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October 3, 2023

Mr. Victor Schock
North Dakota Public Service Commission
600 E Boulevard Ave Dept. 408
Bismarck, ND 58505

**VIA: CERTIFIED MAIL 7019 1120 0002 3487 6362
RETURN RECEIPT REQUESTED**

**RE: Hess Corporation Depth of Cover River Crossing North Shore
Tree and Shrub Installation & Survival Rate Report**

Dear Mr. Schock:

Attached for your review is the Depth of Cover River Crossing North Shore Tree and Shrub Installation & Survival Rate Report. This report describes the 2022 plantings process and the 2023 survival rate. This completes the replanting 2:1 mitigation ratio requirement established by the Public Service Commission. Hess will submit two more survival rate inventory reports in Fall of 2024 and 2025.

If you should have any questions or comments concerning this report, please feel free to contact the undersigned at (281) 386-0406.

Sincerely,

Donald G. Bull

cc: Ms. Vicky Sund, Hess Corporation
Mr. Shane Larson, Hess Corporation
Mr. Brian Epperson, Hess Corporation
Mr. Ben Lauf, Hess Corporation

90 **PU-15-31** Filed: 10/10/2023 Pages: 24
2023 Tree and Shrub Survival Rate Report

Hess North Dakota Pipelines LLC
Donald Bull

85 **PU-15-32** Filed: 10/10/2023 Pages: 24
2023 Tree and Shrub Survival Rate Report

Hess North Dakota Pipelines LLC
Donald Bull

2023 HESS DEPTH OF COVER RIVER CROSSING NORTH SHORE TREE AND SHRUB INSTALLATION & SURVIVAL RATE REPORT

Field Verification: Week of July 24, 2023

Report Issuance: September 8, 2023

Issued By: D. Bull (Advisor EHS-Environmental & Regulatory)

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2023 HESS DEPTH OF COVER RIVER CROSSING NORTH SHORE TREE & SHRUB INSTALLATION & SURVIVAL RATE REPORT

1.0 INTRODUCTION

Hess North Dakota Pipelines, LLC, utilizes six (6) existing pipelines that cross Lake Sakakawea in New Town, McKenzie and Williams Counties, North Dakota (GPS coordinates: N48.117922°, W102.885652°). The western trench (Pipeline Nos. 1, 2, and 3) has three (3) 8-inch diameter pipelines, and the eastern trench (Pipeline Nos. 4, 5, and 6) has two (2) 8-inch diameter pipelines and one (1) 10-inch diameter pipeline (see Figure 1 Vicinity Map).

Hess North Dakota Pipelines, LLC, has one (1) abandoned 16-inch diameter pipeline that crosses Lake Sakakawea in New Town, McKenzie and Williams Counties, North Dakota (GPS coordinates: N48.117922°, W102.885652°). The pipeline was installed in 1961 and operated until 1971. The pipeline was degassed, internally cleaned, and abandoned in 1976.

The lakebed and shorelines had experienced erosion and scour that left some pipelines exposed and shallow-covered in these areas. A scour analysis study was performed on the above pipeline crossing locations. Sections of these pipelines required remediation/maintenance to satisfy a maintenance plan that outlines steps to ensure an appropriate depth-of-cover.

This project consisted of a study area located in Section 22, Township 154 North, Range 95 West in Williams County, North Dakota. As a condition of Hess's United States Army Corps of Engineers (USACE) permit for the project, Hess committed to conducting pre and post construction vegetation inventories on USACE property (Refer to Appendix A for Location Map and Appendix B for Vegetation Disturbance Map).

Per the North Dakota Public Service Commission (PSC) Tree and Shrub Mitigation Specifications requirements identified in the PSC's Findings of Facts, Conclusions of Law and Order for the Project, trees and shrubs shall be inventoried for replacement, replaced at a 2:1 ratio, and monitored for 3 years to determine if a 75 percent survival rate has occurred. Hess will submit annual reports to the PSC following each year's monitoring efforts. Hess understands the PSC may require additional plantings if the survival rate, after 3 years, is less than 75 percent.

2.0 REPLACEMENT PROCESS

The trees and shrubs planted on this project were procured from Lincoln-Oakes Nursery in Bismarck, ND. After the trees and shrubs were procured, they were transported and stored in a refrigerated trailer. The trees and shrubs were hand planted using a tree planting bar on June 14th & 15th, 2022. A pocket was created in the ground using the planting bar and the roots were trimmed to the depth of the pocket to avoid creating "J-root." Once the roots were trimmed, the tree or shrub was placed in the pocket and the pocket was closed by inserting the tree planting bar into the ground in front of the original pocket and pushing forward on the bar. After the trees were planted, they were watered using a truck with a 500-gallon water tank (Refer to Appendix C for Planting Rows Location Map).

