

# WETLAND DELINEATION REPORT

# Lilydale Regional Park

### City of St. Paul

November 10, 2009

Project Number 000211-09114-0



#### LILYDALE REGIONAL PARK - CITY OF ST. PAUL

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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.



Project No: 211-09114 Page 2 *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

fotos Keji

Robb Keizer, WDC #1148 Wetland Scientist

<u>11/10/2009</u> Date



FIGURES









### NATIONAL WETLAND INVENTORY

CITY OF ST. PAUL LILYDALE REGIONAL PARK

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





### RAMSEY/DAKOTA COUNTY SOIL SURVEYS & MN PWI

CITY OF ST. PAUL LILYDALE REGIONAL PARK

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### DELINEATED WETLAND BOUNDARIES

CITY OF ST. PAUL LILYDALE REGIONAL PARK

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

![](_page_11_Picture_4.jpeg)

### APPENDIX A

#### WETLAND DELINEATION DATA FORMS

![](_page_12_Picture_2.jpeg)

Basin: A ✓ This site is a jurisdictional w	etland Da	te: te 2	10/14/2009 Invest	igator:	RTK
Comments					
Transect Information         Transect #       1         Normal Conditions:       ✓         Atypical Situation:       □         Problem Area:       □         Comments       □         bluegrass, dogwoods. Goldenrods	Wetland Vegetation Present: Hydric Soils Present: Hydrology Present:	: V	Cowardin: NWI Mapped: Topographic Setting Aerial Photo Year: Gauge:	PSS1A No Slope 2008	
Near stream on slope, also appear	s to receive hydrology from see	eps.			

Pit Descripti	ions					
Pit #: 1						
Vegetation	Wetland	Vegetation Presen	t? 🗹			
Scientific Na Cornus stolor Poa pratensis Solidago giga	ame nifera s antea	Common Name redosier dogwor Kentucky bluegi Smooth goldenr	Stratum od S rass H rod H	n Indicator Sta FACW FAC FACW	tus % Cover 60.00% 20.00% 10.00%	Dominant According to 50/20 ✓ ✓
% of dominant OBL, FACW or	species that are r FAC in Pit:	100				
Hydrology	Hydrolog	y Present				
Depth of Surf N/A	face Water Dep	th to Free Water N/A	Depth to Sature 0"	urated Soil		
Hydrology Prin Saturation (A3	mary Indicators 3)	Hydrology Sec FAC-Neutral T Drainage Patte	condary Indicators Fest (D5) erns (B10)	Hydrologic Alt	terations	
Soil	Hydric So	ils Present:	Map Symbol: 1	013		
Depth (in) 0-5	Matrix Color 10YR 3/2	Mottle Color	Mottle Quantity	Mottle Contrast	Texture Loam	
5-18	10YR 4/1	10YR 4/6	many 20-5	0% prominent	Loamy sand	
Hydric Soil In Sandy Redox	ndicator:					

### Project: St. Paul Lilydale Park RAP

Vegetation	Wetland V	Vegetation Present?	? 🗸			
Scientific Name		Common Name	Stratum	Indicator Statu	is % Cover	Dominant According to 50/20
Cornus stolonifera		redosier dogwoo	od S	FACW	50.00%	$\checkmark$
Equisetum pratens	e	Meadow horsetai	il H	FACW	15.00%	$\checkmark$
Fraxinus pennsylva	anica	Green ash	Т	FACW	10.00%	$\checkmark$
Rhus hirta		Staghorn sumac	s S	UPL	10.00%	
Ulmus americana		American elm	Т	FACW-	10.00%	$\checkmark$
% of dominant speci OBL, FACW or FAC	es that are in Pit:	100				
Hydrology	Hydrology	y Present				
Depth of Surface W N/A	Vater Dep	th to Free Water N/A	Depth to Satu N/A	irated Soil		
Hydrology Primary I	ndicators	Hydrology Seco	ondary Indicators	Hydrologic Alte	erations	
Soil	Hydric Soi	ls Present:	Map Symbol: 10	013		
Depth (in) Ma	trix Color	Mottle Color	Mottle Quantity	Mottle Contrast	Texture	
0-18	10YR 3/1				Clay	
Hydric Soil Indicate	or:					

