

	CONTROL POINT
	EXISTING SANITARY CLEANOUT
	EXISTING SANITARY MANHOLE
	EXISTING STORM MANHOLE
	EXISTING HYDRANT
	EXISTING GATE VALVE
	PROPOSED HYDRANT
	PROPOSED GATE VALVE
	PROPOSED MANHOLE
	EXISTING CONIFER TREE
	EXISTING DECIDUOUS TREE
	EXISTING SOIL BORE
	EXISTING SHRUB
	EXISTING POWER POLE
	EXISTING GUY WIRE
	EXISTING TELEPHONE PEDESTAL
	EXISTING CURB STOP
	EXISTING ELECTRIC PEDESTAL
	EXISTING CABLE TV PEDESTAL
	EXISTING SATELLITE DISH
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING WELL
	EXISTING LIGHTPOLE
	EXISTING BOLLARD
	EXISTING STUMP
	EXISTING GAS VALVE
	BENCHMARK
	EXISTING GAS METER
	EXISTING TRAFFIC LIGHT

	FIBER OPTIC
	CONTROLLED ACCESS
	ROW
	UTILITY
	EX. DRAINAGE DITCH
	MNDOT-ROW
	BARBWIRE FENCE
	CHAINLINK FENCE
	SECTION LINE
	QUARTER SECTION LINE
	WOODEN FENCE
	TREELINE
	RETAINING WALL
	EX. SEALCOAT
	GUARD RAIL
	EX. WATERMAIN
	UNDERGROUND ELECTRIC
	UNDERGROUND CABLE TV
	EX. CRUSHED ROCK
	UNDERGROUND TELEPHONE
	UNDERGROUND GAS
	EX. CONTOUR
	EX. STORM SEWER
	PERMANENT EASEMENT
	TEMPORARY EASEMENT
	OVERHEAD ELECTRIC
	OVERHEAD TELEPHONE
	EX. SANITARY SEWER
	CENTERLINE

<u>INDEX</u>	
SHEET 1	TITLE SHEET
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SHEET 9	EXISTING CONDITIONS PLAN (COLOR)*
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SHEET 11	EROSION CONTROL PLAN (COLOR)*
SHEET 12	PED RAMP GRADES (COLOR)*
SHEET 13-22	PLAN AND PROFILE (COLOR)*

GOVERNING SPECIFICATIONS

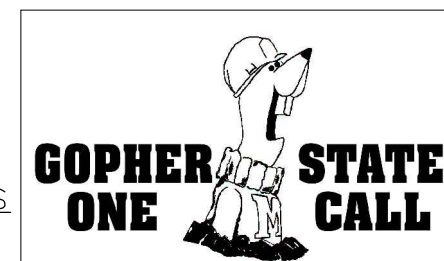
THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AND ANY SUPPLEMENTAL SPECIFICATIONS SHALL GOVERN, EXCLUDING DIVISION I.

NOTES:

1. WHERE PUBLIC UTILITY FIXTURES OR FACILITIES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THESE UTILITIES PRIOR TO THE BEGINNING OF ANY CONSTRUCTION INVOLVING EXCAVATION. THE CONTRACTOR SHALL AFFORD ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES OR RELOCATION. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS, RECORDS AND UTILITY OPERATOR LOCATION MARKINGS THAT WERE REQUESTED THROUGH GOPHER STATE ONE CALL; THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. TYPE, SIZE AND GENERAL LOCATION OF THE FACILITIES WERE REQUESTED OF THE OPERATORS AND SHOWN ON THE PLANS, AND IF NECESSARY, UPDATED WITHIN 90 DAYS OF COMPLETION OF THE FINAL PLANS. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY THE WORK.

2. GOPHER STATE ONE CALL TELE: 1-800-252-1166.

3. CONTRACTOR SHALL COORDINATE UTILITY RELOCATIONS WITH THE UTILITY COMPANIES, THIS SHALL BE INCIDENTAL TO THE PROJECT.



CITY OFFICIALS

MAYOR: MATT MONTGOMERY

COUNCIL: RYAN JEPPESEN
CHAD JOHNSON
DIANE JOHNSON
LAURA KRONENBERGER
CHRIS NOBACH
LISA ZIMMERMAN

CITY ADMINISTRATOR: JON RADERMACHER

PUBLIC WORKS DIRECTOR: JED PETERSEN

RECOMMENDED FOR APPROVAL _____ DATE _____
CITY ENGINEER

UTILITY QUALITY LEVEL C UNLESS OTHERWISE INDICATED

UTILITY LOCATION PERFORMED ON: 4/11/23
GOPHER ONE CALL TICKET NUMBERS:

231011663, 231011765, 231011843, 231011844, 231011908

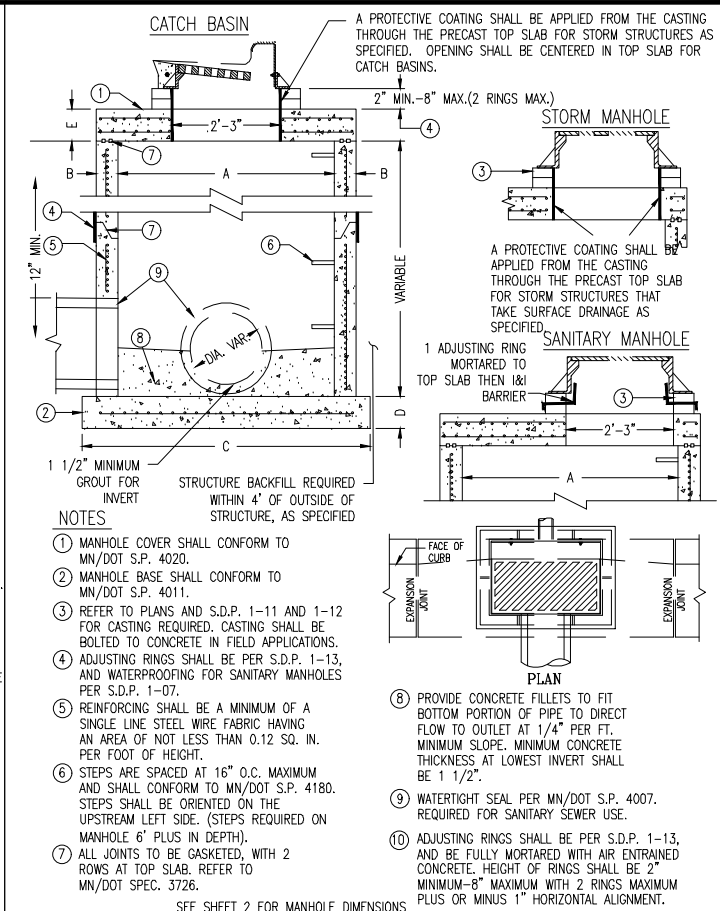
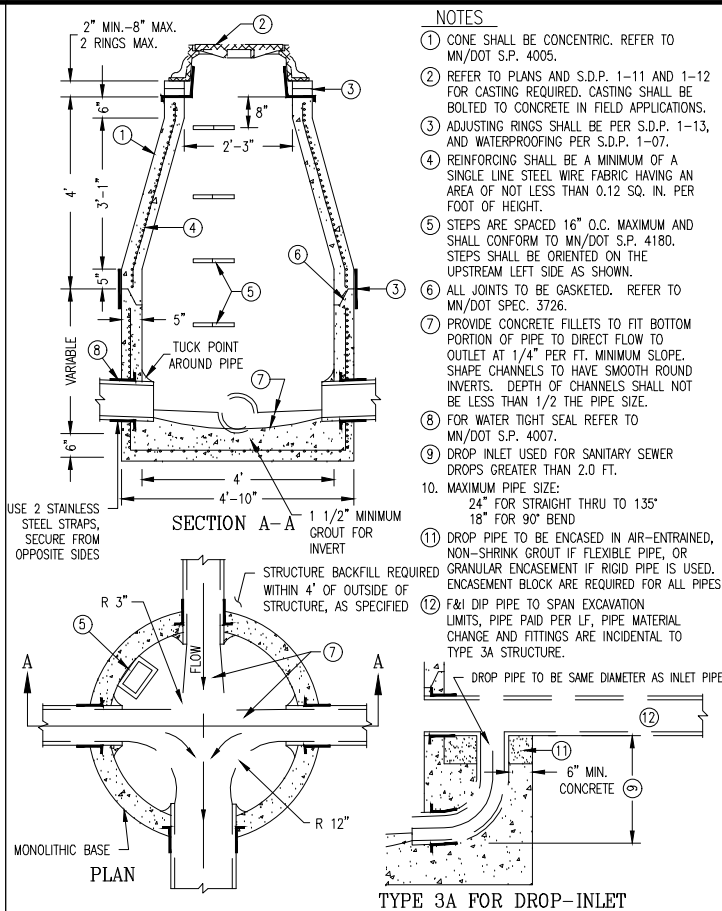
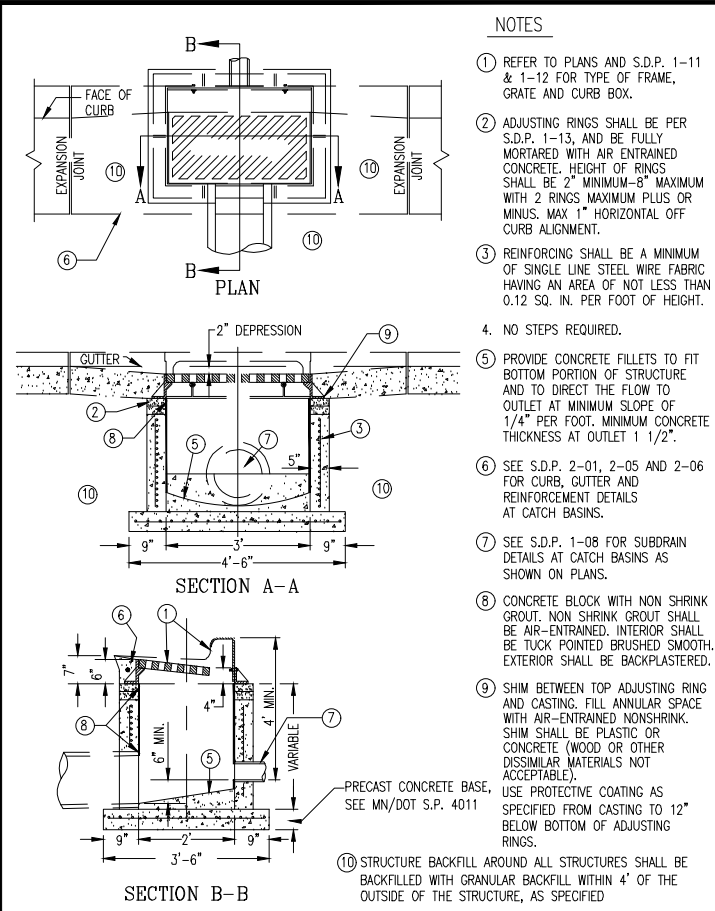
I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

David A. Martin

Date _____ License No. 51131



WHS & CO. JOB NO. 10196



MANHOLE TOP SLAB

MANHOLE TOP SLAB

ALTERNATE TOP SLAB FOR CATCH BASINS

MANHOLE TOP SLAB		MANHOLE DIMENSIONS		MAXIMUM PIPE SIZE	
L	W	X	Y	Z	A
17"	6"	12"	-	58"	48"
20.5"	6"	12"	-	65"	54"
24"	7"	12"	-	72"	60"
27.5"	7"	12"	-	79"	66"
31"	8"	12"	3"	86"	72"
34.5"	8"	12"	6"	93"	78"
38"	9"	12"	9"	100"	84"
41.5"	9"	12"	12"	107"	90"
45"	9"	12"	15"	114"	96"
48.5"	9"	12"	18"	121"	102"
51"	10"	12"	21"	126"	108"
58"	11"	12"	24"	140"	120"

REVISIONS

NO.	DATE	DESCRIPTION

DETAILS-1

HARDWOOD ESTATES THIRD SUBDIVISION
CANNON FALLS, MINNESOTA
2025

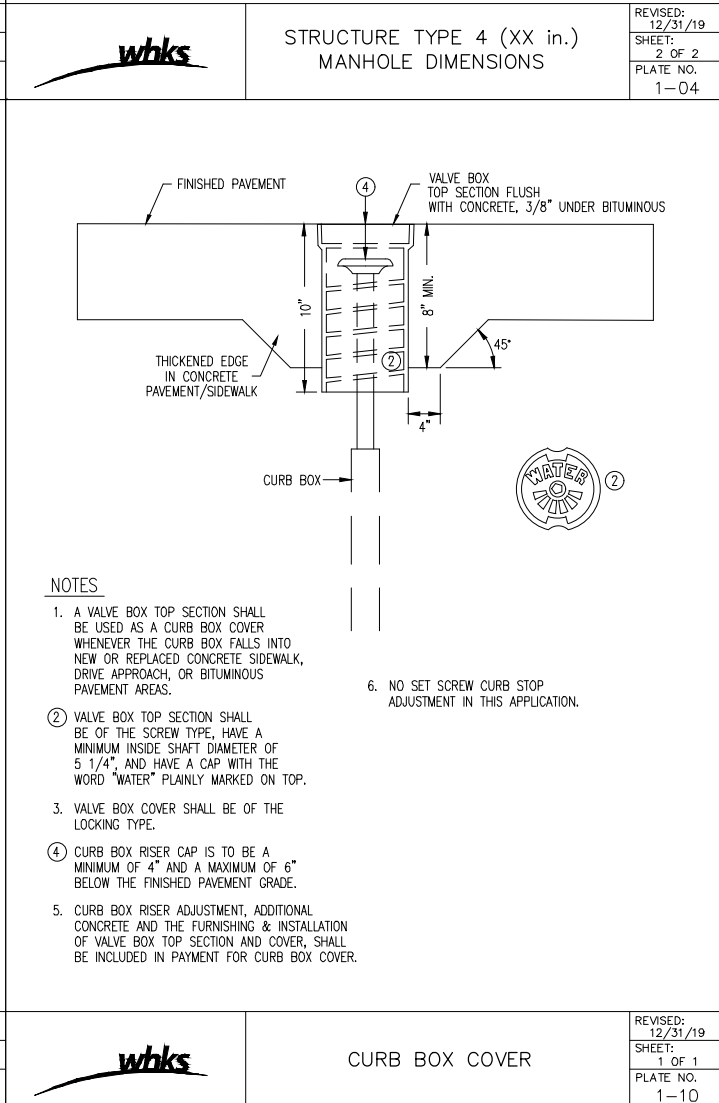
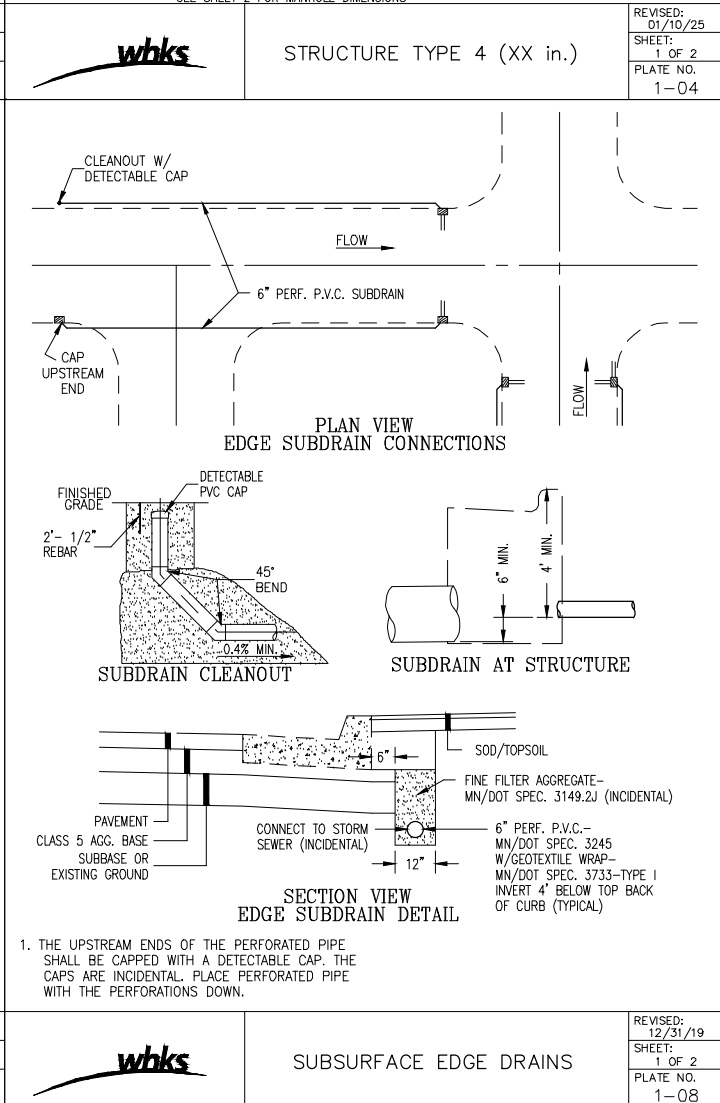
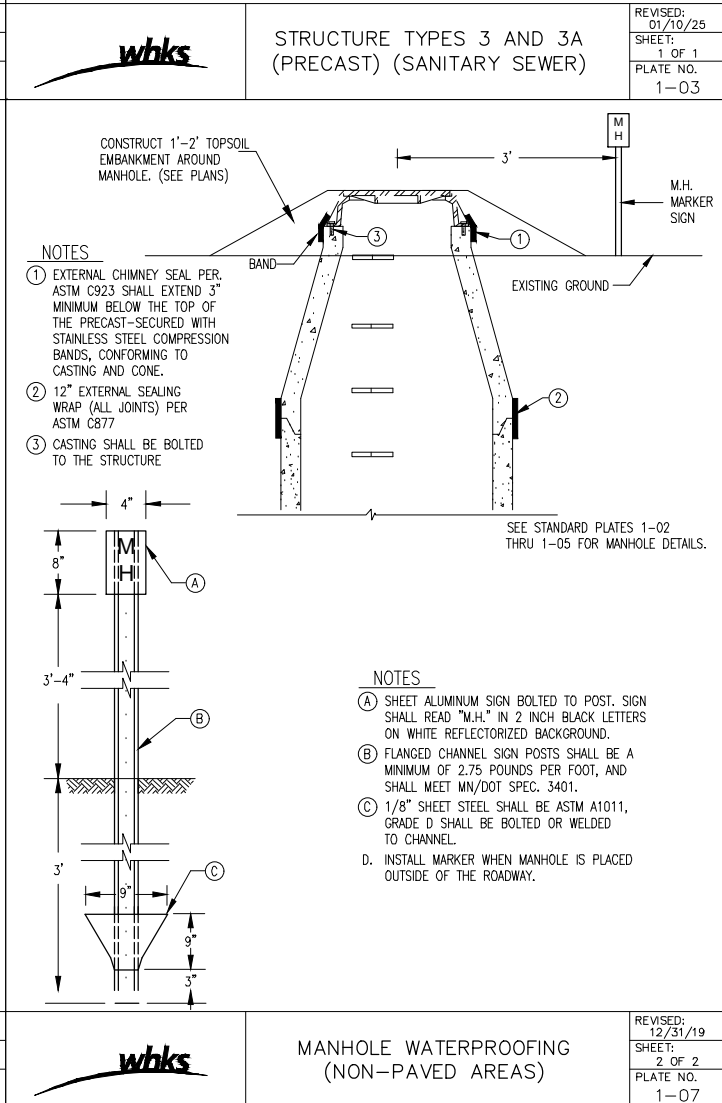
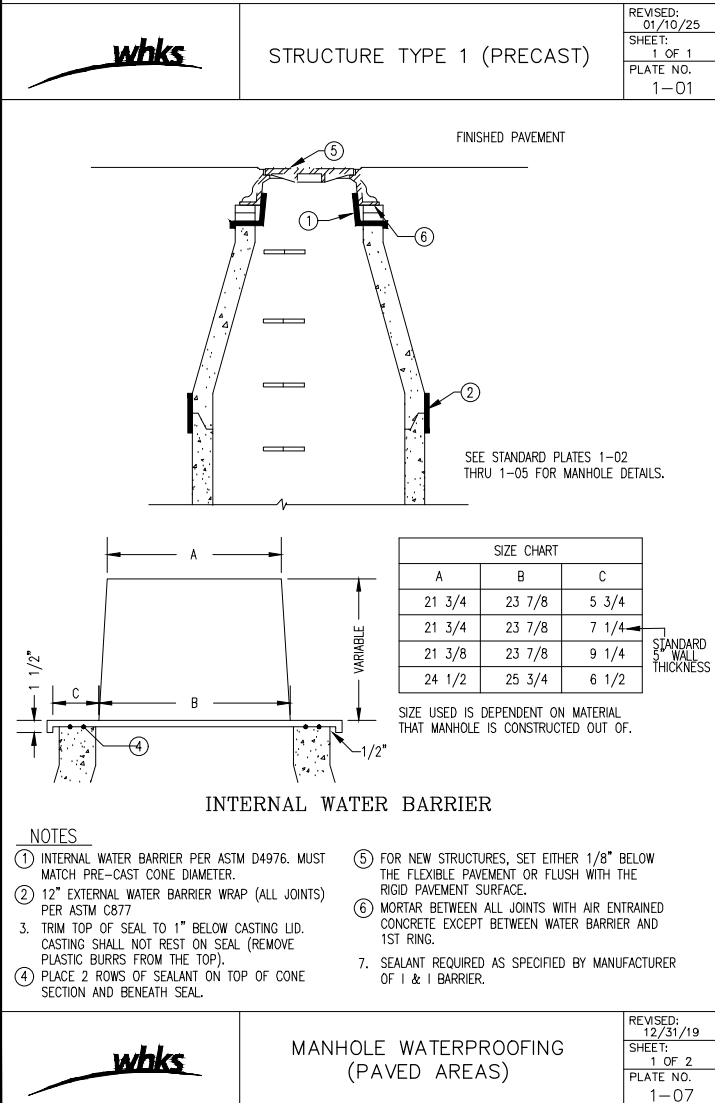
SCALE: AS SHOWN

WHKS PROJECT NO. 10196

DRAWN BY: KML

CHECKED BY: JPP

SHEET 2 OF 22



whks
engineers • planners • land surveyors

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

David A. Martin
License No. 51131
Date

REVISIONS

NO.	DATE	DESCRIPTION

DETAILS-1

HARDWOOD ESTATES THIRD SUBDIVISION
CANNON FALLS, MINNESOTA
2025

SCALE: AS SHOWN

WHKS PROJECT NO. 10196

DRAWN BY: KML

CHECKED BY: JPP

SHEET 2 OF 22

CASTINGS – STRUCTURE TYPE 1				
TYPE	DESCRIPTION	NEENAH REF. NO.	GRATE SLOTS	REMARKS
B	3" CURB INLET FRAME, GRATE & BOX	R-3067	DIAGONAL	
C	3" DRIVEWAY INLET FRAME & GRATE	R-3290-A	PARALLEL (BICYCLE SAFE)	USE WHERE DRIVEWAY PRECLUDES USE OF TYPE B IN WATERFACE CURB
V	3" CURB INLET FRAME, GRATE & BOX	R-3067	PERPENDICULAR VANE	USE WHEN STREET GRADE EXCEEDS 2%
	3" CURB DRIVEOVER INLET FRAME, GRATE & BOX-3501-TB		PERPENDICULAR VANE	USE IN DRIVEOVER CURB, WHEN SPECIFIED

CASTINGS – OTHER STRUCTURES					
	TYPE	DESCRIPTION	NEENAH REF. NO.	COVER/GRATE	REMARKS
COVER	1	9" FRAME & COVER-T GASKETED	R-1916-C	SELF-SEALING, BOLDED LID	USED IN FLOOD PRONE AREAS & IN CONCRETE PAVING
	2	9" FRAME & COVER-T GASKETED	R-1733-B	INDENTED TOP	
	3	7" FRAME & COVER-T GASKETED	R-1642	INDENTED TOP	USED ON EXISTING STRUCTURE WITH HEIGHT CONSTRAINT
	4	7" FRAME & COVER-NON ROCKING OR T GASKET	R-1740-B	INDENTED TOP	USED FOR P.R.V. MANHOLES
GRATE	5	9" FRAME & GRATE-NON ROCKING OR T GASKET	R-2533	FLAT GRATE	PAVEMENT DRAIN
	6	DITCH GRATE-STOOL TYPE-TALL	R-4341-A	STOOL GRATE	HEAVY DUTY
	7	DITCH GRATE-STOOL TYPE-SHORT	R-4342	STOOL GRATE	LIGHT DUTY
	8	POND SKIMMER GRATE		1/2" STEEL PLATE	HOT DIPPED GALVANIZED, NOT SUBJECT TO H2O LOADING

NOTES:

- CASTINGS SHALL BE ACCORDING TO MN/DOT SPEC 3321.1-2 SUPPLIED BY FOUNDRIES THAT ARE APPROVED ON THE MN/DOT APPROVED/QUALIFIED PRODUCTS LIST
- ALL CASTINGS SHALL COMPLY WITH AASHTO M-306
- ALL CASTINGS SHALL COMPLY WITH U.S. CODE OF FEDERAL REGULATIONS 23CFR635.410, THE "BID AMERICAN STEEL & IRON" REGULATION
- ALL STORM SEWER CASTINGS SHALL INCLUDE IMPRINT FISH STAMP AND "DUMP NO WASTE"
- COVERS SHALL BE STAMPED FOR SPECIFIC UTILITY (EX. SANITARY SEWER).

