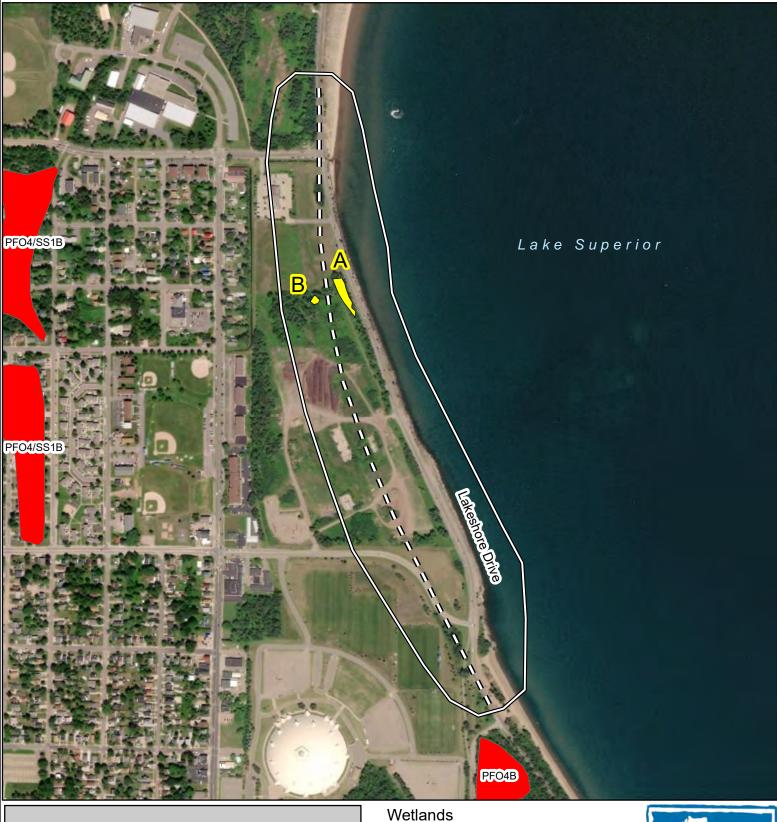
Lakeshore Drive Wetland Delineation





500

1,000

0.29 Acre 0.05 Acre



2,000



Lakeshore Drive Wetland Delineation



Wetland Soil Pit Location

Upland Soil Pit Location

Wetland Boundary

A 0.29 Acre B 0.05 Acre





Lakeshore Drive Wetland Delineation



Lakeshore Drive Wetland Delineation Photo Log

LSW1	Location	Photo ID
LSW1	LSW1	IMG_1063
LSW2	LSW1	IMG_1064
IMG_1067	LSW1	IMG_1065
IMG_1068	LSW2	IMG_1066
LSW3	LSW2	IMG_1067
LSW3	LSW2	IMG_1068
LS4	LSW3	IMG_1069
LS4	LSW3	IMG_1070
LS4	LS4	IMG_1072
LS4W	LS4	IMG_1073
LS4W	LS4	IMG_1074
LS5	LS4W	IMG_1076
LS5	LS4W	IMG_1077
LS5	LS5	IMG_1078
LS6	LS5	IMG_1079
LS6	LS5	IMG_1080
LS6	LS6	IMG_1082
LS7W IMG_1086 LS7W IMG_1087 LS7W IMG_1089 LS8W IMG_1090 LS8W IMG_1091 LS8W IMG_1092 LS9 IMG_1094 LS9 IMG_1095 LS9 IMG_1097 LS10 IMG_1098 LS10 IMG_1100 LS10 IMG_1101	LS6	IMG_1083
LS7W IMG_1087 LS7W IMG_1089 LS8W IMG_1090 LS8W IMG_1091 LS8W IMG_1092 LS9 IMG_1094 LS9 IMG_1095 LS9 IMG_1097 LS10 IMG_1098 LS10 IMG_1100 LS10 IMG_1100	LS6	IMG_1084
LS7W IMG_1089 LS8W IMG_1090 LS8W IMG_1091 LS8W IMG_1092 LS9 IMG_1094 LS9 IMG_1095 LS9 IMG_1097 LS10 IMG_1098 LS10 IMG_1100 LS10 IMG_1100	LS7W	IMG_1086
LS8W IMG_1090 LS8W IMG_1091 LS8W IMG_1092 LS9 IMG_1094 LS9 IMG_1095 LS9 IMG_1097 LS10 IMG_1098 LS10 IMG_1100 LS10 IMG_1100	LS7W	IMG_1087
LS8W IMG_1091 LS8W IMG_1092 LS9 IMG_1094 LS9 IMG_1095 LS9 IMG_1097 LS10 IMG_1098 LS10 IMG_1100 LS10 IMG_1100	LS7W	IMG_1089
LS8W IMG_1092 LS9 IMG_1094 LS9 IMG_1095 LS9 IMG_1097 LS10 IMG_1098 LS10 IMG_1100 LS10 IMG_1100	LS8W	IMG_1090
LS9 IMG_1094 LS9 IMG_1095 LS9 IMG_1097 LS10 IMG_1098 LS10 IMG_1100 LS10 IMG_1100	LS8W	IMG_1091
LS9 IMG_1095 LS9 IMG_1097 LS10 IMG_1098 LS10 IMG_1100 LS10 IMG_1101	LS8W	IMG_1092
LS9 IMG_1097 LS10 IMG_1098 LS10 IMG_1100 LS10 IMG_1101	LS9	IMG_1094
LS10 IMG_1098 LS10 IMG_1100 LS10 IMG_1101	LS9	IMG_1095
LS10 IMG_1100 LS10 IMG_1101	LS9	IMG_1097
LS10 IMG_1101	LS10	IMG_1098
_	LS10	IMG_1100
IS11 IMG 1105	LS10	IMG_1101
11419_1103	LS11	IMG_1105
LS11 IMG_1106	LS11	IMG_1106
LS12 IMG_1107	LS12	IMG_1107
LS12 IMG_1108	LS12	IMG_1108
LS13 IMG_1109	LS13	IMG_1109
LS13 IMG_1110	LS13	IMG_1110
LS14 IMG_1111	LS14	IMG_1111
LS14 IMG_1112	LS14	IMG_1112
LS14 IMG_1113	LS14	IMG_1113
LS14 IMG_1114	LS14	IMG_1114
LS15 IMG_1115	LS15	IMG_1115

Lakeshore Drive Wetland Delineation Photo Log

Location	Photo ID
LS15	IMG_1116
LS15	IMG_1117
LS15	IMG_1118
LS16	IMG_1153
LS16	IMG_1154
LS16	IMG_1155
LS16	IMG_1156
LS16	IMG_1173
LS16	IMG_1174
LS17	IMG_1157
LS17	IMG_1158
LS17	IMG_1159
LS17	IMG_1175
LS17	IMG_1176
LS18	IMG_1148
LS18	IMG_1149
LS18	IMG_1150
LS18	IMG_1151
LS18	IMG_1152
LS18	IMG_1171
LS18	IMG_1172
LS19	IMG_1140
LS19	IMG_1141
LS19	IMG_1142
LS19	IMG_1143
LS19	IMG_1160
LS19	IMG_1161
LS19	IMG_1162
LS19	IMG_1163
LS19	IMG_1164
LS19	IMG_1170
LS20	IMG_1144
LS20	IMG_1145
LS20	IMG_1146
LS20	IMG_1147
LS20	IMG_1165
LS20	IMG_1166
LS20	IMG_1167
LS20	IMG_1168
LS20	IMG_1169



IMG_1063



IMG_1064



IMG_1065



IMG_1066



IMG_1067



IMG_1068



IMG_1069



IMG_1070



IMG_1072



IMG_1073



IMG_1074



IMG_1076



IMG_1077



IMG_1078



IMG_1079



IMG_1080



IMG_1082



IMG_1083



IMG_1084



IMG_1086



IMG_1087



IMG_1089



IMG_1090



IMG_1091



IMG_1092



IMG_1094



IMG_1095



IMG_1097



IMG_1098



IMG_1100



IMG_1101



IMG_1105



IMG_1106



IMG_1107



IMG_1108



IMG_1109



IMG_1110



IMG_1111



IMG_1112



IMG_1113



IMG_1114



IMG_1115



IMG_1116



IMG_1117



IMG_1118



IMG_1140



IMG_1141



IMG_1142



IMG_1143



IMG_1144



IMG_1145



IMG_1146



IMG_1147



IMG_1148



IMG_1149



IMG_1150



IMG_1151



IMG_1152



IMG_1153



IMG_1154



IMG_1155



IMG_1156



IMG_1157



IMG_1158



IMG_1159



IMG_1160



IMG_1161



IMG_1162



IMG_1163



IMG_1164



IMG_1165



IMG_1166



IMG_1167



IMG_1168



IMG_1169



IMG_1170



IMG_1171



IMG_1172



IMG_1173



IMG_1174



IMG_1175



IMG_1176

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 10/18/2018
Applicant/Owner: City of Marquette	State: MI Sampling Point: LSW1
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Flat to undulating Slope %: 0-3%
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.568977	Long: -87.39282 Datum: WGS84
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly distur	
Are Vegetation, Soil, or Hydrology naturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area
Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No	within a Wetland? Yes X No
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
The site has been heavily disturbed by industry, with evidence of fill and so	oil disturbance prevalent throughout the site.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)Water-Stained Leaves (I	B9) Drainage Patterns (B10)
X High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
X Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor ((C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospheres of	on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced Iro	on (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduction in	n Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C7)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar	rks) Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No x Depth (inches):	:
Water Table Present? Yes x No Depth (inches):	
Saturation Present? Yes x No Depth (inches):	
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	

VEGETATION – Use scientific names of plants. Sampling Point: LSW1 Absolute Dominant Indicator 30) Status **Dominance Test worksheet:** Tree Stratum (Plot size: % Cover Species? 1. **Number of Dominant Species** 2. Populus tremula That Are OBL, FACW, or FAC: FAC Yes 4 (A) 3. **Total Number of Dominant** 4. (B) Species Across All Strata: 4 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 100.0% (A/B) Prevalence Index worksheet: 7. 50 =Total Cover Multiply by: Total % Cover of: Sapling/Shrub Stratum (Plot size: 15 OBL species x 1 = Populus balsamifera **FACW FACW** species 107 x 2 = 214 2. Alnus incana 5 Yes **FACW** FAC species 55 x 3 = 165 2 0 x 4 = 3. Cornus sericea No **FACW** FACU species 0 0 4. UPL species x 5 = 0 5. Column Totals: 162 379 6. Prevalence Index = B/A = 2.34 **Hydrophytic Vegetation Indicators:** 7. 17 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation Herb Stratum (Plot size: X 2 - Dominance Test is >50% Eutrochium purpureum No FAC X 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting 2. 80 **FACW** Rubus Acaulis Yes data in Remarks or on a separate sheet) 3. Phalaris arundinacea 10 No **FACW** 4. Problematic Hydrophytic Vegetation¹ (Explain) 5.

95 =Total Cover

=Total Cover

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

¹Indicators of hydric soil and wetland hydrology must

be present, unless disturbed or problematic.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic
Vegetation
Present?
Yes X

Remarks: (Include photo numbers here or on a separate sheet.) Photos 1063-1065

Woody Vine Stratum (Plot size:

6.

7.

8.

9.

10.

1.

2.

3.

SOIL Sampling Point LSW1

Color (moist) % Color (moist) % Type Loc² Texture Remarks 0-10 10YR 2/1 10-16 10YR 3/2 Sandy Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Indicators: Indicators for Problematic Hydric Soils*: 2 cm Muck (A10) (LRR K, L), RM, LRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) S coast Prairie Redox (A16) (LRR K, L, R) S coast Prairie Redox (A16) (LRR K, L, R) S coast Prairie Redox (A16) (LRR K, L, R) S coast Prairie Redox (A16) (LRR K, L, R) S coast Prairie Redox (A16) (LRR K, L, R) Thin Dark Surface (S9) (LRR K, L) Thin Dark Surfac	Depth	Matrix		Redox	x Featur	es			
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. The control of the contr	(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remar	ks
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Hydric Soil Indicators: Histosol (A1) Histos Epipedon (A2) Black Histic Epipedon (A2) Black Histic Epipedon (A2) Thin Dark Surface (S9) (LRR R, LARA 149B) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A11) Loamy Mucky Mineral (F1) (LRR K, L) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Send Valvey Mallow Dark Surface (F2) Send Valvey Mallow Dark Surface (F21) Send Valvey Shallow Dark Surface (F22) Shripped Matrix (S6) Mari (F10) (LRR K, L) Think Dark Surface (F22) Other (Explain in Remarks) Hydric Soil Present? Yes X No Remarks:	0-10	10YR 2/1						Mucky Sand	
Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Depleted Matrix (F3) Redox Dark Surface (F6) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Redox Depressions (F8) Marl (F10) (LRR K, L) Depleted Dark Surface (F7) Sardy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) Marl (F10) (LRR K, L) Hydric Soil Present? Hydric Soil Present? Yes X No Remarks:	10-16	10YR 3/2						Sandy	
Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (F1) Sandy Mucky Mineral (F1) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F6) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Sandy Redox (S5) Redox Depressions (F8) Wery Shallow Dark Surface (F22) Stripped Matrix (S6) Dark Surface (S7) Marl (F10) (LRR K, L) Hydric Soil Present? Yes X No Remarks:									
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Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thic Dark Surface (A12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Redox Depressions (F8) Stripped Matrix (S6) Stripped Matrix (S6) Depleted Dark Surface (F7) Sandy Redox (S5) Stripped Matrix (S6) Depleted Dark Surface (F7) Sandy Redox (S5) Redox Depressions (F8) Wery Shallow Dark Surface (F22) Stripped Matrix (S6) Polyvalue Below Surface (F22) Mesic Spodic (TA6) (MLRA 144A, 145, 149I) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Pledmont Floodplain Soils (F19) (MLRA 145, 149I) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Pledmont Floodplain in Remarks) Wery Shallow Dark Surface (F22) Stripped Matrix (S6) Pledmont Floodplain in Remarks) Hydric Soil Present? Yes X No Remarks:									
Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (F1) Sandy Mucky Mineral (F1) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F6) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Sandy Redox (S5) Redox Depressions (F8) Wery Shallow Dark Surface (F22) Stripped Matrix (S6) Dark Surface (S7) Marl (F10) (LRR K, L) Hydric Soil Present? Yes X No Remarks:									
Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thic Dark Surface (A12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Redox Depressions (F8) Stripped Matrix (S6) Stripped Matrix (S6) Depleted Dark Surface (F7) Sandy Redox (S5) Stripped Matrix (S6) Depleted Dark Surface (F7) Sandy Redox (S5) Redox Depressions (F8) Wery Shallow Dark Surface (F22) Stripped Matrix (S6) Polyvalue Below Surface (F22) Mesic Spodic (TA6) (MLRA 144A, 145, 149I) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Pledmont Floodplain Soils (F19) (MLRA 145, 149I) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Pledmont Floodplain in Remarks) Wery Shallow Dark Surface (F22) Stripped Matrix (S6) Pledmont Floodplain in Remarks) Hydric Soil Present? Yes X No Remarks:									
Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thic Dark Surface (A12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Redox Depressions (F8) Stripped Matrix (S6) Stripped Matrix (S6) Depleted Dark Surface (F7) Sandy Redox (S5) Stripped Matrix (S6) Depleted Dark Surface (F7) Sandy Redox (S5) Redox Depressions (F8) Wery Shallow Dark Surface (F22) Stripped Matrix (S6) Polyvalue Below Surface (F22) Mesic Spodic (TA6) (MLRA 144A, 145, 149I) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Pledmont Floodplain Soils (F19) (MLRA 145, 149I) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Pledmont Floodplain in Remarks) Wery Shallow Dark Surface (F22) Stripped Matrix (S6) Pledmont Floodplain in Remarks) Hydric Soil Present? Yes X No Remarks:									
Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thic Dark Surface (A12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Redox Depressions (F8) Stripped Matrix (S6) Stripped Matrix (S6) Depleted Dark Surface (F7) Sandy Redox (S5) Stripped Matrix (S6) Depleted Dark Surface (F7) Sandy Redox (S5) Redox Depressions (F8) Wery Shallow Dark Surface (F22) Stripped Matrix (S6) Polyvalue Below Surface (F22) Mesic Spodic (TA6) (MLRA 144A, 145, 149I) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Pledmont Floodplain Soils (F19) (MLRA 145, 149I) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Pledmont Floodplain in Remarks) Wery Shallow Dark Surface (F22) Stripped Matrix (S6) Pledmont Floodplain in Remarks) Hydric Soil Present? Yes X No Remarks:	Type: C=Ce	oncentration. D=Deple	tion. RM	=Reduced Matrix. N	IS=Mas	ked Sand	Grains.	² Location: PL=Pore Lining, M=Ma	trix.
Histic Epipedon (A2) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Depleted Matrix (F2) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Redox Depressions (F8) Stripped Matrix (S6) Tother CS7 Marl (F10) (LRR K, L) Marl (F10) (LRR K, L) Depth (inches): MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Strmine Redox (A16) (LRR K, L, R) For Mucky Peat or Peat (S3) (LRR K, L) For Mucky Peat or Peat (S3) (LRR K, L) For Mucky Peat or Peat (S3) (LRR K, L) For Mucky Peat or Peat (S3) (LRR K, L) For Mucky Peat or Peat (S3) (LRR K, L) For Mucky Peat or Peat (S3) (LRR K, L) For Mucky Peat or Peat (S3) (LRR K, L) For Mucky Peat or Peat (S3) (LRR K, L) For Mucky Peat or Peat (S3) (LRR K, L) For Mucky Peat or Peat (S3) (LRR K, L) For Mucky Peat or Peat (S3) (LRR K, L) For Mucky Peat or Peat (S3) (LRR K, L) For Mucky Peat or Peat (S3) (LRR K, L) For Mucky Peat or Peat (S3) (LRR K, L) For Mucky Peat or Peat (S4) For Mucky Peat or Peat (S4) For									•
Black Histic (A3)	Histosol	(A1)		Polyvalue Belo	w Surfa	ce (S8) (I	LRR R,	2 cm Muck (A10) (LRR K, L, N	MLRA 149B)
Hydrogen Sulfide (A4) High Chroma Sands (S11) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Iron-Manganese Masses (F12) (LRR K, L, F1) Thick Dark Surface (A12) Depleted Matrix (F3) Piedmont Floodplain Soils (F19) (MLRA 148) X Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Mesic Spodic (TA6) (MLRA 144A, 145, 149) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Red Parent Material (F21) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) 7 Dark Surface (S7) 3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes X No Remarks:	Histic Ep	pipedon (A2)		MLRA 149B)			Coast Prairie Redox (A16) (LR	RR K, L, R)
Stratified Layers (A5)		` ,							-
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Depleted Matrix (F3) Piedmont Floodplain Soils (F19) (MLRA 148 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2					-		-		
Thick Dark Surface (A12) Depleted Matrix (F3) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Red Parent Material (F21) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Pledmont Floodplain Soils (F19) (MLRA 144A, 145, 149I Mesic Spodic (TA6) (MLRA 144A, 145, 149I Red Parent Material (F21) Very Shallow Dark Surface (F22) Other (Explain in Remarks) Pledmont Floodplain Soils (F19) (MLRA 148 Mesic Spodic (TA6) (MLRA 144A, 145, 149I Red Parent Material (F21) Very Shallow Dark Surface (F22) Other (Explain in Remarks) Pledmont Floodplain Soils (F19) (MLRA 148 Mesic Spodic (TA6) (MLRA 149 Mesic Spodic (TA6) (MLRA 149 Nesic Spodic (TA6) (MLRA 149 Mesic Spodic (TA6) (MLRA 149 Nesic Spodic (TA6) (MLRA 149 Mesic Spodic (TA6) (MLRA 149 Nesic Spodic (TA6)							R K, L)		•
X Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Mesic Spodic (TA6) (MLRA 144A, 145, 1491 Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Red Parent Material (F21) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) ? Dark Surface (S7) 3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed):			(A11)			F2)			
Sandy Gleyed Matrix (S4) Sandy Redox (S5) Redox Depressions (F8) Stripped Matrix (S6) Park Surface (S7) 3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes X No Remarks:						-0)			
Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) 7 Dark Surface (S7) 3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes X No Remarks:						-			14A, 145, 149B)
Stripped Matrix (S6)									22)
? Dark Surface (S7) 3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes X No Remarks:						0)			22)
3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes X No Remarks:				Wall (1 10) (ER	ix ix, ∟)			Other (Explain in Remarks)	
Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes X No Remarks:		(,							
Type:	³ Indicators o	f hydrophytic vegetatio	on and w	etland hydrology mι	ıst be pr	esent, ur	nless dist	curbed or problematic.	
Depth (inches): Hydric Soil Present? Yes X No		Layer (if observed):							
Remarks:	Type:								
	Depth (ii	nches):						Hydric Soil Present? Yes X	No
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils	Remarks:							•	
Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)									Hydric Soils,

