memo

Project Name |	BCWD Permit 23-19, Liberty Academy Expansion	**Date** |	October 4, 2024
To / Contact info |	BCWD Board of Managers		
Cc / Contact info |	Mike Brandt, PE / Kimley-Horn		
Cc / Contact info |	Rebekah Hagstrom / Liberty Classical Academy		
Cc / Contact info |	Karen Kill, Administrator / BCWD		
From / Contact info |	Ryan Fleming, PE; Paul Nation, PE; John Sarafolean / EOR		
Regarding |	Permit Application No. 23-19 Engineer's Report		

The following review of the above-mentioned project located within the legal jurisdiction of the Brown's Creek Watershed District (BCWD) was conducted to determine compliance with the BCWD rules for purposes of the engineer's recommendation to the Board of Managers for its determination of the permit application.

Applicant: Liberty Classical Academy
Permit Application Submittal Date: June 12, 2024
Completeness Determination: June 21, 2024
Board Action Required By: October 10, 2024
Review based on BCWD Rules effective April 1, 2020
Recommendation: Approve with Conditions

BACKGROUND AND GENERAL COMMENTS

Liberty Classical Academy is requesting approval of both a regional stormwater-management plan and a permit for specific land-disturbing activities at its existing site, 10158 122nd Street North in Hugo. The currently proposed work involves expanding the school campus to the east into May Township. Hugo & May Township are each requiring a conditional use permit for the proposed project. The property includes three parcels owned by Liberty Classical Academy, totaling 82.6 acres. The site is bordered by Keller Avenue North on the west, by 122nd Street North on the south, by Goggins Lake on the east, and by farmsteads to the north. Under current conditions, there are 7.4 acres of impervious coverage on the site. This includes the existing school building, playgrounds, and parking lot, right-of-way along Keller Avenue and 122nd Street adjacent to the school property, and existing residential buildings. (The applicant must provide documentation of rights to work within the right of way along each roadway.)

The site will be redeveloped in phases, only the first of which is proposed as a land-disturbing activity for approval now. The applicant is at the same time requesting approval of a regional stormwater management plan under section 2.9 for the whole site.

The regional treatment plan includes a stormwater basin, irrigation using water from the basin on the green spaces on site, as well as smaller best management practices (BMPs) on the western and southern portions of the site.

The work the applicant proposes for construction now (phase 1 build-out) includes a new lower school building, a parking lot, a practice soccer field, a septic sewer system with five drain fields for

phase 1, a turn lane on Keller Avenue, BMPs on the western side of the site that drain to the southwest discharge location, and a stormwater basin. Phase 1 will add 12.0 acres of impervious surface to the site, for a total of 19.4 acres of impervious area and will utilize a portion of the stormwater-management capacity to be created under the regional plan.

At the July 10th, 2024 BCWD board meeting, the BCWD board of managers approved a 60-day extension on the review of this permit. With the 60-day extension, board action is required by October 10th, 2024.

Recommendation: The BCWD engineer recommends that the board approve the regional treatment plan and the phase 1 buildout permit application with the conditions outlined in the report.

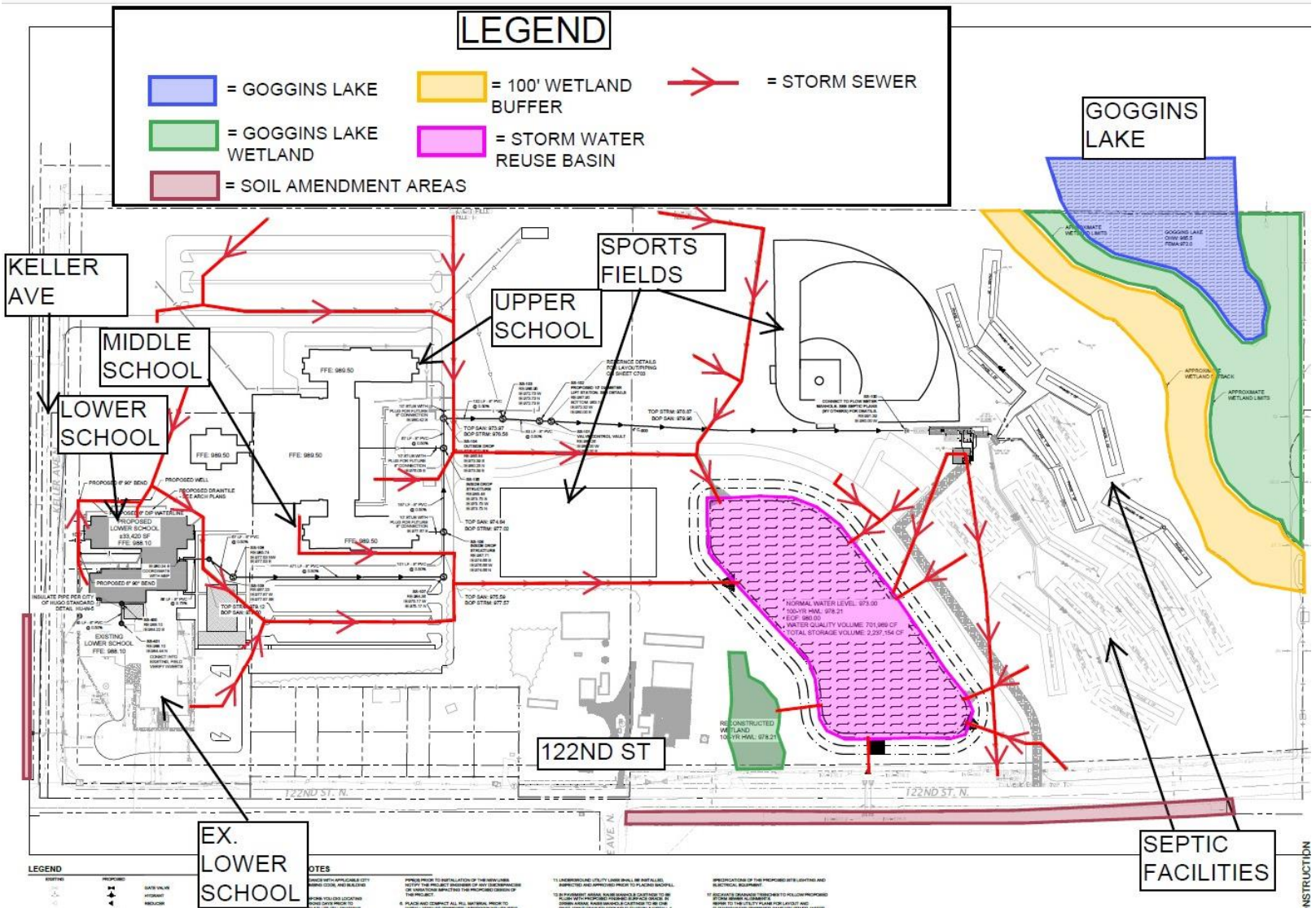

Figure 1: Full site buildout plan and stormwater management features.

