



November 29, 2018

Via Electronic Filing

Jerry Lein, Public Utility Analyst
 North Dakota Public Service Commission
 600 East Boulevard Avenue
 Bismarck, ND 58505-0480

Reference: **2018 Tree and Shrub Mitigation Monitoring Report
 CapX2020 Fargo-St. Cloud 345 kV Transmission Line
 Case No. PU-07-759
 Cass County, North Dakota**

Dear Mr. Lein,

This is the third and final annual Tree and Shrub Mitigation Monitoring Reports for the 33 mile section of CapX2020 Fargo-St. Cloud 345 kV Transmission Line (CapX) located in Cass County, North Dakota. The CapX Utilities request that the Commission find that tree mitigation requirements have been met.

INTRODUCTION

Project Location

The project mitigation areas identified along the CapX right of way (ROW) were mitigated throughout Cass County, North Dakota as the location of the tree plantings were chosen by participating CapX landowners (Table 1).

Table 1. Mitigation Site Locations

Plot Number ¹	Landowner	Location ²	Township
1 & 3	Fercho Family Farms	Sec. 14, T141, R49	Harwood
2	Brian & Kelly Duchscherer (Fields 1-5)	Sec. 18, T137, R48	Pleasant
8	Edward & Joann Jameson (Fields 1-3)	NE ¼, Sec 11, T137, R50	Normanna
8A	Paul & Carolyn Thoen	SE ¼, Sec. 2, T137, R50	Normanna
11	Melissa and Doug Trom	Sec. 28, T139, R51	Durbin
15	Michael Kasowski	Sec. 12, T139, R51	Durbin
15	Mary Dalrymple, at al Trust	SE ¼, Sec. 36, T140, R52	Casselton
16	Dorothy Dubord (Mike)	Sec. 15, T137, R49	Pleasant
16A	Dorothy Dubord (Leo)	Sec. 4, T137, R49	Pleasant

¹Plots identified in the July 2014 North Dakota Tree and Shrub Mitigation Report as participating landowners.

²Provided by the Cass County Soil Conservation District

Mitigation Design Objectives

Trees cleared from the CapX ROW in Cass County were inventoried by Barr engineering in the July 2014 *North Dakota Tree and Shrub Mitigation Report*, which indicated the total number of trees to be mitigated, mitigation methods and landowners who accepted, or waived, mitigation plantings on their property. Trees from waived properties were distributed and plated for landowners who accepted mitigation (Table 1). To mitigate for the 2,188 eligible trees cleared from the CapX ROW, a minimum of 4,376 trees would need to be planted with 3,282 trees surviving at the end of the third monitoring year to meet the 75% survival rate required by the North Dakota Public Service Commission (NDPSC) case number PU-07-759.

Removed Tree Count is 50% Invasive Buckthorn

NDPSC rules do not exclude invasive species from mitigation requirements therefore 1,094 European Buckthorn were counted and included in the mitigation requirements. Buckthorn is identified as an invasive weed in Priority Issue 2.1 of the North Dakota Forest Action Plan. Xcel notes that half of the trees planted as part of this plan are to mitigate for removing Buckthorn.

Mitigation Plan Implementation

Xcel contracted with the Cass County Soil Conservation District (SCD) to implement the mitigation plan. The Cass County SCD has been assisting project area landowners for over 60 years with conservation tree services. SCD staff worked with each landowner on tree placement, species and planting planning.

Mitigation Site Description

Trees planted on the participating properties listed in Table 1 can be found in appendix B. A total of 4,994 trees were planted across eight of the nine plots in Cass County, ND.

Table 2. Mitigation Tree Plantings

Plot Number	Landowner	Date Planted	Trees Planted
1 & 3	Fercho Family Farms	6/2/2015	2205
2	Brian & Kelly Duchscherer (Fields 1-5)	5/5/2015	1421
8	Edward & Joann Jameson (Fields 1-3)	5/4/2015	364
8A	Paul & Carolyn Thoen	5/4/2015	156
11	Melissa and Doug Trom	7/8/2015	256
15	Michael Kasowski	See Results	0
15	Mary Dalrymple, at al Trust	5/27/2015	213
16	Dorothy Dubord (Mike)	5/16/2015	264
16A	Dorothy Dubord (Leo)	5/5/2015	115
Total			4994

Specific Issues

At the Trom property, the landowner required tree planting adjacent to the Maple River despite SCD staff advising that trees would not likely survive a this location.

