



Title: Permit 20-591: City of Shorewood - Glen, Amlee, and Manitou Road Reconstruction and Drainage Project

Prepared by: Name: Grace Barlow
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Recommendation:

Approval of the MCWD permit application on the following condition:

1. Execution of an agreement or a recordable instrument in a form acceptable to the District, documenting city perpetual obligation to maintain stormwater management facilities and waterbody outlet structures

Background:

The City of Shorewood (City) has applied for a Minnehaha Creek Watershed District (MCWD or District) permit for a road reconstruction and drainage improvement project along Amlee Road, Manitou Lane, and a portion of Glen Road. The purpose of the project is to decrease the volume of runoff through private residential properties within the area, which has been historically flood prone and experiencing erosion issues as a result.

This permit is before the Board of Managers by request from members of the public. Prior to the public notice distribution, a concerned member of the public contacted staff expressing concern regarding the project. At that time, staff outlined a transparent process to the concerned resident to provide regular updates on the projects permit review, and spoke with this resident on December 1st, 2020, December 8th, 2020, January 28th, 2021, and April 9th, 2021. A public notice was provided to all property owners within 600 feet of the project on March 29th, 2021. Staff received a request for Board Consideration on April 9th, Staff spoke with concerned residents to discuss their concerns. A notice that the Board would consider the permit application at the April 22nd, 2021, regular meeting was provided to all residents within 600 feet of the project area on April 12th, 2021.

The project area is located within a residential neighborhood in the north-west portion of Shorewood, directly to the south of the Lake Minnetonka Regional Trail. This portion of Shorewood is approximately half of a mile west from Gideon's Bay of Lake Minnetonka.

Under current conditions, drainage in the neighborhood generally flows overland through a series of existing ditches to a downstream wetland, referred to in this report as Amlee Wetland, ultimately draining to Gideons Bay. Amlee Wetland is located along the north side of the Glen Road and outlets through a culvert underneath the Lake Minnetonka Regional Trail northward across the municipal boundary to the City of Tonka Bay. In addition to Amlee Wetland, there are a number of existing basins and drainage culverts within the project area, as shown in Attachment 3. One of these basins includes an existing constructed stormwater pond, commonly referred to as Gideon's Pond.

In order to decrease runoff in this historically flood prone area, the City of Shorewood is proposing to reconstruct and widen Glen Road, Amlee Road, and Manitou Lane in addition to installing curb and gutter and associated storm sewer. The project is also proposing to incorporate a new cul de sac on Glen Road. To bolster flood resiliency and meet District rules, the City is proposing an expansion to the Gideon's Pond stormwater basin, in addition to creating a new biofiltration basin and raingarden on the western edge of the Glen Road cul de sac.

The project is subject to the District's Erosion Control, Wetland Protection, Waterbody Crossings and Structures, and Stormwater Management rule. The City has also applied for a permit under the Wetland Conservation Act (WCA), as the District is the local government unit responsible for administering WCA within the City of Shorewood.

The District received the initial water resource permit application on November 11th, 2020. This application was updated on December 10th, 2020. Additional requests for information were provided to the applicant on December 21st, 2020, December 30th, 2020, January 12th, 2021, and February 16th, 2021. The application was deemed complete on February 16th, 2021. The accompanying engineering memo can be found in Attachment 8. A 60-day extension was signed by the City of Shorewood to allow for additional time to address resident concerns (Attachment 2). The deadline to make a determination on the application is July 9th, 2021.

District Rule Analysis:

Erosion Control Rule

The District's Erosion Control Rule is applicable to projects proposing at least 5,000 square feet of land disturbance or 50 cubic yards of fill, grading, excavating, or stockpiling. The Applicant is proposing 184,187 SF of disturbance. As a result, this project is subject to review under the District's Erosion Control Rule.

The applicants have provided a Stormwater Pollution Prevention Plan and Erosion Control plan to meet District requirements. Silt fences will be established around all disturbed areas to provide perimeter control. This includes the establishment of silt fence around the perimeter of all areas of disturbance, as well as the use of hydroseed and long term sod to stabilize areas of disturbance. Inlet protection will also be provided.

As a result, the proposed project meets the criteria of this rule.

Wetland Conservation Act

The City of Shorewood applied for Wetland Conservation Act (WCA) permits with the Minnehaha Creek Watershed District, as the District acts as the administering body for WCA within the municipality. The project includes construction of a stormwater outlet and associated energy dissipation rip rap on the edge of Amlee Wetland.

The City of Shorewood applied for a Boundary and Type determination under Permit W19-19 on August 9th, 2019 with the Notice of Application (NOA) issued on August 30th, 2019. This application reviewed a delineation performed on June 5th, 2019. No comments were made by the Technical Evaluation Panel (TEP) during the Boundary and Type comment period and the Notice of Decision (NOD) was issued on October 2nd, 2019 (Attachment 5). This NOD confirmed four wetlands within the project area, three Type 3 Shallow Marsh wetlands, including Amlee Wetland, and one Type 4 Seasonally Flooded Basin.

The City of Shorewood applied for a No-Loss determination and a second Boundary and Type determination on November 3rd, 2020 (Permit W20-35). The second Boundary and Type determination was to reclassify Amlee Wetland as a Type 2 Shallow Open Water with Seasonally Saturated Edge as a result of historic excavation and grading in the wetland. The NOA was sent on November 17th, 2020. No comments were received from the TEP during the comment period. The NOD was issued automatically 60 days after the comment period's expiration date on December 10th, following guidance provided by the Board of Water and Soil Resources. A formal NOD was issued on April 13th, 2021 for record keeping (Attachment 6). No impacts are proposed as part of the NOD.

Wetland Protection

The District's Wetland Protection rule is applicable to projects that propose wetland draining, filling, or excavation. In addition, the buffer requirement of the rule applies to work that triggers a permit under the District's Stormwater Management or Waterbody Crossings and Structures rules.

However, per section 2 (b) of the rule, no wetland protection permit is needed when the work meets the Wetland Conservation Act's no-loss or exemption criteria. As mentioned in the introduction and Wetland Conservation Act section, four wetlands were identified within the project area. Amlee Wetland is the only wetland of the four impacted by the proposed work as a result of a stormwater outlet structure and associated rip rap.

The impacts to Amlee Wetland fall within the Wetland Conservation Act No-Loss criteria, as noted above. As a result, the Wetland Protection rule and associated buffers are not applicable for this project.

Waterbody Crossings and Structures

The Waterbody Crossings and Structures Rule is triggered whenever a structure is placed in the bed or bank of a waterbody. This project is subject to this rule as it proposes new discharge points and culverts within the project area that impact the bed or bank of existing wetlands.

Per section 3(a) of the rule, the use of the bed or bank shall meet a demonstrated public benefit. As there are no public waters being impacted by this project, review under section 3(a) of the rule is not applicable

Per Section 3(b) of the rule, use of the bed or bank shall retain adequate hydraulic capacity and may not result in upstream or downstream increases in flood stage. Table 1 below outlines the existing and proposed 100-year HWLs for downstream waterbodies where a new or altered discharge point or culvert is impacting the bank.

Waterbody	Existing HWL (ft)	Proposed HWL (ft)	Change (ft)
Harding Lane Basin	954.57	954.35	-0.22
Cul de Sac Raingarden	957.11	956.96	-0.15
Amlee Wetland (Amlee Pond)	938.54	938.53	-0.01
Gideons Pond	947.89	947.88	-0.01

Table 1; Existing and Proposed High Water Levels, 2/16/21 Wenck Memo

Upstream impacts are not being analyzed within this section as there is not an upstream area- the project is proposing to capture overland flow that was previously unmanaged. This table demonstrates that the proposed engineering practices will not have negative hydraulic impacts on downstream waterbodies. Therefore, section 3(b) of the rule has been met.

Section 3(d) of the rule requires projects to preserve aquatic and upland wildlife passage. This section is not applicable as the project is proposing to capture existing overland flow, as opposed to taking an existing waterbody or contain it through a culvert. The proposed impacts associated with this project do not include above-ground structures that would impede passage. Therefore, passage is preserved and section 3(b) of the rule has been met.

Per Section 3(e) of the rule, use of the bed or bank shall not adversely affect water quality. The pipe was designed in a way that will not promote erosion, scouring, or sediment deposition as energy dissipation in the form of rip rap will be included at the outlet. In addition, the storm sewer discharge points associated with this project will receive pre-treatment and phosphorous removal in order to meet District stormwater management standards, as the proposed project also triggers this rule. Further analysis of phosphorous removal is analyzed in the Stormwater Management section of this report. Therefore, section 3(e) of the rule has been met.

Section 3(f) states that the use of the bed or bank shall represent the “minimal impact” solution to a specific need with respect to all other reasonable alternatives. The applicant provided three alternative analyses to be considered in order to justify the scope of the project (Attachment 5). All alternatives below would have prevented impacts to the outlet at Amlee Wetland.

The first alternative provided and analyzed was the creation of a new wet pond within the south ditch of the Hennepin County Railroad Authority right of way, adjacent to the Lake Minnetonka Regional Trail, which was not preferable as constructing a BMP within a City Easement allows for easier maintenance access than a BMP in another agency’s right of way.

The second alternative provided and analyzed was the creation of an underground detention basin within the Glen Road cul de sac. This option was not preferable based on site soils falling within a low hydrologic class and cost effectiveness.

Finally, the third alternative proposed was a no build scenario, which would not alleviate the flooding or erosion issues experienced by properties within the project area.

Therefore, section 3(f) of the rule has been met.

Section 3(g) of the rule is not applicable, as no bored utility lines are proposed underneath the bed or bank of a watercourse.

Section 3(h) of the rule is not applicable, as this project is not proposing to install, modify, or excavate a sanitary sewer.

Per section 6 of the rule, maintenance agreement requirements will be met upon Board approval of this project, as a condition of the permit.

In summary, the proposed project meets the criteria of the rule.

Stormwater Management

The District's Stormwater Management rule is applicable for any project that creates new or replaces existing impervious surface in a way that affects the direction, peak rate, volume, or water quality of runoff. Widening the three roads and constructing a new cul de sac will result a net increase of 13,126 sf (0.3 ac) of linear impervious surface.

This increase results in the project exceeding the District's linear exemption threshold and being held to the criteria of Section 6 of the District's Stormwater Management Rule. This section states that linear reconstruction projects that propose to increase impervious area within the project limits by more than 10,000 SF and less than one acre from the existing conditions must meet the phosphorous control requirements in accordance with subsection 3(a) and rate control requirements in accordance with subsection 3(b).

Table 2 below summarizes the size of the project area, area to be disturbed, and existing and proposed impervious amounts.

Size of Site (ac)	Site Drains To	Existing Impervious in disturbed area (ac)	Proposed Impervious in disturbed area (ac)
4.23 ac	Lake Minnetonka	2.2	2.5

Table 2: Stormwater Management Site Summary, 2/16/21 Wenck Memo

The applicant has proposed to meet phosphorous and rate control requirements through the creation of a new biofiltration basin and the expansion of an existing stormwater pond, referred to as Gideon's Pond. In conjunction with the expansion, Gideon's Pond will be cleaned out in order to ensure that the pond will accommodate the additional runoff directed there.

Phosphorous Control

As outlined in subsection 3(a), in order to meet District phosphorous control requirements for linear reconstruction, the project must result in no net increase in phosphorous loading from existing conditions. The combination of the Gideons Pond expansion and new biofiltration basin will result in a 0.92 pounds per year decrease in total phosphorous leaving the site, which satisfies the District's standards.

Rate Control

As outlined in subsection 3(b), in order to meet District rate control requirements for linear reconstruction, the project must not result in any net increase in the peak runoff rate for the 1, 10, and 100 year storm events. Table 3 below shows the rate control for each of the six discharge points associated with this project.

Drainage to Lake Minnetonka	1-year Storm (cfs)		10-year Storm (cfs)		100-year Storm (cfs)	
	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
West – Harding Lane	2.8	2.4	6.1	5.6	13.7	9.2
North – Amlee Outlet	10.0	7.6	35.9	34.1	57.6	50.8
North – Ditch 11	7.7	5.4	24.9	24.5	56.3	49.4
North – Ditch 16 Flow	3.2	2.2	7.9	6.7	70.6	70.4
East – South Glen Rd. Outlet	1.0	1.0	3.7	3.7	3.7	3.7
Landlocked – Glen Rd. Cul de sac	0.2	0.0	3.2	0.0	11.3	4.8
Total	24.9	18.6	81.7	74.6	156.9	188.3

Table 3: 1, 10, and 100 year Rate Table, 2/16/21 Wenck Memo

High Water Elevation

The high water elevation requirement of the District’s Stormwater Management rule requires that all applications shall provide at least two vertical feet of separation between low openings of structures and the 100-year high water elevations of stormwater BMPs and waterbodies.