Basin: B ✓ This site is a jurisdictional	l wetland	Date: Date 2	10/14/2009	Investigator:	RTK
Comments					
Transect Information					
Transect # 1_					
Normal Conditions: 🗹	Wetland Vegetation P	Present: 🔽	Cowardin:	PEMA	
Atypical Situation:	Hydric Soils Present:	$\checkmark$	NWI Mapp	ed: No	
Problem Area:	Hydrology Present:	$\checkmark$	Topograph	ic Setting: Flow Thi	rough Depression
			Aerial Pho	to Year: 2008	
Comments			Gauge:		
Reed canary grass, dogwoods a	and bare soil.		U U		
No primary hydrology.					
Pit Descriptions					
r u Descriptions					
Pit #: 1	_				
Vegetation Wetland	/egetation Present?				Dominant According
Scientific Name	Common Name	Stratum	Indicator Status	% Cover	to 50/20
Acer negundo	Box elder	Т	FACW	10.00%	
Fraxinus pennsylvanica	Green ash	Т	FACW	40.00%	
Lythrum salicaria	Purple loosestrife	H	OBL	10.00%	
Phalaris arundinacea	Reed canary grass	H	FACW	80.00%	
Rhamnus cathartica		ъ т	FAC	30.00%	
Vitis riparia	Red eim, slippery eim Riverbank grape	т	FAC FACW/	5.00%	
vius ripana	Riverbalik grape	I	FACIV	5.00 %	
% of dominant species that are OBL. FACW or FAC in Pit:	100				
Hudrology Hudrology	Present				
Depth of Surface Water Dev	th to Erea Water De-	th to Saturat-	d Soil		
N/A	N/A	N/A	u 5011		
Hydrology Primary Indicators	Hydrology Secondary I Geomorphic Position (I FAC-Neutral Test (D5)	ndicators D2)	Hydrologic Alterati	ons	
Soil Hydric Soi	ls Present: 🗹 Map Sy	mbol: 1027			
Depth (in) Matrix Color	Mottle Color Mottle	Quantity M	ottle Contrast T	exture	
0-10 10YR 3/1				Sandy loam	
10-20 10YR 5/2	10YR 6/6 co	ommon 2-20%	prominent	Sand	
Hydric Soil Indicator:					
Sandy Redox					

# Project: St. Paul Lilvdale Park RAP

Pit #: 2					
Vegetation Wetla	nd Vegetation Present?				
Scientific Name Fraxinus pennsylvanica Rhamnus cathartica Vitis riparia	Common Name Green ash Common buckthorn Riverbank grape	Stratum T S T	Indicator Status FACW FAC FACW	% Cover 60.00% 50.00% 10.00%	Dominant According to 50/20
% of dominant species that a OBL, FACW or FAC in Pit:	ire 100				
Depth of Surface Water I	Depth to Free Water De	pth to Satura N/A	ated Soil		
Hydrology Primary Indicator	s Hydrology Secondary	Indicators	Hydrologic Altera	ations	
SoilHydricDepth (in)Matrix Cold0-1810YR 2/Hydric Soil Indicator:	Soils Present: D Map S or Mottle Color Mottle 1	symbol: 102 e Quantity	7 Mottle Contrast	Texture Loam	
rigano con maloator.					

Basin: C ✓ This site is a jurisdictional w	etland I	Date: Date 2	10/15/2009	Investigato	or: RTK
Comments					
Transect Information         Transect # 1         Normal Conditions:         Atypical Situation:         Problem Area:         Comments	Wetland Vegetation Prese Hydric Soils Present: Hydrology Present:	ent: V V V	Cowardin: NWI Mapp Topograph Aerial Phot Gauge:	PEN ed: No ic Setting: Slop to Year: 2008	IA e 3
Main source of hydrology is strean	n from slope.				