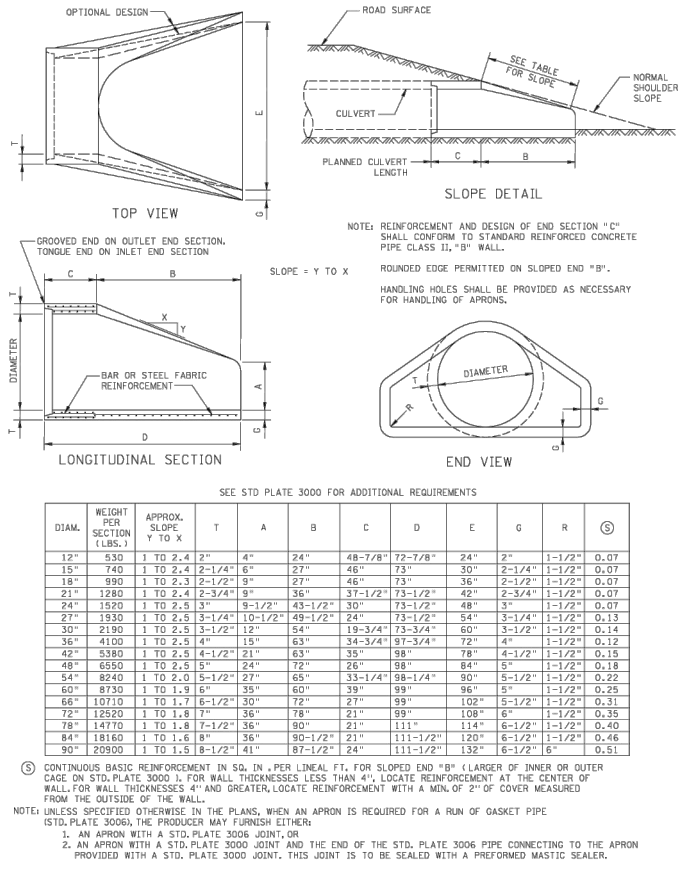


TABLE OF QUANTITIES

RIPRAP AT RCP OUTLETS

		CLASS II d ₅₀ = 6"				CLASS III d ₅₀ = 9"				CLASS IV d ₅₀ = 12"			
DIA. OF PIPE (IN.)	L (FT.)	GEO- TEXTILE FILTER (SQ. YD.)	GRANUL. FILTER UNDER APRON (CU. YD.)	12" DEPTH RIPRAP (CU. YD.)	GEO- TEXTILE FILTER (SQ. YD.)	GRANUL. FILTER UNDER APRON (CU. YD.)	18" DEPTH RIPRAP (CU. YD.)	GEO- TEXTILE FILTER (SQ. YD.)	GRANUL. FILTER UNDER APRON (CU. YD.)	24" DEPTH RIPRAP (CU. YD.)	GEO- TEXTILE FILTER (SQ. YD.)	GRANUL. FILTER UNDER APRON (CU. YD.)	24" DEPTH RIPRAP (CU. YD.)
12	8	16.9	0.2	3.0	19.6	0.3	4.4	22.6	0.3	5.9			
15	8	18.0	0.2	3.2	20.8	0.3	4.8	23.9	0.4	6.4			
18	10	22.4	0.3	4.2	25.6	0.4	6.4	29.0	0.5	8.5			
21	10	24.1	0.4	4.7	27.4	0.6	7.1	30.9	0.7	9.4			
24	12	29.7	0.5	6.2	33.4	0.8	9.2	37.3	1.0	12.3			
27	12	31.6	0.6	6.6	36.2	0.9	9.9	38.2	1.2	13.2			
30	14	37.4	0.8	8.2	41.6	1.1	12.3	46.0	1.5	16.4			
36	16	45.9	1.1	10.6	50.5	1.6	15.8	55.4	2.1	21.1			
42	18	55.9	1.2	12.5	57.8	1.7	16.7	63.0	2.3	24.9			
48	20	61.1	1.5	14.8	66.5	2.2	22.2	72.0	2.9	29.6			

TABLE OF QUANTITIES

RIPRAP AT RCP-A OUTLETS

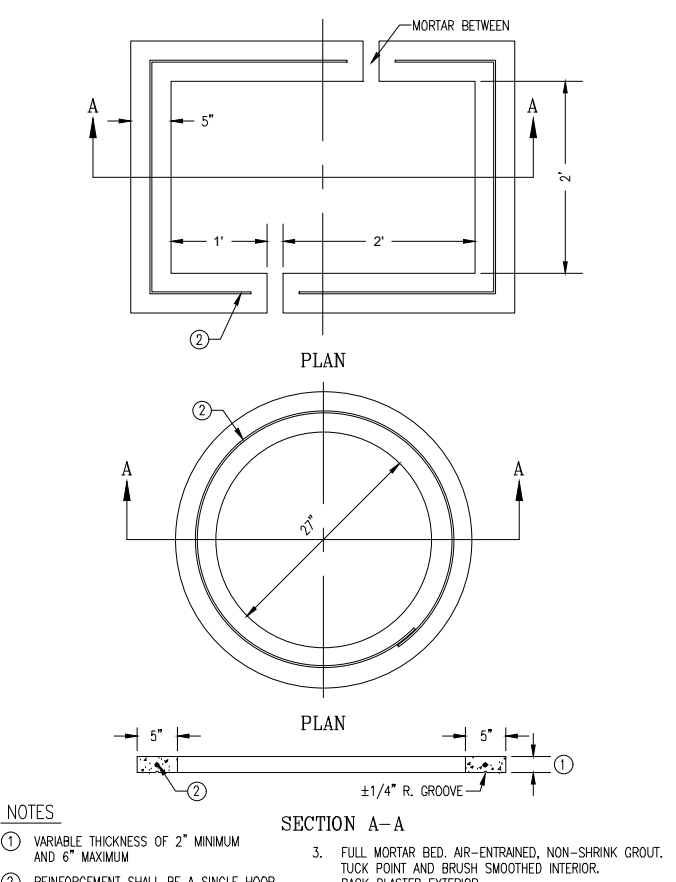
		CLASS II d ₅₀ = 6"				CLASS III d ₅₀ = 9"				CLASS IV d ₅₀ = 12"			
SPAN OF PIPE ARCH (IN.)	L (FT.)	GEO- TEXTILE FILTER (SQ. YD.)	GRANUL. FILTER UNDER APRON (CU. YD.)	12" DEPTH RIPRAP (CU. YD.)	GEO- TEXTILE FILTER (SQ. YD.)	GRANUL. FILTER UNDER APRON (CU. YD.)	18" DEPTH RIPRAP (CU. YD.)	GEO- TEXTILE FILTER (SQ. YD.)	GRANUL. FILTER UNDER APRON (CU. YD.)	24" DEPTH RIPRAP (CU. YD.)	GEO- TEXTILE FILTER (SQ. YD.)	GRANUL. FILTER UNDER APRON (CU. YD.)	24" DEPTH RIPRAP (CU. YD.)
12	10	22.4	0.3	4.2	25.6	0.4	6.4	29.0	0.5	8.5			
28	12	29.5	0.5	5.7	33.2	0.7	8.5	37.1	0.9	11.3			
36	14	37.3	0.8	7.5	41.5	1.1	11.2	45.8	1.5	14.9			
43	16	45.9	1.1	9.5	50.5	1.6	14.3	55.3	2.1	18.4			
51	18	52.5	1.2	11.3	57.5	1.7	16.9	62.7	2.3	22.5			
58	20	59.9	1.3	13.2	65.2	1.9	19.8	70.7	2.5	26.4			

SECTION B-B

NOTES:

- REQUIREMENTS FOR GEOTEXTILE TYPE, RIPRAP SIZE AND THICKNESS WILL BE DESIGNATED IN THE PLANS.
- PIPE SIZES LARGER THAN THOSE SHOWN REQUIRE A SPECIAL DESIGN.
- FOR PIPES GREATER THAN OR EQUAL TO 30", USE L.S.P.
- GEOTEXTILE FILTER, SPEC. 3733, SHALL COVER THE BOTTOM AND SIDES OF THE AREA EXCAVATED FOR THE RIPRAP, GRANULAR FILTER MATERIALS.
- DIMENSION E IS GIVEN ON STANDARD PLATES 300 AND 310.
- GRANULAR FILTER, SPEC. 3601, MAY BE USED AS A CUSHION LAYER. PLACE FILTER PER SPEC. 2511, THE CUSHION LAYER IS INCIDENTAL.
- GRANULAR FILTER, UNDER RIPRAP, SPEC. 3601, TO EXTEND UNDER ENTIRE OPEN PORTION OF PIPE ARCH. DEPTH OF MATERIAL UNDER APRON SHALL MATCH RIPRAP DEPTH. WHEN USING RIPRAP DECREASE RIPRAP QUANTITY ACCORDINGLY AND PLACE A 3" LAYER OF 1.5" CRUSHED ROCK UNDER THE APRON TO AID IN GRADING.

PLAN

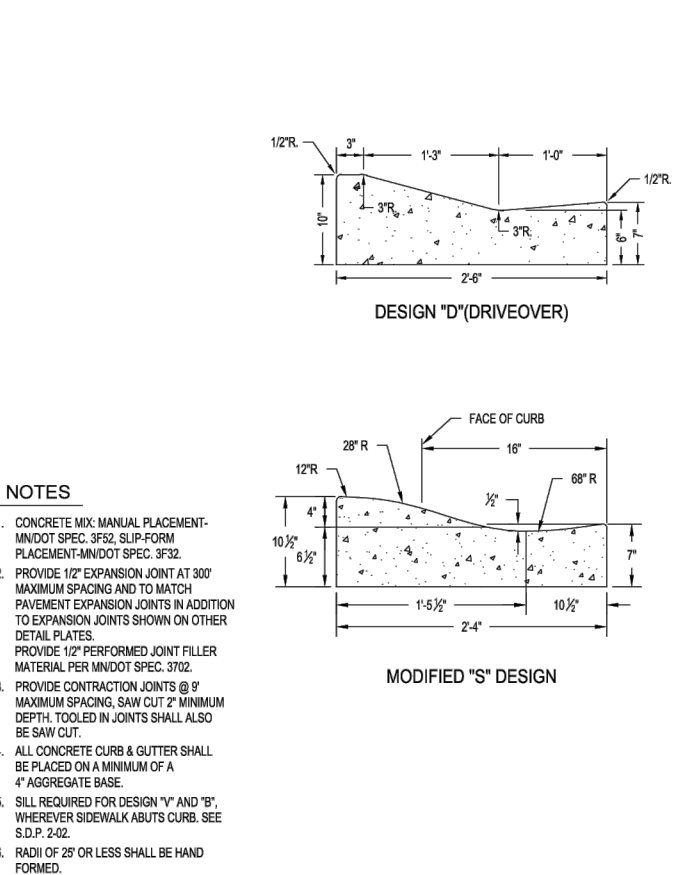
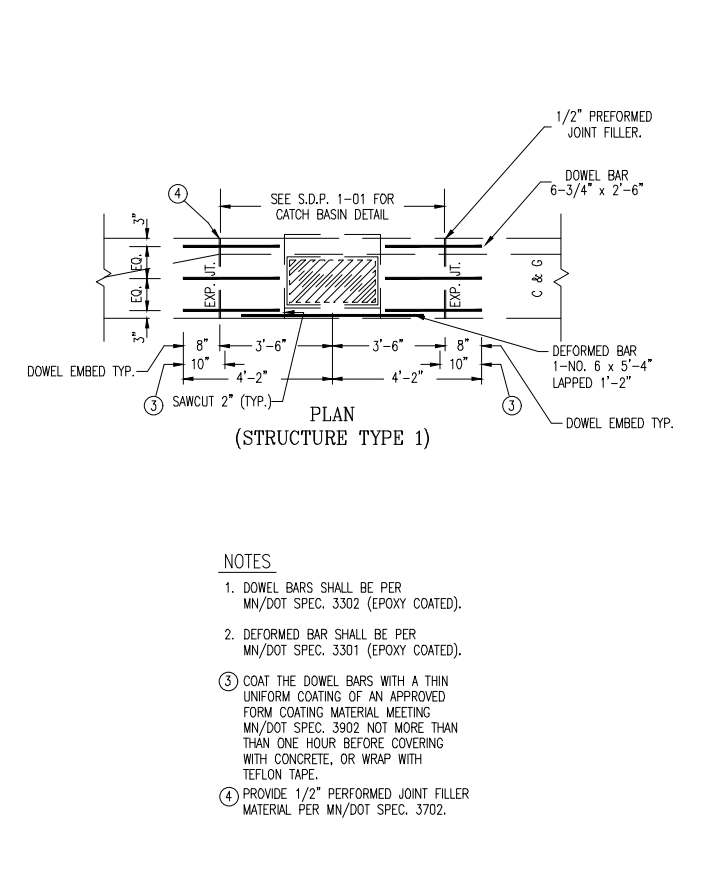
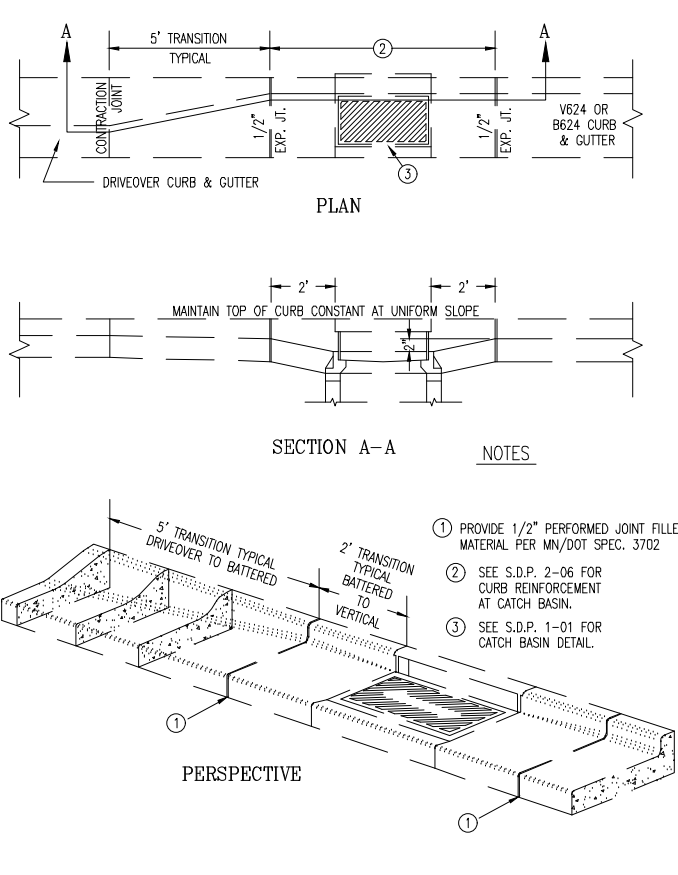
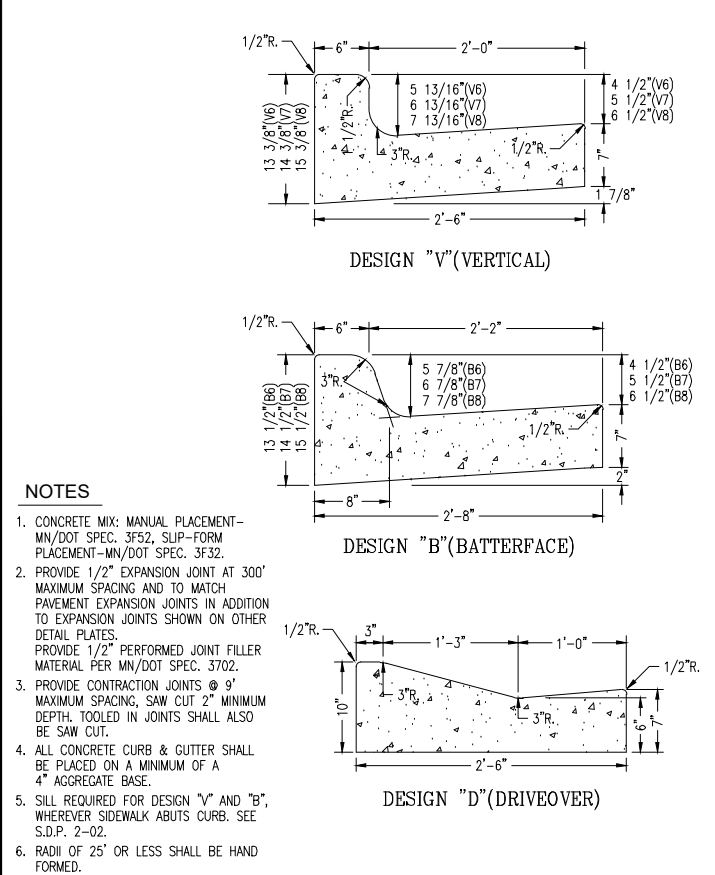


	CASTING REFERENCE NUMBERS	REVISED: 02/26/25
		SHEET: 1 OF 1 PLATE NO. 1 - 11

APPROVED <u>May 8, 1985</u> <i>H. Sullivan</i> Assistant Division Director Technical Services	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION CONCRETE APRON FOR REINFORCED CONCRETE PIPE	SPECIFICATION REFERENCE 2501, 2503 REVISED 10-16-2000 A.K.A.	STANDARD PLATE NO. 3100
--	--	--	--------------------------------------

APPROVED <u>DECEMBER 9, 2013</u> <i>Christine By</i> STATE DESIGN ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION RIPRAP AT RCP OUTLETS	SPECIFICATION REFERENCE 3100 3110 3601 3733 2811	STANDARD PLATE NO. 3133D
--	---	--	---------------------------------------

	CONCRETE STRUCTURE ADJUSTING RINGS	REVISED: 12/31/15
		SHEET: 1 OF 2
		PLATE NO. 1-13

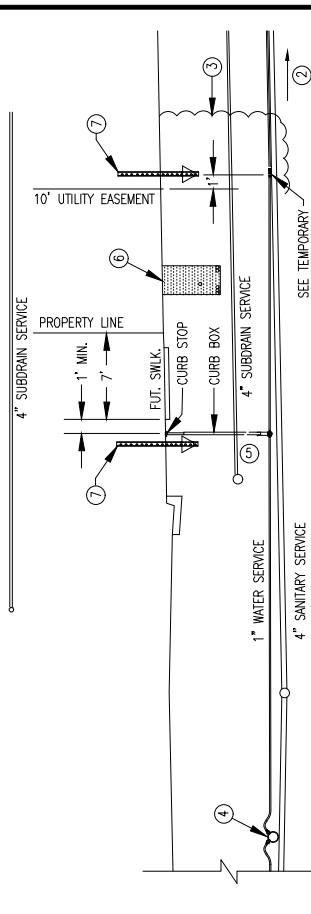


	CONCRETE CURB & GUTTER	REVISED:	12/31/19
		SHEET:	1 OF 1
		PLATE NO.	2-01

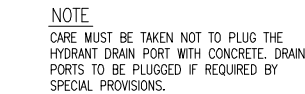
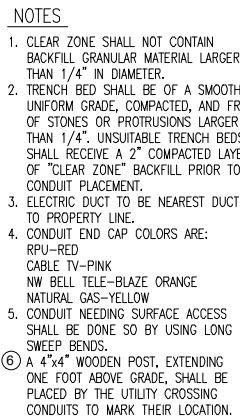
	TRANSITION CURB & GUTTER DRIVEOVER TO TYPE B OR V	REVISED: 12/31/19
		SHEET: 1 OF 1 PLATE NO. 2-05

	CURB & GUTTER REINFORCEMENT AT CATCH BASINS	REVISED: 12/31/19
		SHEET: 1 OF 1 PLATE NO. 2-06

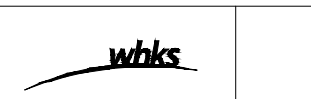
	CONCRETE CURB & GUTTER ALTERNATIVE	REVISED: 02/14/25
		SHEET: 1 OF 1 PLATE NO. 2-01A



-
- 1" WATER SERVICE
- 2
- FUTURE TO HOUSE
- TEMPORARY CAP DETAIL
1. INSTALL COMPRESSION COUPLER AND CAP. TEST MAIN WITH CURB STOP IN OPEN POSITION.
 2. TEMPORARY CAP ASSEMBLY CONSISTS OF 1" SOLDER BUSHING, COPPER DISC, AND 3" COPPER TUBE.
 3. REMOVE TEMPORARY CAP AND CONNECT INTO COUPLER WHEN HOUSE CONNECTION IS MADE.



