

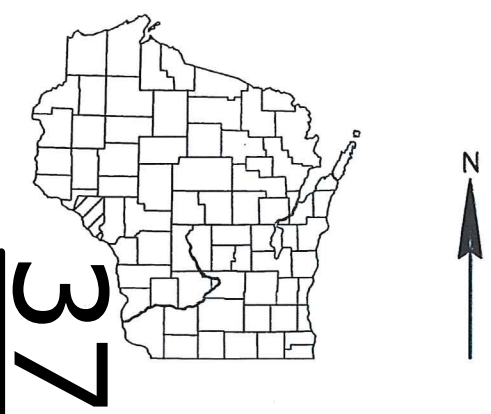
EAU PROJECT ID: 7110-00-72 WITH: NA COUNTY: BUFFALO

MARCH 2018

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plan
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plans
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 38



DESIGN DESIGNATION

A.A.D.T.	=	N/A
A.A.D.T.	=	N/A
D.H.V.	=	N/A
D.D.	=	N/A
T.	=	N/A
DESIGN SPEED	=	N/A
ESALS	=	N/A

CONVENTIONAL SYMBOLS

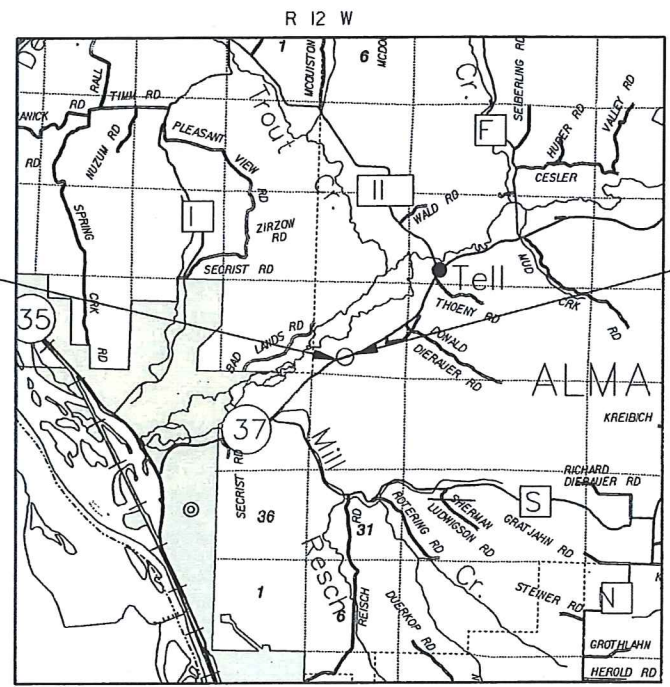
PLAN	
CORPORATE LIMITS	////
PROPERTY LINE	---
LOT LINE	- - - -
LIMITED HIGHWAY EASEMENT	└---
EXISTING RIGHT OF WAY	=====
PROPOSED OR NEW R/W LINE	=====
SLOPE INTERCEPT	300'±
REFERENCE LINE	---
EXISTING CULVERT	---○---
PROPOSED CULVERT (Box or Pipe)	---□---
COMBUSTIBLE FLUIDS	CAUTION
MARSH AREA	~*~*~
WOODED OR SHRUB AREA	~*~*~

PROFILE

GRADE LINE	—
ORIGINAL GROUND	- - - -
MARSH OR ROCK PROFILE (To be noted as such)	~*~*~
SPECIAL DITCH	---
GRADE ELEVATION	92.56
CULVERT (Profile View)	○ □
UTILITIES	
ELECTRIC	— E —
FIBER OPTIC	— FO —
GAS	— G —
SANITARY SEWER	— SAN —
STORM SEWER	— SS —
TELEPHONE	— T —
WATER	— W —
UTILITY PEDESTAL	⊕
POWER POLE	⊕
TELEPHONE POLE	⊕

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
ALMA - MONDOVI
ONE MILE NORTH OF JUNCTION CTH S
STH 37
BUFFALO COUNTY

STATE PROJECT NUMBER
7110-00-72



LAYOUT
SCALE 0 2 MI
TOTAL NET LENGTH OF CENTERLINE = 0.000 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, BUFFALO COUNTY, NAD83 (YEAR), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
7110-00-72		

ORIGINAL PLANS PREPARED BY
CBS SQUARED INC.

WISCONSIN
BRIAN E. SMITS
E-27284
CHIPPEWA FALLS WI
PROFESSIONAL ENGINEER

DATE: 10/19/17 *Brian E. Smits*
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	CBS SQUARED INC.
Designer	CBS SQUARED INC.
Project Manager	NICOLE PASSUELLO
Regional Examiner	JENNIFER OLDENBURG
Regional Supervisor	TIMOTHY MASON

APPROVED FOR THE DEPARTMENT

DATE: 10/19/17 *Nicole Passuello*
(Signature)

E

GENERAL NOTES

THERE MAY BE UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL COORDINATE THEIR CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGER'S HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA.

WHEN THE QUANTITY OF BASE AGGREGATE IS MEASURED BY THE TON OR CUBIC YARD, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

RESHAPE AND SEED ANY PREVIOUSLY GRASSED AREAS THAT ARE DISTURBED BY OPERATIONS OUTSIDE THE NORMAL CONSTRUCTION LIMITS.

SIGN AND PLACE TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH SDD "TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY".

UTILITY CONTACTS

ROB MALY
DAIRYLAND POWER COOPERATIVE - ELECTRICITY
3200 EAST AVE S
P.O. BOX 817
LA CROSSE, WI 54602
(608) 787-1248
ROB.MALY@DAIRYLANDPOWER.COM

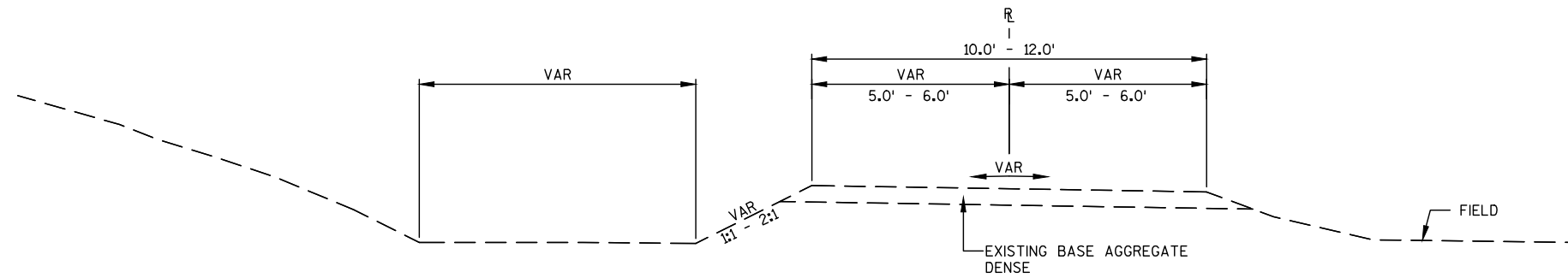
STEVE JAKUBIEC
TDS TELECOM - COMMUNICATION LINE
10 COLLEGE AVE, SUITE 218A
APPLETON, WI 54911
(920) 882-4166
STEVE.JAKUBIEC@TDSTELECOM.COM

TIM HOLTAN
RIVERLAND ENERGY COOPERATIVE - ELECTRICITY
N28988 STATE ROAD 93
P.O. BOX 277
ARCADIA, WI 54612-0277
(608) 323-3381
THOLTAN@RIVERLANDENERGY.COM

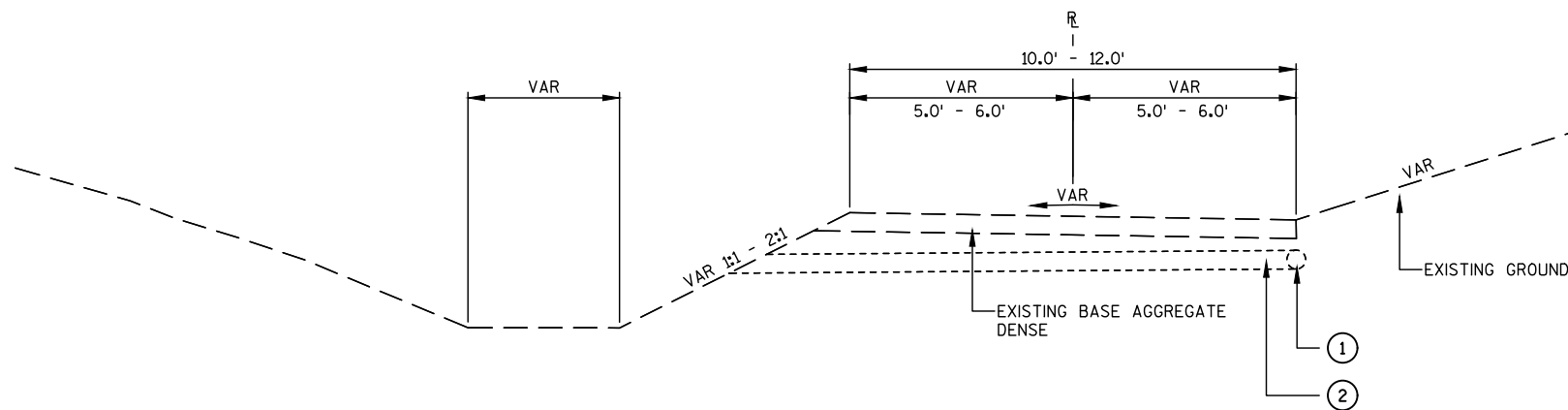


WISCONSIN DNR LIAISON

AMY LESIK
ENVIRONMENTAL ANALYSIS AND REVIEW SPECIALIST -
BUREAU OF ENVIRONMENTAL ANALYSIS AND SUSTAINABILITY
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
1300 WEST CLAIREMONT AVENUE
EAU CLAIRE, WI 54701
PHONE: (715) 836-6571
FAX: (715) 839-6076
AMYL.LESIK@WISCONSIN.GOV



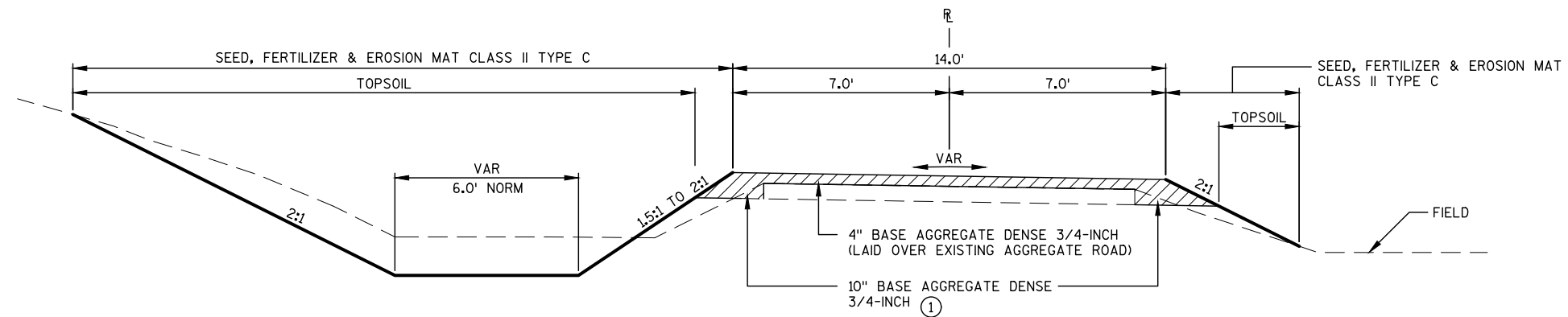
TYPICAL EXISTING SECTION
SEDIMENT BASIN SERVICE ROAD
STA 10+40.00 TO STA 14+34.00



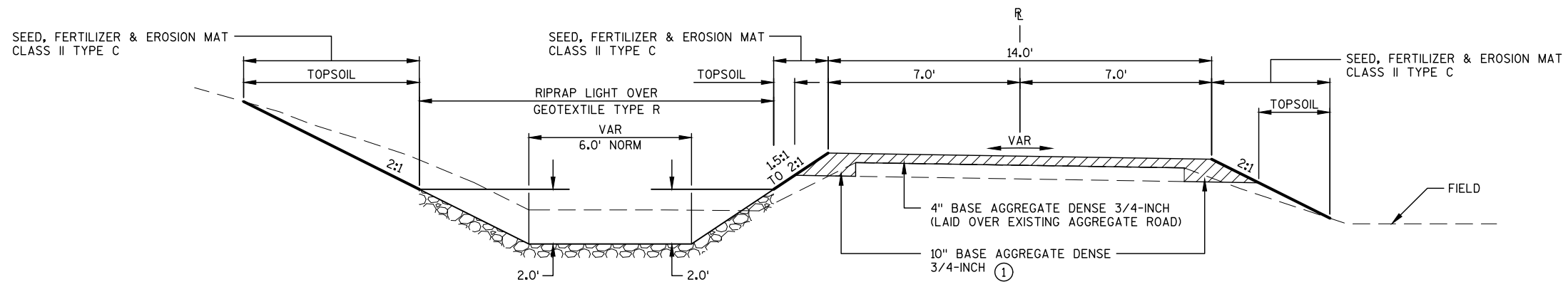
TYPICAL EXISTING SECTION
SEDIMENT BASIN SERVICE ROAD
STA 14+34.00 TO STA 19+00.00

NOTES:

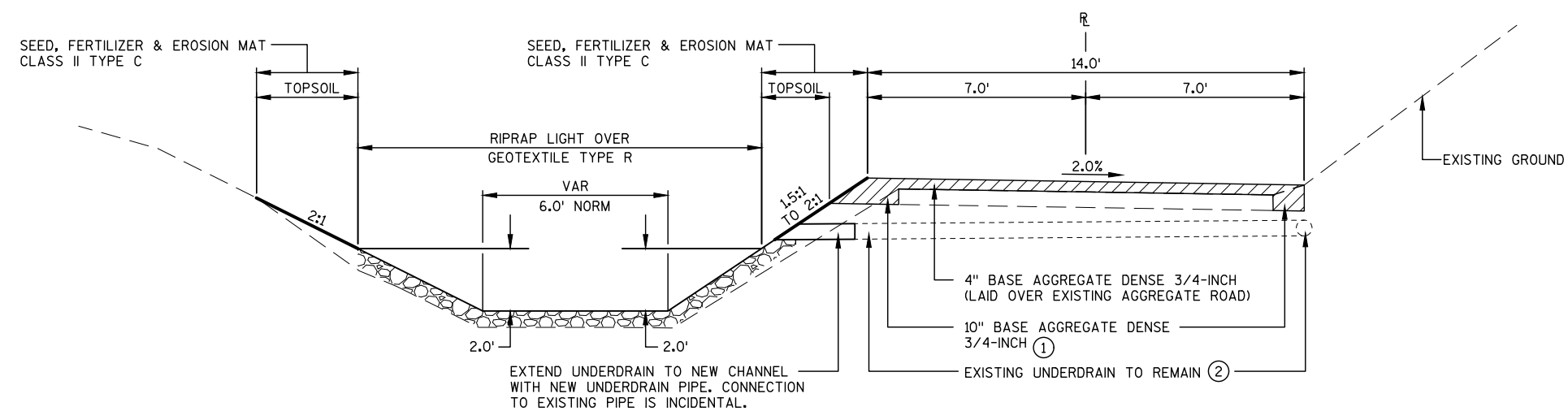
- ① EXISTING UNDERDRAIN RUNS
ALONG WEST SIDE OF ACCESS
SERVICE RD.
- ② UNDERDRAIN RUNS UNDERNEATH
ROAD AND DISCHARGES TO
CHANNEL. LOCATIONS OF
DISCHARGES ARE UNKNOWN.
FIELD LOCATE / VERIFY.



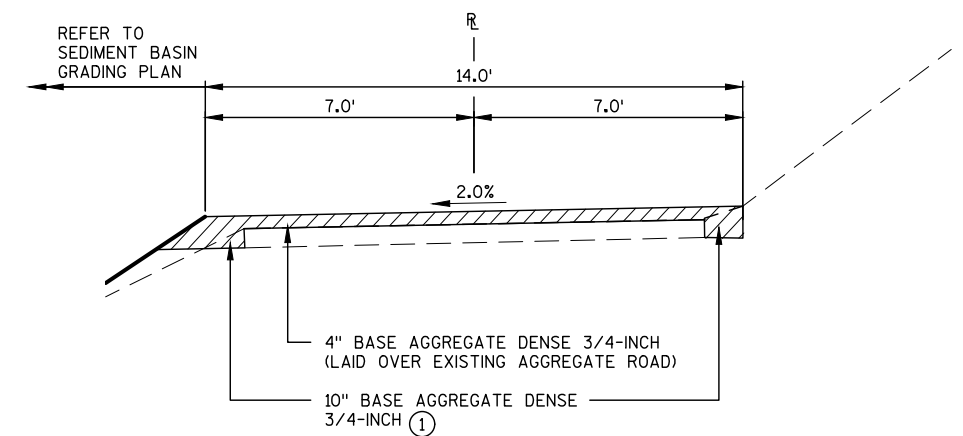
TYPICAL FINISHED SECTION
SEDIMENT BASIN SERVICE ROAD
STA 10+40.00 TO STA 12+75.00



TYPICAL FINISHED SECTION
SEDIMENT BASIN SERVICE ROAD
STA 12+75.00 TO STA 14+34.00

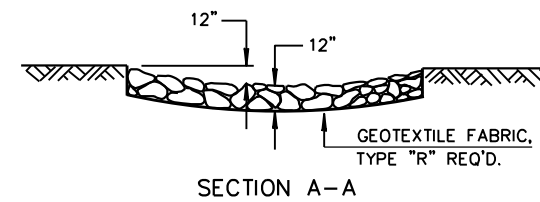
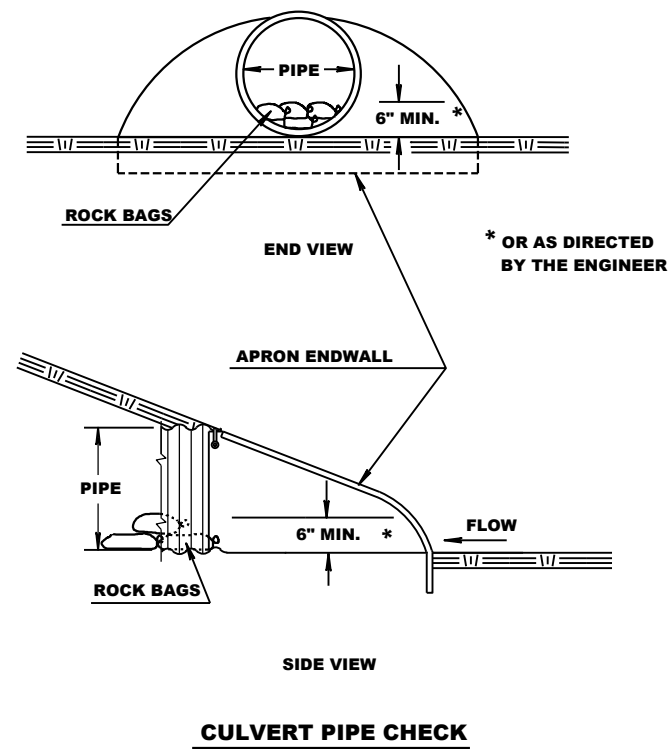


