

Bipole III Transmission Project

Proposed

-  Ground Electrode Line
-  Alternate Northern Ground Electrode
-  Ground Electrode Site Study Area

Compaction/Rutting (CR) Index

-  Low Risk
-  Moderate Risk
-  High Risk
-  No Data

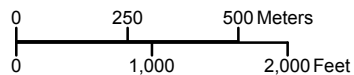
Alternate Northern
Ground Electrode Site

Conawapa Rd

NELSON RIVER



Coordinate System: UTM Zone 14 NAD 83
Data Source: MBHydro, MMM, ProvMB, NRCAN, Stantec
Date Created: August 15, 2011



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**Preferred Northern
Ground Electrode**
Compaction/Rutting (CR) Risk

Draft: For Discussion Purposes Only

Map 18

Bipole III Transmission Project

Proposed

-  Preferred Northern Ground Electrode
-  Ground Electrode Site Study Area

Compaction/Rutting (CR) Index

-  Low Risk
-  Moderate Risk
-  High Risk
-  No Data

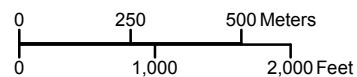
Preferred Northern
Ground Electrode Site

Conawapa Rd

NELSON RIVER



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1:17,000



**Alternate Northern
Ground Electrode**
Compaction/Rutting (CR) Risk

Draft: For Discussion Purposes Only

Map 19



Bipole III Transmission Project

Project Infrastructure
Ground Electrode Study Area

Compaction/Rutting (CR) Index

- Low Risk
- Moderate Risk
- High Risk
- No Data

Wind Erosion Risk

- Negligible
- Low
- Moderate
- High
- Severe
- Organic
- No Data

Water Erosion Risk

- Negligible (<6 tonnes/hectare/year)
- Low (6 - 11 tonnes/hectare/year)
- Moderate (11 - 22 tonnes/hectare/year)
- High (22 - 33 tonnes/hectare/year)
- Severe (>33 tonnes/hectare/year)
- Unrated

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, ProvMB, Stantec
Date Created: August 15, 2011



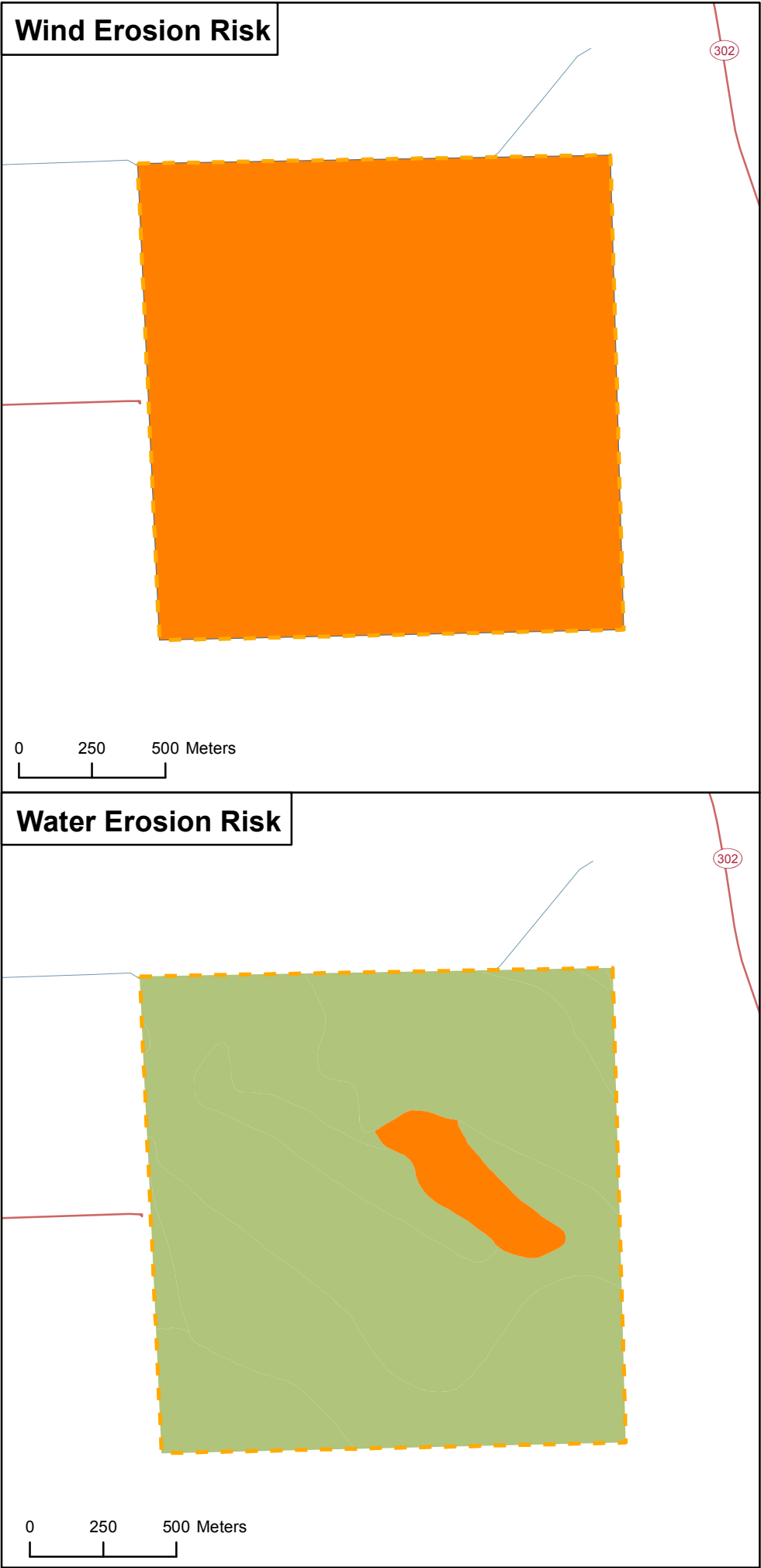
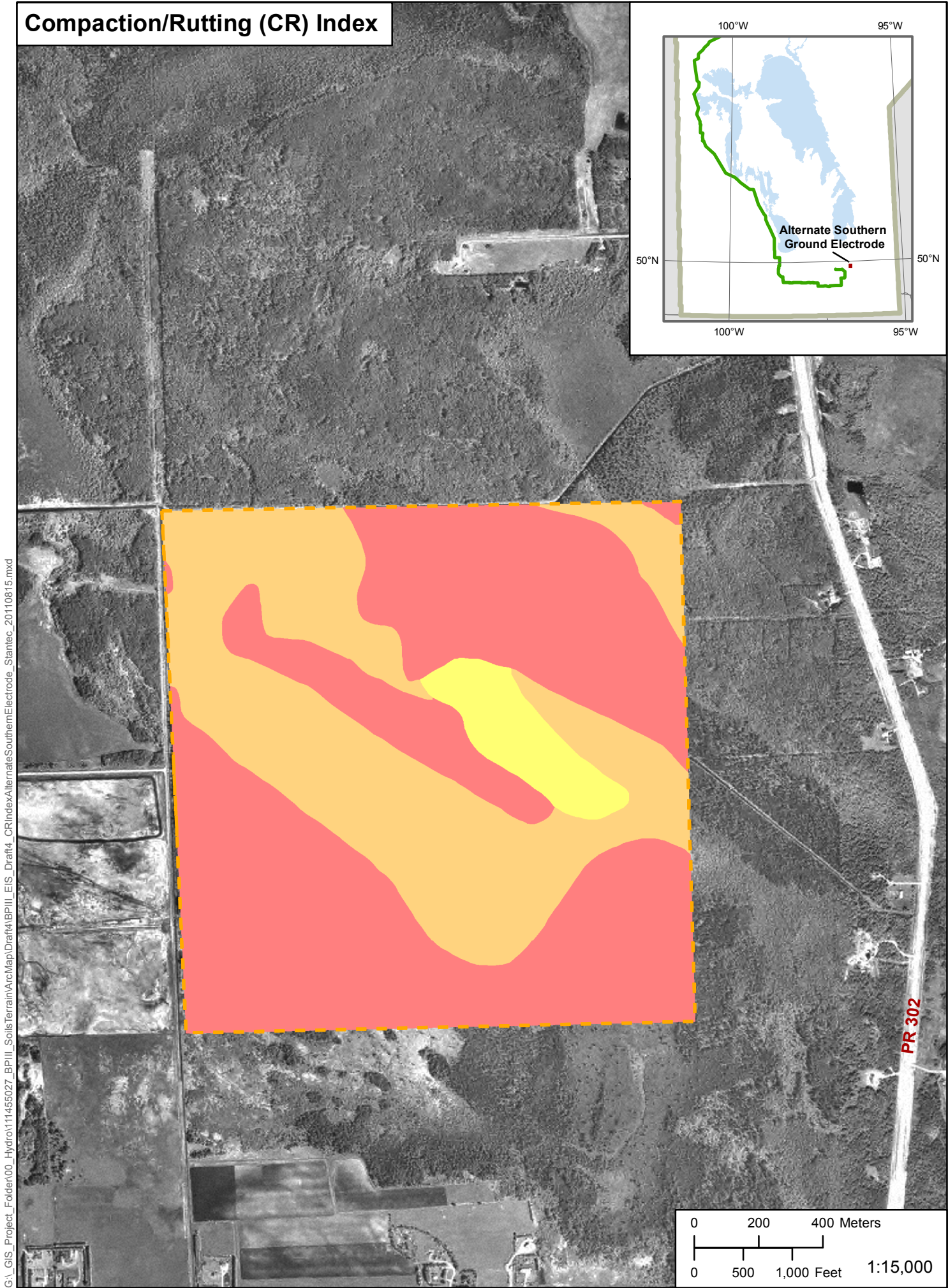
Preferred Southern
Ground Electrode

