

Riley Purgatory Bluff Creek Watershed District Permit Application Review

Permit No: 2023-059

Application Received complete: September 9, 2024

Considered at Board of Managers Meeting: October 2, 2024

Applicant: Nathan Haasken

Consultant: Sisu Land Surveying & Engineering, Curt Kallio

Project: Three Oaks Estates Residential Development – The applicant proposes a five-lot single family residential development on an existing single family home lot.

Location: 9614 Crestwood Terrace, Eden Prairie.

Reviewer: Scott Sobiech, PE, Barr Engineering

Proposed Board Action

Manager _____ moved and Manager _____ seconded adoption of the following resolutions based on the permit report that follows and the presentation of the matter at the October 2, 2024 meeting of the managers:

Resolved that the application for Permit 2023-059 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 met, the RPBCWD president or administrator is authorized and directed to sign and deliver Permit 2023-059 to the applicant on behalf of RPBCWD.

Upon vote, the resolutions were adopted, _____ [VOTE TALLY].

Applicable Rule Conformance Summary

Rule	Issue	Conforms to RPBCWD Rules?	Comments
C	Erosion Control Plan	Yes	
D	Wetland and Creek Buffers	See Comment	See rule-specific permit condition D1 related to buffer maintenance declaration review, approval, and recordation.

Rule	Issue	Conforms to RPBCWD Rules?		Comments
J	Stormwater Management	Rate	Yes	
		Volume	Yes	
		Water Quality	Yes	
		Low Floor Elev.	See comment	See stipulation #6 related to providing additional subsurface investigation.
		Maintenance	See comment	See rule-specific permit condition J1 related to recordation of stormwater facility maintenance declaration.
		Chloride Management	Yes	
		Wetland Protection	NA	
L	Permit Fee Deposit	See Comment		\$3000 received September 11, 2023. The applicant must replenish the permit fee deposit to the original amount due before the permit will be issued. As of September 25, 2024 the amount due is \$8,595
M	Financial Assurances	See Comment		The financial assurance is calculated at \$118,248.

Project Description

The proposed Three Oaks Estates project involves razing the existing driveway and subdividing the site for and constructing a five-lot single-family residential redevelopment with driveways, associated sewer and utilities, a bituminous trail, and construction of a wet detention basin, biofiltration bench, and preservation of natural areas to provide rate control, volume abstraction, and water quality. The 5.1-acre project is located southeast of Lake Riley, along Crestwood Terrace between Pioneer Trail and Dell Road, in Eden Prairie. Riley Creek is adjacent to the site but offsite, downgradient of the proposed activities.

Water resource impacted by project

Water Resource	Potential resource impacts
Riley Creek	Creek is downgradient from land-disturbing activities

The project site information is summarized below:

Project Site Information	Area (acres)
Total Site Area	5.1
Existing Site Impervious Area	0.12
Disturbed Impervious Area	0.12 (100%)
Proposed Site Impervious Area	0.52
Change in Site Impervious Area	0.52
Regulated Impervious Surface	0.52

Project Site Information	Area (acres)
Total Disturbed Area	3.26

Exhibits:

1. Permit Application received August 25, 2023 (The applicant was notified on September 9, 2023 that the submittal was incomplete; information completing the application was received on September 9, 2024)
2. Stormwater Management Report dated August 16, 2023 (revised March 29, 2024, August 12, 2024, and September 9, 2024)
3. Project Plan Set dated August 16, 2023 (revised March 29, 2024, August 12, 2024, September 9, 2024, and September 26, 2024)
4. HydroCAD model received August 31, 2023 (revised April 2, 2024, August 13, 2024, and September 9, 2024)
5. MIDS models received August 25, 2023 (revised April 2, 2024 and September 26, 2026)
6. P8 model received May 25, 2024 (revised September 9, 2024)
7. SHSAM water quality model received May 25, 2024
8. Response to watershed comments received April 2, 2024
9. CVT Geotechnical Report received March 16, 2024
10. Wetland Hydrology monitoring report dated December 10, 2021
11. Engineer's opinion of probable cost received September 26, 2024

Rule Specific Permit Conditions

Rule C: Erosion and Sediment Control

Because the applicant proposes to alter 3.26 acres of land-surface area, the project must conform to the requirements in the RPBCWD Erosion and Sediment Control rule (Rule C, Subsection 2.1).

The erosion control plan prepared by Sathre-Bergquist Inc. includes installation of silt fence perimeter control, rock construction entrance, inlet protection, concrete washout, erosion control blanket, weekly inspection, placement of a minimum of 6 inches of topsoil, decompaction of areas compacted during construction, and retention of native topsoil onsite. The applicant identified Nathan Haasken (NHaasken@gmail.com, 952.239.1836) as the person responsible for erosion prevention and sediment control during construction.

The proposed project conforms to the erosion and sediment control requirements of Rule C.

Rule D: Wetland and Creek Buffers

Because the proposed work triggers RPBCWD Rule J and Riley Creek, a public water, is adjacent to the site and downgradient from the proposed land disturbing activities, the applicant must provide a vegetated buffer on the portion of the property upgradient from the creek and extending 50 feet upstream and downstream of the disturbance (Rule D, Subsections 2.1 and 3.1). Because the creek will not be disturbed

by the proposed activities, the applicant is proposing buffer to the upstream and downstream extent of the property..

The property boundary and land-disturbing activities are located upgradient from Riley Creek, which is a public water and is adjacent to the property, requiring a 50-foot average, 30-foot minimum buffer width under Rule D, subsection 3.2.b.v. The 50-foot creek buffer intersects a steep slope, as defined in the rule. Per Rule D, subsection 3.2c, the buffer must encompass all or part of a slope averaging 18% or greater. Because the buffer area extends to the top of slopes that average steeper than 18% the project conforms to Rule B, subsection 3.2c. As shown in the table below, the required buffer width to conform to the steep slopes provision (Rule B, subsection 3.2c), is greater than the required average buffer width to conform to Rule D, subsection 3.2.b.v, indicating that both requirements are met.

Buffer Features	Required (feet)	Provided (feet)
Minimum Buffer Width	30	173
Average Buffer Width	50	181

Plan documents show that the buffer area will be maintained with native vegetation and maintained in a natural state (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. The following revisions are needed to conform to the RPBCWD Rule D:

- 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. The maintenance declaration must also include an exhibit clearly showing the buffer area and monument locations.

Rule J: Stormwater Management

Because the applicant proposes to alter 3.26 acres of land-surface area, the project must meet the criteria of RPBCWD’s Stormwater Management rule (Rule J, Subsection 2.1). Because this redevelopment project will disturb 100 percent of the existing impervious area on the site, the RPBCWD stormwater-management criteria apply to the entire site (subsection 2.3). The applicant proposes construction of a wet detention basin, biofiltration bench, and preservation of natural areas to provide rate control, volume abstraction, and water quality.

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
D1	2.0	0.4	4.9	1.3	11.5	6.9	0.4	0.4
D2	<0.1	0	<0.1	0	0.2	0	<0.1	0
D3	0.1	<0.1	0.3	0.1	0.7	0.3	<0.1	<0.1
D4	0.5	0	0.8	<0.1	1.6	0.2	<0.1	<0.1

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 impervious surface of the parcel. An abstraction volume of 2,063 cubic feet is required from the 0.52 acres (22,500 square feet) of new impervious area on the project for volume retention. The plans indicate pretreatment for runoff entering the stormwater facility is provided by grass overland flow and sump manholes, thus the proposed project conforms with RPBCWD Rule J, Subsection 3.1b.1.

Based on the nine soil borings conducted by Kilo Engineering and Chosen Valley Testing, the site contains about 12 inches of topsoil overlying predominantly clayey sand deposits. Because high groundwater was observed in the test pits conducted in 2023 and monitoring wells from 2021, there is inadequate separation to groundwater to allow infiltration on this site. The lack of communal open space for irrigation precludes reuse. Because the engineer concurs that the soil information and high groundwater observations in the test pits conducted in 2023 and the lack of communal open space for irrigation support a determination that the abstraction standard in subsection 3.1b of Rule J cannot practicably be met, the site is considered restricted and stormwater runoff volume must be managed in accordance with subsection 3.3 of Rule J.

For restricted sites, subsection 3.3 of Rule J requires rate control in accordance with subsection 3.1.a and that abstraction and water quality protection be provided in accordance with the following sequence:

- (a) Abstraction of 0.55 inches of runoff from site impervious surface determined in accordance with paragraphs 2.3, 3.1 or 3.2, as applicable, and treatment of all runoff to the standard in paragraph 3.1c; or
- (b) Abstraction of runoff onsite to the maximum extent practicable and treatment of all runoff to the standard in paragraph 3.1c; or

(c) Off-site abstraction and treatment in the watershed to the standards in paragraph 3.1b and 3.1c.

The applicant is relying on vegetation on the biofiltration bench to provide abstraction to the maximum extent practicable (MEP) to conform to Rule J, subsection 3.3b because of the seasonally high groundwater, existing steep slopes on the site, and the existing pipeline easement. The designed abstraction performance for the project site is summarized in the table below.

Volume Abstraction Summary

Required Abstraction Depth (inches)	Required Abstraction Volume (cubic feet)	Provided Abstraction Depth (inches)	Provided Abstraction Volume (cubic feet)
0.55	1032	0.09	170

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. The Applicant is proposing a wet detention basin, biofiltration bench, and preservation of natural areas to treat runoff from the regulated impervious area. The applicant is also a proposing preservation of 1.73 acres of natural area. P8 was used to evaluate the removal efficiencies of the stormwater management features. The results of this modeling are summarized in tables below showing the annual TSS and TP removal requirements are achieved and that there is no net increase in TSS and TP leaving the site. The engineer concurs with the modeling and finds that the proposed project is in conformance with Rule J, Subsection 3.1.c.

Pollutant of Interest	Regulated Site Loading (lbs/yr)	Required Load Removal (lbs/yr)	Provided Load Reduction (lbs/yr)
Total Suspended Solids (TSS)	533	480 (90%)	484 (90.8%)
Total Phosphorus (TP)	1.8	1.08 (60%)	1.1 (60.0%)

Pollutant of Interest	Existing Site Loading (lbs/yr)	Proposed Site Load after Treatment (lbs/yr)	Change (lbs/yr)
Total Suspended Solids (TSS)	433	61	-372
Total Phosphorus (TP)	1.4	0.9	-0.5

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.

As summarized in the following table, the low floor elevations of the proposed structures on Lots 2-5 are more than two feet above the 100-year flood elevation of the proposed wet detention basin with

biofiltration bench basin or 1 foot above the adjacent emergency overflow, thus the lots are in conformance with Rule J, Subsection 3.6.

Structure	Low Floor Elevation of Building (ft)	100-year Event Flood Elevation of Facility (ft)	Freeboard to 100-year HWL (ft)	Emergency Overflow Elevation (ft)	Freeboard to Emergency Overflow (ft)
Lot 1	883.5	882.66	0.84	882.7	0.8
Lot 2	886.3	882.66	3.64	882.7	3.6
Lot 3	888.2	882.66	5.54	882.7	5.5
Lot 3	890.1	882.66	7.44	882.7	7.4
Lot 5	892.3	882.66	9.64	882.7	9.6
18669 Ponderosa Ct	876.6	882.66	-6.06	882.7	-6.1
18677 Ponderosa Ct	874	882.66	-8.66	882.7	-8.7

Because the proposed low floor elevations of Lot 1 and the low floors of existing structures are less than 2 feet above the 100-year high-water elevation, an alternative low floor analysis was conducted as outlined in Rule J, Appendix J.1 – Low-Floor Elevation Assessment. Groundwater was not discovered in the soil borings collected at the property boundary nearest the existing structures, thus the groundwater elevations were presumed to be at the elevation of the bottom of the boring nearest the existing structure. The results of the low-floor analysis using *Appendix J1 Plot 1: Minimum Depth to Water Table for No Further Evaluation* are summarized in the following table. The results demonstrate the provided separation is greater than the minimum required, thus meeting the habitable structure requirements in Rule J, Subsection 3.6.

Structure	Lowest Floor Elevation of Building (feet)	Distance from Building to Adj. Facility (ft)	Representative Soil Boring	Estimated Water Table Elevation ¹ (ft)	Minimum Allowable Depth to Water Table (ft)	Provided Depth from Low Floor Elevation to Water Table (ft)
Lot 1	883.5	75	B-02 ¹	864.0	4.7	19.5
Existing - 18669 Ponderosa Ct	876.6	52	B-02 ²	864.0	6.8	12.6
Existing - 18677 Ponderosa Ct	874	87	B-03 ²	864.5	3.5	9.5

¹ Presumed to be at the elevation of the bottom of the boring nearest the structure.

² Soil boring are the closest available information collected at the property boundary but are not adjacent to the existing, off-site structures.

Because the borings are not located at the proposed structure perimeter closest location to the stormwater management facility, additional subsurface investigation during construction is needed to verify adequate separation between the proposed low floor and groundwater for Lot 1. If the technical information demonstrates the structure would not comply with the low floor requirement in subsection 3.6a, 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).

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.

- J1. Permit applicant must provide a maintenance and inspection declaration. A maintenance declaration template is available on the permits page of the RPBCWD website. (<http://www.rpbcwd.org/permits/>). The declaration must include the all stormwater management facilities and must provide for permanent preservation of natural areas included as functional elements of the stormwater-management plan. A draft declaration must be provided for District review and approval prior to recording.

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 the proposed street work to connect utilities for the proposed residential development will be within public right of way that will be maintained by the city of Eden Prairie and the City has provided its chloride management plan and its designated state-certified chloride applicator is Eden Prairie's Streets Division Manager Larry Doig, the proposed development conforms with Rule J, subsection 3.8.

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 September 11, 2023. 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 September 25, 2024 the amount due is \$8,595.

Rule M: Financial Assurance:

	Unit	Unit Cost	# of Units	Total
Rule C: Erosion Control				
Silt Fence	LF	\$2.50	510	\$1,275
Inlet Protection	EA	\$100	4	\$400
Rock Entrance	EA	\$250	1	\$250
Restoration of disturbance	Ac	\$2,500	3.26	\$8,150
Rule D: Wetland & Creek Buffer	LS	\$5,000	1	\$5,000
Rule J: Stormwater Management Wet Detention Basin and Biofiltration Bench: 125% of engineer's opinion of cost (\$73,923)	EA	125% OPC	1	\$92,423
Contingency (10%)		10%		\$10,750
Total Financial Assurance				\$118,248

Applicable General Requirements:

1. The RPBCWD Administrator and Engineer shall be notified at least three days prior to commencement of work.
2. 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.
3. The grant of the permit does not relieve the permittee of any responsibility to obtain approval of any other regulatory body with authority.
4. 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.
5. 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.
6. 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.
7. 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 C.
3. The proposed project will conform to Rules D and J if the Rule Specific Permit Conditions listed above are met.

Recommendation:

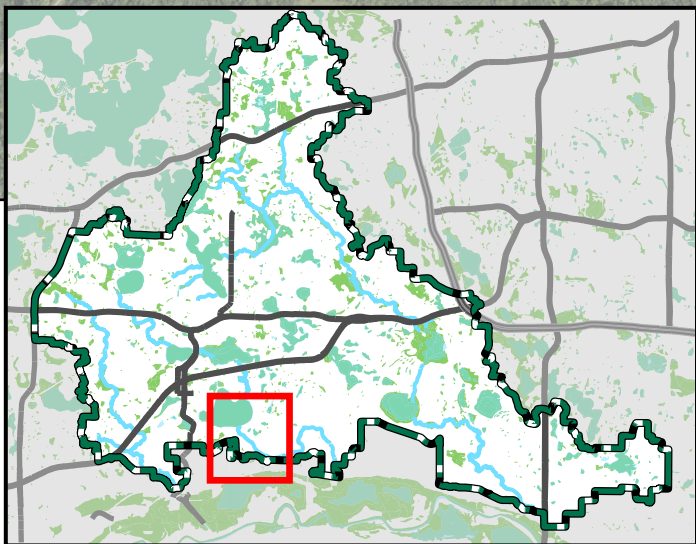
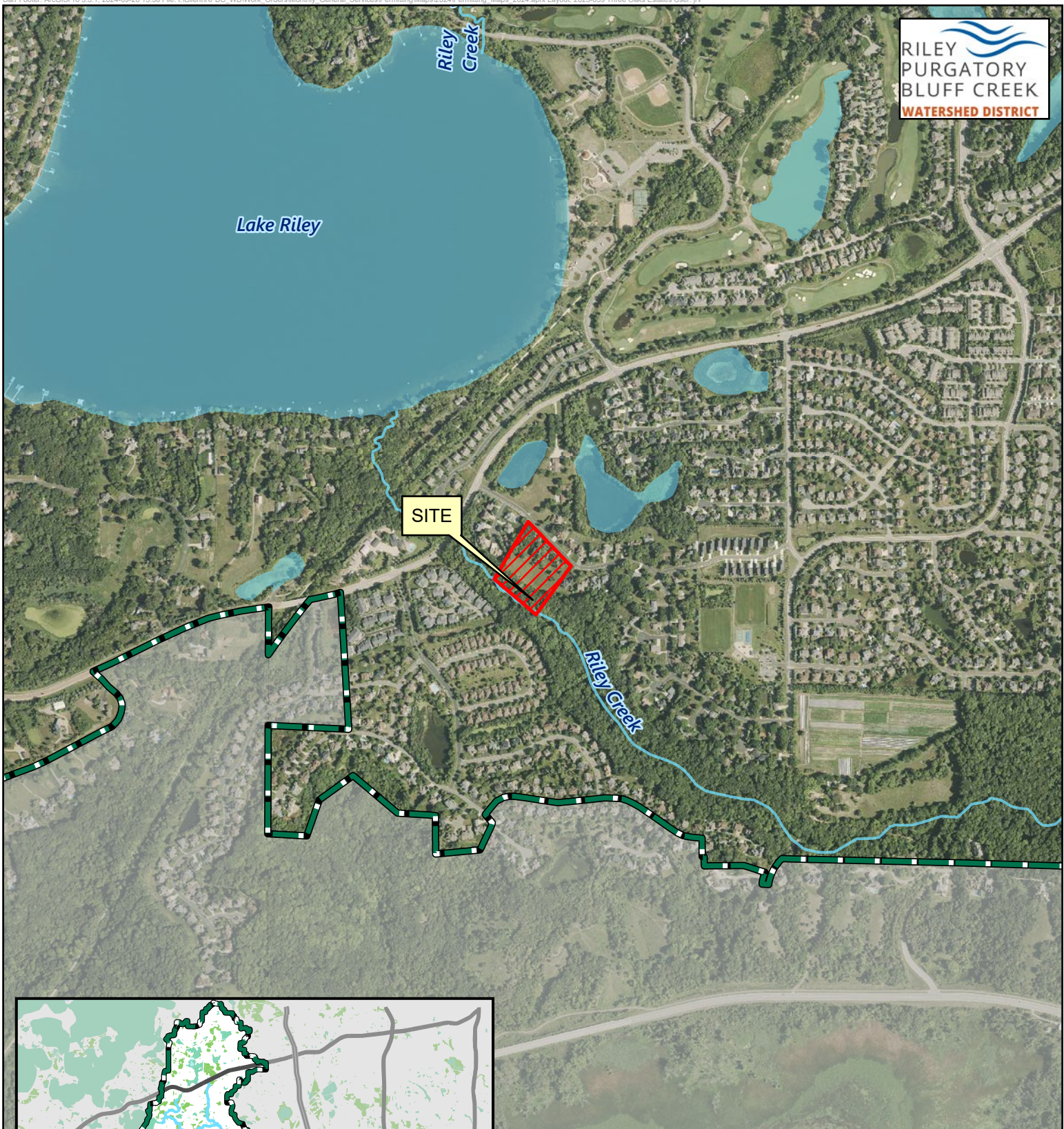
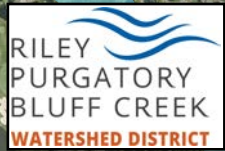
Approval of the permit contingent upon:

1. Financial Assurance in the amount of \$118,248.
2. Receipt in recordation a maintenance declaration for the operation and maintenance all stormwater management facilities. The declaration must include the creek buffers, all stormwater management facilities and must provide for permanent preservation of natural areas used for stormwater management. Drafts of all documents to be recorded must be reviewed and approved by the District prior to recordation.
3. The applicant must replenish the permit fee deposit to the original amount due before the permit will be issued. The amount needed to replenish the permit fee deposit is \$8,595 as of September 25, 2024.

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

1. Continued compliance with General Requirements.
2. 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 the stormwater management facilities conforms to design specifications and functions 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;
 - d) other important features to show that the project was constructed as approved by the Managers and protects the public health, welfare, and safety.
3. Providing the following additional close-out materials:
 - a) Documentation that constructed infiltration facility performs as designed. This may include infiltration testing, flood testing, or other with prior approval from RPBCWD
 - b) Documentation that disturbed pervious areas remaining pervious have been decompacted per Rule C.2c criteria
4. The work on the Three Oaks subdivision under the terms of permit 2023-059, 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.

5. The applicant must submit supporting documentation demonstrating there is adequate freeboard or separation to groundwater to achieve the low floor criteria for Lot 1. If the technical information demonstrates the structure would not comply with the low floor requirement in subsection 3.6a, 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).



Feet



Permit Location Map

THREE OAKS ESTATES

Permit 2023-059

Riley Purgatory Bluff Creek
Watershed District

THREE OAKS ESTATES

EDEN PRAIRIE MN

GRADING, DRAINAGE, UTILITY, EROSION CONTROL, AND TREE PRESERVATION PLANS

OWNER/DEVELOPER

NATHAN HAASKEN
413 N. CHESTNUT ST.
CHASKA, MN 55318

ENGINEER/SURVEYOR

SISU LAND SURVEYING & ENGINEERING
2580 CHRISTIAN DR.
CHASKA, MN 55318
CONTACT: CURT KALLIO, PE, LS
612-418-6828

WETLAND DELINEATOR/ TREE INVENTORY

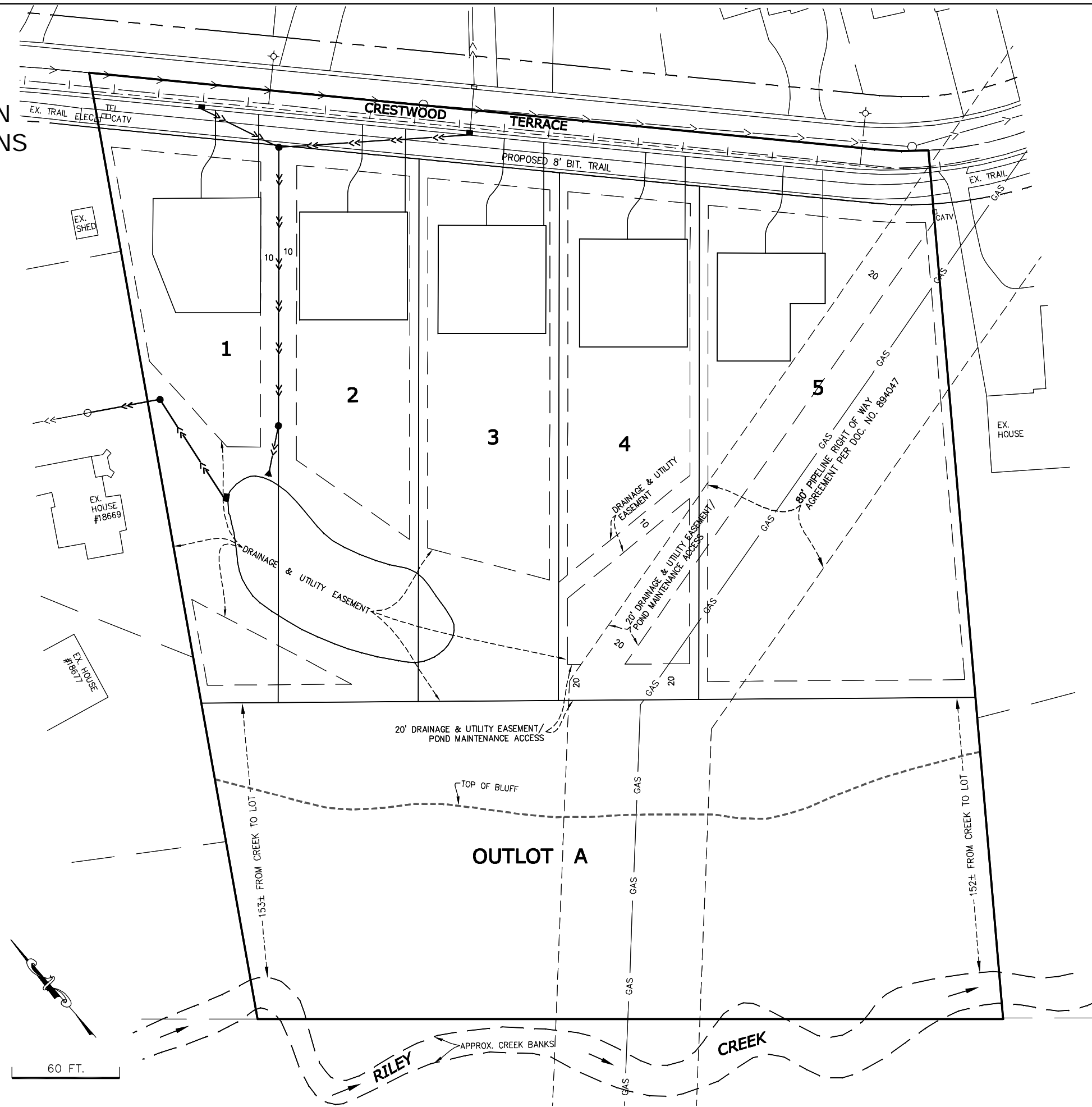
AQUATIC ECOSOLUTIONS
PO BOX 497
NEVIS, MN 56467
CONTACT: ROB MERILA
877-346-3474

SHEET INDEX

- C1 TITLE SHEET & OVERALL LAYOUT
- C2 TREE SURVEY
- C3 TREE INVENTORY
- C4 TREE REPLACEMENTS
- C5 GRADING, DRAINAGE, AND EROSION CONTROL PLANS
- C6 STORM SEWER PLAN
- C7 POND STORM OUTLET AND SKIMMER DETAILS
- C8 STORM POND DETAILS
- C9 UTILITY PLANS
- C10 TURF ESTABLISHMENT PLANS
- C11-C12 DETAILS & STANDARD PLATES

LEGEND

EASEMENT	---
EX. CONTOUR	---990---
PROP. CONTOUR	---(990)---
DRAINAGE ARROW	→
EX. CATCH BASIN	□←←←
PROP. CATCH BASIN	■←←←
EX. STORM SEWER	---<<<
PROP. STORM SEWER	---<<<---
EX. FES	▷<<<
PROP. FES	▶<<<
EX. STORM MH	○<<<
PROP. STORM MH	●<<<
EX. SAN. SEWER	---<
PROP. SAN. SEWER	---<---
EX. WATERMAIN	--- ---
PROP. WATERMAIN	--- ---
EX. HYDRANT	○
PROP. HYDRANT	●
PROP. GATE VALVE	✕
POWER POLE	○
GAS	---GAS---
TELEPHONE	---TELE---
ELECTRIC	---ELEC---
OVERHEAD POWER	---OHP---



Land Surveying & Engineering

2580 Christian Dr.
Chaska, MN 55318
612-418-6828

I hereby certify that this plan, report, or specification was prepared by me or under my direct supervision and that I am a duly Licensed Engineer under the laws of the State of Minnesota.
Curt Kallio
CURTIS J. KALLIO
DATE: 9/26/2024 REG. NO. 26909

PREPARED FOR:
NATHAN HAASKEN
413 N. CHESTNUT ST.
CHASKA, MN 55318

SHEET TITLE & PROJECT:
Title & Layout
Three Oaks Estates
Eden Prairie, MN

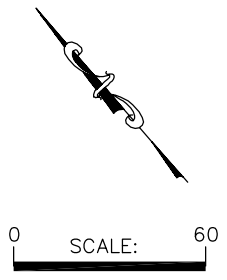
DATE	REVISION	BY

PROJECT NO:
1924

SHEET
C1

LEGEND

- TF — TREE FENCE—ORANGE SNOW FENCE
- ☼ 329 EXISTING TREE & TAG NUMBER
SEE INVENTORY ON SHEET C3
- X TREE REMOVAL



Land Surveying & Engineering

2580 Christian Dr.
Chaska, MN 55318
612-418-6828

I hereby certify that this plan, report, or specification was prepared by me or under my direct supervision and that I am a duly Licensed Engineer under the laws of the State of Minnesota.

Curt Keller
CURTISS J. KALLO

DATE: 9/26/2024 REG. NO. 26909

PREPARED FOR:
NATHAN HAASKEN
413 N. CHESTNUT ST.
CHASKA, MN 55318

SHEET TITLE & PROJECT:
Tree Inventory and Removals
Three Oaks Estates
Eden Prairie, MN

DATE	REVISION

PROJECT NO:
1924

SHEET
C2

LEGEND

- TF — TREE FENCE—ORANGE SNOW FENCE
- 329 EXISTING TREE & TAG NUMBER
SEE INVENTORY ON SHEET C3
- PROPOSED DECIDUOUS REPLACEMENT TREE
- PROPOSED CONIFEROUS REPLACEMENT TREE

TREE REPLACEMENTS

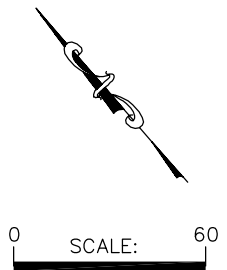
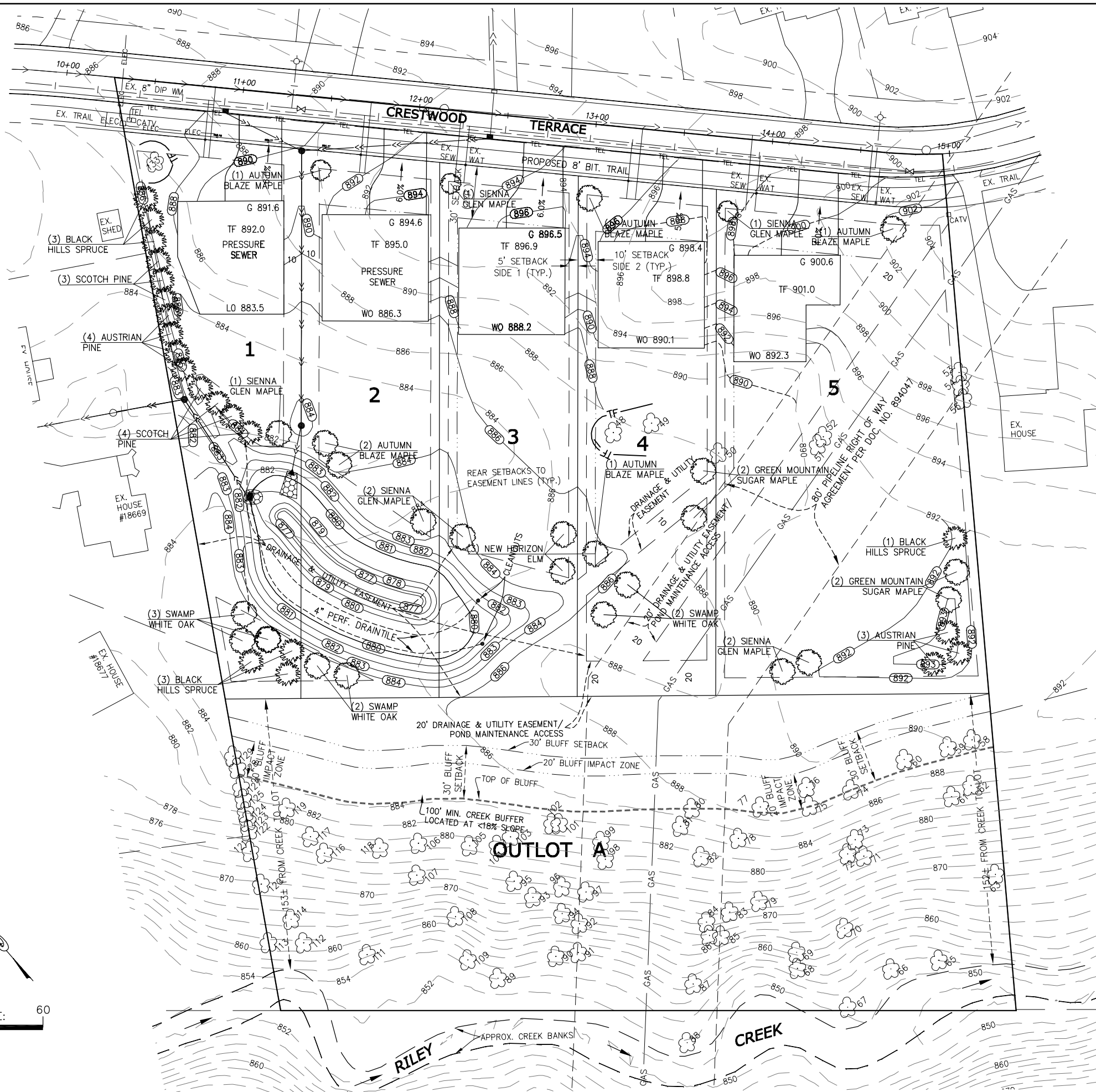
QTY	SPECIES	SIZE
7	SIENNA GLEN MAPLE	2.5" BB
5	AUTUMN BLAZE MAPLE	2.5" BB
7	SWAMP WHITE OAK	2.5" BB
3	NEW HORIZON ELM	2.5" BB
4	GREEN MOUNTAIN SUGAR MAPLE	2.5" BB
7	BLACK HILLS SPRUCE	6" BB
7	AUSTRIAN PINE	6" BB
7	SCOTCH PINE	6" BB

TOTAL TREE REPLACEMENTS = 117 INCHES

NOTE: FINAL LOCATIONS TO BE DETERMINED BY LANDSCAPE CONTRACTOR

TREE REPLACEMENT PHASING

- PHASE 1: PLANT REPLACEMENT TREES AROUND PERIMETER THAT WILL NOT BE IMPACTED BY HOME CONSTRUCTION
- PHASE 2: PLANT TREES IN FRONT OF HOMES AFTER HOME CONSTRUCTION.



Land Surveying & Engineering

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612-418-6828

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Curt Keller
CURTIS J. KALLO
DATE: 9/26/2024 REG. NO. 26909

PREPARED FOR:
NATHAN HAASKEN
413 N. CHESTNUT ST.
CHASKA, MN 55318

SHEET TITLE & PROJECT:
Tree Replacement Plan
Three Oaks Estates
Eden Prairie, MN

BY	REVISION	DATE

PROJECT NO:
1924

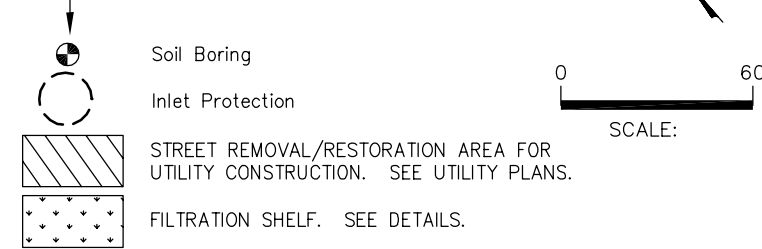
SHEET
C4

BUILDING PAD LEGEND

- G XXX.X GARAGE FLOOR ELEVATION
- TF XXX.X TOP OF FOUNDATION ELEV.
- FB XXX.X FULL BASEMENT LOWEST FLOOR ELEV.
- LO XXX.X LOOKOUT LOWEST FLOOR ELEV.
- WO XXX.X WALKOUT LOWEST FLOOR ELEV.

GRADING LEGEND

- 900 Existing Contour
- 864 Proposed Contour
- SF Silt Fence
- Construction Limits
- XXX.X Proposed Drainage & Direction

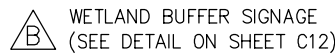


PROPOSED BITUMINOUS TRAIL

GRADE BITUMINOUS TRAIL AS SHOWN IN DETAIL ON SHEET C9. TRAIL IS 6 FEET FROM BACK OF CURB. TRAIL WILL BE PAVED AFTER CONSTRUCTION OF HOMES.

WETLAND BUFFERS

100 Ft. minimum creek buffer is shown. No buffer impacts are proposed. Signage will be provided as shown.



STAGING AREA

A potential staging area is shown at the location of the existing home removal. The existing driveway will be used for access.

RESPONSIBLE PARTY

Nathan Haasken, owner, will be liable to the watershed district for performance of Rule C and maintenance of erosion and sediment control measures from the time permitted activities commence until vegetative cover is established.

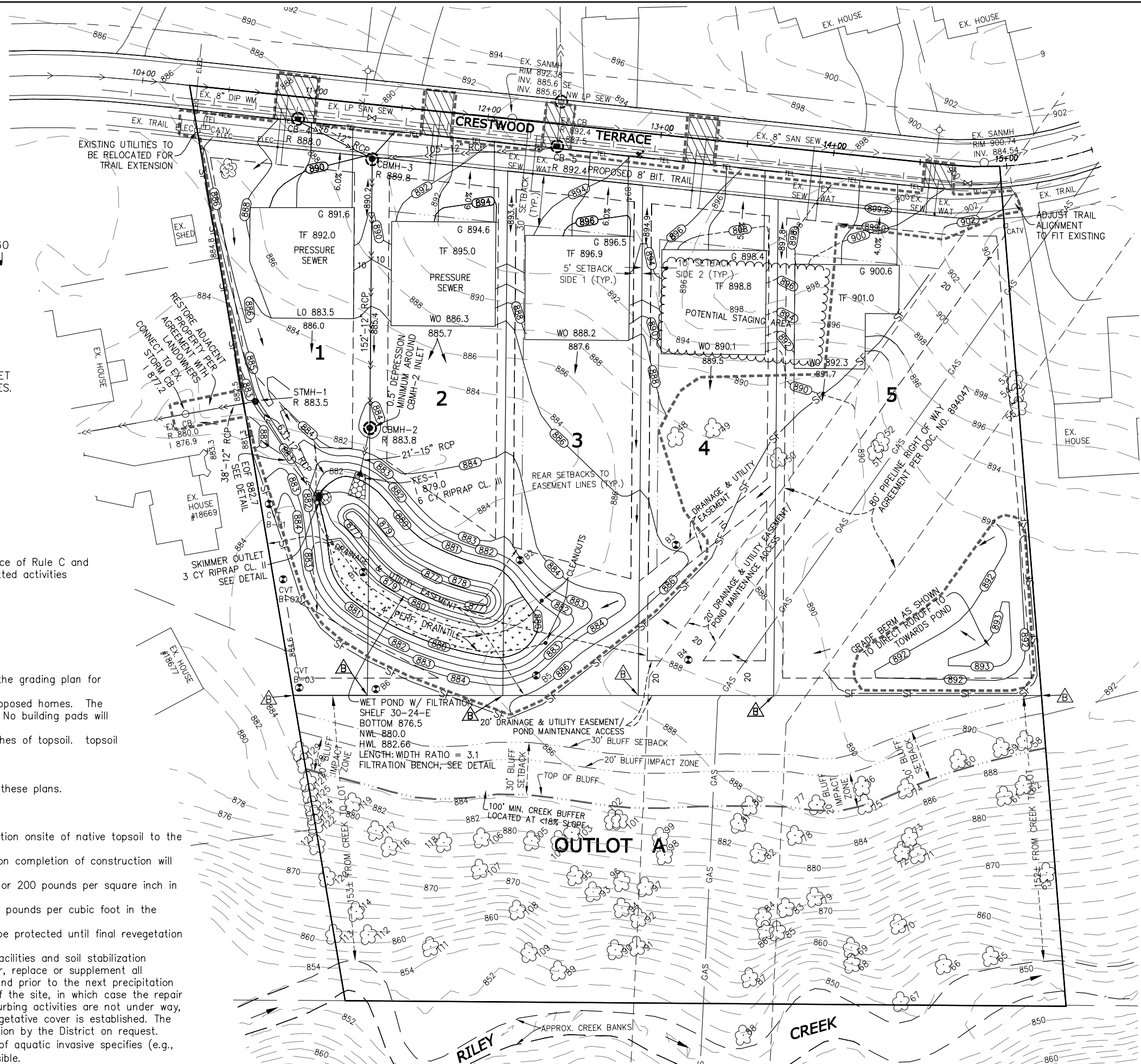
Nathan Haasken
9611 Crestwood Terrace
Eden Prairie, MN 55347
952-239-1836

GRADING AND DRAINAGE GENERAL NOTES

1. See sheet 2 for tree removals. Trees to be removed are not shown in the grading plan for clarity reasons.
2. Grading includes the filtration basin and area between the basins and proposed homes. The west property line swale and berm will also be constructed as shown. No building pads will be constructed.
3. All disturbed areas to be re-vegetated shall receive a minimum of 6 inches of topsoil. topsoil must be tested to insure a minimum 5% organic content.
3. The estimated disturbed area is 2.2 acres.
4. The estimated excavation is 3,000 cy.
5. A SWPPP will be prepared as a standalone document which incorporates these plans.

WATERSHED STANDARD NOTES

- a. Natural topography and soil conditions will be protected, including retention onsite of native topsoil to the greatest extent possible
- b. Soil surfaces compacted during construction and remaining pervious upon completion of construction will be de-compacted to achieve:
 - i. a soil compaction testing pressure of less than 1,400 kilopascals or 200 pounds per square inch in the upper 12 inches of soil or
 - ii. a bulk density of less than 1.4 grams per cubic centimeter or 87 pounds per cubic foot in the upper 12 inches of soil.
 - iii. In addition, utilities, tree roots and other existing vegetation will be protected until final revegetation or other stabilization of the site.
- c. The permittee will inspect all erosion prevention and sediment control facilities and soil stabilization measures to ensure integrity and effectiveness. The permittee will repair, replace or supplement all nonfunctional BMPs with functional BMPs within 48 hours of discovery and prior to the next precipitation event unless adverse conditions preclude access to the relevant area of the site, in which case the repair must be completed as soon as conditions allow. When active land-disturbing activities are not under way, the permittee will perform these responsibilities at least weekly until vegetative cover is established. The permittee will maintain a log of activities under this section for inspection by the District on request.
- d. Activities must be conducted so as to minimize the potential transfer of aquatic invasive species (e.g., zebra mussels, Eurasian watermilfoil, etc.) to the maximum extent possible.



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Curt Keller
CURTIS J. KALLO
DATE: 9/26/2024 REG. NO. 26909

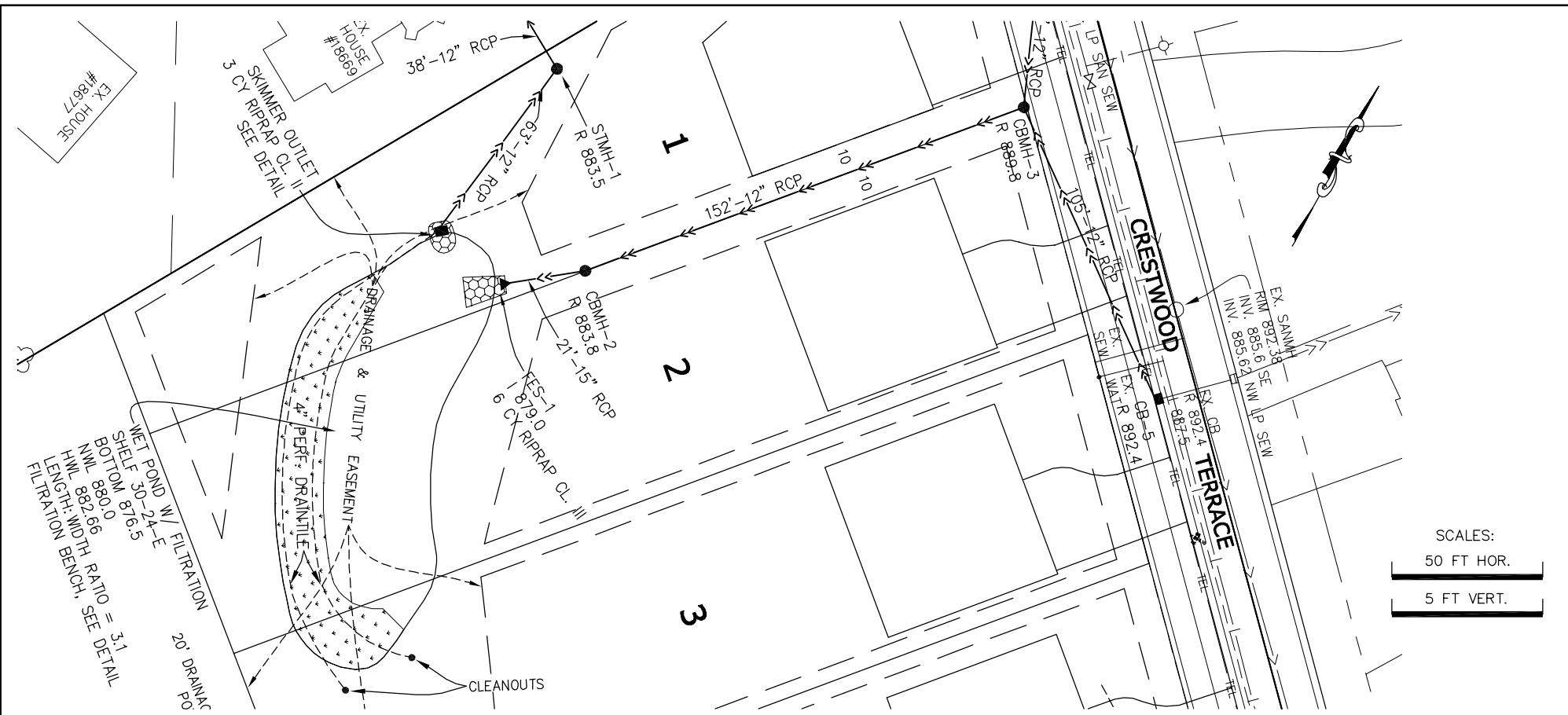
PREPARED FOR:
NATHAN HAASKEN
413 N. CHESTNUT ST.
CHASKA, MN 55318

SHEET TITLE & PROJECT:
Grading, Drainage, and Erosion Control Plan
Three Oaks Estates
Eden Prairie, MN

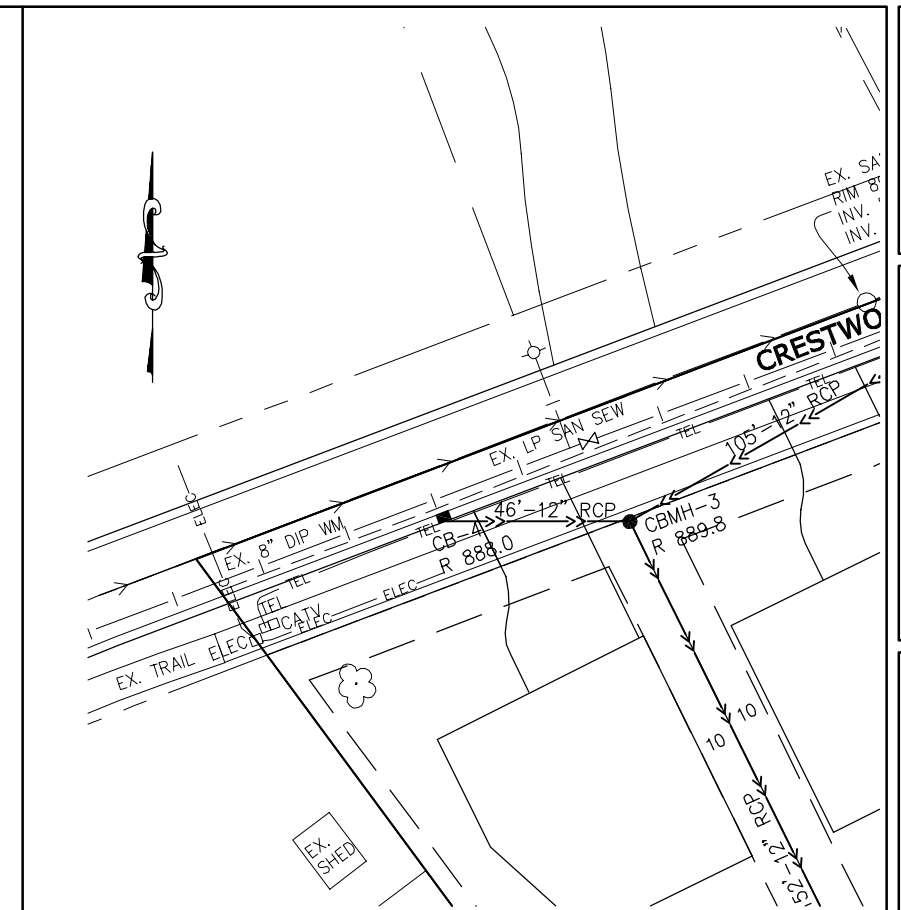
BY	REVISION	DATE

PROJECT NO:
1924

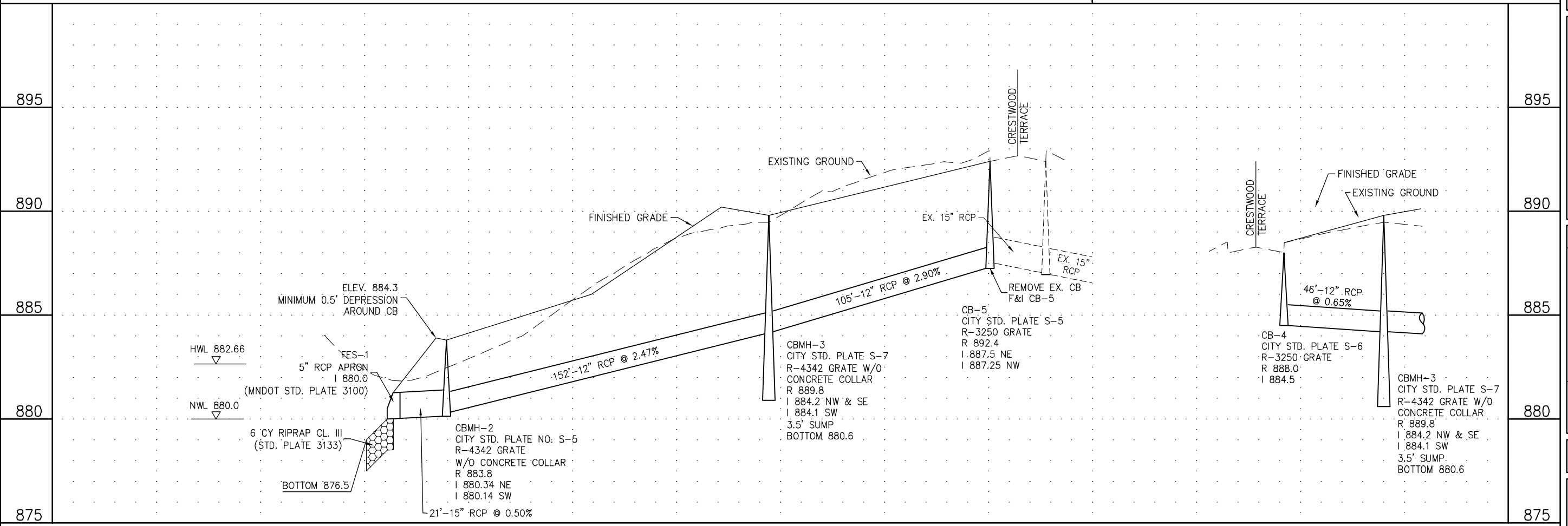
SHEET
C5



STORM SEWER FROM POND TO CRESTWOOD TERRACE



STORM SEWER FROM CB-5 TO CBMH-4



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PREPARED FOR:
NATHAN HAASKEN
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SHEET TITLE & PROJECT:
Storm Sewer Plan

DATE	REVISION	BY

PROJECT NO:
1924

SHEET
C6



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Curt Keller
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DATE: 9/26/2024 REG. NO. 26909

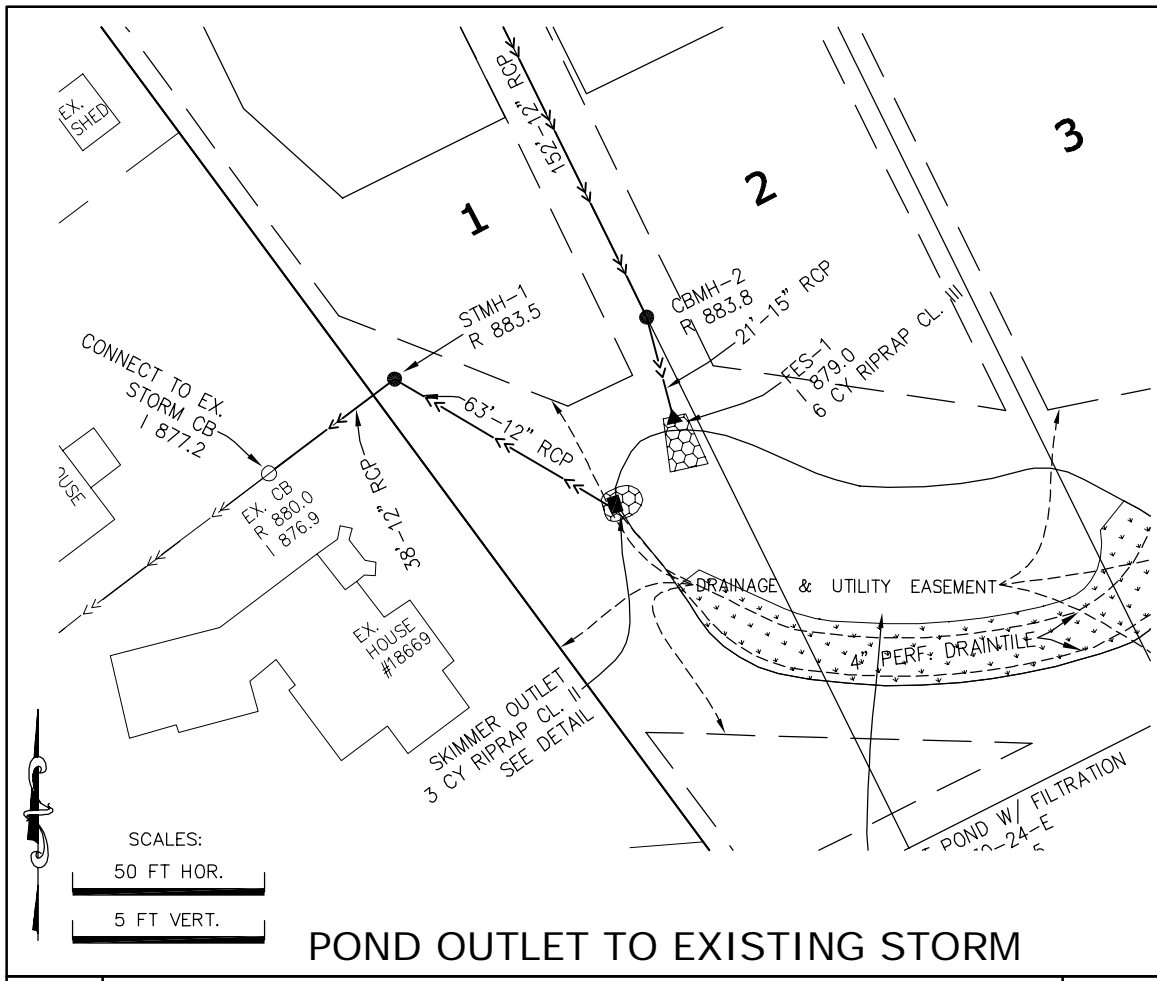
PREPARED FOR:
NATHAN HAASKEN
413 N. CHESTNUT ST.
CHASKA, MN 55318

SHEET TITLE & PROJECT:
**Storm Sewer Plan and
Pond Skimmer Details**

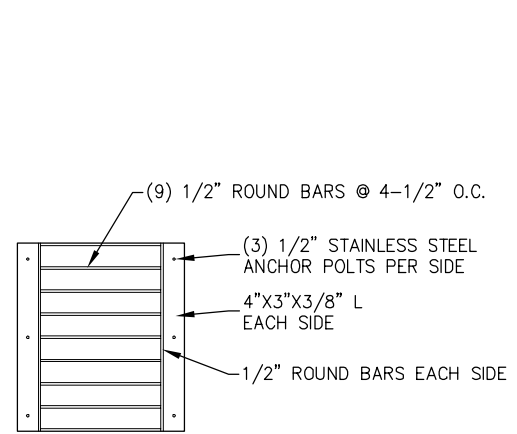
BY	REVISION	DATE

PROJECT NO:
1924

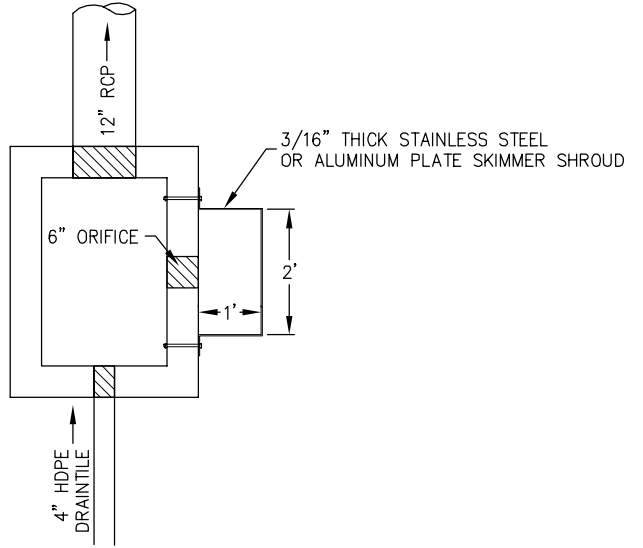
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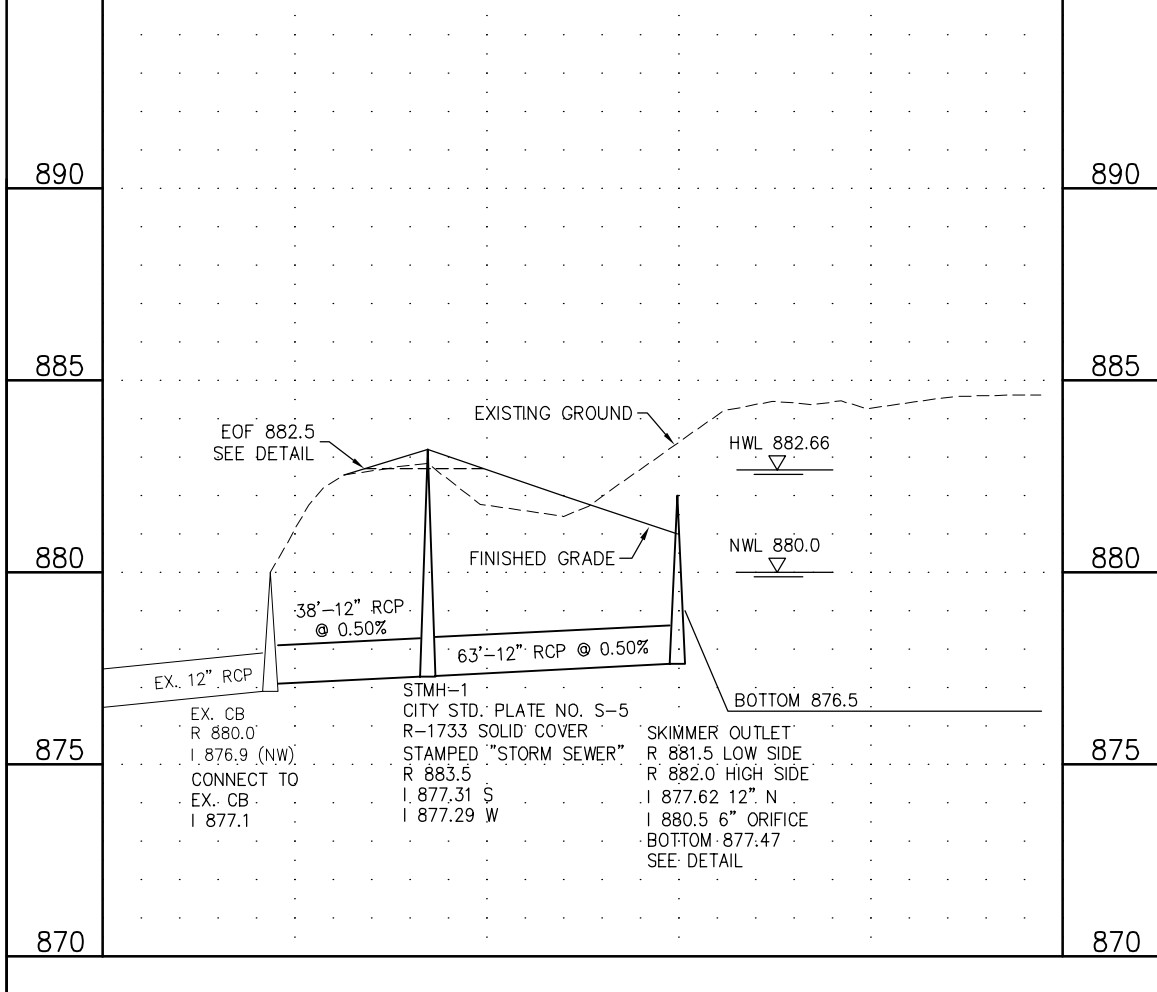
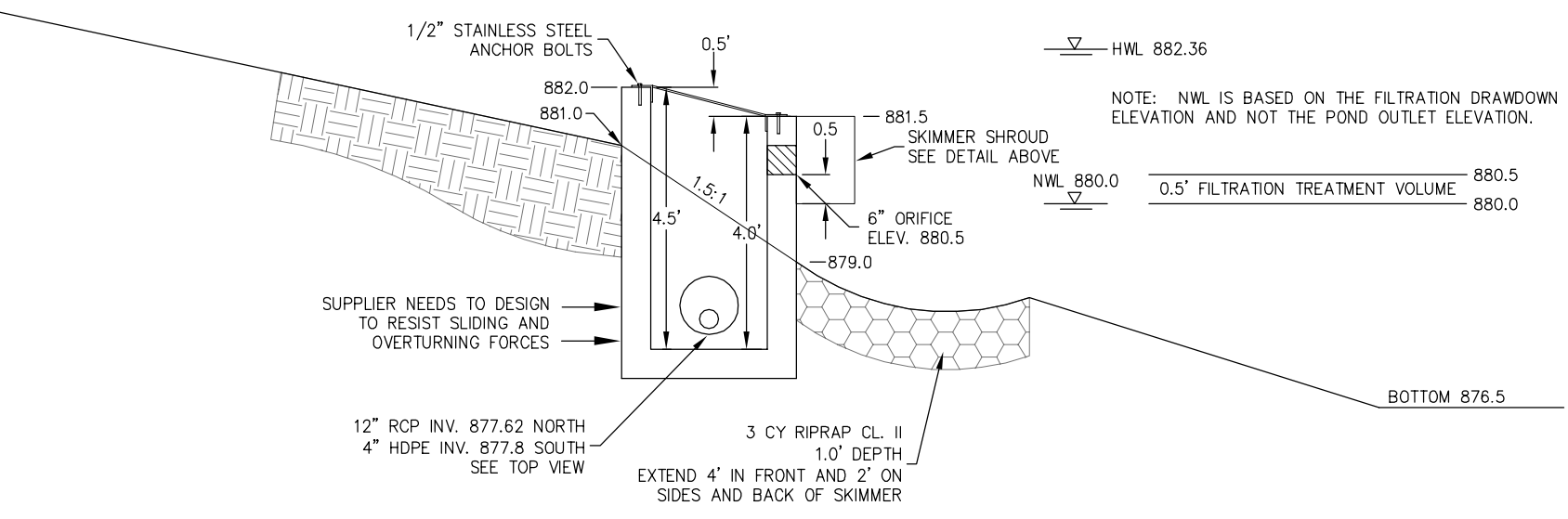
GRATE DETAIL



SKIMMER TOP VIEW



SKIMMER SECTION





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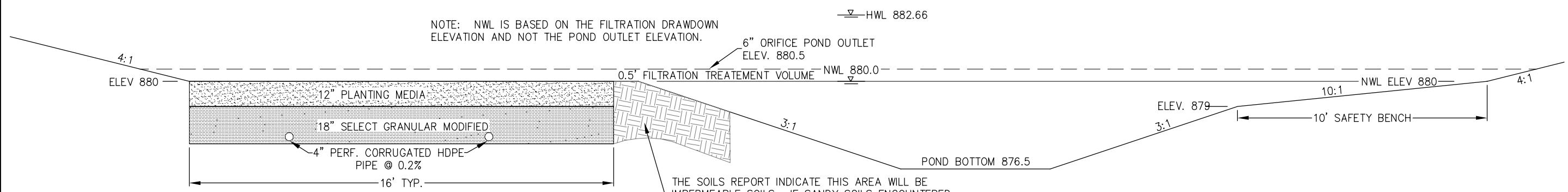
PREPARED FOR:
NATHAN HAASKEN
413 N. CHESTNUT ST.
CHASKA, MN 55318

SHEET TITLE & PROJECT:
Storm Pond Details

DATE	REVISION	BY

PROJECT NO:
1924

SHEET
C8



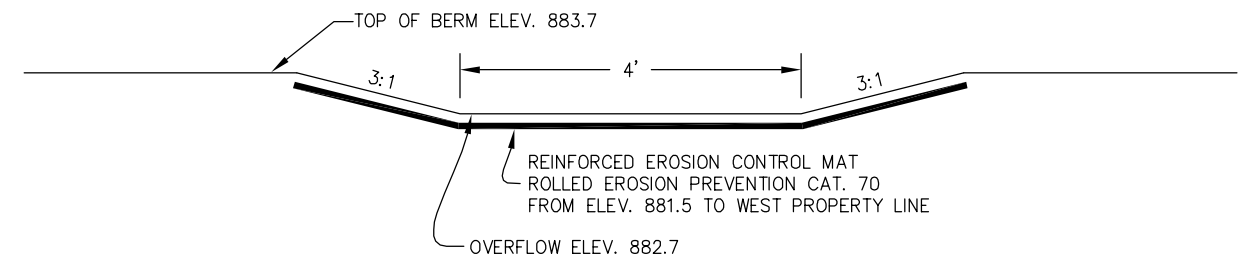
NOTE: NWL IS BASED ON THE FILTRATION DRAWDOWN ELEVATION AND NOT THE POND OUTLET ELEVATION.

PLANTING MEDIA – SOIL MIX D PER THE MN STORMWATER MANUAL (BY VOLUME)
60% COURSE SAND
30% TOPSOIL (CLAY 10 TO 25% BY VOL., pH 5.0 TO 7.3, ORGANIC 2 TO 8% BY WEIGHT)
10% MNDOT GRADE 2 COMPOST

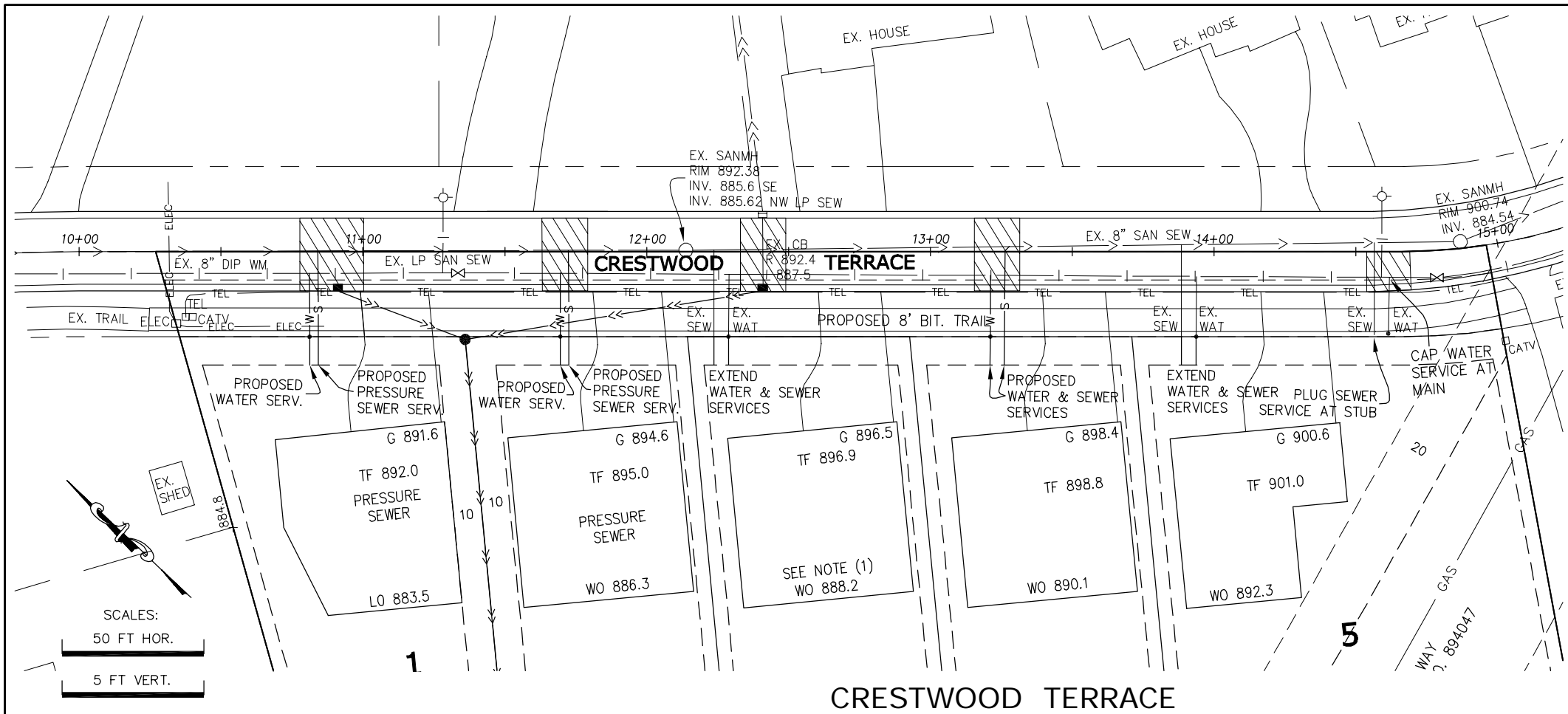
- NOTES:
1. SELECT GRANULAR MODIFIED SUCH THAT 7% MAX. PASSES #200 SIEVE.
 2. SEED FILTRATION SHELF TO ELEV. 882.0 WITH MNDOT 33-261 SEED MIXTURE AT 35 LB/ACRE OR PLANTINGS PER THE OWNER.
 3. STABILIZE WITH EROSION CONTROL BLANKET CAT. 3N, WOOD FIBER.

THE SOILS REPORT INDICATE THIS AREA WILL BE IMPERMEABLE SOILS. IF SANDY SOILS ENCOUNTERED DURING CONSTRUCTION, CONSTRUCT CLAY WALL BETWEEN WET POND AND FILTRATION SHELF

**WET POND/FILTRATION SHELF
TYPICAL SECTION**



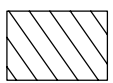
POND EMERGENCY OVERFLOW

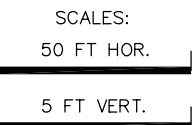


UTILITY NOTES

1. WATER AND SEWER SERVICES WILL BE PROVIDED TO LOTS 1, 2, AND 4 BY THE DEVELOPER PRIOR TO HOUSE CONSTRUCTION.
2. ALL UTILITY CONNECTIONS SHALL COMPLY WITH THE CITY OF EDEN PRAIRIE SPECIFICATIONS.
3. LOTS 1 AND 2 TO BE PROVIDED SEWER SERVICE VIA INDIVIDUAL GRINDER PUMPS & 1-1/4" FORCEMAIN (PVC SDR 21 OR HDPE SDR 11) CONNECTED TO EXISTING LOW PRESSURE SANITARY SEWER. MAINTAIN MIN. OF 7.5 FEET OF COVER. FINAL PRESSURE SEWER DESIGN BY E-ONE.
4. GRAVITY SEWER SERVICE ON LOT 4 SHALL BE 4" SDR 26 AT 2.0% MIN. SLOPE
5. WATER SERVICES FOR LOTS 1, 2, AND 4 WILL BE 1" COPPER TYPE K.
6. WATER SERVICES SHALL BE 1" COPPER WITH A MINIMUM OF 7.5 FEET OF COVER.
7. EXTEND SERVICE LINES TO THE EASEMENT LINE AS SHOWN SO THE TRAIL IS NOT IMPACTED WHEN THE SERVICE LINES ARE EXTENDED TO THE PROPOSED HOMES.

NOTE (1): CONFIRM EX. SEWER STUB ELEVATION ON LOT 3 PRIOR TO HOME CONSTRUCTION TO VERIFY ADEQUATE SEWER GRADE. ADJUST LFE AS NECESSARY

 STREET REMOVAL/RESTORATION AREA. REMOVE TO CENTERLINE OR FULL ROADWAY WIDTH AS SHOWN. ALL PAVEMENT EDGES MUST BE FULL DEPTH SAW CUT. MATCH EX. PAVEMENT AND BASE SECTION




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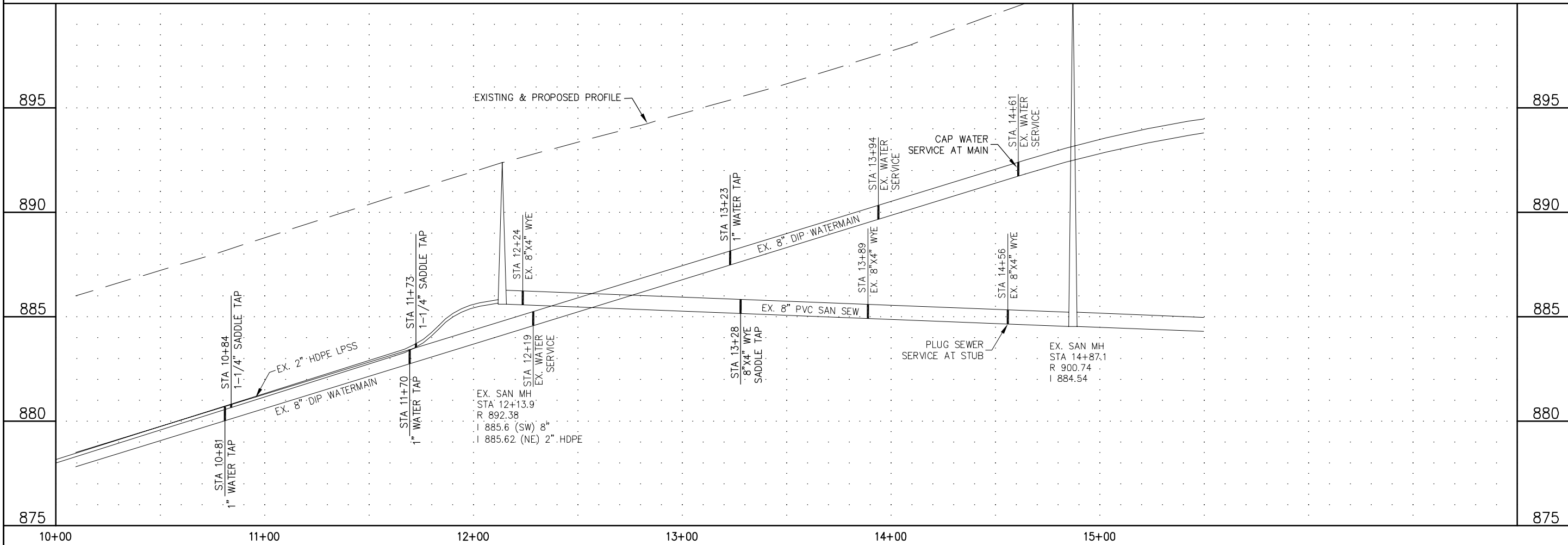
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Chaska, MN 55318
612-418-6828

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Curt Keller
CURTISS J. KALLO

DATE: 9/26/2024 REG. NO. 26909

PREPARED FOR:
NATHAN HAASKEN
413 N. CHESTNUT ST.
CHASKA, MN 55318



SHEET TITLE & PROJECT:
Utility Plan
Three Oaks Estates
Eden Prairie, MN

DATE	REVISION	BY

PROJECT NO:
1924

SHEET
C9

GRADING LEGEND

- 900 Existing Contour
- 864 Proposed Contour
- Construction Limits
- XXX.X Proposed Drainage & Direction

- ROLLED EROSION PREVENTION PRODUCT CAT. 25 STRAW, NATURAL NETTING
- REINFORCED EROSION CONTROL MAT ROLLED EROSION PREVENTION CAT. 70
- FILTRATION SHELF

TURF ESTABLISHMENT NOTES

1. Seed the filtration shelf and wet pond slopes from Elev. 880 to Elev. 882 with MnDOT Seed Mixture 33-261 at 35 lb/acre. Seed all other disturbed areas with MnDOT Seed Mixture 25-141 at 60 lb/acre.
2. Stabilized seeded areas with a Cat. 3 Erosion Control Blanket as shown in the plans. All other areas to be stabilized will be mulched with a Type I mulch at 2 tons/acre and disk anchored.
3. MnDOT 2574 Soilbed Preparation is required and is incidental to seeding.
4. Decompact area between proposed homes and pond as shown.



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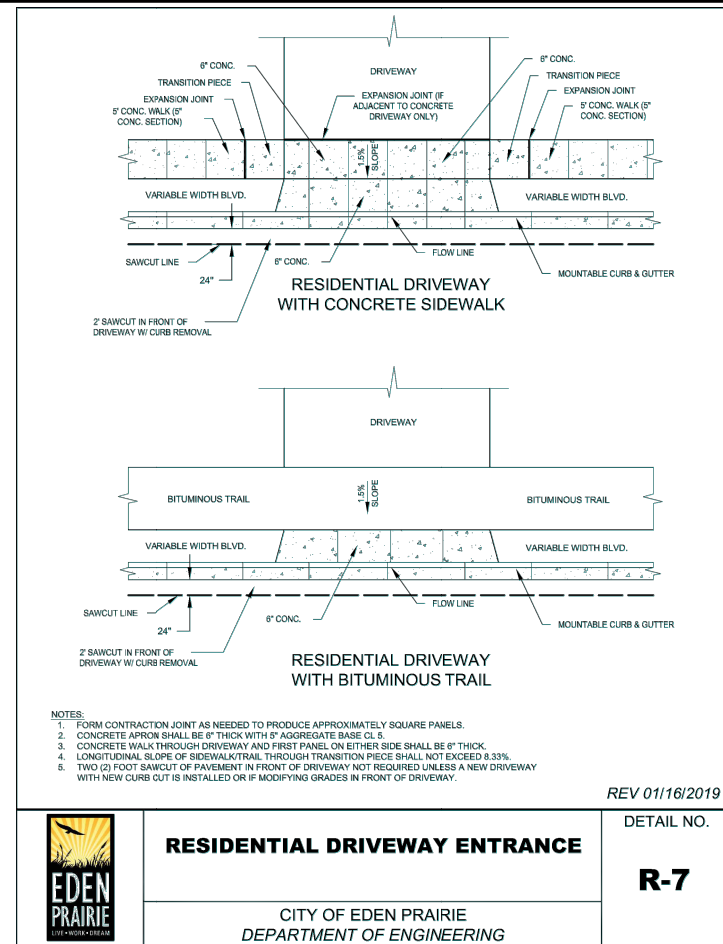
PREPARED FOR:
NATHAN HAASKEN
413 N. CHESTNUT ST.
CHASKA, MN 55318

SHEET TITLE & PROJECT:
Turf Establishment Plan
Three Oaks Estates
Eden Prairie, MN

BY	REVISION	DATE

PROJECT NO:
1924

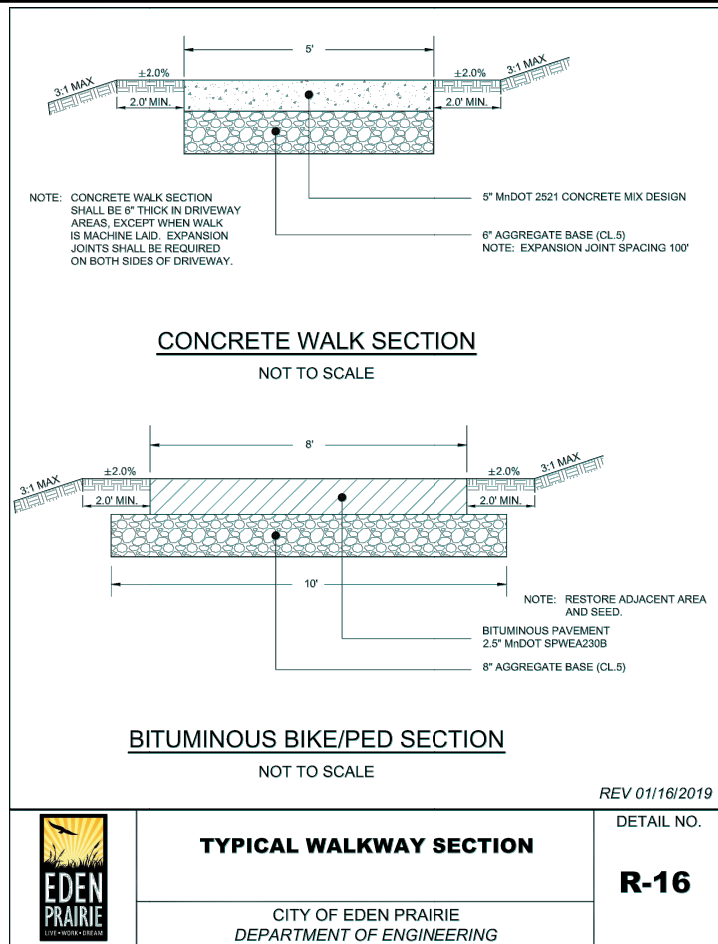
SHEET
C10



RESIDENTIAL DRIVEWAY ENTRANCE

DETAIL NO. **R-7**

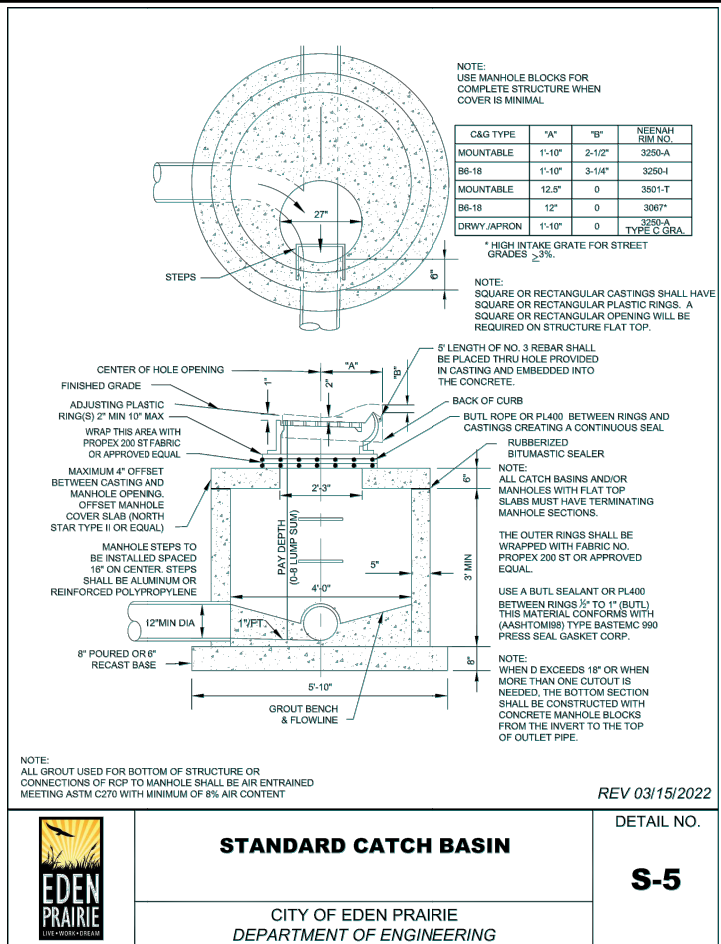
CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING



TYPICAL WALKWAY SECTION

DETAIL NO. **R-16**

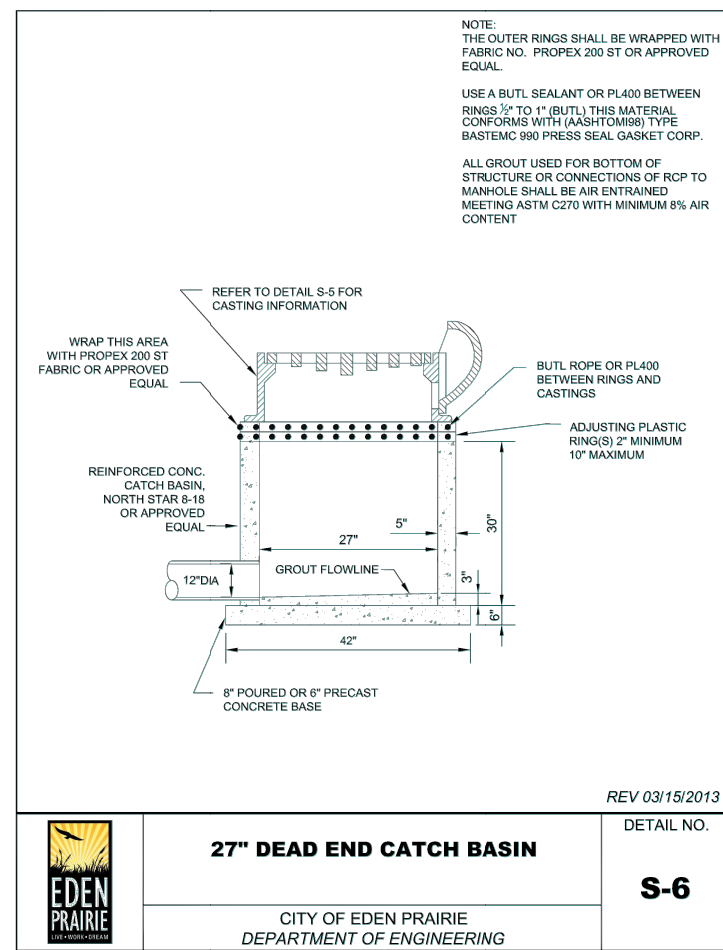
CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING



STANDARD CATCH BASIN

DETAIL NO. **S-5**

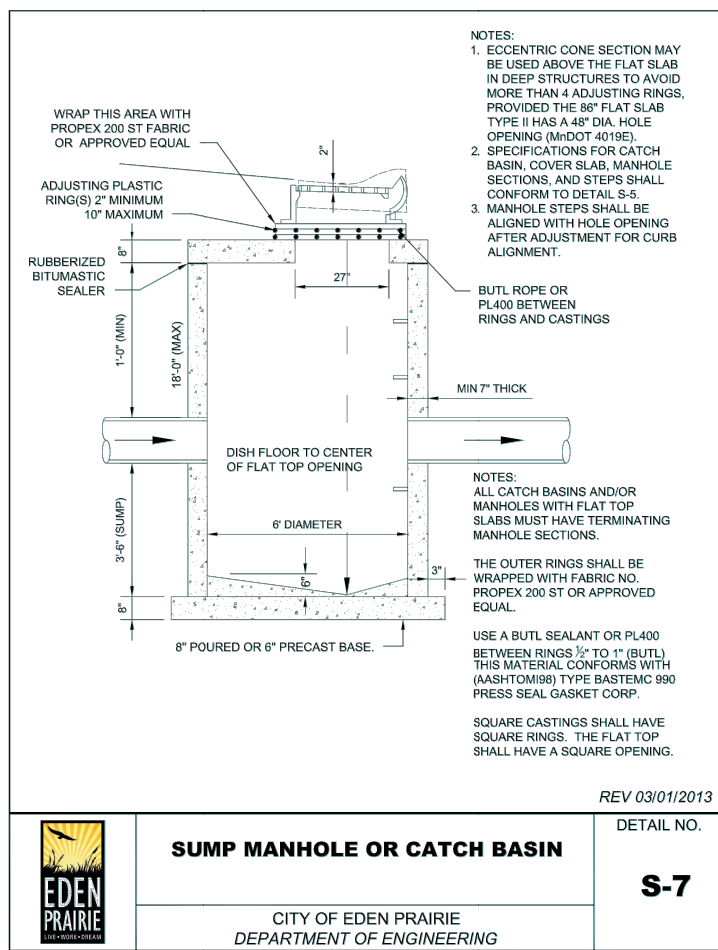
CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING



27" DEAD END CATCH BASIN

DETAIL NO. **S-6**

CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING



SUMP MANHOLE OR CATCH BASIN

DETAIL NO. **S-7**

CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING

TABLE OF QUANTITIES

CLASS II $d_{50} = 6"$

DIA. OF ROUND PIPE (IN.)	L (FT.)	GRANULAR FILTER UNDER APRON		12" RIPRAP		18" RIPRAP		24" RIPRAP		
		(SQ. YD.)	(CU. YD.)	(SQ. YD.)	(CU. YD.)	(SQ. YD.)	(CU. YD.)	(SQ. YD.)	(CU. YD.)	
12	8	16.9	0.2	3.0	19.6	0.3	4.4	22.6	0.3	5.9
15	8	18.9	0.2	3.2	20.8	0.3	4.8	23.9	0.4	6.4
18	10	22.4	0.3	4.3	25.6	0.4	6.4	29.0	0.5	8.5
21	10	24.1	0.4	4.7	27.4	0.6	7.1	30.9	0.7	9.4
24	12	29.7	0.5	6.2	33.4	0.8	9.2	37.3	1.0	12.3
27	12	31.4	0.6	6.6	35.2	0.9	9.9	39.2	1.2	13.2
30	14	37.4	0.8	8.2	41.6	1.1	12.3	46.0	1.5	16.4
36	16	45.9	1.1	10.6	50.5	1.5	15.8	55.4	2.1	21.1
42	18	52.8	1.2	12.5	57.8	1.7	18.7	63.0	2.3	24.9
48	20	61.1	1.5	14.8	66.5	2.2	22.2	72.0	2.9	29.6

CLASS III $d_{50} = 9"$

SPAN OF PIPE ARCH (IN.)	L (FT.)	GRANULAR FILTER UNDER APRON		12" RIPRAP		18" RIPRAP		24" RIPRAP		
		(SQ. YD.)	(CU. YD.)	(SQ. YD.)	(CU. YD.)	(SQ. YD.)	(CU. YD.)	(SQ. YD.)	(CU. YD.)	
22	10	22.4	0.3	4.1	25.6	0.4	6.1	29.0	0.5	8.1
28	12	29.5	0.5	5.7	33.2	0.7	8.5	37.1	0.9	11.3
36	14	31.3	0.8	6.5	35.5	1.1	11.2	45.8	1.5	14.9
43	16	45.9	1.1	9.5	50.5	1.6	14.3	55.3	2.1	19.0
51	18	52.5	1.2	11.3	57.5	1.7	16.9	62.7	2.3	22.5
58	20	59.5	1.3	13.2	65.2	1.9	19.8	70.7	2.5	26.4

CLASS IV $d_{50} = 12"$

SPAN OF PIPE ARCH (IN.)	L (FT.)	GRANULAR FILTER UNDER APRON		12" RIPRAP		18" RIPRAP		24" RIPRAP		
		(SQ. YD.)	(CU. YD.)	(SQ. YD.)	(CU. YD.)	(SQ. YD.)	(CU. YD.)	(SQ. YD.)	(CU. YD.)	
22	10	22.4	0.3	4.1	25.6	0.4	6.1	29.0	0.5	8.1
28	12	29.5	0.5	5.7	33.2	0.7	8.5	37.1	0.9	11.3
36	14	31.3	0.8	6.5	35.5	1.1	11.2	45.8	1.5	14.9
43	16	45.9	1.1	9.5	50.5	1.6	14.3	55.3	2.1	19.0
51	18	52.5	1.2	11.3	57.5	1.7	16.9	62.7	2.3	22.5
58	20	59.5	1.3	13.2	65.2	1.9	19.8	70.7	2.5	26.4

SECTION A-A

SECTION B-B

NOTES:
 REQUIREMENTS FOR GEOTEXTILE TYPE, RIPRAP SIZE AND THICKNESS WILL BE DESIGNATED IN THE PLANS.
 PIPE SIZES LARGER THAN THOSE SHOWN REQUIRE A SPECIAL DESIGN.
 ① FOR PIPES GREATER THAN OR EQUAL TO 30", USE L5.
 ② GEOTEXTILE FILTER, SPEC. 3733, SHALL COVER THE BOTTOM AND SIDES OF THE AREA DCAVATED FOR THE RIPRAP. GRANULAR FILTER MATERIALS.
 ③ DIMENSION E IS GIVEN ON STANDARD PLATES 3100 AND 3110.
 ④ GRANULAR FILTER, SPEC. 3601, MAY BE USED AS A CUSHION LAYER. PLACE FILTER PER SPEC. 2511. THE CUSHION LAYER IS INCIDENTAL.
 ⑤ GRANULAR FILTER OR RIPRAP, SPEC. 3601, TO EXTEND UNDER ENTIRE OPEN PORTION OF PIPE APRON. DEPTH OF MATERIAL UNDER APRON SHALL MATCH RIPRAP DEPTH. WHEN USING RIPRAP INCREASE RIPRAP QUANTITY ACCORDINGLY AND PLACE A 3" LAYER OF L5 CRUSHED ROCK UNDER THE APRON TO AID IN GRADING FOR APRON PLACEMENT. CRUSHED ROCK IS INCIDENTAL.

APPROVED DECEMBER 9, 2013

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
3100
3110
3601
3733
2511

STANDARD PLATE NO.
3133D

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Curt Kallio
CURTISS J. KALLIO

DATE: 9/26/2024 REG. NO. 26909

PREPARED FOR:
 NATHAN HAASKEN
 413 N. CHESTNUT ST.
 CHASKA, MN 55318

SHEET TITLE & PROJECT:
Details
 Three Oaks Estates
 Eden Prairie, MN

BY	REVISION	DATE

PROJECT NO:
1924

SHEET
C11



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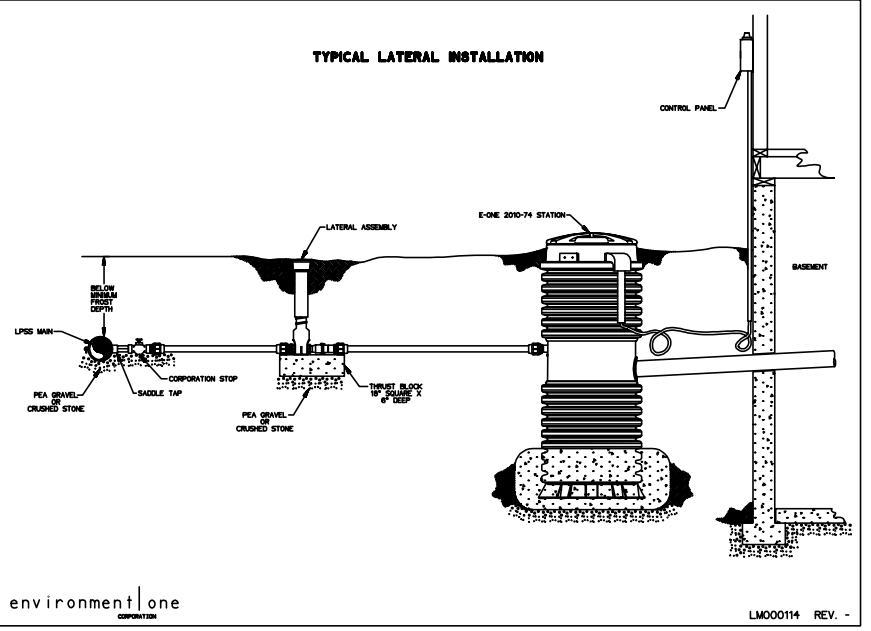
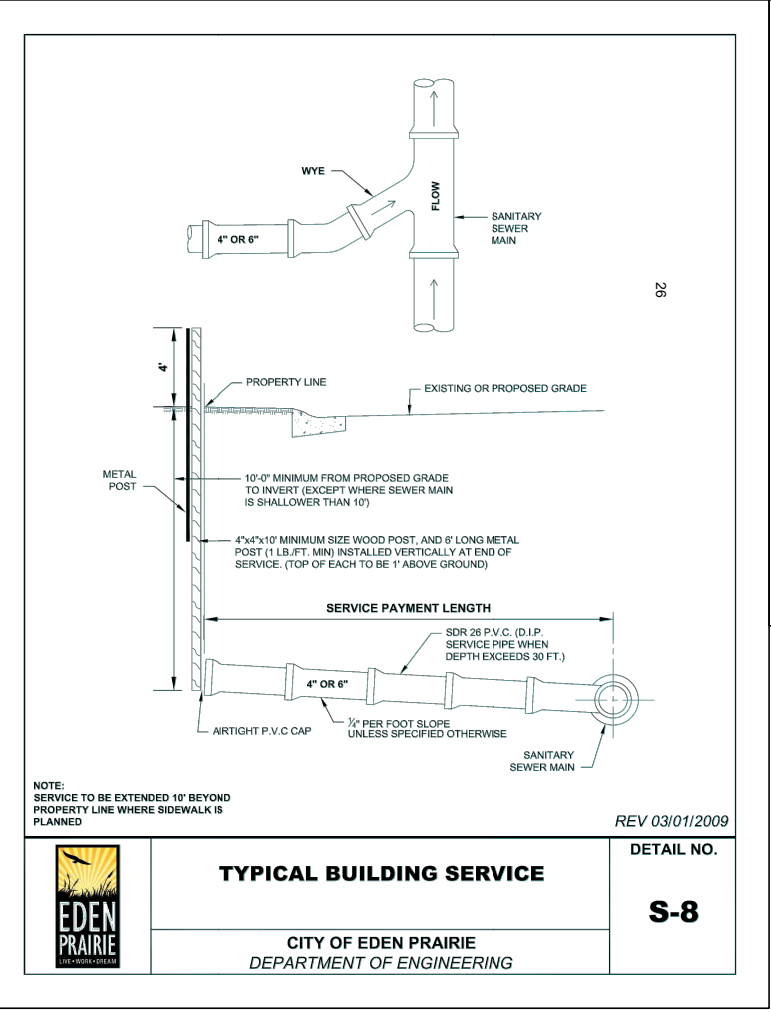
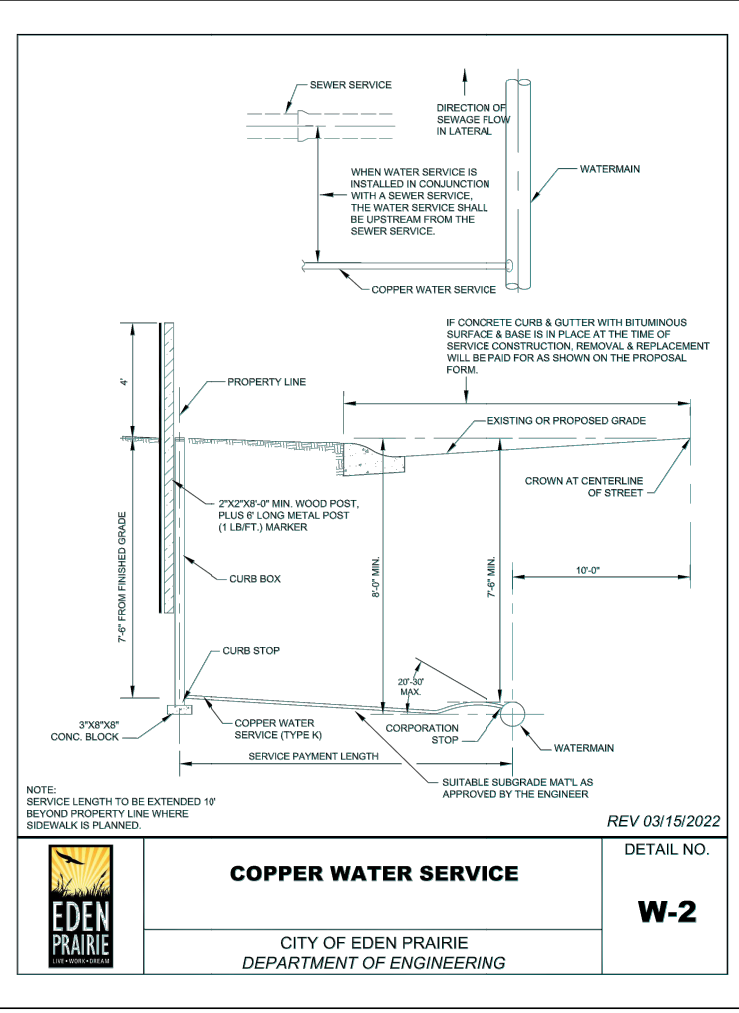
PREPARED FOR:
NATHAN HAASKEN
413 N. CHESTNUT ST.
CHASKA, MN 55318

SHEET TITLE & PROJECT:
Details
Three Oaks Estates
Eden Prairie, MN

DATE	REVISION	BY

PROJECT NO:
1924

SHEET
C12



Wetland Buffer Sign Specifications

Placement

- at every lot line crossing buffer boundary,
- at major deflection points in buffer boundary, and
- at least every 200 feet along buffer boundary.

For portions of a parcel subject to wetland buffer rule, a sign must be placed at minimum:

Mounting holes

Diameter: 0.375-inch

Location: One on top and bottom. Center each hole 0.5-inch from edge of sign.

Diameter and location of holes may be adjusted to accommodate alignment with post holes as long as text is not removed or covered by mounting bolts.

Material

Substrate: Aluminum at least 0.08 inch thick.

Graphic: Durable, exterior-grade material that is waterproof and fade-resistant.

Up to 1-inch radius on all four corners.

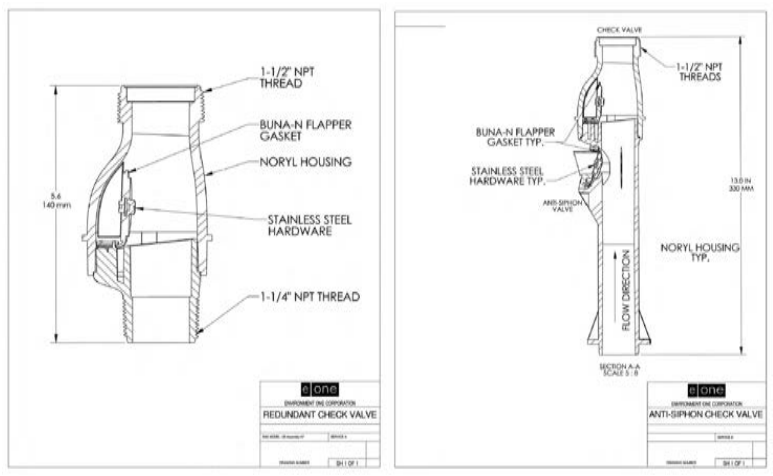
Version 7.19.2023

WETLAND

Lot line

Major deflection point in buffer boundary

Sign location



NOTE: FINAL LOW PRESSURE DESIGN FITTINGS AND DETAILS TO BE PROVIDED BY E-ONE.