WETLAND DELINEATION REPORT

Lilydale Regional Park

City of St. Paul

November 10, 2009

Project Number 000211-09114-0

Bonestroo

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Introduction

This report is prepared for the City of St. Paul to identify wetlands in the Lilydale Park project area, located in the cities of Lilydale and St. Paul, MN. The project area is located portions of Sections 11, 12, 13 and 14, T28N, R23W, Ramsey and Dakota Counties, MN. Figure 1 shows the location of the project area. The field investigation for this wetland delineation was completed on October 13-15, 2009. This report provides the required documentation for wetland boundary determinations in conformance with the Minnesota Wetland Conservation Act and Section 404 of the Clean Water Act. 6

Methods

PRELIMINARY INVESTIGATION:

The National Wetlands Inventory (NWI) was examined with the 2008 aerial photograph to identify potential wetlands on the site (Figure 2). The NWI identified wetlands in the area examined. The Ramsey and Dakota County Soil Surveys were also examined to determine areas of potential wetlands (Figure 3). Chaska silt loam and Kerston muck are hydric soils listed within the area examined. Hydric Soils are good indicators of potential wetland areas. Seven wetlands were identified and delineated in the field (Figure 4) for the project area. Wetland boundaries extend beyond the investigation area. A description of the wetlands based on the field data collected is summarized below in the 'Results' section of the report. Additional information can be found in Appendix A, Wetland Delineation Data Forms.

WETLAND DELINEATION:

Wetlands were identified using standard delineation methodology described in the 1987 Army Corps of Engineers (COE) Wetland Delineation Manual and the Midwest Regional Supplement (2008) as required by both the Minnesota Wetland Conservation Act and Section 404 of the Clean Water Act. To verify a site is wetland, three technical criteria are examined and documented. A combination of the hydric soil, hydrophytic vegetation, and hydrology criteria defines wetlands as described in the National Food Security Act Manual (Soil Conservation Service, 1994) and the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, 1987). Therefore, an area that meets the hydric soil criteria must also meet the hydrophytic vegetation and wetland hydrology criteria in order for it to be classified as a jurisdictional wetland.

A *hydric soil* is a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. The concept of hydric soils includes soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. Soils that are sufficiently wet because of artificial measures are included in the concept of hydric soils. Also, soils in which the hydrology has been artificially modified are hydric if the soil, in an unaltered state, was hydric (USDA, NRCS 2006). A hydric soil list provided by the National Technical Committee for Hydric Soils (NTTCHS) and the County Soil Survey was used to determine the potential locations of hydric soils for this site.

Hydrophytic vegetation is defined as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present. Plant species within the wetland/upland ecotone were recorded as to their percent cover and wetland indicator status according to the National List of Plant Species that occur in wetlands; North Central Region 3 (USFWS Biological Report 88, 26.3; May 1988).

The term *wetland hydrology* encompasses all hydrologic characteristics for areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. COE hydrology criteria consist of inundation or saturation to the surface for at least 5% of the growing season in most years. Areas with evident characteristics for wetland hydrology are those where the presence of water has an overriding influence on the characteristics of vegetation and soils (COE Delineation Manual, 1987).

Soils, vegetation, and hydrology were documented at representative transect locations along the wetland edge. At each transect, the first plot was placed in an area that met the criteria to be a jurisdictional wetland. Subsequent plots were placed upslope until jurisdictional wetland criteria were not met. At least one upland plot and one wetland plot are documented on the Routine Wetland Delineation Data Form filled out for each transect. In some cases, additional plots were needed to clearly establish wetland boundaries. The transect and plot locations are shown on Figure 4. Plant species cover was based on the percent aerial coverage visually estimated within a 30-foot radius of the plot for the tree and vine layer, 15-foot radius for the shrub layer and a 5-foot radius for the herbaceous layer within the community type being sampled. Total vegetation dominance for all strata was determined using the "50/20 rule" (COE Delineation Manual, 1987). Soils observations were made following the NRCS guidelines in the *Field Indicators of Hydric Soils in the United States* V 6.0 (2006). Primary and secondary hydrology indicators were generally evaluated to a depth of 20 inches. Wetland boundaries were marked using pink flags labeled "wetland delineation" and surveyed using a Trimble ProXH sub-meter GPS unit.

Results

WETLAND A

Wetland A is a Type 6 wetland (PSS1A) located along the trail near the fossil pits. Hydrology appears to come from the nearby stream and from runoff and seeps from the adjacent slope. Wetland vegetation is dominated by bluegrass, dogwoods and goldenrods. Saturated soil was encountered at the soil surface and secondary hydrology indicators of B10 – Drainage Patterns and D5 – FAC-Neutral test were recorded at the wetland pit. Soils met the hydric soil field indicator S5 – Sandy redox. The wetland boundary is based on a topographic break and vegetation break.

WETLAND B

Wetland B is a Type 1 wetland (PEMA) seasonally flooded area that appears to act as a storm pond. The wetland vegetation was dominated by green ash, purple loosestrife and common buckthorn. The secondary hydrology indicators of D2 – Geomorphic Position and D5 – FAC-Neutral test were recorded at the wetland pit. Soils met the hydric soil field indicator S5 – Sandy redox. The wetland boundary is based on a topographic break and vegetation break.

WETLAND C

Wetland C is a Type 1 wetland (PEMA) located on a slope above the parking lot on the north end of the investigation area. Wetland vegetation is dominated by boxelder, red-osier dogwood, jewelweed, burdock, and giant goldenrod. Saturation was encountered at the soils urface and the secondary hydrology indicator of D5 – FAC-Neutral test was recorded at the wetland pit. Soils met the hydric soil field indicator A12 – Thick Dark Surface. The wetland boundary is based on a topographic break and vegetation break.