PLANTING SUMMARY

Row	Row Lat/Long Start	Row Lat/Long End	Species	Quantity
1	-102.8928352°, 48.1514046°	-102.8928307°, 48.1516305°	Eastern Cottonwood	8
2	-102.8927742°, 48.1514070°	-102.8927728°, 48.1516113°	Eastern Cottonwood	4
3	-102.8927161°, 48.1513934°	-102.8925673°, 48.1513945°	Sharp-leaf willow	5
4	-102.8927118°, 48.1514134°	-102.8925746°, 48.1514139°	Eastern Cottonwood	4
5	-102.8927162°, 48.1514433°	-102.8925756°, 48.1514419°	Eastern Cottonwood	6
6	-102.8927181°, 48.1514724°	-102.8925764°, 48.1514724°	Eastern Cottonwood	4
7	-102.8927304°, 48.1515012°	-102.8925750°, 48.1515011°	Green Ash	2
7	-102.8927304°, 48.1515012°	-102.8925750°, 48.1515011°	Common Chokecherry	1
8	-102.8918108°, 48.1511575°	-102.8918104°, 48.1513764°	Silver Buffaloberry	29
9	-102.8917937°, 48.1511588°	-102.8917927°, 48.1513792°	Silver Buffaloberry	29
10	-102.8917767°, 48.1511613°	-102.8917745°, 48.1513902°	Silver Buffaloberry	27
11	-102.8917549°, 48.1512113°	-102.8917551°, 48.1514208°	Silver Buffaloberry	27
12	-102.8917373°, 48.1512406°	-102.8917365°, 48.1514965°	Silver Buffaloberry	26
13	-102.8917162°, 48.1512972°	-102.8917219°, 48.1515018°	Silver Buffaloberry	9
14	-102.8916957°, 48.1512420°	-102.8917016°, 48.1515059°	Sharp-leaf Willow	12
15	-102.8916759°, 48.1511737°	-102.8916784°, 48.1515068°	Sharp-leaf Willow	16
16	-102.8916571°, 48.1511770°	-102.8916552°, 48.1513262°	Sharp-leaf Willow	18
17	-102.8916363°, 48.1511807°	-102.8916319°, 48.1513023°	Sharp-leaf Willow	10
18	-102.8916138°, 48.1511835°	-102.8916141°, 48.1512629°	Sharp-leaf Willow	15
Total Tree/Shrub Count				252

Total Species	Quantity
Eastern Cottonwood	26
Sharp-leaf Willow	76
Green Ash	2
Common Chokecherry	1
Silver Buffaloberry	147
Total Tree/Shrub Count	252

3.0 SURVIVAL RATE ASSESSMENT

During the week of July 24, 2023, an inventory of trees and shrubs was conducted to determine the health of the June 2022 replacement process and to ensure a greater than 75% survival rate. It was determined that there was an 82% survival rate. Unfortunately, shortly after initial plantings, some of the species in rows 10-18 succumbed to animal predation. During year 2 (Summer 2024) of the inventory process of said plantings, trees/shrubs will be reevaluated. Table 2 lists the tree/shrub planting survival rate. Appendix D presents the pictures post construction (2021), after installation (2022) and after survival rate assessment (2023).

Table 2: River Crossing North Tree/Shrub Planting Survival Rate

Row	Row Lat/Long Start	Row Lat/Long End	Species	Quantity	Quantity Survived
1	-102.8928352°, 48.1514046°	-102.8928307°, 48.1516305°	Eastern Cottonwood	8	8
2	-102.8927742°, 48.1514070°	-102.8927728°, 48.1516113°	Eastern Cottonwood	4	4
3	-102.8927161°, 48.1513934°	-102.8925673°, 48.1513945°	Sharp-leaf willow	5	5
4	-102.8927118°, 48.1514134°	-102.8925746°, 48.1514139°	Eastern Cottonwood	4	4
5	-102.8927162°, 48.1514433°	-102.8925756°, 48.1514419°	Eastern Cottonwood	6	6
6	-102.8927181°, 48.1514724°	-102.8925764°, 48.1514724°	Eastern Cottonwood	4	4
7	-102.8927304°, 48.1515012°	-102.8925750°, 48.1515011°	Green Ash	2	2
7	-102.8927304°, 48.1515012°	-102.8925750°, 48.1515011°	Common Chokecherry	1	1
8	-102.8918108°, 48.1511575°	-102.8918104°, 48.1513764°	Silver Buffaloberry	29	29
9	-102.8917937°, 48.1511588°	-102.8917927°, 48.1513792°	Silver Buffaloberry	29	29
10	-102.8917767°, 48.1511613°	-102.8917745°, 48.1513902°	Silver Buffaloberry	27	20
11	-102.8917549°, 48.1512113°	-102.8917551°, 48.1514208°	Silver Buffaloberry	27	19
12	-102.8917373°, 48.1512406°	-102.8917365°, 48.1514965°	Silver Buffaloberry	26	21
13	-102.8917162°, 48.1512972°	-102.8917219°, 48.1515018°	Silver Buffaloberry	9	6
14	-102.8916957°, 48.1512420°	-102.8917016°, 48.1515059°	Sharp-leaf Willow	12	9
15	-102.8916759°, 48.1511737°	-102.8916784°, 48.1515068°	Sharp-leaf Willow	16	10
16	-102.8916571°, 48.1511770°	-102.8916552°, 48.1513262°	Sharp-leaf Willow	18	11
17	-102.8916363°, 48.1511807°	-102.8916319°, 48.1513023°	Sharp-leaf Willow	10	7
18	-102.8916138°, 48.1511835°	-102.8916141°, 48.1512629°	Sharp-leaf Willow	15	11
Total Tree/Shrub Count				252	206
				Mortality Rate	18.25
				Survival Rate	81.75

