PLAN SYMBOLS

EXISTING / PROPOSED — CENTERLINE

EXISTING / PROPOSED — RIGHT–OF–WAY LINE

CONSTRUCTION / PERMANENT EASEMENT — EASEMENT LINE

LOT / SECTION — PROPERTY LINE

CONSTRUCTION LIMITS
CLEAR ZONE

EXISTING CONTOURS — 901 INTERMEDIATE, 900 INDEX, 901.25 GRADE BREAK

PROPOSED CONTOURS — 901 INTERMEDIATE, 900 INDEX, 901.25 GRADE BREAK

DITCH LINE — EXISTING, PROPOSED, EXISTING COUNTY

FENCE LINE – ANY TYPE (X — X — X)

SILT FENCE

WETLAND BOUNDARY (W — W — W)

EXISTING TREES (TO REMAIN) — TREE LINE, TREE SYMBOLS

BENCH MARK / IRON MONUMENT (X BM)

LIGHT POLE / BOLLARD

SOIL BORING

BUILDING

RIPRAP — PROPOSED

MAILBOX (MB)

SIGN — EXISTING, PROPOSED

UTILITY SYMBOLS

GAS LINE (GAS — GAS)

PETROLEUM LINE (PETRO — PETRO)

ELECTRIC (OHE — OHE OVERHEAD; UGE — UGE UNDERGROUND)

UNDERGROUND TELEPHONE LINE (T — T — T)

UNDERGROUND CABLE TV LINE (CATV — CATV)

UNDERGROUND FIBER OPTIC LINE (FO — FO PRIVATE; MnDOT FO — MnDOT FO MnDOT)

TELEPHONE STRUCTURES — MANHOLE, JUNC. BOX

ELECTRIC JUNC. BOX (X)

CABLE TV JUNC. BOX (TV)

FIBER OPTIC STRUCTURES — MANHOLE, JUNC. BOX

POWER POLE AND GUY WIRE — EXISTING

STORM DRAIN LINE — EXISTING, PROPOSED

FLARED END SECTION — EXISTING, PROPOSED

CATCH BASIN — EXISTING, PROPOSED

MANHOLE — EXISTING, PROPOSED

WELL (W)

HATCH LEGEND

EROSION CONTROL — ROCK, HYDROMULCH

REMOVAL — TREES, BITUMINOUS

PLOT DATE: 5/29/2025 16:46

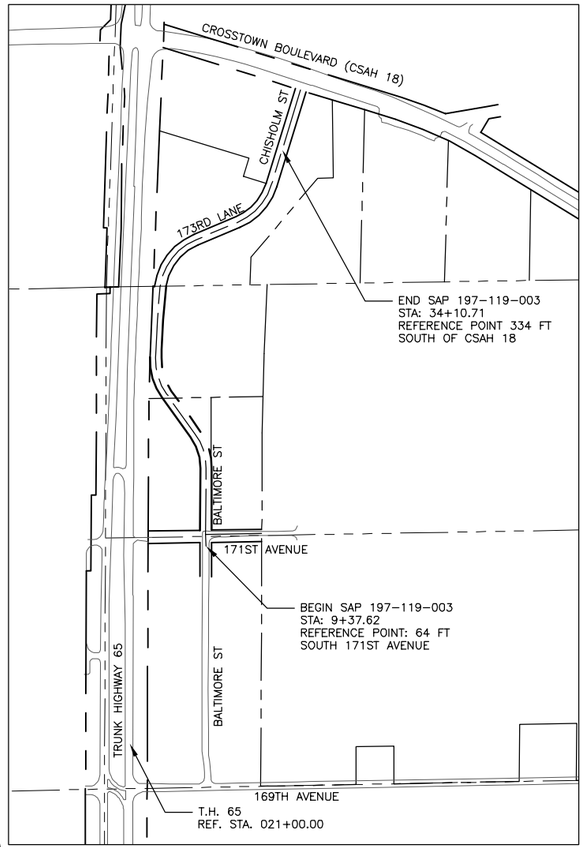
MINNESOTA DEPARTMENT OF TRANSPORTATION

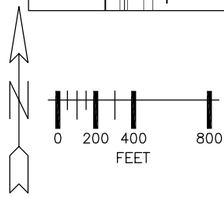
City of Ham Lake, Minnesota

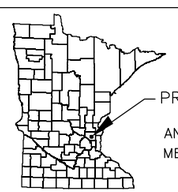
CONSTRUCTION PLANS FOR GRADING, AGGREGATE BASE, PLANT MIXED BITUMINOUS SURFACING, STORM DRAINS, STORM POND CONSTRUCTION, AND CONCRETE CURB AND GUTTER

CHISHOLM STREET FROM 334 FEET SOUTH OF CROSSTOWN BOULEVARD (CSAH 18) TO 173RD LANE, 173RD LANE FROM CHISHOLM STREET TO BALTIMORE STREET, BALTIMORE STREET FROM 173RD LANE TO 64 FEET SOUTH OF 171ST AVENUE.

HAM LAKE PROJECT NO. 2111
STATE PROJECT NO. 0208–170
STATE AID PROJECT NO. 197–119–003







PROJECT LOCATION

ANOKA COUNTY
METRO DISTRICT

SAP 197–119–003
GROSS LENGTH . . . . . 2,473 . FEET
GROSS LENGTH . . . . . 0.468 . MILES
BRIDGE LENGTH . . . . . FEET
EXCEPTIONS LENGTH . . . . . FEET
NET LENGTH . . . . . 2,473 . FEET
NET LENGTH . . . . . 0.468 . MILES
FROM REF. POINT 334' SOUTH OF CROSSTOWN BLVD

TO REF. POINT 64 FT SOUTH OF 171ST AVE

SP 0208–170
GROSS LENGTH . . . . . 2,473 . FEET
GROSS LENGTH . . . . . 0.468 . MILES
BRIDGE LENGTH . . . . . FEET
EXCEPTIONS LENGTH . . . . . FEET
NET LENGTH . . . . . 2,473 . FEET
NET LENGTH . . . . . 0.468 . MILES
FROM REF. POINT . . . . . 021+00.205

TO REF. POINT . . . . . 021+00.707

BALTIMORE STREET
STATE PROJECT NO. 197–119–003

ADT (2023) . . . . . 300 . . . . . ADT (2043) 450
Design Speed . . . 30 . . MPH
NO. OF TRAFFIC LANES . . . 2 . . . . NO. OF PARKING LANES . . . 0
FUNCTIONAL CLASSIFICATION COLLECTOR, LOW DENSITY
SOIL FACTOR . . . 50% . . . HCADT . . <150 . . .
TON DESIGN . . 9 TON
STOPPING SIGHT DISTANCE BASED ON:
HEIGHT OF EYE 3.5'
HEIGHT OF OBJECT 2.0'
Design Speed not achieved at:
STA. N/A . . . . . TO STA. N/A . . . . . .
TOWNSHIP 32, RANGE 23, SECTION 5 & 8

AGREEMENT NO. 1053661
CITY OF HAM LAKE
SP 0208–170 (TH65=005)
STATE FUNDS
METRO DISTRICT

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 38–22, ENTITLED "STANDARD GUIDELINES FOR THE INVESTIGATING AND DOCUMENTING EXISTING UTILITIES."

THE UTILITIES SHOWN ARE BASED UPON THE BEST INFORMATION AVAILABLE AND MAY NOT REFLECT THE ACTUAL EFFECTS ON THE UTILITIES BY CONSTRUCTION. ACTUAL DETERMINATIONS WILL BE MADE IN THE FIELD DURING CONSTRUCTION.

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

STATE PROJ. NO.	CHARGE	IDENTIFIER
0208–170		
197–119–003		

STATE FUNDS

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE 2024 MnMUTCD, INCLUDING FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

INDEX

THIS PLAN CONTAINS 43 SHEETS

ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.

I HEREBY CERTIFY THAT THIS PLAN 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.

SIGNED . . . Dan Krugler . . .
David A. Krugler

DATE: 5/29/25 . . . . . REG. NO. 48768

APPROVED . . . Dan Krugler . . . 5/29/25
CITY ENGINEER – HAM LAKE

APPROVED . . . Khani Sahebjam . . . Digitally signed by Khani Sahebjam Date: 2025.06.02 07:52:43 -05'00'
METRO DISTRICT ENGINEER

Dan Erickson Digitally signed by Dan Erickson Date: 2025.05.29 16:22:40 -05'00'
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

FOR Dan Erickson Digitally signed by Dan Erickson Date: 2025.05.29 16:23:18 -05'00'
APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER

STATE AID PROJECT NO. 197–119–003
STATE PROJECT NO. 0208–170 (TH65=005)

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street NE
Ham Lake, MN 55304
Telephone 763–862–8000
Fax 763–862–8042

JOB NO. 2111
FILE: 33–2–101

SHEET NO. 1 OF 43 SHEETS

STATEMENT OF ESTIMATED QUANTITIES

TAB	SHEET	NOTES	ITEM NO.	ITEM	UNIT	ENTIRE PROJECT	S.A.P. 197–119–003 & S.P. 0208–170		S.P. 0208–170	NON–PARTICIPATING
							ROADWAY	STORM SEWER	ROADWAY	ROADWAY
						ESTIMATED QUANTITIES	ESTIMATED QUANTITIES	ESTIMATED QUANTITIES	ESTIMATED QUANTITIES	ESTIMATED QUANTITIES
			2021.501	MOBILIZATION	LUMP SUM	1	1			
AD	3		2101.502	CLEARING	EACH	19	19			
AD	3		2101.502	GRUBBING	EACH	19	19			
AD	3		2101.505	CLEARING (P)	ACRE	4.51	4.51			
AD	3		2101.505	GRUBBING (P)	ACRE	4.51	4.51			
AA	3	6	2104.502	REMOVE SIGN	EACH	6	2		4	
AJ	3		2104.502	SALVAGE CASTING	EACH	2	2			
AC	3		2104.502	SALVAGE LIGHT POLE	EACH	4				4
AB	3	6	2104.502	SALVAGE SIGN	EACH	6	1		1	4
		10	2104.502	SALVAGE MAIL BOX SUPPORT AND MAILBOX	EACH	1	1			
	3		2104.502	ABANDON AND SEAL WELL SHAFT	EACH	1	1			
AG	3		2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	8	8			
AF	3		2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	691	654		37	
AM	3		2104.503	REMOVE CONCRETE CULVERT	LIN FT	4	4			
AM	3		2104.503	REMOVE METAL CULVERT	LIN FT	29			29	
AH	3		2104.503	REMOVE CURB AND GUTTER	LIN FT	142	142			
AL	3		2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	SQ YD	1 036	975		61	
AK	3		2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	1 000	1 000			
AM	3	4	2106.507	EXCAVATION – COMMON (P)	CU YD	4 787	4 065		294	428
AM	3,43	4, 11	2106.507	EXCAVATION – MUCK (P)	CU YD	2 111	2 111			
AM	3	4	2106.507	EXCAVATION – CHANNEL AND POND (P)	CU YD	17 843	17 843			
AM	3	4	2106.507	COMMON EMBANKMENT – STOCKPILE (CV) (P)	CU YD	5 460				5 460
AM	3	4	2106.507	COMMON EMBANKMENT (CV) (P)	CU YD	12 982	12 982			
		11	2108.504	GEOTEXTILE FABRIC TYPE 5	SQ YD	2 040	2 040			
BA	4		2211.509	AGGREGATE BASE CLASS 5	TON	3 302	3 302			
BJ	4	8	2211.604	AGGREGATE BASE (CV) CLASS 5 6.0" THICK–DRIVEWAY	SQ YD	245	245			
BF	4	8	2360.504	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) 1.0" THICK–DRIVEWAY	SQ YD	154	154			
BK	4	8	2360.504	TYPE SP 12.5 WEARING COURSE MIXTURE (3,C) 2.0" THICK–DRIVEWAY	SQ YD	154	154			
BB	4	9	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C)	TON	985	985			
BC	4	9	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (3,C)	TON	985	985			
BM	4,13–17		2411.604	MODULAR BLOCK RETAINING WALL	SQ YD	80	80			
	27–30	1, 5	2501.502	15" GS PIPE APRON	EACH	1		1		
	27–30	1, 5	2501.502	18" GS PIPE APRON	EACH	2		2		
	27–30	1, 5	2501.502	24" GS PIPE APRON	EACH	3		3		
	27–30	1, 5	2501.502	30" GS PIPE APRON	EACH	2		2		
	27–30	1, 5	2501.502	36" GS PIPE APRON	EACH	1		1		
	27–30	1, 5	2501.502	18" RC PIPE APRON	EACH	8		8		
	8		2501.602	POND OUTLET BAFFLE	EACH	5		5		
	27–30	1, 5	2501.602	TRASH GUARD FOR 15" PIPE APRON	EACH	1		1		
	27–30	1, 5	2501.602	TRASH GUARD FOR 18" PIPE APRON	EACH	10		10		
	27–30	1, 5	2501.602	TRASH GUARD FOR 24" PIPE APRON	EACH	3		3		
	27–30	1, 5	2501.602	TRASH GUARD FOR 30" PIPE APRON	EACH	2		2		
	27–30	1, 5	2501.602	TRASH GUARD FOR 36" PIPE APRON	EACH	1		1		
	27–30	1, 5	2503.503	15" CP PIPE SEWER (SMOOTH)	LIN FT	16		16		
	27–30	1, 5	2503.503	18" CP PIPE SEWER (SMOOTH)	LIN FT	51		51		
	27–30	1, 5	2503.503	24" CP PIPE SEWER (SMOOTH)	LIN FT	117		117		
	27–30	1, 5	2503.503	30" CP PIPE SEWER (SMOOTH)	LIN FT	38		38		
	27–30	1, 5	2503.503	36" CP PIPE SEWER (SMOOTH)	LIN FT	36		36		
	27–30	1, 5	2503.503	12" RC PIPE SEWER DESIGN 3006 CLASS IV	LIN FT	126		126		
	27–30	1, 5	2503.503	15" RC PIPE SEWER DESIGN 3006 CLASS IV	LIN FT	497		497		
	27–30	1, 5	2503.503	18" RC PIPE SEWER DESIGN 3006 CLASS IV	LIN FT	613		613		
	27–30	1, 5	2503.503	24" RC PIPE SEWER DESIGN 3006 CLASS IV	LIN FT	567		567		
	27–30	1, 5	2503.503	36" RC PIPE SEWER DESIGN 3006 CLASS IV	LIN FT	209		209		
	27	1, 5	2503.602	CONNECT TO EXISTING STORM SEWER	EACH	1		1		
	27–30		2503.602	18" PIPE PLUG	EACH	4		4		
	23		2504.602	DEVELOP WELL	EACH	1				1
	27–30	2, 5	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL–2X3	EACH	5		5		
	27–30	2, 5	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1–48"	EACH	6		6		
	27–30	2, 5	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 2–60"	EACH	1		1		
	27–30	2, 5	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 3–84"	EACH	1		1		
	27–30	2, 5	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 4–60" SUMP	EACH	3		3		
	27–30	2, 5	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 5–72" SUMP	EACH	1		1		
	27–30	2, 5	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 6–96" SUMP	EACH	2		2		
	27–30	2, 5	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 7–48"	EACH	6		6		
BD	27	2, 5	2506.502	INSTALL SALVAGED CASTING	EACH	2		2		
BT	4	2	2511.504	GEOTEXTILE FILTER TYPE 4	SQ YD	315	315			
BH	4		2511.507	RANDOM RIPRAP CLASS III	CU YD	86	86			

STATEMENT OF ESTIMATED QUANTITIES

TAB	SHEET	NOTES	ITEM NO.	ITEM	UNIT	ENTIRE PROJECT	S.A.P. 197–119–003 & S.P. 0208–170		S.P. 0208–170	NON–PARTICIPATING
							ROADWAY	STORM SEWER	ROADWAY	ROADWAY
						ESTIMATED QUANTITIES	ESTIMATED QUANTITIES	ESTIMATED QUANTITIES	ESTIMATED QUANTITIES	ESTIMATED QUANTITIES
BL	4		2531.503	CONCRETE CURB AND GUTTER DESIGN B612	LIN FT	187	187			
BO	4		2531.503	CONCRETE CURB AND GUTTER DESIGN B618	LIN FT	4 900	4 900			
BP	4	8	2531.504	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	72	72			
BG	4,30		2531.603	CONCRETE GUTTER DESIGN – TRENCH DRAIN	LIN FT	440	440			
		10	2540.602	INSTALL MAIL BOX SUPPORT WITH MAILBOX	EACH	1	1			
			2563.601	TRAFFIC CONTROL	LUMP SUM	1	1			
			2564.502	RIGHT OF WAY MARKER	EACH	1	1			
BN	4	6	2564.518	SIGN PANELS TYPE C	SQ FT	69	69			
BV	4	6	2564.602	INSTALL SALVAGED SIGNS	EACH	2	1		1	
	31–33	7	2573.501	STABILIZED CONSTRUCTION EXIT	LUMP SUM	1	1			
BR	4,31–33	7	2573.502	STORM DRAIN INLET PROTECTION	EACH	25	25			
BS	4,31–33	7	2573.502	CULVERT END CONTROLS	EACH	20	20			
BQ	4,31–33	7	2573.503	SILT FENCE, TYPE MS	LIN FT	6 621	6 174			447
	31–33	3	2575.605	TURF ESTABLISHMENT (25–131 SEEDING MIX)	ACRE	5.16	4.39			0.77
	31–33	3	2575.605	TURF ESTABLISHMENT (33–261 SEEDING MIX)	ACRE	2.86	2.86			
BU	4,34–35		2582.503	4" WHITE SOLID LINE EPOXY PAINT	LIN FT	89	89			
BE	4,34–35		2582.503	4" DOUBLE YELLOW SOLID LINE PAINT	LIN FT	2 400	2 400			

NOTES:

1. SELECT GRANULAR BORROW, STRUCTURAL EXCAVATION, AND GRANULAR BACKFILL FOR STORM PIPES ARE INCIDENTAL.
2. FILTER FABRIC AND FABRIC WRAP FOR CATCH BASINS AND MANHOLES ARE INCIDENTAL.
3. ALL DISTURBED AREAS DETERMINED NOT TO BE PAVED, AGGREGATE SURFACE, CONCRETE SURFACE OR RIPRAPPED SHALL HAVE 4 INCHES OF TOPSOIL. FERTILIZER TYPE 2, MULCH MATERIAL, AND SEED MIXTURE NO. 33–261, MULCH TYPE 3 (WEED FREE MULCH) WITH NO FERTILIZER AND SEED MIXTURE. NO. 25–131 PER MNDOT STANDARD SPECIFICATION 3876, APPLY TYPE 1 HYDROMULCH AT THE RATE OF 2 (TWO) TONS PER ACRE OR A HYDRAULIC SOIL STABILIZER OR BONDED FIBER MATRIX (TO ACHIEVE A 90% UNIFORM GROUND COVERAGE). SEED MIXTURE, WATER, TYPE 2 FERTILIZER, AND MULCH ARE INCIDENTAL. SOIL TESTING TO DETERMINE FERTILIZER MIXTURE RATIO AND RATE OF APPLICATION IS INCIDENTAL.
4. MATERIAL FOUND IN THE SUBCUTS THAT IS UNSUITABLE FOR FILL IN THE ROADBED SHALL BE REMOVED OFF–SITE.
5. THE CONTRACTOR SHALL NOT DISTURB AREAS OUTSIDE THE CONSTRUCTION LIMITS.
6. SIGNS INCLUDE POSTS.
7. INSTALLATION AND MAINTENANCE ARE INCIDENTAL.
8. QUANTITY SHOWN USED FOR DRIVEWAY CONSTRUCTION. SEE DETAIL RFC–370A1.
9. BITUMINOUS MATERIAL FOR TACK COAT SHALL BE INCIDENTAL.
10. REMOVE SUPPORTS AND SALVAGE MAIL BOXES. SALVAGE MAIL BOXES ARE INCIDENTAL.
11. NO MUCK IS ANTICIPATED. STA 24+00 TO 26+00 MAY ENCOUNTER MUCK. STA 24+00 TO 26+00 USED FOR QUANTITY ESTIMATION. **ADDED FOR BUDGETING PURPOSE ONLY.** IF MUCK IS ENCOUNTERED, ALL MUCK SHALL BE DELIVERED TO THE HAM LAKE PUBLIC WORKS SHOP.

SEED MIX 25–131: COMMERCIAL TURF
MULCH TYPE 1
PLANT APRIL 1ST – JUNE 1ST FOR SPRING PLANTING OR
JULY 20TH – SEPTEMBER 20TH FOR FALL PLANTING

SEED MIX 33–261: PONDS & WET AREAS IN CENTRAL, SOUTHERN AND WESTERN MN
MULCH TYPE 3
PLANT APRIL 15TH – JULY 20TH FOR SPRING PLANTING OR
SEPTEMBER 20TH – OCTOBER 20TH FOR FALL PLANTING

BASIS FOR ESTIMATED QUANTITIES

AGGREGATE BASE	105 LBS/S.Y./INCH
BITUMINOUS MIXTURE	110 LBS/S.Y./INCH
TACK COAT	0.05 GAL./S.Y.
TYPE I MULCH	2 TONS/ACRE

PLATE NO.	STANDARD PLATES – RFC ENGINEERING (IN THE PLANS)
RFC–356A2	TRANSITION CURB: D312M TO B618
RFC–356A4	TRANSITION CURB: D412M TO B612
RFC–356A10	TRANSITION CURB: D412M TO B618
RFC–356B	TRANSITION CURB: B612 TO B618
RFC–365A1	TYPICAL SUBGRADE EXCAVATION
RFC–365C4	TYPICAL FLOATING ROAD SECTION NEW ROAD CONSTRUCTION
RFC–366B1	TYPICAL STREET SECTION
RFC–370A1	COMMERCIAL DRIVEWAY
RFC–380A	CURB END
RFC–459C	RECTANGULAR CATCH BASIN
RFC–463	FABRIC AROUND CATCH BASIN
RFC–465A1	RECTANGULAR INLET FOR ROUND MANHOLE
RFC–465A3	RECTANGULAR INLET FOR ROUND MANHOLE – VARIABLE SUMP
RFC–465C	ROUND MANHOLE
RFC–466B	RCP TRASH GUARD
RFC–466C	CPP TRASH GUARD
RFC–472B	TRENCH DRAIN DETAIL
RFC–654	STORM DRAIN BEDDING FOR RIGID AND FLEXIBLE PIPE *MNDOT DETAIL
RFC–850B2	POND OUTLET BAFFEL
RFC–852A1	EMERGENCY OVERFLOW WEIR
RFC–856A	FORESLOPE
RFC–856B	TYPICAL DITCH DETAIL
RFC–857	SILT FENCE AT FES
RFC–858A	TYPICAL DETENTION POND

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY

PLATE NO.	MnDOT STANDARD PLATES
3000M	REINFORCED CONCRETE PIPE (6 SHEETS)
3006H	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3129A	METAL APRON FOR CORRUGATED POLYETHYLENE PIPE
3133D	RIPRAP AT RCP OUTLETS
3134D	RIPRAP AT CSP OUTLETS
3145G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
7100H	CONCRETE CURB & GUTTER
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)
9350C	MAILBOX SUPPORT SWING–AWAY TYPE (3 SHEETS)

GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/29/2025 16:46

UTILITIES:
CENTURYLINK (763) 712–5017
CENTERPOINT ENERGY (763) 323–2760
COMCAST (952) 607–4078
CONNEXUS ENERGY (763) 323–4268
XCEL ENERGY (612) 526–4508

DATE	REVISION HISTORY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Kruglas
DATE 05/29/25 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763–862–8000
Fax 763–862–8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

S.A.P. 197–119–003 S.P. 0208–170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM
64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
STATEMENT OF ESTIMATED QUANTITIES
AND STANDARD PLATES

DWG: 2111 QTY 1
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 2 OF 43
FILE: 33–2–102

REMOVE SIGN — AA

STATION	LOCATION	SIGN NO.	POST	CODE NO.	PANEL LEGEND
9+68	BALTIMORE ST. – RT	C–21	SINGLE	R1–1	STOP
10+36	BALTIMORE ST. – LT	C–24	SINGLE		NOTICE
23+37	T.H. 65 – RT	C–26	SINGLE		DELINEATOR
23+83	T.H. 65 – RT	C–21	TRIPLE	R1–1	STOP
25+65	T.H. 65 – RT	C–20	SINGLE		CULVERT
25+79	T.H. 65 – RT	C–20	SINGLE		CULVERT
TOTAL			6		

SAWCUT BITUMINOUS PAVEMENT — AF

STATION	LOCATION	LIN FT
9+38	BALTIMORE ST. – ROADWAY	30
50+67	171ST AVE. – ROADWAY	30
19+97 TO 23+67	JAKE'S AUTO MALL – RT – PARKING LOT	368
23+34 TO 24+10	T.H. 65 – RT – DRIVEWAY	88
25+60 TO 25+76	T.H. 65 – RT – DRIVEWAY	37
34+11	CHISHOLM ST. – ROADWAY	29
34+11 TO 35+19	CHISHOLM ST. – RT – TEMP CDS	109
TOTAL		691

NOTES:
1. TOP OF GRADING SUBGRADE IS DEFINED AS THE BOTTOM OF THE CLASS 5 AGGREGATE BASE.
2. BITUMINOUS AND CONCRETE DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFFSITE IN ACCORDANCE WITH MnDOT SPEC. 2104.3C3.
3. COMPACTION OF ALL GRADING AND BASE ITEMS SHALL BE BY THE "QUALITY COMPACTION METHOD".
4. USE TACK COAT BETWEEN ALL BITUMINOUS LAYERS AND BETWEEN BITUMINOUS AND CONCRETE CURB AND GUTTER. TACK COAT IS INCIDENTAL.
5. STRIP ALL TOPSOIL AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE TOPSOIL OR USE AS FILL OUTSIDE OF ROAD CORE.
6. WHENEVER THE WORD "INCIDENTAL" IS USED IN THIS PLAN, IT SHALL MEAN THIS WORK SHALL BE INCIDENTAL FOR WHICH NO DIRECT COMPENSATION WILL BE MADE.
7. STATIONING FOR LOCATION OF EXISTING AND NEW SIGNS IS APPROXIMATE.
8. EXISTING BALTIMORE STREET IS APPROXIMATELY 3" TO 4" OF BITUMINOUS AND 6" OF CLASS 5.

SALVAGE SIGN — AB

STATION	LOCATION	SIGN NO.	POST	CODE NO.	PANEL LEGEND
10+03	BALTIMORE ST. – LT	C–22	SINGLE		NO TRESPASSING
10+19	BALTIMORE ST. – RT	C–23	SINGLE	R1–1	STOP & STREET
20+83	BALTIMORE ST. – LT	C–25	SINGLE		PRIVATE
22+82	BALTIMORE ST. – LT	C–25	DOUBLE		PRIVATE
23+77	BALTIMORE ST. – LT	C–27	SINGLE		RIGHT OF WAY
24+45	T.H. 65 – RT	C–28	TRIPLE	W3–3	SIGNAL AHEAD
TOTAL			6		

SAWCUT CONCRETE CURB — AG

STATION	LOCATION	LIN FT
9+38	BALTIMORE ST. – RT – ROADWAY	2
9+38	BALTIMORE ST. – LT – ROADWAY	2
34+11	CHISHOLM ST. – RT – ROADWAY	2
34+11	CHISHOLM ST. – LT – ROADWAY	2
TOTAL		8

REMOVE BITUMINOUS PAVEMENT — AK

STATION	LOCATION	SQ YD
9+38 TO 10+19	INTERSECTION OF BALTIMORE ST. & 171ST AVE.	455
34+11	CHISHOLM ST. – ROADWAY	7
34+11 TO 35+19	CHISHOLM ST. – RT – TEMP CDS	538
TOTAL		1,000

SALVAGE LIGHT POLES — AC

STATION	LOCATION	LIGHT POST NO.	TYPE
19+96	BALTIMORE ST. – RT	LP–20	SINGLE
20+57	BALTIMORE ST. – RT	LP–21	SINGLE
21+87	BALTIMORE ST. – RT	LP–22	SINGLE
22+87	BALTIMORE ST. – LT	LP–23	SINGLE
TOTAL			4

REMOVE CONCRETE CURB AND GUTTER — AH

STATION	LOCATION	LENGTH (LIN FT)
9+38 TO 10+08	BALTIMORE ST. – RT	68
9+38 TO 9+86	BALTIMORE ST. – LT	70
34+09 TO 34+11	CHISHOLM ST. – RT	2
34+09 TO 34+11	CHISHOLM ST. – LT	2
TOTAL		142

REMOVE BITUMINOUS DRIVEWAY — AL

STATION	LOCATION	SQ YD
10+03	DRIVEWAY – BALTIMORE ST. – LT	37
19+19 TO 23+67	JAKE'S AUTO MALL DRIVEWAY	938
25+60 TO 25+76	T.H. 65 – RT – DRIVEWAY	61
TOTAL		1036

TREE REMOVAL — AD

STATION	LOCATION	CLEARING (ACRE)	GRUBBING (ACRE)	CLEARING (EACH)	GRUBBING (EACH)
10+18 TO 10+36	ROADWAY			7	7
16+80 TO 17+88	POND 1	0.45	0.45		
18+00	ROADWAY			4	4
24+26 TO 24+56	MNDOT DITCH			6	6
23+67 TO 32+19	ROADWAY	4.06	4.06		
32+34 TO 32+90	ROADWAY			2	2
TOTAL		4.51	4.51	19	19

REMOVE CULVERTS — AM

STATION	LOCATION	TYPE	LENGTH (LIN FT)
25+66 TO 25+79	T.H. 65 – RT	CMP	29
10+22 TO 10+26	BALTIMORE ST. – RT	RCP	4
TOTAL			33

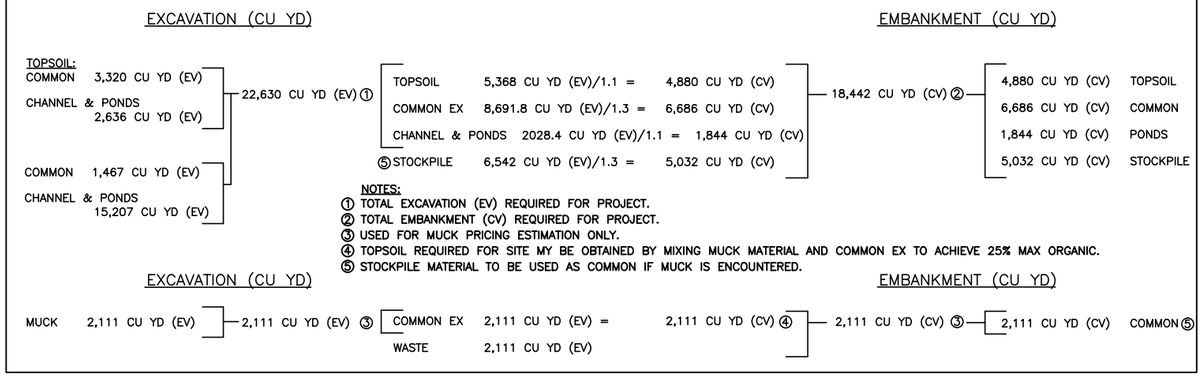
PLANT SALVAGE (BY OTHERS) — AE

STATION	LOCATION	CATEGORY	TYPE
16+25	ROADWAY	WATCH LISTED	1
17+00	POND 1	WATCH LISTED	5
22+75	MNDOT DITCH	THREATENED	3
24+10 TO 26+00	ROADWAY	ENDANGERED	26
TOTAL WATCH LISTED			6
TOTAL THREATENED			3
TOTAL ENDANGERED			26
TOTAL PLANTS			35

SALVAGE CASTING — AJ

STATION	LOCATION	STRUCTURE NAME
9+73	BALTIMORE ST. – LT	EX CBMH 1
9+78	BALTIMORE ST. – RT	EX CBMH 2
TOTAL		2

EARTHWORK SUMMARY — AM



COPPER STATE ONE CALL
800-252-1166 651-454-0002

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DATE	REVISION HISTORY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dave Krueger
DATE 05/29/25 REG. NO. 48768

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Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763–862–8000
Fax 763–862–8042

S.A.P. 197–119–003 S.P. 0208–170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
EARTHWORK SUMMARY AND TABULATIONS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2111 TAB 1
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 3 OF 43
FILE: 33–2–103

AGGREGATE BASE CLASS 5 — BA

STATION TO STATION	LOCATION	TONS
9+38 TO 34+11	BALTIMORE ST. TO CHISHOLM ST.	3,232
50+15 TO 50+67	171ST AVE.	70
TOTAL		3,302

TYPE SP 9.5 BITUMINOUS WEARING COURSE MIXTURE (SPWEA340C) — BB

STATION TO STATION	LOCATION	SQ. YD. (2 IN)	TONS
9+38 TO 34+11	BALTIMORE ST. TO CHISHOLM ST.	7,968.9	964
50+15 TO 50+67	171ST AVE.	175.3	21
TOTAL			985

TYPE SP 12.5 BITUMINOUS WEARING COURSE MIXTURE (SPWEB340C) — BC

STATION TO STATION	LOCATION	SQ. YD. (2 IN)	TONS
9+38 TO 34+11	BALTIMORE ST. TO CHISHOLM ST.	7,968.9	964
50+15 TO 50+67	171ST AVE.	175.3	21
TOTAL			985

INSTALL SALVAGED CASTING — BD

STATION	LOCATION	STRUCTURE NAME
9+73	BALTIMORE ST. – LT	EX CBMH 1
9+78	BALTIMORE ST. – RT	EX CBMH 2
TOTAL		2

4" DOUBLE SOLID LINE YELLOW–PAINT — BE

STATION	LOCATION	LIN. FT.
9+38 TO 9+54	BALTIMORE STREET	16
50+48 TO 50+67	171ST AVENUE	19
10+46 TO 34+11	BALTIMORE ST. TO CHISHOLM ST. – CENTER	2,365
TOTAL		2,400

TYPE SP 9.5 BITUMINOUS WEARING COURSE MIXTURE (SPWEA340C) 1" – DRIVEWAY — BF

STATION TO STATION	LOCATION	SQ. YD.
9+83 TO 10+13	BALTIMORE ST. – LT NORTH CENTRAL MOTORS DRIVEWAY	26
20+24 TO 20+68	BALTIMORE ST. – RT JAKE'S AUTO MALL SOUTH DRIVEWAY	61
23+32 TO 23+72	BALTIMORE ST. – RT JAKE'S AUTO MALL NORTH DRIVEWAY	67
TOTAL		154

TRENCH DRAIN — BG

STATION	LOCATION	LIN FT
19+00 TO 20+14	BALTIMORE ST. – RT	114
19+97 TO 20+63	JAKE'S AUTO MALL DRIVEWAY – SOUTH	66
20+11	BALTIMORE ST. –RT	15
20+77 TO 23+22	BALTIMORE ST. –RT	245
TOTAL		440

6" CONCRETE PAVEMENT – DRIVEWAY — BP

STATION TO STATION	LOCATION	SQ. YD.
9+83 TO 10+13	BALTIMORE ST. – LT NORTH CENTRAL MOTORS DRIVEWAY	21
20+24 TO 20+68	BALTIMORE ST. – RT JAKE'S AUTO MALL SOUTH DRIVEWAY	26
23+32 TO 23+72	BALTIMORE ST. – RT JAKE'S AUTO MALL NORTH DRIVEWAY	25
TOTAL		72

4" SOLID SINGLE LINE WHITE–PAINT — BU

STATION	LOCATION	LIN. FT.
23+34 TO 24+10	T.H. 65 – RT	89
TOTAL		89

DRIVEWAY AGGREGATE BASE CLASS 5 — BJ

STATION TO STATION	LOCATION	SQ. YD.
9+83 TO 10+13	BALTIMORE ST. – LT NORTH CENTRAL MOTORS DRIVEWAY	53
20+24 TO 20+68	BALTIMORE ST. – RT JAKE'S AUTO MALL SOUTH DRIVEWAY	94
23+32 TO 23+72	BALTIMORE ST. – RT JAKE'S AUTO MALL NORTH DRIVEWAY	98
TOTAL		245

TYPE SP 12.5 BITUMINOUS WEARING COURSE MIXTURE (SPWEB340C) 2" – DRIVEWAY — BK

STATION TO STATION	LOCATION	SQ. YD.
9+83 TO 10+13	BALTIMORE ST. – LT NORTH CENTRAL MOTORS DRIVEWAY	26
20+24 TO 20+68	BALTIMORE ST. – RT JAKE'S AUTO MALL SOUTH DRIVEWAY	61
23+32 TO 23+72	BALTIMORE ST. – RT JAKE'S AUTO MALL NORTH DRIVEWAY	67
TOTAL		154

CONCRETE CURB & GUTTER DESIGN B612 — BL

STATION TO STATION	LOCATION	LIN FT
9+38 TO 9+85	BALTIMORE ST. – RT	79
9+83	BALTIMORE ST. – LT NORTH CENTRAL MOTORS DRIVEWAY	17
10+13	BALTIMORE ST. – LT NORTH CENTRAL MOTORS DRIVEWAY	17
20+24	BALTIMORE ST. – RT JAKE'S AUTO MALL DRIVEWAY	18
20+68	BALTIMORE ST. – RT JAKE'S AUTO MALL DRIVEWAY	18
23+32	BALTIMORE ST. – RT JAKE'S AUTO MALL DRIVEWAY	19
23+72	BALTIMORE ST. – RT JAKE'S AUTO MALL DRIVEWAY	19
TOTAL		170

MODULAR BLOCK RETAINING WALL — BM

STATION	LOCATION	APPROX. HEIGHT (FT)	SQ. YD.
18+60 TO 18+75	BALTIMORE ST. – RT	0.9	2
18+75 TO 19+00	BALTIMORE ST. – RT	2.42	7
19+00 TO 19+25	BALTIMORE ST. – RT	2.33	6
19+25 TO 19+50	BALTIMORE ST. – RT	2.19	6
19+50 TO 19+75	BALTIMORE ST. – RT	1.93	5
19+75 TO 20+00	BALTIMORE ST. – RT	1.55	4
20+00 TO 20+25	BALTIMORE ST. – RT	1.44	4
SOUTH DRIVEWAY WING 1	BALTIMORE ST. – RT	1.44	3
SOUTH DRIVEWAY WING 2	BALTIMORE ST. – RT	1.55	3
20+75 TO 21+00	BALTIMORE ST. – RT	1.55	4
21+00 TO 21+25	BALTIMORE ST. – RT	1.53	4
21+25 TO 21+50	BALTIMORE ST. – RT	1.36	4
21+50 TO 21+75	BALTIMORE ST. – RT	1.25	3
21+75 TO 22+00	BALTIMORE ST. – RT	1.27	4
22+00 TO 22+25	BALTIMORE ST. – RT	1.39	4
22+25 TO 22+50	BALTIMORE ST. – RT	1.23	3
22+50 TO 22+75	BALTIMORE ST. – RT	1.18	3
22+75 TO 23+00	BALTIMORE ST. – RT	1.23	3
23+00 TO 23+25	BALTIMORE ST. – RT	1.3	4
NORTH DRIVEWAY WING 1	BALTIMORE ST. – RT	1.28	3
TOTAL			80

SIGN PANELS TYPE C — BN

SIGN NO.	NOTE	TOTAL QTY.	POST	PANEL SIZE (IN)	PANEL AREA (SQ. FT.)	PANEL TOTAL AREA (SQ. FT.)	CODE NO.	PANEL LEGEND
C–2	8	2	SINGLE	VARIES X 8			D3–1	STREET
C–3		10	SINGLE	24 X 24	4	40	R8–3	NO PARKING
C–4		4	SINGLE	30 X 30	6	24	W1–4	REVERSE CURVE
C–6		1	SINGLE	24 X 30	5	5	R2–1	SPEED LIMIT 30 M.P.H
TOTAL						69		

INSTALL SALVAGED SIGNS — BV

SIGN NO.	NOTE	TOTAL QTY.	POST	PANEL SIZE (IN)	CODE NO.	PANEL LEGEND
C–1		1	SINGLE	30 X 30	R1–1	STOP (SALVAGED)
C–5		1	TRIPLE	48 X 48	W3–3	SIGNAL AHEAD (SALVAGED)
TOTAL		2				

CONCRETE CURB & GUTTER DESIGN B618 — BO

STATION TO STATION	LOCATION	LIN FT
9+37 TO 34+11	BALTIMORE ST. TO CHISHOLM ST. – LT	2,478
10+15 TO 34+11	BALTIMORE ST. TO CHISHOLM ST. – RT	2,422
TOTAL		4,900

RIPRAP CLASS 3 — BH

STATION	LOCATION	CU. YD.
16+59	BALTIMORE ST. – RT	16
	POND 1 OUTLET	13
19+41	BALTIMORE ST. – LT	7
21+71	BALTIMORE ST. – LT	5
24+16	BALTIMORE ST. – RT	7
25+29	BALTIMORE ST. – LT	6
30+30	173RD LANE – RT	10
30+93	CHISHOLM ST. – LT	6
31+54	CHISHOLM ST. – LT	10
	POND 4 OUTLET	6
TOTAL		86

SILT FENCE — BQ

STATION TO STATION	LOCATION	LIN. FT.
50+67 TO 52+96	171ST AVE.	229
9+16 TO 9+82	BALTIMORE ST. – RT	103
10+24 TO 15+10	BALTIMORE ST. – RT	572
11+28 TO 21+29	BALTIMORE ST. – LT	1,081
16+50	POND 1	1,297
25+00	POND 2	359
25+80	MNDOT DITCH	36
26+77 TO 30+47	173RD LANE – LT	442
28+28 TO 29+54	173RD LANE – RT	146
29+67	ENDANGERED PLANT PROTECTION	80
31+00	POND 3	392
31+50	POND 4	1,306
32+00 TO 35+09	CHISHOLM ST. – RT	373
32+19 TO 34+22	CHISHOLM ST. – LT	205
TOTAL		6,621

STORM DRAIN INLET PROTECTION — BR

STATION	LOCATION	QUANTITY
9+73	BALTIMORE ST. – LT	1
9+78	BALTIMORE ST. – RT	1
10+22	BALTIMORE ST. – RT	1
13+08	BALTIMORE ST. – RT	1
13+08	BALTIMORE ST. – LT	1
14+58	BALTIMORE ST. – RT	1
14+58	BALTIMORE ST. – LT	1
16+63	BALTIMORE ST. – RT	1
16+63	BALTIMORE ST. – LT	1
18+04	BALTIMORE ST. – RT	1
18+04	BALTIMORE ST. – LT	1
19+41	BALTIMORE ST. – RT	1
19+41	BALTIMORE ST. – LT	1
21+71	BALTIMORE ST. – RT	1
21+71	BALTIMORE ST. – LT	1
22+82	BALTIMORE ST. – LT	1
22+94	BALTIMORE ST. – RT	1
23+90	BALTIMORE ST. – RT	1
23+90	BALTIMORE ST. – LT	1
26+74	173RD LANE – RT	1
26+74	173RD LANE – LT	1
29+73	173RD LANE – RT	1
29+73	173RD LANE – LT	1
31+54	CHISHOLM ST. – RT	1
31+54	CHISHOLM ST. – LT	1
TOTAL		25

CULVERT END CONTROL — BS

STATION	LOCATION	QUANTITY
9+73	BALTIMORE ST. – LT	1
9+68	BALTIMORE ST. – RT	1
12+04	BALTIMORE ST. – RT	1
12+40	BALTIMORE ST. – LT	1
16+59	BALTIMORE ST. – RT	1
	POND 1 OUTLET	2
19+41	BALTIMORE ST. – LT	1
21+24	BALTIMORE ST. – LT	1
21+71	BALTIMORE ST. – LT	1
24+16	BALTIMORE ST. – RT	1
25+28	BALTIMORE ST. – RT	1
25+29	BALTIMORE ST. – LT	1
30+30	173RD LANE – RT	1
30+91	CHISHOLM ST. – RT	1
30+93	CHISHOLM ST. – LT	1
31+35	CHISHOLM ST. – RT	1
31+54	CHISHOLM ST. – LT	1
	POND 4 OUTLET	2
TOTAL		20

GEOTEXTILE FABRIC TYPE 4 — BT

STATION	LOCATION	SQ. YD.
16+59	BALTIMORE ST. – RT	53
	POND 1 OUTLET	43
19+41	BALTIMORE ST. – RT	26
21+71	BALTIMORE ST. – LT	21
24+16	BALTIMORE ST. – RT	26
25+29	BALTIMORE ST. – LT	26
30+30	173RD LANE – RT	34
30+93	CHISHOLM ST. – LT	26
31+54	CHISHOLM ST. – LT	34
	POND 4 OUTLET	26
TOTAL		315

NOTES:

1. TOP OF GRADING SUBGRADE IS DEFINED AS THE BOTTOM OF THE CLASS 5 AGGREGATE BASE.
2. BITUMINOUS AND CONCRETE DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFFSITE IN ACCORDANCE WITH MnDOT SPEC. 2104.3C3.
3. COMPACTION OF ALL GRADING AND BASE ITEMS SHALL BE BY THE "QUALITY COMPACTION METHOD".
4. USE TACK COAT BETWEEN ALL BITUMINOUS LAYERS AND BETWEEN BITUMINOUS AND CONCRETE CURB AND GUTTER. TACK COAT IS INCIDENTAL.
5. STRIP ALL TOPSOIL AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE TOPSOIL OR USE AS FILL OUTSIDE OF ROAD CORE.
6. WHENEVER THE WORD "INCIDENTAL" IS USED IN THIS PLAN, IT SHALL MEAN THIS WORK SHALL BE INCIDENTAL FOR WHICH NO DIRECT COMPENSATION WILL BE MADE.
7. STATIONING FOR LOCATION OF EXISTING AND NEW SIGNS IS APPROXIMATE.
8. SIGN AND POST INSTALLED BY OTHERS

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:
CENTURYLINK (763) 712–5017
CENTERPOINT ENERGY (763) 323–2760
COMCAST (952) 607–4078
CONNEXUS ENERGY (763) 323–4268
XCEL ENERGY (612) 526–4508

DATE	REVISION HISTORY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Ringler
DATE 05/29/25 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763–862–8000
Fax 763–862–8042

S.A.P. 197–119–003 S.P. 0208–170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
EARTHWORK SUMMARY AND TABULATIONS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2111 TAB 2
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 4 OF 43
FILE: 33–2–104

UTILITY COMPANIES – CA
GOPHER STATE ONE CALL FIELD UTILITY LOCATE REQUEST
CENTERPOINT ENERGY
CENTURYLINK
CONNEXUS ENERGY
COMCAST CABLE COMMUNICATIONS, INC.
MINNESOTA DEPARTMENT OF TRANSPORTATION
ZAYO BANDWITDTH

GENERAL NOTES

1. STATIONING FOR BALTIMORE STREET REFERENCES THE PROPOSED CENTERLINE FOR THE PROJECT.
2. PRIOR TO REMOVING THE MNDOT STREET LIGHT, ELECTRIC CABINET, AND UNDERGROUND ELECTRIC, NOTIFY PAUL BABIN WITH MNDOT METRO LIGHTING DESIGN (651)234–7873.
3. ALL REMOVALS AND RELOCATIONS, EXCEPT FOR MnDOT FACILITIES, ARE TO BE COMPLETED BY THE UTILITY OWNER.

