

APPENDIX C

**PERCENT HYDROPHYTIC COMPOSITION DETERMINED USING
THREE CALCULATION PROCEDURES FOR
2007 WETLAND PLOTS - WETLAND STUDY AREA
SOUTH HEART LIGNITE MINE
STARK COUNTY, NORTH DAKOTA**

Vegetation Type	Table	Page
Emergent (herbaceous) Sample Sites		
Wet Emergent	Table C1	C-1
Mesic Emergent	Table C2	C-9
Saline Emergent	Table C3	C-12
Scrub/Shrub Sample Sites	Table C4	C-13
Forested Sample Sites	Table C5	C-15

Footnotes for the tables in Appendix C:

Binomials follow Great Plains Flora Association (1986).
n = number of samples

***Site Parameters:**

Topography codes:

Ben = Bench	Mid = Mid slope
Bnk = Bank	Rid = Ridge
Bot = Bottom	Ter = Terrace
Flo = Floodplain	Toe = Toeslope
Low, Lower = Lower slope	Upper = Upper slope

Configuration codes:

S = Straight	U = Undulating
X = Convex	V = Concave

Percent canopy cover values highlighted in yellow indicate “Dominant Species” used to calculate percent hydrophytic composition following the dominance test required by U.S. ACE (2006).

TABLE C1

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR
22 WET EMERGENT SAMPLE SITES – WETLAND STUDY AREA
STARK COUNTY, NORTH DAKOTA, 2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER													
		1004	1006	1073	1076	1080	1083	1084	1085	1086	1087	1089	1090	1091	1094
SITE PARAMETERS* (See Appendix C Cover Page)															
Slope (percent)		1-4	4-15	2-3	3-5	0-1	3-5	1-2	1-4	0-2	1-2	0-3	0-2	3-10	0-5
Topography		LowTer	Bottom	Dep	Dep	Pond	Bench	Swale	Swale	Swale	Dep	Dep	Dep	Bot	Swale
Configuration		V	V	V	V	V	V	V	V	V	V(S)	V	V	V	V
CLASS/SPECIES															
NATIVE PERENNIAL GRAMINOIDS (NPG)															
(Cool Season-C)															
Agropyron smithii	FACU														
Alopecurus geniculatus	OBL														
Carex aquatilis	OBL	44	6												
Carex laeviconica	OBL	3		60	6		75	65		58	48	5		54	
Carex lanuginosa	OBL														
Carex praegracilis	FACW					10									
Eleocharis xyridiformis	OBL		22	0.3	40	14				0.3	2	50			
Hordeum jubatum	FACW				0.3	32			22	4	2	2	0.3	7	
Juncus balticus	FACW														
Puccinellia nuttalliana	OBL			0.3											
Scirpus validus	OBL				2										
TOTAL NPG(C)		47.0	28.0	60.6	48.3	56.0	75.0	65.0	22.0	62.3	52.0	57.0	0.3	61.0	0.0
NATIVE PERENNIAL GRAMINOIDS															
(Warm Season-W)															
Distichlis spicata	FACW														
Spartina pectinata	FACW	20	35						58						50
TOTAL NPG(W)		20.0	35.0	0.0	0.0	0.0	0.0	0.0	58.0	0.0	0.0	0.0	0.0	0.0	50.0
INTRODUCED PERENNIAL GRAMINOIDS (IPG)															
Alopecurus pratensis	FACW														
Bromus inermis	FACU	20						9	6						35
Poa pratensis	FACU					6		4							
TOTAL IPG		20.0	0.0	0.0	0.0	6.0	0.0	13.0	6.0	0.0	0.0	0.0	0.0	0.0	35.0