4.0 REPLACEMENT MONITORING

Hess completed year 1 of a 3-year survival rate inventory process for the trees and shrubs installed in 2022. It was determined that there was an 82% survival rate.

Schedule of Survival Rate Inventory Process and Annual Report Submittal

Year 1 of 3 Summer 2023, with Annual Report submitted Fall 2023.

Year 2 of 3 Summer 2024, with Annual Report submittal during Fall 2024.

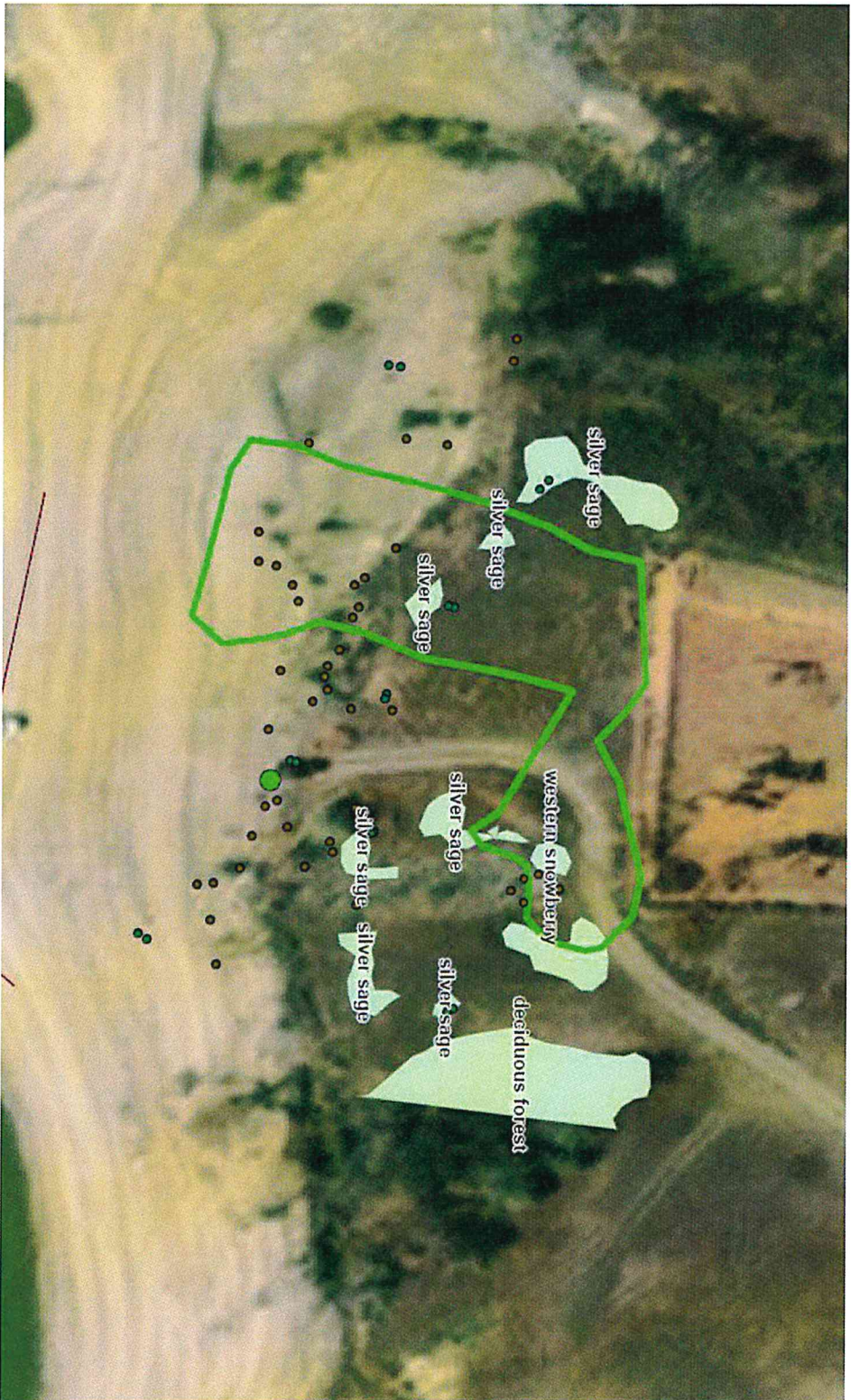
Year 3 of 3 Summer 2025, with final Annual Report submittal during Fall 2025.