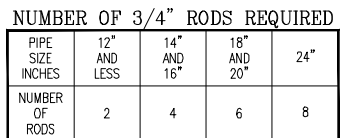
David A. Martin
Date _____ License No. 51131



REVISED:	12/31/19
SHEET:	1 OF 2
PLATE NO.	4-01



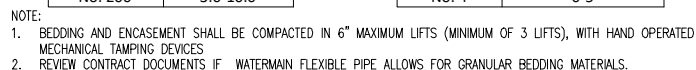
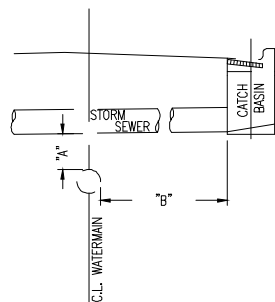
0 SUBDIVISION
ESOTA



TYPE OF FITTING	PIPE SIZE							
	6"	8"	10"	12"	14"	16"	18"	20"
11 1/4" BEND	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
22 1/2" BEND	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
45° BEND	18.0	18.0	18.0	18.0	19.0	21.4	23.8	26.0
90° BEND	19.6	19.6	24.0	28.2	32.4	36.6	40.8	44.8
TEE	18.0	18.0	18.0	18.0	20.0	25.0	36.0	40.0
PLUG	18.0	18.0	18.0	18.0	20.0	25.0	36.0	40.0
GATE VALVE	18.0	18.0	18.0	18.0	20.0	25.0	36.0	40.0
REDUCERS	18.0	18.0	18.0	18.0	20.0	25.0	36.0	40.0

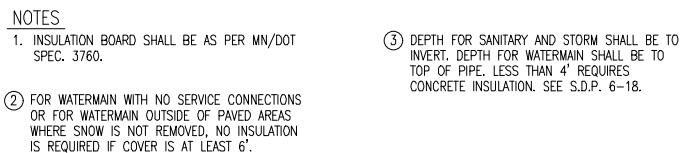
-
- The diagram illustrates the installation of a catch basin. A vertical line represents the 'C.L. WATERMAIN'. A horizontal line represents the 'C.L. STORM SEWER'. The catch basin is shown as a rectangular structure with a 'CATCH' label. The distance from the 'C.L. WATERMAIN' to the catch basin is marked as '10' ±'. The distance from the 'C.L. STORM SEWER' to the catch basin is marked as '10' ±'. The catch basin is shown with a 'B' MIN. dimension, indicating the minimum width of the catch basin.

- ### NOTES
1. THIS DETAIL APPLIES WHEN DIMENSION "A" IS LESS THAN 18", OR "B" IS LESS THAN 10".
 2. CENTER ONE FULL LENGTH PIECE OF PIPE ON CATCH BASIN OR OVER SEWER PIPE.
 3. SHALL MEET THE FOLLOWING CONDITIONS IF NOT INSTALLED AS SHOWN. STRUCTURE MUST HAVE AN INTEGRAL PRECAST BOTTOM SECTION, OR CONSTRUCTED WITH CONCRETE SLAB AND BARREL WITH TWO RINGS OF PREFORMED FLEXIBLE PLASTIC GASKET ASTM C990.

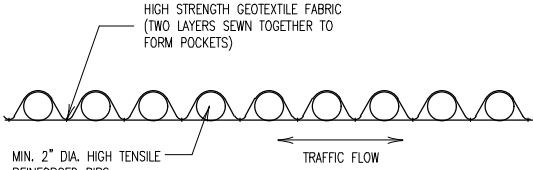
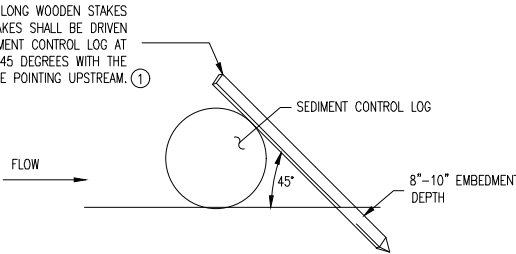


Sieve Size	Percent Passing
2"	-
1-1/2"	100
1"	-
3/4"	70-100
3/8"	45-90
No. 4	35-80
No. 10	20-65
No. 40	10-35
No. 200	3.0-10.0

Table B	
New material, no recycled	
Sieve Size	Percent Passing
2"	100
1-1/2"	95-100
1"	-
3/4"	35-70
5/8"	-
1/2"	-
3/8"	10-30
No. 4	0-5



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 SHEET PAD NOTES: SEE MN/DOT 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.		 SEDIMENT CONTROL LOG NOTES: SEE SPECS. 2573, 3897. ① PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL. 2. TYPES: WOOD CHIP, COMPOST OR ROCK		 TEMP. SEDIMENT CONTROL CONSTRUCTION EXITS REVISED: 12/31/19 SHEET: 2 OF 3 PLATE NO. 7-06		 SEDIMENT CONTROL LOG REVISED: 2/22/23 SHEET: 1 OF 1 PLATE NO. 7-10	
DETAILS-5		HARDWOOD ESTATES THIRD SUBDIVISION CANNON FALLS, MINNESOTA 2025		SCALE: AS SHOWN			
				WHKS PROJECT NO. 10196			
				DRAWN BY: KML			
				CHECKED BY: JPP			
				SHEET			
				6 OF 22			



engineers + planners + land surveyors

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

David A. Martin
Date _____ License No. 51131

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PROJECT LOCATION AND GENERAL SITE INFORMATION

PROJECT CONSISTS OF THE CONSTRUCTION OF STREETS AND UTILITIES FOR A RESIDENTIAL SUBDIVISION. PROJECT IS LOCATED SOUTH OF STATE HIGHWAY 19 AND WEST OF COUNTY ROAD 24 IN CANNON FALLS, MN.

TRAINING REQUIREMENTS

THE CONTRACTOR WILL ENSURE THAT THE TRAINING REQUIRED IN THE GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY IS COMPLIED WITH.

THE INDIVIDUAL TRAINED AND THE TRAINING RECEIVED WILL BE RECORDED IN THE SWPPP BEFORE THE START OF CONSTRUCTION OR AS SOON AS PERSONNEL FOR THE PROJECT HAVE BEEN DETERMINED.

LONG TERM OPERATION AND MAINTENANCE

THE CITY OF CANNON FALLS MAINTENANCE DEPARTMENT WILL BE RESPONSIBLE FOR THE LONG TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT.

JED PETERSON
PUBLIC WORKS DIRECTOR
918 RIVER ROAD
CANNON FALLS, MN 55009
(507)-263-9300

KARST REGION

THERE ARE NO KNOWN KARST FEATURES (SINKHOLES, BLIND VALLEYS, MAPPED CAVES, SPRINGS, OR KARST WINDOWS) WITHIN THE PROJECT AREA.

INSPECTIONS AND REPORTS PRACTICES

ROUTINE INSPECTION OF THE ENTIRE CONSTRUCTION SITE SHALL OCCUR AT LEAST ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS.

AT A MINIMUM, INSPECTIONS AND REPORTS MUST INCLUDE THE FOLLOWING:

- (1) DATE AND TIME OF INSPECTION.
- (2) NAME OF PERSON CONDUCTING INSPECTIONS
- (3) CONDITIONS OF SURFACE WATERS, DITCHES, CONVEYANCE SYSTEMS, AND VEHICLE EXITS.
- (4) FINDING OF INSPECTIONS, INCLUDING RECOMMENDATIONS FOR CORRECTIVE ACTIONS.
- (5) CORRECTIVE ACTIONS TAKEN, INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES.
- (6) DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 0.5 INCHES IN 24 HOURS.
- (7) DOCUMENTATION OF CHANGES MADE TO THE SWPPP WITHIN 7 DAYS.

RECEIVING SURFACE WATERS, DISCHARGE TO IMPAIRED WATERS & SPECIAL WATERS

THE TABLE BELOW IDENTIFIES ALL SURFACE WATERS WITHIN 1-MILE OF THE DISTURBED SOIL PROJECT BOUNDARIES, WHICH WILL RECEIVE STORMWATER RUNOFF FROM THE CONSTRUCTION SITE, DURING OR AFTER CONSTRUCTION.

RECEIVING SURFACE WATERS		
NAME OF WATER BODY	SPECIAL WATER (1)	IMPAIRED WATER (2)
CANNON RIVER	YES	YES

WETLAND AREAS

THIS PROJECT DOES NOT DISCHARGE STORMWATER WITH THE POTENTIAL FOR SIGNIFICANT ADVERSE IMPACTS TO A WETLAND.

DISTURBED SOIL AREA

TOTAL DISTURBED SOILS AREA FOR THIS PROJECT IS 13.1 ACRES.

IMPERVIOUS SOIL AREA

EXISTING AREA OF IMPERVIOUS SURFACE IS 0.0 ACRES.
POST CONSTRUCTION AREA OF IMPERVIOUS SURFACE IS 1.2 ACRES.
INCREASE OF IMPERVIOUS SURFACE IS 1.2 ACRES (PHASE 2 CONSTRUCTION ONLY).

THE INCREASE OF IMPERVIOUS SURFACES IS GREATER THAN 1.00 ACRE.

SOIL TYPES

THE SOIL TYPES FOUND ON THIS PROJECT ARE HSG A, B and C.

TEMPORARY SEDIMENT BASINS

THIS CONSTRUCTION PROJECT IS DESIGNED TO INCLUDE A SEDIMENT BASIN, SEE PLANS FOR DETAILS.

PERMANENT STORMWATER MANAGEMENT SYSTEM

ALL STORMWATER MUST BE DISCHARGED IN A MANNER THAT DOES NOT CAUSE NUISANCE CONDITIONS, EROSION IN RECEIVING WATERS OR ON DOWNSLOPE PROPERTIES, OR INUNDATION IN WETLANDS CAUSING A SIGNIFICANT ADVERSE IMPACT TO THE WETLANDS.

THIS PROJECT HAS AN INCREASE OF 1 OR MORE ACRE(S) OF IMPERVIOUS AREA. A PERMANENT STORMWATER MANAGEMENT SYSTEM WAS CONSTRUCTED AS PART OF HARDWOOD SECOND SUBDIVISION TO MANAGE THIS PHASE AND ALL FUTURE PHASES OF HARDWOOD ESTATES, AND IS ALREADY IN PLACE FOR THE PROJECT AREA.

CONSTRUCTION PHASING - EROSION AND SEDIMENT CONTROL SEQUENCING

SILT FENCE, CONSTRUCTION ENTRANCES, AND/OR OTHER SUITABLE PERIMETER BMP'S AS PROVIDED IN THE PLANS WILL BE INSTALLED PRIOR TO THE START OF ANY LAND DISTURBING ACTIVITY. CONSTRUCTION WILL BE REQUIRED TO BE PHASED SO THAT ALL DOWN GRADIENT SEDIMENT CONTROL MEASURES ARE INSTALLED PRIOR TO OR IN CONJUNCTION WITH ANY SOIL DISTURBING ACTIVITIES. THESE BMPS SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION.

WHEN THE EXISTING TOPSOIL IS DISTURBED, THE TOPSOIL WILL BE STRIPPED AND STOCKPILED IN SOIL BERMS. STOCK PILED TOPSOIL BERMS WILL NOT BE PLACED IN ANY STORMWATER CONVEYANCES.

UPON COMPLETION OF THE CONSTRUCTION ACTIVITIES, THE STOCKPILED TOPSOIL BERMS WILL BE RE-SPREAD AND PERMANENT VEGETATION WILL BE ESTABLISHED AS PROVIDED IN THE PLAN.

ALL SOIL DISTURBING ACTIVITIES MUST BE COMPLETED AND ALL SOILS MUST BE STABILIZED BY A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70% OVER THE ENTIRE PERVIOUS SURFACE AREA, OR OTHER EQUIVALENT MEANS NECESSARY TO PREVENT FUTURE SOIL FAILURE UNDER EROSIIVE CONDITIONS. ALL SEDIMENT MUST BE REMOVED FROM CONVEYANCE SYSTEMS AND DITCHES MUST BE STABILIZED WITH PERMANENT COVER. FINAL STABILIZATION SHALL BE DONE IN ACCORDANCE WITH THE PERMIT

EROSION PREVENTION PRACTICES

FOR AREAS WHERE DISTURBED SOILS DRAIN TO AN IMPAIRED OR SPECIAL WATER THE EXPOSED SOIL MUST BE STABILIZED NO LATER THAN 7 DAYS (14 DAYS IF NOT IMPAIRED OR SPECIAL WATER) AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA CEASED. SEE THE IMPAIRED & SPECIAL WATERS SECTION OF THIS SWPPP FOR ADDITIONAL BMP REQUIREMENTS FOR DISTURBED AREAS THAT DRAIN TO A SPECIAL OR IMPAIRED WATER.

SOILS SHALL BE STABILIZED WITHIN 24 HOURS FOR ACTIVITIES THAT ARE ADJACENT TO AND DRAIN TO PUBLIC WATERS WITH RESTRICTIONS DURING FISH SPAWNING TIMES.

THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH OR SWALE THAT DRAINS WATER FROM ANY PORTION OF THE CONSTRUCTION SITE, OR DIVERTS WATER AROUND THE SITE, MUST BE STABILIZED WITHIN 200 LINEAL FEET FROM THE POINT OF DISCHARGE INTO ANY SURFACE WATER. STABILIZATION OF THE LAST 200 LINEAL FEET MUST BE COMPLETED WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER.

PIPE CULVERT OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER. THIS WILL INCLUDE DRAINAGE DITCHES THAT DRAIN WATER FROM ANY PORTION OF THE CONSTRUCTION SITE.

SEDIMENT CONTROL PRACTICES

TEMPORARY STOCKPILED TOPSOIL BERMS MUST INCLUDE PERIMETER BMP'S AS PROVIDED IN THE PLAN AT LOCATIONS WHERE CONSTRUCTION STORMWATER DRAINS FROM THE PROJECT.

A 50 FOOT NATURAL BUFFER, OR REDUNDANT SEDIMENT CONTROLS IF BUFFER IS NOT FEASIBLE, SHALL BE USED NEAR SURFACE WATERS.

IN ORDER TO MAINTAIN SHEET FLOW AND MINIMIZE RILLS AND/OR GULLIES, THERE SHALL BE NO UNBROKEN SLOPE LENGTH OF GREATER THAN 75 FEET FOR SLOPES WITH A GRADE OF 1:3 OR STEEPER.

ALL STORM DRAIN INLETS AND CULVERTS MUST BE PROTECTED BY APPROPRIATE BMP'S DURING CONSTRUCTION UNTIL ALL SOURCES WITH A POTENTIAL DISCHARGE TO THE INLET OR CULVERT HAVE BEEN STABILIZED.

VEHICLE TRACKING OF SEDIMENT FROM THE CONSTRUCTION SITE MUST BE MINIMIZED BY THE USE OF A STABILIZED CONSTRUCTION ENTRANCE AND OTHER BMPS. STREET SWEEPING MUST BE USED IF SEDIMENT IS BEING TRACKED OFF THE CONSTRUCTION SITE.

UNLESS OTHERWISE SPECIFIED IN THE PERMIT, ALL NONFUNCTIONAL BMP'S MUST BE CLEANED, REPAIRED, REPLACED, OR SUPPLEMENTED WITH FUNCTIONAL BMP'S WITHIN 24 HOURS AFTER DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALLOW FOR ACCESS.

PROJECT CONTACTS

RESPONSIBLE AGENCY / PARTY	PERMIT CERTIFIED TRAINING (REFRESHER EVERY 3 YEARS)	INSTRUCTOR, DATE OF TRAINING	CONTACT NAME	PHONE NUMBER
MPCA	NPDES		BRIAN GREEN	507-206-2610
MPCA	EMERGENCY		STATE DUTY OFFICER	800-422-0798
DNR	NOT REQUIRED		PETER LEETE	651-296-6569
COE	NOT REQUIRED		DAVE STUDENSKI	507-895-2064
SWPPP PREPARATION	U OF MN DESIGN OF SWPPP EXPIRES 5/27	JOHN CHAPMAN ONLINE FALL 2023	TYLER BAUMBACH	507-288-3923
INSPECTOR			TO BE DETERMINED	
PROJECT ENGINEER	U OF MN DESIGN OF SWPPP EXPIRES 5/27	JOHN CHAPMAN ONLINE FALL 2023	TYLER BAUMBACH	507-288-3923
EROSION CONTROL SUPERVISOR (CONTRACTOR)	TO BE DETERMINED		TO BE DETERMINED	
CHAIN OF RESPONSIBILITY	NOT REQUIRED		TO BE DETERMINED	

EROSION & SEDIMENT CONTROL SCHEDULE:

- 1) MARK GRADING LIMITS AND "DO NOT DISTURB AREAS".
- 2) INSTALL PERIMETER EROSION CONTROL.
- 3) CONSTRUCT STABILIZED VEHICLE EXITS.
- 4) INSTALL INLET PROTECTION.
- 5) BEGIN GRADING OPERATIONS.
- 6) INCREMENTALLY SEED AND BLANKET AREAS OR SOD AS GRADING PROGRESSES.
- 7) MAINTAIN AND UPDATE INLET PROTECTION THROUGH JOB PHASES.
- 8) COMPLETE MAINTENANCE AND REPAIRS OF EROSION AND SEDIMENT CONTROLS.
- 9) STABILIZE FINAL INCREMENT OF GRADING AREA.
- 10) MONITOR GRASS GROWTH AND RESEED/RESOD WHERE NEEDED UNTIL SITE IS STABILIZED.
- 11) REMOVE SILT FENCE AND OTHER TEMPORARY EROSION CONTROLS.
- 12) CLEAN BASINS OF ALL CONSTRUCTION RELATED SEDIMENTATION WHENEVER VOLUME REACHES 1/2 STORAGE VOLUME.
- 13) FILE "NOTICE OF TERMINATION" WITH THE MPCA.

RECORD RETENTION

THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WILL BE AMENDED IF THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, MAINTENANCE, WEATHER OR SEASONAL CONDITIONS THAT HAS A SIGNIFICANT IMPACT ON THE DISCHARGE TO SURFACE WATERS OR UNDERGROUND WATERS. THE PLAN WILL ALSO BE AMENDED IF IT IS PROVEN TO BE INADEQUATE IN CONTROLLING POLLUTANTS IN STORM WATER DISCHARGES DUE TO CONSTRUCTION ACTIVITIES.

THE SWPPP, ORIGINAL AND COPIES, MUST BE KEPT ON SITE DURING CONSTRUCTION BY THE PERMITTEE WHO HAS OPERATIONAL CONTROL OF THE SITE. ALL OWNERS MUST KEEP THE SWPPP, TRAINING DOCUMENTATION, RECORDS OF ALL INSPECTION AND MAINTENANCE, ALL PERMANENT OPERATION AND MAINTENANCE AGREEMENTS, ALL REQUIRED CALCULATIONS FOR DESIGN OF STORMWATER MANAGEMENT SYSTEMS, AND ANY OTHER PERMITS REQUIRED FOR THE PROJECT FOR THREE (3) YEARS AFTER SUBMITTAL OF THE NOTICE OF TERMINATION AS DESCRIBED IN III.D

QUANTITIES:

- 1 EACH TEMPORARY ROCK CONSTRUCTION ENTRANCE
- 1,118 L.F. SILT FENCE
- 17 EACH DITCH CHECKS
- 17 EACH INLET PROTECTION
- 2,611 L.F. BIOROLL
- 2,193 S.Y. PERMANENT MATTING
- * ADDITIONAL TEMPORARY BMP'S MAY BE USED IF NECESSARY, AS APPROVED BY THE ENGINEER

LOCATION OF SWPPP REQUIREMENTS

REQUIREMENT	TITLE	LOCATION	MN/DOT SPECIFICATION	SPECIAL PROVISION
NPDES PERMIT COMPLIANCE	SWPPP		1701, 1702, & 1717	1717 (AIR, LAND, & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
CERTIFIED PERSONNEL IN EROSION AND SEDIMENT CONTROL SITE MANAGEMENT	PROJECT CONTACTS	SWPPP PLANSET PAGE	1506, 1717, & 2573	1717 (AIR, LAND, & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
CHAIN OF RESPONSIBILITY	PROJECT CONTACTS			
PROJECT SCHEDULE / WEEKLY EROSION & SEDIMENT CONTROL SCHEDULE / COMPLETED INSPECTION / MAINTENANCE LOG				1717 (AIR, LAND, & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
SWPPP PREPARATION				
SITE MAP / RECEIVING WATERS / DIRECTION OF FLOW	GENERAL LAYOUT	PLANS	1717	
PROJECT SPECIFIC CONSTRUCTION STAGING			1717	1717 (AIR, LAND, & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT) 1806 (DETERMINATION AND EXTENSION OF CONTRACT TIME)
TEMPORARY EROSION AND SEDIMENT CONTROL BMP LOCATIONS, INSTALLATION, TIMING OF INSTALLATION , AND TYPE OF BMP	QUANTITY TABULATIONS	PLANS	2573 & 2575	2573 (STORMWATER MANAGEMENT)
ADDITIONAL TEMPORARY AND OR PERMANENT EROSION AND SEDIMENT CONTROL BMP'S NOT PROVIDED OR SHOWN IN THE PLAN			1717, 2573, & 2575	1717 (AIR, LAND, & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT) 2575 (RAPID STABILIZATION SPECIFICATION)
MAINTENANCE OF EROSION AND SEDIMENT CONTROL DEVICES, REMOVAL OF TRACKED SEDIMENT, REMOVAL OF DEVICES	SEDIMENT CONTROL PRACTICES	SWPPP PLANSET PAGE	1717 & 2573	1514 (MAINTENANCE DURING CONSTRUCTION) 1717 (AIR, LAND, & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
DEWATERING	DEWATERING & DRAINING	SWPPP DOCUMENT	2105.3B & 2451.3C	DEWATERING MAY ALSO REQUIRE A DNR PERMIT. NO DEWATERING IS ANTICIPATED FOR THIS PROEJCT.
FINAL STABILIZATION	QUANTITY TABULATIONS	PLANS & SPECS	1717, 2573, & 2575	1717 (AIR, LAND, & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
TEMPORARY EROSION AND SEDIMENT CONTROL DETAILS	EROSION CONTROL	PLAN DETAILS		
PERMANENT EROSION CONTROL DETAILS	EROSION CONTROL	PLAN DETAILS		



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

David A. Martin

Date

51131

License No.