CENTERPOINT ENERGY				CB
ALIGNMENT	STATION	OFFSET	INPLACE ITEM	NOTES
BALTIMORE STREET	10+00.00 TO 18+29.03	VAREIS	BURIED GAS	LEAVE AS IS
BALTIMORE STREET	18+29.03 TO 26+22.32	VARIES	BURIED GAS	LEAVE AS IS
173RD LANE & CHISHOLM STREET	26+22.30 TO 34+08.46	VAREIS	BURIED GAS	LEAVE AS IS

CONNEXUS ENERGY				CD
ALIGNMENT	STATION	OFFSET	INPLACE ITEM	NOTES
BALTIMORE STREET	10+00.00 TO 18+29.03	VAREIS	OVERHEAD ELECTRIC	LEAVE AS IS
BALTIMORE STREET	18+29.03 TO 26+22.32	33' LT	OVERHEAD ELECTRIC	LEAVE AS IS
173RD LANE & CHISHOLM STREET	26+22.30 TO 34+08.46	VAREIS	OVERHEAD ELECTRIC	LEAVE AS IS

MINNESOTA DOT				CF
ALIGNMENT	STATION	OFFSET	INPLACE ITEM	NOTES
BALTIMORE STREET	10+00.00 TO 18+29.03	VARIES	BURIED CABLE	LEAVE AS IS
BALTIMORE STREET	18+29.03 TO 26+22.32	50' LT TO 74' LT	BURIED CABLE	LEAVE AS IS
173RD LANE & CHISHOLM STREET	26+22.30 TO 34+08.46	VARIES	BURIED CABLE	LEAVE AS IS

CENTURY LINK				CC
ALIGNMENT	STATION	OFFSET	INPLACE ITEM	NOTES
BALTIMORE STREET	10+00.00 TO 18+29.03	VAREIS	BURIED CABLE	LEAVE AS IS
BALTIMORE STREET	18+29.03 TO 26+22.32	VARIES	BURIED CABLE	LEAVE AS IS
173RD LANE & CHISHOLM STREET	26+22.30 TO 34+08.46	VAREIS	BURIED CABLE	LEAVE AS IS

COMCAST				CE
ALIGNMENT	STATION	OFFSET	INPLACE ITEM	NOTES
BALTIMORE STREET	10+00.00 TO 18+29.03	VAREIS	BURIED CABLE	LEAVE AS IS
BALTIMORE STREET	18+29.03 TO 26+22.32	VARIES	BURIED CABLE	LEAVE AS IS
173RD LANE & CHISHOLM STREET	26+22.30 TO 34+08.46	VAREIS	BURIED CABLE	LEAVE AS IS

ZAYO BANDWIDTH				CG
ALIGNMENT	STATION	OFFSET	INPLACE ITEM	NOTES
BALTIMORE STREET	10+00.00 TO 18+29.03	VARIES	BURIED CABLE	LEAVE AS IS
BALTIMORE STREET	18+29.03 TO 26+22.32	50' LT TO 74' LT	BURIED CABLE	LEAVE AS IS
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Fax 763–862–8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

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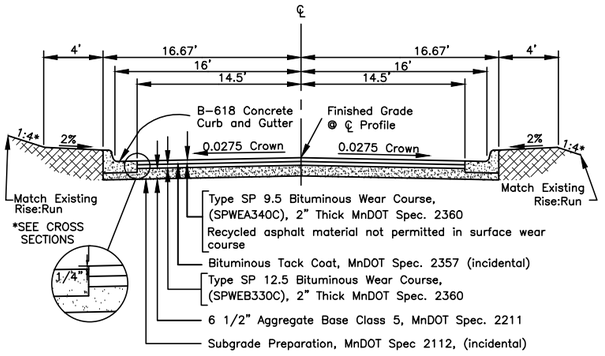
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
UTILITY TABULATIONS

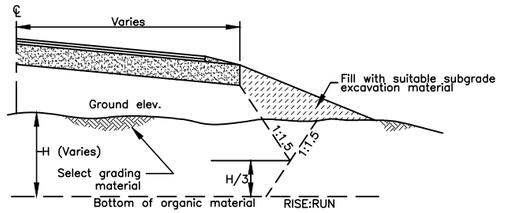
DWG: 2111 TAB 3
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 5 OF 43
FILE: 33–2–105



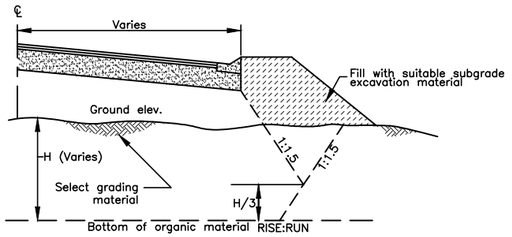
TYPICAL URBAN SECTION

TYPICAL STREET SECTION
COMMERCIAL 9-TON RFC-366B1

NOT TO SCALE



TYPICAL RURAL SECTION

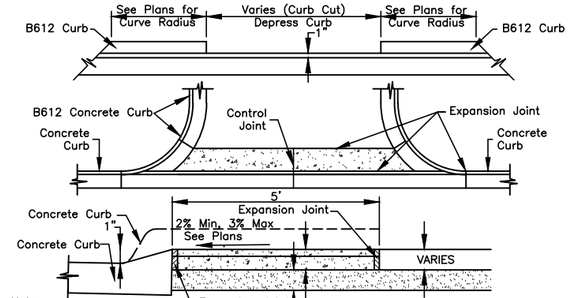


TYPICAL URBAN SECTION

WHERE ORGANIC MATERIAL COMPLETELY REMOVED

TYP. SUBGRADE EXCAVATION RFC-365A1

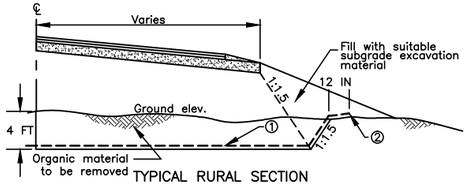
NOT TO SCALE



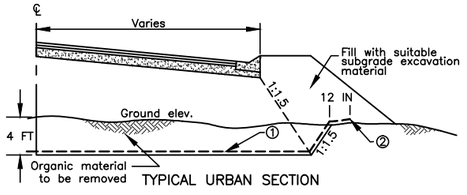
Note:
① Match existing driveway width and elevation at matchline unless otherwise directed by engineer (See Plans).
② If existing driveway is concrete, apron and driveway shall be constructed of 6" concrete with 6"x6"-6/6 welded wire fabric per MnDOT Spec. 3303 in flat sheets, not rolls. Epoxy coated dowel bars conforming to MnDOT Spec. 3302 shall be placed in the existing driveway pavement along the sawcut line. Dowel bars shall be properly coated with a MnDOT approved lubricant. Dowel bars shall be #13. and placed at 24" OC spacing. All work shall conform to MnDOT Spec. 2301 and 2531. Concrete shall be per MnDOT Spec. 2461 for ready-mix with 3,900 PSI at 28 days, with air content of 5% to 7%. Coarse aggregate for concrete shall be per MnDOT Spec. 3137 with 1" max, Class A aggregate. Joint sealer shall be hot-poured, low modulus, mastic type per MnDOT Spec. 3725. Membrane curing compound shall be per MnDOT Spec. 3754 and 2301.3J.
③ If existing driveway is gravel, apron and driveway within R/W shall be constructed per bituminous driveways. Gravel driveways matching beyond R/W shall be 6" Class 5.
④ If existing driveway is bituminous, apron shall be constructed per concrete driveway and driveway behind apron shall be bituminous per note A. All bituminous work shall conform to MnDOT Specifications 2112, 2211, 2357 and 2360. Tack coat is to be applied between bituminous courses and between concrete and bituminous surfaces.
⑤ Driveways in cut sections to slope up from 1" curb lip to R/W at 2% min, 3% max then slope to matchline. Driveways in fill sections to slope up from 1" curb lip to R/W at min of 2% then slope to matchline. See Plan for slope.

COMMERCIAL DRIVEWAY DETAIL RFC-370A1

NOT TO SCALE



TYPICAL RURAL SECTION

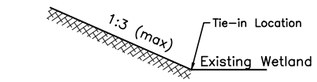


TYPICAL URBAN SECTION

1. Remove organic material to a minimum of 4 feet and place the Geotextile Fabric and install select grading material or other approved material. No vehicle traffic is allowed directly on Geotextile Fabric.
2. Furnish and install Geotextile Fabric Type 5 to 12" past removal limits. Disturbance of existing terrain where Fabric is to be placed shall be minimized.

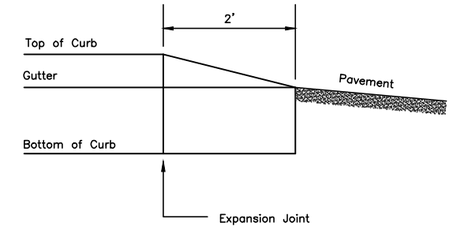
TYPICAL FLOATING ROAD SECTION NEW ROAD CONSTRUCTION RFC-365C4

NOT TO SCALE



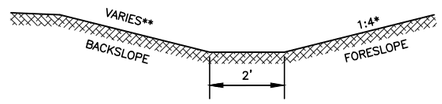
FORESLOPE DETAIL RFC-856A

NOT TO SCALE



CURB END DETAIL RFC-380A

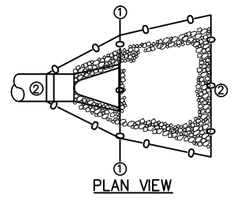
NOT TO SCALE



*DITCH SLOPES SHALL BE 1:3 IN WETLAND AREAS
**SEE CROSS SECTIONS

TYPICAL DITCH DETAIL RFC-856B

NOT TO SCALE



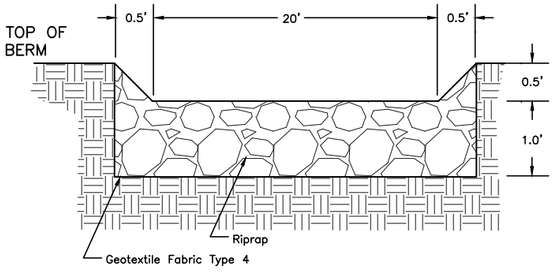
PLAN VIEW

SEQUENCING:
1. Place silt fence along construction limits, the portion of silt fence in front of the pipe shall be removed during flared end section placement.
2. Once the flared end section is placed, silt fence shall be furnished and installed around the top of the flared end section and surrounding the riprap.
3. Any additional outlet protection shall be added as required.
4. Contractor may substitute silt fence for bio-roll or rock log to act as weir for flow into culvert.

SILT FENCE AT FES RFC-857

NOT TO SCALE

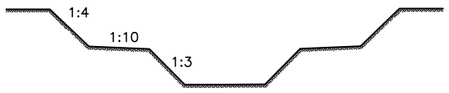
BROAD CRESTED RECTANGULAR WEIR

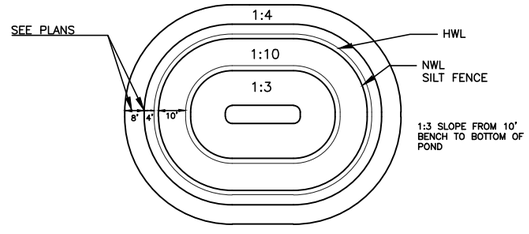


Note:
Permanent erosion control fabric to extend from NWL to 5' past toe of downstream slope.

EMERGENCY OVERFLOW WEIR RFC-852A1

NOT TO SCALE





TYPICAL DETENTION POND RFC-858A

NOT TO SCALE

COPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:
CENTURYLINK (763) 712-5017
CENTERPOINT ENERGY (763) 323-2760
COMCAST (952) 607-4078
CONNEXUS ENERGY (763) 323-4268
XCEL ENERGY (612) 526-4508

DATE	REVISION HISTORY

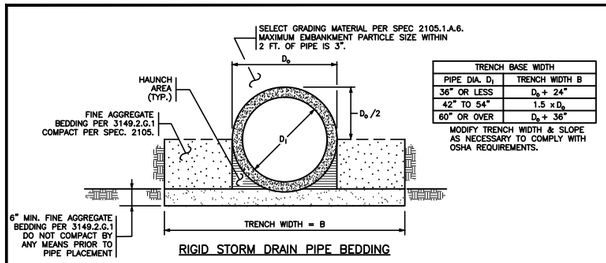
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Krughe
DATE 05/29/25 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
TYPICAL SECTION AND DETAILS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2111 DETAIL 1
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 6 OF 43
FILE: 33-2-106



TRENCH BASE WIDTH	
PIPE DIA. D_i	TRENCH WIDTH B
36" OR LESS	D_o + 24"
42" TO 54"	1.5 x D_o
60" OR OVER	D_o + 36"

MODIFY TRENCH WIDTH & SLOPE AS NECESSARY TO COMPLY WITH OSHA REQUIREMENTS.

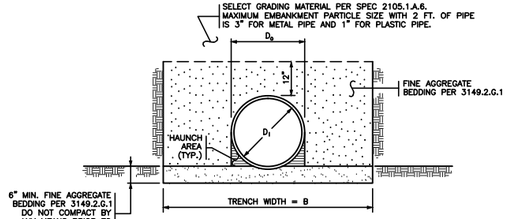
RIGID STORM DRAIN PIPE BEDDING

CONSTRUCTION SEQUENCE

1. LOOSELY PLACE 6" OF FINE AGGREGATE BEDDING MATERIAL TO GRADE, DO NOT COMPACT PRIOR TO PIPE PLACEMENT.
2. FOR PIPES WITH BELL, REMOVE MATERIAL IN BELL AREA PRIOR TO PLACEMENT.
3. FURNISH AND INSTALL PIPE TO GRADE.
4. AFTER PLACEMENT OF THE PIPE, PLACE ADDITIONAL BEDDING AND COMPACT THE FULL LENGTH ON BOTH SIDES OF THE PIPE UNDERNEATH THE HAUNCH AREA BY FIRST SHOVEL SLICING (MANUALLY SHOVE THE BLADE END OF SHOVEL AT AN ANGLE DOWN THE ENTIRE LENGTH OF THE HAUNCH UNDER THE PIPE) THEN COMPACT THE HAUNCH AT AN ANGLE USING A POWERED MECHANICAL OR PNEUMATIC DEVICE (I.E. POLE TAMPER, JUMPING JACK, OR SIMILAR).COMPACT THE REMAINING MATERIAL OUTSIDE THE HAUNCH AREA TO THE REQUIREMENTS OF THE APPLICABLE MATERIAL TYPE ENSURING THAT THE ENTIRE LENGTH OF PIPE IS SUPPORTED UNIFORMLY BY BEDDING.
5. PLACE AND COMPACT BACKFILL EVENLY AND SIMULTANEOUSLY IN 6" LIFTS ON EACH SIDE OF THE PIPE UP TO THE MID-HEIGHT WHEN COMPACTED.
6. COMPLETE REMAINING BACKFILL.

NOTES

EXCAVATE & CONSTRUCT ALL TRENCHES AND SLOPES PER OSHA REQUIREMENTS.
PIPE SIZE IS BASED ON THE NOMINAL INSIDE DIAMETER.
PROTECT ALL PIPE DURING CONSTRUCTION PER SPEC. 2501 OR 2503.



FLEXIBLE STORM DRAIN PIPE BEDDING

TRENCH BASE WIDTH	
PIPE DIA. D_i	TRENCH WIDTH B
36" OR LESS	D_o + 24"
42" TO 48"	1.5 x D_o

MODIFY TRENCH WIDTH & SLOPE AS NECESSARY TO COMPLY WITH OSHA REQUIREMENTS.

CONSTRUCTION SEQUENCE

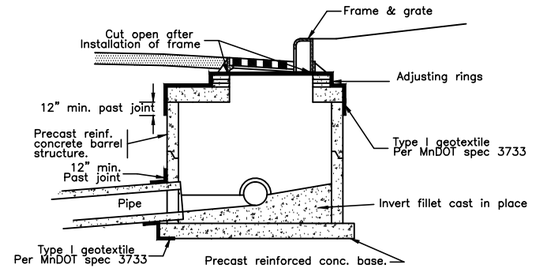
1. LOOSELY PLACE 6" OF FINE AGGREGATE BEDDING MATERIAL TO GRADE, DO NOT COMPACT PRIOR TO PIPE PLACEMENT.
2. FOR PIPES WITH BELL, REMOVE MATERIAL IN BELL AREA PRIOR TO PLACEMENT.
3. FURNISH AND INSTALL PIPE TO GRADE.
4. AFTER PLACEMENT OF THE PIPE, PLACE ADDITIONAL BEDDING AND COMPACT THE FULL LENGTH ON BOTH SIDES OF THE PIPE UNDERNEATH THE HAUNCH AREA BY FIRST SHOVEL SLICING (MANUALLY SHOVE THE BLADE END OF SHOVEL AT AN ANGLE DOWN THE ENTIRE LENGTH OF THE HAUNCH UNDER THE PIPE) THEN COMPACT THE HAUNCH AT AN ANGLE USING A POWERED MECHANICAL OR PNEUMATIC DEVICE (I.E. POLE TAMPER, JUMPING JACK, OR SIMILAR).COMPACT THE REMAINING MATERIAL OUTSIDE THE HAUNCH AREA TO THE REQUIREMENTS OF THE APPLICABLE MATERIAL TYPE ENSURING THAT THE ENTIRE LENGTH OF PIPE IS SUPPORTED UNIFORMLY BY BEDDING.
5. PLACE AND COMPACT BACKFILL EVENLY AND SIMULTANEOUSLY IN 6" LIFTS ON EACH SIDE OF THE PIPE UP TO THE MID-HEIGHT WHEN COMPACTED.
6. COMPLETE REMAINING BACKFILL.

NOTES

EXCAVATE & CONSTRUCT ALL TRENCHES AND SLOPES PER OSHA REQUIREMENTS.
PIPE SIZE IS BASED ON THE NOMINAL INSIDE DIAMETER.
PROTECT ALL PIPE DURING CONSTRUCTION PER SPEC. 2501 OR 2503.

STORM DRAIN BEDDING FOR RIGID AND FLEXIBLE PIPE RFC–654

NOT TO SCALE

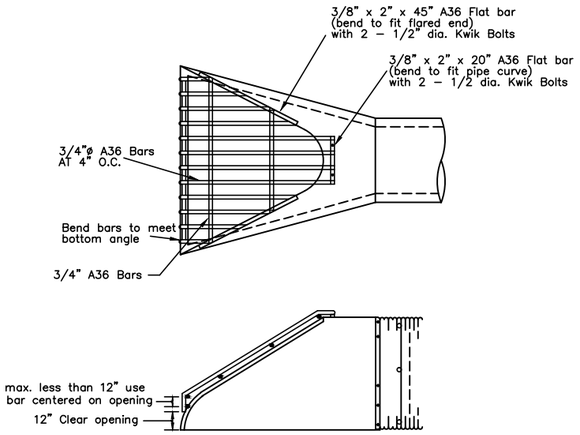


SEAL FABRIC ONTO CATCH BASIN AND CATCH BASIN MANHOLE WITH DUCT TAPE. OVER LAP ALL SEAMS. 12" MIN.

SECTIONAL VIEW

FABRIC AROUND CATCH BASIN RFC–463

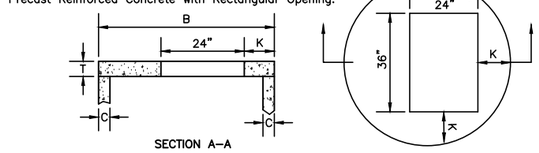
NOT TO SCALE



CPP TRASH GUARD RFC–466C

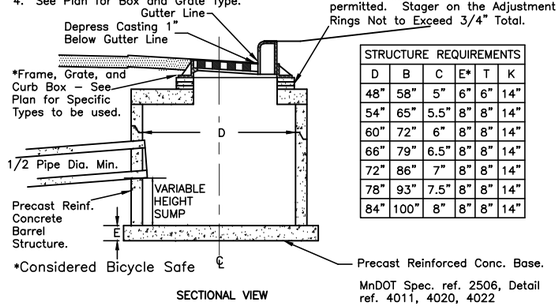
NOT TO SCALE

NOTE:
HS20 Roadway Loading Catch Basin Cover Slab of Precast Reinforced Concrete with Rectangular Opening.



Note:
1. Steps needed for structure height greater than 4'.
2. Cover Slab to Rest on Bed of Mortar on Full Thickness of Structure Walls, not to Rest on Pipe Tongue or Groove.
3. Location of Structure as Shown in Plans.
4. See Plan for Box and Grate Type.

Adjusting Rings, 2 Min., 3 Max., Full 3/8" Bed of Mortar Between Rings. Plaster Exterior Only with 2" Min. Thick Coat. Strike Off Interior. No shims permitted. Stager on the Adjustment Rings Not to Exceed 3/4" Total.



STRUCTURE REQUIREMENTS					
D	B	C	E*	T	K
48"	58"	5"	6"	6"	14"
54"	65"	5.5"	8"	8"	14"
60"	72"	6"	8"	8"	14"
66"	79"	6.5"	8"	8"	14"
72"	86"	7"	8"	8"	14"
78"	93"	7.5"	8"	8"	14"
84"	100"	8"	8"	8"	14"

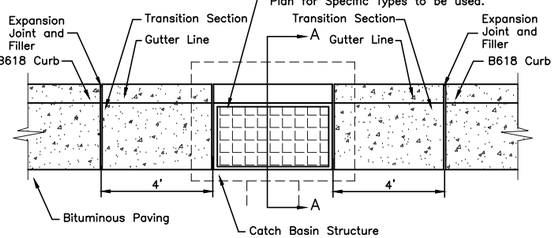
SECTIONAL VIEW

MnDOT Spec. ref. 2506, Detail ref. 4011, 4020, 4022

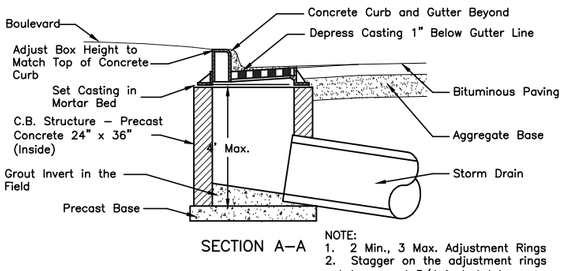
RECTANGULAR INLET
FOR ROUND MANHOLE RFC–465A3

NOT TO SCALE

SPECIAL 4 = 60" ø
SPECIAL 5 = 72" ø
SPECIAL 6 = 96" ø



CATCH BASIN PLAN



SECTION A–A

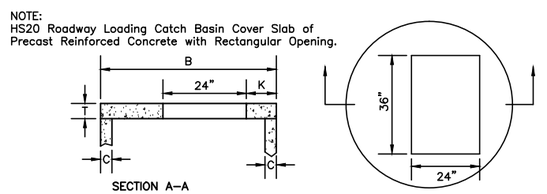
NOTE:
1. 2 Min., 3 Max. Adjustment Rings
2. Stagger on the adjustment rings not to exceed 3/4 inch total.

RECTANGULAR CATCH BASIN RFC–459C

NOT TO SCALE

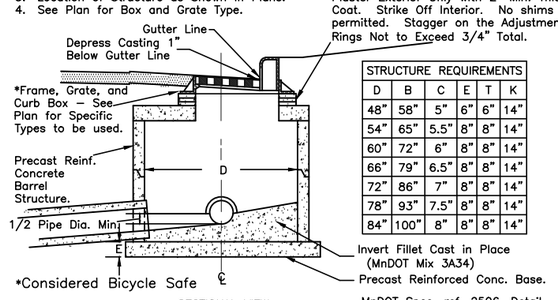
SPECIAL

NOTE:
HS20 Roadway Loading Catch Basin Cover Slab of Precast Reinforced Concrete with Rectangular Opening.



Note:
1. Steps needed for structure height greater than 4'.
2. Cover Slab to Rest on Bed of Mortar on Full Thickness of Structure Walls, not to Rest on Pipe Tongue or Groove.
3. Location of Structure as Shown in Plans.
4. See Plan for Box and Grate Type.

Adjusting Rings, 2 Min., 3 Max., Full 3/8" Bed of Mortar Between Rings. Plaster Exterior Only with 2" Min. Thick Coat. Strike Off Interior. No shims permitted. Stagger on the Adjustment Rings Not to Exceed 3/4" Total.



STRUCTURE REQUIREMENTS					
D	B	C	E	T	K
48"	58"	5"	6"	6"	14"
54"	65"	5.5"	8"	8"	14"
60"	72"	6"	8"	8"	14"
66"	79"	6.5"	8"	8"	14"
72"	86"	7"	8"	8"	14"
78"	93"	7.5"	8"	8"	14"
84"	100"	8"	8"	8"	14"

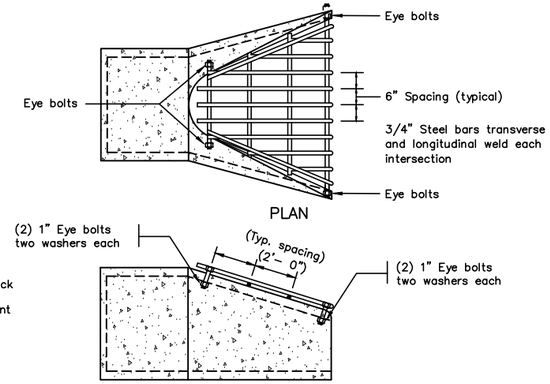
SECTIONAL VIEW

MnDOT Spec. ref. 2506, Detail ref. 4011, 4020, 4022

RECTANGULAR INLET
FOR ROUND MANHOLE RFC–465A1

NOT TO SCALE

SPECIAL 1 = 48" ø
SPECIAL 2 = 60" ø
SPECIAL 3 = 84" ø



Note:
1.) Trash guard to be galvanized after fabrication
2.) The size of each trash guard will vary to fit the apron size.
3.) All bolts to be non–rusting stainless steel.
4.) Weld all bolts to prevent entry after final storm sewer cleaning.
5.) Round all steel bars such that ends are smooth and free of burs.

FOR PIPE DIAMETERS 30" AND SMALLER

RCP TRASH GUARD RFC–466B

NOT TO SCALE

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:

CENTURYLINK	(763) 712–5017
CENTERPOINT ENERGY	(763) 323–2760
COMCAST	(952) 607–4078
CONNEXUS ENERGY	(763) 323–4268
XCEL ENERGY	(612) 526–4508

DATE	REVISION HISTORY

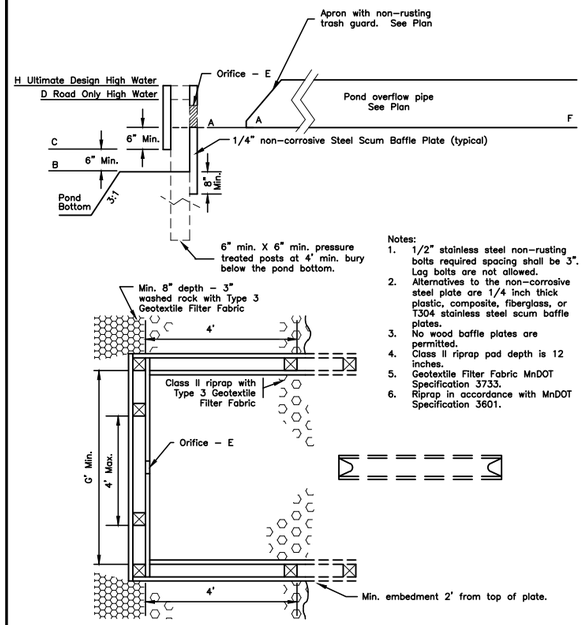
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Krueger
DATE 05/29/25 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763–862–8000
Fax 763–862–8042

S.A.P. 197–119–003 S.P. 0208–170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
DETAILS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2111 DETAIL 2
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 7 OF 43
FILE: 33–2–107



Notes:
1. 1/2" stainless steel non-rusting bolts required spacing shall be 3". Lag bolts are not allowed.
2. Alternatives to the non-corrosive steel plate are 1/4 inch thick plastic, composite, fiberglass, or T304 stainless steel scum baffle plates.
3. No wood baffle plates are permitted.
4. Class II riprap pad depth is 12 inches.
5. Geotextile Filter Fabric MnDOT Specification 3733.
6. Riprap in accordance with MnDOT Specification 3601.

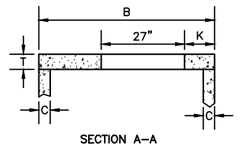
POND OUTLET BAFFLE RFC–850B2

NOT TO SCALE

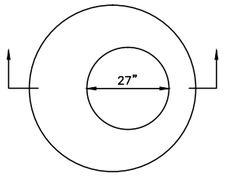
BAFFLE WEIR ELEVATIONS					
	POND 1	POND 2	FES 51 POND 3	FES 63 POND 3	POND 4
A	905.30	905.00	906.80	905.50	905.00
B	904.30	904.00	904.50	904.50	904.00
C	904.80	904.50	905.00	905.00	904.50
D	907.20	906.60	907.30	907.30	906.40
E	22"X22"	12"X12"	6"X6"	18"X18"	18"X18"
F	905.20	905.00	906.00	SEE PROFILE ON SHEET 29	904.50
G	8'	8'	8'	8'	8'
*H	908.20	906.90	907.50	907.50	906.50

* BAFFLE WEIRS TO BE CONSTRUCTED AT HIGH WATER LEVELS LISTED IN ROW H INSTEAD OF ROW D TO ACCOUNT FOR FUTURE SITE DEVELOPMENT

NOTE:
HS20 Roadway Loading Catch Basin Cover Slab of Precast Reinforced Concrete with Round Opening.



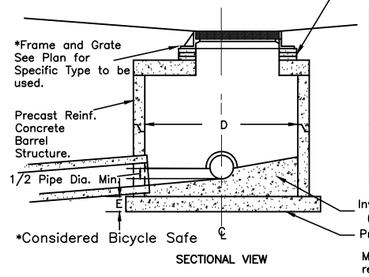
SECTION A–A



PLAN OF COVER SLAB

Note:
1. Steps needed for structure height greater than 4'.
2. Cover Slab to Rest on Bed of Mortar on Full Thickness of Structure Walls, not to Rest on Pipe Tongue or Groove.
3. Location of Structure as Shown in Plans.

Adjusting Rings, 2 Min., 3 Max., Full 3/8" Bed of Mortar Between Rings. Plaster Exterior Only with 2" Min. Thick Coat. Strike Off Interior. No shims permitted. Stager on the Adjustment Rings Not to Exceed 3/4" Total.



SECTIONAL VIEW

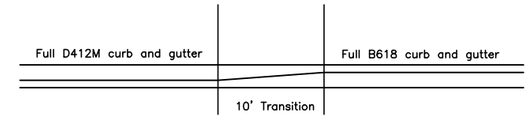
MnDOT Spec. ref. 2506, Detail ref. 4011, 4020

STRUCTURE REQUIREMENTS					
D	B	C	E	T	K
48"	58"	5"	6"	6"	14"
54"	65"	5.5"	8"	8"	14"
60"	72"	6"	8"	8"	14"
66"	79"	6.5"	8"	8"	14"
72"	86"	7"	8"	8"	14"
78"	93"	7.5"	8"	8"	14"
84"	100"	8"	8"	8"	14"

ROUND MANHOLE RFC–465C

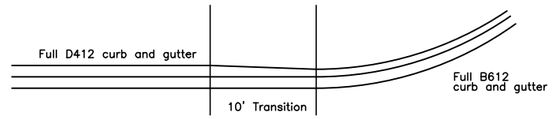
NOT TO SCALE

SPECIAL 7 = 48" ø



TRANSITION CURB: D412M TO B618 RFC–356A10

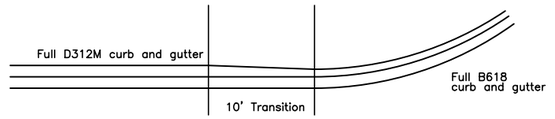
NOT TO SCALE



TRANSITION FOR D412 TO B612 CURB & GUTTER AT CURB RETURNS

TRANSITION CURB: D412 TO B612 RFC–356A4

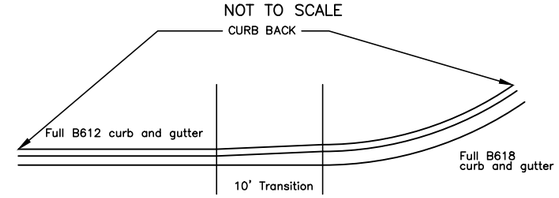
NOT TO SCALE



TRANSITION FOR D312 TO B618 CURB & GUTTER AT CURB RETURNS

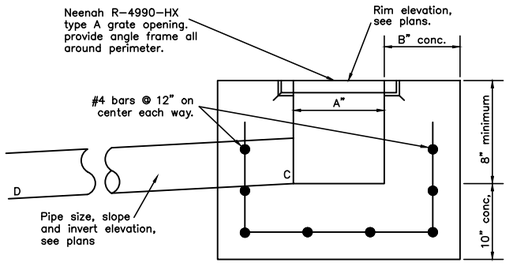
TRANSITION CURB: D312M TO B618 RFC–356A2

NOT TO SCALE



TRANSITION CURB: B612 TO B618 RFC–356B

NOT TO SCALE



0.6% minimum longitudinal slope along trench drain.

TRENCH DRAIN DETAIL RFC–472B

NOT TO SCALE

TRENCH DRAIN OUTLET ELEVATIONS		
	STUB 75	STUB 6
A	24	24
B	10	10
C	906.65	905.87
D	906.59	905.68

DATE	REVISION HISTORY

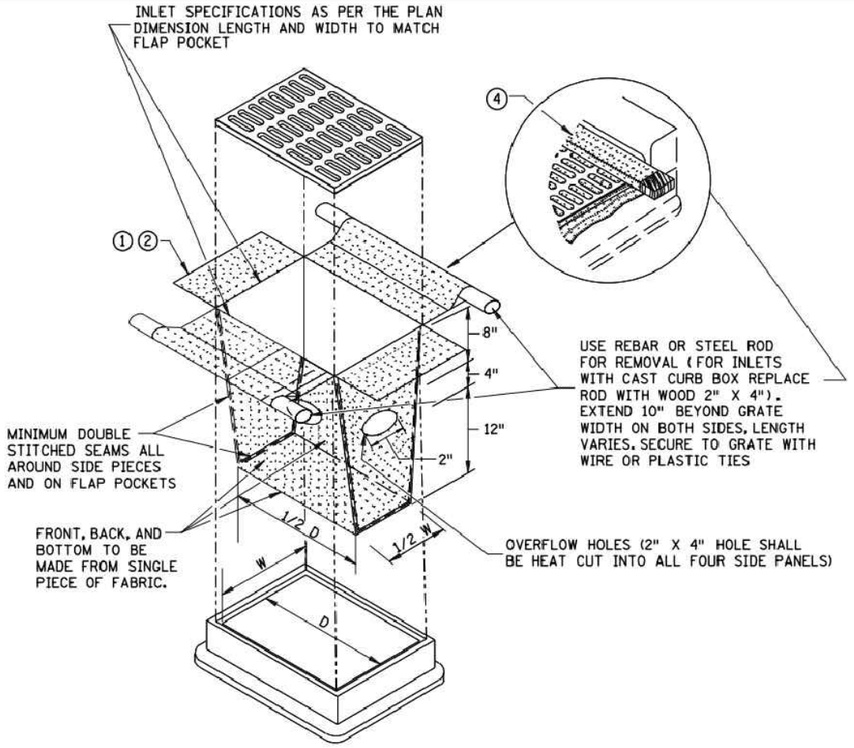
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 05/29/25 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763–862–8000
Fax 763–862–8042

S.A.P. 197–119–003 S.P. 0208–170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
DETAILS

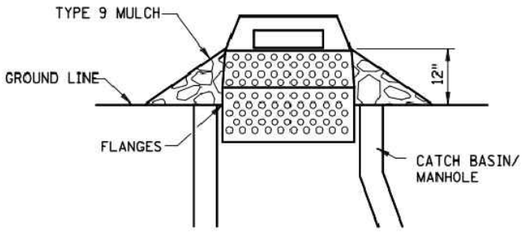
DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2111 DETAIL 3
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 8 OF 43
FILE: 33–2–108



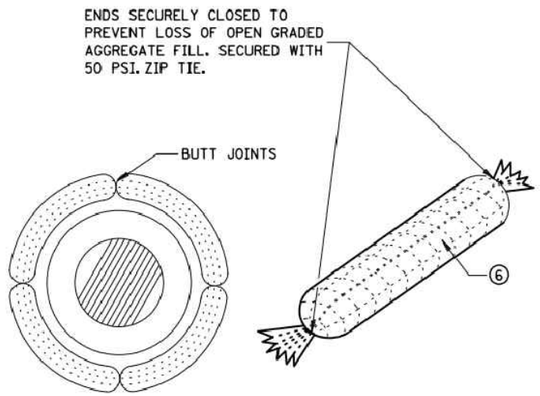
FILTER BAG INSERT ③

(CAN BE INSTALLED IN ANY INLET TYPE
WITH OR WITHOUT A CURB BOX)

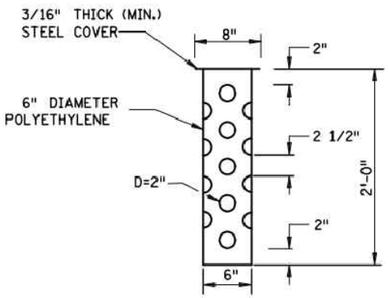


SEDIMENT CONTROL INLET HAT

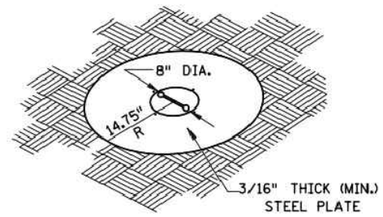
NOTE:
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



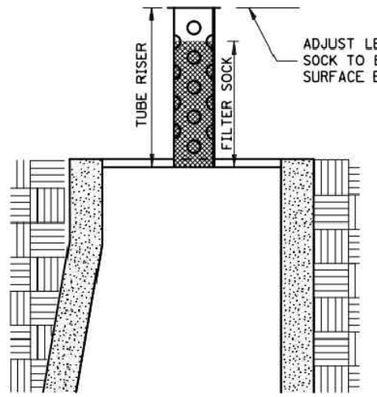
ROCK LOG/COMPOST LOG



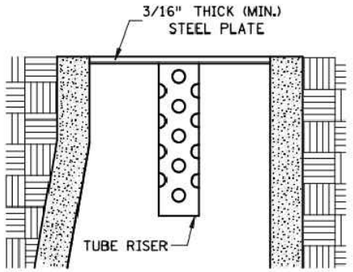
TUBE RISER



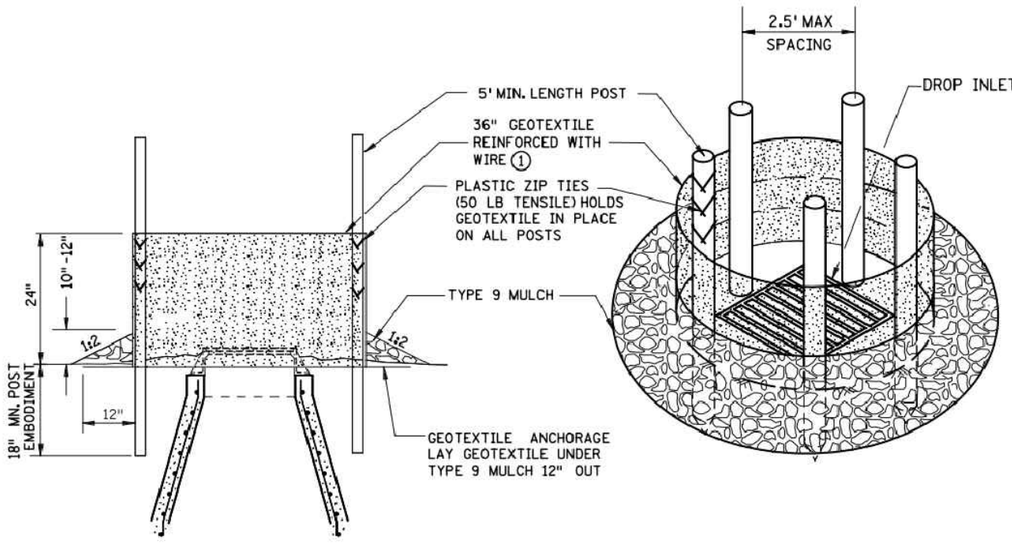
PERSPECTIVE VIEW



SECTION
(UP POSITION)



SECTION
(DOWN POSITION)



SILT FENCE RING AND ROCK FILTER BERM

USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 or LESS

POP-UP HEAD

NOTES:

SEE SPECS. 2573, 3137, & 3886.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEED TRAFFIC FLOW.

① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.

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

③ INSTALLATION NOTES:
DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.

④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.

⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.

⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

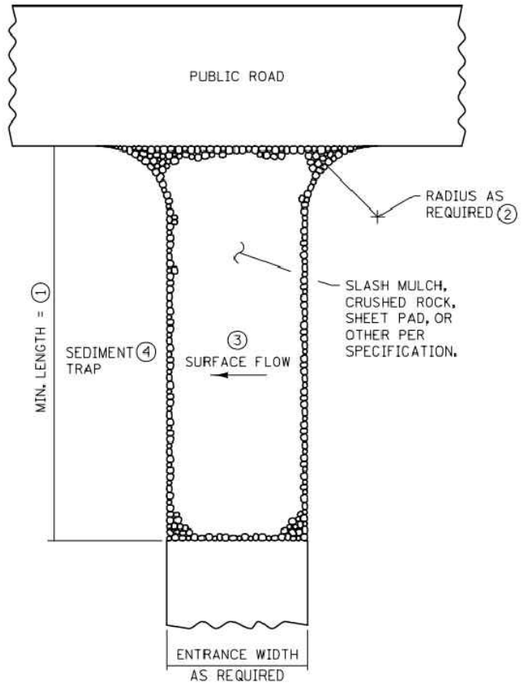
STANDARD PLAN 5-297.405 | 4 OF 8

APPROVED: 2-28-2017
REVISED:
STATE DESIGN ENGINEER

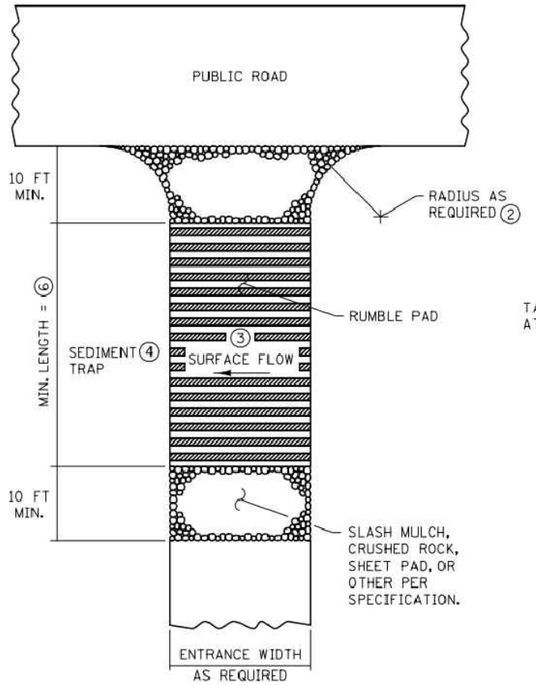
TEMPORARY SEDIMENT CONTROL

STORM DRAIN INLET PROTECTION

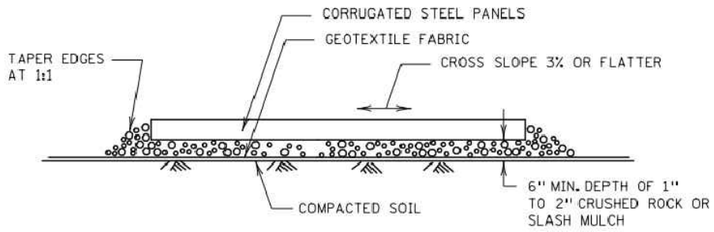
STATE PROJ. NO. (T.H.) SHEET NO. 9 OF 43 SHEETS



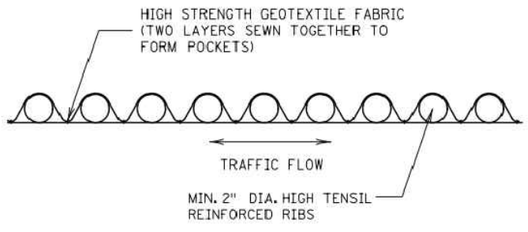
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



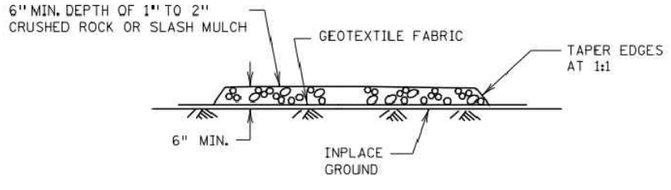
RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

SEE SPECS. 2573 & 3882.

① MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.

② PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.

③ IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.

④ IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.

⑤ IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.

⑥ MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.

⑦ MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 5 OF 8

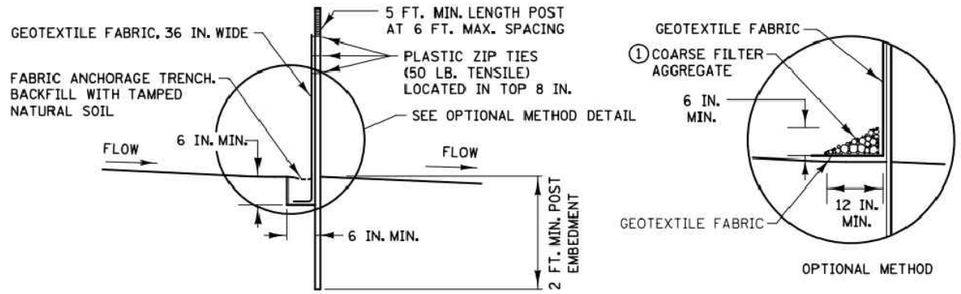
APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

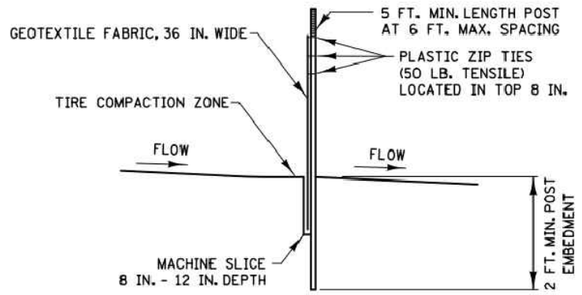
TEMPORARY SEDIMENT CONTROL

STABILIZED CONSTRUCTION EXIT

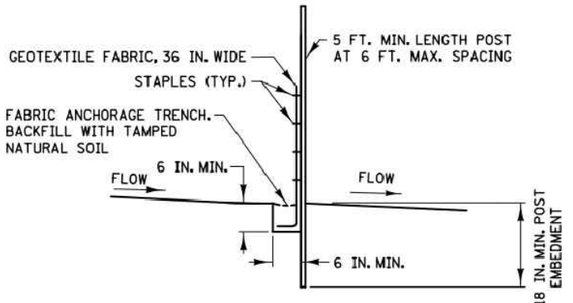
STATE PROJ. NO. (T.H.) SHEET NO. 10 OF 43 SHEETS



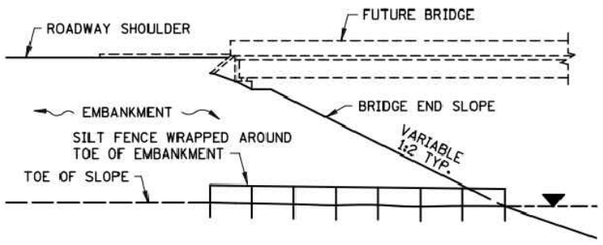
SILT FENCE TYPE HI ②
(HAND INSTALLED)



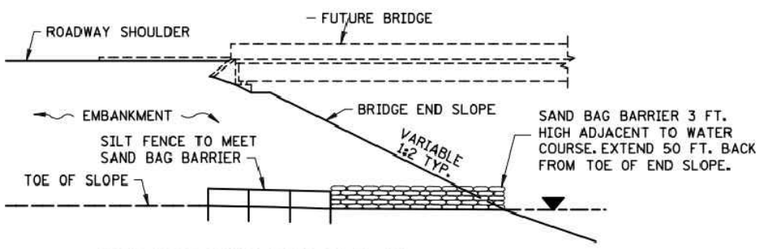
SILT FENCE TYPE MS ②
(MACHINE SLICED)



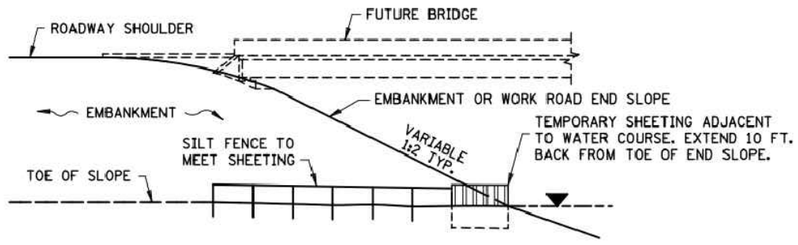
SILT FENCE TYPE PA ③
(PREASSEMBLED)



SILT FENCE ONLY ④

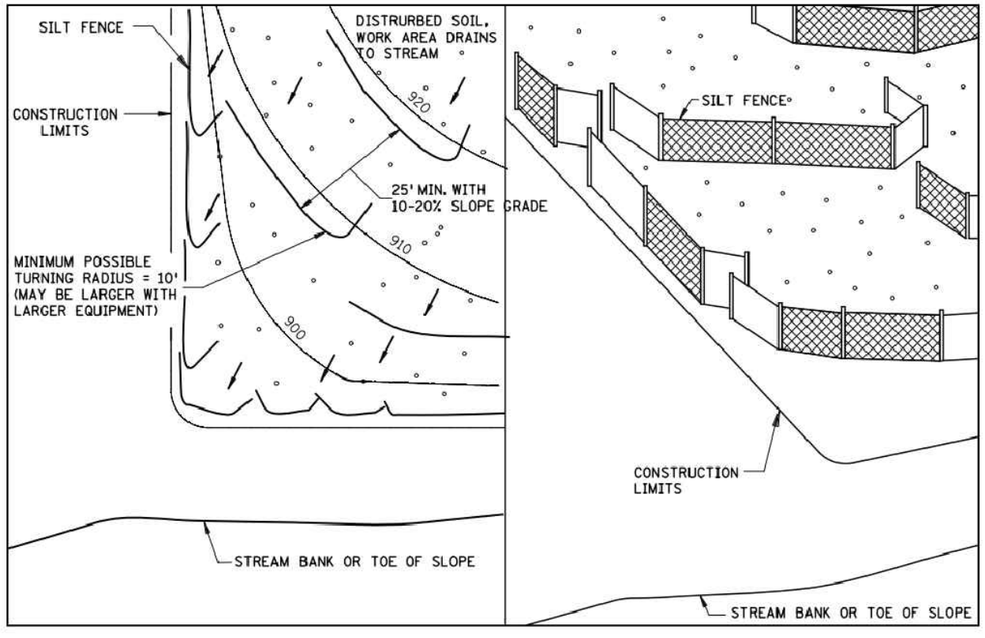


SILT FENCE WITH SAND BAGS ⑤



SILT FENCE WITH SHEETING ⑥

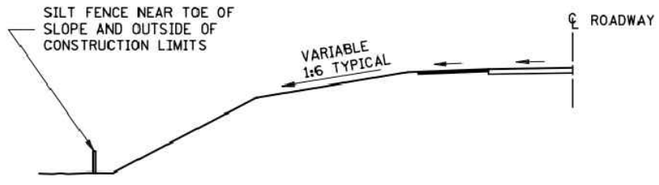
INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW

PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

SEE SPECS. 2573, 3149 & 3886.

① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.

④ WATER COURSE FLOW VELOCITY: STANDING.
CONTRIBUTING SLOPE AREA: 1./2 ACRE.

⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC.
CONTRIBUTING SLOPE AREA: 1. ACRE.

⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC.
CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 6 OF 8

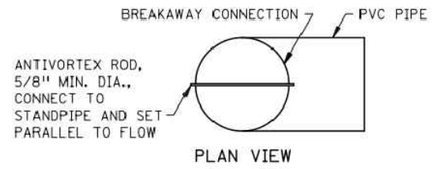
APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

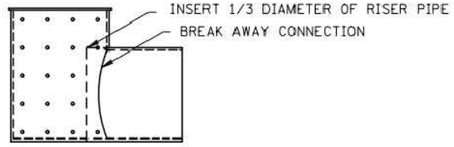
TEMPORARY SEDIMENT CONTROL

SILT FENCE

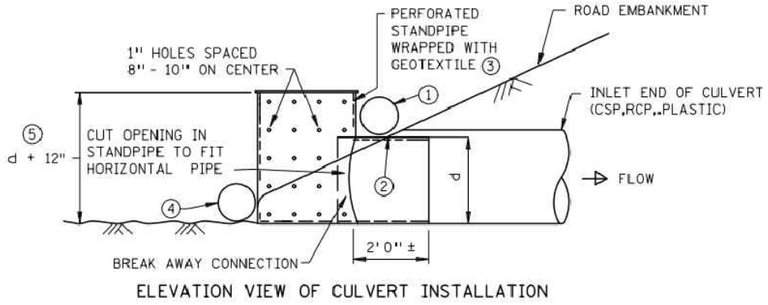
STATE PROJ. NO. (T.H.) SHEET NO. 11 OF 43 SHEETS



PLAN VIEW



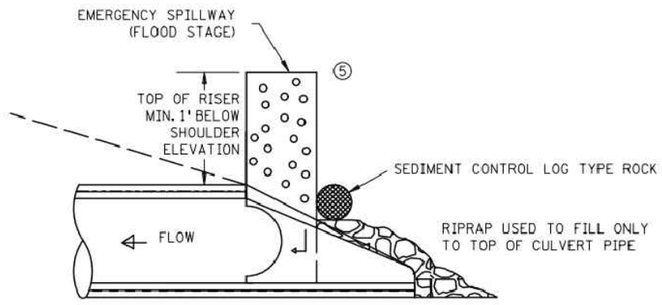
CULVERT STANDPIPE



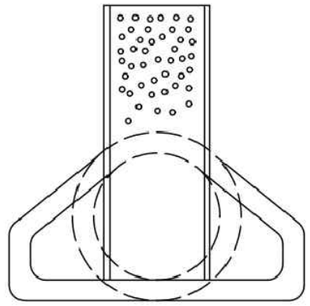
ELEVATION VIEW OF CULVERT INSTALLATION

CULVERT STANDPIPE INSERT (D-RISER)

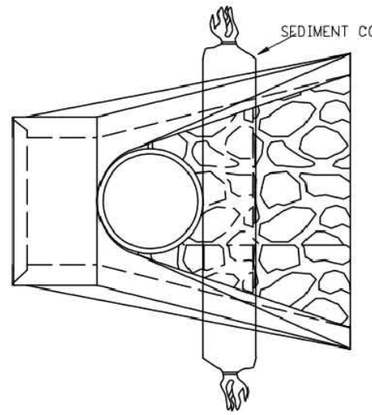
d= CULVERT SIZE: 12" - 36"



LONGITUDINAL SECTION



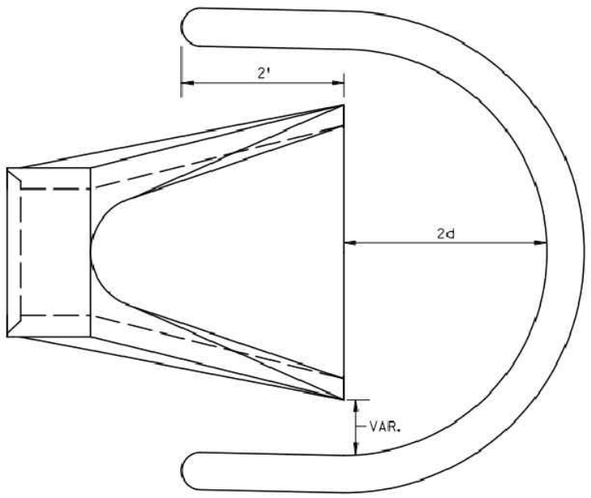
END VIEW



TOP VIEW

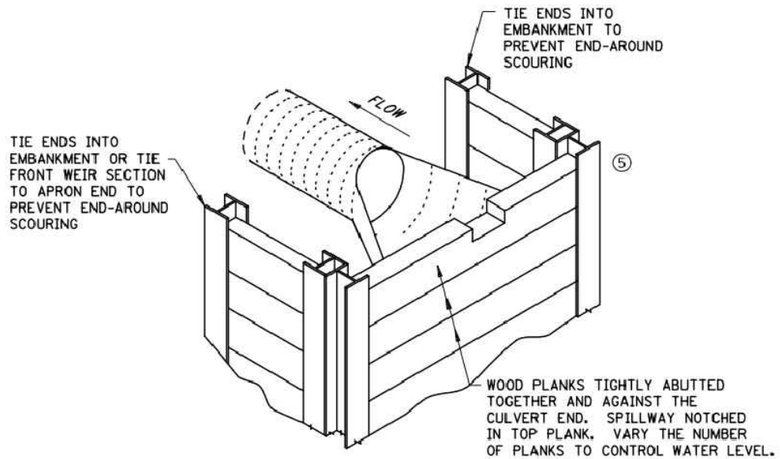
NOTE: SEDIMENT CONTROL LOG TYPE ROCK MAY BE WRAPPED AROUND RISER

CULVERT STANDPIPE INSERT (D-RISER)



SEDIMENT CONTROL LOG WEIR
(COMPOST, WOOD CHIP, OR ROCK)

d = CULVERT SIZE: 12" -36"



WOOD PLANK WEIR

NOTES:

SEE SPECS. 2573, 3891 & 3893.

FOR USE WHEN TEMPORARY PONDING IS NEEDED IN DITCH SECTIONS FOR SEDIMENT CONTROL.

MANUFACTURED ALTERNATIVES LISTED ON MnDOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED AT NO ADDITIONAL COST.

① ROCK LOG OR SANDBAG TO HOLD STANDPIPE AND ACT AS A SEAL BETWEEN RISER PIPE AND CULVERT.

② PLACE CULVERT APRON AND SLIDE TEMPORARY STANDPIPE INTO CSP OR RCP CULVERT.

③ ALL GEOTEXTILE USED FOR CULVERT PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886 FOR MACHINE SLICED.

④ ROCK LOG OR RIP RAP TO HOLD STANDPIPE AND ACT AS A FILTER BETWEEN RISER PIPE AND CULVERT.

⑤ HEIGHT OVERFLOW NOT TO CAUSE FLOODING OF ROAD OR ADJACENT PROPERTIES.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 8 OF 8

APPROVED: 2-28-2017
REVISED:

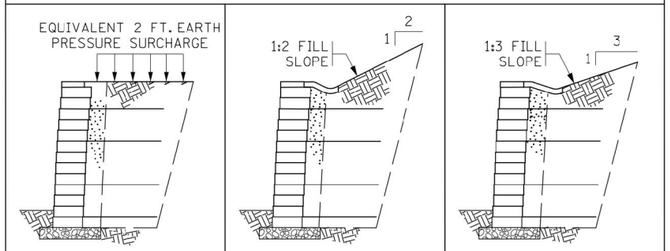
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

CULVERT END CONTROLS

STATE PROJ. NO. (T.H.) SHEET NO. 12 OF 43 SHEETS

LOADING CASES



LEVEL FILL CASE 1	1:2 SLOPED FILL CASE 2	1:3 SLOPED FILL CASE 3

SAMPLE OF ESTIMATED QUANTITIES TABULATION FOR MODULAR BLOCK WALLS (3)

		UNIT	QUANTITY
	STRUCTURE EXCAVATION CLASS ___	CU. YD.	
	STRUCTURAL BACKFILL (CV)	CU. YD.	
(4)	STRUCTURAL CONCRETE (1P42)	CU. YD.	
(4)	COARSE FILTER AGGREGATE	CU. YD.	
(1)(2)	MODULAR BLOCK RETAINING WALL	SQ. FT.	
	TYPE 1 GEOTEXTILE	SQ. YD.	

(1) VERTICAL FACE AREA OF MODULAR BLOCK AS MEASURED FROM PLAN TOP OF WALL TO 2 FT. BELOW FINISHED GRADE AT BOTTOM OF WALL.

(2) PAY ITEM FOR MBW WALLS SHALL BE 2411.

(3) REFER TO TABULATIONS / ESTIMATE SHEETS FOR QUANTITIES.

(4) FOR USE AS LEVELING PAD.

DEFINITION OF TERMS

MBW	=	MODULAR BLOCK WALL
C.I.P.	=	CAST-IN-PLACE
H	=	WALL HEIGHT FROM TOP OF CAP TO BOTTOM OF LOWERMOST BLOCK UNIT
S	=	VERTICAL REINFORCEMENT SPACING
REINFORCEMENT COVERAGE RATIO	=	WIDTH OF SOIL REINFORCEMENTS TO HORIZONTAL SPACING (100% COVERAGE RATIO REQUIRED)

DESIGN CRITERIA

DESIGN CRITERIA FOLLOWS THE "AASHTO LRFD BRIDGE DESIGN SPECIFICATION" (7TH EDITION, 2014) EXCEPT FOR THE DEVIATIONS NOTED BELOW. DESIGN CRITERIA ARE IN ACCORDANCE WITH MnDOT POLICY, AS RECORDED IN THE MnDOT ROAD DESIGN MANUAL, OR FACILITY DESIGN GUIDE.

A. THE MINIMUM REINFORCEMENT LENGTH IS 7 FT. FROM THE FRONT OF THE BLOCK OR 0.8H FOR CASE 1 AND CASE 3 AND 1.2H FOR CASE 2, WHICHEVER IS GREATER.
B. THE REINFORCEMENT FILL FRICTION ANGLE IS 34°.
C. THE LATERAL EARTH PRESSURE COMPUTATION FOR EXTERNAL STABILITY CALCULATIONS USES AN INTERFACE FRICTION ANGLE SET EQUAL TO THE RETAINED BACKFILL ANGLE.
D. THE LATERAL EARTH PRESSURE COMPUTATION FOR INTERNAL STABILITY CALCULATIONS USES THE EFFECTS OF WALL FACE BATTER.

LOAD FACTORS - STRENGTH LIMIT STATE

HORIZONTAL EARTH PRESSURE (γ_{EH}) = 1.5 FOR EXTERNAL STABILITY
HORIZONTAL EARTH PRESSURE (γ_{EH}) = 1.35 FOR INTERNAL STABILITY
VERTICAL PRESSURE FROM DEAD LOAD OF EARTH FILL (γ_{EV}) = 1.35 FOR BEARING CAPACITY
VERTICAL PRESSURE FROM DEAD LOAD OF EARTH FILL (γ_{EV}) = 1.0 FOR SLIDING AND PULL OUT
EQUIVALENT EARTH PRESSURE SURCHARGE (γ) = 1.35

RESISTANCE FACTORS - STRENGTH LIMIT STATE

BEARING ϕ_{BR} = 0.65
DIRECT SLIDING ϕ_{DS} = 1.0
GEOGRID STRENGTH ϕ = 0.9
GEOGRID BLOCK CONNECTION STRENGTH ϕ = 0.9
GEOGRID PULLOUT ϕ = 0.9

SEE FOUNDATION REPORT FOR NOMINAL SOIL BEARING RESISTANCE OF FOUNDATION SOIL.

CASE 1 AND 3 - NOMINAL SOIL BEARING RESISTANCE OF 2000 PSF IS REQUIRED FOR WALLS UP TO 12 FT IN HEIGHT. FOR WALLS GREATER THAN 12 FT IN HEIGHT, THE REQUIRED NOMINAL BEARING RESISTANCE IS EQUAL TO 2000 PSF + (H-10)(1500 PSF) WHERE H IS IN FEET.

CASE 2 - NOMINAL SOIL BEARING RESISTANCE OF 2500 PSF IS REQUIRED FOR WALLS UP TO 12 FT IN HEIGHT. FOR WALLS GREATER THAN 12 FT IN HEIGHT, THE REQUIRED NOMINAL BEARING RESISTANCE IS EQUAL TO 2500 PSF + (H-10)(2200 PSF) WHERE H IS IN FEET.

REINFORCED WALL FILL CHARACTERISTICS:
A. USE STRUCTURAL BACKFILL (SPEC. 3149.2D2)
B. INTERNAL ANGLE OF FRICTION (ϕ_r) = 34° MINIMUM
C. COHESION (C) = 0
D. MOIST UNIT WEIGHT (γ_r) = 125 PCF

COARSE FILTER AGGREGATE CHARACTERISTICS:
A. COARSE FILTER AGGREGATE TO MEET SPEC. 3149.2H.

RETAINED BACKFILL CHARACTERISTICS:
A. INTERNAL ANGLE OF FRICTION (ϕ_b) = 30°
B. COHESION (C) = 0
C. MOIST UNIT WEIGHT (γ_b) = 120 PCF

FOUNDATION SOILS CHARACTERISTICS:
A. INTERNAL ANGLE OF FRICTION (ϕ_f) = 30°
B. COHESION (C) = 0
C. UNIT WEIGHT (γ_f) = 120 PCF

BASIS OF DESIGN:

IN ADDITION TO THE STANDARD SHEETS, INCLUDE PLAN AND FRONT ELEVATION VIEWS OF THE MODULAR BLOCK RETAINING WALLS IN THE PLANS. THE PLAN VIEW MUST SHOW ALIGNMENT BASELINE, LIMITS OF BOTTOM OF WALL ALIGNMENT, AND LIMITS OF TOP OF WALL ALIGNMENT AS ALIGNMENTS VARY WITH BATTER OF WALL SYSTEM ACTUALLY SUPPLIED. THE FRONT ELEVATION MUST IDENTIFY BOTTOM AND TOP OF WALL ELEVATIONS, EXISTING GRADES, AND FINISHED GRADES.

IF THE WALL IS CURVED, THE RADIUS AT THE BOTTOM AND THE TOP OF EACH WALL SEGMENT AND THE P.C. AND P.T. STATION POINTS OFF OF BASELINE AND LIMITS OF BOTTOM AND TOP OF WALL ALIGNMENT MUST BE SHOWN.

REFERENCE STANDARD PLATES AND PROVIDE DETAILS FOR TRAFFIC BARRIERS, CURB AND GUTTER, HANDRAILS AND FENCING AS REQUIRED BY PROJECT CONDITIONS. SEE AASHTO MANUALS, MnDOT ROAD DESIGN MANUAL OR FACILITY DESIGN GUIDE, STANDARD PLATES AND DETAILS FOR REQUIREMENTS.

SHOW SURFACE DRAINAGE PATTERNS IN THE PLAN VIEW. PROVIDE DIMENSIONS FOR WIDTH AND DEPTH OF THE DRAINAGE SWALE AS WELL AS THE TYPE OF IMPERVIOUS LINER MATERIAL. COLLECT SURFACE WATER RUNOFF ABOVE AND DIVERT AROUND WALL FACE.

DETAIL LINES AND GRADES OF THE INTERNAL DRAINAGE COLLECTION PIPE. DETAIL OR NOTE THE DESTINATION OF INTERNAL WALL DRAINS AS WELL AS THE METHOD OF TERMINATION (DAYLIGHT END OF PIPE OR CONNECTION INTO HYDRAULIC STRUCTURE). SPACE DRAIN PIPE OUTLET NOT MORE THAN 150 FT.

SOFT SOILS AND/OR HIGH WATER CONDITIONS (DEFINED AS GROUNDWATER WITHIN A DEPTH EQUAL TO THE WALL HEIGHT (H) MAY NOT BE SUITABLE FOR APPLICATION OF STANDARD DESIGNS AND REQUIRE SPECIAL CONSIDERATION BY THE FOUNDATIONS UNIT.

STANDARD DESIGN CHARTS ARE NOT APPLICABLE TO:
- PROJECT/SITES WHERE FOUNDATION SOILS SHEAR STRENGTH AND/OR BEARING RESISTANCE DO NOT MEET OR EXCEED VALUES USED IN THE DEVELOPMENT OF STANDARD DESIGN CHARTS.
- PROJECTS WITH A LARGE QUANTITY OF FACE AREA WHERE PROJECT SPECIFIC DESIGNS ARE RECOMMENDED, AS DEFINED IN MnDOT ROAD DESIGN MANUAL OR FACILITY DESIGN GUIDE.
- WHERE SLOPES IN FRONT OF WALL ARE STEEPER THAN 1:3.
- WHERE MAXIMUM WALL HEIGHT EXCEEDS 12 FT.
- WHERE WALLS ARE TIERED.
- WALLS WITH NOISE WALLS.

IF USING CONCRETE RAILING, INCLUDE STANDARD BRIDGE DETAIL "CONCRETE RAILING (TYPE F)" IN PLAN SET.

PROVIDE PROJECT SPECIFIC AESTHETIC REQUIREMENTS INCLUDING COLOR AND FASCIA SURFACING IN THE SPECIAL PROVISIONS.

MnDOT ROAD DESIGN MANUAL OR FACILITY DESIGN GUIDE CONTAINS GUIDELINES, TRAFFIC SAFETY AND OTHER ASPECTS.

NOTES TO CONTRACTOR:

APPROVED COMBINATIONS OF MODULAR BLOCK UNIT AND SOIL REINFORCEMENT AND APPROVED MODULAR BLOCK UNIT PRODUCTS ARE MAINTAINED BY THE FOUNDATION UNIT (GEOTECHNICAL ENGINEERING SECTION), AND ARE POSTED AT https://www.dot.state.mn.us ONLY APPROVED PRODUCT COMBINATIONS AND APPROVED BLOCK UNITS PRODUCED FROM APPROVED SOURCES SHALL BE USED.

PROVIDE DETAILED SHOP DRAWINGS FOR CONSTRUCTION CONTAINING:

- A COPY OF MnDOT STANDARD SHEETS FOR LOADING CASE(S) USED WITH BLOCK TYPE AND SPACING NOTED ON THE "MODULAR BLOCK WALL REINFORCEMENT LAYOUT" TABLE.
- ELEVATION VIEW WITH REINFORCEMENT PLACEMENT REQUIREMENTS, WALL FACING LAYOUT, AND GEOMETRIC INFORMATION. TOP OF WALL MAY EXTEND UP TO 4" ABOVE PLAN TOP OF WALL ELEVATION.
- PLAN VIEW WITH BOTTOM AND TOP OF WALL ALIGNMENT, AND PLAN LIMITS OF WALL ALIGNMENT.
- CROSS SECTIONS DETAILING BATTER, REINFORCEMENT, VERTICAL SPACING, REINFORCEMENT LENGTHS, SUBSURFACE DRAINAGE, SURFACE DRAINAGE, AND WATER RUNOFF COLLECTION ABOVE WALL.
- REINFORCEMENT LAYOUT: REINFORCEMENT SHALL BE PLACED AT 100% COVERAGE RATIO. REINFORCEMENT ELEVATIONS SHALL BE CONSISTENT ACROSS LENGTH OF WALL STRUCTURE.
- BLOCK, REINFORCEMENT AND FILL PLACEMENT METHODS AND REQUIREMENTS.
- DETAIL ALL WALL FILL PENETRATIONS AND WALL FACE PENETRATIONS. DETAIL REINFORCEMENT AND/OR WALL FACING UNIT PLACEMENT AROUND PENETRATIONS. VERTICAL PENETRATIONS GREATER THAN 1 FT. DIAMETER REQUIRE A STRUCTURAL GEOGRID DIVERSION SYSTEM AND/OR PREINSTALLED SLEEVES.
- DETAILS THAT ARE SPECIFIC TO VENDOR PRODUCTS AND THEIR INTERACTION WITH OTHER PROJECT COMPONENTS.
- LIST INFORMATION ON APPROVED COMBINATION OF MBW UNIT AND GEOSYNTHETIC REINFORCEMENT, INCLUDING MnDOT CLASSIFICATION CODE, NOMINAL BLOCK WIDTH, PROPERTIES FOR FIELD IDENTIFICATION, AND INSTALLATION INSTRUCTIONS.
- DETAILS OF CAP UNITS AND INSTALLATION/FASTENING INSTRUCTIONS FOR THE CAPS. CAP UNITS SHALL BE SET IN A BED OF ADHESIVE DESIGNED TO WITHSTAND MOISTURE AND TEMPERATURE EXTREMES, REMAIN FLEXIBLE, AND SHALL BE SPECIFICALLY FORMULATED FOR BONDING MASONRY TO MASONRY.
- CERTIFICATION BY PROFESSIONAL ENGINEER EXPERIENCED IN MBW DESIGN THAT THE CONSTRUCTION LAYOUT MEETS THE REQUIREMENTS OF PLANS AND MnDOT MBW STANDARDS. DEVIATION FROM STANDARD DESIGN TABLES ARE PERMITTED BY VALUE ENGINEERING SUBMITTAL ONLY ON PROJECTS WITH OVER 5000 SQ. FT. OF WALL.
- CONTRACTOR MUST PROVIDE AN MBW SUBMITTAL THAT DETAILS EROSION PREVENTION AND PERMANENT PLANT STABILIZATION. THE SUBMITTAL MUST ALSO MEET THE REQUIREMENTS OF SPEC. 1712.2.

GENERAL NOTES:

UTILITIES:

EXISTING AND PROPOSED UTILITIES ARE SHOWN IN THE GRADING PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING FACILITIES AND SHALL EXERCISE CARE IN ADJACENT CONSTRUCTION.

EXCAVATION AND EARTHWORK:

ALL EXCAVATION AND EMBANKMENT WORK SHALL CONFORM TO SPEC. 2451.

CAST-IN-PLACE CONCRETE:

ALL CONCRETE SHALL CONFORM TO SPEC. 2461, EXCEPT AS NOTED.

CONSTRUCTION:

CONSTRUCTION SHALL BE IN ACCORDANCE WITH SPEC. 2411, EXCEPT AS NOTED.

GEOMETRICS AND GRADES:

DATA FOR BASELINE GEOMETRY IS TABULATED FOR WALL ALIGNMENT, SEE LAYOUT SHEETS. WALL ALIGNMENT REFERENCE IS ALONG FRONT FACE OF WALL.

THE FILL SLOPE CONVENTION OF 1 VERTICAL TO HORIZONTAL IS USED IN THIS PLAN.

COMPACTION REQUIREMENTS:

COMPACT REINFORCED WALL FILL IN ACCORDANCE WITH SPEC. 2106.3G UNLESS RECOMMENDED OTHERWISE BY THE ENGINEER.

ENGINEER DEFINITIONS:
MBW DESIGNER- MN PROF. ENGINEER RETAINED BY CONTRACTOR.
PROJECT DESIGNER- MnDOT OR CONSULTANT ENGINEER
FOUNDATIONS UNIT- MnDOT
ENGINEER- MnDOT

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MINNESOTA DEPARTMENT OF TRANSPORTATION

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STANDARD PLAN 5-297.640 | **1 OF 2**

APPROVED: 03-29-2023
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STATE PROJ. NO. (T.H.)

MODULAR BLOCK RETAINING WALL GENERAL NOTES

SHEET NO. **13** OF **43** SHEETS

MODULAR WALL STORMWATER MANAGEMENT AND VEGETATION ESTABLISHMENT NOTES

THE FOLLOWING MUST BE ADDRESSED IN DESIGN AND INCORPORATED INTO THE PLAN SUBMITTALS:

1. STORMWATER MANAGEMENT OF OVERLAND AND SLOPE TOE FLOWS-
   INCLUDE IN WALL PACKAGE SUBMITTAL THAT DETAILS HOW OVERLAND AND TOE OF SLOPE FLOWS WILL BE MANAGED AROUND AND THROUGH DURING ALL PHASES OF WALL CONSTRUCTION.
   INCLUDE THE FOLLOWING:
   A. DESCRIBE EROSION PREVENTION BMPS, AND METHODS FOR APPROPRIATE INSTALLATION.
   B. DETAIL HOW TEMPORARY OR PERMANENT STABILIZATION WILL BE INCORPORATED INTO THE WORK.
   C. DETAIL HOW SLOPE TOE WILL BE DEFENDED FROM SEDIMENT LOSS DURING ALL PHASES OF WALL CONSTRUCTION, INCLUDING CONTINGENCY PROGRAM FOR SEDIMENT RECOVERY OUTSIDE OF CONSTRUCTION LIMITS.

2. TOP AND END WALL STABILIZATION-
   INCLUDE IN WALL PACKAGE SUBMITTAL ESTIMATED QUANTITIES, PRECISE BEST PRACTICES FOR EXPOSED SOIL STABILIZATION FOR ALL PHASES OF CONSTRUCTION. DETAIL TIME FRAMES FOR INTERIM AND CONCURRENT STABILIZATION MEASURES, ALONG WITH STANDARD INSTALLATION DETAILS THAT FOLLOW MnDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION (LATEST EDITION) OR NATIONWIDE GENERAL INDUSTRY PRACTICE.
   USE 1:4 SLOPE STEEPNESS TO DIFFERENTIATE BETWEEN RELATIVELY FLAT AND CRITICAL SLOPE STEEPNESS FOR DETERMINING APPROPRIATE SLOPE COVERS THAT PREVENT EROSION DURING THE VEGETATIVE ESTABLISHMENT PHASE. INCLUDE THE FOLLOWING:
   A. DEFINE THE COHESIVE SOIL TYPES FOR MAXIMIZING EROSION STABILITY FOR SWALE AND UPGRADIENT AREAS.
   B. OBTAIN SOIL FERTILITY TEST RESULTS OF PROPOSED TOPSOILS. BASE FERTILIZER APPLICATION RECOMMENDATION FROM TEST RESULTS.
   C. DEFINE ADDITIONAL SOIL AMENDMENTS TO MAXIMIZE VEGETATIVE GROWTH.
   D. DEFINE THE SEED MIXTURES APPROPRIATE TO SOLAR ASPECT, REGION, ADJACENT PERENNIAL COVER TYPES, AND EXPECTED MAINTENANCE PROTOCOLS.
   E. USE CRITICAL PATH PLANNING FOR OPTIMUM SEEDING DATE INCORPORATION INTO THE WORK..

3. TOE OF WALL STABILIZATION-
   INCLUDE ITEMS ABOVE IN PACKAGE SUBMITTAL FOR EXPOSED SOIL STABILIZATION, WITH ADDITIONAL STABILIZATION PROGRAM DELIVERY IF CONVEYANCE FLOW OR SATURATED SOIL CONDITION IS ALSO PRESENT.

4. DRAIN TILE OUTLETS-
   INCLUDE IN WALL PACKAGE SUBMITTAL IMMEDIATE STABILIZATION PROGRAM INCLUDING BMPS FOR DRAIN TILE OUTLET OR WALL OPENINGS OR PENETRATIONS.

5. CONCRETE WASTE/EXCESS MATERIAL MANAGEMENT-
   INCLUDE IN WALL PACKAGE SUBMITTAL A MATERIAL MANAGEMENT PROGRAM THAT ADDRESSES CONCRETE WASTE GROUND CONTACT PREVENTION, SPILL MANAGEMENT, AND EXCESS MATERIAL DISPOSAL.

6. VEGETATION MANAGEMENT PROGRAM-
   A. PREVENT EROSION. SUBMIT A CONTINGENCY PLAN FOR EXTREME WEATHER GREATER THAN A 2 YEAR TYPE STORM AND EROSIVE CONDITIONS. IMMEDIATELY IMPLEMENT THE CONTINGENCY PLAN WHEN DAMAGE IS DETECTED.
   B. ESTABLISH VEGETATION. SUBMIT A VEGETATION ESTABLISHMENT MONITORING PROGRAM THAT WEEKLY OR MORE OFTEN DETERMINES PLANT HEALTH AND DEVELOPMENT. DEVELOP A CORRECTIVE ACTION PLAN WHEN VEGETATION IS NOT DEVELOPING ADEQUATE COVER DENSITY OR SPECIES DIVERSITY BASED ON SEED MIX DEFINED IN THE WALL SUBMITTAL.
   C. PROVIDE AUTOMATED TEMPORARY IRRIGATION SYSTEM UNTIL PERENNIAL SEEDED OR SOD COMPONENTS ARE A MINIMUM OF 6 INCHES OF COVER HEIGHT. APPLY WATER AT A RATE OF 1 INCH PER WEEK, EVENLY AND UNIFORMLY APPLIED EACH DAY. IRRIGATION IS NOT NECESSARY ON RAIN DAYS. ENSURE APPROPRIATE SPECIES DENSITY HAS OCCURRED THAT MEETS CONTRACT REQUIREMENTS AND ENVIRONMENTAL COMMITMENTS.
   D. CONTROL ANNUAL WEEDS THAT LIMIT PERENNIAL VEGETATIVE COVER BY MECHANICAL METHODS.
   E. CONTROL ALL NOXIOUS STATE LISTED WEEDS BY MECHANICAL OR PRECISION HERBICIDE METHODS.

7. LIST AND PROVIDE TEMPORARY AND PERMANENT STABILIZATION ESTIMATED QUANTITY ITEMS AND TABULATIONS IN WALL SUBMITTAL PACKAGE. THE TABULATION OF ESTIMATED QUANTITIES SHOULD INCLUDE ITEMS LIKE TOPSOIL BORROW, FERTILIZER TYPES, TEMPORARY EROSION PREVENTION ITEMS, PERMANENT EROSION PREVENTION ITEMS, SEED MIXTURE TYPES, SEDIMENT CONTROL BMP TYPES, AND IRRIGATION.

LEAD EXPERT OFFICE
AMBER BLANCHARD ACTING DIRECTOR OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

THOMAS STYRBICKI
STATE DESIGN ENGINEER

STANDARD PLAN 5-297.640	2 OF 2
APPROVED: 03-29-2023 REVISED:	
STATE PROJ. NO.	(T.H.)

MODULAR BLOCK RETAINING WALL
STORMWATER MANAGEMENT AND VEGETATION NOTES

SHEET NO. 14 OF 43 SHEETS

MODULAR BLOCK WALL REINFORCEMENT LAYOUT TABLE

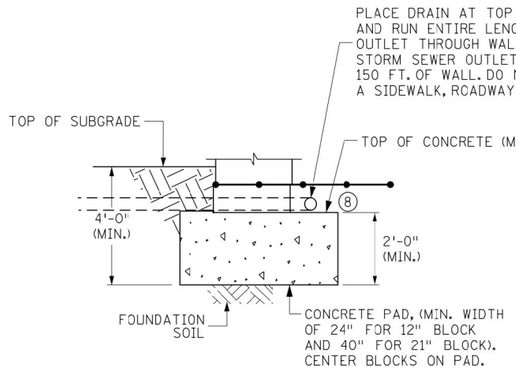
CASE 1 - LEVEL FILL

MBW REINFORCEMENT CLASS	① MINIMUM REINFORCEMENT LENGTH, L (FT.)	② MAXIMUM WALL HEIGHT, H (FT.)	③ NOMINAL BLOCK WIDTH (IN.)	WALL BATTER (DEGREES)	⑪ MAXIMUM UNREINFORCED WALL HEIGHT, A (IN.)	ZONE 1		ZONE 2		ZONE 3	
						H1 (FT.)	$S1_{MAX}$ (IN.)	H2 (FT.)	$S2_{MAX}$ (IN.)	H3 (FT.)	$S3_{MAX}$ (IN.)
1050	0.8H	12.0	12	0 to 4	12	8	24	4	16	0	0
				4 to 8	12	4	24	4	16	4	8
			18 OR 21	0 to 4	20	5	32	3	24	4	16
				4 to 8	20	5	32	5	24	2	16
1400	0.8H	12.0	12	0 to 4	12	4	32	2	24	6	16
				4 to 8	12	4	24	5	16	3	8
			18 OR 21	0 to 4	20	6	32	5	32	1	24
				4 to 8	20	6	32	5	32	1	24
2100	0.8H	12.0	12	0 to 4	12	8	24	4	16	0	0
				4 to 8	12	6	24	6	16	0	0
			18 OR 21	0 to 4	20	10	32	2	24	0	0
				4 to 8	20	8	32	4	24	0	0

INSTRUCTIONS TO CONTRACTOR:

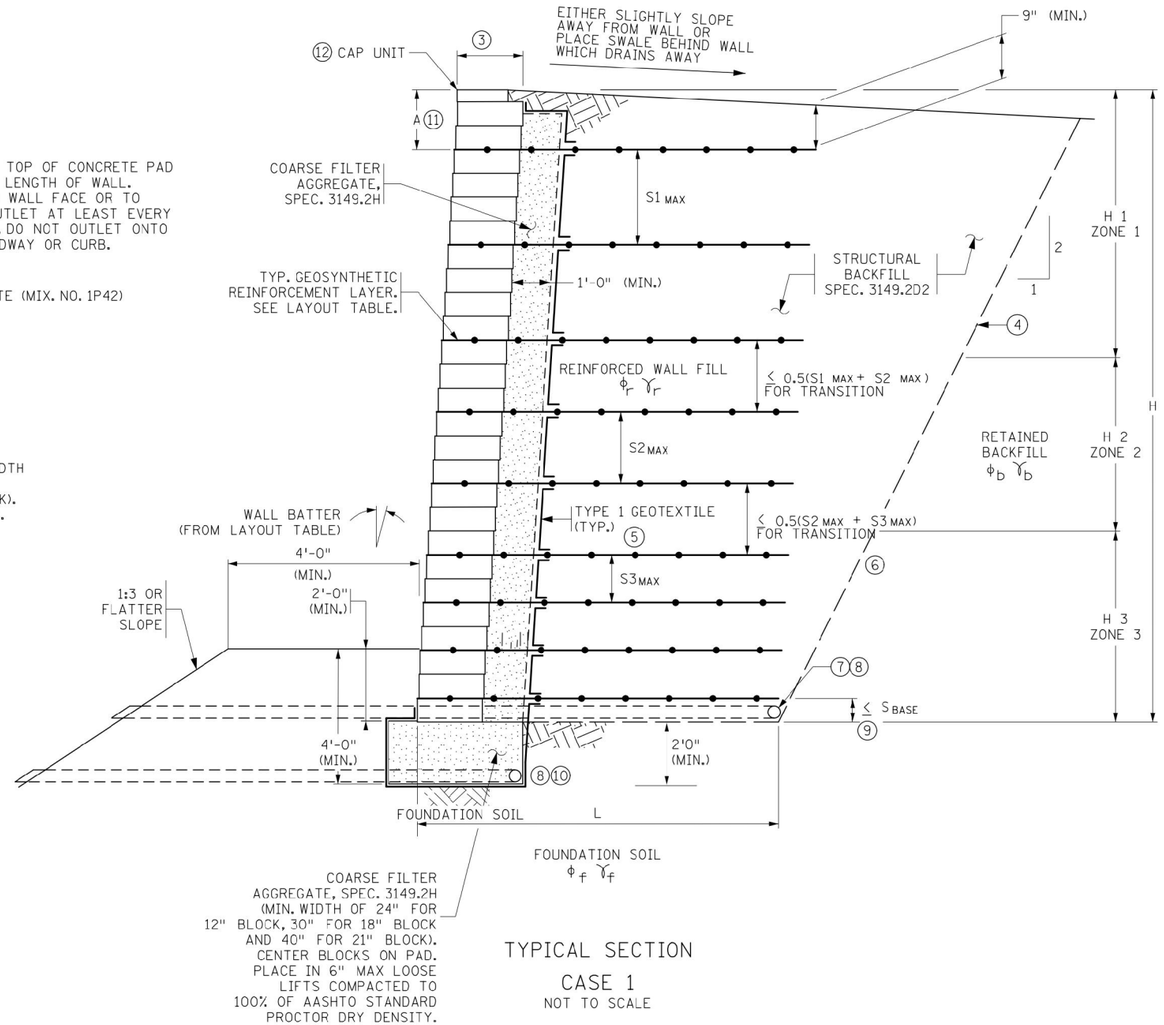
USE AS MANY ZONES AS WALL HEIGHT REQUIRES, STARTING WITH ZONE 1 AND ADDING ADDITIONAL ZONES TO THE BOTTOM OF THE WALL AS NEEDED TO MAKE UP THE TOTAL WALL HEIGHT (H) NEEDED.

