

Riley Purgatory Bluff Creek Watershed District Permit Application Review

Permit No: 2022-053

Considered at Board of Managers Meeting: January 4, 2023

Received complete: December 9, 2022

Applicant: Andy Awes

Consultant: Alliant Engineering, Seth Loken

Project: Fox Ridge Addition—Proposed redevelopment of an existing single-family home parcel into three single-family residential lots with homes and an outlot in Chanhassen, MN. Stormwater management includes three subsurface stormwater management facilities to provide volume control, water quality, and rate control. A new outfall is also proposed to convey treated stormwater from the site into Lotus Lake.

Location: Fox Hill Drive, Chanhassen, Minnesota

Reviewer: Scott Sobiech P.E., and Annie Brunton, Barr Engineering

Board Action

Manager _____ moved and Manager _____ seconded adoption of the following resolution based on the permit report that follows and the presentation of the matter at the January 4, 2023 meeting of the managers:

Resolved that the application for Permit 2022-053 is approved, subject to the conditions and stipulations set forth in the Recommendations section of the attached report.

Resolved that on determination by the RPBCWD administrator that the conditions of approval have been affirmatively resolved, the RPBCWD president or administrator is authorized and directed to sign and deliver Permit 2022-053 to the applicant on behalf of RPBCWD.

Upon roll call vote, the resolutions were adopted, _____.

Applicable Rule Conformance Summary

Rule	Issue	Conforms to RPBCWD Rules?	Comments	
B	Floodplain Management and Drainage Alterations	Yes		
C	Erosion Control Plan	See Comment	See rule-specific permit condition C1 related to name of individual responsible for on-site erosion control.	
D	Wetland and Creek Buffers	See Comment	See rule-specific permit condition D1 related to maintenance declaration review, approval, and recordation.	
G	Waterbody Crossings and Structures	See Comment	See rule-specific permit conditions G1-G2 related revising the outfall alignment and maintenance declaration review, approval, and recordation.	
J	Stormwater Management	Rate	Yes	
		Volume	Yes	See stipulation #7 related to verifying the infiltration capacity of the soils and separation from groundwater.
		Water Quality	Yes	
		Low Floor Elev.	Yes	
		Maintenance	See Comment	See rule-specific permit condition J1 related to recordation of stormwater facility maintenance declaration.
		Chloride Management	Yes	
		Wetland Protection	Yes	
L	Permit Fee Deposit	See Comment	\$3,000 received June 30, 2022. As of December 29, 2022 the amount due is \$8,469.	
M	Financial Assurances	See Comment	The financial assurance is calculated at \$247,780.	

Background

The applicant proposes redevelopment of a 2.47-acre single-family home parcel into three single-family residential lots with homes and an outlot. The stormwater management system includes the construction of three subsurface infiltration systems and wetland buffers to provide water quality treatment, rate control, and volume abstraction. The water resources within the project site or downgradient of the proposed activities are summarized in the following table. The table also provides a brief explanation of how each resource is implicated in the permit application review process. Under previously approved Permit 2022-051, which involved restoring 32 feet of Lotus Lake shoreline and installing 23 feet of sand blanket along the shoreline, the proposed activities did not require stormwater management because the total disturbance was less than 5,000 square feet. The applicant has not fulfilled the conditions of approval for permit 2022-051, the permit has not been issued and no land-disturbing activities have started.

Water Resource	Projected resource impacts
Wetland 1	An onsite Wetland Conservation Act (WCA) protected wetland downgradient from proposed land-disturbing activities.
Lotus Lake	A public waterbody disturbed by the installation of a new outfall below the ordinary high water level (OHWL).

The project site information is summarized below:

Project Site Information	Approved Permit 2022-051	Current Permit 2022-053	Aggregate Total
Total Site Area (ac)	2.47	2.47	2.47
Length of Shoreline impacted (ft)	55	0	55
Existing Site Impervious (ac)	0.076	0.076	0.076
Disturbed Existing Impervious Area (ac)	0	0.076 (100% disturbed)	0.076 (100% disturbed)
Proposed Site Impervious Area (ac)	0.079	0.428	0.428
Change in Impervious Area (ac)	0.003 (3.9% increase)	0.352 (>100% increase)	0.352 (>100% increase)
Regulated Impervious Area (ac)	0.003	0.428	0.428
Total Disturbed Area (ac)	0.082	0.988	1.07

The following materials were reviewed in support of the permit request:

1. Permit Application received June 17, 2022 (Notified applicant on June 23, 2022, July 13, 2022, and August 30, 2022 that submittal was incomplete and provided comments on submitted materials; materials completing the application were received on December 9, 2022).
2. Stormwater Management Report dated June 17, 2022 (revised December 9, 2022)
3. Project Plan Set (14 sheets) dated June 17, 2022 (revised to 16 sheets August 15, 2022, and further revised December 9, 2022)
4. Electronic HydroCAD models received on August 15, 2022 (revised December 9, 2022)
5. Electronic MIDS models received on August 15, 2022 (revised December 9, 2022)
6. Geotechnical Evaluation Report by Haugo Geotechnical Services dated August 4, 2022 and additional soil borings by Haugo Geotechnical Services dated December 7, 2022
7. Engineer's Preliminary Estimate of Construction Costs dated June 24, 2022 (revised December 9, 2022)
8. Wetland Delineation Report dated November 23, 2020
9. Minnesota Wetland Conservation Act type and boundary Notice of Decision dated January 4, 2021
10. Wetland Functional Assessment Summary dated May 28, 2021
11. Engineer's Response to Comments dated August 15, 2022 and December 9, 2022

- 12. Email correspondence from Department of Natural Resources preliminarily waiving jurisdiction over structure in public water to General Permit 2015-1192 dated December 7, 2022
- 13. Map illustrating the alternatives to the Lotus Lake outfall received December 28, 2022

Rule Specific Permit Conditions

Rule B: Floodplain Management and Drainage Alterations

Because the project involves land-disturbance below the 100-year floodplain Lotus Lake (897.46 ft) to install a new outfall into Lotus Lake from the proposed redevelopment site, the project must conform to the requirements set forth by the RPBCWD Floodplain Management and Drainage Alterations rule (Rule B, Subsection 2.2).

Because the applicant proposes construction of new structures, the project must conform with low floor elevation requirements set forth by Rule B, Subsection 3.1 which references the low floor criteria in Rule J, subsection 3.6. All new 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 natural overflow of a waterbody. The results of the low floor analysis are summarized in the following table and demonstrate the provided freeboard is greater than the minimum required, thus meeting the habitable structure requirements in Rule J, Subsection 3.6.

Lot	Low Floor Elevation of Building (feet)	Adjacent water resource or Stormwater Facility	100-year Event Flood Elevation of Adjacent water resource or Stormwater Facility (feet)	Freeboard provided (feet)
Lot 1	926.9	Lotus Lake	897.46	29.44
Lot 1	926.9	BMP 1	912.74	14.16
Lot 2	958.6	BMP 2	946.42	12.18
Lot 3	963.1	BMP 3	955.73	7.37
Lot 3	963.1	Wetland 1	949.46	13.64

Placement of fill below the 100-year flood elevation (897.4 msl) is prohibited unless fully compensatory flood storage at or below the same elevation and within the floodplain of the same water basin is provided (Rule B, Subsection 3.2). Because the plan view and cross section information provided on the drawing shows proposed excavation and installation of stabilization measures will be below the existing ground level, the proposed project will result in an estimated net increase in flood storage below the 100-year flood elevation of 0.48 cubic yards and the project conforms to Rule B, Subsection 3.2. Because the applicant has demonstrated and the engineer concurs that the project will preserve the existing 100-year flood level and reduce total suspended solids and phosphorus loading to the lake, the project will not adversely alter surface flows or water quality, complying with subsection 3.3.

Rule B, Subsections 3.4 is not relevant because no impervious surface will be created or re-created within 50 feet of a watercourse. The applicant submitted the erosion presentation and sediment control plan compliant with RPBCWD’s Rule C (see Rule C analysis below).The information on the plan sheet includes a note indicating that activities must be conducted to minimize the potential transfer of aquatic invasive species conforming to Rule B, Subsection 3.6.

The RPBCWD Engineer concurs that the proposed project conforms to the floodplain management and drainage alteration requirements of Rule B.

Rule C: Erosion Prevention and Sediment Control

Because the project will alter 0.988 acres of land-surface area, the project must conform to the requirements in the RPBCWD Erosion Prevention and Sediment Control rule (Rule C, Subsection 2.1).

The erosion and sediment control plans prepared by Alliant include installation of silt fence, rock construction entrances erosion control blanket, placement of a minimum of 6 inches of topsoil, construction sequencing, decompaction of pervious areas compacted during construction, and retention of native topsoil onsite. To conform to RPBCWD Rule C requirements the following revisions are needed:

- C1. The Applicant must provide the name and contact information of the individual responsible for erosion control at the site. RPBCWD must be notified if the responsible individual changes during the permit term.

Rule D: Wetland and Creek Buffers

Because the proposed work triggers a permit under RPBCWD Rule J and a wetland protected by the state Wetland Conservation Act is downgradient from (but not disturbed by) the proposed construction activities, Rule D, Subsections 2.1a and 3.1 require buffer on the edge of the wetland that is downgradient from the land-disturbing activities.

The Wetland Delineation Report and MnRAM analysis submitted indicate that the wetland onsite is medium value wetlands. Rule D, Subsection 3.1.a.iii requires wetland buffer with an average of 40 feet from the delineated edge of the wetland, minimum 20 feet for medium value wetlands. The proposed buffer widths are summarized in the table below.

Wetland ID	RPBCWD Wetland Value	Required Minimum Width (ft)	Required Average Width (ft)	Required Area (sq ft)	Provided Area (sq ft)	Provided Minimum Width (ft)	Provided Average Width (ft)
Wetland 1	Medium	20	40	7,976 ¹	11,552 ²	25	57.9

¹ Buffer area required only along the portion of the wetland downgradient from land-disturbing activities.

² Applicant is providing buffer along the entire wetland boundary on the site.

The plans require revegetating disturbed areas within the proposed buffer with native vegetation, thus conforming with Rule D, Subsection 3.3. The engineer's review of plan sheets shows that buffer markers will be placed per District criteria (subsection 3.4). A note is included on the plan sheet indicating the project will be constructed so as to minimize the potential transfer of aquatic invasive species (e.g., zebra mussels, Eurasian watermilfoil, etc.) to the maximum extent possible conforming to Rule D, Subsection 3.6.

To conform to RPBCWD Rule D the following revisions are needed:

- D1. Buffer areas and maintenance requirements must be documented in a declaration recorded after review and approval by RPBCWD in accordance with Rule D, Subsection 3.5.

Rule G: Waterbody Crossings and Structures

Because the project involves construction of a new outfall to a public water (Lotus Lake), the project must conform to all applicable criteria in RPBCWD's Waterbody Crossings and Structures Rule (Rule G). The proposed outfall work was discussed with the Minnesota Department of Natural Resources on December 29, 2022 because the MN DNR General Permit #2015-1192 does not authorize placement of an outfall in the bed or bank of a public water if an RPBCWD permit for such work is issued; i.e., placement of a structure in a lake bed or bank is not explicitly within the scope of the general permit. MN DNR staff have preliminarily waived jurisdiction over the outfall proposed here to General Permit 2015-1192. However if agency staff with the necessary authority do not waive the requirement of an individual permit under state work-in-waters rules – given the engineer's analysis below under RPBCWD Rule G and the managers' conditional approval of the permit, if granted – the applicant will need to secure an individual permit for the work from DNR. (Material modification to proposed work in response to the agency's jurisdictional determination, if any, will need to be submitted to RPBCWD along with a request for a permit modification.) (Rule F: Stormwater and Streambank Stabilization is not triggered because the riprap being installed in bank of the lake is to prevent erosion more so than stabilize the bank and the relevant Rule F criteria are covered here, under Rule G.)

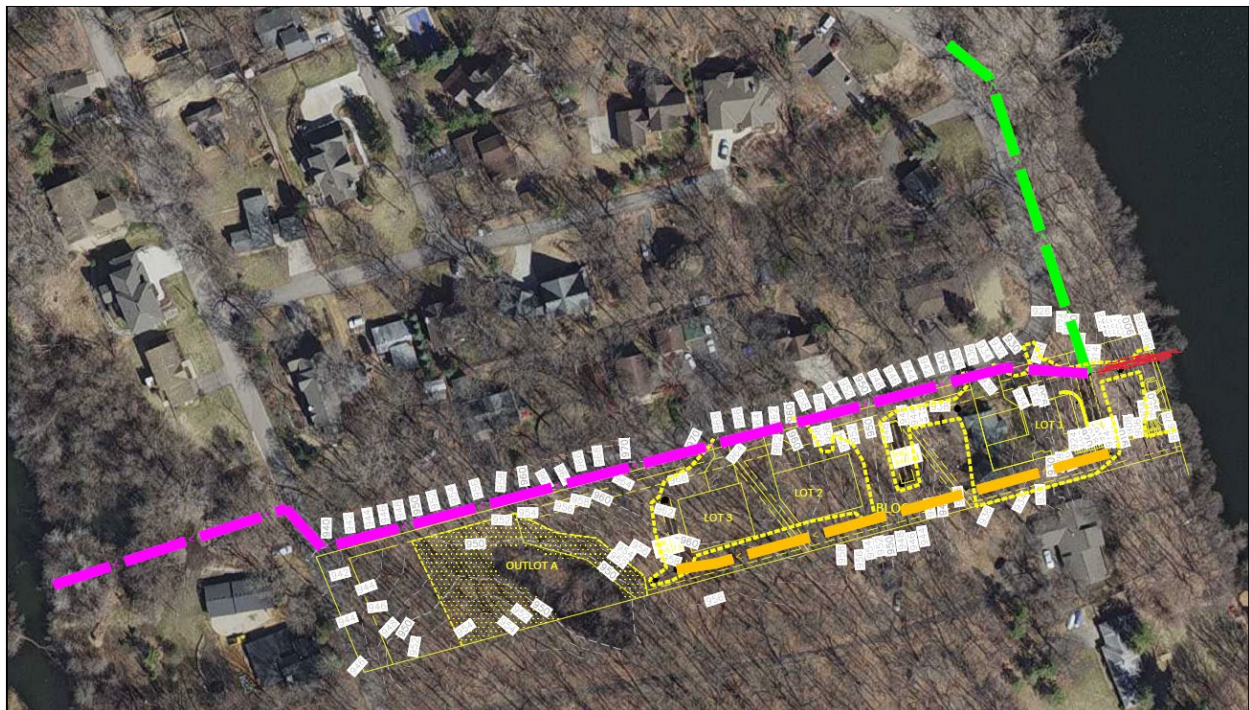
The following table summarizing MIDS modeling results provided by the applicant demonstrates that the project will reduce discharge to Lotus Lake from present conditions as follows: annual runoff volume (48.6%), total suspend solids (48.6%) and phosphorus (48.3%). (Lotus Lake is listed on the state impaired waters list for excess nutrients.) In addition, the rate control summary presented under the analysis of Rule J Stormwater Management demonstrates the proposed conditions result in lower discharge rates to Lotus Lake for the 2-, 10-, and 100-year rainfall event. Because the outfall structure that triggers Rule G is a critical component of the stormwater-management system that achieves the described results, the engineer determines that placement of the outfall provides a public benefit (Rule G, subsection 3.1a).

Summary of net change in discharges from the site to Lotus Lake

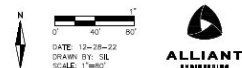
Pollutant of Interest	Existing Site	Proposed Site after Treatment	Change
Annual Runoff Volume (acre-feet)	0.35	0.18	-0.17
Total Suspended Solids (TSS) (lbs/yr)	51.8	26.6	-25.2
Total Phosphorus (TP) (lbs/yr)	0.29	0.15	-0.14

The project plans incorporate a drop manhole structure with sump about 38 feet upstream of the outfall into Lotus Lake to dissipate the flow energy. In addition, site runoff is conveyed the proposed subsurface stormwater facilities for entrapment of floatables, sedimentation, runoff retention and reduction of peak runoff rates to less than existing condition before the discharging to the lake, thus the design is in conformance with Rule G, Subsection 3.3.

Rule G, Subsection 3.5a requires that the structure represent the minimal impact solution to a specific need. The applicant presented the four options shown in the below figure and summarized below.



FOX RIDGE - ALTERNATIVE DISCHARGE OPTIONS
CHANHASSEN, MN



- 1) **Option 1 (Green Routing):** There is an existing flared end section discharging drainage from Lotus Trail and the surrounding area into Lotus Lake approximately 310 feet north of the Lot 1 Stormwater BMP. Due to existing utilities within Lotus Trail, the storm sewer would likely need

to be installed on the lakeside of Lotus Trail. Installing the piping using traditional open cut methods would disturb a well vegetated steep slope riparian to Lotus Lake, including tree removal. The installation of storm sewer at depths initially in the approximate 20 feet range would require a significant wide trench even with trench boxes. This route is located on City of Chanhassen parkland and public right of way. Because the permit application does not have permission to work on city property, this option was dismissed.

- 2) **Option 2 (Orange Routing):** Because the Lot 1 BMP is approximately 45 feet below the elevation of Lot 3 BMP, a pumping system would be necessary to get stormwater from Lot 1 BMP to Lot 3 BMP prior to discharging to the wetland. The forcemain routing required to convey stormwater to the outlet control structure of the Lot 3 BMP would require further removal of trees (a major concern raised by the City of Chanhassen). The other factor hindering the routing of stormwater to the wetland is it would result in the site not meeting the bounce and inundation criteria of the wetland, significantly altering the wetlands hydrology, thus this option was dismissed.
- 3) **Option 3 (Magenta Routing):** There exists a stormsewer and flared end that outlets to the wetland complex to the west of the property slightly northeast of the intersection of the Fox Hill Drive and Carver Beach Road. Early in the process of this project the City of Chanhassen explored expanding ponds to the west in an attempt to consolidate stormwater on the Fox Ridge project. The topography indicates the high point in Fox Hill Drive is slightly above elevation 970, resulting in 62 feet of elevation change between the high point of Fox Hill Drive and the invert of the stormwater BMP for Lot 1 and the Lot 1 BMP is at a lower elevation than the existing wetland complex to the west, thus a stormwater pump station and forcemain would be needed for this option. Option 3 would also require disturbance of additional trees for the installation of a forcemain and stormsewer. A slight variation of Option 3 would be to only route runoff from Lots 2 and 3 to the west, which would not eliminate the need for the outfall to Lotus Lake. Because of the anticipated tree removals, stormwater pumping station requirements, this option was dismissed.
- 4) **Option 4 (Red Routing):** Placement of the proposed outfall structure discharging at the normal water level of Lotus Lake represents the minimal impact solution by minimizing tree impacts, avoiding adverse impact to the onsite wetland, avoiding impacts to the off-site western wetland complex. The proposed outfall design minimizes the discharge velocity by including a drop manhole structure and limits the site disturbance adjacent to the lake, both of which minimize erosion potential and thus meet criteria in Rule G, Subsection 3.5a.

Because the outfall profile information shown on the drawing indicates the outfall will extend waterward of the OHWL and the associated riprap would be in contact with the lake bed, additional design revisions are needed to comply with subsections 3.5b and 3.5d.

As discussed in the Rule B narrative above, the proposed project will comply with the District floodplain rule, as required by subsection 3.5c.

The project grading and drainage plan includes a note directing the contractor that no work affecting the bed or banks of a protected water shall occur between March 15 and June 15 (Rule G, Subsection 3.7a). Disturbed areas near and along the banks will be immediately stabilized after completion of permitted work and revegetated as soon as growing conditions allow (Rule G, Subsection 3.7b). A note is included on the plan sheet indicating the project will be constructed so as to minimize the potential transfer of aquatic invasive species (e.g., zebra mussels, Eurasian watermilfoil, etc.) to the maximum extent possible (Rule G, Subsection 3.7c).

Plans submitted confirm that riprap is sized appropriately in relation to the erosion potential. Riprap is sized at 18 inches in diameter which is appropriately sized to withstand the designed discharge velocity of 7.9 feet per second, thus conforming to Rule F, Subsection 3.3b (i). Because the plans submitted indicate the proposed outfall construction along the bank of Lotus Lake will protrude waterward of the OHWL and has the potential to cover submerged vegetation slight alignment adjustments are needed to comply with Rule F, Subsection 3.3b (ii) and 3.3b (iv). The plans and details indicate that a transitional layer consisting of graded gravel, at least 6 inches deep with an appreciate geotextile fabric will be placed between the existing shoreline and rip rap, thus conforming to Rule F, Subsection 3.3b (iii). As shown in the riprap detail in the plans, the riprap is proposed to extend to the area around the top of the pipe below the Lotus Lake 100-year floodplain elevation of 897.46 NGVD29, consistent with Rule F, Subsection 3.3b (v). The riprap design reflects energy dissipation and stabilization necessary to minimize erosion at the streambank and is not placed for cosmetic purposes per Rule F, Subsection 3.3b (vi).

To conform to the RPBCWD Rule G the following revisions are needed:

- G1. The outfall location must be revised to allow for the installation of riprap and associated stilling basin consistent with the standard detail (plate 3107) included sheet 3. This will involve shifting the outfall west to minimize the encroachment and placement of riprap on the lake bed, thus achieving compliance with subsection 3.5b, 3.5d, and 3.7d.
- G2. Permit applicant must provide a draft maintenance declaration for the outfall structure for review and approval prior to recordation, in accordance with Rule G, Section 5.

Rule J: Stormwater Management

Because the project will alter 1.07 acres of land-surface area, the project must meet the criteria of RPBCWD's Stormwater Management rule (Rule J, Subsection 2.1). Under paragraph 2.5 of Rule J, common scheme of development, activities subject to Rule J on a parcel or adjacent parcels under common or related ownership must be considered in the aggregate, and the requirements applicable to the activity under the rule must be determined with respect to all development that has occurred on the site or on adjacent sites under common or related ownership since the date the rule took effect (January 1, 2015). Because another project has been permitted since the rules took effect (RPBCWD Permit 2022-

051), the current activities proposed must be considered in aggregate with the activities proposed under this application.

The criteria listed in Subsection 3.1 apply to the entire parcel and all impervious surface on the project site because the proposed activity, aggregated with the prior-permitted activity, will disturb more than 50 percent of the existing impervious surface and increase the impervious surface on the parcel by more than 50 percent(Rule J, Subsection 2.3).

The stormwater management system includes the construction of three subsurface infiltration systems and wetland buffers to provide water quality treatment, rate control, and volume abstraction..

Rate Control

In order to meet the rate control criteria listed in Subsection 3.1.a, the 2-, 10-, and 100-year post development peak runoff rates must be equal to or less than the existing discharge rates at all locations where stormwater leaves the site. The Applicant used a HydroCAD hydrologic model to simulate runoff rates for pre- and post-development conditions for the 2-, 10-, and 100-year frequency storm events using a nested rainfall distribution, and a 100-year frequency, 10-day snowmelt event. The existing and proposed 2-, 10-, and 100-year frequency discharges from the site are summarized in the table below.

Modeled Discharge Location	2-Year Discharge (cfs)		10-Year Discharge (cfs)		100-Year Discharge (cfs)		10-Day Snowmelt (cfs)	
	Ex	Prop	Ex	Prop	Ex	Prop	Ex	Prop
Wetland 1	4.0	3.0	7.4	6.7	15.4	14.2	0.3	0.3
Northwest	4.2	3.4	8.1	7.4	17.5	16.2	0.3	0.3
Lotus Lake	2.8	0.9	5.4	2.7	11.7	10.7	0.2	0.2

The proposed stormwater management plan will provide rate control in compliance with the RPBCWD requirements for the 2-, 10-, and 100-year events. Thus, the proposed project meets the rate control requirements in Rule J, Subsection 3.1a.

Volume Abstraction

Subsection 3.1.b of Rule J requires the abstraction onsite of 1.1 inches of runoff from all the imperviousness on the site. An abstraction volume of 1,709 cubic feet is required from the proposed 0.428 acres of impervious area. Plans indicate pretreatment for runoff entering the three subsurface infiltration facilities is provided by sump manholes, thus the proposed project conforms with RPBCWD Rule J, Subsection 3.1b.1.

Soil borings performed by Haugo GeoTechnical Services show that soils in the project area are typically silty sand and silty clayey sand. Groundwater was not observed at the soil boring under the proposed

subsurface infiltration facilities. The subsurface investigation information summarized in the table below shows that groundwater is at least 3 feet below the bottom of the proposed infiltration basin (Rule J, Subsection 3.1.b.2.a).

Proposed BMP	Nearest Subsurface Investigation	Boring is within footprint?	Groundwater Elevation (feet)	BMP Bottom Elevation (feet)	Separation (feet)
Subsurface Infiltration Facility 1	TP-1	Yes	No groundwater observed at boring bottom (approx. el 904.9 ft)	908	3.1
Subsurface Infiltration Facility 2	SB-3	Yes	No groundwater observed at boring bottom (approx. el 931 ft)	941.94	10.94
Subsurface Infiltration Facility 3	SB-2	Yes	No groundwater observed at boring bottom (approx. el 936 ft)	948	12

Double ring infiltrometer testing results provided by Haugo GeoTechnical Services on December 6, 2022, 2022 show an infiltration rate of 19.4 inches per hour (in/hr) beneath the proposed subsurface infiltration facility 2. Because the infiltration rate exceeds 8.3 in/hr, additional testing and soil modification are proposed by the application during construction. The applicant must submit documentation verifying the infiltration capacity of the amended soils does not exceed 8.3 inches/hour and is not less than the design infiltration rate.

Because of the existing topography and tree cover at the location of proposed subsurface infiltration facilities 1 and 2, subsurface infiltration testing was not performed at that these BMP locations. Per Rule J, Subsection 3.1.b.2.c measured infiltration capacity of the soils at the bottom of the infiltration systems must be provided. The applicant must submit documentation verifying the infiltration capacity of the soils and that the volume control capacity is calculated using the measured infiltration rate. If infiltration capacity is less than needed to conform with the volume abstraction requirement in subsection 3.1b or there is inadequate separation to groundwater, design modifications to achieve compliance with RPBCWD requirements will need to be submitted (in the form of an application for a permit modification or new permit).

The engineer concurs with the applicant’s design infiltration rates of 0.45 inches per hour for sand and silty sand based on the guidelines provided in the Mn Stormwater Manual. Based on the design infiltration rate, the engineer concurs that the basins will draw down within 48 hours (Rule J, subsection 3.1b.3). The table below summarizes the volume abstraction for the site based on the design infiltration capacity of the subsurface infiltration facilities. With the stipulation noted above regarding verification

of subsurface conditions, the engineer concurs with the submitted information and finds that the proposed project will conform with Rule J, Subsection 3.1.b.

Required Abstraction Depth (inches)	Required Abstraction Volume (cubic feet)	Provided Abstraction Depth (inches)	Provided Abstraction Volume (cubic feet)
1.1	1,709	1.11	1,722

Water Quality Management

Subsection 3.1.c of Rule J requires the Applicant to provide volume abstraction in accordance with 3.1b or least 60 percent annual removal efficiency for total phosphorus (TP), and at least 90 percent annual removal efficiency for total suspended solids (TSS) from site runoff, and no net increase in TSS or TP loading leaving the site from existing conditions. Because the infiltration basin proposed by the applicant provides volume abstraction meeting the standard in 3.1b and the engineer concurs with the modeling, under paragraph 3.1c.i, the engineer finds that the proposed project provides the required stormwater-quality protection.

Low floor Elevation

All new 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 stormwater-management facility according to Rule J, Subsection 3.6a. In addition, a stormwater-management facility must be constructed at an elevation that ensures that no adjacent habitable building will be brought into noncompliance with this requirement according to Rule J, Subsection 3.6b.

The low floor evaluation is presented as part of the Rule B analysis and confirms the proposed structures are more than two feet above the proposed 100-year flood elevation, thus the proposed project is in conformance with Rule J, Subsection 3.6.

Maintenance

Subsection 3.7 of Rule J 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 stormwater management facilities include an infiltration and sump manholes for pretreatment. In addition, because the proposed BMPs and pretreatment manholes function as a system providing stormwater management for the entire project, the declaration must include appropriate cross-dedication of the necessary rights to rely on the stormwater management system among the properties. To conform to the RPBCWD Rule J the following revisions are needed:

- J1. Permit applicant must provide a maintenance and inspection declaration as required by Rule J, Subsection 3.7. A draft declaration must be provided for District approval prior to recordation as a condition of issuance of the permit.

Chloride Management

Subsection 3.8 of Rule J requires the submission of chloride management plan that designates the individual authorized to implement the chloride management plan and the MPCA-certified salt applicator engaged in implementing the plan. The RPBCWD chloride-management plan requirement applies to the streets and common areas of the project site, but not the individual single-family homes. Because there are no street or common areas, Rule J, subsection 3.8 does not impose requirements on this project.

Wetland Protection

Because runoff from this site is directly tributary to an on-site medium value wetland, the project must comply with the wetland protection criteria in Rule J, Subsection 3.10

Because the applicant's design does not alter the runout elevation of the wetland and the HydroCAD model results demonstrate, and the engineer concurs, that the proposed flow rate and volumes flowing towards the on-site wetland are less than the under existing conditions, the bounce and inundation will not increase, thus the project meets the Bounce and Inundation criteria in 3.10a.

Rule J, Subsection 3.10b requires that treatment of runoff to medium value wetland meet the water quality treatment criteria in Rule J, subsection 3.1c. Because the proposed the proposed subsurface infiltration facility that discharges to the wetland provides the water quality treatment required in accordance with 3.1c.i, the engineer finds that the proposed project is in conformance with Rule J, Subsection 3.10b.

Rule L: Permit Fee Deposit:

The RPBCWD permit fee schedule adopted in February 2020 requires permit applicants to deposit \$3,000 to be held in escrow and applied to cover the \$10 permit-processing fee and reimburse RPBCWD for permit review and inspection-related costs and when a permit application is approved, the deposit must be replenished to the applicable deposit amount by the applicant before the permit will be issued to cover actual costs incurred to monitor compliance with permit conditions and the RPBCWD Rules. A permit fee deposit of \$3,000 was received on June 30, 2022. The applicant must replenish the permit fee deposit to the original amount due before the permit will be issued. Subsequently, if the costs of review, administration, inspections and closeout-related or other regulatory activities exceed the fee deposit amount, the applicant will be required to replenish the deposit to the original amount or such lesser amount as the RPBCWD administrator deems sufficient within 30 days of receiving notice that such deposit is due. The administrator will close out the relevant application or permit and revoke prior approvals, if any, if the permit-fee deposit is not timely replenished.

- L1. The applicant must replenish the permit fee deposit to the original amount due before the permit will be issued. As of December 29, 2022 the amount due is \$8,469.

Rule M: Financial Assurance:

	Unit	Unit Cost	# of Units	Total
Rule C: Erosion Control				
Silt Fence	LF	\$2.50	1,955	\$4,888
Inlet Protection	EA	\$100	0	\$0
Rock Entrance	EA	\$250	2	\$500
Restoration of disturbance	Ac	\$2,500	1.07	\$2,675
Rule D: Wetland Buffer	LS	\$5,000	1	\$5,000
Rule J: Stormwater Management Three subsurface infiltration facilities: 125% of engineer's opinion of cost (\$169,754)	EA	125% OPC	1	\$212,192
Contingency (10%)		10%		\$22,525
Total Financial Assurance				\$247,780

Applicable General Requirements:

1. The RPBCWD Administrator and Engineer shall be notified at least three days prior to commencement of work.
2. Construction shall be consistent with the plans and specifications approved by the District as a part of the permitting process. The date of the approved plans and specifications is listed on the permit.
3. Construction must be consistent with the plans, specifications, and models that were submitted by the applicant that were the basis of permit approval. The date(s) of the approved plans, specifications, and modeling are listed on the permit. The grant of the permit does not in any way relieve the permittee, its engineer, or other professional consultants of responsibility for the permitted work.
4. The grant of the permit does not relieve the permittee of any responsibility to obtain approval of any other regulatory body with authority, except as may be provided under Minnesota Department of Natural Resources General Permit 2015-1192, compliance with which, including payment of any applicable fee, is entirely the responsibility of the permittee.
5. The grant of the permit does not relieve the permittee of any responsibility to obtain approval of any other regulatory body with authority.
6. The issuance of this permit does not convey any rights to either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.
7. In all cases where the doing by the permittee of anything authorized by this permit involves the taking, using or damaging of any property, rights or interests of any other person or persons, or of any publicly owned lands or improvements or interests, the permittee, before proceeding therewith, must acquire all necessary property rights and interest.

8. RPBCWD's determination to issue this permit was made in reliance on the information provided by the applicant. Any substantive change in the work affecting the nature and extent of applicability of RPBCWD regulatory requirements or substantive changes in the methods or means of compliance with RPBCWD regulatory requirements must be the subject of an application for a permit modification to the RPBCWD.
9. If the conditions herein are met and the permit is issued by RPBCWD, the applicant, by accepting the permit, grants access to the site of the work at all reasonable times during and after construction to authorized representatives of the RPBCWD for inspection of the work.

Findings

1. The proposed project includes the information necessary, plan sheets, and erosion control plan for review.
2. The proposed project conforms to Rule B.
3. The proposed project will conform to Rule C, D, G and J if the Rule Specific Permit Conditions listed above are met.
4. Under Minnesota Department of Natural Resources General Permit 2015-1192 (attached to this report), approval of work under RPBCWD rule G may constitute approval under applicable DNR work in waters rules. (See analysis above, please.) Compliance with conditions in the general permit and payment of applicable fees, if any, are necessary to benefit from general permit approval and are the responsibility of the applicants.

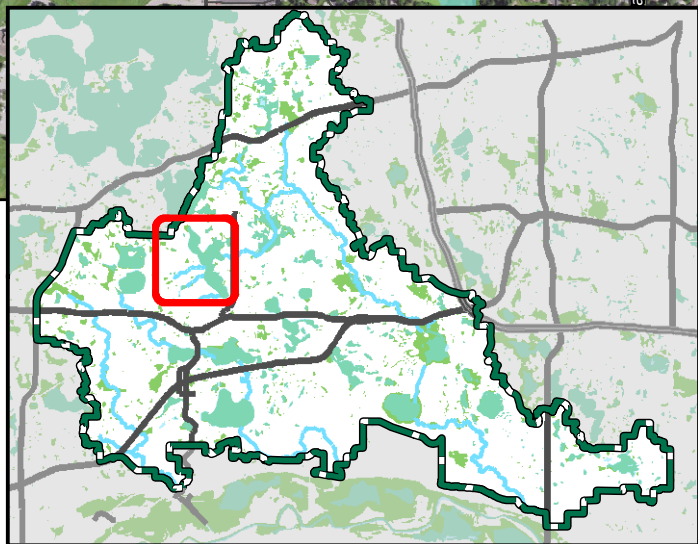
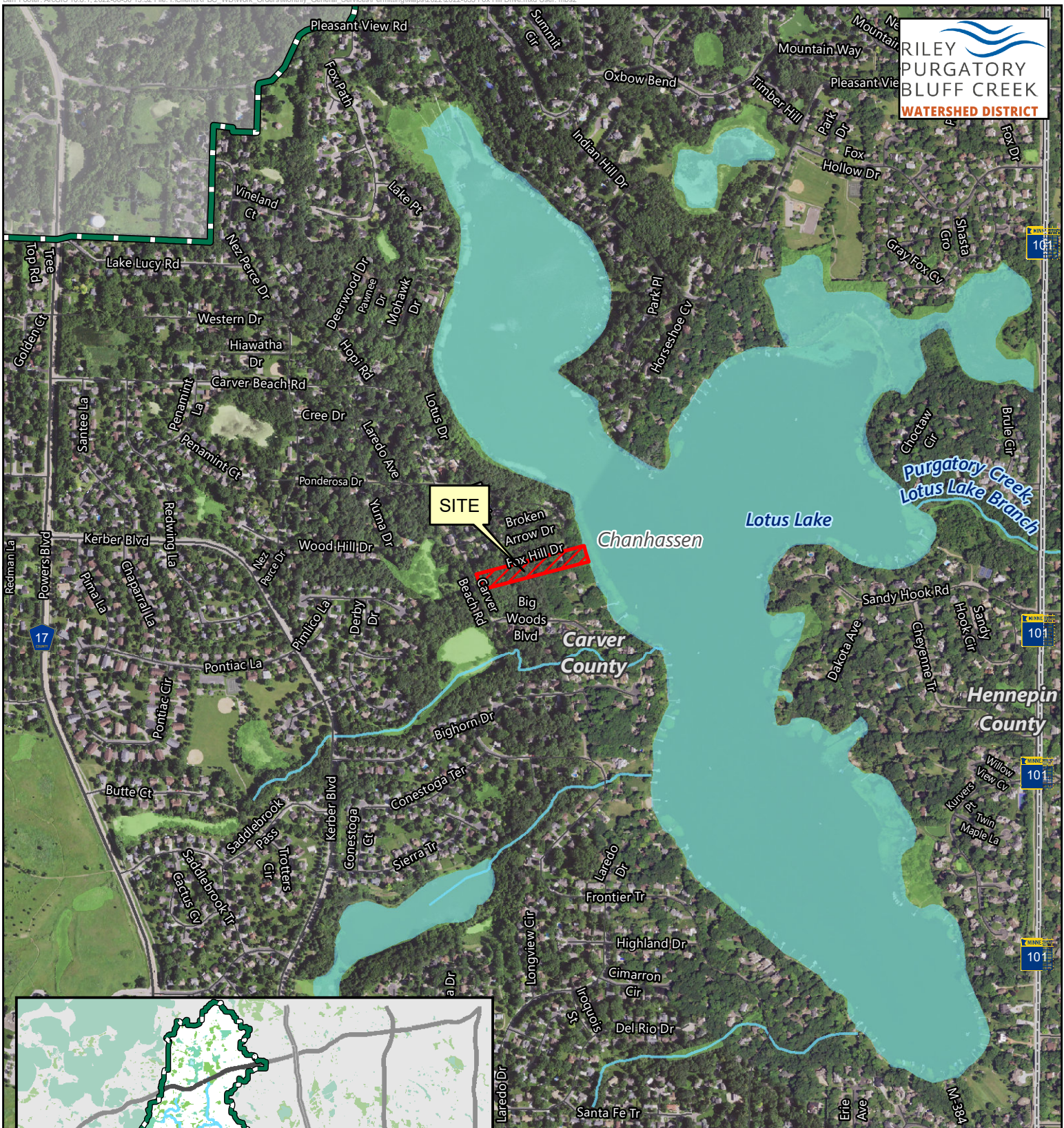
Recommendation:

Approval, contingent upon:

1. Financial Assurance in the amount of \$247,780.
2. Applicant providing the name and contact information of the individual responsible for erosion and sediment control at the site during construction.
3. Receipt of revised plans realigning the outfall location to allow for the installation of riprap and associated stilling basin consistent with the standard detail (plate 3107) included sheet 3. This will involve shifting the outfall west to minimize the encroachment and placement of riprap on the lake bed, thus achieving compliance with subsection 3.5b, 3.5d, and 3.7d.
4. Receipt in recordation a maintenance declaration for the operation and maintenance the wetland buffer areas, storm sewer outfall to Lotus Lake, and all stormwater management facilities, including cross-dedication of rights to rely on stormwater treatment as needed. Drafts of all documents to be recorded must be reviewed and approved by the District prior to recordation and proof of recordation must be provided to RPBCWD.
5. The applicant must replenish the permit fee deposit to the original amount due before the permit will be issued. As of December 29, 2022 the amount due is \$8,469.

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

1. Continued compliance with General Requirements
2. The Department of Natural Resources General Permit #2015-1192 applies to authorize the work in Lotus Lake as long as the permittee complies with the conditions of the general permit, which is attached to this report.
3. Per Rule J Subsection 4.5, upon completion of the site work, the permittee must submit as-built drawings demonstrating that at the time of final stabilization, all the stormwater facilities conform to design specifications and function as intended and approved by the District. As-built/record drawings must be signed by a professional engineer licensed in Minnesota and include, but not limited to:
 - a. the surveyed bottom elevations, water levels, and general topography of all facilities;
 - b. the size, type, and surveyed invert elevations of all stormwater facility inlets and outlets;
 - c. the surveyed elevations of all emergency overflows including stormwater facility, street, and other;
4. Providing the following additional close-out materials:
 - a. Documentation that disturbed pervious areas remaining pervious have been decompacted per Rule C.2c criteria
5. The work on the Fox Ridge development under the terms of permit 2022-053, if issued, must have an impervious surface area and configuration materially consistent with the approved plans. Design that differs materially from the approved plans (e.g., in terms of total impervious area) 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.
6. Replenish the permit fee deposit to the original amount or such lesser amount as the RPBCWD administrator determines sufficient within 45 days of receiving notice that such deposit is due in order to cover continued actual costs incurred to monitor compliance with permit conditions and the RPBCWD Rules.
7. Per Rule J, Subsection 3.1.b.ii measured infiltration capacity of the soils at the bottom of the infiltration system must be provided. The applicant must submit documentation verifying the infiltration capacity of the soils and that the volume control capacity is calculated using the measured infiltration rate. In addition, subsurface soil investigation is needed to verify adequate separation to groundwater (Rule J subsection 3.1.b.2). If infiltration capacity is less than needed to conform with the volume abstraction requirement in subsection 3.1b or there is inadequate separation to groundwater, design modifications to achieve compliance with RPBCWD requirements will need to be submitted (in the form of an application for a permit modification or new permit).



Permit Location Map



Feet



FOX HILL DRIVE
Permit 2022-053
Riley Purgatory Bluff Creek
Watershed District

FOX RIDGE

CHANHASSEN, MINNESOTA



OWNER

ANDY AWES
EM: andy@committiceffilms.com

BUILDER

DENALI CUSTOM HOMES
18352 MINNETONKA BOULEVARD
WAYZATA, MN 55391
CONTACT: DAVID BIEKER
PH: 612-718-1671
EM: david@dentalicustomhomes.com

CONSULTANT

ALLIANT ENGINEERING, INC.
733 MARQUETTE AVENUE
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PH: 612-758-3080
FX: 612-758-3099

ENGINEER

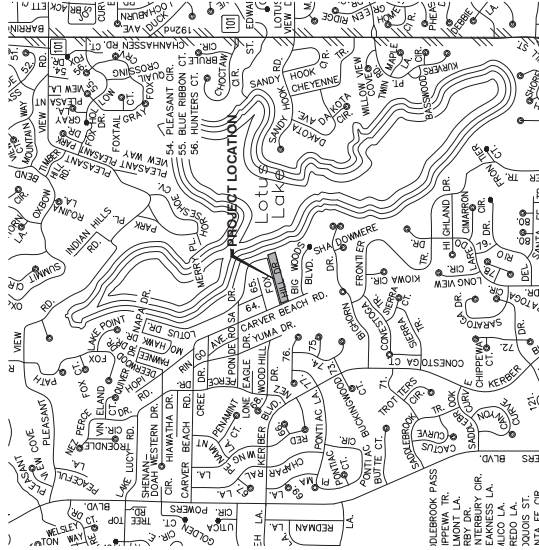
SETH LOKEN
LICENSE NO. 58862
EM: stloken@alliant-inc.com

SURVEYOR

DAN EKREM
LICENSE NO. 57366
EM: dekrem@alliant-inc.com

LANDSCAPE ARCHITECT

MARK KRONBECK
LICENSE NO. 26222
EM: mkronbeck@alliant-inc.com



SHEET INDEX

NO.	
1	COVER SHEET
2	EXISTING CONDITIONS SURVEY
3-4	DETAILS
5	PRELIMINARY PLAT
6	SITE PLAN
7	GRADING AND DRAINAGE PLAN
8	EROSION AND SEDIMENT CONTROL PLAN
9	UTILITY PLAN AND PROFILES
10-11	STORM SEWER PLAN AND PROFILES
12	STORM INFILTRATION SYSTEM DETAILS
13-14	TREE CANOPY COVERAGE AND RESTORATION PLAN
15	WETLAND MANAGEMENT PLAN
16	LANDSCAPE PLAN

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OWNER

ANDY AWES
EM: andy@committiceffilms.com

BUILDER

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MARK KRONBECK
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PROJECT TEAM DATA

DESIGNED BY:	SK
PROJECT NO.:	21-11217

1
SHEET 1 of 16

FOX RIDGE

PRELIMINARY PLAT

CHANHASSEN, MINNESOTA
COVER SHEET

I hereby certify that this plan, prepared by me or under my supervision, was prepared in accordance with the laws and rules of the State of Minnesota, and that I am a duly Licensed PROFESSIONAL ENGINEER under the laws of the State of MINNESOTA.

SETH LOKEN, PE

DATE	ISSUE

QUALITY ASSURANCE/CONTROL
DATE

DESIGNED BY: SK
PROJECT NO.: 21-11217

I hereby certify that this plan, as shown, 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.

SETH LOREN, PE
 DATE: 11/11/2022
 DRAWING NO.: 21-10227
 SHEET NO.: 3 OF 16

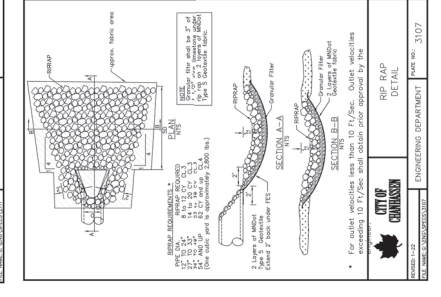
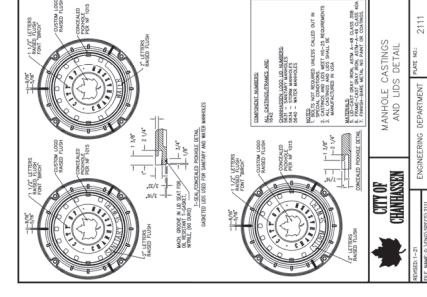
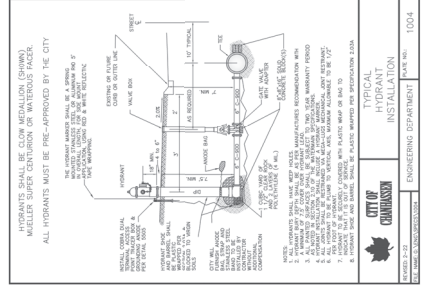
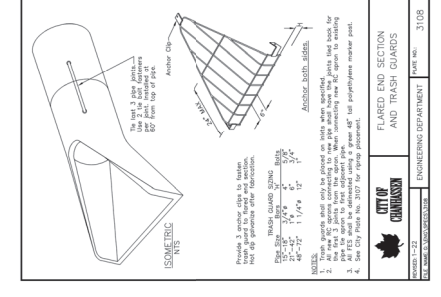
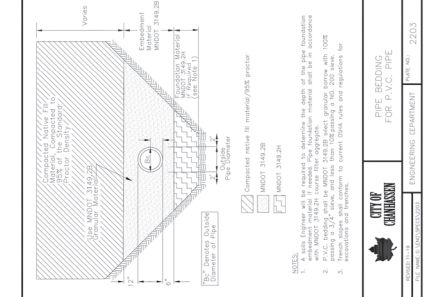
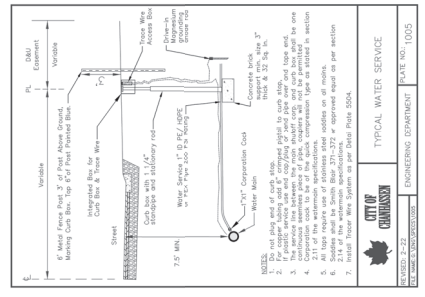
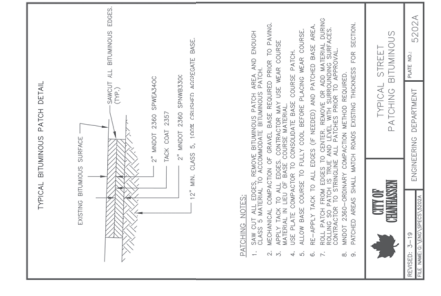
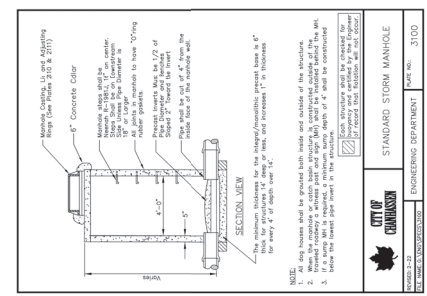
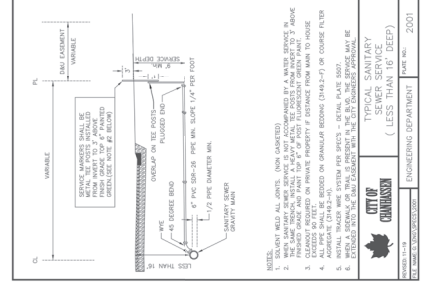
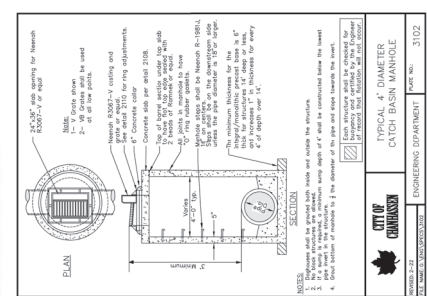
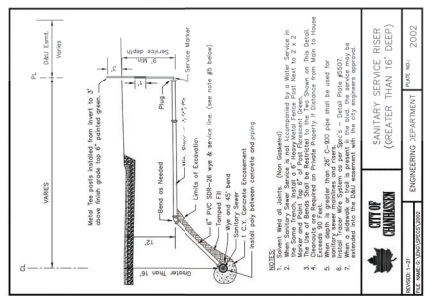
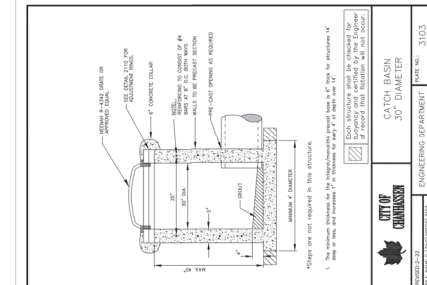
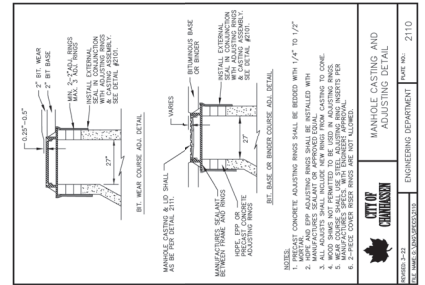
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11-11-2022	REVISION
11-11-2022	REVISION
11-11-2022	REVISION
11-11-2022	REVISION

PROJECT TEAM DATA

DESIGNER:	ELL
DRAWN:	ELL
CHECKED:	ELL
PROJECT NO.:	21-10227

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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.

SETH LOREN, PE
 DATE: _____ LICENSE No. _____

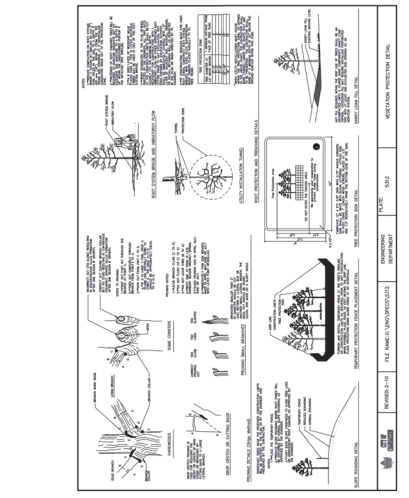
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5-1-20 CITY RESUBMITTAL		
8-18-20 WATERSEED RESUBMITTAL		
9-1-20 CITY RESUBMITTAL		
10-1-20 CITY RESUBMITTAL		
10-27-20 CITY COUNCIL UPDATE		
11-3-20 CITY QUESTIONS		
12-2-20 WATERSEED RESUBMITTAL		

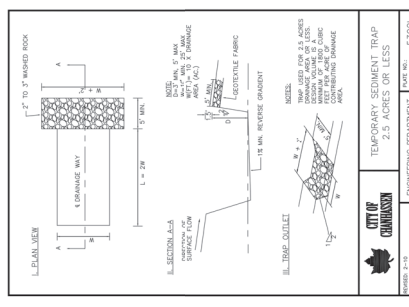
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DESIGNED BY:	ILL
DRAWN BY:	ILL
PROJECT NO.:	231-02227

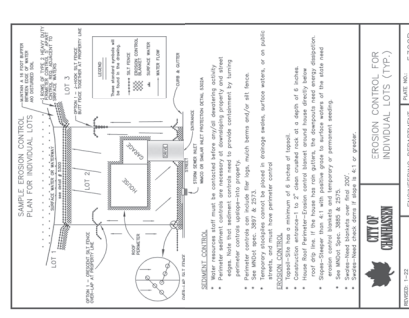
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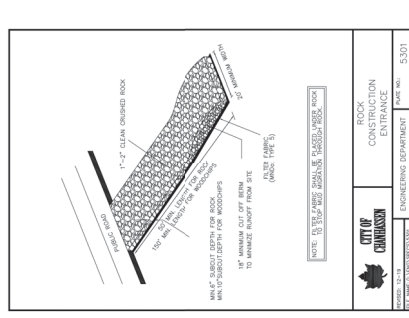
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 ENGINEERING DEPARTMENT
 DRAWN BY: ILL
 DATE: 5/30/20



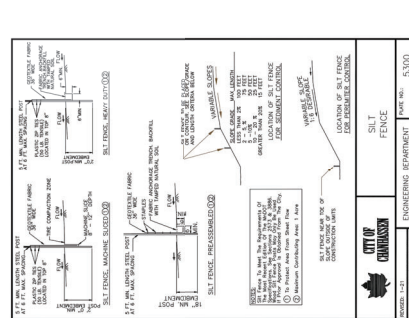
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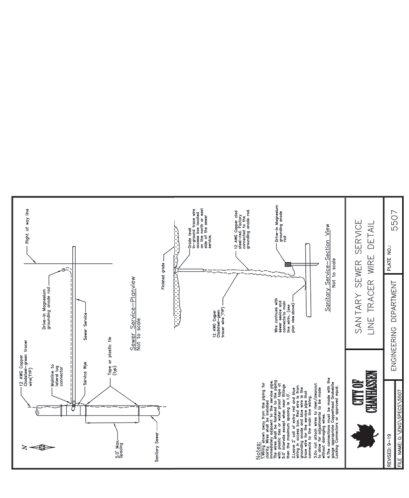
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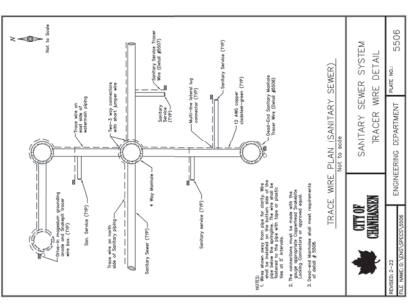
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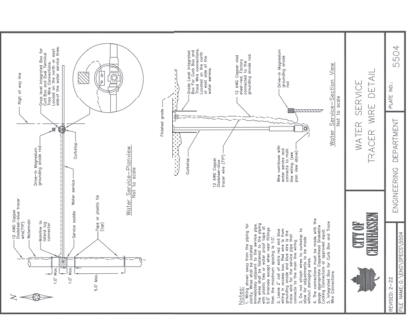
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 DATE: 5/30/20



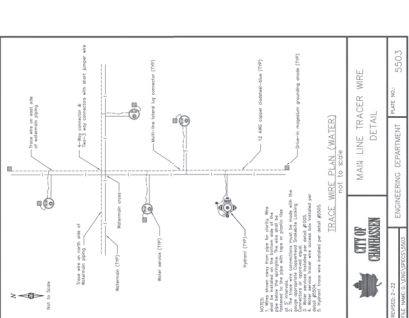
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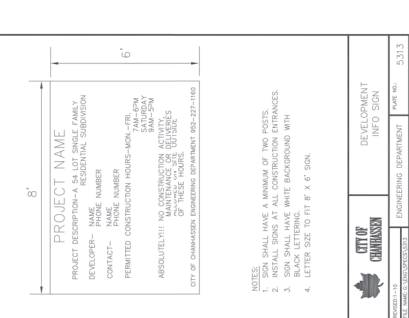
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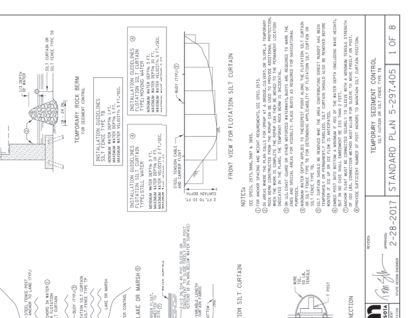
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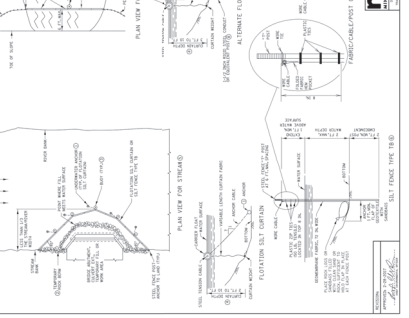
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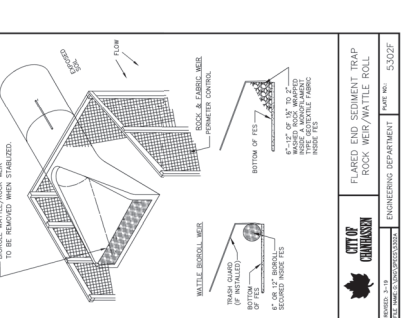
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 DATE: 5/30/20



CITY OF CHANHASSEN
 ENGINEERING DEPARTMENT
 DRAWN BY: ILL
 DATE: 5/30/20

LEGEND:

- PROPERTY LINE
- LOT LINE
- R.O.W
- EASEMENT LINE
- FOUND IRON MONUMENT

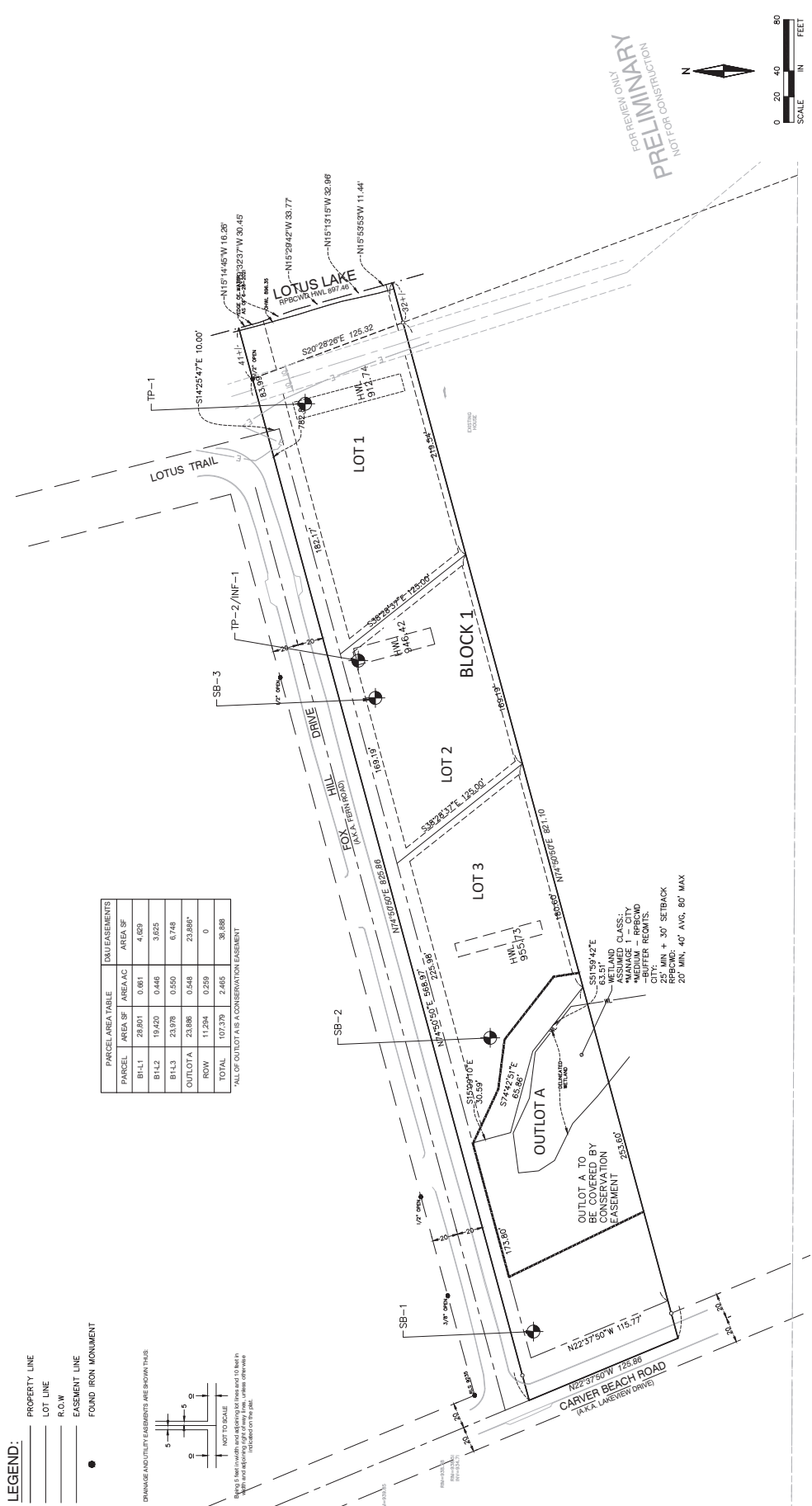
DRAINAGE AND UTILITY EASEMENTS ARE SHOWN THIS



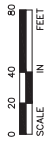
Being 5 feet inside each setback for the set 15 feet in width and reporting right-of-way line, unless otherwise indicated on this plan.

PARCEL	AREA, SF	AREA, AC	IMPROVEMENTS	AREA, SF
B1-L1	28,801	0.81		4,829
B1-L2	19,420	0.448		3,625
B1-L3	23,879	0.650		6,748
OUTLOT A	23,986	0.648		23,986*
ROW	11,234	0.259		0
TOTAL	107,319	2.465		38,888

*ALL OF OUTLOT A IS A CONSERVATION EASEMENT



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PRELIMINARY
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FOX RIDGE
 CHANHASSEN, MINNESOTA
 PRELIMINARY PLAT
 PRELIMINARY PLAT

I hereby certify that this plan, prepared by me or under my supervision, represents the true and correct location of all lines and corners shown hereon, and that I am a duly licensed PROFESSIONAL ENGINEER under the laws of the State of MINNESOTA.

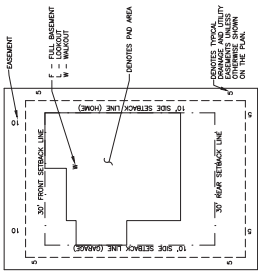
SETH LOREN, PE License No. 035254
 DATE 10/22/22
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 BY DATE
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 #3-15-25-WATERSHED SUBMITTAL
 #4-25-CITY RESUBMITTAL
 #5-15-25-CITY RESUBMITTAL
 #6-15-25-CITY RESUBMITTAL
 #7-25-CITY RESUBMITTAL
 #8-25-CITY RESUBMITTAL
 #9-25-CITY RESUBMITTAL
 #10-25-CITY RESUBMITTAL
 #11-25-CITY QUESTIONS
 #12-25-25-WATERSHED RESUBMITTAL

PROJECT TEAM DATA
 DESIGNED BY: ELL
 DRAWING NO.: 21-03217

LOT AREA TABLE

BLOCK	LOT	AREA (SF)	SETBACKS*		ALLOWABLE IMPERVIOUS*** (SF)	PROPOSED IMPERVIOUS (SF)
			FRONT	REAR		
1	1	28,801	0.661	30	7200	5940
	2	19,420	0.446	30	4855	3890
	3	23,978	0.550	30	5995	4436
OUTLOT		A	23,886	0.548	N/A	N/A

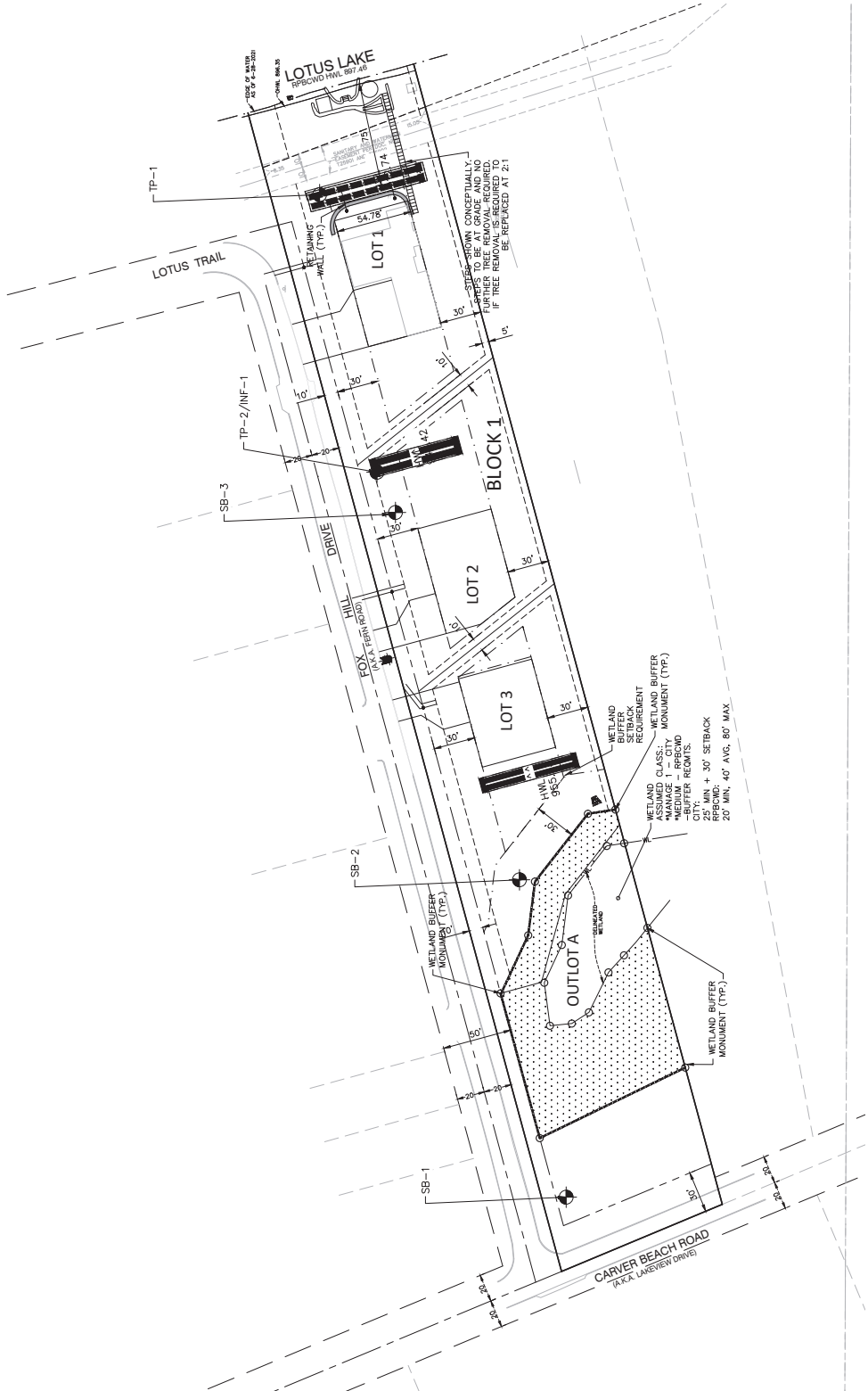
*SIDE SETBACKS SEE TYPICAL LOT DETAIL
 *** 25% MAXIMUM IMPERVIOUS/LOT PER CITY OF CHANHASSEN DEVELOPMENT REGULATIONS



SITE PLAN DATA

EXISTING ZONING	RSF - RESIDENTIAL SINGLE FAMILY
PROPOSED ZONING	RSF - RESIDENTIAL SINGLE FAMILY
PROPOSED DENSITY	RESIDENTIAL LOW DENSITY (1, 2, 4 U/A)
PROPOSED LAND USE	RESIDENTIAL LOW DENSITY (1, 2, 4 U/A)
GROSS AREA	2.47 ACRES
WETLAND AREA	0.12 ACRES
NET AREA	2.36 ACRES
PROPOSED DWELLING UNITS	3
ROW (BOTH FRONT AND REAR)	30'
SIDE	10'
REAR	30'
WETLAND	30'

- LEGEND:**
- EASEMENT LINE
 - SETBACK LINE
 - PROPERTY LINE
 - LOT LINE
 - RETAINING WALL
 - ROW
 - WETLAND DELINEATION*
 - WETLAND BUFFER*
 - WETLAND BUFFER STRIP*
- *SEE WETLAND MANAGEMENT PLAN FOR WETLAND BUFFER DATA, CALCULATIONS AND WETLAND BUFFER MONUMENT



FOX RIDGE
PRELIMINARY PLAT
CHANHASSEN, MINNESOTA
SITE PLAN

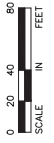
I hereby certify that this plan, prepared by me or under my supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of MINNESOTA.

SETH LOREN, PE
 DATE: _____
 DRAWING NO.: _____
 QUALITY ASSURANCE/CONTROL: _____

DATE	ISSUE
11-27-22	CITY RESUBMITTAL
1-12-23	CITY RESUBMITTAL
5-16-23	CITY RESUBMITTAL
8-16-23	CITY RESUBMITTAL
11-13-23	CITY RESUBMITTAL
11-27-23	CITY RESUBMITTAL
11-27-23	CITY RESUBMITTAL

PROJECT TEAM DATA
 DESIGNER: PL
 DRAWING NO.: 23-11237
 PROJECT NO.: 23-11237

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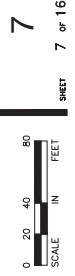
I hereby certify that this plan, prepared by me or under my supervision, is a true and correct statement of the work of a duly licensed PROFESSIONAL ENGINEER under the laws of the State of MINNESOTA.

SETH LOREN, PE
 DATE: _____
 LICENSE NO.: _____
 QUALITY ASSURANCE/CONTROL:

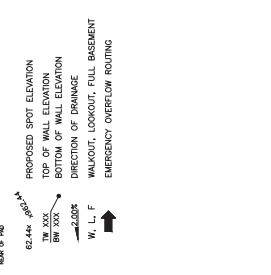
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____	____	9-11-2023 CITY RESUBMITTAL
____	____	9-11-2023 WATERSHED RESUBMITTAL
____	____	10-27-2023 CITY COUNCIL UPDATE
____	____	11-2-2023 CITY QUESTIONS
____	____	12-2-2023 WATERSHED RESUBMITTAL

PROJECT TEAM DATA

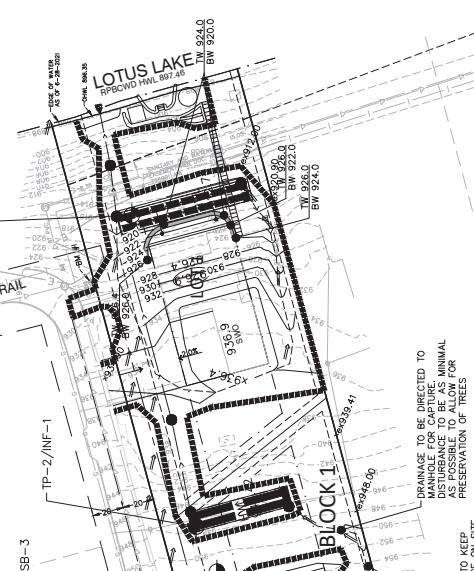
DESIGNED BY:	ILL
DRAWN:	
PROJECT NO.:	231-022217



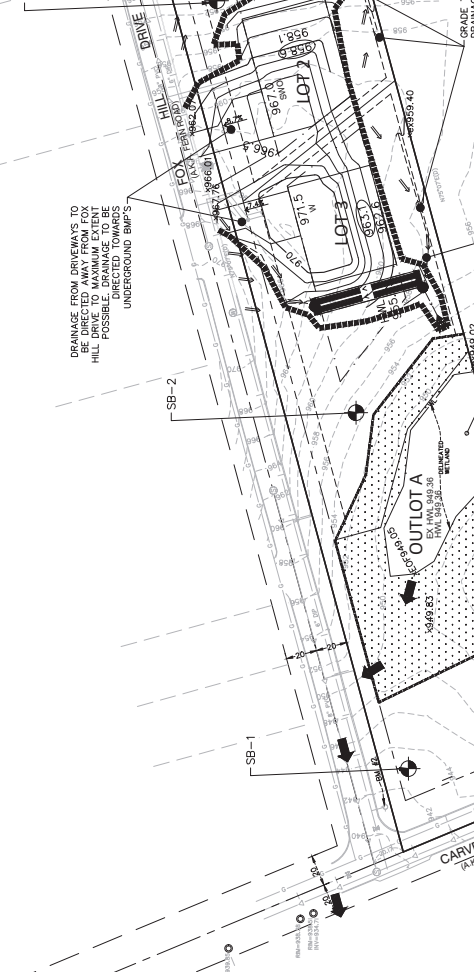
- GRADING LEGEND:**
- EXISTING CONTOUR
 - PROPOSED CONTOUR
 - PROPOSED EASEMENT
 - PROPERTY LINE
 - SETBACK LINE
 - LOT LINE
 - RIGHT-OF-WAY
 - WETLAND BOUNDARY
 - WETLAND BUFFER*
 - DISTURBANCE LIMIT
 - 5 FT. DRIVEWAY UTILITY BUFFER
 - 3 FT. DRIVEWAY UTILITY BUFFER
 - 10 FT. DRIVEWAY UTILITY BUFFER
 - 10 FT. DRIVEWAY UTILITY BUFFER
 - PROPOSED SPOT ELEVATION
 - TOP OF WALL ELEVATION
 - BOTTOM OF WALL ELEVATION
 - W. L. F.
 - WALLOUT, LOOKOUT, FULL BASEMENT
 - EMERGENCY OVERTLOW ROUTING



- GRADING NOTES:**
1. ALL FINISHED GRADES SHALL BE 2.0% AWAY FROM PROPOSED BUILDINGS AT MINIMUM GRADE OF 2.0%.
 2. THE CONTRACTOR SHALL KEEP THE BASEMENT ROOMS FREE OF DEBRIS AND REMOVE THE OFF-SITE TRACKING OF SOIL IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY AND WATERSHED.
 3. NOTIFY OWNER STATE ONE CALL AT (609)282-1166, 48 HOURS PRIOR TO START OF CONSTRUCTION.
 4. ALL IMPROVEMENTS TO CONFORM WITH CITY OF CHANHASSEN CONSTRUCTION STANDARDS SPECIFICATION, LATEST EDITION.
 5. ROCK CONSTRUCTION ENHANCES SHALL BE PROVIDED AT ALL CONSTRUCTION ACCESS POINTS.
 6. RECORDSMAN, TECHNICAL REPORT AND PROJECT MANUAL FOR SOIL CORRECTION REQUIREMENTS AND TESTING PROTECTED WITH SUE FENCE.
 7. STRIP TOPSOIL PRIOR TO ANY CONSTRUCTION, REUSE STOCKPILE ON SITE. STOCKPILE PERIMETERS MUST BE PROTECTED WITH SUE FENCE.
 8. RECORDS AND APPROVALS FOR SOIL CORRECTION SHALL BE SUBMITTED TO THE CITY AND WATERSHED PRIOR TO ANY CONSTRUCTION. ALL RECORDS SHALL BE APPROVED BY THE CITY AND WATERSHED PRIOR TO ANY CONSTRUCTION. ALL RECORDS SHALL BE APPROVED BY THE CITY AND WATERSHED PRIOR TO ANY CONSTRUCTION.
 9. IMMEDIATELY FOLLOWING GRADING OF (3) 0% GREATER SIDE SLOPES AND DRAINAGE SLOPES, WOOD CHIP BLANKET OR OTHER APPROVED SOIL STABILIZATION METHOD (APPROVED BY ENGINEER) SHALL BE APPLIED OVER APPROVED SEED MIXTURE AND A MINIMUM OF 6" TOPSOIL.
 10. ALL DOWNSPOUTS TO BE ROUTED TOWARDS BMP'S.
- RETAINING WALL NOTES:**
1. BUILDING PERMITS ARE REQUIRED FOR ALL RETAINING WALLS 4 FEET IN HEIGHT OR GREATER. ALL RETAINING WALL DESIGN SHALL BE REVIEWED AND APPROVED BY THE CITY PRIOR TO INSTALLATION. ANY QUESTIONS REGARDING THE BUILDING PERMITS SHALL BE DIRECTED TO THE CITY BUILDING INSPECTOR.
 2. A 3" SAFETY RAILING IS REQUIRED ATOP ALL WALLS 4 FOOT TALL OR GREATER.
 3. RETAINING WALL CONTRACTOR AND/OR RETAINING WALL STRUCTURAL ENGINEER ARE RESPONSIBLE TO REVIEW CIVIL ENGINEERING DRAWINGS, OBSERVE CONSTRUCTION, AND REPORT ANY DEFICIENCIES TO THE CIVIL ENGINEER. RETAINING WALLS THAT REQUIRE MODIFICATIONS TO THE CIVIL SITE DESIGN IS THE RESPONSIBILITY OF THE ENGINEER. IF NO MODIFICATIONS ARE REQUESTED, IT SHALL BE UNDERSTOOD THAT ALL CONDITIONS WITHIN THE CIVIL SITE DESIGN AND PLANS ARE ACCEPTABLE AND ABLE TO BE PROVIDED FOR IN THE RETAINING WALL DESIGN AND CONSTRUCTION.
 4. RETAINING WALLS ARE TO BE FINAL DESIGNED AND PERMITTED BY OTHERS.



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 4. RETAINING WALLS ARE TO BE FINAL DESIGNED AND PERMITTED BY OTHERS.

EROSION CONTROL NOTES:

- A. NATURAL TOPOGRAPHY AND SOIL CONDITIONS MUST BE PROTECTED, INCLUDING RETENTION ON-SITE OF NATIVE TOPSOIL TO THE GREATEST EXTENT POSSIBLE.
- B. ADDITIONAL MEASURES, SUCH AS HYDRAULIC MULCHING AND OTHER PRACTICES AS SPECIFIED BY THE DISTRICT MUST BE USED ON SLOPES OF 3:1 (H:V) OR STEEPER TO PROVIDE ADDITIONAL STABILIZATION.
- C. FINAL SITE STABILIZATION MEASURES MUST BE INSTALLED WITHIN 30 DAYS OF THE COMPLETION OF CONSTRUCTION AND REMAIN IN PLACE UNTIL THE UNDERLYING SOIL IS FULLY ESTABLISHED.
- D. CONSTRUCTION SITE WASTE SUCH AS DISCARDED BUILDING MATERIALS, CONCRETE TRUCK WASHOUT, CHEMICALS, LITTER AND SANITARY WASTE MUST BE PROPERLY MANAGED.
- E. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPs MUST BE MAINTAINED UNTIL COMPLETION OF CONSTRUCTION AND VEGETATION IS ESTABLISHED SUFFICIENTLY TO ENSURE LONG TERM STABILIZATION OF THE SITES.
- F. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPs MUST BE REMOVED UPON FINAL STABILIZATION.
- G. TEMPORARY EROSION AND SEDIMENT CONTROL BMPs MUST BE MAINTAINED AT ALL TIMES. VEGETATION MUST BE RECOMPLETED TO A MINIMUM OF 90% COMPACTED. WEEDS, PRESSURE OF LESS THAN 400 POUNDS PER SQUARE INCH IN THE UPPER 12 INCHES OF THE SOIL PROFILE WHILE TAKING CARE TO PROTECT UTILITIES, TREE ROOTS, AND OTHER EXISTING VEGETATION.
- H. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 7 CALENDAR DAYS AFTER LAND-DISTURBING WORK HAS TEMPORARILY OR PERMANENTLY CEASED ON A PROPERTY THAT DRAINS TO AN IMPAIRED WATER BODY WITHIN 14 DAYS ELSEWHERE.
- I. THE PERMITTEE MUST INSPECT ALL EROSION PREVENTION AND SEDIMENT CONTROL FACILITIES TO ENSURE INTERIOR AND EXTERIOR ACCESS IS MAINTAINED AT ALL TIMES. REPAIRS MUST BE MADE IMMEDIATELY. REPAIRS TO THE RELEVANT AREA OF THE SITE, IN WHICH CASE THE REPAIR MUST BE COMPLETED AS SOON AS CONDITIONS PERMIT UNLESS ADVERSE CONDITIONS PRECLUDE ACCESS TO THE RELEVANT AREA OF THE SITE, IN WHICH CASE THE REPAIR MUST BE COMPLETED AS SOON AS CONDITIONS PERMIT. THE PERMITTEE SHALL MAINTAIN A LOG OF ACTIVITIES UNDER THIS SECTION FOR INSPECTION BY THE DISTRICT ON REQUEST.
- J. STOPPING OFF AND MARKING OF PROPOSED INFILTRATION FACILITIES TO PREVENT SOIL COMPACTION BY HEAVY EQUIPMENT, STOCKPILING OF MATERIALS, AND TRAFFIC. IF INFILTRATION FACILITIES ARE IN PLACE DURING CONSTRUCTION ACTIVITIES, BEST PRACTICES MUST BE DEVELOPED TO PREVENT SEDIMENT AND OTHER MATERIAL FROM ENTERING THE FACILITIES. ANY ACCUMULATED SEDIMENT IN AN INFILTRATION FACILITY MUST BE REMOVED IN A MANNER THAT PREVENTS COMPACTION OF THE FACILITY BOTTOM. ALL INFILTRATION FACILITIES MUST BE STABILIZED WITHIN 14 DAYS OF CONSTRUCTION. THE SOILS BELOW AN INFILTRATION FACILITY MUST BE LOOSENEDE TO A MINIMUM DEPTH OF 18 INCHES PRIOR TO INSTALLATION OR PLANNING.
- K. ACTIVITIES MUST BE CONDUCTED SO AS TO MINIMIZE THE POTENTIAL TRANSFER OF AQUATIC INVASIVE SPECIES (E.G., ZEBRA MUSSELS, EURASIAN WATERMILFOLL, ETC.) TO THE MAXIMUM EXTENT POSSIBLE.
- L. CONSTRUCTION IS TO BE CONDUCTED SO AS TO MINIMIZE THE POTENTIAL TRANSFER OF AQUATIC INVASIVE SPECIES (E.G., ZEBRA MUSSELS, EURASIAN WATERMILFOLL, ETC.) TO THE MAXIMUM EXTENT POSSIBLE.
- M. ALL DISTURBED AREAS WITHIN THE BUFFER TO BE RESTORED WITH NATIVE VEGETATION (RULE D, SUBSECTION 3.3)

IMPAIRED WATER REQUIREMENT DURING CONSTRUCTION:

- A. ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION DURING CONSTRUCTION.
- B. BUT IN NO CASE LATER THAN SEVEN (7) DAYS AFTER CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
- C. THE MASS GRADING CONTRACTOR IS RESPONSIBLE FOR RECONSTRUCTION OF ALL EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs) AS SHOWN IN THE SWPPP. THE BMPs ARE TO BE MAINTAINED AT ALL TIMES THROUGHOUT CONSTRUCTION. BEST PRACTICES MUST BE MAINTAINED THROUGHOUT CONSTRUCTION TO PREVENT EROSION AND SEDIMENT TRANSPORT FROM CONSTRUCTION SITES TO ADJACENT WATERSHEDS. BMPs MUST BE RECOMPLETED TO A MINIMUM OF 90% COMPACTED. WEEDS, PRESSURE OF LESS THAN 400 POUNDS PER SQUARE INCH IN THE UPPER 12 INCHES OF THE SOIL PROFILE WHILE TAKING CARE TO PROTECT UTILITIES, TREE ROOTS, AND OTHER EXISTING VEGETATION.
- D. AT THE COMPLETION OF FINAL GRADING WORK AND TOP VEGETATION A NOTICE OF TERMINATION (NOT) SHALL BE FILED ON EACH WEBSITE. A NOTICE OF TERMINATION WILL CLOSE OUT THE PERMIT.

RPBWD RULE C STANDARD NOTES:

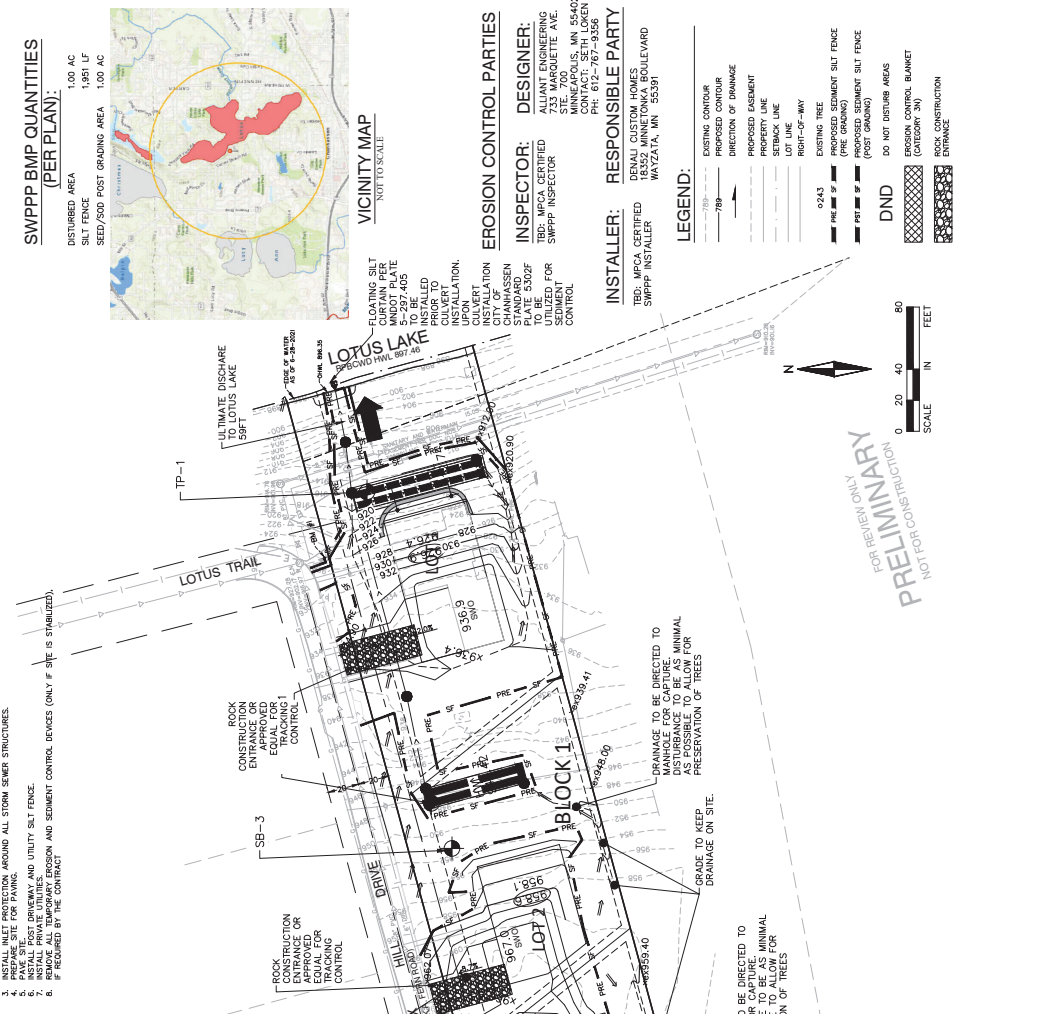
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2. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPs MUST BE MAINTAINED UNTIL COMPLETION OF CONSTRUCTION AND VEGETATION IS ESTABLISHED SUFFICIENTLY TO ENSURE LONG TERM STABILIZATION OF THE SITES.
3. ALL EXPOSED SOIL SURFACES EXCEPT DRAINAGE CONDUITS AND EXISTING STORMWATER DRAINAGE CONDUITS OR CONSTRUCTION MUST BE RECOMPLETED AS SOON AS POSSIBLE.
4. A SOIL COMPACTION TESTER MUST BE USED TO DETERMINE SOIL COMPACTION IN THE UPPER 12 INCHES OF THE SOIL PROFILE.
5. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPs MUST BE MAINTAINED AT ALL TIMES THROUGHOUT CONSTRUCTION. BEST PRACTICES MUST BE MAINTAINED THROUGHOUT CONSTRUCTION TO PREVENT EROSION AND SEDIMENT TRANSPORT FROM CONSTRUCTION SITES TO ADJACENT WATERSHEDS. BMPs MUST BE RECOMPLETED TO A MINIMUM OF 90% COMPACTED. WEEDS, PRESSURE OF LESS THAN 400 POUNDS PER SQUARE INCH IN THE UPPER 12 INCHES OF THE SOIL PROFILE WHILE TAKING CARE TO PROTECT UTILITIES, TREE ROOTS, AND OTHER EXISTING VEGETATION.
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7. THE DISTRICT ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY VIOLATIONS OF THESE RULES.
8. APPROVED MAINTENANCE PRACTICES MUST BE USED TO PREVENT EROSION AND SEDIMENT TRANSPORT FROM CONSTRUCTION SITES TO ADJACENT WATERSHEDS.
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CONSTRUCTION SEQUENCING:

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CONSTRUCTION SEQUENCE	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
MULCH BERM													
FIBER ROLLS / MACH SOLES													
SILT FENCE													
TEMPORARY MUD CAP													
EROSION CONTROL BARRIERS													
ROCK DRAINAGE / ROCK PADS													
INLET PROTECTION DEVICES													
PAVEMENT (DRIVEWAY/PAD)													
STOOPLES													

NOTE: CONTRACTOR, GENERAL CONTRACTOR OR SWPPP INSPECTOR TO COMPLETE TABLE AS GRADING PROGRESSES. DIRECTED TOWARDS UNDERGROUND BMP'S



INSPECTOR: DESIGNER:
 TBB: MPCA CERTIFIED
 SWPPP INSPECTOR
 CHANHASSAN, MINNESOTA
 11000 CHANHASSAN BOULEVARD
 MINNEAPOLIS, MN 55440
 PHONE: 612-787-9356
 FAX: 612-787-9356

INSTALLER: RESPONSIBLE PARTY
 TBB: MPCA CERTIFIED
 SWPPP INSTALLER
 1535 UNIVERSITY AVE
 WATZTA, MN 55391

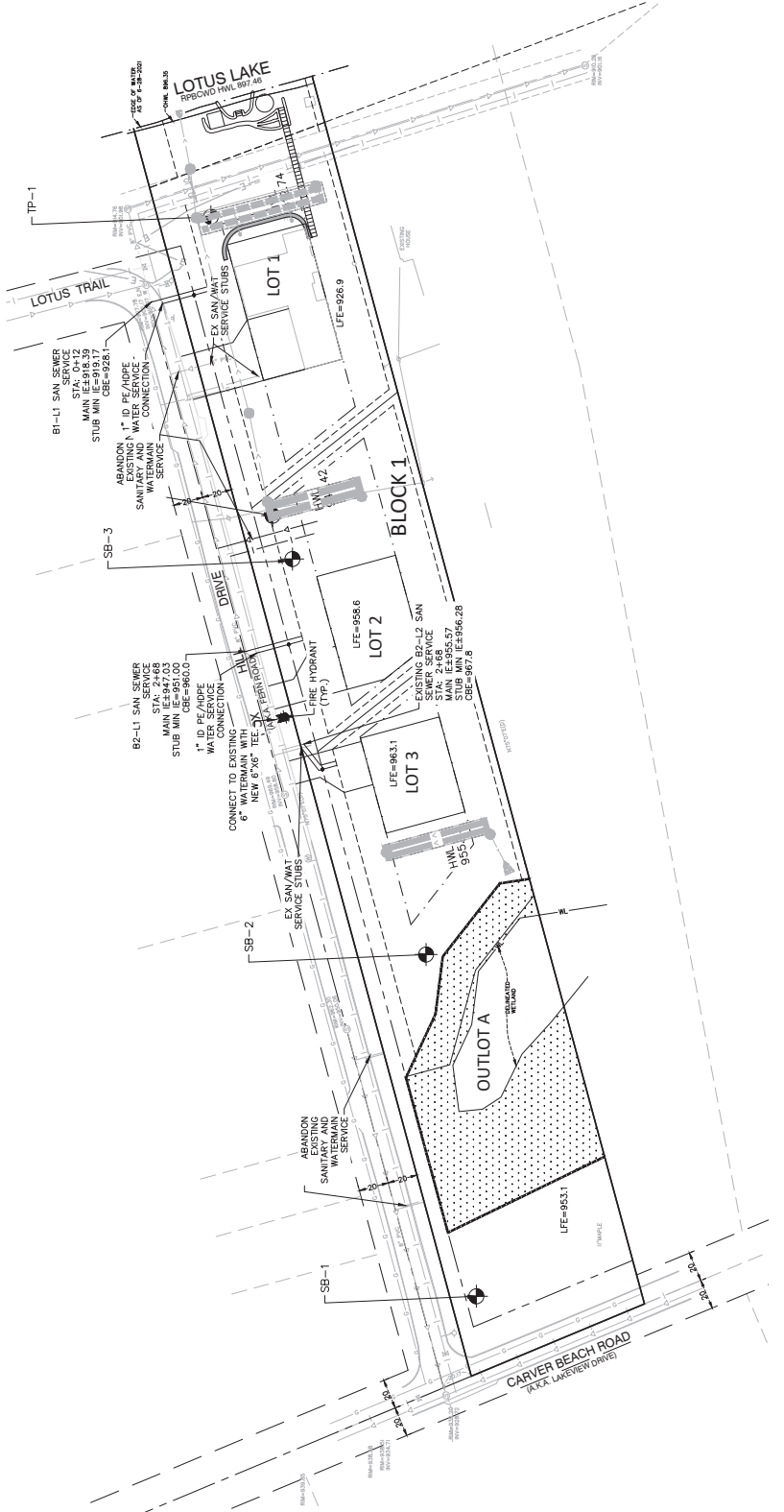
PROJECT TEAM DATA
 DESIGNED: MPR
 PROJECT NO: 231-11237
 SHEET 8 OF 18



CHANHASSAN, MINNESOTA
 FOX RIDGE
 PRELIMINARY PLAN

LEGEND:

—▲—	PROPOSED SANITARY SEWER
—■—	PROPOSED WATERMAIN
—>—	PROPOSED STORM SEWER
—	EXISTING WATERMAIN
—	EXISTING STORM SEWER
—	EXISTING SANITARY SEWER
—	PROPOSED CATCH BASIN
—	PROPOSED SANITARY MANHOLE
—	EXISTING GATE VALVE
—	EXISTING HYDRANT
—	EXISTING CATCH BASIN
—	EXISTING STORM MANHOLE
—	EXISTING SANITARY MANHOLE



- UTILITY NOTES:**
- EXISTING UTILITIES, SERVICE LOCATIONS AND ELEVATIONS SHALL BE VERIFIED IN FIELD PRIOR TO CONSTRUCTION.
 - CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS PRIOR TO THE START OF CONSTRUCTION.
 - ALL UTILITY WORK WITHIN THE R.O.W. SHALL COMPLY WITH THE CITY OF CHANHASSEN ENGINEERING GUIDELINES.
 - UTILITY TAPS AND CONNECTIONS INTO PUBLIC UTILITIES MUST BE INSPECTED BY PUBLIC WORKS.
 - NOTIFY GORNER STATE ONE CALL 48 HOURS IN ADVANCE OF ANY UTILITY WORK.
 - PROVIDE TEMPORARY EROSION CONTROL IN COMPLIANCE WITH NEAREST TOWNSHIP TRAP & CONTROL ZONE LAYOUTS-FIELD MANUAL, LATEST REVISION, FOR ANY CONSTRUCTION WITHIN PUBLIC R.O.W.
 - WATERMAIN, SERVICES, AND VALVES SHALL BE INSTALLED WITH MINIMUM 7.5' OF COVER.
 - WATER SERVICES SHALL BE 1" DIA. HDPE SDP-9 W/ 1" CORR. STOP AND 1" CURB BOX.
 - SEWER SERVICES SHALL BE 6" PVC SDP 20, MINIMUM 24" SLOPE UNLESS OTHERWISE NOTED ON THE PLANS.

UTILITY PLAN AND PROFILES

PRELIMINARY PLAN

CHANHASSEN, MINNESOTA

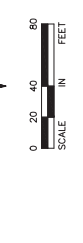
FOX RIDGE

I hereby certify that this plan, specification, and/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.

SETH LOREN, PE

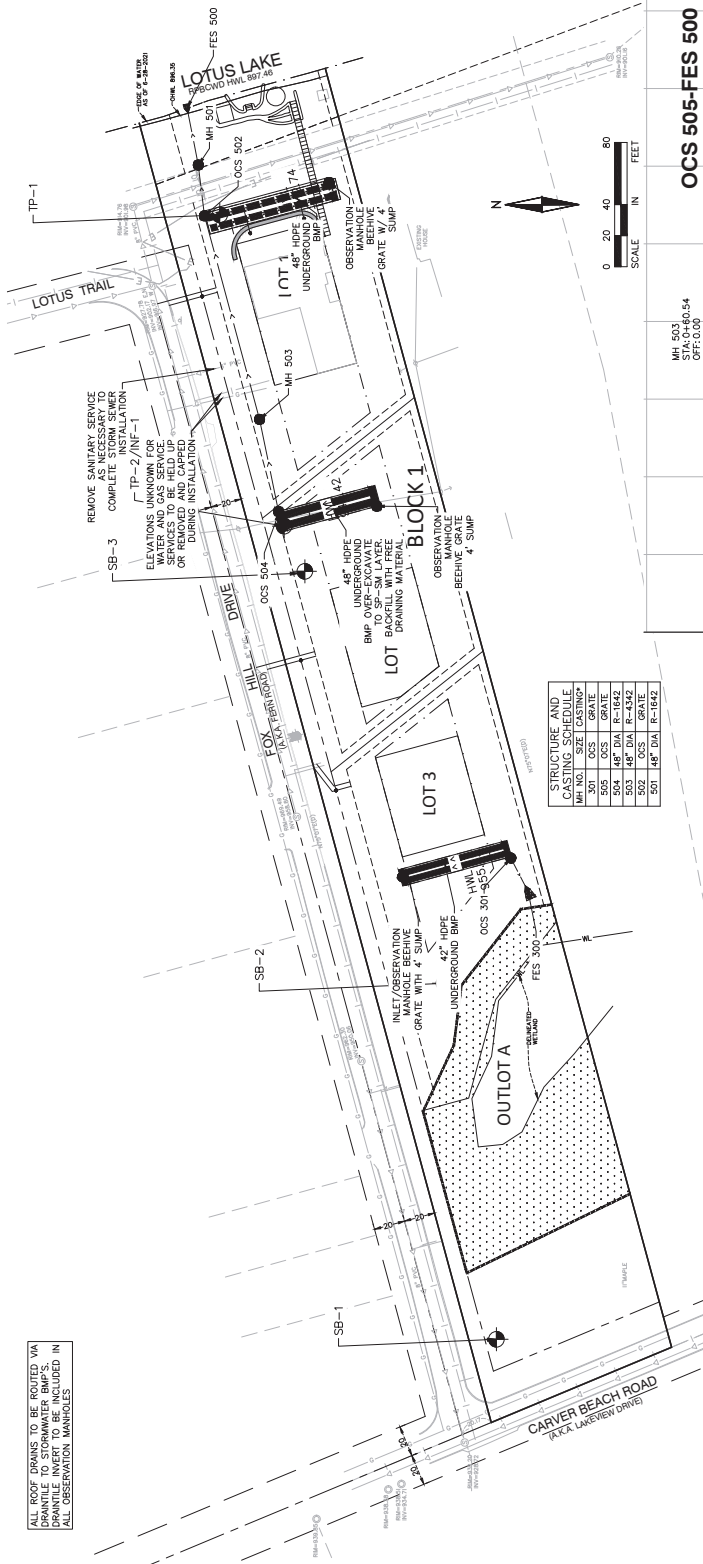
DATE	ISSUE
11-15-22	PRELIMINARY
8-16-22	INTERFERED SUBMITTAL
8-12-22	CITY RESUBMITTAL
7-27-22	PRELIMINARY
7-27-22	CITY COUNCIL UPDATE
11-15-22	CITY QUESTIONS
12-22-22	WATERSHED RESUBMITTAL

PROJECT TEAM DATA
DESIGNED BY: [Redacted]
PROJECT NO.: 23-10237



CORRECTION ONLY
PRELIMINARY
 NOT FOR CONSTRUCTION

ALL ROOF DRAINS TO BE ROUTED VIA ALLIANT MANHOLES TO BE INCLUDED IN DRAINFITTE INVERT TO BE INCLUDED IN ALL OBSERVATION MANHOLES



Station	Structure	Notes
950	OCS 503	48" HDPE UNDERGROUND MANHOLE BEHIND BEHIVE GRATE SUMP
940	OCS 504	48" HDPE UNDERGROUND MANHOLE BEHIND BEHIVE GRATE SUMP
930	OCS 502	48" HDPE UNDERGROUND MANHOLE BEHIND BEHIVE GRATE SUMP
920	OCS 501	48" HDPE UNDERGROUND MANHOLE BEHIND BEHIVE GRATE SUMP
910	OCS 500	48" HDPE UNDERGROUND MANHOLE BEHIND BEHIVE GRATE SUMP
900	OCS 505	48" HDPE UNDERGROUND MANHOLE BEHIND BEHIVE GRATE SUMP
890	OCS 506	48" HDPE UNDERGROUND MANHOLE BEHIND BEHIVE GRATE SUMP



ALLIANT
 733 Marquette Avenue
 Suite 700
 Minneapolis, MN 55402
 612.756.3080
 www.alliant-inc.com

FOX RIDGE
PRELIMINARY PLAN
 CHANHASSEN, MINNESOTA

STORM SEWER PLAN AND PROFILES

I hereby certify that this plan, prepared by me or under my supervision, is a true and correct representation of the work shown and that I am a duly Licensed Professional Engineer under the laws of the State of MINNESOTA.

SETH LOREN, PE
 DISE: 211-11237

DATE: 12/15/2022
 ISSUE: 1.0
 BY: JKL

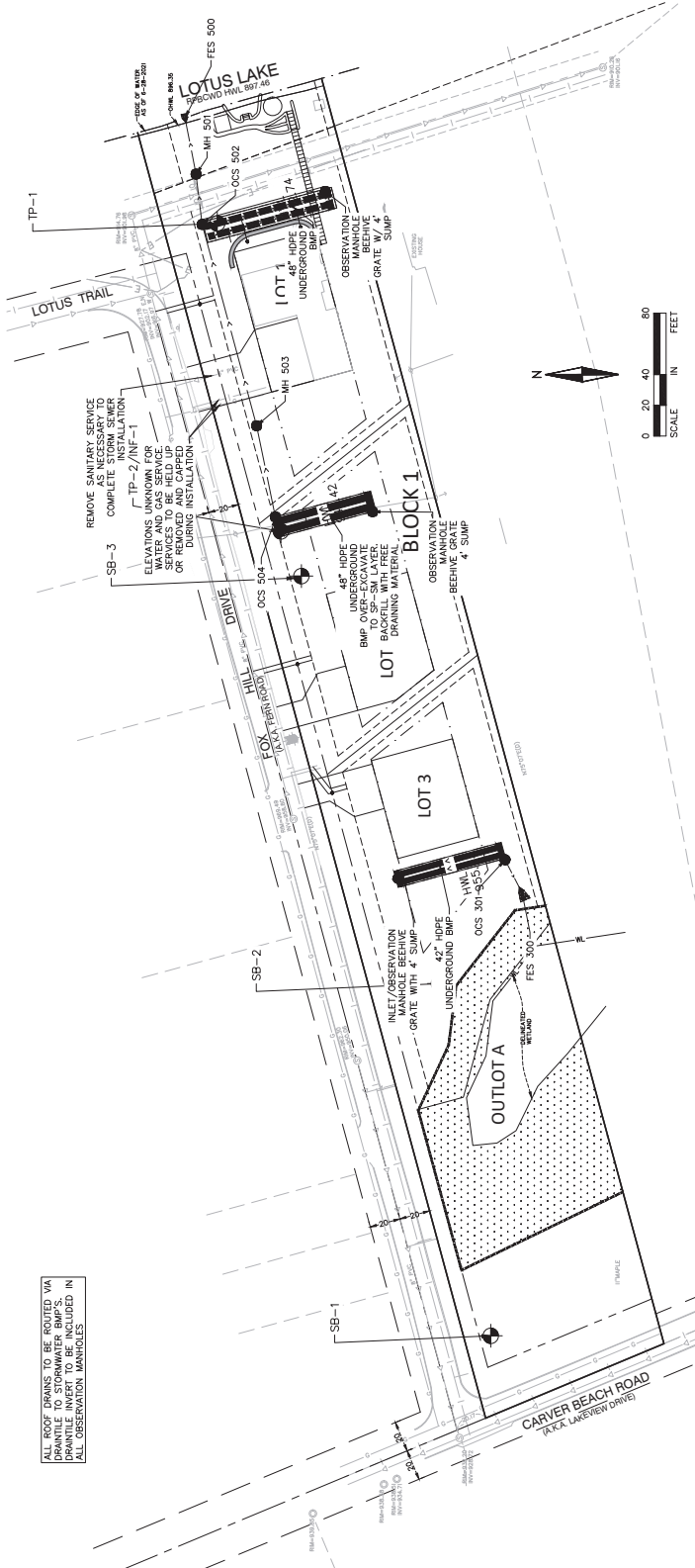
QUALITY ASSURANCE/CONTROL

PROJECT TEAM DATA
 SHEET NO. 21-11237

10

SHEET 10 of 16

ALL CROSS TRANS TO BE ROUTED VIA
DRAINAGE TO STORMWATER BMPs.
DRAINAGE INVERT TO BE INCLUDED IN
ALL OBSERVATION MANHOLES



- LEGEND:**
- PROPOSED SANITARY SEWER
 - PROPOSED WATERMAIN
 - PROPOSED STORM SEWER
 - EXISTING WATERMAIN
 - EXISTING STORM SEWER
 - PROPOSED CATCH BASIN
 - PROPOSED SANITARY MANHOLE
 - EXISTING GATE VALVE
 - EXISTING HYDRANT
 - EXISTING CATCH BASIN
 - EXISTING STORM MANHOLE
 - EXISTING SANITARY MANHOLE

FOR REVIEW ONLY
PRELIMINARY
NOT FOR CONSTRUCTION

FOX RIDGE
CHANHASSEN, MINNESOTA
PRELIMINARY PLAN
STORM SEWER PLAN AND PROFILES

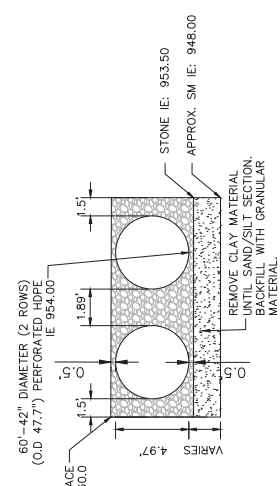
I hereby certify that this plan, prepared by me or under my supervision, is a true and correct copy of the original as shown to me and duly filed with the State of Minnesota.

DATE: 06/11/2022
DRAWN: JENNY LORAN, PE
QUALITY ASSURANCE/CONTROL: JENNY LORAN, PE

BY: [Signature]
DATE: [Signature]
ISSUE: [Signature]
DATE: [Signature]
E-16-22 WATERSEED SUBMITTAL
E-17-22 CITY RESUBMITTAL
E-18-22 CITY RESUBMITTAL
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E-100-22 CITY RESUBMITTAL

OCS 301 - FES 300

980					
970	OCS 301 STA: 970.00				
960	FES 300 STA: 960.00				
950	INVERT: 950.00				
940					
930					



SECTION A-A'
NOT TO SCALE

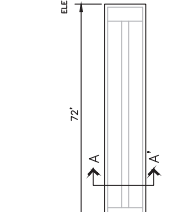
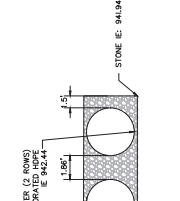
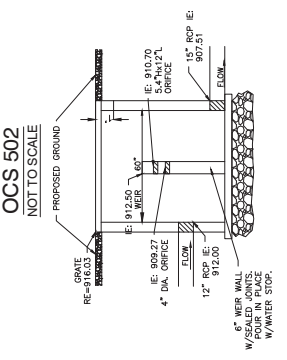
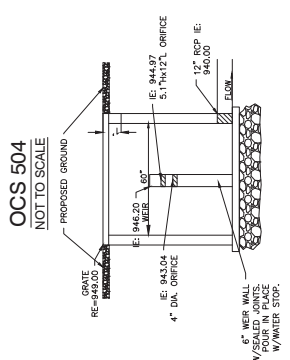
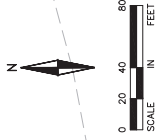
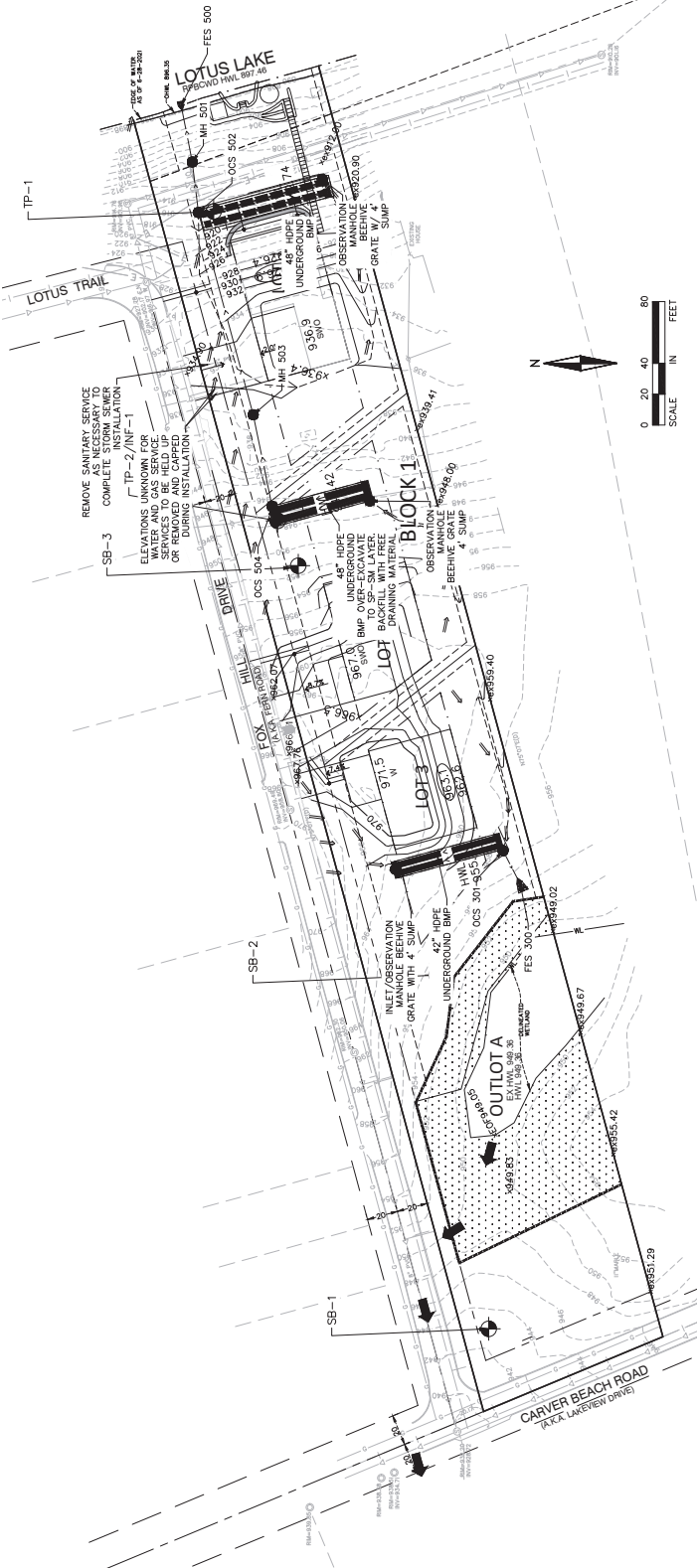
BLOCK 1 LOT 3 STORMWATER INFILTRATION SYSTEM
NOT TO SCALE



ALLIANT
 733 Marquette Avenue
 Suite 700
 Minneapolis, MN 55402
 612.756.3080
 www.alliant-inc.com

LEGEND:

—	PROPOSED SANITARY SEWER
—	PROPOSED WATERMAIN
—	EXISTING STORM SEWER
—	EXISTING WATERMAIN
—	EXISTING STORM SEWER
—	PROPOSED CATCH BASIN
—	PROPOSED SANITARY MANHOLE
—	EXISTING GATE VALVE
—	EXISTING HYDRANT
—	EXISTING CATCH BASIN
—	EXISTING STORM MANHOLE
—	EXISTING SANITARY MANHOLE



ALL ROOF DRAINS TO BE ROUTED VIA
 DRANTILE INVERT TO BE INCLUDED IN
 ALL OBSERVATION MANHOLES

FOX RIDGE
PRELIMINARY PLAN
 CHANHASSEN, MINNESOTA

I hereby certify that this plan, prepared by me or under my supervision, and that I am a duly licensed professional engineer under the laws of the State of MINNESOTA.

SETH LOREN, PE
 DATE: _____ LICENSE NO. _____
 QUALITY ASSURANCE/CONTROL

DATE	ISSUE

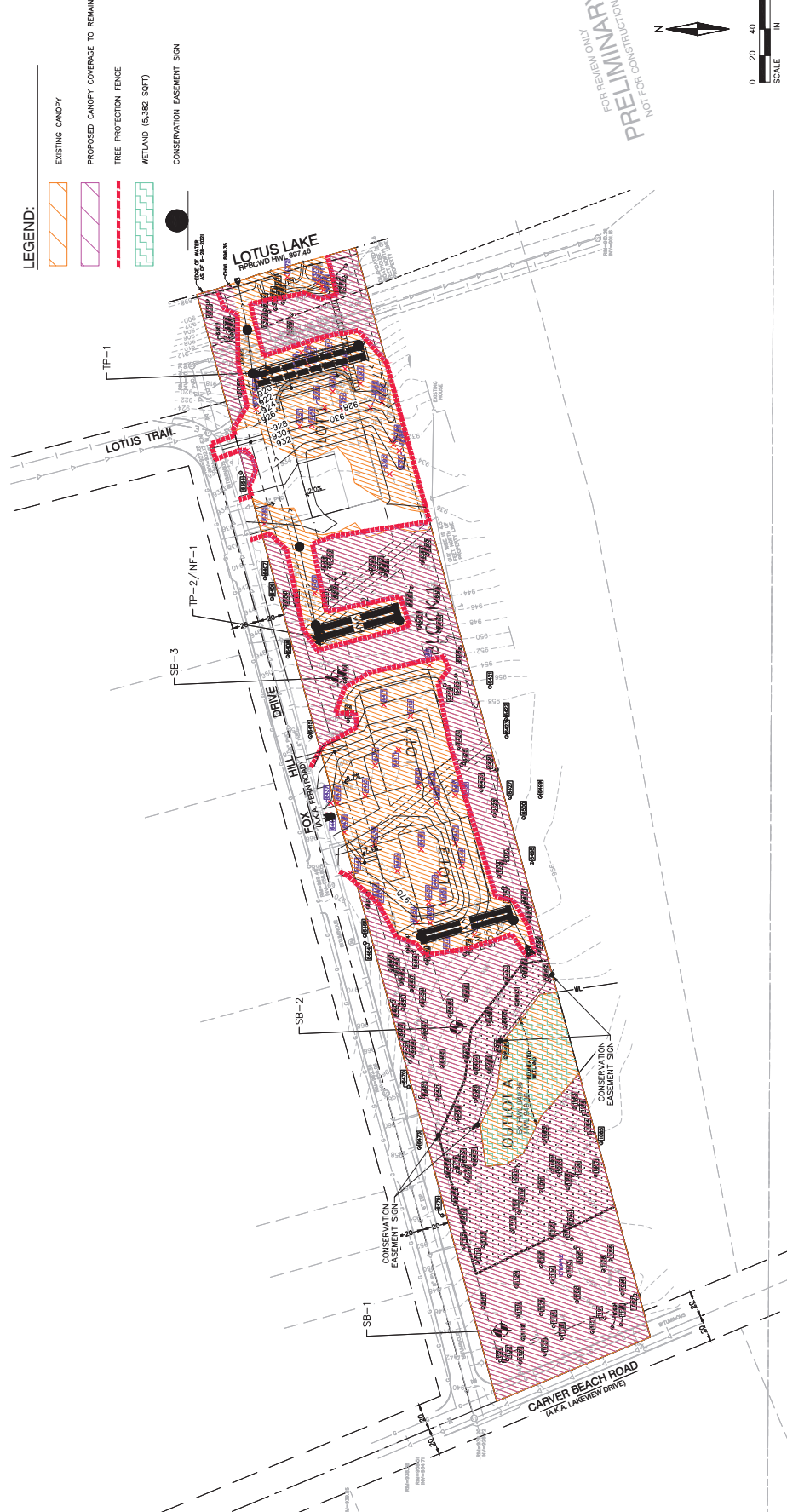
PROJECT TEAM DATA
 SHEET NO. 21-01287
 PROJECT NO. 21-01287

TREE PRESERVATION NOTES:

- BEFORE ANY CONSTRUCTION OR GRADING OF DEVELOPMENT PROJECT IS TO OCCUR, A TREE PROTECTION FENCE (AT LEAST 4 FEET IN HEIGHT) SHALL BE INSTALLED AROUND THE DRIP LINES OF ALL EXISTING TREES TO BE PRESERVED OR AT THE PERIMETER OF THE PROPOSED CONSTRUCTION AREA. THIS FENCE LINE IDENTIFYING THE AREA AS A TREE PROTECTION AREA AND PROHIBITING GRADING BEYOND THE FENCE LINE. THIS FENCE LINE SHALL BE MAINTAINED UNTIL ALL GRADING AND CONSTRUCTION ACTIVITY IS TERMINATED.
- NO EQUIPMENT, CONSTRUCTION MATERIALS OR SOIL MAY BE STORED WITHIN THE DRIP LINES OF ANY SIGNIFICANT TREES TO BE PRESERVED.
- NO ENCROACHMENT, LAND DISTURBANCE, GRADE CHANGE, TRENCHING, FILLING, COMPACTION OF CHANGE IN SOIL CHEMISTRY SHALL OCCUR WITHIN FENCED AREAS PROTECTING SIGNIFICANT TREES.
- CONTRACTOR TO PREVENT THE CHANGE IN SOIL CHEMISTRY DUE TO CONSTRUCTION ACTIVITIES SUCH AS FUELS OR PAINTS.
- DRAINAGE PATTERNS ON THE SITE SHALL NOT CHANGE CONSIDERABLY CAUSING DRASTIC ENVIRONMENTAL CHANGES IN THE SOIL MOISTURE CONTENT WHERE TREES ARE INTENDED TO BE PRESERVED.

CANOPY CALCULATION

Description	Percentage	Square Feet	Acres
A Net Site Area	100%	101,998	2.342
B Baseline Canopy Coverage	55%	56,130	2.216
C Required Minimum Canopy Coverage (Low Density Residential)	55%	56,099	1.288
D Proposed Canopy Coverage	58%	59,332	1.367
E Difference between Proposed Canopy Coverage & Required Canopy Coverage = B - C		0	0.000
F Required Woodland Replacement Canopy Area = E * 1.4		0	0.000
G Trees Required for Reforestation = F/1,089 sf (Each New Tree = 1,089 sf canopy)		0.00	



I hereby certify that this plan, prepared by me or under my supervision, was prepared by a PROFESSIONAL ENGINEER under the laws of the State of MINNESOTA.

MARK VAUGHN, PE
 License No. 211-02227

QUALITY ASSURANCE/CONTROL

DATE	ISSUE
8-12-22	CITY SUBMITTAL
8-15-22	WATERSHED SUBMITTAL
8-17-22	CITY COUNCIL UPDATE
11-2-22	CITY COUNCIL UPDATE
12-2-22	WATERSHED RESUBMITTAL

PROJECT TEAM DATA

DESIGNED BY: [Blank]
 DRAWN BY: [Blank]
 PROJECT NO.: 211-02227

I hereby certify that this plan, prepared by me or under my supervision, is a true and correct copy of the original and that I am a duly Licensed Professional Engineer under the laws of the State of MINNESOTA.

SETH LOREN, PE
 LICENSE NO. 1000000000

DATE: 08/14/2022

ISSUE: PRELIMINARY

DATE: 08/14/2022

ISSUE: PRELIMINARY

DATE: 08/14/2022

ISSUE: PRELIMINARY

DATE: 08/14/2022

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DATE: 08/14/2022

ISSUE: PRELIMINARY

DATE: 08/14/2022

LEGEND:

- EASEMENT
- PROPERTY LINE
- SETBACK LINE
- LOT LINE
- RIGHT-OF-WAY
- WETLAND BOUNDARY
- PROPOSED WETLAND BUFFER (FULL AREA PROVIDED)*
- WETLAND LINEAL FOOTAGE INCLUDED FOR BASIS OF BUFFER CALCULATION (INCLUDES FRONTAGE IN WHICH THE REQUIRED AVERAGE BUFFER CAN BE PROVIDED WITHIN THE DEVELOPMENT PROPERTY).
- LIMIT OF PROPOSED WETLAND BUFFER INCLUDED IN CALCULATION
- PROPOSED WETLAND BUFFER MONUMENT
- WETLAND BUFFER AREA INCLUDED IN CALC (20' MIN, 40' AVG, 80' MAX)

WETLAND SUMMARY

WETLAND	CITY CLASS.	PERIOD CLASS.	MEDIUM VALUE
WETLAND	WETLAND	WETLAND	WETLAND

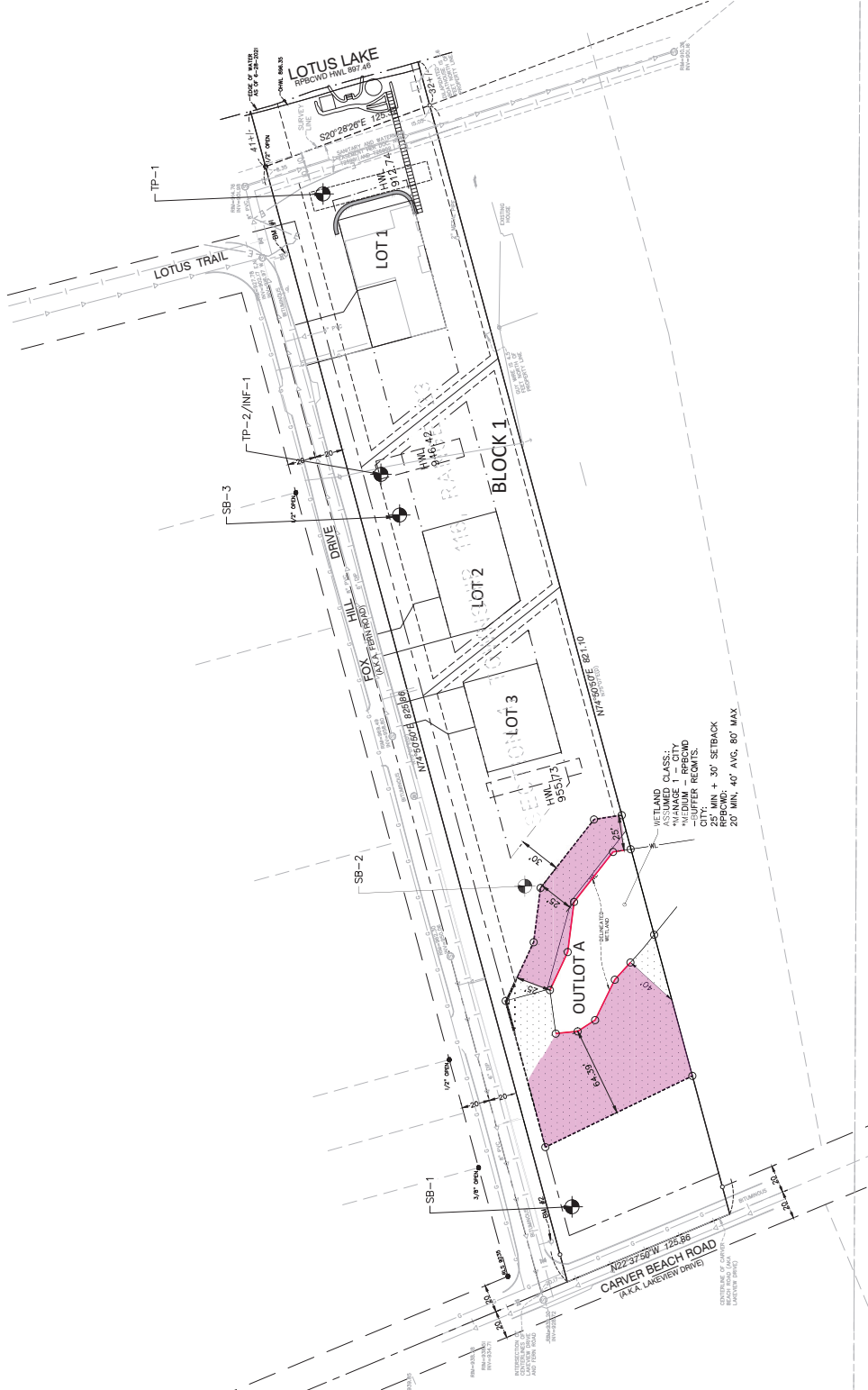
WETLAND BUFFER CALCULATION

ASSUMED BUFFERING REQUIREMENTS:
 WETLAND BUFFERING REQUIREMENTS ARE BASED ON THE WETLAND CLASSIFICATION. THE BUFFER REQUIREMENTS ARE AS FOLLOWS:
 MAXIMUM BUFFER WIDTH IS 200 PERCENT OF THE APPLICABLE WIDTH AS REQUIRED BY PERIOD DISTRICT BUFFER AVERAGING RULES

WETLAND	EQUICONTAGE*	EDGE BUFFER AREA	MIN. BUFFER WIDTH	AVG. WIDTH	WETLAND AREA
1	189.4 LF	11,552 SF**	25'	57.9'	0.124 AC

NOTES:
 * AREA IN PLAN VIEW. PROPOSED BUFFER AREA IS CALCULATED ALONG WETLAND FRONTAGE WHERE A 40' AVERAGE CAN BE PROVIDED WITHIN THE SITE. IF THE PROPERTY BOUNDARY IS CLOSER THAN 40' TO WETLAND FRONTAGE, THE BUFFER AREA IS NOT INCLUDED IN THE AVERAGING CALCULATION.
 ** BUFFER AREA IN DRAWING IN HATCH. (BUFFER AREA REQUIRED = 9,804 SF)

THE 20% WETLAND BUFFER PROVIDED IS 0.317 ACRES AND INCLUDES THE AREA NOTED IN ABOVE AVERAGING CALCULATION.



BUFFER SIGN DETAIL
 NOT TO SCALE

FOR REVIEW ONLY
PRELIMINARY
 NOT FOR CONSTRUCTION

LANDSCAPE REQUIREMENTS

- RESIDENTIAL SUBDIVISION LANDSCAPE (1 TREE PER LOT PLACE IN THE FRONT YARD) PROVIDED = 3 TREES
- RESIDENTIAL COMMERCIAL DEVELOPMENT LANDSCAPE (1 TREE PER LOT PLACE IN THE FRONT YARD) PROVIDED = 0 TREES
- COMMERCIAL DEVELOPMENT LANDSCAPE (1 TREE PER LOT PLACE IN THE FRONT YARD) PROVIDED = 0 TREES

PLANTING NOTES

- INSTALL 4" MIN. TOP SOIL TO ALL SOO AND SEED AREAS. FINE GRADE ALL SOO AND SEED AREAS.
- SHAKE OR MARK ALL PLANT MATERIAL LOCATIONS PRIOR TO INSTALLATION.
- MARK BROWN OVER WEED BARRIERS PLANTING AREAS TO BE WALLEY WITH BLACK SAND OR APPROVED EQUIVALENT.
- INSTALL 4-4" DEPTH SHREDED HARDWOOD MULCH AROUND ROOT SAUCER OF ALL TREES ISOLATED FROM PLANT BEDS.
- PLANTING SOIL SHALL CONSIST OF 1:1:1 SELECT LOAMY TOPSOIL, PEAT MOSS, PFT BAY SAND.
- COMPLETELY GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR BEGINNING AT THE DATE OF ACCEPTANCE. MAKE ALL REPLACEMENTS PROMPTLY (AS PER DIRECTION OF OWNER).
- ALL MATERIAL SHALL COMPLY WITH THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, AMERICAN ASSOCIATION OF NURSERYMEN.
- ALL TREE TRUNKS SHALL BE WRAPPED WITH BROWN OPEPE TREE WRAP. APPLY WRAP IN NOVEMBER AND REMOVE IN APRIL.
- CALL AT 601-464-0002 FOR LOOKING ALL UNDERGROUND UTILITIES AND AVOID DAMAGE TO UTILITIES DURING THE COURSE OF THE WORK.
- COORDINATE INSTALLATION WITH GENERAL CONTRACTOR.
- STAKING AND GIVING OF TREES OPTIONAL. MAINTAIN PLUMBNESS OF TREES FOR DURATION OF WARRANTY PERIOD.
- BLEND AREAS OF CONSTRUCTION LIMITS AT PROPERTY LINES.
- CONTRACTOR TO SUPPLY DESIGN AND INSTALLATION OF AN IRRIGATION PLAN WITH 100% COVERAGE FOR DESIGNED SOO AND SHRUB AREAS. SYSTEM SHALL BE 1/2" POLYETHYLENE GLASS AND INSTALLED WITH SEED AREAS, SOO, SEPARATE ZONES, IRRIGATION RUN TRUNKS IN SEED AREAS SHOULD BE REINFORCED FOR THE ZONE SHUTS DOWN AFTER THE FIRST 2 YEARS OF ESTABLISHMENT.
- SWEEP AND WASH ALL PAVED SURFACES AND REMOVE ALL DEBRIS RESULTING FROM LANDSCAPE OPERATIONS.
- GENERAL CONTRACTOR SHALL FOLLOW THE COUNTY/STATE SOIL & EROSION CONTROL SPECIFICATION FOR DISTURBED AREA STABILIZATION.

LANDSCAPE SCHEDULE

QUANTITY	KEY	COMMON NAME	SCIENTIFIC NAME	SIZE / ROOT TYPE	NOTES
1	RM	Red Maple	Acer rubrum	2.5" Cal 888	Straight Trunk, No V-Crotch
1	ML	Scout Oak	Quercus sp.	2.5" Cal 888	Straight Trunk, No V-Crotch
1	ML	Scout Oak	Quercus sp.	2.5" Cal 888	Straight Trunk, No V-Crotch

Note: Firm supercedes literature in event of discrepancy.



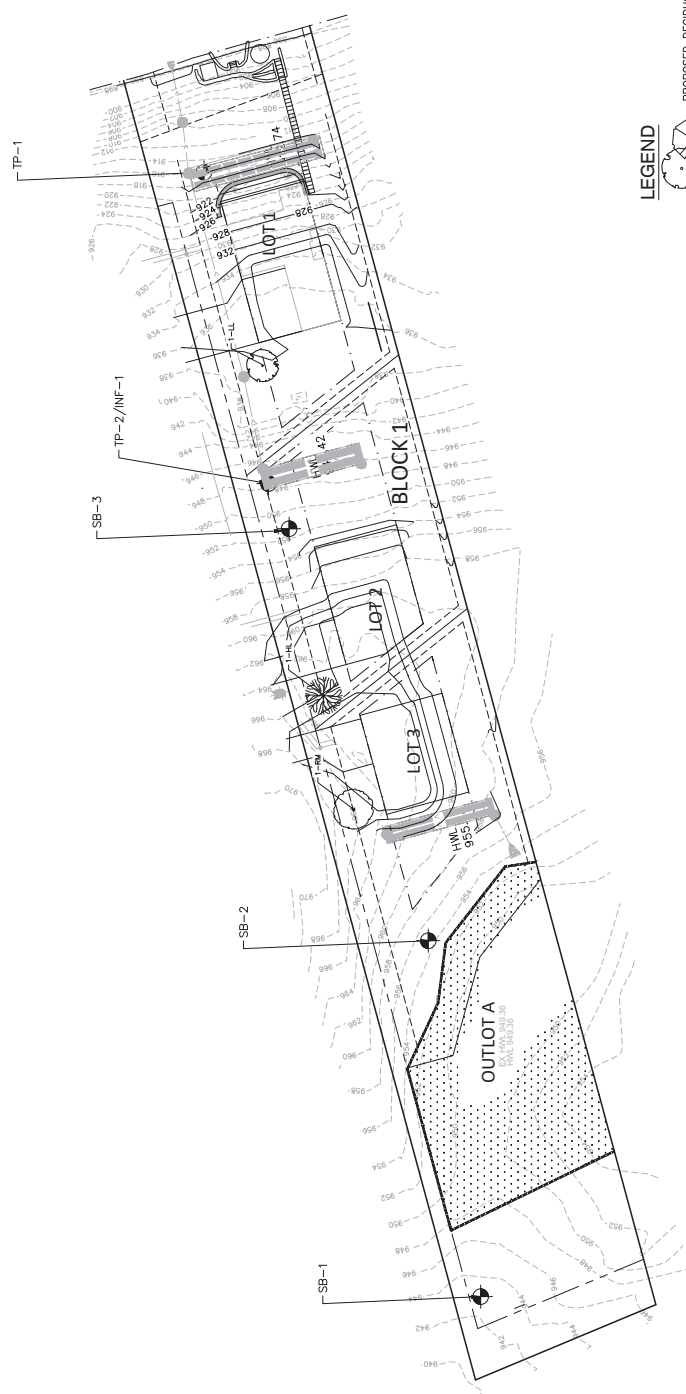
ALLIANT
 733 Marquette Avenue
 Suite 700
 Minneapolis, MN 55402
 612.758.3080
 www.alliant-inc.com

LANDSCAPE AND TREE REPLACEMENT PLAN
PRELIMINARY PLAN
 CHANHASSEN, MINNESOTA
FOX RIDGE

Mark Nauchi, Inc. PE
 License No. 221-0322.7
 QUALITY ASSURANCE/CONTROL
 DATE: 10-21-2022
 BY: [Signature]
 DATE: 10-21-2022
 ISSUE: PRELIMINARY
 8-17-2022 CITY SUBMITTAL
 9-1-2022 CITY SUBMITTAL
 9-1-2022 CITY SUBMITTAL
 10-21-2022 CITY COUNCIL UPDATE
 10-21-2022 CITY COUNCIL UPDATE
 12-8-22 WATERSEED RESUBMITTAL

PROJECT TEAM DATA	SK
DESIGNED:	SK
DRAWN:	SK
PROJECT NO.:	221-0322.7

16
 SHEET 16 OF 16



Amended

Public Waters Work General Permit

Expiration Date: 05/01/2025
General Permit Number
2015-1192

Pursuant to Minnesota Statutes, Chapter 103G, and on the basis of statements and information contained in the permit application, letters, maps, and plans submitted by the applicant and other supporting data, all of which are made part hereof by reference, **PERMISSION IS HEREBY GRANTED** to the applicant to perform actions as authorized below. This permit supersedes the original permit and all previous amendments.

Project Name: Riley-Purgatory-Bluff Creek Watershed District General Permit	County: Hennepin and Carver	Watershed: Lower Minnesota River - Shakopee	Resource: All Public Waters within Riley-Purgatory-Bluff Creek Watershed
Purpose of Permit: Sediment Removal, Sand Blanket w/o Excavation, Sand Blanket w/ Excavation, Riprap (Natural Rock), Retaining Wall, Erosion Control/Stabilization Fill & Grading, Culvert Construction/Modification/Replacement, Bridge Construction/Modification/Replacement, Bioengineering		Authorized Action: Place natural rock riprap; shape banks/shorelines for placement of riprap or bioengineering; install beach sand blankets; construct retaining walls, bridges and culverts; remove structures; remove sediment; all in accordance with the Conditions of this permit. For actions addressed by this general permit, no separate GP Authorization is needed from the DNR.	
Permittee: Riparian Property Owners within Riley-Purgatory-Bluff Creek Watershed District		Authorized Agent: N/A	
Property Description (land owned or leased or where work will be conducted):			
Issued Date: 06/15/2020	Effective Date: 05/01/2020	Expiration Date: 05/01/2025	
Authorized Issuer: Tom Hovey	Title: Water Regulations Unit Supervisor	Email Address: tom.hovey@state.mn.us	Phone Number: 651-259-5654

This permit is granted **subject to** the following **CONDITIONS**:

APPLICABLE FEDERAL, STATE, OR LOCAL REGULATIONS: The permittee is not released from any rules, regulations, requirements, or standards of any applicable federal, state, or local agencies; including, but not limited to, the U.S. Army Corps of Engineers, Board of Water and Soil Resources, MN Pollution Control Agency, watershed districts, water management organizations, county, city and township zoning.

NOT ASSIGNABLE: This permit is not assignable by the permittee except with the written consent of the Commissioner of Natural Resources.

NO CHANGES: The permittee shall make no changes, without written permission or amendment previously obtained from the Commissioner of Natural Resources, in the dimensions, capacity or location of any items of work authorized hereunder.

SITE ACCESS: The permittee shall grant access to the site at all reasonable times during and after construction to authorized representatives of the Commissioner of Natural Resources for inspection of the work authorized hereunder.

TERMINATION: This permit may be terminated by the Commissioner of Natural Resources at any time deemed

GENERAL PERMIT CONDITIONS *(Continued from previous page)*

necessary for the conservation of water resources of the state, or in the interest of public health and welfare, or for violation of any of the conditions or applicable laws, unless otherwise provided in the permit.

COMPLETION DATE: Construction work authorized under this permit shall be completed on or before the date specified above. The permittee may request an extension of the time to complete the project by submitting a written request, stating the reason thereof, to the Commissioner of Natural Resources.

WRITTEN CONSENT: In all cases where the permittee by performing the work authorized by this permit shall involve the taking, using, or damaging of any property rights or interests of any other person or persons, or of any publicly owned lands or improvements thereon or interests therein, the permittee, before proceeding, shall obtain the written consent of all persons, agencies, or authorities concerned, and shall acquire all property, rights, and interests needed for the work.

PERMISSIVE ONLY / NO LIABILITY: This permit is permissive only. No liability shall be imposed by the State of Minnesota or any of its officers, agents or employees, officially or personally, on account of the granting hereof or on account of any damage to any person or property resulting from any act or omission of the permittee or any of its agents, employees, or contractors. This permit shall not be construed as estopping or limiting any legal claims or right of action of any person other than the state against the permittee, its agents, employees, or contractors, for any damage or injury resulting from any such act or omission, or as estopping or limiting any legal claim or right of action of the state against the permittee, its agents, employees, or contractors for violation of or failure to comply with the permit or applicable conditions.

EXTENSION OF PUBLIC WATERS: Any extension of the surface of public waters from work authorized by this permit shall become public waters and left open and unobstructed for use by the public.

GP AUTHORIZATION - APPLY USING MPARS: The permittee shall apply for prior authorization for all projects to be constructed under this General Permit using the MNDNR Permitting and Reporting System (MPARS) at www.mndnr.gov/mpars/signin . Users will need to create an account the first time they access the system. Once created, click on the link for 'Apply for a New Permit/Authorization' under the Actions box and complete the application questions.

WETLAND CONSERVATION ACT: Where the work authorized by this permit involves the draining or filling of wetlands not subject to DNR regulations, the permittee shall not initiate any work under this permit until the permittee has obtained official approval from the responsible local government unit as required by the Minnesota Wetland Conservation Act.

INVASIVE SPECIES - EQUIPMENT DECONTAMINATION: All equipment intended for use at a project site must be free of prohibited invasive species and aquatic plants prior to being transported into or within the state and placed into state waters. All equipment used in designated infested waters, shall be inspected by the Permittee or their authorized agent and adequately decontaminated prior to being transported from the worksite. The DNR is available to train inspectors and/or assist in these inspections. For more information refer to the "Best Practices for Preventing the Spread of Aquatic Invasive Species" at http://files.dnr.state.mn.us/publications/ewr/invasives/ais/best_practices_for_prevention_ais.pdf. Contact your regional Invasive Species Specialist for assistance at www.mndnr.gov/invasives/contacts.html. A list of designated infested waters is available at www.mndnr.gov/invasives/ais/infested.html. A list of prohibited invasive species is available at www.mndnr.gov/invasives/laws.html#prohibited.

CONSTRUCTION DEWATERING - GENERAL: All construction dewatering in excess of 10,000 gallons per day or one million gallons per year must be authorized by a separate water appropriation permit. All worksite discharge water must be treated for sediment reduction prior to return to the surface water. Water from designated infested waters shall not be diverted to other waters, transported on a public road, or transported or appropriated off property riparian to infested waters without a DNR permit specifically for this use. All equipment in contact with infested waters must be decontaminated upon leaving the site.

EROSION AND SEDIMENT CONTROL: In all cases, methods that have been determined to be the most effective and practical means of preventing or reducing sediment from leaving the worksite shall be installed in areas that slope to the water and on worksite areas that have the potential for direct discharge due to pumping or draining of areas from within the worksite (e.g., coffer dams, temporary ponds, stormwater inlets). These methods, such as mulches, erosion control blankets, temporary coverings, silt fence, silt curtains or barriers, vegetation preservation, redundant methods, isolation of flow, or other engineering practices, shall be installed concurrently or within 24 hours after the start of the project, and will be maintained for the duration of the project in order to prevent sediment from leaving the worksite. DNR requirements may be waived in writing by the authorized DNR staff based on site conditions, expected weather conditions, or project completion timelines.

GENERAL PERMIT CONDITIONS (Continued from previous page)

EXCAVATED MATERIALS - FLOODPLAIN CONCERN: Excavated material shall not be permanently placed within community designated floodplain areas or shoreland areas, unless all necessary local permits and approvals have been obtained.

AQUATIC PLANT MANAGEMENT: For projects where vegetation is placed waterward of the ordinary high water level, a separate Aquatic Plant Management (APM) permit is needed from the DNR Regional APM Specialist. See contact list at: <http://www.dnr.state.mn.us/apm/index.html>. A permit shall be obtained (no fee required) for each site in order to monitor plant source, species, and planting location. Vegetation must be appropriate for the site and free of invasive species. This condition does not apply when only woody vegetation is used, such as willow and dogwood.

APPLICABLE PROJECTS: A project not meeting applicable conditions of this permit or a project the DNR identifies as having the potential for significant resource impacts, is not authorized herein. Rather, such projects will require an individual DNR permit application.

ENVIRONMENTAL REVIEW: If the project proposal is part of a project that requires mandatory environmental review pursuant to MN Environmental Quality Board rules, then the permit is not valid until environmental review is completed.

RETAINING WALLS: Retaining walls are generally discouraged because their impact on the near-shore aquatic environment can be severe and they restrict wildlife movement, however, they may be permitted if the following conditions are met: a. Existing or expected erosion problems shall preclude the use of riprap shore protection with a finished slope of 2:1 (horizontal to vertical) or more gentle, due to steep banks, nearby structures or other extenuating circumstances; or there shall be a demonstrated need for direct shoreland docking. b. Design shall be consistent with existing uses in the area. Examples are: riverfront commercial-industrial areas having existing structures of this nature, dense residential areas where similar retaining walls are common, or where barges are utilized to carry equipment and supplies. c. Adequate engineering studies shall be performed on foundation conditions, tiebacks, internal drainage, construction materials, and protection against flanking. d. The facility shall not be an aesthetic intrusion upon the area and is consistent with all applicable local, state, and federal management plans and programs for the water body. e. Encroachment below the ordinary high water elevation shall be limited to the absolute minimum necessary for construction.

ICE RIDGE REMOVAL: Ice ridge removal projects must meet the DNR "no permit required" conditions for ice ridge removal specified in Minn. Rules part 6115.0215, Subpart 4. If not, a DNR Individual permit is required as District rules do not address this category of project.

HYDROLOGIC / HYDRAULIC DATA REPORTING :: Unless waived by the DNR Area Hydrologist, hydrologic modeling to show the impacts of a bridge or culvert constructed in a Public Water to the 100-year flood elevation is required. Additional modeling may also be required for temporary fill or temporary structures required during demolition or construction. Calculations showing calculated velocities through the structures at 2-year peak flows may also be required.

FISHERY PROTECTION - EXCLUSION DATES: No activity affecting the bed of the protected water may be conducted between March 15 and April 15 on watercourses, or between April 1 and June 30 on all other waterbodies, to minimize impacts on fish spawning and migration. If work during this time is essential, it shall be done only upon written approval of the Area Fisheries Manager. See contact list at:

http://files.dnr.state.mn.us/fisheries/management/dnr_fisheries_managers.pdf Should work begin elsewhere in the project area within these dates, all exposed soils that are within 200 feet of Public Waters and drain to those waters must complete erosion control measures within 24 hours of its disturbance to prevent sediment from entering Public Waters.

REPORTING: The Riley-Purgatory-Bluff Creek Watershed District shall submit annually or as requested a summary report of the projects authorized under this General Permit to the Area Hydrologist.

CONSTRUCTION AIDS: No construction is allowed of temporary channel diversions or placement of fill for temporary work pads, bypass roads, access roads, or coffer dams to aid in the construction of any authorized structure unless approved in writing by the Area Hydrologist prior to beginning work.

FISH PASSAGE: Bridges, culverts and other crossings shall provide for fish movement unless the structure is intended to impede rough fish movement or the stream has negligible fisheries value as determined by the DNR Area Hydrologist in consultation with the Area Fisheries Manager. The accepted practices for achieving these conditions include: Where possible a single culvert or bridge shall span the natural bankfull width adequate to allow for debris and sediment transport rates to closely resemble those of upstream and downstream conditions. A single culvert shall be recessed in order to pass bedload and sediment load. Additional culvert inverts should be set at a higher elevation. All culverts should match the alignment and slope of the natural stream channel, and extend through the toe of the road side slope. "Where

GENERAL PERMIT CONDITIONS *(Continued from previous page)*

possible" means that other conditions may exist and could take precedence, such as unsuitable substrate, natural slope and background velocities, bedrock, flood control, 100 year flood elevations, wetland/lake level control elevations, local ditch elevations, and other adjacent features. Rock Rapids or other structures may be used to retrofit crossings to mimic natural conditions.

PHOTOS AND AS-BUILTS: Upon completion of the authorized work, the permittee may be required to submit a copy of established benchmarks, representative photographs, and may be required to provide as-built surveys of Public Watercourse crossing changes.

EXCAVATION OF PUBLIC WATERS: Excavation of Public Waters is authorized by this permit only when the proposed excavation is consistent with Minnesota Rules 6115.0200 and 6115.0201.

REMOVAL OF STRUCTURES: Removal of structures from public waters is authorized by this permit when the proposed removal is consistent with Minnesota Rules 6115.0211 subp. 8.

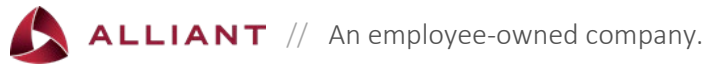
cc: John Gleason, EWR District Manager

From: [Seth Loken](#)
To: [Scott Sobiech](#)
Subject: FW: DNR Culvert Permit - Lotus Lake Private Discharge
Date: Thursday, December 29, 2022 10:31:01 AM
Attachments: [image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)
[image007.png](#)
[image001.png](#)

CAUTION: This email originated from outside of your organization.

Seth Loken, PE
PROFESSIONAL ENGINEER
Alliant Engineering, Inc.
733 Marquette Ave, Ste 700, Minneapolis, MN 55402
612.758.3080 OFFICE | 612.767.9356 DIRECT

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From: DePaz, David (DNR) <david.depaz@state.mn.us>
Sent: Wednesday, December 7, 2022 12:59 PM
To: Seth Loken <sloken@alliant-inc.com>
Subject: RE: DNR Culvert Permit - Lotus Lake Private Discharge

Hello,

A DNR individual permit is not needed. RPBCWD has a Public Waters General Permit issued, so the activity is covered under their scope and would go through them.

As far as question #2, if this was a public waters permit; An outfall can be privately owned, but the applicant needs to have riparian rights to the public water.

Culvert material type also does not matter.

Hope that helps.

David De Paz
(Dah-veed)

Watershed Specialist, Acting South Metro Area Hydrologist | Ecological and Water Resources
Division

Minnesota Department of Natural Resources
1200 Warner Road

St. Paul, MN 55106
Phone: 651-259-5775
Email: david.depaz@state.mn.us



From: Seth Loken <sloken@alliant-inc.com>
Sent: Tuesday, December 6, 2022 3:49 PM
To: DePaz, David (DNR) <david.depaz@state.mn.us>
Subject: FW: DNR Culvert Permit - Lotus Lake Private Discharge

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David,

I received Taylor's out of office email and I am hoping you can provide some answers to some questions below. Please call me at the direct line below if you have any questions.

Thanks,

Seth Loken, PE
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From: Seth Loken
Sent: Tuesday, December 6, 2022 3:47 PM
To: taylor.huinker@state.mn.us
Subject: DNR Culvert Permit - Lotus Lake Private Discharge

Taylor,

I have a question regarding a small residential development in the City of Chanhassen. The project address is 581 Fox Hill Drive. In order to safely convey stormwater from the site's underground infiltration tanks a stormsewer system ultimately resulting in a new culvert discharging to Lotus Lake is required. Previous iterations of the plan planned for a plunge pool to be placed slightly upland of the OHWL to allow for dispersing of runoff prior to discharge to Lotus Lake. RPBCWD has since commented that plan is unacceptable and will only accept a culvert being placed at the NWL of Lotus Lake, which is approximately 2.0' below the OHWL . As a result of development the site reduces TP, TSS and volume per city and RPBCWD requirements to Lotus Lake by instituting stormwater BMP's. Due to the high variability of grade and heavily treed nature in the site there is no alternative to the design for discharge that would not result in significant tree loss. All of this results in a few questions for me that I am hoping you would be able to answer.

1. First an obvious question that I believe I know the answer to, this culvert requires a permit?
2. Can a new culvert discharging to a public water be privately owned and maintained?
3. Can it be HDPE or does the DNR have material requirements?

Please call if I can help clarify anything for you. I have attached a previous plansheet showing the denied alternative plunge pool plan with a markup of what the updated plan would be (very roughly).

Thanks,

Seth Loken, PE

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