TABLE C1

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR
22 WET EMERGENT SAMPLE SITES – WETLAND STUDY AREA
STARK COUNTY, NORTH DAKOTA, 2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER													
		1004	1006	1073	1076	1080	1083	1084	1085	1086	1087	1089	1090	1091	1094
NATIVE ANNUAL GRAMINOIDS (NAG)															
Beckmannia syzigachne	OBL			24											
TOTAL NAG		0.0	0.0	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATIVE PERENNIAL FORBS (NPF)															
Alisma triviale	OBL				1	1						12			
Aster pansus	FAC							0.3							
Aster simplex	FACW	2													
Astragalus bisulcatus	NI														
Cicuta maculata	NI		0.3												
Comandra umbellata	NI														
Helianthus maximiliani	FACU														0.3
Iva axillaris	FACU														
Lysimachia ciliata	FACW	1													
Polygonum amphibium	OBL			38					12						
Ranunculus macounii	OBL														1
Rorippa sinuata	FACW				1			0.3		0.3	3	1			0.3
Rumex mexicanus	FACW					18	4	4		14	28	18			
Smilacina stellata	FACU	2													
Solidago gigantea	FACW	18													
Thalictrum venulosum	NI	4													
Typha angustifolia	OBL		60		2										
Typha latifolia	OBL														1
TOTAL NPF		27.0	60.3	38.0	4.0	19.0	4.0	4.3	0.3	26.3	31.0	31.0	0.0	1.3	1.3
INTRODUCED PERENNIAL FORBS (IPF)															
Convolvulus arvensis	NI				0.3			3							
Euphorbia esula	NI														
Medicago sativa	NI				0.3										
Rumex crispus	FACW	0.3			3				0.3						1
Taraxacum officinale	FACU						0.3	2	1		0.3				1
TOTAL IPF		0.3	0.0	0.0	3.6	0.0	0.3	5.0	1.3	0.0	0.3	0.0	0.0	2.0	0.0

TABLE C1

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR
22 WET EMERGENT SAMPLE SITES – WETLAND STUDY AREA
STARK COUNTY, NORTH DAKOTA, 2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER													
		1004	1006	1073	1076	1080	1083	1084	1085	1086	1087	1089	1090	1091	1094
NATIVE ANNUAL/BIENNIAL FORBS (NAF)															
Ambrosia artemisiifolia	FACU												14		
Artemisia biennis	FAC									0.3		0.3			
Atriplex subspicata	NI									0.3					
Chenopodium rubrum	OBL									0.3		0.3			
Echinocystis lobata	FAC	0.3													
Grindelia squarrosa	UPL									0.3					
Myosurus minimus	OBL								0.3	0.3					
Plagiobothrys scouleri	FACW+									8					
Polygonum arenastrum	NI									4					
Ranunculus abortivus	FACW													1	
Suckleya suckleyana	OBL											4			
Xanthium strumarium	FAC				15						0.3	1	16		
TOTAL NAF		0.3	0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.3	13.8	1.0	34.6	1.0	0.0
INTRODUCED ANNUAL/BIENNIAL FORBS (IAF)															
Capsella bursa-pastoris	FACU									0.3					
Chenopodium album	FAC							10							
Descurainia sophia	NI				0.3		0.3		1						
Lactuca serriola	FACU						0.3								
Medicago lupulina	FACU											0.3			
Salsola iberica	FACU-														
Thlaspi arvense	FACU				1			12	2	20				0.3	
TOTAL IAF		0.0	0.0	0.0	1.3	0.0	0.0	12.6	12.0	21.0	0.3	0.0	0.3	0.3	0.0

TABLE C1

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR
22 WET EMERGENT SAMPLE SITES – WETLAND STUDY AREA
STARK COUNTY, NORTH DAKOTA, 2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER													
		1004	1006	1073	1076	1080	1083	1084	1085	1086	1087	1089	1090	1091	1094
NATIVE SHRUBS															
Humulus lupulus	FACU		0.3												
Ribes americanum	FACW														
Rosa woodsii	FACU														
Salix exigua	FACW+				5										
Shepherdia argentea	NI														
Symphoricarpos occidentalis	NI	10	2												
TOTAL NATIVE SHRUBS		10.0	2.3	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATIVE TREES															
Fraxinus pennsylvanica	FAC													28	
Populus deltoides	FAC				1										
Salix amygdaloides	FACW				6										
TOTAL NATIVE TREES		0.0	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0	0.0
TOTAL VEGETATION (Stratified)		124.6	125.6	122.6	84.2	81.0	79.3	99.9	99.6	109.9	97.4	89.0	35.2	93.6	86.3
PERCENT HYDROPHYTIC VEGETATION															
All species method (WESTECH)		71.11	98.17	100.00	97.74	92.59	99.62	69.37	90.96	80.89	94.97	100.00	59.38	98.61	59.10
Prevalence Index Method (U.S.ACE 2006)		2.20	1.33	1.00	1.63	1.96	1.06	1.99	2.28	1.74	1.59	1.26	3.15	1.74	2.81
Dominant species method (U.S.ACE 2006)		60	100	100	100	80	100	100	75	80	100	100	67	100	50

