

FED. ROAD DIST. NO.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	STP-270C(032)CI	1	25

STATE OF OKLAHOMA  
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED  
**COUNTY BRIDGE**  
FEDERAL AID PROJECT NO. STP-270C(032)CI  
BRIDGE AND APPROACH PLANS  
TEXAS COUNTY  
SAND CREEK

STATE JOB NO. 30490(04)  
BRIDGE A LOCATION NO 70N0630E0260008  
EXISTING NBI NO. 17549; NEW NBI NO. 31984  
LOCATION N36°37'9"; LONGITUDE W101°53'19"

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
0001	TITLE
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THE FOLLOWING STANDARDS SHALL BE USED:

2009 STANDARDS

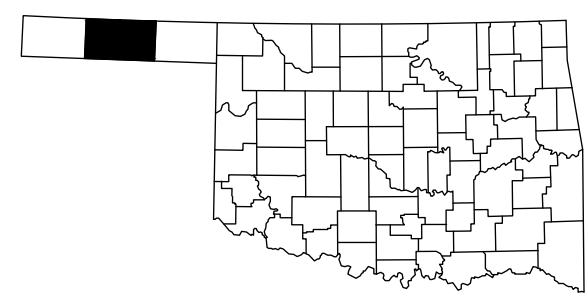
ROADWAY		TRAFFIC		MAINTENANCE
PSE-1-0	SPI-4-1	DU1-1-00	TCS5-1-00	GRAU1-1-00
RDI-3-1	FHTMPP-1-0	PM3-1-02	TCS6-1-02	GRH1-1-00
SSS-1-1		TCS1-1-01	TCS7-1-02	GRH2-1-00
TS2-2-0		TCS2-1-00	TCS8-1-00	GRH3-1-00
TSC2-3-2		TCS4-1-01	TCS9-1-01	

BRIDGE

CB26-C-SK30-ABUT-PC3-1-01E	CB26..32-C..I-SK0..30-GRAU-BC-00E	CB26-C-SK30-SPR-QUAN-PCB-2-01E	EJ-DTL-02E
CB26-C-SK30-ABUT-PC3-2-02E	CB26-C-SK0..30-PCB-III-80-01E	CB26..32-C-SK30-WING-PC3-01E	EJ-SK-04E
CB26..32-C-SK30-ABUT-MISC-01E	CB26..32-C..I-SK0..30-PCB-DTL-1-01E	CB26-C-SK30-XSECT-PC234-01E	HP1-2-01E
CB26-C-SK30-DKSLB-1-01E	CB26..32-C..I-SK0..30-PCB-DTL-2-01E	CB26-C-SK30-DIA-END-PC234-01E	TR3-2-01E
CB26-C-SK30-DKSLB-2-01E	CB26-C-SK30-LSECT-PCB-01E	CB26-C-SK0..30-DIA-INT-PCB-01E	
CB26-C-SK30-DKSLB-BLIST-01E	CB26-C-SK30-SPR-QUAN-PCB-1-01E	CB26-C-SK0..30-BRG-PC3-01E	

**DESIGN DATA**

ADT 2015= 72  
ADT 2035= 108  
DESIGN SPEED= 55 MPH  
TERRAIN- ROLLING  
FLEX ESALS= 0.11 M.



**SURVEY DATA**

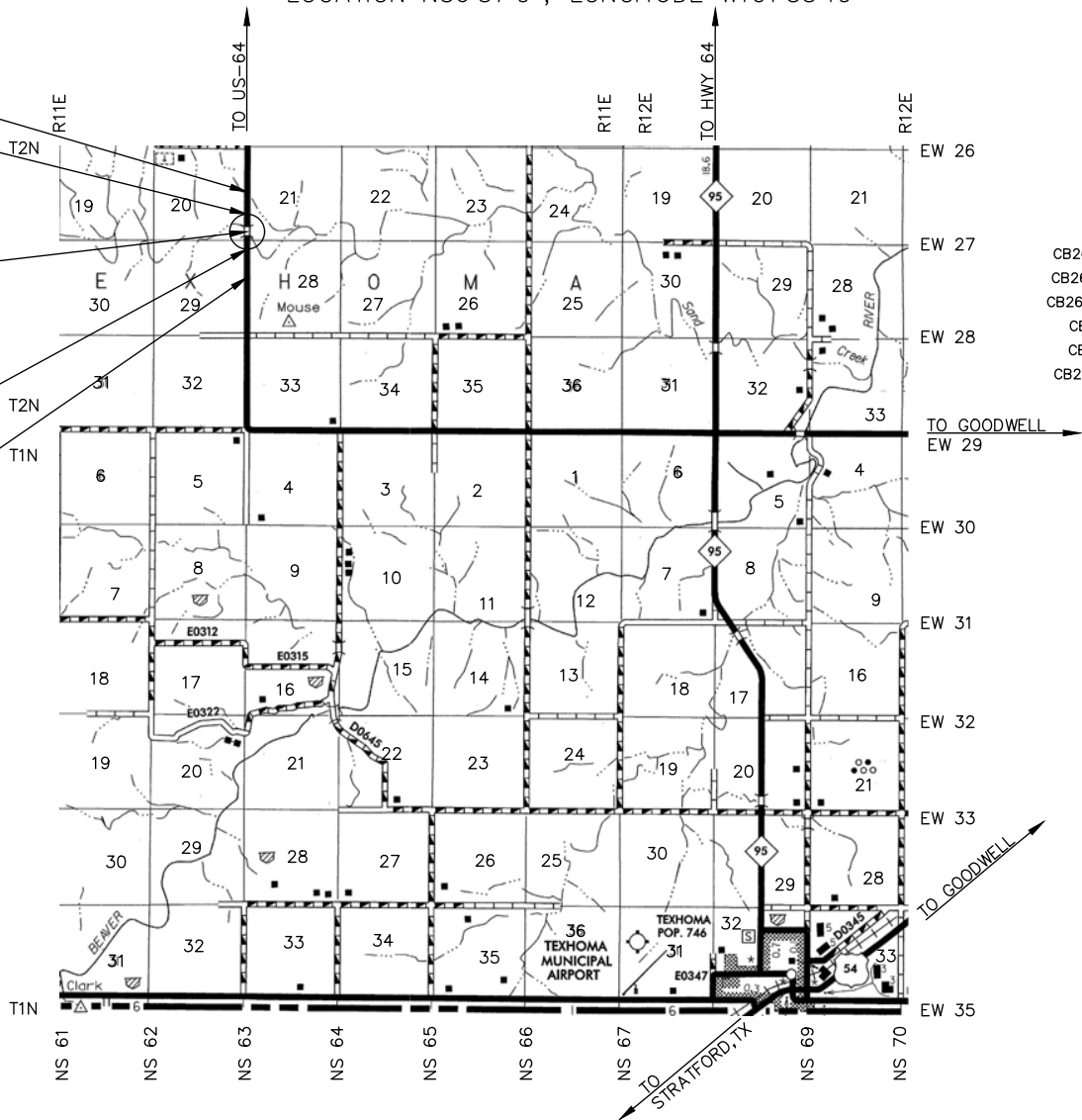
- HORIZONTAL CONTROL
  - HORIZONTAL CONTROL FOR THIS SURVEY IS THE ESTABLISHED SECTION CORNERS ALONG THE CONSTRUCTION REFERENCE LINE & SECTION LINE
- VERTICAL CONTROL
  - LEVEL DATUM IS MEAN SEA LEVEL (U.S.C. & G.S.)

STA. 117+17.89 END INCIDENTAL CONSTRUCTION  
STA. 114+00.00 END CONSTRUCTION & BEGIN INCIDENTAL CONSTRUCTION  
F.A. PROJ. NO. STP-270C(032)CI

END BRIDGE STA. 107+95.11  
BRIDGE LENGTH 245'-2 5/8"  
BEGIN BRIDGE STA. 105+49.89

STA. 102+00.00 BEGIN CONSTRUCTION & END INCIDENTAL CONSTRUCTION  
F.A. PROJ. NO. STP-270C(032)CI

STA. 100+00.00 BEGIN INCIDENTAL CONSTRUCTION



PROJECT LENGTHS BASED ON CRL

**SCALES**

PLAN	1"=50'
PROFILE HOR.	1"=50'
VER.	1"=5'
LAYOUT MAP	1"=5,280'

**CONVENTIONAL SIGNS**

- PROPOSED ROAD
- RAILROADS
- RANGE & TOWNSHIP
- SECTION LINES
- QUARTER SECTION LINES
- FENCES
- GROUND LINE
- EXISTING ROADS
- BASE LINE
- GRADE LINES
- TELEPHONE & TELEGRAPH
- POWER LINES
- OIL WELLS
- BUILDINGS
- DRAINAGE STRUCTURES-IN PLACE
- DRAINAGE STRUCTURES-NEW
- RIGHT-OF-WAY LINES-EXISTING
- RIGHT-OF-WAY LINES-NEW
- RIGHT-OF-WAY MARKERS-IN PLACE
- RIGHT-OF-WAY MARKERS-REMOVE & RESET
- RIGHT-OF-WAY MARKERS-NEW
- CONTROLLED ACCESS
- RIGHT-OF-WAY FENCE

ROADWAY LENGTH	954.78 FT.	0.181 MI.
BRIDGE LENGTH	245.22 FT.	0.046 MI.
PROJECT LENGTH	1200.00 FT.	0.227 MI.
EXCEPTIONS	NONE	
EQUATIONS		

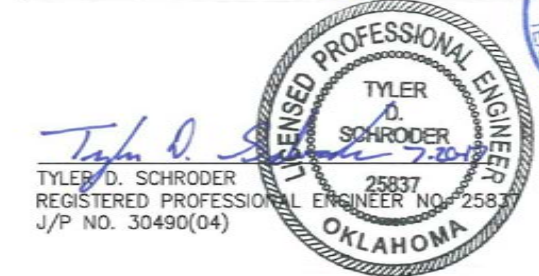
DATE April 17, 2017

COMM. DIST. 1 [Signature]

COMM. DIST. 2 [Signature]

COMM. DIST. 3 [Signature]

ATTEST Wendell Johnson  
COUNTY CLERK



**CIRCUIT ENGINEERING DIST. 8**

2901 N. VAN BUREN  
ENID, OK 73703  
(580) 237-4810

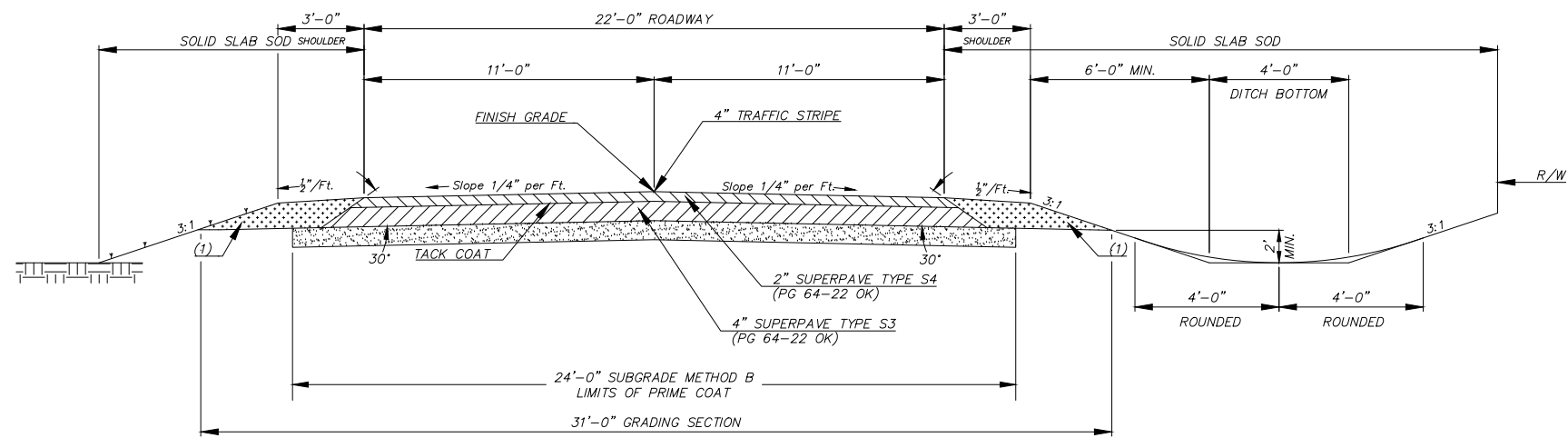
OKLAHOMA DEPARTMENT OF TRANSPORTATION	DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
DATE APPROVED _____	DATE APPROVED _____
BY _____	BY _____
CHIEF ENGINEER	DIVISION ADMINISTRATION
SWO.	F.A. PROJECT NO. STP-270C(032)CI
	SHEET NO. 0001

"2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION-ENGLISH GOVERN, APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, JANUARY 4, 2010."

JACK STRAIN - COUNTY COMMISSIONER  
DISTRICT NO. 3

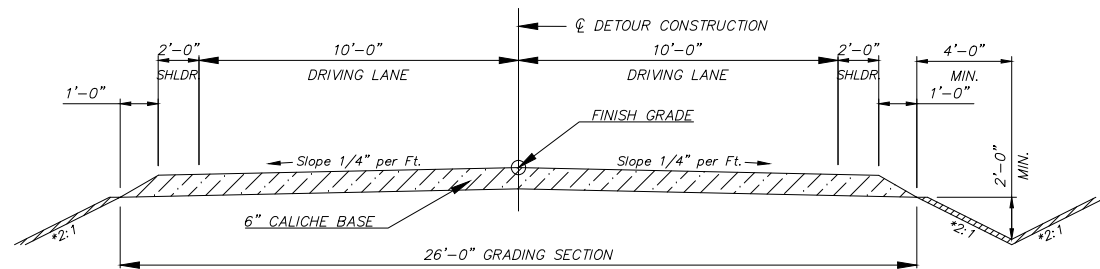
TYLER D. SCHRODER, P.E. 25837  
CIRCUIT ENGINEERING DISTRICT 8  
2901 N. VAN BUREN  
ENID, OK. 73703

ROBERT PAYAO  
LOCAL GOVERNMENT COORDINATION DIVISION



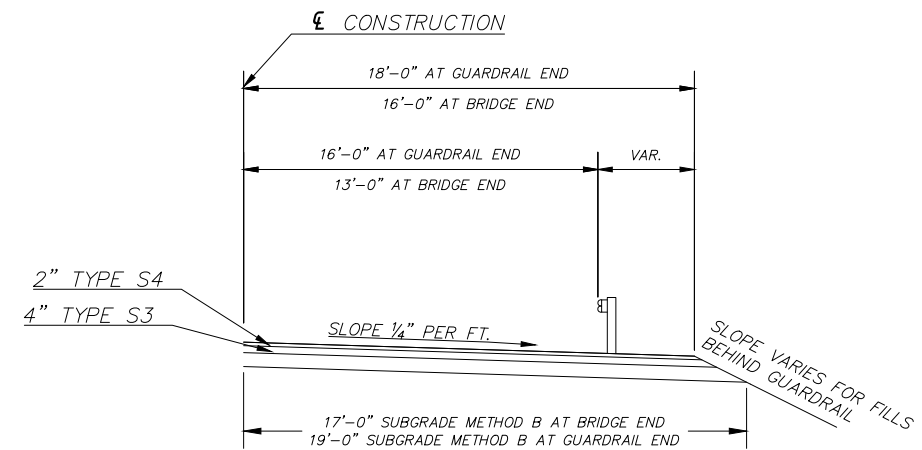
TYPICAL SECTION  
STA. 102+00.00 TO 114+00.00

(1) SHOULDERING UP WILL BE INCLUDED  
IN THE EARTHWORK PAY ITEM.



TYPICAL SECTION (DETOUR)  
STA. 100+00.00 TO 117+17.89

\*SEE CROSS SECTIONS



SHOULDER WIDENING FOR GUARDRAIL

GENERAL CONSTRUCTION NOTES (BRIDGE)

ALL CONSTRUCTION AND MATERIALS SHALL COMPLY WITH THE 2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION ENGLISH VERSION, EXCEPT AS MODIFIED BY THE PLANS AND SPECIAL PROVISIONS.

THE BRIDGE SITE WILL BE OPEN TO ALL PUBLIC TRAFFIC DURING CONSTRUCTION, ACCESS WILL BE OPEN TO LOCAL TRAFFIC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TRAFFIC CONTROL. ALL SIGNS, BARRICADES, LIGHTS, AND OTHER TRAFFIC CONTROL DEVICES AND MEASURES, ETC. SHALL BE PROVIDED IN ACCORDANCE WITH THE STANDARDS SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION AS REVISED, AS SHOWN ON THE TCS STANDARDS AND ON DETAIL SHEETS. ALL CONSTRUCTION SIGNS WITH (10) SQUARE FEET OR MORE WILL BE DOUBLE POSTED. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR SIGNING THE DETOUR.

ABUTMENT PILING CAPACITY:

THE MAXIMUM FACTORED PILE LOAD FOR EACH HP 12X53 PILE IS 86.5 TONS. ALL PILE SHALL BE AASHTO M270 GRADE 50.

THE FOLLOWING FORMULA (GATES EQUATION) SHALL BE USED TO DETERMINE THE AXIAL LOAD RESISTANCE OF THE DRIVEN FOUNDATION PILES:

$$\text{AXIAL LOAD RESISTANCE} = \phi [(0.875 \sqrt{E} \text{ LOG}_{10}(10N)) - 50] \text{ (TONS)}$$

WHERE:

$\phi$  = RESISTANCE FACTOR OF 0.4

E = ENERGY PRODUCED BY THE HAMMER PER BLOW IN FOOT-POUNDS. FOR GRAVITY AND SINGLE ACTING DIESEL HAMMERS, THE VALVE IS BASED ON THE ACTUAL RAM STROKE OBSERVED IN THE FIELD AND MEASURED IN FEET MULTIPLIED BY THE RAM WEIGHT IN POUNDS.

N = AVERAGE NUMBER OF HAMMER BLOWS PER INCH OF PILE PENETRATION FOR THE LAST 10 TO 20 BLOWS DELIVERED TO THE PILE HEAD.

THE ABOVE FORMULA IS ONLY APPLICABLE WHEN:

- THE PILE DRIVING HAMMER HAS A FREE FALL (GRAVITY & SINGLE ACTING HAMMERS ONLY).
- THE HEAD OF THE PILE IS NOT BROOMED, CRUSHED OR OTHERWISE DAMAGED.
- THE PENETRATION IS QUICK AND UNIFORM.
- THERE IS NO APPRECIABLE REBOUND OF THE HAMMER, AND
- A FOLLOWER IS NOT USED.

THE NUMBER OF BLOWS PER INCH OF PILE PENETRATION MAY BE MEASURED EITHER DURING INITIAL DRIVING OR BY RE-DRIVING WITH A WARM HAMMER OPERATED AT FULL ENERGY AFTER A PILE SET PERIOD, AS DETERMINED BY THE ENGINEER.

IF WATER JETS ARE USED IN CONNECTION WITH THE DRIVING, DETERMINE THE AXIAL LOAD RESISTANCE BY THE FORMULA SHOWN ONLY AFTER THE JETS HAVE BEEN WITHDRAWN.

PAY ITEM NOTES

(F-50) INCLUDES COST OF 4 TYPE 1 CODE 3 DELINEATORS (AMBER COLOR).

- (1) PAYMENT FOR THIS ITEM WILL BE BASED ON PLAN QUANTITY. SEE 2009 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, "PLAN QUANTITIES" SECTION 109.01(B).
- (2) SHALL INCLUDE ALL TRAFFIC CONTROL DEVICES NECESSARY TO REGULATE TRAFFIC DURING CONSTRUCTION. THIS ITEM SHALL BE PAID FOR AS LUMP SUM DUE TO THE MINOR EXTENT OF CONSTRUCTION FOR THIS PROJECT. ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH TCS STANDARDS AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.
- (3) ITEM "REMOVAL OF EXISTING BRIDGE STRUCTURE" CONSISTS OF REMOVAL AND DISPOSAL OF 5-42' PAN GIRDER SPANS X 29' WIDE AT APPROXIMATE STA. 106+75. THE PAY ITEM ALSO INCLUDES THE REMOVAL OF THE CONCRETE SLOPE WALL AROUND THE EXISTING ABUTMENTS. THE REMOVAL SHALL BE IN ACCORDANCE WITH SECTION 619.04(B)2 OF THE SPECIFICATIONS AND IN A MANNER APPROVED BY THE ENGINEER. THE STRUCTURE AND MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR. INCLUDES THE COST TO REMOVE THE METAL APPROACH RAIL AND STACK ON R/W TO BECOME PROPERTY OF THE COUNTY.
- (4) CLSM BACKFILL SHALL REPLACE GRANULAR BACKFILL ON STANDARD CB26..32-C-SK30-ABUT-MISC-01E. QUANTITY INCLUDES 10 C.Y. TO BRING THE BACKFILL 6" BELOW THE FINISH GRADE.
- (5) PRICE BID TO INCLUDE THE COST OF BENT PILE ENCASEMENT AS SHOWN ON STD. HP1-2 AND SHALL EXTEND 4'-0" BELOW GROUND LINE AND EXTEND 10" ABOVE GROUND LINE. INCLUDES THE COST OF EXCAVATION, FORMS, CLASS A CONCRETE, AND WELDED WIRE FABRIC REINFORCING STEEL. SLOP TOP OF ENCASEMENT TO DRAIN.
- (6) PRICE BID TO INCLUDE THE COST OF PAINTING ALL EXPOSED STEEL OF THE PILE BENTS WITH A IZ-E-U PAINT SYSTEM IN ACCORDANCE WITH SECTION 512 OF THE STANDARD SPECIFICATIONS. ALL STEEL SHALL BE PAINTED PRIOR TO PLACEMENT OF CONCRETE FOR PILE ENCASEMENT AND PIER CAPS.

PAY QUANTITIES

200 BRIDGE PCB 80'-80'-80' SPAN TYPE III, CONVENTIONAL ABUTMENTS, 30° SKEW, 26'-0" CL. RDY, TR3 RAILS				
ITEM		DESCRIPTION	UNIT	QUANTITY
501(B)	1307	SUBSTRUCTURE EXCAVATION COMMON	(1) C.Y.	200.00
501(G)	6309	CLSM BACKFILL	(1)(4) C.Y.	98.00
503(A)	1312	PRESTRESSED CONCRETE BEAMS (TYPE III)	(1) L.F.	717.00
504(B)	1305	SAW-CUT GROOVING	(1) S.Y.	591.20
504(C)	6250	SEALED EXPANSION JOINT	(1) L.F.	66.12
504(D)	6239	CONCRETE RAIL (TR3)	(1) L.F.	553.40
506(A)	1322	STRUCTURAL STEEL	(1)(6) LB.	3,820.00
507(A)	6172	WEATHERING STEEL FIXED BEARING ASSEMBLY	(1) EA.	9.00
507(B)	6176	WEATHERING STEEL EXP. BEARING ASSEMBLY	(1) EA.	9.00
509(A)	1326	CLASS AA CONCRETE	(1) C.Y.	187.20
509(B)	1328	CLASS A CONCRETE	(1) C.Y.	125.60
511(A)	1332	REINFORCING STEEL	(1) LB.	66,130.00
514(A)	6010	PILES, FURNISHED (HP10X42)	L.F.	224.00
514(A)	6011	PILES, FURNISHED (HP12X53)	L.F.	530.00
514(A)	6016	PILES, FURNISHED (HP14X89)	L.F.	816.00
514(B)	6292	PILES, DRIVEN (HP10X42)	L.F.	224.00
514(B)	6294	PILES, DRIVEN (HP12X53)	L.F.	530.00
514(B)	6297	PILES, DRIVEN (HP14X89)	(5) L.F.	816.00
514(L)	6220	PILE SPLICE, H-PILE (NON-BIDDABLE)	EA.	1.00
601(B)	1353	TYPE I-A PLAIN RIPRAP	TON	887.00
601(C)	1355	TYPE I-A FILTER BLANKET	TON	296.00
613(H)	6204	6" PERFORATED PIPE UNDERDRAIN ROUND	L.F.	60.00
613(I)	6207	6" NON-PERFORATED PIPE UNDERDRAIN ROUND	L.F.	30.00
619(D)	1397	REMOVAL OF EXISTING BRIDGE STRUCTURE	(3) L. SUM	1.00
623(F)	5686	GUARDRAIL ANCHOR UNIT (TYPE D-BF)	EA.	4.00
623(F)	6029	GUARDRAIL ANCHOR UNIT (TYPE A)	(F-50) EA.	4.00
880(J)	8905	CONSTRUCTION TRAFFIC CONTROL	(2) L. SUM	1.00

GUARDRAIL SCHEDULE

SHEET	STATION TO STATION	ANCHOR UNITS		TOTAL LENGTH OF RAIL
		TYPE A	TYPE D-BF	L.F.
		EA.	EA.	
5	104+27.96 TO 105+27.96 RT.	1.00	1.00	100.00
5	104+42.49 TO 105+42.49 LT.	1.00	1.00	100.00
5	108+02.51 TO 109+02.51 RT.	1.00	1.00	100.00
5	108+17.04 TO 109+17.04 LT.	1.00	1.00	100.00
SHEET TOTALS		4.00	4.00	400.00

TEXAS COUNTY SAND CREEK

SUMMARY OF PAY QUANTITIES & GENERAL NOTES (BRIDGE)

GENERAL CONSTRUCTION NOTES

THIS PROJECT IS TO BE CONSTRUCTED WITHOUT CLOSING THE EXISTING ROAD TO LOCAL OR THROUGH TRAFFIC. SEE STANDARD SPECIFICATIONS FOR MAINTENANCE OF LOCAL TRAFFIC AND SHEET 25 FOR CONSTRUCTION TRAFFIC CONTROL DETAILS. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL CONSTRUCTION SIGNING IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND TCS STANDARDS. CONSTRUCTION SIGNS OVER 10 SQ. FT. SHALL BE DOUBLE POSTED.

