General Background & Comments
The City of Minnetonka is proposing to construct a multiuse trail along the south side of Excelsior Blvd (CSAH 3) from Pioneer Road to Shady Oak Road. In addition to construction of the new multiuse trail, site improvements including ADA and intersection improvements, street resurfacing, concrete curb and gutter improvements, bituminous and concrete pavement removals, utility improvements, grading, and landscaping are proposed.

The existing bicycle and pedestrian trail on the south side of Excelsior Blvd along the project corridor consists of a patchwork of sidewalks, paved shoulders, and a vegetated edge of the roadway. Along portions of the existing trail, minimal separation between trail users and vehicular traffic along Excelsior Blvd is provided. The surrounding area along the corridor is highly urbanized, consisting primarily of high-density residential homes.

The project site information includes the following:

- Total Site Area: 3.37 acres
- Total Disturbed Area: 3.37 acres
- Existing Site Impervious Area: 1.38 acres
- Total Disturbed Impervious Area: 1.38 acres
- Proposed Site Impervious Area: 1.87 acres
- Total New (Additional) Impervious Area: 0.49 acres
- 35.5% increase in site impervious area

The District’s Floodplain Management and Drainage Alterations Rule 2.0 applies to the project as a result of land-altering activities proposed below the 100-year frequency floodplain of a delineated wetland (549B), Rule 2.2.1. Proposed work within the 100-year frequency...
floodplain of wetland 549B consists of infrastructure improvements, placement of rip-rap at the outlet of the reconstructed storm sewer. Disturbed area within the floodplain will be regraded to match existing elevations. At the location of the proposed rip-rap, the area will be over excavated, allowing the rip-rap and filter material to be placed at an elevation that matches existing grade. Thus, no net fill and no net impact will occur below the 100-year flood elevation of wetland 549B as a result of land-disturbing activities.

The District’s wetland buffer Rule 3.4 applies to the project because wetland 549B has been determined to be a medium value wetland using a desk top review and analysis. The wetland boundary determination was completed by Bolton & Menk, Inc. The City of Minnetonka is the Local Governing Unit (LGU) responsible for administering the Wetland Conservation Act (WCA). Per Rule 3.2.2., in cases where the District is not the Wetland Conservation Act LGU, applicable wetland buffer and stormwater treatment criteria (Rules 3.4 and 3.5) nevertheless apply for wetland 549B downgradient from proposed construction activities. A medium value wetland as defined by Rule 3.4.1b requires a 20 foot minimum and 40 foot average buffer width.

The 2020 Excelsior Blvd Trail Improvements project is considered a linear project. As stated in Rule 4.2.4, for linear projects creating less than one (1) acre of new or additional impervious area (0.49 acres of net new impervious area is proposed to be created), the stormwater requirements of Rule 4.3.1 or 4.3.2 do not apply.

The District’s requirements for erosion and sediment control apply to the project because more than 5,000 square feet or more surface area will be disturbed, Rule 5.2.1a and b. The project utilizes perimeter control, storm drain inlet protection, sod, hydromulch and erosion control blankets for erosion control and stabilization methods.

The District’s Waterbody Crossings and Structures Rule 6.0 applies to the project as a result of stormwater infrastructure improvements that contact the bank of a waterbody along the project corridor, Rule 6.2. Proposed work within the bank of wetland 549B consists of the removal of four (4) existing CMP culverts and the installation of one (1) combined RCP outlet. In addition to stormwater infrastructure improvements, site regrading, placement of rip-rap, and associated temporary erosion control measures are proposed.

Exhibits
2. Plans dated February 10, 2020 with three revised sheets (C0.02, C2.05 and C5.01) dated April 8, 2020 prepared by Bolton & Menk, Inc.
5. Wetland Type and Boundary Application and Wetland Delineation Report dated September 20, 2019 prepared by Bolton & Menk, Inc.
6. Email correspondence dated March 30, 2020 indicating revisions required for compliance with NMCWD floodplain management and drainage alterations, wetlands, and waterbody crossing and structures Rules (Rules 2, 3 and 6, respectively).
The applicant with the revised submittal has addressed the items identified in the March 30, 2020 email. The submittal is complete.

2.0 Floodplain Management and Drainage Alterations

As previously stated, the District's Floodplain Management and Drainage Alterations Rule 2.0 applies to the project as a result of land-altering activities proposed below the 100-year frequency floodplain of wetland 549B in the watershed, Rule 2.2.1. The proposed project includes infrastructure improvements and placement of rip-rap within the floodplain of wetland 549B along the corridor alignment.

The City of Minnetonka’s Water Resources Management Plan identifies a Technical Paper No. 40 (TP-40) 100-year frequency flood elevation of wetland 549B, elevation 925.5 M.S.L. The draft Atlas 14 data for the City of Minnetonka identifies a 100-year frequency floodplain elevation of wetland 549B as elevation 928.9 M.S.L. As shown on the plans, the land-altering activities proposed below both the identified TP-40 and draft Atlas 14 100-year frequency flood elevations of wetland 549B do not result in net fill or net impact within the floodplain.

Work below the 100-year flood elevation of wetland 549B consists of the removal of four (4) existing CMP culverts and the installation of one (1) combined RCP outlet. As noted by the Technical Memorandum dated March 2, 2020 prepared by Bolton & Menk, the existing flow rate at the proposed outlet is the sum of the four individual culverts’ maximum discharges. The existing flow rate is identified as 11.7 cubic feet per second and the proposed flow rate is identified as 11.2 cubic feet per second. Installation of the proposed RCP outlet will involve placement of rip-rap within the wetland floodplain at the outlet, FES 20. However, disturbed area within the floodplain will be regraded to match existing grades. At the location of the proposed rip-rap, the area will be over excavated allowing the rip-rap and filter material to be placed at an elevation that matches the existing grade. This will result in no net impacts and no net loss of floodplain volume.

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

This section of the rule does not apply to the proposed project.

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

   a. at the same elevation +/- 1 foot for fill in the floodplain and:

   b. at or below the same elevation for fill in the floodplain of a water basin or constructed stormwater facility.

Regrading and placement of rip-rap at the proposed outlet is proposed below the 100-year frequency floodplain of wetland 549B. Disturbed area within the floodplain will be regraded and over excavated with material removed, hauled away, allowing the rip-rap and filter material to be placed at an elevation matching existing grade. Because existing elevations are to be matched at the proposed outfall, the post-development conditions will result in no net reduction in the existing floodplain storage. The project conforms to Rule 2.3.2.

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

Proposed outfall design includes a flared end section and placement of rip-rap at the outlet prior to discharging into wetland 549B, thus reducing the velocity of the stormwater outflow as to not alter the flows or affect the bank stability in accordance with Rule 2.3.3. In addition, replacement of the four (4) existing culverts with one (1) 18-inch RCP outlet results in reduction in maximum discharge over existing conditions. The existing flow rate is identified as 11.7 cubic feet per second and the proposed flow rate is identified as 11.2 cubic feet per second. With the reduction in both the number of discharge locations into the wetland and discharge velocity, the proposed hydraulic configuration will maintain existing drainage patterns while minimizing the potential for soil erosion that may result from multiple discharge points.

The proposed outfall structure design at FES 20 represents the minimal impact solution by minimizing concentrated flow at multiple locations, which would exacerbate soil erosion potential and promote sediment discharge into the wetland. Furthermore, the proposed outfall design minimizes the discharge velocity by including a drop manhole structure upstream of the outlet, further minimizing erosion potential and preserving water quality and aquatic habitat.

Proposed work may have a temporary impact on riparian habitat during the construction phase of the project. Once the proposed work is completed and temporary impacts are eliminated, the riparian habitat will be restored to its natural state. Temporary impacts cannot be avoided with any project that involves construction activities.

Based on the design outfall discharge velocity, outlet invert elevation, energy dissipation design, rip-rap construction and proposed stabilization methods, the proposed outfall structure is not reasonably likely to cause adverse effects to water quality, hydrology, hydraulics or basin stability, thus conforming to Rule 2.3.3.

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

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

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

This section of the rule does not apply to the proposed project.

3.0 Wetlands Management

As previously stated, the District’s wetland buffer Rule 3.4 applies to the project as a result of land-disturbing activities upgradient of wetland 549B.

The City of Minnetonka is the Local Governing Unit (LGU) responsible for administering the Wetland Conservation Act. Per Rule 3.2.2., in cases where the District is not the Wetland Conservation Act LGU, applicable wetland buffer and stormwater treatment criteria Rules 3.4 and 3.5 nevertheless apply.
A field investigation was performed on September 3, 2019 by Bolton & Menk, Inc. to evaluate and verify the existence and boundary of all aquatic resources within the study corridor. The field investigation found that one wetland exists from Kinsel Road to Shady Oak Road. The 0.05-acre wetland (549B) is located on private property south of the City right-of-way along the south side of Excelsior Blvd. A heavily wooded and vegetated natural buffer currently exists north of the wetland boundary and extends to the City right-of-way. The natural buffer ensures the preservation of the natural resources, habitat, water treatment and water storage functions of the wetland and provides a natural buffer around the wetland to maintain its integrity as intended by the District Rules.

Based on wetland information presented in the wetland delineation report and comparison of the function and values presented in Appendix 3b of the District’s Rules, the wetland is classified as a medium value wetland. A medium value wetland requires a 20 foot minimum and 40 foot average buffer width, Rule 3.4.1b. As shown on the plans, the minimum of 20 foot buffer is met and the proposed trail is within the 40 foot average, as permitted by Rule 3.4.6. Thus, buffer minimum and average width criteria outlined in Rule 3.4.1b is met.

The plans include a note specifying that contractors will restore all wetland characteristics to pre-project conditions within 90 days of the start of land disturbing activities.

5.0 Erosion and Sediment Control
The proposed work is to begin in Spring 2020 with an estimated construction completion date of December 31, 2020. Erosion and sediment control plans for the proposed work were submitted. Silt fence, storm drain inlet protection, hydromulch application and erosion control blanketing will be utilized for erosion prevention and sediment control measures. In locations where wetland area is downgradient from land-disturbing activities, redundant perimeter control measures will be installed. Sod and native seed mixtures will be implemented for final stabilization measures.

The project contact is Chris Long, City of Minnetonka.

6.0 Waterbody Crossings and Structures
As previously stated, the District’s Waterbody Crossings and Structures Rule 6.0 applies to the project as a result of stormwater infrastructure improvements that contact the bank of a waterbody along the project corridor, Rule 6.2. Thus, conformance with Rule 6.3.1 is required.

Work within the bank of wetland 549B includes stormwater infrastructure improvements and removal of four (4) existing CMP culverts with the installation of one (1) new combined RCP outlet. In addition to stormwater infrastructure improvements, site regrading, placement of rip-rap and associated erosion control measures are proposed within the bank of wetland 549B.

Rule 6.3.1 states construction, improvement, repair or removal of a waterbody crossing in contact with the bed or bank of a waterbody:

a) **Shall retain adequate hydraulic capacity and assure no net increase in the flood stage of the pertinent waterbody:**

Since the project is a linear project and exempt from the stormwater management rule, a detailed hydrologic model was not created for this project. Proposed work consists of the removal of four (4) existing CMP culverts with the installation of one (1) new
combined RCP outlet. As noted by the Technical Memorandum dated March 2, 2020 prepared by Bolton & Menk, the existing flow rate at the proposed outlet is the sum of the four individual culverts’ maximum discharges. The existing flow rate is identified as 11.7 cubic feet per second and the proposed flow rate is identified as 11.2 cubic feet per second. Installation of the proposed RCP outlet will include the placement of rip-rap. The area at the outlet will be over excavated allowing the rip-rap and filter material to be placed at an elevation that matches the existing grade. All areas disturbed by construction activities will be graded to match existing contours. The proposed land-disturbing activities will not result in reduction of the flood volume or an increase in the flood stage of wetland 549B.

The wetland shall retain adequate hydraulic capacity with no net reduction in flood volume or increase in flood stage. With both the reduction in the number of discharge locations and maximum outflow discharge, the proposed hydraulic configuration will maintain existing drainage patterns while minimizing the potential for soil erosion that may result from multiple discharge points. Thus, Rule 6.3.1a is met.

b) *Shall retain adequate navigational capacity pursuant to any requirements of the waterbody’s classification by the District:*  
This waterbody is not used for navigational purposes.

c) *Shall not adversely affect water quality, change the existing flowline/gradient, or cause increased scour, erosion or sedimentation:*  
As stated in item (a), the hydraulic capacity of the existing system will be maintained as a result of maintaining flood volume and the decrease in discharge at the proposed location. Any change in the water quality of wetland 549B will be temporary during construction. Erosion control measures including storm drain inlet protection and redundant perimeter control measures will be installed to minimize water quality impacts (sedimentation). The potential of increased scour, erosion or sedimentation will not increase as a result of the project since the proposed outfall will be constructed at approximately the same elevation as the existing outlets and installation of rip-rap at the outlet. Wetland characteristics including elevations, contours, and substrate will be restored to pre-project conditions within 90 days of the start of activities.

Based on the design outfall discharge velocity, outlet invert elevation, energy dissipation design, rip-rap construction and proposed stabilization methods, the proposed outfall structure is not reasonably likely to cause adverse effects to water quality and the physical or biological character of the waterbody, thus conforming to Rule 6.3.1c.

d) *Shall preserve existing wildlife passage along each bank and riparian area:*  
The project will not permanently change conditions that will deter wildlife from using the wetland area once the project is complete. Construction activities may temporarily displace wildlife until the areas is restored to pre-project conditions. Thus, Rule 6.3.1d is met.

e) *Shall represent the “minimal impact” solution to a specific need with respect to all other reasonable alternatives:*
Alternative options investigated by the applicant for the crossing included, 1) no-build alternative, and 2) constructing the streets without adding new curb and gutter to the roadway and design the trail so it drains away from the roadway. A “do nothing” alternative would leave an existing non-user friendly trail in place that currently presents a safety concern between trail users and vehicular traffic. The alternative drainage method would not address the poor drainage issues reported in these areas or allow the City to moderate the possible increase in flows from the new impervious area. Adding curb and gutter allows street runoff to be channeled into the storm sewer system, reducing street water spread and allowing the stormwater to be effectively discharged. For the reasons noted above, both alternative designs were rejected.

Placement of the proposed outfall structure represents the minimal impact solution by minimizing multiple points of concentrated discharge at the wetland bank, which could exacerbate soil erosion potential and promote sediment discharge into the wetland from upgradient sources. The proposed outfall design minimizes the discharge velocity by including a drop manhole structure upstream of the outlet and limits the site disturbance adjacent to the wetland. Furthermore, the project proposes to match existing elevations at the outfall to minimize encroachment and change along the wetland bank. Thus, the proposed design meets criteria in Rule 6.3.1e.

Rule 6.3.2 with criteria involving projects with directional boring or horizontal drilling does not apply to the project.

Rule 6.3.3 states, removal of structures or other waterway obstructions:

a) Shall maintain the original cross-section and bed conditions to the greatest extent practicable:

Following removal of the four (4) existing CMP culverts and the installation of one (1) new combined RCP outlet, areas where the culvert are to be removed will be restored to pre-project natural conditions including elevations, contours, and substrate. Disturbed areas will be graded to match existing contours resulting in no net reduction in floodplain volume as the placement of rip-rap will be at or below the existing grade.

b) Shall achieve complete removal of the structure, including any footings or pilings that impede navigation:

This does not apply.

c) Shall not involve the removal of a water level control device:

This does not apply.

Rule 6.3.4 states, No activity affecting the bed of a protected water may be conducted between April 1 and June 30 on public waterbodies:

The wetland is not a public water as defined by Minnesota Statue 103G.005 Subdivision 15 and 15a.
11.0 Fees
Because the property owner is a public entity, no fees are charged.
Rules 2.0, 4.0 and 5.0 $0

12.0 Financial Assurances
Because the property owner is a public entity, the District’s financial assurance requirements do not apply.
Sureties for the project are: $0

Findings
The proposed project includes the information necessary, plan sheets and erosion control plan for review. Rules 2, 3, 5 and 6 are met.

Recommendation
Approval, contingent upon:

1. General Conditions
2. Per Rules 3.4.7 and 6.5, a written agreement is to be provided to the District stating the City’s responsibility for the maintenance of the wetland buffer and storm sewer outfall.

By accepting the permit, when issued, the applicant agrees to the following stipulations:

1. As-built drawing of the applicable portions of the project (work at the outlet of the reconstructed storm sewer outfall) conforming to the design specifications as approved by the District must be submitted.

2. Buffer markers for compliance with Rule 3.4.5 are required.
NOTE: EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTED Gopher State ONE CALL, 1-800-252-1166 OR 651-454-0002.

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

<table>
<thead>
<tr>
<th>STRUCT. ID</th>
<th>ROADWAY</th>
<th>STA</th>
<th>OFFSET (FT)</th>
<th>LT/RT</th>
<th>PROPOSED RIM (LB/LB)</th>
<th>EFFLUENT INVERT (LF/EA)</th>
<th>48&quot; 4020 CASTING (SA/EA)</th>
<th>F&amp;I R-1733 CASTING (EA/EA)</th>
<th>FES 12&quot; (EA/EA)</th>
<th>FES 18&quot; (EA/EA)</th>
<th>12&quot; STM PIPE (LF/LF)</th>
<th>18&quot; STM PIPE (LF/LF)</th>
<th>STRUCT. NO.</th>
<th>PIPE GRADE</th>
<th>INVERT ELEV</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBMH 24</td>
<td>EXCELSIOR BLVD</td>
<td>278+01</td>
<td>0.7</td>
<td>RT</td>
<td>936.43</td>
<td>934.87</td>
<td>3.6</td>
<td>1</td>
<td>83</td>
<td>CBMH 23</td>
<td>0.70%</td>
<td>934.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBMH 23</td>
<td>EXCELSIOR BLVD</td>
<td>277+18.3</td>
<td>0.7</td>
<td>RT</td>
<td>936.26</td>
<td>934.24</td>
<td>4.0</td>
<td>1</td>
<td>66</td>
<td>CBMH 22</td>
<td>0.70%</td>
<td>933.64</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCMH 22</td>
<td>EXCELSIOR BLVD</td>
<td>270+32.1</td>
<td>0.7</td>
<td>RT</td>
<td>936.45</td>
<td>933.59</td>
<td>4.9</td>
<td>1</td>
<td>32</td>
<td>CCMH 21</td>
<td>0.75%</td>
<td>933.35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCMH 21</td>
<td>EXCELSIOR BLVD</td>
<td>276+00</td>
<td>0.7</td>
<td>RT</td>
<td>936.61</td>
<td>933.25</td>
<td>5.4</td>
<td>1</td>
<td>9</td>
<td>MH 21A</td>
<td>1.67%</td>
<td>933.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MH 21A</td>
<td>EXCELSIOR BLVD</td>
<td>275+99.6</td>
<td>7.4</td>
<td>RT</td>
<td>936.34</td>
<td>927.50</td>
<td>11.1</td>
<td>1</td>
<td>23</td>
<td>FES 20</td>
<td>6.35%</td>
<td>926.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCMH 26</td>
<td>FAIRVIEW AVE</td>
<td>284+72.1</td>
<td>0.9</td>
<td>LT</td>
<td>947.07</td>
<td>944.11</td>
<td>3.0</td>
<td>1</td>
<td>23</td>
<td>FES 25</td>
<td>1.65%</td>
<td>943.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FES 20</td>
<td>EXCELSIOR BLVD</td>
<td>270+98.1</td>
<td>32.8</td>
<td>RT</td>
<td>926.74</td>
<td>926.04</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FES 25</td>
<td>EXCELSIOR BLVD</td>
<td>284+72.1</td>
<td>72.4</td>
<td>RT</td>
<td>943.73</td>
<td>943.73</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTALS** 31.9 5 1 1 1 23 233
EXCELSIOR BLVD

LEGEND

- Sawcut (full depth)
- Construction units
- Salvage signage
- Remove concrete
- Remove curb and gutter
- Remove bituminous
- Remove signage
- Remove storm sewer
- Clean and grub brush / bushes (incident)
- Salvage mailbox
- Salvage sign(s)
- Clear and grub tree or shrub
- Tree dip line

NOTES:

1. Work must occur without authorization from the engineer.
2. Bituminous curb removal is incidental to bituminous pavement removal.
3. Dimensions shown are from the face of existing curb to the proposed removal.
4. Contractor must coordinate with all private utilities owners to protect, support, hold, de-energize or otherwise accommodate during construction activity. This work is considered incidental for which no direct compensation will be made.
5. Contractor must salvage and install all mail boxes within the construction alignment.
6. Salvage all landscaping items to extent practical. All landscaped areas and items must be restored to pre-construction condition using landscaping materials.
7. The locations of existing underground utilities are shown in approximate locations. It is not guaranteed that any or all existing utilities are shown. The contractor must determine the exact location of all underground utilities in accordance with the Local Utility Location Agency and applicable statutes. The contractor assumes responsibility for all costs associated with locating these utilities and any other utilities which may be caused by his failure to exactly locate and protect any and all underground utilities.
8. Refer to signing tables for all C-XXX labels.
STORMWATER PREVENTION PLAN (SWPPP)
EXCELSIOR BLVD
TRAIL IMPROVEMENTS - 2020
CITY OF MINNETONKA
HENNEPIN COUNTY, MINNESOTA

RESPONSIBLE PARTIES:

The Engineer and Contractor will be joint applicants under the MPCA’s General Stormwater Permit for Construction Activity as required by the National Pollutant Discharge Elimination System (NPDES) Phase II program. The Contractor shall provide one or more trained Construction SWPPP Manager(s) knowledgeable and experienced in the application of erosion prevention and sediment control BMPs that will oversee the implementation of the SWPPP, and the installation, inspection, and maintenance of the erosion prevention and sediment control BMPs.

A Construction SWPPP Manager must be available for an on-site inspection within 72 hours upon receipt by the MPCA.

The SWPPP Designer, Construction SWPPP Manager, and BMP installer must have appropriate training. Documentation showing training conformance with the job duties and responsibilities is required to be included in the SWPPP prior to any work beginning on the site. Training documentation for the SWPPP Designer is included on the Narrative sheet. The Contractor shall attach training documentation to the SWPPP for the Construction SWPPP Manager and BMP installer prior to the start of construction. This information shall be kept up to date until the project NOT is filed.

ADDITIONAL CONSIDERATIONS:

Request for payment associated with Erosion and Sediment Control shall be as described in the Project Manual. Unless otherwise authorized by the MPCA, no additional payment shall be made for any work required to administer and maintain the site erosion and sediment control in compliance with the Minnesota Pollution Control Agency (MPCA) - General Stormwater Permit for Construction Activities (MPCA 03-0032) including but not limited to inspections, maintenance, and removal of BMPs or addition of BMPs to accommodate Contractor phasing.

DOCUMENT ATTACHMENTS:

NOTE: All inspection reports, maintenance records, training records; and other information requested by this permit is available to the state, local officials within three (3) days upon request after the duration of the permit and for three (3) years following the NOT.

GENERAL STORMWATER DISCHARGE REQUIREMENTS:

All requirements listed in the following table must be met for the design of the permanent stormwater management system and discharge have been included in the preparation of this SWPPP. These include but are not limited to:

1. The expected amount, frequency, intensity, and duration of precipitation.
2. The nature of stormwater runoff and run-on on the site.
3. Peak flow rates and stormwater volumes to minimize erosion at outlets and downstream channel and stream bank erosion.
4. The range of soil particle sizes expected to be present on the site.
5. The nature of stormwater runoff and run-on at the site.
6. The expected amount, frequency, intensity, and duration of precipitation.
7. The range of soil particle sizes expected to be present on the site.
8. The expected amount, frequency, intensity, and duration of precipitation.
9. The range of soil particle sizes expected to be present on the site.
10. The range of soil particle sizes expected to be present on the site.

IMPLEMENTATION SCHEDULE AND PHASING:

The Contractor is required to provide an updated schedule and site management plan

1) Submit SWPPP Updates to Engineer. Submittal shall include any requested changes to the SWPPP, including but not limited to:
   a) Trained Personnel, Locations for Stockpiles, Concrete Washout, Sanitation Facilities, Types and Locations of Erosion & Sediment Control BMPs.
   b) Drawings or Photographs of BMPs that have been installed.
2) Remove inlet protection.
3) Install bituminous trail.
4) Install/adjust storm sewer.
5) Install perimeter sediment control, inlet protection, and construction exit.
6) Submit SWPPP Updates to Engineer. Submittal shall include any requested changes to the SWPPP, including but not limited to:
   a) Trained Personnel, Locations for Stockpiles, Concrete Washout, Sanitation Facilities, Types and Locations of Erosion & Sediment Control BMPs.
   b) Drawings or Photographs of BMPs that have been installed.
7) Install/adjust storm sewer.
8) Remove inlet protection.
9) Ensure final stabilization measures are complete.
10) Provide digital copy of all field SWPPP Documentation including Inspection Reports and SWPPP Revisions to the Owner.
11) Submit Notice of Termination (NOT) to MPCA. NOTE: The NOT must be submitted to MPCA before Final Stabilization is considered complete.
Poisonous or hazardous materials, including but not limited to pesticides, fertilizers, petroleum products, curing compounds and toxic waste must be kept at least 50 feet from all stormwater discharges.  The Contractor shall prepare and submit to the Engineer a SWPPP amendment.  All dewatering shall meet or exceed the minimum requirements of Section 12 of the Permit.

Sediment Release

Sediment release, other than paved surfaces that can be cleaned up with street sweeping shall be reported immediately upon discovery.  A written report shall include:
1. All erosion prevention and sediment control BMPs and Pollution Prevention Management Plan to ensure integrity and effectiveness.
2. Surface waters, including drainage ditches and conveyance systems for evidence of erosion and sediment deposition.
3. Construction site vehicle exit locations, streets and curbs and gutter systems within and adjacent to the project for sedimentation from erosion or treated sediment from vehicles.
4. Location areas to ensure that no sediment from ongoing construction activity is reaching the infiltration area and that equipment is not being driven across the infiltration area.
5. All non-functioning BMPs and those BMPs where sediment reaches one-half (1/2) of the depth of the BMP, or in the case of sediment basins one-half (1/2) of the storage volume, must be repaired, replaced, or supplemented by the end of the next business day after discovery or, as soon as field conditions allow.
6. Permittees must repair, replace or supplement all nonfunctional BMPs with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow.  Any sediment that occupies the site must be removed and the area stabilized within 7 calendar days of discovery unless precluded by legal, regulatory, or physical access in which case the work shall be completed within 7 calendar days of authorization.  Pavement surfaces such as streets shall have any exposed or treated sediment removed by the end of the day that it is discovered.
7. Sediment release, other than paved surfaces that can be cleaned up with street sweeping shall be reported immediately upon discovery to the Engineer.

DRAINAGE ISSUES:

A temporary sediment basins have not been included in this SWPPP as designed by the Engineer.  If a basin is later determined to be desirable or necessary the Contractor shall prepare and submit to the Engineer a SWPPP amendment.  Sediment basins one-half (1/2) of the storage volume, must be repaired, replaced, or supplemented by the end of the next business day after discovery, or, upon resuming construction.

Notices & Modifications:

The Contractor shall keep copies of all SWPPP amendments, Weekly Erosion and Sediment Control Schedule, inspection logs, and maintenance records with a signed copy of the latest inspection report.  A copy of these documents will be provided to the Field Core of the SWPPP to the Engineer along with the signed notice of Termination when final stabilization is complete.

Special Environmental Conditions and Permit:

Neither the Owner nor the Contractor will be responsible for or liable for any claims, actions, suits, judgments, damages or losses related to the construction of this project which in any way or in any measure arise out of, or are in connection with, any work performed by the Contractor during the course of the construction of the Project.
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.

SOIL TYPE SUMMARY

<table>
<thead>
<tr>
<th>Map Unit</th>
<th>Soil Type</th>
<th>Soil Name</th>
<th>Erodibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>L2B</td>
<td>Malardi-Hawick complex, 1 to 3 percent slopes</td>
<td>A HEL</td>
<td></td>
</tr>
<tr>
<td>L418</td>
<td>Kingsley-Gotham complex, 2 to 6 percent slopes</td>
<td>C HEL</td>
<td></td>
</tr>
<tr>
<td>L42C</td>
<td>Kingsley-Gotham complex, 6 to 12 percent slopes</td>
<td>A HEL</td>
<td></td>
</tr>
<tr>
<td>L42D</td>
<td>Kingsley-Gotham complex, 12 to 18 percent slopes</td>
<td>C HEL</td>
<td></td>
</tr>
<tr>
<td>L59A</td>
<td>Forestcity-Lundlake, depressional, complex, 0 to 3 percent slopes</td>
<td>S/D HEL</td>
<td></td>
</tr>
</tbody>
</table>

NHEL - Not Highly Erodible Land
PHEL - Potentially Highly Erodible Land
HEL - Highly Erodible Land

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

<table>
<thead>
<tr>
<th>Description</th>
<th>Sheet No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITE MAP</td>
<td>C2.01</td>
</tr>
<tr>
<td>DIRECTION OF FLOW</td>
<td>C2.04 - C2.07</td>
</tr>
<tr>
<td>FINAL STABILIZATION</td>
<td>C2.04 - C2.07</td>
</tr>
<tr>
<td>SOILS</td>
<td>C2.03</td>
</tr>
<tr>
<td>DRAINAGE STRUCTURES</td>
<td>C2.05 - C2.09</td>
</tr>
<tr>
<td>DRAINAGE TABULATION</td>
<td>G1.02</td>
</tr>
<tr>
<td>STORM SEWER PLAN &amp; PROFILE SHEETS</td>
<td>C5.01 - C5.02</td>
</tr>
<tr>
<td>EROSION &amp; SEDIMENT CONTROL DETAILS</td>
<td>C8.01 - C8.11</td>
</tr>
<tr>
<td>EROSION CONTROL TABULATION</td>
<td>C2.02</td>
</tr>
<tr>
<td>TURF ESTABLISHMENT TABULATION</td>
<td>C2.01</td>
</tr>
<tr>
<td>NARRATIVE &amp; NOTES</td>
<td>C2.01 - C2.02</td>
</tr>
</tbody>
</table>
**EROSION CONTROL LEGEND**

- **SILT FENCE**
- **RIP RAP**
- **INLET PROTECTION**
- **DRAWING FLOW: EXISTING/PROPOSED**

**NOTE:**
- **CONTRACTOR TO RESTORE ALL WETLAND CHARACTERISTICS TO PRE-PROJECT CONDITIONS WITHIN 90 DAYS OF START OF ACTIVITY. WETLAND CHARACTERISTICS DID NOT HAVE VEGETATION PRESENT, THEREFORE WILL BE ALLOWED TO REVEGETATE NATURALLY.**

**EXISTING IMPERVIOUS**

**EXISTING IMPERVIOUS**

**PROPOSED IMPERVIOUS**

**CAT N BLANKET (HED NR 36-211)**

**HORMONICH (HED NR 36-211)**

**LYD**

**CAT N BLANKET (HED NR 36-211)**

**NOTE:**
- SEE SHEETS CR.01 - CR.08 FOR DETAILS

---

**EXCELSIOR BLVD**

**WETLAND BOUNDARY**

**TEMPORARY EASEMENT (TP)**

**PERMANENT EASEMENT**

**2 EA INLET PROTECTION**

**5 EA INLET PROTECTION**
NOTE:
CONTRACTOR TO RESTORE ALL WETLAND CHARACTERISTICS TO PRE-PROJECT CONDITIONS WITHIN 90 DAYS OF START OF ACTIVITY. WETLAND CHARACTERISTICS INCLUDE ELEVATIONS, CONTROLS, AND SUBSTRATE. THE DELINQUENT WETLANDS
MAY NOT HAVE VEGETATION PRESENT, THEREFORE WILL BE ALLOWED TO VEGETATE NATURALLY.

