Wetland Delineation Report - DRAFT

Bassett Creek Restoration Project Feasibility Study

Prepared for Bassett Creek Watershed Management Commission

March 2016



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1.0 Introduction

Bassett Creek Watershed Management Commission (BCWMC) is submitting a Wetland Delineation Report as part of a study that examines the feasibility of restoring stream reaches damaged by erosion or affected by sedimentation. The project area is located along several reaches of Bassett Creek from Cedar Lake Road to Dupont Avenue North (the new Bassett Creek tunnel entrance) and Second Avenue North (the old Bassett Creek tunnel entrance) (east section), plus the Fruen Mill site between Glenwood Avenue North and the first railroad bridge crossing (west section), Minneapolis, Hennepin County, Minnesota. The project area is within Sections 20 and 21 of Township 29 North, Range 24 West (**Figure 1**).

Creek edges and wetlands fringing the creek were delineated within the project area. Three wetland boundaries and the entire length of the creek were delineated within the project area and are depicted in **Figures 7 and 8**.

This Wetland Delineation Report has been prepared in accordance with the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual ("1987 Manual", USACE, 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (USACE, 2010) and the requirements of the Minnesota Wetland Conservation Act (WCA) of 1991. Barr delineated the wetland boundaries and determined wetland types within the project area on November 25, 2015.

This report includes a project overview (Section 2.0), general environmental information (Section 3.0), descriptions of the delineated wetlands (Section 4.0), and a discussion of regulations and the administering authorities (Section 5.0). The Tables section includes the precipitation data. The Figures section includes the Site Location Map, Topography Maps, National Wetland Inventory (NWI), Public Waters Inventory (PWI), Soil Survey Map and the Wetland and Creek Delineation Maps. **Appendix A** includes Wetland Data Forms, and site photographs are included in **Appendix B**.

Regulatory approval is required for wetland delineations performed as a part of this feasibility study where impacts may occur. A site review should be completed as part of final design during the 2016 growing season. The site review would be conducted by a Technical Evaluation Panel consisting of representatives from the Minnesota Board of Water and Soil Resources, Hennepin County, City of Minneapolis, the Minnesota Department of Natural Resources, and USACE.

2.0 Project Description

The BCWMC Engineer walked the entire project area in September 2015 and identified sites that are candidates for stabilization to address bank erosion, scour, and/or bank failure. Additional site visits were conducted through November and December 2015 to meet with stakeholders on site, check conceptual stabilization alternatives, and observe the creek during different flow conditions. The project area presented in this report was deemed to be the most critical for meeting the BCWMC goals and objectives while providing a cost-effective benefit.

The bank erosion and bank failures throughout the project area appear to be caused by a combination of natural stream erosion processes, problems associated with changing watershed hydrology, and effects of riparian land use. Stream bank erosion is a natural process that occurs at some rate on all alluvial channels, and the natural erosion rate can be accelerated by local and regional changes in land use and hydrology. Stable stream channels are often said to be in a state of "dynamic equilibrium" with their watersheds, and they adjust to changes in the watershed hydrology. It may take many years or decades for a stream to fully adjust to a rapid change in watershed hydrology. The use of best management practices (BMPs) helps to reduce the impacts to streams from development projects. Nonetheless, development and land use changes fundamentally change the hydrology of the watershed, even if the impacts are significantly reduced compared to eras when BMPs were infrequently used. Physical changes and increased rates of erosion often occur as streams adjust to changes in the hydrology, which often include increased magnitude and frequency of high flow events.

3.0 General Environmental Setting

3.1 Site Description

The proposed project area is made up of an east section and west section and is located within City of Minneapolis property. Land use adjacent to the project area is a mixture of industrial facilities and wooded parks and hill slopes. Active and abandoned industrial facilities (including the City's vehicle impound lot) abut portions of the project area. Other portions of the project area include wooded hill slopes, which in the west section are part of the MPRB's Bassett's Creek Park. (**Figure 1**).

3.2 Topography

Most of the project area has steep and abrupt slopes leading into Bassett Creek. Adjacent areas to the creek and wetlands in the west section have abrupt to moderately undulating topography but flat topography on the Fruen Mill property (**Figure 2**). Adjacent areas in the east section of the project area have mostly flat topography due to the presence of parking areas, roads and industrial development closer to the creek (**Figure 3**).

3.3 Precipitation

Recent precipitation data were compared to historic data for evaluating annual and monthly deviations from normal conditions. Simulated precipitation data were obtained from the Minnesota Climatology Working Group, Wetland Delineation Precipitation Data Retrieval from a Gridded Database (http://climate.umn.edu/gridded_data/precip/wetland/wetland.asp) for wetlands in Hennepin County, Township 29 North, Range 24 West, Section 20.

In 2015, antecedent moisture conditions were within the normal range based on precipitation for the three months prior to the November 25, 2015 site visit. These data were obtained from NRCS climate station 214884, NWS: Lower St. Anthony Falls Weather Station (**Table 1**). The water year has varied between normal and wet for the past six years but fell mostly into the wet range from 2010 through 2015 (**Table 2**).

3.4 National Wetland Inventory

The National Wetland Inventory (NWI) Map has identified Bassett Creek as riverine wetland. It was identified as a riverine (R) wetland, lower perennial (2), with an unconsolidated bottom (UB) that has an intermittently exposed hydrologic regime (G) or an R2UBG riverine wetland. A portion of Wetland 2 was mapped as a forested wetland (PFO1A) and Wetland 3 was mapped as an excavated emergent wetland (PEM1Ax). No other NWI wetlands were mapped within the Bassett Creek project area (**Figure 4**).

3.5 Water Resources

The Minnesota Department of Natural Resources (MnDNR) Public Waters Inventory (PWI) has identified Bassett Creek as a public water inventory watercourse (**Figure 5**). Three wetlands and the edges of Bassett Creek were delineated within the project area. Bassett Creek is identified by the Minnesota Pollution

Control Agency (MPCA) as an impaired water because of the presence of chlorides and fish bioassessment results, with aquatic life as their affected use. Fecal Coliform is also noted as a pollutant with aquatic recreation as the affected use.

3.6 Soil Resources

Soil information for the project area was obtained from the Soil Survey of Hennepin County, Minnesota (USDA, 1974). Three soil map units were identified within the project area: Urban land-Udorthents, wet substratum, complex, 0 to 2 percent slopes, rarely flooded (U5A), Urban land-Lester complex, 2 to 18 percent slopes (L52C) and Udorthents, wet substratum, 0 to 2 percent slopes (U2A). All soils mapped within the project area or immediate adjacent areas are non-hydric (**Figure 6**).

4.0 Wetland Delineation

4.1 Wetland Delineation and Classification Methods

Wetlands within the project area were delineated and classified during a site visit on November 25, 2015. The wetland delineation was established according to the Routine On-Site Determination Method specified in the U.S. Army Corps of Engineers Wetlands Delineation Manual (1987 Edition) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (USACE, 2010).

The delineated wetland boundaries, sample points and creek edges were surveyed using a Global Positioning System (GPS) with sub-meter accuracy (**Figures 7 and 8**).

Wetlands were classified using the U.S. Fish and Wildlife Service (USFWS) Cowardin System (Cowardin et al., 1979), the USFWS Circular 39 system (Shaw and Fredine, 1956), and the Eggers and Reed Wetland Classification System (Eggers and Reed, 1977).

Soil borings were placed in and around the delineated wetlands, to a depth of at least 20 inches below the ground surface where possible. Representative soil samples from each boring were examined for the presence of hydric soil indicators using the Natural Resources Conservation Service (NRCS) hydric soil indicators (Version 6.0). Soil colors (e.g., 7.5YR 4/2, etc.) were determined using a Munsell® soil color chart and noted on the Wetland Data Forms **Appendix A**.

Hydrologic conditions were evaluated at each soil boring, and this information was also noted on the Wetland Data Forms. The dominant plant species were identified, and the corresponding wetland indicator status of each plant species was determined and noted on the Wetland Data Forms (**Appendix A**). Photographs taken at the time of the site visit are provided in **Appendix B**.

4.2 Wetland Descriptions

The creek channel and three wetlands were delineated within the project area. Descriptions and assessments of these delineated areas are provided below, with representative photographs in **Appendix B**.

4.2.1 Wetland 1

Wetland 1 is a Type 1 (PEMA), seasonally flooded basin within floodplain located within the west section of the project area within Bassett Creek Park (**Figure 7**). The surrounding area has steep and abrupt slopes leading into Wetland 1 and into Bassett Creek at this location. The abandoned Fruen Mill site is located on the opposite side (east side) of Bassett Creek from Wetland 1 and has flat topography. Flood waters likely encroach Wetland 1 during the growing season which is keeping herbaceous vegetation from proliferating.

There were no herbaceous plants at Wetland Sample Point 1-1 (SP 1-1 WET) because of periodic flooding of the basin. Tree species were present within 30 feet of SP 1-1 WET but were not directly within it.

Primary indicators of hydrology that were observed at the time of the site visit were high water table (A2), saturation (A3), sparsely vegetated concave surface (B6), and water-stained leaves (B9). Geomorphic position (D2) was the only secondary indicator of hydrology present.

Soils mapped at SP 1-1 WET and throughout Wetland 1 were identified as Urban Land-Lester complex, 2-18% slopes. Sampled soils were black at the surface with 5 percent redoximorphic concentrations down to 16 inches with clay loam textures. Soils from 16 inches to 21 inches were brown with 5 percent redoximorhic features with sandy textures. The hydric soil indicator at SP 1-1 WET is redox dark surface (F6).

The transition to upland was defined by the lack of hydrology and hydric soil indicators. Dominant vegetation in upland areas consisted of ash-leaf maple (*Acer negundo*, FAC), burr oak (*Quercus macrocarpa*, FAC) and common buckthorn (*Rhamnus cathartica*, FAC).

4.2.2 Wetland 2

Wetland 2 is a Type 3/6 (PEM/SS1C), shallow marsh and shrub-carr wetland located in the west section of the project area approximately 500 feet downstream from Wetland 1 (**Figure 7**). Wetland 2 is a sloping wetland that appears to be fed by groundwater seepage coming from adjacent uplands. Several small channels extend through the wetland and connect to Bassett Creek.

There was no herbaceous plants at SP 2-1 WET likely die to soil saturation from the groundwater seepage. The remaining area of Wetland 2 was dominated by reed canary grass (*Phalaris arundinacea*, FACW) and narrow-leaf cattail (*Typha angustifolia*, OBL).

Primary indicators of hydrology that were observed were high water table (A2), and saturation (A3). Geomorphic position (D2) was the only secondary indicator of hydrology present at SP 2-1 WET.

Soils mapped at SP 2-1 WET and throughout Wetland 2 were identified as Urban Land-Lester complex, 2-18% slopes. Sampled soils were black mucky-mineral soils down to 10 inches. Soils from 10 inches to 15 inches were brown clays, which became gleyed starting at 15 inches again with clay textures. The hydric soil indicator at SP 2-1 WET is loamy mucky mineral (F1).