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 10/18/2018
Applicant/Owner: City of Marquette	State: MI Sampling Point: LSW2
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Flat to undulating Slope %: 0-3%
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.569025	Long: -87.3929859999999 Datum: WGS84
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)
Are Vegetation , Soil , or Hydrology significantly distur	
Are Vegetation , Soil , or Hydrology naturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes X No Yes X No	Is the Sampled Area within a Wetland? Yes X No
Wetland Hydrology Present? Yes X No Remarks: (Explain alternative procedures here or in a separate report.)	If yes, optional Wetland Site ID:
The site has been heavily disturbed by industry, with evidence of fill and so	oil disturbance prevalent throughout the site.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
X Saturation (A3) — Marl Deposits (B15)	? Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor	
Sediment Deposits (B2) Oxidized Rhizospheres Oxidized Rhizospheres	
Presence of Reduced Ir	<u> </u>
Algal Mat or Crust (B4) Recent Iron Reduction in	. , , , , ,
Iron Deposits (B5) Thin Muck Surface (C7)	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remai	
? Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No x Depth (inches)	:
Water Table Present? Yes x No Depth (inches)	
Saturation Present? Yes x No Depth (inches)	: 0 Wetland Hydrology Present? Yes X No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	

VEGETATION – Use scientific names of plants. Sampling Point: LSW2 Absolute Dominant Indicator Tree Stratum (Plot size: 30) % Cover Species? Status **Dominance Test worksheet:** 1. Betula papyrifera **FACU Number of Dominant Species** 5 FAC That Are OBL, FACW, or FAC: 2. Populus tremula No 3 (A) 3. 40 Yes **FACW** Populus balsamifera Total Number of Dominant 10 **FACW** (B) 4. Alnus incana No Species Across All Strata: 3 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 100.0% (A/B) Prevalence Index worksheet: 7. 65 =Total Cover Total % Cover of: Multiply by: Sapling/Shrub Stratum (Plot size: 15 OBL species x 1 = Populus balsamifera **FACW FACW** species 57 x 2 = 114 5 2. Alnus incana Yes **FACW** FAC species 5 x 3 = 15 x 4 = 3. FACU species 10 0 4. UPL species x 5 = 5. Column Totals: 72 (A) 169 Prevalence Index = B/A = 2.35 6. **Hydrophytic Vegetation Indicators:** 7. 7 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation Herb Stratum (Plot size: 5) X 2 - Dominance Test is >50% 1. X 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting 2. data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation¹ (Explain) 5. ¹Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in 9. diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size: ____) Woody vines - All woody vines greater than 3.28 ft in 1. height. 2. Hydrophytic 3. Vegetation Yes X No____ Present? =Total Cover

Remarks: (Include photo numbers here or on a separate sheet.) Photos 1066-1068

SOIL Sampling Point LSW2

		o the de				tor or co	nfirm the absence of i	indicators.)
Depth	Matrix	0/		x Featur		12	T t	Device and the
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-2	10YR 2/1						Muck	_
2-16.5	10YR 2/1						Mucky Sand	klinkers mixed in
								_
								_
								_
								_
¹ Type: C=Co	oncentration, D=Depl	etion RM	=Reduced Matrix N	/S=Mas	ked Sand	I Grains	² l ocation: PI =	=Pore Lining, M=Matrix.
Hydric Soil I		0.1011, 1.11	Troduced Matrix, II	io iliao	itou ourio	oranio.		Problematic Hydric Soils ³ :
Histosol			Polyvalue Belo	w Surfa	ce (S8) (I	_RR R,		k (A10) (LRR K, L, MLRA 149B)
	pipedon (A2)		MLRA 149B		. , ,			irie Redox (A16) (LRR K, L, R)
Black His	stic (A3)		Thin Dark Surf	ace (S9)	(LRR R,	MLRA 1	49B) 5 cm Mucl	ky Peat or Peat (S3) (LRR K, L, R)
Hydroge	n Sulfide (A4)		High Chroma S	Sands (S	311) (LRF	R K, L)	Polyvalue	Below Surface (S8) (LRR K, L)
Stratified	l Layers (A5)		Loamy Mucky	Mineral	(F1) (LRF	R K, L)	Thin Dark	Surface (S9) (LRR K, L)
Depleted	l Below Dark Surface	(A11)	Loamy Gleyed	Matrix (F2)		Iron-Mang	anese Masses (F12) (LRR K, L, R)
	ark Surface (A12)		Depleted Matri				Piedmont	Floodplain Soils (F19) (MLRA 149B)
	lucky Mineral (S1)		Redox Dark Su					odic (TA6) (MLRA 144A, 145, 149B)
	leyed Matrix (S4)		Depleted Dark					nt Material (F21)
	edox (S5)		Redox Depress		3)			ow Dark Surface (F22)
	Matrix (S6)		Marl (F10) (LR	RK,L)			Other (Exp	olain in Remarks)
? Dark Sur	race (S7)							
³ Indicators of	f hydrophytic vegetati	on and w	etland hydrology mu	ıst be pr	esent ur	ıless distu	irbed or problematic	
	_ayer (if observed):							
Type:	,							
Depth (in	nches):						Hydric Soil Present	? Yes X No
Remarks:						1		
								S Field Indicators of Hydric Soils,
Version 7.0,	2015 Errata. (http://w	ww.nrcs.	usda.gov/Internet/FS	SE_DOC	CUMENT	S/nrcs142	2p2_051293.docx)	

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 10/18/2018
Applicant/Owner: City of Marquette	State: MI Sampling Point: LSW3
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Flat to undulating Slope %: 0-3%
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.568969	Long: -87.3930069999999 Datum: WGS84
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly distur	
Are Vegetation, Soil, or Hydrology naturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area
Hydric Soil Present? Yes X No	within a Wetland? Yes X No
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.) The site has been heavily disturbed by industry, with evidence of fill and so	oil disturbance prevalent throughout the site.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)Water-Stained Leaves (I	B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
X Saturation (A3) Marl Deposits (B15)	? Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor ((C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospheres of	on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)Presence of Reduced Inc	on (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4)Recent Iron Reduction in	n Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C7)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar	rks)Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No _x Depth (inches):	: <u> </u>
Water Table Present? Yes x No Depth (inches):	: 21
Saturation Present? Yes x No Depth (inches):	: 0 Wetland Hydrology Present? Yes X No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	

 VEGETATION – Use scientific names of plants.
 Sampling Point:
 LSW3

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
Betula papyrifera	20	Yes	FACU	
Populus tremula	10	Yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Populus balsamifera	20	Yes	FACW	
4.		103	TAOW	Total Number of Dominant Species Across All Strata: 6 (B)
		· ——		Opecies Across Air Strata.
6.				Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)
7				Prevalence Index worksheet:
<i>1.</i>	50	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15)		_ Total Cover		OBL species 0 x 1 = 0
1. Populus balsamifera	5	Yes	FACW	FACW species 95 x 2 = 190
0		-	171011	FAC species 10 x 3 = 30
3.				FACU species 40 x 4 = 160
4		-		UPL species 0 x 5 = 0
				Column Totals: 145 (A) 380 (B)
· ·				Prevalence Index = B/A = 2.62
6.				Hydrophytic Vegetation Indicators:
1.	5	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Harle Christian (Diet sies).		- Total Cover		I
Herb Stratum (Plot size: 5				X 2 - Dominance Test is >50%
1.	70			X 3 - Prevalence Index is ≤3.0¹
2. Phalaris arundinacea	70	Yes	FACW	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
3. Solidago canadensis	20	Yes	FACU	
4.				Problematic Hydrophytic Vegetation ¹ (Explain)
5.				¹ Indicators of hydric soil and wetland hydrology must
6.				be present, unless disturbed or problematic.
7.				Definitions of Vegetation Strata:
8				Tree – Woody plants 3 in. (7.6 cm) or more in
9				diameter at breast height (DBH), regardless of height.
10				Sapling/shrub – Woody plants less than 3 in. DBH
11				and greater than or equal to 3.28 ft (1 m) tall.
12				Herb – All herbaceous (non-woody) plants, regardless
	90	=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:)				Woody vines – All woody vines greater than 3.28 ft in
1				height.
2.				Hydrophytic
3				Vegetation
4				Present? Yes X No No
		=Total Cover		
Remarks: (Include photo numbers here or on a separ	rate sheet.)			
Photos 1069-1071				

SOIL Sampling Point LSW3

		o the de				tor or co	onfirm the absence of	indicators.)
Depth	Matrix	0/		k Featur		1 - 2	T t	Demonstra
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-2	10YR 2/1						Mucky Sand	_
2-21	10YR 2/1						Sandy	KLINKERS
								_
¹ Type: C=Co	oncentration, D=Depl	etion RM	=Reduced Matrix N	IS=Mas	ked Sand	Grains	² l ocation: PI:	=Pore Lining, M=Matrix.
Hydric Soil		011011, 1111	Troduced Matrix, II	io ivido	itou ourio	· Oranio.		Problematic Hydric Soils ³ :
Histosol			Polyvalue Belo	w Surfa	ce (S8) (I	LRR R,		k (A10) (LRR K, L, MLRA 149B)
	pipedon (A2)		MLRA 149B		. , ,			irie Redox (A16) (LRR K, L, R)
Black Hi	stic (A3)		Thin Dark Surf	ace (S9)	(LRR R,	MLRA 1	49B) 5 cm Muc	ky Peat or Peat (S3) (LRR K, L, R)
Hydroge	n Sulfide (A4)		High Chroma S	Sands (S	311) (LRF	R K, L)	Polyvalue	Below Surface (S8) (LRR K, L)
Stratified	l Layers (A5)		Loamy Mucky	Mineral	(F1) (LRF	R K, L)	? Thin Dark	Surface (S9) (LRR K, L)
Depleted	l Below Dark Surface	(A11)	Loamy Gleyed	Matrix (F2)		Iron-Mang	anese Masses (F12) (LRR K, L, R)
	ark Surface (A12)		Depleted Matri				Piedmont	Floodplain Soils (F19) (MLRA 149B)
	lucky Mineral (S1)		Redox Dark Su		-			odic (TA6) (MLRA 144A, 145, 149B)
	leyed Matrix (S4)		Depleted Dark					nt Material (F21)
	edox (S5)		Redox Depress		3)			low Dark Surface (F22)
	Matrix (S6)		Marl (F10) (LR	R K, L)			Other (Exp	plain in Remarks)
? Dark Sui	Tace (57)							
³ Indicators of	f hydrophytic vegetati	on and w	etland hydrology mu	ıst be pr	esent ur	nless distr	urbed or problematic	
	_ayer (if observed):			p-				
Type:	,							
Depth (ir	nches):						Hydric Soil Present	? Yes X No
Remarks:								
								S Field Indicators of Hydric Soils,
Version 7.0,	2015 Errata. (http://w	ww.nrcs.	usda.gov/Internet/FS	SE_DOC	CUMENT	S/nrcs142	2p2_051293.docx)	

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 10/18/2018
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS4
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W
• ` `	relief (concave, convex, none): Flat to undulating Slope %: 0-3%
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.568809	Long: -87.393033 Datum: WGS84
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrologysignificantly disturb	
Are Vegetation, Soil, or Hydrologynaturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	pling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area
Hydric Soil Present? Yes No X	within a Wetland? Yes No _X_
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
The site has been heavily disturbed by industry, with evidence of fill and so	oil disturbance prevalent throughout the site.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (I	
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Marl Deposits (B15)	? Dry-Season Water Table (C2)
Water Marks (B1)	
Sediment Deposits (B2) Oxidized Rhizospheres of	
Drift Deposits (B3) Presence of Reduced Iro	
Algal Mat or Crust (B4) Recent Iron Reduction in	
Iron Deposits (B5) Thin Muck Surface (C7)	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remark)	
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)
	A PAC-Neutral Test (D3)
Field Observations:	
Surface Water Present? Yes No x Depth (inches):	
Water Table Present? Yes x No Depth (inches):	
Saturation Present? Yes x No Depth (inches):	:14 Wetland Hydrology Present? Yes No _X
(includes capillary fringe)	Division increations) if excilables
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	
1	

VEGETATION – Use scientific names of plants.			Sampling Point:	LS4
Absolute	Dominant	Indicator		

<u>Tree Stratum</u> (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksheet:
1. Betula papyrifera	10	No	FACU	Number of Dominant Species
2. Populus tremula	15	Yes	FAC	That Are OBL, FACW, or FAC:3(A)
3. Populus balsamifera	30	Yes	FACW	Total Number of Dominant
4. Picea glauca	2	No	FACU	Species Across All Strata: 4 (B)
5.				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: 75.0% (A/B)
7				Prevalence Index worksheet:
	57	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size:)				OBL species 0 x 1 = 0
Populus balsamifera	10	Yes	FACW	FACW species 45 x 2 = 90
2				FAC species 15 x 3 = 45
3				FACU species 62 x 4 = 248
4.				UPL species0 x 5 =0
5				Column Totals: 122 (A) 383 (B)
6				Prevalence Index = B/A = 3.14
7				Hydrophytic Vegetation Indicators:
	10	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5)				X 2 - Dominance Test is >50%
1				3 - Prevalence Index is ≤3.0 ¹
2. Phalaris arundinacea	5	No	FACW	4 - Morphological Adaptations ¹ (Provide supporting
3. Solidago canadensis	50	Yes	FACU	data in Remarks or on a separate sheet)
4				Problematic Hydrophytic Vegetation ¹ (Explain)
5				¹ Indicators of hydric soil and wetland hydrology must
6				be present, unless disturbed or problematic.
7				Definitions of Vegetation Strata:
8				Tree – Woody plants 3 in. (7.6 cm) or more in
9				diameter at breast height (DBH), regardless of height.
10				Sapling/shrub – Woody plants less than 3 in. DBH
11				and greater than or equal to 3.28 ft (1 m) tall.
12				Herb – All herbaceous (non-woody) plants, regardless
	55	=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:)				Woody vines – All woody vines greater than 3.28 ft in
1				height.
2				Hydrophytic
3				Vegetation
4				Present?
		=Total Cover		
Remarks: (Include photo numbers here or on a separ	ate sheet.)			
Photos 1072-1075				

SOIL Sampling Point LS4

Profile Desc Depth	cription: (Describe to Matrix	the de		ıment tl x Featur		ator or co	onfirm the absence of it	ndicators.)
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-3	10YR 2/2						Sandy	
3-23	10YR 2/1						Sandy	KLINKERS
			_					
								