TYPICAL FINISHED SECTION
SEDIMENT BASIN SERVICE ROAD
STA 14+34.00 TO STA 17+50.00

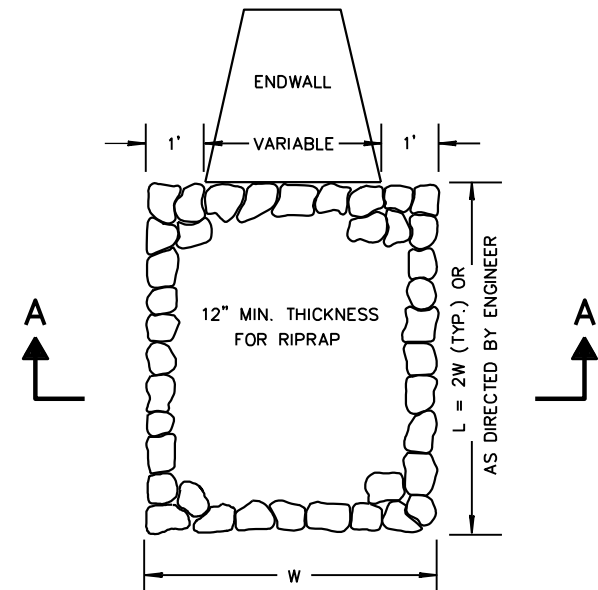


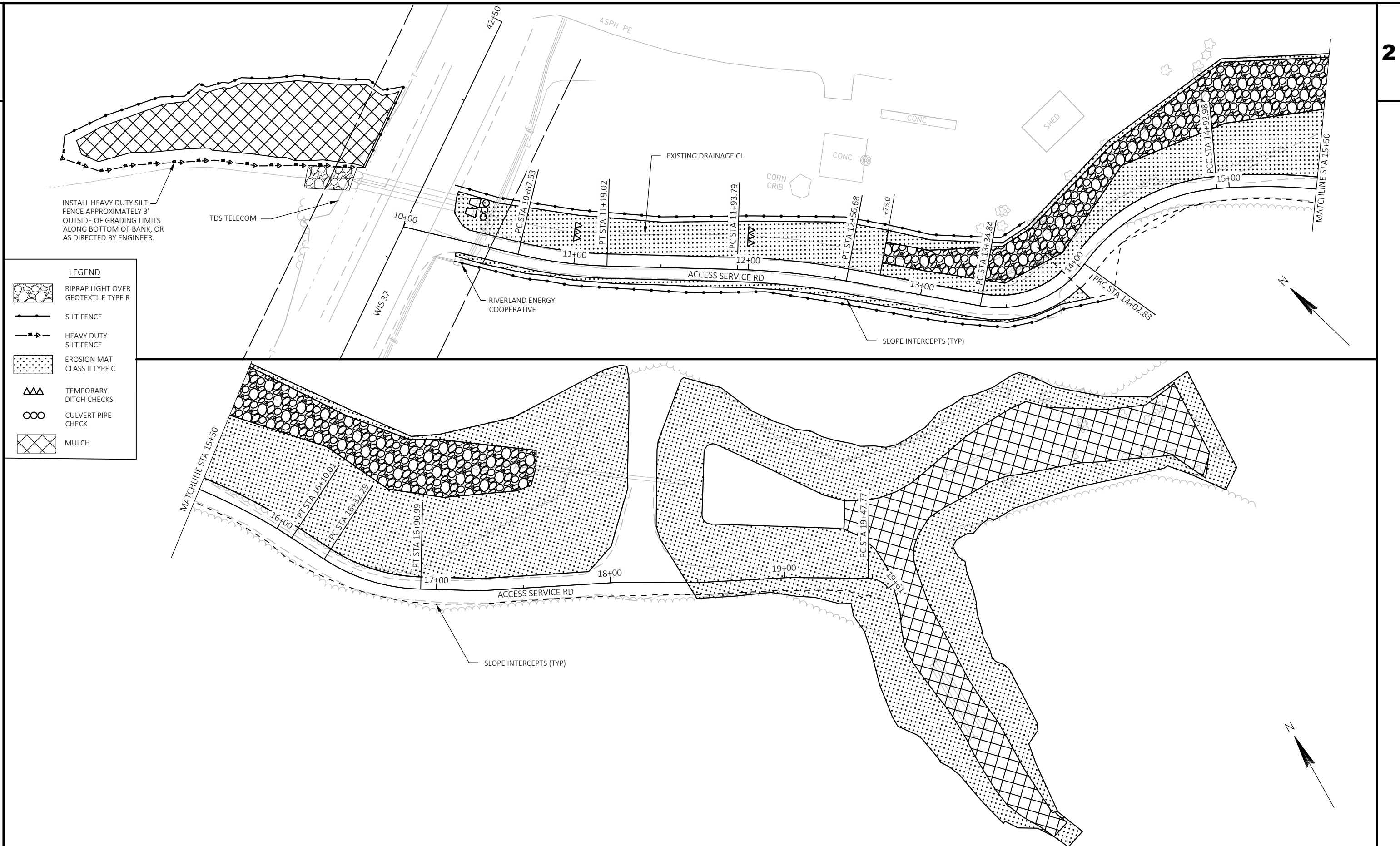
TYPICAL FINISHED SECTION
SEDIMENT BASIN SERVICE ROAD
STA 17+50.00 TO STA 19+00.00

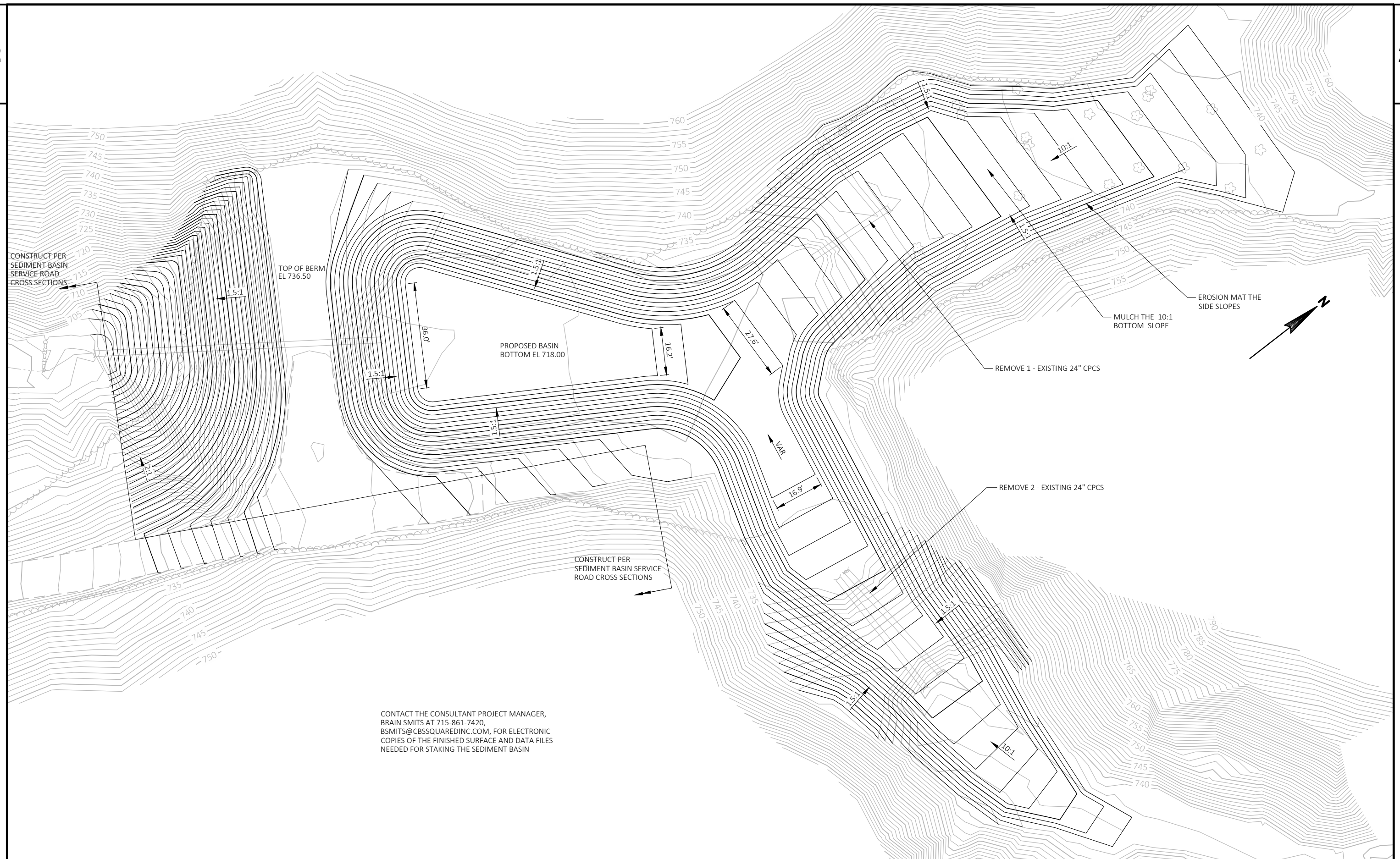
- NOTES:**
- ① DEEPEN BASE TO 10" AT EDGES WHERE FINISHED ROADWAY IS WIDER THAN EXISTING ROAD.
 - ② INSTALL NEW UNDERDRAIN PIPE ALONG RIGHT SIDE OF SERVICE ROAD BETWEEN STATIONS 19+90 TO 14+82 AND DISCHARGE TO CHANNEL.



RIPRAP TREATMENT AT CULVERTS







Estimate Of Quantities

7110-00-72					
Line	Item	Item Description	Unit	Total	Qty
0002	201.0205	Grubbing	STA	10.000	10.000
0004	203.0100	Removing Small Pipe Culverts	EACH	5.000	5.000
0006	205.0100	Excavation Common	CY	8,663.000	8,663.000
0008	213.0100	Finishing Roadway (project) 01. 7110-00-72	EACH	1.000	1.000
0010	305.0110	Base Aggregate Dense 3/4-Inch	TON	770.000	770.000
0012	520.8700	Cleaning Culvert Pipes	EACH	2.000	2.000
0014	522.2624	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 24x38-Inch	EACH	2.000	2.000
0016	606.0100	Riprap Light	CY	395.000	395.000
0018	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	90.000	90.000
0020	618.0100	Maintenance And Repair of Haul Roads (project) 01. 7110-00-72	EACH	1.000	1.000
0022	619.1000	Mobilization	EACH	1.000	1.000
0024	624.0100	Water	MGAL	15.000	15.000
0026	625.0100	Topsoil	SY	8,328.000	8,328.000
0028	627.0200	Mulching	SY	2,253.000	2,253.000
0030	628.1504	Silt Fence	LF	1,220.000	1,220.000
0032	628.1520	Silt Fence Maintenance	LF	1,220.000	1,220.000
0034	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0036	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0038	628.2027	Erosion Mat Class II Type C	SY	6,245.000	6,245.000
0040	628.7504	Temporary Ditch Checks	LF	24.000	24.000
0042	628.7555	Culvert Pipe Checks	EACH	12.000	12.000
0044	629.0210	Fertilizer Type B	CWT	6.500	6.500
0046	630.0120	Seeding Mixture No. 20	LB	260.000	260.000
0048	630.0160	Seeding Mixture No. 60	LB	11.000	11.000
0050	642.5001	Field Office Type B	EACH	1.000	1.000
0052	643.0300	Traffic Control Drums	DAY	864.000	864.000
0054	643.0900	Traffic Control Signs	DAY	216.000	216.000
0056	643.5000	Traffic Control	EACH	1.000	1.000
0058	645.0130	Geotextile Type R	SY	1,180.000	1,180.000
0060	650.5000	Construction Staking Base	LF	935.000	935.000
0062	650.9910	Construction Staking Supplemental Control (project) 01. 7110-00-72	LS	1.000	1.000
0064	650.9920	Construction Staking Slope Stakes	LF	935.000	935.000
0066	SPV.0090	Special 01. Heavy Duty Silt Fence	LF	190.000	190.000

3

GRUBBING

STATION - STATION	LOCATION	201.01205 STA
10+25 - 19+60	LT	10
ITEAM TOTAL		10

REMOVING SMALL PIPE CULVERTS

STATION-STATION	LOCATION	203.0100 EACH	REMARKS
10+25 SEDIMENT BASIN	LT	2 3	24"X38" APRON ENDWALLS ONLY 24" CPCS & ENDWALLS
ITEM TOTAL		5	

BASE AGGREGATE DENSE 3/4-INCH

STATION - STATION	LOCATION	305.0110 TON	REMARKS
10+25 - 19+60	LT & RT	770	SERVICE ROAD
ITEM TOTAL		770	

CLEANING CULVERT PIPES

STATION-STATION	LOCATION	520.8700 EACH	REMARKS
10+00	LT	2	24"X38" ELLIPTICAL PIPES UNDER STH 37
ITEM TOTAL		2	

APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 24X38-INCH

STATION-STATION	LOCATION	523.0524 EACH	REMARKS
10+25	LT	2	EXISTING PIPES TO REMAIN, 2 JOINT TIES* REQUIRED FOR EACH AEW
ITEM TOTAL		2	

* JOINT TIES ARE INCIDENTAL TO AEW'S

EARTHWORK SUMMARY

STATION - STATION	LOCATION	(1) 205.0100	(2)	(3)	(4)		(5) 208.0100	(6)	WASTE CY	REMARKS
		EXCAVATION COMMON CY	SALVAGED/ UNUSABLE PAVEMENT MATERIAL CY	AVAILABLE MATERIAL CY	UNEXPANDED FILL CY	EXPANDED FILL CY	BORROW CY	MASS ORDINATE CY		
10+40 - 17+50	SERVICE ROAD	1454	0	1454	1142	1485	0	-31	-31	
WASTE PILE		568	0	568	0	0	0	568	568	
SEDIMENT BASIN		6641	0	6641	292	380	0	6261	6261	
ITEM TOTAL		8663	0	8663	1434	1865	0	6799	6799	

(1) EXCAVATION COMMON, ITEM NUMBER 205.0100, IS THE TOTAL VOLUME OF CUT AND INCLUDES THE UNUSABLE PAVEMENT MATERIAL.
(2) SALVAGED/UNUSABLE MATERIAL IS INCLUDED IN THE EXCAVATION COMMON
(3) AVAILABLE MATERIAL = EXCAVATION COMMON - UNUSABLE PAVEMENT MATERIAL.
(4) EXPANDED FILL FACTOR = 1.30
(5) BORROW MATERIAL.
(6) THE MASS ORDINATE + OR - QTY FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL AND A MINUS QUANTITY INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.
THE MASS ORDINATE = EXCAVATION COMMON - UNUSABLE PAVEMENT MATERIAL - EXPANDED FILL.

PIPE UNDERDRAIN WRAPPED 6-INCH

STATION - STATION	LOCATION	612.0406 LF	REMARKS
14+75 - 17+75	RT	20	EXISTING UNDERDRAIN EXTENSIONS
14+25 - 14+75	RT	70	NEW UNDERDRAIN ALONG RIGHT SIDE
ITEM TOTAL		90	

NOTE: ALL ITEMS AND QUANTITIES ON THIS SHEET ARE FOR ENGINEER ESTIMATE CATEGORY 0010 UNLESS OTHERWISE NOTED.

PROJECT NO: 7110-00-72

HWY: STH 37

COUNTY: BUFFALO

MISCELLANEOUS QUANTITIES

SHEET

E

3

3

EROSION CONTROL ITEMS

STATION - STATION	LOCATION	606.0200	625.0100	628.1905	628.1520	628.7504	628.7555	628.2027	627.0200	645.0130	SPV.0090.01
		RIPRAP LIGHT CY	TOPSOIL SY	SILT FENCE LF	SILT FENCE MAINTENANCE LF	TEMPORARY DITCH CHECKS LF	CULVERT PIPE CHECKS EACH	EROSION MAT CLASS II TYPE C SY	MULCHING SY	GEOTEXTILE TYPE R SY	HEAVY DUTY SILT FENCE LF
WASTE PILE				258	258						190
10+25 - 19+60	LT & RT	395	8328	718	718	24	12	6245	1802	1180	
UNDISTRIBUTED				244	244				451		
ITEM TOTAL		395	8328	1220	1220	24	12	6245	2253	1180	190

WATER

STATION - STATION	LOCATION	624.0100 MGAL	REMARKS
10+25 - 19+60	LT & RT	15	SERVICE ROAD
ITEM TOTAL		15	

3

MOBILIZATIONS EROSION CONTROL ITEMS

STATION - STATION	LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
PROJECT CORRIDOR		4	2
ITEM TOTAL		4	2

TRAFFIC CONTROL

STATION - STATION	LOCATION	643.0300 DRUMS DAY	643.0900 SIGNS DAY
PROJECT CORRIDOR		864	216
ITEM TOTAL		864	216

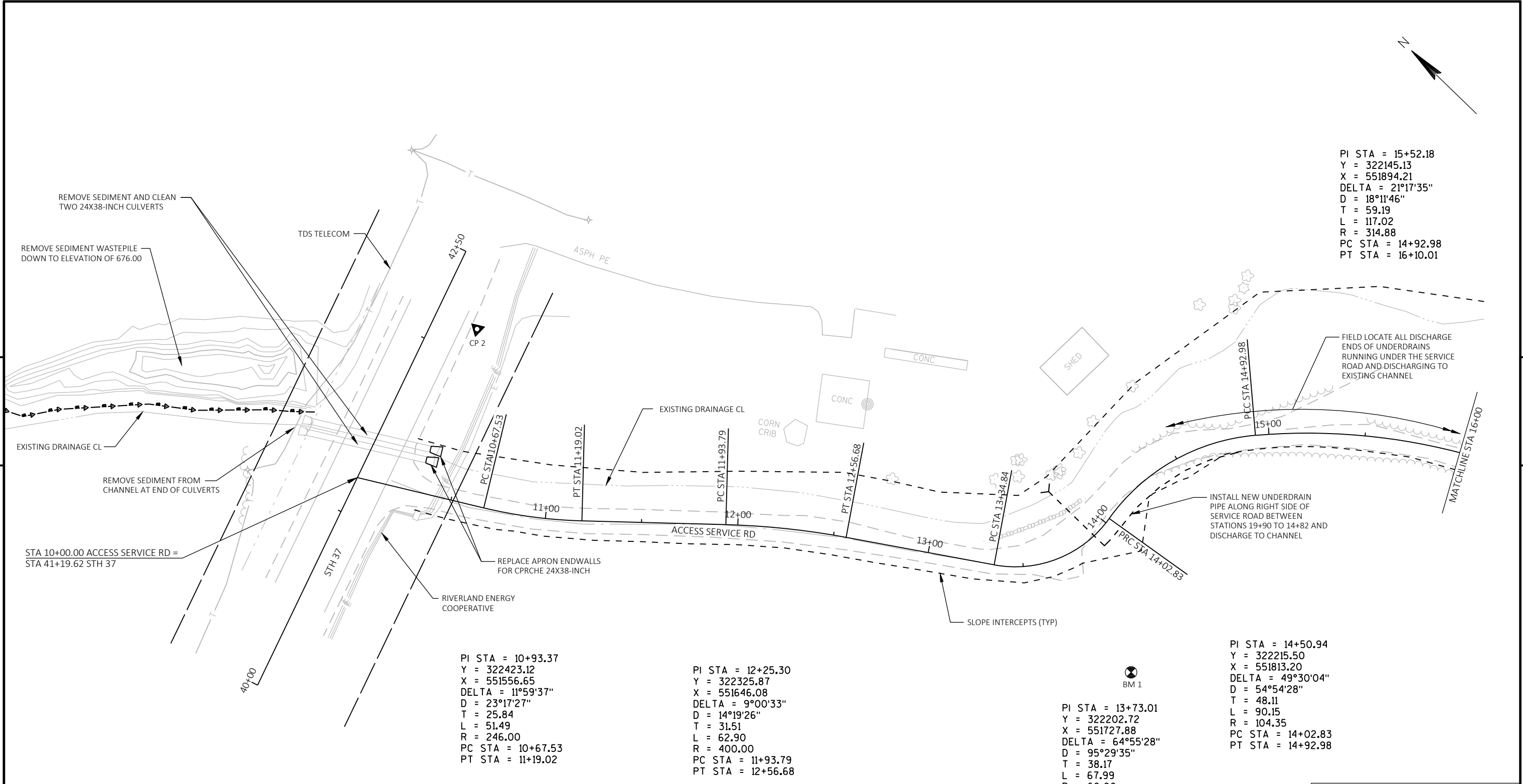
SEEDING AND FERTILIZER ITEMS

STATION - STATION	LOCATION	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0160 SEEDING MIXTURE NO. 60 LB
WASTE PILE		0.4		9
10+25 - 17+50 & SEDIMENT BASIN		4.8	208	
UNDISTRIBUTED		1.3	52	2
ITEM TOTAL		6.5	260	11

CONSTRUCTION STAKING

STATION - STATION	LOCATION	650.5000 BASE LF	650.9910 SUPPLEMENTAL CONTROL 01. 7110-00-72 LS	650.9920 SLOPE STAKES LF	REMARKS
10+25 - 19+60	LT & RT	935	1	935	INCLUDES WASTE PILE AND SEDIMENT BASIN
ITEM TOTAL		935	1	935	

NOTE: ALL ITEMS AND QUANTITIES ON THIS SHEET ARE FOR ENGINEER ESTIMATE CATEGORY 0010 UNLESS OTHERWISE NOTED.