The Kasowski parcel, Plot 15, was not planted. Trees were acquired by the SCD in 2015 and again in 2016. Both times planting crews attempted to plant the Kasowski parcel. At each attempt there were

issues with property boundary uncertainty and neighbor concerns. As trees had already been purchased for each growing season, the trees were given to the public by the SCD in 2015 and 2016 to prevent the trees being wasted. Although these trees cannot be tracked, the SWCD provided 1,312 trees both years to local landowners to plant in Cass County or surrounding area. No additional attempts to plant trees on the Kasowski property will be made.

MONITORING RESULTS

A site visit to count mitigated trees was conducted September 24 through September 25, 2018 to determine the third year survival rates for the eight plots (Appendix B). Each plot was visited and counted using a mechanical hand tally counter. Plot conditions and notes can be found on the field data sheets in appendix B. Photos of the mitigation sites can be found in appendix A.

Table 3. Mitigation Site Tree Survival Rates

Plot	Landowner	Township	Date Planted	Trees Planted	2016 Surviving Trees	2017 Surviving Trees	2018 Surviving Trees	% Survival	
1 & 3	Fercho Family Farms	Harwood	6/2/2015	2205	1581	1487	1488	67%	
2	Brian & Kelly Duchescherer (Fields 1-5)	Pleasant	5/5/2015	1421	895	717	673	47% ¹	
8	Edward & Joann Jameson (Fields 1-3)	Normanna	5/4/2015	364	257	231	217	60%	
8A	Paul & Carolyn Thoen	Normanna	5/4/2015	156	110	104	104	67%	
11	Melissa and Doug Trom	Durbin	7/8/2015	256	43	14	4	² 2%	
15	Michael Kasowski	Durbin	Not Planted See Results	0	0	0	0	NA	
15	Mary Dalrymple, at al Trust	Casselton	5/27/2015	213	163	143	138	65%	
16	Dorothy Dubord (Mike)	Pleasant	5/16/2015	264	79	74	65	25%	
16A	Dorothy Dubord (Leo)	Pleasant	5/5/2015	115	98	94	96	83%	
				Total	4994	3226	2864	2785	56%
							% Survival from 2017 to 2018	97%	

¹ Landowner was unhappy about the survival rate of his trees. Applicants provided him with a line of credit at a local nursery to purchase replacement trees. He is now satisfied.

² The low survival rate at this location is due to landowner's requirement that trees be planted in an area where tree experts warned that they would not do well.

Conclusions

At the end of the third year monitoring, the overall survival rate of the total number trees planted was 56% (2,785 trees, Table 3). Although 960 trees short of the 75% survival rate. Factors that should be considered in tree mitigation goals include:

- Half of the mitigation was for invasive buckthorn
- 2,600 trees were given away to local residents due to inability to plant on the Kasowski property.
- Applicants its contractors made extra effort to meet landowner desires even at the expense of assuring tree survival.
- Follow up assistance was provided to purchase replacement trees that would be planted by landowner

Applicants believe tree mitigation requirements have been met and request confirmation from the Commission.

If you have any questions, or require any additional information, please contact me at (612) 330-5835 or Andrew Welch (who performed the monitoring).

Sincerely,

 Tom Hillstrom Permit Project Lead 612- 330-5835	 Andrew Welch Environmental Scientist 319-327-1803
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APPENDIX A: Photo Log

Photo Log



Photo 1

Date: 9/25/2018

Location: Fercho Family Farms Field 1

Description:

Site overview looking north from the southwest corner of the field. Competing vegetation mowed between the rows and less weed pressure was observed within the fabric openings than previous years.



Photo 2

Date: 9/25/2018

Location: Fercho Family Farms Field 1

Description:

Site overview looking east from the southwest corner of the field.



Photo 3

Date: 9/25/2018

Location: Fercho Family Farms Field 1

Description:

Spruce trees in rows 1 and 2 had the highest survival rate of the field.



Photo 4	Date: 9/25/2018
Location: Fercho Family Farms Field 1	
Description: Bur oak damaged by wildlife (deer)	



Photo 5	Date: 9/25/2018
Location: Fercho Family Farms Field 1	
Description: Flame willow (right) and dogwood (left) growing well.	



Photo 6	Date: 9/25/2018
Location: Fercho Family Farms Field 1	
Description: Flame willow and other deciduous species were not growing as well in the eastern portion of the field.	



Photo 7

Date: 9/24/2018

Location: Brian and Kelly Duchscherer Field 1

Description:

Site overview of looking northeast. Weed pressure in 2018 was less than 2017.



