MINNEHAHA CREEK
WATERSHED DISTRICT
QUALITY OF WATER, QUALITY OF LIFE

Meeting: Board of Managers
Meeting date: 4/13/2023
Agenda Item #: 11.2
Item type: Permit Consideration

Title:	Permit 22-568: St. Louis Park High School Permit and Variance Request
Prepared by:	Name: Abigail Ernst, Permitting Technician Phone: (952) 641-4504 Email: aernst@minnehahacreek.org

Recommendation:
Approval of MCWD permit on the following conditions:

1. Applicant will maintain the existing and proposed storm water facilities in accordance with the Cooperative Agreement between MCWD and St. Louis Park Public Schools, ISD #283, for Stormwater Facility Maintenance (September 29, 2016).
2. Board of Managers approval of request for variance from phosphorus control requirement
3. Submission of NPDES permit
4. Applicant will maintain the infiltration basin (1), above ground filtration basins (2), below ground filtration system (1), and thickened aggregate filtration system (1) in accordance with the Cooperative Agreement between the MCWD and St. Louis Park Public Schools, ISD #283, for Stormwater Facility Maintenance (September 29, 2016). In addition, applicant will maintain the underground filtration gallery in accordance with the associated inspection and maintenance manual, which will be attached to and incorporated into this permit.
5. Applicant must document to the District that it reported to the Minnesota Pollution Control Agency (MPCA) the disturbance proposed for the site, including the use of the infiltration basin, as it concerns the contamination. The statement must include a copy of the report unless it was not in writing, in which case the statement is to describe the form and circumstances of the report. Attachments to the report should not be provided unless the District requests. Applicant must promptly send the District a copy of any response received from the MPCA, for the District's informational purposes.

Summary:
St. Louis Park School District #283 (Applicant) has applied for a Minnehaha Creek Watershed District (MCWD or District) permit to expand two parking/bus lots, convert an existing athletic field into a synthetic turf field, construct building additions, and reconfigure sidewalk areas (Project). The Project triggers the District's Stormwater Management rule. The District does not apply its Erosion Control rule within the City of St. Louis Park. The City will apply its own Erosion Control ordinances. The Project does not meet all the requirements of the Stormwater Management rule and Applicant has requested a variance from the phosphorous control requirement. In accordance with established policy, the Board of Managers is asked to consider the permit application and variance request.

Background:
The Applicant is proposing to expand two parking/bus lots, convert an existing athletic field into a synthetic turf field, construct building additions, and reconfigure sidewalk areas at 6425 33rd Street West, St. Louis Park, MN 55426 (Site). The Project area is within subwatershed MC-110, which ultimately drains to Bass Lake. The site is within the approximate area of shallow VOC groundwater contamination identified by the Environmental Protection Agency as a Superfund Site, which limits the Applicant's ability to infiltrate stormwater runoff.

The District and its engineer have not independently reviewed the data or information relating to contamination and have not independently evaluated the risk associated with introducing stormwater into the soil matrix. Due to the presence of contamination, infiltration is not required. The applicant is responsible to confer with any agency with authority over site contamination, and otherwise to ensure that its continuing use of an infiltration BMP conforms to

sound design practices (including those documented in the MPCA's Minnesota Stormwater Manual) and all legal requirements.

The Stormwater Management rule requires that the Project treat the entire site for Volume Control, Rate Control, and Phosphorous Control. Due to contamination below the site and spatial constraints, the Applicant is proposing to utilize 3(c)(2) of the Stormwater Management rule, which states that when an Applicant demonstrates it is infeasible to abstract one inch of stormwater runoff, it must provide volume abstraction of runoff to the greatest extent feasible and at least half an inch. This same standard requires that phosphorous control be provided in an amount equivalent to that which would be achieved through abstraction of one inch of rainfall from the site's impervious surface. The Applicant is able to provide the required volume control under 3(c)(2) but is unable to meet the phosphorus control requirement and is seeking a variance. The rule analysis section summarizes the applicable rule being met and the variance request from the Applicant.