PI STA = 15+52.18
Y = 322145.13
X = 551894.21
DELTA = 21°17'35"
D = 18°11'46"
T = 59.19
L = 117.02
R = 314.88
PC STA = 14+92.98
PT STA = 16+10.01

PI STA = 10+93.37
Y = 322423.12
X = 551556.65
DELTA = 11°59'37"
D = 23°17'27"
T = 25.84
L = 51.49
R = 246.00
PC STA = 10+67.53
PT STA = 11+19.02

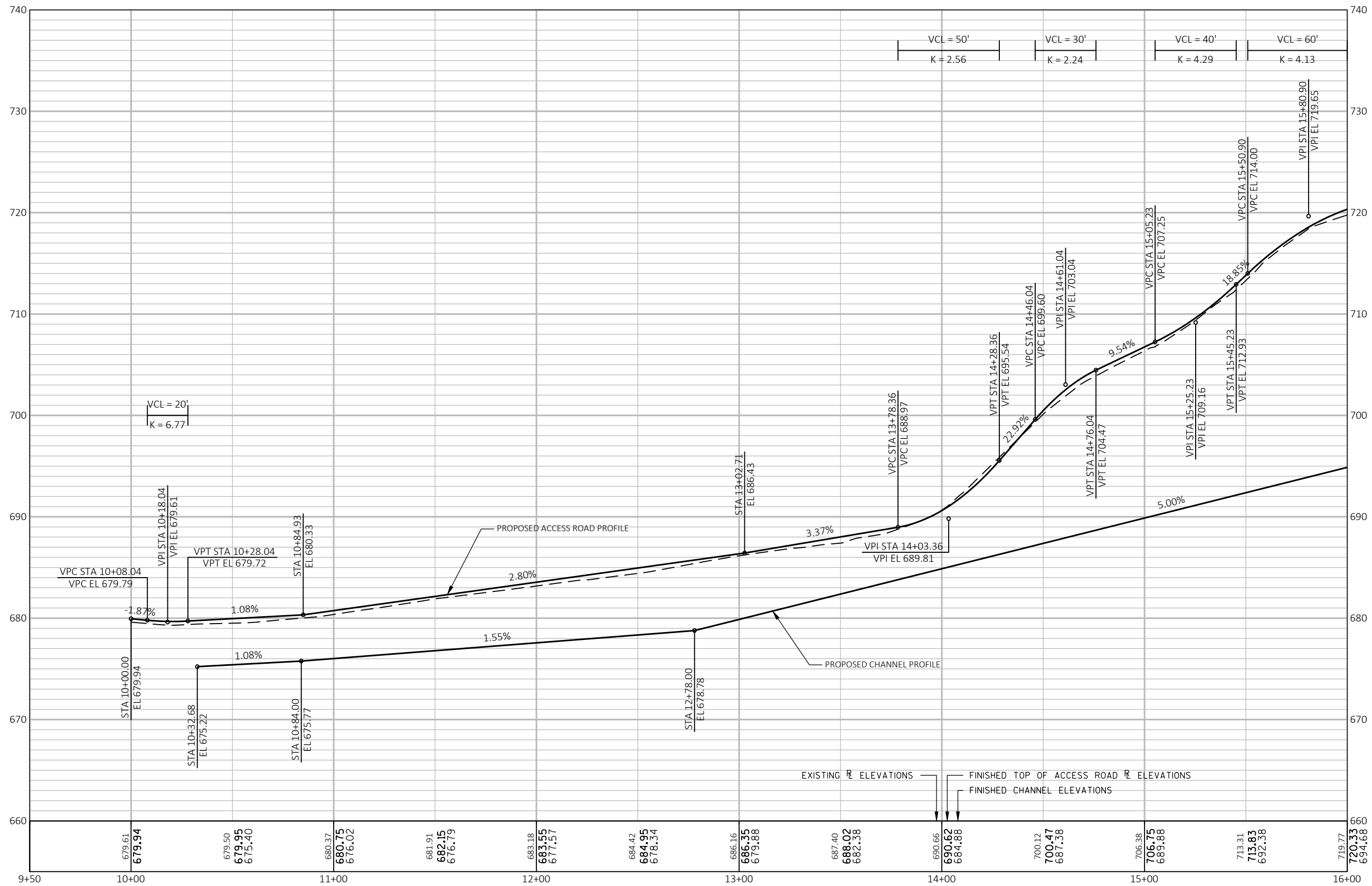
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Y = 322325.87
X = 551646.08
DELTA = 9°00'33"
D = 14°19'26"
T = 31.51
L = 62.90
R = 400.00
PC STA = 11+93.79
PT STA = 12+56.68

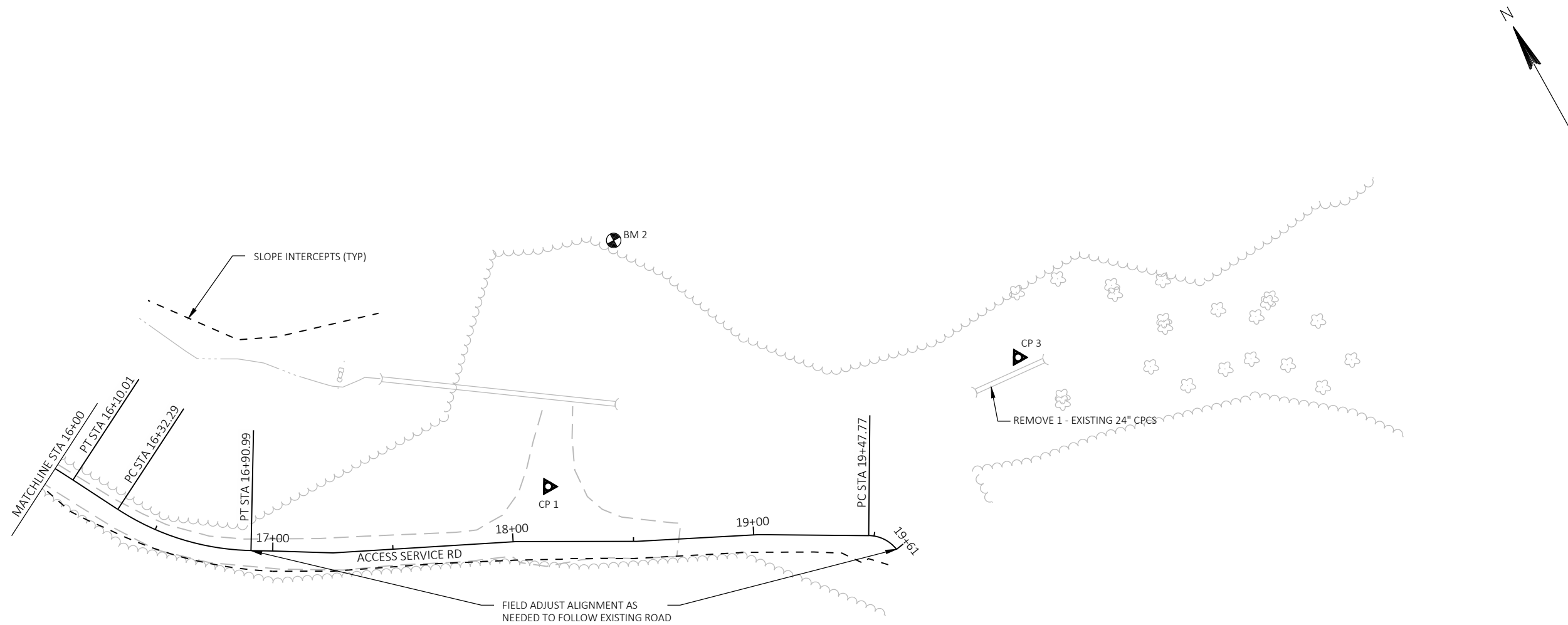
PI STA = 13+73.01
Y = 322202.72
X = 551727.88
DELTA = 64°55'28"
D = 95°29'35"
T = 38.17
L = 67.99
R = 60.00
PC STA = 13+34.84
PT STA = 14+02.83

PI STA = 14+50.94
Y = 322215.50
X = 551813.20
DELTA = 49°30'04"
D = 54°54'28"
T = 48.11
L = 90.15
R = 104.35
PC STA = 14+02.83
PT STA = 14+92.98

BENCHMARK TABLE			
NO.	STATION	DESCRIPTION	ELEVATION
BM 1	13+70.45, 73.10' RT	RR SPIKE IN 10" TREE.	694.20
BM 2	18+43.24, 125.13' LT	RR SPIKE IN 10" TREE.	742.75

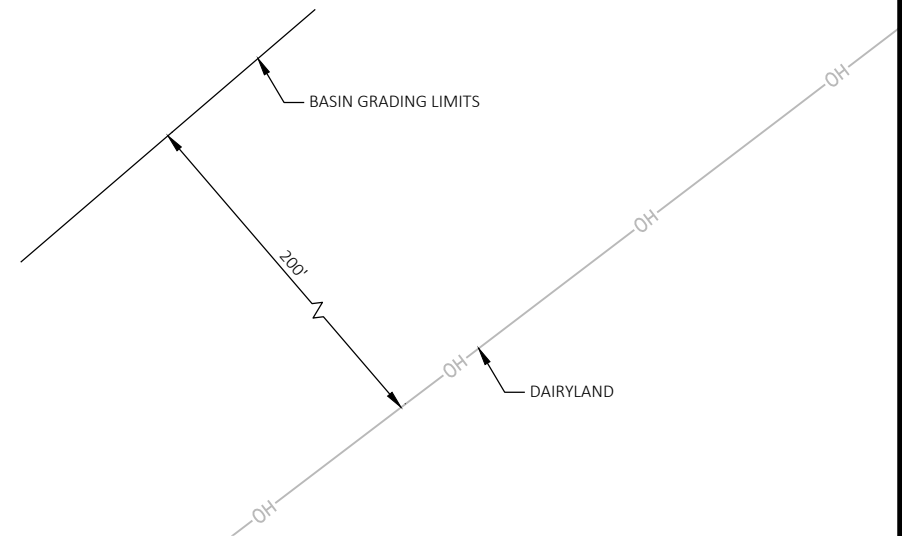
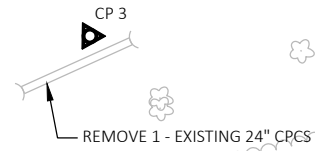
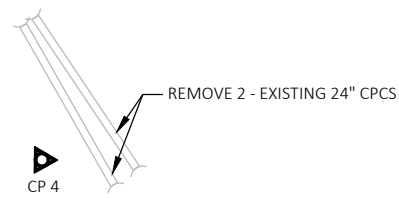
CONTROL POINT TABLE		
POINT	ELEVATION	COORDINATES
CP 1	738.06	Y= 321994.421 X= 552092.991
CP 2	678.84	Y= 322512.527 X= 551607.759
CP 3	738.19	Y= 321946.524 X= 552289.657
CP 4	742.14	Y= 321818.030 X= 552194.458





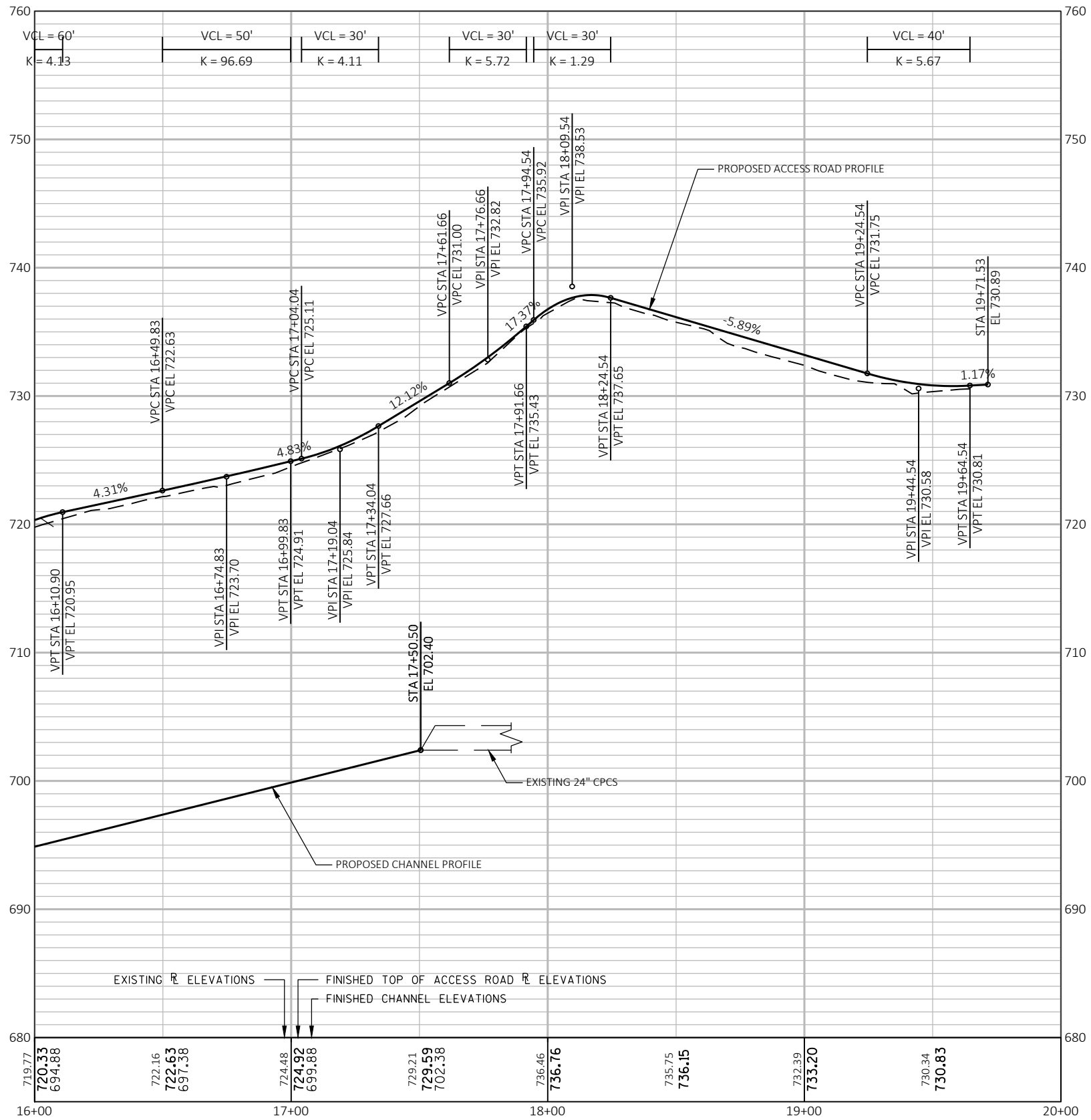
PI STA = 16+62.43
Y = 322046.32
X = 551946.13
DELTA = 32°01'41"
D = 54°34'03"
T = 30.14
L = 58.69
R = 105.00
PC STA = 16+32.29
PT STA = 16+90.99

PI STA = 19+54.90
Y = 321908.42
X = 552205.62
DELTA = 51°10'33"
D = 385°00'29"
T = 7.13
L = 13.29
R = 14.88
PC STA = 19+47.77
PT STA = 19+61.06



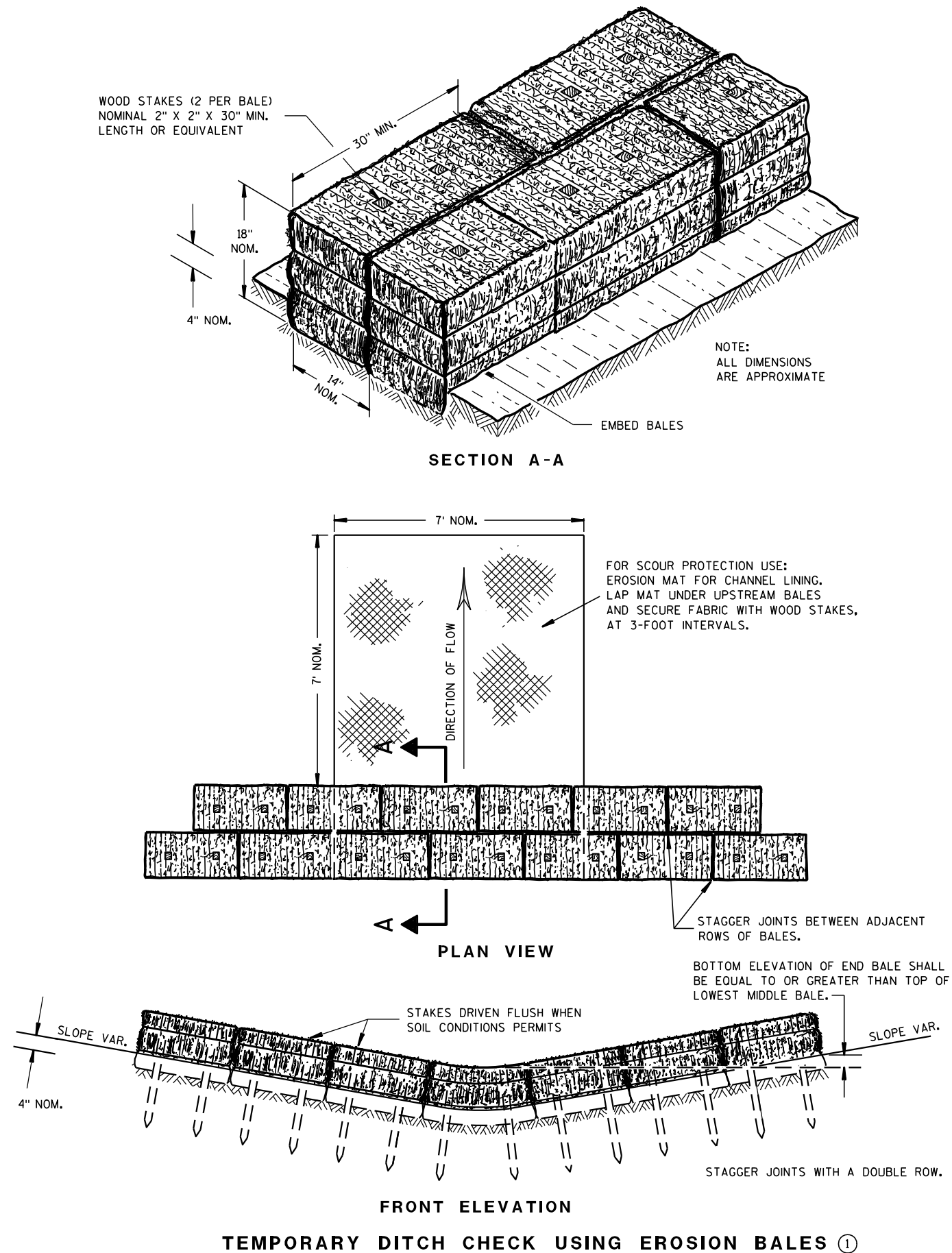
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BENCHMARK TABLE			
NO.	STATION	DESCRIPTION	ELEVATION
BM 1	13+70.45, 73.10' RT	RR SPIKE IN 10" TREE.	694.20
BM 2	18+43.24, 125.13' LT	RR SPIKE IN 10" TREE.	742.75