Photo 8

Date: 9/24/2018

Location: Brian and Kelly Duchscherer Field 1

Description:

Rocky mountain junipers and black hills spruce survived well from 2017.



Photo 9

Date: 9/24/2018

Location: Brian and Kelly Duchscherer Field 1

Description:

Sandbar willows were starting to complete with weed pressure and a some stems counted as dead in 2017 had a new stem growing next to the dead stem.



Horace, ND 58047
 +46.687686, -96.790111
 September 24, 2018

Photo 10	Date: 9/24/2018
Location: Brian and Kelly Duchscherer Field 1	
Description: Deciduous trees in field one had very similar survival rates from 2017. Mowing appears to have been completed between the rows	



Horace, ND 58047
 +46.686614, -96.790889
 September 24, 2018

Photo 11	Date: 9/24/2018
Location: Brian and Kelly Duchscherer Field 1	
Description: Oaks observed in field one had little growth observed from the previous year (2017)	



Horace, ND 58047
 +46.687684, -96.790113
 September 24, 2018

Photo 12	Date: 9/24/2018
Location: Brian and Kelly Duchscherer Field 2	
Description: Field overview photo of rows 1-4, trees remain small even with low weed pressure.	



Photo 13	Date: 9/16/2017
Location: Brian and Kelly Duchscherer Field 2	
Description: Field overview photo of rows 5-6 were removed by the landowner due to poor survival and to gain the ability to mow down the weeds.	



Photo 14	Date: 9/24/2018
Location: Brian and Kelly Duchscherer Field 3	
Description: Field overview from the southwest corner of the field view east.	



Photo 15	Date: 9/24/2018
Location: Brian and Kelly Duchscherer Field 3	
Description: The end of rows 4 and 5 were removed in the turf area as the landowner removed the fabric due to poor survival.	



Horace, ND 58047
 +46 687897 -96 738637
 September 24, 2018

Photo 16

Date: 9/24/2018

Location: Brian and Kelly Duchscherer Field 3

Description:

Willow sapling growing next to dead stem from 2017.



Horace, ND 58047
 +46 691150 -96 833170
 September 24, 2018

Photo 17

Date: 9/24/2018

Location: Brian and Kelly Duchscherer Field 4

Description:

Although the fabric row was in good condition, competing vegetation from between the rows would suppress the trees.



Horace, ND 58047
 +46 741151 -96 812063
 September 24, 2018

Photo 18

Date: 9/24/2018

Location: Brian and Kelly Duchscherer Field 4

Description:

Deer food plot planted between the rows of trees on the south half of the field. Portions of ROWs 1-3 were mowed.



Photo 19

Date: 9/24/2018

Location: Brian and Kelly Duchscherer Field 5

Description:

Site overview looking east.

Horace, ND 58047
+46 684075 -96 792413
September 24, 2018



Photo 20

Date: 9/24/2018

Location: Brian and Kelly Duchscherer Field 5

Description:

Site overview looking west. Junipers had good growth from the previous year

Horace, ND 58047
+46 682998 -95 789879
September 24, 2018



Photo 21

Date: 9/24/2018

Location: Brian and Kelly Duchscherer Field 5

Description:

Little growth observed in the Green Ash row

Horace, ND 58047
+46 683260 -96 790246
September 24, 2018



Horace, ND 58047
 +46.689847,-96.825537
 September 24, 2018

Photo 22

Date: 9/24/2018

Location: Edward & Joann Jameson - 1

Description:

Field 1 looking north, rows well maintained, but had some areas of high weed pressure in with the trees in the fabric.



Horace, ND 58047
 +46.690192,-96.828527
 September 24, 2018

Photo 23

Date: 9/24/2018

Location: Edward & Joann Jameson - 2

Description:

Field 2 looking east, rows well maintained with little growth observed from 2017.



Horace, ND 58047
 +46.691325,-96.833447
 September 24, 2018

Photo 24

Date: 9/24/2018

Location: Edward & Joann Jameson - 3

Description:

Field 3 looking west, rows well maintained.



Horace, ND 58047
 +46.751144,-96.923740
 September 24, 2018

Photo 25

Date: 9/24/2018

Location: Paul & Carolyn Thoen

Description:

Site overview looking north. Rows are mowed between, but no maintenance has been done around the planted trees.