WETLAND D

Wetland D is a Type 2/3 wetland (PEMC) comprised of a shallow marsh and wet meadow communities. It is located along the edge of the northern end of Pickerel Lake. At the wetland pit, wetland vegetation is dominated by reed canary grass, red-osier dogwood and sandbar willow. The secondary hydrology indicators of D2 – Geomorphic Position and D5 – FAC-Neutral test were recorded at the wetland pit. Soils met the hydric soil field indicator A12 – Thick Dark Surface. The wetland boundary is based on a topographic break and vegetation break. The northern boundary of Wetland D had been previously flagged and utility work/pile driving was going on at the time of the field investigation for this area. Therefore, that area is not included in this wetland delineation.

WETLAND E

Wetland E is a Type 1 floodplain forest wetland (PFO1A) located in the floodplain of the Mississippi River. Vegetation is dominated by silver maple and eastern cottonwood. Most of the wetland area was lacking an herbaceous layer, with 90% bare ground. Water marks (B1) were visible and the secondary hydrology indicators of B6 – Surface soil cracks and D5 – FAC-Neutral test were recorded at the wetland pit. Soils met the hydric soil field indicator A12 – Thick Dark Surface. The wetland boundary is based primarily on a topographic break.

WETLAND F

Wetland F is a Type 3 wetland (PEMC) comprised of a shallow marsh community. The wetland appears to be fed by groundwater, with an obvious upwelling point in the wetland. The wetland vegetation was dominated by reed canary grass. Free water was observed at the ground surface therefore indicators A1 and A2 were met. Soils met the hydric soil field indicator F2 – Loamy gleyed matrix. The wetland boundary is based on a vegetation break between upland and wetland species.

WETLAND G

Wetland A is a Type 2/3 wetland (PEMC) fringing the deepwater habitat of Pickerel Lake. The wetland vegetation was dominated by sandbar willow, reed canary grass and cattail. The secondary hydrology indicators of D2 – Geomorphic Position and D5 – FAC-Neutral test were recorded at the wetland pit. Soils met the hydric soil field indicator A11 – Depleted below dark surface. The wetland boundary is based on a topographic break and vegetation break.

*See Appendix A – Wetland Delineation Data Sheets for more information on each wetland.

Conclusion

The procedures followed for this Wetland Delineation Report are in accordance with the 1987 Federal Manual for Identifying and Delineating Jurisdictional Wetlands and the Interim Regional Supplement, Midwest Region (2008). This delineation and wetland assessment describes conditions for narrowly defined periods of time.

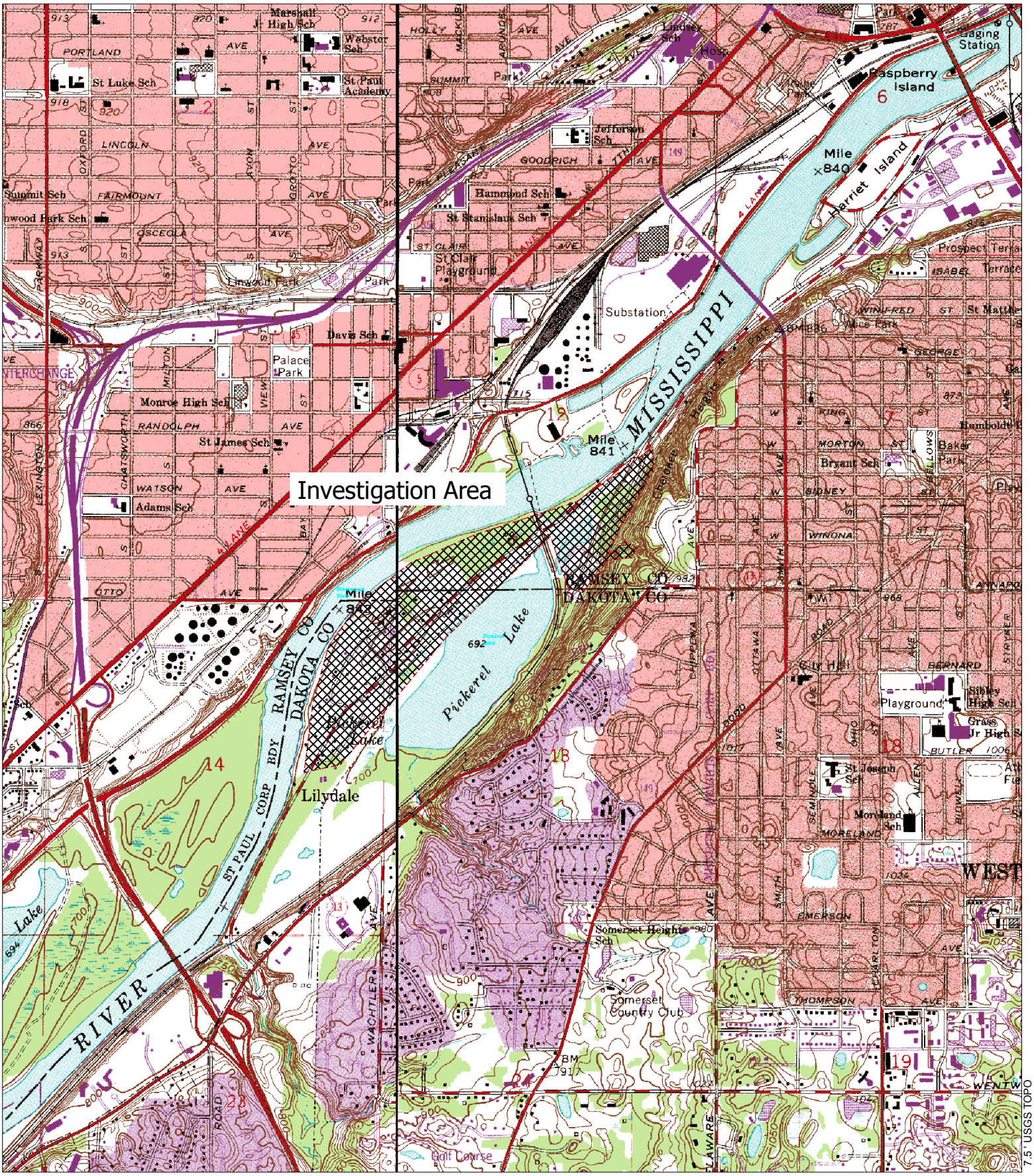
Seven jurisdictional wetlands were identified on site. If unavoidable impacts are proposed for the wetland, permits or exemptions must first be obtained from the proper agencies. These could include: Local Governmental Unit (City), State (DNR), Federal (Army Corps of Engineers), and/or other applicable entities.