¹ Type: C=C	oncentration, D=Deple	tion, RM	I=Reduced Matrix, N	1S=Mas	ked Sand	d Grains.	² Location: PL=	Pore Lining, M=Matrix.
Hydric Soil								Problematic Hydric Soils ³ :
Histosol			Polyvalue Belo		ce (S8) (I	LRR R,		(A10) (LRR K, L, MLRA 149B)
	oipedon (A2)		MLRA 149B	•	\ /I DD D	MI DA 1		rie Redox (A16) (LRR K, L, R)
	stic (A3) n Sulfide (A4)		Thin Dark Surfa				· —	y Peat or Peat (S3) (LRR K, L, R) Below Surface (S8) (LRR K, L)
	d Layers (A5)		Loamy Mucky			-		Surface (S9) (LRR K, L)
	d Below Dark Surface	(A11)	Loamy Gleyed			, ,		anese Masses (F12) (LRR K, L, R)
Thick Da	ark Surface (A12)		Depleted Matri	x (F3)			Piedmont F	Floodplain Soils (F19) (MLRA 149
	lucky Mineral (S1)		Redox Dark Su		-			dic (TA6) (MLRA 144A, 145, 149B
	Gleyed Matrix (S4)		Depleted Dark					t Material (F21)
	Redox (S5)		Redox Depress		8)			ow Dark Surface (F22)
? Dark Su	Matrix (S6)		Marl (F10) (LR	K K, L)			Other (Exp	lain in Remarks)
Bark Gu	nace (Gr)							
³ Indicators o	f hydrophytic vegetatio	n and w	etland hydrology mu	ıst be pr	esent, ur	nless dist	urbed or problematic.	
Restrictive	Layer (if observed):							
Type:								
Depth (ii	nches):						Hydric Soil Present?	Yes No _X
Remarks:								
								Field Indicators of Hydric Soils,
Version 7.0,	2015 Errata. (http://ww	w.nrcs.	usda.gov/Internet/FS	SE_DOC	CUMENT	S/nrcs14	2p2_051293.docx)	

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 10/18/2018
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS4W
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Flat to undulating Slope %: 0-3%
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.568861	Long: -87.39296 Datum: WGS84
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly distur	
Are Vegetation, Soil, or Hydrology naturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	
Hydrophytic Vegetation Present? Hydric Soil Present? Yes X No Yes X No	Is the Sampled Area within a Wetland? Yes X No
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID:
The site has been heavily disturbed by industry, with evidence of fill and so	al disturbance prevalent unoughout the site.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (I	
High Water Table (A2) Aquatic Fauna (B13) Mad Barasita (B45)	Moss Trim Lines (B16)
X Saturation (A3)Marl Deposits (B15)	? Dry-Season Water Table (C2)
Water Marks (B1) — Hydrogen Sulfide Odor (— Oddfrad Rhinaushaus	
Sediment Deposits (B2) Oxidized Rhizospheres of the control of th	
Drift Deposits (B3) Presence of Reduced In	
Algal Mat or Crust (B4) Recent Iron Reduction in This Much Confere (CT)	· · · · · · · · · · · · · · · · · · ·
Iron Deposits (B5)Thin Muck Surface (C7)	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar	
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No x Depth (inches):	
Water Table Present? Yes x No Depth (inches):	
Saturation Present? Yes x No Depth (inches):	: 8 Wetland Hydrology Present? Yes X No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	

VEGETATION – Use scientific names of plants. Sampling Point: LS4W Absolute Dominant Indicator 30) % Cover Species? Status **Dominance Test worksheet:** Tree Stratum (Plot size: 1. **Number of Dominant Species** 2. Populus tremula FAC That Are OBL, FACW, or FAC: 5 Yes (A) 3. Populus balsamifera 15 **FACW** Yes **Total Number of Dominant** 4. Species Across All Strata: 6 (B) 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 83.3% (A/B) Prevalence Index worksheet: 7. Multiply by: 20 =Total Cover Total % Cover of: Sapling/Shrub Stratum (Plot size: 15 OBL species x 1 = Populus balsamifera 30 **FACW FACW** species 85 x 2 = 170 5 2. Alnus incana 30 Yes **FACW** FAC species x 3 = 15 5 x 4 = 3. FACU species 0 4. UPL species x 5 = 5. Column Totals: 95 (A) 205 6. Prevalence Index = B/A = 2.16 **Hydrophytic Vegetation Indicators:** 7. 60 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% Herb Stratum (Plot size: 5)

Yes

Yes

10

FACU

FACW

4. 5. 6. 7. 8. 9. 15 =Total Cover Woody Vine Stratum (Plot size: 1. 2. 3. =Total Cover Remarks: (Include photo numbers here or on a separate sheet.)

F	Problematic Hydrophytic Vegetation	¹ (Explain)
¹ Indi	cators of hydric soil and wetland hyd	drology must
be pr	resent, unless disturbed or problema	atic.

data in Remarks or on a separate sheet)

4 - Morphological Adaptations¹ (Provide supporting

Definitions of Vegetation Strata:

X 3 - Prevalence Index is ≤3.0¹

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes X No ___

Photos 1076-1077

Tanacetum vulgare

Phalaris arundinacea

2.

3.

SOIL Sampling Point LS4W

		o the de				tor or co	onfirm the absence of	indicators.)
Depth	Matrix	0/		k Featur		1 - 2	T t	Demonstra
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-2	10YR 2/1					—	Mucky Sand	_
2-19	10YR 2/1						Sandy	KLINKERS
								_
								_
								_
¹ Type: C=Co	oncentration, D=Depl	etion RM	=Reduced Matrix N	IS=Mas	ked Sand	Grains	² l ocation: PI:	=Pore Lining, M=Matrix.
Hydric Soil		0.1011, 1.11	Troduced Matrix, II	io ivido	itou ourio	oranio.		Problematic Hydric Soils ³ :
Histosol			Polyvalue Belo	w Surfa	ce (S8) (I	_RR R,		k (A10) (LRR K, L, MLRA 149B)
	pipedon (A2)		MLRA 149B		. , ,			irie Redox (A16) (LRR K, L, R)
Black Hi	stic (A3)		Thin Dark Surf	ace (S9)	(LRR R,	MLRA 1	49B) 5 cm Muc	ky Peat or Peat (S3) (LRR K, L, R)
Hydroge	n Sulfide (A4)		High Chroma S	Sands (S	311) (LRF	R K, L)	Polyvalue	Below Surface (S8) (LRR K, L)
Stratified	l Layers (A5)		Loamy Mucky	Mineral	(F1) (LRF	R K, L)	? Thin Dark	Surface (S9) (LRR K, L)
Depleted	l Below Dark Surface	(A11)	Loamy Gleyed	Matrix (F2)		Iron-Mang	anese Masses (F12) (LRR K, L, R)
	ark Surface (A12)		Depleted Matri				Piedmont	Floodplain Soils (F19) (MLRA 149B)
	lucky Mineral (S1)		Redox Dark Su		-			odic (TA6) (MLRA 144A, 145, 149B)
	leyed Matrix (S4)		Depleted Dark					nt Material (F21)
	edox (S5)		Redox Depress		3)			low Dark Surface (F22)
	Matrix (S6)		Marl (F10) (LR	R K, L)			Other (Exp	plain in Remarks)
? Dark Sui	Tace (57)							
³ Indicators of	f hydrophytic vegetati	on and w	etland hydrology mu	ıst be pr	esent ur	ıless distı	urbed or problematic	
	_ayer (if observed):			p-				
Type:	,							
Depth (ir	nches):						Hydric Soil Present	? Yes X No
Remarks:								
								S Field Indicators of Hydric Soils,
Version 7.0,	2015 Errata. (http://w	ww.nrcs.	usda.gov/Internet/FS	SE_DOC	CUMENT	S/nrcs142	2p2_051293.docx)	

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 10/18/2018
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS5
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Flat to undulating Slope %: 0-3%
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.568696	Long: -87.393586 Datum: WGS84
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly distur	
Are Vegetation, Soil, or Hydrology naturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	
	T
Hydrophytic Vegetation Present? Hydric Soil Present? Yes X No Yes X No	Is the Sampled Area within a Wetland? Yes X No
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	ii yoo, optional Wotalia oito ib.
The site has been heavily disturbed by industry, with evidence of fill and so	oil disturbance prevalent throughout the site.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (I	(B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
X Saturation (A3) Marl Deposits (B15)	? Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor ((C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospheres of	on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced Iro	ron (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduction in	n Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C7)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar	
? Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No x Depth (inches):	
Water Table Present? Yes x No Depth (inches):	
Saturation Present? Yes x No Depth (inches):	
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	

VEGETATION – Use scientific names of plants. Sampling Point: LS5 Absolute Dominant Indicator Tree Stratum (Plot size: 30) % Cover Species? Status **Dominance Test worksheet:** 1. Alnus incana **FACW Number of Dominant Species** 2. 30 Populus tremula Yes FAC That Are OBL, FACW, or FAC: 4 (A) 5 3. Populus balsamifera **FACW** No Total Number of Dominant 4. (B) Species Across All Strata: 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 100.0% (A/B) Prevalence Index worksheet: 7. Multiply by: 65 =Total Cover Total % Cover of: Sapling/Shrub Stratum (Plot size: 15 OBL species x 1 = Populus balsamifera 40 **FACW FACW** species 95 x 2 = 190 30 2. Alnus incana 20 Yes **FACW** FAC species x 3 = 90 0 x 4 = 3. FACU species 0 0 4. UPL species x 5 = 5. Column Totals: 125 280 Prevalence Index = B/A = 2.24 6. **Hydrophytic Vegetation Indicators:** 7. 60 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% Herb Stratum (Plot size: 5) 1. X 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting 2. data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation¹ (Explain) 5. ¹Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in 9. diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size: ____) Woody vines - All woody vines greater than 3.28 ft in 1. height. 2. Hydrophytic 3. Vegetation Yes X No ___ Present? =Total Cover Remarks: (Include photo numbers here or on a separate sheet.) 1078-1081 photos

SOIL Sampling Point LS5

Depth	Matrix		Redox	k Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-3	10YR 2/1						Mucky Sand	
3-16	10YR 2/1						Mucky Sand	KLINKERS
¹ Type: C=Co	oncentration, D=Deple	tion RM	=Reduced Matrix M	IS=Mas	ked Sand	d Grains	² l ocation: PI =F	Pore Lining, M=Matrix.
Hydric Soil I		don, ravi	Treduced Wattix, iv	io ivias	itou ouric	a Graino.		Problematic Hydric Soils ³ :
Histosol	(A1)		Polyvalue Belo	w Surfa	ce (S8) (I	LRR R,		(A10) (LRR K, L, MLRA 149B)
	ipedon (A2)		MLRA 149B)	. , .			e Redox (A16) (LRR K, L, R)
Black His	stic (A3)		Thin Dark Surfa	ace (S9)	(LRR R	, MLRA 1	49B)5 cm Mucky	Peat or Peat (S3) (LRR K, L, R)
Hydroge	n Sulfide (A4)		High Chroma S	Sands (S	311) (LRF	R K, L)	Polyvalue B	elow Surface (S8) (LRR K, L)
	Layers (A5)		Loamy Mucky I			R K, L)		urface (S9) (LRR K, L)
	Below Dark Surface	(A11)	Loamy Gleyed		F2)			nese Masses (F12) (LRR K, L, R)
	irk Surface (A12)		Depleted Matrix		.0)			loodplain Soils (F19) (MLRA 149B)
	lucky Mineral (S1) leyed Matrix (S4)		Redox Dark Su Depleted Dark		-			ic (TA6) (MLRA 144A, 145, 149B) Material (F21)
	edox (S5)		Redox Depress					w Dark Surface (F22)
	Matrix (S6)		Marl (F10) (LR		-,			ain in Remarks)
? Dark Sur				, ,			\	,
	, ,							
	hydrophytic vegetation	on and w	etland hydrology mu	ıst be pr	esent, ur	nless dist	urbed or problematic.	
	ayer (if observed):							
Type:								
Depth (ir	nches):						Hydric Soil Present?	Yes X No
Remarks:								
								Field Indicators of Hydric Soils,
Version 7.0,	2015 Errata. (http://wv	ww.nrcs.u	usda.gov/Internet/FS	SE_DOO	CUMENT	S/nrcs142	2p2_051293.docx)	

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 10/18/2018
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS6
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Flat to undulating Slope %: 0-3%
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.568561	Long: -87.392952 Datum: WGS84
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly distur	
Are Vegetation, Soil, or Hydrology naturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area
Hydric Soil Present? Yes X No	within a Wetland? Yes X No
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.) The site has been heavily disturbed by industry, with evidence of fill and so	oil disturbance prevalent throughout the site.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (I	B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
X Saturation (A3) Marl Deposits (B15)	? Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor ((C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospheres of	on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced Iro	
Algal Mat or Crust (B4)Recent Iron Reduction in	n Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C7)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar	
? Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No x Depth (inches):	: <u></u> _
Water Table Present? Yes x No Depth (inches):	23.5
Saturation Present? Yes x No Depth (inches):	: 0 Wetland Hydrology Present? Yes X No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	

	Absolute	Dominant	Indicator				
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksheet:			
 Populus balsamifera 	10	Yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)			
3.				Total Number of Dominant			
4.				Species Across All Strata: 2 (B)			
5.6.				Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/			
7.				Prevalence Index worksheet:			
		=Total Cover		Total % Cover of: Multiply by:			
Sapling/Shrub Stratum (Plot size: 15)				OBL species 0 x 1 = 0			
Populus balsamifera	90	Yes	FACW	FACW species 100 x 2 = 200			
2.				FAC species 0 x 3 = 0			
3.				FACU species 0 x 4 = 0			
4.				UPL species 0 x 5 = 0			
5.				Column Totals: 100 (A) 200 (
				Prevalence Index = B/A = 2.00			
7.				Hydrophytic Vegetation Indicators:			
·· 	90	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation			
Herb Stratum (Plot size: 5)				X 2 - Dominance Test is >50%			
				X 3 - Prevalence Index is ≤3.0 ¹			
2				4 - Morphological Adaptations ¹ (Provide support			
2				data in Remarks or on a separate sheet)			
4.				Problematic Hydrophytic Vegetation ¹ (Explain)			
5.				¹ Indicators of hydric soil and wetland hydrology mus			
6.				be present, unless disturbed or problematic.			
7.				Definitions of Vegetation Strata:			
8. 9.				Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height			
10.				Sapling/shrub – Woody plants less than 3 in. DBH			
11				and greater than or equal to 3.28 ft (1 m) tall.			
12.		=Total Cover		Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall.			
Woody Vine Stratum (Plot size:)				Woody vines – All woody vines greater than 3.28 ft			
1				height.			
2.				Hydrophytic			
3.				Vegetation			
4				Present? Yes X No No			
		=Total Cover					

SOIL Sampling Point LS6

		o the de	=			tor or co	onfirm the absence of in	dicators.)
Depth	Matrix	0/		x Featur		1 - 2	T 4	Devicedo
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-1	10YR 2/1					<u> </u>	Mucky Sand	
1-23	10YR 2/1						Mucky Sand	KLINKERS
23-25	10YR 4/3						Sandy	
						—		
1							2	
	oncentration, D=Depl	etion, RN	/I=Reduced Matrix, N	/IS=Mas	ked Sand	l Grains.		Pore Lining, M=Matrix.
Hydric Soil I Histosol			Polyvalue Belo	w Surfa	ce (S8) (I	RRR		Problematic Hydric Soils ³ : (A10) (LRR K, L, MLRA 149B)
	pipedon (A2)		MLRA 149B		CC (CC) (I			e Redox (A16) (LRR K, L, R)
Black His			Thin Dark Surf	•	(LRR R	MLRA 1		Peat or Peat (S3) (LRR K, L, R)
	n Sulfide (A4)		High Chroma S		-			elow Surface (S8) (LRR K, L)
Stratified	l Layers (A5)		Loamy Mucky	Mineral	(F1) (LR F	R K, L)	Thin Dark S	urface (S9) (LRR K, L)
	l Below Dark Surface	(A11)	Loamy Gleyed	Matrix (F2)		Iron-Mangar	nese Masses (F12) (LRR K, L, R)
	ark Surface (A12)		Depleted Matri					oodplain Soils (F19) (MLRA 149B)
	lucky Mineral (S1)		Redox Dark Su					ic (TA6) (MLRA 144A, 145, 149B)
	leyed Matrix (S4)		Depleted Dark					Material (F21)
	edox (S5) Matrix (S6)		Redox Depress Marl (F10) (LR		5)			w Dark Surface (F22) ain in Remarks)
? Dark Sur	` ,		IVIAII (I 10) (LK	K K, L)			Other (Expire	iii iii Neiliaiks)
³ Indicators of	f hydrophytic vegetati	on and w	vetland hydrology mu	ıst be pr	esent, ur	nless dist	urbed or problematic.	
	_ayer (if observed):							
Type:								
Depth (ir	nches):						Hydric Soil Present?	Yes X No
Remarks:								
	m is revised from Noı 2015 Errata. (http://w							Field Indicators of Hydric Soils,
version 7.0,	2013 Effata. (Http://w	www.iiics.	usua.gov/internet/13	3L_DOC	OIVILINI	3/11105 142	2p2_031293.d0cx)	

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 10/18/2018
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS7W
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Flat to undulating Slope %: 0-3%
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.568731	Long: -87.392713 Datum: WGS84
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly distur	
Are Vegetation, Soil, or Hydrology naturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area
Hydric Soil Present? Yes X No	within a Wetland? Yes X No
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.) The site has been heavily disturbed by industry, with evidence of fill and so	oil disturbance prevalent throughout the site.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (I	B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
X Saturation (A3) Marl Deposits (B15)	? Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor ((C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospheres of	on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced Iro	
Algal Mat or Crust (B4)Recent Iron Reduction in	n Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C7)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar	
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No x Depth (inches):	: <u></u>
Water Table Present? Yes x No Depth (inches):	: 18.5
Saturation Present? Yes x No Depth (inches):	: 0 Wetland Hydrology Present? Yes X No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	