THE CONTRACTOR SHALL GIVE WRITTEN NOTICE TO THE COUNTY, CED #8, AND ODOT DIV. 6 FOURTEEN (14) CALENDAR DAYS BEFORE ANY CONSTRUCTION OR DEMOLITION BEGINS ON THIS PROJECT.

THE CONTRACTOR SHALL MAINTAIN ALL EXISTING TRAFFIC CONTROL DEVICES SUCH AS STOP SIGNS, WARNING SIGNS, ETC. IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, COST TO BE INCLUDED IN PRICE BID FOR OTHER TRAFFIC CONTROL WORK.

NEW PAVEMENT MARKINGS SHALL BE DONE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND STATE STANDARDS.

ASPHALT SHALL BE LAID ONE LANE AT A TIME WITH SIGNING AS REQUIRED BY TCS3 IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. LIGHTS, SIGNS, AND BARRICADES SHALL BE MOVED AS WORK PROGRESSES. COST OF SIGNS SHALL BE INCLUDED IN PRICE BID FOR CONSTRUCTION TRAFFIC CONTROL. THE CONTRACTOR WILL BE RESPONSIBLE FOR FINAL SHAPING OF SHOULDERS AND SLOPES.

ALL CONSTRUCTION AND MATERIALS SHALL COMPLY WITH THE 2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION ENGLISH VERSION, EXCEPT AS MODIFIED BY THE PLANS AND SPECIAL PROVISIONS.

IN ACCORDANCE WITH THE OKLAHOMA UNDERGROUND FACILITIES DAMAGE PREVENTION ACT THE CONTRACTOR SHALL NOTIFY THE OKLAHOMA ONE-CALL SYSTEM, INC. 48 HOURS "CALL OKIE" 1-800-522-6543 OR 811.

GENERAL CONSTRUCTION NOTES-EROSION CONTROL

GRASS: ALL DISTURBED AREAS AROUND STRUCTURES ONLY SHALL BE SODDED WITH BERMUDA SOLID SLAB SOD IN ACCORDANCE WITH SECTION 230.04(A) OF THE STANDARD SPECIFICATIONS.

FERTILIZER: AREAS ON WHICH BERMUDA SOLID SLAB SOD IS TO BE PLANTED SHALL HAVE 10-20-10 FERTILIZER APPLIED AT THE RATE OF 200 LBS. PER 1,000 SQ. YDS. OF SODDING, ONE HALF AFTER WATERING THE PREPARED SURFACE AND PRIOR TO PLANTING OF SOD, AND ONE HALF AFTER SODDING IS COMPLETED WITH WATERING USED TO INCORPORATE THE FERTILIZER INTO THE SOIL.

WATERING: ALL AREAS TO BE SODDED SHALL BE WATERED BEFORE SOD IS PLANTED TO OBTAIN ADEQUATE SOIL MOISTURE TO A DEPTH OF AT LEAST 5".

SEASONAL PLANTING RESTRICTIONS:

AT THE BEGINNING OF TURFING OPERATIONS, ANY AREAS INCLUDED IN PLANNED QUANTITIES THAT HAVE GROWN A SATISFACTORY VOLUNTEER TURF OF PERENNIAL GRASS, AS DETERMINED BY THE ENGINEER SHALL NOT BE SODDED.

UTILITIES:

TRI COUNTY ELECTRIC LYLE MATHIS 580-652-2418

PANHANDLE TELEPHONE JEFF FUERSTENAU 580-651-9710

THE CONTRACTOR SHALL NOTIFY PANHANDLE TELEPHONE (JEFF FUERSTENAU 580-651-9710) ONE WEEK PRIOR TO WORKING AROUND THEIR LINE.

ENVIRONMENTAL MITIGATION NOTES:

MIGRATORY BIRD NOTE: MIGRATORY BIRDS ARE PROTECTED BY THE FEDERAL MIGRATORY BIRD TREATY ACT. MANY BIRDS COMMONLY USE BRIDGES AND CULVERTS FOR NESTING. THE NESTING SEASON FOR MOST MIGRATORY BIRD SPECIES EXTENDS FROM APRIL 1 TO AUGUST 31. MIGRATORY BIRD NESTING USE OF THE NS-63 SAND CREEK BRIDGE (NBI:17549) WAS OBSERVED. PAINTING, REPAIR, RETROFIT, REHABILITATION OR DEMOLITION OF THE EXISTING BRIDGE/STRUCTURES SHALL BE CONDUCTED BETWEEN SEPTEMBER 1, AND MARCH 31, WHEN MIGRATORY BIRD NESTS ARE NOT OCCUPIED. IF PAINTING, REPAIR, RETROFIT, REHABILITATION OR DEMOLITION CANNOT BE COMPLETED BETWEEN SEPTEMBER 1 AND MARCH 31, THE BRIDGE SHALL BE PROTECTED FROM NEW NEST ESTABLISHMENT PRIOR TO APRIL 1, BY MEANS THAT DO NOT RESULT IN BIRD DEATH OR INJURY. OPTIONS INCLUDE THE EXCLUSION OF ADULT BIRDS FROM SUITABLE NEST SITES ON OR WITHIN A STRUCTURE BY THE PLACEMENT OF WEATHER-RESISTANT POLYPROPYLENE NETTING WITH 0.25-INCH OR SMALLER OPENINGS, PRIOR TO APRIL 1. METHODS OTHER THAN NETTING MUST BE PRE-APPROVED BY THE ODOT BIOLOGIST.

PAY QUANTITY NOTES

(R-11) THE QUANTITIES ESTIMATED FOR TEMPORARY EROSION AND SEDIMENT CONTROL IS 3.15 ACRES.

(R-31) PRICE BID TO INCLUDE COST OF 1015 GALLONS OF PRIME COAT, MEETING THE REQUIREMENTS OF SECTION 408 OF THE STANDARD SPECIFICATIONS, AND ESTIMATED AT 0.35 GAL. PER SQ. YD. ON TOP OF COMPLETED SUBGRADE, AND 0.25 GAL. PER SQ. YD. ON TOP OF AGGREGATE BASE. THE ACTUAL CUTBACK PRIME COAT REQUIRED FOR PLACEMENT OPERATIONS WILL BE DETERMINED BY THE CONTRACTOR, AND SHALL CONSIDER THE RESIDUE FROM DISTILLATION PERCENTAGE SHOWN IN SECTION 708.03 OF THE STANDARD SPECIFICATIONS.

(R-32) ESTIMATED AT 112 LBS. PER SQ. YD. PER 1" THICK.

(R-41) QUANTITY INCLUDES AN ESTIMATED 10 C.Y. TO BE USED AS DIRECTED BY THE ENGINEER.

(R-49) TO BECOME THE PROPERTY OF AND BE DISPOSED OF BY THE CONTRACTOR IN A MANNER APPROVED BY THE ENGINEER.

(1) THIS PAY ITEM TO INCLUDE CLEARING AND GRUBBING, WIDENING AND EXCAVATION. INCLUDES PLACEMENT OF ADDITIONAL FILL ON DRIVES, MINIMUM OF 1-0" COVER OVER CGMP'S AS DIRECTED BY THE ENGINEER. ESTIMATED 8 C.Y. EXCESS EXCAVATION ON THE MAINLINE. INCLUDES SHOULDERING UP AND WIDENING AS REQUIRED TO OBTAIN 31' GRADING SECTION. INCLUDES ALL COSTS TO REMOVE, STOCKPILE, AND REPLACE THE TOPSOIL ON THE FINISHED GRADING SLOPES IN ACCORDANCE WITH SECTION 205 OF THE STANDARD SPECIFICATIONS. PRICE BID ALSO INCLUDES COST OF 0-46-0 FERTILIZER ESTIMATED AT 150 LBS. PER ACRE. ANY MATERIAL NOT SUITABLE FOR SHOULDERING UP TO BE DISPOSED OF IN A MANNER APPROVED BY THE ENGINEER. PRICE BID INCLUDES CONSTRUCTION, MAINTENANCE, AND REMOVAL OF THE DETOUR. INCLUDES AN ESTIMATED 3,725.00 C.Y. OF BORROW.

(2) PRICE BID TO INCLUDE COST OF SILT REMOVAL.

(3) ESTIMATED QUANTITY ONLY TO BE USED FOR EROSION AND SEDIMENT CONTROL IN A MANNER APPROVED BY THE ENGINEER (SEE STANDARDS. TSC2-3 & TSD-2).

(4) SOLID SLAB QUANTITIES TO BE FIELD MEASURED. PRICE BID TO INCLUDE WATERING AT 40 GAL. PER SQ. YD. AND 10-20-10 FERTILIZER AT 200 LBS. PER 1000 SQ. YDS. CONTRACTOR WILL SUPPLY SUFFICIENT WATER TO PRODUCE ADEQUATE GRASS GROWTH AS APPROVED BY THE ENGINEER. SODDING TO BE PLACED ON DISTURBED AREAS AROUND BRIDGE AND STRUCTURES, AS DIRECTED BY THE ENGINEER.

(5) THE 2- 48" CGSP AND CALICHE BASE SHALL BECOME PROPERTY OF THE COUNTY UPON COMPLETION OF THE PROJECT AND REMOVAL OF THE DETOUR. THE 2- 48" CGSP AND CALICHE BASE SHALL BE STOCKPILED ON THE RIGHT-OF-WAY TO BE REMOVED BY THE COUNTY FORCES.

(6) ESTIMATED AT 0.06 GAL. PER SQ. YD. PRIOR TO DILUTION.

(7) QUANTITY SHOWN INCLUDES 2,400.00 L.F. TRAFFIC STRIPE (MULTI-POLY)(YELLOW). TRAFFIC STRIPE (MULTI-POLY) TO BE MEASURED BY THE L.F. OF 4" WIDE TRAFFIC STRIPE OF THE EQUIVALENT AMOUNT OF 4" WIDE STRIPE WHEN A NARROWER OR WIDER STRIPE IS SPECIFIED IN THE PLANS OR STANDARD DRAWINGS. 2,400.00 L.F. OF THE TRAFFIC STRIPE (YELLOW) IS AN ESTIMATED QUANTITY FOR NO PASSING.

(8) IN ADDITION TO THE RESPONSIBILITIES SHOWN IN THE SPECIFICATIONS. CONTRACTOR TO PROVIDE STATIONING FOR ASPHALT FIELD CALCULATIONS.

(9) PRICE BID TO INCLUDE THE COST OF SAWING THE PAVEMENT AT THE BOP AND EOP.

REVISIONS DESCRIPTION	DATE
1 REVISED PAY ITEM NO.	9/27/2017

30490(04) PAY QUANTITIES			
0100 ROADWAY			
ITEM NO.	DESCRIPTION	UNIT	QUANT.
202(H) 0185	EARTHWORK	(1) L. SUM	1.00
221(C) 2801	TEMPORARY SILT FENCE	(2)(3) L.F.	1,600.00
221(F) 0100	TEMPORARY SILT DIKE	(2)(3) L.F.	280.00
230(A) 2806	SOLID SLAB SODDING	(4) S.Y.	15,254.00
233(A) 2817	VEGETATIVE MULCHING	(R-11) AC	3.15
305 0125	CALICHE BASE	(5) C.Y.	658.00
310(B) 0149	SUBGRADE METHOD B	S.Y.	2,900.00
407(B) 0250	TACK COAT	(6) GAL.	144.00
411(B) 5945	SUPERPAVE, TYPE S3 (PG 64-22 OK)	(R-31)(R-32) TON	665.00
411(C) 5960	SUPERPAVE, TYPE S4 (PG 64-22 OK)	(R-32) TON	315.00
509(D) 0325	CLASS C CONCRETE	(R-41) C.Y.	10.00
613(B) 0694	48" CORR. GALV. STEEL PIPE	(5) L.F.	228.00
619(B) 4728	REMOVAL OF ASPHALT PAVEMENT	(9)(R-49) S.Y.	2,365.00
856(A) 8530	TRAFFIC STRIPE (MULTI-POLY)(4" WIDE)	(7) L.F.	2,400.00

30490(04) PAY QUANTITIES			
0600 STAKING			
ITEM NO.	DESCRIPTION	UNIT	QUANT.
642(B) 0096	CONSTRUCTION STAKING LEVEL II	(8) L. SUM	1.00

30490(04) PAY QUANTITIES			
0640 CONSTRUCTION			
ITEM NO.	DESCRIPTION	UNIT	QUANT.
220 2800	SWPPP MANAGEMENT AND DOCUMENTATION	L. SUM	1.00
641 1399	MOBILIZATION	L. SUM	1.00

SUMMARY OF MAINLINE SURFACING QUANTITIES*					
STATION EXTENT	LENGTH	SUBGRADE METHOD B	TACK COAT	SUPERPAVE TYPE S3	SUPERPAVE TYPE S4
	FT.	S.Y.	GAL.	TONS	TONS
102+00.00 TO 105+49.89	349.89	1,110.00	56.00	259.00	122.00
107+95.11 TO 114+00.00	604.89	1,790.00	88.00	406.00	193.00
SHEET TOTALS	954.78	2,900.00	144.00	665.00	315.00

\* INCLUDES QUANTITIES FOR GUARDRAIL WIDENING.

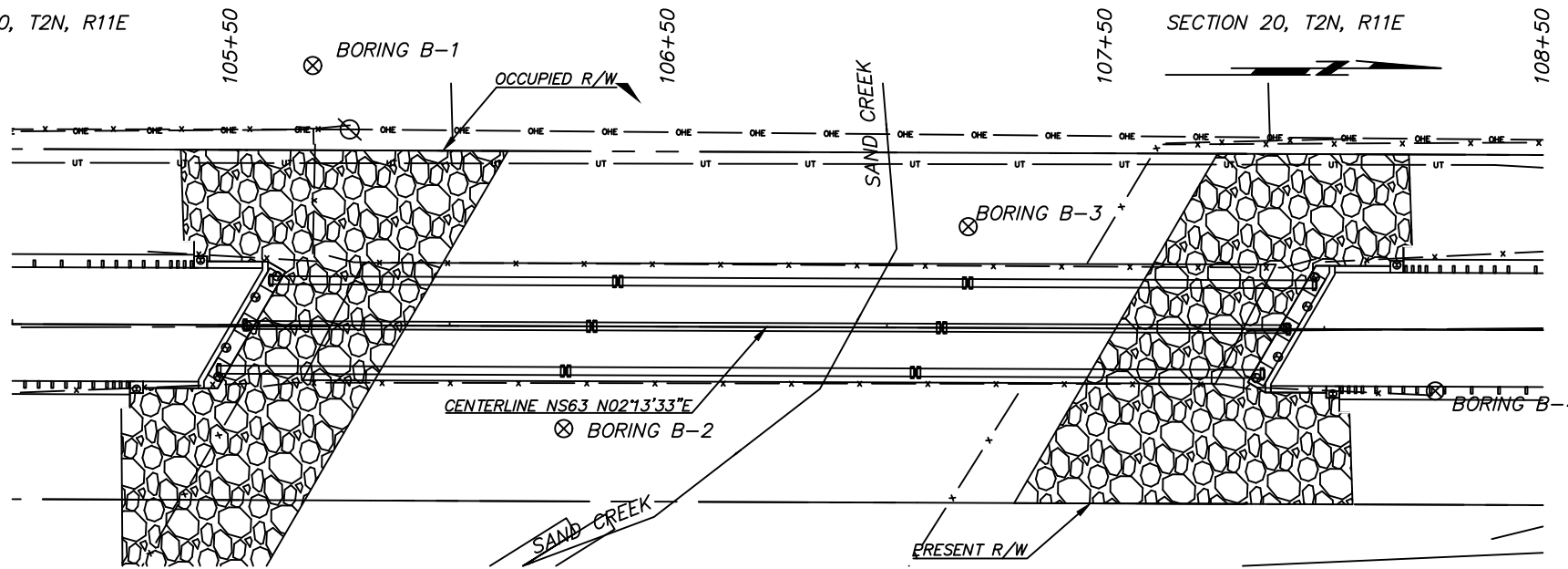
COUNTY TO BE RESPONSIBLE FOR THE FOLLOWING:

1. ACQUIRING ALL REQUIRED R/W.
2. REMOVAL AND RESETTING ALL FENCES ON RIGHT-OF-WAY LINES.
3. RELOCATING ALL UTILITIES.

TEXAS COUNTY	SAND CREEK
SUMMARY OF PAY QUANTITIES AND GENERAL NOTES (ROADWAY)	
J/P NO. 30490(04)	SHEET NO. AR01

SECTION 20, T2N, R11E

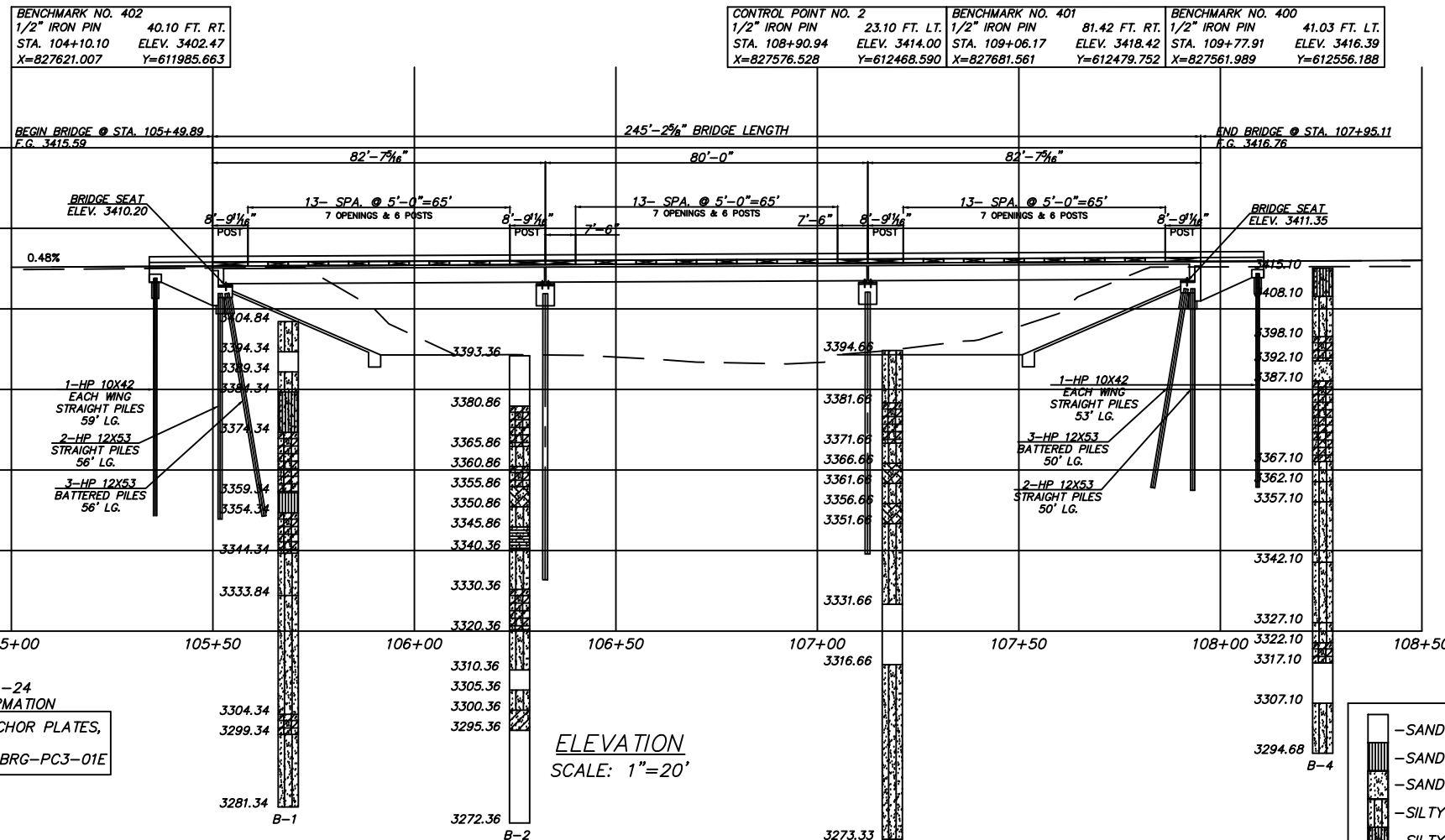
SECTION 20, T2N, R11E



PLAN  
SCALE: 1"=20'

SECTION 21, T2N, R11E

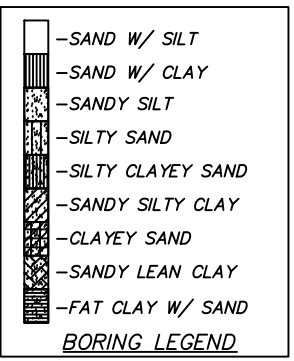
SECTION 21, T2N, R11E



ELEVATION  
SCALE: 1"=20'

NOTE:  
SEE SHEET NO. 21-24  
FOR BORING INFORMATION  
\*USE SLOTTED ANCHOR PLATES,  
SEE STD.  
CB26-C-SK0..30-BRG-PC3-01E

B-1 PENETROMETER TEST		B-2 PENETROMETER TEST		B-3 PENETROMETER TEST		B-4 PENETROMETER TEST								
39/6"	50/5"	- 3330.34	40/6"	50/4.5"	- 3336.86	46/6"	50/4.25"	- 3302.86	24/6"	50/5.5"	- 3313.66	24/6"	50/2.5"	- 3319.10
22/6"	50/6"	- 3325.84	31/6"	50/4.5"	- 3332.36	26/6"	50/6"	- 3282.36	38/6"	50/4.5"	- 3308.16	47/6"	50/4.5"	- 3304.10
42/6"	50/5"	- 3315.84	30/6"	50/4.75"	- 337.36	26/6"	50/5"	- 3277.36	49/6"	50/5"	- 3298.16		50/5"	- 3299.16
27/6"	50/4.25"	- 3310.84	41/6"	50/3.5"	- 3321.86	26/6"	50/6"	- 3272.36	49/6"	50/4"	- 3278.16		50/5"	- 3294.68
38/6"	50/3.75"	- 3300.34	44/6"	50/2"	- 3317.36									
27/6"	50/4.5"	- 3295.34	43/6"	50/6"	- 3312.36									
46/6"	50/4.5"	- 3290.34	38/6"	50/5.5"	- 3306.86									