Project:

St. Paul Lilvdale Park RAP

Pit Descriptions					
<b>Pit #:</b> 1					
Vegetation	Wetland Vegetation Present?				
Scientific Name	Common Name	Stratum	Indicator Status	% Cover	to 50/20
Acer negundo	Box elder	Т	FACW	50.00%	$\checkmark$
Ageratina altissima	white snakeroot	н	FACU	5.00%	
Arctium minus	Common burdock	н	UPL	10.00%	$\checkmark$
Cornus stolonifera	redosier dogwood	S	FACW	15.00%	$\checkmark$
Impatiens capensis	Spotted touch-me-not	н	FACW	25.00%	$\checkmark$
Phalaris arundinace	a Reed canary grass	н	FACW	5.00%	
Rhus hirta	Staghorn sumac	S	UPL	5.00%	$\checkmark$
Solidago gigantea	Smooth goldenrod	н	FACW	10.00%	$\checkmark$
Ulmus rubra	Red elm, slippery elm	Т	FAC	10.00%	
Vitis riparia	Riverbank grape	Т	FACW	10.00%	
% of dominant specie OBL, FACW or FAC ii	s that are 66.66667 n Pit:				
Hydrology	Hydrology Present				
Depth of Surface Wa N/A	ater Depth to Free Water Dep N/A	pth to Saturat 10"	ed Soil		
Hydrology Primary In Saturation (A3)	dicators Hydrology Secondary FAC-Neutral Test (D5	Indicators )	Hydrologic Alterati	ons	
Soil	Hydric Soils Present: 🖌 Map S	ymbol: 1027	,		
Depth (in) Matr 0-18 1	ix Color Mottle Color Mottle 0YR 3/1 10YR 4/6 c	Quantity M common 2-20	Mottle Contrast T % prominent	<sup>°</sup> exture Loam	

Vegetation	Wetland V	egetation Present?				
Scientific Name		Common Name	Stratum	Indicator Status	% Cover	Dominant According to 50/20
Acer negundo		Box elder	Т	FACW	50.00%	
Ageratina altissima		white snakeroot	Н	FACU	10.00%	$\checkmark$
Fraxinus pennsylva	nica	Green ash	S	FACW	5.00%	
Rhamnus cathartica	ı	Common buckthorn	S	FAC	30.00%	$\checkmark$
Rhus hirta		Staghorn sumac	Т	UPL	25.00%	
% of dominant specie OBL, FACW or FAC i Hydrology	s that are n Pit: Hydrology	50 Present				
Depth of Surface Wa	ater Dept	h to Free Water N/A	Depth to Satur N/A	rated Soil		
Hydrology Primary Ir	ndicators	Hydrology Second	lary Indicators	Hydrologic Altera	tions	
Soil	Hydric Soils	s Present: 🗌 Ma	ap Symbol: 10	27		
Depth (in) Mat	rix Color	Mottle Color Mo	ottle Quantity	Mottle Contrast	Texture	
0-18 1	0YR 3/2				Sandy loam w/gra	₹ <b>V</b>
Hydric Soil Indicato	ir:					

Basin: D ✓ This site is a jurisdictional we	etland	Date: Date 2	10/15/2009	Investi	gator:	RTK
Comments						
Transect Information						
Transect #1Normal Conditions:✓Atypical Situation:□Problem Area:□	Wetland Vegetation Pre Hydric Soils Present: Hydrology Present:	esent: V V	Cowardin: NWI Mapp Topograph Aerial Phot	ed: ic Setting: to Year:	PEMC L1UBH Flow Throug 2008	h Depression
Comments			Gauge:			
North end of Pickerel Lake. Enclos north end.	sed by railroad. North end	d of wetland	had been delineated	I by others,	Xcel working	on power lines on