The transition to upland was defined by the lack of hydrology and hydric soil indicators. Dominant vegetation in upland areas consisted of burr oak (*Quercus macrocarpa*, FAC) and common buckthorn (*Rhamnus cathartica*, FAC).

4.2.3 Wetland 3

Wetland 3 is a Type 1/3 (PEMA/Fx), seasonally flooded basin and shallow marsh wetland located in the east section of the project area (**Figure 8**). Wetland 3 is an excavated linear wetland with a subsurface connection to Bassett Creek at its south end. Topography within Wetland 3 has a gradual decent from the south end to the north end where it then connects to the old Bassett Creek tunnel entrance at Second Avenue North and continues in a northerly direction underground.

Dominant plants at SP 3-1 WET were late goldenrod (*Solidago gigantea*, FACW), and reed canary grass. Dominant plants at the south end of Wetland 3 were late goldenrod, reed canary grass, and a species of willow (*Salix sp.*). The dominant species within the north-central portion of Wetland 3 was narrow-leaf cattail. There was also a section of non-vegetated open water at the north end of Wetland 3 at the tunnel entrance.

No primary indicators of hydrology were observed at SP 3-1 WET. Secondary indicators of hydrology observed were geomorphic position (D2), and a positive FAC-neutral test (D5).

Soils mapped at SP 3-1 WET and throughout Wetland 3 were identified as Urban Land-Udorthents, wet substratum, 0-2% slopes. Sampled soils were black sandy clay loam down to 2 inches, then transitioned to very dark grayish brown loamy sand with 2 percent redoximorphic features down to 8 inches. From 8 to 15 inches soils were returned to black but with a more yellow hue than the surface layer and had a loamy sand texture and 2 percent redoximorphic features. The hydric soil indicators at SP 3-1 WET are sandy redox (S5) and redox dark surface (F6).

The transition to upland was defined by the lack of hydrology and hydric soil indicators. Dominant vegetation in upland areas consisted of Kentucky bluegrass (*Poa pratensis*, FAC).

4.2.4 Delineated Creek Channel

Within the project area, Bassett Creek is a low-gradient, channelized stream that flows through an unconfined alluvial valley that was historically occupied by wetlands in places.

Bassett Creek in the project area has an approximate average bankfull depth of 2.5 to 3 feet, and an approximate bankfull width of 25 to 30 feet. The stream is channelized throughout the project area and does not include any significant meandering; the stream is confined to a channel with lower banks between 2.5 feet and 6.5 feet high with little or no floodplain.

Water flow within the creek channel had a slow to medium velocity and substrate was sandy and rocky in most of the shallow areas and more silty in deeper areas. No emergent, or aquatic plants were observed within the creek channel. Mixed hardwood trees and shrubs were dominant at higher elevations adjacent to the creek.

Within the project area, the entire creek channel was delineated as a linear waterway and classified using the USFWS Cowardin System. The creek channel within the project area was classified as an R2UBG linear waterway (**Figures 7 and 8**), which concurs with the NWI designation.

5.0 Regulatory Overview

The USACE regulates the placement of dredge or fill materials into wetlands that are located adjacent to or are hydrologically connected to interstate or navigable waters under the authority of Section 404 of the Clean Water Act. If the USACE has jurisdiction over any portion of a project, they may also review impacts to wetlands under the authority of the National Environmental Policy Act.

Filling, excavating, and draining wetlands are also regulated by the Minnesota Wetland Conservation Act (WCA), and the Minnesota Public Waters Inventory Program, which are administered by the City of Minneapolis and the Minnesota Department of Natural Resources (DNR) respectively. The USACE, the City of Minneapolis and the DNR should be contacted before altering any wetlands within the project area. In addition, delineated wetland boundaries may be reviewed, if needed, by a Technical Evaluation Panel (TEP) consisting of representatives from the Minnesota Board of Water and Soil Resources, and Hennepin County, along with the City of Minneapolis, DNR and USACE.

6.0 References

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- Eggers, S.D. and Reed, D.M. 1997. Wetland Plants and Plant Communities of Minnesota and Wisconsin. U.S. Army Corps of Engineers, St. Paul District. St. Paul, Minnesota.
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- Shaw, S.P., and C.G. Fredine. 1956. Wetlands of the United States. U.S. Fish and Wildlife Service, Circular 39. 67pp.
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- U.S. Army Corps of Engineers. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region*. August 2010. Wetlands Regulatory Assistance Program.
- U.S. Army Corps of Engineers. 1987. 1987 U.S. Army Corps of Engineers Wetland Delineation Manual. Wetlands Research Program Technical Report Y-87-1 (on-line edition). Waterways Experiment Station, Vicksburg, Mississippi.
- U.S. Fish and Wildlife Service. 1956. *Wetlands of the United States Circular 39*. U.S. Government Printing Office, Washington, D.C.

Tables

Table 1 Antecedent Moisture Conditions Prior to November 25, 2015 Site Visit Basset Creek Restoration Project Feasibility Study Wetland Delineation Minneapolis, MN

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:

County: HennepinTownship Number: 29NTownship Name: unnamedRange Number: 24WNearest Community: Glenwood JunctionSection Number: 20

Aerial photograph or site visit date:

Wednesday, November 25, 2015

Score using 1981-2010 normal period

(value are in inches)	first prior month:	second prior month:	third prior month:			
	October 2015	September 2015	August 2015			
estimated precipitation total for this location:	2.77	3.75	3.15			
there is a 30% chance this location will have less	1.33	2.16	3.51			
than:	1.55	2.10	5.51			
there is a 30% chance this location will have	3.64	3.97	5.08			
more than:	5.04	5.97	3.06			
type of month: dry normal wet	normal	normal	dry			
monthly score	3 * 2 = 6	2 * 2 = 4	1 * 1 = 1			
multi-month score:	11 / 10					
6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)		11 (normal)				

Table 2 Precipitation in Comparison to WETS Data Basset Creek Restoration Project Feasibility Study Wetland Delineation Minneapolis, MN

Precipitation data for target wetland location:

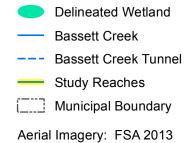
County: RamseyTownship Number: 29NTownship Name: unnamedRange Number: 24WNearest Community: Glenwood JunctionSection Number: 20

Precipitation Totals are in Inches					
Color Key	Multi-month Totals:				
total is in lowest 30th percentile of the period-of-record distribution	WARM = warm season (May thru September)				
total is => 30th and <= 70th percentile	ANN = calendar year (January thru December)				
total is in highest 30th percentile of the period-of-record distribution	WAT = water year (Oct. previous year thru Sep.				
	present year)				

						Period-of	-Record	Summary	Statistics	5					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	WARM	ANN	WAT
30%	0.52	0.49	1.11	1.63	2.57	3.14	2.33	2.57	1.94	1.23	0.71	0.55	16.05	25.99	26.20
70%	1.06	1.13	2.03	2.87	4.20	5.46	4.56	4.43	3.74	2.60	1.84	1.35	21.34	32.49	31.60
mean	0.89	0.89	1.66	2.41	3.63	4.46	3.81	3.60	3.04	2.20	1.53	1.03	18.53	29.14	29.14
	1981-2010 Summary Statistics														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	WARM	ANN	WAT
30%	0.54	0.41	1.37	2.18	2.66	3.57	2.81	3.51	2.16	1.33	1.09	0.70	18.11	30.39	28.23
70%	1.23	1.03	2.06	3.05	4.11	5.30	4.97	5.08	3.97	3.64	2.10	1.54	22.11	34.59	36.30
mean	0.90	0.79	1.93	2.84	3.65	4.56	4.41	4.20	3.44	2.61	1.87	1.25	20.26	32.45	32.26
	Year-to-Year Data														
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	WARM	ANN	WAT
2015	0.32	0.31	0.70	2.20	4.45	3.72	6.89	3.15	3.75	2.77	4.31	2.10	21.96	34.67	28.82
2014	1.11	1.32	0.76	6.80	4.05	10.19	2.95	2.82	2.03	1.16	1.13	1.04	22.04	35.36	38.41
2013	0.81	1.19	1.99	4.53	5.22	7.39	4.26	1.92	1.25	4.21	0.62	1.55	20.04	34.94	32.43
2012	0.57	1.91	1.54	3.07	9.09	3.72	4.82	1.54	0.42	1.33	0.94	1.60	19.59	30.55	28.78
2011	0.97	1.06	2.46	3.20	5.31	4.45	7.18	4.09	0.56	0.95	0.24	0.91	21.59	31.38	36.42
2010	0.65	0.81	0.91	2.14	2.71	6.53	4.59	6.55	6.07	1.93	1.86	3.35	26.45	38.10	39.94
2009	0.54	1.13	1.73	1.62	0.35	3.32	1.21	6.54	0.63	6.04	0.55	2.39	12.05	26.05	21.69
2008	0.15	0.55	2.04	4.15	2.51	3.90	2.09	2.52	2.12	1.71	1.33	1.58	13.14	24.65	27.10
2007	0.68	1.56	3.67	2.14	3.05	1.97	2.36	6.51	5.46	5.04	0.11	1.92	19.35	34.47	31.34
2006	0.92	0.39	1.81	3.56	3.30	3.68	2.55	6.69	2.97	0.59	1.06	2.29	19.19	29.81	33.87
2005	1.33	1.11	1.25	2.75	3.42	5.52	3.11	3.97	6.41	4.88	1.72	1.40	22.43	36.87	34.26
2004	0.54	1.62	2.26	2.97	6.01	3.83	4.14	1.40	4.66	3.75	1.11	0.53	20.04	32.82	30.52
2003	0.35	0.93	1.76	2.85	5.76	7.90	1.83	0.42	2.02	0.93	1.18	0.98	17.93	26.91	28.31
2002	0.53	0.61	2.11	3.95	3.65	8.50	5.84	6.14	3.90	4.13	0.07	0.29	28.03	39.72	40.03
2001	1.34	1.51	1.07	7.39	5.67	5.14	2.28	2.73	4.12	0.95	3.17	0.68	19.94	36.05	38.10
2000	0.99	1.18	1.17	1.38	4.18	3.78	6.68	3.71	3.20	1.13	4.19	1.53	21.55	33.12	28.04
1999	1.48	0.35	1.93	3.62	6.69	5.21	5.21	3.82	2.93	0.60	0.81	0.36	23.86	33.01	36.25
1998	1.49	0.71	3.73	2.20	4.32	4.66	2.86	4.88	1.06	2.76	1.70	0.55	17.78	30.92	29.03
1997	1.71	0.15	1.52	1.11	1.92	3.95	12.53	5.18	2.89	2.01	0.85	0.26	26.47	34.08	42.13
1996	2.13	0.23	1.80	0.80	3.47	3.93	1.87	1.32	1.49	3.91	5.56	1.70	12.08	28.21	24.68

