New Brunswick Department of Environment Wetland Delineation Data Sheet

Project Site: TA1985701 Date: Aug 19, 2019 Sample Point: UP1

Applicant/Owner: Graymont Field Investigator(s): Garrett Bell & Lyle Vicaire

County: Kings Coordinates: N45d59m47.86s / E-65d50m70.0s

PID: 00169250 Do normal environmental conditions exist on-site? Yes [X] No [ ]

if no explain:

Atypical Situation? Yes [ ] No [X] Explain

Is this a potential Problem Area? Yes [ ] No [X] Explain

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophytic Vegetation (50/20 rule) Yes [ ] No [X]

Wetland Hydrology Yes [ ] No [X]

Hydric Soils Yes [ ] No [X]

Wetland Type:

Rational for Determination:

Wetland Determination

YES [ ] NO [X]

Vegetation

Tree Stratum: (Plot size: 10m)	%Cover	Dominant Species	Indicator Status
1. Picea rubens	75	X	FACU
2. Populus tremuloides	75	X	FACU
3. Acer rubrum	50	X	FAC
4. Deollingeria umbellata	30		FACU
5. Geum macrophyllum	15		FACU
	245	= Total Cover	

Shrub Stratum: (Plot size: 5m)			
1. Alnus incana	10	X	FACU
2. Solidago rugosa	5	X	FACU
3. Symphotrichum novi-belgii	10	X	FACU
4.			
5.			
	25	= Total Cover	

Herb Stratum: (Plot size: 2m)			
1. Glyceria striata	10		FACW
2. Ribes lacustre	30	X	FACU
3. Rubus pubescens	10		FACU
4. Carex sp.	15	X	FAC
5. Gallium palustre	3		FACW
	68	= Total Cover	

Dominance Test Worksheet:

Total # of Dominant Species that are OBL,FACW,FAC: 2 (A)

Total # of Dominant Species across all strata: 8 (B)

% of Dominant Species that are OBL,FACW,FAC: 25 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	0	x1 =	
FACW Species	13	x2 =	26
FAC Species	65	x3 =	195
FACU Specie	260	x4 =	1040
UPL Species		x5 =	
Column Totals:	338	x1 =	1261

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

__ Rapid Test for Hydrophytic Vegetation
__ Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (explain)
__ Problematic Hydrophytic Vegetation[1] (explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Comments

Hydrophytic Vegetation Present? Yes ____ No X

Hydrology

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water Stained Leaves (B9)
- __ Aquatic Fauna (B13)
- __ Marl Deposits (B15)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres on Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron reduction in tilled Soils (C6)
- __ Thin Muck Surface (C7)
- __ Other (Explain in Remarks)

Secondary Indicators: (minimum of two required)

- __ Surface Soil Cracks (B6)
- __ Drainage Patterns (B10)
- __ Moss Trim Lines (B16)
- __ Dry-Season Water Table (C2)
- __ Crayfish Burrows (C8)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Stunted or Stressed Plants (D1)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ Microtopographic Relief (D4)
- __ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes___ No X Depth___

Water Table Present? Yes___ No X Depth___

Saturation Present? Yes___ No X Depth___

Wetland Hydrology Present? Yes___ No X

Comments:_____

Soil Profile

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth(cm)	Matrix		Redox Features					
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5YR 2.5/3	100					Grav./Sand	Stony
10-30	5YR 5/3	100					Grav./Sand	Stony

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ 5cm Mucky Peat or Peat (S3)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Dark Surfaces (S7)
- __ Polyvalue Below Surface (S8)
- __ Thin Dark Surface (S9)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Restrictive Layer (if observed): Type_____ Depth:_____

Hydric Soil Present? Yes___ No X

Comments:_____

New Brunswick Department of Environment Wetland Delineation Data Sheet

Project Site: TA1985701 Date: Aug 20, 2019 Sample Point: WL2

Applicant/Owner: Graymont Field Investigator(s): Garrett Bell & Lyle Vicaire

County: Kings Coordinates: N45d59m54.068s / E-65d50m49.943s

PID: 00169250 Do normal environmental conditions exist on-site? Yes [X] No [ ]

if no explain:

Atypical Situation? Yes [ ] No [X] Explain

Is this a potential Problem Area? Yes [ ] No [X] Explain

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophytic Vegetation ~~(50/20 rule)~~ Yes [ ] No [X]

Wetland Hydrology Yes [ ] No [X]

Hydric Soils Yes [ ] No [X]

Wetland Type:

Rational for Determination:

Wetland Determination

YES [ ] NO [X]

Vegetation

Tree Stratum: (Plot size: 10m)	%Cover	Dominant Species	Indicator Status
1. Acer rubrum	15	X	FAC
2. Abies balsamea	80	X	FAC
3. Thuja occidentalis	15		FACW
4. Picea glauca	20		FACU
5. Betula papyrifera	5		FACU
	135	= Total Cover	

Shrub Stratum: (Plot size: 5m)			
1. Betula alleghaniensis	5	X	FAC
2. Abies balsamea	10	X	FAC
3. Corylus cornuta	5	X	FACU
4.			
5.			
	20	= Total Cover	

Herb Stratum: (Plot size: 2m)			
1. Athyrium angustum	30	X	FAC
2. Avena fatua	3		FAC
3. Osmunda claytoniana	5		FAC
4. Acer rubrum (sapling)	3		FAC
5. Trientalis borealis	3		FAC
	44	= Total Cover	

Dominance Test Worksheet:

Total # of Dominant Species that are OBL,FACW,FAC: 5 (A)

Total # of Dominant Species across all strata: 6 (B)

% of Dominant Species that are OBL,FACW,FAC: 83 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	0	x1 =	
FACW Species	15	x2 =	30
FAC Species	154	x3 =	462
FACU Specie	30	x4 =	120
UPL Species		x5 =	
Column Totals:	199	x1 =	612

Prevalence Index = B/A = 3.08

Hydrophytic Vegetation Indicators:

__ Rapid Test for Hydrophytic Vegetation

X Dominance Test is >50%

no Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (explain)

__ Problematic Hydrophytic Vegetation[1] (explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Comments

Hydrophytic Vegetation Present? Yes____ No X

Hydrology

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

__ Surface Water (A1)
__ High Water Table (A2)
__ Saturation (A3)
__ Water Marks (B1)
__ Sediment Deposits (B2)
__ Drift Deposits (B3)
__ Algal Mat or Crust (B4)
__ Iron Deposits (B5)
__ Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__ Water Stained Leaves (B9)
__ Aquatic Fauna (B13)
__ Marl Deposits (B15)
__ Hydrogen Sulfide Odor (C1)
__ Oxidized Rhizospheres on Living Roots (C3)
__ Presence of Reduced Iron (C4)
__ Recent Iron reduction in tilled Soils (C6)
__ Thin Muck Surface (C7)
__ Other (Explain in Remarks)

Secondary Indicators: (minimum of two required)

__ Surface Soil Cracks (B6)
__ Drainage Patterns (B10)
__ Moss Trim Lines (B16)
__ Dry-Season Water Table (C2)
__ Crayfish Burrows (C8)
__ Saturation Visible on Aerial Imagery (C9)
__ Stunted or Stressed Plants (D1)
__ Geomorphic Position (D2)
__ Shallow Aquitard (D3)
__ Microtopographic Relief (D4)
__ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes___ No X Depth___

Water Table Present? Yes___ No X Depth___

Saturation Present? Yes___ No X Depth___

Wetland Hydrology Present? Yes___ No X

Comments:_____

Soil Profile

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth(cm)	Matrix		Redox Features					
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	5YR 3/2	100					SL	
2-8	5YR 4/2	100					SL	
8-30	5YR 4/4	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1)
__ 5cm Mucky Peat or Peat (S3)
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surfaces (S7)
__ Polyvalue Below Surface (S8)
__ Thin Dark Surface (S9)
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)

