Service Commission  
Case No. PU-10-218

*November 4, 2013*



600 S. 2<sup>nd</sup> Street, Suite 105  
Bismarck, ND 58504  
Tel 701-255-1475  
Fax 701-255-1477  
[www.carlsonmccain.com](http://www.carlsonmccain.com)

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## 1.0 INTRODUCTION

On October 13, 2010, BakkenLink Pipeline LLC (BakkenLink) filed a Letter of Intent and Request for Waiver of One-Year Notice Period for 10-,12-, and16-Inch Steele Crude Oil Pipeline System to Be Located in Mountrail, McKenzie, Williams, Billings, Stark, and Golden Valley Counties, North Dakota to the North Dakota Public Service Commission (NDPSC). On February 29, 2012, the NDPSC issued its Finding of Fact, Conclusions of Law and Order regarding the case (Case No. PU-10-218). On July 24, 2012, BakkenLink filed an application seeking approval of modifications to the project route and corridor. The NDPSC approved the modifications and issued a revised Finding of Fact, Conclusions of Law and Order on September 5, 2012.

BakkenLink completed construction of the 97mile, 8-inch and 12-inch pipeline between the Arrow Midstream Station and Fryburg in the fall of 2013. As part of its restoration requirements, BakkenLink is required to replace trees and shrubs that were removed as part of the project. BakkenLink has agreed to comply with the Tree and Shrub Mitigation Specifications set forth by the NDPSC, as stated within Condition 20 of the Order Provisions. The approved Tree and Shrub Mitigation Specifications outlines BakkenLink's proposed methods for tree and shrub inventory, clearing for construction, and replacement is provided below.

### **Inventory**

1. Trees and shrubs anticipated to be cleared, including those that are considered invasive species or noxious weeds (e.g., *Caragana arborescens*, *Elaeagnus angustifolia*, *Rhamnus cathartica*, *Tamarix chinensis*, *T. parviflora*, *T. ramosissima*, *Ulmus pumila*), shall be inventoried before cutting. The inventory shall record the location, number, and species of trees and shrubs.
2. In windbreaks, shelterbelts and other planted areas, trees or shrubs anticipated to be cleared, regardless of size, shall be inventoried for replacement.
3. In native growth areas, trees anticipated to be cleared that are 1 inch diameter at breast height ("dbh") or greater shall be inventoried for replacement.
4. In native growth areas, shrubs anticipated to be cleared in the permanent right-of-way shall be inventoried for replacement.
5. In native growth areas outside the permanent right-of-way, shrubs shall be cut flush with the surface of the ground, taking care to leave the naturally occurring seed bank and root stock intact. If soil disturbance is necessary, the native topsoil shall be preserved and replaced after construction. Shrubs shall be allowed to regenerate naturally where native topsoil is preserved and replaced. Where native topsoil is not preserved and replaced, shrubs anticipated to be cleared shall be inventoried for replacement.

6. In native growth areas, trees and shrubs may be inventoried by actual count or by sampling method that will properly represent the woody vegetation population. A sampling plan developed by the company, filed with the North Dakota Public Service Commission (Commission) and approved prior to the start of construction shall define the sampling method to be used for trees, for tall shrubs and for low shrubs. The data from the sample plots shall be extrapolated to the total acreage of the wooded area to be cleared to determine the species and quantity of trees and shrubs to be replaced.

#### **Clearing for Construction**

7. Trees and shrubs shall be selectively cleared, leaving mature trees and shrubs intact where practical.
8. The width of clear cuts through windbreaks, shelterbelts and all other wooded areas shall be limited to 50 feet or less unless otherwise approved by the NDPSC.
9. If the area of trees or shrubs actually cleared differs from the area inventoried, the difference in number of trees and shrubs to be replaced shall be noted on the inventory.

