DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	1	232
				(2)	N. OF BEE BRANCH-CO. RD. 28 (S)			

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONSTRUCTION PLANS FOR STATE HIGHWAY

N. OF BEE BRANCH-CO. RD. 28 (S)

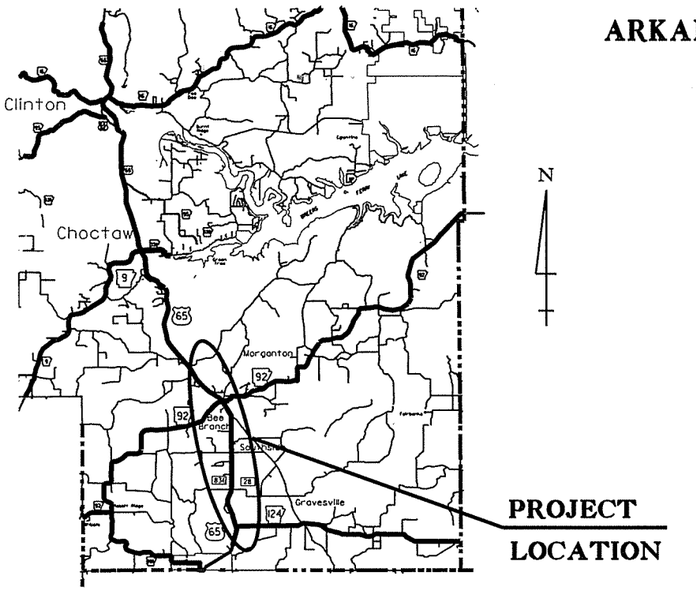
VAN BUREN COUNTY

ROUTE 65 SECTION 8

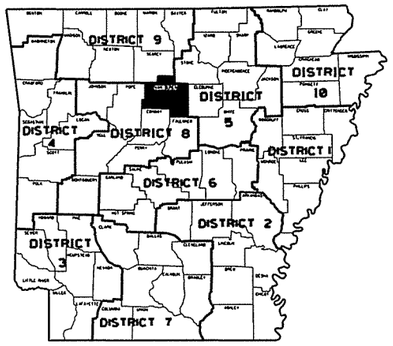
F.A.P. NHPP-0071(24)

JOB 080391

NOT TO SCALE



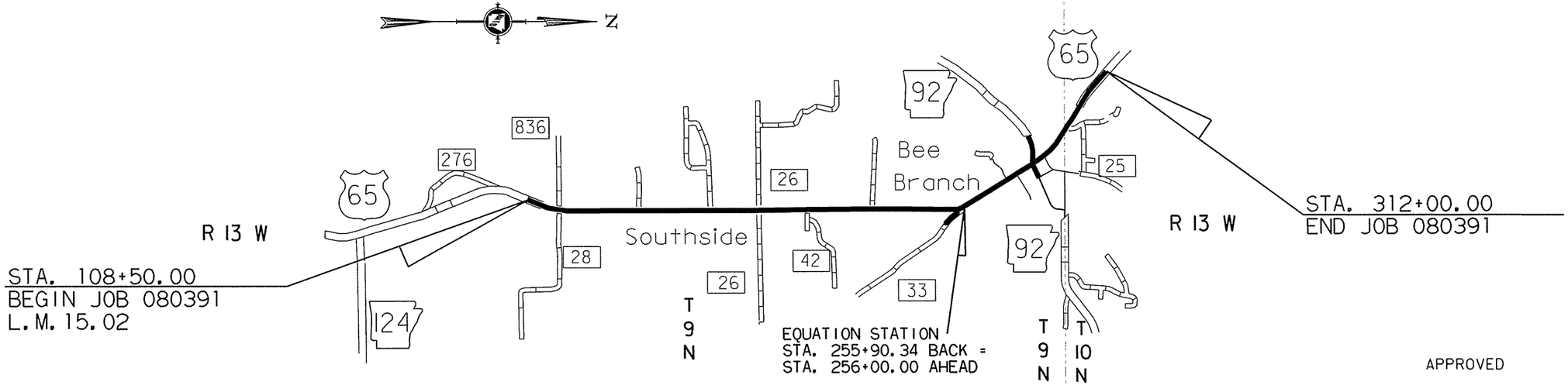
VICINITY MAP



ARKANSAS HIGHWAY DISTRICT 8

• DESIGN TRAFFIC DATA •

DESIGN YEAR----------2034
2014 ADT----------11000
2034 ADT----------14500
2034 DHV----------1595
DIRECTIONAL DISTRIBUTION----------60%
TRUCKS----------18%
DESIGN SPEED (RURAL)----------60 MPH
(URBAN)----------45 MPH



APPROVED

STATE OF ARKANSAS
9-29-14
REGISTERED PROFESSIONAL ENGINEER
No. 4215
RALPH J. HALL

DEPUTY DIRECTOR
AND CHIEF ENGINEER

PROJECT COORDINATES:

	BEGIN	MID-POINT	END
LAT.	N35° 24' 20.0"	N35° 26' 06.0"	N35° 27' 25.0"
LON.	W92° 23' 29.0"	W92° 23' 23.3"	W92° 24' 12.0"

GROSS LENGTH OF PROJECT 20340.34 FEET OR 3.852 MILE
NET LENGTH OF ROADWAY 20340.34 FEET OR 3.852 MILE
NET LENGTH OF BRIDGES 0.00 FEET OR 0.000 MILE
NET LENGTH OF PROJECT 20340.34 FEET OR 3.852 MILE

P.E. JOB 080391

080391

r080391.dgn 9/25/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	2	232

(2) INDEX OF SHEETS, GOV. SPECS, & GEN. NOTES

INDEX OF SHEETS

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31 - 52		MAINTENANCE OF TRAFFIC DETAILS		
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61 - 69		QUANTITIES		
70		SUMMARY OF QUANTITIES AND REVISIONS		
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110		FLARED END SECTION	FES-1	10-18-96
111		FLARED END SECTION	FES-2	10-18-96
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113		DETAILS OF DROP INLETS (TYPE C)	FPC-9E	8-22-02
114		DETAILS OF DROP INLET (TYPE MO)	FPC-9M	8-22-02
115		MAILBOX DETAILS	MB-1	11-18-04
116		PRECAST CONCRETE BOX CULVERTS	PBC-1	12-15-11
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118		METAL PIPE CULVERT FILL HEIGHTS & BEDDING	PCM-1	2-27-14
119		PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	PCP-1	2-27-14
120		PLASTIC PIPE CULVERT (PVC F949)	PCP-2	2-27-14
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122		DETAILS OF PIPE UNDERDRAIN	PU-1	4-10-03
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152 - 232		CROSS SECTIONS		

NOTE: CROSS SECTIONS NOT NORMALLY INCLUDED IN PLANS SOLD TO PROSPECTIVE BIDDERS, BUT MAY BE HAD UPON REQUEST.

GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - TRAINING PROGRAM - JOB 080391
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
108-1	LIQUIDATED DAMAGES
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
620-1	MULCH COVER
JOB 080391	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 080391	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 080391	CABINET DRAWER ASSEMBLY
JOB 080391	CULVERT CLEAN OUT
JOB 080391	EDGE CARD VIDEO PROCESSOR
JOB 080391	ELECTRICAL CONDUCTORS FOR LUMINAIRES
JOB 080391	ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB 080391	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 080391	LED COUNTDOWN PEDESTRIAN SIGNAL HEAD
JOB 080391	LED TRAFFIC SIGNAL HEAD
JOB 080391	LUMINAIRE ASSEMBLY (CUTOFF TYPE)
JOB 080391	MANDATORY USE OF INTERNET BIDDING
JOB 080391	NESTING SITES OF MIGRATORY BIRDS
JOB 080391	PARTNERING REQUIREMENTS
JOB 080391	PLASTIC PIPE
JOB 080391	PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB 080391	PROSECUTION AND PROGRESS
JOB 080391	SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)
JOB 080391	SHORING
JOB 080391	SITE USE (A + C METHOD)
JOB 080391	SOIL STABILIZATION
JOB 080391	STORM WATER POLLUTION PREVENTION PLAN
JOB 080391	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 080391	UTILITY ADJUSTMENTS
JOB 080391	VALUE ENGINEERING
JOB 080391	VIDEO DETECTOR (COLOR)
JOB 080391	WARM MIX ASPHALT

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.
9. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
10. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-14

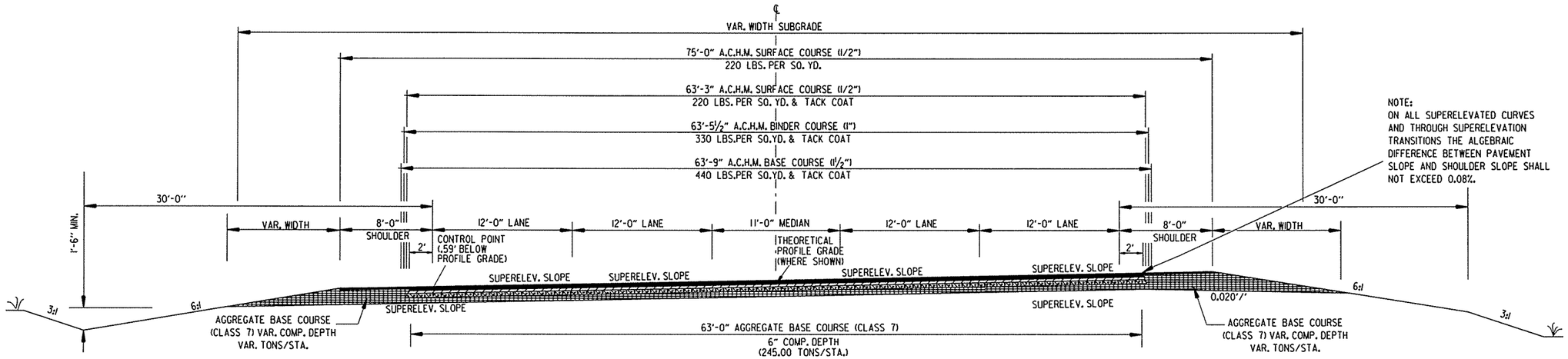
09/25/14

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	3	232

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

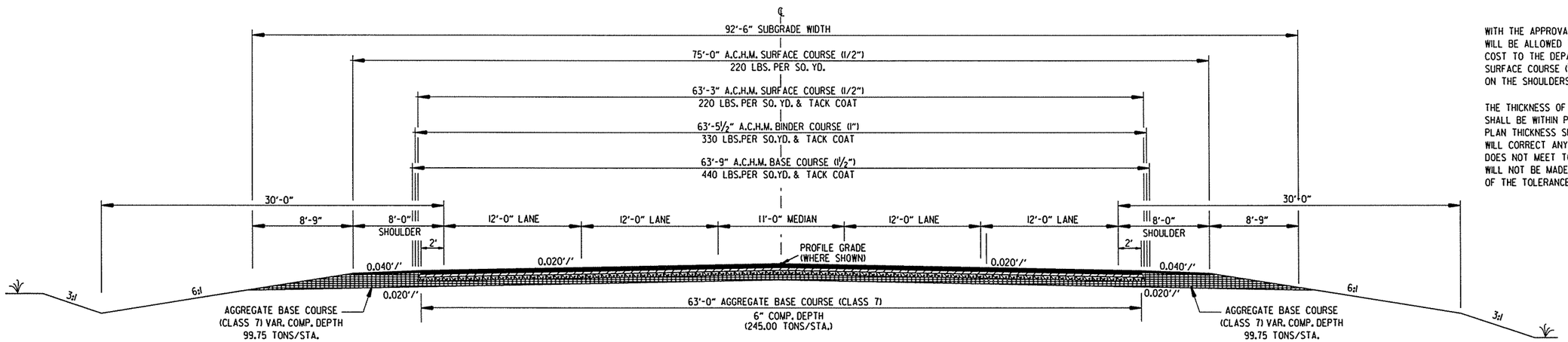


NOTE:
ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08%.

SUPERELEVATION SECTION - OPEN SHLD.

STA. 248+30.00-255+40.00
STA. 301+83.27-308+20.00
(REVERSE FOR RT. HAND CURVES)

•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.



TANGENT SECTION - OPEN SHOULDER

STA. 298+80.00-301+83.27

•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

NOTES:

REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

THE FINAL 2 INCHES OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH (1") OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

9/16/2014

R080391.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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				6	ARK.			
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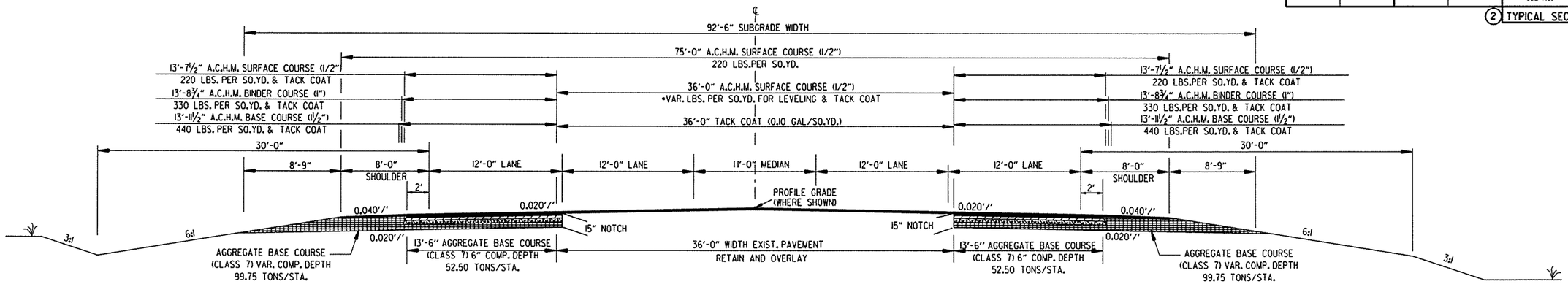
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



TANGENT SECTION - OPEN SHOULDER

STA. 123+95.10-191+00.00
254+31.83-259+00.00

•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

NOTES:

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAYMENTS.

REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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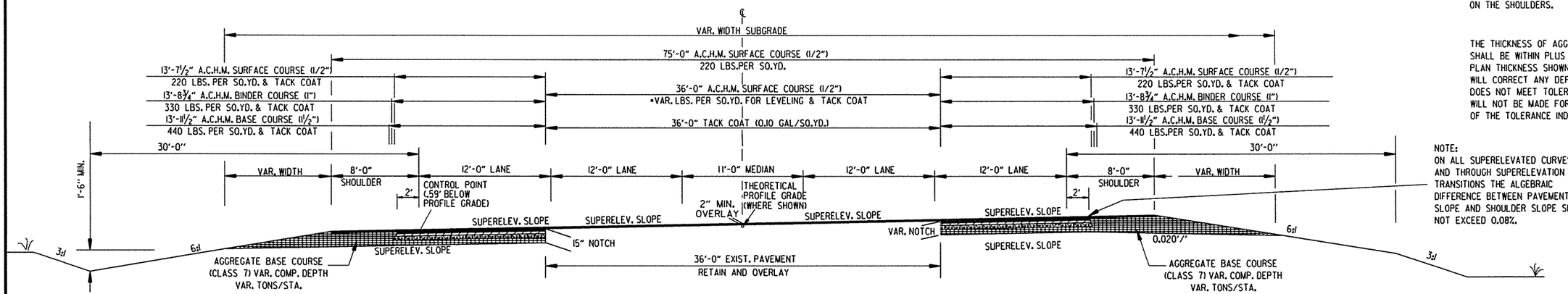

NOTE:
ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08%.

SUPERELEVATION SECTION - OPEN SHLD.

STA. 108+50.00-123+95.10
STA. 238+88.43-248+30.00
STA. 255+40.00-254+31.83
STA. 308+20.00-312+00.00
(REVERSE FOR RT. HAND CURVES)

•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

TYPICAL SECTIONS OF IMPROVEMENT

9/16/2014

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				6	ARK.			
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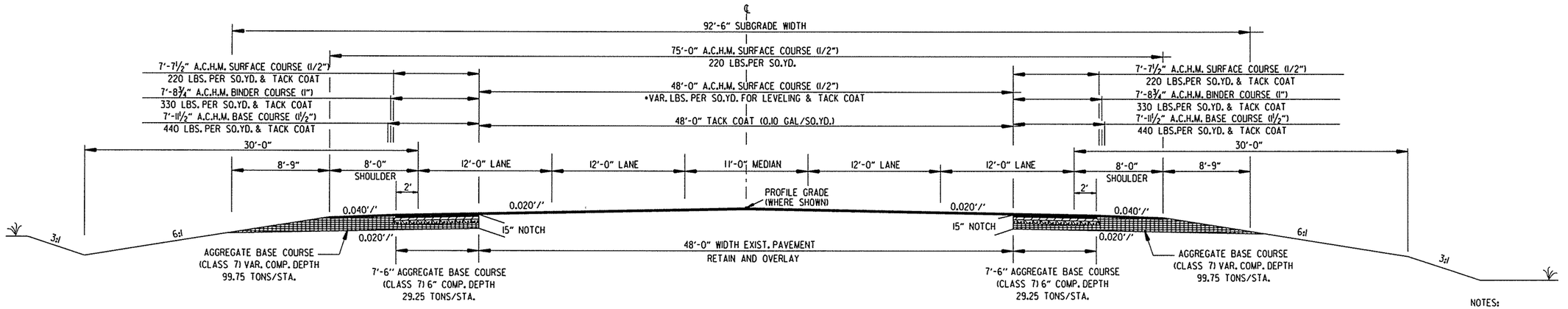
(2) TYPICAL SECTIONS OF IMPROVEMENT

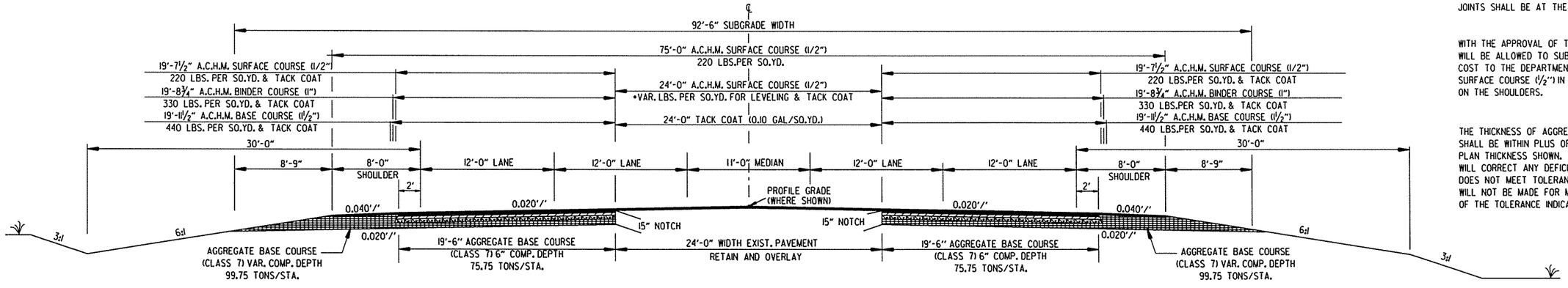
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



TANGENT SECTION - OPEN SHOULDER

STA. 191+00.00-238+88.43

•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.



TANGENT SECTION - OPEN SHOULDER

STA. 295+00.00-298+80.00

•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

NOTES:

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAYMENTS.

REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

THE FINAL 2 INCHES OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH (1") OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

9/16/2014

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TYPICAL SECTIONS OF IMPROVEMENT

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(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
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No. 11425
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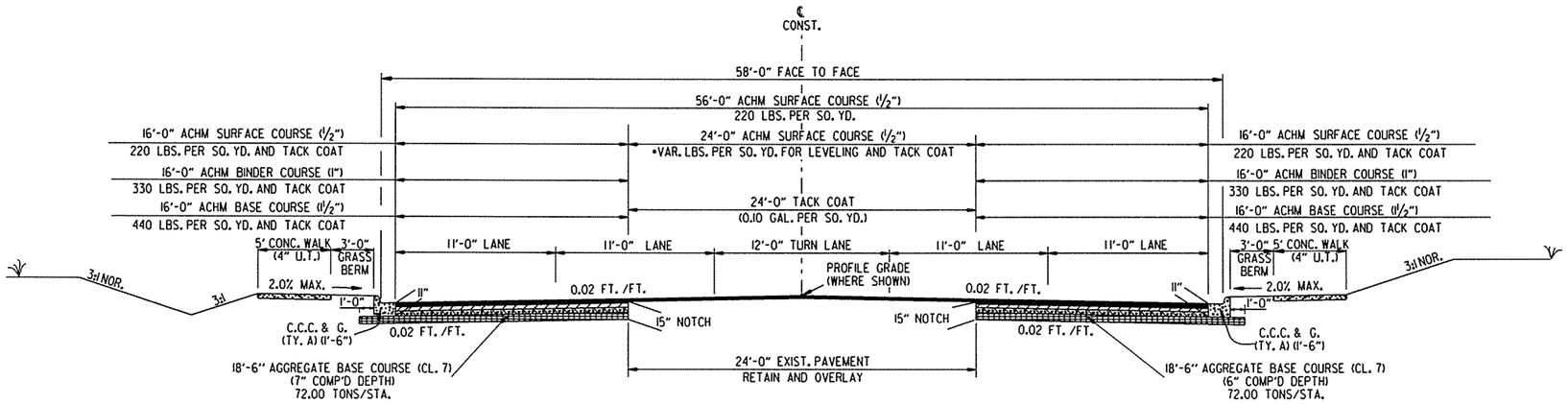


•TO BE USED IF AND WHERE DIRECTED BY ENGINEER.