REVISIONS

NO.	DATE	DESCRIPTION

SWPPP-1

HARDWOOD ESTATES THIRD SUBDIVISION
CANNON FALLS, MINNESOTA
2025

SCALE:
AS SHOWN

WHKS PROJECT NO.
10196

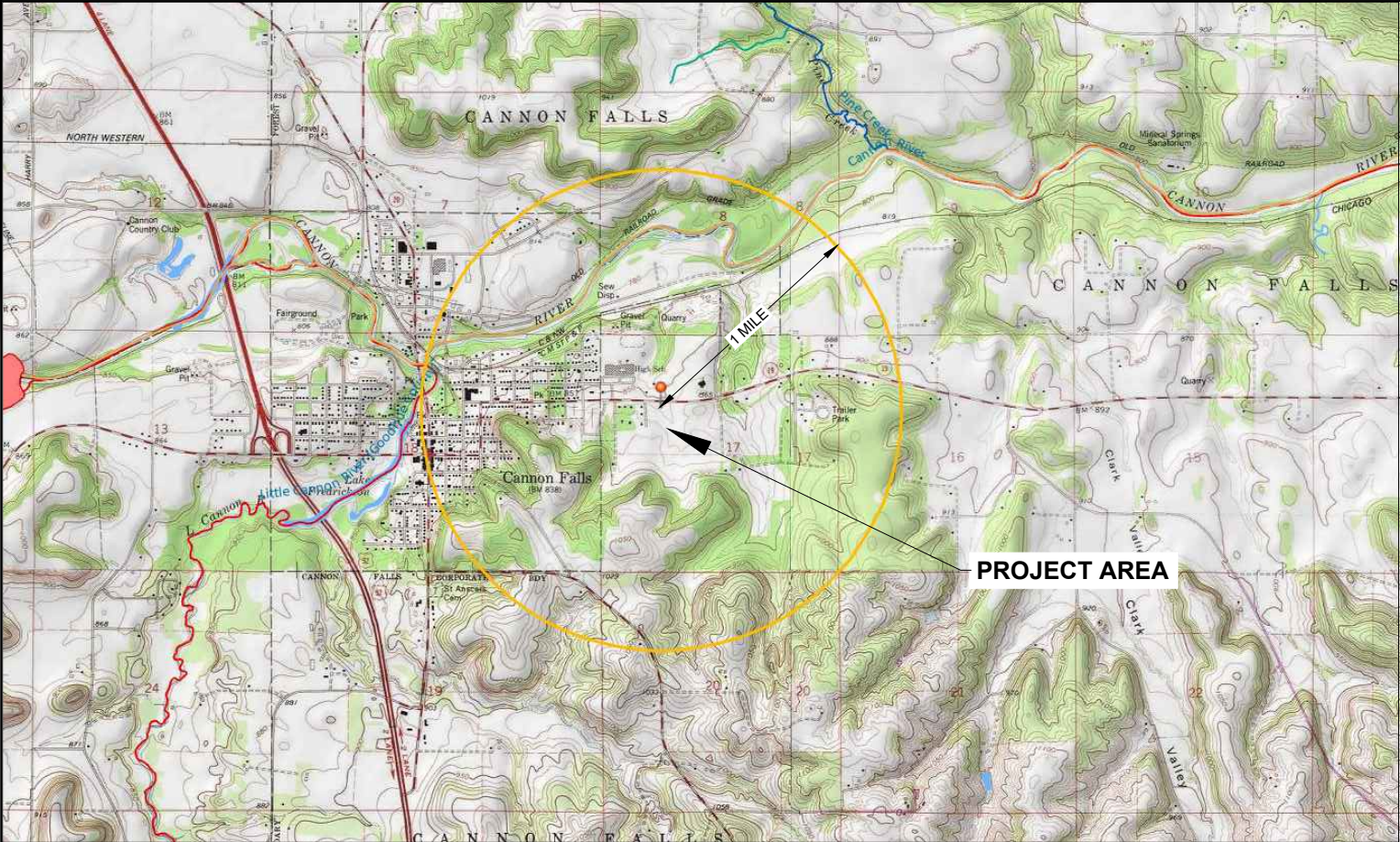
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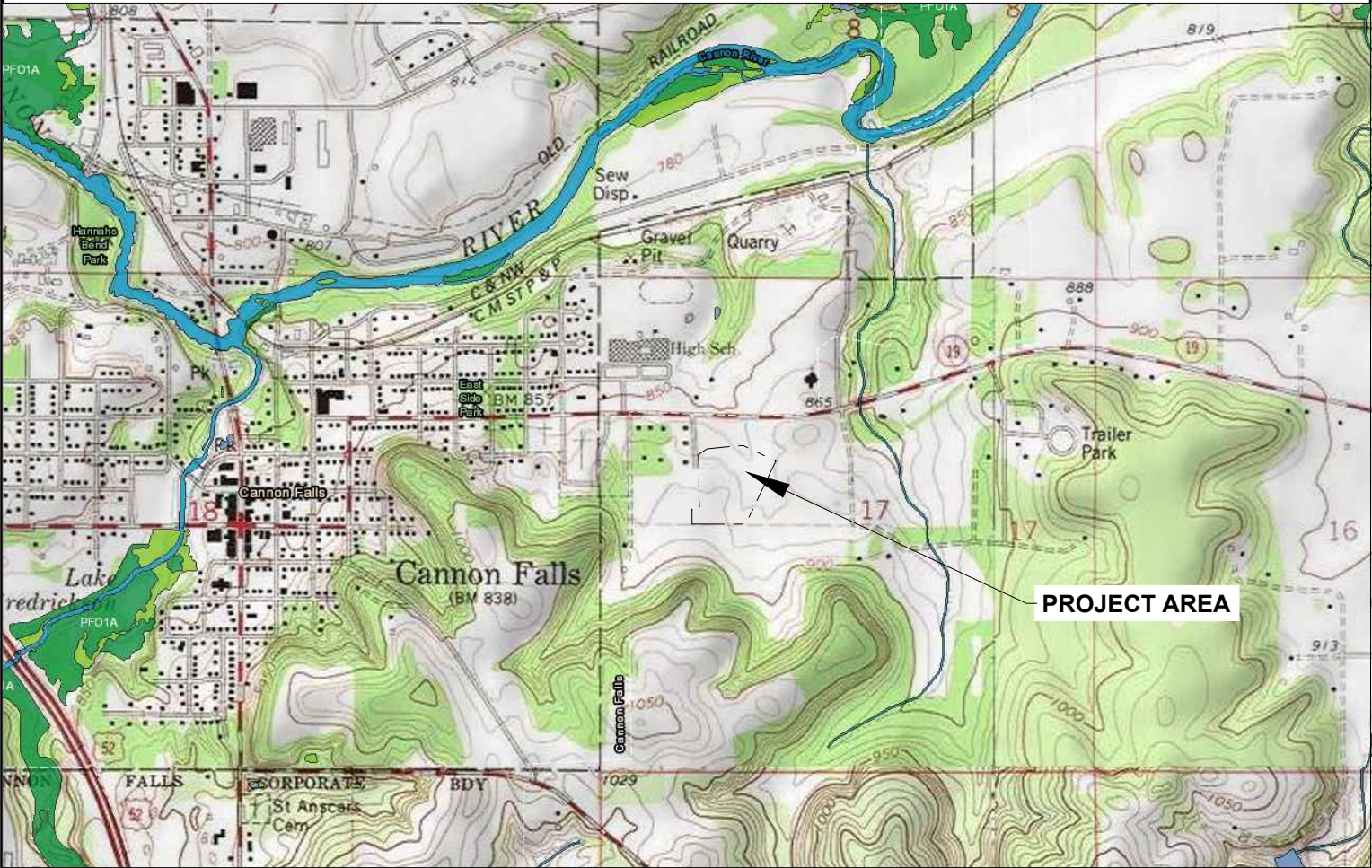
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SPECIAL WATERS MAP / QUAD MAP



QUAD/WETLAND MAP

POLLUTION PREVENTION MEASURES

THE CONTRACTOR WILL IMPLEMENT THE POLLUTION PREVENTION MANAGEMENT MEASURES AS DIRECTED IN THE NPDES PERMIT AS PERTAINING TO SOLID WASTE, HAZARDOUS MATERIALS, EXTERNAL TRUCK WASHING, AND CONCRETE WASHOUT ON SITE.

SOLID WASTE: NON-HAZARDOUS WASTE SUCH AS COLLECTED SEDIMENT, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, CONSTRUCTION DEBRIS AND OTHER WASTES SHALL BE STOCKPILED AT AN APPROVED LOCATION. ALL NON-HAZARDOUS WASTE SHALL BE DISPOSED OF PROPERLY AND IN ACCORDANCE WITH MPCA REQUIREMENTS AND MNDOT SPECIFICATION 1717.A.4.

HAZARDOUS WASTE: ALL HAZARDOUS WASTE SUCH AS OIL, GASOLINE, PAINT AND ANY HAZARDOUS SUBSTANCES MUST BE PROPERLY STORED. STORAGE SHALL INCLUDING SECONDARY CONTAINMENT OR OTHER MEASURES TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGES. ACCESS TO STORAGE AREAS MUST BE RESTRICTED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST COMPLY WITH MANUFACTURERS' RECOMMENDATIONS AND THE MPCA REQUIREMENTS.

CONSTRUCTION VEHICLE WASHING: EXTERNAL WASHING OF TRUCKS AND CONSTRUCTION VEHICLES WILL NOT BE ALLOWED ON SITE. ENGINE DEGREASING IS NOT ALLOWED ON SITE.

FUELING AND SPILL PLAN: THE CONTRACTOR SHALL HAVE A FUELING OPERATION PLAN AND A PLAN IN THE EVENT OF A SPILL

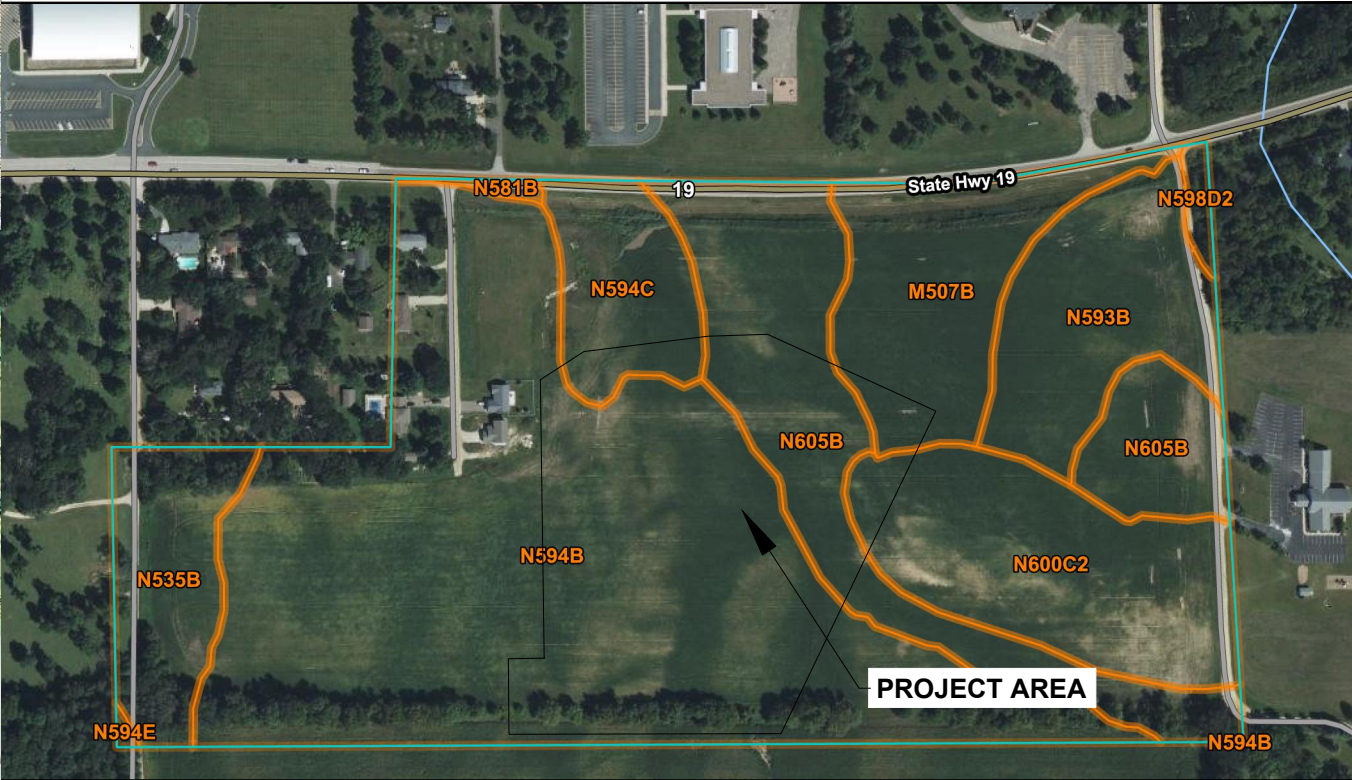
CHEMICAL TREATMENT PLAN: THE CONTRACTOR SHALL HAVE A CHEMICAL TREATMENT PLAN THAT INCLUDES CHEMICALS USED FOR FLOCCULATION

SANITARY AND SEPTIC WASTE: PORTABLE TOILETS ON THE SITE MUST BE SECURED AND SANITARY WASTE DISPOSAL WILL COMPLY WITH THE MPCA SEPTAGE MANAGEMENT GUIDELINES INCORPORATING 40 CFR PART 503.

FOR CONCRETE WASHOUT ON SITE, ALL LIQUID AND SOLID WASTES GENERATED BY CONCRETE WASHOUT OPERATIONS MUST BE CONTAINED IN A LEAK-PROOF CONTAINMENT FACILITY OR IMPERMEABLE LINER. A COMPACTED CLAY LINER THAT DOES NOT ALLOW WASHOUT LIQUIDS TO ENTER GROUND WATER IS CONSIDERED AN IMPERMEABLE LINER. THE LIQUID AND SOLID WASTES MUST NOT CONTACT THE GROUND, AND THERE MUST NOT BE RUNOFF FROM THE CONCRETE WASHOUT OPERATIONS OR AREAS. LIQUID AND SOLID WASTES MUST BE DISPOSED OF PROPERLY AND IN COMPLIANCE WITH MPCA REGULATIONS. A SIGN MUST BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE PROPER FACILITIES.

THESE MANAGEMENT MEASURES FOR POLLUTION PREVENTION WILL BE STRICTLY ENFORCED.

SOILS MAP



Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
M507B	Marquis silt loam, 2 to 6 percent slopes	5.0	8.5%
N535B	Hesch-Rasset complex, 1 to 6 percent slopes	3.2	5.5%
N581B	Rockton-Atkinson complex, strath terrace, 2 to 6 percent slopes	0.2	0.3%
N593B	Sparta loamy sand, 0 to 6 percent slopes	4.8	8.1%
N594B	Chelsea loamy sand, 2 to 6 percent slopes	26.6	45.4%
N594C	Chelsea loamy sand, 6 to 12 percent slopes	2.9	4.9%
N594E	Chelsea loamy sand, 12 to 35 percent slopes	0.1	0.1%
N598D2	Winneshiek-Waucoma complex, 12 to 18 percent slopes, moderately eroded	0.3	0.5%
N600C2	Eleva-Alvin complex, 6 to 12 percent slopes, moderately eroded	6.6	11.2%
N605B	Rasset sandy loam, strath terrace, 2 to 6 percent slopes	9.1	15.5%
Totals for Area of Interest		58.6	100.0%

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

REVISIONS	NO.	DATE	DESCRIPTION

SWPPP-2	HARDWOOD ESTATES THIRD SUBDIVISION CANNON FALLS, MINNESOTA 2025
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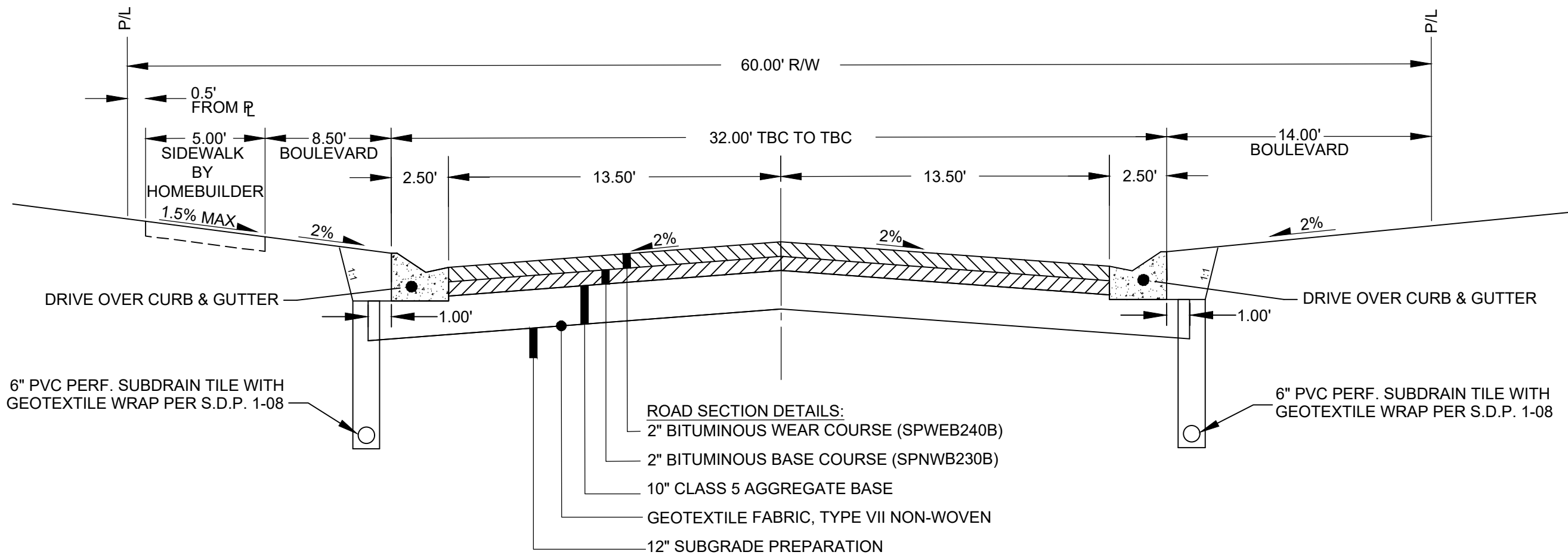
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SHEET 8 OF 22

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David A. Martin
Date
License No. 51131

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TYPICAL ROAD SECTION
NOT TO SCALE

SERVICE CONNECTIONS												
BLOCK	LOT	SERVICE LOCATION		ELEVATION AT END OF SANITARY LATERAL	RISER HEIGHT AT MAIN	SERVICE PIPE SLOPE	SEWER SERVICE LENGTH FROM MAIN TO EASEMENT	SDR 26 PVC SANITARY SERVICE SIZE	4" WYE	WATER SERVICE	FINISH GROUND ELEVATION AT CURB BOX	SANITARY LATERAL DEPTH
		STATION AT WYE	SIDE									
1	1	73+03.58	LEFT	860.1	0.0	2.0%	40.0	4"	1	1"	871.8	11.7
1	2	72+36.79	LEFT	859.8	0.0	2.0%	45.4	4"	1	1"	872.4	12.6
1	3	72+36.79	LEFT	864.4	5.0	2.0%	40.0	4"	1	1"	873.2	8.9
1	4	71+65.01	LEFT	865.0	6.0	2.0%	43.1	4"	1	1"	874.2	9.2
1	5	70+62.14	LEFT	863.7	6.0	2.0%	29.2	4"	1	1"	875.0	11.3
1	6	69+95.09	LEFT	862.9	4.0	2.0%	65.6	4"	1	1"	875.4	12.5
1	7	69+98.43	LEFT	863.4	4.0	2.0%	75.6	4"	1	1"	875.2	11.7
1	8	70+06.14	RIGHT	863.0	4.0	2.0%	46.2	4"	1	1"	874.3	11.3
1	9	70+55.23	RIGHT	859.3	0.0	2.0%	40.0	4"	1	1"	873.2	13.9
1	10	71+61.14	RIGHT	859.9	0.0	2.0%	38.9	4"	1	1"	872.0	12.1
1	11	72+86.35	RIGHT	861.7	0.0	2.0%	40.0	4"	1	1"	872.9	11.2
1	12	22+83.71	LEFT	863.8	0.0	2.0%	31.0	4"	1	1"	874.8	11.0
1	13	21+51.25	LEFT	869.0	0.0	2.0%	40.0	4"	1	1"	880.3	11.3
1	14	19+89.66	LEFT	870.1	0.0	2.0%	40.0	4"	1	1"	881.5	11.4
1	15	19+14.96	LEFT	871.3	0.0	2.0%	40.0	4"	1	1"	882.1	10.8
2	1	74+18.96	LEFT	861.2	0.0	2.0%	40.0	4"	1	1"	871.2	10.0
3	2	17+27.15*	RIGHT	872.4	0.0	2.0%	30.6	4"	0	1"	883.1	10.7
3	3	18+53.45	RIGHT	871.1	0.0	2.0%	40.0	4"	1	1"	882.1	11.1
3	4	19+25.90	RIGHT	870.0	0.0	2.0%	40.0	4"	1	1"	881.5	11.5
3	5	19+98.45	RIGHT	868.9	0.0	2.0%	40.0	4"	1	1"	880.3	11.4
3	6	20+57.07	RIGHT	867.1	0.0	2.0%	44.5	4"	1	1"	878.3	11.2
3	7	21+10.28	RIGHT	865.2	0.0	2.0%	45.1	4"	1	1"	876.4	11.2
3	8	21+63.52	RIGHT	863.8	0.0	2.0%	48.5	4"	1	1"	874.5	10.7
3	9	22+16.62	RIGHT	862.1	0.0	2.0%	39.4	4"	1	1"	873.6	11.5
3	10	22+87.79	RIGHT	861.7	0.0	2.0%	40.0	4"	1	1"	872.9	11.2
3	11	74+12.96	RIGHT	861.1	0.0	2.0%	40.0	4"	1	1"	871.6	10.5
FUTURE**	1	26+87.49	LEFT	861.2	0.0	2.0%	40.0	4"	1	1"	870.5	9.3