Standard Detail Drawing List

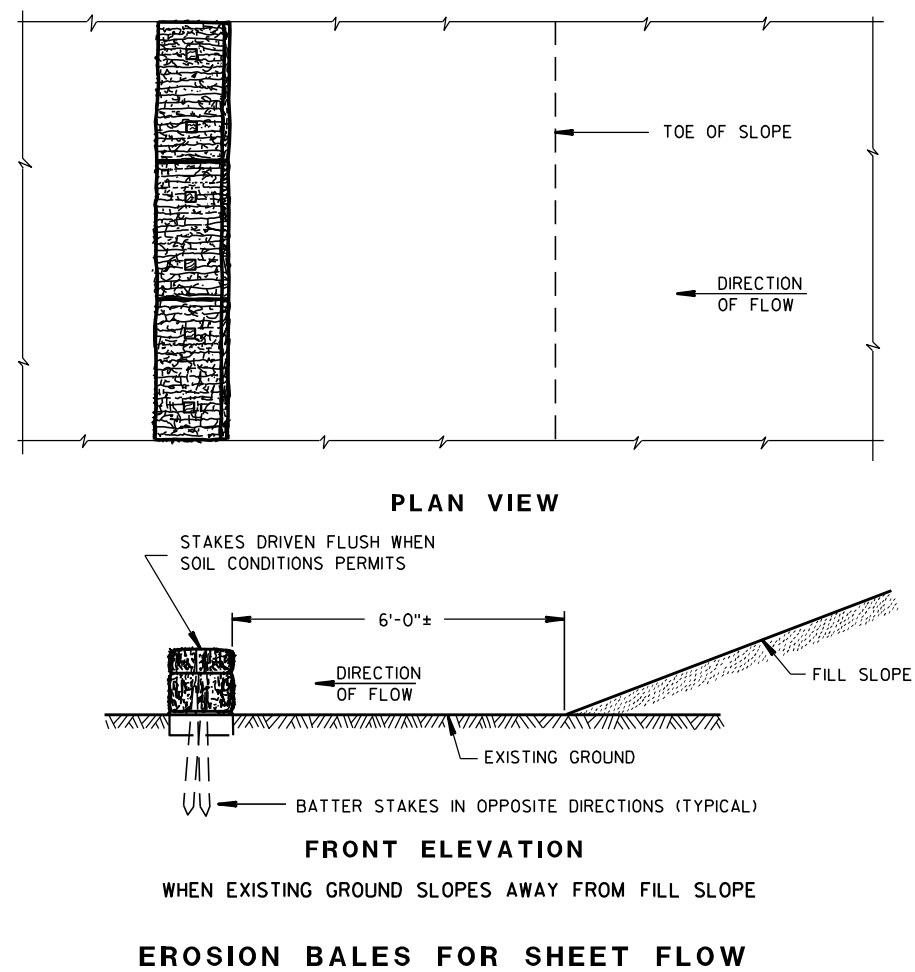
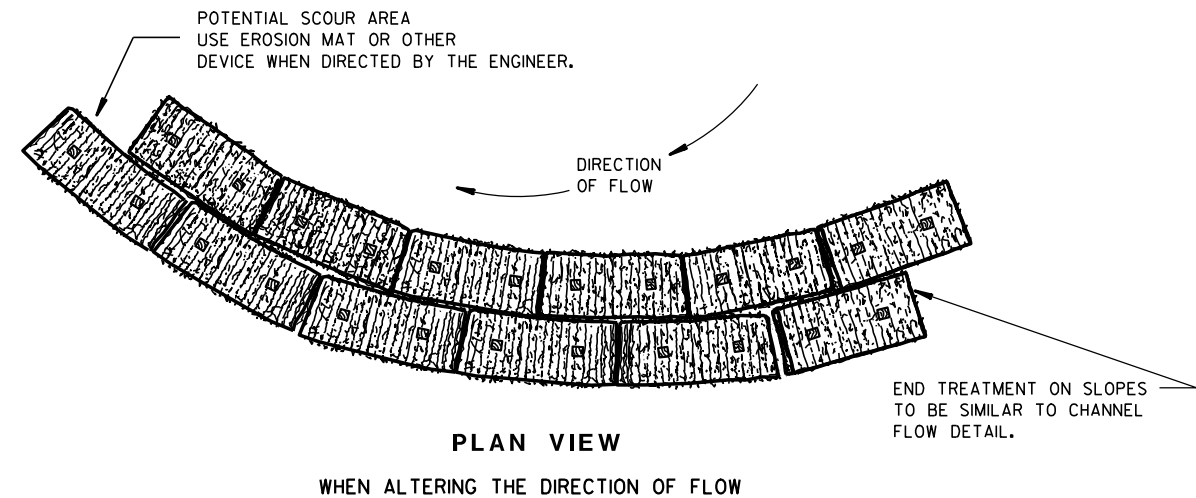
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
15D28-03	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY



GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

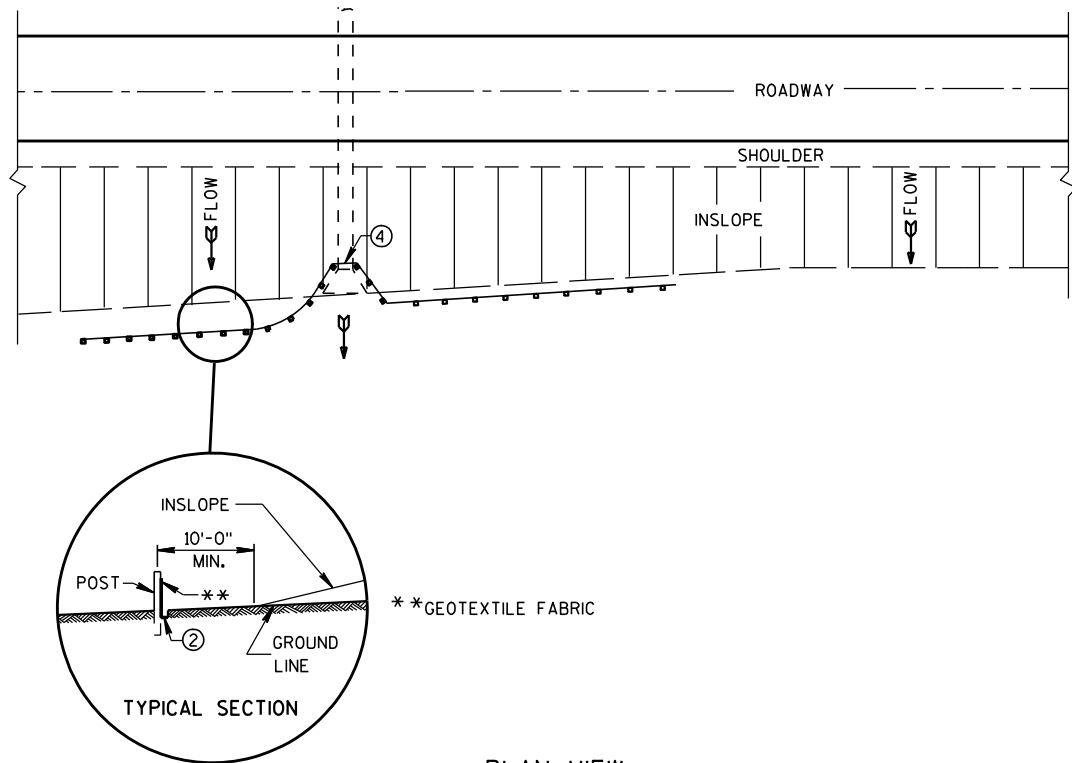
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

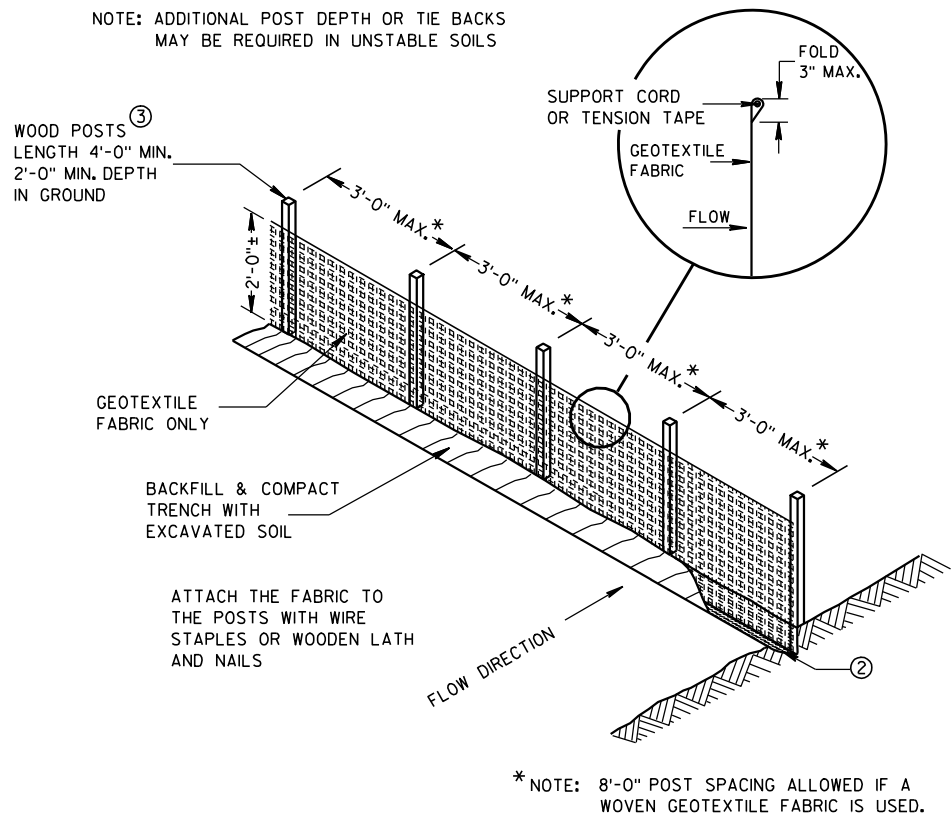
APPROVED

6/04/02
DATE/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

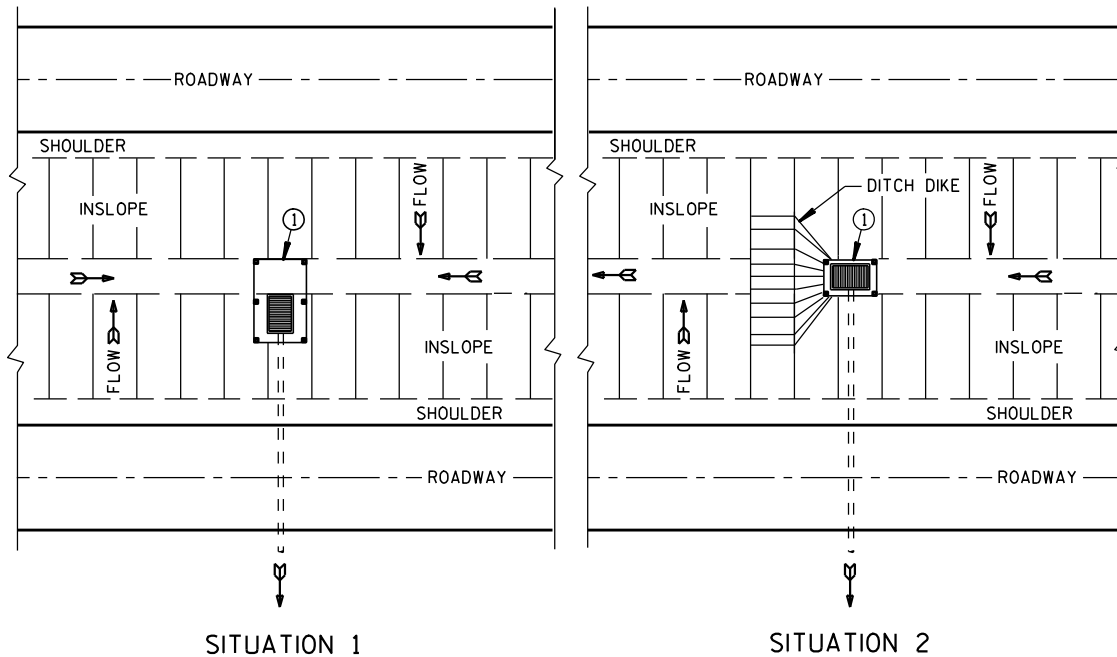
FHWA



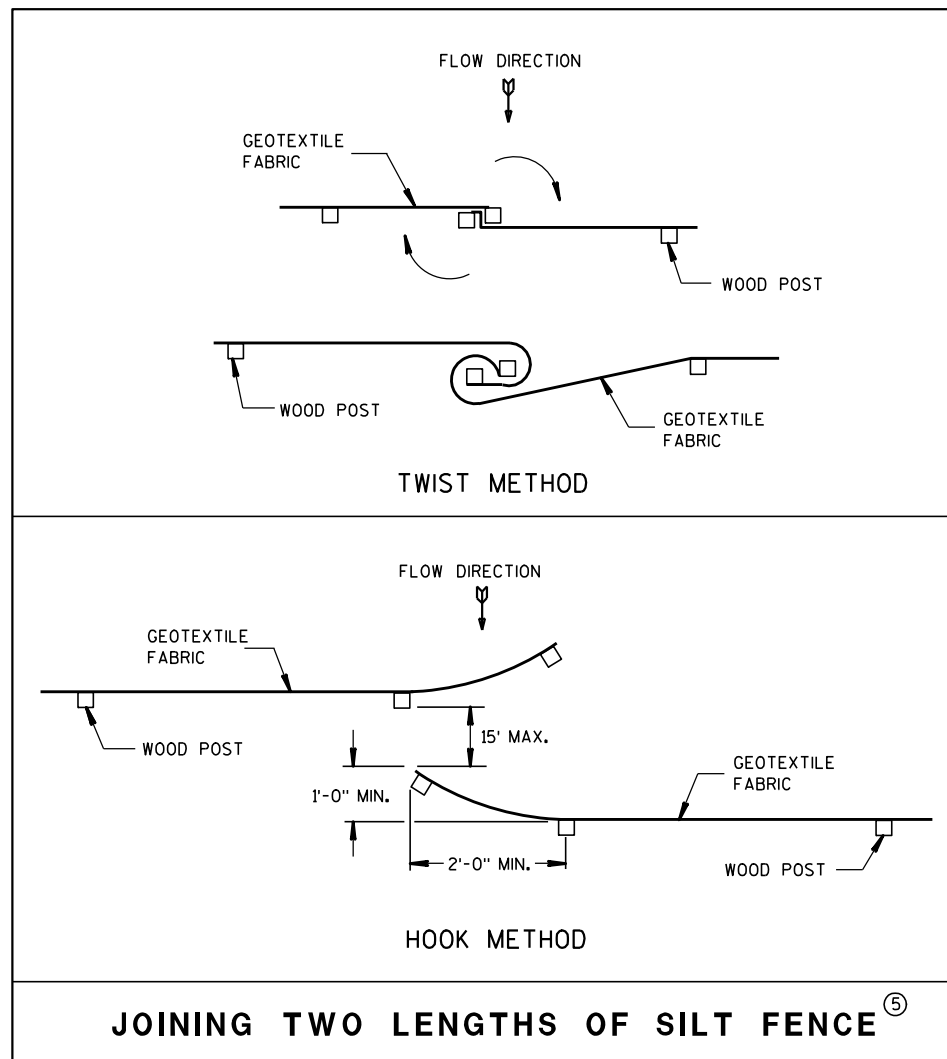
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

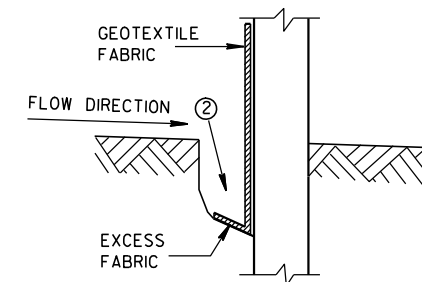


JOINING TWO LENGTHS OF SILT FENCE^⑤

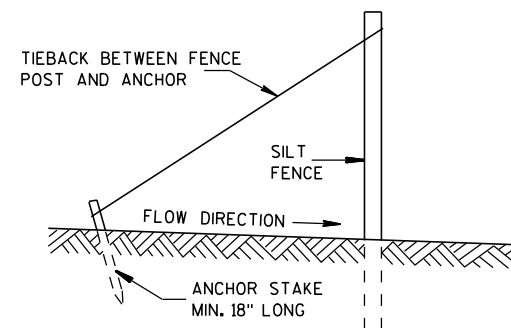
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

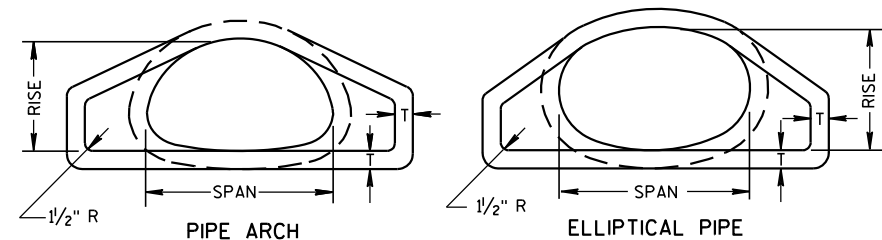


TRENCH DETAIL

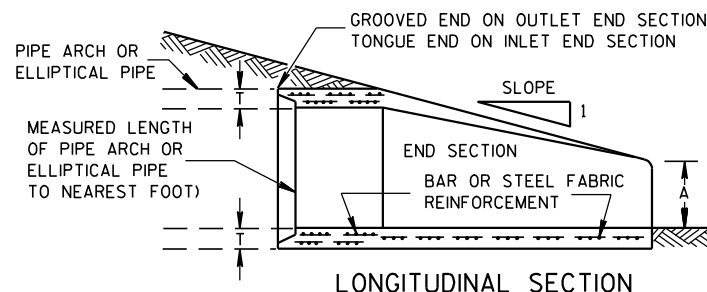


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/S/ Beth Canestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