TANGENT SECTION - CURB & GUTTER

STA. 259+00.00-280+00.00
STA. 292+13.43-295+00.00

NOTES:

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.

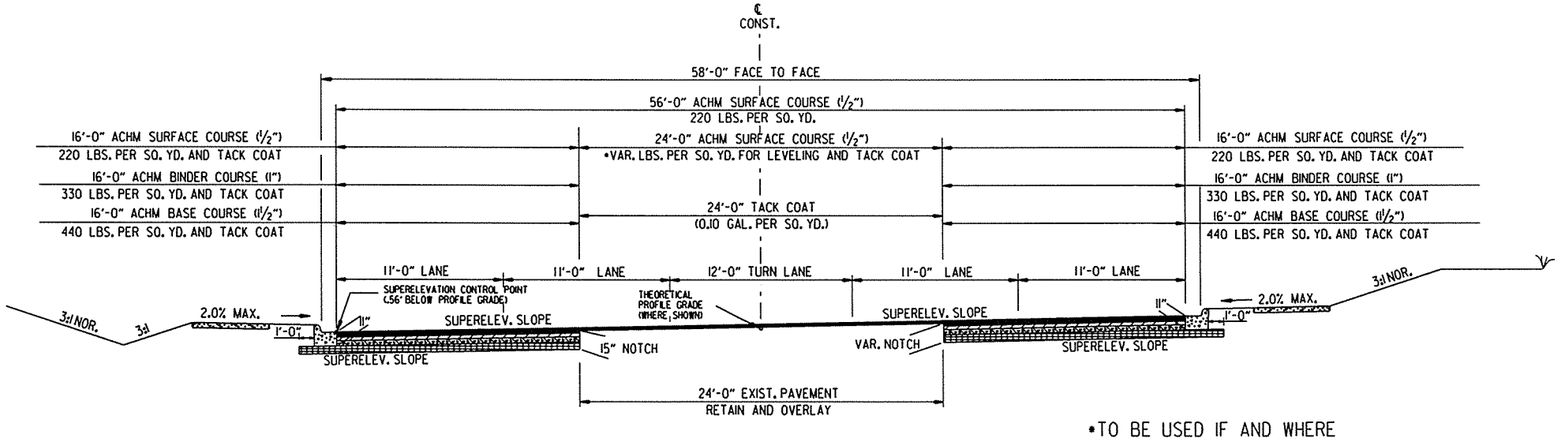
REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

THE FINAL 2 INCHES OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB AND GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

REFER TO PLAN SHEETS FOR SIDEWALK LOCATIONS.

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH (1") OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.



•TO BE USED IF AND WHERE DIRECTED BY ENGINEER.

SUPERELEVATION SECTION - CURB & GUTTER

STA. 280+00.00-292+13.43

9/16/2014

R080391.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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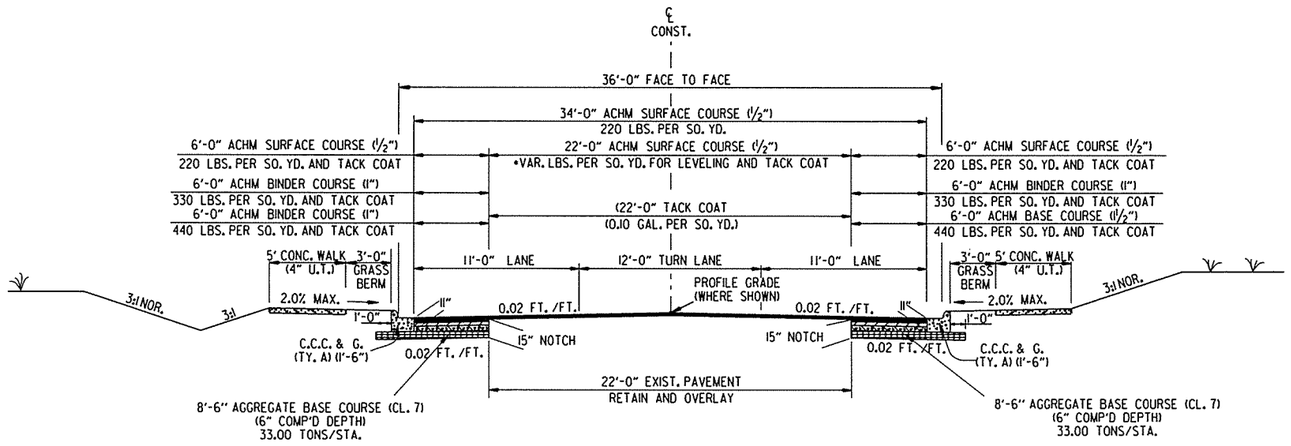
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



HWY. 92
TANGENT SECTION - CURB & GUTTER SECTION

STA. 500+00.00-518+05.00

*TO BE USED IF AND WHERE DIRECTED BY ENGINEER.

NOTES:

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.

REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

THE FINAL 2 INCHES OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB AND GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

REFER TO PLAN SHEETS FOR SIDEWALK LOCATIONS.

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH (I") OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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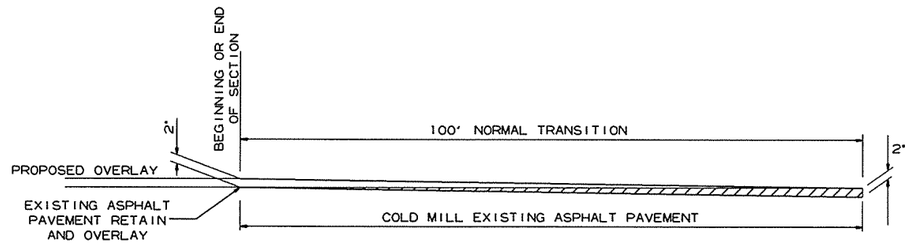
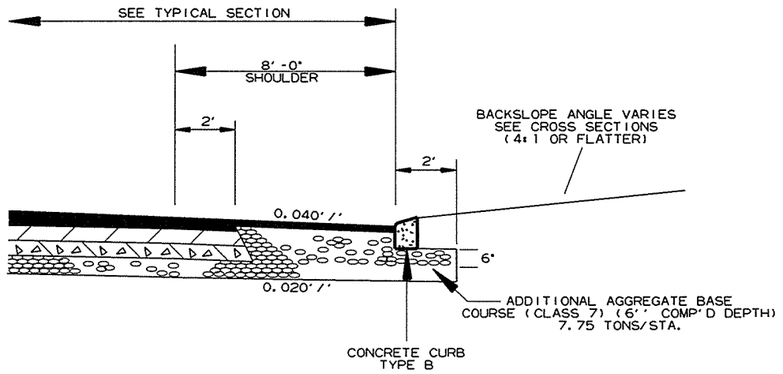
(2) SPECIAL DETAILS



DETAIL FOR TRANSITIONS



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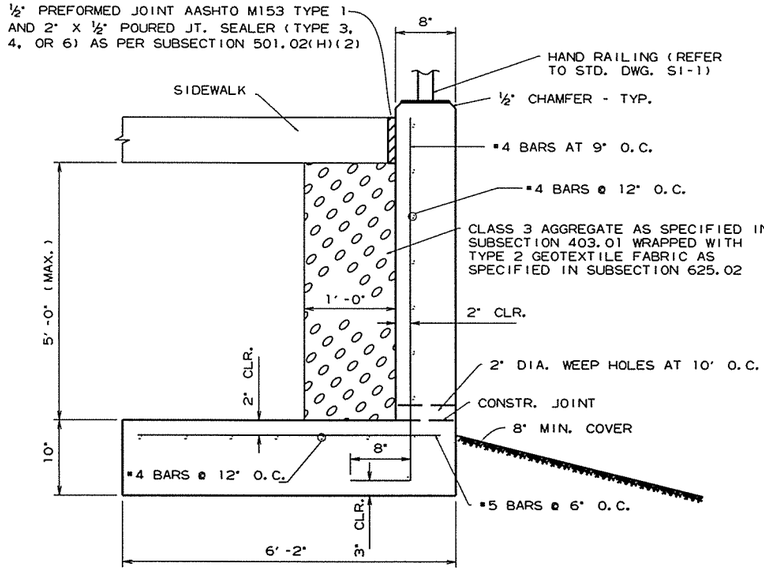
CONCRETE CURB (TY. B) ON BACK OF SHOULDER

STA. 216+71 RT. TO STA. 217+65 RT.



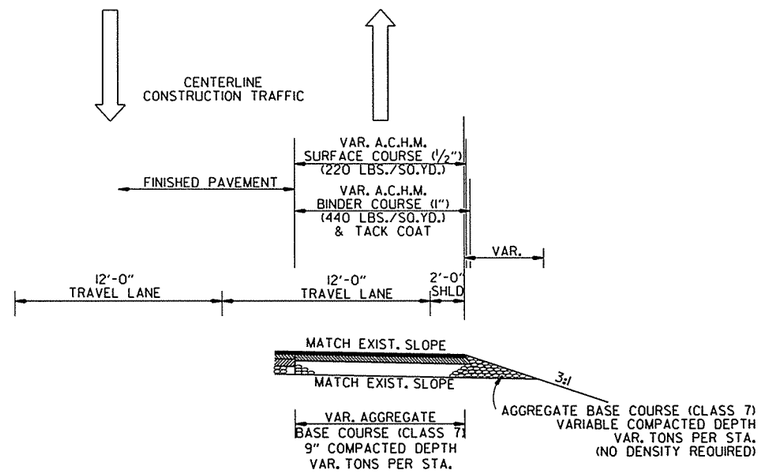
NOTES:
JOINTS IN THE WALL SHALL MATCH THE TYPE AND SPACING OF THE JOINTS IN THE WALK.

ALL CONCRETE SHALL BE CLASS S (F'C=3,500 PSI) AND SHALL BE POURED IN THE DRY.

REINFORCING STEEL SHALL BE AASHTO M31 OR M53, GRADE 60 (FY=60,000 PSI).

PAYMENT FOR THE WEEP HOLES, CLASS 3 AGGREGATE, TYPE 2 GEOTEXTILE FABRIC, PREFORMED JOINT FILLER, POURED JOINT SEALER, REINF. STEEL, AND CONCRETE SHALL BE INCLUDED IN THE UNIT BID PRICE PER SQ. YD. FOR CONCRETE WALKS (TYPE SPECIAL).

CONCRETE WALK (TYPE SPECIAL)
MAX HEIGHT 5'-0"



WIDENING FOR MAINTENANCE OF TRAFFIC

(STAGE 1)
STA. 0+00 - STA. 5+17.90

(STAGE 2)
STA. 35+00.00 - STA. 47+56.00

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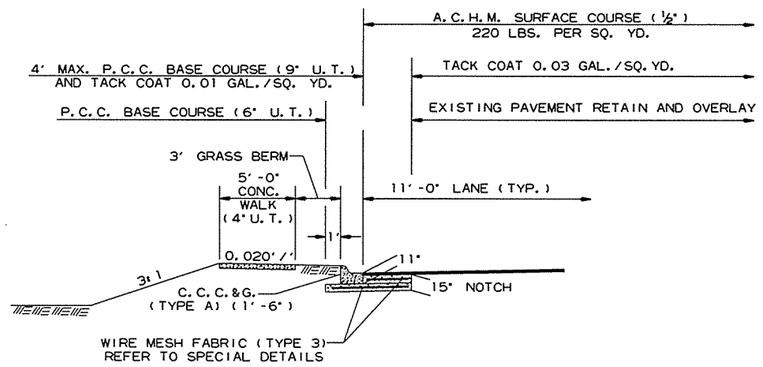
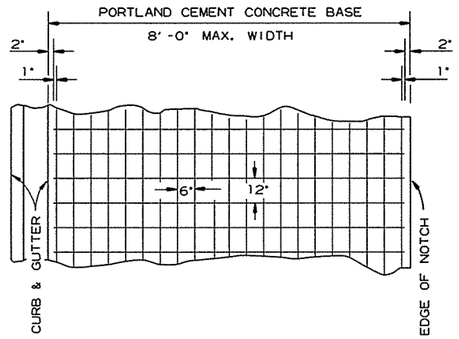
(2) SPECIAL DETAILS



P. C. C. BASE WIDENING DETAIL

P. C. C. BASE WIDENING TO BE USED AS SHOWN ON THE PLANS.

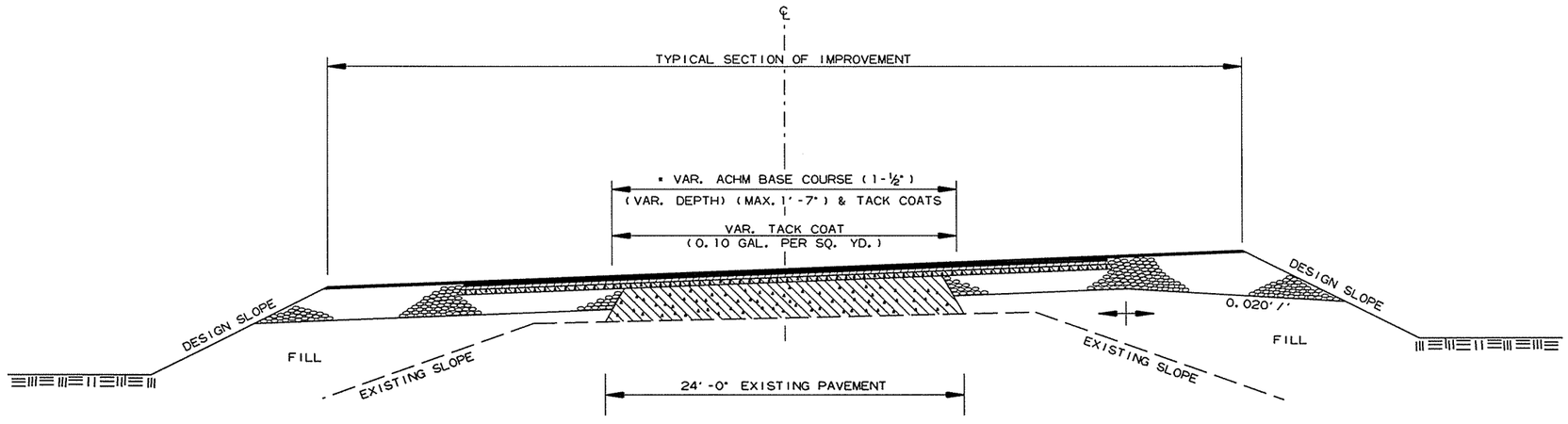


6" X 12" MESH FABRIC (TYPE 3) (W5.5 X W2.9) = 4.26 LBS./SQ. YD.

NOTES:

1. LAP MESH FABRIC MIN. 12" LONGITUDINALLY AND MIN. 6" TRANSVERSELY.
2. MESH FABRIC IS NOT REQUIRED WHEN WIDTH OF PORTLAND CEMENT CONCRETE BASE IS LESS THAN 12".
3. MESH FABRIC (TYPE 3) WILL NOT BE PAID FOR DIRECTLY, BUT FULL COMPENSATION THEREFORE WILL BE CONSIDERED INCLUDED IN THE CONTRACT PRICE BID PER SQ. YD. FOR PORTLAND CEMENT CONCRETE BASE (6" U. T. AND 9" U. T.)

DETAIL OF REINFORCING STEEL FOR PAVEMENT (MESH FABRIC TYPE 3)



* 6" AGGREGATE BASE COURSE (CLASS 7) TO BE REPLACED WITH A. C. H. M. BASE COURSE (1-½")

METHOD OF RAISING GRADE

NOTES:

(1) THIS DETAIL TO BE USED ONLY WHERE DIRECTED BY THE ENGINEER.

(2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.

(3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09 OF THE STANDARD SPECIFICATIONS.

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(2) SPECIAL DETAILS

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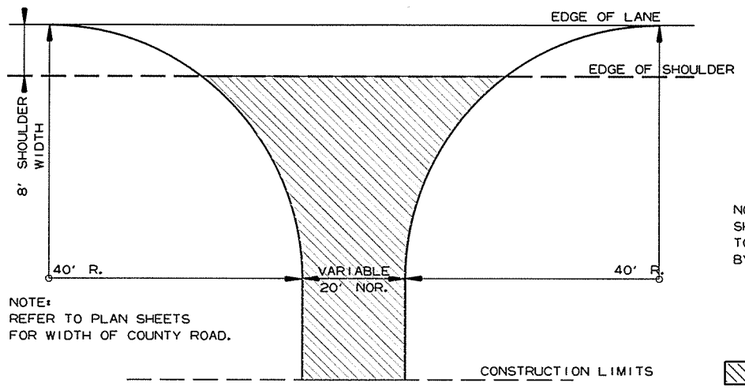
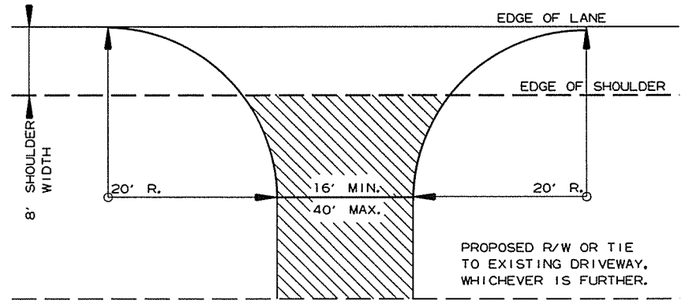


NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

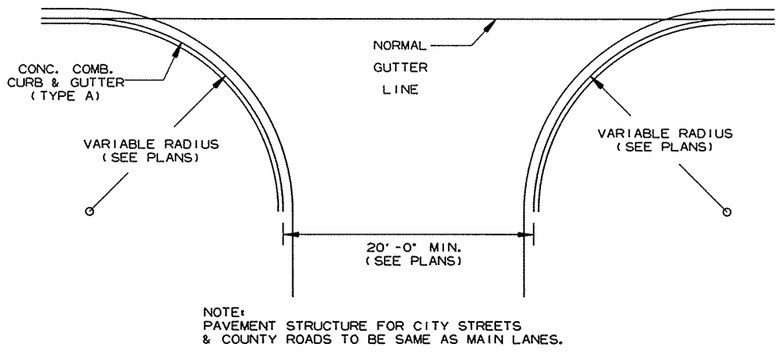
NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

A.C.H.M SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT OR GRAVEL DRIVE EXISTING; OR 6" CONCRETE IF CONCRETE DRIVE EXISTING.

DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION

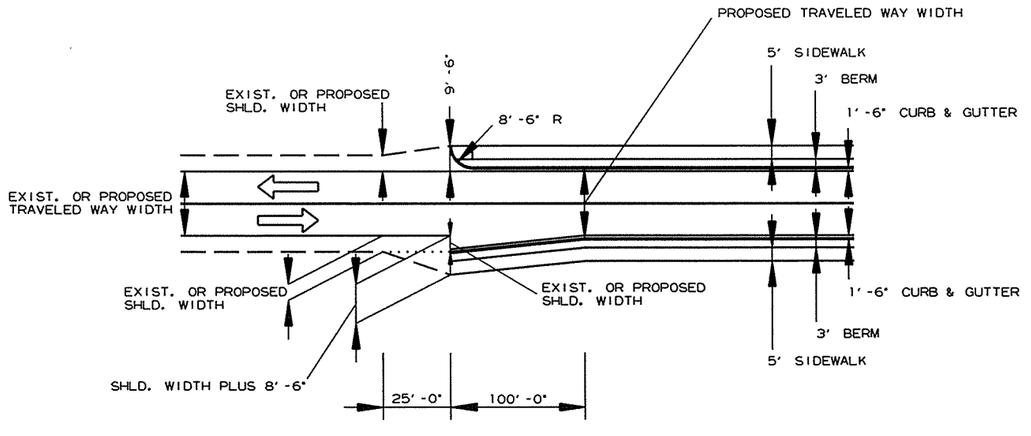


DETAIL FOR DRIVEWAY TURNOUTS OPEN SHOULDER SECTION (ARTERIALS)



NOTE:
PAVEMENT STRUCTURE FOR CITY STREETS & COUNTY ROADS TO BE SAME AS MAIN LANES.