Table 4 below shows the existing and proposed high water level in comparison to low openings within the subcatchment of each of the project’s stormwater BMPs (referred to below as Sub-02 / Cul de sac Raingarden, PR-111-BMP, and Gideon’s Pond) and downstream waterbodies or outlet ponding areas (referred to below as Harding Lane / Basin-01, Culvert Inlet-03, Amlee Wetland, 06, 07, 08, and 09 Basins).

Waterbody	Nearby Low Opening (ft)	Existing Elevation (ft)	Proposed Elevation (ft)	Change (ft)
Harding Lane (Basin-01)	954.50 (approx)	954.57	954.53	-0.22
Sub-02-Cul de sac Raingarden	973 (approx)	957.11	956.96	-0.15
Culv Inlet-03/Storm-25	961 (approx)	961.06	960.15	-0.91
PR-111 BMP	959.76	N/A	953.41	N/A
Amlee Wetland	939.36	953.54	938.53	-0.01
05-Basin	956 (approx)	957.64	957.64	-
Gideons Pond	950.52	947.89	947.88	0.01
08-Basin	952 (approx)	948.53	948.53	-
07-Basin	952 (approx)	949.98	949.98	-
09-Basin	970 (approx)	952.80	952.80	-

Table 4: Change in High Water Levels and Low Openings

Based on Table 3, the area around Harding Lane / Basin-01, Culv Inlet- 03, and Amlee Wetland do not meet the 2’ freeboard requirement. District staff and District engineers reviewed additional material submitted by the City of Shorewood, found in Attachment 4, which states that these areas have not met this District’s requirement in the past and do not currently meet this requirement under the existing conditions.

The project is proposing to reduce the high water levels for each of the downstream waterbodies and outlet ponding areas, in all areas except for Basin 05- a subcatchment drainage area adjacent to the project boundaries where no work is occurring. These reductions are an improvement from existing conditions. No new structures are being created within any of the drainage areas, which would be subject to the District’s two feet of freeboard rule. However, based on public

concern, Staff have included a review demonstrating that none of the existing separations, which are not covered by the District’s rule, will decrease as a result of this project.

Downstream Waterbodies

The downstream waterbody requirement of the District’s Stormwater Management rule outlines the allowable change in runout control elevation, bounce and inundation of a downstream waterbody for the 1, 10, and 100 year rain events.

Of the above outlet areas listed in Table 5, and as mentioned in other areas of this report, Amlee Wetland is the only natural, managed waterbody downstream of the project. Amlee Pond is considered a District Manage 3 Wetland. Table 4 below shows the existing and proposed bound, inundation period, and proposed runout elevation in comparison to District standards for the management class. All standards are met.

Amlee Wetland*	Bounce (ft)			Inundation Period (days)			Runout Elevation
	1-yr	10-yr	100-yr	1-yr	10-yr	100-yr	
Existing	934.73	935.58	938.54	1.9	2.7	4.7	932.34
Proposed	935.03	935.61	938.53	3.5	3.8	5.1	932.34
District Manage 3 Standards	No Limit			Existing plus 7 days	Existing plus 21 days		No change

Table 5: Amlee Pond Bounce and Inundation Period, 2/16/21 Wenck Memo

Further, District Staff and District Engineers reviewed expanded information to determine if the allowable increase in 1- and 10-year event water levels in Amlee Wetland could potentially be reduced. This expanded information included the following; a review of the full summary of BMP options evaluated during the design phase of the proposed project, information regarding if the current proposed BMPs treatment capacities are being maximized to fullest extent possible and potential changes to the Amlee Wetland outlet. District Staff and District Engineers also discussed how the City of Shorewood engaged residents for those who own parcels that border Amlee Wetland.

The full scope of these documents can be found in Attacment 7. After review of the extended alternatives, District Staff and District Engineers agree that increases to water levels associated with the 1- and 10-year events have been mitigated to the extent feasible.

In summary, the provided phosphorous and rate control, as well as the high water elevation and downstream waterbody protections of the proposed project, meet the criteria of the rule.

Summary:

The City of Shorewood has applied for a Minnehaha Creek Watershed District permit under the Erosion Control, Wetland Conservation Act, Waterbody Crossings and Structures, and Stormwater Management rules for the installation of curb and gutter and associated storm sewer along Amlee Lane and Glen and Manitou Roads. As proposed, the project meets all applicable rules. Staff Recommends approval of the permit with the condition listed at the top of this report.

Supporting documents (list attachments):

- Attachment 1- Water Resource Application
- Attachment 2- 60- Day Extension
- Attachment 3- Existing and Proposed Drainage Map Area
- Attachment 4- Final Complete Drainage Report
- Attachment 5- Waterbody Crossings and Structures Analysis
- Attachment 5- Wetland Conservation Act Boundary and Type NOD
- Attachment 6- Wetland Conservation Act No Loss NOD
- Attachment 7- Amlee Pond Alternatives and Additional Information
- Attachment 8- Wenck Memo

WATER RESOURCE PERMIT APPLICATION FORM

Use this form to notify/apply to the Minnehaha Creek Watershed District (MCWD) of a proposed project or work which may fall within their jurisdiction. Fill out this form completely and submit with your site plan, maps, etc. to the MCWD at:
15320 Minnetonka Blvd. Minnetonka, MN 55345.

Keep a copy for your records.

YOU MUST OBTAIN ALL REQUIRED AUTHORIZATIONS BEFORE BEGINNING WORK.

1. Name of each property owner: City of Shorewood
Mailing Address: 5755 Country Club Road City: Shorewood State: MN Zip: 55331
Email Address: CityEngineer@ci.shorewood.mn.us Phone: 952-474-7635 Fax: _____

2. Property Owner Representative Information (not required) (licensed contractor, architect, engineer, etc...)
Business Name: _____ Representative Name: _____
Business Address: _____ City: _____ State: _____ Zip: _____
Email Address: _____ Phone: _____ Fax: _____

3. Project Address: Glen Rd, Manitou Lane, Amlee Road City: Shorewood
State: MN Zip: 55331 Qtr Section(s): _____ Section(s): 33 Township(s): 117 Range(s): 23
Lot: _____ Block: _____ Subdivision: _____ PID: _____

4. Size of project parcel (square feet or acres): 4.23 Ac
Area of disturbance (square feet): 184,187 SF Volume of excavation/fill (cubic yards): _____
Area of existing impervious surface: 2.2 Ac Area of proposed impervious surface: 2.5 Ac
Length of shoreline affected (feet): 0 Waterbody (& bay if applicable): NA

5. Type of permit being applied for (Check all that apply):
 EROSION CONTROL WATERBODY CROSSINGS/STRUCTURES
 FLOODPLAIN ALTERATION STORMWATER MANAGEMENT
 WETLAND PROTECTION APPROPRIATIONS
 DREDGING ILLICIT DISCHARGE
 SHORELINE/STREAMBANK STABILIZATION

6. Project purpose (Check all that apply):
 SINGLE FAMILY HOME MULTI FAMILY RESIDENTIAL (apartments)
 ROAD CONSTRUCTION COMMERCIAL or INSTITUTIONAL
 UTILITIES SUBDIVISIONS (include number of lots)
 DREDGING LANDSCAPING (pools, berms, etc.)
 SHORELINE/STREAMBANK STABILIZATION OTHER (DESCRIBE): _____

7. NPDES/SDS General Stormwater Permit Number (if applicable): TBD

8. Waterbody receiving runoff from site: Lake Minnetonka

9. Project Timeline: Start Date: May 1, 2021 Completion Date: Sept. 30, 2021

Permits have been applied for: City County MN Pollution Control Agency DNR COE
Permits have been received: City County MN Pollution Control Agency DNR COE

By signing below, I hereby request a permit to authorize the activities described herein. I certify that I am familiar with MCWD Rules and that the proposed activity will be conducted in compliance with these Rules. I am familiar with the information contained in this application and, to the best of my knowledge and belief, all information is true, complete and accurate. I understand that proceeding with work before all required authorizations are obtained may be subject to federal, state and/or local administrative, civil and/or criminal penalties.

 11/11/2020
Signature of Each Property Owner Date

CITY OF SHOREWOOD, MN

CONSTRUCTION PLANS FOR

GLEN ROAD, AMLEE ROAD, MANITOU LANE STREET IMPROVEMENTS

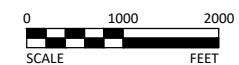
NOVEMBER 2020



SHEET INDEX

SHEET NUMBER	SHEET TITLE
GENERAL	
G0.01	TITLE SHEET
G0.02	LEGEND
G0.03	CONSTRUCTION SOILS AND NOTES
G0.04	GENERAL PLAN LAYOUT
CIVIL	
C0.01-C0.04	EXISTING CONDITIONS & REMOVALS PLAN
C1.01-C1.14	
C1.01	TABLES
C1.02	TYPICAL SECTIONS
C1.03-C1.10	CONSTRUCTION DETAILS
C1.11-C1.14	STAGING & TRAFFIC CONTROL PLAN
C2.01-C2.06	
C2.01-C2.03	EROSION CONTROL & TURF ESTABLISHMENT PLAN
C2.04-C2.06	SWPPP
C3.01-C3.03	
C3.01-C3.03	GRADING PLAN
C4.01-C4.06	
C4.01-C4.06	SANITARY SEWER & WATERMAIN PLAN
C5.01-C5.07	
C5.01-C5.07	STORM SEWER PLAN & PROFILE
C6.01-C6.10	
C6.01-C6.06	STREET PLAN & PROFILE
C6.07-C6.10	INTERSECTION DETAILS
C7.01-C7.08	
C7.01-C7.08	CROSS SECTIONS

MAP OF THE
CITY OF SHOREWOOD
HENNEPIN COUNTY, MN



NOTE: EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ANDREW L. BUDDE
LIC. NO. 46585 DATE 12/09/2020

