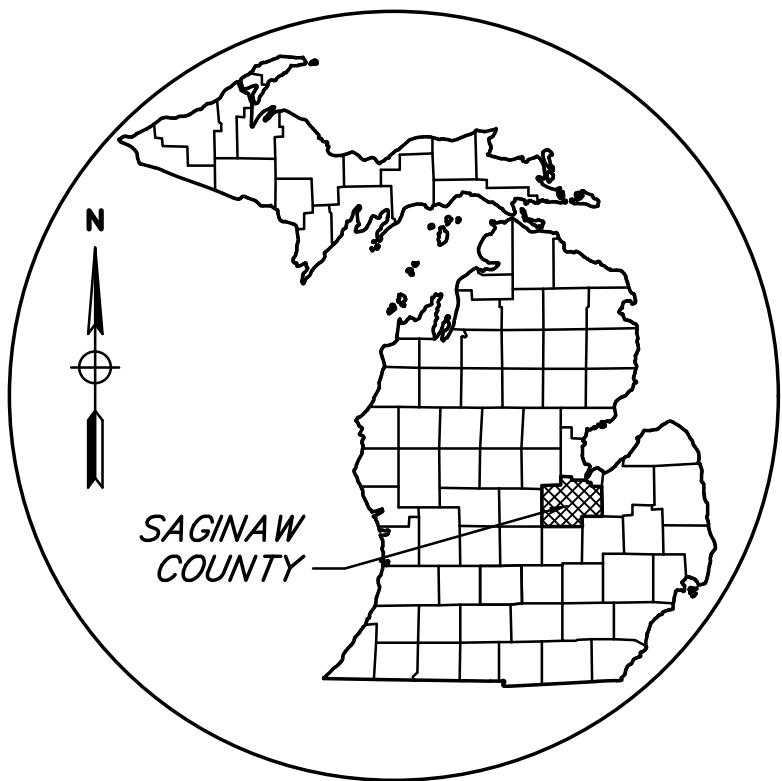
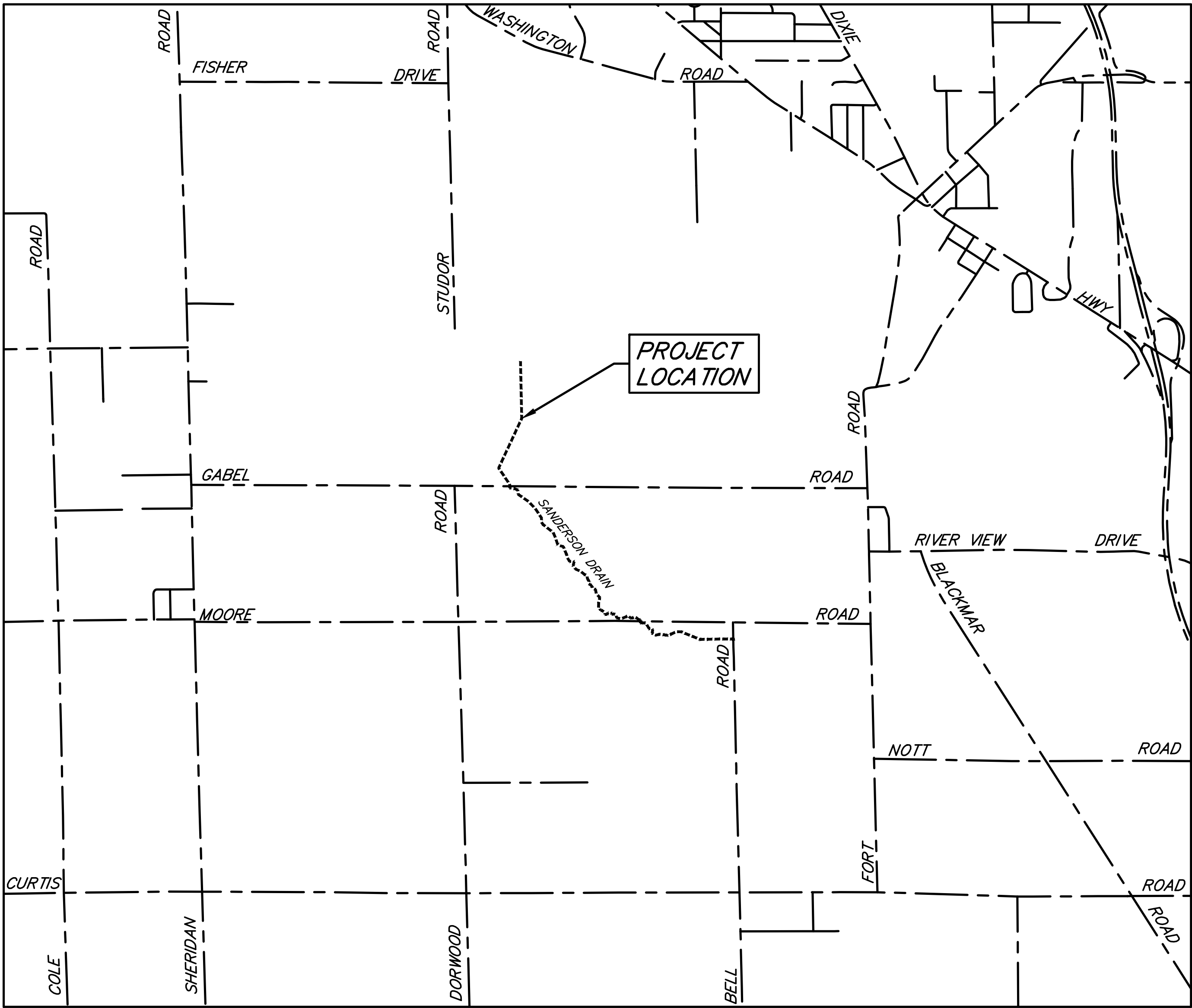


SANDERSON DRAIN

SAGINAW COUNTY PUBLIC WORKS COMMISSIONERE - BRIAN WENDLING




AREA MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

SECTIONS 20 & 29,
T.20N.-R.29E.,
BRIDGEPORT TOWNSHIP,
SAGINAW COUNTY, MICHIGAN

PLAN INDEX		
FILE NO.	DESCRIPTION	NO.
DR-3968-01	COVER SHEET	1
DR-3968-02	CONTACTS, GENERAL NOTES, LINE TYPES LEGEND, AND SESC MEASURE LEGEND	2
DR-3968-03	DRAINAGE DISTRICT MAP	3
DR-3968-04	PLAN AND PROFILE - STA 0+00 TO STA 50+00	4
DR-3968-05	PLAN AND PROFILE - STA 50+00 TO STA 89+50	5
DR-3968-06	CROSS SECTIONS - STA 34+96 TO STA 44+11	6
DR-3968-07	CROSS SECTIONS -STA 53+25 TO STA 86+50	7
DR-3968-08	STANDARD DETAILS	8
DR-3968-09	STANDARD DETAILS	9
DW-1556	WATER MAIN STANDARD DETAILS	

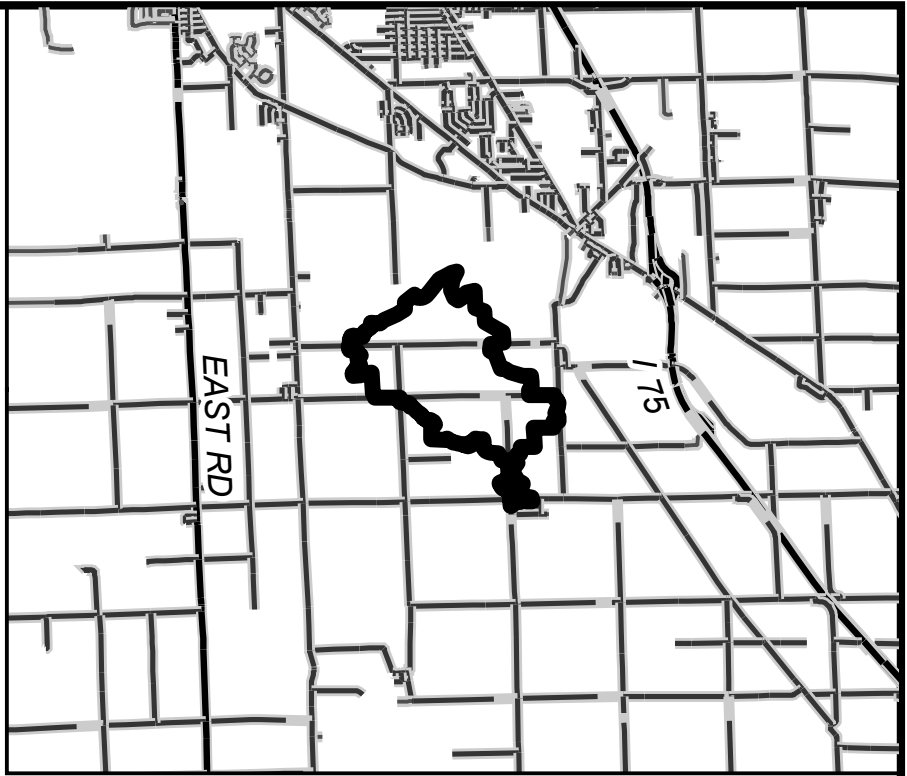
BY	MARK	REVISIONS	DATE
THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREON IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.			
SANDERSON DRAIN SAGINAW COUNTY, MICHIGAN			
COVER SHEET			
		SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 48607 Tel. 989-754-4717 Fax. 989-754-4440 www.SpicerGroup.com	
DE. BY: JMY/POC DR. BY: CBS		CH. BY: NDC APP. BY: RBH	
PROJECT NO. 127922SG2019			
STDs.		SHEET 01 OF 09	
DATE MARCH, 2021 SCALE NOT TO SCALE		FILE NO. DR-3968-01	
		DR 01	



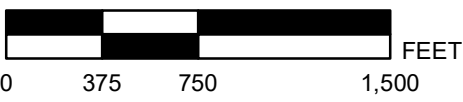
SANDERSON DRAIN

SAGINAW COUNTY, MICHIGAN

BRIAN J. WENDLING - SAGINAW COUNTY PUBLIC WORKS COMMISSIONER

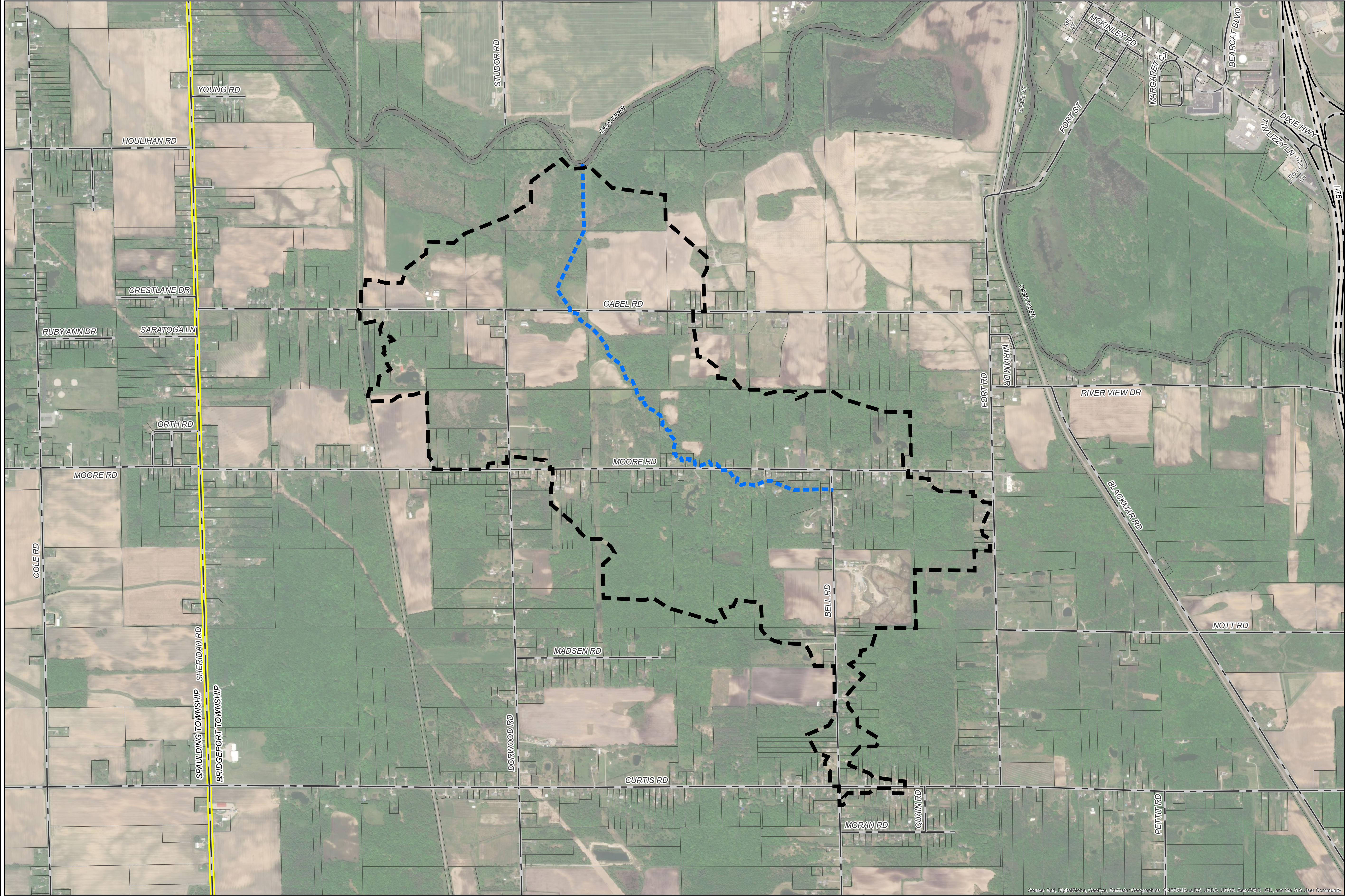


AREA MAP
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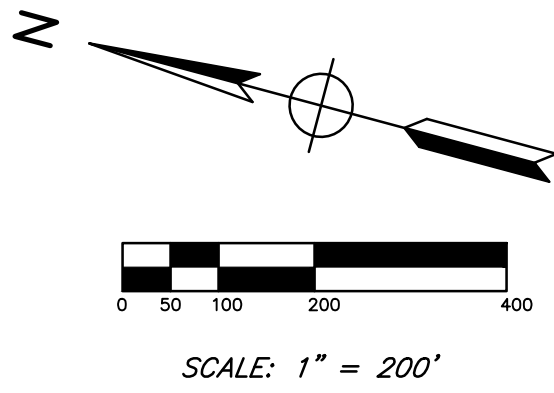


LEGEND

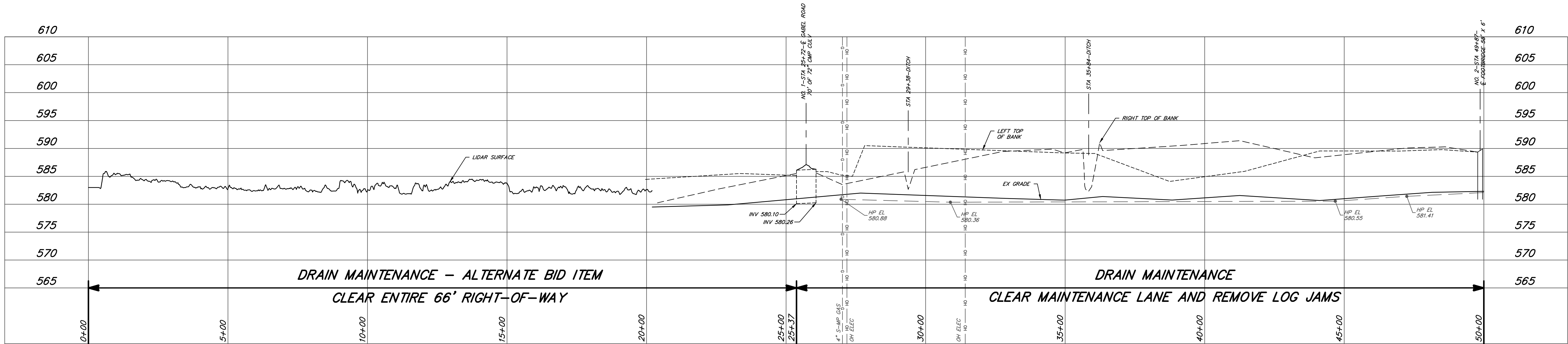
- DRAINAGE DISTRICT BOUNDARY
- APPROXIMATE DRAIN LOCATION
- PARCELS
- STATE ROADS
- COUNTY ROADS
- LOCAL ROADS



BY	MARK	REVISIONS	DATE
THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREIN IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.			
SANDERSON DRAIN SAGINAW COUNTY, MICHIGAN			
DRAINAGE DISTRICT MAP			
		SAGINAW OFFICE 230 S Washington Ave Saginaw, MI 48607 Tel. 989-754-4747 www.SpicerGroup.com	
DE. BY: DMS	CH. BY: LDO	PROJECT NO.	
DR. BY: DMS	APP. BY: RBH	127922SG2019	
STDS.	SHEET 3 OF 09	DR	
DATE	MARCH 2021	FILE NO.	DR-3968-03
SCALE	1" = 750'		03



SECTION 20, T.11N. - R.05E,
BRIDGEPORT CHARTER TOWNSHIP,
SAGINAW COUNTY, MICHIGAN



NO. 1 - STA 25+72 - GABEL ROAD.
NO WORK

NO. 2 - STA 49+87 - WEILER, L.
NO WORK

EROSION CONTROL TABLE					
KEY*	FROM STATION	TO STATION	SIDE	DESCRIPTION	QTY
1 P	0+00	50+00	BOTH	SEEDING OF ALL DISTURBED	LUMP SUM
2 T	0+00	50+00	BOTH	MULCHING OF ALL DISTURBED AREAS	LUMP SUM
8 P	AS STAKED BY ENGINEER		BOTH	RIPRAP TOE OF SLOPE PROTECTION	400 LIN FT
15 P	AS STAKED BY ENGINEER		BOTH	RIPRAP SPILLWAY	100 LIN FT
8 P	CROSSINGS 1-2		BOTH	INSTALL RIPRAP PROTECTION AT INLET & OUTLET OF CROSSING	80 SQ YDS TOTAL

NOTE: COORDINATE INSTALLATION OF EROSION CONTROL STRUCTURES WITH ENGINEER PRIOR TO CONSTRUCTION. LOCATIONS, QUANTITIES, OR TYPES MAY VARY BASED ON FIELD DECISIONS.

MAINTENANCE ACCESS CULVERTS			
STATION	SIDE	SIZE/TYPE	LENGTH
8+00	LEFT	24" HP STORM	30 LIN FT
13+00	LEFT	24" HP STORM	30 LIN FT
18+50	LEFT	15" HP STORM	30 LIN FT
25+60	LEFT	15" HP STORM	30 LIN FT
25+84	LEFT	24" HP STORM	30 LIN FT
39+25	LEFT	18" HP STORM	30 LIN FT
49+50	LEFT	24" HP STORM	30 LIN FT
COORDINATE INSTALLATION OF ACCESS CULVERTS WITH ENGINEER PRIOR TO CONSTRUCTION.			