Horace, ND 58047
 +46.743682,-96.900768
 September 24, 2018

Photo 26

Date: 9/24/2018

Location: Paul & Carolyn Thoen

Description:

Good growth observed in Row 1 (lilac)



Mapleton, ND 58059
 +46.831871,-97.120489
 September 25, 2018

Photo 27

Date: 9/25/2018

Location: Melissa and Doug Trom

Description:

Site overview looking southwest along the river (trees in photo are boxelder growing naturally along the river).



Photo 28

Date: 9/25/2018

Location: Melissa and Doug Trom

Description:

Surviving amour chokecherry.



Photo 29

Date: 9/25/2018

Location: Melissa and Doug Trom

Description:

A silver maple observed growing in 2018 was a new sprout from the roots with the original stem missing.



Photo 30

Date: 9/25/2018

Location: Melissa and Doug Trom

Description:

Site overview looking northeast from the site midpoint (trees in photo are boxelder growing naturally along the river).



Mapleton, ND 58059
 +46 829645 -97 125103
 September 25, 2018

Photo 31

Date: 9/25/2018

Location: Melissa and Doug Trom

Description:

Fabric square covered with grass.



Mapleton, ND 58059
 +46 829645 -97 125103
 September 25, 2018

Photo 32

Date: 9/25/2018

Location: Melissa and Doug Trom

Description:

Fabric square from photo 31 exposed.



Mapleton, ND 58059
 +46 825226 -97 125103
 September 25, 2018

Photo 33

Date: 9/25/2018

Location: Melissa and Doug Trom

Description:

Site overview looking northeast from the south end of the planting.



Photo 34

Date: 9/25/2018

Location: Mary Dalrymple, at al Trust

Description:

Field 1 overview looking south. Trees protected from the east and west by a tree lines.



Photo 35

Date: 9/24/2018

Location: Mary Dalrymple, at al Trust

Description:

Field 1 over view looking north where trees are not protected by to the west by a tree line.



Photo 36

Date: 9/24/2018

Location: Mary Dalrymple, at al Trust

Description:

Green ash damaged by wildlife (deer)



Horace, ND 58047
 +46.744869, -96.932155
 September 24, 2018

Photo 37

Date: 9/24/2018

Location: Mary Dalrymple, at al Trust

Description:

Field 2 overview looking south.



Horace, ND 58047
 +46.689436, -96.824877
 September 24, 2018

Photo 38

Date: 9/24/2018

Location: Dorothy Dubord (Mike)

Description:

Site over view looking southwest. Heavy weed pressure in and between the rows.



Horace, ND 58047
 +46.689436, -96.824877
 September 24, 2018

Photo 39

Date: 9/24/2018

Location: Dorothy Dubord (Mike)

Description:

Green ash tree growing well under the giant ragweed canopy with giant ragweed surrounding it in the fabric.



Horace, ND 58047
 +46.689436, -96.824878
 September 24, 2018

Photo 37	Date: 9/24/2018
Location: Dorothy Dubord (Mike)	
Description: Giant ragweed damaged along rows.	



Horace, ND 58047
 +46.689436, -96.824877
 September 24, 2018

Photo 38	Date: 9/24/2018
Location: Dorothy Dubord (Mike)	
Description: No surviving sandbar willow stems observed.	



Horace, ND 58047
 +46.716864, -96.874081
 September 24, 2018

Photo 39	Date: 9/24/2018
Location: Dorothy Dubord (Leo)	
Description: Well maintained rows.	



Horace, ND 58047
 +46.716900,-96.874144
 September 24, 2018

Photo 40

Date: 9/24/2018

Location: Dorothy Dubord (Leo)

Description:

Well maintained rows.



Horace, ND 58047
 +46.716780,-96.873930
 September 24, 2018

Photo 41

Date: 9/24/2018


Location: Dorothy Dubord (Leo)

Description:

Green ash had significant growth compared to the 2017 survey.

APPENDIX B: PLOT DATA SHEETS

2016 North Dakota Tree and Shrub Mitigation Monitoring Report

Map		Landowner Info		
	Name	John Fercho		
	Address	NA		
	Contact Info			
	Cell	NA		
	Phone	701-282-5989		
	Location			
	Township	Harwood		
	Twp/Range	141-49		
	Section	14		
	Quarter			
Planting				
Date Planted	6/2/2015			
Condition of site at time of planting:				
Fair				
Protected from Grazing	Yes			