#### **Replacement**

10. Prior to tree/shrub replacement, documentation identifying the number and variety of trees removed as well as the mitigation plan for the proposed number, variety, type, location and date of replacement plantings shall be filed with the NDPSC for approval.
11. Tree replacement shall be on a 2 to 1 basis with 2-year-old saplings. Shrub replacement shall be on a 2 to 1 basis with stem cuttings.
12. Trees and shrubs shall be replaced by the same species or similar species suitable for North Dakota growing conditions as recommended by the North Dakota Forest Service.
13. Landowners shall be given the option of having replacement trees/shrubs planted off the right-of-way on the landowner's property or waiving that requirement in writing and allowing those replacement trees/shrubs to be planted at alternative locations.
14. At the conclusion of the project, documentation identifying the actual number, variety, type, location, and date of the replacement plantings shall be filed with the NDPSC.
15. Tree/shrub replacements shall be inspected once a year for three years, on about the anniversary of the plantings, and, on or shortly before October 1 of each year, a report shall be submitted to the NDPSC documenting the condition of replacement planting and any woodlands work completed. If after three years from the anniversary of the plantings the survival rate is less than 75%, the NDPSC may order additional planting(s).

In compliance with Condition 20 and the approved Tree and Shrub Mitigation Plan outlined above, BakkenLink is submitting the final results of its tree and shrub inventory, information regarding landowner discussions, planting procedures, and a timeline for replanting. BakkenLink requests that the NDPSC review this plan for adequacy and approval.

## 2.0 TREE AND SHRUB INVENTORY

A pre-construction inventory was conducted along the construction right-of-way in September, 2012. As required within the mitigation specifications, the construction width was reduced to 50 feet or less through windbreaks, shelterbelts, and all other wooded areas. Trees and shrubs were inventoried using the methodology outlined in the Tree and Shrub Inventory Sampling Plan submitted September 22, 2011.

The width of the construction right-of-way was reduced to 50 feet or less to avoid impacts to tree and shrub populations at 153 locations: 25 shelterbelts; 58 tree stands; 49 shrub stands; and 21 wooded wetlands. Directional drilling was used to avoid impacting 43 tree and shrub communities.

Of the 149 shelterbelts and native tree and shrub stands crossed by the project, the construction right-of-way was not reduced at 50 locations. The majority of these locations were native shrub communities dominated by western snowberry. In the instances where the right-of-way was not reduced when crossing a shelterbelt no trees or shrubs were located within the 100 foot construction right-of-way.

Trees and shrubs were documented at 149 locations on 49 separate properties within the construction right-of-way. Locations of all trees and shrubs were documented using geographic positioning system with sub-meter accuracy. A summary of the type and quantity of trees and shrubs inventoried is provided in Table 1.

**Table 1. Summary of Tree and Shrub Inventory**

Growth Form	Common Name	Species	Reproduction	Invasive	Total
Tree	Boxelder	<i>Acer negundo</i>	seed		3
	Russian Olive	<i>Elaeagnus angustifolia</i>	seed	X	17
	Green ash	<i>Fraxinus pennsylvanica</i>	seed		1,341
	Rocky Mountain juniper	<i>Juniperus scopulorum</i>	seed	X	1,551
	Colorado spruce	<i>Picea pungens</i>	seed		5
	Ponderosa pine	<i>Pinus ponderosa</i>	seed		5
	Cottonwood	<i>Populus deltoides</i>	seed, suckering		7
	Quaking aspen	<i>Populus tremuloides</i>	seed, suckering		425
	Peachleaf willow	<i>Salix amygdaloides</i>	seed		2,096
	American Elm	<i>Ulmus americana</i>	seed		175