 VEGETATION – Use scientific names of plants.
 Sampling Point:
 LS7W

T 0/ / (D) / : 00	Absolute	Dominant	Indicator	5 . 5
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksheet:
Betula papyrifera	40	Yes	FACU	Number of Dominant Species
2. Populus balsamifera	40	Yes	FACW	That Are OBL, FACW, or FAC:3 (A)
Populus grandidentata 4.	5	No	FACU	Total Number of Dominant Species Across All Strata: 4 (B)
5				Percent of Dominant Species That Are OBL, FACW, or FAC:75.0% (A/B)
7.				Prevalence Index worksheet:
	85	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15)				OBL species 0 x 1 = 0
Populus balsamifera	30	Yes	FACW	FACW species 155 x 2 = 310
2.				FAC species 0 x 3 = 0
3.				FACU species 45 x 4 = 180
				UPL species 0 x 5 = 0
5.				Column Totals: 200 (A) 490 (B)
6				Prevalence Index = B/A = 2.45
7.				Hydrophytic Vegetation Indicators:
·	30	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Llorb Stratum (Dietaire) E		- Total Covel		
Herb Stratum (Plot size: 5	00	V	E40)4/	X 2 - Dominance Test is >50%
1. Rubus Acaulis	80	Yes	FACW	X 3 - Prevalence Index is ≤3.0 ¹
 Phalaris arundinacea 	5	<u>No</u>	FACW	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4.				Problematic Hydrophytic Vegetation ¹ (Explain)
5 6.				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7				Definitions of Vegetation Strata:
8.				
9.				Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
10 11.		· ——		Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
12.				
12.	85	=Total Cover		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:) 1				Woody vines – All woody vines greater than 3.28 ft in height.
2.				- Targetti
				Hydrophytic
				Vegetation Present? Yes X No
4		-Tatal Cause		Present?
		=Total Cover		
Remarks: (Include photo numbers here or on a separ Photos 1086-1089	ate sneet.)			

		to the de	-			tor or co	onfirm the absence of	indicators.)
Depth	Matrix	0/		x Featur		1 - 2	T 4	Davis and sa
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-16	10YR 2/1	100	·				Mucky Sand	
16-19	10yr 5/3	100					Sandy	Some redox
								_
			·					
								_
¹ Type: C=C	oncentration, D=Depl	etion RN	M=Reduced Matrix N	 eeM=2N	ked Sand		² Location: PL:	=Pore Lining, M=Matrix.
Hydric Soil		elion, ixi	i-reduced Matrix, it	/IO-IVIAS	Keu Sanc	i Giallis.		Problematic Hydric Soils ³ :
Histosol			Polyvalue Belo	w Surfa	ce (S8) (I	LRR R.		k (A10) (LRR K, L, MLRA 149B)
	pipedon (A2)		MLRA 149B		() (-	,		irie Redox (A16) (LRR K, L, R)
	stic (A3)		Thin Dark Surf	•) (LRR R	, MLRA 1		ky Peat or Peat (S3) (LRR K, L, R)
Hydroge	n Sulfide (A4)		High Chroma S	Sands (S	511) (LRF	R K, L)	Polyvalue	Below Surface (S8) (LRR K, L)
Stratified	l Layers (A5)		Loamy Mucky	Mineral	(F1) (LR F	R K, L)	Thin Dark	Surface (S9) (LRR K, L)
Depleted	d Below Dark Surface	e (A11)	Loamy Gleyed	Matrix (F2)		Iron-Mang	anese Masses (F12) (LRR K, L, R)
Thick Da	ark Surface (A12)		Depleted Matri				Piedmont	Floodplain Soils (F19) (MLRA 149B)
	lucky Mineral (S1)		Redox Dark Su					odic (TA6) (MLRA 144A, 145, 149B)
	Sleyed Matrix (S4)		Depleted Dark					nt Material (F21)
	ledox (S5)		Redox Depress		8)			ow Dark Surface (F22)
	Matrix (S6)		Marl (F10) (LR	R K, L)			Other (Exp	olain in Remarks)
? Dark Su	nace (S7)							
³ Indicators of	f hydrophytic vegetat	ion and v	vetland hydrology mu	ıst be pr	resent ur	nless disti	urbed or problematic.	
	Layer (if observed):							
Type:	,							
Depth (ir	nches):						Hydric Soil Present	? Yes X No
Remarks:								
								S Field Indicators of Hydric Soils,
Version 7.0,	2015 Errata. (http://w	/ww.nrcs	usda.gov/Internet/F	SE_DOC	CUMENT	S/nrcs142	2p2_051293.docx)	

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 10/18/2018
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS8W
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Flat to undulating Slope %: 0-3%
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.56857	Long: -87.392752 Datum: WGS84
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturi	· · · · · _ · · · · ·
Are Vegetation, Soil, or Hydrology naturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	
	T T
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area
Hydric Soil Present? Yes X No Yes X No	within a Wetland? Yes X No If yes, optional Wetland Site ID:
	ii yes, optional wetiand Site ib.
Remarks: (Explain alternative procedures here or in a separate report.) The site has been heavily disturbed by industry, with evidence of fill and so	oil disturbance prevalent throughout the site.
	a.c.a. 24.100 p. c.ta.o.t. 1.11.01g.1011 1.10 0.101
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (I	B9) Drainage Patterns (B10)
X High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor ((C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospheres of	on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced Iro	on (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduction ir	n Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C7)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remark	Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No x Depth (inches):	
Water Table Present? Yes x No Depth (inches):	
Saturation Present? Yes x No Depth (inches):	
(includes capillary fringe)	<u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	

VEGETATION – Use scientific names of plants. Sampling Point: LS8W Absolute Dominant Indicator Tree Stratum (Plot size: 30 % Cover Species? Status **Dominance Test worksheet:** Populus tremuloides FAC **Number of Dominant Species** 2. That Are OBL, FACW, or FAC: 3 (A) 3. **Total Number of Dominant** 4. (B) Species Across All Strata: 4 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 75.0% (A/B) Prevalence Index worksheet: 7. Multiply by: 60 =Total Cover Total % Cover of: Sapling/Shrub Stratum (Plot size: OBL species x 1 = Alnus incana 7 **FACW FACW** species x 2 = 2. Populus tremuloides 50 Yes FAC FAC species 130 x 3 = 390 2 50 x 4 = 3. Populus balsamifera No **FACW** FACU species 200 0 4. UPL species x 5 = 5. Column Totals: 187 604 6. Prevalence Index = B/A = 3.23 **Hydrophytic Vegetation Indicators:** 7. 57 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation Herb Stratum (Plot size: X 2 - Dominance Test is >50% Solidago canadensis Yes **FACU** 3 - Prevalence Index is ≤3.01 4 - Morphological Adaptations¹ (Provide supporting 2. Equisetum arvense Yes FAC data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation¹ (Explain) 5. ¹Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in 9. diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless 70 =Total Cover of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size: Woody vines - All woody vines greater than 3.28 ft in 1. height. 2. Hydrophytic 3. Vegetation

=Total Cover

Remarks: (Include photo numbers here or on a separate sheet.) Photos 1090 - 1093

US Army Corps of Engineers

Yes X

Present?

No ___

		to the de	=			ator or co	onfirm the absence o	f indicators.)
Depth	Matrix	0/		k Featur		1 - 2	T 4	Damanta
(inches)	Color (moist)	400	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-10	10yr 2/1	100					Mucky Sand	
10-12	10yr 5/3	90	7.5yr 4/6	10	С	M	Sandy	Prominent redox concentrations
								_
								_
								_
¹ Type: C=Co	oncentration, D=Depl	etion, RN	M=Reduced Matrix, M	1S=Mas	ked Sand	d Grains.	² Location: P	L=Pore Lining, M=Matrix.
Hydric Soil								or Problematic Hydric Soils ³ :
Histosol	(A1)		Polyvalue Belo	w Surfa	ce (S8) (LRR R,	2 cm Mu	ıck (A10) (LRR K, L, MLRA 149B)
Histic Ep	pipedon (A2)		MLRA 149B)			Coast P	rairie Redox (A16) (LRR K, L, R)
Black Hi	stic (A3)		Thin Dark Surfa	ace (S9	(LRR R	, MLRA 1	49B) 5 cm Mu	icky Peat or Peat (S3) (LRR K, L, R)
Hydroge	n Sulfide (A4)		High Chroma S	Sands (S	S11) (LRI	R K, L)	Polyvalu	e Below Surface (S8) (LRR K, L)
Stratified	l Layers (A5)		Loamy Mucky	Mineral	(F1) (LR	R K, L)	Thin Dar	rk Surface (S9) (LRR K, L)
Depleted	Below Dark Surface	(A11)	Loamy Gleyed	Matrix (F2)		Iron-Mar	nganese Masses (F12) (LRR K, L, R)
Thick Da	ark Surface (A12)		Depleted Matrix	x (F3)			Piedmor	nt Floodplain Soils (F19) (MLRA 149B)
X Sandy M	lucky Mineral (S1)		Redox Dark Su	ırface (F	⁻ 6)		Mesic S	podic (TA6) (MLRA 144A, 145, 149B)
Sandy G	leyed Matrix (S4)		Depleted Dark	Surface	(F7)		Red Par	ent Material (F21)
Sandy R	edox (S5)		Redox Depress	sions (F	8)		Very Sha	allow Dark Surface (F22)
Stripped	Matrix (S6)		Marl (F10) (LR	R K, L)			Other (E	xplain in Remarks)
? Dark Su	rface (S7)							
³ Indicators o	f hydrophytic vegetati	ion and w	vetland hydrology mι	ıst be pı	resent, ui	nless dist	urbed or problematic.	
Restrictive I	Layer (if observed):							
Type:								
Depth (ii	nches):						Hydric Soil Prese	nt? Yes_X_ No
Remarks:								
This data for	m is revised from No	rthcentra	l and Northeast Regi	onal Su	pplemen	t Version	2.0 to include the NR	CS Field Indicators of Hydric Soils,
Version 7.0,	2015 Errata. (http://w	ww.nrcs.	usda.gov/Internet/FS	SE_DOO	CUMENT	S/nrcs142	2p2_051293.docx)	

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 10/18/2018
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS9
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W
• ` `	relief (concave, convex, none): Flat to undulating Slope %: 0-3%
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.568299	Long: -87.392496 Datum: WGS84
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrologysignificantly disturb	
Are Vegetation, Soil, or Hydrologynaturally problems	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sam	pling point locations, transects, important features, etc.
Lhidranhidia Vanatatian Dusaanto	In the Complet Area
Hydrophytic Vegetation Present? Hydric Soil Present? Yes X No Yes No X	Is the Sampled Area within a Wetland? Yes No_X_
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	, 955, 52 115111111 11511111111111111111111
The site has been heavily disturbed by industry, with evidence of fill and so	oil disturbance prevalent throughout the site.
, , , ,	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (B	B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
x Saturation (A3) Marl Deposits (B15)	? Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (
Sediment Deposits (B2) Oxidized Rhizospheres of	
Drift Deposits (B3) Presence of Reduced Iro	on (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduction ir	·
Iron Deposits (B5) — Thin Muck Surface (C7)	? Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remark	
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No x Depth (inches):	
Water Table Present? Yes x No Depth (inches):	
Saturation Present? Yes x No Depth (inches):	<u>1</u> Wetland Hydrology Present? Yes X No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:
Remarks:	
Hard pack between 7 and 9 inches.	

VEGETATION – Use scientific names of plants. Sampling Point: LS9 Absolute Dominant Indicator Tree Stratum (Plot size: 30 % Cover Species? Status **Dominance Test worksheet:** Populus tremuloides FAC **Number of Dominant Species** 2. That Are OBL, FACW, or FAC: 3 (A) 3. **Total Number of Dominant** 4. (B) Species Across All Strata: 4 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 75.0% (A/B) Prevalence Index worksheet: 7. Multiply by: 30 =Total Cover Total % Cover of: Sapling/Shrub Stratum (Plot size: OBL species x 1 = Alnus incana **FACW FACW** species 20 x 2 = 40 2. Populus tremuloides 60 Yes FAC FAC species 110 x 3 = 330 50 x 4 = 3. Populus balsamifera 10 No **FACW** FACU species 200 4. UPL species 0 x 5 = 0 5. Column Totals: 180 570 Prevalence Index = B/A = 3.17 6. **Hydrophytic Vegetation Indicators:** 7. 1 - Rapid Test for Hydrophytic Vegetation =Total Cover Herb Stratum (Plot size: X 2 - Dominance Test is >50% 1. Solidago canadensis 40 Yes **FACU** 3 - Prevalence Index is ≤3.01 10 4 - Morphological Adaptations¹ (Provide supporting 2. **FACU** Tanacetum vulgare No data in Remarks or on a separate sheet) 3. Equisetum hyemale 20 Yes FAC 4. Problematic Hydrophytic Vegetation¹ (Explain) 5. ¹Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in 9. diameter at breast height (DBH), regardless of height. 10. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless 70 =Total Cover of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size: Woody vines - All woody vines greater than 3.28 ft in 1. height. 2. Hydrophytic 3. Vegetation Yes X No ___ Present? =Total Cover Remarks: (Include photo numbers here or on a separate sheet.) Photos 1094-1097

Profile Desc Depth	cription: (Describe of Matrix	to the de	-	ument th x Featur		ator or co	confirm the absence of indicators.)
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks
0-7	10yr 2/1	100					Sandy
7-19	7.5yr 2.5/3	100					Sandy
19-22	7.5yr 3/4	100					Sandy
10 22		100					- Curia
							·
							·
							·
¹Type: C=Co	oncentration, D=Depl	letion, RN	//⊒Reduced Matrix, M	1S=Mas	ked Sand	Grains.	² Location: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indicators for Problematic Hydric Soils ³ :
Histosol			Polyvalue Belo		ce (S8) (I	LRR R,	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	pipedon (A2)		MLRA 149B)	•	\	MIDA	Coast Prairie Redox (A16) (LRR K, L, R)
Black Hi			Thin Dark Surfa				
	n Sulfide (A4) I Layers (A5)		Loamy Mucky I	-		-	Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L)
	d Below Dark Surface	e (A11)	Loamy Gleyed			(I(, L)	Iron-Manganese Masses (F12) (LRR K, L, R)
	ark Surface (A12)	,	Depleted Matrix		,		Piedmont Floodplain Soils (F19) (MLRA 149B
Sandy M	lucky Mineral (S1)		Redox Dark Su	ırface (F	⁻ 6)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
Sandy G	leyed Matrix (S4)		Depleted Dark	Surface	(F7)		Red Parent Material (F21)
	ledox (S5)		Redox Depress		8)		Very Shallow Dark Surface (F22)
	Matrix (S6)		Marl (F10) (LR	R K , L)			Other (Explain in Remarks)
? Dark Su	rface (S7)						
³ Indicators o	f hydrophytic vegetat	ion and v	vetland hvdrologv mเ	ıst be pr	esent. ur	nless dist	turbed or problematic.
	Layer (if observed):		, 3,		,		<u> </u>
Type:	Hard pack layer	of probat	ole fill				
Depth (ir	nches):	7					Hydric Soil Present? Yes No _X
Remarks:							•
							n 2.0 to include the NRCS Field Indicators of Hydric Soils,
version 7.0,	2015 Errata. (http://w	ww.nics.	.usda.gov/Internet/FS	אב_טטנ	JUNENT	5/IIICS 14.	42pz_051295.docx)

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 10/19/2018
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS10
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W
• ` `	relief (concave, convex, none): Flat to undulating Slope %: 0-3%
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.56864	Long: -87.393204 Datum: WGS84
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturi	
Are Vegetation , Soil , or Hydrology naturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	
/ / / / / / / / / / / / / / / / / / /	
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area
Hydric Soil Present? Yes No X	within a Wetland? Yes No X
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.) The site has been heavily disturbed by industry, with evidence of fill and so	all disturbance prevalent throughout the site
The site has been heavily disturbed by industry, with evidence of fill and so	in disturbance prevalent unoughout the site.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (I	
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (
Sediment Deposits (B2) Oxidized Rhizospheres of	
Drift Deposits (B3) Presence of Reduced Iro	
Algal Mat or Crust (B4) Recent Iron Reduction in	
Iron Deposits (B5) Thin Muck Surface (C7)	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remark	
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No x Depth (inches):	
Water Table Present? Yes x No Depth (inches):	
Saturation Present? Yes x No Depth (inches):	
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	

VEGETATION – Use scientific names of plants. Sampling Point: LS10 Absolute Dominant Indicator Tree Stratum (Plot size: 30) % Cover Species? Status **Dominance Test worksheet:** Populus tremula FAC **Number of Dominant Species** 2. 5 **FACU** That Are OBL, FACW, or FAC: Betula papyrifera Yes 3 (A) 3. **Total Number of Dominant** 4. (B) Species Across All Strata: 5 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 60.0% (A/B) Prevalence Index worksheet: 7. Multiply by: 25 =Total Cover Total % Cover of: Sapling/Shrub Stratum (Plot size: 15 OBL species x 1 = Populus balsamifera 10 **FACW FACW** species 10 x 2 = 20 5 2. Populus tremula Yes FAC FAC species 25 x 3 = 75 95 x 4 = 3. FACU species 380 0 4. UPL species x 5 = 0 5. Column Totals: 130 475 6. Prevalence Index = B/A = 3.65 **Hydrophytic Vegetation Indicators:** 7. 15 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation Herb Stratum (Plot size: 5) X 2 - Dominance Test is >50% Solidago canadensis Yes **FACU** 3 - Prevalence Index is ≤3.01 4 - Morphological Adaptations¹ (Provide supporting 2. data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation¹ (Explain) 5. ¹Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in 9. diameter at breast height (DBH), regardless of height. 10. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless 90 =Total Cover of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size: Woody vines - All woody vines greater than 3.28 ft in 1. height. 2. Hydrophytic 3. Vegetation Yes X No ___ Present? =Total Cover