Compaction/Rutting (CR) Risk, Wind
Erosion Risk and Water Erosion Risk

Draft: For Discussion Purposes Only

Map 20

G:\GIS_Project_Folder\00_Hydro\111455027_BP\11 Soils\Terrain\ArcMap\Draft4\BP\11 EIS_Draft4_CRIndex\AlternateSouthernElectrode_Stantec_20110815.mxd



Bipole III Transmission Project

Project Infrastructure

Ground Electrode Study Area

Compaction/Rutting (CR) Index

Low Risk

Moderate Risk

High Risk

No Data

Wind Erosion Risk

Negligible

Low

Moderate

High

Severe

Organic

No Data

Water Erosion Risk

Negligible (<6 tonnes/hectare/year)

Low (6 - 11 tonnes/hectare/year)

Moderate (11 - 22 tonnes/hectare/year)

High (22 - 33 tonnes/hectare/year)

Severe (>33 tonnes/hectare/year)

Unrated

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, ProvMB, Stantec
Date Created: August 15, 2011

Alternate Southern Ground Electrode

Compaction/Rutting (CR) Risk, Wind Erosion Risk and Water Erosion Risk

Draft: For Discussion Purposes Only

Map 21

APPENDIX C – PHOTOS



Photo 1: Unique Soil/Terrain Feature – Aerial view of Beach Ridges (Soil Inspection MHPR01)



Photo 2: Unique Soil/Terrain Feature – Site photo of Beach Ridges (Soil Inspection MHPR01)



Photo 3: Deep Basin Eutric Brunisol Enduring Feature – Soil profile photo (Soil Inspection MHPR06)



Photo 4: Deep Basin Eutric Brunisol Enduring Feature – Site photo (Soil Inspection MHPR08)



Photo 5: Nearshore and Intertidal Deposits/Glacial Spillway Enduring Feature – Aerial view (Soil Inspections MHPR14 and MHPR15)



Photo 6: Deep Nearshore and Intertidal Deposits/Glacial Spillway Enduring Feature – Site photo (Soil Inspections MHPR14, top of spillway ridge)



Photo 7: Deep Nearshore and Intertidal Deposits/Glacial Spillway Enduring Feature – Site photo (Soil Inspections MHPR15, transition to wetland along ridge)



Photo 8: Glaciofluvial Deposits/Organic Cryosol/Moraine Enduring Feature – Site photo (Soil Inspection MHPR20A)



Photo 9: Glaciofluvial Deposits/Organic Cryosol/Moraine Enduring Feature – Site photo (Soil Inspection MHPR21)



Photo 10: Glaciofluvial Deposits/Organic Cryosol/Moraine Enduring Feature – Site photo (Soil Inspection MHPR22)



Photo 11: Glaciofluvial Deposits/Organic Cryosol/Moraine Enduring Feature – Site photo (Soil Inspection MHPR24)



Photo 12: Glaciofluvial Deposits/Organic Cryosol/Moraine Enduring Feature – Site photo (Soil Inspection MHPR25)



Photo 13: Esker Enduring Feature – Aerial view looking southeast (Soil Inspection MHP17)



Photo 14: Esker Enduring Feature – Site photo looking upslope (Soil Inspection MHP17)



Photo 15: Esker Enduring Feature – Soil profile photo (Soil Inspection MHPR28)



Photo 16: Esker Enduring Feature – Aerial view of kettle and knob topography



Photo 17: Esker Enduring Feature – Aerial view looking southeast along esker ridge



Photo 18: Exposed Limestone Bedrock northeast of Wekusko– Aerial view (Soil Inspection MAS030)



Photo 19: High gravel content in materials northeast of Overflowing River – Site photo (Soil Inspection MAS015)



Photo 20: Collapse scar indicative of permafrost degradation at margin of localized permafrost.



Photo 21: Highly Erodible Soils Site – Site photo of exposed sand dune (Soil Inspection MHP30)



Photo 22: Highly Erodible Soils Site – Soil profile photo of exposed sand dune (Soil Inspection MHPR30)



Photo 23: Highly Erodible Soils Site – Site photo of exposed sand dunes (Soil Inspection MHPR31)



Photo 24: **Highly Erodible Soils Site – Site photo of exposed sand dunes (Soil Inspection MHPR31)**

APPENDIX D – SITE INSPECTION DATA

Table D.1 Soil Inspection Database

Site_ID	Zone	Easting	Northing	Elevation	Date	Parent Material 1 Type	Parent Material 1 Texture	Parent Material 1 Thickness	Parent Material 2 Type	Parent Material 2 Texture	Parent Material 1 Thickness	Parent Material 3 Type	Parent Material 3 Texture	Soil Order	Soil Great Group	Soil Subgroup	Topsoil Depth (cm)	Aspect (degrees)	Slope (%)	Surface Expression	Surface Stone Class (Class (%))	Slope Position	Landscape Slope Class (%)	Land Use	Site Drainage	Seepage Depth	Water Table Depth (cm)	Inspection Type (Pit/Auger - SP, Aerial Recon - AR)
MAS001	14U	493234	6056685	236	26-Oct-10	ORG	FI	55	ORG	FB	135	FLUV	VC	ORG	M	TFI	135	-	0-2	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	0	-	SP
MAS002	14U	505685	6061341	235	25-Oct-10	ORG	-	180	LACU	FI	n/a	n/a	n/a	ORG	M	FI	180	-	0-2	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	-	SP
MAS003	14U	508480	6064666	229	25-Oct-10	ORG	-	-	LACU	-	n/a	n/a	n/a	ORG	H	TFI	80	-	0-2	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	15	SP
MAS005	14U	373543	5978434	270	26-Oct-10	TILL	FI	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	EB	O	8	-	0-2	Undulating	0 (<0.01)	Mid	0.5-2	Woodland	MW	-	n/a	SP
MAS006	14U	372930	5979583	252	26-Oct-10	ORG	-	220	n/a	n/a	n/a	n/a	n/a	ORG	M	FI	220	-	-	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	0	SP
MAS007	14U	386741	5996746	277	26-Oct-10	TILL	VC	n/a	n/a	n/a	n/a	n/a	n/a	REGO	R	O	6	-	0-2	Undulating	-	Mid	2-5	Woodland	MW	-	n/a	SP
MAS008	14U	383495	5993429	261	26-Oct-10	TILL	-	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	-	Undulating	-	Mid	0.5-2	Woodland	P	-	10	SP
MAS009	14U	381572	5990382	266	26-Oct-10	TILL	-	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	0-2	Undulating	-	Mid	0.5-2	Woodland	I	-	33	SP
MAS010	14U	362246	5913044	269	26-Oct-10	ORG	-	180	GLLC	-	n/a	n/a	n/a	-	-	-	135	-	-	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	-	SP
MAS011	14U	364250	5907833	260	26-Oct-10	ORG	-	170	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	-	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	0	SP
MAS012	14U	364048	5865019	264	26-Oct-10	GLLC	-	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	-	-	-	-	-	-	P	-	0	SP
MAS013	14U	361818	5913710	257	27-Oct-10	GLLC	-	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	4	Inclined	-	Upper	2-5	Gravel Pit	I	-	n/a	SP
MAS014	14U	365154	5912902	287	27-Oct-10	ORG	-	100	GLLC	-	n/a	n/a	n/a	-	-	-	-	-	-	-	-	-	-	Wetland	VP	-	-	SP
MAS015	14U	364943	5912769	283	27-Oct-10	GLLC	-	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	-	250	4	-	-	-	-	Woodland	I	-	25	SP
MAS017	14U	360666	5898895	266	27-Oct-10	ORG	-	200	GLLC	-	n/a	n/a	n/a	-	-	-	200	-	-	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	-	SP
MAS018	14U	358566	5845710	302	27-Oct-10	GLLC	-	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	15	-	-	-	-	-	-	-	P	-	12	SP
MAS019	14U	363398	5851948	278	27-Oct-10	FLUV	-	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	0-2	Terraced	0 (<0.01)	Mid	2-5	Woodland	VP	-	-	SP
MAS020	14U	363197	5852472	284	27-Oct-10	TILL	-	20	GLLC	-	n/a	n/a	n/a	-	-	-	-	-	-	-	-	-	-	Woodland	-	-	n/a	SP
MAS021	14U	362074	5855595	275	27-Oct-10	TILL	-	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	0-2	-	0 (<0.01)	Mid	0.5-2	Woodland	I	0	0	SP
MAS022	14U	363965	5863048	252	27-Oct-10	GLLC	-	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	0-2	Undulating	0 (<0.01)	Mid	0.5-2	-	I	-	n/a	SP
MAS024	14U	529226	6087809	227	28-Oct-10	ORG	-	320	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	-	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	-	SP
MAS025	14U	515772	6074078	229	28-Oct-10	ORG	-	340	n/a	n/a	n/a	n/a	n/a	-	-	-	340+	-	-	Level	0 (<0.01)	Level	0.5-2	Wetland	VP	-	-	SP
MAS026	14U	513101	6070383	230	28-Oct-10	GLFL	-	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	5	-	6	Undulating	0 (<0.01)	Mid	5-9	Woodland	R	-	-	SP
MAS027	14U	497529	6057504	225	28-Oct-10	ORG	-	230	GLLC	-	n/a	n/a	n/a	-	-	-	-	-	-	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	-	SP
MAS028	14U	486672	6054875	248	28-Oct-10	ORG	-	330	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	-	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	-	SP
MAS029	14U	476610	6048393	252	28-Oct-10	ORG	-	175	GLLC	-	n/a	n/a	n/a	-	-	-	175	-	-	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	-	SP
MAS030	14U	460581	6046308	258	28-Oct-10	ORG	-	250	n/a	-	n/a	n/a	n/a	-	-	-	-	-	-	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	-	SP
MAS031	14U	444168	6036521	256	28-Oct-10	ORG	-	290	GLLC	-	n/a	n/a	n/a	-	-	-	-	-	-	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	-	SP
MAS032	14U	427439	6029588	260	28-Oct-10	ORG	-	90	GLLC	-	n/a	n/a	n/a	-	-	-	-	-	-	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	-	SP
MAS033	14U	422706	6024653	282	29-Oct-10	ORG	-	100	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	-	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	-	SP
MAS034	14U	410708	6012315	279	29-Oct-10	TILL	-	17	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	-	-	-	-	-	-	I	-	n/a	SP
MAS035	14U	361351	5961848	260	29-Oct-10	TILL	-	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	-	-	-	-	-	-	I	-	n/a	SP
MAS036	14U	360478	5869030	265	29-Oct-10	ORG	-	150	GLLC	-	n/a	n/a	n/a	-	-	-	-	-	-	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	-	SP