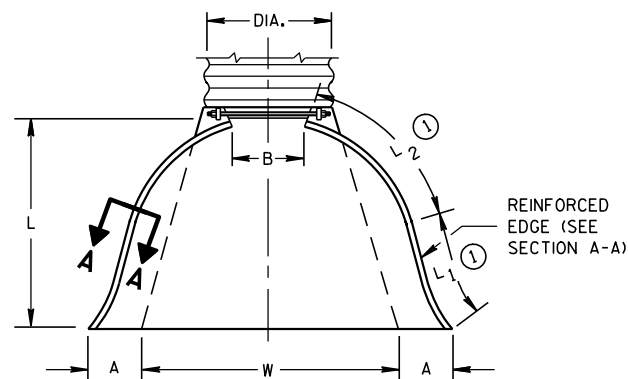


END VIEW



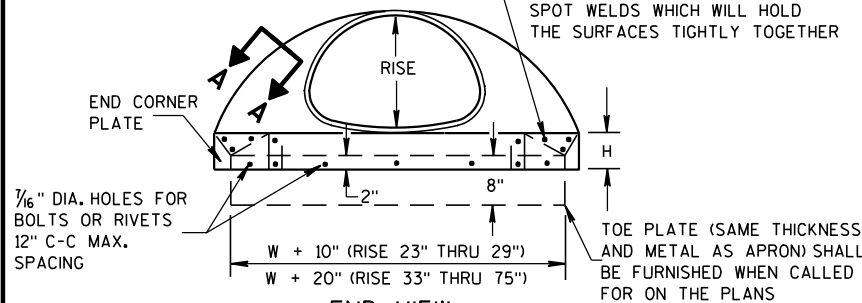
LONGITUDINAL SECTION

CONCRETE ENDWALLS

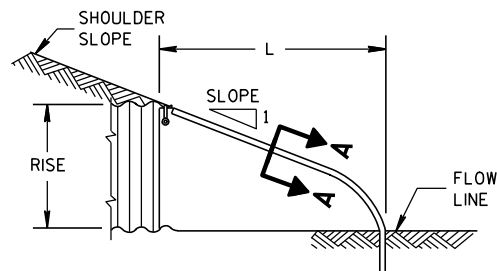


PLAN VIEW

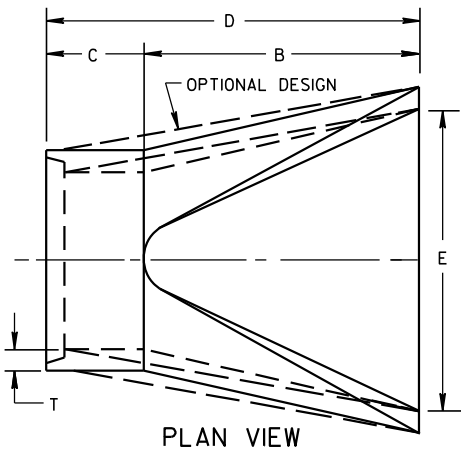
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



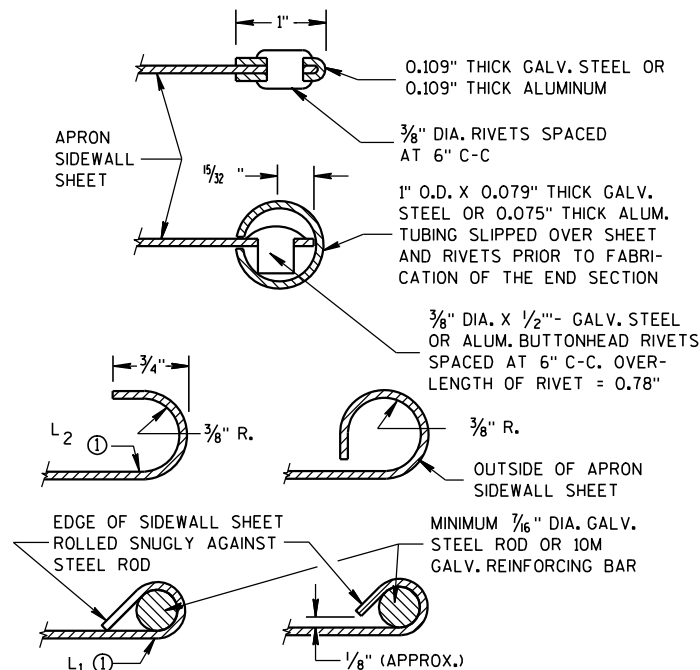
END VIEW



SIDE ELEVATION
METAL ENDWALLS



PLAN VIEW



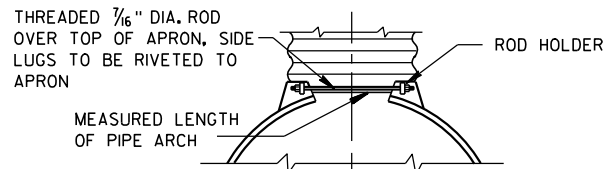
SECTION A-A

2- 2/3" X 1/2" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
15	17	13	.064	.060	7	9	6	19	14	16	30	2 1/2 to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19 3/8	36	2 1/2 to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21 3/4	42	2 1/2 to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27 1/2	48	2 1/2 to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37 5/8	60	2 1/2 to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45 3/8	75	2 1/2 to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54 3/4	85	2 1/2 to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2 1/2 to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72 3/4	102	2 1/4 to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82 1/4	114	2 1/4 to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82 1/4	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1 1/2 to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1 1/2 to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1 1/2 to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1 1/2 to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1 1/2 to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1 1/2 to 1	3 Pc.

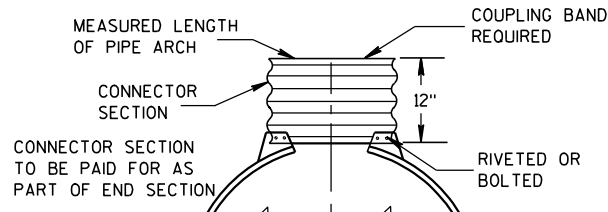
NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES



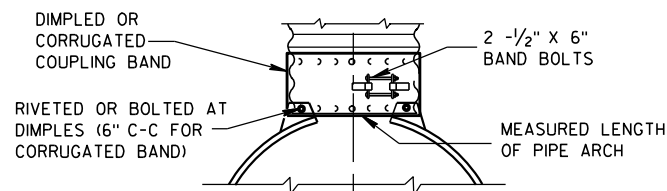
TYPE 2

FOR 17" X 13" THRU 112" X 75" PIPE ARCH



TYPE 3

FOR 64" X 43" THRU 112" X 75" PIPE ARCH



TYPE 5

ALTERNATE FOR:
ALL SIZES CORRUGATED PIPE ARCHES

NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

REINFORCED CONCRETE PIPE ARCH											
EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE		
	** SPAN	** RISE	T	A	B	C	D	E			
24	29	18	3	8 1/2	39	33	72	48	3 to 1		
30	36	22	3 1/2	9 1/2	50	46	96	60	3 to 1		
36	44	27	4	11 1/8	60	36	96	72	3 to 1		
42	51	31	4 1/2	15 1/8	60	36	96	78	3 to 1		
48	58	36	5	21	60	36	96	84	3 to 1		
54	65	40	5 1/2	25 1/2	60	36	96	90	3 to 1		
60	73	45	6	31	60	36	96	96	3 to 1		
72	88	54	7	31	60	39	99	120	2 to 1		
84	102	62	8	28 1/2	83	19	102	144	2 to 1		

REINFORCED CONCRETE ELLIPTICAL PIPE											
EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE		
	** SPAN	** RISE	T	A	B	C	D	E			
24	30	19	3 1/4	8 1/2	39	33	72	48	3 to 1		
30	38	24	3 3/4	9 1/2	54	18	72	60	3 to 1		
36	45	29	4 1/2	11 1/8	60	24	84	72	2 1/2 to 1		
42	53	34	5	15 1/4	60	36	96	78	2 1/2 to 1		
48	60	38	5 1/2	21	60	36	96	84	2 1/2 to 1		
54	68	43	6	25 1/2	60	36	96	90	2 1/2 to 1		
60	76	48	6 1/2	30	60	36	96	96	2 1/2 to 1		

**NOMINAL SIZE

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE APRON ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM APRON ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE ARCH PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 77" X 52" THROUGH 112" X 75" APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

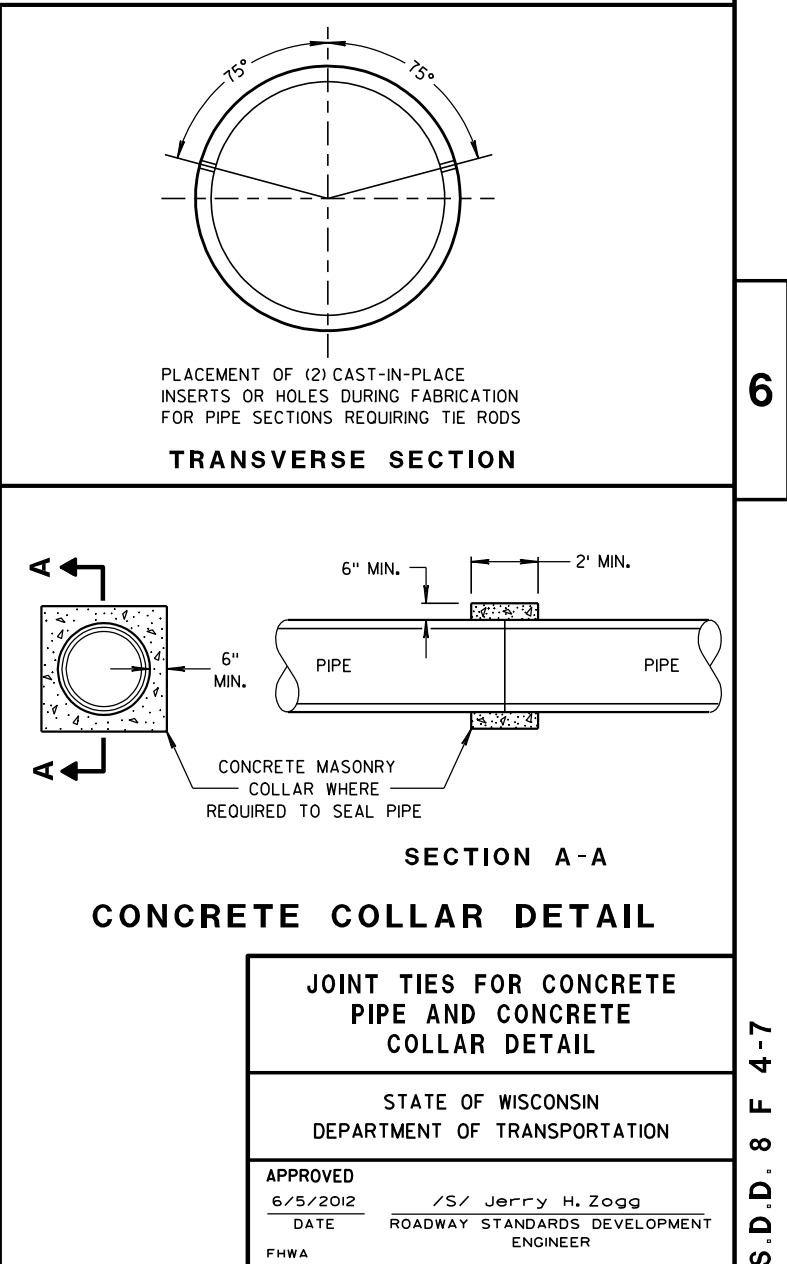
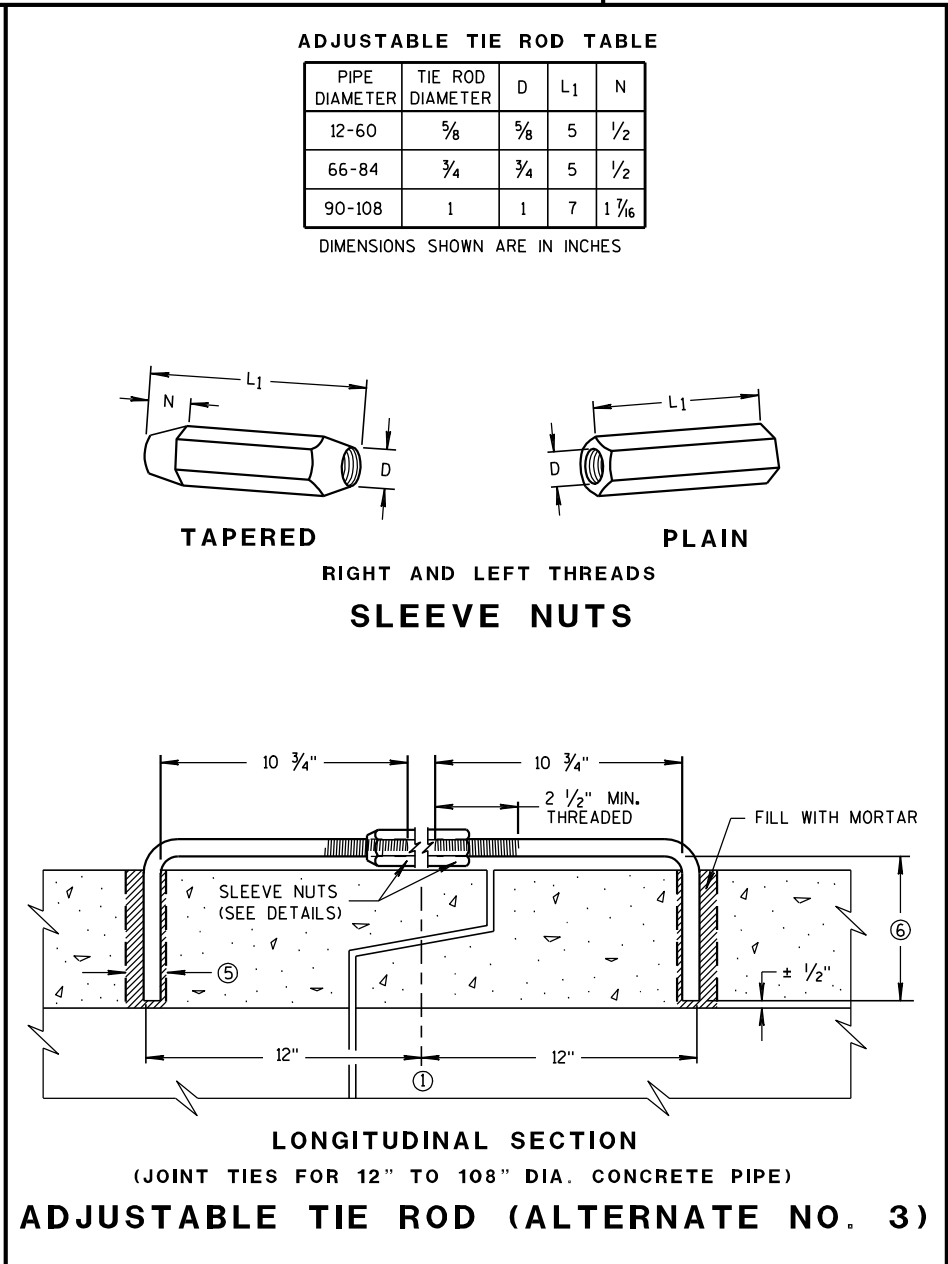
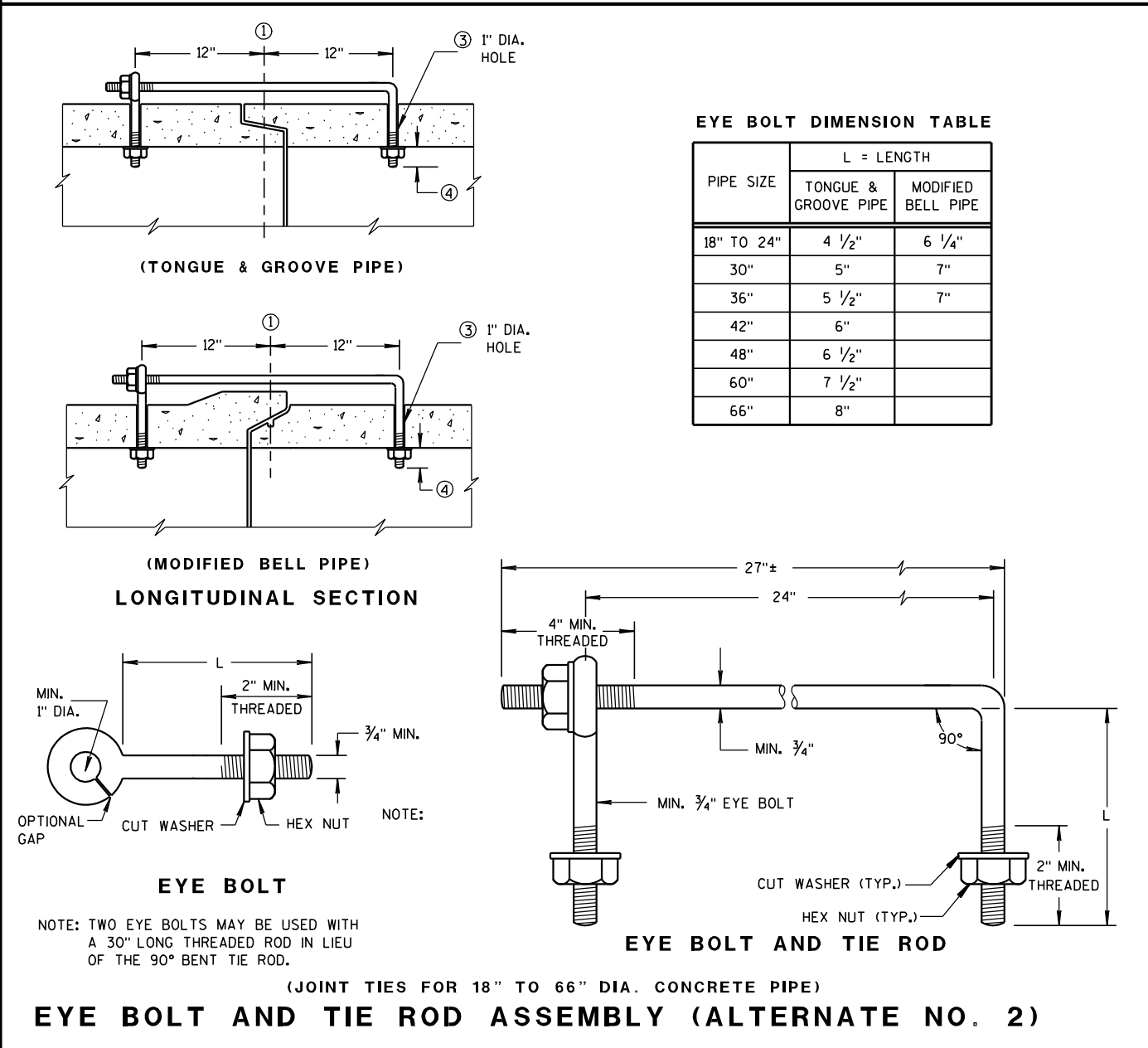
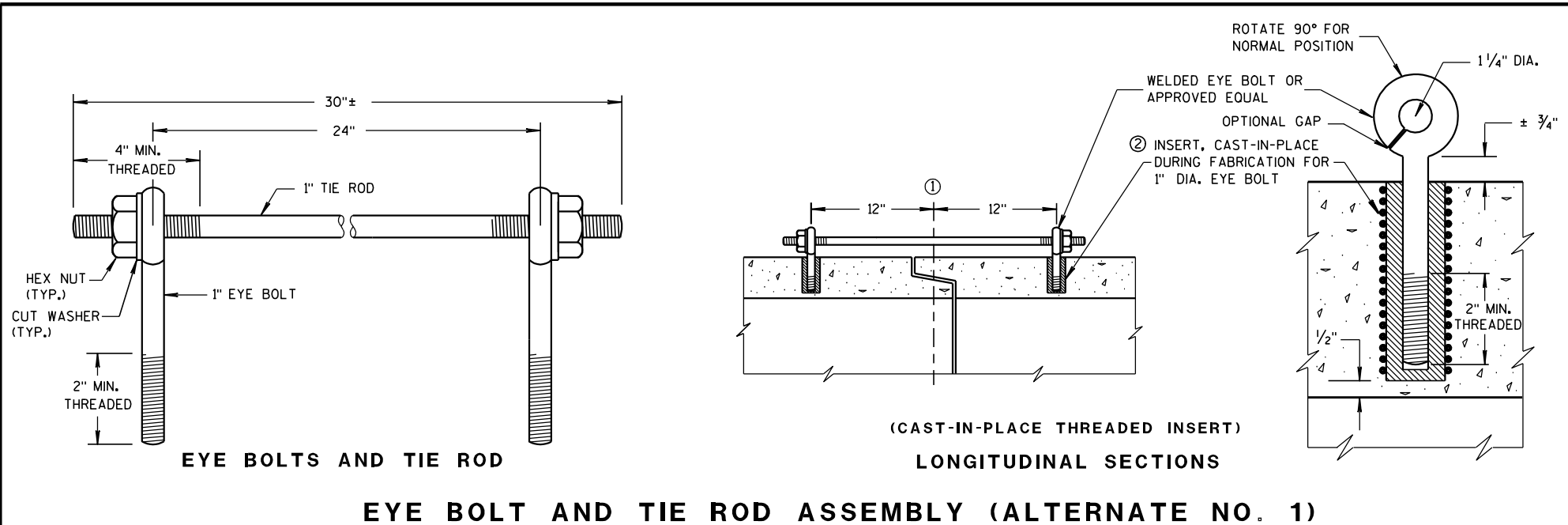
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR
PIPE ARCH AND
ELLIPTICAL PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94 /S/ Rory L. Rhinesmith
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