REINFORCEMENT CLASS, NOMINAL BLOCK WIDTH AND WALL BATTER ARE GENERALLY THE CONTRACTOR'S OPTION TO SELECT FROM MnDOT APPROVED PRODUCTS LISTS POSTED AT https://www.dot.state.mn.us



OPTIONAL CONCRETE PAD

NOT TO SCALE



TYPICAL SECTION

CASE 1

NOT TO SCALE

NOTES TO CONTRACTOR:

SEE STANDARD PLAN 5-297.640 FOR STORMWATER MANAGEMENT AND VEGETATION ESTABLISHMENT NOTES.

① MINIMUM REINFORCEMENT LENGTH FROM TABLE OR 7 FT. MINIMUM, WHICHEVER IS GREATER AS MEASURED FROM THE FRONT OF THE MODULAR BLOCK UNIT. THE GEOGRID REINFORCEMENT SHALL EXTEND TO THE FRONT BLOCK FACE.

② AS MEASURED FROM TOP OF CAP UNIT TO BOTTOM OF LOWERMOST BLOCK UNIT.

③ BLOCK WIDTH - MEASURED FROM FRONT TO BACK FACE OF BLOCK UNIT.

④ PAY LIMITS OF STRUCTURAL EXCAVATION. ACTUAL EXCAVATION SLOPE IS DETERMINED BY OSHA REGULATIONS AND IN-SITU SOILS; EXCAVATION BEYOND "LIMITS OF STRUCTURAL EXCAVATION" AT CONTRACTOR'S EXPENSE.

⑤ THE WRAP BACK LENGTH FOR GEOTEXTILE TYPE 1 SHALL NOT BE MORE THAN 6".

⑥ INSPECT EXCAVATION SLOPES FOR ACTIVE SEEPAGE AND PLACE ADDITIONAL DRAINS WHERE SEEPAGE OCCURS. DRAINS SHALL OUTLETSLOPE EVERY 150 FT. MAX.

⑦ PLACE DRAIN PIPE WITHIN REINFORCED FILL AT THE INTERFACE OF THE RETAINED BACKFILL AND THE FOUNDATION SOIL AND RUN ENTIRE LENGTH OF WALL. OUTLET THROUGH WALL FACE OR TO STORM SEWER OUTLET AT LEAST EVERY 150 FT. OF WALL. DO NOT OUTLET ONTO A SIDEWALK, ROADWAY OR CURB.

⑧ 4" THERMOPLASTIC PERFORATED PIPE, SPEC. 3245, WRAP WITH TYPE 1 GEOTEXTILE, SPEC. 3733 (TYP.). INSTALLATION IN ACCORDANCE WITH SPEC. 2502. USE PERFORATED DRAIN PIPE EXCEPT FOR PIPE EXTENDING THROUGH BLOCK UNIT AND EXTENDING THROUGH FILL OUTSIDE WALL WHICH SHALL BE SOLID PIPE. PLACE RODENT SCREEN ON END OF PIPE. SCREEN SHALL BE FABRICATED FROM CARBON STEEL FLATTENED EXPANDED METAL, STYLE 1/2" NO. 4F. IT SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.

⑨ S_{MAX} = 0.5 $S1_{MAX}$ IF THE WALL HEIGHT IS WITHIN ZONE 1.
S_{MAX} = 0.5 $S2_{MAX}$ IF THE WALL HEIGHT IS WITHIN ZONE 2.
S_{MAX} = 0.5 $S3_{MAX}$ IF THE WALL HEIGHT IS WITHIN ZONE 3.
S_{BASE} SHALL BE ONE (1) BLOCK HEIGHT MINIMUM.

⑩ IF PIPE AT THIS ELEVATION CANNOT BE SLOPED TO DRAIN, OMIT THE LOWER DRAIN AND USE "OPTIONAL CONCRETE PAD" DETAIL THAT SHOWS DRAIN PIPE ON TOP OF THE LEVELING PAD.

⑪ MAXIMUM UNREINFORCED VERTICAL DISTANCE BELOW TOP OF WALL.

⑫ ATTACH CAP BLOCK WITH ADHESIVE.

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STANDARD PLAN 5-297.641 | **1 OF 1**

APPROVED: 03-29-2023
REVISED:

THOMAS STYRBICKI
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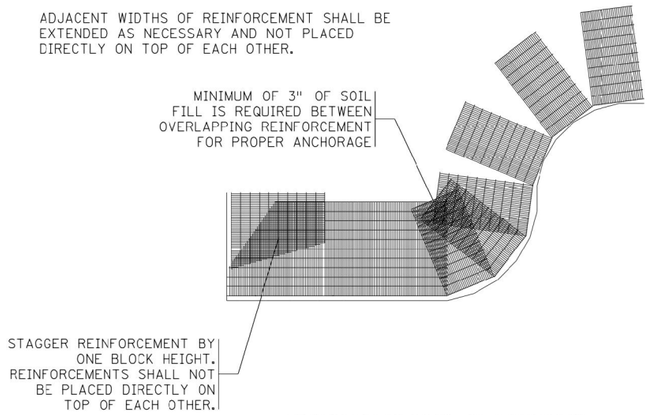
MODULAR BLOCK RETAINING WALL SOIL REINFORCEMENT FOR LEVEL FILL, CASE 1

STATE PROJ. NO. (T.H.) SHEET NO. **15** OF **43** SHEETS

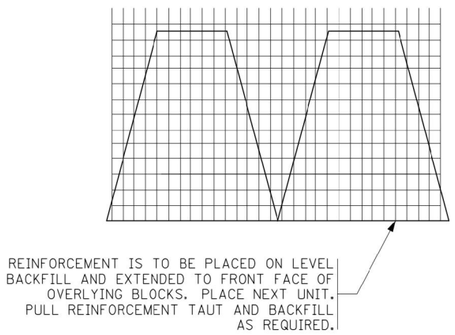
NOTES:

CORRECT ORIENTATION OF GEOSYNTHETIC TO OBTAIN PROPER STRENGTH SHALL BE DETAILED ON CONTRACTOR SHOP DRAWINGS.

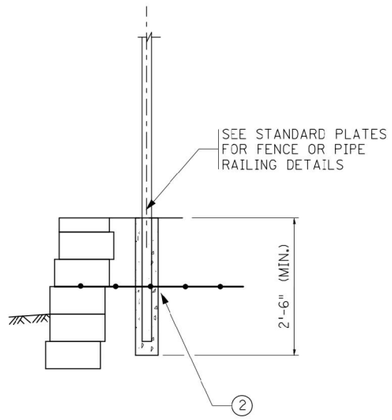
ADJACENT WIDTHS OF REINFORCEMENT SHALL BE EXTENDED AS NECESSARY AND NOT PLACED DIRECTLY ON TOP OF EACH OTHER.



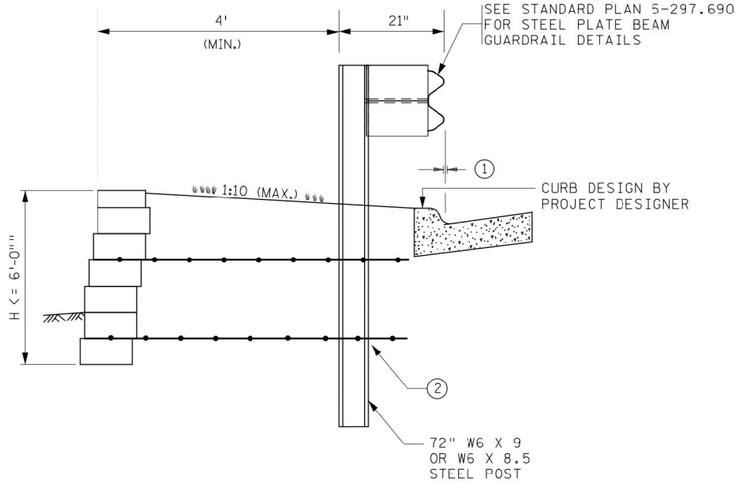
REINFORCEMENT PLACEMENT
AROUND CURVES AND CORNERS



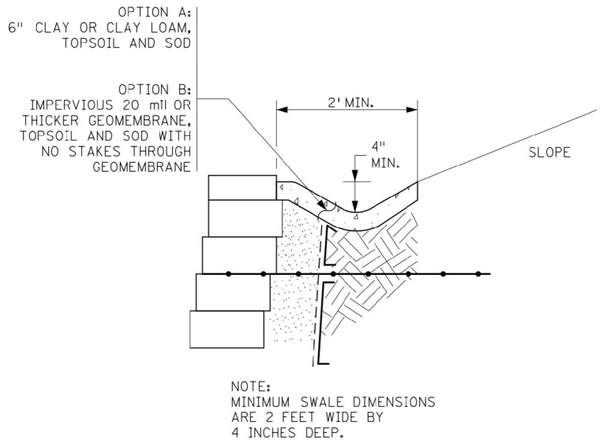
REINFORCEMENT PLACEMENT
BETWEEN BLOCK UNITS



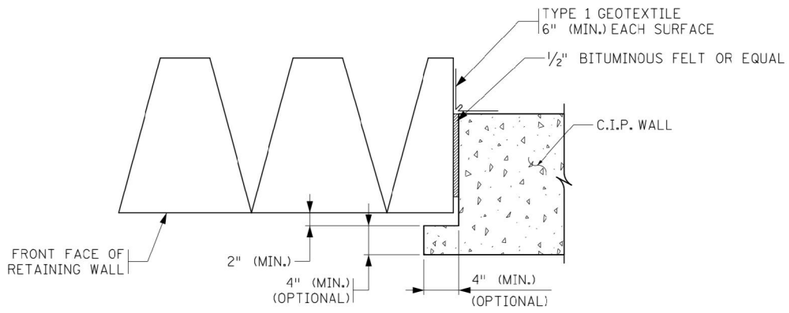
POST DETAIL
TYPICAL HANDRAIL AND/OR FENCE POST



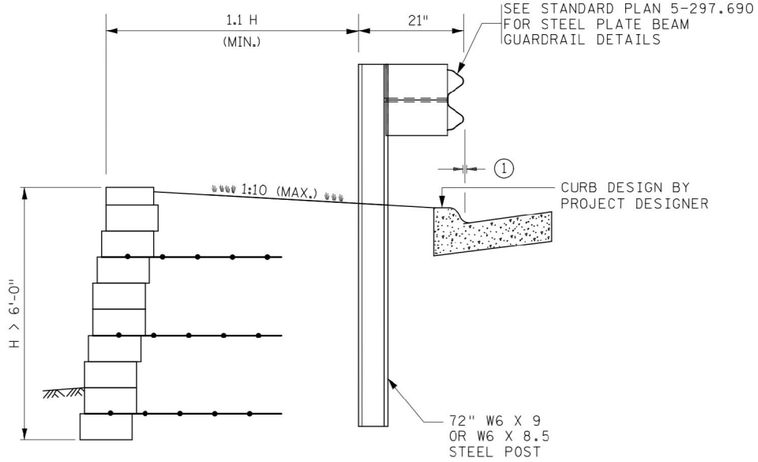
STEEL PLATE BEAM GUARDRAIL DETAIL 1



TYPICAL SWALE DETAIL



CONNECTION DETAIL AT JUNCTURE
OF MBW AND C.I.P. STRUCTURE



STEEL PLATE BEAM GUARDRAIL DETAIL 2

NOTES:

(1) USE CAUTION WHEN PLACING CURB WITH GUARDRAIL. CURBS ADVERSELY AFFECT THE PERFORMANCE OF THE GUARDRAIL.
(2) ALL POSTS MUST BE SLEEVED THROUGH THE GEOGRID.

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MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.645 | **1 OF 2**

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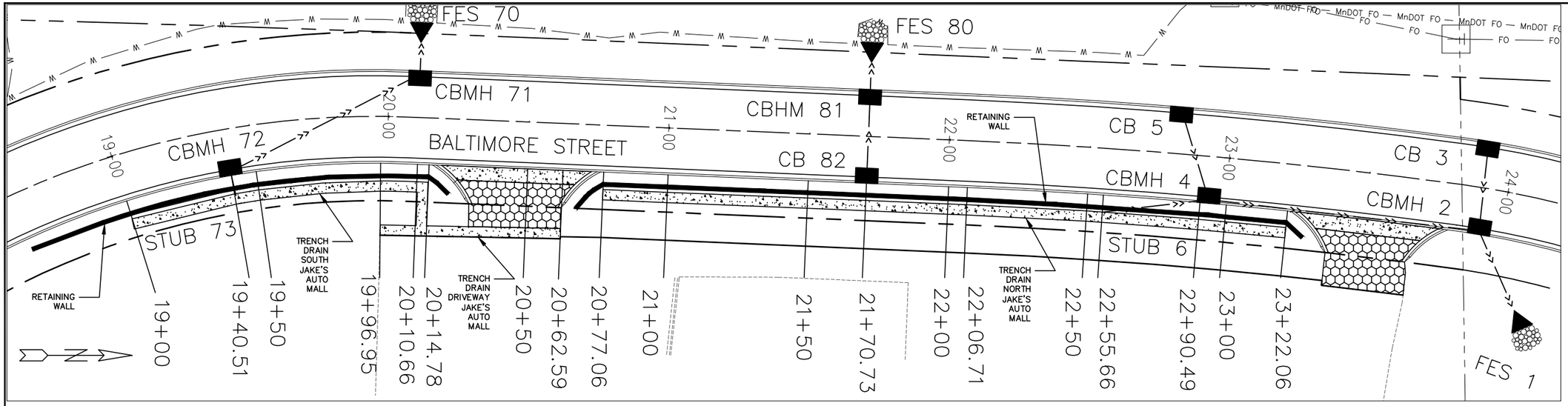
MODULAR BLOCK RETAINING WALL DETAILS

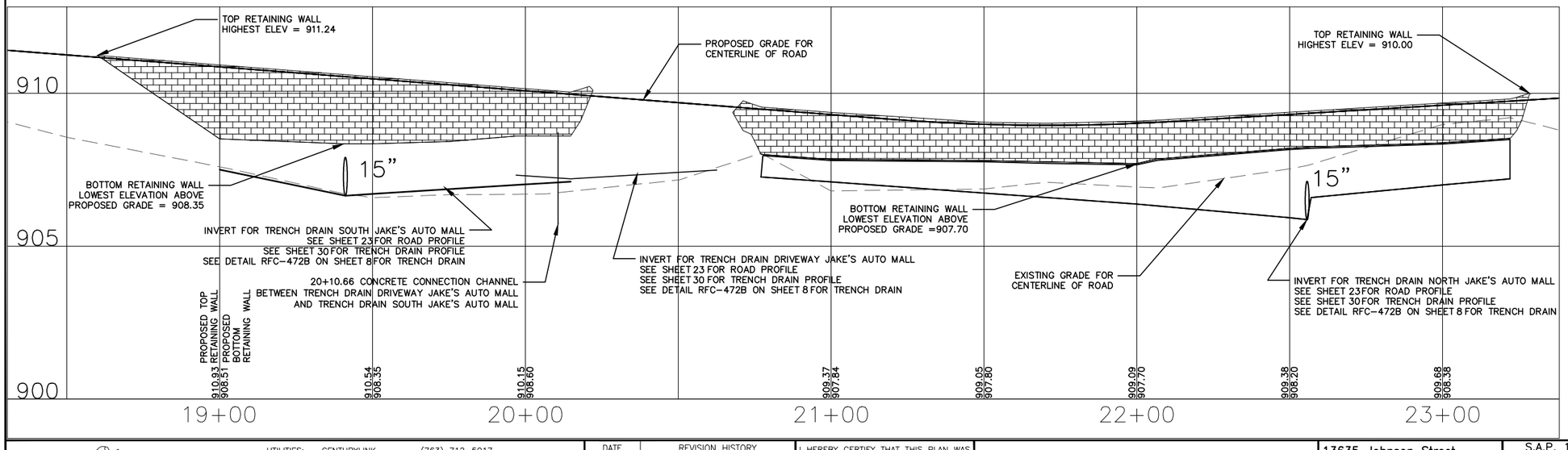
STATE PROJ. NO. (T.H.) SHEET NO. **16** OF **43** SHEETS



0 10 20 40
FEET

NOTES:

1. ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION, BUT IN NO CASE LONGER THAN 7 DAYS. IF THERE IS A SCHEDULED PAUSE OF WORK THAT WILL LAST 7 DAYS OR LONGER, ALL SOILS AND STOCKPILES ARE REQUIRED TO BE STABILIZED WITHIN THE FIRST 24 HOURS OF INACTIVITY.
2. THERE SHALL BE NO STOCKPILING INCLUDING TEMPORARY STOCK PILES OF MATERIALS IN WETLAND AREAS.
3. ALL SILT FENCE MUST BE IN PLACE BEFORE ANY LAND IS DISTURBED.
4. ALL REMOVALS TO BE DISPOSED OF LEGALLY.
5. SEE MNDOT STANDARD PLANS FOR MORE RETAINING WALL DETAILS. SHEETS 13 THRU 16 .
6. BLOCK AREAS INSTALLED BELOW THE GROUND LEVEL SHALL BE CONSIDERED INCIDENTAL.
7. ACCESS TO JAKE'S AUTO MALL MUST BE OPEN DURING BUSINESS HOURS.



PROPOSED RETAINING WALL

COPHER ONE STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:
CENTURYLINK (763) 712-5017
CENTERPOINT ENERGY (763) 323-2760
COMCAST (952) 607-4078
CONNEXUS ENERGY (763) 323-4268
XCEL ENERGY (612) 526-4508

DATE	REVISION HISTORY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dave Kruglen
DATE 05/29/25 REG. NO. 48768

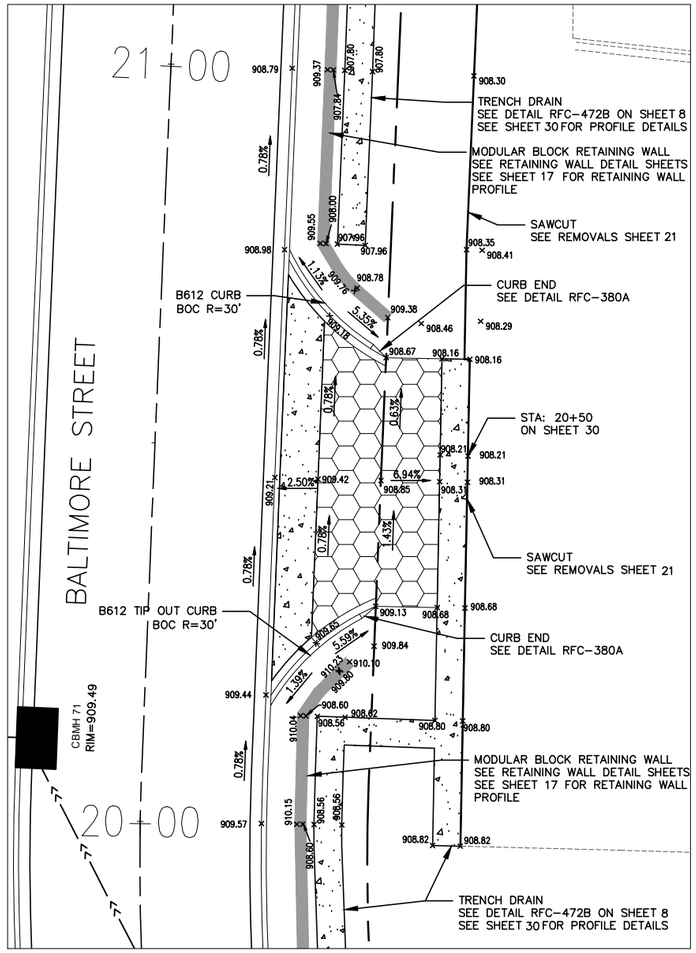
RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

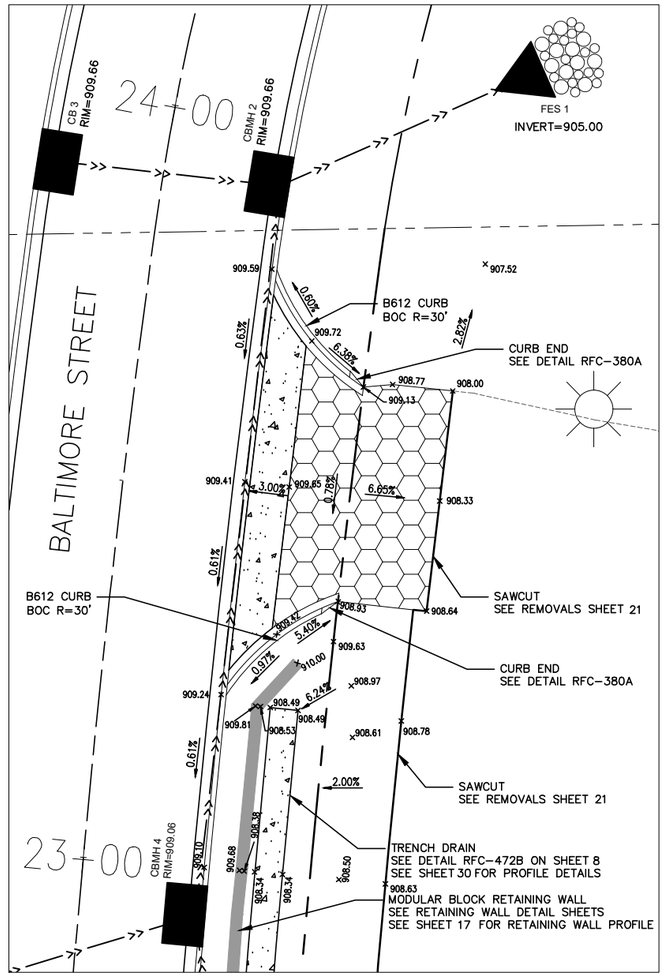
S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM
64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
RETAINING WALL DETAIL

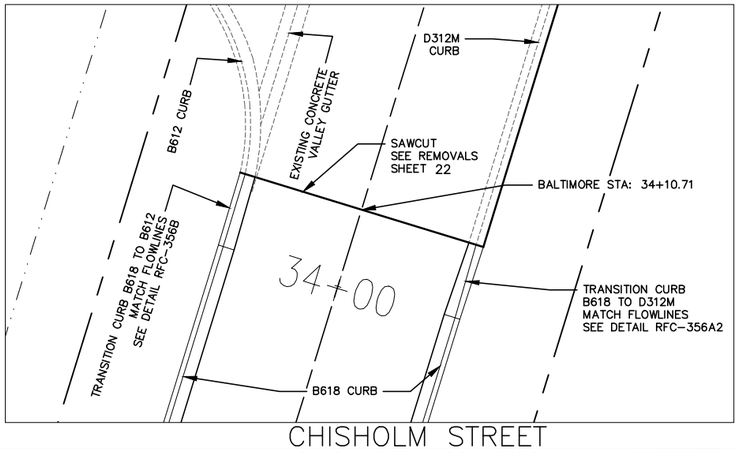
DWG: 2111 RET WALL 1
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 17 OF 43
FILE: 33-2-117

JAKE'S AUTO SOUTH DRIVEWAY STA 20+50



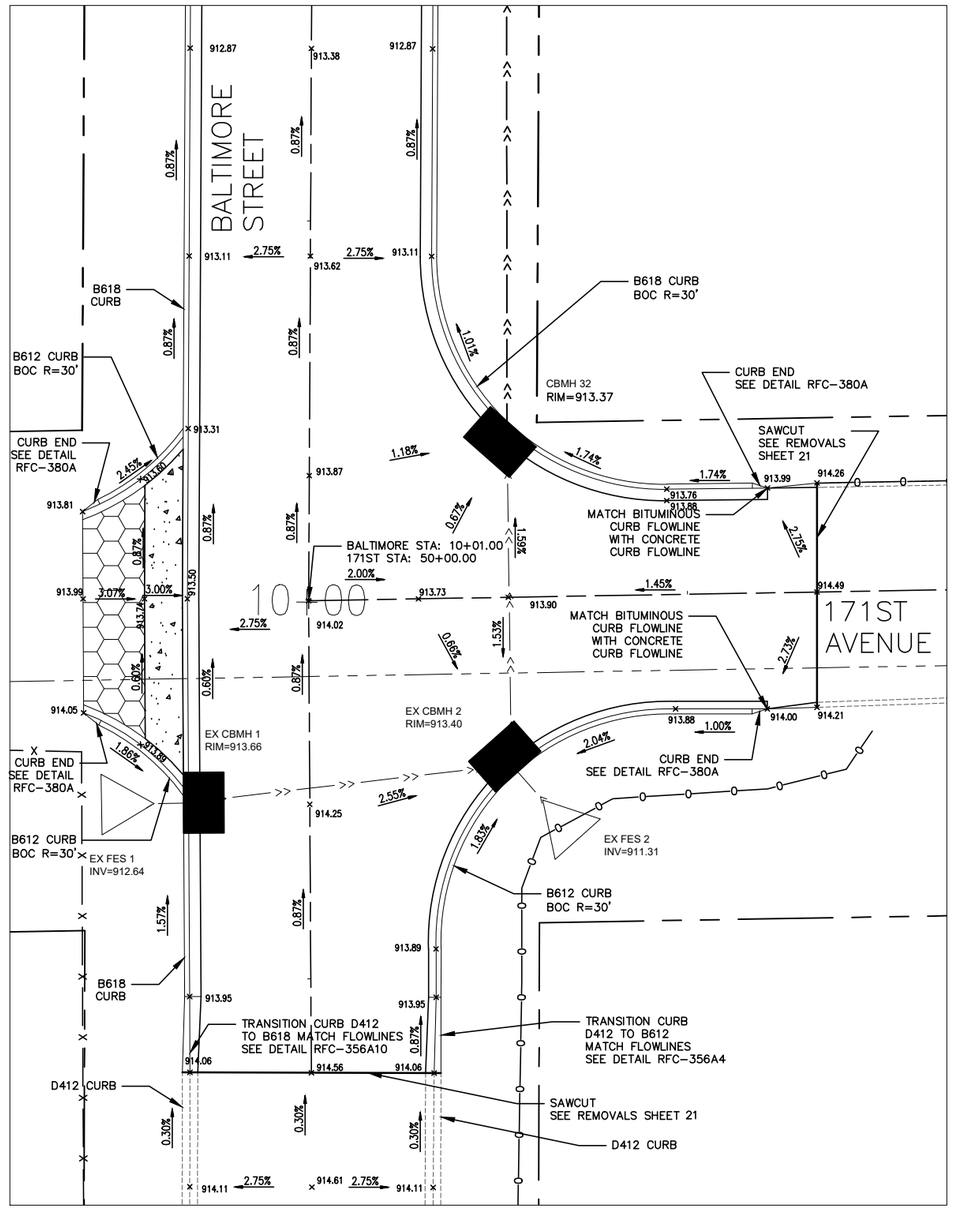
JAKE'S AUTO NORTH DRIVEWAY STA 23+50





PROPOSED BITUMINOUS DRIVEWAY

PROPOSED CONCRETE



BALTIMORE STREET AND 171ST AVENUE

NOTES:

1. ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION, BUT IN NO CASE LONGER THAN 7 DAYS. IF THERE IS A SCHEDULED PAUSE OF WORK THAT WILL LAST 7 DAYS OR LONGER, ALL SOILS AND STOCKPILES ARE REQUIRED TO BE STABILIZED WITHIN THE FIRST 24 HOURS OF INACTIVITY.
2. ALL REMOVALS TO BE DISPOSED OF LEGALLY.
3. SEE DETAIL COMMERCIAL DRIVEWAY RFC-370A1 FOR DRIVEWAY DETAILS.

ALL DETAILS

0 5 10 20

FEET

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY

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Dan Krueger

DATE 05/29/25 REG. NO. 48768

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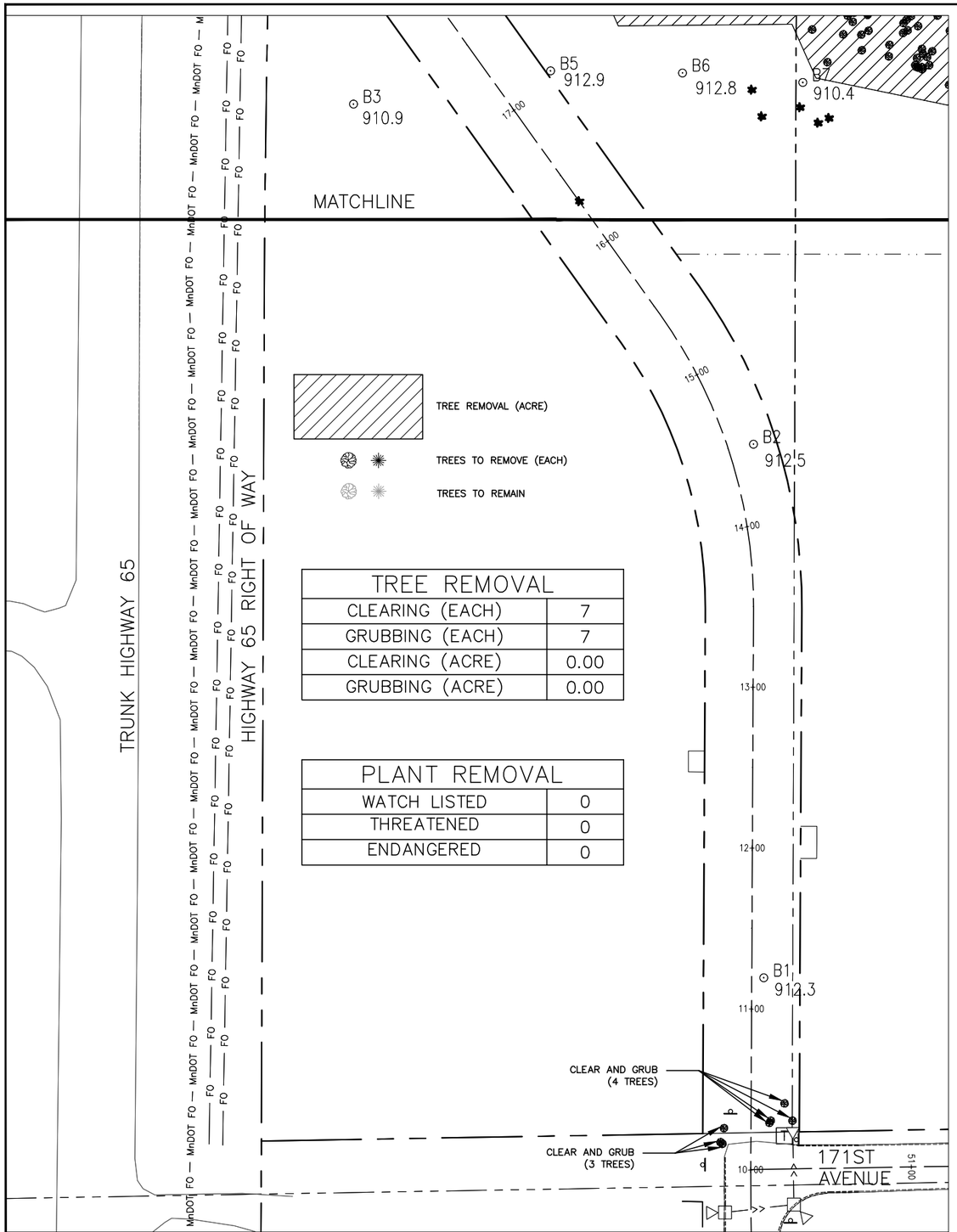
Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
INTERSECTION DETAILS

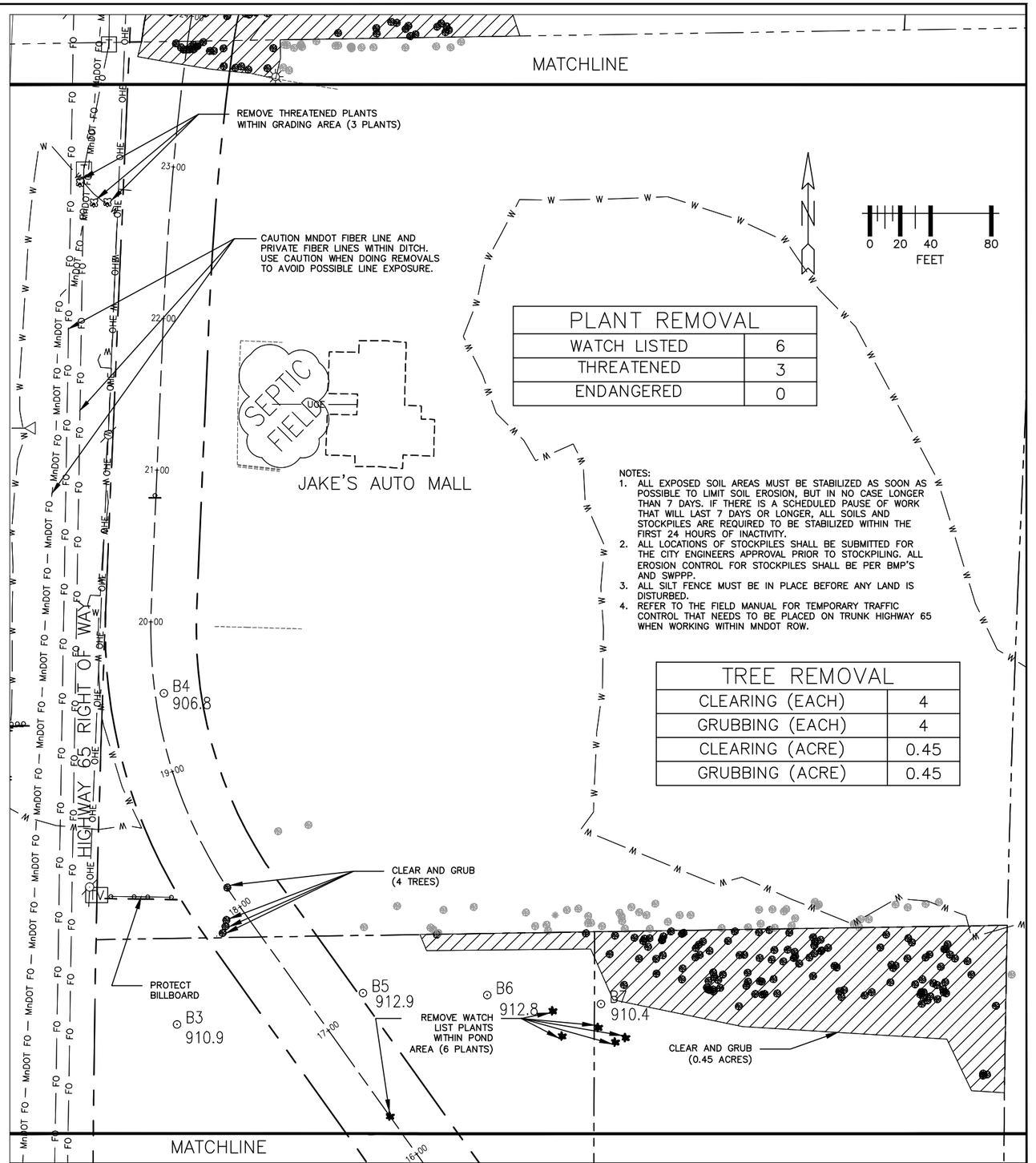
DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG:	2111 INT
DATE:	05/29/25
JOB NUMBER:	2111
SHEET:	18 OF 43
FILE:	33-2-118



TREE REMOVAL	
CLEARING (EACH)	7
GRUBBING (EACH)	7
CLEARING (ACRE)	0.00
GRUBBING (ACRE)	0.00

PLANT REMOVAL	
WATCH LISTED	0
THREATENED	0
ENDANGERED	0



PLANT REMOVAL	
WATCH LISTED	6
THREATENED	3
ENDANGERED	0

NOTES:
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2. ALL LOCATIONS OF STOCKPILES SHALL BE SUBMITTED FOR THE CITY ENGINEERS APPROVAL PRIOR TO STOCKPILING. ALL EROSION CONTROL FOR STOCKPILES SHALL BE PER BMP'S AND SWPPP.
3. ALL SILT FENCE MUST BE IN PLACE BEFORE ANY LAND IS DISTURBED.
4. REFER TO THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL THAT NEEDS TO BE PLACED ON TRUNK HIGHWAY 65 WHEN WORKING WITHIN MNDOT ROW.

TREE REMOVAL	
CLEARING (EACH)	4
GRUBBING (EACH)	4
CLEARING (ACRE)	0.45
GRUBBING (ACRE)	0.45

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:
CENTURYLINK (763) 712-5017
CENTERPOINT ENERGY (763) 323-2760
COMCAST (952) 607-4078
CONNEXUS ENERGY (763) 323-4268
XCEL ENERGY (612) 526-4508

DATE	REVISION HISTORY

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Dave Krueger
DATE 05/29/25 REG. NO. 48768

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Telephone 763-862-8000
Fax 763-862-8042

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
TREE REMOVAL PLAN

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2111 REMOVAL 1
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 19 OF 43
FILE: 33-2-119

PLANT REMOVAL	
WATCH LISTED	0
THREATENED	0
ENDANGERED	30

TREE REMOVAL	
CLEARING (EACH)	6
GRUBBING (EACH)	6
CLEARING (ACRE)	1.48
GRUBBING (ACRE)	1.48

0 20 40 80
FEET

NOTES:
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4. REFER TO THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL THAT NEEDS TO BE PLACED ON TRUNK HIGHWAY 65 WHEN WORKING WITHIN MNDOT ROW.

TREE REMOVAL (ACRE)

TREES TO REMOVE (EACH)

TREES TO REMAIN

TRUNK HIGHWAY 65

CAUTION MNDOT FIBER LINE AND PRIVATE FIBER LINES WITHIN DITCH. USE CAUTION WHEN DOING REMOVALS TO AVOID POSSIBLE LINE EXPOSURE.

REMOVE ENDANGERED PLANTS WITHIN RIGHT-OF-WAY AND POND AREA (4 PLANTS)

REMOVE ENDANGERED PLANTS WITHIN RIGHT-OF-WAY AND POND AREA (14 PLANTS)

REMOVE ENDANGERED PLANTS WITHIN RIGHT-OF-WAY AND POND AREA (7 PLANTS)

CLEAR AND GRUB (6 TREES)

REMOVE ENDANGERED PLANTS WITHIN RIGHT-OF-WAY AND POND AREA (5 PLANTS)

CLEAR AND GRUB (1.48 ACRES)

B8 904.5

B9 905.0

B10 911.9

MATCHLINE

MATCHLINE

TREE REMOVAL	
CLEARING (EACH)	2
GRUBBING (EACH)	2
CLEARING (ACRE)	2.58
GRUBBING (ACRE)	2.58

PLANT REMOVAL	
WATCH LISTED	0
THREATENED	0
ENDANGERED	0

PROTECT THREATENED AND ENDANGERED PLANTS

PROTECT ENDANGERED PLANTS

PROTECT ENDANGERED PLANTS

CLEAR AND GRUB (2 TREES)

CLEAR AND GRUB (2.58 ACRES)

CHISHOLM STREET

B10 911.9

B11 910.2

B12 907.3

MATCHLINE

CALL GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
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Dan Krueger
DATE 05/29/25 REG. NO. 48768

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Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
TREE REMOVAL PLAN

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2111 REMOVAL 2
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 20 OF 43
FILE: 33-2-120

MATCHLINE

910.9

B2
912.5

B1
912.3

B4
906.8

B3
910.9

B5
912.9

B6
912.8

B7
910.4

TRUNK HIGHWAY 65

171ST AVENUE

JAKE'S AUTO MALL

SEPTIC FIELD

0 20 40 80
FEET

NOTES:

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3. ALL SILT FENCE MUST BE IN PLACE BEFORE ANY LAND IS DISTURBED.
4. SEE TREE REMOVAL SHEETS FOR TREE AND PLANT REMOVALS.
5. REFER TO THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL THAT NEEDS TO BE PLACED ON TRUNK HIGHWAY 65 WHEN WORKING WITHIN MNDOT ROW.
6. NO LANE CLOSURES ALLOWED FROM 1 PM TO 7 PM ON TRUNK HIGHWAY 65.

WETLAND IMPACT

BITUMINOUS REMOVAL

REMOVE SIGN C-24

SALVAGE SIGN C-22

REMOVE 37 SQ YD OF BITUMINOUS DRIVEWAY

SALVAGE CASTING

REMOVE 70 LF OF CONCRETE CURB

REMOVE 455 SQ YD OF BITUMINOUS

SAWCUT CONCRETE CURB 2 LF STA 9+37.62 SAWCUT AT NEAREST JOINT

TYPE 2 WETLAND FILL 1,130 SQFT

REMOVE 4 LF OF STORM SEWER

SALVAGE SIGN C-23

SAWCUT BITUMINOUS 30 LF STA: 50+67.10

SALVAGE CASTING

REMOVE SIGN C-21

REMOVE 68 LF OF CONCRETE CURB

SAWCUT CONCRETE CURB 2 LF STA 9+37.62 SAWCUT AT NEAREST JOINT

SAWCUT BITUMINOUS 30 LF STA: 9+37.62

REMOVE SIGN C-26

CAUTION MNDOT FIBER LINE AND PRIVATE FIBER LINES WITHIN DITCH. USE CAUTION WHEN DOING REMOVALS TO AVOID POSSIBLE LINE EXPOSURE.

REMOVE BITUMINOUS PAVEMENT 681 SQ YD

368 LF BITUMINOUS SAWCUT

SALVAGE LIGHT POLE LIGHT POST NO. LP-23

SALVAGE SIGN C-25

SALVAGE LIGHT POLE LIGHT POST NO. LP-22

ABANDON AND SEAL WELL SHAFT. (SEAL AND CAP WELL DOWN TO MINIMUM ELEVATION OF 905.50 NEEDS TO BE REMOVED TO A MINIMUM OF 2 FT BELOW CLASS 5 ELEVATION). WELL ABANDONMENT SHALL BE IN ACCORDANCE WITH MDH GUIDELINES.