Remarks: (Include photo numbers here or on a separate sheet.) Photos 1098-1104

(Inches) Color (moist) % Color (moist) % Type Loc2 Texture Remarks 0-3 10YR 2/1 Sandy Kilinkers 3-14 10YR 2/1 Sandy Kilinkers 14-18 7.5YR 4/4 Sandy Sandy Kilinkers 18-24 7.5YR 4/6 Sandy Sandy Sandy Sandy Sandy 18-24 7.5YR 4/6 Sandy San	Depth	Matrix			κ Featur				
3-14	(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remark	S
14-18	0-3	10YR 2/1						Sandy	
"Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. "Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Histic Epipedon (A2) High Chroma Sands (S11) (LRR R, L) Stratified Layers (A5) Loamy Mucky Mineral (F1) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Sandy Mucky Mineral (S1) Sandy Redox (S5) Seedox Depressions (F8) Suffiped Matrix (S4) Depleted Dark Surface (F7) Red Parent Material (F21) Sandy Redox (S5) Stripped Matrix (S6) Polark Surface (S7) "Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	3-14	10YR 2/1						Sandy Klinkers	3
"Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. #Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histic Epipedon (A2) MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) S cm Mucky Peat or Peat (S3) (LRR K, L, R) Hydrogen Sulfide (A4) High Chroma Sands (S11) (LRR K, L) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Thin Dark Surface (A12) Depleted Matrix (F3) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F6) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Red Parent Material (F21) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Thindicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	14-18	7.5YR 4/4						Sandy	
Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thick Dark Surface (A12) Depleted Below Dark Surface (A12) Depleted Matrix (F3) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F6) Sandy Redox (S5) Redox Depressions (F8) Stripped Matrix (S6) Marl (F10) (LRR K, L) Stripped Matrix (S6) Polyvalue Below Surface (A12) Depleted Dark Surface (A13) Depleted Dark Surface (F12) Sandy Redox (S5) Redox Depressions (F8) Wery Shallow Dark Surface (F22) Stripped Matrix (S6) Park Surface (S7) Marl (F10) (LRR K, L) Hydric Soil Present? Yes No X	18-24	7.5YR 4/6						Sandy	
Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thick Dark Surface (A12) Depleted Below Dark Surface (A12) Depleted Matrix (F3) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F6) Sandy Redox (S5) Redox Depressions (F8) Stripped Matrix (S6) Marl (F10) (LRR K, L) Stripped Matrix (S6) Polyvalue Below Surface (A12) Depleted Dark Surface (A13) Depleted Dark Surface (F12) Sandy Redox (S5) Redox Depressions (F8) Wery Shallow Dark Surface (F22) Stripped Matrix (S6) Park Surface (S7) Marl (F10) (LRR K, L) Hydric Soil Present? Yes No X									
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Histosol (A1)			etion, RM	1=Reduced Matrix, M	IS=Mas	ked San	d Grains.		
Histic Epipedon (A2) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Black Histic (A3) High Chroma Sands (S11) (LRR K, L) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Iron-Manganese Masses (F12) (LRR K, L, R) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Red Parent Material (F21) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Park Surface (S7) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	-			Dobavoluo Polo	w Surfo	.00 (89) (I DD D	-	
Black Histic (A3)						ice (36) (LKK K,		•
Stratified Layers (A5) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A11) Thin Dark Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L, R) Thick Dark Surface (A12) Depleted Matrix (F3) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S1) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F6) Sandy Redox (S5) Redox Depressions (F8) Stripped Matrix (S6) Thin Dark Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L, R) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Red Parent Material (F21) Sendy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Player (F22) Other (Explain in Remarks) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X				<i>'</i>) (LRR R	, MLRA		
Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F6) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Red Parent Material (F21) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	Hydroge	n Sulfide (A4)		High Chroma S	ands (S	S11) (LRI	R K, L)	Polyvalue Below Surface (S8) (LRR K, L)
Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Pledmont Floodplain Soils (F19) (MLRA 149B) Redox Dark Surface (F7) Red Parent Material (F21) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	Stratified	d Layers (A5)		Loamy Mucky I	∕lineral	(F1) (LR	R K, L)	Thin Dark Surface (S9) (LRR K	, L)
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Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) ? Dark Surface (S7) 3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X									
Park Surface (S7) 3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X									2)
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X				Marl (F10) (LR l	₹ K , L)			Other (Explain in Remarks)	
Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	? Dark Su	rface (S7)							
Type:	³ Indicators o	of hydrophytic vegetation	on and w	etland hydrology mu	ıst be pı	resent, ui	nless dist	turbed or problematic.	
Depth (inches): Hydric Soil Present? Yes No X		Layer (if observed):							
	,								
Remarks:		nches):						Hydric Soil Present? Yes	No <u>X</u>
	Remarks:								

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 10/19/2018					
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS11					
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W					
• ` `	relief (concave, convex, none): Flat to undulating Slope %: 0-3%					
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.567742	Long: -87.392727 Datum: WGS84					
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and						
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)					
Are Vegetation, Soil, or Hydrology significantly disturi	· · · · · · · · · · · · · · · ·					
Are Vegetation, Soil, or Hydrology naturally problems						
SUMMARY OF FINDINGS – Attach site map showing sam						
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area					
Hydric Soil Present? Yes No X	within a Wetland? Yes No X					
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:					
Remarks: (Explain alternative procedures here or in a separate report.)						
The site has been heavily disturbed by industry, with evidence of fill and so	oil disturbance prevalent throughout the site.					
HYDROLOGY						
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)					
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)					
Surface Water (A1) Water-Stained Leaves (E						
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)					
Saturation (A3) Marl Deposits (B15) Dry-Season Water Table (C2)						
Water Marks (B1) Hydrogen Sulfide Odor (
Sediment Deposits (B2) Oxidized Rhizospheres of						
Drift Deposits (B3) Presence of Reduced Iro						
Algal Mat or Crust (B4) Recent Iron Reduction ir	· / · · · · · · · · · · · · · · · · ·					
Iron Deposits (B5) — Thin Muck Surface (C7)						
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remark						
? Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)					
Field Observations:						
Surface Water Present? Yes No x Depth (inches):	: <u></u>					
Water Table Present? Yes No x Depth (inches):	: <u></u> _					
Saturation Present? Yes No x Depth (inches):	: Wetland Hydrology Present? Yes No _X					
(includes capillary fringe)						
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:					
Remarks:						
Remarks.						

VEGETATION – Use scientific names of plants. Sampling Point: LS11 Absolute Dominant Indicator % Cover Tree Stratum (Plot size: 30 Species? Status **Dominance Test worksheet:** Populus balsamifera **FACW Number of Dominant Species** 2. That Are OBL, FACW, or FAC: (A) 3. Total Number of Dominant 4. (B) Species Across All Strata: 2 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 100.0% (A/B) Prevalence Index worksheet: Multiply by: 40 =Total Cover Total % Cover of: Sapling/Shrub Stratum (Plot size: 15 OBL species x 1 = Populus balsamifera **FACW FACW** species 80 x 2 = 160 0 2. FAC species x 3 = 0 x 4 = 0 3. FACU species 0 0 4. UPL species x 5 = 5. Column Totals: 80 160 Prevalence Index = B/A = 2.00 6. **Hydrophytic Vegetation Indicators:** 40 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation Herb Stratum (Plot size: 5) X 2 - Dominance Test is >50% 1. 3 - Prevalence Index is ≤3.01 4 - Morphological Adaptations¹ (Provide supporting 2. data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation¹ (Explain) 5. ¹Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in 9. diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size: ____) Woody vines - All woody vines greater than 3.28 ft in 1. height. 2. Hydrophytic Vegetation Yes X No____ Present? =Total Cover Remarks: (Include photo numbers here or on a separate sheet.) Photos 1105-1106

0.5 10YR 2/1 Sandy Coal/klinkers 5.19 7.5YR 2.5/2 Sandy 19-27 7.5YR 2.5/1 Sandy 19-27 7.5YR 2.5/1 Sandy 1-Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. 1-Type: Silty gravel - very hard 2-Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Pytric Soils*: 1-Indicators for Problematic Pytric Soils*: 1-Depletion of Indicators 1-Depletion of Indicat	Depth (inches)	Matrix Color (moist)	%	Color (moist)	x Featur	Type ¹	Loc ²	Texture		Rema	arks	
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Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Thick Dark Surface (A12) Depleted Matrix (F3) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F6) Sandy Redox (S5) Redox Depressions (F8) Stripped Matrix (S6) Stripped Matrix (S6) Polyvalue Below Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Marl (F10) (LRR K, L) Marl (F10) (LRR K, L) Hydric Soil Present? Myes No X												
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Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Thick Dark Surface (A12) Depleted Matrix (F3) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F6) Sandy Redox (S5) Redox Depressions (F8) Stripped Matrix (S6) Stripped Matrix (S6) Polyvalue Below Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Marl (F10) (LRR K, L) Marl (F10) (LRR K, L) Hydric Soil Present? Myes No X	¹Type: C=Co	oncentration. D=Depl	etion. RN	/=Reduced Matrix. M	IS=Mas	ked Sand	Grains.	² Location: I	PL=Pore	Lining, M=M	atrix.	
Histic Epipedon (A2) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) Hydrogen Sulfide (A4) High Chroma Sands (S11) (LRR K, L) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Redox Depressions (F8) Stripped Matrix (S6) Polyvalue Below Surface (S9) (LRR K, L) Thin Dark Surface (S9) (•	·	,	,			_					:
Black Histic (A3)	Histosol	(A1)		Polyvalue Belo	w Surfa	ce (S8) (I	LRR R,	2 cm M	uck (A10) (LRR K, L,	MLRA 14	49B)
Hydrogen Sulfide (A4) High Chroma Sands (S11) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Iron-Manganese Masses (F12) (LRR K, L, R) Thick Dark Surface (A12) Depleted Matrix (F3) Piedmont Floodplain Soils (F19) (MLRA 149B) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Red Parent Material (F21) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) Pliedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Other (Explain in Remarks) Pliedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Other (Explain in Remarks) Pliedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA					•							-
Stratified Layers (A5)												
Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F6) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) Stripped Matrix (S6) Dark Surface (S7) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Silty gravel packed Depth (inches): 5 Depleted Matrix (F2) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Mesic Spodic (T							-			•		, L)
Thick Dark Surface (A12) Depleted Matrix (F3) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Red Parent Material (F21) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) No X Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Mesic Spodic (TA6) (MLR			(4.44)				R K, L)					
Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Red Parent Material (F21) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) Park Surface (S7) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Silty gravel packed Depth (inches): 5 Hydric Soil Present? Yes No X			e (A11)			F2)			_			
Sandy Gleyed Matrix (S4) Sandy Redox (S5) Redox Depressions (F8) Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) Planticators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Silty gravel packed Depth (inches): 5 Hydric Soil Present? Yes No X						-0\				-		•
Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) Park Surface (S7) 3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Silty gravel packed Depth (inches): 5 Hydric Soil Present? Yes No X											144A, 145	, 149B)
Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) 7 Dark Surface (S7) 3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Silty gravel packed Depth (inches): 5 Hydric Soil Present? Yes No X											=22\	
Park Surface (S7) 3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Silty gravel packed Depth (inches): 5 Hydric Soil Present? Yes No X						0)					-22)	
3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Silty gravel packed Depth (inches): 5 Hydric Soil Present? Yes No X				Wall (1 10) (LK	ix ix, L)			Other (<u> г</u> уріані і	ii Neiliaiks)		
Restrictive Layer (if observed): Type: Silty gravel packed Depth (inches): 5 Hydric Soil Present? Yes No X	Bank Gan	1400 (07)										
Type: Silty gravel packed Depth (inches): 5 Hydric Soil Present? Yes No X	³ Indicators of	hydrophytic vegetat	ion and w	vetland hydrology mι	ıst be pr	esent, ur	nless dist	urbed or problematic.				
Depth (inches): 5 Hydric Soil Present? Yes No X												
	Type:	Silty grave	packed									
Remarks:	Depth (ir	nches):	5					Hydric Soil Prese	ent?	Yes	No	X
	Remarks:											

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette	Sampling Date: 10/19/2018
Applicant/Owner: City of Marquette	State: MI	Sampling Point: LS12
Investigator(s): Jeff Koch	Section, Township, Range: Section 1	11, T48N, R25W
• ` `	relief (concave, convex, none): Flat to undulati	
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.567488	Long: -87.392026	Datum: WGS84
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and		
Are climatic / hydrologic conditions on the site typical for this time of year?	<u> </u>	explain in Remarks.)
	 ·	
Are Vegetation, Soil, or Hydrologysignificantly disturb		
Are Vegetation, Soil, or Hydrologynaturally problems		,
SUMMARY OF FINDINGS – Attach site map showing sam	pling point locations, transects, im	portant features, etc.
Hydrophytic Vegetation Present? Yes No X	Is the Sampled Area	
Hydric Soil Present? Yes No X	within a Wetland? Yes	No X
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:	
Remarks: (Explain alternative procedures here or in a separate report.)		
The site has been heavily disturbed by industry, with evidence of fill and so	il disturbance prevalent throughout the site.	
HYDROLOGY		
	Construction of the state of the	
Wetland Hydrology Indicators:		ninimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks	` '
Surface Water (A1) Water-Stained Leaves (B		` ,
High Water Table (A2) Aquatic Fauna (B13) And Remarks (B45)	Moss Trim Lines (B	·
Saturation (A3) Marl Deposits (B15)	Dry-Season Water	
Water Marks (B1) Hydrogen Sulfide Odor (-	•
Sediment Deposits (B2) Oxidized Rhizospheres of Property (PS)		on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced Iro		
Algal Mat or Crust (B4) Recent Iron Reduction in	` ' '	
Iron Deposits (B5) Thin Muck Surface (C7)		·
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remark		
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (I	D5)
Field Observations:		
Surface Water Present? Yes No x Depth (inches):		
Water Table Present? Yes No x Depth (inches):		
Saturation Present? Yes No _x Depth (inches):	Wetland Hydrology Present?	Yes No _X_
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:	
Remarks:		
Very hard layer at 7 inches		
Voly hard layor at 7 mones		

VEGETATION – Use scientific names of plants. Sampling Point: LS12 Absolute Dominant Indicator Tree Stratum (Plot size: 30 % Cover Species? Status **Dominance Test worksheet:** Populus balsamifera Yes **FACW Number of Dominant Species** 2. 10 Betula papyrifera Yes **FACU** That Are OBL, FACW, or FAC: 2 (A) 5 3. **FACU** Pinus resinosa No **Total Number of Dominant** 4. (B) Species Across All Strata: 5 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 40.0% (A/B) Prevalence Index worksheet: 7. Multiply by: 45 Total % Cover of: =Total Cover Sapling/Shrub Stratum (Plot size: 15 OBL species x 1 = Populus balsamifera **FACW FACW** species 35 x 2 = 70 0 2. FAC species x 3 = 0 95 x 4 = 3. FACU species 380 4. UPL species 0 x 5 = 5. Column Totals: 130 450 Prevalence Index = B/A = 3.46 6. **Hydrophytic Vegetation Indicators:** 7. 5 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% Herb Stratum (Plot size: Solidago canadensis Yes **FACU** 3 - Prevalence Index is ≤3.01 4 - Morphological Adaptations¹ (Provide supporting 2. Tanacetum vulgare Yes **FACU** data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation¹ (Explain) 5. ¹Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in 9. diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless 80 =Total Cover of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size: Woody vines - All woody vines greater than 3.28 ft in 1. height. 2. Hydrophytic 3. Vegetation Yes Present? No X =Total Cover Remarks: (Include photo numbers here or on a separate sheet.) Photos 1107-1108

Profile Desc Depth	cription: (Describe to Matrix	o the de	•	ument tl x Featur		tor or co	onfirm the absence of	indicators.))	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-7	10YR 2/1						Sandy			
7-11	10YR 2/1							Klinker	s packed va	ary hard
7-11	1011(2/1							Killikei	s packed ve	ary naru
	·									_
			_							
	oncentration, D=Deple	etion, RM	1=Reduced Matrix, M	IS=Mas	ked Sand	l Grains.	² Location: P			•
Hydric Soil							Indicators fo		-	
Histosol	• •		Polyvalue Belo		ce (S8) (I	LRR R,		ck (A10) (LR		•
	pipedon (A2)		MLRA 149B	•	\	MI DA 4		airie Redox (/		-
Black Hi			Thin Dark Surfa					cky Peat or F		•
	n Sulfide (A4) d Layers (A5)		Loamy Mucky	-		-		e Below Surfa k Surface (S9		· ·
	d Below Dark Surface	(A11)	Loamy Gleyed			Χ ΙΧ, Δ)		ganese Mass		•
	ark Surface (A12)	(/ () /)	Depleted Matri		,			-		(MLRA 149B)
	lucky Mineral (S1)		Redox Dark Su		- 6)					, 145, 149B)
	Gleyed Matrix (S4)		Depleted Dark		-			ent Material (I		•
Sandy R	ledox (S5)		Redox Depress	sions (F	8)		Very Sha	ıllow Dark Su	ırface (F22)	
Stripped	Matrix (S6)		Marl (F10) (LR	R K, L)			Other (E	xplain in Rem	narks)	
? Dark Su	rface (S7)									
3										
	f hydrophytic vegetation	on and w	etland hydrology mu	ist be pr	resent, ur	iless disti	urbed or problematic.			
Type:	Layer (if observed): klinke	re								
•									,	N V
Depth (ii	ncnes):	7					Hydric Soil Preser	it? Y	es	No X
	m is revised from Nor 2015 Errata. (http://w						2.0 to include the NR0 2p2_051293.docx)	S Field Indic	ators of Hy	dric Soils,

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 10/19/2018					
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS13					
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W					
	relief (concave, convex, none): Flat to undulating Slope %: 0-3%					
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.568307	Long: -87.392866 Datum: WGS84					
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and						
· · · · · · · · · · · · · · · · · · ·						
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)					
Are Vegetation, Soil, or Hydrologysignificantly disturb						
Are Vegetation, Soil, or Hydrologynaturally problema	atic? (If needed, explain any answers in Remarks.)					
SUMMARY OF FINDINGS – Attach site map showing sam	pling point locations, transects, important features, etc.					
Hydrophytic Vegetation Present? Yes No X	le the Sampled Area					
Hydrophytic Vegetation Present? Yes No X Hydric Soil Present? Yes No X	Is the Sampled Area within a Wetland? Yes No _X					
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:					
Remarks: (Explain alternative procedures here or in a separate report.)	,, -,					
The site has been heavily disturbed by industry, with evidence of fill and so	il disturbance prevalent throughout the site.					
HYDROLOGY						
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)					
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)					
Surface Water (A1) Water-Stained Leaves (E	B9) Drainage Patterns (B10)					
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)					
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)					
Water Marks (B1) Hydrogen Sulfide Odor (· · · · · · · · · · · · · · · · · · ·					
Sediment Deposits (B2) Oxidized Rhizospheres of						
Drift Deposits (B3) Presence of Reduced Iro						
Algal Mat or Crust (B4) Recent Iron Reduction in	in Tilled Soils (C6) Geomorphic Position (D2)					
Iron Deposits (B5) — Thin Muck Surface (C7)	?) Shallow Aquitard (D3)					
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remark						
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)					
Field Observations:						
Surface Water Present? Yes No x Depth (inches):						
Water Table Present? Yes No x Depth (inches):						
Saturation Present? Yes No x Depth (inches):	Wetland Hydrology Present? Yes No _X					
(includes capillary fringe)						
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:					
Remarks:						
Nemaro.						