DETAIL OF ASPHALT STREETS & COUNTY ROADS CURB & GUTTER SECTION



TRANSITION FROM OPEN SHOULDER TO CURB & GUTTER SECTION

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(2) SPECIAL DETAILS

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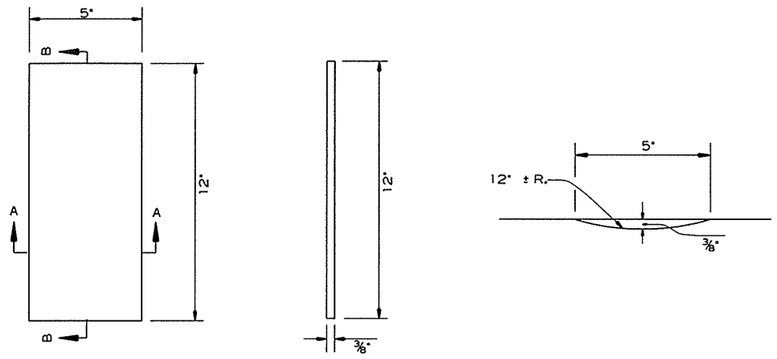
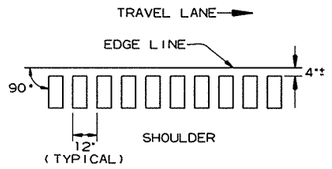
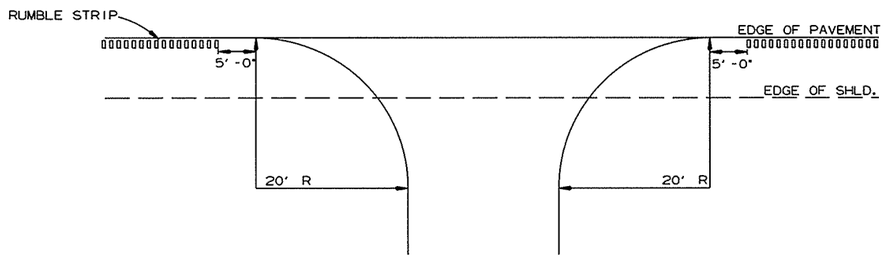


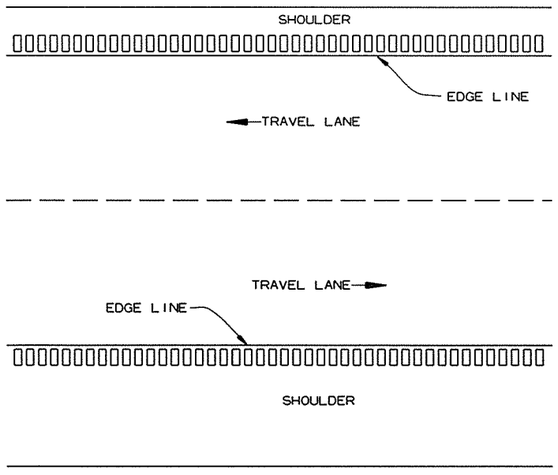
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



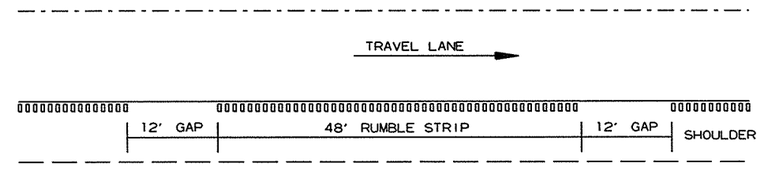
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

1. RUMBLE STRIPS SHALL NOT BE INSTALLED ON CURB SECTIONS, BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, RESIDENTIAL OR COMMERCIAL DRIVEWAYS OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
2. RUMBLE STRIPS SHALL NOT BE INSTALLED ON A PAVED SHOULDER THAT IS USED AS A DECELERATION LANE FOR THE LENGTH DEEMED APPROPRIATE BY THE ENGINEER.
3. THE 4" OFFSET FROM THE EDGE LINE MAY BE INCREASED TO AVOID LONGITUDINAL JOINTS. IN ALL CASES, THE LATERAL DEVIATION FROM THE PLANNED OFFSET SHOULD BE KEPT TO A MINIMUM.
4. RUMBLE STRIPS SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE SHOULDER. PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE SHOULDER ON WHICH RUMBLE STRIPS HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE RUMBLE STRIPS HAVE NOT BEEN CONSTRUCTED.
5. THE 3/8" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 12" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.



NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE FIELD ALLOWING FOR DRIVEWAYS TO SERVE AS THE GAP.

DETAIL FOR GAP PATTERN RUMBLE STRIP

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(2) SPECIAL DETAILS

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BOX CULVERT DIAGRAM STA. 300+32

CONCRETE:

A SECTION	45.53	X	0.509	=	23.17
B SECTION	68.47	X	0.536	=	36.70
HEADWALLS, APRONS & WINGS (ONE SIDE)				=	11.15
TOTAL C.Y.				=	71.02

REINFORCING STEEL:

A SECTION	45.53	X	61.66	=	2807.38
B SECTION	68.47	X	66.63	=	4562.16
HEADWALLS & APRONS				=	93.29
3.00	LAPS @ LBS. EACH		20.04	=	60.12
4 WINGS				=	357.80
TOTAL C.Y.				=	7880.75

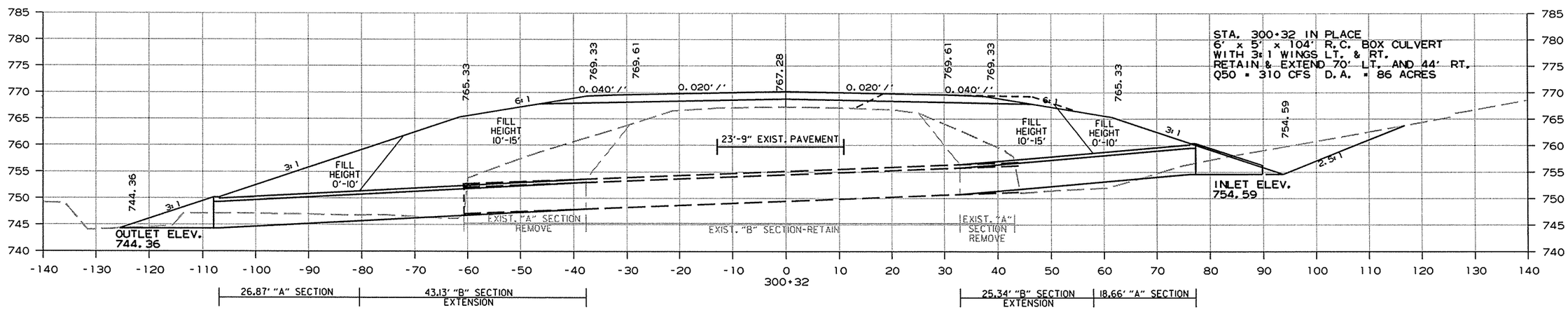
* INCLUDES HDWL., APRONS, & 1 LAP

UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY:

A SECTION	45.53	X	0.231	=	10.52
B SECTION	68.47	X	0.255	=	17.46
V.I.				=	6.02
V.O.				=	6.45
TOTAL C.Y.				=	40.45

SOLID SODDING & WATER:

(K + W-1 + W-2 + 3.46)(1 SIDE)(2' WIDE)/9 S.F./S.Y.	=	16.71
12.60 (GAL. / S.Y. SOLID SODDING)/1000 = M.GAL.	=	0.21



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(2) SPECIAL DETAILS

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BOX CULVERT DIAGRAM STA. 307+83

CONCRETE:

A SECTION	33.12	X	0.88	=	29.15
B SECTION	23.51	X	0.94	=	22.10
C SECTION	45.37	X	1.01	=	45.82
HEADWALLS, APRONS & WINGS (BOTH SIDES)				=	8.89
TOTAL C.Y.				=	105.96

REINFORCING STEEL:

A SECTION	33.12	X	116.47	=	3857.49
B SECTION	23.51	X	123.00	=	2891.73
C SECTION	45.37	X	140.89	=	6392.18
HEADWALLS & APRONS				=	142.51
4.00	LAPS @ LBS. EACH		43.42	=	173.68
4 WINGS				=	218.95
TOTAL C.Y.				=	13676.54

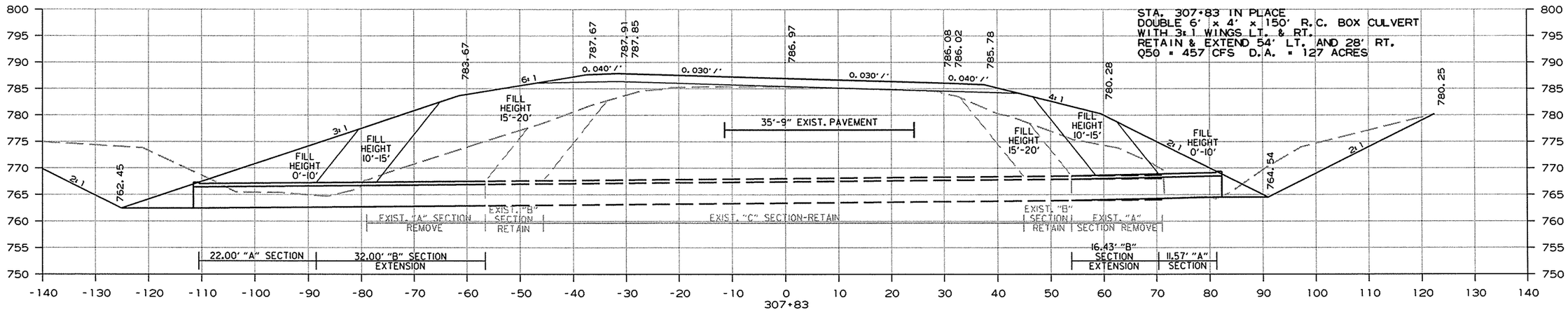
* INCLUDES HDWL., APRONS, & 1 LAP

UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY:

A SECTION	33.12	X	0.399	=	13.21
B SECTION	23.51	X	0.437		10.27
C SECTION	45.37	X	0.476	=	21.60
V.I.				=	4.19
V.O.				=	6.18
TOTAL C.Y.				=	55.45

SOLID SODDING & WATER:

(K + W-1 + W-2 + 3.46)(1 SIDE)(2' WIDE)/9 S.F./S.Y.	=	15.83
12.60 (GAL. / S.Y. SOLID SODDING)/1000 = M.GAL.	=	0.20



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(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE

STAGE I QUANTITIES:
TEMPORARY EROSION CONTROL QUANTITIES:

WATTLE DITCH CHECKS = 9 LIN. FT.
SAND BAG DITCH CHECKS = 22 BAG
ROCK DITCH CHECKS = 3 CU. YD.
SILT FENCE = 350 LIN. FT.

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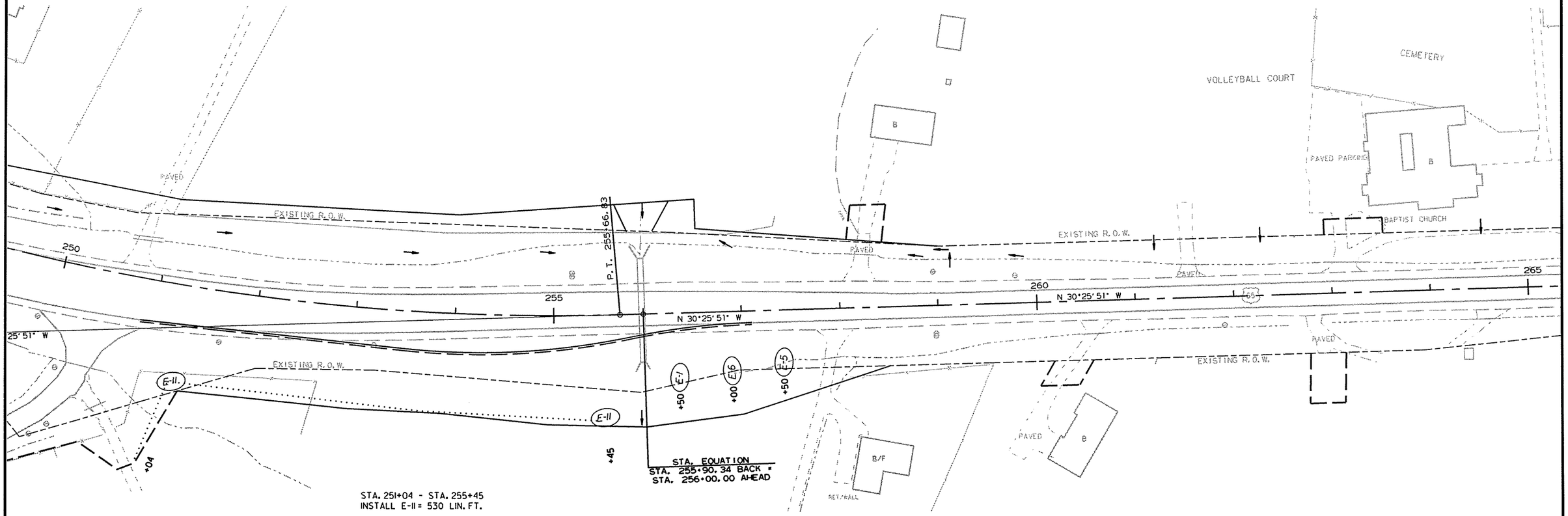

STA. 251+04 - STA. 255+45
INSTALL E-11 = 530 LIN. FT.

REVISIONS

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TEMPORARY EROSION CONTROL DETAILS
STAGE I

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(2) TEMPORARY EROSION CONTROL DETAILS

STAGE 2 QUANTITIES:
TEMPORARY EROSION CONTROL QUANTITIES:

WATTLE DITCH CHECKS = 441 LIN. FT.
SAND BAG DITCH CHECKS = 1188 BAG
ROCK DITCH CHECKS = 186 CU. YD.
DROP INLET SILT FENCE = 450 LIN. FT.
SILT FENCE = 6895 LIN. FT.
SEDIMENT BASIN = 2274 CU. YD.

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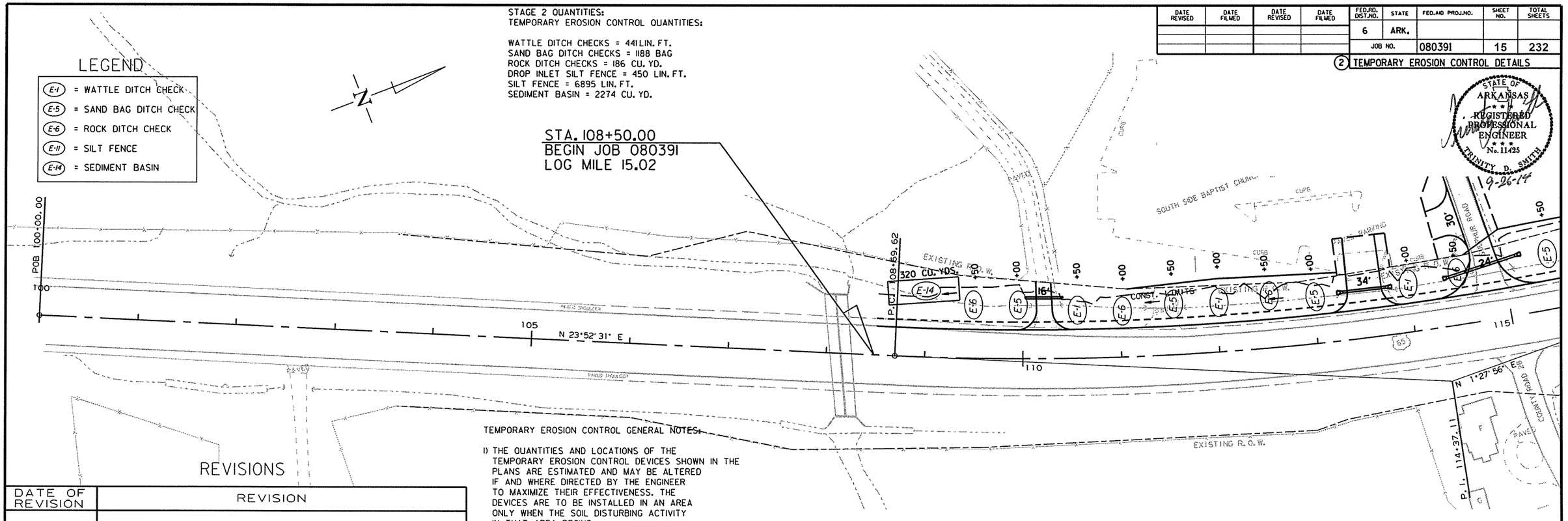
LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

STA. 108+50.00
BEGIN JOB 080391
LOG MILE 15.02



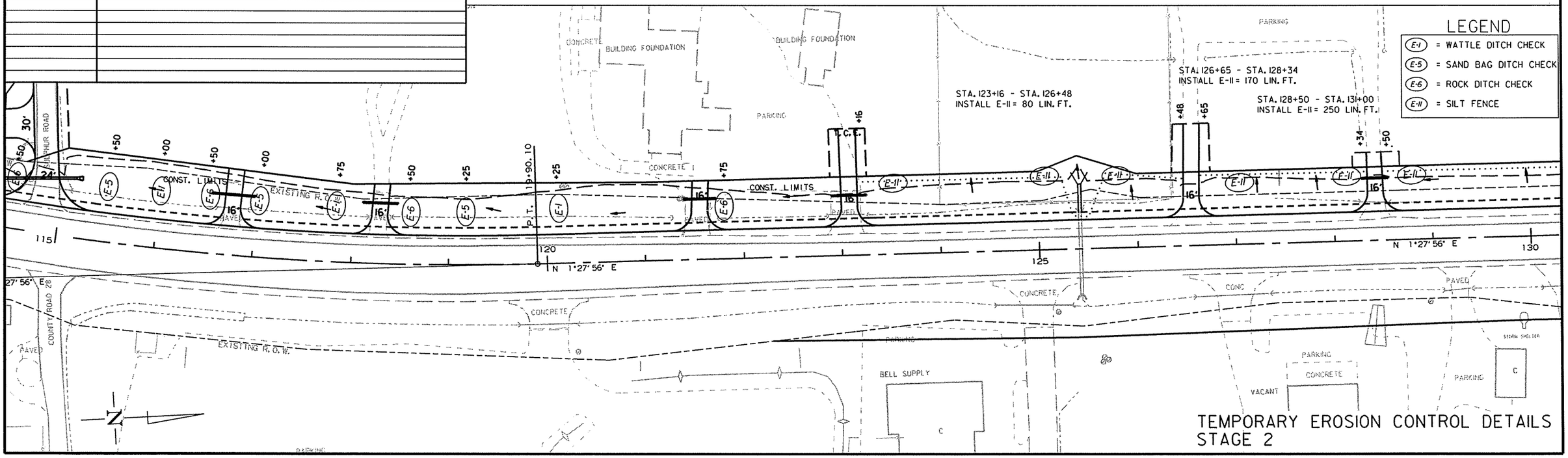
TEMPORARY EROSION CONTROL GENERAL NOTES:

1) THE QUANTITIES AND LOCATIONS OF THE TEMPORARY EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

2) REFER TO SECT. 110 OF STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

REVISIONS

DATE OF REVISION	REVISION



TEMPORARY EROSION CONTROL DETAILS
STAGE 2

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(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE

STA. 133+00 - STA. 134+48
INSTALL E-11 = 150 LIN. FT.

STA. 134+64 - STA. 140+00
INSTALL E-11 = 540 LIN. FT.

