



TREE & SHRUB SURVIVAL REPORT 2020

JOHNSON CORNER - ALEXANDER CRUDE OIL 8-INCH PIPELINE & TANK FACILITIES McKenzie County, North Dakota

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1.0 INTRODUCTION

The Johnsons Corner to Alexander Crude Oil 8-Inch Pipeline and Tank Facilities (Project) is located entirely within McKenzie County, North Dakota. Targa Badlands LLC (Targa) acquired the Project in 2012 and converted the Project from a gathering system to a transmission system to better utilize facilities, resources, and to minimize risk potential. The Project consists of approximately 54.35 miles of underground pipeline, the Johnsons Corner Tank Facility, the Alexander Tank Facility, and the Midway Valve Station.

This Project is under the jurisdiction of the North Dakota Public Service Commission (PSC) and was assigned Case No. PU-16-695. Projects under the jurisdiction of the PSC that require removal of trees or shrubs for Project construction must replace them, following PSC mitigation specifications (Attachment 1).

2.0 BACKGROUND

Utilizing geospatial analysis to approximate the number and location of trees and shrubs removed during the Project, Targa estimated 34 trees and 76 shrubs (110 total) were removed during construction activities. The required total number of trees and shrubs to be replaced on this inventory is 75 trees and 167 shrubs (242 total), assuming a 2.2:1 replacement ratio. Targa will replace trees at this ratio, which is higher than the 2:1 ratio required by the PSC in anticipation of potential tree or shrub mortality during the three-year monitoring period to achieve a planted survival rate of 75 percent.

The McKenzie County Soil Conservation District (SCD) is working with Targa and Golder Associates, Inc. (Golder) to work with the affected landowners to complete the PSC required plantings.

The species selected to meet the PSC requirements are suitable to North Dakota growing conditions and are commonly recommended for plantings by the North Dakota Forest Service and other relevant local agencies. Replacements species are not the same as those removed. The replacement species were selected based on many factors including plant zone hardiness, native species status, soil conditions, hydrology, landscape location, growth characteristics, visual aesthetics, and wildlife value.

3.0 2020 TREE AND SHRUB MONITORING

This section summarizes Golder's efforts to assess survivorship at the tree and shrub planting locations that have occurred since 2019. Of the 24 landowners impacted, only Randall Stevenson and Lyle Bratcher agreed to plantings on their property at the time of this June 2020 annual survey.

Golder conducted survivorship surveys on June 22, 2020 at each of the planting locations utilizing property maps and digital cameras (>10 megapixel) to locate individual trees and shrubs and record field data. Golder recorded whether or not each tree and shrub was deemed to be alive or dead and height of each plant. If the tree or shrub was determined to be dead, a probable cause of death was established (e.g. stepped or grazed on by cattle, damaged by snow removal operations, natural causes, etc.).

Trees or shrubs that had any portion of living plant material were considered alive. During this survey, Golder staff properly located all plants and all that were determined to be dead were deemed due to natural causes. As outlined within Table 1, 28 green ash (*Fraxinus pennsylvanica*) and 27 Siberian pea shrubs (*Caragana arborescens*) were planted on

Bratcher property in rows along fence line and black weed barrier was put in place. On the day of survey, 18 green ash and 14 Siberian pea shrubs were alive. At Stevenson property, 16 green ash trees, 13 ponderosa pine trees (*Pinus ponderosa*), and 18 common lilac shrubs (*Syringa vulgaris*) were planted along property line and black weed barrier was put in place. On the day of survey, 12 green ash, 12 ponderosa pine, and all 18 lilac were alive and healthy. A representative photograph log displays planting locations and conditions with clear descriptions in Attachment 2.

Table-1: Johnsons Corner to Alexander 2020 Tree and Shrub Survival Count

Recipient	Tree/Shrub Species Planted	Number of Replacements Originally Planted	2020 Count	Average Total Height - Inches	Survival Rate	Mortality Assessment
Troy Bratcher	Green ash	28	18 Alive 10 Dead	17 inches	64%	Natural Causes
Troy Bratcher	Siberian pea shrub	27	14 Alive 13 Dead	15.5 inches	52%	Natural Causes
Randy Stevenson	Green ash	16	13 Alive 3 Dead	20 inches	81%	Natural Causes
Randy Stevenson	Ponderosa pine	13	12 Alive 1 Dead	14 inches	92%	Natural Causes
Randy Stevenson	Common lilac	18	18 Alive	13.6 inches	100%	N/A
TOTAL		102	75	-	74%	-

4.0 SUMMARY AND CONCLUSIONS

Based on the total number of trees and shrubs planted in this phase (102 total), the survival rate is approximately 74%. Targa and the McKenzie County SCD are coordinating to conduct the remaining plantings to meet the proposed 2.2:1 mitigation ratio at various locations within McKenzie County in 2021.