SPOIL LEVELING TABLE			
STATION FROM	STATION TO	DETAIL	SIDE TO EXCAVATE FROM
0+00	25+37	CLEARING ONLY	LEFT
25+37	50+00	"A"/"B"	LEFT

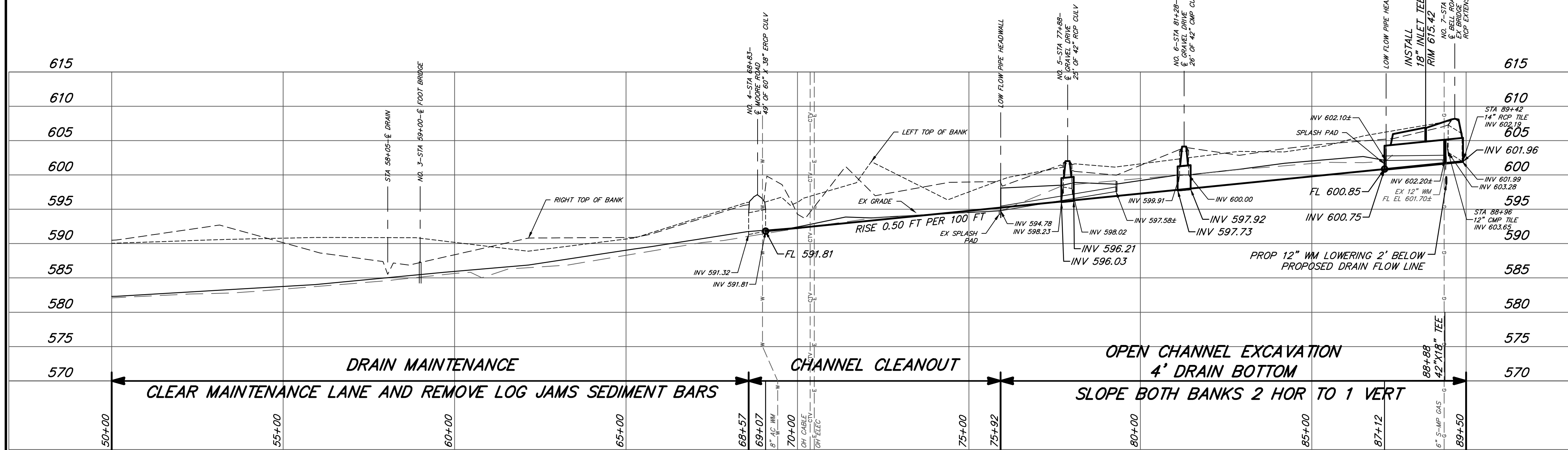
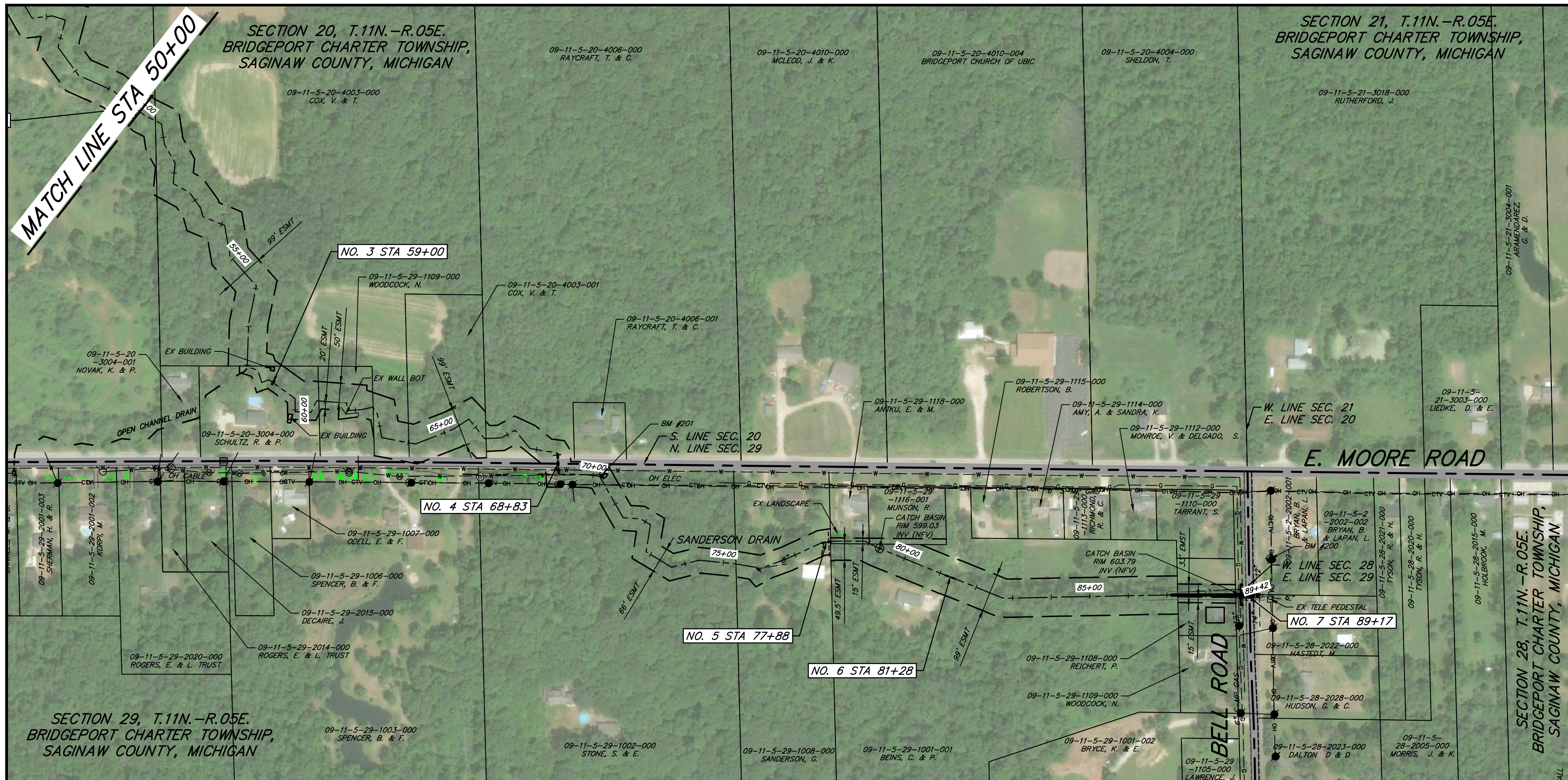
NOTE:
USE SPOIL LEVELING DETAIL "A" THROUGH FIELD AREA.
USE SPOIL LEVELING DETAIL "B" THROUGH WOODED AREA.

- CONSTRUCTION NOTES**
- OWNER WILL SELECT WHETHER OR NOT TO INCLUDE ALTERNATIVE BID ITEM BASED ON CONTRACTOR BID AND CURRENT WATER LEVELS IN CASE RIVER.
 - DRAIN MAINTENANCE INCLUDES CLEARING 25' WIDE MAINTENANCE LANE, CLEARING ALL TREES IN THE DRAIN CHANNEL, REMOVING DEAD FALL, DEBRIS AND OTHER OBSTRUCTIONS, INCLUDING SEDIMENT BARS. ALSO INCLUDES LEVELING SPOILS AND GRADING ERODED AREA OF BANK AS DIRECTED BY ENGINEER.

BENCHMARKS
BM 202 - 485± EAST FROM CENTER OF CULVERT 1 ALONG THE E OF GABEL ROAD AND 52± SOUTH TO POWER POLE.
EL = 594.41

RIGHT OF WAY
SANDERSON DRAIN - DRAIN RIGHT-OF-WAY AS SHOWN ON PLANS.

REVISIONS			
BY	MARK	REVISIONS	DATE
THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREIN IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.			
SANDERSON DRAIN SAGINAW COUNTY, MICHIGAN			
PLAN AND PROFILE STA 0+00 TO STA 50+00			
Spicer group		SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 48607 Tel. 989-754-4717 Fax. 989-754-4440 www.SpicerGroup.com	
DE. BY: JMY/POC DR. BY: CBS	CH. BY: NDC APP. BY: RBH	PROJECT NO. 1279222SG2019	
STDs.	SHEET 04 OF 09	DR 04	
DATE MARCH, 2021 SCALE H: 1"=200' V: 1"=10'	FILE NO. DR-3968-04		



NO. 3 - STA 59+00 - SCHULTZ, R. & P.
NO WORK

NO. 4 - STA 68+83 - E. MOORE ROAD
NO WORK

NO. 5 - STA 77+88 - SANDERSON, G.
REMOVE EXISTING CROSSING, INSTALL 56 LIN FT
OF 42" DIA CULVERT PIPE.

NO. 6 - STA 81+28 - BEINS, C. & P.
REMOVE EXISTING CROSSING, INSTALL 56 LIN FT
OF 42" DIA CULVERT PIPE.

NO. 7 - STA 89+17 - BELL ROAD
REMOVE EXISTING CROSSING, INSTALL 240 LIN FT
OF 42" DIA CULVERT PIPE.
(SEE DETAIL ON THIS SHEET)

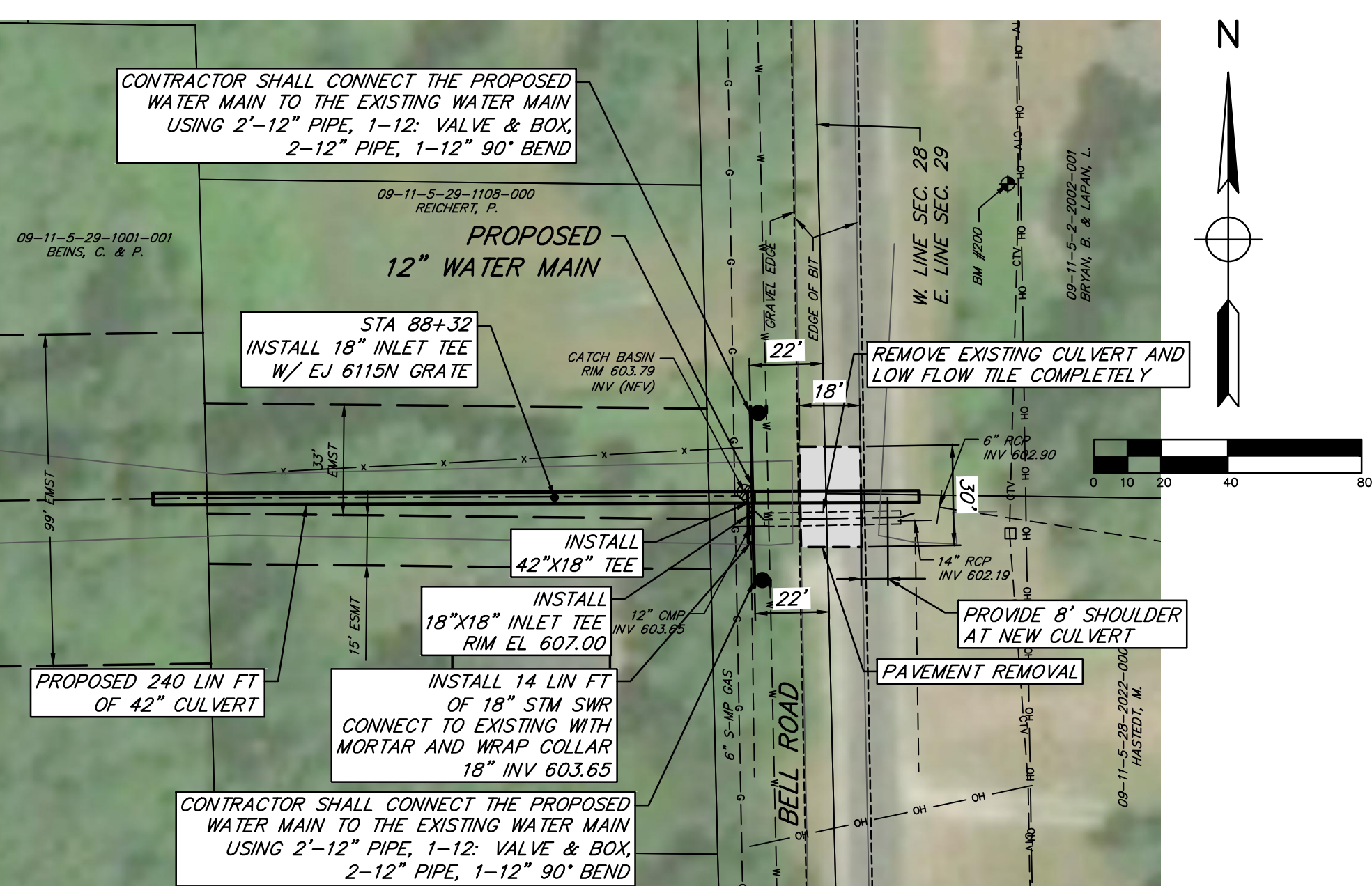
EROSION CONTROL TABLE					
KEY*	FROM STATION	TO STATION	SIDE	DESCRIPTION	QTY
1 P	50+00	89+42	BOTH	SEEDING OF ALL DISTURBED	LUMP SUM
2 T	50+00	59+42	BOTH	MULCHING OF ALL DISTURBED AREAS	LUMP SUM
8 P	AS STAKED BY ENGINEER		BOTH	RIPRAP TOE OF SLOPE PROTECTION	500 LIN FT
9 P	ALL EX FIELD TILE OUTLETS AND S.O.T.		BOTH	SPLASH PAD	8 EA
14 P	AS STAKED BY ENGINEER		BOTH	SURFACE OUTLET TUBE (35 LIN FT)	4 EA
15 P	AS STAKED BY ENGINEER		BOTH	RIPRAP SPILLWAY	100 LIN FT
18 P	AS STAKED BY ENGINEER		BOTH	GRASS SPILLWAY	25 LIN FT
20 P	AS STAKED BY ENGINEER		BOTH	TOE DRAIN	1000 LIN FT

8 P	CROSSINGS 5-7	BOTH	INSTALL RIPRAP PROTECTION AT INLET & OUTLET OF CROSSING	130 SQ YDS TOTAL
NOTE: COORDINATE INSTALLATION OF EROSION CONTROL STRUCTURES WITH ENGINEER PRIOR TO CONSTRUCTION. LOCATIONS, QUANTITIES, OR TYPES MAY VARY BASED ON FIELD DECISIONS.				

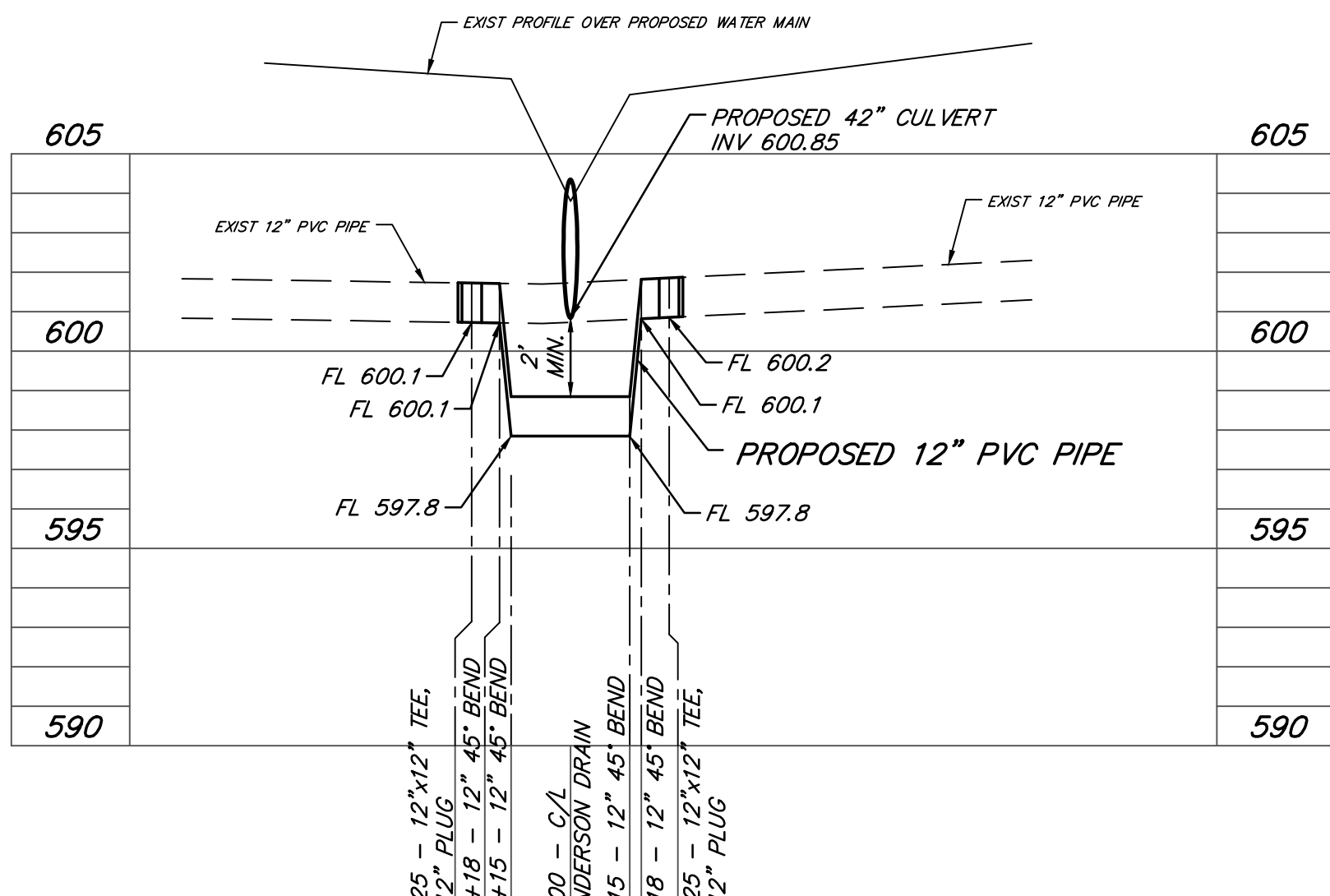
MAINTENANCE ACCESS CULVERTS			
STATION	SIDE	SIZE/TYPE	LENGTH
67+75	LEFT	18" HP STORM	30 LIN FT
68+70	LEFT	15" HP STORM	30 LIN FT
68+96	LEFT	15" HP STORM	30 LIN FT
74+25	LEFT	15" HP STORM	30 LIN FT
COORDINATE INSTALLATION OF ACCESS CULVERTS WITH ENGINEER PRIOR TO CONSTRUCTION.			