Field No.	Planted length	Planted Width*	Ac.	Row No.	Species	Spacing in Row	# Planted	# Surviving			Survival Percentage
								2016	2017	2018	
1	3440	10	0.79	1	Spruce, Black Hills	10	344	292	287	284	82.56
1	3420	14	1.10	2	Spruce, Black Hills	12	285	247	247	245	85.96
1	3395	14	1.09	3	Oak, Bur	10	340	233	182	182	53.53
1	3340	14	1.07	4	Willow, Flame	8	418	324	305	297	71.05
1	3270	24	1.80	5	Dogwood, Red osier	4	818	485	466	480	58.68
Total	16865	76	5.86				2205	1581	1487	1488	67.48

*Inc. 10' on each side of planting

Additional Comments

Some of the Red Osier Dogwood in Row 5 resprouted from dead stems observed in fall of 2017. Some of the Bur oak in Row 2 were rubbed by deer and the eastern third of Rows 3-5 were browsed by wildlife. Majority of the Bur oak had little growth in 2018.

2016 North Dakota Tree and Shrub Mitigation Monitoring Report

Map		Landowner Info		
	Name	Brian Duchsherer		
	Address	17538 50th St. SE Hickson, ND 58047		
	Contact Info			
	Cell	701-429-8629		
	Phone	NA		
	Location			
	Township	NA		
	Twp/Range	137-48		
	Section	18		
	Quarter			
Planting				
Date Planted	5/5/2015			
Condition of site at time of planting:				
Good				
Protected from Grazing	Yes			

Field No.	Planted length	Planted Width*	Ac.	Row No.	Species	Spacing in Row	# Planted	# Surviving			Survival Percentage
								2016	2017	2018	
1	215	10	0.05	1	Spruce, Black Hills	12	17	17	17	100.00	
1	215	24	0.12	2	Juniper, Rocky Mtn.	10	21	17	17	80.95	
1	550	10	0.13	3	Maple, Silver	8	68	42	25	36.76	
1	575	14	0.18	4	Spruce, Black Hills	10	57	35	35	61.40	
1	95	14	0.03	5	Crabapple, Siberian	4	23	15	13	65.22	
1	105	14	0.03	6	Cottonwood, Sioux land	8	13	12	12	92.31	
1	135	14	0.04	7	Oak, Bur	10	13	10	11	84.62	
1	125	14	0.04	8	Juniper, Rocky Mtn.	12	10	10	10	100.00	
1	180	14	0.06	9	Spruce, Black Hills	10	18	16	16	88.89	
1	180	14	0.06	10	Juniper, Rocky Mtn.	12	15	15	15	100.00	
1	180	14	0.06	11	Spruce, Black Hills	10	18	15	12	66.67	
1	220	14	0.07	12	Oak, Bur	8	27	22	17	48.15	
1	327	14	0.11	13	Ash, Green	10	32	20	18	56.25	
1	425	14	0.14	14	Crabapple, Siberian	4	106	64	56	50	47.17
1	660	14	0.21	15	Cottonwood, Sioux land	8	82	61	43	41	50.00
1	660	24	0.36	16	Willow, Sandbar	4	165	90	56	63	38.18
Total	4847	236	1.688				685	461	373	370	54.01

*Inc. 10' on each side of planting

Additional Comments

Some sandbar willow believed to be dead in the fall of 2017 has resprouted. Surviving plants in the northwest corner of the planting area growing well, however, majority of the plantings remain similar to last year (2017) in size.

2016 North Dakota Tree and Shrub Mitigation Monitoring Report

Map		Landowner Info		
	Name	Brian Duchsherer		
	Address	17538 50th St. SE Hickson, ND 58047		
	Contact Info			
	Cell	701-353-9774		
	Phone	NA		
	Location			
	Township	NA		
	Twp/Range	137-48		
	Section	18		
	Quarter			
	Planting			
	Date Planted	5/5/2015		
Condition of site at time of planting:				
Good				
Protected from Grazing		Yes		


Field No.	Planted length	Planted Width*	Ac.	Row No.	Species	Spacing in Row	# Planted	# Surviving			Survival Percentage
								2016	2017	2018	
2	0	10	0.00	1	Oak, Bur	10	0	0	0	NA	
2	70	14	0.02	2	Ash, Green	8	9	5	5	3	33.33
2	70	14	0.02	3	Maple, Silver	10	7	4	2	0	0.00
2	70	24	0.04	4	Crabapple, Siberian	4	17	13	11	11	64.71
2	140	10	0.03	5	Cottonwood, Siouxland	8	17	12	9	0	0.00
2	140	24	0.08	6	Maple, Silver	10	14	3	1	0	0.00
Total	490	96	0.193				64	37	28	14	21.88

*Inc. 10' on each side of planting

Additional Comments

Rows 5 and 6 were removed by the landowner due to poor survival rate. Little to no growth observed from the 2017 Survey.

