Applicant:	Drew McGovern; Hennepin County
Consultant:	
Project:	East Bush Lake Road Emergency Overflow
Location:	East Bush Lake Road at Bush Lake Beach Driveway: Bloomington
Applicable Rule(s):	2, 3, 4, and 5
Reviewer(s):	Bob Obermeyer; Barr Engineering Co.

# General Background & Comments

Hennepin County is proposing the construction of a high-level outlet for Goose Nest Pond (Pond) located within the Richardson Nature Center for safety and roadway protection of East Bush Lake Road (Road) in Bloomington. In 2019-2020, the water level of the Pond, Minnesota Department of Natural Resources (MDNR) Protected Waters #1061P, rose to an elevation that inundated the existing pedestrian trail, located between the Pond and the Road, and overtopped the Road. Because of concerns with high water conditions affecting the integrity of the Road and presenting safety concerns for vehicle traffic, an emergency pumping plan was initiated by the County to temporarily draw the highwater conditions down to a level closer to a normal condition for the Pond. The pumped water was directed to an existing stormwater basin, located south of the entryway into the beach at Bush Lake (Lake), prior to discharging to the Lake. The district issued Permit #2020-52 to Three Rivers Park District for the construction of a "temporary" boardwalk, located in the area of the inundated pedestrian trail, for trail users' safety. Trail users were using the shoulder of the Road to bypass the inundation portion of the trail.

Because of the Road inundation, the County contracted with Barr Engineering to complete a water balance analysis for the Pond and the three upstream basins, Turtle Basking Pond, Wood Duck Pond and Muskrat Pond, basins tributary to the Pond. The three upstream basins are also located within the Richardson Nature Center. The water balance analysis looked at six different scenarios and climatic conditions to evaluate the Pond and the effects of pumping the Pond compared to a no-pumping alterative that would result in inundation of the Road.

Based on the completed analysis, the County is proposing to construct a below grade sand filter with a drain tile (System) along the shoulder of the Road. The System would provide a non-pumping alterative for keeping the roadway base section dry, helping to minimize premature roadway failure. When the Pond is at an elevation at or below 842.7 M.S.L., the elevation of the roadway shoulder, the System will be "off-line" with the Road runoff continuing to flow into the existing roadway ditch, thru the existing culvert beneath the existing trail and into the Pond. In elevated Pond conditions, the System will maintain the 842.7 M.S.L. elevation by discharging to a constructed control manhole with a "flow-thru" elevation of 842.7 M.S.L. must be shoulder. The System will allow high water conditions to drain gradually throughout the season avoiding the need for temporary pumping, likely when the Lake is also at a highwater level.

In addition to the System installed along the shoulder of the roadway the water level control manhole, 225 lineal feet of 12-inch storm sewer will be installed from the control manhole (on the east side of the Road) to the west connecting an existing system located in the Bush Lake Park entryway that discharges to the existing stormwater basin previously identified. The System, as proposed with a solid cover on the control manhole, will provide a mechanism for minimizing the potential of aquatic invasive vegetation from the Pond being discharged downstream, to Bush Lake.

The MDNR has indicated a public waters permit will not be required for the project.

District rule 2 applies to the project because the proposed System will be installed below elevation 844.5 M.S.L., the 100-year high water elevation of the Pond.

Because the Pond has been identified as MDNR Protected Waters #1061P, the district buffer requirements, rule 3.4, do not apply.

The project is a linear project, as defined by the NMCWD rules, because the proposed landdisturbing activities include the construction of a public improvement, a storm sewer system within a linear corridor on either Hennepin County or City of Bloomington property. The project does not propose the creation or addition of any new impervious area. Therefore, since the project proposes less than 1-acre of new impervious area, the requirements of district Rule 4.3.1 will not apply.

Sediment control logs and inlet protection are to be installed to provide erosion control for compliance with district rule 5.0.

District rules 6 and 7 (Waterbody Crossing and Shoreline and Streambank Improvements) respectively, do not apply to the project because the project will not, 1) use the bed and banks of a waterbody for the replacement of bridges, utilities or other structures nor will the project construct, improve, repair or remove a crossing in contact with or under the bed or bank of a waterbody or 2) install a shoreline or streambank improvements.

Exhibits Reviewed:

- 1. Permit Application dated December 26, 2022.
- 2. Project narrative and description received March 22,2023, prepared by Hennepin County.
- 3. Construction plans, 60% Plan, dated December 1, 2022, received December 26, 2022.
- 4. Richardson Nature Center Hydrologic Model prepared by Barr Engineering dated July 27, 2020.
- 5. E-mail correspondence dated January 3, 2023, to the district administrator outlining several items required to be submitted for the application to be considered complete. Information provided by Hennepin County received March 22, 2023.

The application is considered complete.

# 2.0 Floodplain Management and Drainage Alterations

Proposed earth work (excavation for the sand filter and 6-inch drain tile) will take place below the 100-year frequency flood elevation of Goose Nest Pond, 844.5 M.S.L. Because the project will involve land-altering activities below the flood elevation of wetland MDNR #1061P (Goose

Nest Pond), the project must conform to the requirements of the District's Floodplain Management and Drainage Alterations Rule 2.0 in accordance with Rule 2.2.1.