PROTECT POWER POLE

SALVAGE SIGN C-25

SALVAGE LIGHT POLE LIGHT POST NO. LP-21

SALVAGE LIGHT POLE LIGHT POST NO. LP-20

PROTECT SIGN AND DELINEATOR

TYPE 2 WETLAND FILL 12,019 SQFT

PROTECT BILLBOARD

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY

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Dan Rugle

DATE 05/29/25 REG. NO. 48768

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Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
REMOVAL PLAN

DWG: 2111 REMOVAL 3
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 21 OF 43
FILE: 33-2-121

NOTES:
1. ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION, BUT IN NO CASE LONGER THAN 7 DAYS. IF THERE IS A SCHEDULED PAUSE OF WORK THAT WILL LAST 7 DAYS OR LONGER, ALL SOILS AND STOCKPILES ARE REQUIRED TO BE STABILIZED WITHIN THE FIRST 24 HOURS OF INACTIVITY.
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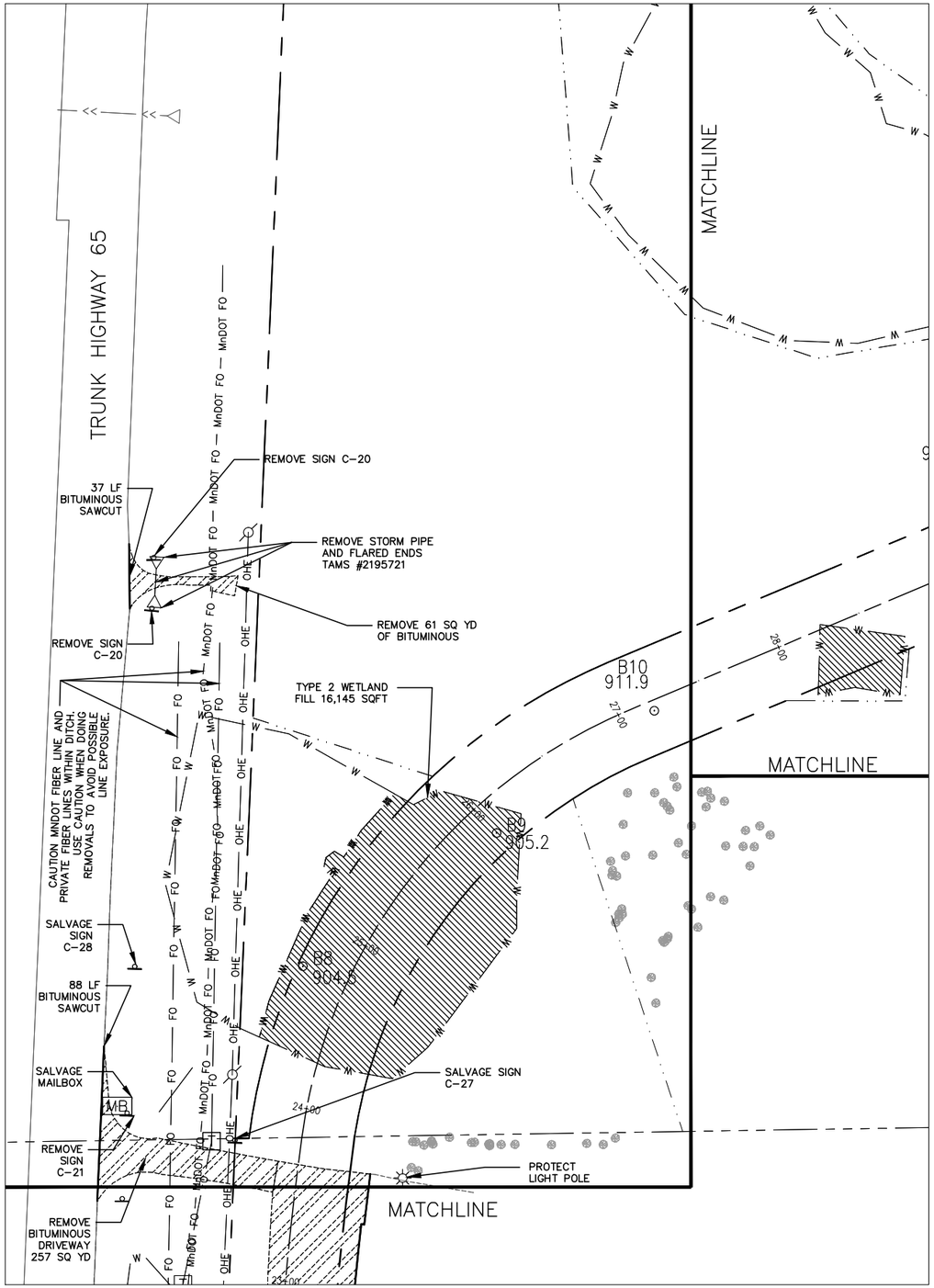
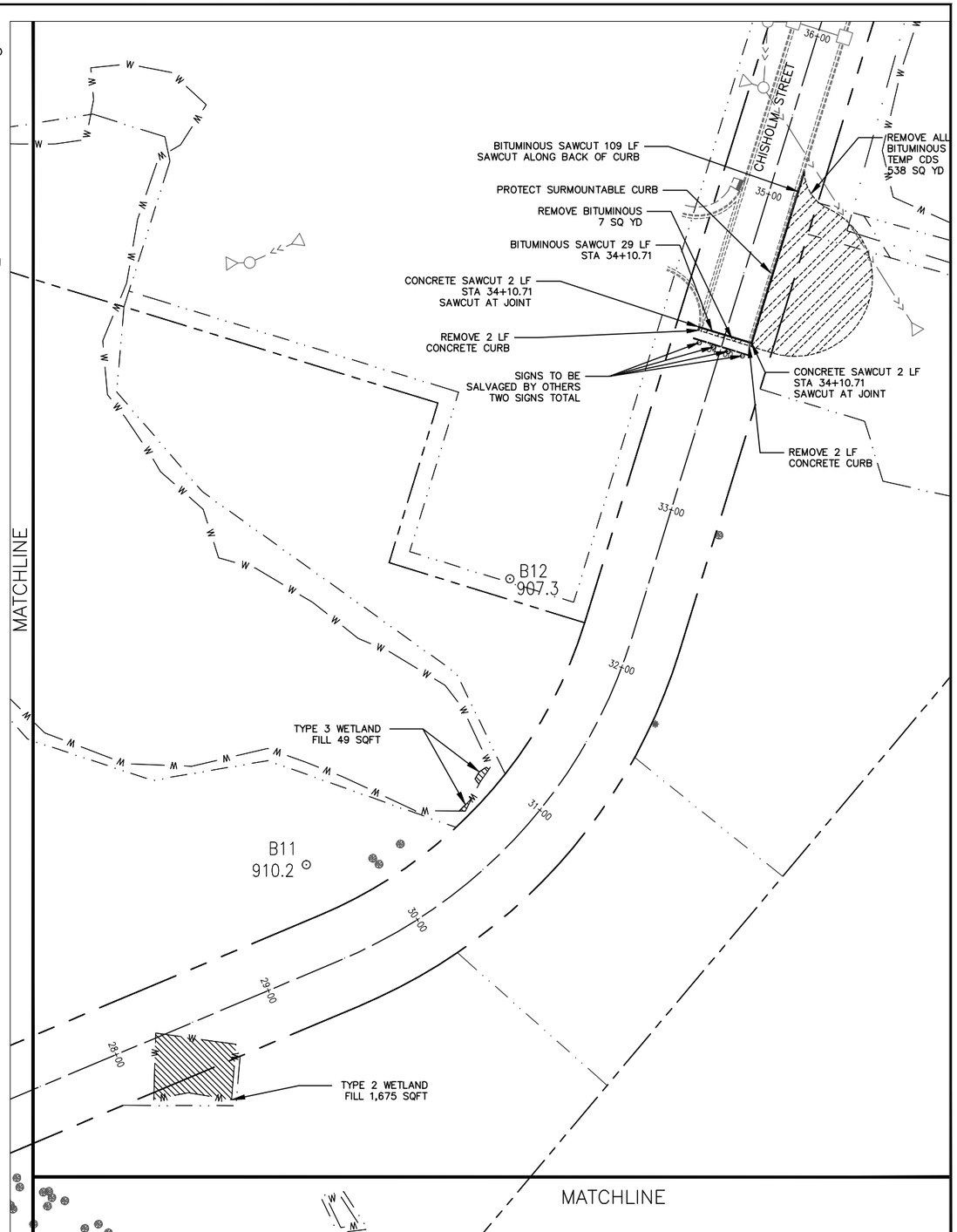
3. ALL SILT FENCE MUST BE IN PLACE BEFORE ANY LAND IS DISTURBED.
4. SEE TREE REMOVAL SHEETS FOR TREE AND PLANT REMOVALS.
5. REFER TO THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL THAT NEEDS TO BE PLACED ON TRUNK HIGHWAY 65 WHEN WORKING WITHIN MNDOT ROW.
6. NO LANE CLOSURES ALLOWED FROM 1 PM TO 7 PM ON TRUNK HIGHWAY 65.

WETLAND IMPACT

BITUMINOUS REMOVAL





N

0 20 40 80
FEET

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:
CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
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Dan Krughn
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Telephone 763-862-8000
Fax 763-862-8042

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
REMOVAL PLAN

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2111 REMOVAL 4
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 22 OF 43
FILE: 33-2-122

RIGHT OF WAY – TRUNK HIGHWAY 65

TH 65

WETLAND 2 & 3

0 25 50 100 FEET

NOTES:

1. ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION, BUT IN NO CASE LONGER THAN 7 DAYS. IF THERE IS A SCHEDULED PAUSE OF WORK THAT WILL LAST 7 DAYS OR LONGER, ALL SOILS AND STOCKPILES ARE REQUIRED TO BE STABILIZED WITHIN THE FIRST 24 HOURS OF INACTIVITY.
2. THERE SHALL BE NO STOCKPILING INCLUDING TEMPORARY STOCK PILES OF MATERIALS IN WETLAND AREAS.
3. COVER OR SEED ALL STOCKPILE AREAS WITHIN 24 HOURS OF INACTIVITY.
4. ALL LOCATIONS OF STOCKPILES SHALL BE SUBMITTED FOR THE CITY ENGINEER'S APPROVAL PRIOR TO STOCKPILING. ALL EROSION CONTROL FOR STOCKPILES SHALL BE PER BMP'S AND SWPPP.

BLANKET CONSTRUCTION EASEMENT ON PROPERTY EXPIRES 12/31/2028

CIRCULAR
PI Sta = 14+49.63
I = 35°50'59"L
T = 100.86
R = 311.79
M = 15.13

PI Sta = 10+00.01
I = 00°36'42"R

GRADE TO DRAIN

EX FES 1

N 00°19'32" W
100.01 FT

EX CBMH 1

EX CBMH 2

EX FES 2

FES 29

CBMH 27

CB 28

CBMH 31

FES 33

CBMH 32

CBMH 30

N 00°17'09" E
449.63 FT

GRADE TO DRAIN

GRADE TO DRAIN

BEGIN SAP 197-119-003
SP 0208-170
STA: 9+37.62

171ST AVE

BLANKET CONSTRUCTION EASEMENT ON PROPERTY EXPIRES 12/31/2028

BALTIMORE ST

POND 1

STUB 25

STUB 26

CBMH 22

CBMH 21

CBMH 25

CBMH 24

N 35°33'50" W
464.81 FT

CB 35

CBMH 34

CBMH 72

STUB 73

CBMH 71

FES 70

FES 80

N 02°13'00" E
128.10 FT

N 02°25'59" E
266.99 FT

CBMH 81

CB 82

CB 5

CBMH 4

CBMH 2

STUB 6

N 07°44'45" E
266.24 FT

FES 1

FES 11

POND 2

CIRCULAR
PI Sta = 19+07.82
I = 37°46'50"R
T = 106.69
R = 311.79
M = 16.79

APPROXIMATE PROPOSED PRIVATE WELL LOCATION. WELL LOCATION TO BE DETERMINED BY LICENSED INSTALLER.

CIRCULAR
PI Sta = 20+28.13
I = 00°12'58"R
T = 21.41
R = 11346.74
M = 0.02

SEPTIC FIELD

BLANKET CONSTRUCTION EASEMENT ON PROPERTY EXPIRES 12/31/2028

CIRCULAR
PI Sta = 22+95.11
I = 05°18'47"R
T = 88.14
R = 1899.74
M = 2.04

WETLAND 1

B1 B2 B3 B4 B5 B6 B7 B8

PC Sta = 13+48.78
PT Sta = 15+43.86
PC Sta = 18+01.13
PT Sta = 20+49.53
PC Sta = 20+06.72
PC Sta = 22+06.97
PCC Sta = 23+83.13

VERTICAL CONTROL
ELEVATIONS FOR THIS PLAN ARE NAVD88 ADJUSTED. FOR INFORMATION ON VERTICAL CONTROL POINTS, CONTACT ANOKA COUNTY.

VPI STA = 13+00.00
VPI EL = 911.40
CURVE LEN = 90.00
K = 61.15
E = 0.17

VPC STA = 12+55.00
VPC EL = 911.79
LP STA = 13+08.31
LP EL = 911.56
VPT STA = 13+45.00
VPT EL = 911.67

VPI STA = 16+00.00
VPI EL = 913.20
CURVE LEN = 90.00
K = 65.28
E = 0.16

VPC STA = 15+55.00
VPC EL = 912.93
HP STA = 15+94.17
HP EL = 913.05
VPT STA = 16+45.00
VPT EL = 912.85

VPI STA = 21+65.00
VPI EL = 908.80
CURVE LEN = 90.00
K = 65.14
E = 0.16

VPC STA = 21+20.00
VPC EL = 909.15
LP STA = 21+70.73
LP EL = 908.95
VPT STA = 22+10.00
VPT EL = 909.07

BOP STA = 9+37.62
BOP EL = 914.56

−0.87%
0.60%
−0.78%

PROPOSED RET. WALL BOTTOM
PROPOSED TRENCH DRAIN INVERT

BOTTOM RETAINING WALL SEE SHEET 17FOR MORE DETAILS

OUTLET PIPE

20+00.00 907.30

20+50.00 907.46

15"

BOTTOM TRENCH DRAIN SEE SHEET 30FOR MORE DETAILS

BOTTOM RETAINING WALL SEE SHEET 17FOR MORE DETAILS

OUTLET PIPE

BOTTOM TRENCH DRAIN SEE SHEET 30FOR MORE DETAILS

	PROPOSED GRADE	EXISTING GRADE
9+00	914.45	914.5
10+00	914.02	914.3
	913.58	912.6
11+00	913.14	912.6
	912.71	911.8
12+00	912.27	911.3
	911.84	910.9
13+00	911.57	911.3
	911.70	911.9
14+00	912.00	912.1
	912.30	912.8
15+00	912.60	913.1
	912.90	913.2
16+00	913.04	913.5
	912.81	913.3
17+00	912.42	913.0
	912.03	911.3
18+00	911.64	909.9
	911.25	908.6
19+00	910.86	907.6
	908.51	907.50
20+00	910.47	906.6
	908.35	906.79
	910.08	906.7
	908.60	907.09
21+00	909.70	907.2
	907.84	907.10
22+00	909.31	906.8
	907.80	906.74
	908.99	906.9
	907.70	906.38
23+00	909.02	906.9
	908.20	905.93
	909.31	907.5
	908.38	907.00
24+00	909.61	909.0
	909.92	908.5
	910.22	907.1

UTILITIES:
CENTURYLINK (763) 712-5017
CENTERPOINT ENERGY (763) 323-2760
COMCAST (952) 607-4078
CONNEXUS ENERGY (763) 323-4268
XCEL ENERGY (612) 526-4508

GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/29/2025 16:47

DATE	REVISION HISTORY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Ringler
DATE 05/29/25 REG. NO. 48768

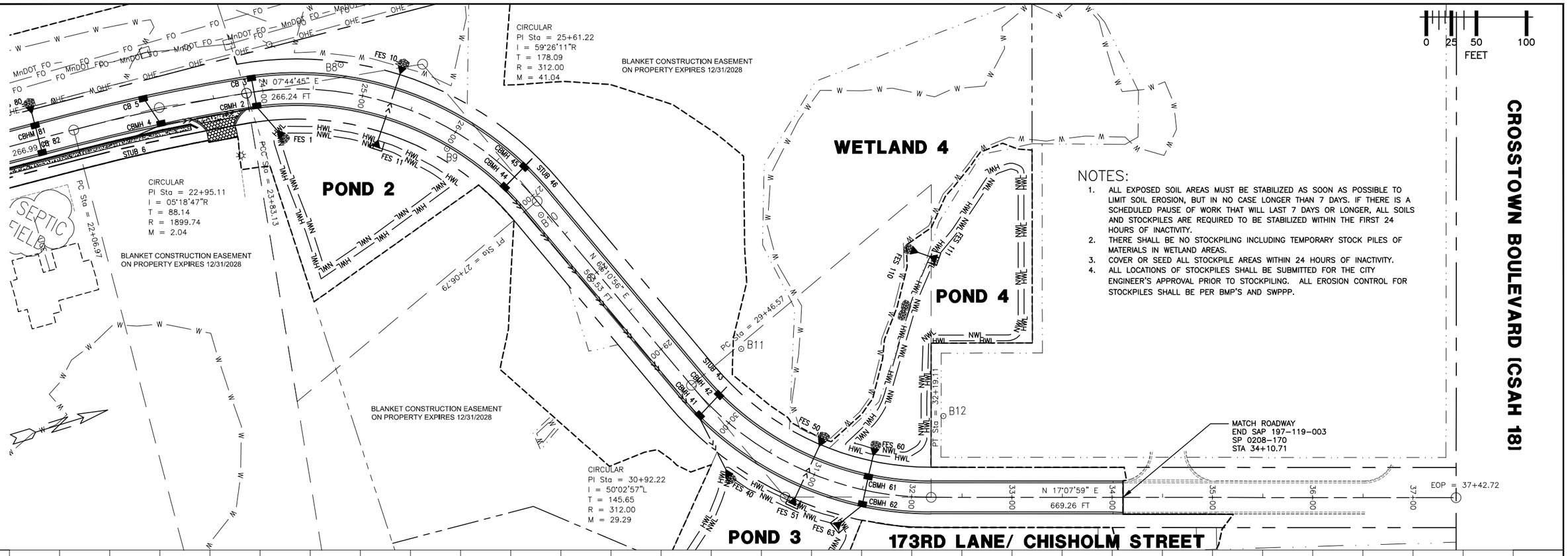
RFC ENGINEERING, INC.
Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
BALTIMORE STREET
PLAN AND PROFILE

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: RCP01041
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 23 OF 43
FILE: 33-2-123



GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/29/2025 16:47

UTILITIES:
CENTURYLINK (763) 712-5017
CENTERPOINT ENERGY (763) 323-2760
COMCAST (952) 607-4078
CONNEXUS ENERGY (763) 323-4268
XCEL ENERGY (612) 526-4508

DATE	REVISION HISTORY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Krueger
DATE 05/29/25 REG. NO. 48768

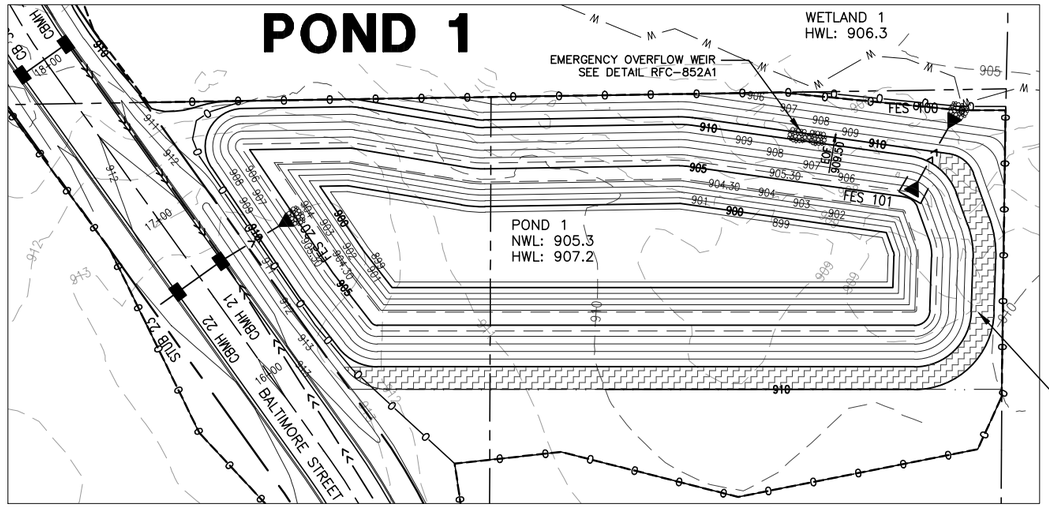
RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

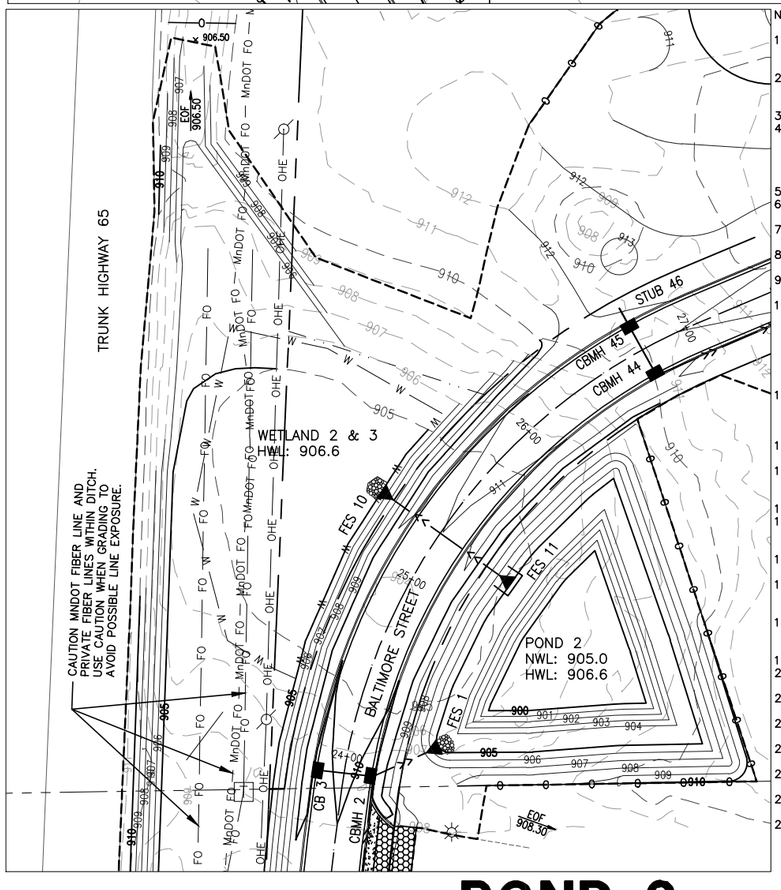
DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
173RD LANE/CHISHOLM STREET
PLAN AND PROFILE

DWG: RCP02041
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 24 OF 43
FILE: 33-2-124

POND 1

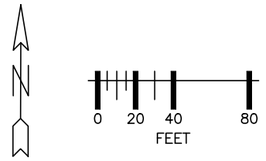


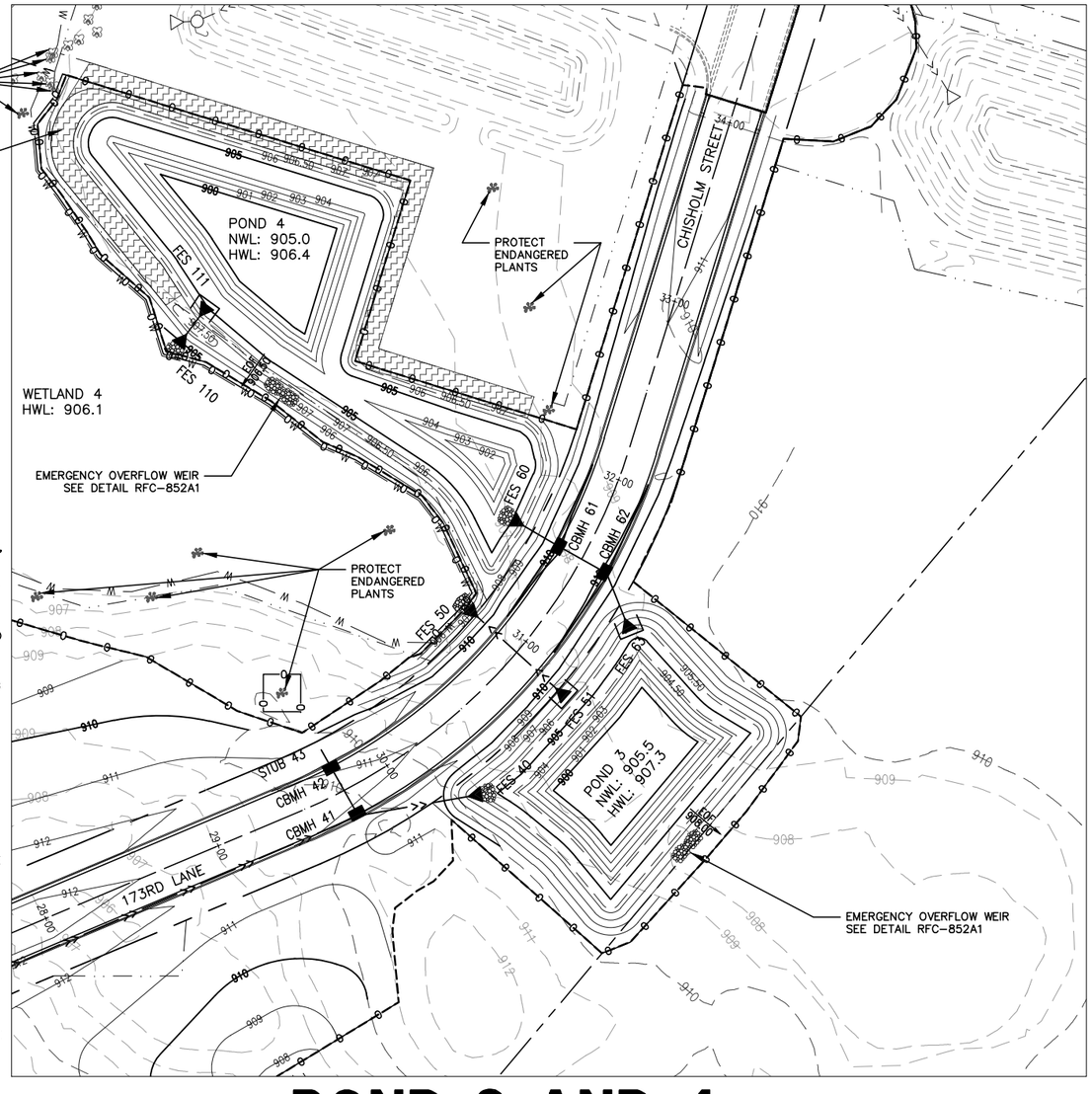


POND 2

NOTES:

1. OBTAIN CITY OF HAM LAKE EROSION CONTROL, GRADING, AND STORMWATER PERMIT. CONTACT CITY OF HAM LAKE 24 HOURS PRIOR TO INSTALLATION OF ANY STORMWATER BMP.
2. THE GRADING CONTRACTOR IS RESPONSIBLE FOR THE STRIPPING AND STOCKPILING OF TOPSOIL. TOPSOIL SHALL BE STOCKPILED IN AREAS DESIGNATED BY THE ENGINEER.
3. COVER OR SEED ALL STOCKPILE AREAS WITHIN 24 HOURS OF INACTIVITY.
4. ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION, BUT IN NO CASE LONGER THAN 7 DAYS. IF THERE IS A SCHEDULED PAUSE OF WORK THAT WILL LAST 7 DAYS OR LONGER, ALL SOILS AND STOCKPILES ARE REQUIRED TO BE STABILIZED WITHIN THE FIRST 24 HOURS OF INACTIVITY. *SEE SWPPP AND CONSTRUCTION GRADING PLAN FOR DETAILS.
5. NO CONSTRUCTION ACTIVITY TO BEGIN PRIOR TO SILT FENCE PLACEMENT.
6. AREAS USING SEDIMENT LOGS WILL BE PLACED AS THE SECOND LAYER OF PERIMETER CONTROL BEHIND THE SILT FENCE, CLOSEST TO THE PROTECTION AREA
7. SILT FENCE CANNOT BE REMOVED UNTIL CCWD HAS DETERMINED ALL DISTURBED AREAS ARE FULLY STABILIZED. EROSION CONTROL BLANKET CANNOT BE REMOVED.
8. ALL GRADING OPERATIONS SHALL BE CONDUCTED IN A MANNER TO MINIMIZE THE POTENTIAL FOR SITE EROSION.
9. SEDIMENT TRACKED ONTO THE STREET FROM CONSTRUCTION ACTIVITIES WILL BE REMOVED ON A DAILY BASIS.
10. WHEREVER CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED PUBLIC ROADS, PROVISIONS MUST BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT(MUD) BY RUNOFF OR VEHICLE TRACKING ONTO THE PAVED ROAD SURFACE, THE ROADS SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM ROADS BY SHOVELING OR SWEEPING AND BE TRANSPORTED TO A SEDIMENT CONTROLLED DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.
11. THE GRADING CONTRACTOR SHALL PROVIDE ALL EROSION CONTROL MEASURES CALLED FOR ON THE PLANS, WHICH MAY INCLUDE SILT FENCE AND ROCK CONSTRUCTION EXITS, WHICH SHALL BE CONSTRUCTED AND MADE SERVICEABLE PRIOR TO COMMENCING ANY GRADING OPERATIONS.
12. ALL EROSION FACILITIES SHALL BE MAINTAINED BY THE CONTRACTOR DURING GRADING OPERATIONS AND UNTIL AFTER TURF IS ESTABLISHED.
13. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DISPOSE OF LEGALLY AND OFF-SITE, ALL TREES, STUMPS, BRUSH OR OTHER DEBRIS FROM REMOVALS OR ANY DEBRIS THAT EXISTS WITHIN THE CONSTRUCTION AREAS.
14. ALL GRADED SLOPES SHALL NOT EXCEED 1:4 EXCEPT FOR SEDIMENTATION PONDS.
15. THE CONTRACTOR SHALL VERIFY LOCATION AND ELEVATIONS OF ALL UNDERGROUND UTILITIES AND CONNECTION POINTS AND ELEVATIONS PRIOR TO CONSTRUCTION, WITH RESPECTIVE UTILITY COMPANIES, CITY, STATE AND COUNTIES.
16. PIPE OUTLETS MUST BE PROVIDED WITH ENERGY DISSIPATION WITHIN 24 HOURS OF CONNECTION TO SURFACE WATER.
17. ALL RIPRAP SHALL BE INSTALLED WITH A FILTER MATERIAL OR SOIL SEPARATION FABRIC AND COMPLY WITH THE 2020 MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
18. TREE PROTECTION CONSISTING OF SNOW FENCE OR SAFETY FENCE INSTALLED AT THE DRIP LINE SHALL BE IN PLACE PRIOR TO THE BEGINNING OF ANY GRADING OR DEMOLITION WORK AT THE SITE.
19. GRADES SHOWN IN PAVED AREAS REPRESENT FINISH ELEVATION.
20. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL STANDARD SPECIFICATIONS FOR CONSTRUCTION.
21. SPECIFICATIONS THAT APPLY ARE THE CITY OF HAM LAKE, ANOKA COUNTY, MNDOT AND COON CREEK WATERSHED DISTRICT UNLESS OTHERWISE NOTED.
22. THE CONTRACTOR SHALL PROVIDE ALL DUST CONTROL. THE COST SHALL BE INCIDENTAL TO THE PROJECT..
23. PROPOSED CURB AND GUTTER AND BITUMINOUS ROADWAY SHALL MATCH THE EXISTING CURB, GUTTER AND BITUMINOUS.
24. NOTIFY CITY OF HAM LAKE ENGINEERING DEPT. AT LEAST 24 HOURS PRIOR TO THE CONSTRUCTION OF STORMWATER BMPs.
25. REFER TO THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL THAT NEEDS TO BE PLACED ON TRUNK HIGHWAY 65 WHEN WORKING WITHIN MNDOT ROW.
26. DEWATERING IS NOT ANTICIPATED DUE TO GROUNDWATER ELEVATION, IF DEWATERING DOES OCCUR IT MUST BE APPROVED BY THE WATERSHED AND CITY OF HAM LAKE. DEWATERING AND DRAINING NOTES:
    - CONTRACTOR SHALL USE SKIMMERS AND FILTERS PER MANUFACTURERS RECOMMENDED PROCEDURES.
    - DEWATERING SHALL TAKE PLACE AFTER SEDIMENT HAS SETTLED.
    - CONTRACTOR SHALL PREVENT EROSION AND SCOUR AT DISCHARGE POINTS THROUGH THE USE OF AN ENERGY DISSIPATION DEVICE.
    - DEWATERING MUST AVOID NUISANCE CONDITIONS.





POND 3 AND 4

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

COPHER STATE ONE CALL
800-252-1166 651-454-0002

DATE	REVISION HISTORY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dave Kruglen
DATE 05/29/25 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM
64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
GRADING AND DRAINAGE PLAN
PONDS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2111 GRADING 1
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 25 OF 43
FILE: 33-2-125

NOTES:

1. OBTAIN CITY OF HAM LAKE EROSION CONTROL, GRADING, AND STORMWATER PERMIT. CONTACT CITY OF HAM LAKE 24 HOURS PRIOR TO INSTALLATION OF ANY STORMWATER BMP.
2. THE GRADING CONTRACTOR IS RESPONSIBLE FOR THE STRIPPING AND STOCKPILING OF TOPSOIL. TOPSOIL SHALL BE STOCKPILED IN AREAS DESIGNATED BY THE ENGINEER.
3. COVER OR SEED ALL STOCKPILE AREAS WITHIN 24 HOURS OF INACTIVITY.
4. ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION, BUT IN NO CASE LONGER THAN 7 DAYS. IF THERE IS A SCHEDULED PAUSE OF WORK THAT WILL LAST 7 DAYS OR LONGER, ALL SOILS AND STOCKPILES ARE REQUIRED TO BE STABILIZED WITHIN THE FIRST 24 HOURS OF INACTIVITY. *SEE SWPPP AND CONSTRUCTION GRADING PLAN FOR DETAILS.
5. NO CONSTRUCTION ACTIVITY TO BEGIN PRIOR TO SILT FENCE PLACEMENT.
6. AREAS USING SEDIMENT LOGS WILL BE PLACED AS THE SECOND LAYER OF PERIMETER CONTROL BEHIND THE SILT FENCE, CLOSEST TO THE PROTECTION AREA
7. SILT FENCE CANNOT BE REMOVED UNTIL CCWD HAS DETERMINED ALL DISTURBED AREAS ARE FULLY STABILIZED. EROSION CONTROL BLANKET CANNOT BE REMOVED.
8. ALL GRADING OPERATIONS SHALL BE CONDUCTED IN A MANNER TO MINIMIZE THE POTENTIAL FOR SITE EROSION.
9. SEDIMENT TRACKED ONTO THE STREET FROM CONSTRUCTION ACTIVITIES WILL BE REMOVED ON A DAILY BASIS.
10. WHEREVER CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED PUBLIC ROADS, PROVISIONS MUST BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT(MUD) BY RUNOFF OR VEHICLE TRACKING ONTO THE PAVED ROAD SURFACE, THE ROADS SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM ROADS BY SHOVELING OR SWEEPING AND BE TRANSPORTED TO A SEDIMENT CONTROLLED DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.
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17. ALL RIPRAP SHALL BE INSTALLED WITH A FILTER MATERIAL OR SOIL SEPARATION FABRIC AND COMPLY WITH THE 2020 MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
18. TREE PROTECTION CONSISTING OF SNOW FENCE OR SAFETY FENCE INSTALLED AT THE DRIP LINE SHALL BE IN PLACE PRIOR TO THE BEGINNING OF ANY GRADING OR DEMOLITION WORK AT THE SITE.
19. GRADES SHOWN IN PAVED AREAS REPRESENT FINISH ELEVATION.
20. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL STANDARD SPECIFICATIONS FOR CONSTRUCTION.
21. SPECIFICATIONS THAT APPLY ARE THE CITY OF HAM LAKE, ANOKA COUNTY, MNDOT AND COON CREEK WATERSHED DISTRICT UNLESS OTHERWISE NOTED.
22. THE CONTRACTOR SHALL PROVIDE ALL DUST CONTROL. THE COST SHALL BE INCIDENTAL TO THE PROJECT..
23. PROPOSED CURB AND GUTTER AND BITUMINOUS ROADWAY SHALL MATCH THE EXISTING CURB, GUTTER AND BITUMINOUS.
24. NOTIFY CITY OF HAM LAKE ENGINEERING DEPT. AT LEAST 24 HOURS PRIOR TO THE CONSTRUCTION OF STORMWATER BMPs.
25. REFER TO THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL THAT NEEDS TO BE PLACED ON TRUNK HIGHWAY 65 WHEN WORKING WITHIN MNDOT ROW.
26. DEWATERING IS NOT ANTICIPATED DUE TO GROUNDWATER ELEVATION, IF DEWATERING DOES OCCUR IT MUST BE APPROVED BY THE WATERSHED AND CITY OF HAM LAKE. DEWATERING AND DRAINING NOTES:
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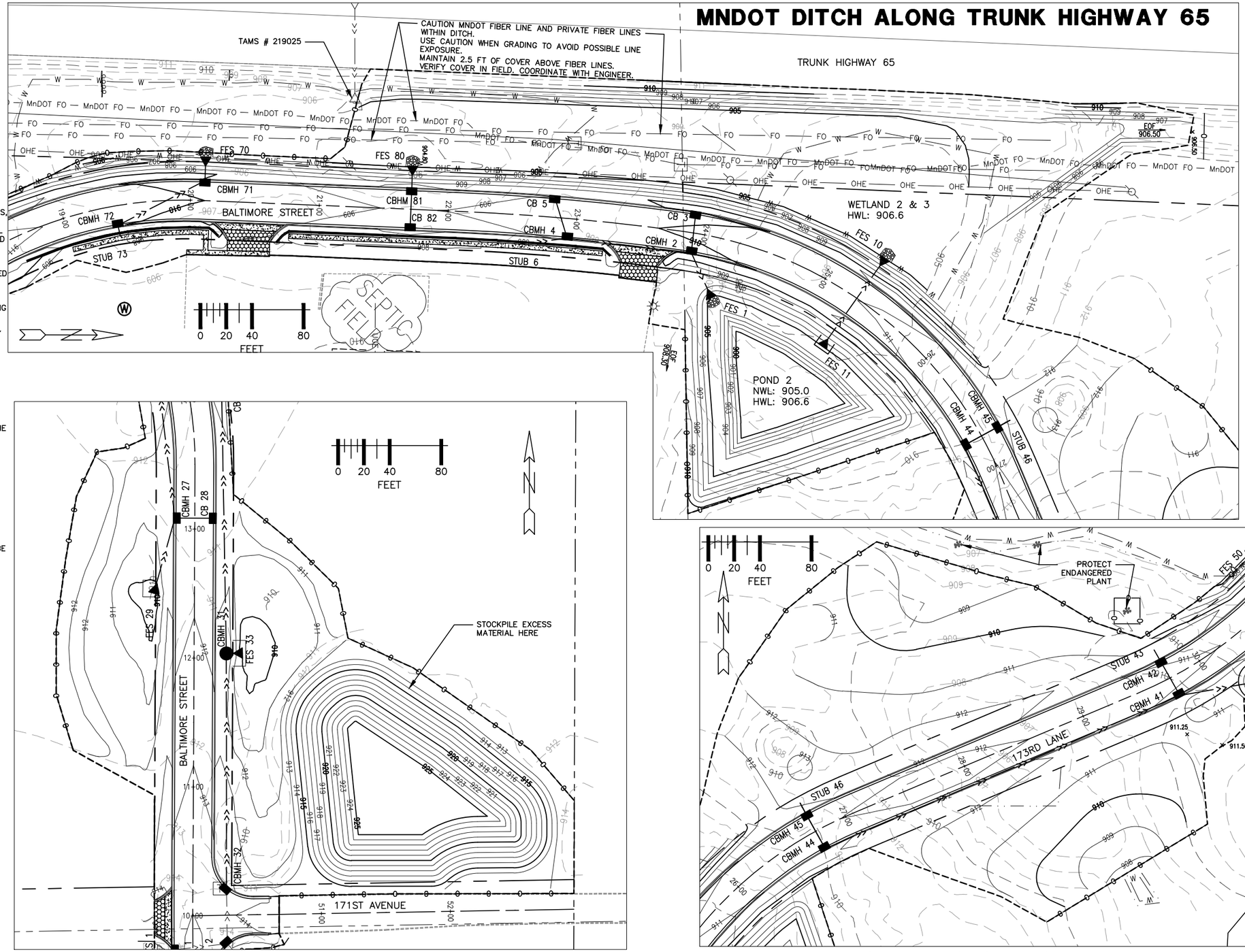
    - DEWATERING SHALL TAKE PLACE AFTER SEDIMENT HAS SETTLED.
    - CONTRACTOR SHALL PREVENT EROSION AND SCOUR AT DISCHARGE POINTS THROUGH THE USE OF AN ENERGY DISSIPATION DEVICE.
    - DEWATERING MUST AVOID NUISANCE CONDITIONS.



STOCKPILE & LOW PONT GRADING STA 10+00 TO 14+00

LOW PONT GRADING STA 27+00 TO 30+00

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

DATE	REVISION HISTORY

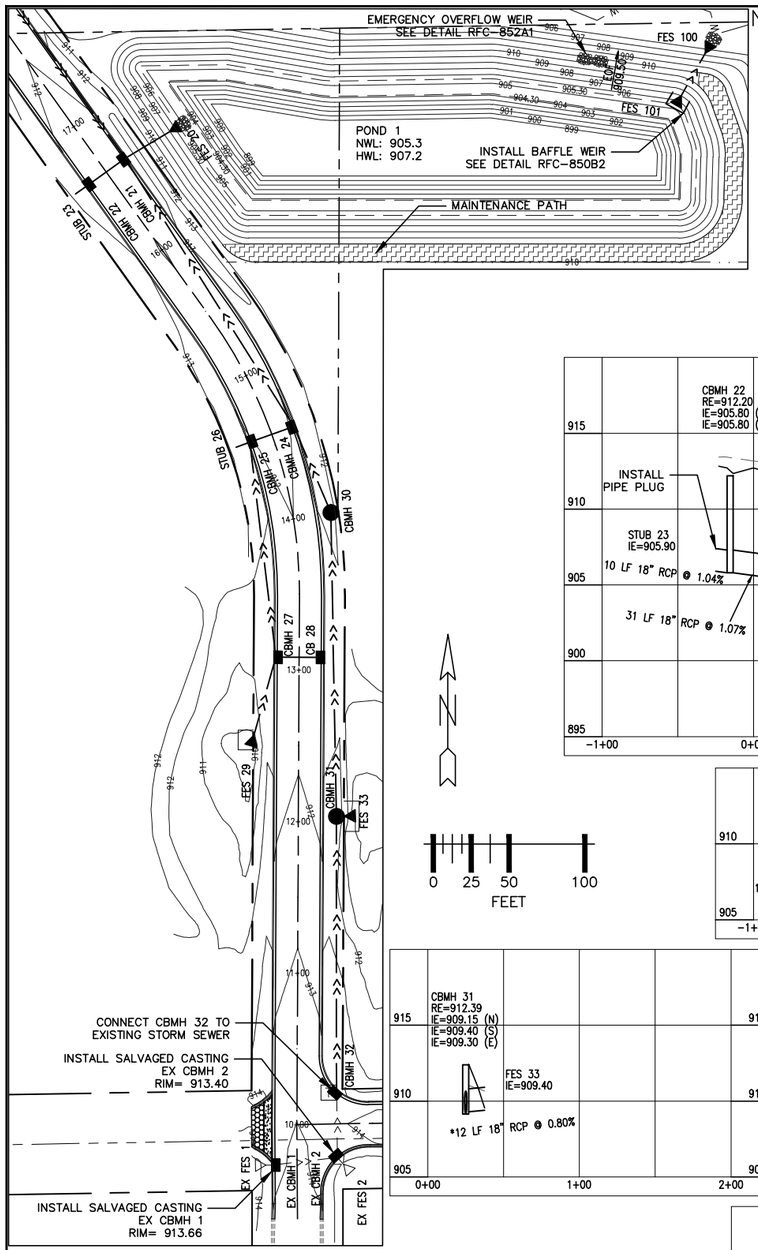
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Ruglen
DATE 05/29/25 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
GRADING AND DRAINAGE PLAN
MNDOT DITCH AND LOW POINTS

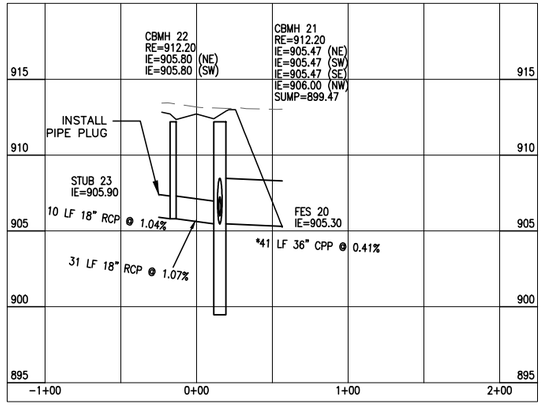
DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

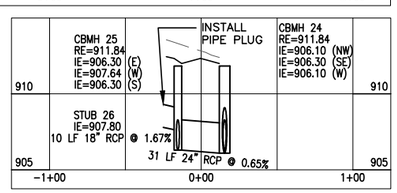
DWG: 2111 GRADING 2
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 26 OF 43
FILE: 33-2-126

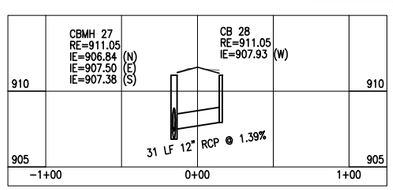


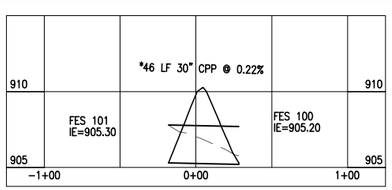
NOTES:

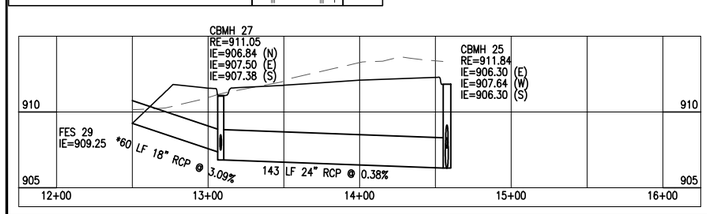
1. ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION, BUT IN NO CASE LONGER THAN 7 DAYS. IF THERE IS A SCHEDULED PAUSE OF WORK THAT WILL LAST 7 DAYS OR LONGER, ALL SOILS AND STOCKPILES ARE REQUIRED TO BE STABILIZED WITHIN THE FIRST 24 HOURS OF INACTIVITY.
2. THERE SHALL BE NO STOCKPILING INCLUDING TEMPORARY STOCK PILES OF MATERIALS IN WETLAND AREAS.
3. COVER OR SEED ALL STOCKPILE AREAS WITHIN 24 HOURS OF INACTIVITY.
4. ALL SILT FENCE MUST BE IN PLACE BEFORE ANY LAND IS DISTURBED.
5. ALL REMOVALS TO BE DISPOSED OF LEGALLY.
6. * PIPE LENGTH INCLUDES APRON.
7. ** NEENAH FOUNDRY R-3067; EAST JORDAN IRON WORKS V-7030; D&L FOUNDRY I-1804.
8. ** NEENAH FOUNDRY R-1733; EAST JORDAN IRON WORKS V-1280; D&L FOUNDRY A-1028.