APPENDIX A: LOCATION MAP



APPENDIX B: VEGETATION DISTURBANCE MAP

Vegetation Disturbance Map



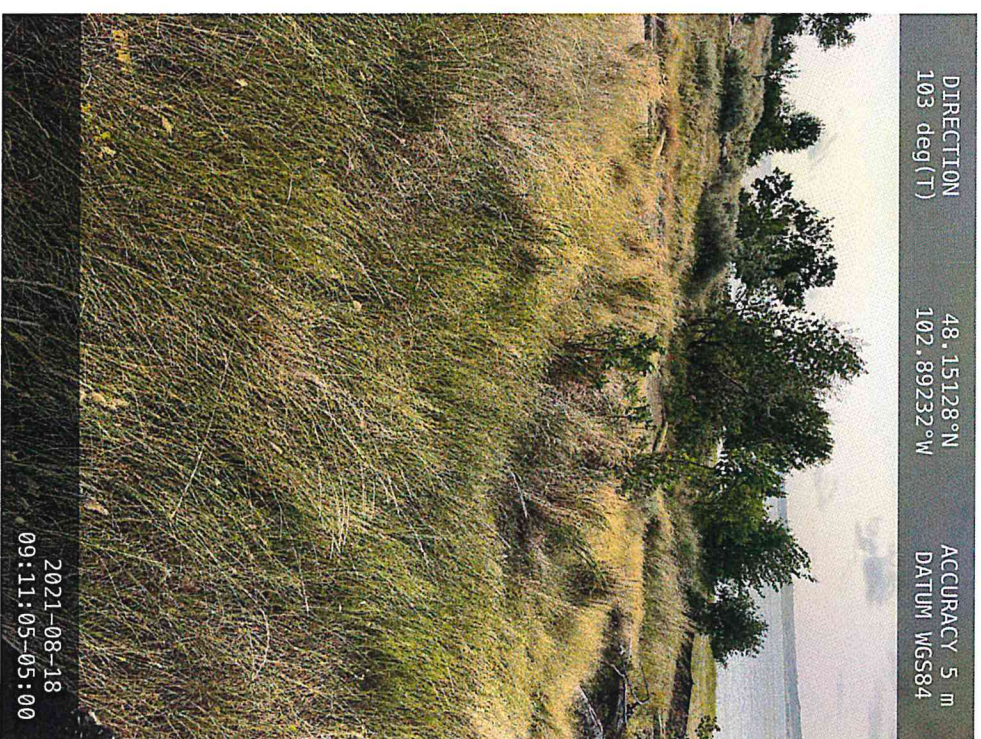
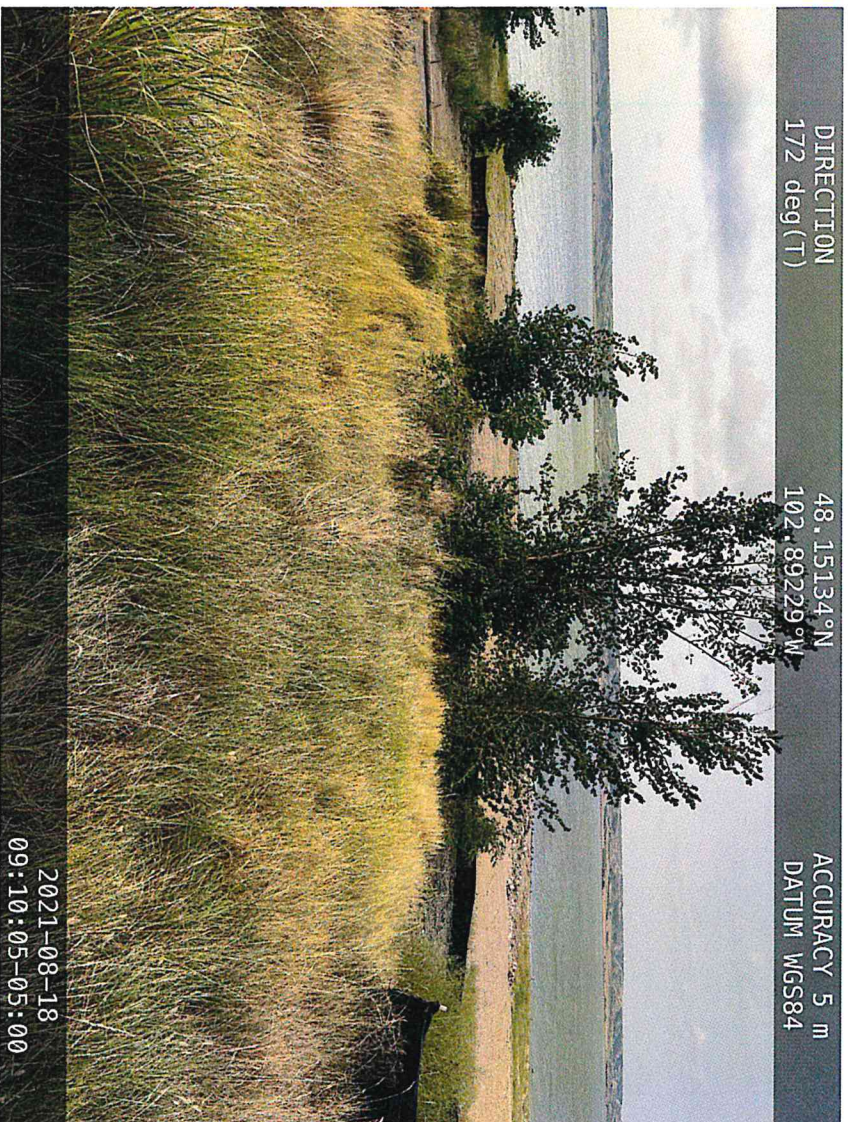
APPENDIX C: SPECIES AND PLANTING ROW'S LOCATION MAP