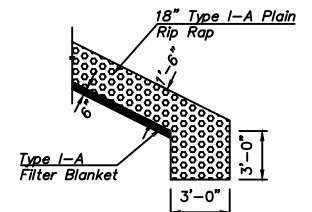


PAY QUANTITIES						
ITEM	DESCRIPTION	UNIT	ABUTMENT	SUPER STRUCTURE	PIER	QUANTITY
501(B)	1307	SUBSTRUCTURE EXCAVATION COMMON	C.Y.	200.00		200.00
501(C)	6309	CLSM BACKFILL	C.Y.	98.00		98.00
503(A)	1312	PRESTRESSED CONCRETE BEAMS (TYPE III)	L.F.		717.00	717.00
504(B)	1305	SAW-CUT GROOVING	S.Y.		591.20	591.20
504(C)	6250	SEALED EXPANSION JOINT	L.F.		66.12	66.12
504(D)	6239	CONCRETE RAIL (TR3)	L.F.	62.80	490.60	553.40
506(A)	1322	STRUCTURAL STEEL	LB.	960.00	2,860.00	3,820.00
507(A)	6172	WEATHERING STEEL FIXED BEARING ASSEMBLY	EA.	9.00		9.00
507(B)	6176	WEATHERING STEEL EXP. BEARING ASSEMBLY	EA.	9.00		9.00
509(A)	1326	CLASS AA CONCRETE	C.Y.	187.20		187.20
509(B)	1228	CLASS A CONCRETE	C.Y.	74.20		125.60
511(A)	1332	REINFORCING STEEL	C.Y.	10,440.00	51,250.00	4,440.00
514(A)	6010	PILES, FURNISHED (HP10X42)	L.F.	224.00		224.00
514(A)	6011	PILES, FURNISHED (HP12X53)	L.F.	530.00		530.00
514(A)	6011	PILES, FURNISHED (HP14X89)	L.F.		816.00	816.00
514(B)	6292	PILES, DRIVEN (HP10X42)	L.F.	224.00		224.00
514(B)	6294	PILES, DRIVEN (HP12X53)	L.F.	530.00		530.00
514(B)	6294	PILES, DRIVEN (HP14X89)	L.F.		816.00	816.00
514(L)	6220	PILE SPLICE, H-PILE (NON-BIDDABLE)	EA.	1.00		1.00
601(B)	1353	TYPE I-A PLAIN RIPRAP	TON	887.00		887.00
601(C)	1355	TYPE I-A FILTER BLANKET	TON	296.00		296.00
613(H)	0450	6" PERFORATED PIPE UNDERDRAIN ROUND	L.F.	60.00		60.00
613(I)	1096	6" NON-PERFORATED PIPE UNDERDRAIN ROUND	L.F.	30.00		30.00
619(D)	1397	REMOVAL OF EXISTING BRIDGE STRUCTURE	L. SUM		1.00	1.00
623(F)	5686	GUARDRAIL ANCHOR UNIT (TYPE D-BF)	EA.			4.00
623(F)	6029	GUARDRAIL ANCHOR UNIT (TYPE A)	EA.			4.00
880(J)	8905	CONSTRUCTION TRAFFIC CONTROL	L. SUM			1.00

**LOADING DATA**  
 ABUTMENT PILES (HP 12X53):  
 FACTOR PILE REACTION = 86.5 TONS/PILE. ALL ABUTMENT PILING SHALL BE DRIVEN THROUGH THE COMPACTED FILL. STEEL PILING SHALL BE DRIVEN TO POINT BEARING ON SOLID FOUNDATION MATERIAL UNTIL THE REQUIRED FACTOR PILE CAPACITY OF 86.5 TONS PER PILE IS OBTAINED.  
 PIERS (HP 14X89):  
 FACTORED PILE REACTION = 134.50 TONS/PILE

**HYDRAULIC DATA**  
 D.A. = 114.89 SQ. MI.  
 SCS CONTROLLED D.A. = 0.00 SQ. MI.  
 EFFECTIVE DRAINAGE AREA = 114.89 SQ. MI.  
 Q25 = 7,390.00 C.F.S.  
 V25 = 4.76 F.P.S.  
 Q25 CALC. B.W. 3,403.66 FT.  
 Q50 = 10,900.00 C.F.S.  
 V50 = 5.65 F.P.S.  
 Q50 CALC. B.W. 3,405.82 FT.  
 Q100 = 14,600.00 C.F.S.  
 V100 = 6.41 F.P.S.  
 Q100 CALC. B.W. 3,408.47 FT.  
 QO.T. = 27,600.00 C.F.S.  
 OVERTOPPING ELEV. (LOW) = 3,409.04 FT.  
 VO.T. (BRIDGE) = 6.83 F.P.S.  
 EXTREME HIGHWATER ON RECORD = N/A  
 MAXIMUM SCOUR DEPTH = 2.46 FT.

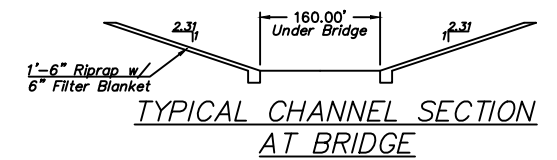
**DESIGN DATA**  
 CONCRETE (CLASS A) F'C=3,000 PSI  
 CONCRETE (CLASS AA) F'C=4,000 PSI  
 REINFORCING STEEL (GR 60) F\_Y=60,000 PSI  
 STRUCTURAL STEEL (GR 50W) F\_Y=50,000 PSI  
 LOADING: HL-93 20 PSF FUTURE WEARING SURFACE  
 5 PSF STAY-IN-PLACE FORMS  
 DESIGN SPECIFICATIONS - AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION WITH 2010 INTERIMS, EXCEPT AS MODIFIED BY CURRENT ODOT BRIDGE DIVISION DESIGN POLICIES.  
 ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.  
 LFD OPERATING RATING: HS 43.8



DETAIL OF TYPE I-A PLAIN RIPRAP

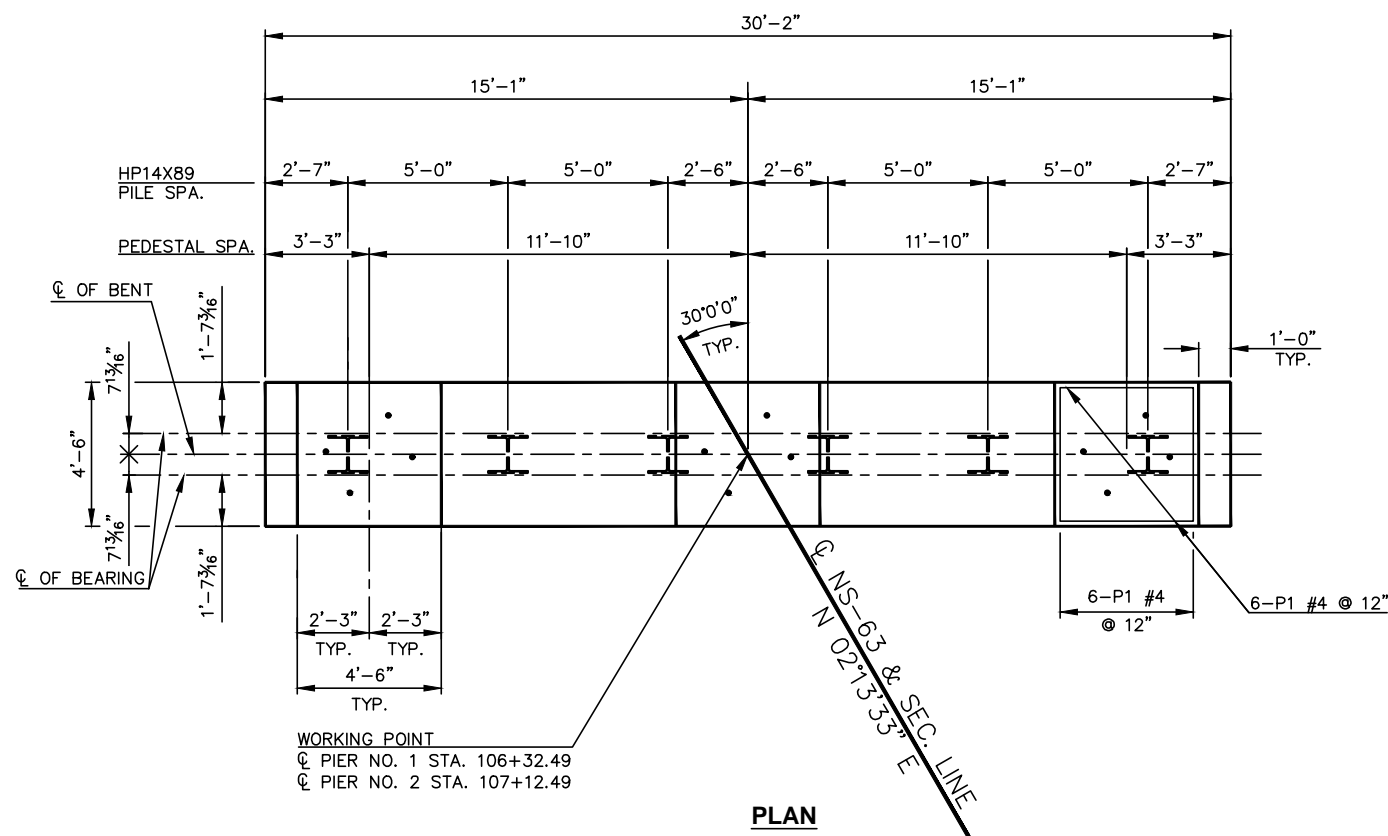
CONTRACTOR NOTE:  
EXTEND RIP RAP TO THE SECOND GUARDRAIL POST.

NOTE:  
"TOEING-IN" APPLIES TO THE ENTIRE LENGTH OF THE BASE OF RIPRAP.

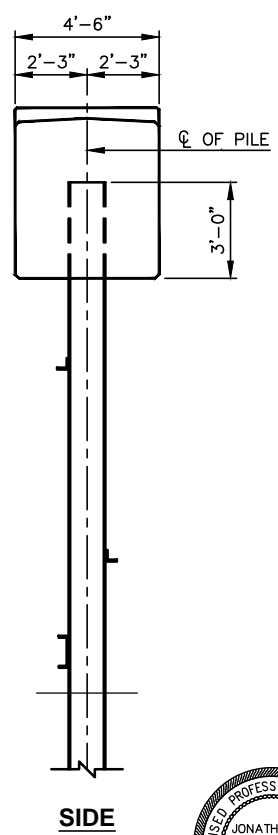
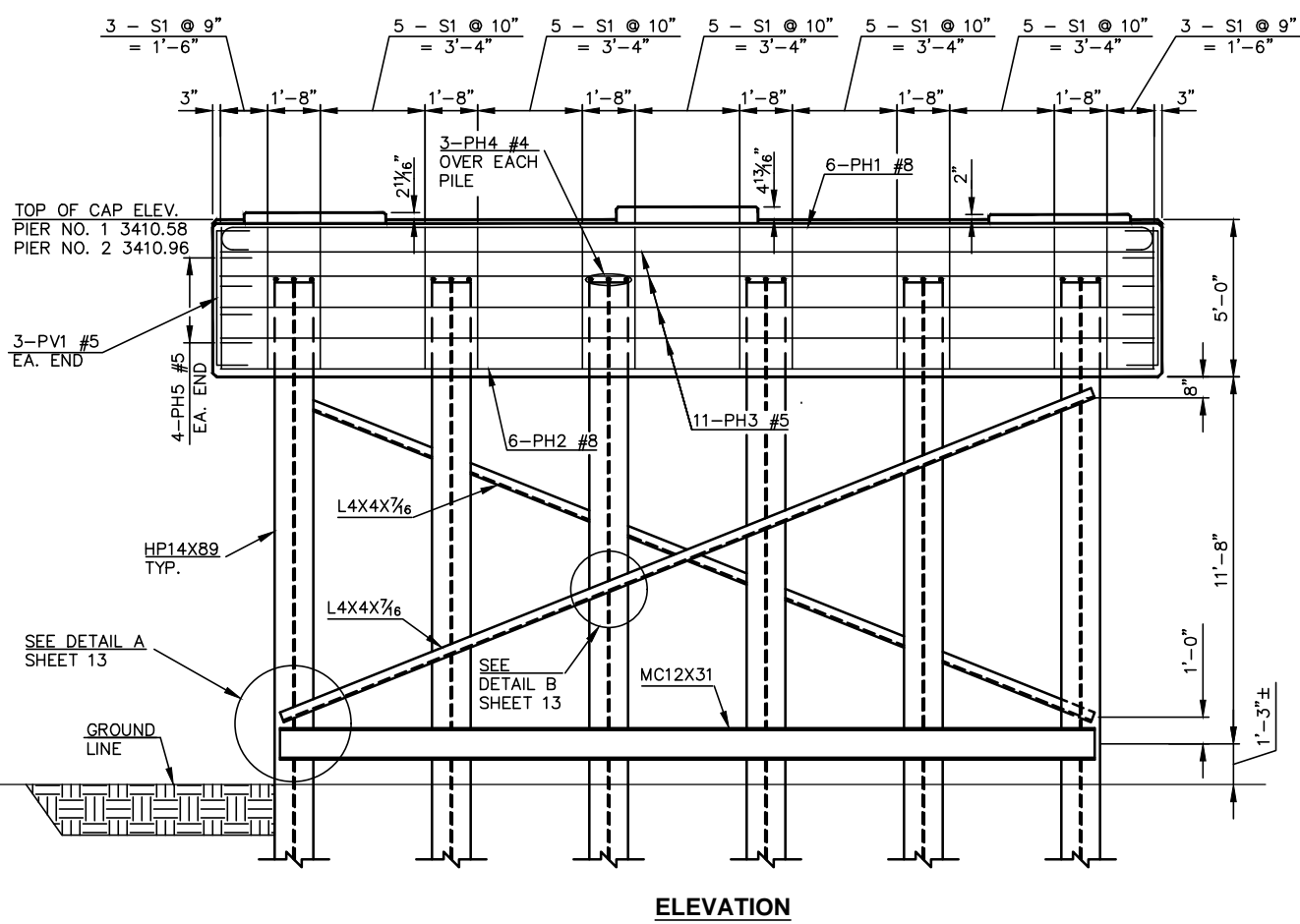


TEXAS COUNTY SAND CREEK  
 GENERAL PLAN & ELEVATION  
 CL STA. 106+72.50  
 80'-80'-80' TYPE III PCB SPAN W/26'-0" CL. RDY.  
 30 DEG. W/1'-1" TR3 CONC. RAILS  
 J/P NO. 30490(04) SHEET NO. B001

DESCRIPTION	REVISIONS	DATE



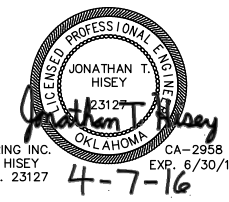
BENT QUANTITIES				
ITEM	UNIT	BENT NO. 1	BENT NO. 2	TOTAL
STRUCTURAL STEEL	L.B.	1,430	1,430	2,860
CLASS A CONCRETE	C.Y.	25.7	25.7	51.4
REINFORCING STEEL	L.B.	2,220	2,220	4,440
PILES, FURNISHED (HP14X89)	L.F.	426	390	816
PILES, DRIVEN (HP14X89)	L.F.	426	390	816



BENT BAR LIST				
ONE SHOWN, TWO REQUIRED				
PLAIN REINFORCING				
MARK	SIZE	NO.	FORM	LENGTH
P1	#4	36	BNT.	6'-2"
PH1	#8	6	BNT.	31'-8"
PH2	#8	6	STR.	29'-10"
PH3	#5	11	STR.	29'-10"
PH4	#4	18	BNT.	5'-4"
PH5	#5	8	BNT.	5'-9"
PV1	#5	6	BNT.	6'-1"
S1	#5	31	BNT.	18'-4"

NOTE:  
FOR TYPICAL SECTION THRU CAP, PEDESTAL PLAN,  
PILE SPLICE DETAIL AND BAR BENDS SEE SHEET 13.

PLOTTED: Friday, August 04, 2017 @ 11:43AM G:\projects\2015\1503010824-CED 8 Texas County Sand Creek Pier Design\5-Civil\CAD\Structural\BENT DETAILS 1 OF 2.dwg

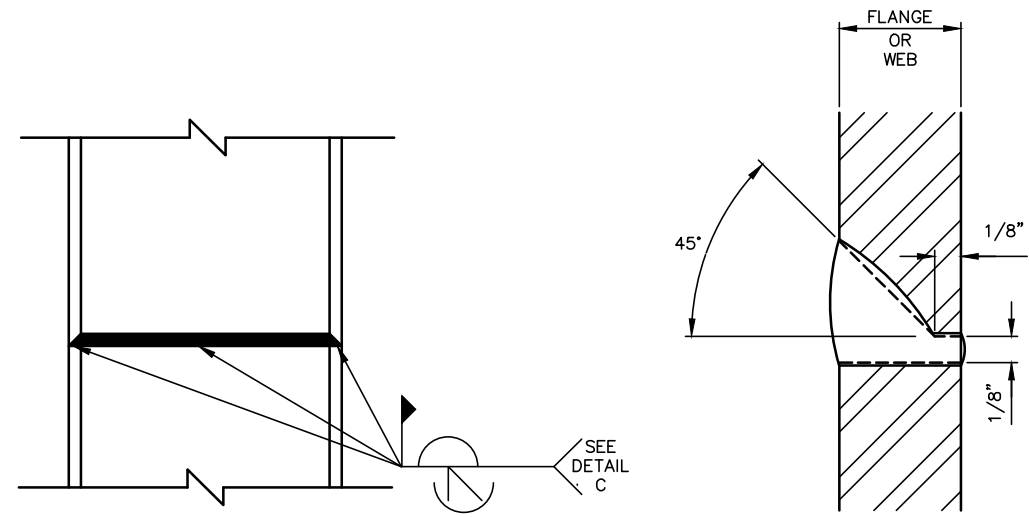


MKEC ENGINEERING INC.  
JONATHAN T. HISEY  
OKLA. REG. NO. 23127  
4-7-16

DESIGN	J.T.H.	NS-63 OVER SAND CREEK	TEXAS COUNTY
DRAWN	T.R.M.	<b>BENT DETAILS</b> <b>SHEET 1 OF 2</b>	
CHECKED	J.T.H.		
APPROV.	J.T.H.		
SQUAD	MKEC ENG.		
		JOB PIECE NO. 30490(04)	SHEET NO. B002