Restrictive Layer (if observed): Type_____ Depth:_____

Hydric Soil Present? Yes___ No X

Comments:_____

New Brunswick Department of Environment Wetland Delineation Data Sheet

Project Site: TA1985701 Date: Aug 19, 2019 Sample Point: WL1

Applicant/Owner: Graymont Field Investigator(s): Garrett Bell & Lyle Vicaire

County: Kings Coordinates: N45d59m47.18s / E-65d50m70.0s

PID: 00169250 Do normal environmental conditions exist on-site? Yes [X] No [ ]

if no explain:

Atypical Situation? Yes [ ] No [X] Explain

Is this a potential Problem Area? Yes [ ] No [X] Explain

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophytic Vegetation (50/20 rule) Yes [X] No [ ]

Wetland Hydrology Yes [X] No [ ]

Hydric Soils Yes [X] No [ ]

Wetland Type: Shrub Swamp

Rational for Determination: All wetland criteria present

Wetland Determination

YES [X] NO [ ]

Alnus incana

Vegetation

Tree Stratum: (Plot size: 10m)	%Cover	Dominant Species	Indicator Status
1. Picea rubens	10	X	FACU
2. Populus tremuloides	10	X	FACU
3. Acer rubrum	5	X	FAC
4.			
5.			
	25 = Total Cover		

Shrub Stratum: (Plot size: 5m)			
1. Alnus incana	60	X	FACW
2. Solidago rugosa	40	X	FAC
3. Symphotrichum novi-belgii	5		FACW
4. Deollingeria umbellata	5		FACW
5. Geum macrophyllum	20		FACW
	130 = Total Cover		FACW

Herb Stratum: (Plot size: 2m)			
1. Glyceria striata	55	X	FACW
2. Ribes lacustre	5		FACW
3. Rubus pubescens	70	X	FACW
4. Carex sp.	5		FACW
5. Gallium palustre	15		FACW
	150 = Total Cover		

Dominance Test Worksheet:

Total # of Dominant Species that are OBL,FACW,FAC: 5 (A)

Total # of Dominant Species across all strata: 7 (B)

% of Dominant Species that are OBL,FACW,FAC: 71 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	0	x1 =	
FACW Species	240	x2 =	480
FAC Species	40	x3 =	120
FACU Specie	25	x4 =	100
UPL Species		x5 =	
Column Totals:	305	x1 =	700

Prevalence Index = B/A = 2.29

Hydrophytic Vegetation Indicators:

- ___ Rapid Test for Hydrophytic Vegetation
- X Dominance Test is >50%
- X Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (explain)
- ___ Problematic Hydrophytic Vegetation[1] (explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Comments

Hydrophytic Vegetation Present? Yes X No ___

Hydrology

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- [X] Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water Stained Leaves (B9)
- __ Aquatic Fauna (B13)
- __ Marl Deposits (B15)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres on Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron reduction in tilled Soils (C6)
- __ Thin Muck Surface (C7)
- __ Other (Explain in Remarks)

Secondary Indicators: (minimum of two required)

- __ Surface Soil Cracks (B6)
- [X] Drainage Patterns (B10)
- __ Moss Trim Lines (B16)
- __ Dry-Season Water Table (C2)
- __ Crayfish Burrows (C8)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Stunted or Stressed Plants (D1)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ Microtopographic Relief (D4)
- __ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes___ No[X]___ Depth___

Water Table Present? Yes___ No[X]___ Depth___

Saturation Present? Yes[X]___ No___ Depth 0.0

Wetland Hydrology Present? Yes[X]___ No___

Comments:

Soil Profile

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth(cm)	Matrix		Redox Features					
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-30	7.5YR 3.5/2	100					Sil/C	Stony

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ 5cm Mucky Peat or Peat (S3)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Dark Surfaces (S7)
- __ Polyvalue Below Surface (S8)
- __ Thin Dark Surface (S9)
- __ Loamy Gleyed Matrix (F2)
- [X] Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Restrictive Layer (if observed): Type_____ Depth:_____

Hydric Soil Present? Yes[X]___ No___

Comments:

New Brunswick Department of Environment Wetland Delineation Data Sheet

Project Site: TA1985701 Date: Aug 20, 2019 Sample Point: WL2

Applicant/Owner: Graymont Field Investigator(s): Garrett Bell & Lyle Vicaire

County: Kings Coordinates: N45d59m54.299s / E-65d21m50.532s

PID: 00169250 Do normal environmental conditions exist on-site? Yes [X] No [ ]

if no explain:

Atypical Situation? Yes [ ] No [X] Explain

Is this a potential Problem Area? Yes [ ] No [X] Explain

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophytic Vegetation (50/20 rule) Yes [X] No [ ]

Wetland Hydrology Yes [X] No [ ]

Hydric Soils Yes [X] No [ ]

Wetland Type: Wooded Swamp

Rational for Determination: All wetland criteria present

Wetland Determination

YES [X] NO [ ]

Vegetation

Tree Stratum: (Plot size: 10m)	%Cover	Dominant Species	Indicator Status
1. Thuja occidentalis	80	X	FACW
2. Abies balsamea	15		FAC
3. Picea glauca	5		FACU
4. Betula papyrifera	5		FACU
5.			
	105 = Total Cover		

Shrub Stratum: (Plot size: 5m)			
1. Ribes lacustre	10	X	FACW
2. Alnus incana	10	X	FACW
3. Rubus idaeus	5	X	FACU
4.			
5.			
	25 = Total Cover		

Herb Stratum: (Plot size: 2m)			
1. Onoclea sensibilis	40	X	FACW
2. Dryopteris carthusiana	60	X	FACW
3. Matteuccia struthiopteris	10		FACW
4. Glyceria striata	5		FACW
5. Rubus pubescens	50	X	FACW
	165 = Total Cover		

Dominance Test Worksheet:

Total # of Dominant Species that are OBL,FACW,FAC: 6 (A)

Total # of Dominant Species across all strata: 7 (B)

% of Dominant Species that are OBL,FACW,FAC: 86 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	0	x1 =	
FACW Species	255	x2 =	510
FAC Species	25	x3 =	75
FACU Specie	15	x4 =	100
UPL Species		x5 =	
Column Totals:	295	x1 =	685

Prevalence Index = B/A = 2.32

Hydrophytic Vegetation Indicators:

__ Rapid Test for Hydrophytic Vegetation

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (explain)

__ Problematic Hydrophytic Vegetation[1] (explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Comments

Hydrophytic Vegetation Present? Yes X No

Hydrology

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [ ] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Water Stained Leaves (B9)
- [x] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron reduction in tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators: (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes [x] No [ ] Depth 1.0

Water Table Present? Yes [ ] No [x] Depth ___

Saturation Present? Yes [x] No [ ] Depth 0.0

Wetland Hydrology Present? Yes [x] No [ ]

Comments: ___

Soil Profile

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth(cm)	Matrix		Redox Features					
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-30	2.5Y 3/1	80					Loam	oxidized rhizospheres (20%)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] 5cm Mucky Peat or Peat (S3)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surfaces (S7)
- [ ] Polyvalue Below Surface (S8)
- [ ] Thin Dark Surface (S9)
- [ ] Loamy Gleyed Matrix (F2)
- [x] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

Restrictive Layer (if observed): Type ___ Depth ___

Hydric Soil Present? Yes [x] No [ ]

Comments: Saturated soil

Wetland Habitat Form WL1

Name of Investigator: Garrett Bell & Lyle Vicaire
Date: August 19, 2019
Wetland Form: Shrub Swamp
Wetland size: ~ 1.0 ha
Associated Watercourse: Tributary to Ridge Brook
Weather: Variable clouds, warm, following 24h rain

Topographic Sheet: 21 H/14
General Location: Havelock, NB
County: Kings
PID No.: 00169250
Project No.: TA1985701
Client: Graymont

Wetland Type:
1.Aquatic bed/unconsolidated bottom (AB) ___
2.Bog(BO) ___
3.Fen (FE) ___
4.Emergent wetland (EW) ___
5.Shrub wetland (SB) _X__
6.Forested wetland (FW) ___

Wetland Class:
1.Open water ___
2.Deep marsh ___
3.Shallow marsh ___
4.Seasonally flooded flats ___
5.Meadow ___
6.Shrub swamp _X__
7.Wooded swamp ___
8.Bog ___