Proposed Project and Drainage:

Existing (see attachments):

The existing Site consists of parking lots, open space, practice fields, a track, tennis courts and main academic building. It currently has two infiltration basins (1P and 2P as shown in attached map). The site's drainage can be divided into two primary outlets, 1L which discharges North to W 33rd St, and 2L which discharges South. Currently, there are four main areas that drain to these outlets. Drainage area E1, the northern portion of the site including the main building, north parking lots, and practice fields, currently drains north to 1L. Drainage area E2 encompasses the southern portion of the site including the south driveways, existing athletic track and field and practice fields, and drains south to 2L. Drainage area E3 is routed to existing infiltration basin 1P, which treats the central portion of the campus adjacent to the main building entrance, as well as a portion of the existing practice field. Infiltration basin 1P ultimately discharges north to 1L. Drainage area E4, which is a small area that includes the north half of the existing tennis courts, drains to the second existing infiltration basin, 2P, which also discharges to 1L.

Proposed (see attachments):

The proposed improvements as part of the SLP High School Master Plan are a new synthetic turf field, sidewalk reconfiguration, two small building additions, and the reconfiguration of two existing parking lots to accommodate buses and student parking. The general drainage patterns of the proposed site match the existing site, with the same outlets, 1L to the north and 2L to the south. The existing drainage areas are further divided to include the proposed stormwater treatment features:

- The proposed bus corral/event parking, the existing west parking lot, and half of the proposed southwest parking lot (subbasin P10) will be routed to a new underground filtration system, 3P, before discharging to 1L.
- The tennis courts (subbasin P4), will be routed to existing infiltration basin 2P, which will be expanded and converted to a filtration basin, 2Pb. This eventually discharges to 1L.
- The pole vault area just south of the existing tennis courts (subbasin P8), will drain to a proposed filtration basin directly south of the courts, 2Pa.
- The proposed synthetic turf field and track area (subbasin P5C) will be routed to the thickened aggregate filtration system 6P which all discharge south to 2L. The north and south end zones of the track (subbasin P5A and P5B), will be routed to a new underground filtration system, 5P. Both 5P and the thickened aggregate system 6P will be routed to a 15" drain tile collector pipe, which ties into an existing network that ultimately discharges south to 2L.
- Existing drainage area E2 was split up into P2A and P2B. P2A encompasses the south half of the existing practice field, which will be routed to a new swale. P2B is the remaining area, including the south building and parking lot, will discharge directly offsite to 2L, as it does under existing conditions.

District Rule Analysis:

<u>Stormwater Management Rule</u>

The District's Stormwater Management Rule is applied to projects that propose to create new or replace existing impervious surface. The proposed project will disturb 12.62 acres of the 21.63-acre site, and increase impervious from 12.45 acres to 15.38 acres, therefore, the rule is applied. The disturbance and proposed impervious puts the Project into

the redevelopment category of a site greater than five acres; greater than 40% disturbance; and an increase in impervious. Therefore, per section 4(e), the Applicant is required to provide Volume Control, Rate Control, and Phosphorous Control for the entire site's impervious surface.

Table 1: Existing and Proposed Site Conditions				
Site Size (ac)	*Existing/Proposed Drainage*	*Disturbance Area (ac)*	*Existing Impervious (ac)*	*Proposed Impervious (ac)*
21.63 (942,011sf)	Bass lake	12.62 (549,874sf)	12.45 (542,506sf)	15.38 (669,793sf)

The Applicant has proposed to meet the District's Stormwater Management rule by constructing four new filtration features (one above ground and three underground), expanding one existing infiltration basin and converting it to filtration, and utilizing one existing infiltration basin. In total, six basins will be utilized for treatment (see proposed drainage map, attached).

Per section 3(a) of the rule, the phosphorus control requirement may be satisfied by meeting the abstraction requirement as outlined in section 3(c). The Applicant has requested a variance from section 3(c)(2), see variance section for more information.

Per section 3(b) of the rule, there shall be no net increase in peak runoff rates for the 1-, 10-, and 100-year storm events. The District Engineer has reviewed the proposed plans, stormwater models, and stormwater calculations and determined that the project will not increase rates during the 1-, 10-, and 100-year storm events. The project as proposed is in conformance with the rate requirements of the rule.

Table 2: Existing and Proposed Discharge Rates Discharging North (1L)		
	Existing Discharge Rates CFS	*Proposed Discharge Rates CFS*
1-year	17.55	12.05
10-year	36.55	27.88
100-year	72.20	55.96

Table 3: Existing and Proposed Discharge Rates Discharging South (2L)		
	Existing Discharge Rates CFS	*Proposed Discharge Rates CFS*
1-year	7.37	6.11
10-year	17.05	11.23
100-year	34.82	24.08

Per section 3(c)(1) of the rule, projects must provide for abstraction of the first one inch of rainfall from the site's impervious surface. This section does not apply as, due to groundwater contamination and site constraints, it is not feasible for Applicant to abstract one inch of runoff. Instead, Applicant must conform to section 3(c)(2).