Table D.1 Soil Inspection Database

Site_ID	Zone	Easting	Northing	Elevation	Date	Parent Material 1 Type	Parent Material 1 Texture	Parent Material 1 Thickness	Parent Material 2 Type	Parent Material 2 Texture	Parent Material 1 Thickness	Parent Material 3 Type	Parent Material 3 Texture	Soil Order	Soil Great Group	Soil Subgroup	Topsoil Depth (cm)	Aspect (degrees)	Slope (%)	Surface Expression	Surface Stone Class (Class (%))	Slope Position	Landscape Slope Class (%)	Land Use	Site Drainage	Seepage Depth	Water Table Depth (cm)	Inspection Type (Pit/Auger - SP, Aerial Recon - AR)
MAS037	14U	360485	5869016	262	29-Oct-10	ORG	-	135	GLLC	-	n/a	n/a	n/a	-	-	-	-	-	-	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	-	SP
MAS038	14U	357656	5896990	268	29-Oct-10	TILL	-	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	-	-	-	-	-	-	P	-	-	SP
MAS039	14U	358187	5939337	287	29-Oct-10	TILL	-	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	-	-	-	-	-	-	I	-	50	SP
MAS040	14U	357164	5949796	252	29-Oct-10	ORG	-	95	TILL	-	n/a	n/a	n/a	-	-	-	-	-	-	Level	0 (<0.01)	Level	0-0.5	Wetland	VP	-	-	SP
MBSE-01	14U	664720	5533990	-	30-Sep-10	GLLC	VF	n/a	n/a	n/a	n/a	n/a	n/a	VERT	HV	GL	17	-	-	-	0 (<0.01)	Level	0-0.5	Crop	MW	53	n/a	SP
MBSE-02	14U	665311	5534901	-	30-Sep-10	GLLC	VF	n/a	n/a	n/a	n/a	n/a	n/a	VERT	HV	GL	16	-	-	Level	0 (<0.01)	Level	0-0.5	Crop	I	-	n/a	SP
MBSE-03	14U	666264	5533682	-	30-Sep-10	TILL	MF	n/a	n/a	n/a	n/a	n/a	n/a	CHER	DGC	O		-	-	Undulating	2 (0.1-3)	Crest	2-5	Woodland		-	n/a	SP
MBSE-04	14U	676573	5535322	-	30-Sep-10	FLUV/LACU	ME	51	TILL	MF	n/a	n/a	n/a	CHER	BLC	GLR	15	270	3	Undulating	3 (3-15)	Lower	0.5-2	Woodland	I	-	n/a	SP
MBSE-05	14U	677252	5535347	267	30-Sep-10	GLFL	VC	n/a	n/a	n/a	n/a	n/a	n/a	CHER	DGC	O	10	335	3	Undulating	1 (0.01-0.1)	Upper	2-5	Woodland	W	-	n/a	SP
MBSE-06	14U	676822	5536831	-	30-Sep-10	LACU	-	60	TILL	MF	n/a	n/a	n/a	CHER	BLC	GL	13	-	-	Level	0 (<0.01)	Level		Woodland	I	-	5	SP
MBSE-07	14U	679025	5532098	-	30-Sep-10	TILL	ME	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	9	294	2	Undulating	3 (3-15)	Lower	2-5	Woodland	W	-	69	SP
MBSE-08	14U	679381	5532121	-	30-Sep-10	ORG	MS	58	TILL	ME	n/a	n/a	n/a	ORG	M	T	68	-	-	Undulating	0 (<0.01)	Depression	0.5-2	Woodland	VP	-	-	SP
MBSE-09	14U	679269	5532092	-	30-Sep-10	ROCK	ME	n/a	n/a	n/a	n/a	n/a	n/a	CHER	BLC	GLR	15	348	2	Undulating	1 (0.01-0.1)	Lower		Woodland	I	-	n/a	SP
MBSE-10	14U	679201	5524153	272	30-Sep-10	TILL	ME	n/a	n/a	n/a	n/a	n/a	n/a	GLEY	LG	O	9	-	-	Level	2 (0.1-3)	Level	0-0.5	Woodland	P	30	39	SP
MBSE-11	14U	678800	5523886	274	30-Sep-10	TILL	MF	n/a	n/a	n/a	n/a	n/a	n/a	GLEY	HG	R	18	-	-	Level	0 (<0.01)	Level	0-0.5	Woodland	P	28	40	SP
MBSE-12	14U	678331	5523891	278	30-Sep-10	TILL	ME	n/a	n/a	n/a	n/a	n/a	n/a	GLEY	HG	R	19	-	-	Level	0 (<0.01)	Level	0-0.5	Woodland	P	20	36	SP
MBSE-13	14U	674742	5521579	276	30-Sep-10	TILL	ME	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	14	345	4	Undulating	2 (0.1-3)	Mid	2-5	Woodland	W	-	n/a	SP
MBSE-14	14U	674718	5521192	277	30-Sep-10	TILL	-	n/a	n/a	n/a	n/a	n/a	n/a	CHER	BLC	O	5	48	2	Undulating	-	-	2-5	Grazed Woodland	W	-	n/a	SP
MBSE-15	14U	674698	5520530	-	30-Sep-10	TILL	MF	n/a	n/a	n/a	n/a	n/a	n/a	GLEY	HG	R	16	100	2	Undulating	3 (3-15)	Toe	-	Grazed Woodland	P	22	-	SP
MBSE-20	14U	681350	5533822	258	30-Nov-10	GLFL	VC	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	19	-	-	Level	0 (<0.01)	Level	-	Upland Bush	P	-	20	SP
MBSE-21	14U	681592	5533873	261	30-Nov-10	GLFL	VC	96	n/a	n/a	n/a	n/a	n/a	-	-	-	20	-	-	Level	0 (<0.01)	Level	-	Upland Bush	P	-	30	SP
MBSE-22	14U	681723	5533859	265	30-Nov-10	GLFL	VC	80	TILL	-	n/a	n/a	n/a	-	-	-	18	-	-	Level	0 (<0.01)	Level	0.5-2	Upland Bush	P	-	23	SP
MBSE-23	14U	682332	5532088	261	30-Nov-10	-	-	n/a	n/a	n/a	n/a	n/a	n/a	ORG	M	T	123	-	-	Level	0 (<0.01)	Level	-	Wetland	VP	-	0	SP
MBSE-24	14U	682745	5531967	263	30-Nov-10	ORG	MS	110	TILL	MF	n/a	n/a	n/a	ORG	M	T	110	-	-	Level	0 (<0.01)	Level	0-0.5	Woodland	VP	-	-	SP
MBSE-25	14U	682627	5531698	268	30-Nov-10	-	-	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	75	-	-	Level	0 (<0.01)	Level	0-0.5	Woodland	VP	-	-	SP
MHCON-01	14U	815051	6291543	87	06-Oct-10	ORG	MS	48	TILL	MF	n/a	n/a	n/a	ORG	M	T	48	-	-	Level	0 (<0.01)	Level	-	Woodland	VP	-	10	SP
MHCON-02	14U	815054	6291229	86	06-Oct-10	ORG	FB	83	TILL	VC	n/a	n/a	n/a	ORG	M	T-TFI	83	-	-	Undulating		Level	0-0.5	Wetland	VP	-	-	SP
MHCON-03	14U	814855	6291162	92	06-Oct-10	ORG	MS	73	TILL	MC-ME	n/a	n/a	n/a	LUV	M	T	73	-	-	Level	0 (<0.01)	Level	-	Woodland	VP	-	-	SP
MHCON-04	14U	814753	6290943	92	06-Oct-10	ORG	MS	29	GLFL	-	n/a	n/a	n/a	-	-	-	-	-	-	-	-	-	-	Woodland	VP	-	-	SP
MHCON-05	14U	815880	6291160	90	07-Oct-10	ORG	MS	130	ROCK	MF	n/a	n/a	n/a	CRYO	OC	TME	130	-	-	Level	0 (<0.01)	-	-	Wetland	VP	31	-	SP
MHCON-06	14U	815428	6290823	89	07-Oct-10	ORG	-	68	TILL	MF	n/a	n/a	n/a	ORG	M	T	68	130	2	Undulating	0 (<0.01)	Mid	-	Woodland	VP	-	18	SP
MHCON-07	14U	815764	6290316	82	07-Oct-10	TILL	MC	n/a	n/a	n/a	n/a	n/a	n/a	REGO	R	GL	-	140	6	Steep	-	Upper	5-9	Woodland	I	-	55	SP
MHCON-08	14U	815466	6290625	88	07-Oct-10	ORG	MS	105	TILL	MF	n/a	n/a	n/a	ORG	M	T	105	-	-	Level	0 (<0.01)	Level	0-0.5	Woodland	VP	-	15	SP

