RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

18681 Lake Drive East
Chanhassen, MN 55317
952-607-6512
www.rpbcwd.org

Riley Purgatory Bluff Creek Watershed District Permit Application Review

Permit No: 2022-068 modification

Considered at Board of Managers Meeting: November 6, 2024

Application for Modification Received complete: October 22, 2024

Applicant: Craig Schmidt

Consultant: Loucks Inc.

Project: KIWATCHI home development– based on discovery of unexpected site soil conditions, the applicant is seeking approval of a modification of prior approval for proposed demolition of an existing single-family home and construction of four residential single-family homes and associated stormwater management facility.

Location: The northeast corner of Duck Lake Road and Claycross Way in Eden Prairie, MN

Reviewer: Katherine Tomaska, EIT, and 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 November 6, 2024 meeting of the managers:

Resolved that the application for modification to Permit 2022-068 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 2022-068 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**	Yes		
J	**Stormwater Management**	Rate	Yes	
		Volume	Yes	
		Water Quality	Yes	
		Low Floor Elev.	Yes	
		Maintenance	See comment.	See rule-specific permit condition J1related to amending the recorded stormwater facility maintenance declaration.
		Chloride Management	Yes	
		Wetland Protection	Yes	
L	**Permit Fee Deposit**	Yes		$3000 received September 15 2022. Permit fee replenishment in the amount of $7,826 was received on August 17, 2023.
M	**Financial Assurances**	See Comment		The financial assurance in the amount of $66,897 was received on August 17, 2023 and is adequate to cover the proposed modifications.

Project Description

The applicant originally proposed a redevelopment project involving the subdivision of an existing single-family home parcel into four single-family residences with associated sewer and utilities, and the construction of an infiltration basin for stormwater management. The project also included the removal of an existing gravel drive and demolition of an existing home and driveway. No street or other impervious common-area construction was included in the plans. The 1.93-acre project site is located at the northeast corner of Duck Lake Trail and Claycross Way in Eden Prairie. The applicant is now seeking approval of a revised stormwater-management plan after the discovery of soil conditions that are not conducive to infiltration.

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.

The board of managers conditionally approved the applicant's original permit application at the April 12, 2023 meeting. The applicant fulfilled the conditions of approval, and the permit was issued on August 21, 2023. The applicant conducted land-disturbing activities and built the approved stormwater infiltration basin. During 2024, the applicant observed standing water in the infiltration basin. While the applicant conducted in-situ infiltration testing at the basin location during design, observed an infiltration rate of 0.39 inches per hour (in/hr), and selected a design rate of 0.2 in/hr, the water in the infiltration basin did not draw down as designed. The applicant performed diagnostics on the basin in late-September by dewatering and excavating a test pit in the bottom of the basin to discover the following conditions:

- The basin bottom did not appear sealed by fines during construction
- Clay from surface to about 1' depth; silty/clayey sands from 1' – 4'; groundwater level at 3.5' depth
- Groundwater was not observed during the soil borings, but the presence of groundwater in the test pits after several weeks without precipitation suggests the seasonally high groundwater is less than 3 feet below the pond bottom.

Because of the proximately of the groundwater to the bottom of the BMP and the lack of observed infiltration despite construction in accordance with the approved design, the engineer concurs infiltration is not feasible and the abstraction standard in subsection 3.1b of Rule J cannot practicably be met, the site is considered restricted and stormwater runoff volume is required to be managed in accordance with subsection 3.3 of Rule J.

Because the requested permit modification only impacts the site stormwater management, a summary of the changes to the stormwater management analysis relative to the criteria in Rule J is presented below. Because permit 2022-068 expired on April 12, 2024, approval of the modification application would require reinstatement of the permit. The proposed terms and conditions of approval of the modification request, as provided below and as may be modified by the managers, will modify the prior approvals where applicable.

Water resource impacted by proposed project

Water Resource	Projected resource impacts
Wetland 1	A Wetland Conservation Act-protected wetland onsite and downgradient from but not disturbed by the proposed land-disturbing activities.
27-820-W	An off-site Public Water Wetland downgradient receiving direct runoff from the site for events greater than the 1-year rainfall

The project site information is summarized below:

Project Site Information	Area (acres)
Total Site Area	**1.93**
Existing Site Impervious	0.21
Proposed Site Impervious Area	0.42
Change in Site Impervious Area	0.21 (100% increase)
Disturbed Impervious Area	**0.21** (100% disturbed)
Exempt Impervious Area (boulevard sidewalks)	0.03
Regulated Impervious Surface	0.39
Total Disturbed Area	1.6

Materials reviewed for the modification request:

1. Site photos of test pit received September 23, 2024
2. Updated grading plan, utility plan, and civil detail received October 7, 2024 (revised October 15, 2024 and October 24, 2024)
3. Stormwater Management Report received October 7, 2024 (revised October 15, 2024 and October 24, 2024)
4. MIDS water quality model received October 7, 2024
5. P8 water quality model received October 15, 2024 (revised October 24, 2024)
6. Engineer's opinion of probable cost received October 24, 2024
7. Response to comments received October 15, 2024
8. Response to comments received October 24, 2024

(Because no relevant change is proposed, the original review of compliance under Rule C – Erosion and Sediment Control and Rule D – Wetland and Creek Buffers is not repeated here, but all relevant requirements remain applicable.)

Rule Specific Permit Conditions

Rule J: Stormwater Management

Because the project will disturb 1.6 acres of land-surface area, the project must meet the criteria of RPBCWD's Stormwater Management rule (Rule J, Subsection 2.1). The criteria listed in Subsection 3.1 will apply to the entire project site and all impervious area because the project will disturb 100% of the existing impervious surface and will increase the imperviousness of the entire site by 100% percent (i.e., more than 50 percent; Rule J, Subsection 2.3). The applicant proposes to convert the constructed basin to a biofiltration basin to provide volume control, water quality, and rate control.

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 (onsite)	1.3	0.3	3.7	0.8	11.1	4.8	1.4	0.9
Duck Lake Rd	1.2	0.3	2.1	0.8	4.3	2.4	0.3	0
Claycross Way	0.4	0	0.5	0	0.9	0	<0.1	0

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 regulated impervious surface within the parcel. An abstraction volume of 1,549 cubic feet is required from the 0.39 acres (16,898 square feet) of regulated impervious area within the project site. In accordance with a city requirement, the applicant's site design provides for driveways that drain towards the street. The applicant proposes modifying an existing catch basin to send the runoff routed to Duck Lake Road into the on-site biofiltration basin. The modification will route flows up until the 1-year event into the biofiltration basin. In addition, the applicant proposes installing a catch basin on Claycross way to send runoff from the street to the proposed biofiltration basin. Plans indicate pretreatment for runoff entering the biofiltration basin is provided by vegetated yards and sump manholes, thus the proposed project conforms with RPBCWD Rule J, Subsection 3.1b.1.

Three soil borings in the Preliminary Geotechnical Exploration and Review Report conducted by American Engineering Testing, Inc. on January 11, 2022, indicate the site is predominately clayey sand soils. Soil boring B-4 was within the footprint of the proposed biofiltration basin. While groundwater was not encountered at the bottom of the boring, the presence of groundwater in the September 2024 test pit after several weeks without precipitation suggests the seasonally high groundwater is less than 3 feet below the pond bottom. In addition, the standing water in the basin indicates the water is unable to infiltrate at the design rate. Based on these findings, the applicant asserts – and the RPBCWD engineer concurs – that the site is restricted.

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. Because the of the proximately of the groundwater to the bottom of the BMP, the lack of observed infiltration despite proper construction, and lack of communal area for irrigating with a reuse system, the engineer concurs that the applicant is providing abstraction via evapotranspiration in the biofiltration basin to the maximum extent practicable in accordance with subsection 3.3b of Rule J.

The table below summarizes the volume abstraction for the site.

Required Abstraction Depth (inches)	Required Abstraction Volume (cubic feet)	Provided Abstraction Depth (inches)	Provided Abstraction Volume (cubic feet)
0.55	775	0.04	60

Water Quality Management

Applicant is proposing a biofiltration basin to achieve the required TP and TSS removals and submitted a Minimal Impact Design Standards model to estimate the TP and TSS removals. 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.

Annual TSS and TP removal summary:

Pollutant of Interest	Regulated Site Loading (lbs/yr)	Required Load Removal (lbs/yr)	Provided Load Reduction (lbs/yr)
Total Suspended Solids (TSS)	693	624 (90%)	795 (>100%)[1]
Total Phosphorus (TP)	2.3	1.38 (60%)	1.63 (>70.9%)

[1] Load reduction is greater than 100% because the BMP is treating unregulated impervious surface from Duck Lake Road and Claycross drive.

Summary of net change in TSS and TP leaving the site

Pollutant of Interest	Existing Site Loading (lbs/yr)	Proposed Site Load after Treatment (lbs/yr)	Change (lbs/yr)
Total Suspended Solids (TSS)	561	154	-407
Total Phosphorus (TP)	1.87	1.52	-0.35

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 elevation of the proposed houses and the 100-year high water elevation of the biofiltration basin are summarized below. Because the low floor elevations of the proposed structures are more than two feet above the 100-year high water elevation of the stormwater facility, the proposed project is in conformance with Rule J, Subsection 3.6.