*STATION AND LENGTH APPROXIMATED FROM POINT OF CONNECTION TO EXISTING SERVICE FROM HARDWOOD SECOND SUBDIVISION

**INSTALL SANITARY SERVICE TO FUTURE LOT



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David A. Martin

51131

Date

REVISIONS		NO.	DATE	DESCRIPTION

TYPICAL ROAD SECTION & SERVICE TABLE

HARDWOOD ESTATES THIRD SUBDIVISION
CANNON FALLS, MINNESOTA
2025

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EXISTING CONDITIONS & REMOVALS PLAN

HARDWOOD ESTATES THIRD SUBDIVISION
CANNON FALLS, MINNESOTA
2025

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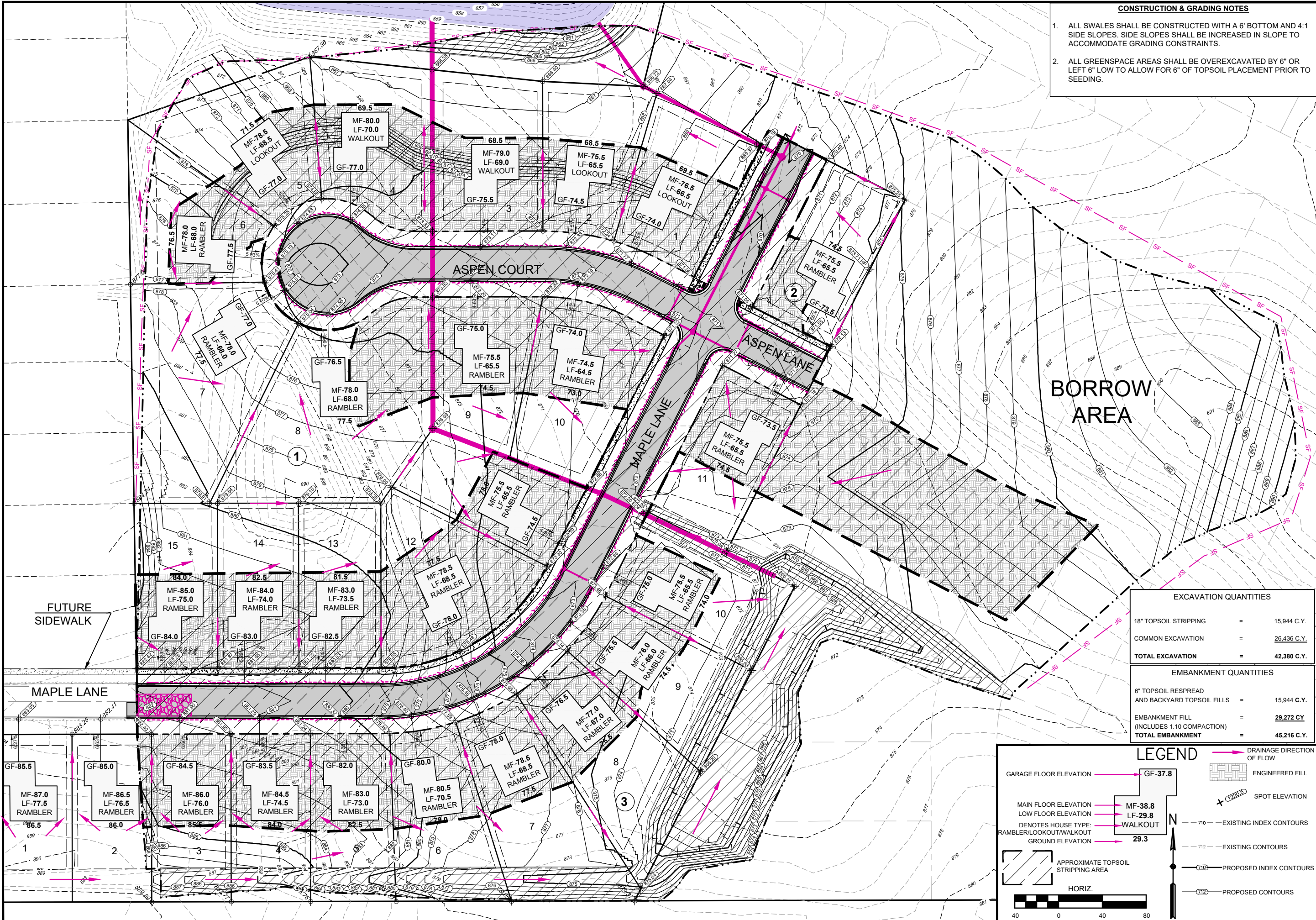
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PRELIMINARY ONLY - NOT FOR CONSTRUCTION

Name _____ Date _____ License No. _____

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- CONSTRUCTION & GRADING NOTES**
1. ALL SWALES SHALL BE CONSTRUCTED WITH A 6' BOTTOM AND 4:1 SIDE SLOPES. SIDE SLOPES SHALL BE INCREASED IN SLOPE TO ACCOMMODATE GRADING CONSTRAINTS.
 2. ALL GREENSPACE AREAS SHALL BE OVEREXCAVATED BY 6" OR LEFT 6" LOW TO ALLOW FOR 6" OF TOPSOIL PLACEMENT PRIOR TO SEEDING.

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GRADING PLAN

HARDWOOD ESTATES THIRD SUBDIVISION
CANNON FALLS, MINNESOTA
2025

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EXCAVATION QUANTITIES	
18" TOPSOIL STRIPPING	= 15,944 C.Y.
COMMON EXCAVATION	= 26,436 C.Y.
TOTAL EXCAVATION	= 42,380 C.Y.

EMBANKMENT QUANTITIES	
6" TOPSOIL RESPREAD AND BACKYARD TOPSOIL FILLS	= 15,944 C.Y.
EMBANKMENT FILL (INCLUDES 1.10 COMPACTION)	= 29,272 CY
TOTAL EMBANKMENT	= 45,216 C.Y.

LEGEND

Garage Floor Elevation — GF-37.8

Main Floor Elevation — MF-38.8

Low Floor Elevation — LF-29.8

Denotes House Type: — WALKOUT

Ground Elevation — 29.3

APPROXIMATE TOPSOIL STRIPPING AREA

HORIZ.

40 0 40 80

Drainage Direction of Flow

Engineered Fill

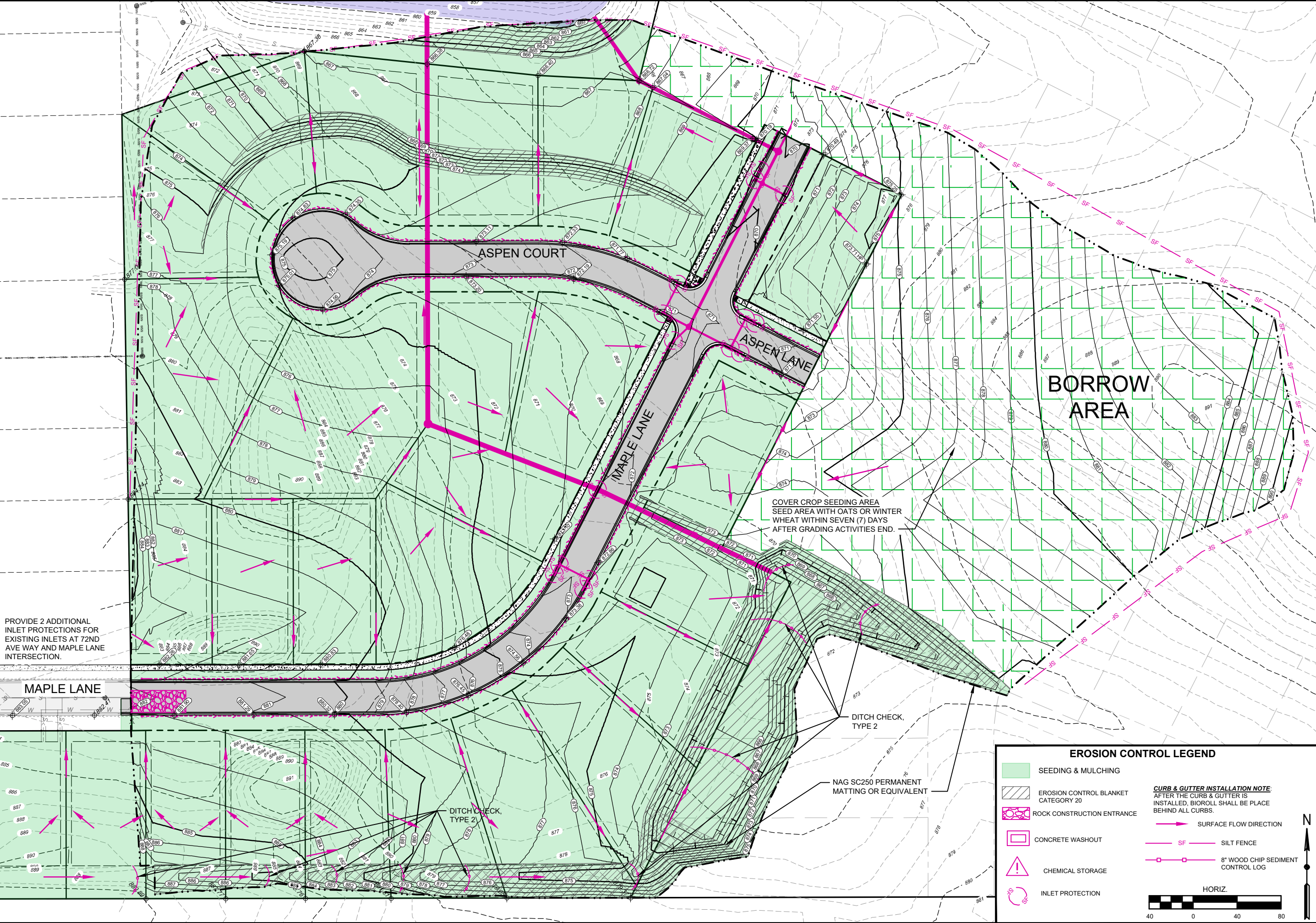
Spot Elevation

Existing Index Contours

Existing Contours

Proposed Index Contours

Proposed Contours



EROSION CONTROL LEGEND

	SEEDING & MULCHING
	EROSION CONTROL BLANKET CATEGORY 20
	ROCK CONSTRUCTION ENTRANCE
	CONCRETE WASHOUT
	CHEMICAL STORAGE
	INLET PROTECTION
	SURFACE FLOW DIRECTION
	SILT FENCE
	8" WOOD CHIP SEDIMENT CONTROL LOG

CURB & GUTTER INSTALLATION NOTE:
AFTER THE CURB & GUTTER IS INSTALLED, BIOROLL SHALL BE PLACED BEHIND ALL CURBS.

HORIZ.

40 0 40 80

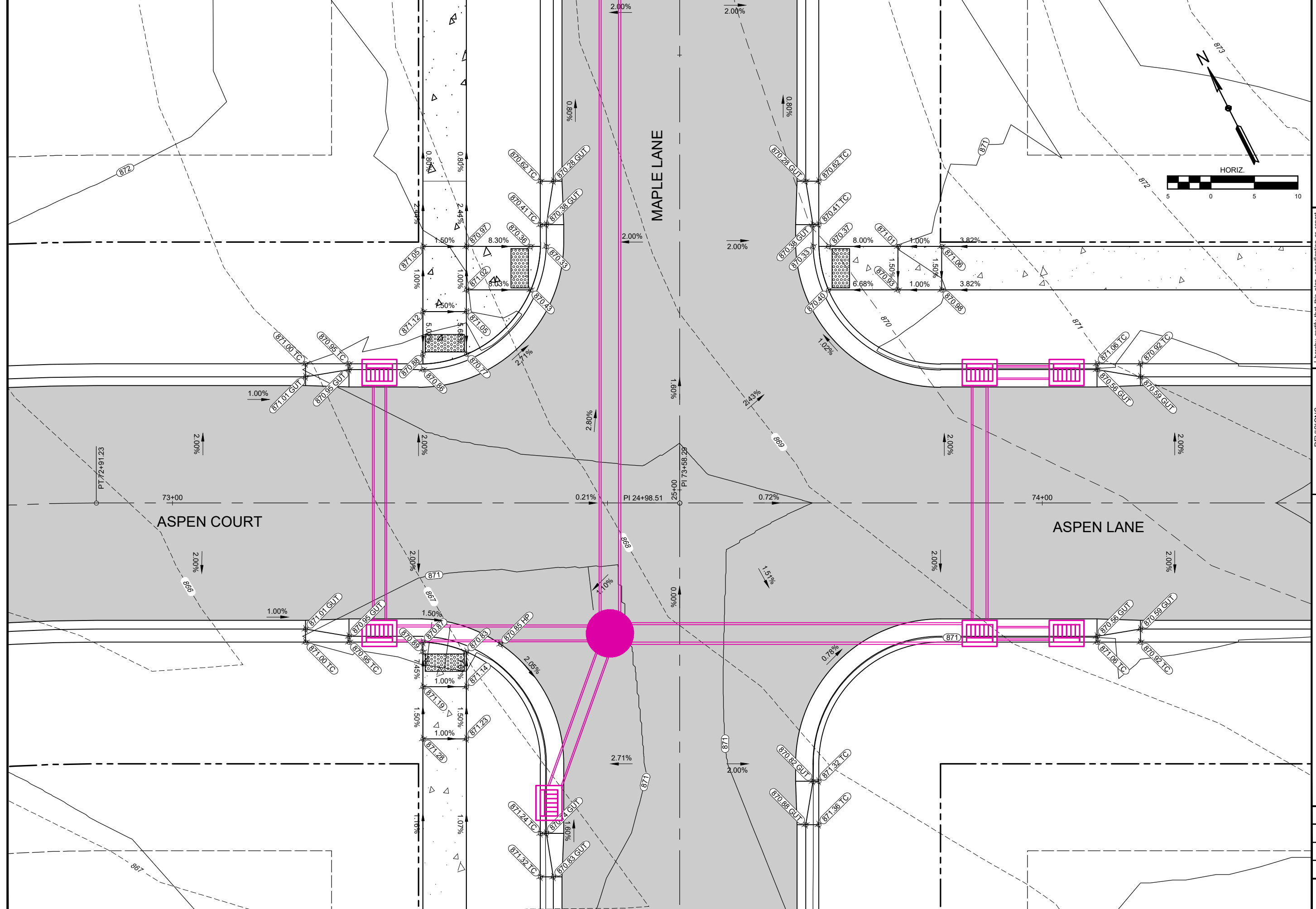
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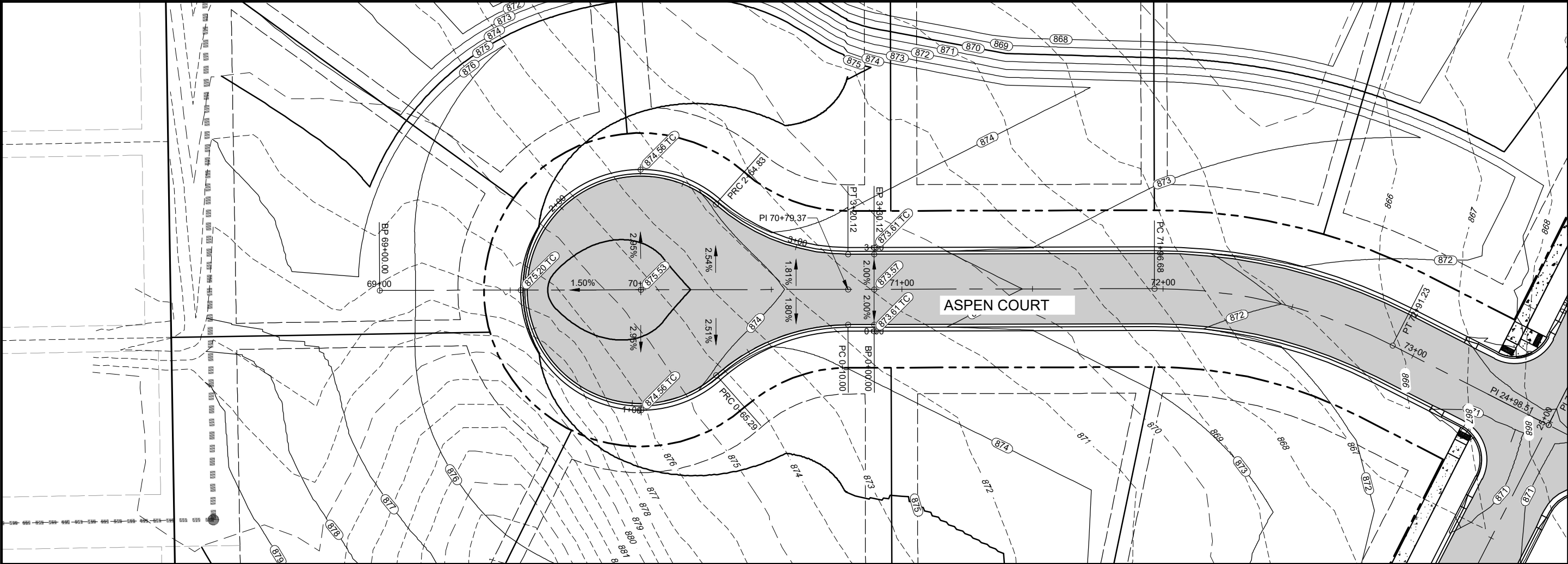
EROSION CONTROL PLAN	
HARDWOOD ESTATES THIRD SUBDIVISION CANNON FALLS, MINNESOTA 2025	

REVISIONS	
NO.	DATE

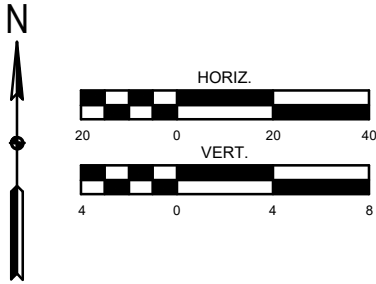
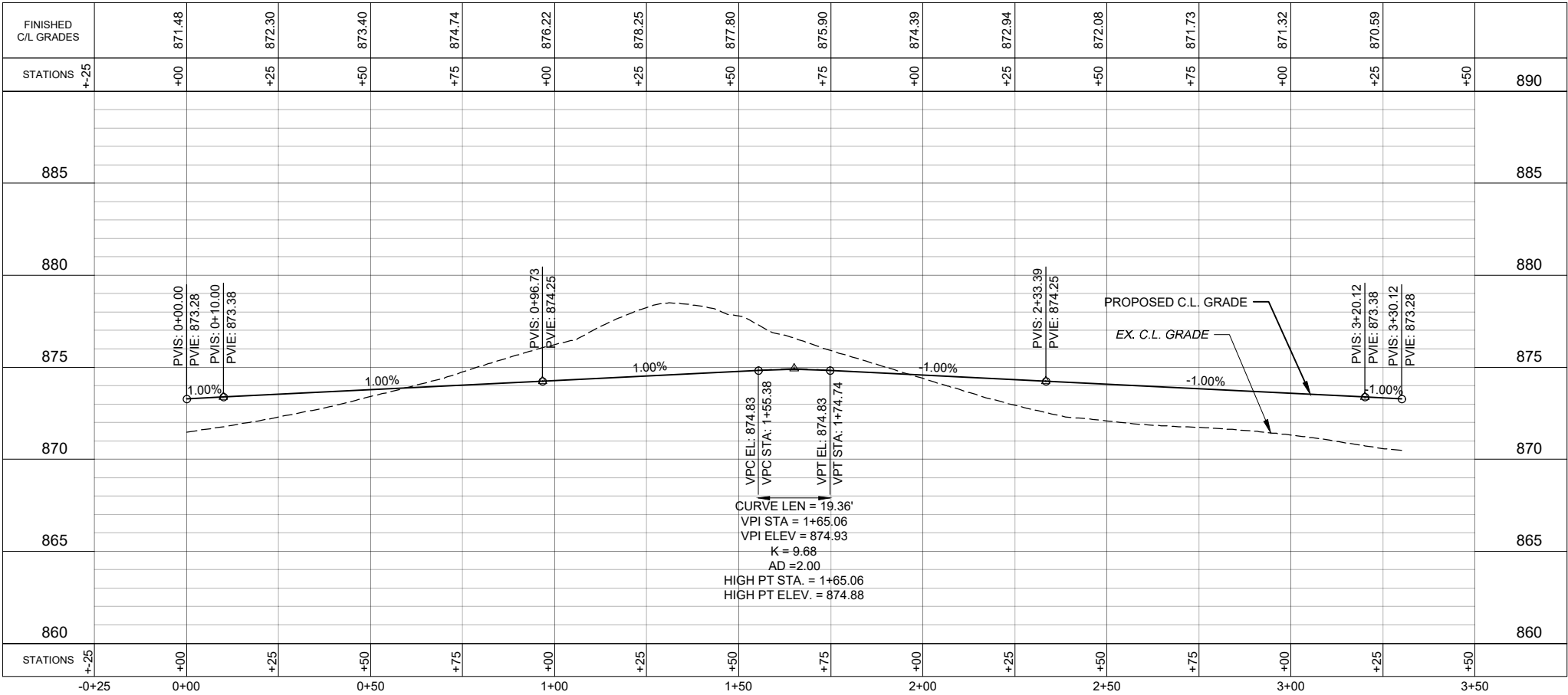
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David A. Martin	License No. 51131
Date	

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ASPEN COURT CURB PROFILE



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David A. Martin

Date

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ASPHEN COURT CURB PROFILE

HARDWOOD ESTATES THIRD SUBDIVISION
CANNON FALLS, MINNESOTA
2025

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REVISIONS

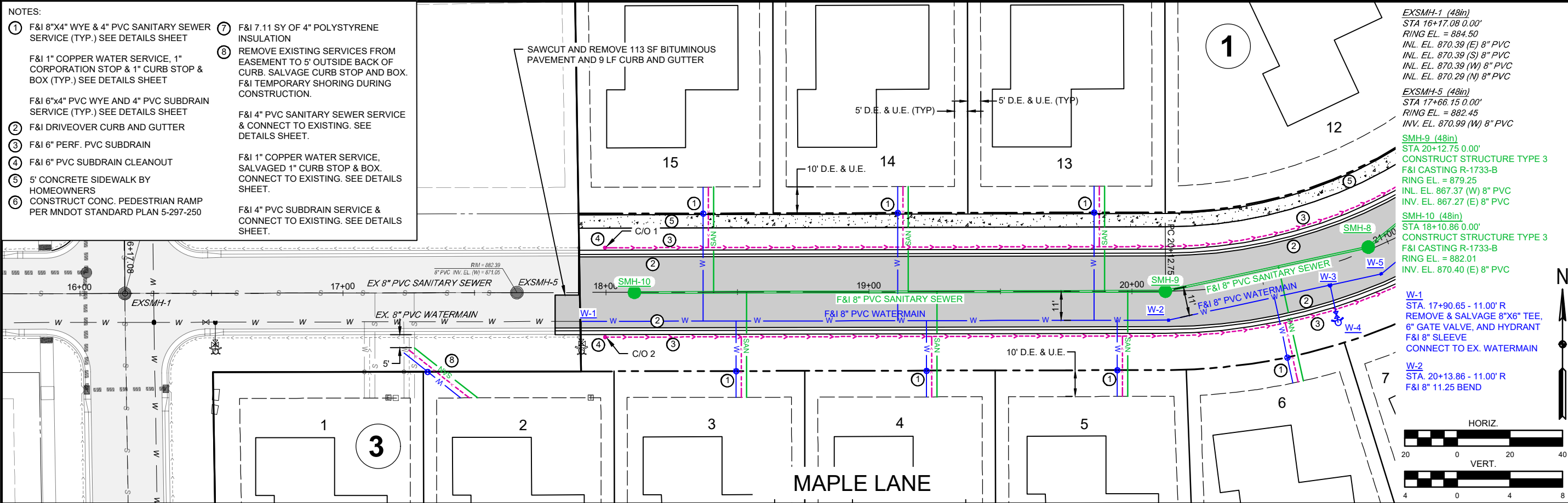
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- NOTES:
- ① F&I 8"x4" WYE & 4" PVC SANITARY SEWER SERVICE (TYP.) SEE DETAILS SHEET
- F&I 1" COPPER WATER SERVICE, 1" CORPORATION STOP & 1" CURB STOP & BOX (TYP.) SEE DETAILS SHEET
- F&I 6"x4" PVC WYE AND 4" PVC SUBDRAIN SERVICE (TYP.) SEE DETAILS SHEET
- F&I DRIVEOVER CURB AND GUTTER
- ② F&I 6" PERF. PVC SUBDRAIN
- ③ F&I 6" PVC SUBDRAIN CLEANOUT
- ④ 5' CONCRETE SIDEWALK BY HOMEOWNERS
- ⑤ CONSTRUCT CONC. PEDESTRIAN RAMP PER MNDOT STANDARD PLAN 5-297-250

- ⑦ F&I 7.11 SY OF 4" POLYSTYRENE INSULATION
- ⑧ REMOVE EXISTING SERVICES FROM EASEMENT TO 5' OUTSIDE BACK OF CURB. SALVAGE CURB STOP AND BOX. F&I TEMPORARY SHORING DURING CONSTRUCTION.
- F&I 4" PVC SANITARY SEWER SERVICE & CONNECT TO EXISTING. SEE DETAILS SHEET.
- F&I 1" COPPER WATER SERVICE, SALVAGED 1" CURB STOP & BOX. CONNECT TO EXISTING. SEE DETAILS SHEET.
- F&I 4" PVC SUBDRAIN SERVICE & CONNECT TO EXISTING. SEE DETAILS SHEET.