Table D.1 Soil Inspection Database

Site_ID	Zone	Easting	Northing	Elevation	Date	Parent Material 1 Type	Parent Material 1 Texture	Parent Material 1 Thickness	Parent Material 2 Type	Parent Material 2 Texture	Parent Material 1 Thickness	Parent Material 3 Type	Parent Material 3 Texture	Soil Order	Soil Great Group	Soil Subgroup	Topsoil Depth (cm)	Aspect (degrees)	Slope (%)	Surface Expression	Surface Stone Class (Class (%))	Slope Position	Landscape Slope Class (%)	Land Use	Site Drainage	Seepage Depth	Water Table Depth (cm)	Inspection Type (Pit/Auger - SP, Aerial Recon - AR)
MHCPS-01	14U	816183	6293456	91	07-Oct-10	ORG	MS	-	TILL	MF	n/a	n/a	n/a	ORG	M	T	48	-	-	Level	0 (<0.01)	Level		Woodland	VP	16	48	SP
MHCPS-02	14U	816079	6293393	91	07-Oct-10	ORG	MS	33	TILL	-	n/a	n/a	n/a	GLEY	G	R	33	-	-	Level	0 (<0.01)	Level	0-0.5	Woodland	P	-	50	SP
MHCPS-03	14U	816172	6293364	88	07-Oct-10	ORG	MS	59	TILL	MF	n/a	n/a	n/a	ORG	M	T	59	210	2	Undulating	0 (<0.01)	Mid	2-5	Woodland	VP	46	92	SP
MHCPS-04	14U	816227	6292957	92	07-Oct-10	ORG	MS	98	TILL	MF	n/a	n/a	n/a	ORG	M	T	98	-	-	Level	0 (<0.01)	Level		Woodland	VP	30	44	SP
MHNE03a-1	14U	792665	6263433	91	06-Oct-10	-	-	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	EB	GL	18	50	2	Undulating	0 (<0.01)	Mid	0.5-2	Woodland	I	-	n/a	SP
MHNE03a-2	14U	792849	6263139	93	06-Oct-10	GLLC	MF	n/a	n/a	n/a	n/a	n/a	n/a	GLEY	G	R	23	-	-	Level	0 (<0.01)	Level	0-0.5	Woodland	P	23	47	SP
MHNE03b-1	14U	791943	6262782	96	06-Oct-10	GLLC	MF	n/a	n/a	n/a	n/a	n/a	n/a	LUV	GL	GL	6	180	1	Undulating	-	Mid	0.5-2	Woodland	I	-	n/a	SP
MHNE03b-2	14U	792308	6263016	95	06-Oct-10	ORG	MS	92	LACU	MF	n/a	n/a	n/a	ORG	M	T	92	-	-	Level	0 (<0.01)	Level	-	Woodland	VP	-	25	SP
MHNE04-1	14U	811006	6283711	83	07-Oct-10	ORG	MS	32	GLFL	VC	n/a	n/a	n/a	REGO	R	GL	40	280	2	Undulating	0 (<0.01)	Mid	-	Woodland	P	-	-	SP
MHNE04-2	14U	810792	6283709	86	07-Oct-10	ORG	MS	50	FLUV/LACU	MF	n/a	n/a	n/a	ORG	M	T	50	-	-	Level	0 (<0.01)	Level	-	Woodland	VP	-	30	SP
MHNE04-3	14U	810902	6283660	88	07-Oct-10	FLUV/LACU	ME	84	GLFL	VC	n/a	n/a	n/a	REGO	R	GL	-	-	-	Level	0 (<0.01)	Level	-	Woodland		-	n/a	SP
MHNE04-4	14U	811023	6283526	91	07-Oct-10	GLFL	VC	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	EB	O	2	220	2	Undulating	4 (15-50)	Upper	0.5-2	Woodland	R	-	n/a	SP
MHNE05-1	14U	809365	6283775	89	04-Oct-10	ORG	MF	120	TILL	MF	n/a	n/a	n/a	CRYO	OC	ME	120	-	-	Level	0 (<0.01)	Level	-	Woodland	VP	-	-	SP
MHNE05-2	14U	809364	6283753	90	04-Oct-10	ORG	MS	160	TILL	MF	n/a	n/a	n/a	ORG	M	TY	160	-	-	Level	0 (<0.01)	Level	-	Wetland	VP	-	0	SP
MHNE05-3	14U	809399	6283811	88	04-Oct-10	ORG	FB	n/a	n/a	n/a	n/a	n/a	n/a	ORG	F	HY	-	-	-	-	-	-	-	-	VP	-	0	SP
MHNE06-1	14U	810975	6282329	89	07-Oct-10	-	-	n/a	n/a	n/a	n/a	n/a	n/a	CRYO	OC	TME	-	140	3	Undulating	-	Lower	2-5	Woodland	VP	-	-	SP
MHNE06-2	14U	811040	6282360	89	07-Oct-10	ORG	MS	n/a	n/a	n/a	n/a	n/a	n/a	ORG	M	TY	-	-	-	Level	0 (<0.01)	Level	-	Wetland	VP	-	-	SP
MHNE06-3	14U	811086	6282122	88	07-Oct-10	ORG	MS	n/a	n/a	n/a	n/a	n/a	n/a	CRYO	OC	TME	-	-	-	Level	-	-	0-0.5	Woodland	VP	45	-	SP
MHNE07-01	14U	809181	6280068	83	07-Oct-10	GLFL	VC	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	EB	GLE	19	180	4	Undulating	0 (<0.01)	Mid	2-5	Woodland	I	-	62	SP
MHNE07-02	14U	809075	6280117	87	07-Oct-10	ORG	FI	30	GLFL	VC	n/a	n/a	n/a	REGO	R	GL	30	-	-	Level	4 (15-50)	Level	-	Woodland	P	-	-	SP
MHNE07-03	14U	809039	6279773	78	07-Oct-10	ORG	FI	50	TILL	ME	n/a	n/a	n/a	GLEY	G	R	50	-	-	Level	0 (<0.01)	Level	-	Woodland	VP	-	20	SP
MHNE10-1	14U	827389	6304736	62	04-Oct-10	GLFL	VC	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	EB	E	8	-	-	Ridged-Undulating	0 (<0.01)	Mid	-	Woodland	R	-	48	SP
MHNE10-2	14U	827147	6304482	76	04-Oct-10	GLFL	VC	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	EB	E	11	-	-	Ridged	0 (<0.01)	Crest	-	Woodland	R	-	92	SP
MHNE11-1	14U	795547	6307358	99	04-Oct-10	GLLC	MF	50	GLFL	ME	n/a	n/a	n/a	BRUN	EB	GLE	14	-	-	Level	0 (<0.01)	Level	0-0.5	Woodland	I	-	n/a	SP
MHNE11-2	14U	795646	6307113	99	04-Oct-10	GLLC	MF	45	GLLC	ME	n/a	n/a	n/a	BRUN	EB	GLE	-	-	-	Level	0 (<0.01)	Level	-	Woodland	I	-	n/a	SP
MHNE12-1	14U	804355	6278808	86	04-Oct-10	ORG	MS	185	TILL	MF	n/a	n/a	n/a	ORG	M	TY	185	-	-	Level	0 (<0.01)	Level	-	Wetland	VP	-	-	SP
MHNE12-2	14U	804598	6278936	86	04-Oct-10	ORG	HU	45	ROCK	MF	n/a	n/a	n/a	GLEY	HG	R	60	-	-	-	0 (<0.01)	Level	-	Wetland	VP	-	-	SP
MHNE12-3	14U	805213	6278353	86	07-Oct-10	GLFL	VC	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	EB	GLE	16	160	3	Undulating	0 (<0.01)	Mid	2-5	Woodland	I	28	48	SP
MHNE12-4	14U	804818	6278127	89	07-Oct-10	GLFL	-	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	EB	GL	14	-	-	Level	-	-	0-0.5	Woodland	P	18	-	SP
MHPR-01	14U	800655	6294933	123	05-Oct-10	ORG	VC	18	GLFL	VC	18	GLFL	VC	BRUN	EB	E	12	270	4	Ridged	0 (<0.01)	Upper	2-5	Woodland	R	-	n/a	SP
MHPR-02	14U	782774	6291037	138	05-Oct-10	GLFL	VC	35	TILL	ME	n/a	n/a	n/a	BRUN	EB	GLE	23	42	3	Undulating	0 (<0.01)	-	2-5	Woodland	I	-	n/a	SP
MHPR-03	14U	782718	6291616	131	05-Oct-10	TILL	ME	n/a	n/a	n/a	n/a	n/a	n/a	REGO	R	GL	12	12	10	Steep	0 (<0.01)	Mid	9-15	Woodland	I	-	n/a	SP
MHPR-04	14U	782686	6291727	125	05-Oct-10	ORG	FI	170	TILL	ME	n/a	n/a	n/a	ORG	F	TY	220	-	-	Undulating	0 (<0.01)	Depression	-	Wetland	VP	-	0	SP