SPOIL LEVELING TABLE			
STATION FROM	STATION TO	DETAIL	SIDE TO EXCAVATE FROM
50+00	77+88	"B"	LEFT
77+88	81+28	"B"	RIGHT
81+28	87+25	"B"	LEFT
87+25	89+50	HAUL	LEFT

NOTE:
USE SPOIL LEVELING DETAIL "A" THROUGH FIELD AREA.
USE SPOIL LEVELING DETAIL "B" THROUGH WOODED AREA.



CROSSING NO 7 STA 89+17 BELL ROAD DETAIL
SCALE: 1" = 40'



BELL ROAD WATER MAIN LOWERING AT SANDERSON DRAIN
SCALE: 1" = 40'

CONSTRUCTION NOTES


- CONTRACTOR TO REMOVE AND DISPOSE OF EXISTING LOW FLOW TILE AND STRUCTURES. COST TO BE INCLUDED IN PRICE FOR OPEN CHANNEL EXCAVATION AND CULVERT INSTALLATION.
- INSTALL TOE DRAIN AS STAKED BY ENGINEER IN AREAS OF HIGH GROUND WATER.
- WATERMAIN LOWERING WORK IS BEING BID AS AN ALTERNATE BID ITEM. THE BASE BID INCLUDES BRIDGEPORT CHARTER TOWNSHIP LOWERING THE WATERMAIN.

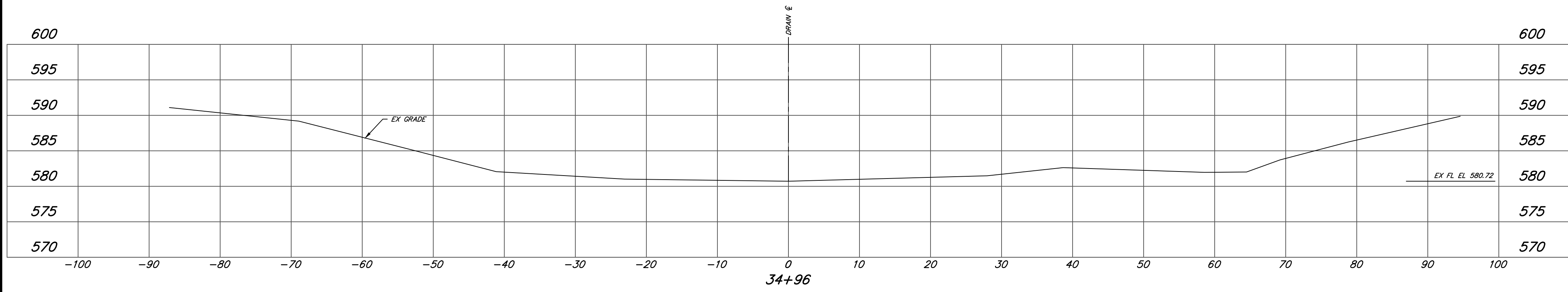
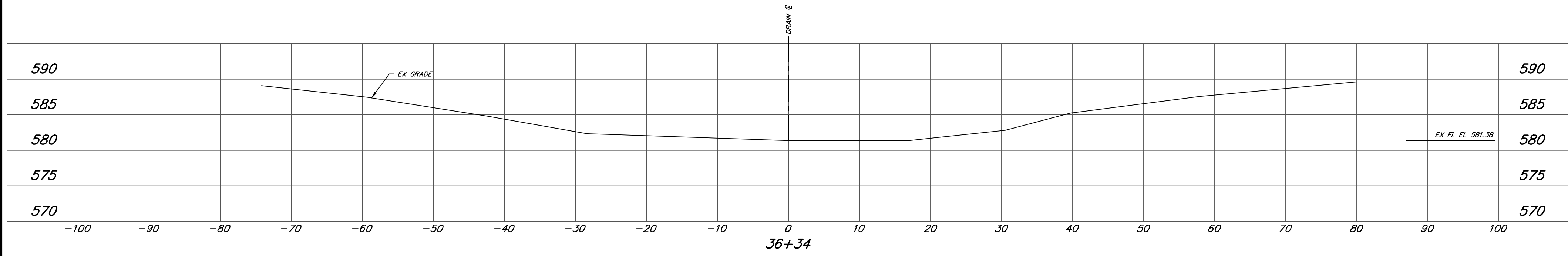
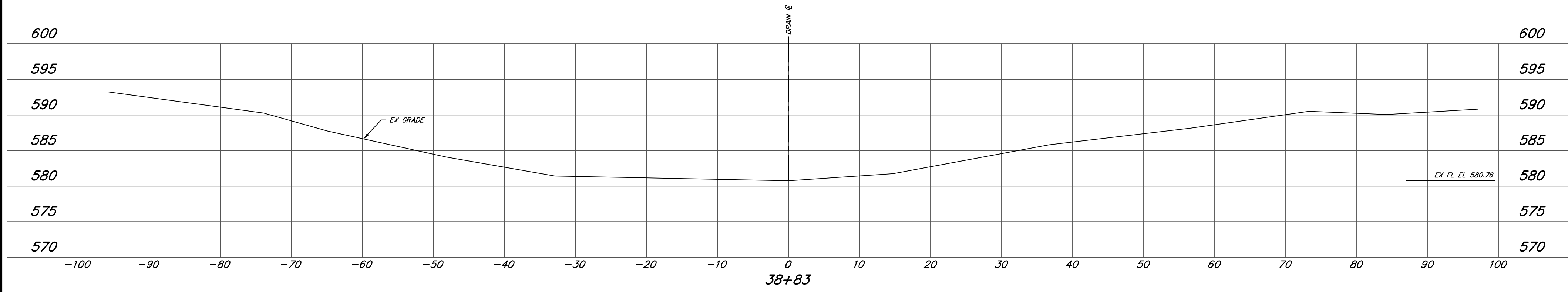
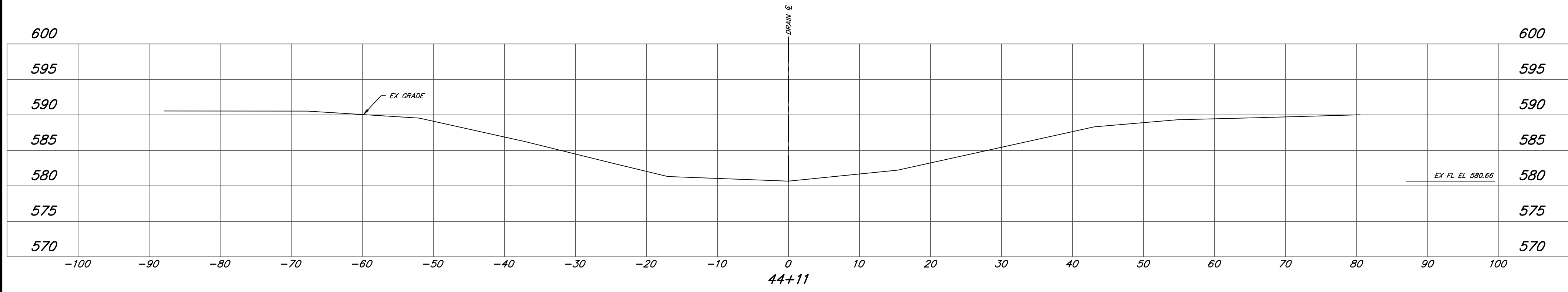
BENCHMARKS


BM 200 - CENTER OF CULVERT 7 100'± NORTH ALONG E BELL ROAD, AND 56'± EAST POWER POLE.
EL 608.33
BM 201 - CENTER OF CULVERT 4 118'± EAST ALONG E MOORE ROAD, AND 28'± SOUTH HYDRANT.
EL 598.28

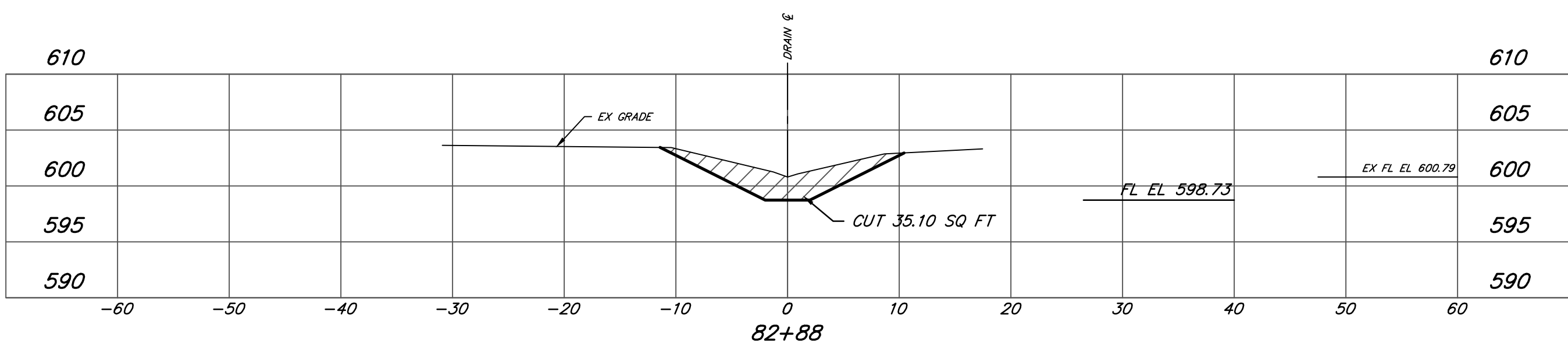
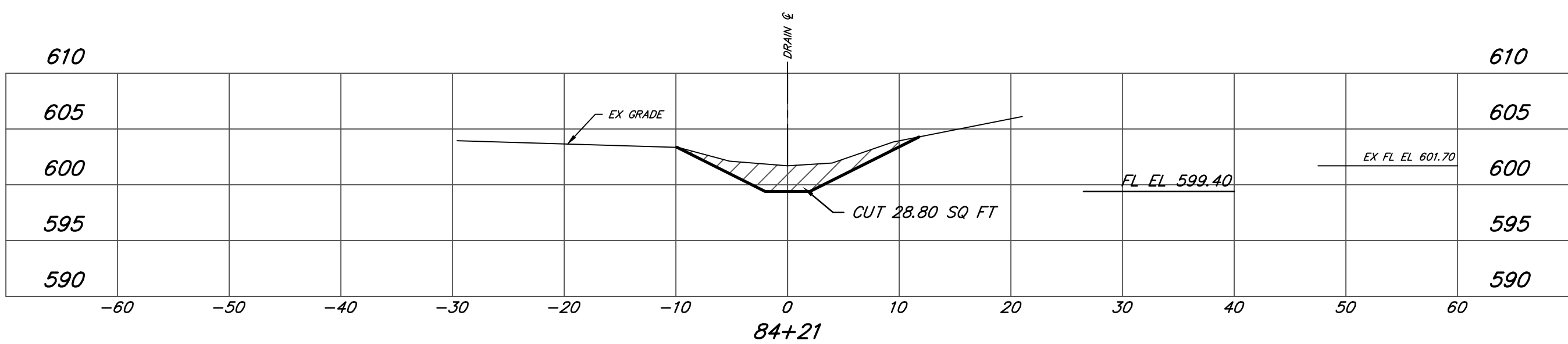
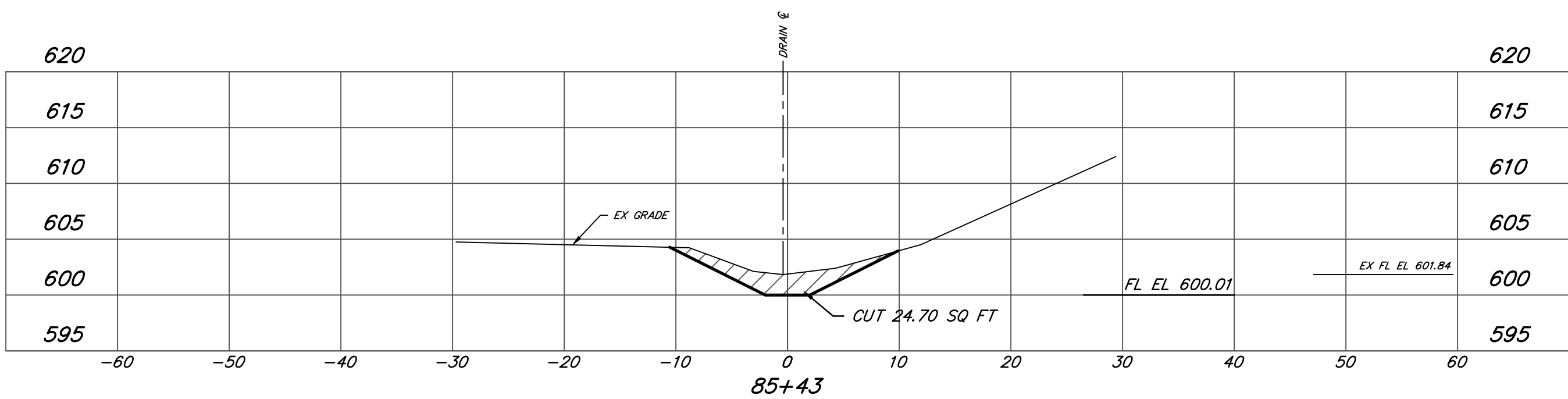
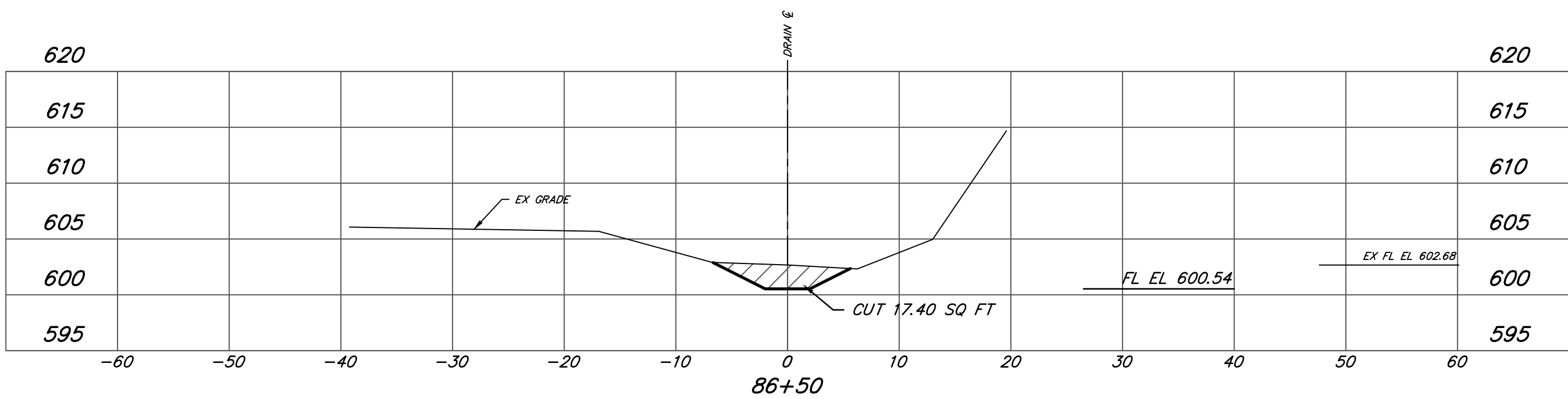
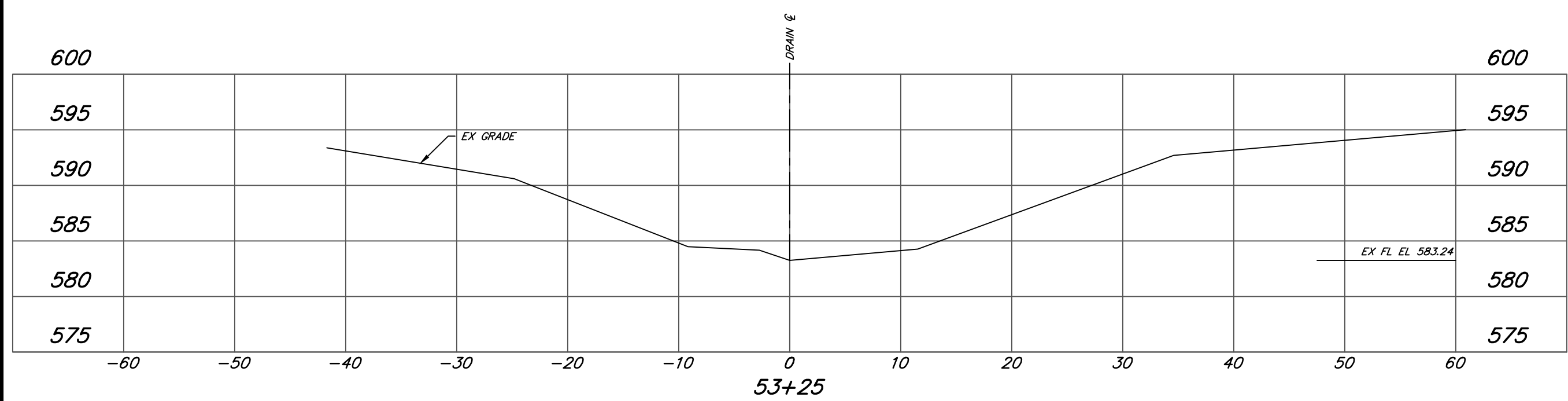
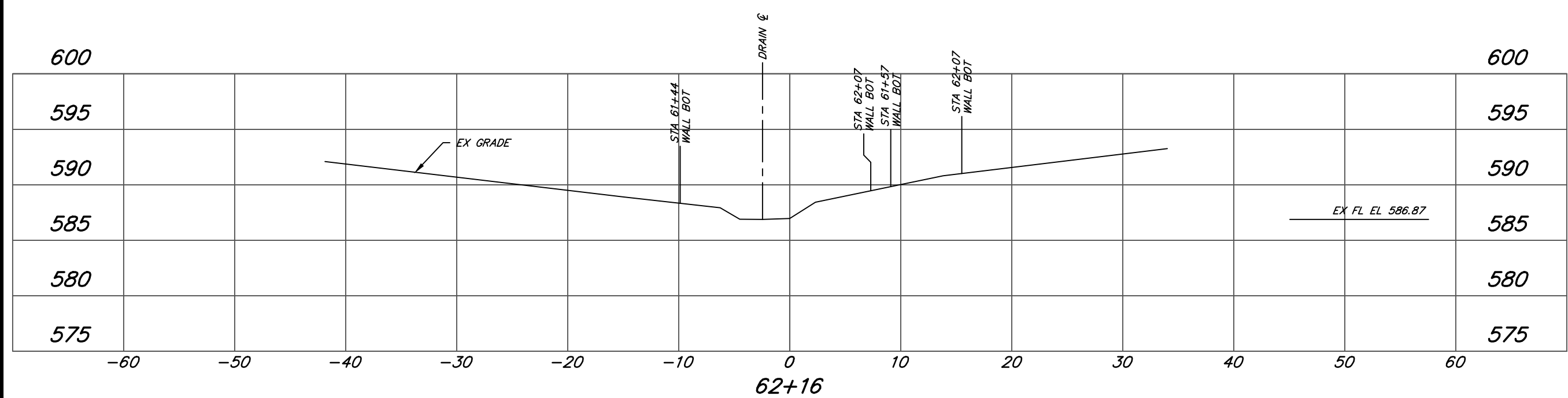
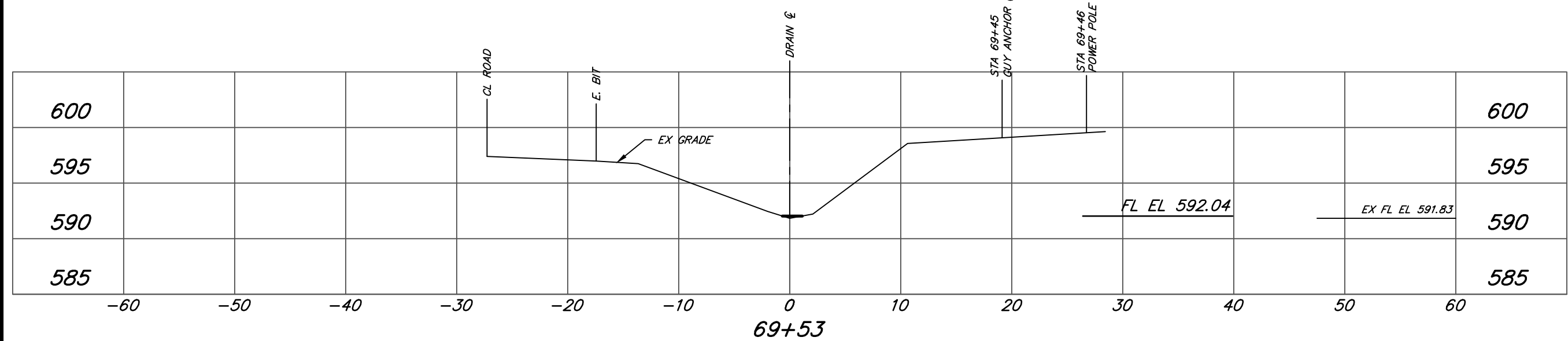
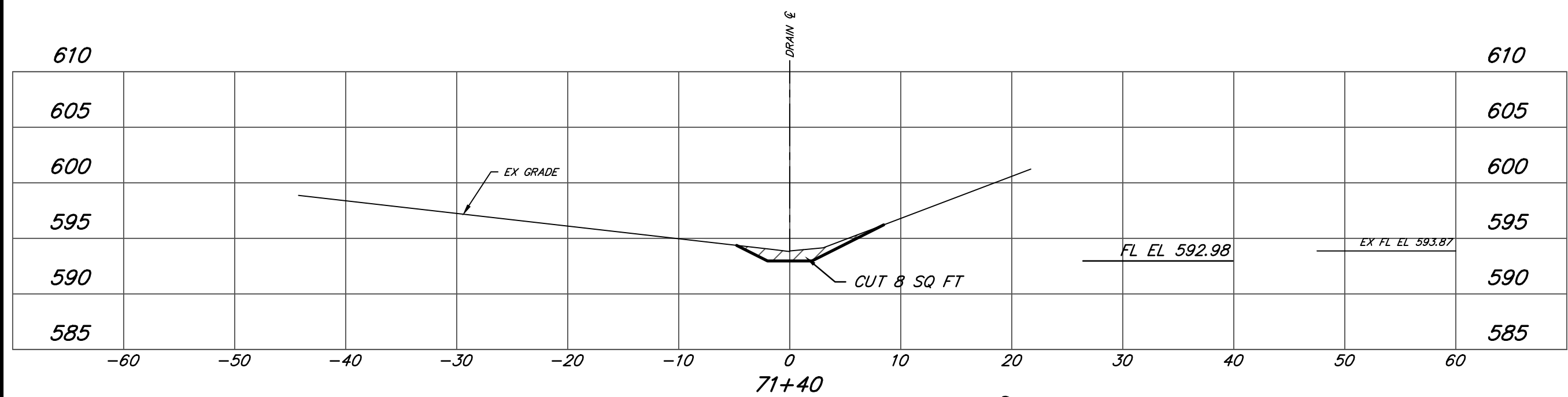
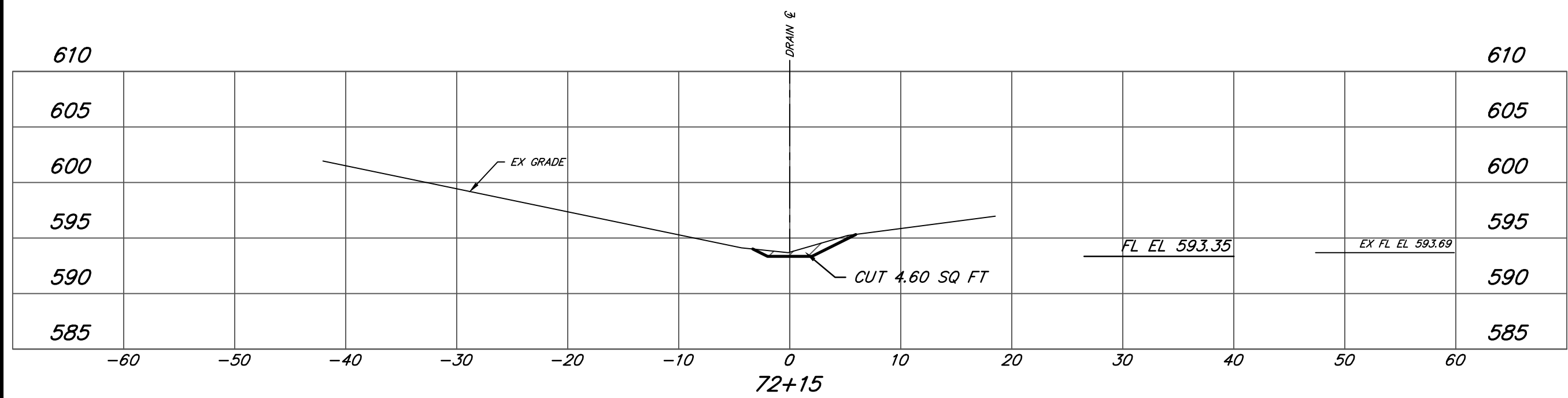
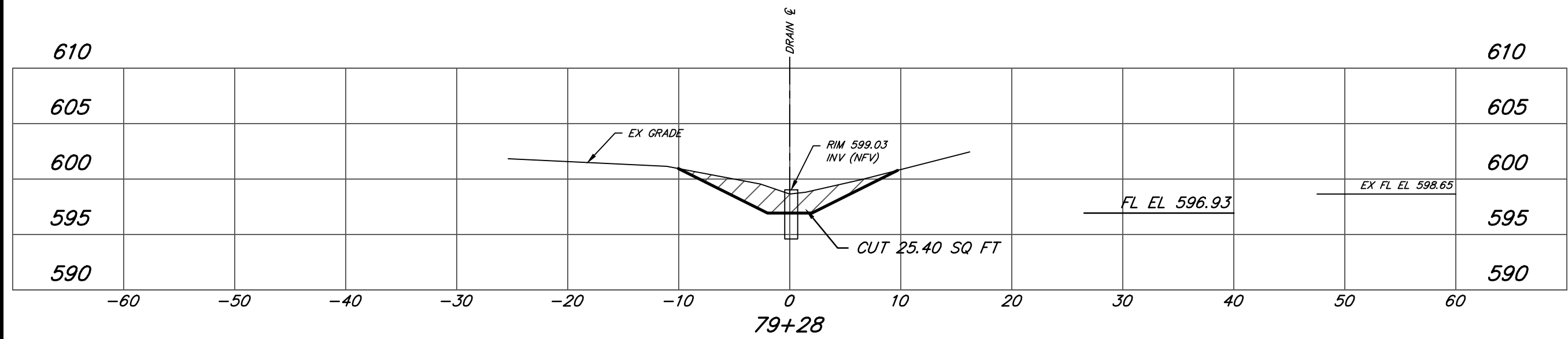
RIGHT OF WAY