REGIONAL TREATMENT STORMWATER MANAGEMENT ANALYSIS

Rule 2.0—STORMWATER MANAGEMENT

The proposed regional plan provides for the addition of 23.3 acres of new impervious surface for a total of 30.7 acres of impervious surface on the site. The site is not within the Diversion Structure Subwatershed, so the stormwater criteria in subsection 2.4.1(a) apply.

Under section 2.9 Regional Treatment, an applicant may comply with applicable BCWD stormwater rate-control, volume-retention and water-quality standards by providing equal or greater peak rate control, volume control and phosphorus control through a regional or subwatershed plan approved by the District. A regional plan must provide for an annual accounting to the District of treatment capacity created and utilized by projects or land-altering activities within the drainage and treatment area to which the plan pertains. District approval of a regional or subwatershed plan will be based on a determination that:

(a) the use of a regional facility in place of onsite stormwater management will not result in adverse impacts to local groundwater or natural resources located upstream of the regional facility, including, but not limited to, reduced water quality, altered wetland hydrology, changes to stream velocities or base flow, erosion, or reduced groundwater recharge; and

(b) the plan incorporates onsite BMPs to mitigate impacts and provide local benefits not provided by the regional facility. The applicant, before commencing any land-altering activity, must demonstrate that downgradient stormwater conveyance structures and facilities will be adequate to handle proposed increased peak flow or flow volume from the site, it holds the legal rights necessary to discharge to the stormwater facility or facilities in the regional plan, and that the facility or facilities are subject to a maintenance document satisfying the requirements of paragraph 2.6.

The applicant requests approval of a regional treatment plan pursuant to section 2.9 to provide treatment for the currently proposed and future redevelopment of the site. The proposed drainage areas are shown in Figure 3 and the stormwater facilities proposed under the regional treatment plan are shown in Figure 1.

The following analysis pertains to the full buildout of the site to demonstrate compliance with the stormwater standards. A separate stormwater analysis of the presently proposed project is then provided to summarize the amount of the regional capacity that phase 1 will utilize.

As shown in Figure 2, there are currently two discharge points from the site:

- *The southwest discharge point is located at the property boundary to the west of Keller Avenue where the ditch drains off Liberty Classical property. There are 11.6 acres draining to this location, including three offsite residential lots and the ditch adjacent to Keller Avenue. Stormwater discharges from this location to the south through a culvert under 122nd Street into offsite Wetland 1 south of the site, then travels east to a second offsite wetland (Wetland 2), and continuing west to the BCWD Trout Habitat Preservation Project (THPP).*
- *The south discharge point is located south of the Liberty Classical property boundary where two culverts discharge beneath 122nd Street. There are 90.7 acres draining to this location that includes privately owned farmsteads to the north, an onsite residential property, a 0.48-acre*

onsite wetland, and the ditch adjacent to 122nd Street. After crossing beneath 122ndStreet, runoff flows overland to Wetland 2, then to the THPP.

The site includes a small portion of Goggins Lake (which is a groundwater-dependent natural resource (GDNR)) and the Manage 1 wetland surrounding the lake. No disturbance is proposed for the portion of the site draining to this wetland or Goggins Lake.

Under proposed conditions, drainage areas within the site change size and shape from existing, however the discharge locations from the site remain the same (Figure 3). The drainage area to the southwest is reduced from 11.0 to 8.0 acres, and the drainage area to the proposed stormwater reuse basin, discharging to the south beneath 122nd Street, increases from 88.8 to 91.8 acres. Drainage areas in the right-of-way will remain the same size, though the impervious surface will increase due to the addition of the proposed turn lanes (Keller Avenue in phase 1, 122nd Street in a future phase). The rights-of-way area is included with "the site" for purposes of the regional plan analysis, but the applicant has yet to provide documentation of authority to work in the rights-of-way; for a permit for land-disturbing activity in right-of-way to issue, such documentation must be provided.