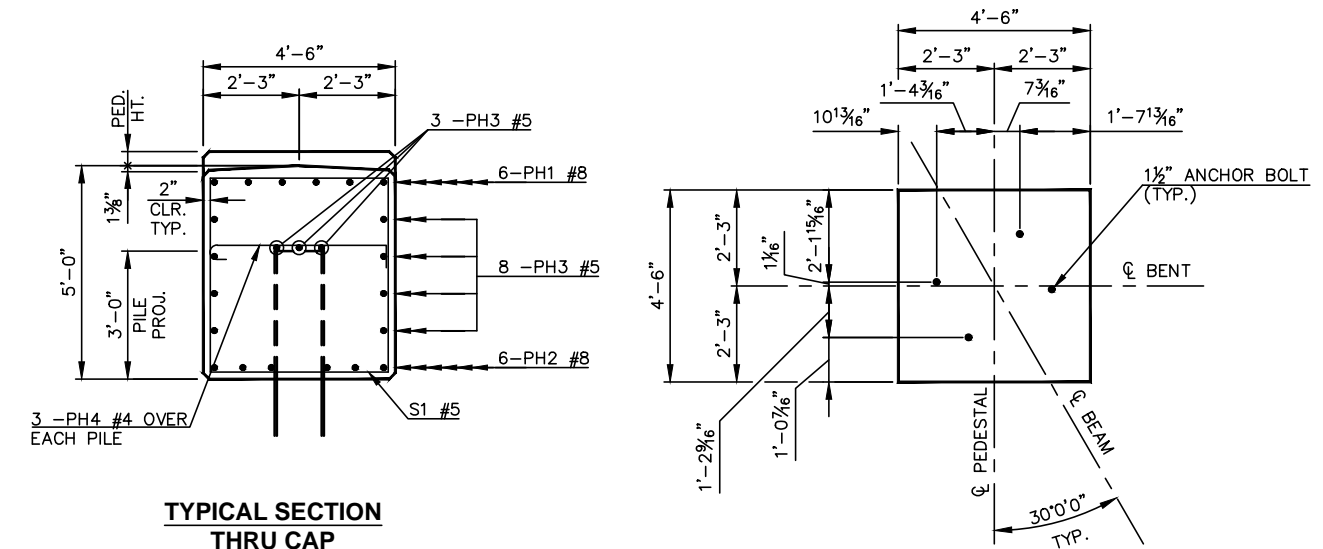
DESCRIPTION	REVISIONS	DATE



**WELD DETAIL**

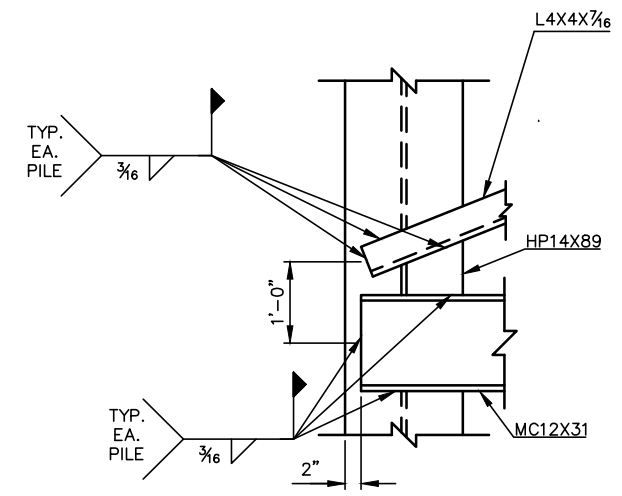
**DETAIL C**

**PILE SPLICE DETAIL**

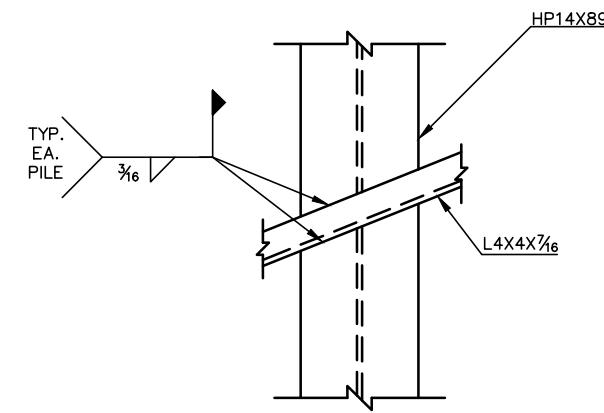


**TYPICAL SECTION THRU CAP**

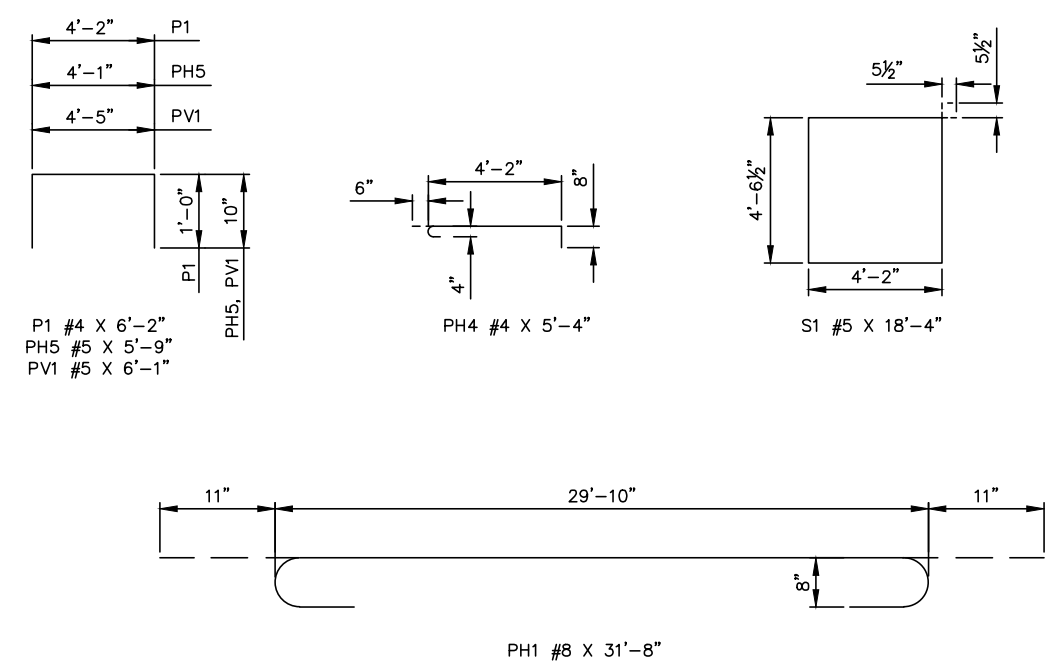
**PEDESTAL PLAN**



**DETAIL A**



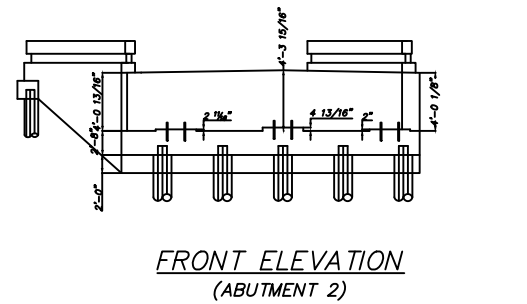
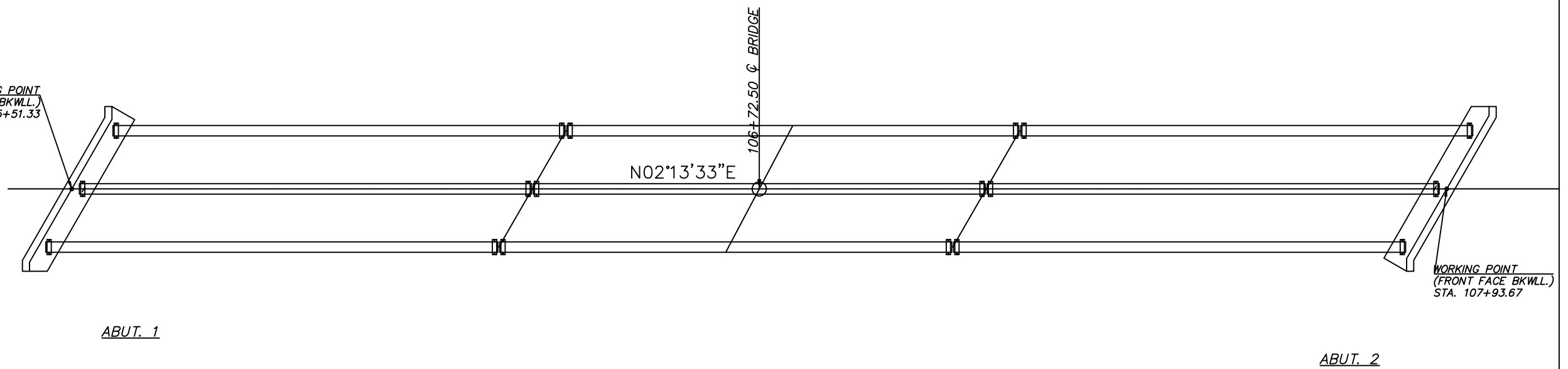
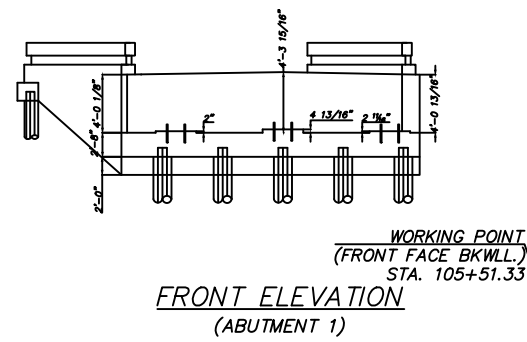
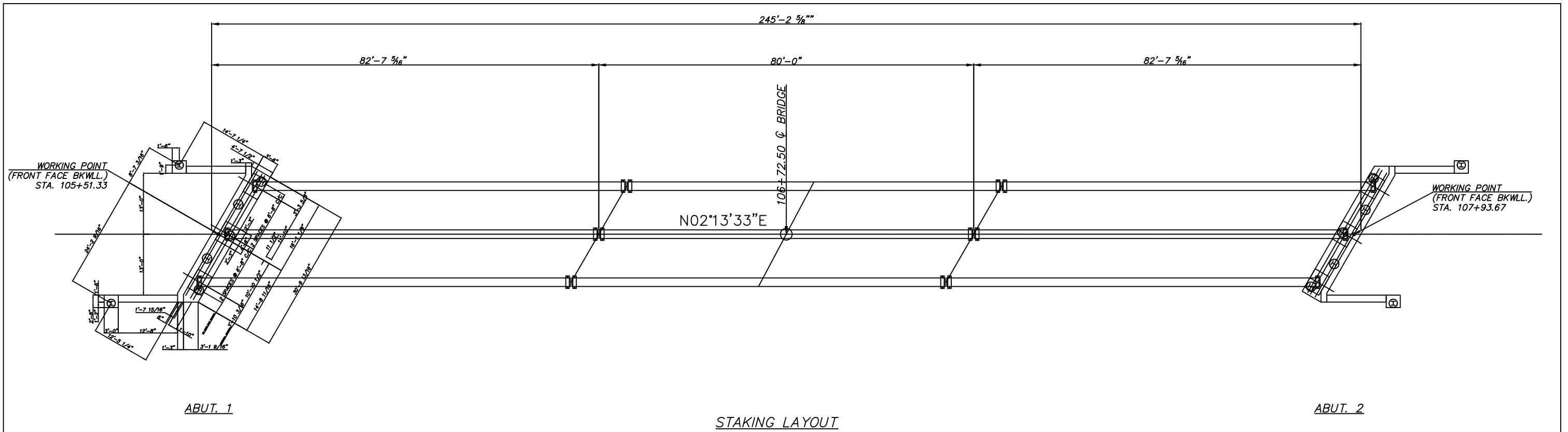
**DETAIL B**



PLOTTED: Friday, August 04, 2017 @ 11:45AM G:\projects\2015\1503010824-CED 8 Texas County Sand Creek Pier Design\5-Civil\CAD\Structural\BENT DETAILS 2 OF 2.dwg

MKEC ENGINEERING INC.  
 JONATHAN T. HISEY  
 OKLA. REG. NO. 23127

DESIGN	JTH	NS-63 OVER SAND CREEK	TEXAS COUNTY
DRAWN	TRM	<b>BENT DETAILS</b> <b>SHEET 2 OF 2</b>	
CHECKED	J.T.H.		
APPROV.	J.T.H.		
SQUAD	MKEC ENG.		
		JOB PIECE NO. 30490(04)	SHEET NO. B003





TEXAS COUNTY SAND CREEK


STAKING LAYOUT, ANCHOR BOLTS & PEDESTAL LAYOUT

J/P NO. 30490(04) SHEET NO. B004



BORING LOG		BORING NO. B-01		PAGE 1 OF 3					
CLIENT: CIRCUIT ENGINEERING DISTRICT #8		ENGINEER: TYLER SCHRODER, PE							
LOCATION: NS063 OVER SAND CREEK--TEXAS COUNTY, OK		PROJECT: J/P 30490(04)--BRIDGE REPL OVER SAND CREEK							
GRAPHICS LOG	LAYER / MATERIAL DESCRIPTION Station= 105+68.7, 59.6' LT CL SURV. Surface Elev. = 3401.84 feet Veg. Thick: 6" GRASS COVER	DEPTH, FT.	SAMPLES			TESTS			
			USCS SYMBOL NUMBER	TYPE	RECOVERY, IN.	SPT-N BLOWS / FT.	MOISTURE, %	DRY DENSITY, PCF	UNCONFINED STRENGTH, PSF
	LOOSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3394.34	5	SM 1	SS	12	7	10.4		LL = NP PL = NP PI = NP #200 = 17.0%
	MEDIUM DENSE, LIGHT BROWN, POORLY GRADED SAND WITH SILT WITH CALICHE & CALCITE SEAMS ELEV. = 3389.34	10	SP-SM 2	SS	14	19	5.1		LL = NP PL = NP PI = NP #200 = 9.0%
	MEDIUM DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3384.34	15	SM 3	SS	16	15	4.9		LL = NP PL = NP PI = NP #200 = 24.3%
	MEDIUM DENSE, LIGHT BROWN, SILTY CLAYEY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3374.34	20	SC-SM 4	SS	18	24	3.9		LL = 23 PL = 17 PI = 6 #200 = 49.4%
	DENSE, LIGHT BROWN, CLAYEY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3359.34	35	SC 7	SS	18	32	13.2		LL = 29 PL = 15 PI = 14 #200 = 39.0%
REMARKS: SOIL AND ROCK CLASSIFICATIONS ARE FROM DISTURBED SAMPLES. CORE SAMPLES AND FURTHER LABORATORY TESTING MAY REVEAL OTHER ROCK AND/OR SOIL TYPES. THE STRATIFICATION SHOWN IN THE SOIL AND ROCK ABOVE IS AN ESTIMATION OF IN-SITU CONDITIONS. THEREFORE, THE NATURAL TRANSITION BETWEEN SOIL AND ROCK TYPES MAY BE GRADUAL. * ESTIMATED FROM POCKET PENETROMETER		WATER LEVEL OBSERVATIONS				DATE STARTED		9/10/15	
 ARROWHEAD ENGINEERING COMPANY 3300 108TH AVE SE NORMAN, OK 73026 PHONE (405) 596-2642		WL NONE--WD		N/A-AB		DATE COMPLETED		9/11/15	
		WL 6 FT--24HR AB (W.I.)		RIG CME-550X		FOREMAN C.K.			
		WL 69 FT WET CAVE-IN		REVIEWED C.K.		JOB NO. 1448			

BORING LOG		BORING NO. B-01		PAGE 2 OF 3					
CLIENT: CIRCUIT ENGINEERING DISTRICT #8		ENGINEER: TYLER SCHRODER, PE							
LOCATION: NS063 OVER SAND CREEK--TEXAS COUNTY, OK		PROJECT: J/P 30490(04)--BRIDGE REPL OVER SAND CREEK							
GRAPHICS LOG	LAYER / MATERIAL DESCRIPTION Station= 105+68.7, 59.6' LT CL SURV. (Continued)	DEPTH, FT.	SAMPLES			TESTS			
			USCS SYMBOL NUMBER	TYPE	RECOVERY, IN.	SPT-N BLOWS / FT.	MOISTURE, %	DRY DENSITY, PCF	UNCONFINED STRENGTH, PSF
	DENSE, LIGHT BROWN, POORLY GRADED SAND WITH CLAY WITH CALICHE & CALCITE SEAMS ELEV. = 3354.34	45	SP-SC 9	SS	18	33	17.3		LL = 28 PL = 17 PI = 11 #200 = 6.5%
	DENSE TO VERY DENSE, LIGHT BROWN, CLAYEY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3344.34	50	SC 10	SS	18	43	19.6		LL = 32 PL = 17 PI = 15 #200 = 27.0%
	VERY DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3333.84	60	SM 12	SS	18	62	6.4		LL = NP PL = NP PI = NP #200 = 18.0%
	EXTREMELY DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3281.34	75	SM 15	SS	14	22/6" 50/5"	8.8		LL = NP PL = NP PI = NP #200 = 32.0%
REMARKS: SOIL AND ROCK CLASSIFICATIONS ARE FROM DISTURBED SAMPLES. CORE SAMPLES AND FURTHER LABORATORY TESTING MAY REVEAL OTHER ROCK AND/OR SOIL TYPES. THE STRATIFICATION SHOWN IN THE SOIL AND ROCK ABOVE IS AN ESTIMATION OF IN-SITU CONDITIONS. THEREFORE, THE NATURAL TRANSITION BETWEEN SOIL AND ROCK TYPES MAY BE GRADUAL. * ESTIMATED FROM POCKET PENETROMETER		WATER LEVEL OBSERVATIONS				DATE STARTED		9/10/15	
 ARROWHEAD ENGINEERING COMPANY 3300 108TH AVE SE NORMAN, OK 73026 PHONE (405) 596-2642		WL NONE--WD		N/A-AB		DATE COMPLETED		9/11/15	
		WL 6 FT--24HR AB (W.I.)		RIG CME-550X		FOREMAN C.K.			
		WL 69 FT WET CAVE-IN		REVIEWED C.K.		JOB NO. 1448			

BORING LOG		BORING NO. B-01		PAGE 3 OF 3					
CLIENT: CIRCUIT ENGINEERING DISTRICT #8		ENGINEER: TYLER SCHRODER, PE							
LOCATION: NS063 OVER SAND CREEK--TEXAS COUNTY, OK		PROJECT: J/P 30490(04)--BRIDGE REPL OVER SAND CREEK							
GRAPHICS LOG	LAYER / MATERIAL DESCRIPTION Station= 105+68.7, 59.6' LT CL SURV. (Continued)	DEPTH, FT.	SAMPLES			TESTS			
			USCS SYMBOL NUMBER	TYPE	RECOVERY, IN.	SPT-N BLOWS / FT.	MOISTURE, %	DRY DENSITY, PCF	UNCONFINED STRENGTH, PSF
	EXTREMELY DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3304.34	90	SM 18	SS	10	27/6" 50/4.25"	7.6		LL = NP PL = NP PI = NP #200 = 13.1%
	EXTREMELY DENSE, LIGHT BROWN, CLAYEY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3299.34	95	SM 19	SS	7	50/5"	9.2		LL = NP PL = NP PI = NP #200 = 18.2%
	EXTREMELY DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3281.34	100	SC 20	SS	16	38/6" 60/3.75"	12.0		LL = 24 PL = 14 PI = 10 #200 = 38.0%
	EXTREMELY DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3281.34	110	SM 22	SS	16	46/6" 50/4.5"	15.1		LL = NP PL = NP PI = NP #200 = 17.4%
	Bottom of Boring at 120.50 feet	120	SM 24	SS	6	50/6"	17.0		LL = NP PL = NP PI = NP #200 = 9.2%
REMARKS: SOIL AND ROCK CLASSIFICATIONS ARE FROM DISTURBED SAMPLES. CORE SAMPLES AND FURTHER LABORATORY TESTING MAY REVEAL OTHER ROCK AND/OR SOIL TYPES. THE STRATIFICATION SHOWN IN THE SOIL AND ROCK ABOVE IS AN ESTIMATION OF IN-SITU CONDITIONS. THEREFORE, THE NATURAL TRANSITION BETWEEN SOIL AND ROCK TYPES MAY BE GRADUAL. * ESTIMATED FROM POCKET PENETROMETER		WATER LEVEL OBSERVATIONS				DATE STARTED		9/10/15	
 ARROWHEAD ENGINEERING COMPANY 3300 108TH AVE SE NORMAN, OK 73026 PHONE (405) 596-2642		WL NONE--WD		N/A-AB		DATE COMPLETED		9/11/15	
		WL 6 FT--24HR AB (W.I.)		RIG CME-550X		FOREMAN C.K.			
		WL 69 FT WET CAVE-IN		REVIEWED C.K.		JOB NO. 1448			

BORING LOG		BORING NO. B-02		PAGE 1 OF 3					
CLIENT: CIRCUIT ENGINEERING DISTRICT #8		ENGINEER: TYLER SCHRODER, PE							
LOCATION: NS063 OVER SAND CREEK--TEXAS COUNTY, OK		PROJECT: J/P 30490(04)--BRIDGE REPL OVER SAND CREEK							
GRAPHICS LOG	LAYER / MATERIAL DESCRIPTION Station= 106+26.1, 23.1' RT CL SURV. Surface Elev. = 3393.36 feet Veg. Thick. 6" GRASS COVER	DEPTH, FT.	SAMPLES			TESTS			
			USCS SYMBOL NUMBER	TYPE	RECOVERY, IN.	SPT-N BLOWS / FT.	MOISTURE, %	DRY DENSITY, PCF	UNCONFINED STRENGTH, PSF
	LOOSE TO MEDIUM DENSE, LIGHT BROWN, POORLY GRADED SAND WITH SILT WITH CALICHE & CALCITE SEAMS ELEV. = 3380.86	5	SP-SM 1	SS	16	11	5.6		LL = NP PL = NP PI = NP #200 = 5.0%
		10	SP-SM 2	SS	16	9	3.3		LL = NP PL = NP PI = NP #200 = 4.7%
		15	SC 3	SS	8	18	11.7		LL = 27 PL = 15 PI = 12 #200 = 37.1%
	MEDIUM DENSE, LIGHT BROWN, CLAYEY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3365.86	20	SC 4	SS	16	22	8.9		LL = 25 PL = 11 PI = 14 #200 = 44.0%
		25	SC 5	SS	18	19	18.4		LL = 28 PL = 14 PI = 14 #200 = 47.7%
	DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3360.86	30	SM 6	SS	18	26	22.2		LL = NP PL = NP PI = NP #200 = 30.0%
	DENSE, LIGHT BROWN, CLAYEY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3355.86	35	SC 7	SS	18	39	20.3		LL = 24 PL = 15 PI = 9 #200 = 47.0%
	HARD, LIGHT BROWN, SANDY LEAN CLAY WITH CALICHE & CALCITE SEAMS ELEV. = 3350.86	40	CL 8	SS	18	43	33.2		LL = 43 PL = 19 PI = 24
<b>REMARKS:</b> SOIL AND ROCK CLASSIFICATIONS ARE FROM DISTURBED SAMPLES. CORE SAMPLES AND FURTHER LABORATORY TESTING MAY REVEAL OTHER ROCK AND/OR SOIL TYPES. THE STRATIFICATION SHOWN IN THE SOIL AND ROCK ABOVE IS AN ESTIMATION OF IN-SITU CONDITIONS. THEREFORE, THE NATURAL TRANSITION BETWEEN SOIL AND ROCK TYPES MAY BE GRADUAL. * ESTIMATED FROM POCKET PENETROMETER						<b>WATER LEVEL OBSERVATIONS</b> DATE STARTED 9/8/15 WL NONE--WD N/A--AB DATE COMPLETED 9/8/15 WL FT--24HR AB (W/L) RIG CME-550X FOREMAN C.K. WL WET CAVE-IN AT 52 FEET REVIEWED C.K. JOB NO. 1448			


BORING LOG		BORING NO. B-02		PAGE 2 OF 3					
CLIENT: CIRCUIT ENGINEERING DISTRICT #8		ENGINEER: TYLER SCHRODER, PE							
LOCATION: NS063 OVER SAND CREEK--TEXAS COUNTY, OK		PROJECT: J/P 30490(04)--BRIDGE REPL OVER SAND CREEK							
GRAPHICS LOG	LAYER / MATERIAL DESCRIPTION Station= 106+26.1, 23.1' RT CL SURV. (Continued)	DEPTH, FT.	SAMPLES			TESTS			
			USCS SYMBOL NUMBER	TYPE	RECOVERY, IN.	SPT-N BLOWS / FT.	MOISTURE, %	DRY DENSITY, PCF	UNCONFINED STRENGTH, PSF
	DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3345.86	45	SM 9	SS	18	45	16.2		LL = NP PL = NP PI = NP #200 = 31.1%
	HARD, LIGHT BROWN, FAT CLAY WITH SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3340.36	50	CH 10	SS	18	38	29.9		LL = 50 PL = 22 PI = 28 #200 = 68.0%
	EXTREMELY DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3330.36	55	SM 11	SS	16	40/6" 50/4.5"	25.7		LL = NP PL = NP PI = NP #200 = 26.4%
		60	SM 12	SS	10	31/6" 50/4.5"	11.3		LL = NP PL = NP PI = NP #200 = 24.1%
	EXTREMELY DENSE, LIGHT BROWN, CLAYEY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3320.36	65	SC 13	SS	10	30/6" 50/4.75"	12.4		LL = 28 PL = 10 PI = 18 #200 = 38.9%
		70	SC 14	SS	14	41/6" 50/3.5"	16.5		LL = 29 PL = 15 PI = 14 #200 = 36.0%
	EXTREMELY DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3310.36	75	SM 15	SS	14	44/6" 50/2"	7.1		LL = NP PL = NP PI = NP #200 = 13.8%
		80	SM 16	SS	12	43/6" 50/6"	8.0		LL = NP PL = NP PI = NP #200 = 23.8%
<b>REMARKS:</b> SOIL AND ROCK CLASSIFICATIONS ARE FROM DISTURBED SAMPLES. CORE SAMPLES AND FURTHER LABORATORY TESTING MAY REVEAL OTHER ROCK AND/OR SOIL TYPES. THE STRATIFICATION SHOWN IN THE SOIL AND ROCK ABOVE IS AN ESTIMATION OF IN-SITU CONDITIONS. THEREFORE, THE NATURAL TRANSITION BETWEEN SOIL AND ROCK TYPES MAY BE GRADUAL. * ESTIMATED FROM POCKET PENETROMETER						<b>WATER LEVEL OBSERVATIONS</b> DATE STARTED 9/8/15 WL NONE--WD N/A--AB DATE COMPLETED 9/8/15 WL FT--24HR AB (W/L) RIG CME-550X FOREMAN C.K. WL WET CAVE-IN AT 52 FEET REVIEWED C.K. JOB NO. 1448			


BORING LOG		BORING NO. B-02		PAGE 3 OF 3					
CLIENT: CIRCUIT ENGINEERING DISTRICT #8		ENGINEER: TYLER SCHRODER, PE							
LOCATION: NS063 OVER SAND CREEK--TEXAS COUNTY, OK		PROJECT: J/P 30490(04)--BRIDGE REPL OVER SAND CREEK							
GRAPHICS LOG	LAYER / MATERIAL DESCRIPTION Station= 106+26.1, 23.1' RT CL SURV. (Continued)	DEPTH, FT.	SAMPLES			TESTS			
			USCS SYMBOL NUMBER	TYPE	RECOVERY, IN.	SPT-N BLOWS / FT.	MOISTURE, %	DRY DENSITY, PCF	UNCONFINED STRENGTH, PSF
	EXTREMELY DENSE, LIGHT BROWN, POORLY GRADED SAND WITH SILT WITH CALICHE & CALCITE SEAMS ELEV. = 3305.36	85	SP-SM 17	SS	14	38/6" 50/5.5"	3.6		LL = NP PL = NP PI = NP #200 = 10.0%
	EXTREMELY DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3300.36	90	SM 18	SS	10	46/6" 60/4.25"	16.8		LL = NP PL = NP PI = NP #200 = 24.5%
	VERY HARD, LIGHT BROWN, SANDY SILTY CLAY WITH CALICHE & CALCITE SEAMS ELEV. = 3295.36	95	SP-SM 19	SS	10	50/6"	13.2		LL = 32 PL = 15 PI = 17 #200 = 52.2%
		100	SP-SM 20	SS	18	74	14.4		LL = NP PL = NP PI = NP #200 = 22.0%
		105	SP-SM 21	SS	18	73	14.3		LL = NP PL = NP PI = NP #200 = 11.6%
	EXTREMELY DENSE, LIGHT BROWN, POORLY GRADED SAND WITH SILT WITH CALICHE & CALCITE SEAMS ELEV. = 3272.36	110	SP-SM 22	SS	12	26/6" 50/6"	12.5		LL = NP PL = NP PI = NP #200 = 12.5%
		115	SP-SM 23	SS	12	26/6" 50/6"	16.1		LL = NP PL = NP PI = NP #200 = 6.0%
	Bottom of Boring at 121.00 feet	120	SP-SM 24	SS	12	26/6" 50/6"	16.0		LL = NP PL = NP PI = NP #200 = 5.9%
<b>REMARKS:</b> SOIL AND ROCK CLASSIFICATIONS ARE FROM DISTURBED SAMPLES. CORE SAMPLES AND FURTHER LABORATORY TESTING MAY REVEAL OTHER ROCK AND/OR SOIL TYPES. THE STRATIFICATION SHOWN IN THE SOIL AND ROCK ABOVE IS AN ESTIMATION OF IN-SITU CONDITIONS. THEREFORE, THE NATURAL TRANSITION BETWEEN SOIL AND ROCK TYPES MAY BE GRADUAL. * ESTIMATED FROM POCKET PENETROMETER						<b>WATER LEVEL OBSERVATIONS</b> DATE STARTED 9/8/15 WL NONE--WD N/A--AB DATE COMPLETED 9/8/15 WL FT--24HR AB (W/L) RIG CME-550X FOREMAN C.K. WL WET CAVE-IN AT 52 FEET REVIEWED C.K. JOB NO. 1448			