Figures







Feet 500 0 500 1,000 1,500 2,000



FIGURE 1

PROJECT LOCATION

Main Stem Stabilization-Delineation

Bassett Creek Watershed

Management Commission



Delineated Wetland
Stream Channel
10-Foot Contour
2-Foot Contour

Aerial Imagery: MN DNR 2012



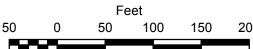




FIGURE 2

TOPOGRAPHY (WEST)
Main Stem Stabilization-Delineation
Bassett Creek Watershed
Management Commission



Delineated Wetland
Stream Channel

10-Foot Contour

2-Foot Contour

Aerial Imagery: MN DNR 2012



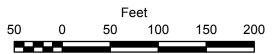
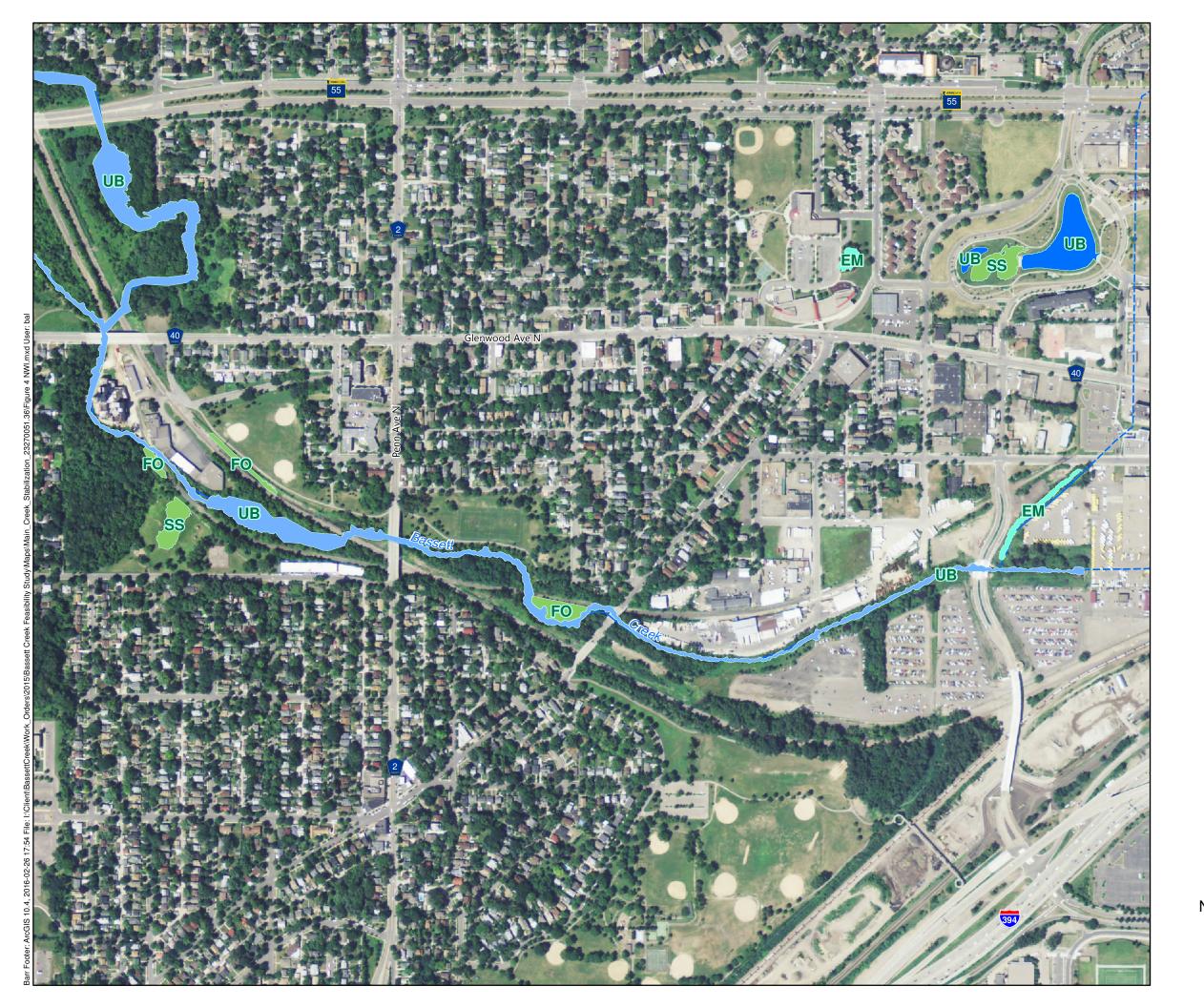




FIGURE 3

TOPOGRAPHY (EAST)
Main Stem Stabilization-Delineation
Bassett Creek Watershed
Management Commission



Bassett Creek

--- Bassett Creek Tunnel

Wetlands (MN DNR NWI East Central Update)

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Lake

Riverine

Aerial Imagery: FSA 2013

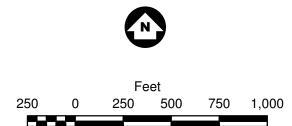




FIGURE 4

NATIONAL WETLANDS INVENTORY (NWI)
MN DNR EAST CENTRAL UPDATE
Main Stem Stabilization-Delineation
Bassett Creek Watershed
Management Commission



Public Water Inventory Watercourse

Bassett Creek

--- Bassett Creek Tunnel

Aerial Imagery: FSA 2013

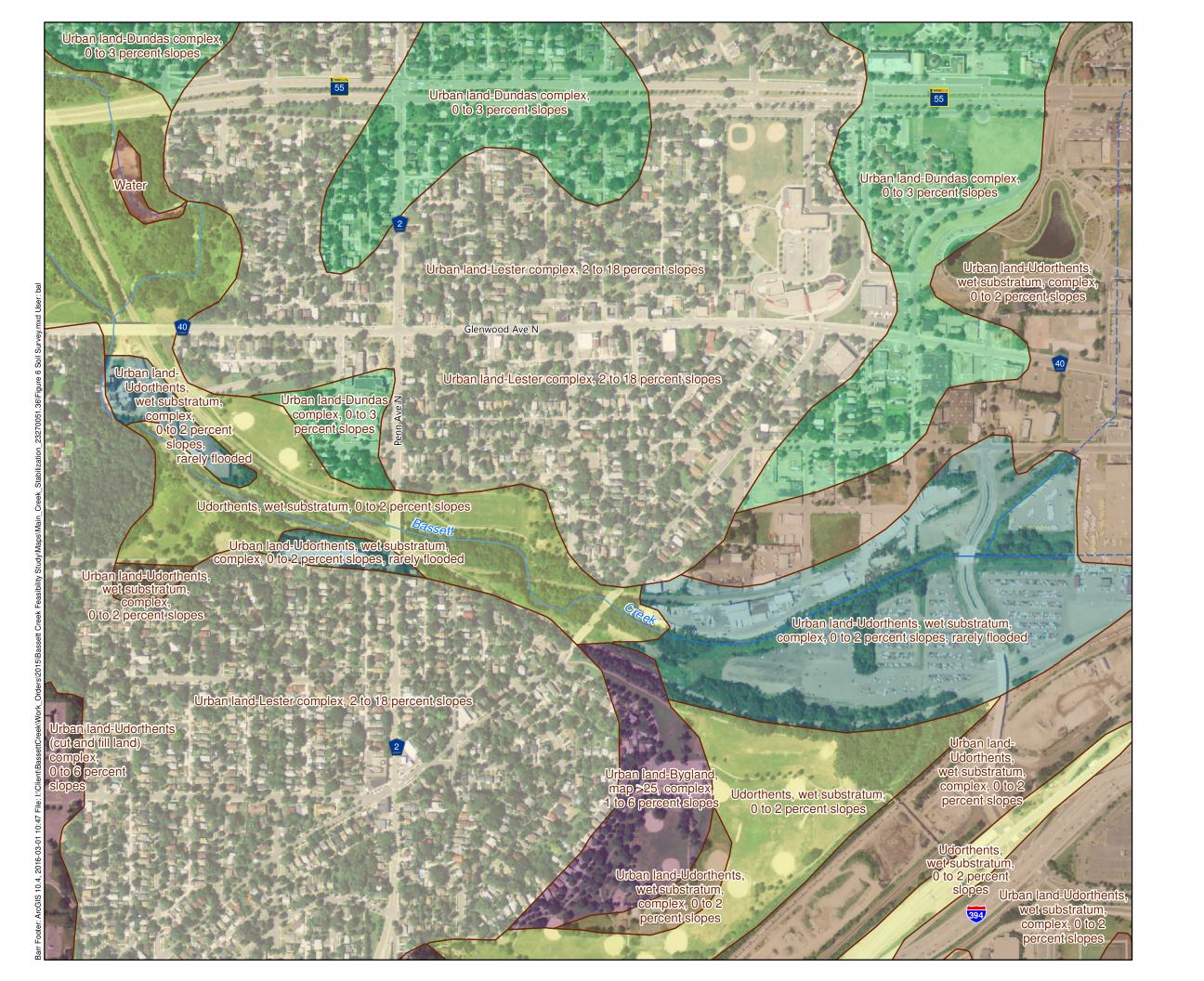


Feet 250 0 250 500 750 1,000



FIGURE 5

PUBLIC WATER INVENTORY (PWI)
Main Stem Stabilization-Delineation
Bassett Creek Watershed
Management Commission



Bassett Creek

--- Bassett Creek Tunnel

Aerial Imagery: FSA 2013

Note: All soils within this view extent

have a Hydric Rating of 0.