Species Planting Rows Location Map



APPENDIX D PICTURES POST CONSTRUCTION (2021), AFTER INSTALLATION (2022) AND AFTER SURVIVAL RATE ASSESSMENT (2023)

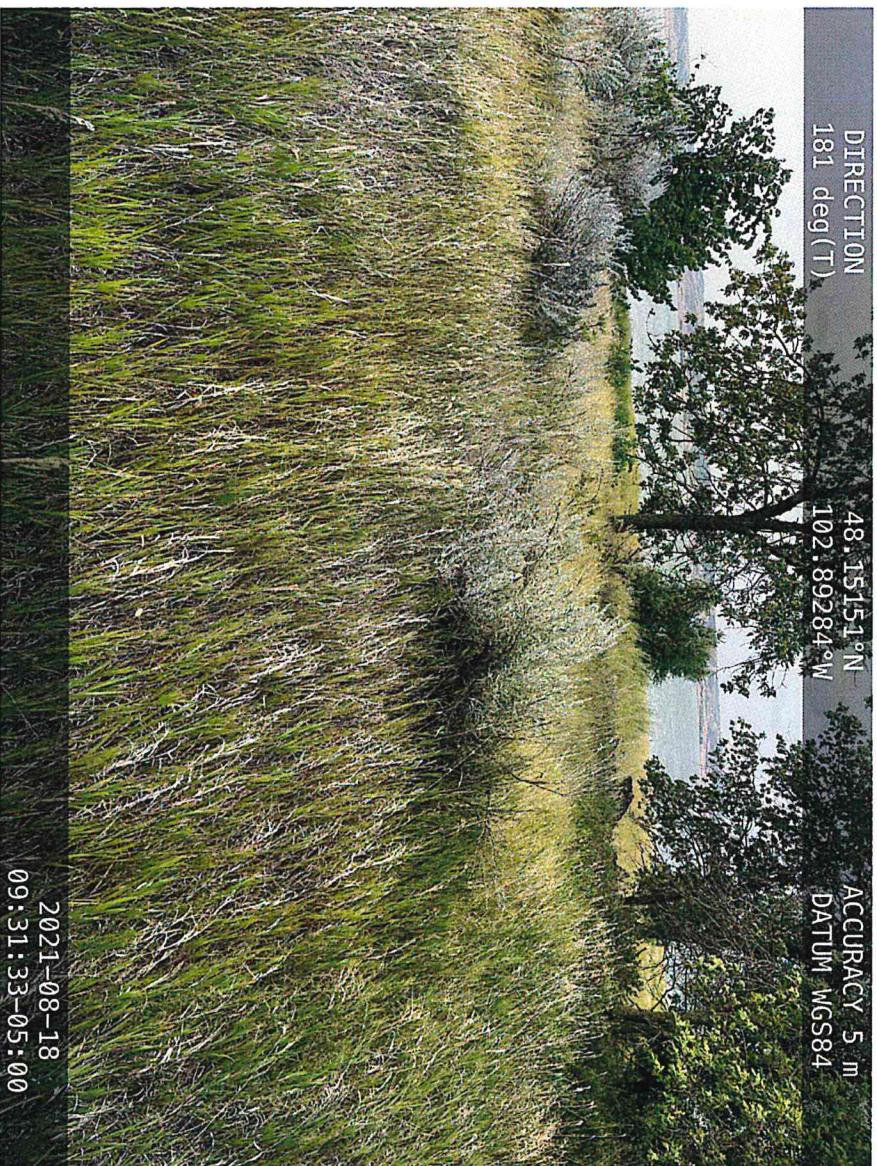
Post Construction Pictures (2021)