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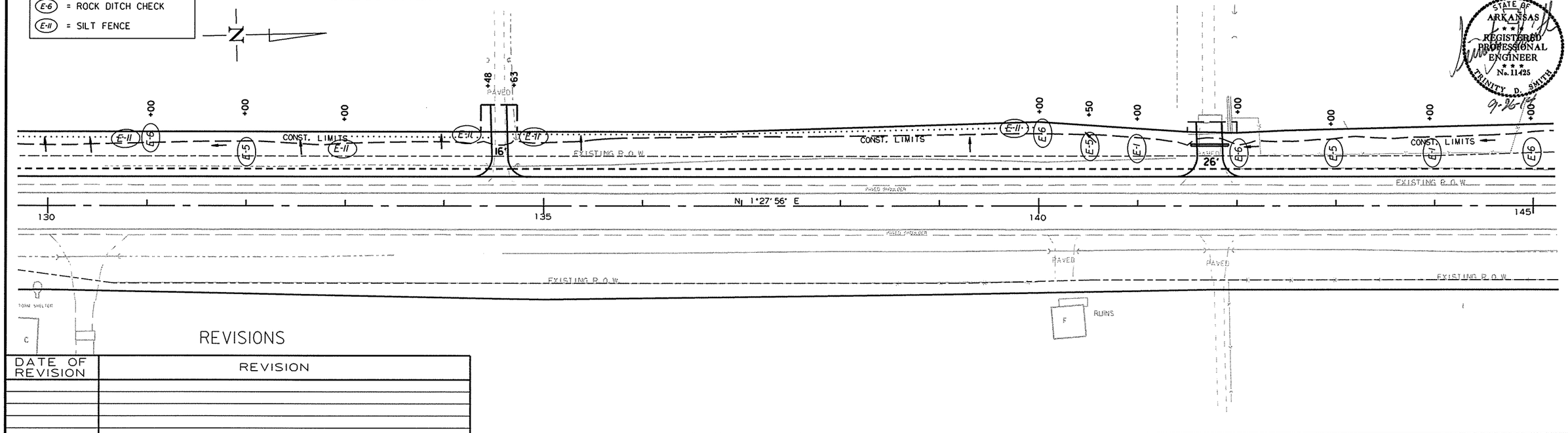

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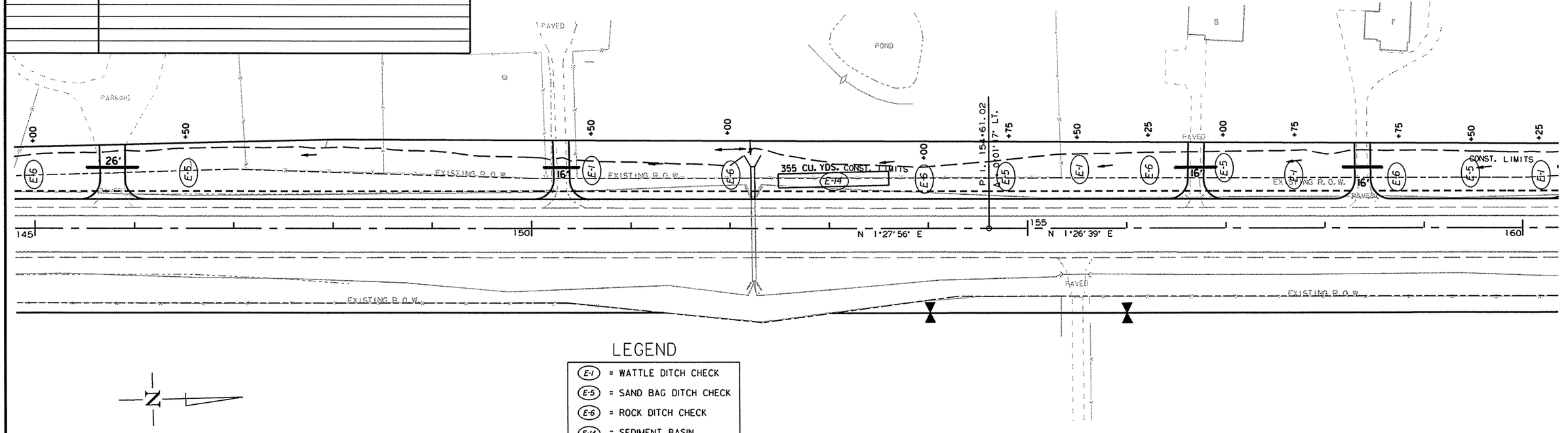

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-14) = SEDIMENT BASIN

TEMPORARY EROSION CONTROL DETAILS STAGE 2

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				6	ARK.			
				JOB NO.		080391	17	232

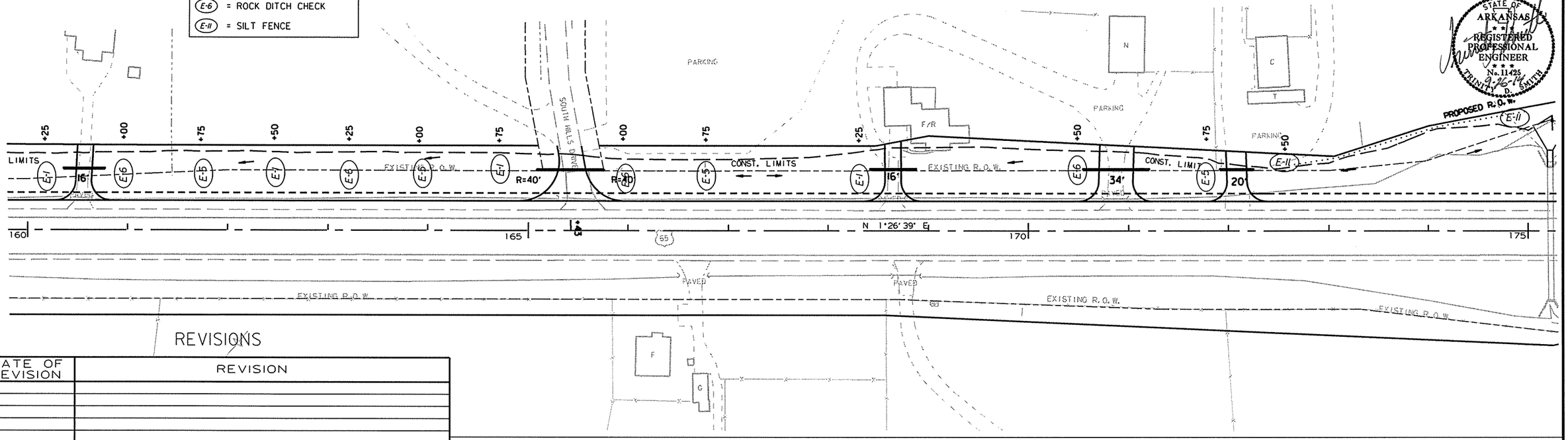
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
9-16-14
TRINITY D. SMITH

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE

STA. 172+50 - STA. 175+00
INSTALL E-11 = 250 LIN. FT.



REVISIONS

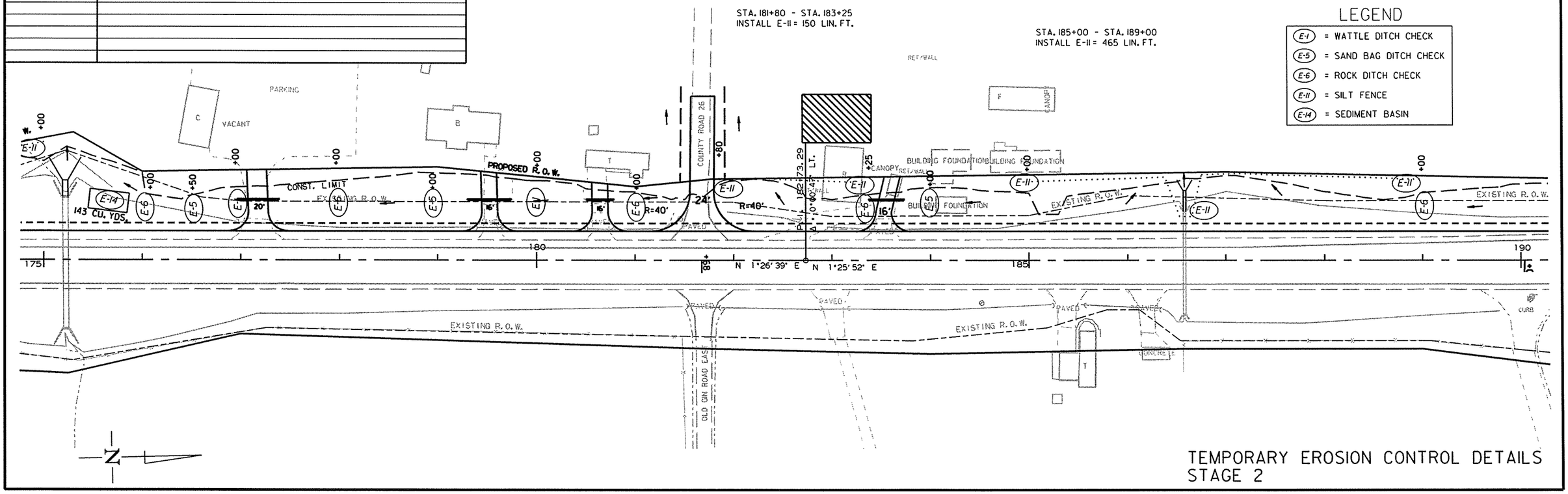
DATE OF REVISION	REVISION

STA. 181+80 - STA. 183+25
INSTALL E-11 = 150 LIN. FT.

STA. 185+00 - STA. 189+00
INSTALL E-11 = 465 LIN. FT.

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN



TEMPORARY EROSION CONTROL DETAILS
STAGE 2

9/16/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	18	232

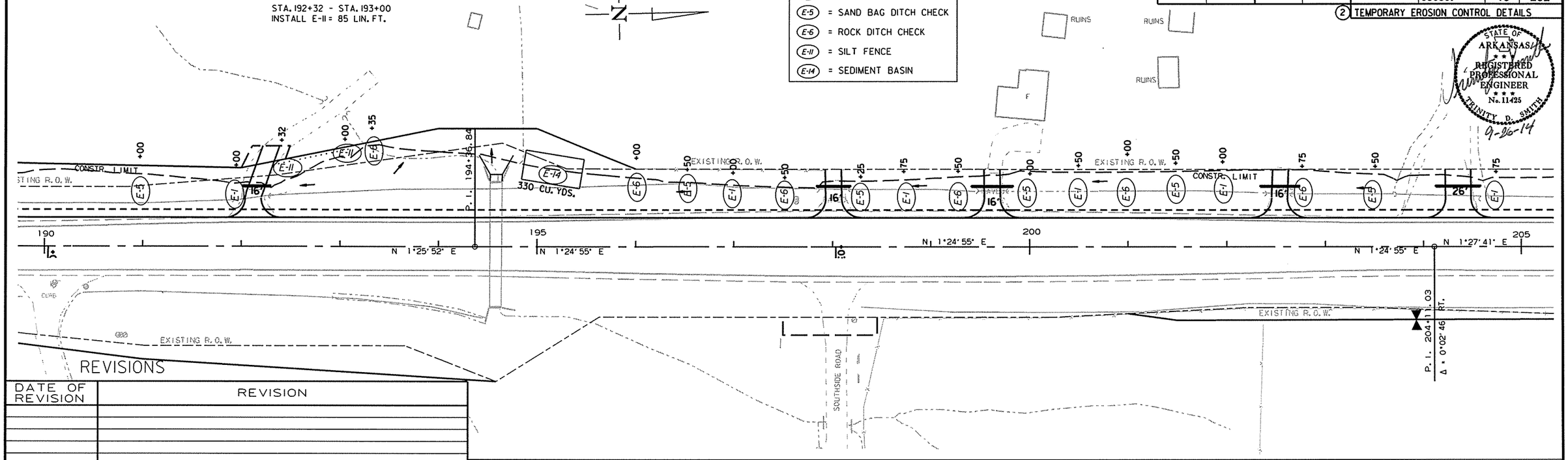
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

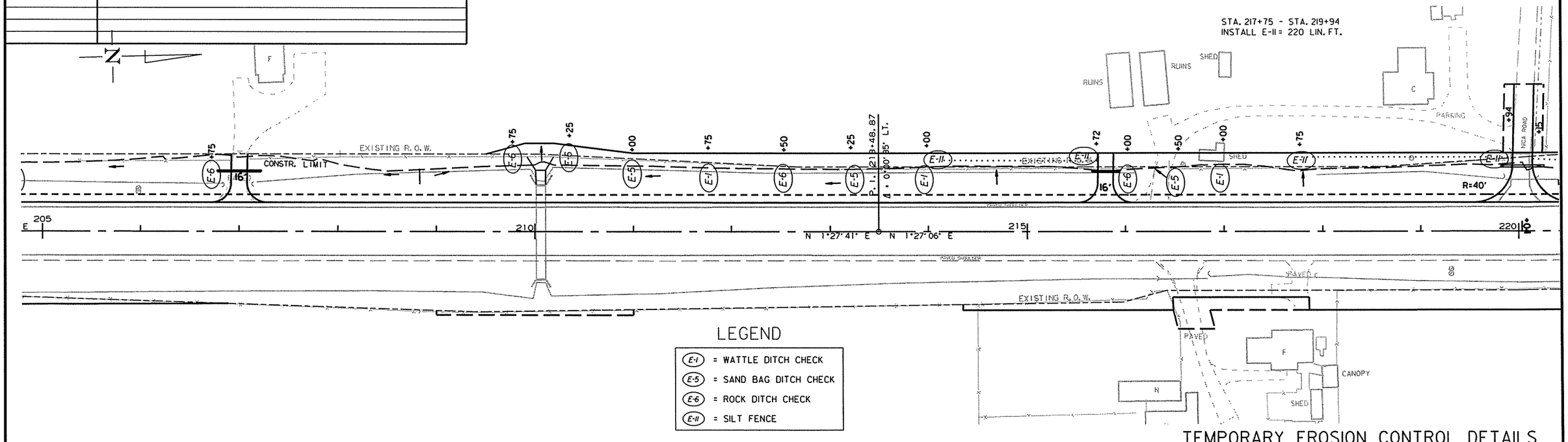
STA. 192+32 - STA. 193+00
INSTALL E-11 = 85 LIN. FT.



REVISIONS

DATE OF REVISION	REVISION

STA. 217+75 - STA. 219+94
INSTALL E-11 = 220 LIN. FT.



LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS STAGE 2

9/16/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	19	232

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE

STA. 220+15 - STA. 221+00
INSTALL E-11 = 85 LIN. FT.

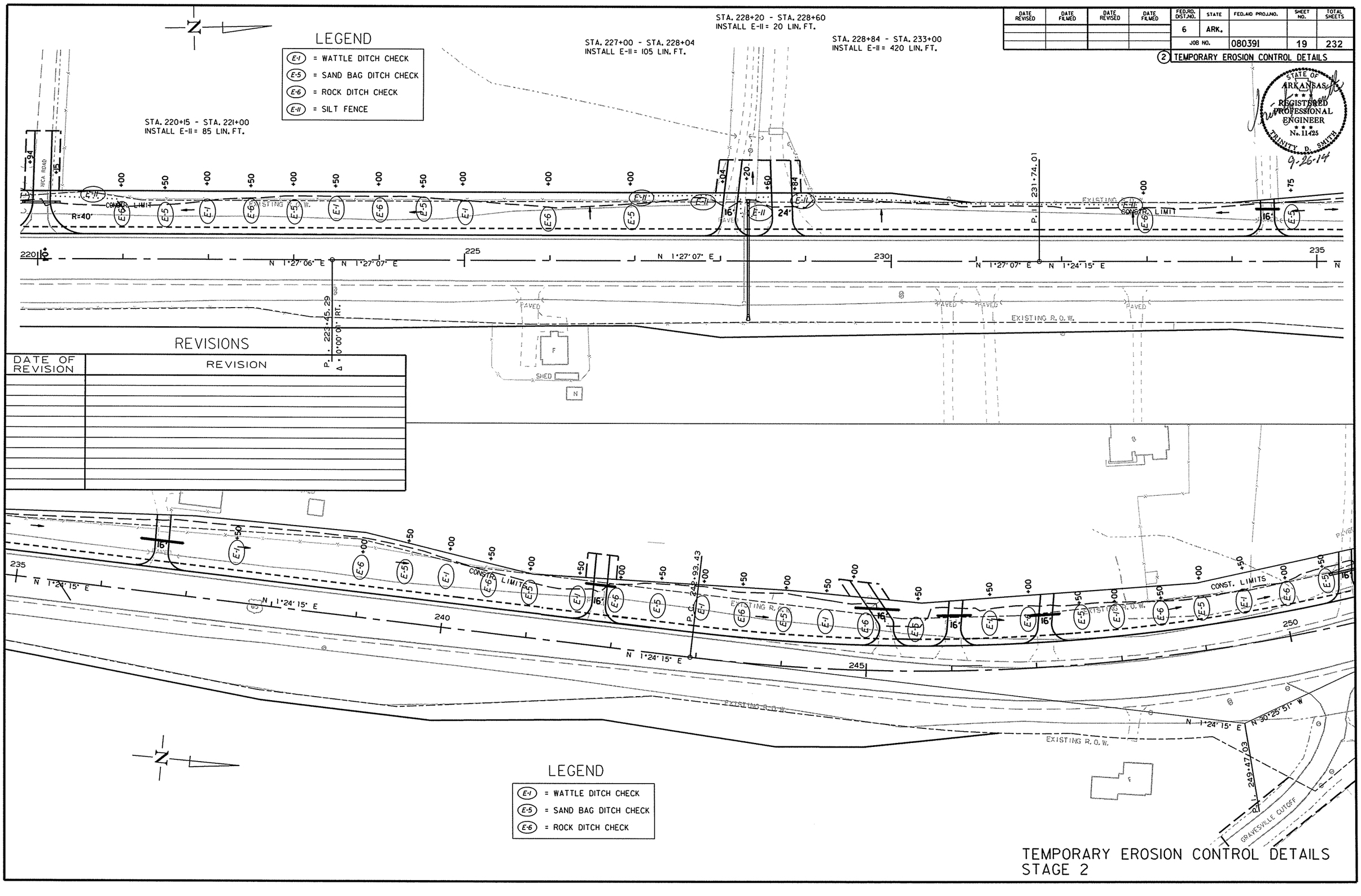
STA. 227+00 - STA. 228+04
INSTALL E-11 = 105 LIN. FT.

STA. 228+20 - STA. 228+60
INSTALL E-11 = 20 LIN. FT.

STA. 228+84 - STA. 233+00
INSTALL E-11 = 420 LIN. FT.

REVISIONS

DATE OF REVISION	REVISION



LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

9/16/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	20	232

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

STA. 261+63 - STA. 263+04
INSTALL E-11 = 140 LIN. FT.

STA. 263+43 - STA. 265+48
INSTALL E-11 = 210 LIN. FT.

STA. 265+80 - STA. 267+91
INSTALL E-11 = 210 LIN. FT.

STA. 269+04 - STA. 269+56
INSTALL E-11 = 45 LIN. FT.

STA. 269+96 - STA. 270+88
INSTALL E-11 = 90 LIN. FT.

STA. 271+28 - STA. 271+72
INSTALL E-11 = 45 LIN. FT.

STA. 272+12 - STA. 273+53
INSTALL E-11 = 140 LIN. FT.

STA. 273+93 - STA. 274+28
INSTALL E-11 = 35 LIN. FT.

STA. 274+53 - STA. 275+89
INSTALL E-11 = 140 LIN. FT.

STA. 276+32 - STA. 510+05
INSTALL E-11 = 235 LIN. FT.

STA. 278+28.04 HWY. 65 =
STA. 511+06.59 HWY. 92
Δ = 59° 22' 05"

STA. 513+17 - STA. 280+47
INSTALL E-11 = 360 LIN. FT.

REVISIONS

DATE OF REVISION	REVISION

STA. EQUATION
STA. 255+90.34 BACK =
STA. 256+00.00 AHEAD

75 CU. YDS.
467 CU. YDS.
P.T. 255+86.83
P.I. 511+28.73
P.C. 510+12.60
P.T. 512+41.75

LEGEND

- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

9/16/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	21	232

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-22-14

LEGEND

(E-7) = DROP INLET SILT FENCE
(E-11) = SILT FENCE

STA. 280+83 - STA. 281+48
INSTALL E-11 = 60 LIN. FT.

STA. 282+35 - STA. 282+39
INSTALL E-11 = 35 LIN. FT.

STA. 282+73 - STA. 284+32
INSTALL E-11 = 185 LIN. FT.

STA. 284+48 - STA. 286+47
INSTALL E-11 = 205 LIN. FT.

STA. 286+62 - STA. 289+45
INSTALL E-11 = 290 LIN. FT.

STA. 289+61 - STA. 290+55
INSTALL E-11 = 95 LIN. FT.

STA. 290+71 - STA. 293+39
INSTALL E-11 = 270 LIN. FT.

STA. 293+55 - STA. 295+13
INSTALL E-11 = 185 LIN. FT.

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-1) = WATTLE DITCH CHECK
(E-5) = SAND BAG DITCH CHECK
(E-6) = ROCK DITCH CHECK
(E-11) = SILT FENCE
(E-14) = SEDIMENT BASIN

STA. 309+75 - STA. 314+00
INSTALL E-11 = 440 LIN. FT.