SAWCUT AND REMOVE 113 SF BITUMINOUS PAVEMENT AND 9 LF CURB AND GUTTER



EXSMH-1 (48in)
STA 16+17.08 0.00'
RING EL. = 884.50
INL. EL. 870.39 (E) 8" PVC
INL. EL. 870.39 (S) 8" PVC
INL. EL. 870.39 (W) 8" PVC
INL. EL. 870.29 (N) 8" PVC

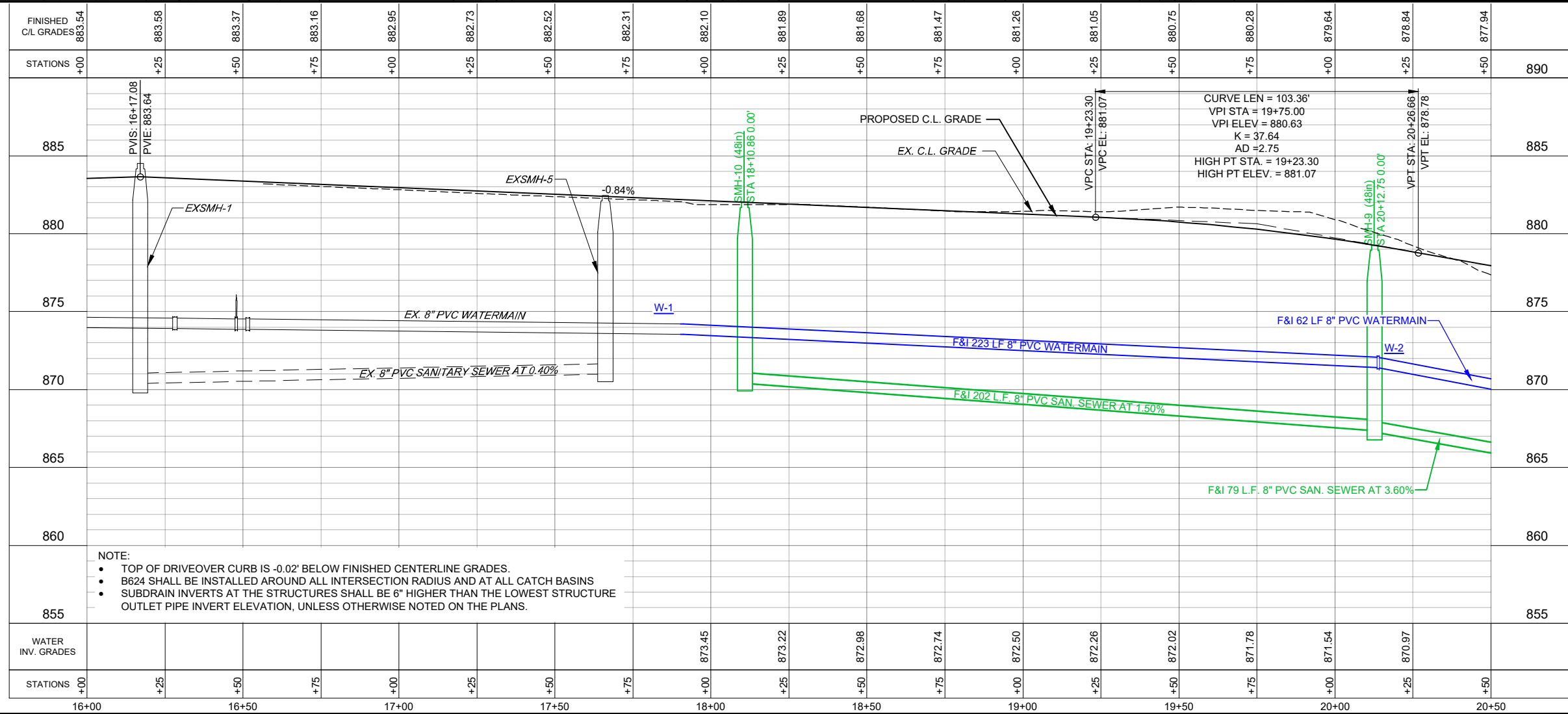
EXSMH-5 (48in)
STA 17+66.15 0.00'
RING EL. = 882.45
INV. EL. 870.99 (W) 8" PVC

SMH-9 (48in)
STA 20+12.75 0.00'
CONSTRUCT STRUCTURE TYPE 3
F&I CASTING R-1733-B
RING EL. = 879.25
INL. EL. 867.37 (W) 8" PVC
INV. EL. 867.27 (E) 8" PVC

SMH-10 (48in)
STA 18+10.86 0.00'
CONSTRUCT STRUCTURE TYPE 3
F&I CASTING R-1733-B
RING EL. = 882.01
INV. EL. 870.40 (E) 8" PVC

W-1
STA. 17+90.65 - 11.00' R
REMOVE & SALVAGE 8"x6" TEE,
6" GATE VALVE, AND HYDRANT
F&I 8" SLEEVE
CONNECT TO EX. WATERMAIN

W-2
STA. 20+13.86 - 11.00' R
F&I 8" 11.25 BEND





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Date
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MAPLE LANE

HARDWOOD ESTATES THIRD SUBDIVISION
CANNON FALLS, MINNESOTA
2025

SCALE:
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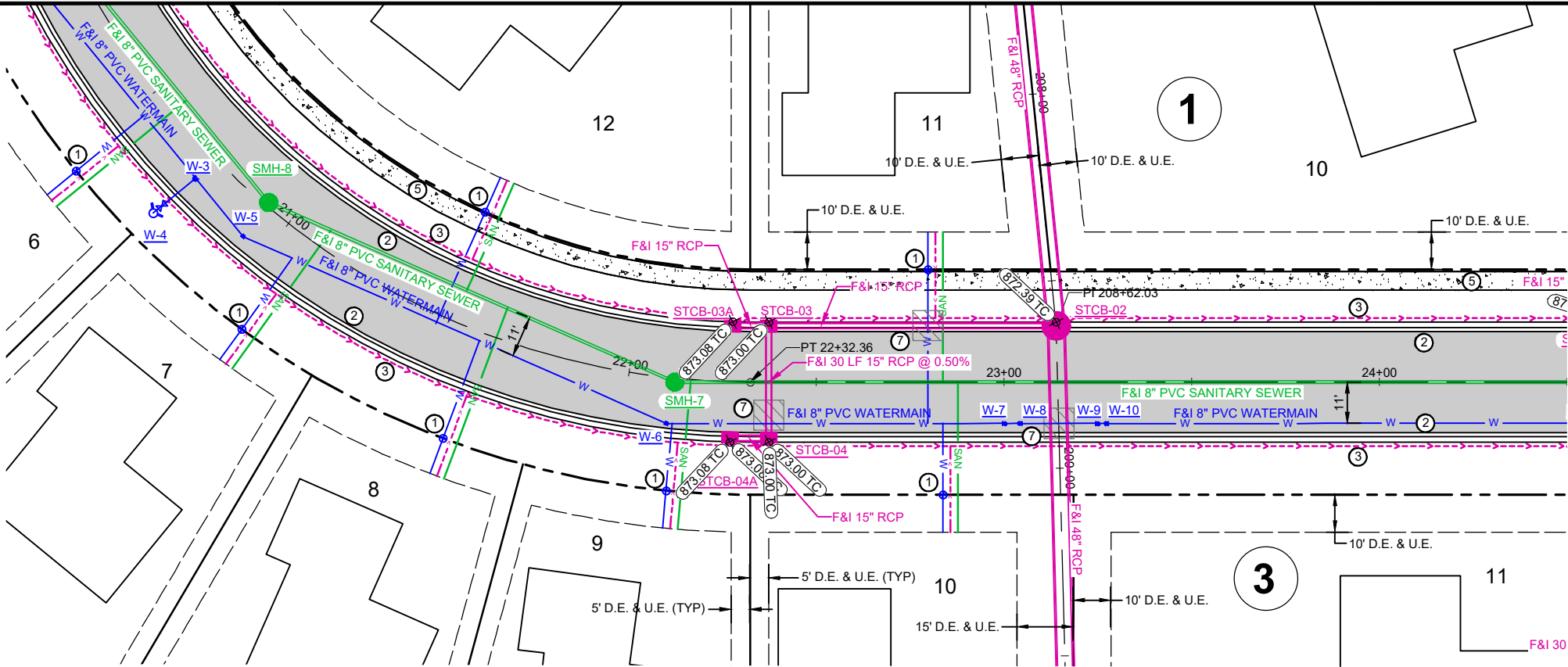
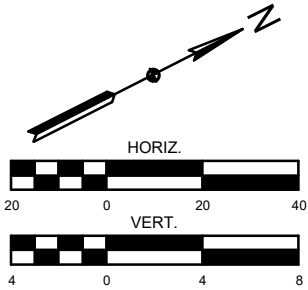
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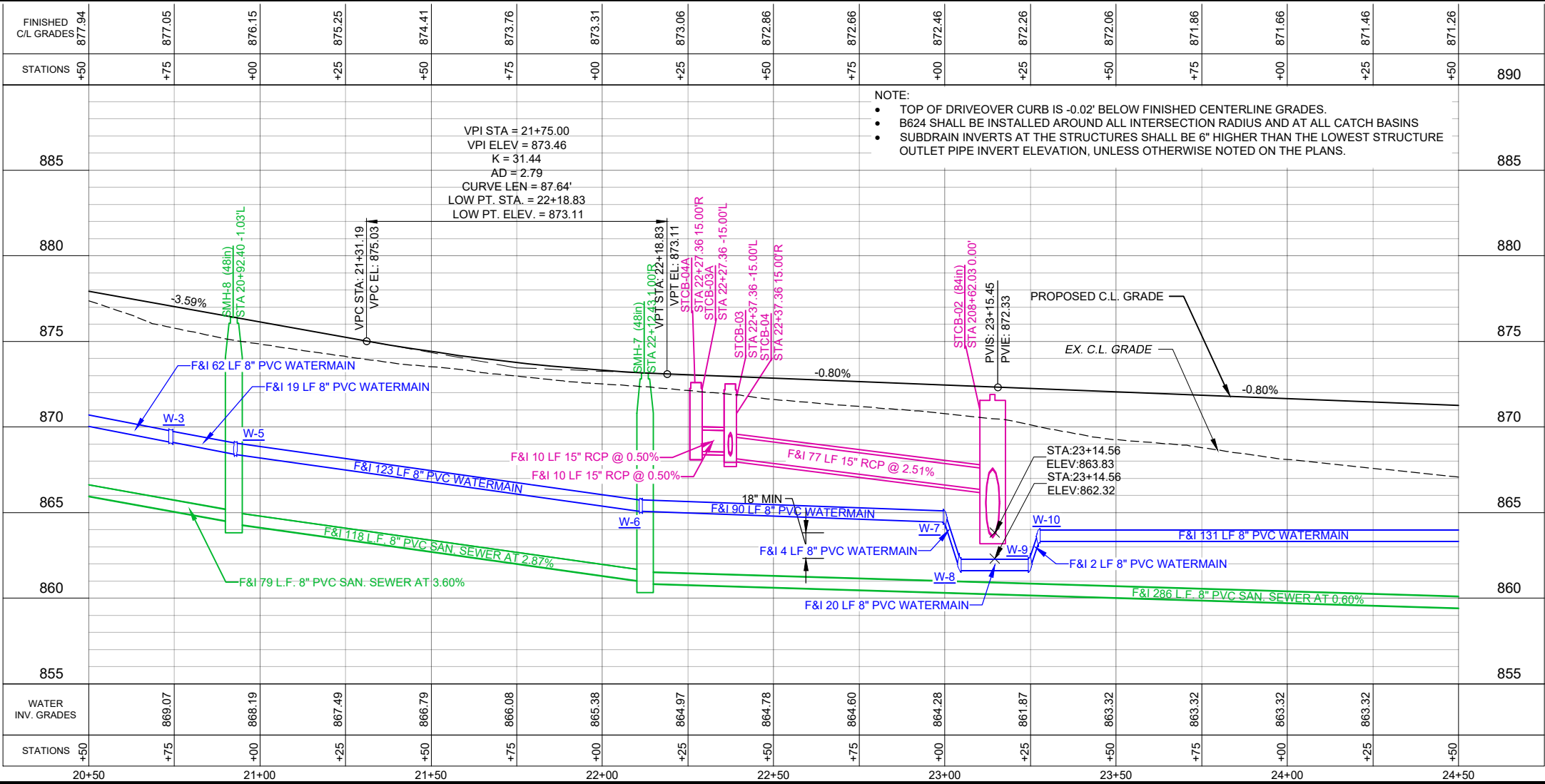
- NOTES:
- F&I 8"x4" WYE & 4" PVC SANITARY SEWER SERVICE (TYP.) SEE DETAILS SHEET
 - F&I 1" COPPER WATER SERVICE, 1" CORPORATION STOP & 1" CURB STOP & BOX (TYP.) SEE DETAILS SHEET
 - F&I 6"x4" PVC WYE AND 4" PVC SUBDRAIN SERVICE (TYP.) SEE DETAILS SHEET
 - F&I DRIVEOVER CURB AND GUTTER
 - F&I 6" PERF. PVC SUBDRAIN
 - F&I 6" PVC SUBDRAIN CLEANOUT
 - 5' CONCRETE SIDEWALK BY HOMEOWNERS
 - CONSTRUCT CONC. PEDESTRIAN RAMP PER MNDOT STANDARD PLAN 5-297-250
 - F&I 7.11 SY OF 4" POLYSTYRENE INSULATION



- W-3
STA. 20+74.00 - 7.44' R
INSTALL SALVAGED 8"x6" TEE
FROM W-1
- W-4
STA. 20+72.76 - 22.00' R
F&I 6" HYDRANT
BREAK OFF EL. = 877.52
F&I 6" GATE VALVE & BOX
3' FROM HYDRANT
- W-5
STA. 20+92.92 - 10.27' R
F&I 8" 22.5 BEND
- W-6
STA. 22+11.28 - 12.18' R
F&I 8" 22.5 BEND
- W-7
STA. 23+00.04 - 11.00' R
F&I 8" 45 BEND
- W-8
STA. 23+04.27 - 11.00' R
F&I 8" 45 BEND
- W-9
STA. 23+24.85 - 11.00' R
F&I 8" 45 BEND
- W-10
STA. 23+27.32 - 11.00' R
F&I 8" 45 BEND

MAPLE LANE

- STCB-03A
STA 22+27.36 -15.00'L
CONSTRUCT STRUCTURE TYPE 1
F&I R-3067-V GRATE
GRATE EL. = 872.58
INV. EL. 868.58 (NE) 15" RCP
- STCB-03
STA 22+37.36 -15.00'L
CONSTRUCT STRUCTURE TYPE 1
F&I R-3067-V GRATE
GRATE EL. = 872.50
INL. EL. 868.29 (SE) 15" RCP
INL. EL. 868.53 (SW) 15" RCP
INV. EL. 868.19 (NE) 15" RCP
- STCB-04A
STA 22+27.36 15.00'R
CONSTRUCT STRUCTURE TYPE 1
F&I R-3067-V GRATE
GRATE EL. = 872.58
INV. EL. 868.59 (NE) 15" RCP
- STCB-04
STA 22+37.36 15.00'R
CONSTRUCT STRUCTURE TYPE 1
F&I R-3067-V GRATE
GRATE EL. = 872.50
INL. EL. 868.54 (SW) 15" RCP
INV. EL. 868.44 (NW) 15" RCP
- STCB-02
STA 208+62.03 0.00'
CONSTRUCT STRUCTURE TYPE 4 (84in)
F&I R-3067-V GRATE
GRATE EL. = 871.89
INL. EL. 863.62 (SE) 48" RCP
INL. EL. 866.27 (SW) 15" RCP
INV. EL. 863.52 (W) 48" RCP



- SMH-7 (48in)
STA 22+12.43 1.00'R
CONSTRUCT STRUCTURE TYPE 3
F&I CASTING R-1733-B
RING EL. = 873.15
INL. EL. 860.94 (SW) 8" PVC
INV. EL. 860.84 (NE) 8" PVC
- SMH-8 (48in)
STA 20+92.40 -1.03'L
CONSTRUCT STRUCTURE TYPE 3
F&I CASTING R-1733-B
RING EL. = 876.40
INL. EL. 864.43 (W) 8" PVC
INV. EL. 864.33 (NE) 8" PVC



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David A. Martin
Date _____ License No. 51131

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NO.	DESCRIPTION

MAPLE LANE

HARDWOOD ESTATES THIRD SUBDIVISION
CANNON FALLS, MINNESOTA
2025

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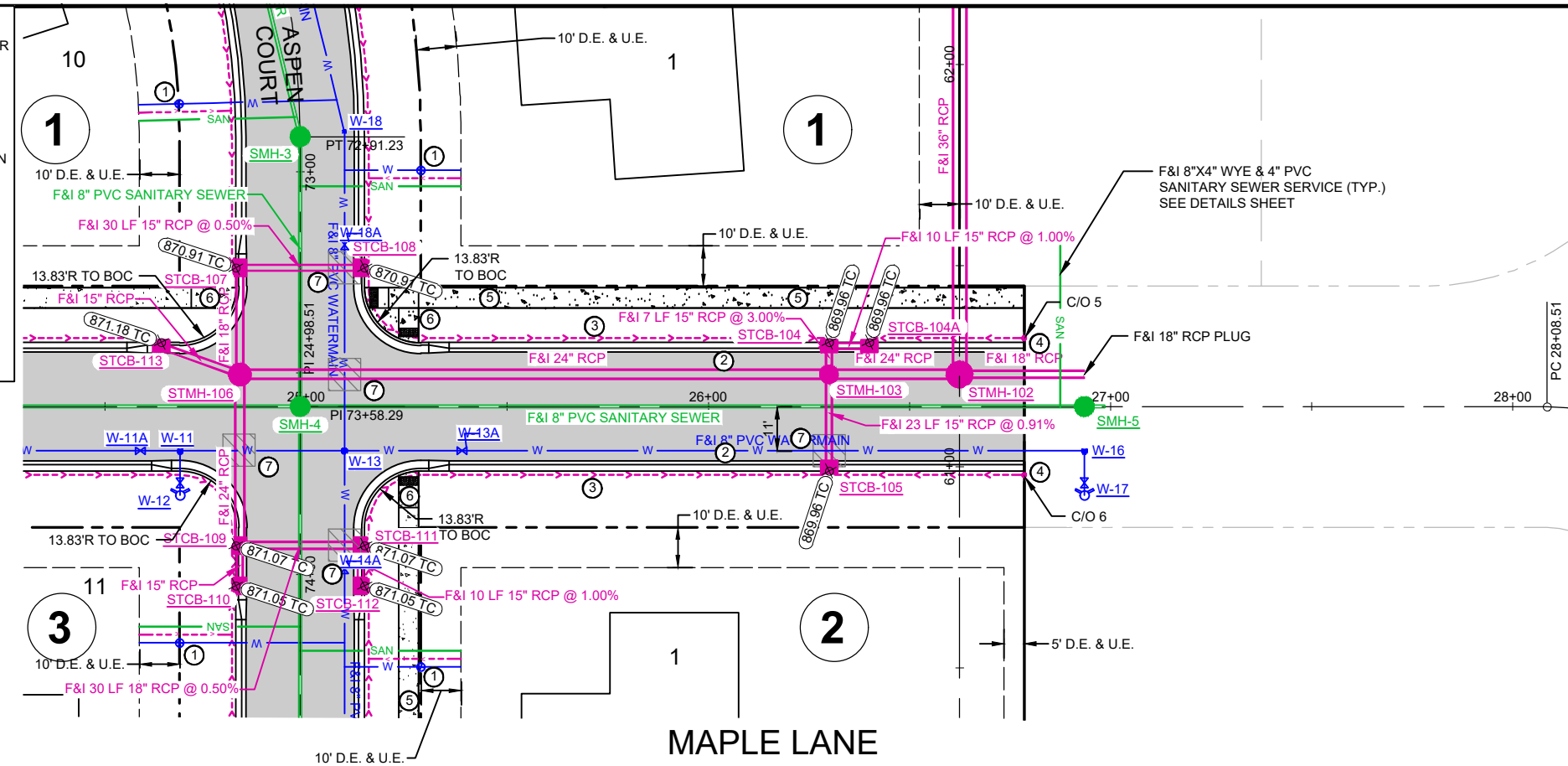
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- NOTES:
- 1 F&I 8"x4" WYE & 4" PVC SANITARY SEWER SERVICE (TYP.) SEE DETAILS SHEET
 - 2 F&I 1" COPPER WATER SERVICE, 1" CORPORATION STOP & 1" CURB STOP & BOX (TYP.) SEE DETAILS SHEET
 - 3 F&I 6"x4" PVC WYE AND 4" PVC SUBDRAIN SERVICE (TYP.) SEE DETAILS SHEET
 - 4 F&I DRIVEOVER CURB AND GUTTER
 - 5 F&I 6" PERF. PVC SUBDRAIN
 - 6 F&I 6" PVC SUBDRAIN CLEANOUT
 - 7 5' CONCRETE SIDEWALK BY HOMEOWNERS
 - 8 CONSTRUCT CONC. PEDESTRIAN RAMP PER MNDOT STANDARD PLAN 5-297-250
 - 9 F&I 7.11 SY OF 4" POLYSTYRENE INSULATION