TABLE C1

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR
22 WET EMERGENT SAMPLE SITES – WETLAND STUDY AREA
STARK COUNTY, NORTH DAKOTA, 2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER								Mean Cover n=22
		1095	1099	1100	1101	1102	1105	1106	1108	
SITE PARAMETERS* (See Appendix C Cover Page)										
Slope (percent)		2-4	1-3	0-3	3-5	6-8	5-15	0-3	0-2	
Topography		Pond	Toe	Swale	Coulee	Slope	Swale	Swale	Swale	
Configuration		V	V	V	V	Und	V	V	V	
CLASS\SPECIES										
NATIVE PERENNIAL GRAMINOIDS (NPG)										
(Cool Season-C)										
Agropyron smithii	FACU							7		0.32
Alopecurus geniculatus	OBL								25	1.14
Carex aquatilis	OBL									2.27
Carex laeviconica	OBL	15					20	45		20.64
Carex lanuginosa	OBL		5							0.23
Carex praegracilis	FACW		35		22	4	15			3.91
Eleocharis xyridiformis	OBL			6	14		2		50	9.12
Hordeum jubatum	FACW	5	45	2						5.53
Juncus balticus	FACW				24	12				1.64
Puccinellia nuttalliana	OBL									0.01
Scirpus validus	OBL	5			1					0.36
TOTAL NPG(C)		25.0	85.0	8.0	61.0	16.0	37.0	52.0	75.0	45.16
NATIVE PERENNIAL GRAMINOIDS										
(Warm Season-W)										
Distichlis spicata	FACW					6				0.27
Spartina pectinata	FACW		30			3	58			11.55
TOTAL NPG(W)		0.0	30.0	0.0	0.0	9.0	58.0	0.0	0.0	11.82
INTRODUCED PERENNIAL GRAMINOIDS (IPG)										
Alopecurus pratensis	FACW								3	0.14
Bromus inermis	FACU		10			6	10	10		4.82
Poa pratensis	FACU		2		4			8		1.09
TOTAL IPG		0.0	12.0	0.0	4.0	6.0	10.0	18.0	3.0	6.05

TABLE C1

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR
22 WET EMERGENT SAMPLE SITES – WETLAND STUDY AREA
STARK COUNTY, NORTH DAKOTA, 2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER								Mean Cover n=22
		1095	1099	1100	1101	1102	1105	1106	1108	
NATIVE ANNUAL GRAMINOIDS (NAG)										
Beckmannia syzigachne	OBL									1.09
TOTAL NAG		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.09
NATIVE PERENNIAL FORBS (NPF)										
Alisma triviale	OBL									0.64
Aster pansus	FAC									0.01
Aster simplex	FACW				3					0.23
Astragalus bisulcatus	NI					1				0.05
Cicuta maculata	NI									0.01
Comandra umbellata	NI					0.3				0.01
Helianthus maximiliani	FACU									0.01
Iva axillaris	FACU					1				0.05
Lysimachia ciliata	FACW									0.05
Polygonum amphibium	OBL									2.27
Ranunculus macounii	OBL									0.05
Rorippa sinuata	FACW								4	0.45
Rumex mexicanus	FACW	1		6	0.3			2	30	5.70
Smilacina stellata	FACU									0.09
Solidago gigantea	FACW				1		2			0.95
Thalictrum venulosum	NI									0.18
Typha angustifolia	OBL									2.82
Typha latifolia	OBL	80								3.68
TOTAL NPF		81.0	0.0	6.0	4.3	2.3	2.0	2.0	34.0	17.25
INTRODUCED PERENNIAL FORBS (IPF)										
Convolvulus arvensis	NI							8		0.51
Euphorbia esula	NI		0.3							0.01
Medicago sativa	NI							1		0.06
Rumex crispus	FACW						1			0.25
Taraxacum officinale	FACU							1		0.25
TOTAL IPF		0.0	0.3	0.0	0.0	0.0	1.0	10.0	0.0	1.10