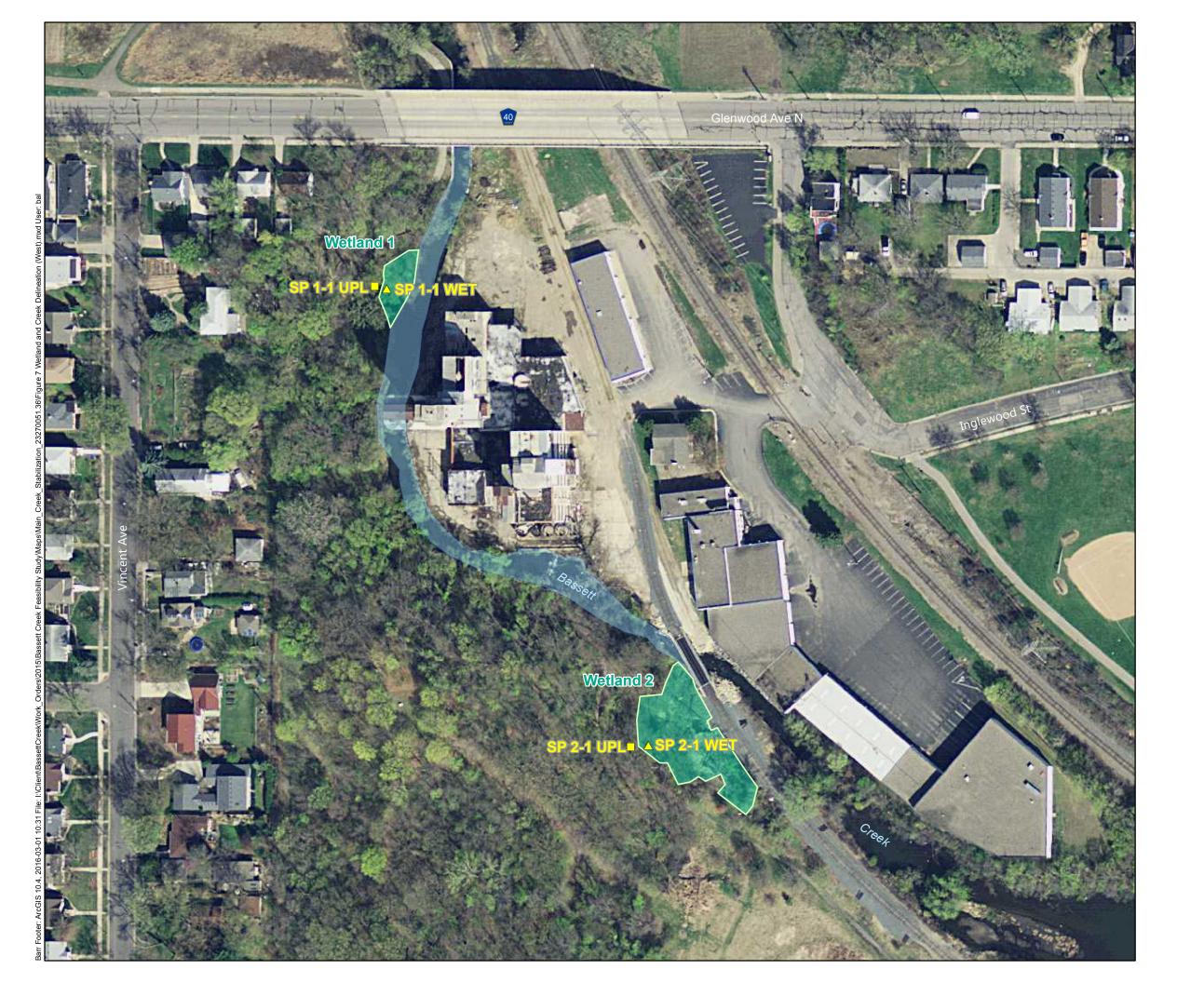


Feet 250 0 250 500 750 1,000



FIGURE 6

SOIL SURVEY
Main Stem Stabilization-Delineation
Bassett Creek Watershed
Management Commission



Upland Sample Point

△ Wetland Sample Point

Delineated Wetland

Stream Channel

Aerial Imagery: MN DNR 2012



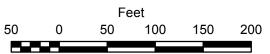




FIGURE 7

WETLAND AND CREEK
DELINEATION (WEST)
Main Stem Stabilization-Delineation
Bassett Creek Watershed
Management Commission



- Upland Sample Point
- △ Wetland Sample Point
- Delineated Wetland
- Stream Channel

Aerial Imagery: MN DNR 2012



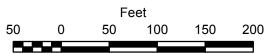




FIGURE 8

WETLAND AND CREEK
DELINEATION (EAST)
Main Stem Stabilization-Delineation
Bassett Creek Watershed
Management Commission

Appendix A Wetland Data Forms

	ı	NETLAN	ND DETER	RMINATI	ON DA	TA FOR	RM - Midwest I	Region		
Project/Site:	Basset Creek F	Restoration	Applicant/O	wner: BCWM	<u>c</u>	City/County: Min		<u>IN</u> Sampling	Date: <u>11/25/15</u>	
Investigator(s):	BKB		Section:	<u>20</u>	-	Township: <u>29</u>	Range: 2	2 <u>4</u> Sampling	g Point: 1-1 UPL	
Land Form:	Hillslope		Local Relie	f: Concave	9	Slope %: <u>15</u>			ster complex 2-18%	slopes
Subregion (LRI	R): <u>M</u>		Latitude:	<u>4980800</u>	L	Longitude: 4751	73 Datum: <u>L</u>	JTM Nad 83 Zone	e 15N	
Cowardin Class	sification Upla	<u>nd</u>	Circular 39	Classification:	<u>Upland</u>		Mapped NWI Class	ification None	e mapped	
		— on the site typica	nl for this time of year	r? <u>Yes</u>	(If no, explain	in remarks)	Eggers & Reed (pri		ind	
Are vegetation	No Soil			significantly dist	turbod?	Are "normal circumstances"	Yes Eggers & Reed (se	condary):		
Are vegetation	No Soil	<u>No</u> Hy	ydrology <u>No</u> n	naturally probler		present?	Eggers & Reed (ter Eggers & Reed (qu	**		
SUMMARY	OF FINDING	SS - Attach	n site map sh	owing sai	mplina po	oint locatio	ons, transects, imp	portant fea	tures. etc.	
Hydrophytic veg Hydric soil presi Indicators of we	getation present?	Ye Nesent? <u>N</u> esent?	General Remar (explain any answers if need	rks ded):						
VEGETAT		_				_				
VEGETATI	ION			Absolute	Dominant	Indicator	50/20 Thresholds:		20%	<u>50%</u>
Tree Strat	tum	(Plot Size: 3	0 ft	<u>Absolute</u> <u>% Cover</u>	<u>Dominant</u> <u>Species?</u>	<u>Status</u>	Tree Stratum		3	7.5
		(1.101.01201 <u>0</u>	<u> </u>	/			Sapling/Shrub Stratun	n	5.2	13
	macrocarpa			10	Yes	FAC	Herb Stratum		0.8	2
2. Acer neg 3.	undo			5	res	FAC	Woody Vine Stratum		0	0
4.				0			Dominance Test Work	sheet:		
			Total Cover:				Number of Dominant S That Are OBL, FACW	Species	3 (A)	
Sapling/S	hrub Stratum	(Plot Size: 1	<u>5 ft</u>)			Total Number of Domi			
1. Rhamnus	s cathartica			25	Yes	FAC	Species Across All St		3 <i>(B)</i>	
2. Celtis occ	cidentalis			1	No	FAC	Percent of Dominant S	Species		
3. 4.				0			That Are OBL, FACW	or FAC:	100.00% (A/E	3)
5.				0			Prevalence Index World	ksheet:		
			Total Cover:	<u>26</u>			Total % Cover	of:	Multiply by	:
Herb Stra	<u>tum</u>	(Plot Size: 5	<u>ft</u>)			OBL Species	0 X	1	0
1. Ageratina	a altissima			2	No	FACU	FACW Species	0 X	2	0
2. Geranium	n maculatum			2	No	FACU	FAC Species	41 X	3	123
3.				0			FACU Species	4 X	4	16
4.				0			UPL Species	0 X	5	0
5.				0			Column Totals:	45 (A	N) -	139 (B)
6.				0				nce Index = B/A	= 3	.09
7. 8.				0			Hydrophytic Vegetation	n Indicators:		
0.			Total Cover:					for Hydrophytic	Vegetation	
Woody Vi	ne Stratum	(Plot Size: 3		<u>4</u>				Test is >50%	•	
	ne ou atum	(1 10t 01201 <u>0</u>	<u> </u>	0			No Prevalence	Index ≤ 3.0 [1]		
1. 2.				0					[1] (provide supp	
<u>-</u> .			Total Cover:						i a separate sheet) egetation [1] (Expla	
% Bare Ground	d in Herb Stratum.	96		-	m Moss Cove	er:	[1] Indicators of hydric soil disturbed or problematic.			

Vegetation Remarks: (include photo numbers here or on a separate sheet)

Delineation was performed out of the growing season

Yes

Hydrophytic vegetation present?