2016 North Dakota Tree and Shrub Mitigation Monitoring Report

Map		Landowner Info		
	Name	Brian Duchsherer		
	Address	17538 50th St. SE Hickson, ND 58047		
	Contact Info			
	Cell	701-353-9774		
	Phone	NA		
	Location			
	Township	NA		
	Twp/Range	137-48		
	Section	18		
	Quarter			
	Planting			
	Date Planted	5/5/2015		
	Condition of site at time of planting:			
Good				
Protected from Grazing	Yes			


Field No.	Planted length	Planted Width*	Ac.	Row No.	Species	Spacing in Row	# Planted	# Surviving			Survival Percentage
								2016	2017	2018	
3	80	10	0.02	1	Willow, Sandbar	4	61	12	6	6	9.84
3	120	24	0.07	2	Ash, Green	8	30	21	8	7	23.33
3	400	10	0.09	3	Willow, Sandbar	4	125	75	44	41	32.80
3	400	14	0.13	4	Cottonwood, Sioux land	8	21	14	7	6	28.57
3	475	14	0.15	5	Oak, Bur	10	26	9	5	0	0.00
3	245	14	0.08	6	Crabapple, Siberian	6	20	11	7	9	45.00
3	250	14	0.08	7	Spruce, Black Hills	10	13	12	11	11	84.62
3	235	14	0.08	8	Juniper, Rocky Mtn.	8	20	19	18	18	90.00
3	235	14	0.08	9	Spruce, Black Hills	10	25	22	22	22	88.00
3	235	14	0.08	10	Crabapple, Siberian	6	33	13	14	14	42.42
3	100	14	0.03	11	Maple, Silver	8	15	2	1	1	6.67
3	70	14	0.02	12	Oak, Bur	10	10	10	6	6	60.00
3		24	0.00	13	Ash, Green	8	23	19	18	16	69.57
Total	2845	194	0.898				422	239	167	157	37.20

*Inc. 10' on each side of planting

Additional Comments

Rows 4 and 5 were mowed with the fabric removed due to poor survival. The six surviving cottonwood in Row 4 were mowed around. Little to no change in growth in majority of the field.

2016 North Dakota Tree and Shrub Mitigation Monitoring Report

Map		Landowner Info		
	Name	Brian Duchsherer		
	Address	17538 50th St. SE Hickson, ND 58047		
	Contact Info			
	Cell	701-353-9774		
	Phone	NA		
	Location			
	Township	NA		
	Twp/Range	137-48		
	Section	18		
	Quarter			
Planting				
Date Planted	5/5/2015			
Condition of site at time of planting:	Good			
Protected from Grazing	Yes			


Field No.	Planted length	Planted Width*	Ac.	Row No.	Species	Spacing in Row	# Planted	# Surviving			Survival Percentage
								2016	2017	2018	
4	60	10	0.01	1	Oak, Bur	12	6	4	3	0	0.00
4	75	10	0.02	2	Crabapple, Siberian	10	12	8	9	9	75.00
4	120	10	0.03	3	Ash, Green	8	15	7	7	2	13.33
4	125	14	0.04	4	Juniper, Rocky Mtn.	10	12	9	7	9	75.00
4	10	14	0.00	5	Spruce, Black Hills	4	2	5	4	4	200.00
4	90	14	0.03	6	Ash, Green	8	11	4	2	1	9.09
4	160	14	0.05	7	Crabapple, Siberian	10	26	10	9	9	34.62
4	175	14	0.06	8	Oak, Bur	12	17	3	5	2	11.76
4	75	10	0.02	9	Maple, Silver	10	10	0	0	0	0.00
Total	890	110	0.256				111	50	46	36	32.43

*Inc. 10' on each side of planting

Additional Comments

The southwest portion of rows 1-3 appear to be mowed as part of the food plot.