Wetland Subclass:
1.Vegetated open water ___
2.Non-vegetated OW ___
3.Floating leaved OW ___
4.Rooted floating leaved OW ___
5.Dead woody OW ___
6.Vegetated deep marsh ___
7.Non-vegetated DM ___
8.Dead woody DM ___
9.Sub-shrub DM ___
10.Floating leaved DM ___
11.Rooted floating leaved DM ___
12.Robust DM ___
13.Narrow-leaved DM ___
14.Broad-leaved DM ___
15.Dead woody shallow marsh ___
16.Robust SM ___
17.Narrow leaved SM ___
18.Broad leaved SM ___
19.Floating leaved SM ___
20.Rooted floating leaved SM ___
21.Non-vegetated SM ___
22.Emergent seasonally flooded flats ___
23.Shrubby SFF ___
24.Grazed meadow ___
25.Ungrazed M ___
26.Sedge M ___
27.Sapling shrub swamp ___
28.Bushy SS _X__
29.Compact SS ___
30.Low sparse SS ___
31.Deciduous wooded swamp __
32.Evergreen WS ___
33.Wooded bog ___
34.Shrubby B ___
35.Open B ___

Water Regime Indicator:
1.Permanently flooded ___
2.Saturated ___
3.Seasonally flooded _X__

Water Depth:
1.0-5 cm _X__
2.5-20 cm ___
3.20-50 cm ___
4.50-100 cm ___
5.>100 cm ___

Impoundment Type

1.Beaver Pond ___ 3.Ducks Unlimited Impoundment ___
2.Man-made Impoundment ___ 4. None of the above _X__

Percent Vegetation Cover:

1.>95% _X__ 5.26-75% in patches ___
2.76-95% in peripheral band ___ 6.5-25% in peripheral band ___
3.76-96% in patches ___ 7.5-25% in patches ___
4.26-75% in peripheral band ___ 8.< 5% ___

Wetland Site:

1.Lacustrine ___ 4.Isolated ___
2.Riverine ___ 5.Deltaic ___
3.Palustrine _X__

Vegetation Types (%):

1.Deciduous trees	5% trembling aspen, red maple, ironwood, striped maple
2.Coniferous trees	5% white spruce, balsam fir,
3.Dead trees	5%
4.Tall shrubs	80% speckled alder, round-leaf dogwood, chokecherry
5.Low shrubs	20% meadow-sweet
6.Dead shrubs	
7.Herbs	95% yellow avens, Carex intumescens, C. crinita, turtle-head,
8.Mosses	
9.Narrow-leaved emergents	50% fowl manna grass, blue joint grass
10.Broad-leaved emergents	
11.Robust emergents	
12.Free-floating plants	
13.Floating plants (rooted)	
14.Submerged plants	
15. Other	

Interspersion: 1.Minimal ___ 2.Low ___ 3.Medium _X__ 4.High ___

Water Quality

Conductivity: _N/A__ pH: _N/A__
Alkalinity: _N/A__

Hydrological Classification:

1.Surface water depression ___ 3.Surface water slope _X__
2.Ground water depression ___ 4.Ground water slope ___

Inlets/Outlets/water bodies:

One inlet (culvert) and outlet associated with a seasonal intermittent unnamed tributary to Ridge Brook.

Wildlife: (Observation/Signs/Reports)

Small rodent (grey short tail), eastern wood pee-wee, red-eyed vireo, robins, signs of ungulate browsing.

Adjacent Wildlife habitat (%):

1.Salt marsh ___
2.Forest _100__ (mixed forest)
3.Dykelands ___
4.Mudflats ___
5.Beach ___
6.River ___
7. Other ___

Description: Mature mixed forest including white birch, yellow birch, red maple, sugar maple, trembling aspen, red spruce, eastern cedar and balsam fir.

Surrounding Land Use %:

1 Agriculture ___
2.Forestry _95__
3 Recreation ___
4.Industrial ___
5.Urban development ___
6.Transportation _5__
7.Residential ___
8.Waste Disposal ___
9.Scientific Research ___
10.Trapping ___
11.Education ___
12.Seasonal resident ___

Description: The wetland likely represents a seasonal floodplain of the intermittent stream.