TEMPORARY EROSION CONTROL DETAILS STAGE 2

9/16/2014

R080391.DGN

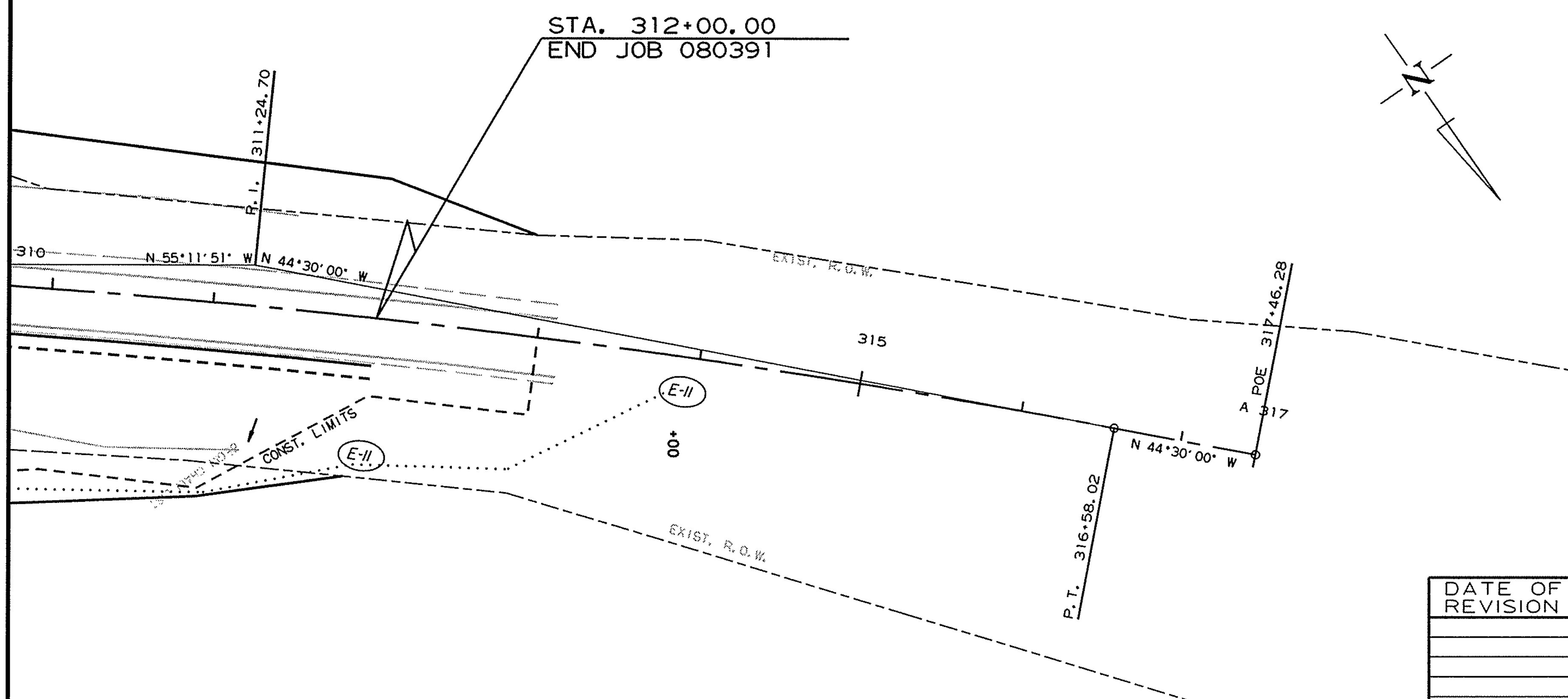
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	22	232

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

LEGEND

E-11 = SILT FENCE

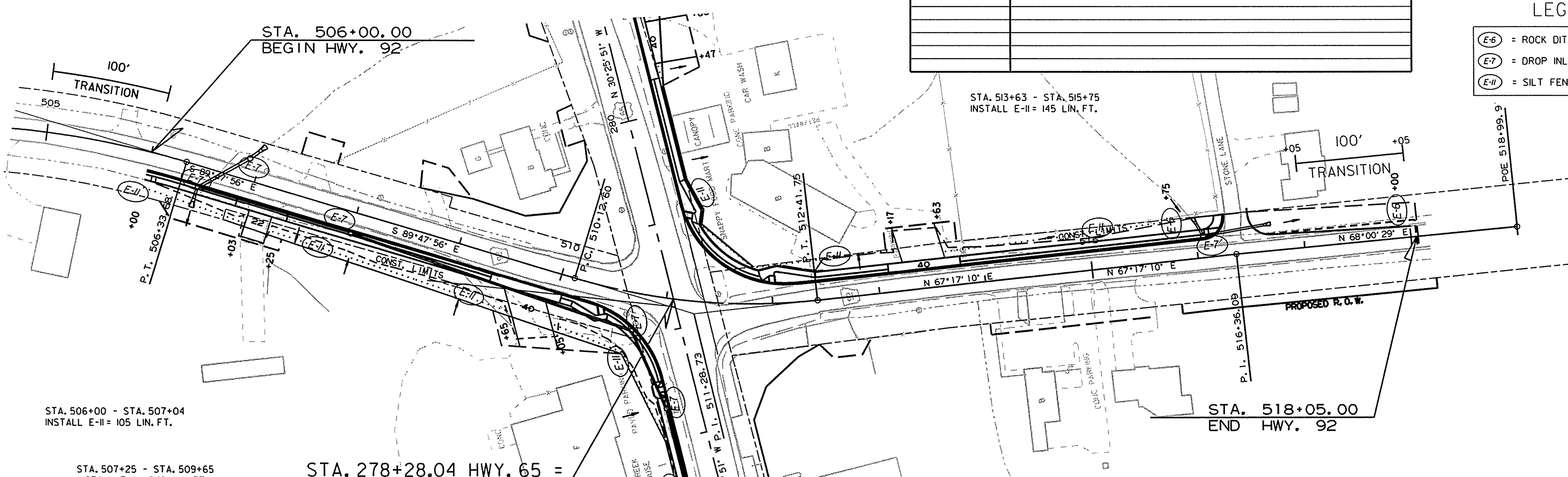


REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECK
E-7 = DROP INLET SILT FENCE
E-11 = SILT FENCE



STA. 506+00 - STA. 507+04
INSTALL E-11= 105 LIN. FT.

STA. 507+25 - STA. 509+65
INSTALL E-11= 240 LIN. FT.

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

9/16/2014

R080391.DGN

STAGE 3 QUANTITIES:
TEMPORARY EROSION CONTROL QUANTITIES:

WATTLE DITCH CHECKS = 378 LIN. FT.
SAND BAG DITCH CHECKS = 902 BAG
ROCK DITCH CHECKS = 165 CU. YD.
DROP INLET SILT FENCE = 450 LIN. FT.
SILT FENCE = 8120 LIN. FT.
SEDIMENT BASIN = 2522 CU. YD.

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE 2 IF AND WHERE DIRECTED BY THE ENGINEER.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	23	232

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

STA. 108+50.00
BEGIN JOB 080391
LOG MILE 15.02

POB 100+00.00

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

STA. 108+50 - STA. 114+93
INSTALL E-11 = 660 LIN. FT.

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

TEMPORARY EROSION CONTROL DETAILS
STAGE 3

9/17/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	24	232

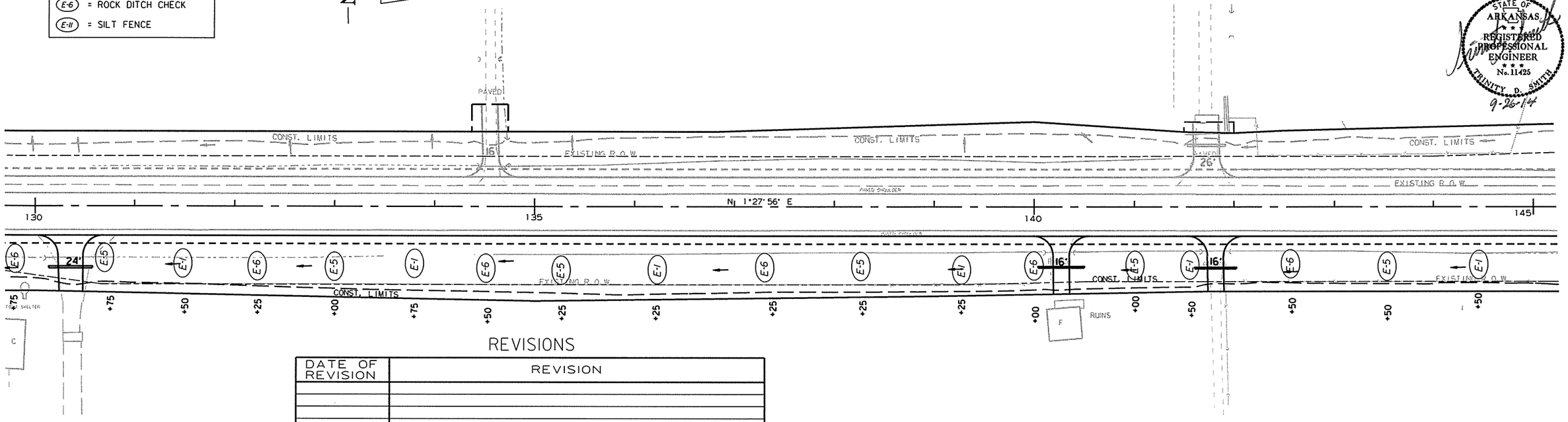
(2) TEMPORARY EROSION CONTROL DETAILS

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE 2 IF AND WHERE DIRECTED BY THE ENGINEER.

LEGEND

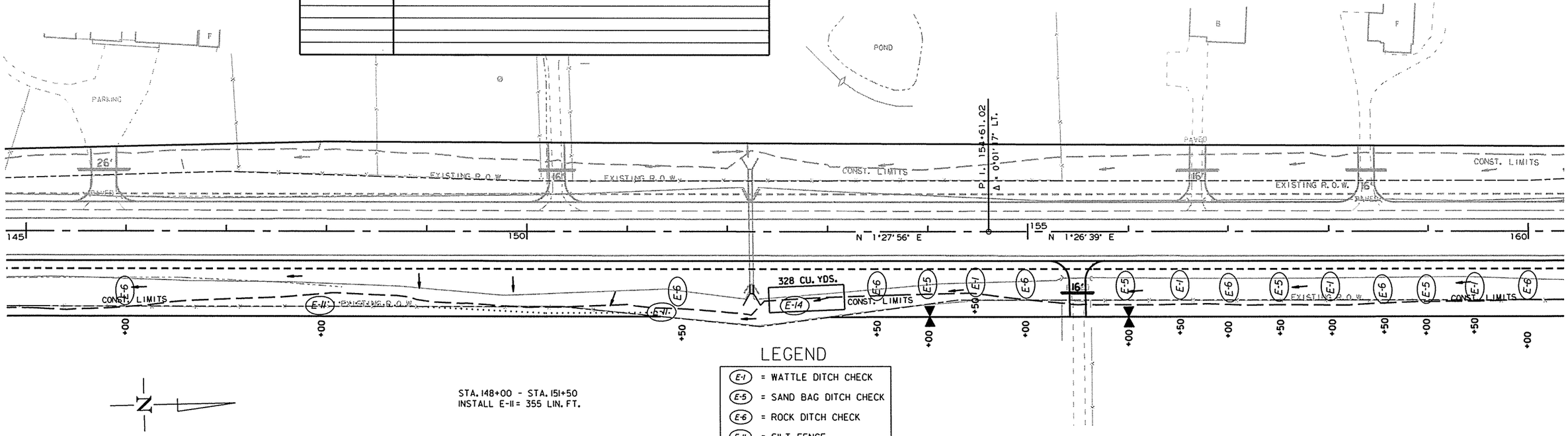
- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



REVISIONS

DATE OF REVISION	REVISION



LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

STA. 148+00 - STA. 151+50
INSTALL E-11 = 355 LIN. FT.

TEMPORARY EROSION CONTROL DETAILS STAGE 3

9/17/2014

R080391.DGN

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE 2 IF AND WHERE DIRECTED BY THE ENGINEER.

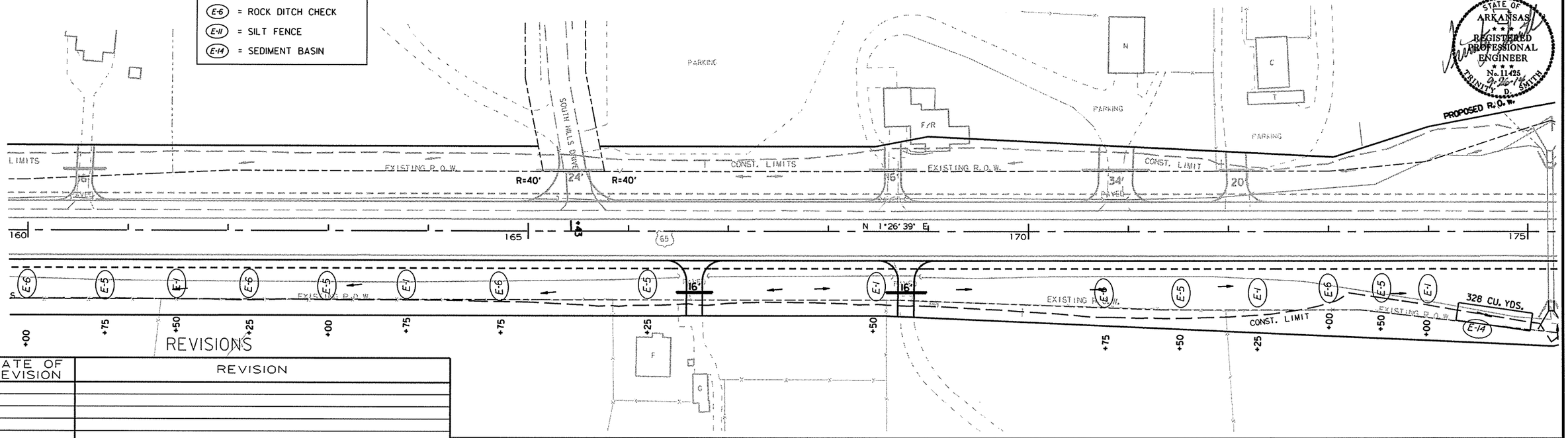
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	25	232

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
9-26-14
TRINITY D. SMITH

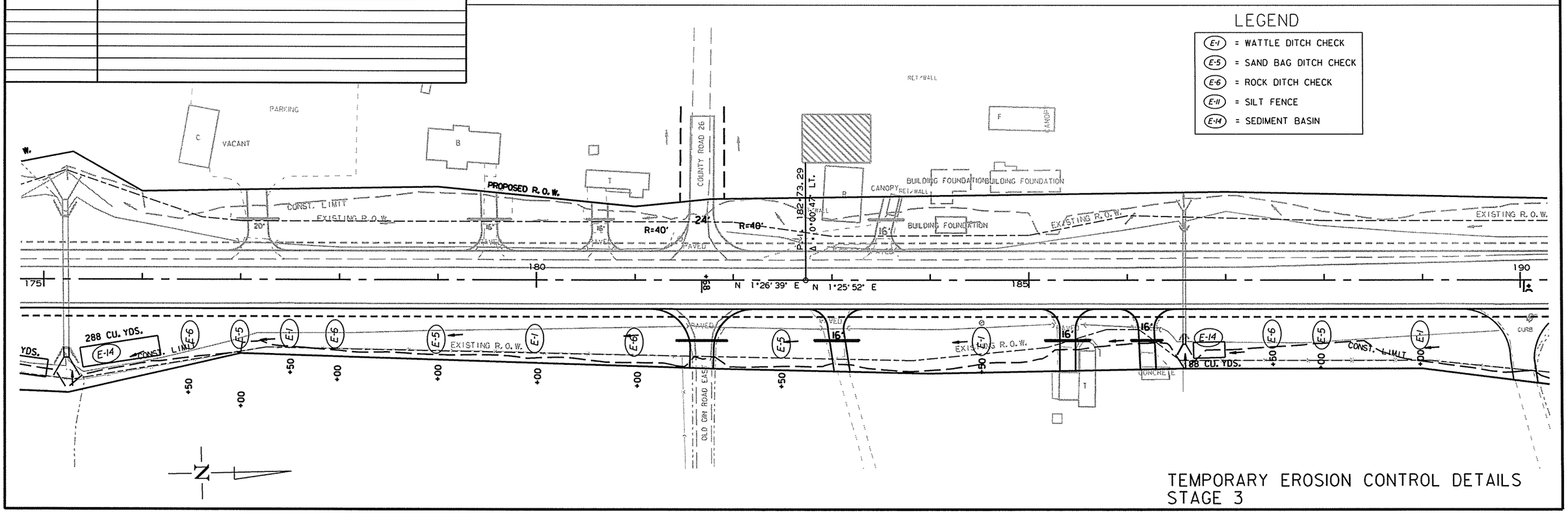
LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN



REVISIONS

DATE OF REVISION	REVISION



TEMPORARY EROSION CONTROL DETAILS
STAGE 3

9/17/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	26	232

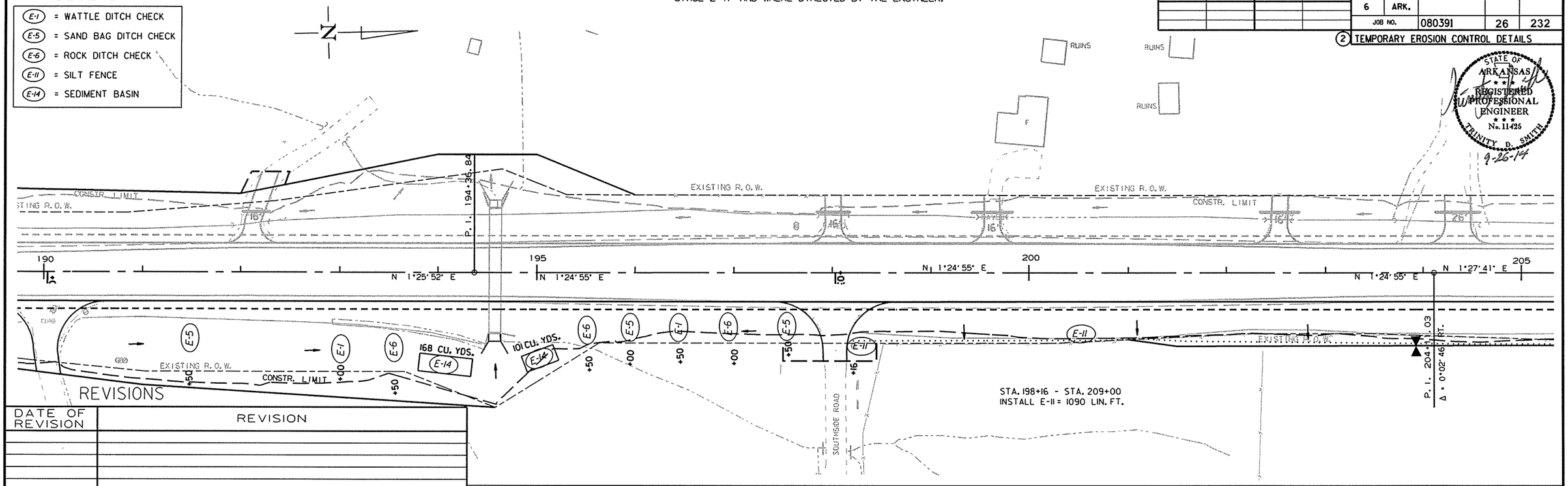
(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE 2 IF AND WHERE DIRECTED BY THE ENGINEER.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

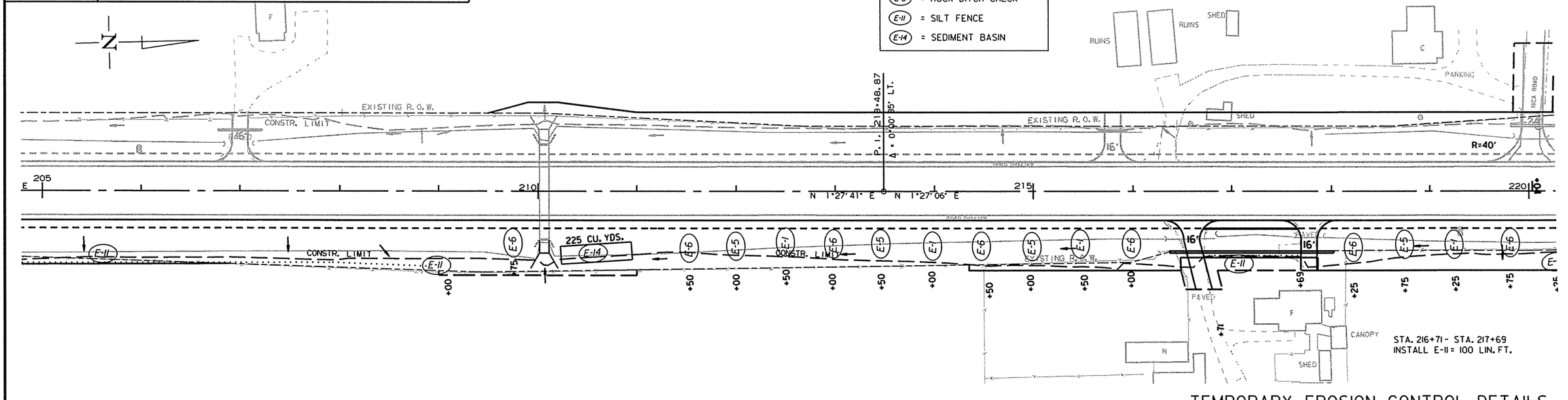


REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN



TEMPORARY EROSION CONTROL DETAILS STAGE 3

9/17/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RO. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	27	232

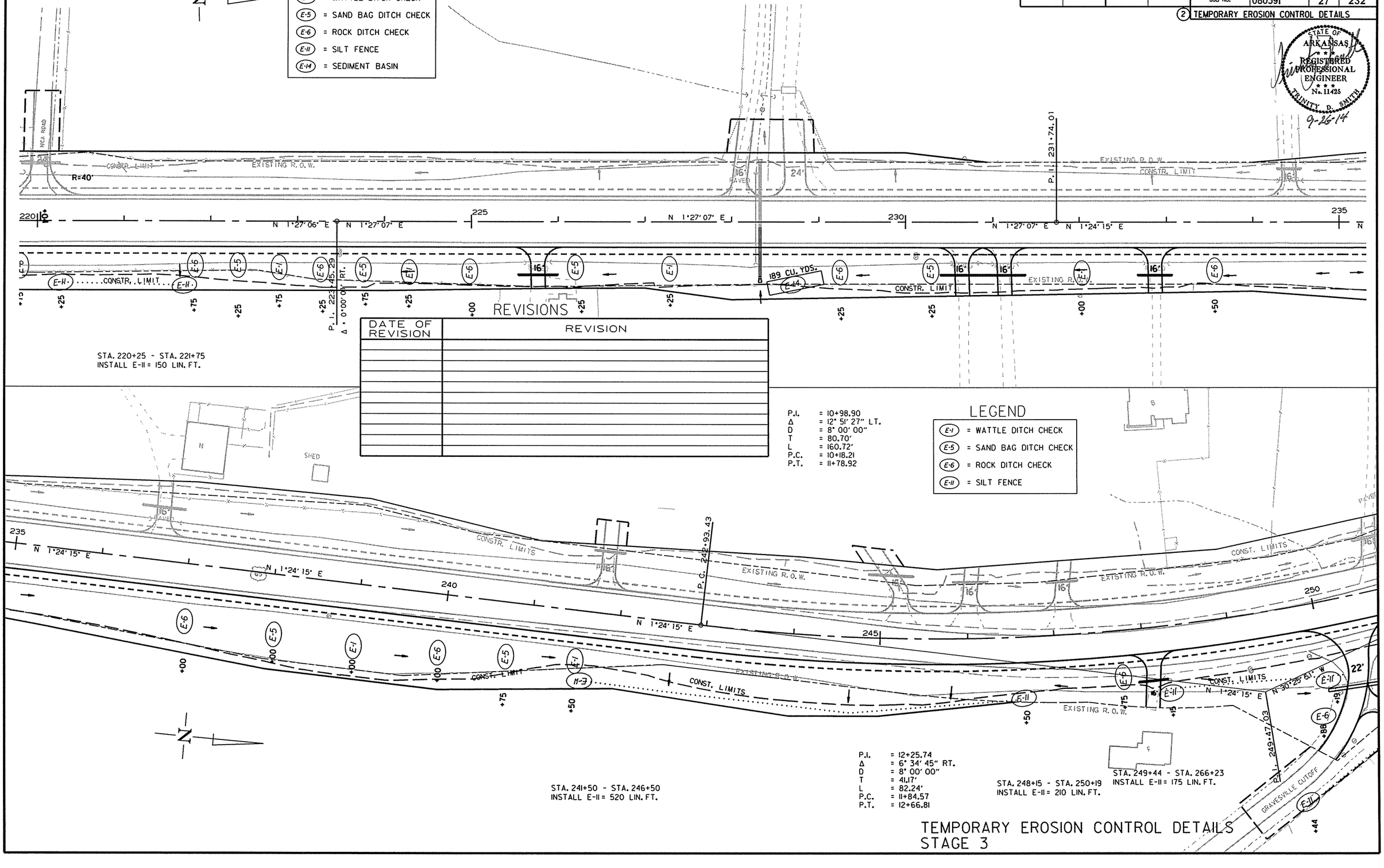
(2) TEMPORARY EROSION CONTROL DETAILS

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE 2 IF AND WHERE DIRECTED BY THE ENGINEER.