2016 North Dakota Tree and Shrub Mitigation Monitoring Report

Map		Landowner Info		
	Name	Brian Duchsherer		
	Address	17538 50th St. SE Hickson, ND 58047		
	Contact Info			
	Cell	701-353-9774		
	Phone	NA		
	Location			
	Township	NA		
	Twp/Range	137-48		
	Section	18		
	Quarter			
	Planting			
	Date Planted	5/5/2015		
Condition of site at time of planting:				
Good				
Protected from Grazing		Yes		

Field No.	Planted length	Planted Width*	Ac.	Row No.	Species	Spacing in Row	# Planted	# Surviving			Survival Percentage
								2016	2017	2018	
5	620	10	0.14	1	Juniper, Rocky Mtn	8	77	66	66	64	83.12
5	620	24	0.34	2	Ash, Green	10	62	42	37	32	51.61
Total	1240	34	0.484				139	108	103	96	69.06

*Inc. 10' on each side of planting

Additional Comments

Low weed pressure compared to previous years. Green Ash has little growth from the 2017 survey and has been br

2016 North Dakota Tree and Shrub Mitigation Monitoring Report

Map		Landowner Info		
	Name	Edward and JoAnne Jameson		
	Address	16750 49th St. SE Kindred, ND 58051		
	Contact Info			
	Cell	701-866-4220		
	Phone	701-361-5572		
	Location			
	Township	Normanna		
	Twp/Range	137-50		
	Section	11		
	Quarter	NE		
Planting				
Date Planted	5/4/2015			
Condition of site at time of planting:				
Good				
Protected from Grazing	Yes			

Field No.	Planted length	Planted Width*	Ac.	Row No.	Species	Spacing in Row	# Planted	# Surviving			Survival Percentage
								2016	2017	2018	
1	350	10	0.08	1	Spruce, Black Hills	12	29	24	24	24	82.76
1	350	12	0.10	2	Cottonwood, Sioux land	8	44	33	30	29	65.91
1	350	12	0.10	3	Oak, Bur	10	35	20	14	8	22.86
1	350	12	0.10	4	Crabapple, Siberian	6	58	41	32	31	53.45
1	350	22	0.18	5	Dogwood, Red osier	4	88	57	54	52	59.09
2	100	10	0.02	1	Ash, Green	8	12	9	8	8	66.67
2	100	22	0.05	2	Crabapple, Siberian	6	24	14	13	12	50.00
3	95	10	0.02	1	Dogwood, Red osier	4	24	14	14	14	58.33
3	95	12	0.03	2	Oak, Bur	10	9	9	7	6	66.67
3	95	22	0.05	3	Cottonwood, Sioux land	8	12	7	7	7	58.33
1	175	12	0.05	6	Crabapple, Siberian	6	29	29	28	26	89.66
Total	2410	156	0.764				364	257	231	217	59.62

*Inc. 10' on each side of planting

Additional Comments
Field 1 - Similar in size to 2017 except cottonwoods, which have grown significantly. Field 2 - similar to 2017 survey. Field 3 - Dogwood healthy and approximately 2' and cottonwood 8' tall.

2016 North Dakota Tree and Shrub Mitigation Monitoring Report

Map		Landowner Info		
	Name	Paul and Carolyn Thoen		
	Address	16767 49th St. SE Kindred, ND 58051		
	Contact Info			
	Cell			
	Phone	701-428-3225		
	Location			
	Township	Normanna		
	Twp/Range	137-50		
	Section	2		
	Quarter	SE		
	Planting			
	Date Planted	5/4/2015		
Condition of site at time of planting:				
Fair				
Protected from Grazing	Yes			


Field No.	Planted length	Planted Width*	Ac.	Row No.	Species	Spacing in Row	# Planted	# Surviving			Survival Percentage
								2016	2017	2018	
1	360	10	0.08	1	Common/Villosa Lilac	4	90	54	50	50	55.56
1	360	14	0.12	2	Linden, Littleleaf	10	36	29	28	28	77.78
1	360	24	0.20	3	CBS-BHS	12	30	27	26	26	86.67
Total	1080	48	0.397				156	110	104	104	66.67

*Inc. 10' on each side of planting

Additional Comments

Less weed pressure than and similar size to 2017 survey

2016 North Dakota Tree and Shrub Mitigation Monitoring Report


Map		Landowner Info		
	Name	Doug Trom		
	Address			
	Contact Info			
	Cell	701-238-1885		
	Phone			
	Location			
	Township	Durbin		
	Twp/Range	139-51		
	Section	28		
	Quarter			
	Planting			
	Date Planted	7/8/2015		
Condition of site at time of planting:				
Protected from Grazing	Yes			

Field No.	Planted length	Planted Width*	Ac.	Row No.	Species	Spacing in Row	# Planted	# Surviving			Survival Percentage
								2016	2017	2018	
1					Maple, Silver		236	35	5	1	0.42
1					Chokecherry, Amur		20	8	9	3	15.00
Total	0	0	0				256	43	14	4	1.56

*Inc. 10' on each side of planting

Additional Comments

Almost all of the fabric squares were engulfed in reed canary grass. Dead stems of the 2017 surviving Chokecherry were observed.