TABLE C1

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR
22 WET EMERGENT SAMPLE SITES – WETLAND STUDY AREA
STARK COUNTY, NORTH DAKOTA, 2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER								Mean Cover n=22
		1095	1099	1100	1101	1102	1105	1106	1108	
NATIVE ANNUAL/BIENNIAL FORBS (NAF)										
Ambrosia artemisiifolia	FACU									0.64
Artemisia biennis	FAC			11						0.53
Atriplex subspicata	NI									0.01
Chenopodium rubrum	OBL									0.03
Echinocystis lobata	FAC									0.01
Grindelia squarrosa	UPL									0.01
Myosurus minimus	OBL									0.03
Plagiobothrys scouleri	FACW+							0.3		0.38
Polygonum arenastrum	NI									0.18
Ranunculus abortivus	FACW									0.05
Suckleya suckleyana	OBL									0.18
Xanthium strumarium	FAC			18						2.29
TOTAL NAF		0.0	0.0	29.0	0.0	0.0	0.0	0.0	0.3	4.33
INTRODUCED ANNUAL/BIENNIAL FORBS (IAF)										
Capsella bursa-pastoris	FACU									0.01
Chenopodium album	FAC									0.45
Descurainia sophia	NI									0.07
Lactuca serriola	FACU									0.01
Medicago lupulina	FACU									0.01
Salsola iberica	FACU-			0.3						0.01
Thlaspi arvense	FACU							3		1.74
TOTAL IAF		0.0	0.0	0.3	0.0	0.0	0.0	3.0	0.0	2.32

TABLE C1

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR
22 WET EMERGENT SAMPLE SITES – WETLAND STUDY AREA
STARK COUNTY, NORTH DAKOTA, 2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER								Mean Cover n=22
		1095	1099	1100	1101	1102	1105	1106	1108	
NATIVE SHRUBS										
Humulus lupulus	FACU									0.01
Ribes americanum	FACW				0.3					0.01
Rosa woodsii	FACU				0.3					0.01
Salix exigua	FACW+									0.23
Shepherdia argentea	NI				8					0.36
Symphoricarpos occidentalis	NI				0.3		5			0.79
TOTAL NATIVE SHRUBS		0.0	0.0	0.0	8.9	0.0	5.0	0.0	0.0	1.42
NATIVE TREES										
Fraxinus pennsylvanica	FAC									1.27
Populus deltoides	FAC									0.05
Salix amygdaloides	FACW									0.27
TOTAL NATIVE TREES		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.59
TOTAL VEGETATION (Stratified)		106.0	127.3	43.3	78.2	33.3	113.0	85.0	112.3	92.12
PERCENT HYDROPHYTIC VEGETATION										
All species method (WESTECH)		100.00	90.34	99.31	83.89	75.08	86.73	55.29	100.00	
Prevalence Index Method (U.S.ACE 2006)		1.06	2.15	2.55	2.03	2.51	2.07	2.46	1.33	
Dominant species method (U.S.ACE 2006)		100	100	100	80	67	60	50	100	

TABLE C2

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR
12 MESIC EMERGENT SAMPLE SITES WETLAND STUDY AREA
STARK COUNTY, NORTH DAKOTA, 2007