SANDERSON DRAIN - DRAIN RIGHT-OF-WAY AS SHOWN ON PLANS.

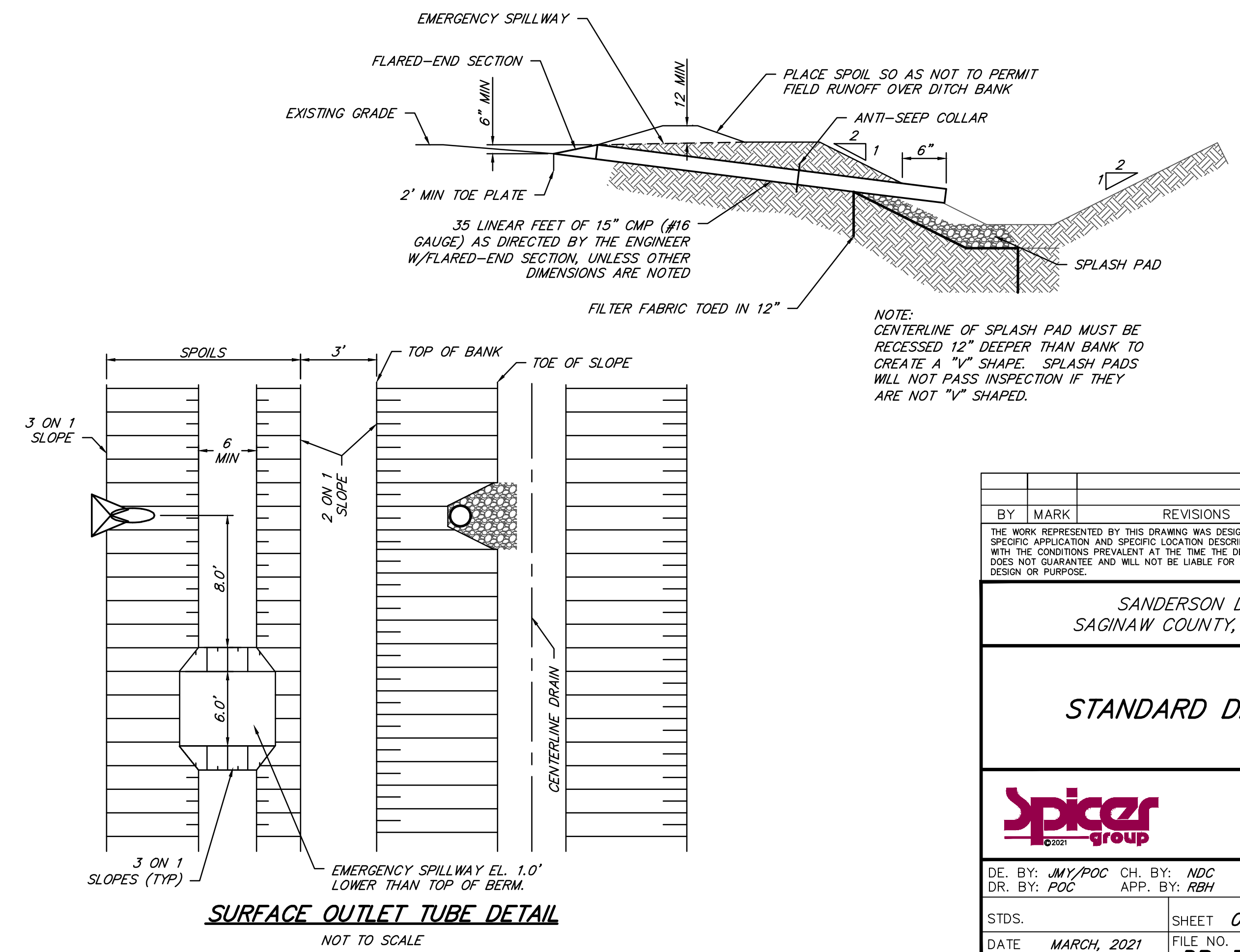
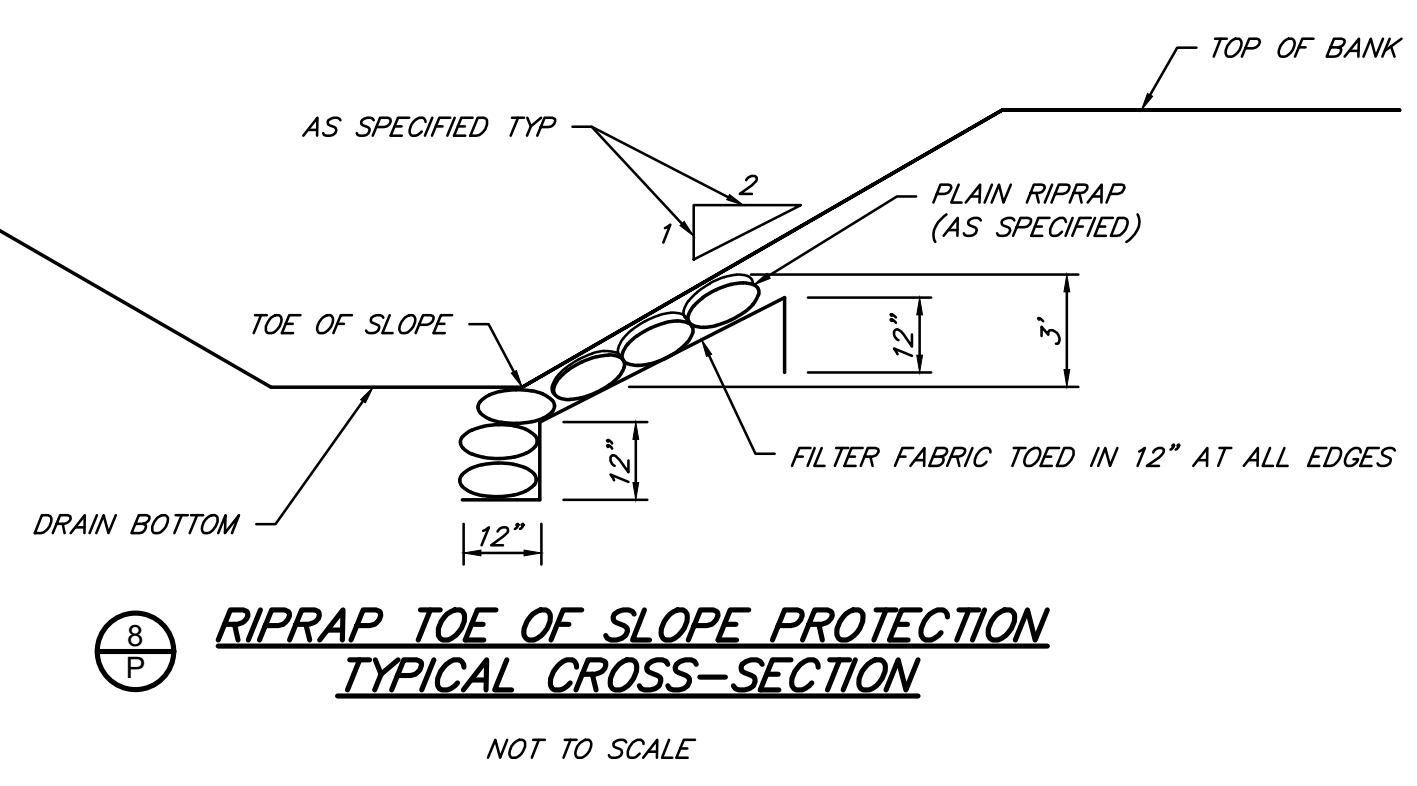
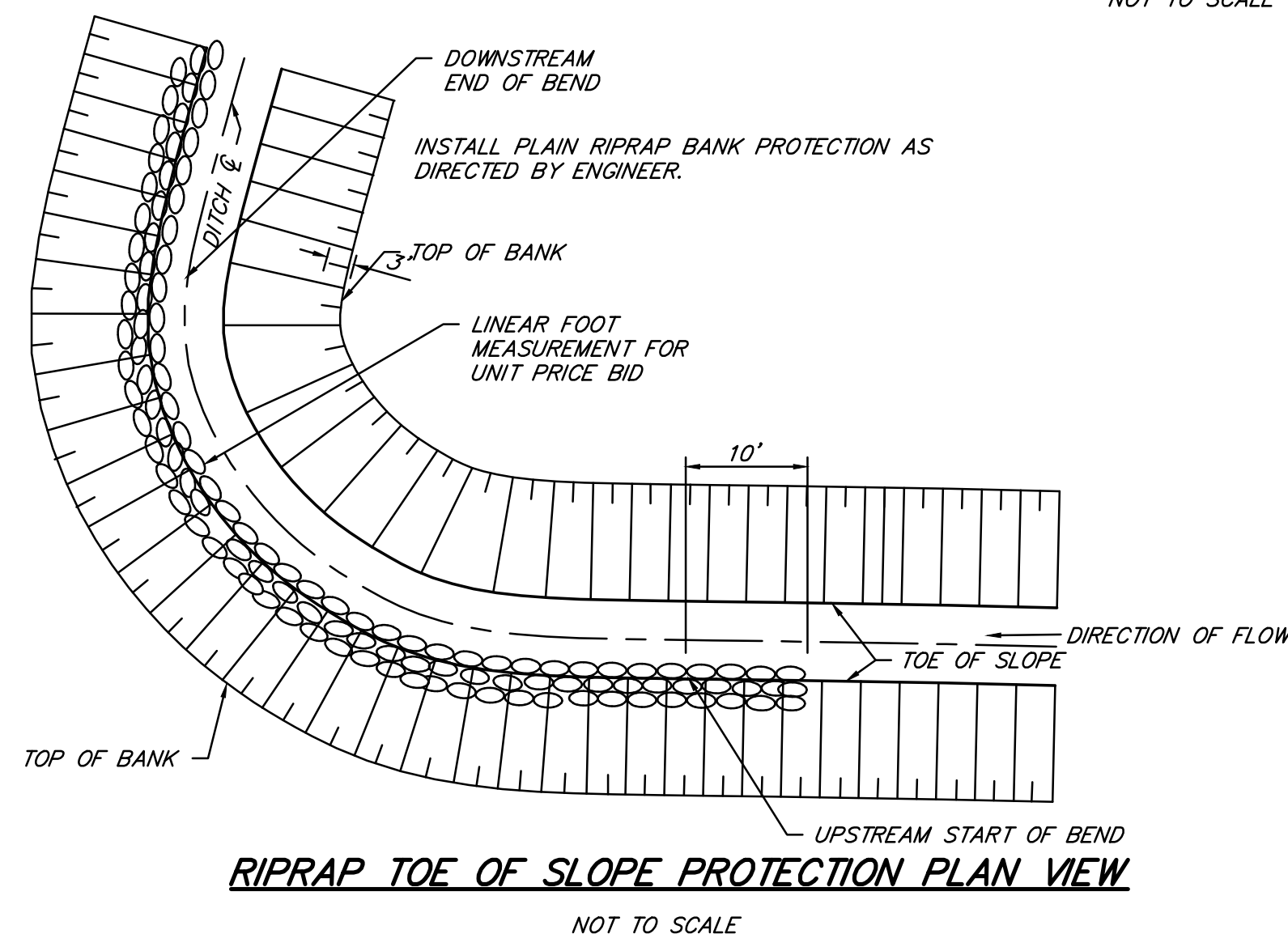
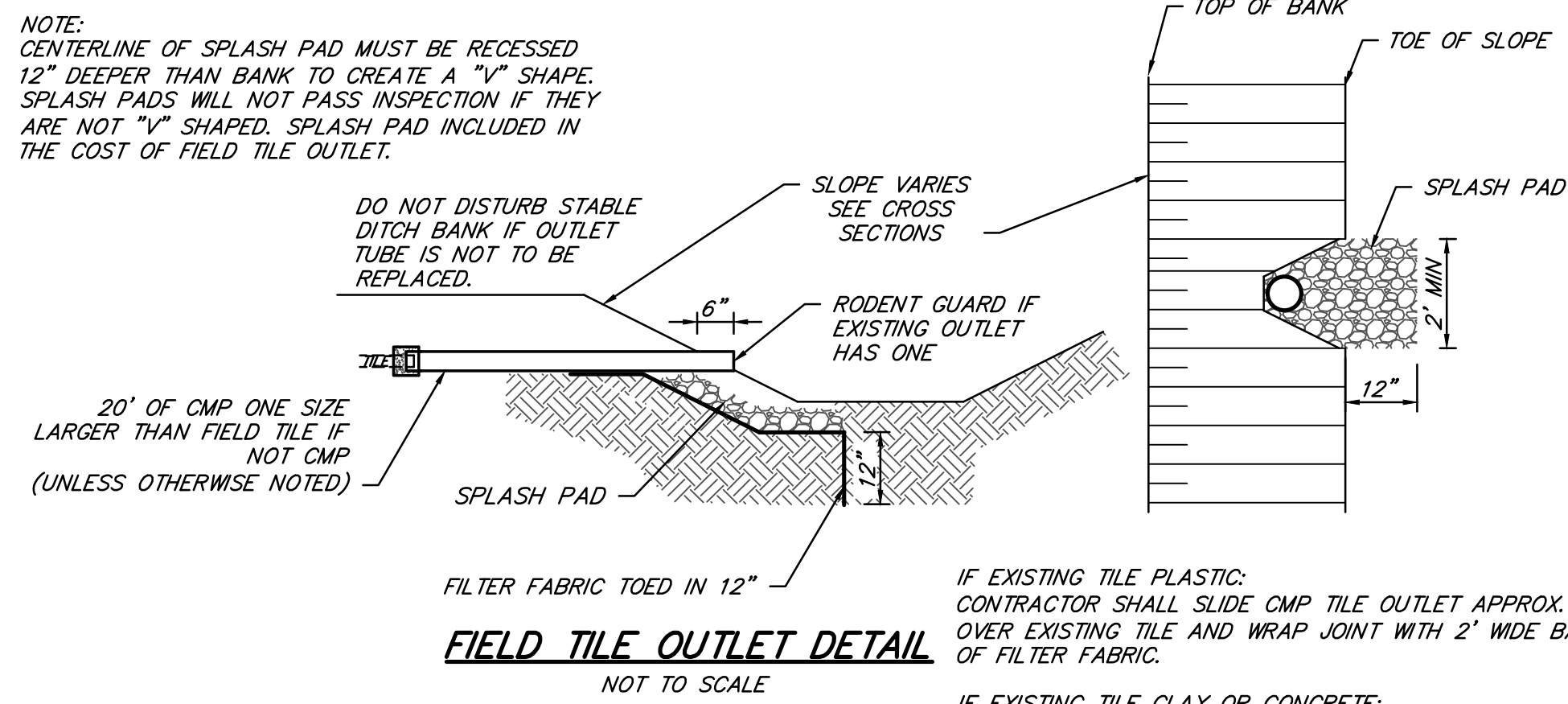
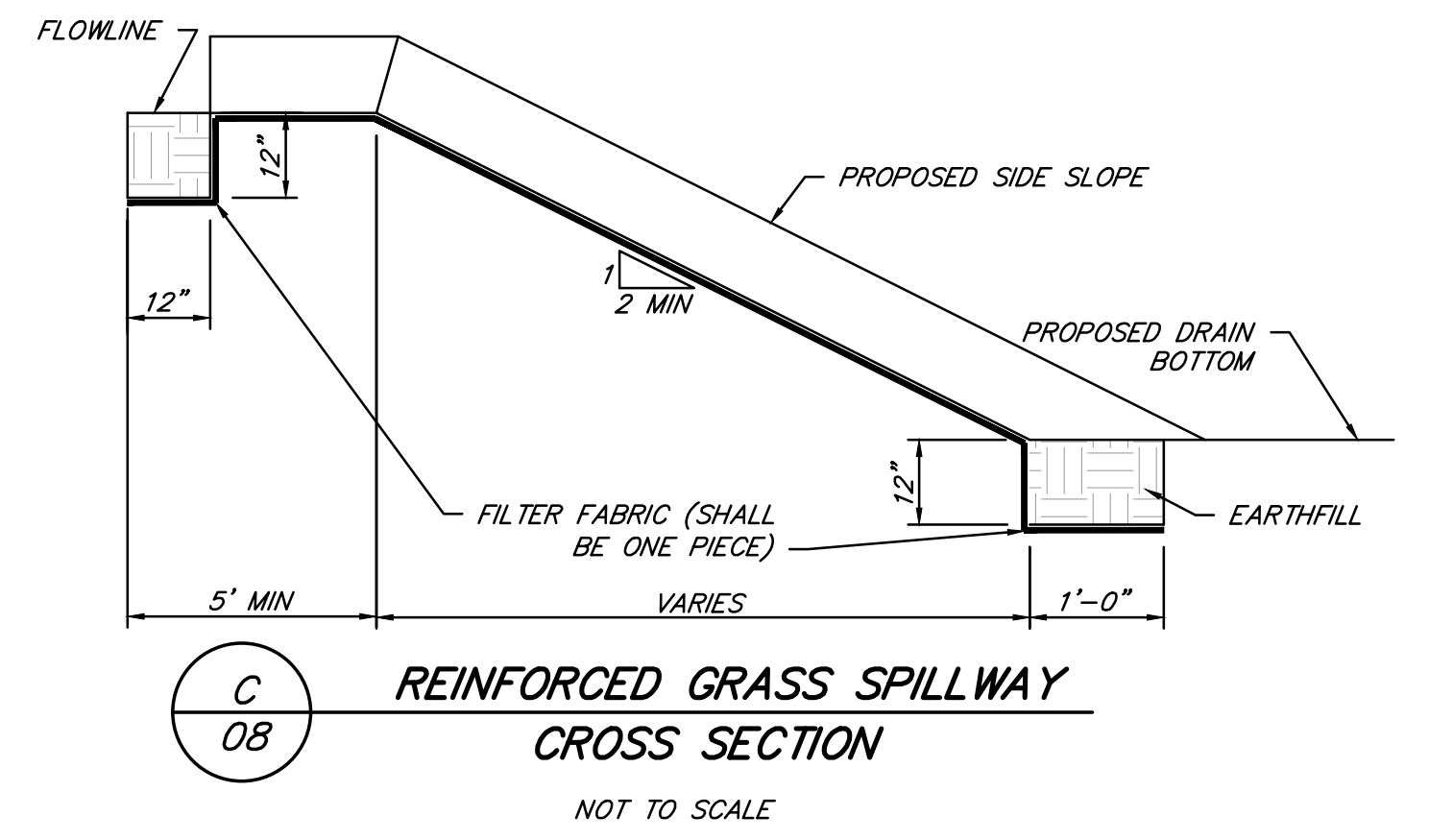
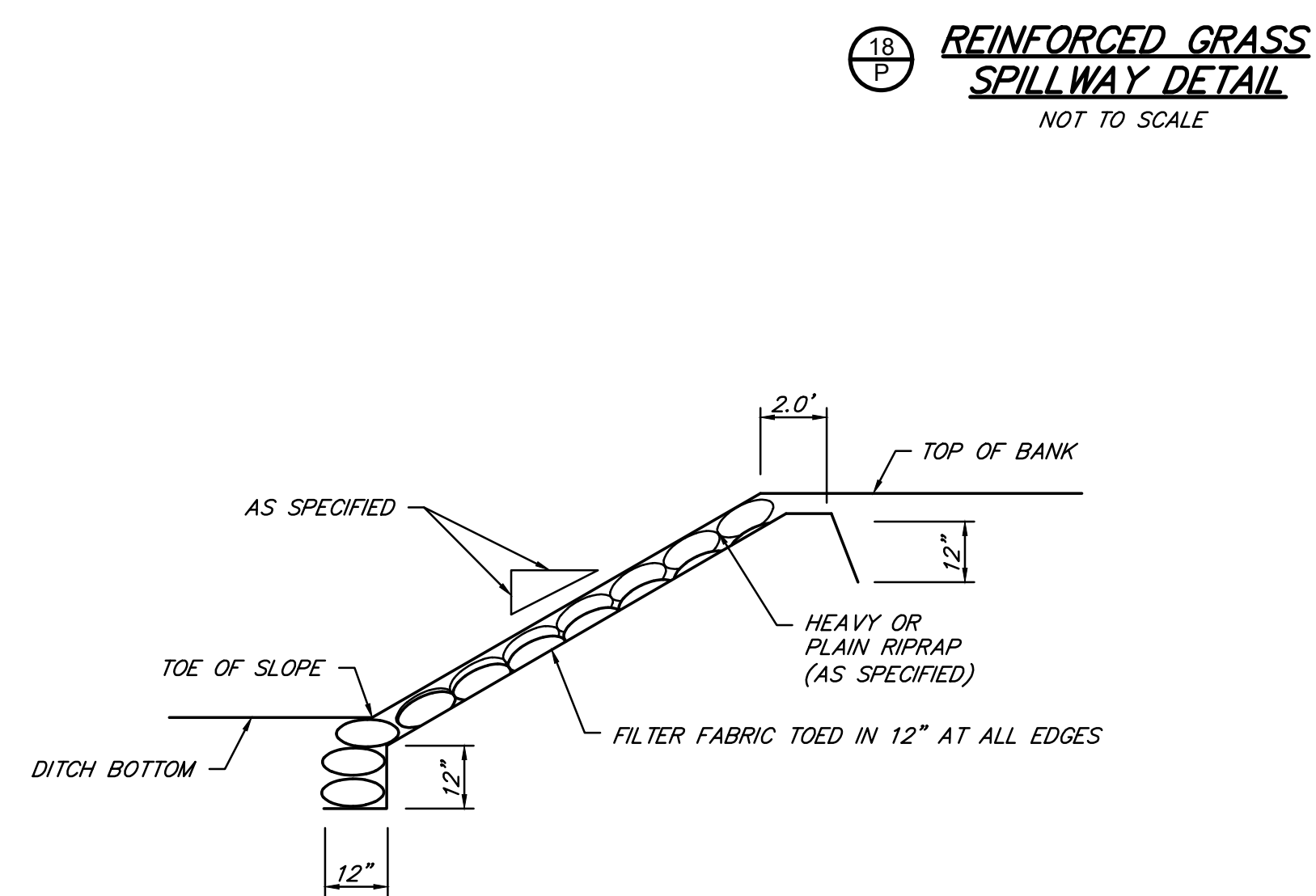
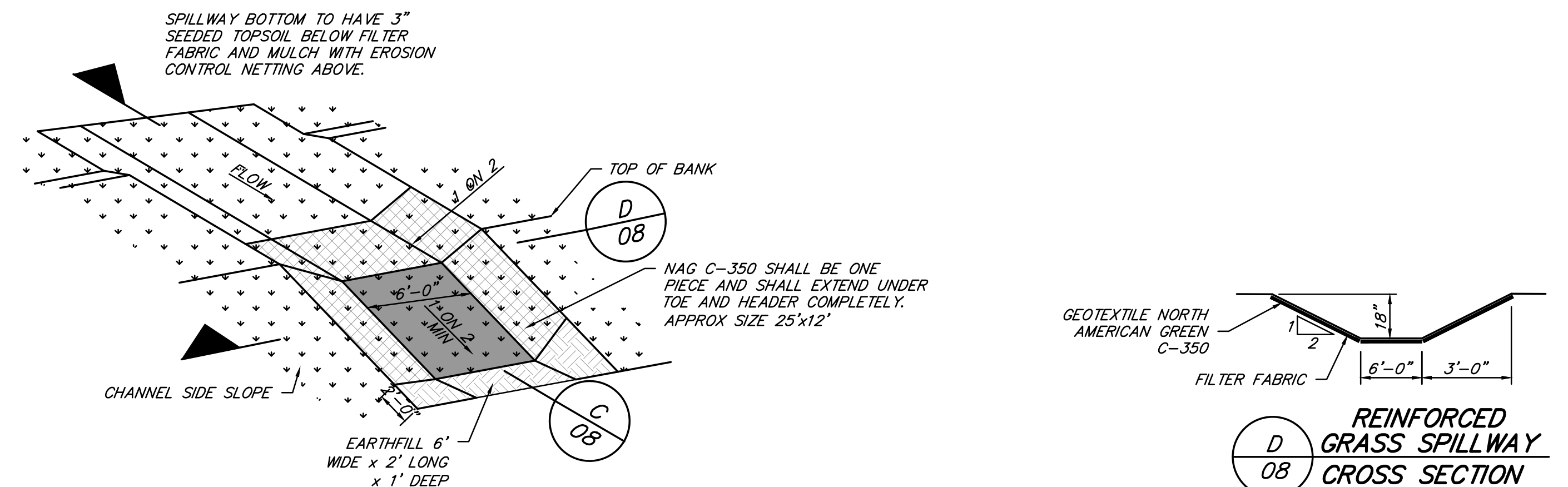
BY	MARK	REVISIONS	DATE
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SANDERSON DRAIN SAGINAW COUNTY, MICHIGAN			
PLAN AND PROFILE STA 50+00 TO STA 89+50			
			
		SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 48607 Tel. 989-754-4717 Fax. 989-754-4440 www.SpicerGroup.com	
DE. BY: JMY/POC	CH. BY: NDC	PROJECT NO. 1279225G2019	
DR. BY: CBS	APP. BY: RBH	DR 05	
STDS.	SHEET 05 OF 09	DR 05	
DATE: MARCH, 2021	FILE NO.	DR-3968-05	
SCALE: H: 1"=200' V: 1"=10'			




BY	MARK	REVISIONS	DATE
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SANDERSON DRAIN SAGINAW COUNTY, MICHIGAN			
CROSS SECTIONS STA 34+96 TO STA 44+11			
		SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 48607 Tel: 989-754-4717 Fax: 989-754-4440 www.SpicerGroup.com	
DE. BY: JMY/POC DR. BY: CBS		CH. BY: NDC APP. BY: RBH	
PROJECT NO. 127922SG2019			
SHEET 06 OF 09		DR	
DATE JANUARY, 2021 SCALE 1"=10'		FILE NO. DR-3968-06	
		06	



BY	MARK	REVISIONS	DATE
THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREON IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.			