Pit #: 1       Vegetation       Wetland Vegetation Present?       Image: Common Name       Stratum       Indicator Status       % Cover       Dominant According to 50/20         Cornus stolonifera       redosier dogwood       S       FACW       10.00%       Image: Common Name       Stratum       Indicator Status       % Cover       to 50/20         Phalaris arundinacea       Reed canary grass       H       FACW       100.00%       Image: Common Name       Stratum       Stratum<	Vitit       Metland Vegetation Present?       Image: Common Name       Image: Common Name       Dominant A         Scientific Name       Common Name       Stratum       Indicator Status       % Cover       to 50/         Cornus stolonifera       redosier dogwood       S       FACW       10.00%       Image: Common Name         Phalaris arundinacea       Reed canary grass       H       FACW       100.00%       Image: Common Name         Salix exigua       Sand-bar willow       S       FACW       10.00%       Image: Common Name	According
Vegetation       Wetland Vegetation Present?       Image: Common Name       Stratum       Indicator Status       % Cover to 50/20 to 5	VegetationWetland Vegetation Present?Image: Common NameStratumIndicator Status% CoverDominant AScientific NameCommon NameStratumIndicator Status% Coverto 50/Cornus stoloniferaredosier dogwoodSFACW10.00%Image: Common NamePhalaris arundinaceaReed canary grassHFACW100.00%Image: Common NameSalix exiguaSand-bar willowSFACW10.00%Image: Common Name	According
Scientific Name       Common Name       Stratum       Indicator Status       % Cover 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       100       OBL, FACW or FAC in Pit:           Hvdrology       Hydrology Present       ✓           Depth of Surface Water       Depth to Free Water       Depth to Saturated Soil          N/A       N/A       15"           Hydrology Primary Indicators       Hydrologic Alterations       Geomorphic Position (D2)       FAC-Neutral Test (D5)         Soil       Hydric Soils Present:       ✓       Map Symbol:       1027         Depth (in)       Matrix Color       Mottle Color       Mutle Contrast       Texture         0-20       N 2/0       Mucky loam       20       10YR 4/1       mucky loam         20       10YR 4/1       mucky loam       20       10YR 4/1       mucky loam	Scientific NameCommon NameStratumIndicator Status% Coverto 50/Cornus stoloniferaredosier dogwoodSFACW10.00%Image: Common StatusPhalaris arundinaceaReed canary grassHFACW100.00%Image: Common StatusSalix exiguaSand-bar willowSFACW10.00%Image: Common Status	ccording
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       Present       ✓       ✓         Depth of Surface Water       Depth to Free Water       Depth to Saturated Soil N/A       N/A       15 <sup>+</sup> Hydrology Primary Indicators       Hydrologic Alterations Geomorphic Position (D2) FAC-Neutral Test (D5)       Hydrologic Alterations       ✓         Soil       Hydric Soils Present:       ✓       Map Symbol:       1027         Depth (in)       Matrix Color       Mottle Quantity       Mottle Contrast       Texture         0-20       N 2/0       Mucky loam       20       10YR 4/1       mucky loam         20       10YR 4/1       mucky loam       20       10YR 4/1       mucky loam	Cornus stoloniferaredosier dogwoodSFACW10.00%Image: Constraint of the state of the stat	/20
Phalaris arundinacea       Reed canary grass       H       FACW       100.00%       ✓         Salix exigua       Sand-bar willow       S       FACW       10.00%       ✓         % of dominant species that are       100       OBL, FACW or FAC in Pit:            Hvdrology       Hydrology Present       ✓       ✓             Depth of Surface       Water       Depth to Free Water       Depth to Saturated Soil       N/A       15"         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 Contrast       Texture         0-20       N 2/0       Mucky loam       20       10YR 4/1       mucky loam         20       10YR 4/1       mucky loam       20       10YR 4/1       mucky loam	Phalaris arundinaceaReed canary grassHFACW100.00%Image: Comparison of the com	
Salix exigua       Sand-bar willow       S       FACW       10.00%       ✓         % of dominant species that are OBL, FACW or FAC in Pit:       100       Image: Salix exigua       100       Image: Salix exigua       I	Salix exigua Sand-bar willow S FACW 10.00%	
% of dominant species that are 100 OBL, FACW or FAC in Pit:         Hydrology       Hydrology Present         Depth of Surface       Water       Depth to Free Water       Depth to Saturated Soil 15"         N/A       N/A       15"         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         0-20       N 2/0       Mucky loam         20       10YR 4/1       mucky loam         Hydric Soil Indicator:       Hydric Soil Indicator:         Thick Dark Surface       Hydric Soil Present:       Hydric Soil Present:		
Hvdrology Hydrology Present   Depth of Surface Water Depth to Free Water   N/A Depth to Saturated Soil   N/A 15"   Hydrology Primary Indicators Hydrology Secondary Indicators FAC-Neutral Test (D5) Soil Hydric Soils Present:   Map Symbol: 1027 Depth (in) Matrix Color Mottle Color Mottle Quantity Mottle Contrast Mucky Ioam 20 10YR 4/1 Hydric Soil Indicators Hydric Soil Indicators Hydric Soil Indicators	% of dominant species that are 100 OBL, FACW or FAC in Pit:	
Depth of Surface Water       Depth to Free Water       Depth to Saturated Soil         N/A       15"         Hydrology Primary 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         0-20       N 2/0       Mucky loam         20       10YR 4/1       mucky loam         Hydric Soil Indicator:       Thick Dark Surface	Hydrology Hydrology Present	
Hydrology Primary Indicators       Hydrology Secondary Indicators       Hydrologic Alterations         Geomorphic Position (D2)       FAC-Neutral Test (D5)       FAC-Neutral Test (D5)         Soil       Hydric Soils Present:       Map Symbol: 1027         Depth (in)       Matrix Color       Mottle Color       Mottle Contrast       Texture         0-20       N 2/0       Mucky loam         20       10YR 4/1       mucky loam         Hydric Soil Indicator:       Thick Dark Surface	Depth of Surface WaterDepth to Free WaterDepth to Saturated SoilN/AN/A15"	
Soil       Hydric Soils Present:       Map Symbol: 1027         Depth (in)       Matrix Color       Mottle Color       Mottle Quantity         0-20       N 2/0       Mucky loam         20       10YR 4/1       mucky loam         Hydric Soil Indicator:         Thick Dark Surface       Hydric Soil Surface	Hydrology Primary Indicators Hydrology Secondary Indicators Hydrologic Alterations Geomorphic Position (D2)	
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:	FAC-Neutral Test (D5)	
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	Soil Hydric Soils Present: 🖌 Map Symbol: 1027	
0-20N 2/0Mucky loam2010YR 4/1mucky loamHydric Soil Indicator: Thick Dark Surface	Depth (in) Matrix Color Mottle Color Mottle Quantity Mottle Contrast Texture	
20 10YR 4/1 mucky loam Hydric Soil Indicator: Thick Dark Surface	0-20 N 2/0 Mucky loam	
Hydric Soil Indicator: Thick Dark Surface	20 10YR 4/1 mucky loam	
	Hydric Soil Indicator: Thick Dark Surface	