Attachment 1- North Dakota PSC Tree & Shrub Mitigation Specifications

STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION

Targa Badlands LLC
8-Inch Crude Pipeline Project – McKenzie County
Siting Application

Case No. PU-16-695

Tree and Shrub Mitigation Specifications

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*), must be inventoried before cutting. The inventory must 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, must 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 must be inventoried for replacement.
4. In native growth areas, shrubs anticipated to be cleared in the permanent right-of-way must be inventoried for replacement.
5. In native growth areas outside the permanent right-of-way, shrubs must 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 must be preserved and replaced after construction. Shrubs must 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 must be inventoried for replacement.
6. In native growth areas, trees and shrubs may be inventoried by actual count or by a 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 must define the sampling method to be used for trees, for tall shrubs and for low shrubs. The data from the sample plots must 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 must be selectively cleared, leaving mature trees and shrubs intact where practical.
8. The maximum width of clear cuts through windbreaks, shelterbelts and all other wooded areas is 50 feet, unless otherwise approved by the Commission.
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 must be noted on the inventory.

Replacement

10. Prior to tree and shrub replacement, documentation identifying the number and variety of trees and shrubs removed, as well as the mitigation plan for the proposed number, variety, type, location and date of replacement plantings, must be filed with the Commission for approval.
11. Two 2-year-old saplings must be planted for every one tree removed. Two shrubs (stem cuttings) must be planted for every one shrub removed.
12. Except in the case of invasive or noxious species, trees and shrubs must be replaced by the same species or similar species, suitable for North Dakota growing conditions as recommended by the North Dakota Forest Service. Invasive or noxious species must be replaced by similar non-invasive or non-

noxious species suitable for North Dakota growing conditions as recommended by the North Dakota Forest Service.

13. Tree and shrub replacement must not be conducted within a 20 to 30 foot wide path over the pipeline to facilitate visual inspections of the right-of-way in accordance with U.S. Department of Transportation safety regulations.
14. Landowners must be given the option of having replacement trees and shrubs planted on the landowner's property, either on or off the right-of-way. The landowner must also be given the opportunity to waive those options in writing in order to have replacement trees and shrubs planted off the landowner's property.
15. At the conclusion of the project, documentation identifying the actual number, variety, type, location and date of the replacement plantings must be filed with the Commission.
16. Tree and shrub replacements must be inspected annually, in September, for three years. The first annual inspection must be at least one year from the anniversary date of the original plantings. A report of each annual inspection must be submitted to the Commission by October 1 of each year, documenting the condition of plantings and any woodlands work completed as of September of each year. If after the third annual report the survival rate is less than 75%, the Commission may order additional planting(s).

Attachment 2- Representative Photo Log

BRATCHER PROPERTY

JUNE 22, 2020

Photo 1 – View facing north east

Planting 1

Row 1 (left) - Siberian pea shrub (*Caragana arborescens*). A total of 27 seedlings were initially planted. Upon inspection only 14 remain with an average height of 17 inches.

Row 2 (right) - Green ash (*Fraxinus pennsylvanica*). A total of 16 seedlings were initially planted. Upon inspection only 10 remain with an average height of 14 inches.



Photo 2 – View facing south east

Planting 1

Row 1 - Siberian pea shrub (*Caragana arborescens*). Showing health growth of 4 plants.



Photo 3 – View facing south east

Planting 2

Row 1 - Green ash (*Fraxinus pennsylvanica*). Initial planting totaled 12 seedlings. Upon inspection only 8 remain with an average height of 17 inches. Weed and grasses growing around plant removed when possible.



STEVENSON PROPERTY

JUNE 22, 2020

Photo 1 – View facing north east

Row 1 - Green ash (*Fraxinus pennsylvanica*). Total of 16 seedlings planted, of those 3 have died. Height of remaining averages 20 inches.

Row 2 – Ponderosa pine (*Pinus ponderosa*). Total of 13 seedlings planted, of those only 1 has died. Height of remaining averages 14 inches.

Row 3 – Common lilac (*Syringa vulgaris*). Total of 18 seedling planted, all remain alive with an average height of 13.6 inches.

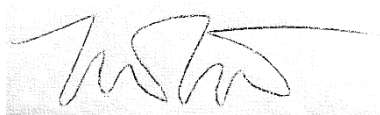


Photo 2 – View facing north

Row 2 – Showing one dead ponderosa pine. All rows have been covered with weed barrier and planting holes are clean.



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