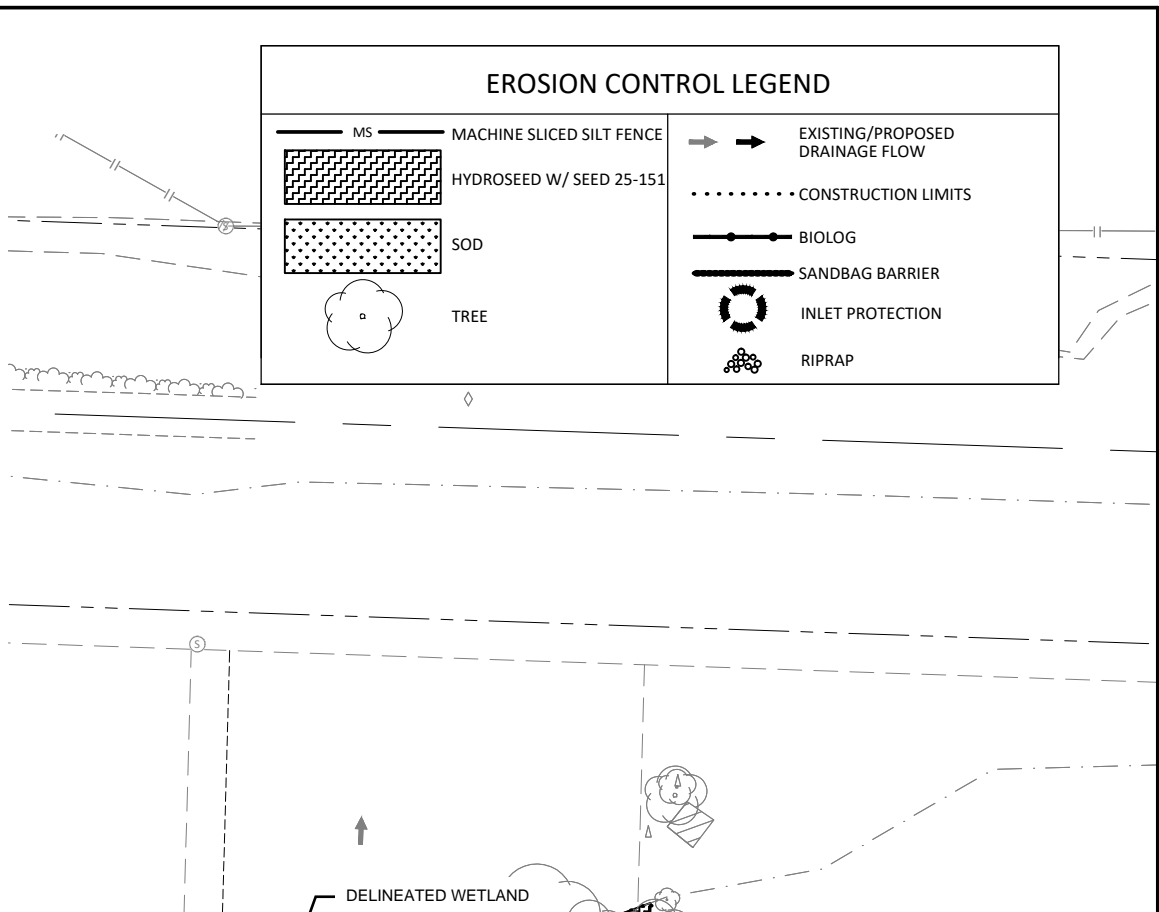
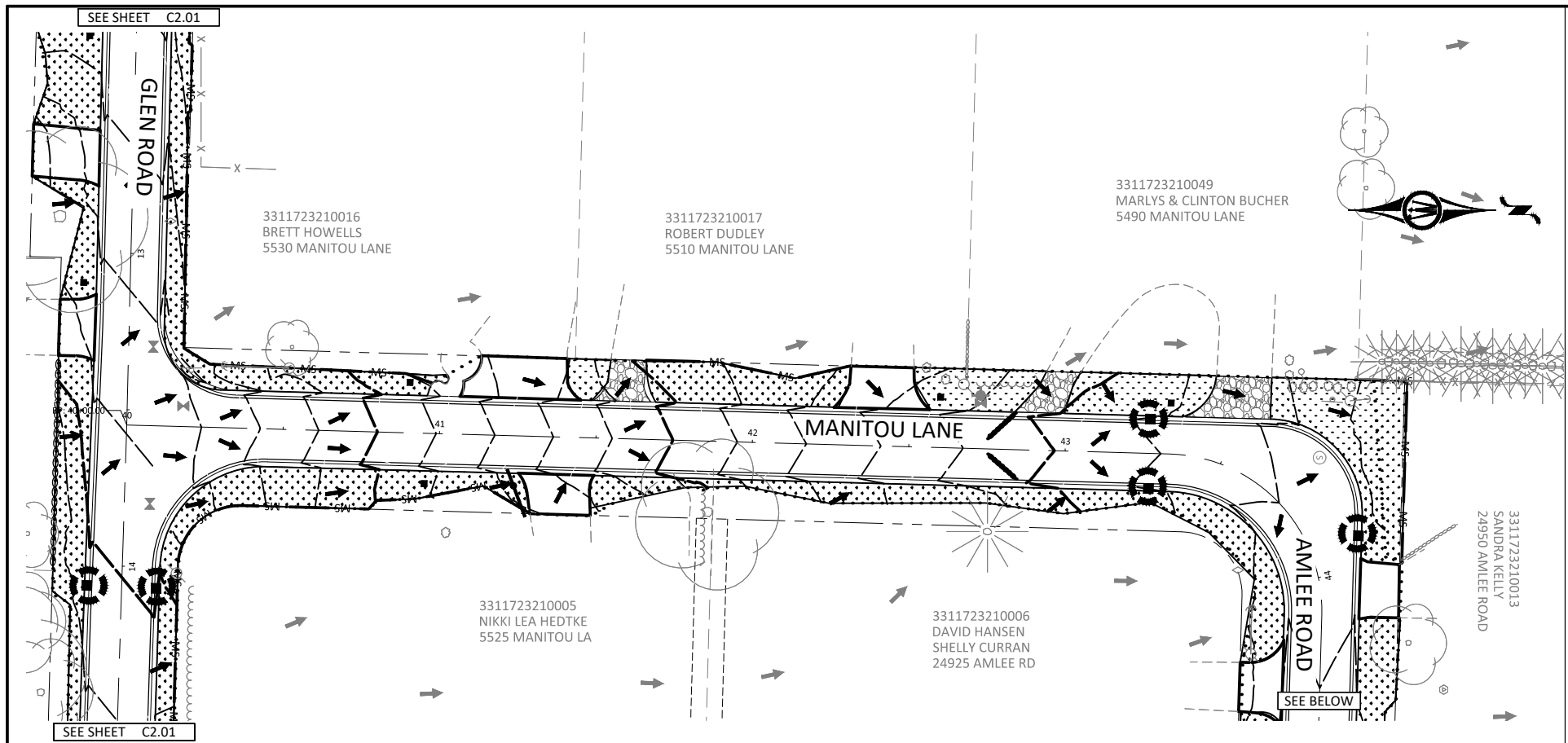


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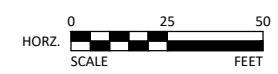
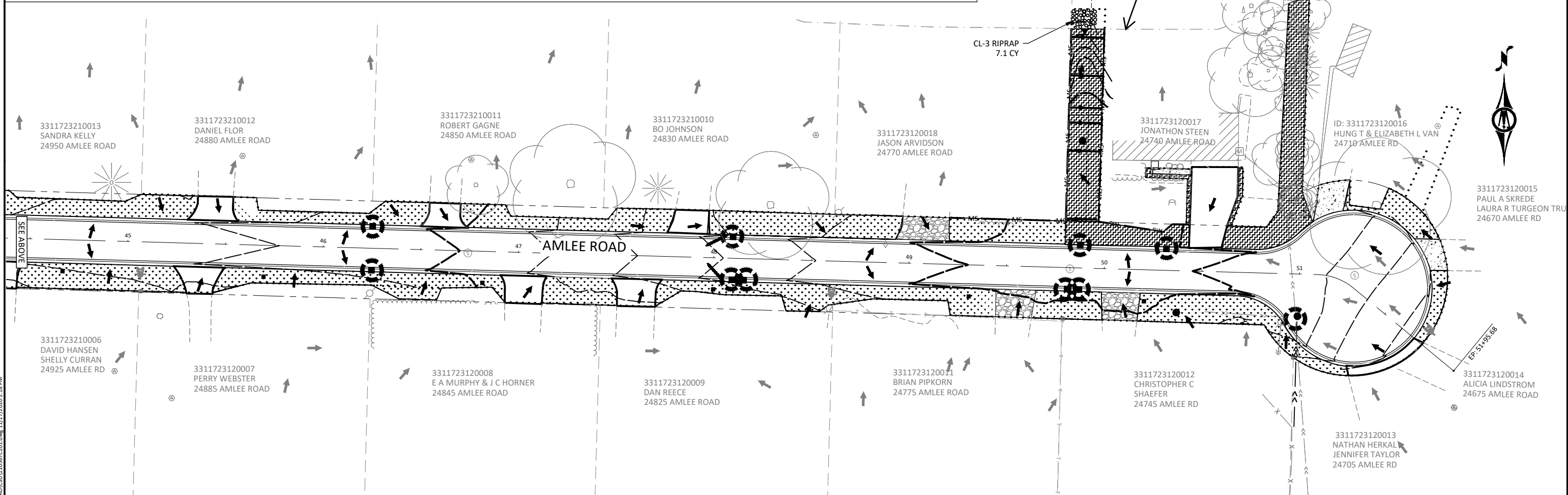
SHOREWOOD, MINNESOTA
GLEN ROAD, MANITOU LANE & AMLEE ROAD STREET IMPROVEMENTS
TITLE SHEET

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EROSION CONTROL LEGEND

	MS MACHINE SLICED SILT FENCE		EXISTING/PROPOSED DRAINAGE FLOW
	HYDROSEED W/ SEED 25-151		CONSTRUCTION LIMITS
	SOD		BIOLOG
	TREE		SANDBAG BARRIER
			INLET PROTECTION
			RIPRAP



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ANDREW L. BUDDE
LIC. NO. 46585 DATE 12/09/2020



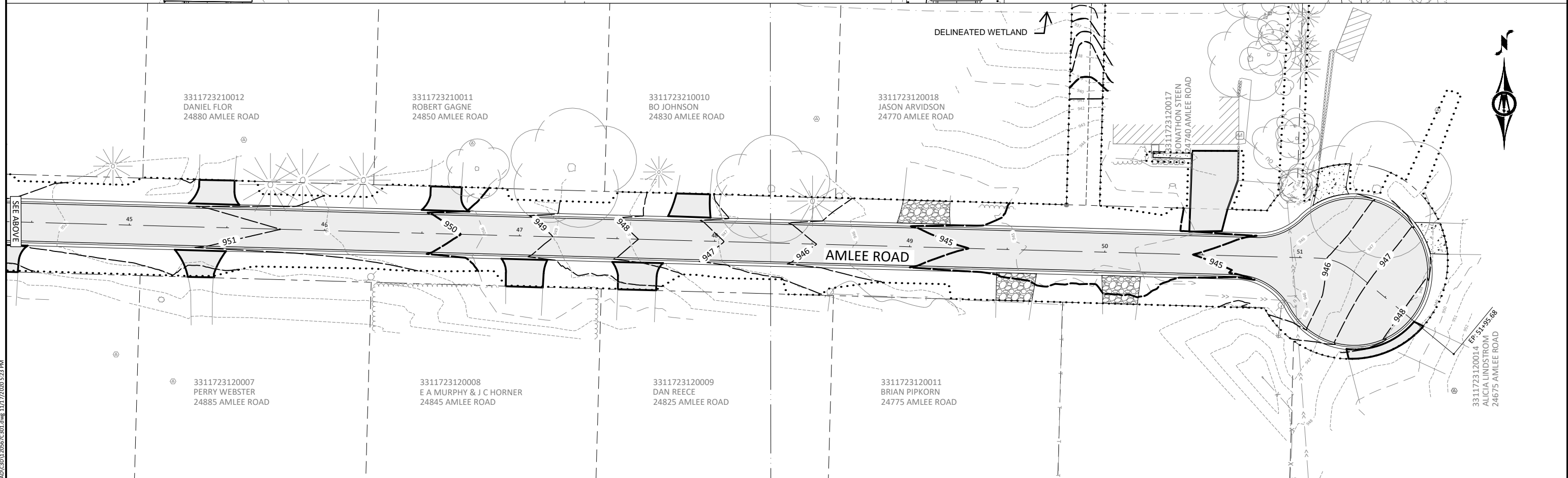
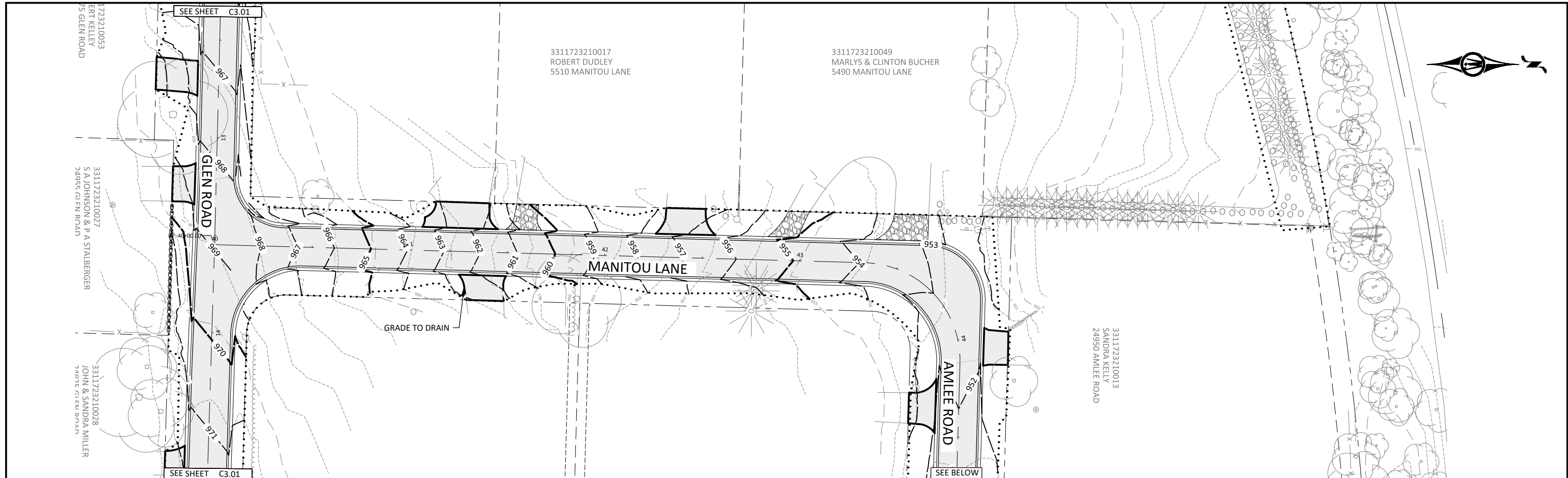
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www.bolton-menk.com

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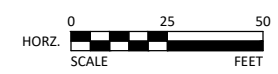
SHOREWOOD, MINNESOTA
GLEN ROAD, MANITOU LANE & AMLEE ROAD STREET IMPROVEMENTS
EROSION CONTROL & TURF ESTABLISHMENT PLAN

SHEET
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ANDREW L. BUDDE
LIC. NO. 46585 DATE 12/09/2020