### Project: St. Paul Lilydale Park RAP

Vegetation	Wetland \	egetation Present?	$\checkmark$					
Scientific Name		Common Name	S	tratum	Indicator Statu	15	% Cover	to 50/20
Andropogon gerard	ii	Big bluestem		н	FAC		5.00%	
Heliopsis helianthoi	des	Ox-eye		н	FACU		10.00%	
Panicum virgatum		Switchgrass		н	FAC		40.00%	$\checkmark$
Poa pratensis		Kentucky bluegras	s	н	FAC		30.00%	$\checkmark$
Urtica dioica		Stinging nettle		Н	FACW		5.00%	
% of dominant specie OBL, FACW or FAC i	es that are in Pit:	100						
Hydrology	Hydrology	Present						
Depth of Surface W N/A	ater Dept	h to Free Water N/A	Depth t N	to Saturated	Soil			
Hydrology Primary Ir	ndicators	Hydrology Seco	ndary Indi	cators	Hydrologic Alte	erations		
Soil	Hydric Soil	s Present: 🔲 🛚 🕅	/lap Symb	ol: 1027				
Depth (in) Mat	rix Color	Mottle Color M	Mottle Qu	antity Mo	ottle Contrast	Texture	e	
0-18 1	0YR 3/2	10Yr 4/4	com	mon 2-20%	prominent	San	dy loam	
Hydric Soil Indicate	or:							