NOTE:
SEE SHEETS C8.01 - C8.08 FOR DETAILS
NOTE: CONTRACTOR TO RESTORE ALL WETLAND CHARACTERISTICS TO PRE-PROJECT CONDITIONS WITHIN 90 DAYS OF START OF ACTIVITY. WETLAND CHARACTERISTICS INCLUDE ELEVATIONS, CONTOURS, AND SUBSTRATE. THE DELINATED WETLAND DID NOT HAVE VEGETATION PRESENT, THEREFORE WILL BE ALLOWED TO REVEGETATE NATURALLY.

SEE SHEETS C8.01 - C8.08 FOR DETAILS
DITCH BLANKET CRITICAL POINTS:

1. Use check slot detail and alternate.
2. Place double rom of staples staggered 4" apart and 4" on center.
3. Use 6" x 6" treads to place blanket, place single layer of staples spaced at 12" spacing. Install trench with seed and topsoil.
4. Place single row of staples at 12" spacing.
5. Use staple check for channel slopes less than 4:1.
6. Use blanket check for the following slopes:
   - 4:1 to 2:1 vertical
   - 1:1 to 0:1 vertical
7. Critical points shall be secured with proper staple pattern.

DITCH BLANKET STAPLE DETAIL

BLENDIT STAPLE DETAIL PATTERN

BLANKET STAPLE DETAIL

OVERLAPS AND SCALES:

BLANKET STAPLE DETAIL

CHANNEL AND DITCH APPLICATIONS

100 STAPLES PER 300 SQ YD

SLOPES FLATTER THAN 1:2

SLOPES 1:2 TO 1:11

12" AT REDD FOR GREATER THAN 1:12

CHECK SLOT WHERE BLANKET CONTINUES

CHECK SLOT AT BEGINNING OF BLANKET

CHECK SLOT 1/2 FROM TOO PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

OVERLAPS ALTERNATIVE PLACE SINGLE ROW STAPLES AT 12" SPACING

CHECK SLOT DETAILS

GENERAL BLANKET INSTALLATION REQUIREMENTS

PREPARE SNAIL, AS PER SPECIFICATION DATA.

LAY PARALLEL OR PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

OVERSEED ALL AREAS AND USE A PROPER MIXTURE.

PERMANENT EROSION CONTROL PLANS AND OVERSEED MIXTURES OF ORGANIC AND INORGANIC MATERIALS.

THE EROSION PLANT OF ALL SLOPE APPLICATIONS MUST START ON A CHECK SLOT, LAY A COAT OF TOPSOIL, PLACE BLANKET INTO THE DIRT WET AND WITH A CHECK SLOT, AND THEN PLACE THE TRENCH WITH SEED AND TOPSOIL.

PREMANENT EROSION CONTROL

PERMANENT EROSION CONTROL PLANS AND OVERSEED MIXTURES OF ORGANIC AND INORGANIC MATERIALS.

THE EROSION PLANT OF ALL SLOPE APPLICATIONS MUST START ON A CHECK SLOT, LAY A COAT OF TOPSOIL, PLACE BLANKET INTO THE DIRT WET AND WITH A CHECK SLOT, AND THEN PLACE THE TRENCH WITH SEED AND TOPSOIL.

PERMANENT EROSION CONTROL PLANS AND OVERSEED MIXTURES OF ORGANIC AND INORGANIC MATERIALS.

THE EROSION PLANT OF ALL SLOPE APPLICATIONS MUST START ON A CHECK SLOT, LAY A COAT OF TOPSOIL, PLACE BLANKET INTO THE DIRT WET AND WITH A CHECK SLOT, AND THEN PLACE THE TRENCH WITH SEED AND TOPSOIL.
SILT FENCE TYPE Hi (Hand Installed)

SILT FENCE WITH SAND BAGS

INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER

SILT FENCE WITH SHEETING

LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

1. COMPARE FILTER AGGREGATE (SPEC. 2409) SHALL BE INCIDENTAL.
2. TO PROTECT AREAS FROM SHEET FLOW, MAXIMUM CONTRIBUTING AREA = 1 ACRE.
3. TO PROTECT AREAS FROM SHEET FLOW, MAXIMUM CONTRIBUTING AREA = 1/4 ACRE.
4. WATER COURSE FLOW VELOCITY = STANDING.
5. WATER COURSE FLOW VELOCITY ≤ 7 FT./SEC.
6. WATER COURSE FLOW VELOCITY ≤ 3 FT./SEC.

REVISIONS
APPROVED 2-28-2017

TEMPORARY SEDIMENT CONTROL

STANDARD PLAN 5-297.405  6 OF 8
STOCK PILE CONTAINMENT

SILT FENCE TYPE SD (SUPER DUTY) BARRIER WITHOUT LOOP BARS

PROFILE VIEW

TOP VIEW

SILT FENCE TYPE SD (SUPER DUTY) BARRIER WITH LOOP BARS

TEMPORARY PORTABLE PRECAST CONCRETE BARRIER
(SEE STANDARD PLATE B301)

RIBBON BETWEEN LOOP BARS

GEOTEXTILE FABRIC

36" ON WIDE WALL

FLOW

PLACE GEOTEXTILE 4 TO 6 FT UNDER BARRIER

TOP VIEW

PERSPECTIVE VIEW

STOCKPILE SEDIMENT CONTROL

CURB AND GUTTER PROTECTION SYSTEM

DITCH PROTECTION SYSTEM

NOTES:

SEE SPEC 2533, 2573 & 2886.

SILT FENCE TYPE SD USED TO PROTECT CRITICAL AREAS FROM SHEET FLOW AND AREAS WHERE OTHER SILT FENCES CANNOT BE PLACED. MAXIMUM CONTRIBUTING AREA IS 1 ACRE.