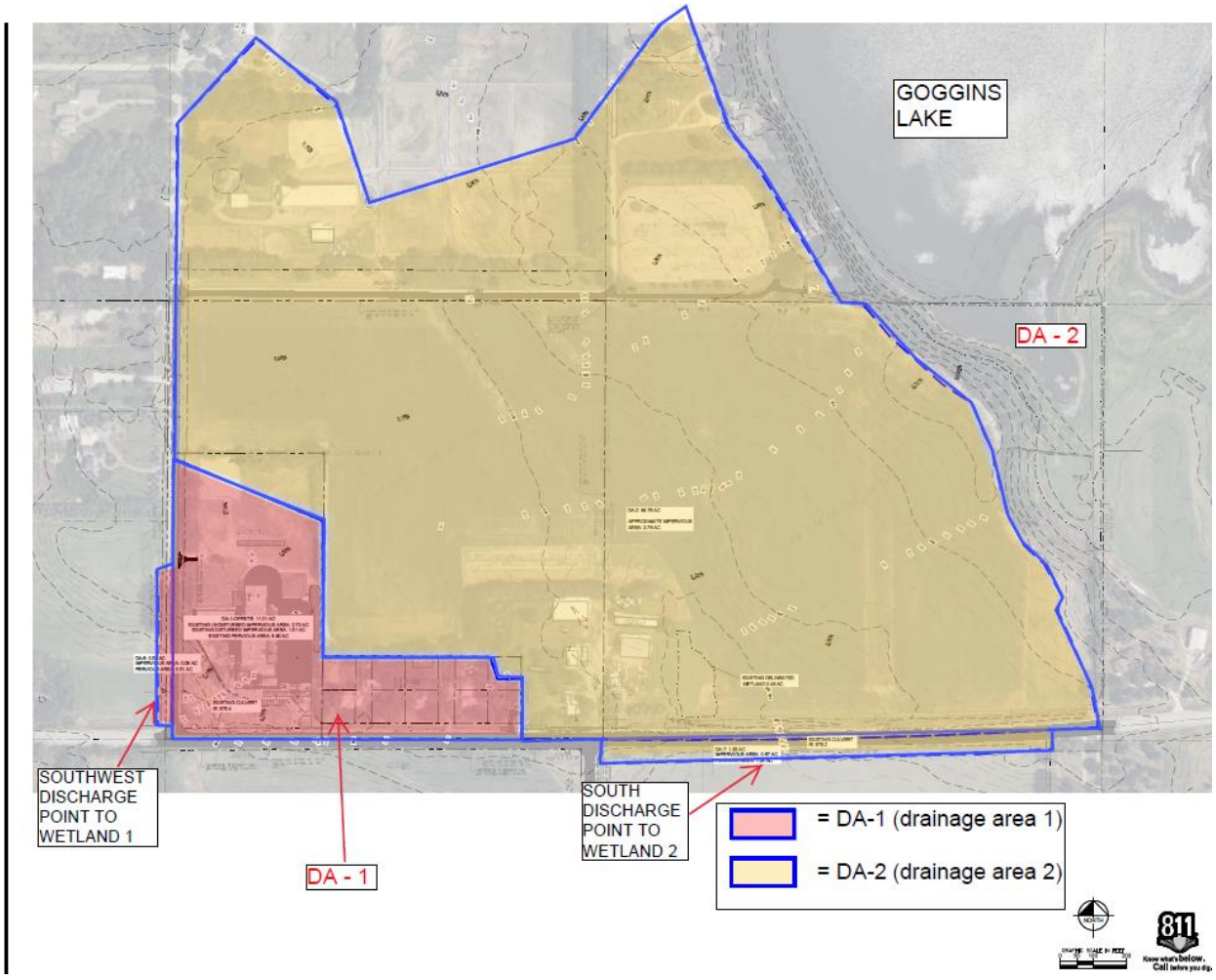

Figure 2: Existing site drainage.

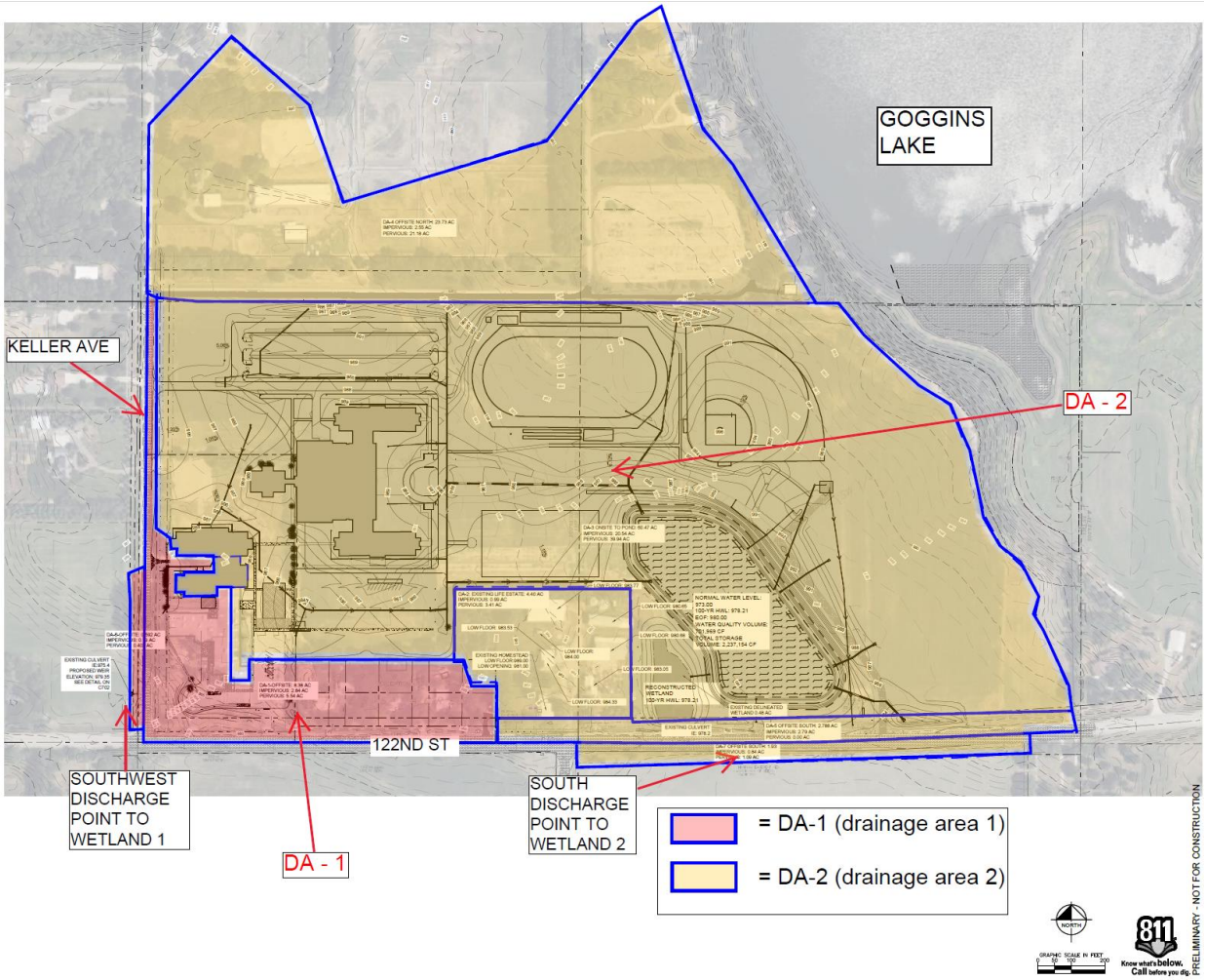

Figure 3: Proposed site drainage.

The proposed regional stormwater management plan includes:

- *One stormwater management basin with a permanent pool of water to allow settling of pollutants and sediment. This basin will be used for irrigation of green spaces on the site.*
- *Pre-treatment sump storm structures on the storm sewers conveying runoff to the stormwater management basin.*
- *Soil amendment for the area receiving runoff from the new turn lanes on Keller Avenue and 122nd Street, designed to improve water holding capacity to reduce runoff volume and discharge rate. The Type C and Type D soil, having approximately 0.6 inches of rainfall retention in this area, will be amended with compost and topsoil to achieve the capacity of a Type B soil (1.5" rainfall retention).*

The regional stormwater treatment plan provides for rate control for runoff from 30.7 impervious acres and land cover disturbance of 77 acres included in the proposed full build out plan. Given the various soil types across the site, impervious area alone cannot be used as a surrogate for BMP design capacity, i.e., converting Type A soil to pavement requires more stormwater treatment than conversion of a Type D soil to pavement. Therefore, a regional stormwater treatment capacity analysis based on the runoff volume generated from all proposed changes in land cover and grading

is required for volume and water quality. Discharge rate attenuation is a function of the storage size and the hydraulic structures used to convey and control water leaving the site, and therefore does not depend on the change in land cover or amount of impervious area in the drainage area. Because of this, rate control capacity of the regional plan does not need to be tracked.

