



TREE & SHRUB SURVIVAL REPORT 2021

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

Targa Badlands LLC

811 Louisiana Street
Houston, TX 77002

Submitted by:

Golder Associates Inc.

+1 361 573-6442

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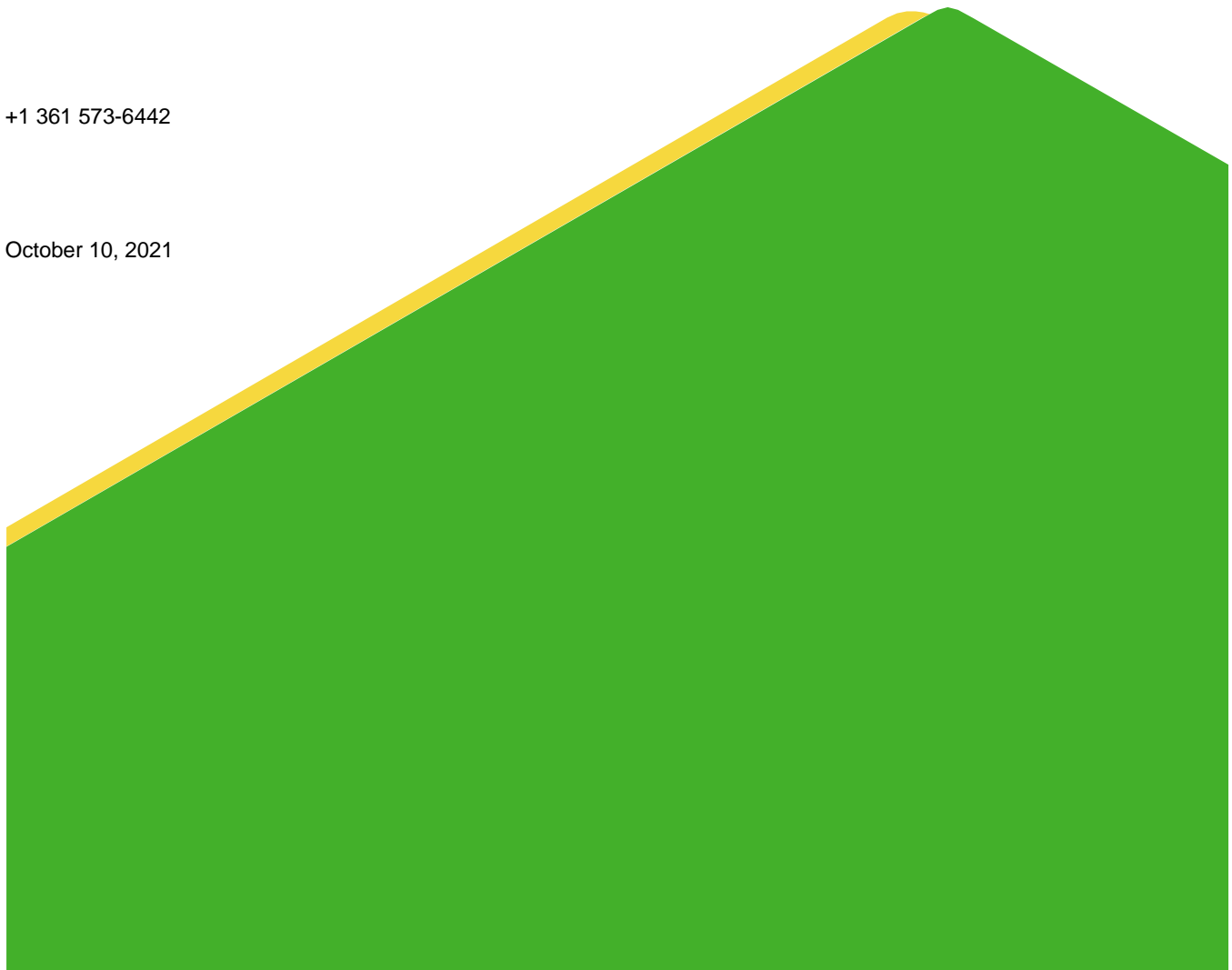


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1.0 INTRODUCTION

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. Its construction required the removal of trees and shrubs within the Project right-of-way

Projects under the jurisdiction of the PSC that require removal of trees or shrubs for Project construction must replace them, following PSC replacement requirements (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. Targa will replace trees and shrubs at a 2.2:1 ratio, which is higher than the 2:1 ration required by PSC standards in anticipation of potential mortality during the three-year monitoring period to achieve a planted survival rate of 75 percent.

The McKenzie County Soil Conservation District is working with Targa and Golder Associates, Inc. (Golder) to work with the affected landowners to complete the PSC required plantings. See Table 1 for the proposed list of landowners to receive the tree and shrub plantings.