2016 North Dakota Tree and Shrub Mitigation Monitoring Report		
Map	Landowner Info	
	Name Michael Kasowski	
	Address	
	Contact Info	
	Cell 701-412-1598	
	Phone	
	Location	
	Township Durbin	
	Twp/Range 139-51	
	Section 12	
	Quarter	
Planting		
Date Planted 7/8/1905		
Condition of site at time of planting:		
Good		
Protected from Grazing	Yes	

Field No.	Planted length	Planted Width*	Ac.	Row No.	Species	Spacing in Row	# Planted	# Surviving		Survival Percentage
								2016	2017	
Total	0	0	0				0	#REF!		#REF!

*Inc. 10' on each side of planting

Additional Comments
 No trees were planted

2016 North Dakota Tree and Shrub Mitigation Monitoring Report

Map		Landowner Info		
	Name	Mary K Dalrymple, et al Trust (Debbie)		
	Address	3598 157th Ave SE Casselton, ND 58012		
	Contact Info			
	Cell	(701) 347-4291		
	Location			
	Township	Casselton		
	Twp/Range	140-52		
	Section	36		
	Quarter	SE		
	Planting			
Date Planted	5/27/2015			
Condition of site at time of planting:		Good		
Protected from Grazing		Yes		


Field No.	Planted length	Planted Width*	Ac.	No. of Rows	Species	Spacing in Row	No. Planted	# Surviving			Survival Percentage
								2016	2017	2018	
1	600	10	0.14	1	Ash, Green	8	75	59	57	60	80.00
1	600	24	0.33	2	Maple, Silver	10	60	49	46	42	70.00
2	355	10	0.08	1	Ash, Green	8	44	35	30	29	65.91
2	340	24	0.19	2	Maple, Silver	10	34	20	10	7	20.59
Total	1895	68	0.74				213	163	143	138	64.79

*Inc. 10' on each side of planting

Additional Comments

Some Green Ash came up with a new stem next to the dead stem observed in the 2017 survey

2016 North Dakota Tree and Shrub Mitigation Monitoring Report

Map		Landowner Info		
	Name	Mike Dubord (Leo)		
	Address	NA		
	Contact Info			
	Cell	701-281-2427		
	Phone	701-793-6573		
	Location			
	Township	Pleasant		
	Twp/Range	137-49		
	Section	4		
	Quarter			
	Planting			
	Date Planted	5/5/2015		
Condition of site at time of planting:				
Good				
Protected from Grazing	Yes			


Field No.	Planted length	Planted Width*	Ac.	Row No.	Species	Spacing in Row	# Planted	# Surviving			Survival Percentage
								2016	2017	2018	
1	72	10	0.02	1	Maple, Silver	10	8	7	6	6	75.00
1	68	24	0.04	2	Ash, Green	8	9	8	7	7	77.78
2	125	10	0.03	1	Ash, Green	8	53	45	45	45	84.91
2	448	24	0.25	2	Maple, Silver	10	45	38	36	38	84.44
Total	713.00	68.00	0.33				115	98	94	96	83.48

*Inc. 10' on each side of planting

Additional Comments

2 small maples observed to be dead in 2017 have resprouted in 2018.

2016 North Dakota Tree and Shrub Mitigation Monitoring Report

Map		Landowner Info		
	Name	Leo Dubord		
	Address	NA		
	Contact Info			
	Cell	701-281-2427		
	Phone	701-793-6573		
	Location			
	Township	Pleasant		
	Twp/Range	137-49		
	Section	15		
	Quarter			
	Planting			
	Date Planted	5/6/2015		
Condition of site at time of planting:				
Fair				
Protected from Grazing	Yes			

Field No.	Planted length	Planted Width*	Ac.	Row No.	Species	Spacing in Row	# Planted	# Surviving			Survival Percentage
								2016	2017	2018	
1	800	10	0.18	1	Willow, Sandbar	4	176	3	2	0	0.00
1	800	24	0.44	2	Ash, Green	8	88	76	72	65	73.86
Total	1600	34	0.62				264	79	74	65	24.62

*Inc. 10' on each side of planting

Additional Comments

Surviving Green Ash grew well with heights varying from 2 to 6 feet. Weed pressure appeared to be less than previous.