W20-1A AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

TABLE A

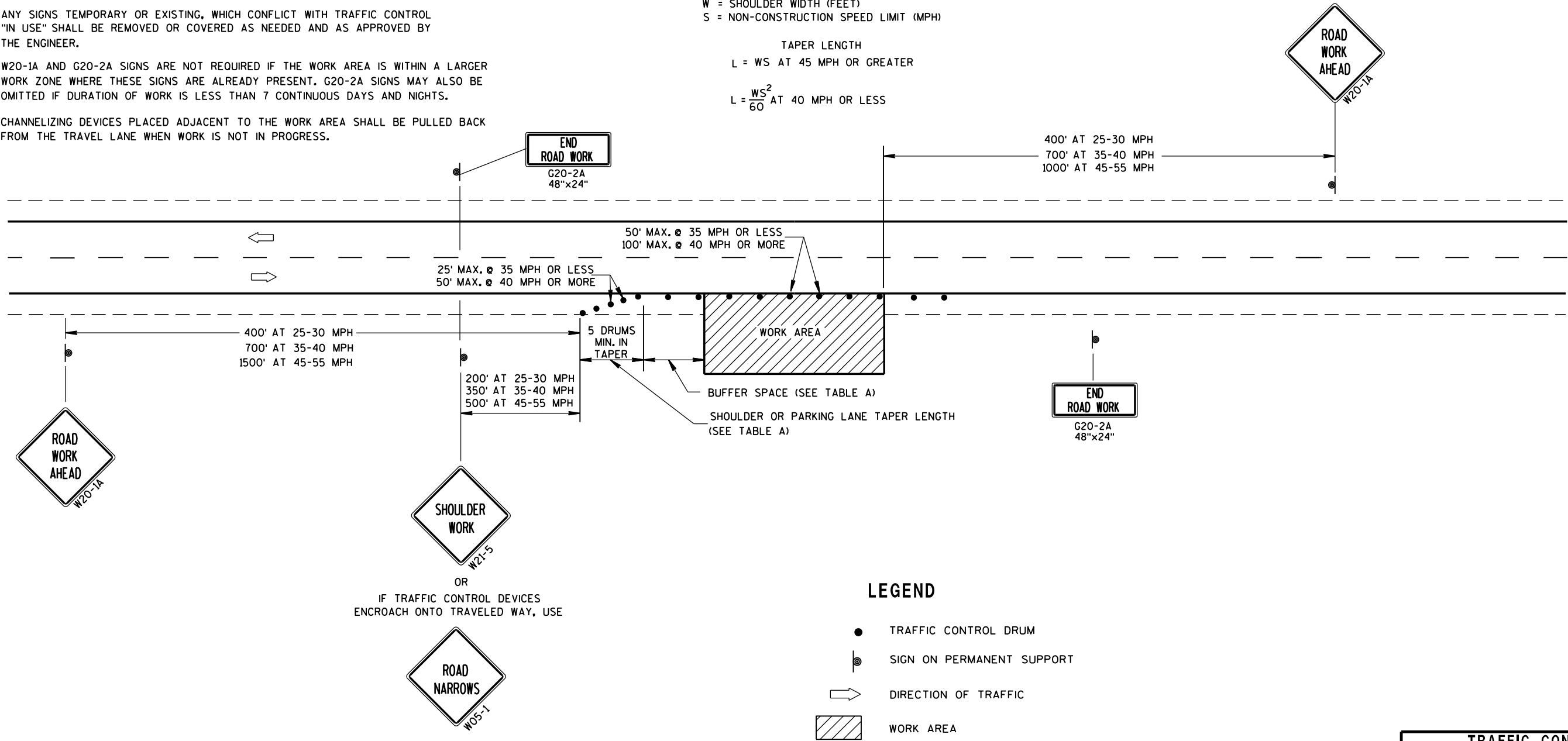
SHOULDER TAPER LENGTH (FEET)					BUFFER SPACE (FEET)
S	W	4	6	8	
30	20	30	40	50	200
35	30	45	55	70	250
40	40	55	75	90	305
45	60	90	120	150	360
50	70	100	135	170	425
55	75	110	150	185	495

W = SHOULDER WIDTH (FEET)
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

TAPER LENGTH
L = WS AT 45 MPH OR GREATER

$L = \frac{WS^2}{60}$ AT 40 MPH OR LESS

SHOULDER TAPER LENGTH = $\frac{1}{3}L$



LEGEND

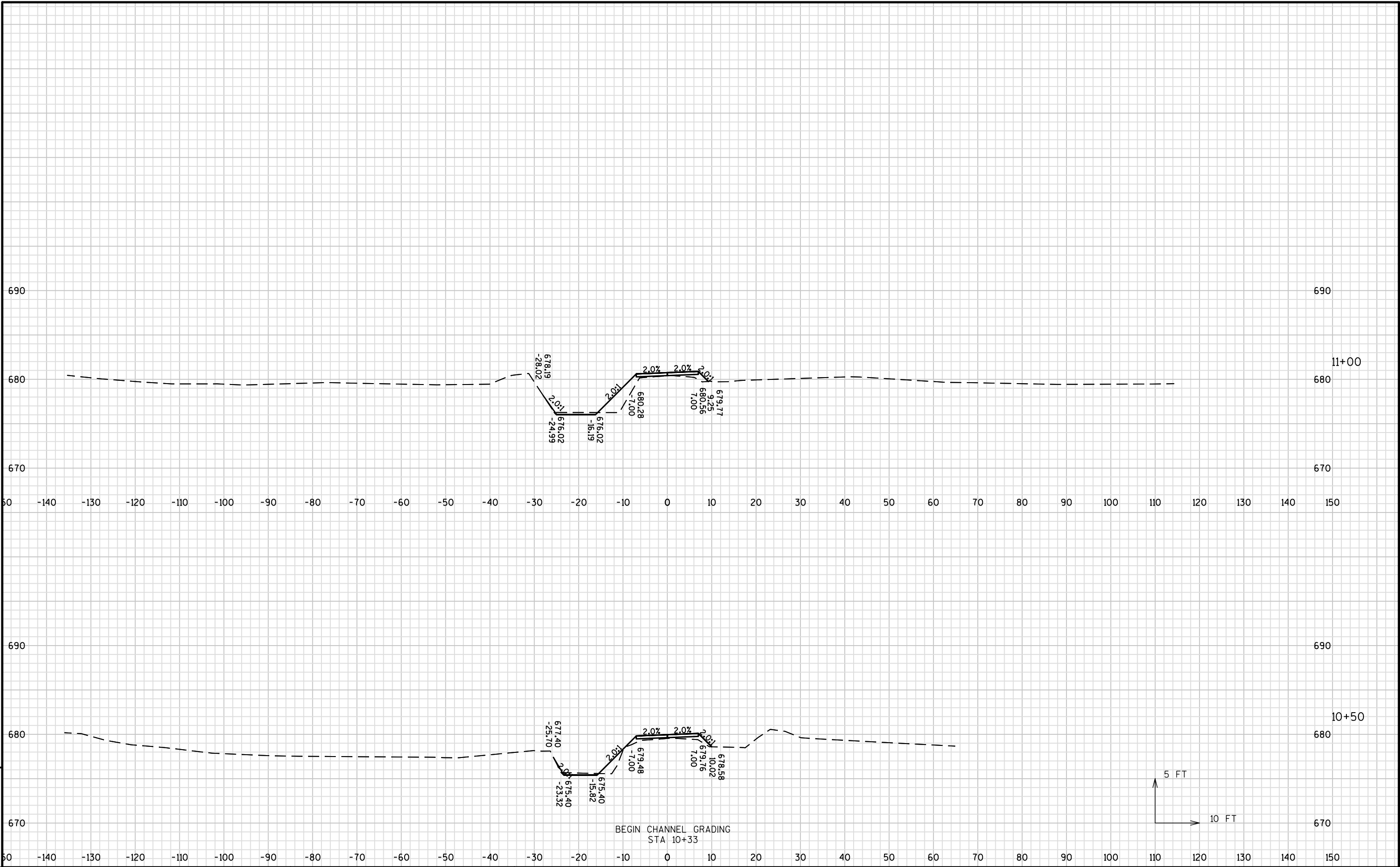
- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ▨ WORK AREA

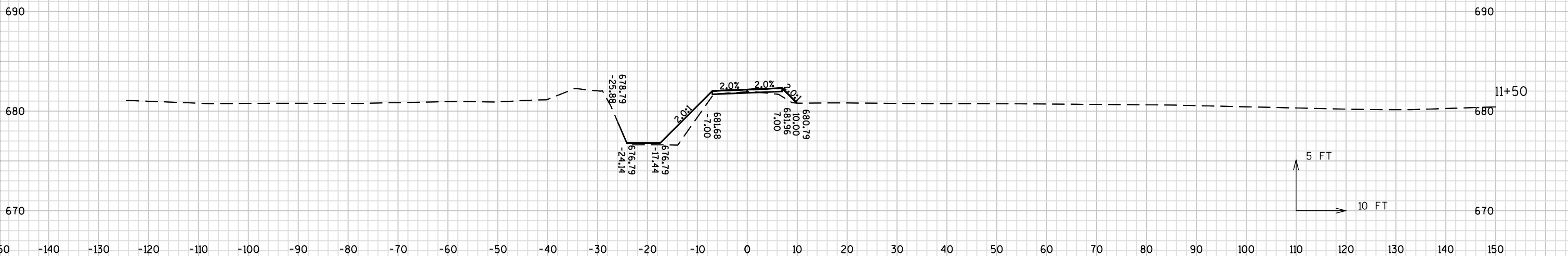
TRAFFIC CONTROL,
WORK ON SHOULDER OR
PARKING LANE,
UNDIVIDED ROADWAY

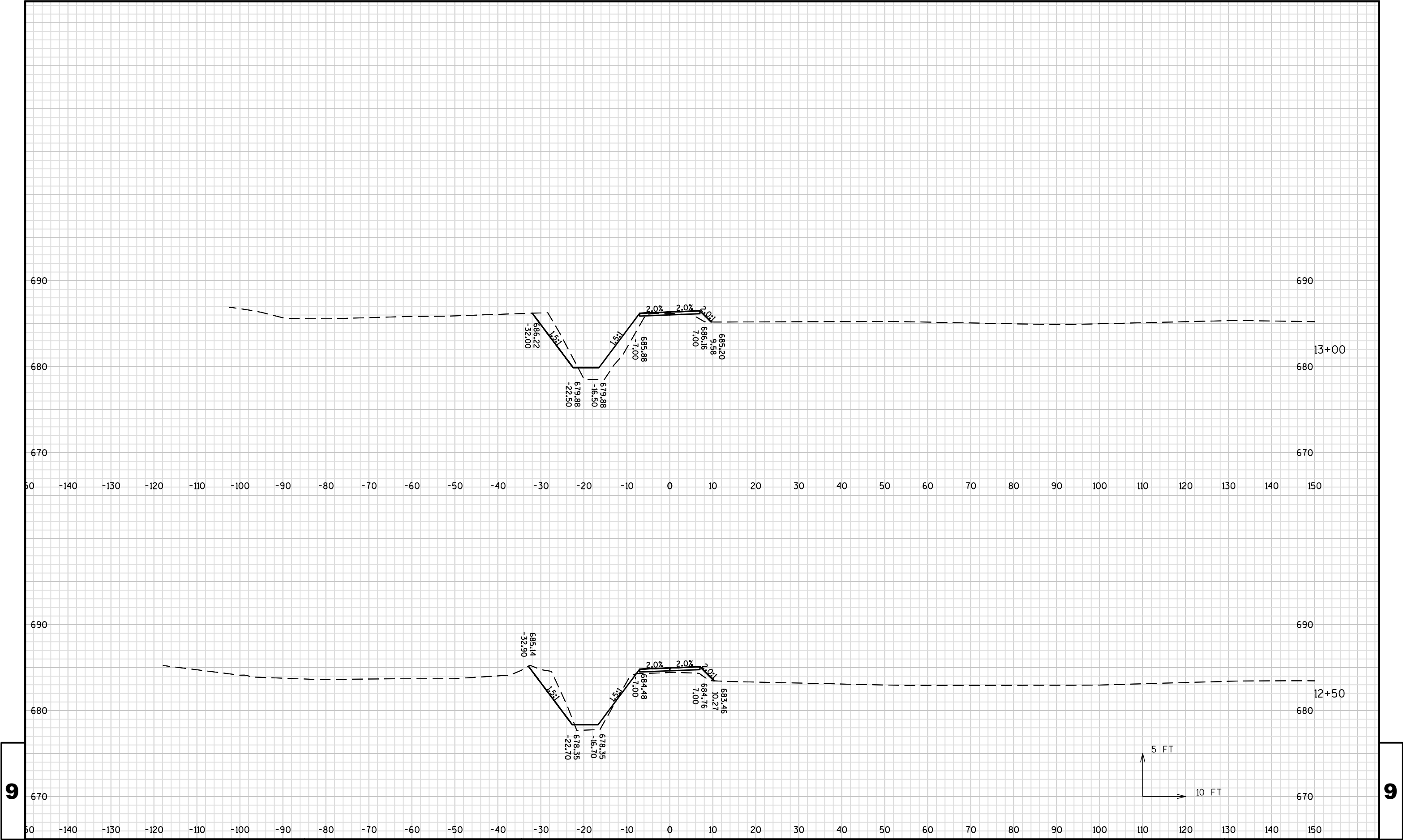
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

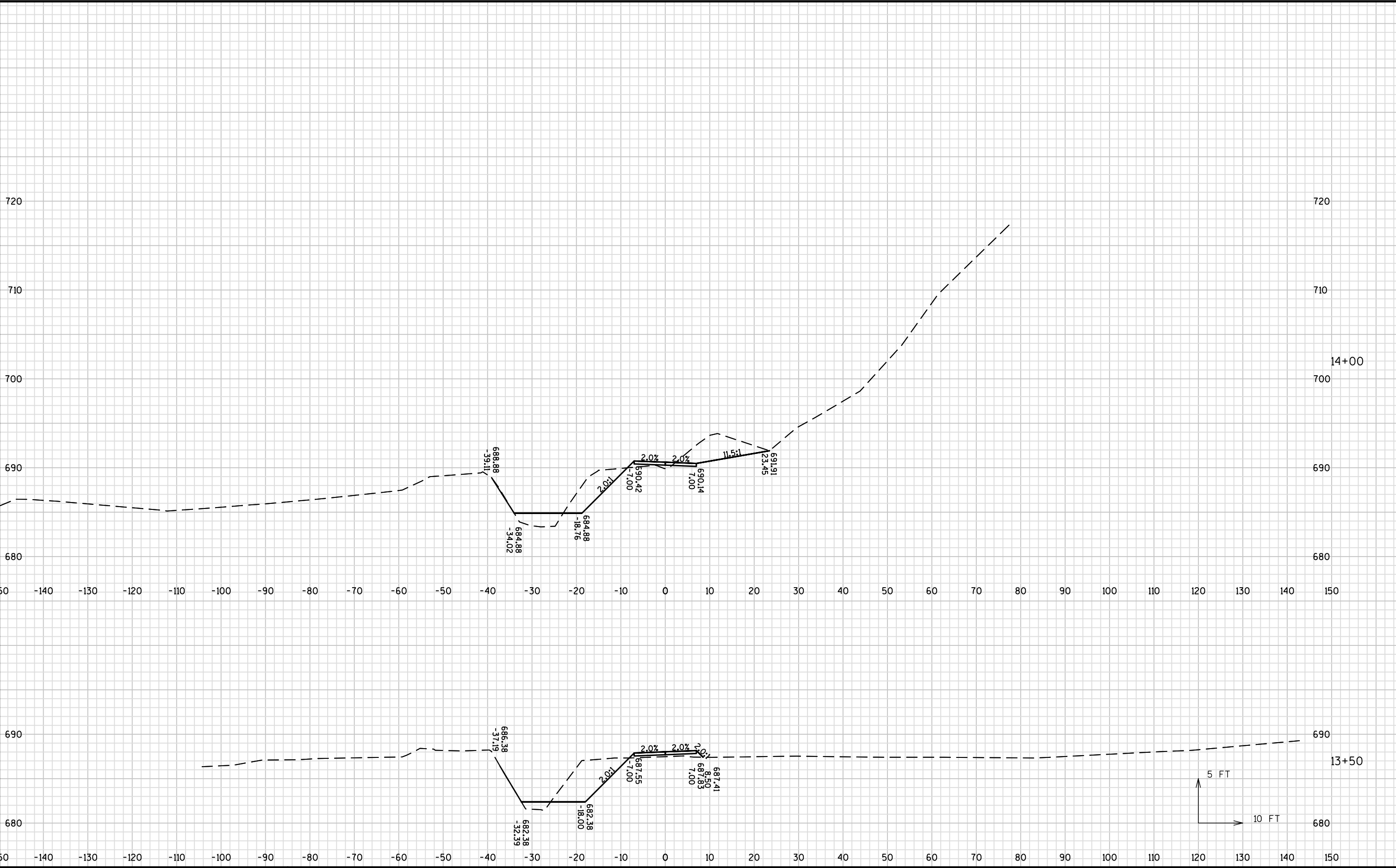
APPROVED
July 14, 2015 /S/ Peter Amakobe Atepe
DATE STATEWIDE WORK ZONE TRAFFIC
FHWA SAFETY ENGINEER