BONESTROO

Robb Keizer, WDC #1148
Wetland Scientist

11/10/2009
Date

FIGURES



SITE LOCATOR MAP

FIGURE 1

CITY OF ST. PAUL

LILYDALE REGIOANL PARK

0 2000

Scale in feet

N

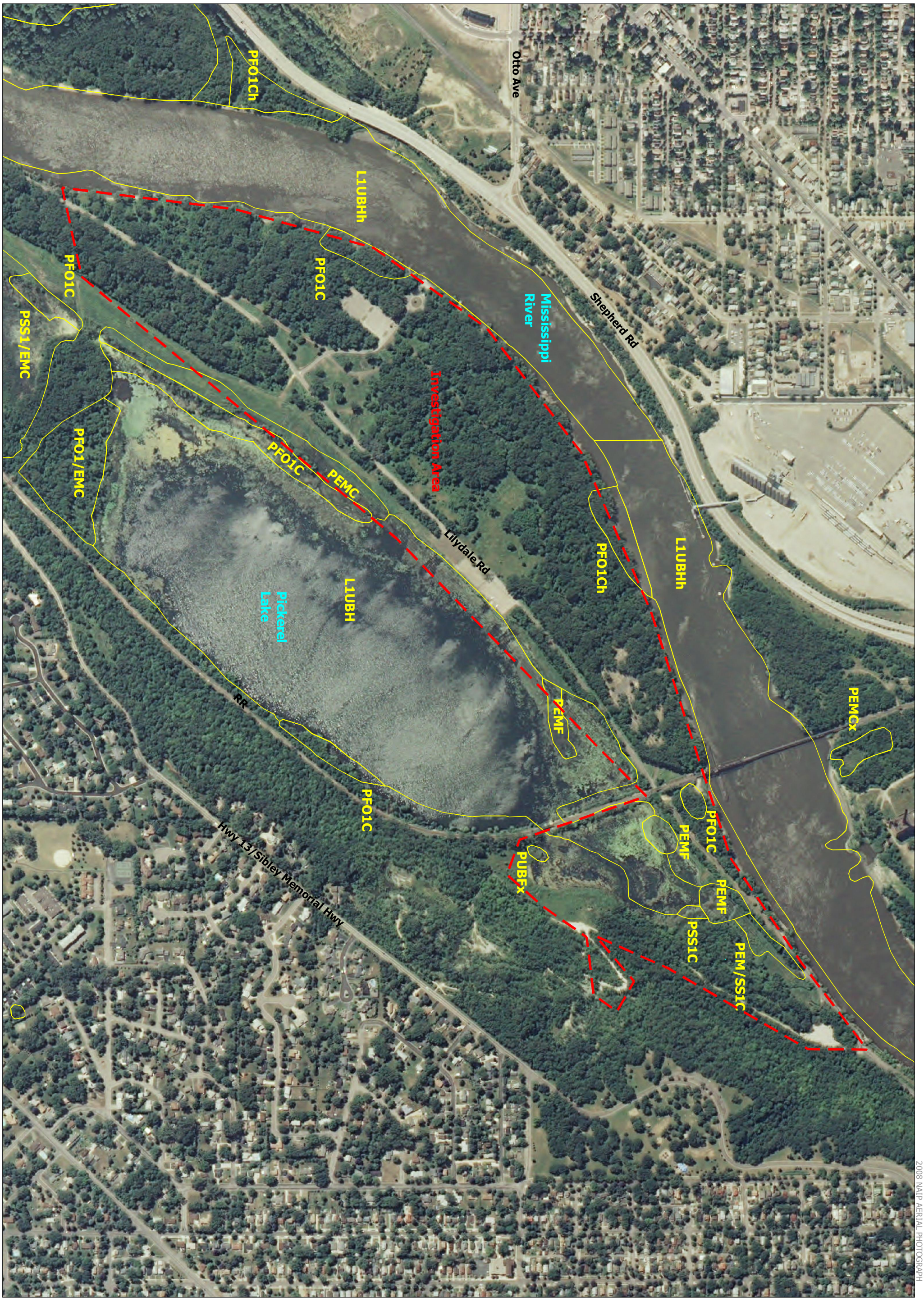
W E

S

Bonestroo

K:\211\211091140\Reports\Environmental\Wetlands\Wetland Delineation 2009.dwg

10 November 2009



NATIONAL WETLAND INVENTORY

FIGURE 2

CITY OF ST. PAUL

LILYDALE REGIONAL PARK

0 550

Scale in feet

N W E S

Bonestroo

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DATE December 2009

2008 NAIP AERIAL PHOTOGRAPH

SOILS KEY (*Listed as MN Hydric Soil):
153B - Santiago silt loam, 2-6% slopes
259B - Grays silt loam, 2-6% slopes
*329 - Chaska silt loam
463 - Minneiska loam, occasionally flooded
*552 - Kerston muck
1013 - Pits, quarry
1027 - Udorthents, wet
1819F - Dorerton-Rock outcrop complex, 25-60% slopes
1898F - Etter-Brodale complex, 25-60% slopes
W - Water