Rate Control

According to BCWD Rule 2.4.1(a)(i), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not increase peak stormwater flow from the site, as compared with the pre-settlement condition, for a 24-hour precipitation event with a return frequency of two, 10 or 100 years for all points where discharges leave a site.

☒ Rule Requirement Met with Conditions

The stormwater management plan developed for the site was evaluated using a HydroCAD model of pre-settlement and post-development site conditions. A comparison of the modeled peak flow rate for the two discharge points is included in Table 1 and Table 2 summarizing the runoff rates for the full build out of the site.

For the south discharge point, the HydroCAD model initial condition begins storm events with the reuse basin at the normal water level (NWL=973.0 feet) which is below the outlet elevation of 978.5 feet. The applicant has proposed the pump operation to maintain the water level at the NWL either through irrigation of the green space, or by pumping down the basin to the northern ditch along 122nd Street until the NWL is reached prior to a storm if irrigation demand does not lower it to this level. The proposed pump discharge rate will not exceed the 2-year rate at less than 6 feet per second (non-erosive on vegetated surfaces) velocity into the existing ditch along 122nd Street.

Table 1 - Peak Discharge Rate – Southwest (Keller Avenue)

Event	*Pre-settlement Runoff Rate (cfs)*	*Proposed Runoff Rate (cfs)*
2-year (2.79")	7.5	6.7
10-year (4.16")	11.1	9.6
100-year (7.14")	50.3	23.3

Table 2 - Peak Discharge Rate – South (122nd Street)

Event	*Pre-settlement Runoff Rate (cfs)*	*Proposed Runoff Rate (cfs)*
2-year (2.79")	3.5	3.3
10-year (4.16")	13.4	5.9
100-year (7.14")	38.8	12.9

Volume Control

According to BCWD Rule 2.4.1(a)(ii), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not increase stormwater flow volume from all points where discharge leaves the site, as compared with the pre-settlement

condition, for a 24-hour precipitation event with a return frequency of two years, or five years within a landlocked basin or a subwatershed draining to a landlocked basin.

☒ Rule Requirement Met

The stormwater management plan developed for the site was evaluated using a HydroCAD model of pre-settlement and post-development site conditions. A comparison of the modeled runoff volume for the full build out of the site is included in Table 3. The volume control analysis assumes that the stormwater basin starting water level is at the NWL of 973.0 feet (drawn down from irrigation). The applicant provided a stormwater harvest and reuse analysis using the Metropolitan Council Stormwater Reuse Guide 'Water Balance Tool Irrigation Constant Demand' spreadsheet as well as the Minimal Impact Design Standards calculator to demonstrate suitability of runoff volume supply, storage, and green space area to meet the volume control and pollutant loading standards. The reuse system is designed to irrigate 0.75 inches per week from the middle of May until the end of September and 0.90 inches per week during the month of July. This irrigation rate is reasonable for Type B and C soils with turf grass vegetation. The total area irrigated is 23.60 acres. The regional treatment capacity of the proposed BMPs is determined by comparing the proposed volume running off the landscape to the BMPs, to the pre-settlement discharge volume for the 2-year, 24-hour event at each discharge point.

Table 3 – 2-year, 24-hour Storm Discharge Volume

Discharge Point	*Pre-settlement Discharge (Acre-ft)*	*Post-Development Runoff Volume (Acre-ft)*	*Post-Development Discharge (Acre-ft)*	*Regional Plan Design Capacity (Acre-ft)*
Southwest	0.85	0.78	0.78	0*
South	1.35	7.51	0.20	7.31**

* Achieved by diversion of drainage area away from the southwest discharge point to the stormwater basin and soil amendment in the ditch along Keller Avenue.

**Achieved by the stormwater basin for irrigation and soil amendment in the ditch along 122nd Street.

Pollutant Loading

According to BCWD Rule 2.4.1(a)(iii), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not at the downgradient property boundary or to an onsite receiving waterbody or wetland, increase annual phosphorus loading as compared with the pre-development condition.

☒ Rule Requirement Met

The permit applicant submitted MIDS modeling of phosphorus loading at both site discharge points, and at the onsite wetland to demonstrate compliance with Rule 2.4.1(a)(iii). Table 4 displays the results of the analysis.

The pollutant load to the southwest discharge point will be less than pre-development[1] due to reducing the area draining to that location.

The stormwater basin has been designed and sized to remove 45% of the total phosphorus load from the south discharge point, resulting in a reduction of 16.2 pounds of total phosphorus leaving this discharge point annually.

The pollutant loading to the onsite wetland will be less than pre-development[1] due to reducing the area draining to that location and changing the landcover from agricultural production to grass.

The average annual pollutant loading for the full site build out of the site to each discharge point are shown in Table 4.

Table 4 - Phosphorus Loading Summary

Discharge Point	*Pre-Development Phosphorus Loading (lbs/yr)*	*Proposed Phosphorus Loading (lbs/yr)*	*BMP Phosphorus Treatment Capacity (lbs/yr)*
Southwest	8.6	8.1	0.0*
South	35.7	19.5	51.0
Onsite Wetland (Upstream of South Discharge Point)	35.9	3.1	0.0*

*Compliance is achieved through diversion of drainage area to the proposed stormwater basin routed to the South discharge point

Lake/Wetland Bounce

The wetland bounce analysis is provided as a measure of compliance with the local impact criterion to demonstrate that downgradient stormwater conveyance structures and facilities will be adequate to handle proposed increased peak flow or flow volume from the site. Analyzing the bounce and duration of inundation on the downstream system that results from design storm events directly relates to the proposed land alteration and is a measure of BMP effectiveness to mitigate adverse downstream impacts of the increase of stormwater runoff generated and treated on the site. Wetland bounce is a function of the rate and volume coming off the site, notably the volume that results for events greater than the 2-year, 24-hour event for which the volume control standard is based.

According to BCWD Rule 2.4.1(a)(iv), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not increase the bounce in water level or duration of inundation, for a 24-hour precipitation event with a return frequency of

[1] For this site, the existing condition is consistent with the pre-development condition, so reduction in drainage area or reduction in runoff due to vegetation changes is sufficient to demonstrate that phosphorus loading will not increase from the pre-development condition.

two, 10 or 100 years in the subwatershed in which the site is located, for any downstream lake or wetland beyond the limit specified in Appendix 2.1.

☒ Rule Requirement Met

The applicant was provided with the BCWD Hydrologic & Hydraulic model to determine compliance with this criterion for the offsite wetlands. The applicant revised the model to reflect proposed conditions on the site. A comparison of the modeled wetland bounce is included in Table 5. Both wetlands meet the permitted bounce of pre-development plus 1.0 feet. Comparison of the hydrographs demonstrates that the period of inundation remains the same from existing to post-development conditions, thus meeting the standard.