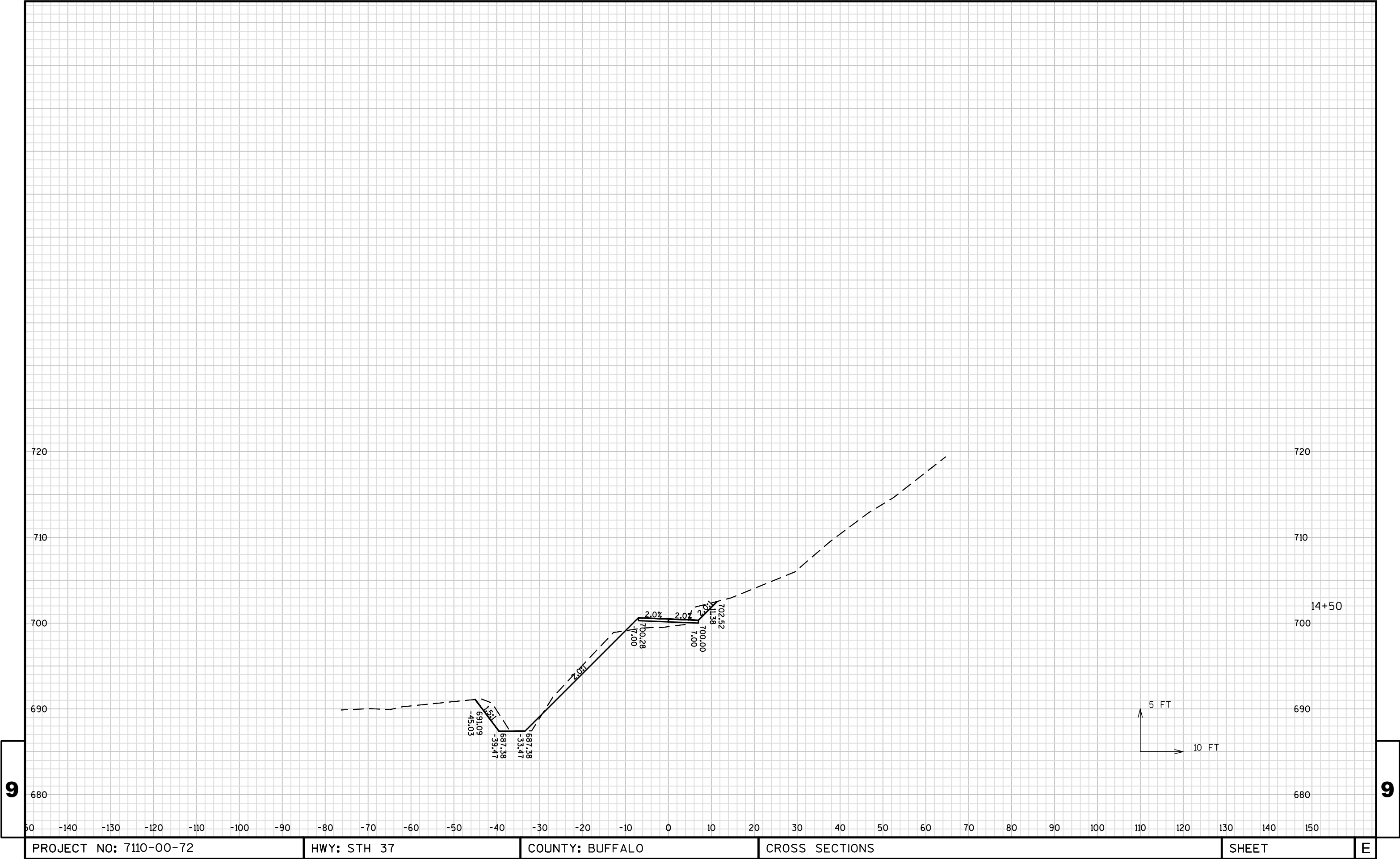
AREA (SF)			Incremental Vol (CY) (Unadj)		Cumulative Vol (CY)	
STATION	Cut	Fill	Cut	Fill	Cut 1.00	Expanded Fill 1.30
10+40	1.8	11.8	0	0	0	0
10+50	1.8	11.8	1	4	1	6
11+00	2.3	18.2	4	28	4	42
11+50	0.2	17.8	2	33	7	85
12+00	5.8	9.4	6	25	12	118
12+50	19.2	12.8	23	21	35	145
13+00	16.4	28.6	33	38	68	195
13+50	43.7	11.2	56	37	124	243
14+00	63.5	16.8	99	26	223	276
14+50	33.6	11.8	90	27	313	311
15+00	105.8	69.8	129	76	442	409
15+50	132.7	99.5	221	157	663	613
16+00	78.0	169.1	195	249	858	936
16+50	155.8	62.5	217	214	1,075	1,215
17+00	127.1	81.0	262	133	1,337	1,388
17+50	0.0	0.0	118	75	1,454	1,485
WASTE PILE			568	0	2,022	1,485
SEDIMENT BASIN			6,641	292	8,663	1,865