Per section 3(c)(2) of the rule, Applicant must provide abstraction to the greatest extent feasible, and at least 0.5 inches, and also must control phosphorus in an amount equivalent to that which would be achieved through abstraction of one inch of rainfall from the site's impervious surfaces. The Applicant states known groundwater contamination and spatial constraints as reasoning for use of 3(c)(2) (see 'Variance' section for further information). The Applicant is proposing to use primarily filtration across five basins and infiltration via the remaining basin, for treatment. The Volume Abstraction Credit Schedule states that filtration will receive 50% volume abstraction credit. Therefore, the filtration features will need to be designed to treat for twice the required abstraction volume. The Applicant has performed an abstraction analysis to confirm provided treatment (summarized in Table 3) and District engineer concurs with their findings.

Table 3: Required Volume Control		
Sites impervious (sf)	*Required treatment using 3(c)(2) (cf)*	*Provided treatment (cf)*
669,952	55,816*	6,550 provided via infiltration

		65,325 via filtration

*calculated via 0.5" over the regulated impervious surface X 2 to account for filtration

The Applicant is unable to meet the phosphorus control requirement of one inch over the site's impervious due to existing building location and stormsewer configurations. The Applicant has requested a variance to section 3(c) of the Stormwater Management Rule, which has been analyzed under the 'Variance' heading below.

Table 4: Required Phosphorus Control		
Required treatment (lbs/yr)	*Provided treatment (lbs/yr)*	*Difference between required and provided (lbs/yr)*
12.63	8.77	3.86

In accordance with section 4(e), section 3(d) of the rule does not apply to the Applicant.

Per section 3(e) of the rule, there must be two feet of vertical separation between the 100-year high water elevation of each stormwater best management practice (BMP) and waterbody and the low opening of structures. Based on the Applicant's submittals and review by District Staff and Engineer, the 100-year high water elevation of the BMPs and low openings of adjacent structures provide at least two feet of vertical separation, thus meeting the rule.

Table 5: Free Board Provided			
BMP	*Lowest Opening*	*100-year BMP HWL*	*Freeboard Provided (ft)*
1P	922.5	919.13	3.37
2Pa	920.5	918.29	2.21
2Pb	921.1	918.14	2.96
3P	914.94	912.34	2.6
5P	N/A no hydraulic connection	919.44	N/A
6P	N/A no hydraulic connection	920.73	N/A

Section 7 of the rule does not apply as the Applicant does not propose using a regional stormwater facility for treatment.

Per section 8(a) of the rule, the impacts to downstream waterbodies section of the rule regulates new point source discharges and impacts to the bounce, inundation, and runout control elevations of waterbodies. The project does not propose a new point source or a change in the runout control elevation of any waterbody.

Per section 8(b) of the rule, no activity subject of this rule may alter a site in a manner that results in an increase in the bounce in water level for any downstream lake or wetland. The project proposes a reduction in offsite rates for the 1-, 10-, and 100-year events, as seen in section 3(b), therefore, the project as proposed conforms to this standard.

Per section 9 of the rule, the maintenance requirement of stormwater facilities is satisfied through the existing cooperative agreement between the Applicant and MCWD. Applicant will maintain the filtration basins, infiltration basin, underground facilities, and thickened aggregate system, in accordance with the Cooperative Agreement between MCWD and St. Louis Park Public Schools, ISD #283, for Stormwater Facility Maintenance (September 29, 2016).

The project as proposed, subject to the recommended conditions and variance approval, meets the requirements of the Stormwater Management Rule.

<u>Variance</u>

The Applicant is requesting a variance allowing partial compliance with section 3(c)(2) of the Stormwater Management rule, which requires phosphorus control in an amount equivalent to that which would be achieved through abstraction of one inch of rainfall from the site's impervious surfaces. The variance request states that the Applicant is unable to provide the required treatment due to inability to intercept runoff from a portion of existing impervious surface. This is due to the location of existing buildings and surface on the property, spatial constraints, and the location/depth of

existing storm sewer facilities. The Applicant is able to provide 8.77 lbs per year of phosphorous removal, which is 3.86 lbs less than the required amount of 12.63 lbs.

The District's Variance and Exception Rule states that the Board of Managers may grant a variance from a provision of the rules if the Applicant demonstrates that it meets five Variance criteria. Below, you will find the Variance criteria with a summary of the Applicant's argument, and staff/engineer's factual and technical evaluation of that argument.