BORING LOG		BORING NO. B-03		PAGE 1 OF 3							
CLIENT: CIRCUIT ENGINEERING DISTRICT #8		ENGINEER: TYLER SCHRODER, PE									
LOCATION: NS063 OVER SAND CREEK--TEXAS COUNTY, OK		PROJECT: J/P 30490(04)--BRIDGE REPL OVER SAND CREEK									
GRAPHICS LOG	LAYER / MATERIAL DESCRIPTION Station= 107+18.6, 23.5' LT CL SURV. Surface Elev. = 3394.66 feet Veg. Thick: 6" GRASS COVER	DEPTH, FT.	SAMPLES			TESTS					
			USCS SYMBOL NUMBER	TYPE	RECOVERY, IN.	SPT-N BLOWS / FT.	MOISTURE, %	DRY DENSITY, PCF	UNCONFINED STRENGTH, PSF	LIMITS (LL) (PL) INDEXES (PI) #200 SIEVE	
	MEDIUM DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3381.66	5	SM 1	SS	18	22	13.5		LL = NP PL = NP PI = NP #200 = 20.2%		
	MEDIUM DENSE TO DENSE, LIGHT BROWN, CLAYEY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3371.66	15	SC 3	SS	18	25	12.6		LL = 28 PL = 14 PI = 14 #200 = 18.8%		
	DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3366.66	25	SM 5	SS	18	25	16.8		LL = NP PL = NP PI = NP #200 = 31.5%		
	HARD, LIGHT BROWN, SANDY LEAN CLAY WITH CALICHE & CALCITE SEAMS ELEV. = 3361.66	30	CL 6	SS	18	42	20.5		LL = 35 PL = 21 PI = 14 #200 = 56.0%		
	DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3356.66	35	SM 7	SS	18	33	12.1		LL = NP PL = NP PI = NP #200 = 31.5%		
	HARD, LIGHT BROWN, SANDY LEAN CLAY WITH CALICHE & CALCITE SEAMS ELEV. = 3316.66	40	CL 8	SS	18	50	22.6		LL = 45 PL = 25 PI = 20		
REMARKS: SOIL AND ROCK CLASSIFICATIONS ARE FROM DISTURBED SAMPLES. CORE SAMPLES AND FURTHER LABORATORY TESTING MAY REVEAL OTHER ROCK AND/OR SOIL TYPES. THE STRATIFICATION SHOWN IN THE SOIL AND ROCK ABOVE IS AN ESTIMATION OF IN-SITU CONDITIONS. THEREFORE, THE NATURAL TRANSITION BETWEEN SOIL AND ROCK TYPES MAY BE GRADUAL. * ESTIMATED FROM POCKET PENETROMETER						DATE STARTED 9/9/15			DATE COMPLETED 9/9/15		
ARROWHEAD ENGINEERING COMPANY 3300 108TH AVE SE NORMAN, OK 73026 PHONE (405) 596-2642						WATER LEVEL OBSERVATIONS W/L NONE--WD N/A--AB W/L FT--24HR AB (W/L)			RIG CME-550X FOREMAN C.K. REVIEWED C.K. JOB NO. 1448		

BORING LOG		BORING NO. B-03		PAGE 2 OF 3							
CLIENT: CIRCUIT ENGINEERING DISTRICT #8		ENGINEER: TYLER SCHRODER, PE									
LOCATION: NS063 OVER SAND CREEK--TEXAS COUNTY, OK		PROJECT: J/P 30490(04)--BRIDGE REPL OVER SAND CREEK									
GRAPHICS LOG	LAYER / MATERIAL DESCRIPTION Station= 107+18.6, 23.5' LT CL SURV. (Continued)	DEPTH, FT.	SAMPLES			TESTS					
			USCS SYMBOL NUMBER	TYPE	RECOVERY, IN.	SPT-N BLOWS / FT.	MOISTURE, %	DRY DENSITY, PCF	UNCONFINED STRENGTH, PSF	LIMITS (LL) (PL) INDEXES (PI) #200 SIEVE	
	EXTREMELY DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3351.66	45	SM 9	SS	18	39	23.9		LL = NP PL = NP PI = NP #200 = 20.2%		
	EXTREMELY DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3331.66	55	SM 11	SS	18	59	9.7		LL = NP PL = NP PI = NP #200 = 27.4%		
	VERY DENSE TO EXTREMELY DENSE, LIGHT BROWN, POORLY GRADED SAND WITH SILT WITH CALICHE & CALCITE SEAMS ELEV. = 3316.66	70	SP-SM 14	SS	18	46	5.1		LL = NP PL = NP PI = NP #200 = 12.2%		
	EXTREMELY DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS ELEV. = 3273.33	80	SM 16	SS	12	24/6" 50/5.5"	5.8		LL = NP PL = NP PI = NP #200 = 20.2%		
REMARKS: SOIL AND ROCK CLASSIFICATIONS ARE FROM DISTURBED SAMPLES. CORE SAMPLES AND FURTHER LABORATORY TESTING MAY REVEAL OTHER ROCK AND/OR SOIL TYPES. THE STRATIFICATION SHOWN IN THE SOIL AND ROCK ABOVE IS AN ESTIMATION OF IN-SITU CONDITIONS. THEREFORE, THE NATURAL TRANSITION BETWEEN SOIL AND ROCK TYPES MAY BE GRADUAL. * ESTIMATED FROM POCKET PENETROMETER						DATE STARTED 9/9/15			DATE COMPLETED 9/9/15		
ARROWHEAD ENGINEERING COMPANY 3300 108TH AVE SE NORMAN, OK 73026 PHONE (405) 596-2642						WATER LEVEL OBSERVATIONS W/L NONE--WD N/A--AB W/L FT--24HR AB (W/L)			RIG CME-550X FOREMAN C.K. REVIEWED C.K. JOB NO. 1448		

BORING LOG		BORING NO. B-03		PAGE 3 OF 3							
CLIENT: CIRCUIT ENGINEERING DISTRICT #8		ENGINEER: TYLER SCHRODER, PE									
LOCATION: NS063 OVER SAND CREEK--TEXAS COUNTY, OK		PROJECT: J/P 30490(04)--BRIDGE REPL OVER SAND CREEK									
GRAPHICS LOG	LAYER / MATERIAL DESCRIPTION Station= 107+18.6, 23.5' LT CL SURV. (Continued)	DEPTH, FT.	SAMPLES			TESTS					
			USCS SYMBOL NUMBER	TYPE	RECOVERY, IN.	SPT-N BLOWS / FT.	MOISTURE, %	DRY DENSITY, PCF	UNCONFINED STRENGTH, PSF	LIMITS (LL) (PL) INDEXES (PI) #200 SIEVE	
	EXTREMELY DENSE, LIGHT BROWN, SILTY SAND WITH CALICHE & CALCITE SEAMS (continued) ELEV. = 3273.33	90	SM 18	SS	17	80	11.0		LL = NP PL = NP PI = NP #200 = 17.6%		
	Bottom of Boring at 121.33 feet	120	SM 24	SS	16	42/6" 50/4"	20.3		LL = NP PL = NP PI = NP #200 = 45.2%		
REMARKS: SOIL AND ROCK CLASSIFICATIONS ARE FROM DISTURBED SAMPLES. CORE SAMPLES AND FURTHER LABORATORY TESTING MAY REVEAL OTHER ROCK AND/OR SOIL TYPES. THE STRATIFICATION SHOWN IN THE SOIL AND ROCK ABOVE IS AN ESTIMATION OF IN-SITU CONDITIONS. THEREFORE, THE NATURAL TRANSITION BETWEEN SOIL AND ROCK TYPES MAY BE GRADUAL. * ESTIMATED FROM POCKET PENETROMETER						DATE STARTED 9/9/15			DATE COMPLETED 9/9/15		
ARROWHEAD ENGINEERING COMPANY 3300 108TH AVE SE NORMAN, OK 73026 PHONE (405) 596-2642						WATER LEVEL OBSERVATIONS W/L NONE--WD N/A--AB W/L FT--24HR AB (W/L)			RIG CME-550X FOREMAN C.K. REVIEWED C.K. JOB NO. 1448		

BORING LOG		BORING NO. B-04		PAGE 1 OF 3										
CLIENT: CIRCUIT ENGINEERING DISTRICT #8		ENGINEER: TYLER SCHRODER, PE												
LOCATION: NS063 OVER SAND CREEK--TEXAS COUNTY, OK		PROJECT: J/P 30490(04)--BRIDGE REPL OVER SAND CREEK												
GRAPHICS LOG	LAYER / MATERIAL DESCRIPTION Station= 108+25.4, 14.0' RT CL SURV. Surface Elev. = 3415.1 feet Veg. Thick. 6" GRASS COVER	DEPTH, FT.	SAMPLES			TESTS								
			USCS SYMBOL NUMBER	TYPE	RECOVERY, IN.	SPT-N BLOWS / FT.	MOISTURE, %	DRY DENSITY, PCF	UNCONFINED STRENGTH, PSF	LIMITS (LL) (PL) INDEXES (PI) #200 SIEVE				
	MEDIUM DENSE, LIGHT BROWN, SILTY CLAYEY SAND WITH CALCITE SEAMS ELEV. = 3408.1	5	SC-SM 1	SS	18	11	7.5		LL = 17 PL = 13 PI = 4 #200 = 39.2%					
	MEDIUM DENSE, LIGHT BROWN, SILTY SAND WITH CALCITE & CALCITE SEAMS ELEV. = 3398.1	10	SM 2	SS	18	10	8.3		LL = NP PL = NP PI = NP #200 = 34.7%					
	MEDIUM DENSE, LIGHT BROWN, CLAYEY SAND WITH CALCITE & CALCITE SEAMS ELEV. = 3392.1	20	SC 4	SS	18	21	11.3		LL = 25 PL = 15 PI = 10 #200 = 36.2%					
	VERY STIFF, LIGHT BROWN, SANDY SILT WITH CALCITE & CALCITE SEAMS ELEV. = 3387.1	25	ML 5	SS	18	25	30.5		LL = NP PL = NP PI = NP #200 = 62.0%					
	DENSE, LIGHT BROWN, CLAYEY SAND WITH CALCITE & CALCITE SEAMS	35	SC 7	SS	18	25	25.2		LL = 34 PL = 16 PI = 18 #200 = 49.3%					
		40	SC 8	SS	18	25	13.7		LL = 30 PL = 15 PI = 15					
REMARKS: SOIL AND ROCK CLASSIFICATIONS ARE FROM DISTURBED SAMPLES. CORE SAMPLES AND FURTHER LABORATORY TESTING MAY REVEAL OTHER ROCK AND/OR SOIL TYPES. THE STRATIFICATION SHOWN IN THE SOIL AND ROCK ABOVE IS AN ESTIMATION OF IN-SITU CONDITIONS. THEREFORE, THE NATURAL TRANSITION BETWEEN SOIL AND ROCK TYPES MAY BE GRADUAL. * ESTIMATED FROM POCKET PENETROMETER						DATE STARTED 9/11/15			DATE COMPLETED 9/12/15					
 ARROWHEAD ENGINEERING COMPANY 3300 108TH AVE SE NORMAN, OK 73026 PHONE (405) 596-2642						WATER LEVEL OBSERVATIONS			DATE STARTED 9/11/15			DATE COMPLETED 9/12/15		
						WL NONE--WD NONE-AB			RIG CME-550X			FOREMAN C.K.		
						WL			REVIEWED C.K.			JOB NO. 1448		

BORING LOG		BORING NO. B-04		PAGE 2 OF 3										
CLIENT: CIRCUIT ENGINEERING DISTRICT #8		ENGINEER: TYLER SCHRODER, PE												
LOCATION: NS063 OVER SAND CREEK--TEXAS COUNTY, OK		PROJECT: J/P 30490(04)--BRIDGE REPL OVER SAND CREEK												
GRAPHICS LOG	LAYER / MATERIAL DESCRIPTION Station= 108+25.4, 14.0' RT CL SURV.	DEPTH, FT.	SAMPLES			TESTS								
			USCS SYMBOL NUMBER	TYPE	RECOVERY, IN.	SPT-N BLOWS / FT.	MOISTURE, %	DRY DENSITY, PCF	UNCONFINED STRENGTH, PSF	LIMITS (LL) (PL) INDEXES (PI) #200 SIEVE				
	DENSE, LIGHT BROWN, CLAYEY SAND WITH CALCITE & CALCITE SEAMS (continued) ELEV. = 3367.1	45	SC 9	SS	18	33	10.4		LL = 30 PL = 17 PI = 13 #200 = 39.7%					
	VERY DENSE, LIGHT BROWN, SILTY SAND WITH CALCITE & CALCITE SEAMS ELEV. = 3362.1	50	SM 10	SS	18	68	12.6		LL = NP PL = NP PI = NP #200 = 40.7%					
	DENSE, LIGHT BROWN, SILTY SAND WITH CALCITE & CALCITE SEAMS ELEV. = 3357.1	55	SM 11	SS	18	28	6.9		LL = NP PL = NP PI = NP #200 = 19.9%					
	VERY DENSE, LIGHT BROWN, SILTY SAND WITH CALCITE & CALCITE SEAMS ELEV. = 3342.1	65	SM 13	SS	18	59	6.5		LL = NP PL = NP PI = NP #200 = 31.7%					
	DENSE, LIGHT BROWN, SILTY SAND WITH CALCITE & CALCITE SEAMS	75	SM 15	SS	18	40	4.9		LL = NP PL = NP PI = NP #200 = 27.2%					
		80	SM 16	SS	18	50	5.3		LL = NP PL = NP PI = NP #200 = 20.8%					
REMARKS: SOIL AND ROCK CLASSIFICATIONS ARE FROM DISTURBED SAMPLES. CORE SAMPLES AND FURTHER LABORATORY TESTING MAY REVEAL OTHER ROCK AND/OR SOIL TYPES. THE STRATIFICATION SHOWN IN THE SOIL AND ROCK ABOVE IS AN ESTIMATION OF IN-SITU CONDITIONS. THEREFORE, THE NATURAL TRANSITION BETWEEN SOIL AND ROCK TYPES MAY BE GRADUAL. * ESTIMATED FROM POCKET PENETROMETER						DATE STARTED 9/11/15			DATE COMPLETED 9/12/15					
 ARROWHEAD ENGINEERING COMPANY 3300 108TH AVE SE NORMAN, OK 73026 PHONE (405) 596-2642						WATER LEVEL OBSERVATIONS			DATE STARTED 9/11/15			DATE COMPLETED 9/12/15		
						WL NONE--WD NONE-AB			RIG CME-550X			FOREMAN C.K.		
						WL			REVIEWED C.K.			JOB NO. 1448		

BORING LOG		BORING NO. B-04		PAGE 3 OF 3										
CLIENT: CIRCUIT ENGINEERING DISTRICT #8		ENGINEER: TYLER SCHRODER, PE												
LOCATION: NS063 OVER SAND CREEK--TEXAS COUNTY, OK		PROJECT: J/P 30490(04)--BRIDGE REPL OVER SAND CREEK												
GRAPHICS LOG	LAYER / MATERIAL DESCRIPTION Station= 108+25.4, 14.0' RT CL SURV.	DEPTH, FT.	SAMPLES			TESTS								
			USCS SYMBOL NUMBER	TYPE	RECOVERY, IN.	SPT-N BLOWS / FT.	MOISTURE, %	DRY DENSITY, PCF	UNCONFINED STRENGTH, PSF	LIMITS (LL) (PL) INDEXES (PI) #200 SIEVE				
	DENSE, LIGHT BROWN, SILTY SAND WITH CALCITE & CALCITE SEAMS (continued) ELEV. = 3327.1	90	SM 17	SS	18	41	4.0		LL = NP PL = NP PI = NP #200 = 20.4%					
	VERY DENSE, LIGHT BROWN, SILTY SAND WITH CALCITE & CALCITE SEAMS ELEV. = 3322.1	95	SP-SM 18	SS	18	67	3.4		LL = NP PL = NP PI = NP #200 = 12.5%					
	EXTREMELY DENSE, LIGHT BROWN, CLAYEY SAND WITH CALCITE & CALCITE SEAMS ELEV. = 3317.1	95	SC 19	SS	18	246" 50/4.5"	4.8		LL = 23 PL = 14 PI = 9 #200 = 40.7%					
	VERY DENSE, LIGHT BROWN, POORLY GRADE SAND WITH SILT WITH CALCITE & CALCITE SEAMS ELEV. = 3307.1	100	SP-SM 20	SS	18	72	12.1		LL = NP PL = NP PI = NP #200 = 72.0%					
		105	SP-SM 21	SS	18	63	3.6		LL = NP PL = NP PI = NP #200 = 9.0%					
	EXTREMELY DENSE, LIGHT BROWN, SILTY SAND WITH CALCITE & CALCITE SEAMS ELEV. = 3294.68	110	SM 22	SS	10	476" 50/4.5"	3.6		LL = NP PL = NP PI = NP #200 = 14.7%					
		115	SM 23	SS	6	50/5"	8.6		LL = NP PL = NP PI = NP #200 = 17.8%					
	Bottom of Boring at 120.42 feet	120	SM 24	SS	6	50/5"	8.7		LL = NP PL = NP PI = NP #200 = 17.7%					
REMARKS: SOIL AND ROCK CLASSIFICATIONS ARE FROM DISTURBED SAMPLES. CORE SAMPLES AND FURTHER LABORATORY TESTING MAY REVEAL OTHER ROCK AND/OR SOIL TYPES. THE STRATIFICATION SHOWN IN THE SOIL AND ROCK ABOVE IS AN ESTIMATION OF IN-SITU CONDITIONS. THEREFORE, THE NATURAL TRANSITION BETWEEN SOIL AND ROCK TYPES MAY BE GRADUAL. * ESTIMATED FROM POCKET PENETROMETER						DATE STARTED 9/11/15			DATE COMPLETED 9/12/15					
 ARROWHEAD ENGINEERING COMPANY 3300 108TH AVE SE NORMAN, OK 73026 PHONE (405) 596-2642						WATER LEVEL OBSERVATIONS			DATE STARTED 9/11/15			DATE COMPLETED 9/12/15		
						WL NONE--WD NONE-AB			RIG CME-550X			FOREMAN C.K.		
						WL			REVIEWED C.K.			JOB NO. 1448		

TEXAS COUNTY SAND CREEK

BORING LOGS B-04

J/P NO. 30490(04)

SHEET NO. B008

# STORM WATER MANAGEMENT PLAN

REVISIONS	
DESCRIPTION	DATE

## SITE DESCRIPTION

PROJECT LIMITS: COUNTY BRIDGE OVER SAND CREEK, 1.0 MI. EAST AND 9.8 MI. SOUTH OF FOUR CORNERS, ON NS-63.

PROJECT DESCRIPTION: BRIDGE AND APPROACHES:  
 XX.XX FT. OF ROADWAY (4" SUPERPAVE S3 AND 2" SUPERPAVE S4),  
 80'-80'-80' PCB SPAN, STANDARD ABUTMENTS = 245.22 FT. LONG BRIDGE,  
 SKEWED 30', GUARDRAIL BRIDGE & RIP RAP CHANNEL,  
 XXX S.Y. OF SOLID SLAB SODDING.

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:  
**PRIOR TO INITIATING SOIL DISTURBING ACTIVITIES, THE CONTRACTOR WILL INSTALL ALL PERIMETER TEMPORARY SEDIMENT CONTROLS SPECIFIED. STRIP, STOCKPILE AND STABILIZE TOPSOIL. CLEAR AND GRUB ONLY IN NECESSARY AREAS, PRESERVING AS MUCH NATIVE VEGETATION AS POSSIBLE. INSTALL, MAINTAIN AND/OR MOVE TEMPORARY SEDIMENT ITEMS WITH CONSTRUCTION OPERATIONS AS PRACTICAL. IF DIRECTED BY THE ENGINEER, PLANT TEMPORARY SEEDING. REPLACE SALVAGED TOPSOIL. REMOVE TEMPORARY DEVICES WHEN AN ACCEPTABLE VEGETATIVE COVER (AT LEAST 70%) HAS BEEN ATTAINED. AS SITE CONDITIONS WARRANT, THE CONTRACTOR MAY CHOOSE TO MODIFY THE TYPE OR ARRANGEMENT OF SPECIFIED PRACTICES TO IMPROVE THEIR EFFECTIVENESS AS APPROVED BY THE ENGINEER. THE CONTRACTOR WILL MAINTAIN A LOG OF THE DATES OF MAJOR SOIL DISTURBANCE ACTIVITIES, AND ALSO THE DATES OF INSTALLATION OF EROSION CONTROL MEASURES.**

SOIL TYPE: HAPPYDITCH LOAMY FINE SAND

TOTAL AREA OF THE CONSTRUCTION SITE: 4.35 ACRES

ESTIMATED AREA TO BE DISTURBED: 3.15 ACRES

OFFSITE AREA TO BE DISTURBED:  
(FOR CONTRACTOR USE)

TOTAL IMPERVIOUS AREA  
PRE-CONSTRUCTION: 0.61 ACRES

TOTAL IMPERVIOUS AREA  
POST-CONSTRUCTION: 0.66 ACRES

POST-CONSTRUCTION RUNOFF  
COEFFICIENT OF THE SITE: 0.30

LATITUDE & LONGITUDE  
OF CENTER OF PROJECT: N36°37'9" W101°53'19"

PROJECT WILL DISCHARGE TO:

NAME OF RECEIVING WATERS: SAND CREEK

SENSITIVE WATERS OR WATERSHEDS: YES  NO

303(d) IMPAIRED WATERS: YES  NO

IF YES, LIST IMPAIRMENT: \_\_\_\_\_

LOCATED IN A TMDL: YES  NO

LAKE THUNDERBIRD TMDL: YES  NO

MS4 ENTITY YES  NO

IF YES, LOCATION: \_\_\_\_\_

NOTE:  
THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE MAP THAT ILLUSTRATES THE DRAINAGE PATTERNS/PATHWAYS AND RECEIVING WATERS FOR THIS PROJECT. THIS SHEET SHOULD ALSO BE USED WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS, & NOTES.

## EROSION AND SEDIMENT CONTROLS

**SOIL STABILIZATION PRACTICES:**

- TEMPORARY SEEDING
- PERMANENT SODDING, SPRIGGING OR SEEDING
- VEGETATIVE MULCHING
- SOIL RETENTION BLANKET
- PRESERVATION OF EXISTING VEGETATION

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

**STRUCTURAL PRACTICES:**

- STABILIZED CONSTRUCTION EXIT
- TEMPORARY SILT FENCE
- TEMPORARY SILT DIKES
- TEMPORARY FIBER LOG
- DIVERSION, INTERCEPTOR OR PERIMETER DIKES
- DIVERSION, INTERCEPTOR OR PERIMETER SWALES
- ROCK FILTER DAMS
- TEMPORARY SLOPE DRAIN
- PAVED DITCH W/ DITCH LINER PROTECTION
- TEMPORARY DIVERSION CHANNELS
- TEMPORARY SEDIMENT BASINS
- TEMPORARY SEDIMENT TRAPS
- TEMPORARY SEDIMENT FILTERS
- TEMPORARY SEDIMENT REMOVAL
- RIP RAP
- INLET SEDIMENT FILTER
- TEMPORARY BRUSH SEDIMENT BARRIERS
- SANDBAG BERMS
- TEMPORARY STREAM CROSSINGS

**OFFSITE VEHICLE TRACKING:**

- HAUL ROADS DAMPENED FOR DUST CONTROL
- LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN
- EXCESS DIRT ON ROAD REMOVED DAILY

**NOTES:**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

**MAINTENANCE AND INSPECTION:**  
 ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE VEGETATIVE COVER IS ESTABLISHED. INSPECTION BY THE CONTRACTOR AND ANY NECESSARY REPAIRS SHALL BE PERFORMED ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH AS RECORDED BY A NON-FREEZING RAIN GAUGE TO BE LOCATED ON SITE. POTENTIALLY ERODIBLE AREAS, DRAINAGEWAYS, MATERIAL STORAGE, STRUCTURAL DEVICES, CONSTRUCTION ENTRANCES AND EXITS ALONG WITH EROSION AND SEDIMENT CONTROL LOCATIONS ARE EXAMPLES OF SITES THAT NEED TO BE INSPECTED.

**WASTE MATERIALS:**  
 PROPER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIAL IS REQUIRED BY THE CONTRACTOR. MATERIALS INCLUDE STOCKPILES, SURPLUS, DEBRIS AND ALL OTHER BY-PRODUCTS FROM THE CONSTRUCTION PROCESS. PRACTICES INCLUDE DISPOSAL, PROPER MATERIALS HANDLING, SPILL PREVENTION AND CLEANUP MEASURES. CONTROLS AND PRACTICES SHALL MEET THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL AGENCIES.

**HAZARDOUS MATERIALS:**  
 PROPER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIALS IS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING MANUFACTURER'S RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES. EXAMPLES INCLUDE BUT ARE NOT LIMITED TO: PAINTS, ACIDS, CLEANING SOLVENTS, CHEMICAL ADDITIVES, CONCRETE CURING COMPOUNDS AND CONTAMINATED SOILS.