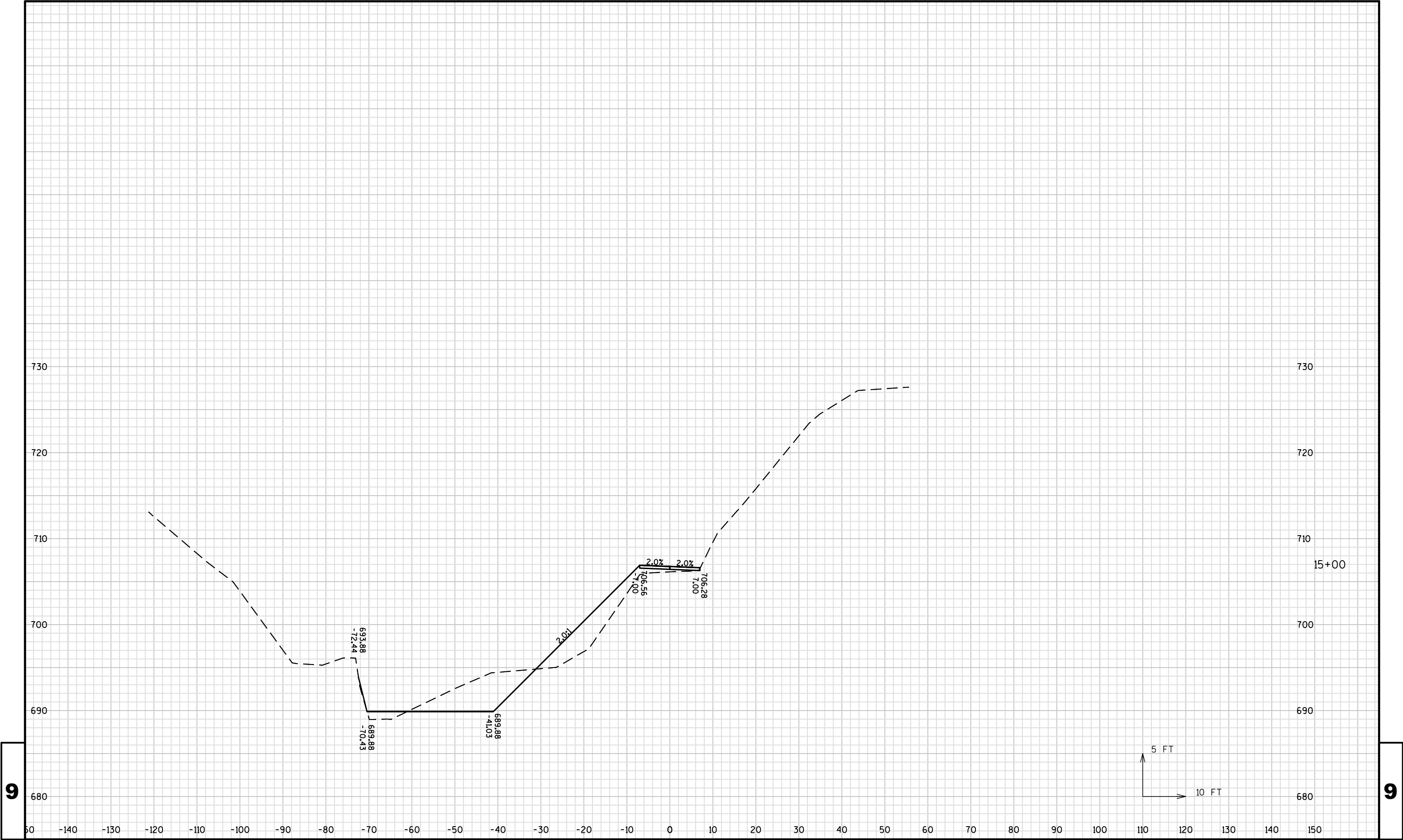






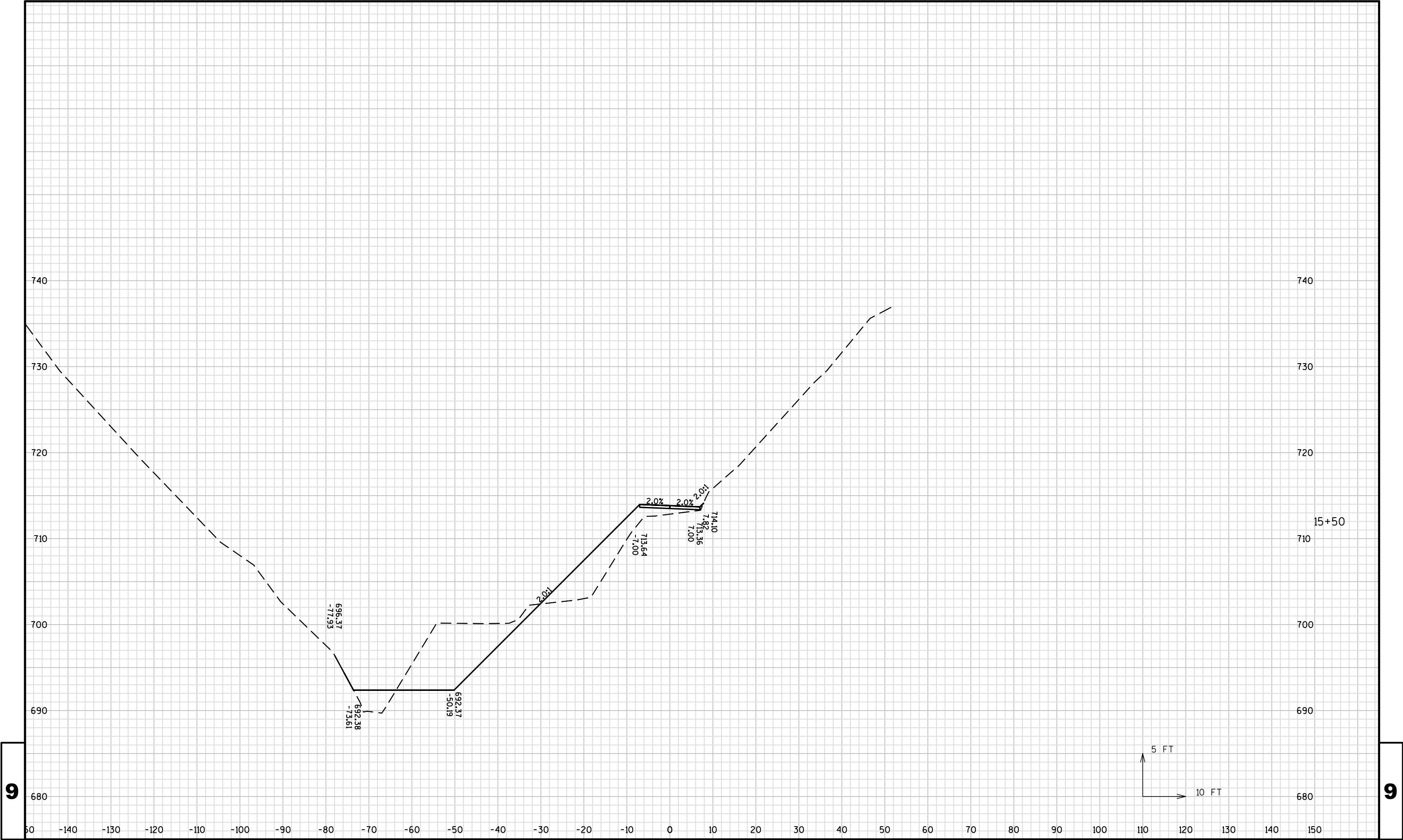






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PROJECT NO: 7110-00-72

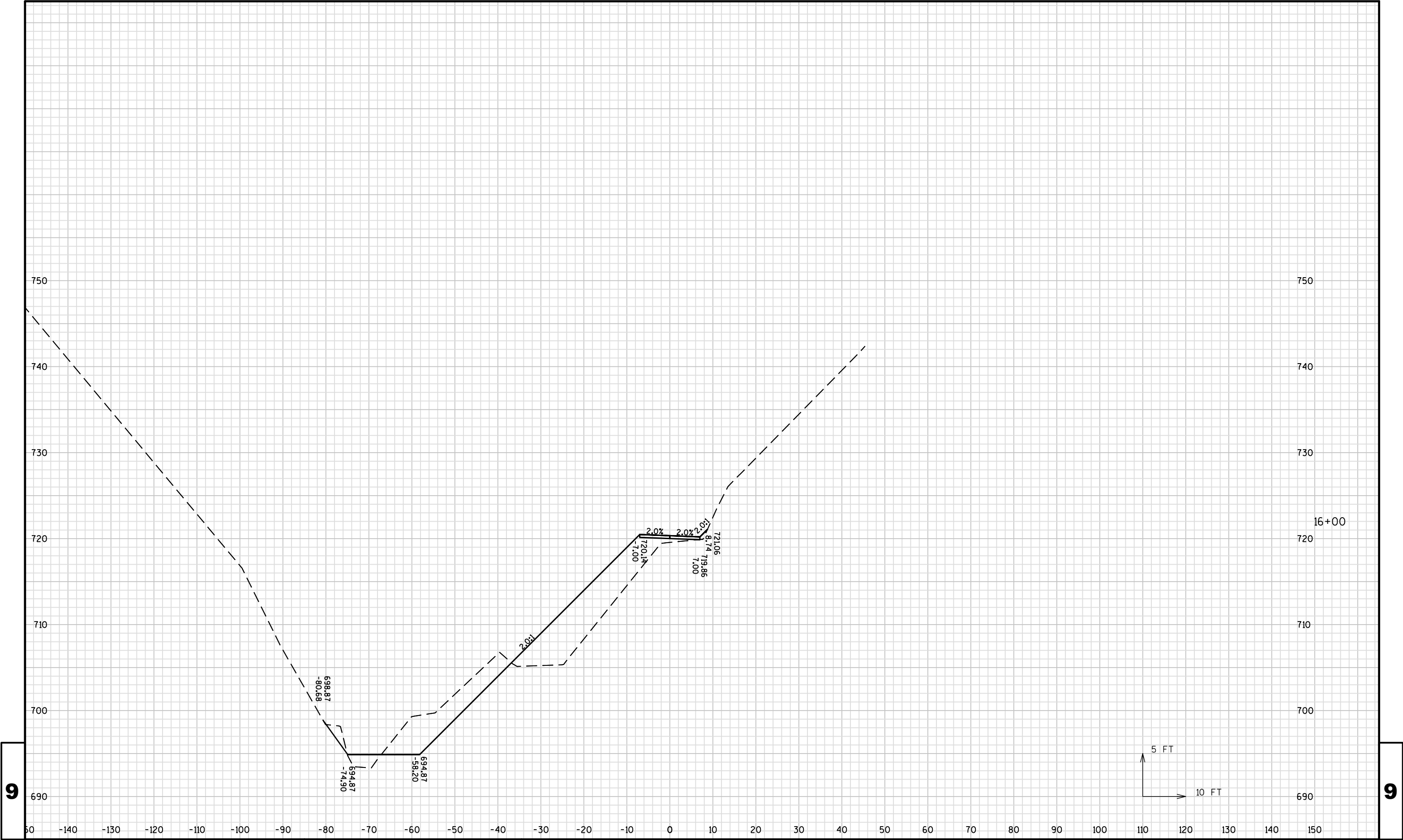
HWY: STH 37

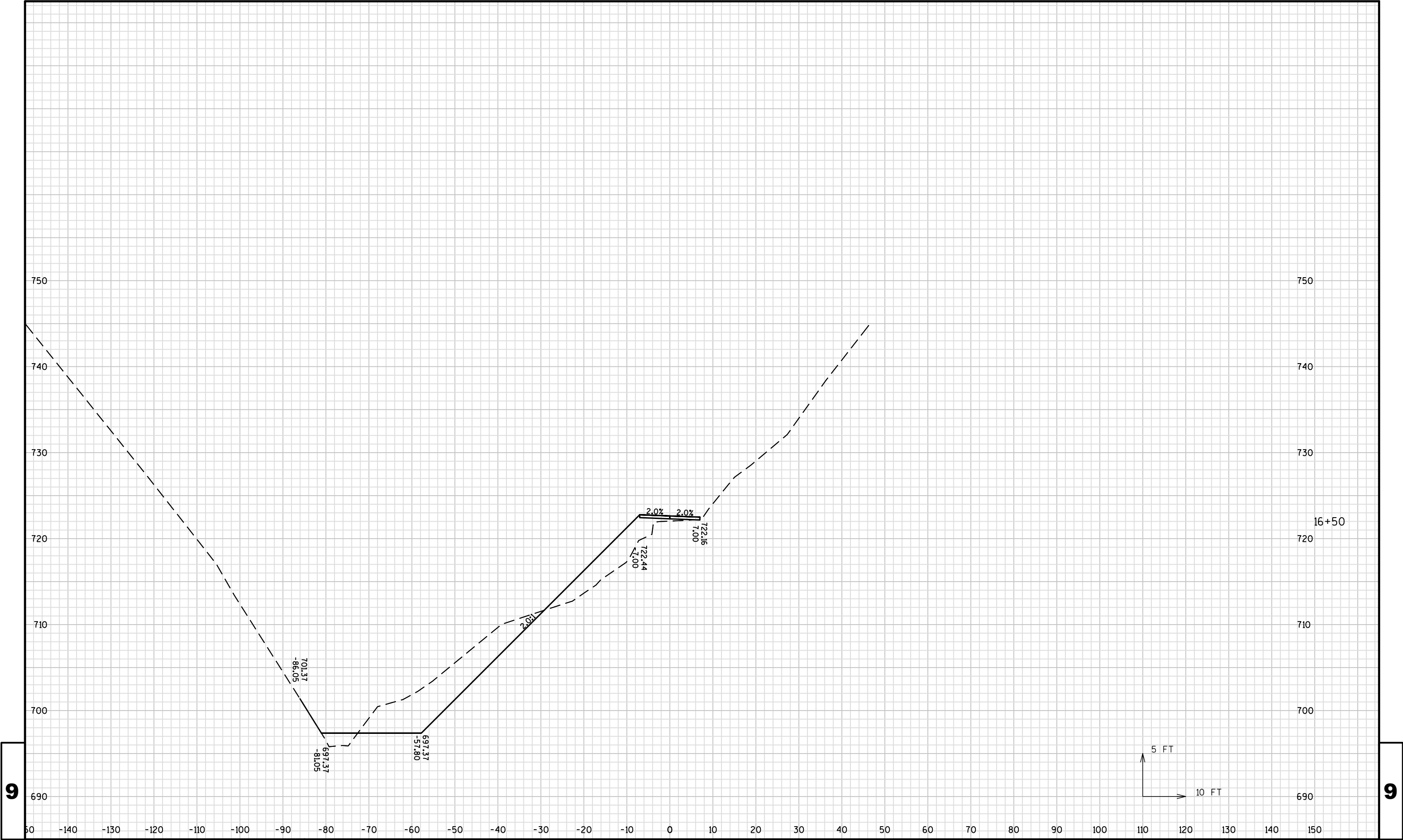
COUNTY: BUFFALO

CROSS SECTIONS

SHEET

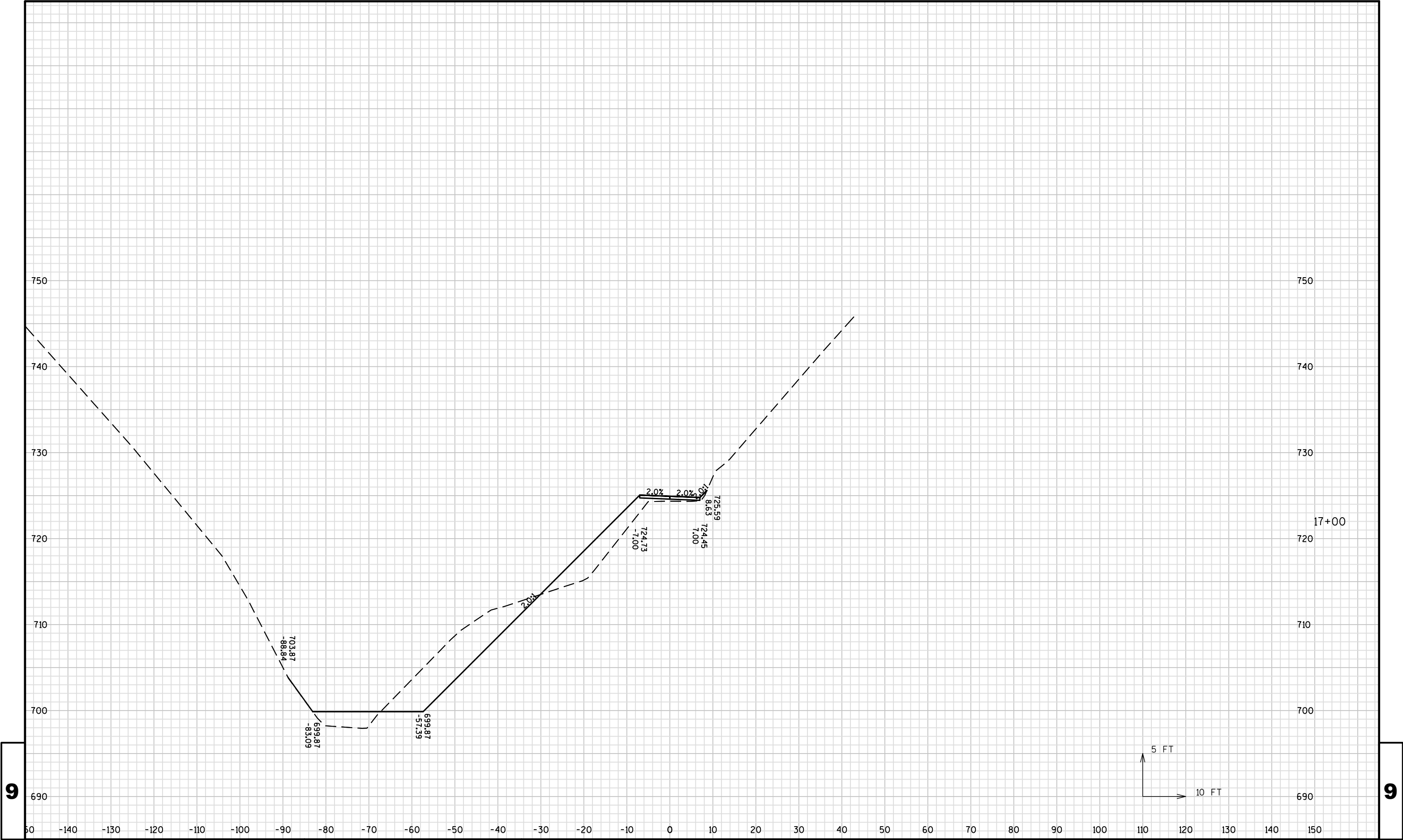
E

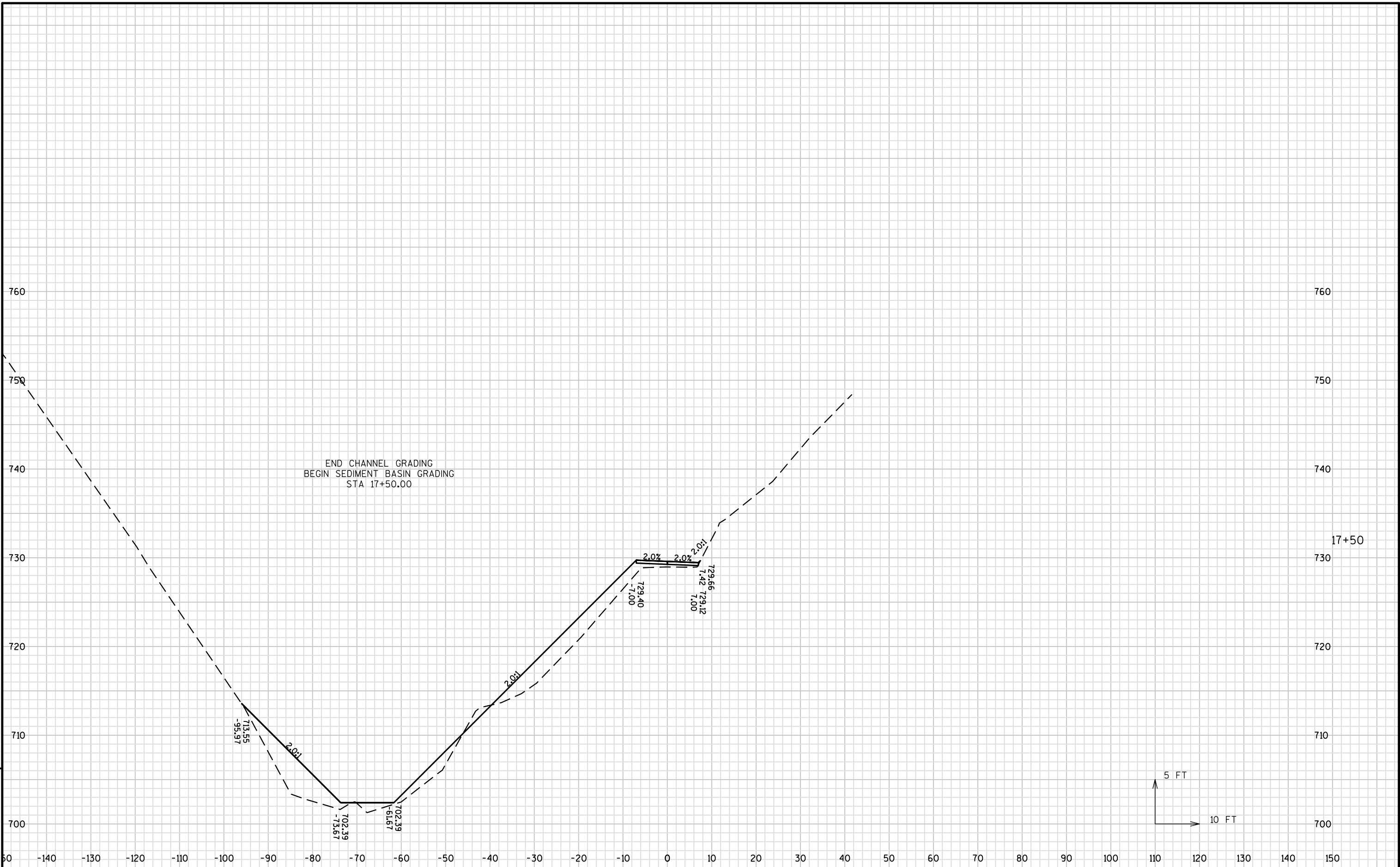


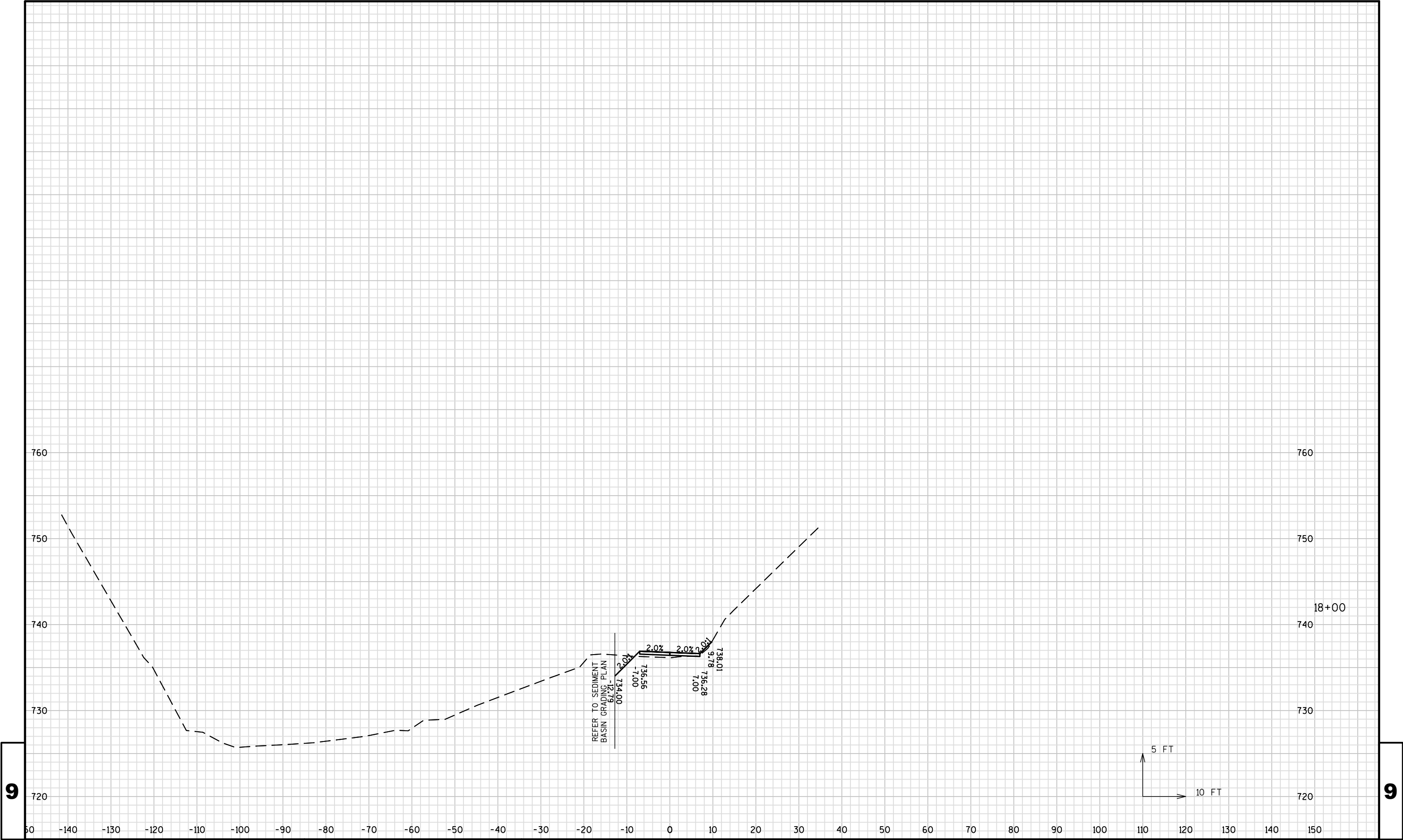


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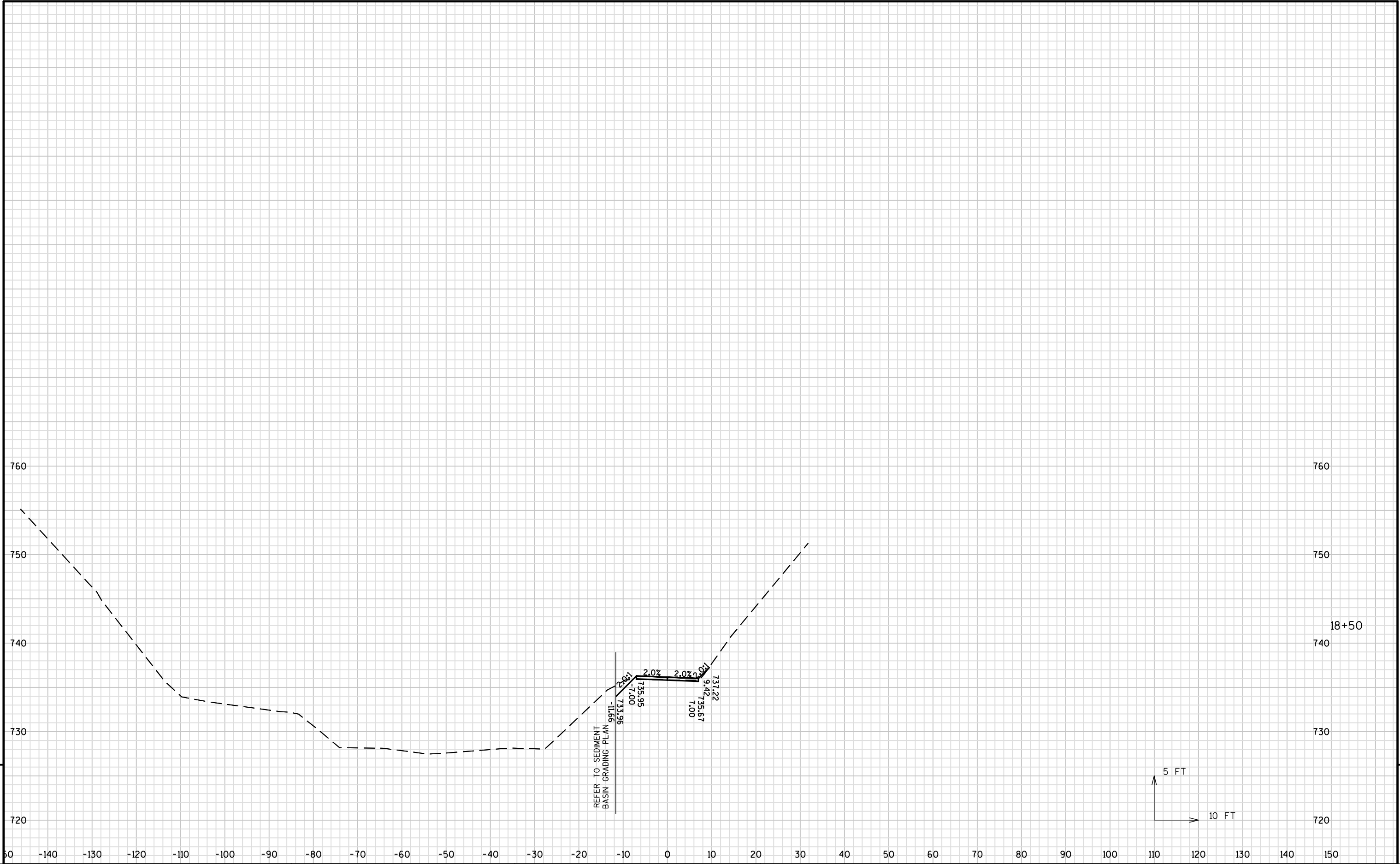




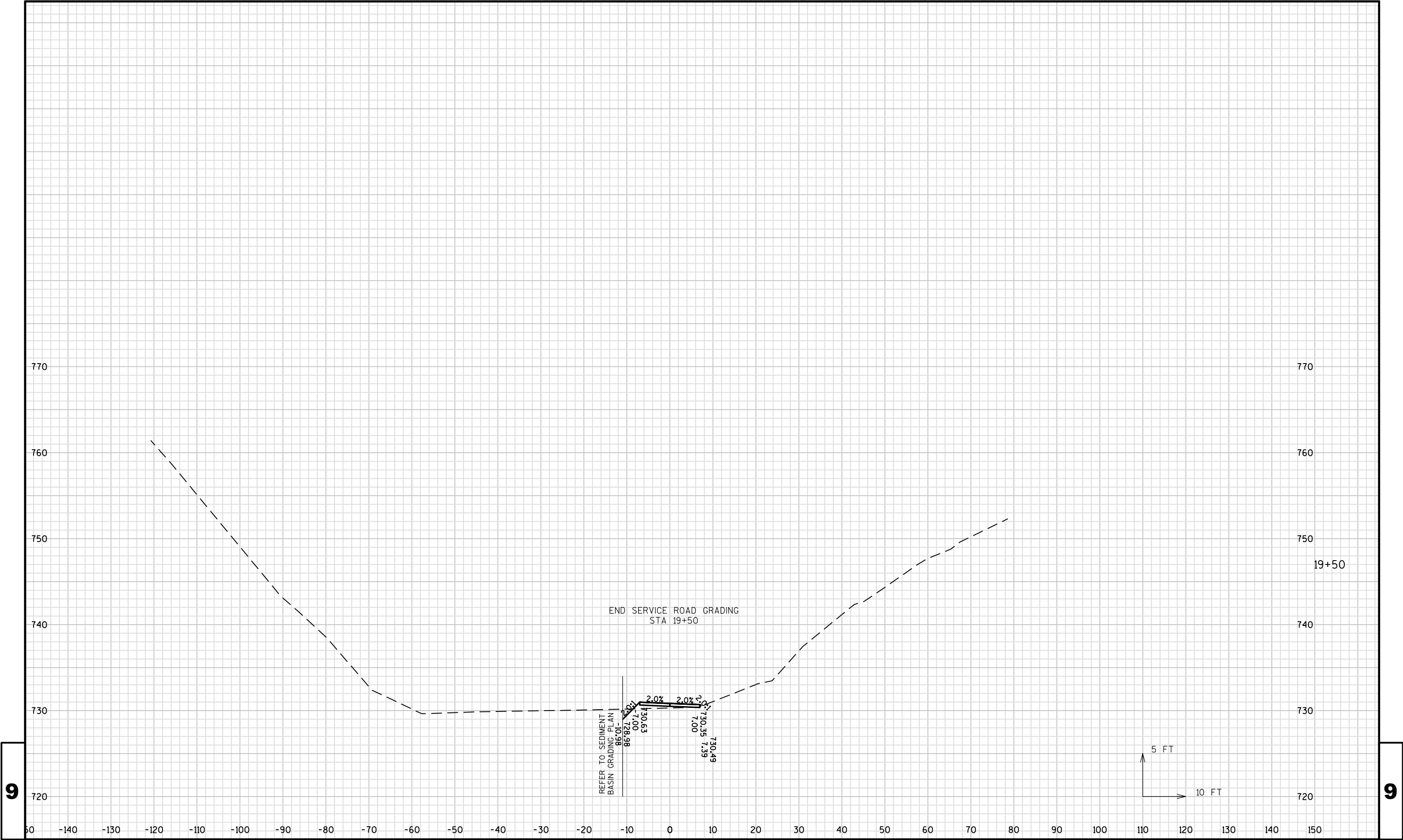


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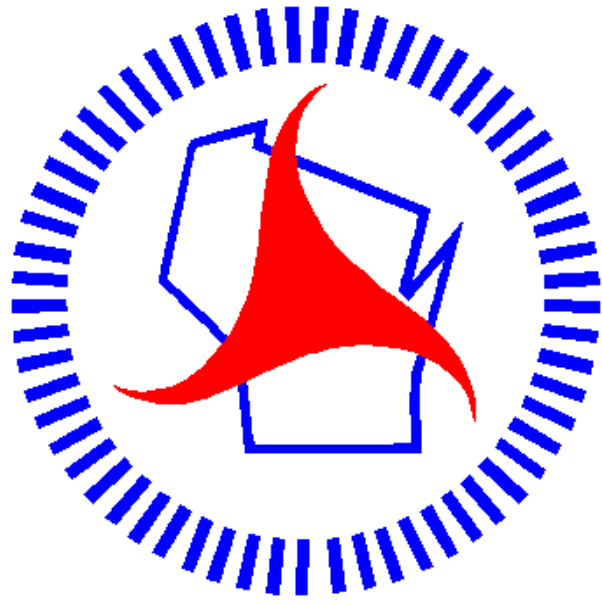




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Notes



Wisconsin Department of Transportation

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through innovation and exceptional service.

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