SANDERSON DRAIN SAGINAW COUNTY, MICHIGAN			
CROSS SECTIONS STA 53+25 TO STA 86+50			
		SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 48607 Tel: 989-754-4717 Fax: 989-754-4440 www.SpicerGroup.com	
DE. BY: JMY/POC	CH. BY: NDC	PROJECT NO. 127922SG2019	
DR. BY: CBS	APP. BY: RBH	SHEET 07 OF 09	
STDs.	DATE JANUARY, 2021	FILE NO. DR-3968-07	DR 07
SCALE 1"=10'			

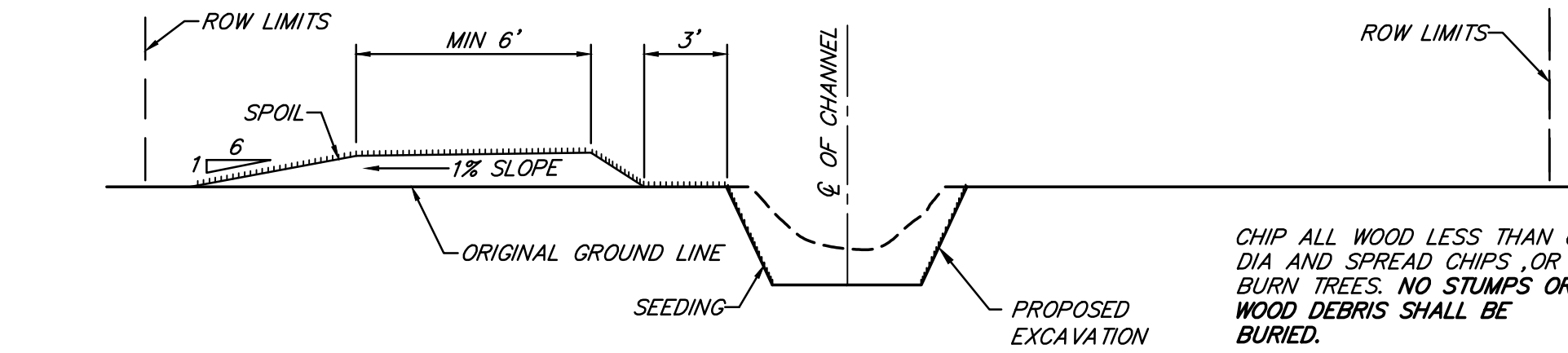


BY	MARK	REVISIONS						DATE	
<p>THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREIN IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.</p>									
<p style="text-align: center;"><i>SANDERSON DRAIN SAGINAW COUNTY, MICHIGAN</i></p>									
<p style="text-align: center;"><i>STANDARD DETAILS</i></p>									
				<p>SAGINAW OFFICE 230 S. Washington Ave. Saginaw, MI 48607 Tel. 989-754-4717 Fax. 989-754-4440 www.SpicerGroup.com</p>					
DE. BY: <i>JMY/POC</i> DR. BY: <i>POC</i>				CH. BY: <i>NDC</i> APP. BY: <i>RBH</i>				PROJECT NO. <i>1279225G2019</i>	
STDS.				SHEET <i>08</i> OF <i>09</i>				DR <i>08</i>	
DATE <i>MARCH, 2021</i> SCALE <i>AS SHOWN</i>				FILE NO. <i>DR-3980-08</i>				DR <i>08</i>	

EXCAVATE FROM ONLY ONE SIDE OF DRAIN AS DESIGNATED ON PLANS OR DETERMINED BY ENGINEER.

FOR EXCAVATION FROM ONE SIDE OF DRAIN, OPPOSITE SIDE OF DRAIN MUST BE CLEARED TO TOP OF BANK.