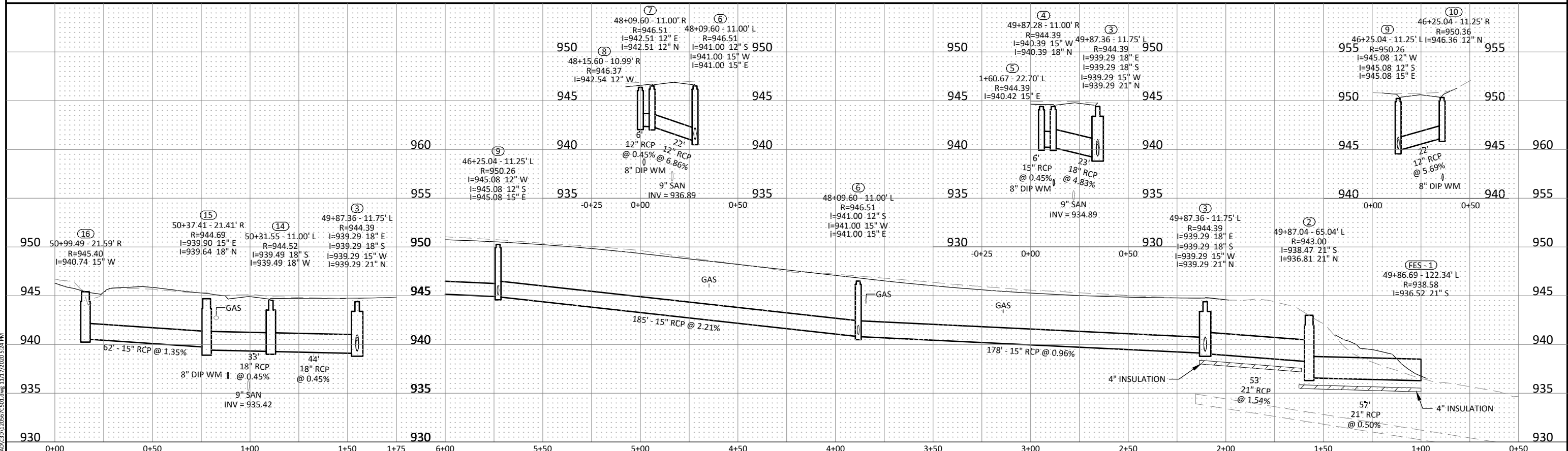
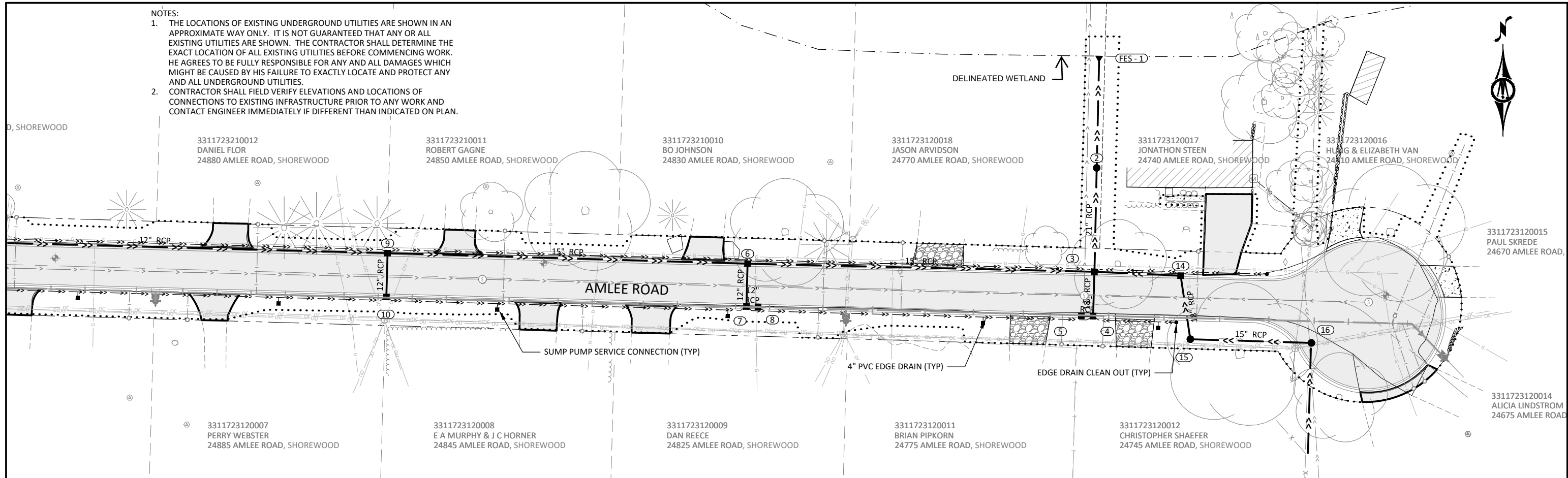
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DRAWN	SCD		
CHECKED	ALB		
CLIENT PROJ. NO.	C16.120567		

SHOREWOOD, MINNESOTA
GLEN ROAD, MANITOU LANE & AMLEE ROAD STREET IMPROVEMENTS
GRADING PLAN

SHEET
C3.03

- NOTES:
1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. IT IS NOT GUARANTEED THAT ANY OR ALL EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PROTECT ANY AND ALL UNDERGROUND UTILITIES.
 2. CONTRACTOR SHALL FIELD VERIFY ELEVATIONS AND LOCATIONS OF CONNECTIONS TO EXISTING INFRASTRUCTURE PRIOR TO ANY WORK AND CONTACT ENGINEER IMMEDIATELY IF DIFFERENT THAN INDICATED ON PLAN.



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ANDREW L. BUDDE
 LIC. NO. 46585 DATE 12/09/2020



2638 SHADOW LANE, SUITE 200
 CHASKA, MINNESOTA 55318
 Phone: (952) 448-8838
 Email: Chaska@bolton-menk.com
 www.bolton-menk.com

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CLIENT PROJ. NO.	C16.120567		

SHOREWOOD, MINNESOTA
 GLEN ROAD, MANITOU LANE & AMLEE ROAD STREET IMPROVEMENTS
 STORM SEWER PLAN & PROFILE

SHEET
C5.07

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4/9/21

City of Shorewood
Attn: Andrew Budde
5755 Country Club Rd, Shorewood, MN 55331

RE: MCWD Permit Application #20-591: Glen, Amlee, Manitou Improvement Project

Dear Mr. Budde

The above mentioned permit application was complete on February 16th, 2021. The 60-day deadline for making a decision on the application is April 16th, 2021. The deadline for making a decision on the application needs to be extended an additional 60 days from the original deadline due to accommodate resident concerns and a District Board meeting. The new deadline for making a decision on the permit application is July 9th, 2021, however a determination will be made at the April 22nd Board Meeting.

If you have any questions please contact me at gbarlow@minnehahacreek.org or 952-641-4518

Sincerely,

A handwritten signature in black ink, appearing to read 'G. Barlow'. The signature is fluid and cursive, written over a horizontal line.

Grace Barlow
Permitting Technician



GLEN, MANITOU, AMLEE ROAD IMPROVEMENTS

SHOREWOOD

EXISTING STORMWATER DRAINAGE

November 2020



Real People. Real Solutions.



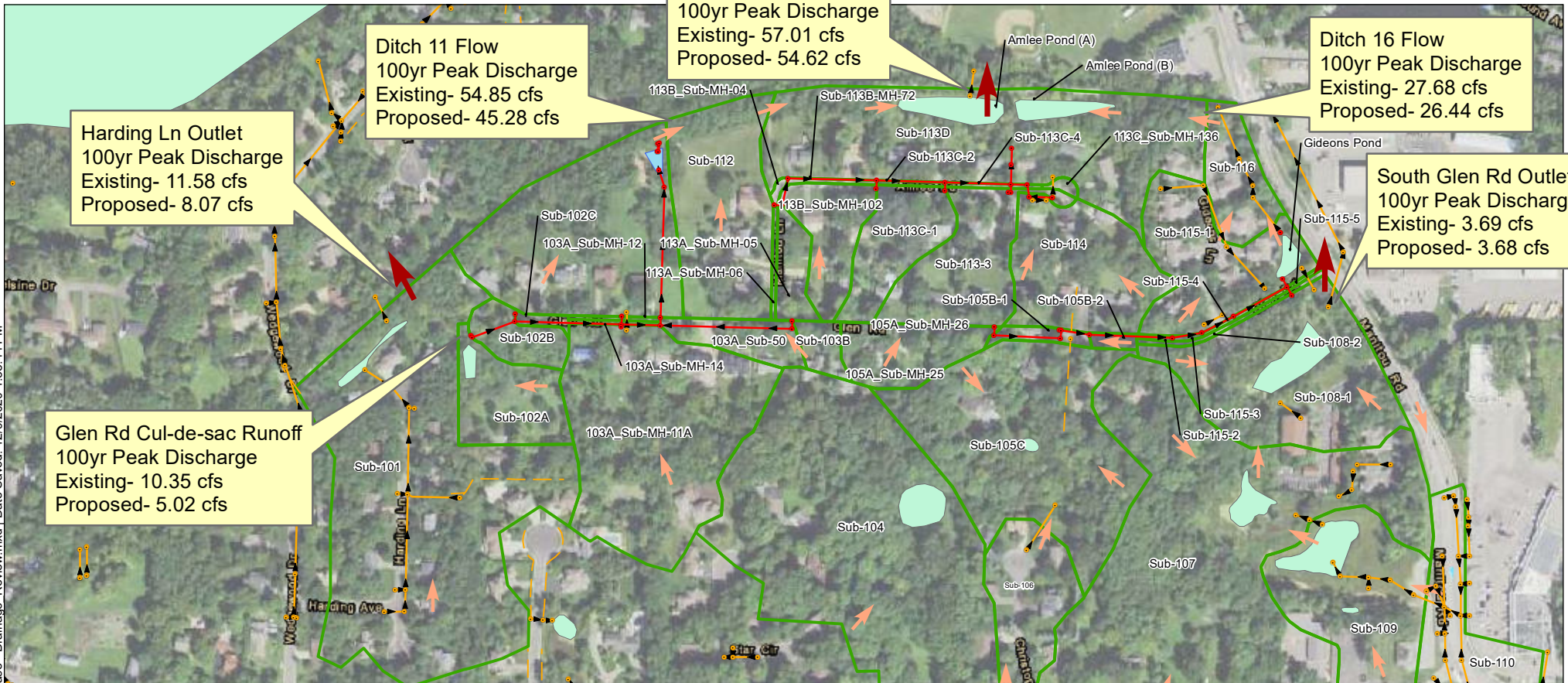
Legend

- Existing Storm Structure
- Existing Storm Pipe
- Existing Storm Drain Tile
- Existing Drainage Area
- Existing Discharge Point
- Existing Runoff Flow
- Existing Storm Pond

0 400 Feet

Source: Bolton & Menk, Inc.

Map Document: H:\SH\WD\C16120567\GIS\ESRI\Glenn_Manitou_Amlee_Base - Drainage_Review_Existing.mxd | Date Saved: 11/6/2020 3:32:11 AM



Map Document: H:\SHWDC\16120567\GIS\ESR\Glen_Manitou_Amlee_Base - Drainage_Review.mxd | Date Saved: 12/9/2020 1:35:44 PM

Legend

- Existing Storm Structure
- Proposed Storm Structure
- Existing Storm Pipe
- Proposed Storm Pipe
- Existing Storm Drain Tile
- Subbasin
- Existing Ponds
- Proposed BMPs
- ↑ Discharge
- ↑ Proposed Runoff Flow

	Storm Event	Discharge (cfs)		Rate Change
		Existing	Proposed	
Harding Ln Outlet	1-Yr	2.33	1.82	-0.51
	10-Yr	5.83	5.27	-0.56
	100-Yr	11.58	8.07	-3.51
Glen Rd Cul de sac Runoff	1-Yr	0.16	0.00	-0.16
	10-Yr	2.56	0.02	-2.54
	100-Yr	10.35	5.02	-5.33
Ditch 11 Flow	1-Yr	6.96	3.11	-3.85
	10-Yr	23.67	23.58	-0.09
	100-Yr	54.85	45.28	-9.57
Amlee Culvert Outlet	1-Yr	9.26	5.62	-3.64
	10-Yr	40.28	37.71	-2.57
	100-Yr	57.01	54.62	-2.39
Ditch 16 Flow	1-Yr	1.55	1.54	-0.01
	10-Yr	5.96	4.94	-1.02
	100-Yr	27.68	26.44	-1.24
South Glen Rd Outlet	1-Yr	2.38	2.40	0.02
	10-Yr	3.64	3.63	-0.01
	100-Yr	3.69	3.68	-0.01
High Water Level		Existing	Proposed	
Amlee Road Wetlands		936.21	936.12	
Gideons Pond		947.67	947.65	
PR-111-BMP		N/A	953.4	

0 400 Feet
Source: Bolton & Menk, Inc.