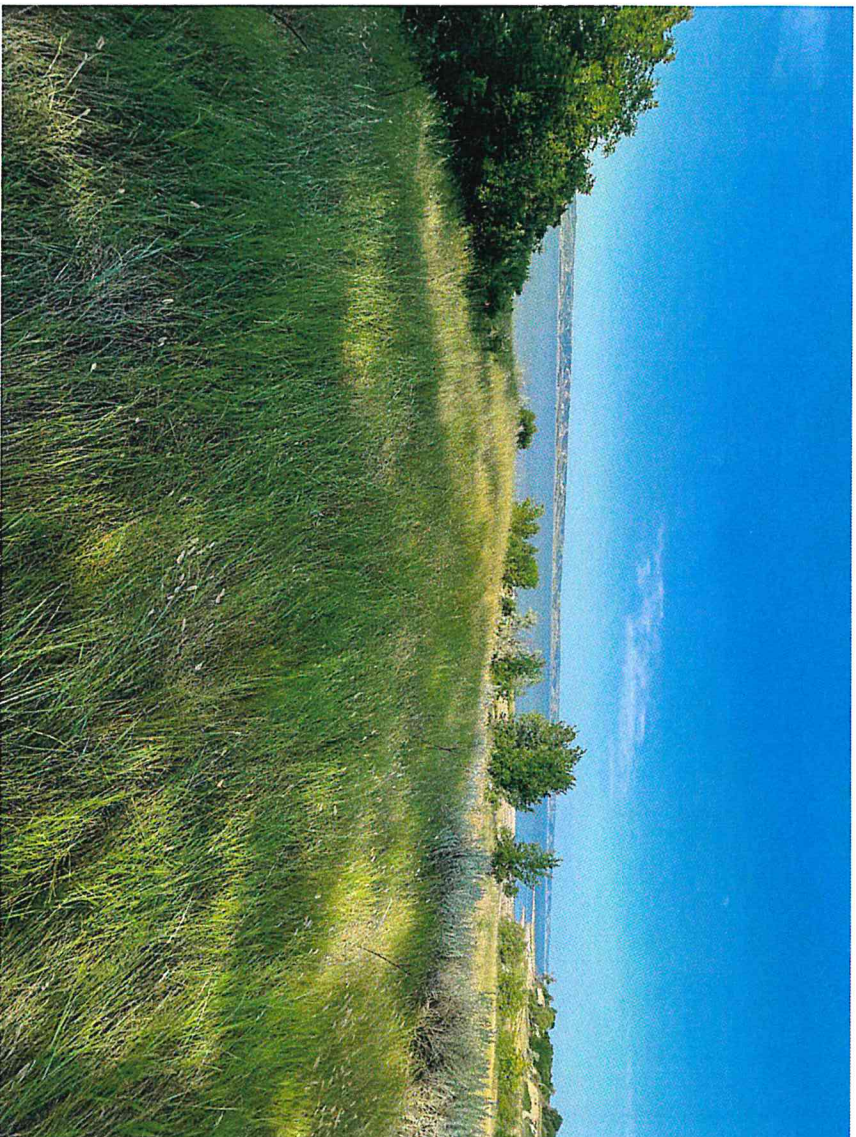
Post Construction Pictures (2021)