Rule 2 criteria for floodplain and drainage alterations includes the following:

2.3.1: The low floor elevation of all new and reconstructed structures must be constructed in accordance with the NMCWD Stormwater Rule, subsection 4.3.3

The project does not include new or reconstructed buildings bridges or boardwalks that qualify as "structures" pursuant to NMCWD Resolution #22-02 throughout the project corridor.

2.3.2: Placement of fill below the 100-year flood elevation is prohibited unless fully compensatory flood storage is provided within the floodplain and:

- a. at the same elevation +/- 1 foot for fill in the floodplain; or
- *b.* at or below the same elevation for fill in the floodplain of a water basin or constructed stormwater facility.

The project will not result in filling below elevation 844.5 M.S.L. the 100-year frequency flood elevation of Goose Nest Pond (MDNR Protected Waters 1061P) that will result in a reduction in flood volume. The proposed earthwork, excavation for the sand filter and 6-inch drain tile, will temporarily disturb an existing area below the 844.5 M.S.L. flood elevation. At the completion of the sand filter and drain tile installation, the area will be restored to pre-project conditions and elevations.

2.3.3. The District will issue a permit to alter surface flows only if it finds that the alteration is not reasonably likely to have a significant adverse impact on any upstream or downstream landowner and is not reasonably likely to have a significant adverse effect on flood risk, basin or channel stability, groundwater hydrology, stream base-flow, water quality or aquatic or riparian habitat.

The project will not alter existing surface flows but will provide an outlet for a "land-locked waterbody. The project will improve the flood risk of Goose Nest Pond and the surrounding area, but not affect basin or channel stability, groundwater hydrology, stream base-flow, water quality or aquatic or riparian habitat.

2.3.4 No structure may be placed, constructed, or reconstructed and no surface may be paved within 50 feet of the centerline of any water course, except that this provision does not apply to:

a. Bridges, culverts, and other structures and associated impervious surface regulated under Rule 6.0;

b. Trails 10 feet wide or less, designed primarily for nonmotorized use.

No structure is proposed to be placed, constructed, or reconstructed as part of the project and no water course is located within the project area.

#### 3.0 Wetlands Management

Goose Nest Pond has been identified as MDNR Protected Waters #1061P, therefore the district's buffer requirements, rule 3.4, are not applicable.

#### 4.0 Stormwater Management

The district's requirements for stormwater management do not apply to the project because the project is a linear project, as defined by the NMCWD rules. Because the proposed land-disturbing activities associated with the construction of a public improvement (a sand filter with a 6-inch drain tile, a water control manhole and 225 lineal feet of 12-inch storm sewer) are within a linear corridor and no new or additional impervious area is proposed to be created, the stormwater requirements of Rules 4.3.1 do not apply.

# 5.0 Erosion and Sediment Control

The district's requirements for erosion and sediment control apply to the project because more than 50 cubic yards of material will be disturbed and 5,000 square feet or more of surface area is altered, Rules 5.2.1a and b.

The erosion control plan prepared by Hennepin County includes installation of sediment core logs and storm sewer inlet protection. The contractor for the project will need to designate a contact who will remain liable to the district for performance under the district's Erosion and Sediment Control Rule 5.0 from the time the permitted activities commence until vegetative cover is established, in accordance with subsection 5.4.1e. NMCWD must be notified if the responsible individual changes during the permit term.

# 11.0 Fees

Because the property owner is a public entity, no fees are charged.

Rules 4.0 and 5.0

# 12.0 Financial Assurances

Financial Assurances for the project are not required because the permit applicant is a public entity: \$0

\$0

# **Findings**

- 1. The proposed project includes the information necessary, plan sheets for review.
- 2. The proposed project conforms with Rule 2,3,4 and 5.

# **Recommendation**

Approval, contingent upon:

#### **General Provisions**

The applicant provides a name and contact information for the individual responsible for the erosion and sediment control at the site. NMCWD must be notified if the responsible individual changes during the permit term.

The water control manhole be constructed with a watertight cover rather than an open grate as shown in the construction plans. The watertight cover will further eliminate the possibility of the transport of aquatic invasive vegetation from Goose Nest Pond to Bush Lake.

By accepting the permit, when issued, the applicant agrees to the following stipulations for closeout of the permit and release of the financial assurance after the project:

Per Rule 4.5.6, an as-built drawing of the floodplain areas disturbed and restored conforming to the design specifications of the project as approved by the district.