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



TEMPORARY EROSION CONTROL DETAILS
STAGE 3

9/17/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	28	232

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE 2 IF AND WHERE DIRECTED BY THE ENGINEER.

REVISIONS

DATE OF REVISION	REVISION

STA. 251+06 - STA. 255+45
INSTALL E-11 = 535 LIN. FT.

STA. EQUATION
STA. 255+90.34 BACK =
STA. 256+00.00 AHEAD

STA. 259+10 - STA. 260+39
INSTALL E-11 = 130 LIN. FT.

STA. 260+56 - STA. 262+87
INSTALL E-11 = 230 LIN. FT.

STA. 263+04 - STA. 266+23
INSTALL E-11 = 325 LIN. FT.

STA. 508+77 - STA. 280+03
INSTALL E-11 = 210 LIN. FT.

STA. 278+28.04 HWY. 65 =
STA. 511+06.59 HWY. 92
Δ = 59° 22' 05"

P. I. 511+28.73

P. T. 512+41.75

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE

STA. 266+40 - STA. 266+68
INSTALL E-11 = 30 LIN. FT.

STA. 266+84 - STA. 268+06
INSTALL E-11 = 120 LIN. FT.

STA. 268+22 - STA. 269+59
INSTALL E-11 = 140 LIN. FT.

STA. 269+73 - STA. 270+31
INSTALL E-11 = 60 LIN. FT.

STA. 270+61 - STA. 271+67
INSTALL E-11 = 105 LIN. FT.

STA. 273+48 - STA. 274+59
INSTALL E-11 = 110 LIN. FT.

STA. 274+99 - STA. 276+28
INSTALL E-11 = 130 LIN. FT.

STA. 276+67 - STA. 512+52
INSTALL E-11 = 145 LIN. FT.

TEMPORARY EROSION CONTROL DETAILS STAGE 3

9/17/2014

R080391.DGN

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE 2 IF AND WHERE DIRECTED BY THE ENGINEER.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	29	232

(2) TEMPORARY EROSION CONTROL DETAILS

STA. 280+19 - STA. 282+73
INSTALL E-II = 260 LIN. FT.

STA. 282+90 - STA. 284+87
INSTALL E-II = 190 LIN. FT.

STA. 285+03 - STA. 288+38
INSTALL E-II = 325 LIN. FT.

STA. 288+58 - STA. 291+81
INSTALL E-II = 225 LIN. FT.

STA. 291+01 - STA. 292+69
INSTALL E-II = 170 LIN. FT.

STA. 292+89 - STA. 294+37
INSTALL E-II = 150 LIN. FT.

P.I. = 24+54.92
Δ = 22° 00' 26" LT.
D = 4° 00' 00"
T = 278.52'
L = 550.18'
P.C. = 21+76.39
P.T. = 27+26.57

LEGEND

- E-1 = WATTLE DITCH CHECK
- E-7 = DROP INLET SILT FENCE
- E-11 = SILT FENCE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-1 = WATTLE DITCH CHECK
- E-5 = SAND BAG DITCH CHECK
- E-6 = ROCK DITCH CHECK
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN

P.I. = 36+05.09
Δ = 8° 12' 48" LT.
D = 8° 00' 00"
T = 51.42'
L = 102.67'
P.C. = 35+53.67
P.T. = 36+56.33

STA. 297+00 - STA. 305+00
INSTALL E-II = 825 LIN. FT.

P.I. = 34+79.26
Δ = 8° 12' 47" RT.
D = 8° 00' 00"
T = 51.42'
L = 102.67'
P.C. = 34+27.84
P.T. = 35+30.51

P.I. = 44+01.15
Δ = 0° 59' 57" RT.
D = 8° 00' 00"
T = 6.25'
L = 12.49'
P.C. = 43+94.90
P.T. = 44+07.39

TEMPORARY EROSION CONTROL DETAILS STAGE 3

9/17/2014

R080391.DGN

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE 2 IF AND WHERE DIRECTED BY THE ENGINEER.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	30	232

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

STA. 312+00.00
END JOB 080391

LEGEND

- (E-1) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE

P.I. = 48+48.25
Δ = 12° 32' 58" RT.
D = 8° 00' 00"
T = 78.75'
L = 156.87'
P.C. = 47+69.50
P.T. = 49+26.37

REVISIONS

DATE OF REVISION	REVISION

STA. 506+00.00
BEGIN HWY. 92

STA. 518+05.00
END HWY. 92

STA. 278+28.04 HWY. 65 =
STA. 511+06.59 HWY. 92'
Δ = 59° 22' 05"

STA. 507+63 - STA. 508+60
INSTALL E-11 = 100 LIN. FT.

STA. 513+74 - STA. 514+09
INSTALL E-11 = 135 LIN. FT.

STA. 514+34 - STA. 514+72
INSTALL E-11 = 40 LIN. FT.

STA. 514+96 - STA. 515+16
INSTALL E-11 = 20 LIN. FT.

STA. 515+34 - STA. 516+81
INSTALL E-11 = 150 LIN. FT.

TEMPORARY EROSION CONTROL DETAILS
STAGE 3

9/17/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	31	232

(2) MAINTENANCE OF TRAFFIC DETAILS

FOR ALL STAGES:
INSTALL THE ADVANCE WARNING SIGNS AT THE BEGINNING AND END OF THE PROJECT ALONG WITH SIGNS INDICATED FOR SIDE STREETS.

STAGE 1:
STA. 251+64 TO STA. 257+10
MAINTAIN TRAFFIC ON EXISTING LANES.
CONSTRUCT TEMPORARY WIDENING ON RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C.

STAGE 2:
STA. 108+50 TO STA. 245+81
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 125+42, STA. 152+24, STA. 175+23, STA. 186+56, STA. 194+59, STA. 210+06.

STA. 245+81 TO STA. 259+00
STRIPE EXISTING PAVEMENT AND TEMPORARY WIDENING AS SHOWN.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED
INSTALL TEMPORARY BARRIER WALL.
EXTEND BOX CULVERT AT STA. 255+89.

STA. 259+00 TO STA 278+28
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN.

STA. 506+00 TO 511+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

511+00 TO 518+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

STA. 278+28 TO STA. 295+00
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

STA. 295+00 TO STA. 312+00
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.
CONSTRUCT TEMPORARY WIDENING ON RT.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 300+32 AND STA. 307+83.

STAGE 3:
STA. 108+50 TO STA. 240+75
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 125+42, STA. 152+24, STA. 175+23, STA. 186+56, STA. 194+59, STA. 210+06.

STA. 240+75 TO STA. 259+00
STRIPE PAVEMENT AS SHOWN.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED
INSTALL TEMPORARY BARRIER WALL.
EXTEND BOX CULVERT AT STA. 255+89.

STA. 259+00 TO STA. 278+28
STRIPE PAVMENT AS SHOWN.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN.

STA. 506+00 TO 511+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

511+00 TO 518+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

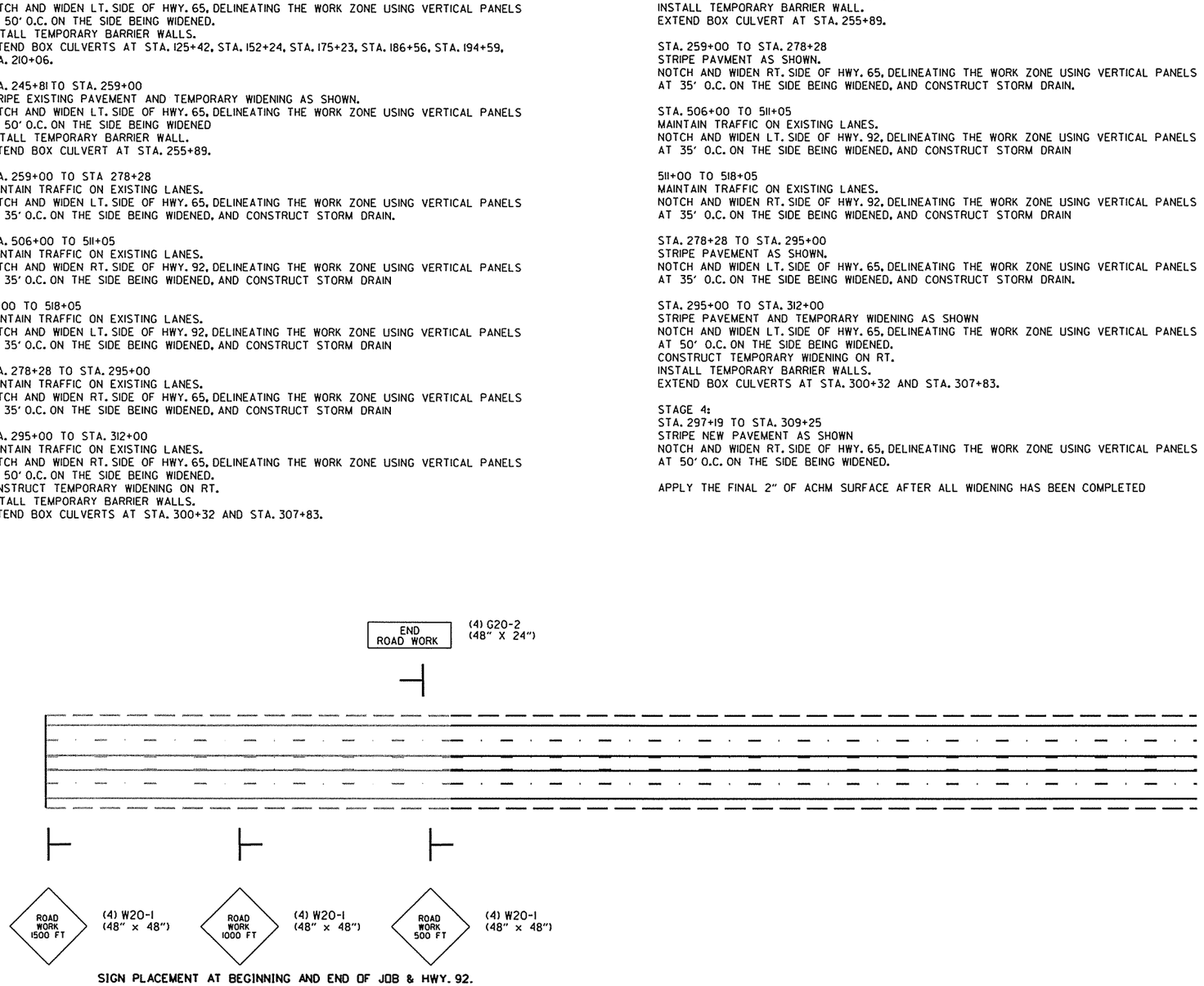
STA. 278+28 TO STA. 295+00
STRIPE PAVEMENT AS SHOWN.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN.

STA. 295+00 TO STA. 312+00
STRIPE PAVEMENT AND TEMPORARY WIDENING AS SHOWN
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.
CONSTRUCT TEMPORARY WIDENING ON RT.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 300+32 AND STA. 307+83.

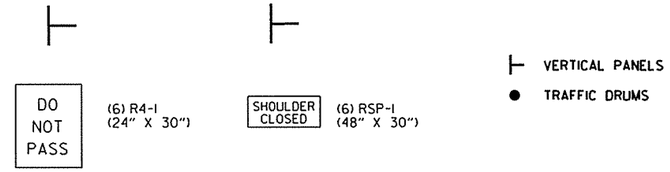
STAGE 4:
STA. 297+19 TO STA. 309+25
STRIPE NEW PAVEMENT AS SHOWN
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.

APPLY THE FINAL 2" OF ACHM SURFACE AFTER ALL WIDENING HAS BEEN COMPLETED

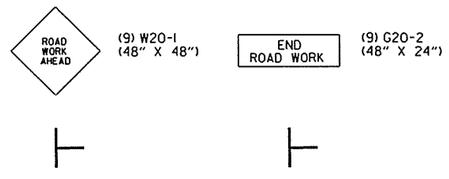
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



SIGN PLACEMENT AT BEGINNING AND END OF JOB & HWY. 92.
ALL MAINTENANCE OF TRAFFIC STAGES



TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
ALL STAGES



SIGN PLACEMENT ON ALL CITY STREETS & COUNTY ROADS
ALL STAGES

THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR 2 MILES. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4" OR LESS, AND THEN NOTCH ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

MAINTENANCE OF TRAFFIC
STAGE 1

9/17/2014

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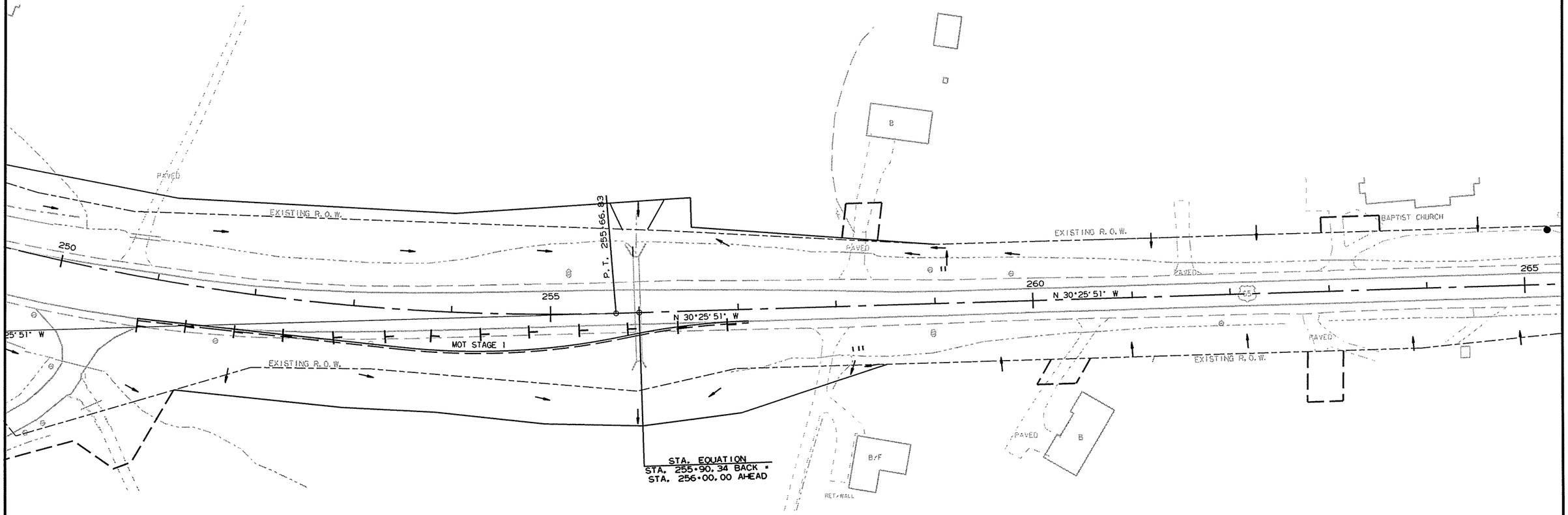
				6	ARK.			
				JOB NO.		080391	32	232

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



VERTICAL PANELS = 13 EACH
50' O.C. ROADWAY

9/17/2014

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MAINTENANCE OF TRAFFIC
STAGE 1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	33	232

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

FOR ALL STAGES:
INSTALL THE ADVANCE WARNING SIGNS AT THE BEGINNING AND END OF THE PROJECT ALONG WITH SIGNS INDICATED FOR SIDE STREETS.

STAGE 1:
STA. 251+64 TO STA. 257+10
MAINTAIN TRAFFIC ON EXISTING LANES.
CONSTRUCT TEMPORARY WIDENING ON RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C.

STAGE 2:
STA. 108+50 TO STA. 245+81
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 125+42, STA. 152+24, STA. 175+23, STA. 186+56, STA. 194+59, STA. 210+06.

STA. 245+81 TO STA. 259+00
STRIPE EXISTING PAVEMENT AND TEMPORARY WIDENING AS SHOWN.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED
INSTALL TEMPORARY BARRIER WALL.
EXTEND BOX CULVERT AT STA. 255+89.

STA. 259+00 TO STA 278+28
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN.

STA. 506+00 TO 511+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

511+00 TO 518+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

STA. 278+28 TO STA. 295+00
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

STA. 295+00 TO STA. 312+00
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.
CONSTRUCT TEMPORARY WIDENING ON RT.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 300+32 AND STA. 307+83.

STAGE 3:
STA. 108+50 TO STA. 240+75
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 125+42, STA. 152+24, STA. 175+23, STA. 186+56, STA. 194+59, STA. 210+06.

STA. 240+75 TO STA. 259+00
STRIPE PAVEMENT AS SHOWN.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED
INSTALL TEMPORARY BARRIER WALL.
EXTEND BOX CULVERT AT STA. 255+89.

STA. 259+00 TO STA. 278+28
STRIPE PAVMENT AS SHOWN.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN.

STA. 506+00 TO 511+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

511+00 TO 518+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

STA. 278+28 TO STA. 295+00
STRIPE PAVEMENT AS SHOWN.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN.

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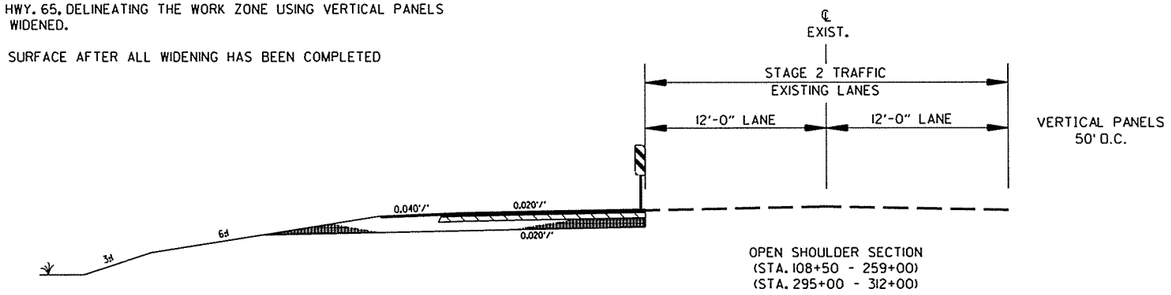
CONSTRUCT TEMPORARY WIDENING ON RT.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 300+32 AND STA. 307+83.