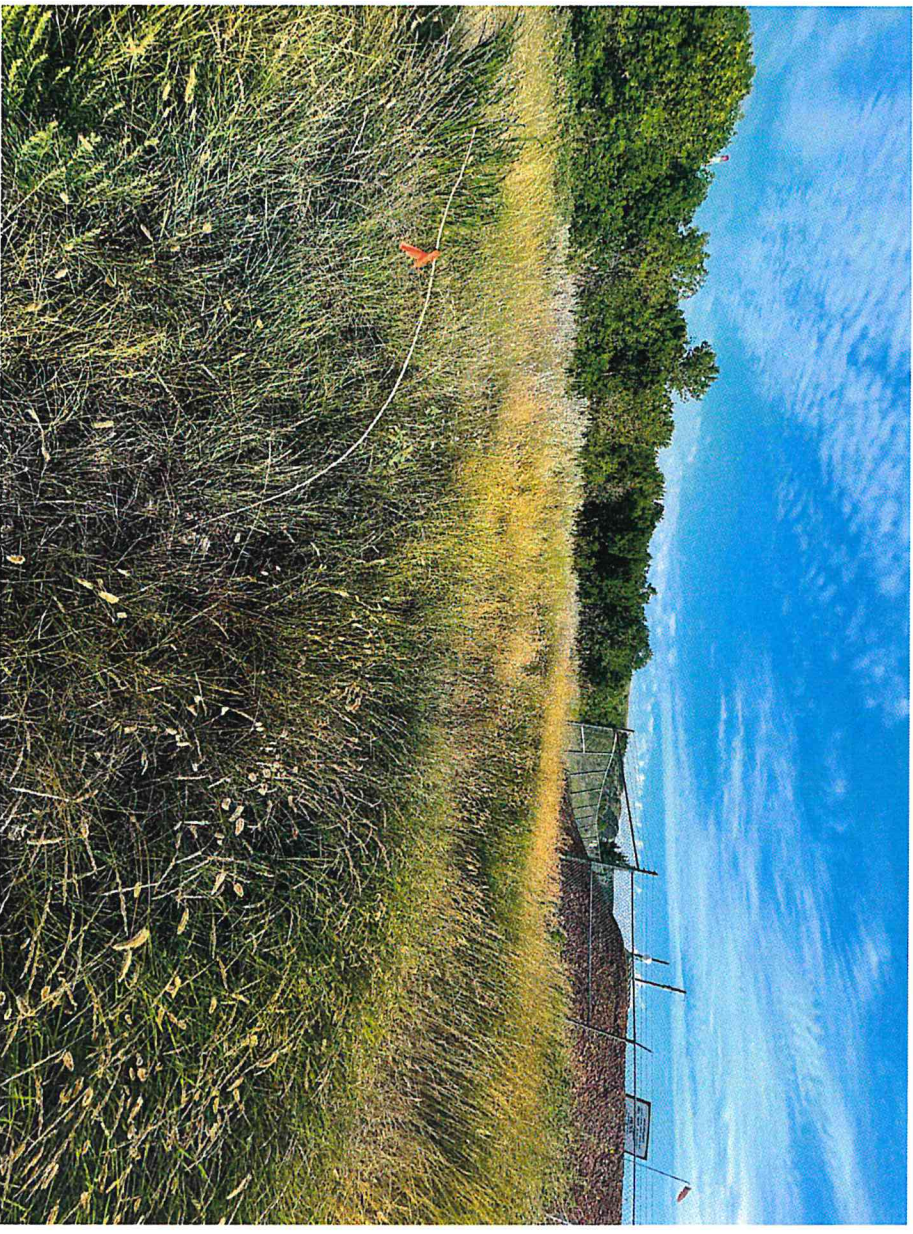
Post Construction Pictures (2021)



After Tree/Shrub Installation Pictures (2022)



After Tree/Shrub Installation Pictures (2022)



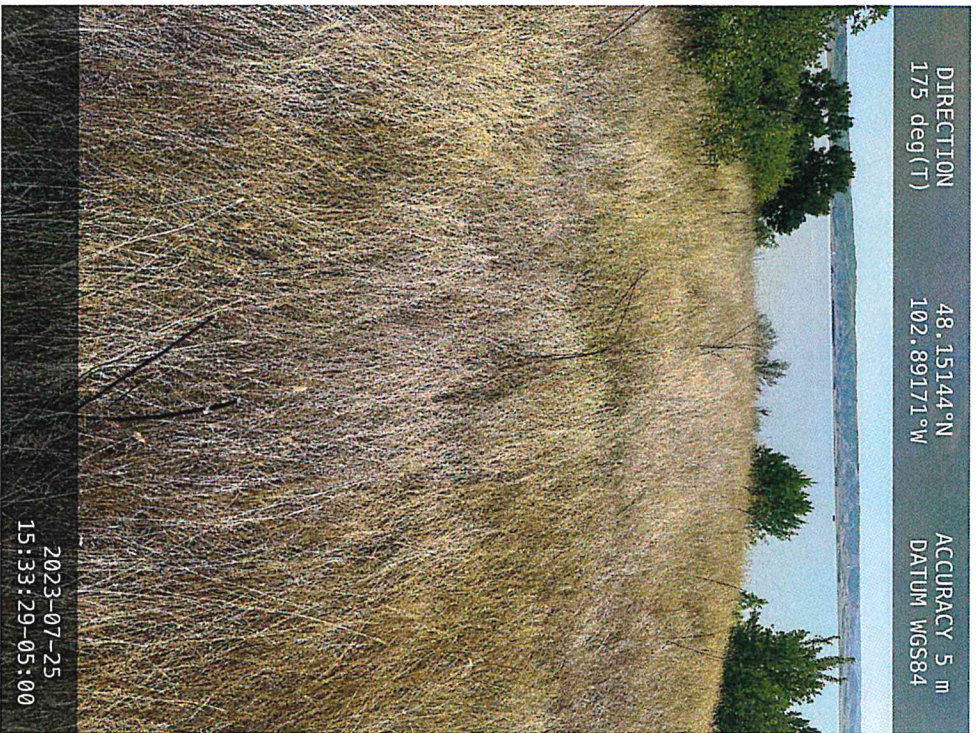
After Tree/Shrub Installation Pictures (2022)