VEGETATION – Use scientific names of plants. Sampling Point: LS13 Absolute Dominant Indicator Tree Stratum (Plot size: % Cover 30) Species? Status **Dominance Test worksheet:** Populus tremula **FAC Number of Dominant Species** 2. That Are OBL, FACW, or FAC: 2 (A) 3. **Total Number of Dominant** 4. (B) Species Across All Strata: 4 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 50.0% (A/B) Prevalence Index worksheet: 7. Multiply by: 10 =Total Cover Total % Cover of: Sapling/Shrub Stratum (Plot size: 15 OBL species x 1 = Populus balsamifera **FACW FACW** species 80 x 2 = 160 2. Populus tremula 5 No FAC FAC species 15 x 3 = 45 80 x 4 = 3. FACU species 320 0 4. UPL species x 5 = 0 5. Column Totals: 175 6. Prevalence Index = B/A = 3.00 **Hydrophytic Vegetation Indicators:** 7. 1 - Rapid Test for Hydrophytic Vegetation =Total Cover 2 - Dominance Test is >50% Herb Stratum (Plot size: Solidago canadensis 30 Yes **FACU** 3 - Prevalence Index is ≤3.01 4 - Morphological Adaptations¹ (Provide supporting 2. Tanacetum vulgare Yes **FACU** data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation¹ (Explain) 5. ¹Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in 9. diameter at breast height (DBH), regardless of height. 10. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless 80 =Total Cover of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size: Woody vines - All woody vines greater than 3.28 ft in 1. height. 2. Hydrophytic 3. Vegetation Yes __ Present? No X =Total Cover Remarks: (Include photo numbers here or on a separate sheet.) Photos 1109-1110

	•	o the de	•			tor or co	onfirm the absence of	indicators.)
Depth	Matrix	0/		k Featur		. 2	- .	Б
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-8	10YR 2/1						Sandy	Charcoal mixed in
8-22	7.5YR 2.5/1						Sandy	Gravely Klinkers
								_
						·		
1							2	
	oncentration, D=Depl	etion, RM	I=Reduced Matrix, N	IS=Mas	ked Sand	Grains.		=Pore Lining, M=Matrix.
Hydric Soil I			Dobarduo Dolo	w Curfo	oo (CO) (I	DD D		r Problematic Hydric Soils ³ :
Histosol	(AT) pipedon (A2)		Polyvalue Belo MLRA 149B		ce (So) (L	-KK K,		ck (A10) (LRR K, L, MLRA 149B) airie Redox (A16) (LRR K, L, R)
Black His			Thin Dark Surf		(I RR R	MI RA 1		cky Peat or Peat (S3) (LRR K, L, R)
	n Sulfide (A4)		High Chroma S		-		· —	e Below Surface (S8) (LRR K, L)
	Layers (A5)		Loamy Mucky			-		Surface (S9) (LRR K, L)
	I Below Dark Surface	(A11)	Loamy Gleyed			, ,		ganese Masses (F12) (LRR K, L, R)
	rk Surface (A12)	` ,	Depleted Matri		,			Floodplain Soils (F19) (MLRA 149B)
Sandy M	lucky Mineral (S1)		Redox Dark Su	ırface (F	6)		Mesic Sp	odic (TA6) (MLRA 144A, 145, 149B)
Sandy G	leyed Matrix (S4)		Depleted Dark	Surface	(F7)		Red Pare	nt Material (F21)
	edox (S5)		Redox Depress	sions (F	3)			llow Dark Surface (F22)
	Matrix (S6)		Marl (F10) (LR	R K, L)			Other (Ex	plain in Remarks)
? Dark Sur	face (S7)							
3								
	nyaropnytic vegetati _ayer (if observed):	on and w	etiand nydrology mi	ist be pr	esent, un	iless dist	urbed or problematic.	
Type:	-ayer (ii observed):							
-								
Depth (in	ncnes):	8					Hydric Soil Presen	t? Yes No_X_
Remarks:								0-111
	m is revised from No 2015 Errata. (http://w							S Field Indicators of Hydric Soils,
version 7.0,	2013 Errata. (http://w	ww.iiics.	usua.gov/internet/1 t	JL_DOC	OWILINI	5/11105 14/	2p2_001290.d0cx)	

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 10/19/2018
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS14
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Flat to undulating Slope %: 0-3%
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.568519	Long: -87.393795 Datum: WGS84
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and	
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrologysignificantly distur	
Are Vegetation , Soil , or Hydrology naturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	
	T
Hydrophytic Vegetation Present? Hydric Soil Present? Yes No X Yes No X	Is the Sampled Area within a Wetland? Yes No X
Hydric Soil Present? Wetland Hydrology Present? Yes No _X Yes No	within a Wetland? Yes No X If yes, optional Wetland Site ID:
	il yes, optional wetiand Site ID.
Remarks: (Explain alternative procedures here or in a separate report.) The site has been heavily disturbed by industry, with evidence of fill and so	oil disturbance prevalent throughout the site.
, , ,	,
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (I	B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
X Saturation (A3) Marl Deposits (B15)	? Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor ((C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospheres of	on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced Iro	on (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduction in	n Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C7)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar	rks) Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No x Depth (inches):	
Water Table Present? Yes x No Depth (inches):	
Saturation Present? Yes x No Depth (inches):	
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	

VEGETATION – Use scientific names of plants. Sampling Point: LS14 Absolute Dominant Indicator Tree Stratum (Plot size: 30) % Cover Species? Status **Dominance Test worksheet:** Betula papyrifera Yes **FACU Number of Dominant Species** 2. 20 **FACU** Picea glauca Yes That Are OBL, FACW, or FAC: (A) 5 3. Populus balsamifera **FACW** No **Total Number of Dominant** 4. Species Across All Strata: 4 (B) 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 25.0% (A/B) Prevalence Index worksheet: 7. Multiply by: 55 =Total Cover Total % Cover of: Sapling/Shrub Stratum (Plot size: 15 OBL species x 1 = Populus balsamifera **FACW FACW** species 10 x 2 = 20 0 2. FAC species x 3 = 0 3. 100 x 4 = FACU species 400 0 4. UPL species x 5 = 5. Column Totals: 110 420 Prevalence Index = B/A = 3.82 6. **Hydrophytic Vegetation Indicators:** 7. 5 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% Herb Stratum (Plot size: 5) Yes Solidago canadensis **FACU** 3 - Prevalence Index is ≤3.01 4 - Morphological Adaptations¹ (Provide supporting 2. data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation¹ (Explain) 5. ¹Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in 9. diameter at breast height (DBH), regardless of height. 10. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless 50 =Total Cover of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size: Woody vines - All woody vines greater than 3.28 ft in 1. height. 2. Hydrophytic 3. Vegetation Yes __ Present? No X =Total Cover

Remarks: (Include photo numbers here or on a separate sheet.) Photos 1111-1114

(Inches) Color (moist) % Color (moist) % Type Loc² Texture Remarks 1078 2/1 Sandy 5-14 7.5YR 2/1 70 7.5YR 3/4 30 C M Sandy 14-23 7.5YR 4/2 70 7.5YR 3/4 30 C M Sandy 1799: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. 1790: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. 1790: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. 1790: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. 1700: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Muck (A10) (LRR K, L, MLRA 149B) 1700: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Muck (A10) (LRR K, L, MLRA 149B) 1700: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Muck (A10) (LRR K, L, R, L, R, L) 1700: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Muck (A10) (LRR K, L, L, MLRA 149B) 1700: C=Concentration, D=Depletion, RM=Reduced Sand Muck (A10) (LRR K, L, L, MLRA 149B) 1700: C=Concentration, D=Depletion, RM=Reduced Sand Muck (A10) (LRR K, L, L, R, L, L, R, L, L, L, L, L,	(inches)	Matrix		Redo	x Featur	es			
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. This Data Surface (S9) (LRR K, L, R) Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. This Data Surface (S9) (LRR K, L, R) Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. This Data Surface (S9) (LRR K, L, R) Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. This Data Surface (S9) (LRR K, L, R) Type: C=Concentration, D=Depletion, RM=Reduced Sand Grains. This Data Surface (S1) (LRR K, L, R) Type: C=Concentration, D=Depletion, RM=Reduced Sand Grains. This data form in revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils,	(101103)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
14-23 7.5YR 4/2 70 7.5YR 3/4 30 C M Sandy 1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. 1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	0-5	10YR 2/1						Sandy	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ### Hydric Soil Indicators: Histosol (A1)	5-14	7.5YR 2.5/1						Sandy	Silty/Sandy/ Gravel (fill?)
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. **Location: PL=Pore Lining, M=Matrix. **Hydric Soil Indicators:** Histosol (A1)	14-23	7.5YR 4/2	70	7.5YR 3/4	30	С	М	Sandv	
Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Black Histic (A3) High Chroma Sands (S11) (LRR K, L) Stratified Layers (A5) Depleted Below Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Sandy Redox (S5) Redox Depressions (F8) Stripped Matrix (S6) Marl (F10) (LRR K, L) Depleted Dark Surface (F22) Stripped Matrix (S6) Stripped Matrix (S6) Black Histic (A12) Below Surface (A12) Depleted Dark Surface (F7) Redox Dark Surface (F7) Sandy Redox (S5) Redox Depressions (F8) Wery Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Popheted Dark Surface (S7) Stripped Matrix (S6) Predmont Floodplain Soils (F12) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Stripped Matrix (S6) Marl (F10) (LRR K, L) Hydric Soil Present? Yes No X Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils,				-				, _	
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Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) 3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils,			•			-			
Stripped Matrix (S6)		deved Matrix (SA)							
? Dark Surface (S7) 3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Depth (inches): Hydric Soil Present? Yes No X Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils,	Sandy G		•	Redox Depress		٠,		vory orian	
Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils,	Sandy G	edox (S5)			•			Other (Exp	
Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils,	Sandy G Sandy R Stripped	edox (S5) Matrix (S6)			•			Other (Exp	
Type: Depth (inches): Hydric Soil Present? Yes No X Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils,	Sandy G Sandy R Stripped Park Sur	edox (S5) Matrix (S6) face (S7)		Marl (F10) (LR	R K, L)			<u> </u>	
Depth (inches): Hydric Soil Present? Yes No _X Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils,	Sandy G Sandy R Stripped Park Sur Stripped	edox (S5) Matrix (S6) face (S7) f hydrophytic vegetatio	on and we	Marl (F10) (LR	R K, L)	esent, ui	nless distu	<u> </u>	
Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils,	Sandy G Sandy R Stripped Park Sur Stripped Park Sur	edox (S5) Matrix (S6) face (S7) f hydrophytic vegetatio	on and we	Marl (F10) (LR	R K, L)	resent, ui	nless dist	<u> </u>	
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils,	Sandy G Sandy R Stripped Plank Sur Stripped Restrictive L Type:	edox (S5) Matrix (S6) face (S7) f hydrophytic vegetatic ayer (if observed):	on and we	Marl (F10) (LR	R K, L)	resent, ui	nless dist	urbed or problematic.	olain in Remarks)
Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)	Sandy G Sandy R Stripped Place Dark Sur SIndicators of Restrictive L Type: Depth (in	edox (S5) Matrix (S6) face (S7) f hydrophytic vegetatic ayer (if observed):	on and we	Marl (F10) (LR	R K, L)	resent, ui	nless distu	urbed or problematic.	olain in Remarks)
	Sandy G Sandy R Stripped Plank Sur Type: Depth (in Remarks: This data for	edox (S5) Matrix (S6) face (S7) f hydrophytic vegetational content of the content	thcentral	Marl (F10) (LR etland hydrology mu	R K, L) ust be president of the preside	pplemen	t Version	urbed or problematic. Hydric Soil Present 2.0 to include the NRCS	Polain in Remarks) Programme Temperature (1988)
	Sandy G Sandy R Stripped Plank Sur Type: Depth (in Remarks: This data for	edox (S5) Matrix (S6) face (S7) f hydrophytic vegetational content of the content	thcentral	Marl (F10) (LR etland hydrology mu	R K, L) ust be president of the preside	pplemen	t Version	urbed or problematic. Hydric Soil Present 2.0 to include the NRCS	Polain in Remarks) Programme Temperature (1988)
	Sandy G Sandy R Stripped Plank Sur Type: Depth (in Remarks: This data for	edox (S5) Matrix (S6) face (S7) f hydrophytic vegetational content of the content	thcentral	Marl (F10) (LR etland hydrology mu	R K, L) ust be presented to the present	pplemen	t Version	urbed or problematic. Hydric Soil Present 2.0 to include the NRCS	Polain in Remarks) Programme Transfer of the second secon
	Sandy G Sandy R Stripped Plank Sur Type: Depth (in Remarks: This data for	edox (S5) Matrix (S6) face (S7) f hydrophytic vegetational content of the content	thcentral	Marl (F10) (LR etland hydrology mu	R K, L) ust be presented to the present	pplemen	t Version	urbed or problematic. Hydric Soil Present 2.0 to include the NRCS	Polain in Remarks) Programme Transfer of the second secon
	Sandy G Sandy R Stripped Plank Sur Type: Depth (in Remarks: This data for	edox (S5) Matrix (S6) face (S7) f hydrophytic vegetational content of the content	thcentral	Marl (F10) (LR etland hydrology mu	R K, L) ust be presented to the present	pplemen	t Version	urbed or problematic. Hydric Soil Present 2.0 to include the NRCS	Polain in Remarks) Programme Transfer of the second secon
	Sandy G Sandy R Stripped Plank Sur Type: Depth (in Remarks: This data for	edox (S5) Matrix (S6) face (S7) f hydrophytic vegetational content of the content	thcentral	Marl (F10) (LR etland hydrology mu	R K, L) ust be presented to the present	pplemen	t Version	urbed or problematic. Hydric Soil Present 2.0 to include the NRCS	Polain in Remarks) Programme Transfer of the second secon
	Sandy G Sandy R Stripped Plank Sur Type: Depth (in Remarks: This data for	edox (S5) Matrix (S6) face (S7) f hydrophytic vegetational content of the content	thcentral	Marl (F10) (LR etland hydrology mu	R K, L) ust be presented to the present	pplemen	t Version	urbed or problematic. Hydric Soil Present 2.0 to include the NRCS	Polain in Remarks) Programme Transfer of the second secon
	Sandy G Sandy R Stripped Plank Sur Type: Depth (in Remarks: This data for	edox (S5) Matrix (S6) face (S7) f hydrophytic vegetational content of the content	thcentral	Marl (F10) (LR etland hydrology mu	R K, L) ust be presented to the present	pplemen	t Version	urbed or problematic. Hydric Soil Present 2.0 to include the NRCS	Polain in Remarks) Programme Transfer of the second secon
	Sandy G Sandy R Stripped Plank Sur Type: Depth (in Remarks: This data for	edox (S5) Matrix (S6) face (S7) f hydrophytic vegetational content of the content	thcentral	Marl (F10) (LR etland hydrology mu	R K, L) ust be presented to the present	pplemen	t Version	urbed or problematic. Hydric Soil Present 2.0 to include the NRCS	Polain in Remarks) Programme Transfer of the second secon
	Sandy G Sandy R Stripped Plank Sur Type: Depth (in Remarks: This data for	edox (S5) Matrix (S6) face (S7) f hydrophytic vegetational content of the content	thcentral	Marl (F10) (LR etland hydrology mu	R K, L) ust be presented to the present	pplemen	t Version	urbed or problematic. Hydric Soil Present 2.0 to include the NRCS	Polain in Remarks) Programme Transfer of the second secon
	Sandy G Sandy R Stripped Plank Sur Indicators of Restrictive L Type: Depth (in Remarks: This data for	edox (S5) Matrix (S6) face (S7) f hydrophytic vegetational content of the content	thcentral	Marl (F10) (LR etland hydrology mu	R K, L) ust be presented to the present	pplemen	t Version	urbed or problematic. Hydric Soil Present 2.0 to include the NRCS	Polain in Remarks) Programme Transfer of the second secon