Disturbance: 1.Low _X__ 2.Moderate ___ 3.High ___

Description: Sedimentation noted at culvert in road.

Roads and/or tracks:

1.Private road adjacent ___
2.DOT road adjacent _X__
3.Private road within ___
4.DOT road within ___
5.Vehicle tracks ___
6.Other ___

Description: Unpaved "Cross Road" runs across the northwest corner of the wetland at the watercourse crossing.

Existing Uses of Wetlands:

1.Economic use (e.g. farming) ___
2.Recreational activities ___
3.Aesthetics ___
4.Education & public awareness ___
5. None evident _X__

Potential Threats:

Special Features:

1.Rare wetland type ___
2.Rare animal or plant species ___
3.Habitat of rare species ___
4.Nesting site for colonial water birds ___
5.Migration stop-over site ___
6. None evident _X__

Description:

Notes: Stone piles along edge indicate likely historical agriculture including alder on old field to the north.

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Photo 1 – Typical shrub swamp habitat, consisting mainly of alders. Photo 2 – Small intermittent seasonal watercourse in wetland. Photo's 3,4 – Adjacent upland soil pit and mixed forest habitat. Photo's 5,6 – Wetland soil pit and typical habitat.

Wetland Habitat Form WL2

Name of Investigator: Garrett Bell & Lyle Vicaire
Date: August 20, 2019
Wetland Form: Drainageway (Slope) Swamp
Wetland size: 1.242 ha
Associated Watercourse: Tributary to Ridge Brook
Weather: Variable clouds, warm, following 24h rain

Topographic Sheet: 21 H/14
General Location: Havelock, NB
County: Kings
PID No.: 00169250
Project No.: TA1985701
Client: Graymont

Wetland Type:
1.Aquatic bed/unconsolidated bottom (AB) ___
2.Bog(BO) ___
3.Fen (FE) ___
4.Emergent wetland (EW) ___
5.Shrub wetland (SB) ___
6.Forested wetland (FW) _X__

Wetland Class:
1.Open water ___
2.Deep marsh ___
3.Shallow marsh ___
4.Seasonally flooded flats ___
5.Meadow ___
6.Shrub swamp ___
7.Wooded swamp _X__
8.Bog ___

Wetland Subclass:
1.Vegetated open water ___
2.Non-vegetated OW ___
3.Floating leaved OW ___
4.Rooted floating leaved OW ___
5.Dead woody OW ___
6.Vegetated deep marsh ___
7.Non-vegetated DM ___
8.Dead woody DM ___
9.Sub-shrub DM ___
10.Floating leaved DM ___
11.Rooted floating leaved DM ___
12.Robust DM ___
13.Narrow-leaved DM ___
14.Broad-leaved DM ___
15.Dead woody shallow marsh ___
16.Robust SM ___
17.Narrow leaved SM ___
18.Broad leaved SM ___
19.Floating leaved SM ___
20.Rooted floating leaved SM ___
21.Non-vegetated SM ___
22.Emergent seasonally flooded flats ___
23.Shrubby SFF ___
24.Grazed meadow ___
25.Ungrazed M ___
26.Sedge M ___
27.Sapling shrub swamp ___
28.Bushy SS _X__
29.Compact SS ___
30.Low sparse SS ___
31.Deciduous wooded swamp __
32.Evergreen WS _X__ (cedar)
33.Wooded bog ___
34.Shrubby B ___
35.Open B ___

Water Regime Indicator:
1.Permanently flooded ___
2.Saturated ___
3.Seasonally flooded _X__

Water Depth:
1.0-5 cm _X__
2.5-20 cm ___
3.20-50 cm ___
4.50-100 cm ___
5.>100 cm ___

Impoundment Type

1.Beaver Pond ___
2.Man-made Impoundment ___
3.Ducks Unlimited Impoundment ___
4. None of the above _X__

Percent Vegetation Cover:

1.>95% _X__
2.76-95% in peripheral band ___
3.76-96% in patches ___
4.26-75% in peripheral band ___
5.26-75% in patches ___
6.5-25% in peripheral band ___
7.5-25% in patches ___
8.< 5% ___