Lot Riparian to Stormwater Facility	Low Floor Elevation of Building (feet)	100-year Event Flood Elevation of Biofiltration Pond (feet)	Freeboard provided (feet)
Lot 1	902	897.74	4.26
Lot 2	901.5	897.74	3.76
Lot 3	901	897.74	3.26
Lot 4	900	897.74	2.26

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. While the applicant recorded a maintenance declaration for the nonfunctional infiltration basin, the following revisions are needed:

J1. Permit applicant must provide a revised draft maintenance and inspection declaration for the biofiltration basin to RPBCWD for review and approval. Once approved by RPBCWD, the modification or new declaration must be recorded on the deed in a form acceptable to the District.

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 the proposed activities discharge to on-site Wetland 1 and off-site wetland 27-820-W , and alter the discharge the wetlands receive from the site, the project must conform to RPBCWD wetland protection criteria (Rule J, subsection 3.10).

Wetlands 1 and 27-820-W have been assessed as medium value wetlands. The following tables summarize the allowable change in bounce and inundation duration from Table J1 of RPBCWD Rule J as well as the applicant's analysis for wetland protection and the potential impacts on the wetlands. The Engineer concurs that the proposed project conforms to the wetland bounce and inundation requirements.

Summary of allowable impacts on onsite wetland from Rule J, Table J1

Wetland Value/ Waterbody	Permitted Bounce for, 10-Year Event	Inundation Period for 1- and 2-Year Event	Inundation Period for 10-Year Event	Runout Control Elevation
Medium	Existing +/- 1.0 feet	Existing+2 days	Existing +14 days	0 to 1.0 ft above existing runout

Impacts of Project on Wetlands

Wetland	RPBCWD Wetland Value	Change in Bounce for, 10-Year Event (feet)	1-year change in Inundation Period (days)	2-year change in Inundation Period (days)	10-year change in Inundation Period (days)	Runout Control Elevation
Wetland 1 (05-21-B)	Medium	0.03	0.8	1.3	1.5	No change
27-820-W	Medium	0.03	0	0	0	No change

Rule J, Subsection 3.10b requires that any discharge to medium value wetland be treated to the water quality treatment criteria in Rule J, subsection 3.1c.

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 runoff from the project site is routed to the proposed biofiltration basin and the basin provides the water quality treatment required in accordance with 3.1c.ii, 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 September 15, 2022. . The applicant must replenish the permit fee deposit to the original amount due before the permit will be issued. The applicant replenished the permit fee deposit to the original amount by providing $7,826 on August 17, 2023. Because the costs of reviewing the modification request, administration, and inspections to date have not exceeded the updated fee deposit replenishment amount, the applicant will not be required to replenish the deposit to the original amount at this time. 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.

Rule M: Financial Assurance:

The applicant submitted escrow funds totaling $66,897 to satisfying the original financial-assurance requirement on August 17, 2023. Because the applicant's engineer's opinion of probable cost to modify the already constructed basin to a biofiltration basin ($13,713.50) is less than the escrow provided for the original construction of the stormwater facility, the existing escrow is adequate to cover the proposed modification.

	Unit	Unit Cost	# of Units	Provided Escrow
Rule C: Erosion Control				
Silt Fence	LF	$2.50	1,586	$3,965
Inlet Protection	EA	$100	6	$600
Rock Entrance	EA	$250	1	$250
Restoration of disturbance	Ac	$2,500	1.6	$4,000
Rule D: Wetland Buffer	LS	$5,000	1	$5,000
Rule J: Stormwater Management Biofiltration basin: 125% of engineer's opinion of cost ($37,600)	EA	125% OPC	1	$47,000
Contingency (10%)		10%		$6,082
Total Financial Assurance				**$66,897**

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, as modified, will conform to Rule J if the Rule Specific Permit Conditions listed above are met.

Recommendation:

Approval of the permit modification and reinstatement of permit 2022-068, as modified, contingent upon:

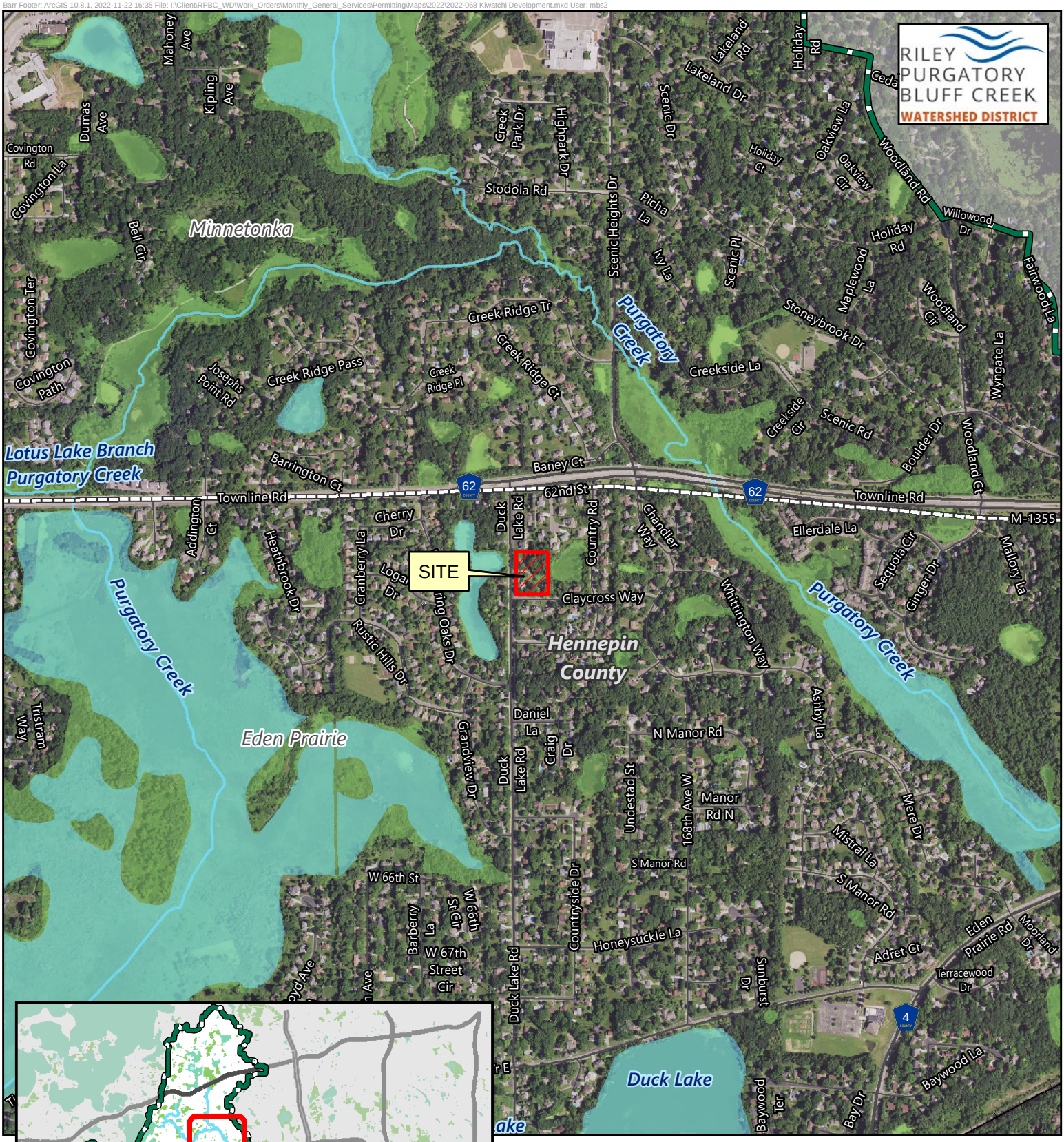
1. Receipt in recordation a maintenance declaration for the revised operation and maintenance of the stormwater management facility. A draft must be submitted for review and approval by the District prior to recordation.

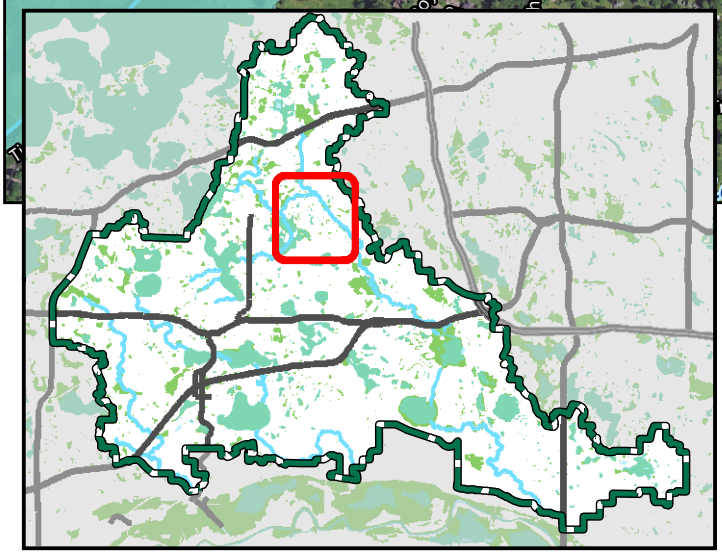
By accepting the permit, when issued, the applicant agrees to the following stipulations:

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, all the stormwater facility 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;
3. Providing the following additional close-out materials:
    a. Documentation that disturbed pervious areas remaining pervious have been decompacted per Rule C.2c criteria
4. The work on the Kiwatchi development under the terms of the modified permit 2022-068, 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. 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.