**GENERAL NOTES:**  
 A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED TO COMPLY WITH THE OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (OPDES) REGULATIONS. THIS PLAN IS INITIATED DURING THE DESIGN PHASE, CONFIRMED IN THE PRE-WORK MEETINGS AND AVAILABLE ON THE JOB SITE ALONG WITH COPIES OF THE NOTICE OF INTENT (NOI) FORM AND PERMIT CERTIFICATE THAT HAVE BEEN FILED WITH THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ). THE PLAN MUST BE KEPT CURRENT WITH UP-TO-DATE AMENDMENTS DURING THE PROGRESSION OF THE PROJECT. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE DOCUMENTED IN THE SWPPP, I.E., BORROW PITS, WORK ROADS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER MANAGEMENT IS TO IMPROVE WATER QUALITY BY REDUCING POLLUTANTS IN STORM WATER DISCHARGES. RUNOFF FROM CONSTRUCTION SITES HAS A POTENTIAL FOR POLLUTION DUE TO EXPOSED SOILS AND THE PRESENCE OF HAZARDOUS MATERIALS USED IN THE CONSTRUCTION PROCESS. THE PREVENTION OF SOIL EROSION, CONTAINMENT OF HAZARDOUS MATERIALS AND/OR THE INTERCEPTION OF THESE POLLUTANTS BEFORE LEAVING THE CONSTRUCTION SITE ARE THE BEST PRACTICES FOR CONTROLLING STORM WATER POLLUTION.

THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:

- 103.05 BONDING REQUIREMENTS
- 104.10 FINAL CLEANING UP
- 104.12 CONTRACTOR'S RESPONSIBILITY FOR WORK
- 104.13 ENVIRONMENTAL PROTECTION
- 106.08 STORAGE AND HANDLING OF MATERIAL
- 107.01 LAWS, RULES AND REGULATIONS TO BE OBSERVED
- 107.20 STORM WATER MANAGEMENT
- 220 MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLLUTION PREVENTION AND CONTROL
- 221 TEMPORARY SEDIMENT CONTROL

IN ADDITION:  
 "ODEQ GENERAL PERMIT (OKR10) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA." ODEQ, WATER QUALITY DIVISION, SEPTEMBER 13, 2017.

DESIGN				OKLAHOMA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION
DRAWN	JRR	05/15		<b>STORM WATER MANAGEMENT PLAN</b>
CHECKED				
APPROVED				
SQUAD	xxx			
COUNTY <u>TEXAS</u> HIGHWAY <u>NS-63</u> STATE JOB NO. <u>JP30490(04)</u> SHEET NO. <u>R001</u>				

SECTION 20, T2N, R11E

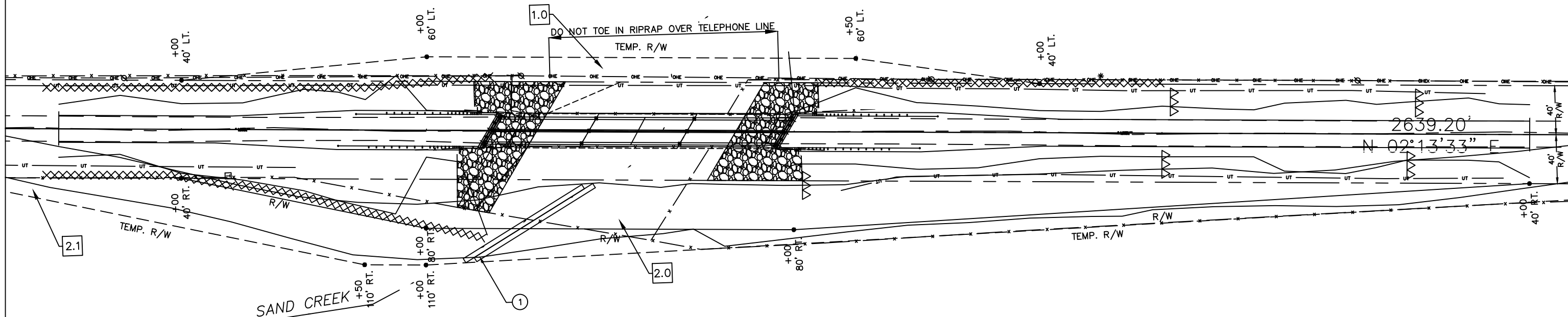
SECTION 20, T2N, R11E

105+00

107+50

110+00

SAND CREEK



SECTION 21, T2N, R11E

SECTION 21, T2N, R11E

LEGEND	
TEMPORARY SILT DIKE	
TEMPORARY SILT FENCE	

TEXAS COUNTY SAND CREEK

EROSION CONTROL

J/P NO. 30490(04)

SHEET NO. R002

CL STA. 102+00.00  
 BEGIN J/P NO. 30490(04)  
 X=827572.7725  
 Y=611777.2761

CL STA. 114+00.00  
 END J/P NO. 30490(04)  
 X=827619.3775  
 Y=612976.3708

UTILITY CONTACTS	
TRI COUNTY ELECTRIC	LYLE MATHIS 580-652-2418
PANHANDLE TELEPHONE	JEFF FUERSTENAU 580-651-9710

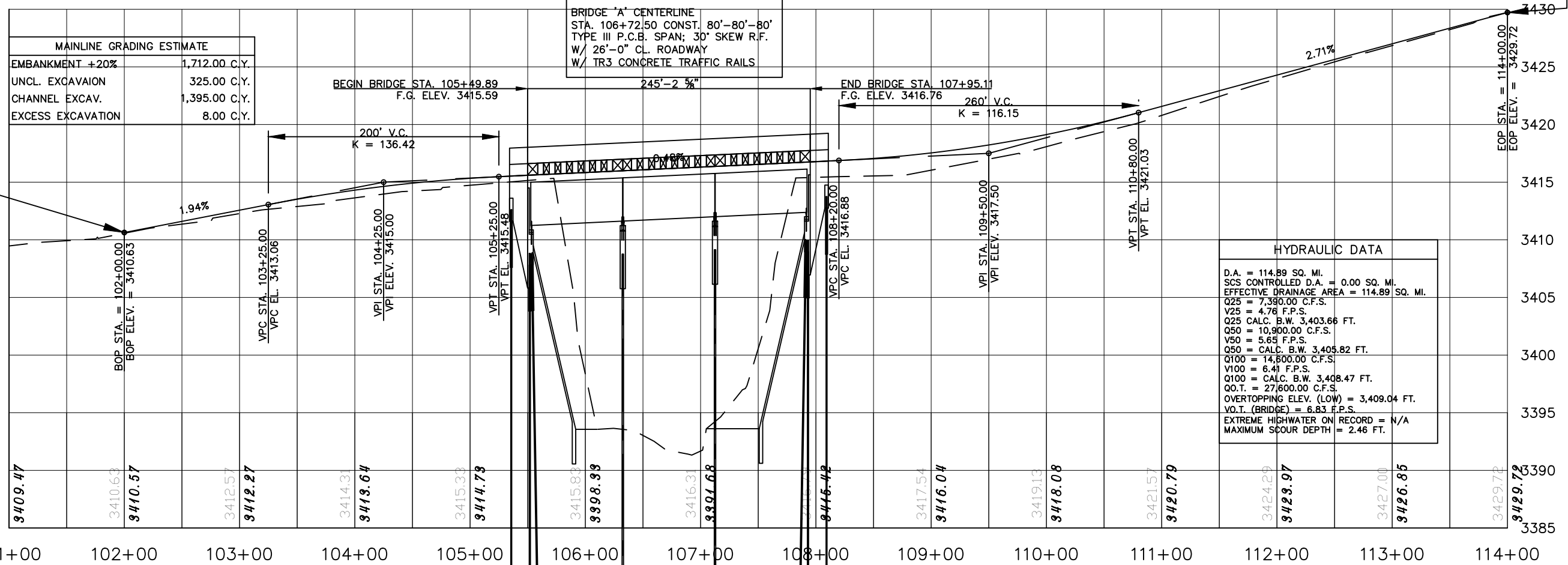
NOTE: CONTRACTOR SHALL MEET & MATCH EXISTING ROADWAY & DITCHES AT BEGINNING & END OF PROJECT.

BENCHMARK NO. 402	
1/2" IRON PIN	40.10 FT. RT.
STA. 104+10.10	ELEV. 3402.47
X=827621.007	Y=611985.663

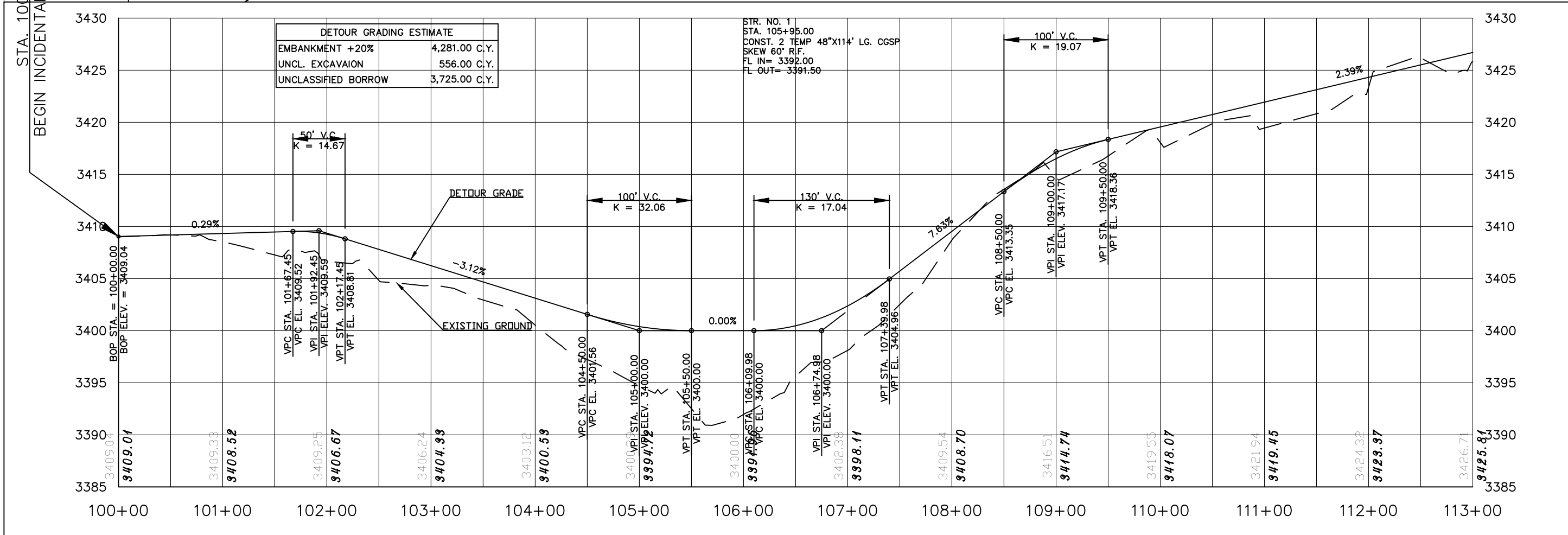
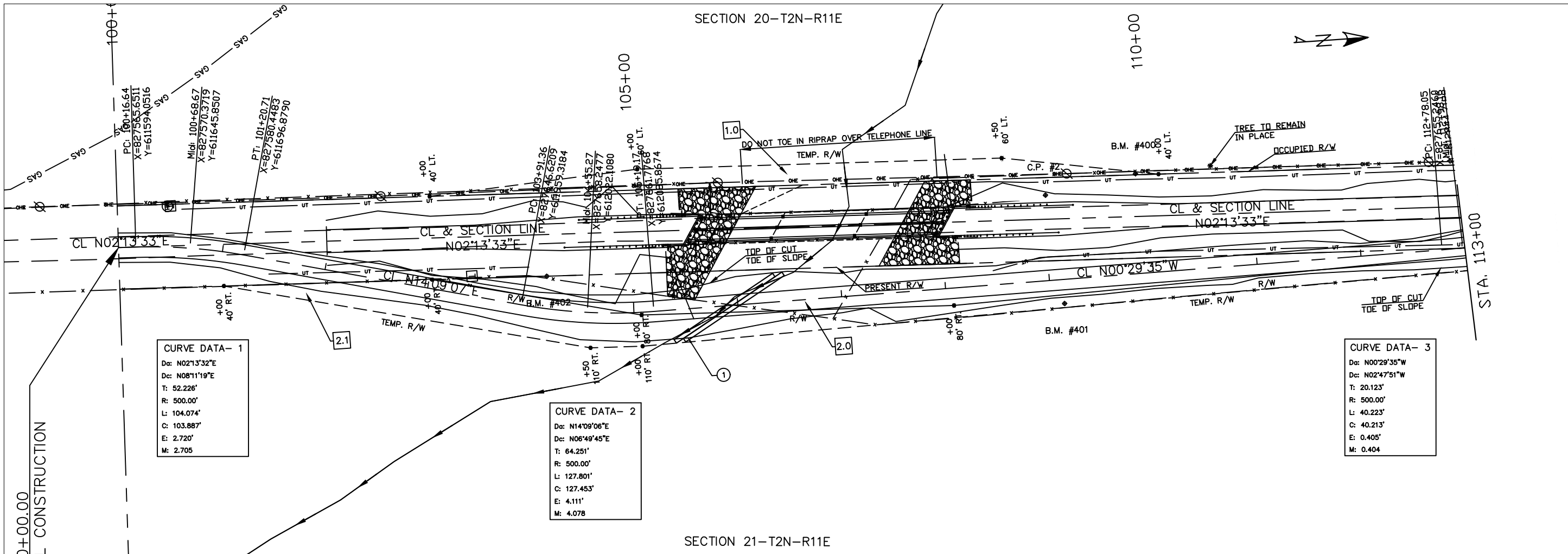
CONTROL POINT NO. 2	
1/2" IRON PIN	23.10 FT. LT.
STA. 108+90.94	ELEV. 3414.00
X=827576.528	Y=612468.590

BENCHMARK NO. 401	
1/2" IRON PIN	81.42 FT. RT.
STA. 109+06.17	ELEV. 3418.42
X=827681.561	Y=612479.752

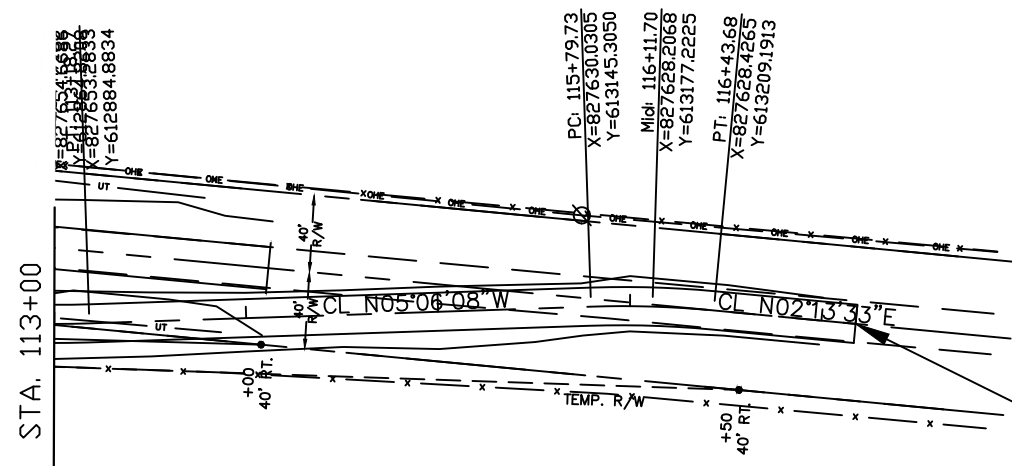
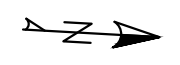
BENCHMARK NO. 400	
1/2" IRON PIN	41.03 FT. LT.
STA. 109+77.91	ELEV. 3416.39
X=827561.989	Y=612556.188





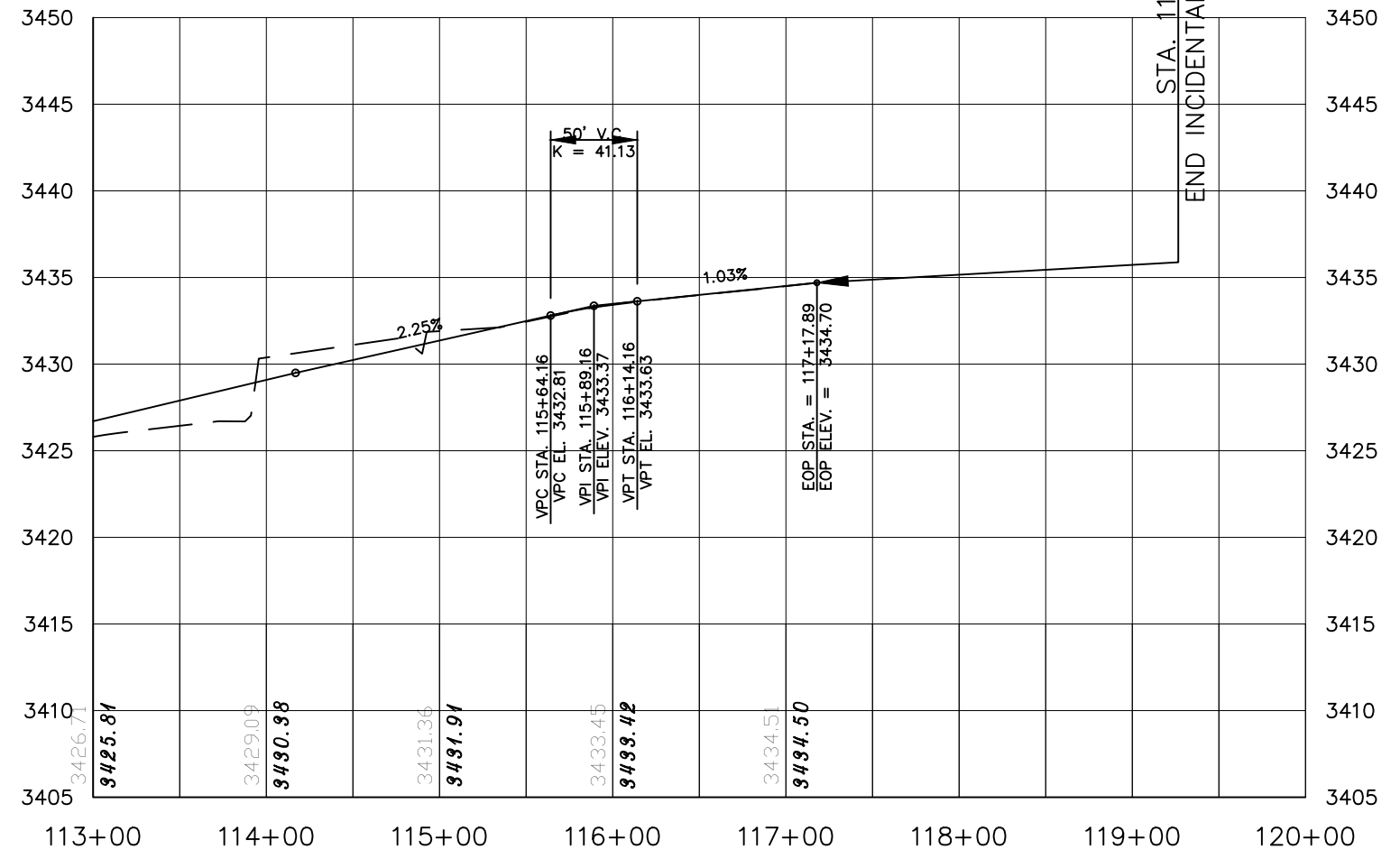


SECTION 20- T2N-R11E  
 115+00 117+18



CURVE DATA- 4	
Da:	N05°06'08"W
Dc:	N01°26'17"W
T:	32.019'
R:	500.00'
L:	63.950'
C:	63.906'
E:	1.024'
M:	1.022

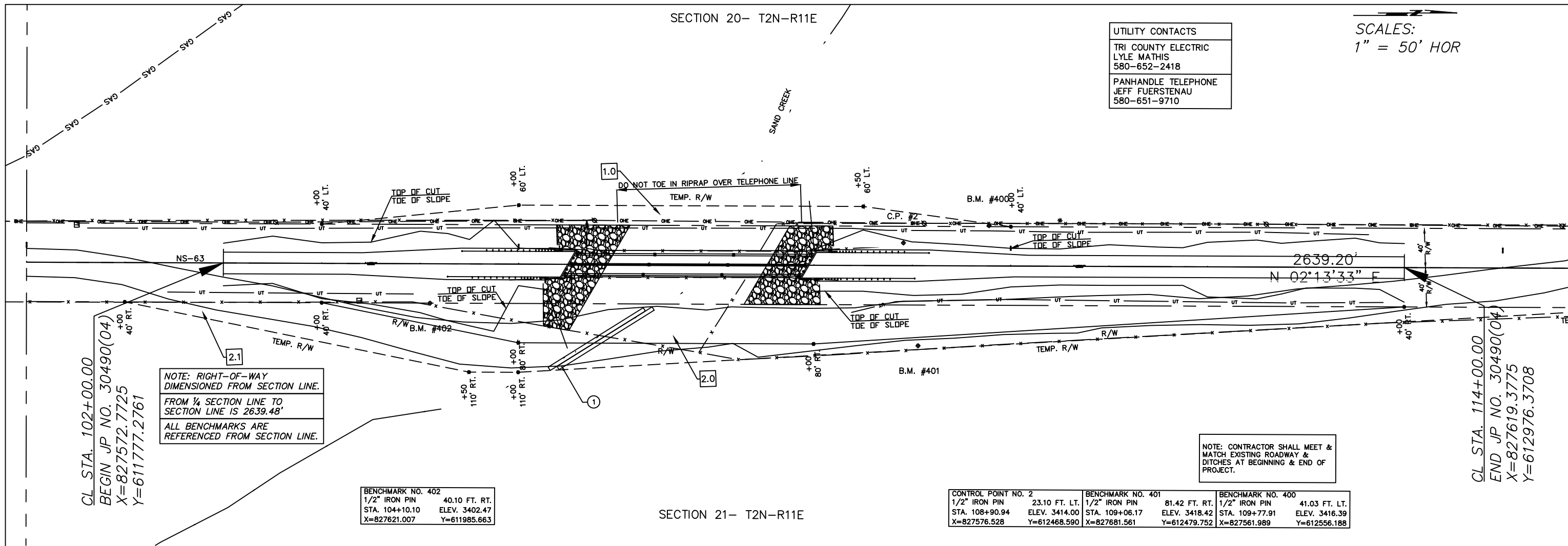
SECTION 21- T2N-R11E



SECTION 20- T2N-R11E

UTILITY CONTACTS	
TRI COUNTY ELECTRIC	LYLE MATHIS 580-652-2418
PANHANDLE TELEPHONE	JEFF FUERSTENAU 580-651-9710

SCALES:  
1" = 50' HOR

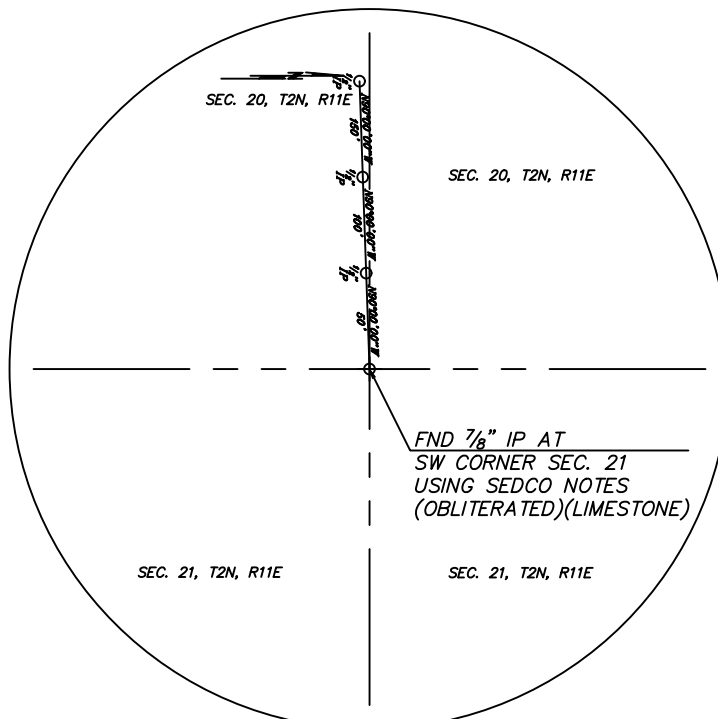


NOTE: RIGHT-OF-WAY  
DIMENSIONED FROM SECTION LINE.  
FROM 1/4 SECTION LINE TO  
SECTION LINE IS 2639.48'  
ALL BENCHMARKS ARE  
REFERENCED FROM SECTION LINE.