INDICATOR STATUS Reed (1997)	PLOT NUMBER												Mean Cover n=12	
	1005	1008	1012	1041	1042	1075	1078	1079	1088	1098	1109	1111		
SITE PARAMETERS* (See Appendix C Cover Page)														
Slope (percent)		1-4	2	3-50	1-3	1-3	3-4	3-6	6-8	1-2	2-8	1-4	1-3	
Topography		Low Ter	Ter	Low Ter	Ter	Ter	Swale	Slope	Swale	Pond	Swale	Swale	Ter	
Configuration		Und	S	V(Und)	S	S	V	X	V	V	V	V	S	
CLASS\SPECIES														
NATIVE PERENNIAL GRAMINOIDS (NPG)														
(Cool Season-C)														
Agropyron smithii	FACU					28	40	7					26	8.42
Carex aquatilis	OBL	2		1										0.25
Carex eleocharis	NI					2							18	1.67
Carex laeviconica	OBL	2												0.17
Carex praegracilis	FACW							42	10					4.33
Hordeum jubatum	FACW									38	16	46		8.33
Juncus balticus	FACW								16					1.33
Phragmites australis	FACW	6												0.50
Poa sandbergii	FACU					18								1.50
TOTAL NPG(C)		10.0	0.0	1.0	0.0	48.0	40.0	49.0	26.0	38.0	16.0	46.0	44.0	26.50
NATIVE PERENNIAL GRAMINOIDS														
(Warm Season-W)														
Spartina pectinata	FACW	16							8					2.00
TOTAL NPG(W)		16.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	2.00
INTRODUCED PERENNIAL GRAMINOIDS (IPG)														
Agropyron cristatum	NI							1						0.08
Bromus inermis	FACU	55	70	48	62	2	5		5					20.58
Poa pratensis	FACU	18	15	18	58	52	48	22	50			5	28	26.17
TOTAL IPG		73.0	85.0	66.0	120.0	54.0	53.0	23.0	55.0	0.0	0.0	5.0	28.0	46.83
NATIVE PERENNIAL FORBS (NPF)														
Achillea millefolium	FACU							2					2	0.33
Allium textile	NI					0.3	0.3	1						0.13
Artemisia ludoviciana	FACU							1	2					0.25
Aster simplex	FACW	0.3												0.03
Astragalus agrestis	FACU	0.3											0.3	0.05
Eriogonum glabellus	FACW												0.3	0.03
Galium boreale	FACU													0.00

TABLE C2

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR
12 MESIC EMERGENT SAMPLE SITES WETLAND STUDY AREA
STARK COUNTY, NORTH DAKOTA, 2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER												Mean Cover n=12
		1005	1008	1012	1041	1042	1075	1078	1079	1088	1098	1109	1111	
Potentilla diversifolia	FACW												0.3	0.03
Rorippa sinuata	FACW							0.3		4	0.3			0.38
Rumex mexicanus	FACW						0.3			9	5	1		1.28
Senecio integerrimus	FAC							2						0.17
Smilacina stellata	FACU													0.00
Solidago gigantea	FACW	1												0.08
Thalictrum venulosum	NI			6										0.50
Vicia americana	FAC							8	2					0.83
TOTAL NPF		1.6	0.0	6.0	0.0	0.3	0.6	14.0	4.3	13.0	5.3	1.0	2.9	4.08
INTRODUCED PERENNIAL FORBS (IPF)														
Cirsium arvense	FACU							7						0.58
Convolvulus arvensis	NI									8		4		1.00
Euphorbia esula	NI	0.3	0.3	0.3	1	0.3								0.18
Medicago sativa	NI						0.3							0.03
Taraxacum officinale	FACU				1		1	5	3		2	14	18	3.67
TOTAL IPF		0.3	0.3	0.3	2.0	0.3	1.3	12.0	3.0	8.0	2.0	18.0	18.0	5.46
NATIVE ANNUAL/BIENNIAL FORBS (NAF)														
Artemisia biennis	FAC										3	0.3		0.28
Ellisia nyctelea	UPL													0.00
Galium aparine	FACU													0.00
Grindelia squarrosa	UPL									12		20	0.3	2.69
Xanthium strumarium	FAC									7	2			0.75
TOTAL NAF		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.0	5.0	20.3	0.3	3.72
INTRODUCED ANNUAL/BIENNIAL FORBS (IAF)														
Chorispota tenella	NI												0.3	0.03
Descurainia sophia	NI										0.3		0.3	0.05
Draba nemorosa	NI					4							0.3	0.36
Lactuca serriola	FACU											2		0.17
Medicago lupulina	FACU												4	0.33
Potentilla norvegica	FAC										2	0.3		0.19
Thlaspi arvense	FACU									2				0.17
TOTAL IAF		0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	2.0	2.3	2.3	4.9	1.29