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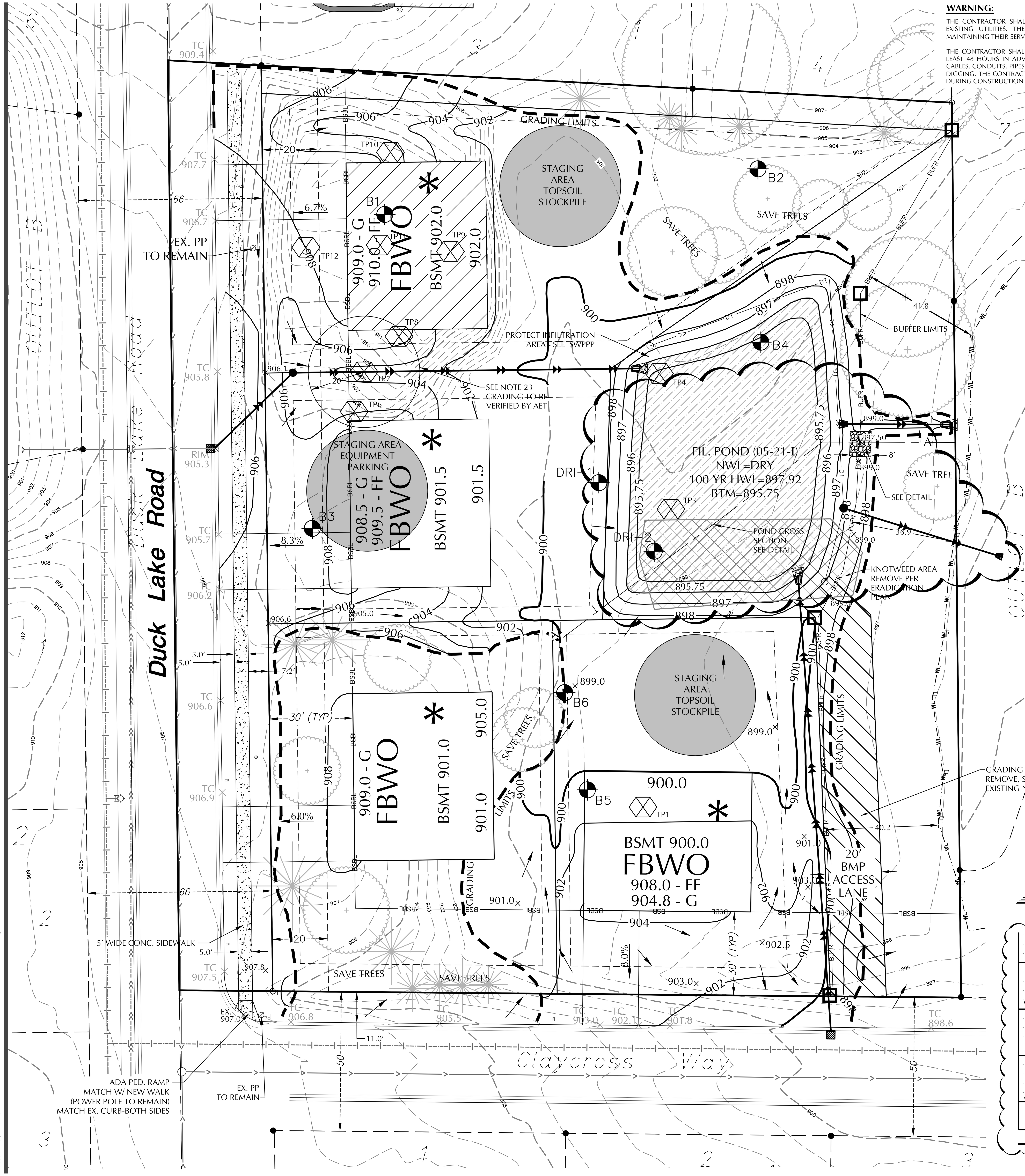
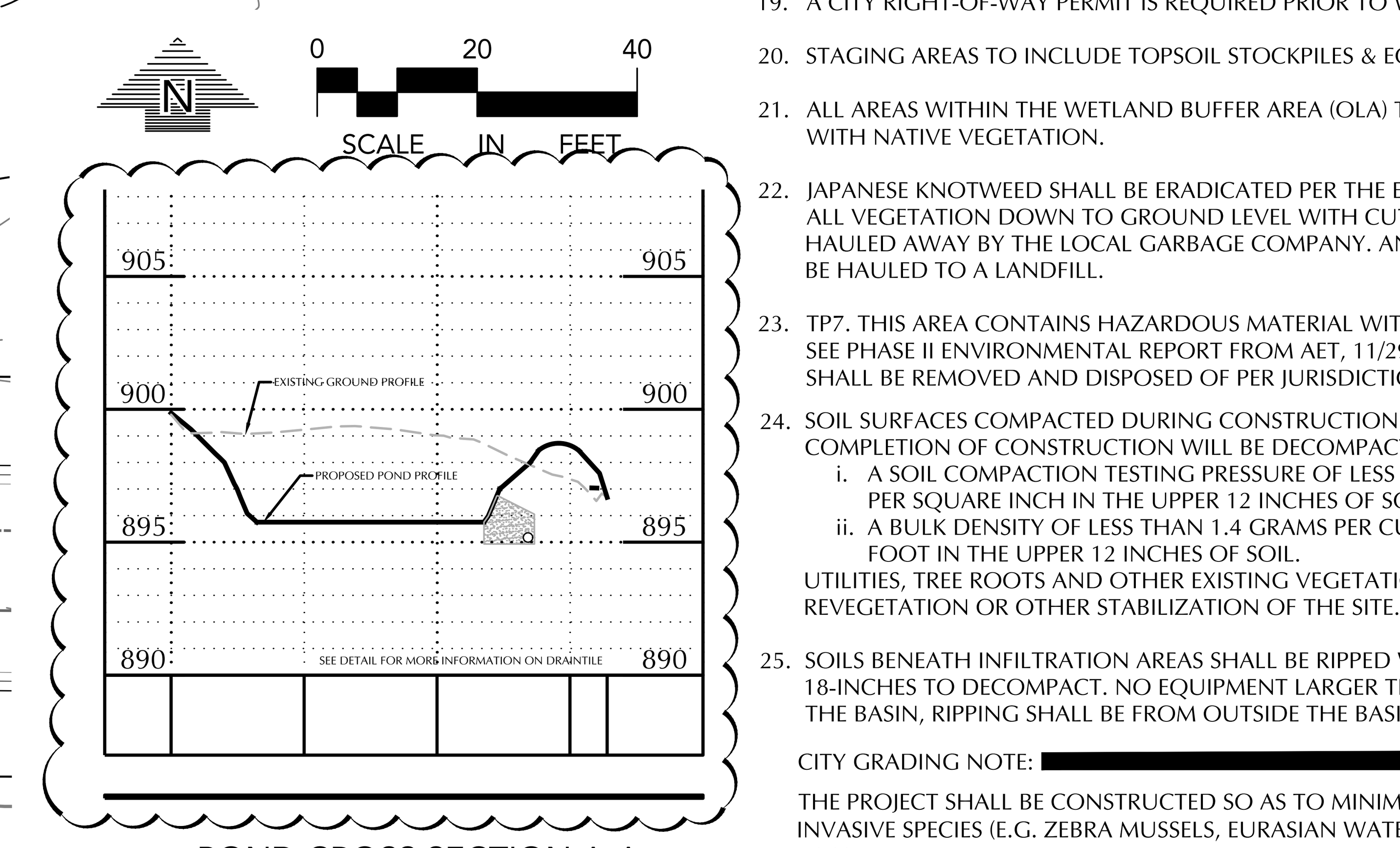
Feet

0 1,000

Permit Location Map

KIWATCHI DEVELOPMENT
Permit 2022-068
Riley Purgatory Bluff Creek Watershed District





POND CROSS SECTION A-A

WARNING:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND / OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

CALL BEFORE YOU DIG!
Gopher State One Call
TWIN CITY AREA: 651-454-0002
TOLL FREE: 1-800-252-1166

EXISTING	CIVIL LEGEND	PROPOSED
	SANITARY MANHOLE	
	STORM MANHOLE	
	CATCH BASIN	
	CULVERT	
	HYDRANT	
	GATEVALVE	
PIV	POST INDICATOR VALVE	PIV
	LIGHT POLE	
	POWER POLE	
	SIGN	
BM #3	BENCHMARK	
B-	SOIL BORINGS	B-
	WATER MANHOLE	
	TELEPHONE MANHOLE	
	UTILITY MANHOLE	
	ELECTRIC MANHOLE	
W	WATER SERVICE	
S	SANITARY SERVICE	
	HANDICAP PARKING	
1.0%	DIRECTION OF FLOW	1.0%
924.6	SPOT ELEVATION	924.6
924	CONTOURS	924
	SANITARY SEWER	
	STORM SEWER	
	WATERMAIN	
FM	FORCEMAIN	FM
DT	DRAINTILE	DT
	SILT FENCE	
	CURB & GUTTER	
	RETAINING WALL	
	TREELINE	
	EASEMENT LINE	
	SETBACK LINE	
X	FENCE LINE	X
TEL	UNDERGROUND TELE	
GAS	UNDERGROUND GAS	
OH	OVERHEAD UTILITY	

- ▨ DEEP SOIL CORRECTION REQUIRED SEE GEOTECHNICAL REPORT
- □ WETLAND BUFFER SIGN
- * VERIFY LOW FLOOR ELEVATION WITH NEW SANITARY SEWER SERVICE ELEVATION
- ⊠ PHASE 2 ENVIRONMENTAL REPORT TEST PIT LOCATIONS TP-1
- GRADING LIMITS (SEE SHEET C3-2 FOR SILT FENCE)
- ▨ 20' BMP ACCESS LANE

GRADING & DRAINAGE NOTES

SEE STORMWATER POLLUTION PREVENTION PLAN FOR SOIL STABILIZATION INFORMATION.

EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE ESTABLISHED AROUND THE ENTIRE SITE PERIMETER AND IN ACCORDANCE WITH NPDES PERMIT REQUIREMENTS, BEST MANAGEMENT PRACTICES, CITY REQUIREMENTS AND THE DETAILS SHOWN ON THE CIVIL DETAILS SHEETS OF THESE PLANS.

ALL CURB SPOT ELEVATIONS ARE TO GUTTER LINE, TOP OF BITUMINOUS OR GROUND ELEVATIONS UNLESS NOTED OTHERWISE.

GRADING, DRAINAGE & EROSION CONTROL SPECIFICATIONS

1. SPOT ELEVATIONS REPRESENT FINISHED SURFACE GRADES, GUTTER/FLOW LINE, FACE OF BUILDING, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
2. CATCH BASINS AND MANHOLES IN PAVED AREAS SHALL BE SUMPED 0.04 FEET. ALL CATCH BASINS IN GUTTERS SHALL BE SUMPED 0.10 FEET. RIM ELEVATIONS SHOWN ON PLANS DO NOT REFLECT SUMPED ELEVATIONS.
3. ALL DISTURBED UNPAVED AREAS ARE TO RECEIVE MINIMUM OF 6 INCHES OF TOP SOIL AND SEED/MULCH OR SOD. THESE AREAS SHALL BE WATERED/MAINTAINED BY THE CONTRACTOR UNTIL VEGETATION IS ESTABLISHED. VERIFY WITH LANDSCAPE PLAN. TOP SOIL SHALL CONSIST OF CLAY, SILT AND SAND IN PROPORTION CONDUCIVE TO THE PROMOTION OF ROOT PENETRATION AND PLANT GROWTH AND MUST HAVE A MINIMUM OF 5% ORGANIC MATERIALS.
4. REFER TO THE REPORT OF GEOTECHNICAL EXPLORATION AND REVIEW (REPORT NO. P-0008230), DATED 01/25/22 - REVISED 10/05/22 AS PREPARED BY AMERICAN ENGINEERING TESTING. FOR AN EXISTING SUBSURFACE SITE CONDITION ANALYSIS AND CONSTRUCTION RECOMMENDATIONS
5. LOT 1 HOUSE CONSTRUCTION MAY REQUIRE DEEP SOIL CORRECTION. REFER TO AET GEOTECHNICAL REPORT DATED 10/05/22 FOR ALTERNATIVES FOR DEEP FOUNDATION SUPPORT SYSTEMS. ADDITIONAL BORING MAY BE REQUIRED.
6. STREETS MUST BE CLEANED AND SWEPT WHENEVER TRACKING OF SEDIMENTS OCCURS AND BEFORE SITES ARE LEFT IDLE FOR WEEKENDS AND HOLIDAYS, OR AS DIRECTED BY CITY. A REGULAR SWEEPING SCHEDULE MUST BE ESTABLISHED.
7. DUST MUST BE ADEQUATELY CONTROLLED.
8. SEE SWPPP FOR ADDITIONAL EROSION CONTROL NOTES AND REQUIREMENTS.
9. SEE UTILITY PLAN FOR WATER, STORM AND SANITARY SEWER INFORMATION.
10. A STREET SWEEPER MUST BE AVAILABLE WITHIN 3 HOURS UPON NOTICE FROM THE CITY THAT THE STREETS NEED TO BE SWEPT.
11. THE CONTRACTOR ALONG WITH THE OWNER SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM GOVERNING AUTHORITIES, INCLUDING ANY CITY PERMITS AND THE NPDES PERMIT FROM THE MPCA.
12. INSTALL EROSION CONTROL SILT FENCE AND TREE PROTECTION MEASURES WITH SILT/TREE FENCE BEFORE BEGINNING SITE GRADING ACTIVITIES. SOME EROSION CONTROLS SUCH AS BALE CHECKS AND TEMPORARY SILT PONDS MAY BE INSTALLED AS GRADING OCCURS IN SPECIFIC AREAS. MAINTAIN EROSION CONTROLS THROUGHOUT THE GRADING PROCESS AND REMOVE WHEN TURF HAS BEEN ESTABLISHED.
13. THE CONTRACTOR SHALL ADHERE TO ALL REQUIREMENTS OF THE MPCA NPDES PERMIT. THE AREA TO BE DISTURBED SHALL BE MINIMIZED AND TURF SHALL BE ESTABLISHED WITHIN THE TIME REQUIRED.
14. GRADES SHOWN ARE FINISHED GRADES.
15. FINAL GRADING TOLERANCES ARE +/-0.1 FEET TO FINISH GRADES.
16. UNDER PAVEMENTS COMPACT THE UPPER 3 FEET OF SUBGRADE TO 100% STANDARD PROCTOR DENSITY AT OPTIMUM MOISTURE CONTENT AND 95% STANDARD PROCTOR DENSITY BLOW THE UPPER 3 FEET OF SUBGRADE. OUTSIDE PAVEMENT AREAS COMPACT EMBANKMENTS TO 95% STANDARD PROCTOR DENSITY.
17. WORKING HOURS ARE 7:00 AM - 7:00 PM, MONDAY - FRIDAY. A CITY APPROVAL IS REQUIRED FOR SATURDAY WORK.
18. THE CONTRACTOR MUST HAVE A CITY LICENSE.
19. A CITY RIGHT-OF-WAY PERMIT IS REQUIRED PRIOR TO WORKING WITHIN CITY ROW.
20. STAGING AREAS TO INCLUDE TOPSOIL STOCKPILES & EQUIPMENT PARKING AREAS
21. ALL AREAS WITHIN THE WETLAND BUFFER AREA (OLA) THAT ARE DISTURBED MUST BE RESTORED WITH NATIVE VEGETATION.
22. JAPANESE KNOTWEED SHALL BE ERADICATED PER THE ERADICATION PLAN. PLAN INCLUDES CUTTING ALL VEGETATION DOWN TO GROUND LEVEL WITH CUTTINGS TO BE PLACE IN GARBAGE BAGS AND HAULED AWAY BY THE LOCAL GARBAGE COMPANY. ANY EXCAVATED SOIL WITHIN THE AREA SHALL BE HAULED TO A LANDFILL.
23. TP7. THIS AREA CONTAINS HAZARDOUS MATERIAL WITH SLIGHTLY HIGHER THAN ALLOWED PAH'S. SEE PHASE II ENVIRONMENTAL REPORT FROM AET, 11/29/22. ALL SOIL DISTURBED WITHIN 20' OF TP7 SHALL BE REMOVED AND DISPOSED OF PER JURISDICTIONAL AUTHORITIES.
24. SOIL SURFACES COMPACTED DURING CONSTRUCTION AND REMAINING PERVIOUS UPON COMPLETION OF CONSTRUCTION WILL BE DECOMPACTED 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.

    UTILITIES, TREE ROOTS AND OTHER EXISTING VEGETATION SHALL BE PROTECTED UNTIL FINAL REVEGETATION OR OTHER STABILIZATION OF THE SITE.
25. SOILS BENEATH INFILTRATION AREAS SHALL BE RIPPED WITH A TOOTHED BUCKET AT LEAST 18-INCHES TO DECOMPACT. NO EQUIPMENT LARGER THAN A TRACTED BOBCAT IS ALLOWED WITHIN THE BASIN, RIPPING SHALL BE FROM OUTSIDE THE BASIN IF POSSIBLE.

CITY GRADING NOTE:

THE PROJECT SHALL BE CONSTRUCTED SO AS TO MINIMIZE THE POTENTIAL TRASNFER OF AQUATIC INVASIVE SPECIES (E.G. ZEBRA MUSSELS, EURASIAN WATERFOIL, ETC.) TO THE MAXIMUM EXTENT POSSIBLE.

KIWATCHI ADDITION

6285 DUCK LAKE ROAD
EDEN PRAIRIE, MN

6285 DUCK LAKE, LLC

17516 RUSTIC HILLS DRIVE
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10/24/24	BASIN UPDATES

PROFESSIONAL SIGNATURE

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.