Table D.1 Soil Inspection Database

Site_ID	Zone	Easting	Northing	Elevation	Date	Parent Material 1 Type	Parent Material 1 Texture	Parent Material 1 Thickness	Parent Material 2 Type	Parent Material 2 Texture	Parent Material 1 Thickness	Parent Material 3 Type	Parent Material 3 Texture	Soil Order	Soil Great Group	Soil Subgroup	Topsoil Depth (cm)	Aspect (degrees)	Slope (%)	Surface Expression	Surface Stone Class (Class (%))	Slope Position	Landscape Slope Class (%)	Land Use	Site Drainage	Seepage Depth	Water Table Depth (cm)	Inspection Type (Pit/Auger - SP, Aerial Recon - AR)
MHPR-05	14U	779144	6290069	113	05-Oct-10	ORG	MS	50	GLLC	ME	n/a	n/a	n/a	CRYO	OC	TME	30	-	2	Terraced&Undulating	0 (<0.01)	Level	0.5-2	Woodland	P	19	-	SP
MHPR-06	14U	763518	6287560	147	05-Oct-10	GLLC	ME	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	EB	O	14	-	-	Level	0 (<0.01)	Level	-	Woodland	W	-	n/a	SP
MHPR-07	14U	763470	6287517	145	05-Oct-10	GLLC	ME	n/a	n/a	n/a	n/a	n/a	n/a	REGO	HR	GL	22	-	0	Level	0 (<0.01)	Depression	0-0.5	Wetland	I	25	n/a	SP
MHPR-08	14U	762828	6286484	-	05-Oct-10	GLLC	ME	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	EB	O	3	320	3	Undulating	-	Upper	2-5	Woodland	W	-	n/a	SP
MHPR-09	14U	762762	6286158	154	05-Oct-10	ORG	MS	n/a	n/a	n/a	n/a	n/a	n/a	CRYO	OC	ME	-	-	35	Hummocky	0 (<0.01)	-	30-45	Wetland	P	-	-	SP
MHPR-10	13U	762721	6286204	152	05-Oct-10	ORG	FI	190	ORG	MS	n/a	n/a	n/a	ORG	EB	TY	-	-	-	Level	0 (<0.01)	Level	-	Wetland	VP	-	-	SP
MHPR-11	14U	756203	6282915	167	05-Oct-10	GLLC	ME	38	GLLC	MC	n/a	n/a	n/a	BRUN	EB	O	5	150	6	Ridged	0 (<0.01)	Upper	9-15	Woodland	MW	-	n/a	SP
MHPR-12	13U	752893	6279794	143	05-Oct-10	ORG	FI	26	GLLC	MF	90	TILL	ME	GLEY	G	R	26	0	22	Undulating	0 (<0.01)	Mid	0.5-2	Woodland	P	26	-	SP
MHPR-13	14U	752859	6279390	148	05-Oct-10	GLLC	ME	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	22	-	-	Hummocky	1 (0.01-0.1)	Crest	9-15	Woodland	I	-	n/a	SP
MHPR-14	14U	752543	6277992	147	05-Oct-10	COLL	ME	37	TILL	MF	n/a	n/a	n/a	BRUN	EB	O	2	170	24	Steep	0 (<0.01)	Mid	15-30	Woodland	I	37	90	SP
MHPR-15	14U	752558	6277814	134	05-Oct-10	ORG	MS	n/a	n/a	n/a	n/a	n/a	n/a	CRYO	OC	ME	-	-	-	Level	0 (<0.01)	Level	-	Wetland	VP	-	-	SP
MHPR-16	14U	749625	6278356	176	05-Oct-10	TILL	MF	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	EB	O	10	-	3	Undulating	0 (<0.01)	Mid	2-5	Woodland	W	-	n/a	SP
MHPR-17	14U	743406	6283697	206	05-Oct-10	GLFL	VC	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	EB	E	15	-	-	Ridged	0 (<0.01)	Crest	-	Woodland	R	-	n/a	SP
MHPR-18	13U	737725	6278950	159	05-Oct-10	TILL	MF	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	EB	O	9	140	18	-	1 (0.01-0.1)	Mid	15-30	Woodland	W	-	n/a	SP
MHPR-19	14U	737755	6278805	157	05-Oct-10	TILL	MF	n/a	n/a	n/a	n/a	n/a	n/a	GLEY	G	R	28	250	3	-	0 (<0.01)	Lower	-	Woodland	P	-	-	SP
MHPR-20	14U	737756	6278778	155	05-Oct-10	ORG	FB	125	TILL	MF	n/a	n/a	n/a	ORG	F	T	125	-	-	Undulating	0 (<0.01)	Depression	-	Wetland	VP	-	0	SP
MHPR-20A	14U	736394	6279551	162	06-Oct-10	GLLC	MF	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	DYB	O	8	340	-	Undulating	-	Mid	-	Woodland	MW	-	n/a	SP
MHPR-21	14U	736418	6279630	159	06-Oct-10	ORG	MS	95	GLLC	ME	n/a	n/a	n/a	ORG	M	T	95	-	-	Undulating	0 (<0.01)	Depression	0-0.5	Wetland	VP	-	-	SP
MHPR-22	14U	734557	6278606	147	06-Oct-10	ORG	MS	72	GLLC	ME	n/a	n/a	n/a	CRYO	OC	TME	72	-	-	Level	0 (<0.01)	Level	-	Woodland	VP	-	-	SP
MHPR-23	14U	734559	6278631	147	06-Oct-10	ORG	FB	85	GLLC	-	n/a	n/a	n/a	ORG	F	T	85	-	-	Level	0 (<0.01)	Depression	-	Wetland	VP	-	-	SP
MHPR-24	14U	731807	6277763	152	06-Oct-10	GLLC	ME	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	EB	O	3	340	15	Undulating	0 (<0.01)	Mid	9-15	Woodland	MW	-	n/a	SP
MHPR-25	14U	731718	6277838	142	06-Oct-10	ORG	MS	n/a	n/a	n/a	n/a	n/a	n/a	CRYO	OC	TME	-	320	6	Undulating	0 (<0.01)	Level	5-9	Woodland	VP	-	-	SP
MHPR-26	14U	714972	6268464	152	06-Oct-10	ORG	FB	53	GLLC	ME	n/a	n/a	n/a	GLEY	HG	R	62	140	5	Inclined	0 (<0.01)	Mid	2-5	Woodland	P	-	-	SP
MHPR-27	14U	714944	6268175	152	06-Oct-10	ORG	-	n/a	n/a	n/a	n/a	n/a	n/a	CRYO	OC	TME	80	-	-	Level	0 (<0.01)	Level	0-0.5	Woodland	VP	-	52	SP
MHPR-28	14U	739894	6283011	168	06-Oct-10	GLFL	VC	n/a	n/a	n/a	n/a	n/a	n/a	BRUN	DYB	E	7	130	20	-	-	Mid	15-30	Woodland	R	-	n/a	SP
MHPR-29	14U	740003	6282965	148	06-Oct-10	GLFL	VC	-	GLLC	-	n/a	n/a	n/a	GLEY	G	R	15	-	-	Ridged	0 (<0.01)	Depression	30-45	Wetland	VP	-	-	SP
MHPR-30	14U	540296	5498829	319	09-Nov-10	EOLI	VC	n/a	n/a	n/a	n/a	n/a	n/a	REGO	R	O	8	360	5	Hummocky	0 (<0.01)	Upper	5-9	Native Pasture	R	-	n/a	SP
MHPR-31	14U	539792	5498725	-	09-Nov-10	EOLI	VC	n/a	n/a	n/a	n/a	n/a	n/a	REGO	R	O	0	270	25	Hummocky	0 (<0.01)	Mid	15-30	Native Pasture	VR	-	n/a	SP
MHPR-32	14U	539745	5498832	315	09-Nov-10	EOLI	VC	120+	n/a	n/a	n/a	n/a	n/a	REGO	R	O	10	-	5	Hummocky	0 (<0.01)	Crest	2-5	Native Pasture	R	-	n/a	SP

