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Tree and Shrub Survival Report for the Bakken North Pipeline Project, Williams County, North Dakota

Prepared for

Plains All American Pipeline, L.P.

ND PSC Case No. PU-10-630

Prepared by

SWCA Environmental Consultants

October 2015

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Prepared for

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October 13, 2015

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1.0 INTRODUCTION

1.1 BACKGROUND

Plains All American Pipeline, L.P. (Plains) completed construction of the Bakken North Pipeline (BNP or Project) in 2014. The BNP is a new 79-mile, 12.75-inch outside-diameter crude oil pipeline that originates near Plains' Trenton Station near Trenton, North Dakota, and terminates at a pipeline interconnection in Sheridan County, Montana, near the town of Outlook. The North Dakota portion of the Project is located entirely within Williams County and totals approximately 31.8 miles in length. Its construction required the removal of trees and shrubs within the Project right-of-way. The Project is under the jurisdiction of the North Dakota Public Service Commission (ND PSC).

A Tree/Shrub Replacement Plan was submitted in 2014 which discussed the approach that Plains took and the ND PSC approved to mitigate tree and shrub removal. The plan was approved in 2015 and implemented in the fall of 2014 and spring of 2015. This survival report documents the number of trees and shrubs surviving in the summer/fall of 2015. This is the first of 3 years of survival monitoring.

2.0 SURVIVAL SURVEY

2.1 SURVIVAL REQUIREMENTS

Many of the trees and shrubs identified during SWCA's pre-construction inventory were avoided, due to the several bores and neck downs along the pipeline route. Approximately 196 trees and shrubs were removed during construction; therefore, the total number to be replaced was a minimum of 392 trees based on the 2:1 replacement requirement. Survival requirements will be based on the 392 required replacements.

At the end of 3 years of monitoring (2017), 75% of the trees, or 294, are required to have survived to meet the obligations set by the ND PSC.

2.2 PLANTING

Three landowners within the Project area had trees impacted during construction. Trees were replanted at six different locations on the subsequent owner's properties. In total, 1,031 trees were replanted which more than fulfilled the 2:1 mitigation requirement (Appendix A).

2.3 ANNUAL PRECIPITATION

According to National Weather Service preliminary climatological data for Williston, North Dakota (approximately 10 miles east of the project area), 10.06 inches of precipitation were recorded from January 1 through September 30, 2015 (Table 1). This amount is 2.12 inches below average for this time period, suggesting that weather conditions were slightly dry for tree growth.

Table 1. Monthly Recorded Rainfall at National Weather Service Station in Williston, North Dakota

Month (2015)	Recorded Precipitation (inches)	Normal Precipitation (inches)	Difference (inches)
January	0.48	0.59	-0.11
February	0.46	0.39	0.07
March	0.47	0.71	-0.24
April	0.27	1.00	-0.73
May	1.82	1.92	-0.10
June	1.90	2.52	-0.62
July	1.55	2.54	-0.99
August	0.89	1.45	-0.56
September	2.22	1.06	1.16
Total	**10.06**	**12.18**	**-2.12**

Source: National Oceanic and Atmospheric Administration (2015).[1]

2.4 2015 SURVEY RESULTS

The plantings for each landowner were revisited October 3, 2015. Replanted trees were in generally good condition with some damage noted from deer and other wildlife (Figures 1 and 2). Trees or shrubs which had any portion of living plant material were considered alive. Deciduous trees that had lost their foliage were considered alive if they appeared healthy and had stems that did not break easily when bending. Of the 1,031 trees that were replanted in the fall of 2014 and spring of 2015, 950 were alive during the October survey (Appendix A). Since the number of trees originally planted greatly exceeded the 2:1 planting requirement, the current survival rate is above the required 75% (294 trees) at 323%.

[1] National Oceanic and Atmospheric Administration. 2015. Williston, North Dakota, Preliminary Monthly Climate Data Reports. Available at: http://www.weather.gov/climate/index.php?wfo=bis. Accessed October 12, 2015.

Figure 1. Ponderosa pine row located on Bradley and Marilyn Olson property, facing north (photo taken October 3, 2015).

Figure 2. Green ash row located on Bradley and Marilyn Olson property, facing west (photo taken October 3, 2015).

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APPENDIX A
Tree Mitigation Plan

Plains All American Pipeline, L.P., Bakken North Pipeline Tree Mitigation Plan
ND PSC Case No. PU-10-630

Landowner	Location Removed	Species Removed	Number Removed	Species Replanted	Number Replanted	Location Replanted	1st Year Survival	2nd Year Survival	3rd Year Survival
Bradley and Marily Olson (NRA WV14 and NRA WV15)	SW SE Section 22, Township (T) 154 North (N), Range (R) 102 West (W)	Silver buffaloberry (*Sheperdia argentia*)	100	Ponderosa pine (*Pinus ponderosa*)	90	Owner's Property, Sections 8, 10, 17, T154N, R102W, and Section 30, T155N, R102W	81		
		Chokecherry (*Prunus virginiana*)		Chokecherry	250		225		
				Siberian peashrub (*Caragana arborescens*)	14		12		
		Juneberry (*Amelanchier alnifolia*)		Colorado blue spruce (*Picea pungens*)	11		10		
				Silver buffaloberry	350		332		
Herbert Mischke (NRD WV6)	SE NW Section 9, T156N, R102W	Downy hawthorne (*Crateagus mollis*)	3	Chokecherry	6	Owner's Property, SW Section 10, T154N, R102W	6		
Calvin Storseth (NRD WV11 and NRD WV13)	NE Section 24, T157N, R103W	Siberian elm (*Ulmus pumila*)	3	Siberian peashrub	3	Owner's Property, SW Section 9, T156N, R102W	0*		
				Green ash (*Fraxinus pennsylvanica*)	3		5*		
				Black Hills spruce (*Picea glauca* var. *densata*)	2		2		

Landowner	Location Removed	Species Removed	Number Removed	Species Replanted	Number Replanted	Location Replanted	1st Year Survival	2nd Year Survival	3rd Year Survival
				Colorado blue spruce	2		2		
Bradley and Marily Olson (NRA WV10)	SE SE Section 26, T154N, R102W	Cottonwood (*Populus deltoides*)	90	Green ash	100	Owner's Property, Sections 8, 10, 17, T154N, R102W, and Section 30, T155N, R102W	95		
				American plum (*Prunus americana*)	200		180		
Total			**196**		**1,031**		**950**		

* Siberian peashrub not observed at same location as green ash and spruce tree location. Additional green ash noted.