[illegible]
Todd W. McLouth - PE

License No.	20383
Date	06/20/23

QUALITY CONTROL

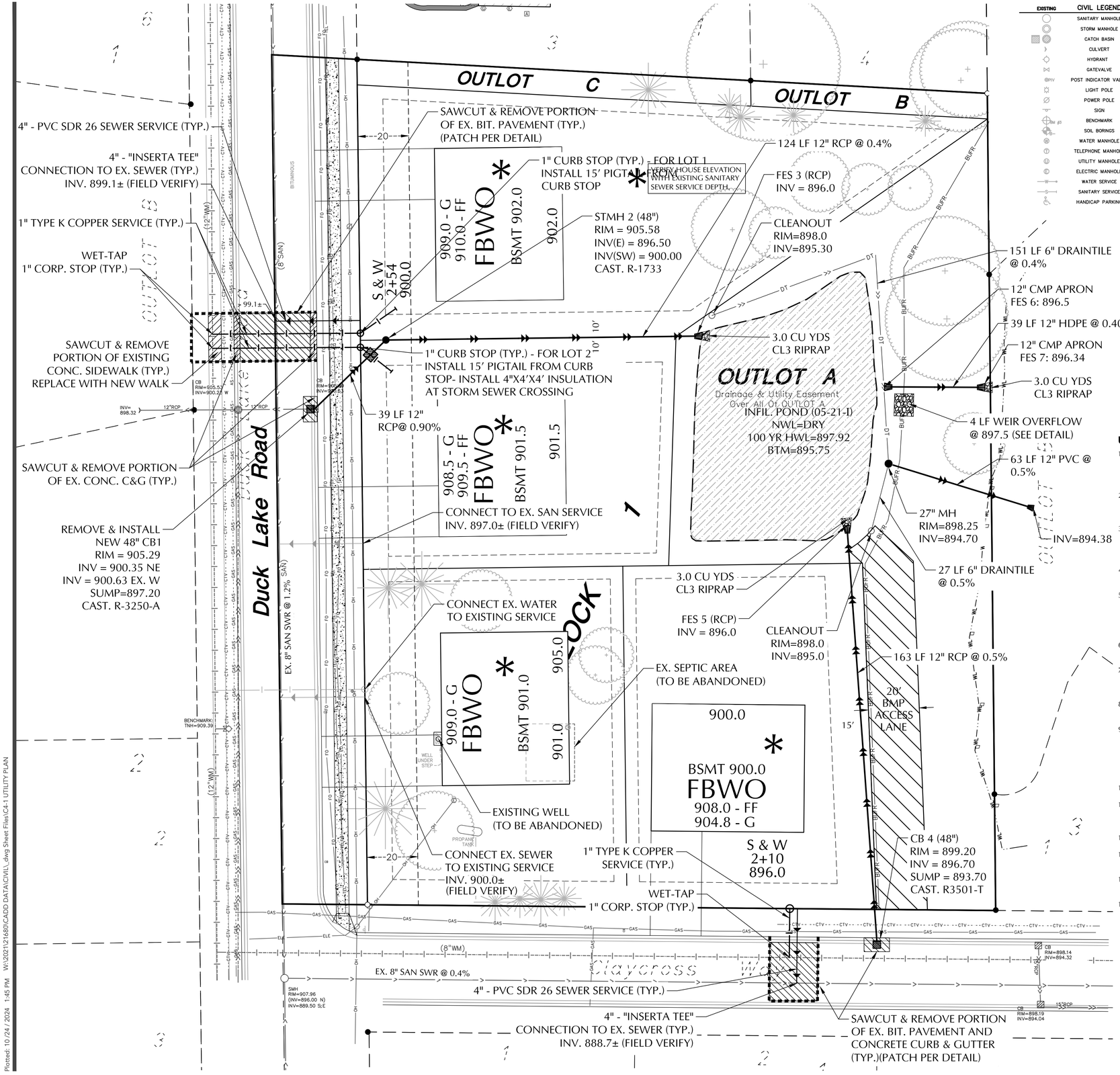
Loucks Project No.	21680
Project Lead	TWM
Drawn By	HW
Checked By	HW
Review Date	04/11/23

SHEET INDEX

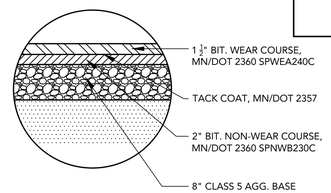
GRADING PLAN

C3-1

Plotted: 10 /24 / 2024 2:27 PM W:\2021\21680\CADD DATA\CIVIL_dwg Sheet Files\C3-1 GRADING PLAN



EXISTING	CIVIL LEGEND	PROPOSED	EXISTING	CIVIL LEGEND	PROPOSED
	SANITARY MANHOLE		LOW	DIRECTION OF FLOW	LOW
	STORM MANHOLE		894.8	SPOT ELEVATION	894.8
	CATCH BASIN		924	CONTOURS	924
	CULVERT			SANITARY SEWER	
	HYDRANT			STORM SEWER	
	GATEVALVE			WATERMAIN	
PIV	POST INDICATOR VALVE	PIV	FM	FORCEMAIN	FM
	LIGHT POLE		DT	DRAINTILE	DT
	POWER POLE			SILT FENCE	
	SIGN			CURB & GUTTER	
BM #3	BENCHMARK			RETAINING WALL	
SB-1	SOIL BORINGS	SB-1		TREELINE	
W	WATER MANHOLE			EASEMENT LINE	
T	TELEPHONE MANHOLE			SETBACK LINE	
U	UTILITY MANHOLE		X	FENCE LINE	X
E	ELECTRIC MANHOLE		TEL	UNDERGROUND TELE	
W	WATER SERVICE		GAS	UNDERGROUND GAS	
S	SANITARY SERVICE		OH	OVERHEAD UTILITY	
	HANDICAP PARKING				



BITUMINOUS PAVEMENT PATCH SECTION

UTILITY NOTES

1. ALL SANITARY SEWER, STORM SEWER AND WATERMAIN UTILITIES SHALL BE FURNISHED AND INSTALLED PER THE REQUIREMENTS OF THE SPECIFICATIONS,THE MINNESOTA PLUMBING CODE, THE LOCAL GOVERNING UNIT , AND THE STANDARD UTILITIES SPECIFICATION OF THE CITY OF EDEN PRAIRIE STANDARD SPECIFICATIONS.
2. ALL UTILITY PIPE BEDDING SHALL BE COMPACTED SAND OR FINE GRANULAR MATERIAL. ALL COMPACTION SHALL BE PERFORMED PER THE REQUIREMENTS OF THE CEAM SPECIFICATION AND THE GEOTECHNICAL REPORT.
3. ALL CONNECTIONS TO EXISTING UTILITIES SHALL BE PERFORMED PER THE REQUIREMENTS OF THE STATE AND LOCAL JURISDICTIONS. THE CITY DEPARTMENT OF ENGINEERING AND BUILDING INSPECTIONS DEPARTMENT AND THE CONSTRUCTION ENGINEER MUST BE NOTIFIED AT LEAST 48 HOURS PRIOR TO ANY WORK WITHIN THE PUBLIC RIGHT OF WAY, OR WORK IMPACTING PUBLIC UTILITIES.
4. A MINIMUM OF 18 INCHES OF VERTICAL SEPARATION AND 10 FEET OF HORIZONTAL SEPARATION IS REQUIRED FOR ALL UTILITIES UNLESS OTHERWISE NOTED.
5. ALL NEW WATERMAIN AND SERVICES MUST HAVE A MINIMUM OF 7.5 FEET OF COVER. EXTRA DEPTH MAY BE REQUIRED TO MAINTAIN A MINIMUM 18" VERTICAL SEPARATION TO SANITARY OR STORM SEWER LINES. THE CONTRACTOR SHALL FIELD ADJUST WATERMAIN TO AVOID CONFLICTS WITH SANITARY SEWER, STORM SEWER, AND SERVICES AS REQUIRED. INSULATION OF WATER AND SANITARY SEWER LINES SHALL BE PROVIDED WHERE 7.5 FEET MINIMUM DEPTH CAN NOT BE ATTAINED.
6. PROPOSED PIPE MATERIALS:
   STORM SEWER RCP - CL5, PVC SDR 35 12" DIAMETER
7. ALL JOINTS AND CONNECTIONS IN THE STORM SEWER SYSTEM SHALL BE GAS TIGHT OR WATERTIGHT (SEE MINNESOTA RULES, PART 4715.0700). APPROVED RESILIENT RUBBER JOINTS MUST BE USED TO MAKE WATERTIGHT CONNECTIONS TO MANHOLES, CATCHBASINS, AND OTHER STRUCTURES.
8. CONTRACTOR AND MANHOLE FABRICATOR SHALL SUMP (LOWER) ALL STORM SEWER CATCH BASIN CASTINGS WITHIN PAVED AREAS 0.16 FEET OR 2-INCHES BELOW THE RIM ELEVATION DEPICTED ON THE UTILITY PLAN.
9. ALL STREET REPAIRS AND PATCHING SHALL BE PERFORMED PER THE REQUIREMENTS OF THE CITY. ALL TRAFFIC CONTROL SHALL BE PROVIDED BY THE CONTRACTOR AND SHALL BE ESTABLISHED PER THE REQUIREMENTS OF THE MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) AND THE CITY. THIS SHALL INCLUDE ALL SIGNAGE, BARRICADES, FLASHERS AND FLAGGERS AS NEEDED. ALL PUBLIC STREETS SHALL BE OPEN TO TRAFFIC AT ALL TIMES. NO ROAD CLOSURES SHALL BE PERMITTED WITHOUT THE EXPRESSED AUTHORITY OF OF THE CITY.
10. THE CITY SHALL OPERATE ALL GATE VALVES.
11. CONNECTIONS TO EXISTING MANHOLES SHALL BE MADE BY CORE DRILLING THE MANHOLE AT THE PROPOSED INVERT ELEVATIONS AND INSTALLING A RUBBER BOOT. GROUT IN THE BOOT AND AN INVERT FOR THE NEW SEWER LINE.
12. PIPE LENGTHS SHOWN ON THE PLAN INCLUDE THE APRON SECTION.
13. TRENCH COMPACTION SHALL BE 95% STANDARD PROCTOR DENSITY IN THE AREA FROM THE PIPE ZONE TO WITHIN 3 FEET OF FINISHED GRADE AND 100% IN FINAL 3 FEET OF THE BACKFILL TO FINISH GRADE.
14. THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE CITY ENGINEERING DIVISION TO WORK WITHIN THE RIGHT-OF-WAY.
15. ANY CONNECTION TO CITY INFRASTRUCTURE REQUIRES A 72 HOUR PRIOR NOTIFICATION TO THE UTILITIES DIVISION @ 952-949-8530