Basin: E ✓ This site is a jurisdictional w Comments	petland D	ate: ate 2	10/14/2009	Investigato	or: RTK	
Problem area because is a floodpla indicators also observed.	ain. Not a continual source of	hydrolog	ly, but secondary inc	licators were obs	erved. Hydric soi	
Transect Information						
<b>Transect # 1</b> Normal Conditions: ☑ Atypical Situation: □	Wetland Vegetation Presen	nt: 🗹	Cowardin:	PFO	1A 1Cb	
Problem Area:	Hydric Sous Fresent: Hydrology Present:		Topograph	ic Setting: Floo	dplain	
			Aerial Pho	to Year: 2008	3	
<i>Comments</i> Flooplain forest with large areas o	f bare soil, concave surface.		Gauge:			
No standing water or inundation.						
Pit Descriptions						

1 16 77 1						
Vegetation	Wetland V	Vegetation Present?	$\checkmark$			
Scientific Na	ame	Common Name	Stratum	Indicator Status	% Cover	to 50/20
Acer sacchar	rinum	Silver maple	т	FACW	50.00%	$\checkmark$
Populus delto	oides	Cottonwood	т	FAC	50.00%	$\checkmark$
Ulmus rubra		Red elm, slippery el	m T	FAC	20.00%	
% of dominant OBL, FACW of	species that are r FAC in Pit:	100				
Hydrology	Hydrology	y Present				
Depth of Surf N/A	face Water Dep	th to Free Water N/A	Depth to Saturated N/A	l Soil		
Hydrology Prin Water Marks	mary Indicators (B1)	Hydrology Second Surface Soil Crack	ary Indicators (S (B6)	Hydrologic Altera	tions	
		FAC-Neutral Test	(D5)			
Soil	Hydric Soi	ls Present: 🖌 Ma	p Symbol: 329			
Depth (in)	Matrix Color	Mottle Color Mo	ottle Quantity Mo	ottle 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 In	ndicator:					

### Project: St. Paul Lilydale Park RAP

Vegetation       Wetland Vegetation Present?       Image: Common Name       Stratum       Indicator Status       % Cover to 50/20       Dominant Accordin to 50/20         Acer negundo       Box elder       T       FACW       60.00%       Image: Common Name       Image: Common Name<								
Scientific Name       Common Name       Stratum       Indicator Status       % Coverto       to 50/20         Acer negundo       Box elder       T       FACW       60.00%       ✓         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       66.66667         OBL, FACW or FAC in Pit:       Hydrology Present	Vegetation	Wetland	Vegetation Present	? 🖌				Dominant According
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       66.66667         OBL, FACW or FAC in Pit:       —       —       —         Hydrology       Present	Scientific Name	e	Common Name	Stratu	im Indicato	or Status %	o Cover	to 50/20
Acer saccharinum       Silver maple       T       FACW       40.00%       ✓         Glechoma hederacea       Creeping Charlie, ground i       H       FACU       30.00%       ✓         % of dominant species that are       66.66667         OBL, FACW or FAC in Pit:	Acer negundo		Box elder	Т	FACW		60.00%	$\checkmark$
Glechoma hederacea       Creeping Charlie, ground i       H       FACU       30.00%       ✓         % of dominant species that are OBL, FACW or FAC in Pit:       66.66667         Hvdrology       Hydrology Present	Acer saccharinu	um	Silver maple	Т	FACW		40.00%	$\checkmark$
% of dominant species that are 66.6667         OBL, FACW or FAC in Pit:         Hvdrology       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         FAC-Neutral Test (D5)       FAC-Neutral Test (D5)         Soil       Hydric Soils Present:       Map Symbol: 1027         Depth (in)       Matrix Color       Mottle Color       Mottle Quantity         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       Silt loam       Silt loam	Glechoma hede	eracea	Creeping Charlie	e, ground i H	FACU	:	30.00%	
Hvdrology Hydrology Present   Depth of Surface Water Depth to Free Water   N/A Depth to Saturated Soil   N/A N/A   Hydrology Primary Indicators   Hydrology Primary Indicators Hydrology Secondary Indicators   FAC-Neutral Test (D5)   Soil   Hydric Soils Present: Map Symbol: 1027   Depth (in) Matrix Color   Mottle Color Mottle Quantity   Mottle Contrast Texture   0-12 10YR 3/2   10YR 4/1 10YR 4/6   common 2-20% prominent   Loam   Hydric Soil Indicator: Depted Below Dark Surface	% of dominant sp OBL, FACW or F	ecies that are AC in Pit:	66.66667					
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         FAC-Neutral Test (D5)       FAC-Neutral Test (D5)       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       Silt loam       Silt loam       Silt loam	Hydrology	Hydrolog	y Present					
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         0-12       10YR 3/2       10YR 4/6       common 2-20%       prominent       Loam         12-20       10YR 4/1       10YR 4/6       common 2-20%       prominent       Silt Ioam         Hydric Soil Indicator:       Depted Below Dark Surface       Silt Value       Silt Value       Silt Value	Depth of Surfac N/A	e Water Dep	th to Free Water N/A	Depth to Sa N/A	aturated Soil			
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       Silt Surface       Silt Surface       Silt Surface	Hydrology Prima	ry Indicators	Hydrology Sec FAC-Neutral T	ondary Indicato est (D5)	rs Hydrolog	ic Alterations		
Depth (in)Matrix ColorMottle ColorMottle QuantityMottle ContrastTexture0-1210YR 3/210YR 4/6common 2-20%prominentLoam12-2010YR 4/110YR 4/6common 2-20%prominentSilt loamHydric Soil Indicator: Depleted Below Dark Surface	Soil	Hydric So	ils Present: 🖌	Map Symbol:	1027			
0-1210YR 3/210YR 4/6common 2-20%prominentLoam12-2010YR 4/110YR 4/6common 2-20%prominentSilt loamHydric Soil Indicator: Depleted Below Dark Surface	Depth (in)	Matrix Color	Mottle Color	Mottle Quantit	ty Mottle Cont	rast Texture		
12-20 10YR 4/1 10YR 4/6 common 2-20% prominent Silt loam Hydric Soil Indicator: Depleted Below Dark Surface	0-12	10YR 3/2	10YR 4/6	common	2-20% promin	ent Loam		
Hydric Soil Indicator: Depleted Below Dark Surface	12-20	10YR 4/1	10YR 4/6	common	2-20% promin	ent Silt lo	am	
	Hydric Soil Indi Depleted Below [	cator: Dark Surface						