1. Criterion 1: Because of special conditions inherent to the property that do not apply generally to other land or structures in the District, strict compliance with a provision of a District rule will cause undue hardship to the Applicant;
    a. Applicant's Argument: A substantial portion of the required treatment area is an existing school building and due to how it was built in relation to parcel boundaries and storm sewer elevations, it makes it deeply impractical to capture and treat runoff. There is only ~5,600 sf of green space available to treat the existing building and that area only provides ~1,350 cu-ft of storage, not including the grading that would be required. The amount of treatment would be insignificant compared to the treatment required. Additionally, surface filtration requires media and drain tile and there is only 1-ft of available depth to hook into the existing city-owned stormsewer, making it infeasible. 1-ft is the minimum pipe size available for underground storage. For filtration purposes, a filter medium depth of at least 2.5 ft is recommended. Drain tile beneath the medium is required to prevent infiltration into contaminated soil. It would not be possible to construct this system with the medium, pipe, and drain tile within the 1-ft of available depth. In order to increase that depth, the invert at the existing building outlet pipe would need to be raised or the city storm sewer lowered. Both of these options are not feasible given cost and inability to reconstruct city storm sewer infrastructure.
    b. District Evaluation: Drainage maps and modeling show that there are 7.11 acres of existing impervious that, according to the Applicant, cannot feasibly be routed to stormwater management features. Of that 7.11 acres, 4.5 acres (63%) is the existing building that is referenced above. Therefore, District staff and engineer concur that the majority of the untreated hard surface is the existing building. The remaining untreated area is as follows: existing parking lots and driveways that currently drain off the site untreated constitute about 2.14 acres (30%), and the remaining area proposed to remain untreated includes existing sidewalks (3.7%), gravel (1%) and a small, proposed patio and building addition (2.3%). District engineer agrees that given the available surface area and storm sewer connections it is not feasible to provide the required phosphorous treatment.
2. Criterion 2: The hardship was not created by the Applicant, its owner or representative, or a contractor. Economic hardship is not grounds for issuing a variance;
    a. Applicant's Argument: The existing building was constructed in 1956, before the District existed or stormwater management was a concept. Therefore, the site and its stormwater pipes were not designed with stormwater treatment in mind.
    b. District Evaluation: District stormwater rules were not implemented until 1974. Therefore, the District concurs with the Applicant's findings.
3. Criterion 3: Granting the variance will not serve merely as a convenience to the Applicant;
    a. Applicant's Argument: Capture and treatment of the majority of the existing impervious surface is physically and economically infeasible.
    b. District Evaluation: District staff and engineers agree that due to the location of existing structures and hard surface with respect to parcel boundaries and the vertical positioning of storm sewer infrastructure, the amount of phosphorus removal it would be feasible to treat would be minimal, and the treatment would be extremely cost-ineffective.
4. Criterion 4: There is no feasible and prudent alternative to the proposed activity requiring the variance;
    a. Applicant's Argument: The work is necessary to update facilities, so they remain adequate for the school to continue to serve its educational/community function. 98% of new and reconstructed hard surface, and some existing, will be treated to rule requirements. Disallowing the variance would preclude the Applicant from maintaining and updating the school property.
    b. District Evaluation: Given the site spatial and elevation restrictions, District staff concur that absent a variance or exception, any facility improvement that requires the Applicant to treat all existing hard surface will be rendered infeasible.

5. Criterion 5: Granting the variance will not impair or be contrary to the intent of the rules.
    a. Applicant's Argument: Applicant is treating all hard surface that it can to the rule's standards. The hard surface that would not be treated is principally rooftop runoff. There are no other practices that could be added on as conditions that would meaningfully reduce pollutant loading from the site.
    b. District Evaluation: The Applicant has endeavored to provide as much treatment as feasible given site constraints and existing conditions. From a water quality perspective, the highest polluting impervious surfaces include sidewalks, roads, pavement, and synthetic turf. The proposed treatment facilities treat the majority of the higher load generating surfaces. Stormwater runoff from building roofs is less polluted than runoff from ground surfaces that receive pedestrian or vehicular traffic or deposition of pollutants at a street level. The existing pollutant loading from the site is 24lb/annually. Therefore, even with the missing ~3lb/annually, the project still provides a water quality benefit by removing 1/3 of existing pollutant loading.

Supporting documents (list attachments):

1. Site plans
2. Existing drainage map
3. Proposed drainage map
4. Variance Request and support figure