The onsite Manage 3 wetland has no limit on bounce. The proposed plan reduces the drainage area to this wetland which results in less water reaching it, therefore the period of inundation to this wetland will be less than existing and meets the standard of existing plus seven and twenty-one days for the two-year and ten-year or greater events, respectively.

Table 5 – Downstream Wetland Bounce Analysis (ft)

		2-year		*10-year*		*100-year*	
Waterbody	***Management Category***	***Existing***	***Proposed***	***Existing***	***Proposed***	***Existing***	***Proposed***
Offsite Wetland 1	Manage 2	4.16	4.11	5.65	5.64	6.73	6.37
Offsite Wetland 2	Manage 2	2.95	2.44	4.01	3.55	7.23	6.87

The proposed regional treatment plan will not result in adverse impacts to the following, consistent with BCWD Rule 2.9(a):

- *Local groundwater – The proposed reuse system will support local groundwater by returning runoff from impervious surfaces back into the soil for plant uptake and groundwater recharge and by reducing groundwater use for irrigation.*
- *Natural resources upstream of the regional facility – A culvert connecting the reuse basin to the onsite reconstructed wetland will allow stormwater to overflow into the wetland when water levels are high. This connection will maintain the wetland hydrology provided by greater runoff volumes in existing conditions.*

In addition to the reuse basin, the project includes pre-treatment sump structures and soil amendment for the new turn lanes, satisfying BCWD Rule 2.9(b).

Therefore, the proposed regional treatment plan meets the requirements of BCWD Rule 2.9 Regional Treatment.

Regional plan approval, if granted, will provide for future utilization of the stormwater-management capacity as described above to meet BCWD stormwater requirements only if future construction proposed is materially consistent with the grading and stormwater-treatment design shown in the plans submitted to support the application. Any material changes to the grading plan or stormwater-

management design will need to be the subject of a request for a permit modification, and may affect the treatment capacity available for future development or redevelopment of the site.

Recommended conditions of regional-plan approval:

1. Provide the District with a maintenance declaration that includes annual pumping volume differentiating volume used for irrigation and volume dewatered to draw the basin down in preparation for forecasted storm events. The stormwater declaration must provide for an annual accounting report of treatment capacity utilized by future projects or land altering activities within the area to which the plan pertains and reporting to BCWD.

PHASE 1 STORMWATER MANAGEMENT ANALYSIS

In conjunction with the request for approval of the regional plan, Liberty Academy is requesting approval of a permit for an expansion project that will utilize a portion of the capacity of the regional stormwater-management system to meet applicable BCWD requirements. Phase 1 includes a new lower school building, a parking lot, a practice soccer field, the septic sewer system for phase 1, a turn lane on Keller Avenue, and a stormwater basin (Figure 4).

Stormwater will be managed by the stormwater basin, irrigation using water from the basin on the green spaces on site, as well as BMPs on the western portion of the site.

Phase 1 includes 19.4 acres of impervious surface (7.4 acres existing, 12.0 acres new).

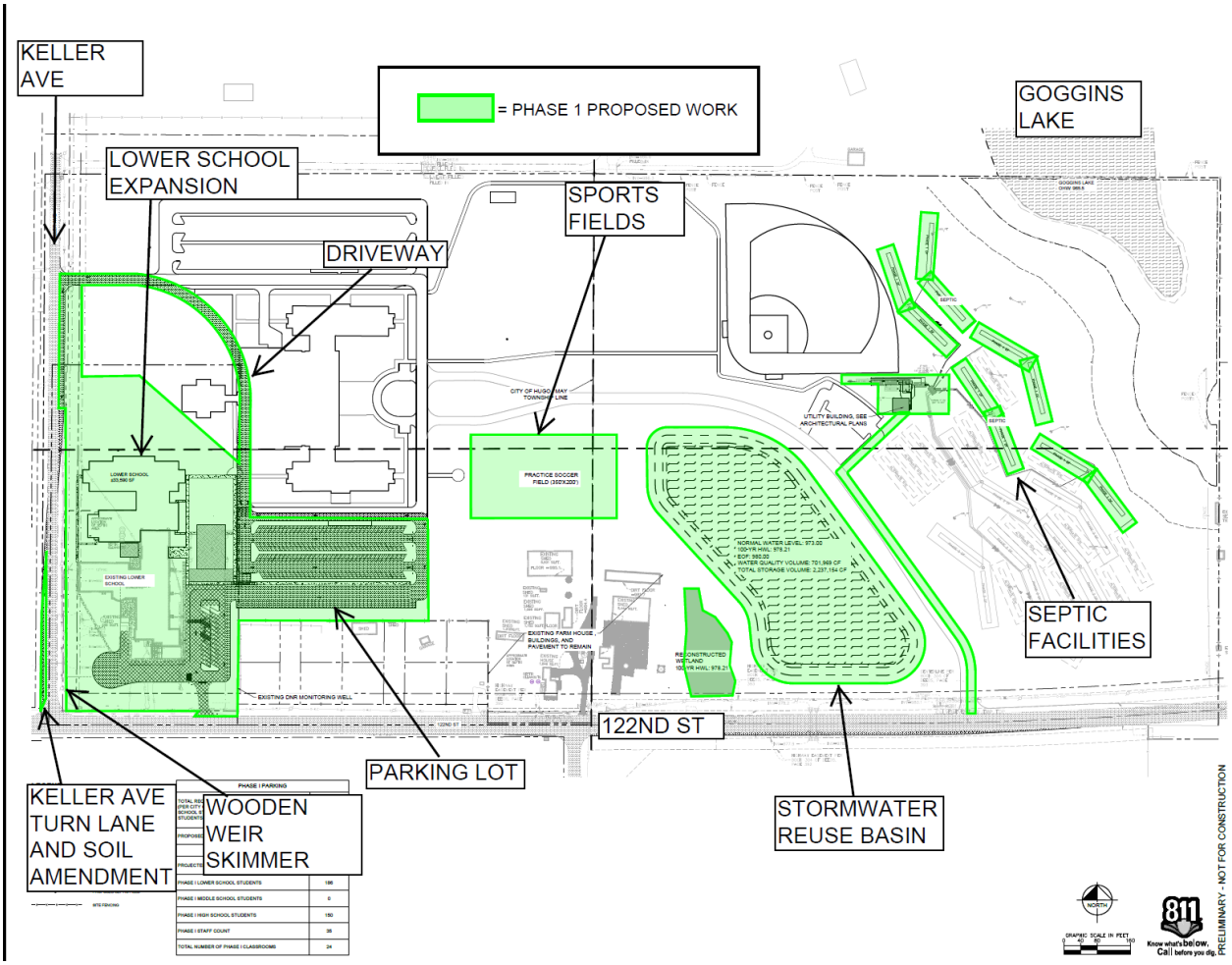

Figure 4: Phase 1 proposed construction.