Basin: F ✓ This site is a jurisdictional w	etland	Date: Date 2	10/15/2009 <i>I</i>	nvestigator:	RTK
Comments					
Transect Information					
Transect #       1         Normal Conditions:       ✓         Atypical Situation:       □         Problem Area:       □	Wetland Vegetation Pres Hydric Soils Present: Hydrology Present:	eent: V V	Cowardin: NWI Mapped: Topographic S Aerial Photo Y Gauge:	PEMC No Setting: Tributary Year: 2008	Depression
Spring or upwelling area, flowing u	p from below ground to sur	face and th	en ponding.		

Project:

St. Paul Lilydale Park RAP

Pit Descriptions							
Pit #: 1							
Vegetation	Wetland V	egetation Present?				Dominant According	
Scientific Name		Common Name	Stratum	Indicator Stat	tus % Cover	to 50/20	
Celtis occidentalis		Hackberry	Т	FAC	50.00%		
Cirsium arvense		Canada thistle	Н	FACU	5.00%		
Lemna minor		Duckweed	Н	OBL	5.00%		
Phalaris arundinac	ea	Reed canary gras	s H	FACW	100.00%	$\checkmark$	
% of dominant species that are 100 OBL, FACW or FAC in Pit: Hvdrology Mydrology 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	s Present: 🖌 🛛 N	Map Symbol: 46	53			
Depth (in) Ma	trix Color	Mottle Color N	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 Indicate Loamy Gleyed Matrix	or: x						