SMH-4 (48in)
STA 73+58.29 0.00'R
CONSTRUCT STRUCTURE TYPE 3
F&I CASTING R-1733-B
RING EL. = 871.11
INL. EL. 859.12 (SW) 8" PVC
INL. EL. 859.12 (SE) 8" PVC
INL. EL. 859.12 (NE) 8" PVC
INV. EL. 859.02 (NW) 8" PVC

SMH-5 (48in)
STA 26+93.51 0.00'
CONSTRUCT STRUCTURE TYPE 3
F&I CASTING R-1733-B
RING EL. = 870.33
INL. EL. 860.08 (NE) 8" PVC
F&I 8" PVC CAP (NE)
INV. EL. 859.90 (SW) 8" PVC

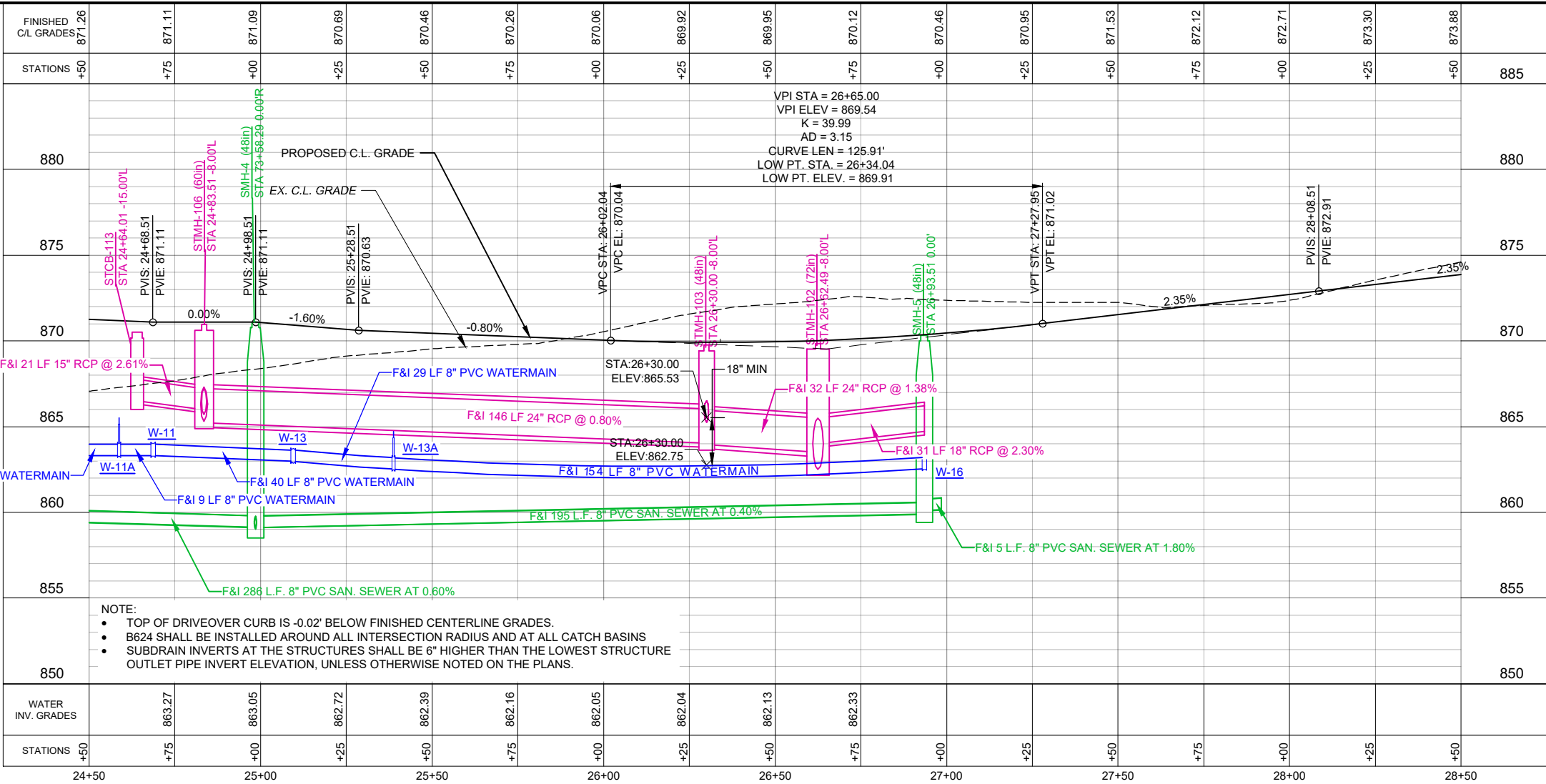
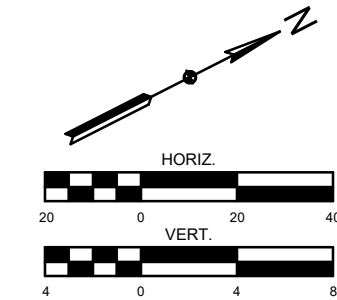
W-11
STA. 24+68.67 - 11.00' R
F&I 8"x6" TEE

W-12
STA. 24+68.67 - 22.00' R
F&I 6" HYDRANT
BREAK OFF EL. = 871.44
F&I 6" GATE VALVE & BOX
3' FROM HYDRANT

W-13
STA. 25+09.51 - 11.00' R
F&I 8"x8" CROSS

W-16
STA. 26+93.51 - 11.00' R
F&I 8"x6" TEE
F&I 8" PLUG (NE)

W-17
STA. 26+93.51 - 22.00' R
F&I 6" HYDRANT
BREAK OFF EL. = 871.40
F&I 6" GATE VALVE & BOX
3' FROM HYDRANT



- NOTE:
- TOP OF DRIVEOVER CURB IS -0.02' BELOW FINISHED CENTERLINE GRADES.
 - B624 SHALL BE INSTALLED AROUND ALL INTERSECTION RADIUS AND AT ALL CATCH BASINS
 - SUBDRAIN INVERTS AT THE STRUCTURES SHALL BE 6" HIGHER THAN THE LOWEST STRUCTURE OUTLET PIPE INVERT ELEVATION, UNLESS OTHERWISE NOTED ON THE PLANS.

STCB-113
STA 24+64.01 -15.00'L
CONSTRUCT STRUCTURE TYPE 1
F&I R-3067-V GRATE
GRATE EL. = 870.51
INV. EL. 866.51 (NE) 15" RCP

STMH-106
STA 24+83.51 -8.00'L
CONSTRUCT STRUCTURE TYPE 4 (60in)
F&I R-1733-B CASTING
RING EL. = 870.96
INL. EL. 865.32 (SE) 24" RCP
INL. EL. 865.72 (NW) 18" RCP
INL. EL. 865.97 (SW) 15" RCP
INV. EL. 865.22 (NE) 24" RCP

STCB-104
STA 26+30.00 -15.00'L
CONSTRUCT STRUCTURE TYPE 1
F&I R-3067-V GRATE
GRATE EL. = 869.46
INL. EL. 865.56 (NE) 15" RCP
INV. EL. 865.46 (SE) 15" RCP

STCB-104A
STA 26+40.00 -15.00'L
CONSTRUCT STRUCTURE TYPE 1
F&I R-3067-V GRATE
GRATE EL. = 870.82
INV. EL. 865.68 (SW) 15" RCP

STCB-105
STA 26+30.00 15.00'R
CONSTRUCT STRUCTURE TYPE 1
F&I R-3067-V GRATE
GRATE EL. = 869.46
INV. EL. 865.46 (NW) 15" RCP

STMH-103
STA 26+30.00 -8.00'L
CONSTRUCT STRUCTURE TYPE 4 (48in)
F&I R-1733-B CASTING
RING EL. = 869.76
INL. EL. 865.25 (SE) 15" RCP
INL. EL. 864.05 (SW) 24" RCP
INL. EL. 865.25 (NW) 15" RCP
INV. EL. 863.95 (NE) 24" RCP

STMH-102
STA 26+62.49 -8.00'L
CONSTRUCT STRUCTURE TYPE 4 (72in)
F&I R-1733-B CASTING
RING EL. = 869.86
INL. EL. 863.50 (SW) 24" RCP
INL. EL. 864.00 (NE) 18" RCP
INV. EL. 862.50 (NW) 36" RCP



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MAPLE LANE

HARDWOOD ESTATES THIRD SUBDIVISION
CANNON FALLS, MINNESOTA
2025

SCALE:
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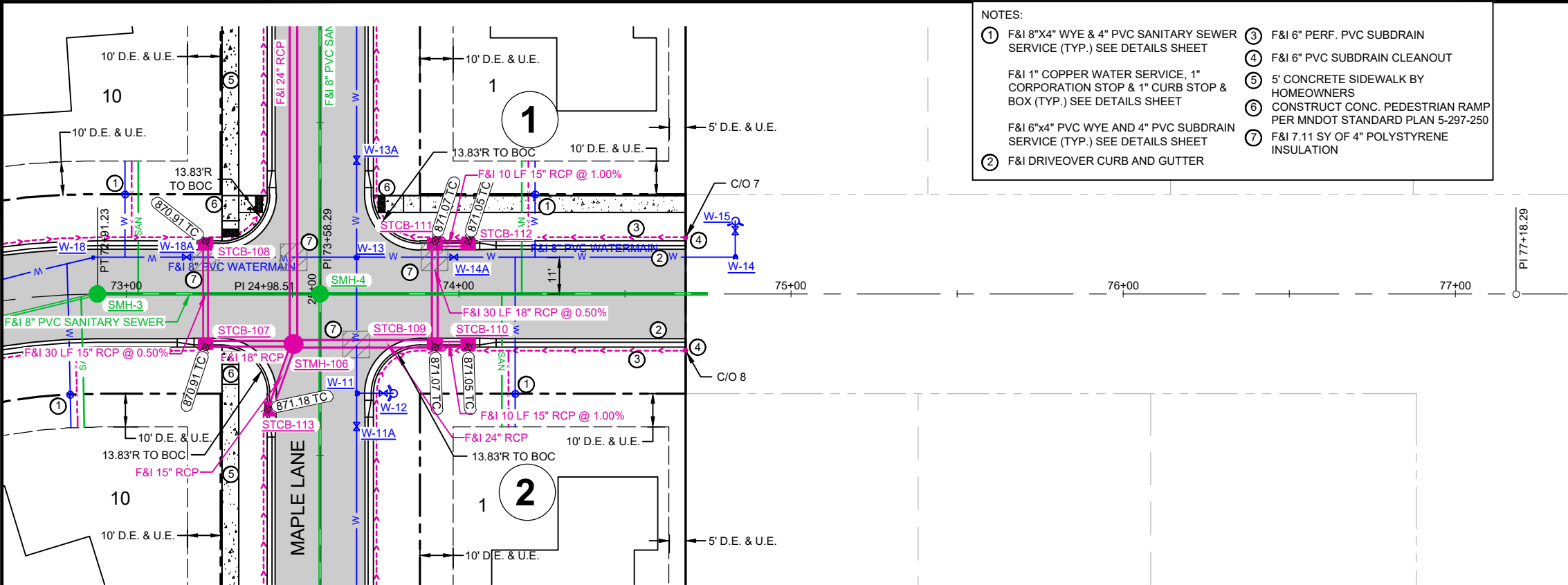
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17 OF 22

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- NOTES:
- 1 F&I 8"x4" WYE & 4" PVC SANITARY SEWER SERVICE (TYP.) SEE DETAILS SHEET
 - 2 F&I DRIVEOVER CURB AND GUTTER
 - 3 F&I 6" PERF. PVC SUBDRAIN
 - 4 F&I 6" PVC SUBDRAIN CLEANOUT
 - 5 5' CONCRETE SIDEWALK BY HOMEOWNERS
 - 6 CONSTRUCT CONC. PEDESTRIAN RAMP PER MNDOT STANDARD PLAN 5-297-250
 - 7 F&I 7.11 SY OF 4" POLYSTYRENE INSULATION
- F&I 1" COPPER WATER SERVICE, 1" CORPORATION STOP & 1" CURB STOP & BOX (TYP.) SEE DETAILS SHEET
- F&I 6"x4" PVC WYE AND 4" PVC SUBDRAIN SERVICE (TYP.) SEE DETAILS SHEET

SMH-4 (48in)
STA 73+58.29 0.00'R
CONSTRUCT STRUCTURE TYPE 3
F&I CASTING R-1733-B
RING EL. = 871.11
INL. EL. 859.12 (SW) 8" PVC
INL. EL. 859.12 (SE) 8" PVC
INL. EL. 859.12 (NE) 8" PVC
INV. EL. 859.02 (NW) 8" PVC

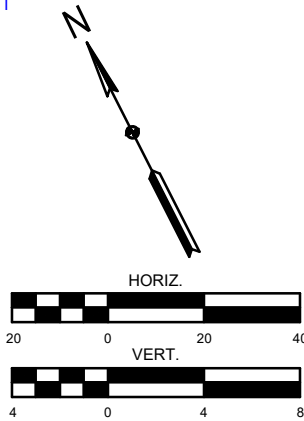
W-13
STA. 25+09.51 - 11.00' R
F&I 8"x8" CROSS

W-14
STA. 74+83.29 - 11.00' L
F&I 8"x6" TEE
F&I 8" PLUG (SE)

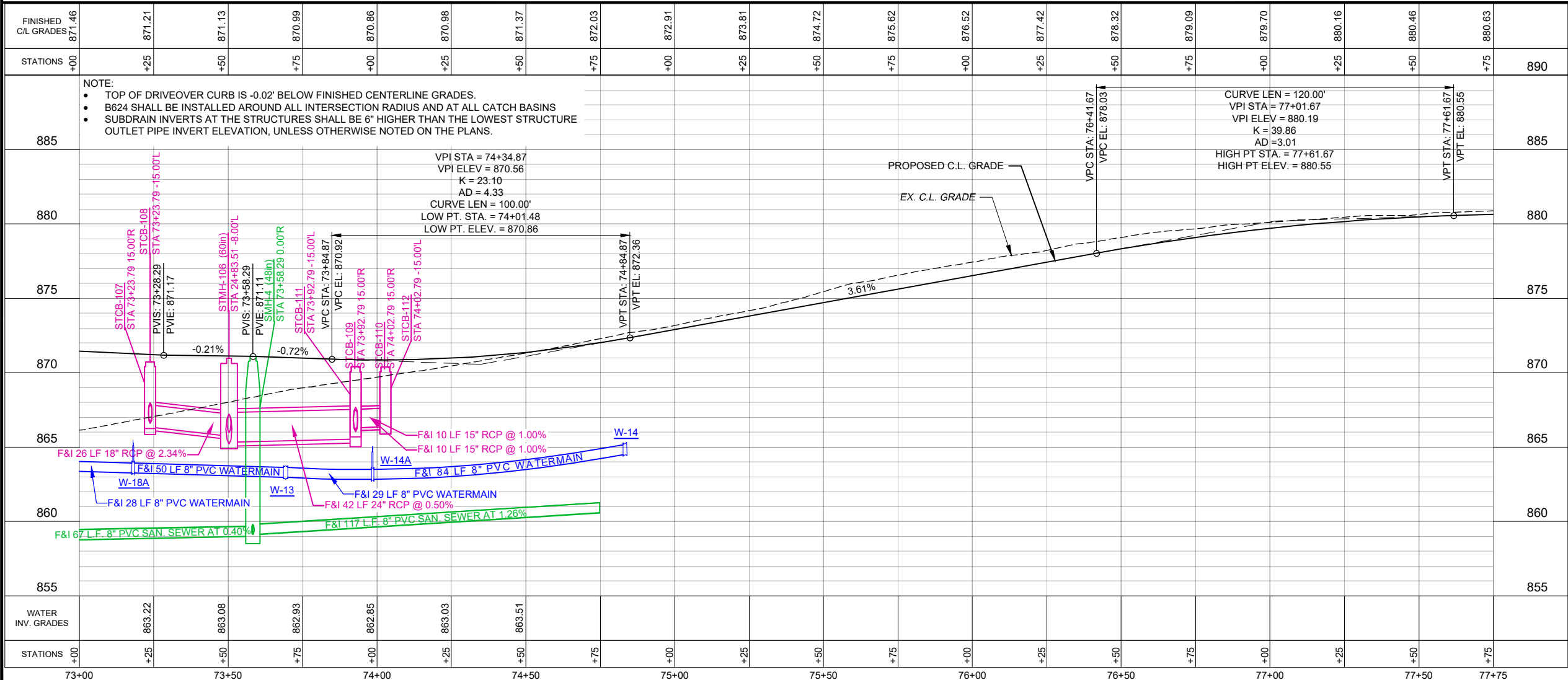
W-15
STA. 74+83.29 - 22.00' L
INSTALL SALVAGED HYDRANT FROM W-1
BREAK OFF EL. = 873.22
INSTALL SALVAGED 6" GATE VALVE & BOX FROM W-1
3' FROM HYDRANT

W-14A
STA. 73+98.53 - 11.00' L
F&I 8" GATE VALVE

W-18A
STA. 73+18.06 - 11.00' L
F&I 8" GATE VALVE



ASPEN LANE



- NOTE:
- TOP OF DRIVEOVER CURB IS -0.02' BELOW FINISHED CENTERLINE GRADES.
 - B624 SHALL BE INSTALLED AROUND ALL INTERSECTION RADIUS AND AT ALL CATCH BASINS
 - SUBDRAIN INVERTS AT THE STRUCTURES SHALL BE 6" HIGHER THAN THE LOWEST STRUCTURE OUTLET PIPE INVERT ELEVATION, UNLESS OTHERWISE NOTED ON THE PLANS.
- STCB-106
STA 24+83.51 -8.00'L
CONSTRUCT STRUCTURE TYPE 4 (6'
F&I R-1733-B CASTING
RING EL. = 870.96
INL. EL. 865.32 (SE) 24" RCP
INL. EL. 865.72 (NW) 18" RCP
INL. EL. 865.97 (SW) 15" RCP
INV. EL. 865.22 (NE) 24" RCP
- STCB-107
STA 73+23.79 15.00'R
CONSTRUCT STRUCTURE TYPE 1
F&I R-3067-V GRATE
GRATE EL. = 870.74
INL. EL. 866.59 (NE) 15" RCP
INV. EL. 866.34 (SE) 18" RCP
- STCB-108
STA 73+23.79 -15.00'L
CONSTRUCT STRUCTURE TYPE 1
F&I R-3067-V GRATE
GRATE EL. = 870.74
INL. EL. 866.59 (NE) 15" RCP
INV. EL. 866.74 (SW) 15" RCP
- STCB-109
STA 73+92.79 15.00'R
CONSTRUCT STRUCTURE TYPE 1
F&I R-3067-V GRATE
GRATE EL. = 870.40
INL. EL. 866.28 (SE) 15" RCP
INL. EL. 866.03 (NE) 18" RCP
INV. EL. 865.53 (NW) 24" RCP
- STCB-110
STA 74+02.79 15.00'R
CONSTRUCT STRUCTURE TYPE 1
F&I R-3067-V GRATE
GRATE EL. = 870.38
INV. EL. 866.38 (NW) 15" RCP
- STCB-111
STA 73+92.79 -15.00'L
CONSTRUCT STRUCTURE TYPE 1
F&I R-3067-V GRATE
GRATE EL. = 870.40
INL. EL. 866.28 (SE) 15" RCP
INV. EL. 866.18 (SW) 18" RCP
- STCB-112
STA 74+02.79 -15.00'L
CONSTRUCT STRUCTURE TYPE 1
F&I R-3067-V GRATE
GRATE EL. = 870.38
INV. EL. 866.38 (NW) 15" RCP



engineers + planners + land surveyors

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David A. Martin
Date
License No. 51131