*Glen Road, Manitou Lane, Amlee Road
Street Improvements Drainage Evaluation
Shorewood, MN*

**STORMWATER MANAGEMENT
PLAN**

Prepared for:

City of Shorewood
5755 Country Club Road
Shorewood, MN 55331

Prepared by:

Bolton and Menk, Inc.
2638 Shadow Lane, Suite 200
Chaska, MN 55318
Contact: Anthony Adderley
Phone: (952) 448-8838, ext 3468
Mobile: (612) 751-2289
Fax: (952) 448-8805

January 28, 2021

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SUMMARY

As is required by Minnehaha Creek Watershed District (MCWD) rules, Bolton and Menk, Inc. has analyzed the drainage system of the Glen Road, Manitou Lane, Amlee Road (GMA) Street Improvements project in the City of Shorewood, Minnesota to ensure compliance with MCWD stormwater rules.

PROJECT DESCRIPTION

The street improvements project includes widening Amlee Road, Manitou Lane, and part of Glen Road, installing curb and gutter, and installing storm sewer. The project will create an additional 13,126 square feet of impervious surface. All improvements are located within the jurisdiction of the Minnehaha Creek Watershed District (MCWD).

STORMWATER MANAGEMENT REQUIREMENTS

Altering drainage areas, installing a biofiltration basin, and expanding an existing stormwater pond will be utilized to provide water quality treatment and rate control. According to MCWD rules, linear transportation projects creating more than 10,000 square feet, but less than 1 acre of new impervious must meet the following standards:

- Phosphorus control – Activity subject to this rule for new development or linear transportation projects shall result in no net increase in phosphorus loading from existing conditions.
- Rate Control – Activity subject to this rule shall result in no net increase in the peak runoff rate for the 1-, 10-, and 100-year design storms where stormwater discharges across the downgradient site boundary, compared to the rate for the site in its existing condition.

The project will not create more than 1 acre of impervious surface and therefore is not subject to MPCA water quality requirements.

Water quality analysis was performed using the Minnesota Pollution Control Agency (MPCA) Minimum Impact Design Standards (MIDS) calculator and hydraulic routing modeling was analyzed using Autodesk's Storm and Sanitary Analysis software program (SSA). Existing conditions used to construct the SSA model consisted of Atlas 14 precipitation frequency data, survey data, record drawings, and field investigation.

SITE CONDITIONS

Proposed improvements are located in a residential neighborhood. Based on the Natural Resources Conservation Service (NRCS) Web Soil Survey, approximately 57.42% of the site soils are classified as Type "C" and the remaining 41.58% is classified as Type "C/D" soils (see attached NRCS Hydraulic Soil Group map). A weighted average CN value was found using 74 for Type C soils and 77 for Type C/D soils. The resulting CN value of 75.26 was utilized for all pervious areas.

ROUTING:

The project area is comprised of three drainage areas that discharge to the west, north, and east.

West Drainage Area

Under existing conditions, runoff from 3.18 acres of impervious area drains to a stormwater pond located north of the Harding Lane cul-de-sac, on properties 5590 and 5570 Harding Lane, and discharges west

Bolton and Menk, Inc.

Page 3

under Lake Minnetonka Regional (LMR) Trail. Runoff from Glen Road and the 25165 Glen Road property flows through the back yards of 5565 and 5585 Harding Lane, contributing to frequent flooding experienced on those properties.

Under proposed conditions, runoff from 2.89 acres of impervious area drains to the stormwater pond. A cul-de-sac with curb and gutter will be added to the west end of Glen Road to capture runoff previously routed down the hillside and through the Harding Lane yards. A tie in location has also been provided to connect a proposed biofiltration basin to be constructed on the property of 25165 Glen Road. These improvements will reduce runoff rates and volumes and reduce flood potential at those Harding Lane properties.

North Drainage Area

Under existing conditions, runoff from 8.35 acres of impervious area drains to wetlands located on the north side of Amlee Road. The wetlands discharge north under LMR Trail. 1.23 acres of this drainage areas impervious surface is routed through a stormwater pond near the townhomes on Gideons Lane prior to being routed to the Amlee wetlands. The Gideons Lane pond is currently filled with sediment and is not functioning as designed.

Under proposed conditions, runoff from 1.87 acres of impervious area is captured and conveyed through storm sewer to a new biofiltration basin. 7.30 acres of impervious area is conveyed to the Amlee Road wetlands. 1.77 acres of impervious area is captured and conveyed to Gideons Lane pond. Gideons Lane pond will be cleaned out and expanded to allow it to function properly and accommodate the additional runoff directed there.

East Drainage Area

Under existing conditions, runoff from 8.45 acres of impervious area drains to the wetland located on the south side of Glen road, at the County Road 19 intersection. This wetland outlets east through a storm sewer under County Road 19.

Under proposed conditions, 8.49 acres of impervious area drains to the wetland. Runoff is routed there through the gutter on the south side of Glen Road. No changes are proposed to the wetland or the wetland outlet.

WATER QUALITY

The total existing impervious area within the three drainage areas is 22.03 acres. The total impervious after proposed improvements is 22.33 acres. MCWD rules require that there is no increase in phosphorus produced under existing conditions. Table 1 shows the existing and proposed phosphorus loads produced.

Table 1. Annual Phosphorus Load Production (lb/yr)

	Generated	Removed	Remaining
Existing	68.61	12.43	56.17
Proposed	68.97	13.73	55.25

The proposed improvements reduce phosphorus load production by 0.92 lb/yr

RATE CONTROL

MCWD rules require peak runoff rates for the proposed 1-, 10-, and 100-year storm events not exceed the peak runoff rates generated under existing conditions. The proposed runoff rates were analyzed at the three drainage area outlet locations, as well as three areas with erosion concerns. These areas are called out on the drainage map Figures 1 and 2. Table 2 shows how the proposed runoff rates compared to the existing rates.

Table 2. Existing and Proposed Rate Comparison (cfs)

Location	Storm	Existing	Proposed	Rate Change
Harding Ln Outlet	1-Yr	2.83	2.41	-0.42
	10-Yr	6.11	5.62	-0.49
	100-Yr	13.73	9.16	-4.57
Glen Rd Cul de sac Runoff	1-Yr	0.17	0.00	-0.17
	10-Yr	3.19	0.00	-3.19
	100-Yr	11.25	4.82	-6.43
Ditch 11 Flow	1-Yr	7.66	5.38	-2.28
	10-Yr	24.85	24.53	-0.32
	100-Yr	56.31	49.37	-6.94
Amlee Culvert Outlet	1-Yr	10.05	7.59	-2.46
	10-Yr	35.89	34.10	-1.79
	100-Yr	57.59	50.81	-6.78
Ditch 16 Flow	1-Yr	3.16	2.22	-0.94
	10-Yr	7.87	6.73	-1.14
	100-Yr	70.63	70.43	-0.20
South Glen Rd Outlet	1-Yr	1.03	1.09	+0.06
	10-Yr	3.66	3.66	0.00
	100-Yr	3.73	3.73	0.00

The rates are reduced at all locations except the South Glen Road Outlet, which has a 0.06 cfs increase in the 1-year event under the proposed conditions.

The existing and proposed high-water levels (HWL) were evaluated for all ponding locations to ensure the proposed design does not create a flooding hazard. The results are shown in Table 3.

Table 3. High Water Level Analysis

Waterbody	Nearby Low Opening (ft)	Existing Elevation (ft)	Proposed Elevation (ft)	Change (ft)
Harding Lane (Basin-01)	954.50 (approx.)	954.57	954.35	-0.22
Sub-02 – Cul de sac Raingarden	973 (approx.)	957.11	956.96	-0.15
Culv Inlet-03/Stor-25	961 (approx.)	961.06	960.15	-0.91
PR-111-BMP	959.76	N/A	953.41	N/A
Amlee Wetland	939.36	938.54	938.53	-0.01
05 – Basin	956 (approx.)	957.64	957.64	-
Gideons Pond	950.92	947.89	947.88	-0.01
08 – Basin	952 (approx.)	948.53	948.53	-
07 – Basin	952 (approx.)	949.98	949.98	-
09 – Basin	970 (approx.)	952.80	952.80	-

*approx. elevations based on Lidar contours

The HWL does not increase at any waterbody or ponding location.

The project impacts on the Amlee Road wetland were also analyzed to ensure the project complies with MCWD rules on downstream waterbodies. This wetland is classified as a Manage 3 wetland. A Manage 3 wetland has no limit on permitted bounce, the inundation period can be extended an additional 7 days for the 1-year event and 21 days for the 10- and 100-year events, and the runout control elevation can be raised up to 4ft above existing conditions. The downstream waterbodies impacts for the Amlee Road wetland are shown in Table 4.

Table 4. Impact on Downstream Waterbodies

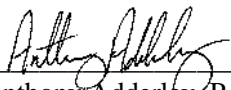
Amlee Wetland (Manage 3)	Bounce (ft)			Inundation Period (days)			Runout Control Elevation
	1-year	10-year	100-year	1-year	10-year	100-year	
Existing	934.73	935.58	938.54	1.9	2.7	4.7	932.34
Proposed	935.03	935.61	938.53	3.5	3.8	5.1	932.34

The Amlee Road wetland conforms with MCWD rules on impacts experienced by downstream waterbodies.

CONCLUSION

The proposed design meets MCWD requirements for water quality and rate control is accomplished at the Harding Lane and Amlee Culvert discharge locations. Rates do increase at the South Glen Road discharge location for the 1-year event. That increase is less than 0.1 cfs for that storm event. The proposed improvements will reduce runoff volume and erosion potential for the properties adjacent to the project, and the additional runoff captured on the west end of Glen Road will benefit the residents on Harding Lane by reducing the runoff volume routed through their yards.

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.


 Anthony Adderley, P.E.
 Reg. No. 57131

January 28, 2021
 Date



**BOLTON
& MENK**

Real People. Real Solutions.

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Suite 200
Chaska, MN 55318-1172

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Fax: (952) 448-8805
Bolton-Menk.com

November 20, 2020

Permitting
Minnehaha Creek Watershed District
15320 Minnetonka BLVD
Minnetonka, MN 55345

RE: Waterbody Crossings & Structure Analysis
MCWD Permit #
Glen Rd, Manitou Ln, Amlee Rd Street Improvements

Dear MCWD Permitting,

As part of the City of Shorewood's 2020 Glen Road, Manitou Lane, Amlee Road Street Improvements Project, the City proposes to add stormwater infrastructure. Riprap at the proposed Amlee Road storm sewer outlet contacts the bank of the waterbody north of Amlee Road, thus requiring an analysis showing the effect on hydraulic capacity and water quality. Following is a list of the specific improvements:

IMPROVEMENTS

The City proposes to add curb and gutter and storm sewer along Glen Road, Manitou Lane, and Amlee Road. The improvements are meant to reduce the volume of runoff routed through resident yards in the area. The proposed storm sewer will route the majority of runoff that reaches these roads to the two-celled pond (Amlee Pond) north of Amlee Road. The riprap at the outlet of the Amlee Road segment of storm sewer reaches the bank of Amlee Pond's east cell. Upstream improvements that include a biofiltration basin and excavating sediment that has built up in the pond east of Gideons Lane (Gideons Pond), are intended to aid in both rate control and water quality.

ANALYSIS – HYDRAULIC CAPACITY AND WATER QUALITY

The proposed street improvements will result in the creation of 0.29 acres of new impervious surface. Hydraulic capacity was analyzed using Autodesk's Storm and Sanitary Analysis software program (SSA), and water quality was analyzed using The Minnesota Pollution Control Agency (MPCA) Minimum Impact Design Standards (MIDS) calculator.

Hydraulic Capacity

The normal water level (NWL) of the east cell of Amlee Pond is 934.0' and the existing high-water level (HWL) is 936.21. The Amlee Road storm sewer flared end section (FES) is will be located on the hillside south of the pond at an elevation of 936.52. The riprap will extend down the hillside to an elevation of 936.16. Table 1 shows the HWLs of the pond for the 1-, 10-, and 100-year storm events.

Table 1. High Water Level by Storm

Year	Water Elevation (ft)	
	Existing	Proposed
1 year	934.61	934.64
10 year	934.64	934.74
100 year	936.22	936.12

The riprap will not negatively impact the hydraulic capacity of pond because proposed upstream improvements provide enough rate control to keep the 100-year HWL below the elevation of the riprap.

The pond’s peak inflow rates decrease for all storm events at the west cell. The rates increase to the east cell for the 1- and 10-year events under proposed conditions due to upstream improvements. Table 2 shows the inflow rates to each cell.

Table 2. Peak Inflow Rates by Storm

Year	Inflow Rate (cfs)			
	Existing		Proposed	
	Pond A (west)	Pond B (east)	Pond A (west)	Pond B (east)
1 year	15.24	1.55	7.33	8.46
10 year	62.91	5.96	53.41	22.69
100 year	157.80	65.98	119.01	56.96

Water Quality

The addition of the Glen Road storm sewer decreases the runoff routed directly to Amlee Pond. The phosphorus load the pond receives from its direct watershed decreases by 3.78 lbs/yr and TSS is decreased by 685 lbs/yr. which results in a decrease in pollutants discharged directly to the pond. However, the phosphorus and TSS loads routed to the pond from upstream BMPs increases by 6.02 lbs/yr and 472.22 lbs/yr, respectively. The improvements provide a net decrease in TSS load received by the pond, but the phosphorus load is increased by 2.24 lbs/yr. Table 3 shows the pollutant loading experienced by the pond. Despite the increases experienced at the Amlee pond, the project produces a net decrease in pollutants leaving the site. Table 4 shows the project’s impact on water quality.