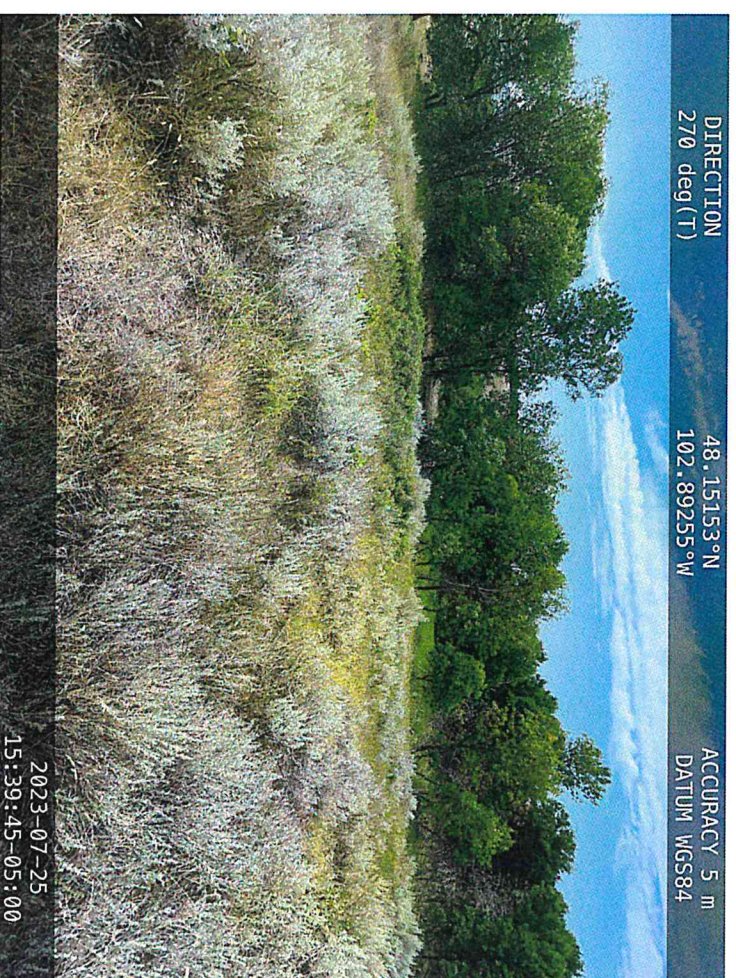
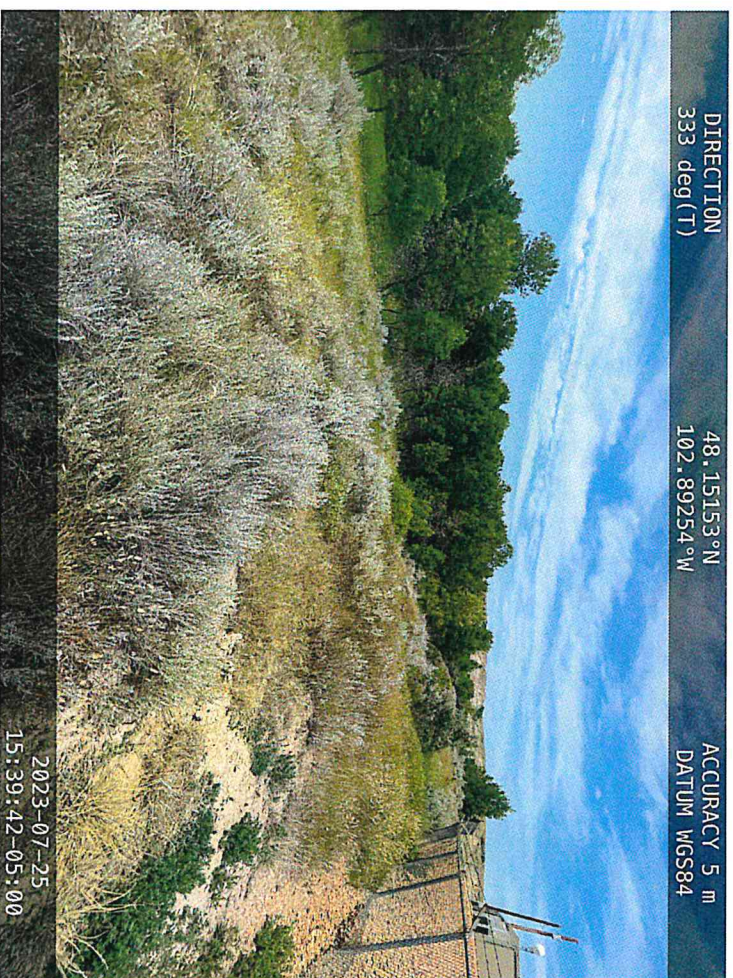
After Survival Rate Assessment Pictures (2023)



After Survival Rate Assessment Pictures (2023)



After Survival Rate Assessment Pictures (2023)



After Survival Rate Assessment Pictures (2023)