REVISIONS	
NO.	DESCRIPTION

ASPEN LANE

HARDWOOD ESTATES THIRD SUBDIVISION
CANNON FALLS, MINNESOTA
2025

SCALE:
AS SHOWN

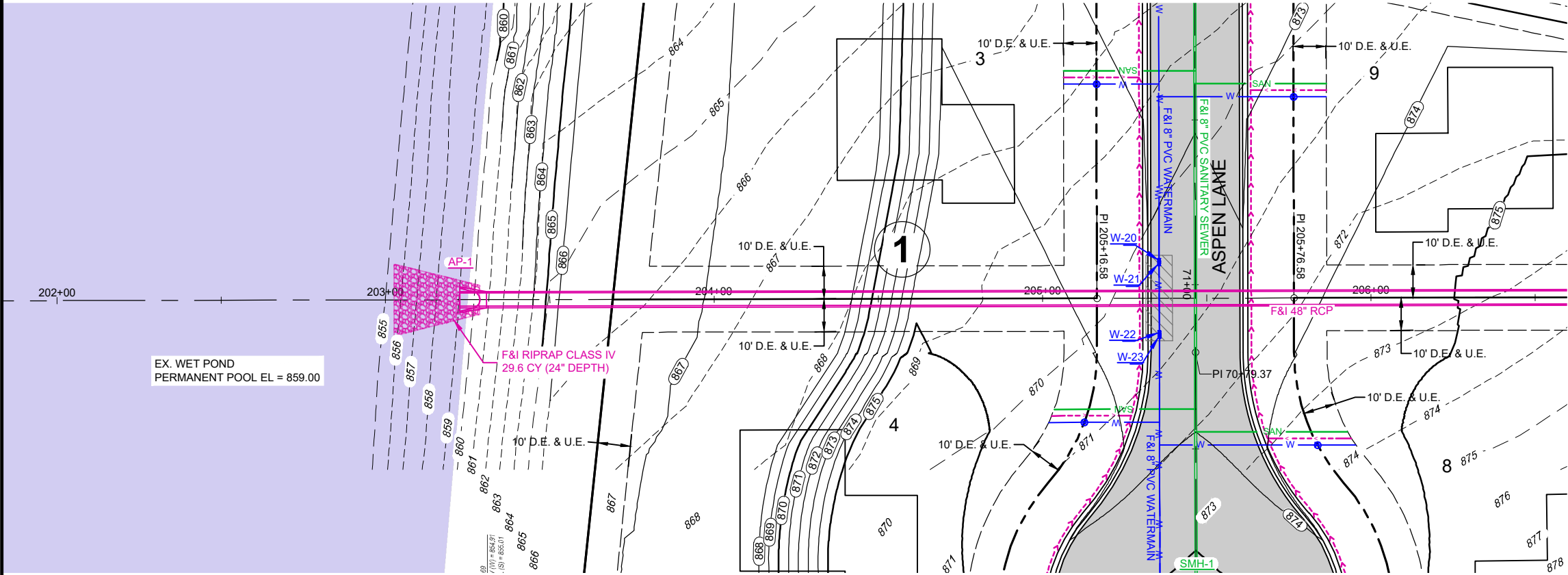
WHKS PROJECT NO.
10196

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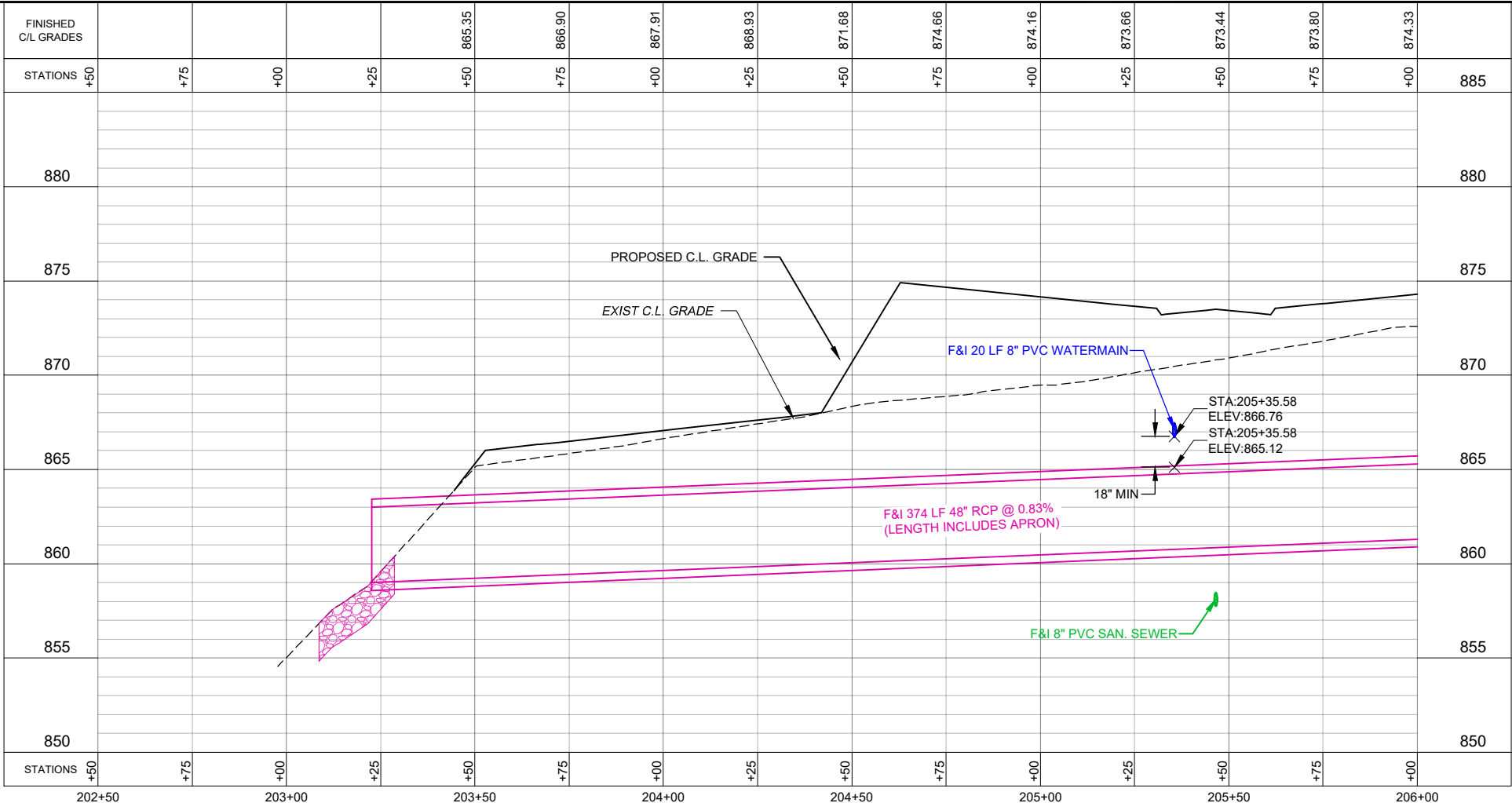
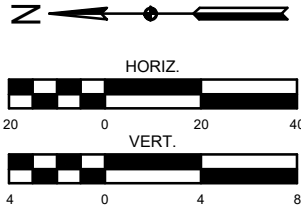
CHECKED BY:
JPP

SHEET
19 OF 22

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SWALE OUTLET TO POND



AP-1
STA 203+22.60 0.00'R
CONSTRUCT 48" RCP APRON
INV. EL. 859.00



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David A. Martin License No. 51131 Date

REVISIONS	
NO.	DESCRIPTION

SWALE OUTLET TO POND

HARDWOOD ESTATES THIRD SUBDIVISION
CANNON FALLS, MINNESOTA
2025

SCALE:
AS SHOWN

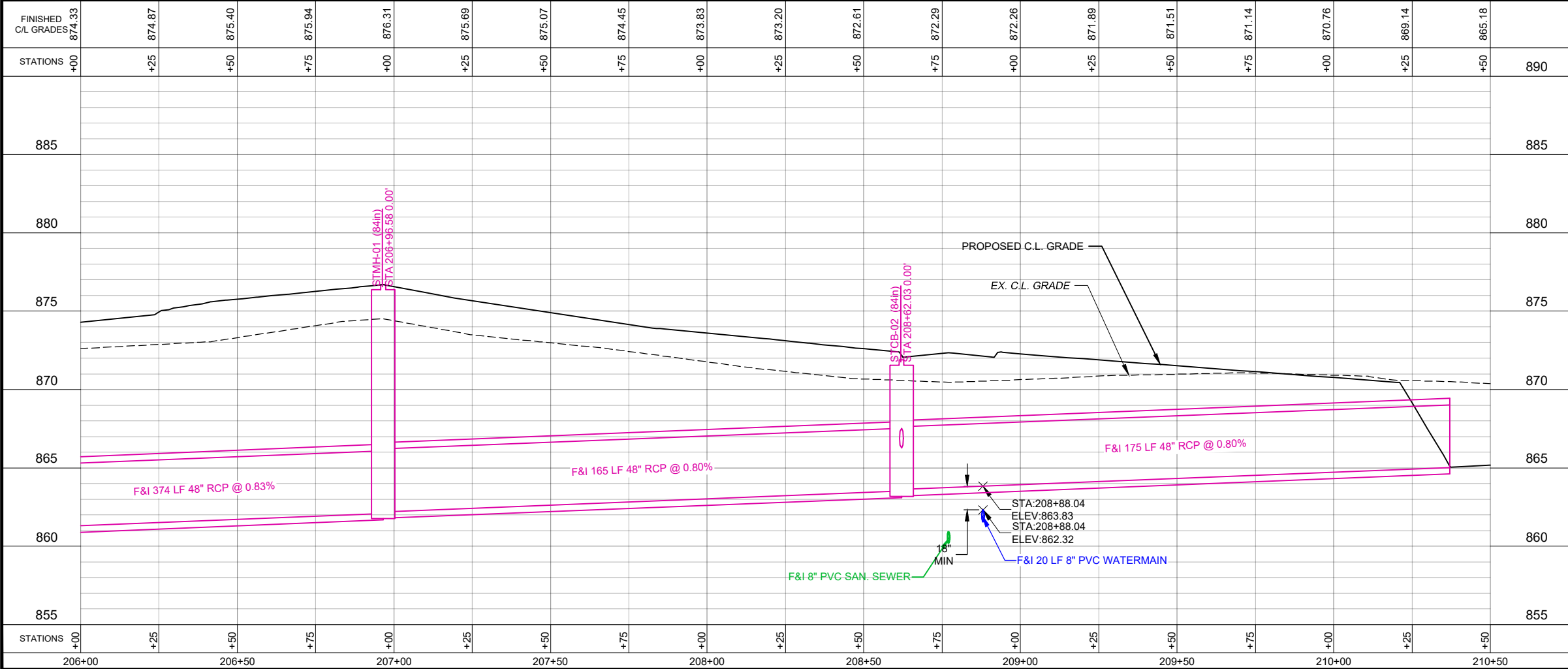
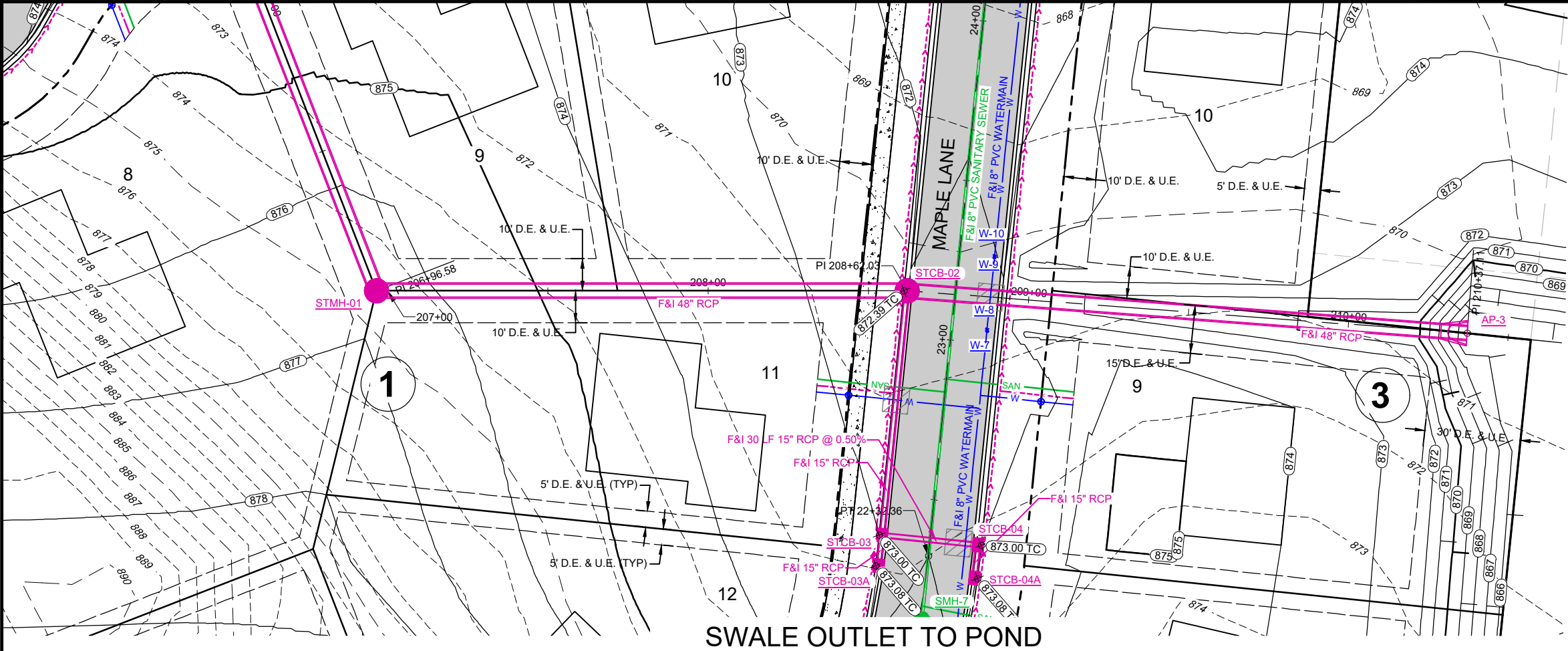
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20 OF 22

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STMH-01
STA 206+96.58 0.00'
CONSTRUCT STRUCTURE TYPE 4 (84in)
F&I R-1733-B CASTING
RING EL. = 876.69
INL. EL. 862.20 (E) 48" RCP
INV. EL. 862.10 (N) 48" RCP

STCB-02
STA 208+62.03 0.00'
CONSTRUCT STRUCTURE TYPE 4 (84in)
F&I R-3067-V GRATE
GRATE EL. = 871.89
INL. EL. 863.62 (SE) 48" RCP
INL. EL. 866.27 (SW) 15" RCP
INV. EL. 863.52 (W) 48" RCP

AP-3
STA 23+18.51 160.00'R
CONSTRUCT 48" RCP APRON
INV. EL. 865.02



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REVISIONS	
NO.	DESCRIPTION

SWALE OUTLET TO POND

HARDWOOD ESTATES THIRD SUBDIVISION
CANNON FALLS, MINNESOTA
2025

SCALE:
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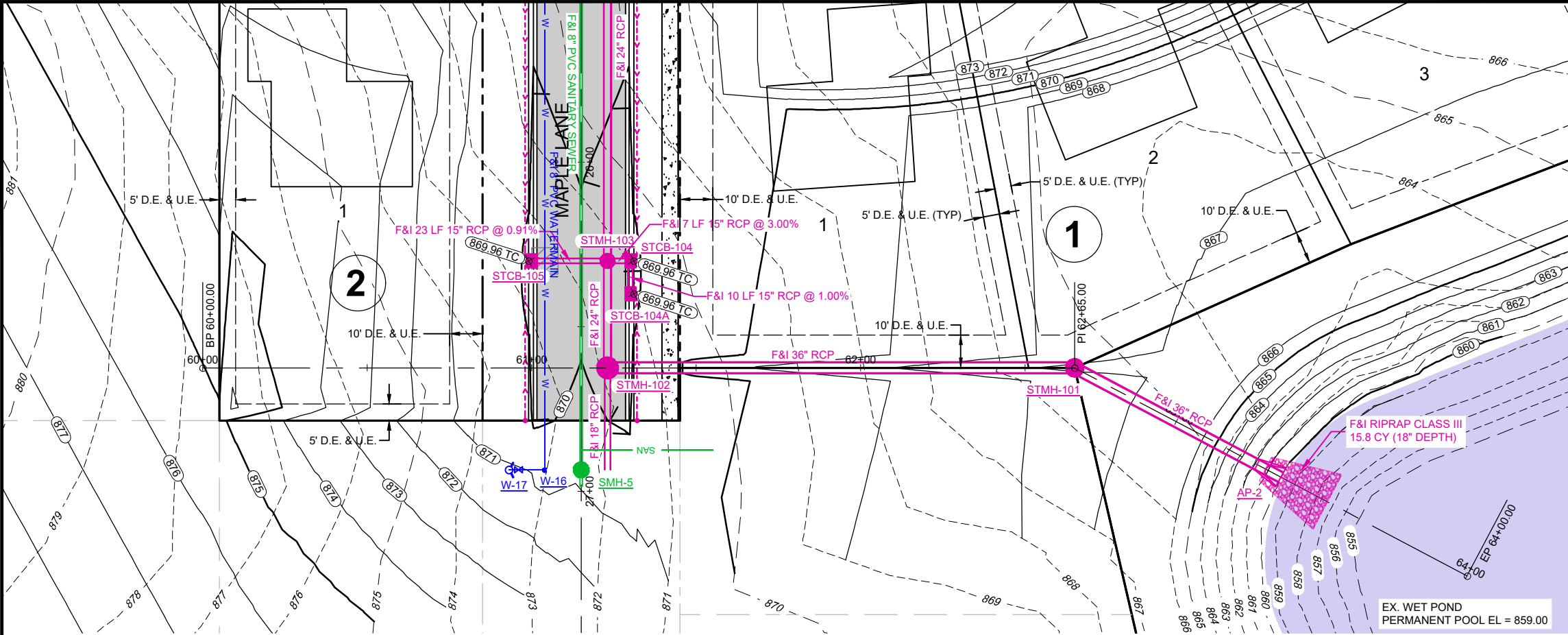
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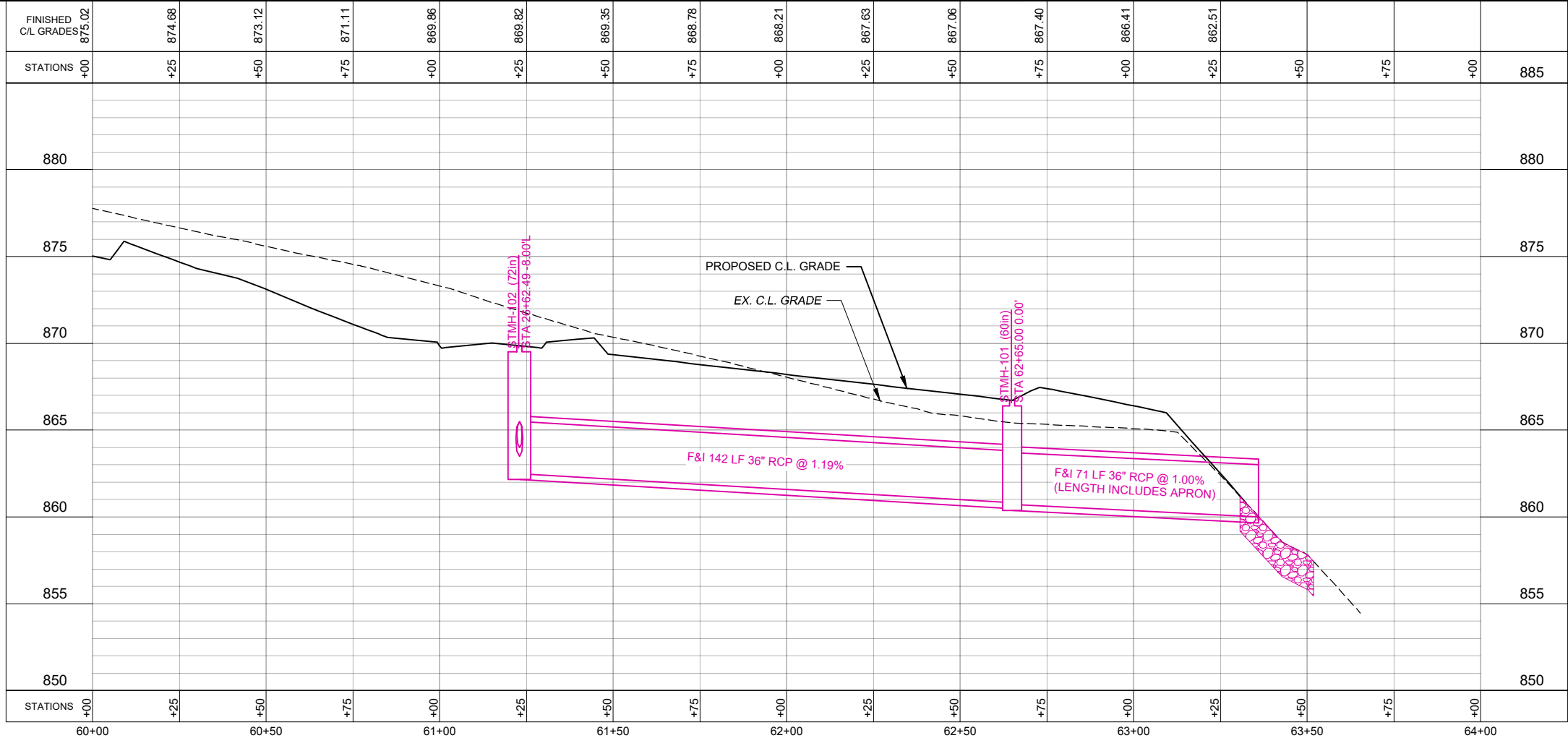
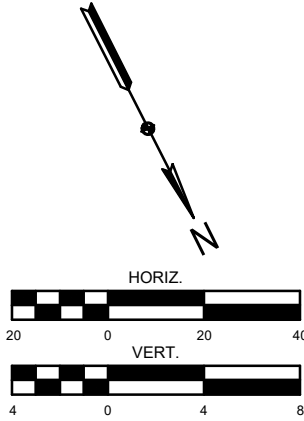
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STORM OUTLET TO POND



STMH-102
STA 26+62.49 -8.00'L
CONSTRUCT STRUCTURE TYPE 4 (72in)
F&I R-1733-B CASTING
RING EL. = 869.86
INL. EL. 863.50 (SW) 24" RCP
INL. EL. 864.00 (NE) 18" RCP
INV. EL. 862.50 (NW) 36" RCP

STMH-101
STA 62+65.00 0.00'
CONSTRUCT STRUCTURE TYPE 4 (60in)
F&I R-1733-B CASTING
RING EL. = 866.72
INL. EL. 860.81 (SE) 36" RCP
INV. EL. 860.71 (NW) 36" RCP

AP-2
STA 63+35.94 0.00'
CONSTRUCT 36" RCP APRON
INV. EL. 860.00



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REVISIONS	
NO.	DESCRIPTION

STORM OUTLET TO POND

HARDWOOD ESTATES THIRD SUBDIVISION
CANNON FALLS, MINNESOTA
2025

SCALE:
AS SHOWN

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