The phase 1 work proposed to be completed under this permit triggers the application of Rule 2.0 Stormwater Management because the project involves creation of 12.0 acres of new impervious surface which exceeds the 10,000 square foot threshold in section 2.2(b). 1.6 acres of existing impervious will be disturbed, which is less than 50 percent of the existing 7.4 acres of impervious. Therefore, the stormwater management standards apply only to the disturbed portions of the project site. The site is not within the Diversion Structure Subwatershed, so the stormwater criteria in subsection 2.4.1(a) apply.

Phase 1 activities will drain to both the southwest and south discharge points. Planned grading will shift the drainage areas, directing less area to the southwest discharge point, and more area to the stormwater treatment basin that discharges to the south discharge point as described in the regional treatment plan analysis above and shown in Figure 2 and Figure 3.

The stormwater management plan for phase 1 includes:

- *One stormwater management basin with a permanent pool of water to allow settling of pollutants and sediment. This basin will be used for irrigation of green spaces on the project site.*

- *Pre-treatment sump storm structures on the storm sewers conveying runoff to the stormwater management basin.*
- *Soil amendment for the area receiving runoff from the new turn lane on Keller Avenue, designed to improve water holding capacity to reduce runoff volume and discharge rate. The type C and Type D soil, having approximately 0.6 inches of rainfall retention in this area, will be amended with compost and topsoil to achieve the capacity of a Type B soil (1.5" rainfall retention).*

Rate Control

According to BCWD Rule 2.4.1(a)(i), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not increase peak stormwater flow from the site, as compared with the pre-settlement condition, for a 24-hour precipitation event with a return frequency of two, 10 or 100 years for all points where discharges leave a site.

☒ Rule Requirement Met with Conditions

The stormwater management plan developed for the site was evaluated using a HydroCAD model of pre-settlement and post-development site conditions. A comparison of the pre-settlement and Phase 1 modeled peak flow rate is included in Table 6 and

Table 7, which demonstrates that phase 1 is in compliance with the BCWD rules and the regional treatment plan.

Table 6 – Phase 1 Peak Discharge Rate – Southwest (Keller Avenue)

Event	*Pre-settlement Runoff Rate (cfs)*	*Proposed Runoff Rate (cfs)*
2-year (2.79")	7.5	6.9
10-year (4.16")	11.1	9.6
100-year (7.14")	50.3	23.3

Table 7 – Phase 1 Peak Discharge Rate – South (122nd Street)

Event	*Pre-settlement Runoff Rate (cfs)*	*Proposed Runoff Rate (cfs)*
2-year (2.79")	3.5	3.5
10-year (4.16")	13.4	6.5
100-year (7.14")	38.8	14.2

Volume Control

According to BCWD Rule 2.4.1(a)(ii), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not increase stormwater flow volume from all points where discharge leaves the site, as compared with the pre-settlement condition, for a 24-hour precipitation event with a return frequency of two years, or five years within a landlocked basin or a subwatershed draining to a landlocked basin.

☒ Rule Requirement Met

The stormwater management plan developed for the site was evaluated using a HydroCAD model of pre-settlement and post-development site conditions. A comparison of the modeled runoff volume is included in Table 8. The volume control analysis assumes that the stormwater basin starting water level is at the NWL. The applicant provided a stormwater harvest and reuse analysis using the Metropolitan Council Stormwater Reuse Guide 'Water Balance Tool Irrigation Constant Demand' spreadsheet as well as the MIDS calculator to demonstrate suitability of runoff volume supply, storage, and green space area to meet the volume control and pollutant loading standards.
The applicant will utilize the reuse system to irrigate 0.75 inches per week from the middle of May until the end of September and 0.90 inches per week during the month of July. The total area irrigated in phase 1 is 3.0 acres. The regional treatment capacity used for phase 1 is determined by comparing the proposed volume running off the landscape to the BMPs, to the regional treatment plan design capacity for the 2-year, 24-hour event at each discharge point.

Table 8 – Phase 1 Two-year, 24-hour Storm Discharge Volume

Discharge Point	*Pre-settlement Runoff Volume (acre-ft)*	*Proposed Runoff Volume (acre-ft)*	*Regional Plan Design Capacity (acre-ft)*	*Phase 1 Runoff Volume Retained (acre-ft)*
Southwest	0.85	0.78	0	0 (100%)
South	1.35	0.19	7.31	5.68 (78%)

Pollutant Loading

According to BCWD Rule 2.4.1(a)(iii), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not at the downgradient property boundary or to an onsite receiving waterbody or wetland, increase annual phosphorus loading as compared with the pre-development condition.

☒ Rule Requirement Met

The permit applicant submitted MIDS modeling of phosphorus loading at both site discharge points, and the onsite wetland to demonstrate compliance with Rule 2.4.1(a)(iii).

The average annual pollutant loading to each discharge point is shown in Table 9 with the amount of the regional treatment plan capacity utilized by Phase 1 included in the far right column.

Table 9 – Phase 1 Phosphorus Loading Summary

Discharge Point	*Pre-Development Phosphorus Loading (lbs/yr)*	*Proposed Phosphorus Loading (lbs/yr)*	*Regional Plan BMP Treatment Capacity (Amount retained) (lbs/yr)*	*Phase 1 BMP Phosphorus Retained (lbs/yr)*
Southwest	8.6	8.1	0.0*	8.1 (100%)
South	35.7	24.7	51.0	29.2 (57%)
Onsite Wetland	35.9	3.1	0.0*	3.1 (100%)

*Compliance is achieved through diversion of drainage area to the proposed stormwater basin routed to the South discharge point

Lake/Wetland Bounce

According to BCWD Rule 2.4.1(a)(iv), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not increase the bounce in water level or duration of inundation, for a 24-hour precipitation event with a return frequency of two, 10 or 100 years in the subwatershed in which the site is located, for any downstream lake or wetland beyond the limit specified in Appendix 2.1.

☒ Rule Requirement Met

The applicant was provided with the BCWD H&H model to determine compliance with this criterion for the offsite wetlands. The applicant revised the model to reflect proposed conditions on the project site. A comparison of the modeled wetland bounce is included in Table 10. Both wetlands meet the permitted bounce of pre-development plus 1.0 feet. Comparison of the hydrographs demonstrates that the period of inundation remains the same from existing to post-development conditions, thus meeting the standard.