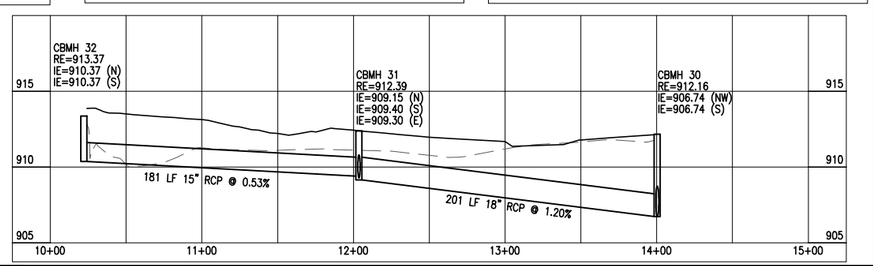


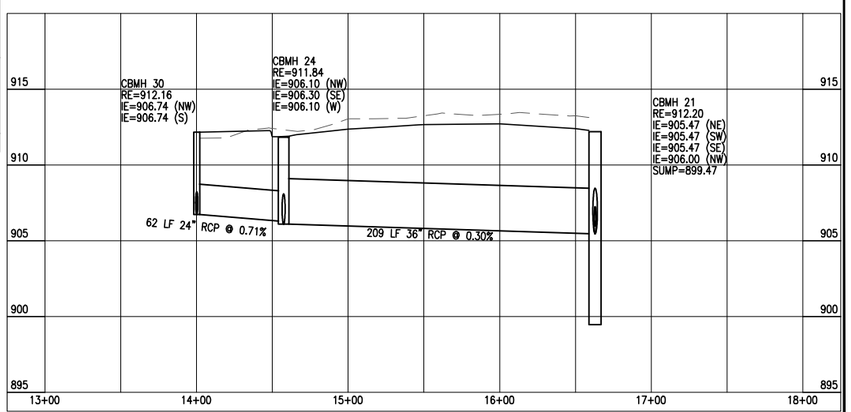












STORM DRAIN

STRUCTURE	STATION	LOCATION	SIZE OF STRUCTURE	DESIGN	TOP OF CASTING OR INLET	INVERT	CASTING ASSEMBLY (NEENAH, EJ, DL)**	TYPE GRATE (NEENAH CASTINGS)	12" R.C.P. LIN FT	15" R.C.P. LIN FT	18" R.C.P. LIN FT	24" R.C.P. LIN FT	36" R.C.P. LIN FT	30" C.P.P. LIN FT	36" C.P.P. LIN FT	PIPE APRON LIN FT	TRASH GUARD EACH	APRON EACH	FLOWS TO	INLET	% GRADE
FES 33	12+03.6	RT.		FES		909.40															
											6					6.1	1	1	CBMH 31	909.30	0.80
CBMH 32	10+22	RT.	48" ø	RFC-465A1	913.37	910.37	R-3067	L													
										181									CBMH 31	909.40	0.53
CBMH 31	12+03.5	RT.	48" ø	RFC-465C	912.39	909.15	R-1733	–													
											201								CBMH 30	906.74	1.20
CBMH 30	14+00.1	RT.	48" ø	RFC-465C	912.16	906.74	R-1733	–													
												62							CBMH 24	906.30	0.71
FES 29	12+49.9	LT.		FES		909.25															
											54					6.1	1	1	CBMH 27	907.38	3.09
CB 28	13+08.2	RT.	2' x 3'	RFC-459B	911.05	907.93	R-3067	C													
									31										CBMH 27	907.50	1.39
CBMH 27	13+08.2	LT.	48" ø	RFC-465A1	911.05	906.84	R-3067	C													
												143							CBMH 25	906.30	0.38
STUB 26	14+57.5	LT.		FES	907.8	907.80		–													
											10								CBMH 25	907.64	1.67
CBMH 25	14+57.5	LT.	60" ø	RFC-465A1	911.84	906.30	R-3067	L													
												31							CBMH 24	906.10	0.65
CBMH 24	14+57.5	RT.	84" ø	RFC-465A1	911.84	906.10	R-3067	L													
													209						CBMH 21	905.47	0.30
STUB 23	16+62.9	LT.		FES	905.9	905.90															
											10								CBMH 22	905.80	1.04
CBMH 22	16+62.9	LT.	48" ø	RFC-465A1	912.20	905.80	R-3067	L													
											31								CBMH 21	905.47	1.07
CBMH 21	16+62.9	RT.	96" ø	RFC-465A3	912.20	905.47	R-3067	L													
															36	5	1	1	FES 20	905.30	0.41
FES 101	POND 1			FES		905.30															
														38		8.5	2	2	FES 100	905.20	0.22
TOTALS									31	181	312	236	209	38	36	25.7	5	5			

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:
CENTURYLINK (763) 712-5017
CENTERPOINT ENERGY (763) 323-2760
COMCAST (952) 607-4078
CONNEXUS ENERGY (763) 323-4268
XCEL ENERGY (612) 526-4508

DATE	REVISION HISTORY

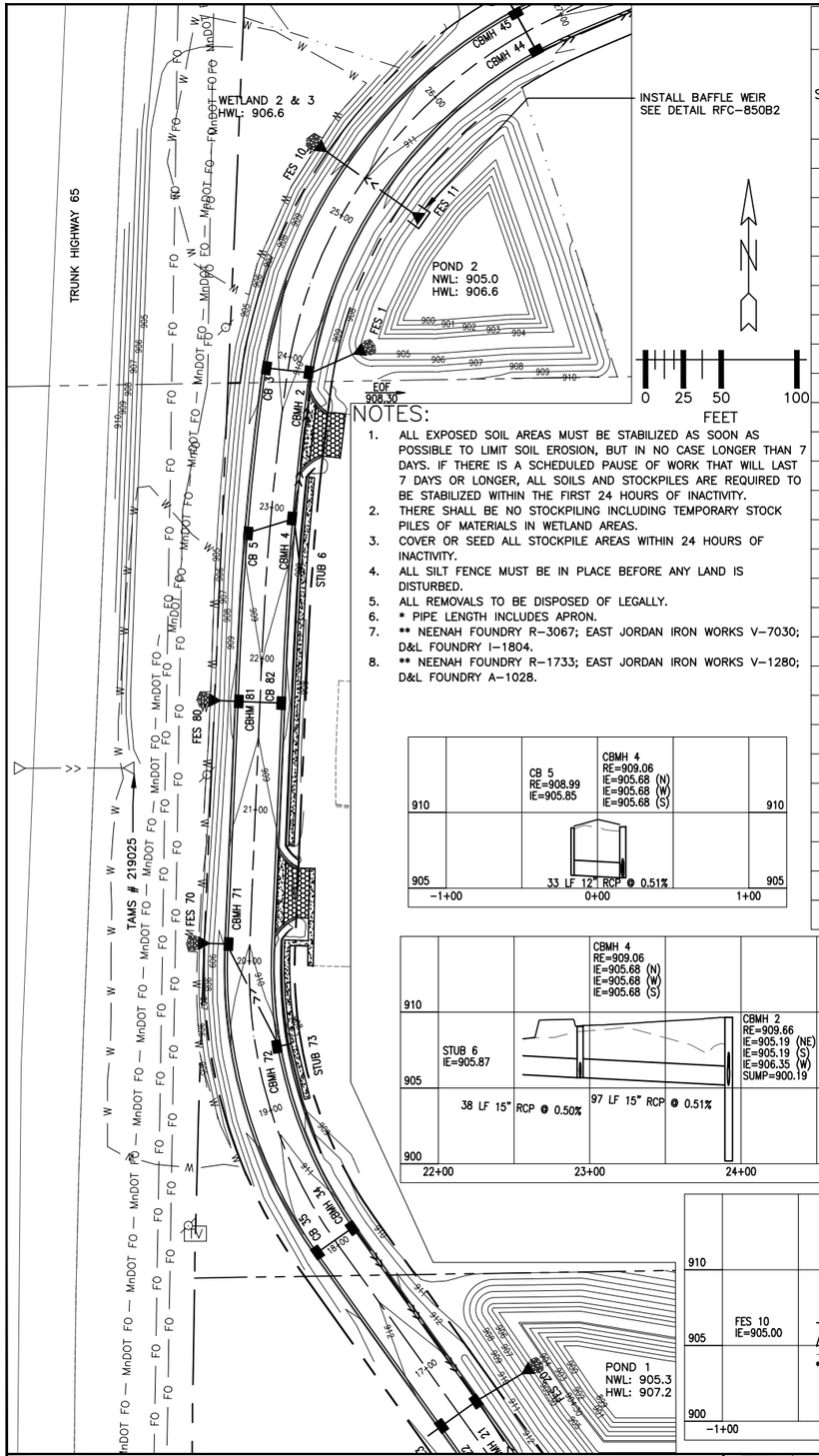
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dave Krughoff
DATE 05/29/25 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM
64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
STORM DETAILS
BALTIMORE STREET

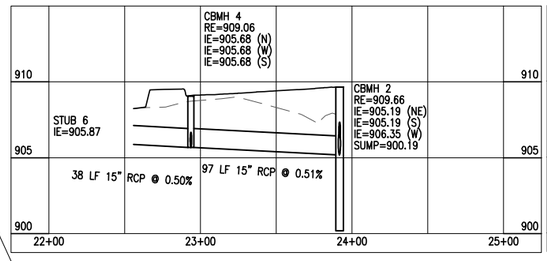
DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

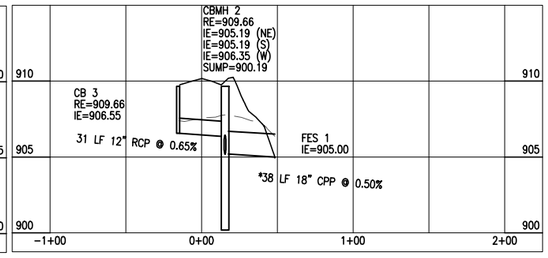
DWG: 2111 STORM 1
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 27 OF 43
FILE: 33-2-127

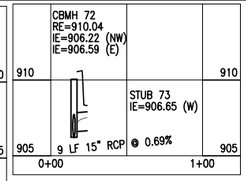


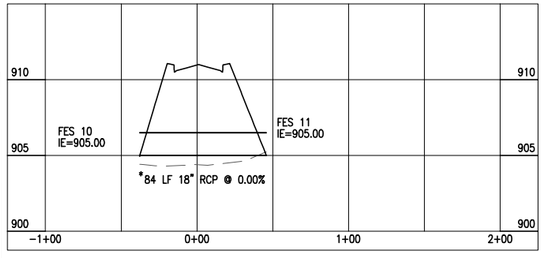
NOTES:

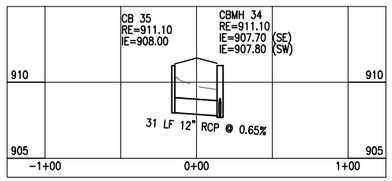
1. ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION, BUT IN NO CASE LONGER THAN 7 DAYS. IF THERE IS A SCHEDULED PAUSE OF WORK THAT WILL LAST 7 DAYS OR LONGER, ALL SOILS AND STOCKPILES ARE REQUIRED TO BE STABILIZED WITHIN THE FIRST 24 HOURS OF INACTIVITY.
2. THERE SHALL BE NO STOCKPILING INCLUDING TEMPORARY STOCK PILES OF MATERIALS IN WETLAND AREAS.
3. COVER OR SEED ALL STOCKPILE AREAS WITHIN 24 HOURS OF INACTIVITY.
4. ALL SILT FENCE MUST BE IN PLACE BEFORE ANY LAND IS DISTURBED.
5. ALL REMOVALS TO BE DISPOSED OF LEGALLY.
6. * PIPE LENGTH INCLUDES APRON.
7. ** NEENAH FOUNDRY R-3067; EAST JORDAN IRON WORKS V-7030; D&L FOUNDRY I-1804.
8. ** NEENAH FOUNDRY R-1733; EAST JORDAN IRON WORKS V-1280; D&L FOUNDRY A-1028.

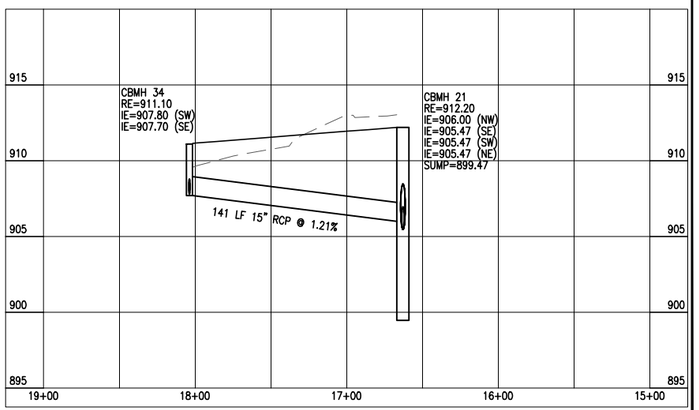






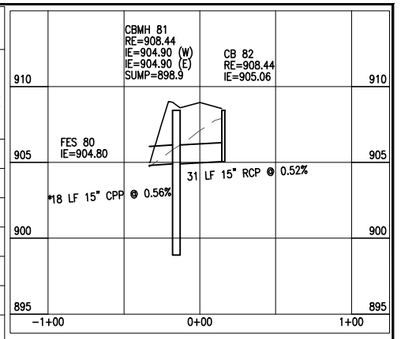


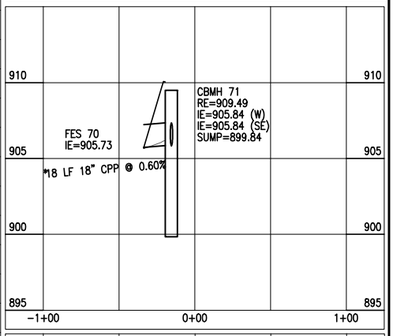


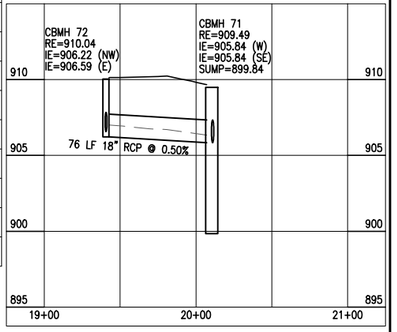


STORM DRAIN

STRUCTURE	STATION	LOCATION	SIZE OF STRUCTURE	DESIGN	TOP OF CASTING OR INLET	INVERT	CASTING ASSEMBLY (NEENAH, EJ, DL)**	TYPE GRATE (NEENAH CASTINGS)	12" R.C.P. LIN FT	15" R.C.P. LIN FT	18" R.C.P. LIN FT	15" C.P.P. LIN FT	18" C.P.P. LIN FT	PIPE APRON LIN FT	TRASH GUARD EACH	APRON EACH	FLOWS TO	INLET	% GRADE
STUB 6	22+55.8	RT.		FES		905.87													
										38							CBMH 4	905.68	0.50
CB 5	22+81.4	LT.	2' x 3'	RFC-459B	908.99	905.85	R-3067	L											
									33								CBMH 4	905.68	0.51
CBMH 4	22+93.6	RT.	48" ø	RFC-465A1	909.06	905.68	R-3067	L											
										97							CBMH 2	905.19	0.51
CB 3	23+90.2	LT.	2' x 3'	RFC-459B	909.66	906.55	R-3067	L											
									31								CBMH 2	906.35	0.65
CBMH 2	23+91.7	RT.	60" ø	RFC-465A3	909.66	905.19	R-3067	L											
													35	2.6	1	1	FES 1	905.00	0.50
FES 11	25+27.5	RT.		FES		905.00													
											71			12.2	2	2	FES 10	905.00	0.00
CB 35	18+03.8	LT.	2' x 3'	RFC-459B	911.10	908.00	R-3067	L											
									31								CBMH 34	907.80	0.65
CBMH 34	18+03.8	RT.	48" ø	RFC-465A1	911.10	907.70	R-3067	L											
										141							CBMH 21	906.00	1.21
STUB 73	19+41.1	RT.		FES		906.65													
										9							CBMH 72	906.59	0.69
CBMH 72	19+40.7	RT.	48" ø	RFC-465A1	910.04	906.22	R-3067	L											
											76						CBMH 71	905.84	0.50
CBMH 71	20+10.5	LT.	96" ø	RFC-465A3	909.49	905.84	R-3067	L											
													16	2.6	1	1	FES 70	905.73	0.60
CB 82	21+70.9	RT.	2' x 3'	RFC-459B	908.44	905.06	R-3067	C											
										31							CBMH 81	904.90	0.52
CBMH 81	21+70.9	LT.	72" ø	RFC-465A3	908.44	904.90	R-3067	C											
												16		2.2	1	1	FES 80	904.80	0.56
TOTALS									95	316	147	16	51	19.6	5	5			







GOPHER STATE ONE CALL
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Dan Ruegler
DATE 05/29/25 REG. NO. 48768

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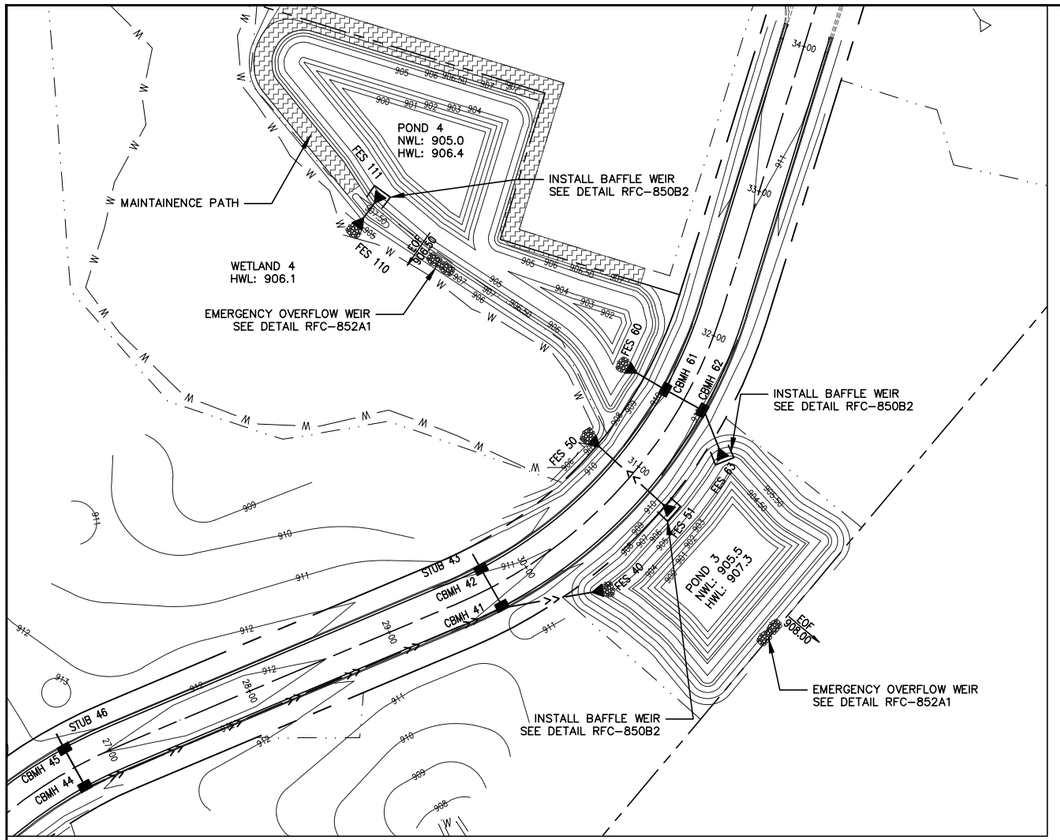
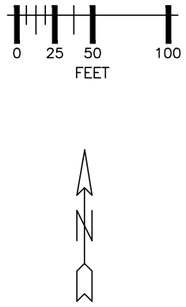
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
STORM DETAILS
173RD LANE & BALTIMORE STREET

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

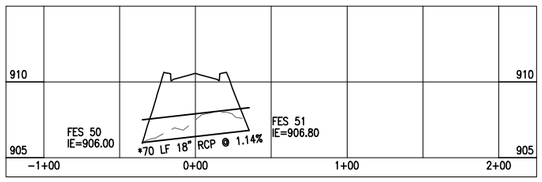
DWG: 2111 STORM 2
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 28 OF 43
FILE: 33-2-128





STORM DRAIN

STRUCTURE	STATION	LOCATION	SIZE OF STRUCTURE	DESIGN	TOP OF CASTING OR INLET	INVERT	CASTING ASSEMBLY (NEENAH, EJ, DL)**	TYPE GRATE (NEENAH CASTINGS)	18" R.C.P. LIN FT	24" R.C.P. LIN FT	24" C.P.P. LIN FT	PIPE APRON LIN FT	TRASH GUARD EACH	APRON EACH	FLOWS TO	INLET	% GRADE
STUB 46	26+73.8	LT.		FES	907.85	907.85											
									10						CBMH 45	907.75	1.04
CBMH 45	26+73.8	LT.	48" ø	RFC-465A1	911.36	907.75	R-3067	L									
									31						CBMH 44	907.40	1.14
CBMH 44	26+73.8	RT.	48" ø	RFC-465A1	911.36	907.40	R-3067	L									
										300					CBMH 41	905.90	0.50
STUB 43	29+72.5	LT.		FES	906.35	906.35											
									10						CBMH 42	906.25	1.04
CBMH 42	29+72.9	LT.	48" ø	RFC-465A1	910.78	906.25	R-3067	L									
									31						CBMH 41	905.90	1.13
CBMH 41	29+73.8	RT.	60" ø	RFC-465A3	910.78	905.90	R-3067	L									
											63	3.4	1	1	FES 40	905.50	0.60
FES 51	30+91.1	RT.		FES		906.80											
									58			12.2	2	2	FES 50	906.00	1.14
FES 63	31+34.6	RT.		FES		905.50											
											30	3.4	1	1	CBMH 62	905.34	0.48
CBMH 62	31+53	RT.	48" ø	RFC-465A1	909.83	905.34	R-3067	C									
										31					CBMH 61	905.17	0.55
CBMH 61	31+53	LT.	60" ø	RFC-465A3	909.83	905.17	R-3067	C									
											24	3.4	1	1	FES 60	905.00	0.63
FES 111	POND 4			FES		905.00											
									14			12.2	2	2	FES 110	904.50	1.93
TOTALS									154	331	117	34.6	7	7			



NOTES:

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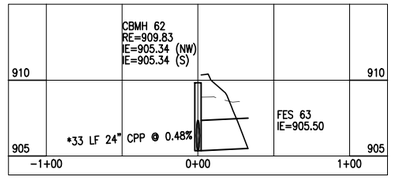

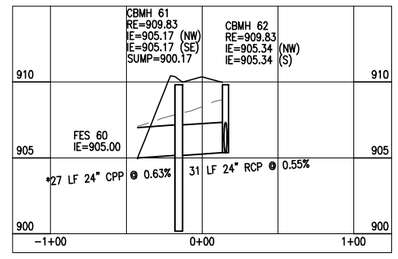

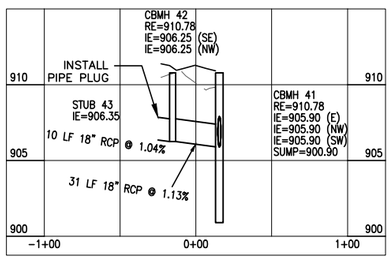

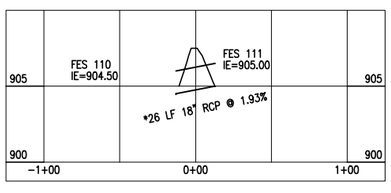

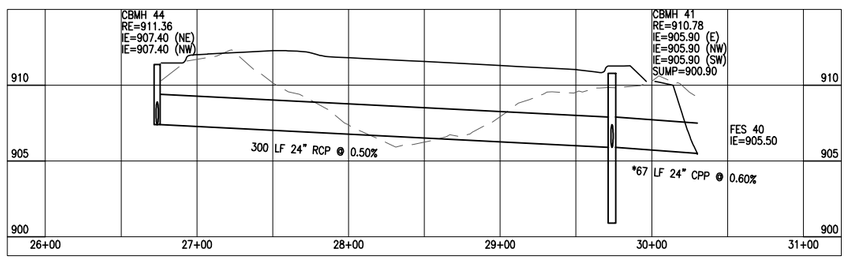

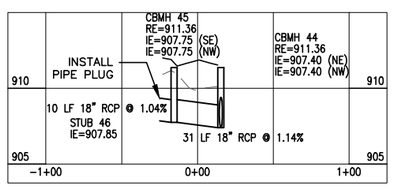

COPPER STATE ONE CALL
800-252-1166 651-454-0002

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CENTERPOINT ENERGY (763) 323-2760
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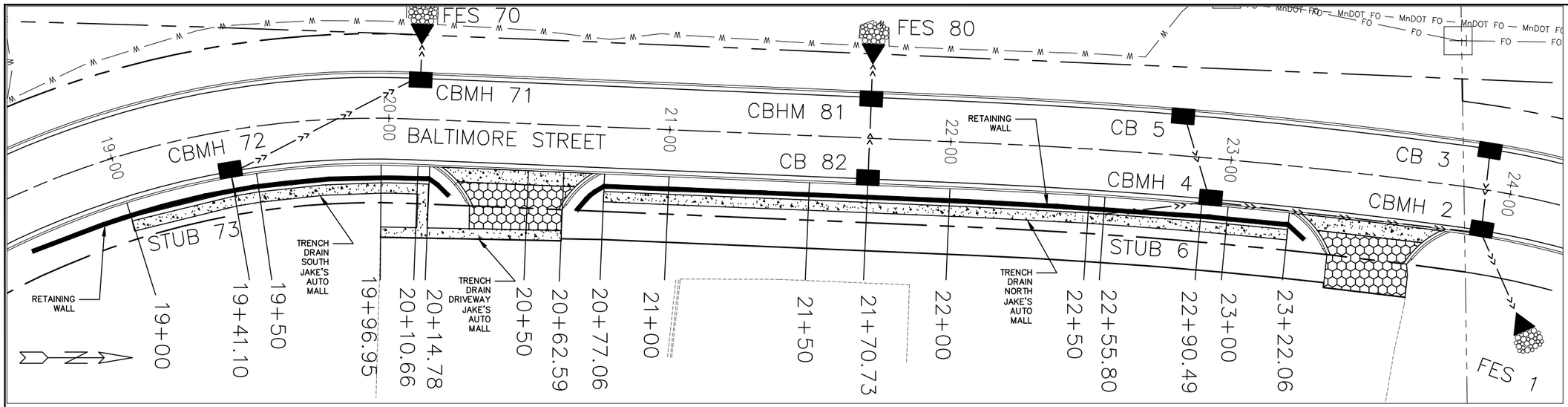
DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
STORM DETAILS
173RD LANE & CHISHOLM STREET

DWG: 2111 STORM 3
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 29 OF 43
FILE: 33-2-129



0 10 20 40
FEET

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5. ALL REMOVALS TO BE DISPOSED OF LEGALLY.
6. ** NEENAH FOUNDRY R-4990-MX; EAST JORDAN IRON WORKS V-7030; D&L FOUNDRY I-1804.
7. ACCESS TO JAKE'S AUTO MALL MUST REMAIN OPEN DURING BUSINESS HOURS.

TRENCH DRAIN SOUTH JAKE'S AUTO MALL

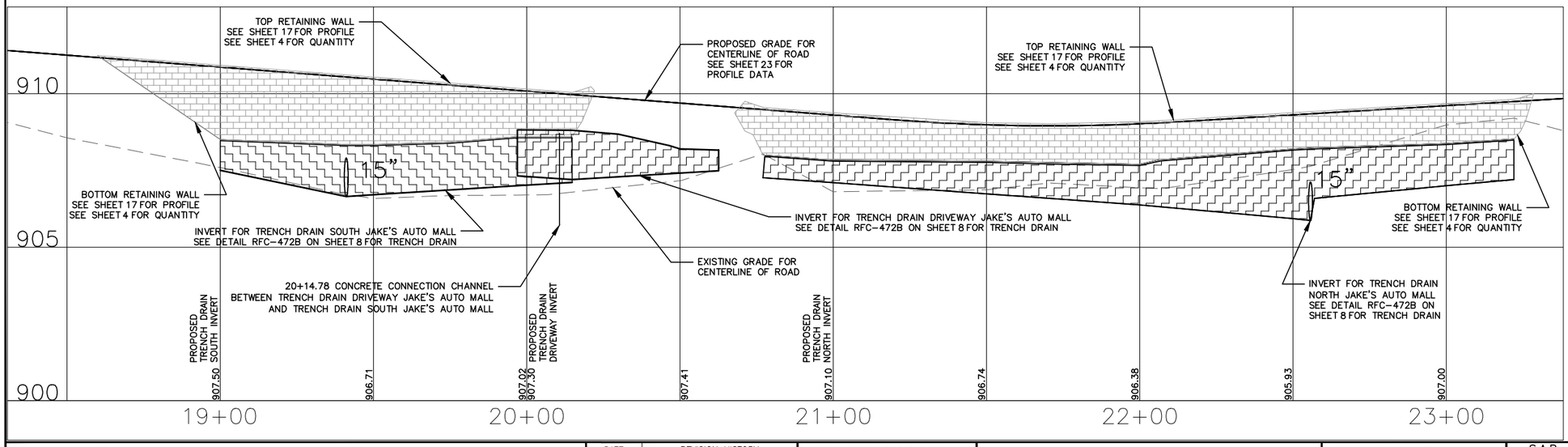
STATION	LOCATION	TOP OF CASTING OR INLET	INVERT	CASTING ASSEMBLY (NEENAH, EJ, DL)**	TYPE GRATE (NEENAH CASTINGS)	% GRADE
19+00.00	RT.	908.47	907.50	R-4990-HX	A	2.07
19+41.10	RT.	908.31	906.65	R-4990-HX	A	OUTLET
19+50.00	RT.	908.31	906.71	R-4990-HX	A	0.67
19+96.95	RT.	908.56	907.00	R-4990-HX	A	0.62
20+14.78	RT.	908.56	907.11	R-4990-HX	A	0.62

TRENCH DRAIN DRIVEWAY OF JAKE'S AUTO MALL

STATION	LOCATION	TOP OF CASTING OR INLET	INVERT	CASTING ASSEMBLY (NEENAH, EJ, DL)**	TYPE GRATE (NEENAH CASTINGS)	% GRADE
19+96.95	RT.	908.82	907.32	R-4990-HX	A	0.67
20+14.78	RT.	908.80	907.20	R-4990-HX	A	OUTLET
20+50.00	RT.	908.21	907.41	R-4990-HX	A	0.61
20+62.59	RT.	908.16	907.49	R-4990-HX	A	0.61

TRENCH DRAIN NORTH JAKE'S AUTO MALL

STATION	LOCATION	TOP OF CASTING OR INLET	INVERT	CASTING ASSEMBLY (NEENAH, EJ, DL)**	TYPE GRATE (NEENAH CASTINGS)	% GRADE
20+77.06	RT.	907.96	907.26	R-4990-HX	A	0.70
21+00.00	RT.	907.80	907.10	R-4990-HX	A	0.72
21+50.00	RT.	907.76	906.74	R-4990-HX	A	0.72
21+70.73	RT.	907.71	906.59	R-4990-HX	A	0.72
22+00.00	RT.	907.66	906.38	R-4990-HX	A	0.90
22+50.00	RT.	908.16	905.93	R-4990-HX	A	1.06
22+55.80	RT.	908.20	905.87	R-4990-HX	A	OUTLET
22+57.00	RT.	908.27	906.59	R-4990-HX	A	VERTICAL
22+90.49	RT.	908.31	906.91	R-4990-HX	A	0.96
23+00.00	RT.	908.34	907.00	R-4990-HX	A	0.95
23+22.06	RT.	908.49	907.20	R-4990-HX	A	0.91



PROPOSED RETAINING WALL

PROPOSED TRENCH DRAIN

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
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STORM DETAILS
TRENCH DRAIN

DWG: 2111 STORM 4
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 30 OF 43
FILE: 33-2-130

NOTES:

1. ALL GRADING OPERATIONS SHALL BE CONDUCTED IN A MANNER TO MINIMIZE THE POTENTIAL FOR SITE EROSION.
2. ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION, BUT IN NO CASE LONGER THAN 7 DAYS. IF THERE IS A SCHEDULED PAUSE OF WORK THAT WILL LAST 7 DAYS OR LONGER, ALL SOILS AND STOCKPILES ARE REQUIRED TO BE STABILIZED WITHIN THE FIRST 24 HOURS OF INACTIVITY.
3. SALVAGED TOPSOIL SHALL BE STOCKPILED IN PLACE TO MAINTAIN CONTINUITY OF PROPERTY OWNERS EXISTING TURF CONDITIONS. UPON APPROVAL OF ENGINEER, SOIL MAY BE STOCKPILED UPON REVIEW OF ALTERNATE PLAN PROVIDED BY CONTRACTOR.
4. COVER OR SEED ALL STOCKPILE AREAS WITHIN 24 HOURS OF INACTIVITY.
5. USE SEED MIX 33-261 FOR PONDS AND ALL NON COMMERCIAL TURF ESTABLISHMENT.

CONSTRUCTION EXIT

SILT FENCE

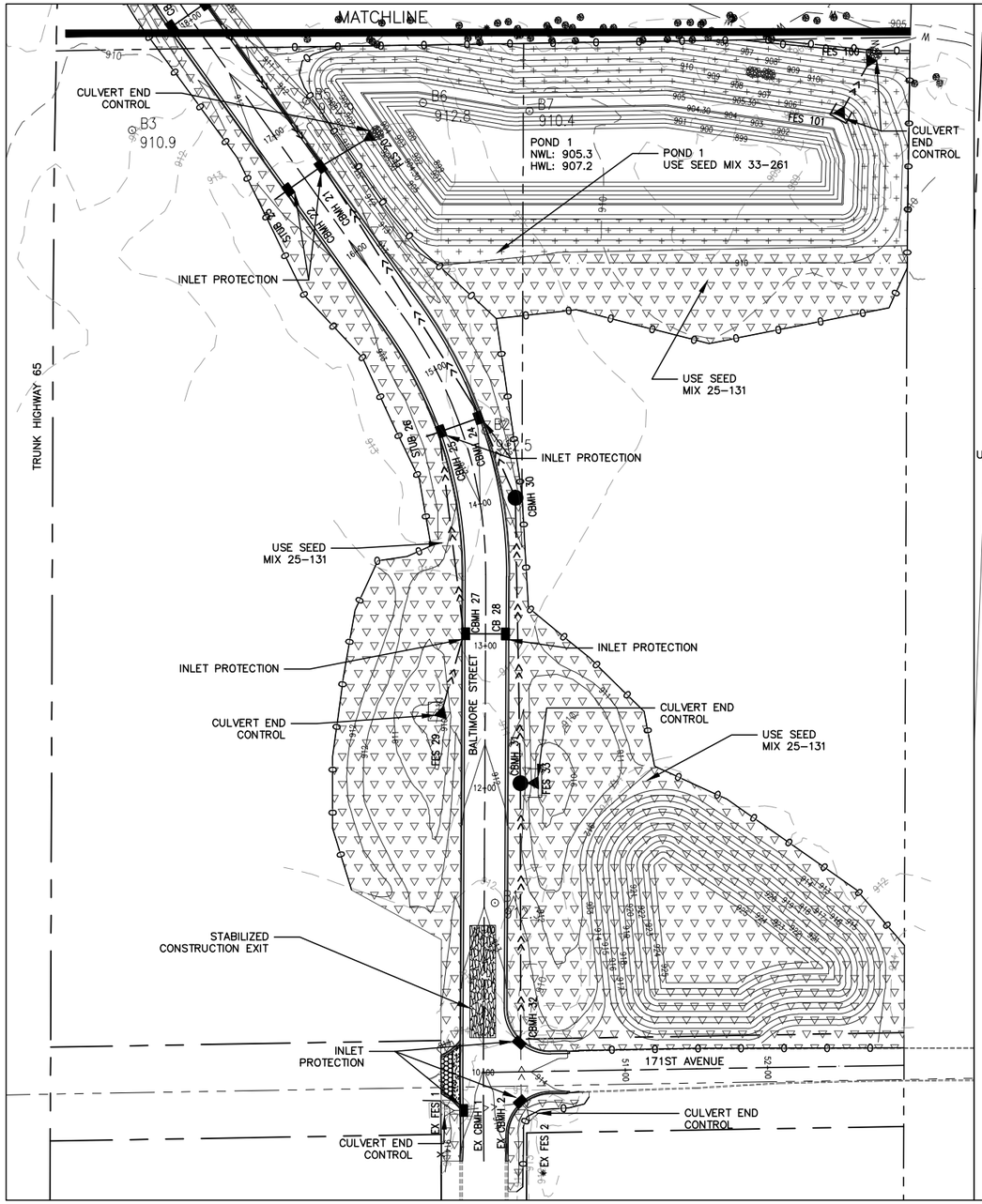
RIPRAP, CLASS III WITH FABRIC

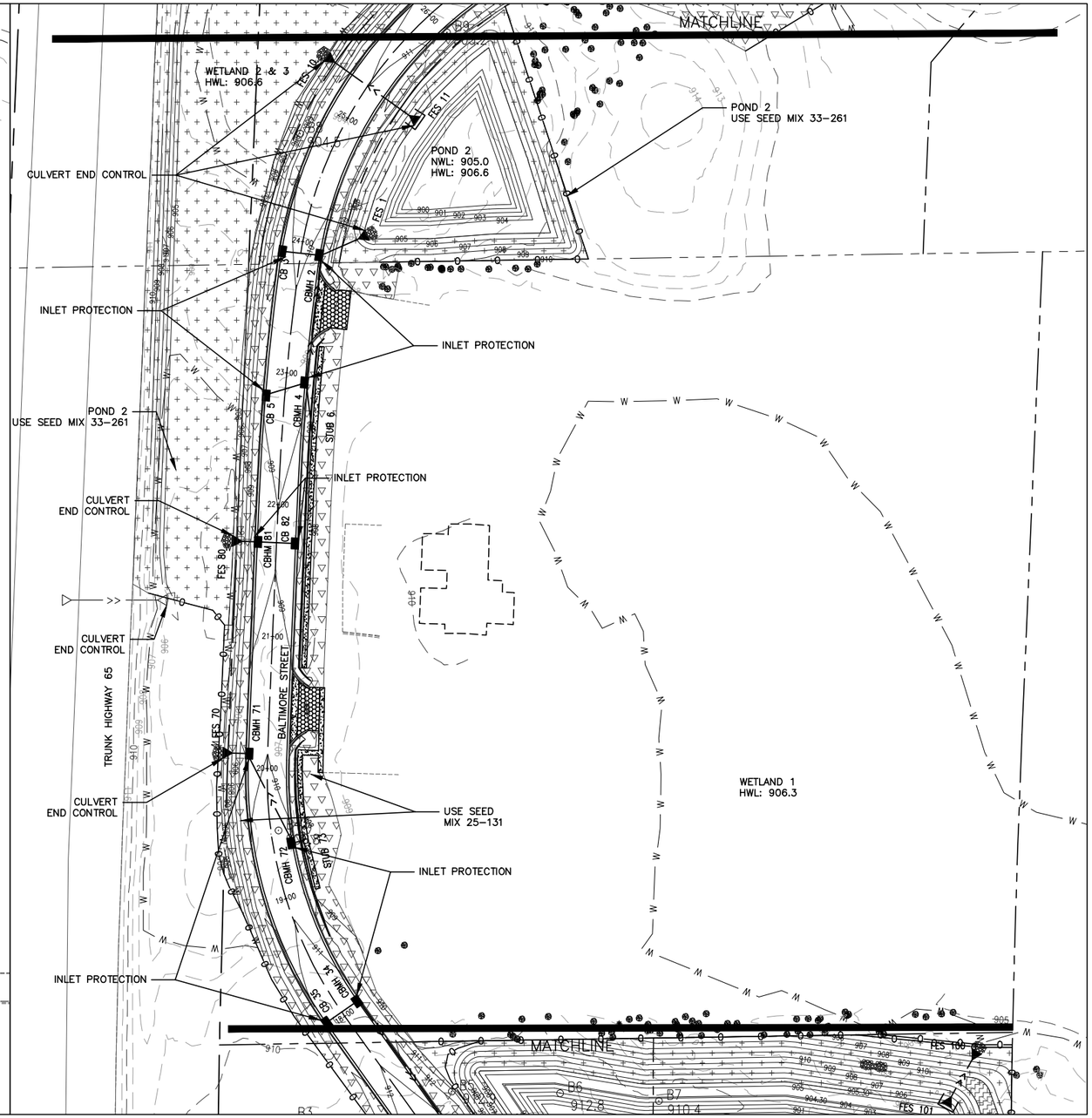
SEED MIX 25-131: COMMERCIAL TURF
MULCH TYPE 1
PLANT APRIL 1ST – JUNE 1ST FOR SPRING PLANTING OR
JULY 20TH – SEPTEMBER 20TH FOR FALL PLANTING

SEED MIX 33-261: PONDS & WET AREAS IN CENTRAL, SOUTHERN AND WESTERN MN
MULCH TYPE 3
PLANT APRIL 15TH – JULY 20TH FOR SPRING PLANTING OR
SEPTEMBER 20TH – OCTOBER 20TH FOR FALL PLANTING

0 35 70 140
FEET

N





UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

DATE	REVISION HISTORY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dave Krueger
DATE 05/29/25 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM
64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
STORMWATER POLLUTION PREVENTION PLAN

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2111 SWPPP 1
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 31 OF 43
FILE: 33-2-131

NOTES:

1. ALL GRADING OPERATIONS SHALL BE CONDUCTED IN A MANNER TO MINIMIZE THE POTENTIAL FOR SITE EROSION.
2. ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION, BUT IN NO CASE LONGER THAN 7 DAYS. IF THERE IS A SCHEDULED PAUSE OF WORK THAT WILL LAST 7 DAYS OR LONGER, ALL SOILS AND STOCKPILES ARE REQUIRED TO BE STABILIZED WITHIN THE FIRST 24 HOURS OF INACTIVITY.
3. SALVAGED TOPSOIL SHALL BE STOCKPILED IN PLACE TO MAINTAIN CONTINUITY OF PROPERTY OWNERS EXISTING TURF CONDITIONS. UPON APPROVAL OF ENGINEER, SOIL MAY BE STOCKPILED UPON REVIEW OF ALTERNATE PLAN PROVIDED BY CONTRACTOR.
4. COVER OR SEED ALL STOCKPILE AREAS WITHIN 24 HOURS OF INACTIVITY.
5. USE SEED MIX 33–261 FOR PONDS AND ALL NON COMMERCIAL TURF ESTABLISHMENT.