Table 3. Direct and Upstream Pollutant Loading

	Existing			Proposed		
	PP	DP	TSS	PP	DP	TSS
Load from Direct Drainage Area (lbs/yr)	17.8206	14.5805	5,886.19	15.7439	12.8814	5,200.26
Load from Upstream BMPs (lbs/yr)	0.2988	0.6434	103.9	3.4037	3.5677	576.12
Load Retained (lbs/yr)	11.234	0	3,594.05	11.8715	0	3,465.83
Outflow Load (lbs/yr)	6.8854	15.2239	2,396.04	7.2761	16.4491	2,310.55

Table 4. Project Water Quality Achieved

	Existing			Proposed		
	PP	DP	TSS	PP	DP	TSS
Generated (lbs/yr)	37.733	30.872	12,463.2	37.935	31.038	12,530.0
Retained (lbs/yr)	12.112	0.32	3,944.0	13.322	0.404	4,528.5
Discharged (lbs/yr)	25.621	30.552	8,519.2	24.613	30.634	8,001.5

The proposed improvements decrease the total phosphorus discharged from the project area by 0.926 lbs/yr, and decrease TSS discharged by 517.7 lbs/yr.

ALTERNATIVES DESIGNS

Wet Pond within HCRRA ROW

A wet pond was analyzed within the south ditch of the HCRRA ROW. This option was not preferable because it was determined that constructing a BMP within a City easement would ensure easier access to the BMP for maintenance.

Underground Detention Basin

An underground detention basin placed within the Glen Road cul-de-sac was analyzed. This option was not preferable because it was not cost effective.

No Build

The no build option is not preferable because there would be continued erosion and flooding issues on the residential properties in the area.

If you have any questions or comments, please contact me to discuss at (612) 751-2289

Sincerely,

Bolton & Menk, Inc.



Anthony Adderley P.E.
Water Resources Project Engineer

Attachments

Figures

Figure 1 – Existing Drainage Area Map

Figure 2 – Proposed Drainage Area Map

SSA Existing Report

SSA Proposed Report

MIDS Calculator Modeling Results

Minnesota Wetland Conservation Act

Notice of Decision

Local Government Unit (LGU) Minnehaha Creek Watershed District	Address 15320 Minnetonka Blvd Minnetonka, MN 55345
--	---

1. PROJECT INFORMATION

Applicant Name City of Shorewood	Project Name Glen Road, Manitou Lane, Amlee Road Street & Utility Improvements	Date of Application 8/9/2019	Application Number W19-19
<input checked="" type="checkbox"/> Attach site locator map			

Type of Decision:

<input checked="" type="checkbox"/> Wetland Boundary or Type	<input type="checkbox"/> No-Loss	<input type="checkbox"/> Exemption	<input type="checkbox"/> Sequencing
<input type="checkbox"/> Replacement Plan	<input type="checkbox"/> Banking Plan		

Technical Evaluation Panel Findings and Recommendation (if any):

<input type="checkbox"/> Approve	<input type="checkbox"/> Approve with conditions	<input type="checkbox"/> Deny
Summary (or attach):		

2. LOCAL GOVERNMENT UNIT DECISION

Date of Decision: 10/2/2019		
<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Approved with conditions (include below)	<input type="checkbox"/> Denied

LGU Findings and Conclusions (attach additional sheets as necessary):

The City of Shorewood has applied for a wetland boundary & type confirmation for the wetlands located near Glen Road, Manitou Lane, Amlee Road, and the Lake Minnetonka Regional Trail (west of Manitou Road) in the City of Shorewood, Hennepin County, Minnesota. Legal description: Section 33, Township 117N, Range 23W. The boundary & type approval was requested on August 9th, 2019

A wetland delineation was conducted by WSB on June 5th, 2019. A complete delineation report and WCA application were submitted to MCWD on August 9th, 2019. Four Wetlands were delineated within the project area. The below table summarizes the classification of each wetland:

Wetland ID	Classification
1	Type 3, Shallow Marsh
2	Type 3, Shallow Marsh
3	Type 3, Shallow Marsh
4	Type 1, Seasonally Flooded Basin

MCWD Staff and BWSR Staff reviewed the boundaries in the field on September 24th, 2019. MCWD was in agreement with the wetland boundaries and types indentified on site and flagged in the field.

MCWD approves the wetland boundaries and types as shown in the delineation report. This decision is valid for five years. A future project located within the project area may require a permit from the MCWD.

For Replacement Plans using credits from the State Wetland Bank:

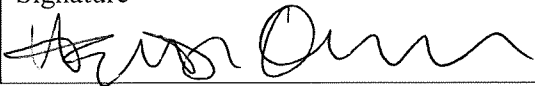
Bank Account #	Bank Service Area	County	Credits Approved for Withdrawal (sq. ft. or nearest .01 acre)

Replacement Plan Approval Conditions. In addition to any conditions specified by the LGU, the approval of a Wetland Replacement Plan is conditional upon the following:

- Financial Assurance:** For project-specific replacement that is not in-advance, a financial assurance specified by the LGU must be submitted to the LGU in accordance with MN Rule 8420.0522, Subp. 9 (List amount and type in LGU Findings).
- Deed Recording:** For project-specific replacement, evidence must be provided to the LGU that the BWSR “Declaration of Restrictions and Covenants” and “Consent to Replacement Wetland” forms have been filed with the county recorder’s office in which the replacement wetland is located.
- Credit Withdrawal:** For replacement consisting of wetland bank credits, confirmation that BWSR has withdrawn the credits from the state wetland bank as specified in the approved replacement plan.

Wetlands may not be impacted until all applicable conditions have been met!

LGU Authorized Signature:

Signing and mailing of this completed form to the appropriate recipients in accordance with 8420.0255, Subp. 5 provides notice that a decision was made by the LGU under the Wetland Conservation Act as specified above. If additional details on the decision exist, they have been provided to the landowner and are available from the LGU upon request.		
Name Heidi Quinn	Title Permitting Technician	
Signature 	Date 10/2/2019	Phone Number and E-mail 952-641-4504 hquinn@minnehahacreek.org

THIS DECISION ONLY APPLIES TO THE MINNESOTA WETLAND CONSERVATION ACT. Additional approvals or permits from local, state, and federal agencies may be required. Check with all appropriate authorities before commencing work in or near wetlands.

Applicants proceed at their own risk if work authorized by this decision is started before the time period for appeal (30 days) has expired. If this decision is reversed or revised under appeal, the applicant may be responsible for restoring or replacing all wetland impacts.

This decision is valid for three years from the date of decision unless a longer period is advised by the TEP and specified in this notice of decision.

3. APPEAL OF THIS DECISION

Pursuant to MN Rule 8420.0905, any appeal of this decision can only be commenced by mailing a petition for appeal, including applicable fee, within thirty (30) calendar days of the date of the mailing of this Notice to the following as indicated:

Check one:

<input checked="" type="checkbox"/> Appeal of an LGU staff decision. Send petition and \$100 fee to: Minnehaha Creek Watershed District 15320 Minnetonka Blvd Minnetonka, MN 55345	<input type="checkbox"/> Appeal of LGU governing body decision. Send petition and \$500 filing fee to: Executive Director Minnesota Board of Water and Soil Resources 520 Lafayette Road North St. Paul, MN 55155
--	---

4. LIST OF ADDRESSEES

<input checked="" type="checkbox"/> SWCD TEP member: Stacey Lijewski-stacey.lijewski@co.hennepin.mn.us <input checked="" type="checkbox"/> BWSR TEP member: Ben Carlson-ben.carlson@state.mn.us <input type="checkbox"/> LGU TEP member (if different than LGU Contact): <input checked="" type="checkbox"/> DNR TEP Becky Horton-becky.horton@state.mn.us <input type="checkbox"/> DNR Regional Office (if different than DNR TEP member): <input type="checkbox"/> WD or WMO (if applicable): <input checked="" type="checkbox"/> Applicant (notice only) and Landowner (if different): Larry Brown- lbrown@shorewoodpw.com <input checked="" type="checkbox"/> Members of the public who requested notice (notice only): Laura Wehr- lwehr@wsbeng.com; Marie Darling- mdarling@ci.shorewood.mn.us; Alyson Fauske- AFauske@wsbeng.com <input checked="" type="checkbox"/> Corps of Engineers Project Manager (notice only): usace_requests_mn@usace.army.mil <input type="checkbox"/> BWSR Wetland Bank Coordinator (wetland bank plan applications only)
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5. MAILING INFORMATION

- For a list of BWSR TEP representatives: www.bwsr.state.mn.us/aboutbwsr/workareas/WCA_areas.pdf
- For a list of DNR TEP representatives: www.bwsr.state.mn.us/wetlands/wca/DNR_TEP_contacts.pdf
- Department of Natural Resources Regional Offices:

NW Region: Reg. Env. Assess. Ecol. Div. Ecol. Resources 2115 Birchmont Beach Rd. NE Bemidji, MN 56601	NE Region: Reg. Env. Assess. Ecol. Div. Ecol. Resources 1201 E. Hwy. 2 Grand Rapids, MN 55744	Central Region: Reg. Env. Assess. Ecol. Div. Ecol. Resources 1200 Warner Road St. Paul, MN 55106	Southern Region: Reg. Env. Assess. Ecol. Div. Ecol. Resources 261 Hwy. 15 South New Ulm, MN 56073
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For a map of DNR Administrative Regions, see: http://files.dnr.state.mn.us/aboutdnr/dnr_regions.pdf

- For a list of Corps of Project Managers: www.mvp.usace.army.mil/regulatory/default.asp?pageid=687 or send to:

US Army Corps of Engineers
St. Paul District, ATTN: OP-R
180 Fifth St. East, Suite 700
St. Paul, MN 55101-1678

- For Wetland Bank Plan applications, also send a copy of the application to:
Minnesota Board of Water and Soil Resources
Wetland Bank Coordinator
520 Lafayette Road North
St. Paul, MN 55155

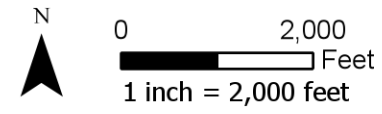
6. ATTACHMENTS

In addition to the site locator map, list any other attachments: <input checked="" type="checkbox"/> Approved wetland boundaries <input type="checkbox"/> <input type="checkbox"/>
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Figure 1 - Project Location