Wetland Site:

1.Lacustrine ___
2.Riverine ___
3.Palustrine _X__
4.Isolated ___
5.Deltaic ___

Vegetation Types (%):

1.Deciduous trees	35% red maple, white birch, yellow birch
2.Coniferous trees	65% eastern cedar, white spruce, balsam fir, red spruce
3.Dead trees	10%
4.Tall shrubs	40% speckled alder, willow sp., chokecherry
5.Low shrubs	
6.Dead shrubs	
7.Herbs	90% sensitive fern, dwarf raspberry, ostrich fern, yellow avens, Carex trisperma
8.Mosses	10% sphagnum
9.Narrow-leaved emergents	
10.Broad-leaved emergents	
11.Robust emergents	
12.Free-floating plants	
13.Floating plants (rooted)	
14.Submerged plants	
15. Other	

Interspersion: 1.Minimal ___ 2.Low ___ 3.Medium ___ 4.High _X__

Water Quality

Conductivity: _N/A__
pH: _N/A__
Alkalinity: _N/A__

Hydrological Classification:

1.Surface water depression ___
2.Ground water depression ___
3.Surface water slope _X__
4.Ground water slope _X__

Inlets/Outlets/water bodies:

No inlet and multiple small braided tributaries draining to an unnamed tributary to Ridge Brook.

Wildlife: (Observation/Signs/Reports)

Green frog, squirrel, field mice, deer tracks, abundant signs of ungulate browsing and bedding, porcupine tracks, yellow-belly sap-sucker, red-breast nuthatch, red-eyed vireo, robins, small fish (likely dace & suckers).

Adjacent Wildlife habitat (%):

1.Salt marsh ___
2.Forest _100__ (mixed forest)
3.Dykelands ___
4.Mudflats ___
5.Beach ___
6.River ___
7. Other ___

Description: Mature mixed forest including white birch, yellow birch, red maple, sugar maple, trembling aspen, red spruce, eastern cedar and balsam fir.

Surrounding Land Use %:

1 Agriculture ___
2.Forestry _100__
3 Recreation ___
4.Industrial ___
5.Urban development ___
6.Transportation ___
7.Residential ___
8.Waste Disposal ___
9.Scientific Research ___
10.Trapping ___
11.Education ___
12.Seasonal resident ___

Description: Signs of selective harvesting throughout the property

Disturbance: 1.Low _X__ 2.Moderate ___ 3.High ___

Description: Past low-impact timber harvesting (singular trees).

Roads and/or tracks:

1.Private road adjacent ___
2.DOT road adjacent ___
3.Private road within ___
4.DOT road within ___
5.Vehicle tracks ___
6.Other ___

Description:

Existing Uses of Wetlands:

1.Economic use (e.g. farming) ___
2.Recreational activities ___
3.Aesthetics ___
4.Education & public awareness ___
5. None evident _X__

Potential Threats:

Special Features:

1.Rare wetland type ___
2.Rare animal or plant species ___
3.Habitat of rare species ___
4.Nesting site for colonial water birds ___
5.Migration stop-over site ___
6. None evident _X__

Description:

Notes: Stone piles along edge indicate likely historical agriculture including alder on old field to the north.