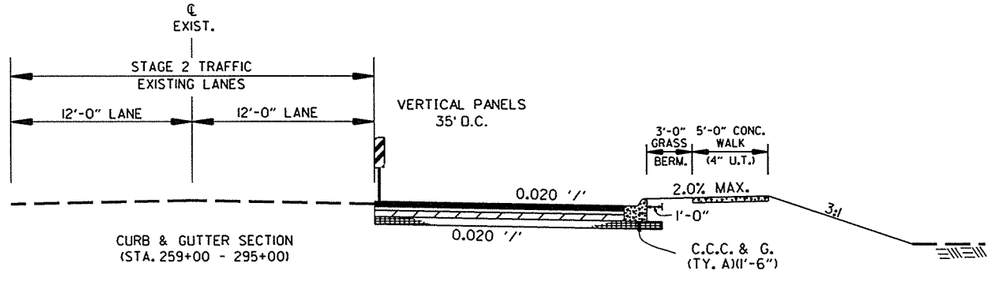
STAGE 4:
STA. 297+19 TO STA. 309+25
STRIPE NEW PAVEMENT AS SHOWN
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.

APPLY THE FINAL 2" OF ACHM SURFACE AFTER ALL WIDENING HAS BEEN COMPLETED

⊢ VERTICAL PANELS
● TRAFFIC DRUMS



OPEN SHOULDER SECTION
(STA. 108+50 - 259+00)
(STA. 295+00 - 312+00)



CURB & GUTTER SECTION
(STA. 259+00 - 295+00)

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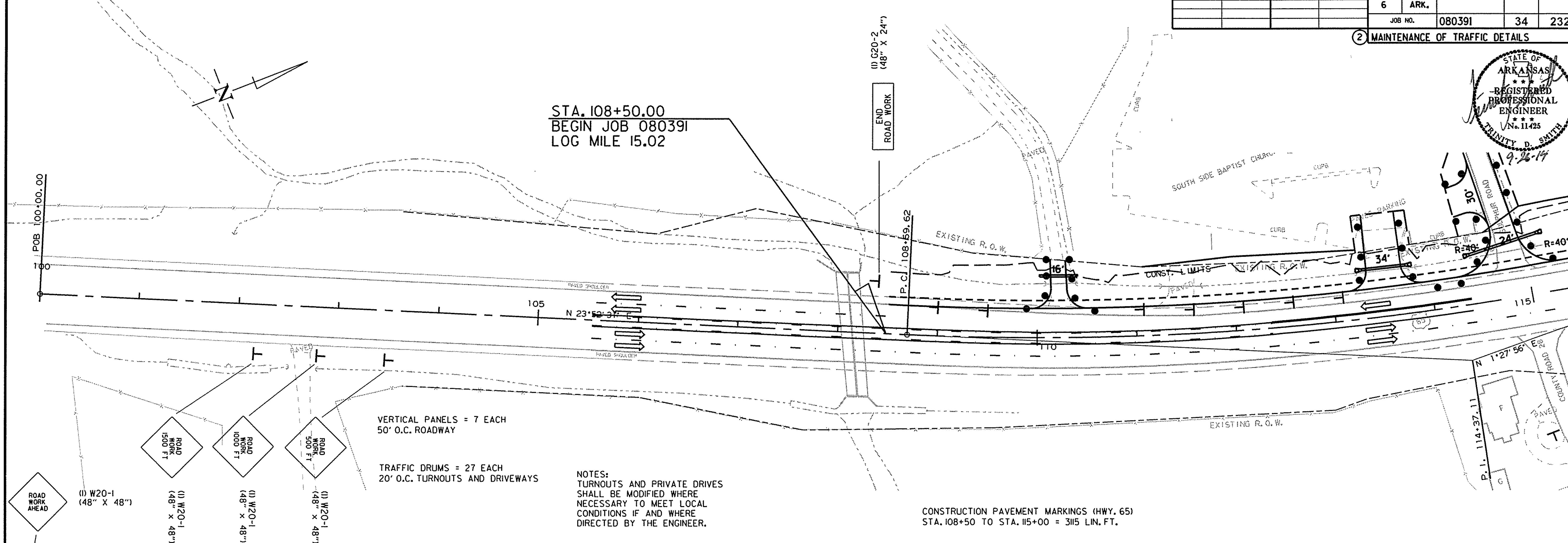
MAINTENANCE OF TRAFFIC
STAGE 2

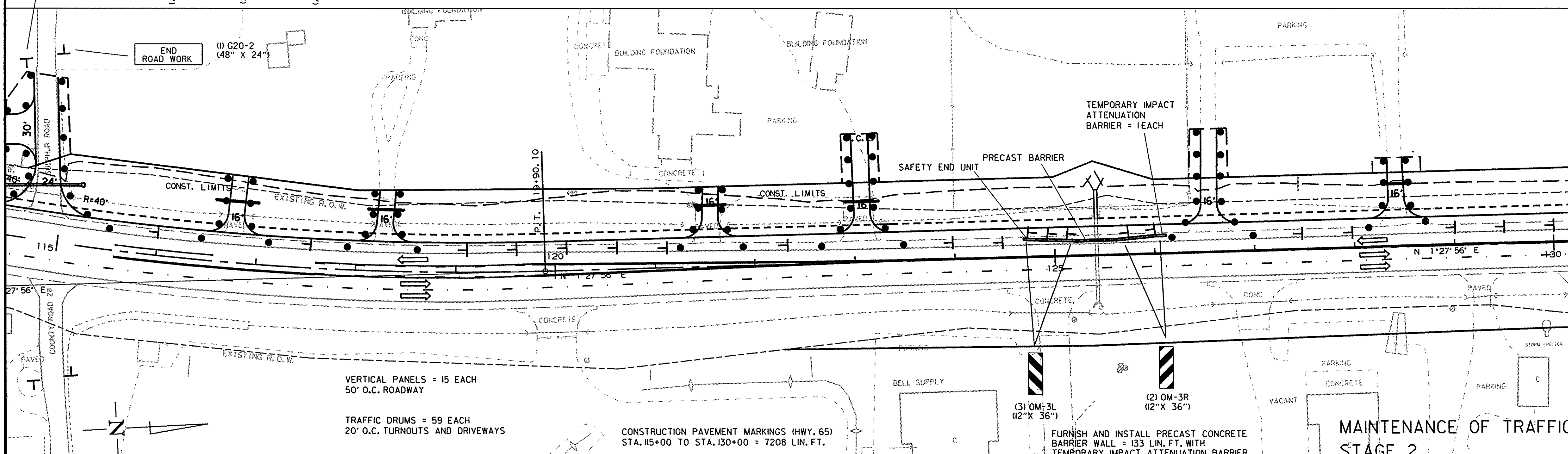
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	34	232

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 9-26-14



STA. 108+50.00
BEGIN JOB 080391
LOG MILE 15.02
(1) G20-2 (48" X 24")
END ROAD WORK
POB 100+00.00
P.C. 108+59.62
EXISTING R.O.W.
CONST. LIMITS
SOUTH SIDE BAPTIST CHURCH
N 23°52'37" E
N 1°27'56" E
P.I. 114+37.11
R=40'
ROAD WORK AHEAD
(1) W20-1 (48" X 48")
ROAD WORK 1500 FT
ROAD WORK 1000 FT
ROAD WORK 500 FT
VERTICAL PANELS = 7 EACH
50' O.C. ROADWAY
TRAFFIC DRUMS = 27 EACH
20' O.C. TURNOUTS AND DRIVEWAYS
NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.
CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 108+50 TO STA. 115+00 = 3115 LIN. FT.



END ROAD WORK
(1) G20-2 (48" X 24")
BUILDING FOUNDATION
PARKING
CONST. LIMITS
EXISTING R.O.W.
P.T. 119+90.10
N 1°27'56" E
TEMPORARY IMPACT ATTENUATION BARRIER = 1 EACH
PRECAST BARRIER
SAFETY END UNIT
BELL SUPPLY
(3) OM-3L (12"X 36")
(2) OM-3R (12"X 36")
VACANT
VERTICAL PANELS = 15 EACH
50' O.C. ROADWAY
TRAFFIC DRUMS = 59 EACH
20' O.C. TURNOUTS AND DRIVEWAYS
CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 115+00 TO STA. 130+00 = 7208 LIN. FT.
FURNISH AND INSTALL PRECAST CONCRETE BARRIER WALL = 133 LIN. FT. WITH TEMPORARY IMPACT ATTENUATION BARRIER

MAINTENANCE OF TRAFFIC STAGE 2

9/17/2014

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	35	232

(2) MAINTENANCE OF TRAFFIC DETAILS

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

VERTICAL PANELS = 25 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 18 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

STATE OF ARKANSAS
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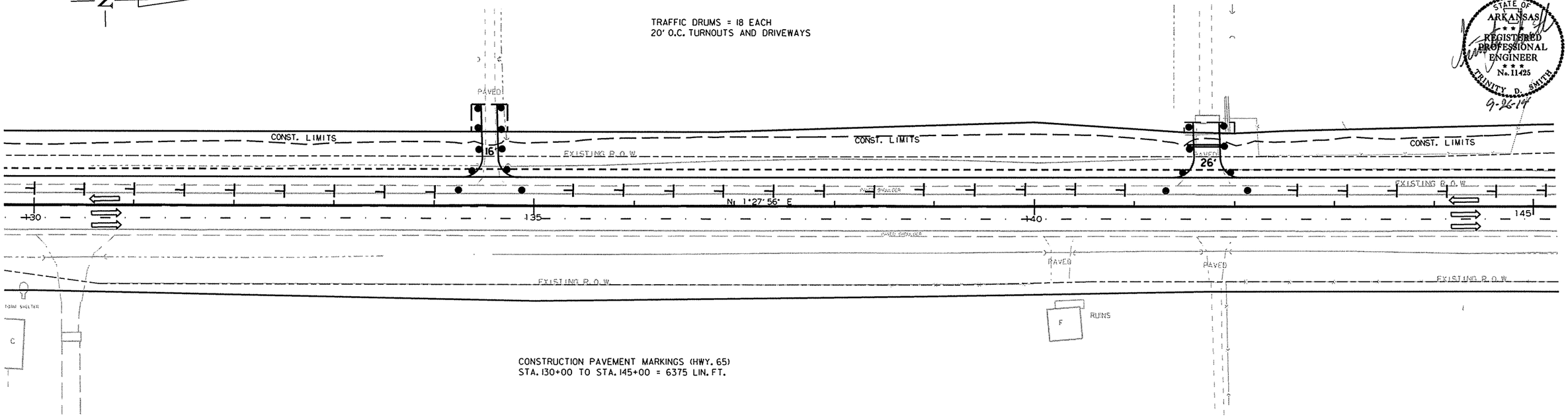
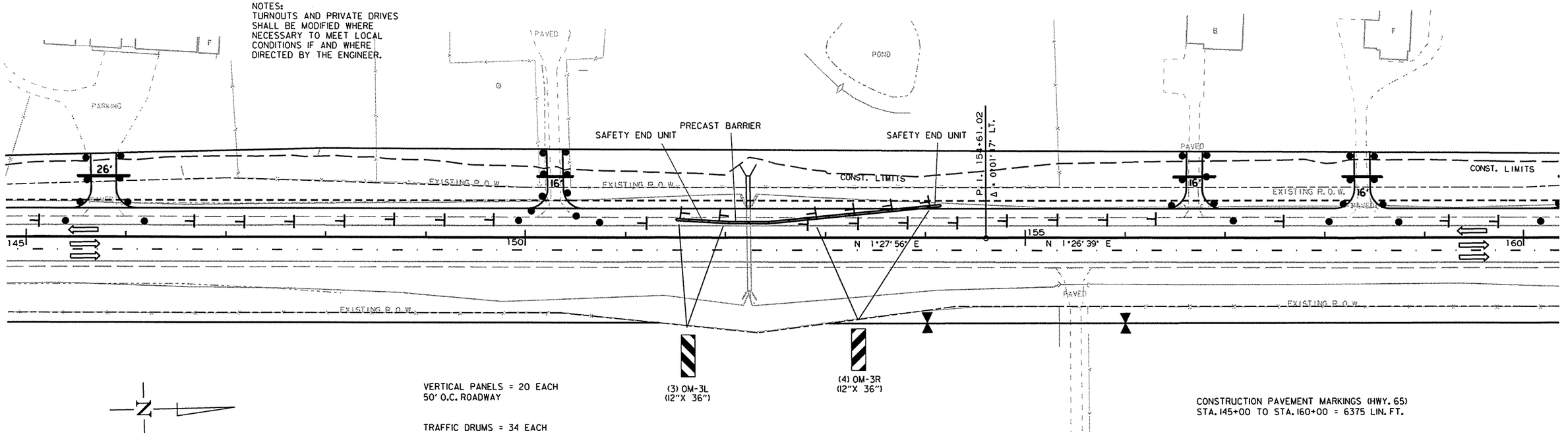
No. 11425
TRINITY D. SMITH
9-26-14



CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 130+00 TO STA. 145+00 = 6375 LIN. FT.

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.



VERTICAL PANELS = 20 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 34 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

(3) OM-3L
(12"X 36")

(4) OM-3R
(12"X 36")

FURNISH AND INSTALL PRECAST CONCRETE BARRIER WALL = 266 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 145+00 TO STA. 160+00 = 6375 LIN. FT.

MAINTENANCE OF TRAFFIC STAGE 2

9/17/2014

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	36	232

(2) MAINTENANCE OF TRAFFIC DETAILS

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
9-26-14
TRINITY D. SMITH

VERTICAL PANELS = 19 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 41 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

ROAD WORK AHEAD (I) W20-1 (48" X 48")

END ROAD WORK (I) G20-2 (48" X 24")

SOUTH BELT DRIVE

PARKING

PROPOSED R.O.W.

LIMITS

EXISTING R.O.W.

CONST. LIMITS

CONST. LIMIT

16' 16' 34' 20'

R=40' R=40'

SAFETY END UNIT

PRECAST BARRIER

160 165 170 175

N 1°26'39" E

PAVED

(3) OM-3L (12"X 36")

CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 160+00 TO STA. 175+00 = 6375 LIN. FT.

FURNISH AND INSTALL PRECAST CONCRETE BARRIER WALL = 226 LIN. FT.

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

ROAD WORK AHEAD (I) W20-1 (48" X 48")

END ROAD WORK (I) G20-2 (48" X 24")

VACANT

SAFETY END UNIT

PROPOSED R.O.W.

CONST. LIMIT

EXISTING R.O.W.

20' 16' 16' 24'

R=40' R=40'

COUNTY ROAD 26

P.I. 182+73.29
10°00'47" LT.

RET. WALL

BUILDING FOUNDATION

CANOPY

SAFETY END UNIT

(3) OM-3L (12"X 36")

PRECAST BARRIER

SAFETY END UNIT

175 180 185 190

N 1°26'39" E N 1°25'52" E

CURB

CONCRETE

(4) OM-3R (12"X 36")

VERTICAL PANELS = 17 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 47 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

END ROAD WORK (I) G20-2 (48" X 24")

OLD CNTY ROAD 26

ROAD WORK AHEAD (I) W20-1 (48" X 48")

CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 175+00 TO STA. 190+00 = 6375 LIN. FT.

FURNISH AND INSTALL PRECAST CONCRETE BARRIER WALL = 226 LIN. FT.

MAINTENANCE OF TRAFFIC STAGE 2

9/17/2014

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	37	232

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

RELOCATE PRECAST CONCRETE BARRIER WALL = 226 LIN. FT.

VERTICAL PANELS = 16 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 33 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

(3) OM-3L
(12"X 36")

SAFETY END UNIT

PRECAST BARRIER

SAFETY END UNIT

P. I. 194+35.84

CONSTR. LIMIT

EXISTING R.O.W.

RUINS

190 195 200 205

N 1°25'52" E N 1°24'55" E N 1°24'55" E N 1°27'41" E

CURB

EXISTING R.O.W.

(4) OM-3R
(12"X 36")

END ROAD WORK

(1) G20-2
(48" X 24")

SOUTHSIDE ROAD

ROAD WORK AHEAD

(1) W20-1
(48" X 48")

P. I. 204+11.03
Δ = 0°02'46" RT.

CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 190+00 TO STA. 205+00 = 8085 LIN. FT.

VERTICAL PANELS = 20 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 23 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

(3) OM-3L
(12"X 36")

SAFETY END UNIT

PRECAST BARRIER

SAFETY END UNIT

P. I. 213+48.87
Δ = 0°00'35" LT.

CONSTR. LIMIT

EXISTING R.O.W.

RUINS

SHED

PARKING

HICA ROAD

R=40'

205 210 215 220

N 1°27'41" E N 1°27'06" E

PAVED

CANOPY

(4) OM-3R
(12"X 36")

ROAD WORK AHEAD

(1) W20-1
(48" X 48")

END ROAD WORK

(1) G20-2
(48" X 24")

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

RELOCATE PRECAST CONCRETE BARRIER WALL = 226 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 205+00 TO STA. 220+00 = 6750 LIN. FT.

MAINTENANCE OF TRAFFIC STAGE 2

9/17/2014

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	38	232

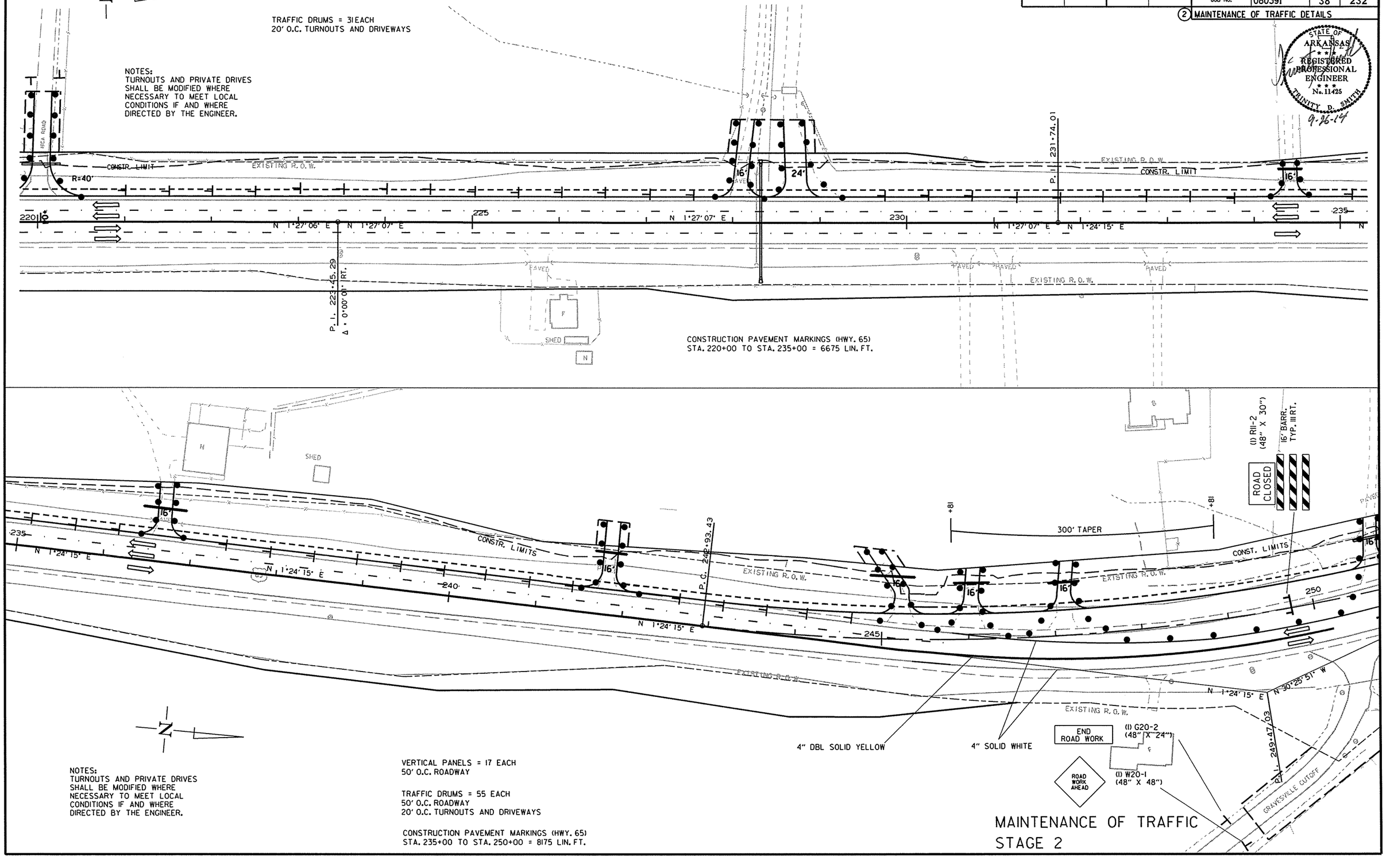
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

VERTICAL PANELS = 23 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 31 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.



NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

VERTICAL PANELS = 17 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 55 EACH
50' O.C. ROADWAY
20' O.C. TURNOUTS AND DRIVEWAYS

CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 235+00 TO STA. 250+00 = 8175 LIN. FT.