Soil Boundary
PWI Boundary

Shepherd Rd
Mississippi River
Otto Ave
Lilydale Rd
Investigation Area
PICKEREL LAKE (19-79P)
Pickerel Lake
RR
Hwy 13/Sibley Memorial Hwy
552
259B
1819F
329
1027
153B
1013
W
463
1898F

Bonestroo

FIGURE 3

N E S W

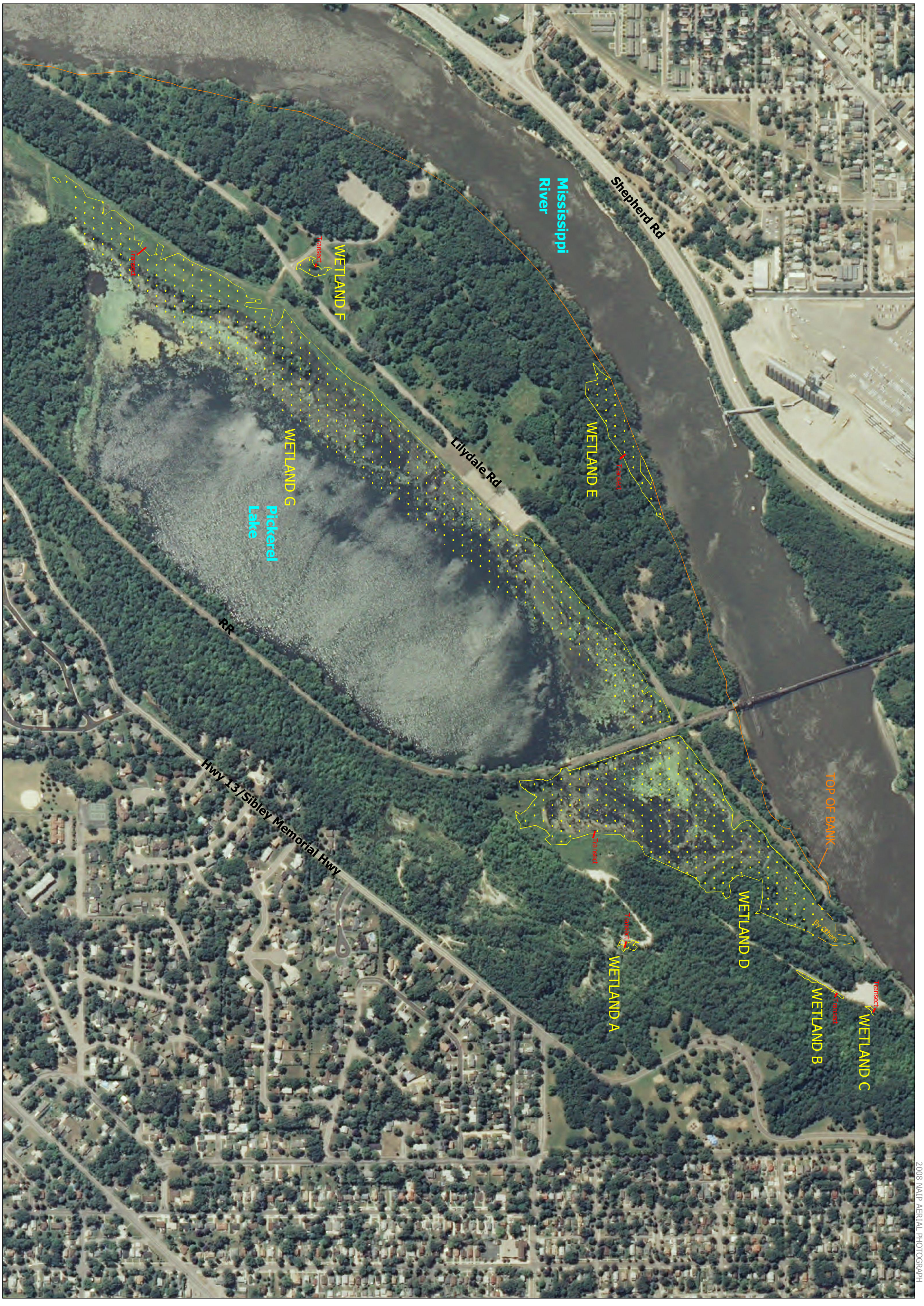
0 550
Scale in feet

DATE: December 2009

RAMSEY/DAKOTA COUNTY SOIL SURVEYS & MN PWI

CITY OF ST. PAUL
LILYDALE REGIONAL PARK

K:\211\21109114O\Reports\Environmental\Wetlands\Wetland Delineation 2009.dwg



DELINEATED WETLAND BOUNDARIES

FIGURE 4

CITY OF ST. PAUL

LILYDALE REGIONAL PARK

0 500

Scale in feet

N W E S

Bonestroo

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DATE December 2009

APPENDIX A

WETLAND DELINEATION DATA FORMS

Project: St. Paul Lilydale Park RAP

Basin : A *Date:* 10/14/2009 *Investigator:* RTK

☑ *This site is a jurisdictional wetland* *Date 2*

Comments

Transect Information

Transect # 1

Normal Conditions: ☑
Atypical Situation: ☐
Problem Area: ☐

Wetland Vegetation Present: ☑
Hydric Soils Present: ☑
Hydrology Present: ☑

Cowardin: PSS1A
NWI Mapped: No
Topographic Setting: Slope
Aerial Photo Year: 2008
Gauge: ☐

Comments
bluegrass, dogwoods. Goldenrods

Near stream on slope, also appears to receive hydrology from seeps.