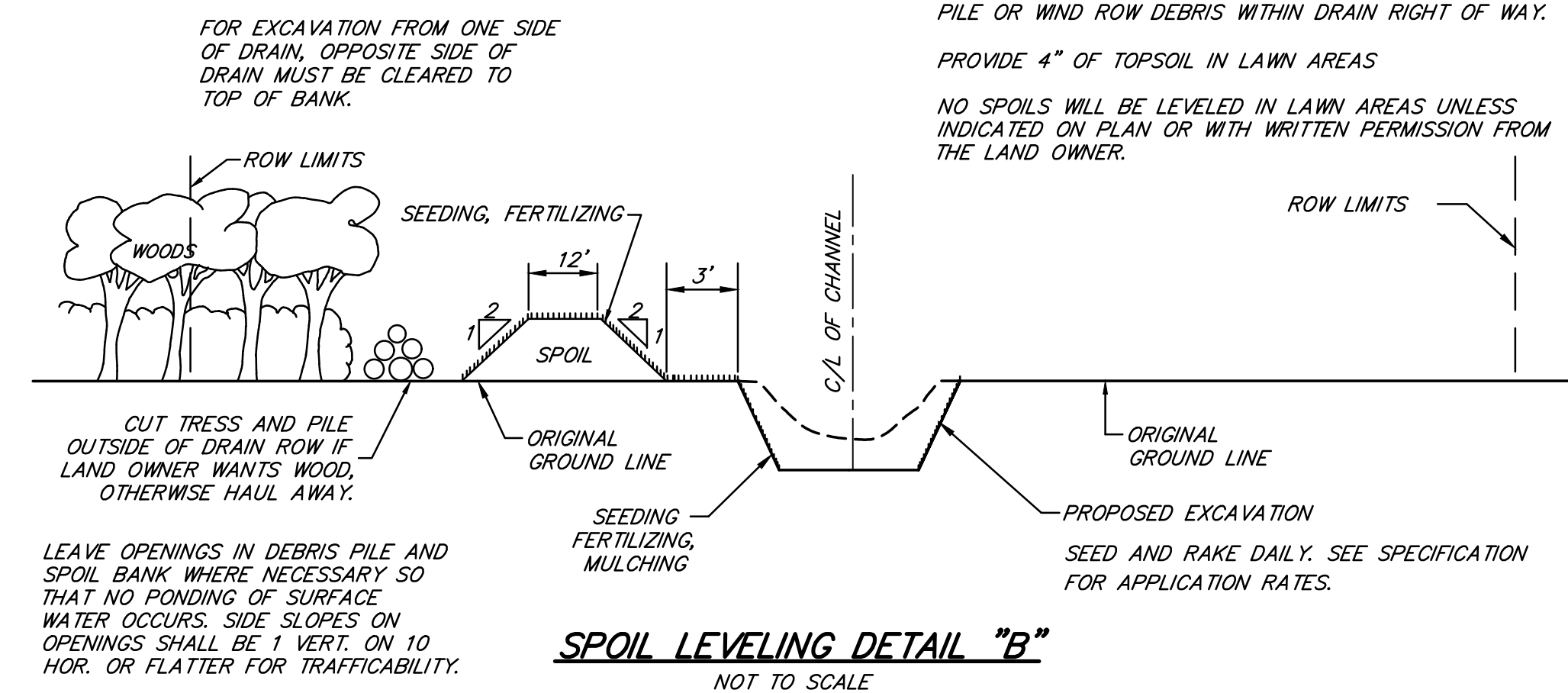
LEAVE OPENINGS IN DEBRIS PILE AND SPOIL BANK WHERE NECESSARY SO THAT NO PONDING OF SURFACE WATER OCCURS. SIDE SLOPES ON OPENINGS SHALL BE 1 VERT ON 10 HOR OR FLATTER.



PROVIDE 4" TOPSOIL IN LAWN AREAS. NO SPOILS WILL BE LEVELED IN LAWN AREAS UNLESS INDICATED ON PLAN OR WITH WRITTEN PERMISSION FROM LAND OWNER.

SPOIL LEVELING DETAIL "A"
NOT TO SCALE

CHIP ALL WOOD LESS THAN 6" DIA AND SPREAD CHIPS OR BURN TREES. NO STUMPS OR WOOD DEBRIS SHALL BE BURIED.
RAKE, SEED, FERTILIZE AND MULCH ALL DISTURBED AREAS DAILY. SEE SPECIFICATION FOR APPLICATION RATES.

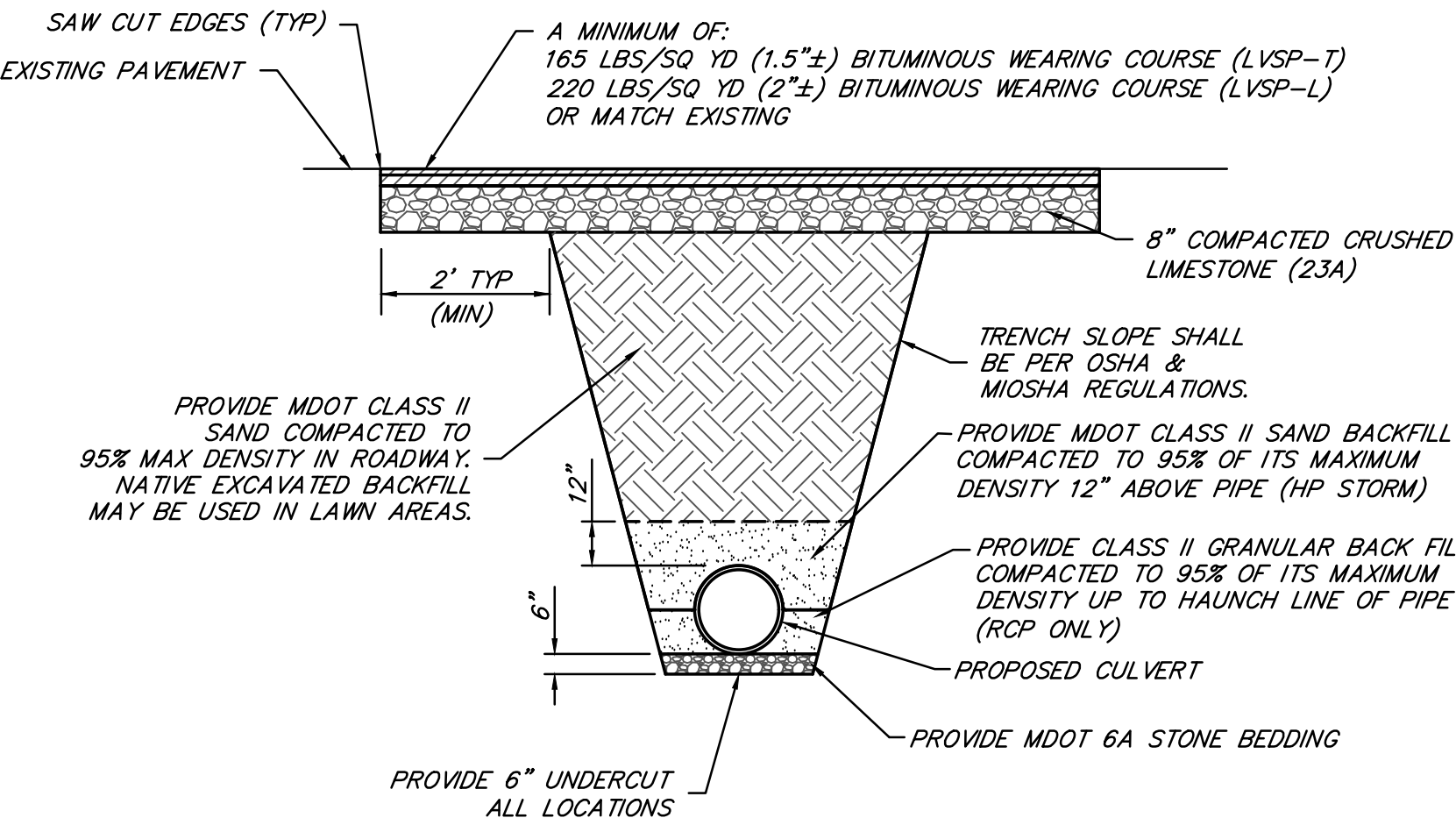


SPOIL LEVELING DETAIL "B"
NOT TO SCALE

PILE OR WIND ROW DEBRIS WITHIN DRAIN RIGHT OF WAY.

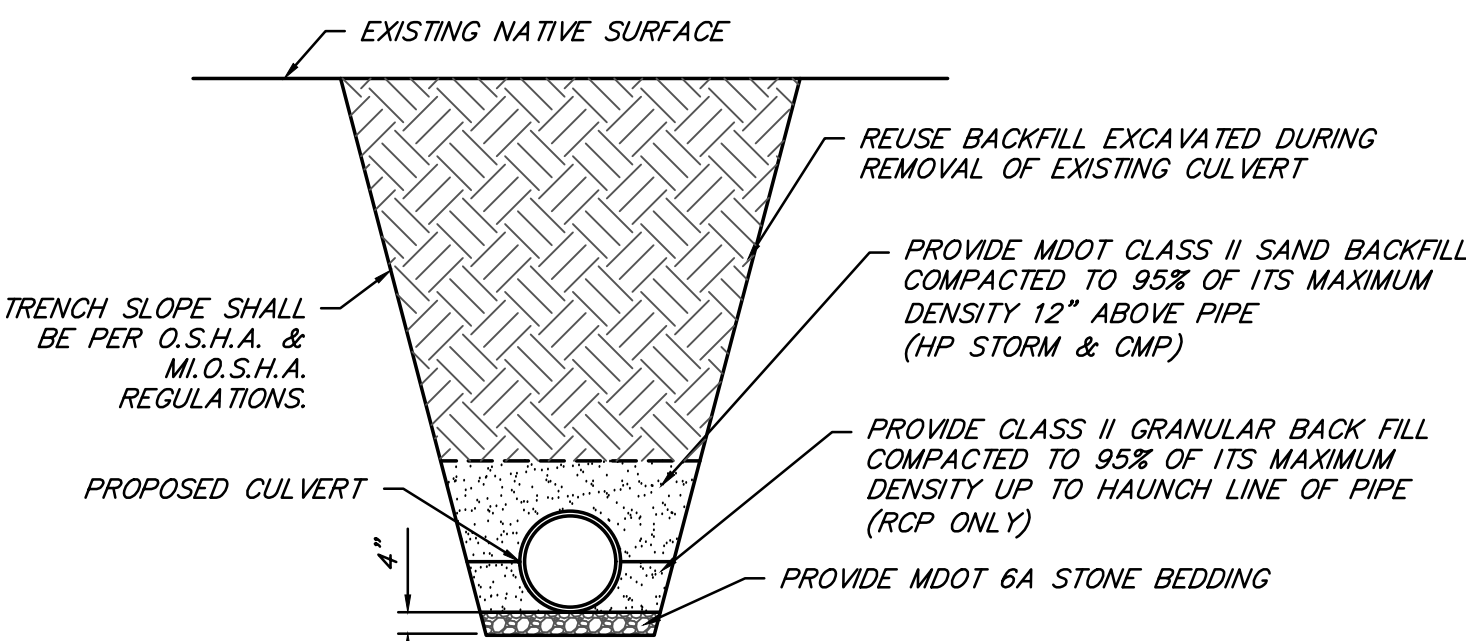
PROVIDE 4" OF TOPSOIL IN LAWN AREAS

NO SPOILS WILL BE LEVELED IN LAWN AREAS UNLESS INDICATED ON PLAN OR WITH WRITTEN PERMISSION FROM THE LAND OWNER.

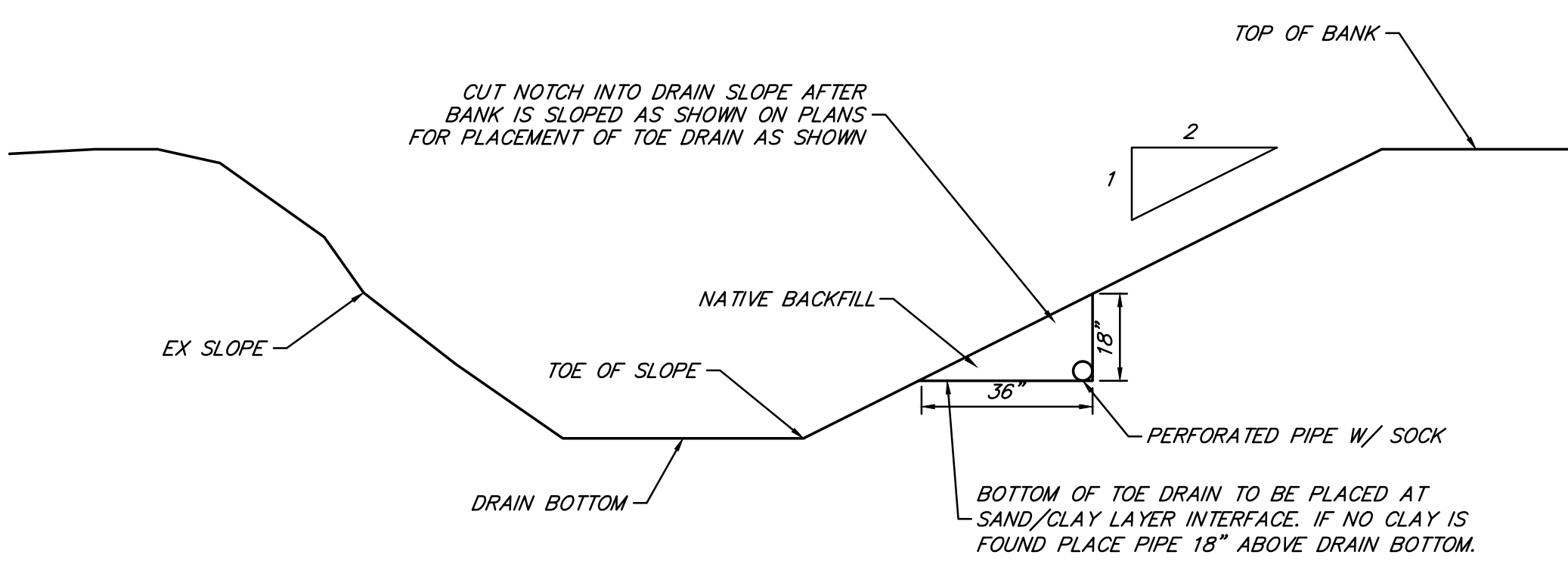


BELL ROAD CROSSING PAVEMENT RESTORATION
NOT TO SCALE

NOTE: IF EXISTING BITUMINOUS PAVEMENT THICKNESS IS GREATER THAN 3 1/2"± MATCH EXISTING THICKNESS.