Depth (inches) 10°	Matrix		Re	dox Featur	res					
0 - 7 10	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks		
	YR 2/2						Sandy Loam			
	5YR 4/4						Sandy Clay Loam			
14 - 20 7.5	5 YR 2.5/1	97	7.5YR 5/8	3	C	M	Clay Loam			
<u> </u>			-							
							· ,			
Type: C=Concent	ration, D=Depletion, R	RM=Reduce	d Matrix, MS=Masked Sand	l Grains	[2] Location	n: PL=Pore I	Lining, M=Matrix.			
ric Soil Indicators	: (applicable to all LF	RRs, unless	otherwise noted)			Inc	dicators for Problematic Hydric Soi	is [3]:		
Histosol (A1)			Sandy G	leyed Matrix	x (S4)		Coast Prairie Redox (A16)			
Histic Epipedon (A2	2)		☐ Sandy R	edox (S5)			Dark Surface (S7)			
Black Histic (A3)			Stripped	Matrix (S6)			Iron-Manganese Masses (F12)			
Hydrogen Sulfide (A	A <i>4)</i>		Loamy M	lucky Miner	ral (F1)		Very Shallow Dark Surface (TF12)			
Stratified Layers (A	5)		Loamy G	leyed Matri	ix (F2)		Other (explain in soil remarks)			
2 cm Muck (A10)			_	Matrix (F3)		_				
Depleted Below Da	ark Surface (A11)			ark Surface						
Thick Dark Surface	(A12)		<u> </u>	Dark Surfa						
Sandy Mucky Mineral (S1)				epressions	, ,		[3] Indicators of hydrophytic vegetation and wetland hydrole must be present, unless disturbed or problematic.			
E and Moralm Deat a	r Peat (S3)						. , ,	-		
			Dep	th (inches); 		Hydric soil present?	<u>No</u>		
strictive Layer (if p			Dep	th (inches): 		Hydric soil present?	<u>No</u>		
strictive Layer (if po			Dep	th (inches):		Hydric soil present?	<u>No</u>		
strictive Layer (if pl il Remarks: DROLOGY	resent): Type: _		Dep	th (inches):		Hydric soil present?	No		
strictive Layer (if point if Remarks: DROLOGY tland Hydrology In	resent): Type: _	ed; check a		th (inches):	Se	Hydric soil present? condary Indicators (minimum of tw			
strictive Layer (if plint in Remarks: DROLOGY etland Hydrology In the imary Indicators (m. 1981)	resent): Type: _ indicators: inimum of one require	ed; check a):	Se				
strictive Layer (if plint in Remarks: DROLOGY etland Hydrology In the imary Indicators (m. 1981)	resent): Type:	ed; check a	Il that apply)	es (B9)):	Se	condary Indicators (minimum of tw			
strictive Layer (if positive Layer) il Remarks: DROLOGY etland Hydrology Interpretation (m. 1975) Surface Water (A1)	resent): Type:	ed; check a	Il that apply) Water-Stained Leav	res (B9)	·):	Se	condary Indicators (minimum of tw Surface Soil Cracks (B6)			
strictive Layer (if puil Remarks: DROLOGY etland Hydrology In mary Indicators (m.) Surface Water (A1) High Water Table (A)	resent): Type:	ed; check a	Il that apply) Water-Stained Leav	es (B9) ') (B14)):		condary Indicators (minimum of tw Surface Soil Cracks (B6) Drainage Patterns (B10)			
strictive Layer (if positive Layer) (if positi	resent): Type: idicators: inimum of one require A2)	ed; check a	Il that apply) Water-Stained Leav Aquatic Fauna (B13	res (B9) ') (B14) dor (C1)			condary Indicators (minimum of two Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2)	vo required)		
strictive Layer (if particle in Remarks: DROLOGY etland Hydrology Interpretation (A1) High Water Table (A2) Water Marks (B1)	resent): Type: idicators: inimum of one require A2)	ed; check a	Il that apply) Water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants Hydrogen Sulfide O	es (B9)) (B14) dor (C1) res on Livin	ng Roots (C3		condary Indicators (minimum of two Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8)	vo required)		
il Remarks: DROLOGY etland Hydrology In mary Indicators (m Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits	resent): Type: _ dicators: inimum of one require (A2)	ed; check a	Il that apply) Water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe Presence of Reduce	es (B9) (B14) dor (C1) res on Livin	ng Roots (C3		condary Indicators (minimum of two Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery	vo required)		
strictive Layer (if particle in Remarks: IDROLOGY Etland Hydrology Interpretation (Mater Table (Aastration (Aast	resent): Type: _ dicators: inimum of one require (A2)	ed; check a	Il that apply) Water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants Hydrogen Sulfide O	res (B9) (B14) dor (C1) res on Livin ed Iron (C4)	ng Roots (C3		condary Indicators (minimum of tw Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1)	vo required)		
il Remarks: DROLOGY itland Hydrology In imary Indicators (m. Surface Water (A1) High Water Table (I Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3) Algal Mat or Crust (Iron Deposits (B5)	resent): Type: idicators: inimum of one require (B2)	ed; check a	Il that apply) Water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe Presence of Reduce Recent Iron Reduct Thin Muck Surface	res (B9) (B14) dor (C1) res on Livin ed Iron (C4) ion in Tilled	ng Roots (C3		condary Indicators (minimum of two Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2)	vo required)		
il Remarks: DROLOGY Itland Hydrology In Imary Indicators (m. Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3) Algal Mat or Crust (Iron Deposits (B5) Inundation Visible of	resent): Type: indicators: inimum of one require (B2) (B2) (B4)		### Water-Stained Leav ### Aquatic Fauna (B13*) ### True Aquatic Plants ### Hydrogen Sulfide O ### Oxidized Rhizosphe ### Presence of Reduct ### Recent Iron Reduct ### Thin Muck Surface ### Gauge or Well Data	es (B9) (B14) dor (C1) res on Livin ed Iron (C4) ion in Tilled (C7) (D9)	ng Roots (C3		condary Indicators (minimum of two Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2)	vo required)		
Instrictive Layer (if partial Remarks: I'DROLOGY Instructional Hydrology Instruction (Material Properties of Material Properties (Material Properties of Material Properties (Material Properties (M	resent): Type: idicators: inimum of one require (B2)		Il that apply) Water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe Presence of Reduce Recent Iron Reduct Thin Muck Surface	es (B9) (B14) dor (C1) res on Livin ed Iron (C4) ion in Tilled (C7) (D9)	ng Roots (C3		condary Indicators (minimum of two Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	ro required)		
strictive Layer (if particle in Remarks: IDROLOGY Setland Hydrology Institution (Mater Table (resent): Type: rdicators: inimum of one require (B2) (B2) (B4) On Aerial Imagery (B7) If Concave Surface (B8)		Water-Stained Leav Aquatic Fauna (B13 True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe Presence of Reduct Recent Iron Reduct Thin Muck Surface Gauge or Well Data Other (explain in rer	res (B9) (B14) dor (C1) res on Livin red Iron (C4) ion in Tilled (C7) (D9) marks)	ng Roots (C3		condary Indicators (minimum of two Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	vo required)		
strictive Layer (if particle in Remarks: IDROLOGY Interpretation (Interpretation (Interpreta	resent): Type: rdicators: inimum of one require (B2) (B2) (B4) On Aerial Imagery (B7) If Concave Surface (B8)		### Water-Stained Leav ### Aquatic Fauna (B13*) ### True Aquatic Plants ### Hydrogen Sulfide O ### Oxidized Rhizosphe ### Presence of Reduct ### Recent Iron Reduct ### Thin Muck Surface ### Gauge or Well Data	res (B9) (B14) dor (C1) res on Livin red Iron (C4) fon in Tilled (C7) (D9) marks)	ng Roots (C3		condary Indicators (minimum of two Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	ro required)		

Project/Site:	Basset Cr	eek Re	estoration		Applicant/Ow	mer: <u>BCWMC</u>	City/County: Minner pin	apolis/Henne State: MN	Sampling Date: 11/25/15
Investigator(s): Land Form:	<u>SKB</u> <u>Flat</u>				Section: Local Relief:	<u>20</u> <u>None</u>	Township: 29 Slope %: 0	Range: 24 Soil Map Unit Name: <u>Urba</u>	Sampling Point: 1-1 WET Land-Lester complex 2-18% slopes
Subregion (LRR):	<u>M</u>				Latitude:	4980799	Longitude: 475177	Datum: <u>UTM N</u>	ad 83 Zone 15N
Cowardin Classifi	cation:	PEMA	Ī		Circular 39 C	Classification: Type 1		Mapped NWI Classificatio	n: None mapped
Are climatic/hydro	logic condit	ions or	the site typ	pical for this	time of year?	Yes (If no, expl	ain in remarks)	Eggers & Reed (primary):	Seasonally Flooded Basin
Are vegetation	<u>No</u>	Soil	<u>No</u>	Hydrology	<u>No</u> si	ignificantly disturbed?	circumstances"	Eggers & Reed (secondal Eggers & Reed (tertiary):	ry):
Are vegetation	_	Soil	No	Hydrology	<u>No</u> na	nturally problematic?	present?	Eggers & Reed (quaterna	•

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	<u>Yes</u>	General Remarks	No herbaceous plants were present due to periodic flooding of Basset Creek.
Hydric soil present?	Yes	(explain any	
Indicators of wetland hydrology present?	Yes	answers if needed):	
Is the sampled area within a wetland?	<u>Yes</u>	If yes, optional Wetla	and Site ID: Wetland 1

				<u>Absolute</u>	<u>Dominant</u>	<u>Indicator</u>	50/20 Thresholds:		2	<u>20%</u>	<u>50%</u>
1	ree Stratum	(Plot Size:	<u>30 ft</u>)	% Cover	Species?	<u>Status</u>	Tree Stratum			1.4	3.5
Τ	Quercus macrocarpa			5	Yes	FAC	Sapling/Shrub Stratum			0	0
H	Acer negundo			2	No	FAC	Herb Stratum			0	0
F	Acci riegulido			0	110	170	Woody Vine Stratum			0	0
_				0			Dominance Test Worksheet:				
_			Total Cover:	7			Number of Dominant Specie		1	(A)	
<u>s</u>	apling/Shrub Stratum	(Plot Size:	<u>15 ft</u>)				That Are OBL, FACW or FAC	:	<u> </u>	. (7)	
Г				0			Total Number of Dominant Species Across All Strata:		1	(B)	
				0			Percent of Dominant Species			•	
				0			That Are OBL, FACW or FAC		100.00%	(A/B)	
				0			Prevalence Index Worksheet			-	
			7.10	0						.14:1	
			Total Cover:	<u>0</u>			Total % Cover of:	0	X 1	ıltiply by:)
<u>h</u>	lerb Stratum	(Plot Size:	<u>5 ft</u>)				OBL Species	0	X 2		<u>-</u>
				0			FACW Species	7	_		_
				0			FAC Species		X 3	2	-
				0			FACU Species	0	X 4)
				0			UPL Species	0	X 5	()
				0			Column Totals:	7	(A)	2	1_
				0			Prevalence Inc	lex = E	B/A =	3.00	0
				0			Hydrophytic Vegetation Indic	ators:			
			Total Cover:	0			No Rapid Test for Hy	drophy	tic Vegetation	n	
V	Voody Vine Stratum	(Plot Size:	30 ft	<u> •</u>			Yes Dominance Test is	>50%			
Ē		•		0			Yes Prevalence Index	_	_		
				0			No Morphological Ad in vegetation rema				ing c
			Total Cover:	<u>0</u>			No Problematic Hydro		•	•)
ar	e Ground in Herb Stra	tum: 100	_	% Sphagnui	n Moss Cove	or:	[1] Indicators of hydric soil & wetled disturbed or problematic.	-			
et	ation Remarks: (includ	e photo numbers	- here or on a separate s	sheet)			Hydrophytic vegetation presen	t?	Yes		
		,					7 7				

(inches) Color (moist) % Color (moist) 0 - 16 7.5YR 2.5/1 95 7.5YR 4/6 16 - 21 7.5YR 4/2 95 7.5YR 4/6	confirm the abscence edox Features	of indicators Loc [2]		
(inches) Color (moist) % Color (moist) 0 - 16 7.5YR 2.5/1 95 7.5YR 4/6 16 - 21 7.5YR 4/2 95 7.5YR 4/6	% Type [1]	Loc [2]	_ ,	
0 - 16 7.5YR 2.5/1 95 7.5YR 4/6 16 - 21 7.5YR 4/2 95 7.5YR 4/6 - -			Texture	Remarks
<u> </u>		M	Clay Loam	
·	5 C	М	Sand	
_				
				-
<u> </u>				_
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand	d Grains [2] Locatio	n: PL=Pore L	Lining, M=Matrix.	-
ric Soil Indicators: (applicable to all LRRs, unless otherwise noted)		Inc	licators for Problematic Hydric S	oils [3]:
Histosol (A1) Sandy G	Gleyed Matrix (S4)		Coast Prairie Redox (A16)	
Histic Epipedon (A2)	Redox (S5)		Dark Surface (S7)	
Black Histic (A3)	Matrix (S6)		Iron-Manganese Masses (F12)	
Hydrogen Sulfide (A4) Loamy N	Mucky Mineral (F1)		Very Shallow Dark Surface (TF12))
Stratified Layers (A5)	Gleyed Matrix (F2)		Other (explain in soil remarks)	
2 cm Muck (A10) Depleted	d Matrix (F3)			
Depleted Below Dark Surface (A11) ✓ Redox D	Dark Surface (F6)			
Thick Dark Surface (A12) Depleted	d Dark Surface (F7)			
Sandy Mucky Mineral (S1)	Depressions (F8)		Indicators of hydrophytic vegeta ist be present, unless disturbed of	
5 cm Mucky Peat or Peat (S3)			,,	, production
strictive Layer (if present): Type: Dep	oth (inches):		Hydric soil present?	<u>Yes</u>
il Remarks:		•		
VDDQ LOOV				
DROLOGY				
tland Hydrology Indicators:				
mary Indicators (minimum of one required; check all that apply)			condary Indicators (minimum of	two required)
Surface Water (A1) Water-Stained Leav	ves (B9)		Surface Soil Cracks (B6)	
High Water Table (A2) Aquatic Fauna (B13	3)		Drainage Patterns (B10)	
Saturation (A3) True Aquatic Plants	s (B14)		Dry-Season Water Table (C2)	
Water Marks (B1) Hydrogen Sulfide O)dor (C1)		Crayfish Burrows (C8)	
Sediment Deposits (B2) Oxidized Rhizosphe	eres on Living Roots (C3	3)	Saturation Visible on Aerial Image	ry (C9)
Drift Deposits (B3)	ed Iron (C4)		Stunted or Stressed Plants (D1)	
Algal Mat or Crust (B4) Recent Iron Reduct	tion in Tilled Soils (C6)	✓	Geomorphic Position (D2)	
	(C7)		FAC-Neutral Test (D5)	
Iron Deposits (B5) Thin Muck Surface				
	a (D9)			
Iron Deposits (B5)				
Iron Deposits (B5) Thin Muck Surface Inundation Visible on Aerial Imagery (B7) Gauge or Well Data			Indicators of wetland hydrolo	ogy present? Yes
Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Thin Muck Surface Gauge or Well Data Other (explain in rel	marks)		Indicators of wetland hydrolo	ogy present? Yes
Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Thin Muck Surface Gauge or Well Data Other (explain in rel	(inches):			ogy present? Yes
Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Other (explain in red old Observations: Index Surface (B8) Surface Water Depth (Base)	(inches): ches): 7			ogy present? Yes