Pit Descriptions

Pit #: 1

Vegetation Wetland Vegetation Present? ☑

Scientific Name	Common Name	Stratum	Indicator Status	% Cover	Dominant According to 50/20
Cornus stolonifera	redosier dogwood	S	FACW	60.00%	☑
Poa pratensis	Kentucky bluegrass	H	FAC	20.00%	☑
Solidago gigantea	Smooth goldenrod	H	FACW	10.00%	☑

% of dominant species that are OBL, FACW or FAC in Pit: 100

Hydrology Hydrology Present ☑

Depth of Surface Water	Depth to Free Water	Depth to Saturated Soil
N/A	N/A	0"

Hydrology Primary Indicators	Hydrology Secondary Indicators	Hydrologic Alterations
Saturation (A3)	FAC-Neutral Test (D5)	
	Drainage Patterns (B10)	

Soil Hydric Soils Present: ☑ Map Symbol: 1013

Depth (in)	Matrix Color	Mottle Color	Mottle Quantity	Mottle Contrast	Texture
0-5	10YR 3/2				Loam
5-18	10YR 4/1	10YR 4/6	many 20-50%	prominent	Loamy sand

Hydric Soil Indicator:
Sandy Redox

Pit #: 2

Vegetation

Wetland Vegetation Present? ☑

Scientific Name	Common Name	Stratum	Indicator Status	% Cover	Dominant According to 50/20
Cornus stolonifera	redosier dogwood	S	FACW	50.00%	☑
Equisetum pratense	Meadow horsetail	H	FACW	15.00%	☑
Fraxinus pennsylvanica	Green ash	T	FACW	10.00%	☑
Rhus hirta	Staghorn sumac	S	UPL	10.00%	☐
Ulmus americana	American elm	T	FACW-	10.00%	☑

% of dominant species that are OBL, FACW or FAC in Pit: 100

Hydrology

Hydrology Present ☐

Depth of Surface Water	Depth to Free Water	Depth to Saturated Soil
N/A	N/A	N/A

Hydrology Primary Indicators

Hydrology Secondary Indicators

Hydrologic Alterations

Soil

Hydric Soils Present: ☐ Map Symbol: 1013

Depth (in)	Matrix Color	Mottle Color	Mottle Quantity	Mottle Contrast	Texture
0-18	10YR 3/1				Clay

Hydric Soil Indicator:

Project: St. Paul Lilydale Park RAP

Basin : B *Date:* 10/14/2009 *Investigator:* RTK

☑ *This site is a jurisdictional wetland* *Date 2*

Comments

Transect Information

Transect # 1

Normal Conditions: ☑
Atypical Situation: ☐
Problem Area: ☐

Wetland Vegetation Present: ☑
Hydric Soils Present: ☑
Hydrology Present: ☑

Cowardin: PEMA
NWI Mapped: No
Topographic Setting: Flow Through Depression
Aerial Photo Year: 2008
Gauge: ☐

Comments
Reed canary grass, dogwoods and bare soil.

No primary hydrology.

Pit Descriptions

Pit #: 1

Vegetation Wetland Vegetation Present? ☑

Scientific Name	Common Name	Stratum	Indicator Status	% Cover	Dominant According to 50/20
Acer negundo	Box elder	T	FACW	10.00%	☐
Fraxinus pennsylvanica	Green ash	T	FACW	40.00%	☑
Lythrum salicaria	Purple loosestrife	H	OBL	10.00%	☑
Phalaris arundinacea	Reed canary grass	H	FACW	80.00%	☐
Rhamnus cathartica	Common buckthorn	S	FAC	30.00%	☑
Ulmus rubra	Red elm, slippery elm	T	FAC	10.00%	☐
Vitis riparia	Riverbank grape	T	FACW	5.00%	☐

% of dominant species that are OBL, FACW or FAC in Pit: 100

Hydrology Hydrology Present ☑

Depth of Surface Water	Depth to Free Water	Depth to Saturated Soil
N/A	N/A	N/A

Hydrology Primary Indicators	Hydrology Secondary Indicators	Hydrologic Alterations
	Geomorphic Position (D2)	
	FAC-Neutral Test (D5)	

Soil Hydric Soils Present: ☑ Map Symbol: 1027

Depth (in)	Matrix Color	Mottle Color	Mottle Quantity	Mottle Contrast	Texture
0-10	10YR 3/1				Sandy loam
10-20	10YR 5/2	10YR 6/6	common 2-20%	prominent	Sand

Hydric Soil Indicator:
Sandy Redox

Pit #: 2

Vegetation Wetland Vegetation Present? ☑

Scientific Name	Common Name	Stratum	Indicator Status	% Cover	Dominant According to 50/20
Fraxinus pennsylvanica	Green ash	T	FACW	60.00%	☑
Rhamnus cathartica	Common buckthorn	S	FAC	50.00%	☑
Vitis riparia	Riverbank grape	T	FACW	10.00%	☐