Notes
"- " = not measured, recorded or determined
"n/a/ " = not applicable/appropriate

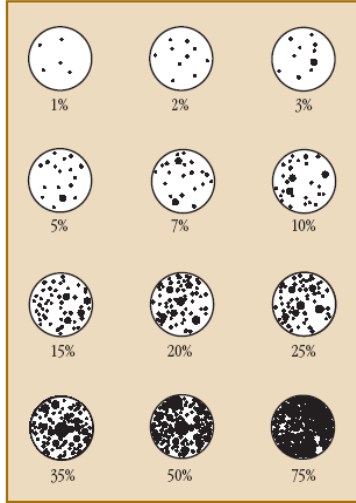
Stantec Soil Inspection Form

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Parent Material Codes

Textural Class	Texture	Unsorted Glacial Till (TILL)	Sorted Glacial Till (GLTL)	Glaciolacustrine (GLLC)	Glaciofluvial (GLFL)	Eolian (EOLI)	Recent Fluvial (FLUV)	Recent Lacustrine (LACU)	Colluvial (COLL)	Organic (O)
Very Coarse (VC)	S, LS, LFS	11	21	--	41	51	61	--	81	91-F
Moderately Coarse (MC)	SL, FSL	12	22	32	42	52	62	72	82	92-M
Medium (ME)	VSFL, L, SiL	13	23	33	--	53	63	73	83	93-H
Moderately Fine (MF)	SCL, CL, SiCL, Si	14	24	34	--	54	64	74	84	--
Fine (FI)	SC, SiC, C	15	25	35	--	--	--	75	85	--
Very Fine (VF)	HC (>60% clay)	--	--	36	--	--	--	76	--	--

Miscellaneous Codes

<u>Structure</u>	<u>Consistence</u>	<u>Coarse Fragments</u>	<u>Salts</u>	<u>Percent Cover Examples</u>	<u>Mottles</u>																											
Grade W – Weak M – Moderate S – Strong	Moist Consistency L – Loose VF – Very Friable F – Friable FI – Firm VFI – Very Firm	Record % by volume if present Shape R – Rounded SR– Sub-rounded A – Angular I – Irregular F – Flat*	F – Few (Weakly saline; 4 - 8 dS/m) C – Common (Moderately saline; 8 to 15 dS/m) M – Many (Strongly saline; > 15 dS/m)		Abundance F – Few (< 2% of area) C – Common (2 – 20% of area) M – Many (> 20% of area)																											
Class F – Fine M – Medium C – Coarse	Dry Consistency L – Loose S – Soft SH – Slightly Hard H – Hard VH – Very Hard EH – Extremely Hard R – Rigid	Type G – Gravel (2 to 7.5 cm in diameter) FG – Fine gravel (0.2 to 0.5 cm) MG – Medium gravel (0.5 to 2 cm) CG – Coarse gravel (2 to 7.5 cm) C – Cobble (7.5 to 25 cm in diameter) S – Stone (25 to 60 cm in diameter) B – Boulder (> 60 cm in diameter) *If Shape = Flat: Channer (0.2 to 15 cm long) Flagstone (15 to 38 cm long) Stone (38 to 60 cm long) Boulder (> 60 cm long)	Roots Abundance: (ave. no. per square decimeter) F – Few (VF=10; F=10; M=1; C=1) P – Plentiful (VF=10-100; F=10-100; M=1-10; C = 1-5) A – Abundant (VF>100; F>100; M>10; C>5) Size: (diameter in mm) VF– Very Fine (< 1) F – Fine (1-2) M – Medium (2-5) C – Coarse (> 5)		Contrast See below for more detail F– Faint (barely noticeable) D– Distinct (clearly evident) P – Prominent (mottles stand out with high contrast to surrounding matrix)																											
Kind GR – Granular SB – Subangular Blocky BL – Blocky PR – Prismatic CO – Columnar PL – Platy SG – Single Grain MA – Massive	Wet Consistency NS – Non Sticky SS – Slightly Sticky ST – Sticky VS – Very Sticky		Ca CO₃ W – Weakly calcareous (reaction barely visible) M – Moderately calcareous (reaction readily evident) S – Strongly calcareous (immediate reaction with some frothing) VS – Very strongly calcareous (rapid reaction with abundant frothing) E – Extremely calcareous (rapid reaction with excessive frothing)		<table><tr><th></th><th><u>Hue (#pages)</u></th><th><u>Value</u></th><th><u>Chroma</u></th></tr><tr><td rowspan="2">Faint</td><td>0</td><td><= 2</td><td><= 1</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td rowspan="2">Distinct</td><td>0</td><td>3-4</td><td>2-4</td></tr><tr><td>1</td><td><= 2</td><td><= 1</td></tr><tr><td rowspan="3">Prominent</td><td>2+</td><td>0</td><td>0</td></tr><tr><td>0</td><td>>= 4</td><td>>= 4</td></tr><tr><td>1</td><td>>= 2</td><td>>= 1</td></tr></table>		<u>Hue (#pages)</u>	<u>Value</u>	<u>Chroma</u>	Faint	0	<= 2	<= 1	1	0	0	Distinct	0	3-4	2-4	1	<= 2	<= 1	Prominent	2+	0	0	0	>= 4	>= 4	1	>= 2
	<u>Hue (#pages)</u>	<u>Value</u>	<u>Chroma</u>																													
Faint	0	<= 2	<= 1																													
	1	0	0																													
Distinct	0	3-4	2-4																													
	1	<= 2	<= 1																													
Prominent	2+	0	0																													
	0	>= 4	>= 4																													
	1	>= 2	>= 1																													
					Size F – Fine (<5mm) M – Medium (5-15mm) C – Coarse (>15mm)																											

<u>Horizon Boundary</u>	<u>Texture tests</u>				<u>Soil Textural Triangle</u>	
Distinctness [Abruptness of vertical change} A - Abrupt [< 2 cm] C - Clear [2-5 cm] G - Gradual [5-15 cm] D - Diffuse [> 15 cm] Form (Variations of boundary plane) S - Smooth (nearly a plane) W - Wavy (pockets wider than deep) I - Irregular (pockets deeper than wide) B - Broken (Some parts are unconnected)	Feel test	Moist cast test	Worm/ribbon test	Shine test		
Profile Modifiers e - eroded p - peaty phase (15-60 cm Of or 15-40 cm Om / Oh) s - saline c - carbonated (secondary) t - thick A horizon (> 30 cm) d - disturbed	S	grainy	no cast	none		
	LS	grainy, slightly floury	weak cast, no handling	none		
	SiS	grainy, mod. floury	weak cast, no handling	almost flakes		
	SL	grainy, mod. floury	weak cast, careful handling	barely ribbons (1.5-2 cm)		
	L	soft, smooth, slight graininess	good cast, readily handled	thick and v. short (<2.5 cm)		
	SiL	floury, slightly grainy	weak cast, careful handling	flakes rather than ribbons		
	Si	very floury	weak cast, careful handling	flakes rather than ribbons		
	SCL	very grainy	moderate cast	short and thick (2.5-5 cm)		slightly shiny
	CL	mod. graininess	strong cast	fairly thin, breaks, barely supports own weight		slightly shiny
	SiCL	smooth and floury	strong cast	fairly thin, breaks, barely supports own weight		slightly shiny
	SC	substantial graininess	strong cast	thin, fairly long (5-7.5 cm), supports own weight		mod. shiny
	SIC	smooth	very strong cast	thin, fairly long (5-7.5 cm), supports own weight		mod. shiny
	C	smooth	very strong cast	very thin, very long (>7.5 cm)		very shiny