Project/Sile: Basset Creek Restoration Applicant/Owner: BCMINC City/County Informace Sile: MN Sampling Date: 11/25/15 Investigator(s): BKB Saction: 20 Township: 22 Soli Map Unit Name: Utisan Land-Lester Committee 21 Utility Sampling Date: 11/25/15 Stopes Samp		V	VETLAN	D DETER	MINAT	ION DA	TA F	ORM	- Midv	vest	Regi	on			
Load Form	Project/Site:	Basset Creek R	<u>estoration</u>	Applicant/O	wner: BCWM	<u>C</u> (City/County:		olis/Henne S	State:	MN S	ampling Da	te: <u>11/2</u>	<u>5/15</u>	
Submeyor (IRR): M	Investigator(s):	<u>BKB</u>		Section:	<u>20</u>		Township:	<u>29</u>		Range:	<u>24</u> S	Sampling Po	int: <u>2-1 l</u>	<u>JPL</u>	
Circular 30 Classification: Upland Circular 30 Classification: Upland Are demands by processing of the size of year? Yes (if no. explain in remarks) Eggers & Reed (circuns): Eggers & Reed (cir	Land Form:	<u>Hillslope</u>		Local Relie	: Concave	,	Slope %:	<u>3</u>	Soil Map Uni	it Name:	Urban L	and-Lester o	complex 2	<u>2-18% slc</u>	<u>opes</u>
Are dimatichydrologic conditions on the site typical for this time of year? Yes (if no. explain in remarks) Are vegetation No. Soil No. Hydrology No. significantly disturbed? Are vegetation No. Soil No. Hydrology No. naturally problematic? **Yes General Remarks **Irroreser!?** **Irroreser!* **Irroreser!?** **Irroreser!?*	Subregion (LRR).	: <u>M</u>		Latitude:	<u>4980643</u>		Longitude:	<u>475260</u>		Datum:	UTM Nad	83 Zone 15	<u>iN</u>		
Are vegetation No Soil No Hydrology No Significantly disturbed? Fact	Cowardin Classifi	ication: Uplar	<u>nd</u>	Circular 39	Classification:	<u>Upland</u>			Mapped N	VWI Cla	ssification:	None ma	apped		
Are nogelation No Soi No Hydrology No significantly disturbed? Face			n the site typical f	or this time of year	? Yes	(If no, explain	n in remarks	s)				Upland			
Are vegetation No Soil No Hydrology No naturally problematic? Eggers & Reed (qualemary):						t			Eggers &	Reed (s	secondary):				
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.	Are vegetation	No Soil	No Hvdi	rology No n	aturally problei	matic?	present?					:			
Hydrophytic vegetation present? Yes General Remarks (explain any answers if needed):	·	_	•	· —			oint loc	ations					roe of		
Hydric soil present? No (explain any answers if needed): Is the sampled area within a wetland? No If yes, optional Wetland Site ID: Upland			o - Allacii		Г	iipiiiig pi	onni ioc	auons,	uansec	, t5, III	iipurtai	it i e atui	es, et	<u>. </u>	
Indicator of welland hydrology present? No					ks										
	, ,				ed):										
Absolute Absolute Species Status Indicator Species Status Tree Stratum Sapling/Shrub				If yes, optional	Wetland Site	ID: Uplan	<u>nd</u>								
Tree Stratum															
Tree Stratum	VLGLIAII														
1. Quercus macrocarpa 45 Yes FAC Herb Stratum 0 0 0 0 0 0 0 0 0								<u>"</u>					<u>20</u>	<u>%</u>	<u>50%</u>
1.	Tree Stratu	<u>m</u>	(Plot Size: 30	<u>ft</u>) % Cover	Species?	Status								
Number of Dominant Species That Are OBL, FACW or FAC: 100.00% (A/B)	1. Quercus m	acrocarpa			45	Yes	FAC				um				
3											1				
Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)	-								•						
That Are OBL, FACW or FAC:	4.			T / 10											
Total Number of Dominant Species Across All Strata: 2 (B)	Sapling/Shr	rub Stratum	(Plot Size: 15		<u>45</u>								2	(A)	
2.			(, , , , , , , , , , , , , , , , , , ,	<u></u>	10	Yes	FAC						2	(B)	
3.		Jan lica			4	103	TAO	—∥ °	•					(2)	
4.												100	0.00%	(A/B)	
Total Cover: 10 Total % Cover of: Multiply by:	4.				0										
Herb Stratum	5.				0			<u>Pi</u>	<u>revalence In</u>	idex Wo	orksheet:				
1.				Total Cover:	10				Total	% Cove	er of:	_	Mult	iply by:	
2.	<u>Herb Stratu</u>	<u>m</u>	(Plot Size: 5 ft)			o	BL Species	· _		<u>0</u> X1			0
3. 0 0 FACU Species 0 X 4 0 UPL Species 0 X 5 0 Column Totals: 55 (A) 165 (B) Prevalence Index = B/A = 3.00	1.				0			F	ACW Specie	es _		0 X 2			0
4. 0 0 0 5. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2.				0			F	AC Species	_	5	5 X 3		16	5
4. 0 5. 0 6. 0 7. 0 UPL Species 0 × 5 0 Column Totals: 55 (A) 165 (B) Prevalence Index = B/A = 3.00	3.				0			F	ACU Specie	es _		0 X 4			0
5. 0 0 Column Totals: 55 (A) 165 (B) 7. 0 Prevalence Index = B/A = 3.00					0				•			0 X 5			0
6. 0 Prevalence Index = B/A = 3.00											5	55 (A)	-	16	5 (B)
					4			∥ ັ	olumni i ola			_			
8. 0 Hydrophytic Vegetation Indicators:					0				/drophytic \						-

Total Cover:

Total Cover:

0

0

% Sphagnum Moss Cover:

(Plot Size: 30 ft

Vegetation Remarks: (include photo numbers here or on a separate sheet)

Woody Vine Stratum

% Bare Ground in Herb Stratum:

2.

Rapid Test for Hydrophytic Vegetation

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

Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)

Yes

Problematic Hydrophytic Vegetation [1] (Explain)

Dominance Test is >50%

Prevalence Index ≤ 3.0 [1]

Hydrophytic vegetation present?

No Yes

Yes

No

SOIL Sampling Point: 2-1 UPL Profile Description: (Describe to the depth needed to document the indicator or confirm the abscence of indicators). Redox Features Depth Matrix (inches) Color (moist) Color (moist) Type [1] Loc [2] Texture Remarks 0 - 5 10YR 3/1 I oam 5 - 14 10YR 3/1 Sandy Clay Loam 2 2 14 - 18 10YR 3/1 98 10YR 3/4 С M Sandy Clay Loam 3. 18 - 22 10YR 4/4 98 10YR 4/6 2 С Μ Sandy Clay [1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2] Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted) Indicators for Problematic Hydric Soils [3]: Histosol (A1) Sandy Gleyed Matrix (S4) Coast Prairie Redox (A16) Histic Epipedon (A2) Sandy Redox (S5) Dark Surface (S7) Black Histic (A3) Stripped Matrix (S6) Iron-Manganese Masses (F12) ☐ Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) Very Shallow Dark Surface (TF12) Stratified Layers (A5) Loamy Gleved Matrix (F2) Other (explain in soil remarks) 2 cm Muck (A10) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Thick Dark Surface (A12) Depleted Dark Surface (F7) [3] Indicators of hydrophytic vegetation and wetland hydrology Sandy Mucky Mineral (S1) Redox Depressions (F8) must be present, unless disturbed or problematic. 5 cm Mucky Peat or Peat (S3) Restrictive Layer (if present): Hydric soil present? Depth (inches): No Type: Soil Remarks: **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Water-Stained Leaves (B9) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Fauna (B13) Drainage Patterns (B10) Saturation (A3) True Aquatic Plants (B14) 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 Iron (C4) Stunted or Stressed Plants (D1) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2) Iron Deposits (B5) Thin Muck Surface (C7) FAC-Neutral Test (D5) Gauge or Well Data (D9) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Other (explain in remarks) Field Observations: Indicators of wetland hydrology present? <u>No</u> Surface water present? Surface Water Depth (inches): Describe Recorded Data: Water table present? Water Table Depth (inches): Saturation present? (includes capillary fringe) Saturation Depth (inches): Recorded Data: Aerial Photo Monitoring Well Stream Gauge **Previous Inspections**

Hydrology Remarks:

No hydrology indicators

Project/Site:	Basset Cr	eek Re	estoration		Applicant/C	wner:	BCWMO	<u>C</u>	City/County:	Minnea pin	polis/Henne	State:	MN	Sampling Date:	<u>11/25/15</u>
Investigator(s): E	<u>BKB</u>				Section:	<u>20</u>			Township:	<u>29</u>		Range:	<u>24</u>	Sampling Point:	<u>2-1 WET</u>
Land Form:	Footslope	<u> </u>			Local Relie	f: Co	<u>ncave</u>		Slope %:	<u>1</u>	Soil Map U	nit Name.	<u>Urban</u>	Land-Lester com	plex 2-18% slopes
Subregion (LRR):	<u>M</u>				Latitude:	<u>498</u>	<u>80799</u>		Longitude:	<u>475177</u>		Datum:	UTM Na	d 83 Zone 15N	
Cowardin Classific	cation:	PEM/S	SS1C		Circular 39	Classi	ification:	<u>Type 3/6</u>			Mapped	NWI Cla	ssification.	None mappe	ed*
Are climatic/hydrol	logic condit	tions or	the site typ	ical for this	time of yea	r?	<u>Yes</u>	(If no, expla	in in remarks	s)	Eggers	& Reed (j	orimary):	Shallow Mar	r <u>sh</u>
Are vegetation	<u>No</u>	Soil	<u>No</u>	Hydrology	<u>No</u>	signific	cantly dist	urbed?	Are "normal circumstance	_	_ 00	& Reed (: & Reed (i	secondary ertiary):): <u>Shrub-Carr</u>	
Are vegetation	<u>No</u>	Soil	<u>No</u>	Hydrology	<u>No</u>	natural	ly problen	natic?	present?		Eggers	& Reed (quaternary	<i>y</i>):	