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 10/19/2018					
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS15					
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W					
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Flat to undulating Slope %: 0-3%					
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.568296	Long: -87.393749 Datum: WGS84					
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and						
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)					
Are Vegetation, Soil, or Hydrology significantly disturb						
Are Vegetation , Soil , or Hydrology naturally problema						
SUMMARY OF FINDINGS – Attach site map showing sam						
Hydrophytic Vegetation Present? Yes No X	Is the Sampled Area					
Hydric Soil Present? Yes No X	within a Wetland? Yes No X					
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:					
Remarks: (Explain alternative procedures here or in a separate report.)						
The site has been heavily disturbed by industry, with evidence of fill and so	oil disturbance prevalent throughout the site.					
HYDROLOGY						
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)					
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)					
Surface Water (A1) Water-Stained Leaves (I						
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)					
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)					
Water Marks (B1) Hydrogen Sulfide Odor (
Sediment Deposits (B2) Oxidized Rhizospheres of						
Drift Deposits (B3) Presence of Reduced Iro						
Algal Mat or Crust (B4) Recent Iron Reduction ir						
Iron Deposits (B5) Thin Muck Surface (C7)						
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar						
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)					
<u> </u>						
Field Observations:						
Surface Water Present? Yes No x Depth (inches):						
Water Table Present? Yes No x Depth (inches):						
Saturation Present? Yes x No Depth (inches):	:16 Wetland Hydrology Present? Yes No _X					
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre						
Describe Necorded Data (Stream gauge, monitoring well, aerial priotos, pre	inspections), ii available.					
Remarks:						

VEGETATION – Use scientific names of plants. Sampling Point: LS15 Absolute Dominant Indicator Tree Stratum (Plot size: 30) % Cover Species? Status **Dominance Test worksheet:** Betula papyrifera **FACU Number of Dominant Species** 2. 30 FAC That Are OBL, FACW, or FAC: Populus tremula Yes 2 (A) 3. **Total Number of Dominant** 4. (B) Species Across All Strata: 4 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 50.0% (A/B) Prevalence Index worksheet: 7. Multiply by: 35 =Total Cover Total % Cover of: Sapling/Shrub Stratum (Plot size: 15 OBL species x 1 = Populus tremula FAC **FACW** species 0 x 2 = 0 2. Pinus strobus 5 No **FACU** FAC species 65 x 3 = 195 Abies balsamea 95 x 4 = 3. 5 No FAC FACU species 380 0 4. Picea glauca 10 Yes **FACU** UPL species x 5 = 0 5. Column Totals: 160 575 6. Prevalence Index = B/A = 3.59 **Hydrophytic Vegetation Indicators:** 7. 1 - Rapid Test for Hydrophytic Vegetation =Total Cover 2 - Dominance Test is >50% Herb Stratum (Plot size: Solidago canadensis 70 Yes **FACU** 3 - Prevalence Index is ≤3.01 5 4 - Morphological Adaptations¹ (Provide supporting 2. Tanacetum vulgare **FACU** No data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation¹ (Explain) 5. ¹Indicators of hydric soil and wetland hydrology must

75 =Total Cover

=Total Cover

Definitions of Vegetation Strata:

be present, unless disturbed or problematic.

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Remarks: (Include photo numbers here or on a separate sheet.)

Woody Vine Stratum (Plot size:

Photos 1115-1118

6.

7.

8.

9.

1.

3.

Color (moist)		Color (moist)	% Type¹ Loc²	Sandy Sandy Sandy	Remarks Gravely Klinkers too Klinkers mixed in
5-16 7.5YR 2.5/1 16-21 7.5YR 4/1 Type: C=Concentration, D=D Hydric Soil Indicators: Histosol (A1)	epletion, RM	l=Reduced Matrix, M		Sandy	-
16-21 7.5YR 4/1 Type: C=Concentration, D=D Hydric Soil Indicators: Histosol (A1)	epletion, RM	l=Reduced Matrix, M			-
¹ Type: C=Concentration, D=D Hydric Soil Indicators: Histosol (A1)	epletion, RM	l=Reduced Matrix, M		Sandy	Klinkers mixed in
Hydric Soil Indicators: Histosol (A1)	epletion, RM	l=Reduced Matrix, M			
Hydric Soil Indicators: Histosol (A1)	epletion, RM	I=Reduced Matrix, M			
Hydric Soil Indicators: Histosol (A1)	epletion, RM	l=Reduced Matrix, M			
Hydric Soil Indicators: Histosol (A1)	epletion, RM	I=Reduced Matrix, M			
Hydric Soil Indicators: Histosol (A1)	ppletion, RM	I=Reduced Matrix, M			
Hydric Soil Indicators: Histosol (A1)	epletion, RM	=Reduced Matrix, M			
Hydric Soil Indicators: Histosol (A1)	ppletion, RM	 I=Reduced Matrix, M			
Hydric Soil Indicators: Histosol (A1)	epletion, RM	=Reduced Matrix, M			
Hydric Soil Indicators: Histosol (A1)	epletion, RM	I=Reduced Matrix, M			
Hydric Soil Indicators: Histosol (A1)	epletion, RM	======================================			
Hydric Soil Indicators: Histosol (A1)	epletion, RM	 l=Reduced Matrix, M			
Hydric Soil Indicators: Histosol (A1)	pletion, RM	I=Reduced Matrix, M			
Histosol (A1)			S=Masked Sand Grains.	² Location: PL=Pore I	
		Dobavoluo Polov	w Surface (S9) (LDD D		ematic Hydric Soils ³ :
niono Epipodon (/ L)		MLRA 149B)	w Surface (S8) (LRR R,) (LRR K, L, MLRA 149B) dox (A16) (LRR K, L, R)
Black Histic (A3)		•	, ace (S9) (LRR R, MLRA 149 6		t or Peat (S3) (LRR K, L, R)
Hydrogen Sulfide (A4)			ands (S11) (LRR K, L)		Surface (S8) (LRR K, L)
Stratified Layers (A5)			Mineral (F1) (LRR K, L)		ce (S9) (LRR K, L)
Depleted Below Dark Surfa	ce (A11)	Loamy Gleyed I	Matrix (F2)	Iron-Manganese	Masses (F12) (LRR K, L, R)
Thick Dark Surface (A12)		Depleted Matrix	(F3)	Piedmont Floodp	olain Soils (F19) (MLRA 149B
Sandy Mucky Mineral (S1)		Redox Dark Sur		Mesic Spodic (TA	A6) (MLRA 144A, 145, 149B)
Sandy Gleyed Matrix (S4)		Depleted Dark S		Red Parent Mate	
Sandy Redox (S5)		Redox Depress		Very Shallow Da	
Stripped Matrix (S6)		Marl (F10) (LRF	₹ K, L)	Other (Explain in	Remarks)
? Dark Surface (S7)					
³ Indicators of hydrophytic vege	ation and w	etland hydrology mu	st be present, unless disturbe	ed or problematic.	
Restrictive Layer (if observe):			·	
Type:					
Depth (inches):			l t	Hydric Soil Present?	Yes No _X_
Remarks:			<u></u>		
This data form is revised from					

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 5/30/19					
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS16					
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W					
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Flat to undulating Slope %: 0-3%					
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.56843	Long: -87.3931 Datum: WGS84					
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and						
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)					
Are Vegetationx_, Soilx_, or Hydrologysignificantly disturb						
Are Vegetationx_, Soilx_, or Hydrologynaturally problems	atic? (If needed, explain any answers in Remarks.)					
SUMMARY OF FINDINGS – Attach site map showing sam	pling point locations, transects, important features, etc.					
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area					
Hydric Soil Present? Yes No	within a Wetland? Yes No_X_					
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:					
Remarks: (Explain alternative procedures here or in a separate report.)						
The site has been heavily disturbed by industry, with evidence of fill and so	il disturbance prevalent throughout the site.					
HADBOLOGA						
HYDROLOGY						
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)					
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)					
Surface Water (A1) Water-Stained Leaves (B						
High Water Table (A2) Aquatic Fauna (B13) And Deposits (B15)	Moss Trim Lines (B16)					
Saturation (A3) Marl Deposits (B15) Under Marke (B1)	Dry-Season Water Table (C2) (C1) Crayfish Burrows (C8)					
Water Marks (B1) Hydrogen Sulfide Odor (Sodiment Denoits (B2)	· · · · · · · · · · · · · · · · · · ·					
Sediment Deposits (B2) Drift Deposits (B3) Oxidized Rhizospheres of Presence of Reduced Inc.						
Drift Deposits (B3) Presence of Reduced Iro Algal Mat or Crust (B4) Recent Iron Reduction ir						
Iron Deposits (B5) Thin Muck Surface (C7)	·					
1 						
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar Sparsely Vegetated Concave Surface (B8)	-ks) Microtopographic Relief (D4) X FAC-Neutral Test (D5)					
	A PAC-Neutral Test (D3)					
Field Observations:						
Surface Water Present? Yes No x Depth (inches):						
Water Table Present? Yes No x Depth (inches):						
Saturation Present? Yes No x Depth (inches):	Wetland Hydrology Present? Yes No X					
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections) if available:					
Bosonibe Necestaed Batta (enclair gauge, memicring won, denair priotos, pre	riodo inspositorio), il divalidato.					
Remarks:						

VEGETATION – Use scientific names of plants. Sampling Point: LS16 Dominant Absolute Indicator <u>Tree Stratum</u> (Plot size: 30) % Cover Species? Status **Dominance Test worksheet: Number of Dominant Species** 2. That Are OBL, FACW, or FAC: 2 (A) 3. **Total Number of Dominant** 4. Species Across All Strata: 3 (B) 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 66.7% (A/B) Prevalence Index worksheet: =Total Cover Total % Cover of: Multiply by: Sapling/Shrub Stratum (Plot size: 15 OBL species x 1 = Populus balsamifera **FACW** species 90 x 2 = 180 5 2. FAC species x 3 = 15 0 x 4 = 3. FACU species 0 4. UPL species 0 x 5 = 0 5. Column Totals: 95 (A) 195 2.05 6. Prevalence Index = B/A = **Hydrophytic Vegetation Indicators:** 90 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% Herb Stratum (Plot size: 5) Yes 3 - Prevalence Index is ≤3.01 Taraxacum 4 - Morphological Adaptations¹ (Provide supporting 5 Yes FAC 2. Equisetum arvense data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation¹ (Explain) 5. ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 6. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless 10 =Total Cover of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size: Woody vines - All woody vines greater than 3.28 ft in 1. height. Hydrophytic Vegetation No ___ Present? Yes X =Total Cover Remarks: (Include photo numbers here or on a separate sheet.) Photos 1153-1156, 1173-1174

	•	the dep				tor or co	nfirm the absence of	f indicators	s.)	
Depth (inches)	Matrix Color (moist)	%	Color (moist)	x Featur %	Type ¹	Loc ²	Texture		Remarks	2
,			Odior (moist)		Турс		Texture			
0-16	10YR 2/1							soi	I, coal and k	linkers
								Remarks soil, coal and klinkers PL=Pore Lining, M=Matrix. For Problematic Hydric Soils ³ : suck (A10) (LRR K, L, MLRA 149B) Prairie Redox (A16) (LRR K, L, R) sucky Peat or Peat (S3) (LRR K, L, L) sucky Peat or Peat (S8) (LRR K, L) sucky Peat or Peat (S9) (LRR K, L, L) sucky Peat or Peat (S9		
			_							
¹ Type: C=Co	oncentration, D=Deple	tion, RM	=Reduced Matrix, N	/IS=Mas	ked Sand	l Grains.	² Location: P	L=Pore Lini	ng, M=Matri	X.
Hydric Soil I	ndicators:								-	
Histosol		-	Polyvalue Belo		ce (S8) (I	_RR R,		. , .		•
	ipedon (A2)		MLRA 149B	•						*
Black His	,	-	Thin Dark Surf		-		· · · · · · · · · · · · · · · · · · ·	-		•
	n Sulfide (A4)	-	High Chroma S			-				
	Layers (A5)	(111)	Loamy Mucky			K K, L)				•
	Below Dark Surface	(A11)	Loamy Gleyed		F2)					
	rk Surface (A12) lucky Mineral (S1)	-	Depleted Matri Redox Dark St		·6)					
	leyed Matrix (S4)	-	Depleted Dark						-	A, 143, 143D)
	edox (S5)	-	Redox Depres							2)
	Matrix (S6)	-	Marl (F10) (LR		-,				-	,
	face (S7)	-		, ,			`		,	
_	, ,									
³ Indicators of	hydrophytic vegetation	on and we	etland hydrology m	ust be pr	esent, ur	ıless distı	urbed or problematic.			
Restrictive L	ayer (if observed):									
Type:	Bricks and	stone								
Depth (in	nches):	16					Hydric Soil Preser	nt?	Yes	No
Remarks:						-				
							2.0 to include the NRO	CS Field Inc	licators of H	ydric Soils,
Version 7.0,	2015 Errata. (http://ww	ww.nrcs.u	isda.gov/Internet/F	SE_DOC	CUMENT	S/nrcs142	2p2_051293.docx)			

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 5/30/19				
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS17				
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W				
Landform (hillside, terrace, etc.):	I relief (concave, convex, none): Flat to undulating Slope %: 0-3%				
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.56842	Long: -87.3931 Datum: WGS84				
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and	d gently sloping (66B) NWI classification: None				
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)				
Are Vegetationx _, Soilx _, or Hydrology significantly distur	rbed? Are "Normal Circumstances" present? Yes No x				
Are Vegetation x , Soil x , or Hydrology naturally problems					
SUMMARY OF FINDINGS – Attach site map showing sam	npling point locations, transects, important features, etc.				
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area				
Hydric Soil Present? Yes No	within a Wetland? Yes No X				
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:				
Remarks: (Explain alternative procedures here or in a separate report.) The site has been heavily disturbed by industry, with evidence of fill and so	oil disturbance prevalent throughout the site.				
HYDROLOGY					
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)				
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)				
Surface Water (A1)Water-Stained Leaves ((B9) Drainage Patterns (B10)				
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)				
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)				
Water Marks (B1) Hydrogen Sulfide Odor	(C1) Crayfish Burrows (C8)				
Sediment Deposits (B2) Oxidized Rhizospheres	on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)				
Drift Deposits (B3) Presence of Reduced Ir	ron (C4) Stunted or Stressed Plants (D1)				
Algal Mat or Crust (B4)Recent Iron Reduction is	in Tilled Soils (C6) Geomorphic Position (D2)				
Iron Deposits (B5) Thin Muck Surface (C7)) Shallow Aquitard (D3)				
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remai	rks)Microtopographic Relief (D4)				
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)				
Field Observations:					
Surface Water Present? Yes No x Depth (inches)	j:				
Water Table Present? Yes No x Depth (inches)	y:				
Saturation Present? Yes No x Depth (inches)): Wetland Hydrology Present? Yes No X				
(includes capillary fringe)					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:				
Remarks:					

VEGETATION – Use scientific names of plants. Sampling Point: LS17 Dominant Absolute Indicator <u>Tree Stratum</u> (Plot size: 30) % Cover Species? Status **Dominance Test worksheet: Number of Dominant Species** 2. That Are OBL, FACW, or FAC: 2 (A) 3. **Total Number of Dominant** 4. Species Across All Strata: 3 (B) 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 66.7% (A/B) Prevalence Index worksheet: =Total Cover Total % Cover of: Multiply by: Sapling/Shrub Stratum (Plot size: 15 OBL species x 1 = Populus balsamifera **FACW** species 90 x 2 = 180 2 2. FAC species x 3 = 6 5 x 4 = 3. FACU species 4. UPL species 0 x 5 = 0 97 5. Column Totals: (A) 206 6. Prevalence Index = B/A = 2.12 **Hydrophytic Vegetation Indicators:** 90 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation Herb Stratum (Plot size: X 2 - Dominance Test is >50% **FACU** Tanacetum vulgare Yes 3 - Prevalence Index is ≤3.01 4 - Morphological Adaptations¹ (Provide supporting Yes 2. Equisetum arvense FAC data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation¹ (Explain) 5. ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 6. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless 7 =Total Cover of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size:) Woody vines - All woody vines greater than 3.28 ft in 1. height. Hydrophytic Vegetation No ___ Present? Yes X =Total Cover Remarks: (Include photo numbers here or on a separate sheet.) Photos 1157-1159, 1175-1176

Profile Desc	cription: (Describe	to the de	oth needed to docu	ıment t	he indica	tor or co	onfirm the absence of indicators.)	
Depth	Matrix		Redo	x Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks	
0-20	10YR 2/1						soil, coal and klinkers	
		-						
	oncentration, D=Depl	etion, RM	=Reduced Matrix, N	1S=Mas	ked Sand	l Grains.	² Location: PL=Pore Lining, M=Matrix.	
Hydric Soil							Indicators for Problematic Hydric Soils ³ :	
Histosol			Polyvalue Belo		ce (S8) (I	LRR R,	2 cm Muck (A10) (LRR K, L, MLRA 149B))
	pipedon (A2)		MLRA 149B				Coast Prairie Redox (A16) (LRR K, L, R)	_,
	istic (A3)		Thin Dark Surf					R)
	en Sulfide (A4)		High Chroma S	-		-	Polyvalue Below Surface (S8) (LRR K, L)	
	d Layers (A5)		Loamy Mucky			R K, L)	Thin Dark Surface (S9) (LRR K, L)	
	d Below Dark Surface	e (A11)	Loamy Gleyed		F2)		Iron-Manganese Masses (F12) (LRR K, L,	
	ark Surface (A12)		Depleted Matri				Piedmont Floodplain Soils (F19) (MLRA 1	
	Mucky Mineral (S1)		Redox Dark Su		-		Mesic Spodic (TA6) (MLRA 144A, 145, 14	9B)
	Gleyed Matrix (S4)		Depleted Dark				Red Parent Material (F21)	
	Redox (S5)		Redox Depress		8)		Very Shallow Dark Surface (F22)	
	Matrix (S6)		Marl (F10) (LR	KK,L)			Other (Explain in Remarks)	
— Dark Su	rface (S7)							
³ Indicators o	of hydronhytic vegetat	ion and w	etland hydrology mi	ist he ni	resent ur	nlace dieti	turbed or problematic.	
	Layer (if observed):	ion and w	chana nyarology me	iot bo pi	COOTIL, GI	iledo dist	iarbed of problematic.	
Type:	Bricks an	d stone						
Depth (i		20					Hydric Soil Present? Yes No	
		20					Tryunc don't resent: Tes10	_
Remarks:	rm is ravisad from No	rthcontrol	and Northaast Pag	ional Su	nnlomoni	Vorcion	2.0 to include the NRCS Field Indicators of Hydric Soils	
	2015 Errata. (http://w							,
,	, ,		J	_			,	