TABLE C2

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED USING THREE CALCULATION PROCEDURES FOR
12 MESIC EMERGENT SAMPLE SITES WETLAND STUDY AREA
STARK COUNTY, NORTH DAKOTA, 2007

INDICATOR STATUS Reed (1997)	PLOT NUMBER												Mean Cover n=12	
	1005	1008	1012	1041	1042	1075	1078	1079	1088	1098	1109	1111		
NATIVE SHRUBS														
Humulus lupulus	FACU			0.3										0.03
Ribes setosum	FACU	1												0.08
Rosa arkansana	NI						0.3	2						0.19
Rosa woodsii	FACU	4												0.33
Symphoricarpos occidentalis	NI	22		34			0.3							4.69
TOTAL NATIVE SHRUBS		27.0	0.0	34.3	0.0	0.0	0.0	0.6	2.0	0.0	0.0	0.0	0.0	5.33
NATIVE TREES														
Ulmus americana	FAC	0.3												0.03
TOTAL NATIVE TREES		0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.03
TOTAL VEGETATION (Stratified)		128.2	85.3	107.6	122.0	106.6	94.9	98.6	98.3	80.0	30.6	92.6	98.1	95.23
PERCENT HYDROPHYTIC VEGETATION														
All species method (WESTECH)		21.29	0.00	0.93	0.00	0.00	0.32	52.74	36.93	72.50	92.48	51.40	0.61	
Prevalence Index Method (U.S.ACE 2006)		3.54	4.00	3.96	4.00	4.03	4.00	3.06	3.28	2.89	2.38	3.24	3.99	
Dominant species method (U.S.ACE 2006)		40	0	0	0	0	0	50	75	60	83	33	0	

TABLE C3

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED
USING THREE CALCULATION PROCEDURES FOR ONE SALINE
EMERGENT SAMPLE SITE – WETLAND STUDY AREA
STARK COUNTY, NORTH DAKOTA, 2007**

	INDICATOR	Plot
	STATUS Reed (1997)	1081
SITE PARAMETERS* (See Appendix C Cover Page)		
Slope (percent)		5
Topography		Slope
Configuration		S
CLASS/SPECIES		
NATIVE PERENNIAL GRAMINOIDS (NPG)		
(Cool Season-C)		
Hordeum jubatum	FACW	4
Puccinellia nuttalliana	OBL	10
Scirpus maritimus	OBL	15
TOTAL NPG(C)		29.0
NATIVE PERENNIAL FORBS (NPF)		
Aster pansus	FAC	3
TOTAL NPF		3.0
NATIVE ANNUAL/BIENNIAL FORBS (NAF)		
Atriplex subspicata	NI	5
Grindelia squarrosa	UPL	5
TOTAL NAF		10.0
TOTAL VEGETATION (Stratified)		
		42.0
PERCENT HYDROPHYTIC VEGETATION		
All species method (WESTECH)		88.10
Prevalence Index Method (U.S.ACE 2006)		1.95
Dominant species method (U.S.ACE 2006)		100

TABLE C4

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED
USING THREE CALCULATION PROCEDURES FOR
FIVE SCRUB-SHRUB SAMPLE SITES – WETLAND STUDYAREA
STARK COUNTY, NORTH DAKOTA, 2007**