Growth Form	Common Name	Species	Reproduction	Invasive	Total
	Siberian elm	<i>Ulmus pumila</i>	seed	X	112
<b>TREE TOTAL</b>					<b>5,737</b>
<b>Shrub</b>	Juneberry	<i>Amelanchier alnifolia</i>	suckering, colony forming		9,923
	Silver sagebrush	<i>Artemisia cana</i>	rhizotamous, colony forming		2,078
	Siberian peashrub	<i>Caragana arborescens</i>	seed	X	35
	Red osier dogwood	<i>Cornus stolonifera</i>	suckering, colony forming		178
	Northern hawthorn	<i>Crataegus rotundifolia</i>	suckering, colony forming		2,468
	Common juniper	<i>Juniperus communis</i>	rhizotamous, colony forming		17
	Creeping juniper	<i>Juniperus horizontalis</i>	rhizotamous, colony forming		15
	American plum	<i>Prunus americana</i>	suckering, colony forming		633
	Pin-cherry	<i>Prunus pensylvanica</i>	seed		8
	Chokecherry	<i>Prunus virginiana</i>	suckering, colony forming		9,986
	Skunkbrush sumac	<i>Rhus aromatic v. trilobata</i>	seed, colony forming		902
	Willow	<i>Salix spp.</i>	suckering, colony forming		3,773
Buffaloberry	<i>Shepherdia argentea</i>	suckering, colony forming		6,457	
<b>SHRUB TOTAL</b>					<b>36,473</b>
<b>COMBINED TOTAL</b>					<b>42,210</b>

### 3.0 RESULTS OF PRELIMINARY LANDOWNER DISCUSSIONS

BakkenLink has begun consulting with affected landowners to determine where trees and shrubs will be replaced. Trees and shrubs will be replaced at a 2:1 ratio. In the initial phase of the consultation, landowners will be given an option to have all, a portion of, or no trees and shrubs replaced on their property. Presently, X landowners have elected to have all or portions of the replacement trees planted on their property and X have decided to donate all replacement trees and shrubs to a location selected by BakkenLink.

### 4.0 PLANTING PROCEDURES TO BE IMPLEMENTED

BakkenLink has proposed to contract the local Soil Conservation Districts (SCD) within the counties the plantings will be conducted to complete all tree and shrub plantings for the project. For

landowners that elected to have plantings on their property, the SCDs have agreed to determine with the landowner how much land is available for planting, the quantity of the plantings that can be completed within the specified land area, and which species should be planted based on the inventory species removed from their property and existing habitat characteristics. Following the determination of planting locations and replacement species, the local SCDs will provide the planting plan to the North Dakota State Forester (NDSF) for review. If the NDSF finds deficiencies in the plan the SCDs and NDSF will collaborate to develop an acceptable plan. Once an acceptable plan is developed it will be submitted to the NDPSC.

BakkenLink will be required to identify a location to complete tree and shrub replacements that were donated or cannot be completed on the landowner's properties. After landowner consultations are completed, the SCDs and BakkenLink can determine the amount of additional land required to complete the tree and shrub replacement.

BakkenLink will replace trees and shrubs removed during construction at a rate of two for every one removed. Trees will be replaced with 2-year-old saplings. Shrubs will be replaced with stem cuttings. The SCDs and North Dakota Forest Service (NDFS) will coordinate to ensure that suitable nursery stock is utilized for the plantings.

The SCDs will conduct or coordinate site preparation and maintenance activities required for the replacement project. These activities may include disking, plowing, or rototilling where mechanical plantings are recommended, installing weed barriers or tree tubes, and applying deer repellent and/or herbicides. The SCDs will determine the appropriate preparation and maintenance procedure on a site specific basis.

## **5.0 TIMELINE FOR REPLANTINGS**

Mechanical planting requires disking, plowing, or rototilling for one growing season prior to planting. Therefore, all planting will be completed in the spring of 2015. Mechanical planting is generally utilized for large plantings; whereas, hand planting will be utilized for small plantings.

## **6.0 REPLACEMENT MONITORING**

In accordance with Condition 20, BakkenLink will inspect tree and shrub replacements once a year for three years, on the anniversary of the plantings, and submit a report to the NDPSC documenting the condition of the replacement planting and any woodland work completed prior to October 1 of each year. BakkenLink is aware that if after three years the survival rate of the plantings is less than 75% the NDPSC may order additional plantings.