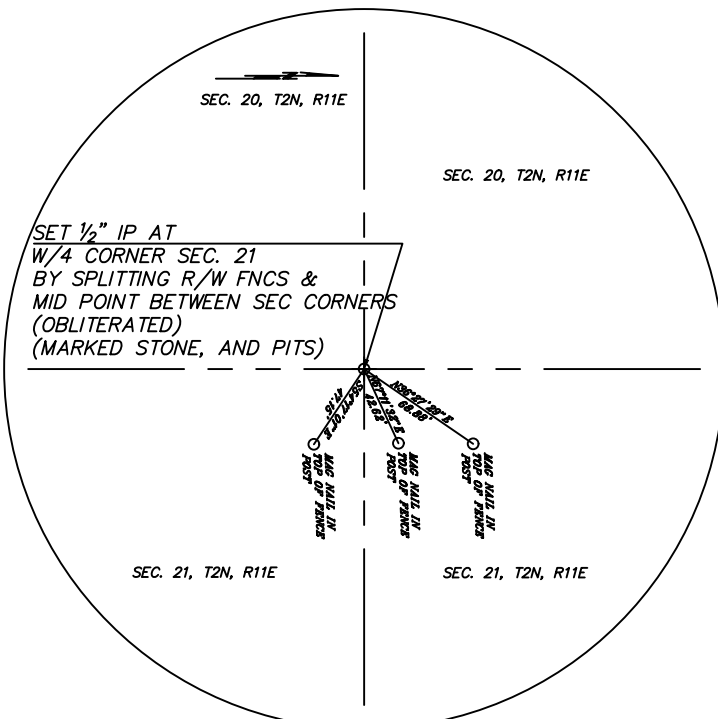
NOTE: CONTRACTOR SHALL MEET &  
MATCH EXISTING ROADWAY &  
DITCHES AT BEGINNING & END OF  
PROJECT.

BENCHMARK NO. 402	
1/2" IRON PIN	40.10 FT. RT.
STA. 104+10.10	ELEV. 3402.47
X=827621.007	Y=611985.663

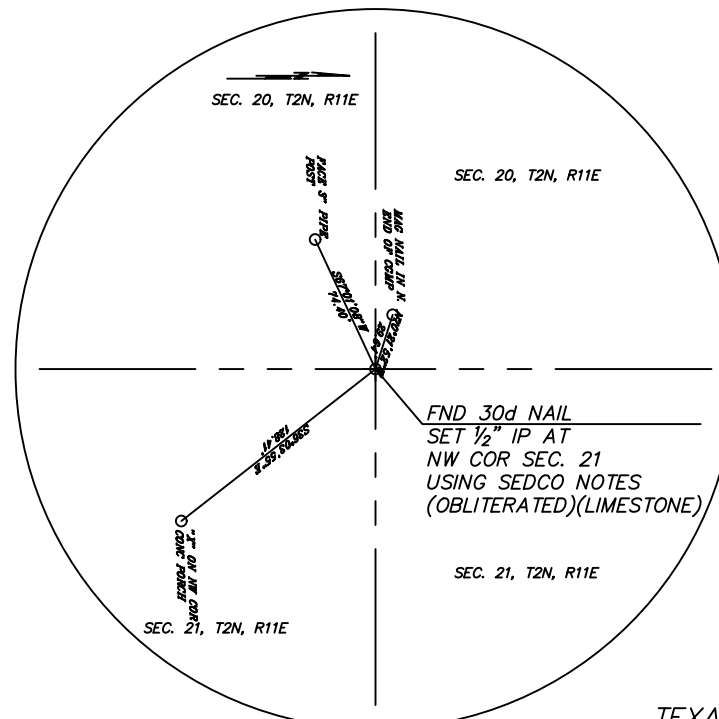
CONTROL POINT NO. 2		BENCHMARK NO. 401		BENCHMARK NO. 400	
1/2" IRON PIN	23.10 FT. LT.	1/2" IRON PIN	81.42 FT. RT.	1/2" IRON PIN	41.03 FT. LT.
STA. 108+90.94	ELEV. 3414.00	STA. 109+06.17	ELEV. 3418.42	STA. 109+77.91	ELEV. 3416.39
X=827576.528	Y=612468.590	X=827681.561	Y=612479.752	X=827561.989	Y=612556.188



SW SECTION CORNER  
SECTION 21, T2N, R11E  
STA. 100+00.00  
X=827565.0050  
Y=611577.4270

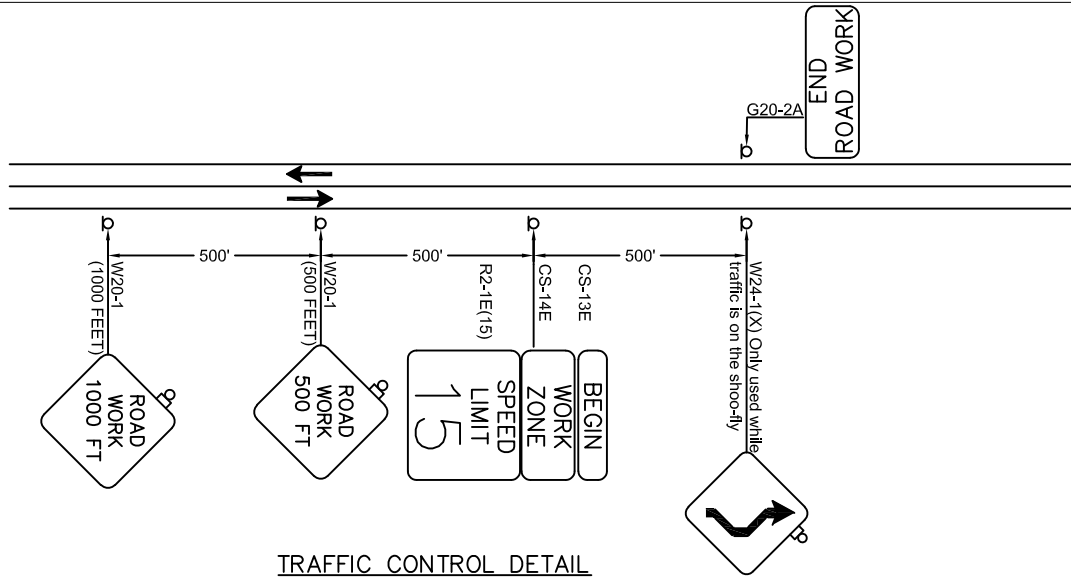


E. 1/4 SECTION CORNER  
SECTION 21, T2N, R11E  
STA. 126+39.20  
X=827667.5050  
Y=614214.6380

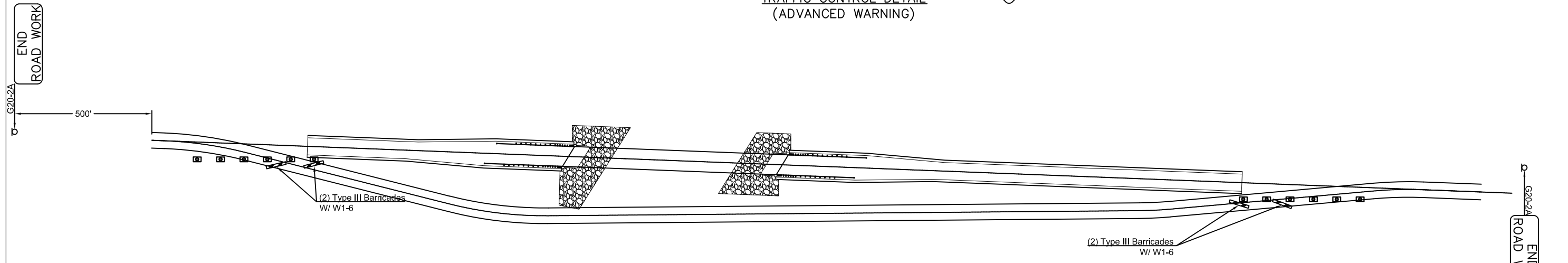


NW SECTION CORNER  
SECTION 21, T2N, R11E  
STA. 152+78.23  
X=827765.1510  
Y=616851.8600

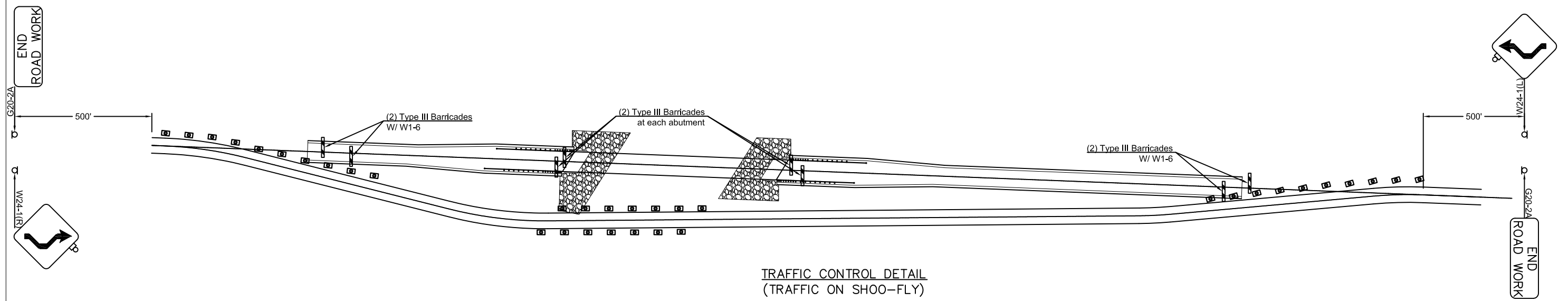
TEXAS COUNTY SAND CREEK  
ALIGNMENT, SURVEY  
REFERENCES AND R/W  
J/P NO. 30490(04) SHEET NO. S001



TRAFFIC CONTROL DETAIL  
(ADVANCED WARNING)



TRAFFIC CONTROL DETAIL  
(CONSTRUCT & REMOVE SHOO-FLY)



TRAFFIC CONTROL DETAIL  
(TRAFFIC ON SHOO-FLY)

NOT TO SCALE

KEY:

	Vertical Panel
	Sign
	Type III Barricade

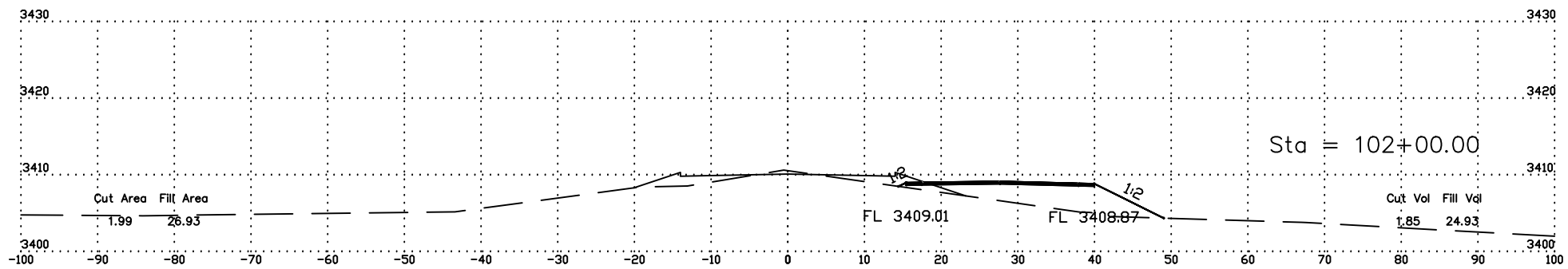
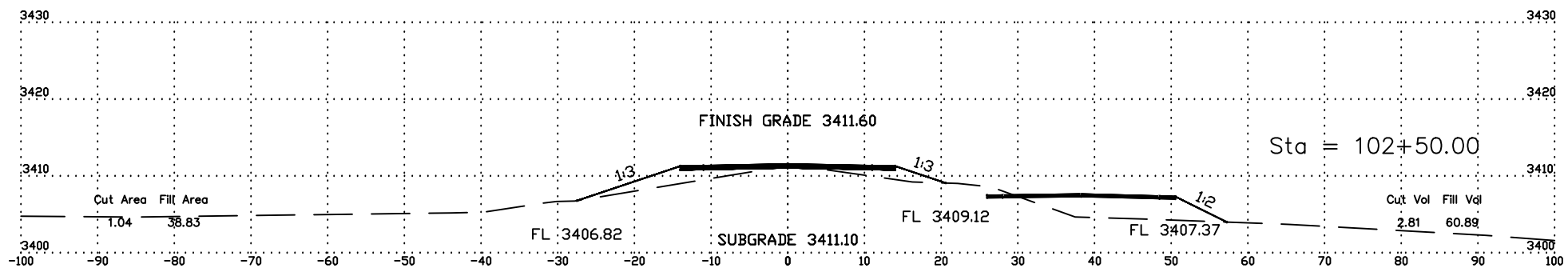
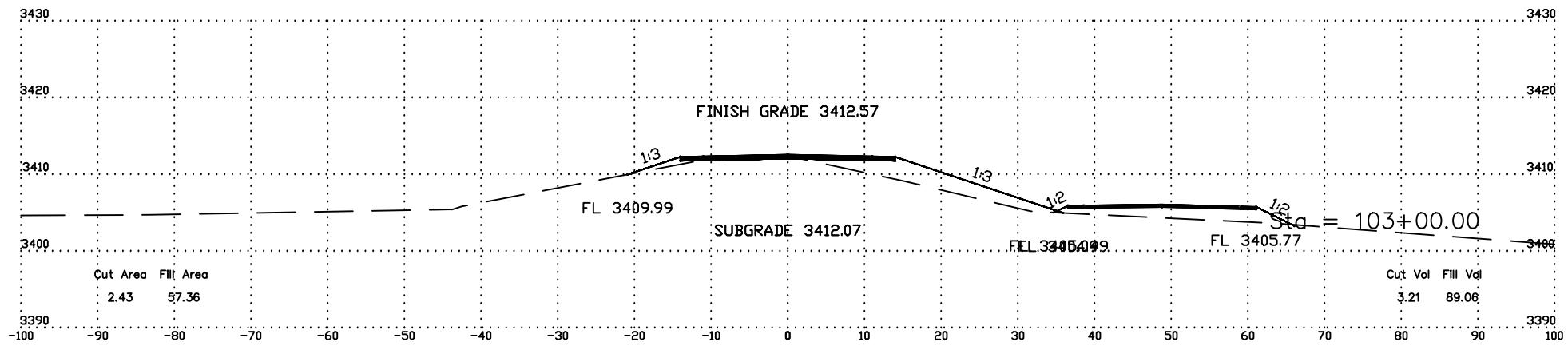
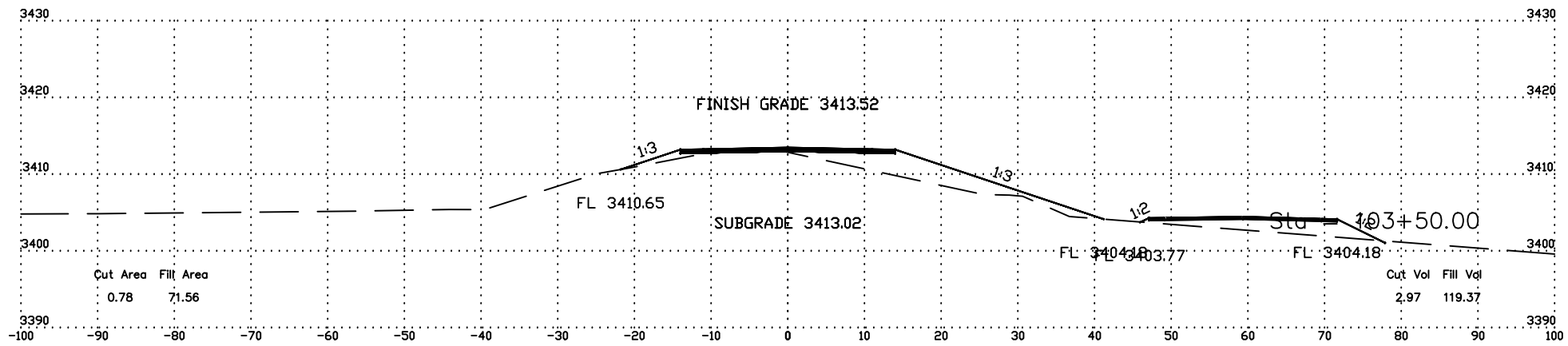
Note 1:  
The maximum spacing (feet) between vertical panels shall be twice the posted speed limit.  
Note 2:  
All signs, barricades, and vertical pannels shall contain a warning light.

Note 3:  
The contractor shall maintain drive access at all times.

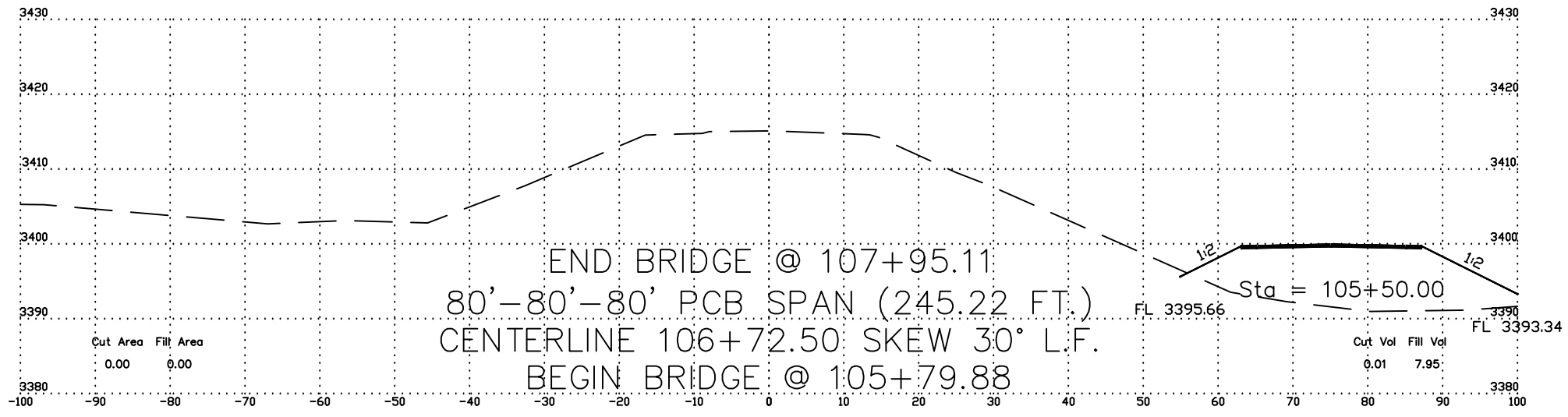
TEXAS COUNTY

TRAFFIC CONTROL PLAN

J/P NO. 30490(04) SHEET T001

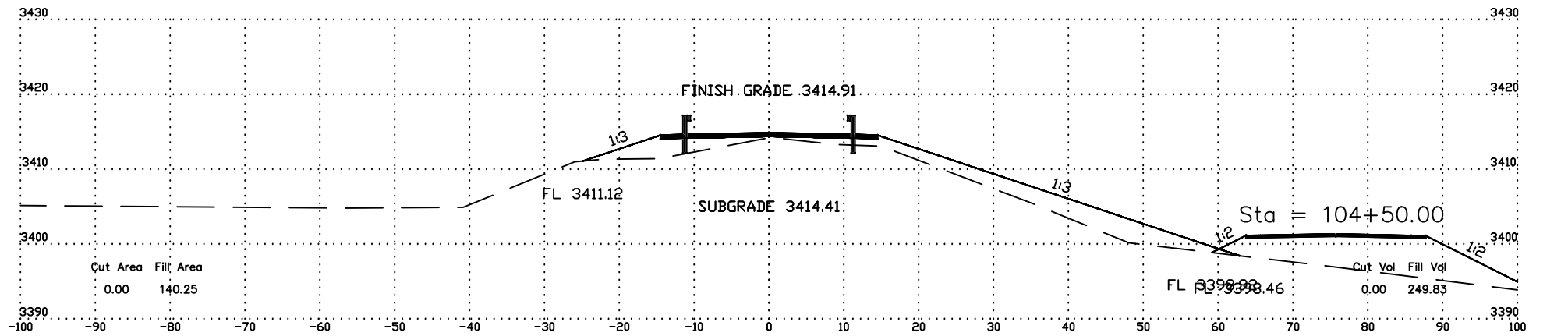
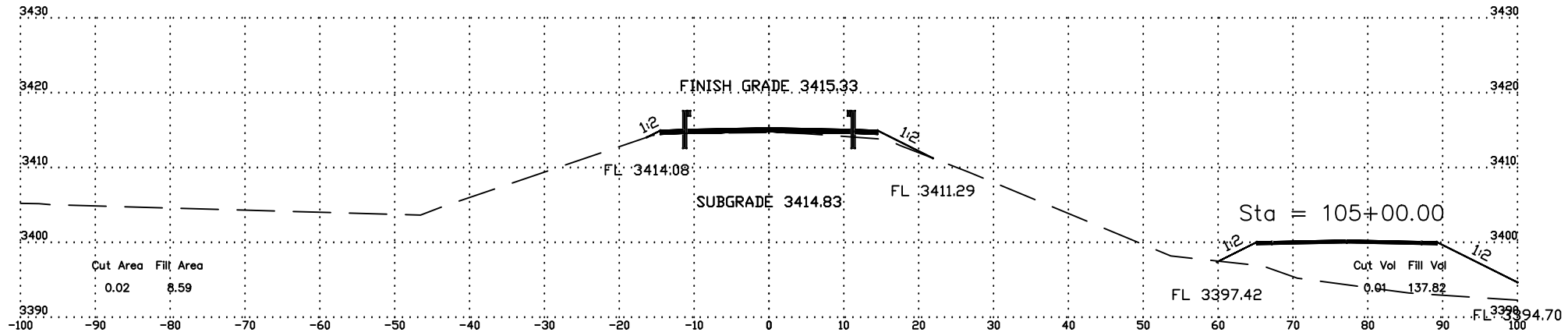


SCALE:  
1" = 10'