	INDICATOR STATUS Reed (1997)	PLOT NUMBER					Mean Cover n=5
		1074	1077	1103	1107	1110	
SITE PARAMETERS* (See Appendix C Cover Page)							
Slope (percent)		6-10	8-12	2-4(50)	4/10-30	2-3	
Topography		Slope	Swale	Swale	Bot/Toe	Ter	
Configuration		X	V	V	V	V	
CLASS/SPECIES							
NATIVE PERENNIAL GRAMINOIDS (NPG)							
(Cool Season-C)							
Agropyron smithii	FACU		5				1.00
Carex laeviconica	OBL			40		40	16.00
Carex praegracilis	FACW		45		4		9.80
Juncus balticus	FACW				8		1.60
TOTAL NPG(C)		0.0	50.0	40.0	12.0	40.0	28.40
NATIVE PERENNIAL GRAMINOIDS							
(Warm Season-W)							
Spartina pectinata	FACW				10		2.00
TOTAL NPG(W)		0.0	0.0	0.0	10.0	0.0	2.00
INTRODUCED PERENNIAL GRAMINOIDS (IPG)							
Bromus inermis	FACU	60		5			13.00
Poa pratensis	FACU		45		26	10	16.20
TOTAL IPG		60.0	45.0	5.0	26.0	10.0	29.20
NATIVE PERENNIAL FORBS (NPF)							
Artemisia ludoviciana	FACU		1				0.20
Polygonum amphibium	OBL			35			7.00
Rumex mexicanus	FACW		0.3				0.06
Solidago gigantea	FACW				3		0.60
Thalictrum venulosum	NI					0.3	0.06
Urtica dioica	FACW			1			0.20
TOTAL NPF		0.0	1.3	36.0	3.0	0.3	8.12
INTRODUCED PERENNIAL FORBS (IPF)							
Euphorbia esula	NI		1				0.20
Rumex crispus	FACW					1	0.20
Taraxacum officinale	FACU					9	1.80
TOTAL IPF		0.0	1.0	0.0	0.0	10.0	2.20
NATIVE ANNUAL/BIENNIAL FORBS (NAF)							
Galium aparine	FACU					3	0.60
Ranunculus abortivus	FACW					0.3	0.06
TOTAL NAF		0.0	0.0	0.0	0.0	3.3	0.66

TABLE C4

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED
 USING THREE CALCULATION PROCEDURES FOR
 FIVE SCRUB-SHRUB SAMPLE SITES – WETLAND STUDYAREA
 STARK COUNTY, NORTH DAKOTA, 2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER					Mean Cover n=5
		1074	1077	1103	1107	1110	
INTRODUCED ANNUAL/BIENNIAL FORBS (IAF)							
Thlaspi arvense	FACU					1	0.20
TOTAL IAF		0.0	0.0	0.0	0.0	1.0	0.20
NATIVE SHRUBS							
Prunus virginiana	FACU-	20					4.00
Rosa woodsii	FACU				4		0.80
Salix exigua	FACW+				58		11.60
Shepherdia argentea	NI	40			5		9.00
Symphoricarpos occidentalis	NI		18	35	10	22	17.00
TOTAL NATIVE SHRUBS		60.0	18.0	35.0	77.0	22.0	42.40
NATIVE TREES							
Acer negundo	FAC	10					2.00
Fraxinus pennsylvanica	FAC					18	3.60
Ulmus americana	FAC					0.3	0.06
TOTAL NATIVE TREES		10.0	0.0	0.0	0.0	18.3	5.66
TOTAL VEGETATION (Stratified)		130.0	115.3	116.0	128.0	104.9	118.84
PERCENT HYDROPHYTIC VEGETATION							
All species method (WESTECH)		7.69	39.29	65.52	64.84	56.82	
Prevalence Index Method (U.S.ACE 2006)		3.62	3.21	2.04	2.66	2.66	
Dominant species method (U.S.ACE 2006)		0	33	67	60	40	

TABLE C5

PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED
 USING THREE CALCULATION PROCEDURES FOR
 FOUR FORESTED SAMPLE SITES – WETLAND STUDY AREA
 STARK COUNTY, NORTH DAKOTA, 2007