Subgroup	Numeric Code	Subgroup	Numeric Code	Subgroup	Numeric Code	Subgroup	Numeric Code	Subgroup	Numeric Code
BRUNISOLIC		Black Chernozem (BL)		LUVISOLIC		PODZOLIC		Solodized Solonetz (SS)	
Melanic Brunisol (MB)		Orthic BL	2.310	Gray Brown Luvisol (GBL)	5.1XX	Humic Podzol (HP)		Brown SS	9.210
Orthic MB	1.110	Rego BL	2.320			Orthic HP	7.110	Dark Brown SS	9.220
Eluviated MB	1.120	Calcareous BL	2.330			Ortstein HP	7.120	Black SS	9.230
Gleyed MB	1.111	Eluviated BL	2.340	Gray Luvisol (GL)		Placic HP	7.130	Dark Gray SS	9.240
Gleyed Eluviated MB	1.121	Solonetzic BL	2.350	Orthic GL	5.210	Duric HP	7.140	Gray SS	9.250
		Vertic BL	2.360	Dark GL	5.220	Fragic HP	7.150	Gleyed Brown SS	9.211
Eutric Brunisol (EB)		Gleyed BL	2.311	Brunisolic GL	5.230			Gleyed Dark Brown SS	9.221
Orthic EB	1.210	Gleyed Rego BL	2.321	Podzolic GL	5.240	Ferro-Humic Podzol (FHP)		Gleyed Black SS	9.231
Eluviated EB	1.220	Gleyed Calcareous BL	2.331	Solonetzic GL	5.250	Orthic FHP	7.210	Gleyed Dark Gray SS	9.241
Gleyed EB	1.211	Gleyed Eluviated BL	2.341	Fragic GL	5.260	Ortstein FHP	7.220	Gleyed Gray SS	9.251
Gleyed Eluviated EB	1.221	Gleyed Solonetzic BL	2.351	Vertic GL	5.270	Placic FHP	7.230		
		Gleyed Vertic BL	2.361	Gleyed GL	5.211	Duric FHP	7.240	Solod (SO)	
Sombric Brunisol (SB)				Gleyed Dark GL	5.221	Fragic FHP	7.250	Brown SO	9.310
Orthic SB	1.310	Dark Gray Chernozem (DG)		Gleyed Brunisolic GL	5.231	Luvisolic FHP	7.260	Dark Brown SO	9.320
Eluviated SB	1.320	Orthic DG	2.410	Gleyed Podzolic GL	5.241	Sombric FHP	7.270	Black SO	9.330
Duric SB	1.330	Rego DG	2.420	Gleyed Solonetzic GL	5.251	Gleyed FHP	7.211	Dark Gray SO	9.340
Gleyed SB	1.311	Calcareous DG	2.430	Gleyed Fragic GL	5.261	Gleyed Ortstein FHP	7.221	Gray SO	9.350
Gleyed Eluviated SB	1.321	Solonetzic DG	2.440	Gleyed Vertic GL	5.271	Gleyed Sombric FHP	7.271	Gleyed Brown SO	9.311
		Vertic DG	2.460					Gleyed Dark Brown SO	9.321
Dystric Brunisol (DB)		Gleyed DG	2.411	ORGANIC		Humo-Ferric Podzol (HFP)		Gleyed Black SO	9.331
Orthic DB	1.410	Gleyed Rego DG	2.421	Fibrisol (F)		Orthic HFP	7.310	Gleyed Dark Gray SO	9.341
Eluviated DB	1.420	Gleyed Calcareous DG	2.431	Typic F	6.110	Ortstein HFP	7.320	Gleyed Gray SO	9.351
Duric DB	1.430	Gleyed Solonetzic DG	2.441	Mesic F	6.120	Placic HFP	7.330		
Gleyed DB	1.411	Gleyed Vertic DG	2.461	Humic F	6.130	Duric HFP	7.340	Vertic Solonetz (V.SZ)	
Gleyed Eluviated DB	1.421			Limnic F	6.140	Fragic HFP	7.350	Brown V.SZ	9.410
		CRYOSOLIC	3.XXX	Cumulic F	6.150	Luvisolic HFP	7.360	Dark Brown V. SZ	9.420
CHERNOZEMIC				Terric F	6.160	Sombric HFP	7.370	Black V.SZ	9.430
Brown Chernozem (B)		GLEYSOLIC		Terric Mesic F	6.170	Gleyed HFP	7.311	Gleyed Brown V.SZ	9.411
Orthic B	2.110	Luvic Gleysol (LG)		Terric Humic F	6.180	Gleyed Ortstein HFP	7.321	Gleyed Dark Brown V.SZ	9.421
Rego B	2.120	Solonetzic LG	4.111	Hydric F	6.190	Gleyed Sombric HFP	7.371	Gleyed Black V.SZ	9.431
Calcareous B	2.130	Fragic LG	4.121						
Eluviated B	2.140	Humic LG	4.131	Mesisol (M)		REGOSOLIC		VERTISOLIC	
Solonetzic B	2.150	Fera LG	4.141	Typic M	6.210	Regosol (R)		Vertisol (V)	
Vertic B	2.160	Orthic LG	4.151	Fibric M	6.220	Orthic R	8.110	Orthic V	10.110
Gleyed B	2.111	Vertic LG	4.161	Humic M	6.230	Cumulic R	8.120	Gleyed V	10.111
Gleyed Rego B	2.121			Limnic M	6.240	Gleyed R	8.111	Gleysolic V	10.121
Gleyed Calcareous B	2.131	Humic Gleysol (HG)		Cumulic M	6.250	Gleyed Cumulic R	8.121		
Gleyed Eluviated B	2.141	Solonetzic HG	4.211	Terric M	6.260	Humic Regosol (HR)		Humic Vertisol (HV)	
Gleyed Solonetzic B	2.151	Fera HG	4.221	Terric Fibric M	6.270	Orthic HR	8.210	Orthic HV	10.210
Gleyed Vertic B	2.161	Orthic HG	4.231	Terric Humic M	6.280	Cumulic HR	8.220	Gleyed HV	10.211
Dark Brown Chernozem (DB)		Rego HG	4.241	Hydric M	6.290	Gleyed HR	8.211	Gleysolic HV	10.221
Orthic DB	2.210	Vertic HG	4.251			Gleyed Cumulic HR	8.221		
Rego DB	2.220	Gleysol (G)		Humisol (H)					
Calcareous DB	2.230	Solonetzic G	4.311	Typic H	6.310	OLONETZIC			
Eluviated DB	2.240	Fera G	4.321	Fibric H	6.320	Solonetz (SZ)			
Solonetzic DB	2.250	Orthic G	4.331	Mesic H	6.330	Brown SZ	9.110		
Vertic DB	2.260	Rego G	4.341	Limnic H	6.340	Dark Brown SZ	9.120		
Gleyed DB	2.211	Vertic G	4.351	Cumulic H	6.350	Black SZ	9.130		
Gleyed Rego DB	2.221			Terric H	6.360	Alkaline SZ	9.140		
Gleyed Calcareous DB	2.231			Terric Fibric H	6.370	Gleyed Brown SZ	9.111		
Gleyed Eluviated DB	2.241			Terric Mesic H	6.380	Gleyed Dark Brown SZ	9.121		
Gleyed Solonetzic DB	2.251			Hydric H	6.390	Gleyed Black SZ	9.131		
Gleyed Vertic DB	2.261			Folisol (FO)					
				Hemic FO	6.410				
				Humic FO	6.420				
				Lignic FO	6.430				
				Histic FO	6.440				

Jacques Whitford AXYS Soil / Landscape Field Record Sheet

[illegible]

4

Site Identification

[illegible]