% of dominant species that are OBL, FACW or FAC in Pit: 100

Hydrology Hydrology Present ☐

Depth of Surface Water	Depth to Free Water	Depth to Saturated Soil
N/A	N/A	N/A

Hydrology Primary Indicators Hydrology Secondary Indicators Hydrologic Alterations

Soil Hydric Soils Present: ☐ Map Symbol: 1027

Depth (in)	Matrix Color	Mottle Color	Mottle Quantity	Mottle Contrast	Texture
0-18	10YR 2/1				Loam

Hydric Soil Indicator:

Project: St. Paul Lilydale Park RAP

Basin : C *Date:* 10/15/2009 *Investigator:* RTK

☑ *This site is a jurisdictional wetland* *Date 2*

Comments

Transect Information

Transect # 1

Normal Conditions: ☑
Atypical Situation: ☐
Problem Area: ☐

Wetland Vegetation Present: ☑
Hydric Soils Present: ☑
Hydrology Present: ☑

Cowardin: PEMA
NWI Mapped: No
Topographic Setting: Slope
Aerial Photo Year: 2008
Gauge: ☐

Comments

Main source of hydrology is stream from slope.

Pit Descriptions

Pit #: 1

Vegetation Wetland Vegetation Present? ☑

Scientific Name	Common Name	Stratum	Indicator Status	% Cover	Dominant According to 50/20
Acer negundo	Box elder	T	FACW	50.00%	☑
Ageratina altissima	white snakeroot	H	FACU	5.00%	☐
Arctium minus	Common burdock	H	UPL	10.00%	☑
Cornus stolonifera	redosier dogwood	S	FACW	15.00%	☑
Impatiens capensis	Spotted touch-me-not	H	FACW	25.00%	☑
Phalaris arundinacea	Reed canary grass	H	FACW	5.00%	☐
Rhus hirta	Staghorn sumac	S	UPL	5.00%	☑
Solidago gigantea	Smooth goldenrod	H	FACW	10.00%	☑
Ulmus rubra	Red elm, slippery elm	T	FAC	10.00%	☐
Vitis riparia	Riverbank grape	T	FACW	10.00%	☐

% of dominant species that are OBL, FACW or FAC in Pit: 66.66667

Hydrology Hydrology Present ☑

Depth of Surface Water	Depth to Free Water	Depth to Saturated Soil
N/A	N/A	10"

Hydrology Primary Indicators	Hydrology Secondary Indicators	Hydrologic Alterations
Saturation (A3)	FAC-Neutral Test (D5)	

Soil Hydric Soils Present: ☑ Map Symbol: 1027

Depth (in)	Matrix Color	Mottle Color	Mottle Quantity	Mottle Contrast	Texture
0-18	10YR 3/1	10YR 4/6	common 2-20%	prominent	Loam

Hydric Soil Indicator:
Thick Dark Surface

Pit #: 2

Vegetation Wetland Vegetation Present? ☐

Scientific Name	Common Name	Stratum	Indicator Status	% Cover	Dominant According to 50/20
Acer negundo	Box elder	T	FACW	50.00%	☑
Ageratina altissima	white snakeroot	H	FACU	10.00%	☑
Fraxinus pennsylvanica	Green ash	S	FACW	5.00%	☐
Rhamnus cathartica	Common buckthorn	S	FAC	30.00%	☑
Rhus hirta	Staghorn sumac	T	UPL	25.00%	☑

% of dominant species that are OBL, FACW or FAC in Pit: 50

Hydrology Hydrology Present ☐

Depth of Surface Water	Depth to Free Water	Depth to Saturated Soil
N/A	N/A	N/A

Hydrology Primary Indicators Hydrology Secondary Indicators Hydrologic Alterations

Soil Hydric Soils Present: ☐ Map Symbol: 1027

Depth (in)	Matrix Color	Mottle Color	Mottle Quantity	Mottle Contrast	Texture
0-18	10YR 3/2				Sandy loam w/grav

Hydric Soil Indicator:

Project: St. Paul Lilydale Park RAP

Basin : D *Date:* 10/15/2009 *Investigator:* RTK

☑ *This site is a jurisdictional wetland* *Date 2*

Comments

Transect Information

Transect # 1

Normal Conditions: ☑
Atypical Situation: ☐
Problem Area: ☐

Wetland Vegetation Present: ☑
Hydric Soils Present: ☑
Hydrology Present: ☑

Cowardin: PEMC
NWI Mapped: L1UBH
Topographic Setting: Flow Through Depression
Aerial Photo Year: 2008
Gauge: ☐

Comments

North end of Pickerel Lake. Enclosed by railroad. North end of wetland had been delineated by others, Xcel working on power lines on north end.