CALL BEFORE YOU DIG!
Gopher State One Call
TWIN CITY AREA: 651-454-0002
TOLL FREE: 1-800-252-1166

WARNING:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND / OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

N

0 20 40
SCALE IN FEET

KIWATCHI ADDITION

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SHEET INDEX

UTILITY PLAN
C4-1

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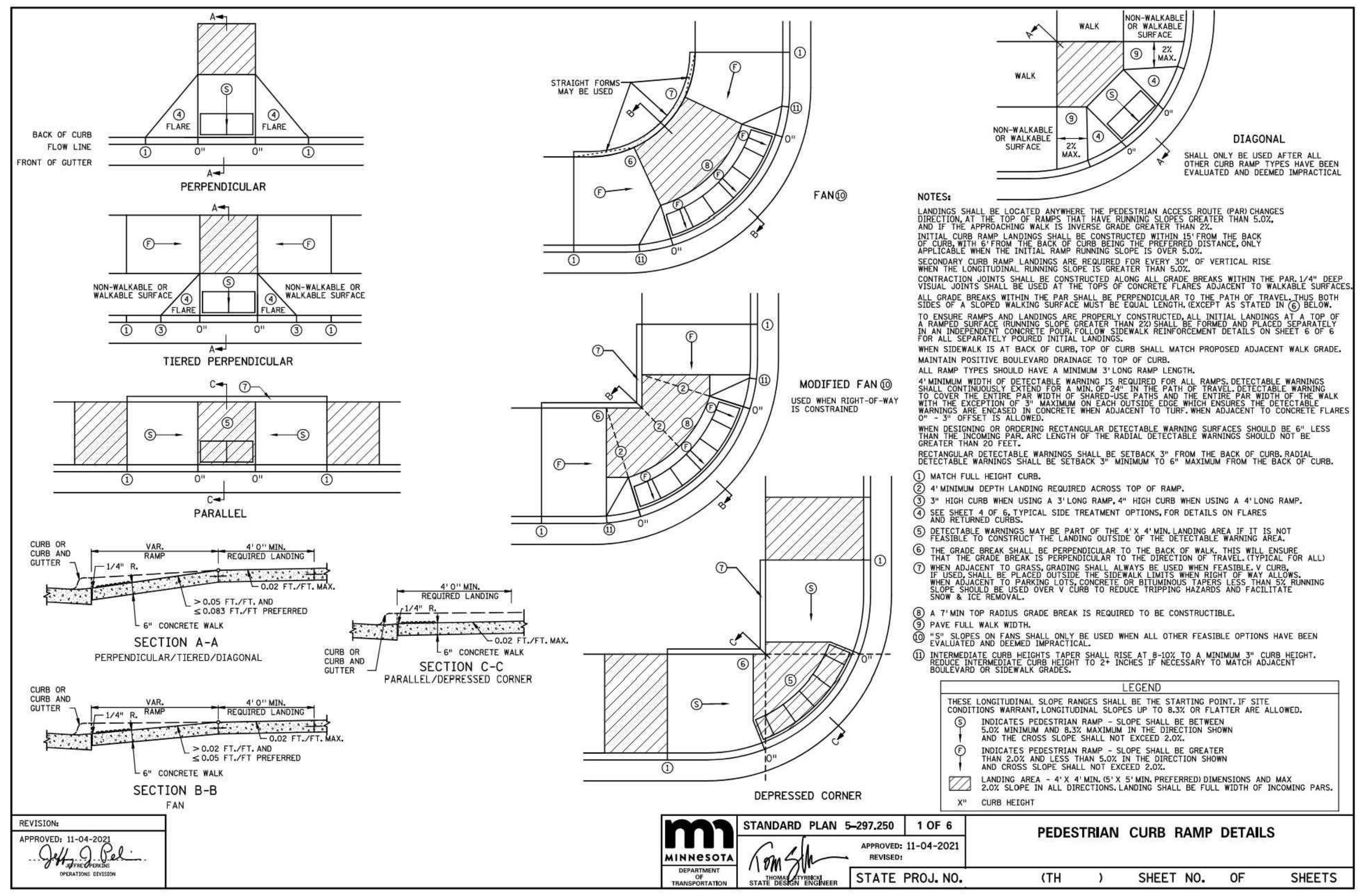
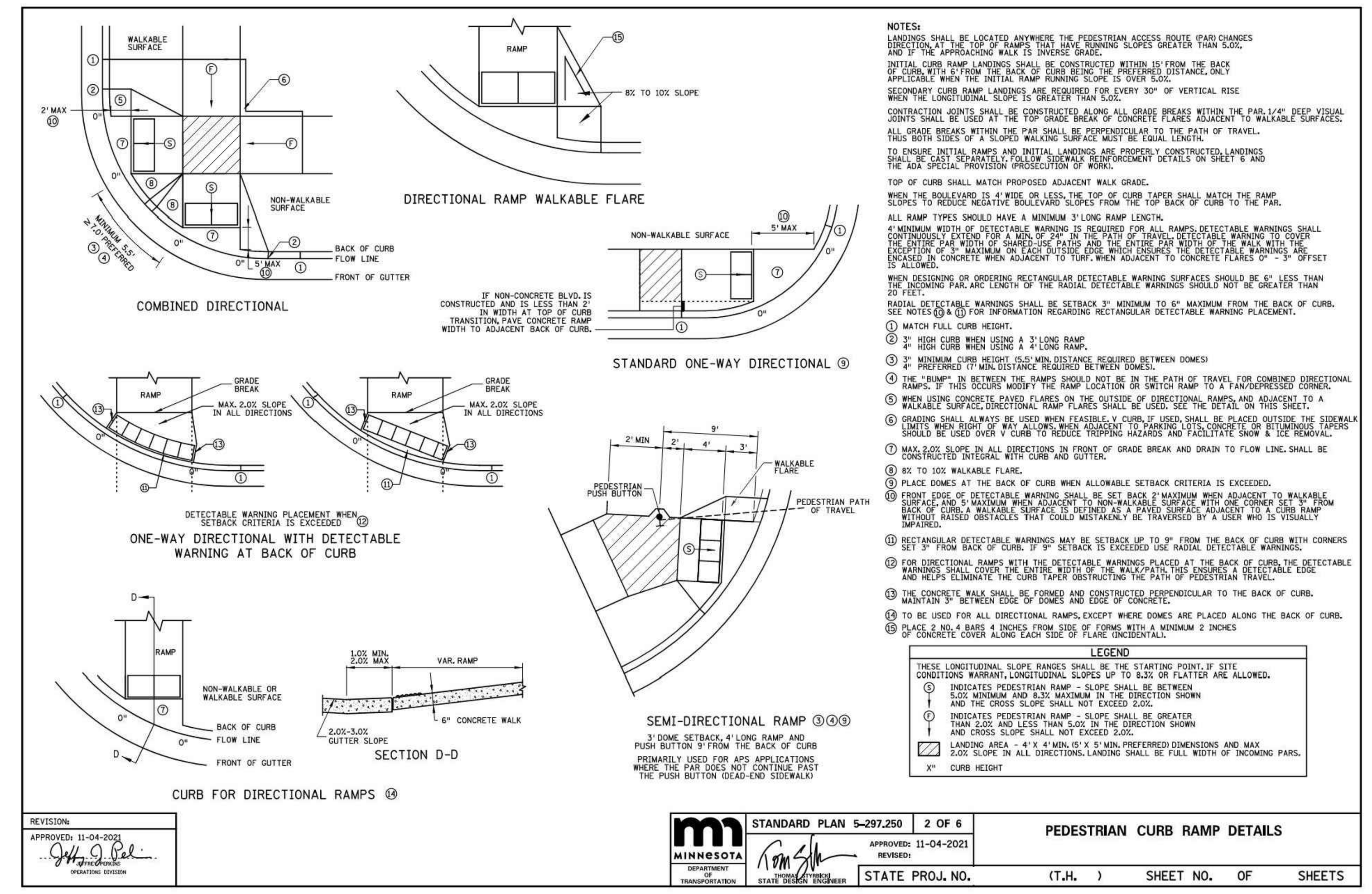
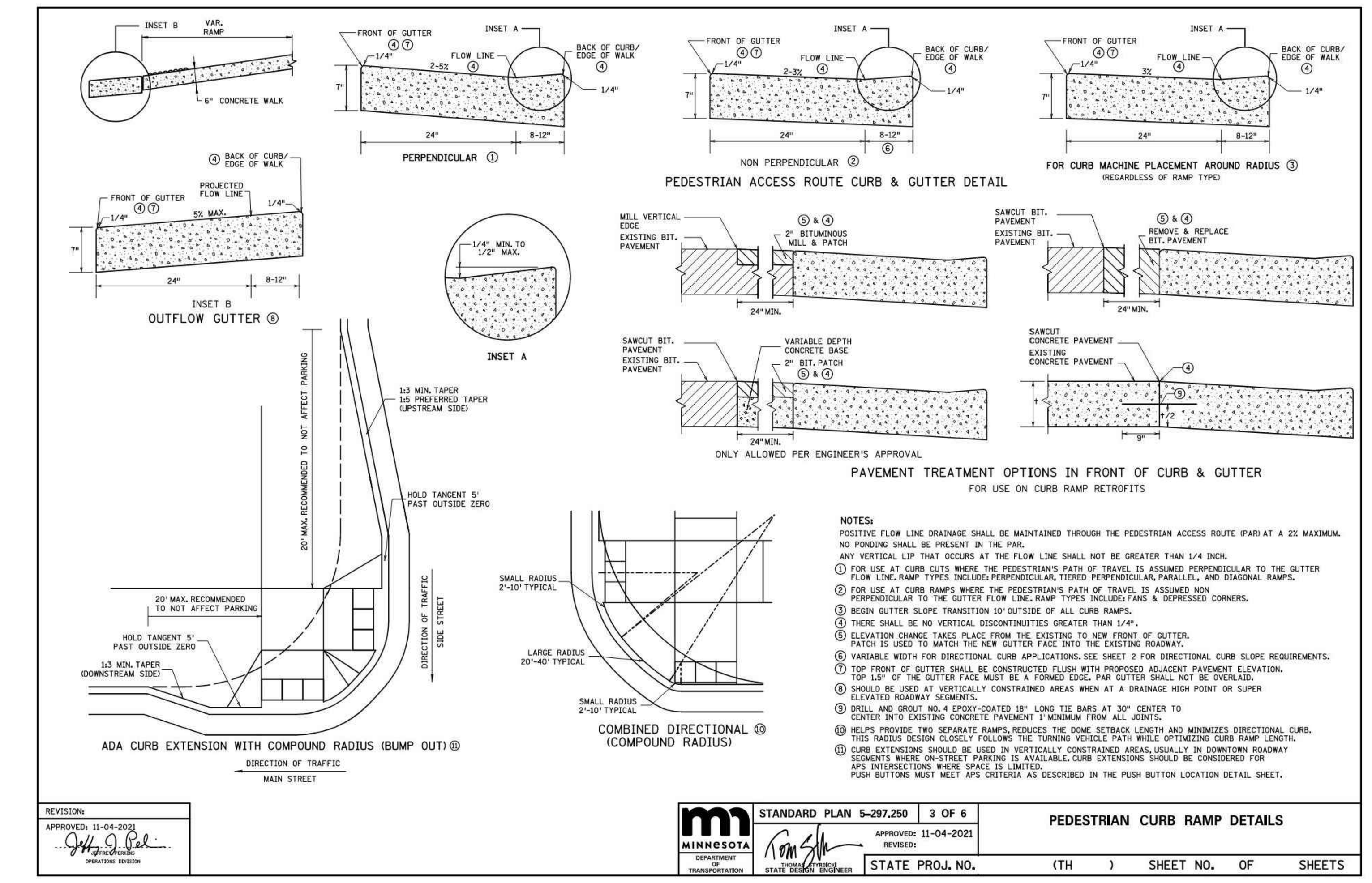
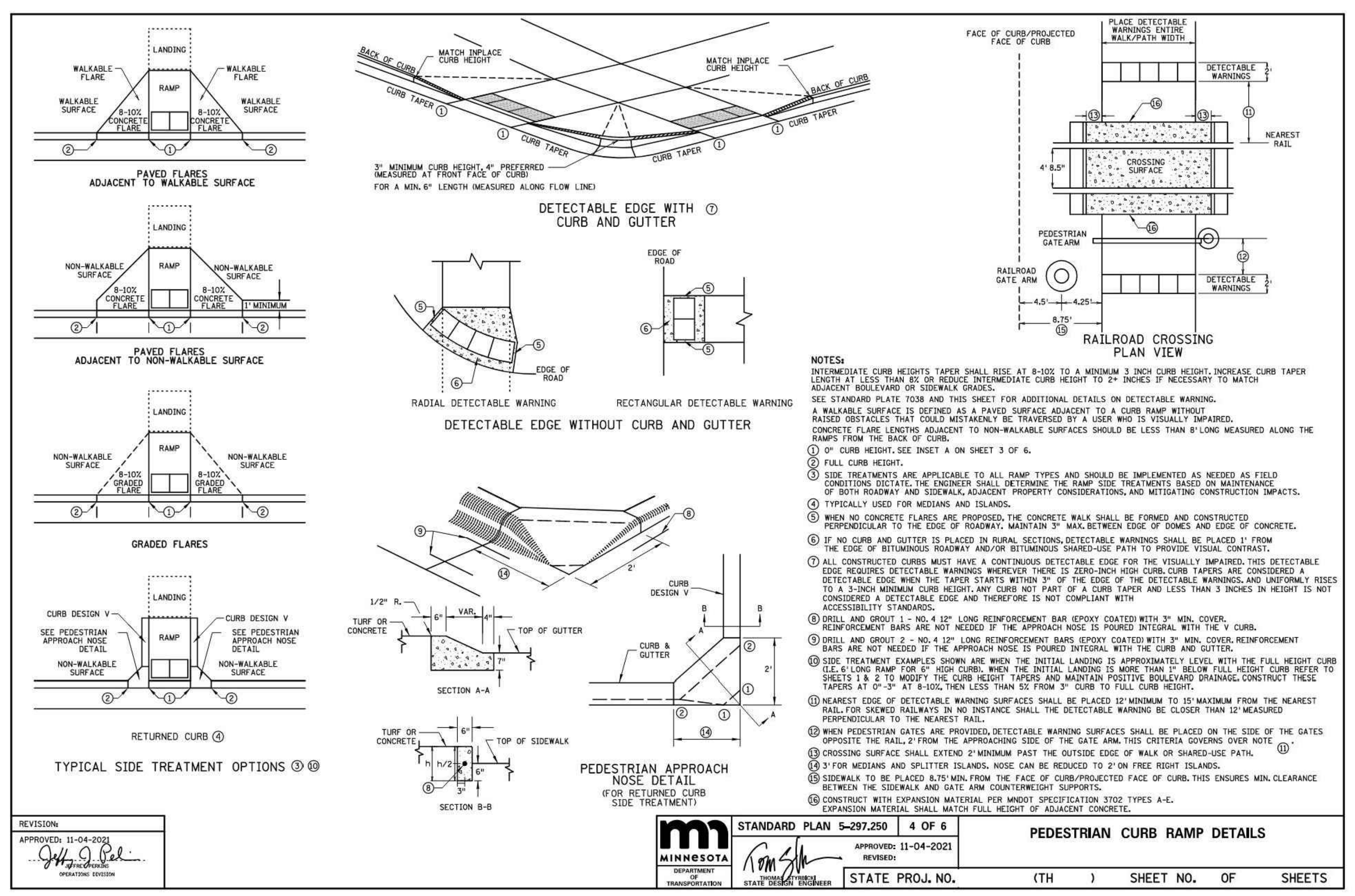
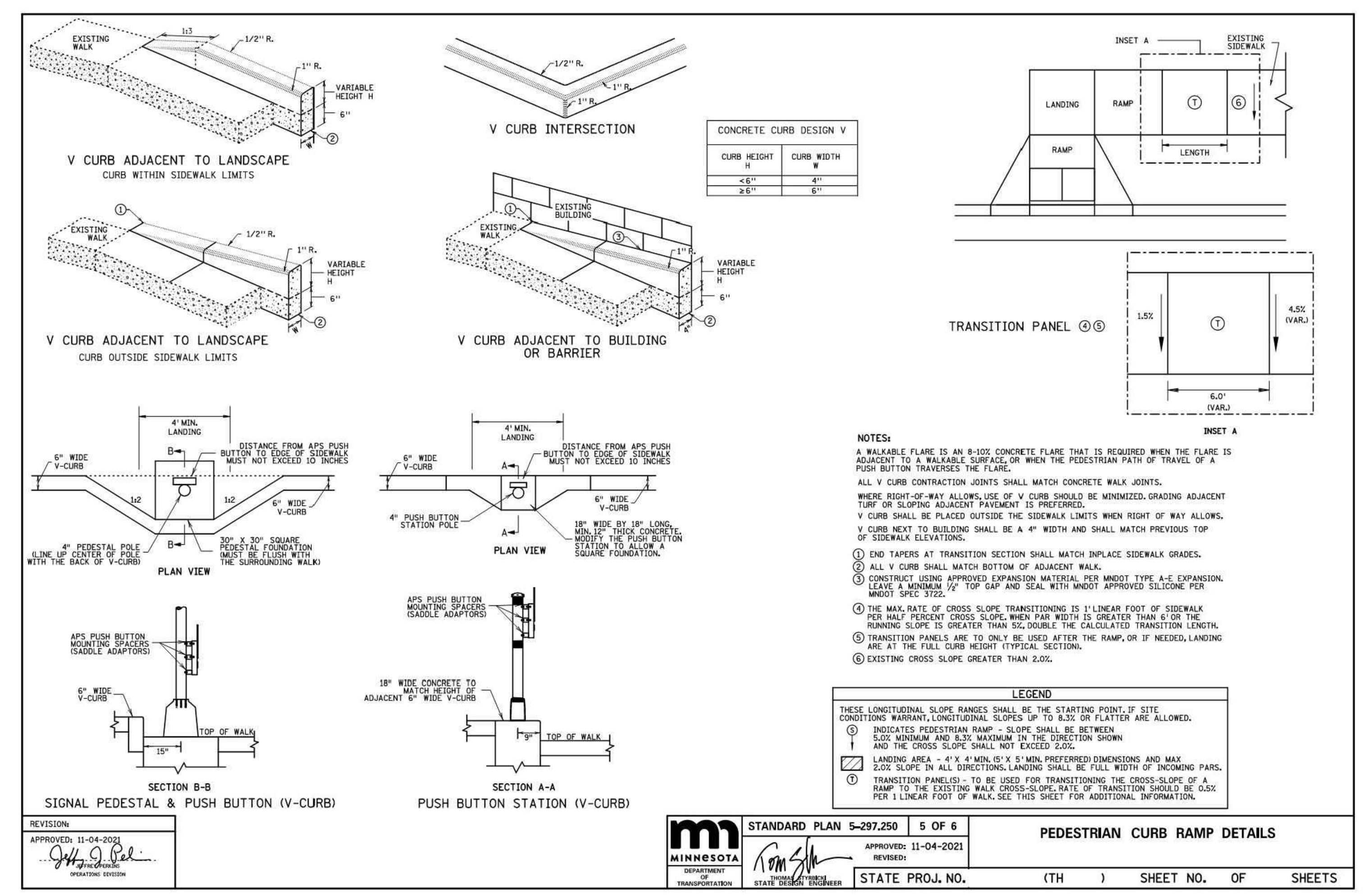
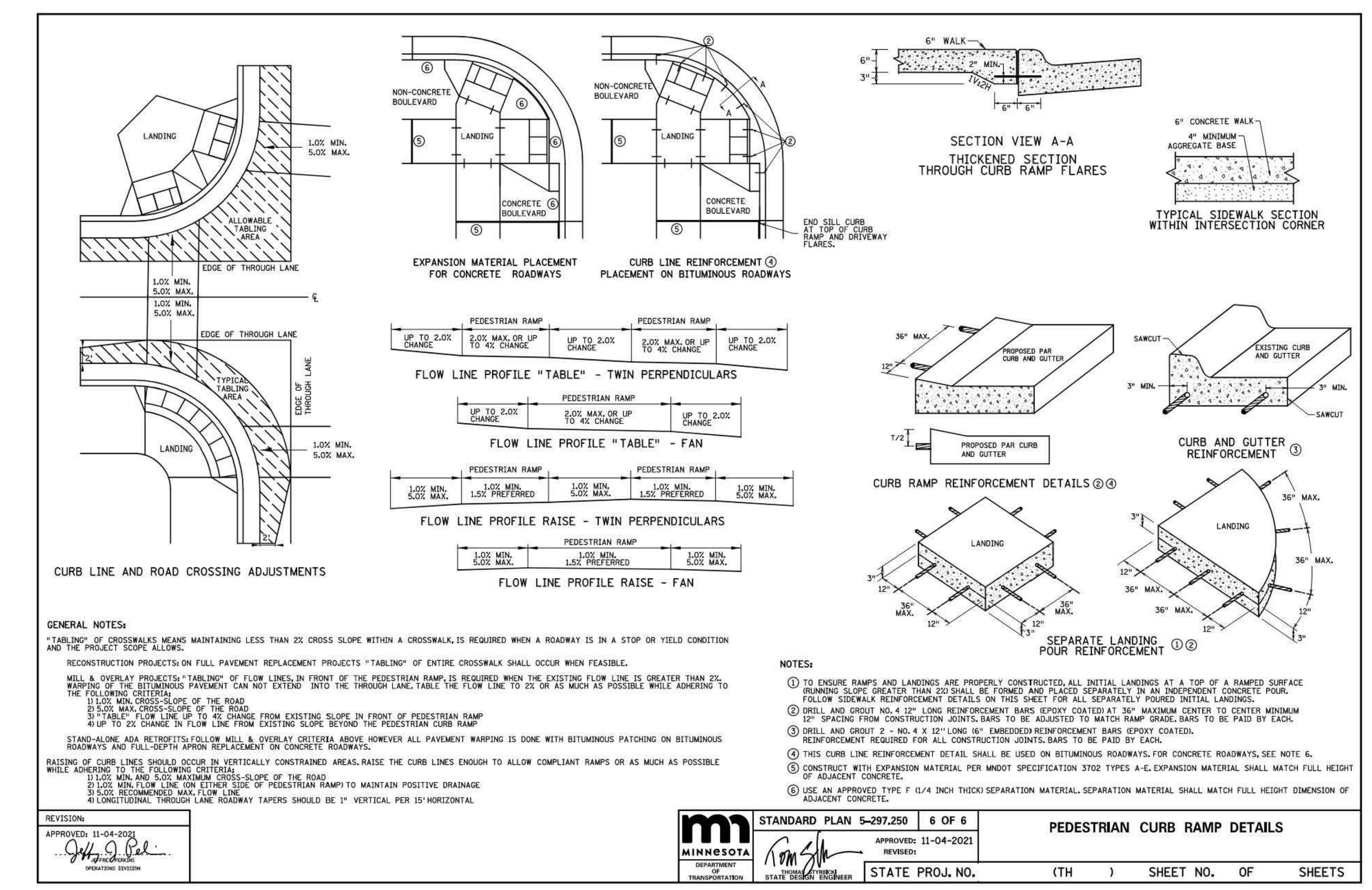