Glen Rd. Manitou Ln.
Amlee Rd. Wetland Delineation
Shorewood, MN



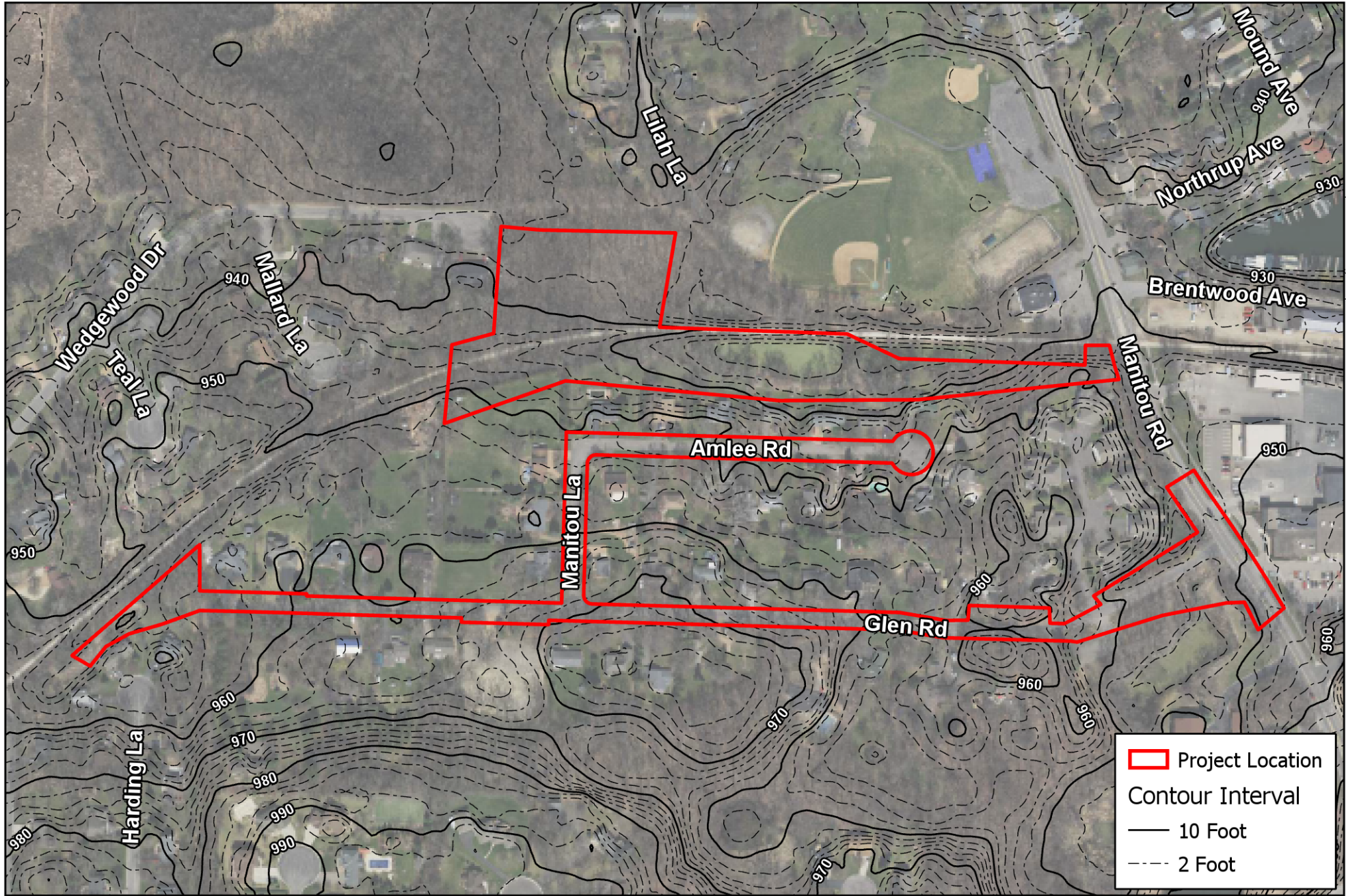


Figure 2 - Topography

Glen Rd. Manitou Ln.
Amlee Rd. Wetland Delineation
Shorewood, MN



0 300
Feet
1 inch = 300 feet



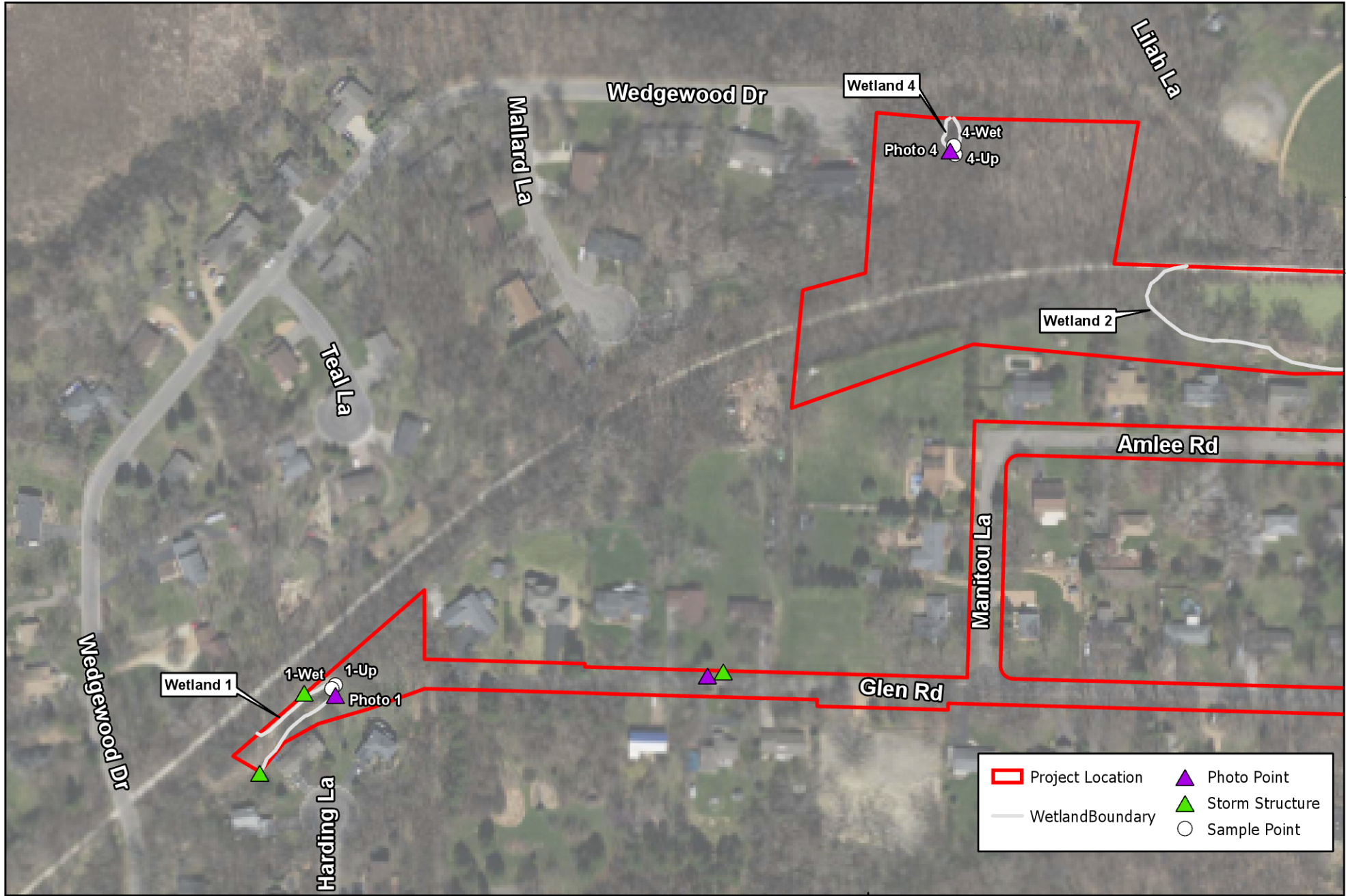


Figure 6a - Wetland Boundary

Glen Rd. Manitou Ln.
Amlee Rd. Wetland Delineation
Shorewood, MN



0 200
Feet
1 inch = 200 feet



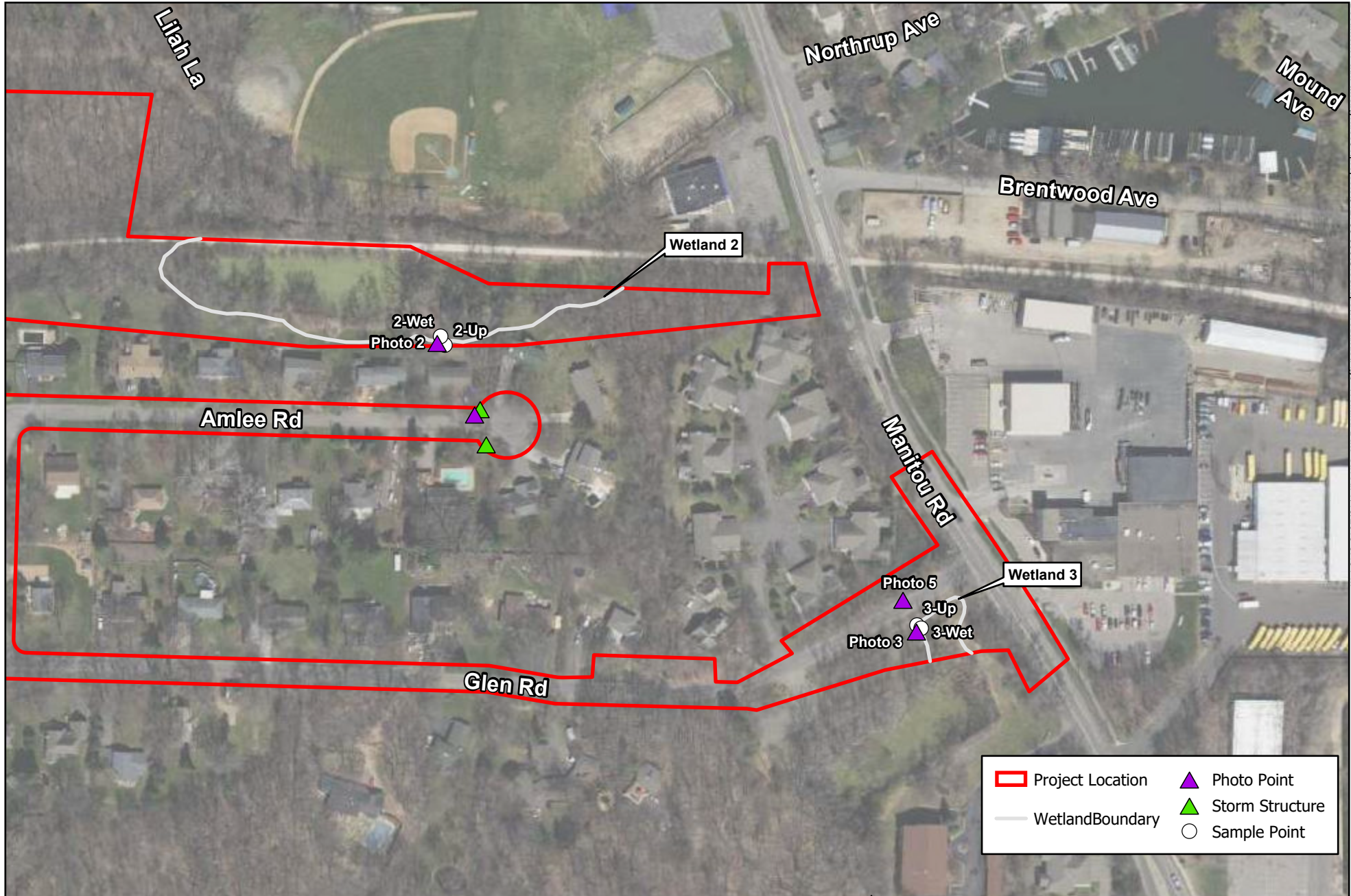


Figure 6b - Wetland Boundary

Glen Rd. Manitou Ln.
Amlee Rd. Wetland Delineation
Shorewood, MN



0 200
Feet
1 inch = 200 feet



A wetland delineation was conducted by Bolton and Menk on October 6th, 2020. A complete delineation report and WCA application were submitted to MCWD on November 3rd.

This boundary and type is a follow up to a Boundary and Type determination from 2019 (W19-19) that listed wetland 2b and wetland 3 (Amlee Wetland) as a Type 3 shallow marsh wetland.

A review of historical imagery indicates that wetland 2b and wetland 3 (Amlee Wetland) are incidental. The 1963 aerial indicates no hydrologic marker in these areas. The evidence presented in Exhibit H indicates that these wetland areas are incidental and not under the jurisdiction of WCA.

A wetland delineation was conducted by Bolton and Menk on October 6th, 2020. A complete delineation report and WCA application were submitted to MCWD on November 3rd.

The delay in dates between the LGU Determination and Date of Notice are a result of staff turnover at MCWD, the WCA LGU for the City of Shorewood.

MCWD approves the wetland boundaries and types and No-Loss as shown in the delineation report. This decision is valid for five years. A future project located within the project area may require a permit from the MCWD.

¹ Findings must consider any TEP recommendations.

Attached Project Documents

Site Location Map Project Plan(s)/Descriptions/Reports (specify):

Appeals of LGU Decisions

If you wish to appeal this decision, you must provide a written request within 30 calendar days of the date you received the notice. All appeals must be submitted to the Board of Water and Soil Resources Executive Director along with a check payable to BWSR for \$500 *unless* the LGU has adopted a local appeal process as identified below. The check must be sent by mail and the written request to appeal can be submitted by mail or e-mail. The appeal should include a copy of this notice, name and contact information of appellant(s) and their representatives (if applicable), a statement clarifying the intent to appeal and supporting information as to why the decision is in error. Send to:

Appeals & Regulatory Compliance Coordinator
Minnesota Board of Water & Soils Resources
520 Lafayette Road North
St. Paul, MN 55155
travis.germundson@state.mn.us

Does the LGU have a local appeal process applicable to this decision?

Yes¹ No

¹If yes, all appeals must first be considered via the local appeals process.

Local Appeals Submittal Requirements (LGU must describe how to appeal, submittal requirements, fees, etc. as applicable)

Notice Distribution (include name)

Required on all notices:

SWCD TEP Member: Stacey Lijewski-stacey.lijewski@co.hennepin.mn.us

BWSR TEP Member: Ben Carlson-ben.carlson@state.mn.us

LGU TEP Member (if different than LGU contact):

<input checked="" type="checkbox"/> DNR Representative: Melissa Collins – melissa.collins@state.mn.us;
<input type="checkbox"/> Watershed District or Watershed Mgmt. Org.:
<input checked="" type="checkbox"/> Applicant: City of Shorewood Staff
<input checked="" type="checkbox"/> Agent/Consultant: Bolton and Menk Staff

Optional or As Applicable:

<input checked="" type="checkbox"/> Corps of Engineers: usace_requests_mn@usace.army.mil
<input type="checkbox"/> BWSR Wetland Mitigation Coordinator (required for bank plan applications only):
<input checked="" type="checkbox"/> Members of the Public (notice only): City Staff <input type="checkbox"/> Other:

Signature: 	Date: 4/13/2021
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This notice and accompanying application materials may be sent electronically or by mail. The LGU may opt to send a summary of the application to members of the public upon request per 8420.0255, Subp. 3.