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic vegetation present?	<u>Yes</u>	General Remarks * Pa	rt of mapped PFO1A
Hydric soil present?	<u>Yes</u>	(explain any	
Indicators of wetland hydrology present?	<u>Yes</u>	answers if needed):	
Is the sampled area within a wetland?	<u>Yes</u>	If yes, optional Wetland Site	e ID: Wetland 2

VEGETATION

	Tree Stratum	(Plot Size:	<u>30 ft</u>	Absolute % Cover	Dominant Species?	<u>Indicator</u> <u>Status</u>	50/20 Thresholds: Tree Stratum		<u>20%</u> 6	<u>50%</u> 15
	Quercus macrocarpa			30	Yes	FAC	Sapling/Shrub Stratum		4.4	11
ļ	<u> </u>			0			Herb Stratum	:		0
ļ				0			Woody Vine Stratum			0
Ì				0			Dominance Test Worksheet:			
	Sapling/Shrub Stratum	(Plot Size:	Total Cover:	<u>30</u>			Number of Dominant Species That Are OBL, FACW or FAC:		2 (A)	
[Rhamnus cathartica	(F10t 5126.	1011	20	Yes	FAC	Total Number of Dominant		2 (B)	
F	Salix spp.			2	No		Species Across All Strata:			
				0			Percent of Dominant Species That Are OBL, FACW or FAC:	100.00)% (A/B)	
ļ				0			Prevalence Index Worksheet:			
L			Total Cover:	22			Total % Cover of:		Multiply by:	
1	Herb Stratum	(Plot Size:	<u>5 ft</u>)			OBL Species	X 1	(0
Γ				0			FACW Species	X 2	(0
ľ				0			FAC Species50	X 3	150)
Ī				0			FACU Species	X 4	(0
				0			UPL Species (X 5	(0
Ĺ				0			Column Totals: 50	(A)	150	_ O (
Ļ				0			Prevalence Index	= B/A =	3.00	_ D
Ļ				0			Hydrophytic Vegetation Indicato	rs:		
L			Total Cover:	0			No Rapid Test for Hydro	ohytic Vegetat	tion	
	Voody Vine Stratum	(Plot Size:	30 ft	<u>u</u>)			Yes Dominance Test is >	50%		
Г				0			Yes Prevalence Index ≤ 3	.0 [1]		
-				0			No Morphological Adapt			ing d
L			Total Cover:	0			No Problematic Hydroph	•	•)
Ва	re Ground in Herb Stratu	m: 100	0	_	m Moss Cove	er:	[1] Indicators of hydric soil & wetland disturbed or problematic.		,	
ge	ation Remarks: (include	photo numbers	— s here or on a separate	sheet)			Hydrophytic vegetation present?	Yes		
ge	auon remarko: (molado	prioto number	o nore or on a separate	. 011001)			Trydrophytic vogetation procent:	100		

Depth Matrix	Redox Fea	ntures					
(inches) Color (moist)	% Color (moist) %	Type [1]	Loc [2]	Texture	Remarks		
0 - 10 2.5Y 2.5/1				Loamy Mucky Mineral			
10 - 15 2.5Y 2.5/1				Clay			
15 - 21 10Y 4/1 (Gley)				Clay			
· — -							
Type: C=Concentration, D=Depletion, RM=F	Reduced Matrix, MS=Masked Sand Grains	[2] Location	: PL=Pore L	ining, M=Matrix.			
dric Soil Indicators: (applicable to all LRRs,	unless otherwise noted)		Inc	licators for Problematic Hydric Soils [3]:		
Histosol (A1)	Sandy Gleyed Ma	atrix (S4)		Coast Prairie Redox (A16)			
Histic Epipedon (A2)	Sandy Redox (St	5)		Dark Surface (S7)			
Black Histic (A3)	Stripped Matrix (S	S6)		Iron-Manganese Masses (F12)			
Hydrogen Sulfide (A4)	✓ Loamy Mucky Mi			Very Shallow Dark Surface (TF12)			
Stratified Layers (A5)	Loamy Gleyed M	, ,		Other (explain in soil remarks)			
2 cm Muck (A10)	Depleted Matrix (Caror (explain in contentancy			
Depleted Below Dark Surface (A11)	Redox Dark Surfa	•					
- , , ,	<u> </u>						
Thick Dark Surface (A12)	☐ Depleted Dark St	• •	[3]	[3] Indicators of hydrophytic vegetation and wetland hydrol			
Sandy Mucky Mineral (S1)	Redox Depression	ons (F8)	mu	must be present, unless disturbed or problematic.			
	Depth (inch	hes):		Hydric soil present? <u>Y</u> .	<u>es</u>		
estrictive Layer (if present): Type:	Depth (inch	nes):		Hydric soil present? <u>Y</u>	<u>es</u>		
estrictive Layer (if present): Type: bil Remarks: **DROLOGY**	Depth (inch	hes):		Hydric soil present? <u>Y</u> .	es		
estrictive Layer (if present): Type: iil Remarks: 'DROLOGY etland Hydrology Indicators:		hes):					
istrictive Layer (if present): Type: il Remarks: 'DROLOGY etland Hydrology Indicators: imary Indicators (minimum of one required; of	check all that apply)	hes):	Se	condary Indicators (minimum of two r			
estrictive Layer (if present): Type: Oil Remarks: ODROLOGY etland Hydrology Indicators: imary Indicators (minimum of one required; of Surface Water (A1)	check all that apply) Water-Stained Leaves (B9)	hes):	Se	condary Indicators (minimum of two r Surface Soil Cracks (B6)			
estrictive Layer (if present): Type: Oil Remarks: ODROLOGY etland Hydrology Indicators: imary Indicators (minimum of one required; of the control of the	check all that apply)	hes):	Se	condary Indicators (minimum of two r			
estrictive Layer (if present): Type: Oil Remarks: POROLOGY Tetland Hydrology Indicators: rimary Indicators (minimum of one required; of the control of t	check all that apply) Water-Stained Leaves (B9)	hes):	Se	condary Indicators (minimum of two r Surface Soil Cracks (B6)			
estrictive Layer (if present): Type: Oil Remarks: POROLOGY Tetland Hydrology Indicators: rimary Indicators (minimum of one required; of the control of t	check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13)		Se	condary Indicators (minimum of two r Surface Soil Cracks (B6) Drainage Patterns (B10)			
estrictive Layer (if present): Type: Dil Remarks: PDROLOGY Setland Hydrology Indicators: rimary Indicators (minimum of one required; of the continuation of the co	Check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14)			condary Indicators (minimum of two r Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2)	required)		
estrictive Layer (if present): Type: poil Remarks: POROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of one required; of the continuation of the present of the continuation of the present of the continuation of the continuatio	check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1)	iving Roots (C3)		condary Indicators (minimum of two r Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8)	required)		
estrictive Layer (if present): Type: Dil Remarks: PDROLOGY Setland Hydrology Indicators: rimary Indicators (minimum of one required; of the content of t	check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on L	iving Roots (C3)		condary Indicators (minimum of two r Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8)	required)		
estrictive Layer (if present): Type: poil Remarks: /DROLOGY /etland Hydrology Indicators: rimary Indicators (minimum of one required; of the content of t	Check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on L Presence of Reduced Iron (G	iving Roots (C3)		condary Indicators (minimum of two r Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1)	required)		
estrictive Layer (if present): Type: Oil Remarks: POROLOGY Tetland Hydrology Indicators: rimary Indicators (minimum of one required; of the content of t	Check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on L Presence of Reduced Iron (C1) Recent Iron Reduction in Till	iving Roots (C3)		condary Indicators (minimum of two r Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8) Stunted or Stressed Plants (D1) Geomorphic Position (D2)	required)		
estrictive Layer (if present): Type: Oil Remarks: POROLOGY etland Hydrology Indicators: imary Indicators (minimum of one required; of surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7)	Check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on L Presence of Reduced Iron (C1) Recent Iron Reduction in Till Thin Muck Surface (C7) Gauge or Well Data (D9)	iving Roots (C3)		condary Indicators (minimum of two r Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8) Stunted or Stressed Plants (D1) Geomorphic Position (D2)	required)		
estrictive Layer (if present): Type: poil Remarks: POROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of one required; of the content of t	Check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on L Presence of Reduced Iron (C1) Recent Iron Reduction in Till Thin Muck Surface (C7)	iving Roots (C3)		condary Indicators (minimum of two r Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (CS Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	required)		
estrictive Layer (if present): Type: Oil Remarks: ODROLOGY etland Hydrology Indicators: imary Indicators (minimum of one required; of surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) eld Observations:	Check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on L Presence of Reduced Iron (C) Recent Iron Reduction in Till Thin Muck Surface (C7) Gauge or Well Data (D9) Other (explain in remarks)	iving Roots (C3) C4) lled Soils (C6)		condary Indicators (minimum of two r Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	required)		
cestrictive Layer (if present): Type: Coil Remarks: CDROLOGY Cetland Hydrology Indicators: Crimary Indicators (minimum of one required; of the content o	Check all that apply) Water-Stained Leaves (B9) Aquatic Fauna (B13) True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on L Presence of Reduced Iron (C1) Recent Iron Reduction in Till Thin Muck Surface (C7) Gauge or Well Data (D9)	iving Roots (C3) C4) lled Soils (C6)		condary Indicators (minimum of two r Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (CS Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	required)		

WETLAND DETERMINATION	N DATA FORM - Midwest Region
Project/Site: Basset Creek Restoration Applicant/Owner: BCWMC	City/County: Minneapolis/Henne State: MN Sampling Date: 11/25/15 pin
Investigator(s): BKB Section: 21	Township: 29 Range: 24 Sampling Point: 3-1 UPL
Land Form: Footslope Local Relief: Concave	Slope %: 2 Soil Map Unit Name: <u>Urban land-Udorthents wet sub 0-2% slope</u>
Subregion (LRR): M Latitude: 4980541	Longitude: 476718 Datum: UTM Nad 83 Zone 15N
Cowardin Classification: Upland Circular 39 Classification: U	pland Mapped NWI Classification: PEM1Ax
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If n	o, explain in remarks) Eggers & Reed (primary): Upland
Are vegetation No Soil No Hydrology No significantly disturbe	Eggers & Reed (tertiary):
Are vegetation No Soil No Hydrology No naturally problematic	? present? Eggers & Reed (quaternary):
SUMMARY OF FINDINGS - Attach site map showing sample	ling point locations, transects, important features, etc.
Hydrophytic vegetation present? Hydric soil present? Indicators of wetland hydrology present? Hydrophytic vegetation present? No (explain any answers if needed): No (explain any answers if needed):	
Is the sampled area within a wetland? No If yes, optional Wetland Site ID:	<u>Upland</u>
VEGETATION	
Absolute Do	ominant Indicator 50/20 Thresholds: 20% 50%
<u>Tree Stratum</u> (Plot Size: 30 ft) <u>% Cover Sp</u>	<u>Decies?</u> Status 0 0
1. 0	Sapling/Shrub Stratum 0 0
2.	Herb Stratum 19.4 48.5
3.	
4.	Dominance Test Worksheet:

SOIL Sampling Point: 3-1 UPL Profile Description: (Describe to the depth needed to document the indicator or confirm the abscence of indicators). Depth Redox Features Matrix (inches) Color (moist) Color (moist) Type [1] Loc [2] Texture Remarks 0 - 4 10YR 2/1 Sandy Clay Loam 4 - 6 10YR 3/1 Loamy Sand 2 6 - 11 10YR 3/2 Laomy Sand 3. 11 - 14 10YR 3/4 Sand [1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2] Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted) Indicators for Problematic Hydric Soils [3]: Histosol (A1) Sandy Gleyed Matrix (S4) Coast Prairie Redox (A16) Histic Epipedon (A2) Sandy Redox (S5) Dark Surface (S7) Black Histic (A3) Stripped Matrix (S6) Iron-Manganese Masses (F12) ☐ Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) Very Shallow Dark Surface (TF12) Stratified Layers (A5) Loamy Gleved Matrix (F2) Other (explain in soil remarks) 2 cm Muck (A10) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Thick Dark Surface (A12) Depleted Dark Surface (F7) [3] Indicators of hydrophytic vegetation and wetland hydrology Sandy Mucky Mineral (S1) Redox Depressions (F8) must be present, unless disturbed or problematic. 5 cm Mucky Peat or Peat (S3) Restrictive Layer (if present): Hydric soil present? Depth (inches): No Type: Soil Remarks: **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Water-Stained Leaves (B9) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Fauna (B13) Drainage Patterns (B10) Saturation (A3) True Aquatic Plants (B14) 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 Iron (C4) Stunted or Stressed Plants (D1) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2) Iron Deposits (B5) Thin Muck Surface (C7) FAC-Neutral Test (D5) Gauge or Well Data (D9) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Other (explain in remarks) Field Observations: Indicators of wetland hydrology present? <u>No</u> Surface water present? Surface Water Depth (inches): Describe Recorded Data: Water table present? Water Table Depth (inches): Saturation present? (includes capillary fringe) Saturation Depth (inches): Recorded Data: Aerial Photo Monitoring Well Stream Gauge **Previous Inspections** Hydrology Remarks: No hydrology indicators

WETLAND DETERI	MINATION D	ATA FORM - Midwest Region
Project/Site: Basset Creek Restoration Applicant/Own	ner: <u>BCWMC</u>	City/County: Minneapolis/Henne State: MN Sampling Date: 11/25/15 pin
Investigator(s): BKB Section:	<u>21</u>	Township: 29 Range: 24 Sampling Point: 3-1 WET
Land Form: Toeslope Local Relief:	Concave	Slope %: 1 Soil Map Unit Name: <u>Urban land-Udorthents wet sub 0-2% slope</u>
Subregion (LRR): M Latitude:	<u>4980539</u>	Longitude: 476721 Datum: UTM Nad 83 Zone 15N
Cowardin Classification: PEMA/Fx Circular 39 C	assification: Type 1/3	3 Mapped NWI Classification: PEM1Ax
Are climatic/hydrologic conditions on the site typical for this time of year?	Yes (If no, expla	lain in remarks) Eggers & Reed (primary): Seasonally Flooded Basin
Are vegetation No Soil No Hydrology No sign	gnificantly disturbed?	Are "normal Yes Eggers & Reed (secondary): Shallow Marsh circumstances" Eggers & Reed (tertiary):
Are vegetation No Soil No Hydrology No na.	urally problematic?	present? Eggers & Reed (quaternary):
		point locations, transects, important features, etc.
Hydrophytic vegetation present? Hydric soil present? Indicators of wetland hydrology present? Is the sampled area within a wetland? Yes General Remarks (explain any answers if needed) Yes If yes, optional v	d):	etland 3
	vetana one ib. <u>vvet</u>	<u>uano 0</u>
/EGETATION		
	Absolute Dominan	
<u>Tree Stratum</u> (Plot Size: 30 ft)	<u>% Cover</u> <u>Species?</u>	Tree Statum 0
1.	0	Sapling/Shrub Stratum
2.	0	Herb Stratum
3.	0	
4.	0	Dominance Test Worksheet:
Total Cover:	<u>0</u>	Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)
Sapling/Shrub Stratum (Plot Size: 15 ft)		Total Number of Dominant
1.	0	Species Across All Strata: 2 (B)
2. 3.	0 0	Percent of Dominant Species That Are ORL FACW or FAC: 100.00% (A/B)
4.	0	That Are OBL, FACW or FAC:
5.	0	Prevalence Index Worksheet:
Total Cover:	<u>0</u>	Total % Cover of: Multiply by:
Herb Stratum (Plot Size: 5 ft		OBL Species 0 X 1 0
1. Solidago gigantea	60 Yes	FACW Species80 X 2160
2. Phalaris arundinacea	20 Yes	FACW FAC Species1 X 33
3. Arctium minus	2 No	FACU FACU Species 2 X 4 8
4. Rumex crispus	1 No	FAC UPL Species 0 X 5 0
5.	0	Column Totals: 83 (A) 171 (B)
6.	0	Prevalence Index = B/A = 2.06
7.	0 0	Hydrophytic Vegetation Indicators:
8. Total Cover:		No Rapid Test for Hydrophytic Vegetation
Woody Vine Stratum (Plot Size: 30 ft)	<u>83</u>	Yes Dominance Test is >50%
		Yes Prevalence Index ≤ 3.0 [1]
1. <u> </u>	0 0	No Morphological Adaptations [1] (provide supporting data
Total Cover:	<u>0</u>	in vegetation remarks or on a separate sheet) No Problematic Hydrophytic Vegetation [1] (Explain)
% Bare Ground in Herb Stratum:	% Sphagnum Moss Co	[1] Indicators of hydric soil & wetland hydrology must be present, unless
Vegetation Remarks: (include photo numbers here or on a separate	. •	Hydrophytic vegetation present? Yes

SOIL Sampling Point: 3-1 WET Profile Description: (Describe to the depth needed to document the indicator or confirm the abscence of indicators). Depth Matrix Redox Features (inches) Color (moist) Color (moist) Type [1] Loc [2] Texture Remarks Sandy Clay Loam 0 - 2 10YR 2/1 2 2 - 8 10YR 3/2 98 10YR 3/4 С Μ Loamy Sand 2 2 98 10YR 3/4 С М 8 - 15 2.5Y 2.5/1 Loamy Sand 3. 4 [1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2] Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted) Indicators for Problematic Hydric Soils [3]: Histosol (A1) Sandy Gleyed Matrix (S4) Coast Prairie Redox (A16) Histic Epipedon (A2) ✓ Sandy Redox (S5) Dark Surface (S7) Black Histic (A3) Stripped Matrix (S6) Iron-Manganese Masses (F12) ☐ Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) Very Shallow Dark Surface (TF12) Stratified Layers (A5) Loamy Gleved Matrix (F2) Other (explain in soil remarks) 2 cm Muck (A10) Depleted Matrix (F3) Depleted Below Dark Surface (A11) ✓ Redox Dark Surface (F6) Thick Dark Surface (A12) Depleted Dark Surface (F7) [3] Indicators of hydrophytic vegetation and wetland hydrology Sandy Mucky Mineral (S1) Redox Depressions (F8) must be present, unless disturbed or problematic. 5 cm Mucky Peat or Peat (S3) Restrictive Layer (if present): Hydric soil present? Depth (inches): Yes Type: Soil Remarks: **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Water-Stained Leaves (B9) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Fauna (B13) Drainage Patterns (B10) Saturation (A3) True Aquatic Plants (B14) 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 Iron (C4) Stunted or Stressed Plants (D1) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) ✓ Geomorphic Position (D2) ✓ FAC-Neutral Test (D5) Iron Deposits (B5) Thin Muck Surface (C7) Gauge or Well Data (D9) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Other (explain in remarks) Field Observations: Indicators of wetland hydrology present? <u>Yes</u> Surface water present? Surface Water Depth (inches): Describe Recorded Data: Water table present? Water Table Depth (inches): Saturation present? (includes capillary fringe) Saturation Depth (inches): Recorded Data: Aerial Photo Monitoring Well Stream Gauge **Previous Inspections**

Hydrology Remarks:

Appendix B Site Photographs

Appendix B – Basset Creek Restoration Project Feasibility Study Wetland Delineation Site Photos

Photo 1 – November 25, 2015

Wetland 1

Wetland 1 is located on the west side of Basset Creek across from the abandoned Fruen Mill. It is seasonally flooded by Basset Creek during the growing season. Soils were saturated to the surface throughout most of the basin and it is sparsely vegetated. Upland side slopes leading into Wetland 1 are approximately 15 percent.



Photo 2 – November 25, 2015

Basset Creek Study Reach

Reach segment looking downstream between Wetlands 1 and 2. Fruen Mill is pictured on the east side of Basset Creek. Shoreline is mostly riprap, but some of the creek edges are concrete.



Photo 3 – November 25, 2015

Wetland 2

Wetland 2 is a seepage wetland. This photo shows where Wetland 2 connects with Basset Creek. Water drains from Wetland 2 into Basset Creek at this point.



Appendix B – Basset Creek Restoration Project Feasibility Study Wetland Delineation Site Photos

Photo 4 – November 25, 2015

Wetland 2

Facing southwest toward forested upland. Wetland 2 is much higher in elevation than Basset Creek but much lower in elevation than the adjacent uplands to the west. The small channel in this photo shows water draining from Wetland 2 into Basset Creek. Wetland 2 is dominated by reed canary grass and cattails but there are also shrubs and a few trees present. Bare saturated soil is present near the seepage area.



Photo 5 – November 25, 2015

Basset Creek Study Reach

Typical view of Basset Creek just east of Cedar Lake Road facing downstream to the east. Much of the creek edges are steep and undercut.



Photo 6 – November 25, 2015

Basset Creek Study Reach

Another view of Basset Creek facing east further downstream from Photo2.



Appendix B – Basset Creek Restoration Project Feasibility Study Wetland Delineation Site Photos

Photo 7 – November 25, 2015

Wetland 3

South portion of ditched Wetland 3. Soils are saturated within 12 inches of the soil surface in some areas. Dominant vegetation consists of reed canary grass, giant goldenrod and willow species.



Photo 8 – November 25, 2015

Wetland 3

Central portion of ditched Wetland 3 has standing water up to 3 inches and is dominated by narrow-leaf cattail.



Photo 9 – November 25, 2015

Wetland 3

The northern portion of ditched Wetland 3 is inundated between 5 inches and 12 inches. Most of this area does not have emergent vegetation.