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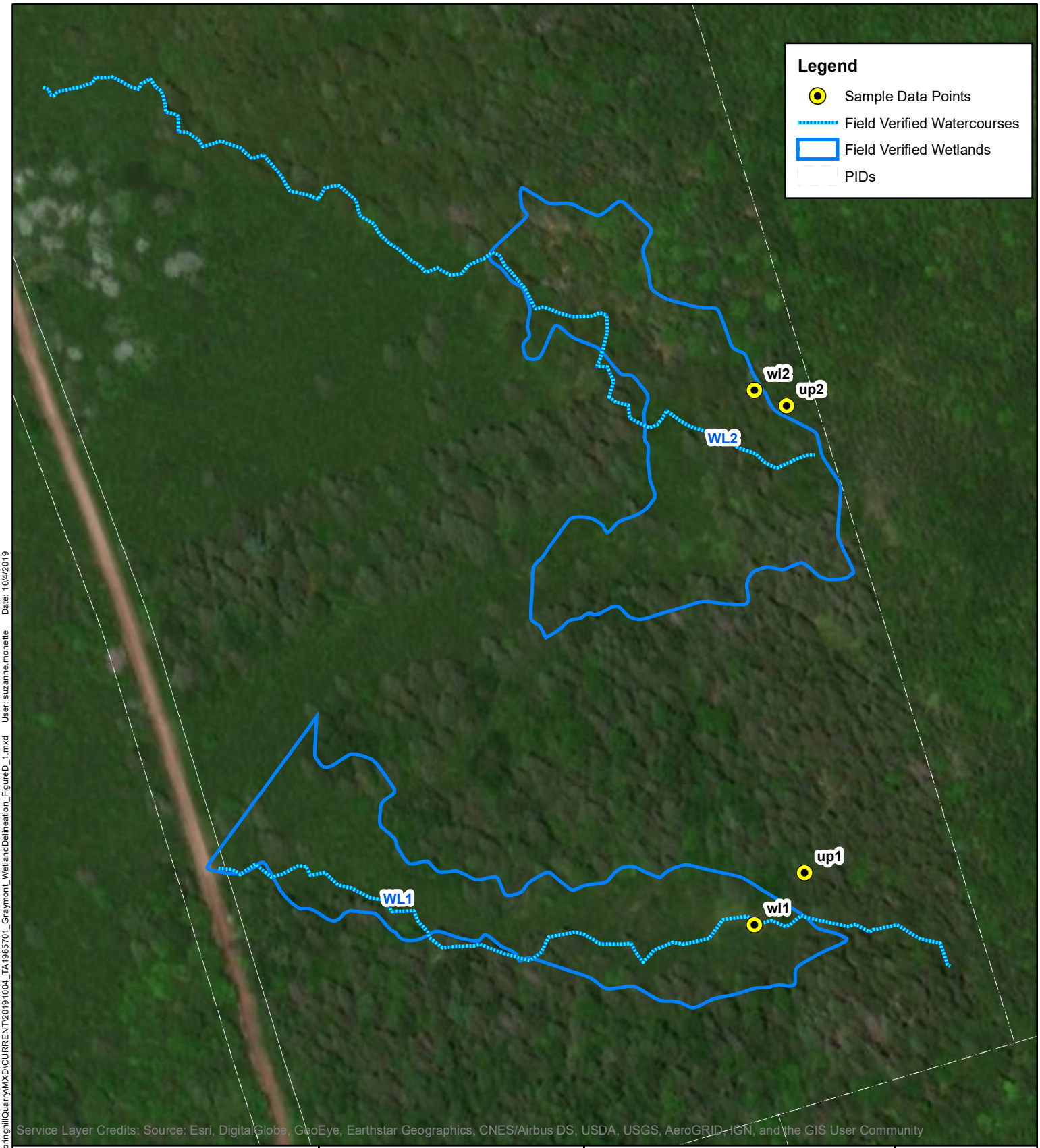
Photo 1 – Typical forest swamp habitat, consisting mainly of cedar. Photo 2 – Small intermittent watercourse in wetland. Photo's 3,4 – Adjacent upland soil pit and mixed forest habitat. Photo's 5,6 – Wetland soil pit and typical habitat.



Path: H:\PROJECTS\TA1985701_Graymont_SpringhillQuarry\MXD\CURRENT\20191004_TA1985701_Graymont_WetlandDelineation_FigureD_1.mxd User: suzanne.monette Date: 10/4/2019

CLIENT: **Graymont (NB) Inc.**	SCALE: 0 20 40 80 Metres	PROJECT: **Springhill Limestone Quarry Springhill, New Brunswick**	DWN BY: SM
	DATUM: NAD 83 CSRS		CHK'D BY: GB
wood.	PROJECTION: NB Stereographic	TITLE: **Wetland Delineation**	DATE: Date: 10/4/2019
	PROJECT NO: TA1985701		REV. NO: 1
			FIGURE NO: D-1