January 28, 2021

Grace Barlow
Minnehaha Creek Watershed District
Permitting Department
15320 Minnetonka Boulevard
Minnetonka, MN 55345

Re: City of Shorewood Glen/Manitou/Amlee Road Improvements
MCWD Permit Application #20-591

Dear Grace,

Thank you to you and Erik for taking the time on Tuesday to discuss this project. The following summarizes the watershed's comments dated January 12, 2021, and our response to each comment.

Stormwater Management

Please submit the following information to fulfill the criteria of the rule:

1. *Update the Existing and Proposed Drainage maps with legible IDs for the Subcatchments and the Pond/Storage Nodes:*
 - a. *The Existing drainage map does not have Subcatchment or Ponding IDs.*
The existing drainage map has been updated to show the subcatchment and ponding IDs.
 - b. *The Proposed Map has a very difficult green outline for the Subcatchments and no ponding node IDs except for Amlee Pond/Wetland.*
The color of the subcatchments on the proposed drainage map has been changed to make the subcatchments more visible.
2. *NRCS hydrologic soil data for basis of curve numbers and H&H calculations.*
 - a. *Hydrologic Soil data shows C/D soils, however, only C soils were used in the determination of curve numbers. Please update curve numbers with C/D values.*
The NRCS Web Soil Survey shows that 5742% of the site soils are classified as "Type C" and 41.58% are classified as "Type C/D". A weighted average was found using a CN value of 74 for Type C soils and 77 for Type C/D soils. The resulting CN value used in the model was 75.26.
3. *Provide Downstream Waterbody analysis, showing conformance with bounce and inundation changes in conformance with Table 1 of the District's Stormwater Management Rule.*

- a. For all ponding areas, show that the 100-year HWL does not change or does not increase on private property. I believe this analysis is still needed for the rain garden and the ponding area at the NE end of the Harding Ln cul-du-sac. **Table 3 in the attached drainage report shows the existing and proposed HWLs and changes in HWLs for all ponding areas. There were no increased HWLs for any of the ponding areas.**
- b. For Wetlands (Amlee Pond) a table needs to be provided to show conformance with Table 1 depending on the Wetland Management Class. **The Amlee wetland is classified as a Manage 3 wetland. Based on the requirements from "Table 1: Impacts on downstream waterbodies":**
 - there is not limit on bounce permitted the 1-, 10-, and 100-year event,
 - the inundation Period for the 1-year event can be extended 7 days longer than existing conditions,
 - the inundation period for the 10- and 100-year events can be extended 21 days longer than existing conditions,
 - the runout control elevation can be raised up to 4ft above existing conditions.**Table 4 in the attached drainage report shows how the Amlee wetland conforms with that table.**
- c. The above Impact analysis is in addition to the requirements of the Waterbody Crossing rule which state that the Permitted Bunce is not greater than 0.0044' during the 100-yr storm event. **Table 3 in the attached drainage report shows the existing and proposed HWLs for all ponding areas. There is no increase in the 100-year HWL at the Amlee wetland.**

4. H&H Calculations:

- a. Provide the storage tables used for storage nodes (elevations and surface areas). Some of the ponded areas are between 2-5 acres and it's difficult to determine which ponds/basins are which. **The storage tables have been included in the attached SSA reports.**

5. Low Opening/Freeboard:

- a. For all basins, including raingardens, 100-year HWL's must be 2' below, or greater, below the adjacent homes' low opening. **Table 3 in the attached drainage report shows the low openings of adjacent homes and HWLs for all ponding areas. There are areas that do not meet the 2' freeboard requirement, but those areas did not meet the requirement under existing conditions. The HWLs were reduced under proposed conditions for all of these locations except for one, where the HWL remained the same because no improvements were proposed for that area.**

Waterbody Crossings

1. No increase of 100-year HWL/inundation footprint is allowed on private parcels for all ponding area. No increases great than +0.0044' will be permitted during the 100-year storm event.
 - a. This analysis has been provided for all waterbodies except for the basins at the end of Hardin Lane.

Table 3 in the attached drainage report shows the low openings of nearby houses, existing and proposed HWLs, and change in HWLs for all ponding areas. There were no increased HWLs for any of the ponding areas.

If you have any questions or comments, please contact me to discuss further.

Sincerely,

BOLTON & MENK, INC



Anthony Adderley, P.E.

Water Resources Engineer



**BOLTON
& MENK**

Real People. Real Solutions.

2638 Shadow Lane
Suite 200
Chaska, MN 55318-1172

Ph: (952) 448-8838
Fax: (952) 448-8805
Bolton-Menk.com

MEMORANDUM

Date: March 5, 2021
To: Grace Barlow, Minnehaha Creek Watershed District
From: Andrew Budde, Shorewood City Engineer
Subject: Amlee Wetland Basin: Glen Rd, Amlee Rd, Manitou Ln Improvements Project
City of Shorewood

Minnehaha Creek Watershed District staff had requested a summary of options that were evaluated during the design phase of the above project to potentially reduce the one- and ten-year HWL's of the Amlee wetland basin.

Cleaning of Amlee wetland: During project scoping adjacent residents had questioned whether the Amlee wetland could be cleaned out as part of the project. Cleaning would not add any additional capacity; however, it could allow for the wetland to reestablish at its more traditional NWL, which would potentially be the invert of the 48" culvert under the HCRRA trail, and therefore allow for full utilization of the basin. Staff reviewed the request and ran into several challenges. First the wetland is not covered by a drainage & utility easement. For the city to complete the work they would need to acquire temporary and/or permanent easement from five private property owners. In discussions with some of those property owners, some wanted the wetland cleaned and some wanted it left the way it was, so not all parties were willing. This would likely require condemnation and was not something the city wanted to pursue on this project. Second, the wetland is half on private property and half on HCRRA property. Through the scoping of this project the HCRRA stated that they would not permit the city to install any stormwater ponding, infiltration, or rate control structures on their property. The city did not specifically discuss cleaning of the wetland with HCRRA but expected a similar stance as the goal was storm water storage driven. Third, there are known Indian burial mounds located within the project area and the permitting and potential risk associated with encountering these cultural resources is very high.

Enlarging of Amlee wetland: Enlarging the size of the Amlee wetland to allow for more storage encounters the same challenges listed above for cleaning of the wetland.

Stormwater Routing Alternates: There are three primary outfalls from this project area.

1. West end of Glen Road: water from the west end of Glen Road generally flows overland through the backyard of 5565 Harding Lane, to a city stormwater pond, and then through a culvert across the HCRRA. The property of 5565 Harding has had flooding issues/concerns in the past, so increasing flow in this direction was not an option without piping the water to the existing storm water pond. Even constructing a new basin at this end of the project and piping to the existing storm water pond perpetuated issues and there was erosion and flooding concerns further

Name: Amlee Wetland Basin

Date: March 5, 2021

Page: 2

downstream, north of the HCRRA. Therefore, the proposed solution generally directed new runoff associated with the project to the proposed basin on the rear lot of 25060 Glen Road.

2. 48" culvert under HCRRA from Amlee wetland: this pipe was replaced by the HCRRA in the fall of 2020 and is ultimately restricted by a 15" culvert several hundred feet downstream that routes under the Tonka Bay hockey rink and discharges into Lake Minnetonka. Upsizing this pipe was outside the project scope and Shorewood jurisdiction. On December 11, 2020 City of Shorewood and HCRRA staff had a coordination meeting to discuss drainage related to the above city project. During the meeting HCRRA staff mentioned that they had issued a permit in the 1990's to the City of Tonka Bay to install stepped infiltration on the north side of the HCRRA trail. This was generally located from the 48" culvert crossing at the Amlee wetland to the east where the HCRRA ditch is picked up by 15" culvert. HCRRA mentioned that they would reach out to Tonka Bay to have maintenance work completed in the future. The timing and impacts of the of the maintenance work are currently unknown.
3. Wetland in southwest quadrant of Glen Road and Cty Rd 19: this wetland basin has a separate 12" outlet that crosses Cty Rd 19 to the east and ultimately discharges into the south ditch of the HCRRA right of way and continues to flow east. HCRRA will not allow us to increase the flows above existing conditions in any of their ditches and so was deemed infeasible.

To:	Grace Barlow, <i>Permitting Technician</i> , Minnehaha Creek Watershed District	From:	Erik Megow, P.E., Wenck now part of Stantec
Reference:	MCWD Permit Review	Date:	February 16, 2021
Permit Name:	Glen/Manitou/Amlee Reconstruction	Permit Number:	20-591

Listed below are the rules applicable to this redevelopment and our analysis of how the applicant has satisfied the requirements of each rule.

Reviewed Exhibits

- Water Resource Permit Application signed 11-11-2020, received 11-11-2020.
- Design Plans from Bolton & Menk dated 12-08-2020, received 12-30-2020.
- Drainage Report from Bolton & Menk dated 1-28-2021, received 2-2-2021.
- MIDS Calculations from Bolton & Menk undated, received 2-2-2021.

Erosion Control Rule

For District review.

Wetland Alteration Rule

For District review.

Stormwater Management Rule

The City of Shorewood is planning to widen Amlee Road, Manitou Lane, and part of Glen Road, and install curb and gutter with storm sewer. The proposed project will include a net increase of 13,126 sf of new impervious surface. The project is considered a linear reconstruction project with greater than 10,000 sf of new impervious surface and less than 1 ac of impervious surface. The site is required to provide rate and phosphorus control for the increase in impervious surface.

Size of Site (ac)	Site Drains To	Existing Impervious in disturbed area (ac)	Proposed Impervious in disturbed area (ac)
4.23 ac	Lake Minnetonka	2.2	2.5

In order to meet District standards, the project needs to include stormwater facilities that provide rate and phosphorus control. The project is proposing to expand an existing pond and construct a new biofiltration basin to provide phosphorus (TP) and rate control. The pond and filtration basin are designed to provide 1.3 lbs/yr of TP removal. This increase in TP removal offsets the increase in TP of 0.4 lbs/yr, resulting in an overall decrease of 0.9 lbs/yr leaving the overall site. The 0.92 lbs/yr decrease in TP from the site, satisfies the District's phosphorus control standards.

Reference: Kenilworth; 20-624

The Glen pond expansion and new biofiltration basin will also provide rate control for the project. The following table shows the project's conformance with MCWD's rate control standards.

Drainage to Lake Minnetonka	1-year Storm (cfs)		10-year Storm (cfs)		100-year Storm (cfs)	
	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
West – Harding Lane	2.8	2.4	6.1	5.6	13.7	9.2
North – Amlee Outlet	10.0	7.6	35.9	34.1	57.6	50.8
North – Ditch 11	7.7	5.4	24.9	24.5	56..3	49.4
North – Ditch 16 Flow	3.2	2.2	7.9	6.7	70.6	70.4
East – South Flen Rd. Outlet	1.0	1.0	3.7	3.7	3.7	3.7
Landlocked – Glen Rd. Cul de sac	0.2	0.0	3.2	0.0	11.3	4.8
Total	24.9	18.6	81.7	74.6	156.9	188.3

In addition to phosphorus and rate control, the proposed stormwater plan will provide protection for downstream waterbodies. Amlee Pond is the only managed waterbody downstream of the project. Amlee Pond is considered a Managed 3 Wetland. The following table shows conformance with Table I of the Stormwater Management Rule.

Amlee Wetland*	Bounce (ft)			Inundation Period (days)			Runout Elevation
	1-yr	10-yr	100-yr	1-yr	10-yr	100-yr	
Existing	934.73	935.58	938.54	1.9	2.7	4.7	932.34
Proposed	935.03	935.61	938.53	3.5	3.8	5.1	932.34

*Amlee Wetland is a Manage 3 Wetland

The project and proposed stormwater plan meet the District's Stormwater Management Rule.

Waterbody Crossing Rule

The updated stormwater management plan for the reconstructed roads will alter various waterbodies with new discharges and culvert. The following table outlines the existing and proposed 100-year HWLs for downstream waterbodies with new discharge points or where the bed or bank of the waterbody is being altered.

Waterbody	Existing HWL (ft)	Proposed HWL (ft)	Change (ft)
Harding Lane Basin	954.57	954.35	-0.22
Cul de Sac Raingarden	957.11	956.96	-0.15
Amlee Wetland	938.54	938.53	-0.01
Gideons Pond	947.89	947.88	-0.01

The applicants have shown that the proposed engineering practices will not have negative impacts on any downstream waterbodies and that the Waterbody Crossing rule is met.

February 10, 2021

Grace Barlow, MCWD

Page 3 of 3

Reference: Kenilworth; 20-624

Fees

Wenck Fees: N/A – City of Shorewood

Financial Assurances: N/A – City of Shorewood