The onsite Manage 3 wetland has no limit on bounce. The proposed plan reduces the drainage area to this wetland which results in less water reaching it, therefore the period of inundation to this wetland will be less than existing and meets the standard of existing plus seven and twenty-one days for the two-year and ten-year or greater events, respectively.

Table 10 – Downstream Wetland Bounce Analysis (ft)

		2-year		*10-year*		*100-year*	
Waterbody	***Management Category***	***Existing***	***Proposed***	***Existing***	***Proposed***	***Existing***	***Proposed***
Offsite Wetland 1	Manage 2	4.16	4.11	5.65	5.64	6.73	6.37
Offsite Wetland 2	Manage 2	2.95	2.44	4.01	3.55	7.23	6.87

Rule 2.0 Conditions:

2-1. Provide BCWD with the final civil plan set prior to start of construction for review and approval including relocating the pump discharge pipe outlet in the ditch north of 122nd Street. (BCWD Rule 2.7.9)

2-2. Provide BCWD with the topsoil and compost soil amendment specification demonstrating 1.5 inches or more of rainfall retention for review and approval.

2-3. Provide a draft stormwater facility maintenance declaration for BCWD approval, then, after approval, provide proof of recordation with Washington County. A template is available under the permit section of the District's website. The maintenance declaration must include the following:

- Protection of all vegetated areas that must be preserved for irrigation use on the property,
- Annual documentation of the weekly depth of water to be used for irrigation along with the dates during which the irrigation system will be active, and
- Annual documentation of the dates and volumes of dewatering pump operation.

(The stormwater facility maintenance declaration recorded for the regional plan can provide all of the maintenance required for phase 1. I.e., a single comprehensive stormwater-maintenance declaration can fulfill the applicable condition on approval for each of the regional plan and the phase 1 work.)

2-4. Provide documentation as to the status of a National Pollutant Discharge Elimination System stormwater permit for the project from the Minnesota pollution Control Agency and provide the Storm Water Pollution Prevention Plan (SWPPP) as it becomes available (BCWD Rule 2.7.15).

If application 23-19 is approved, only the work described for the regional stormwater management and phase 1 land-disturbing activities will be approved. Future land-disturbing activities – whether they utilize the treatment capacity in the regional stormwater-management system or not – will need to be the subject of one or more future permit applications.

Rule 3.0—EROSION CONTROL

According to BCWD Rule 3.2, all persons undertaking any grading, filling, or other land-altering activities which involve movement of more than 50 cubic yards of earth or removal of vegetative cover on 5,000 square feet or more of land must submit an erosion control plan to the District, and secure a permit from the District approving the erosion control plan. The proposed project triggers the application of Rule 3.0 Erosion Control because the proposed project disturbs over 5,000 square feet of vegetation and movement of more than 50 cubic yards of earth.

☒ Rule Requirement Met with Conditions

The erosion and sediment control plan includes the following:

- *Perimeter control (silt fence) along downstream edge of disturbed areas*
- *Rock construction entrances*
- *Inlet protection for existing catch basins*
- *Biologs*
- *Safety Fence*
- *Temporary sedimentation basin*
- *Construction sequencing notes*
- *Permanent erosion control (seed or sod)*

The following conditions must be addressed in the erosion and sediment control plan to comply with the District's requirements:

Rule 3.0 Conditions:

3-1. Provide the contact information for the erosion and sediment control responsible party during construction once a contractor is selected. Provide the District with contact

information for the Erosion Control Supervisor and the construction schedule when available (BCWD Rule 3.3.2).

Rule 4.0—LAKE, STREAM, AND WETLAND BUFFER REQUIREMENTS

According to BCWD Rule 4.2.1, Rule 4.0 applies to land that is (a) adjacent to Brown's Creek; a tributary of Brown's Creek designated as a public water pursuant to Minnesota Statutes section 103G.005, subdivision 15; a lake, as defined in these rules; a wetland one acre or larger; or a groundwater-dependent natural resource; and (b) that has been either (i) subdivided or (ii) subject to a new primary use for which a necessary rezoning, conditional use permit, special-use permit or variance has been approved on or after April 9, 2007, (for wetlands and groundwater-dependent natural resources other than public waters) or January 1, 2000 (for other waters).

☒ Rule Requirement Met with Conditions

Rule 4.0 applies to the site because it is adjacent to Goggins Lake, which is both a wetland larger than one acre and a GDNR, and Hugo & May Township are requiring a conditional use permit for the proposed project. The classification of Goggins Lake as a GDNR requires a 100-foot buffer zone. According to Rule 4.3.3, the buffer zone is to extend to the top of the steep slope present on the east side of the site.

Buffer monumentation locations are shown on the plan. The design and signage text were not included in the plan set and therefore must be provided for BCWD review and approval.

Under Rule 4.4.1, at the time a buffer is created under Rule 4.0, the District may require a planting or landscaping plan to establish adequate native vegetative cover for area that (a) has vegetation composed of more than 30 percent of undesirable plant species (including, but not limited to reed canary grass, common buckthorn, purple loosestrife, leafy spurge, bull thistle, or other noxious weeds); or (b) consists more than 10 percent of bare or disturbed soil or turf grass.

The current vegetative condition in the proposed buffer has not been assessed, although review of aerial imagery indicates some portions of the buffer are existing agricultural field. As a condition of permit approval, the buffer vegetation needs to be analyzed and the project landscaping plan must be modified and approved by BCWD as needed to provide native vegetation cover compliant with subsection 4.4.1.

Rule 4.0 Conditions:

4-1. Provide a draft buffer maintenance declaration for BCWD approval, then, after approval, proof of recordation with Washington County. A template is available under the permit section of the District's website.

4-2. Provide a buffer monumentation plan for free-standing markers with a design and text approved by District staff in writing. A marker must be placed at each lot line, with additional markers at an interval of no more than 200 feet. (BCWD Rule 4.2.3)

4-3. Conduct an assessment of the proposed buffer area to determine the vegetative composition of undesirable plant species, bare, disturbed soil or turf grass and provide BCWD with a buffer establishment plan for review and approval.

Rule 5.0—SHORELINE AND STREAMBANK ALTERATIONS

According to BCWD Rule 5.2, no person may disturb the natural shoreline or streambank partially or wholly below the ordinary high water mark of a waterbody, without first securing a permit from the District.

☒ Rule Requirement Met with Conditions

Rule 5.0 applies to the site because the onsite wetland will be excavated, which will disturb the natural shoreline below the ordinary high water mark of the waterbody located to the west of the proposed stormwater reuse basin.