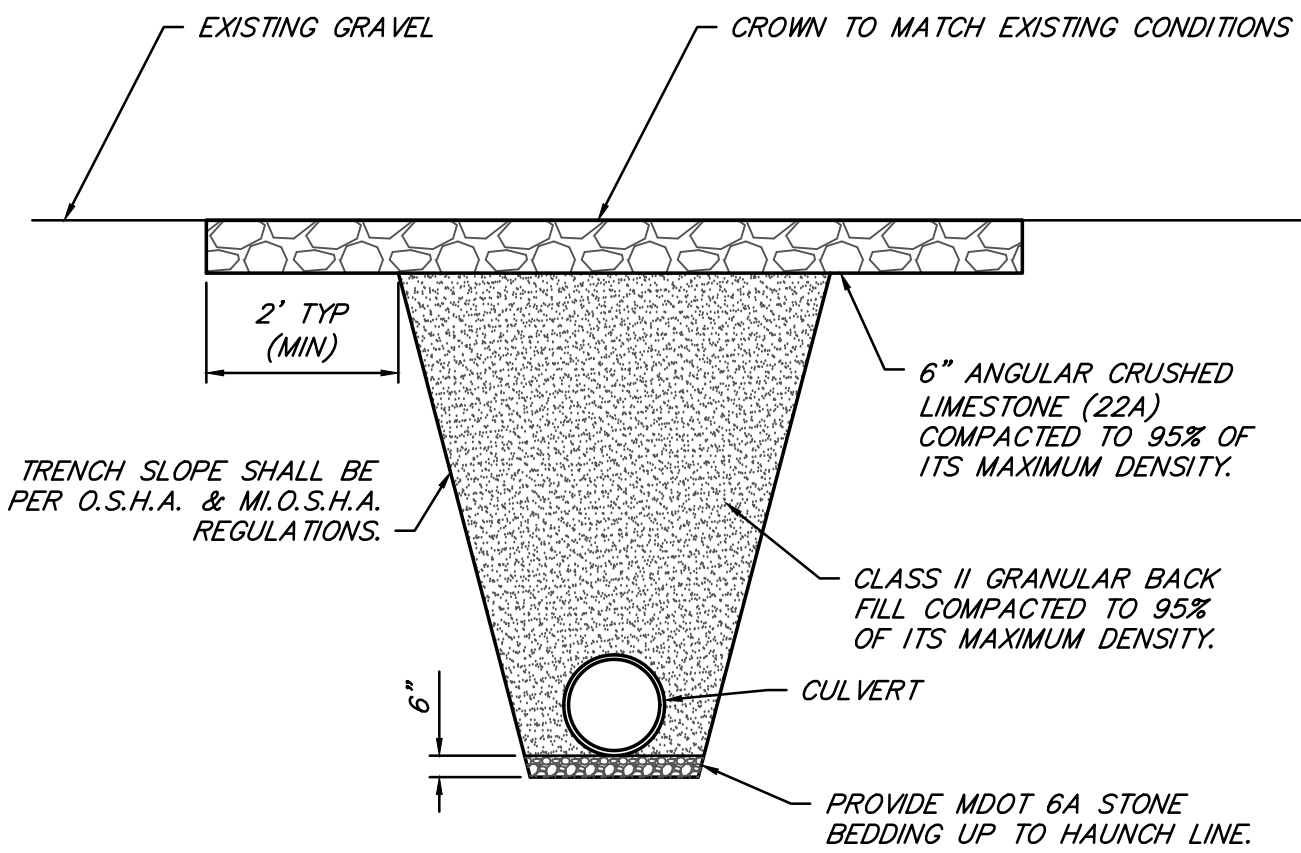


TYPICAL NATIVE DRIVE CROSSING DETAIL
NOT TO SCALE

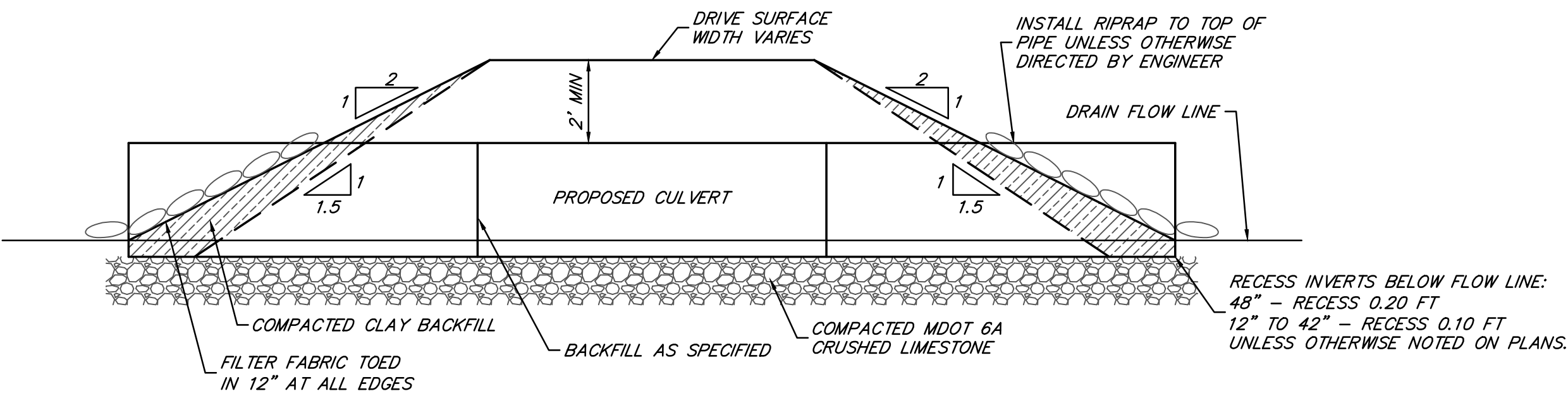


TOE DRAIN DETAIL
NOT TO SCALE

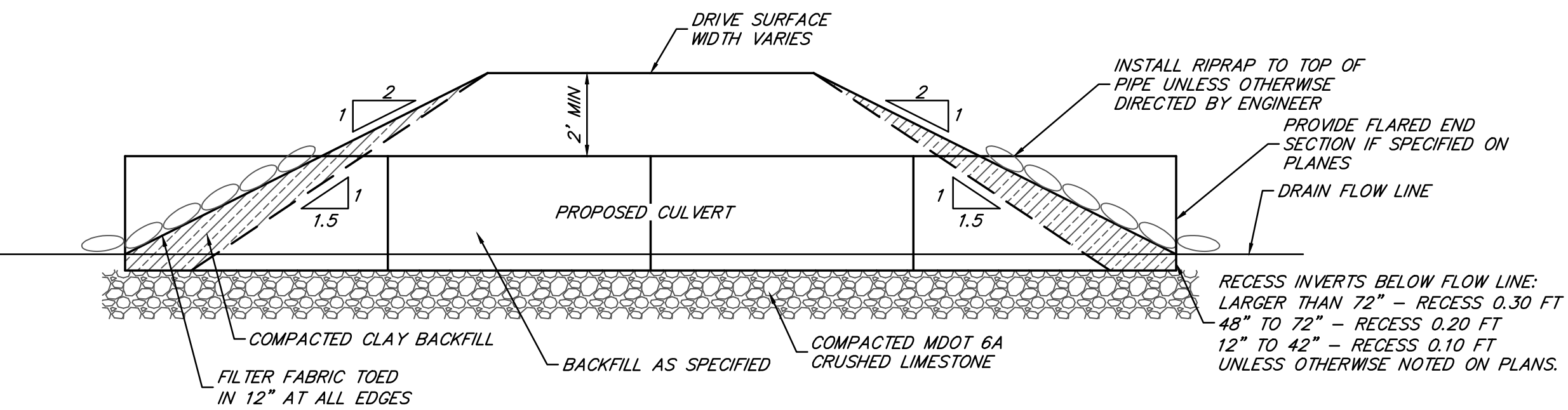
BOTTOM OF TOE DRAIN TO BE PLACED AT SAND/CLAY LAYER INTERFACE. IF NO CLAY IS FOUND PLACE PIPE 18" ABOVE DRAIN BOTTOM.



TYPICAL GRAVEL DRIVE CROSSING DETAIL
NOT TO SCALE



HP STORM CROSSING DETAIL
NOT TO SCALE

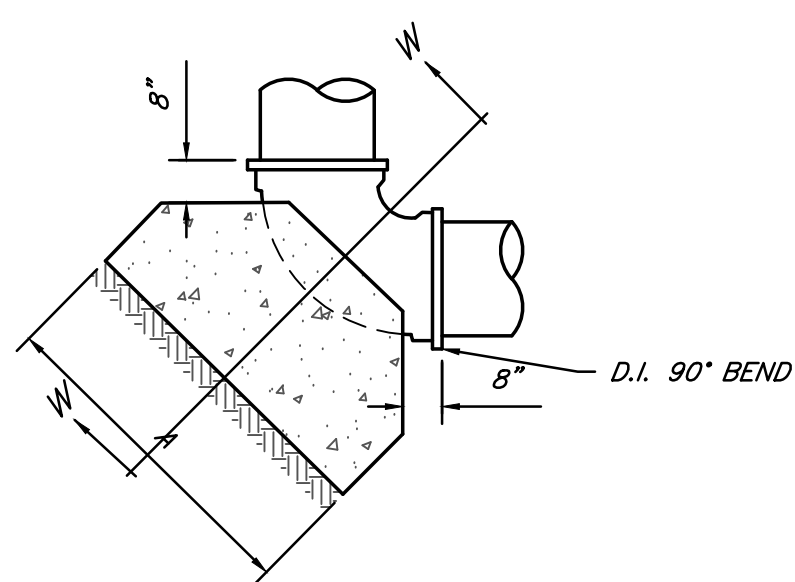


RCP CROSSING DETAIL
NOT TO SCALE

BY	MARK	REVISIONS	DATE
THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREON IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.			
SANDERSON DRAIN SAGINAW COUNTY, MICHIGAN			
STANDARD DETAILS			
DE. BY: JMY/POC DR. BY: POC		CH. BY: NDC APP. BY: RBH	
STDS.		PROJECT NO. 127922SG2019	
DATE SCALE MARCH, 2021 AS SHOWN		SHEET 09 OF 09 FILE NO. DR-3980-09	
		DR 09	

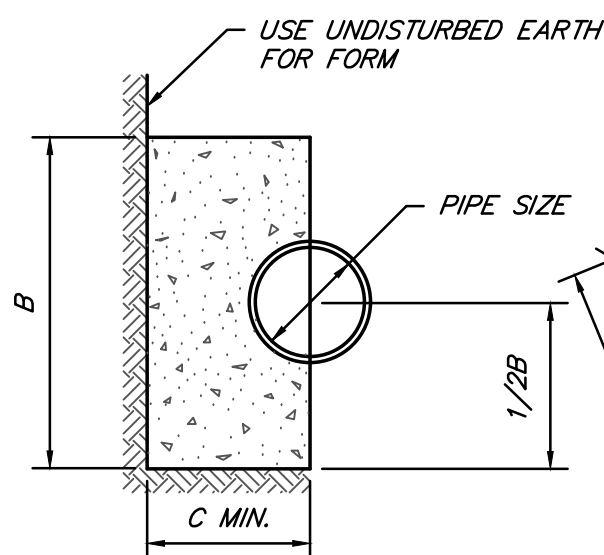


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PLAN

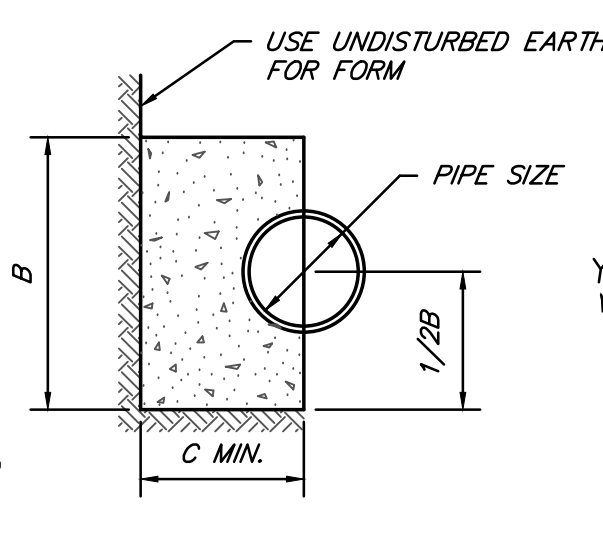
DETAIL OF BLOCK FOR 90° BEND OR TEE
Q - MIN. CU. YD. CONCRETE PER BLOCK



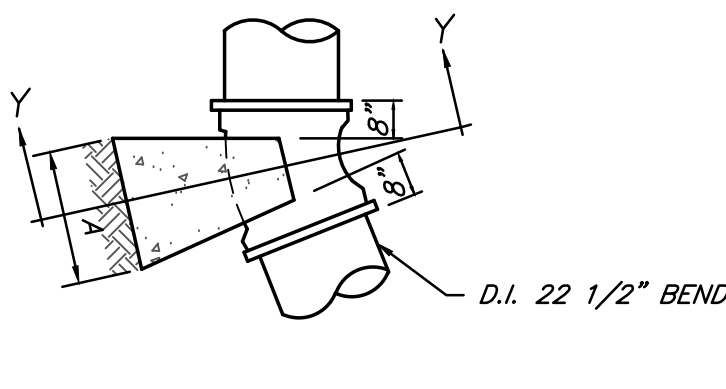
SEC. W-W

PLAN

DETAIL OF BLOCK FOR 45° BEND
Q - MIN. CU. YD. CONCRETE PER BLOCK

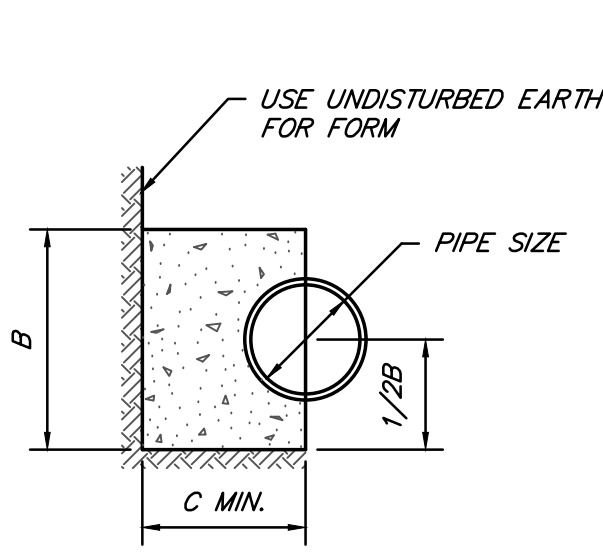


SEC. X-X

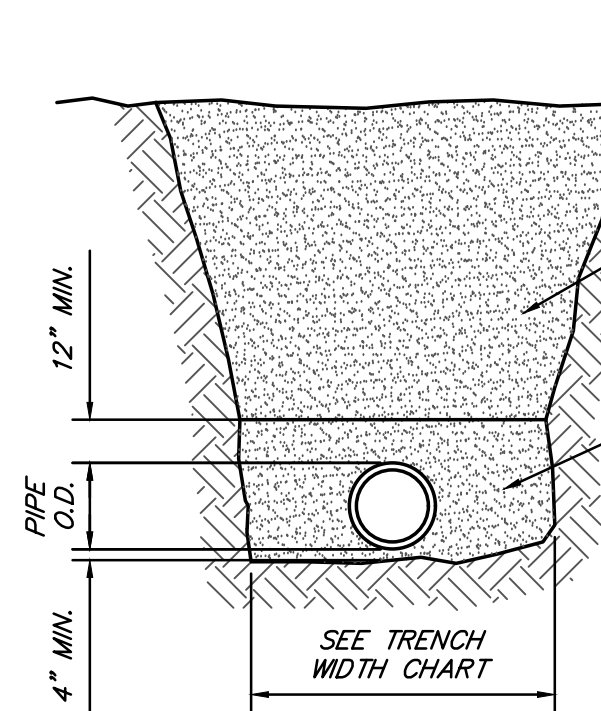


PLAN

DETAIL OF BLOCK FOR 22 1/2° BEND
Q - MIN. CU. YD. CONCRETE PER BLOCK



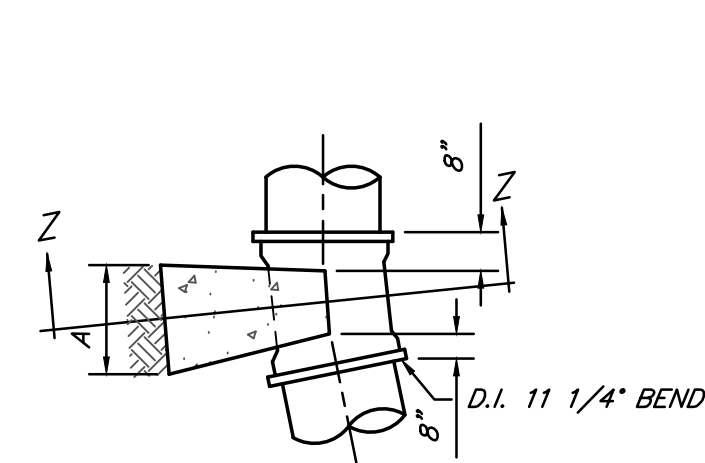
SEC. Y-Y



TRENCH DETAIL

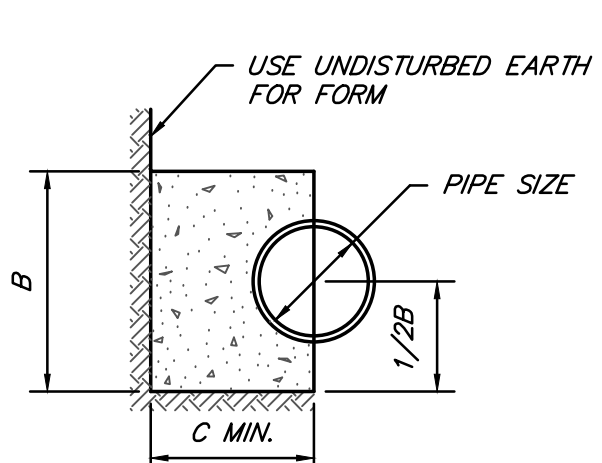
TRENCH SLOPE SHALL BE PER OSHA & MISHA REGULATIONS.
TRENCH SHALL BE BACKFILLED COMPLETELY WITH APPROVED MDOT CLASS II GRANULAR MATERIAL OR ACCEPTABLE EXCAVATED MATERIAL AND COMPACTED AS SPECIFIED.
PROVIDE MDOT CLASS II SAND BACKFILL TO A MIN. OF 12" OVER TOP OF PIPE AND COMPACT TO 95% MAXIMUM DENSITY.

TRENCH WIDTH CHART		
PIPE SIZE	TRENCH WIDTH	
	MINIMUM	MAXIMUM
6"	18"	24"
8" & 10"	24"	30"
12" & 15"	30"	36"
18"	34"	40"
21"	38"	42"
24"	42"	46"
27"	45"	49"
30"	49"	53"
36"	56"	60"
LARGER THAN 36"	I.D.+20"	I.D.+24"

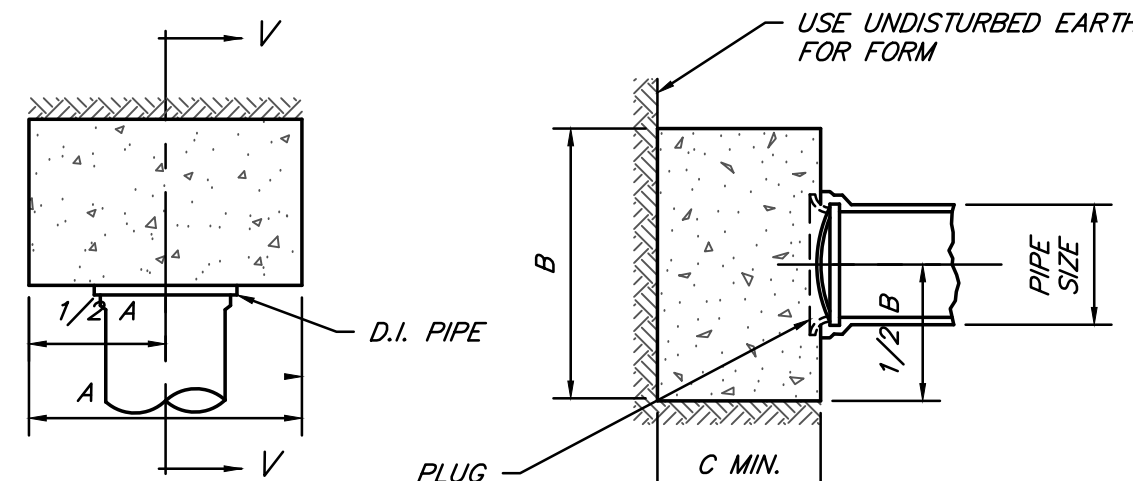


PLAN

DETAIL OF BLOCK FOR 11 1/4° BEND
Q - MIN. CU. YD. CONCRETE PER BLOCK



SEC. Z-Z



PLAN

SEC. V-V

DETAIL OF BLOCK FOR PLUG
Q - MIN. CU. YD. CONCRETE PER BLOCK

PIPE SIZE	90° BEND OR TEE				45° BEND				22 1/2° BEND				11 1/4° BEND				PLUG			
	A	B	C	Q	A	B	C	Q	A	B	C	Q	A	B	C	Q	A	B	C	Q
6", 8" & 10"	3'-0"	2'-0"	1'-3"	0.3	2'-0"	1'-6"	1'-3"	0.1	1'-6"	1'-0"	1'-3"	0.1	1'-0"	1'-0"	1'-3"	0.1	2'-0"	2'-0"	1'-6"	0.2
12"	3'-0"	2'-6"	1'-6"	0.4	2'-0"	2'-0"	1'-6"	0.2	2'-0"	1'-0"	1'-6"	0.1	1'-0"	1'-0"	1'-6"	0.1	2'-0"	2'-6"	1'-6"	0.3
16"	4'-0"	3'-0"	2'-0"	0.9	3'-0"	3'-0"	2'-0"	0.5	2'-0"	2'-0"	2'-0"	0.2	1'-0"	2'-0"	2'-0"	0.1	3'-0"	3'-6"	1'-9"	0.7
20"	5'-0"	4'-6"	2'-6"	1.23	4'-0"	3'-0"	2'-6"	0.82	3'-0"	2'-6"	2'-6"	0.58	2'-0"	1'-10"	2'-6"	0.3	4'-0"	4'-0"	2'-6"	1.45
24"	6'-0"	5'-6"	3'-0"	2.74	4'-0"	4'-0"	3'-0"	1.21	3'-0"	3'-0"	3'-0"	0.8	2'-6"	2'-2"	3'-0"	0.42	5'-0"	5'-0"	3'-0"	2.78
30"	7'-0"	7'-0"	3'-9"	5.39	5'-6"	5'-0"	3'-9"	2.14	4'-0"	3'-0"	3'-9"	1.35	3'-0"	2'-8"	3'-9"	0.98	6'-0"	6'-0"	3'-9"	4.96
36"	8'-0"	7'-6"	4'-6"	8.12	6'-0"	6'-0"	4'-6"	4.03	5'-0"	4'-0"	4'-6"	2.77	3'-0"	3'-2"	4'-6"	1.36	8'-0"	6'-0"	4'-6"	8.00
42"	9'-0"	8'-0"	5'-3"	11.58	7'-7"	7'-0"	5'-3"	6.43	5'-0"	5'-0"	5'-3"	3.85	4'-0"	3'-9"	5'-3"	2.17	8'-0"	8'-0"	5'-3"	12.44