Pit Descriptions

Pit #: 1

Vegetation Wetland Vegetation Present? ☑

Scientific Name	Common Name	Stratum	Indicator Status	% Cover	Dominant According to 50/20
Cornus stolonifera	redosier dogwood	S	FACW	10.00%	☑
Phalaris arundinacea	Reed canary grass	H	FACW	100.00%	☑
Salix exigua	Sand-bar willow	S	FACW	10.00%	☑

% of dominant species that are OBL, FACW or FAC in Pit: 100

Hydrology Hydrology Present ☑

Depth of Surface Water	Depth to Free Water	Depth to Saturated Soil
N/A	N/A	15"

Hydrology Primary Indicators

Hydrology Secondary Indicators
Geomorphic Position (D2)
FAC-Neutral Test (D5)

Hydrologic Alterations

Soil Hydric Soils Present: ☑ Map Symbol: 1027

Depth (in)	Matrix Color	Mottle Color	Mottle Quantity	Mottle Contrast	Texture
0-20	N 2/0				Mucky loam
20	10YR 4/1				mucky loam

Hydric Soil Indicator:
Thick Dark Surface

Pit #: 2

Vegetation

Wetland Vegetation Present? ☑

Scientific Name	Common Name	Stratum	Indicator Status	% Cover	Dominant According to 50/20
Andropogon gerardii	Big bluestem	H	FAC	5.00%	☐
Heliopsis helianthoides	Ox-eye	H	FACU	10.00%	☐
Panicum virgatum	Switchgrass	H	FAC	40.00%	☑
Poa pratensis	Kentucky bluegrass	H	FAC	30.00%	☑
Urtica dioica	Stinging nettle	H	FACW	5.00%	☐

% of dominant species that are OBL, FACW or FAC in Pit: 100

Hydrology

Hydrology Present ☐

Depth of Surface Water	Depth to Free Water	Depth to Saturated Soil
N/A	N/A	N/A

Hydrology Primary Indicators

Hydrology Secondary Indicators

Hydrologic Alterations

Soil

Hydric Soils Present: ☐ Map Symbol: 1027

Depth (in)	Matrix Color	Mottle Color	Mottle Quantity	Mottle Contrast	Texture
0-18	10YR 3/2	10Yr 4/4	common 2-20%	prominent	Sandy loam

Hydric Soil Indicator:

Project: St. Paul Lilydale Park RAP

Basin : E *Date:* 10/14/2009 *Investigator:* RTK

☑ ***This site is a jurisdictional wetland*** *Date 2*

Comments

Problem area because is a floodplain. Not a continual source of hydrology, but secondary indicators were observed. Hydric soil indicators also observed.

Transect Information

Transect # 1

Normal Conditions: ☑
Atypical Situation: ☐
Problem Area: ☑

Wetland Vegetation Present: ☑
Hydric Soils Present: ☑
Hydrology Present: ☑

Cowardin: PFO1A
NWI Mapped: PFO1Ch
Topographic Setting: Floodplain
Aerial Photo Year: 2008
Gauge: ☐

Comments

Flooplain forest with large areas of bare soil, concave surface.

No standing water or inundation.

Pit Descriptions

Pit #: 1

Vegetation Wetland Vegetation Present? ☑

Scientific Name	Common Name	Stratum	Indicator Status	% Cover	Dominant According to 50/20
Acer saccharinum	Silver maple	T	FACW	50.00%	☑
Populus deltoides	Cottonwood	T	FAC	50.00%	☑
Ulmus rubra	Red elm, slippery elm	T	FAC	20.00%	☐

% of dominant species that are OBL, FACW or FAC in Pit: 100

Hydrology Hydrology Present ☑

Depth of Surface Water	Depth to Free Water	Depth to Saturated Soil
N/A	N/A	N/A

Hydrology Primary Indicators	Hydrology Secondary Indicators	Hydrologic Alterations
Water Marks (B1)	Surface Soil Cracks (B6)	
	FAC-Neutral Test (D5)	

Soil Hydric Soils Present: ☑ Map Symbol: 329

Depth (in)	Matrix Color	Mottle Color	Mottle Quantity	Mottle Contrast	Texture
0-16	10YR 3/1	10YR 4/4	common 2-20%	prominent	Silt loam
16-24	10YR 5/1	10YR 5/6	many 20-50%	prominent	Very fine sand

Hydric Soil Indicator:
Thick Dark Surface

Pit #: 2

Vegetation

Wetland Vegetation Present? ☑

Scientific Name	Common Name	Stratum	Indicator Status	% Cover	Dominant According to 50/20
Acer negundo	Box elder	T	FACW	60.00%	☑
Acer saccharinum	Silver maple	T	FACW	40.00%	☑
Glechoma hederacea	Creeping Charlie, ground i	H	FACU	30.00%	☑

% of dominant species that are OBL, FACW or FAC in Pit: 66.66667

Hydrology

Hydrology Present ☐

Depth of Surface Water	Depth to Free Water	Depth to Saturated Soil
N/A	N/A	N/A

Hydrology Primary Indicators

Hydrology Secondary Indicators
FAC-Neutral Test (D5)

Hydrologic Alterations

Soil

Hydric Soils Present: ☑ Map Symbol: 1027

Depth (in)	Matrix Color	Mottle Color	Mottle Quantity	Mottle Contrast	Texture
0-12	10YR 3/2	10YR 4/6	common 2-20%	prominent	Loam
12-20	10YR 4/1	10YR 4/6	common 2-20%	prominent	Silt loam

Hydric Soil Indicator:
Depleted Below Dark Surface

Project: St. Paul Lilydale Park RAP

Basin : F *Date:* 10/15/2009 *Investigator:* RTK

☑ *This site is a jurisdictional wetland* *Date 2*

Comments

Transect Information

Transect # 1

Normal Conditions: ☑
Atypical Situation: ☐
Problem Area: ☐

Wetland Vegetation Present: ☑
Hydric Soils Present: ☑
Hydrology Present: ☑

Cowardin: PEMC
NWI Mapped: No
Topographic Setting: Tributary Depression
Aerial Photo Year: 2008
Gauge: ☐

Comments

Spring or upwelling area, flowing up from below ground to surface and then ponding.