Vegetation	Wetland Ve	getation Present?				
Scientific Name		Common Name	Stratum	Indicator Statu	ıs % Cover	Dominant According to 50/20
Arctium minus		Common burdock	с Н	UPL	5.00%	
Celtis occidentalis		Hackberry	т	FAC	50.00%	
Cirsium arvense		Canada thistle	н	FACU	10.00%	
Elymus trachycaulu	s	slender wheatgras	ss H	FACU	10.00%	
Panicum virgatum		Switchgrass	н	FAC	10.00%	
Poa pratensis		Kentucky bluegras	ss H	FAC	80.00%	$\checkmark$
Solidago canadensi	S	Tall goldenrod	Н	FACU	40.00%	$\checkmark$
% of dominant specie OBL, FACW or FAC i <b>Hvdrologv</b> Depth of Surface W N/A	es that are n Pit: Hydrology F ater Depth	66.66667 Present to Free Water N/A	Depth to Satu N/A	rated Soil		
Hydrology Primary Ir	ndicators	Hydrology Seco	ndary Indicators	Hydrologic Alte	rations	
Soil	Hydric Soils	Present:	Map Symbol: 46	53		
Depth (in) Mat	rix Color	Mottle Color M	Mottle Quantity	Mottle Contrast	Texture	
0-16 1	0YR 3/1				Sandy loam	
16-24 1	0YR 6/3				Sand	
Hydric Soil Indicate	or:					

Basin: G ✓ This site is a jurisdictional w	etland	Date: Date 2	10/15/2009	Investig	gator:	RTK
<i>Comments</i> Fringe wetland along Pickerel Lake						
Transect Information						
Transect #1Normal Conditions:✓Atypical Situation:□Problem Area:□	Wetland Vegetation Pro Hydric Soils Present: Hydrology Present:	esent: 🔽 🗸	Cowardin: NWI Mapp Topograph	ed: ic Setting:	PEMB/C PEMC Flow Through	1 Depression
<i>Comments</i> Primarily cattail and reed canary gr	ass.		Aerial Phot Gauge:	to Year:	2008	

in Descriptions						
Pit #: 1						
Vegetation	Wetland V	Vegetation Present?				
Scientific Name		Common Name	Stratum	Indicator Status	% Cover	to 50/20
Cirsium arvense		Canada thistle	Н	FACU	2.00%	
Phalaris arundinad	ea	Reed canary grass	Н	FACW	90.00%	$\checkmark$
Salix exigua		Sand-bar willow	S	FACW	5.00%	$\checkmark$
Typha X		Cattail	Н	OBL	40.00%	$\checkmark$
% of dominant spec OBL, FACW or FAC	ies that are in Pit:	100				
Hydrology	Hydrology	v Present				
Depth of Surface V N/A	Vater Dep	th to Free Water	Depth to Saturated N/A	1 Soil		
Hydrology Primary	Indicators	Hydrology Seconda Geomorphic Positio FAC-Neutral Test (	ary Indicators on (D2) D5)	Hydrologic Altera	ations	
Soil	Hydric Soi	ls Present: 🖌 Map	o Symbol: 463			
Depth (in) Ma	trix Color	Mottle Color Mo	ttle Quantity Mo	ottle Contrast	Texture	
0-4	10YR 3/1				Loam	
	10YR 4/1	10YR 4/6	common 2-20%	prominent	Sandy clay loam	
4-20						

### Project: St. Paul Lilydale Park RAP

Vegetation	Wetland V	egetation Present?	$\checkmark$			Dominant According
Scientific Name		Common Name	Stratum	Indicator Status	s % Cover	to 50/20
Cirsium arvense		Canada thistle	н	FACU	50.00%	$\checkmark$
Fraxinus pennsylva	anica	Green ash	S	FACW	5.00%	$\checkmark$
Phalaris arundinace	ea	Reed canary grass	s H	FACW	50.00%	$\checkmark$
Verbena hastata		Blue vervain	Н	FACW	2.00%	
% of dominant specie OBL, FACW or FAC	es that are in Pit:	66.66667				
Hydrology	Hydrology	Present				
Depth of Surface W N/A	ater Dept	h to Free Water N/A	Depth to Satura N/A	tted Soil		
Hydrology Primary I	ndicators	Hydrology Secon	idary Indicators	Hydrologic Alter	ations	
Soil	Hydric Soils	s Present: 🗌 M	lap Symbol: 463			
Depth (in) Mat	trix Color	Mottle Color M	Iottle Quantity	Mottle Contrast	Texture	
0-16 <sup>2</sup>	10YR 2/2				Loam	
16-24	10YR 4/2	10YR 4/6	common 2-20	0% prominent	Silt loam	
Hydric Soil Indicate	or:					