

Applicant: Ken Kraft; Frauenshuh  
Consultant: Becky Guenther; ISG  
Project: France Place Sanitary Sewer Improvements  
Location: 3601 Minnesota Drive, Bloomington, MN  
Applicable Rule(s): 4, 5, 11 and 12  
Reviewer(s): Josh Phillips and Louise Heffernan; Barr Engineering Co.

### **General Background & Comments**

The applicant proposes the replacement of a portion of sanitary sewer at France Place, located at 3601 Minnesota Drive in Bloomington. The 8-acre parcel is occupied by a commercial building and surface parking lots. The project will include construction of permeable pavers to provide rate control, volume retention, and water quality management within the paver foundation material for the 5,105 square-feet of disturbed area on the site including the 4,455 square-feet of reconstructed impervious surfaces.

#### Exhibits Reviewed:

1. Permit Application dated and received February 27, 2023.
2. Sheets C0-10, C0-20 to C0-24, C0-30, C0-31, C1-10, C1-11, C1-20, C1-30, C2-10, and C3-10 of the plans dated and received March 27, 2023, prepared by ISG.
3. Plans for modification dated March 27, 2023 (received June 16, 2023).
4. Stormwater Management Memo dated February 24, 2023 (received February 27, 2023), prepared by ISG.
5. Electronic HydroCAD model received March 6, 2023, prepared by ISG.
6. Electronic MIDS Calculator model received March 6, 2023, prepared by ISG.
7. Boring Logs dated April 25, 2023, and June 2, 2023, prepared by Braun Intertec.

### **4.0 Stormwater Management**

The district's requirements for stormwater management apply to the project because more than 50 cubic yards of material will be disturbed and 5,000 square feet or more of surface area is altered, Rules 4.2.1a and b. The utility replacement is not within a linear corridor therefore is not considered a linear project by definition. The project is therefore not being reviewed under rule 4.2.4 for linear projects.

The NMCWD's Rule for Redevelopment, Rule 4.2.3, states, if a proposed activity will disturb more than 50% of the existing impervious surface on the site or will increase the

imperviousness of the site by more than 50%, stormwater management will apply to the entire project site. Otherwise, the stormwater requirements will apply only to the disturbed, replaced and net additional impervious surface on the project site.

The proposed project will result in a combined disturbance of less than 50% of the existing site impervious area and will not increase the site imperviousness by more than 50%; therefore, stormwater management is required for the 4,455 square feet of reconstructed impervious surface and 650 square feet of newly disturbed pervious areas.

Stormwater management for compliance with subsection 4.3.1 will be provided within the foundation material of permeable pavers providing rate control, volume retention and water quality management for the regulated areas of the current project.

Rule 4.3.1b requires the 2-, 10-, and 100-year post development peak runoff rates be equal to or less than the existing discharge rates for the collection points. The applicant used a HydroCAD hydrologic model to simulate runoff rates. The existing and proposed 2-, 10- and 100-year frequency discharge rates from the disturbed area are summarized in the table below.

**Rate Control Summary**

	2- year (c.f.s.)	10- year (c.f.s.)	100- year (c.f.s.)
Existing Conditions	13.4	20.3	36.0
Proposed Conditions	13.3	20.2	36.0

The proposed stormwater management plan provides rate control in compliance with the NMCWD requirements for the 2-, 10-, and 100-year events. Rule 4.3.1b is met.

A retention volume of 409 cubic feet is required from the proposed 4,455 square feet of regulated impervious surface. The Braun Intertec geotechnical soil boring logs identify the underlying soil within the area of the proposed stormwater management facility (ST-4) as poorly graded sand (SP). An infiltration rate of 0.8 inches per hour has been used for design, using infiltration rates for poorly graded sand identified in the Minnesota Storm Water Manual.

The table below summarizes the volume retention required and volume retention achieved. The proposed project is in conformance with subsection 4.3.1a. A retention volume of 420 cubic feet is proposed to be provided (409 cubic feet required) with an infiltration area of 393 square feet (341 square feet required).

**Volume Retention Summary**

Required Volume Retention Depth (inches)	Required Volume (cubic feet)	Provided Volume (cubic feet)
1.1	409	420

With an infiltration depth of 2.7 feet, the volume below the outlet is drawn down within the required 48-hours, complying with Rule 4.3.1a (ii).

NMCWD’s water quality criterion requires 60% annual removal efficiency for total phosphorus (TP) and 90% annual removal efficiency for total suspended solids (TSS) from the regulated site runoff. A MIDS model was used to evaluate the annual removal efficiencies provided within the foundation material of proposed permeable pavers. The results of the MIDS modeling are summarized in the table below. We agree with the modeling results and the project is in conformance with Rule 4.3.1c criteria.