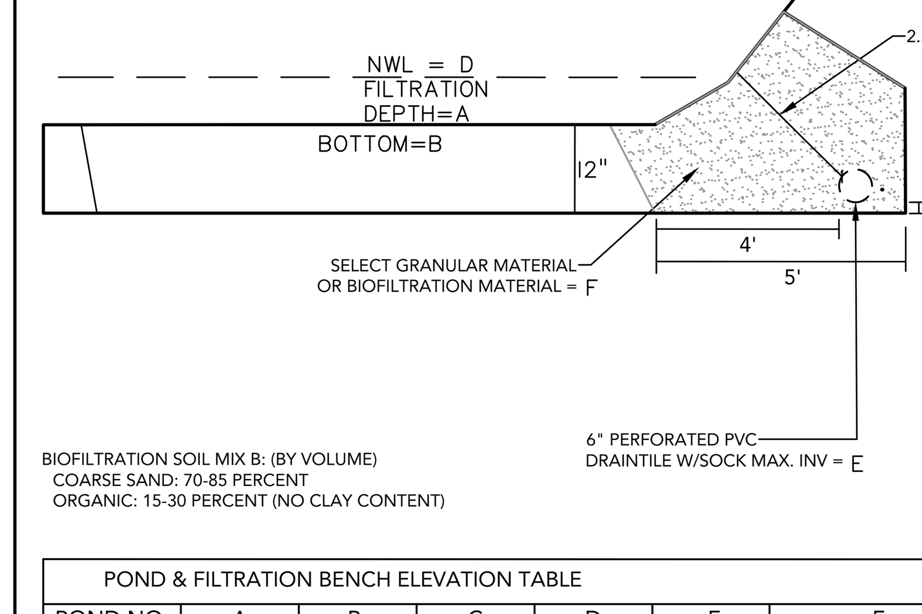








VOLUME REQUIRED: 1,549 CF
LENGTH OF DRAINTILE: 105 LF
WIDTH: 4 LF
FILTRATION AREA: 368 SF
EQUIVALENT DEPTH OF FILTRATION: 3.7 LF
INFILTRATION RATE USED: 1.0 CFS
ALLOWABLE DEPTH FOR DRAWDOWN: 4 LF



BIOFILTRATION SOIL MIX B: (BY VOLUME)
COARSE SAND: 70-85 PERCENT
ORGANIC: 15-30 PERCENT (NO CLAY CONTENT)

POND & FILTRATION BENCH ELEVATION TABLE

POND NO.	A	B	C	D	E	F
BASIN 1	0.7'	895.75	897.84	896.45	895.1	BIOFILTRATION
-	-	-	-	-	-	-

LOUCKS

POND & FILTRATION BENCH

LOUCKS PLATE NO.
CUSTOM
DRAWN 11/2019

Plotted: 10 /24 / 2024 2:12 PM W:\2021\21680\CADD DATA\CIVIL_dwg Sheet Files\C8-1 DETAILS

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CIVIL DETAILS

C8-2