Table 1: Proposed Plantings

Landowner	Trees Proposed	Shrubs Proposed	Total Proposed Plantings
Abelmann, Daniel	20 ^H	0	20 ^H
Abelmann, Daniel & Leanne	0	0	0
Abelmann, Lael E	0	7 ^H	7 ^H
Anderson, Curtis J & Merton T	0 ^D	0 ^D	0 ^D
Berg, Knut Trust	0	0	0
Bratcher, Lyle & Edward	29	38	67
Coombs, Robert H Et Al	0	0	0
Evenson, Edwin H & Joycelaine C	0 ^D	0 ^D	0 ^D
Jore, Richard G	0	0	0
Kirkland, Kermit D & Sandra S	0 ^D	0 ^D	0 ^D
Loken, Greg	0 ^D	0 ^D	0 ^D
Lundin, Herbert P	0 ^D	0 ^D	0 ^D
Monson, Myrna Rae & Forthum, Dennis	0 ^D	0 ^D	0 ^D

Landowner	Trees Proposed	Shrubs Proposed	Total Proposed Plantings
Mule Shoe LLP	0	0	0
ND Pipeline Company LLC	0 ^D	0 ^D	0 ^D
Peterson Family Farm Trust	0	0	0
Rettig Family Trust, c/o Kimberly Kay Delorme & Edwin Rettig Co-Trustees	0 ^D	0 ^D	0 ^D
Rink, Delmer	0 ^D	0 ^D	0 ^D
Rink, Delmer L & Marcelline	0	0	0
State of ND	0	0	0
Stevenson, Randall	0	0	0
Timmreck, Russell	0	2 ^H	2 ^H
Weltzin Trust, Alfred or Nora Trustees	0	0	0
Totals	49	47	96
^D Denotes landowners have opted to decline the trees and shrubs planted on their property and have donated them to the county NRCS office to plant elsewhere ^H Denotes landowners have opted to plant trees/ shrubs by hand			

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. Replacement 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 2021 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, Lyle Bratcher, and Daniel Abelmann had plantings completed on their property at the time of this 2021 annual survey. However, the Abelmann property was not able to be surveyed. There were multiple attempts to contact the landowner for permission to survey; however, there were no responses. Golder will attempt to survey this property during the 2022 monitoring.

3.1 Preparatory Activities

Prior to the start of survey efforts, land access permission was obtained from each landowner where plantings occurred, and a site-specific Golder Health and Safety Environment Plan (HaSEP) was prepared for tree and shrub survey field activities. As discussed previously, since no contact was made with the Abelmann landowners for permission, these trees/shrubs were not included in the 2021 monitoring effort.

3.2 2021 Survivorship Survey

Golder conducted survivorship surveys on August 31, 2021 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 2, the Bratcher property included 28 green ash (*Fraxinus pennsylvanica*) and 27 Siberian pea shrubs (*Caragana arborescens*) that were planted in rows along the fence line and black weed barrier was installed. On the day of survey, 13 green ash and 21 Siberian pea shrubs were alive. The Stevenson property included 16 green ash trees, 13 ponderosa pine trees (*Pinus ponderosa*), and 18 common lilac shrubs (*Syringa vulgaris*) that were planted along property line and black weed barrier was installed. On the day of survey all of these plants were dead. A representative photograph log displays planting locations and conditions with clear descriptions in Attachment 1.

Table 2: 2021 Tree and Shrub Survival Count

Recipient	Tree/Shrub Species Planted	Number of Replacements Originally Planted	2021 Count	Average Total Height - Inches	Survival Rate	Mortality Assessment
Troy Bratcher	Green ash	28	13 Alive 15 Dead	22 inches	46%	Natural Causes
Troy Bratcher	Siberian pea shrub	27	21 Alive 4 Dead	20 inches	78%	Natural Causes
Randy Stevenson	Green ash	16	0 Alive 16 Dead	-	0%	Natural Causes
Randy Stevenson	Ponderosa pine	13	0 Alive 13 Dead	-	0%	Natural Causes
Randy Stevenson	Common lilac	18	0 Alive	-	0%	Natural Causes
TOTAL	-	102	34	-	33%	-

4.0 SUMMARY AND CONCLUSIONS

Based on the total number of trees and shrubs planted in this phase (102 total), the survival rate was documented at 33% during the 2021 monitoring effort. The 2020 monitoring effort documented an approximate survival rate of 74%, the reduction in tree and shrub survival is likely due to the lack of precipitation within the region over 2021. Targa is continuing to work with the McKenzie County Soil Conservation District to plant the remaining species required for the Project mitigation.

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- PHOTO LOG

BRATCHER PROPERTY

AUGUST 31, 2021

Photo 1 – View facing northeast

Planting 1

Row 1 (left) - Siberian Pea shrub (*Caragana arborescens*). Initial planting totaled 25 seedlings. Upon inspection only 21 remain with an average height of 22 inches.

Row 2 (right) - Green Ash (*Fraxinus pennsylvanica*). Initial planting totaled 15 seedlings. Upon inspection only 7 remain with an average height of 15 inches.



Photo 2 – View facing southeast

Planting 2

Row 1 - Green Ash (*Fraxinus pennsylvanica*). Initial planting totaled 12 seedlings. Upon inspection only 6 remain with an average height of 20 inches.



STEVENSON PROPERTY

AUGUST 31, 2021

Photo 1 – View facing south

Weeds are encroaching all rows.

Row 1 - Green Ash (*Fraxinus pennsylvanica*). Total of 16 seedlings planted. All have died.

Row 2 – Ponderosa Pine (*Pinus ponderosa*). Total of 13 seedlings planted. All have died

Row 3 – Lilac (*Syringa vulgaris*). Total of 18 seedling planted. All have died



Golder Associates Inc.



Mia McCraw
Staff Biologist



Ashley Thomson
Senior Biologist

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