**Annual TSS and TP Removal Summary**

Pollutant of Interest	Regulated Site Loading (lbs./year)	Required Load Removal (lbs./year)	Provided Load Reduction (lbs./year)
Total Suspended Solids (TSS)	35.1	31.6 (90%)	32.2 (92%)
Total Phosphorus (TP)	0.19	0.11 (60%)	0.18 (92%)

Rule 4.3.3 states that all new and reconstructed buildings must be constructed such that the low floor is at least two feet above the 100-year high-water elevation or one foot above the emergency overflow of a constructed facility. Additionally, Rule 4.3.3 states that all new and reconstructed buildings must be constructed such that no opening where surface flow can enter the structure is less than two feet above the 100-year high-water elevation of an adjacent facility. Rule 4.3.3 also states that a stormwater management facility must be constructed at an elevation that ensures no adjacent habitable building will be brought into noncompliance with a standard in subsection 4.3.3. The 100-year high-water elevation of the proposed facility, elevation 832.1 M.S.L., will be generally contained by the system underground. Overflow, should it occur, will be directed towards Minnesota Drive. Additionally, a high point at approximately elevation 834.2 M.S.L. is located between the proposed facility and the existing building(s), providing a separation of 2.1 feet. Rule 4.3.3 is met.

Rule 4.5.4d (i) requires that if infiltration of runoff is proposed, data must be submitted showing no evidence of groundwater or redoximorphic soil conditions within 3 feet of the bottom of the facility, practice or system and soil conditions within 5 feet of the bottom of any stormwater treatment facility, practice or system. ST-4 completed within the area of the proposed facility did not encounter groundwater in the boring. The boring was completed to elevation 821.5 feet. The bottom of the proposed facility is 826.8 feet, providing 5.3 feet of separation between the bottom of the proposed facility and the elevation where groundwater was not encountered.

In accordance with Rule 4.3.4, a post-project chloride management plan must be provided that will, 1) designate an individual authorized to implement the chloride-use plan and 2) designate a MPCA certified salt applicator engaged in the implementation of the chloride-use plan for the site.

Subsection 4.3.5 requires the submission of a maintenance plan. All stormwater management structures and facilities must be designed for maintenance access and properly maintained in perpetuity to assure that they continue to function as designed. The applicant must provide a receipt showing recordation of a maintenance declaration for the operation and maintenance of the stormwater management facility.

**5.0 Erosion and Sediment Control**

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

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

**11.0 Fees**

Fees for the project are:

Rules 4.0-5.0 ..... \$2,000

**12.0 Financial Assurances**

Financial Assurances for the project are:

Rule 4.0: Stormwater Management Facility: 341 SF x \$12/SF .....	\$4,092
Rule 5.0: Perimeter Control: 520 LF x \$2.50/LF .....	\$1,300
Inlet Protection 1 x \$100 each .....	\$100
Site Restoration: 0.10 acres x \$2,500/acre .....	\$250
Contingency and Administration .....	\$2,458
<b>Total.....</b>	<b>\$8,200</b>

**Findings**

1. The proposed project includes the information necessary, plan sheets and erosion control plan for review. Additional information as described in the recommendations below is required to be submitted, reviewed and approved prior to the district’s permit being issued for the project.
2. The proposed project will conform to Rules 4 and 5 with the fulfilment of the conditions identified below.
3. The proposed stormwater management facility will provide rate control, volume retention and water quality management in accordance with subsections 4.3.1a-c criteria.
4. In accordance with NMCWD Rule 4.3.5, the applicant must provide a maintenance and inspection plan that identifies and protects the design, capacity, and functionality of the stormwater management facility.

**Recommendation**

*Approval, contingent upon:*

Compliance with the General Provisions (attached).

Financial Assurance in the amount of \$13,200, including \$8,200 for stormwater management, erosion control, and site restoration, and \$5,000 for compliance with the chloride management requirements.

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

Per Rule 4.3.5, a receipt showing recordation of a maintenance declaration for the operation and maintenance of the stormwater management facility is required. A draft of the declaration must be approved by the district prior to recordation.