	INDICATOR STATUS Reed (1997)	PLOT NUMBER				Mean Cover n=4
		1007	1010	1092	1104	
SITE PARAMETERS* (See Appendix C Cover Page)						
Slope (percent)		4-8	4-5	1-4	0-3	
Topography		Bot	Draw	Bot	Dep	
Configuration		V	V	V	V	
CLASS\SPECIES						
NATIVE PERENNIAL GRAMINOIDS (NPG)						
(Cool Season-C)						
Carex laeviconica	OBL			42		10.50
Carex praegracilis	FACW				18	4.50
Hordeum jubatum	FACW				8	2.00
TOTAL NPG(C)		0.0	0.0	42.0	26.0	17.00
INTRODUCED PERENNIAL GRAMINOIDS (IPG)						
Bromus inermis	FACU	56	54			27.50
Poa pratensis	FACU	12	42	18		18.00
TOTAL IPG		68.0	96.0	18.0	0.0	45.50
NATIVE PERENNIAL FORBS (NPF)						
Achillea millefolium	FACU		1			0.25
Galium boreale	FACU		2			0.50
Lysimachia ciliata	FACW	2				0.50
Rumex mexicanus	FACW				3	0.75
Smilacina stellata	FACU	3	0.3	0.3		0.90
Solidago gigantea	FACW	5				1.25
Thalictrum venulosum	NI		0.3			0.08
Toxicodendron rydbergii	FACU	1				0.25
TOTAL NPF		11.0	3.6	0.3	3.0	4.48
INTRODUCED PERENNIAL FORBS (IPF)						
Centaurea maculosa	NI				0.3	0.08
Euphorbia esula	NI		0.3			0.08
Rumex crispus	FACW	0.3				0.08
Taraxacum officinale	FACU	1	8	0.3		2.33
TOTAL IPF		1.3	8.3	0.3	0.3	2.55
NATIVE ANNUAL/BIENNIAL FORBS (NAF)						
Ellisia nyctelea	UPL		0.3			0.08
Galium aparine	FACU		1			0.25
TOTAL NAF			1.3	0.0	0.0	0.33
INTRODUCED ANNUAL/BIENNIAL FORBS (IAF)						
Melilotus officinalis	FACU-				1	0.25
TOTAL IAF		0.0	0.0	0.0	1.0	0.25

TABLE C5

**PERCENT HYDROPHYTIC VEGETATION COMPOSITION DETERMINED
USING THREE CALCULATION PROCEDURES FOR
FOUR FORESTED SAMPLE SITES – WETLAND STUDY AREA
STARK COUNTY, NORTH DAKOTA, 2007**

	INDICATOR STATUS Reed (1997)	PLOT NUMBER				Mean Cover n=4
		1007	1010	1092	1104	
NATIVE SHRUBS						
Amelanchier humilis	NI	15				3.75
Cornus stolonifera	FACW			0.3		0.08
Humulus lupulus	FACU	0.3				0.08
Prunus virginiana	FACU-	16	2			4.50
Ribes americanum	FACW	0.3		2		0.58
Ribes setosum	FACU		4			1.00
Rosa woodsii	FACU	2		12		3.50
Salix lutea	FACW			8		2.00
Shepherdia argentea	NI			8		2.00
Symphoricarpos occidentalis	NI	22	3	24		12.25
TOTAL NATIVE SHRUBS		55.6	9.0	54.3	0.0	29.73
NATIVE TREES						
Fraxinus pennsylvanica	FAC	36	48	12		24.00
Populus deltoides	FAC				45	11.25
Ulmus americana	FAC		16	5		5.25
TOTAL NATIVE TREES		36.0	64.0	17.0	45.0	40.50
TOTAL VEGETATION (Stratified)		171.9	182.2	131.9	75.3	140.33
PERCENT HYDROPHYTIC VEGETATION						
All species method (WESTECH)		25.36	23.96	52.54	98.27	
Prevalence Index Method (U.S.ACE 2006)		3.70	3.65	2.70	2.64	
Dominant species method (U.S.ACE 2006)		17	50	50	100	