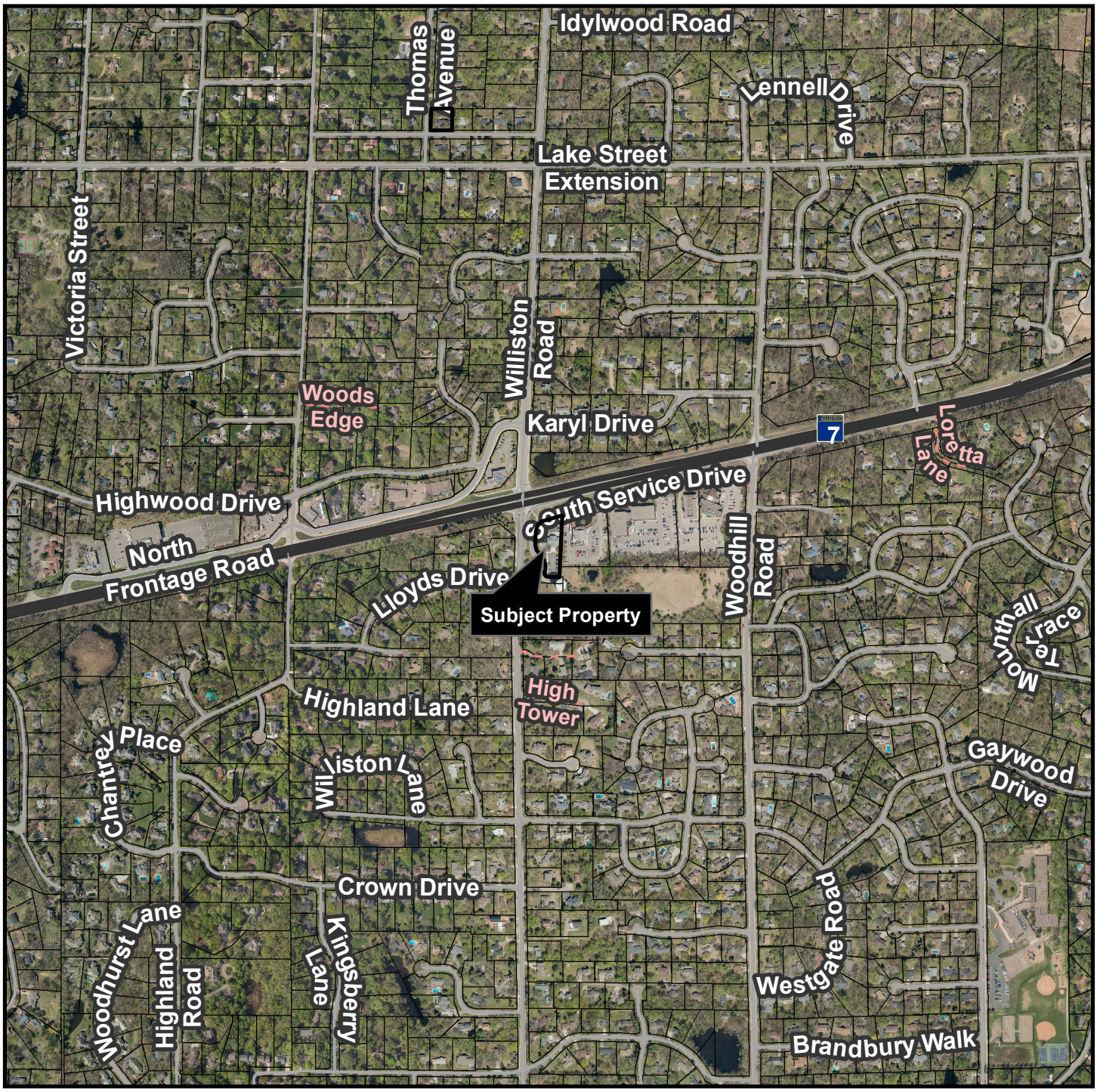
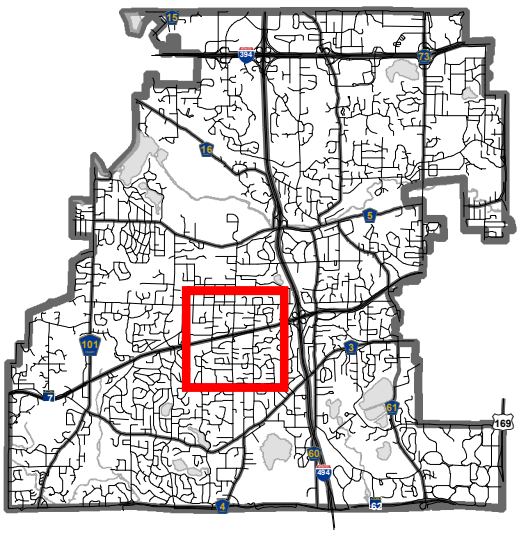


Location Map

Project: MidCountry Bank
Address: 14617 Hwy 7

CITY OF MINNETONKA



KEMPER & ASSOCIATES INC.
PROFESSIONAL LAND SURVEYORS
721 OLD HIGHWAY 8 N.W.
NEW BRIGHTON, MINNESOTA 55112
651-631-0351
FAX 651-631-8805
email: kemper@pro-ns.net
www.kempersurveys.com

ALTA/NSPS SURVEY

14617 STATE HIGHWAY NO. 7

CITY OF MINNETONKA, HENNEPIN COUNTY, MINNESOTA

0 15 30
1 INCH EQUALS 30 FEET

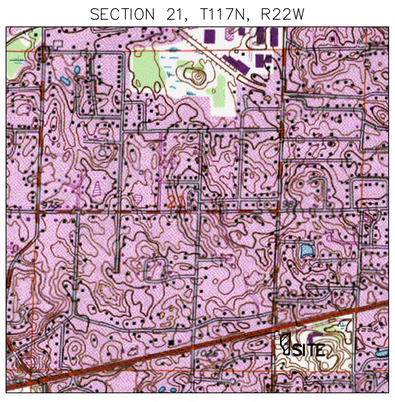
BASIS FOR BEARINGS:
HENNEPIN COUNTY
COORDINATE SYSTEM
(NAD83, 1996)

BASIS FOR ELEVATION:
MINNESOTA DEPARTMENT
STATION "FAHIL"
NEAR THE INTERSECTION
OF TRUNK HIGHWAY 7 &
FAIR HILLS ROAD.
ELEV.=1015.339 (NAVD88)

(VIA REAL TIME GPS
MEASUREMENTS UTILIZING
MINNESOTA DEPARTMENT
OF TRANSPORTATION
VRS NETWORK)

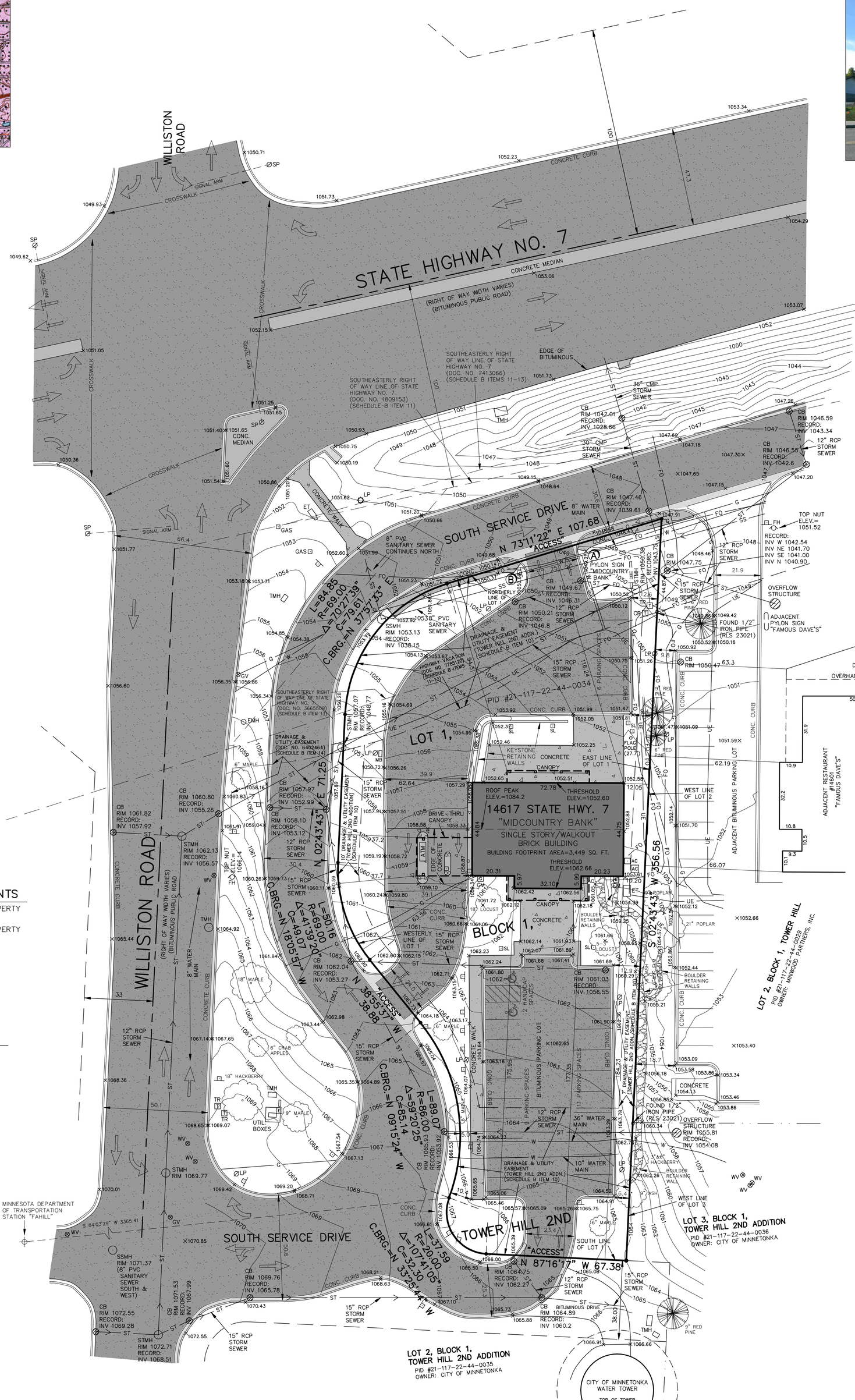
CONTOUR INTERVAL=1 FOOT

SECTION 21, T117N, R22W



VICINITY MAP
(NO SCALE)

FRONT OF 14617 STATE HIGHWAY NO. 7
CITY OF MINNETONKA, HENNEPIN COUNTY, MINNESOTA



ZONING REQUIREMENTS

ZONED B-1 – OFFICE BUSINESS DISTRICT

FINANCIAL INSTITUTION IS A CONDITIONAL USE

BUILDINGS LOCATED WITHIN 200 FEET OF ANY RESIDENTIAL DISTRICT SHALL BE LIMITED TO 4 STORIES OR 45 FEET, WHICHEVER IS LESS. THE HEIGHT OF ALL OTHER BUILDINGS SHALL BE REGULATED BY SETBACK AND FLOOR AREA REQUIREMENTS

FRONT YARD SETBACK:

MINIMUM OF 35 FEET FROM THE RIGHT-OF-WAY OF LOCAL AND NEIGHBORHOOD COLLECTOR STREETS AS IDENTIFIED IN THE COMPREHENSIVE PLAN; OR A MINIMUM OF 50 FEET FROM RAILROAD LINES AND FROM THE RIGHT-OF-WAY OF MAJOR COLLECTOR OR ARTERIAL ROADWAYS AS IDENTIFIED IN THE COMPREHENSIVE PLAN; OR THE HEIGHT OF THE BUILDING, WHICHEVER IS GREATER. THE MOST RESTRICTIVE OF THE ABOVE SHALL APPLY UP TO A MAXIMUM OF 100 FEET

SIDE AND REAR SETBACKS:

SHALL COMPLY WITH THE FOLLOWING FORMULA: SETBACK = (1.5 TIMES BUILDING HEIGHT) – 10 FEET UP TO A MAXIMUM SETBACK OF 100 FEET BUT IN NO CASE SHALL THE SETBACKS BE LESS THAN THE FOLLOWING WHEN MEASURED FROM LAND DESIGNATED ACCORDINGLY IN THE COMPREHENSIVE PLAN:
1) 50 FEET FROM LOW DENSITY RESIDENTIAL;
2) 40 FEET FROM MEDIUM AND HIGH DENSITY RESIDENTIAL; AND
3) 20 FEET FROM COMMERCIAL, OFFICE, INDUSTRIAL, INSTITUTIONAL AND PUBLIC PARK

MAXIMUM FLOOR AREA RATIO – 1.0

MAXIMUM LOT COVERAGE:

85% (CALCULATED TO INCLUDE BUILDING FOOTPRINTS; PARKING AREAS; DRIVEWAYS; LOADING, STORAGE AND TRASH AREAS AND OTHER AREAS COVERED BY ANY IMPERVIOUS SURFACE)

PARKING REQUIREMENTS:

ONE SPACE FOR EACH 250 SQ. FT. OF FLOOR AREA WITH A MINIMUM OF 10 SPACES
(BANK)

(AS PER CITY OF MINNETONKA ZONING CODE

STATEMENT OF APPARENT ENCROACHMENTS

Ⓐ CONCRETE SIDEWALK ENCROACHES ONTO SUBJECT PROPERTY A MAXIMUM DISTANCE OF 4.4 FEET

Ⓑ CONCRETE SIDEWALK ENCROACHES ONTO SUBJECT PROPERTY A MAXIMUM DISTANCE OF 4.4 FEET

NOTE: SUBJECT BUILDING DOES NOT CONFORM TO THE SIDE SETBACK REQUIREMENT OF THE CURRENT ZONING CODE. LIKELY APPROVED AT TIME OF CONSTRUCTION.

NOTES CORRESPONDING TO SCHEDULE B

CHICAGO TITLE INSURANCE COMPANY
COMMITMENT NO. CP70960
DATED AUGUST 19, 2022

10. DRAINAGE AND UTILITY EASEMENTS SHOWN ON THE RECORDED PLAT OF TOWER HILL 2ND ADDITION.
AFFECT SUBJECT PROPERTY AND ARE PLOTTED AND SHOWN HEREON.

11. TERMS AND CONDITIONS OF FINAL CERTIFICATE FOR TRUNK HIGHWAY PURPOSES, TOGETHER WITH RIGHT TO CONSTRUCT AND MAINTAIN TEMPORARY SNOW FENCES DESCRIBED AS PARCEL 63 DATED JULY 9, 1935, FILED SEPTEMBER 3, 1935, AS DOCUMENT NO. 1809153.
AS AFFECTED BY QUIT CLAIM DEED DATED AUGUST 31, 1981, FILED JANUARY 24, 2001, AS DOCUMENT NO. 7413066.
AS AFFECTED BY RESOLUTION NO. 2002-071, VACATING CERTAIN PUBLIC HIGHWAY AND/OR RIGHT-OF-WAY EASEMENTS ADOPTED JUNE 24, 2002, FILED AUGUST 5, 2002, AS DOCUMENT NO. 7785120.
DOCUMENT NO. 1809153 DESCRIBES ORIGINAL SOUTHERLY 100' RIGHT OF WAY OF STATE HIGHWAY NO. 7. DOCUMENT NO. 7413066 TURNS BACK PORTIONS OF STATE RIGHT OF WAY TO CITY OF MINNETONKA. DOCUMENT NO. 7785120 VACATES PART OF STATE HIGHWAY NO. 7 RIGHT OF WAY.
AFFECT SUBJECT PROPERTY AND ARE PLOTTED AND SHOWN HEREON.

12. TERMS AND CONDITIONS OF FINAL CERTIFICATE FOR TRUNK HIGHWAY PURPOSES, TOGETHER WITH RIGHT TO CONSTRUCT AND MAINTAIN TEMPORARY SNOW FENCES DESCRIBED AS PARCEL 264 DATED NOVEMBER 26, 1973, FILED FEBRUARY 26, 1974, AS DOCUMENT NO. 4069034.
AS AFFECTED BY QUIT CLAIM DEED DATED AUGUST 31, 1981, FILED JANUARY 24, 2001, AS DOCUMENT NO. 7413066.
AS AFFECTED BY RESOLUTION NO. 2002-071, VACATING CERTAIN PUBLIC HIGHWAY AND/OR RIGHT-OF-WAY EASEMENTS ADOPTED JUNE 24, 2002, FILED AUGUST 5, 2002, AS DOCUMENT NO. 7785120.
DOCUMENT NO. 4069034 AFFECTS THE EAST 550 FEET OF THE S½ OF THE N½ OF THE SE¼ OF THE SE¼ OF SECTION 21, TOWNSHIP 117 NORTH, RANGE 22 WEST, WHICH IS NORTHEASTERLY OF THE SUBJECT PROPERTY. DOES NOT AFFECT SUBJECT PROPERTY.

13. EASEMENT FOR HIGHWAY PURPOSES IN FAVOR OF THE STATE OF MINNESOTA CONTAINED IN HIGHWAY EASEMENT DATED JUNE 21, 1967, FILED JULY 20, 1967, IN BOOK 2594, DEED, PAGE 440, AS DOCUMENT NO. 3665509.
AS AFFECTED BY QUIT CLAIM DEED DATED AUGUST 31, 1981, FILED JANUARY 24, 2001, AS DOCUMENT NO. 7413066.
AS AFFECTED BY RESOLUTION NO. 2002-071, VACATING CERTAIN PUBLIC HIGHWAY, AND/OR RIGHT-OF-WAY EASEMENTS ADOPTED JUNE 24, 2002, FILED AUGUST 5, 2002, AS DOCUMENT NO. 7785120.
DOCUMENT NO. 3665509 DESCRIBES ADDITIONAL RIGHT OF WAY FOR STATE HIGHWAY NO. 7.
AFFECT SUBJECT PROPERTY AND ARE PLOTTED AND SHOWN HEREON.

14. EASEMENT FOR DRAINAGE AND UTILITY PURPOSES IN FAVOR OF THE CITY OF MINNETONKA, A MINNESOTA MUNICIPAL CORPORATION, CONTAINED IN EASEMENT DATED FEBRUARY 13, 1994, FILED MARCH 1, 1995, AS DOCUMENT NO. 6402464.
AFFECTS SUBJECT PROPERTY AND IS PLOTTED AND SHOWN HEREON.

15. TERMS AND CONDITIONS OF RESOLUTION NO. 2001-006, APPROVING A CONDITIONAL USE PERMIT ADOPTED JANUARY 8, 2001, FILED JULY 31, 2001, AS DOCUMENT NO. 7514022.
DESCRIBES CONDITIONAL USE FOR A FINANCIAL INSTITUTION WITHIN A B-1 ZONING DISTRICT.
AFFECTS SUBJECT PROPERTY. BLANKET IN NATURE.

16. TERMS, CONDITIONS AND PROVISIONS OF AND PROPOSED STORM SEWER AND POND EASEMENTS CONTAINED IN IMPROVEMENT AGREEMENT DATED JULY 5, 2001, FILED AUGUST 5, 2002, AS DOCUMENT NO. 7785118.
AMENDED BY FIRST AMENDMENT TO IMPROVEMENT AGREEMENT DATED JUNE 27, 2002, FILED AUGUST 5, 2002, AS DOCUMENT NO. 7785119.
AFFECT SUBJECT PROPERTY. BLANKET IN NATURE.

FLOOD ZONE

SUBJECT PROPERTY LIES WITHIN FLOOD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP COMMUNITY PANEL NUMBER 27053C0337F, DATED NOVEMBER 4, 2016, HENNEPIN COUNTY, MINNESOTA

NOTES

1. THIS SURVEY WAS CONDUCTED WITH A LEICA RCS MS 50 ROBOTIC TOTAL STATION AND LEICA GS-16 GPS SYSTEM.
2. ALL DIMENSIONS FROM BUILDINGS TO PROPERTY LINES ARE MEASURED PERPENDICULAR OR RADIALLY TO SAID PROPERTY LINES.
3. ALL DRIVEWAY AND STREET THROAT DIMENSIONS SHOWN ARE MEASURED FACE OF CURB TO FACE OF CURB, UNLESS OTHERWISE NOTED.
4. THERE IS NO OBSERVABLE EVIDENCE OF CEMETERIES OR BURIAL GROUNDS ON SUBJECT PROPERTY.
5. THERE ARE NO PONDS, LAKES, SPRINGS OR RIVERS BORDERING ON OR RUNNING THROUGH SUBJECT PROPERTY.
6. UTILITIES SHOWN HEREON ARE AS PER ABOVE GROUND EVIDENCE AND FEATURES, ON-SITE LOCATE MARKING, AND AVAILABLE UTILITY MAPS. (GOPHER STATE ONE-CALL REQUEST TICKET NOS. 222653065 & 222653112.
7. ACCESS IS GAINED TO THE SUBJECT PROPERTY VIA THE SOUTH SERVICE DRIVE OF STATE HIGHWAY NO. 7 AND WILLISTON ROAD, WHICH IS A DEDICATED PUBLIC RIGHT-OF-WAY.
8. THERE IS NO OBSERVABLE EVIDENCE OF EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS WITHIN RECENT MONTHS.
9. THERE ARE NO CHANGES IN STREET RIGHT OF WAY LINES EITHER COMPLETED OR PROPOSED, AND AVAILABLE FROM THE CONTROLLING JURISDICTION.
10. THERE IS NO OBSERVABLE EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS.
11. THERE IS NO OBSERVABLE EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.

22089 (22089.DWG) D.B. TODD HOLEN

SOUTHWESTERLY SIDE OF 14617 STATE HIGHWAY NO. 7
CITY OF MINNETONKA, HENNEPIN COUNTY, MINNESOTA

REAR OF 14617 STATE HIGHWAY NO. 7
CITY OF MINNETONKA, HENNEPIN COUNTY, MINNESOTA

LEGAL DESCRIPTION

CHICAGO TITLE INSURANCE COMPANY
COMMITMENT NO. CP70960
DATED AUGUST 19, 2022

Lot 1, Block 1, Tower Hill 2nd Addition

Hennepin County, Minnesota
Abstract Property

AREA SUMMARY

LOT 1, BLOCK 1, TOWER HILL 2ND ADDITION= 40,490 SQ. FT. OR 0.9295 ACRES

PARKING SUMMARY

26 STANDARD SPACES
2 HANDICAP SPACES
28 TOTAL PARKING SPACES

LEGEND

MH ○	MANHOLE
STMH ○	STORM SEWER MANHOLE
SSMH ○	SANITARY SEWER MANHOLE
CB ▤	CATCH BASIN
LP ⌀	LIGHT POLE
SP ⌀	SIGNAL POLE
TR [T]	TELEPHONE RISER
FH ◇	FIRE HYDRANT
WV ⊗	WATER VALVE
ET	ELECTRIC TRANSFORMER
GV ⊗	GAS VALVE
CR [T]	CABLE RISER
TMH ○	TELEPHONE MANHOLE
EMH ○	ELECTRIC MANHOLE
EM [E]	ELECTRIC METER
GM [G]	GAS METER
AC	AIR CONDITIONER
SL ⊡	SPOT LIGHT
MB ▭	MAIL BOX
⊥	SIGN
○	GUARD POST
— SS —	SANITARY SEWER
— ST —	STORM SEWER
— W —	WATER MAIN/SERVICE
— G —	GAS MAIN/SERVICE
— UE —	UNDERGROUND ELECTRIC LINES
— UT —	UNDERGROUND TELEPHONE LINES
— FO —	UNDERGROUND FIBER OPTIC LINES
—1050—	EXISTING CONTOUR LINE
×1052.25	EXISTING SPOT ELEVATION
RCP	REINFORCED CONCRETE PIPE
●	DENOTES SET SURVEY MONUMENT MARKED "KEMPER 18407"

PREPARED FOR:

CHRIS VOSBEEK
CHIEF FINANCIAL OFFICER
MIDCOUNTRY BANK/
MIDCOUNTRY ACQUISITION CORP.
7825 WASHINGTON AVE. S., STE. 900
BLOOMINGTON, MINNESOTA 55439
952-400-2821
FAX 952-697-2076
CELL 651-308-6255
Chris.Vosbeek@MidCountryBank.com

ROSS HEDLUND, CCIM, RPS
SENIOR VICE PRESIDENT
FRAUENSHUH COMMERCIAL
REAL ESTATE GROUP
7101 WEST 78TH STREET
MINNEAPOLIS, MN 55439
952-829-3460
CELL 763-913-1689
ross.hedlund@frauenshuh.com

SURVEYOR'S CERTIFICATE

To: MidCountry Bank, FSB;
Chicago Title Insurance Company;
Commercial Partners Title:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 5, 6(a), 6(b), 7(a), 7(b)(1), 7(c), 8, 9, 13, 14, 16, 17 and 18 of Table A thereof. The field work was completed on September 30, 2022.

Date: OCTOBER 17, 2022

Mark D. Kemper

Mark D. Kemper, Professional Land Surveyor
Minnesota Registration No. 18407
Kemper & Associates, Inc.
721 Old Highway 8 N.W.
New Brighton, Minnesota 55112
Phone 651-631-0351
Fax 651-631-8805
email: kemper@pro-ns.net

STATE OF MINNESOTA
PROFESSIONAL LAND SURVEYOR
18407
MARK D. KEMPER

MIDCOUNTRY BANK

MINNETONKA, MINNESOTA

ISSUED FOR: CITY SUBMITTAL

ARCHITECT:

SRa ARCHITECTURE + INTERIORS
6442 CITY WEST PARKWAY, #300
EDEN PRAIRIE, MN 55344
CONTACT: ERIC REINERS
612-209-3749

DEVELOPER / PROPERTY OWNER:

MIDCOUNTRY BANK FSB
7825 WASHINGTON AVE S, SUITE 900
BLOOMINGTON, MN 55439
CONTACT: CHRIS VOSBEEK
952-400-2821

ENGINEER / LANDSCAPE ARCHITECT:

CIVIL SITE GROUP
5000 GLENWOOD AVE
GOLDEN VALLEY, MN 55422
CONTACT: DAVE KNAEBLE
612-615-0060

SURVEYOR:

KEMPER & ASSOCIATES, INC
721 OLD HWY 8 NW
NEW BRIGHTON, MN 55112
CONTACT: MARK KEMPER
651-631-0351

GEOTECHNICAL ENGINEER:

TBD

ALL EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CONTACT "GOPHER STATE ONE CALL" (651-454-0002 OR 800-252-1166) FOR UTILITY LOCATIONS, 48 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY UTILITIES THAT ARE DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

811 Know what's **below.** **Call** before you dig.

SHEET INDEX

CivilSite GROUP
Civil Engineering • Surveying • Landscape Architecture
5000 Glenwood Avenue
Golden Valley, MN 55422
civilsitegroup.com 612-615-0060

SRa ARCHITECTURE | INTERIORS

PRELIMINARY: NOT FOR CONSTRUCTION

PROJECT
MIDCOUNTRY BANK
14617 STATE HIGHWAY 7, MINNETONKA, MN 55345

MIDCOUNTRY BANK FSB
7825 WASHINGTON AVE S, SUITE 900, BLOOMINGTON, MN 55439

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.

David J. Knaeble
DATE 03-06-23 LICENSE NO. 48776

ISSUE/SUBMITTAL SUMMARY

DATE	DESCRIPTION
3/6/2023	CITY SUBMITTAL

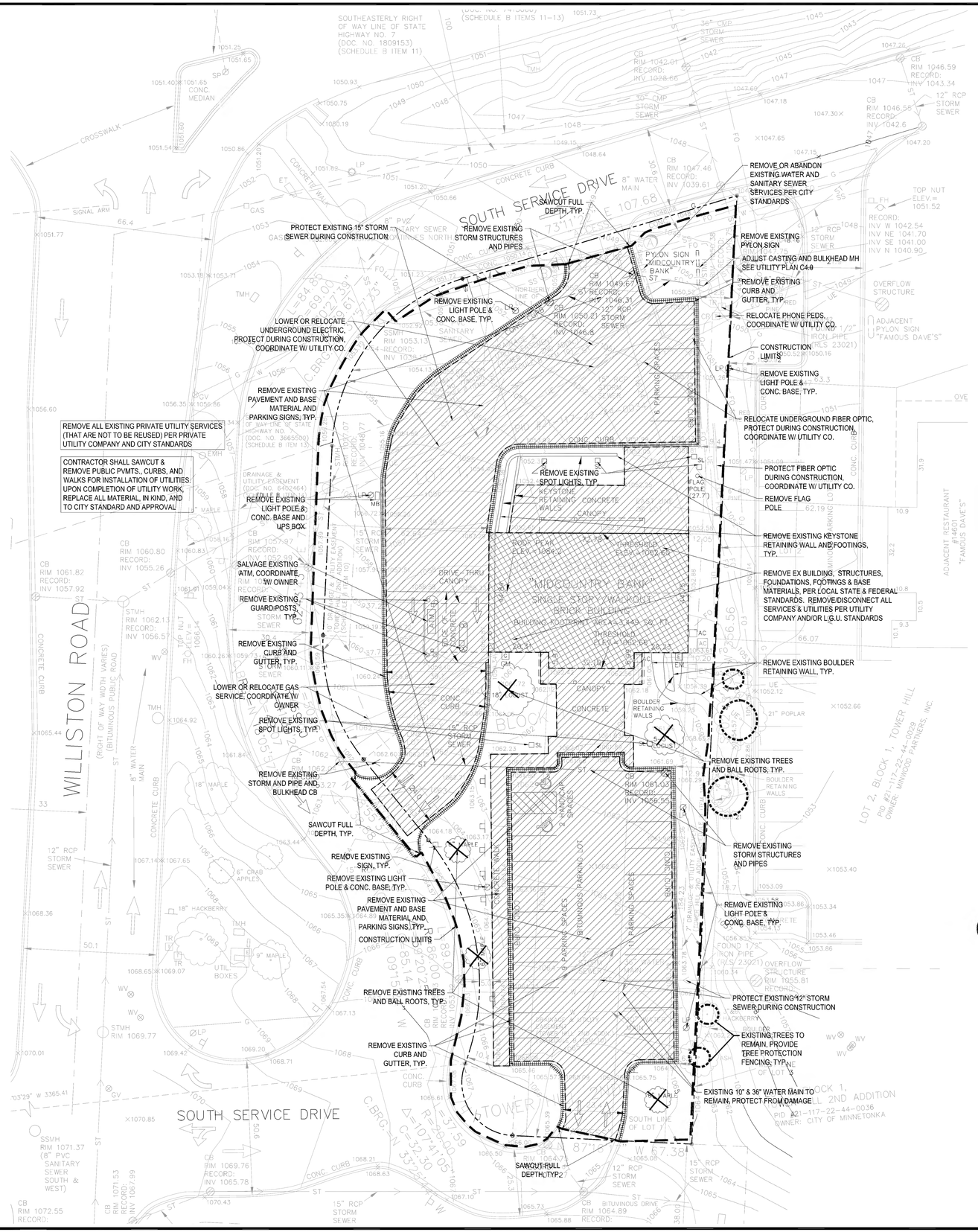
DRAWN BY: BN, AM REVIEWED BY: DK
PROJECT NUMBER: 22450

REVISION SUMMARY

DATE	DESCRIPTION

TITLE SHEET

C0.0



REMOVAL NOTES:

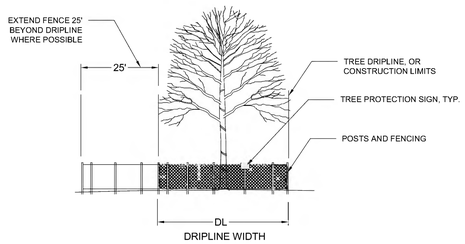
1. ALL EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CONTACT "GOPHER STATE ONE CALL" (651-454-0002 OR 800-252-1166) FOR UTILITY LOCATIONS, 48 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY UTILITIES THAT ARE DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.
2. SEE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PLAN FOR CONSTRUCTION STORM WATER MANAGEMENT PLAN.
3. REMOVAL OF MATERIALS NOTED ON THE DRAWINGS SHALL BE IN ACCORDANCE WITH MNDOT, STATE AND LOCAL REGULATIONS.
4. REMOVAL OF PRIVATE UTILITIES SHALL BE COORDINATED WITH UTILITY OWNER PRIOR TO CONSTRUCTION ACTIVITIES.
5. EXISTING PAVEMENTS SHALL BE SAWCUT IN LOCATIONS AS SHOWN ON THE DRAWINGS OR THE NEAREST JOINT FOR PROPOSED PAVEMENT CONNECTIONS.
6. REMOVED MATERIALS SHALL BE DISPOSED OF TO A LEGAL OFF-SITE LOCATION AND IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
7. ABANDON, REMOVAL, CONNECTION, AND PROTECTION NOTES SHOWN ON THE DRAWINGS ARE APPROXIMATE. COORDINATE WITH PROPOSED PLANS.
8. EXISTING ON-SITE FEATURES NOT NOTED FOR REMOVAL SHALL BE PROTECTED THROUGHOUT THE DURATION OF THE CONTRACT.
9. PROPERTY LINES SHALL BE CONSIDERED GENERAL CONSTRUCTION LIMITS UNLESS OTHERWISE NOTED ON THE DRAWINGS. WORK WITHIN THE GENERAL CONSTRUCTION LIMITS SHALL INCLUDE STAGING, DEMOLITION AND CLEAN-UP OPERATIONS AS WELL AS CONSTRUCTION SHOWN ON THE DRAWINGS.
10. MINOR WORK OUTSIDE OF THE GENERAL CONSTRUCTION LIMITS SHALL BE ALLOWED AS SHOWN ON THE PLAN AND PER CITY REQUIREMENTS. FOR ANY WORK ON ADJACENT PRIVATE PROPERTY, THE CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION FROM THE ADJACENT PROPERTY OWNER PRIOR TO ANY WORK.
11. DAMAGE BEYOND THE PROPERTY LIMITS CAUSED BY CONSTRUCTION ACTIVITY SHALL BE REPAIRED IN A MANNER APPROVED BY THE ENGINEER/LANDSCAPE ARCHITECT OR IN ACCORDANCE WITH THE CITY.
12. PROPOSED WORK (BUILDING AND CIVIL) SHALL NOT DISTURB EXISTING UTILITIES UNLESS OTHERWISE SHOWN ON THE DRAWINGS AND APPROVED BY THE CITY PRIOR TO CONSTRUCTION.
13. SITE SECURITY MAY BE NECESSARY AND PROVIDED IN A MANNER TO PROHIBIT VANDALISM, AND THEFT, DURING AND AFTER NORMAL WORK HOURS, THROUGHOUT THE DURATION OF THE CONTRACT. SECURITY MATERIALS SHALL BE IN ACCORDANCE WITH THE CITY.
14. VEHICULAR ACCESS TO THE SITE SHALL BE MAINTAINED FOR DELIVERY AND INSPECTION ACCESS DURING NORMAL OPERATING HOURS. AT NO POINT THROUGHOUT THE DURATION OF THE CONTRACT SHALL CIRCULATION OF ADJACENT STREETS BE BLOCKED WITHOUT APPROVAL BY THE CITY PRIOR TO CONSTRUCTION ACTIVITIES.
15. ALL TRAFFIC CONTROLS SHALL BE PROVIDED AND ESTABLISHED PER THE REQUIREMENTS OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) AND THE CITY. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, SIGNAGE, BARRICADES, FLASHERS, AND FLAGGERS AS NEEDED. ALL PUBLIC STREETS SHALL REMAIN OPEN TO TRAFFIC AT ALL TIMES. NO ROAD CLOSURES SHALL BE PERMITTED WITHOUT APPROVAL BY THE CITY.
16. SHORING FOR BUILDING EXCAVATION MAY BE USED AT THE DISCRETION OF THE CONTRACTOR AND AS APPROVED BY THE OWNERS REPRESENTATIVE AND THE CITY PRIOR TO CONSTRUCTION ACTIVITIES.
17. STAGING, DEMOLITION, AND CLEAN-UP AREAS SHALL BE WITHIN THE PROPERTY LIMITS AS SHOWN ON THE DRAWINGS AND MAINTAINED IN A MANNER AS REQUIRED BY THE CITY.
18. ALL EXISTING SITE TRAFFIC/REGULATORY SIGNAGE TO BE INVENTORIED AND IF REMOVED FOR CONSTRUCTION SHALL BE RETURNED TO LGU.
19. ALL EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CONTACT "GOPHER STATE ONE CALL" (651-454-0002 OR 800-252-1166) FOR UTILITY LOCATIONS, 48 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY UTILITIES THAT ARE DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

CITY OF MINNETONKA REMOVAL NOTES:

1. RESERVED FOR CITY SPECIFIC REMOVAL NOTES.

EROSION CONTROL NOTES:

SEE SWPPP ON SHEETS SW1.0 - SW1.3



FURNISH A AND INSTALL TEMPORARY FENCE AT THE TREE'S DRIP LINE OR CONSTRUCTION LIMITS AS SHOWN ON PLAN, PRIOR TO ANY CONSTRUCTION. WHERE POSSIBLE PLACE FENCE 25' BEYOND DRIP LINE. PLACE TREE PROTECTION SIGN ON POSTS, ONE PER INDIVIDUAL TREE (FACING CONSTRUCTION ACTIVITY), OR ONE EVERY 100' LF ALONG A GROVE OR MULTI-TREE PROTECTION AREA.

1 TREE PROTECTION
NTS

REMOVALS LEGEND:

- 1125 — EX. 1' CONTOUR ELEVATION INTERVAL
- REMOVAL OF PAVEMENT AND ALL BASE MATERIAL, INCLUDING BIT., CONC., AND GRAVEL PVMTS.
- REMOVAL OF STRUCTURE INCLUDING ALL FOOTINGS AND FOUNDATIONS.
- REMOVE CURB AND GUTTER. IF IN RIGHT-OF-WAY, COORDINATE WITH LOCAL GOVERNING UNIT.
- TREE PROTECTION
- TREE REMOVAL - INCLUDING ROOTS AND STUMPS

Know what's **below.** **Call** before you dig.

N

1" = 20'-0"
10'-0" 0 20'-0"

CivilSite GROUP
Civil Engineering • Surveying • Landscape Architecture
5000 Glenwood Avenue
Golden Valley, MN 55422
civilsitegroup.com 612-615-0060

SRa ARCHITECTURE | INTERIORS

PRELIMINARY: NOT FOR CONSTRUCTION

PROJECT
MIDCOUNTRY BANK
14617 STATE HIGHWAY 7, MINNETONKA, MN 55345

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DATE 03-06-23 LICENSE NO. 48776

ISSUE/SUBMITTAL SUMMARY

DATE	DESCRIPTION
3/6/2023	CITY SUBMITTAL

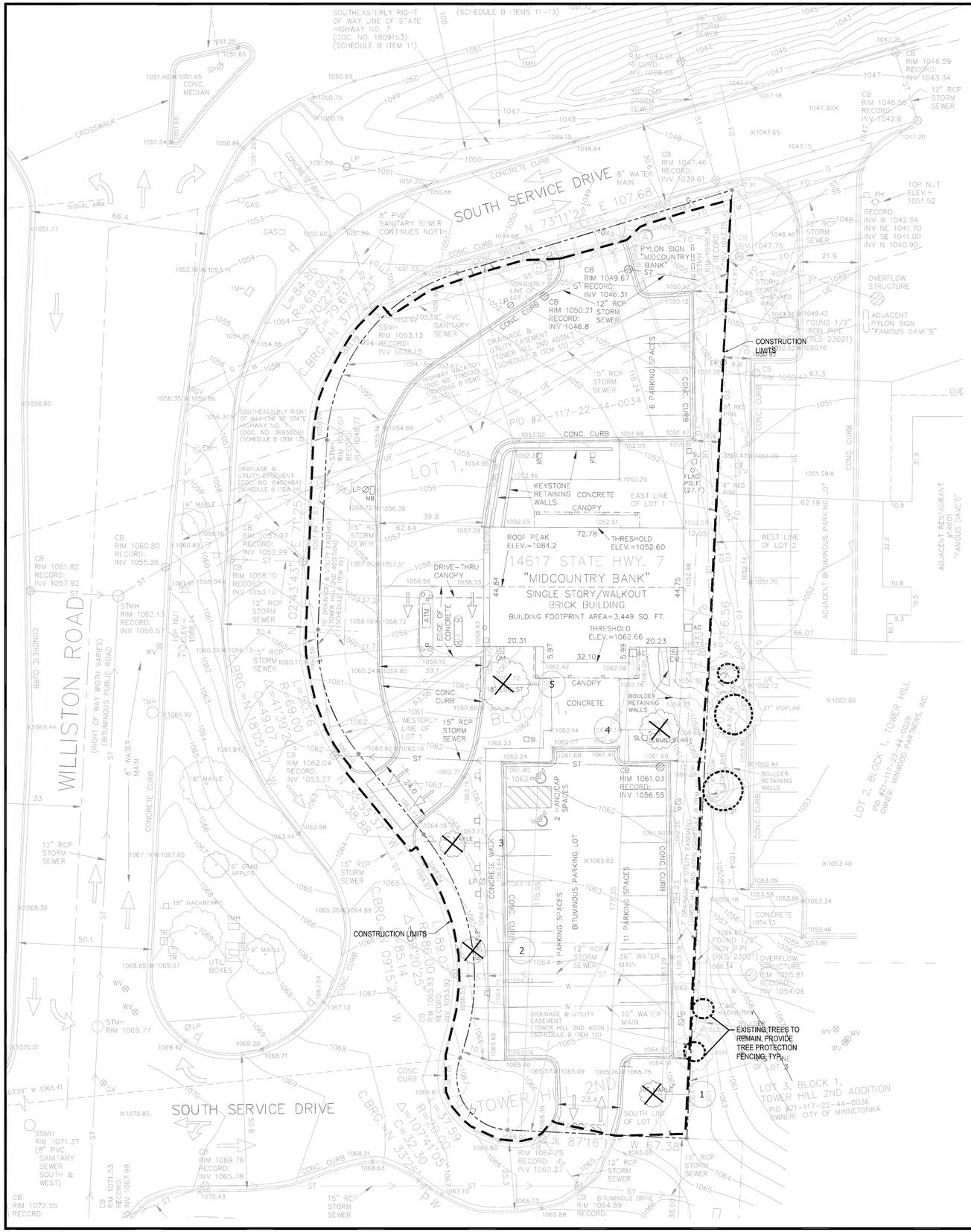
DRAWN BY: BN, AM REVIEWED BY: DK
PROJECT NUMBER: 22450

REVISION SUMMARY

DATE	DESCRIPTION

REMOVALS PLAN

C1.0



TREE REMOVALS											
		TRUNK SIZES									
TREE NO.	SPECIES	1	2	3	4	5	TYPE[1]	REMOVED	SIGNIF.[2]	HIGH PRIORITY[3]	NOTES
1	MAPLE	6					D	X	X		
2	MAPLE	6					D	X	X		
3	MAPLE	6					D	X	X		
4	SERVICEBERRY	3	3	3	3	3	D				IS EXEMPT - WITHIN 20' OF BUILDING
5	LOCUST	18					D	X		X	

EXISTING TREE SUMMARY		NUMBER	CAL. INCHES	NOTES
HIGH PRIORITY TREES		1	18	
SIGNIFICANT TREES		3	18	
COMMON TREES		1	15	
TOTAL ON-SITE		5	51 TOTAL	
ALLOWABLE SIGNIFICANT TREE REMOVAL WITHOUT REPLACEMENT	50%	2	25	
ALLOWABLE HIGH PRIORITY TREE REMOVAL WITHOUT REPLACEMENT	35%	1	17	
REPLACEMENT CALCULATIONS				
REMOVED TREES		NUMBER	CAL. IN.	
HIGH PRIORITY		1	18	
SIGNIFICANT		3	18	
COMMON		0	0	
		4	36 TOTAL	
NET REMOVED TREES		NUMBER	CAL. IN.	
HIGH PRIORITY		0	1	
SIGNIFICANT		-1	-7	
COMMON		0	0	
REPLACEMENT OBLIGATION		NUMBER	CAL. IN.	
HIGH PRIORITY (1 CAL. IN. REPLACEMENT / 1 CAL. IN REMOVAL)			1	
SIGNIFICANT (2 CAL. IN. REPLACEMENT / TREE REMOVAL)		3	0	
COMMON (NO REPLACEMENT REQUIRED)		0	0	
		3	1 TOTAL	
REPLACEMENT TREES @ 2.5 CAL. IN.			**1**	

THE COMMON TREE IS BEING REMOVED FROM THE REPLACEMENT CALCULATIONS DUE TO IT'S LOCATION BEING WITHIN 20' OF THE PROPOSED BUILDING.

TREE PRESERVATION LEGEND:

- 1125 — EX. 1' CONTOUR ELEVATION INTERVAL
- TREE PROTECTION
- TREE REMOVAL - INCLUDING ROOTS AND STUMPS

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PROJECT
MIDCOUNTRY BANK
14617 STATE HIGHWAY 7, MINNETONKA, MN 55345

MIDCOUNTRY BANK FSB
7825 WASHINGTON AVE S, SUITE 900, BLOOMINGTON, MN 55439

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.