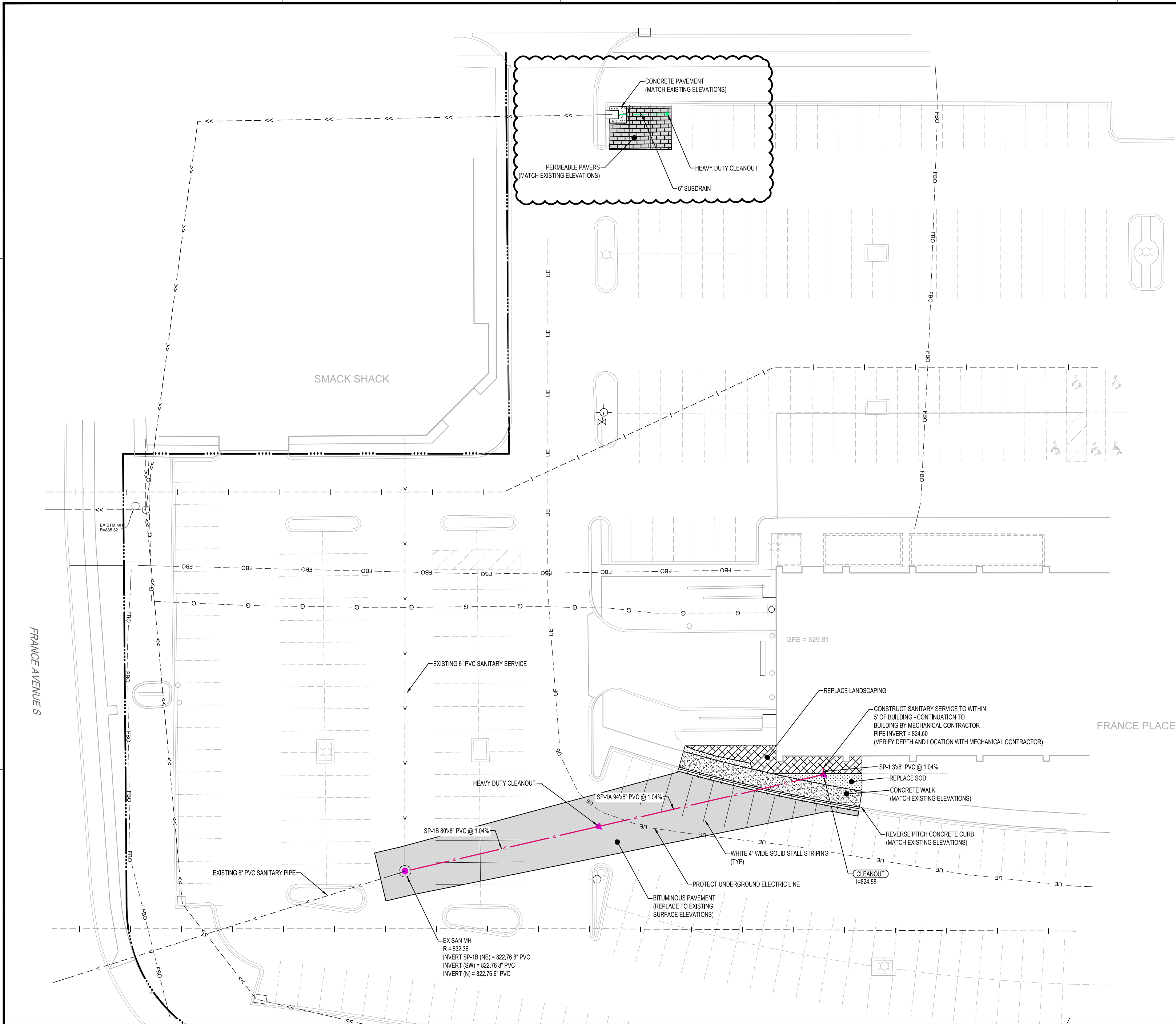
*By accepting the permit, when issued, the applicant agrees to the following stipulations for closeout of the permit:*

The work for the France Place Sanitary Improvements project under the terms of Permit 2023-016, if issued, must have an impervious surface area, stormwater infrastructure design, and grading plans consistent with the approved plans. Design that differs materially from the approved plans will need to be the subject of a request for a permit modification or new permit, which will be subject to review for compliance with all applicable regulatory requirements.

Per Rule 4.5.6, an as-built drawing of the stormwater management facility conforming to the design specifications, including a stage volume relationship in tabular form for the permeable pavers, as approved by the district, must be provided.

Submission of a plan for post-project management of Chloride use on the site. The plan must include 1) the designation of an individual authorized to implement the chloride use plan and 2) the designation of a Minnesota Pollution Control Agency certified salt applicator engaged in the implementation of the chloride-use plan for the site.

Per Rule 12.4.1b, demonstration and confirmation that the stormwater management facility has been constructed or installed and is functioning as designed and permitted. Verification, through daily observation logs and photographs, must be provided showing the stormwater management facility used for volume retention has been drawn down within 48 hours from the completion of two 1-inch (approximate) separate rainfall events.



PAVEMENT LEGEND	
SYMBOL	DESCRIPTION
	BITUMINOUS PAVEMENT
	CONCRETE WALK
	PERMEABLE PAVERS
	CONCRETE PAVEMENT
	REVERSE PITCH CONCRETE CURB AND GUTTER



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

BECKY GUENTHER

DATE 06/13/23 LIC. NO. 58680

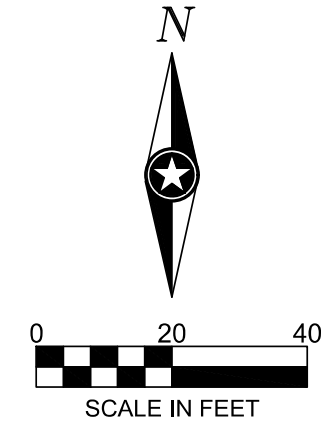
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PROJECT  
**FRANCE PLACE**  
**PLUMBING**  
**REPLACEMENTS**  
 BLOOMINGTON MINNESOTA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/13/23	SUPPLEMENTAL INSTRUCTION #1	GRJ

PROJECT NO.	23-28296
FILE NAME	28296 C3-SITE
DRAWN BY	GRJ
DESIGNED BY	GRJ, RAG
REVIEWED BY	RAG
ORIGINAL ISSUE DATE	03/27/23
CLIENT PROJECT NO.	-

TITLE  
**SITE & UTILITY**  
**PLAN**



SHEET  
**C3-10**