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 5/30/19				
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS18				
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W				
• .,	relief (concave, convex, none): Flat to undulating Slope %: 0-3%				
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.56856	Long: -87.3931 Datum: WGS84				
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and					
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)				
Are Vegetation x , Soil x , or Hydrology significantly disturb					
Are Vegetationx_, Soilx_, or Hydrologynaturally problems	atic? (If needed, explain any answers in Remarks.)				
SUMMARY OF FINDINGS – Attach site map showing sam	pling point locations, transects, important features, etc.				
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area				
Hydric Soil Present? Yes No	within a Wetland? Yes No_X_				
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:				
Remarks: (Explain alternative procedures here or in a separate report.)					
The site has been heavily disturbed by industry, with evidence of fill and so	oil disturbance prevalent throughout the site.				
LIVEROLOGY					
HYDROLOGY					
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)				
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)				
Surface Water (A1) Water-Stained Leaves (B					
High Water Table (A2) Aquatic Fauna (B13) And Remarks (B45)	Moss Trim Lines (B16)				
Saturation (A3) Marl Deposits (B15)	? Dry-Season Water Table (C2)				
Water Marks (B1) Hydrogen Sulfide Odor (Sodiment Denoits (B2)					
Sediment Deposits (B2) Drift Deposits (B3) Oxidized Rhizospheres of Presence of Reduced Inc.					
Algal Mat or Crust (B4) Recent Iron Reduction in					
Iron Deposits (B5) Iron Deposits (B5) Thin Muck Surface (C7)	. , , ,				
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar					
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)				
Field Observations:	I AO-Neuliai Test (D3)				
Surface Water Present? Yes No x Depth (inches): Water Table Present? Yes x No Depth (inches):					
Saturation Present? Yes x No Depth (inches):					
(includes capillary fringe)	Wedand Hydrology Freschi: FesNoX				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:				
Remarks:					

VEGETATION – Use scientific names of plants. Sampling Point: LS18 Dominant Indicator Absolute <u>Tree Stratum</u> (Plot size: 30) % Cover Species? Status **Dominance Test worksheet: Number of Dominant Species** 2. That Are OBL, FACW, or FAC: 1 (A) 3. **Total Number of Dominant** 4. Species Across All Strata: 3 (B) 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 33.3% (A/B) Prevalence Index worksheet: =Total Cover Total % Cover of: Multiply by: Sapling/Shrub Stratum (Plot size: 15) OBL species x 1 = Populus balsamifera **FACW** species 70 x 2 = 140 0 2. FAC species x 3 = 0 20 3. FACU species x 4 = 4. UPL species 0 x 5 = 0 5. Column Totals: 90 (A) 220 6. Prevalence Index = B/A = 2.44 **Hydrophytic Vegetation Indicators:** 70 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation Herb Stratum (Plot size: 2 - Dominance Test is >50% Tanacetum vulgare **FACU** Yes 3 - Prevalence Index is ≤3.01 4 - Morphological Adaptations¹ (Provide supporting 2. 10 Yes **FACU** Galium aparine data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation¹ (Explain) 5. ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 6. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless 20 =Total Cover of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size:) Woody vines - All woody vines greater than 3.28 ft in 1. height. Hydrophytic Vegetation No ____ Present? Yes =Total Cover Remarks: (Include photo numbers here or on a separate sheet.) Photos 1148-1152, 1171-72

0-18 18-28	20lor (moist) % 10YR 2/1 10YR 5/4	Color (moist)	% Type	.1 12		
				e ¹ Loc ²	Texture	Remarks
18-28	10YR 5/4					soil, coal and klinkers
					Sandy	
						
		-				
		_		·		
		_				
<u></u> .						
				- ·		
Type: C=Concer	ntration, D=Depletion, I	RM=Reduced Matrix, M	S=Masked S	and Grains.	² Location: PL=Po	re Lining, M=Matrix.
Hydric Soil Indica	ators:				Indicators for Pro	oblematic Hydric Soils ³ :
Histosol (A1)		Polyvalue Belo	-	B) (LRR R,		10) (LRR K, L, MLRA 149B)
Histic Epipedo		MLRA 149B)		D MI DA 4		Redox (A16) (LRR K, L, R)
Black Histic (A Hydrogen Sul	,	Thin Dark Surfa High Chroma S				Peat or Peat (S3) (LRR K, L, R) ow Surface (S8) (LRR K, L)
Stratified Laye		Loamy Mucky N				face (S9) (LRR K, L)
	ow Dark Surface (A11)					se Masses (F12) (LRR K, L, R)
Thick Dark Su		Depleted Matrix				odplain Soils (F19) (MLRA 149E
Sandy Mucky	Mineral (S1)	Redox Dark Su	rface (F6)		Mesic Spodic	(TA6) (MLRA 144A, 145, 149B
Sandy Gleyed		Depleted Dark			Red Parent M	
Sandy Redox	` '	Redox Depress				Dark Surface (F22)
Stripped Matri	` '	Marl (F10) (LRI	₹ K, L)		Other (Explain	ı in Remarks)
Dark Surface	(57)					
³ Indicators of hvdr	ophytic vegetation and	d wetland hydrology mu	st be present	. unless dist	urbed or problematic.	
Restrictive Layer	1 7 0	, 3,		,	'	
Type:						
Depth (inches	s):				Hydric Soil Present?	Yes No
Remarks:						
	evised from Northcent	ral and Northeast Regi	onal Supplem	ent Version	2.0 to include the NRCS Fie	eld Indicators of Hydric Soils,

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 5/30/19				
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS19				
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W				
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Flat to undulating Slope %: 0-3%				
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.5705	Long: <u>-87.3935</u> Datum: <u>WGS84</u>				
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and	gently sloping (66B) NWI classification: None				
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)				
Are Vegetationx, Soilx, or Hydrology significantly disturb					
Are Vegetation x , Soil x , or Hydrology naturally problema					
SUMMARY OF FINDINGS – Attach site map showing sam					
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area				
Hydric Soil Present? Yes No	within a Wetland? Yes No _X_				
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID:				
The soil was very sandy, and the water table is shallow here (approx. 12 incat this location.	oil disturbance prevalent throughout the site. nall depression surrounded by mounds of FACU vegetation (Bracken Fern). ches) but due to to undulating topography there is not a contiguous wetland				
HYDROLOGY					
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)				
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)				
Surface Water (A1) Water-Stained Leaves (B					
X High Water Table (A2) Aquatic Fauna (B13) And Barasita (B45)	Moss Trim Lines (B16)				
X Saturation (A3) — Marl Deposits (B15)	Dry-Season Water Table (C2)				
Water Marks (B1) Hydrogen Sulfide Odor (
Sediment Deposits (B2) Oxidized Rhizospheres of Peduced Irr	<u> </u>				
Drift Deposits (B3) Presence of Reduced Iro	· /				
Algal Mat or Crust (B4) Iron Deposits (B5) Recent Iron Reduction in Thin Muck Surface (C7)	. ,				
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remark					
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)				
	A FAO-Neutral Test (D3)				
Field Observations:					
Surface Water Present? Yes No x Depth (inches):					
Water Table Present? Yes x No Depth (inches): Saturation Present? Yes x No Depth (inches):					
Saturation Present? Yes x No Depth (inches): (includes capillary fringe)	: 3 Wetland Hydrology Present? Yes X No				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	avious inspections) if available:				
Describe Nocorded Data (Stream gauge, memoring won, denial proces, pro	inspections), ii availabie.				
Remarks:					

VEGETATION – Use scientific names of plants. Sampling Point: LS19 Dominant Absolute Indicator Tree Stratum (Plot size: 30) Species? Status **Dominance Test worksheet:** % Cover Populus balsamifera 40 **FACW Number of Dominant Species** 2. 40 Populus tremula Yes FAC That Are OBL, FACW, or FAC: 4 (A) 3. **Total Number of Dominant** 4. Species Across All Strata: (B) 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 100.0% (A/B) Prevalence Index worksheet: 80 =Total Cover Total % Cover of: Multiply by: Sapling/Shrub Stratum (Plot size: 15 OBL species x 1 = Populus balsamifera **FACW** species 50 x 2 = 100 45 2. FAC species x 3 = 135 0 x 4 = 3. FACU species 0 4. UPL species 0 x 5 = 0 5. Column Totals: 95 (A) 235 2.47 6. Prevalence Index = B/A = **Hydrophytic Vegetation Indicators:** 10 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% Herb Stratum (Plot size: Equisetum arvense FAC X 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting 2. data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation¹ (Explain) 5. ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 6. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless 5 =Total Cover of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size:) Woody vines - All woody vines greater than 3.28 ft in 1. height. Hydrophytic Vegetation No __ Present? Yes X =Total Cover Remarks: (Include photo numbers here or on a separate sheet.) Photos 1140-1143, 1160-1164, 1170

Profile Desc Depth	cription: (Describe to Matrix	the de		ıment tl k Featur		itor or co	onfirm the absence of indicators.)
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks
0-3	10YR 2/1						Sandy
3-24	10YR 5/6						Sandy
	10111070						Canay
¹ Type: C=Co	oncentration, D=Deplet	tion, RM	l=Reduced Matrix, M	IS=Mas	ked Sand	l Grains.	² Location: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indicators for Problematic Hydric Soils ³ :
Histosol	• •		Polyvalue Belo		ce (S8) (I	LRR R,	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	pipedon (A2)		MLRA 149B)				Coast Prairie Redox (A16) (LRR K, L, R)
Black Hi	` '		Thin Dark Surfa		-		
	n Sulfide (A4) I Layers (A5)		High Chroma S Loamy Mucky I			-	Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L)
	d Below Dark Surface (A11)	Loamy Gleyed			(Ι(, L)	Iron-Manganese Masses (F12) (LRR K, L,
	ark Surface (A12)	, ,	Depleted Matrix		,		Piedmont Floodplain Soils (F19) (MLRA 14
	lucky Mineral (S1)		Redox Dark Su		6)		Mesic Spodic (TA6) (MLRA 144A, 145, 149
Sandy G	Sleyed Matrix (S4)		Depleted Dark	Surface	(F7)		Red Parent Material (F21)
Sandy R	edox (S5)		Redox Depress		3)		Very Shallow Dark Surface (F22)
	Matrix (S6)		Marl (F10) (LR	R K, L)			Other (Explain in Remarks)
Dark Su	rface (S7)						
³ Indicators of	f hvdrophvtic vegetatio	n and w	retland hydrology mu	ist he nr	esent ur	nlees dist	turbed or problematic
	Layer (if observed):	ii and w	chana nyarology me	ist be pi	CSCIII, UI	iicaa diat	tarbed of problematic.
Type:							
Depth (ir	nches):						Hydric Soil Present? Yes No x
Remarks:							
							n 2.0 to include the NRCS Field Indicators of Hydric Soils,
Version 7.0,	2015 Errata. (http://ww	w.nrcs.	usda.gov/Internet/FS	SE_DOC	CUMENT	S/nrcs14	42p2_051293.docx)

Project/Site: Lakeshore Drive	City/County: Marquette, Marquette Sampling Date: 5/30/19				
Applicant/Owner: City of Marquette	State: MI Sampling Point: LS20				
Investigator(s): Jeff Koch	Section, Township, Range: Section 11, T48N, R25W				
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Flat to undulating Slope %: 0-3%				
Subregion (LRR or MLRA): LRR K, MLRA 93B Lat: 46.57074	Long: -87.3935 Datum: WGS84				
Soil Map Unit Name: Udipsamments-Urban land complex, nearly level and	gently sloping (66B) NWI classification: None				
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes x No (If no, explain in Remarks.)				
Are Vegetationx_ , Soilx_ , or Hydrology significantly disturl	bed? Are "Normal Circumstances" present? Yes No x				
Are Vegetation x , Soil x , or Hydrology naturally problema	atic? (If needed, explain any answers in Remarks.)				
SUMMARY OF FINDINGS – Attach site map showing sam	pling point locations, transects, important features, etc.				
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area				
Hydric Soil Present? Yes No	within a Wetland? Yes No X				
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID:				
The soil was very sandy, and the water table is shallow here (approx. 15.5 wetland at this location.	nall depression surrounded by mounds of FACU vegetation (Bracken Fern).				
HYDROLOGY					
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)				
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)				
Surface Water (A1) Water-Stained Leaves (E					
High Water Table (A2) Aquatic Fauna (B13) And Describe (B45)	Moss Trim Lines (B16)				
X Saturation (A3) — Marl Deposits (B15)	? Dry-Season Water Table (C2)				
Water Marks (B1) Hydrogen Sulfide Odor (Sediment Deposits (B2) Oxidized Rhizospheres of					
Drift Deposits (B3) Presence of Reduced Iron	<u> </u>				
Algal Mat or Crust (B4) Recent Iron Reduction in					
Iron Deposits (B5) Thin Muck Surface (C7)	• • • • • • • • • • • • • • • • • • • •				
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remark					
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)				
Field Observations:					
Surface Water Present? Yes No x Depth (inches):	:				
Water Table Present? Yes x No Depth (inches):					
Saturation Present? Yes x No Depth (inches):					
(includes capillary fringe)					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:				
Remarks:					

VEGETATION – Use scientific names of plants. Sampling Point: LS20 Dominant Absolute Indicator Tree Stratum (Plot size: 30) Species? Status **Dominance Test worksheet:** % Cover Populus balsamifera 40 **FACW Number of Dominant Species** 2. 40 Populus tremula Yes FAC That Are OBL, FACW, or FAC: 4 (A) 3. **Total Number of Dominant** 4. (B) Species Across All Strata: 4 5. Percent of Dominant Species 6. That Are OBL, FACW, or FAC: 100.0% (A/B) Prevalence Index worksheet: 80 =Total Cover Total % Cover of: Multiply by: Sapling/Shrub Stratum (Plot size: 15 OBL species x 1 = Populus balsamifera **FACW** species 50 x 2 = 100 135 2. FAC species x 3 = 405 0 3. FACU species x 4 = 0 4. UPL species 0 x 5 = 0 5. Column Totals: 185 505 6. Prevalence Index = B/A = 2.73 **Hydrophytic Vegetation Indicators:** 10 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% Herb Stratum (Plot size: Yes FAC X 3 - Prevalence Index is ≤3.0¹ Aegopodium podagraria 4 - Morphological Adaptations¹ (Provide supporting 5 2. Equisetum arvense No FAC data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation¹ (Explain) 5. ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 6. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

95 =Total Cover

=Total Cover

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

 Hydrophytic

 Vegetation

 Present?
 Yes __X ___ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Woody Vine Stratum (Plot size:)

Photos 1144-1147, 1165-1169

1.

Profile Desc Depth	ription: (Describe to Matrix	the de		ıment tl k Featur		itor or co	onfirm the absence of indicators.)	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks	
0-12	10YR 2/1						Sandy	
12-24	10YR 5/6						Sandy	
	101111070							
1- 0.0							2 5. 5	
Hydric Soil I	oncentration, D=Deple	tion, RIV	I=Reduced Matrix, N	IS=Mas	ked Sand	Grains.	² Location: PL=Pore Lining, M=Matrix Indicators for Problematic Hydric 8	
Histosol			Polyvalue Belo	w Surfa	ce (S8) (I	LRR R,	2 cm Muck (A10) (LRR K, L, ML	
	pipedon (A2)		MLRA 149B		(-/(,	Coast Prairie Redox (A16) (LRR	
Black His	stic (A3)		Thin Dark Surfa	ace (S9)	(LRR R	MLRA 1	5 cm Mucky Peat or Peat (S3) (I	LRR K, L, R)
Hydroge	n Sulfide (A4)		High Chroma S	Sands (S	311) (LRF	R K, L)	Polyvalue Below Surface (S8) (L	.RR K, L)
	l Layers (A5)		Loamy Mucky I			R K, L)	Thin Dark Surface (S9) (LRR K,	•
	Below Dark Surface ((A11)	Loamy Gleyed		F2)		Iron-Manganese Masses (F12) (•
	ark Surface (A12)		Depleted Matrix		.0)		Piedmont Floodplain Soils (F19)	
	lucky Mineral (S1)		Redox Dark Su		-		Mesic Spodic (TA6) (MLRA 144)	A, 145, 149B)
	eleyed Matrix (S4)		Depleted Dark Redox Depress				Red Parent Material (F21) Very Shallow Dark Surface (F22	\
	edox (S5) Matrix (S6)		Marl (F10) (LR		5)		Other (Explain in Remarks))
? Dark Sur			Wall (F10) (LK	κ κ , ι)			Other (Explain in Remarks)	
Bank Gan	1400 (01)							
³ Indicators of	f hydrophytic vegetatio	n and w	retland hydrology mu	ıst be pr	esent, ur	nless dist	turbed or problematic.	
Restrictive I	_ayer (if observed):							
Type:								
Depth (ir	nches):						Hydric Soil Present? Yes	No
Remarks:								
							2.0 to include the NRCS Field Indicators of Hy	ydric Soils,
Version 7.0,	2015 Errata. (http://ww	w.nrcs.	usda.gov/Internet/FS	SE_DOC	CUMENT	S/nrcs14	2p2_051293.docx)	