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#### **GOVERNING SPECIFICATIONS**

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANS-PORTATION "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" AND THE "SUPPLEMENTAL SPECIFICATIONS" DATED SEPTEMBER 2022 SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE LATEST EDITION OF THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS". INDEX DESCRIPTION TITLE SHEET STATEMENT OF ESTIMATED QUANTITIES STANDARD PLATES **INPLACE UTILITY PLAN & TABULATIONS** TYPICAL SECTIONS MISCELLANEOUS DETAILS STANDARD PLANS & DETAILS REMOVAL PLAN

- CONSTRUCTION PLAN
- SAND FILTER PLAN
- DRAINAGE PLAN
- DRAINAGE PROFILES AND TABULATIONS
- EROSION CONTROL PLAN
- WATER RESOURCE NOTES
- DETOUR PLAN

#### THIS PLAN CONTAINS 25 SHEETS

HENNEPIN COUNTY: COUNTY ENGINEER DATE

DATE

HENNEPIN COUNTY: DESIGN DIVISION ENGINEER DATE

#### TITLE SHEET SHEET CSAH 28 / HENNEPIN COUNTY PROJECT 2183328 1 25





TYPICAL SECTION CSAH 28

# CSAH 28 / HENNEPIN COUNTY PROJECT 2183328

SHEET

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BITUMINOUS FLUME. SEE SHEET 7 FOR DETAIL.

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ONSTRUCTION PLAN	SHEET
NEPIN COUNTY PROJECT 2183328	15 25

SUBSURFACE DRAIN SECTION
6" PERFORATED PE PIPE DRAIN
O DRAIN TILE CLEAN OUT
PROPOSED STORM STRUCTURE
CONSTRUCTION LIMITS
SUBSURFACE DRAIN TABULATION
CLEANOUT LOCATION
EASTING NORTHING LIN FT EACH
502032.202 117000.657 2.5 150 1
502033.224 117002.021 2.5 150 1
SUBTOTAL THIS SHEET 300 2

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PMH 5002

(<u>ICB</u>) (<u>600</u>2)



		DESIGN BY: JLABAT	S
Hennepin	90% PLAN	CAD BY: J LA <u>bat, m Kuch</u> aes Checked By: <u>D McGovern</u> Last Bevision.	CSAH 28 / HENNI
		LAST REVISION:	



SEE SHEET 7 FOR TYPICAL SECTION





RAINAGE PLAN	SHEET
NEPIN COUNTY PROJECT 2183328	17 25

	DRAINAGE TABULATION																						
STRUCTURE LOCATION TOP OF (1) CASTING			SLOPE (3)		STRUCTURE TYPE (7)		12" RCP	CONNECT TO EX STORM	NOTES														
NUMBER	FLOWSTO	FASTING		ELEVATION	(3)	(3)	(3) ELEV	(3)	N (3) E	ELEVATION (3)	(3) ELEVATION (3) %	ELEVATION (3)	ELEVATION (3)	ELEVATION (3)	ELEVATION (3)		CASTING ASSEMBLY	CASTING ASSEMILET	SD - 48	48-4020	02 (0)	SEWER (9)	NOTES
			Diamo	Northing	(2)	(2)							%	LIN FT	LIN FT	LIN FT	EACH						
5000	5001	502058.94	116853.12	845.17	840.98	840.76	0.50	NEENAH R-1733 OR APPROVED EQUIVALENT	4.19		45		(10)										
5001	5002	502018.67	116833.28	845.00	840.66	836.83	2.14	NEENAH R-1733OR APPROVED EQUIVALENT		4.34	179		(10)										
5002	EXSTM SEWER	501841.22	116812.90	841.01	833.01	N/A	N/A	CITY STANDARD PLATE		8.00		2	(6) (10)										
	•		•		1	F	•	STORM SEWER SUBTOTAL:	4.19	12.34	224	2											

#### GENERAL NOTES:

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- P -STRUCTURE LOCATION IS THE CENTER OF THE STRUCTURE. (1)
- (2) TOP OF CASTING ELEVATION IS AT THE CENTER OF THE COVER. 0.1' SUMP IN PAVEMENT IS INCLUDED IN THE CASTING ELEVATION.
- (3) INVERT ELEVATIONS, SLOPES, AND PIPE LENGTHS ON THE TABULATION AND PROFILE ARE TO THE CENTER OF THE STRUCTURE.
- "SD" STRUCTURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH MNDOT STANDARD PLATE 4024A (4)
- "4020" STRUCTURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH MNDOT STANDARD PLATE 4020J. (5)
- (6) STRUCTURE TO BE CONSTRUCTED IN ACCORDANCE WITH CITY OF BLOOMINGTON STANDARD PLATES.
- (7) STUCTURE HEIGHT INCLUDES CASTING AND RINGS.
- (8) ALL CIRCULAR CONCRETE PIPE SHALL BE 3006 GASKET JOINT PIPE.
- (9) CONNECTION TO EXISTING STORM SEWER SHALL BE IN ACCORDANCE WITH CITY OF BLOOMINGTON STANDARDS.
- (10) 2 CONCEALED PICK HOLES WITH SELF SEALING LID.
- (11) FIELD VERIFY EXISTING STORM SEWER ELEVATION

		CASTING
CASTING ASSEMBLY	NUMBER REQUIRED	
NEENAH R-1733 OR EQUIVALENT	2	2 CONCE
CITY OF BLOOMINGTON	1	IN ACCO
TOTAL:	3	



		DESIGN BY: JLABAT	D R A I N A G E
Hennepin	<b>90% PLAN</b>	CAD BY: J LABAT, M RUCHAES CHECKED BY: <u>D MCGOVERN</u> LAST REVISION:	CSAH 28 / HENN