CONSTRUCTION EXIT

SILT FENCE

RIPRAP, CLASS III WITH FABRIC

SEED MIX 25–131: COMMERCIAL TURF
MULCH TYPE 1
PLANT APRIL 1ST – JUNE 1ST FOR SPRING PLANTING OR
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MULCH TYPE 3
PLANT APRIL 15TH – JULY 20TH FOR SPRING PLANTING OR
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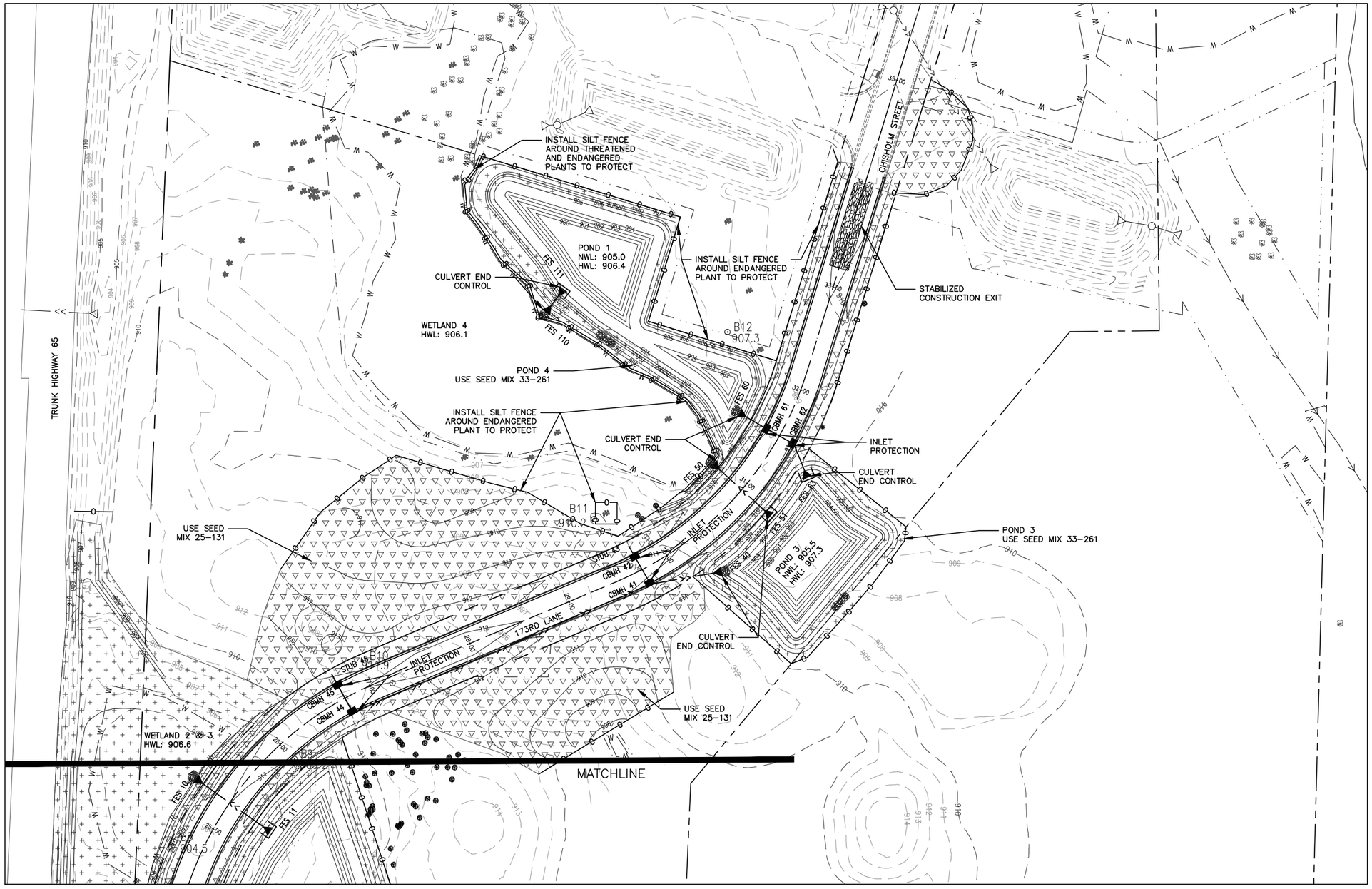
0 35 70 140
FEET



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DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

S.A.P. 197–119–003 S.P. 0208–170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
STORMWATER POLLUTION PREVENTION PLAN

DWG: 2111 SWPPP 2
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 32 OF 43
FILE: 33–2–132

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

CONSTRUCTION ACTIVITY INFORMATION:
STATE AID PROJECT 197-119-003, HAM LAKE, ANOKA COUNTY, MINNESOTA, 55304, 45.2861° LATITUDE NORTH, 93.2336° LONGITUDE WEST (BY ONLINE TOOL).

TOTAL PROJECT DISTURBED AREA IS 10.81 ACRES.

THIS IS A ROAD CONSTRUCTION PROJECT.

0.27 ACRES OF EXISTING IMPERVIOUS SURFACE.
9.72 ACRES OF EXISTING PERVIOUS SURFACE.
1.84 ACRES OF NEW IMPERVIOUS SURFACE.
0.24 ACRES OF NEW PERVIOUS SURFACE.

DRAINAGE IS TO PONDS AND WETLANDS LOCATED EAST AND WEST OF THE IMPROVEMENTS ON MnDOT, CITY, AND PRIVATE PROPERTY. THE WESTERN WETLANDS DRAIN INTO THE MnDOT DITCH ALONG T.H. 65 AND THE EASTERN WETLANDS DRAIN TO COUNTY DITCH 58-3-1. THERE ARE NO SPECIAL WATER OR IMPAIRED WATER WITHIN ONE MILE DOWNSTREAM OF THE PROJECT.

CONTACT INFORMATION:
OWNER: CITY OF HAM LAKE, OWNER CONTACT: DENISE WEBSTER CITY ADMINISTRATOR, DWEBSTER@HAMLAKEMN.GOV, 763-434-9555, 15544 CENTRAL AVENUE, HAM LAKE, MN, 55304

ALTERNATE OWNER CONTACT: DAVID A KRUGLER, CITY ENGINEER. DKRUGLER@RFCENGINEERING.COM 763-862-8000. RFC ENGINEERING INC, 13635 JOHNSON STREET NE, HAM LAKE, MN 55304

CONTRACTOR: _____

ALTERNATE CONTRACTOR CONTACT: _____
PARTY RESPONSIBLE FOR OPERATION AND MAINTENANCE OF PERMANENT STORMWATER MANAGEMENT SYSTEM: CITY OF HAM LAKE PUBLIC WORKS, JOHN WITKOWSKI, 763-235-1662, 15544 CENTRAL AVENUE, HAM LAKE, MN, 55304

GENERAL CONSTRUCTION PROJECT INFORMATION:
THE PROJECT CONSISTS OF NEW CONSTRUCTION TO EXTEND BALTIMORE STREET FROM 171ST AVENUE TO CHISHOLM STREET: WORK INCLUDES GRADING, AGGREGATE BASE, PLANT MIXED BITUMINOUS SURFACE, STORM DRAINS, AND CONCRETE CURB AND GUTTER.

THE SOILS ON THE SITE ARE PRIMARILY HYDROLOGIC SOIL GROUP TYPE C WITH NO INFILTRATION CAPACITY. THERE IS NO MUCK IN THE WETLANDS. THE GROUNDWATER IN THIS AREA IS HIGH.

GENERAL SITE INFORMATION:
ALL EROSION CONTROL MEASURES MUST BE PLACED PRIOR TO COMMENCEMENT OF LAND DISTURBING ACTIVITIES AND BE MAINTAINED UNTIL ALL DISTURBED AREAS ON THE SITE HAVE BEEN RESTORED.

CONSTRUCTION EXITS SHALL BE SURFACED WITH CRUSHED ROCK AND DESIGNATED PRIOR TO CONSTRUCTION (REFER TO DETAIL).

TRENCHES FOR STORM DRAIN PIPE AND STRUCTURES ARE TO BE BACKFILLED BY THE END OF THE WORK DAY.

NO STORMWATER MITIGATION MEASURES ARE REQUIRED AS THE RESULT OF AN ENVIRONMENTAL, ARCHAEOLOGICAL, OR OTHER REQUIRED LOCAL, STATE, OR FEDERAL REVIEW OF THE PROJECT.

THE PROJECT IS NOT LOCATED IN A KARST AREA.

THE PROJECT DOES NOT DISCHARGE TO A CALCAREOUS FEN LISTED IN MINN. R. 7050.0180, SUBP. 6B.

THE SITE DOES NOT DISCHARGE TO A WATER THAT IS LISTED AS IMPAIRED FOR PHOSPHORUS, TURBIDITY, DISSOLVED OXYGEN OR BIOTIC IMPAIRMENT.

SELECTION OF A PERMANENT STORMWATER MANAGEMENT SYSTEM:
NEW IMPERVIOUS SURFACE CREATED BY THIS PROJECT IS 1.84 ACRES.

PER COON CREEK WATERSHED DISTRICT, ANOKA CONSERVATION DISTRICT, AND MINNESOTA BOARD OF WATER AND SOIL RESOURCES, THERE IS NO INFILTRATION ON SITE DUE TO THE HIGH GROUND WATER TABLE.

HYDROLOGIC REPORT (DRAINAGE CALCULATIONS) AND DRAINAGE MAPS (WITH DRAINAGE DIVIDES) PREPARED FOR THIS PROJECT ARE AVAILABLE IN THE CITY'S ENGINEERS OFFICE. STORM WATER RUNOFF FROM THE SITE DRAINS INTO PONDS AND WETLANDS AND THEN OVERFLOW TO WETLANDS EAST AND WEST OF THE PROJECT. THE WESTERN WETLANDS DRAIN INTO MnDOT DITCH ALONG T.H 65. THE EASTERN WETLANDS DRAIN TO COUNTY DITCH 58-3-1. THE RUNOFF FROM THE SITE WILL BE CONVEYED VIA NEW ON SITE STORM DRAINS. THE LAST STORM DRAIN STRUCTURE JUST PRIOR TO DISCHARGE WILL BE EQUIPPED WITH A SUMP (GRIT CHAMBERS). GRIT CHAMBERS ARE BEING USED DUE TO THE HIGH GROUND WATER TABLE. THE SUMP (GRIT CHAMBERS) ARE SIZED PER COON CREEK WATERSHED DISTRICT REQUIREMENTS.

EROSION PREVENTION PRACTICES:
THERE ARE NO CONSTRUCTION PHASING, VEGETATIVE BUFFER STRIPS, LONG HORIZONTAL SLOPE GRADING FOR THE PROJECT. THERE ARE UNDISTURBED AREAS WITHIN THE PROJECT LIMITS.

ALL DISTURBED AREAS SHALL BE RESTORED WITH SOD, SEED, WOOD FIBER BLANKET, OR PAVED SURFACE WITHIN SEVEN (7) DAYS OF ROUGH GRADING.

ALL EXPOSED SOIL AREAS MUST HAVE TEMPORARY EROSION PROTECTION OR PERMANENT COVER WITHIN SEVEN (7) DAYS AFTER THE AREA IS NOT ACTIVELY BEING WORKED.

FERTILIZER: MnDOT SPECIFICATION 3881, TYPE 2 SEEDING: MnDOT SEED MIXTURE 25-131 OR 33-261 (FOR PONDS), HYDROMULCH: MnDOT SPECIFICATION 3884 TYPE 1 OR 3 WITH APPLICATION RATE PER MnDOT SPECIFICATION 2575.3H.

PROVIDE EROSION CONTROL FABRIC FOR ALL SLOPES STEEPER THAN 1:3.

THERE ARE NO DRAINAGE DITCHES CONSTRUCTED WITH THIS PROJECT.

SEDIMENT CONTROL PRACTICES:
THERE ARE NO DRAINAGE DITCHES OR SEDIMENT BASINS FOR THIS PROJECT.

THERE ARE NO SLOPES WITH A GRADE OF 1:3 OR STEEPER WITH A SLOPE LENGTH GREATER THAN 75 FEET.

THERE ARE NO DRAINAGE INFILTRATION BASINS FOR THIS PROJECT.

ALL SEDIMENT CONTROL DEVICES ARE TO BE IN PLACE PRIOR TO UPSTREAM LAND DISTURBING ACTIVITIES.

WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER, PIPE OUTLETS MUST CONTAIN RIPRAP, SEED AND PLACE EROSION CONTROL BLANKETS ON DISTURBED AREAS WITHIN 200 LINEAL FEET OF PIPE OUTLETS INCLUDING THE DOWN SLOPE TO THE PIPE OUTLET, SILT FENCING TO BE PLACED AROUND THE DISTURBED AREA AND SILT FENCE ROUTED ACROSS THE TOP OF THE OUTLET.

WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER, SEED AND PLACE EROSION CONTROL BLANKETS ON DISTURBED AREAS WITHIN 200 FEET OF PIPE INLET INCLUDING THE DOWN SLOPE TO THE PIPE INLET, SILT FENCING TO BE PLACED AROUND THE DISTURBED AREA, PLACE A SECOND SILT FENCE ROUTED ACROSS THE TOP OF THE INLET AND PLACE INLET PROTECTION. PIPE INLET PROTECTION SHALL BE PER BMPS SUCH AS SILT FENCE OR STRAW BALES STAKED AROUND THE APRON OPENING OR OTHER APPROVED EQUIVALENT.

WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER, SEED AND PLACE EROSION CONTROL BLANKETS ON DISTURBED AREAS WITHIN 200 FEET OF CATCH BASIN INLET. PLACE INLET PROTECTION IMMEDIATELY AFTER STRUCTURE IS BACKFILLED. CATCH BASIN INLET PROTECTION SHALL BE PER BMPS SUCH AS CLEAR ROCK AROUND STEEL PLATE OVER FABRIC OR OTHER APPROVED EQUIVALENT UNTIL THE CATCH BASIN CASTING IS PLACED. IMMEDIATELY AFTER THE CASTING IS PLACED, PROVIDE CATCH BASIN INLET PROTECTION PER BMPS SUCH AS FILTER BAG INSERT OR OTHER APPROVED EQUIVALENT. NO CAPTURED SEDIMENT SHOULD BE ALLOWED TO DROP INTO THE CATCH BASIN.

PROVIDE SILT FENCE DOWNSTREAM OF STOCKPILE AREAS. STOCKPILES ARE NOT TO BLOCK DRAINAGE CONVEYANCE SYSTEMS.

SEDIMENT TRACKED OFFSITE SHALL BE MINIMIZED AND SWEPT ON A DAILY BASIS.

TEMPORARY SEDIMENTATION BASINS ARE NOT BEING USED TO REDUCE WETLAND IMPACTS, DUE TO THE HIGH GROUND WATER TABLE AND THE LACK OF RIGHT OF WAY.

DEWATERING AND BASIN DRAINING:
ALL DEWATERING IS TO DISCHARGE TO SEDIMENT SACKS, ROCK WEEPER, BIO ROLL AREA, ETC. TO PREVENT EROSION AND MINIMIZE SEDIMENT DISCHARGING FROM THE SITE. EXCESSIVE SEDIMENT-LADEN WATER WILL NOT BE PERMITTED TO DISCHARGE FROM THE SITE. DEWATERING PRACTICES ARE NOT TO CAUSE DOWNSTREAM NUISANCE CONDITIONS, EROSION, OR NON-PERMITTED WETLAND INUNDATION CAUSING ADVERSE IMPACTS. DISCHARGE FROM DEWATERING WILL BE TO WETLANDS. LARGE VOLUMES OF DEWATERING WILL REQUIRE DISCHARGE INTO SEDIMENT SACKS PRIOR TO DISCHARGING INTO THE WETLANDS.

ADDITIONAL BMPS FOR SPECIAL WATERS AND DISCHARGES TO WETLANDS:
THE PROJECT DOES NOT DISCHARGE INTO OR WITHIN 1 MILE OF SPECIAL WATERS.

THERE ARE NO BUFFER ZONES OR UNDISTURBED AREA ZONES.

THE STORM DRAIN SYSTEM WAS SET UP TO DISTRIBUTE THE STORMWATER RUNOFF INTO THE PROJECT PONDS AND WETLANDS AS CLOSE TO EXISTING CONDITIONS AS POSSIBLE. THIS INCLUDED PROVIDING STORM DRAIN ON BOTH SIDES OF THE STREET IN ORDER TO ACHIEVE THIS. THE DRAINAGE IS PENDING APPROVAL BY COON CREEK WATERSHED DISTRICT.

THERE IS CONVERSION OF WETLANDS INTO STORMWATER PONDS.

INSPECTION AND MAINTENANCE:
THE CONTRACTOR SHALL PLACE A RAIN GAUGE ON THE PROJECT SITE AT A LOCATION APPROVED BY THE ENGINEER. RAINFALL DATA SHALL BE KEPT WITH THE SWPPP RECORDS.

THE CONTRACTOR MUST INSPECT THE CONSTRUCTION SITE ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. INSPECTIONS AND MAINTENANCE TO BE RECORDED IN WRITING. THE SWPPP INSPECTION FOR THE CONSTRUCTION IS TO BE CONDUCTED BY _____ OF _____.

INSPECTIONS FORMS ARE AVAILABLE AT: HTTPS://TINYURL.COM/2ARMT4KJ
SELECT THE APPROPRIATE INSPECTION FORM FROM THE LIST.

THE CONTRACTOR WILL BE RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF TEMPORARY AND PERMANENT WATER QUALITY MANAGEMENT DEVICES, AS WELL AS ALL EROSION AND SEDIMENT CONTROL, FOR THE DURATION OF THE PROJECT.

THE CONTRACTOR WILL INVESTIGATE AND MUST COMPLY WITH THE FOLLOWING:

CONTRACTOR MUST INSPECT ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPS AND POLLUTION PREVENTION MANAGEMENT MEASURES TO ENSURE INTEGRITY AND EFFECTIVENESS. CONTRACTOR MUST REPAIR, REPLACE OR SUPPLEMENT ALL NONFUNCTIONAL BMPS WITH FUNCTIONAL BMPS BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY UNLESS ANOTHER TIME FRAME IS SPECIFIED BELOW. CONTRACTOR MAY TAKE ADDITIONAL TIME IF FIELD CONDITIONS PREVENT ACCESS TO THE AREA.

DURING EACH INSPECTION, CONTRACTOR MUST INSPECT SURFACE WATERS, INCLUDING DRAINAGE DITCHES AND CONVEYANCE SYSTEMS BUT NOT CURB AND GUTTER SYSTEMS, FOR EVIDENCE OF EROSION AND SEDIMENT DEPOSITION. CONTRACTOR MUST REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS, INCLUDING DRAINAGE WAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS AND RESTABILIZE THE AREAS WHERE SEDIMENT REMOVAL RESULTS IN EXPOSED SOIL. CONTRACTOR MUST COMPLETE REMOVAL AND STABILIZATION WITHIN SEVEN (7) CALENDAR DAYS OF DISCOVERY UNLESS PRECLUDED BY LEGAL, REGULATORY, OR PHYSICAL ACCESS CONSTRAINTS. CONTRACTOR MUST USE ALL REASONABLE EFFORTS TO OBTAIN ACCESS. IF PRECLUDED, REMOVAL AND STABILIZATION MUST TAKE PLACE WITHIN SEVEN (7) DAYS OF OBTAINING ACCESS. CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL LOCAL, REGIONAL, STATE AND FEDERAL AUTHORITIES AND RECEIVING ANY APPLICABLE PERMITS, PRIOR TO CONDUCTING ANY WORK IN SURFACE WATERS.

CONTRACTOR MUST INSPECT CONSTRUCTION SITE VEHICLE EXIT LOCATIONS, STREETS AND CURB AND GUTTER SYSTEMS WITHIN AND ADJACENT TO THE PROJECT FOR SEDIMENTATION FROM EROSION OR TRACKED SEDIMENT FROM VEHICLES. CONTRACTOR MUST REMOVE SEDIMENT FROM ALL PAVED SURFACES WITHIN ONE (1) CALENDAR DAY OF DISCOVERY OR, IF APPLICABLE, WITHIN A SHORTER TIME TO AVOID A SAFETY HAZARD TO USERS OF PUBLIC STREETS.

REPAIR, REPLACE OR SUPPLEMENT ALL PERIMETER CONTROL DEVICES WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/2 OF THE HEIGHT OF THE DEVICE.

CONTRACTOR MUST DRAIN TEMPORARY AND PERMANENT SEDIMENTATION BASINS AND REMOVE THE SEDIMENT WHEN THE DEPTH OF SEDIMENT COLLECTED IN THE BASIN REACHES TWO FEET OR 1/2 THE STORAGE VOLUME, WHICHEVER IS LESS, WITHIN 72-HOURS OF DISCOVERY.

POLLUTION PREVENTION MANAGEMENT MEASURES:

THE CONTRACTOR SHALL IMPLEMENT THE FOLLOWING POLLUTION PREVENTION MANAGEMENT MEASURES ON THE SITE:

SOLID WASTE: COLLECT SEDIMENT, ASPHALT AND CONCRETE MILLINGS, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, CONSTRUCTION AND DEMOLITION DEBRIS, AND OTHER WASTES MUST BE DISPOSED OF PROPERLY OFFSITE AND MUST COMPLY WITH MPCA DISPOSAL REQUIREMENTS.

HAZARDOUS MATERIALS: OIL, GASOLINE, PAINT AND ANY HAZARDOUS SUBSTANCES MUST BE PROPERLY STORED, INCLUDING SECONDARY CONTAINMENT, TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH MPCA REGULATIONS.

EXTERNAL WASHING OF TRUCKS, INCLUDING CONCRETE DELIVERY TRUCKS, AND OTHER CONSTRUCTION VEHICLES MUST BE LIMITED TO A DEFINED AREA OF THE SITE. RUNOFF MUST BE CONTAINED AND WASTE PROPERLY DISPOSED OF. NO ENGINE DEGREASING IS ALLOWED ON SITE. CONCRETE WASHOUT ON SITE MUST BE CONTAINED IN A LEAK-PROOF CONTAINMENT FACILITY OR IMPERMEABLE LINER.

THE CITY IS RESPONSIBLE FOR LONG TERM MAINTENANCE OF THE STORM DRAIN INCLUDING THE SUMPS (GRIT CHAMBERS). THE GRIT CHAMBERS ARE TO BE INSPECTED YEARLY AND CLEANED OUT AS NECESSARY TO MAINTAIN FUNCTION.

THE CONTRACTOR IS RESPONSIBLE FOR MONITORING AIR POLLUTION AND ENSURING IT DOES NOT EXCEED LEVELS SET BY LOCAL, STATE, OR FEDERAL REGULATIONS. THIS INCLUDES DUST CREATED BY WORK BEING PERFORMED ON THE SITE. AIR POLLUTION AND DUST CONTROL CORRECTION ARE CONSIDERED INCIDENTAL TO THE UNIT BID PRICES FOR WHICH WORK IS BEING PERFORMED. ADDITIONAL DUST CONTROL MEASURES MAY BE REQUIRED BY THE ENGINEER.

NO SANITARY AND SEPTIC WASTE IS ON THE SITE.

FINAL STABILIZATION:
THE CONTRACTOR MUST ENSURE FINAL STABILIZATION OF THE SITE. FINAL STABILIZATION IS ACHIEVED WHEN ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND ALL SOILS ARE STABILIZED BY A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70 PERCENT OF THE PERVIOUS SURFACE AREA, OR OTHER EQUIVALENT MEANS NECESSARY TO PREVENT SOIL FAILURE UNDER EROSIVE CONDITIONS.

ALL TEMPORARY EROSION PROTECTION, INCLUDING SILT FENCE, ARE TO BE REMOVED AFTER FINAL STABILIZATION OF THE SITE.
RECORDS RETENTION:
ALL REQUIREMENTS OF THE NPDES PERMIT AND THIS SWPPP SHALL REMAIN IN EFFECT UNTIL ALL LAND DISTURBING ACTIVITY HAS BEEN COMPLETED, ALL FINAL RESTORATION HAS BEEN COMPLETED AND THE NOTICE OF TERMINATION FORM HAS BEEN SUBMITTED TO THE MINNESOTA POLLUTION CONTROL AGENCY (MPCA).

REFER TO OTHER SHEETS OF THIS PLAN SET FOR DETAILED CONSTRUCTION INFORMATION. EXISTING AND PROPOSED GRADES FOR THE ROADWAY ARE SHOWN ON THE PLAN AND PROFILE SHEETS AND ON THE CROSS SECTION SHEETS.

THE CONTRACTOR SHALL MAINTAIN A COPY OF THE PLANS ONSITE AT ALL TIMES UNTIL THE PROJECT HAS BEEN ACCEPTED BY THE CITY. THE CONTRACTOR SHALL UPDATE THE SWPPP AS NECESSARY TO REFLECT CURRENT CONDITIONS ON THE SITE. CONTRACTOR IS TO PROVIDE THE ENGINEER A COPY OF THE REVISED SWPPP. THE REVISED SWPPP IS TO BE MAINTAINED WITH THE CONSTRUCTION SET OF PLANS.

THE CONSTRUCTION PLANS, INCLUDING THE SWPPP, AND THE SWPPP INSPECTION REPORTS ARE TO BE AVAILABLE TO THE ENGINEER AND TO THE MPCA AND COON CREEK WATERSHED DISTRICT INSPECTORS AT ALL TIMES.

THE CONTRACTOR IS TO PROVIDE THE ENGINEER A COPY OF THE SWPPP INSPECTION REPORTS WITHIN SEVEN (7) DAYS AFTER THE INSPECTION.

THE CONTRACTOR IS TO PROVIDE THE ENGINEER A COPY OF THE REVISED SWPPP WITHIN SEVEN (7) DAYS AFTER THE CONTRACTOR REVISES THE SWPPP.

ALL SWPPP INSPECTIONS AND ALL BMPS SHALL BE PLACED UNDER THE SUPERVISION OF A CONSTRUCTION INSTALLER CERTIFIED BY THE MPCA. THE CONSTRUCTION SITE SHALL BE MANAGED AND MAINTAINED BY A MPCA CERTIFIED CONSTRUCTION SITE MANAGEMENT.

THE CONTRACTOR SHALL PROVIDE THE CITY WITH A COPY OF CONSTRUCTION INSTALLER CERTIFICATION AND CONSTRUCTION SITE MANAGEMENT CERTIFICATION. A COPY OF THE CERTIFICATIONS, INCLUDING SWPPP DESIGNER, SHALL BE KEPT WITH THE SWPPP.

THE SWPPP, THE SWPPP INSPECTIONS REPORTS AND MAINTENANCE RECORDS SHALL BE KEPT FOR 3 YEARS.

DRAINAGE CALCULATIONS AND DRAINAGE MAPS WILL BE KEPT BY THE CITY FOR AT LEAST 3 YEARS.

SEQUENCE OF EROSION CONTROL

1. OBTAIN ALL NECESSARY PERMITS, INCLUDING NPDES GENERAL STORMWATER PERMIT.
2. CLEAR AND GRUB SITE.
3. PLACE ALL PERIMETER SEDIMENT CONTROL DEVICES, TEMPORARY SEDIMENTATION BASINS, SILT FLOTATION CURTAINS, AND ROCK CONSTRUCTION EXITS.
4. CONTACT CITY ENGINEER FOR APPROVAL OF SEDIMENT CONTROL DEVICES.
5. ROUGH IN GRADE.
6. PLACE TEMPORARY EROSION CONTROL DEVICES AS NECESSARY.
7. PLACE STORM DRAIN SYSTEM.
8. RE-ADJUST TEMPORARY EROSION CONTROL DEVICES AS NECESSARY. PLACE STORM DRAIN INLET PROTECTION AND OUTLET PROTECTION DEVICES AS NECESSARY.
9. PLACE SITE PAVEMENT.
10. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, OBTAIN APPROVAL OF CITY ENGINEER.
11. CONTRACTOR TO REMOVE ALL TEMPORARY EROSION CONTROL DEVICES AFTER ACCEPTANCE BY THE CITY.

TABULATION SUMMARY

ITEM	UNIT	TOTAL
SILT FENCE	L.F.	6,621
FES/PIPE OUTLET PROTECTION	EACH	20
CATCH BASIN INLET PROTECTION	EACH	25
CLASS III RIPRAP W/ FABRIC	C.Y.	85.6
GEOTEXTILE FILTER FABRIC	S.Y.	314.6
HYDROMULCH TYPE 3	ACRE	8.02
TURF ESTABLISHMENT: SEED MIX 25-131	ACRE	5.16
TURF ESTABLISHMENT: SEED MIX 33-261	ACRE	2.86

GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/29/2025 16:48

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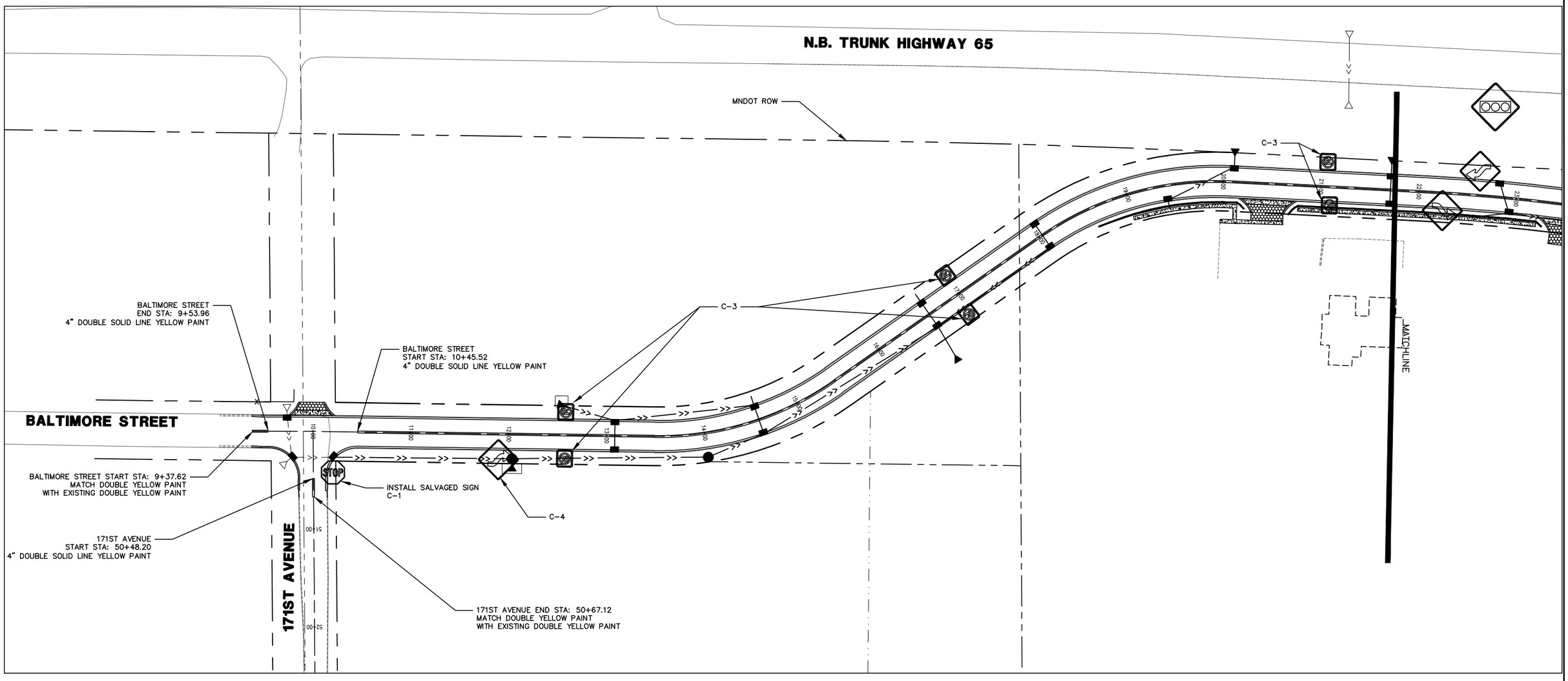
S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
STORMWATER POLLUTION PREVENTION PLAN

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2111 SWPPP 3
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 33 OF 43
FILE: 33-2-133

NOTE:
1. LOCATION OF SIGNS PER MnMUTCD SPECIFICATIONS.
2. REFER TO THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL THAT NEEDS TO BE PLACED ON TRUNK HIGHWAY 65 WHEN WORKING WITHIN MNDOT ROW.

0 25 50 100
FEET



GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:
CENTURYLINK (763) 712-5017
CENTERPOINT ENERGY (763) 323-2760
COMCAST (952) 607-4078
CONNEXUS ENERGY (763) 323-4268
XCEL ENERGY (612) 526-4508

DATE	REVISION HISTORY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dave Krueger
DATE 05/29/25 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

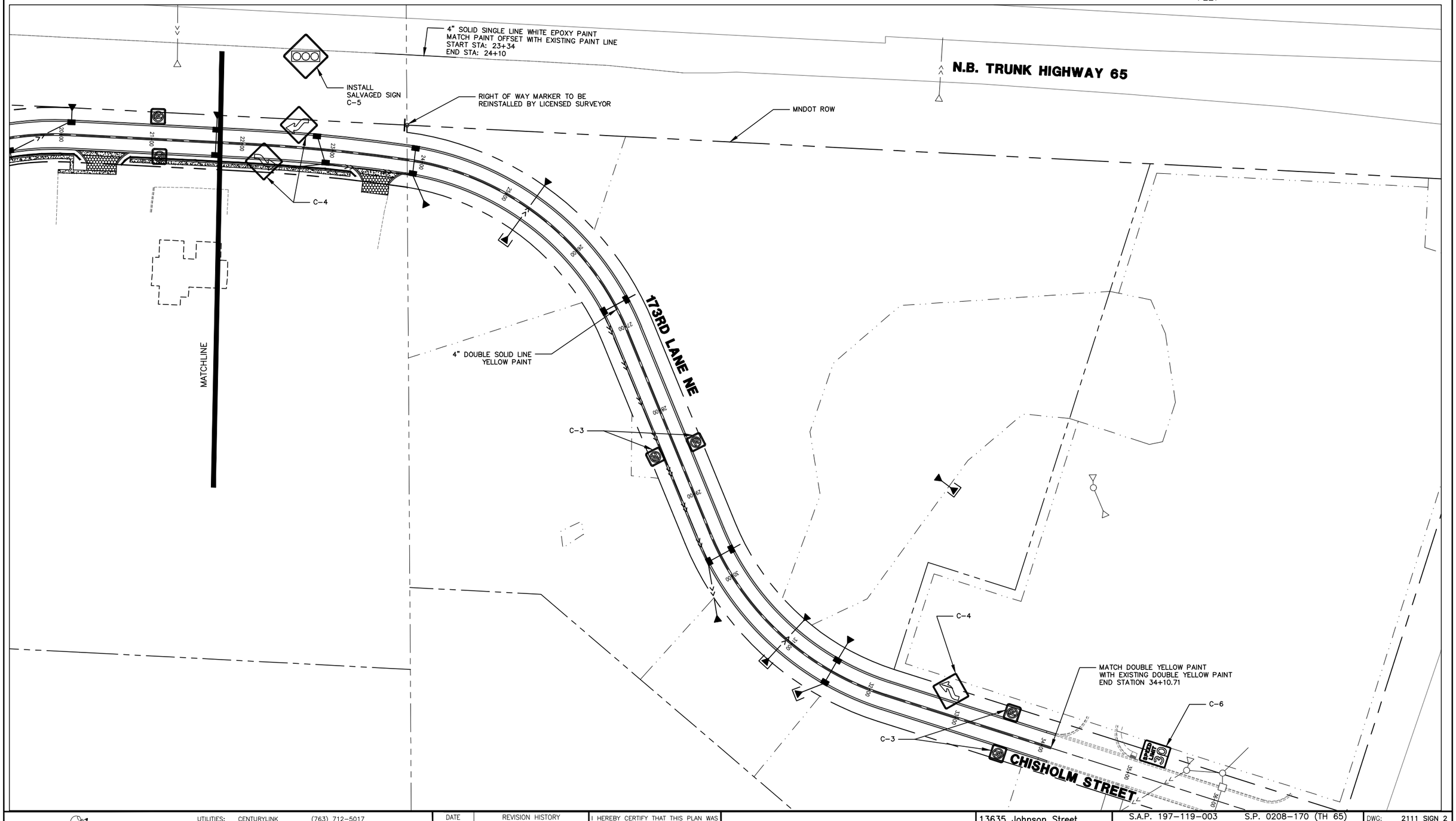
DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM
64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
SIGNING AND STRIPING PLAN

DWG: 2111 SIGN 1
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 34 OF 43
FILE: 33-2-134

NOTE:
1. LOCATION OF SIGNS PER MnMUTCD SPECIFICATIONS.
2. REFER TO THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL THAT NEEDS TO BE PLACED ON TRUNK HIGHWAY 65 WHEN WORKING WITHIN MNDOT ROW.

0 25 50 100
FEET



GOPHER ONE STATE CALL
800-252-1166 651-454-0002

UTILITIES:
CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

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Dan Krueger
DATE 05/29/25 REG. NO. 48768

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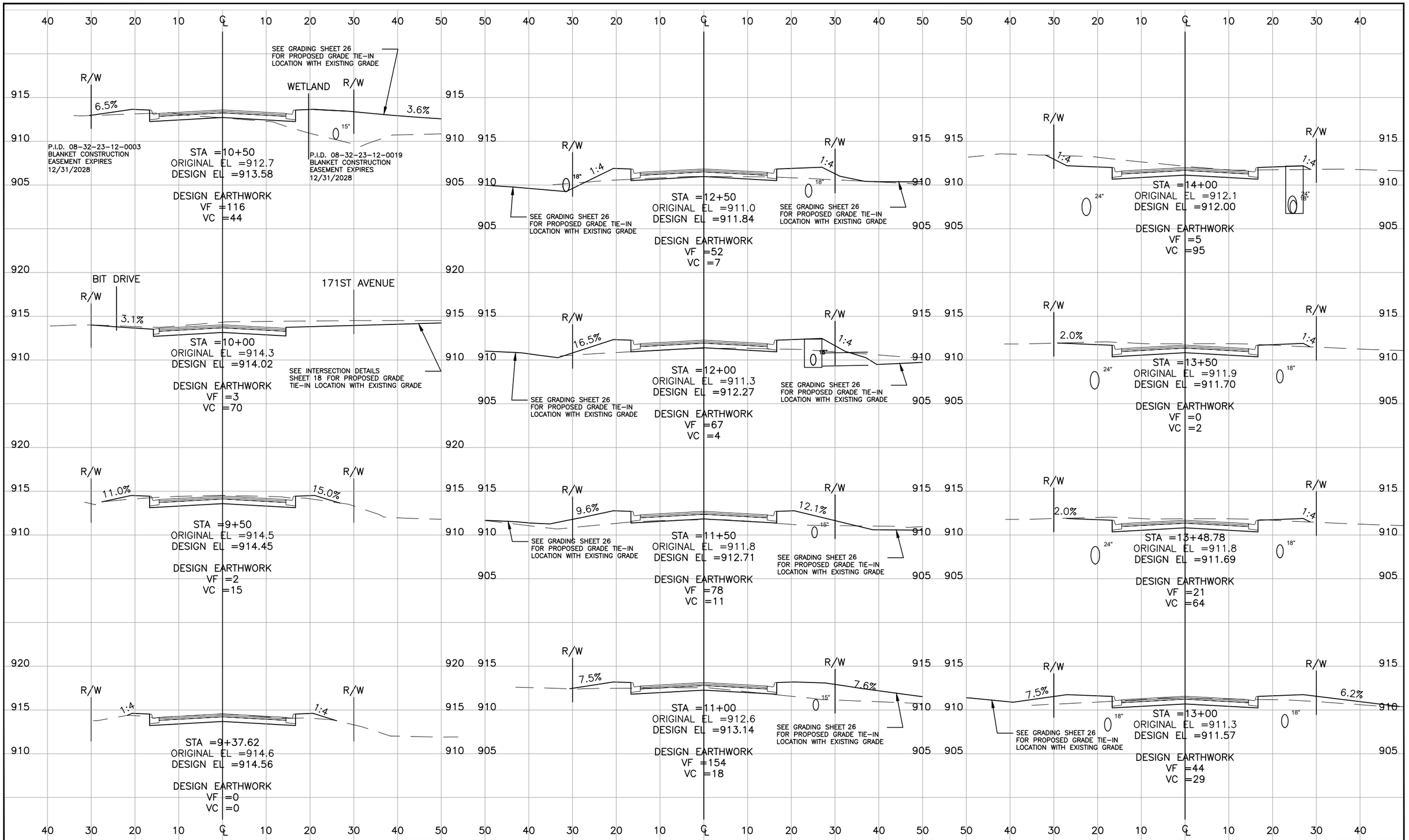
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
SIGNING AND STRIPING PLAN

DWG: 2111 SIGN 2
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 35 OF 43
FILE: 33-2-135



GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/29/2025 16:48

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY

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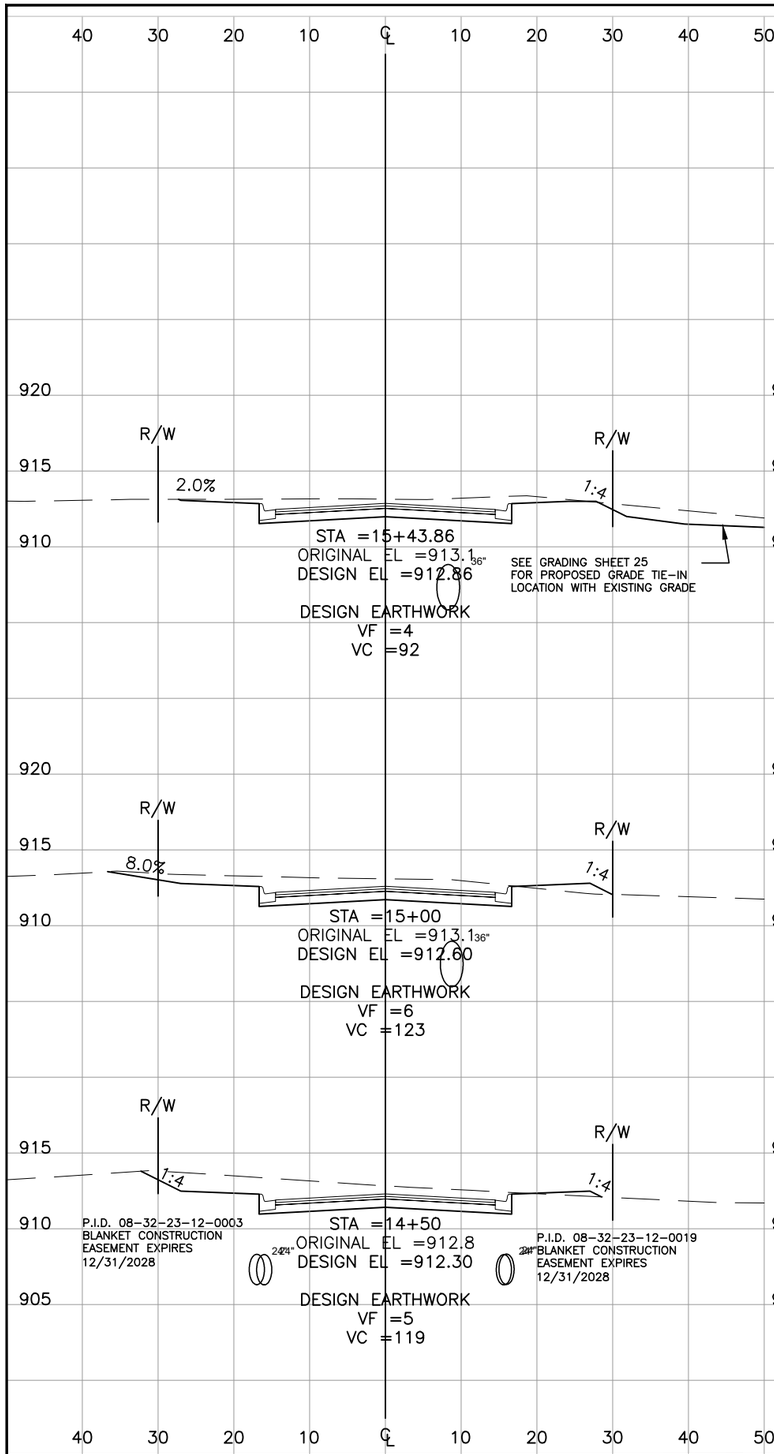
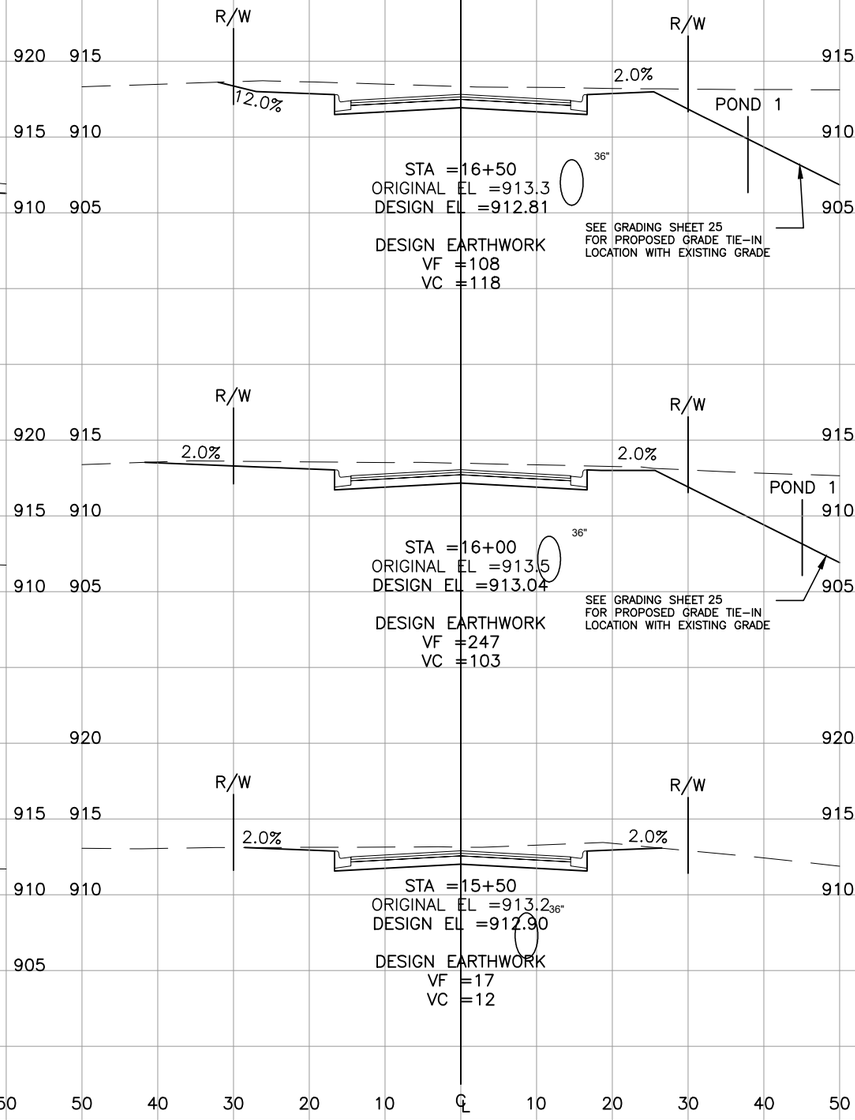
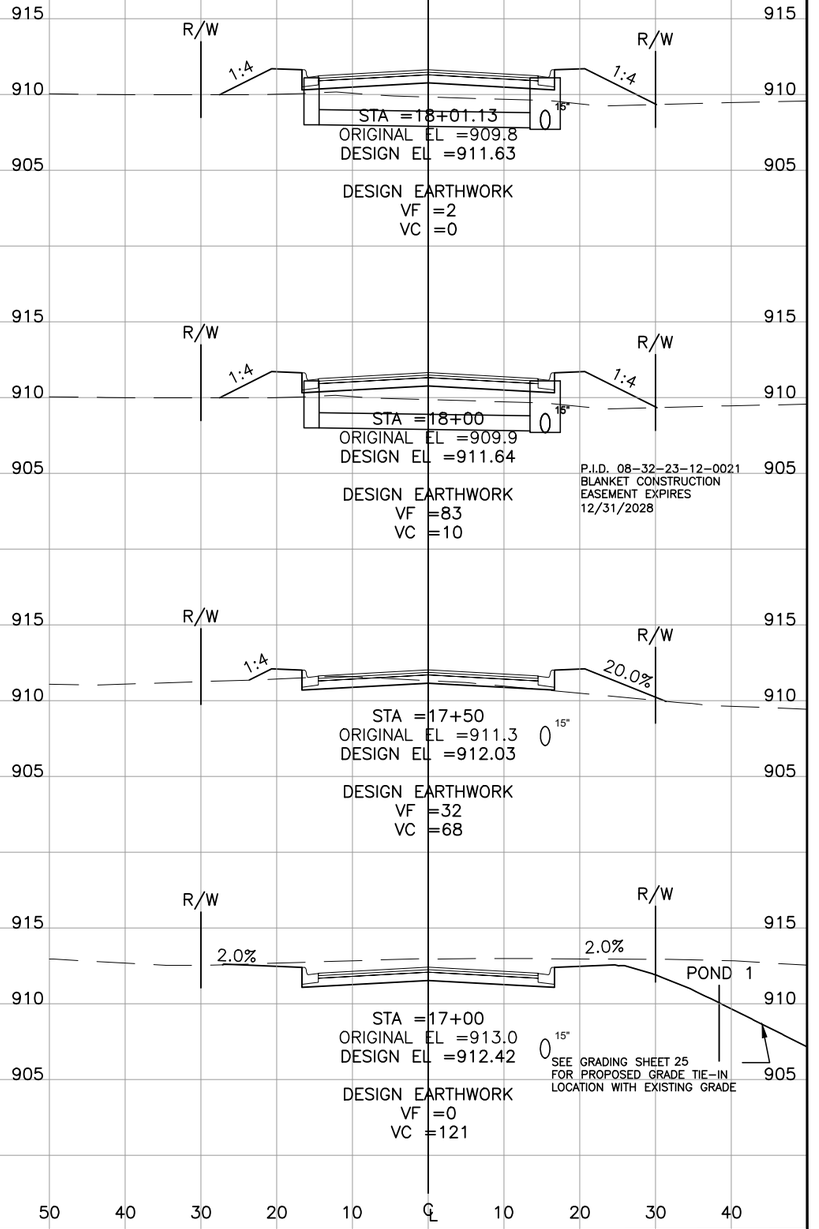
DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM
64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
CROSS SECTIONS

DWG: RC001041
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 36 OF 43
FILE: 33-2-136







GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/29/2025 16:48

UTILITIES:

CENTURYLINK	(763) 712-5017
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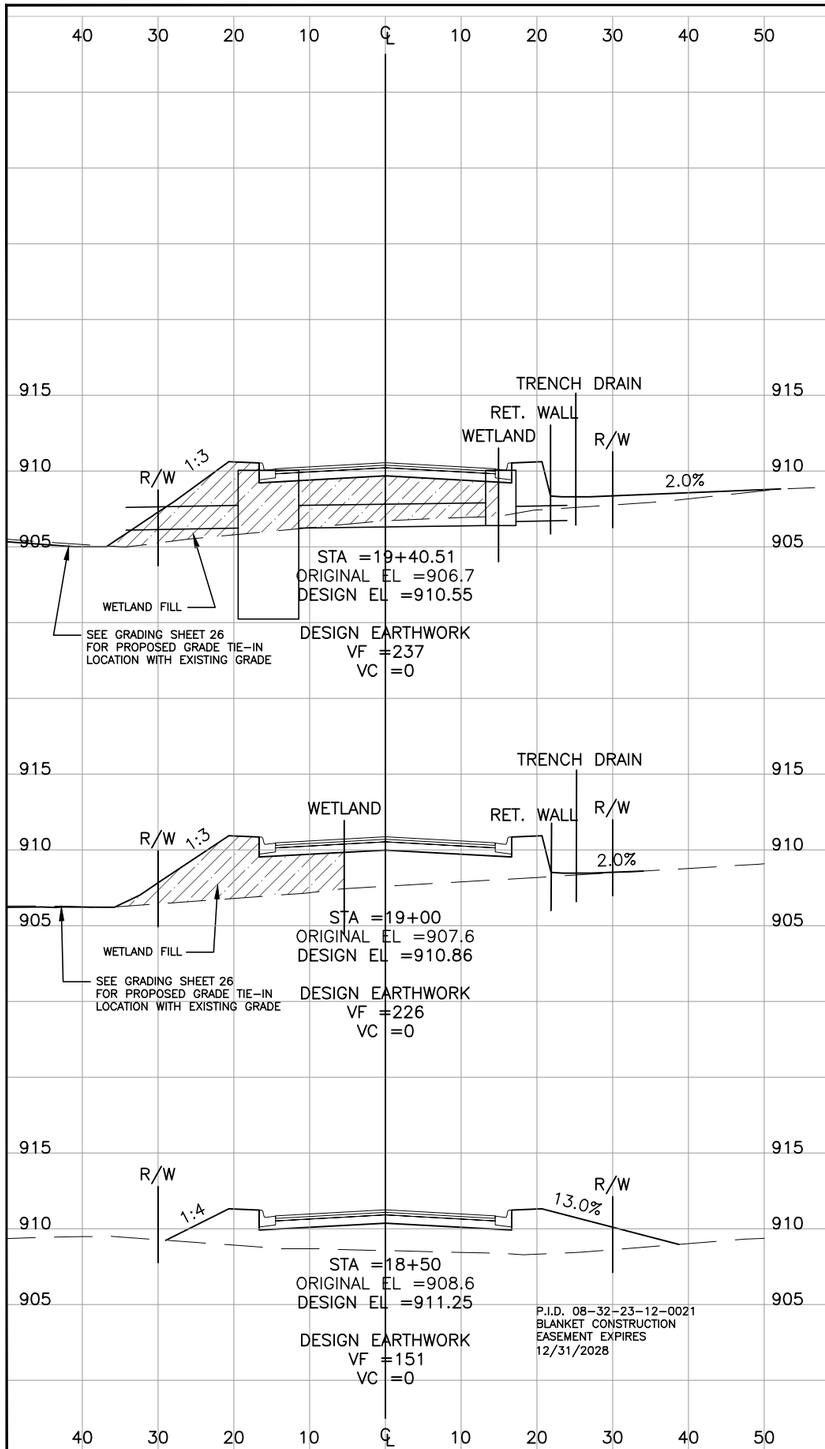
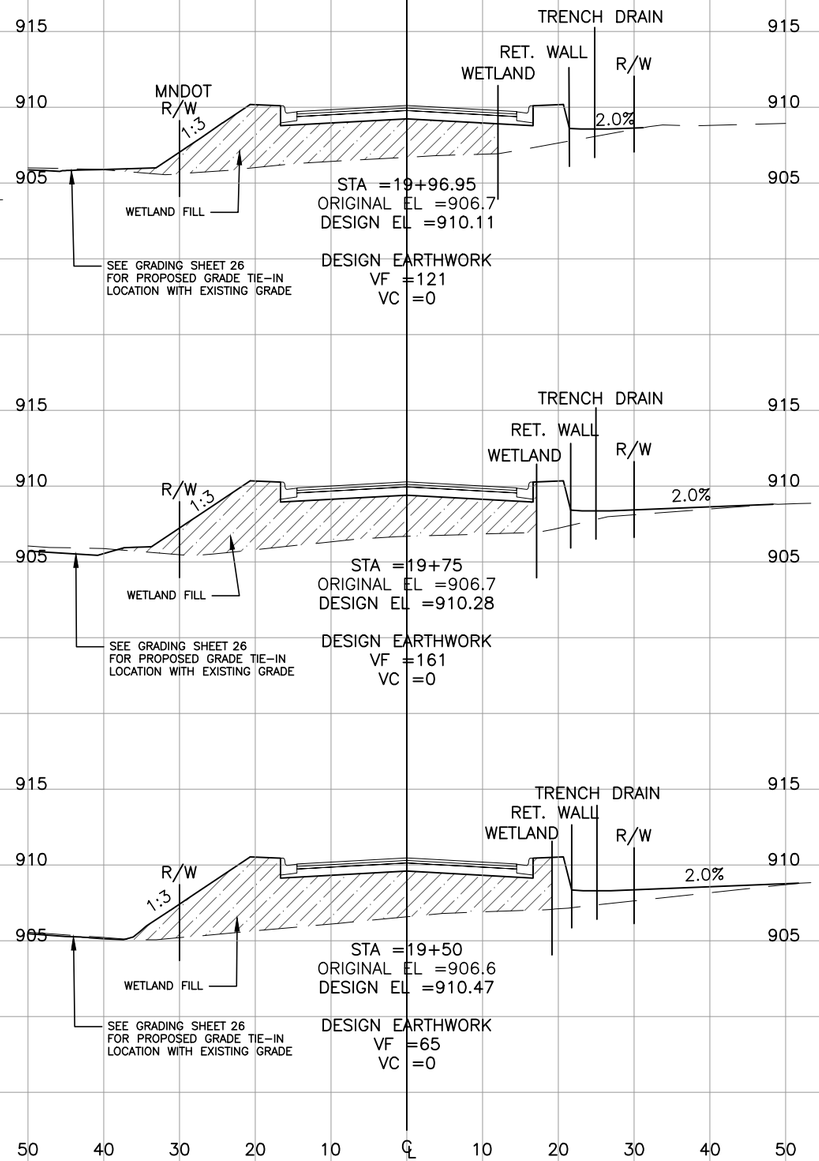
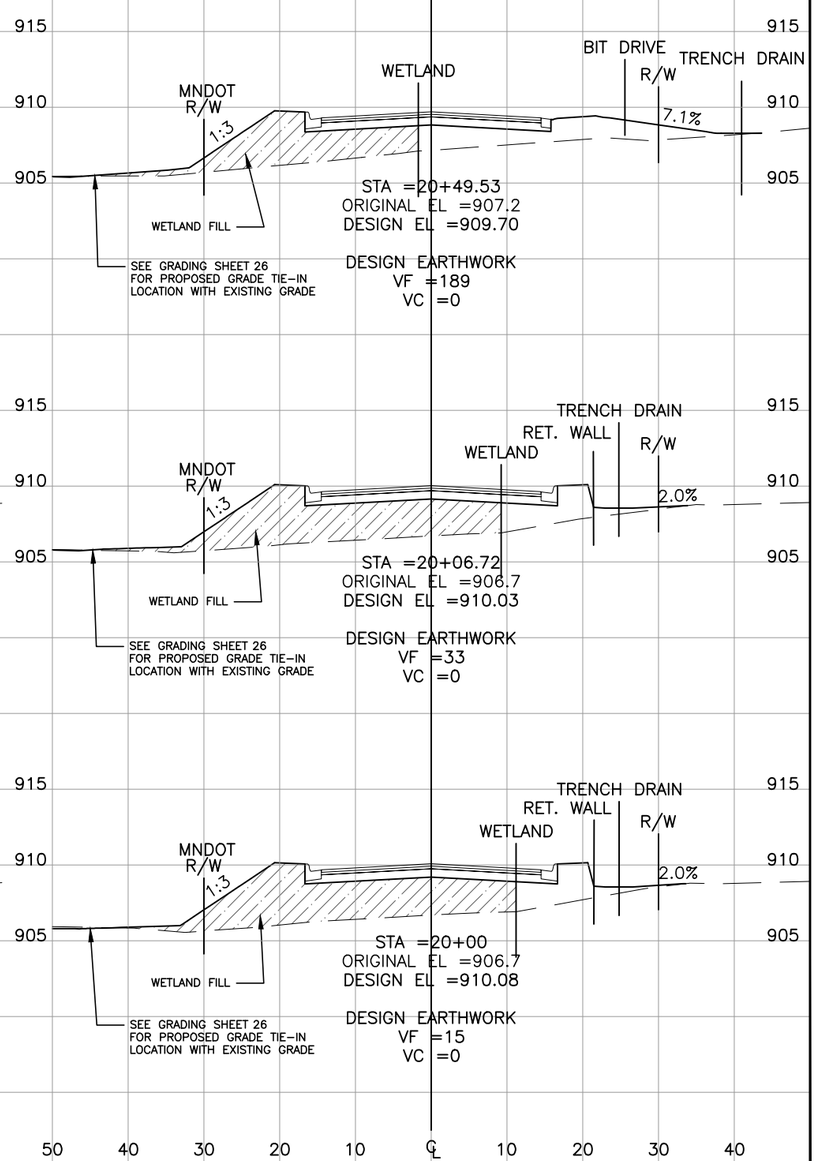
S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
CROSS SECTIONS

DWG: RC002041
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 37 OF 43
FILE: 33-2-137







GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/29/2025 16:48

UTILITIES:

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CENTERPOINT ENERGY	(763) 323-2760
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Dan Krugler
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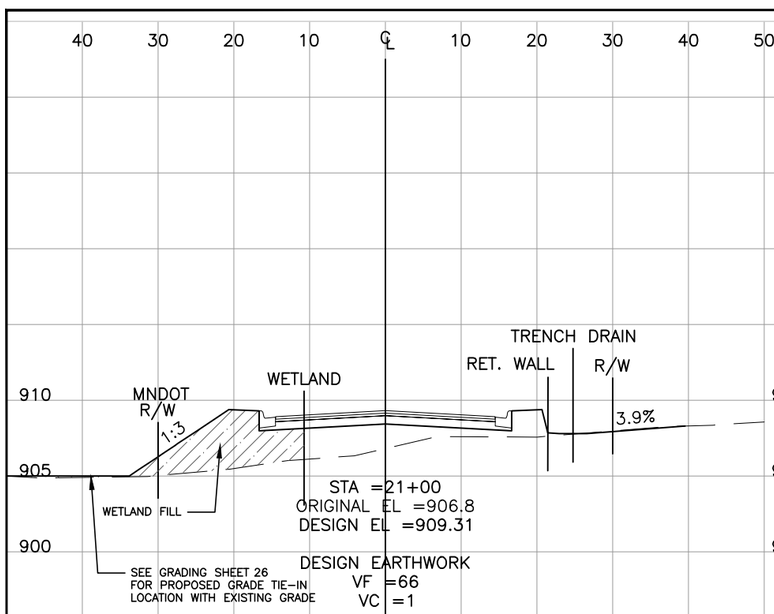
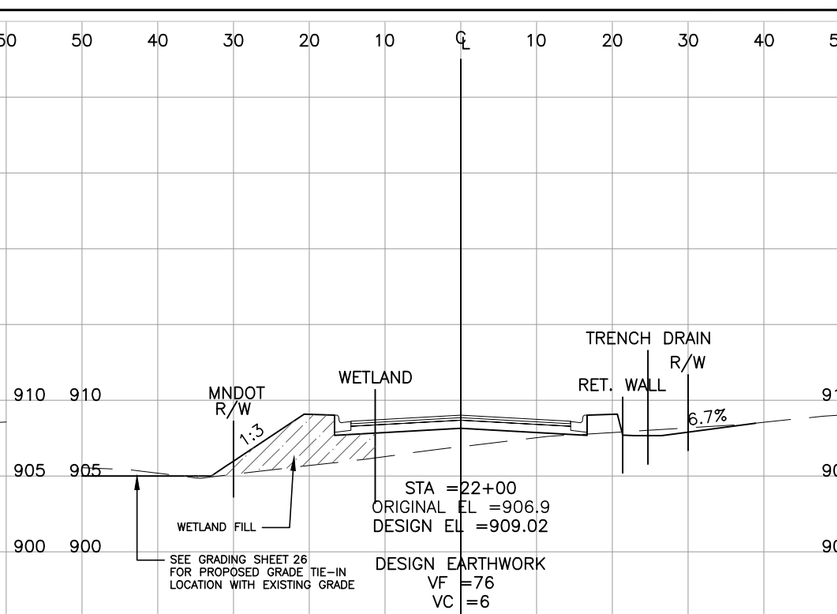
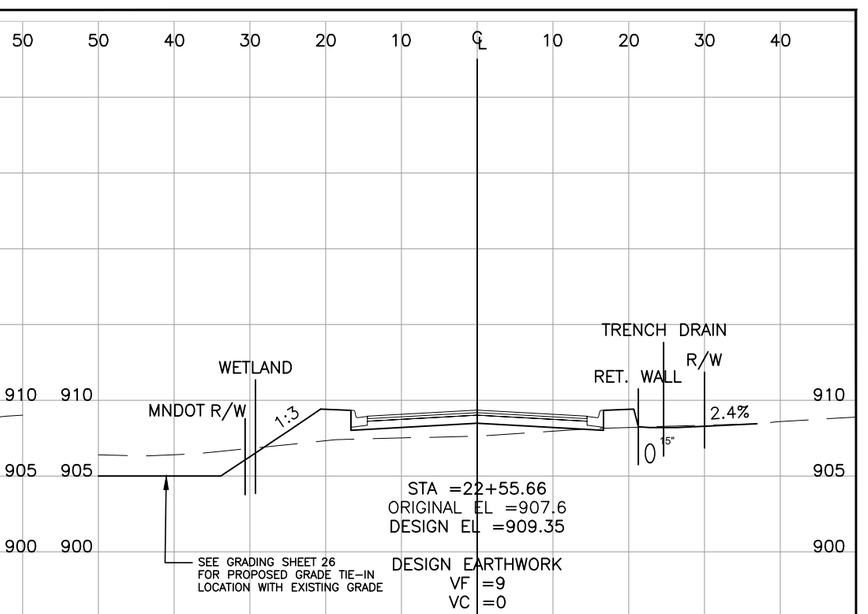
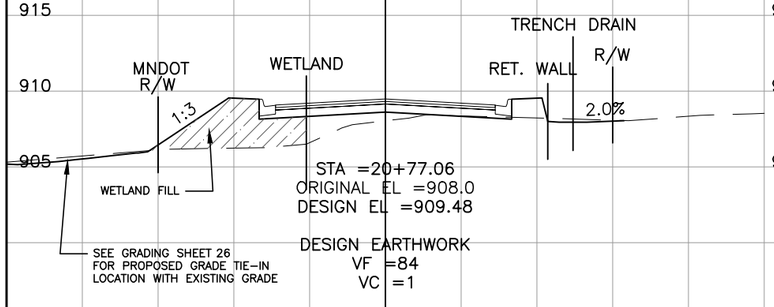
S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
CROSS SECTIONS

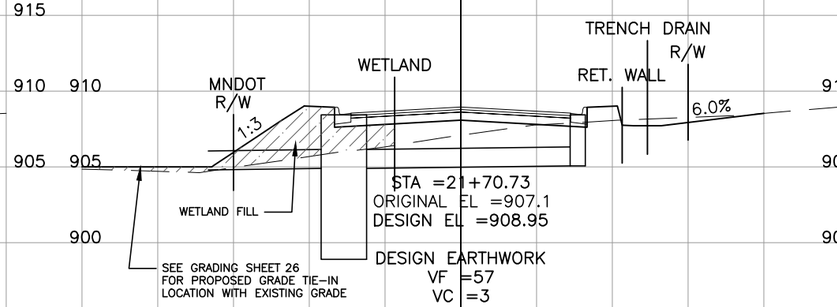
DWG: RC003041
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 38 OF 43
FILE: 33-2-138

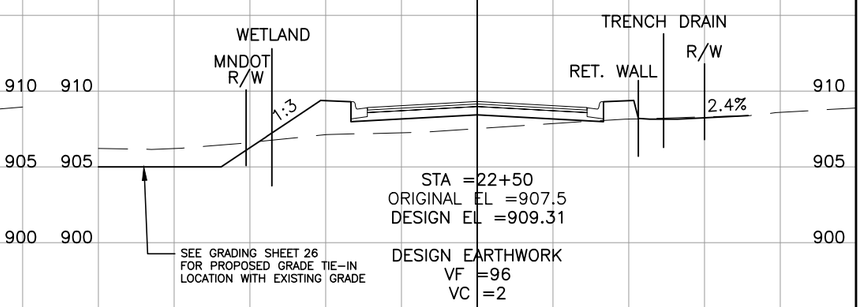


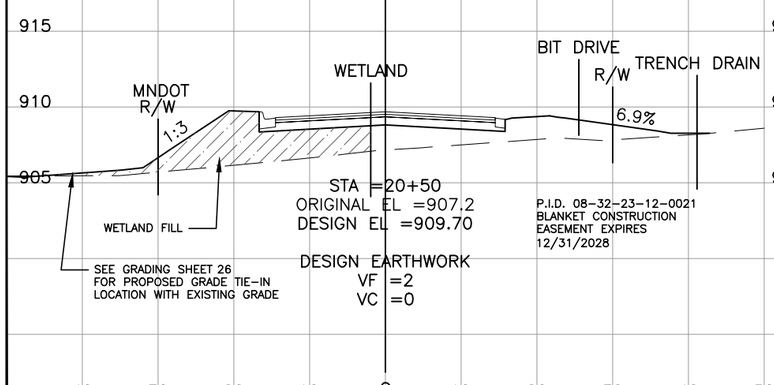


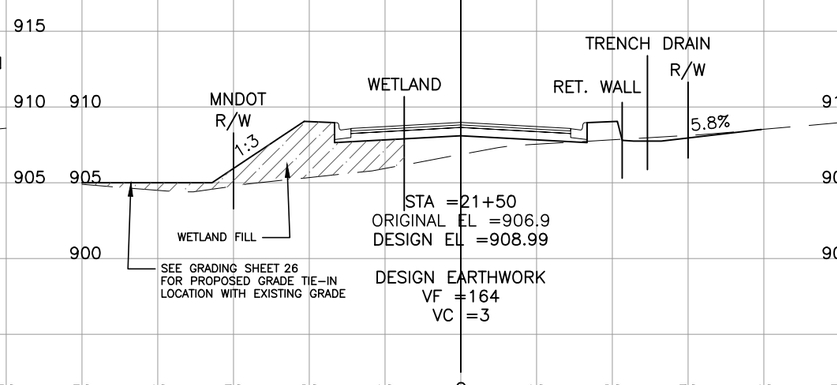


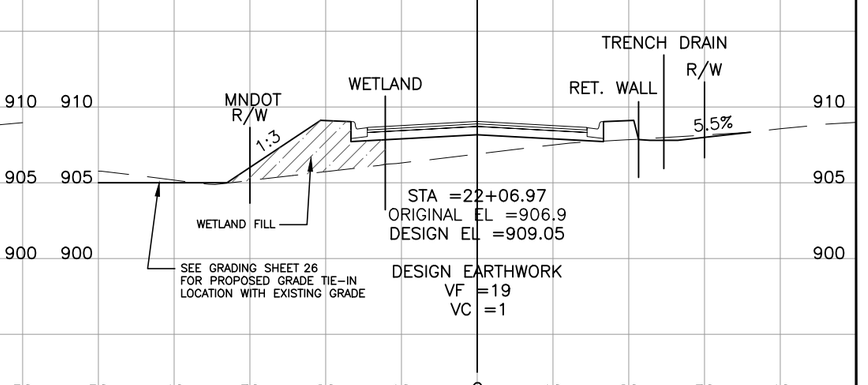












GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/29/2025 16:48

UTILITIES:

CENTURYLINK	(763) 712–5017
CENTERPOINT ENERGY	(763) 323–2760
COMCAST	(952) 607–4078
CONNEXUS ENERGY	(763) 323–4268
XCEL ENERGY	(612) 526–4508

DATE	REVISION HISTORY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Krueger
DATE 05/29/25 REG. NO. 48768

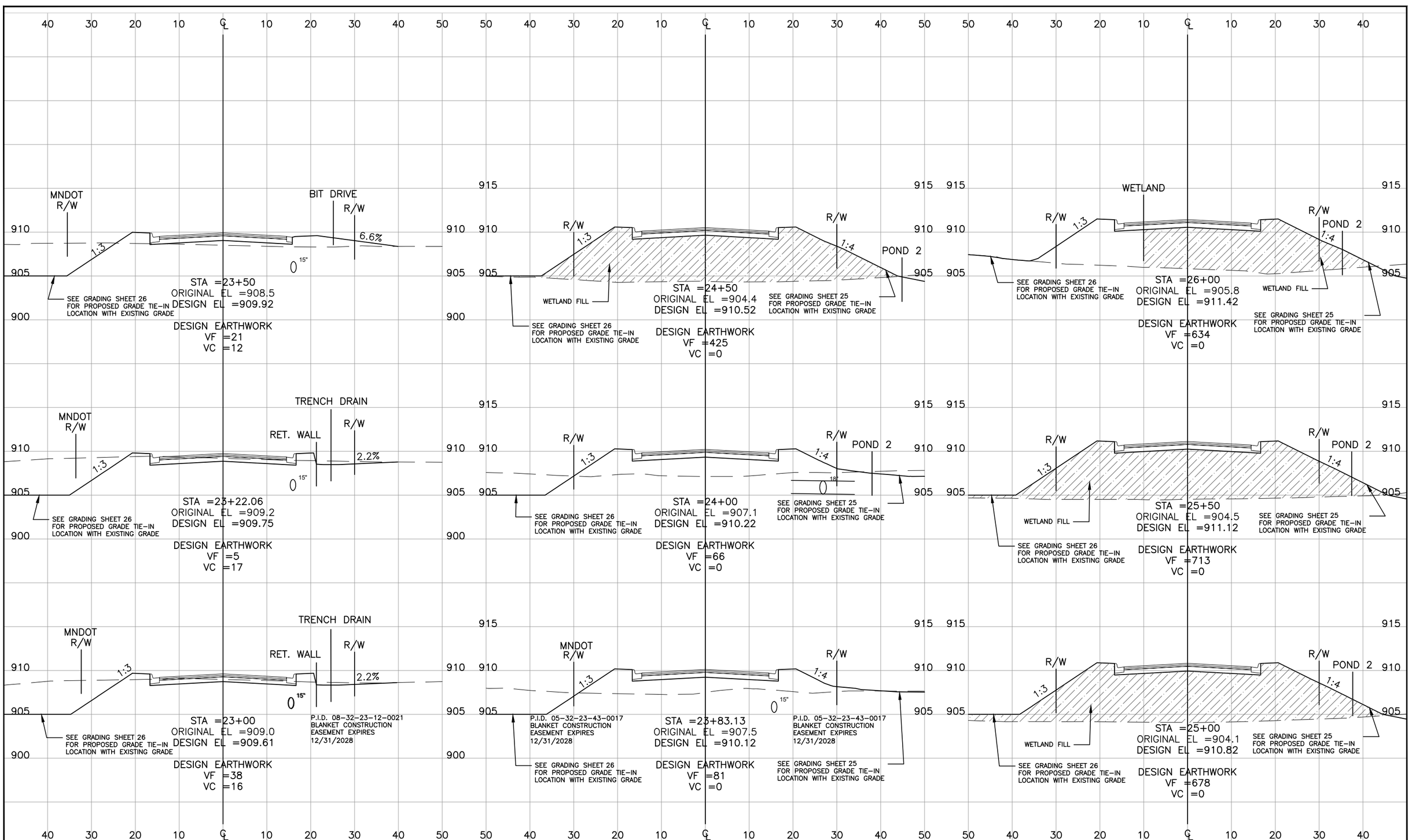
RFC ENGINEERING, INC.
Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763–862–8000
Fax 763–862–8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

S.A.P. 197–119–003 S.P. 0208–170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
CROSS SECTIONS

DWG: RC004041
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 39 OF 43
FILE: 33–2–139



GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/29/2025 16:48

UTILITIES:

CENTURYLINK	(763) 712-5017
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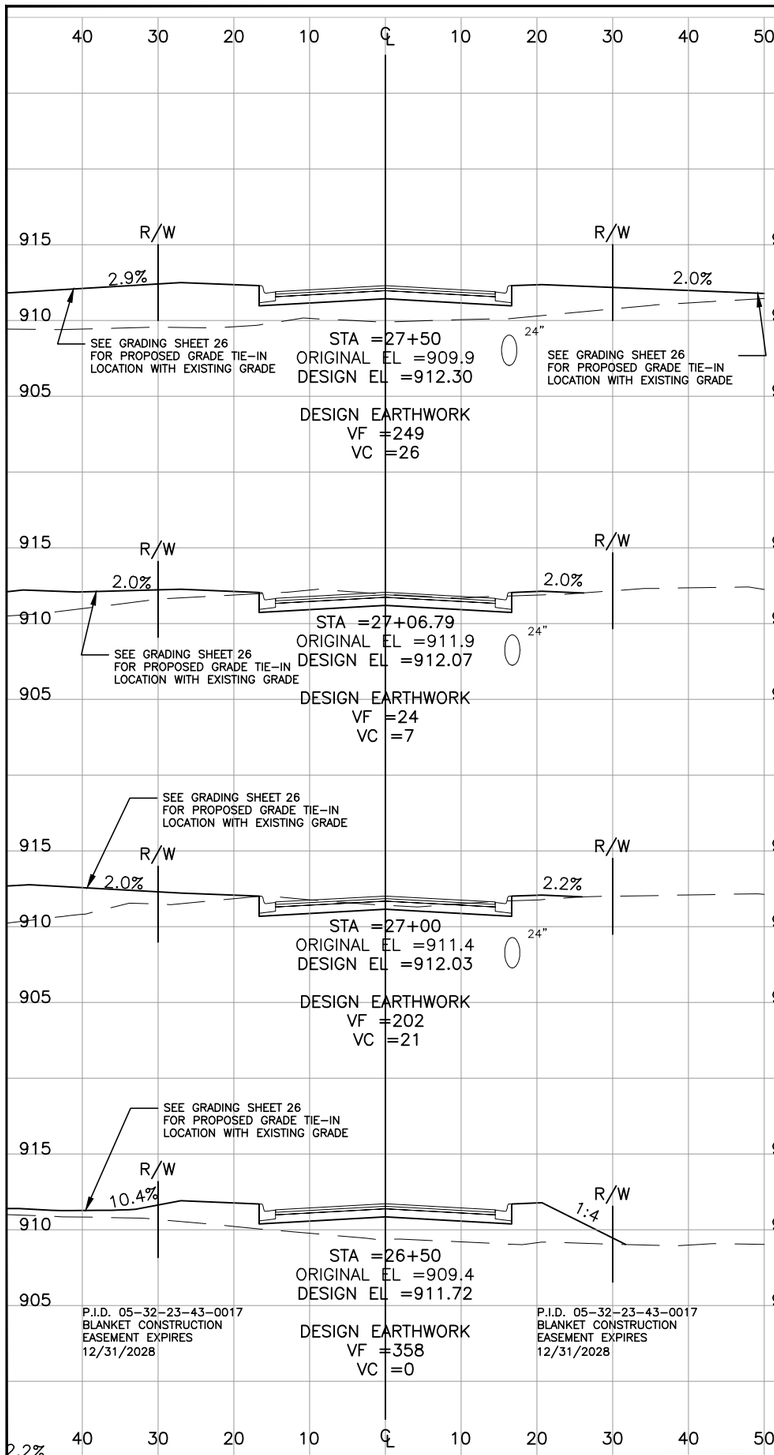
DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
CROSS SECTIONS

DWG: RC005041
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 40 OF 43
FILE: 33-2-140



GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/29/2025 16:48

UTILITIES:

CENTURYLINK	(763) 712-5017
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DATE	REVISION HISTORY

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Dan Krueger
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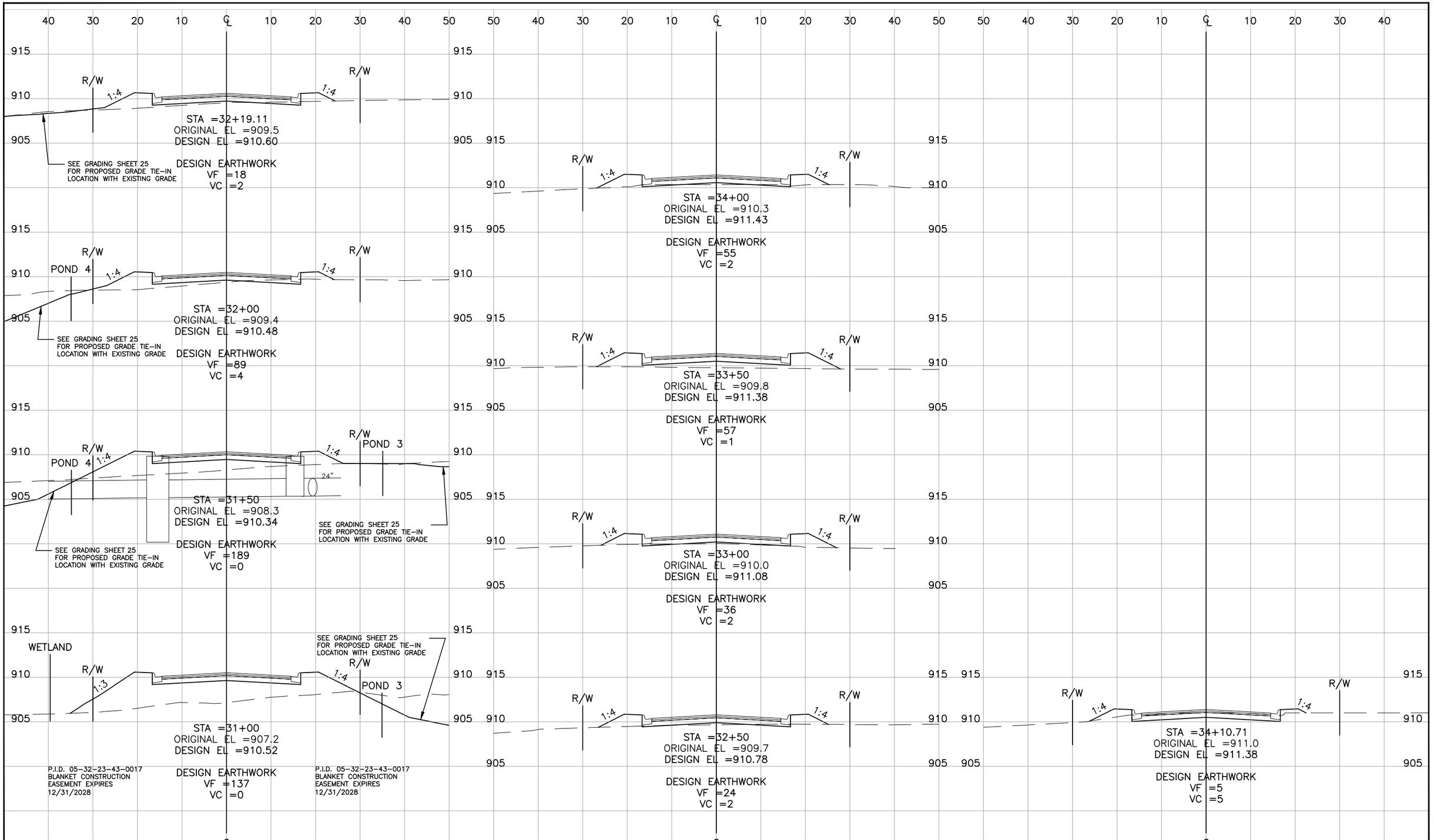
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
CROSS SECTIONS

DWG: RC006041
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 41 OF 43
FILE: 33-2-141



GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/29/2025 16:48

UTILITIES:

CENTURYLINK	(763) 712-5017
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Dave Kruglen
DATE 05/29/25 REG. NO. 48768

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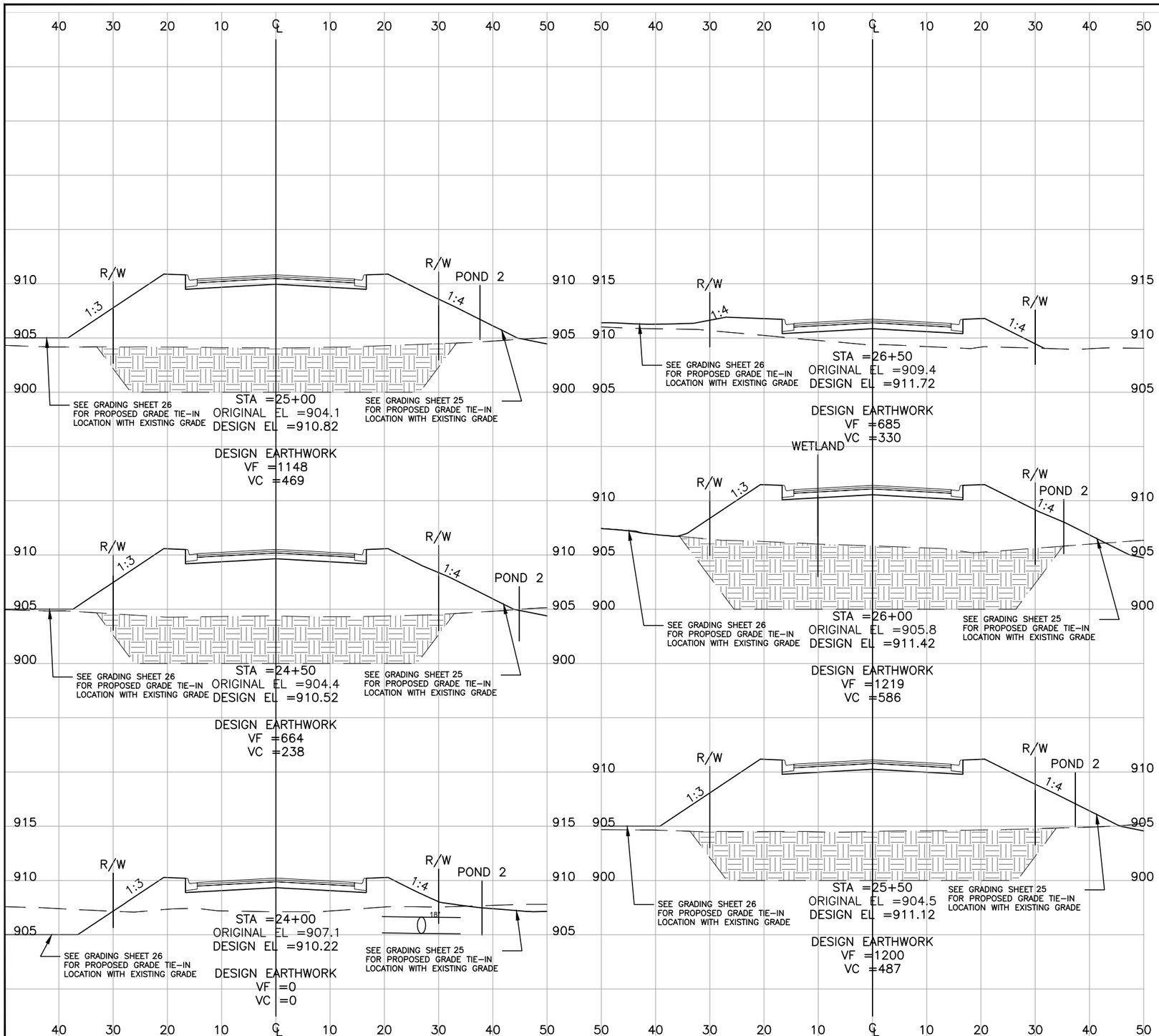
DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
CROSS SECTIONS

DWG: RC007041
DATE: 05/29/25
JOB NUMBER: 2111
SHEET: 42 OF 43
FILE: 33-2-142



NOTES:
- THIS SHEET IS FOR **MUCK QUANTITY ESTIMATION ONLY.** NOT TO BE USED FOR CONSTRUCTION PURPOSES.
- SEE NOTE 11 ON SHEET 2 FOR MORE INFORMATION.
- MUCK ESTIMATION RANGES FROM STA: 24+00 TO STA: 26+00 AND RUNS AT AN ELEVATION OF 900.
- IF MUCK IS ENCOUNTERED, ALL MUCK SHALL BE DELIVERED TO THE PUBLIC WORKS SHOP.

MUCK EXCAVATION

GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/29/2025 16:48

UTILITIES:
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Dave Krueger
DATE 05/29/25 REG. NO. 48768

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S.A.P. 197-119-003 S.P. 0208-170 (TH 65)
HAM LAKE IMPROVEMENT PROJECT 2111
TH 65 EAST FRONTAGE ROAD CONSTRUCTION FROM 64' SOUTH 171ST AVE TO 334' SOUTH CROSSTOWN BLVD
CROSS SECTIONS FOR MUCK QUANTITY ESTIMATION
NOT FOR CONSTRUCTION PURPOSES

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG:	RC001042
DATE:	05/29/25
JOB NUMBER:	2111
SHEET:	43 OF 43
FILE:	33-2-143