PLACE SILT FENCE TYPE SD ALONG A CONSTANT ELEVATION.

SILT FENCE TYPE SD CAN UTILIZE EITHER A CONCRETE OR WATER FILLED, TEMPORARY MEDIAN BARRIER.

1) PLACING STOCK PILES NEAR TO AN ENVIRONMENTALLY SENSITIVE AREA IS NOT RECOMMENDED. WHEN THERE ARE NO FEASIBLE ALTERNATIVES, PLACE SILT FENCE SD AS SHOWN OR AS DIRECTED BY THE ENGINEER.

2) CRITICAL AREAS INCLUDE WETLANDS, AGRICULTURAL PASTURES, STREAMS, WATER BODIES, AND OTHER AREAS REQUIRING PROTECTION.

REVISION

APPROVED 2-28-2017

STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

SUPER DUTY SILT FENCE

STANDARD PLAN 5-297.405 7 OF 8
CONSTRUCTION SEQUENCE
1. PLACE AND COMPACT 18" OF FINE AGGREGATE BEDDING TO THE REQUIREMENTS OF SPEC. 206.
2. LOSSLY PLACE 6" OF FINE AGGREGATE BEDDING MATERIAL SPEC. 34220.20 TO GRADE, DO NOT COMPACT PRIOR TO PIPE PLACEMENT.
3. FOR PIPES WITH BELL AND SPigOT, REMOVE MATERIAL IN BELL AREA PRIOR TO PLACEMENT.
4. FURNISH AND INSTALL PIPE TO GRADE.
5. AFTER PLACEMENT OF THE PIPE PLACE ADDITIONAL BEDDING AND COMPACT THE FULL LENGTH ON BOTH SIDES OF THE PIPE UNDERNEATH THE MIDDLE 6" OF BELL AND SPigOT MATERIAL. COMPACT AS NECESSARY ON THE SIDES OF THE PIPE TO ENSURE COMPLIANCE WITH SPEC. 206.
6. COMPACT THE REMAINING MATERIAL OUTSIDE THE MAINTENANCE AREA TO THE REQUIREMENTS OF SPEC. 206.
7. PLACE AND COMPACT BACKFILL EQUALLY AND SIMULTANEOUSLY IN 6" LEAVES ON EACH SIDE OF THE PIPE UP TO THE SPRINGLINE WHEN COMPACTED.
8. COMPLETE REMAINING BACKFILL.

NOTES
STANDARD BEDDING FOR RIGID PIPE CULVERTS WITHOUT TREATMENTS.
RIGID PIPE INCLUDES CONCRETE.
ENTRANCE CULVERTS, FIELD AND DRIVeway CULVERTS DO NOT NEED BEDDING UNLESS SPECIFIED IN THE PLANS OR SPECIAL PROVISIONS.
UNLESS OTHERWISE NOTED IN THE PLAN, BEDDING QUANTITIES ARE COMPUTED FOR THE FULL LENGTH OF THE PIPE AND APRON AND WILL NOT BE ADJUSTED FOR CHANGES TO EXISTING CSA REQUIREMENTS.
WHEN REPAIR IS REQUIRED AT THE APRON END, USE STANDARD PLAN OR PLATE FOR REPAIR INSTALLATION AND QUANTITIES, FOR APRONS WITHOUT REPAIR ACCEPT PLACE 6" OF FINE AGGREGATE BEDDING UNDER APRONS USE A TRENCH WIDTH EQUAL TO THE PIPE TRENCH WIDTH.
CONTRACT PAY ITEM FOR FINE AGGREGATE BEDDING INCLUDES THE COST OF EXCAVATION, PLACEMENT AND COMPACTION.
EXCAVATION AND BACKFILL WITH SELECT GRADES MATERIAL ARE NOT TAKEN SEPARATELY BUT ARE INCLUDED IN THE CONTRACT UNIT PRICE OF THE RELEVANT CULVERT PAY ITEM.
EXCAVATE & CONSTRUCT ALL TRENCHES AND SLOPES PER CSA REQUIREMENTS.
ALL SLOPES MUST BE NOT LESS THAN 2":1.
PIPE SIZE IS BASED ON THE NOMINAL INSIDE DIAMETER OR SPAN.
PROTECT ALL PIPE DURING CONSTRUCTION PER SPEC. 2005.
PLACE MULTIPLE PIPE CULVERTS WITH A CLEARANCE OF 24 INCHES OR GREATER BETWEEN STORIES OF PIPE.
1) IF APPROVED BY THE ENGINEER, IN-PLACE CONCRETING THE CONTRACTOR MAY SUBSTITUTE 18" OF COARSE FILTER AGGREGATE PER SPEC. 34220.20 COMPACTED TO THE QUALITY REQUIREMENTS OF SPEC. 2005 IF PER SPEC. 34220.21 ALL FABRIC SIDES AND ONE PER SPEC. 208.12.4 IN-PLACE CONCRETE INCLUDING FOOTING 18" IN OVERLAY A MINIMUM OF 3" ALL AT NO ADDITIONAL COST.
2) FOR INSTALLATIONS ON INTACT BEDDING OMIT THIS LAYER.
3) OVER-EXCAVATION ONTOP TAPERS IS NOT PERMITTED UNLESS REQUIRED BY CSA.TYP.
4) MAXIMUM EMBANKMENT PARTICLE SIZE WITHIN 2" OF RIGID PIPE IS 3".