The applicant provided construction and restoration plans for adequate structural stability by minimizing riparian slopes (5.3.1) with a maximum steepness of 6:1, and that include native vegetation (5.3.2). A long term maintenance plan to ensure erosion is corrected and native plants are successful has not been submitted for this component of the project.

Rule 5.0 Conditions:

5-1. Include a long-term maintenance plan that will ensure erosion is corrected and native plant materials are successful (5.3.3).

Rule 6.0—WATERCOURSE AND BASIN CROSSINGS

According to Rule 6.2, no person may use the beds of any waterbody within the District for the placement of roads, highways and utilities without first securing a permit from the District.

☐ Rule Not Applicable to Permit. *There are no proposed watercourse or basin crossings.*

Rule 7.0—FLOODPLAIN AND DRAINAGE ALTERATIONS

According to Rule 7.2, no person may alter or fill land below the 100-year flood elevation of any waterbody, wetland, or stormwater management basin, or place fill in a landlocked basin, without first obtaining a permit from the District. No person may alter stormwater flows at a property boundary by changing land contours, diverting or obstructing surface or channel flow, or creating a basin outlet, without first obtaining a permit from the District.

Rule 7.0 applies to the site because there are proposed alterations below the 100-year flood elevation of the onsite wetland located to the west of the proposed stormwater basin.

According to BCWD Rule 7.3.1, floodplain filling must be accompanied by a replacement of flood volume between the ordinary water level and the 100-year flood elevation.

The applicant is not proposing any fill in the floodplain.

According to BCWD rule 7.3.2(c), all new and reconstructed buildings must be constructed such that the lowest floor is at least two feet above the 100-year high water elevation or one foot above the emergency overflow of a constructed basin.

In addition, no stormwater management facility may be constructed at an elevation that brings an adjacent permanent building into noncompliance with a standard in this subsection 7.3.2.

☒ Rule Requirement Met

The existing residential buildings are adjacent to both the onsite wetland and the proposed stormwater basin. Table 11 displays the high-water levels (HWLs) and building elevations. For this analysis, water levels from full buildout conditions were used as they result in a higher 100-year HWL.

The initial water level included in the applicant's building freeboard analysis relies on mechanical pumps to manage a water level 5.5 feet below the basin overflow elevation. The freeboard rule policy is to protect property investments; given the risk of immediate catastrophic loss to a structure and the contents when flooding occurs, assuming the starting water level of the basin at the outlet elevation of 978.50 feet is industry standard. This results in a 100-year HWL of 982.08 feet which allows the lowest floor elevation of 984.08 feet. As shown in Table 11, the freeboard requirement is met. The removals plan has been updated to remove two existing sheds with low floors below the allowable elevation.

Table 11 - Freeboard Requirement Summary

Basin	*100-Year HWL*	*Allowable Lowest Floor*	*Lowest Proposed/ (Adjacent existing) Building Floor*
Onsite Wetland	982.08	984.08	988.10 / (984.4)
Stormwater Reuse Basin	982.08	984.08	988.10 / (984.4)

According to BCWD Rule 7.3.5, the District will issue a permit to alter surface flows under paragraph 7.2 only on a finding that the alteration will not have an unreasonable impact on an upstream or downstream landowner and will not adversely affect flood risk, basin or channel stability, groundwater hydrology, stream baseflow, water quality or aquatic or riparian habitat.

The proposed work does not create a tailwater condition on site that would impact upstream landowners. The proposed reuse pond reduces runoff rate and volume for all storm events, reducing flood risk for downstream landowners.

Rule 8.0—FEES

Fees for this project as outlined below:

1. Stormwater management fee	$3,000
2. Erosion control fee for grading	$2,000
3. Shoreland alterations fee	$1,500
4. Floodplain and drainage alterations fee	$500
▪ **TOTAL FEES**	**$7,000**

Rule 9.0—FINANCIAL ASSURANCES

Financial assurances for this project are as outlined below:

1. Grading or Alteration (77.9 acres disturbed x $2,000/acre)	$155,800
2. Stormwater Management Facilities (125% of facility cost)	$3,266,720

- **TOTAL FINANCIAL ASSURANCES**
  ($5,000 Minimum Performance Financial Assurance) $3,422,520

Rule 10.0—VARIANCES

According to BCWD Rule 10.0, the Board of Managers may hear requests for variances from the literal provisions of these rules in instances where their strict enforcement would cause undue hardship because of circumstances unique to the property under consideration. The Board of Managers may grant variances where it is demonstrated that such action will be in keeping with the spirit and intent of these rules. Variance approval may be conditioned on an applicant's preventing or mitigating adverse impacts from the activity.

☐ Rule Not Applicable to Permit. *There are no requested variances.*

RECOMMENDED CONDITIONS OF THE PERMIT:

The following is a summary of the remaining tasks necessary to bring the regional stormwater-management plan and presently proposed land-disturbing activities into compliance with the BCWD Rules in all respects other than where variances are requested as discussed above:

1. Provide the District with documentation that the applicant has authorization to complete work within the right of way of Keller Avenue North and 122nd Street North.
2. Provide the District with a maintenance declaration that includes annual pumping volume differentiating volume used for irrigation and volume dewatered to draw the basin down in preparation for forecasted storm events.
3. Demonstrate that the plan has received preliminary plat approval (BCWD Rule 1.3a).
4. Address all stormwater management requirements (Conditions 2-1 to 2-4).
5. Address all erosion control requirements (Condition 3-1).
6. Address all buffer requirements (Conditions 4-1 to 4-3).
7. Add all shoreland requirements (Condition 5-1).
8. Replenish the Permit fee deposit to $7,000 (BCWD Rule 8.0). BCWD has reviewed thirteen revisions of the permit application materials and has an outstanding permit deposit fee of $33,780. If the permit fee deposit is not replenished within 60 days of receiving notice that such deposit is due, the permit application or permit shall be deemed abandoned and all prior approvals shall be revoked and collection proceedings shall begin on unpaid balances.
9. Provide the required financial assurances (BCWD Rule 9.0):
    a. Total grading or alteration assurance 77.9 acres ($155,800).
    b. Stormwater management facilities assurance ($3,266,720).

If the application is approved as proposed, only the regional plan and work proposed for phase 1 will be authorized. Future land-disturbing activities on the site will need to be the subject of separate permit applications to BCWD.

STIPULATIONS OF APPROVAL:

1. Note that the permit, if issued, will require that the applicant notify the District in writing at least three business days prior to commencing land disturbance. (BCWD Rule 3.3.1)

2. Provide the District with as-built record drawings showing that the completed grading and stormwater facilities conform to the grading plan.