



---

**Title:** Permit #25-141: County Road 6 Pond Retrofit

**Prepared by:** Name: Veronica Sannes, Permitting Technician  
Phone: (952) 641-4580  
Email: vsannes@minnehahacreek.org

**Recommendation:**

Approval of MCWD permit 25-141 in accordance with the submitted plans and following conditions:

- Identification of a dredging spoil disposal site in accordance with the MCWD Dredging rule requirements.
- Submission of a signed agreement with the 1525 Sixth Ave N property owners for consent to conduct work on their property.

**Project Location and Scope**

Location and Hydrology:

This is a project of the Minnehaha Creek Watershed District, as the applicant. The project area is located at 1525 Sixth Ave N, 835 Long Bridge Lane, and 960 Long Bridge Lane, within the City of Orono and the Long Lake Creek subwatershed. The setting is a 2.5-acre stormwater pond along County Road 6 (CR6) that MCWD constructed in 1998 within what had been a watercourse. The watercourse is a fourth order unnamed stream. The pond receives runoff from an approximately 3,730-acre drainage area, via the watercourse. The pond outlets over a metal weir, into the downgradient reach of the watercourse, which eventually drains to Long Lake. The District constructed the pond as a regional stormwater treatment facility to reduce nutrient loading to Long Lake, a downstream impaired waterbody.

Project Purpose and Scope:

The MCWD Project Planning team proposes to retrofit the existing pond to improve phosphorus removal efficiency by installing a gravity sand filter bench (Project) and seven associated 6" drain tile outlets. Other project elements include raising and reinforcing the central berm, modifying the outlet structure, expanding the pond's northwest corner, and maintenance dredging. These improvements are projected to remove an additional estimated 26-42 lbs/year of phosphorus and contribute to the goals of the Long Lake Creek Roadmap. The MCWD Board of Managers ordered the project on March 28, 2024 by Resolution 24-018. For a more detailed description of the project, the Board may consult the design memo (Attachment A).

Regulatory Framework

The MCWD's Erosion Control, Waterbody Crossings and Structures, Floodplain Alteration, Wetland Protection, and Dredging Rules apply to the Project. MCWD permitting staff and District Engineer have reviewed the Project and concluded that it meets the applicable MCWD rules. The application is before the Board of Managers because it is an MCWD project.

**MCWD Rule Analysis:**

Waterbody Classification

Whether and how MCWD rules apply to the work rest on how the affected surface waters are classified under the rules. The classification is slightly complex in this case, and so we begin by reviewing it. The rules speak of waterbodies, waterbasins, watercourses, and wetlands. A waterbody is defined as a waterbasin, watercourse, or wetland. Each of these terms is defined as follows.

- *Waterbasin:* An enclosed natural depression with definable banks, capable of containing water, that may be partly filled with water.

- *Watercourse*: A channel with definable beds and banks capable of conducting generally confined runoff from adjacent lands. A watercourse may be perennial or intermittent. The term does not include a roadside ditch created by excavation or other human constructed activity.
- *Wetland*: A feature identified as a wetland under Minn. Stat. 103G.005, subd 19. The term does not include “public waters wetlands” as defined under Minn. Stat. 103G.005, subd. 15a.

The CR6 pond was originally constructed within a wetland and stream complex, and regulated accordingly under the applicable rules at that time. The basin replaced the wetland area and reach of stream over which it was placed. As it exists today, the CR6 pond itself is a constructed stormwater pond and does not meet the definition of a waterbasin, watercourse, or wetland under MCWD rules. However, the project does propose impacts to regulated resources adjacent and hydrologically connected to the pond. There are two wetlands outside of the pond footprint, one in the northwest corner and one southeast of the pond. The watercourse remains both upstream and downstream of the pond.

One applicable rule, the Dredging rule, applies to dredging within a public water, a further classification maintained by the Mn Department of Natural Resources (DNR). When the DNR issued its permit for the initial pond construction, it determined that the entire basin would be considered a public water. It has advised that it would maintain that classification today. Therefore, the MCWD Dredging rule applies to dredging within the basin as a whole.

#### Erosion Control Rule

MCWD’s [Erosion Control Rule](#) applies to work disturbing more than 5,000 square feet of ground surface or excavating, filling or stockpiling 50 cubic yards or more of material. The Project proposes to disturb 1.73 acres and excavate and fill using 5,110 cubic yards of material; therefore, the rule is applicable. The Project proposes an Erosion Control Plan, shown on pages 7, 8, and 16 of Attachment B. This plan includes seeding for permanent stabilization, a rock construction entrance, perimeter control around the proposed work, inlet protection, and in-water flotation curtains to minimize sedimentation downstream. Staff have reviewed the permit application and have found it to be complete and compliant with all Erosion Control Rule requirements.

#### Waterbody Crossings and Structures Rule

MCWD’s [Waterbody Crossings and Structures Rule](#) applies when a roadway, bridge, boardwalk, utility, conveyance, or associated structure is proposed to be placed below the top of bank of a waterbody so as to disturb the bed or bank. The Project’s proposed drainage system consists of seven 6-inch tiles installed beneath the filter that will convey basin discharge to the southeast wetland. The tile will emerge within the wetland’s bank; therefore, the rule is applicable. T Section 3(a) states that the use of the bed or bank of a waterbody must meet a demonstrated specific need. The Project’s purpose is to improve phosphorus removal function of the stormwater pond, and the drain tile is necessary to convey the filtered water out of the bench and downstream.

Section 3(b) requires that the Project retain hydraulic capacity. The MCWD Engineer advises that the proposed drain tile maintains hydraulic capacity as it will not extend into the wetland in a way that will alter flow patterns, and the velocity leaving the drain tile (approximately 0.4 cfs at 2 ft/sec) will not increase flows through the wetland in a way that will alter hydraulic capacity.

Section 3(c) requires that the Project preserve navigational capacity. The southeast wetland has no current navigational capacity. The drain tile’s location and size does not change this capacity in the proposed condition, and therefore, navigational capacity is maintained.

Section 3(d) requires that aquatic and upland wildlife passage be preserved. The proposed drain tile outlets do not block any existing corridor or access for wildlife. Wildlife movement is not impeded, and therefore the requirement is met.

Section 3(e) requires that the structure be designed to not promote erosion or scour, or otherwise affect bed or bank stability or water quality within the wetland. The drain tile discharges into the wetland with a relatively minimal flow and velocity (approximately 0.4 cfs at 2 ft/sec). Additionally, rodent guards are proposed at the end of each outlet,

further dispersing flows. Based on the velocities and size of the outlets, the proposed design is not expected to promote erosion or scour.

Section 3(f) requires that the crossing be the “minimal impact” solution to the specific need. Two alternatives that were considered are a no-build option and routing the tile outlets outside of the wetland. The no-build option fails to meet project goals, as the drain tile is necessary for the filtration bench to function and provide water quality treatment. The second alternative would be to place drain tile outlets outside of the wetland boundary. Raising the tile outlets would require that the entire system be raised to maintain proper slopes and filter media depth. This would then mean raising the filter bench above the outlet structure, so that the water would bypass the filter entirely, not meeting project goals. MCWD Staff have reviewed the alternatives analysis and have found that the proposal meets the minimal impact criterion.

Sections 3(g) and (h) are not applicable as no subsurface, sanitary sewer, or siphon crossings are proposed.

#### Floodplain Alteration Rule

MCWD’s [Floodplain Alteration Rule](#) applies when a project proposes to fill, excavate, or grade within the 100-year floodplain of a waterbody. Because the Project proposes fill and excavation within the floodplains of the southeast wetland and the downstream watercourse, the rule is applicable. The proposed fill is associated with the access road and berm, and the excavation is for the drain tile outlets. The floodplain of the stream was modeled and utilized because the stream and wetland share a continuous floodplain elevation due to their hydraulic connection during high flow events. The floodplain elevations were established based on the stage elevations of the downstream stream during two events: the 2-year event for the Ordinary High Water (OHW) level, and the 100-year flood event. These elevations are 946.44 feet and 950.15 feet (NGVD29), respectively.

The 100-year high water elevation is defined as the water elevation reached by the Regional Flood, as determined by, in the order of preference, the most recent municipal, District or Federal Emergency Management Agency (FEMA) modeling, or by the applicant, in each case subject to the District’s concurrence as to modeling adequacy. In this case, the downstream watercourse is not modeled by FEMA, and the floodplain elevations were determined using the MCWD XP-SWMM model.

Section 4(a) states that any floodplain fill must be offset so there is no loss in flood storage between the OHW and 100-year floodplain. The Project proposes 6 cubic yards of fill within the floodplain and 140 cubic yards of excavation. This results in 134 cubic yards of net compensatory storage, therefore meeting the rule requirements. Attachment C illustrates the locations of the proposed work within the floodplain.

Section 4(c) states that fill within the floodplain of a watercourse must meeting the following criteria:

1. No impervious surface may be placed within the 10-year floodplain or within 25 feet of the watercourse centerline, whichever is greater, unless the surface is: (1) no more than 10% of the site’s 10-year floodplain area; or (2) a linear component of a public roadway or train. The Project does not propose impervious surface within the stream’s 10-year floodplain, or within 25 feet of the centerline of the stream, and therefore this section is not applicable.
2. Applicant must meet the No-Rise standard: The MCWD Project Planning team has submitted modeling in the form of XP-SWMM models showing that the Project meets the No-Rise standard as defined in the MCWD rules, and will not increase the 100-year high water level of the watercourse. The MCWD Engineer has reviewed the modeling and concurs in the conclusion.

#### Wetland Protection Rule

The project involves both filling and excavating in wetland at the northwestern edge of the pond, as well as excavating in wetland to the basin’s southeast. The wetland fill in the northwest corner is approximately 621 square feet and is proposed in order to raise the berm. Also in the northwest corner, 1,020 square feet of excavation is proposed for the pond expansion. Wetland filling is regulated under the Minnesota Wetland Conservation Act (WCA). Excavation in the southeastern wetland, a Type 2 wetland, is not regulated under WCA, but is regulated under section 3 of the MCWD rule. This 3,205 square feet of excavation is proposed to allow the drain tile to outlet into the wetland. The excavation

will not convert the wetland to non-wetland. MCWD is the local government unit (LGU) responsible to implement WCA within the City of Orono. However, pursuant to WCA rules, in this case it has deferred WCA jurisdiction to the DNR so that WCA and DNR public waters review may be performed in an integrated fashion. The approach for waiving WCA jurisdiction as well as the WCA exemption was discussed through pre-application meetings with the Board of Water and Soil Resources (BWSR), the DNR, and the Hennepin County Soil and Water Conservation District (SWCD). Because MCWD has waived WCA authority to the DNR, it has regulatory jurisdiction only as to the proposed wetland excavation in the southeast wetland. In addition, vegetated buffer requirements of the rule apply.

#### *Excavation:*

Permitting staff understand that the DNR is reviewing wetland fill and excavation impacts in the northwestern corner under Minnesota Rules 8420.0420, subpart 2, which exempts work beneficial to the resource that has been reviewed by the WCA Technical Evaluation Panel and certified by the soil and water conservation district. The MCWD rule governing excavation recognizes the same exemptions offered under WCA, and permitting staff find that the referenced exemption applies to the excavation proposed here.

#### *Vegetated buffer:*

Paragraph 4(a)(1) of the Wetland Protection Rule requires that a vegetated buffer be established around any wetland that is disturbed by a structure subject to the Waterbody Crossings rule. The southeastern wetland where the filter bench drain tile will outlet therefore requires a buffer. It is classified as a Manage 1 wetland, and so requires a 40 ft buffer. The wetland already is partly buffered under a declaration recorded as a condition of a prior MCWD permit for a previous subdivision (Permit #21-282), downgradient of impervious surface associated with that permit. The wetland buffer for the subdivision is shown in Attachment D. The only area not buffered under the existing declaration is the area of the MCWD access road to the pond berm. However, in the current and proposed condition, the access road is vegetated, and therefore no further buffering is required, and the current proposal meets rule requirements.

#### Dredging Rule

As noted above, the MCWD's [Dredging Rule](#) applies to any removal of sediment from a waterbody classified as a public water, defined by the DNR. The pond was built within a public watercourse, and although it is a constructed stormwater facility, it remains designated as part of the public water inventory. Because the Project proposes sediment removal from a DNR-classified public water, the rule is applicable.

Section 3(a) states that dredging is permitted only for one of the purposes listed in subsections 1 through 5. The Project qualifies under section 3(a)5, which allows dredging by a public entity for a public purpose. The Project is proposed by MCWD for the purpose of improving water quality downstream and therefore, the Project meets this criterion.

Sections 3(b) and (c) are not applicable because the Project is not proposing dredging to maintain an existing navigation channel or to implement a legal right of navigational access, as described in Sections 3(a)1 and 3(a)2, respectively.

Section 3(d) states prohibitions on dredging. The Project's purpose to dredge is not any of the listed reasons, as outlined below:

1. The dredging is for maintenance of the pond and not intended to offset any floodplain fill.
2. The dredging does not create backwater areas for navigation or extend riparian rights to non-riparian land.
3. The pond does not contain natural shoreline or streambank; therefore, these features are not being altered.
4. The dredging will not affect hydrology of any adjacent water resources.
5. The side slopes of the dredged area are designed to be no steeper than 3:1.

Section 4(a) requires that the proposal be the minimal impact solution to the project's need. The Project's dredging is part of a maintenance routine and is necessary to remove accumulated sediments. No other methods would be able to remove the accumulated sediments, and therefore the proposed dredging is considered the minimal impact means of achieving the purpose.



Section 4(b) applies when sediment is being removed that was transported into the waterbody. Sediment transport into the pond is the intended function of the facility, not due to a design failure or external source.

Section 4(c) requires that dredging be limited to the minimum dimensions necessary to meet the project's purpose. The proposed dredging is not intended for navigation and does not exceed the depths necessary for stormwater treatment. Therefore, the maximum depth and width limitations are not applicable.

Section 4(d) requires that side slopes be no steeper than 3:1 unless otherwise justified. The Project proposes 3:1 slopes throughout the dredged area, and no deviation is requested.

Section 4(e) prohibits dredging during fish spawning season, April 1 through June 30. Dredging for the Project is proposed to occur during winter 2025-2026 and will not occur during the aforementioned period.

Section 4(f) requires the identification of a spoil disposal site. Sediment testing has confirmed that the spoils are not contaminated and do not require additional disposal protocols. However, the spoil disposal site may not be below the OHW of a public water or wetland, in a floodplain absent flood storage replacement, or within 50 feet of any drinking water well. It is recommended that identification and documentation of the final disposal site be a condition of the permit.

MCWD Staff have reviewed the submittal under the Dredging rule and have found it to meet all rule requirements.

**Summary:**

The MCWD Project Planning Department has applied for a MCWD permit under the Erosion Control, Waterbody Crossings and Structures, Floodplain Alteration, Wetland Protection, and Dredging rules. Based on review by staff and the District Engineer, staff finds that the application meets all applicable MCWD rules.

**Attachments:**

Attachment A – 90% Design Memo

Attachment B - 90% Site Plans

Attachment C – Floodplain Figure

Attachment D – Subdivision Wetland Buffer Figure

## **Attachment A – 90% Design Memo**

To: Minnehaha Creek Watershed District      From: Chris Meehan (PE),  
Nick Wyers (PE),  
Stantec

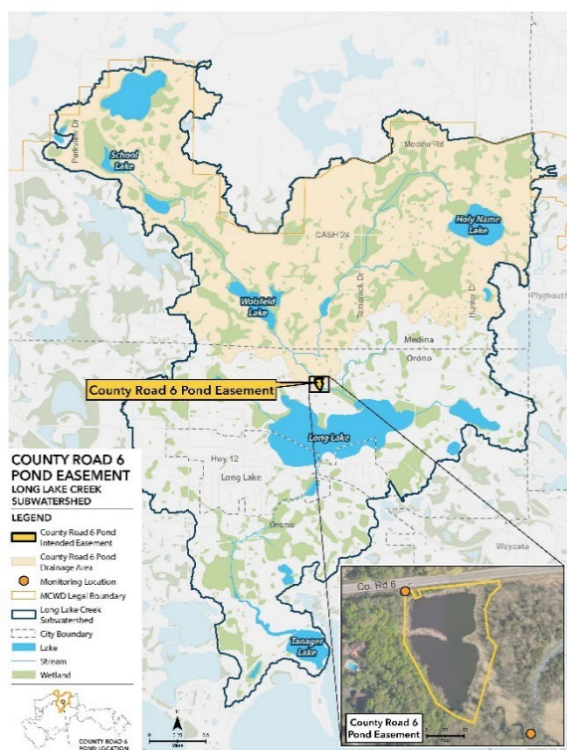
Project/File: County Road 6 Stormwater Pond Retrofit      Date: April 17, 2025

**Reference: 90% Design Summary Memo**

# 1 Introduction

Minnehaha Creek Watershed District (MCWD) identified the Long Lake Creek – County Road 6 Stormwater Pond (CR6 Pond) in Orono, MN as a candidate for performance improvements based on nutrient and sedimentation monitoring. Located downstream of Holy Name Lake and Wolsfeld Lakes and just upstream of Long Lake (Figure 1), the pond presents a strategic opportunity for enhanced regional treatment. Given its location, the District's existing ownership, and the potential for increased nutrient removal for impaired Long Lake, the CR6 Pond was prioritized for near-term engineered retrofits.

*Figure 1. Site Location Map*



MCWD consulted with Stantec to complete a feasibility study in 2023 to evaluate retrofit practices to increase total phosphorous (TP) removals within the CR 6 Pond. A gravity filter bench with an earthen berm to better define the two pond cells was selected to advance into design. This memorandum describes (1) Stantec's design of the gravity filter bench, raised sheet pile outlet weir and raised earthen berm between the two pond cells, (2) outlines the key design constraints, and (3) provides rationale for design decisions that were made along the way. The primary focus of the CR 6 Pond project is to improve the TP removal achieved by the pond.

## **2 Existing Conditions**

The existing CR 6 Pond consists of a 2.5-acre, dual-celled system with a submerged berm separating the cells. The pond was constructed in 1997. The existing pond outlet consists of a sheet pile weir with five 1 ft by 2 ft rectangular orifices that control the normal water level. Long Lake Creek flows through the CR 6 Pond to connect Wolsfeld Lake and Holy Name Lake to Long Lake. The pond and current project area is located within a District-held conservation easement. is located in an easement that was obtained with a settlement agreement with the landowners.

MCWD's Research & Monitoring Program has monitored influent and effluent phosphorus concentrations at the CR 6 Pond. During feasibility study, Stantec worked with MCWD to review monitored phosphorus concentrations and calibrated the P8 model to the project site conditions as outline in the September 25, 2023 County Road 6 Pond Retrofit Feasibility Study memo to MCWD. MCWD monitoring indicates that particulate phosphorus dominates the effluent TP.

## **3 Proposed Conditions**

The 2023 feasibility study recommended installing a gravity filter bench, sheet pile weir adjustments and earthen berm adjustments between the two celled system as the preferred alternative to balance TP removal, cost, and complexity of the project and resulting maintenance. The berm between the north and south cell of the pond is to be raised to a 952.0 ft (all elevations referenced in the body of the text refer to North American Vertical Datum of 1988 (NAVD88) unless clearly stated otherwise.) A 35-foot overflow at a runout elevation of 951.4 ft has been provided between the north and south cell. The sand filter has been designed with an 8-foot wide pea gravel topped berm at an elevation of 951.2. The top of sand filter has been proposed at 951.0 ft with a drain tile runout elevation of 948.4 ft. To provide gravity flow to the filter, the existing outlet weir must be raised from a 950.8 ft to a 952.0 ft elevation. A riprap overflow will be provided at a 953.0 ft elevation to provide a reinforced overflow to prevent washouts. The methodology and objectives will describe the considerations used to determine this proposed condition.

## **4 Methodology and Objectives**

Throughout design, we aimed to optimize the project by maximizing water quality benefits while balancing regulatory requirements, spatial constraints, cost, and long-term operations and maintenance.

## 4.1 H&H Modeling

The H&H Model utilized the existing MCWD Upper Watershed XP-SWMM Model. The MCWD XP-SWMM model elevations utilize the NGVD29 datum. Stantec updated all elevations within the model for review in NGVD29 datum. All elevations shown in this memo refer to the NAVD88 datum.

### *Existing Conditions*

In the MCWD XP-SWMM model, two channels, one flowing from Wolsfeld Lake and one flowing from Holy Name Lake, merge together and discharge into the north cell of the County Road 6 Pond via a 72-inch culvert beneath County Road 6. The north cell of the County Road 6 Pond discharges over a berm at 947.5 ft into the south cell. The south cell of the County Road 6 Pond ultimately discharges into the downstream creek via a proposed sharp crested (sheet pile) weir with 5 rectangular low-flow orifices. The crest elevation of the weir is 950.8 ft and the orifice elevations are 949.2 ft. The downstream creek flows into a wetland which serves as a backwater of Long Lake. The backwater wetland discharges into Long Lake via a 4-foot CMP culvert.

### *Corrected Existing Conditions*

Updates were made to the MCWD XP-SWMM Model to more accurately represent the existing conditions based on best available information. These updates included:

- Modifying the weir coefficient of the pond outlet weir to accurately represent a sharp-crested weir.
- Adding 0.8 cfs combined baseflow of the two upstream channels (which was approximated by Stantec from MCWD 2020 monitoring data using USGS methods).
- Other updates based on survey data collected during the project

### *Proposed Conditions*

To model proposed conditions, changes were made to the stage areas of the north and south cells, outlet devices of the north and south cell. These elements of the pond were iteratively varied throughout the design and modeling process to reflect design iterations and work towards an optimized design that balanced water quality benefit with hydraulics and water levels. No changes were made to structures or nodes upstream or downstream of the CR 6 Pond, except for the addition of the 0.8 cfs baseflow described above.

Based on the iterative design process, the following updates were made to the existing MCWD XP-SWMM Model to reflect the final design:

- Increasing the size of the north cell (to account for removal of accumulated sediment and additional expansion of pond storage volume) and decreasing the size of the south cell (to account for volume occupied for proposed filter bench)
- Updating low outlet elevations to set the initial (water surface) depths of the pond. The water surface elevation was set to 951.2 ft, matching the inlet elevation of the sand filter
- Modeling the berm between the north and south cells as a natural channel (rather than a broad crested weir) and increasing the berm elevation from 947.5 ft to 951.4 ft.

- Removing the outlet weir orifices and raising the elevation of the sharp crested (sheet pile) weir from 950.8 ft to 952.0 ft.
- Adding an emergency overflow (EOF) at 953.0 ft.

Note, the outlet of the County Road 6 Pond was modeled in HydroCAD, instead of XP-SWMM, to better reflect the multiple outlet configuration, including the sheet pile weir and EOF. The discharge curve was then exported to the XP-SWMM Model.

The XP-SWMM Model demonstrates no increase in the water surface elevations upstream during the 100-year storm event. There is no increase in upstream water surface elevations because the upstream 72-inch culvert remains the controlling device for the system during the 100-year storm event. The peak elevations of the pond maintain a sufficient hydraulic gradient with the ponding upstream of the 72-inch culvert and the discharge from the pond matches the inflow from the 72-inch culvert. Additionally, no-rise criteria is met in the downstream wetland and Long Lake during the 100-year storm event. A summary of the model outputs is provided below in Table 1.

*Table 1. Existing and Proposed Modeled 100-year Elevations*

Location	Existing 100-yr HWL	Proposed 100-yr Elevation	100-yr Change	Target Objective
Eastern Node Upstream of Eastern Stream	970.268	970.265	-0.003	No-Rise
Western Node Upstream of Western Stream	961.552	961.552	0.000	No-Rise
Downstream Node of both streams	958.855	958.855	0.000	No-Rise
South Pond	952.073	953.651	1.578	Increase permissible within water rights and easement agreements
North Pond	952.075	953.657	1.582	Increase permissible within water rights and easement agreements
Downstream Wetland	950.148	950.148	0.000	No-Rise
Long Lake	947.129	947.128	-0.001	No-Rise

## 4.2 Water Quality Modeling

The water quality improvements are based on three project features, the expanded north cell, the raised berm between the cells and the filter bench (the function of which critically relies on the modified pond outlet). The expansion of the north cell is designed to partially offset the loss of permanent pool volume resulting from building the filter bench while also making the pond's footprint more cohesive and allowing it to work with, rather than against, natural drainage patterns from the surrounding area. The expansion increases the pond's overall capacity and treatment within the north cell. The raised berm between the north and the south cell is intended to further promote settlement of larger particles, concentrating future sediment removal maintenance efforts to the north cell of the pond. The filter bench is designed to operate



as a gravity sand filter with underlying drain tile, removing finer particulate phosphorus from the volume of water between the surface of the filter and the weir overflow elevation. As the pond level exceeds the overflow elevation, the filter will continue to treat a portion of the water.

The P8 Models developed during the feasibility study were updated and utilized to estimate the water quality benefit provided by the proposed County Road 6 Pond retrofit. The P8 Models developed during the feasibility study were informed by monitoring data collected by MCWD in 2021 and 2022. Total phosphorus (TP), orthophosphate (OP), and total suspended solids (TSS) monitoring data collected from the inlet and outlet of the pond during 2022 were utilized to understand the composition of dissolved phosphorus (DP) versus TP. Based on the 2022 monitoring data, the total phosphorus concentration is approximately 25% DP. Discharge to the ponds, or flow, was informed by monitoring data collected by MCWD in 2021.

During the feasibility study, it was assumed the P8 default parameters would reflect the 25% DP in the particle representation of the TP based on P8 model documentation and guidance. However, the DP at the inflow to the north cell of the ponds was not characterized well in the particle representation of the TP in the P8 Model. Therefore, particle size and concentration were manually adjusted in the P8 Model to better characterize the DP in the particle representation of the TP (i.e. 25% DP). Additionally, the average annual inlet concentration was adjusted to simulate 0.36 mg/L TP based on the 2022 monitoring data.

Within the P8 model, only DP and the smallest particle size of particle-bound P were routed to the filter bench. Stantec believes this routing is inaccurate for the County Road 6 Pond. In reality, inflow concentration (and corresponding particle distribution) into the southern cell should approximate the inflow concentration into the filter bench. The model was adjusted such that the daily inflow TP concentration into the filter bench matched the daily inflow TP concentration into the southern cell. Based on the adjusted TP concentrations into the filter bench, the estimated average annual TP load into the filter bench is 34 lbs./year. The TP load is assumed to be 25% DP with an even distribution of particle sizes up to the P50%. Estimated removals for sand filters from the Minnesota Stormwater Manual were applied to the estimated TP load. Based on the estimated removals, the sand filter bench will remove approximately 19 lbs./year of TP, on average. However, depending on annual precipitation conditions, the filtered TP load ranges from 6 lbs./year to 32 lbs./year.

The total expected TP removals attributed to the increased ponding areas and filter bench are estimated to be between 26 and 42 pounds on an average annual basis. These numbers are lower than the feasibility study, and that decrease is related to (1) changes in TP particle size distribution and rainfall data (described below), (2) increased topography constraints, and (3) a 22% reduction in filter bench size relative to the feasibility filter bench footprint. Table 2 below was included with the feasibility study, which suggests a 28% removal of TP loads under current conditions based on monitoring data. However, this table characterizes monitoring data from a dry year (2021) to calculate inflow and outflow TP loads for the pond, meaning the inflow TP load was low relative to other years. For example, the P8 model estimates 2021 loads are in the bottom quartile of among all years simulated (2003-2022).

*Table 2. Annual TP loads at the County Road 6 pond inlet and outlet, based on 2021 streamflow monitoring and 2021/2022 TP monitoring.*

Year	Annual TP Load (lbs)		% Removal
	Inlet	Outlet	
2021	235.5	198.7	15.6%
2022	301.1	189.1	37.2%
Average	268.4	193.9	27.8%

During design it was determined that a more accurate representation of the TP would be achieved by evaluating the annual average inflow and removals (2003-2022). This increased the average annual TP load to the north cell to 784 lbs., and for this same period the baseline model (i.e., current condition) simulates 180 lbs./year removed on average (23%) and the proposed condition simulates 222 lbs./year removed on average (28%). The proposed condition includes an additional 42 lbs./year of removal which equates to 23% of the existing 180 lbs./year. (Table 3).

*Table 3. Average Annual TP loads at the County Road 6 pond inlet and outlet based on 2003-2022 model simulation.*

Year	Annual TP Load (lbs)			% Increase in Removals
	Inlet	Outlet (Current)	Outlet (Proposed)	
Average, 2003-2022	784	604	562	23%

### 4.3 Pond and Filter Bench Design

The filter bench was designed to balance the objectives of maximizing the pond's permanent pool volume (dead storage) and maximizing the volume of water that will drain through the filter bench via gravity (water quality treatment). Designing to maximize the volume of water that will drain through the filter bench was an iterative process. Various weir modification configurations were reviewed in conjunction with maintenance access berm elevations. Raising the weir elevation and the normal water elevation of the pond caused water levels to overtop the maintenance access berm. Subsequently, the elevation of the maintenance access berm was raised contain water levels. Once the berm elevation was raised, minor modifications were made to the weir to achieve the desired water quality benefit.

During design, MCWD's overall pond maintenance plan was evaluated. Stantec completed a bathymetric survey of the accumulated sediment in the pond and determined the pond has accumulated 20% of it's overall storage volume. Although MCWD policy is to remove sediment when accumulation has reached 50% of the storage volume, it was determined removing the sediment from the north cell with this project will create cost efficiencies by removing the sediment during this project as opposed to waiting and getting a contractor to come back when full pond maintenance is necessary.

When evaluating the bathymetric survey in comparison to the original pond design, it was found that the existing pond was not constructed per the plans. When the pond was originally constructed, a berm was created along the west edge of the northern cell along the property line, to limit the pond's encroachment onto the private property to the west. The design process for the current project identified the opportunity to remove the previously constructed berm and expand the permanent pool of the pond. Regrading in the area of the previously constructed berm was added to the scope of the project to both increase the permanent pool of the pond and to better connect the pond hydrologically to the contributing drainage area. In the existing condition, the berm creates a hydrologic barrier between runoff from the County Road 6 roadside ditch to the west of the pond and the pond itself, which results in a wet area on the west side of the berm. The berm between the north and south cells of the pond was raised to provide additional dead storage in the north cell. The berm will have a 35 ft wide overflow channel which will control water levels in the north cell. Raising the berm and the overflow elevation into the south cell will facilitate capture of coarse sediments in the north cell, ultimately improving the north cell's function as a pretreatment area upstream of the south cell and filter bench. The berm is to be raised to 952.0 ft and the overflow channel is to be raised from 947.56 ft to 951.4 ft. The normal water level in the north cell (which will be controlled by the overflow in

the berm between cells) will be approximately 0.4 ft higher than the normal water level in the south cell (which will be controlled by the top of the filter media).

The proposed filter bench was shaped by multiple constraints, with the limited topography and grade change being one of the most significant factors. The downstream creek elevation was assessed to determine the elevation and grade the drain tile could be constructed at to ensure the tile would not be submerged. This established the appropriate invert elevation of the drain tile, which then guided additional design elements. The design includes a swale to be graded from the northernmost drain tile outlet to the existing creek bank. The swale's elevation was intentionally set to avoid any impacts within the creek's ordinary high-water elevation. This swale allows for the drain tile to outlet at elevation 948.4 ft.

Using the set invert elevation, the drain tile was designed at a 0.5% grade with the highest invert elevation to be at 949.0 ft. The top of the filter material is designed at 951.0 ft. This provides the recommended 2 ft thick filter media (sand) section and will allow gravity flow from one end of the filter to the outlet. Multiple independent drain tile networks are proposed to limit the total length of pipe from the upstream end to downstream end of each, to ensure that 0.5% slope is achieved within the entirety of each system. If the systems were tied together into one, the total length of pipe would be such that the slope would need to be flatter than 0.5% and would present a risk of drainage problems. In addition, the project design aimed to minimize the number of cleanouts and keep as many outside of the filter media itself, posing less risk for damage during maintenance activities.

The filter media type and thickness were first determined based on site conditions and operations & maintenance considerations. A clean sand filter media was selected with 18-inches of filter media depth or more, with 5-inches of filter aggregate around the underlying drain tile. Therefore, the design provides 24-inches (2 ft) of filter media where there is no drain tile (i.e. there is no filter aggregate in areas where there is no drain tile).

The filter bench was sized to accommodate the drain tile grade, the maintenance access berm between the filter and the wetland, and to layout the filter within the existing ponds contours. The maintenance access berm was raised to elevation 954.0 ft to contain high water elevations within the pond footprint. The existing berm in this area was only 4 ft wide. To provide an accessible berm for the expected maintenance equipment (skid steers, mowers, etc.), the top of the berm will be widened to a 10 ft top width. The filter was designed to fit in the corner of the existing pond where it would not impact the existing sheet pile overflow as well as the existing and proposed location of the overflow from the north to the south cell. The design considerations led to a filter size of approximately 11,461 sq ft.

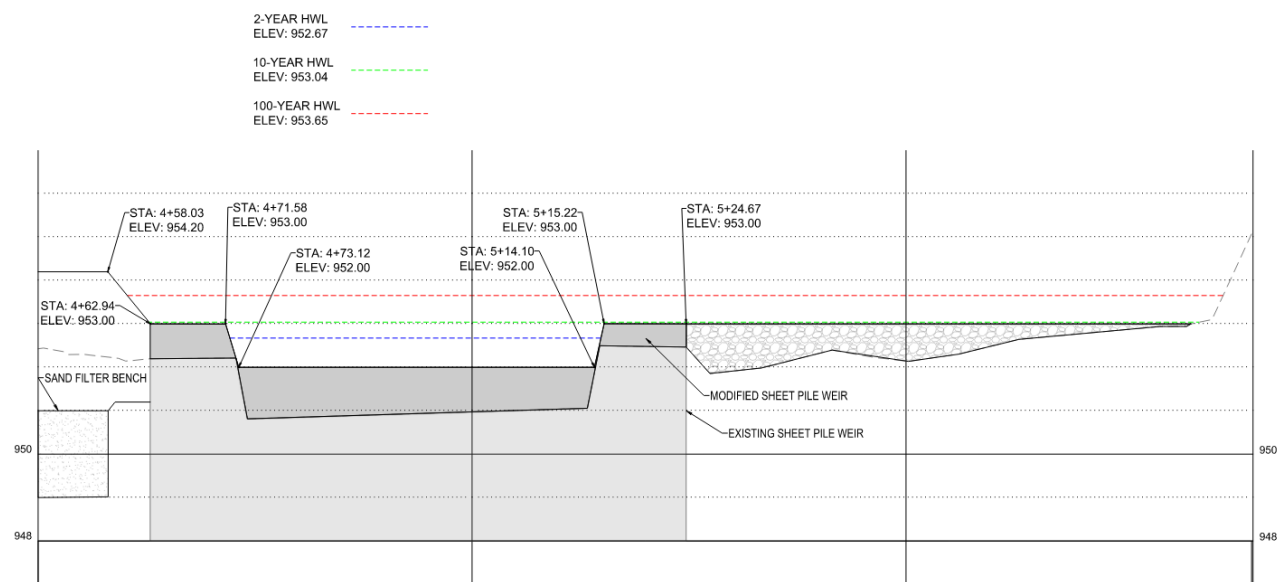
It was determined, through design discussions, that the proposed filter bench will not be vegetated because of the unlikely success of vegetation growth within the filter and potential for conflict with project goals. For vegetation growth within the filter bench to be successful, the filter must draw down within 48 hours. However, it is uncertain whether the filter will have the opportunity to completely draw down and dry out because of the pond's variable baseflow. The proposed filter media, clean sand, is also not conducive to vegetation growth. Compost would need to be incorporated into the filter media to support vegetation growth. However, filter media containing compost have the potential to leach phosphorus and compromise the primary project goal, phosphorus reduction.

The two components of the overflow weir (sheet pile weir at outlet of south cell) that need to be modified to achieve the desired filtration volume are the height of the weir's overflow and the low-flow orifices, which currently include fish passage screens. The fish passage screens are to be plugged. Project designers evaluated whether the fish screens could be welded over with steel plates or if a concrete plug would be required. During a spring inspection in April 2025, the existing screens appeared to be able to be removed and replaced with a solid metal alternative. The selected design specifies that a solid piece of metal be used to plug and seal the five (1 ft by 2 ft) openings which currently serve as the controlling outlet of the

pond. The plugs will be designed with the option to lift them out if needed for pond drawdown in the future to support maintenance. The other consideration for outlet retrofit is the height of the weir's overflow. The evaluated methods for adjusting the height of the overflow weir included full replacement, H-pile steel beams, and a steel plate with stiffener reinforcements. The costs of the full replacement and the weights and cost of the H-pile steel beam made those options less feasible than the option to weld a steel plate to the existing weir. The weir modifications were reviewed with structural engineers and determined that a ½" thick steel plate with stiffeners welded every 2 ft would provide the height and strength necessary to maintain a higher water elevation. To avoid a sharp point on top of the welded plate, a slotted steel pipe will be welded to the top. The steel pipe will also provide a uniform top elevation for overflow. The existing weir cap is not level from south to north and the pipe can be adjusted on the steel plate to meet the new design overflow elevation of 952.0 ft.

The maintenance access berm will be raised to elevation 954.0 ft and the overflow weir will be raised to 952.0 ft. The berm south of the sheet pile weir will have a riprap armored overflow at elevation 953.0 ft.

*Figure 2. Sheet Pile Weir Profile*



## 4.4 Permitting and Regulatory

Permitting and regulatory compliance was led by the MCWD staff with support from the Stantec team. Permitting documents from the pond's original 1997 construction were reviewed to determine the appropriate regulatory framework and support current permit applications. The permitting pathways determined the pond expansion portion of the project must meet WCA and USACE no loss permits, which included defining incidental wetland that was created from the 1997 pond construction. Wetland delineations were utilized from 1997, 2020, and 2024 to determine the wetland boundaries to be permitted.

with this project. The project was also required to obtain a public water works permit from the MnDNR, as well as a Minnehaha Creek Watershed District permit to ensure compliance with its own rules.

## **4.5 Spatial Considerations**

The spatial considerations were related to the permanent pool of the pond, its existing easement, and the impact the 100-yr HWL has on the site and adjacent properties. The existing pond already interacts with the northwest adjacent parcel (PID 2611823330033) and the proposed changes would permanently place/pool water on their property. MCWD approached the property owner to discuss the preferred design alternative of expanding the pond onto their property to formalize and control where the water pools. This area has been historically wet with fallen trees and other trees that are frequently inundated with backwater flood conditions. The improvements to this area will remove trees as well as provide a more defined permanent pool boundary. As noted previously, the expanded pond footprint will assist in improving the primary goal of this project, to optimize TP removal, by offsetting the loss of permanent pool volume associated with construction of the filter bench. MCWD staff worked with the homeowner to negotiate an agreement structure, which gives MCWD the ability to permanently push and pond water onto their property within the agreed upon project area.

Other site impacts reviewed were access concerns for maintenance. The site grading was reviewed and modified to allow for access to the site improvements that will require maintenance (filter bench and outlet weir). The access path was graded to provide consistent 10 ft wide access. During the iterative modeling optimization process, the berm between the filter and downstream wetland was raised to maintain flood elevations. To avoid wetland and floodplain fills in the downstream wetland, the raised access berm grading reduced the filter size by approximately 2,000 square feet.

## **4.6 Operations and Maintenance**

Operation and maintenance efforts and costs are key factors in determining key design criteria. Operation and maintenance requirements for the system include removal of accumulated sediment in the pond and filter bench maintenance. A detailed operations and maintenance manual has been developed to support MCWD staff (Attachment 3).

The raised and defined earthen berm between the north and south cell promotes more sedimentation within the north cell. The focused sedimentation in the north cell has potential to reduce the level of effort associated with sedimentation inspection efforts and streamline future sediment maintenance efforts. In addition, this increased sedimentation in the north cell is expected to increase longevity of the filter media.

The filter bench material was selected to ensure the longevity of the sand filter media. A clean filter sand was selected as the filter material after evaluation of multiple media including media which incorporated compost, iron enhanced sand, and/or biochar. The clean filter sand has the least likelihood of clogging and has the lowest frequency of anticipated maintenance, such as mixing the filter media. Biochar and iron enhanced sand were evaluated for their respective maintenance needs. The iron enhanced sand is more expensive to replace and with constant base flow into the pond, there were concerns of the filter not drying out and the filter plugging more frequently.

Vegetated filters require additional maintenance and the vegetation creates obstacles for maintaining the filter media. Vegetation maintenance needs include mowing vegetation, controlled burning of vegetation, and removal of organic material from the media surface to avoid decomposition and additional phosphorus loading into the receiving waterbody. When vegetated filters are implemented, it is difficult to till the underlying media and remove accumulated sediment, undesired aquatic vegetation, and other unwanted materials from the filter bench without negatively impacting the desired vegetation.

The berm between the filter and pond and the areas outside of the pond were evaluated for vegetation and planting improvements. In collaboration with MCWD staff, it was determined that the areas are to be vegetated with a stormwater pond seed mix and no plantings of trees or shrubs would be included. Plantings could create additional maintenance concerns in the future via fallen leaves and other detritus, and would require additional maintenance. The site can be evaluated by MCWD staff through site inspections to determine if any plantings would be aesthetically beneficial to the filter basin.

## **5 Conclusion**

In conclusion, the County Road 6 Stormwater Pond Retrofit project aims to enhance the performance of the existing CR 6 Stormwater Pond by implementing a gravity filter bench, raising the sheet pile outlet weir, and adjusting the earthen berm between the two pond cells. These modifications are designed to improve total phosphorus (TP) removal, optimize water quality, and ensure effective stormwater management. The proposed changes, including the increased ponding depths and filter bench, are expected to result in significant TP removals, contributing to the overall goal of reducing watershed load to Long Lake. By carefully balancing these factors, the project aims to achieve long-term functionality and effectiveness in improving water quality and managing stormwater.

## **Attachments**

- Attachment 1: 90 % design Plans
- Attachment 2: 90% Cost Estimate
- Attachment 3: 90% Operations & Maintenance Manual



## **Attachment B - 90% Site Plans**

# CONSTRUCTION PLANS

## FOR

# COUNTY ROAD 6 STORMWATER POND RETROFIT PROJECT

OWNER:  
MINNEHAHA CREEK WATERSHED DISTRICT



15320 MINNETONKA BLVD  
MINNETONKA, MN 553405  
CONTACT: KAILEY CERMAK  
PH: (952) 641-4501

ENGINEER:  
STANTEC CONSULTING SERVICES INC.



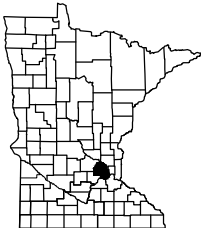
ONE CARLSON PARKWAY, SUITE 100  
PLYMOUTH, MN 55447  
CONTACT: CHRIS MEEHAN, P.E.  
PH: (763) 252-6844

CITY OF ORONO  
HENNEPIN COUNTY, MN



### VICINITY MAP

SCALE: 1" = 500'



### PROJECT LOCATION

CITY: ORONO  
COUNTY: HENNEPIN

**WARNING:**  
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

CALL BEFORE YOU DIG  
**GOPHER STATE ONE CALL**  
TWIN CITY AREA: 651-454-0002  
TOLL FREE: 1-800-252-1166

THIS PLANSET CONTAINS 16 SHEETS

SHEET INDEX	
Sheet Number	Sheet Title
G-001	COVER SHEET
G-002	LEGENDS
G-003	NOTES
C-001	EXISTING CONDITIONS AND REMOVAL PLAN
C-002	EXISTING CONDITIONS AND REMOVAL PLAN
C-101	TYPICAL SECTIONS PLAN
C-201	SWPPP
C-202	RESTORATION AND EROSION CONTROL PLAN
C-301	GRADING PLAN
C-302	GRADING PLAN
C-303	CROSS SECTIONS
C-304	CROSS SECTIONS
C-305	FOOTPATH PLAN
C-501	STORM SEWER PLAN
C-801	DETAILS
C-802	DETAILS



ONE CARLSON PARKWAY, SUITE 100  
PLYMOUTH MN, 55447  
PHONE: 763-479-4200  
FAX: 763-479-4242  
WWW.STANTEC.COM

CLIENT:  
**MINNEHAHA CREEK WATERSHED DISTRICT**  
15320 MINNETONKA BLVD  
MINNETONKA, MN 55345



**COUNTY ROAD 6  
STORMWATER POND RETROFIT**  
COUNTY ROAD 6 STORMWATER POND  
ORONO, MINNESOTA

PROJECT TITLE:

DATE:	DESCRIPTION:	ISSUE NO.:					
03/21/2025	ISSUED FOR 90% REVIEW	0					

CERTIFICATION:  
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.

CHRIS J. MEEHAN

LICENSE NO.: 43066

DATE: XX/XX/2024

PROJECT NO.: 227707038

DWN BY: SMD	CHKD BY: NPW	APP'D BY: CJM
-------------	--------------	---------------

ISSUE DATE: XX/XX/2024

ISSUE NO.: 0







































SHEET TITLE:

COVER SHEET














SHEET NO.:

G-001




EXISTING TOPOGRAPHIC SYMBOLS

	STORM SEWER APRON		POLE-COMMUNICATIONS
	BUSH DECIDUOUS		POLE-GUY
	CATCH BASIN BEEHIVE		POLE-LIGHT
	CLEAN OUT (SEWER)		POLE-POWER
	CULVERT END		POLE-UTILITY
	GUY WIRE		POLE-UTILITY SERVICE
	HYDRANT VALVE		POST
	INLET (SMALL DIA.)		SATELLITE DISH
	LIFT STATION CONTROL PANEL		SEPTIC TANK
	LIFT STATION DRY WELL		SEPTIC VENT
	LIFT STATION WET WELL		SEPTIC DRAIN FIELD
	MAIL BOX		SIGN
	MANHOLE-GAS		SOIL BORING
	MANHOLE-POWER		STUMP
	MANHOLE-SANITARY SEWER		TREE DEAD
	MANHOLE-STORM SEWER		TREE-CONIFEROUS
	MANHOLE-COMMUNICATIONS		TREE-DECIDUOUS
	PEDESTAL CATV		TREE-FRUIT
	PEDESTAL COMMUNICATIONS		WETLAND
	POST INDICATOR VALVE		




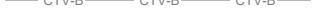





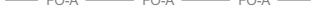











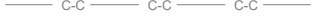
SURVEY SYMBOLS

	AERIAL CONTROL POINT
	BACKSIGHT CONTROL POINT
	GPS CONTROL POINT
	JUDICIAL LAND MONUMENT
	MONUMENT COMPUTED
	MONUMENT IRON FOUND
	MONUMENT IRON SET
	RESECTED POINT
	ROW MONUMENT
	ROW MARKER POST
	SECTION CORNER
	TRAVERSE CONTROL POINT
	BENCH MARK LOCATION

PROPOSED TOPOGRAPHIC SYMBOLS

	DRAINTILE CLEANOUT
	RIP RAP
	DRAINAGE FLOW



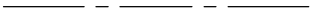










EXISTING PRIVATE UTILITY LINES

	CABLE TV QUALITY LEVEL D
	CABLE TV QUALITY LEVEL C
	CABLE TV QUALITY LEVEL B
	CABLE TV QUALITY LEVEL A
	FIBER OPTIC QUALITY LEVEL D FIBER
	OPTIC QUALITY LEVEL C FIBER OPTIC
	QUALITY LEVEL B FIBER OPTIC QUALITY LEVEL A
	POWER QUALITY LEVEL D
	POWER QUALITY LEVEL C
	POWER QUALITY LEVEL B
	POWER QUALITY LEVEL A
	GAS QUALITY LEVEL D
	GAS QUALITY LEVEL C
	GAS QUALITY LEVEL B
	GAS QUALITY LEVEL A
	COMMUNICATION QUALITY LEVEL D
	COMMUNICATION QUALITY LEVEL C
	COMMUNICATION QUALITY LEVEL B
	COMMUNICATION QUALITY LEVEL A
	OVERHEAD POWER
	OVERHEAD COMMUNICATION
	OVERHEAD UTILITIES

EXISTING TOPOGRAPHIC LINES

	GUARD RAIL
	TREE LINE
	WETLAND


SURVEY LINES

	BOUNDARY
	CENTERLINE
	EXISTING EASEMENT LINE
	PROPOSED EASEMENT LINE
	FLOOD PLAIN BOUNDARY
	EXISTING LOT LINE
	PROPOSED LOT LINE
	EXISTING RIGHT-OF-WAY
	PROPOSED RIGHT-OF-WAY
	SETBACK LINE
	SECTION LINE
	QUARTER SECTION LINE
	SIXTEENTH SECTION LINE

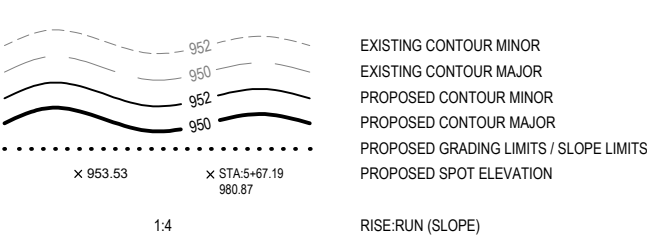
EXISTING UTILITY LINES

	STORM SEWER
---	-------------

PROPOSED UTILITY LINES

	STORM SEWER
---	-------------


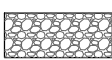
GRADING INFORMATION



ABBREVIATIONS

AD	ALGEBRAIC DIFFERENCE
BV	BUTTERFLY VALVE
BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
CL	CENTER LINE
CL	CLASS
CMP	CORRUGATED METAL PIPE
C.O.	CHANGE ORDER
DIP	DUCTILE IRON PIPE
EL/ELEV	ELEVATION
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EX	EXISTING
FES	FLARED END SECTION
F/F	FACE TO FACE
FM	FORCE MAIN
F.O.	FIELD ORDER
GV	GATE VALVE
HP	HIGH POINT
HWL	HIGH WATER LEVEL
INV	INVERT
K	CURVE COEFFICIENT
LP	LOW POINT
MH	MANHOLE (SANITARY)
NTS	NOT TO SCALE
NWL	NORMAL WATER LEVEL
PC	POINT OF CURVE
PCC	COMPOUND CURVE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PPVC	PERFORATED POLYVINYL CHLORIDE PIPE
PRC	POINT OF REVERSE CURVE
PT	POINT OF TANGENT
PVC	POLYVINYL CHLORIDE PIPE
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
R/W	RIGHT-OF-WAY
SS	STORM SEWER STRUCTURE
STA	STATION
TCE	TEMPORARY CONSTRUCTION EASEMENT
TNH	TOP NUT HYDRANT
TYP	TYPICAL
VC	VERTICAL CURVE
WM	WATER MAIN

HATCH PATTERNS

	SAND
	GRAVEL



ONE CARLSON PARKWAY, SUITE 100  
PLYMOUTH MN, 55447  
PHONE: 763-479-4200  
FAX: 763-479-4242  
WWW.STANTEC.COM

CLIENT:

MINNEHAHA CREEK  
WATERSHED  
DISTRICT

15320 MINNETONKA BLVD  
MINNETONKA , MN 55345



COUNTY ROAD 6  
STORMWATER POND RETROFIT  
COUNTY ROAD 6 STORMWATER POND  
ORONO, MINNESOTA

PROJECT TITLE:

DATE:	03/21/2025								
DESCRIPTION:	ISSUED FOR 90% REVIEW								
ISSUE NO.:	0								

CERTIFICATION:  
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.

CHRIS J. MEEHAN

LICENSE NO.: 43066

DATE: XX/XX/2024

PROJECT NO.: 227707038

DWN BY: SMD

CHKD BY: NPW

APP'D BY: CJM

ISSUE DATE: XX/XX/2024

ISSUE NO.: 0

SHEET TITLE:

LEGENDS

SHEET NO.:

G-002

GOVERNING SPECIFICATIONS

- 1. CITY OF ORONO (CITY) STANDARD SPECIFICATIONS AND REQUIREMENTS.
- 2. MINNESOTA DEPARTMENT OF TRANSPORTATION (MN/DOT) "STANDARD SPECIFICATIONS FOR CONSTRUCTION" LATEST EDITION AND SUPPLEMENTS.
- 3. CITY ENGINEERS ASSOCIATION OF MINNESOTA (CEAM) STANDARD SPECIFICATIONS FOR UTILITIES LATEST EDITION.
- 4. APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES

GENERAL NOTES

- 1. UNTIL REVISION BLOCK STATES "ISSUED FOR BID", THE PLAN SET IS NOT CERTIFIED FOR CONSTRUCTION AND CONTRACTOR IS BUILDING AT THEIR OWN RISK.
- 2. EXISTING CONDITIONS SHOWN ARE FROM A TOPOGRAPHIC SURVEY COMPLETED BY STANTEC, DATED JUNE 2024. EXISTING FEATURES MAY NOT BE EXACT TO THEIR LOCATION. CONTRACTOR RESPONSIBLE FOR VERIFYING THE CONDITIONS OF THE SITE AND MUST IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF DISCREPANCIES OR VARIATIONS FROM THE DRAWINGS
- 3. SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C/ASCE 38-2 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA". EXACT LOCATION/DEPTH OF SUBSURFACE UTILITIES SUCH AS GAS, TELEPHONE, FIBER OPTIC, SEWER, WATER, PIPELINES, ELECTRICAL, AND CABLE TV ARE UNKNOWN AND THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE.
- 4. CONTRACTOR RESPONSIBLE FOR CONTACTING GOPHER STATE ONE CALL (1-800-252-1166) A MINIMUM OF 48 HOURS IN ADVANCE (EXCLUDING HOLIDAYS AND WEEKENDS) BEFORE STARTING WORK FOR LOCATIONS OF UNDERGROUND UTILITIES.
- 5. CONTRACTOR SHALL ANTICIPATE PRIVATE UTILITY CONFLICTS THROUGHOUT THE PROJECT SUB CUT AND TRENCH AREAS AND MUST COORDINATE THE RELOCATION OR PROTECTION OF EXISTING UTILITIES, OR INSTALLATION OF NEW UTILITIES WITH UTILITY OWNERS THAT MAY HAVE BURIED OR AERIAL UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE STARTING WORK. COSTS FOR SUCH WORK, INCLUDING EXTRA TIME AND EFFORT FOR PROVISIONS NECESSARY TO WORK AROUND OR UNDER UTILITIES, IS THE RESPONSIBILITY OF THE CONTRACTOR WITH NO ADDITIONAL COST TO THE OWNER. FEES OR CHARGES WHICH ARE TO BE PAID TO THE UTILITY COMPANY, INCLUDING WORK THAT MUST BE PERFORMED BY THE UTILITY COMPANY, ARE AT NO ADDITIONAL COST TO THE OWNER.
- 6. QUANTITIES ARE APPROXIMATE, AND MAY VARY TO ALLOW COMPLETION OF WORK.
- 7. WORK AND MATERIALS MUST COMPLY WITH CITY, COUNTY, STATE, AND FEDERAL (INCLUDING OSHA) REGULATIONS AND CODES.
- 8. CONTRACTOR SHALL COORDINATE WORK WITH OTHER CONTRACTORS PERFORMING WORK AT OR NEAR THE SITE.
- 9. CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS TO ADJACENT PROPERTIES THROUGHOUT CONSTRUCTION.
- 10.CONTRACTOR SHALL COORDINATE AND MAINTAIN MAIL, GARBAGE, AND RECYCLING SERVICES TO PROPERTIES THROUGHOUT CONSTRUCTION.
- 11.CONTRACTOR SHALL COORDINATE AND MAINTAIN STORMWATER DRAINAGE CONVEYANCE THROUGHOUT CONSTRUCTION (BOTH PIPED AND OVERLAND FLOW).
- 12.CONTRACTOR SHALL COORDINATE AND MAINTAIN WATER AND SANITARY FLOW TO AND FROM PROPERTIES. PROVIDE BYPASS AND TEMPORARY SYSTEMS, AS NECESSARY.
- 13.CONTRACTOR SHALL COORDINATE AND MAINTAIN UTILITY SERVICES TO ADJACENT PROPERTIES AT ALL TIMES. UTILITY SERVICE MUST NOT BE INTERRUPTED WITHOUT APPROVAL FROM OWNER, CITY, AND ADJACENT PROPERTIES.
- 14.CONSTRUCTION LIMITS ARE TO PROPERTY LINE UNLESS SHOWN OR NOTED OTHERWISE. CONTRACTOR SHALL RESTRICT CONSTRUCTION ACTIVITIES TO AREAS DESIGNATED ON PLANS WITHIN THE CONSTRUCTION LIMITS.
- 15.CONTRACTOR SHALL PRESERVE AND PROTECT EXISTING PAVEMENT, SITE FEATURES, UTILITIES, TREES, ETC., UNLESS NOTED OR SHOWN OTHERWISE.
- 16.EXISTING PAVEMENT AND SITE CONDITIONS HAVE BEEN DOCUMENTED, AND ANY DAMAGE TO THE EXISTING PAVEMENT, CURBING, STRIPING, OR OTHER SITE FEATURE TO REMAIN MUST BE REPLACED BY THE CONTRACTOR, TO OWNER'S SATISFACTION, AT NO ADDITIONAL COST TO THE OWNER.
- 17.CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING CONSTRUCTION AND WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES.
- 18.CONTRACTOR MUST IMMEDIATELY NOTIFY THE OWNER AND ENGINEER IN WRITING OF DISCREPANCIES OR CONFLICTS IN THE CONTRACT DOCUMENTS BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS ARE TO BE MADE WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER. FAILURE TO NOTIFY OWNER AND ENGINEER OF AN IDENTIFIABLE CONFLICT BEFORE PROCEEDING WITH INSTALLATION RELIEVES OWNER AND ENGINEER OF ANY OBLIGATION TO PAY FOR A RELATED CHANGE ORDER.
- 19.CONTRACTOR SHALL HAVE ONE COPY OF EACH REQUIRED CONSTRUCTION PERMIT AND ONE COPY OF THE MOST CURRENT AND COMPLETE SET OF CONSTRUCTION DOCUMENTS (INCLUDING PLANS, SPECIFICATIONS, GEOTECHNICAL REPORT, SPECIAL CONDITIONS AND PROVISIONS, ETC.) AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
- 20. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR IMPLEMENTATION AND ENFORCEMENT OF SAFE WORK PRACTICES, INCLUDING BUT NOT LIMITED TO PERSONNEL MONITORING, USE OF TRENCHING, SHEETING, AND SHORING, SCAFFOLDING; MATERIALS HANDLING AND DRILLING; OPERATION OF EQUIPMENT; AND SAFETY OF PUBLIC DURING PROGRESS OF WORK.
- 21. CONTRACTOR SHALL PLAN FOR AND ENSURE PERSONNEL COMPLY WITH PROVISIONS OF OSHA SAFETY AND HEALTH STANDARDS (29 CFR 1910) AND GENERAL CONSTRUCTION STANDARDS (29 CFR 1926) AS APPROPRIATE.
- 22. CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH WORK. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS FOR SAFETY OF EMPLOYEES ON PROJECT SITE AND OTHER PERSONS AND ORGANIZATIONS WHO MAY BE AFFECTED BY THE PROJECT. CONTRACTOR'S DUTIES AND RESPONSIBILITIES FOR SAFETY IN CONNECTION WITH WORK SHALL CONTINUE UNTIL SUCH TIME AS ALL WORK IS COMPLETED, AND ENGINEER HAS ISSUED NOTICE TO CONTRACTOR THAT WORK IS COMPLETE.
- 23. HAZARDOUS MATERIALS, INCLUDING BUT NOT LIMITED TO OIL, GASOLINE, PAINT AND OTHER HAZARDOUS SUBSTANCES MUST BE PROPERLY STORED, BY THE CONTRACTOR, INCLUDING SECONDARY CONTAINMENTS, TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH MCPA REGULATIONS. CONTRACTOR SHALL REMOVE SPILL OF FUELS, OILS, OR OTHER CHEMICALS IMMEDIATELY UPON DETECTION.
- 24. IF CONSTRUCTION IS ANTICIPATED TO OCCUR DURING COLD WEATHER, IN THE EVENT THAT SNOW REMOVAL IS REQUIRED FOR SITE ACCESS AND CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL COORDINATE WITH OWNER FOR ACCEPTABLE SNOW STORAGE AREAS ONSITE. SNOW REMOVAL AND STORAGE IS INCIDENTAL TO THE CONTRACT.

REMOVAL/DEMOLITION NOTES

- 1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
- 2. CONTRACTOR SHALL OBTAIN PERMITS REQUIRED FOR DEMOLITION, REMOVAL AND DISPOSAL.
- 3. CONTRACTOR SHALL REVIEW FEATURES NOT SPECIFICALLY IDENTIFIED ON PLAN FOR SALVAGE OR REMOVAL THAT CONFLICT WITH CONSTRUCTION WITH THE ENGINEER.
- 4. MATERIALS REMOVED/DEMOLISHED BY CONTRACTOR BECOME PROPERTY OF THE CONTRACTOR, UNLESS OTHERWISE NOTED. CONTRACTOR SHALL LOAD AND HAUL MATERIAL OFF-SITE AND PROPERLY DISPOSE OF MATERIALS IN ACCORDANCE WITH APPLICABLE REGULATIONS. CONTRACTOR MUST LEAVE THE SITE IN A CONDITION TO THE SATISFACTION OF THE OWNER AND ENGINEER.

- 5. CONTRACTOR SHALL COORDINATE UTILITY REMOVAL WORK WITH APPROPRIATE UTILITY OWNER.
- 6. CONTRACTOR SHALL SALVAGE AND REINSTALL STREET AND TRAFFIC SIGNS IN CONFLICT WITH CONSTRUCTION ACTIVITIES AS NOTED OR AS DIRECTED BY ENGINEER. IF SIGNS ARE DAMAGED DURING CONSTRUCTION, CONTRACTOR REQUIRED TO PROVIDE NEW SIGNS AT NO ADDITIONAL COST TO THE OWNER.
- 7. IN THE EVENT THAT UNKNOWN CONTAINERS OR TANKS ARE ENCOUNTERED, THE CONTRACTOR MUST CONTACT THE ENGINEER IMMEDIATELY. ALL CONTAINERS OR TANKS MUST BE DISPOSED OF PROPERLY AT A REGULATED/PERMITTED FACILITY.
- 8. CONTRACTOR SHALL REVIEW ALL TREE REMOVALS WITH THE OWNER AND ENGINEER PRIOR TO REMOVAL OPERATIONS.
- 9. CLEARING AND GRUBBING OPERATIONS MUST COMPLY WITH THE FOLLOWING:
  - A. PROTECT ALL TREES AND PLANTS NOT DESIGNATED FOR REMOVAL.
  - B. CONDUCT OPERATIONS IN SUCH A MANNER THAT DOES NOT DAMAGE PROTECTED TREES AND VEGETATION.
  - C. CUT, REMOVE, AND DISPOSE OF TREES, BRUSH, SHRUBS, WINDFALLS, LOGS, STUMPS, ROOTS, FALLEN TIMBER, AND OTHER VEGETATION.
  - D. BACKFILL DEPRESSIONS WITH NATIVE SOILS OR SUITABLE FILL MATERIAL AS REQUIRED BY DESIGN OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER AND COMPACT BACKFILL AS DIRECTED.
  - E. DISPOSE OF DEBRIS IN ACCORDANCE WITH APPLICABLE REGULATIONS.
  - F. CONSIDER BENEFICIAL USE DESIGNATIONS FOR UNADULTERATED WOOD, WOOD CHIPS, BARK AND SAWDUST.
  - G. NO BURYING OF CLEARED AND GRUBBED WASTE WITHIN THE CONSTRUCTION LIMITS.

TRAFFIC CONTROL NOTES

- 1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
- 2. CONTRACTOR SHALL COORDINATE CONSTRUCTION STAGING, ON OR OFFSITE, AS NECESSARY TO COMPLETE THE WORK. IF OFFSITE STAGING AREA IS REQUIRED, CONTRACTOR IS RESPONSIBLE TO FIND, OBTAIN, AND PAY FOR NECESSARY STAGING AREA AT NO ADDITIONAL COST TO THE OWNER. SUBMIT A STAGING PLAN TO THE ENGINEER FOR REVIEW BEFORE STARTING WORK.
- 3. CONTRACTOR RESPONSIBLE FOR ALL TRAFFIC CONTROL AND PEDESTRIAN DETOURS. TRAFFIC CONTROL AND PEDESTRIAN DETOURS MUST BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MN MUTCD, INCLUDING LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS. SUBMIT TRAFFIC CONTROL PLAN AND PEDESTRIAN DETOUR PLAN TO CITY AND ENGINEER FOR REVIEW BEFORE CONSTRUCTION RELATED ACTIVITIES. PLANS MUST COMPLY WITH APPLICABLE PERMIT REQUIREMENTS. TRAFFIC CONTROL INCLUDES NECESSARY SIGNAGE AND MARKINGS FOR SIDEWALKS, TRAILS, BOARDWALKS, ETC. CLOSURE. THIS MUST INCLUDE ADVANCED WARNING SIGNS AND NECESSARY FENCING AND SIGNAGE TO PREVENT PEDESTRIANS FROM ACCESSING THE PROPOSED AREA.
- 4. CONTRACTOR MUST SCHEDULE WORK IMPACTING COUNTY ROAD 6 WITH THE CITY AND ENGINEER.
- 5. CONTRACTOR SHALL MAINTAIN TWO-WAY TRAFFIC ON COUNTY ROAD 6 AT ALL TIMES.

PAVING, PAVEMENT MARKING, AND SIGNAGE NOTES

- 1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
- 2. CONTRACTOR SHALL MAINTAIN STREET AND TRAFFIC SIGNS AT ALL TIMES DURING CONSTRUCTION.
- 3. SIGNS, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES MUST BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND CITY STANDARDS.

EROSION CONTROL NOTES

- 1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
- 2. CONTRACTOR SHALL CONFORM TO AND CONDUCT INSPECTIONS IN ACCORDANCE WITH THE NPDES PERMIT AND SWPPP REQUIREMENTS.
- 3. BEFORE SITE DISTURBANCE AND AS REQUIRED AS CONSTRUCTION PROGRESSES, CONTRACTOR SHALL INSTALL, MAINTAIN, REPAIR, AND REPLACE EROSION PREVENTION MEASURES AND SEDIMENT CONTROL DEVICES (INLET PROTECTION, CONSTRUCTION ENTRANCE, SILT FENCE, EROSION CONTROL BLANKET, ETC.) IN ACCORDANCE WITH THE SWPPP, NPDES PERMIT, CITY, AND STATE REQUIREMENTS.
- 4. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED DEPENDING ON SITE CONDITIONS DURING CONSTRUCTION. COORDINATE WITH ENGINEER.
- 5. CONTRACTOR SHALL STABILIZE ALL EXPOSED SOIL AREAS WITHIN THE CONSTRUCTION LIMITS WITHIN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE THAT HAS TEMPORARILY (WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS) OR PERMANENTLY CEASED. STABILIZATION MUST BE INITIATED PROMPTLY.
- 6. CONTRACTOR SHALL REMOVE ANY SEDIMENT THAT HAS TRACKED ONTO PAVED SURFACES BOTH ON AND OFFSITE WITHIN 24 HOURS AND AS DIRECTED BY CITY OR ENGINEER. SWEEP STREET IN ACCORDANCE WITH CITY AND NPDES PERMIT REQUIREMENTS.
- 7. CONTRACTOR SHALL COMPLETE CONCRETE WASH-OUT OFF-SITE OR PROVIDE SELF-CONTAINED CONCRETE READY MIX TRUCKS.
- 8. CONTRACTOR SHALL MINIMIZE DUST FROM CONSTRUCTION OPERATIONS BY PROVIDING WATER OR OTHER APPROVED METHOD ON A DAILY BASIS.
- 9. CONTRACTOR SHALL PHASE GRADING WORK TO MINIMIZE THE DURATION THAT DISTURBED SOIL IS EXPOSED.
- 10.CONTRACTOR SHALL PROVIDE/INSTALL DIVERSION DITCHES, SEDIMENT BASINS, AND OTHER EROSION PROTECTION/SEDIMENT CONTROL MEASURES AS NECESSARY DURING INTERIM PROJECT CONDITIONS (NOT SHOWN ON PLANS) TO MANAGE/DIVERT STORM WATER AWAY FROM SITE FEATURES AND CONTROL EROSION/SEDIMENT. CONTRACTOR SHALL ADJUST MEASURES AS NECESSARY THROUGHOUT PROJECT PHASING.
- 11.CONTRACTOR SHALL LOCATE SOIL STOCKPILES NO LESS THAN 50 FEET FROM ROADWAYS, STORMWATER INLETS, PONDS, WETLANDS, DRAINAGE CHANNELS, AND OTHER SURFACE WATERS. IF REMAINING FOR MORE THAN 7 DAYS, STABILIZE THE STOCKPILES BY MULCHING, VEGETATED COVER, TARPS, OR OTHER MEANS IN ACCORDANCE WITH THE NPDES PERMIT. PLACE PERIMETER SEDIMENT CONTROLS AROUND STOCKPILES TO CONTROL EROSION. COVER TEMPORARY STOCKPILES LOCATED ON PAVED SURFACES IF LEFT FROM MORE THAN 24 HOURS.
- 12.CONTRACTOR SHALL REMOVE ALL EROSION CONTROL MEASURES AFTER SITE HAS BEEN STABILIZED AND VEGETATION IS ESTABLISHED AS DIRECTED BY ENGINEER. EROSION CONTROL MEASURES USED FOR CONSTRUCTION MUST NOT BE REMOVED UNTIL AUTHORIZED BY OWNER OR ENGINEER.
- 13.CONTRACTOR SHALL SUBMIT THE NOTICE OF TERMINATION AT THE COMPLETION OF THE PROJECT IN ACCORDANCE WITH THE NPDES PERMIT AND SWPPP REQUIREMENTS.

GRADING NOTES

- 1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
- 2. PROPOSED CONTOURS ARE TO FINISHED SURFACE GRADE, UNLESS NOTED OTHERWISE.
- 3. THE SITE HAS NOT NECESSARILY BEEN DESIGNED TO BALANCE THE ON-SITE MATERIALS. EXCESS MATERIAL, UNLESS NOTED OTHERWISE, IS THE PROPERTY OF THE CONTRACTOR AND IS TO BE MOVED AND DISPOSED OF OFFSITE IN ACCORDANCE WITH APPLICABLE LAWS.
- 4. CONTRACTOR SHALL BACKFILL SUBGRADE AND TRENCH EXCAVATIONS PROMPTLY AFTER EXCAVATION FOR PUBLIC SAFETY.
- 5. CONTRACTOR SHALL PROVIDE TOPSOIL, SEED/SOD AND MULCH IN ACCORDANCE WITH THE EROSION CONTROL PLAN.
- 6. ALL DISTURBED PERVIOUS AREAS ARE TO RECEIVE 6 INCHES OF IMPORTED OR SALVAGED TOPSOIL, UNLESS NOTED OTHERWISE. CONTRACTOR SHALL SALVAGE TOPSOIL BEFORE GRADING, AND STOCKPILE FOR

- RESPREADING.
- 7. EXISTING TOPSOIL ON SITE VARIES IN DEPTH. CONTRACTOR SHALL REMOVE SURFACE VEGETATION AND TOPSOIL AND OTHER LOOSE, SOFT OR OTHERWISE UNSUITABLE MATERIAL FROM THE IMPERVIOUS AREAS BEFORE PLACEMENT OF SUITABLE FILL MATERIAL.
- 8. CONTRACTOR SHALL EXCAVATE AND DISPOSE OF UNSUITABLE OR CONTAMINATED SOILS DISCOVERED ONSITE IN ACCORDANCE WITH APPLICABLE REGULATIONS AND AS DIRECTED BY ENGINEER.
- 9. CONTRACTOR IS RESPONSIBLE FOR MEETING GRADING/COMPACTION REQUIREMENTS OUTLINED IN THE SPECIFICATIONS FOR THE PROJECT.
- 10.EXISTING SPOT ELEVATIONS AT MATCH POINTS ARE BASED ON INTERPOLATED POINT TO POINT SURVEY DATA. CONTRACTOR IS RESPONSIBLE FOR VERIFYING CONNECTION POINTS PRIOR TO INSTALLATION OF IMPROVEMENTS. CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING IMMEDIATELY OF ANY FIELD DISCREPANCIES. CONTRACTOR IS RESPONSIBLE FOR MAKING NECESSARY ADJUSTMENTS IN THE FIELD FOR CONSTRUCTABILITY, REGULATORY COMPLIANCE (ADA), POSITIVE DRAINAGE, AND TO ENSURE SMOOTH TRANSITIONS TO FIELD CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR REWORK OF A DISCREPANCY THAT IS NOT COMMUNICATED TO THE ENGINEER IN WRITING.

STORM SEWER NOTES

- 1. CONTRACTOR SHALL COMPLY WITH THE SPECIFICATIONS OF THE CITY AND CEAM FOR MATERIALS, INSTALLATION, AND TESTING OF STORM UTILITIES
- 2. CONTRACTOR SHALL VERIFY PIPE SIZE, MATERIAL, AND ELEVATION FOR CONNECTIONS. PROVIDE APPROPRIATE PIPES AND FITTINGS REQUIRED TO MAKE CONNECTIONS TO EXISTING INFRASTRUCTURE AS VERIFIED IN THE FIELD.
- 3. CONTRACTOR SHALL PLACE AND COMPACT SUITABLE FILL MATERIAL BEFORE INSTALLATION OF PROPOSED UTILITIES.
- 4. LINES UNDERGROUND SHALL BE INSTALLED, INSPECTED, AND APPROVED PRIOR TO BACKFILLING IN ACCORDANCE WITH CITY HAVING JURISDICTION REQUIREMENTS.
- 5. PIPE LENGTH INDICATED BETWEEN STRUCTURES IS FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE UNLESS NOTED OTHERWISE. PIPE LENGTH INDICATED BETWEEN STRUCTURE AND FLARED END SECTION IS FROM CENTER OF STRUCTURE TO END OF FLARED END SECTION.

FILTRATION BENCH NOTES

- 1. CONTRACTOR SHALL STAGE CONSTRUCTION APPROPRIATELY AND INSTALL NECESSARY EROSION CONTROL TO PREVENT SEDIMENT WASHING INTO THE FILTRATION BENCH.
- 2. CONTRACTOR SHALL STAGE CONSTRUCTION APPROPRIATELY TO MINIMIZE COMPACTION OF THE SOILS IN THE FILTRATION AREA. CONTRACTOR SHALL ACCOMPLISH FINAL GRADING OF THE BENCH SYSTEM WITH LOW-IMPACT (WIDE TRACKED) EARTH MOVING EQUIPMENT TO PREVENT COMPACTION.
- 3. CONTRACTOR SHALL STAKE OFF AND MARK THE PROJECT AREA TO KEEP CONSTRUCTION TRAFFIC, EQUIPMENT AND MATERIAL STOCKPILES OUT OF THE PROPOSED FILTRATION AREAS.
- 4. CONTRACTOR SHALL STAGE CONSTRUCTION APPROPRIATELY AND INSTALL NECESSARY EROSION CONTROL TO PREVENT SEDIMENT AND TOPSOIL FROM WASHING INTO THE FILTRATION AREA. IN THE EVENT THAT SEDIMENT IS INTRODUCED INTO THE FILTRATION AREA, THE CONTRACTOR SHALL REMOVE THE MATERIAL BEFORE PROCEEDING WITH CONSTRUCTION
- 5. CONTRACTOR SHALL NOT EXCAVATE THE FILTRATION BENCH UNTIL THE CONTRIBUTING DRAINAGE AREAS WITH EXPOSED SOIL HAVE BEEN STABILIZED AND BITUMINOUS BASE COURSE INSTALLED ON CONTRIBUTING PAVEMENT AREAS. DIVERT UPLAND DRAINAGE AREAS TO PREVENT RUNOFF FROM ENTERING THE EXCAVATED CELL OR INTO THE WORK AREA. DO NOT ALLOW CONSTRUCTION RUNOFF INTO THE CELL(S), WHEN ALTERNATE DRAINAGE ROUTES ARE FEASIBLE.
- 6. CONTRACTOR SHALL ACCOMPLISH FINAL GRADING OF THE BASIN TO PREVENT COMPACTION. EXCAVATION SHOULD BE PERFORMED WITH A BACKHOE FROM THE SIDES AND OUTSIDE THE FOOTPRINT OF THE FILTRATION AREA. IF REQUIRED TO WORK WITHIN THE FILTRATION FOOTPRINT, ONLY LOW GROUND PRESSURE TRACKED EQUIPMENT SHALL BE ALLOWED. RUBBER TIRE EQUIPMENT IS PROHIBITED WITHIN THE FILTRATION AREA.
- 7. CONTRACTOR SHALL AVOID CONTAMINATION OF FILTRATION BASIN SOILS WITH SEDIMENT, IN-SITU OR TOPSOIL DURING AND AFTER INSTALLATION. MATERIALS MUST BE SEGREGATED. INSTALLATION WITH DRY SOIL CONDITIONS IS CRITICAL TO PREVENT SMEARING AND COMPACTION.
- 8. IN THE EVENT THAT SEDIMENT IS INTRODUCED INTO THE FILTRATION BASIN, THE CONTRACTOR SHALL REMOVE THE MATERIAL BEFORE PROCEEDING WITH CONSTRUCTION.
- 9. CONTRACTOR SHALL ENSURE FILTRATION BASIN IS FREE AND CLEAR OF SEDIMENT UPON FINAL COMPLETION OF CONSTRUCTION.

DEWATERING NOTES

- 1. CONTRACTOR SHALL ANTICIPATE GROUND WATER. A BID ITEM HAS BEEN PROVIDED FOR ALL DEWATERING AND TEMPORARY STORMWATER MANAGEMENT WORK NECESSARY FOR CONSTRUCTION.
- 2. CONTRACTOR SHALL OBTAIN APPLICABLE REQUIRED PERMITS (INCLUDING MN DNR WATER APPROPRIATION PERMIT) AND SUBMIT DEWATERING PLAN TO ENGINEER FOR REVIEW. DEWATERING MUST MEET PERMIT REQUIREMENTS AND BE ACCEPTED BEFORE STARTING CONSTRUCTION ACTIVITIES.
- 3. CONTRACTOR MUST DEWATER IN ACCORDANCE WITH THE PROJECT SWPPP AND NPDES PERMIT.
- 4. CONTRACTOR MUST DISCHARGE TURBID OR SEDIMENT-LADEN WATER RELATED TO DEWATERING OR BASIN DRAINING (E.G. PUMPED DISCHARGES, TRENCH/DITCH CUTS FOR DRAINAGE) TO A TEMPORARY OR PERMANENT SEDIMENTATION BASIN ON THE PROJECT SITE UNLESS INFEASIBLE. CONTRACTOR MAY DISCHARGE FROM THE TEMPORARY OR PERMANENT SEDIMENTATION BASINS TO THE SURFACE WATERS IF THE BASIN WATER HAS BEEN VISUALLY CHECKED TO ENSURE ADEQUATE TREATMENT HAS BEEN OBTAINED IN THE BASIN AND THAT NUISANCE CONDITIONS (SEE MINNESOTA RULES CHAPTER 7050.0210, SUBPART 2) WILL NOT RESULT FROM THE DISCHARGE. IF THE WATER CANNOT BE DISCHARGED TO A SEDIMENTATION BASIN PRIOR TO ENTERING THE SURFACE WATER, IT MUST BE TREATED WITH THE APPROPRIATE BMP'S (E.G. SILT BAGS), SUCH THAT THE DISCHARGE DOES NOT ADVERSELY AFFECT THE RECEIVING WATER OR DOWNSTREAM PROPERTIES. IF THE CONTRACTOR MUST DISCHARGE WATER THAT CONTAINS OIL OR GREASE, THE CONTRACTOR MUST USE AN OIL-WATER SEPARATOR OR SUITABLE FILTRATION DEVICE (E.G. CARTRIDGE FILTERS, ABSORBENTS PADS) PRIOR TO DISCHARGING THE WATER. THE CONTRACTOR MUST ENSURE THAT DISCHARGE POINTS ARE ADEQUATELY PROTECTED FROM EROSION AND SCOUR. THE DISCHARGE MUST BE DISPERSED OVER NATURAL ROCK RIPRAP, SANDBAGS, PLASTIC SHEETING, OR OTHER ACCEPTED ENERGY DISSIPATION MEASURES.
- 5. CONTRACTOR MUST DISCHARGE WATER FROM DEWATERING OR BASIN-DRAINING ACTIVITIES IN A MANNER THAT DOES NOT CAUSE NUISANCE CONDITIONS, EROSION IN RECEIVING CHANNELS OR ON DOWN SLOPE PROPERTIES, OR INUNDATION IN WETLANDS CAUSING SIGNIFICANT ADVERSE IMPACT TO THE WETLAND.
- 6. IF THE CONTRACTOR IS USING FILTERS WITH BACKWASH WATER, THE CONTRACTOR MUST HAUL THE BACKWASH WATER AWAY FOR DISPOSAL. RETURN THE BACKWASH WATER TO THE BEGINNING OF THE TREATMENT PROCESS, OR INCORPORATE THE BACKWASH WATER INTO THE SITE IN A MANNER THAT DOES NOT CAUSE EROSION. THE CONTRACTOR MAY DISCHARGE BACKWASH WATER TO THE SANITARY SEWER IF PERMISSION IS GRANTED BY THE SANITARY SEWER AUTHORITY. THE CONTRACTOR MUST REPLACE AND CLEAN THE FILTER MEDIA USED IN DEWATERING DEVICES WHEN REQUIRED TO RETAIN ADEQUATE FUNCTION.

TREE PRESERVATION NOTES

- 1. CONTRACTOR SHALL PROTECT EXISTING TREES THAT ARE NOT TO BE REMOVED. INSTALL ORANGE MESH FENCING, 4 FEET HIGH, WITH STAKES EVERY 10 FEET, 5 FEET OUTSIDE OF THE DRIP LINE OF PRESERVED TREES, OR AT THE CONSTRUCTION LIMITS. DO NOT PERFORM ACTIONS WITHIN THE PROTECTED AREA THAT MAY HARM THE TREE AND COMPACT THE SOIL, INCLUDING EXCAVATION, STORING MATERIALS, PARKING AND TRAFFIC DURING CONSTRUCTION. WHERE CONSTRUCTION REQUIRES DISTURBANCE WITHIN THE PROTECTED AREAS, DISTURB THE ROOT ZONE AS LITTLE AS POSSIBLE.

- 2. TREE PROTECTION MEASURES/FENCING MUST BE IN PLACE PRIOR TO BEGINNING CONSTRUCTION AND MUST BE REVIEWED BY OWNER AND ENGINEER BEFORE STARTING CONSTRUCTION.
- 3. WHEN TREE ROOTS ARE ENCOUNTERED THAT MUST BE REMOVED, CONTRACTOR SHALL CUT ROOTS CLEANLY AS FAR FROM THE TREE AS POSSIBLE AND IMMEDIATELY WATER AND BACKFILL OVER THE ROOTS TO PREVENT DRYING.

HORIZONTAL AND VERTICAL CONTROL NOTES

- 1. THE HORIZONTAL CONTROL FOR THIS PLAN IS NAD83 HENNEPIN COUNTY COORDINATES SYSTEM US FOOT.
- 2. THE VERTICAL CONTROL FOR THIS PLAN IS NAVD88.

TEMPORARY STORMWATER MANAGEMENT NOTES

- 1. CONTRACTOR SHALL ANTICIPATE STORMWATER INFLOW THROUGHOUT THE DURATION OF THE PROJECT. A BID ITEM HAS BEEN PROVIDED FOR ALL DEWATERING AND TEMPORARY STORMWATER MANAGEMENT WORK NECESSARY FOR CONSTRUCTION.
- 2. BID ITEM "DEWATERING AND TEMPORARY STORMWATER MANAGEMENT" INCLUDES ANY AND ALL EFFORTS REQUIRED TO DRAWDOWN POND WATER LEVELS AND ISOLATE THE WORK AREA FROM STORMWATER FLOW, PUMP OR OTHERWISE REMOVE WATER FROM THE WORK AREA, MANAGE ANY STORMWATER INFLOW, GROUNDWATER INFLOW OR SEEPAGE THAT MAKES ITS WAY INTO THE WORK AREA.
- 3. CONTRACTOR SHALL SUBMIT A TEMPORARY STORMWATER MANAGEMENT PLAN FOR CITY, WATERSHED, AND ENGINEER REVIEW AND APPROVAL PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL INCLUDE PROVISIONS IN THE PLAN THAT ADDRESS HOW THE WORK AREA WILL BE PROTECTED AND HOW THE POND WILL BE DRAWDOWN IN THE EVENT OF LARGE RAIN EVENTS.
- 4. TEMPORARY STORMWATER MANAGEMENT PLAN SHALL MINIMALLY CONSIST OF THE FOLLOWING:
  - A. DETAILED SCHEDULE THAT INCLUDES INSTALLATION OF TEMPORARY EROSION CONTROL AND PUMPING.
  - B. LIST OF EQUIPMENT AND MATERIALS THAT WILL BE UTILIZED FOR TEMPORARY STORMWATER MANAGEMENT DURING CONSTRUCTION.
- 5. CONTRACTOR SHALL FOLLOW ALL ADDITIONAL REQUIREMENTS NOTED IN CITY, DNR, NPDES, AND OTHER RELEVANT PERMITS.
- 6. CONTRACTOR SHALL NOT OBSTRUCT STREET TRAFFIC FOR TEMPORARY STORMWATER MANAGEMENT PURPOSES.



ONE CARLSON PARKWAY, SUITE 100  
PLYMOUTH MN, 55447  
PHONE: 763-479-4200  
FAX: 763-479-4242  
WWW.STANTEC.COM

CLIENT:  
**MINNEHAHA CREEK  
WATERSHED  
DISTRICT**  
  
15320 MINNETONKA BLVD  
MINNETONKA, MN 55345

**MINNEHAHA CREEK  
WATERSHED DISTRICT**

COUNTY ROAD 6  
STORMWATER POND RETROFIT

COUNTY ROAD 6 STORMWATER POND  
ORONO, MINNESOTA

PROJECT TITLE:

ISSUE NO.	0								
DESCRIPTION:	ISSUED FOR 90% REVIEW								
DATE:	03/12/2025								

CERTIFICATION:

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.

CHRIS J. MEEHAN

LICENSE NO.: 43066

DATE: XX/XX/2024

PROJECT NO.: 227707038

DWN BY: SMD    CHKD BY: NPW    APP'D BY: CJM

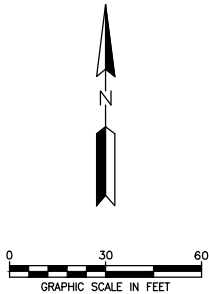
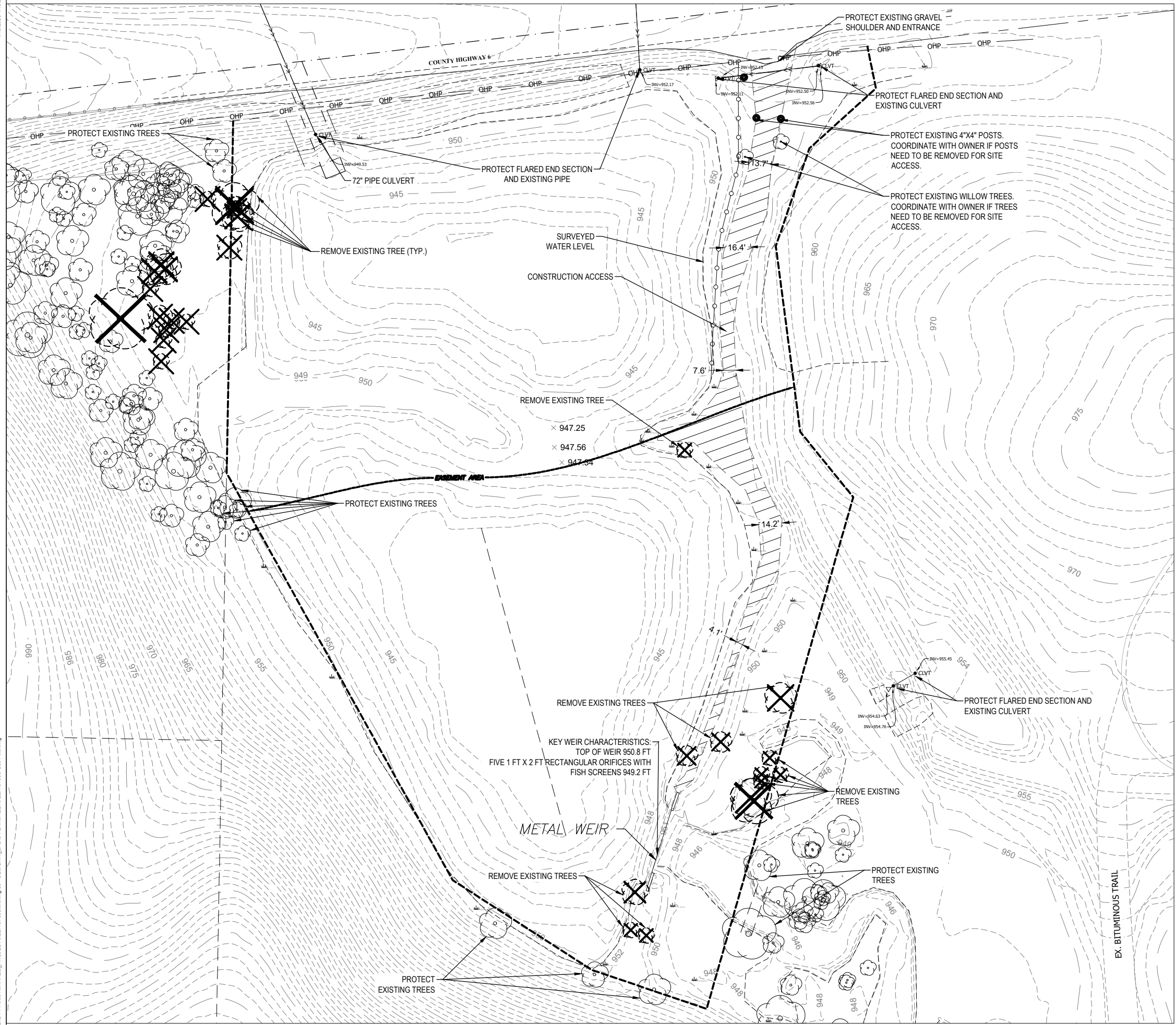
ISSUE DATE: XX/XX/2024

ISSUE NO.: 0

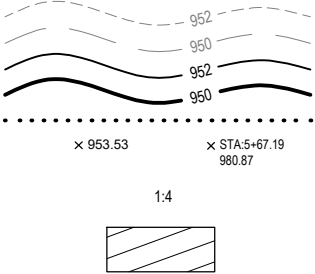
SHEET TITLE:  
  
NOTES

SHEET NO.:  
  
G-003





## LEGEND



EXISTING CONTOUR MINOR  
EXISTING CONTOUR MAJOR  
PROPOSED CONTOUR MINOR  
PROPOSED CONTOUR MAJOR  
PROPOSED GRADING LIMITS  
PROPOSED SPOT ELEVATION

RISE:RUN (SLOPE)

CONSTRUCTION ACCESS  
CORRIDOR



ONE CARLSON PARKWAY, SUITE 100  
PLYMOUTH MN, 55447  
PHONE: 763-479-4200  
FAX: 763-479-4242  
WWW.STANTEC.COM

CLIENT:

MINNEHAHA CREEK  
WATERSHED  
DISTRICT

15320 MINNETONKA BLVD  
MINNETONKA , MN 55345



COUNTY ROAD 6  
STORMWATER POND RETROFIT

COUNTY ROAD 6 STORMWATER POND  
ORONO, MINNESOTA

PROJECT TITLE:

JE NO.:

ISSI

DESCRIPTION:

DATE: \_\_\_\_\_

**CERTIFICATION:**

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.

CHRIS J. MEEHAN

LICENSE NO.: 43066

DATE: XX/XX/202

PROJECT NO.: 227707038

DWN BY:	CHK'D BY:	APP'D BY:
---------	-----------	-----------

SMD	NPW	CJM
-----	-----	-----

ISSUE DATE: XX/XX/2024

ISSUE NO.: 0

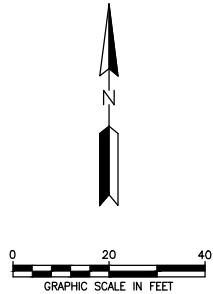
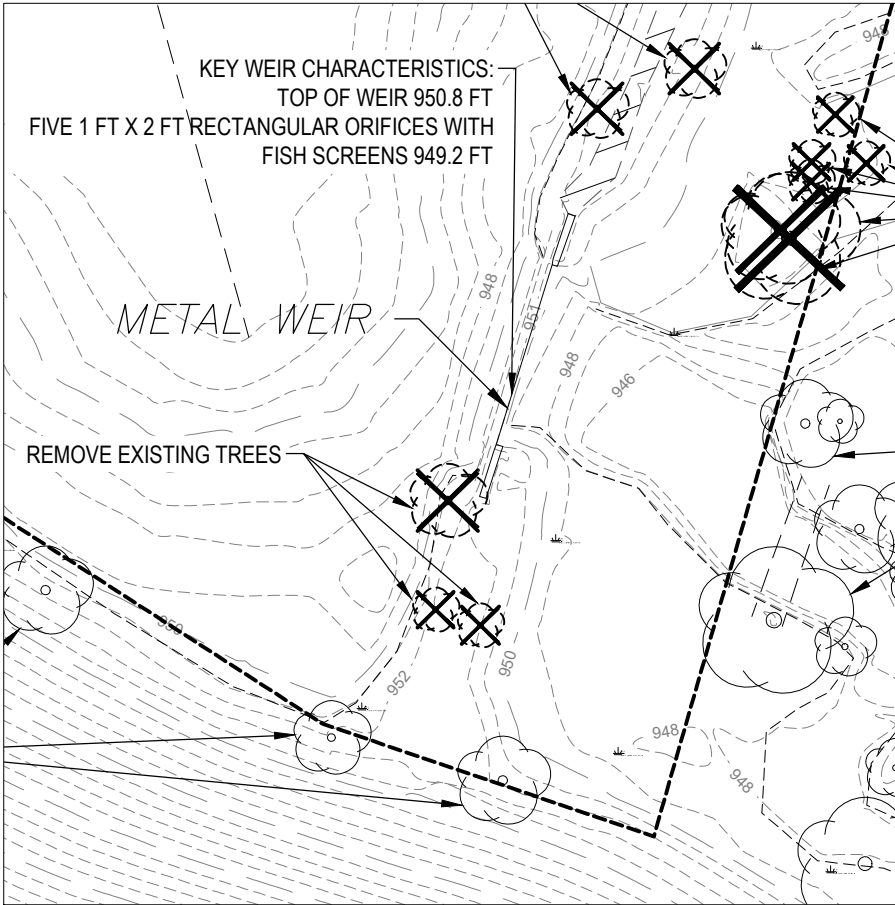
SHEET TITLE:

## EXISTING CONDITIONS AND EVALUATION

## REFERENCES

0.001

C-001



EXISTING WEIR DETAIL  
NOT TO SCALE

NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES
2. CONTRACTOR TO PROVIDE STORMWATER BYPASS FROM POND INLET TO POND OUTLET AS NECESSARY, AS WEATHER CONDITIONS DICTATE.
3. CONTRACTOR TO PROVIDE EROSION CONTROL BLANKET ON ALL SLOPES ABOVE NWL GREATER THAN 4:1 SLOPE UPON FINAL EXCAVATION FOR POND SIDE SLOPE RESTORATION.
4. ALL STOCKPILING MUST TAKE PLACE WITHIN EXCAVATED POND FOOTPRINT.



ONE CARLSON PARKWAY, SUITE 100  
PLYMOUTH MN, 55447  
PHONE: 763-479-4200  
FAX: 763-479-4242  
WWW.STANTEC.COM

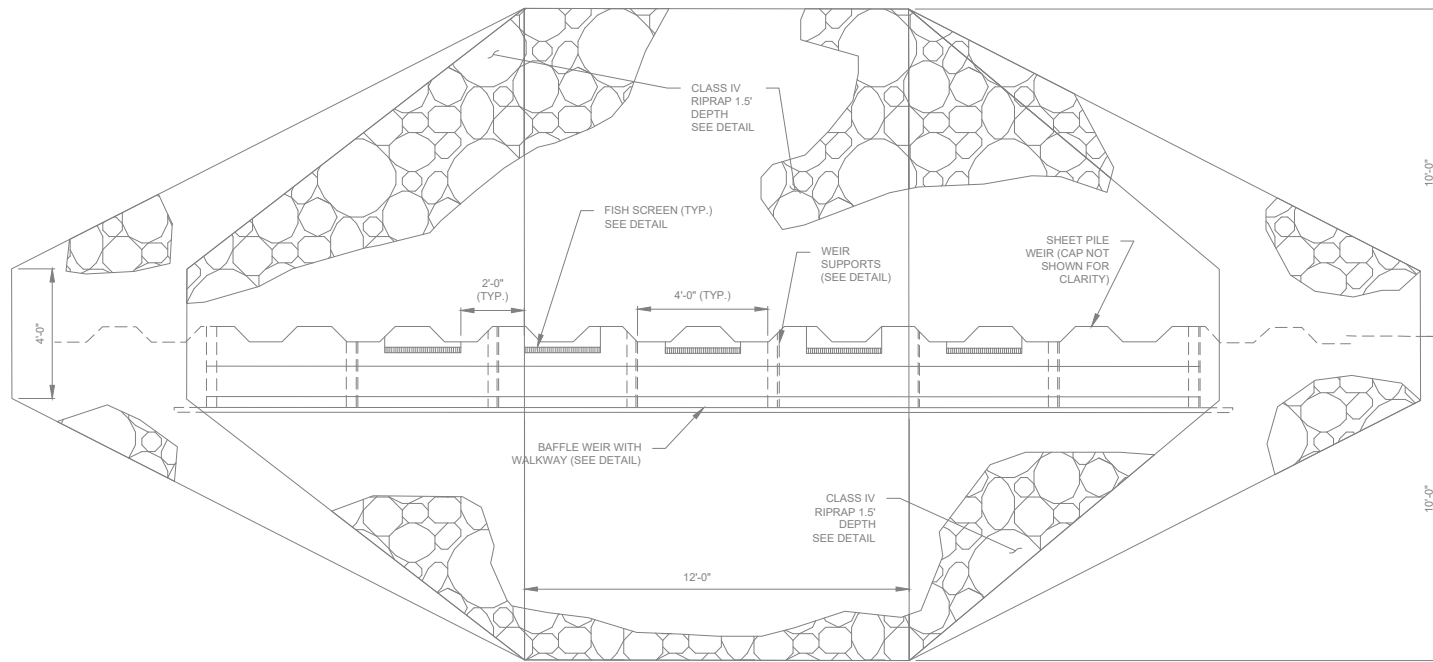
CLIENT:

MINNEHAHA CREEK  
WATERSHED  
DISTRICT

15320 MINNETONKA BLVD  
MINNETONKA, MN 55345

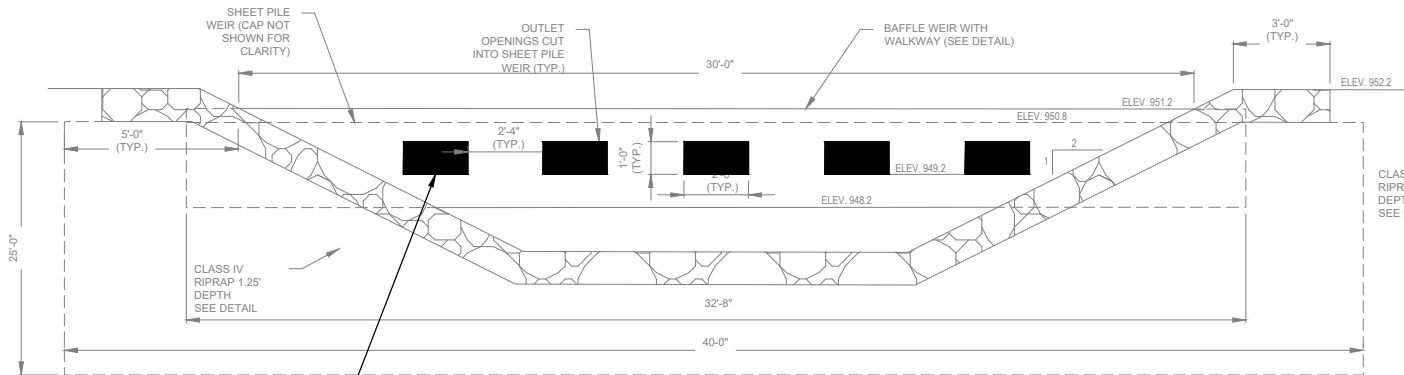


COUNTY ROAD 6  
STORMWATER POND RETROFIT  
COUNTY ROAD 6 STORMWATER POND  
ORONO, MINNESOTA

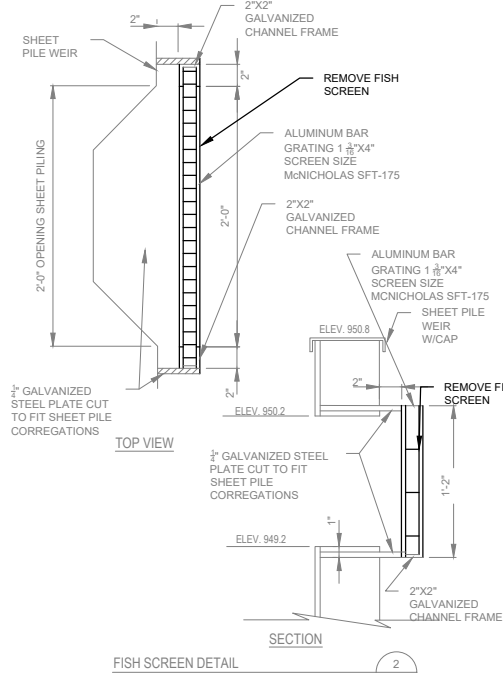


SHEET PILE WEIR - PLAN VIEW

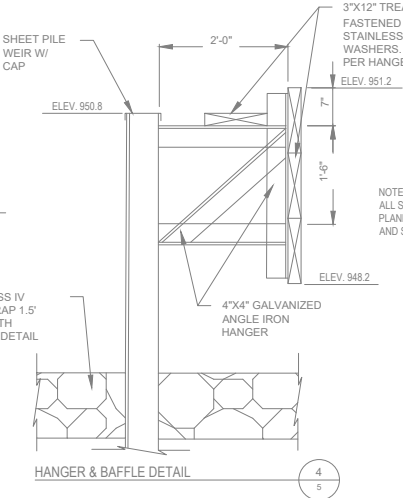
NOTE:  
SHEET PILING SHALL BE GALVANIZED  
PZZZ GRADE A328.  
PILE CAP SHALL BE GALVANIZED C12X20.7 A38.  
PROVIDE 3" EXPANSION JOINT EVERY 10'-0"  
MAXIMUM.  
CONTRACTOR TO PLACE CONTINUOUS WELD BEAD  
BETWEEN CAP AND SHEET PILE.



SHEET PILE WEIR - FRONT VIEW



FISH SCREEN DETAIL



HANGER & BAFFLE DETAIL

PROJECT TITLE:

ISSUE NO.:

0

DESCRIPTION:

ISSUED FOR 90% REVIEW

DATE:

03/21/2025

CERTIFICATION:

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.

CHRIS J. MEEHAN

LICENSE NO.:

43066

DATE:

XX/XX/2024

PROJECT NO.:

227707038

DWN BY:

SMD

CHKD BY:

NPW

APP'D BY:

CJM

ISSUE DATE:

XX/XX/2024

ISSUE NO.:

0

SHEET TITLE:

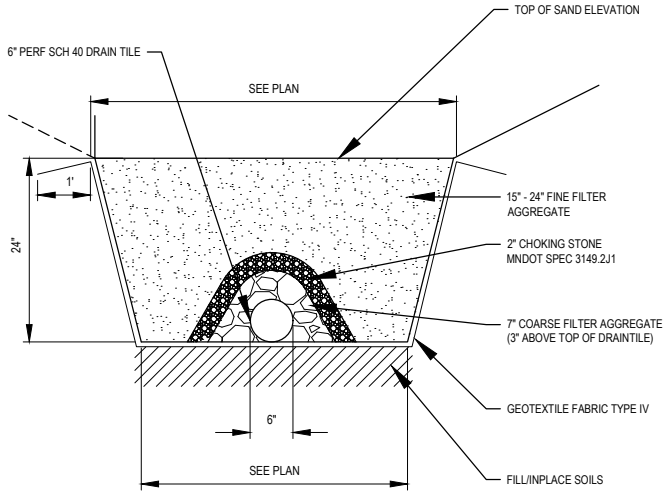
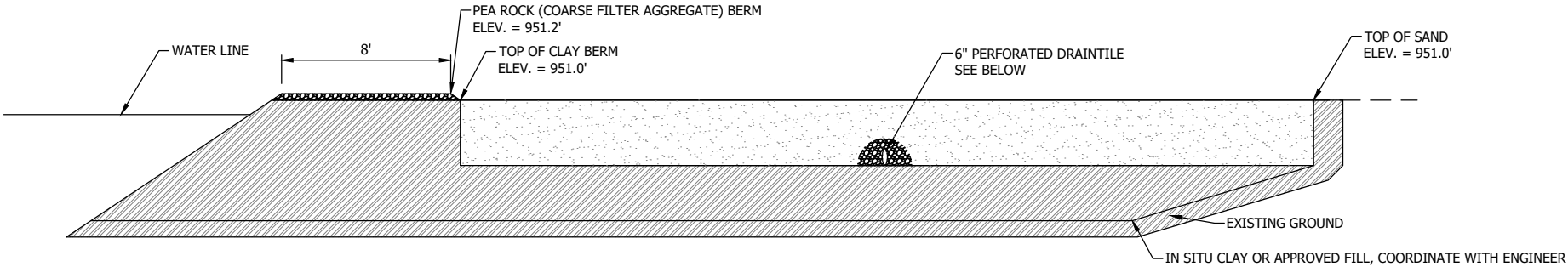
EXISTING CONDITIONS AND  
REMOVAL PLAN

SHEET NO.:

C-002



SAND FILTER BENCH



ONE CARLSON PARKWAY, SUITE 100  
PLYMOUTH MN, 55447  
PHONE: 763-479-4200  
FAX: 763-479-4242  
WWW.STANTEC.COM

CLIENT:  
**MINNEHAHA CREEK  
WATERSHED  
DISTRICT**  
15320 MINNETONKA BLVD  
MINNETONKA, MN 55345



**COUNTY ROAD 6  
STORMWATER POND RETROFIT**  
COUNTY ROAD 6 STORMWATER POND  
ORONO, MINNESOTA

PROJECT TITLE:

DATE:	DESCRIPTION:	ISSUE NO.:
03/21/2025	ISSUED FOR 90% REVIEW	0

CERTIFICATION:  
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.

CHRIS J. MEEHAN  
LICENSE NO.: 43066  
DATE: XX/XX/2024

PROJECT NO.: 227707038

DWN BY: SMD	CHKD BY: NPW	APP'D BY: CJM
ISSUE DATE: XX/XX/2024		

ISSUE NO.: 0

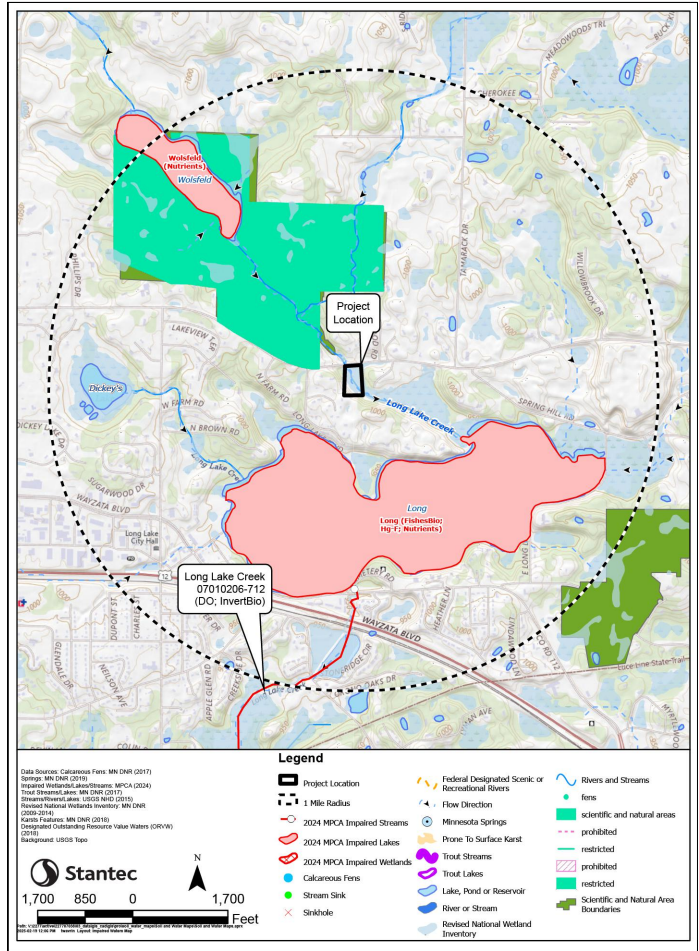
SHEET TITLE:

TYPICAL SECTIONS PLAN

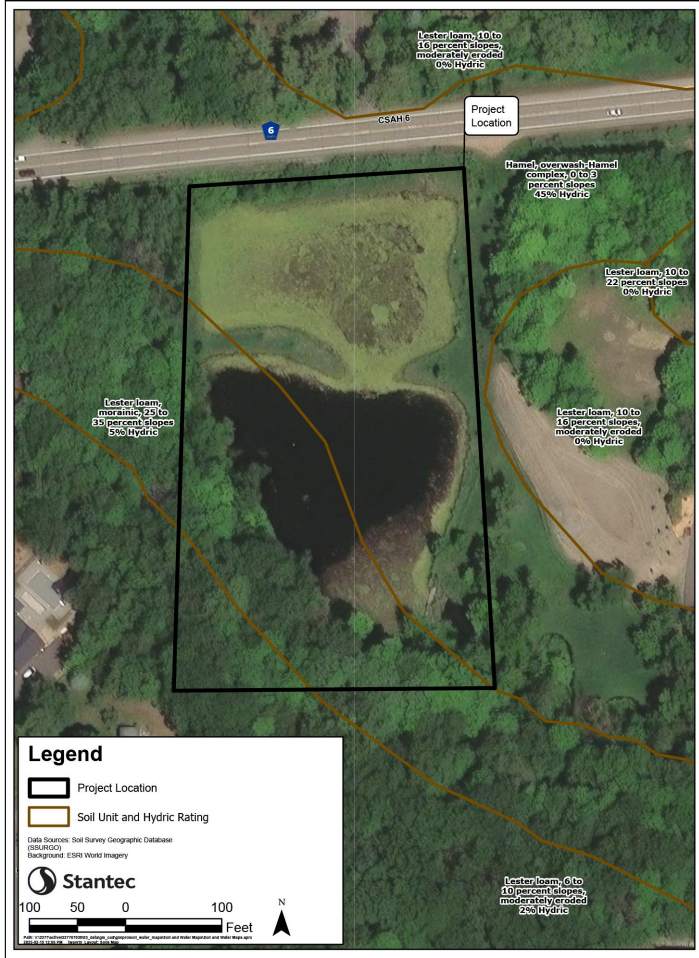
SHEET NO.:  
**C-101**



IMPAIRED WATERS MAP



SOIL MAP



PROJECT INFORMATION

PROJECT NAME: COUNTY ROAD 6 STORMWATER RETROFIT  
PROJECT LOCATION: COUNTY ROAD 6 ORONO, MINNESOTA  
PROJECT TYPE: RETROFIT OF EXISTING STORMWATER BMP  
TOTAL AREA DISTURBED BY CONSTRUCTION: APPROXIMATELY 1.73 ACRES. THE TOTAL SITE AREA IS APPROXIMATELY 3.60 ACRES.

ESTIMATED CONSTRUCTION DATES: PROJECTED CONSTRUCTION DATES FALL AND WINTER OF 2025  
CUMULATIVE IMPERVIOUS SURFACE/PERMANENT STORMWATER MANAGEMENT REQUIREMENTS:  
THE PROPOSED PROJECT RESULTS IN A ±0.0 ACRE NET INCREASE/DECREASE IN IMPERVIOUS SURFACE WITHIN THE LIMITS OF DISTURBANCE. INCLUDE ANY INFORMATION ABOUT FUTURE EXPANSION IMPERVIOUS HERE.

THE SITE ULTIMATELY DRAINS TO LONG LAKE CREEK WHICH IS LISTED AS AN IMPAIRED WATER FOR FISH BIOASSESSMENTS MERCURY IN FISH, NUTRIETS.

THE PERMANENT STORMWATER SYSTEM WILL CONSIST OF MODIFICATION TO THE EXISTING POND TO ADD A FILTRATION BENCH.

PARTY RESPONSIBLE FOR LONG TERM OPERATION AND MAINTENANCE OF THE SITE (OWNER): MINNEHAHA CREEK WATERSHED DISTRICT  
CONTACT: KALEY CERMAK  
CONTACT PHONE: 362-641-4501  
CONTACT EMAIL: KCERMAK@MINNEHAHACREEK.ORG  
PARTY RESPONSIBLE FOR IMPLEMENTATION OF THE SWPPP (CONTRACTOR): TBD  
CONTRACTOR: TBD  
CONTRACTOR PHONE: TBD  
CONTRACTOR EMAIL: TBD

CONTRACTOR SHALL PROVIDE A CHAIN OF RESPONSIBILITY WITH ALL OPERATORS ON THE SITE FOR INCORPORATION INTO THIS SWPPP DOCUMENT TO ENSURE THAT THE SWPPP WILL BE IMPLEMENTED AND STAY IN EFFECT UNTIL THE CONSTRUCTION PROJECT IS COMPLETE (THROUGH FINAL STABILIZATION AND NOT SUBMITTAL). CONTRACTOR SHALL ALSO PROVIDE DOCUMENTATION OF PERSONNEL TRAINING IN ACCORDANCE WITH THE PERMIT FOR INCORPORATION INTO THIS SWPPP DOCUMENT AS SOON AS THE PERSONNEL FOR THE PROJECT HAVE BEEN DETERMINED. CONTRACTOR IS RESPONSIBLE FOR KEEPING A FINAL SWPPP DOCUMENT, CONTAINING THE INFORMATION REQUIRED ABOVE, AT THE CONSTRUCTION SITE FOR THE DURATION OF THE PROJECT.

SWPPP DOCUMENTS

THE SWPPP IS COMPOSED OF, BUT NOT LIMITED TO, THE BELOW PROJECT DOCUMENTS. THESE DOCUMENTS SHALL BE KEPT ON THE PROJECT SITE AT ALL TIMES THROUGHOUT CONSTRUCTION. THE SWPPP SHALL BE AMENDED BY THE PERSON RESPONSIBLE TO INCLUDE ANY DOCUMENTS NECESSARY TO ENSURE ADHERENCE TO THE GENERAL PERMIT.

COUNTY ROAD 6 STORMWATER POND RETROFIT CIVIL CONSTRUCTION DRAWINGS BY STANTEC DATED FEBRUARY, 2025

RECORD RETENTION - THE SWPPP, ALL CHANGES TO IT, AND INSPECTION AND MAINTENANCE RECORDS MUST BE KEPT ON-SITE DURING CONSTRUCTION; THE CONSTRUCTION DRAWINGS ARE INCORPORATED HEREIN BY REFERENCE, AND A COPY OF THE PLAN SET SHOULD BE KEPT ON-SITE WITH THE SWPPP RECORDS. THE OWNER MUST RETAIN A COPY OF THE SWPPP ALONG WITH THE FOLLOWING RECORDS FOR THREE (3) YEARS AFTER SUBMITTAL OF THE NOTICE OF TERMINATION:  
1. ANY OTHER PERMITS REQUIRED FOR THE PROJECT;  
2. RECORDS OF ALL INSPECTION AND MAINTENANCE CONDUCTED DURING CONSTRUCTION;  
3. ALL PERMANENT OPERATIONS AND MAINTENANCE AGREEMENTS THAT HAVE BEEN IMPLEMENTED, INCLUDING ALL RIGHT OF WAY, CONTRACT, COVENANTS AND OTHER BINDING REQUIREMENTS REGARDING PERPETUAL MAINTENANCE; AND  
4. ALL REQUIRED CALCULATIONS FOR DESIGN OF THE TEMPORARY AND PERMANENT STORMWATER MANAGEMENT SYSTEMS.

INSPECTIONS

THE INSPECTION LOG WILL BE COMPLETED BY THE CONTRACTOR FOR THE CONSTRUCTION SITE. INSPECTOR(S): TBD - TRAINING DOCUMENTATION (PER SECTION 21.2 OF THE PERMIT) WILL BE INCORPORATED INTO THIS SWPPP AS SOON AS THE PERSONNEL FOR THE PROJECT HAVE BEEN DETERMINED. THE CONTRACTOR WILL MAKE CORRECTIONS OR REPAIRS REQUIRED TO COMPLY WITH THE PERMIT.

INSPECTIONS AT THE SITE WILL BE COMPLETED IN ACCORDANCE WITH THE PERMIT AS FOLLOWS: ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION AND, WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS.

1. THE INDIVIDUAL PERFORMING INSPECTIONS MUST BE TRAINED AS REQUIRED BY SECTION 21.3 OF THE PERMIT. TRAINING DOCUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR FOR INCORPORATION INTO THE SWPPP. INSPECTIONS MUST INCLUDE STABILIZED AREAS, EROSION PREVENTION AND SEDIMENT CONTROL BMPs, AND INFILTRATION AREAS. CORRECTIVE ACTIONS MUST BE IDENTIFIED AND DATE OF CORRECTION MUST BE NOTED AS IDENTIFIED IN SECTION 11.11 OF THE PERMIT. ANY OFFSITE DISCHARGE MUST BE DOCUMENTED AS IDENTIFIED IN SECTION 11.11 OF THE PERMIT. ANY AMENDMENTS TO THE SWPPP PROPOSED AS A RESULT OF THE INSPECTION MUST BE DOCUMENTED WITHIN SEVEN (7) CALENDAR DAYS. AN INSPECTION LOG IS ALSO ATTACHED; THE INSPECTION LOG AND SWPPP MUST BE KEPT ON-SITE FOR THE DURATION OF THE CONSTRUCTION PROJECT.

AT A MINIMUM, THE FOLLOWING SHALL BE COMPLETED DURING EACH INSPECTION:  
-RECORD DATE AND TIME OF INSPECTION.  
-RECORD RAINFALL RECORDS SINCE THE MOST RECENT INSPECTION.  
-INSPECT THE SITE FOR EXCESS EROSION AND SEDIMENTATION.  
-INSPECT THE SITE FOR DEBRIS, TRASH, AND SPILLS.  
-INSPECT TEMPORARY EROSION AND SEDIMENTATION CONTROL DEVICES.  
-INSPECT CONSTRUCTION ENTRANCES FOR SEDIMENT TRACKING ONTO PUBLIC STREETS.  
-RECORD RECOMMENDED REPAIRS AND MODIFICATIONS TO EROSION AND SEDIMENT CONTROLS.  
-RECOMMEND ANY NECESSARY CHANGES TO THIS SWPPP.  
-RECORD REPAIRS AND MODIFICATIONS IMPLEMENTED SINCE PREVIOUS INSPECTIONS.  
-INSPECT THE ADJACENT STREETS AND CURB AND GUTTER FOR SEDIMENT, LITTER, AND CONSTRUCTION DEBRIS.

THE GENERAL CONTRACTOR MUST UPDATE THE SWPPP, INCLUDING THE JOBSITE BINDER AND SITE MAPS, TO REFLECT THE PROGRESS OF CONSTRUCTION ACTIVITIES AND GENERAL CHANGES TO THE PROJECT SITE. UPDATES SHALL BE MADE DAILY TO TRACK PROGRESS WHEN ANY OF THE FOLLOWING ACTIVITIES OCCUR: BMP INSTALLATION, MODIFICATION OR REMOVAL, CONSTRUCTION ACTIVITIES (E.G. PAVING, SEWER INSTALLATION, ETC), CLEARING, GRUBBING, GRADING, OR TEMPORARY AND PERMANENT STABILIZATION.

THE CONTRACTOR MAY UPDATE OR MODIFY THE SWPPP WITHOUT ENGINEER APPROVAL IN AN EMERGENCY SITUATION TO PREVENT SEDIMENT DISCHARGE OR PROTECT WATER QUALITY. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE TO ENSURE COMPLIANCE WITH THE PERMIT AND PROTECTION OF DOWNSTREAM WATER QUALITY.

EROSION AND SEDIMENT CONTROL

PRIOR TO ANY SITE DISTURBANCE, AND AS REQUIRED AS CONSTRUCTION PROGRESSES, ANY PERMIT REQUIRED EROSION PREVENTION MEASURES AND THE SEDIMENT CONTROL DEVICES INLET PROTECTION, CONSTRUCTION ENTRANCE, SILT FENCE, EROSION CONTROL BLANKET SHOWN ON THE CONSTRUCTION DRAWINGS WILL BE INSTALLED AT THE SITE.

ALL EXPOSED SOIL AREAS WITHIN THE CONSTRUCTION LIMITS WILL BE STABILIZED WITHIN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY (WILL NOT RESUME FOR A PERIOD EXCEEDING 7 CALENDAR DAYS) OR PERMANENTLY CEASED. STABILIZATION WILL BE INITIATED IMMEDIATELY. EXPOSED SOIL AREAS MUST HAVE TEMPORARY EROSION PROTECTION (SLASH MULCH, EROSION CONTROL BLANKET, SEED) OR PERMANENT COVER YEAR ROUND.

CONTRACTOR SHALL IMPLEMENT APPROPRIATE CONSTRUCTION PHASING, VEGETATIVE BUFFER STRIPS, HORIZONTAL SLOPE GRADING, AND OTHER CONSTRUCTION PRACTICES THAT MINIMIZE EROSION WHEN PRACTICAL. THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH THAT DRAINS WATER FROM A CONSTRUCTION SITE, OR DIVERTS WATER AROUND A SITE, MUST BE STABILIZED WITHIN 200 LINEAL FEET FROM THE PROPERTY EDGE, OR FROM THE POINT OF DISCHARGE TO ANY SURFACE WATER. STABILIZATION MUST BE COMPLETED WITHIN 24 HOURS OF CONNECTING TO A SURFACE WATER. PIPE OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER.

SWPPP IMPLEMENTATION, PHASING, AND SEQUENCE OF CONSTRUCTION:  
BMP AND EROSION CONTROL INSTALLATION SEQUENCE SHALL BE AS FOLLOWS:  
1. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE, CONCRETE WASHOUT PIT, AND INSTALL SILT FENCE.  
2. INSTALL INLET PROTECTION AT EXISTING STORMWATER CULVERTS AND INLETS.  
3. PREPARE TEMPORARY STORAGE, PARKING, AND PHASING AREAS.  
4. CONSTRUCT AND STABILIZE DIVERSIONS AND TEMPORARY SEDIMENT TRAPS/BASINS.  
5. PERFORM CLEARING AND GRUBBING OF THE SITE, IF APPLICABLE.  
6. PERFORM MASS GRADING, ROUGH GRADE TO ESTABLISH PROPOSED DRAINAGE PATTERNS.  
7. BEGIN EXCAVATION OF PERMANENT STORMWATER BASIN AREAS. SEE SEQUENCING BELOW FOR ADDITIONAL INFORMATION.  
8. START CONSTRUCTION OF THE BUILDING PAD AND STRUCTURES.  
9. INSTALL SMALL UTILITIES (GAS, ELECTRIC, PHONE, CABLE, ETC.).  
10. PAVE CURB AND GUTTER, SIDEWALK, AND PARKING LOT/ DRIVEWAYS.  
11. TEMPORARILY SEED WITH PURE LIVE SEED THROUGHOUT CONSTRUCTION. DISTURBED AREAS THAT WILL BE INACTIVE FOR 7 DAYS OR MORE AS REQUIRED BY NPDES OR PERMIT.

SEDIMENT CONTROL PRACTICES MUST MINIMIZE SEDIMENT FROM ENTERING SURFACE WATERS, INCLUDING CURB AND GUTTER SYSTEMS AND STORM SEWER INLETS. THE FOLLOWING MEASURES WILL BE TAKEN AS SEDIMENT CONTROL PRACTICES IN ORDER TO MINIMIZE SEDIMENTS FROM ENTERING SURFACE WATERS:

1. INSTALLATION OF SEDIMENT CONTROL PRACTICES ON ALL DOWN GRADIENT PERIMETERS PRIOR TO LAND DISTURBING ACTIVITIES.  
2. SILT FENCING, BIOLOGS, OR OTHER SEDIMENT CONTROL SURROUNDING TEMPORARY SOIL STOCKPILES.  
3. VEHICLE TRACKING BMP AT CONSTRUCTION SITE ENTRANCE/EXIT. STREET SWEEPING SHALL BE PERFORMED IF VEHICLE TRACKING BMPs ARE NOT ADEQUATE TO PREVENT SEDIMENT TRACKING. TRACKED SEDIMENT MUST BE REMOVED FROM ALL PAVED SURFACES BOTH ON AND OFFSITE WITHIN 24 HOURS OF DISCOVERY PER THE PERMIT.  
4. STREET SWEEPING IS NOT TO BE USED AS A PRIMARY BMP FOR SEDIMENT TRACKING. IF SEDIMENT IS TRACKED OFFSITE, WORK WILL CEASE UNTIL PROPER EROSION CONTROL AND SEDIMENT CONTROL DEVICES ARE INSTALLED AND/OR BEING MAINTAINED TO PREVENT TRACKING BEYOND THE SITE'S PERIMETER (CONTAINMENT AREA). ALL STREET SWEEPING MUST BE PERFORMED UTILIZING A PICK-UP SWEEPER. IF NECESSARY WATER WILL ALSO BE USED TO CLEAN UP THE STREETS PRIOR TO BEING SWEEPED TO ENSURE THEY ARE FULLY CLEANED.

THE FOLLOWING GUIDELINES WILL BE USED TO DETERMINE IF POLLUTION CONTROL DEVICES REQUIRE MAINTENANCE, REPAIR, OR REPLACEMENT:  
-IF SEDIMENT CONTROL DEVICES SUCH AS SILT FENCE ARE FILLED TO 1/3 THE HEIGHT OF THE FENCE, REMOVE ALL SEDIMENT WITHIN 24 HOURS OF DETECTION OR NOTIFICATION.  
-IF INLET PROTECTION DEVICES APPEAR PLUGGED WITH SEDIMENT, ARE FILLED TO 1/3 CAPACITY, OR HAVE STANDING WATER AROUND THEM, REMOVE THE SEDIMENT AND CLEAN OR REPLACE THE FILTER WITHIN 24 HOURS OF DETECTION OR NOTIFICATION.  
-IF THE GRAVEL CONSTRUCTION ENTRANCE(S) ARE FILLED WITH SEDIMENT EITHER REPLACE THE ENTRANCE OR ADD ADDITIONAL GRAVEL WITH 24 HOURS OF DETECTION OR NOTIFICATION.  
-IF SEDIMENT FROM THE SITE IS OBSERVED ON ADJACENT STREETS OR OTHER PROPERTIES, THE INSPECTOR SHALL IDENTIFY THE SOURCE AND DISCHARGE LOCATION OF THE SEDIMENT AND INSTRUCT TO IMPLEMENT ADDITIONAL EROSION AND SEDIMENT CONTROLS AT THOSE LOCATIONS TO PREVENT FUTURE DISCHARGES.  
-IF BUILDING MATERIALS, CHEMICALS, OR GENERAL REFUSE IS BEING USED, STORED, DISPOSED OF, OR OTHERWISE MANAGED INAPPROPRIATELY, CORRECT SUCH DEFECTS WITHIN 24 HOURS OF DETECTION OR NOTIFICATION.  
-IF EXCESSIVE SEDIMENTS OR DEBRIS ARE OBSERVED AT THE FLARED END SECTION OUTFALLS, THE INSPECTOR SHALL DETERMINE THE SOURCE AND DISCHARGE LOCATIONS OF SUCH MATERIALS. IF THE DISCHARGE HAS OCCURRED ON THE PROPERTY, REMOVE THE SEDIMENTS AND DEBRIS WITHIN 24 HOURS OF NOTIFICATION AND CORRECT THE SOURCE OF SUCH MATERIALS AS DIRECTED BY THE INSPECTOR

POLLUTION PREVENTION MEASURES

SOLID WASTE:  
SOLID WASTE, INCLUDING BUT NOT LIMITED TO, COLLECTED ASPHALT AND CONCRETE MILLINGS, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, CONSTRUCTION AND DEMOLITION DEBRIS AND OTHER WASTE, INCLUDING ALL TRASH ONSITE, MUST BE REGULARLY DISPOSED OF PROPERLY AND MUST COMPLY WITH MPCA DISPOSAL REQUIREMENTS.

HAZARDOUS MATERIALS:  
HAZARDOUS MATERIALS, INCLUDING BUT NOT LIMITED TO OIL, GASOLINE, PAINT AND ANY HAZARDOUS SUBSTANCE MUST BE PROPERLY STORED INCLUDING SECONDARY CONTAINMENTS, TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH MPCA REGULATIONS.

CONSTRUCTION EQUIPMENT/VEHICLES:  
EXTERNAL WASHING OF TRUCKS AND OTHER CONSTRUCTION VEHICLES MUST BE LIMITED TO A DEFINED AREA OF THE SITE. RUNOFF MUST BE CONTAINED AND WASTE PROPERLY DISPOSED OF. NO ENGINE DEGREASING IS ALLOWED ON SITE. REASONABLE STEPS TO PREVENT THE DISCHARGE OF SPILLED OR LEAKED CHEMICALS SHALL BE TAKEN. ADEQUATE SUPPLIES MUST BE AVAILABLE AT ALL TIMES TO CLEAN UP DISCHARGED MATERIALS; CONDUCT FUELING IN A CONTAINED AREA UNLESS INFEASIBLE.

CONCRETE WASHOUT AREA:  
CONCRETE WASHOUT WILL BE PERMITTED ON-SITE; CONTRACTOR SHALL FOLLOW ALL PERMIT REQUIREMENTS FOR CONCRETE WASHOUT. THE CONTRACTOR SHALL PROVIDE EFFECTIVE CONTAINMENT FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OPERATIONS. LIQUID AND SOLID WASHOUT WASTES MUST NOT CONTACT THE GROUND AND THE CONTAINMENT MUST BE DESIGNED TO PROHIBIT RUNOFF FROM THE WASHOUT OPERATIONS/AREAS. LIQUID AND SOLID WASTES MUST BE DISPOSED OF PROPERLY AND IN COMPLIANCE WITH MPCA RULES. A SIGN MUST BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY THAT REQUIRES SITE PERSONNEL TO UTILIZE THE PROPER FACILITIES FOR CONCRETE WASHOUT AND DISPOSAL OF WASHOUT WASTES. CONTRACTOR SHALL REVERSE SWPPP TO INDICATE WASHOUT LOCATION ONCE THE LOCATION HAS BEEN DETERMINED.

FERTILIZERS AND LANDSCAPE MATERIALS MUST BE UNDER COVER TO PREVENT THE DISCHARGE OF POLLUTANTS OR PROTECTED BY SIMILARLY EFFECTIVE MEANS DESIGNED TO MINIMIZE CONTACT WITH STORMWATER.

PORTABLE TOILETS MUST BE POSITIONED SO THAT THEY ARE SECURE AND WILL NOT BE TIPPED OR KNOCKED OVER. SANITARY WASTE MUST BE DISPOSED OF PROPERLY.

FILTRATION BASIN SEQUENCING NOTES

1. CONTRACTOR SHALL STAGE CONSTRUCTION APPROPRIATELY AND SHALL NOT INSTALL FILTER MEDIA UNTIL THEY CONSTRUCT AND FULLY STABILIZE CONTRIBUTING DRAINAGE AREA.  
2. IN THE EVENT THAT SEDIMENT IS INTRODUCED INTO THE FILTRATION BASIN, THIS MATERIAL WILL NEED TO BE REMOVED PRIOR TO PROCEEDING WITH CONSTRUCTION.  
3. ALL SLOPES WITHIN PERMANENT STORMWATER SYSTEM (INCLUDING SWALES, BASINS, AND PONDS) SHALL BE STABILIZED WITH A EROSION CONTROL BLANKET.  
4. PROVIDE TOPSOIL AND SEED IN ACCORDANCE WITH THE EROSION CONTROL PLAN, LANDSCAPE PLAN, AND NPDES PERMIT.

GENERAL SWPPP NOTES

DEWATERING IS ANTICIPATED TO BE REQUIRED DURING TRENCHING FOR UTILITY CONSTRUCTION. IN THE EVENT THAT DEWATERING IS NECESSARY CONTRACTOR SHALL COMPLY WITH PERMIT SECTION 10.1 REQUIREMENTS FOR DEWATERING.

THIS SWPPP SHALL BE AMENDED BY THE CONTRACTOR IN ACCORDANCE WITH THE PERMIT AS NECESSARY TO INCLUDE ADDITIONAL REQUIREMENTS, TO CORRECT PROBLEMS IDENTIFIED, OR TO ADDRESS SITUATIONS PER SECTION 6.1 OF THE PERMIT.

THE PROJECT WILL DISTURB MORE LESS THAN 5 ACRES THAT PROMOTE DRAINAGE TO A COMMON LOCATION, THEREFORE A TEMPORARY SEDIMENT BASIN WILL NOT BE REQUIRED. THIS SWPPP SHALL BE AMENDED BY THE CONTRACTOR IN ACCORDANCE WITH THE GENERAL PERMIT TO INCLUDE TEMPORARY SEDIMENTATION BASINS, IF THEY BECOME NECESSARY. BASINS, IF DESIGNED BY THE CONTRACTOR, SHALL ACCOMMODATE NO LESS THAN 3,600 CUBIC FEET OF LIVE STORAGE PER ACRE OF CONTRIBUTING DRAINAGE AREA. BASIN OUTLETS SHALL BE DESIGNED TO WITHDRAW WATER FROM THE SURFACE OF THE BASIN. PREVENT SHORT-CIRCUITING AND THE DISCHARGE OF FLOATING DEBRIS. BASINS SHALL HAVE A STABILIZED EMERGENCY OVERFLOW LOCATION AND BE DESIGNED TO PREVENT THE DISCHARGE OF POLLUTANTS TO THE EXTENT PRACTICAL.

FINAL STABILIZATION:  
ALL PERVIOUS AREAS DISTURBED BY CONSTRUCTION AS DESIGNATED WILL RECEIVE VEGETATIVE COVER ACCORDING TO THE PLANS AND SPECIFICATIONS AND WITHIN THE SPECIFIED VEGETATIVE TIME SCHEDULE. FINAL STABILIZATION WILL OCCUR WHEN THE SITE HAS A UNIFORM VEGETATIVE COVER WITH A DENSITY OF 70% OVER THE RESTORED PERVIOUS AREAS. ALL TEMPORARY SYNTHETIC EROSION PREVENTION AND SEDIMENT CONTROL BMPs (SUCH AS SILT FENCE) MUST BE REMOVED AS PART OF THE SITE FINAL STABILIZATION. ALL SEDIMENT MUST BE CLEANED OUT OF CONVEYANCES AND TEMPORARY SEDIMENTATION BASINS IF APPLICABLE. NOTICE OF TERMINATION (NOT) MUST BE SUBMITTED WITHIN 30 DAYS OF FINAL STABILIZATION.

IMPAIRED WATERS, SPECIAL WATERS, AND WETLANDS

THIS PROJECT IS LOCATED WITHIN ONE MILE OF LONG LAKE CREEK AND ULTIMATELY DISCHARGES TO LONG LAKE AN IMPAIRED WATER. LONG LAKE IS LOCATED SOUTHEAST OF THE PROJECT LOCATION AND IS LISTED AS IMPAIRED FOR FISH BIOASSESSMENTS FISH HG-F, NUTRIENTS. DISCHARGE TO AN IMPAIRED WATER REQUIRES IMPLEMENTATION OF SECTION 23.1 OF THE PERMIT AS INCORPORATED INTO THIS SWPPP DOCUMENT.

THE PROJECT SITE DISCHARGES TO EXISTING STORMWATER POND FOR STORMWATER MANAGEMENT PRIOR TO THE ULTIMATE DISCHARGE POINT ONSITE. THE PROJECT WILL NOT IMPACT WETLANDS. SITE SOILS - SITE SOILS ARE SHOWN ON THIS SHEET. THIS PROJECT IS NOT LOCATED IN A KARST AREA.

ESTIMATED BMP QUANTITIES AND INSTALLATION SCHEDULE

THE ADJACENT TABLE INDICATES THE ESTIMATED MATERIAL QUANTITIES NECESSARY TO IMPLEMENT THE TEMPORARY AND PERMANENT EROSION PREVENTION AND SEDIMENT CONTROL BMPs IDENTIFIED IN THIS SWPPP AND ON THE CONSTRUCTION DRAWINGS. TEMPORARY AND PERMANENT EROSION PREVENTION AND SEDIMENT CONTROL BMPs WILL BE INSTALLED/CONSTRUCTED WHEN NECESSARY AS CONSTRUCTION ACTIVITIES PROGRESS AND IN ACCORDANCE WITH THE NPDES PERMIT REQUIREMENTS.

MAINTAIN AND REPLACE BMPs DURING THE EXECUTION OF THE PROJECT AS REQUIRED TO CONTINUE SWPPP COVERAGE DURING CONSTRUCTION

ESTIAMTED BMP QUANTITIES		
ITEM	QUANTITY	UNIT
FLARED END PROTECTION	4	EA
STABILIZED CONSTRUCTION EXIT	1	EA
SEDIMENT CONTROL LOG	601	LF
SILT FENCE	233	LF
FLotation SILT CURTAIN	253	LF
TURF REINFORCEMENT MAT	165	SY
EROSION CONTROL BLANKET	2508	SY
TURF ESTABLISHMENT	1.69	AC

NOTE: QUANTITIES ON PLAN SUPERCEDES LIST QUANTITIES IN A DISCREPANCY

CERTIFICATION

IN ACCORDANCE WITH SECTION 21 OF THE GENERAL PERMIT AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NPDES. THE PREPARER OF THIS DOCUMENT WAS TRAINED UNDER THE UNIVERSITY OF MINNESOTA EROSION AND SEDIMENT CONTROL CERTIFICATION PROGRAM. BEN OTTO'S CERTIFICATION IN DESIGN OF SWPPP IS VALID THROUGH MAY 2025.

ONE CARLSON PARKWAY, SUITE 100  
PLYMOUTH MN, 55447  
PHONE: 763-479-4200  
FAX: 763-479-4242  
WWW.STANTEC.COM

CLIENT:

**MINNEHAHA CREEK WATERSHED DISTRICT**  
  
15320 MINNETONKA BLVD  
MINNETONKA, MN 55345

**MINNEHAHA CREEK WATERSHED DISTRICT**

COUNTY ROAD 6  
STORMWATER POND RETROFIT

COUNTY ROAD 6 STORMWATER POND  
ORONO, MINNESOTA

PROJECT TITLE:

ISSUE NO.:  
0

DESCRIPTION:  
ISSUED FOR 90% REVIEW

DATE:  
03/12/2025

CERTIFICATION:

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.

CHRIS J. MEEHAN

LICENSE NO.: 43066

DATE: XX/XX/2024

PROJECT NO.: 227707038

DWN BY: SMD  
CHKD BY: NPW  
APP'D BY: CJM

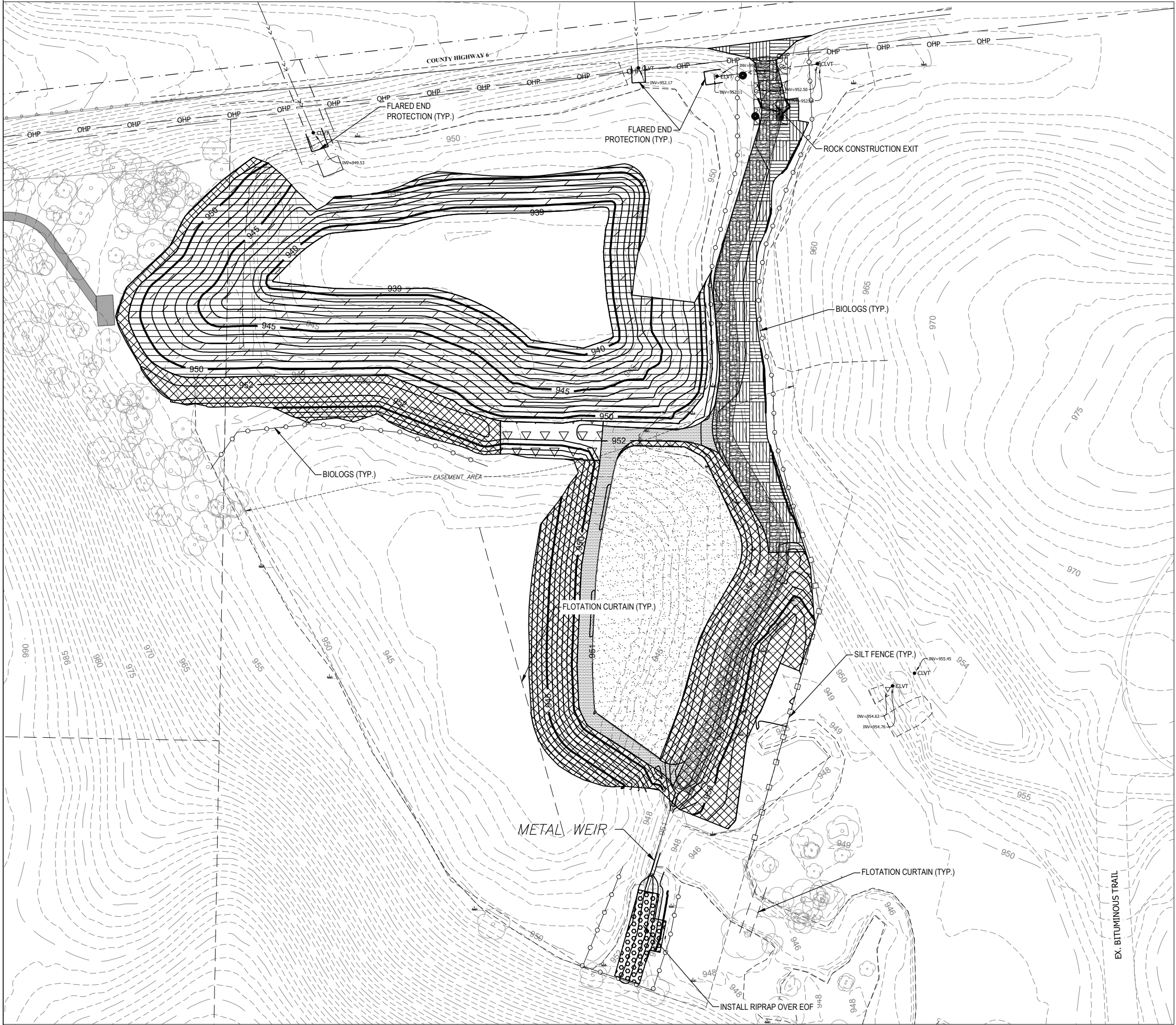
ISSUE DATE: XX/XX/2024

ISSUE NO.: 0

SHEET TITLE:  
  
SWPPP

SHEET NO.:  
  
C-201



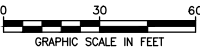
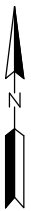


HATCH PATTERNS

	ROCK CONSTRUCTION EXIT
	EROSION CONTROL BLANKET WITH MNDOT SEED MIX 33-261
	STRAW MULCH WITH MNDOT SEED MIX 33-261
	TEMPORARY SEEDING WITH STRAW MULCH MNDOT SEED MIX 21-112 (SEE NOTES)
	TURF REINFORCEMENT MAT CATEGORY-75
	GRANITE RIPRAP
	BIOLOGS
	SILT FENCE TYPE MS
	FLOTATION SILT CURTAIN

NOTES

- SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES
- CONTRACTOR TO PROVIDE EROSION CONTROL BLANKET ON ALL SLOPES ABOVE NWL GREATER THAN 4:1 SLOPE UPON FINAL EXCAVATION FOR POND SIDE SLOPE RESTORATION.
- ALL STOCKPILING MUST TAKE PLACE WITHIN EXCAVATED POND FOOTPRINT.
- TEMPORARY SEEDING ON THE IN SLOPES OF THE POND IF CONSTRUCTION ACTIVITIES HAVE NOT BEEN COMPLETED PRIOR TO WINTER.



ONE CARLSON PARKWAY, SUITE 100  
PLYMOUTH MN, 55447  
PHONE: 763-479-4200  
FAX: 763-479-4242  
WWW.STANTEC.COM

CLIENT:

MINNEHAHA CREEK  
WATERSHED  
DISTRICT

15320 MINNETONKA BLVD  
MINNETONKA, MN 55345



COUNTY ROAD 6  
STORMWATER POND RETROFIT  
COUNTY ROAD 6 STORMWATER POND  
ORONO, MINNESOTA

PROJECT TITLE:

ISSUE NO.	DESCRIPTION:	DATE:
0	ISSUED FOR 90% REVIEW	03/12/25

CERTIFICATION:

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.

CHRIS J. MEEHAN

LICENSE NO.: 43066

DATE: XX/XX/2024

PROJECT NO.: 227707038

DWN BY: SMD CHKD BY: NPW APP'D BY: CJM

ISSUE DATE: XX/XX/2024

ISSUE NO.: 0

SHEET TITLE:

RESTORATION AND EROSION  
CONTROL PLAN

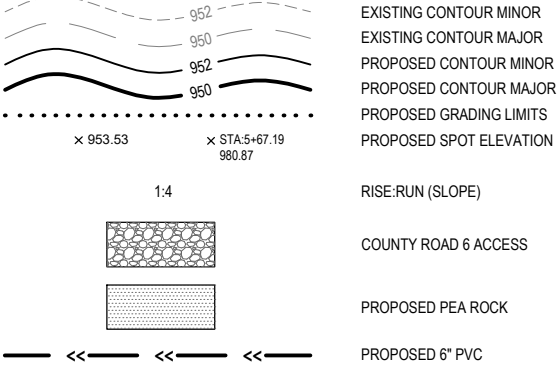
SHEET NO.:

C-202





LEGEND



ONE CARLSON PARKWAY, SUITE 100  
PLYMOUTH MN, 55447  
PHONE: 763-479-4200  
FAX: 763-479-4242  
WWW.STANTEC.COM

CLIENT:  
**MINNEHAHA CREEK  
WATERSHED  
DISTRICT**  
15320 MINNETONKA BLVD  
MINNETONKA, MN 55345

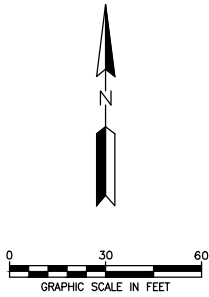
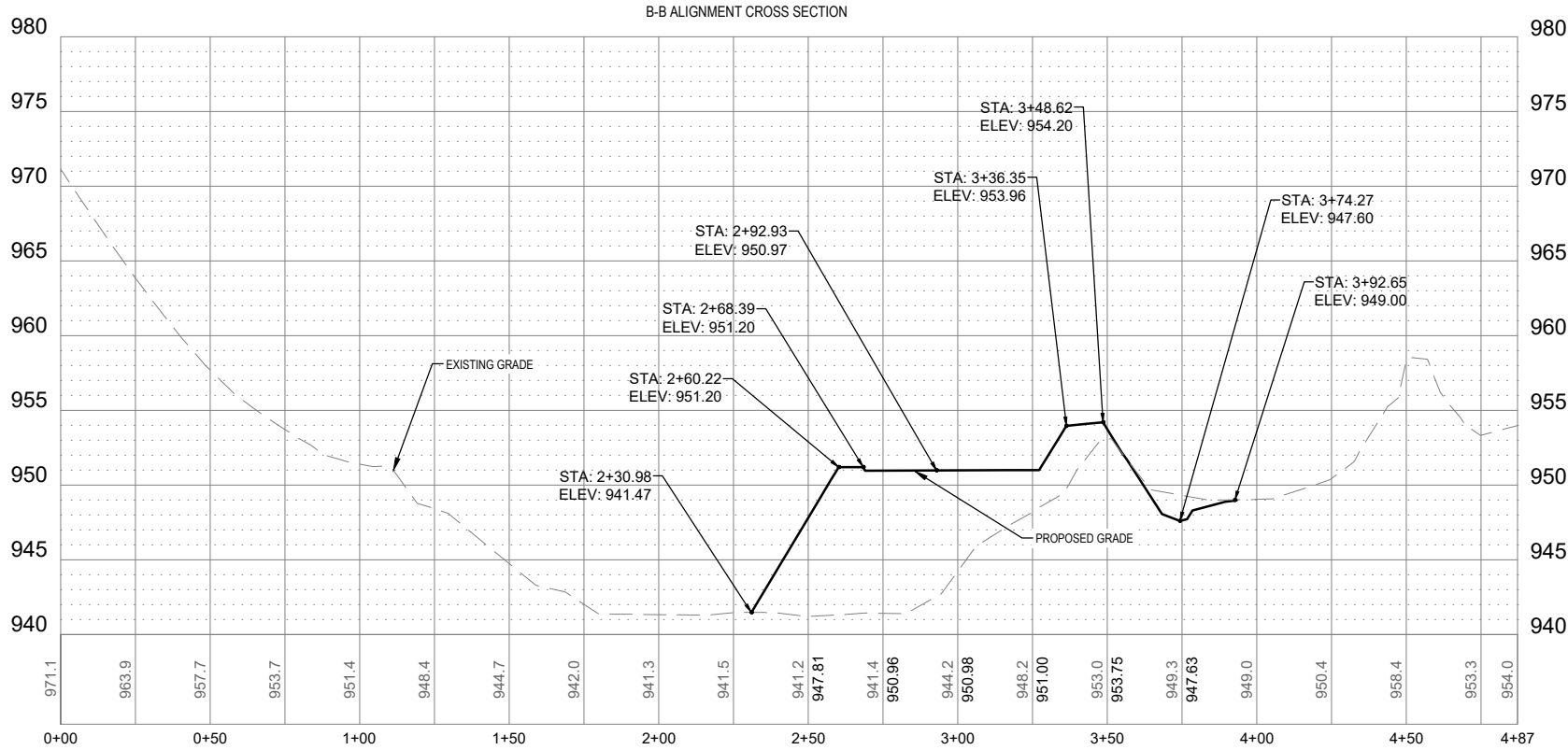
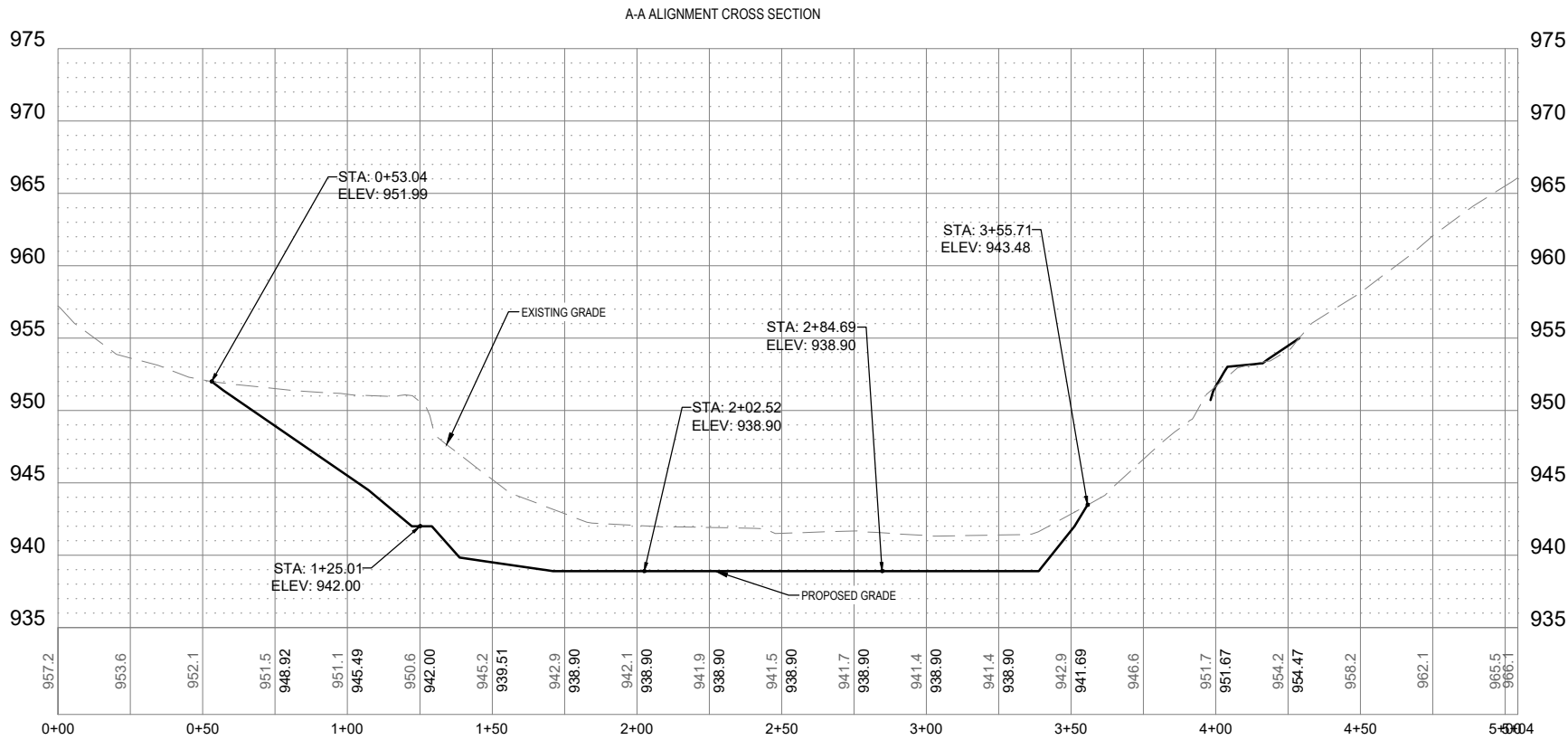


**COUNTY ROAD 6  
STORMWATER POND RETROFIT**  
COUNTY ROAD 6 STORMWATER POND  
ORONO, MINNESOTA

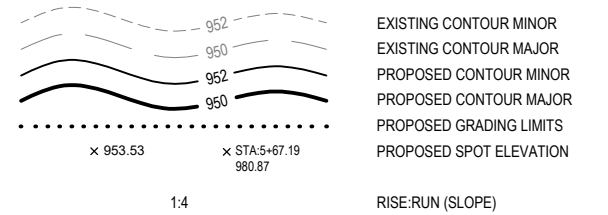
PROJECT TITLE:		ST										
ISSUE NO.:	0											
DESCRIPTION:	ISSUED FOR 90% REVIEW											
DATE:	03/12/25											
CERTIFICATION:												
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.												
CHRIS J. MEEHAN												
LICENSE NO. : 43066												
DATE: XX/XX/2024												
PROJECT NO.:		227707038										
DWN BY:	SMD	CHK'D BY:	NPW	APP'D BY:								CJM
ISSUE DATE:		XX/XX/2024										
ISSUE NO.:		0										
SHEET TITLE:												
GRADING PLAN												
SHEET NO.:												
C-301												







LEGEND



ONE CARLSON PARKWAY, SUITE 100  
PLYMOUTH MN, 55447  
PHONE: 763-479-4200  
FAX: 763-479-4242  
WWW.STANTEC.COM

CLIENT:  
**MINNEHAHA CREEK  
WATERSHED  
DISTRICT**  
15320 MINNETONKA BLVD  
MINNETONKA , MN 55345



**COUNTY ROAD 6  
STORMWATER POND RETROFIT**  
COUNTY ROAD 6 STORMWATER POND  
ORONO, MINNESOTA

PROJECT TITLE:

ISSUE NO.	DESCRIPTION	DATE
0	ISSUED FOR 90% REVIEW	03/21/2025

CERTIFICATION:  
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.

CHRIS J. MEEHAN  
LICENSE NO.: 43066  
DATE: XX/XX/2024

PROJECT NO.: 227707038

DWN BY: SMD CHKD BY: NPW APP'D BY: CJM

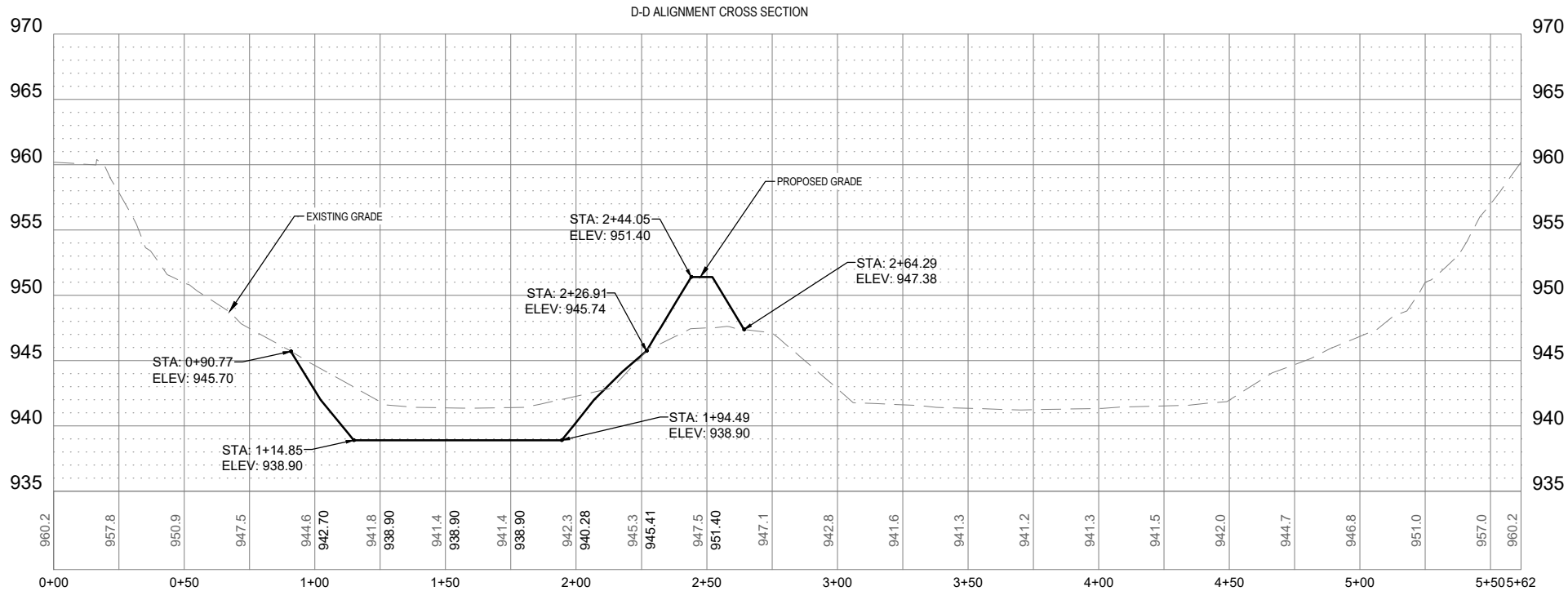
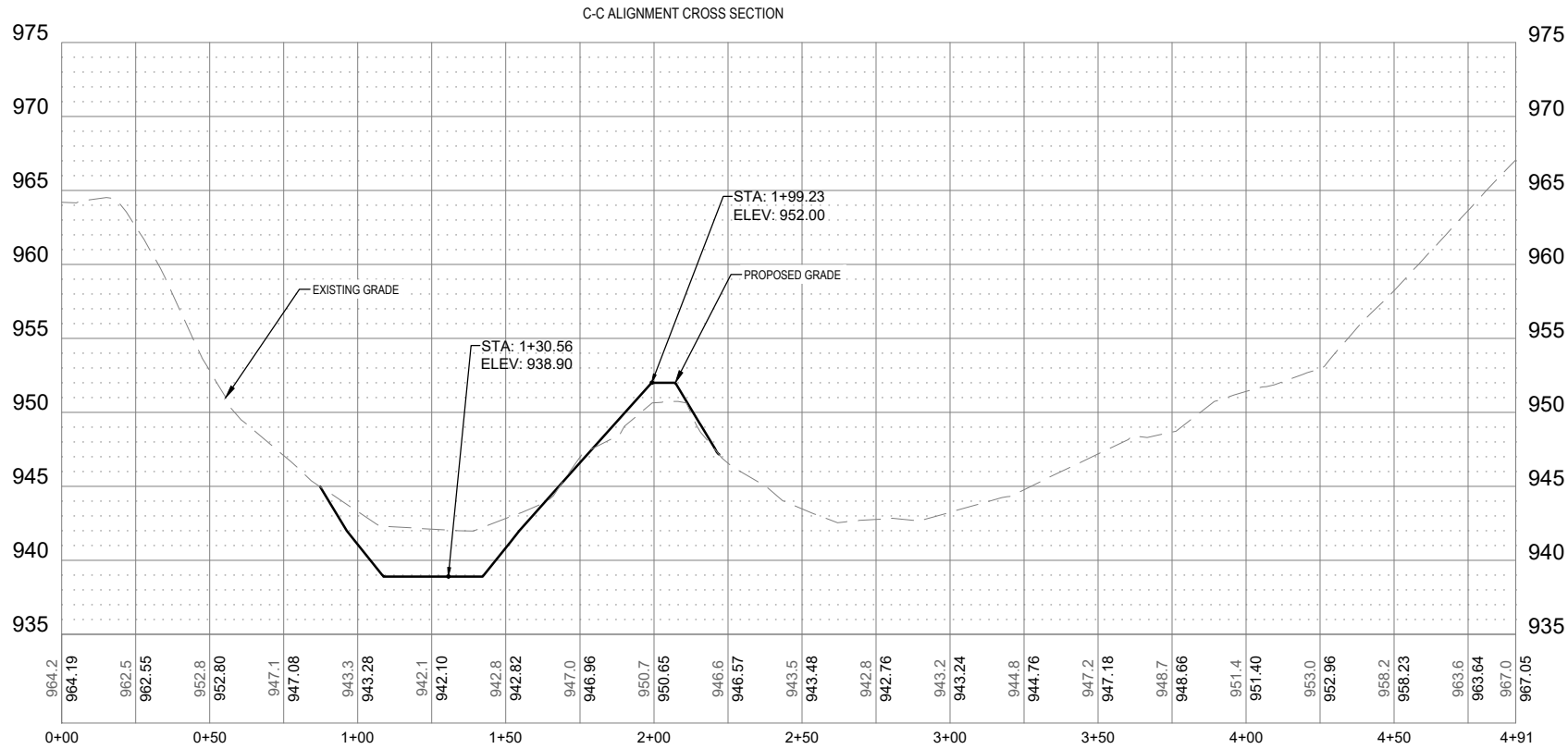
ISSUE DATE: XX/XX/2024

ISSUE NO.: 0

SHEET TITLE:  
**CROSS SECTIONS**

SHEET NO.:  
**C-303**





LEGEND

- EXISTING CONTOUR MINOR
- EXISTING CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- PROPOSED CONTOUR MAJOR
- PROPOSED GRADING LIMITS
- PROPOSED SPOT ELEVATION
- RISE:RUN (SLOPE)



ONE CARLSON PARKWAY, SUITE 100  
PLYMOUTH MN, 55447  
PHONE: 763-479-4200  
FAX: 763-479-4242  
WWW.STANTEC.COM

CLIENT:  
**MINNEHAHA CREEK  
WATERSHED  
DISTRICT**  
15320 MINNETONKA BLVD  
MINNETONKA, MN 55345



**COUNTY ROAD 6  
STORMWATER POND RETROFIT**  
COUNTY ROAD 6 STORMWATER POND  
ORONO, MINNESOTA

PROJECT TITLE:

ISSUE NO.	0
-----------	---

DESCRIPTION:	ISSUED FOR 90% REVIEW
DATE:	03/12/25

CERTIFICATION:  
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.

CHRIS J. MEEHAN  
LICENSE NO.: 43066

DATE: XX/XX/2024

PROJECT NO.: 227707038

DWN BY: SMD  
CHKD BY: NPW  
APP'D BY: CJM

ISSUE DATE: XX/XX/2024

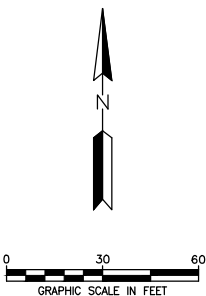
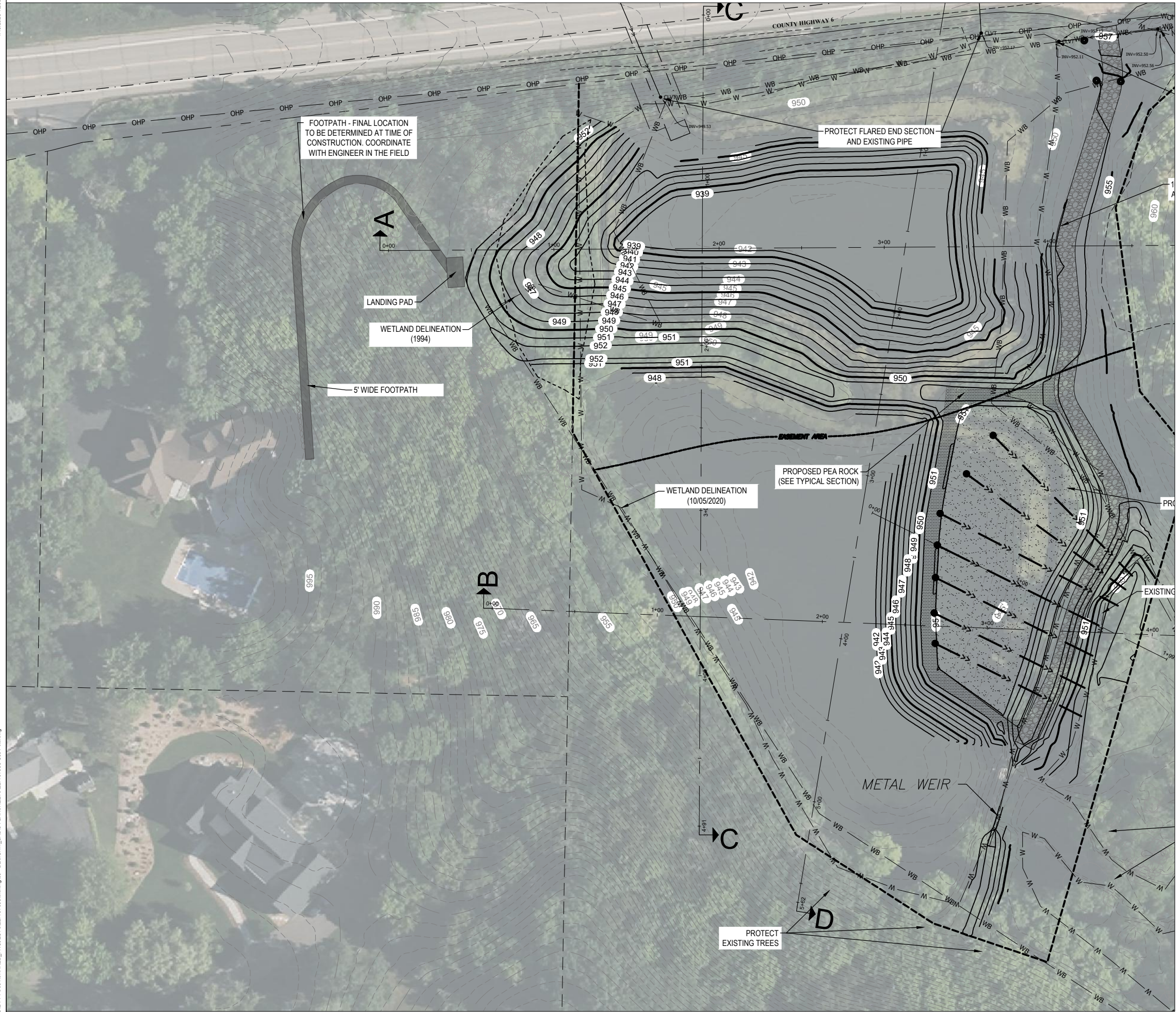
ISSUE NO.: 0

SHEET TITLE:

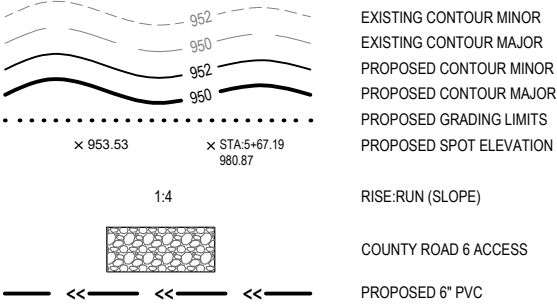
CROSS SECTIONS

SHEET NO.: C-304





## LEGEND

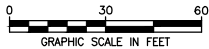
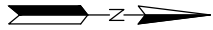
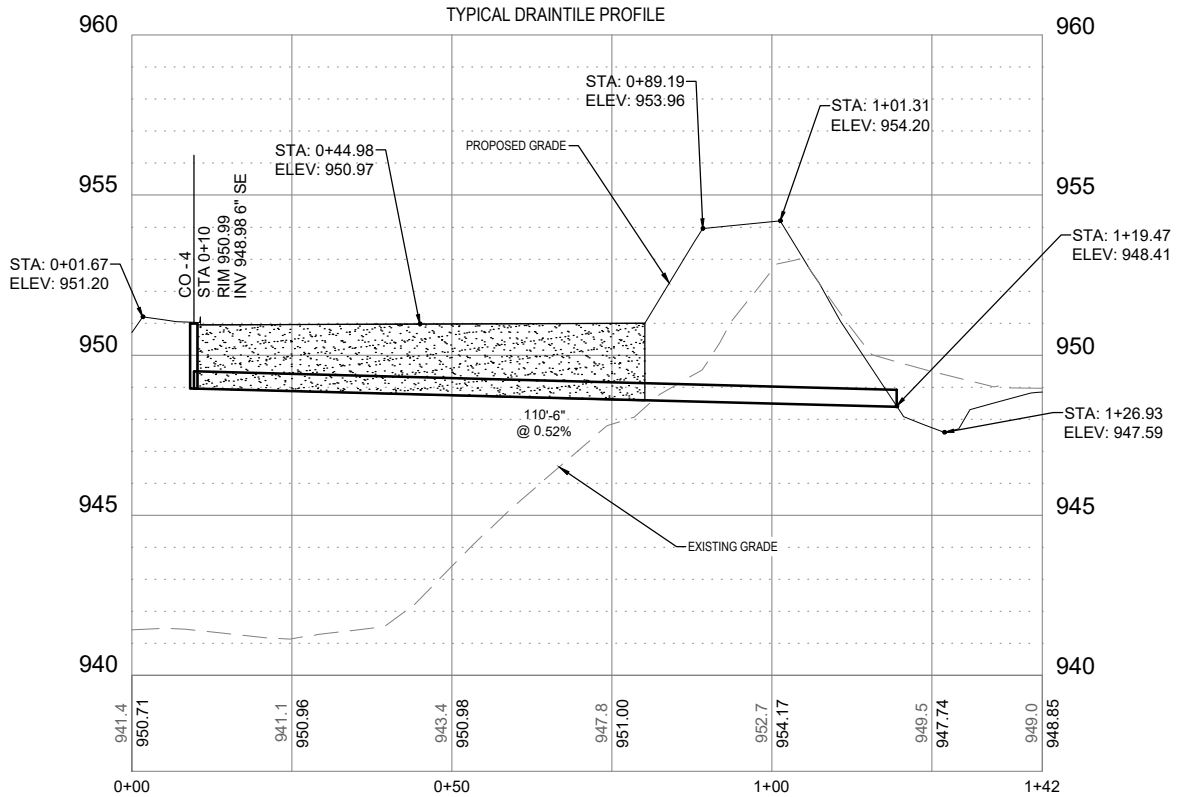
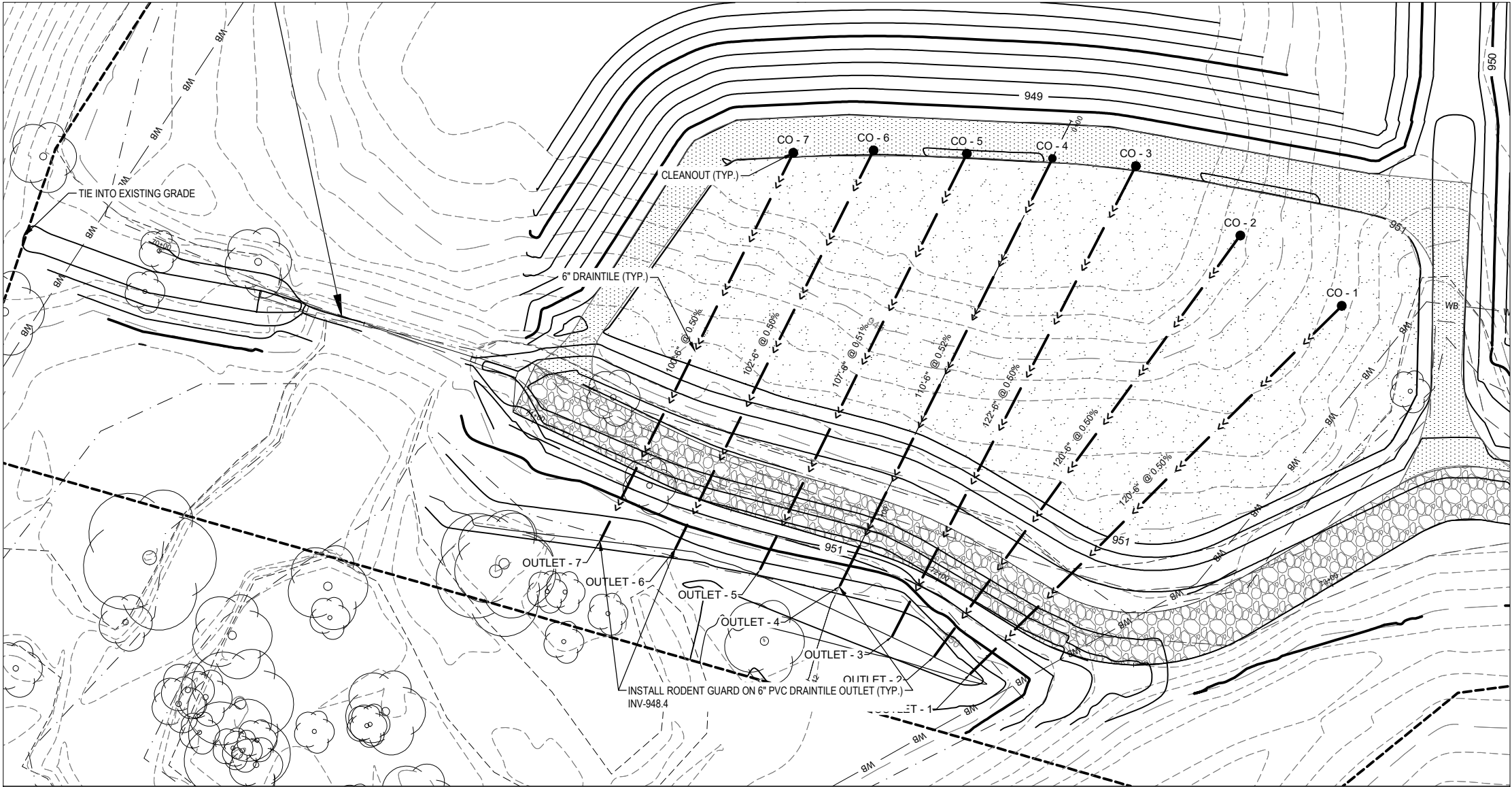


## NOTES

LANDING PAD AND FOOTPATH TO BE CONSTRUCTED OF 4" CLASS 5 AGGREGATE.

<b style="font-size: 24px; margin-left: 10px;">Stantec</b>			
ONE CARLSON PARKWAY, SUITE 100 PLYMOUTH MN, 55447 PHONE: 763-479-4200 FAX: 763-479-4242 WWW.STANTEC.COM			
CLIENT: <b>MINNEHAHA CREEK WATERSHED DISTRICT</b> 15320 MINNETONKA BLVD MINNETONKA, MN 55345			
<b>MINNEHAHA CREEK WATERSHED DISTRICT</b>			
<div style="display: flex; justify-content: space-around;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> <b>COUNTY ROAD 6 STORMWATER POND RETROFIT</b> </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> <b>COUNTY ROAD 6 STORMWATER POND ORONO, MINNESOTA</b> </div> </div>			
PROJECT TITLE:			
ISSUE NO.:	0		
DESCRIPTION:	ISSUED FOR 90% REVIEW		
DATE:	03/12/25		
CERTIFICATION: 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.			
_____ CHRIS J. MEEHAN			
LICENSE NO. : <u>43066</u>			
DATE: <u>XX/XX/2024</u>			
PROJECT NO. : <u>227707038</u>			
DWN BY:	CHKD BY:	APP'D BY:	
SMD	NPW	CJM	
ISSUE DATE: <u>XX/XX/2024</u>			
ISSUE NO.:			0
SHEET TITLE:			
<b>FOOTPATH PLAN</b>			
SHEET NO.:			
<b>C-305</b>			





LEGEND

- EXISTING CONTOUR MINOR
- EXISTING CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- PROPOSED CONTOUR MAJOR
- PROPOSED GRADING LIMITS
- PROPOSED SPOT ELEVATION
- RISE:RUN (SLOPE)
- COUNTY ROAD 6 ACCESS
- PROPOSED PEA ROCK
- PROPOSED 6" PVC



ONE CARLSON PARKWAY, SUITE 100  
PLYMOUTH MN, 55447  
PHONE: 763-479-4200  
FAX: 763-479-4242  
WWW.STANTEC.COM

CLIENT:  
**MINNEHAHA CREEK  
WATERSHED  
DISTRICT**  
15320 MINNETONKA BLVD  
MINNETONKA, MN 55345



**COUNTY ROAD 6  
STORMWATER POND RETROFIT**  
COUNTY ROAD 6 STORMWATER POND  
ORONO, MINNESOTA

PROJECT TITLE:

DATE:	DESCRIPTION:	ISSUE NO.:
03/21/2025	ISSUED FOR 90% REVIEW	0

CERTIFICATION:  
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.

CHRIS J. MEEHAN  
LICENSE NO.: 43066  
DATE: XX/XX/2024

PROJECT NO.: 227707038

DWN BY: SMD  
CHKD BY: NPW  
APP'D BY: CJM

ISSUE DATE: XX/XX/2024

ISSUE NO.: 0

SHEET TITLE:

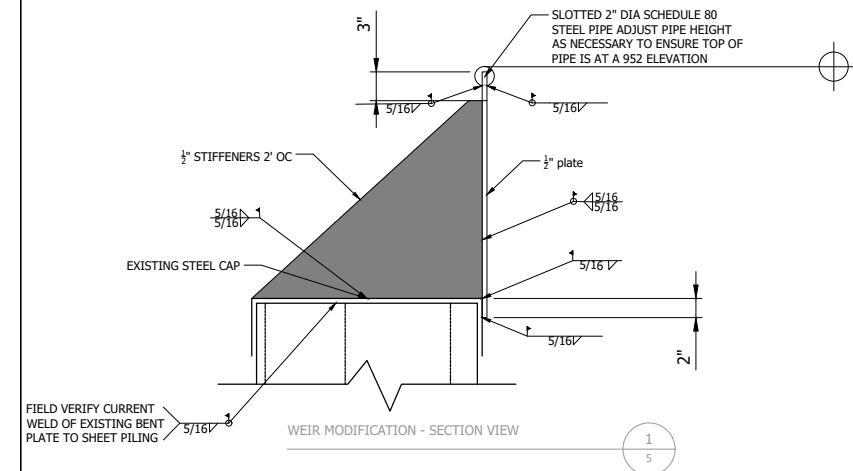
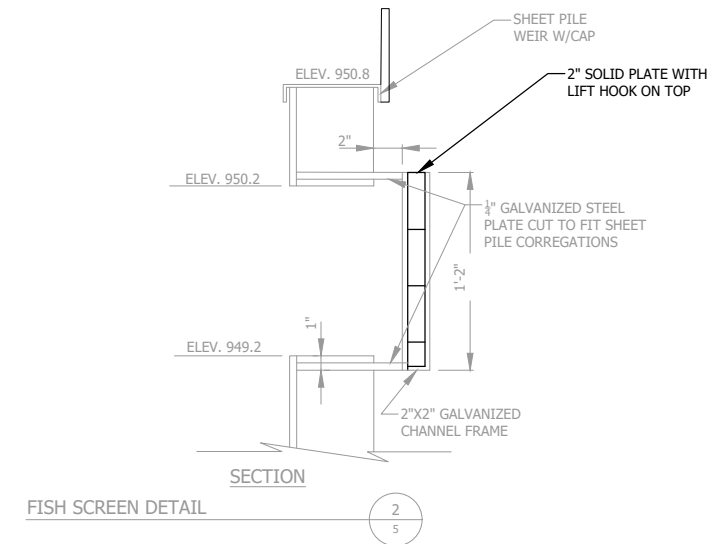
STORM SEWER PLAN

SHEET NO.:

C-501



CONTRACTOR TO PLACE CONTINUOUS WELD  
BEAD BETWEEN CAP AND SHEET PILE.



COUNTY ROAD 6  
STORMWATER POND RETROFIT  
COUNTY ROAD 6 STORMWATER POND  
ORONO, MINNESOTA

OBJECT TITLE:

[illegible]

**CERTIFICATION:**  
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.

CHRIS J. MEEHAN  
LICENSE NO.: 43066  
DATE: XX/XX/2024

PROJECT NO.: 227707038

DWN BY: GMB	CHK'D BY: NBM	APP'D BY: GMB
----------------	------------------	------------------

ISSUE DATE: XX/XX/2024

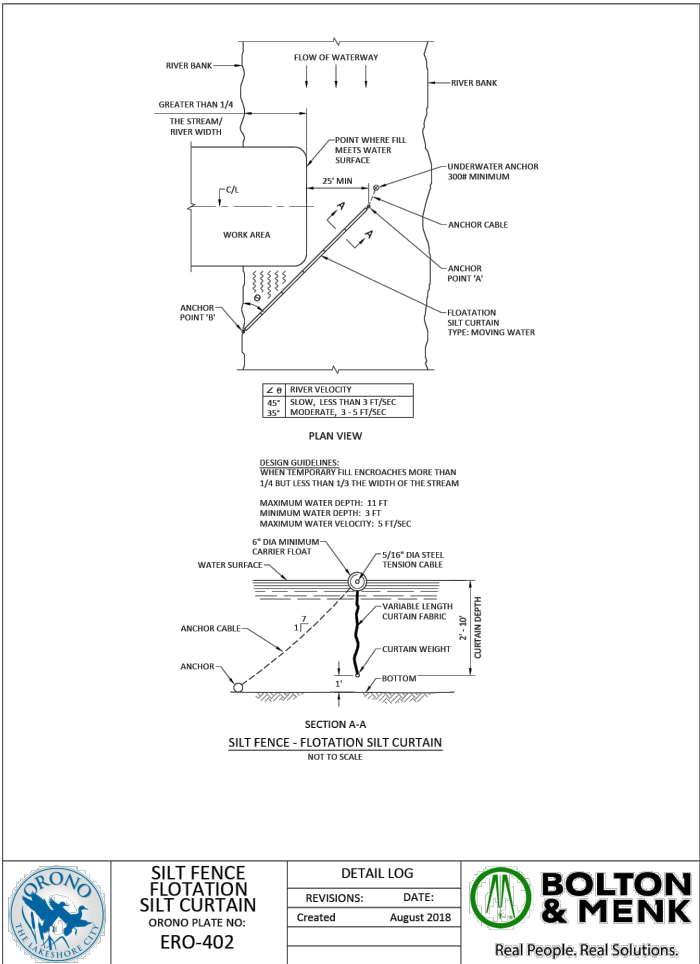
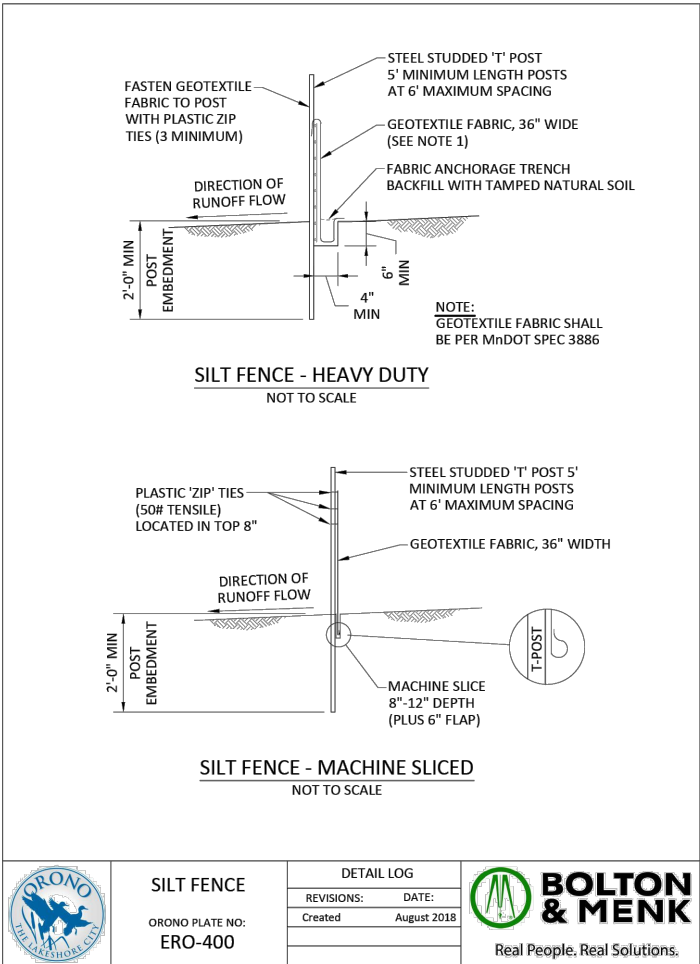
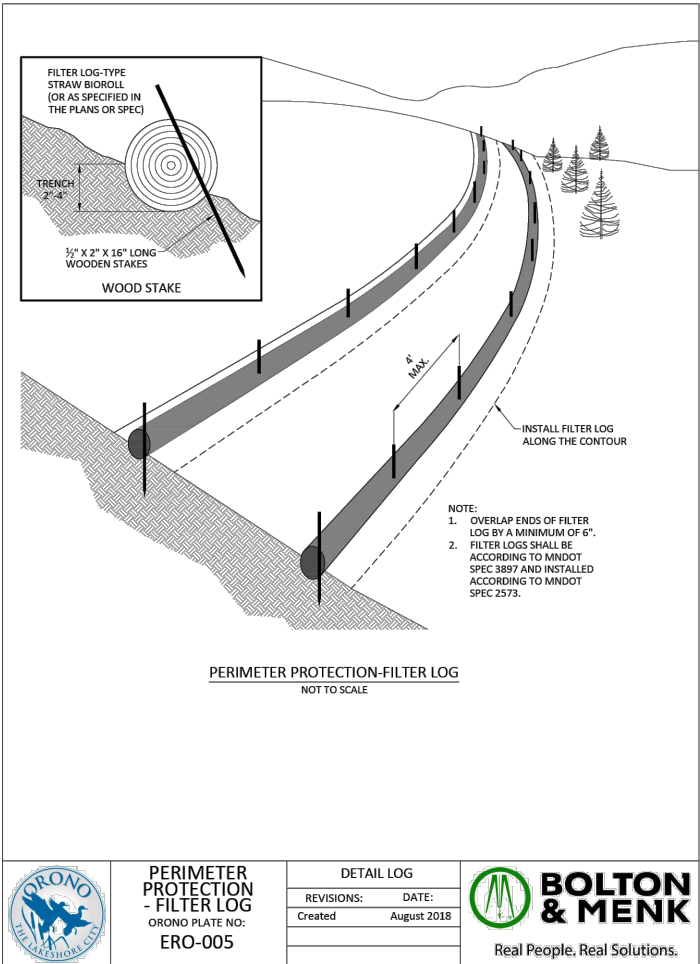
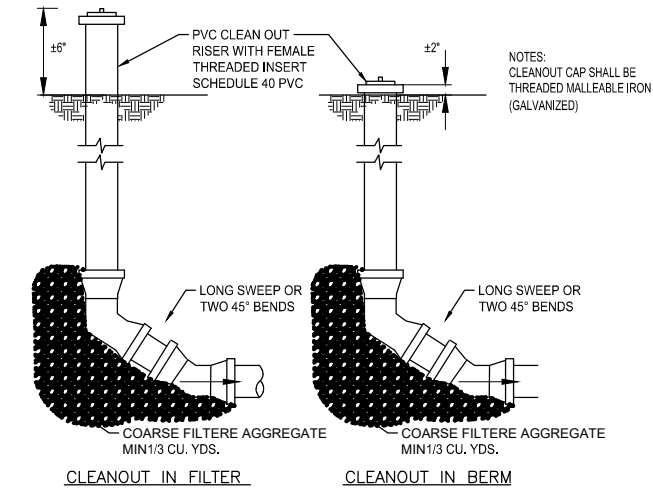
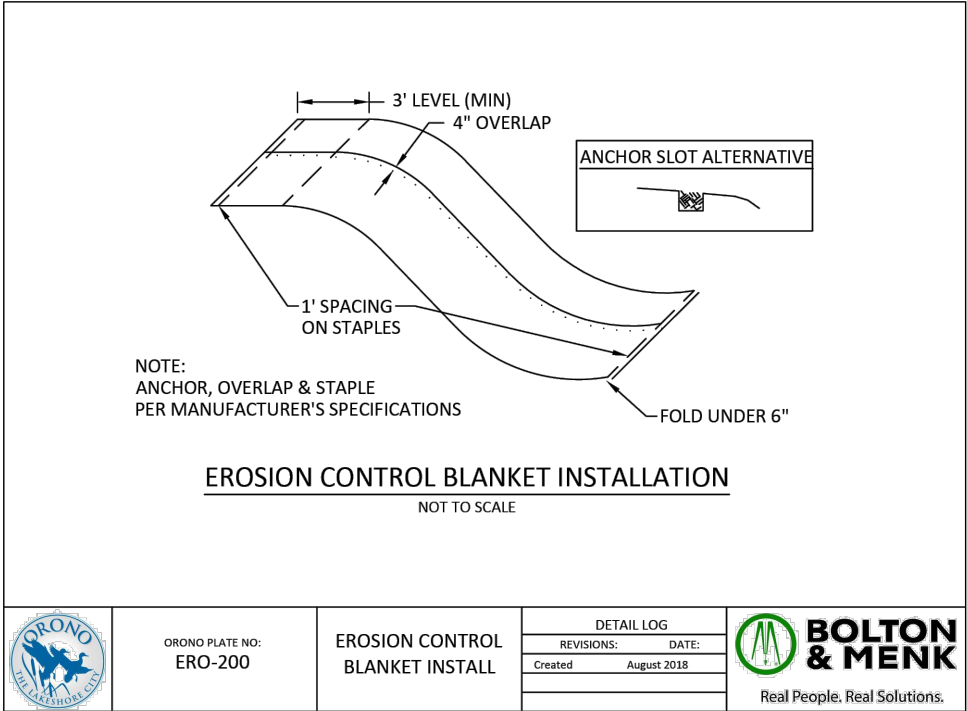
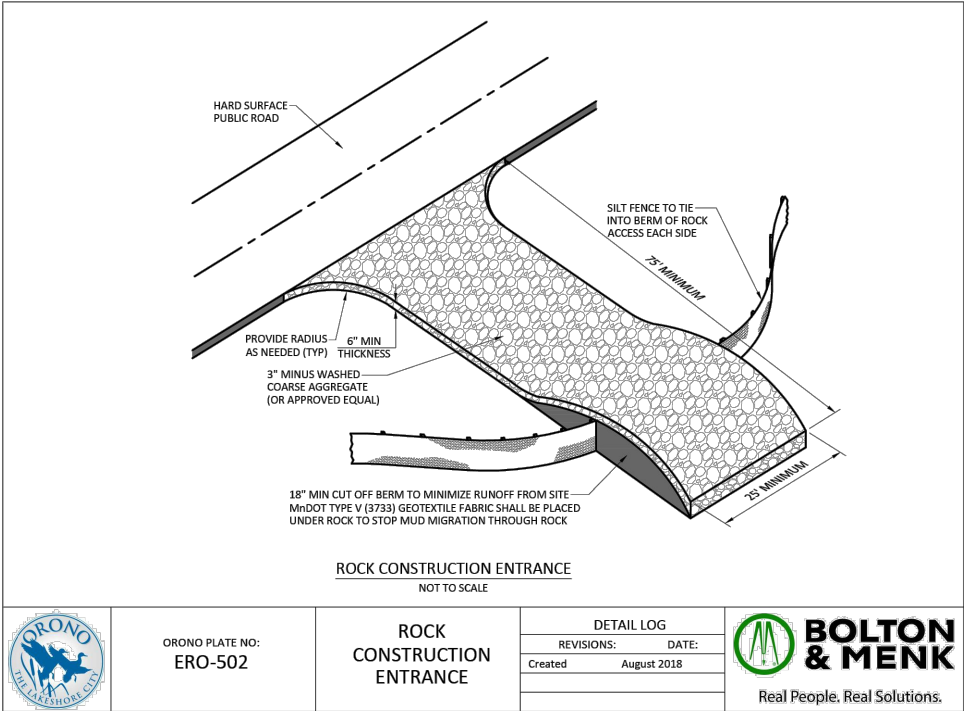
ISSUE NO.: 0

SHEET TITLE:

## DETAILS

SHEET NO : \_\_\_\_\_

C-801



ONE CARLSON PARKWAY, SUITE 100  
PLYMOUTH MN, 55447  
PHONE: 763-479-4200  
FAX: 763-479-4242  
WWW.STANTEC.COM

CLIENT:  
**MINNEHAHA CREEK  
WATERSHED  
DISTRICT**  
15320 MINNETONKA BLVD  
MINNETONKA, MN 55345



**COUNTY ROAD 6  
STORMWATER POND RETROFIT**  
COUNTY ROAD 6 STORMWATER POND  
ORONO, MINNESOTA

PROJECT TITLE:	COUNTY ROAD 6 STORMWATER POND RETROFIT
ISSUE NO.:	0
DESCRIPTION:	ISSUED FOR 90% REVIEW
DATE:	03/21/2025

CERTIFICATION:  
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.

CHRIS J. MEEHAN

LICENSE NO.: 43066

DATE: XX/XX/2024

PROJECT NO.: 227707038

DWN BY: SMD CHKD BY: NPW APP'D BY: CJM

ISSUE DATE: XX/XX/2024

ISSUE NO.: 0

SHEET TITLE:

DETAILS

SHEET NO.:

C-802

## **Attachment C – Floodplain Figure**

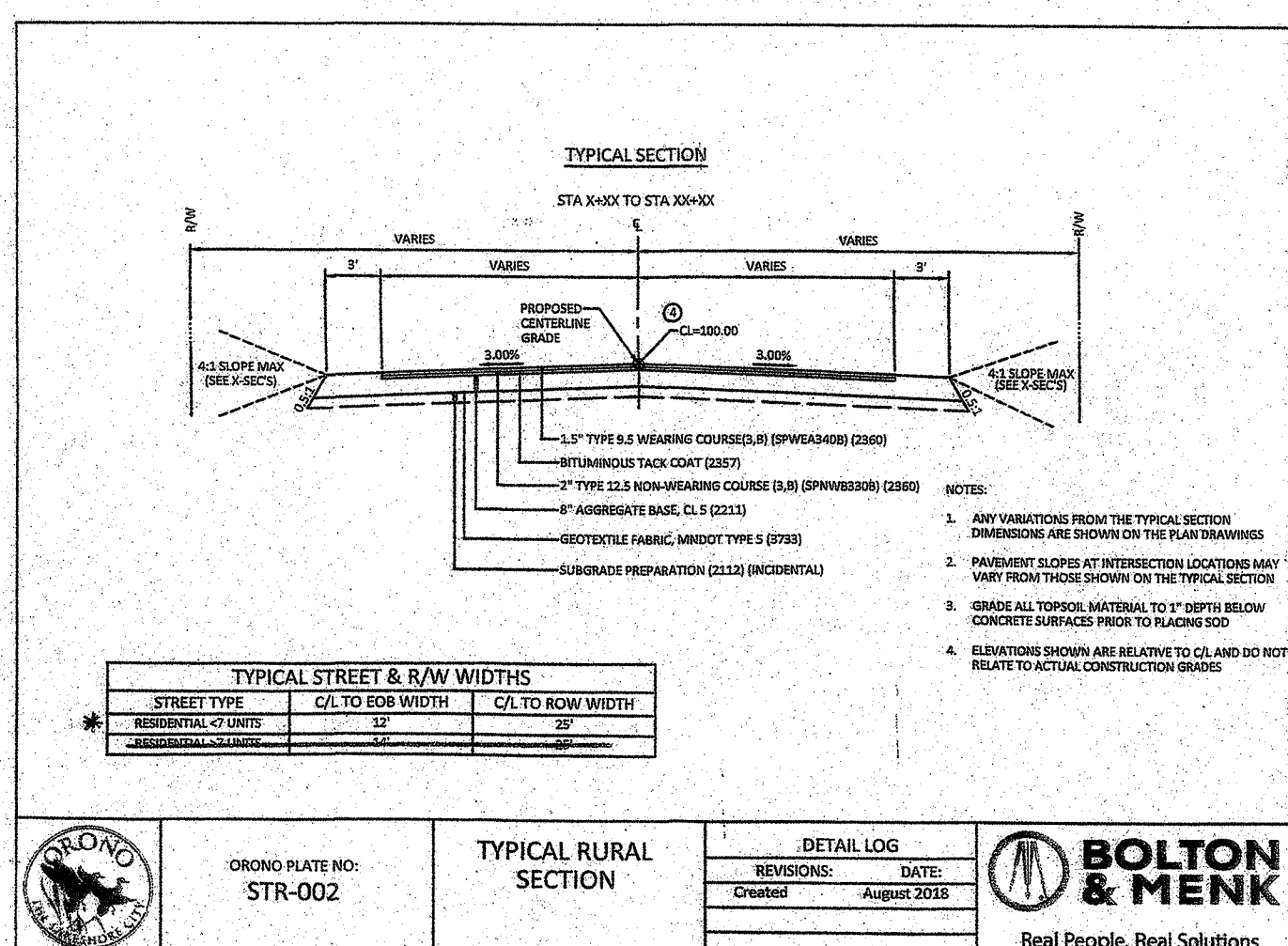
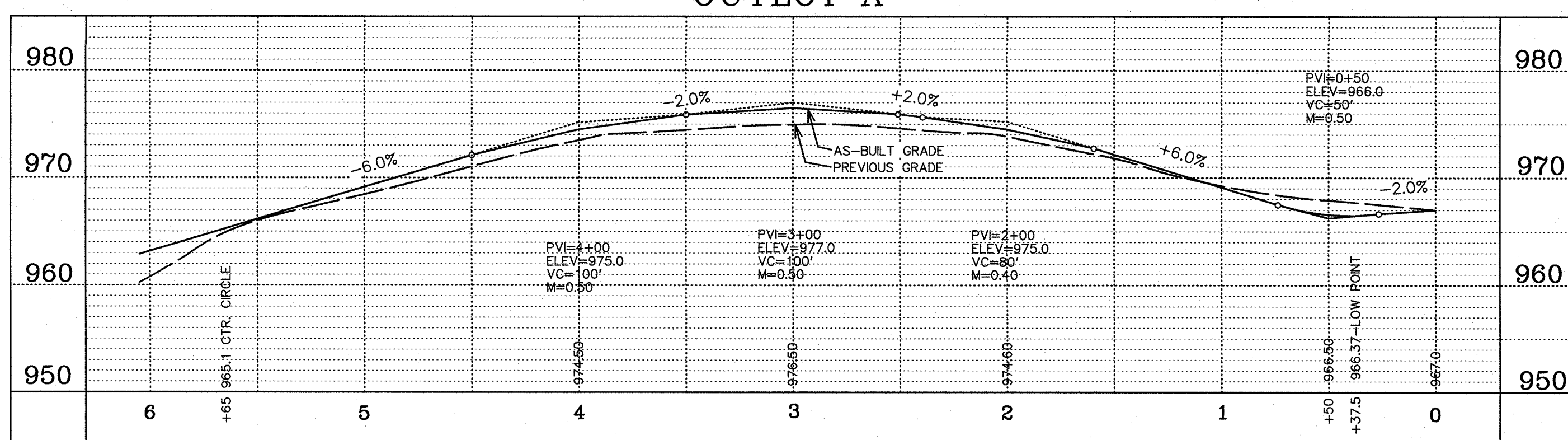




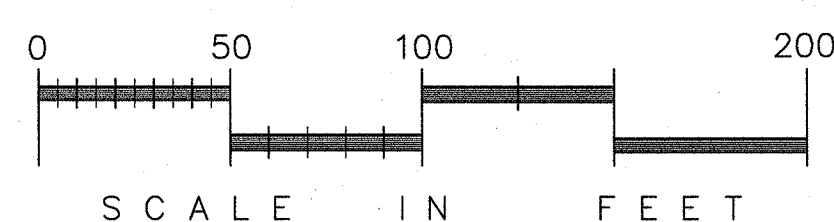
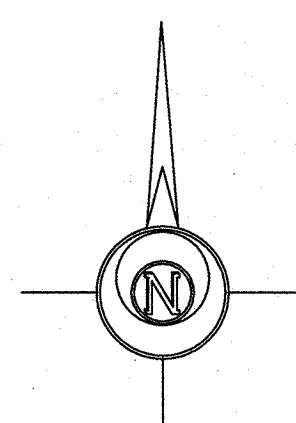
## **Attachment D – Subdivision Wetland Buffer Figure**



CO. RD. NO. 6 SIXTH AVE. N.



NOTE: ALL BASINS WERE CONSTRUCTED AS INFILTRATION BASINS WITH NO STANDING WATER.



DATE	REVISIONS
3-14-24	ADDITIONAL BASIN ELEVATIONS

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.

*Mark S. Gronberg*

Mark S. Gronberg Minnesota License Number 12755

PROJECT

DATE	6-23-23
SCALE	1"=50'
JOB NO	21-271

 **GRONBERG & ASSOCIATES, INC.**  
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS  
445 NORTH WILLOW DRIVE LONG LAKE, MN 55356  
952-473-4141