David J. Knaeble
DATE 03-06-23 LICENSE NO. 48776

ISSUE/SUBMITTAL SUMMARY

DATE	DESCRIPTION
3/6/2023	CITY SUBMITTAL

DRAWN BY: BN, AM REVIEWED BY: DK
PROJECT NUMBER: 22450

REVISION SUMMARY

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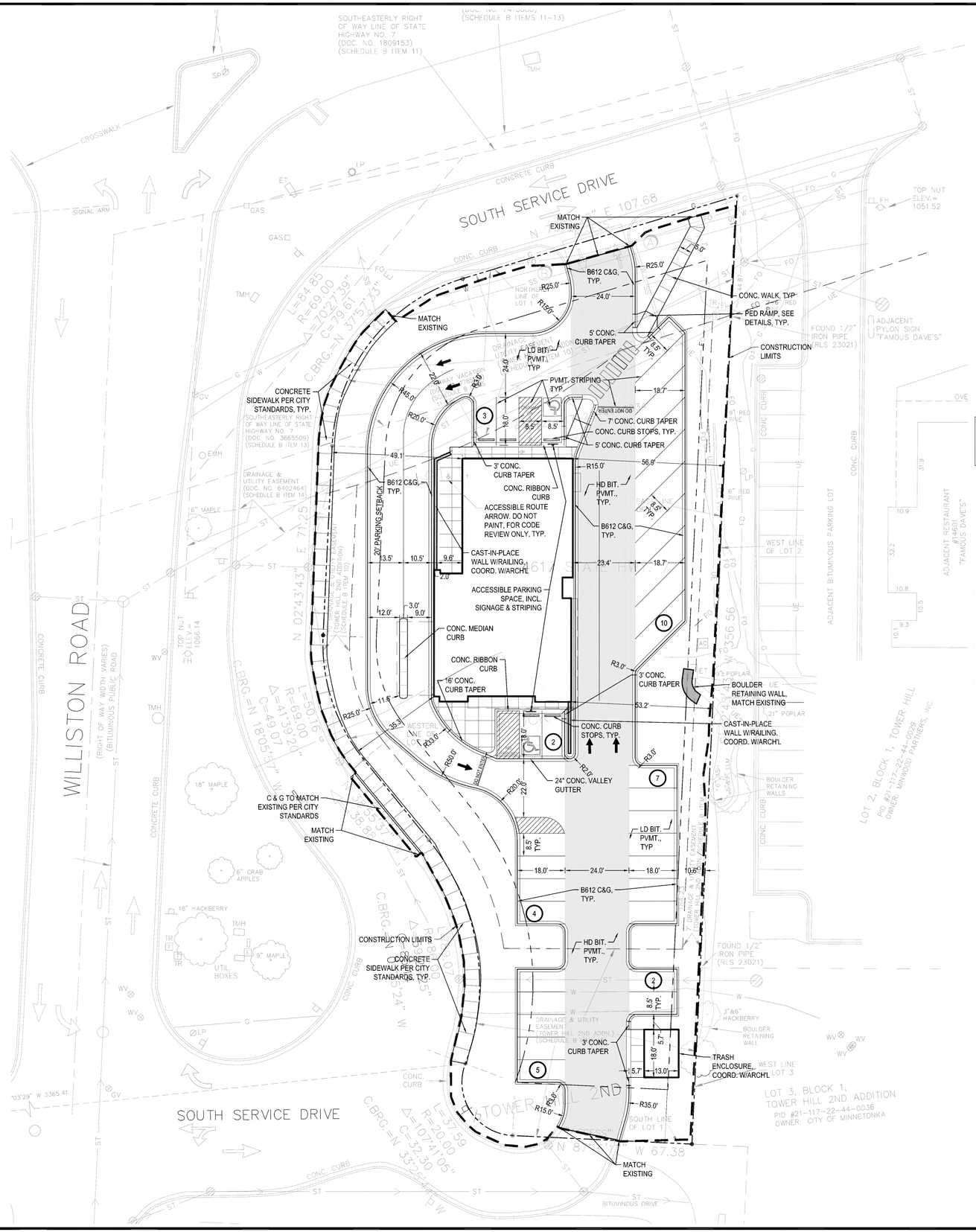
TREE PRESERVATION PLAN

C1.1



SITE LAYOUT NOTES:

1. ALL EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CONTACT "GOPHER STATE ONE CALL" (651-454-0002 OR 800-252-1166) FOR UTILITY LOCATIONS, 48 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY UTILITIES THAT ARE DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.
2. CONTRACTOR SHALL VERIFY LOCATIONS AND LAYOUT OF ALL SITE ELEMENTS PRIOR TO BEGINNING CONSTRUCTION, INCLUDING BUT NOT LIMITED TO, LOCATIONS OF EXISTING AND PROPOSED PROPERTY LINES, EASEMENTS, SETBACKS, UTILITIES, BUILDINGS AND PAVEMENTS. CONTRACTOR IS RESPONSIBLE FOR FINAL LOCATIONS OF ALL ELEMENTS FOR THE SITE. ANY REVISIONS REQUIRED AFTER COMMENCEMENT OF CONSTRUCTION, DUE TO LOCATIONAL ADJUSTMENTS SHALL BE CORRECTED AT NO ADDITIONAL COST TO OWNER. ADJUSTMENTS TO THE LAYOUT SHALL BE APPROVED BY THE ENGINEER/LANDSCAPE ARCHITECT PRIOR TO INSTALLATION OF MATERIALS. STAKE LAYOUT FOR APPROVAL.
3. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION, INCLUDING A RIGHT-OF-WAY AND STREET OPENING PERMIT.
4. THE CONTRACTOR SHALL VERIFY RECOMMENDATIONS NOTED IN THE GEO TECHNICAL REPORT PRIOR TO INSTALLATION OF SITE IMPROVEMENT MATERIALS.
5. CONTRACTOR SHALL FIELD VERIFY COORDINATES AND LOCATION DIMENSIONS & ELEVATIONS OF THE BUILDING AND STAKE FOR REVIEW AND APPROVAL BY THE OWNERS REPRESENTATIVE PRIOR TO INSTALLATION OF FOOTING MATERIALS.
6. LOCATIONS OF STRUCTURES, ROADWAY PAVEMENTS, CURBS AND GUTTERS, BOLLARDS, AND WALKS ARE APPROXIMATE AND SHALL BE STAKED IN THE FIELD, PRIOR TO INSTALLATION, FOR REVIEW AND APPROVAL BY THE ENGINEER/LANDSCAPE ARCHITECT.
7. CURB DIMENSIONS SHOWN ARE TO FACE OF CURB. BUILDING DIMENSIONS ARE TO FACE OF CONCRETE FOUNDATION. LOCATION OF BUILDING IS TO BUILDING FOUNDATION AND SHALL BE AS SHOWN ON THE DRAWINGS.
8. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OR SAMPLES AS SPECIFIED FOR REVIEW AND APPROVAL BY THE ENGINEER/LANDSCAPE ARCHITECT PRIOR TO FABRICATION FOR ALL PREFABRICATED SITE IMPROVEMENT MATERIALS SUCH AS, BUT NOT LIMITED TO THE FOLLOWING, FURNISHINGS, PAVEMENTS, WALLS, RAILINGS, BENCHES, FLAGPOLES, LANDING PADS FOR CURB RAMPS, AND LIGHT AND POLES. THE OWNER RESERVES THE RIGHT TO REJECT INSTALLED MATERIALS NOT PREVIOUSLY APPROVED.
9. PEDESTRIAN CURB RAMPS SHALL BE CONSTRUCTED WITH TRUNCATED DOME LANDING AREAS IN ACCORDANCE WITH A.D.A. REQUIREMENTS-SEE DETAIL.
10. CROSSWALK STRIPING SHALL BE 24" WIDE WHITE PAINTED LINE, SPACED 48" ON CENTER PERPENDICULAR TO THE FLOW OF TRAFFIC. WIDTH OF CROSSWALK SHALL BE 5' WIDE. ALL OTHER PAVEMENT MARKINGS SHALL BE WHITE IN COLOR UNLESS OTHERWISE NOTED OR REQUIRED BY ADA OR LOCAL GOVERNING BODIES.
11. SEE SITE PLAN FOR CURB AND GUTTER TYPE. TAPER BETWEEN CURB TYPES-SEE DETAIL.
12. ALL CURB RADII ARE MINIMUM 3' UNLESS OTHERWISE NOTED.
13. CONTRACTOR SHALL REFER TO FINAL PLAT FOR LOT BOUNDARIES, NUMBERS, AREAS AND DIMENSIONS PRIOR TO SITE IMPROVEMENTS.
14. FIELD VERIFY ALL EXISTING SITE CONDITIONS, DIMENSIONS.
15. PARKING IS TO BE SET PARALLEL OR PERPENDICULAR TO EXISTING BUILDING UNLESS NOTED OTHERWISE.
16. ALL PARKING LOT PAINT STRIPPING TO BE WHITE, 4" WIDE TYP.
17. BITUMINOUS PAVING TO BE "LIGHT DUTY" UNLESS OTHERWISE NOTED. SEE DETAIL SHEETS FOR PAVEMENT SECTIONS.
18. ALL TREES THAT ARE TO REMAIN ARE TO BE PROTECTED FROM DAMAGE WITH A CONSTRUCTION FENCE AT THE DRIP LINE. SEE LANDSCAPE DOCUMENTS.

CITY OF MINNETONKA SITE SPECIFIC NOTES:

1. RESERVED FOR CITY SPECIFIC REMOVAL NOTES.

SITE AREA TABLE:

SITE AREA CALCULATIONS	EXISTING CONDITION		PROPOSED CONDITION	
BUILDING COVERAGE	3,449 SF	8.5%	4,424 SF	10.9%
ALL PAVEMENTS	22,672 SF	56.0%	26,986 SF	66.6%
ALL NON-PAVEMENTS	14,369 SF	35.5%	9,080 SF	22.4%
TOTAL SITE AREA	40,490 SF	100.0%	40,490 SF	100.0%

IMPERVIOUS SURFACE		
EXISTING CONDITION	26,121 SF	64.5%
PROPOSED CONDITION	31,410 SF	77.6%
DIFFERENCE (EX. VS PROP.)	5,289 SF	13.1%

OPERATIONAL NOTES:

SNOW REMOVAL	ALL SNOW SHALL BE STORED ON-SITE OUTSIDE PARKING LOT. WHEN FULL, REMOVAL CO. SHALL REMOVE EXCESS OF-SITE
TRASH REMOVAL:	TRASH SHALL BE PLACED IN EXTERIOR TRASH AREA AND REMOVED BY COMMERCIAL CO. WEEKLY.
DELIVERIES:	DELIVERIES SHALL OCCUR AT THE FRONT DOOR VIA STANDARD COMMERCIAL DELIVERY VEHICLES (UPS, FED-EX, USPS).

SITE PLAN LEGEND:

- BITUMINOUS PAVEMENT (IF APPLICABLE). SEE GEOTECHNICAL REPORT FOR AGGREGATE BASE & WEAR COURSE DEPTH, SEE DETAIL.
- HEAVY DUTY BITUMINOUS PAVEMENT. SEE GEOTECHNICAL REPORT FOR AGGREGATE BASE & WEAR COURSE DEPTH, SEE DETAIL.
- CONCRETE PAVEMENT (IF APPLICABLE) AS SPECIFIED (PAD OR WALK) SEE GEOTECHNICAL REPORT FOR AGGREGATE BASE & CONCRETE DEPTHS, WITHIN ROW SEE CITY DETAIL, WITHIN PRIVATE PROPERTY SEE CSG DETAIL
- PROPERTY LINE
- CONSTRUCTION LIMITS
- CURB AND GUTTER-SEE NOTES (T.O.) TIP OUT GUTTER WHERE APPLICABLE-SEE PLAN
- TRAFFIC DIRECTIONAL ARROW PAVEMENT MARKINGS
- SIGN AND POST ASSEMBLY. SHOP DRAWINGS REQUIRED. HC = ACCESSIBLE SIGN NP = NO PARKING FIRE LANE ST = STOP CP = COMPACT CAR PARKING ONLY
- ACCESSIBILITY ARROW (IF APPLICABLE) DO NOT PAINT.

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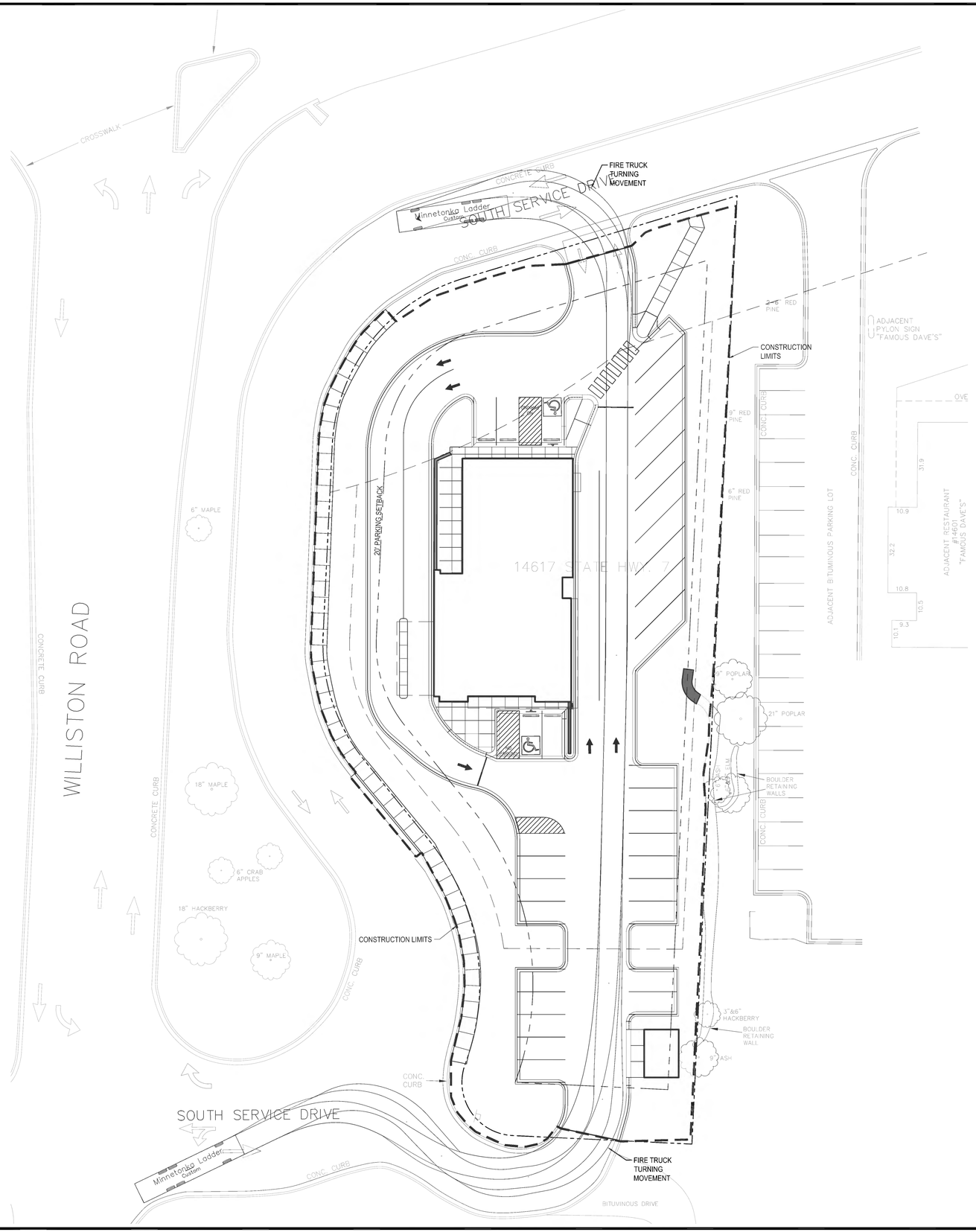
SITE PLAN

C2.0



SITE PLAN LEGEND:

- PROPERTY LINE
- CONSTRUCTION LIMITS
- CURB AND GUTTER-SEE NOTES (T.O.) TIP OUT GUTTER WHERE APPLICABLE-SEE PLAN
- TRAFFIC DIRECTIONAL ARROW PAVEMENT MARKINGS
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  HC = ACCESSIBLE SIGN
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10'-0" 0 20'-0"

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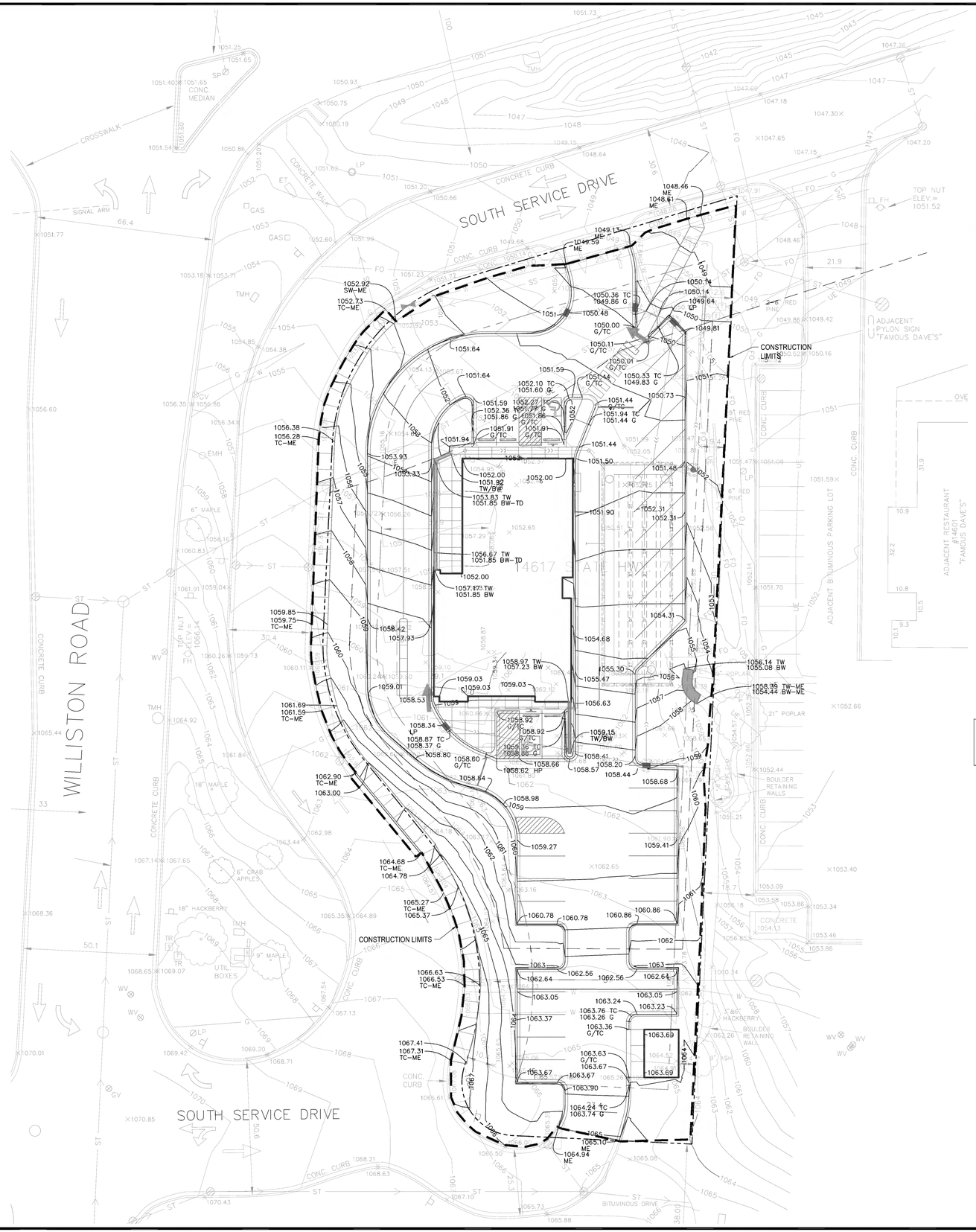
TRUCK TURNING MOVEMENT PLAN

C2.1



GENERAL GRADING NOTES:

1. **CONTRACTOR SHALL VERIFY ALL BUILDING ELEVATIONS, (FFE, LFE, GFE), PRIOR TO CONSTRUCTION BY CROSS CHECKING WITH ARCHITECTURAL, STRUCTURAL AND CIVIL ELEVATIONS FOR EQUIVALENT "100" ELEVATIONS. THIS MUST BE DONE PRIOR TO EXCAVATION AND INSTALLATION OF ANY FOOTING MATERIALS. VERIFICATION OF THIS COORDINATION SHALL BE CONFIRMED IN WRITING BY CIVIL, SURVEYOR, ARCHITECTURAL, STRUCTURAL AND CONTRACTOR PRIOR TO CONSTRUCTION.**
2. ALL EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CONTACT "GOPHER STATE ONE CALL" (651-454-0002 OR 800-252-1166) FOR UTILITY LOCATIONS, 48 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY UTILITIES THAT ARE DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.
3. SEE SITE PLAN FOR HORIZONTAL LAYOUT & GENERAL GRADING NOTES.
4. THE CONTRACTOR SHALL COMPLETE THE SITE GRADING CONSTRUCTION (INCLUDING BUT NOT LIMITED TO SITE PREPARATION, SOIL CORRECTION, EXCAVATION, EMBANKMENT, ETC.) IN ACCORDANCE WITH THE REQUIREMENTS OF THE OWNER'S SOILS ENGINEER. ALL SOIL TESTING SHALL BE COMPLETED BY THE OWNER'S SOILS ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED SOIL TESTS AND INSPECTIONS WITH THE SOILS ENGINEER.
5. ANY ELEMENTS OF AN EARTH RETENTION SYSTEM AND RELATED EXCAVATIONS THAT FALL WITHIN THE PUBLIC RIGHT OF WAY WILL REQUIRE A "RIGHT OF WAY EXCAVATION PERMIT". CONTRACTOR IS RESPONSIBLE FOR AQUIRING THIS PERMIT PRIOR TO CONSTRUCTION IF APPLICABLE
6. ALL EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CONTACT "GOPHER STATE ONE CALL" (651-454-0002 OR 800-252-1166) FOR UTILITY LOCATIONS, 48 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY UTILITIES THAT ARE DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.
3. GRADING AND EXCAVATION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT REQUIREMENTS & PERMIT REQUIREMENTS OF THE CITY.
4. PROPOSED SPOT GRADES ARE FLOW-LINE FINISHED GRADE ELEVATIONS, UNLESS OTHERWISE NOTED.
5. GRADES OF WALKS SHALL BE INSTALLED WITH 5% MAX. LONGITUDINAL SLOPE AND 1% MIN. AND 2% MAX. CROSS SLOPE, UNLESS OTHERWISE NOTED.
6. PROPOSED SLOPES SHALL NOT EXCEED 3:1 UNLESS INDICATED OTHERWISE ON THE DRAWINGS. MAXIMUM SLOPES IN MAINTAINED AREAS IS 4:1
7. PROPOSED RETAINING WALLS, FREESTANDING WALLS, OR COMBINATION OF WALL TYPES GREATER THAN 4' IN HEIGHT SHALL BE DESIGNED AND ENGINEERED BY A REGISTERED RETAINING WALL ENGINEER. DESIGN DRAWINGS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF GRADE STAKES THROUGHOUT THE DURATION OF CONSTRUCTION TO ESTABLISH PROPER GRADES. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR A FINAL FIELD CHECK OF FINISHED GRADES ACCEPTABLE TO THE ENGINEER/LANDSCAPE ARCHITECT PRIOR TO TOPSOIL AND SODDING ACTIVITIES.
9. IF EXCESS OR SHORTAGE OF SOIL MATERIAL EXISTS, THE CONTRACTOR SHALL TRANSPORT ALL EXCESS SOIL MATERIAL OFF THE SITE TO AN AREA SELECTED BY THE CONTRACTOR, OR IMPORT SUITABLE MATERIAL TO THE SITE.
10. EXCAVATE TOPSOIL FROM AREAS TO BE FURTHER EXCAVATED OR REGRADED AND STOCKPILE IN AREAS DESIGNATED ON THE SITE. THE CONTRACTOR SHALL SALVAGE ENOUGH TOPSOIL FOR RESPREADING ON THE SITE AS SPECIFIED. EXCESS TOPSOIL SHALL BE PLACED IN EMBANKMENT AREAS, OUTSIDE OF BUILDING PADS, ROADWAYS AND PARKING AREAS. THE CONTRACTOR SHALL SUBCUT CUT AREAS, WHERE TURF IS TO BE ESTABLISHED, TO A DEPTH OF 6 INCHES. RESPREAD TOPSOIL IN AREAS WHERE TURF IS TO BE ESTABLISHED TO A MINIMUM DEPTH OF 6 INCHES.
11. FINISHED GRADING SHALL BE COMPLETED. THE CONTRACTOR SHALL UNIFORMLY GRADE AREAS WITHIN LIMITS OF GRADING, INCLUDING ADJACENT TRANSITION AREAS. PROVIDE A SMOOTH FINISHED SURFACE WITHIN SPECIFIED TOLERANCES, WITH UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE ELEVATIONS ARE SHOWN, OR BETWEEN SUCH POINTS AND EXISTING GRADES. AREAS THAT HAVE BEEN FINISH GRADED SHALL BE PROTECTED FROM SUBSEQUENT CONSTRUCTION OPERATIONS, TRAFFIC AND EROSION. REPAIR ALL AREAS THAT HAVE BECOME RUTTED BY TRAFFIC OR ERODED BY WATER OR HAS SETTLED BELOW THE CORRECT GRADE. ALL AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO EQUAL OR BETTER THAN ORIGINAL CONDITION OR TO THE REQUIREMENTS OF THE NEW WORK.
12. PRIOR TO PLACEMENT OF THE AGGREGATE BASE, A TEST ROLL WILL BE REQUIRED ON THE STREET AND/OR PARKING AREA SUBGRADE. THE CONTRACTOR SHALL PROVIDE A LOADED TANDEM AXLE TRUCK WITH A GROSS WEIGHT OF 25 TONS. THE TEST ROLLING SHALL BE AT THE DIRECTION OF THE SOILS ENGINEER AND SHALL BE COMPLETED IN AREAS AS DIRECTED BY THE SOILS ENGINEER. THE SOILS ENGINEER SHALL DETERMINE WHICH SECTIONS OF THE STREET OR PARKING AREA ARE UNSTABLE. CORRECTION OF THE SUBGRADE SOILS SHALL BE COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS OF THE SOILS ENGINEER. NO TEST ROLL SHALL OCCUR WITHIN 10' OF ANY UNDERGROUND STORM RETENTION/DETENTION SYSTEMS.
13. TOLERANCES
    - 13.1. THE BUILDING SUBGRADE FINISHED SURFACE ELEVATION SHALL NOT VARY BY MORE THAN 0.30 FOOT ABOVE, OR 0.30 FOOT BELOW, THE PRESCRIBED ELEVATION AT ANY POINT WHERE MEASUREMENT IS MADE.
    - 13.2. THE STREET OR PARKING AREA SUBGRADE FINISHED SURFACE ELEVATION SHALL NOT VARY BY MORE THAN 0.05 FOOT ABOVE, OR 0.10 FOOT BELOW, THE PRESCRIBED ELEVATION OF ANY POINT WHERE MEASUREMENT IS MADE.
    - 13.3. AREAS WHICH ARE TO RECEIVE TOPSOIL SHALL BE GRADED TO WITHIN 0.30 FOOT ABOVE OR BELOW THE REQUIRED ELEVATION, UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
    - 13.4. TOPSOIL SHALL BE GRADED TO PLUS OR MINUS 1/2 INCH OF THE SPECIFIED THICKNESS.
14. MAINTENANCE
    - 14.1. THE CONTRACTOR SHALL PROTECT NEWLY GRADED AREAS FROM TRAFFIC AND EROSION, AND KEEP AREA FREE OF TRASH AND DEBRIS.
    - 14.2. CONTRACTOR SHALL REPAIR AND REESTABLISH GRADES IN SETTLED, ERODED AND RUTTED AREAS TO SPECIFIED TOLERANCES. DURING THE CONSTRUCTION, IF REQUIRED, AND DURING THE WARRANTY PERIOD, ERODED AREAS WHERE TURF IS TO BE ESTABLISHED SHALL BE RESEEDED AND MULCHED.
    - 14.3. WHERE COMPLETED COMPACTED AREAS ARE DISTURBED BY SUBSEQUENT CONSTRUCTION OPERATIONS OR ADVERSE WEATHER, CONTRACTOR SHALL SCARIFY, SURFACE, RESHAPE, AND COMPACT TO REQUIRED DENSITY PRIOR TO FURTHER CONSTRUCTION.

CITY OF MINNETONKA GRADING NOTES:

1. RESERVED FOR CITY SPECIFIC GRADING NOTES.

EROSION CONTROL NOTES:

SEE SWPPP ON SHEETS SW1.0 - SW1.3

GRADING PLAN LEGEND:

1125	EX. 1' CONTOUR ELEVATION INTERVAL
1137	1.0' CONTOUR ELEVATION INTERVAL
41.26	SPOT GRADE ELEVATION (GUTTER/FLOW LINE UNLESS OTHERWISE NOTED)
891.00 G	SPOT GRADE ELEVATION GUTTER
891.00 TC	SPOT GRADE ELEVATION TOP OF CURB
891.00 BS/TS	SPOT GRADE ELEVATION BOTTOM OF STAIRS/TOP OF STAIRS
891.00 ME	SPOT GRADE ELEVATION MATCH EXISTING
GB	GRADE BREAK - HIGH POINTS
TO	CURB AND GUTTER (T.O = TIP OUT)
EOF=XXX.XX	EMERGENCY OVERFLOW

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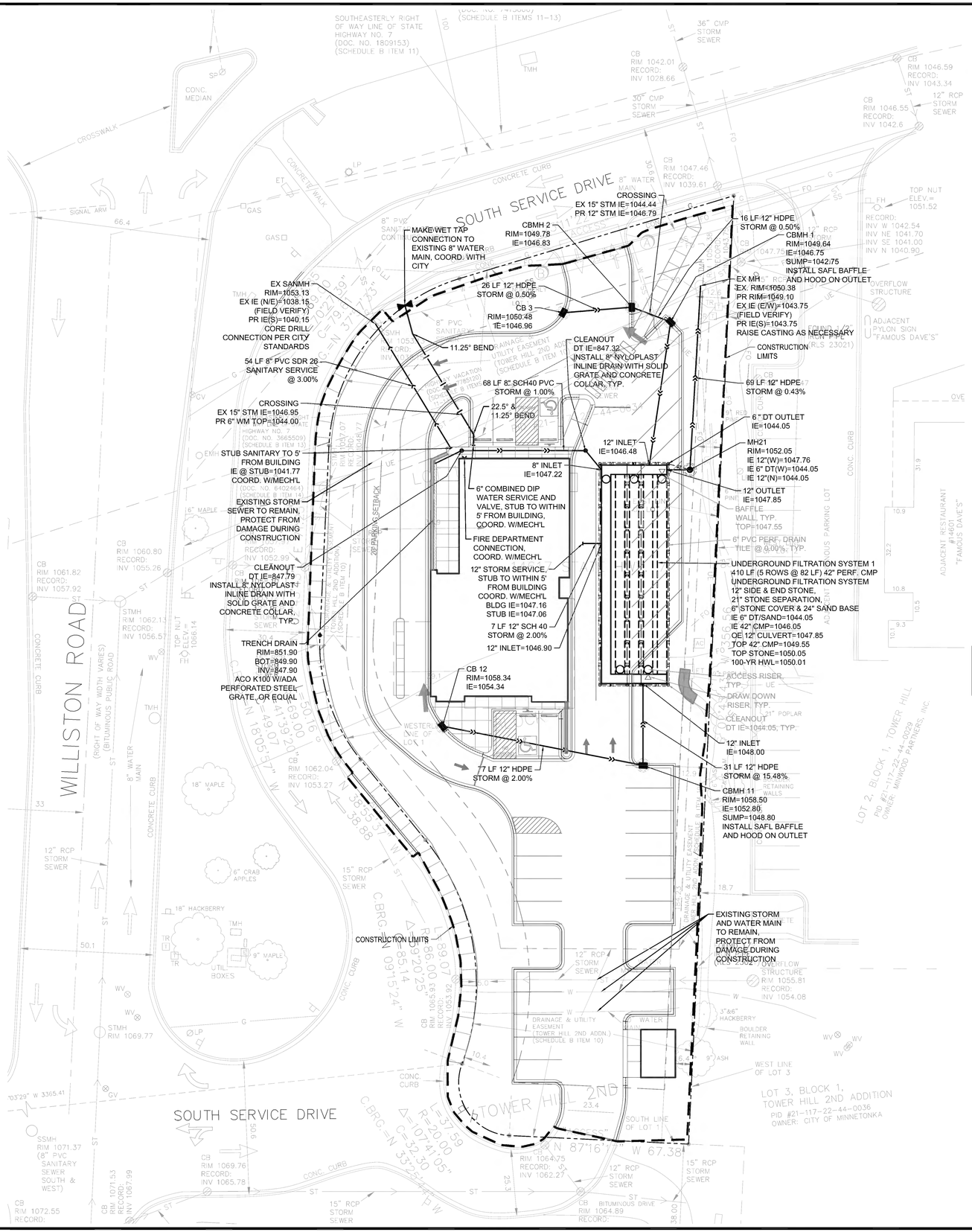
GRADING PLAN

C3.0



GENERAL UTILITY NOTES:

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2. SEE SITE PLAN FOR HORIZONTAL DIMENSIONS AND LAYOUT.
3. CONTRACTOR SHALL FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES AND TOPOGRAPHIC FEATURES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF DISCREPANCIES OR VARIATIONS FROM THE PLANS.
4. UTILITY INSTALLATION SHALL CONFORM TO THE CURRENT EDITION OF "STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE LINE INSTALLATION" AND "SANITARY SEWER AND STORM SEWER INSTALLATION" AS PREPARED BY THE CITY ENGINEERS ASSOCIATION OF MINNESOTA (CEAM), AND SHALL CONFORM WITH THE REQUIREMENTS OF THE CITY AND THE PROJECT SPECIFICATIONS.
5. CASTINGS SHALL BE SALVAGED FROM STRUCTURE REMOVALS AND RE-USED OR PLACED AT THE DIRECTION OF THE OWNER.
6. ALL WATER PIPE SHALL BE CLASS 52 DUCTILE IRON PIPE (DIP) AWWA C151, ASME B16.4, AWWA C110, AWWA C153 UNLESS OTHERWISE NOTED.
7. ALL SANITARY SEWER SHALL BE SDR 26 POLYVINYL CHLORIDE (PVC) ASTM D3034 & F679, OR SCH 40 ASTM D1785, 2665, ASTM F794, 1866) UNLESS OTHERWISE NOTED.
8. ALL STORM SEWER PIPE SHALL BE HDPE ASTM F714 & F2306 WITH ASTM D3212 SPEC FITTINGS UNLESS OTHERWISE NOTED.
9. PIPE LENGTHS SHOWN ARE FROM CENTER TO CENTER OF STRUCTURE OR TO END OF FLARED END SECTION.
10. UTILITIES ON THE PLAN ARE SHOWN TO WITHIN 5' OF THE BUILDING FOOTPRINT. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THE FINAL CONNECTION TO BUILDING LINES. COORDINATE WITH ARCHITECTURAL AND MECHANICAL PLANS.
11. CATCH BASINS AND MANHOLES IN PAVED AREAS SHALL BE SUMPED 0.04 FEET. ALL CATCH BASINS IN GUTTERS SHALL BE SUMPED 0.15 FEET PER DETAILS. RIM ELEVATIONS SHOWN ON THIS PLAN DO NOT REFLECT SUMPED ELEVATIONS.
12. A MINIMUM OF 8 FEET OF COVER IS REQUIRED OVER ALL WATERMAIN, UNLESS OTHERWISE NOTED. EXTRA DEPTH MAY BE REQUIRED TO MAINTAIN A MINIMUM OF 18" VERTICAL SEPARATION TO SANITARY OR STORM SEWER LINES. EXTRA DEPTH WATERMAIN IS INCIDENTAL.
13. A MINIMUM OF 18 INCHES OF VERTICAL SEPARATION AND 10 FEET OF HORIZONTAL SEPARATION IS REQUIRED FOR ALL UTILITIES, UNLESS OTHERWISE NOTED.
14. ALL CONNECTIONS TO EXISTING UTILITIES SHALL BE IN ACCORDANCE WITH CITY STANDARDS AND COORDINATED WITH THE CITY PRIOR TO CONSTRUCTION.
15. CONNECTIONS TO EXISTING STRUCTURES SHALL BE CORE-DRILLED.
16. COORDINATE LOCATIONS AND SIZES OF SERVICE CONNECTIONS WITH THE MECHANICAL DRAWINGS.
17. COORDINATE INSTALLATION AND SCHEDULING OF THE INSTALLATION OF UTILITIES WITH ADJACENT CONTRACTORS AND CITY STAFF.
18. ALL STREET REPAIRS AND PATCHING SHALL BE PERFORMED PER THE REQUIREMENTS OF THE CITY. ALL PAVEMENT CONNECTIONS SHALL BE SAWCUT. ALL TRAFFIC CONTROLS SHALL BE PROVIDED BY THE CONTRACTOR AND SHALL BE ESTABLISHED PER THE REQUIREMENTS OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) AND THE CITY. THIS SHALL INCLUDE BUT NOT BE LIMITED TO 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 APPROVAL BY THE CITY.
19. ALL STRUCTURES, PUBLIC AND PRIVATE, SHALL BE ADJUSTED TO PROPOSED GRADES WHERE REQUIRED. THE REQUIREMENTS OF ALL OWNERS MUST BE COMPLIED WITH. STRUCTURES BEING RESET TO PAVED AREAS MUST MEET OWNERS REQUIREMENTS FOR TRAFFIC LOADING.
20. 2CONTRACTOR SHALL COORDINATE ALL WORK WITH PRIVATE UTILITY COMPANIES.
21. CONTRACTOR SHALL COORDINATE CONNECTION OF IRRIGATION SERVICE TO UTILITIES. COORDINATE THE INSTALLATION OF IRRIGATION SLEEVES NECESSARY AS TO NOT IMPACT INSTALLATION OF UTILITIES.
22. CONTRACTOR SHALL MAINTAIN AS-BUILT PLANS THROUGHOUT CONSTRUCTION AND SUBMIT THESE PLANS TO ENGINEER UPON COMPLETION OF WORK.
23. ALL JOINTS AND CONNECTIONS IN STORM SEWER SYSTEM SHALL BE GASTIGHT OR WATERTIGHT. APPROVED RESILIENT RUBBER JOINTS MUST BE USED TO MAKE WATERTIGHT CONNECTIONS TO MANHOLES, CATCHBASINS, OR OTHER STRUCTURES.
24. ALL PORTIONS OF THE STORM SEWER SYSTEM LOCATED WITHIN 10 FEET OF THE BUILDING OR WATER SERVICE LINE MUST BE TESTED IN ACCORDANCE WITH MN RULES, CHAPTER 4714, SECTION 1109.0.
25. FOR ALL SITES LOCATED IN CLAY SOIL AREAS, DRAIN TILE MUST BE INSTALLED AT ALL LOW POINT CATCH BASINS 25' IN EACH DIRECTION. SEE PLAN AND DETAIL. INSTALL LOW POINT DRAIN TILE PER PLANS AND GEOTECHNICAL REPORT RECOMMENDATIONS AND REQUIREMENTS.

CITY OF MINNETONKA UTILITY NOTES:

1. RESERVED FOR CITY SPECIFIC UTILITY NOTES.

UTILITY LEGEND:

- MANHOLE
- CATCH BASIN
- GATE VALVE AND VALVE BOX
- PROPOSED FIRE HYDRANT
- WATER MAIN
- SANITARY SEWER
- STORM SEWER

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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.

David J. Knaeble
DATE 03-06-23 LICENSE NO. 48776

ISSUE/SUBMITTAL SUMMARY

DATE	DESCRIPTION
3/6/2023	CITY SUBMITTAL

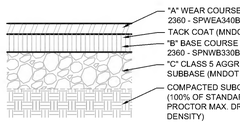
DRAWN BY: BN, AM REVIEWED BY: DK
PROJECT NUMBER: 22450

REVISION SUMMARY

DATE	DESCRIPTION

UTILITY PLAN

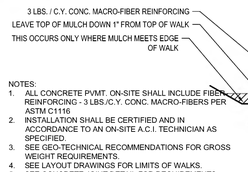
C4.0



PAVEMENT DESIGN			
TYPE	WEAR (A)	BASE (B)	AGG.(C)
LIGHT DUTY	1.5"	2.0"	6.0"
HEAVY DUTY	2.0"	2.0"	8.0"

NOTE:
IF NO DESIGN IS DEFINED IN ABOVE CHART, SEE GEOTECH REPORT FOR FINAL PAVEMENT SECTION.
IF DESIGN IS DEFINED IN ABOVE CHART, IT SHOULD BE CONSIDERED FOR BIDDING PURPOSES ONLY. REFER TO GEOTECH FOR FINAL PAVEMENT SECTION.

1 BITUMINOUS PAVEMENT - ALL TYPES
NTS

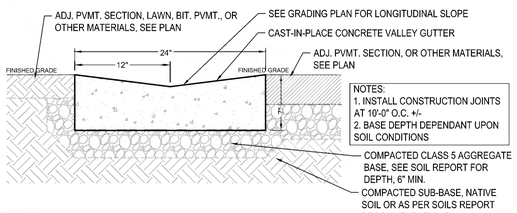


NOTES:
1. ALL CONCRETE PVMT. ON-SITE SHALL INCLUDE FIBER REINFORCING - 3 LBS./C.Y. CONC. MACRO-FIBERS PER ASTM C1116
2. INSTALLATION SHALL BE CERTIFIED AND IN ACCORDANCE TO AN ON-SITE A.C.I. TECHNICIAN AS SPECIFIED.
3. SEE GEO-TECHNICAL RECOMMENDATIONS FOR GROSS WEIGHT REQUIREMENTS.
4. SEE LAYOUT DRAWINGS FOR LIMITS OF WALKS.
5. SEE CONCRETE JOINT DETAIL FOR REQUIREMENTS.
6. 1/2" WIDE EXPANSION JOINT AND SEALANT AT ALL CURBS.
7. IF NO DESIGN IS DEFINED IN CHART, SEE GEOTECH REPORT FOR FINAL PAVEMENT SECTION.
8. IF DESIGN IS DEFINED IN CHART, IT SHOULD BE CONSIDERED FOR BIDDING PURPOSES ONLY. REFER TO GEOTECH FOR FINAL PAVEMENT SECTION.

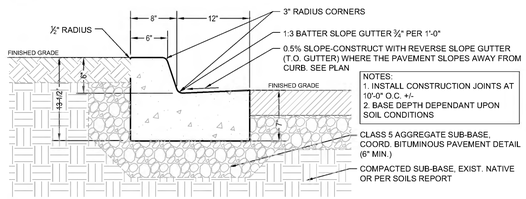
PAVEMENT DESIGN		
TYPE	CONC. (A)	AGG.(B)
WALKS	5"	6"
CONC. PVMT.	6"	8"

1. CURING:
   1.1. APPLY CURING COMPOUNDS IMMEDIATELY UPON FINISHING OF CONC. SURFACE.
   1.2. ALL CONC. SURFACES SHALL HAVE CURING COMPOUNDS ALLIED PER ASTM C-309, AT 200 S.F. PER GAL.
   1.3. ALL CURING COMPOUNDS SHALL BE TYPE 1 (CLEAR) AND CONTAIN ACRYLIC BASED CLASS B RESTRICTED RESIN SOLIDS.

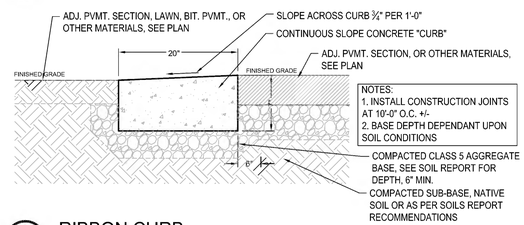
2 CONCRETE PVMT./WALK/PAD
NTS (PRIVATE PROPERTY)



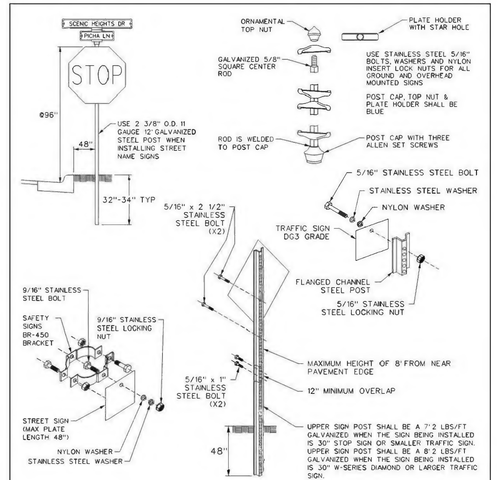
3 VALLEY GUTTER
NTS



4 B-612 CONCRETE CURB AND GUTTER
NTS

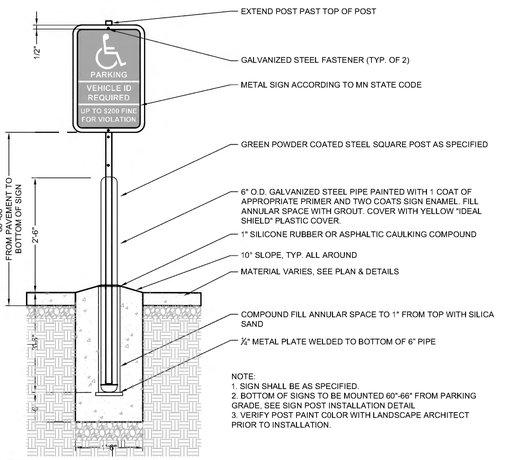


5 RIBBON CURB
NTS



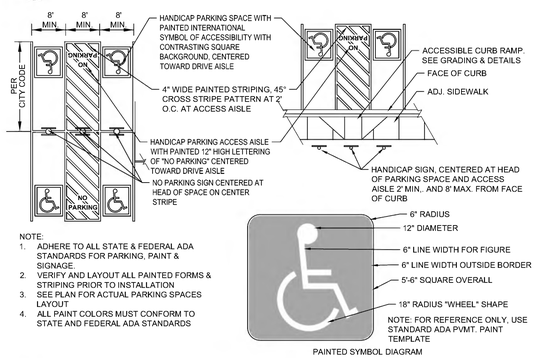
NOTES:
1. LOCATION OF ALL PROPOSED SIGNS ARE APPROXIMATE AND SHALL BE LOCATED BY THE ENGINEER IN THE FIELD PRIOR TO INSTALLATION. TYPE D SHALL BE INSTALLED AT END RADII FROM LANE OF TRAFFIC.
2. SIGN PANEL-REFLECTIVE SHEETING WILL BE D03 MATERIAL.
3. ALL TYPE C SIGN PANELS SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR. THE CONSTRACTOR SHALL PROVIDE THE SIGN, SIGN POST, MOUNTING HARDWARE, SIGN AND LABOR FOR THE INSTALLATION OF ALL TYPE C SIGNS.
4. WHEN CONTRACTOR IS INSTALLING TYPE C SIGNS THEY MUST USE A BT-450 DOUBLE-SIDED SIGN BRACKET FROM SAFETY SIGNS (OR APPROVED EQUAL).
5. ALL THE TYPE D SIGN PANELS WILL BE SUPPLIED BY THE CITY AND INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE POST, MOUNTING HARDWARE, ORNAMENTAL TOP NUT, AND FLAT HOLDER FOR ALL TYPE D SIGNS.
6. ALWAYS INSTALL THE CROSS STREET NAME BLADE ON THE BOTTOM.

CITY OF MINNETONKA	TYPICAL TRAFFIC & STREET NAME SIGN INSTALLATION	SCALE: NOT TO SCALE	STD PLATE NO: 390
		APPROVED: 12/2018	
		REVISED:	



NOTE:
1. SIGN SHALL BE AS SPECIFIED.
2. BOTTOM OF SIGNS TO BE MOUNTED 60"-66" FROM PARKING GRADE, SEE SIGN POST INSTALLATION DETAIL
3. VERIFY POST PAINT COLOR WITH LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

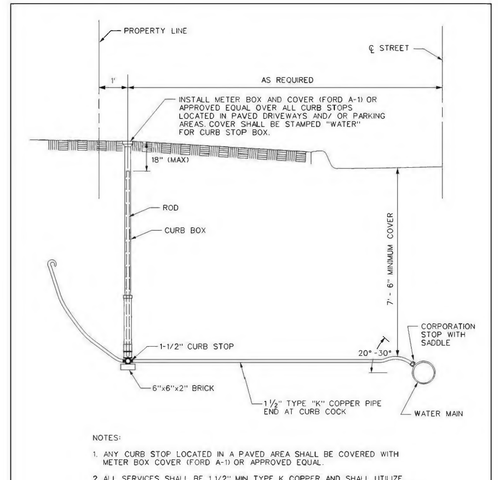
6 ACCESSIBLE SIGN AND POST
NTS



NOTE:
1. ADHERE TO ALL STATE & FEDERAL ADA STANDARDS FOR PARKING, PAINT & SIGNAGE.
2. VERIFY AND LAYOUT ALL PAINTED FORMS & STRIPING PRIOR TO INSTALLATION.
3. SEE PLAN FOR ACTUAL PARKING SPACES LAYOUT.
4. ALL PAINT COLORS MUST CONFORM TO STATE AND FEDERAL ADA STANDARDS

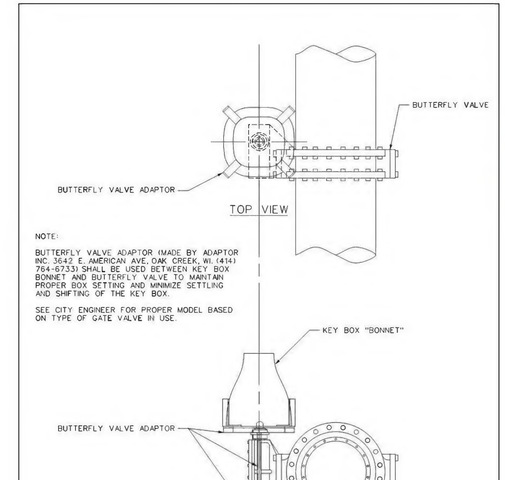
PAINTED SYMBOL DIAGRAM

7 ACCESSIBLE PARKING PAVEMENT MARKING
NTS



NOTES:
1. ANY CURB STOP LOCATED IN A PAVED AREA SHALL BE COVERED WITH METER BOX COVER (FORD A-1) OR APPROVED EQUAL.
2. ALL SERVICES SHALL BE 1 1/2" MIN. TYPE K COPPER AND SHALL UTILIZE A STAINLESS STEEL SADDLE (SMITH BLAIR 317 OR 372) OR APPROVED EQUAL.
3. ALL BRASS FITTINGS SHALL BE "NO LEAD BRASS".
4. BASIS OF PAYMENT WILL BE ON THE LINEAR FEET OF SERVICE PIPE INSTALLED AND WATER SERVICE ITEMS INCLUDED IN THE PROPOSAL WHICH MAY INCLUDE TAP, CORPORATION STOP, CURB STOP, CURB BOX WITH ROD AND TAPPING SADDLE. ALL ITEMS NOT LISTED IN PROPOSAL FORM ARE INCIDENTAL.
5. WHEN GROUND WATER IS ENCOUNTERED, A 1 1/2" COPPER "PIGTAIL" WITH CRIMPED END SHALL BE EXTENDED TO 1' ABOVE THE WATER ELEVATION.
6. WHEN NEW SERVICE IS INSTALLED IN JOINT TRENCH WITH SANITARY SEWER SERVICE THERE SHALL BE 3' MIN HORIZONTAL & 18" VERTICAL SEPARATION.

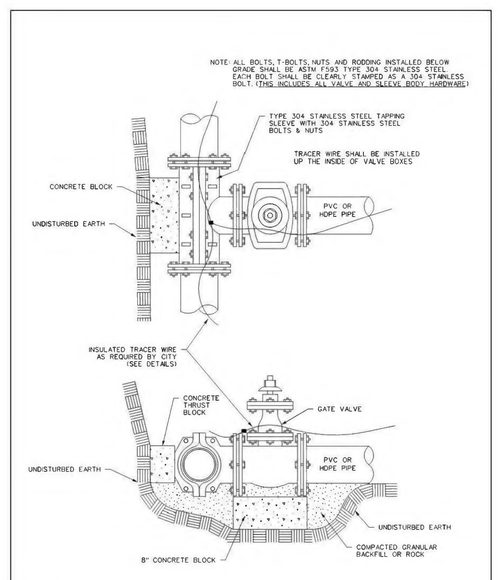
CITY OF MINNETONKA	WATER SERVICE CONNECTION	SCALE: NOT TO SCALE	STD PLATE NO: 510
		APPROVED: 5/2000	
		REVISED: 8/2018	



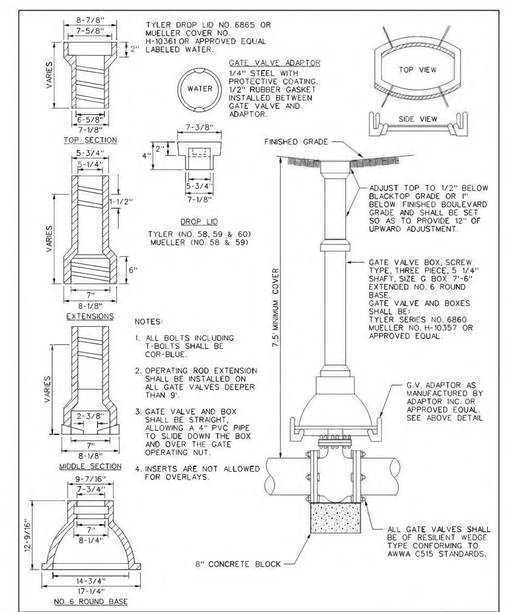
NOTE:
BUTTERFLY VALVE ADAPTOR (MADE BY ADAPTOR INC. 3642 E. AMERICAN AVE., OAK CREEK, WI. (414) 764-6733) SHALL BE USED BETWEEN KEY BOX BONNET AND BUTTERFLY VALVE TO MAINTAIN PROPER BOX SETTING AND MINIMIZE SETTLING AND SHIFTING OF THE KEY BOX.

SEE CITY ENGINEER FOR PROPER MODEL BASED ON TYPE OF GATE VALVE IN USE.

CITY OF MINNETONKA	BUTTERFLY VALVE ADAPTOR	SCALE: NOT TO SCALE	STD PLATE NO: 520
		APPROVED: 5/2000	
		REVISED: 5/2018	



CITY OF MINNETONKA	WATERMAIN WET TAP	SCALE: NOT TO SCALE	STD PLATE NO: 530
		APPROVED: 12/2018	
		REVISED:	



CITY OF MINNETONKA	GATE VALVE	SCALE: NOT TO SCALE	STD PLATE NO: 540
		APPROVED: 1/2008	
		REVISED: 8/2018	

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5000 Glenwood Avenue
Golden Valley, MN 55422
civilsitegroup.com 612-615-0060

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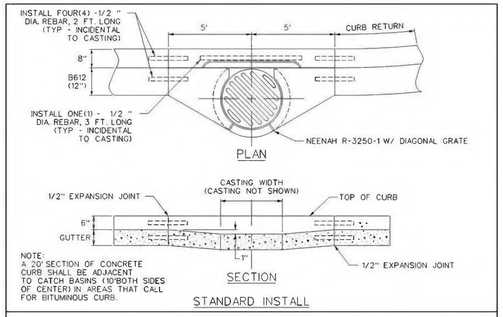
CIVIL DETAILS

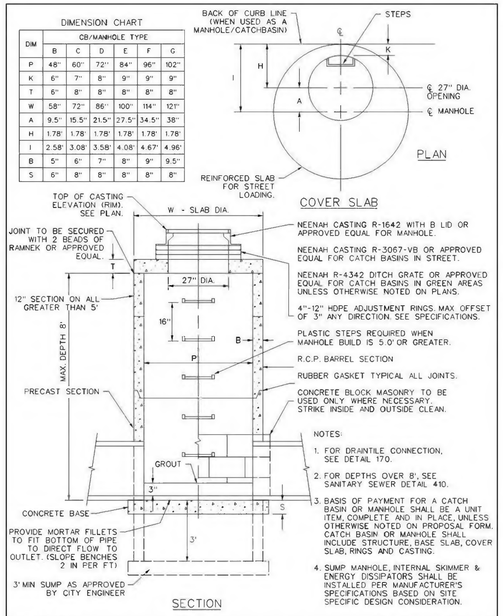
C5.0



CITY OF MINNETONKA

CATCH BASIN INSTALLATION

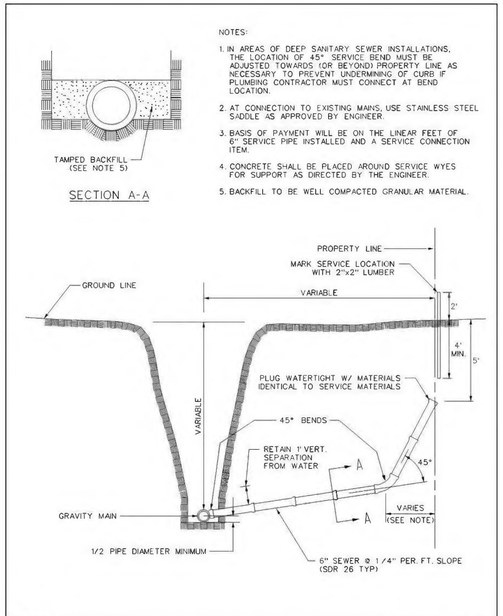
SCALE:	STD PLATE NO:
NOT TO SCALE	110
APPROVED: 9/2000	
REVISED: 8/2018	



CITY OF MINNETONKA

STANDARD CATCH BASIN / MANHOLE 4020

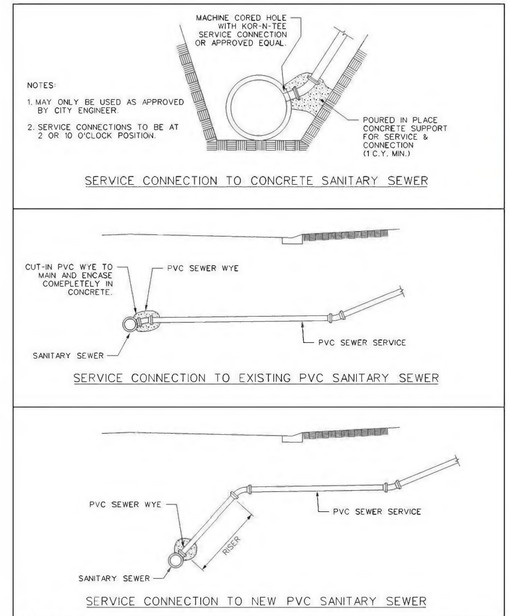
SCALE:	STD PLATE NO:
NOT TO SCALE	130
APPROVED: 4/2005	
REVISED: 1/2021	



CITY OF MINNETONKA

SANITARY SEWER SERVICE CONNECTION

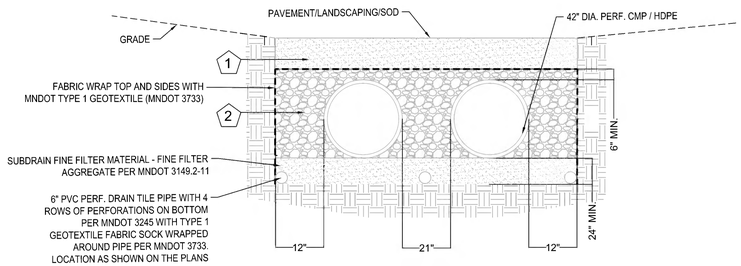
SCALE:	STD PLATE NO:
NOT TO SCALE	440
APPROVED: 4/2000	
REVISED: 8/2018	



CITY OF MINNETONKA

PRIVATE CONNECTIONS TO PUBLIC UTILITIES

SCALE:	STD PLATE NO:
NOT TO SCALE	450
APPROVED: 8/2018	
REVISED:	



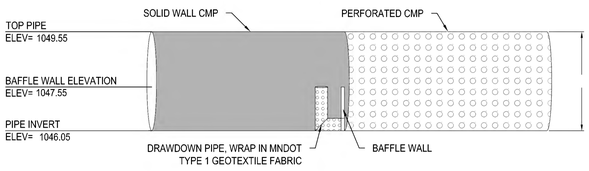
KEY
1. TOPSOIL
2. FREE DRAINING ANGULAR DOUBLE WASHED STONE 3/4" - 2" PARTICLE SIZE (NON-CONCRETE). COORDINATE MATERIAL / PARTICLE SIZE W/ MANUFACTURER. INSTALL TO MIN. 95% STANDARD DENSITY PER AASHTO T99.

CONSTRUCTION SEQUENCING

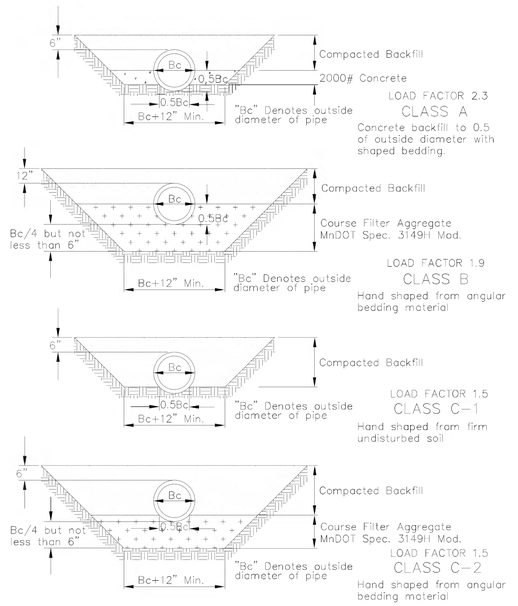
1. INSTALL SILT FENCE AND/OR OTHER APPROPRIATE TEMPORARY EROSION CONTROL DEVICES TO PREVENT SEDIMENT FROM LEAVING OR ENTERING THE PRACTICE DURING CONSTRUCTION.
2. ALL DOWN-GRADIENT PERIMETER SEDIMENT CONTROL BMP'S MUST BE IN PLACE BEFORE ANY UP-GRADIENT LAND DISTURBING ACTIVITY BEGINS.
3. PERFORM CONTINUOUS INSPECTIONS OF EROSION CONTROL PRACTICES.
4. INSTALL UTILITIES (WATER, SANITARY SEWER, ELECTRIC, PHONE, FIBER OPTIC, ETC) PRIOR TO THE STORMWATER SYSTEM.
5. PERFORM ALL OTHER SITE IMPROVEMENTS.
6. SEED AND MULCH ALL AREAS AFTER DISTURBANCE.
7. CONSTRUCT RETENTION DEVICE UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA.
8. IMPLEMENT TEMPORARY AND PERMANENT EROSION CONTROL PRACTICES.
9. PLANT AND MULCH SITE.
10. REMOVE TEMPORARY EROSION CONTROL DEVICES AFTER THE CONTRIBUTING DRAINAGE AREA IS ADEQUATELY VEGETATED.

GENERAL NOTES
1. IN THE EVENT THAT SEDIMENT IS INTRODUCED INTO THE BMP DURING OR IMMEDIATELY FOLLOWING EXCAVATION, THIS MATERIAL SHALL BE REMOVED FROM THE PRACTICE PRIOR TO CONTINUING CONSTRUCTION.
2. GRADING OF RETENTION DEVICES SHALL BE ACCOMPLISHED USING LOW-COMPACTION EARTH-MOVING EQUIPMENT TO PREVENT COMPACTION OF UNDERLYING SOILS.
3. ALL SUB MATERIALS BELOW THE SPECIFIED RETENTION DEPTH (ELEVATION) SHALL BE UNDISTURBED, UNLESS OTHERWISE NOTED.
4. SEE UTILITY PLAN / SHOP DRAWINGS FOR SYSTEM LAYOUT.
5. TYPICAL DETAILS ARE FOR REFERENCE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH REVIEWED SHOP DRAWINGS.

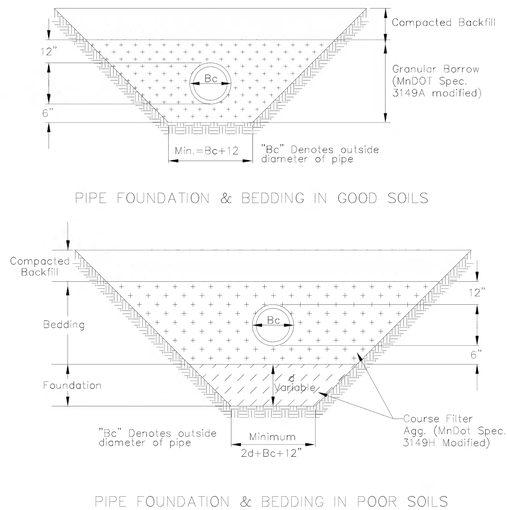
1 UNDERGROUND FILTRATION SYSTEM
NTS



2 DRAWDOWN RISER DETAIL
NTS



3 PIPE BEDDING - RCP & DIP
NTS



4 PIPE BEDDING - PVC
NTS

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5000 Glenwood Avenue
Golden Valley, MN 55422
civilsitegroup.com 612-615-0060

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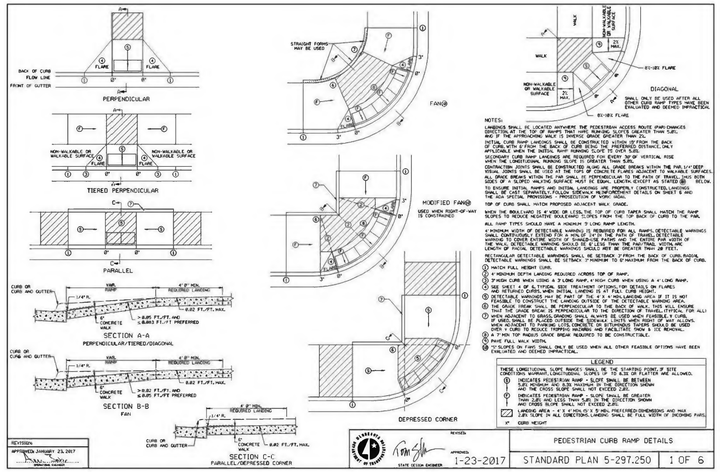

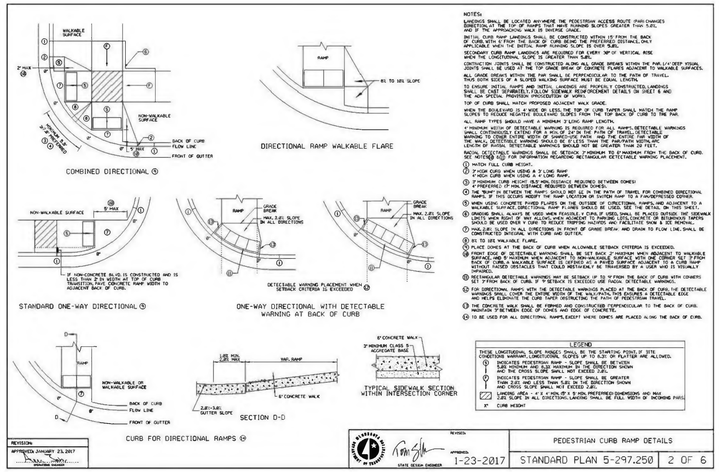

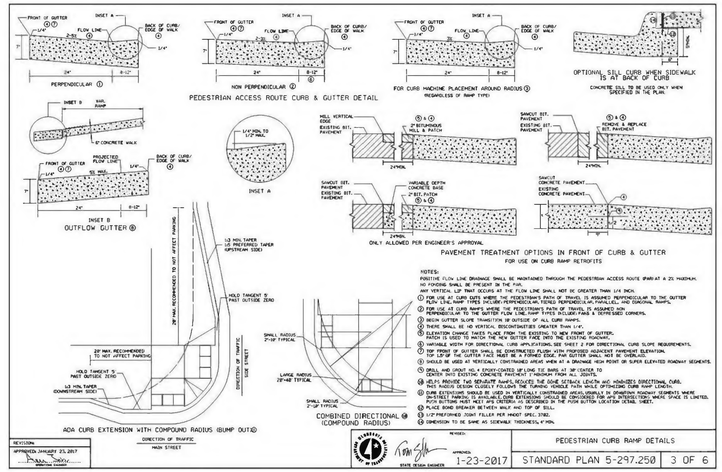

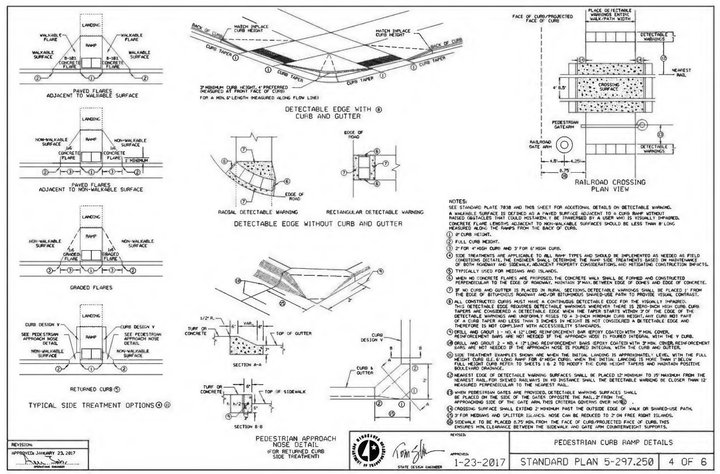

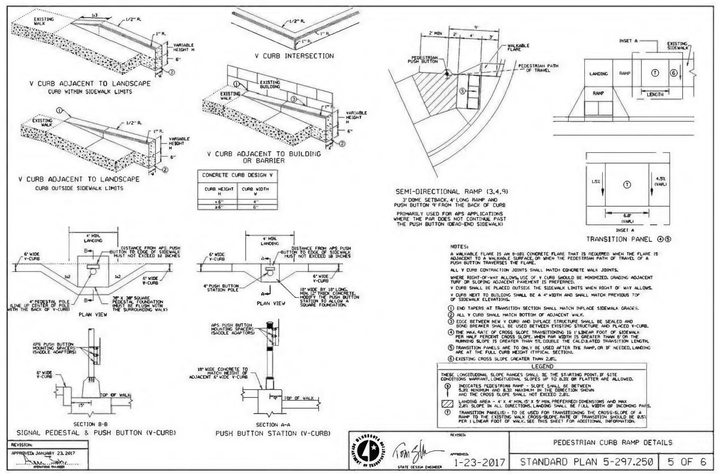

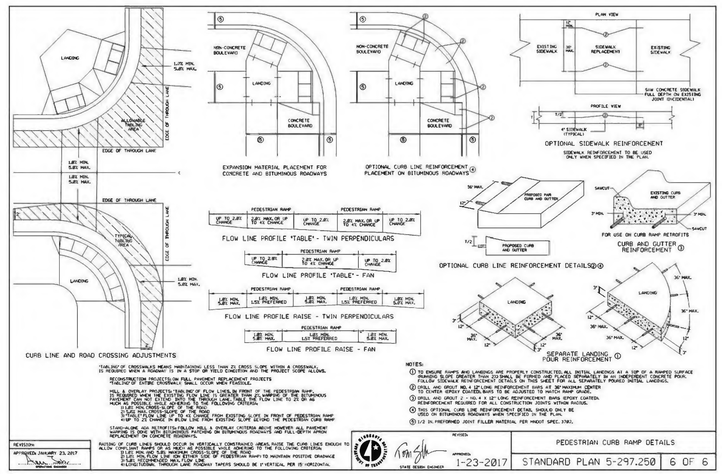

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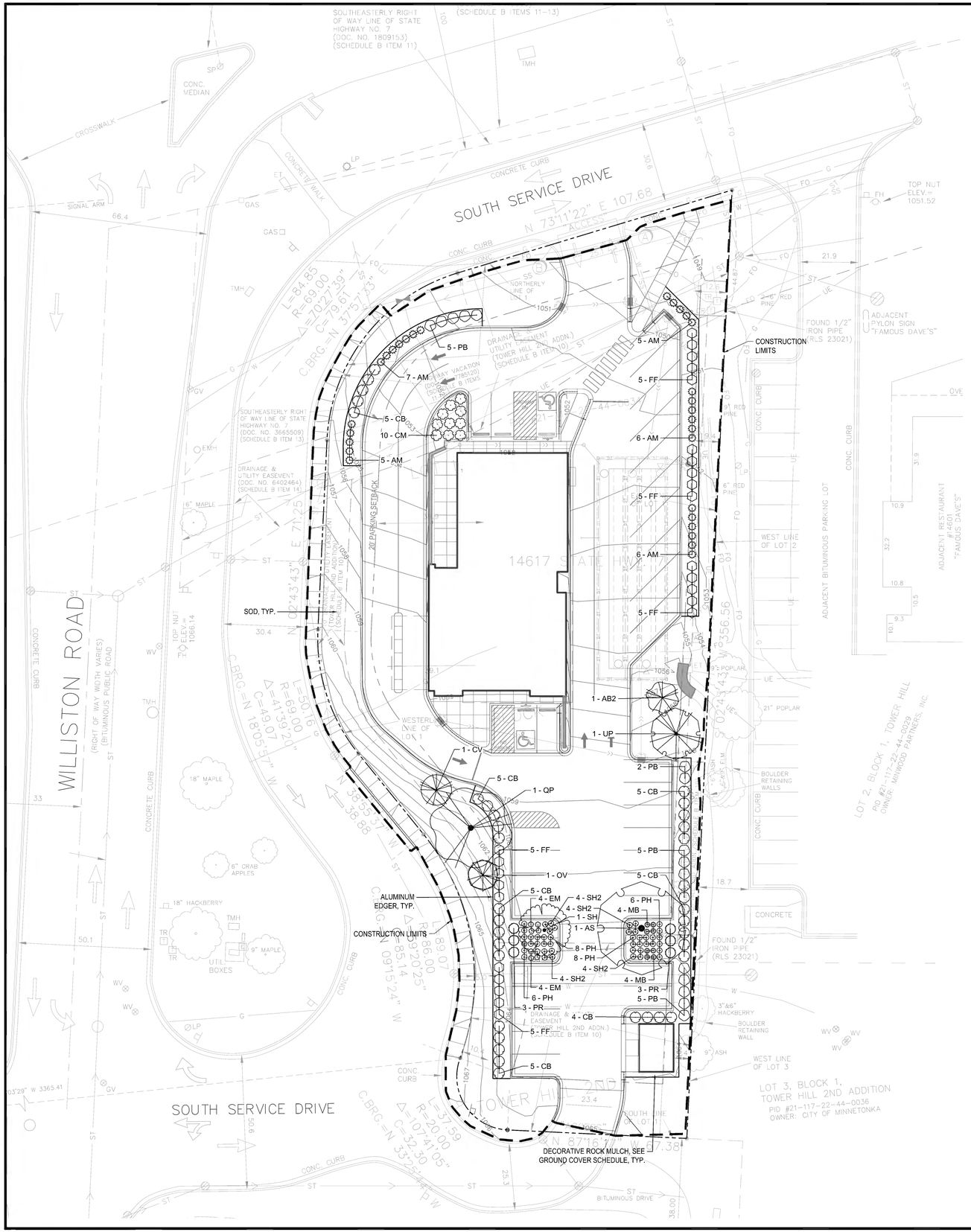
C5.2



LANDSCAPE NOTES:

1. ALL EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CONTACT "GOPHER STATE ONE CALL" (651-454-0002 OR 800-252-1166) FOR UTILITY LOCATIONS, 48 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY UTILITIES THAT ARE DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.
2. WHERE SHOWN, SHRUB & PERENNIAL BEDS SHALL BE MULCHED WITH 4" DEPTH (MINIMUM AFTER INSTALLATION AND/OR TOP DRESSING OPERATIONS) OF SHREDDED CEDAR MULCH.
3. ALL TREES SHALL BE MULCHED WITH SHREDDED CEDAR MULCH TO OUTER EDGE OF SAUCER OR TO EDGE OF PLANTING BED, IF APPLICABLE. ALL MULCH SHALL BE KEPT WITHIN A MINIMUM OF 2" FROM TREE TRUNK.
4. IF SHOWN ON PLAN, RANDOM SIZED LIMESTONE BOULDERS COLOR AND SIZE TO COMPLIMENT NEW LANDSCAPING. OWNER TO APPROVE BOULDER SAMPLES PRIOR TO INSTALLATION.
5. PLANT MATERIALS SHALL CONFORM WITH THE AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS AND SHALL BE OF HARDY STOCK, FREE FROM DISEASE, DAMAGE AND DISFIGURATION. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING PLUMPNESS OF PLANT MATERIAL FOR DURATION OF ACCEPTANCE PERIOD.
6. UPON DISCOVERY OF A DISCREPANCY BETWEEN THE QUANTITY OF PLANTS SHOWN ON THE SCHEDULE AND THE QUANTITY SHOWN ON THE PLAN, THE PLAN SHALL GOVERN.
7. CONDITION OF VEGETATION SHALL BE MONITORED BY THE LANDSCAPE ARCHITECT THROUGHOUT THE DURATION OF THE CONTRACT. LANDSCAPE MATERIALS PART OF THE CONTRACT SHALL BE WARRANTED FOR TWO (2) FULL GROWING SEASONS FROM SUBSTANTIAL COMPLETION DATE.
8. ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL RECEIVE 6" LAYER TOPSOIL AND SOD AS SPECIFIED UNLESS OTHERWISE NOTED ON THE DRAWINGS.
9. COORDINATE LOCATION OF VEGETATION WITH UNDERGROUND AND OVERHEAD UTILITIES, LIGHTING FIXTURES, DOORS AND WINDOWS. CONTRACTOR SHALL STAKE IN THE FIELD FINAL LOCATION OF TREES AND SHRUBS FOR REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
10. ALL PLANT MATERIALS SHALL BE WATERED AND MAINTAINED UNTIL ACCEPTANCE.
11. REPAIR AT NO COST TO OWNER ALL DAMAGE RESULTING FROM LANDSCAPE CONTRACTOR'S ACTIVITIES.
12. SWEEP AND MAINTAIN ALL PAVED SURFACES FREE OF DEBRIS GENERATED FROM LANDSCAPE CONTRACTOR'S ACTIVITIES.
13. PROVIDE SITE WIDE IRRIGATION SYSTEM DESIGN AND INSTALLATION. SYSTEM SHALL BE FULLY PROGRAMMABLE AND CAPABLE OF ALTERNATE DATE WATERING. THE SYSTEM SHALL PROVIDE HEAD TO HEAD OR DRIP COVERAGE AND BE CAPABLE OF DELIVERING ONE INCH OF PRECIPITATION PER WEEK. SYSTEM SHALL EXTEND INTO THE PUBLIC RIGHT-OF-WAY TO THE EDGE OF PAVEMENT/BACK OF CURB.
14. CONTRACTOR SHALL SECURE APPROVAL OF PROPOSED IRRIGATION SYSTEM INLCUDING PRICING FROM OWNER, PRIOR TO INSTALLATION.

IRRIGATION NOTES:

1. ENTIRE SITE SHALL BE FULLY IRRIGATED. THE CONTRACTOR SHALL SUBMIT IRRIGATION SHOP DRAWINGS FOR REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
2. SEE MECHANICAL AND ELECTRICAL PLANS AND SPECIFICATIONS FOR IRRIGATION WATER, METER, AND POWER CONNECTIONS.
3. CONTRACTOR TO VERIFY LOCATION OF ALL UNDERGROUND/ABOVE GROUND FACILITIES PRIOR TO ANY EXCAVATION/INSTALLATION. ANY DAMAGE TO UNDERGROUND/ABOVE GROUND FACILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND COSTS ASSOCIATED WITH CORRECTING DAMAGES SHALL BE BORNE ENTIRELY BY THE CONTRACTOR.
4. SERVICE EQUIPMENT AND INSTALLATION SHALL BE PER LOCAL UTILITY COMPANY STANDARDS AND SHALL BE PER NATIONAL AND LOCAL CODES. EXACT LOCATION OF SERVICE EQUIPMENT SHALL BE COORDINATED WITH THE LANDSCAPE ARCHITECT OR EQUIVALENT AT THE JOB SITE.
5. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY COMPANY FOR THE PROPOSED ELECTRICAL SERVICE AND METERING FACILITIES.
6. IRRIGATION WATER LINE CONNECTION SIZE IS 1-½" AT BUILDING. VERIFY WITH MECHANICAL PLANS.COVAGE.
7. ALL MAIN LINES SHALL BE 18" BELOW FINISHED GRADE.
8. ALL LATERAL LINES SHALL BE 12" BELLOW FINISHED GRADE.
9. ALL EXPOSED PVC RISERS, IF ANY, SHALL BE GRAY IN COLOR.
10. CONTRACTOR SHALL LAY ALL SLEEVES AND CONDUIT AT 2'-0" BELOW THE FINISHED GRADE OF THE TOP OF PAVEMENT. EXTEND SLEEVES TO 2'-0" BEYOND PAVEMENT.
11. CONTRACTOR SHALL MARK THE LOCATION OF ALL SLEEVES AND CONDUIT WITH THE SLEEVING MATERIAL "ELLED" TO 2'-0" ABOVE FINISHED GRADE AND CAPPED.
12. FABRICATE ALL PIPE TO MANUFACTURE'S SPECIFICATIONS WITH CLEAN AND SQUARE CUT JOINTS. USE QUALITY GRADE PRIMER AND SOLVENT CEMENT FORMULATED FOR INTENDED TYPE OF CONNECTION.
13. BACKFILL ALL TRENCHES WITH SOIL FREE OF SHARP OBJECTS AND DEBRIS.
14. ALL VALVE BOXES AND COVERS SHALL BE BLACK IN COLOR.
15. GROUP VALVE BOXES TOGETHER FOR EASE WHEN SERVICE IS REQUIRED. LOCATE IN PLANT BED AREAS WHENEVER POSSIBLE.
16. IRRIGATION CONTROLLER LOCATION SHALL BE VERIFIED ON-SITE WITH OWNER'S REPRESENTATIVE.
17. CONTROL WIRES: 14 GAUGE DIRECT BURIAL, SOLID COPPER IRRIGATION WIRE. RUN UNDER MAIN LINE. USE MOISTURE-PROOF SPLICES AND SPLICE ONLY AT VALVES OR PULL BOXES. RUN SEPARATE HOT AND COMMON WIRE TO EACH VALVE AND ONE (1) SPARE WIRE AND GROUND TO FURTHEST VALVE FROM CONTROLLER. LABEL OR COLOR CODE ALL WIRES.
18. AVOID OVER SPRAY ON BUILDINGS, PAVEMENT, WALLS AND ROADWAYS BY INDIVIDUALLY ADJUSTING RADIUS OR ARC ON SPRINKLER HEADS AND FLOW CONTROL ON AUTOMATIC VALVE.
19. ADJUST PRESSURE REGULATING VALVES FOR OPTIMUM PRESSURE ON SITE.
20. USE SCREENS ON ALL HEADS.
21. A SET OF AS-BUILT DRAWINGS SHALL BE MAINTAINED ON-SITE AT ALL TIMES IN AN UPDATED CONDITION.
22. ALL PIPE 3" AND OVER SHALL HAVE THRUST BLOCKING AT EACH TURN.
23. ALL AUTOMATIC REMOTE CONTROL VALVES WILL HAVE 3" MINIMUM DEPTH OF 3/4" WASHED GRAVEL UNDERNEATH VALVE AND VALVE BOX. GRAVEL SHALL EXTENT 3" BEYOND PERIMETER OF VALVE BOX.
24. THERE SHALL BE 3" MINIMUM SPACE BETWEEN BOTTOM OF VALVE BOX COVER AND TOP OF VALVE STRUCTURE.

MULCH SCHEDULE

AREA	MULCH TYPE	EDGING	FABRIC	REMARKS
TREE RINGS	4" DEPTH, SHREDDED CEDAR	YES	NO	SEE DETAIL SHT. L1.1
PLANTING BEDS	4" DEPTH, SHREDDED CEDAR	YES	NO	
MAINT. STRIP AT BUILDING FOUNDATION	NA	NA	NA	
DOG PARK MULCH	NA	NA	NA	
NATIVE SEED AREAS	NA	NA	NA	
NOTE: COORDINATE ALL MULCH AND PLANTING BED MATERIAL PRIOR TO INSTALLATION, PROVIDE SAMPLES AND SHOP DRAWINGS/PHOTOS/DATA SHEETS OF ALL MATERIALS				

SEE SHEET L1.1 FOR PLANTING SCHEDULE
SEE SHEET L1.1 FOR PLANTING DETAILS

LEGEND

EDGING - SHALL BE COMMERCIAL GRADE, 4" DEPTH ALUMINUM, BLACK OR DARK GREEN IN COLOR, INCLUDE ALL CONNECTORS, STAKES, & ALL APPURTENANCES PER MANUF. INSTALL PER MANUF. INSTRUC./SPECS.

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10'-0" 0 20'-0"

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MIDCOUNTRY BANK FSB
7825 WASHINGTON AVE S, SUITE 900, BLOOMINGTON, MN 55439

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Patrick J. Sarver
DATE XX-XX-XX LICENSE NO. 24904

ISSUE/SUBMITTAL SUMMARY

DATE	DESCRIPTION
3/8/2023	CITY SUBMITTAL

DRAWN BY:BN, AM REVIEWED BY: DK
PROJECT NUMBER: 22450

REVISION SUMMARY

DATE	DESCRIPTION

LANDSCAPE PLAN

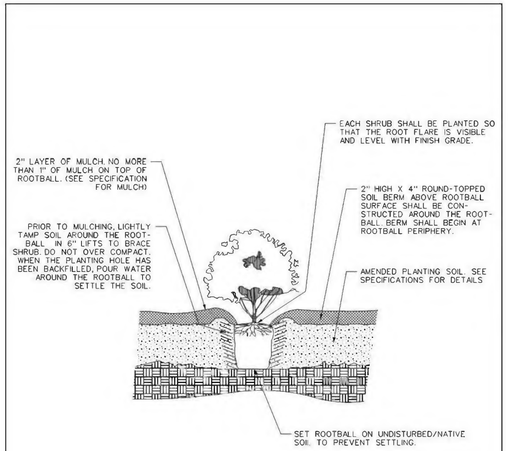
L1.0

TREES, PERENNIAL & SHRUB SCHEDULE

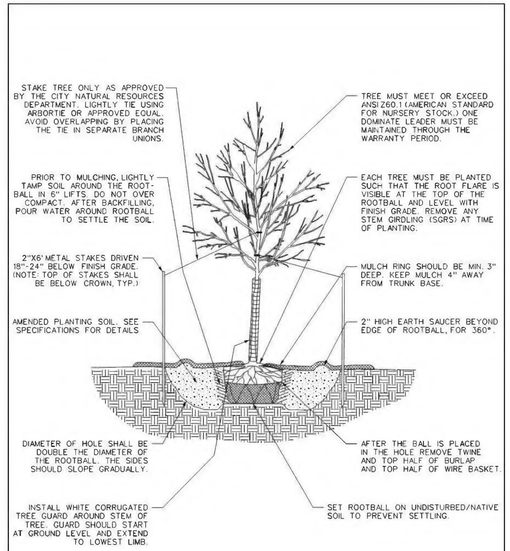
TREES	QTY	COMMON / BOTANICAL NAME	CONT	NATIVE PLANTS	POLLINATOR FRIENDLY
AS	1	Sugar Maple / Acer saccharum	2.5" CAL. B&B	NATIVE	Y
AB2	1	Apollo Sugar Maple / Acer saccharum `Barrett Cole` TM	1.75" Cal B&B	NATIVE CULTIVAR	N
SH	1	Skyline Thornless Honey Locust / Gleditsia triacanthos inermis `Skycole` TM	2.5" Cal. B&B	NATIVE CULTIVAR	N
QP	1	American Dream® Oak / Quercus bicolor 'JFS-KW12'	2.5" CAL. B&B	NATIVE CULTIVAR	N
UP	1	American Elm / Ulmus americana `Princeton`	2.5" Cal. B&B	NATIVE CULTIVAR	Y
ORNAMENTAL TREES	QTY	COMMON / BOTANICAL NAME	CONT	NATIVE PLANTS	POLLINATOR FRIENDLY
CV	1	Thornless Cockspur Hawthorn / Crataegus crus-galli inermis TM	1.5" Cal. B&B	NATIVE	Y
OV	1	Ironwood / Ostrya virginiana	1.75" Cal B&B	NATIVE	
SHRUBS	QTY	COMMON / BOTANICAL NAME	SIZE	NATIVE PLANTS	POLLINATOR FRIENDLY
AM	29	Low Scape Hedger Black Chokeberry / Aronia melanocarpa `UCONNAM166`	#2 CONT	NATIVE CULTIVAR	Y
CM	10	Muskingham Gray Dogwood / Cornus racemosa `Muskingham`	#5 CONT	NATIVE CULTIVAR	Y
CB	34	Firedance Dogwood / Cornus sericea `Bailadeline` TM	#5 CONT	NATIVE CULTIVAR	Y
FF	25	Gold Cluster Forsythia / Forsythia x intermedia `Courtaneur` TM	#2 CONT	NOT NATIVE	Y
PR	6	Raspberry Lemonade Ninebark / Physocarpus opulifolius 'ZLEYel2' TM	#5 CONT	NATIVE CULTIVAR	Y
PB	17	Sand Cherry / Prunus besseyi	#5 CONT	NATIVE	Y
GRASSES	QTY	COMMON / BOTANICAL NAME	SIZE	NATIVE PLANTS	POLLINATOR FRIENDLY
PH	28	Heavy Metal Switch Grass / Panicum virgatum `Heavy Metal`	#1 CONT	NATIVE CULTIVAR	Y
SH2	16	Prairie Dropseed / Sporobolus heterolepis	#1 CONT	NATIVE	Y
PERENNIALS	QTY	COMMON / BOTANICAL NAME	SIZE	NATIVE PLANTS	POLLINATOR FRIENDLY
EM	8	Magnus Purple Coneflower / Echinacea purpurea `Magnus`	#1 CONT	NATIVE CULTIVAR	Y
MB	8	Bergamot / Monarda fistulosa	#1 CONT	NATIVE	Y

GROUND COVER SCHEDULE

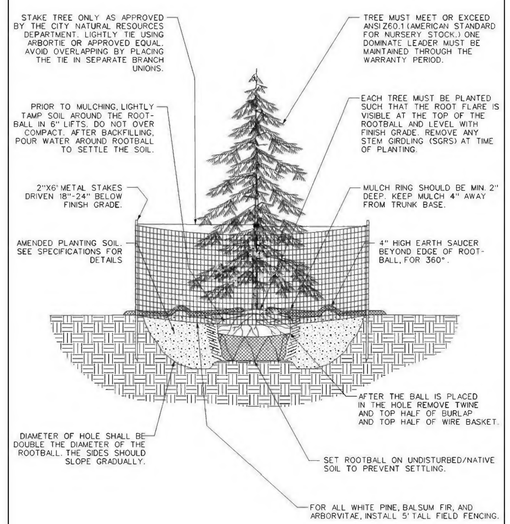
GROUND COVERS	COMMON / BOTANICAL NAME	SIZE
	Decorative Rock Mulch for Non Turf Areas / Decorative Rock Mulch 1"-3" Dresser Trap Rock, uniform in size over filter fabric. Include aluminum edging as shown on plan, or as needed. Provide Samples. See detail.	Mulch
	Blue Grass Based / Sod Commercial grade, locally grown, well rooted sod blend of improved Kentucky Bluegrass w/ uniform color, leaf texture, density and varieties consisting of a minimum of two and no more than four common cultivars.	Sod



CITY OF MINNETONKA | CONTAINER SHRUB PLANTING | SCALE: NOT TO SCALE | STD PLATE NO: 270.3 | APPROVED: 8/2018 | REVISED:



CITY OF MINNETONKA | DECIDUOUS TREE PLANTING | SCALE: NOT TO SCALE | STD PLATE NO: 270.1 | APPROVED: 8/2018 | REVISED:



CITY OF MINNETONKA | CONIFEROUS TREE PLANTING | SCALE: NOT TO SCALE | STD PLATE NO: 270.2 | APPROVED: 8/2018 | REVISED:

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Patrick J. Sarver
DATE XX-XX-XX LICENSE NO. 24904

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3/6/2023	CITY SUBMITTAL

DRAWN BY: BN, AM REVIEWED BY: DK
PROJECT NUMBER: 22450

REVISION SUMMARY

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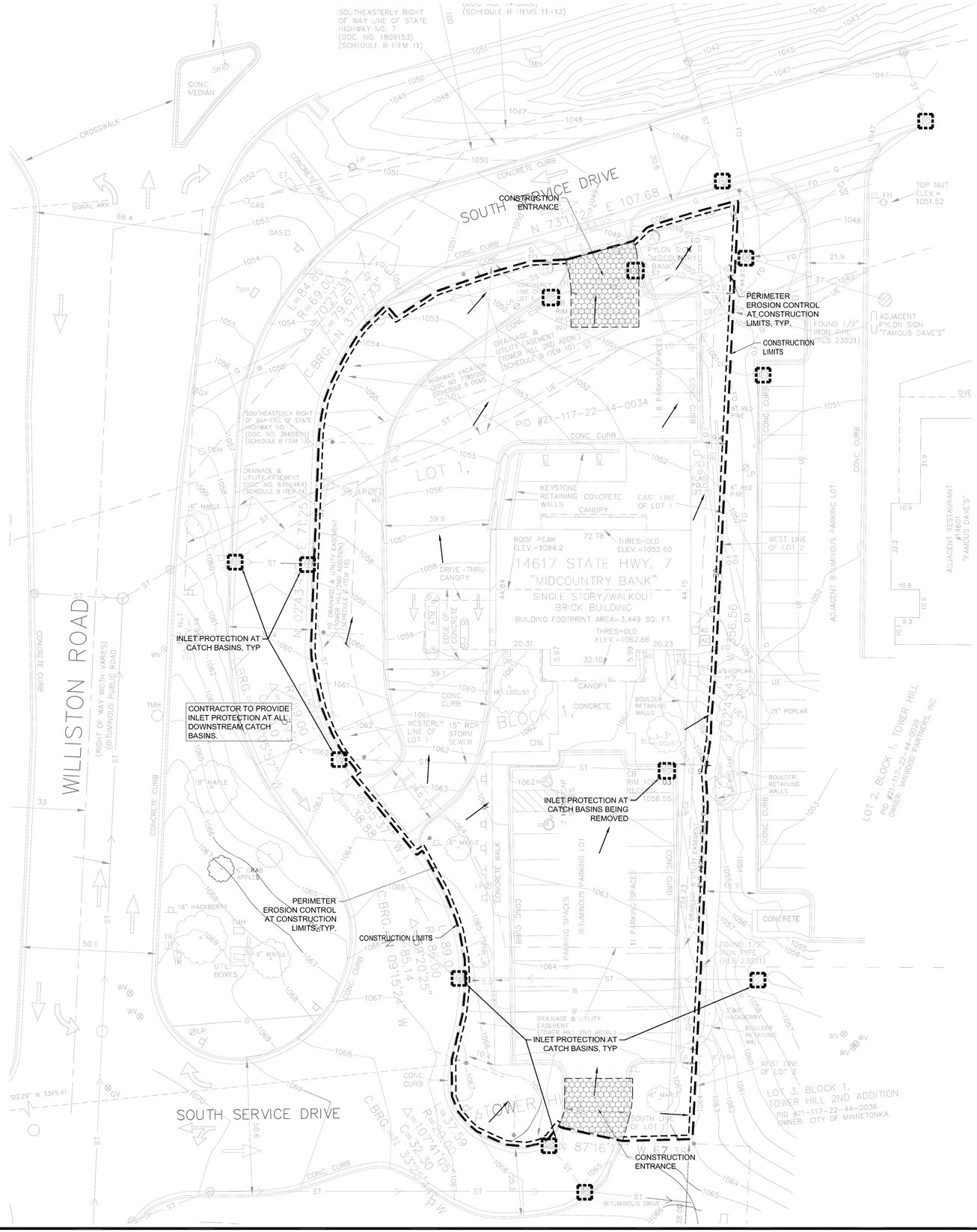
LANDSCAPE PLAN NOTES & DETAILS

L1.1



SWPPP NOTES:

1. ALL EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CONTACT "GOPHER STATE ONE CALL" (651-454-0002 OR 800-252-1166) FOR UTILITY LOCATIONS, 48 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY UTILITIES THAT ARE DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.
2. THIS PROJECT IS LESS THAN ONE ACRE AND WILL NOT REQUIRE AN MPCA NPDES PERMIT. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY EROSION CONTROL PERMITS REQUIRED BY THE CITY.
3. SEE SHEETS SW1.0 - SW1.3 FOR ALL EROSION CONTROL NOTES, DESCRIPTIONS, AND PRACTICES.\
4. SEE GRADING PLAN FOR ADDITIONAL GRADING AND EROSION CONTROL NOTES.
5. CONTRACTOR IS RESPONSIBLE FOR SWPPP IMPLEMENTATION, INSPECTIONS, AND COMPLIANCE WITH NPDES PERMIT.

CITY OF MINNETONKA EROSION CONTROL NOTES:

1. RESERVED FOR CITY SPECIFIC EROSION CONTROL NOTES.

ALL SPECIFIED EROSION AND SEDIMENT CONTROL PRACTICES, AND MEASURES CONTAINED IN THIS SWPPP ARE THE MINIMUM REQUIREMENTS. ADDITIONAL PRACTICES MAY BE REQUIRED DURING THE COURSE OF CONSTRUCTION.

LEGEND:

- EX. 1' CONTOUR ELEVATION INTERVAL
- DRAINAGE ARROW
- SILT FENCE / BIOROLL - GRADING LIMIT
- INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE

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David J. Knaeble
DATE 03-06-23 LICENSE NO. 48776

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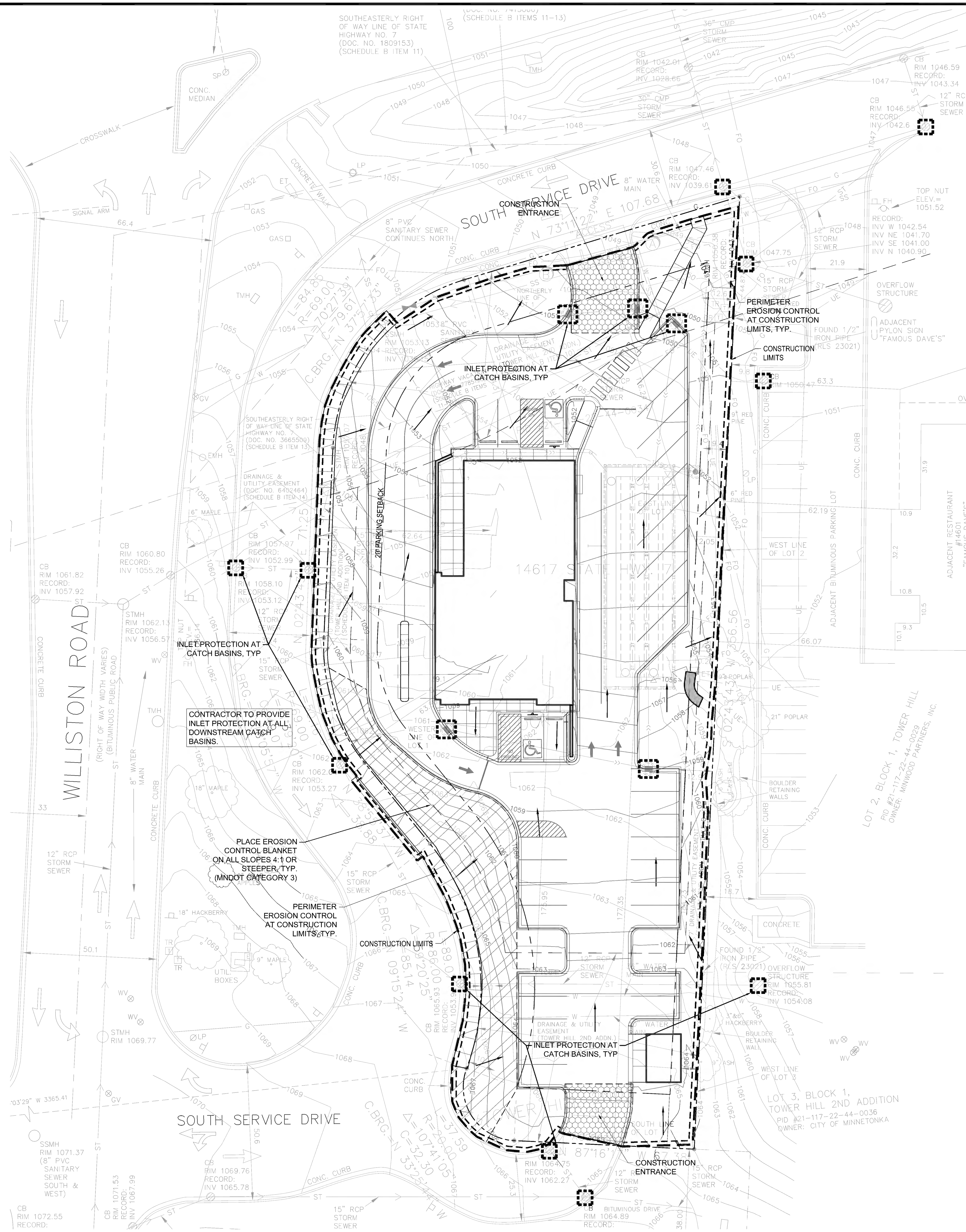
REVISION SUMMARY

DATE	DESCRIPTION

SWPPP - EXISTING CONDITIONS

SW1.0



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LEGEND:

- 1125 — EX. 1' CONTOUR ELEVATION INTERVAL
- 1137 — 1.0' CONTOUR ELEVATION INTERVAL
- DRAINAGE ARROW
- SILT FENCE / BIOROLL - GRADING LIMIT
- INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET

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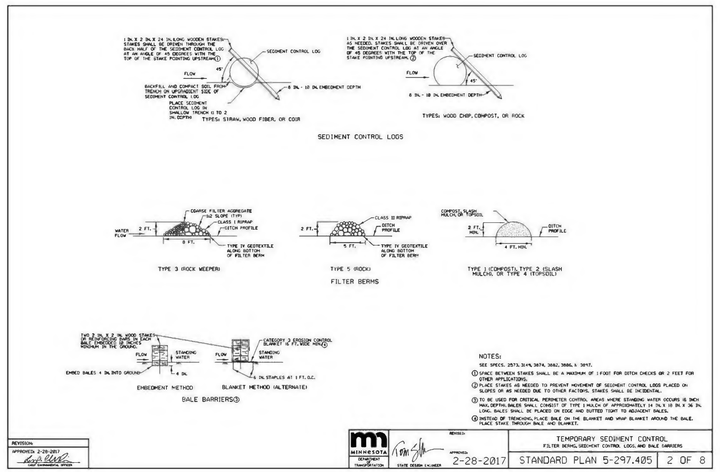
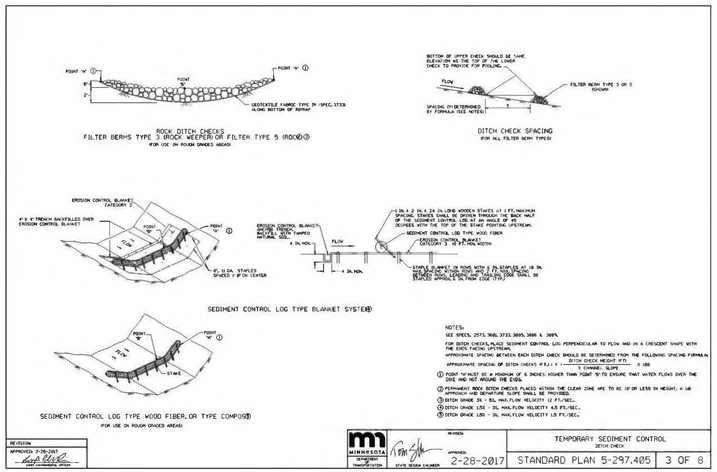
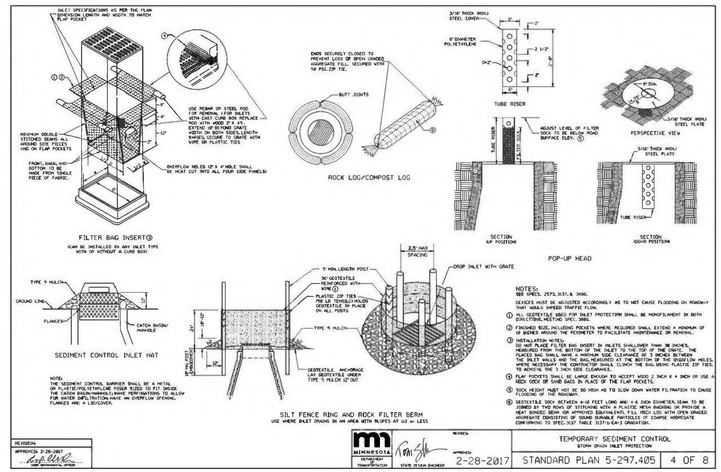
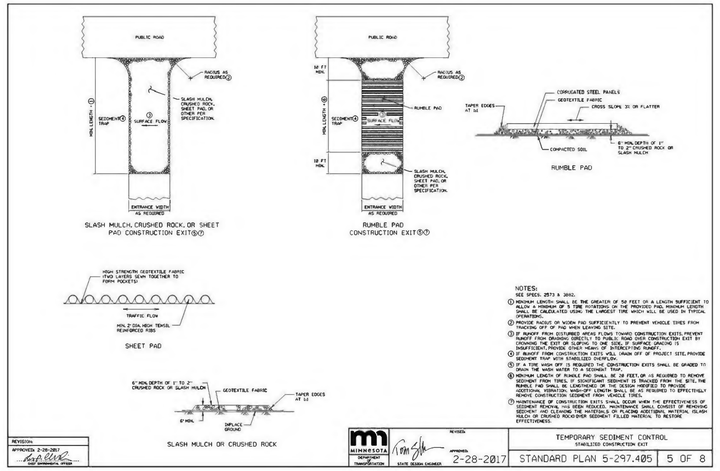
SWPPP - PROPOSED CONDITIONS

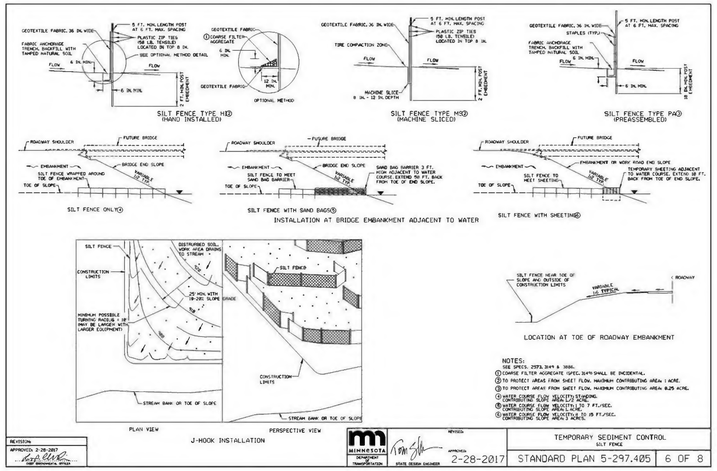
SW1.1

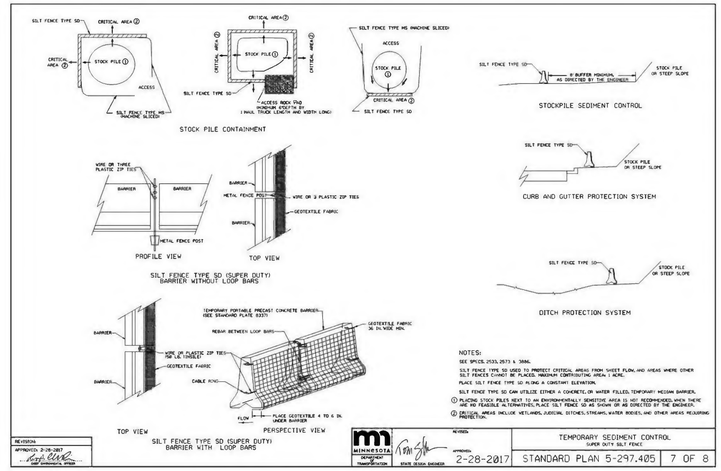












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SWPPP - DETAILS

SW1.2

THE CONTRACTOR AND ALL SUBCONTRACTORS INVOLVED WITH A CONSTRUCTION ACTIVITY THAT DISTURBS SITE SOIL OR WHO IMPLEMENT A POLLUTANT CONTROL MEASURE IDENTIFIED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MUST COMPLY WITH THE REQUIREMENTS OF THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT (DATED AUGUST 1, 2018 # MNR100001) AND ANY LOCAL GOVERNING AGENCY HAVING JURISDICTION CONCERNING EROSION AND SEDIMENTATION CONTROL.

STORMWATER DISCHARGE DESIGN REQUIREMENTS

SWPPP

THE NATURE OF THIS PROJECT WILL BE CONSISTENT WITH WHAT IS REPRESENTED IN THIS SET OF CONSTRUCTION PLANS AND SPECIFICATIONS. SEE THE SWPPP PLAN SHEETS AND SWPPP NARRATIVE (ATTACHMENT A: CONSTRUCTION SWPPP TEMPLATE) FOR ADDITIONAL SITE SPECIFIC SWPPP INFORMATION. THE PLANS SHOW LOCATIONS AND TYPES OF ALL TEMPORARY AND PERMANENT EROSION PREVENTION AND SEDIMENT CONTROL BMP'S. STANDARD DETAILS ARE ATTACHED TO THIS SWPPP DOCUMENT.

THE INTENDED SEQUENCING OF MAJOR CONSTRUCTION ACTIVITIES IS AS FOLLOWS:
1. INSTALL STABILIZED ROCK CONSTRUCTION ENTRANCE
2. INSTALLATION OF SILT FENCE AROUND SITE
3. INSTALL ORANGE CONSTRUCTION FENCING AROUND INFILTRATION AREAS
4. INSTALL INLET PROTECTION AT ALL ADJACENT AND DOWNSTREAM CATCH BASINS
5. CLEAR AND GRUB FOR TEMPORARY SEDIMENT BASIN / POND INSTALL
6. CONSTRUCT TEMPORARY SEDIMENT BASIN / POND (SECTION 14)
7. CLEAR AND GRUB REMAINDER OF SITE
8. STRIP AND STOCKPILE TOPSOIL
9. ROUGH GRADING OF SITE
10. STABILIZE DENUDED AREAS AND STOCKPILES
11. INSTALL SANITARY SEWER, WATER MAIN STORM SEWER AND SERVICES
12. INSTALL SILT FENCE / INLET PROTECTION AROUND CB'S
13. INSTALL STREET SECTION
14. INSTALL CURB AND GUTTER
15. BITUMINOUS ON STREETS
16. FINAL GRADE BOULEVARD, INSTALL SEED AND MULCH
17. REMOVE ACCUMULATED SEDIMENT FROM BASIN / POND
18. FINAL GRADE POND / INFILTRATION BASINS (DO NOT COMPACT SOILS IN INFILTRATION AREAS.)
19. WHEN ALL CONSTRUCTION ACTIVITY IS COMPLETE AND THE SITE IS STABILIZED BY EITHER SEED OR SOD/LANDSCAPING, REMOVE SILT FENCE AND RESEED ANY AREAS DISTURBED BY THE REMOVAL.

RECORDS RETENTION:

THE SWPPP (ORIGINAL OR COPIES) INCLUDING, ALL CHANGES TO IT, AND INSPECTIONS AND MAINTENANCE RECORDS MUST BE KEPT AT THE SITE DURING CONSTRUCTION BY THE PERMITTEE WHO HAS OPERATIONAL CONTROL OF THAT PORTION OF THE SITE. THE SWPPP CAN BE KEPT IN EITHER THE FIELD OFFICE OR IN AN ON SITE VEHICLE DURING NORMAL WORKING HOURS.

ALL OWNER(S) MUST KEEP THE SWPPP, ALONG WITH THE FOLLOWING ADDITIONAL RECORDS, ON FILE FOR THREE (3) YEARS AFTER SUBMITTAL OF THE NOT AS OUTLINED IN SECTION 4. THIS DOES NOT INCLUDE ANY RECORDS AFTER SUBMITTAL OF THE NOT.

1. THE FINAL SWPPP;
2. ANY OTHER STORMWATER RELATED PERMITS REQUIRED FOR THE PROJECT;
3. RECORDS OF ALL INSPECTION AND MAINTENANCE CONDUCTED DURING CONSTRUCTION (SEE SECTION 11, INSPECTIONS AND MAINTENANCE);
4. ALL PERMANENT OPERATION AND MAINTENANCE AGREEMENTS THAT HAVE BEEN IMPLEMENTED, INCLUDING ALL RIGHT OF WAY, CONTRACTS, COVENANTS AND OTHER BINDING REQUIREMENTS REGARDING PERPETUAL MAINTENANCE; AND
5. ALL REQUIRED CALCULATIONS FOR DESIGN OF THE TEMPORARY AND PERMANENT STORMWATER MANAGEMENT SYSTEMS.

SWPPP IMPLEMENTATION RESPONSIBILITIES:

1. THE OWNER AND CONTRACTOR ARE PERMITTEE(S) AS IDENTIFIED BY THE NPDES PERMIT.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE IMPLEMENTATION OF THE SWPPP, INCLUDING THE ACTIVITIES OF ALL OF THE CONTRACTOR'S SUBCONTRACTORS.
3. CONTRACTOR SHALL PROVIDE A PERSON(S) KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BMPS TO OVERSEE ALL INSTALLATION AND MAINTENANCE OF BMPS AND IMPLEMENTATION OF THE SWPPP.
4. CONTRACTOR SHALL PROVIDE PERSON(S) MEETING THE TRAINING REQUIREMENTS OF THE NPDES PERMIT TO CONDUCT INSPECTION AND MAINTENANCE OF ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPS IN ACCORDANCE WITH THE REQUIREMENTS OF THE PERMIT. ONE OF THESE INDIVIDUAL(S) MUST BE AVAILABLE FOR AN ONSITE INSPECTION WITHIN 72 HOURS UPON REQUEST BY MPCA. CONTRACTOR SHALL PROVIDE TRAINING DOCUMENTATION FOR THESE INDIVIDUAL(S) AS REQUIRED BY THE NPDES PERMIT. THIS TRAINING DOCUMENTATION SHALL BE RECORDED IN OR WITH THE SWPPP BEFORE THE START OF CONSTRUCTION OR AS SOON AS THE PERSONNEL FOR THE PROJECT HAVE BEEN DETERMINED. DOCUMENTATION SHALL INCLUDE:
   - 4.1. NAMES OF THE PERSONNEL ASSOCIATED WITH THE PROJECT THAT ARE REQUIRED TO BE TRAINED PER SECTION 21 OF THE PERMIT.
   - 4.2. DATES OF TRAINING AND NAME OF INSTRUCTOR AND ENTITY PROVIDING TRAINING.
   - 4.3. CONTENT OF TRAINING COURSE OR WORKSHOP INCLUDING THE NUMBER OF HOURS OF TRAINING.
5. FOLLOWING FINAL STABILIZATION AND THE TERMINATION OF COVERAGE FOR THE NPDES PERMIT, THE OWNER IS EXPECTED TO FURNISH LONG TERM OPERATION AND MAINTENANCE (O & M) OF THE PERMANENT STORM WATER MANAGEMENT SYSTEM.

CONSTRUCTION ACTIVITY REQUIREMENTS

SWPPP AMENDMENTS (SECTION 6):

1. ONE OF THE INDIVIDUALS DESCRIBED IN ITEM 21.2.A OR ITEM 21.2.B OR ANOTHER QUALIFIED INDIVIDUAL MUST COMPLETE ALL SWPPP CHANGES. CHANGES INVOLVING THE USE OF A LESS STRINGENT BMP MUST INCLUDE A JUSTIFICATION DESCRIBING HOW THE REPLACEMENT BMP IS EFFECTIVE FOR THE SITE CHARACTERISTICS.
2. PERMITTEES MUST AMEND THE SWPPP TO INCLUDE ADDITIONAL OR MODIFIED BMPS AS NECESSARY TO CORRECT PROBLEMS IDENTIFIED OR ADDRESS SITUATIONS WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, MAINTENANCE, WEATHER OR SEASONAL CONDITIONS HAVING A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS TO SURFACE WATERS OR GROUNDWATER.
3. PERMITTEES MUST AMEND THE SWPPP TO INCLUDE ADDITIONAL OR MODIFIED BMPS AS NECESSARY TO CORRECT PROBLEMS IDENTIFIED OR ADDRESS SITUATIONS WHENEVER INSPECTIONS OR INVESTIGATIONS BY THE SITE OWNER OR OPERATOR, USEPA OR MPCA OFFICIALS INDICATE THE SWPPP IS NOT EFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING THE DISCHARGE OF POLLUTANTS TO SURFACE WATERS OR GROUNDWATER OR THE DISCHARGES ARE CAUSING WATER QUALITY STANDARD EXCEEDANCES (E.G., NUISANCE CONDITIONS AS DEFINED IN MINN. R. 7050.0210, SUBP. 2) OR THE SWPPP IS NOT CONSISTENT WITH THE OBJECTIVES OF A USEPA APPROVED TMDL.

BMP SELECTION AND INSTALLATION (SECTION 7):

1. PERMITTEES MUST SELECT, INSTALL, AND MAINTAIN THE BMPS IDENTIFIED IN THE SWPPP AND IN THIS PERMIT IN AN APPROPRIATE AND FUNCTIONAL MANNER AND IN ACCORDANCE WITH RELEVANT MANUFACTURER SPECIFICATIONS AND ACCEPTED ENGINEERING PRACTICES.

EROSION PREVENTION (SECTION 8):

1. BEFORE WORK BEGINS, PERMITTEES MUST DELINEATE THE LOCATION OF AREAS NOT TO BE DISTURBED.
2. PERMITTEES MUST MINIMIZE THE NEED FOR DISTURBANCE OF PORTIONS OF THE PROJECT WITH STEEP SLOPES. WHEN STEEP SLOPES MUST BE DISTURBED, PERMITTEES MUST USE TECHNIQUES SUCH AS PHASING AND STABILIZATION PRACTICES DESIGNED FOR STEEP SLOPES (E.G., SLOPE DRAINING AND TERRACING).
3. PERMITTEES MUST STABILIZE ALL EXPOSED SOIL AREAS, INCLUDING STOCKPILES. STABILIZATION MUST BE INITIATED IMMEDIATELY TO LIMIT SOIL EROSION WHEN CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. STABILIZATION MUST BE COMPLETED NO LATER THAN 14 CALENDAR DAYS AFTER THE CONSTRUCTION ACTIVITY HAS CEASED. STABILIZATION IS NOT REQUIRED ON CONSTRUCTED BASE COMPONENTS OF ROADS, PARKING LOTS AND SIMILAR SURFACES. STABILIZATION IS NOT REQUIRED ON TEMPORARY STOCKPILES WITHOUT SIGNIFICANT SILT, CLAY OR ORGANIC COMPONENTS (E.G., CLEAN AGGREGATE STOCKPILES, DEMOLITION CONCRETE STOCKPILES, SAND STOCKPILES) BUT PERMITTEES MUST PROVIDE SEDIMENT CONTROLS AT THE BASE OF THE STOCKPILE.
4. FOR PUBLIC WATERS THAT THE MINNESOTA DNR HAS PROMULGATED "WORK IN WATER RESTRICTIONS" DURING SPECIFIED FISH SPAWNING TIME FRAMES, PERMITTEES MUST COMPLETE STABILIZATION OF ALL EXPOSED SOIL AREAS WITHIN 200 FEET OF THE WATER'S EDGE, AND THAT DRAIN TO THESE WATERS, WITHIN 24 HOURS DURING THE RESTRICTION PERIOD.
5. PERMITTEES MUST STABILIZE THE NORMAL WETTED PERIMETER OF THE LAST 200 LINEAR FEET OF TEMPORARY OR PERMANENT DRAINAGE DITCHES OR SWALES THAT DRAIN WATER FROM THE SITE WITHIN 24 HOURS AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE. PERMITTEES MUST COMPLETE STABILIZATION OF REMAINING PORTIONS OF TEMPORARY OR PERMANENT DITCHES OR SWALES WITHIN 14 CALENDAR DAYS AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE AND CONSTRUCTION IN THAT PORTION OF THE DITCH TEMPORARILY OR PERMANENTLY CEASES.
6. TEMPORARY OR PERMANENT DITCHES OR SWALES BEING USED AS A SEDIMENT CONTAINMENT SYSTEM DURING CONSTRUCTION (WITH PROPERLY DESIGNED ROCK-DITCH CHECKS, BIO ROLLS, SILT DIKES, ETC.) DO NOT NEED TO BE STABILIZED. PERMITTEES MUST STABILIZE THESE AREAS WITHIN 24 HOURS AFTER THEIR USE AS A SEDIMENT CONTAINMENT SYSTEM CEASES
7. PERMITTEES MUST NOT USE MULCH, HYDROMULCH, TACKIFIER, POLYACRYLAMIDE OR SIMILAR EROSION PREVENTION PRACTICES WITHIN ANY PORTION OF THE NORMAL WETTED PERIMETER OF A TEMPORARY OR PERMANENT DRAINAGE DITCH OR SWALE SECTION WITH A CONTINUOUS SLOPE OF GREATER THAN 2 PERCENT.
8. PERMITTEES MUST PROVIDE TEMPORARY OR PERMANENT ENERGY DISSIPATION AT ALL PIPE OUTLETS WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER OR PERMANENT STORMWATER TREATMENT SYSTEM.
9. PERMITTEES MUST NOT DISTURB MORE LAND (I.E., PHASING) THAN CAN BE EFFECTIVELY INSPECTED AND MAINTAINED IN ACCORDANCE WITH SECTION 11.

SEDIMENT CONTROL (SECTION 9):

1. PERMITTEES MUST ESTABLISH SEDIMENT CONTROL BMPS ON ALL DOWNGRADIENT PERIMETERS OF THE SITE AND DOWNGRADIENT AREAS OF THE SITE THAT DRAIN TO ANY SURFACE WATER, INCLUDING CURB AND GUTTER SYSTEMS. PERMITTEES MUST LOCATE SEDIMENT CONTROL PRACTICES UPGRADIENT OF ANY BUFFER ZONES. PERMITTEES MUST INSTALL SEDIMENT CONTROL PRACTICES BEFORE ANY UPGRADIENT LAND-DISTURBING ACTIVITIES BEGIN AND MUST KEEP THE SEDIMENT CONTROL PRACTICES IN PLACE UNTIL THEY ESTABLISH PERMANENT COVER.
2. IF DOWNGRADIENT SEDIMENT CONTROLS ARE OVERLOADED, BASED ON FREQUENT FAILURE OR EXCESSIVE MAINTENANCE REQUIREMENTS, PERMITTEES MUST INSTALL ADDITIONAL UPGRADIENT SEDIMENT CONTROL PRACTICES OR REDUNDANT BMPS TO ELIMINATE THE OVERLOADING AND AMEND THE SWPPP TO IDENTIFY THESE ADDITIONAL PRACTICES AS REQUIRED IN ITEM 6.3.
3. TEMPORARY OR PERMANENT DRAINAGE DITCHES AND SEDIMENT BASINS DESIGNED AS PART OF A SEDIMENT CONTAINMENT SYSTEM (E.G., DITCHES WITH ROCK-CHECK DAMS) REQUIRE SEDIMENT CONTROL PRACTICES ONLY AS APPROPRIATE FOR SITE CONDITIONS.
4. A FLOATING SILT CURTAIN PLACED IN THE WATER IS NOT A SEDIMENT CONTROL BMP TO SATISFY ITEM 9.2 EXCEPT WHEN WORKING ON A SHORELINE OR BELOW THE WATERLINE. IMMEDIATELY AFTER THE SHORT TERM CONSTRUCTION ACTIVITY (E.G., INSTALLATION OF RIP RAP ALONG THE SHORELINE) IN THAT AREA IS COMPLETE, PERMITTEES MUST INSTALL AN UPLAND PERIMETER CONTROL PRACTICE IF EXPOSED SOILS STILL DRAIN TO A SURFACE WATER.
5. PERMITTEES MUST RE-INSTALL ALL SEDIMENT CONTROL PRACTICES ADJUSTED OR REMOVED TO ACCOMMODATE SHORT-TERM ACTIVITIES SUCH AS CLEARING OR GRUBBING, OR PASSAGE OF VEHICLES, IMMEDIATELY AFTER THE SHORT-TERM ACTIVITY IS COMPLETED. PERMITTEES MUST RE-INSTALL SEDIMENT CONTROL PRACTICES BEFORE THE NEXT PRECIPITATION EVENT EVEN IF THE SHORT-TERM ACTIVITY IS NOT COMPLETE.
6. PERMITTEES MUST PROTECT ALL STORM DRAIN INLETS USING APPROPRIATE BMPS DURING CONSTRUCTION UNTIL THEY ESTABLISH PERMANENT COVER ON ALL AREAS WITH POTENTIAL FOR DISCHARGING TO THE INLET.
7. PERMITTEES MAY REMOVE INLET PROTECTION FOR A PARTICULAR INLET IF A SPECIFIC SAFETY CONCERN (E.G. STREET FLOODING/FREEZING) IS IDENTIFIED BY THE PERMITTEES OR THE JURISDICTIONAL AUTHORITY (E.G., CITY/COUNTY/TOWNSHIP/MINNESOTA DEPARTMENT OF TRANSPORTATION ENGINEER). PERMITTEES MUST DOCUMENT THE NEED FOR REMOVAL IN THE SWPPP.
8. PERMITTEES MUST PROVIDE SILT FENCE OR OTHER EFFECTIVE SEDIMENT CONTROLS AT THE BASE OF STOCKPILES ON THE DOWNGRADIENT PERIMETER.
9. PERMITTEES MUST LOCATE STOCKPILES OUTSIDE OF NATURAL BUFFERS OR SURFACE WATERS, INCLUDING STORMWATER CONVEYANCES SUCH AS CURB AND GUTTER SYSTEMS UNLESS THERE IS A BYPASS IN PLACE FOR THE STORMWATER.
10. PERMITTEES MUST INSTALL A VEHICLE TRACKING BMP TO MINIMIZE THE TRACK OUT OF SEDIMENT FROM THE CONSTRUCTION SITE OR ONTO PAVED ROADS WITHIN THE SITE.
11. PERMITTEES MUST USE STREET SWEEPING IF VEHICLE TRACKING BMPS ARE NOT ADEQUATE TO PREVENT SEDIMENT TRACKING ONTO THE STREET.
12. PERMITTEES MUST INSTALL TEMPORARY SEDIMENT BASINS AS REQUIRED IN SECTION 14.
13. IN ANY AREAS OF THE SITE WHERE FINAL VEGETATIVE STABILIZATION WILL OCCUR, PERMITTEES MUST RESTRICT VEHICLE AND EQUIPMENT USE TO MINIMIZE SOIL COMPACTION.
14. PERMITTEES MUST PRESERVE TOPSOIL ON THE SITE, UNLESS INFEASIBLE.
15. PERMITTEES MUST DIRECT DISCHARGES FROM BMPS TO VEGETATED AREAS UNLESS INFEASIBLE.
16. PERMITTEES MUST PRESERVE A 50 FOOT NATURAL BUFFER OR, IF A BUFFER IS INFEASIBLE ON THE SITE, PROVIDE REDUNDANT (DOUBLE) PERIMETER SEDIMENT CONTROLS WHEN A SURFACE WATER IS LOCATED WITHIN 50 FEET OF THE PROJECT'S EARTH DISTURBANCES AND STORMWATER FLOWS TO THE SURFACE WATER. PERMITTEES MUST INSTALL PERIMETER SEDIMENT CONTROLS AT LEAST 5 FEET APART UNLESS LIMITED BY LACK OF AVAILABLE SPACE. NATURAL BUFFERS ARE NOT REQUIRED ADJACENT TO ROAD DITCHES, JUDICIAL DITCHES, COUNTY DITCHES, STORMWATER CONVEYANCE CHANNELS, STORM DRAIN INLETS, AND SEDIMENT BASINS. IF PRESERVING THE BUFFER IS INFEASIBLE, PERMITTEES MUST DOCUMENT THE REASONS IN THE SWPPP. SHEET PILING IS A REDUNDANT PERIMETER CONTROL IF INSTALLED IN A MANNER THAT RETAINS ALL STORMWATER.
17. PERMITTEES MUST USE POLYMERS, FLOCCULANTS, OR OTHER SEDIMENTATION TREATMENT CHEMICALS IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICES, DOSING SPECIFICATIONS AND SEDIMENT REMOVAL DESIGN SPECIFICATIONS PROVIDED BY THE MANUFACTURER OR SUPPLIER. THE PERMITTEES MUST USE CONVENTIONAL EROSION AND SEDIMENT CONTROLS PRIOR TO CHEMICAL ADDITION AND MUST DIRECT TREATED STORMWATER TO A SEDIMENT CONTROL SYSTEM FOR FILTRATION OR SETTLEMENT OF THE FLOC PRIOR TO DISCHARGE.

DEWATERING AND BASIN DRAINING (SECTION 10):

1. PERMITTEES MUST DISCHARGE TURBID OR SEDIMENT-LADEN WATERS RELATED TO DEWATERING OR BASIN DRAINING (E.G., PUMPED DISCHARGES, TRENCH/DITCH CUTS FOR DRAINAGE) TO A TEMPORARY OR PERMANENT SEDIMENT BASIN ON THE PROJECT SITE UNLESS INFEASIBLE. PERMITTEES MAY DEWATER TO SURFACE WATERS IF THEY VISUALLY CHECK TO ENSURE ADEQUATE TREATMENT HAS BEEN OBTAINED AND NUISANCE CONDITIONS (SEE MINN. R. 7050.0210, SUBP. 2) WILL NOT RESULT FROM THE DISCHARGE. IF PERMITTEES CANNOT DISCHARGE THE WATER TO A SEDIMENTATION BASIN PRIOR TO ENTERING A SURFACE WATER, PERMITTEES MUST TREAT IT WITH APPROPRIATE BMPS SUCH THAT THE DISCHARGE DOES NOT ADVERSELY AFFECT THE SURFACE WATER OR DOWNSTREAM PROPERTIES.
2. IF PERMITTEES MUST DISCHARGE WATER CONTAINING OIL OR GREASE, THEY MUST USE AN OIL-WATER SEPARATOR OR SUITABLE FILTRATION DEVICE (E.G., CARTRIDGE FILTERS, ABSORBENTS PADS) PRIOR TO DISCHARGE.
3. PERMITTEES MUST DISCHARGE ALL WATER FROM DEWATERING OR BASIN-DRAINING ACTIVITIES IN A MANNER THAT DOES NOT CAUSE EROSION OR SCOUR IN THE IMMEDIATE VICINITY OF DISCHARGE POINTS OR INUNDATION OF WETLANDS IN THE IMMEDIATE VICINITY OF DISCHARGE POINTS THAT CAUSES SIGNIFICANT ADVERSE IMPACT TO THE WETLAND.
4. IF PERMITTEES USE FILTERS WITH BACKWASH WATER, THEY MUST HAUL THE BACKWASH WATER AWAY FOR DISPOSAL, RETURN THE BACKWASH WATER TO THE BEGINNING OF THE TREATMENT PROCESS, OR INCORPORATE THE BACKWASH WATER INTO THE SITE IN A MANNER THAT DOES NOT CAUSE EROSION.

INSPECTIONS AND MAINTENANCE (SECTION 11):

1. PERMITTEES MUST ENSURE A TRAINED PERSON, AS IDENTIFIED IN ITEM 21.2.B, WILL INSPECT THE ENTIRE CONSTRUCTION SITE AT LEAST ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 1/2 INCH IN 24 HOURS.
2. PERMITTEES MUST INSPECT AND MAINTAIN ALL PERMANENT STORMWATER TREATMENT BMPS.
3. PERMITTEES MUST INSPECT ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPS AND POLLUTION PREVENTION MANAGEMENT MEASURES TO ENSURE INTEGRITY AND EFFECTIVENESS. PERMITTEES MUST REPAIR, REPLACE OR SUPPLEMENT ALL NONFUNCTIONAL BMPS WITH FUNCTIONAL BMPS BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY UNLESS ANOTHER TIME FRAME IS SPECIFIED IN ITEM 11.5 OR 11.6. PERMITTEES MAY TAKE ADDITIONAL TIME IF FIELD CONDITIONS PREVENT ACCESS TO THE AREA.
4. DURING EACH INSPECTION, PERMITTEES MUST INSPECT SURFACE WATERS, INCLUDING DRAINAGE DITCHES AND CONVEYANCE SYSTEMS BUT NOT CURB AND GUTTER SYSTEMS, FOR EVIDENCE OF EROSION AND SEDIMENT DEPOSITION. PERMITTEES MUST REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS, INCLUDING DRAINAGE WAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS AND RESTABILIZE THE AREAS WHERE SEDIMENT REMOVAL RESULTS IN EXPOSED SOIL. PERMITTEES MUST COMPLETE REMOVAL AND STABILIZATION WITHIN SEVEN (7) CALENDAR DAYS OF DISCOVERY UNLESS PRECLUDED BY LEGAL, REGULATORY, OR PHYSICAL ACCESS CONSTRAINTS. PERMITTEES MUST USE ALL REASONABLE EFFORTS TO OBTAIN ACCESS. IF PRECLUDED, REMOVAL AND STABILIZATION MUST TAKE PLACE WITHIN SEVEN (7) DAYS OF OBTAINING ACCESS. PERMITTEES ARE RESPONSIBLE FOR CONTACTING ALL LOCAL, REGIONAL, STATE AND FEDERAL AUTHORITIES AND RECEIVING ANY APPLICABLE PERMITS, PRIOR TO CONDUCTING ANY WORK IN SURFACE WATERS.
5. PERMITTEES MUST INSPECT CONSTRUCTION SITE VEHICLE EXIT LOCATIONS, STREETS AND CURB AND GUTTER SYSTEMS WITHIN AND ADJACENT TO THE PROJECT FOR SEDIMENTATION FROM EROSION OR TRACKED SEDIMENT FROM VEHICLES. PERMITTEES MUST REMOVE SEDIMENT FROM ALL PAVED SURFACES WITHIN ONE (1) CALENDAR DAY OF DISCOVERY OR, IF APPLICABLE, WITHIN A SHORTER TIME TO AVOID A SAFETY HAZARD TO USERS OF PUBLIC STREETS.
6. PERMITTEES MUST REPAIR, REPLACE OR SUPPLEMENT ALL PERIMETER CONTROL DEVICES WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/2 OF THE HEIGHT OF THE DEVICE.
7. PERMITTEES MUST DRAIN TEMPORARY AND PERMANENT SEDIMENTATION BASINS AND REMOVE THE SEDIMENT WHEN THE DEPTH OF SEDIMENT COLLECTED IN THE BASIN REACHES 1/2 THE STORAGE VOLUME.
8. PERMITTEES MUST ENSURE THAT AT LEAST ONE INDIVIDUAL PRESENT ON THE SITE (OR AVAILABLE TO THE PROJECT SITE IN THREE (3) CALENDAR DAYS) IS TRAINED IN THE JOB DUTIES DESCRIBED IN ITEM 21.2.B.
9. PERMITTEES MAY ADJUST THE INSPECTION SCHEDULE DESCRIBED IN ITEM 11.2 AS FOLLOWS:
   - a. INSPECTIONS OF AREAS WITH PERMANENT COVER CAN BE REDUCED TO ONCE PER MONTH, EVEN IF CONSTRUCTION ACTIVITY CONTINUES ON OTHER PORTIONS OF THE SITE; OR
   - b. WHERE SITES HAVE PERMANENT COVER ON ALL EXPOSED SOIL AND NO CONSTRUCTION ACTIVITY IS OCCURRING ANYWHERE ON THE SITE, INSPECTIONS CAN BE REDUCED TO ONCE PER MONTH AND, AFTER 12 MONTHS, MAY BE SUSPENDED COMPLETELY UNTIL CONSTRUCTION ACTIVITY RESUMES. THE MPCA MAY REQUIRE INSPECTIONS TO RESUME IF CONDITIONS WARRANT; OR
   - c. WHERE CONSTRUCTION ACTIVITY HAS BEEN SUSPENDED DUE TO FROZEN GROUND CONDITIONS, INSPECTIONS MAY BE SUSPENDED. INSPECTIONS MUST RESUME WITHIN 24 HOURS OF RUNOFF OCCURRING, OR UPON RESUMING CONSTRUCTION, WHICHEVER COMES FIRST.
10. PERMITTEES MUST RECORD ALL INSPECTIONS AND MAINTENANCE ACTIVITIES WITHIN 24 HOURS OF BEING CONDUCTED AND THESE RECORDS MUST BE RETAINED WITH THE SWPPP. THESE RECORDS MUST INCLUDE:
    - a. DATE AND TIME OF INSPECTIONS; AND
    - b. NAME OF PERSONS CONDUCTING INSPECTIONS; AND
    - c. ACCURATE FINDINGS OF INSPECTIONS, INCLUDING THE SPECIFIC LOCATION WHERE CORRECTIVE ACTIONS ARE NEEDED; AND
    - d. CORRECTIVE ACTIONS TAKEN (INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES); AND
    - e. DATE OF ALL RAINFALL EVENTS GREATER THAN 1/2 INCHES IN 24 HOURS, AND THE AMOUNT OF RAINFALL FOR EACH EVENT. PERMITTEES MUST OBTAIN RAINFALL AMOUNTS BY EITHER A PROPERLY MAINTAINED RAIN GAUGE INSTALLED ONSITE, A WEATHER STATION THAT IS WITHIN ONE (1) MILE OF YOUR LOCATION, OR A WEATHER REPORTING SYSTEM THAT PROVIDES SITE SPECIFIC RAINFALL DATA FROM RADAR SUMMARIES; AND
    - f. IF PERMITTEES OBSERVE A DISCHARGE DURING THE INSPECTION, THEY MUST RECORD AND SHOULD PHOTOGRAPH AND DESCRIBE THE LOCATION OF THE DISCHARGE (I.E., COLOR, ODOR, SETTLED OR SUSPENDED SOLIDS, OIL SHEEN, AND OTHER OBVIOUS INDICATORS OF POLLUTANTS); AND
    - g. ANY AMENDMENTS TO THE SWPPP PROPOSED AS A RESULT OF THE INSPECTION MUST BE DOCUMENTED AS REQUIRED IN SECTION 6 WITHIN SEVEN (7) CALENDAR DAYS.

POLLUTION PREVENTION MANAGEMENT (SECTION 12):

1. PERMITTEES MUST PLACE BUILDING PRODUCTS AND LANDSCAPE MATERIALS UNDER COVER (E.G., PLASTIC SHEETING OR TEMPORARY ROOFS) OR PROTECT THEM BY SIMILARLY EFFECTIVE MEANS DESIGNED TO MINIMIZE CONTACT WITH STORMWATER. PERMITTEES ARE NOT REQUIRED TO COVER OR PROTECT PRODUCTS WHICH ARE EITHER NOT A SOURCE OF CONTAMINATION TO STORMWATER OR ARE DESIGNED TO BE EXPOSED TO STORMWATER.
2. PERMITTEES MUST PLACE PESTICIDES, FERTILIZERS AND TREATMENT CHEMICALS UNDER COVER (E.G., PLASTIC SHEETING OR TEMPORARY ROOFS) OR PROTECT THEM BY SIMILARLY EFFECTIVE MEANS DESIGNED TO MINIMIZE CONTACT WITH STORMWATER.
3. PERMITTEES MUST STORE HAZARDOUS MATERIALS AND TOXIC WASTE, (INCLUDING OIL, DIESEL FUEL, GASOLINE, HYDRAULIC FLUIDS, PAINT SOLVENTS, PETROLEUM-BASED PRODUCTS, WOOD PRESERVATIVES, ADDITIVES, CURING COMPOUNDS, AND ACIDS) IN SEALED CONTAINERS TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MATERIALS MUST BE IN COMPLIANCE WITH MINN. R. CH. 7045 INCLUDING SECONDARY CONTAINMENT AS APPLICABLE.
4. PERMITTEES MUST PROPERLY STORE, COLLECT AND DISPOSE SOLID WASTE IN COMPLIANCE WITH MINN. R. CH. 7035.
5. PERMITTEES MUST POSITION PORTABLE TOILETS SO THEY ARE SECURE AND WILL NOT TIP OR BE KNOCKED OVER. PERMITTEES MUST PROPERLY DISPOSE SANITARY WASTE IN ACCORDANCE WITH MINN. R. CH. 7041.
6. PERMITTEES MUST TAKE REASONABLE STEPS TO PREVENT THE DISCHARGE OF SPILLED OR LEAKED CHEMICALS, INCLUDING FUEL, FROM ANY AREA WHERE CHEMICALS OR FUEL WILL BE LOADED OR UNLOADED INCLUDING THE USE OF DRIP PANS OR ABSORBENTS UNLESS INFEASIBLE. PERMITTEES MUST ENSURE ADEQUATE SUPPLIES ARE AVAILABLE AT ALL TIMES TO CLEAN UP DISCHARGED MATERIALS AND THAT AN APPROPRIATE DISPOSAL METHOD IS AVAILABLE FOR RECOVERED SPILLED MATERIALS. PERMITTEES MUST REPORT AND CLEAN UP SPILLS IMMEDIATELY AS REQUIRED BY MINN. STAT. 115.061, USING DRY CLEAN UP MEASURES WHERE POSSIBLE.
7. PERMITTEES MUST LIMIT VEHICLE EXTERIOR WASHING AND EQUIPMENT TO A DEFINED AREA OF THE SITE. PERMITTEES MUST CONTAIN RUNOFF FROM THE WASHING AREA IN A SEDIMENT BASIN OR OTHER SIMILARLY EFFECTIVE CONTROLS AND MUST DISPOSE WASTE FROM THE WASHING ACTIVITY PROPERLY. PERMITTEES MUST PROPERLY USE AND STORE SOAPS, DETERGENTS, OR SOLVENTS.
8. PERMITTEES MUST PROVIDE EFFECTIVE CONTAINMENT FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OPERATIONS (E.G., CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS) RELATED TO THE CONSTRUCTION ACTIVITY. PERMITTEES MUST PREVENT LIQUID AND SOLID WASHOUT WASTES FROM CONTACTING THE GROUND AND MUST DESIGN THE CONTAINMENT SO IT DOES NOT RESULT IN RUNOFF FROM THE WASHOUT OPERATIONS OR AREAS. PERMITTEES MUST PROPERLY DISPOSE LIQUID AND SOLID WASTES IN COMPLIANCE WITH MPCA RULES. PERMITTEES MUST INSTALL A SIGN INDICATING THE LOCATION OF THE WASHOUT FACILITY.

PERMIT TERMINATION (SECTION 4 AND SECTION 13):

1. PERMITTEES MUST SUBMIT A NOT WITHIN 30 DAYS AFTER ALL TERMINATION CONDITIONS LISTED IN SECTION 13 ARE COMPLETE.
2. PERMITTEES MUST SUBMIT A NOT WITHIN 30 DAYS AFTER SELLING OR OTHERWISE LEGALLY TRANSFERRING THE ENTIRE SITE, INCLUDING PERMIT RESPONSIBILITY FOR ROADS (E.G., STREET SWEEPING) AND STORMWATER INFRASTRUCTURE FINAL CLEAN OUT, OR TRANSFERRING PORTIONS OF A SITE TO ANOTHER PARTY. THE PERMITTEES' COVERAGE UNDER THIS PERMIT TERMINATES AT MIDNIGHT ON THE SUBMISSION DATE OF THE NOT.
3. PERMITTEES MUST COMPLETE ALL CONSTRUCTION ACTIVITY AND MUST INSTALL PERMANENT COVER OVER ALL AREAS PRIOR TO SUBMITTING THE NOT. VEGETATIVE COVER MUST CONSIST OF A UNIFORM PERENNIAL VEGETATION WITH A DENSITY OF 70 PERCENT OF ITS EXPECTED FINAL GROWTH. VEGETATION IS NOT REQUIRED WHERE THE FUNCTION OF A SPECIFIC AREA DICTATES NO VEGETATION, SUCH AS IMPERVIOUS SURFACES OR THE BASE OF A SAND FILTER.
4. PERMITTEES MUST CLEAN THE PERMANENT STORMWATER TREATMENT SYSTEM OF ANY ACCUMULATED SEDIMENT AND MUST ENSURE THE SYSTEM MEETS ALL APPLICABLE REQUIREMENTS IN SECTION 15 THROUGH 19 AND IS OPERATING AS DESIGNED.
5. PERMITTEES MUST REMOVE ALL SEDIMENT FROM CONVEYANCE SYSTEMS PRIOR TO SUBMITTING THE NOT.
6. PERMITTEES MUST REMOVE ALL TEMPORARY SYNTHETIC EROSION PREVENTION AND SEDIMENT CONTROL BMPS PRIOR TO SUBMITTING THE NOT. PERMITTEES MAY LEAVE BMPS DESIGNED TO DECOMPOSE ON-SITE IN PLACE.
7. FOR RESIDENTIAL CONSTRUCTION ONLY, PERMIT COVERAGE TERMINATES ON INDIVIDUAL LOTS IF THE STRUCTURES ARE FINISHED AND TEMPORARY EROSION PREVENTION AND DOWNGRADIENT PERIMETER CONTROL IS COMPLETE, THE RESIDENCE SELLS TO THE HOMEOWNER, AND THE PERMITTEE DISTRIBUTES THE MPCA'S "HOMEOWNER FACT SHEET" TO THE HOMEOWNER.
8. FOR CONSTRUCTION PROJECTS ON AGRICULTURAL LAND (E.G., PIPELINES ACROSS CROPLAND), PERMITTEES MUST RETURN THE DISTURBED LAND TO ITS PRECONSTRUCTION AGRICULTURAL USE PRIOR TO SUBMITTING THE NOT.

SEED NOTES:

ALL SEED MIXES AND APPLICATION SHALL BE IN ACCORDANCE WITH THE MNDOT SEEDING MANUAL.

GENERAL RECOMMENDATIONS:
THE CONTRACTOR IS RESPONSIBLE TO SALVAGE AND PRESERVE EXISTING TOPSOIL NECESSARY FOR FINAL STABILIZATION AND TO ALSO MINIMIZE COMPACTION IN ALL LANDSCAPE AREAS. IMMEDIATELY BEFORE SEEDING THE SOIL SHALL BE TILLED TO A MINIMUM DEPTH OF 3 INCHES.

TEMPORARY EROSION CONTROL SEEDING, MULCHING & BLANKET.

SEED
- TEMPORARY SEED SHALL BE MNDOT SEED MIX 21-112 (WINTER WHEAT COVER CROP) FOR WINTER AND 21-111 (OATS COVER CROP) FOR SPRING/SUMMER APPLICATIONS. BOTH SEED MIXES SHALL BE APPLIED AT A SEEDING RATE OF 100 LBS/ACRE.

MULCH
- IMMEDIATELY AFTER SEEDING, WITHIN 24 HOURS, MNDOT TYPE 1 MULCH SHOULD BE APPLIED TO PROTECT AND ENHANCE SEED GERMINATION. MULCH SHALL BE APPLIED AT 90% COVERAGE (2 TONS PER ACRE OF STRAW MULCH)

SLOPES
- 3:1 (HORIZ/VERT.) OR FLATTER MUCH SHALL BE COVERED WITH MULCH
- SLOPES STEEPER THAN 3:1 OR DITCH BOTTOMS SHALL BE COVERED WITH EROSION CONTROL BLANKET.
- SEE PLAN FOR MORE DETAILED DITCH AND STEEP SLOPE EROSION CONTROL TREATMENTS.

TRAINING SECTION 21

DESIGN ENGINEER: DAVID J. KNAEBLE P.E.
TRAINING COURSE: DESIGN OF SWPPP
TRAINING ENTITY: UNIVERSITY OF MINNESOTA
INSTRUCTOR: JOHN CHAPMAN
DATES OF TRAINING COURSE: 8/22/2012- 8/23/2012
TOTAL TRAINING HOURS: 12
DATE OF RECERTIFICATION: 4/22/22
EXPIRATION: 5/31/2025

OWNER INFORMATION

MIDCOUNTRY BANK FSB
7825 WASHINGTON AVE S, SUITE 900
BLOOMINGTON, MN 55439
CONTACT: CHRIS VOSBEEK
952-400-2821

AREAS AND QUANTITIES:

SITE AREA CALCULATIONS	EXISTING CONDITION		PROPOSED CONDITION	
BUILDING COVERAGE	3,449 SF	8.5%	4,424 SF	10.9%
ALL PAVEMENTS	22,672 SF	56.0%	26,986 SF	66.6%
ALL NON-PAVEMENTS	14,369 SF	35.5%	9,080 SF	22.4%
TOTAL SITE AREA	40,490 SF	100.0%	40,490 SF	100.0%

IMPERVIOUS SURFACE		
EXISTING CONDITION	26,121 SF	64.5%
PROPOSED CONDITION	31,410 SF	77.6%
DIFFERENCE (EX. VS PROP.)	5,289 SF	13.1%

EROSION CONTROL QUANTITIES		
DISTURBED AREA	41,598 SF	0.95 AC
SILT FENCE/BIO-ROLL	±1000 LF	
EROSION CONTROL BLANKET	±3320 SF	
INLET PROTECTION DEVICES	±14 EA	

NOTE: QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR SHALL DETERMINE FOR THEMSELVES THE EXACT QUANTITIES FOR BIDDING AND CONSTRUCTION.

SWPPP CONTACT PERSON

CONTRACTOR:

SWPPP INSPECTOR TRAINING:
ALL SWPPP INSPECTIONS MUST BE PERFORMED BY A PERSON THAT MEETS THE TRAINING REQUIREMENTS OF THE NPDES CONSTRUCTION SITE PERMIT.
TRAINING CREDENTIALS SHALL BE PROVIDED BY THE CONTRACTOR AND KEPT ON SITE WITH THE SWPPP

PARTY RESPONSIBLE FOR LONG TERM OPERATION AND MAINTENANCE OF PERMANENT STORM WATER MANAGEMENT SYSTEM

PERMANENT STORMWATER MANAGEMENT IS NOT REQUIRED AS PART OF THIS PROJECT TO MEET NPDES PERMIT REQUIREMENTS. THE PROPERTY OWNER IS RESPONSIBLE FOR THE LONG TERM OPERATION AND MAINTENANCE OF THE PROPOSED STORMWATER SYSTEM.

SWPPP ATTACHMENTS (ONLY APPLICABLE IF SITE IS 1 ACRE OR GREATER):

N/A

SUPPLEMENTARY SITE SPECIFIC EROSION CONTROL NOTES:

THESE NOTES SUPERCEDE ANY GENERAL SWPPP NOTES.

THIS PROJECT IS LESS THAN 1.0 ACRES SO AN NPDES PERMIT IS NOT REQUIRED.

PROJECT NARRATIVE:

PROJECT IS A REDEVELOPMENT OF AN EXISTING COMMERCIAL SITE INTO A NEW COMMERCIAL BANK BUILDING. SITE AND LANDSCAPE IMPROVEMENTS WILL OCCUR.

SPECIAL TMDL BMP REQUIREMENTS SITE SPECIFIC (IF REQUIRED):

NOT REQUIRED

PERMANENT STABILIZATION NOTES SITE SPECIFIC:

PERMANENT SEED MIX
- FOR THIS PROJECT ALL AREAS THAT ARE NOT TO BE SODDED OR LANDSCAPED SHALL RECEIVE A NATIVE PERMANENT SEED MIX.
  - AREAS IN BUFFERS AND ADJACENT TO OR IN WET AREAS MNDOT SEED MIX 33-261 (STORMWATER SOUTH AND WEST) AT 35 LBS PER ACRE.
  - DRY AREAS MNDOT SEED MIX 35-221 (DRY PRAIRIE GENERAL) AT 40 LBS PER ACRE.
- MAINTENANCE SHALL BE IN ACCORDANCE TO THE MNDOT SEEDING MANUAL.

CivilSite GROUP
Civil Engineering • Surveying • Landscape Architecture
5000 Glenwood Avenue
Golden Valley, MN 55422
civilsitegroup.com 612-615-0060

SRa_ ARCHITECTURE | INTERIORS

PRELIMINARY: NOT FOR CONSTRUCTION

PROJECT
MIDCOUNTRY BANK
14617 STATE HIGHWAY 7, MINNETONKA, MN 55345

MIDCOUNTRY BANK FSB
7825 WASHINGTON AVE S, SUITE 900, BLOOMINGTON, MN 55439

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.

David J. Knaeble
DATE 03-06-23 LICENSE NO. 48776

ISSUE/SUBMITTAL SUMMARY

DATE	DESCRIPTION
3/6/2023	CITY SUBMITTAL

DRAWN BY: BN, AM REVIEWED BY: DK
PROJECT NUMBER: 22450

REVISION SUMMARY

DATE	DESCRIPTION

SWPPP - NARRATIVE

SW1.3

MIDCOUNTRY BANK - REDEVELOPMENT

14617 MN-7, MINNETONKA, MN 55345

PROJECT TEAM

OWNER

MIDCOUNTRY BANK
14617 MN-7
MINNETONKA, MN 55345
CHRIS VOSBEEK
952-400-2821
CHRIS.VOSBEEK@MIDCOUNTRYBANK.COM

GENERAL CONTRACTOR

ENGELSMA CONSTRUCTION INC.
7119 31ST AVE NORTH
MINNEAPOLIS, MN 55427
PROJECT MANAGER:
SCOTT GREWE
612-310-6061
SCOTTG@ECIMN.COM
VP OPERATIONS:
JON WOLFF
612-272-3409
JONW@ECIMN.COM

ARCHITECT OF RECORD

SPERIDES REINERS ARCHITECTS, INC.
6442 CITY WEST PARKWAY
SUITE #300
EDEN PRAIRIE, MN 55344
PROJECT CONTACT
JEFF GEARS
952-270-2482
JEFFG@SRA-MN.COM

MECHANICAL PLUMBING

Company
ANY STREET
SUITE #
CITY, ZIP USA
NAME
PHONE
EMAIL@ADDRESS.COM

ELECTRICAL

Company
ANY STREET
SUITE #
CITY, ZIP USA
NAME
PHONE
EMAIL@ADDRESS.COM

STRUCTURAL ENGINEER

Company
ANY STREET
SUITE #
CITY, ZIP USA
NAME
PHONE
EMAIL@ADDRESS.COM

CIVIL ENGINEER

CIVIL SITE GROUP
5000 GLENWOOD AVENUE
GOLDEN VALLEY, MN 55422
DAVE KNAEBLE
763-234-7523
DKNAEBLE@CIVILSITEGROUP.COM

LANDSCAPE ARCHITECT

CIVIL SITE GROUP
5000 GLENWOOD AVENUE
GOLDEN VALLEY, MN 55422
NAME
PHONE
E-MAIL

GENERAL NOTES

A. STUD FRAMING EXTENDED TO STRUCTURE ABOVE SHALL HAVE 3" X 3 5/8" GALVANIZED STUD TRACK AT TOP. STUD FRAMING SHALL BE 3/4" FROM TOP OF TRACK AND HAVE NO MECHANICAL FASTENING TO ALLOW FOR 3/4" DEFLECTION.

B. VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, AND ALIGNMENT OF WALLS. BRING ANY DISCREPANCIES TO THE ARCHITECTS ATTENTION PRIOR TO FABRICATION/ CONSTRUCTION BEGINS.

C. CONTRACTOR TO INSTALL EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.

D. HOLD 1/2" CLEARANCE BETWEEN FLOOR AND GYPSUM BOARD. FILL GAP BETWEEN BOTTOM EDGE OF GYPSUM BOARD AND FLOOR WITH SEALANT. STRIKE SEALANT SMOOTH AND FLUSH WITH FACE OF PARTITION. REMOVE EXCESS SEALANT FROM PARTITION AND FLOOR.

E. CHANGES IN FLOOR MATERIALS SHALL BE LOCATED AT THE CENTERLINE OF THE DOOR LEAF OR AS SHOWN ON THE FLOOR/ FINISH PLAN.

F. VERIFY LOCATION OF ACCESS PANELS WITH MECHANICAL AND ELECTRICAL DRAWINGS FOR ACCESS TO MECHANICAL AND ELECTRICAL ITEMS.

G. SEAL PENETRATIONS IN FIRE RATED ASSEMBLIES AND SMOKE BARRIERS TO MEET REQUIRED RATINGS. UTILIZE UL APPROVED METHODS.

H. PROVIDE FIRE TREATED BLOCKING AS REQUIRED TO SUPPORT ALL CABINETS, SHELVES, BUILT-INS, EQUIPMENT OR ACCESSORIES. COORDINATE WITH VENDOR DOCUMENTS WHERE SUCH CONDITIONS APPLY.

I. NOTIFY THE ARCHITECT IF ELECTRICAL/ COMMUNICATION/ HVAC/ PLUMBING/ ITEMS DEPICTED CONFLICT WITH ADA REQUIREMENTS OR INDUSTRY STANDARDS.
PRIOR TO INSTALLATION:
NOTE: ALL DEVICES AND CONTROLS TO BE INSTALLED WITHIN A MAXIMUM OF 4" OF EACH OTHER HORIZONTALLY (NOT 16" O.C.) AND ALIGN THE BOTTOMS OF EACH ITEM. IN THE VERTICAL POSITION ALIGN THE ITEMS ON CENTERLINES.

J. DURING CONSTRUCTION, AREA SHALL BE KEPT CLEAN AND ORDERLY.

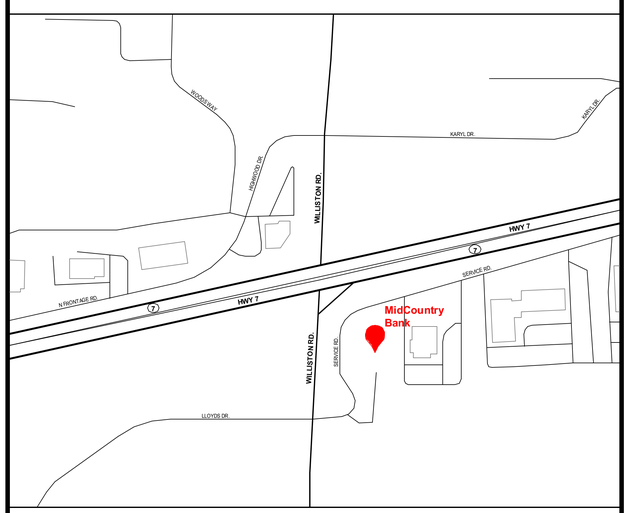
K. LIGHTING, EXIT LIGHTING INFORMATION, ELECTRICAL, DATA AND TELEPHONE INFORMATION SHOWN ARE FOR ELECTRICAL CONTRACTORS REFERENCE ONLY. CONTRACTOR SHALL ENSURE COORDINATION OF ELECTRICAL ITEMS WITH BUILDING CONSTRUCTION AND EQUIPMENT AND SHALL OBTAIN THE NEEDED INFORMATION TO PROVIDE A COMPLETE AND WORKING INSTALLATION.

L. CONSTRUCTION SHALL BE IN ACCORDANCE WITH STATE AND LOCAL CODES.

M. PROVIDE GFI ELECTRICAL OUTLETS AT LOCATIONS REQUIRED BY CODE.

PROJECT IMAGE

LOCATION MAP



SHEET INDEX

SHEET	SHEET NAME	ISSUE RECORD	VARIANCE APPLICATION	CONDITIONAL USE PERMIT	SITE AND BUILDING PLAN REVIEW				
ARCHITECTURAL									
A000	TITLE SHEET		•	•	•				
A001	ABBREVIATIONS, SYMBOLS & TYPICAL MOUNTING HEIGHTS								
A002	LIFE SAFETY PLANS								
A003	PARTITION TYPES								
A100	ARCHITECTURAL DEMOLITION SITE PLAN		•	•	•				
A110	SITE PLAN & FLOOR PLAN								
A200	LEVEL 1 FLOOR PLAN								
A201	LEVEL 2 FLOOR PLAN								
A220	FINISH PLAN, LEGEND, AND SCHEDULE								
A230	REFLECTED CEILING PLANS								
A240	ROOF PLAN & DETAILS								
A300	EXTERIOR ELEVATIONS		•	•	•				
A301	EXTERIOR RENDERINGS		•	•	•				
A400	BUILDING SECTIONS								
A410	WALL SECTIONS								
A500	EXTERIOR DETAILS								
A510	INTERIOR DETAILS								
A600	SCHEDULES / FRAMES TYPES								
A700	INTERIOR ELEVATIONS								
A701	CASEWORK SCHEDULE								
A820	FURNITURE PLAN								

SRa ARCHITECTURE + INTERIORS
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SUITE 300
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PRELIMINARY
NOT FOR
CONSTRUCTION

ISSUE RECORD		
ISSUE #	DATE	DESCRIPTION
	03/06/2023	VARIANCE APPLICATION
	03/06/2023	CONDITIONAL USE PERMIT APPLICATION
	03/06/2023	SITE AND BUILDING PLAN REVIEW

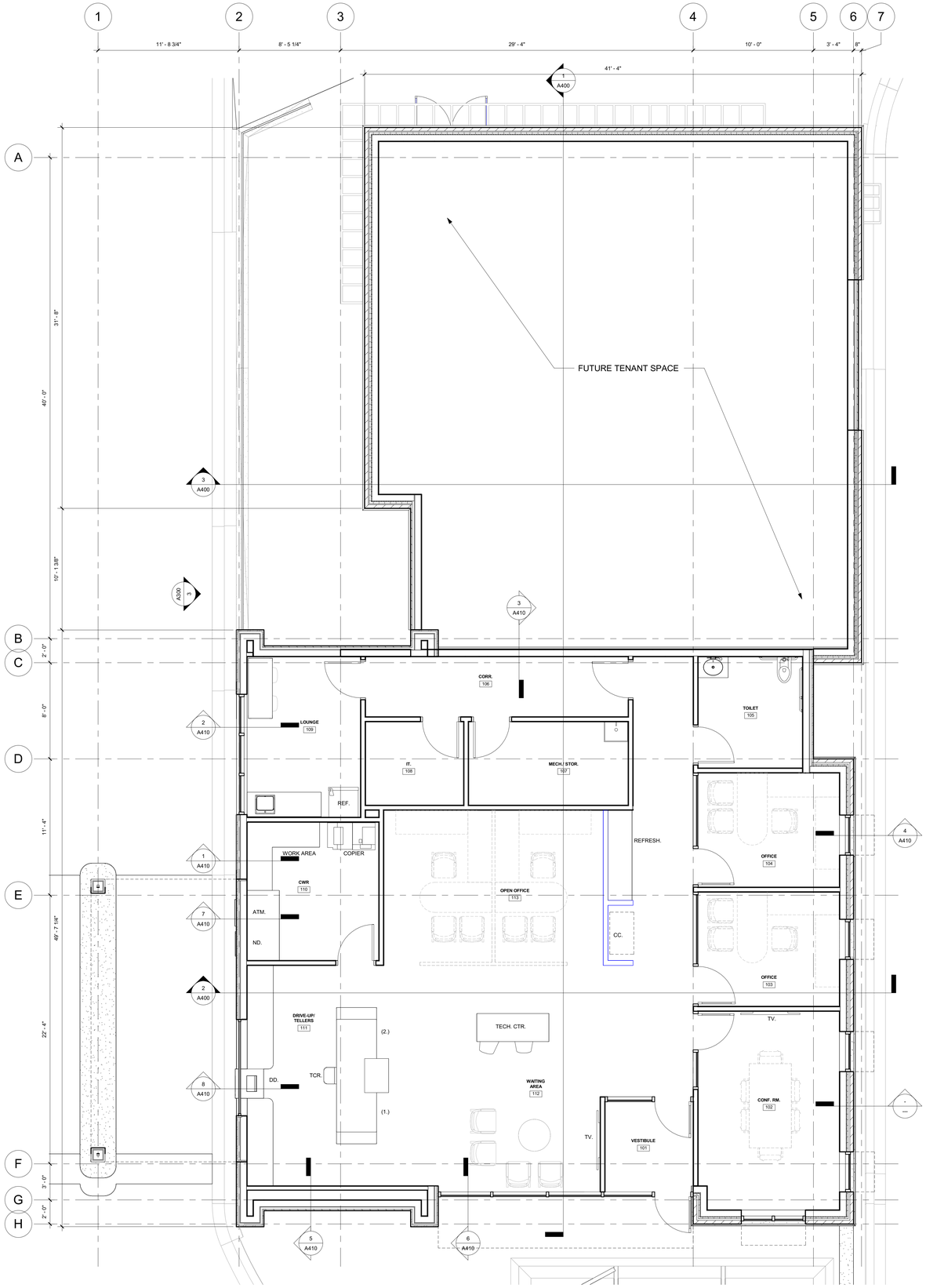
MIDCOUNTRY BANK
14617 MN-7
MINNETONKA, MN 55345

TITLE SHEET

PROJECT NO: 22-111
DRAWN BY: FJP
CHECKED BY: JG

A000

3/6/2023 7:43:17 PM



2 A110 LEVEL 2 FLOOR PLAN
SCALE: 1/4" = 1'-0"

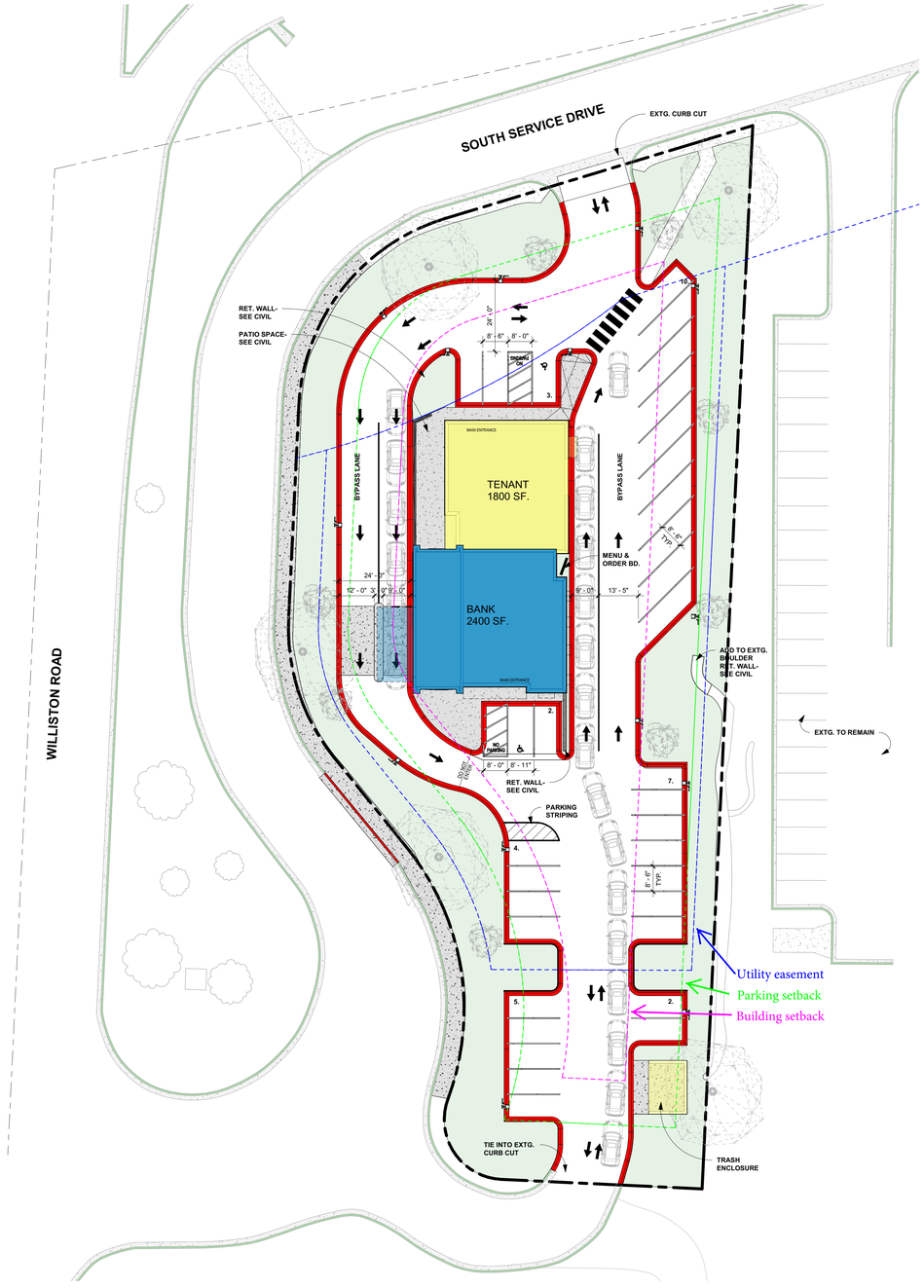
N
NORTH

SITE SUMMARY

TOTAL PARKING REQ'D:
BANK: 7 (2400 sf.)
(2.75 spots per 1000sf.)
RETAIL: 25 (1800 sf.)
(14 spots per 1000sf.)
TOTAL REQ'D: 32

TOTAL PARKING SHOWN:
BANK: 7
RETAIL: 26
TOTAL SHOWN: 33

LOT: .93 ACRES (40,500 sf.)
PERVIOUS: 31% (12,700 sf.)
IMPERVIOUS: 69% (27,800 sf.)
(MAX. IMPERVIOUS 85%)



1 A110 SITE PLAN
SCALE: 1" = 20'-0"

N
NORTH

SRA ARCHITECTURE + INTERIORS
6442 CITY WEST PARKWAY
SUITE 300
EDEN PRAIRIE, MINNESOTA 55344
PH: 952-996-9662
WWW.SRA-MN.COM

PRELIMINARY NOT FOR CONSTRUCTION

ISSUE RECORD

ISSUE #	DATE	DESCRIPTION
	03/06/2023	VARIANCE APPLICATION
	03/06/2023	CONDITIONAL USE PERMIT APPLICATION
	03/06/2023	SITE AND BUILDING PLAN REVIEW

MIDCOUNTRY BANK

14617 MN-7
MINNETONKA, MN 55345

SITE PLAN & FLOOR PLAN

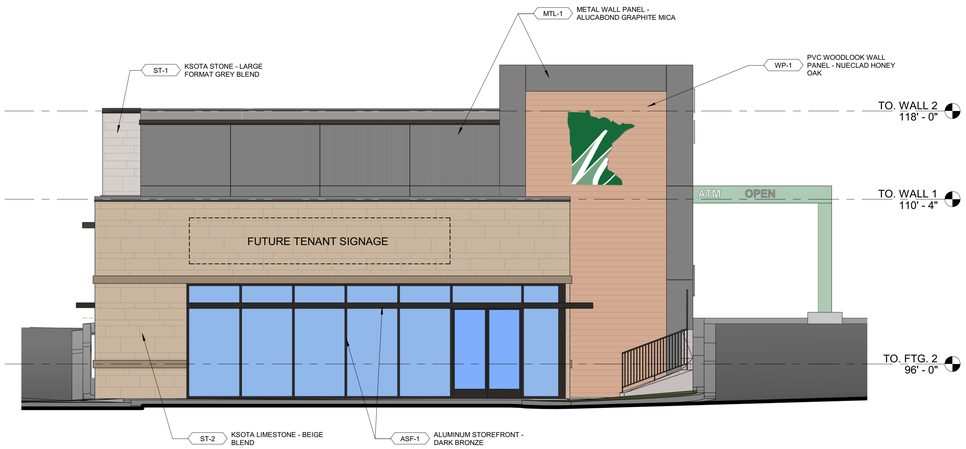
PROJECT NO: 22-111
DRAWN BY: FJP
CHECKED BY: JG

A110

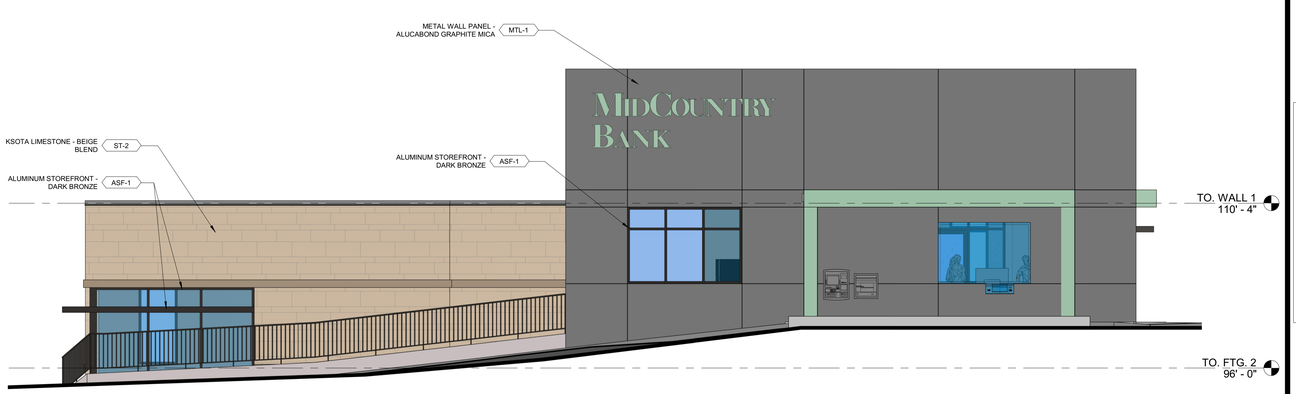
3/6/2023 7:43:32 PM

EXTERIOR MATERIALS %

NORTH EXTERIOR ELEVATION		
METAL PANEL:	25%	(330 sf.)
WOODLOOK:	20%	(256 sf.)
STONE:	30%	(417 sf.)
GLAZING:	25%	(330 sf.)
TOTAL:	100%	(1,333 sf.)
WEST EXTERIOR ELEVATION		
STONE:	29%	(506 sf.)
METAL PANEL:	58%	(1006 sf.)
GLAZING:	13%	(230 sf.)
TOTAL:	100%	(1,742 sf.)
SOUTH EXTERIOR ELEVATION		
METAL PANEL:	13%	(129 sf.)
WOODLOOK:	24%	(240 sf.)
STONE:	35%	(353 sf.)
GLAZING:	28%	(280 sf.)
TOTAL:	100%	(1,002 sf.)
EAST EXTERIOR ELEVATION		
METAL PANEL:	11%	(187 sf.)
WOODLOOK:	11%	(207 sf.)
STONE:	72%	(1263 sf.)
GLAZING:	6%	(112 sf.)
TOTAL:	100%	(1,769 sf.)
TOTAL BUILDING		
METAL PANEL:	28%	(1652 sf.)
WOODLOOK:	12%	(703 sf.)
STONE:	43%	(2539 sf.)
GLAZING:	17%	(952 sf.)
TOTAL:	100%	(5,846 sf.)

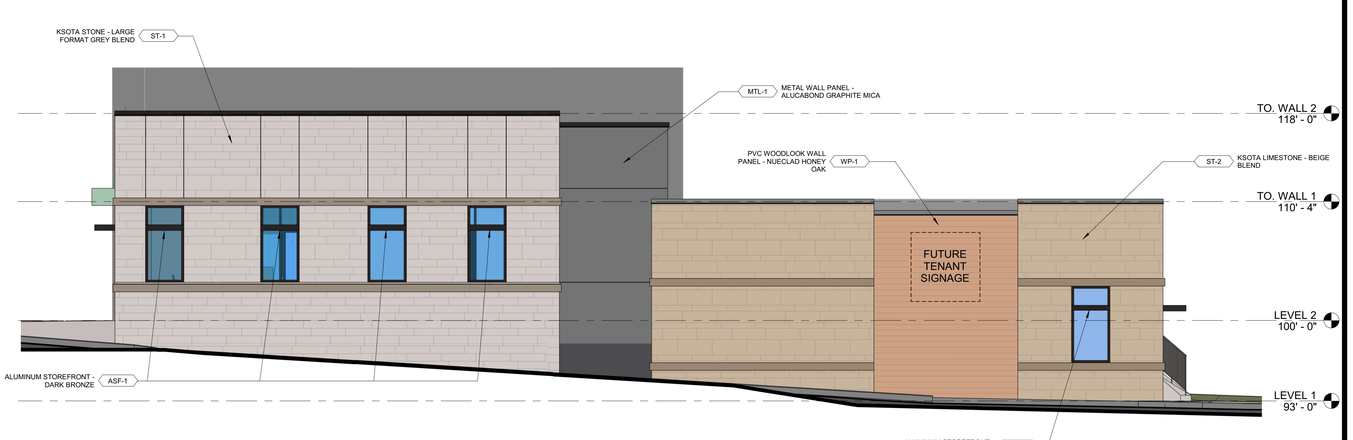


4 A300 NORTH EXTERIOR ELEVATION
SCALE: 3/16" = 1'-0"



3 A300 WEST EXTERIOR ELEVATION
SCALE: 3/16" = 1'-0"

2 A300 SOUTH EXTERIOR ELEVATION
SCALE: 3/16" = 1'-0"



1 A300 EAST EXTERIOR ELEVATION
SCALE: 3/16" = 1'-0"

SRA ARCHITECTURE + INTERIORS
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SUITE 300
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PRELIMINARY
NOT FOR
CONSTRUCTION

ISSUE RECORD

ISSUE #	DATE	DESCRIPTION
1	03/06/2023	VARIANCE APPLICATION
2	03/06/2023	CONDITIONAL USE PERMIT APPLICATION
3	03/06/2023	SITE AND BUILDING PLAN REVIEW

MIDCOUNTRY BANK

14617 MN-7
MINNETONKA, MN 55345

EXTERIOR
ELEVATIONS

PROJECT NO: 22-111
DRAWN BY: FJP
CHECKED BY: JG

A300

3/6/2023 7:43:05 PM

1 A301 SOUTHWEST VIEW
SCALE: 12" = 1'-0"

2 A301 SOUTHEAST VIEW
SCALE: 12" = 1'-0"

3 A301 NORTHEAST VIEW
SCALE: 12" = 1'-0"

4 A301 NORTHWEST VIEW
SCALE: 12" = 1'-0"

SRa. ARCHITECTURE + INTERIORS
6442 CITY WEST PARKWAY
SUITE 300
EDEN PRAIRIE, MINNESOTA 55344
PH: 952-996-9662
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PRELIMINARY
NOT FOR
CONSTRUCTION

ISSUE RECORD		
ISSUE #	DATE	DESCRIPTION
	03/06/2023	VARIANCE APPLICATION
	03/06/2023	CONDITIONAL USE PERMIT APPLICATION
	03/06/2023	SITE AND BUILDING PLAN REVIEW

MIDCOUNTRY BANK

14617 MN-7
MINNETONKA, MN 55345

EXTERIOR
RENDERINGS

PROJECT NO: 22-111
DRAWN BY: FJP
CHECKED BY: JG

A301

3/6/2023 7:43:44 PM

Stormwater Management Report

Owner:
MidCountry Bank FSB
7825 Washington Ave S, Suite 900
Bloomington, MN 55439

Project:
MidCountry Bank
14617 State HWY 7
Minnetonka, MN 55345

Engineer's Certification:

All plans and supporting Documentation contained in this report have been reviewed by me and it is hereby certified that to the best of my knowledge the plans comply with the requirements of the ordinance.

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

David J. Knaeble P.E.

Registration Number: 48776

Date:
03/06/2023

Table of Contents:

Figures:

Appendices:

2.0 Summary Analysis / Narrative:

2.1 Introduction:

This stormwater management report accompanies the Civil Engineering Plans prepared by Civil Site Group for the subject project dated 03/06/23. This report includes a summary of the existing and proposed site conditions, the stormwater requirements of relevant regulatory agencies, and proposed design calculations and data to meet the requirements.

2.2 Existing Site Conditions :

Site Description:
The existing site is a bank with associated parking. Below is the existing surface area tabulation.

Existing Conditions

Drainage Area	Impervious Area		Pervious Area		Total Area	
	Area [SF]	CN Value	Area [SF]	CN Value	Area [SF]	CN Value
EX1	26299	98	12567	61	38866	86
EX2	297	98	1328	61	1625	68

Existing Soils:
A geotechnical exploration has not been completed for the site as of March 2023. For modeling purposes, existing soils have been modeled with a hydrologic soil group “B” classification.

Groundwater:
Groundwater observations have not been taken.

2.3 Proposed Site Conditions:

Site Description:
The proposed site is a commercial building containing a bank and a second business, with drive through teller lanes, associated parking, landscaping, utility and stormwater improvements.

The proposed site surface coverage areas are shown in the table below:

Proposed Conditions

Drainage Area	Impervious Area		Pervious Area		Total Area	
	Area [SF]	CN Value	Area [SF]	CN Value	Area [SF]	CN Value
PR1A	26120	98	7492	61	33612	90
PR1B	1695	98	4841	61	6536	71
PR2	0	98	343	61	343	61

2.4 Stormwater Requirements City (Minnetonka):

Requirement threshold - Projects that disturb 50 cubic yards of earth or more, or disturb 5,000 square feet of surface area.
Rate Control – Limit peak runoff flow rates to existing conditions for 1-yr, 10-yr, and 100-yr frequency storms (nested 24-hour distribution).
Water Quality – If unique, site-specific constraints preclude infiltration, 60% TP and 90% TSS removal and no net increase in TP or TSS annually must be met.
Volume Control – Retain 1.1 inches of runoff on-site from applicable impervious surfaces.

2.5 Stormwater Requirements Watershed District – (Minnehaha Creek Watershed District):
Requirement threshold - Projects over 1 acre in size.
Rate Control – Peak runoff rates for 1-yr, 10-yr, and 100-yr design storms may not increase.
Water Quality – No net increase in phosphorous loading from existing conditions.
Volume Control – Abstraction for first one inch of rainfall from site's impervious surface.

2.6 Stormwater Requirements - Minnesota Pollution Control Agency – NPPDES permit (MPCA):

Requirement threshold - A permit is required for projects with a disturbed area over 1 acre in size, Stormwater management is required for a project adding 1-acre of more of NEW impervious surface (reconstructed impervious is not included).
Rate Control – No specific regulation, may not degrade downstream facilities.
Water Quality – Stormwater water quality treatment volume must be provided equal to 1.0" over all new impervious surfaces (includes all newly constructed impervious surfaces only, re-constructed impervious surfaces are not included).
Volume Control – Must consider volume reduction if feasible and not prohibited on site. The required infiltration volume is equal to the water quality volume described above.

3.0 Stormwater Calculations:

3.1 Proposed Stormwater Management Strategy & Facilities Description

This project is disturbing slightly less than one acre, triggering only the City of Minnetonka's stormwater requirements.

For purposed of being conservative, it is assumed until geotechnical information is received that the existing subsurface soils are not conducive to infiltration. The stormwater treatment design will be updated accordingly based on the geotechnical report.

The project proposes to install an underground filtration system. The filtration system will be constructed from perforated CMP.

3.2 Rate Control

Rate control is provided by live storage within the proposed underground filtration system. This information was derived using HydroCAD stormwater modeling software. The existing and proposed runoff rates are shown in the summary table below.

Stormwater Rate Summary

Drainage Area	Existing Rate (cfs)		
	1-YR [2.50"]	10-YR [4.29"]	100-YR [7.42"]
EX1	2.25	4.32	8.30
EX2	0.03	0.09	0.25
TOTAL (REACH)	2.28	4.41	8.55

Drainage Area	Proposed Conditions Rate (cfs)		
	1-YR [2.50"]	10-YR [4.29"]	100-YR [7.42"]
1R (1P+PR1B)	1.16	1.43	6.73
PR2	0.00	0.01	0.04
TOTAL (REACH)	1.16	1.44	6.77

Overall Stormwater Rate Summary

	Existing Conditions Rate (cfs)	Proposed Conditions Rate (cfs)
2-Year Event	2.28	1.16
10-Year Event	4.41	1.44
100-Year Event	8.55	6.77

Rates decreased at all discharge points – REQUIREMENT SATISFIED

3.3 Water Quality

Water quality requirements are met by providing filtration onsite in the amount of 1.1 inches of runoff from all impervious surfaces within the proposed underground filtration system. Removal efficiencies and annual TSS and TP loads were modeled in P8, these results can be found below and within the appendices.

P8 Results	Removal %	Existing Load (LB)	Proposed Load (LB)
TSS	90.1	4526.8	453.7
TP	63.4	14.5	5.4

3.4 Volume Control

Until the geotechnical report is received, it is assumed that the site is not conducive to infiltration. If this is the case, volume control cannot be achieved. Once geotechnical information is received, the stormwater treatment design will be updated accordingly.

4.0 Conclusions:

To the best of our knowledge, this project meets all State, City and Watershed District stormwater management requirements.

Midcountry Bank
Civil Site Group - Stormwater Calculations

Existing Conditions

Drainage Area	Impervious Area		Pervious Area		Total Area	
	Area [SF]	CN Value	Area [SF]	CN Value	Area [SF]	CN Value
EX1	26299	98	12567	61	38866	86
EX2	297	98	1328	61	1625	68

Proposed Conditions

Drainage Area	Impervious Area		Pervious Area		Total Area	
	Area [SF]	CN Value	Area [SF]	CN Value	Area [SF]	CN Value
PR1A	26120	98	7492	61	33612	90
PR1B	1695	98	4841	61	6536	71
PR2	0	98	343	61	343	61

Site Area Summary

	Impervious [SF]	Impervious [AC]	Pervious [SF]	Pervious [AC]	Total [SF]	Total [AC]
Existing Site	26596	0.61	13895	0.32	40491	0.93
Proposed Site	27815	0.64	12676	0.29	40491	0.93

Stormwater Rate Summary

Drainage Area	Existing Rate (cfs)		
	1-YR [2.50"]	10-YR [4.29"]	100-YR [7.42"]
EX1	2.25	4.32	8.30
EX2	0.03	0.09	0.25
TOTAL (REACH)	2.28	4.41	8.55

Drainage Area	Proposed Conditions Rate (cfs)		
	1-YR [2.50"]	10-YR [4.29"]	100-YR [7.42"]
1R (1P+PR1B)	0.24	1.37	5.11
PR2	0.00	0.01	0.04
TOTAL (REACH)	0.24	1.38	5.15

Overall Stormwater Rate Summary

	Existing Conditions Rate (cfs)	Proposed Conditions Rate (cfs)
2-Year Event	2.28	0.24
10-Year Event	4.41	1.38
100-Year Event	8.55	5.15

Stormwater Rate Summary - To Existing Storm Sewer

	Existing Conditions Rate (cfs)	Proposed Conditions Rate (cfs)
2-Year Event	2.25	0.24
10-Year Event	4.32	1.37
100-Year Event	8.30	5.11

Stormwater Rate Summary - To Existing Wetland

	Existing Conditions Rate (cfs)	Proposed Conditions Rate (cfs)
2-Year Event	0.03	0.00
10-Year Event	0.09	0.01
100-Year Event	0.25	0.04

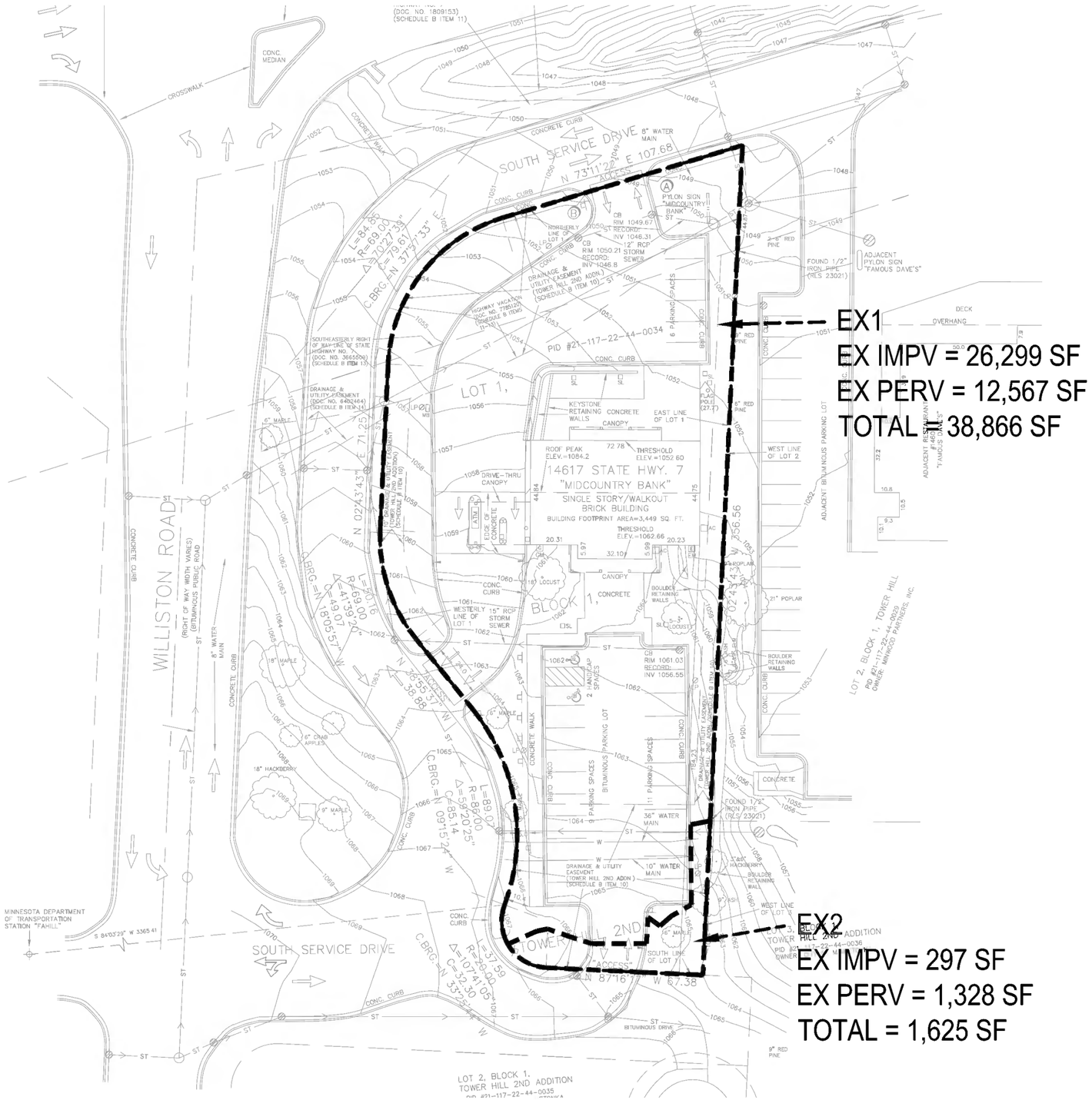
Stormwater Water Quality and Volume Summary

Drainage Area	Required Infiltration Vol. Summary	
	New Impv. Area (sf)	Required Volume (cf)
PR1A	26120	2394
PR1B	1695	155
PR2	0	0
TOTAL	27815	2550

Filtration Volume = 1.1*Dist. Impv. Area

Proposed BMP Area	Provided Vol (cf)	Drawdown Time Calculations (1.60"/Hour)		
		Inf. Area (sf)	Assoc. Inf. Height (ft)	Drawdown Time (h)
Underground Filtration System	2871	2226	1.29	9.67
TOTAL	2871			

P8 Results	Removal %	Existing Load (LB)	Proposed Load (LB)
TSS	90.1	4526.8	453.7
TP	63.4	14.5	5.4



MIDCOUNTRY BANK

CivilSite GROUP

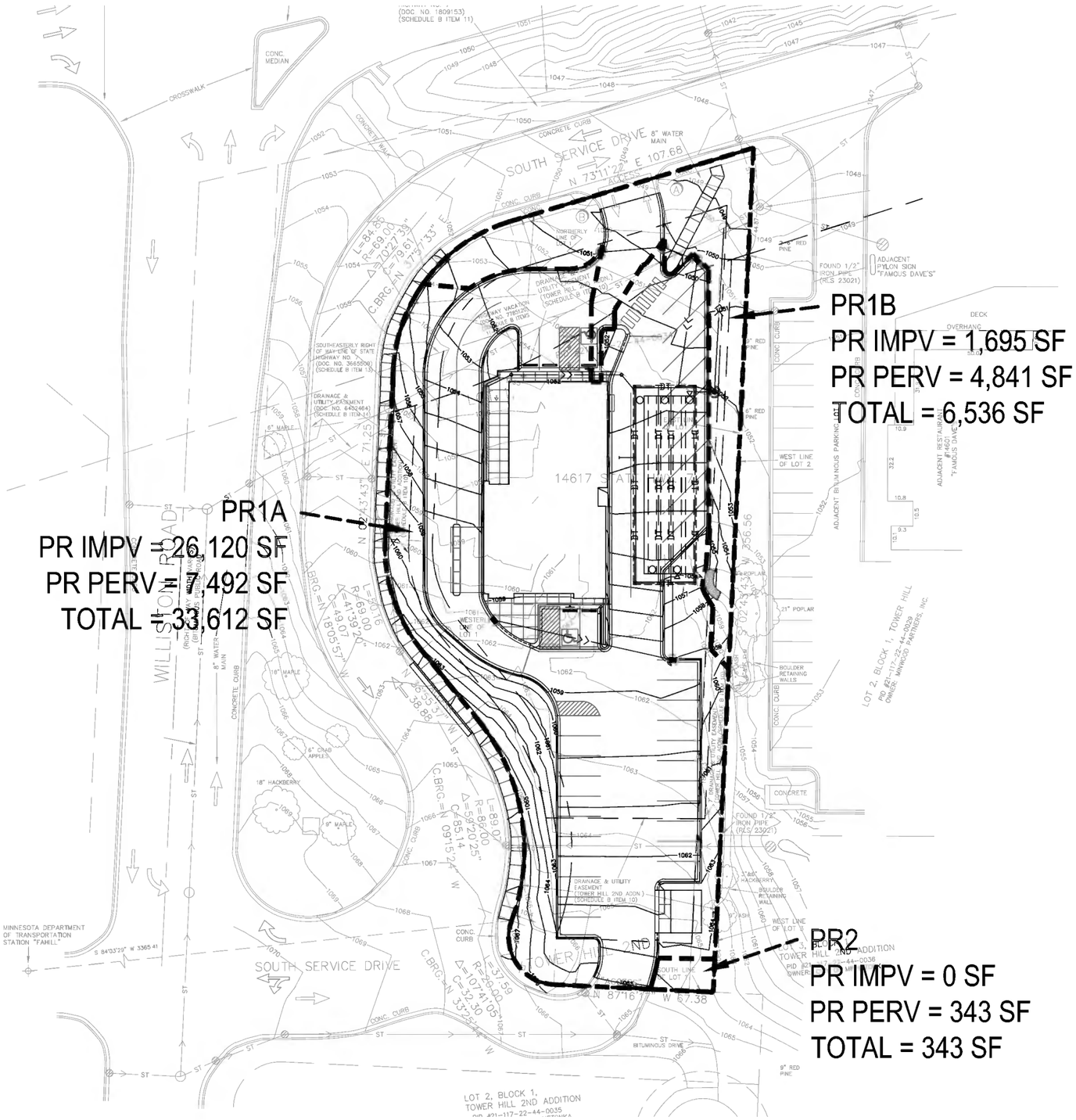
5000 GLENWOOD AVENUE
GOLDEN VALLEY, MN 55422
612-615-0060
www.CivilSiteGroup.com

EXISTING DRAINAGE MAP

14617 HWY 7, MINNETONKA, MN 55345

Project Number:	22450	Revision Number:	.
Issue Date:	3/6/2023	Revision Date:	.

DA1



MIDCOUNTRY BANK

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612-615-0060
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PROPOSED DRAINAGE MAP

14617 HWY 7, MINNETONKA, MN 55345

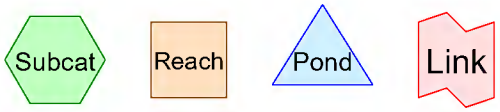
Project Number:	22450	Revision Number:	.
Issue Date:	3/6/2023	Revision Date:	.

DA2

EXISTING CONDITIONS

DRAINS TO EX.
STORM SEWER

DRAINS TO WETLAND



Routing Diagram for 22450 EXISTING
Prepared by Civil Site Group, Printed 3/2/2023

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1y 24hr AT-14	MSE 24-hr	3	Default	24.00	1	2.50	2
2	10y 24hr AT-14	MSE 24-hr	3	Default	24.00	1	4.29	2
3	100y 24hr AT-14	MSE 24-hr	3	Default	24.00	1	7.42	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.319	61	>75% Grass cover, Good, HSG B (EX1, EX2)
0.611	98	Paved parking, HSG B (EX1, EX2)
0.930	**85**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.930	HSG B	EX1, EX2
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.930		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.319	0.000	0.000	0.000	0.319	>75% Grass cover, Good	EX1, EX2
0.000	0.611	0.000	0.000	0.000	0.611	Paved parking	EX1, EX2
0.000	**0.930**	**0.000**	**0.000**	**0.000**	**0.930**	**TOTAL AREA**	

Time span=0.00-240.00 hrs, dt=0.01 hrs, 24001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

SubcatchmentEX1: DRAINS TO EX. Runoff Area=38,866 sf 67.67% Impervious Runoff Depth=1.60"
Tc=6.0 min CN=WQ Runoff=2.25 cfs 0.119 af

SubcatchmentEX2: DRAINS TO WETLAND Runoff Area=1,625 sf 18.28% Impervious Runoff Depth=0.58"
Tc=6.0 min CN=WQ Runoff=0.03 cfs 0.002 af

Total Runoff Area = 0.930 ac Runoff Volume = 0.121 af Average Runoff Depth = 1.56"
34.32% Pervious = 0.319 ac 65.68% Impervious = 0.611 ac

Summary for Subcatchment EX1: DRAINS TO EX. STORM SEWER

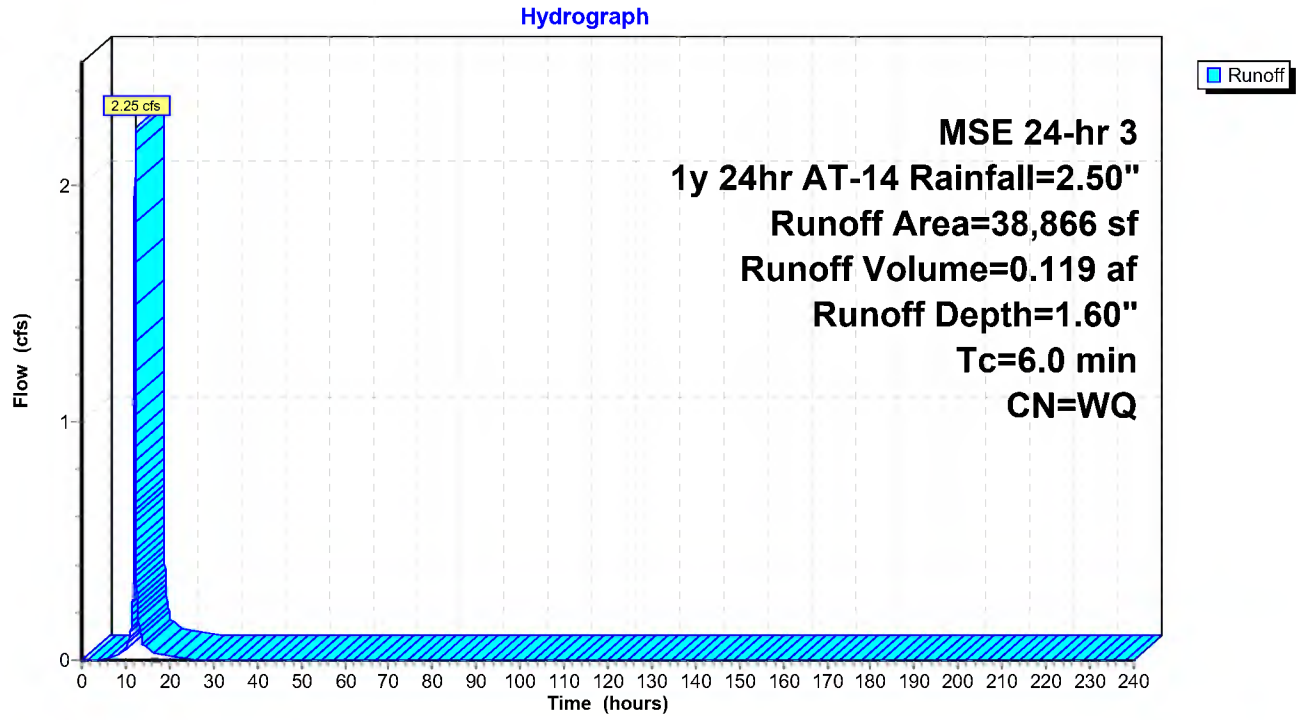
Runoff = 2.25 cfs @ 12.13 hrs, Volume= 0.119 af, Depth= 1.60"
Routed to nonexistent node EX-DA 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 1y 24hr AT-14 Rainfall=2.50"

Area (sf)	CN	Description
26,299	98	Paved parking, HSG B
12,567	61	>75% Grass cover, Good, HSG B
38,866		Weighted Average
12,567		32.33% Pervious Area
26,299		67.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment EX1: DRAINS TO EX. STORM SEWER



Summary for Subcatchment EX2: DRAINS TO WETLAND

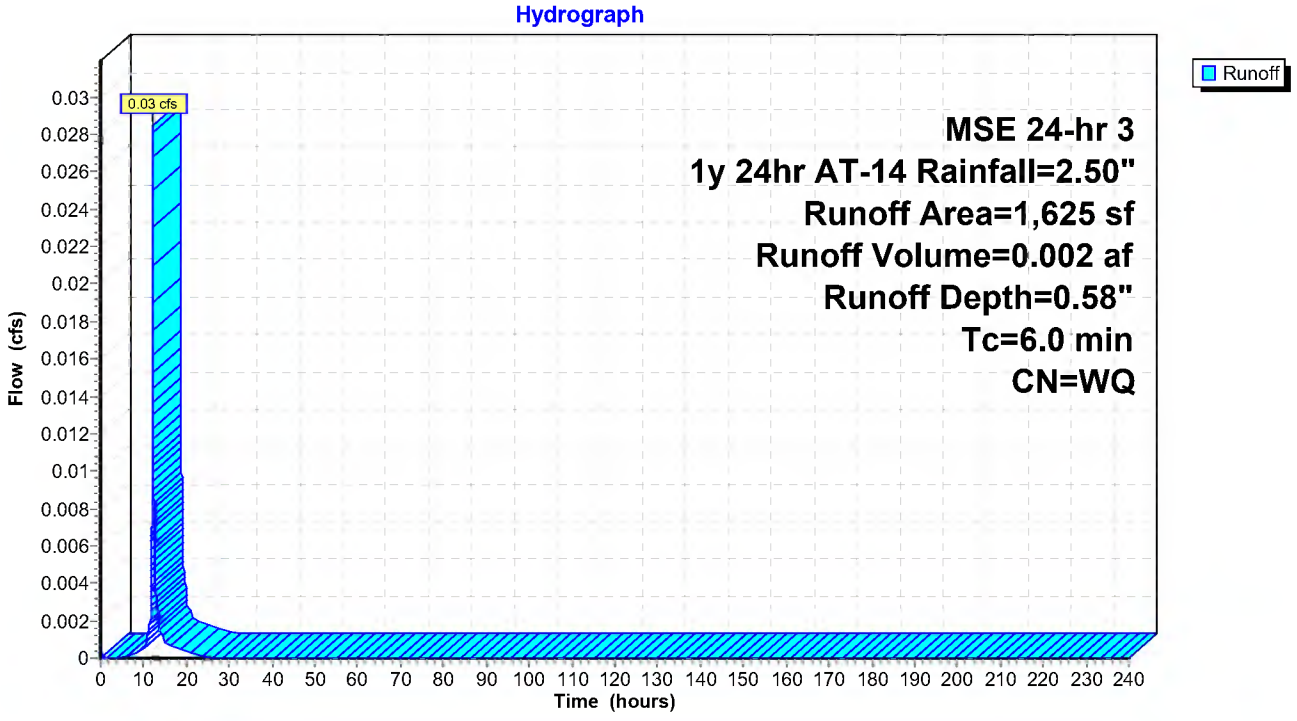
Runoff = 0.03 cfs @ 12.14 hrs, Volume= 0.002 af, Depth= 0.58"
Routed to nonexistent node EX-DA 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 1y 24hr AT-14 Rainfall=2.50"

Area (sf)	CN	Description
297	98	Paved parking, HSG B
1,328	61	>75% Grass cover, Good, HSG B
1,625		Weighted Average
1,328		81.72% Pervious Area
297		18.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment EX2: DRAINS TO WETLAND



Time span=0.00-240.00 hrs, dt=0.01 hrs, 24001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

SubcatchmentEX1: DRAINS TO EX. Runoff Area=38,866 sf 67.67% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=WQ Runoff=4.32 cfs 0.227 af

SubcatchmentEX2: DRAINS TO WETLAND Runoff Area=1,625 sf 18.28% Impervious Runoff Depth=1.53"
Tc=6.0 min CN=WQ Runoff=0.09 cfs 0.005 af

Total Runoff Area = 0.930 ac Runoff Volume = 0.232 af Average Runoff Depth = 2.99"
34.32% Pervious = 0.319 ac 65.68% Impervious = 0.611 ac

Summary for Subcatchment EX1: DRAINS TO EX. STORM SEWER

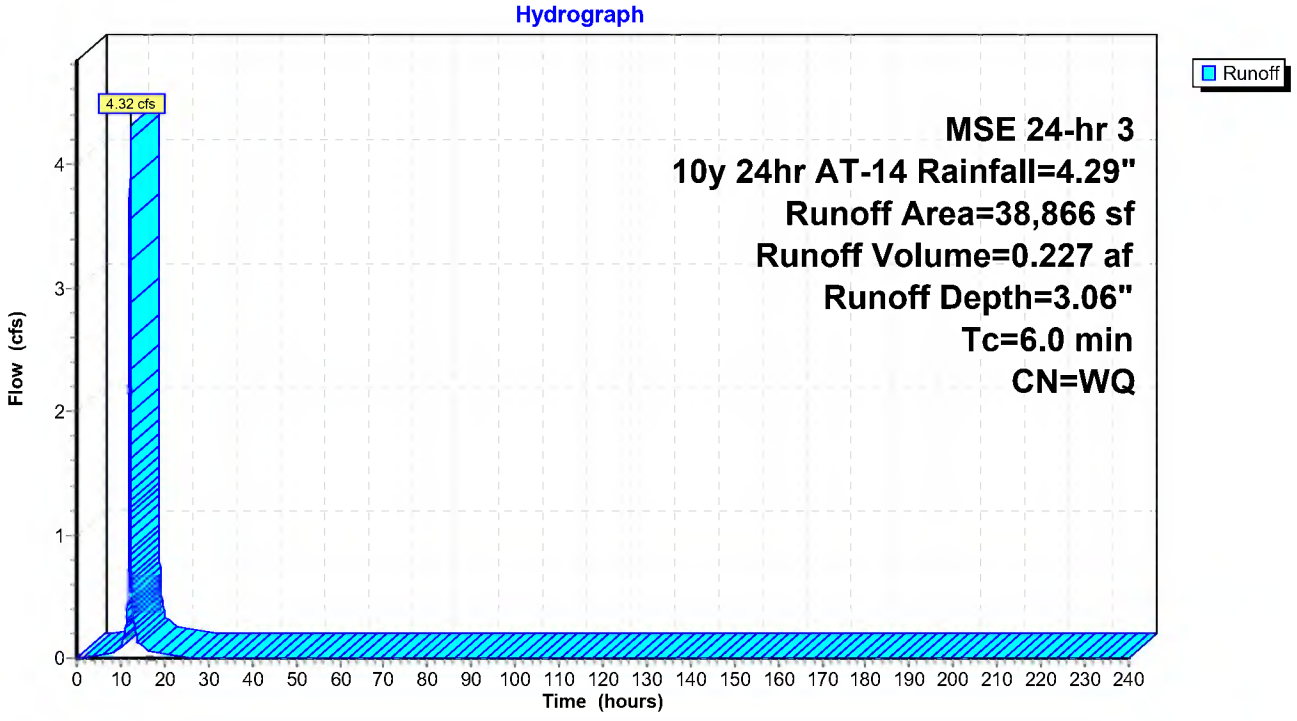
Runoff = 4.32 cfs @ 12.13 hrs, Volume= 0.227 af, Depth= 3.06"
Routed to nonexistent node EX-DA 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10y 24hr AT-14 Rainfall=4.29"

Area (sf)	CN	Description
26,299	98	Paved parking, HSG B
12,567	61	>75% Grass cover, Good, HSG B
38,866		Weighted Average
12,567		32.33% Pervious Area
26,299		67.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment EX1: DRAINS TO EX. STORM SEWER



Summary for Subcatchment EX2: DRAINS TO WETLAND

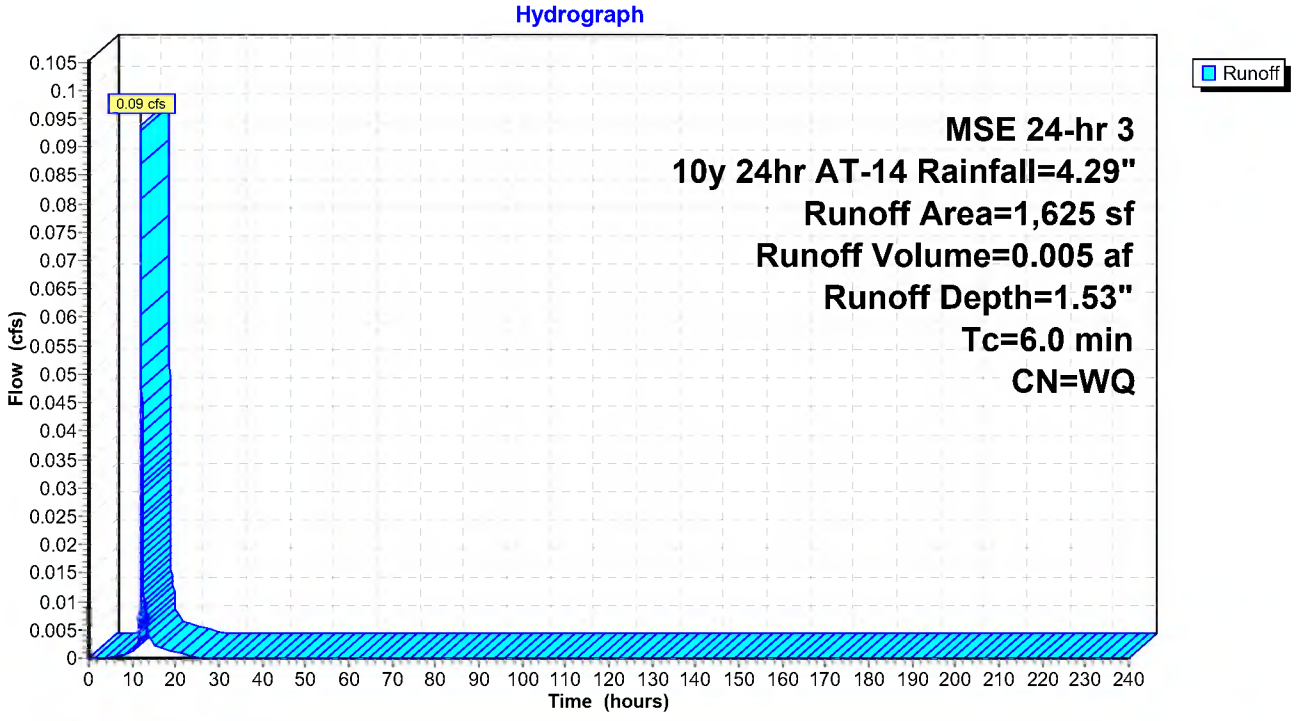
Runoff = 0.09 cfs @ 12.14 hrs, Volume= 0.005 af, Depth= 1.53"
Routed to nonexistent node EX-DA 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10y 24hr AT-14 Rainfall=4.29"

Area (sf)	CN	Description
297	98	Paved parking, HSG B
1,328	61	>75% Grass cover, Good, HSG B
1,625		Weighted Average
1,328		81.72% Pervious Area
297		18.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment EX2: DRAINS TO WETLAND



Time span=0.00-240.00 hrs, dt=0.01 hrs, 24001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

SubcatchmentEX1: DRAINS TO EX. Runoff Area=38,866 sf 67.67% Impervious Runoff Depth=5.83"
Tc=6.0 min CN=WQ Runoff=8.30 cfs 0.434 af

SubcatchmentEX2: DRAINS TO WETLAND Runoff Area=1,625 sf 18.28% Impervious Runoff Depth=3.77"
Tc=6.0 min CN=WQ Runoff=0.25 cfs 0.012 af

Total Runoff Area = 0.930 ac Runoff Volume = 0.445 af Average Runoff Depth = 5.75"
34.32% Pervious = 0.319 ac 65.68% Impervious = 0.611 ac

Summary for Subcatchment EX1: DRAINS TO EX. STORM SEWER

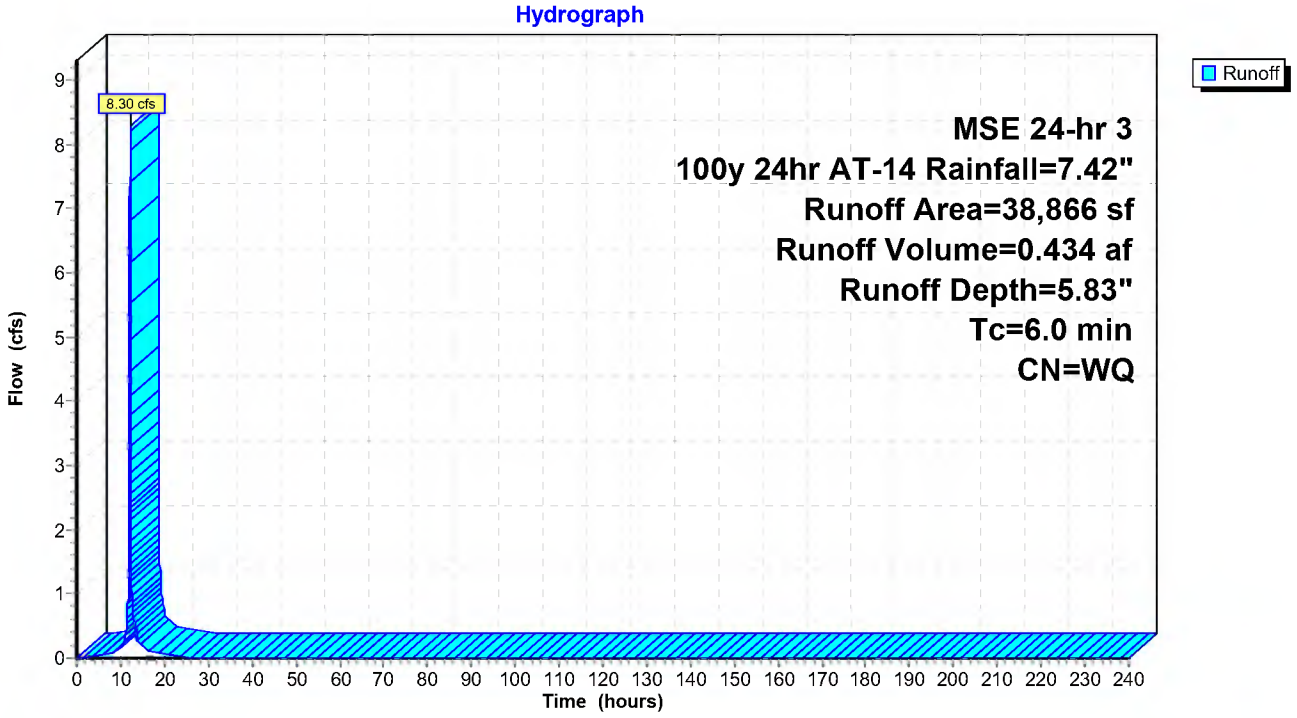
Runoff = 8.30 cfs @ 12.13 hrs, Volume= 0.434 af, Depth= 5.83"
Routed to nonexistent node EX-DA 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100y 24hr AT-14 Rainfall=7.42"

Area (sf)	CN	Description
26,299	98	Paved parking, HSG B
12,567	61	>75% Grass cover, Good, HSG B
38,866		Weighted Average
12,567		32.33% Pervious Area
26,299		67.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment EX1: DRAINS TO EX. STORM SEWER



Summary for Subcatchment EX2: DRAINS TO WETLAND

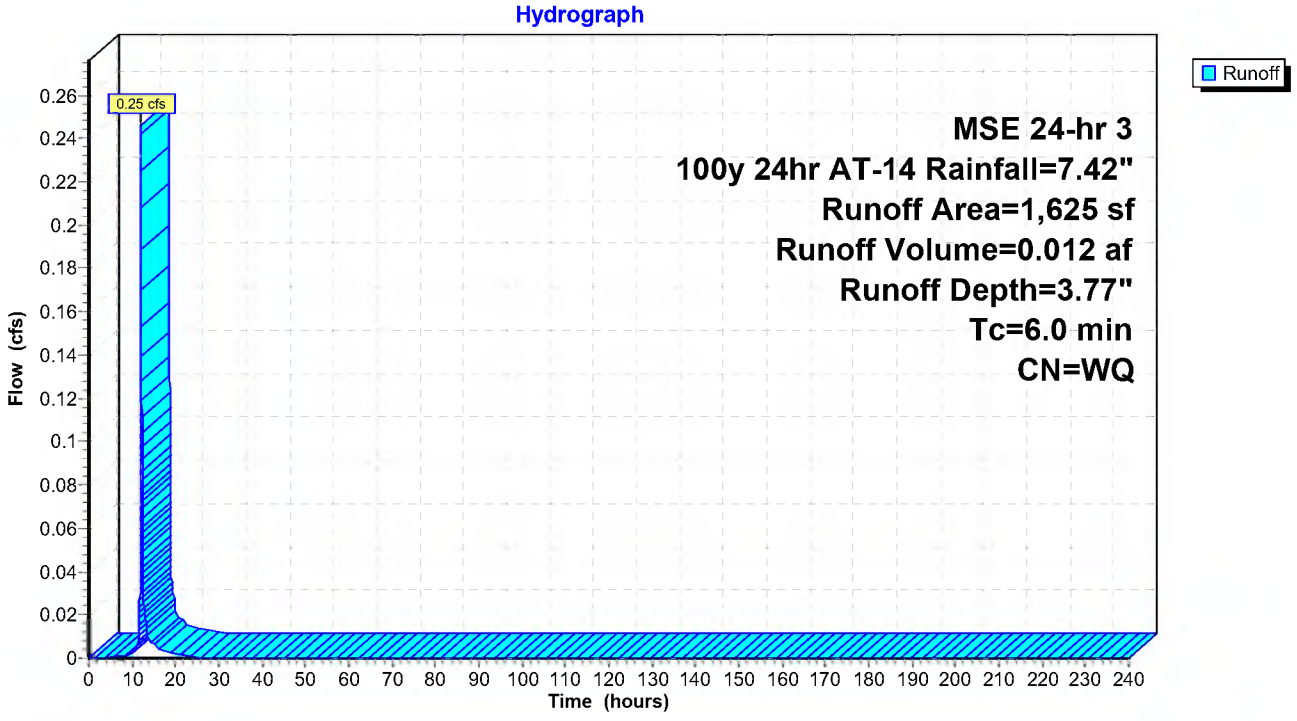
Runoff = 0.25 cfs @ 12.13 hrs, Volume= 0.012 af, Depth= 3.77"
Routed to nonexistent node EX-DA 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100y 24hr AT-14 Rainfall=7.42"

Area (sf)	CN	Description
297	98	Paved parking, HSG B
1,328	61	>75% Grass cover, Good, HSG B
1,625		Weighted Average
1,328		81.72% Pervious Area
297		18.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment EX2: DRAINS TO WETLAND



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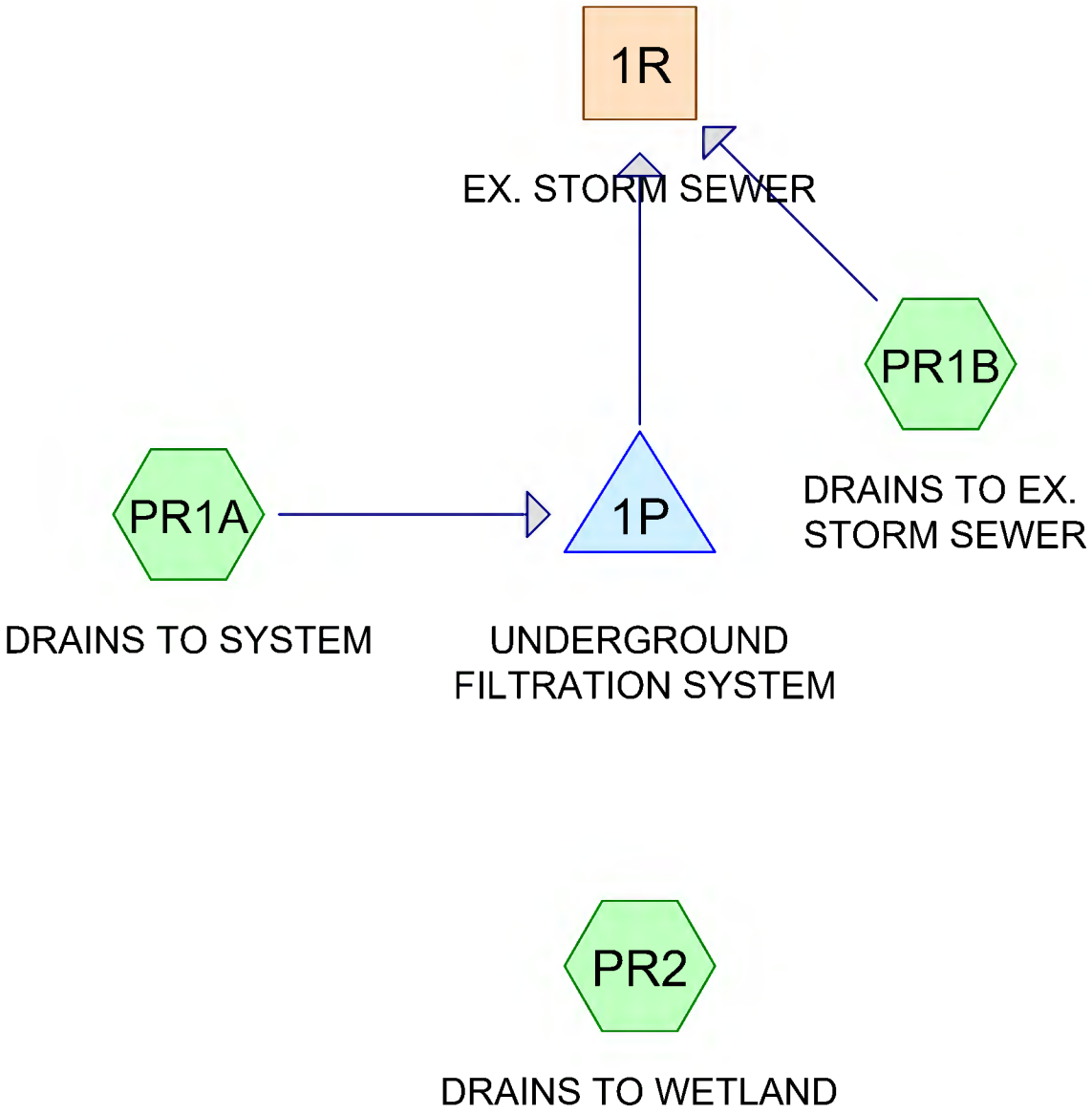
PROPOSED CONDITIONS



Subcat Reach Pond Link

Routing Diagram for 22450 PROPOSED FILTRATION
Prepared by Civil Site Group, Printed 3/2/2023

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1y 24hr AT-14	MSE 24-hr	3	Default	24.00	1	2.50	2
2	10y 24hr AT-14	MSE 24-hr	3	Default	24.00	1	4.29	2
3	100y 24hr AT-14	MSE 24-hr	3	Default	24.00	1	7.42	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.291	61	>75% Grass cover, Good, HSG B (PR1A, PR1B, PR2)
0.639	98	Paved parking, HSG B (PR1A, PR1B)
0.930	**86**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.930	HSG B	PR1A, PR1B, PR2
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.930		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.291	0.000	0.000	0.000	0.291	>75% Grass cover, Good	PR1A, PR1B, PR2
0.000	0.639	0.000	0.000	0.000	0.639	Paved parking	PR1A, PR1B
0.000	**0.930**	**0.000**	**0.000**	**0.000**	**0.930**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	1P	1,044.05	1,043.75	69.0	0.0043	0.010	0.0	12.0	0.0
2	1P	1,047.85	1,047.76	9.0	0.0100	0.010	0.0	12.0	0.0

Time span=0.00-240.00 hrs, dt=0.01 hrs, 24001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment PR1A: DRAINS TO SYSTEM Runoff Area=33,612 sf 77.71% Impervious Runoff Depth=1.81"
Tc=6.0 min CN=WQ Runoff=2.22 cfs 0.116 af

Subcatchment PR1B: DRAINS TO EX. Runoff Area=6,536 sf 25.93% Impervious Runoff Depth=0.73"
Tc=6.0 min CN=WQ Runoff=0.16 cfs 0.009 af

Subcatchment PR2: DRAINS TO WETLAND Runoff Area=343 sf 0.00% Impervious Runoff Depth=0.20"
Tc=6.0 min CN=WQ Runoff=0.00 cfs 0.000 af

Reach 1R: EX. STORM SEWER Inflow=0.24 cfs 0.125 af
Outflow=0.24 cfs 0.125 af

Pond 1P: UNDERGROUND FILTRATION Peak Elev=1,047.82' Storage=2,818 cf Inflow=2.22 cfs 0.116 af
Outflow=0.08 cfs 0.116 af

Total Runoff Area = 0.930 ac Runoff Volume = 0.126 af Average Runoff Depth = 1.62"
31.31% Pervious = 0.291 ac 68.69% Impervious = 0.639 ac

Summary for Subcatchment PR1A: DRAINS TO SYSTEM

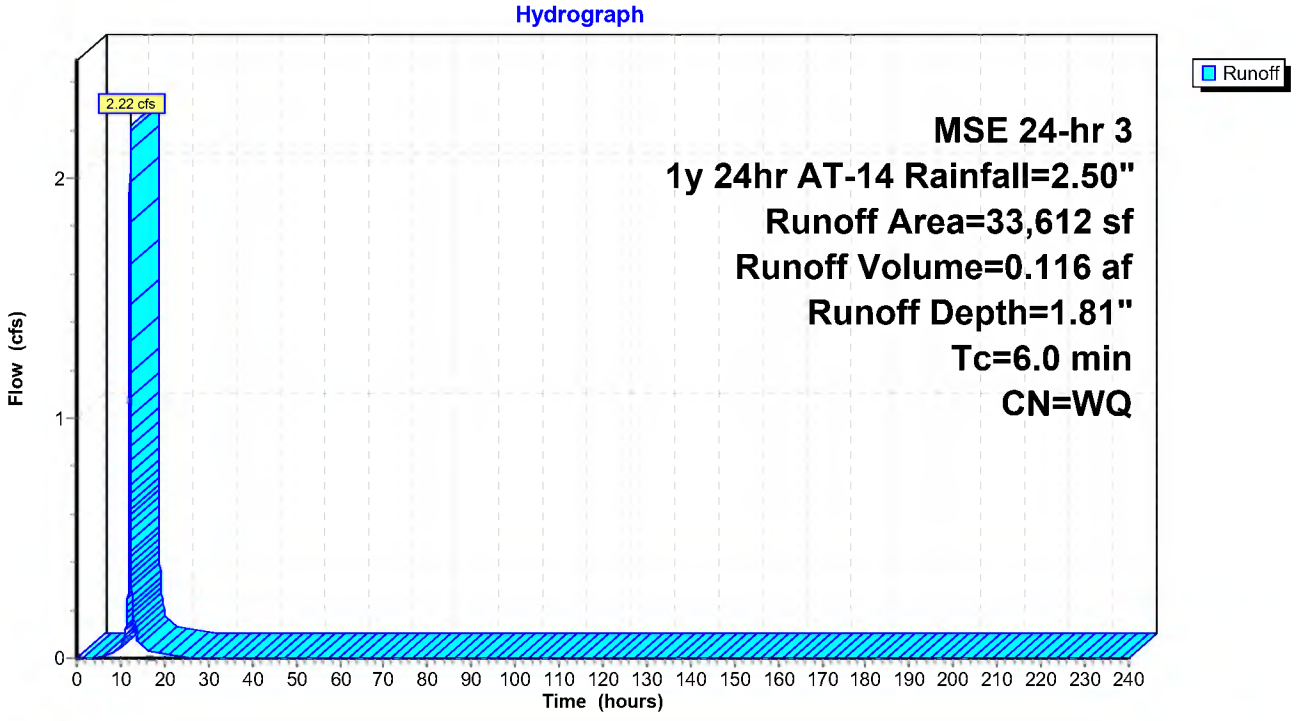
Runoff = 2.22 cfs @ 12.13 hrs, Volume= 0.116 af, Depth= 1.81"
Routed to Pond 1P : UNDERGROUND FILTRATION SYSTEM

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 1y 24hr AT-14 Rainfall=2.50"

Area (sf)	CN	Description
26,120	98	Paved parking, HSG B
7,492	61	>75% Grass cover, Good, HSG B
33,612		Weighted Average
7,492		22.29% Pervious Area
26,120		77.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR1A: DRAINS TO SYSTEM



Summary for Subcatchment PR1B: DRAINS TO EX. STORM SEWER

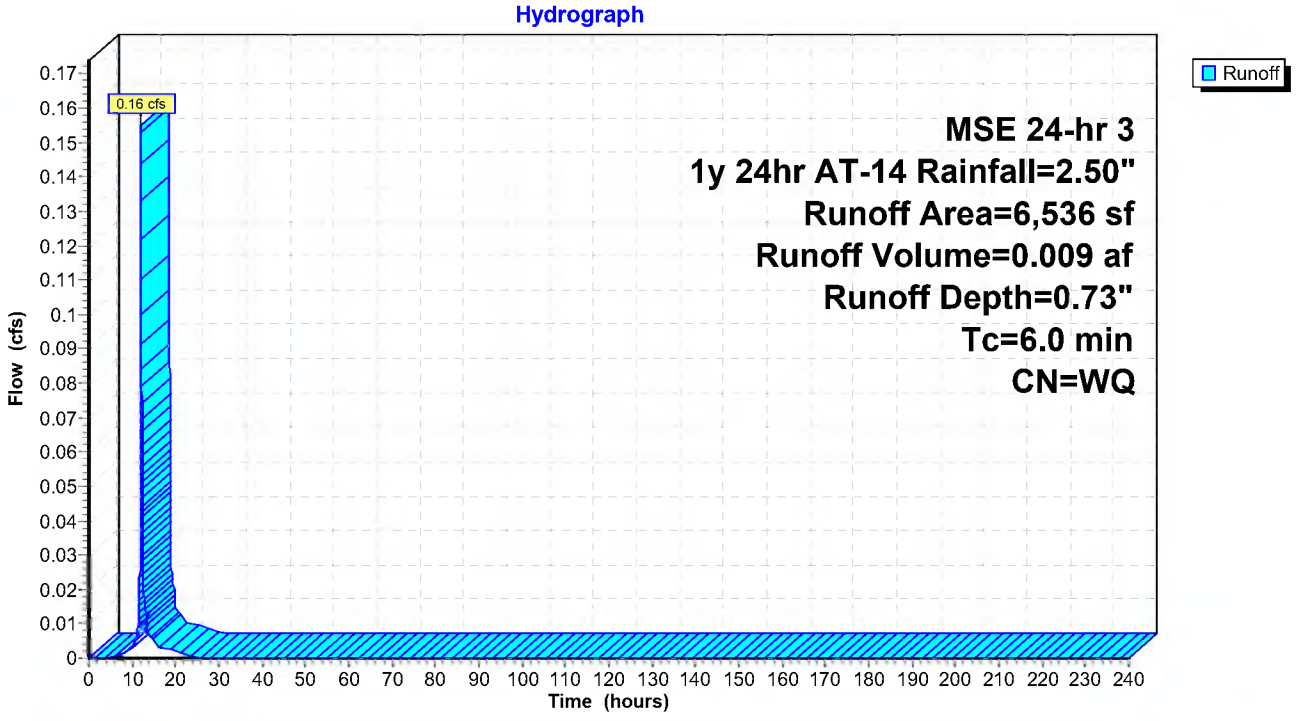
Runoff = 0.16 cfs @ 12.14 hrs, Volume= 0.009 af, Depth= 0.73"
Routed to Reach 1R : EX. STORM SEWER

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 1y 24hr AT-14 Rainfall=2.50"

Area (sf)	CN	Description
1,695	98	Paved parking, HSG B
4,841	61	>75% Grass cover, Good, HSG B
6,536		Weighted Average
4,841		74.07% Pervious Area
1,695		25.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR1B: DRAINS TO EX. STORM SEWER



Summary for Subcatchment PR2: DRAINS TO WETLAND

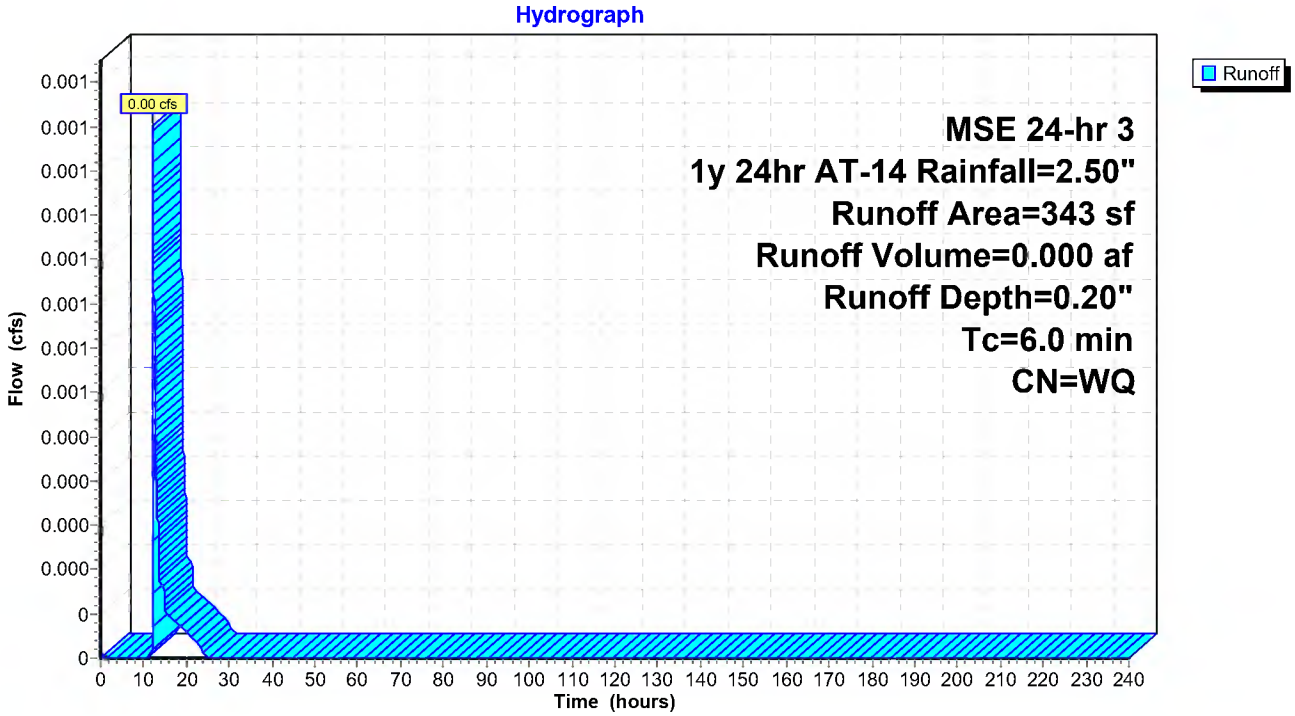
Runoff = 0.00 cfs @ 12.17 hrs, Volume= 0.000 af, Depth= 0.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 1y 24hr AT-14 Rainfall=2.50"

Area (sf)	CN	Description
0	98	Paved parking, HSG B
343	61	>75% Grass cover, Good, HSG B
343		Weighted Average
343		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR2: DRAINS TO WETLAND



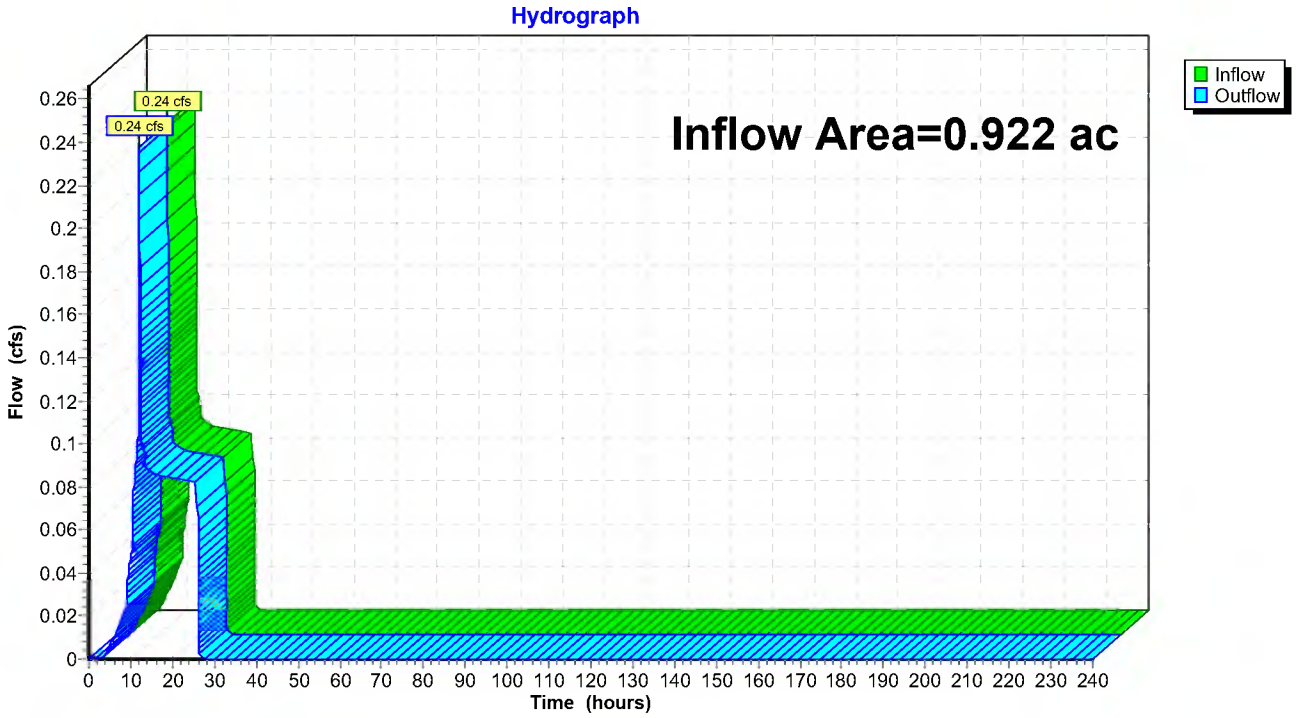
Summary for Reach 1R: EX. STORM SEWER

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.922 ac, 69.28% Impervious, Inflow Depth = 1.63" for 1y 24hr AT-14 event
Inflow = 0.24 cfs @ 12.14 hrs, Volume= 0.125 af
Outflow = 0.24 cfs @ 12.14 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs

Reach 1R: EX. STORM SEWER



Summary for Pond 1P: UNDERGROUND FILTRATION SYSTEM

Inflow Area = 0.772 ac, 77.71% Impervious, Inflow Depth = 1.81" for 1y 24hr AT-14 event
Inflow = 2.22 cfs @ 12.13 hrs, Volume= 0.116 af
Outflow = 0.08 cfs @ 10.84 hrs, Volume= 0.116 af, Atten= 96%, Lag= 0.0 min
Primary = 0.08 cfs @ 10.84 hrs, Volume= 0.116 af
Routed to Reach 1R : EX. STORM SEWER

Routing by Stor-Ind method, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
Peak Elev= 1,047.82' @ 13.57 hrs Surf.Area= 2,226 sf Storage= 2,818 cf

Plug-Flow detention time= 290.2 min calculated for 0.116 af (100% of inflow)
Center-of-Mass det. time= 290.2 min (1,049.8 - 759.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	1,046.05'	1,930 cf	**26.50'W x 84.00'L x 4.00'H Field A** 8,904 cf Overall - 4,079 cf Embedded = 4,825 cf x 40.0% Voids
#2A	1,046.05'	4,079 cf	**CMP Round 42** x 20 Inside #1 Effective Size= 42.0"W x 42.0"H => 9.62 sf x 20.00'L = 192.4 cf Overall Size= 42.0"W x 42.0"H x 20.00'L Row Length Adjustment= -5.00' x 9.62 sf x 5 rows 24.50' Header x 9.62 sf x 2 = 471.4 cf Inside
		6,009 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	1,044.05'	**12.0" Round Culvert** L= 69.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,044.05' / 1,043.75' S= 0.0043 '/' Cc= 0.900 n= 0.010, Flow Area= 0.79 sf
#2	Device 1	1,046.05'	**1.600 in/hr Exfiltration over Surface area**
#3	Device 1	1,047.85'	**12.0" Round Culvert** L= 9.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,047.85' / 1,047.76' S= 0.0100 '/' Cc= 0.900 n= 0.010, Flow Area= 0.79 sf

Primary OutFlow Max=0.08 cfs @ 10.84 hrs HW=1,046.09' (Free Discharge)
└**1=Culvert** (Passes 0.08 cfs of 4.13 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.08 cfs)
└**3=Culvert** (Controls 0.00 cfs)

Pond 1P: UNDERGROUND FILTRATION SYSTEM - Chamber Wizard Field A

Chamber Model = CMP Round 42 (Round Corrugated Metal Pipe)
Effective Size= 42.0"W x 42.0"H => 9.62 sf x 20.00'L = 192.4 cf
Overall Size= 42.0"W x 42.0"H x 20.00'L
Row Length Adjustment= -5.00' x 9.62 sf x 5 rows

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

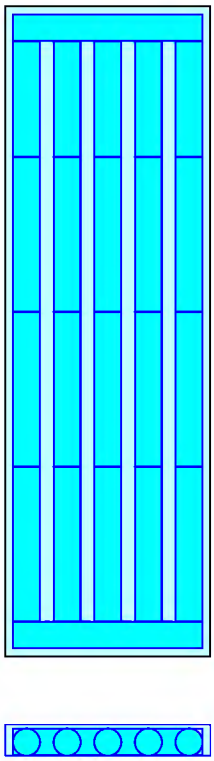
4 Chambers/Row x 20.00' Long -5.00' Row Adjustment +3.50' Header x 2 = 82.00' Row Length +12.0" End Stone x 2 = 84.00' Base Length
5 Rows x 42.0" Wide + 21.0" Spacing x 4 + 12.0" Side Stone x 2 = 26.50' Base Width
42.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

20 Chambers x 192.4 cf -5.00' Row Adjustment x 9.62 sf x 5 Rows + 24.50' Header x 9.62 sf x 2 = 4,079.4 cf Chamber Storage

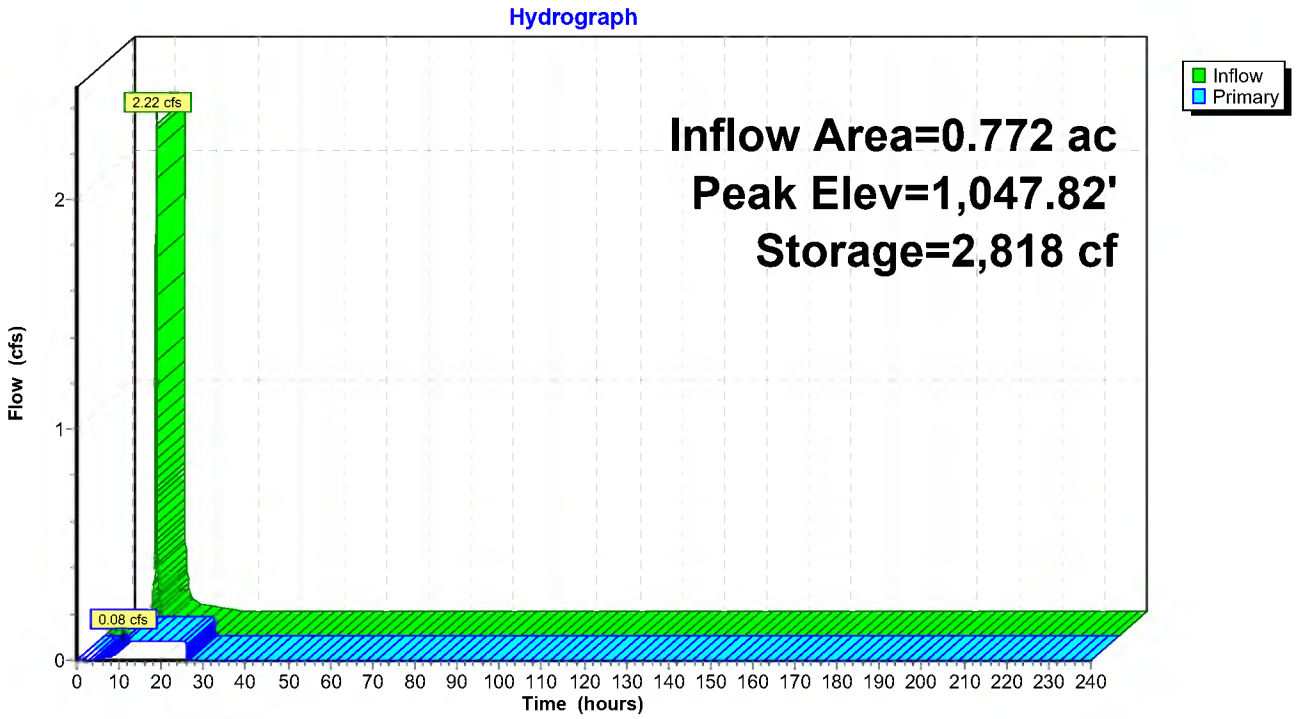
8,904.0 cf Field - 4,079.4 cf Chambers = 4,824.6 cf Stone x 40.0% Voids = 1,929.9 cf Stone Storage

Chamber Storage + Stone Storage = 6,009.2 cf = 0.138 af
Overall Storage Efficiency = 67.5%
Overall System Size = 84.00' x 26.50' x 4.00'

20 Chambers
329.8 cy Field
178.7 cy Stone



Pond 1P: UNDERGROUND FILTRATION SYSTEM



Stage-Discharge for Pond 1P: UNDERGROUND FILTRATION SYSTEM

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,046.05	0.00	1,047.09	0.08	1,048.13	0.35	1,049.17	3.08
1,046.07	0.08	1,047.11	0.08	1,048.15	0.38	1,049.19	3.11
1,046.09	0.08	1,047.13	0.08	1,048.17	0.42	1,049.21	3.18
1,046.11	0.08	1,047.15	0.08	1,048.19	0.45	1,049.23	3.21
1,046.13	0.08	1,047.17	0.08	1,048.21	0.49	1,049.25	3.25
1,046.15	0.08	1,047.19	0.08	1,048.23	0.53	1,049.27	3.28
1,046.17	0.08	1,047.21	0.08	1,048.25	0.58	1,049.29	3.32
1,046.19	0.08	1,047.23	0.08	1,048.27	0.62	1,049.31	3.35
1,046.21	0.08	1,047.25	0.08	1,048.29	0.66	1,049.33	3.39
1,046.23	0.08	1,047.27	0.08	1,048.31	0.71	1,049.35	3.42
1,046.25	0.08	1,047.29	0.08	1,048.33	0.76	1,049.37	3.45
1,046.27	0.08	1,047.31	0.08	1,048.35	0.81	1,049.39	3.49
1,046.29	0.08	1,047.33	0.08	1,048.37	0.85	1,049.41	3.52
1,046.31	0.08	1,047.35	0.08	1,048.39	0.91	1,049.43	3.55
1,046.33	0.08	1,047.37	0.08	1,048.41	0.96	1,049.45	3.58
1,046.35	0.08	1,047.39	0.08	1,048.43	1.01	1,049.47	3.61
1,046.37	0.08	1,047.41	0.08	1,048.45	1.06	1,049.49	3.65
1,046.39	0.08	1,047.43	0.08	1,048.47	1.12	1,049.51	3.68
1,046.41	0.08	1,047.45	0.08	1,048.49	1.18	1,049.53	3.71
1,046.43	0.08	1,047.47	0.08	1,048.51	1.23	1,049.55	3.74
1,046.45	0.08	1,047.49	0.08	1,048.53	1.29	1,049.57	3.77
1,046.47	0.08	1,047.51	0.08	1,048.55	1.35	1,049.59	3.80
1,046.49	0.08	1,047.53	0.08	1,048.57	1.41	1,049.61	3.83
1,046.51	0.08	1,047.55	0.08	1,048.59	1.47	1,049.63	3.86
1,046.53	0.08	1,047.57	0.08	1,048.61	1.53	1,049.65	3.89
1,046.55	0.08	1,047.59	0.08	1,048.63	1.59	1,049.67	3.92
1,046.57	0.08	1,047.61	0.08	1,048.65	1.65	1,049.69	3.95
1,046.59	0.08	1,047.63	0.08	1,048.67	1.71	1,049.71	3.97
1,046.61	0.08	1,047.65	0.08	1,048.69	1.77	1,049.73	4.00
1,046.63	0.08	1,047.67	0.08	1,048.71	1.83	1,049.75	4.03
1,046.65	0.08	1,047.69	0.08	1,048.73	1.90	1,049.77	4.06
1,046.67	0.08	1,047.71	0.08	1,048.75	1.96	1,049.79	4.09
1,046.69	0.08	1,047.73	0.08	1,048.77	2.02	1,049.81	4.11
1,046.71	0.08	1,047.75	0.08	1,048.79	2.08	1,049.83	4.14
1,046.73	0.08	1,047.77	0.08	1,048.81	2.14	1,049.85	4.17
1,046.75	0.08	1,047.79	0.08	1,048.83	2.21	1,049.87	4.20
1,046.77	0.08	1,047.81	0.08	1,048.85	2.27	1,049.89	4.22
1,046.79	0.08	1,047.83	0.08	1,048.87	2.33	1,049.91	4.25
1,046.81	0.08	1,047.85	0.08	1,048.89	2.39	1,049.93	4.28
1,046.83	0.08	1,047.87	0.08	1,048.91	2.45	1,049.95	4.30
1,046.85	0.08	1,047.89	0.09	1,048.93	2.51	1,049.97	4.33
1,046.87	0.08	1,047.91	0.10	1,048.95	2.57	1,049.99	4.36
1,046.89	0.08	1,047.93	0.11	1,048.97	2.62	1,050.01	4.38
1,046.91	0.08	1,047.95	0.12	1,048.99	2.68	1,050.03	4.41
1,046.93	0.08	1,047.97	0.14	1,049.01	2.74	1,050.05	**4.43**
1,046.95	0.08	1,047.99	0.16	1,049.03	2.79		
1,046.97	0.08	1,048.01	0.18	1,049.05	2.84		
1,046.99	0.08	1,048.03	0.20	1,049.07	2.89		
1,047.01	0.08	1,048.05	0.23	1,049.09	2.93		
1,047.03	0.08	1,048.07	0.25	1,049.11	2.98		
1,047.05	0.08	1,048.09	0.28	1,049.13	3.02		
1,047.07	0.08	1,048.11	0.31	1,049.15	3.05		

Stage-Area-Storage for Pond 1P: UNDERGROUND FILTRATION SYSTEM

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,046.05	**2,226**	0
1,046.10	2,226	52
1,046.15	2,226	109
1,046.20	2,226	170
1,046.25	2,226	234
1,046.30	2,226	300
1,046.35	2,226	369
1,046.40	2,226	439
1,046.45	2,226	511
1,046.50	2,226	585
1,046.55	2,226	660
1,046.60	2,226	736
1,046.65	2,226	814
1,046.70	2,226	892
1,046.75	2,226	972
1,046.80	2,226	1,052
1,046.85	2,226	1,134
1,046.90	2,226	1,216
1,046.95	2,226	1,299
1,047.00	2,226	1,383
1,047.05	2,226	1,467
1,047.10	2,226	1,552
1,047.15	2,226	1,638
1,047.20	2,226	1,724
1,047.25	2,226	1,811
1,047.30	2,226	1,898
1,047.35	2,226	1,985
1,047.40	2,226	2,073
1,047.45	2,226	2,161
1,047.50	2,226	2,249
1,047.55	2,226	2,338
1,047.60	2,226	2,426
1,047.65	2,226	2,515
1,047.70	2,226	2,604
1,047.75	2,226	2,693
1,047.80	2,226	2,782
1,047.85	2,226	2,871
1,047.90	2,226	2,960
1,047.95	2,226	3,049
1,048.00	2,226	3,138
1,048.05	2,226	3,226
1,048.10	2,226	3,315
1,048.15	2,226	3,403
1,048.20	2,226	3,491
1,048.25	2,226	3,579
1,048.30	2,226	3,666
1,048.35	2,226	3,753
1,048.40	2,226	3,840
1,048.45	2,226	3,926
1,048.50	2,226	4,012
1,048.55	2,226	4,097
1,048.60	2,226	4,181
1,048.65	2,226	4,265
1,048.70	2,226	4,348
1,048.75	2,226	4,430
1,048.80	2,226	4,512
1,048.85	2,226	4,592
1,048.90	2,226	4,672
1,048.95	2,226	4,751
1,049.00	2,226	4,828
1,049.05	2,226	4,904
1,049.10	2,226	4,979
1,049.15	2,226	5,053
1,049.20	2,226	5,125
1,049.25	2,226	5,195
1,049.30	2,226	5,264
1,049.35	2,226	5,330
1,049.40	2,226	5,394
1,049.45	2,226	5,455
1,049.50	2,226	5,512
1,049.55	2,226	5,564
1,049.60	2,226	5,609
1,049.65	2,226	5,653
1,049.70	2,226	5,698
1,049.75	2,226	5,742
1,049.80	2,226	5,787
1,049.85	2,226	5,831
1,049.90	2,226	5,876
1,049.95	2,226	5,920
1,050.00	2,226	5,965
1,050.05	2,226	**6,009**

Time span=0.00-240.00 hrs, dt=0.01 hrs, 24001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment PR1A: DRAINS TO SYSTEM Runoff Area=33,612 sf 77.71% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=WQ Runoff=4.10 cfs 0.216 af

Subcatchment PR1B: DRAINS TO EX. Runoff Area=6,536 sf 25.93% Impervious Runoff Depth=1.77"
Tc=6.0 min CN=WQ Runoff=0.43 cfs 0.022 af

Subcatchment PR2: DRAINS TO WETLAND Runoff Area=343 sf 0.00% Impervious Runoff Depth=0.96"
Tc=6.0 min CN=WQ Runoff=0.01 cfs 0.001 af

Reach 1R: EX. STORM SEWER Inflow=1.37 cfs 0.238 af
Outflow=1.37 cfs 0.238 af

Pond 1P: UNDERGROUND FILTRATION Peak Elev=1,048.51' Storage=4,023 cf Inflow=4.10 cfs 0.216 af
Outflow=1.22 cfs 0.216 af

Total Runoff Area = 0.930 ac Runoff Volume = 0.239 af Average Runoff Depth = 3.09"
31.31% Pervious = 0.291 ac 68.69% Impervious = 0.639 ac

Summary for Subcatchment PR1A: DRAINS TO SYSTEM

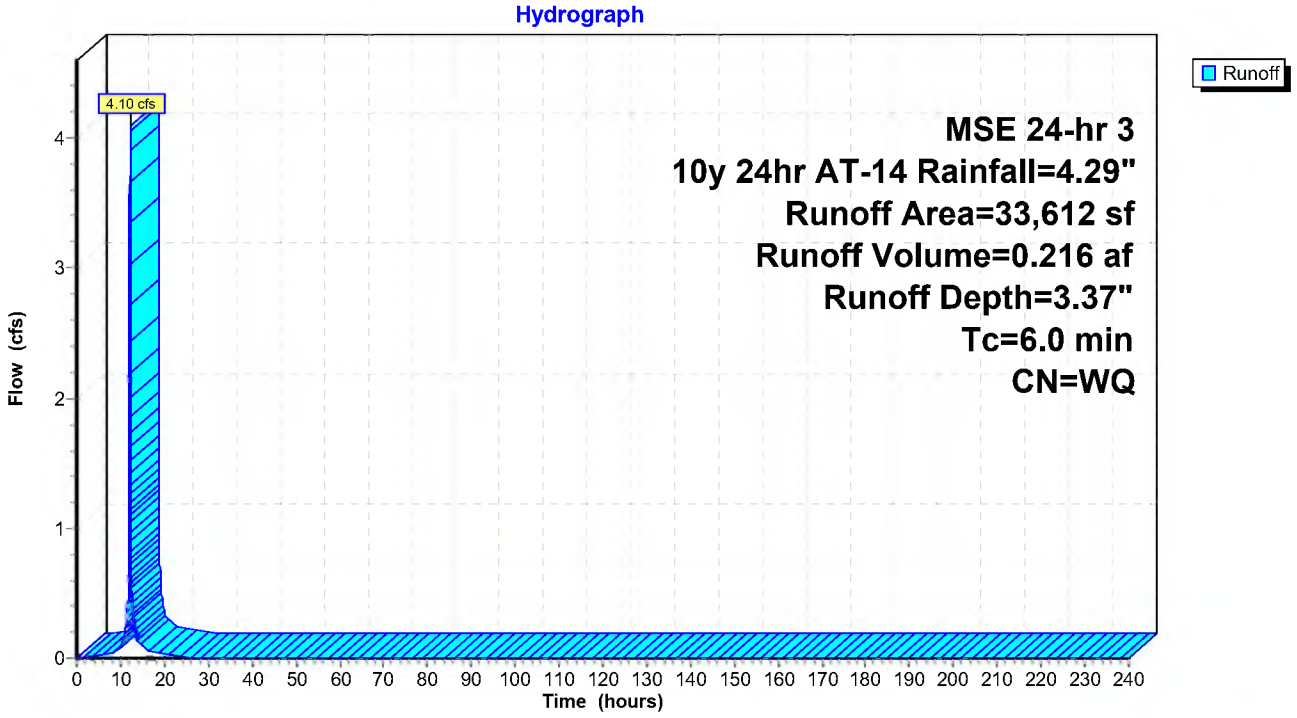
Runoff = 4.10 cfs @ 12.13 hrs, Volume= 0.216 af, Depth= 3.37"
Routed to Pond 1P : UNDERGROUND FILTRATION SYSTEM

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10y 24hr AT-14 Rainfall=4.29"

Area (sf)	CN	Description
26,120	98	Paved parking, HSG B
7,492	61	>75% Grass cover, Good, HSG B
33,612		Weighted Average
7,492		22.29% Pervious Area
26,120		77.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR1A: DRAINS TO SYSTEM



Summary for Subcatchment PR1B: DRAINS TO EX. STORM SEWER

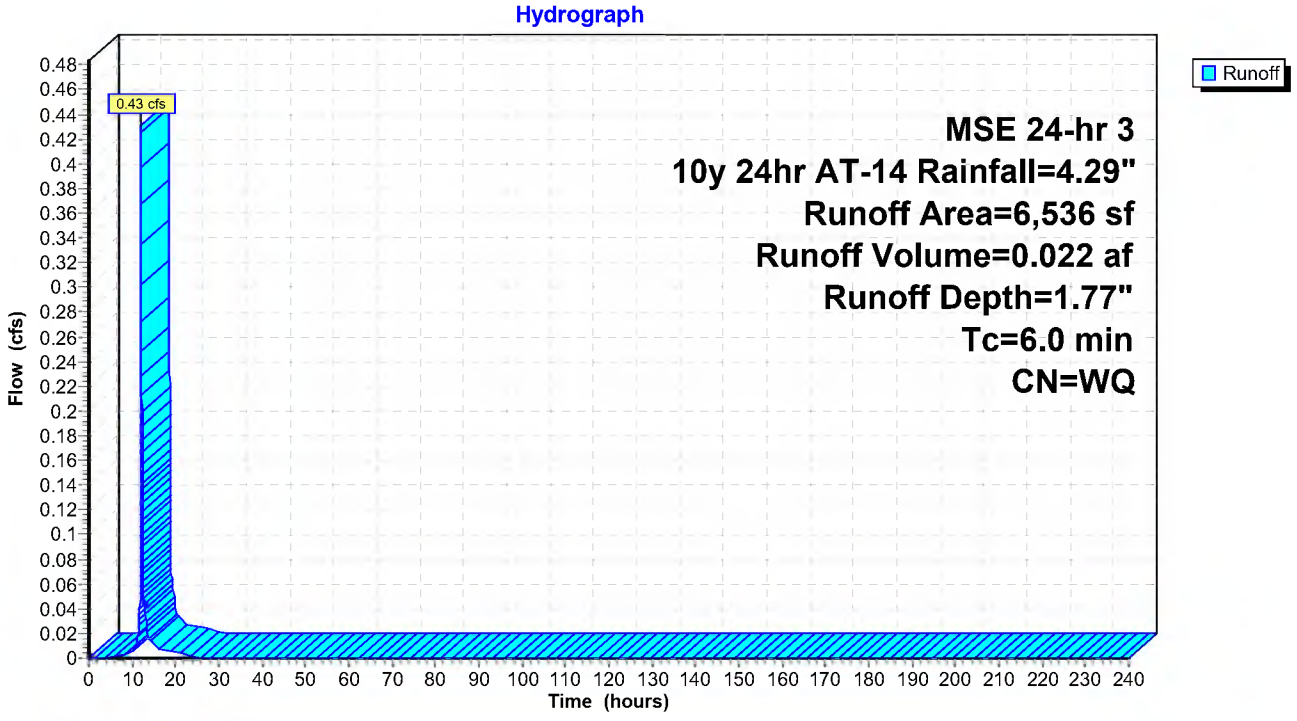
Runoff = 0.43 cfs @ 12.14 hrs, Volume= 0.022 af, Depth= 1.77"
Routed to Reach 1R : EX. STORM SEWER

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10y 24hr AT-14 Rainfall=4.29"

Area (sf)	CN	Description
1,695	98	Paved parking, HSG B
4,841	61	>75% Grass cover, Good, HSG B
6,536		Weighted Average
4,841		74.07% Pervious Area
1,695		25.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR1B: DRAINS TO EX. STORM SEWER



Summary for Subcatchment PR2: DRAINS TO WETLAND

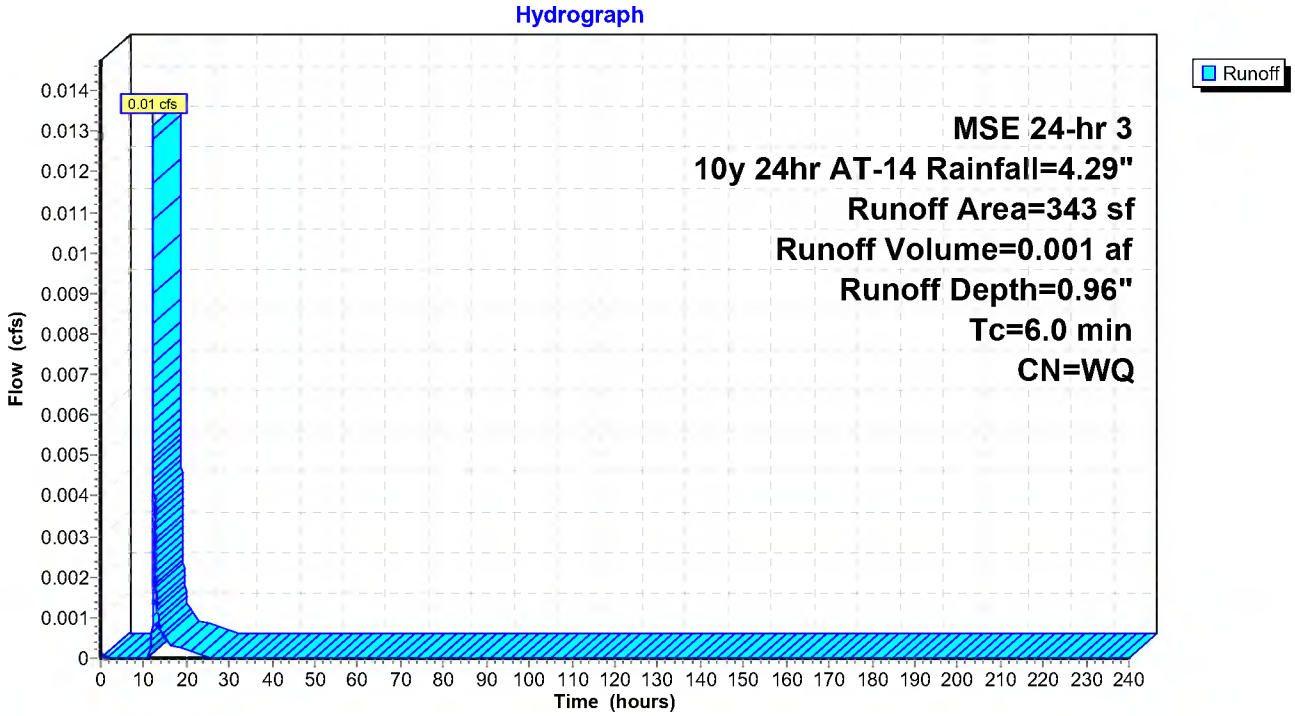
Runoff = 0.01 cfs @ 12.14 hrs, Volume= 0.001 af, Depth= 0.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10y 24hr AT-14 Rainfall=4.29"

Area (sf)	CN	Description
0	98	Paved parking, HSG B
343	61	>75% Grass cover, Good, HSG B
343		Weighted Average
343		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR2: DRAINS TO WETLAND



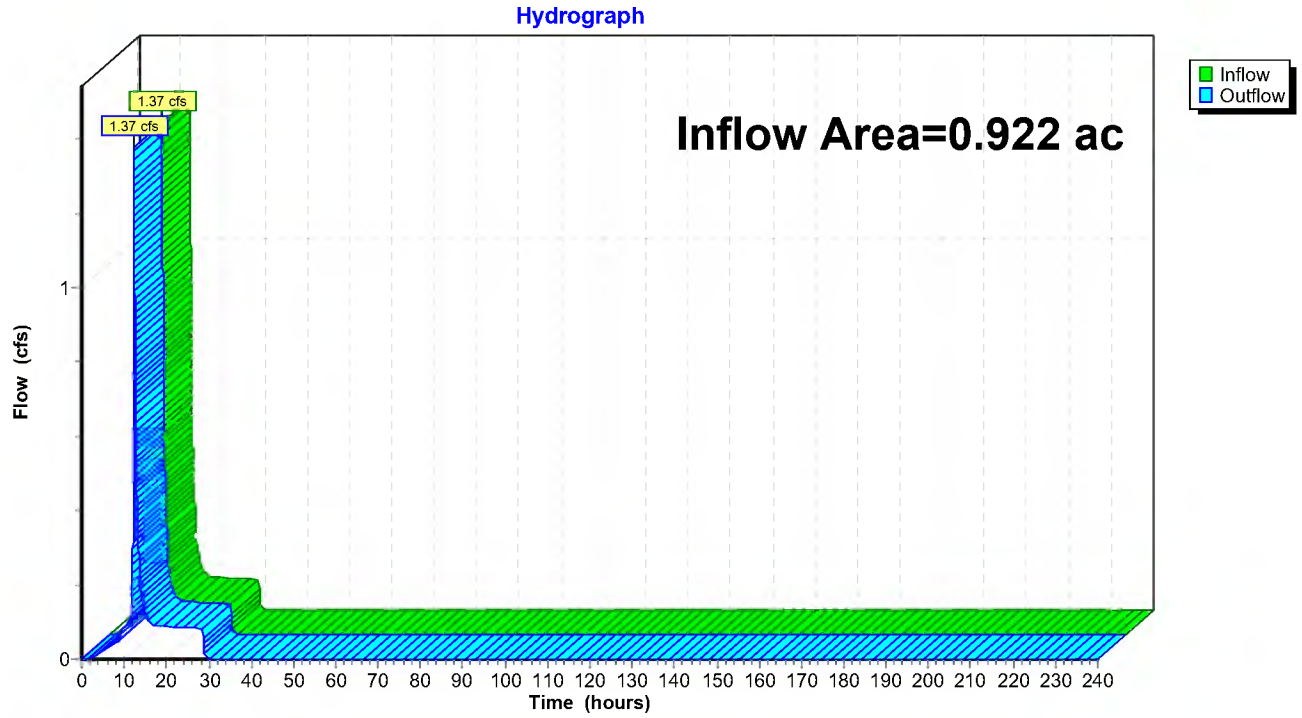
Summary for Reach 1R: EX. STORM SEWER

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.922 ac, 69.28% Impervious, Inflow Depth = 3.11" for 10y 24hr AT-14 event
Inflow = 1.37 cfs @ 12.28 hrs, Volume= 0.238 af
Outflow = 1.37 cfs @ 12.28 hrs, Volume= 0.238 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs

Reach 1R: EX. STORM SEWER



Summary for Pond 1P: UNDERGROUND FILTRATION SYSTEM

Inflow Area = 0.772 ac, 77.71% Impervious, Inflow Depth = 3.37" for 10y 24hr AT-14 event
Inflow = 4.10 cfs @ 12.13 hrs, Volume= 0.216 af
Outflow = 1.22 cfs @ 12.30 hrs, Volume= 0.216 af, Atten= 70%, Lag= 10.0 min
Primary = 1.22 cfs @ 12.30 hrs, Volume= 0.216 af
Routed to Reach 1R : EX. STORM SEWER

Routing by Stor-Ind method, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
Peak Elev= 1,048.51' @ 12.30 hrs Surf.Area= 2,226 sf Storage= 4,023 cf

Plug-Flow detention time= 225.2 min calculated for 0.216 af (100% of inflow)
Center-of-Mass det. time= 225.2 min (978.8 - 753.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	1,046.05'	1,930 cf	**26.50'W x 84.00'L x 4.00'H Field A** 8,904 cf Overall - 4,079 cf Embedded = 4,825 cf x 40.0% Voids
#2A	1,046.05'	4,079 cf	**CMP Round 42** x 20 Inside #1 Effective Size= 42.0"W x 42.0"H => 9.62 sf x 20.00'L = 192.4 cf Overall Size= 42.0"W x 42.0"H x 20.00'L Row Length Adjustment= -5.00' x 9.62 sf x 5 rows 24.50' Header x 9.62 sf x 2 = 471.4 cf Inside
		6,009 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	1,044.05'	**12.0" Round Culvert** L= 69.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,044.05' / 1,043.75' S= 0.0043 '/' Cc= 0.900 n= 0.010, Flow Area= 0.79 sf
#2	Device 1	1,046.05'	**1.600 in/hr Exfiltration over Surface area**
#3	Device 1	1,047.85'	**12.0" Round Culvert** L= 9.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,047.85' / 1,047.76' S= 0.0100 '/' Cc= 0.900 n= 0.010, Flow Area= 0.79 sf

Primary OutFlow Max=1.22 cfs @ 12.30 hrs HW=1,048.51' (Free Discharge)
└**1=Culvert** (Passes 1.22 cfs of 6.64 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 0.08 cfs)
  └**3=Culvert** (Barrel Controls 1.14 cfs @ 2.96 fps)

Pond 1P: UNDERGROUND FILTRATION SYSTEM - Chamber Wizard Field A

Chamber Model = CMP Round 42 (Round Corrugated Metal Pipe)
Effective Size= 42.0"W x 42.0"H => 9.62 sf x 20.00'L = 192.4 cf
Overall Size= 42.0"W x 42.0"H x 20.00'L
Row Length Adjustment= -5.00' x 9.62 sf x 5 rows

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

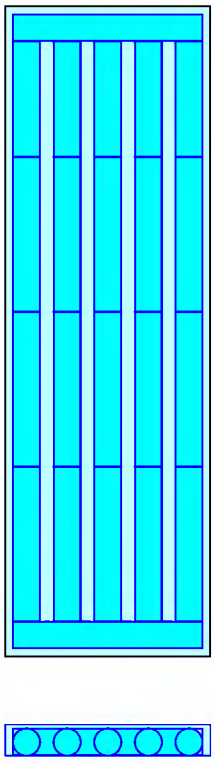
4 Chambers/Row x 20.00' Long -5.00' Row Adjustment +3.50' Header x 2 = 82.00' Row Length +12.0" End Stone x 2 = 84.00' Base Length
5 Rows x 42.0" Wide + 21.0" Spacing x 4 + 12.0" Side Stone x 2 = 26.50' Base Width
42.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

20 Chambers x 192.4 cf -5.00' Row Adjustment x 9.62 sf x 5 Rows + 24.50' Header x 9.62 sf x 2 = 4,079.4 cf Chamber Storage

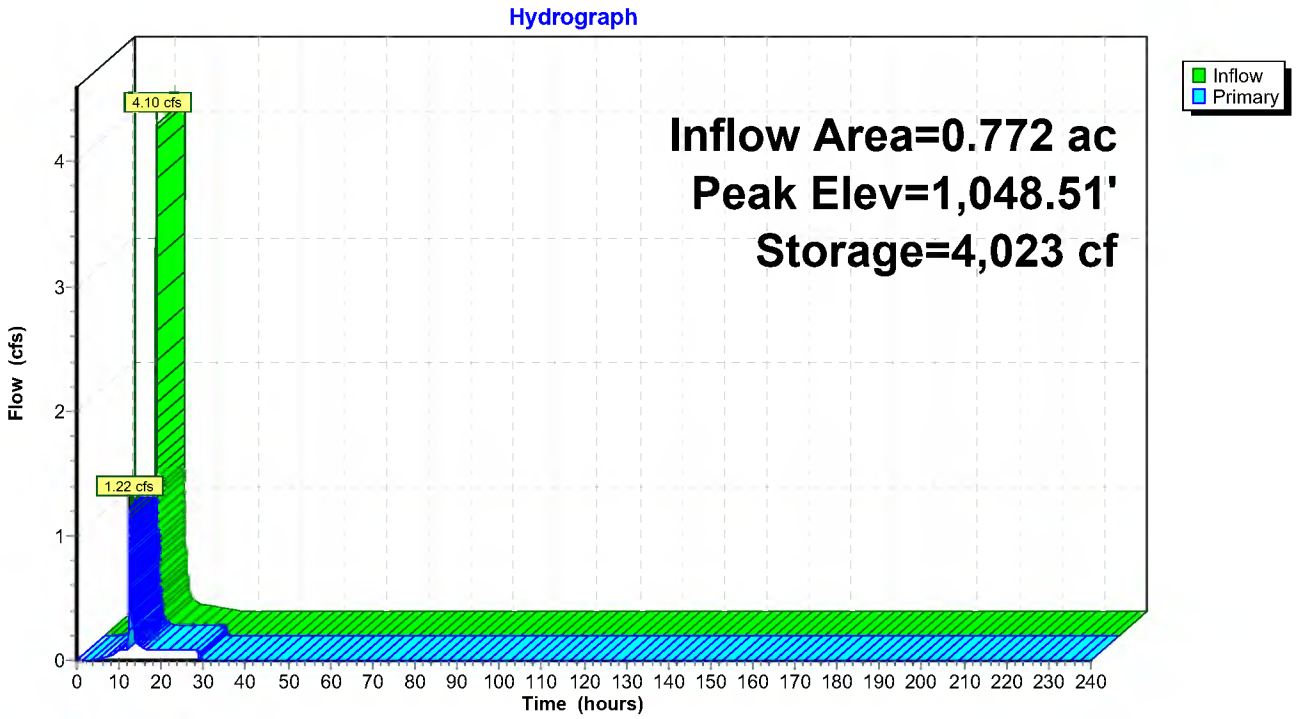
8,904.0 cf Field - 4,079.4 cf Chambers = 4,824.6 cf Stone x 40.0% Voids = 1,929.9 cf Stone Storage

Chamber Storage + Stone Storage = 6,009.2 cf = 0.138 af
Overall Storage Efficiency = 67.5%
Overall System Size = 84.00' x 26.50' x 4.00'

20 Chambers
329.8 cy Field
178.7 cy Stone



Pond 1P: UNDERGROUND FILTRATION SYSTEM



Stage-Discharge for Pond 1P: UNDERGROUND FILTRATION SYSTEM

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,046.05	0.00	1,047.09	0.08	1,048.13	0.35	1,049.17	3.08
1,046.07	0.08	1,047.11	0.08	1,048.15	0.38	1,049.19	3.11
1,046.09	0.08	1,047.13	0.08	1,048.17	0.42	1,049.21	3.18
1,046.11	0.08	1,047.15	0.08	1,048.19	0.45	1,049.23	3.21
1,046.13	0.08	1,047.17	0.08	1,048.21	0.49	1,049.25	3.25
1,046.15	0.08	1,047.19	0.08	1,048.23	0.53	1,049.27	3.28
1,046.17	0.08	1,047.21	0.08	1,048.25	0.58	1,049.29	3.32
1,046.19	0.08	1,047.23	0.08	1,048.27	0.62	1,049.31	3.35
1,046.21	0.08	1,047.25	0.08	1,048.29	0.66	1,049.33	3.39
1,046.23	0.08	1,047.27	0.08	1,048.31	0.71	1,049.35	3.42
1,046.25	0.08	1,047.29	0.08	1,048.33	0.76	1,049.37	3.45
1,046.27	0.08	1,047.31	0.08	1,048.35	0.81	1,049.39	3.49
1,046.29	0.08	1,047.33	0.08	1,048.37	0.85	1,049.41	3.52
1,046.31	0.08	1,047.35	0.08	1,048.39	0.91	1,049.43	3.55
1,046.33	0.08	1,047.37	0.08	1,048.41	0.96	1,049.45	3.58
1,046.35	0.08	1,047.39	0.08	1,048.43	1.01	1,049.47	3.61
1,046.37	0.08	1,047.41	0.08	1,048.45	1.06	1,049.49	3.65
1,046.39	0.08	1,047.43	0.08	1,048.47	1.12	1,049.51	3.68
1,046.41	0.08	1,047.45	0.08	1,048.49	1.18	1,049.53	3.71
1,046.43	0.08	1,047.47	0.08	1,048.51	1.23	1,049.55	3.74
1,046.45	0.08	1,047.49	0.08	1,048.53	1.29	1,049.57	3.77
1,046.47	0.08	1,047.51	0.08	1,048.55	1.35	1,049.59	3.80
1,046.49	0.08	1,047.53	0.08	1,048.57	1.41	1,049.61	3.83
1,046.51	0.08	1,047.55	0.08	1,048.59	1.47	1,049.63	3.86
1,046.53	0.08	1,047.57	0.08	1,048.61	1.53	1,049.65	3.89
1,046.55	0.08	1,047.59	0.08	1,048.63	1.59	1,049.67	3.92
1,046.57	0.08	1,047.61	0.08	1,048.65	1.65	1,049.69	3.95
1,046.59	0.08	1,047.63	0.08	1,048.67	1.71	1,049.71	3.97
1,046.61	0.08	1,047.65	0.08	1,048.69	1.77	1,049.73	4.00
1,046.63	0.08	1,047.67	0.08	1,048.71	1.83	1,049.75	4.03
1,046.65	0.08	1,047.69	0.08	1,048.73	1.90	1,049.77	4.06
1,046.67	0.08	1,047.71	0.08	1,048.75	1.96	1,049.79	4.09
1,046.69	0.08	1,047.73	0.08	1,048.77	2.02	1,049.81	4.11
1,046.71	0.08	1,047.75	0.08	1,048.79	2.08	1,049.83	4.14
1,046.73	0.08	1,047.77	0.08	1,048.81	2.14	1,049.85	4.17
1,046.75	0.08	1,047.79	0.08	1,048.83	2.21	1,049.87	4.20
1,046.77	0.08	1,047.81	0.08	1,048.85	2.27	1,049.89	4.22
1,046.79	0.08	1,047.83	0.08	1,048.87	2.33	1,049.91	4.25
1,046.81	0.08	1,047.85	0.08	1,048.89	2.39	1,049.93	4.28
1,046.83	0.08	1,047.87	0.08	1,048.91	2.45	1,049.95	4.30
1,046.85	0.08	1,047.89	0.09	1,048.93	2.51	1,049.97	4.33
1,046.87	0.08	1,047.91	0.10	1,048.95	2.57	1,049.99	4.36
1,046.89	0.08	1,047.93	0.11	1,048.97	2.62	1,050.01	4.38
1,046.91	0.08	1,047.95	0.12	1,048.99	2.68	1,050.03	4.41
1,046.93	0.08	1,047.97	0.14	1,049.01	2.74	1,050.05	**4.43**
1,046.95	0.08	1,047.99	0.16	1,049.03	2.79		
1,046.97	0.08	1,048.01	0.18	1,049.05	2.84		
1,046.99	0.08	1,048.03	0.20	1,049.07	2.89		
1,047.01	0.08	1,048.05	0.23	1,049.09	2.93		
1,047.03	0.08	1,048.07	0.25	1,049.11	2.98		
1,047.05	0.08	1,048.09	0.28	1,049.13	3.02		
1,047.07	0.08	1,048.11	0.31	1,049.15	3.05		

Stage-Area-Storage for Pond 1P: UNDERGROUND FILTRATION SYSTEM

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,046.05	**2,226**	0
1,046.10	2,226	52
1,046.15	2,226	109
1,046.20	2,226	170
1,046.25	2,226	234
1,046.30	2,226	300
1,046.35	2,226	369
1,046.40	2,226	439
1,046.45	2,226	511
1,046.50	2,226	585
1,046.55	2,226	660
1,046.60	2,226	736
1,046.65	2,226	814
1,046.70	2,226	892
1,046.75	2,226	972
1,046.80	2,226	1,052
1,046.85	2,226	1,134
1,046.90	2,226	1,216
1,046.95	2,226	1,299
1,047.00	2,226	1,383
1,047.05	2,226	1,467
1,047.10	2,226	1,552
1,047.15	2,226	1,638
1,047.20	2,226	1,724
1,047.25	2,226	1,811
1,047.30	2,226	1,898
1,047.35	2,226	1,985
1,047.40	2,226	2,073
1,047.45	2,226	2,161
1,047.50	2,226	2,249
1,047.55	2,226	2,338
1,047.60	2,226	2,426
1,047.65	2,226	2,515
1,047.70	2,226	2,604
1,047.75	2,226	2,693
1,047.80	2,226	2,782
1,047.85	2,226	2,871
1,047.90	2,226	2,960
1,047.95	2,226	3,049
1,048.00	2,226	3,138
1,048.05	2,226	3,226
1,048.10	2,226	3,315
1,048.15	2,226	3,403
1,048.20	2,226	3,491
1,048.25	2,226	3,579
1,048.30	2,226	3,666
1,048.35	2,226	3,753
1,048.40	2,226	3,840
1,048.45	2,226	3,926
1,048.50	2,226	4,012
1,048.55	2,226	4,097
1,048.60	2,226	4,181
1,048.65	2,226	4,265
1,048.70	2,226	4,348
1,048.75	2,226	4,430
1,048.80	2,226	4,512
1,048.85	2,226	4,592
1,048.90	2,226	4,672
1,048.95	2,226	4,751
1,049.00	2,226	4,828
1,049.05	2,226	4,904
1,049.10	2,226	4,979
1,049.15	2,226	5,053
1,049.20	2,226	5,125
1,049.25	2,226	5,195
1,049.30	2,226	5,264
1,049.35	2,226	5,330
1,049.40	2,226	5,394
1,049.45	2,226	5,455
1,049.50	2,226	5,512
1,049.55	2,226	5,564
1,049.60	2,226	5,609
1,049.65	2,226	5,653
1,049.70	2,226	5,698
1,049.75	2,226	5,742
1,049.80	2,226	5,787
1,049.85	2,226	5,831
1,049.90	2,226	5,876
1,049.95	2,226	5,920
1,050.00	2,226	5,965
1,050.05	2,226	**6,009**

Time span=0.00-240.00 hrs, dt=0.01 hrs, 24001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

SubcatchmentPR1A: DRAINS TO SYSTEM Runoff Area=33,612 sf 77.71% Impervious Runoff Depth=6.25"
Tc=6.0 min CN=WQ Runoff=7.60 cfs 0.402 af

SubcatchmentPR1B: DRAINS TO EX. Runoff Area=6,536 sf 25.93% Impervious Runoff Depth=4.09"
Tc=6.0 min CN=WQ Runoff=1.05 cfs 0.051 af

SubcatchmentPR2: DRAINS TO WETLAND Runoff Area=343 sf 0.00% Impervious Runoff Depth=3.01"
Tc=6.0 min CN=WQ Runoff=0.04 cfs 0.002 af

Reach 1R: EX. STORM SEWER Inflow=5.11 cfs 0.453 af
Outflow=5.11 cfs 0.453 af

Pond 1P: UNDERGROUNDFILTRATION Peak Elev=1,050.01' Storage=5,971 cf Inflow=7.60 cfs 0.402 af
Outflow=4.38 cfs 0.402 af

Total Runoff Area = 0.930 ac Runoff Volume = 0.455 af Average Runoff Depth = 5.87"
31.31% Pervious = 0.291 ac 68.69% Impervious = 0.639 ac

Summary for Subcatchment PR1A: DRAINS TO SYSTEM

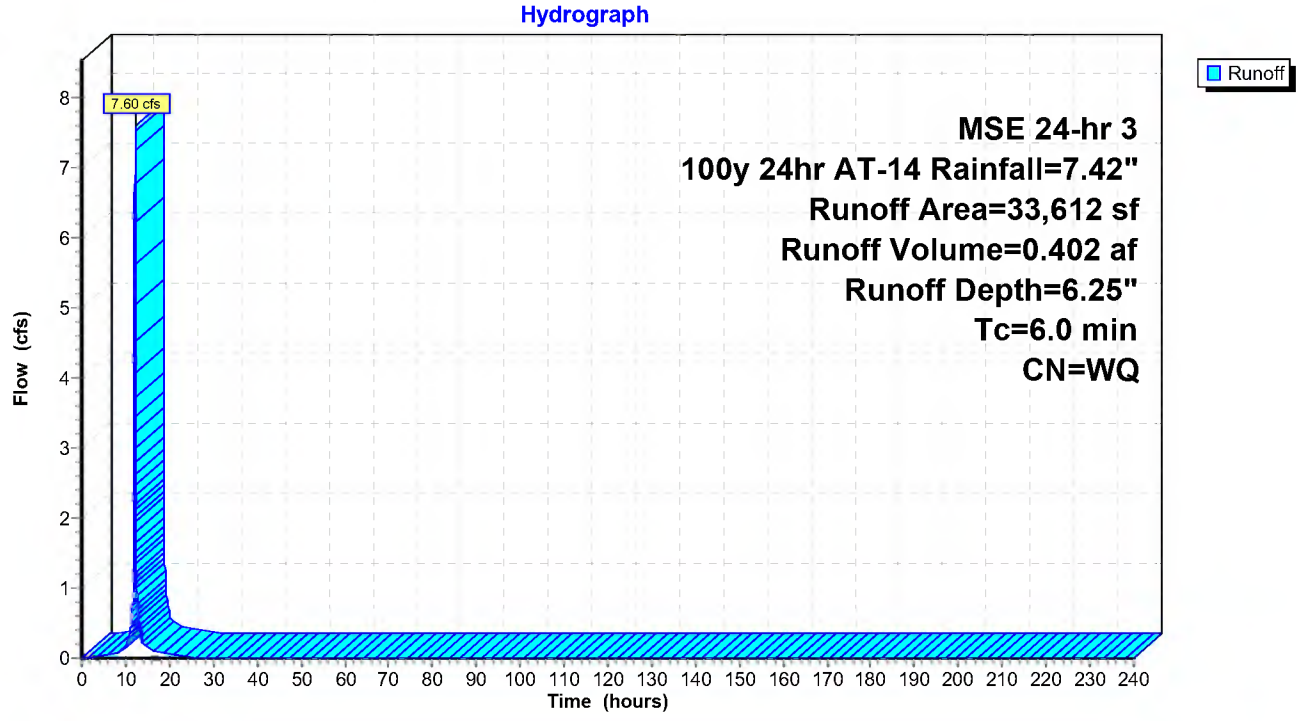
Runoff = 7.60 cfs @ 12.13 hrs, Volume= 0.402 af, Depth= 6.25"
Routed to Pond 1P : UNDERGROUND FILTRATION SYSTEM

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100y 24hr AT-14 Rainfall=7.42"

Area (sf)	CN	Description
26,120	98	Paved parking, HSG B
7,492	61	>75% Grass cover, Good, HSG B
33,612		Weighted Average
7,492		22.29% Pervious Area
26,120		77.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR1A: DRAINS TO SYSTEM



Summary for Subcatchment PR1B: DRAINS TO EX. STORM SEWER

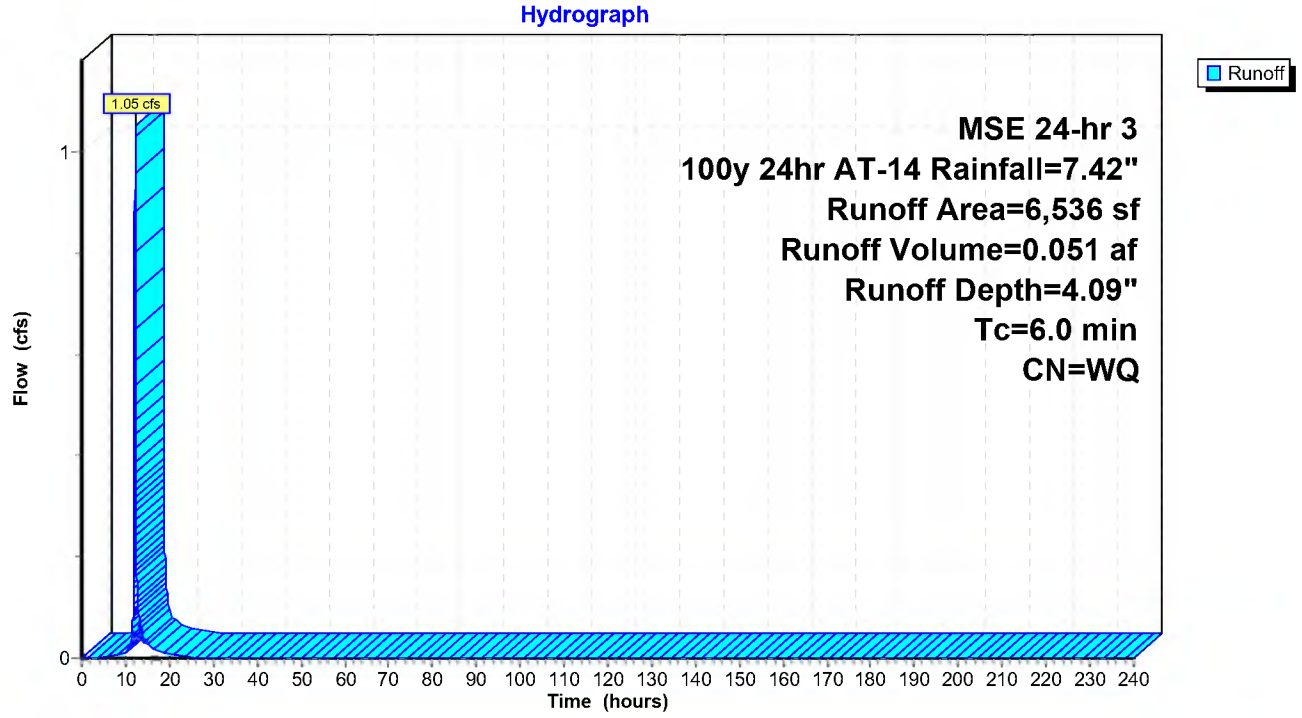
Runoff = 1.05 cfs @ 12.13 hrs, Volume= 0.051 af, Depth= 4.09"
Routed to Reach 1R : EX. STORM SEWER

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100y 24hr AT-14 Rainfall=7.42"

Area (sf)	CN	Description
1,695	98	Paved parking, HSG B
4,841	61	>75% Grass cover, Good, HSG B
6,536		Weighted Average
4,841		74.07% Pervious Area
1,695		25.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR1B: DRAINS TO EX. STORM SEWER



Summary for Subcatchment PR2: DRAINS TO WETLAND

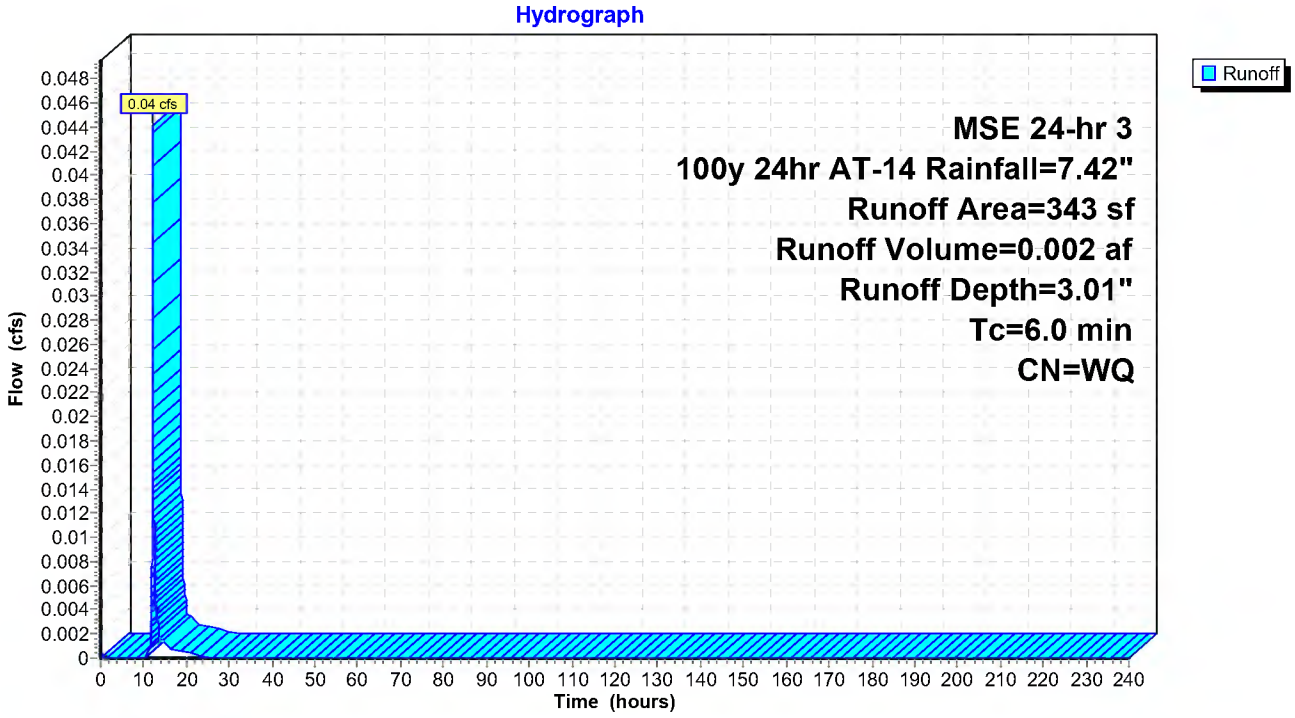
Runoff = 0.04 cfs @ 12.14 hrs, Volume= 0.002 af, Depth= 3.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100y 24hr AT-14 Rainfall=7.42"

Area (sf)	CN	Description
0	98	Paved parking, HSG B
343	61	>75% Grass cover, Good, HSG B
343		Weighted Average
343		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR2: DRAINS TO WETLAND



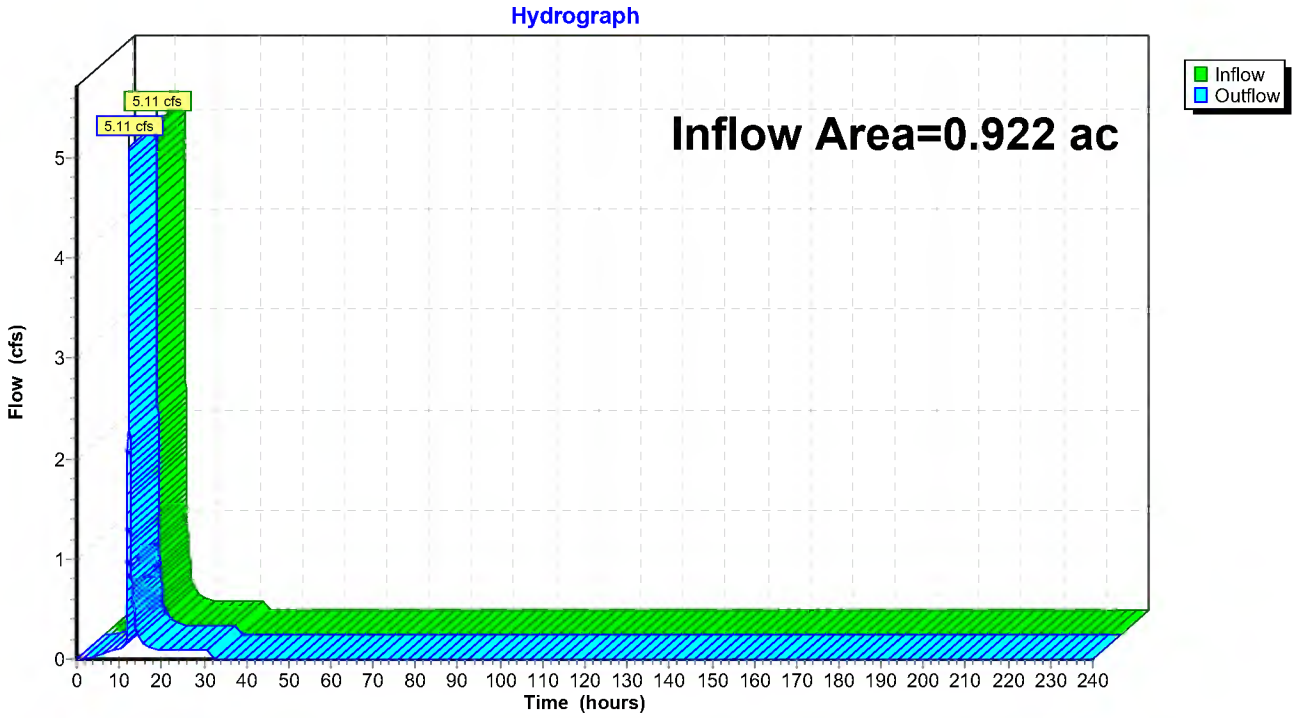
Summary for Reach 1R: EX. STORM SEWER

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.922 ac, 69.28% Impervious, Inflow Depth = 5.90" for 100y 24hr AT-14 event
Inflow = 5.11 cfs @ 12.18 hrs, Volume= 0.453 af
Outflow = 5.11 cfs @ 12.18 hrs, Volume= 0.453 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs

Reach 1R: EX. STORM SEWER



Summary for Pond 1P: UNDERGROUND FILTRATION SYSTEM

Inflow Area = 0.772 ac, 77.71% Impervious, Inflow Depth = 6.25" for 100y 24hr AT-14 event
Inflow = 7.60 cfs @ 12.13 hrs, Volume= 0.402 af
Outflow = 4.38 cfs @ 12.20 hrs, Volume= 0.402 af, Atten= 42%, Lag= 4.4 min
Primary = 4.38 cfs @ 12.20 hrs, Volume= 0.402 af
Routed to Reach 1R : EX. STORM SEWER

Routing by Stor-Ind method, Time Span= 0.00-240.00 hrs, dt= 0.01 hrs
Peak Elev= 1,050.01' @ 12.20 hrs Surf.Area= 2,226 sf Storage= 5,971 cf

Plug-Flow detention time= 159.9 min calculated for 0.402 af (100% of inflow)
Center-of-Mass det. time= 159.9 min (908.6 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	1,046.05'	1,930 cf	**26.50'W x 84.00'L x 4.00'H Field A** 8,904 cf Overall - 4,079 cf Embedded = 4,825 cf x 40.0% Voids
#2A	1,046.05'	4,079 cf	**CMP Round 42** x 20 Inside #1 Effective Size= 42.0"W x 42.0"H => 9.62 sf x 20.00'L = 192.4 cf Overall Size= 42.0"W x 42.0"H x 20.00'L Row Length Adjustment= -5.00' x 9.62 sf x 5 rows 24.50' Header x 9.62 sf x 2 = 471.4 cf Inside
		6,009 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	1,044.05'	**12.0" Round Culvert** L= 69.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,044.05' / 1,043.75' S= 0.0043 '/' Cc= 0.900 n= 0.010, Flow Area= 0.79 sf
#2	Device 1	1,046.05'	**1.600 in/hr Exfiltration over Surface area**
#3	Device 1	1,047.85'	**12.0" Round Culvert** L= 9.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,047.85' / 1,047.76' S= 0.0100 '/' Cc= 0.900 n= 0.010, Flow Area= 0.79 sf

Primary OutFlow Max=4.38 cfs @ 12.20 hrs HW=1,050.01' (Free Discharge)
└**1=Culvert** (Passes 4.38 cfs of 7.79 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 0.08 cfs)
  └**3=Culvert** (Inlet Controls 4.29 cfs @ 5.47 fps)

Pond 1P: UNDERGROUND FILTRATION SYSTEM - Chamber Wizard Field A

Chamber Model = CMP Round 42 (Round Corrugated Metal Pipe)
Effective Size= 42.0"W x 42.0"H => 9.62 sf x 20.00'L = 192.4 cf
Overall Size= 42.0"W x 42.0"H x 20.00'L
Row Length Adjustment= -5.00' x 9.62 sf x 5 rows

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

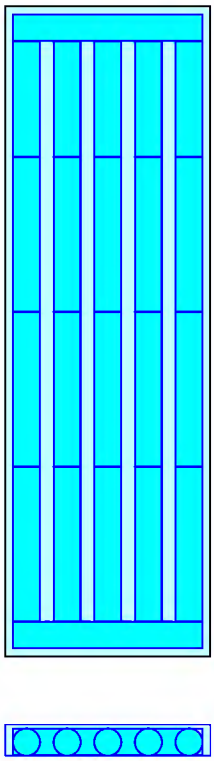
4 Chambers/Row x 20.00' Long -5.00' Row Adjustment +3.50' Header x 2 = 82.00' Row Length +12.0" End Stone x 2 = 84.00' Base Length
5 Rows x 42.0" Wide + 21.0" Spacing x 4 + 12.0" Side Stone x 2 = 26.50' Base Width
42.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

20 Chambers x 192.4 cf -5.00' Row Adjustment x 9.62 sf x 5 Rows + 24.50' Header x 9.62 sf x 2 = 4,079.4 cf Chamber Storage

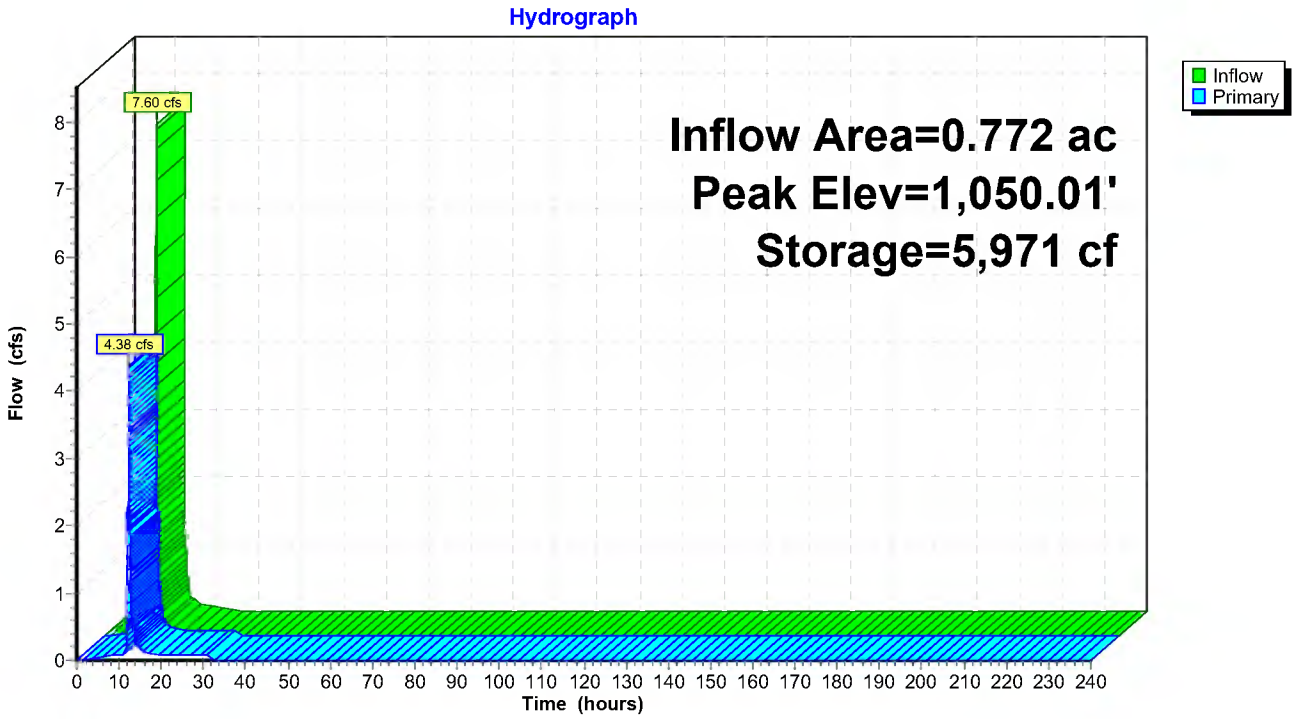
8,904.0 cf Field - 4,079.4 cf Chambers = 4,824.6 cf Stone x 40.0% Voids = 1,929.9 cf Stone Storage

Chamber Storage + Stone Storage = 6,009.2 cf = 0.138 af
Overall Storage Efficiency = 67.5%
Overall System Size = 84.00' x 26.50' x 4.00'

20 Chambers
329.8 cy Field
178.7 cy Stone



Pond 1P: UNDERGROUND FILTRATION SYSTEM



Stage-Discharge for Pond 1P: UNDERGROUND FILTRATION SYSTEM

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,046.05	0.00	1,047.09	0.08	1,048.13	0.35	1,049.17	3.08
1,046.07	0.08	1,047.11	0.08	1,048.15	0.38	1,049.19	3.11
1,046.09	0.08	1,047.13	0.08	1,048.17	0.42	1,049.21	3.18
1,046.11	0.08	1,047.15	0.08	1,048.19	0.45	1,049.23	3.21
1,046.13	0.08	1,047.17	0.08	1,048.21	0.49	1,049.25	3.25
1,046.15	0.08	1,047.19	0.08	1,048.23	0.53	1,049.27	3.28
1,046.17	0.08	1,047.21	0.08	1,048.25	0.58	1,049.29	3.32
1,046.19	0.08	1,047.23	0.08	1,048.27	0.62	1,049.31	3.35
1,046.21	0.08	1,047.25	0.08	1,048.29	0.66	1,049.33	3.39
1,046.23	0.08	1,047.27	0.08	1,048.31	0.71	1,049.35	3.42
1,046.25	0.08	1,047.29	0.08	1,048.33	0.76	1,049.37	3.45
1,046.27	0.08	1,047.31	0.08	1,048.35	0.81	1,049.39	3.49
1,046.29	0.08	1,047.33	0.08	1,048.37	0.85	1,049.41	3.52
1,046.31	0.08	1,047.35	0.08	1,048.39	0.91	1,049.43	3.55
1,046.33	0.08	1,047.37	0.08	1,048.41	0.96	1,049.45	3.58
1,046.35	0.08	1,047.39	0.08	1,048.43	1.01	1,049.47	3.61
1,046.37	0.08	1,047.41	0.08	1,048.45	1.06	1,049.49	3.65
1,046.39	0.08	1,047.43	0.08	1,048.47	1.12	1,049.51	3.68
1,046.41	0.08	1,047.45	0.08	1,048.49	1.18	1,049.53	3.71
1,046.43	0.08	1,047.47	0.08	1,048.51	1.23	1,049.55	3.74
1,046.45	0.08	1,047.49	0.08	1,048.53	1.29	1,049.57	3.77
1,046.47	0.08	1,047.51	0.08	1,048.55	1.35	1,049.59	3.80
1,046.49	0.08	1,047.53	0.08	1,048.57	1.41	1,049.61	3.83
1,046.51	0.08	1,047.55	0.08	1,048.59	1.47	1,049.63	3.86
1,046.53	0.08	1,047.57	0.08	1,048.61	1.53	1,049.65	3.89
1,046.55	0.08	1,047.59	0.08	1,048.63	1.59	1,049.67	3.92
1,046.57	0.08	1,047.61	0.08	1,048.65	1.65	1,049.69	3.95
1,046.59	0.08	1,047.63	0.08	1,048.67	1.71	1,049.71	3.97
1,046.61	0.08	1,047.65	0.08	1,048.69	1.77	1,049.73	4.00
1,046.63	0.08	1,047.67	0.08	1,048.71	1.83	1,049.75	4.03
1,046.65	0.08	1,047.69	0.08	1,048.73	1.90	1,049.77	4.06
1,046.67	0.08	1,047.71	0.08	1,048.75	1.96	1,049.79	4.09
1,046.69	0.08	1,047.73	0.08	1,048.77	2.02	1,049.81	4.11
1,046.71	0.08	1,047.75	0.08	1,048.79	2.08	1,049.83	4.14
1,046.73	0.08	1,047.77	0.08	1,048.81	2.14	1,049.85	4.17
1,046.75	0.08	1,047.79	0.08	1,048.83	2.21	1,049.87	4.20
1,046.77	0.08	1,047.81	0.08	1,048.85	2.27	1,049.89	4.22
1,046.79	0.08	1,047.83	0.08	1,048.87	2.33	1,049.91	4.25
1,046.81	0.08	1,047.85	0.08	1,048.89	2.39	1,049.93	4.28
1,046.83	0.08	1,047.87	0.08	1,048.91	2.45	1,049.95	4.30
1,046.85	0.08	1,047.89	0.09	1,048.93	2.51	1,049.97	4.33
1,046.87	0.08	1,047.91	0.10	1,048.95	2.57	1,049.99	4.36
1,046.89	0.08	1,047.93	0.11	1,048.97	2.62	1,050.01	4.38
1,046.91	0.08	1,047.95	0.12	1,048.99	2.68	1,050.03	4.41
1,046.93	0.08	1,047.97	0.14	1,049.01	2.74	1,050.05	**4.43**
1,046.95	0.08	1,047.99	0.16	1,049.03	2.79		
1,046.97	0.08	1,048.01	0.18	1,049.05	2.84		
1,046.99	0.08	1,048.03	0.20	1,049.07	2.89		
1,047.01	0.08	1,048.05	0.23	1,049.09	2.93		
1,047.03	0.08	1,048.07	0.25	1,049.11	2.98		
1,047.05	0.08	1,048.09	0.28	1,049.13	3.02		
1,047.07	0.08	1,048.11	0.31	1,049.15	3.05		

Stage-Area-Storage for Pond 1P: UNDERGROUND FILTRATION SYSTEM

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,046.05	**2,226**	0
1,046.10	2,226	52
1,046.15	2,226	109
1,046.20	2,226	170
1,046.25	2,226	234
1,046.30	2,226	300
1,046.35	2,226	369
1,046.40	2,226	439
1,046.45	2,226	511
1,046.50	2,226	585
1,046.55	2,226	660
1,046.60	2,226	736
1,046.65	2,226	814
1,046.70	2,226	892
1,046.75	2,226	972
1,046.80	2,226	1,052
1,046.85	2,226	1,134
1,046.90	2,226	1,216
1,046.95	2,226	1,299
1,047.00	2,226	1,383
1,047.05	2,226	1,467
1,047.10	2,226	1,552
1,047.15	2,226	1,638
1,047.20	2,226	1,724
1,047.25	2,226	1,811
1,047.30	2,226	1,898
1,047.35	2,226	1,985
1,047.40	2,226	2,073
1,047.45	2,226	2,161
1,047.50	2,226	2,249
1,047.55	2,226	2,338
1,047.60	2,226	2,426
1,047.65	2,226	2,515
1,047.70	2,226	2,604
1,047.75	2,226	2,693
1,047.80	2,226	2,782
1,047.85	2,226	2,871
1,047.90	2,226	2,960
1,047.95	2,226	3,049
1,048.00	2,226	3,138
1,048.05	2,226	3,226
1,048.10	2,226	3,315
1,048.15	2,226	3,403
1,048.20	2,226	3,491
1,048.25	2,226	3,579
1,048.30	2,226	3,666
1,048.35	2,226	3,753
1,048.40	2,226	3,840
1,048.45	2,226	3,926
1,048.50	2,226	4,012
1,048.55	2,226	4,097
1,048.60	2,226	4,181
1,048.65	2,226	4,265
1,048.70	2,226	4,348
1,048.75	2,226	4,430
1,048.80	2,226	4,512
1,048.85	2,226	4,592
1,048.90	2,226	4,672
1,048.95	2,226	4,751
1,049.00	2,226	4,828
1,049.05	2,226	4,904
1,049.10	2,226	4,979
1,049.15	2,226	5,053
1,049.20	2,226	5,125
1,049.25	2,226	5,195
1,049.30	2,226	5,264
1,049.35	2,226	5,330
1,049.40	2,226	5,394
1,049.45	2,226	5,455
1,049.50	2,226	5,512
1,049.55	2,226	5,564
1,049.60	2,226	5,609
1,049.65	2,226	5,653
1,049.70	2,226	5,698
1,049.75	2,226	5,742
1,049.80	2,226	5,787
1,049.85	2,226	5,831
1,049.90	2,226	5,876
1,049.95	2,226	5,920
1,050.00	2,226	5,965
1,050.05	2,226	**6,009**

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Existing Conditions Annual Load

Report: Load lbs | Term: 10 surface outflow | Dec: 1

Device: OUTLET PIPE | Var: TSS | Transpose | Copy | Help

Variable	OVERALL	OUTLET PIPE
P0%	40.5	40.5
P10%	905.4	905.4
P30%	905.4	905.4
P50%	905.4	905.4
P80%	1810.7	1810.7
TSS	4526.8	4526.8
TP	14.5	14.5
TKN	65.0	65.0
CU	2.1	2.1
PB	0.9	0.9
ZN	6.9	6.9
HC	112.0	112.0

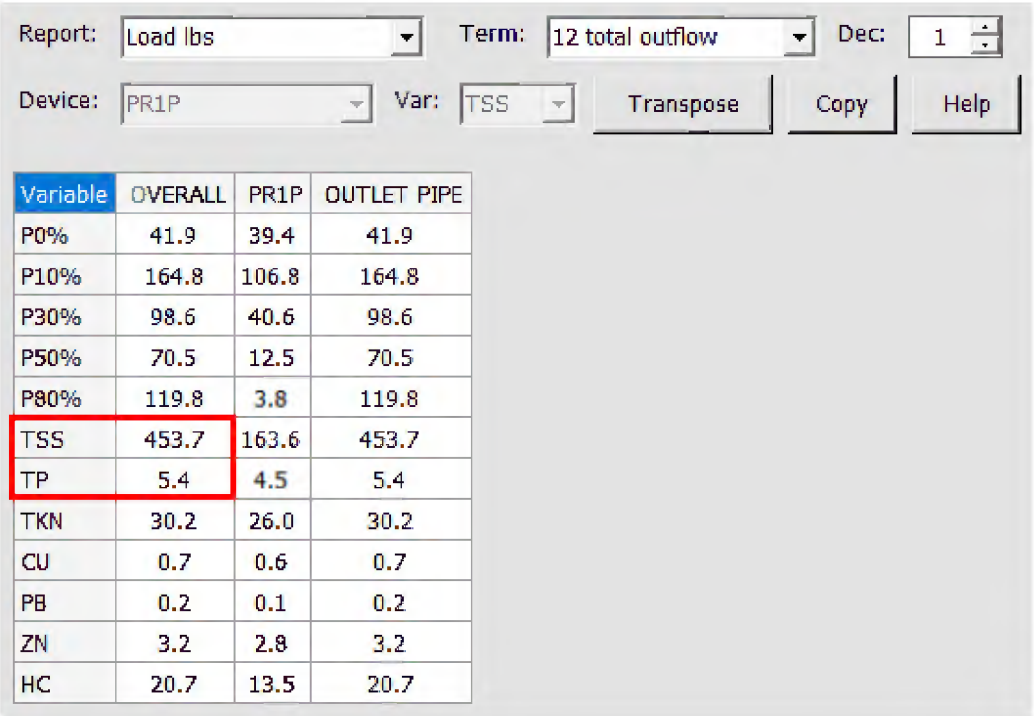
Proposed Conditions Removal Efficiency

Report: Load Reduction % | Term: 10 surface outflow | Dec: 1

Device: PR1P | Var: TSS | Transpose | Copy | Help

Variable	OVERALL	PR1P	OUTLET PIPE
P0%			
P10%	81.3	86.6	
P30%	89.4	95.3	
P50%	92.5	98.6	
P80%	93.6	99.8	
TSS	90.1	96.0	
TP	63.4	67.5	
TKN	54.9	58.5	
CU	66.3	70.7	
PB	81.9	87.3	
ZN	54.9	58.5	
HC	81.9	87.3	

Proposed Conditions Annual Load



Variable	OVERALL	PR1P	OUTLET PIPE
P0%	41.9	39.4	41.9
P10%	164.8	106.8	164.8
P30%	98.6	40.6	98.6
P50%	70.5	12.5	70.5
P80%	119.8	3.8	119.8
TSS	453.7	163.6	453.7
TP	5.4	4.5	5.4
TKN	30.2	26.0	30.2
CU	0.7	0.6	0.7
PB	0.2	0.1	0.2
ZN	3.2	2.8	3.2
HC	20.7	13.5	20.7