Stantec Soil Inspection Form

Site ID: MA5002		Client/Project # 111255079		Surveyor AS/KM		Date 25 Oct 14		2010 Zone 14-		Easting 505685		Northing 6061312		Elevation			
Surface expression Fan Hummocky Level Rolling Sleep Terraced Undulating		Slope Classes 1 (0-0.05) 4 (5-9) 2 (0.05-2) 5 (9-15) 3 (2-5) 6 (15-30) 9 (70-100)		Slope Length (m) 1 (0 to 25) 4 (100 to 500) 2 (25 to 50) 5 (500 to 1000) 3 (50 to 100) 6 (>1000)		Slope (%) 0-2		Slope Position: Crest Upper Mid Lower Depression Toe Level		Horiz. Curv. Concave Linear Convex Vert. Curv. Concave Linear Convex % Surturb. <0.01 Stone 1 (0.01-0.1) 3 (3-15) 5 (>50)		Land Use Improved Pasture Native Pasture Grazed Woodland Wetland		Woodland Bush Urban		Gravel pit Aband. Land Disturbed Land	
Profile Description																	
Horizon	Depth	Moist w.m.d	Color	Coarse Frag %	Texture	Structure	Const	Salts f.c.a	Carbs n, w-e	Mottles	pH	Roots	Sample Label	BD Sample Label			
1 OF	0 60																
2 OM	60 180																
3 C	180 200+ W																
Site Information																	
Parent Material 1																	
TILL	FLUV	MAR	RES	VC	MF	Fib	MC	FI	ME	VF	Hum	PM 1 Thickness	Water Table Depth	TS/SS Contrast	G F P		
GLLC	LACU	RES	RES	VC	MF	Fib	MC	FI	ME	VF	Hum	PM 2 Thickness	Erosion	TS/SS Contrast	G F P		
GLFL	COLL	UND	UND	MC	FI	Mes	MC	FI	ME	VF	Hum	PM 2 Thickness	W. Water D - Wind	TS/SS Contrast	G F P		
EOI	ORG	ANTH	ANTH	MC	FI	Mes	MC	FI	ME	VF	Hum	PM 2 Thickness	% Bare Ground	TS/SS Contrast	G F P		
Seepage Depth	Root Depth	Effect.	Root Depth	Topsoil Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	
180																	
Parent Material 2																	
TILL	FLUV	MAR	RES	VC	MF	Fib	MC	FI	ME	VF	Hum	PM 2 Thickness	Water Table Depth	TS/SS Contrast	G F P		
GLLC	LACU	RES	RES	VC	MF	Fib	MC	FI	ME	VF	Hum	PM 2 Thickness	Erosion	TS/SS Contrast	G F P		
GLFL	COLL	UND	UND	MC	FI	Mes	MC	FI	ME	VF	Hum	PM 2 Thickness	W. Water D - Wind	TS/SS Contrast	G F P		
EOI	ORG	ANTH	ANTH	MC	FI	Mes	MC	FI	ME	VF	Hum	PM 2 Thickness	% Bare Ground	TS/SS Contrast	G F P		
Seepage Depth	Root Depth	Effect.	Root Depth	Topsoil Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	
180																	
Parent Material 3																	
TILL	FLUV	MAR	RES	VC	MF	Fib	MC	FI	ME	VF	Hum	PM 3 Thickness	Water Table Depth	TS/SS Contrast	G F P		
GLLC	LACU	RES	RES	VC	MF	Fib	MC	FI	ME	VF	Hum	PM 3 Thickness	Erosion	TS/SS Contrast	G F P		
GLFL	COLL	UND	UND	MC	FI	Mes	MC	FI	ME	VF	Hum	PM 3 Thickness	W. Water D - Wind	TS/SS Contrast	G F P		
EOI	ORG	ANTH	ANTH	MC	FI	Mes	MC	FI	ME	VF	Hum	PM 3 Thickness	% Bare Ground	TS/SS Contrast	G F P		
Seepage Depth	Root Depth	Effect.	Root Depth	Topsoil Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	
180																	
Soil Classification																	
BRUN	MB-EB-SB-DYB	O-E-GL-GLE	MB-EB-SB-DYB	O-E-GL-GLE	MB-EB-SB-DYB	O-E-GL-GLE	MB-EB-SB-DYB	O-E-GL-GLE	MB-EB-SB-DYB	O-E-GL-GLE	MB-EB-SB-DYB	O-E-GL-GLE	MB-EB-SB-DYB	O-E-GL-GLE	MB-EB-SB-DYB	O-E-GL-GLE	MB-EB-SB-DYB
CHER	BC-DBC-BLC-DGC	O-R-CA-E-SZ-GL-GLR-GLCA-GLE-GLSZ-V-GLV	BC-DBC-BLC-DGC	O-R-CA-E-SZ-GL-GLR-GLCA-GLE-GLSZ-V-GLV	BC-DBC-BLC-DGC	O-R-CA-E-SZ-GL-GLR-GLCA-GLE-GLSZ-V-GLV	BC-DBC-BLC-DGC	O-R-CA-E-SZ-GL-GLR-GLCA-GLE-GLSZ-V-GLV	BC-DBC-BLC-DGC	O-R-CA-E-SZ-GL-GLR-GLCA-GLE-GLSZ-V-GLV	BC-DBC-BLC-DGC	O-R-CA-E-SZ-GL-GLR-GLCA-GLE-GLSZ-V-GLV	BC-DBC-BLC-DGC	O-R-CA-E-SZ-GL-GLR-GLCA-GLE-GLSZ-V-GLV	BC-DBC-BLC-DGC	O-R-CA-E-SZ-GL-GLR-GLCA-GLE-GLSZ-V-GLV	BC-DBC-BLC-DGC
CRYO	TC-SC-OC	O-E-OD-BRE-BRD-GL-R-HE-HD-HR-L-FI-ME-HU-TFL-TME-THU-GC	TC-SC-OC	O-E-OD-BRE-BRD-GL-R-HE-HD-HR-L-FI-ME-HU-TFL-TME-THU-GC	TC-SC-OC	O-E-OD-BRE-BRD-GL-R-HE-HD-HR-L-FI-ME-HU-TFL-TME-THU-GC	TC-SC-OC	O-E-OD-BRE-BRD-GL-R-HE-HD-HR-L-FI-ME-HU-TFL-TME-THU-GC	TC-SC-OC	O-E-OD-BRE-BRD-GL-R-HE-HD-HR-L-FI-ME-HU-TFL-TME-THU-GC	TC-SC-OC	O-E-OD-BRE-BRD-GL-R-HE-HD-HR-L-FI-ME-HU-TFL-TME-THU-GC	TC-SC-OC	O-E-OD-BRE-BRD-GL-R-HE-HD-HR-L-FI-ME-HU-TFL-TME-THU-GC	TC-SC-OC	O-E-OD-BRE-BRD-GL-R-HE-HD-HR-L-FI-ME-HU-TFL-TME-THU-GC	TC-SC-OC
GLY	HG-G-LG	O-R-FE-HU-V-SZ-FR	HG-G-LG	O-R-FE-HU-V-SZ-FR	HG-G-LG	O-R-FE-HU-V-SZ-FR	HG-G-LG	O-R-FE-HU-V-SZ-FR	HG-G-LG	O-R-FE-HU-V-SZ-FR	HG-G-LG	O-R-FE-HU-V-SZ-FR	HG-G-LG	O-R-FE-HU-V-SZ-FR	HG-G-LG	O-R-FE-HU-V-SZ-FR	HG-G-LG
LUV	GL	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	GL	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	GL	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	GL	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	GL	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	GL	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	GL	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	GL	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	GL
PODZ	F-H-FO	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	F-H-FO	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	F-H-FO	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	F-H-FO	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	F-H-FO	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	F-H-FO	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	F-H-FO	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	F-H-FO	O-D-BR-PZ-SZ-GL-GLD-GLBR-GLPZ-GLSZ-V-GLV-FR-GLFR	F-H-FO
REGO	R-HR	O-LU-SM-GL-GLSM-OT-P-DU-FR-LU-SM-GLOT-GLSM	R-HR	O-LU-SM-GL-GLSM-OT-P-DU-FR-LU-SM-GLOT-GLSM	R-HR	O-LU-SM-GL-GLSM-OT-P-DU-FR-LU-SM-GLOT-GLSM	R-HR	O-LU-SM-GL-GLSM-OT-P-DU-FR-LU-SM-GLOT-GLSM	R-HR	O-LU-SM-GL-GLSM-OT-P-DU-FR-LU-SM-GLOT-GLSM	R-HR	O-LU-SM-GL-GLSM-OT-P-DU-FR-LU-SM-GLOT-GLSM	R-HR	O-LU-SM-GL-GLSM-OT-P-DU-FR-LU-SM-GLOT-GLSM	R-HR	O-LU-SM-GL-GLSM-OT-P-DU-FR-LU-SM-GLOT-GLSM	R-HR
SOLZ	SZ-SS-SO	O-CU-GL-GLCU	SZ-SS-SO	O-CU-GL-GLCU	SZ-SS-SO	O-CU-GL-GLCU	SZ-SS-SO	O-CU-GL-GLCU	SZ-SS-SO	O-CU-GL-GLCU	SZ-SS-SO	O-CU-GL-GLCU	SZ-SS-SO	O-CU-GL-GLCU	SZ-SS-SO	O-CU-GL-GLCU	SZ-SS-SO
VERT	V-HV	O-GL-GLC	V-HV	O-GL-GLC	V-HV	O-GL-GLC	V-HV	O-GL-GLC	V-HV	O-GL-GLC	V-HV	O-GL-GLC	V-HV	O-GL-GLC	V-HV	O-GL-GLC	V-HV
Notes																	
PM2 loessstone or glacioblastic Sphagnum bog is betw a shrubs, tamarack, lab tea, Equisetum arvense, black spruce OX occurs nice canus																	
Photo Numbers																	
Field QA																	
Senior QA																	
Stantec																	