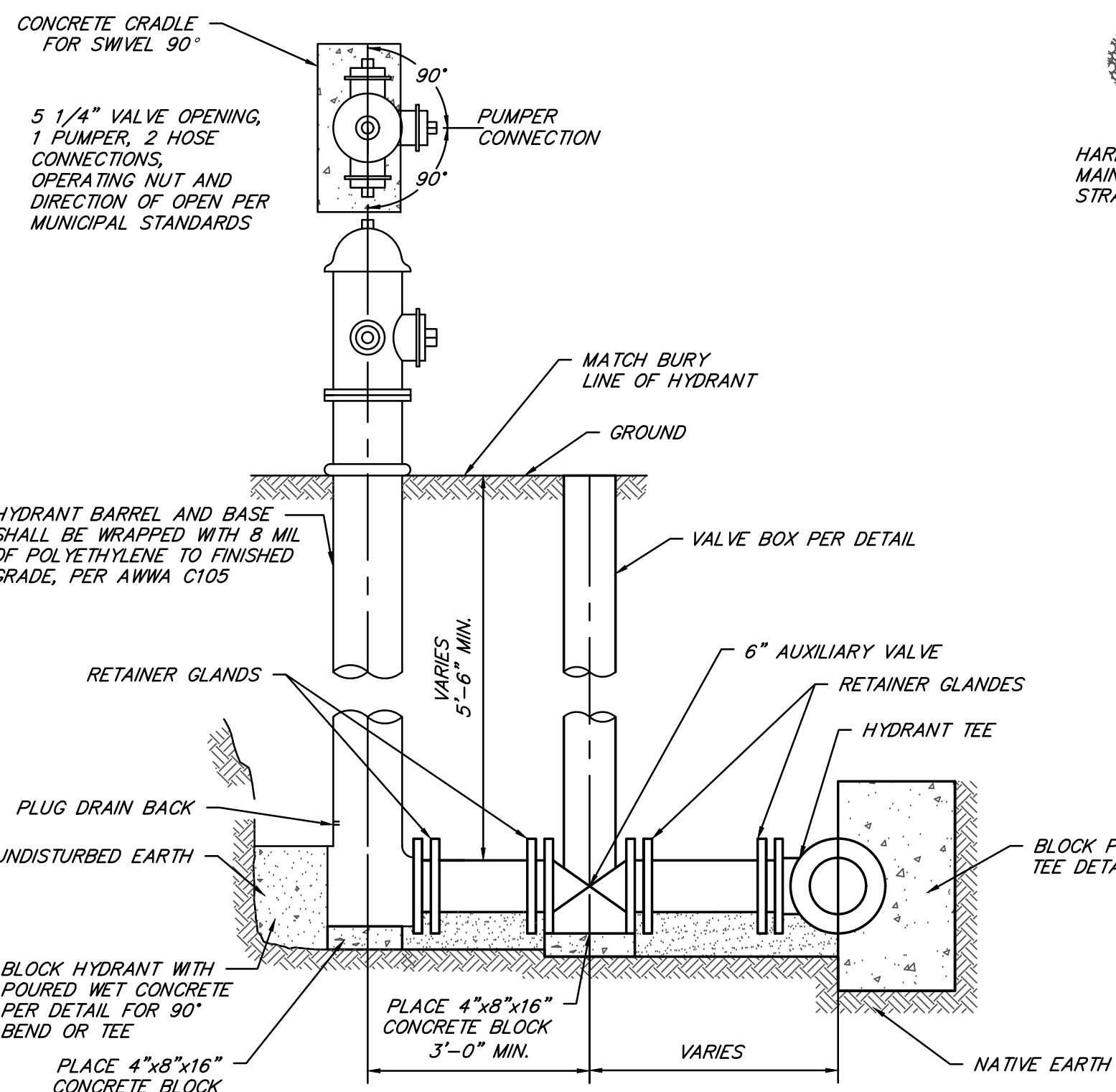
NOTE:

THE CONTRACTOR SHALL SECURE ALL MECHANICAL JOINT FITTINGS WITH RETAINER GLANDS IN ADDITION TO THRUST BLOCKING. RETAINER GLANDS SHALL BE MEGA-LUG AS MANUFACTURED BY EBAA IRON OR APPROVED EQUAL.

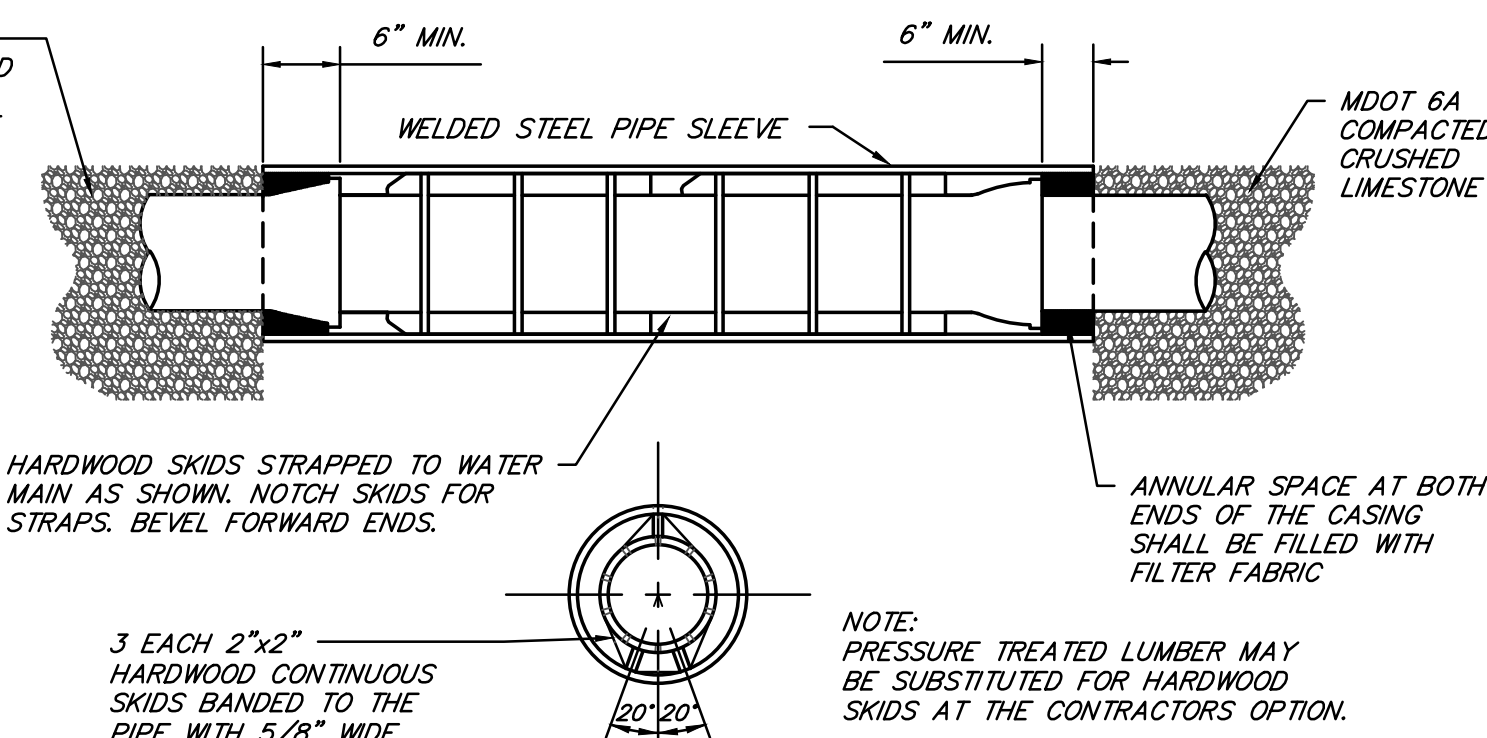
ALTERNATE FOR HYDRANTS: TWO 3/4" THREADED RESTRAINING RODS MAY BE USED AT HYDRANTS IN ADDITION TO ALL BLOCKING. RODS SHALL RECEIVE A MINIMUM DRY FILM OF 15 MILS (DTM) OF COAL TAR EPOXY. ALL COSTS ASSOCIATED WITH THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID PER EACH HYDRANT INSTALLED.

WRAP ALL FITTINGS, VALVES, HYDRANTS, AND ALL D.I. PIPE IN 8 MIL POLYETHYLENE SHEET PER AWWA C105.

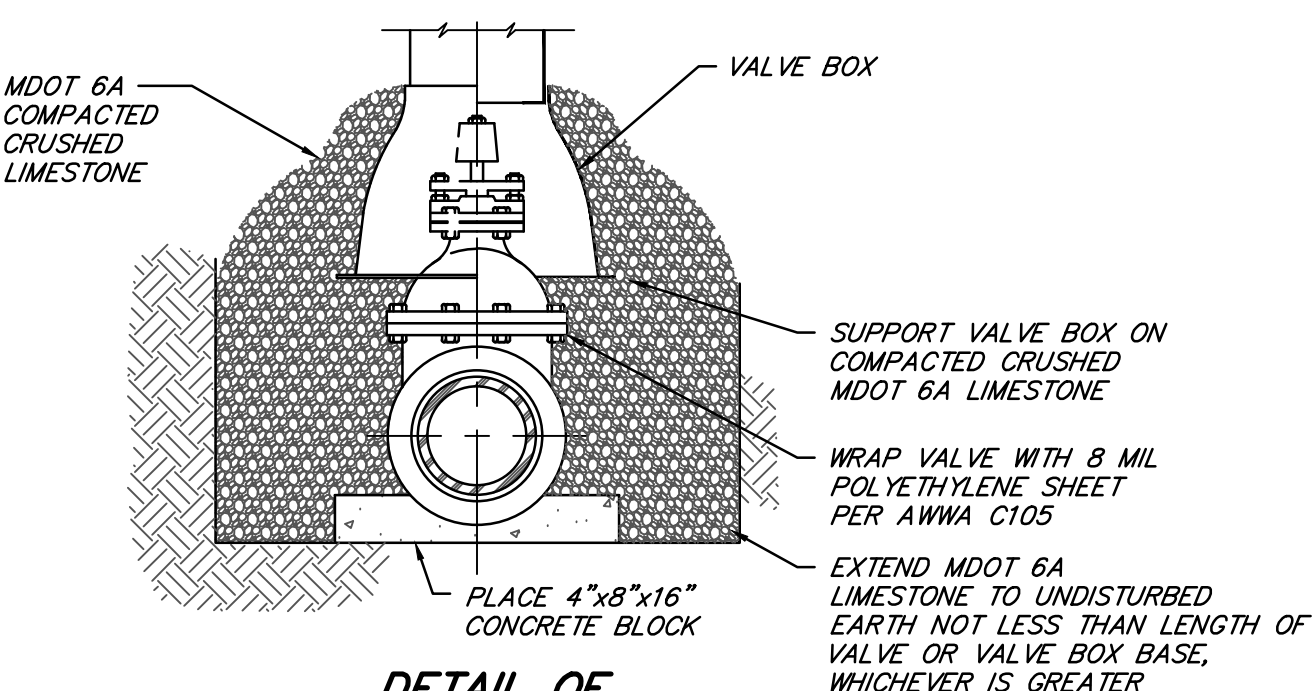
THE CONCRETE USED FOR BLOCKING SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI IN 28 DAYS.



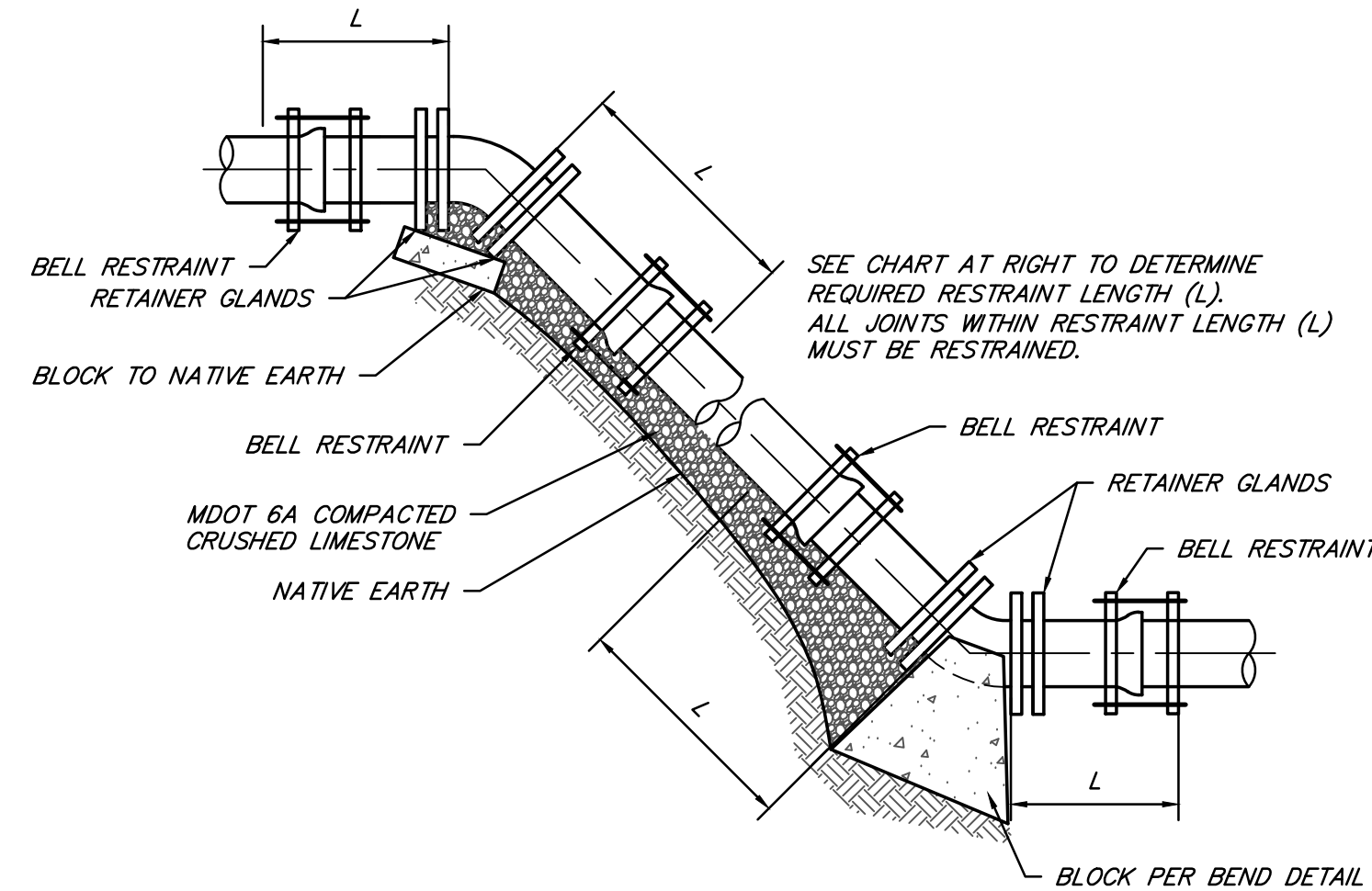
DETAIL OF SETTING HYDRANT



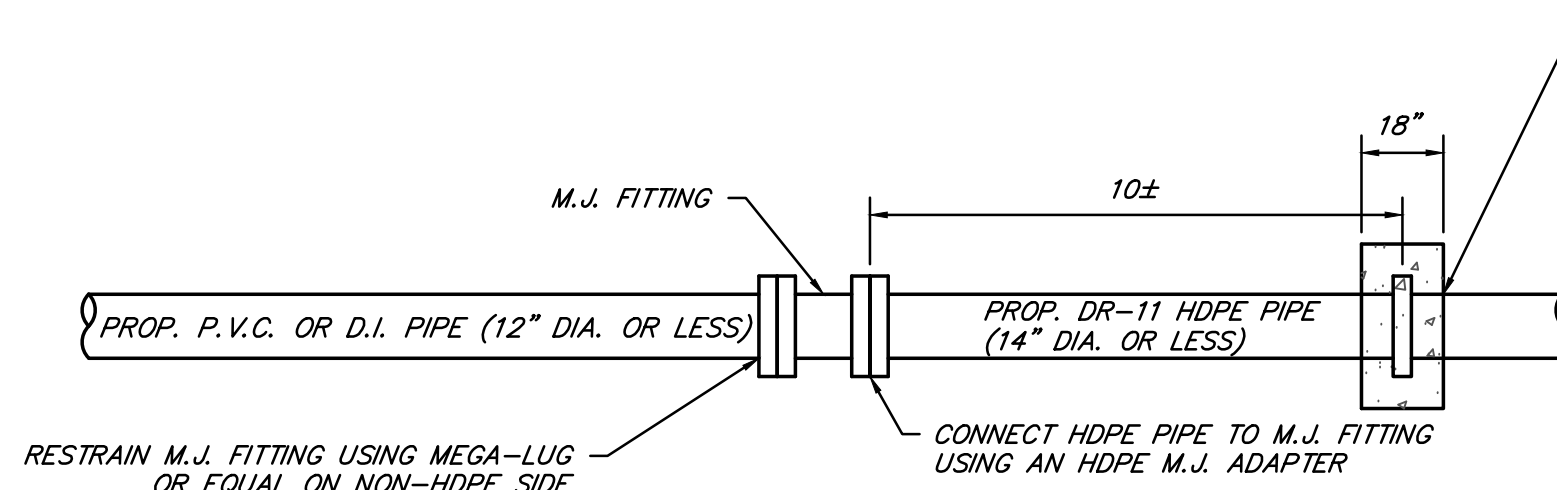
WATER MAIN IN SLEEVE DETAIL



DETAIL OF SETTING OF VALVE BOXES



VERTICAL BEND DETAIL



(14" DIPS OR LESS) HDPE CONNECTION DETAIL

PIPE RESTRAINT SCHEDULE FOR GROUND BURIED PRESSURE PIPES							
LENGTH (L) OF RESTRAINT REQUIRED (IN FEET)							
DEFLECTION ANGLE	11-1/4" AND 22-1/2"	33-3/4"	45°	56-1/4"	67-1/2"	78-3/4"	90°, TEE, OR DEAD END
PIPE							
6"	8	12	16	20	25	31	59
8"	10	15	20	26	33	40	77
10"	12	18	25	32	40	49	93
12"	14	21	29	37	47	57	109
14"	16	24	33	41	54	66	125
16"	18	27	37	47	60	74	141
18"	20	30	41	53	67	82	157
20"	22	33	45	58	73	90	172
24"	25	39	53	68	85	105	202
30"	30	46	63	82	102	126	244
36"	35	54	74	95	119	146	283
42"	40	61	83	107	133	164	320
48"	44	67	92	118	148	181	356

ACAD FILE: DW1556
PLOT SCALE: 1"=1'
REIT: E.B.
PG.

NRP	REVISIONS	8-21-17
BY	MARK	DATE
THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREON IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.		
STANDARD WATER MAIN DETAILS		
WATER MAIN STANDARD DETAILS		
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DE. BY: SG/ DR. BY: SG/	CH. BY: SG/ APP. BY: SG/	PROJECT NO.
STDS.	SHEET 1 OF 1	
DATE: FEBRUARY, 2006 SCALE: NOT TO SCALE	FILE NO. DW-1556	