Pit Descriptions

Pit #: 1

Vegetation Wetland Vegetation Present? ☑

Scientific Name	Common Name	Stratum	Indicator Status	% Cover	Dominant According to 50/20
Celtis occidentalis	Hackberry	T	FAC	50.00%	☑
Cirsium arvense	Canada thistle	H	FACU	5.00%	☐
Lemna minor	Duckweed	H	OBL	5.00%	☐
Phalaris arundinacea	Reed canary grass	H	FACW	100.00%	☑

% of dominant species that are OBL, FACW or FAC in Pit: 100

Hydrology Hydrology Present ☑

Depth of Surface Water	Depth to Free Water	Depth to Saturated Soil
N/A	0"	0"

Hydrology Primary Indicators	Hydrology Secondary Indicators	Hydrologic Alterations
Surface Water (A1)	FAC-Neutral Test (D5)	
High Water Table (A2)		

Soil Hydric Soils Present: ☑ Map Symbol: 463

Depth (in)	Matrix Color	Mottle Color	Mottle Quantity	Mottle Contrast	Texture
0-16	GL 2.5/N				Sandy loam
16-20	7.5YR 4/4	10YR 4/1	common 2-20%	prominent	Sand

Hydric Soil Indicator:
Loamy Gleyed Matrix

Pit #: 2

Vegetation

Wetland Vegetation Present? ☐

Scientific Name	Common Name	Stratum	Indicator Status	% Cover	Dominant According to 50/20
Arctium minus	Common burdock	H	UPL	5.00%	☐
Celtis occidentalis	Hackberry	T	FAC	50.00%	☑
Cirsium arvense	Canada thistle	H	FACU	10.00%	☐
Elymus trachycaulus	slender wheatgrass	H	FACU	10.00%	☐
Panicum virgatum	Switchgrass	H	FAC	10.00%	☐
Poa pratensis	Kentucky bluegrass	H	FAC	80.00%	☑
Solidago canadensis	Tall goldenrod	H	FACU	40.00%	☑

% of dominant species that are OBL, FACW or FAC in Pit: 66.66667

Hydrology

Hydrology Present ☐

Depth of Surface Water	Depth to Free Water	Depth to Saturated Soil
N/A	N/A	N/A

Hydrology Primary Indicators Hydrology Secondary Indicators Hydrologic Alterations

Soil

Hydric Soils Present: ☐ Map Symbol: 463

Depth (in)	Matrix Color	Mottle Color	Mottle Quantity	Mottle Contrast	Texture
0-16	10YR 3/1				Sandy loam
16-24	10YR 6/3				Sand

Hydric Soil Indicator:

Project: St. Paul Lilydale Park RAP

Basin : G *Date:* 10/15/2009 *Investigator:* RTK

☑ ***This site is a jurisdictional wetland*** *Date 2*

Comments
Fringe wetland along Pickerel Lake

Transect Information

Transect # 1

Normal Conditions: ☑
Atypical Situation: ☐
Problem Area: ☐

Wetland Vegetation Present: ☑
Hydric Soils Present: ☑
Hydrology Present: ☑

Cowardin: PEMB/C
NWI Mapped: PEMC
Topographic Setting: Flow Through Depression
Aerial Photo Year: 2008
Gauge: ☐

Comments
Primarily cattail and reed canary grass.

Pit Descriptions

Pit #: 1

Vegetation Wetland Vegetation Present? ☑

Scientific Name	Common Name	Stratum	Indicator Status	% Cover	Dominant According to 50/20
Cirsium arvense	Canada thistle	H	FACU	2.00%	☐
Phalaris arundinacea	Reed canary grass	H	FACW	90.00%	☑
Salix exigua	Sand-bar willow	S	FACW	5.00%	☑
Typha X	Cattail	H	OBL	40.00%	☑

% of dominant species that are OBL, FACW or FAC in Pit: 100

Hydrology Hydrology Present ☑

Depth of Surface Water	Depth to Free Water	Depth to Saturated Soil
N/A	N/A	N/A

Hydrology Primary Indicators

Hydrology Secondary Indicators
Geomorphic Position (D2)
FAC-Neutral Test (D5)

Hydrologic Alterations

Soil Hydric Soils Present: ☑ Map Symbol: 463

Depth (in)	Matrix Color	Mottle Color	Mottle Quantity	Mottle Contrast	Texture
0-4	10YR 3/1				Loam
4-20	10YR 4/1	10YR 4/6	common 2-20%	prominent	Sandy clay loam

Hydric Soil Indicator:
Depleted Below Dark Surface

Pit #: 2

Vegetation

Wetland Vegetation Present? ☑

Scientific Name	Common Name	Stratum	Indicator Status	% Cover	Dominant According to 50/20
Cirsium arvense	Canada thistle	H	FACU	50.00%	☑
Fraxinus pennsylvanica	Green ash	S	FACW	5.00%	☑
Phalaris arundinacea	Reed canary grass	H	FACW	50.00%	☑
Verbena hastata	Blue vervain	H	FACW	2.00%	☐

% of dominant species that are OBL, FACW or FAC in Pit: 66.66667

Hydrology

Hydrology Present ☐

Depth of Surface Water	Depth to Free Water	Depth to Saturated Soil
N/A	N/A	N/A

Hydrology Primary Indicators Hydrology Secondary Indicators Hydrologic Alterations

Soil

Hydric Soils Present: ☐ Map Symbol: 463

Depth (in)	Matrix Color	Mottle Color	Mottle Quantity	Mottle Contrast	Texture
0-16	10YR 2/2				Loam
16-24	10YR 4/2	10YR 4/6	common 2-20%	prominent	Silt loam

Hydric Soil Indicator: