

# CITY OF ARDEN HILLS

## CONSTRUCTION PLANS FOR

# 2024 PMP STREET & UTILITY IMPROVEMENTS

WATERMAIN, STORM SEWER, UTILITY REHABILITATIONS, POND DREDGING, RETAINING WALL, TRAIL REHABILITATION,  
CONCRETE PEDESTRIAN RAMPS & SPOT CURB & GUTTER REPLACEMENT, STREET PAVEMENT REHABILITATION

FEBRUARY, 2024

### RESOURCE LIST

#### CITY OF ARDEN HILLS

CITY HALL  
1245 W HIGHWAY 96,  
ARDEN HILLS, MN 55112  
651-792-7800

CITY ADMINISTRATOR:  
DAVE PERRAULT

MAYOR:  
DAVID GRANT

CITY COUNCIL MEMBERS:  
EMILY ROUSSEAU  
BRENDA HOLDEN  
TENA MONSON  
THOMAS L FABEL

PUBLIC WORKS DIRECTOR/CITY  
ENGINEER:  
DAVID SWEARINGEN, P.E.

PUBLIC WORKS  
SUPERINTENDENT:  
JEFF FRID

### UTILITIES

GAS  
XCEL  
SCOTT WIDMER  
SCOTT.A.WIDMER@XCELENERGY.COM  
651-261-3087

TELEPHONE  
MCI COMMUNICATIONS  
GREG ALLEN  
GREG.ALLEN@VERIZON.COM

LUMEN  
PHILLIP MARTIN  
PHILLIP.P.MARTIN@LUMEN.COM

CABLE  
COMCAST  
LUKE BASTIL  
LUKE.BASTIL@COMCAST.COM  
651-262-6600

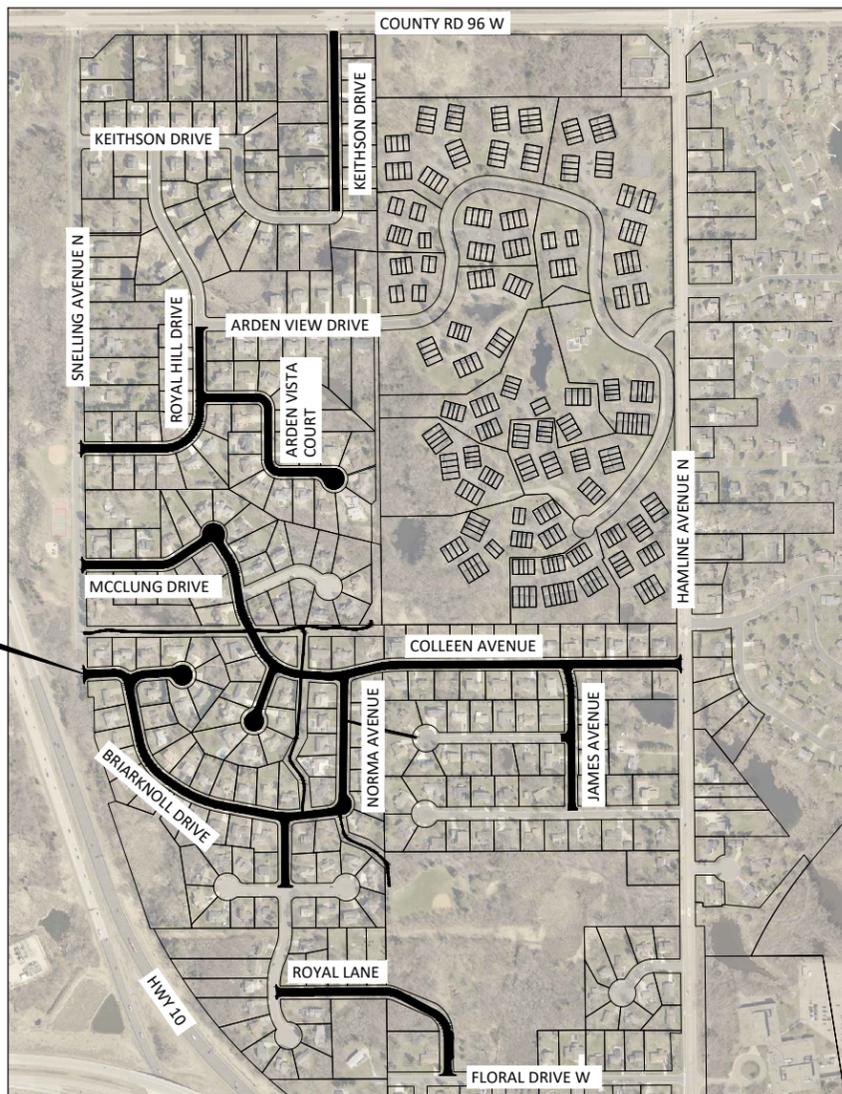
ELECTRIC  
XCEL  
SCOTT TOMFORD  
SCOTT.TOMFORD@XCELENERGY.COM  
762-439-3418

NOTE: EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-22, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

PROJECT LOCATION

MAP OF THE  
CITY OF ARDEN HILLS  
RAMSEY COUNTY, MN



### MAP LEGEND

PROJECT LIMITS

SHEET NUMBER	SHEET TITLE
GENERAL	
G0.01 - G0.03	TITLE SHEET, LEGEND, GENERAL NOTES
G1.01	STATEMENT OF ESTIMATED QUANTITIES
CIVIL	
C0.00 - C0.13	EXISTING CONDITIONS, REMOVALS PLAN
C1.01 - C1.12	TABLES, DETAILS, TYPICAL SECTIONS, PHASING PLAN
C2.00 - C2.16	EROSION CONTROL PLAN, SWPPP
C3.01 - C3.02	GRADING PLAN
C4.01 - C4.04	SANITARY SEWER & WATER PLAN & PROFILE
C5.00 - C5.06	STORM SEWER PLAN & PROFILE
C6.00 - C6.16	STREET PLAN & PROFILE, INTERSECTION DETAILS
C7.01 - C7.04	TRAFFIC CONTROL, SIGNING & STRIPING
C8.01 - C8.04	CROSS SECTIONS
THIS PLAN SET CONTAINS 85 SHEETS.	

REVIEWED & APPROVED

*[Signature]* PUBLIC WORKS DIRECTOR DATE: 2/7/24

(FOR NORMA AVENUE STORM SEWER AREA)  
PROJECT DATUM:

HORIZONTAL: RAMSEY COUNTY COORDINATE  
SYSTEM NAD83 (2011 ADJ.)

VERTICAL: NAVD88

PROJECT DATUM:

HORIZONTAL: RAMSEY COUNTY COORDINATE  
SYSTEM NAD 83 (86 ADJ.)

VERTICAL: NAVD88

⊕ BM=959.50

MNDOT STATION NAME LAND  
LOCATED AT NE QUAD OF  
I-694 & SNELLING AVE N

RECORD DRAWING  
INFORMATION

OBSERVER:

CONTRACTOR:

DATE:

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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.  
*[Signature]*  
BRADLEY J. FISHER  
LIC. NO. 56595 DATE 02/12/2024



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DESIGNED	NO.	ISSUED FOR	DATE
BJF/JLW	BID		02/12/2024
DRAWN			
JLW/JAA			
CHECKED			
BJF			
CLIENT PROJ. NO.			
011.130168			

ARDEN HILLS, MINNESOTA

2024 PMP STREET & UTILITY IMPROVEMENTS

TITLE SHEET

SHEET

G0.01

**EXISTING TOPOGRAPHIC SYMBOLS**

	ACCESS GRATE		REGULATION STATION GAS
	AIR CONDITION UNIT		SATELLITE DISH
	ANTENNA		SIGN NON TRAFFIC
	AUTO SPRINKLER CONNECTION		SIGN TRAFFIC
	BARRICADE PERMANENT		SIGNAL CONTROL CABINET
	BASKETBALL POST		SOIL BORING
	BENCH		SIREN
	BIRD FEEDER		TELEPHONE BOOTH
	BOLLARD		TILE INLET
	BUSH		TILE OUTLET
	CATCH BASIN RECTANGULAR CASTING		TILE RISER
	CATCH BASIN CIRCULAR CASTING		TRANSFORMER-ELECTRIC
	CURB STOP		TREE-CONIFEROUS
	CLEAN OUT		TREE-DEAD
	CULVERT END		TREE-DECIDUOUS
	DRINKING FOUNTAIN		TREE STUMP
	DOWN SPOUT		TRAFFIC ARM BARRIER
	FILL PIPE		TRAFFIC SIGNAL
	FIRE HYDRANT		TRASH CAN
	FLAG POLE		UTILITY MARKER
	FLARED END / APRON		VALVE
	FUEL PUMP		VALVE POST INDICATOR
	GRILL		VALVE VAULT
	GUY WIRE ANCHOR		VAULT
	HANDHOLE		VENT PIPE
	HANDICAP SPACE		WATER SPIGOT
	IRRIGATION SPRINKLER HEAD		WELL
	IRRIGATION VALVE BOX		WETLAND DELINEATED MARKER
	LIFT STATION CONTROL PANEL		WETLAND
	LIFT STATION		WET WELL
	LIGHT ON POLE		YARD HYDRANT
	LIGHT-GROUND		
	MAILBOX		

**PROPOSED TOPOGRAPHIC SYMBOLS**

	CLEANOUT
	MANHOLE
	LIFT STATION
	STORM SEWER CIRCULAR CASTING
	STORM SEWER RECTANGULAR CASTING
	STORM SEWER FLARED END / APRON
	STORM SEWER OUTLET STRUCTURE
	STORM SEWER OVERFLOW STRUCTURE
	CURB BOX
	FIRE HYDRANT
	WATER VALVE
	WATER REDUCER
	WATER BEND
	WATER TEE
	WATER CROSS
	WATER SLEEVE
	WATER CAP / PLUG
	RIP RAP
	DRAINAGE FLOW
	TRAFFIC SIGNS

**SURVEY SYMBOLS**

	BENCHMARK LOCATION		CAST IRON MONUMENT
	CONTROL POINT		STONE MONUMENT
	MONUMENT FOUND		

**EXISTING TOPOGRAPHIC LINES**

	RETAINING WALL
	FENCE
	FENCE-DECORATIVE
	GUARD RAIL
	TREE LINE
	BUSH LINE

**SURVEY LINES**

	CONTROLLED ACCESS
	BOUNDARY
	CENTERLINE
	EXISTING EASEMENT LINE
	PROPOSED EASEMENT LINE
	EXISTING LOT LINE
	PROPOSED LOT LINE
	EXISTING RIGHT-OF-WAY
	PROPOSED RIGHT-OF-WAY
	SETBACK LINE
	SECTION LINE
	QUARTER LINE
	SIXTEENTH LINE
	TEMPORARY EASEMENT

**EXISTING UTILITY LINES**

	FORCEMAIN
	SANITARY SEWER
	SANITARY SERVICE
	STORM SEWER
	STORM SEWER DRAIN TILE
	WATERMAIN
	WATER SERVICE

**PROPOSED UTILITY LINES**

	FORCEMAIN
	SANITARY SEWER
	SANITARY SERVICE
	STORM SEWER
	STORM SEWER DRAIN TILE
	WATERMAIN
	WATER SERVICE
	PIPE CASING
	TRENCHLESS PIPE (PLAN VIEW)
	TRENCHLESS PIPE (PROFILE VIEW)

**GRADING INFORMATION**

	EXISTING CONTOUR MINOR
	EXISTING CONTOUR MAJOR
	PROPOSED CONTOUR MINOR
	PROPOSED CONTOUR MAJOR
	PROPOSED GRADING LIMITS / SLOPE LIMITS
	PROJECT LIMITS
	PROPOSED SPOT ELEVATION
	RISE:RUN (SLOPE)

**HATCH PATTERNS**

	BITUMINOUS		GRAVEL
	CONCRETE		

**EXISTING PRIVATE UTILITY LINES**

NOTE:  
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	UNDERGROUND FIBER OPTIC
	UNDERGROUND ELECTRIC
	UNDERGROUND GAS
	UNDERGROUND COMMUNICATION
	OVERHEAD ELECTRIC
	OVERHEAD COMMUNICATION
	OVERHEAD UTILITY

**UTILITIES IDENTIFIED WITH A QUALITY LEVEL :**

LINE TYPES FOLLOW THE FORMAT: UTILITY TYPE - QUALITY LEVEL  
EXAMPLE: UNDERGROUND GAS, QUALITY LEVEL A  
UTILITY QUALITY LEVEL (A,B,C,D) DEFINITIONS CAN BE FOUND IN CI/ASCE 38-02.

**UTILITY QUALITY LEVELS:**

QUALITY LEVEL D: PROVIDES THE MOST BASIC LEVEL OF INFORMATION. IT INVOLVES COLLECTING DATA FROM EXISTING UTILITY RECORDS. RECORDS MAY INCLUDE AS-BUILT DRAWINGS, DISTRIBUTION AND SERVICES MAPS, EXISTING GEOGRAPHIC INFORMATION SYSTEM DATABASES, CONSTRUCTION PLANS, ETC.

QUALITY LEVEL C: INVOLVES SURVEYING VISIBLE SUBSURFACE UTILITY STRUCTURES SUCH AS MANHOLES, HAND-HOLES, UTILITY VALVES AND METERS, FIRE HYDRANTS, PEDESTALS AND UTILITY MARKERS, AND THEN CORRELATING THE INFORMATION WITH EXISTING UTILITY RECORDS TO CREATE COMPOSITE DRAWINGS. INCLUDES QUALITY LEVEL D ACTIVITIES.

QUALITY LEVEL B: INVOLVES DESIGNATING THE HORIZONTAL POSITION OF SUBSURFACE UTILITIES THROUGH SURFACE DETECTION METHODS AND COLLECTING THE INFORMATION THROUGH A SURVEY METHOD. INCLUDES QUALITY LEVEL C AND D TASKS.

QUALITY LEVEL A: PROVIDES THE HIGHEST LEVEL OF ACCURACY. IT INVOLVES LOCATING OR POTHOLING UTILITIES AS WELL AS ACTIVITIES IN QUALITY LEVELS B, C, AND D. THE LOCATED FACILITY INFORMATION IS SURVEYED AND MAPPED AND THE DATA PROVIDES PRECISE PLAN AND PROFILE INFORMATION.

**ABBREVIATIONS**

A	ALGEBRAIC DIFFERENCE	GRAV	GRAVEL	RSC	RIGID STEEL CONDUIT
ADJ	ADJUST	GU	GUTTER	RT	RIGHT
ALT	ALTERNATE	GV	GATE VALVE	SAN	SANITARY SEWER
B-B	BACK TO BACK	HDPE	HIGH DENSITY POLYETHYLENE	SCH	SCHEDULE
BIT	BITUMINOUS	HH	HANDHOLE	SERV	SERVICE
BLDG	BUILDING	HP	HIGH POINT	SHLD	SHOULDER
BMP	BEST MANAGEMENT PRACTICE	HWL	HIGH WATER LEVEL	STA	STATION
BR	BEGIN RADIUS	HYD	HYDRANT	STD	STANDARD
BV	BUTTERFLY VALVE	I	INVERT	STM	STORM SEWER
CB	CATCH BASIN	K	CURVE COEFFICIENT	TC	TOP OF CURB
C&G	CURB AND GUTTER	L	LENGTH	TE	TEMPORARY EASEMENT
CIP	CAST IRON PIPE	LO	LOWEST OPENING	TEMP	TEMPORARY
CIPP	CURED-IN-PLACE PIPE	LP	LOW POINT	TNH	TOP NUT HYDRANT
CL	CENTER LINE	LT	LEFT	TP	TOP OF PIPE
CL	CLASS	MAX	MAXIMUM	TYP	TYPICAL
CLVT	CULVERT	MH	MANHOLE	VCP	VITRIFIED CLAY PIPE
CMP	CORRUGATED METAL PIPE	MIN	MINIMUM	VERT	VERTICAL
C.O.	CHANGE ORDER	MR	MID RADIUS	VPC	VERTICAL POINT OF CURVE
COMM	COMMUNICATION	NIC	NOT IN CONTRACT	VPI	VERTICAL POINT OF INTERSECTION
CON	CONCRETE	NMC	NON-METALLIC CONDUIT	VPT	VERTICAL POINT OF TANGENT
CSP	CORRUGATED STEEL PIPE	NTS	NOT TO SCALE	WM	WATERMAIN
DIA	DIAMETER	NWL	NORMAL WATER LEVEL		
DIP	DUCTILE IRON PIPE	OHW	ORDINARY HIGH WATER LEVEL		
DWY	DRIVEWAY	PC	POINT OF CURVE	AC	ACRES
E	EXTERNAL CURVE DISTANCE	PCC	POINT OF COMPOUND CURVE	CF	CUBIC FEET
ELEC	ELECTRIC	PE	PERMANENT EASEMENT	CV	COMPACTED VOLUME
ELEV	ELEVATION	PED	PEDESTRIAN, PEDESTAL	CY	CUBIC YARD
E.O.F.	EMERGENCY OVERFLOW	PERF	PERFORATED PIPE	EA	EACH
ER	END RADIUS	PERM	PERMANENT	EV	EXCAVATED VOLUME
ESMT	EASEMENT	PI	POINT OF INTERSECTION	LB	POUND
EX	EXISTING	PL	PROPERTY LINE	LF	LINEAR FEET
FES	FLARED END SECTION	PRC	POINT OF REVERSE CURVE	LS	LUMP SUM
F-F	FACE TO FACE	PT	POINT OF TANGENT	LV	LOOSE VOLUME
FF	FINISHED FLOOR	PVC	POLYVINYL CHLORIDE PIPE	SF	SQUARE FEET
F&I	FURNISH AND INSTALL	PVMT	PAVEMENT	SV	STOCKPILE VOLUME
FM	FORCEMAIN	R	RADIUS	SY	SQUARE YARD
FO	FIBER OPTIC	R/W	RIGHT-OF-WAY		
F.O.	FIELD ORDER	RCP	REINFORCED CONCRETE PIPE		
GRAN	GRANULAR	RET	RETAINING		

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*Bradley J. Fisher*  
BRADLEY J. FISHER  
LIC. NO. 56595 DATE 02/12/2024



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DESIGNED	BJF/JLW	NO.	BID	DATE
DRAWN	JLW/JAA			02/12/2024
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CLIENT PROJ. NO.	0T1.130168			

ARDEN HILLS, MINNESOTA	
2024 PMP STREET & UTILITY IMPROVEMENTS	
LEGEND	

SHEET  
**G0.02**

## REMOVAL NOTES

- PRIOR TO REMOVALS, REQUIRED EROSION CONTROL DEVICES ARE TO BE INSTALLED.
- CONTRACTOR TO COORDINATE WITH UTILITY OWNER TO RELOCATE POWER AND LIGHT POLES, AND OTHER PRIVATE UTILITIES AS NECESSARY.
- ALL ADJACENT BITUMINOUS AND CONCRETE SURFACES SHALL BE CLEANLY SAWCUT PRIOR TO REMOVAL.
- REMOVALS SHALL BE LIMITED TO AREAS WITHIN THE DEFINED PROJECT LIMITS. RESTORATION OF AREAS OUTSIDE OF PROJECT LIMITS SHALL BE COMPLETED AT THE CONTRACTOR'S COST UNLESS OTHERWISE APPROVED.
- WATER AND SANITARY SERVICE REMOVALS ARE NOT ALWAYS SHOWN IN ITS ENTIRETY. SERVICES WILL BE REMOVED AND REPLACED TO THE RIGHT OF WAY OR EXISTING CURB STOP UNLESS DIRECTED BY ENGINEER. CONTRACTOR IS RESPONSIBLE TO LOCATE THE EXISTING SEWER AND WATER SERVICES. SERVICE PIPE REMOVAL SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OF NEW SERVICE.
- CONTRACTOR SHALL FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS IN DISPOSING OF MATERIALS REMOVED FROM THIS SITE.
- DRIVEWAY REMOVAL LIMITS SHOWN ON THE PLAN ARE APPROXIMATE. REMOVAL LIMITS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- ANY TREES, SHRUBS, AND PLANTINGS REMOVED MUST BE DESIGNATED IN ADVANCE BY THE ENGINEER.
- CONTRACTOR SHALL PROTECT ALL ITEMS DESIGNATED FOR SALVAGE AND PROVIDE APPROPRIATE STORAGE UNTIL RE-INSTALLATION. ANY ITEMS DESIGNATED TO BE SALVAGED WHICH ARE DAMAGED SHALL BE REPLACED WITH NEW AT NO COST TO THE OWNER. REPAIR OF DAMAGED ITEMS SHALL NOT BE ALLOWED UNLESS APPROVED BY THE ENGINEER.
- ANY LANDSCAPING MATERIALS REMOVED MUST BE DESIGNATED IN ADVANCE BY THE ENGINEER AND REMOVAL SHALL BE CONSIDERED INCIDENTAL.
- ALL ITEMS NOT IDENTIFIED FOR REMOVAL SHALL BE PROTECTED DURING CONSTRUCTION.
- SEE PROJECT MANUAL FOR CONTRACTOR'S REQUIREMENTS TO PROVIDE TEMPORARY WATER SERVICE WITH AFFECTED USERS.

## UTILITY CONSTRUCTION NOTES

- WATER AND SANITARY SERVICE LOCATIONS SHOWN ARE APPROXIMATE AND ALL SERVICES MAY NOT BE SHOWN.
- NEW SERVICES SHALL MATCH EXISTING SERVICE SIZE EXCEPT MINIMUM SERVICE SIZE SHALL BE 1-INCH FOR WATER. PROVIDE FITTINGS AND COUPLERS AS REQUIRED TO CONNECT TO EXISTING SERVICES.
- ROUTING OF NEW SERVICE LINES AROUND TREES AND DRIVEWAYS AS DIRECTED BY ENGINEER MAY BE REQUIRED AND SHALL BE CONSIDERED INCIDENTAL.
- SANITARY SEWER MAIN PIPE SHALL BE SDR-35 UNLESS OTHERWISE NOTED. SANITARY SEWER SERVICE PIPE SHALL BE SDR-26 AND WATER SERVICES SHALL BE COPPER TYPE "K".
- CONTRACTOR SHALL FIELD VERIFY THE SIZE, LOCATION, AND ELEVATION OF ALL SANITARY SEWER AND WATER SERVICES THAT ARE BEING REPLACED SUCH THAT THEY WILL FUNCTION PROPERLY UPON COMPLETION OF WORK. (INCIDENTAL)
- MAINTAIN 10' MINIMUM HORIZONTAL SEPARATION OF WATERMAIN WITH SANITARY AND STORM SEWER MAINS, UNLESS OTHERWISE NOTED ON PLANS. WHERE FEASIBLE, MAINTAIN 18" VERTICAL CLEARANCE.
- ALL CONNECTIONS TO EXISTING UTILITIES (WMN, SAN, STM, ETC.) SHALL BE FIELD VERIFIED FOR LOCATION AND ELEVATION. (INCIDENTAL)
- WATER AND SANITARY SERVICE PIPE SHALL BE REMOVED TO SERVICE INSTALLATION LIMITS. REMOVAL OF EXISTING SERVICE PIPES AND CURB STOPS SHALL BE CONSIDERED INCIDENTAL TO NEW SERVICE INSTALLATION.
- EXISTING WATERMAIN DEPTHS AS SHOWN ARE APPROXIMATE.
- REPLACE ALL WATER SERVICES BETWEEN NEW MAIN AND CURB BOX WITH NEW 1" TYPE K COPPER WATER SERVICE, UNLESS EXISTING IS GREATER THAN 1", THEN MATCH EXISTING SIZE.
- A TEMPORARY WATER SERVICE PLAN MUST BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL A MINIMUM OF 48 HOURS PRIOR TO PROPOSED TEMPORARY WATER SYSTEM INSTALLATION.
- THE CONTRACTOR SHALL COORDINATE WATERMAIN WORK WITH THE FIRE DEPARTMENT AND THE CITY. THE CONTRACTOR WILL BE RESPONSIBLE FOR ARRANGING AND PROVIDING ANY REQUIRED WATERMAIN SHUT OFFS WITH THE CITY DURING CONSTRUCTION. ANY COSTS ASSOCIATED WITH WATERMAIN SHUTOFF WILL BE INCIDENTAL.
- IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH UTILITY OWNERS TO RELOCATE AND PROTECT PRIVATE UTILITIES AS NECESSARY TO CONSTRUCT STREET AND UTILITIES.
- REFER TO PROJECT SPECIFICATIONS FOR STRUCTURE CASTING FRAME & COVER REQUIREMENTS.
- A MINIMUM OF 24 HOURS AND MAXIMUM OF 48 HOURS NOTICE SHALL BE GIVEN TO ALL RESIDENTS AFFECTED BY THE TEMPORARY WATER OUTAGES. A MINIMUM OF 48 HOURS AND MAXIMUM OF 72 HOURS NOTICE SHALL BE GIVEN TO ALL MULTI-FAMILY AND COMMERCIAL PROPERTIES. A MINIMUM OF 1 WEEK NOTICE OF ANY SERVICE INTERRUPTIONS (OF ANY TYPE) SHALL BE GIVEN TO ANY DAYCARE ON SITE.
- EXISTING VALVES MUST BE OPERATED BY CITY PUBLIC WORKS STAFF ONLY.

## GENERAL TRAFFIC CONTROL NOTES

- ADVANCED NOTIFICATION SIGNAGE WITH A SCHEDULED START DATE IS REQUIRED TO BE PLACED AT EACH END OF THE STREET 7 DAYS PRIOR TO THE START OF PAVEMENT REMOVAL OR ANY SUBSTANTIAL WORK. ONCE THE SIGNAGE IS IN PLACE, THE SCHEDULE MUST BE MAINTAINED FOR THAT STREET/AVENUE BLOCK.
- PEDESTRIAN ACCESS TO RESIDENCES SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT CONSTRUCTION, UNLESS OTHERWISE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL ALSO SUPPLY VEHICLE ACCESS TO AND FROM THE SITE FOR CONCURRENT CONSTRUCTION PROJECTS, PRIVATE UTILITY IMPROVEMENTS/RELOCATIONS, AND AS OTHERWISE PROVIDED FOR IN THE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL MAINTAIN GARBAGE AND RECYCLING SERVICE ACCESS THROUGHOUT EXECUTION OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ACCESS FOR GARBAGE TRUCKS. WHEN INFEASIBLE TO MAINTAIN SUCH ACCESS, THE CONTRACTOR SHALL COLLECT CONTAINERS, RELOCATE THEM TO A LOCATION WHERE SUITABLE ACCESS CAN BE PROVIDED, AND RETURN CONTAINERS IN GOOD WORKING CONDITION TO THE SAME PROPERTY FROM WHICH THEY WERE TAKEN. ALL CONTAINERS MUST BE LABELED WITH THE HOUSE ADDRESS PRIOR TO MOVING. COSTS FOR PROVIDING ACCESS OR HAULING CONTAINERS TO AN ACCESSIBLE LOCATION SHALL BE INCIDENTAL.
- THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MN MUTCD) AND INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS. TRAFFIC CONTROL NOT IN COMPLIANCE WITH MN MUTCD WILL BE SUBJECT TO VIOLATION IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- THE ITEM "TRAFFIC CONTROL" BID AS "LUMP SUM" SHALL INCLUDE ALL COSTS FOR PROVIDING TEMPORARY CONTROLS SPECIFIED IN THE PLAN AND OTHER TRAFFIC CONTROL REQUIRED PER THE MN MUTCD DUE TO THE CONTRACTORS OPERATIONS FOR COMPLETION OF THE PROJECT INCLUDING BUT NOT LIMITED TO, RECLAIMING & PAVING UNDER TRAFFIC, TEMPORARY ROAD CLOSURES IN FULL OR TO THRU TRAFFIC, TEMPORARY LANE CLOSURES, ADJUSTMENTS TO THE TRAFFIC CONTROL PLAN FOR LARGE AND SMALL SCALE STAGING OPERATIONS, AND NECESSARY DETOURS FOR MOTORISTS, BICYCLISTS, AND/OR PEDESTRIANS. THE AMOUNT BID SHALL ALSO INCLUDE SUFFICIENT TRAFFIC CONTROL FOR WARNING OF POTENTIAL HAZARDS DURING CONSTRUCTION INCLUDING BUT NOT LIMITED TO FLASHING BARRICADES AROUND EQUIPMENT AND OBSTRUCTIONS.

## CONSTRUCTION NOTES

- SUITABLE GRADING MATERIAL ON THIS PROJECT SHALL CONSIST OF ALL SOILS ENCOUNTERED WITH THE EXCEPTION OF TOPSOIL, DEBRIS, ORGANIC MATERIAL, MUCK AND OTHER MATERIALS AS DETERMINED TO BE UNSUITABLE BY THE ENGINEER.
- EXCESS EXCAVATED AND UNSUITABLE MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF MN/DOT SPEC 2105.
- SUBGRADE PREPARATION IN ACCORDANCE WITH MN/DOT SPEC 2112 SHALL BE CONSIDERED INCIDENTAL IN AREAS OF FULL RECONSTRUCTION AND ONLY PAID IN RECLAIM AREAS. IN AREAS OF FULL RECONSTRUCTION, SUBGRADE SHALL BE DEFINED AS THE EXISTING GROUND SURFACE LOCATED IMMEDIATELY BENEATH THE PROPOSED AGGREGATE BASE OR SAND SECTION AS SPECIFIED IN THE PLAN.
- SUBGRADE EXCAVATION AND CORRECTION SHALL BE APPLIED IF NECESSARY TO ACHIEVE SATISFACTORY SURFACE STABILITY AS DETERMINED BY THE ENGINEER. AREAS TO RECEIVE SUBGRADE EXCAVATION SHALL BE SPECIFIED BY THE ENGINEER IN THE FIELD FOLLOWING SUBGRADE PREPARATION AND A ROLL TEST. REPLACEMENT MATERIAL IN AREAS OF SUBGRADE PREPARATION SHALL SATISFY THE REQUIREMENTS OF STABILIZING AGGREGATE AS SPECIFIED IN THE SPECIAL PROVISIONS.
- WHERE A PROPOSED ROADWAY BEGINS OR TERMINATES AT AN EXISTING ROADWAY, PROVIDE A VERTICAL NOTCH TO THE BOTTOM OF THE AGGREGATE OR BITUMINOUS BASE AND A 20h:1V TAPER.
- PROVIDE 20h:1V TAPERS BETWEEN LONGITUDINAL CHANGES IN SUB-CUT DEPTHS, UNLESS OTHERWISE SPECIFIED IN THE FIELD BY THE ENGINEER.
- PROVIDE FOR A SAW-CUT WHERE PLACING NEW PAVEMENT IS INSTALLED ADJACENT TO EXISTING PAVEMENT.
- CONTRACTOR MUST ALLOW FOR ALL MATERIALS TESTING TO BE ACCOMPLISHED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- ALL USES OF THE WORD "INCIDENTAL" IN THESE CONSTRUCTION DOCUMENTS SHALL BE CONSTRUED TO MEAN INCIDENTAL WORK FOR WHICH NO DIRECT COMPENSATION SHALL BE MADE.
- COORDINATE WITH THE ENGINEER IN THE FIELD FOR LOCATION OF REPLACEMENT BOULEVARD TREES.

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NOTIFY GOPHER STATE ONE-CALL 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

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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.  
*Bradley J. Fisher*  
BRADLEY J. FISHER  
LIC. NO. 56595 DATE 02/12/2024



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JLW/JAA			
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ARDEN HILLS, MINNESOTA

2024 PMP STREET & UTILITY IMPROVEMENTS

GENERAL CONSTRUCTION NOTES

SHEET

G0.03

**STATEMENT OF ESTIMATED QUANTITIES**

ITEM NO.	SPEC. REF.	DESCRIPTION	NOTES	UNIT	TOTAL ESTIMATED QUANTITY
SCHEDULE "A" - BASE BID					
1	2021.501	MOBILIZATION		LUMP SUM	1.00
2	2101.502	CLEARING		EACH	26.00
3	2101.502	GRUBBING		EACH	26.00
4	2101.505	CLEARING		ACRE	0.07
5	2101.505	GRUBBING		ACRE	0.07
6	2104.502	REMOVE CASTING		EACH	80.00
7	2104.502	REMOVE GATE VALVE & BOX		EACH	4.00
8	2104.502	REMOVE VALVE BOX	(1)	EACH	5.00
9	2104.502	REMOVE HYDRANT		EACH	1.00
10	2104.502	REMOVE DRAINAGE STRUCTURE		EACH	17.00
11	2104.502	REMOVE SIGN		EACH	4.00
12	2104.502	SALVAGE GATE VALVE & BOX		EACH	2.00
13	2104.502	SALVAGE PIPE APRON		EACH	1.00
14	2104.502	SALVAGE SIGN		EACH	4.00
15	2104.502	SALVAGE MAILBOX SUPPORT	(2)	EACH	4.00
16	2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)		LIN FT	180.00
17	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)		LIN FT	536.00
18	2104.503	REMOVE WATERMAIN		LIN FT	671.00
19	2104.503	REMOVE SEWER PIPE (STORM)		LIN FT	139.00
20	2104.503	REMOVE CURB & GUTTER		LIN FT	1002.00
21	2104.503	REMOVE CURB & GUTTER (SPOT)	(3)	LIN FT	2894.00
22	2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT		SQ YD	250.00
23	2104.504	REMOVE CONCRETE PAVEMENT		SQ YD	18.00
24	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT		SQ YD	10.00
25	2104.518	REMOVE BITUMINOUS WALK		SQ FT	4565.00
26	2104.602	REMOVE SKIMMER WALL		EACH	1.00
27	2105.603	GRADE CHANNEL		LIN FT	140.00
28	2106.507	EXCAVATION - COMMON	(EV) (P)	CU YD	170.00
29	2106.507	EXCAVATION - SUBGRADE	(EV) (4)	CU YD	207.00
30	2106.507	SELECT GRANULAR EMBANKMENT	(CV) (P)	CU YD	77.00
31	2106.507	COMMON EMBANKMENT	(CV) (P)	CU YD	50.00
32	2106.507	STABILIZING AGGREGATE	(CV) (4)	CU YD	207.00
33	2108.504	GEOTEXTILE FABRIC TYPE 7	(P)	SQ YD	2718.00
34	2215.504	FULL DEPTH RECLAMATION	(P)	SQ YD	21787.00
35	2215.507	HAUL FULL DEPTH RECLAMATION	(CV) (P) (5)	CU YD	325.00
36	2123.610	EXPLORATORY EXCAVATION		hour	24.00
37	2231.604	REMOVE AND PATCH BITUMINOUS PAVEMENT	(6)	SQ YD	1291.00
38	2232.504	MILL BITUMINOUS SURFACE (2.0")	(P)	SQ YD	15820.00
39	2357.506	BITUMINOUS MATERIAL FOR TACK COAT		GAL	2254.00
40	2360.504	TYPE SP 9.5 WEARING COURSE MIXTURE (2,B) 3.0" THICK	(7)	SQ YD	10.00
41	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (2,C)		TON	6822.00
42	2501.502	12" RC PIPE APRON	(8)	EACH	1.00
43	2501.502	INSTALL PIPE APRON		EACH	1.00
44	2501.602	TRASH GUARD FOR 36" SPAN PIPE APRON	(8)	EACH	1.00
45	2503.503	12" RC PIPE SEWER		LIN FT	438.00
46	2503.503	15" RC PIPE SEWER		LIN FT	63.00
47	2503.503	18" RC PIPE SEWER		LIN FT	20.00
48	2503.503	24" RC PIPE SEWER		LIN FT	11.00
49	2503.603	65" SPAN RC PIPE-ARCH SEWER CL IIIA		LIN FT	16.00
50	2503.602	CONNECT TO EXISTING STORM SEWER		EACH	33.00
51	2503.602	CONNECT TO EXISTING MANHOLES (STORM)		EACH	5.00
52	2503.602	SANITARY SEWER SPOT REPAIR		EACH	1.00
53	2503.602	JOINT SEALING SANITARY MANHOLE		EACH	1.00
54	2503.602	REINSTATE LATERALS		EACH	4.00
55	2503.602	SEWER PIPE GROUTING		EACH	8.00
56	2503.603	LINING SEWER PIPE 12"		LIN FT	650.00
57	2503.603	LINING SEWER PIPE 12" (STORM)		LIN FT	543.00
58	2503.603	CEMENTITIOUS LINING SANITARY MANHOLE		LIN FT	9.00
59	2504.601	TEMPORARY WATER SERVICE		LUMP SUM	1.00
60	2504.602	CONNECT TO EXISTING WATERMAIN		EACH	6.00
61	2504.602	HYDRANT		EACH	1.00
62	2504.602	VALVE BOX	(1) (10)	EACH	5.00
63	2505.602	ADJUST VALVE BOX		EACH	19.00
64	2504.602	1" CORPORATION STOP		EACH	4.00
65	2504.602	6" GATE VALVE & BOX		EACH	2.00
66	2504.602	8" GATE VALVE & BOX		EACH	3.00
67	2504.602	12" GATE VALVE & BOX		EACH	2.00
68	2504.602	1" CURB STOP & BOX		EACH	4.00
69	2504.603	1" TYPE PE PIPE	(9)	LIN FT	171.00
70	2504.603	6" WATERMAIN DUCTILE IRON CL 52		LIN FT	12.00
71	2504.603	12" WATERMAIN DUCTILE IRON CL 52		LIN FT	39.00
72	2504.603	8" PVC WATERMAIN (C900)		LIN FT	625.00
73	2504.604	4" POLYSTYRENE INSULATION		SQ YD	12.00
74	2504.608	DUCTILE IRON FITTINGS		LB	353.00
75	2506.502	CASTING ASSEMBLY (SANITARY)	(10) (11)	EACH	61.00

**STATEMENT OF ESTIMATED QUANTITIES**

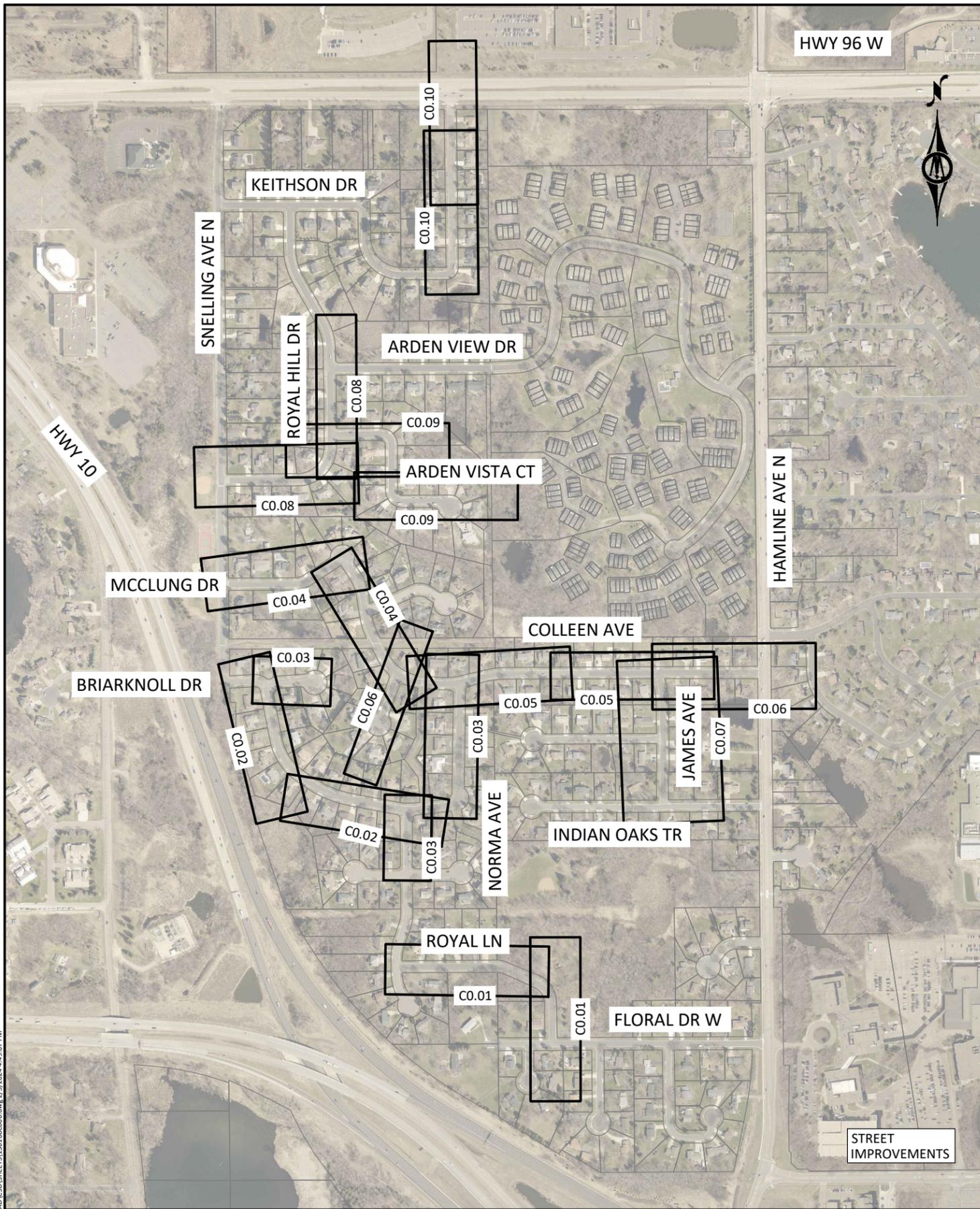
ITEM NO.	SPEC. REF.	DESCRIPTION	NOTES	UNIT	ESTIMATED QUANTITY
76	2506.502	CASTING ASSEMBLY (STORM)	(10)	EACH	38.00
77	2506.502	ADJUST FRAME & RING CASTING (STORM)	(10)	EACH	2.00
78	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN H		LIN FT	4.00
79	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL (2'X3' CB)	(12)	LIN FT	8.00
80	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4020		LIN FT	26.00
81	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4022	(13)	LIN FT	81.00
82	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60-4020		LIN FT	7.00
83	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 96-4020		LIN FT	9.00
84	2506.602	GROUT CATCH BASIN OR MANHOLE		EACH	19.00
85	2506.602	SAFL BAFFLE		EACH	8.00
86	2511.507	RANDOM RIPRAP CLASS III	(14)	CU YD	68.00
87	2521.518	6" CONCRETE WALK	(7)	SQ FT	80.00
88	2521.518	3" BITUMINOUS WALK	(7)	SQ FT	4565.00
89	2521.602	DRILL & GROUT REINF BAR (EPOXY COATED)		EACH	12.00
90	2531.503	CONCRETE CURB & GUTTER DESIGN B618		LIN FT	1002.00
91	2531.503	CONCRETE CURB & GUTTER DESIGN B618 (SPOT)	(3)	LIN FT	722.00
92	2531.503	CONCRETE CURB & GUTTER DESIGN SPECIAL SURMOUNTABLE (SPOT)	(3)	LIN FT	2172.00
93	2531.504	6" CONCRETE DRIVEWAY PAVEMENT	(7)	SQ YD	250.00
94	2531.604	7" CONCRETE VALLEY GUTTER		SQ YD	18.00
95	2531.618	TRUNCATED DOMES		SQ FT	36.00
96	2540.602	INSTALL MAILBOX SUPPORT	(2)	EACH	4.00
97	2563.601	TRAFFIC CONTROL		LUMP SUM	1.00
98	2564.518	SIGN PANELS TYPE C	(15)	SQ FT	2.50
99	2564.602	INSTALL SIGN	(15)	EACH	4.00
100	2571.502	DECIDUOUS TREE 2.5" CAL B&B		EACH	10.00
101	2572.602	TREE PRUNING	(4)	hour	10.00
102	2573.501	STABILIZED CONSTRUCTION EXIT		LUMP SUM	1.00
103	2573.502	STORM DRAIN INLET PROTECTION		EACH	67.00
104	2573.503	SILT FENCE, TYPE MS		LIN FT	200.00
105	2573.503	FLOTATION SILT CURTAIN TYPE STILL WATER		LIN FT	43.00
106	2573.503	SEDIMENT CONTROL LOG TYPE WOOD FIBER		LIN FT	60.00
107	2574.507	COMMON TOPSOIL BORROW	(LV)	CU YD	584.00
108	2575.504	SODDING TYPE LAWN		SQ YD	195.00
109	2575.504	ROLLED EROSION PREVENTION CATEGORY 20 W/ SEED MIXTURE (XX-XXX)	(16)	SQ YD	4406.00
110	2582.503	4" SOLID LINE MULTI-COMPONENT		LIN FT	150.00
111	2582.518	CROSSWALK MULTI-COMPONENT		SQ FT	512.00
SCHEDULE "B" - ALTERNATE 1 (TRAILS, ADA, AND RETAINING WALL IMPROVEMENTS)					
112	2021.501	MOBILIZATION		LUMP SUM	1.00
113	2104.503	REMOVE CURB & GUTTER (SPOT)	(3)	LIN FT	126.00
114	2104.503	REMOVE BITUMINOUS CURB		LIN FT	150.00
115	2104.503	REMOVE RETAINING WALL		LIN FT	90.00
116	2104.518	REMOVE BITUMINOUS WALK		SQ FT	17745.00
117	2106.507	EXCAVATION - SUBGRADE	(EV) (4)	CU YD	110.00
118	2106.507	STABILIZING AGGREGATE	(CV) (4)	CU YD	110.00
119	2112.604	SUBGRADE PREPARATION	(P) (17)	SQ YD	1972.00
120	2411.618	MODULAR BLOCK RETAINING WALL		SQ FT	638.00
121	2502.503	4" PERF TP PIPE DRAIN		LIN FT	110.00
122	2521.518	6" CONCRETE WALK	(7)	SQ FT	585.00
123	2521.518	3" BITUMINOUS WALK		SQ FT	17745.00
124	2521.602	DRILL & GROUT REINF BAR (EPOXY COATED)		EACH	28.00
125	2531.503	CONCRETE CURB & GUTTER DESIGN B618 (SPOT)		LIN FT	126.00
126	2531.503	CONCRETE CURB DESIGN V	(4)	LIN FT	40.00
127	2531.618	TRUNCATED DOMES		SQ FT	100.00
128	2535.503	BITUMINOUS CURB		LIN FT	150.00
129	2572.602	TREE PRUNING	(4)	hour	30.00
130	2573.503	SILT FENCE, TYPE MS		LIN FT	4265.00
131	2574.507	COMMON TOPSOIL BORROW	(LV)	CU YD	282.00
132	2575.504	ROLLED EROSION PREVENTION CATEGORY 20 W/ SEED MIXTURE (XX-XXX)	(16)	SQ YD	2024.00
SCHEDULE "C" - ALTERNATE 2 (POND DREDGING)					
133	2021.501	MOBILIZATION		LUMP SUM	1.00
134	2106.507	MUCK EXCAVATION (POND 1)	(EV) (P)	CU YD	205.00
135	2106.507	MUCK EXCAVATION (POND 2)	(EV) (P)	CU YD	395.00
136	2106.601	POND DEWATERING (POND 1)		LUMP SUM	1.00
137	2106.601	POND DEWATERING (POND 2)		LUMP SUM	1.00
138	2573.503	SILT FENCE, TYPE MS		LIN FT	1541.00

**NOTES:**

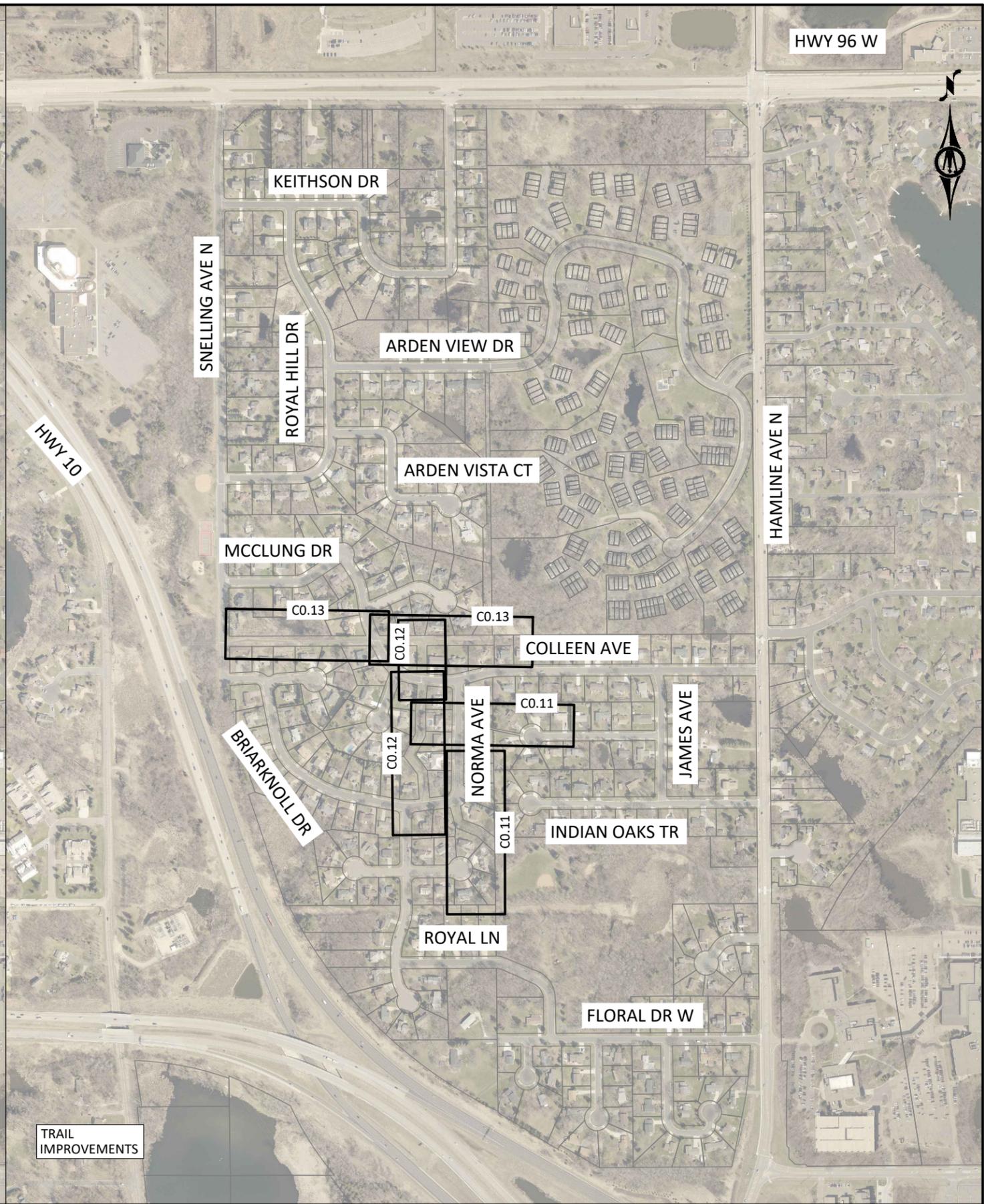
- CASTING & VALVE BOX REPLACEMENTS WILL BE AS DIRECTED BY THE ENGINEER IN THE FIELD. TOKEN QUANTITY FOR POTENTIALLY BROKEN/DAMAGED EXISTING CASTINGS & VALVE BOXES.
- MAILBOXES SHALL BE PROTECTED DURING STORAGE, TEMPORARY MAILBOXES SHALL BE INSTALLED DURING CONSTRUCTION (INCIDENTAL), AND FINAL REINSTALLATION LOCATION SHALL BE IDENTIFIED BY THE ENGINEER.
- CONCRETE CURB AND GUTTER SPOT REPLACEMENT WILL BE REQUIRED AROUND ALL CATCH BASIN CASTING REPLACEMENTS AND FOR DEFICIENT CURB AS MARKED IN THE FIELD BY THE ENGINEER.
- TOKEN QUANTITY, TO BE USED AS DIRECTED BY THE ENGINEER.
- BID ITEM INCLUDES THE HAULING, STOCKPIILING, AND REPLACEMENT OF RECLAIM MATERIAL TO ACCOMMODATE WATERMAIN REPLACEMENT WORK ON JAMES AVENUE.
- PATCH BITUMINOUS PAVEMENT SHALL BE USED FOR BASE PAVEMENT REPLACEMENT IN THE MILL & OVERLAY AREA, AS DIRECTED BY THE ENGINEER AFTER COMPLETION OF THE MILLING OPERATION.
- BID ITEM INCLUDES THE FURNISHING & INSTALLATION OF AGGREGATE BASE MATERIAL, AS SPECIFIED.
- INCLUDES FURNISHING & INSTALLATION OF TRASH GUARD, AS INDICATED IN THE DETAILS.
- CONNECTION TO EXISTING SERVICE PIPES SHALL BE INCIDENTAL, REGARDLESS OF THE EXISTING PIPE SIZE OR MATERIAL, INCLUDING THE NECESSARY FITTINGS AND LABOR AS REQUIRED.
- FINAL CASTING/ VALVE BOX ADJUSTMENT SHALL BE INCLUDED IN THE PRICE BID FOR NEW CASTING ASSEMBLIES/ VALVE BOXES OR CASTING/ VALVE BOX ADJUSTMENTS. ADJUSTMENTS SHALL INCLUDE THE REMOVAL/ REPLACEMENT OF ALL ADJUSTING RINGS AND SHALL BE CONSIDERED INCIDENTAL TO THE ASSOCIATED WORK.

- CHIMNEY SEALS SHALL BE INSTALLED WITH ALL NEW SANITARY MH CASTINGS OR SANITARY CASTING ADJUSTMENTS AND SHALL BE INCLUDED IN THE PRICE BID FOR THE ASSOCIATED BID ITEM.
  - CONSTRUCT STORM SEWER 2'X3' CATCHBASIN AS SHOWN IN THE DETAILS.
  - CONSTRUCT STORM SEWER CATCHBASIN MANHOLES WITH A 2'X3' TOP SLAB OPENING AS SHOWN IN THE DETAILS.
  - INCLUDES THE FURNISHING AND INSTALLATION OF GEOTEXTILE FABRIC, AS SPECIFIED.
  - SIGN PANELS SHALL INCLUDE NEW SIGN POSTS, HARDWARE, AND INSTALLATION AS REQUIRED AND SHALL BE INCLUDED IN THE PRICE BID.
  - INCLUDES THE FURNISHING AND INSTALLATION OF FERTILIZER AND SEED MIXTURE, AS SPECIFIED.
  - SUBGRADE PREPARATION IS FOR TRAIL REHABILITATION AREAS ONLY AND INCLUDES THE RE-GRADING, HAULING, PLACEMENT, SUPPLEMENTING, AND PREPARATION OF THE EXISTING AGGREGATE BASE FOR BITUMINOUS TRAIL CONSTRUCTION.
- (CV) COMPACTED VOLUME  
(EV) EXCAVATED VOLUME  
(LV) LOOSE VOLUME  
(P) PLAN QUANTITY





STREET IMPROVEMENTS



TRAIL IMPROVEMENTS

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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.

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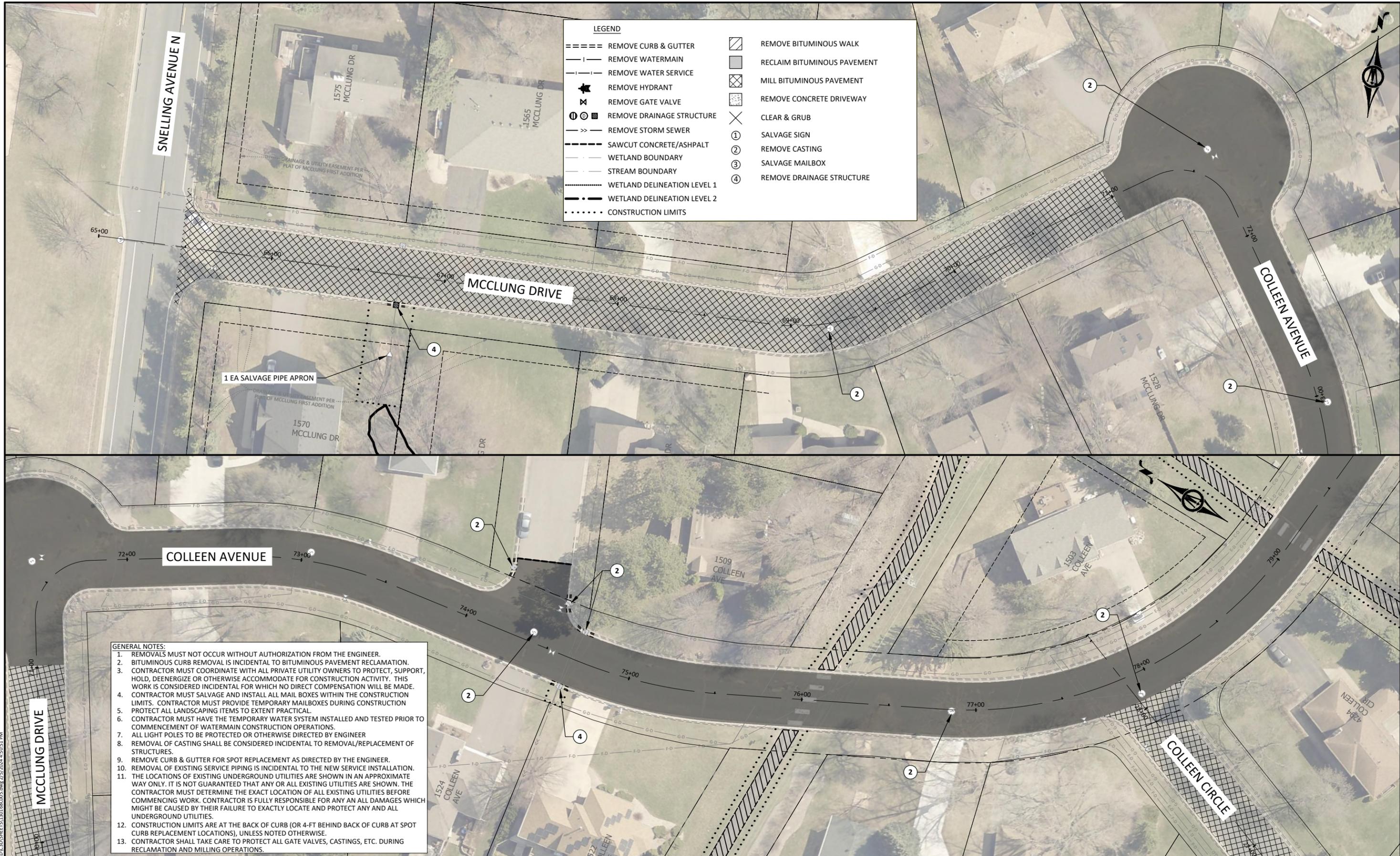
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 EXISTING CONDITIONS & REMOVAL PLAN INDEX

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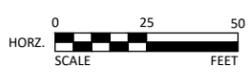
**LEGEND**

=====	REMOVE CURB & GUTTER		REMOVE BITUMINOUS WALK
— —	REMOVE WATERMAIN		RECLAIM BITUMINOUS PAVEMENT
— —	REMOVE WATER SERVICE		MILL BITUMINOUS PAVEMENT
	REMOVE HYDRANT		REMOVE CONCRETE DRIVEWAY
	REMOVE GATE VALVE		CLEAR & GRUB
	REMOVE DRAINAGE STRUCTURE	①	SALVAGE SIGN
—>—	REMOVE STORM SEWER	②	REMOVE CASTING
-----	SAWCUT CONCRETE/ASHPALT	③	SALVAGE MAILBOX
-----	WETLAND BOUNDARY	④	REMOVE DRAINAGE STRUCTURE
-----	STREAM BOUNDARY		
-----	WETLAND DELINEATION LEVEL 1		
-----	WETLAND DELINEATION LEVEL 2		
-----	CONSTRUCTION LIMITS		

**GENERAL NOTES:**

1. REMOVALS MUST NOT OCCUR WITHOUT AUTHORIZATION FROM THE ENGINEER.
2. BITUMINOUS CURB REMOVAL IS INCIDENTAL TO BITUMINOUS PAVEMENT RECLAMATION.
3. CONTRACTOR MUST COORDINATE WITH ALL PRIVATE UTILITY OWNERS TO PROTECT, SUPPORT, HOLD, DEENERGIZE OR OTHERWISE ACCOMMODATE FOR CONSTRUCTION ACTIVITY. THIS WORK IS CONSIDERED INCIDENTAL FOR WHICH NO DIRECT COMPENSATION WILL BE MADE.
4. CONTRACTOR MUST SALVAGE AND INSTALL ALL MAIL BOXES WITHIN THE CONSTRUCTION LIMITS. CONTRACTOR MUST PROVIDE TEMPORARY MAILBOXES DURING CONSTRUCTION.
5. PROTECT ALL LANDSCAPING ITEMS TO EXTENT PRACTICAL.
6. CONTRACTOR MUST HAVE THE TEMPORARY WATER SYSTEM INSTALLED AND TESTED PRIOR TO COMMENCEMENT OF WATERMAIN CONSTRUCTION OPERATIONS.
7. ALL LIGHT POLES TO BE PROTECTED OR OTHERWISE DIRECTED BY ENGINEER.
8. REMOVAL OF CASTING SHALL BE CONSIDERED INCIDENTAL TO REMOVAL/REPLACEMENT OF STRUCTURES.
9. REMOVE CURB & GUTTER FOR SPOT REPLACEMENT AS DIRECTED BY THE ENGINEER.
10. REMOVAL OF EXISTING SERVICE PIPING IS INCIDENTAL TO THE NEW SERVICE INSTALLATION.
11. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. IT IS NOT GUARANTEED THAT ANY OR ALL EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AN ALL DAMAGES WHICH MIGHT BE CAUSED BY THEIR FAILURE TO EXACTLY LOCATE AND PROTECT ANY AND ALL UNDERGROUND UTILITIES.
12. CONSTRUCTION LIMITS ARE AT THE BACK OF CURB (OR 4-FT BEHIND BACK OF CURB AT SPOT CURB REPLACEMENT LOCATIONS), UNLESS NOTED OTHERWISE.
13. CONTRACTOR SHALL TAKE CARE TO PROTECT ALL GATE VALVES, CASTINGS, ETC. DURING RECLAMATION AND MILLING OPERATIONS.

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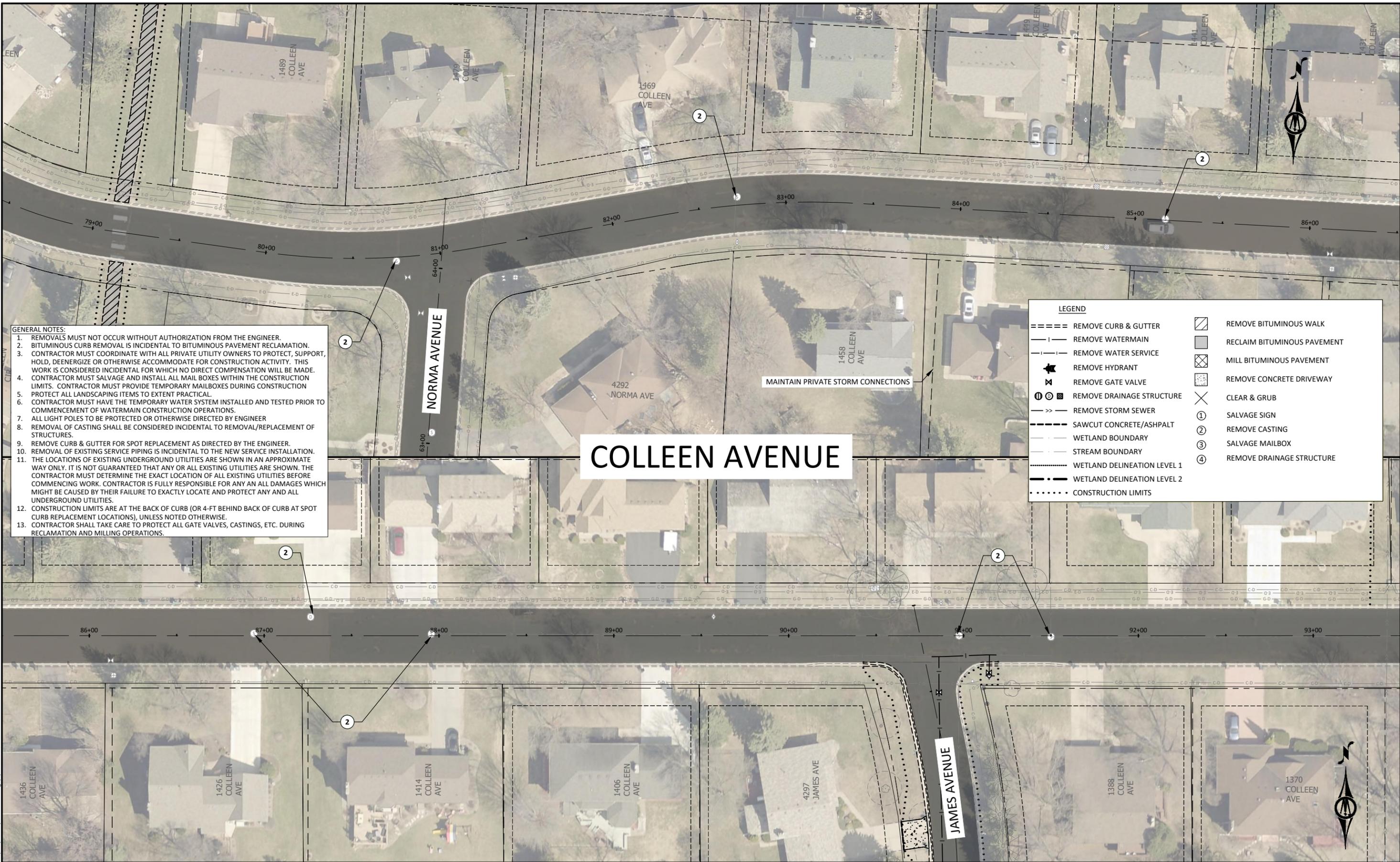
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ARDEN HILLS, MINNESOTA  
 2024 PMP STREET & UTILITY IMPROVEMENTS  
 EXISTING CONDITIONS & REMOVAL PLAN  
 MCCLUNG DRIVE & COLLEEN AVENUE

SHEET  
 C0.04



**GENERAL NOTES:**

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2. BITUMINOUS CURB REMOVAL IS INCIDENTAL TO BITUMINOUS PAVEMENT RECLAMATION. CONTRACTOR MUST COORDINATE WITH ALL PRIVATE UTILITY OWNERS TO PROTECT, SUPPORT, HOLD, DEENERGIZE OR OTHERWISE ACCOMMODATE FOR CONSTRUCTION ACTIVITY. THIS WORK IS CONSIDERED INCIDENTAL FOR WHICH NO DIRECT COMPENSATION WILL BE MADE.
3. CONTRACTOR MUST SALVAGE AND INSTALL ALL MAIL BOXES WITHIN THE CONSTRUCTION LIMITS. CONTRACTOR MUST PROVIDE TEMPORARY MAILBOXES DURING CONSTRUCTION LIMITS.
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6. ALL LIGHT POLES TO BE PROTECTED OR OTHERWISE DIRECTED BY ENGINEER
7. REMOVAL OF CASTING SHALL BE CONSIDERED INCIDENTAL TO REMOVAL/REPLACEMENT OF STRUCTURES.
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LEGEND			
=====	REMOVE CURB & GUTTER		REMOVE BITUMINOUS WALK
— — —	REMOVE WATERMAIN		RECLAIM BITUMINOUS PAVEMENT
— — —	REMOVE WATER SERVICE		MILL BITUMINOUS PAVEMENT
	REMOVE HYDRANT		REMOVE CONCRETE DRIVEWAY
	REMOVE GATE VALVE		CLEAR & GRUB
	REMOVE DRAINAGE STRUCTURE		SALVAGE SIGN
— >> —	REMOVE STORM SEWER		REMOVE CASTING
-----	SAWCUT CONCRETE/ASHPALT		SALVAGE MAILBOX
- - - - -	WETLAND BOUNDARY		REMOVE DRAINAGE STRUCTURE
- - - - -	STREAM BOUNDARY		
.....	WETLAND DELINEATION LEVEL 1		
.....	WETLAND DELINEATION LEVEL 2		
.....	CONSTRUCTION LIMITS		

# COLLEEN AVENUE

MAINTAIN PRIVATE STORM CONNECTIONS

NORMA AVENUE

JAMES AVENUE

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*Bradley J. Fisher*  
 BRADLEY J. FISHER  
 LIC. NO. 56595 DATE 02/12/2024



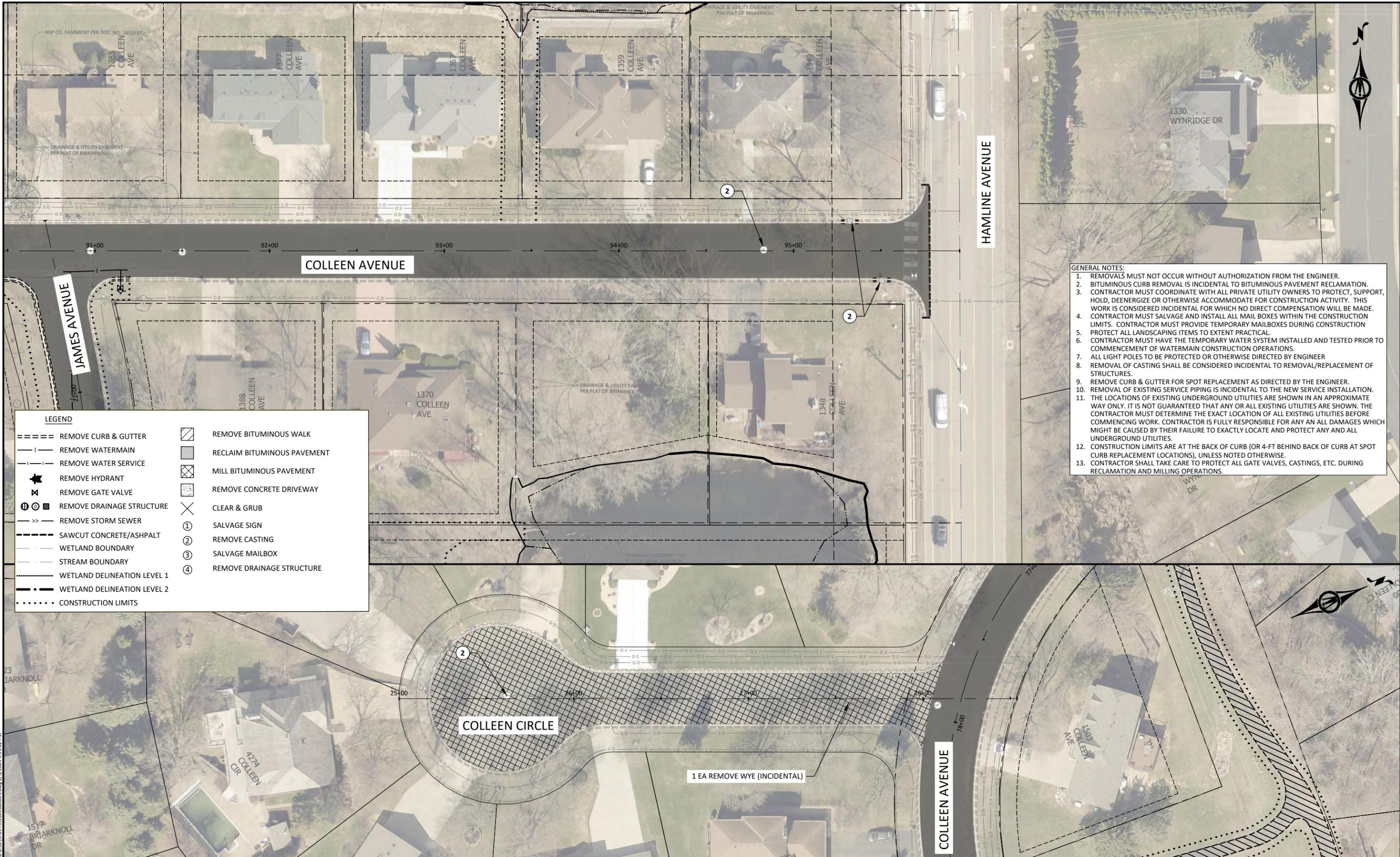
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ARDEN HILLS, MINNESOTA  
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 EXISTING CONDITIONS & REMOVAL PLAN  
 COLLEEN AVENUE

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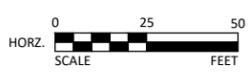


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**LEGEND**

====	REMOVE CURB & GUTTER		REMOVE BITUMINOUS WALK
---	REMOVE WATERMAIN		RECLAIM BITUMINOUS PAVEMENT
---	REMOVE WATER SERVICE		MILL BITUMINOUS PAVEMENT
	REMOVE HYDRANT		REMOVE CONCRETE DRIVEWAY
	REMOVE GATE VALVE		CLEAR & GRUB
	REMOVE DRAINAGE STRUCTURE	①	SALVAGE SIGN
---	REMOVE STORM SEWER	②	REMOVE CASTING
---	SAWCUT CONCRETE/ASHPALT	③	SALVAGE MAILBOX
---	WETLAND BOUNDARY	④	REMOVE DRAINAGE STRUCTURE
---	STREAM BOUNDARY		
---	WETLAND DELINEATION LEVEL 1		
---	WETLAND DELINEATION LEVEL 2		
---	CONSTRUCTION LIMITS		

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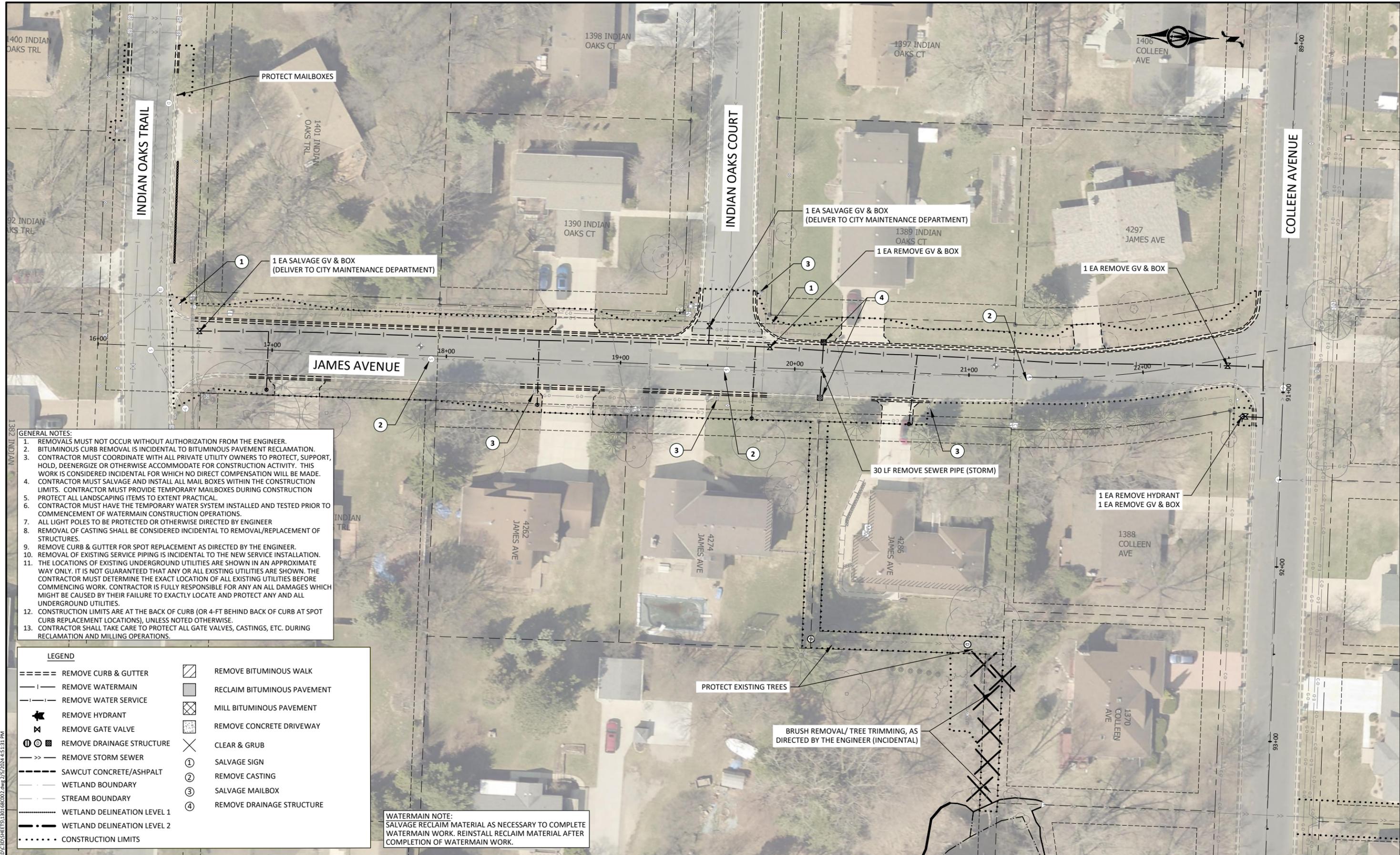
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ARDEN HILLS, MINNESOTA  
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 EXISTING CONDITIONS & REMOVAL PLAN  
 COLLEEN AVENUE & COLLEEN COURT

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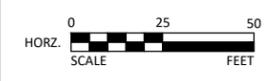
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— —	REMOVE WATERMAIN	■	RECLAIM BITUMINOUS PAVEMENT
— — —	REMOVE WATER SERVICE	⊠	MILL BITUMINOUS PAVEMENT
⊕	REMOVE HYDRANT	⊠	REMOVE CONCRETE DRIVEWAY
⊗	REMOVE GATE VALVE	×	CLEAR & GRUB
⊕ ⊗ ⊗	REMOVE DRAINAGE STRUCTURE	①	SALVAGE SIGN
— >> —	REMOVE STORM SEWER	②	REMOVE CASTING
---	SAWCUT CONCRETE/ASHPALT	③	SALVAGE MAILBOX
---	WETLAND BOUNDARY	④	REMOVE DRAINAGE STRUCTURE
---	STREAM BOUNDARY		
.....	WETLAND DELINEATION LEVEL 1		
.....	WETLAND DELINEATION LEVEL 2		
.....	CONSTRUCTION LIMITS		

**WATERMAIN NOTE:**  
SALVAGE RECLAIM MATERIAL AS NECESSARY TO COMPLETE WATERMAIN WORK. REINSTALL RECLAIM MATERIAL AFTER COMPLETION OF WATERMAIN WORK.

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BRADLEY J. FISHER  
LIC. NO. 56595 DATE 02/12/2024



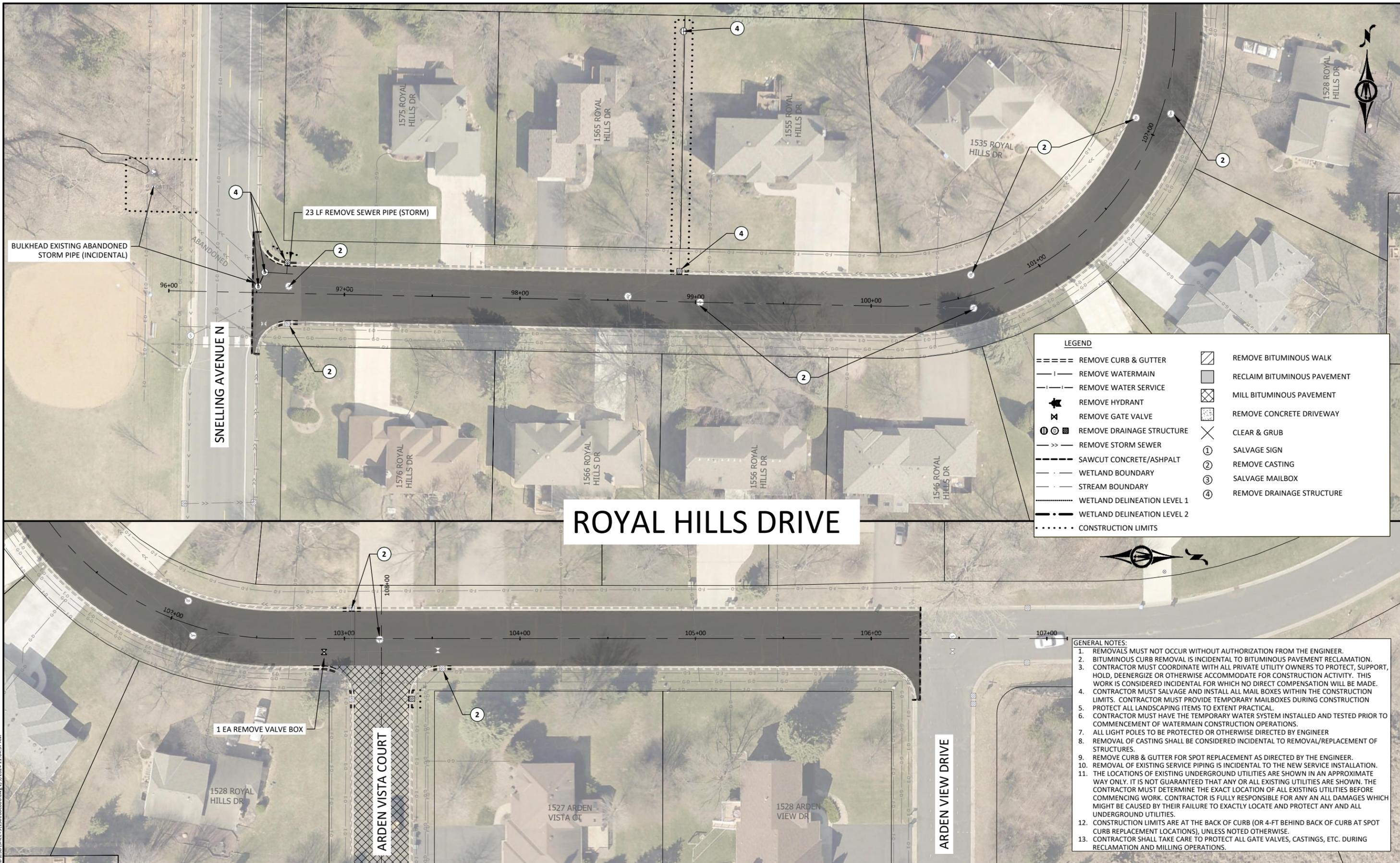
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ARDEN HILLS, MINNESOTA  
2024 PMP STREET & UTILITY IMPROVEMENTS  
EXISTING CONDITIONS & REMOVAL PLAN  
JAMES AVENUE

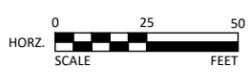
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---	WETLAND BOUNDARY		④ REMOVE DRAINAGE STRUCTURE
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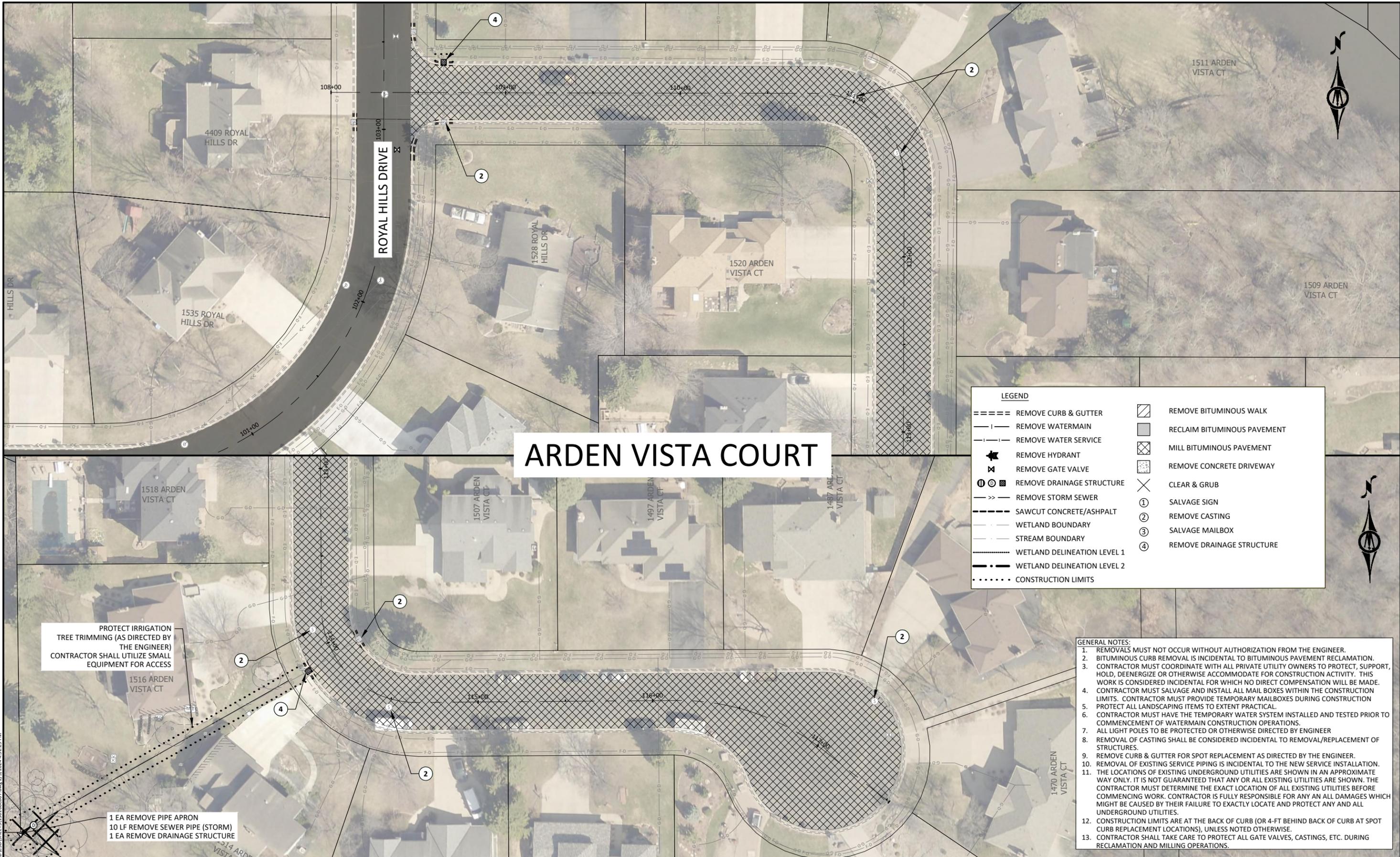
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# ARDEN VISTA COURT

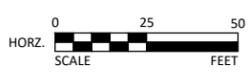
LEGEND			
====	REMOVE CURB & GUTTER		REMOVE BITUMINOUS WALK
— —	REMOVE WATERMAIN		RECLAIM BITUMINOUS PAVEMENT
— — —	REMOVE WATER SERVICE		MILL BITUMINOUS PAVEMENT
	REMOVE HYDRANT		REMOVE CONCRETE DRIVEWAY
	REMOVE GATE VALVE		CLEAR & GRUB
	REMOVE DRAINAGE STRUCTURE	①	SALVAGE SIGN
— >> —	REMOVE STORM SEWER	②	REMOVE CASTING
---	SAWCUT CONCRETE/ASHPALT	③	SALVAGE MAILBOX
- - -	WETLAND BOUNDARY	④	REMOVE DRAINAGE STRUCTURE
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PROTECT IRRIGATION TREE TRIMMING (AS DIRECTED BY THE ENGINEER) CONTRACTOR SHALL UTILIZE SMALL EQUIPMENT FOR ACCESS

1 EA REMOVE PIPE APRON  
10 LF REMOVE SEWER PIPE (STORM)  
1 EA REMOVE DRAINAGE STRUCTURE

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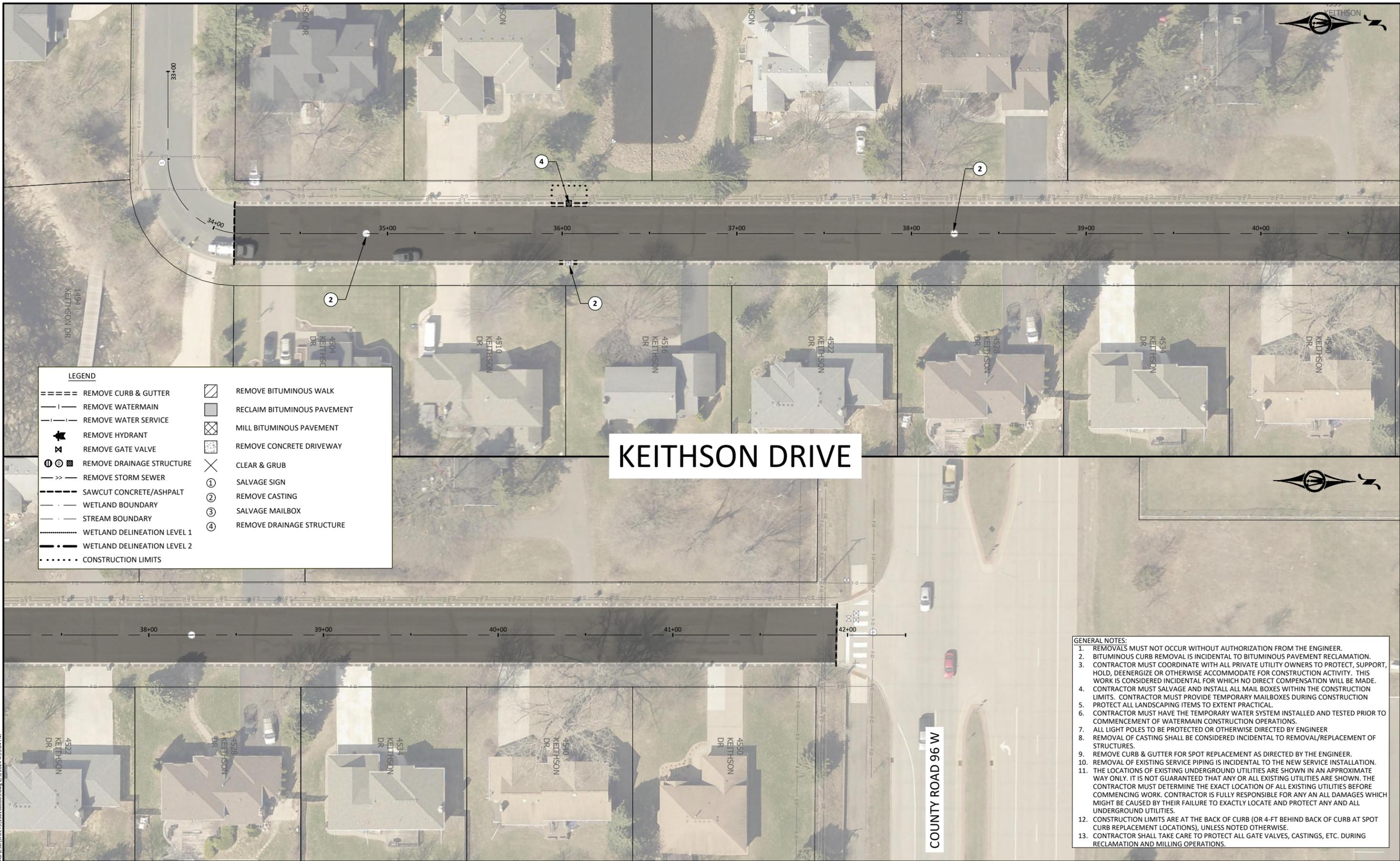
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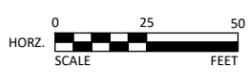


**LEGEND**

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— —	REMOVE WATERMAIN	■	RECLAIM BITUMINOUS PAVEMENT
— — —	REMOVE WATER SERVICE	⊠	MILL BITUMINOUS PAVEMENT
⊠	REMOVE HYDRANT	■	REMOVE CONCRETE DRIVEWAY
⊠	REMOVE GATE VALVE	⊠	CLEAR & GRUB
⊠	REMOVE DRAINAGE STRUCTURE	①	SALVAGE SIGN
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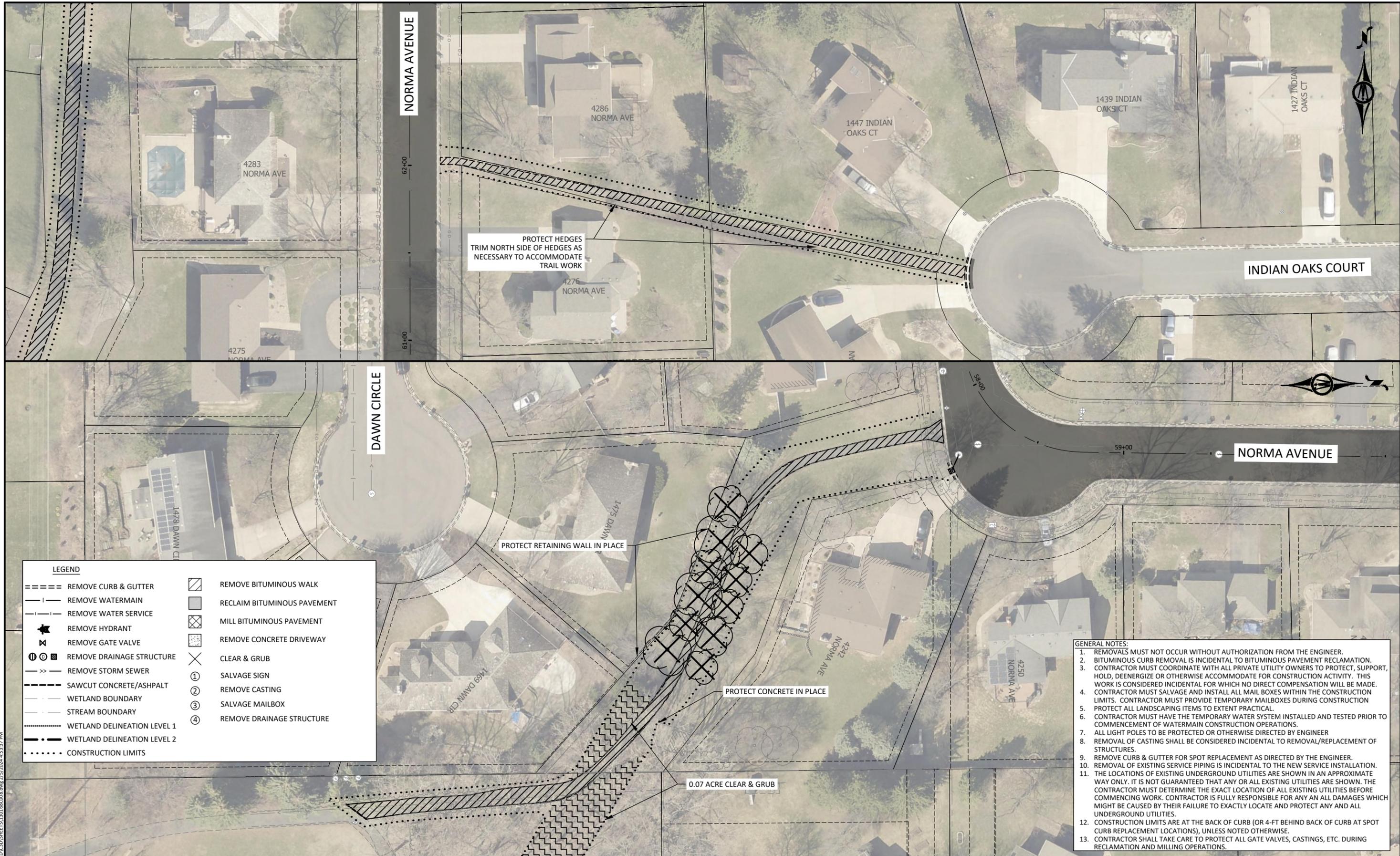
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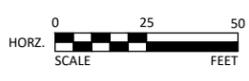


**LEGEND**

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— —	REMOVE WATER SERVICE	⊠	MILL BITUMINOUS PAVEMENT
⚡	REMOVE HYDRANT	■	REMOVE CONCRETE DRIVEWAY
⊕	REMOVE GATE VALVE	⊗	CLEAR & GRUB
⊕ ⊙	REMOVE DRAINAGE STRUCTURE	①	SALVAGE SIGN
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  - CONTRACTOR MUST COORDINATE WITH ALL PRIVATE UTILITY OWNERS TO PROTECT, SUPPORT, HOLD, DEENERGIZE OR OTHERWISE ACCOMMODATE FOR CONSTRUCTION ACTIVITY. THIS WORK IS CONSIDERED INCIDENTAL FOR WHICH NO DIRECT COMPENSATION WILL BE MADE. CONTRACTOR MUST SALVAGE AND INSTALL ALL MAIL BOXES WITHIN THE CONSTRUCTION LIMITS. CONTRACTOR MUST PROVIDE TEMPORARY MAILBOXES DURING CONSTRUCTION TO PROTECT ALL LANDSCAPING ITEMS TO EXTENT PRACTICAL.
  - CONTRACTOR MUST HAVE THE TEMPORARY WATER SYSTEM INSTALLED AND TESTED PRIOR TO COMMENCEMENT OF WATERMAIN CONSTRUCTION OPERATIONS.
  - ALL LIGHT POLES TO BE PROTECTED OR OTHERWISE DIRECTED BY ENGINEER
  - REMOVAL OF CASTING SHALL BE CONSIDERED INCIDENTAL TO REMOVAL/REPLACEMENT OF STRUCTURES.
  - REMOVE CURB & GUTTER FOR SPOT REPLACEMENT AS DIRECTED BY THE ENGINEER.
  - REMOVAL OF EXISTING SERVICE PIPING IS INCIDENTAL TO THE NEW SERVICE INSTALLATION.
  - THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. IT IS NOT GUARANTEED THAT ANY OR ALL EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AN ALL DAMAGES WHICH MIGHT BE CAUSED BY THEIR FAILURE TO EXACTLY LOCATE AND PROTECT ANY AND ALL UNDERGROUND UTILITIES.
  - CONSTRUCTION LIMITS ARE AT THE BACK OF CURB (OR 4-FT BEHIND BACK OF CURB AT SPOT CURB REPLACEMENT LOCATIONS), UNLESS NOTED OTHERWISE.
  - CONTRACTOR SHALL TAKE CARE TO PROTECT ALL GATE VALVES, CASTINGS, ETC. DURING RECLAMATION AND MILLING OPERATIONS.

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*Bradley J. Fisher*  
 BRADLEY J. FISHER  
 LIC. NO. 56595 DATE 02/12/2024



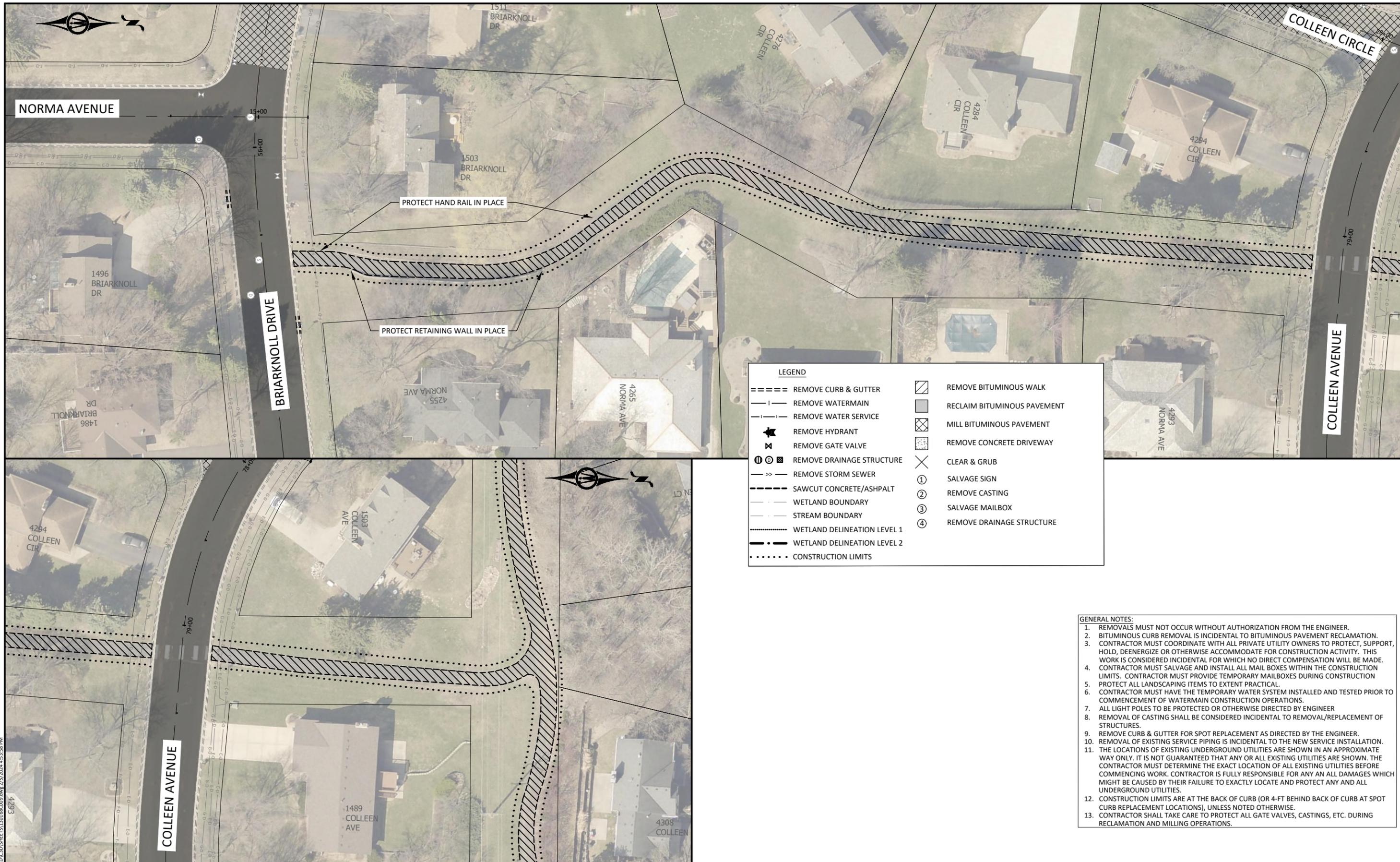
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ARDEN HILLS, MINNESOTA  
 2024 PMP STREET & UTILITY IMPROVEMENTS  
 EXISTING CONDITIONS & REMOVAL PLAN  
 NORMA AVENUE TRAIL

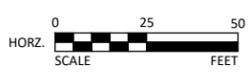
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LEGEND			
	REMOVE CURB & GUTTER		REMOVE BITUMINOUS WALK
	REMOVE WATERMAIN		RECLAIM BITUMINOUS PAVEMENT
	REMOVE WATER SERVICE		MILL BITUMINOUS PAVEMENT
	REMOVE HYDRANT		REMOVE CONCRETE DRIVEWAY
	REMOVE GATE VALVE		CLEAR & GRUB
	REMOVE DRAINAGE STRUCTURE		SALVAGE SIGN
	REMOVE STORM SEWER		REMOVE CASTING
	SAWCUT CONCRETE/ASHPALT		SALVAGE MAILBOX
	WETLAND BOUNDARY		REMOVE DRAINAGE STRUCTURE
	STREAM BOUNDARY		
	WETLAND DELINEATION LEVEL 1		
	WETLAND DELINEATION LEVEL 2		
	CONSTRUCTION LIMITS		

- GENERAL NOTES:**
- REMOVALS MUST NOT OCCUR WITHOUT AUTHORIZATION FROM THE ENGINEER.
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  - CONTRACTOR MUST COORDINATE WITH ALL PRIVATE UTILITY OWNERS TO PROTECT, SUPPORT, HOLD, DEENERGIZE OR OTHERWISE ACCOMMODATE FOR CONSTRUCTION ACTIVITY. THIS WORK IS CONSIDERED INCIDENTAL FOR WHICH NO DIRECT COMPENSATION WILL BE MADE.
  - CONTRACTOR MUST SALVAGE AND INSTALL ALL MAIL BOXES WITHIN THE CONSTRUCTION LIMITS. CONTRACTOR MUST PROVIDE TEMPORARY MAILBOXES DURING CONSTRUCTION
  - PROTECT ALL LANDSCAPING ITEMS TO EXTENT PRACTICAL.
  - CONTRACTOR MUST HAVE THE TEMPORARY WATER SYSTEM INSTALLED AND TESTED PRIOR TO COMMENCEMENT OF WATERMAIN CONSTRUCTION OPERATIONS.
  - ALL LIGHT POLES TO BE PROTECTED OR OTHERWISE DIRECTED BY ENGINEER
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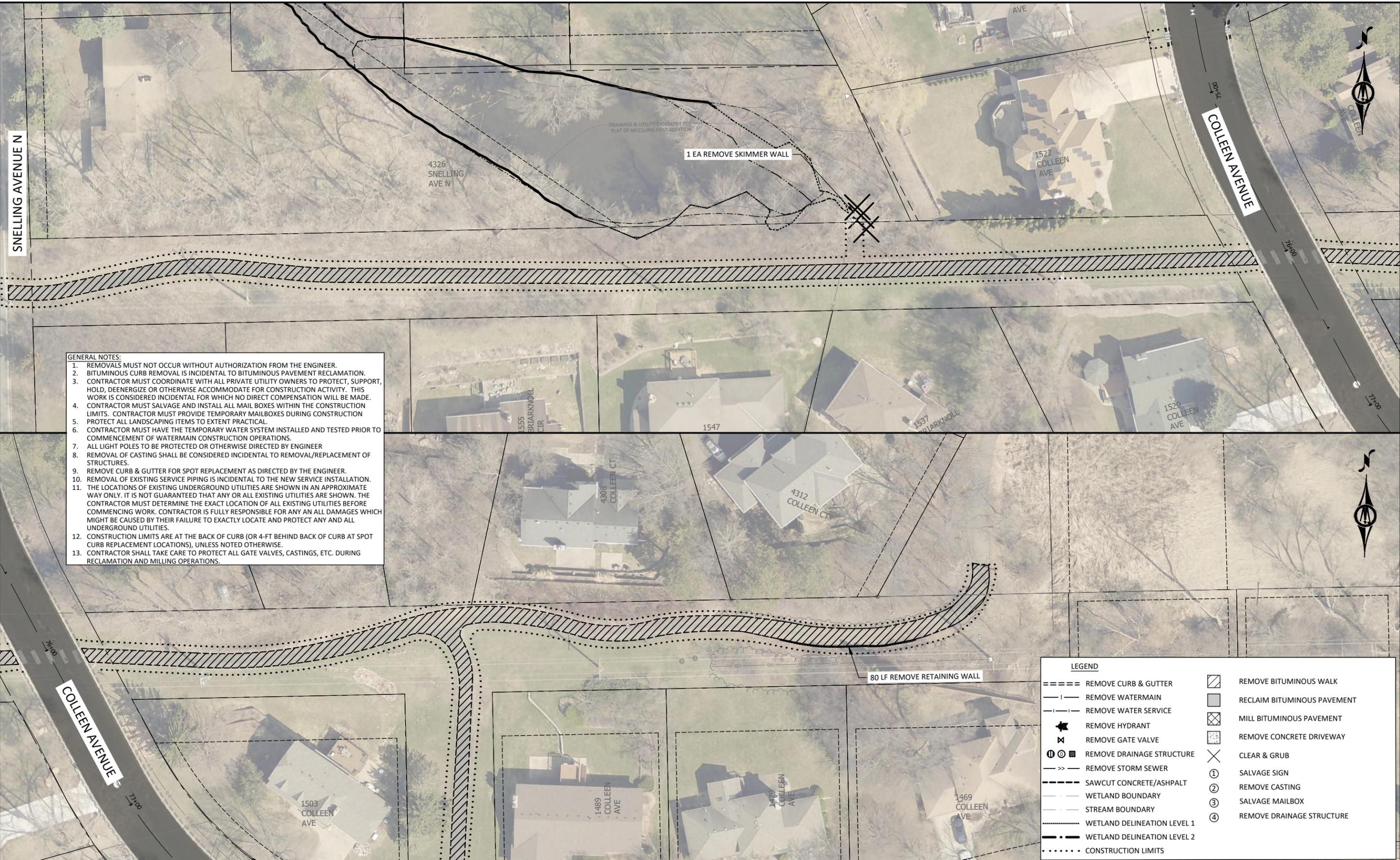
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ARDEN HILLS, MINNESOTA  
 2024 PMP STREET & UTILITY IMPROVEMENTS  
 EXISTING CONDITIONS & REMOVAL PLAN  
 NORMA AVENUE TRAIL 1 - ALTERNATE 1

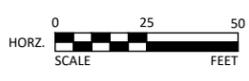
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LEGEND	
	REMOVE CURB & GUTTER
	REMOVE WATERMAIN
	REMOVE WATER SERVICE
	REMOVE HYDRANT
	REMOVE GATE VALVE
	REMOVE DRAINAGE STRUCTURE
	REMOVE STORM SEWER
	SAWCUT CONCRETE/ASHPALT
	WETLAND BOUNDARY
	STREAM BOUNDARY
	WETLAND DELINEATION LEVEL 1
	WETLAND DELINEATION LEVEL 2
	CONSTRUCTION LIMITS
	REMOVE BITUMINOUS WALK
	RECLAIM BITUMINOUS PAVEMENT
	MILL BITUMINOUS PAVEMENT
	REMOVE CONCRETE DRIVEWAY
	CLEAR & GRUB
	SALVAGE SIGN
	REMOVE CASTING
	SALVAGE MAILBOX
	REMOVE DRAINAGE STRUCTURE

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*Bradley J. Fisher*  
 BRADLEY J. FISHER  
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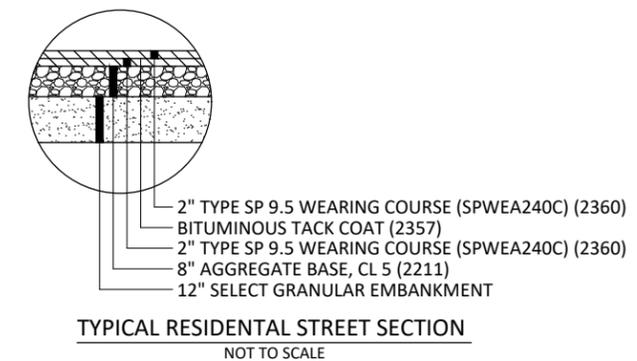
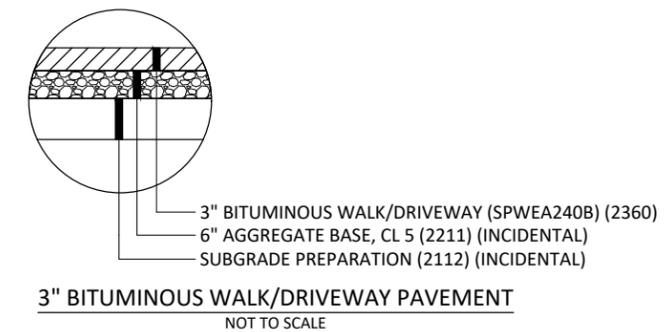
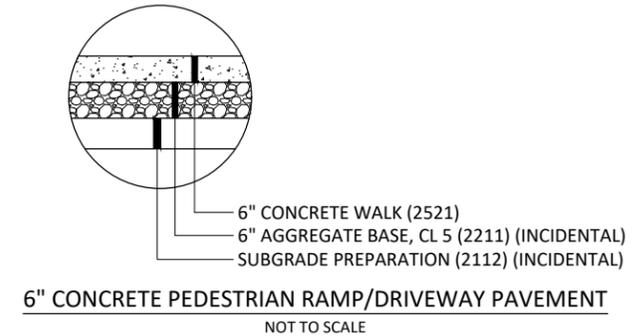
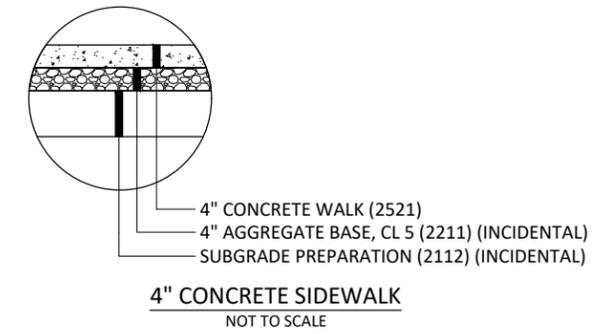
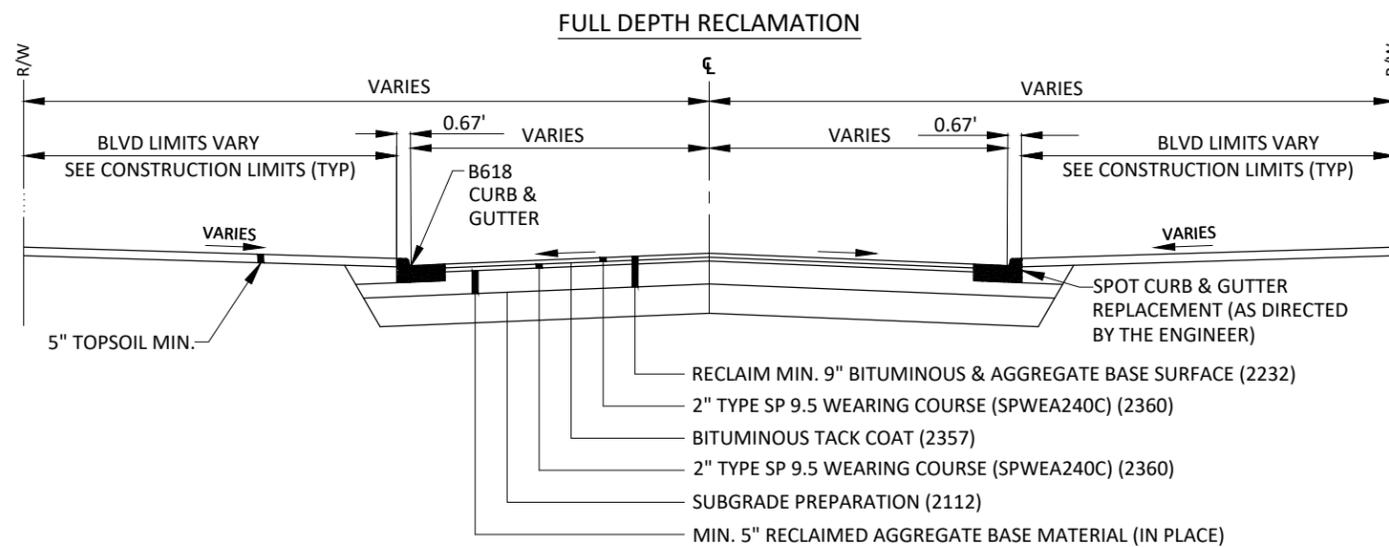
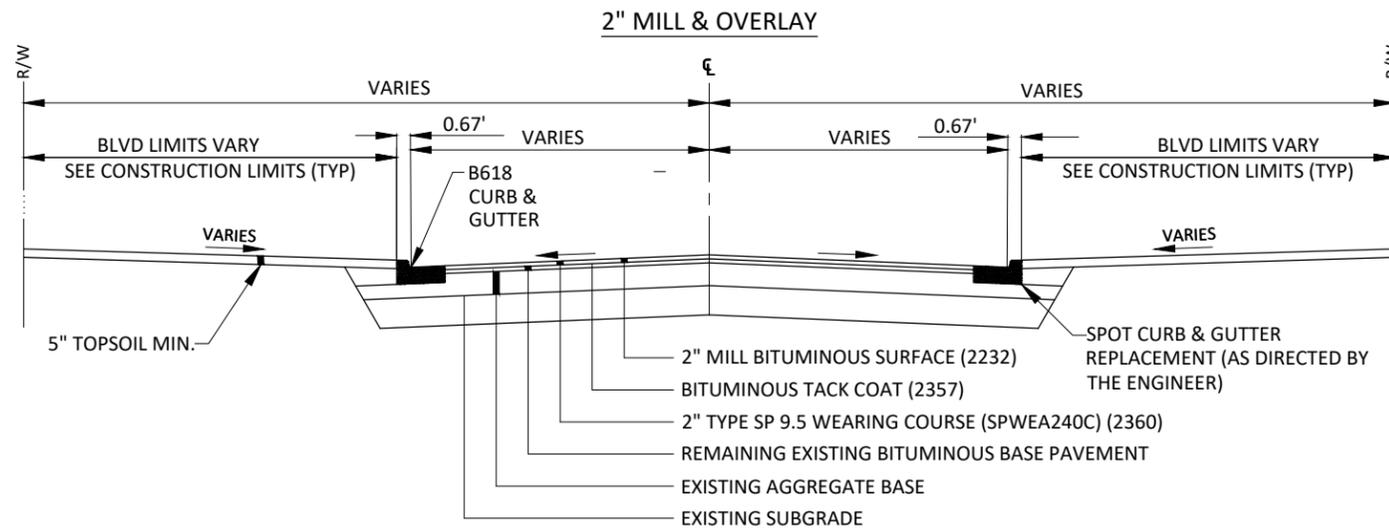
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ARDEN HILLS, MINNESOTA  
 2024 PMP STREET & UTILITY IMPROVEMENTS  
 EXISTING CONDITIONS & REMOVAL PLAN  
 COLLEEN AVENUE TRAIL - ALTERNATE 1

SHEET  
 C0.13



**TYPICAL SECTION NOTES:**

1. ANY VARIATIONS FROM THE TYPICAL SECTION DIMENSIONS ARE SHOWN ON THE PLAN DRAWINGS
2. PAVEMENT SLOPES AT INTERSECTION LOCATIONS MAY VARY FROM THOSE SHOWN ON THE TYPICAL SECTION
3. GRADE ALL TOPSOIL MATERIAL TO 1" DEPTH BELOW CONCRETE SURFACES PRIOR TO PLACING SOD
4. ELEVATIONS SHOWN ARE RELATIVE TO C/L AND DO NOT RELATE TO ACTUAL CONSTRUCTION GRADES

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 BRADLEY J. FISHER  
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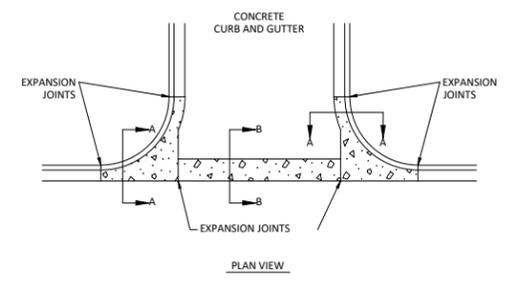
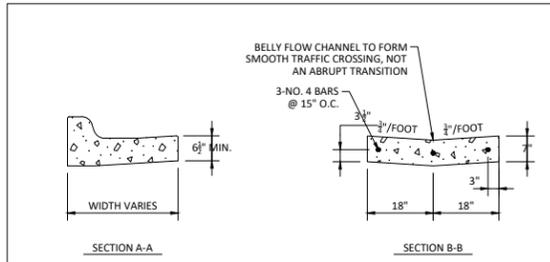


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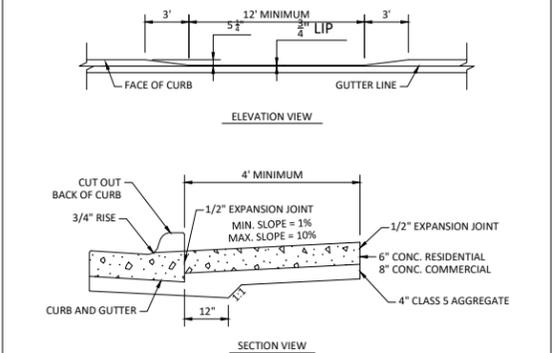
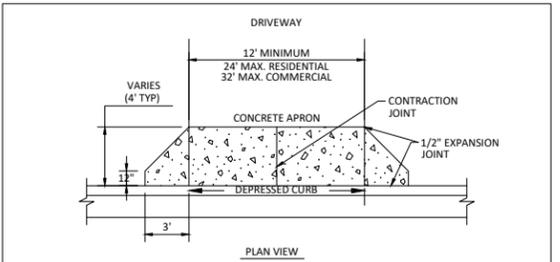


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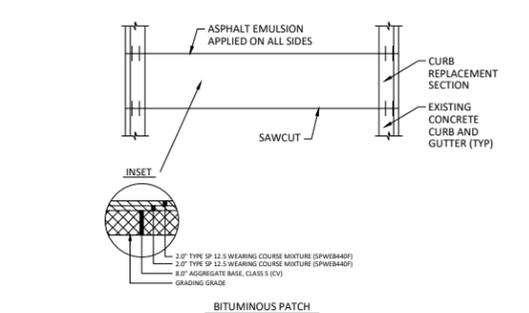
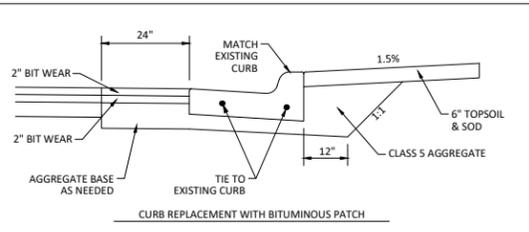
ARDEN HILLS, MINNESOTA 2024 PMP STREET & UTILITY IMPROVEMENTS TYPICAL SECTIONS	SHEET <b>C1.01</b>
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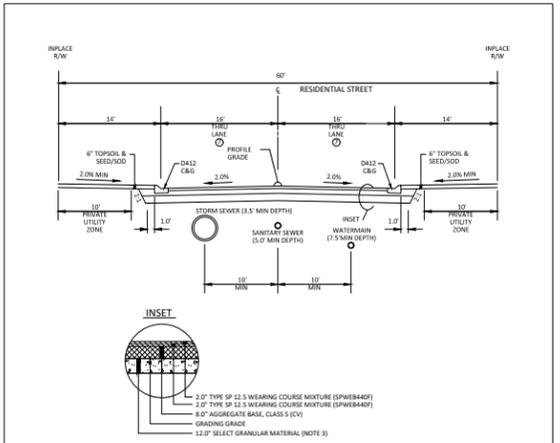
CONCRETE "V" GUTTER  
 REVISION PUBLISHED: 4/30/19  
 PLATE NO. 2000



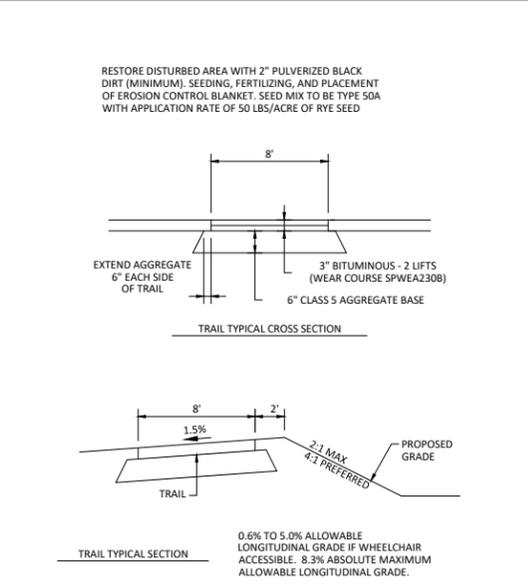
DEPRESSED CURB WITH DRIVEWAY APRON  
 REVISION PUBLISHED: 4/30/19  
 PLATE NO. 2001



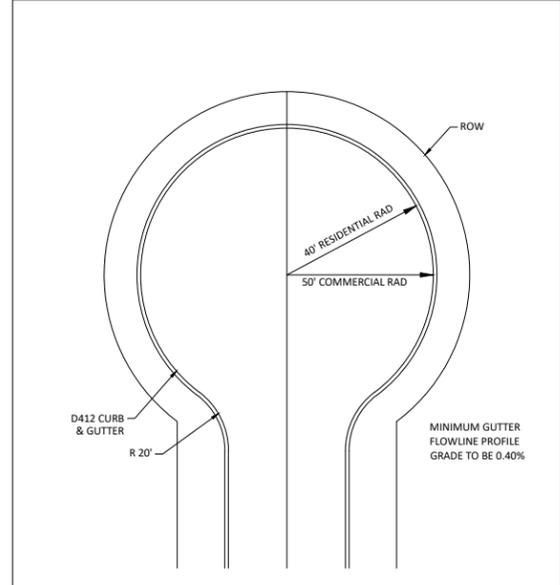
CURB REPLACEMENT AND BITUMINOUS PATCHING DETAILS  
 NOTE: TOPSOIL SHALL MEET MNDOT SPEC 3877 FOR PULVERIZED TOPSOIL  
 REVISION PUBLISHED: 4/30/19  
 PLATE NO. 2002



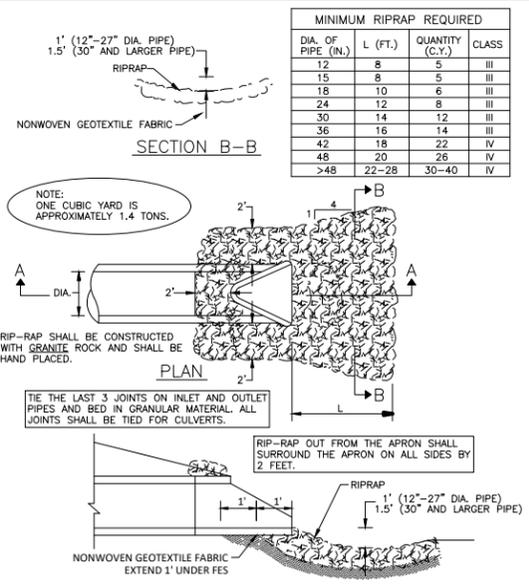
TYPICAL RESIDENTIAL STREET SECTION  
 NOTES:  
 1. STREET PAVEMENT SECTION SHALL BE DESIGNED BY A QUALIFIED ENGINEER BASED ON ACTUAL SOIL CONDITIONS. THE PAVEMENT SECTION (INSET A) REPRESENTS THE MINIMUM SECTION ALLOWED.  
 2. PAVEMENT DESIGN CRITERIA MINIMUM SHALL INCLUDE THE FOLLOWING: 1000 ADT, 20 YEAR LIFE, 2% GROWTH.  
 3. INCORPORATION OF GRANULAR SUBBASE AND SUBDRAINS SHALL BE BASED ON GEOTECHNICAL ENGINEERING RECOMMENDATION.  
 4. B618 CURB AND GUTTER SHALL BE PLACED AROUND RADI AND ADJACENT TO STORM SEWER CATCH BASIN.  
 5. PRIVATE UTILITIES AND IRRIGATION SHALL NOT BE PLACED UNDER THE ROADWAY SECTION EXCEPT FOR CROSSINGS IN LOCATIONS APPROVED BY THE CITY ENGINEER.  
 6. REFER TO ARDEN HILLS DESIGN STANDARDS MANUAL FOR ADDITIONAL REQUIREMENTS RELATED TO ROADWAY PROFILES, CURVATURE INTERSECTIONS ETC.  
 7. MAINTAIN EXISTING STREET WIDTHS FOR RECONSTRUCTION PROJECTS.  
 8. TOPSOIL SHALL MEET MNDOT SPEC 3877 FOR PULVERIZED TOPSOIL.  
 REVISION PUBLISHED: 4/30/19  
 PLATE NO. 2003



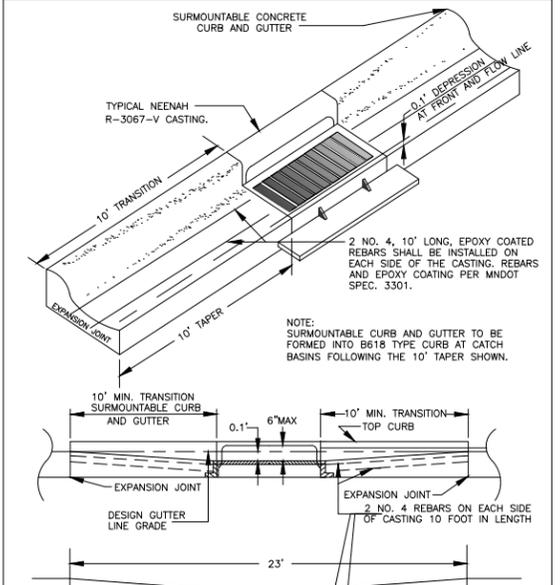
BITUMINOUS TRAIL TYPICAL SECTION  
 REVISION PUBLISHED: 4/30/19  
 PLATE NO. 2005



CUL-DE-SAC  
 REVISION PUBLISHED: 4/30/19  
 PLATE NO. 2006



RIPRAP DETAIL FOR FLARED END SECTION  
 REVISION PUBLISHED: 4/30/19  
 PLATE NO. 2005



CATCH BASIN CASTING INSTALLATION DETAIL  
 REVISION PUBLISHED: 4/30/19  
 PLATE NO. 2008

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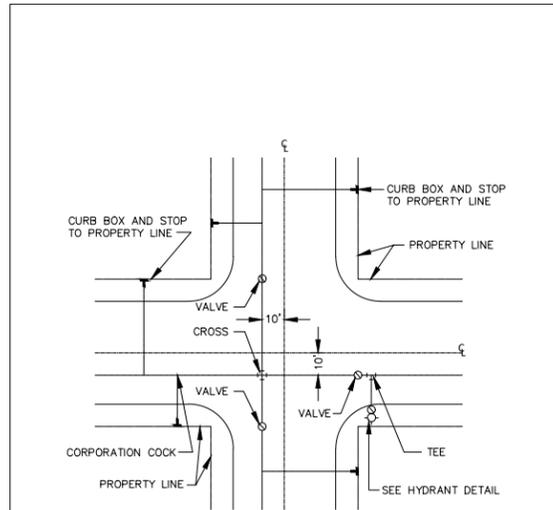
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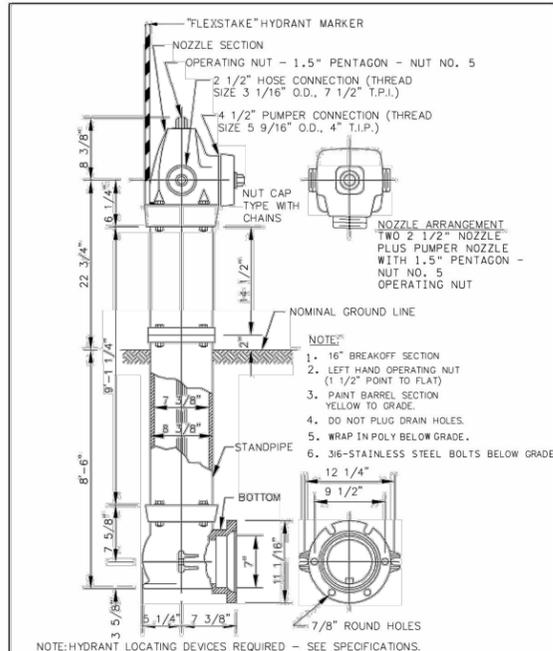
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 DETAILS

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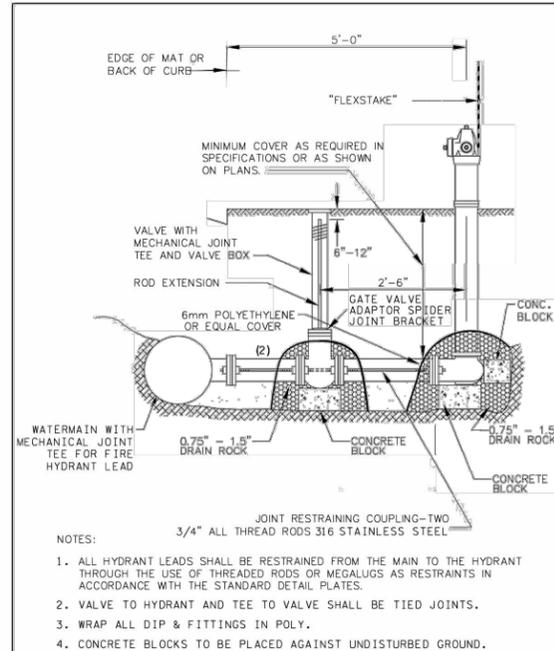
TYPICAL WATER LAYOUT

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 PLATE NO. 3400



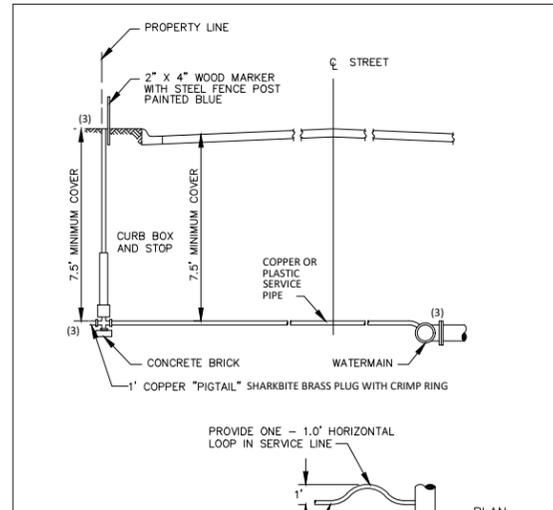
PACER HYDRANT DETAIL  
 MODEL WB-67

REVISION PUBLISHED: 8/22/23  
 PLATE NO. 3401



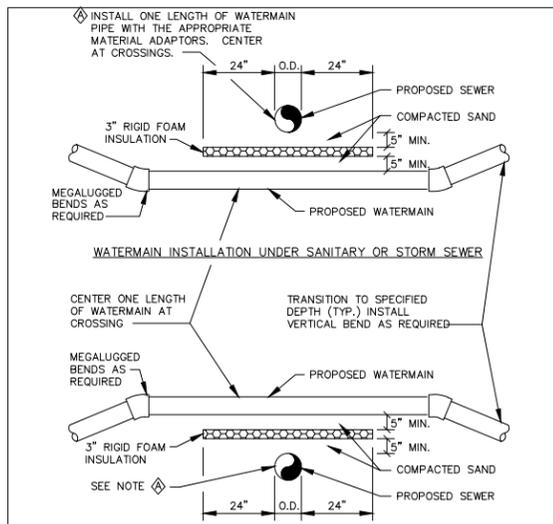
HYDRANT RESTRAINT DETAIL

REVISION PUBLISHED: 8/22/23  
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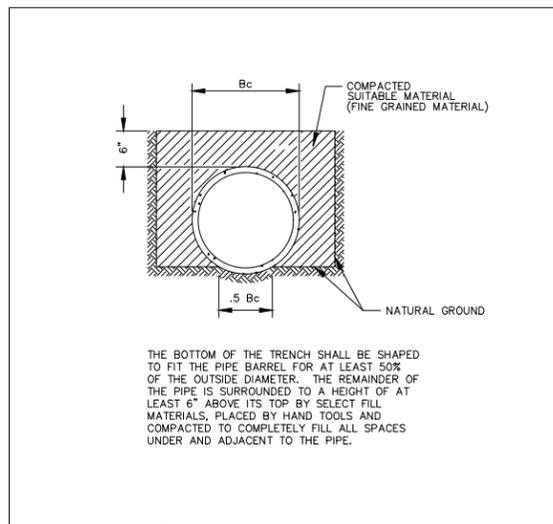
TYPICAL WATER SERVICE DETAIL

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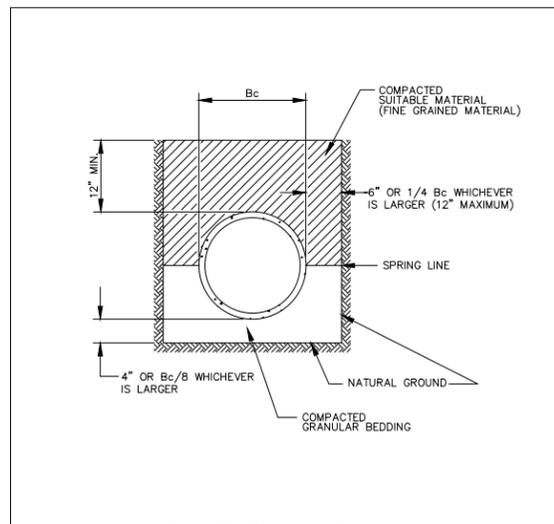
WATERMAIN CROSSING

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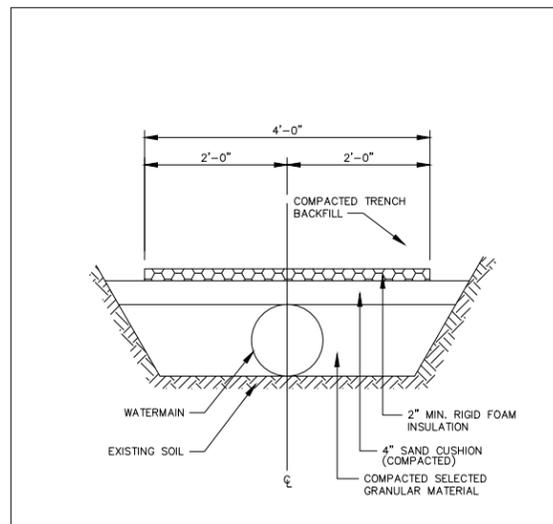
CLASS C PIPE BEDDING

REVISION PUBLISHED: 4/30/19  
 PLATE NO. 3405



CLASS B PIPE BEDDING

REVISION PUBLISHED: 4/30/19  
 PLATE NO. 3406



PIPE INSULATION DETAIL

REVISION PUBLISHED: 4/30/19  
 PLATE NO. 3407

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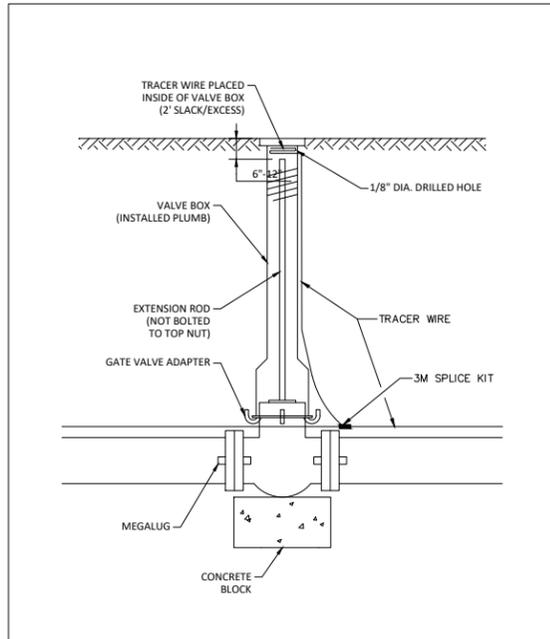
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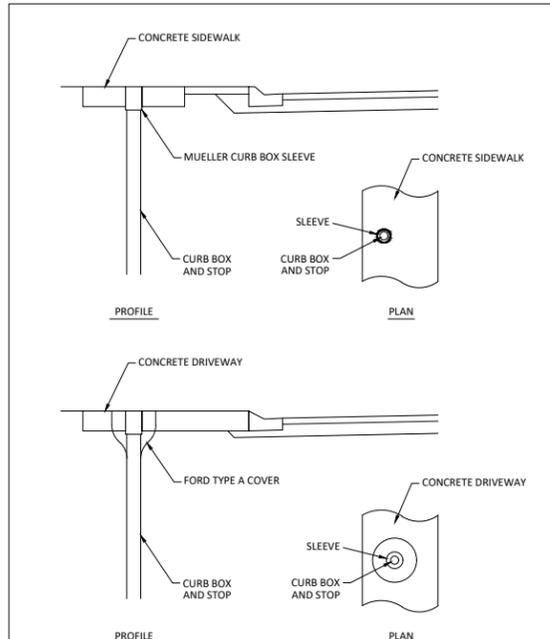
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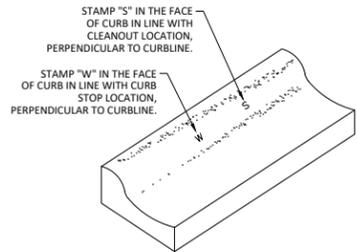
VALVE WITH TRACER WIRE DETAIL

REVISION PUBLISHED: 4/30/19  
 PLATE NO. 9408



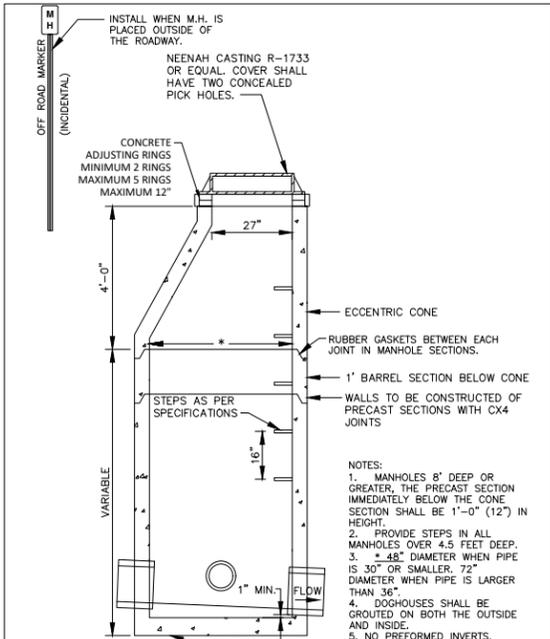
CURB STOP IN SIDEWALK DETAIL

REVISION PUBLISHED: 4/30/19  
 PLATE NO. 9409



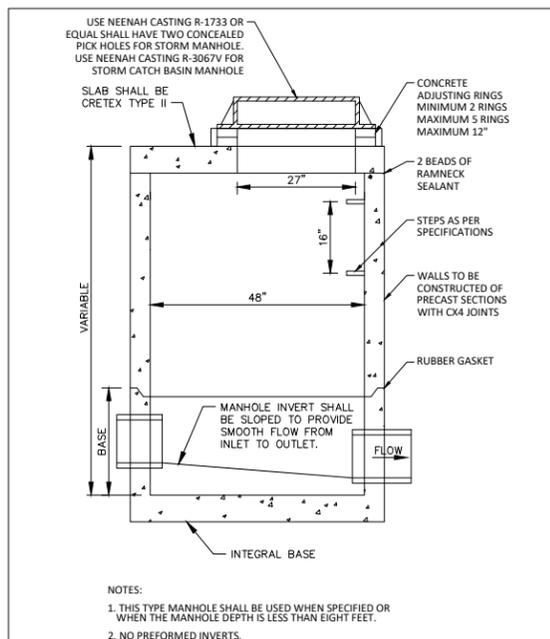
CURB NOTATION

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 PLATE NO. 9410



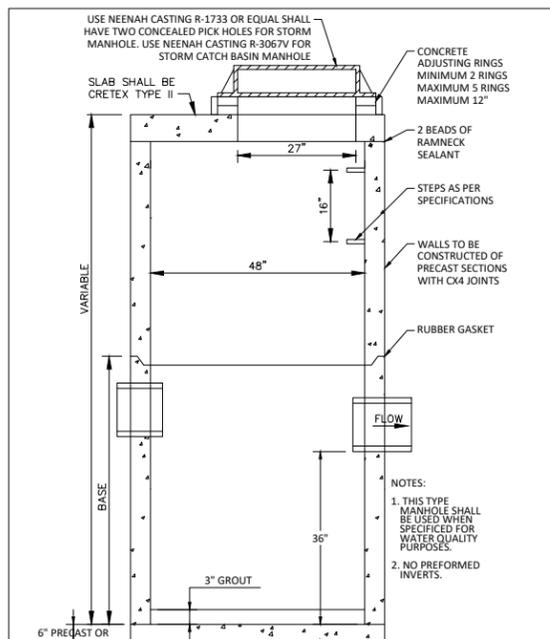
STORM STANDARD MANHOLE

REVISION PUBLISHED: 4/30/19  
 PLATE NO. 9500



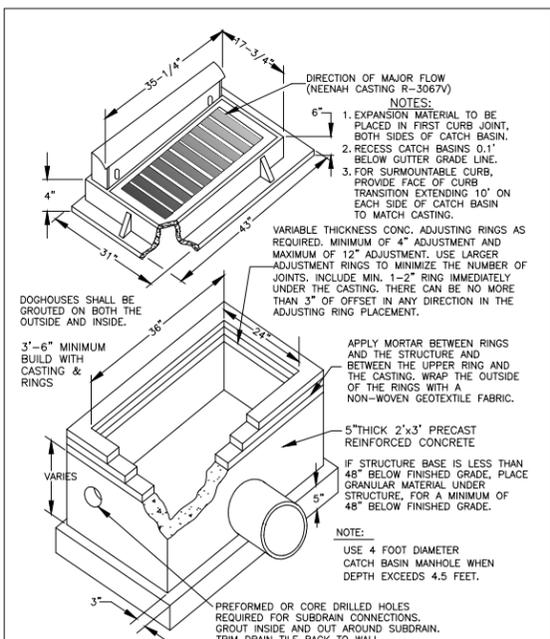
STORM SLAB TOP MANHOLE/CATCH BASIN MANHOLE

REVISION PUBLISHED: 4/30/19  
 PLATE NO. 2301



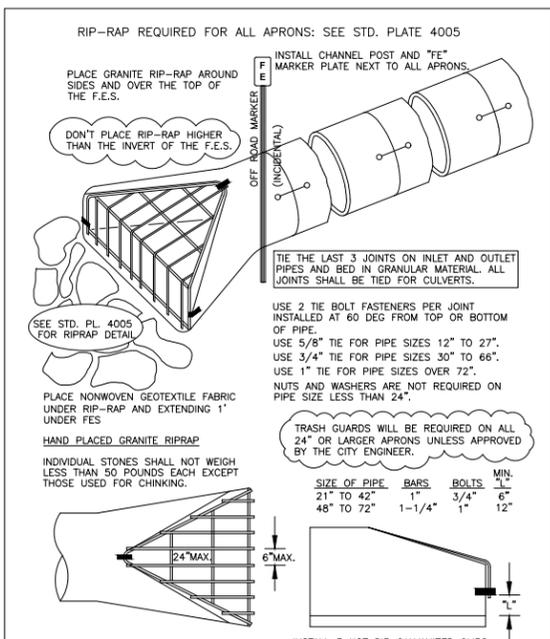
STORM SEWER MANHOLE WITH SUMP

REVISION PUBLISHED: 4/30/19  
 PLATE NO. 2502



CATCH BASIN 2'X3'

REVISION PUBLISHED: 4/30/19  
 PLATE NO. 2503



INLET & OUTLET F.E.S. WITH TRASH GUARD

REVISION PUBLISHED: 4/30/19  
 PLATE NO. 2504

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*Bradley J. Fisher*  
 BRADLEY J. FISHER  
 LIC. NO. 56595 DATE 02/12/2024



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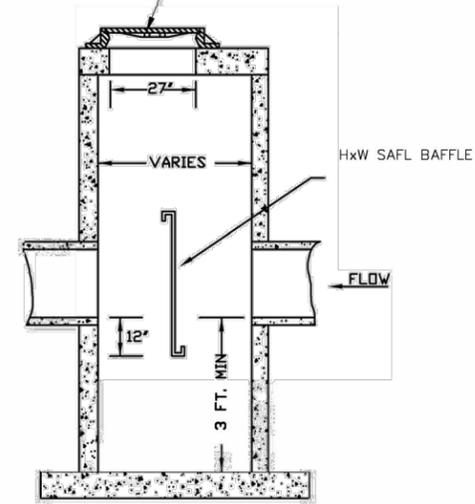


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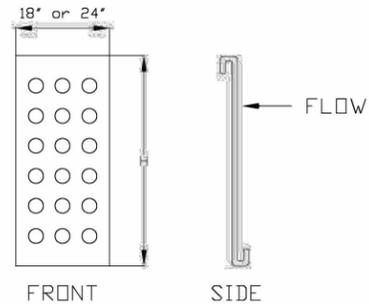
ARDEN HILLS, MINNESOTA  
 2024 PMP STREET & UTILITY IMPROVEMENTS  
 DETAILS

SHEET  
 C1.04

MANHOLE/CATCH BASIN COVER AND FRAME - 27" MIN. CLEAR OPENING  
 SMALLER OPENING MAY REQUIRE BAFFLE INSTALLATION PRIOR TO PLACING CASTING  
 STRUCTURES GREATER THAN 60" DIA. MAY REQUIRE SECOND CASTING FOR CLEANING SUMP



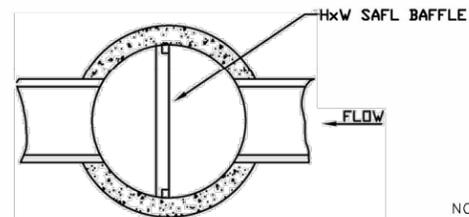
**SAFL BAFFLE INSTALLATION Detail**



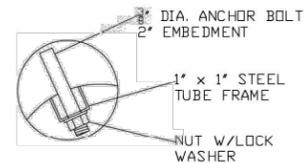
WIDTH ADJUSTMENT FOR PANEL SIZES

2- 18" PANELS	32"MIN	36"MAX	4"TOTAL
2- 24" PANELS	44"MIN	48"MAX	4"TOTAL
3- 18" PANELS	46"MIN	54"MAX	8"TOTAL
3- 24" PANELS	64"MIN	72"MAX	8"TOTAL

**SAFL BAFFLE PANEL Detail**



**SAFL BAFFLE INSTALLATION Plan**



**SAFL BAFFLE ATTACHMENT BOLT Detail**

- NOTES:
- 1) UPSTREAM TECHNOLOGIES INC. IS THE EXCLUSIVE LICENSEE OF THE SAFL BAFFLE
  - 2) CONTRACTOR MUST VERIFY LOCATION OF CASTING AND STEPS PRIOR TO INSTALLATION OF STRUCTURE.
  - 3) CONTRACTOR STRUCTURES GREATER THAN 72" REQUIRE SECOND CASTING FOR MAINTENANCE
  - 4) THIS GENERIC DETAIL DOES NOT ENCOMPASS THE SIZING, FIT, AND APPLICABILITY OF THE SAFL BAFFLE FOR THIS SPECIFIC PROJECT. IT IS THE ULTIMATE RESPONSIBILITY OF THE DESIGN ENGINEER TO ASSURE THAT THE DESIGN IS IN COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. THE SAFL BAFFLE IS A PATENTED TECHNOLOGY OF UPSTREAM TECHNOLOGIES, INC. UPSTREAM TECHNOLOGIES DOES NOT APPROVE PLANS, SIZING, OR SYSTEM DESIGNS.

**THROUGH PIPE CONFIGURATION**

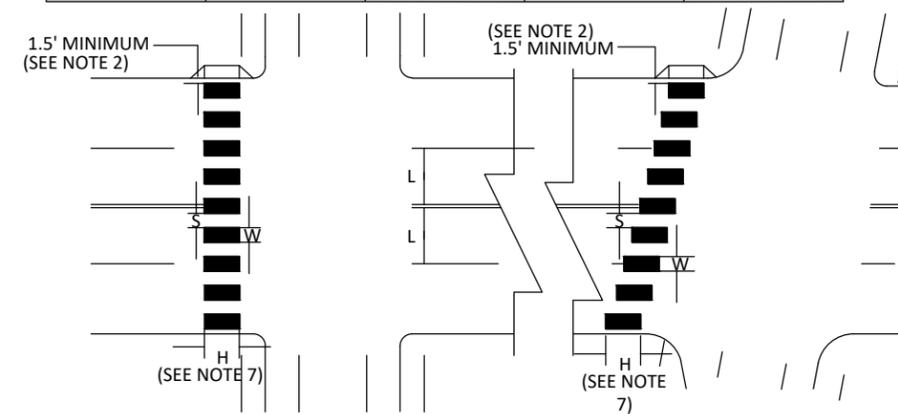
SAFL BAFFLE STANDARD DETAIL  
 UPSTREAM TECHNOLOGIES  
 5201 East River Road, Suite 303  
 Fridley, MN 55421  
 651-237-5123

**PATENT PROTECTED**



**PEDESTRIAN CROSSWALK MARKINGS**

(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREA	(S) WIDTH OF SPACE	ALTERNATE (W) WIDTH OF PAINTED AREA	ALTERNATE (S) WIDTH OF SPACE
9'	2.0'	2.5'	—	—
10'	2.5'	2.5'	2.0'	3.0'
11'	2.5'	3.0'	2.0'	3.5'
12'	3.0'	3.0'	2.5'	3.5'
13'	3.0'	3.5'	—	—



**NOTES:**

1. PAINTED AREAS TO BE CENTERED ON CENTERLINE AND LANE LINES.
2. A MINIMUM OF 1.5 FT. CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB FACE. IF LAST PAINTED AREA FALLS INTO THIS DISTANCE IT MUST BE OMITTED.
3. ON TWO LANE TWO WAY STREETS, USE SPACING SHOWN FOR AN 11 FT. INSIDE LANE.
4. FOR DIVIDED ROADWAYS, ADJUSTMENTS IN SPACING OF THE BLOCKS SHOULD BE MADE IN THE MEDIAN SO THAT THE BLOCKS ARE MAINTAINED IN THEIR PROPER LOCATION ACROSS THE TRAVELED PORTION OF THE ROADWAY.
5. AT SKEWED CROSSWALKS, THE BLOCKS ARE TO REMAIN PARALLEL TO THE LANE LINES AS SHOWN.
6. THE BLOCKS SHALL BE PLACED SO THAT THEY ARE NOT LOCATED IN THE WHEEL PATH OF THE VEHICLES.
7. THE BLOCKS SHALL BE A MINIMUM OF 6' LONG AND AT LEAST AS LONG AS THE TRUNCATED DOMES, FOR FANNED TRUNCATED DOMES THE BLOCKS SHALL BE AT LEAST AS LONG AS THE APPROACHING SIDEWALK OR SHARED USE PATH.
8. THE ALTERNATE (W) AND (S) MAY BE USED WHEN BLOCKS LONGER THAN 6' (H) ARE USED.

PUBLISHED BY OTE: 16 NOV 2021

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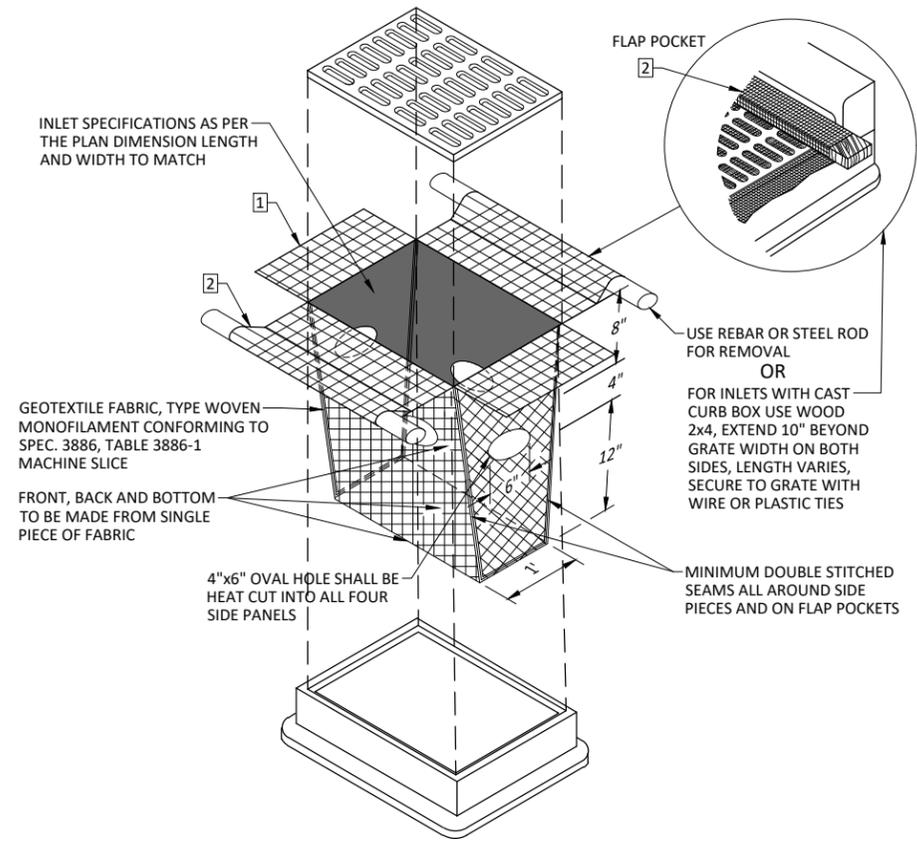


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ARDEN HILLS, MINNESOTA  
 2024 PMP STREET & UTILITY IMPROVEMENTS  
 DETAILS

SHEET

C1.05



NOTES:

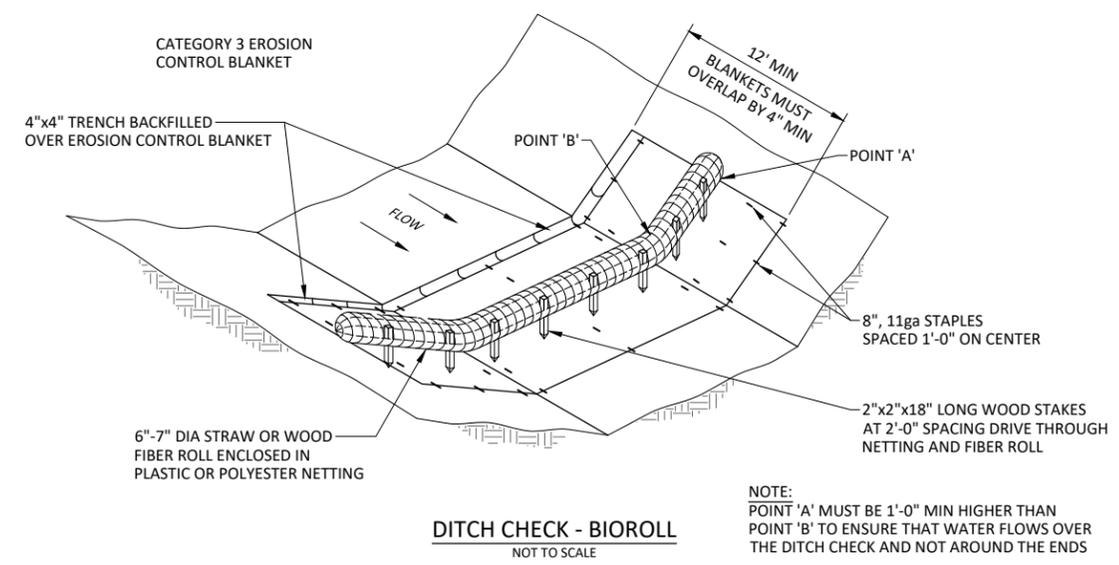
1 INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER. MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL IN THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

2 FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2x4.

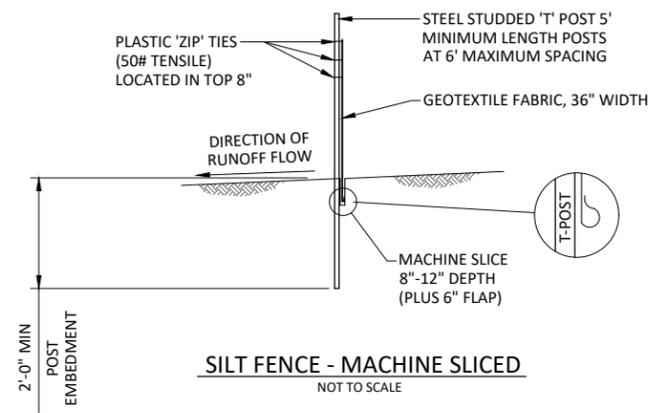
INSTALLATION NOTES:  
DO NOT INSTALL PROTECTION IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.  
TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

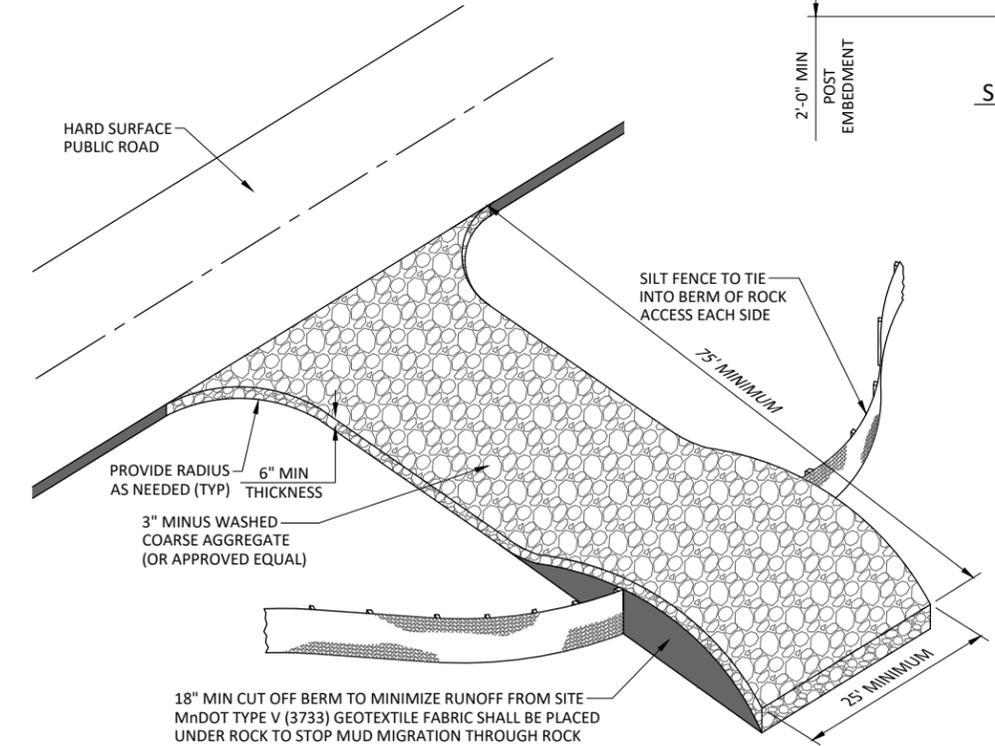


**DITCH CHECK - BIOROLL**  
NOT TO SCALE

NOTE:  
POINT 'A' MUST BE 1'-0" MIN HIGHER THAN POINT 'B' TO ENSURE THAT WATER FLOWS OVER THE DITCH CHECK AND NOT AROUND THE ENDS



**SILT FENCE - MACHINE SLICED**  
NOT TO SCALE



**ROCK CONSTRUCTION ENTRANCE**  
NOT TO SCALE



**INLET PROTECTION  
GEOTEXTILE BAG**  
NOT TO SCALE

LAST REVISION:  
04-2021

PLATE NO.  
3-104

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*Bradley J. Fisher*  
BRADLEY J. FISHER  
LIC. NO. 56595 DATE 02/12/2024



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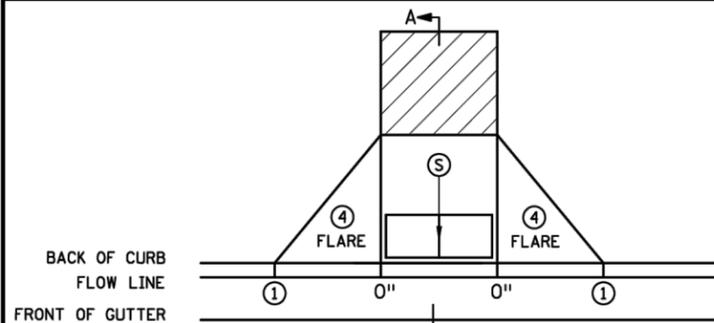


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CLIENT PROJ. NO.			
0T1.130168			

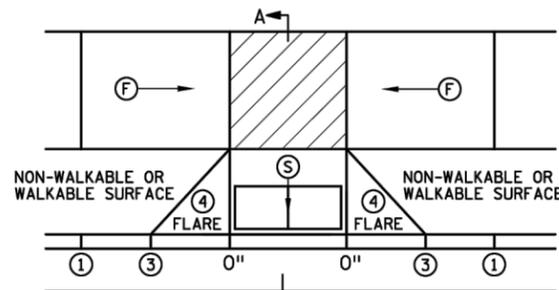
ARDEN HILLS, MINNESOTA  
2024 PMP STREET & UTILITY IMPROVEMENTS  
SWPPP DETAILS

SHEET  
C1.06

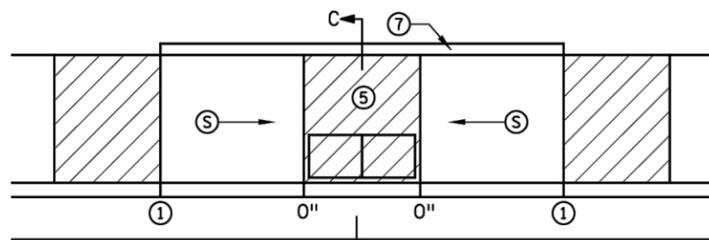
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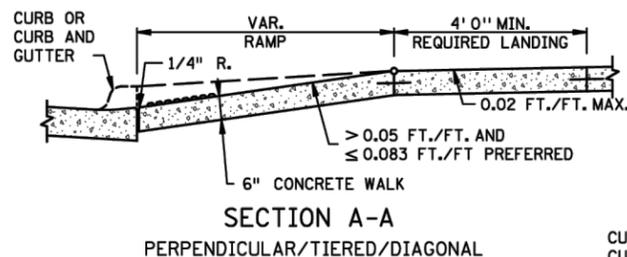
PERPENDICULAR



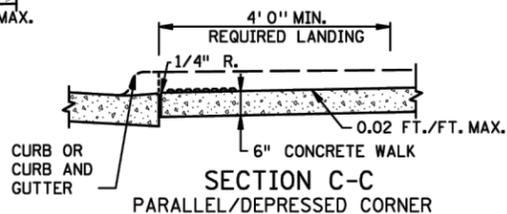
TIERED PERPENDICULAR



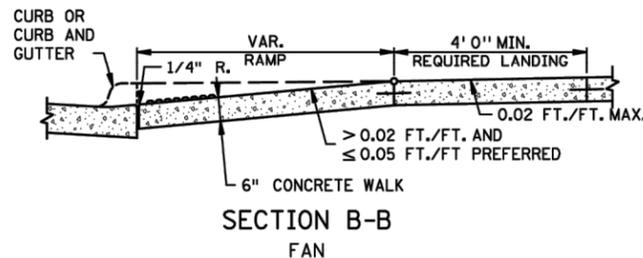
PARALLEL



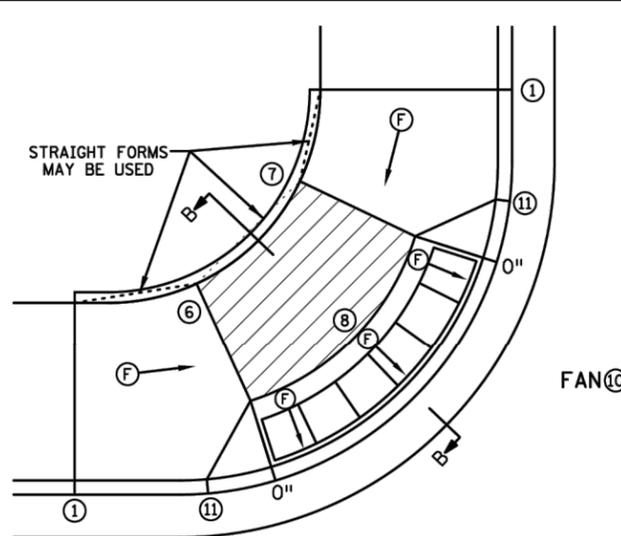
SECTION A-A PERPENDICULAR/TIERED/DIAGONAL



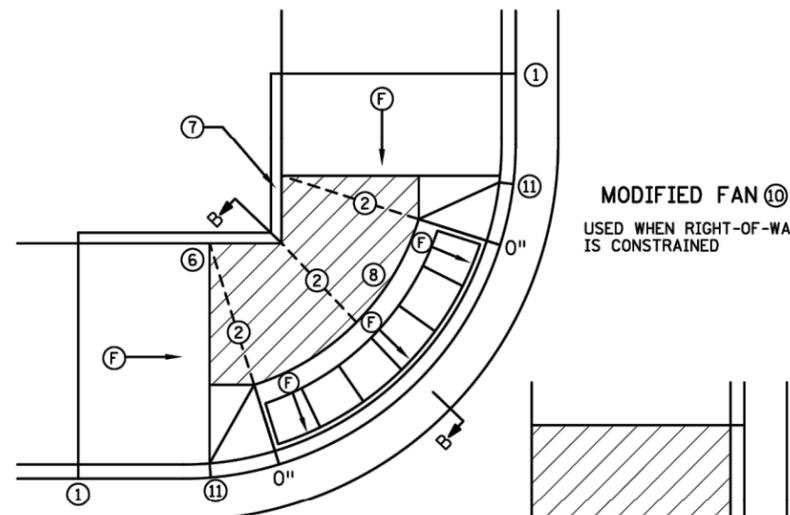
SECTION C-C PARALLEL/DEPRESSED CORNER



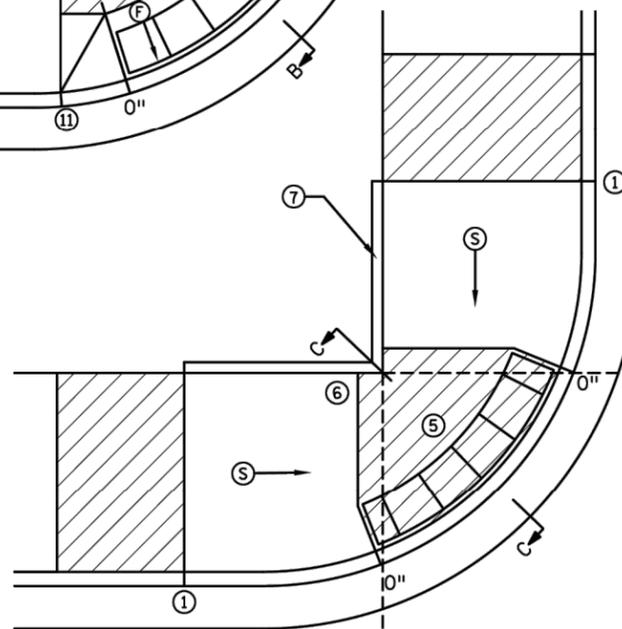
SECTION B-B FAN



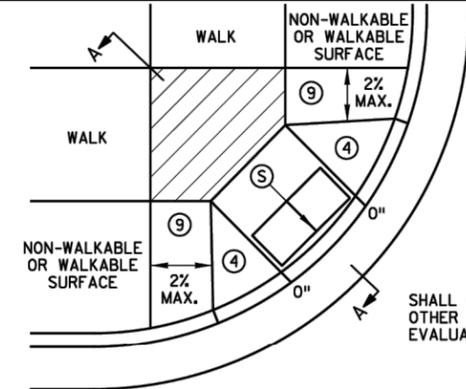
FAN 10



MODIFIED FAN 10 USED WHEN RIGHT-OF-WAY IS CONSTRAINED



DEPRESSED CORNER



DIAGONAL

SHALL ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%. INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%. SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%. CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN 6) BELOW.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 OF 6 FOR ALL SEPARATELY POURED INITIAL LANDINGS.

WHEN SIDEWALK IS AT BACK OF CURB, TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE. MAINTAIN POSITIVE BOULEVARD DRAINAGE TO TOP OF CURB.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB, RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

- 1 MATCH FULL HEIGHT CURB.
- 2 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
- 3 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
- 4 SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
- 5 DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
- 6 THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
- 7 WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS LESS THAN 5% RUNNING SLOPE SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- 8 A 7' MIN TOP RADIUS GRADE BREAK IS REQUIRED TO BE CONSTRUCTIBLE.
- 9 PAVE FULL WALK WIDTH.
- 10 "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.
- 11 INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3" CURB HEIGHT. REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

S INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

F INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

X" CURB HEIGHT

REVISION:
APPROVED: 11-04-2021
<i>Jeffrey Perkins</i>
JEFFREY PERKINS
OPERATIONS DIVISION

	STANDARD PLAN 5-297.250	1 OF 6
	APPROVED: 11-04-2021	REVISOR:
DESIGNED: BJJ/JLW	NO. ISSUED FOR:	DATE
DRAWN: JLW/JAA	BID	02/12/2024
CHECKED: BJJ		
CLIENT PROJ. NO. 0T1.130168		

PEDESTRIAN CURB RAMP DETAILS

(TH ) SHEET NO. OF SHEETS

ARDEN HILLS, MINNESOTA

2024 PMP STREET & UTILITY IMPROVEMENTS

STANDARD PLANS

SHEET

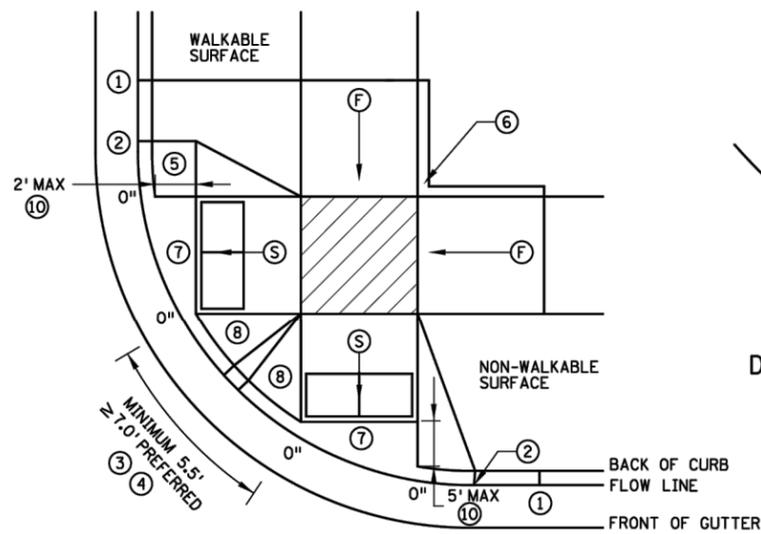
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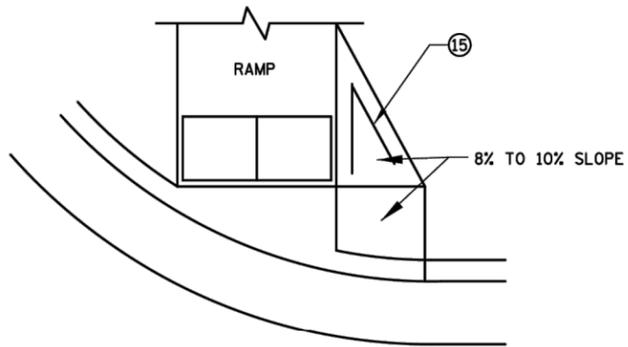
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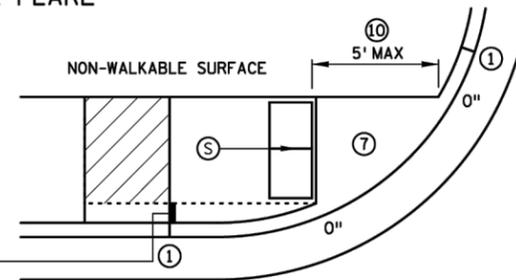


COMBINED DIRECTIONAL

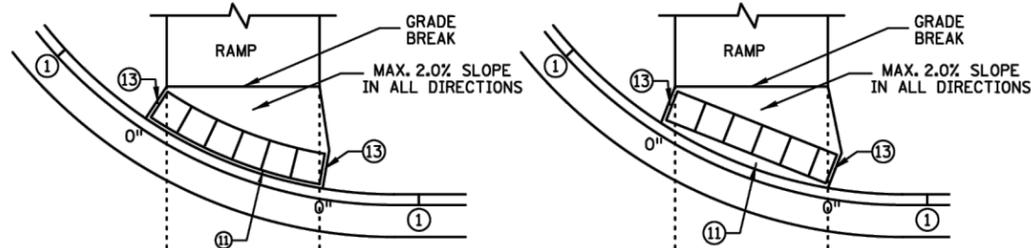


DIRECTIONAL RAMP WALKABLE FLARE

IF NON-CONCRETE BLVD. IS CONSTRUCTED AND IS LESS THAN 2' IN WIDTH AT TOP OF CURB TRANSITION, PAVE CONCRETE RAMP WIDTH TO ADJACENT BACK OF CURB.

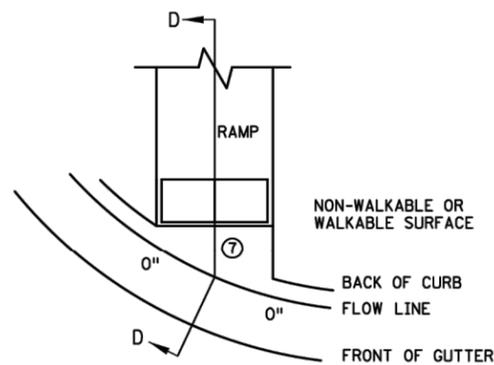


STANDARD ONE-WAY DIRECTIONAL ⑨

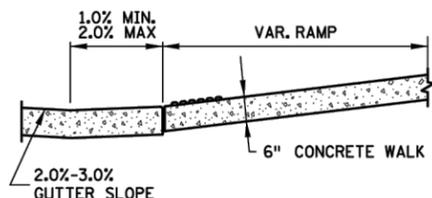


DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫

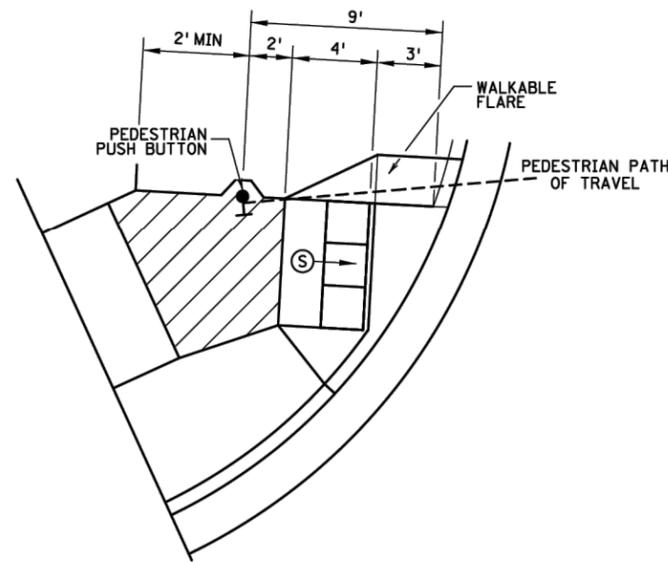
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



SEMI-DIRECTIONAL RAMP ③④⑨

3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB  
 PRIMARILY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY, FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO CURB. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

- ① MATCH FULL CURB HEIGHT.
- ② 3" HIGH CURB WHEN USING A 3' LONG RAMP  
4" HIGH CURB WHEN USING A 4' LONG RAMP.
- ③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)  
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).
- ④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.
- ⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHALL BE USED. SEE THE DETAIL ON THIS SHEET.
- ⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- ⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
- ⑧ 8% TO 10% WALKABLE FLARE.
- ⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
- ⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- ⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
- ⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.
- ⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.
- ⑮ PLACE 2 NO. 4 BARS 4 INCHES FROM SIDE OF FORMS WITH A MINIMUM 2 INCHES OF CONCRETE COVER ALONG EACH SIDE OF FLARE (INCIDENTAL).

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

- Ⓢ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- Ⓣ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- ▨ LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
- X" CURB HEIGHT

REVISIONS:
APPROVED: 11-04-2021
<i>Jeffrey Perkins</i>
JEFFREY PERKINS OPERATIONS DIVISION

	STANDARD PLAN 5-297.250	2 OF 6
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	APPROVED: 11-04-2021	
THOMAS STYRBICKI STATE DESIGN ENGINEER	REVISOR:	
STATE PROJ. NO.	(T.H. )	SHEET NO. OF SHEETS

PEDESTRIAN CURB RAMP DETAILS

ARDEN HILLS, MINNESOTA

2024 PMP STREET & UTILITY IMPROVEMENTS

STANDARD PLANS

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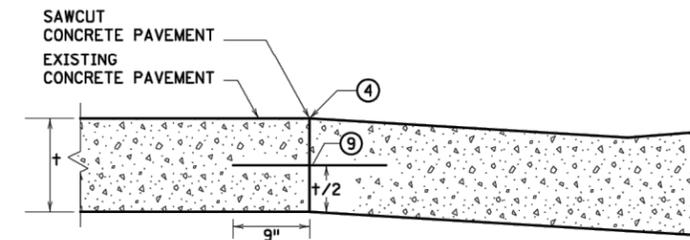
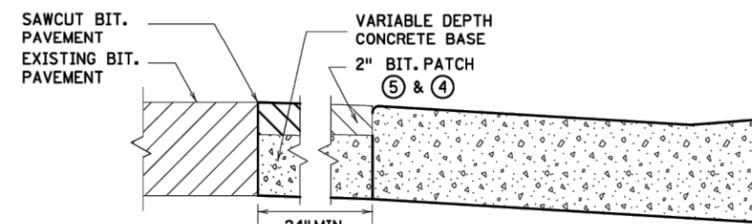
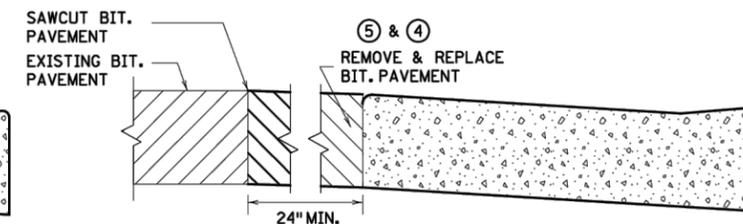
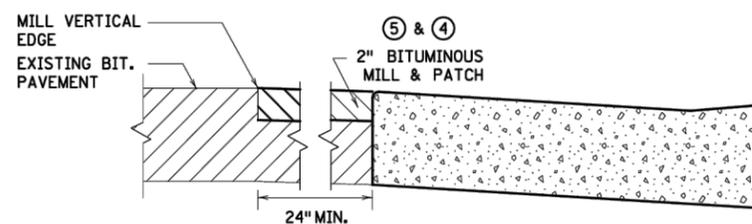
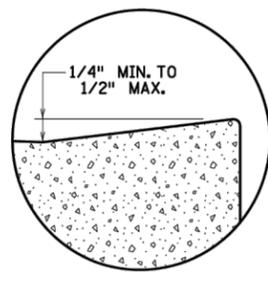
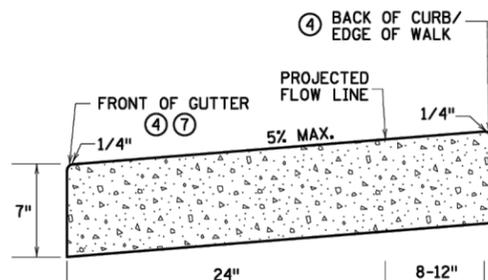
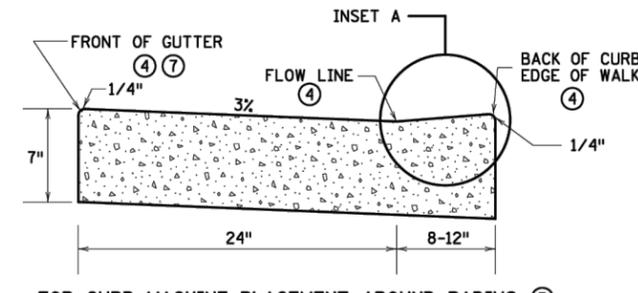
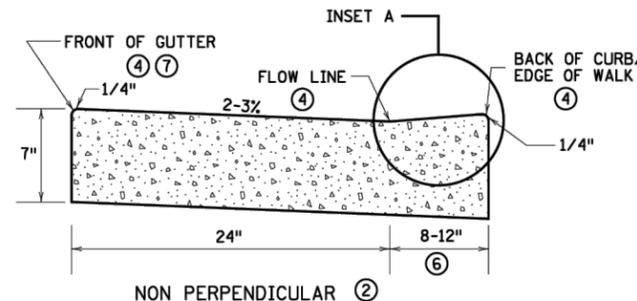
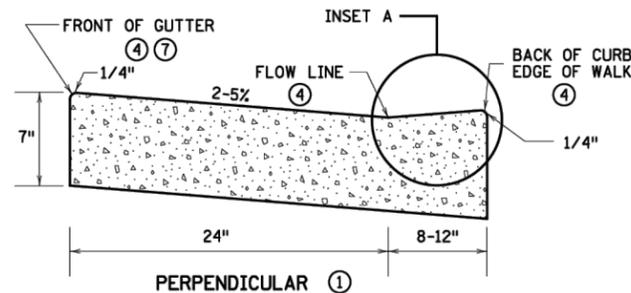
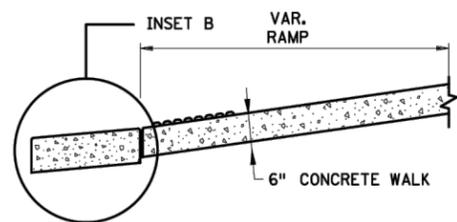
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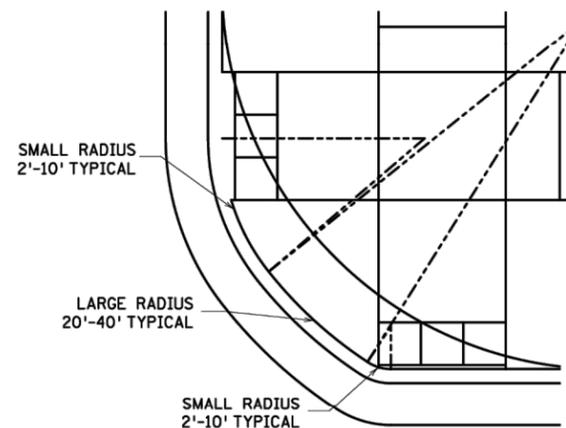
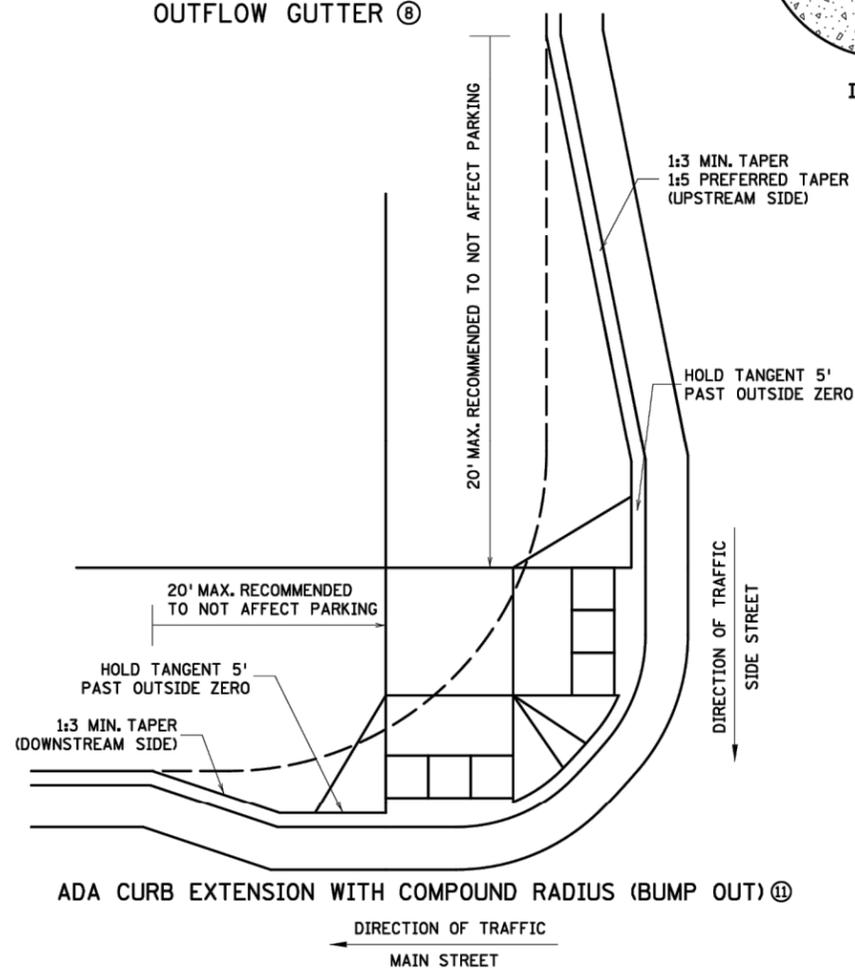


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ONLY ALLOWED PER ENGINEER'S APPROVAL

PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER  
FOR USE ON CURB RAMP RETROFITS



NOTES:

- POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM. NO PONDING SHALL BE PRESENT IN THE PAR.
- ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.
- ① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.
- ② FOR USE AT CURB RAMPS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.
- ③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMPS.
- ④ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".
- ⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.
- ⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.
- ⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.
- ⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.
- ⑨ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1" MINIMUM FROM ALL JOINTS.
- ⑩ HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.
- ⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.

REVISIONS:
APPROVED: 11-04-2021
<i>Jeffrey Perkins</i>
JEFFREY PERKINS OPERATIONS DIVISION

	STANDARD PLAN 5-297.250	3 OF 6
	APPROVED: 11-04-2021 REVISOR:	
THOMAS STYBRICKI STATE DESIGN ENGINEER	STATE PROJ. NO.	(TH ) SHEET NO. OF SHEETS

PEDESTRIAN CURB RAMP DETAILS

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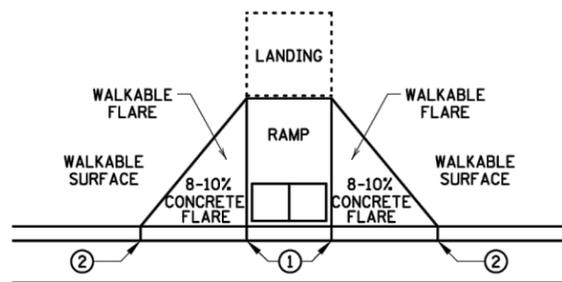
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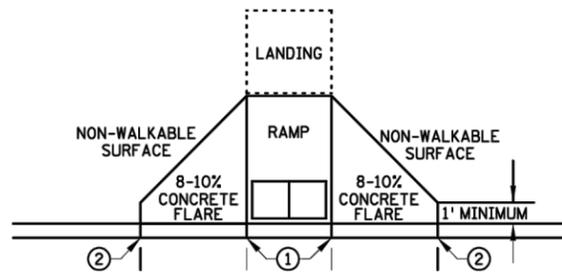
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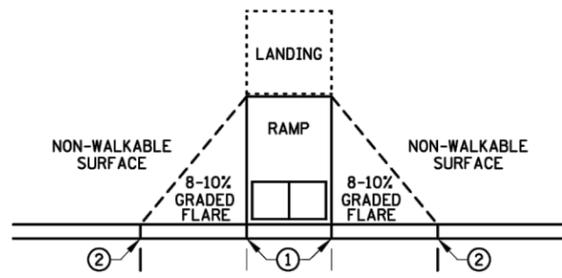
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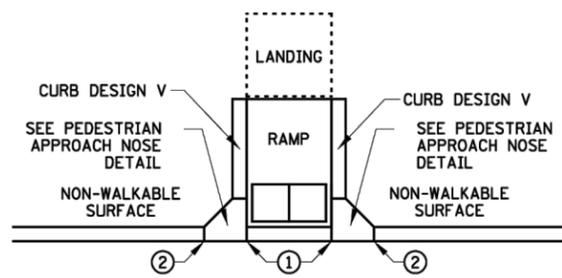
PAVED FLARES  
ADJACENT TO WALKABLE SURFACE



PAVED FLARES  
ADJACENT TO NON-WALKABLE SURFACE

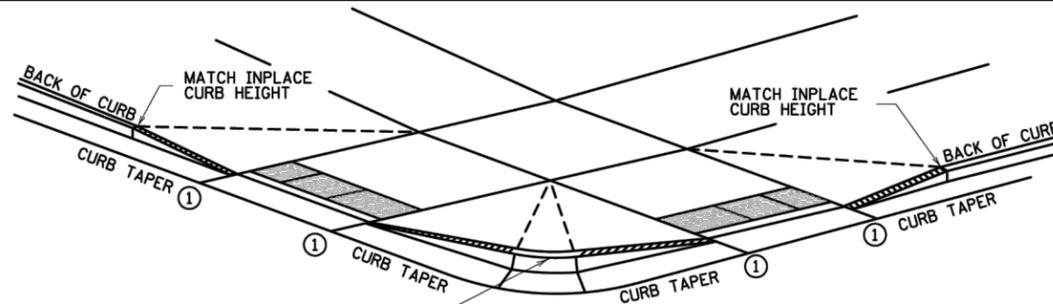


GRADED FLARES



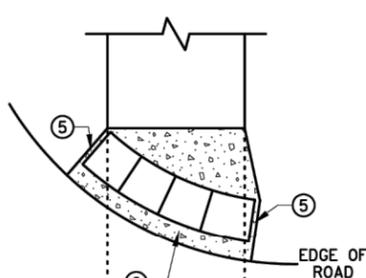
RETURNED CURB ④

TYPICAL SIDE TREATMENT OPTIONS ③ ⑩

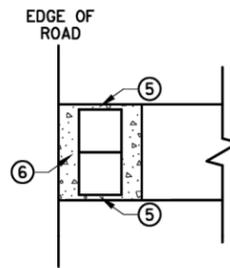


3" MINIMUM CURB HEIGHT, 4" PREFERRED  
(MEASURED AT FRONT FACE OF CURB)  
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH CURB AND GUTTER ⑦

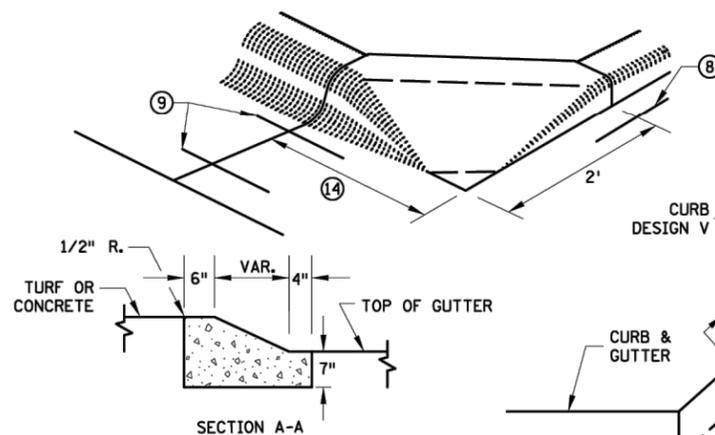


RADIAL DETECTABLE WARNING

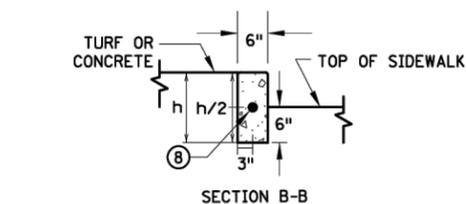


RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

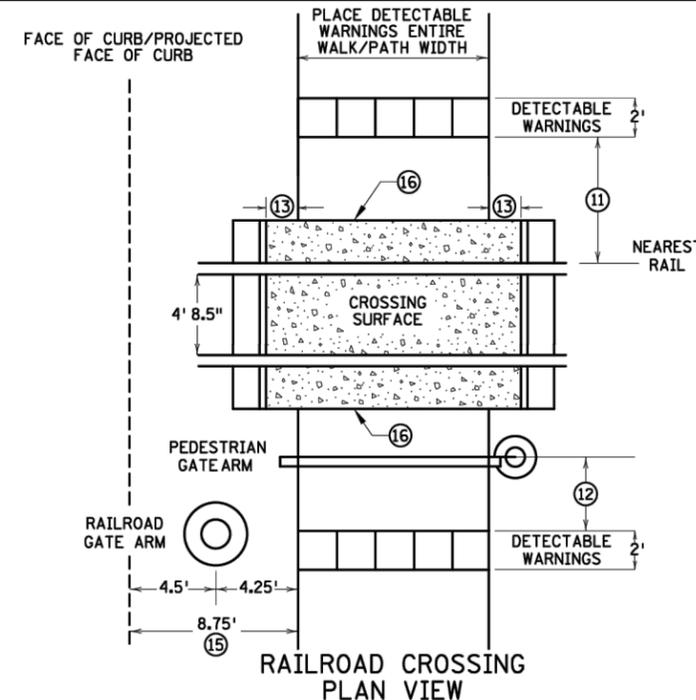


SECTION A-A



SECTION B-B

PEDESTRIAN APPROACH NOSE DETAIL  
(FOR RETURNED CURB SIDE TREATMENT)



RAILROAD CROSSING PLAN VIEW

NOTES:

- INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3 INCH CURB HEIGHT. INCREASE CURB TAPER LENGTH AT LESS THAN 8% OR REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.
- SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.
- A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.
- ① 0" CURB HEIGHT. SEE INSET A ON SHEET 3 OF 6.
- ② FULL CURB HEIGHT.
- ③ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
- ④ TYPICALLY USED FOR MEDIANS AND ISLANDS.
- ⑤ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑥ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.
- ⑦ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS, AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.
- ⑧ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.
- ⑨ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.
- ⑩ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6" LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE. CONSTRUCT THESE TAPERS AT 0"-3" AT 8-10%, THEN LESS THAN 5% FROM 3" CURB TO FULL CURB HEIGHT.
- ⑪ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.
- ⑫ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑪.
- ⑬ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.
- ⑭ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.
- ⑮ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.
- ⑯ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.

REVISIONS:
APPROVED: 11-04-2021
<i>Jeffrey Perkins</i>
JEFFREY PERKINS OPERATIONS DIVISION

	STANDARD PLAN 5-297.250	4 OF 6
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PEDESTRIAN CURB RAMP DETAILS

(TH ) SHEET NO. OF SHEETS

ARDEN HILLS, MINNESOTA

2024 PMP STREET & UTILITY IMPROVEMENTS

STANDARD PLANS

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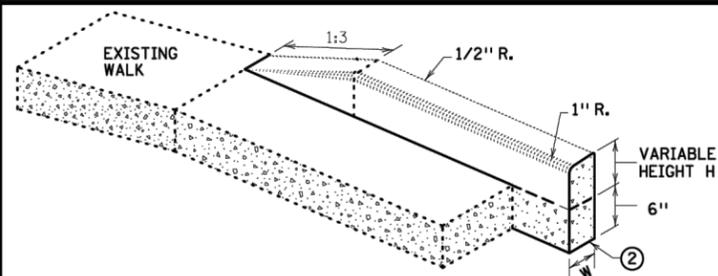
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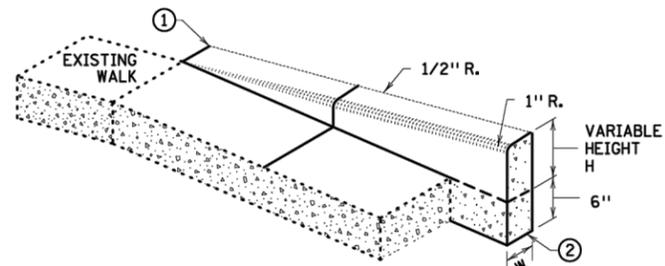
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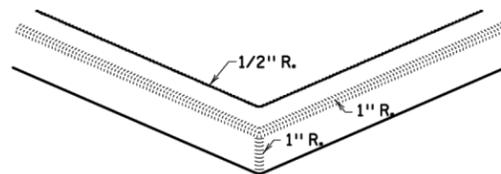
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V CURB ADJACENT TO LANDSCAPE  
CURB WITHIN SIDEWALK LIMITS

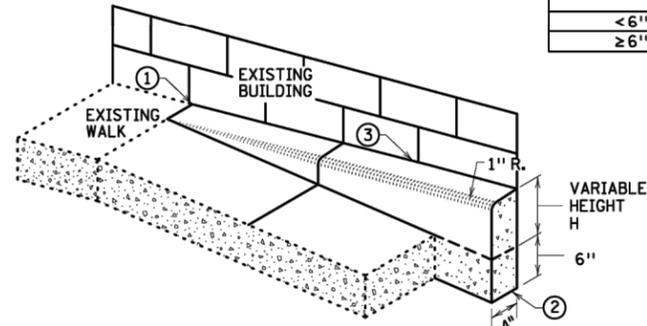


V CURB ADJACENT TO LANDSCAPE  
CURB OUTSIDE SIDEWALK LIMITS

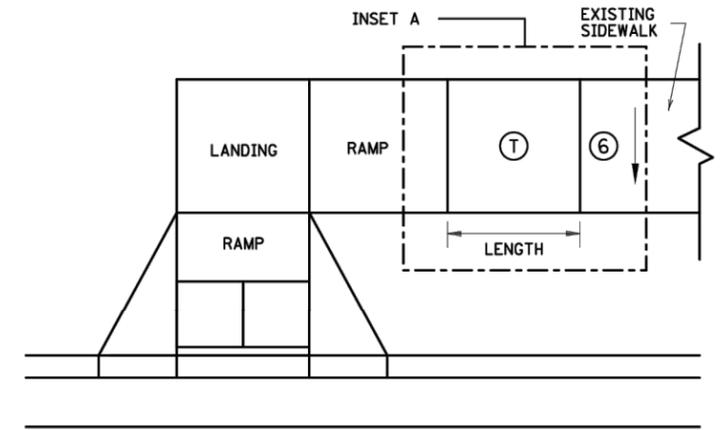


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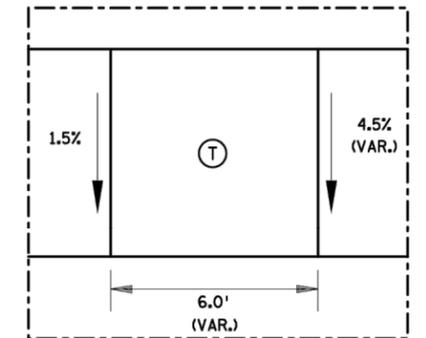
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



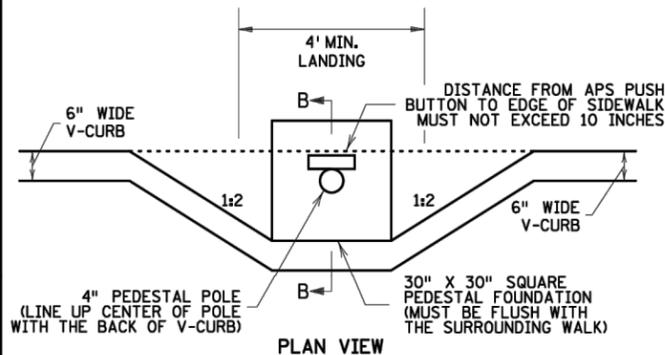
V CURB ADJACENT TO BUILDING  
OR BARRIER



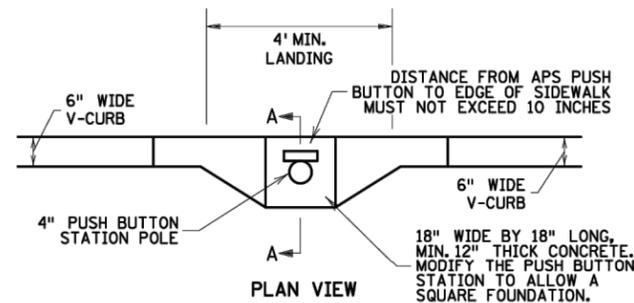
TRANSITION PANEL ④ ⑤



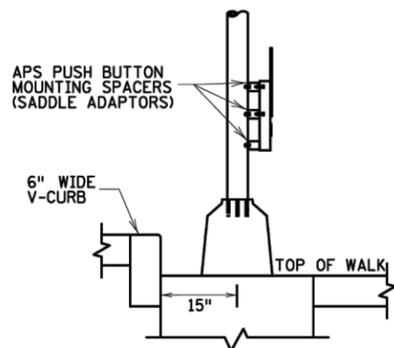
INSET A



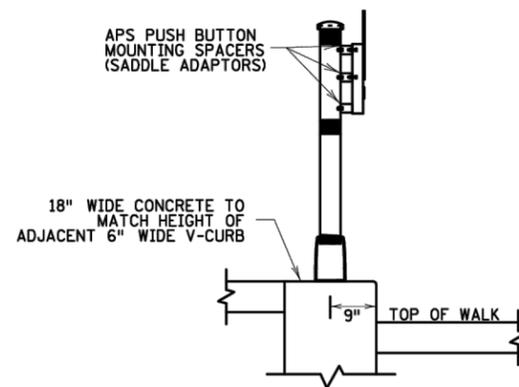
SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



PUSH BUTTON STATION (V-CURB)



SECTION B-B



SECTION A-A

NOTES:

- A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.
- ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.
- WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.
- V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ CONSTRUCT USING APPROVED EXPANSION MATERIAL PER MNDOT TYPE A-E EXPANSION. LEAVE A MINIMUM 1/2" TOP GAP AND SEAL WITH MNDOT APPROVED SILICONE PER MNDOT SPEC 3722.
- ④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.
- ⑤ TRANSITION PANEL(S) ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).
- ⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

- THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT, IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.
- ⑤ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- ④ LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
- ① TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

REVISION:  
APPROVED: 11-04-2021  
*Jeffrey Perkins*  
JEFFREY PERKINS  
OPERATIONS DIVISION

**m**  
MINNESOTA  
DEPARTMENT  
OF  
TRANSPORTATION

STANDARD PLAN 5-297.250 5 OF 6

APPROVED: 11-04-2021  
REVISED:

STATE PROJ. NO.

PEDESTRIAN CURB RAMP DETAILS

(TH ) SHEET NO. OF SHEETS



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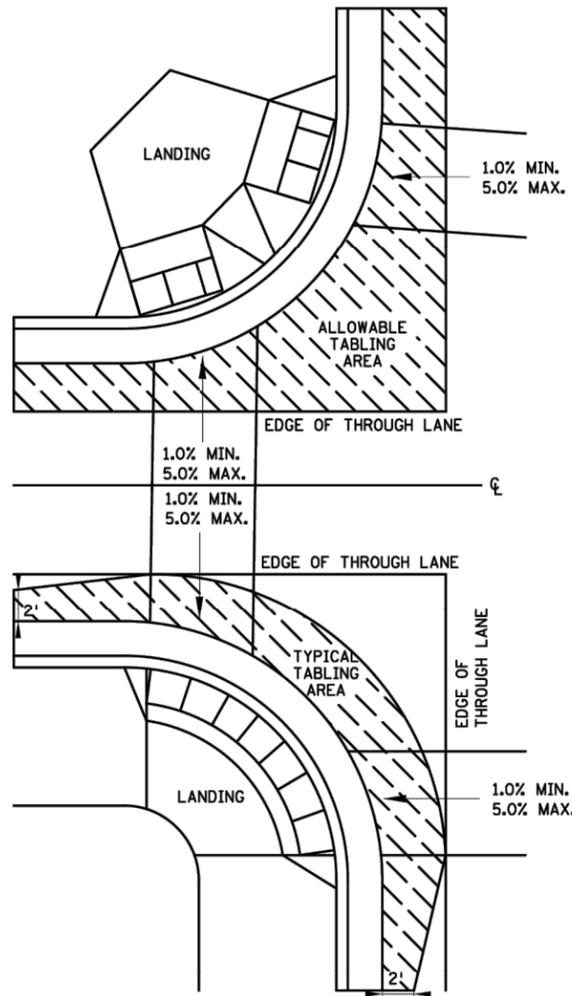
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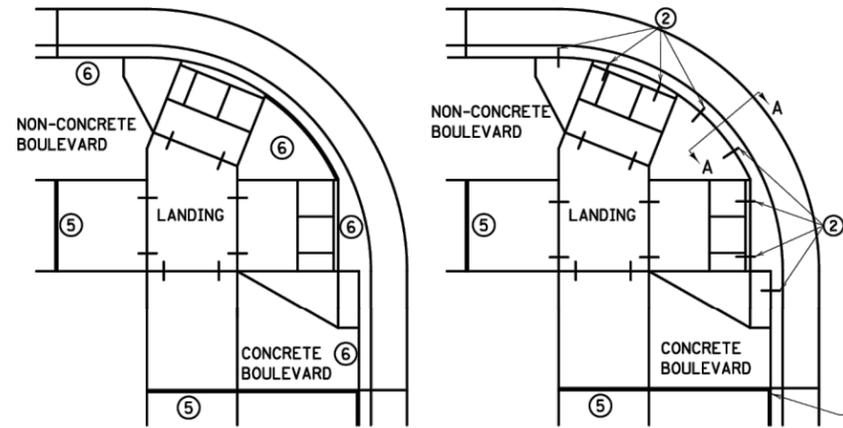
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SHEET

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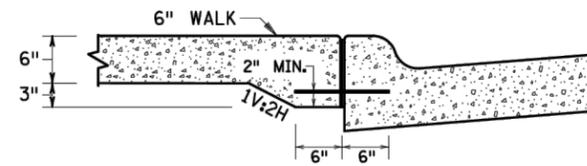


CURB LINE AND ROAD CROSSING ADJUSTMENTS

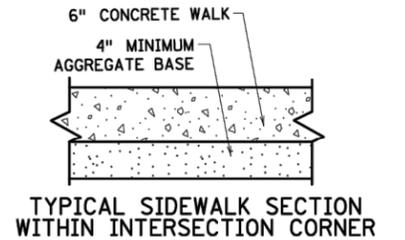


EXPANSION MATERIAL PLACEMENT FOR CONCRETE ROADWAYS

CURB LINE REINFORCEMENT ④ PLACEMENT ON BITUMINOUS ROADWAYS



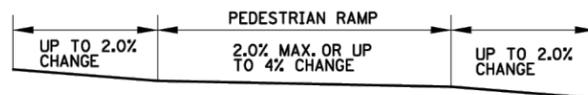
SECTION VIEW A-A THICKENED SECTION THROUGH CURB RAMP FLARES



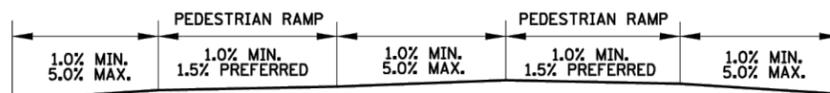
TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER



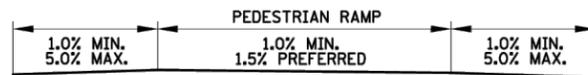
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



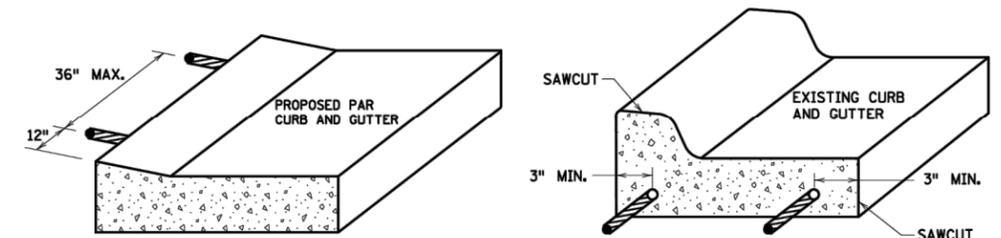
FLOW LINE PROFILE "TABLE" - FAN



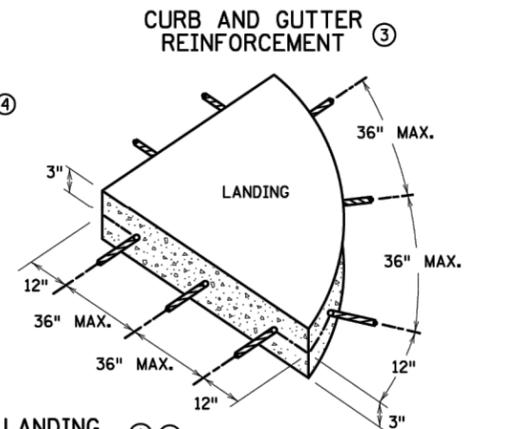
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS



FLOW LINE PROFILE RAISE - FAN



CURB RAMP REINFORCEMENT DETAILS ② ④



SEPARATE LANDING POUR REINFORCEMENT ① ②

GENERAL NOTES:

"TABLING" OF CROSSWALKS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A CROSSWALK, IS REQUIRED WHEN A ROADWAY IS IN A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.

RECONSTRUCTION PROJECTS: ON FULL PAVEMENT REPLACEMENT PROJECTS "TABLING" OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.

MILL & OVERLAY PROJECTS: "TABLING" OF FLOW LINES, IN FRONT OF THE PEDESTRIAN RAMP, IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. WARPING OF THE BITUMINOUS PAVEMENT CAN NOT EXTEND INTO THE THROUGH LANE. TABLE THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

- 1) 1.0% MIN. CROSS-SLOPE OF THE ROAD
- 2) 5.0% MAX. CROSS-SLOPE OF THE ROAD
- 3) "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
- 4) UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEYOND THE PEDESTRIAN CURB RAMP

STAND-ALONE ADA RETROFITS: FOLLOW MILL & OVERLAY CRITERIA ABOVE HOWEVER ALL PAVEMENT WARPING IS DONE WITH BITUMINOUS PATCHING ON BITUMINOUS ROADWAYS AND FULL-DEPTH APRON REPLACEMENT ON CONCRETE ROADWAYS.

RAISING OF CURB LINES SHOULD OCCUR IN VERTICALLY CONSTRAINED AREAS. RAISE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

- 1) 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
- 2) 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
- 3) 5.0% RECOMMENDED MAX. FLOW LINE
- 4) LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 15' HORIZONTAL

NOTES:

- ① TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.
- ② DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) AT 36" MAXIMUM CENTER TO CENTER MINIMUM 12" SPACING FROM CONSTRUCTION JOINTS. BARS TO BE ADJUSTED TO MATCH RAMP GRADE. BARS TO BE PAID BY EACH.
- ③ DRILL AND GROUT 2 - NO. 4 X 12" LONG (6" EMBEDDED) REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS. BARS TO BE PAID BY EACH.
- ④ THIS CURB LINE REINFORCEMENT DETAIL SHALL BE USED ON BITUMINOUS ROADWAYS. FOR CONCRETE ROADWAYS, SEE NOTE 6.
- ⑤ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.
- ⑥ USE AN APPROVED TYPE F (1/4 INCH THICK) SEPARATION MATERIAL. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.

REVISIONS:
APPROVED: 11-04-2021
<i>Jeff J. Perkins</i>
JEFFREY PERKINS OPERATIONS DIVISION

	STANDARD PLAN 5-297.250	6 OF 6
		APPROVED: 11-04-2021
THOMAS STRICK STATE DESIGN ENGINEER	STATE PROJ. NO.	(TH ) SHEET NO. OF SHEETS

PEDESTRIAN CURB RAMP DETAILS

(TH ) SHEET NO. OF SHEETS

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JLW/JAA			
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ARDEN HILLS, MINNESOTA

2024 PMP STREET & UTILITY IMPROVEMENTS

STANDARD PLANS

SHEET

C1.12

HWY 96 W

HWY 96 W



KEITHSON DR

KEITHSON DR

SNELLING AVEN N

SNELLING AVEN N

ROYAL HILL DR

ROYAL HILL DR

ARDEN VIEW DR

ARDEN VIEW DR

ARDEN VISTA CT

ARDEN VISTA CT

HWY 10

HWY 10

C2.11

C2.12

C2.07

C2.07

MCCLUNG DR

MCCLUNG DR

COLLEEN AVE

COLLEEN AVE

BRIARKNOLL DR

BRIARKNOLL DR

C2.06

C2.09

C2.08

C2.08

C2.09

C2.10

C2.05

C2.06

C2.06

C2.05

C2.06

NORMA AVE

C2.14

C2.15

C2.14

C2.14

C2.14

C2.14

JAMES AVE

JAMES AVE

INDIAN OAKS TR

INDIAN OAKS TR

ROYAL LN

ROYAL LN

C2.04

C2.04

FLORAL DR W

FLORAL DR W

HAMLIN AVE N

HAMLIN AVE N

STREET IMPROVEMENTS

TRAIL IMPROVEMENTS & POND DREDGING

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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.

*Bradley J. Fisher*  
BRADLEY J. FISHER  
LIC. NO. 56595 DATE 02/12/2024



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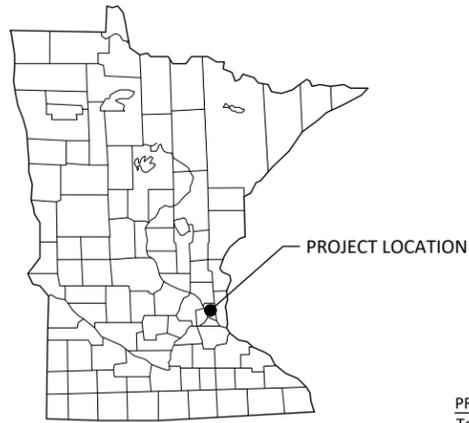
SWPPP INDEX

SHEET

C2.00

# STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

## PMP STREET & UTILITY IMPROVEMENTS - 2024 CITY OF ARDEN HILLS RAMSEY COUNTY, MINNESOTA



### LEGEND

- 1-MILE BOUNDARY
- PROJECT BOUNDARY
- OR IMPAIRED, SPECIAL OR PROTECTED WATERS
- NATIONAL WETLANDS INVENTORY
- CALCAREOUS FEN
- RECEIVING WATERS

#### PROJECT AREAS:

Total Project Size (disturbed area) =	9.2	ACRES
Existing area of impervious surface =	7.7	ACRES
Post construction area of impervious surface =	7.8	ACRES
Total new impervious surface area created =	0.1	ACRES

Planned Construction Start Date:	05/01/2024
Estimated Construction Completion Date:	11/30/2024

#### PERMANENT STORMWATER MANAGEMENT SYSTEM:

Type of storm water management used if more than 1 acre of new impervious surface is created:

	Wet Sedimentation Basin
	Infiltration/Filtration
	Regional Pond
x	Permanent Stormwater Management Not Required

Less than 1 Acre of impervious area created

#### PROJECT LOCATION:

COUNTY	TOWNSHIP	RANGE	SECTION	LATITUDE	LONGITUDE
Ramsey	30N	23W	22	45.06944°	-93.16422°

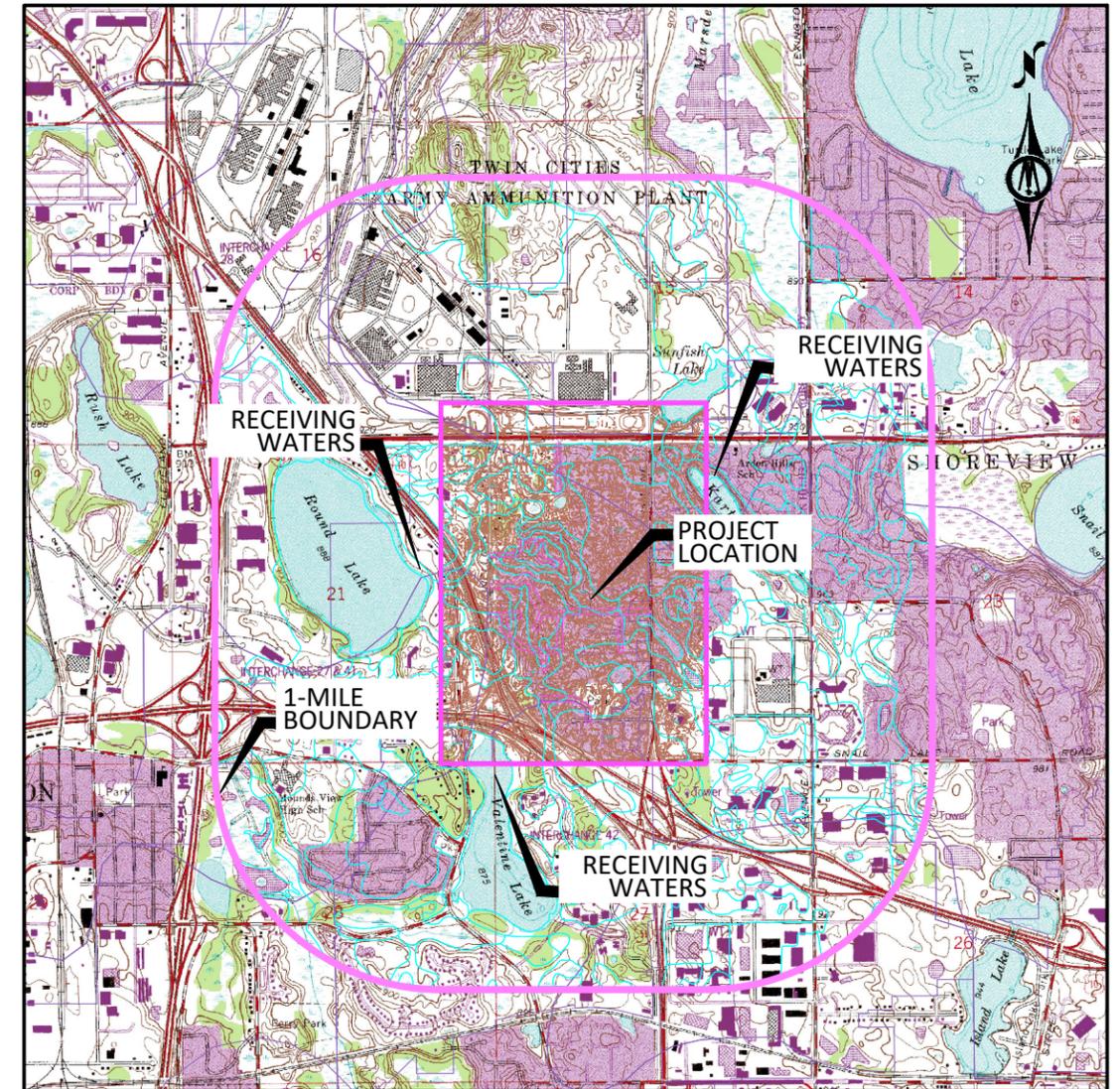
BMP SUMMARY	QUANTITY	UNIT
Stabilized Construction Exit	1	Lump Sum
Inlet Protection	67	Each
Turbidity Barrier	43	Lin FT
Silt Fence	6,006	Lin FT
Lawn Type Sod	195	SQ YD
Seed Mix 25-151	5,522	SQ YD
Bio-log Ditch Check	60	Lin FT
Seed Mix 32-241	596	SQ YD
Seed Mix 34-171	62	SQ YD
Rip Rap CL III	68	CU YD

#### DESCRIPTION OF CONSTRUCTION ACTIVITIES AND STORMWATER MANAGEMENT:

Construction activities include: Site grading, pond dredging, storm reconstruction, watermain reconstruction, mill & overlay, reclamation & overlay, temporary erosion and sediment control, and permanent stabilization.

Stormwater currently drains onsite through existing storm sewers. Reconstructed storm sewer will tie in to the system the same as existing conditions. Pond dredging access will be seeded and perimeter erosion control BMPs will be installed during construction. After construction is complete stormwater will maintain existing drainage patterns.

This project includes the following stormwater management BMPs : See table



RECEIVING WATERS: Receiving waters, including surface water, wetlands, Public Waters, and stormwater ponds, within 1-mile of the project boundary are identified on the USGS 7.5 min quad map above. Receiving waters that are impaired, the impairment, and WLA are listed as follows. All specific BMPs relative to construction activities listed in the permit for special, prohibited, restricted, or impaired have been incorporated into this plan. All specific BMPs listed in approved TMDLs and those BMPs listed for construction related waste load allocations have also been incorporated.

NAME OF WATER BODY	TYPE (ditch, pond, wetland, lake, etc.)	Special, Prohibited, Restricted Water <sup>1</sup>	Flows to Impaired Water Within 1-Mile <sup>2</sup>	USEPA Approved Construction Related TMDL <sup>3</sup>
ROUND LAKE	LAKE	NO	NO	NO
LAKE VALENTINE	LAKE	NO	YES	Cl-, Nutrients

<sup>1</sup> Special, prohibited, and restricted waters are listed in Section 23 of the MN Construction Stormwater General Permit (MNR100001).

<sup>2</sup> Identified as impaired under section 303 (d) of the federal Clean Water Act for phosphorus, turbidity, TSS, dissolved oxygen, and/or aquatic biota.

<sup>3</sup> Construction Related TMDLs include those related to: phosphorus, turbidity, TSS, dissolved oxygen, and/or aquatic biota.

IMPLEMENTATION SCHEDULE AND PHASING: The Contractor is required to provide an updated schedule and site management plan meeting the minimum requirements of Section 1717 of the Minnesota Standard Specifications for Construction.

- 1) Submit SWPPP Updates to Engineer. Submittal shall include any requested changes to the SWPPP, including but not limited to: Trained Personnel, Locations for Stockpiles, Concrete Washout, Sanitation Facilities, Types and Locations of Erosion & Sediment Control. Failure to submit updates shall be considered acceptance of the SWPPP as designed with no changes.
- 2) Install perimeter sediment control, inlet protection, and construction exit.
- 3) Water Main installation
- 4) Storm Sewer installation
- 5) Site Grading
- 6) Bituminous Reclamation/Paving
- 7) Road Signing and Striping
- 8) Add additional temporary BMPs as necessary during construction based on inspection reports.
- 9) Ensure final stabilization measures are complete.
- 10) Provide digital copy of all Field SWPPP Documentation including Inspection Reports and SWPPP Revisions to the Owner.
- 11) Submit Notice of Termination (NOT) to MPCA. NOTE: The NOT must be submitted to MPCA before Final Stabilization is considered complete.

#### RESPONSIBLE PARTIES:

The Contractor and Owner will be joint applicants under the MPCA's General Stormwater Permit for Construction Activity as required by the National Pollutant Discharge Elimination System (NPDES) Phase II program.

The Contractor shall provide one or more trained Construction SWPPP Manager(s) knowledgeable and experienced in the application of erosion prevention and sediment control BMPs that will oversee the implementation of the SWPPP, and the installation, inspection and maintenance of the erosion prevention and sediment control BMPs.

A Construction SWPPP Manager must be available for an on-site inspection within 72 hours upon request by the MPCA.

	COMPANY	CONTACT PERSON	PHONE
OWNER:	City of Arden Hills	David Swearingen	651-792-7847
SWPPP DESIGNER:	Bolton & Menk, Inc.	Miranda Etienne	952-890-0509
CONTRACTOR:	TBD	TBD	TBD
CONSTRUCTION SWPPP MANAGER:	TBD	TBD	TBD
PARTY RESPONSIBLE FOR LONG TERM O&M:	City of Arden Hills	David Swearingen	651-792-7847

The SWPPP Designer, Construction SWPPP Manager, and BMP Installer must have appropriate training. Documentation showing training commensurate with the job duties and responsibilities is required to be included in the SWPPP prior to any work beginning on the site. Training documentation for the SWPPP Designer is included on the Narrative sheet. The Contractor shall attach training documentation to this SWPPP for the Construction SWPPP Manager and BMP Installer prior to the start of construction. This information shall be kept up to date until the project NOT is filed.

#### ADDITIONAL COMPENSATION

Payment for all work associated with Erosion and Sediment Control shall be as described in the Project Manual. Unless otherwise authorized by the Owner no additional payment shall be made for any work required to administer and maintain the site erosion and sediment control in compliance with the Minnesota Pollution Control Agency (MPCA) - General Stormwater Permit for Construction Activity (MN R100001) including but not limited to inspection, maintenance, and removal of BMPs or addition of BMPs to accommodate Contractor phasing.

#### DOCUMENT RETENTION

Permittees must make the SWPPP, including all inspection reports, maintenance records, training records and other information required by this permit, available to federal, state, and local officials within three (3) days upon request for the duration of the permit and for three (3) years following the NOT.

#### GENERAL STORMWATER DISCHARGE REQUIREMENTS

All requirements listed in Section 5.1 of the Permit for the design of the permanent stormwater management system and discharge have been included in the preparation of this SWPPP. These include but are not limited to:

1. The expected amount, frequency, intensity, and duration of precipitation.
2. The nature of stormwater runoff and run-on at the site
3. Peak flow rates and stormwater volumes to minimize erosion at outlets and downstream channel and stream bank erosion.
4. The range of soil particle sizes expected to be present on the site.

Permanent stormwater treatment systems for this project have been designed in accordance with the guidance in the MN Stormwater Manual in place at the time of bidding. Copies of the design information and calculations are part of this SWPPP and will be provided in digital format upon written request to the Engineer.

#### PROJECT AREAS (PER RCWD DEFINITIONS):

Total Project Size (disturbed underlying soils area) =	0.8	ACRES
Existing area of impervious surface =	0.7	ACRES
Post construction area of impervious surface =	0.7	ACRES
Total new impervious surface area created =	0.0	ACRES

PER RICE CREEK WATERSHED DISTRICT RULES, STORMWATER MANAGEMENT IS REQUIRED ONLY FOR PUBLIC LINEAR PROJECTS RESULTING IN ONE ACRE OR MORE OF NEW OR RECONSTRUCTED IMPERVIOUS SURFACE. APPLICABLE EXCEPTIONS TO THIS THRESHOLD INCLUDE RECLAMATION/MILL & OVERLAY PROJECT AREAS THAT DO NOT EXPOSE THE UNDERLYING SOILS AND TRAILS 10 FEET WIDE OR LESS WITH 5 FEET OF VEGETATED AREA DOWN-GRADIENT. THE TOTAL DISTURBED UNDERLYING SOILS AREA ABOVE INCLUDES THE AREAS OF WATERMAIN & STORM SEWER UTILITY EXCAVATION AND THE ROYAL LANE PARKING EXPANSION EXCAVATION. ALL REMAINING AREAS ARE EXCLUDED AS THEY ARE EITHER WITHIN THE RECLAMATION/MILL AREA, INCLUDES A 5 FOOT VEGETATED AREA DOWN-GRADIENT FROM THE 10 FOOT WIDE TRAIL, OR THE WORK DOES NOT REQUIRE EXCAVATION/EXPOSURE OF UNDERLYING SOILS. THE DISTURBED UNDERLYING SOILS ARE LESS THAN 1 ACRE FOR THIS PUBLIC LINEAR PROJECT SO PERMANENT STORMWATER MANAGEMENT, AND A RCWD PERMIT ARE NOT REQUIRED.

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.

*Bradley J. Fisher*  
BRADLEY J. FISHER  
LIC. NO. 56595 DATE 02/12/2024



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ARDEN HILLS, MINNESOTA  
2024 PMP STREET & UTILITY IMPROVEMENTS  
STORMWATER POLLUTION PREVENTION PLAN  
SWPPP PLAN

SHEET

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Information contained in this SWPPP narrative sheet summarizes requirements of the GENERAL PERMIT AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM/STATE DISPOSAL SYSTEM PROGRAM - Permit No: MN R100001 (Permit) as they apply to this project. All provisions of the Permit including those not specifically cited herein shall apply to this project. The Contractor is responsible to be familiar with and comply with all conditions of the permit. The full text of the Permit is available at: <https://www.pca.state.mn.us/sites/default/files/wq-strm2-80a.pdf>

**SWPPP AMENDMENTS AND SUBMITTALS**

Contractor must prepare and submit to the Engineer a SWPPP amendment as necessary to include additional Best Management Practices (BMPs) to correct problems identified or address the following situations.

- Contact information and training documentation for Construction SWPPP Manager and BMP Installer,
- There is a change in construction method of phasing, operation, maintenance, weather or seasonal conditions not anticipated during the design of the SWPPP including but not limited to:
  - Types and/or Locations of BMPs
  - Material Storage and Spill Response
  - Fueling Plans
  - Locations for Stockpiles, Concrete Washout, and Sanitation Facilities and
  - Project Phasing
- It is determined that the SWPPP is not achieving objectives of minimizing pollutants in stormwater discharges associated with construction activity, or
- The SWPPP is not consistent with the terms and conditions of the permit.

The Contractor may implement SWPPP amendments immediately and is not required to wait for Engineer review of the submittal. The responsibility for completeness of SWPPP amendments and compliance with the Permit lies with the Contractor. Review, comment, or lack of comment by the Engineer on a SWPPP amendment shall not absolve the responsibilities of the Contractor in any way.

If a change order is issued for a design change the SWPPP amendment will be prepared by the Engineer and included in the change order.

In addition to SWPPP amendments, the Contractor shall submit to the Engineer Weekly Erosion and Sediment Control Schedule meeting the requirements of MnDOT 1717.

The Contractor shall keep copies of all SWPPP amendments, Weekly Erosion and Sediment Control Schedules, inspection logs, and maintenance logs with the field copy of the SWPPP. A PDF copy of these documents will be provided along with a copy of the final Field Copy of the SWPPP to the Engineer along with the signed Notice of Termination when final stabilization is complete.

**EROSION PREVENTION PRACTICES**

Stormwater conveyance channels shall be routed around unstabilized areas. Erosion controls and velocity dissipation devices shall be used at outlets within and along the length of any constructed conveyance channel.

The normal wetted perimeter of all ditches or swales, including storm water management pond slopes, that drain waters from the site must be stabilized within 200' of any property edge or discharge point, including storm sewer inlets, within 24 hours of connection.

Temporary or permanent ditches or swales used as sediment containment during construction do not need to be stabilized during temporary period of use and shall be stabilized within 24 hours after no longer used as sediment containment.

Mulch, hydromulch, tackifier, or similar practice shall not be used in any portion of the wetted perimeter of a temporary or permanent drainage ditch or swale section with a continuous slope of greater than 2 percent.

Energy dissipation shall be installed at all temporary or permanent pipe outlets within 24 hours of connection to a surface water or permanent stormwater treatment system.

The Contractor shall phase construction and use construction methods to the extent practical to minimize exposed soils. The project phasing shall be documented in the Weekly Erosion and Sediment Control Schedule.

**SEDIMENT CONTROL PRACTICES**

Down gradient BMPs including perimeter BMPs must be in place before up gradient land- disturbing activities begin and shall remain in place until final stabilization.

All BMPs that have been adjusted or removed to accommodate short-term activities shall be re-installed or replaced the earlier of the end of the work day or before the next precipitation event even if the activity is not complete.

Inlet BMPs may be removed for specific safety concerns. The BMPs shall be replaced as soon as the safety concern is resolved. The removal shall be documented in the SWPPP as a SWPPP amendment.

Temporary stockpiles must have sediment control BMPs. The Contractor shall prepare and submit to the Engineer a SWPPP amendment showing the location of temporary stockpiles and the BMPs for each stockpile. The SWPPP amendment must meet the minimum requirements of Section 9 of the Permit.

Soil compaction shall be minimized and topsoil shall be preserved, unless infeasible or if construction activities dictate soil compaction or topsoil stripping.

The use of polymers, flocculants, or other sedimentation treatment chemicals are not proposed as part of this SWPPP as designed by the Engineer. If methods or phasing of construction require the use of any of these chemicals, the Contractor shall prepare and submit to the Engineer a SWPPP amendment that meets the minimum requirements of Section 9 of the Permit.

**TEMPORARY SEDIMENTATION BASINS**

A temporary sedimentation basin has not been included in this SWPPP as designed by the Engineer. If a basin is later determined to be desirable or necessary the Contractor shall prepare and submit to the Engineer a SWPPP amendment. Temporary sedimentation basins shall meet or exceed the minimum requirements of Section 14 of the Permit and shall include a basin draining plan meeting or exceeding the minimum requirements of Section 10 of the Permit. Where the site discharges to Special and/or Impaired Waters the SWPPP amendment shall also meet or exceed the minimum requirements of Section 23 of the permit.

**DEWATERING**

A dewatering plan has not been included in this SWPPP as designed by the Engineer. If dewatering is required for this project, the Contractor shall prepare and submit to the Engineer a SWPPP amendment. All dewatering shall meet or exceed the minimum requirements of Section 10 of the Permit.

**POLLUTION PREVENTION**

Products and materials that have the potential to leach pollutants that are stored on the site must be stored in a manner designed to minimize contact with stormwater. Materials that are not a source of potential contamination to stormwater or that are designed for exposure to stormwater are not required to be covered.

Hazardous materials including but not limited to pesticides, fertilizer, petroleum products, curing compounds and toxic waste must be properly stored and protected from stormwater exposure as recommended by the manufacturer in an access restricted area.

Solid waste must be stored, collected and disposed of in compliance with Minnesota Administrative Rules Chapter 7035.

Portable toilets must be positioned so that they are secure and will not be tipped or knocked over. Sanitary waste must be disposed of properly in accordance with Minn. R. CH 7041.

Exterior vehicle or equipment washing on the project site shall be limited to a defined area of the site. No engine degreasing is allowed on site. A sign must be installed adjacent to each washout facility that requires site personnel to utilize the proper facilities for disposal of concrete and other washout wastes.

The Contractor shall prepare and submit a SWPPP amendment detailing the location and BMPs proposed for storage of materials, solid waste, portable toilets, and exterior vehicle or equipment washing on the site. The SWPPP amendment shall include a spill prevention and response plan that is appropriate for the materials proposed to be on the site. The SWPPP amendment shall meet or exceed the minimum requirements of Section 12 of the Permit.

**INSPECTION & MAINTENANCE**

A trained person shall routinely inspect the entire construction site at the time interval indicated on this sheet of the SWPPP during active construction and within 24-hours after a rainfall event greater than 0.5 inches in 24 hours. Following an inspection that occurs within 24-hours after a rainfall event, the next inspection must be conducted at the time interval indicated in the Receiving Waters Table found on the SITE PLAN AND INFORMATION SHEET of the SWPPP.

All inspections and maintenance conducted during construction must be recorded on the day it is completed and must be retained with the SWPPP. Inspection report forms are available in the Project Specifications. Inspection report forms other than those provided shall be approved by the engineer.

The Contractor may request a change in inspection schedule for the following conditions:

- Inspections of areas with permanent cover to be reduced to once per month,
- Inspections of areas that have permanent cover and have had no construction activity for 12 months to be suspended until construction resumes,
- Inspections of areas where construction is suspended due to frozen ground conditions, inspections to be suspended until the earlier of within 24 hours of runoff occurring, or upon resuming construction.

No change in inspection schedule shall occur until authorized by the Engineer.

Inspections must include:

- All erosion prevention and sediment control BMPs and Pollution Prevention Management Measures to ensure integrity and effectiveness.
- Surface waters, including drainage ditches and conveyance systems for evidence of erosion and sediment deposition.
- 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.
- Infiltration areas to ensure that no sediment from ongoing construction activity is reaching the infiltration area and that equipment is not being driven across the infiltration area.

All non-functioning BMPs and those BMPs where sediment reaches one-half (1/2) of the depth of the BMP, or in the case of sediment basins one-half (1/2) of the storage volume, must be repaired, replaced, or supplemented by the end of the next business day after discovery, or as soon as field conditions allow.

Permittees must repair, replace or supplement all nonfunctional BMPs with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow.

Any sediment that escapes the site must be removed and the area stabilized within 7 calendar days of discovery unless precluded by legal, regulatory, or physical access in which case the work shall be completed within 7 calendar days of authorization. Paved surfaces such as streets shall have any escaped or tracked sediment removed by the end of the day that it is discovered. Sediment release, other than paved surfaces that can be cleaned up with street sweeping shall be reported immediately upon discovery to the Engineer.

**PUBLIC WATER RESTRICTIONS:**

For public waters that have been promulgated "work in water restrictions" during fish spawning time frames, all exposed soil areas that are within 200 feet of the water's edge, and drain to these waters must complete stabilization within 24-hours during the time period. MN DNR permits are not valid for work in waters that are designated as infested waters unless accompanied by an Infested Waters Permit or written notification has been obtained from MN DNR stating that such permit is not required. There is no exception for pre-existing permits. If a MN DNR Permit has been issued for the project and the water is later designated as infested, the Contractor shall halt all work covered by the MN DNR Permit until an Infested Waters Permit is obtained or that written notification is obtained stating that such permit is not required.

**FINAL STABILIZATION**

Final Stabilization is not complete until all the following requirements have been met:

- Substantial Completion has been reached and no ground disturbing activities are anticipated.
- Permanent cover has been installed with an established minimum uniform perennial vegetation density of 70 percent of its expected final growth. Vegetation is not required in areas where no vegetation is proposed by this project such as impervious surfaces or the base of a sand filter.

- Accumulated sediment has been removed from all permanent stormwater treatment systems as necessary to ensure the system is operating as designed.
- All sediment has been removed from conveyance systems
- All temporary synthetic erosion prevention and sediment control BMPs have been removed. BMPs designated on the SWPPP to remain to decompose on-site may remain.
- 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.
- For agricultural land only (e.g., pipelines across cropland), the disturbed land must be returned to its preconstruction agricultural use prior to submitting the NOT.

**SITE STABILIZATION COMPLETION:**

Stabilization of exposed soils shall begin immediately and shall be completed after the construction activity has temporarily or permanently ceased no later than:	7 calendar days
--	-----------------

**SITE INSPECTION INTERVAL:**

A trained person shall routinely inspect the entire construction site during active construction at an interval of no more than:	7 calendar days
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**SPECIAL ENVIRONMENTAL CONSIDERATIONS AND PERMITS:**

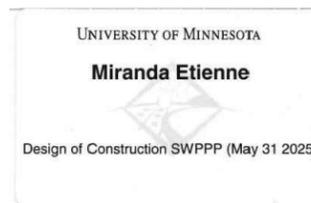
1) Was an environmental review required for this project or any part of a common plan of development or sale that includes all or any portion of this project?	NO
2) Does any portion of the site have the potential to affect threatened or endangered species or their critical habitat?	NO
3) Does any portion of this site discharge to a Calcareous fen.	NO
4) Will any portion of the site potentially affect properties listed on the National Register of Historic Places or a known or discovered archeological site?	NO
5) Have any Karst features been identified in the project vicinity?	NO
6) Is compliance with temporary or permanent stormwater management design requirements infeasible for this project?	NO
7) Has the MN DNR promulgated "work in water restrictions" for any Public Water this site discharges to during fish spawning?	NO

TYPE OF PERMIT	PERMITTING AGENCY	PERMIT STATUS AND CONDITIONS
Construction Stormwater NPDES	MPCA	To be applied for
CWA 404	USAC	To be applied for
WCA	MBSWR	To be applied for
EROSION & SEDIMENT CONTROL	RCWD	To be applied for

**ENDANGERED ANIMAL CONSIDERATION:**

ENDANGERED ANIMAL	REQUIREMENT	TIMELINE
Blandings Turtle	Avoid aquatic impact during hibernation season	October 15 - April 15
Blandings Turtle	Install silt fence along entire length of wetland	During Construction

**SWPPP DESIGNER TRAINING DOCUMENTATION:**



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*Bradley J. Fisher*  
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 STORMWATER POLLUTION PREVENTION PLAN  
 SWPPP NARRATIVE

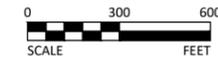
SHEET

C2.02



**LEGEND**

-  PROJECT BOUNDARY
-  SOIL TYPE
-  IMPAIRED, SPECIAL OR PROTECTED WATERS
-  NATIONAL WETLANDS INVENTORY
-  DWSMA, LOW VULNERABILITY
-  STEEP SLOPES (>33.3%)
-  RECEIVING WATERS



**SOIL TYPE SUMMARY**

Map Unit Symbol	Soil Name	Hyd. Soil Group	Erodibility
1039	Urban Land	N/A	N/A
1055	Aquolls and histosols, ponded	A/D	N/A
123	Dundas fine sandy loam	B/D	N/A
132B	Hayden fine sandy loam, 2 to 6 percent slopes	B	NHEL
132C	Hayden fine sandy loam, 6 to 12 percent slopes	B	PHEL
132D	Hayden fine sandy loam, 12 to 25 percent slopes	B	HEL
225	Nessel fine sandy loam, 1 to 4 percent slopes	C	NHEL
540	Seelyville muck	A/D	N/A
75	Bluffton loam	C/D	N/A
859B	Urban land-Zimmerman complex, 1 to 8 percent slopes	A	PHEL
860C	Urban land-Hayden-Kingsley complex, 3 to 15 percent slopes	C	PHEL
862	Urban land-Dundas complex, 1 to 4 percent slopes	B/D	NHEL
W	Water	N/A	N/A

NHEL - Not Highly Erodible Land  
 PHEL - Potentially Highly Erodible Land  
 HEL - Highly Erodible Land

**LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN**

DESCRIPTION	SHEET NO.
SITE MAP	C2.01
DIRECTION OF FLOW	C2.01
FINAL STABILIZATION	C2.01
SOILS	C2.03
DRAINAGE STRUCTURES	C1.01
DRAINAGE TABULATION	G1.01
STORM SEWER PLAN & PROFILE SHEETS	C5.01 - C5.02
EROSION & SEDIMENT CONTROL DETAILS	C2.04
EROSION CONTROL TABULATION	C2.01
TURF ESTABLISHMENT TABULATION	C2.01
NARRATIVE & NOTES	C2.01 - C2.02

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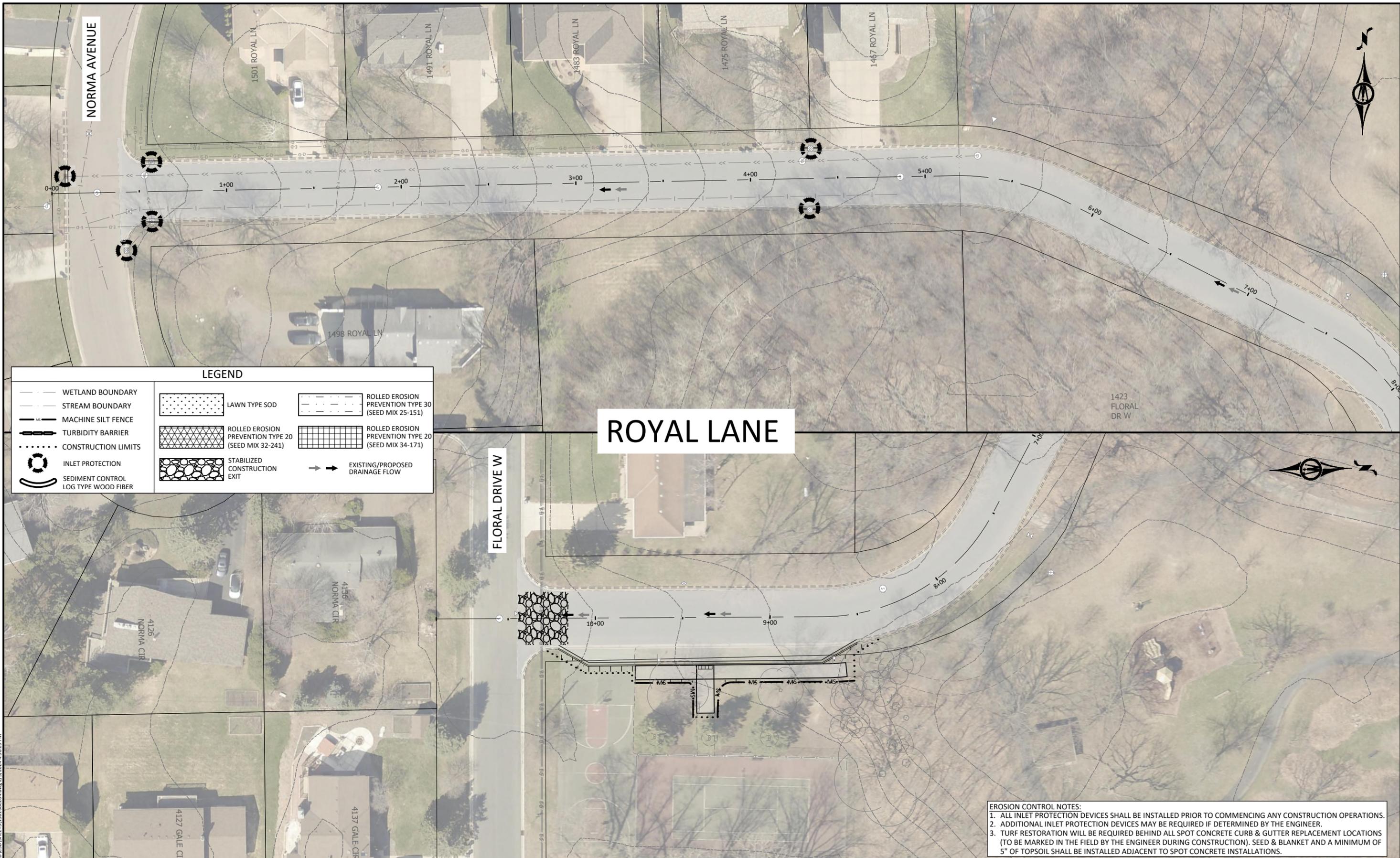
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 STORMWATER POLLUTION PREVENTION PLAN  
 SWPPP SOILS

SHEET  
**C2.03**



**LEGEND**

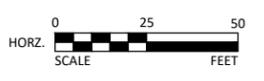
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	STREAM BOUNDARY		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 32-241)		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 34-171)
	MACHINE SILT FENCE		STABILIZED CONSTRUCTION EXIT		EXISTING/PROPOSED DRAINAGE FLOW
	TURBIDITY BARRIER				
	CONSTRUCTION LIMITS				
	INLET PROTECTION				
	SEDIMENT CONTROL LOG TYPE WOOD FIBER				

# ROYAL LANE

**EROSION CONTROL NOTES:**

1. ALL INLET PROTECTION DEVICES SHALL BE INSTALLED PRIOR TO COMMENCING ANY CONSTRUCTION OPERATIONS.
2. ADDITIONAL INLET PROTECTION DEVICES MAY BE REQUIRED IF DETERMINED BY THE ENGINEER.
3. TURF RESTORATION WILL BE REQUIRED BEHIND ALL SPOT CONCRETE CURB & GUTTER REPLACEMENT LOCATIONS (TO BE MARKED IN THE FIELD BY THE ENGINEER DURING CONSTRUCTION). SEED & BLANKET AND A MINIMUM OF 5" OF TOPSOIL SHALL BE INSTALLED ADJACENT TO SPOT CONCRETE INSTALLATIONS.

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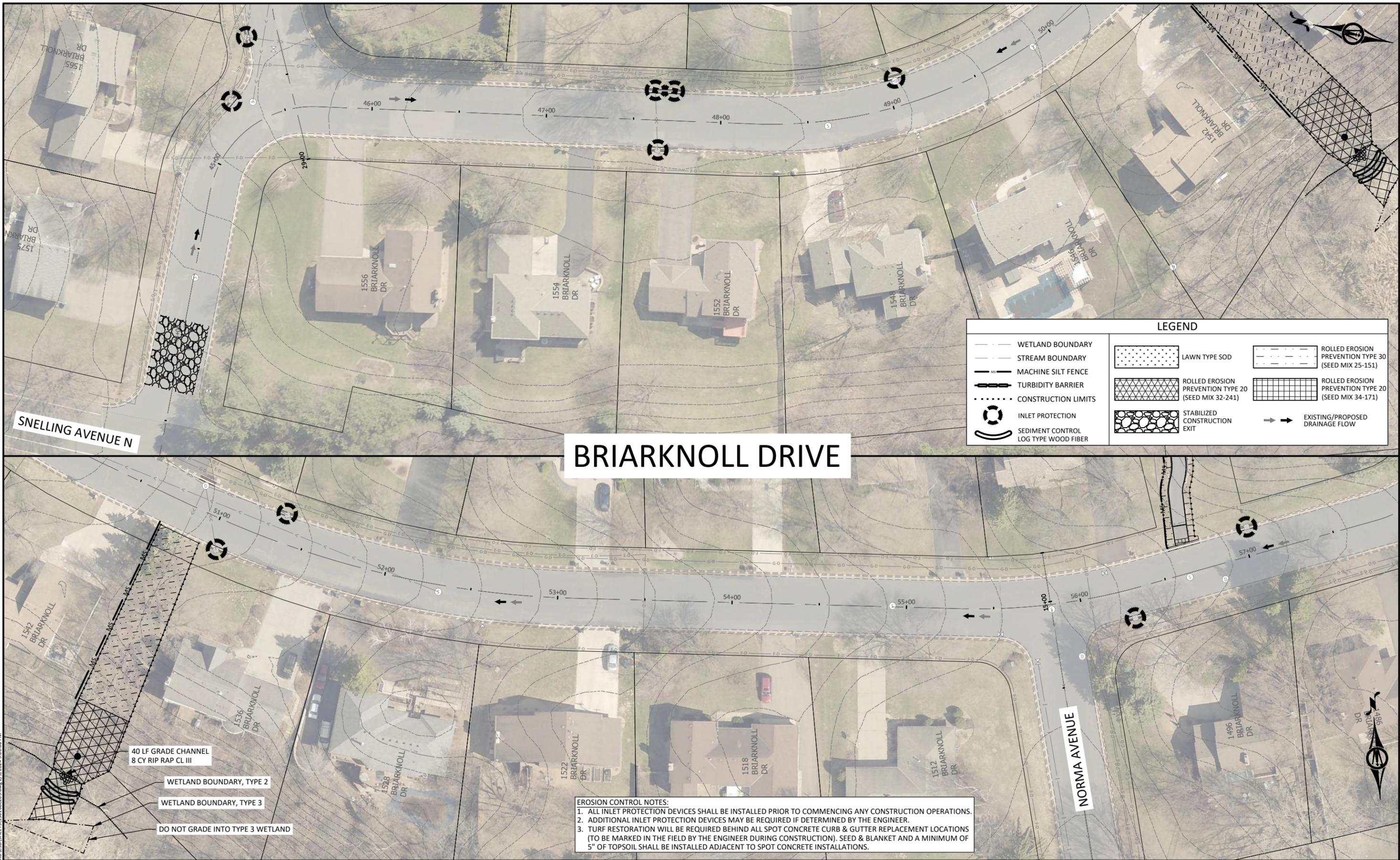
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 EROSION CONTROL PLAN  
 ROYAL LANE

SHEET  
**C2.04**



# BRIARKNOLL DRIVE

LEGEND			
	WETLAND BOUNDARY		LAWN TYPE SOD
	STREAM BOUNDARY		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 32-241)
	MACHINE SILT FENCE		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 34-171)
	TURBIDITY BARRIER		STABILIZED CONSTRUCTION EXIT
	CONSTRUCTION LIMITS		EXISTING/PROPOSED DRAINAGE FLOW
	INLET PROTECTION		
	SEDIMENT CONTROL LOG TYPE WOOD FIBER		

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40 LF GRADE CHANNEL  
8 CY RIP RAP CL III

WETLAND BOUNDARY, TYPE 2

WETLAND BOUNDARY, TYPE 3

DO NOT GRADE INTO TYPE 3 WETLAND

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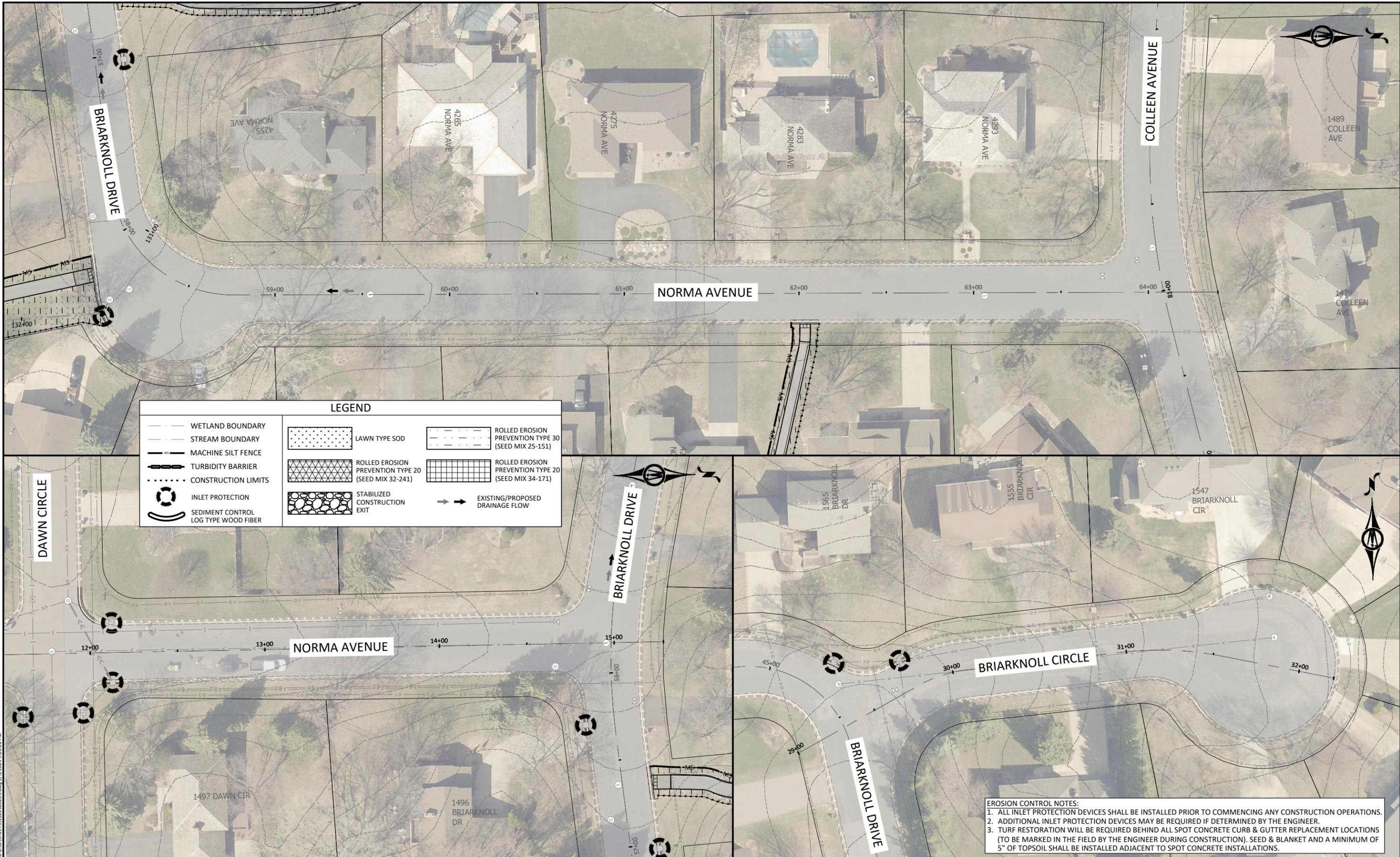
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EROSION CONTROL PLAN

BRIARKNOLL DRIVE

SHEET

C2.05

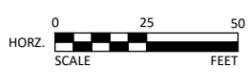


LEGEND			
	WETLAND BOUNDARY		LAWN TYPE SOD
	STREAM BOUNDARY		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 32-241)
	MACHINE SILT FENCE		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 34-171)
	TURBIDITY BARRIER		STABILIZED CONSTRUCTION EXIT
	CONSTRUCTION LIMITS		EXISTING/PROPOSED DRAINAGE FLOW
	INLET PROTECTION		
	SEDIMENT CONTROL LOG TYPE WOOD FIBER		

**EROSION CONTROL NOTES:**

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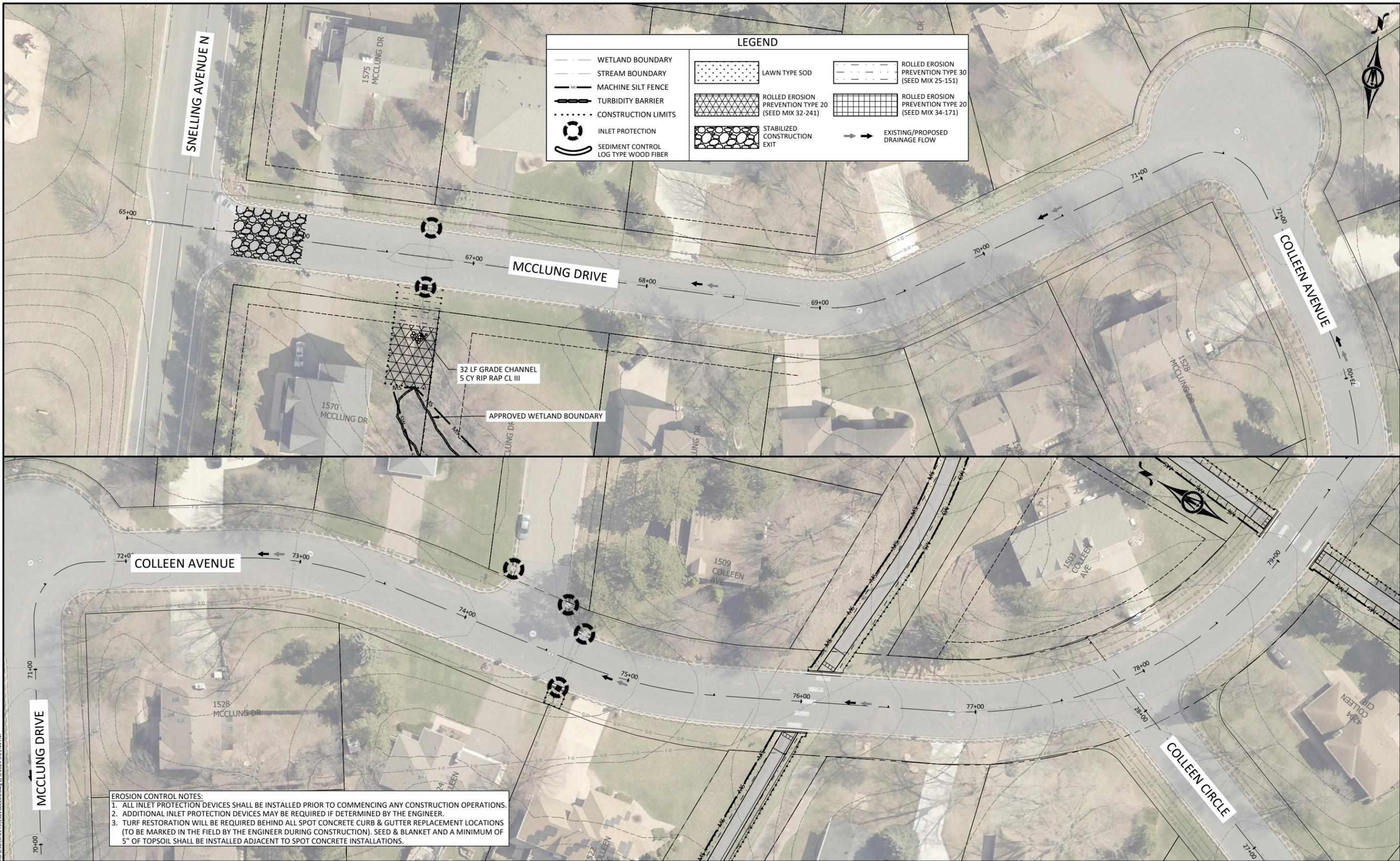
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 EROSION CONTROL PLAN  
 NORMA AVENUE - BRIARKNOLL CIRCLE

SHEET  
**C2.06**

**LEGEND**

	WETLAND BOUNDARY		LAWN TYPE SOD		ROLLED EROSION PREVENTION TYPE 30 (SEED MIX 25-151)
	STREAM BOUNDARY		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 32-241)		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 34-171)
	MACHINE SILT FENCE		STABILIZED CONSTRUCTION EXIT		EXISTING/PROPOSED DRAINAGE FLOW
	TURBIDITY BARRIER				
	CONSTRUCTION LIMITS				
	INLET PROTECTION				
	SEDIMENT CONTROL LOG TYPE WOOD FIBER				

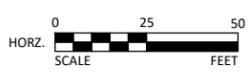


32 LF GRADE CHANNEL  
5 CY RIP RAP CL III

APPROVED WETLAND BOUNDARY

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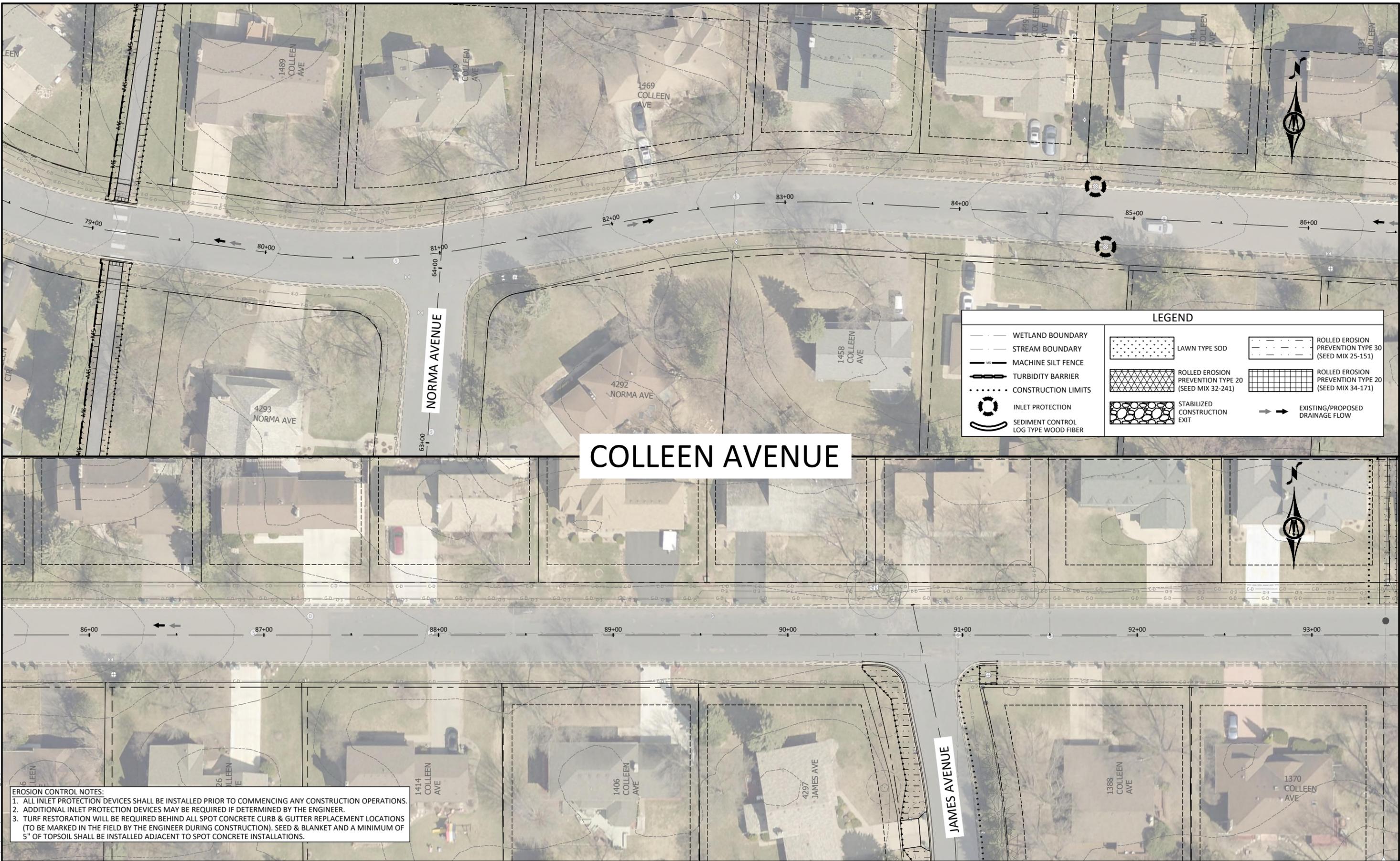
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 MCCLUNG DRIVE & COLLEEN AVENUE

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**C2.07**



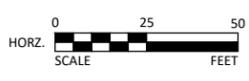
# COLLEEN AVENUE

LEGEND			
	WETLAND BOUNDARY		LAWN TYPE SOD
	STREAM BOUNDARY		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 32-241)
	MACHINE SILT FENCE		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 34-171)
	TURBIDITY BARRIER		STABILIZED CONSTRUCTION EXIT
	CONSTRUCTION LIMITS		EXISTING/PROPOSED DRAINAGE FLOW
	INLET PROTECTION		
	SEDIMENT CONTROL LOG TYPE WOOD FIBER		

**EROSION CONTROL NOTES:**

1. ALL INLET PROTECTION DEVICES SHALL BE INSTALLED PRIOR TO COMMENCING ANY CONSTRUCTION OPERATIONS.
2. ADDITIONAL INLET PROTECTION DEVICES MAY BE REQUIRED IF DETERMINED BY THE ENGINEER.
3. TURF RESTORATION WILL BE REQUIRED BEHIND ALL SPOT CONCRETE CURB & GUTTER REPLACEMENT LOCATIONS (TO BE MARKED IN THE FIELD BY THE ENGINEER DURING CONSTRUCTION). SEED & BLANKET AND A MINIMUM OF 5" OF TOPSOIL SHALL BE INSTALLED ADJACENT TO SPOT CONCRETE INSTALLATIONS.

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 BRADLEY J. FISHER  
 LIC. NO. 56595 DATE 02/12/2024



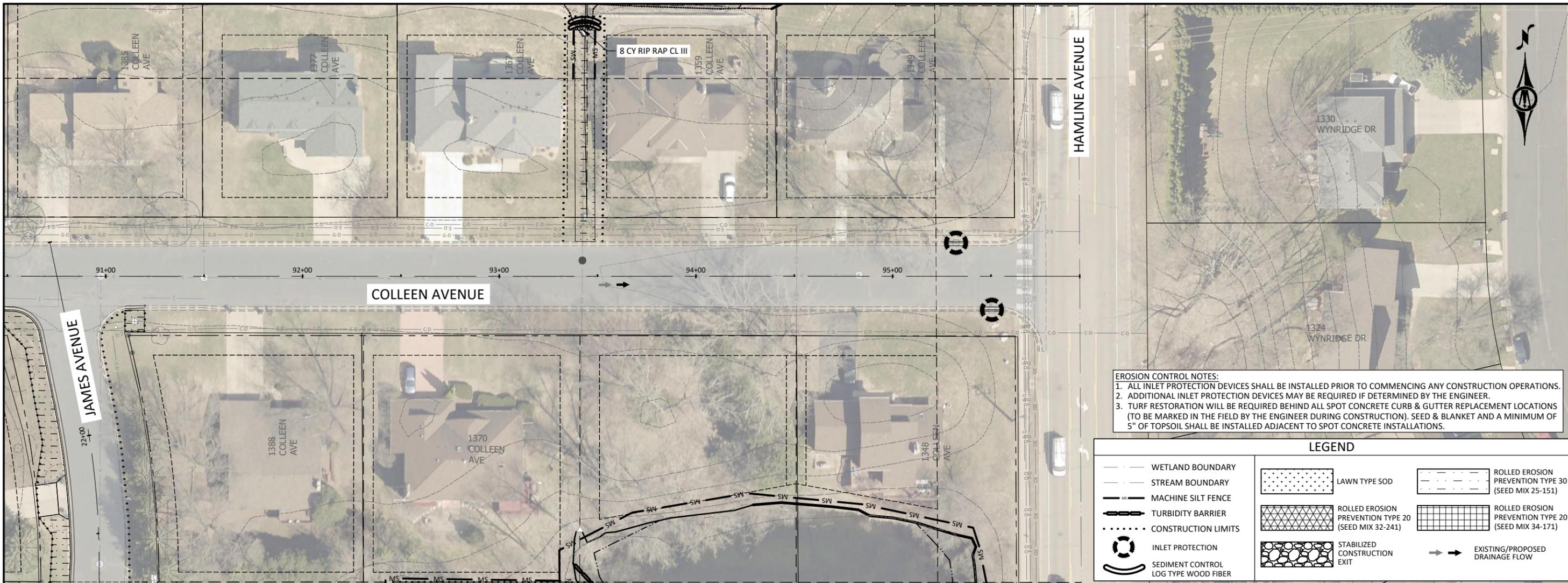
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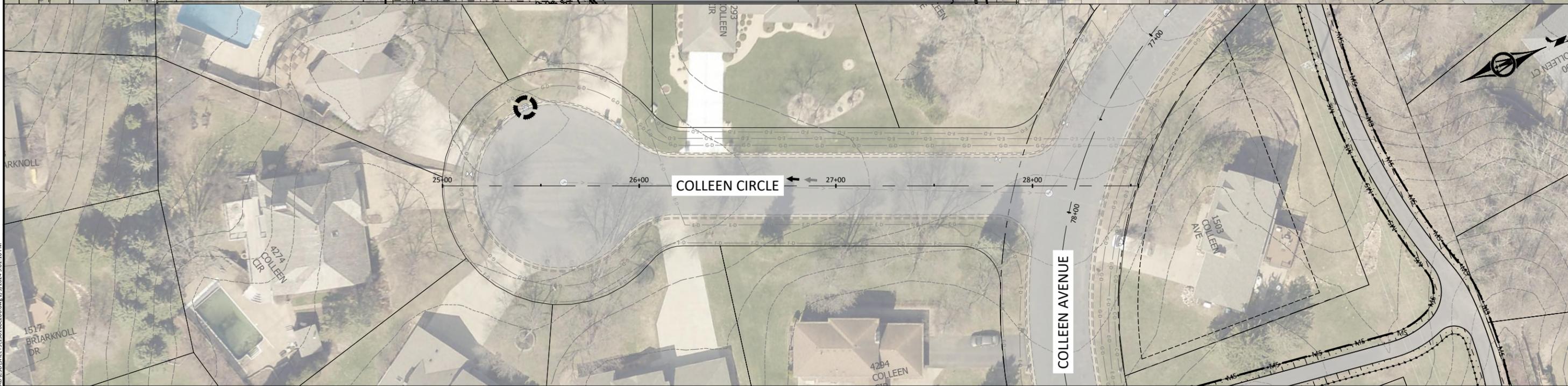
ARDEN HILLS, MINNESOTA  
 2024 PMP STREET & UTILITY IMPROVEMENTS  
 EROSION CONTROL PLAN  
 COLLEEN AVENUE

SHEET  
**C2.08**



**EROSION CONTROL NOTES:**  
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LEGEND			
	WETLAND BOUNDARY		LAWN TYPE SOD
	STREAM BOUNDARY		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 32-241)
	MACHINE SILT FENCE		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 34-171)
	TURBIDITY BARRIER		STABILIZED CONSTRUCTION EXIT
	CONSTRUCTION LIMITS		EXISTING/PROPOSED DRAINAGE FLOW
	INLET PROTECTION		
	SEDIMENT CONTROL LOG TYPE WOOD FIBER		



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 BRADLEY J. FISHER  
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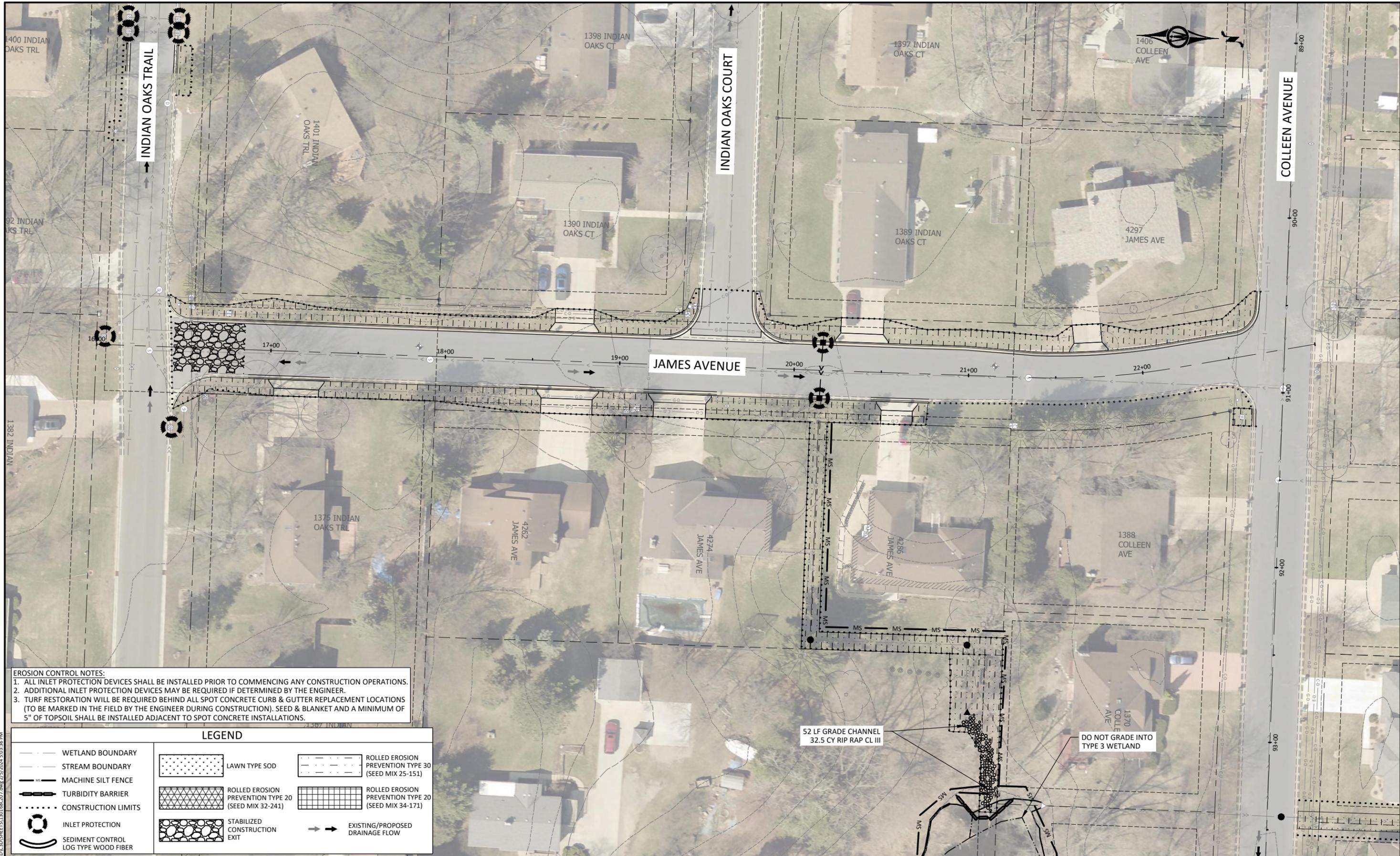
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ARDEN HILLS, MINNESOTA  
 2024 PMP STREET & UTILITY IMPROVEMENTS  
 EROSION CONTROL PLAN  
 COLLEEN AVENUE & COLLEEN CIRCLE

SHEET  
**C2.09**



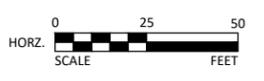
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LEGEND			
	WETLAND BOUNDARY		LAWN TYPE SOD
	STREAM BOUNDARY		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 32-241)
	MACHINE SILT FENCE		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 34-171)
	TURBIDITY BARRIER		EXISTING/PROPOSED DRAINAGE FLOW
	CONSTRUCTION LIMITS		
	INLET PROTECTION		
	SEDIMENT CONTROL LOG TYPE WOOD FIBER		

52 LF GRADE CHANNEL  
 32.5 CY RIP RAP CL III

DO NOT GRADE INTO TYPE 3 WETLAND

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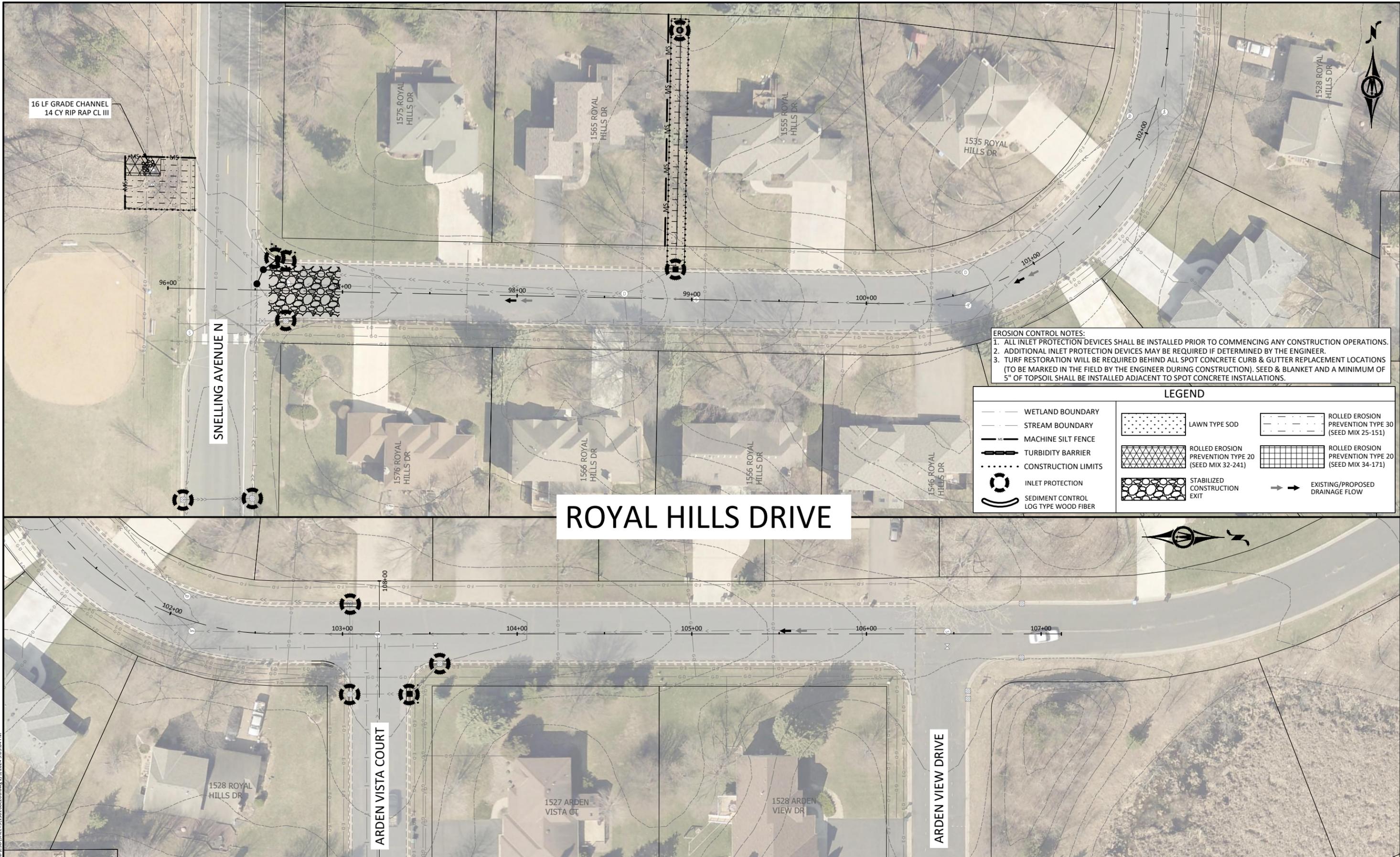
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ARDEN HILLS, MINNESOTA  
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 EROSION CONTROL PLAN  
 JAMES AVENUE

SHEET  
**C2.10**



16 LF GRADE CHANNEL  
14 CY RIP RAP CL III

SNELLING AVENUE N

ROYAL HILLS DRIVE

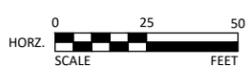
ARDEN VISTA COURT

ARDEN VIEW DRIVE

**EROSION CONTROL NOTES:**  
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LEGEND			
	WETLAND BOUNDARY		LAWN TYPE SOD
	STREAM BOUNDARY		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 32-241)
	MACHINE SILT FENCE		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 34-171)
	TURBIDITY BARRIER		STABILIZED CONSTRUCTION EXIT
	CONSTRUCTION LIMITS		EXISTING/PROPOSED DRAINAGE FLOW
	INLET PROTECTION		
	SEDIMENT CONTROL LOG TYPE WOOD FIBER		

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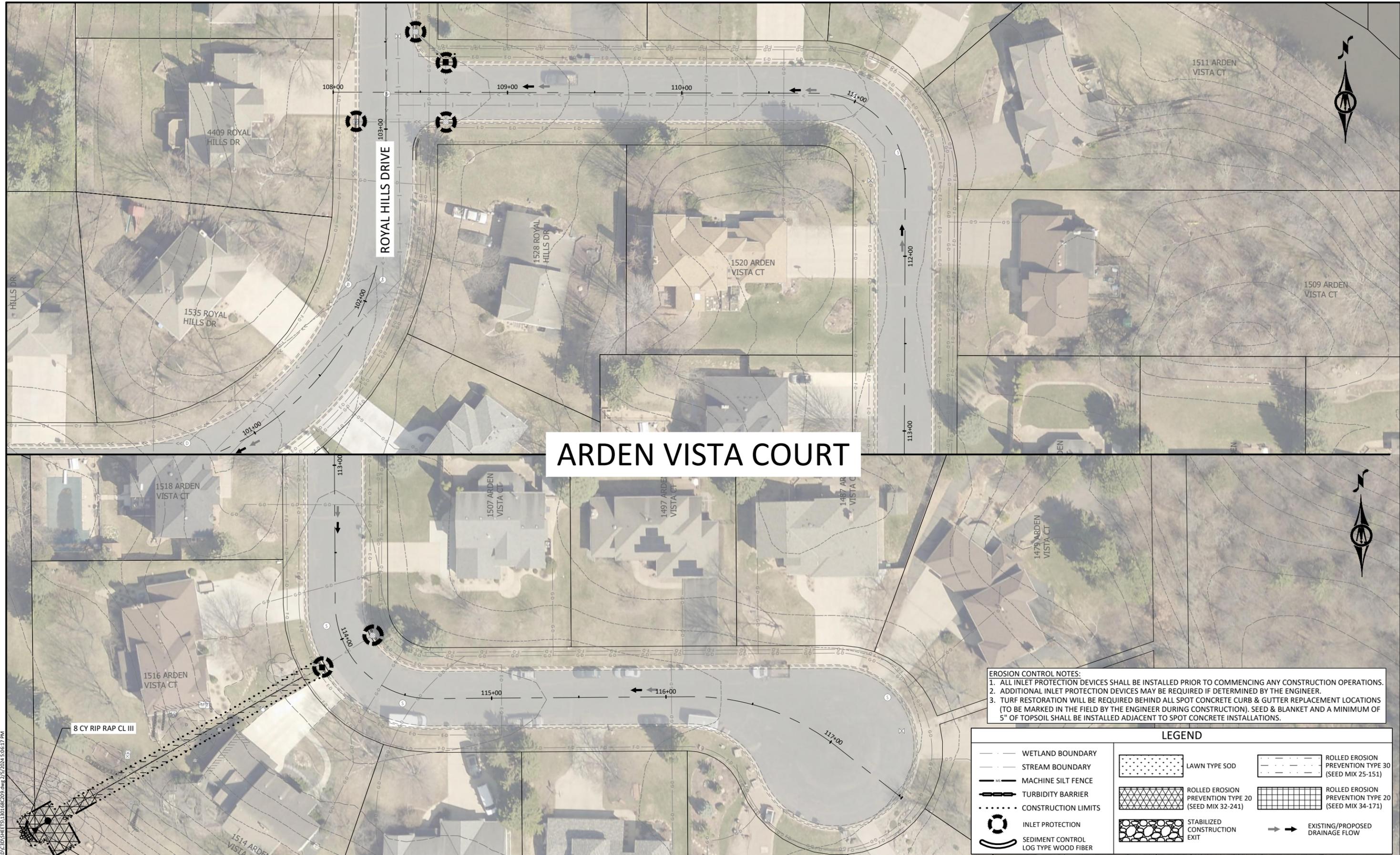
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 EROSION CONTROL PLAN  
 ROYAL HILLS DRIVE

SHEET  
 C2.11



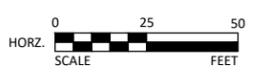
# ARDEN VISTA COURT

- EROSION CONTROL NOTES:**
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LEGEND			
	WETLAND BOUNDARY		LAWN TYPE SOD
	STREAM BOUNDARY		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 32-241)
	MACHINE SILT FENCE		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 34-171)
	TURBIDITY BARRIER		EXISTING/PROPOSED DRAINAGE FLOW
	CONSTRUCTION LIMITS		INLET PROTECTION
	INLET PROTECTION		SEDIMENT CONTROL LOG TYPE WOOD FIBER
	SEDIMENT CONTROL LOG TYPE WOOD FIBER		

8 CY RIP RAP CL III

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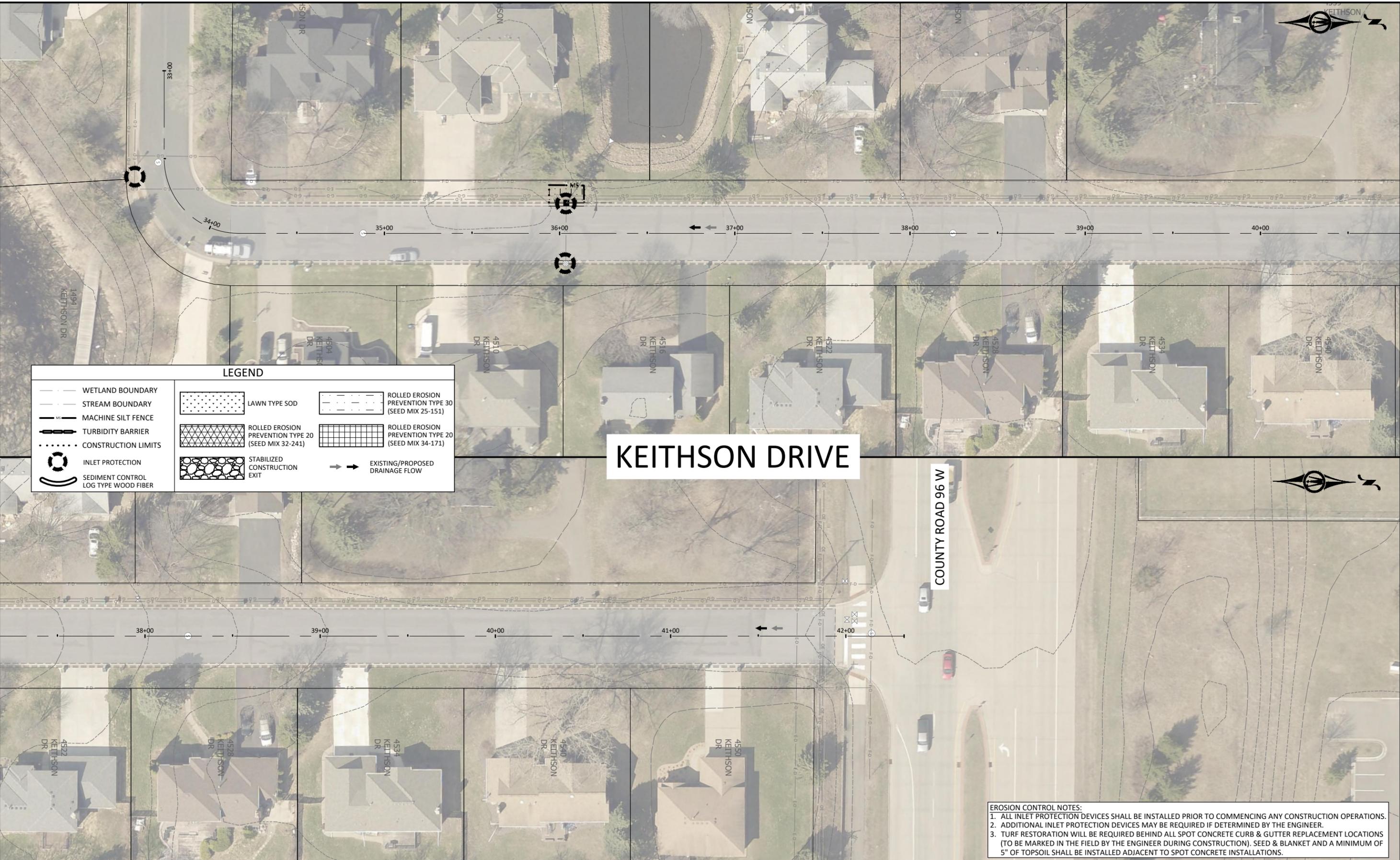
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 EROSION CONTROL PLAN  
 ARDEN VISTA COURT

SHEET  
**C2.12**



**LEGEND**

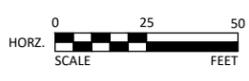
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	STREAM BOUNDARY		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 32-241)		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 34-171)
	MACHINE SILT FENCE		STABILIZED CONSTRUCTION EXIT		EXISTING/PROPOSED DRAINAGE FLOW
	TURBIDITY BARRIER				
	CONSTRUCTION LIMITS				
	INLET PROTECTION				
	SEDIMENT CONTROL LOG TYPE WOOD FIBER				

# KEITHSON DRIVE

COUNTY ROAD 96 W

- EROSION CONTROL NOTES:**
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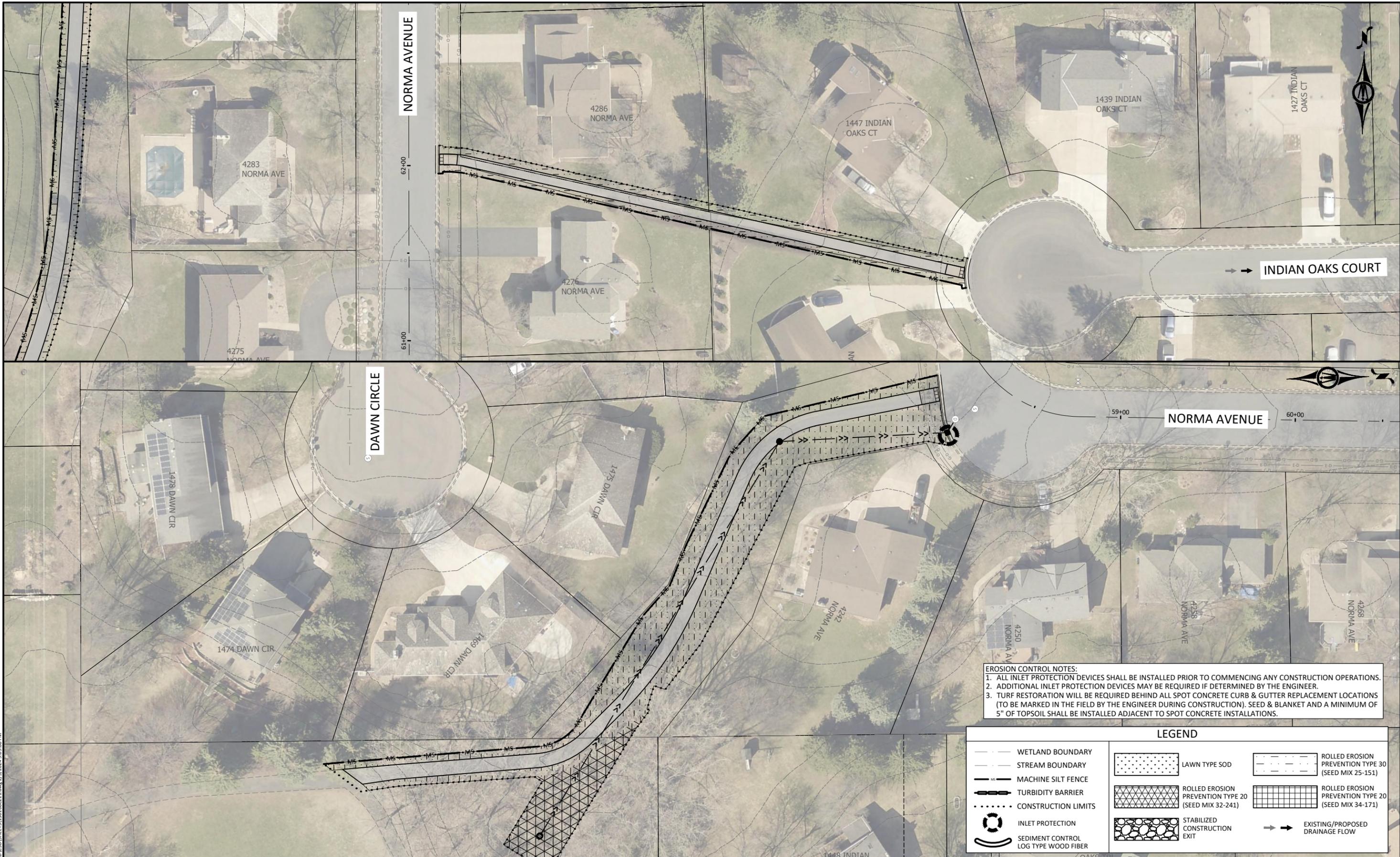
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 EROSION CONTROL PLAN  
 KEITHSON DRIVE

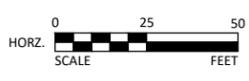
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**C2.13**



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LEGEND			
	WETLAND BOUNDARY		LAWN TYPE SOD
	STREAM BOUNDARY		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 32-241)
	MACHINE SILT FENCE		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 34-171)
	TURBIDITY BARRIER		STABILIZED CONSTRUCTION EXIT
	CONSTRUCTION LIMITS		EXISTING/PROPOSED DRAINAGE FLOW
	INLET PROTECTION		
	SEDIMENT CONTROL LOG TYPE WOOD FIBER		

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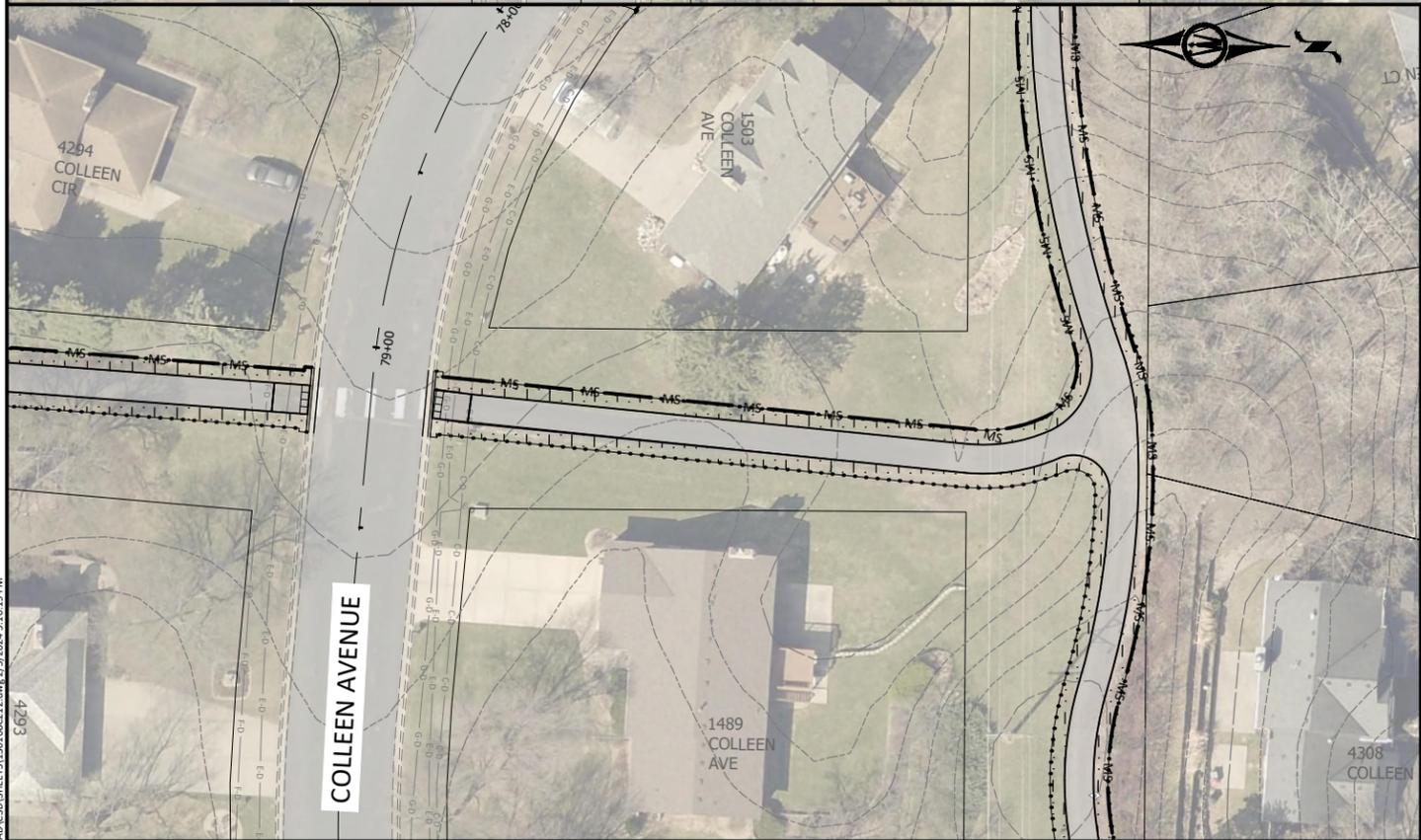
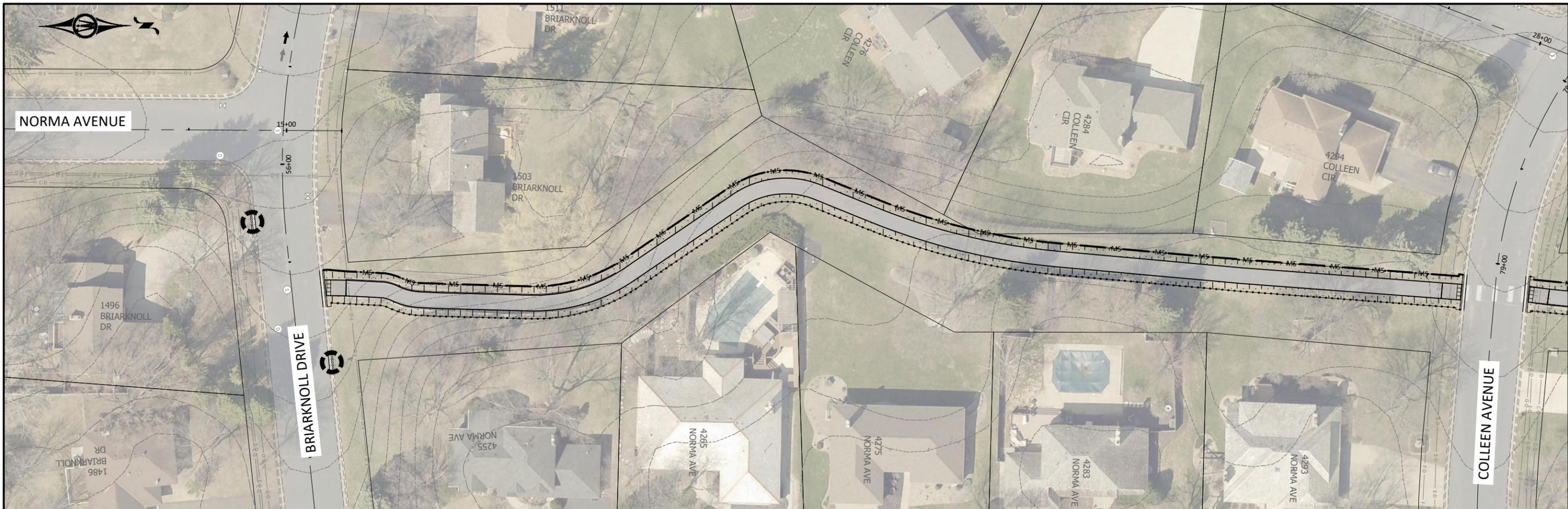
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 EROSION CONTROL PLAN  
 NORMA AVENUE TRAIL

SHEET  
**C2.14**



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LEGEND			
	WETLAND BOUNDARY		LAWN TYPE SOD
	STREAM BOUNDARY		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 32-241)
	MACHINE SILT FENCE		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 34-171)
	TURBIDITY BARRIER		STABILIZED CONSTRUCTION EXIT
	CONSTRUCTION LIMITS		EXISTING/PROPOSED DRAINAGE FLOW
	INLET PROTECTION		
	SEDIMENT CONTROL LOG TYPE WOOD FIBER		
	ROLLED EROSION PREVENTION TYPE 30 (SEED MIX 25-151)		

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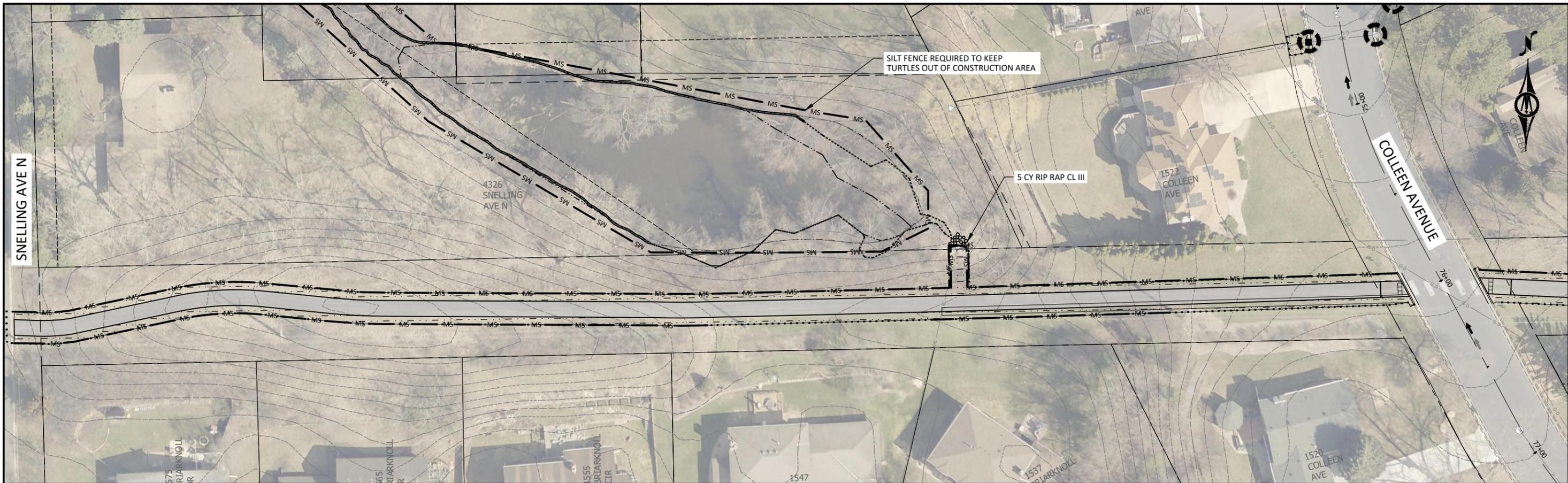
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 EROSION CONTROL PLAN  
 NORMA AVENUE TRAIL 1 - ALTERNATE 1

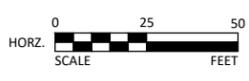
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LEGEND			
	WETLAND BOUNDARY		LAWN TYPE SOD
	STREAM BOUNDARY		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 32-241)
	MACHINE SILT FENCE		ROLLED EROSION PREVENTION TYPE 20 (SEED MIX 34-171)
	TURBIDITY BARRIER		ROLLED EROSION PREVENTION TYPE 30 (SEED MIX 25-151)
	CONSTRUCTION LIMITS		ROLLED EROSION PREVENTION TYPE 30 (SEED MIX 25-151)
	INLET PROTECTION		ROLLED EROSION PREVENTION TYPE 30 (SEED MIX 25-151)
	SEDIMENT CONTROL LOG TYPE WOOD FIBER		EXISTING/PROPOSED DRAINAGE FLOW

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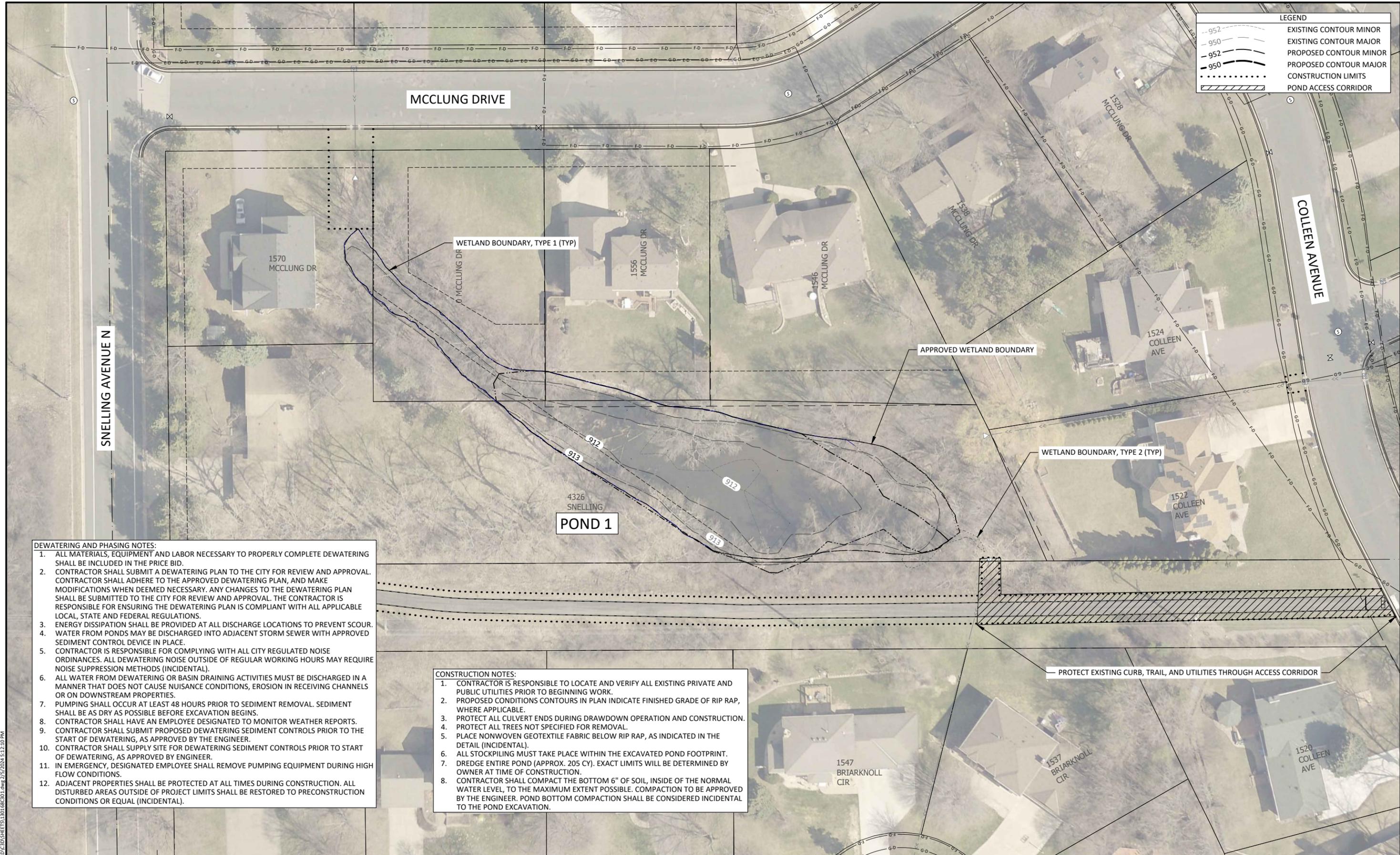


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 2024 PMP STREET & UTILITY IMPROVEMENTS  
 EROSION CONTROL PLAN  
 COLLEEN AVENUE TRAIL - ALTERNATE 1

SHEET  
**C2.16**

LEGEND	
	EXISTING CONTOUR MINOR
	EXISTING CONTOUR MAJOR
	PROPOSED CONTOUR MINOR
	PROPOSED CONTOUR MAJOR
	CONSTRUCTION LIMITS
	POND ACCESS CORRIDOR



**DEWATERING AND PHASING NOTES:**

1. ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO PROPERLY COMPLETE DEWATERING SHALL BE INCLUDED IN THE PRICE BID.
2. CONTRACTOR SHALL SUBMIT A DEWATERING PLAN TO THE CITY FOR REVIEW AND APPROVAL. CONTRACTOR SHALL ADHERE TO THE APPROVED DEWATERING PLAN, AND MAKE MODIFICATIONS WHEN DEEMED NECESSARY. ANY CHANGES TO THE DEWATERING PLAN SHALL BE SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THE DEWATERING PLAN IS COMPLIANT WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
3. ENERGY DISSIPATION SHALL BE PROVIDED AT ALL DISCHARGE LOCATIONS TO PREVENT SCOUR.
4. WATER FROM PONDS MAY BE DISCHARGED INTO ADJACENT STORM SEWER WITH APPROVED SEDIMENT CONTROL DEVICE IN PLACE.
5. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL CITY REGULATED NOISE ORDINANCES. ALL DEWATERING NOISE OUTSIDE OF REGULAR WORKING HOURS MAY REQUIRE NOISE SUPPRESSION METHODS (INCIDENTAL).
6. ALL WATER FROM DEWATERING OR BASIN DRAINING ACTIVITIES MUST BE DISCHARGED IN A MANNER THAT DOES NOT CAUSE NUISANCE CONDITIONS, EROSION IN RECEIVING CHANNELS OR ON DOWNSTREAM PROPERTIES.
7. PUMPING SHALL OCCUR AT LEAST 48 HOURS PRIOR TO SEDIMENT REMOVAL. SEDIMENT SHALL BE AS DRY AS POSSIBLE BEFORE EXCAVATION BEGINS.
8. CONTRACTOR SHALL HAVE AN EMPLOYEE DESIGNATED TO MONITOR WEATHER REPORTS.
9. CONTRACTOR SHALL SUBMIT PROPOSED DEWATERING SEDIMENT CONTROLS PRIOR TO THE START OF DEWATERING, AS APPROVED BY THE ENGINEER.
10. CONTRACTOR SHALL SUPPLY SITE FOR DEWATERING SEDIMENT CONTROLS PRIOR TO START OF DEWATERING, AS APPROVED BY ENGINEER.
11. IN EMERGENCY, DESIGNATED EMPLOYEE SHALL REMOVE PUMPING EQUIPMENT DURING HIGH FLOW CONDITIONS.
12. ADJACENT PROPERTIES SHALL BE PROTECTED AT ALL TIMES DURING CONSTRUCTION. ALL DISTURBED AREAS OUTSIDE OF PROJECT LIMITS SHALL BE RESTORED TO PRECONSTRUCTION CONDITIONS OR EQUAL (INCIDENTAL).

**CONSTRUCTION NOTES:**

1. CONTRACTOR IS RESPONSIBLE TO LOCATE AND VERIFY ALL EXISTING PRIVATE AND PUBLIC UTILITIES PRIOR TO BEGINNING WORK.
2. PROPOSED CONDITIONS CONTOURS IN PLAN INDICATE FINISHED GRADE OF RIP RAP, WHERE APPLICABLE.
3. PROTECT ALL CULVERT ENDS DURING DRAWDOWN OPERATION AND CONSTRUCTION.
4. PROTECT ALL TREES NOT SPECIFIED FOR REMOVAL.
5. PLACE NONWOVEN GEOTEXTILE FABRIC BELOW RIP RAP, AS INDICATED IN THE DETAIL (INCIDENTAL).
6. ALL STOCKPILING MUST TAKE PLACE WITHIN THE EXCAVATED POND FOOTPRINT.
7. DREDGE ENTIRE POND (APPROX. 205 CY). EXACT LIMITS WILL BE DETERMINED BY OWNER AT TIME OF CONSTRUCTION.
8. CONTRACTOR SHALL COMPACT THE BOTTOM 6" OF SOIL, INSIDE OF THE NORMAL WATER LEVEL, TO THE MAXIMUM EXTENT POSSIBLE. COMPACTION TO BE APPROVED BY THE ENGINEER. POND BOTTOM COMPACTION SHALL BE CONSIDERED INCIDENTAL TO THE POND EXCAVATION.

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*Bradley J. Fisher*  
 BRADLEY J. FISHER  
 LIC. NO. 56595 DATE 02/12/2024



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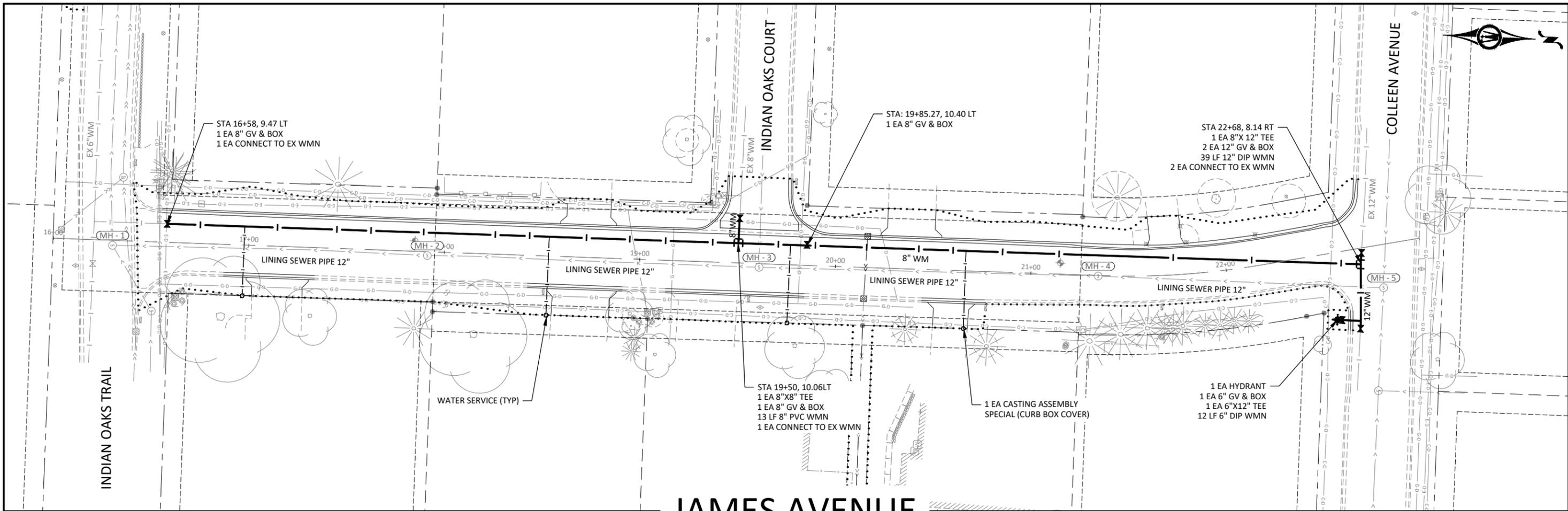


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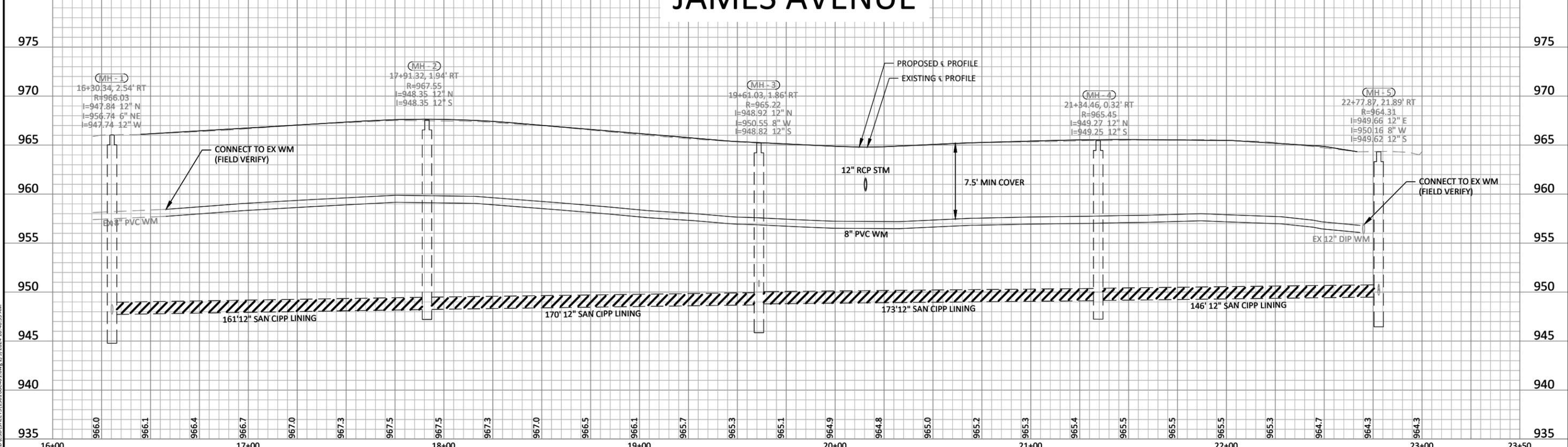
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 GRADING PLAN  
 POND DREDGING - ALTERNATE 2

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# JAMES AVENUE



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 SANITARY & WATERMAIN PLAN & PROFILE  
 JAMES AVENUE

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**C4.01**



INDIAN OAKS TRAIL

INDIAN OAKS COURT

COLLEEN AVENUE

BURY TEMPORARY WATER LINE UNDER INDIAN OAKS TRAIL AT EXISTING BIT PATCH

PROTECT DRIVEWAY. RAMP TEMP WATER PIPE TO PROVIDE ACCESS AND MAINTAIN RAMP THROUGHOUT CONSTRUCTION.

NOTE: PULL OFF STEAMER SIDE OF EXISTING HYDRANT FOR TEMPORARY WATER CONNECTION. BACKFLOW PREVENTER IS REQUIRED AT CONNECTION.

NOTE: CONNECT TEMPORARY WATER TO STEAMER SIDE OF EXISTING HYDRANT

6" TEMPORARY WATER LINE (HYDRANT TO HYDRANT CONNECTION TO SERVE HOMES ON INDIAN OAKS COURT)

2" TEMPORARY WATER LINE (TO SERVE INDIVIDUAL HOMES ON JAMES AVENUE)

JAMES AVENUE

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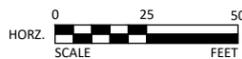
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 TEMPORARY WATER PLAN

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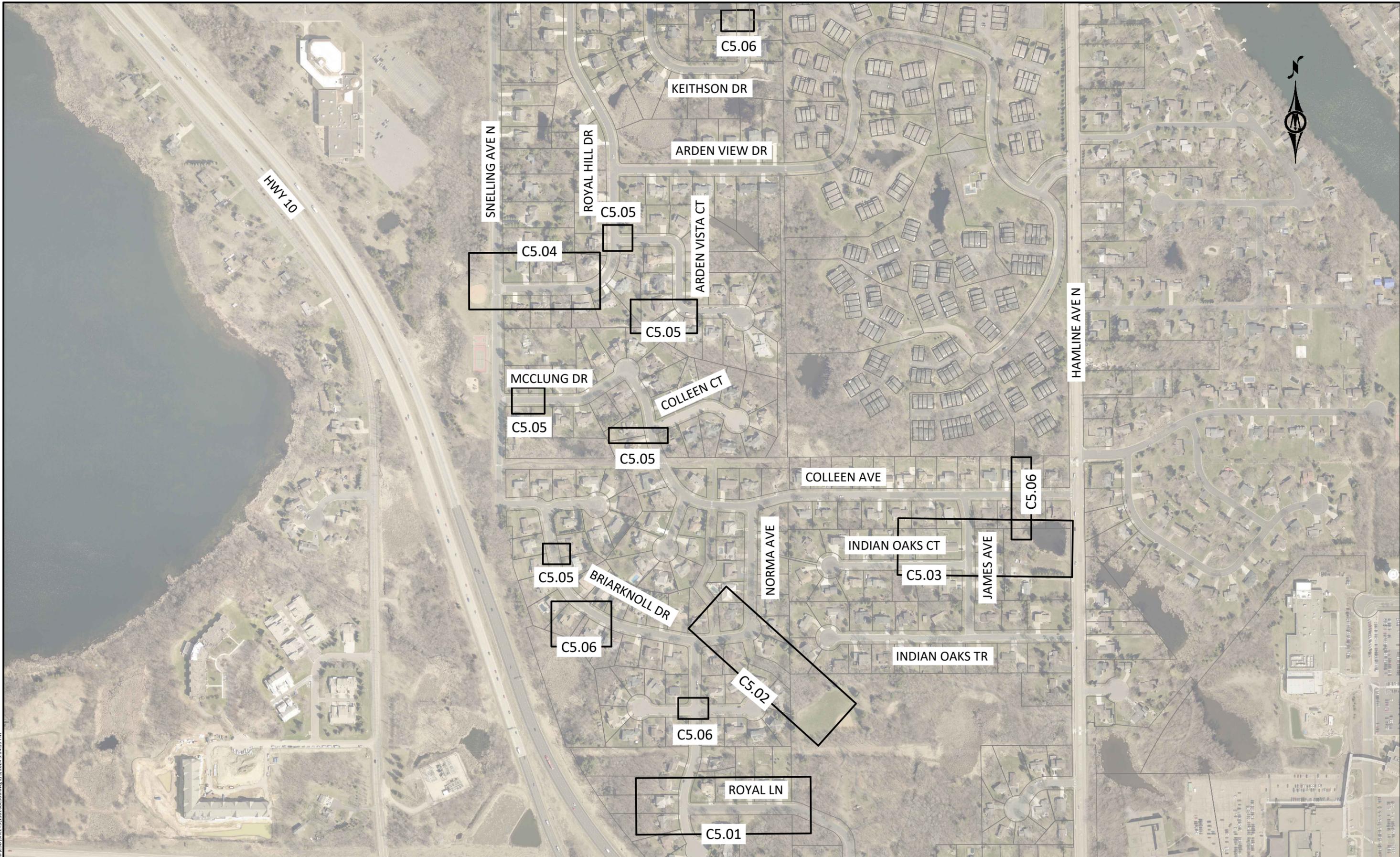
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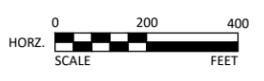
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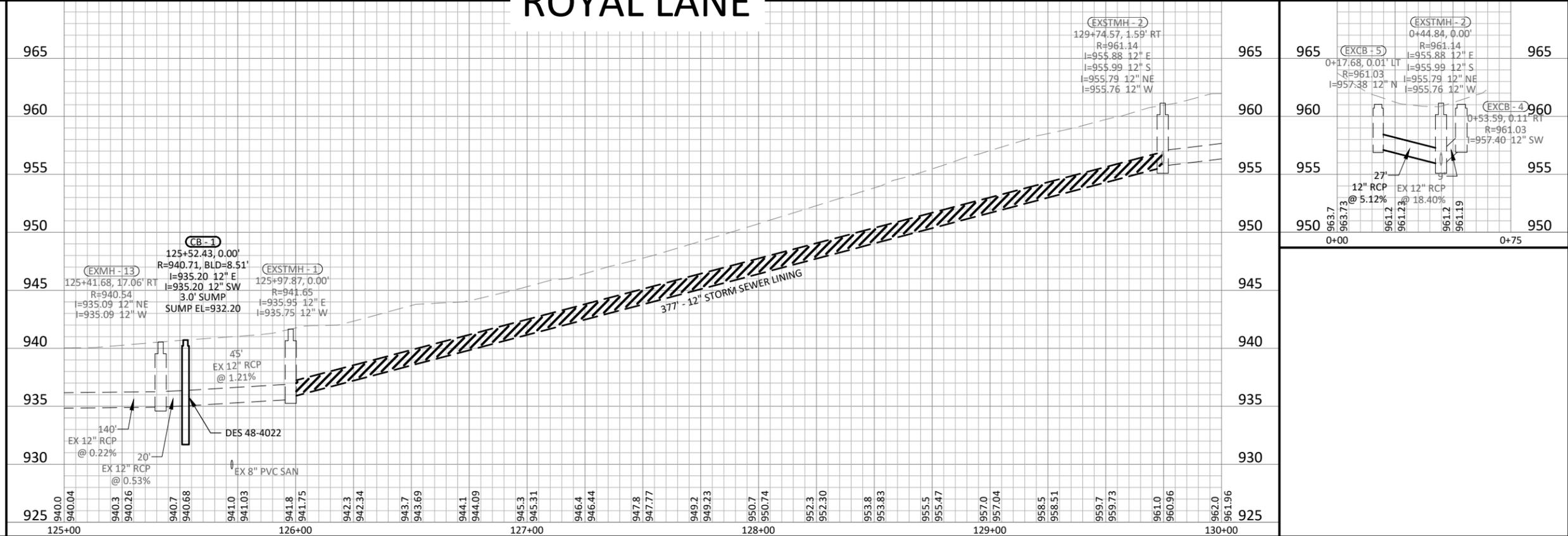
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# ROYAL LANE



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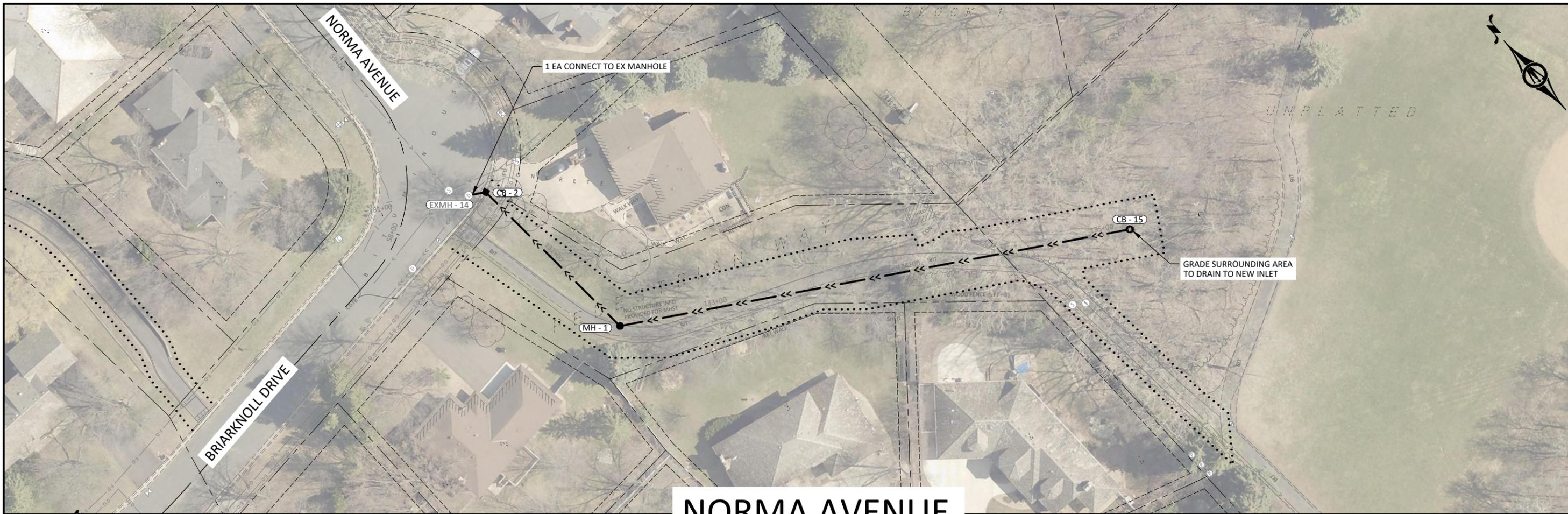
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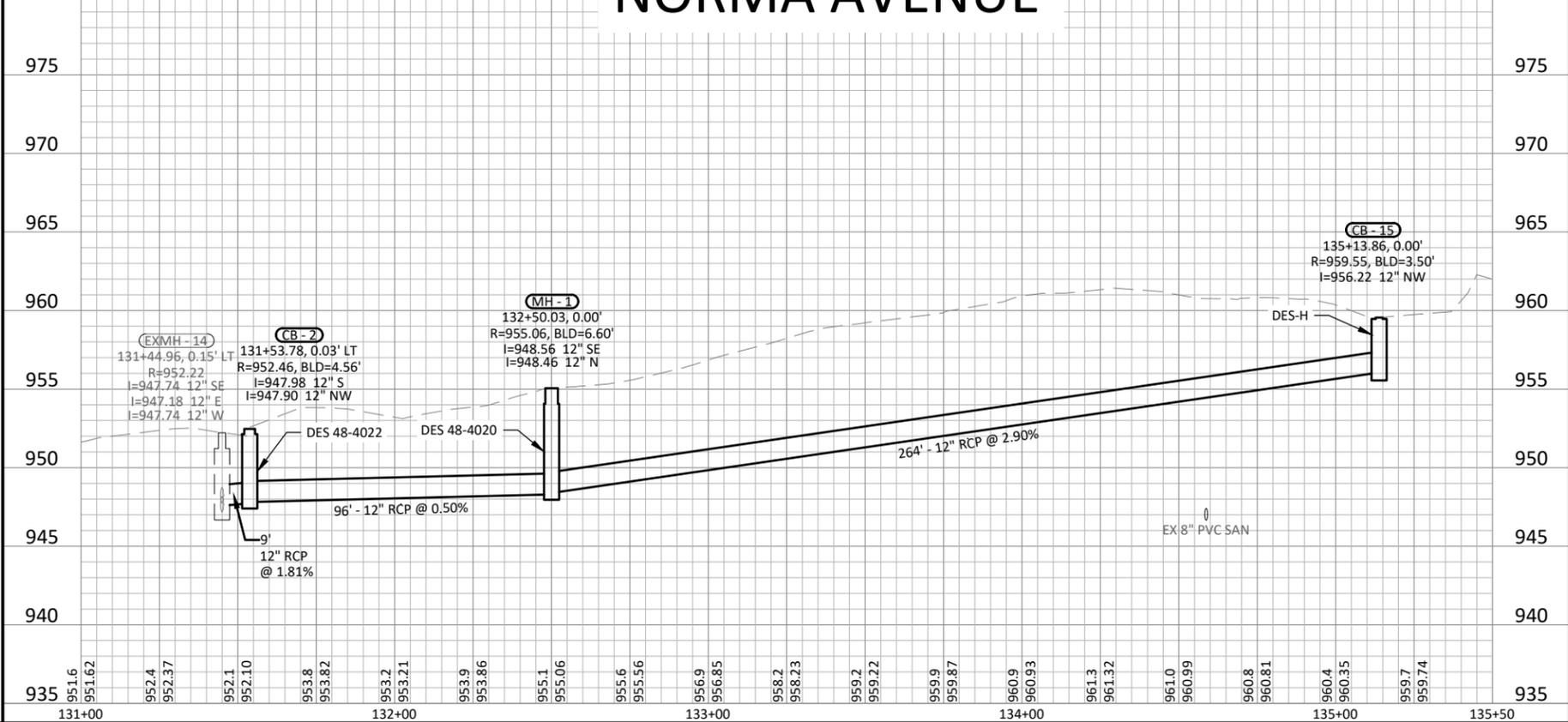
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 ROYAL LANE

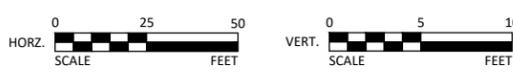
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# NORMA AVENUE



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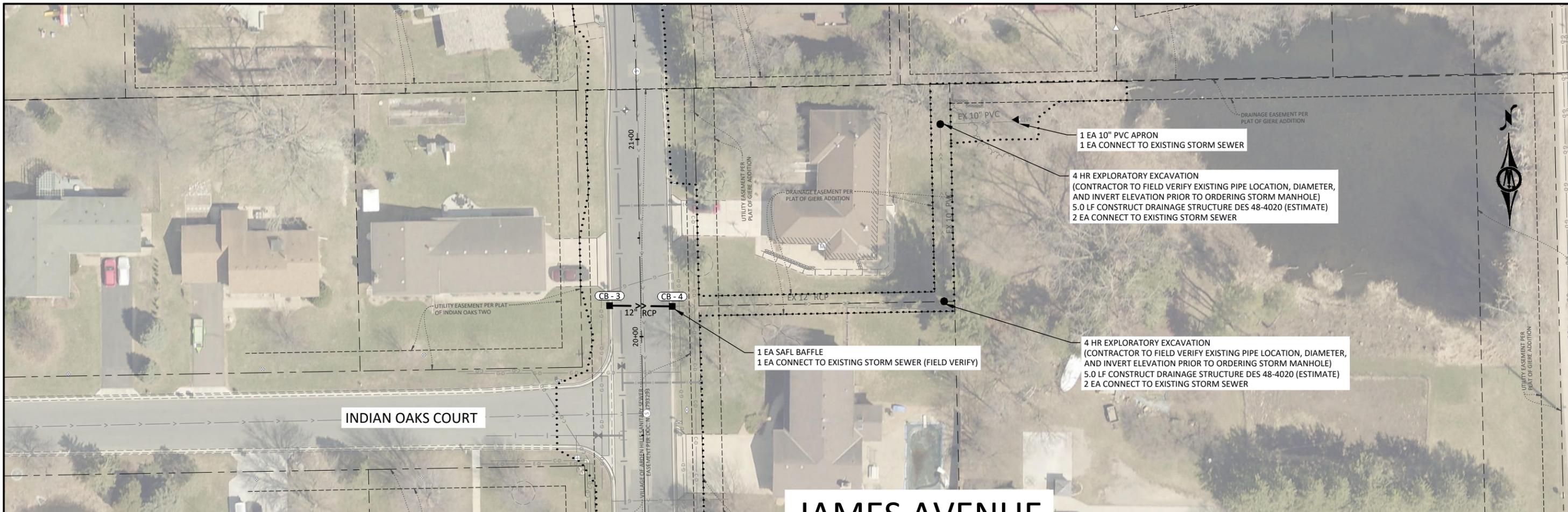
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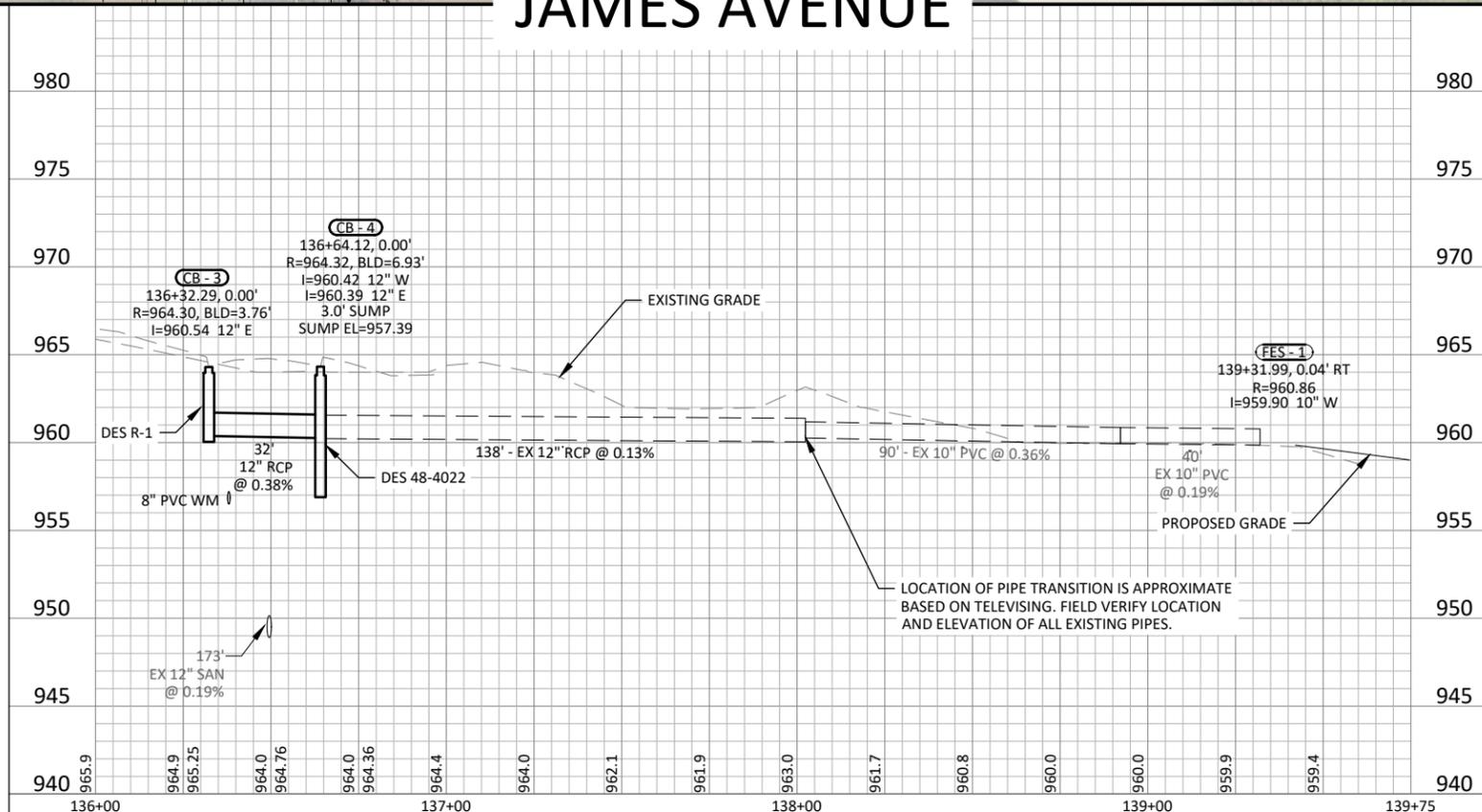
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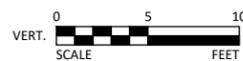
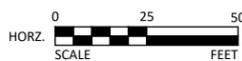
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# JAMES AVENUE



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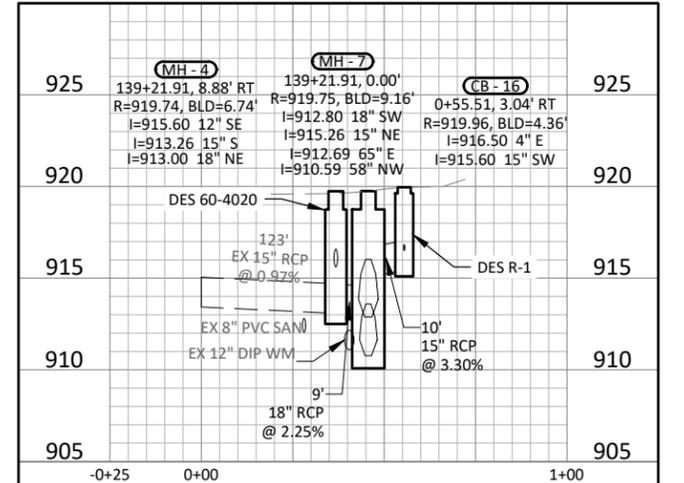
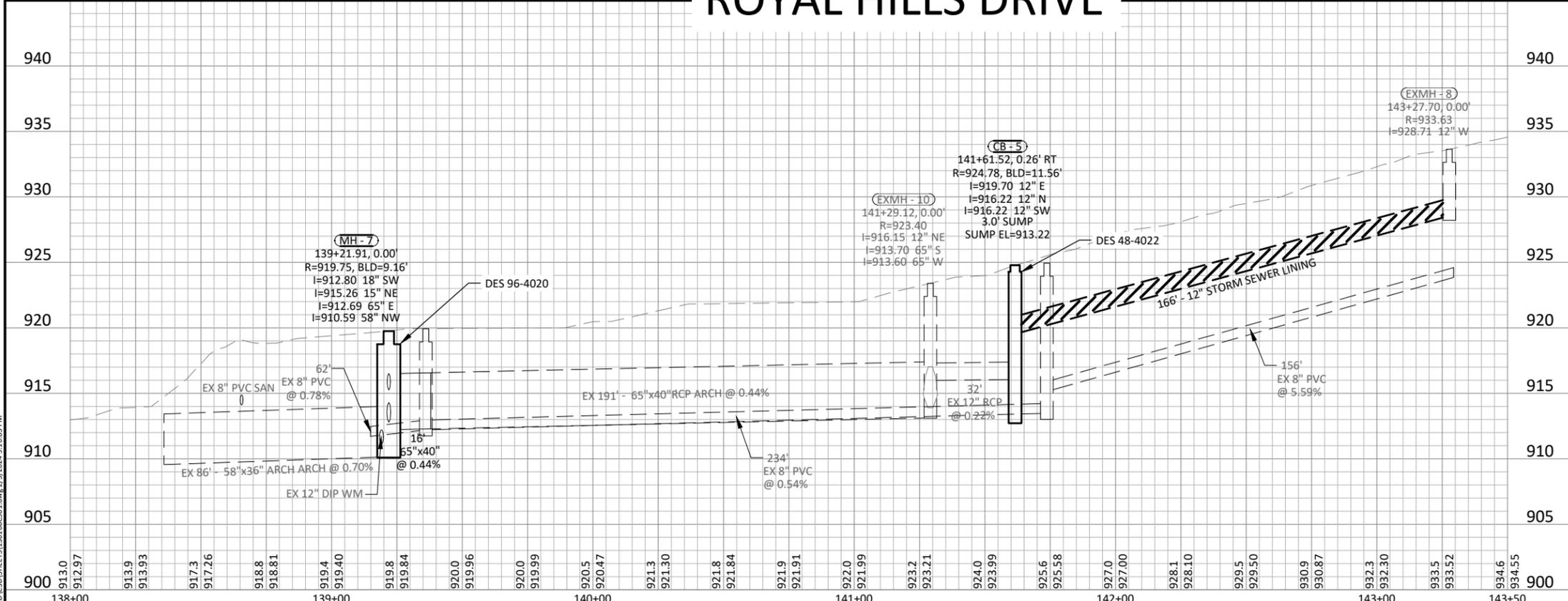
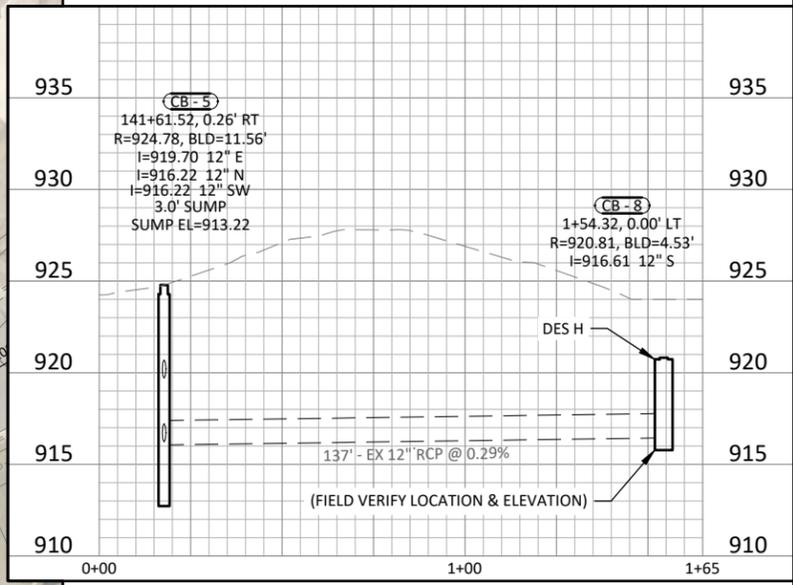
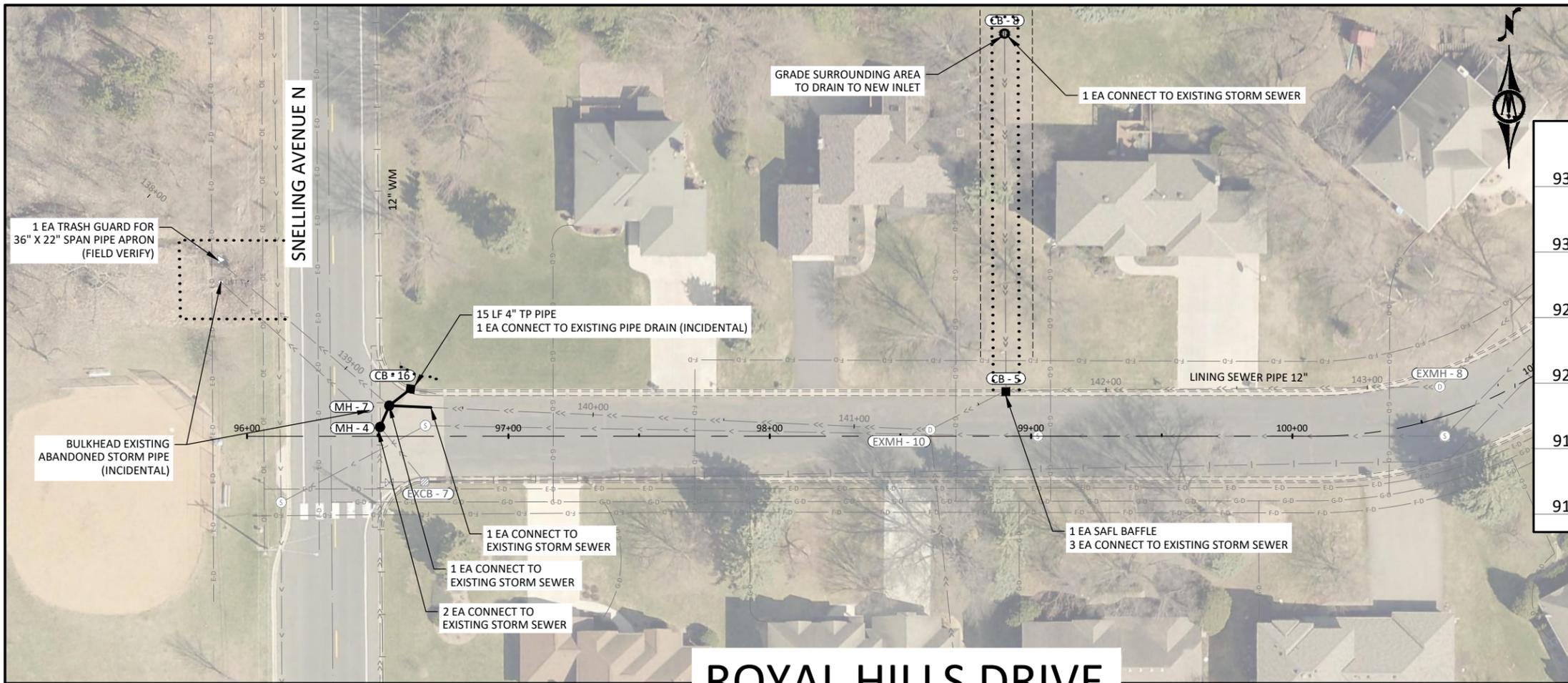
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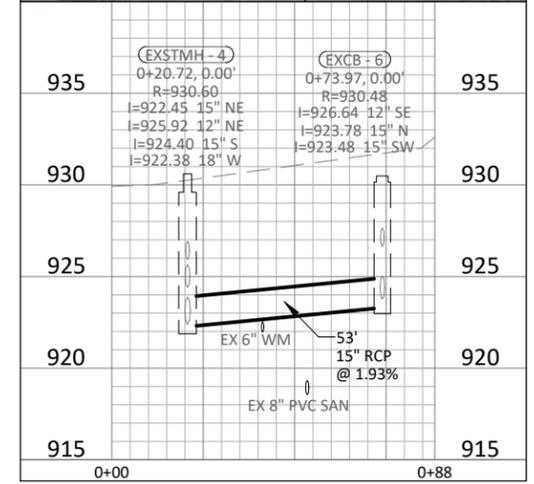
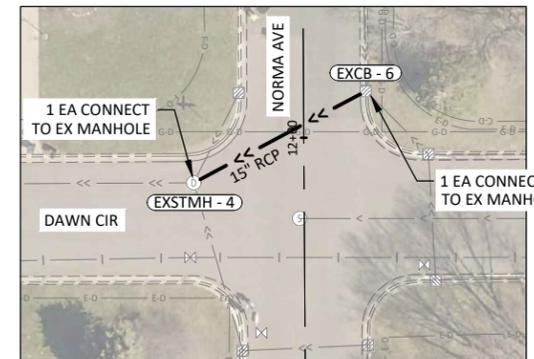
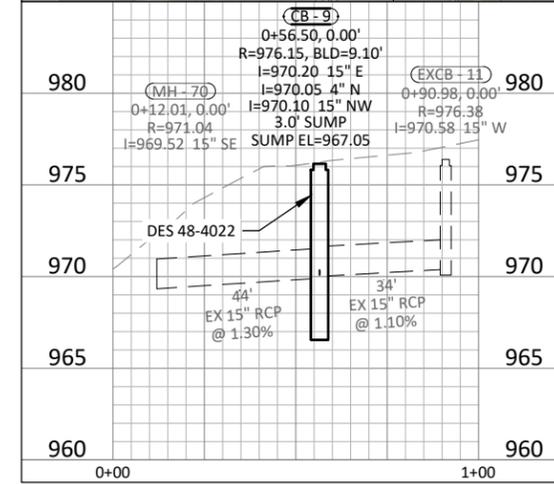
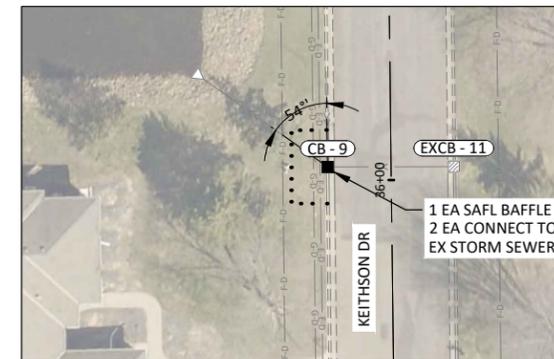
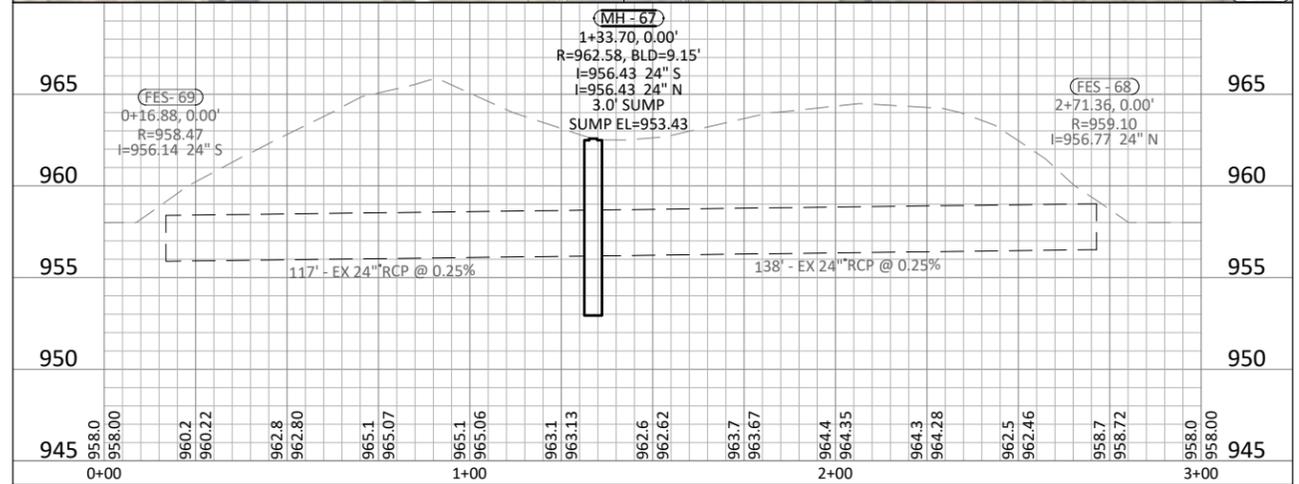
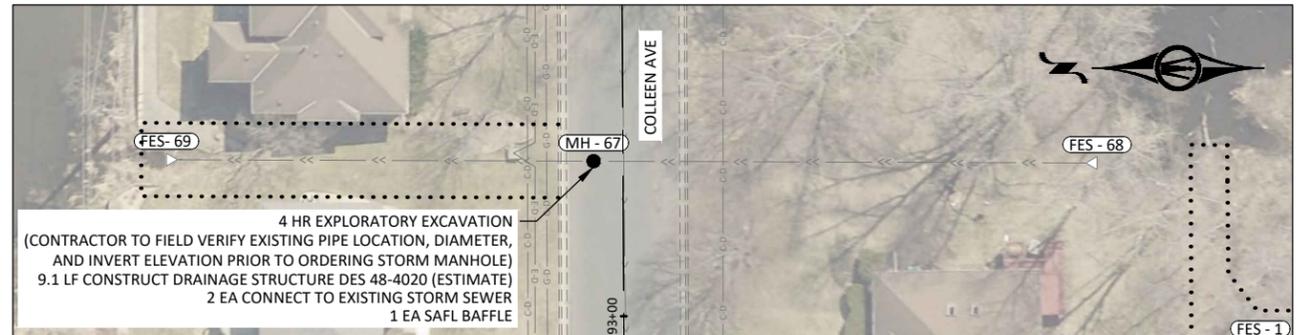
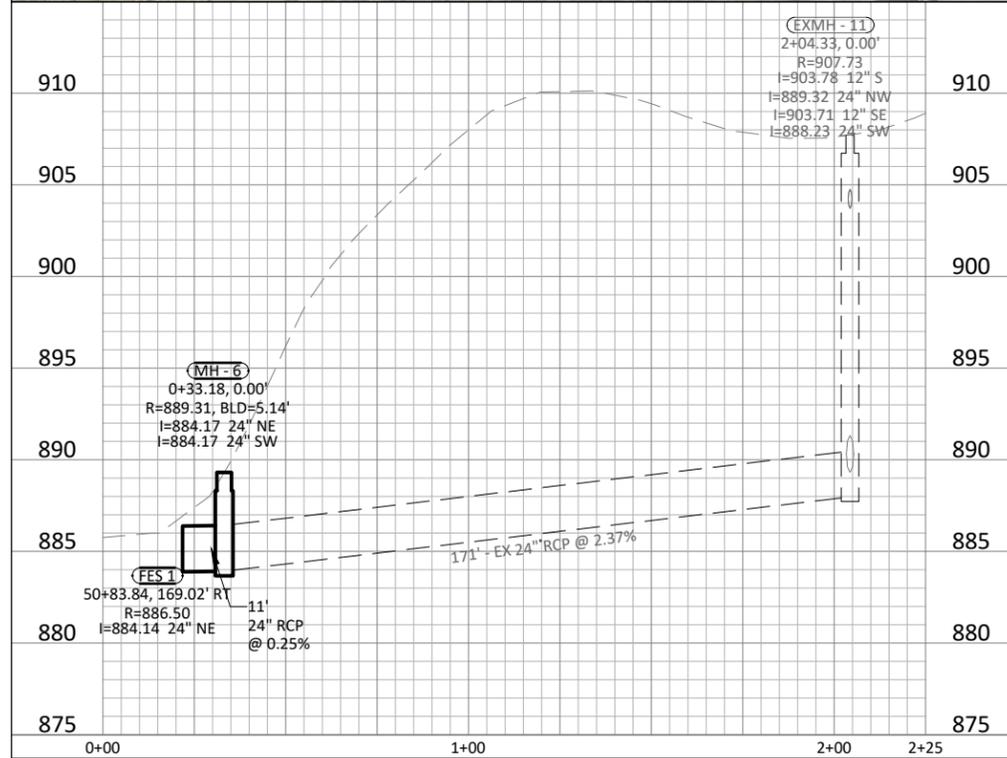


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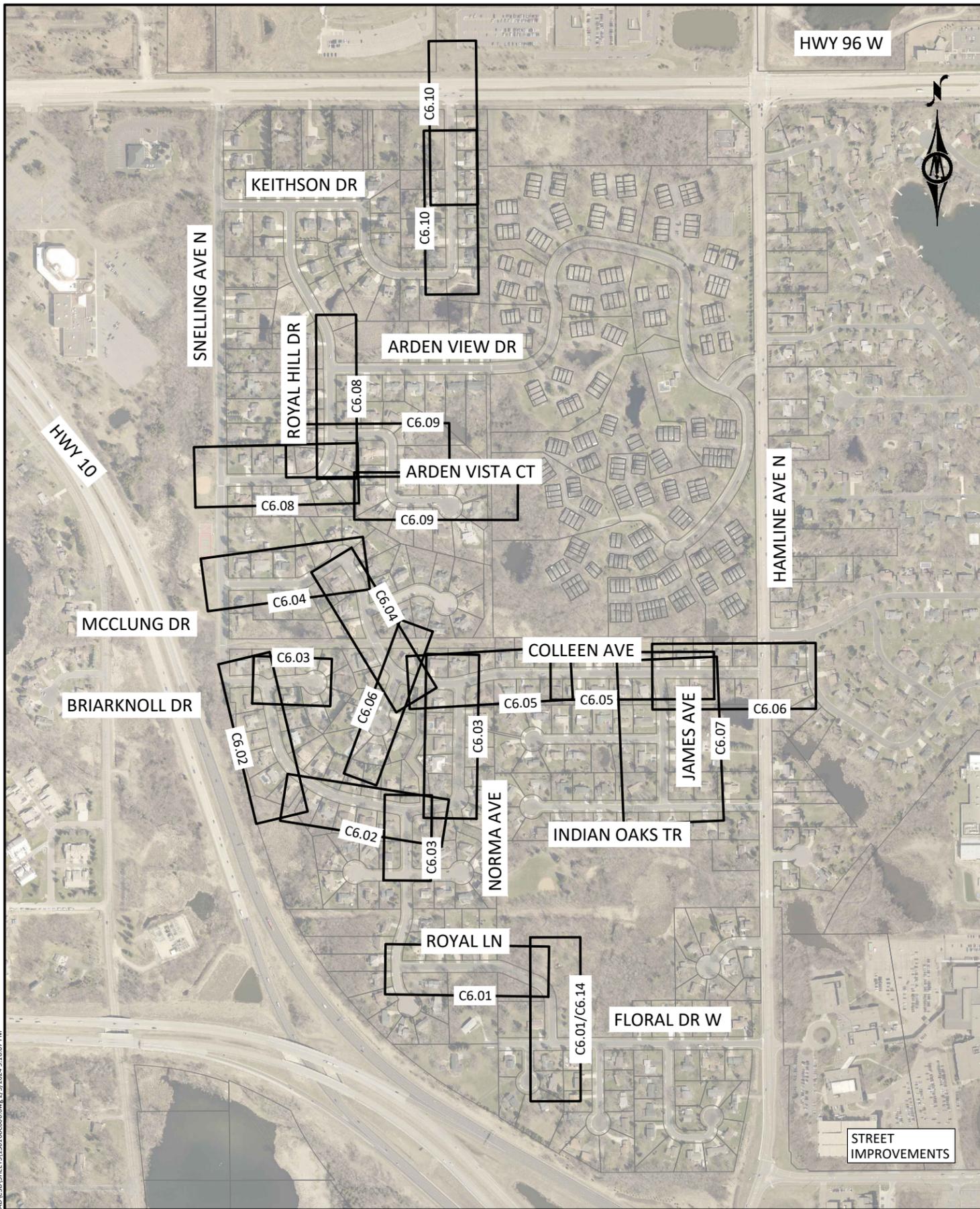
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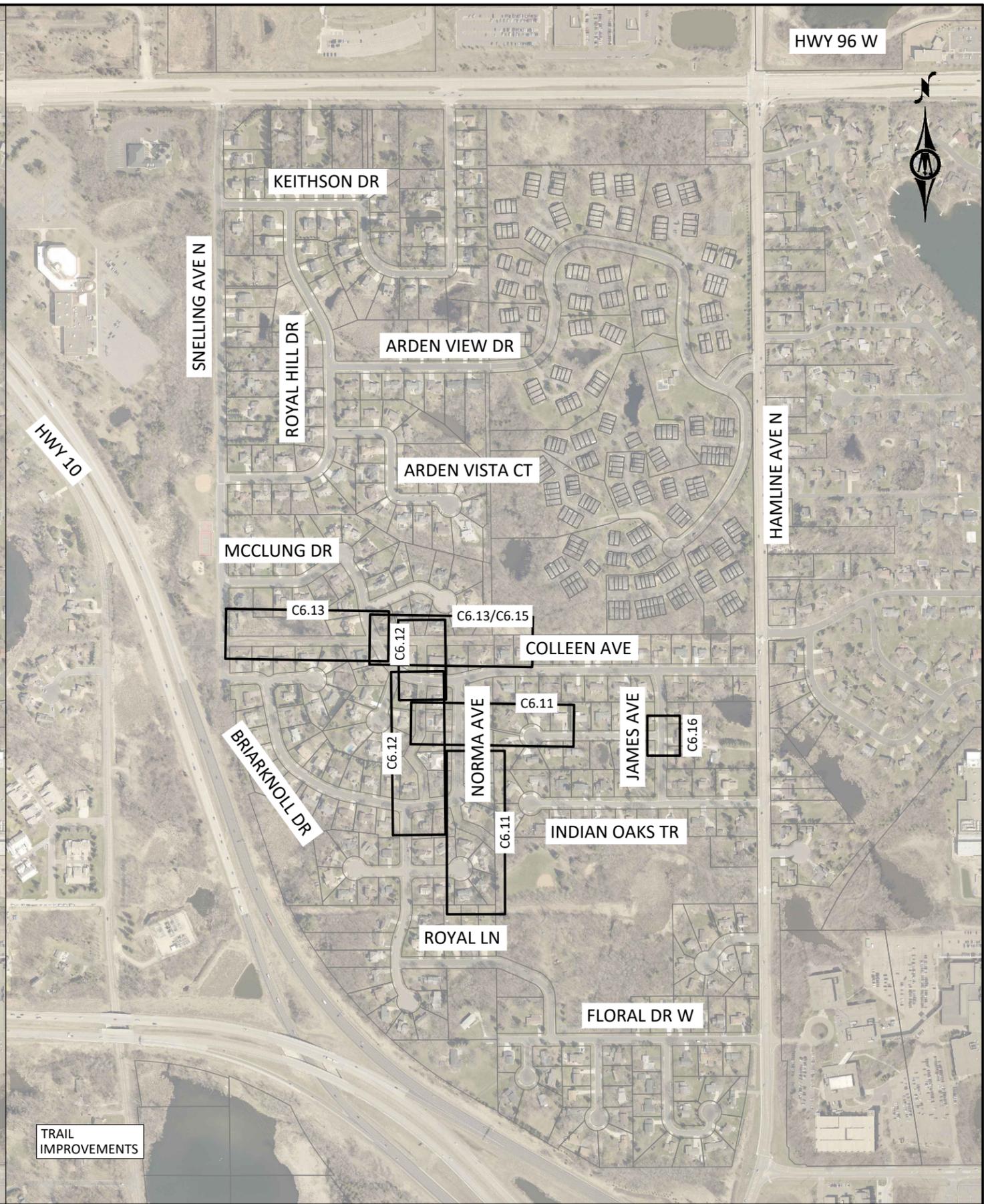
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STREET IMPROVEMENTS



TRAIL IMPROVEMENTS

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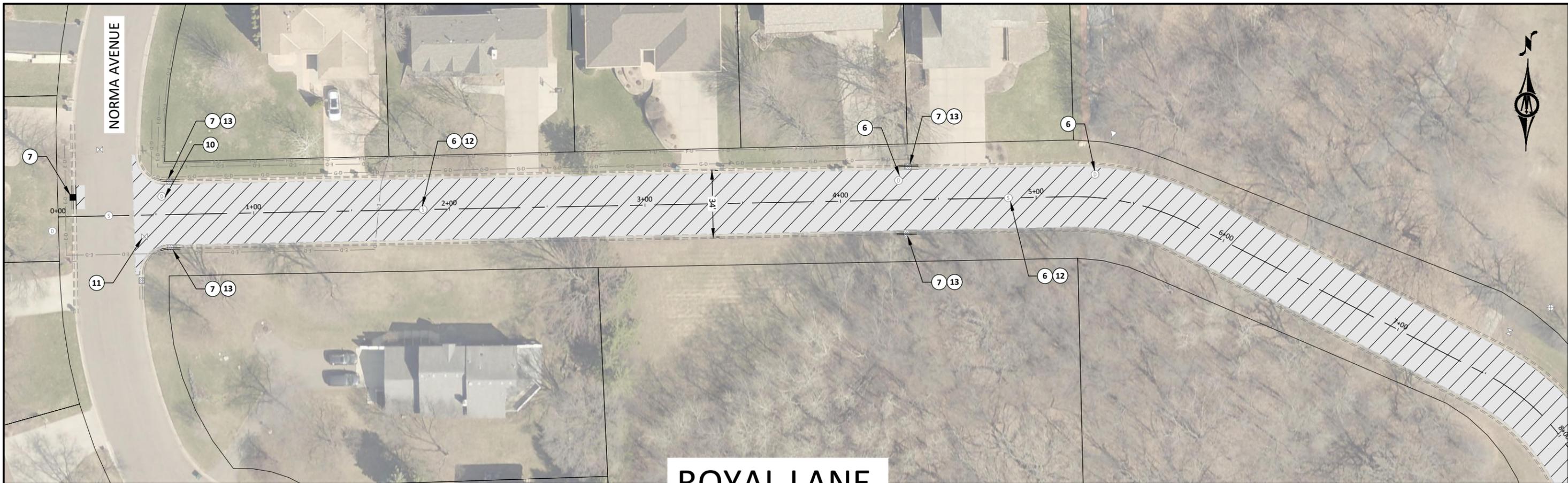
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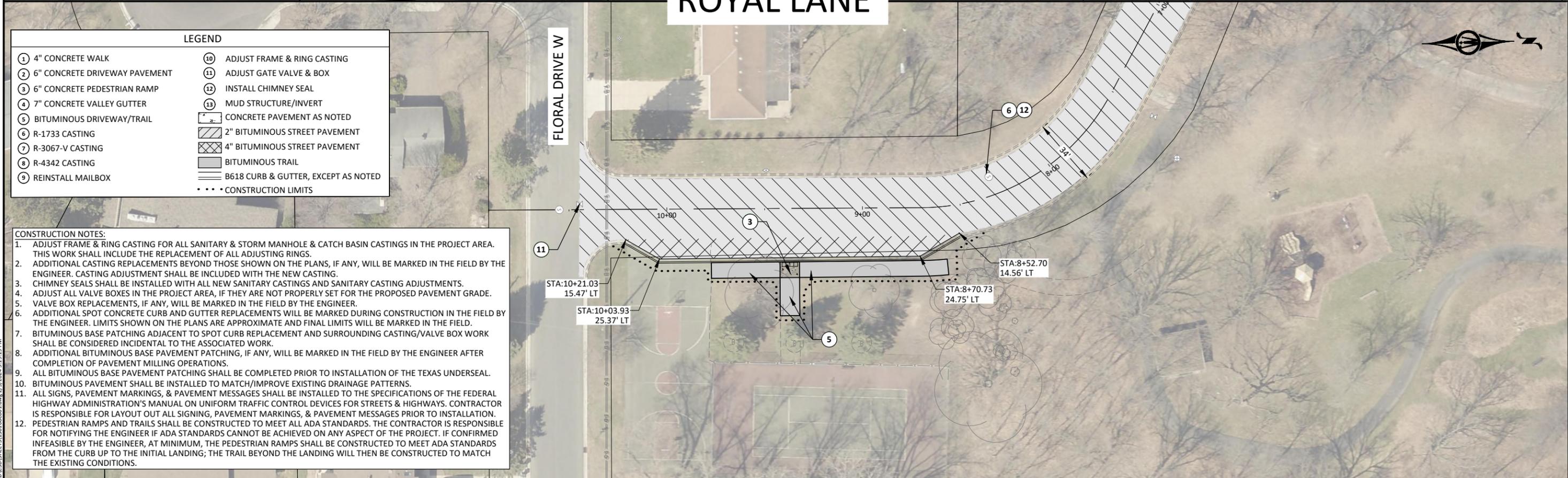
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# ROYAL LANE



### LEGEND

- |                                 |                                     |
|---------------------------------|-------------------------------------|
| ① 4" CONCRETE WALK              | ⑩ ADJUST FRAME & RING CASTING       |
| ② 6" CONCRETE DRIVEWAY PAVEMENT | ⑪ ADJUST GATE VALVE & BOX           |
| ③ 6" CONCRETE PEDESTRIAN RAMP   | ⑫ INSTALL CHIMNEY SEAL              |
| ④ 7" CONCRETE VALLEY GUTTER     | ⑬ MUD STRUCTURE/INVERT              |
| ⑤ BITUMINOUS DRIVEWAY/TRAIL     | CONCRETE PAVEMENT AS NOTED          |
| ⑥ R-1733 CASTING                | 2" BITUMINOUS STREET PAVEMENT       |
| ⑦ R-3067-V CASTING              | 4" BITUMINOUS STREET PAVEMENT       |
| ⑧ R-4342 CASTING                | BITUMINOUS TRAIL                    |
| ⑨ REINSTALL MAILBOX             | B618 CURB & GUTTER, EXCEPT AS NOTED |
|                                 | ••• CONSTRUCTION LIMITS             |

### CONSTRUCTION NOTES:

- ADJUST FRAME & RING CASTING FOR ALL SANITARY & STORM MANHOLE & CATCH BASIN CASTINGS IN THE PROJECT AREA. THIS WORK SHALL INCLUDE THE REPLACEMENT OF ALL ADJUSTING RINGS.
- ADDITIONAL CASTING REPLACEMENTS BEYOND THOSE SHOWN ON THE PLANS, IF ANY, WILL BE MARKED IN THE FIELD BY THE ENGINEER. CASTING ADJUSTMENT SHALL BE INCLUDED WITH THE NEW CASTING.
- CHIMNEY SEALS SHALL BE INSTALLED WITH ALL NEW SANITARY CASTINGS AND SANITARY CASTING ADJUSTMENTS.
- ADJUST ALL VALVE BOXES IN THE PROJECT AREA, IF THEY ARE NOT PROPERLY SET FOR THE PROPOSED PAVEMENT GRADE.
- VALVE BOX REPLACEMENTS, IF ANY, WILL BE MARKED IN THE FIELD BY THE ENGINEER.
- ADDITIONAL SPOT CONCRETE CURB AND GUTTER REPLACEMENTS WILL BE MARKED DURING CONSTRUCTION IN THE FIELD BY THE ENGINEER. LIMITS SHOWN ON THE PLANS ARE APPROXIMATE AND FINAL LIMITS WILL BE MARKED IN THE FIELD.
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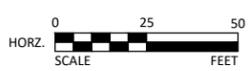
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STA:8+70.73  
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*Bradley J. Fisher*  
BRADLEY J. FISHER  
LIC. NO. 56595 DATE 02/12/2024



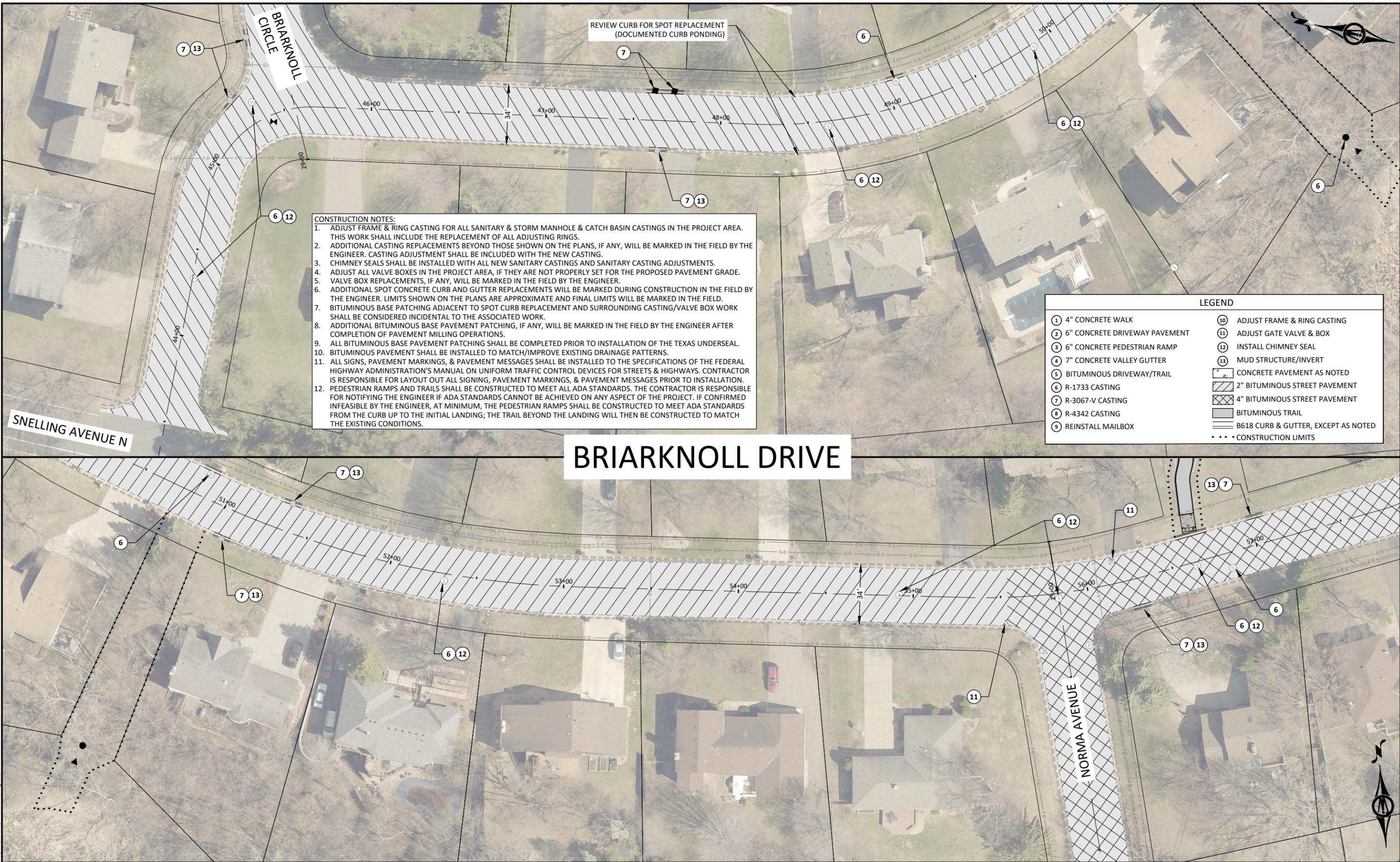
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ARDEN HILLS, MINNESOTA  
2024 PMP STREET & UTILITY IMPROVEMENTS  
STREET PLAN  
ROYAL LANE

SHEET  
C6.01



# BRIARKNOLL DRIVE

**CONSTRUCTION NOTES:**

- ADJUST FRAME & RING CASTING FOR ALL SANITARY & STORM MANHOLE & CATCH BASIN CASTINGS IN THE PROJECT AREA. THIS WORK SHALL INCLUDE THE REPLACEMENT OF ALL ADJUSTING RINGS.
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LEGEND	
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② 6" CONCRETE DRIVEWAY PAVEMENT	⑪ ADJUST GATE VALVE & BOX
③ 6" CONCRETE PEDESTRIAN RAMP	⑫ INSTALL CHIMNEY SEAL
④ 7" CONCRETE VALLEY GUTTER	⑬ MUD STRUCTURE/INVERT
⑤ BITUMINOUS DRIVEWAY/TRAIL	□ CONCRETE PAVEMENT AS NOTED
⑥ R-1733 CASTING	▨ 2" BITUMINOUS STREET PAVEMENT
⑦ R-3067-V CASTING	▩ 4" BITUMINOUS STREET PAVEMENT
⑧ R-4342 CASTING	▭ BITUMINOUS TRAIL
⑨ REINSTALL MAILBOX	▬ B618 CURB & GUTTER, EXCEPT AS NOTED
	⋯ CONSTRUCTION LIMITS

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*Bradley J. Fisher*  
 BRADLEY J. FISHER  
 LIC. NO. 56595 DATE 02/12/2024



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ARDEN HILLS, MINNESOTA  
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 STREET PLAN  
 BRIARKNOLL DRIVE & NORMA AVE

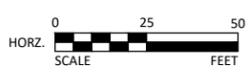
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LEGEND	
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② 6" CONCRETE DRIVEWAY PAVEMENT	⑪ ADJUST GATE VALVE & BOX
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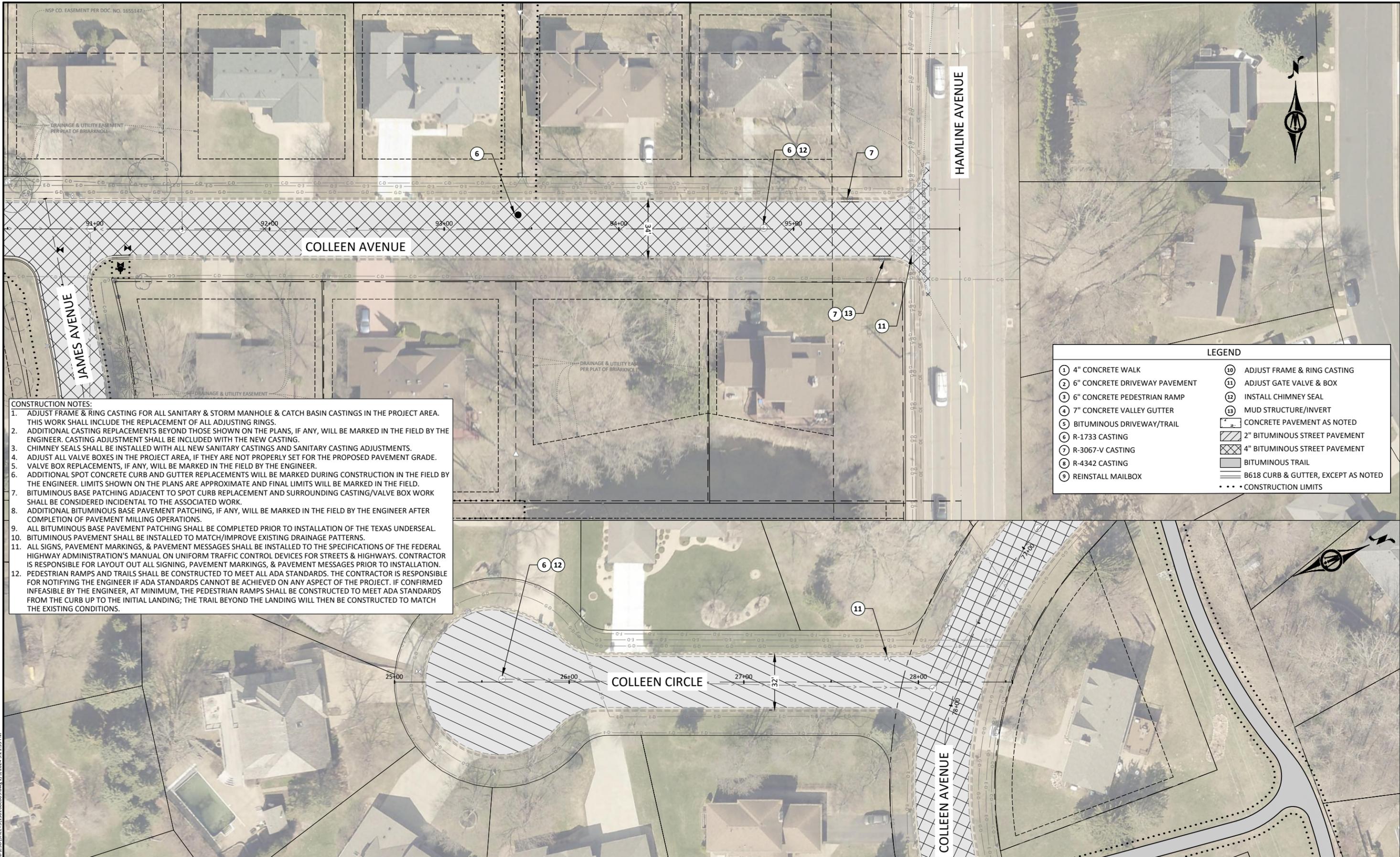
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ARDEN HILLS, MINNESOTA  
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 STREET PLAN  
 BRIARKNOLL DRIVE & NORMA AVE

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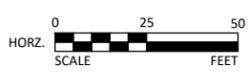


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⑧ R-4342 CASTING	▭ BITUMINOUS TRAIL
⑨ REINSTALL MAILBOX	▬ B618 CURB & GUTTER, EXCEPT AS NOTED
	••• CONSTRUCTION LIMITS

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*Bradley J. Fisher*  
 BRADLEY J. FISHER  
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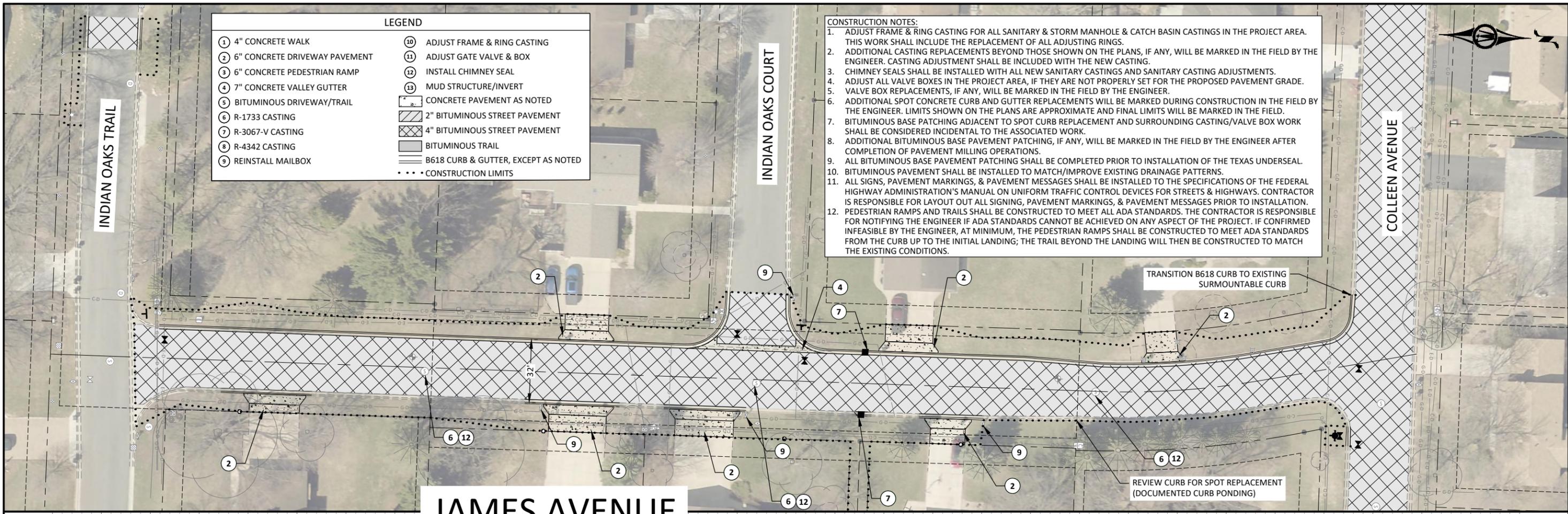
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 STREET PLAN  
 COLLEEN AVENUE & COLLEEN CIRCLE

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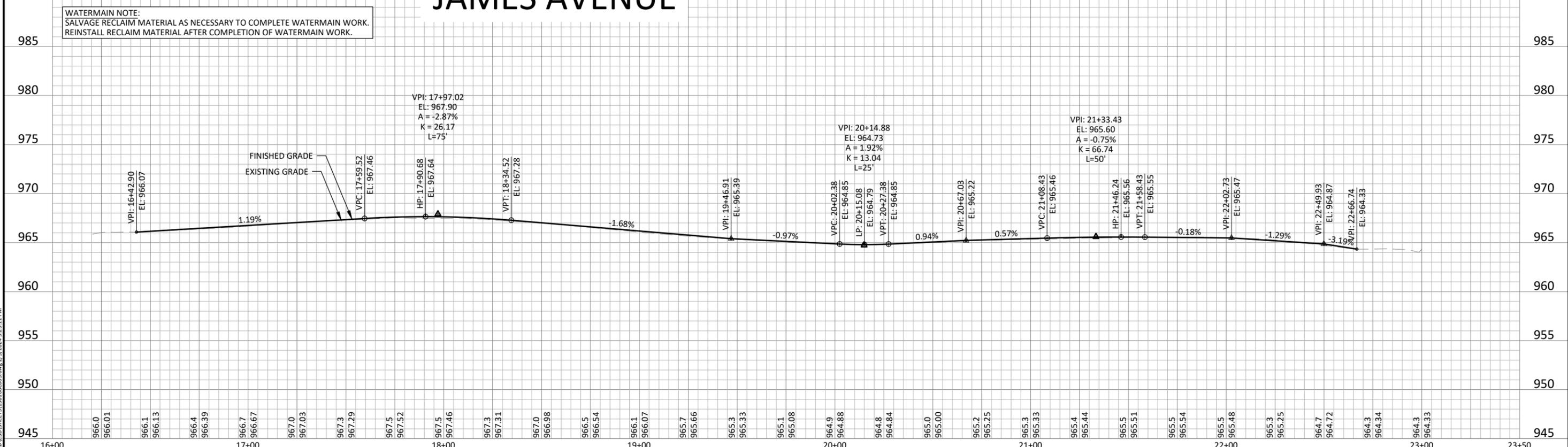
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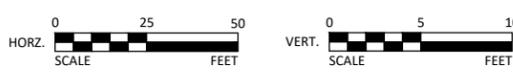


# JAMES AVENUE

**WATERMAIN NOTE:**  
SALVAGE RECLAIM MATERIAL AS NECESSARY TO COMPLETE WATERMAIN WORK.  
REINSTALL RECLAIM MATERIAL AFTER COMPLETION OF WATERMAIN WORK.



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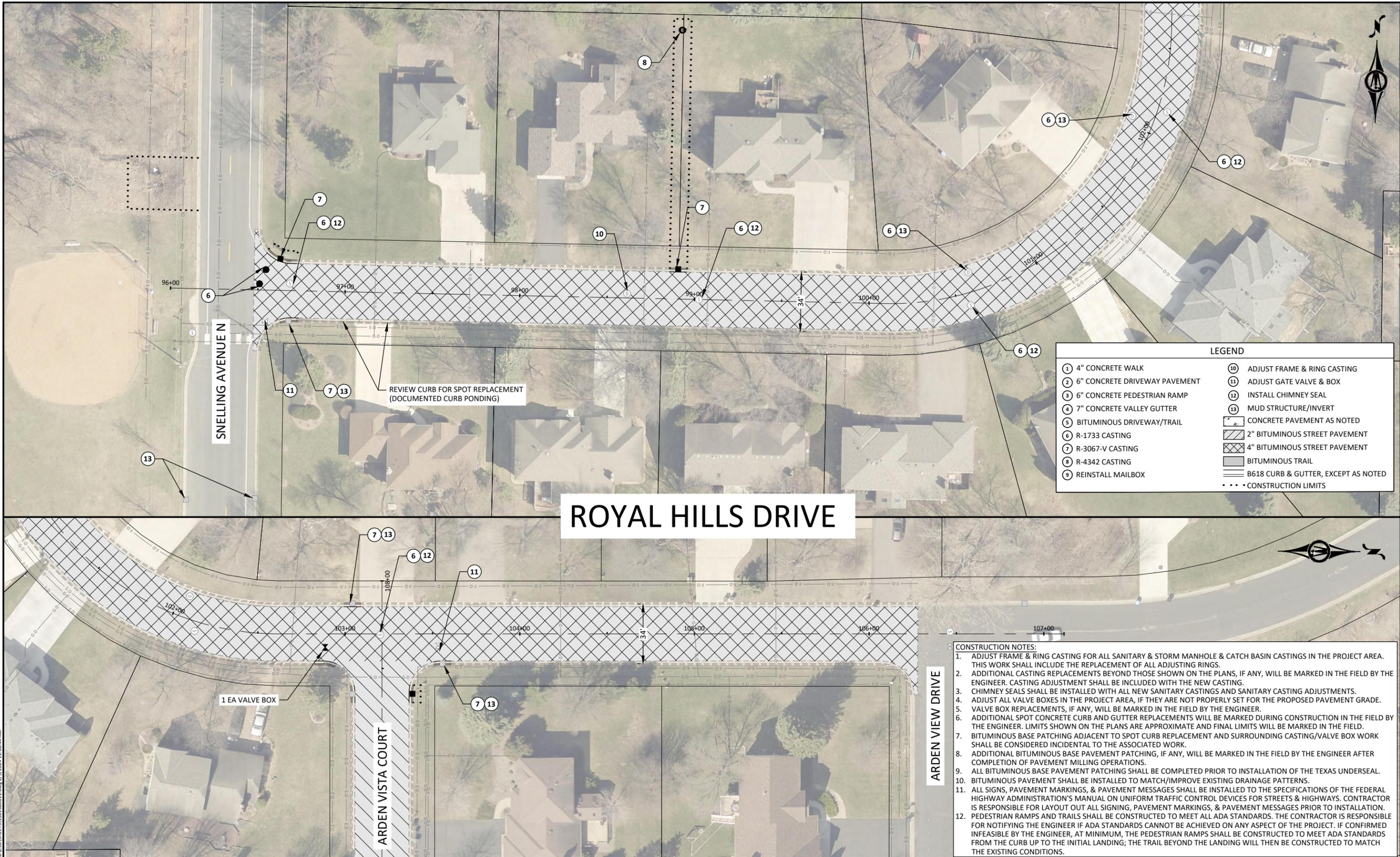
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STREET PLAN  
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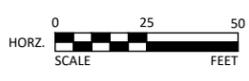
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LEGEND	
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*Bradley J. Fisher*  
 BRADLEY J. FISHER  
 LIC. NO. 56595 DATE 02/12/2024

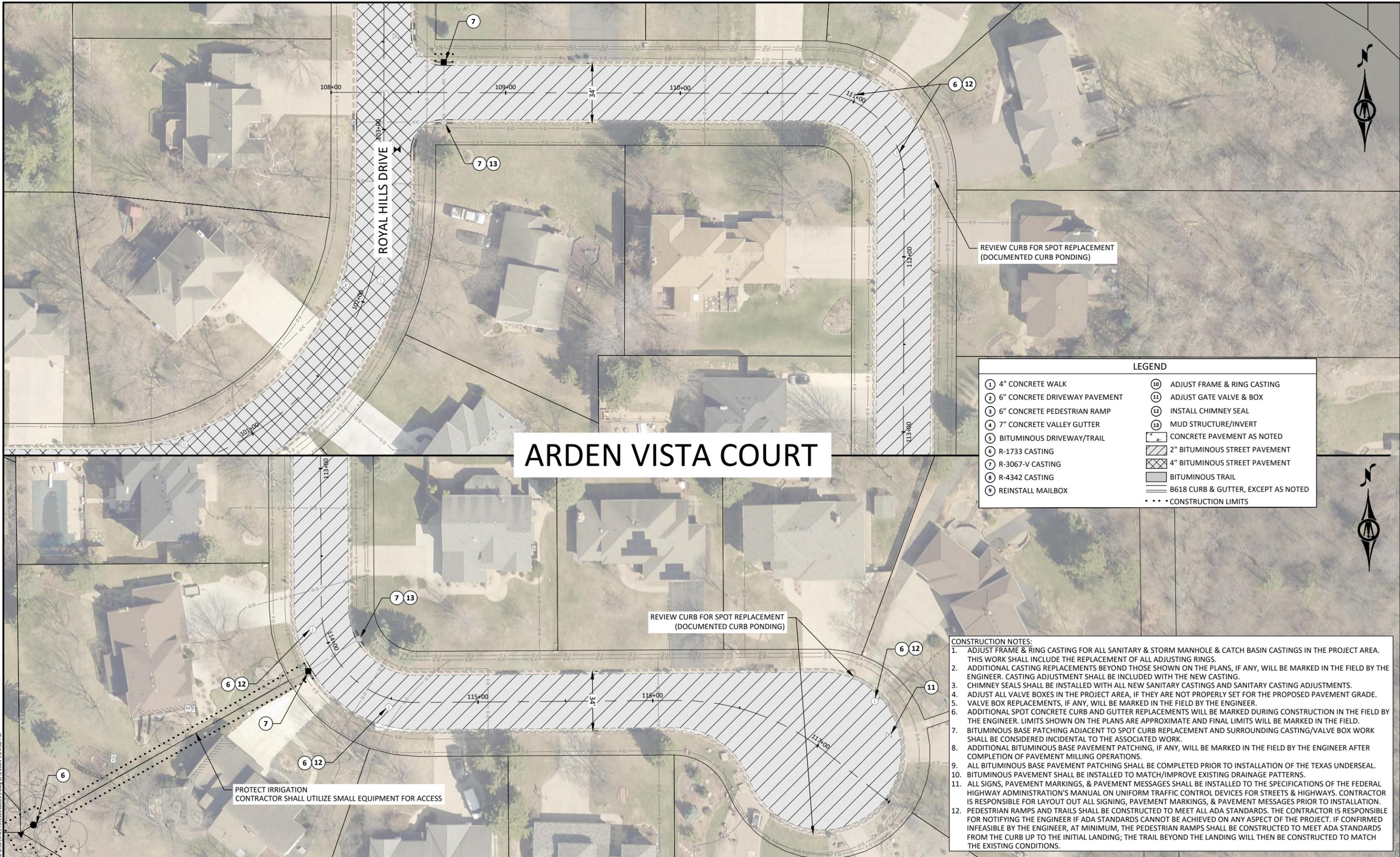


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ARDEN HILLS, MINNESOTA 2024 PMP STREET & UTILITY IMPROVEMENTS STREET PLAN ROYAL HILLS DRIVE		SHEET <b>C6.08</b>
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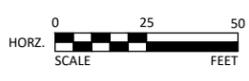


# ARDEN VISTA COURT

LEGEND	
① 4" CONCRETE WALK	⑩ ADJUST FRAME & RING CASTING
② 6" CONCRETE DRIVEWAY PAVEMENT	⑪ ADJUST GATE VALVE & BOX
③ 6" CONCRETE PEDESTRIAN RAMP	⑫ INSTALL CHIMNEY SEAL
④ 7" CONCRETE VALLEY GUTTER	⑬ MUD STRUCTURE/INVERT
⑤ BITUMINOUS DRIVEWAY/TRAIL	▨ CONCRETE PAVEMENT AS NOTED
⑥ R-1733 CASTING	▧ 2" BITUMINOUS STREET PAVEMENT
⑦ R-3067-V CASTING	▩ 4" BITUMINOUS STREET PAVEMENT
⑧ R-4342 CASTING	▬ BITUMINOUS TRAIL
⑨ REINSTALL MAILBOX	▬ B618 CURB & GUTTER, EXCEPT AS NOTED
	••• CONSTRUCTION LIMITS

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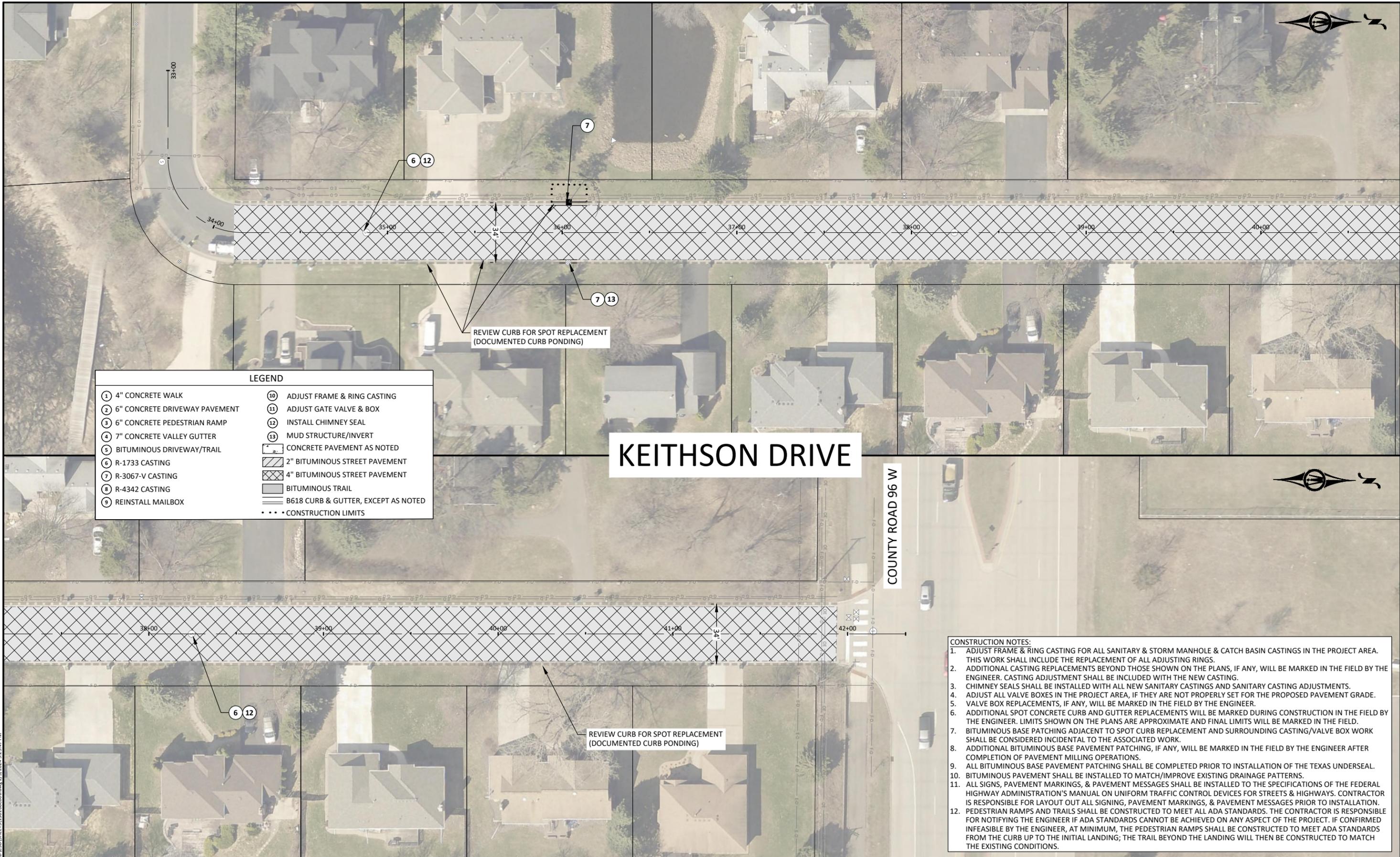
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ARDEN HILLS, MINNESOTA  
 2024 PMP STREET & UTILITY IMPROVEMENTS  
 STREET PLAN  
 ARDEN VISTA COURT

SHEET  
**C6.09**



LEGEND	
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② 6" CONCRETE DRIVEWAY PAVEMENT	⑪ ADJUST GATE VALVE & BOX
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④ 7" CONCRETE VALLEY GUTTER	⑬ MUD STRUCTURE/INVERT
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⑧ R-4342 CASTING	▭ BITUMINOUS TRAIL
⑨ REINSTALL MAILBOX	▬ B618 CURB & GUTTER, EXCEPT AS NOTED
	••• CONSTRUCTION LIMITS

# KEITHSON DRIVE

COUNTY ROAD 96 W

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 BRADLEY J. FISHER  
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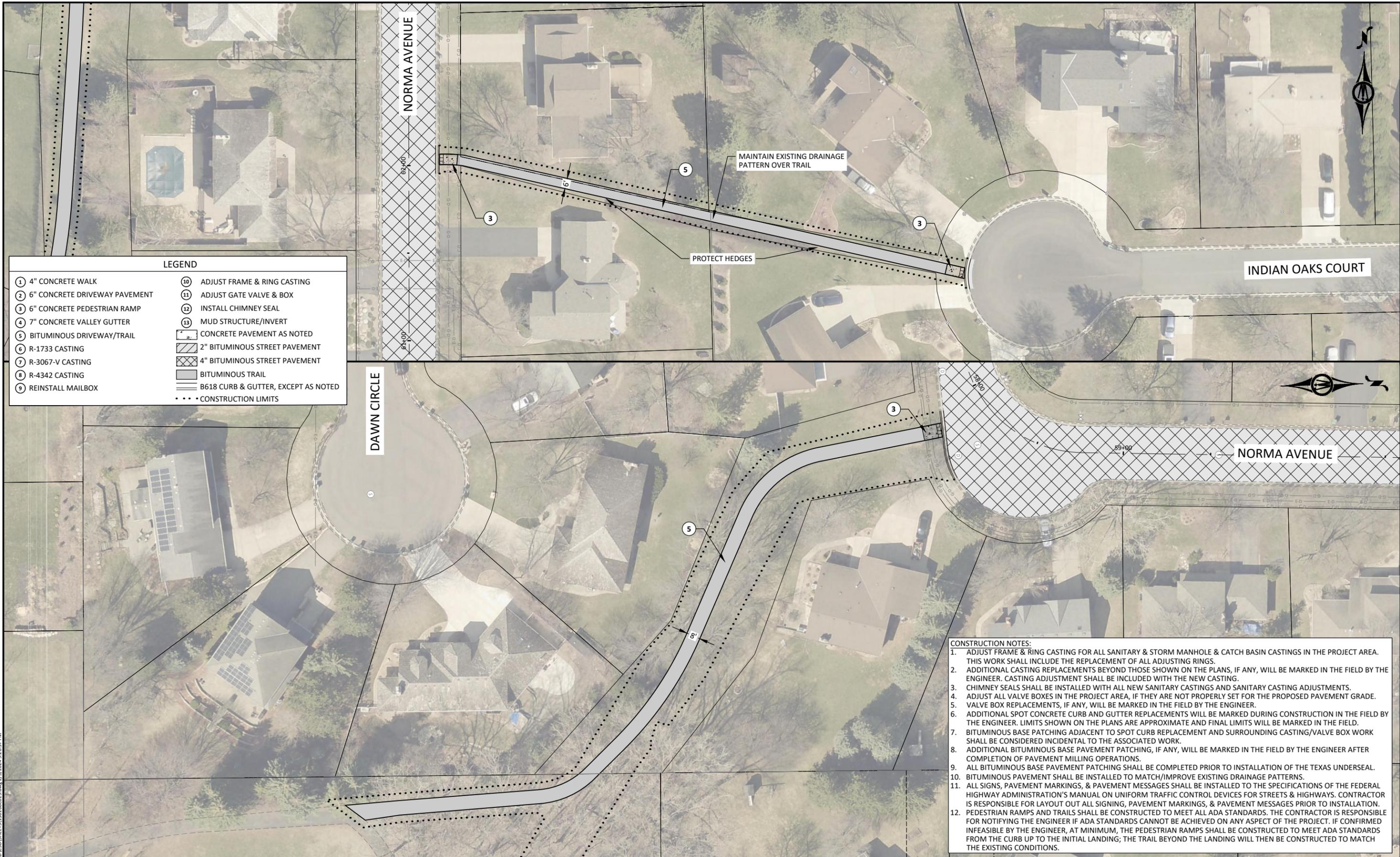


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ARDEN HILLS, MINNESOTA		SHEET
2024 PMP STREET & UTILITY IMPROVEMENTS		C6.10
STREET PLAN		
KEITHSON DRIVE		

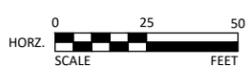


**LEGEND**

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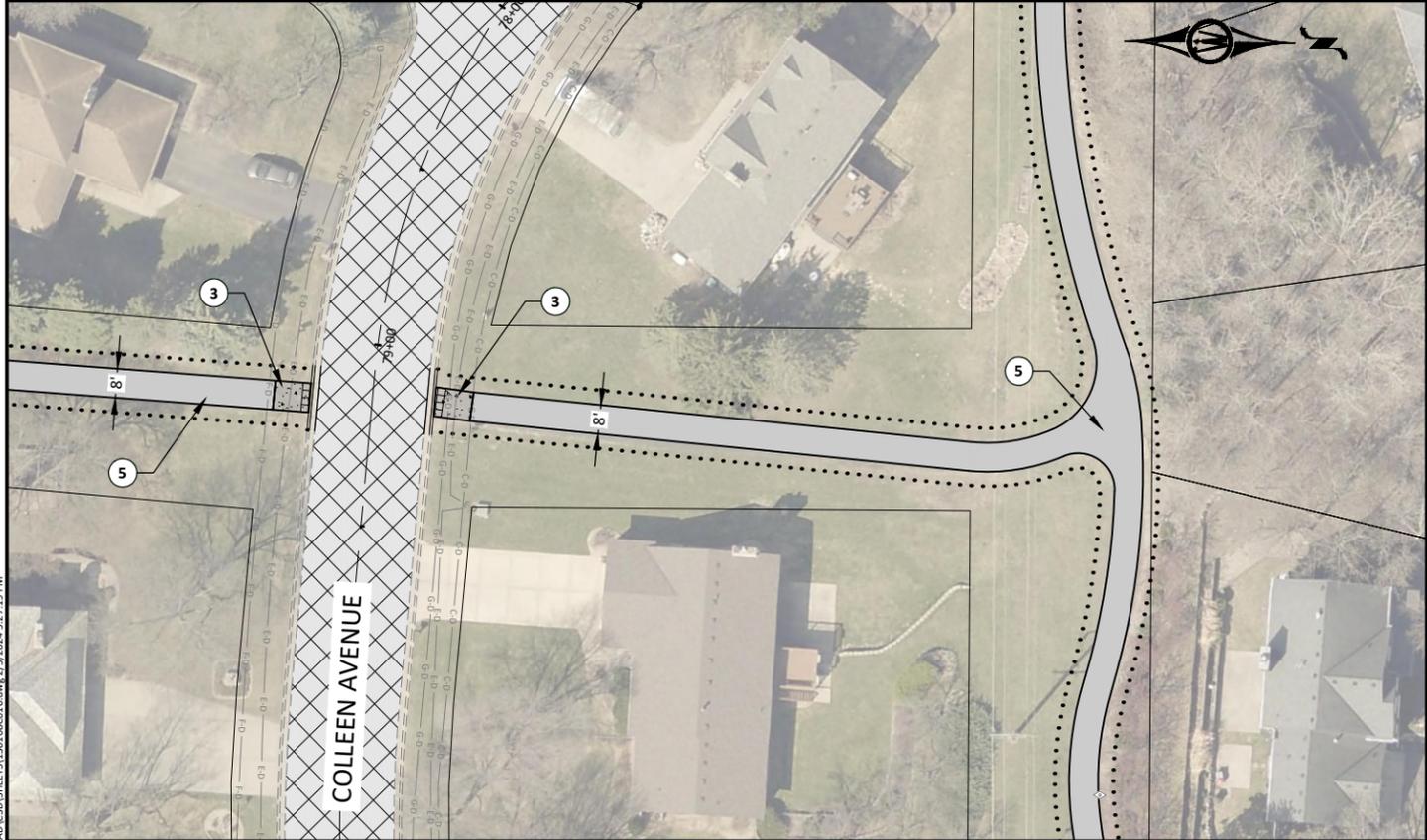
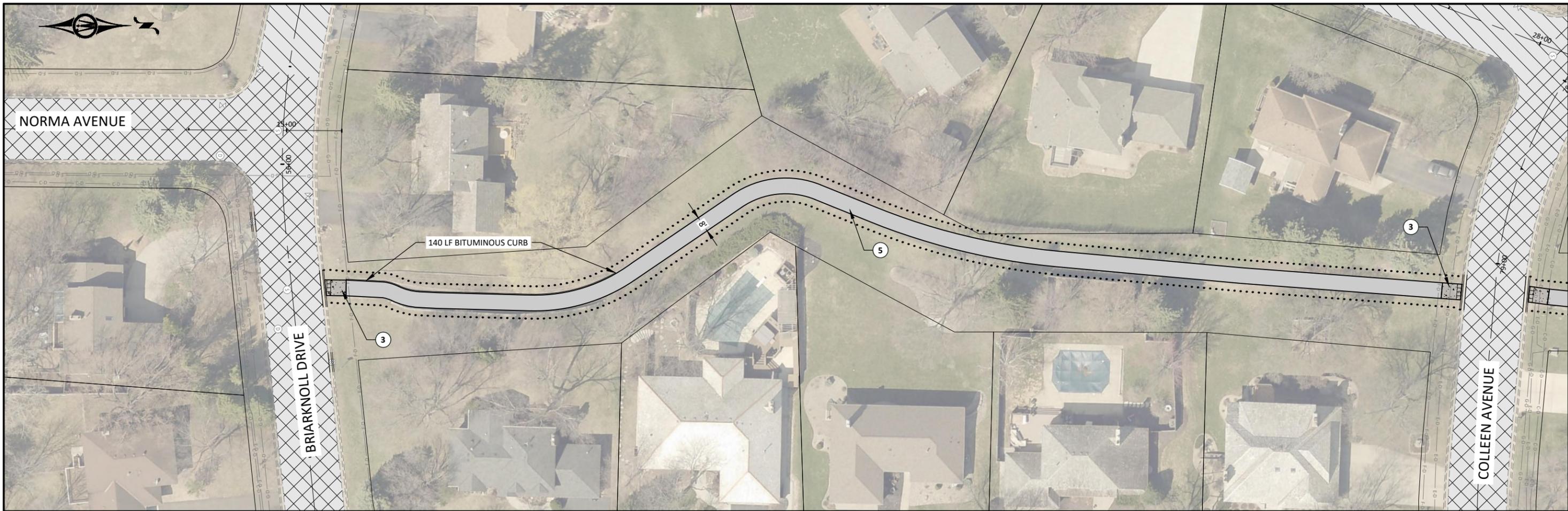
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ARDEN HILLS, MINNESOTA  
 2024 PMP STREET & UTILITY IMPROVEMENTS  
 STREET PLAN  
 NORMA AVENUE TRAIL - ALTERNATE 1

SHEET  
 C6.11



LEGEND	
① 4" CONCRETE WALK	⑩ ADJUST FRAME & RING CASTING
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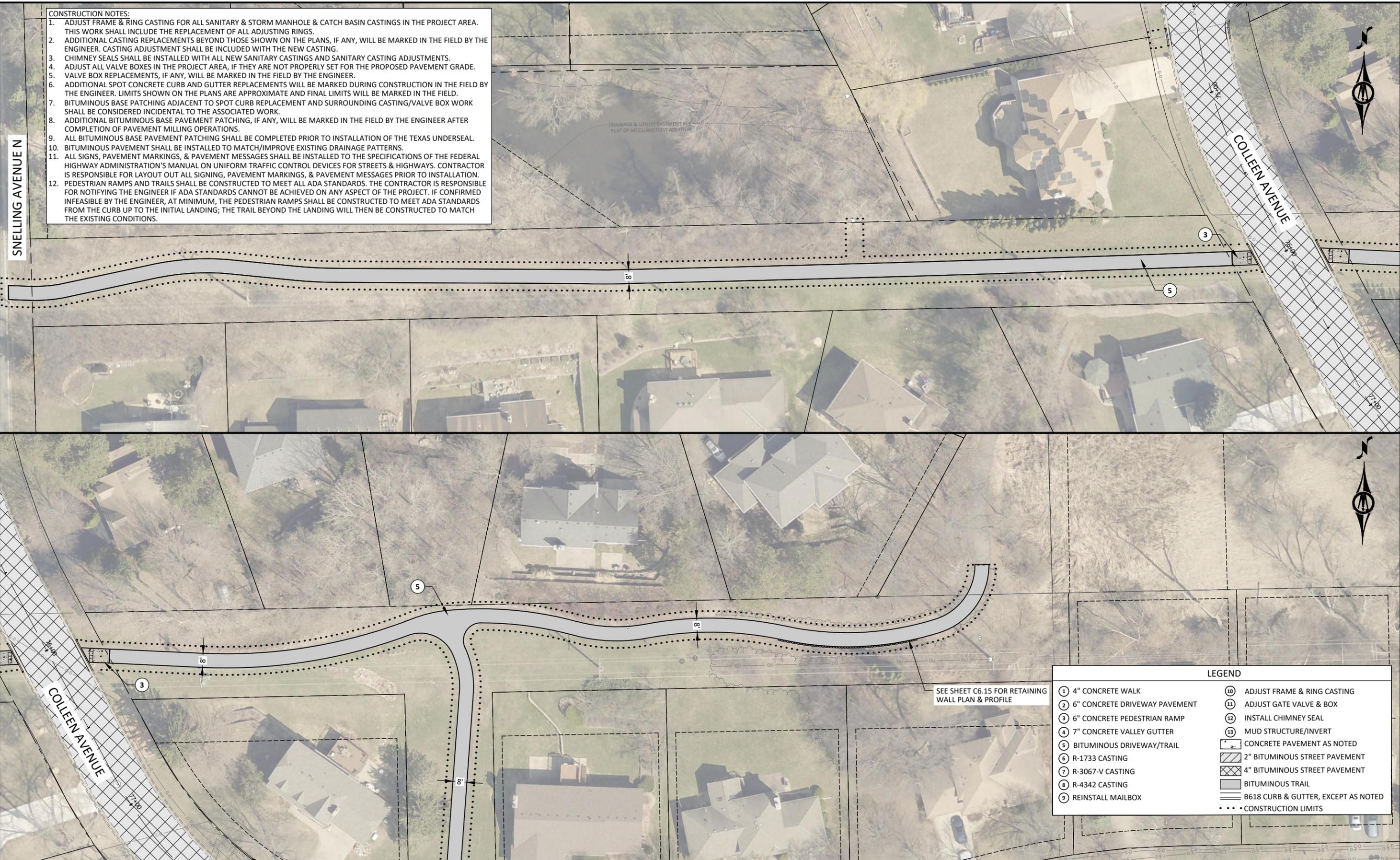
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SNELLING AVENUE N

COLLEN AVENUE



**LEGEND**

- |                                 |                                       |
|---------------------------------|---------------------------------------|
| ① 4" CONCRETE WALK              | ⑩ ADJUST FRAME & RING CASTING         |
| ② 6" CONCRETE DRIVEWAY PAVEMENT | ⑪ ADJUST GATE VALVE & BOX             |
| ③ 6" CONCRETE PEDESTRIAN RAMP   | ⑫ INSTALL CHIMNEY SEAL                |
| ④ 7" CONCRETE VALLEY GUTTER     | ⑬ MUD STRUCTURE/INVERT                |
| ⑤ BITUMINOUS DRIVEWAY/TRAIL     | ☐ CONCRETE PAVEMENT AS NOTED          |
| ⑥ R-1733 CASTING                | ▨ 2" BITUMINOUS STREET PAVEMENT       |
| ⑦ R-3067-V CASTING              | ▩ 4" BITUMINOUS STREET PAVEMENT       |
| ⑧ R-4342 CASTING                | ▭ BITUMINOUS TRAIL                    |
| ⑨ REINSTALL MAILBOX             | ▬ B618 CURB & GUTTER, EXCEPT AS NOTED |
|                                 | ⋯ CONSTRUCTION LIMITS                 |

SEE SHEET C6.15 FOR RETAINING WALL PLAN & PROFILE

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*Bradley J. Fisher*  
BRADLEY J. FISHER  
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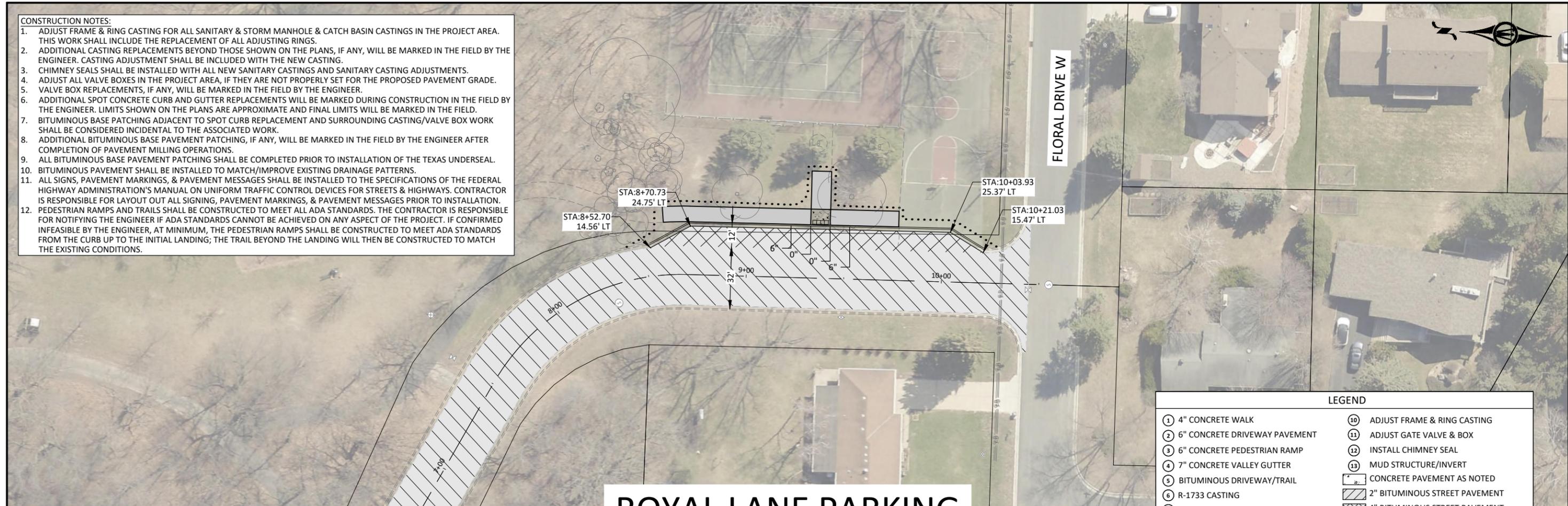
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ARDEN HILLS, MINNESOTA  
2024 PMP STREET & UTILITY IMPROVEMENTS  
STREET PLAN  
COLLEN AVENUE TRAIL - ALTERNATE 1

SHEET  
C6.13

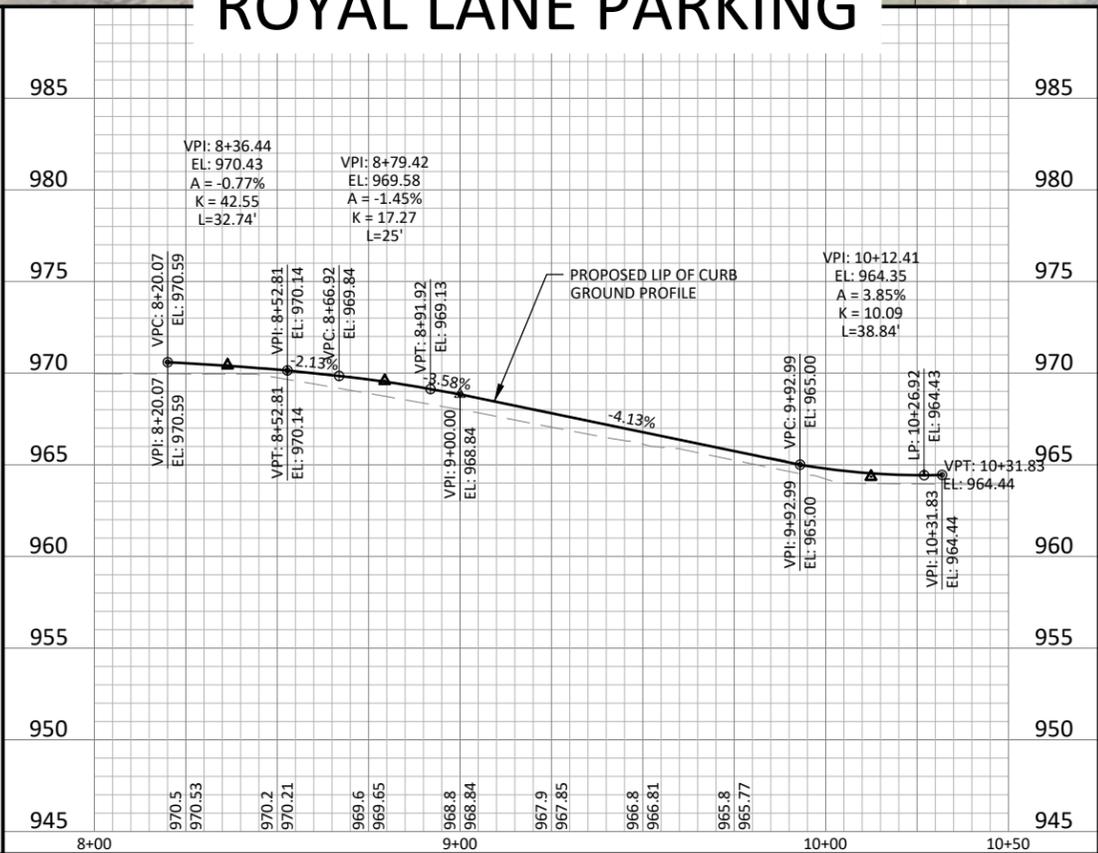
**CONSTRUCTION NOTES:**

- ADJUST FRAME & RING CASTING FOR ALL SANITARY & STORM MANHOLE & CATCH BASIN CASTINGS IN THE PROJECT AREA. THIS WORK SHALL INCLUDE THE REPLACEMENT OF ALL ADJUSTING RINGS.
- ADDITIONAL CASTING REPLACEMENTS BEYOND THOSE SHOWN ON THE PLANS, IF ANY, WILL BE MARKED IN THE FIELD BY THE ENGINEER. CASTING ADJUSTMENT SHALL BE INCLUDED WITH THE NEW CASTING.
- CHIMNEY SEALS SHALL BE INSTALLED WITH ALL NEW SANITARY CASTINGS AND SANITARY CASTING ADJUSTMENTS.
- ADJUST ALL VALVE BOXES IN THE PROJECT AREA, IF THEY ARE NOT PROPERLY SET FOR THE PROPOSED PAVEMENT GRADE.
- VALVE BOX REPLACEMENTS, IF ANY, WILL BE MARKED IN THE FIELD BY THE ENGINEER.
- ADDITIONAL SPOT CONCRETE CURB AND GUTTER REPLACEMENTS WILL BE MARKED DURING CONSTRUCTION IN THE FIELD BY THE ENGINEER. LIMITS SHOWN ON THE PLANS ARE APPROXIMATE AND FINAL LIMITS WILL BE MARKED IN THE FIELD.
- BITUMINOUS BASE PATCHING ADJACENT TO SPOT CURB REPLACEMENT AND SURROUNDING CASTING/VALVE BOX WORK SHALL BE CONSIDERED INCIDENTAL TO THE ASSOCIATED WORK.
- ADDITIONAL BITUMINOUS BASE PAVEMENT PATCHING, IF ANY, WILL BE MARKED IN THE FIELD BY THE ENGINEER AFTER COMPLETION OF PAVEMENT MILLING OPERATIONS.
- ALL BITUMINOUS BASE PAVEMENT PATCHING SHALL BE COMPLETED PRIOR TO INSTALLATION OF THE TEXAS UNDERSEAL.
- BITUMINOUS PAVEMENT SHALL BE INSTALLED TO MATCH/IMPROVE EXISTING DRAINAGE PATTERNS.
- ALL SIGNS, PAVEMENT MARKINGS, & PAVEMENT MESSAGES SHALL BE INSTALLED TO THE SPECIFICATIONS OF THE FEDERAL HIGHWAY ADMINISTRATION'S MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS & HIGHWAYS. CONTRACTOR IS RESPONSIBLE FOR LAYOUT OUT ALL SIGNING, PAVEMENT MARKINGS, & PAVEMENT MESSAGES PRIOR TO INSTALLATION.
- PEDESTRIAN RAMPS AND TRAILS SHALL BE CONSTRUCTED TO MEET ALL ADA STANDARDS. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE ENGINEER IF ADA STANDARDS CANNOT BE ACHIEVED ON ANY ASPECT OF THE PROJECT. IF CONFIRMED INFEASIBLE BY THE ENGINEER, AT MINIMUM, THE PEDESTRIAN RAMPS SHALL BE CONSTRUCTED TO MEET ADA STANDARDS FROM THE CURB UP TO THE INITIAL LANDING; THE TRAIL BEYOND THE LANDING WILL THEN BE CONSTRUCTED TO MATCH THE EXISTING CONDITIONS.



# ROYAL LANE PARKING

LEGEND	
① 4" CONCRETE WALK	⑩ ADJUST FRAME & RING CASTING
② 6" CONCRETE DRIVEWAY PAVEMENT	⑪ ADJUST GATE VALVE & BOX
③ 6" CONCRETE PEDESTRIAN RAMP	⑫ INSTALL CHIMNEY SEAL
④ 7" CONCRETE VALLEY GUTTER	⑬ MUD STRUCTURE/INVERT
⑤ BITUMINOUS DRIVEWAY/TRAIL	□ CONCRETE PAVEMENT AS NOTED
⑥ R-1733 CASTING	▨ 2" BITUMINOUS STREET PAVEMENT
⑦ R-3067-V CASTING	▩ 4" BITUMINOUS STREET PAVEMENT
⑧ R-4342 CASTING	▭ BITUMINOUS TRAIL
⑨ REINSTALL MAILBOX	▬ B618 CURB & GUTTER, EXCEPT AS NOTED
	••• CONSTRUCTION LIMITS



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HORZ. SCALE: 0 25 50 FEET  
 VERT. SCALE: 0 5 10 FEET

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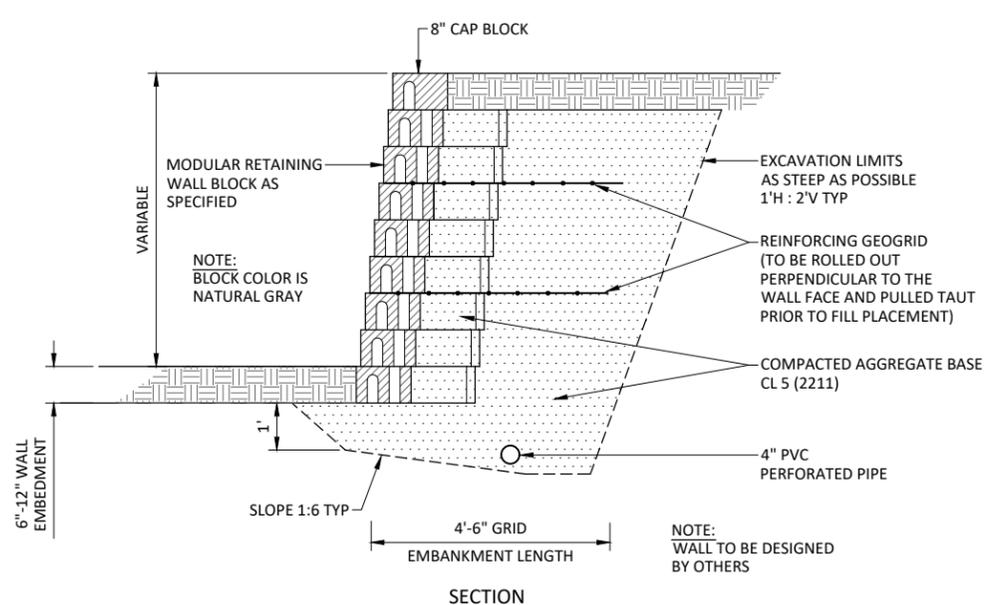
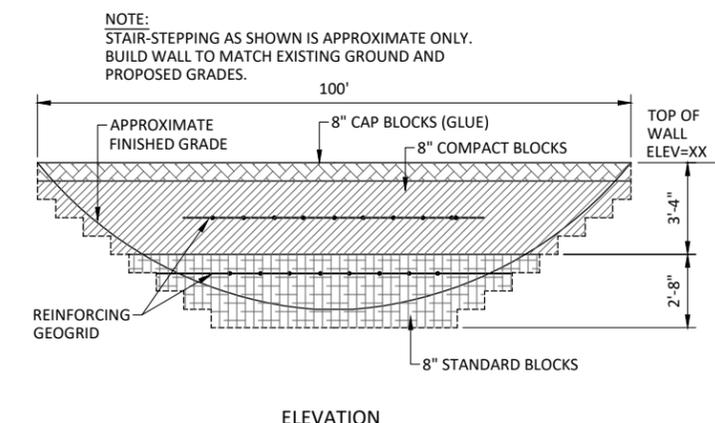
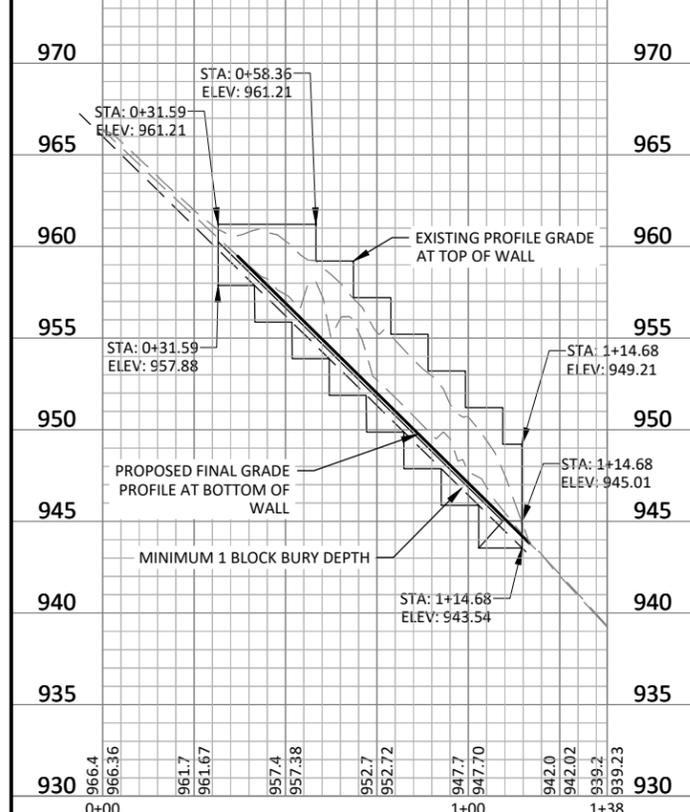
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ARDEN HILLS, MINNESOTA  
 2024 PMP STREET & UTILITY IMPROVEMENTS  
 STREET PLAN  
 ROYAL LANE PARKING

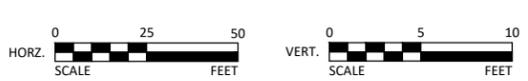
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**C6.14**



- RETAINING WALL DESIGN NOTE:**
- PER RETAINING WALL DETAIL PLATES, TOP CAPS ARE REQUIRED. ELEVATIONS PROVIDED AT BOTTOM OF WALL ARE FOR INFORMATIONAL PURPOSES ONLY. MANUFACTURERS SHALL ADJUST THEIR BOTTOM OF WALL ELEVATIONS FOR EACH INDIVIDUAL WALL DESIGN SUBMITTED TO CONFORM TO ACTUAL BLOCK DIMENSIONS.
  - A MINIMUM OF 2.0' WALL BURY IS REQUIRED FROM FINISHED GRADE AT ALL POINTS ALONG THE WALL BOTTOM FOR BIG BLOCK RETAINING WALLS. WALL PAYMENT FOR BIG BLOCK RETAINING WALLS WILL INCLUDE THE ACTUAL AREA INSTALLED FROM THE TOP OF WALL TO A POINT 2.0' BELOW THE FINISHED GRADE AT BOTTOM OF WALL.
  - A MINIMUM OF 1 BLOCK WALL BURY IS REQUIRED FROM FINISHED GRADE AT ALL POINTS ALONG THE WALL FOR SMALL BLOCK (KEYSTONE) RETAINING WALLS. WALL PAYMENT FOR KEYSTONE BLOCK RETAINING WALLS WILL INCLUDE THE ACTUAL AREA INSTALLED FROM THE TOP OF WALL TO A POINT 1 BLOCK BELOW THE FINISHED GRADE AT BOTTOM OF WALL.
  - CONCRETE FOOTINGS ARE NOT REQUIRED FOR RETAINING WALLS. WALLS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATION AS INDICATED ON SUBMITTED RETAINING WALL SHOP DRAWINGS. SHOP DRAWINGS MUST BE SIGNED BY A LICENSED STRUCTURAL ENGINEER FOR ANY WALL EXCEEDING 4-FT HEIGHT.



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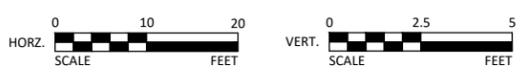
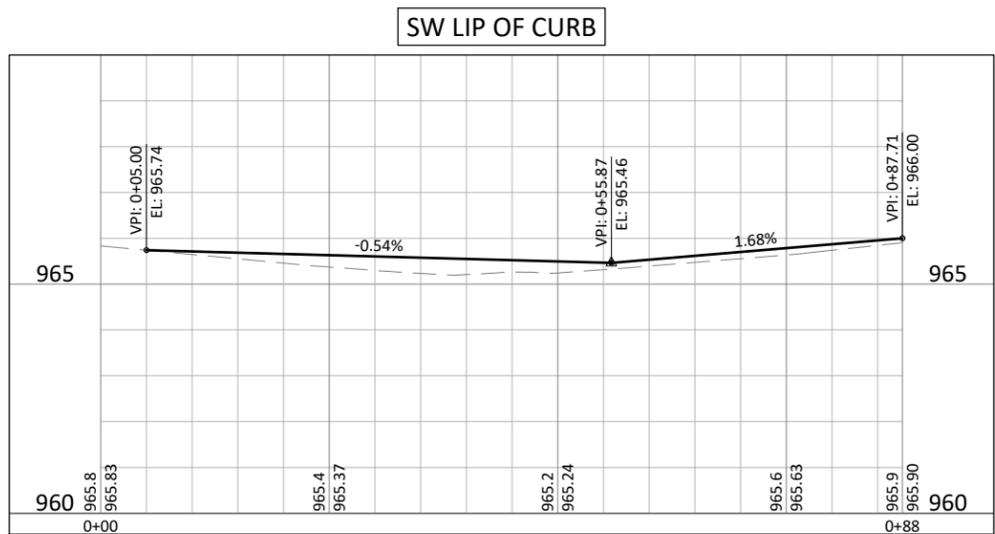
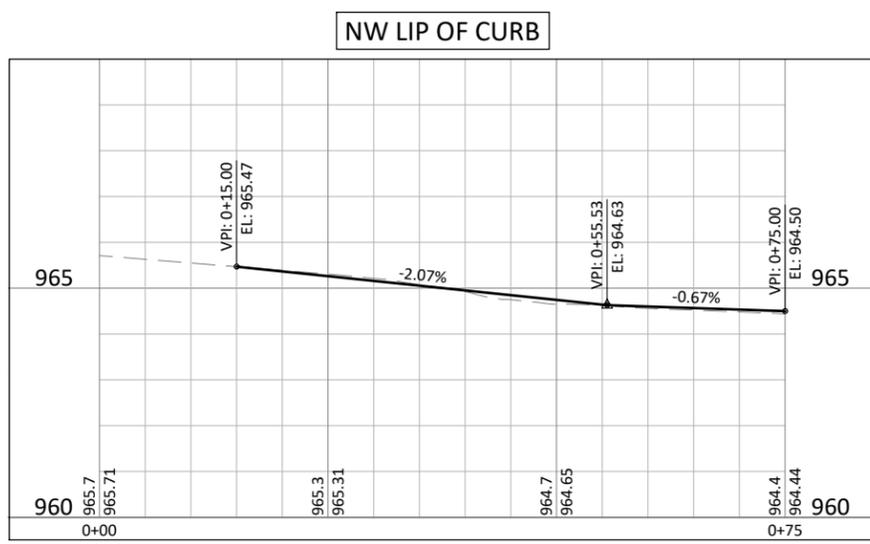
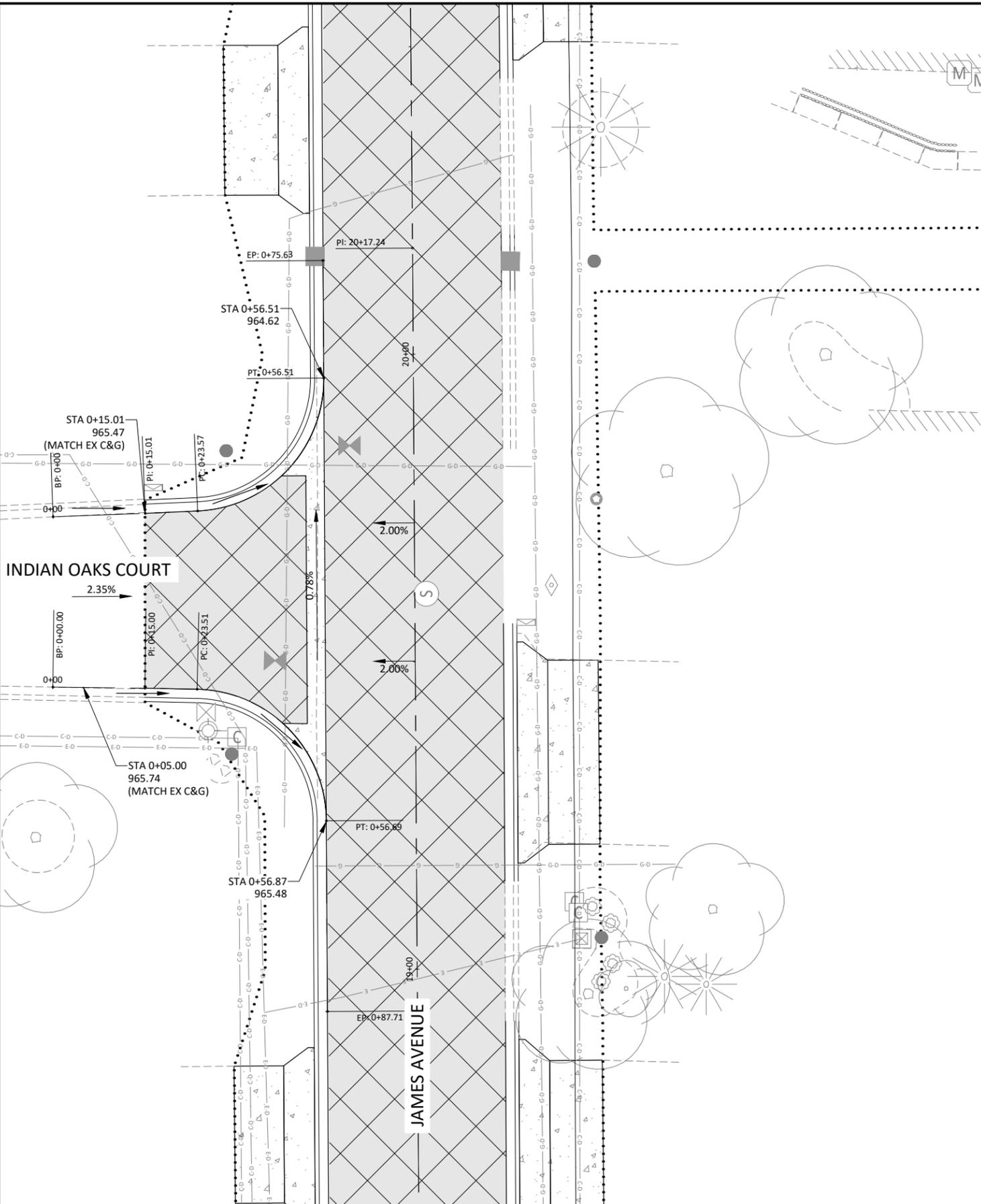
**MODULAR BLOCK RETAINING WALL**  
NOT TO SCALE

ARDEN HILLS, MINNESOTA  
2024 PMP STREET & UTILITY IMPROVEMENTS  
RETAINING WALL - ALTERNATE 1

LAST REVISION:  
04-2021  
PLATE NO.  
7-301

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**C6.15**

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 BRADLEY J. FISHER  
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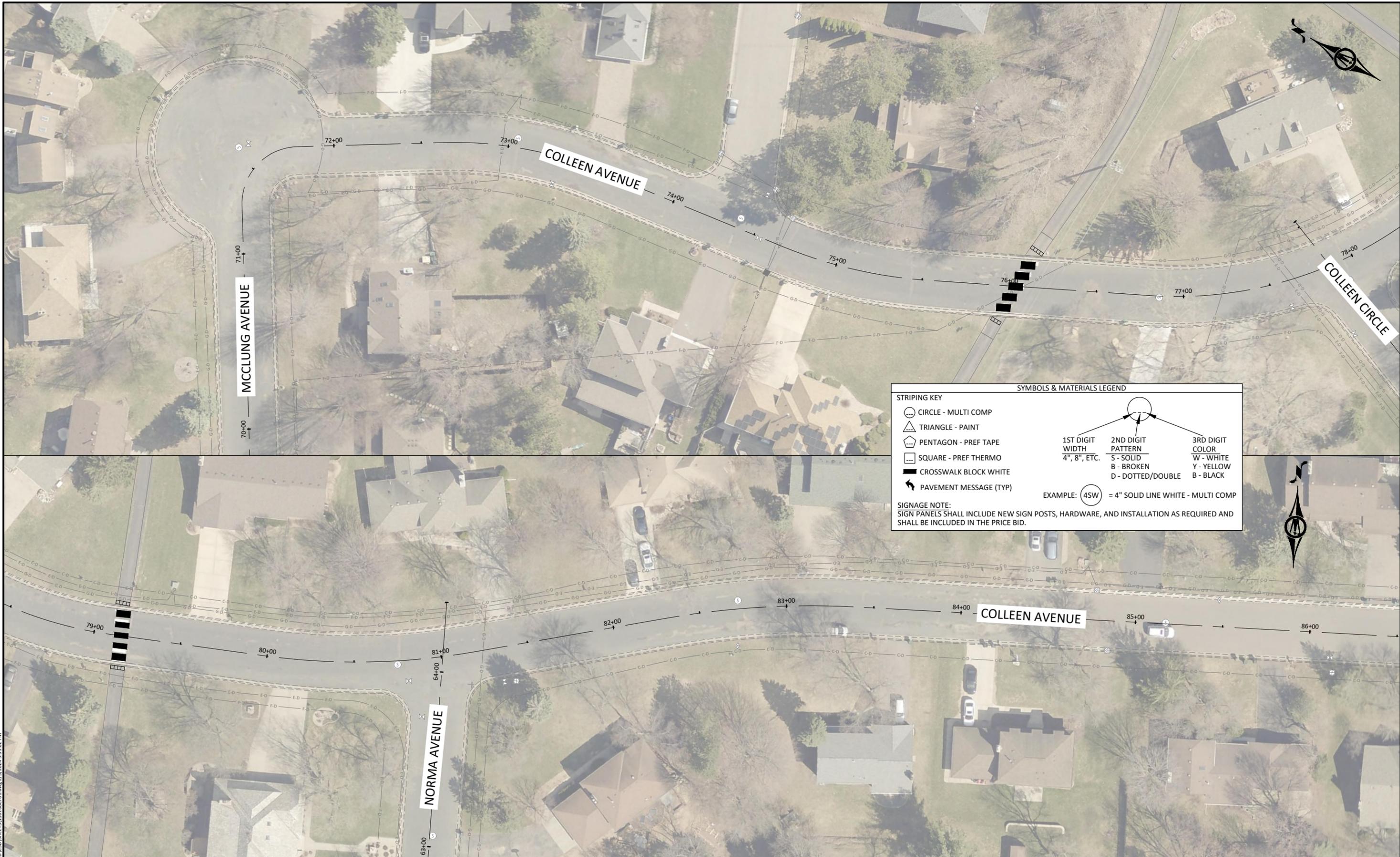
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**ARDEN HILLS, MINNESOTA**  
 2024 PMP STREET & UTILITY IMPROVEMENTS  
 INTERSECTION DETAILS  
 JAMES AVENUE - INDIAN OAKS COURT

SHEET  
**C6.16**



**STRIPING KEY**

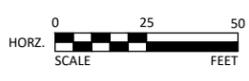
- CIRCLE - MULTI COMP
- TRIANGLE - PAINT
- PENTAGON - PREF TAPE
- SQUARE - PREF THERMO
- CROSSWALK BLOCK WHITE
- PAVEMENT MESSAGE (TYP)

**SYMBOLS & MATERIALS LEGEND**

1ST DIGIT WIDTH 4", 8", ETC.	2ND DIGIT PATTERN S - SOLID B - BROKEN D - DOTTED/DOUBLE	3RD DIGIT COLOR W - WHITE Y - YELLOW B - BLACK
EXAMPLE: (4SW)	= 4" SOLID LINE WHITE - MULTI COMP	

**SIGNAGE NOTE:**  
SIGN PANELS SHALL INCLUDE NEW SIGN POSTS, HARDWARE, AND INSTALLATION AS REQUIRED AND SHALL BE INCLUDED IN THE PRICE BID.

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2024 PMP STREET & UTILITY IMPROVEMENTS  
STREET SIGNAGE PLAN  
SIGNING & STRIPING PLAN

SHEET  
**C7.01**





**STRIPING KEY**

- CIRCLE - MULTI COMP
- TRIANGLE - PAINT
- PENTAGON - PREF TAPE
- SQUARE - PREF THERMO
- CROSSWALK BLOCK WHITE
- PAVEMENT MESSAGE (TYP)

**SYMBOLS & MATERIALS LEGEND**

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EXAMPLE: 4SW	= 4" SOLID LINE WHITE - MULTI COMP	

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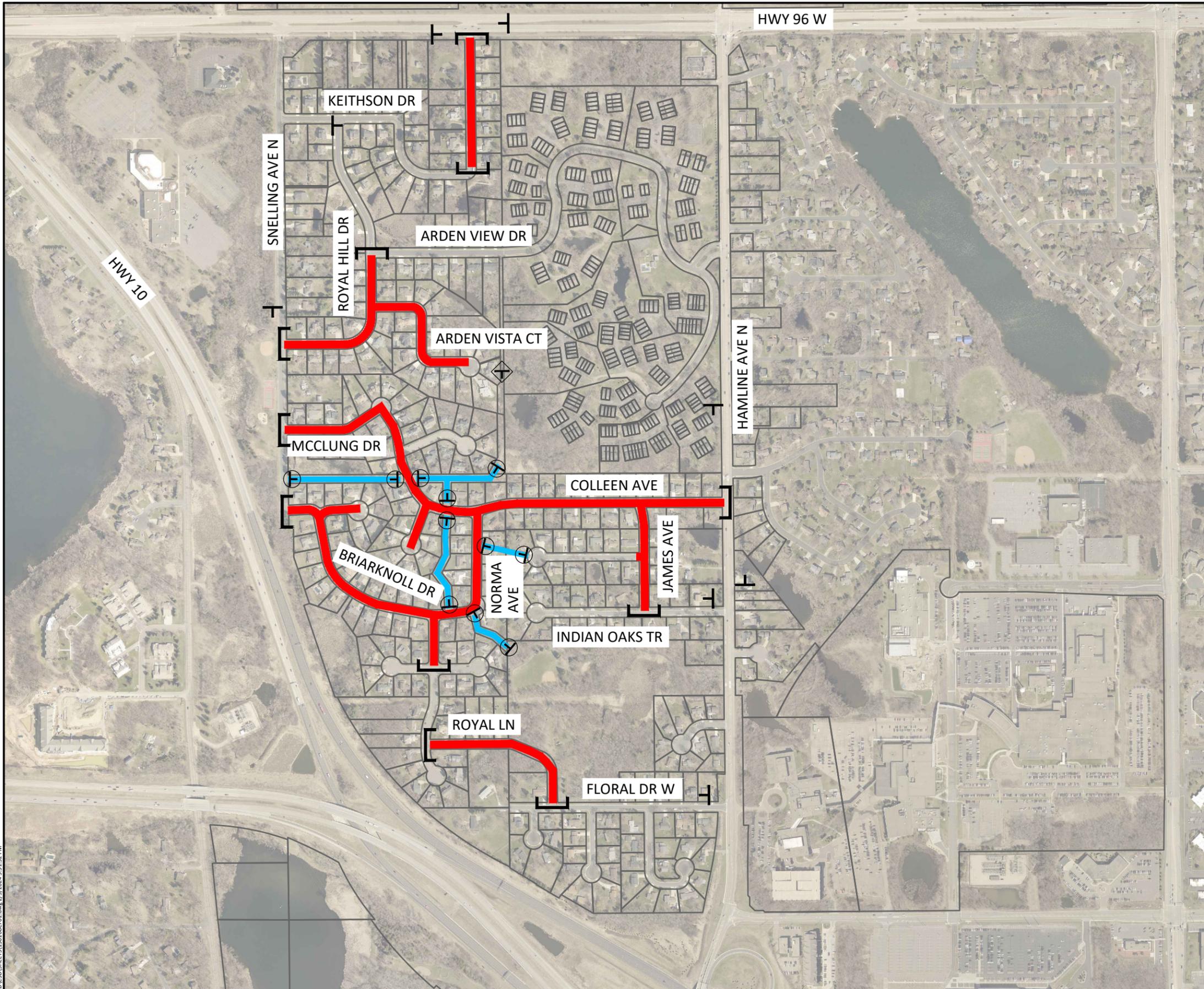
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2024 PMP STREET & UTILITY IMPROVEMENTS  
STREET SIGNAGE PLAN  
SIGNING & STRIPING PLAN

SHEET  
C7.03



**R11-4 (60 X 30)**  
ROAD CLOSED TO THRU TRAFFIC

TYPE A FLASHING WARNING LIGHT(S)

**W20-1 (48 X 48)**  
ROAD WORK AHEAD

**R9-9B (30 X 18)**  
PATHWAY CLOSED

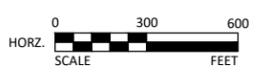
**W20-3M (48 X 48)**  
TRAIL CLOSED AHEAD

ROAD CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION

TRAIL CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION

- TRAFFIC CONTROL NOTES:**
1. THE CONTRACTOR MUST DEVELOP A DETAILED TRAFFIC CONTROL PLAN SHOWING ALL SIGNS AND DEVICES. THE CONTRACTOR MUST NOTIFY RAMSEY COUNTY OF ANY SIGNAGE INSTALLED WITHIN COUNTY ROW, IN ACCORDANCE WITH THE ASSOCIATED PROJECT PERMIT.
  2. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.
  3. TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO ANY CONSTRUCTION WORK BEGINNING.
  4. IF DEEMED NECESSARY, ADDITIONAL TRAFFIC CONTROL DEVICES OR FLAGGING MAY BE REQUIRED BY THE ENGINEER.
  5. TRAFFIC CONTROL DEVICES SHALL BE MOVED/ REPLACED/ REMOVED AS CONSTRUCTION PROGRESSES. TRAFFIC CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ENGINEER DETERMINES IT ACCEPTABLE FOR SIGNS TO BE REMOVED.

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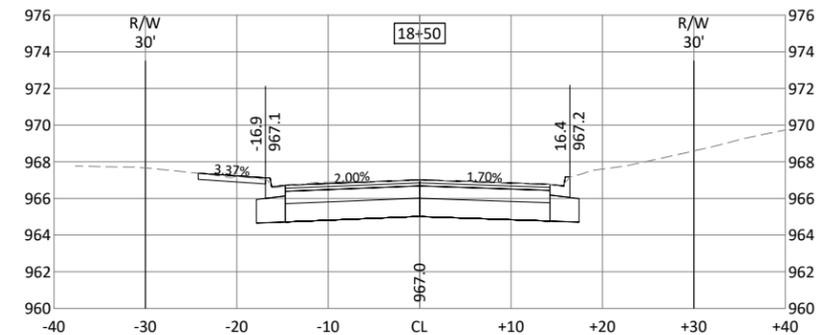
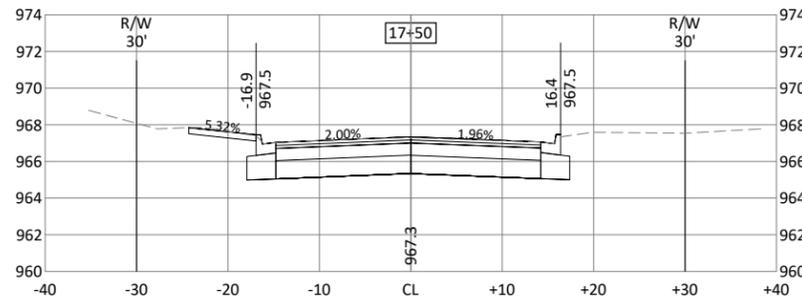
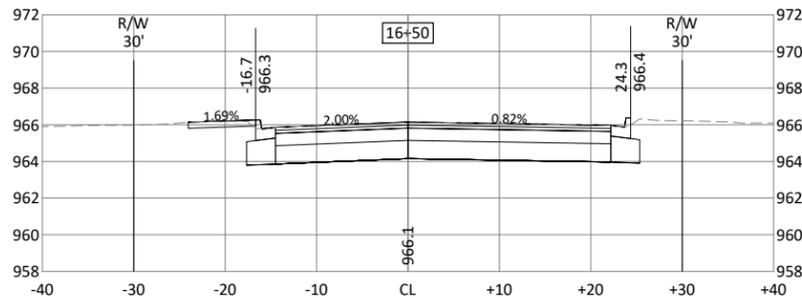
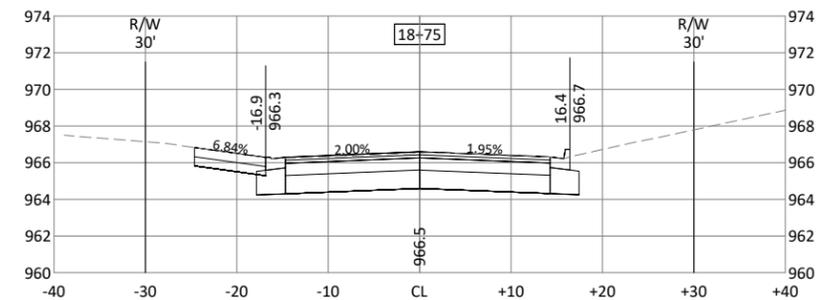
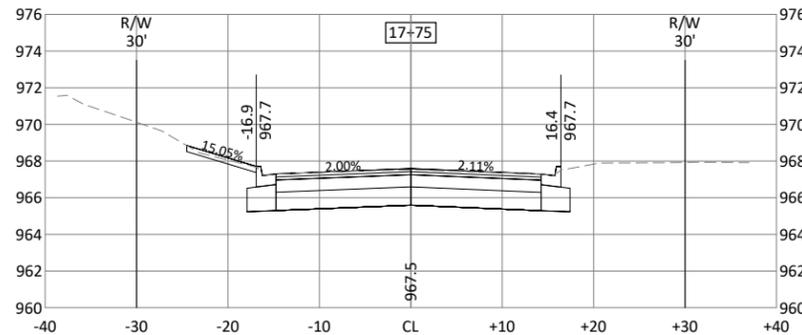
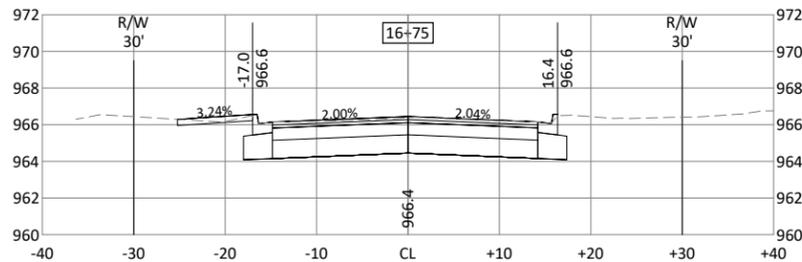
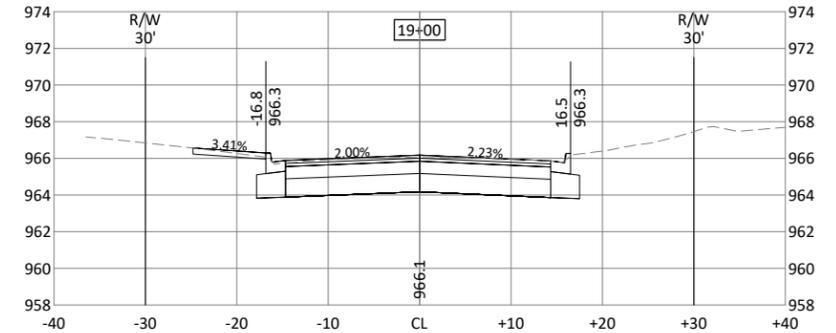
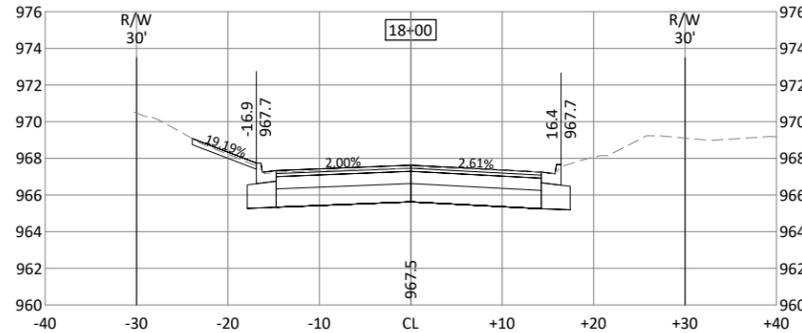
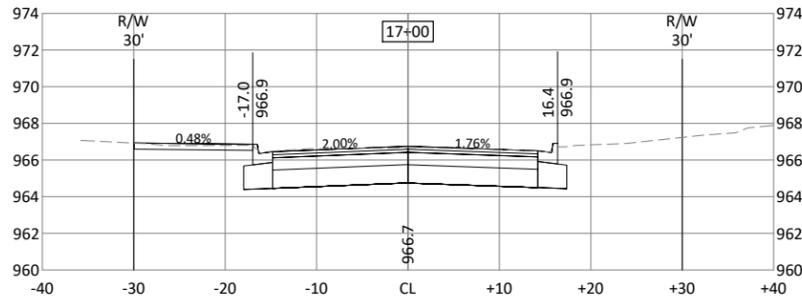
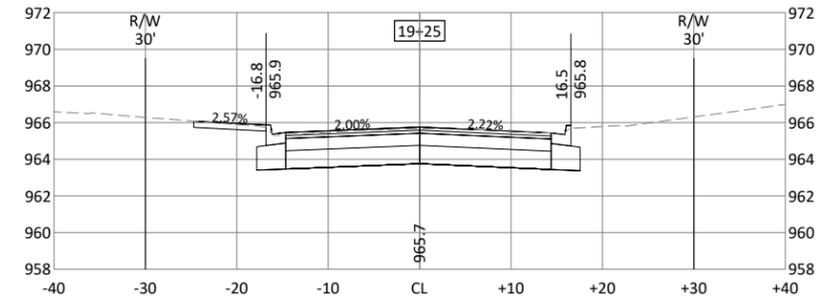
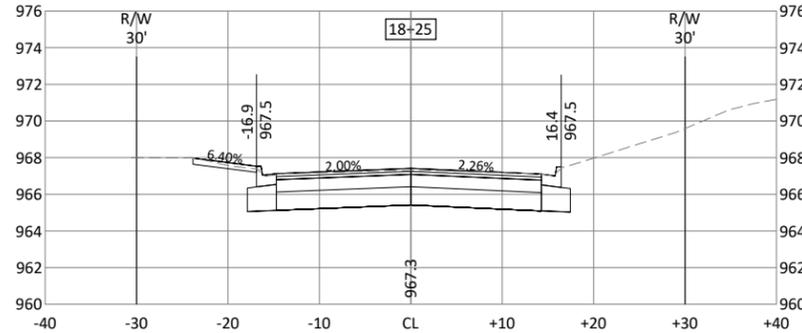
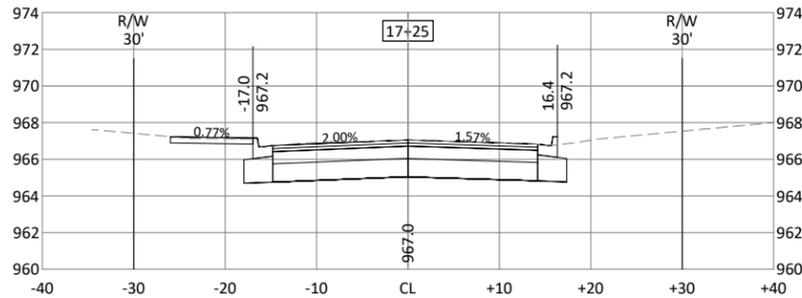


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ARDEN HILLS, MINNESOTA  
2024 PMP STREET & UTILITY IMPROVEMENTS  
TRAFFIC CONTROL PLAN

SHEET  
C7.04

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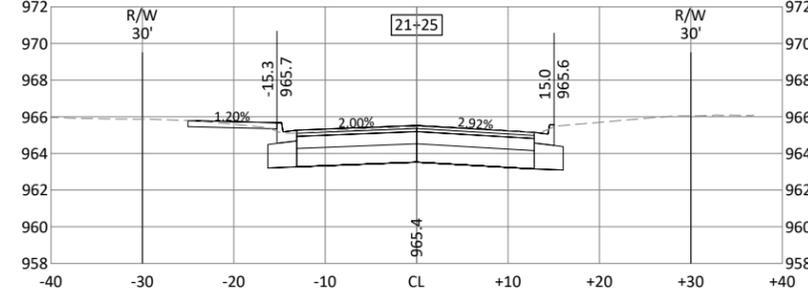
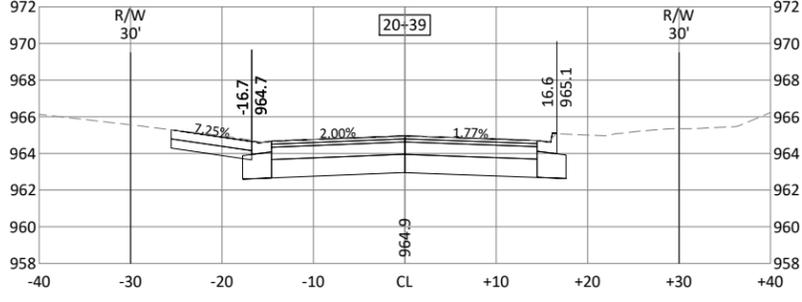
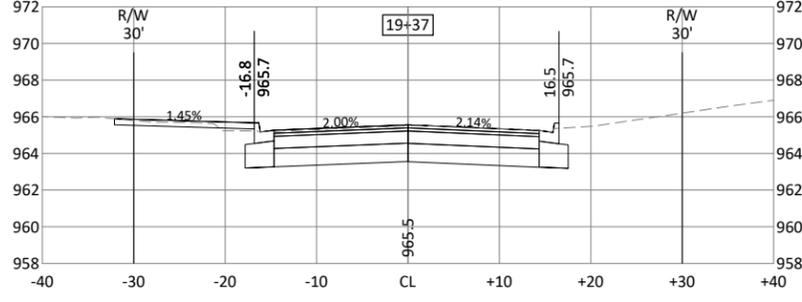
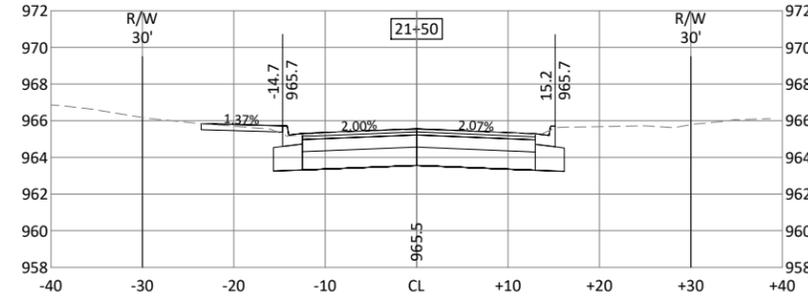
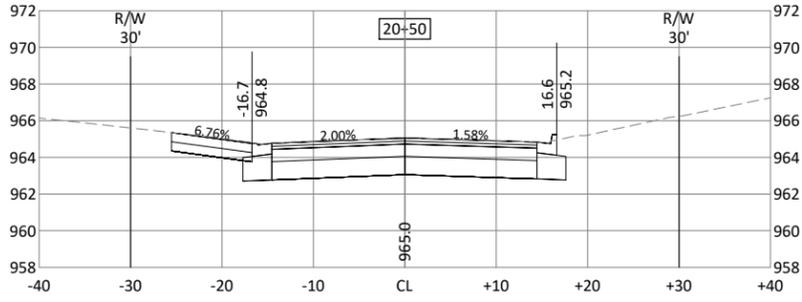
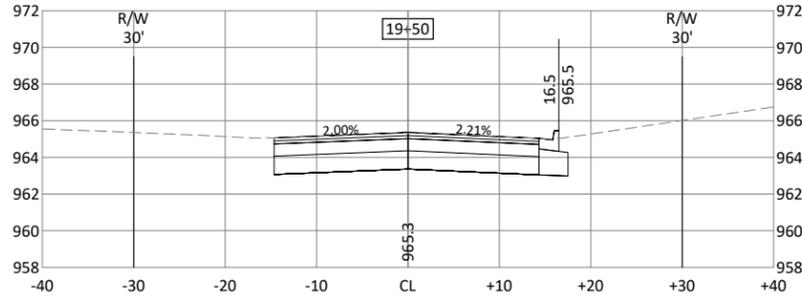
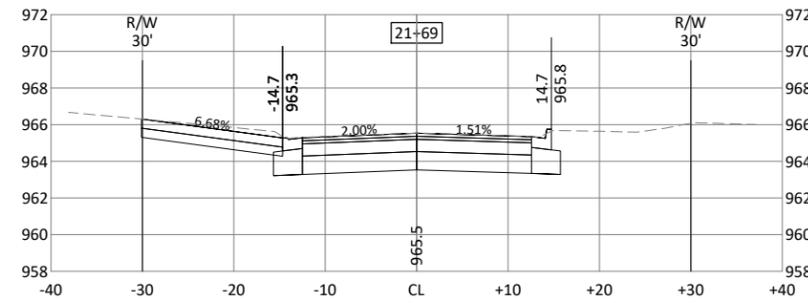
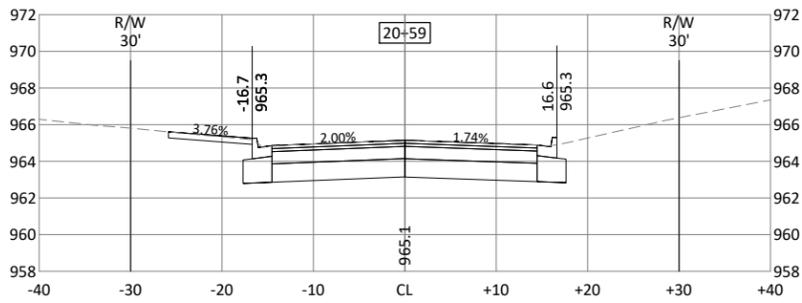
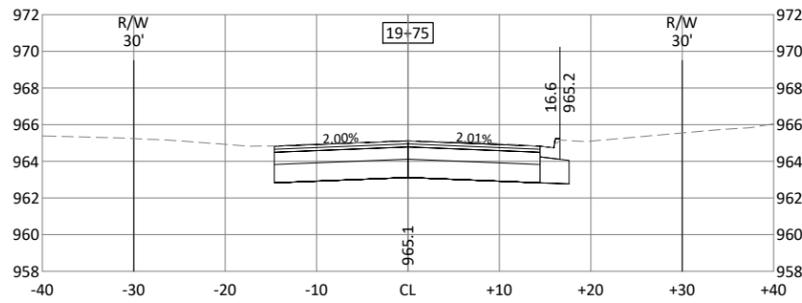
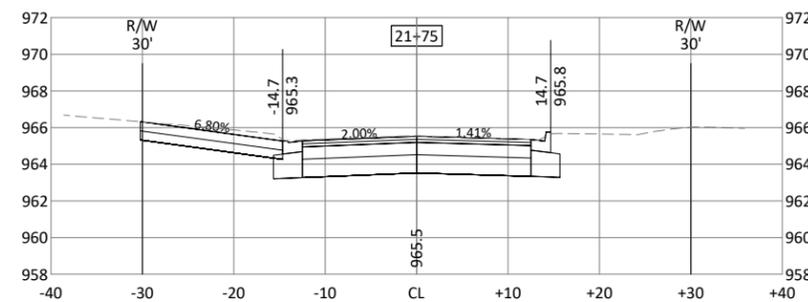
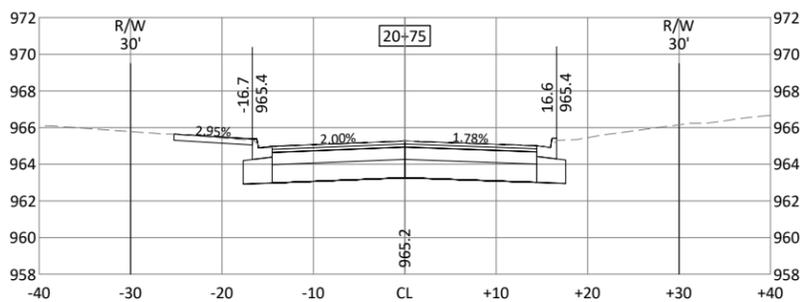
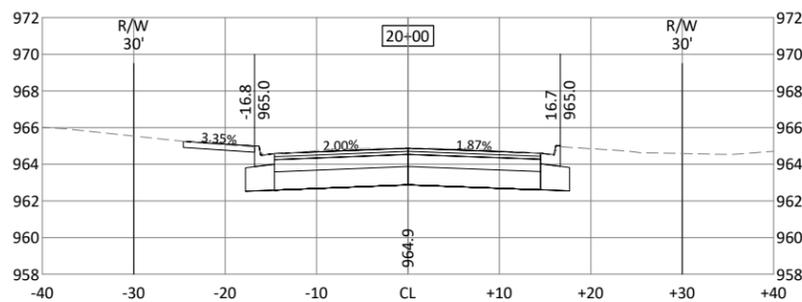
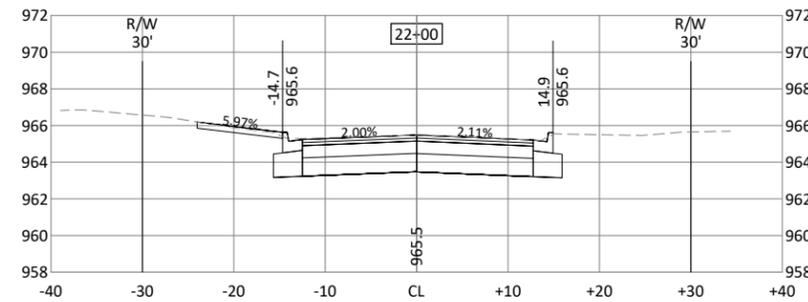
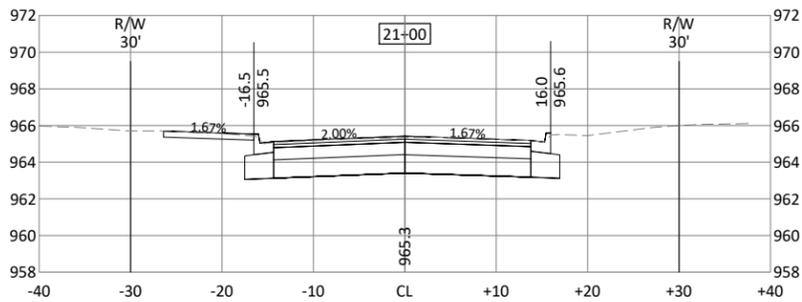
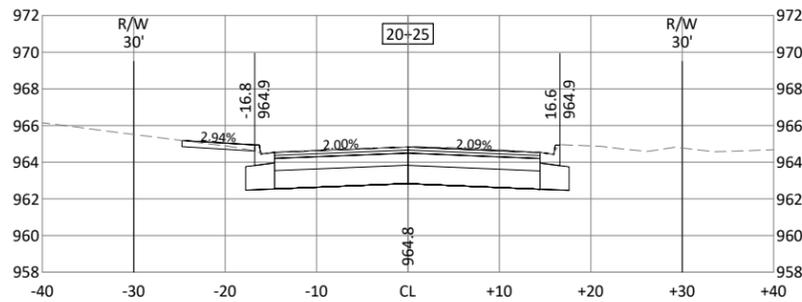


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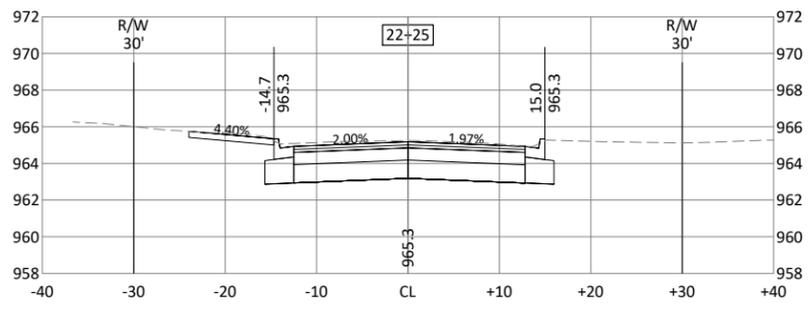
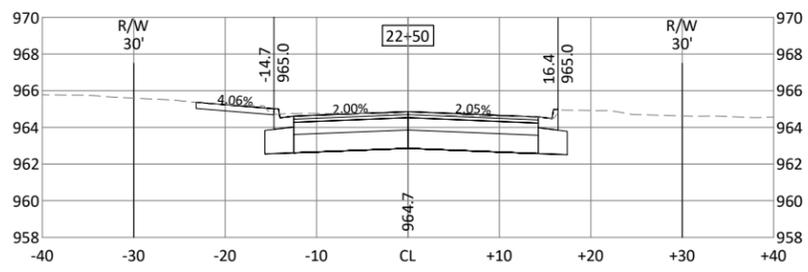


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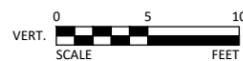
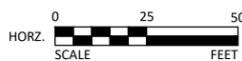
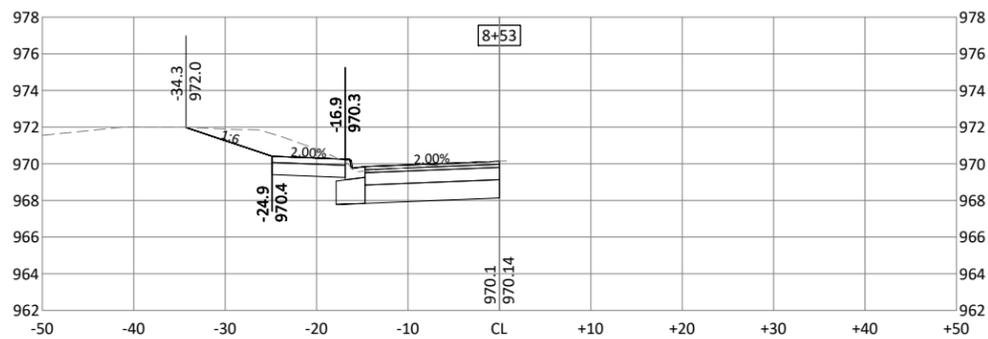
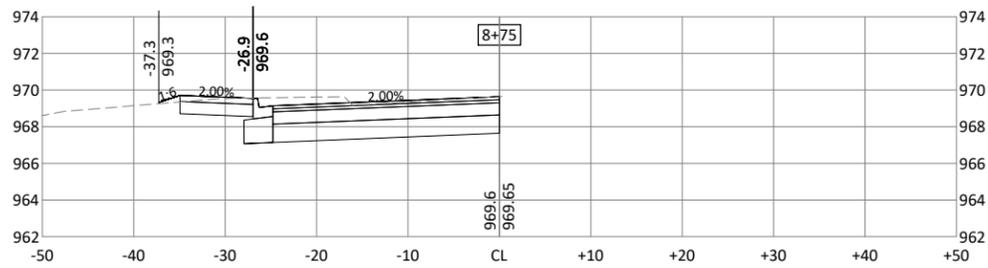
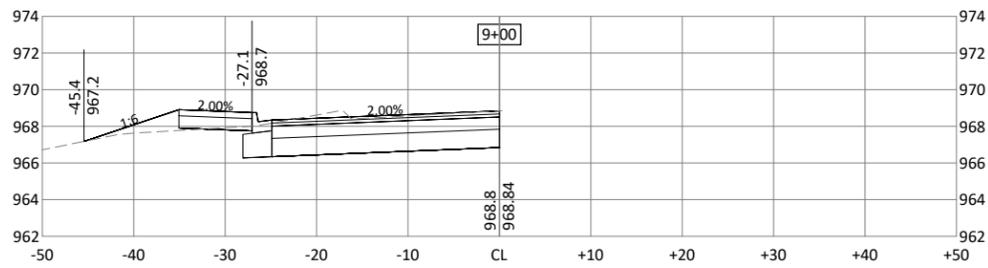
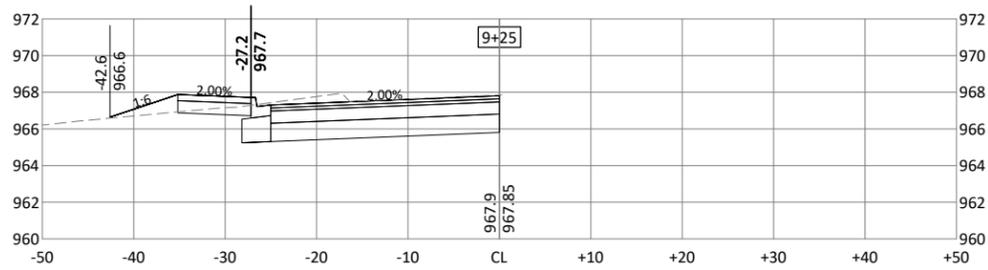


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