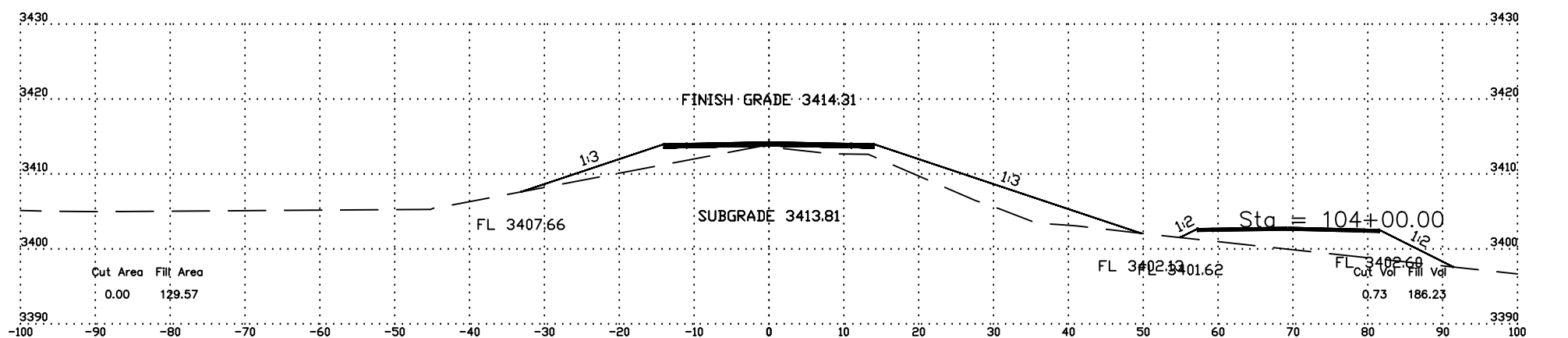
GUARDRAIL @ 105+42.49

GUARDRAIL @ 105+27.96

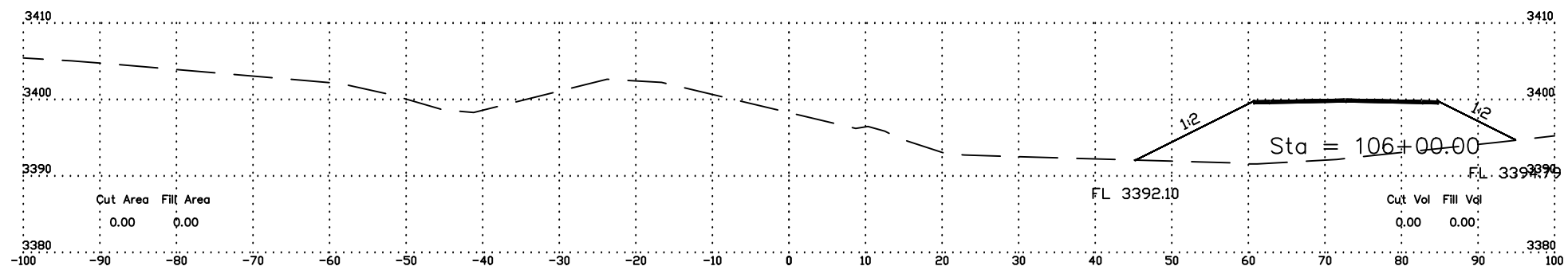
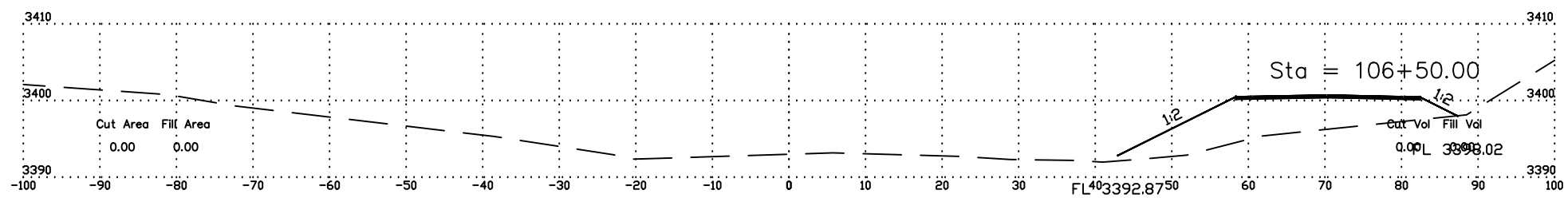
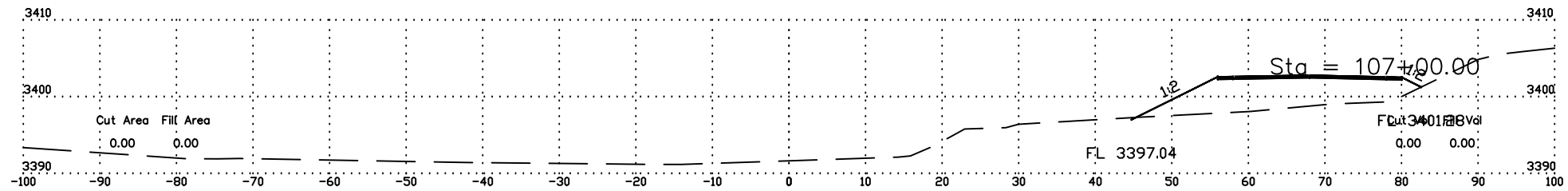
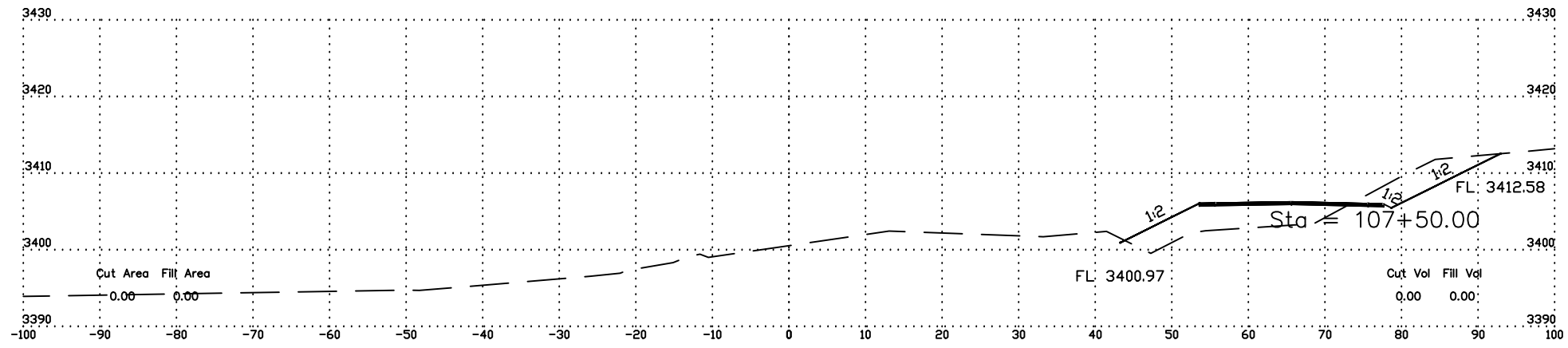
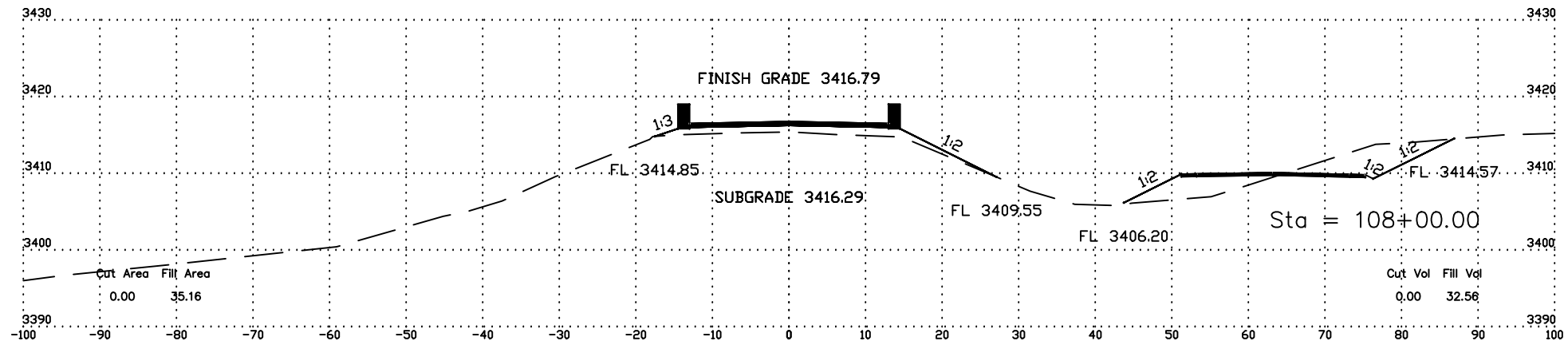


GUARDRAIL @ 104+42.49

GUARDRAIL @ 104+27.96

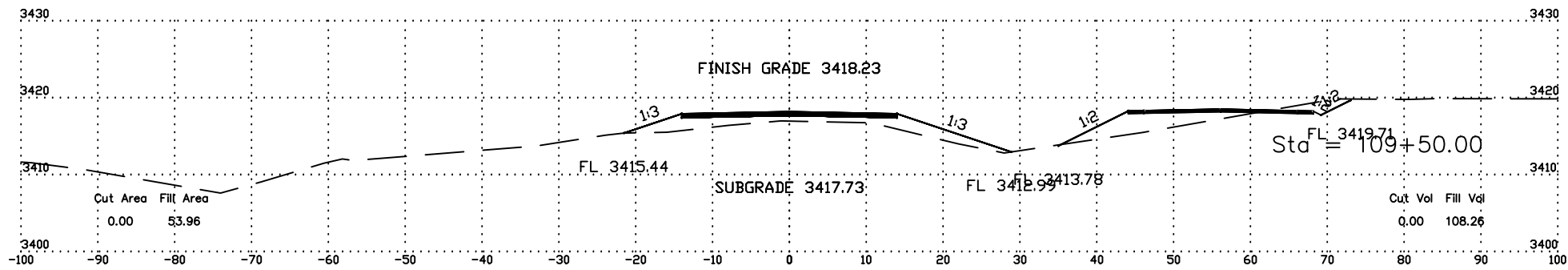
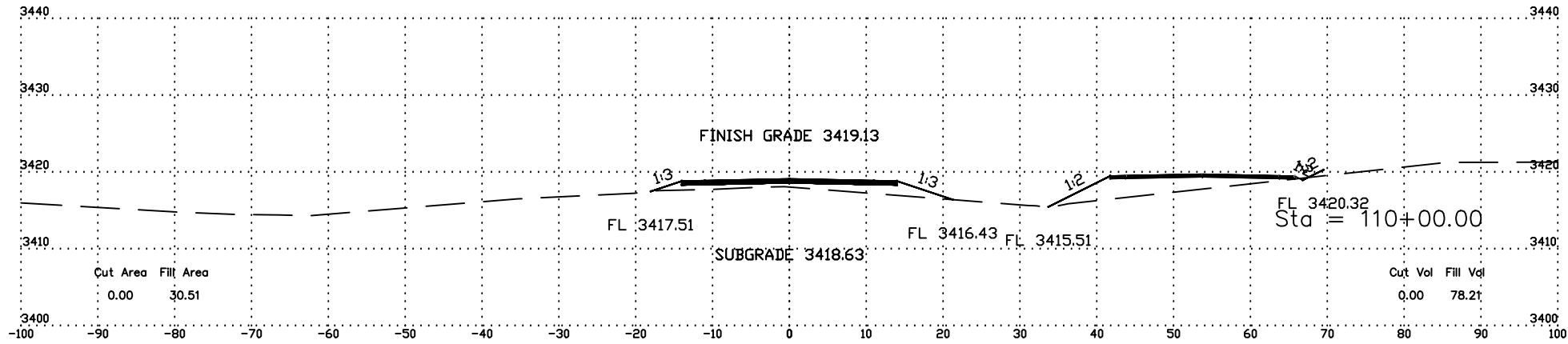


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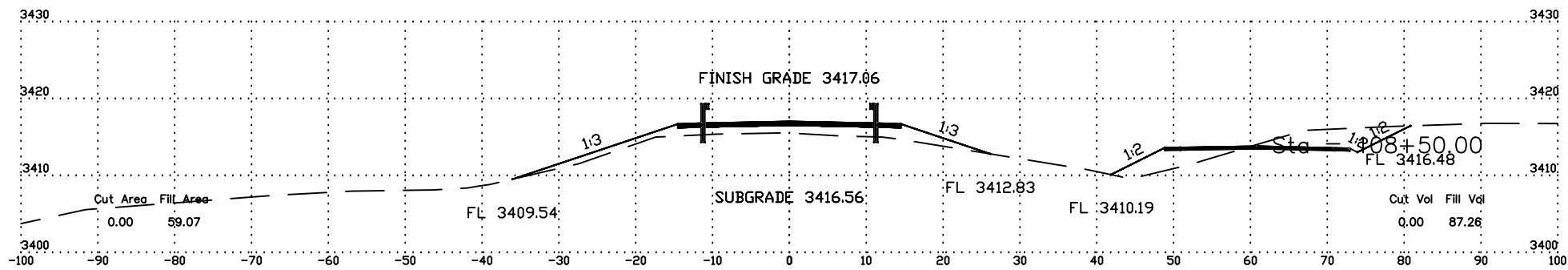
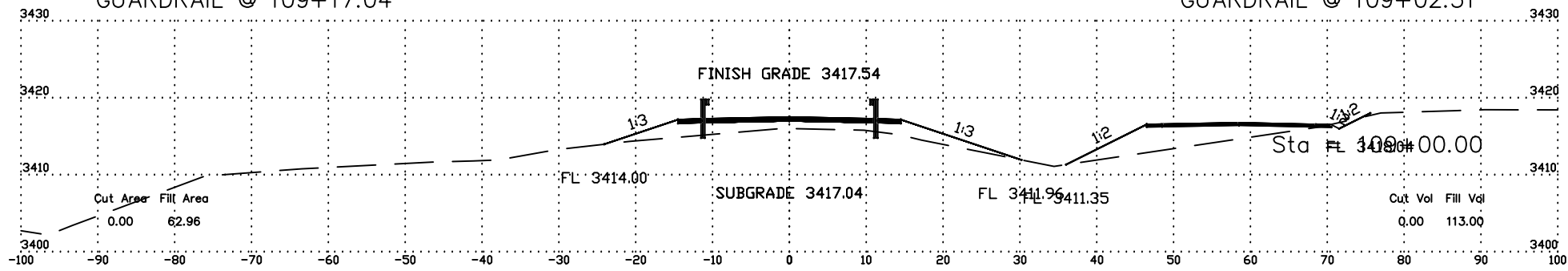
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GUARDRAIL @ 109+17.04

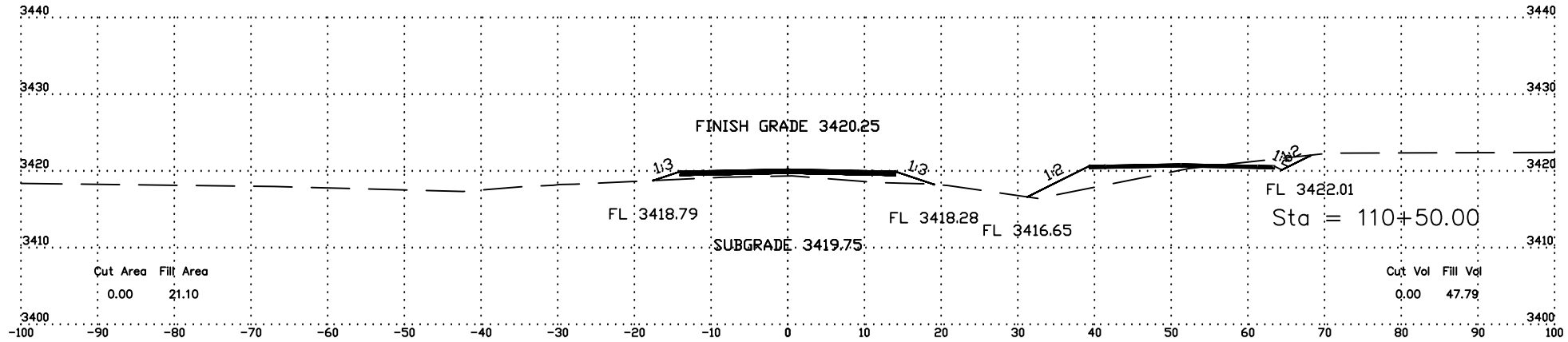
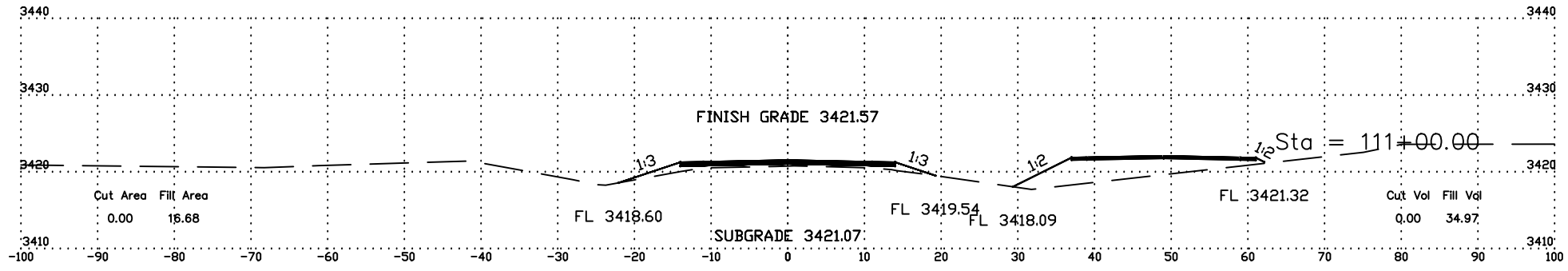
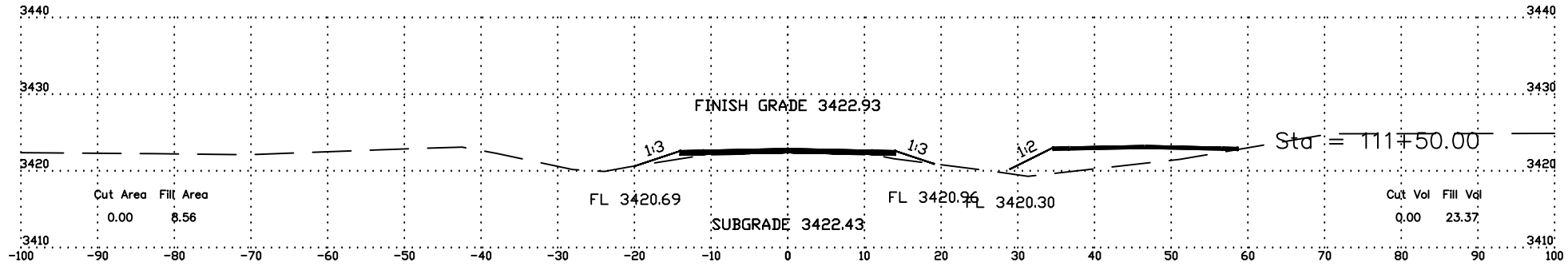
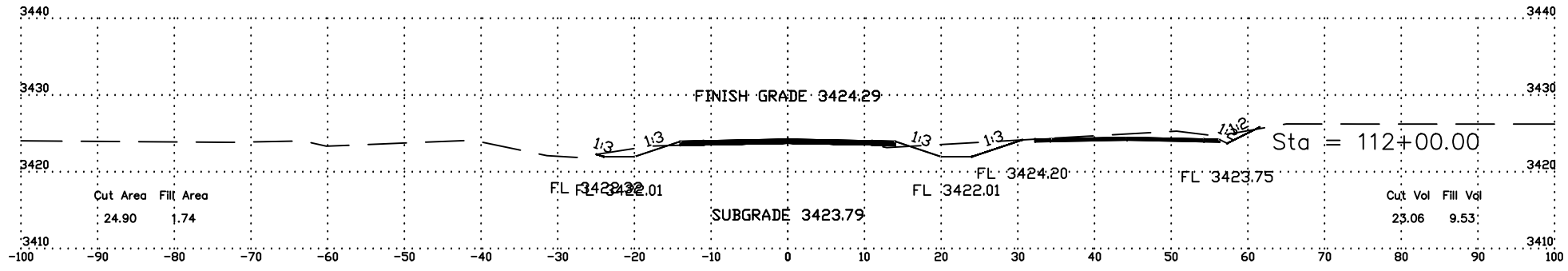
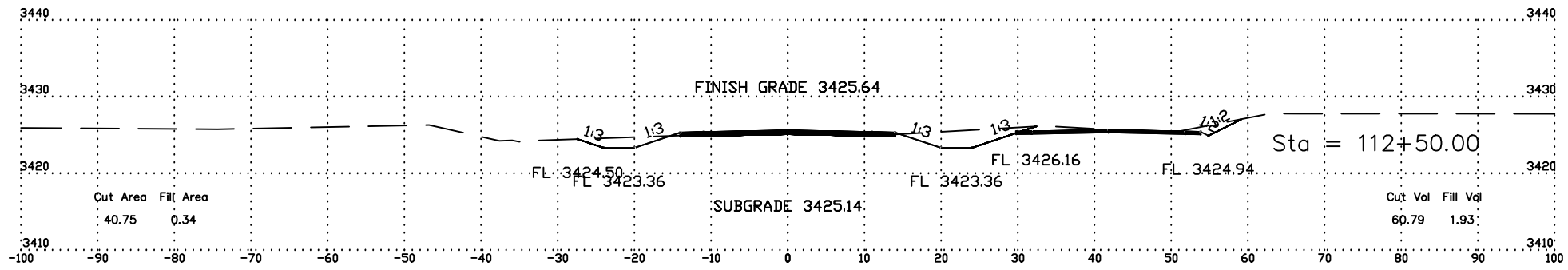
GUARDRAIL @ 109+02.51



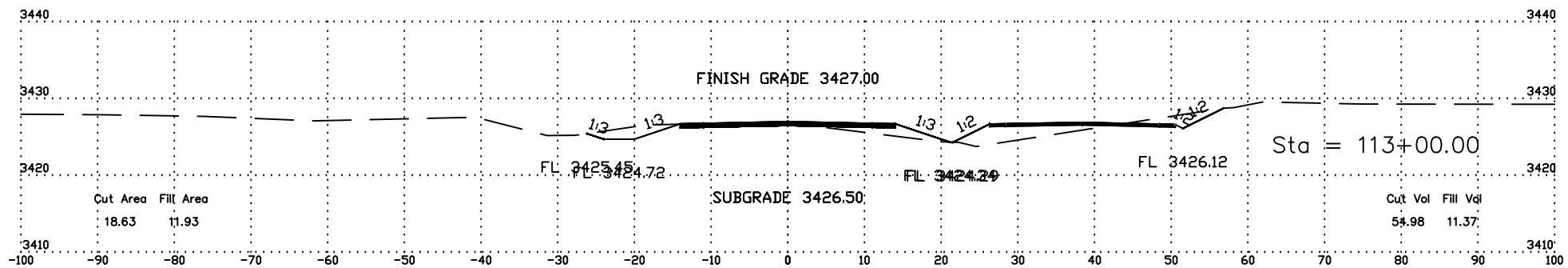
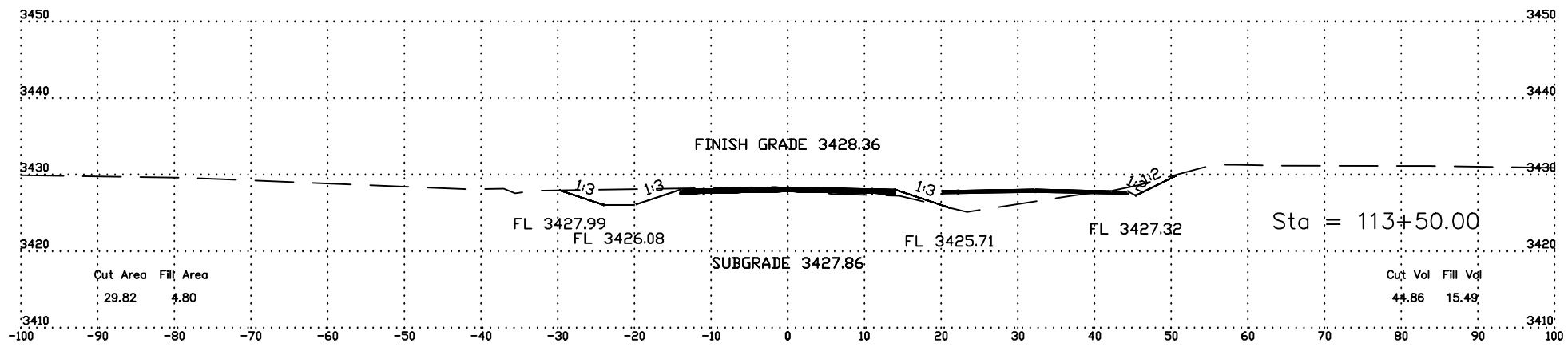
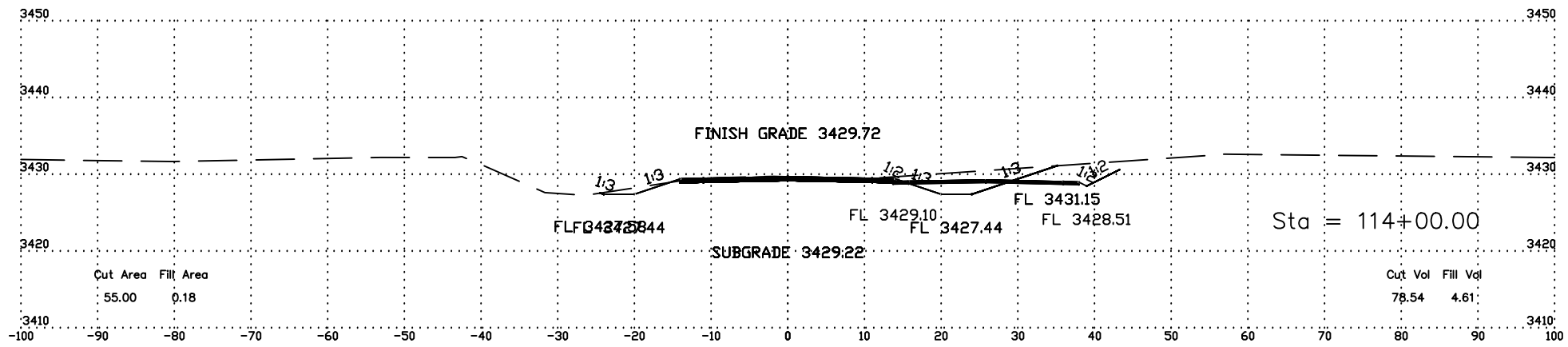
GUARDRAIL @ 108+17.04

GUARDRAIL @ 108+02.51

SCALE:  
1" = 10'



SCALE:  
1" = 10'



SCALE:  
1" = 10'