MAINTENANCE OF TRAFFIC STAGE 2

9/17/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	39	232

(2) MAINTENANCE OF TRAFFIC DETAILS

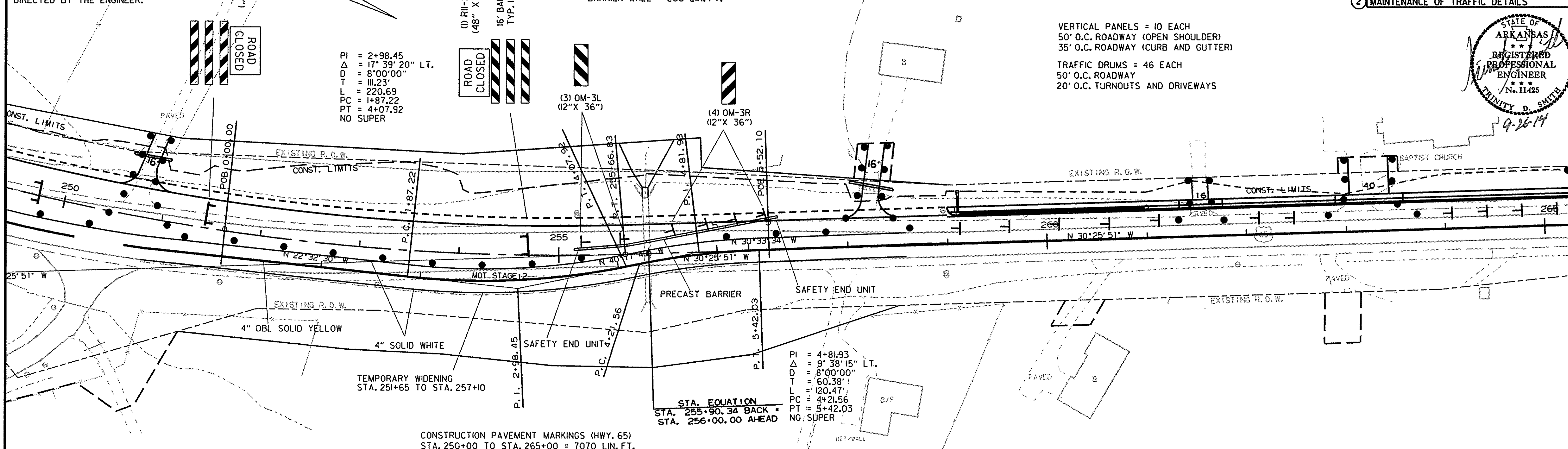
NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

RELOCATE PRECAST CONCRETE BARRIER WALL = 206 LIN. FT.

VERTICAL PANELS = 10 EACH
50' O.C. ROADWAY (OPEN SHOULDER)
35' O.C. ROADWAY (CURB AND GUTTER)

TRAFFIC DRUMS = 46 EACH
50' O.C. ROADWAY
20' O.C. TURNOUTS AND DRIVEWAYS

CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 250+00 TO STA. 265+00 = 7070 LIN. FT.



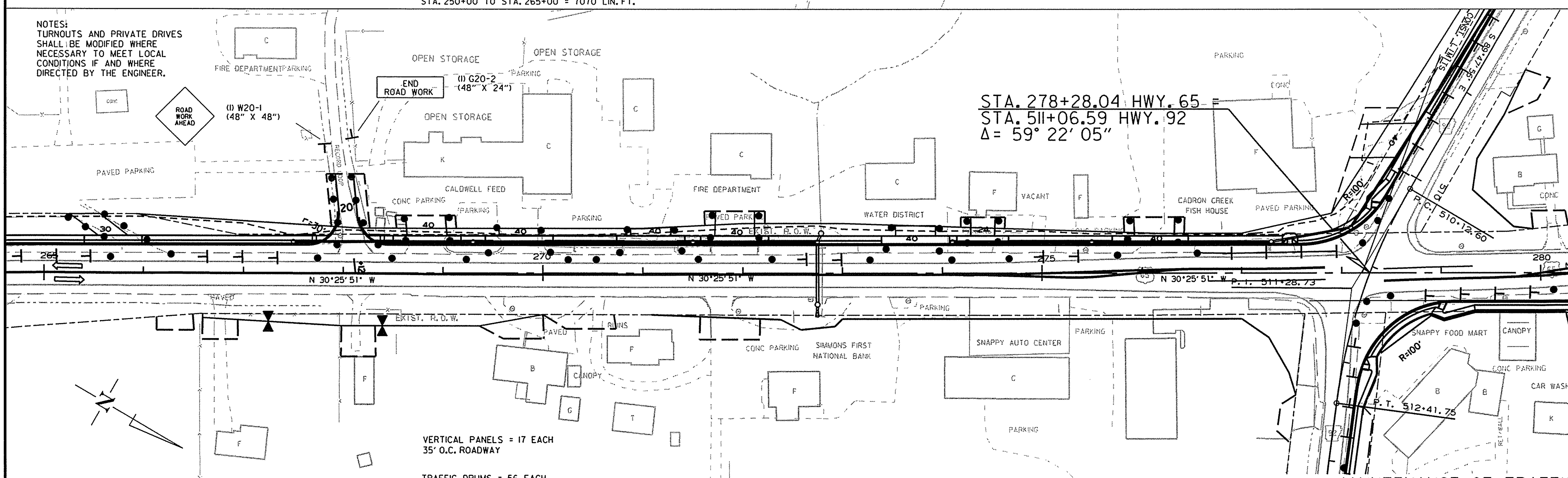
(1) RII-2
(48" X 30")
16' BARR.
TYP. III LT.
ROAD CLOSED
(1) RII-2
(48" X 30")
16' BARR.
TYP. III RT.
ROAD CLOSED
(3) OM-3L
(12" X 36")
(4) OM-3R
(12" X 36")
PI = 2+98.45
Δ = 17° 39' 20" LT.
D = 8°00'00"
T = 111.23'
L = 220.69
PC = 1+87.22
PT = 4+07.92
NO SUPER
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14
CONST. LIMITS
EXISTING R.O.W.
POB 0+00.00
P.C. 1+87.22
P.T. 4+07.92
P.T. 255+66.83
P.I. 4+81.93
POE 5+52.10
N 22° 32' 30" W
N 40° 11' 45" W
N 30° 25' 51" W
N 30° 33' 34" W
MOT STAGE 2
BAPTIST CHURCH
PAVED
PRECAST BARRIER
SAFETY END UNIT
4" DBL SOLID YELLOW
4" SOLID WHITE
SAFETY END UNIT
TEMPORARY WIDENING
STA. 251+65 TO STA. 257+10
P.I. 2+98.45
P.C. 4+21.56
P.T. 5+42.03
STA. EQUATION
STA. 255+90.34 BACK =
STA. 256+00.00 AHEAD
PI = 4+81.93
Δ = 9° 38' 15" LT.
D = 8°00'00"
T = 60.38'
L = 120.47'
PC = 4+21.56
PT = 5+42.03
NO SUPER
250
255
260
265

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

VERTICAL PANELS = 17 EACH
35' O.C. ROADWAY

TRAFFIC DRUMS = 56 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 265+00 TO STA. 280+00 = 5700 LIN. FT.



ROAD WORK AHEAD
(1) W20-1
(48" X 48")
END ROAD WORK
(1) G20-2
(48" X 24")
FIRE DEPARTMENT PARKING
OPEN STORAGE
OPEN STORAGE
OPEN STORAGE
PAVED PARKING
CALDWELL FEED
CONC PARKING
FIRE DEPARTMENT
WATER DISTRICT
VACANT
CADRON CREEK FISH HOUSE
PAVED PARKING
PARKING
STA. 278+28.04 HWY. 65 =
STA. 511+06.59 HWY. 92
Δ = 59° 22' 05"
R=100'
P.C. 510+12.60
P.I. 511+28.73
P.T. 512+41.75
N 30° 25' 51" W
EXIST. R.O.W.
RUINS
CANOPY
CONC PARKING
SIMMONS FIRST NATIONAL BANK
SNAPPY AUTO CENTER
SNAPPY FOOD MART
CANOPY
CONC PARKING
CAR WASH
265
270
275
280

MAINTENANCE OF TRAFFIC
STAGE 2

9/17/2014
R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	40	232

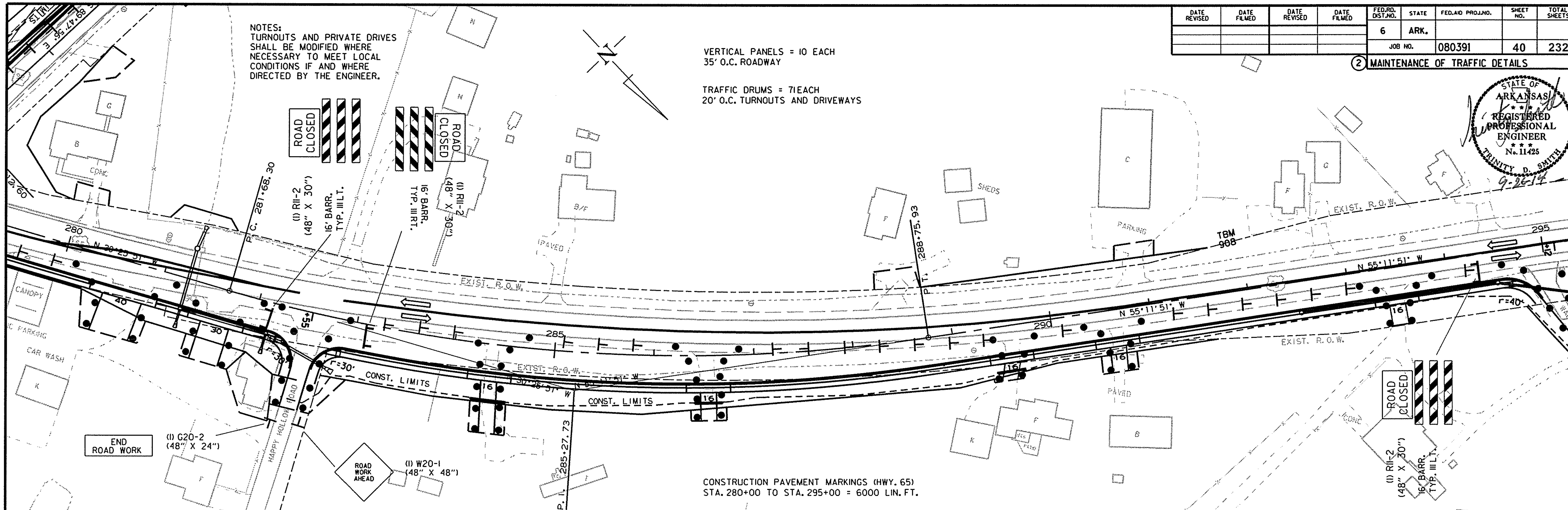
(2) MAINTENANCE OF TRAFFIC DETAILS

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

VERTICAL PANELS = 10 EACH
35' O.C. ROADWAY

TRAFFIC DRUMS = 71 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

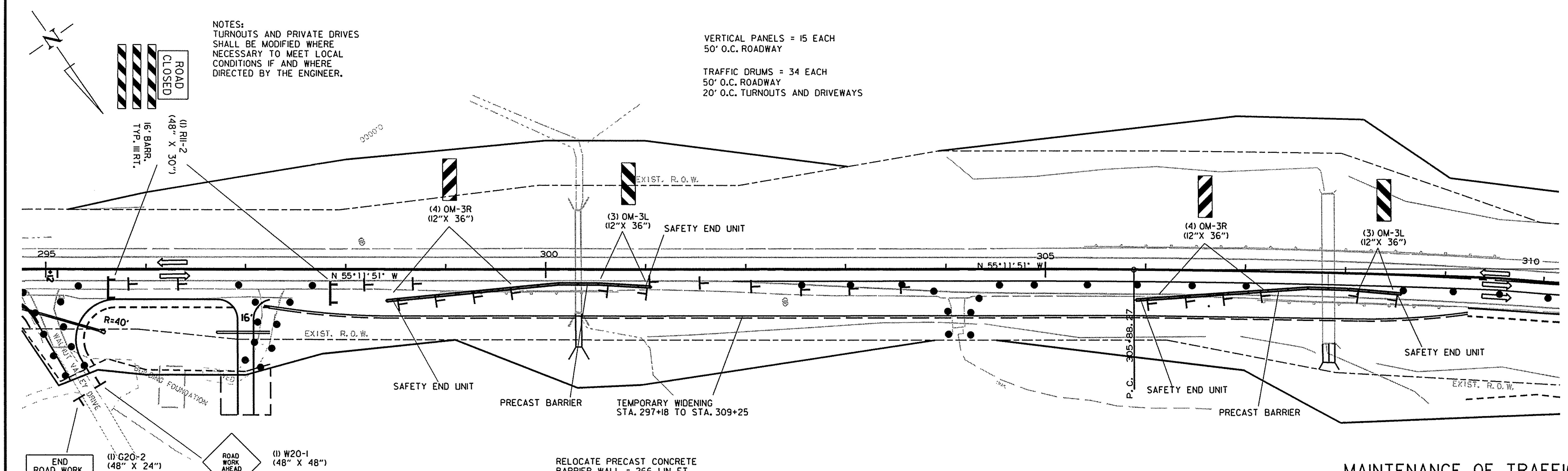
CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 280+00 TO STA. 295+00 = 6000 LIN. FT.



NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

VERTICAL PANELS = 15 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 34 EACH
50' O.C. ROADWAY
20' O.C. TURNOUTS AND DRIVEWAYS



RELOCATE PRECAST CONCRETE BARRIER WALL = 266 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 295+00 TO STA. 310+00 = 6130 LIN. FT.

RELOCATE PRECAST CONCRETE BARRIER WALL = 266 LIN. FT.

MAINTENANCE OF TRAFFIC
STAGE 2

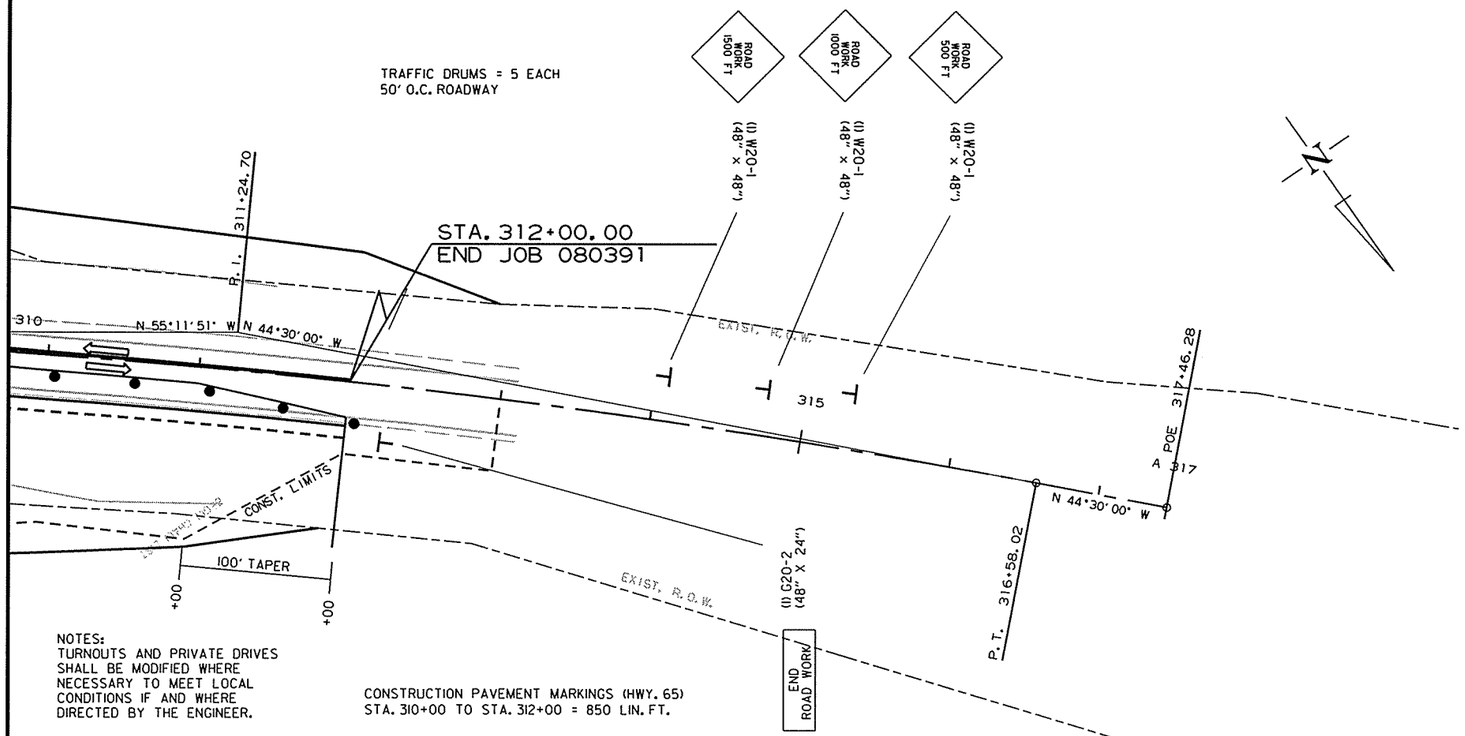
9/17/2014

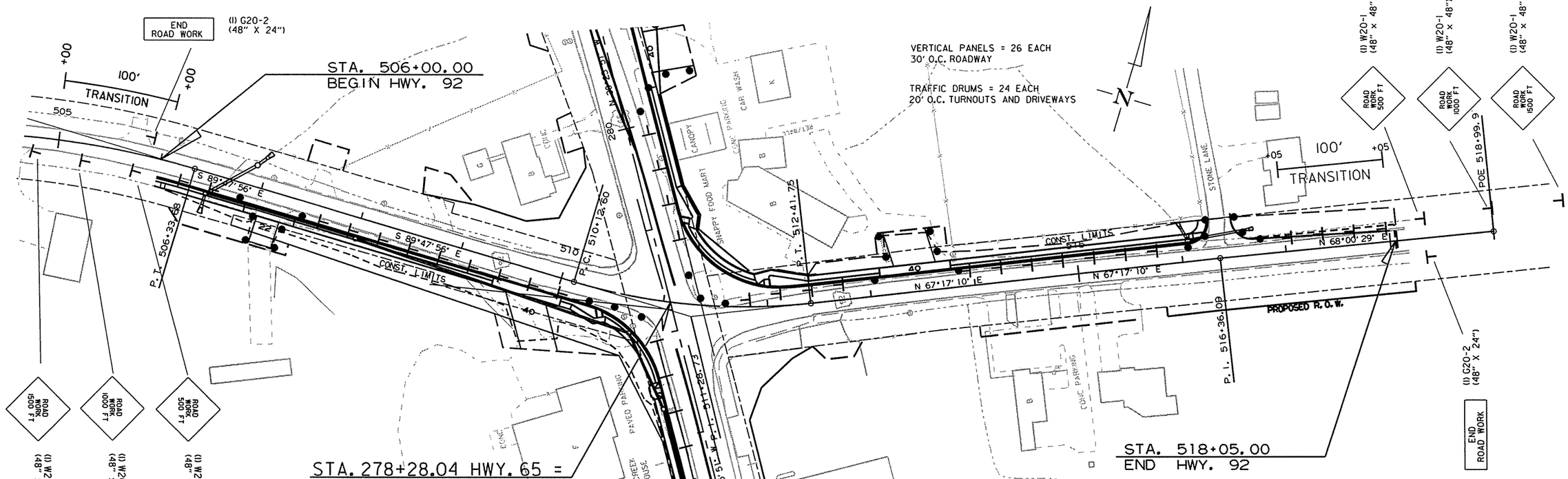
R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	41	232

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14





MAINTENANCE OF TRAFFIC
STAGE 2

9/17/2014

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	42	232

(2) MAINTENANCE OF TRAFFIC DETAILS

FOR ALL STAGES:
INSTALL THE ADVANCE WARNING SIGNS AT THE BEGINNING AND END OF THE PROJECT ALONG WITH SIGNS INDICATED FOR SIDE STREETS.

STAGE 1:
STA. 251+64 TO STA. 257+10
MAINTAIN TRAFFIC ON EXISTING LANES.
CONSTRUCT TEMPORARY WIDENING ON RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C.

STAGE 2:
STA. 108+50 TO STA. 245+81
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 125+42, STA. 152+24, STA. 175+23, STA. 186+56, STA. 194+59, STA. 210+06.

STA. 245+81 TO STA. 259+00
STRIPE EXISTING PAVEMENT AND TEMPORARY WIDENING AS SHOWN.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED
INSTALL TEMPORARY BARRIER WALL.
EXTEND BOX CULVERT AT STA. 255+89.

STA. 259+00 TO STA 278+28
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN.

STA. 506+00 TO 511+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

511+00 TO 518+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

STA. 278+28 TO STA. 295+00
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

STA. 295+00 TO STA. 312+00
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.
CONSTRUCT TEMPORARY WIDENING ON RT.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 300+32 AND STA. 307+83.

STAGE 3:
STA. 108+50 TO STA. 240+75
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 125+42, STA. 152+24, STA. 175+23, STA. 186+56, STA. 194+59, STA. 210+06.

STA. 240+75 TO STA. 259+00
STRIPE PAVEMENT AS SHOWN.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED
INSTALL TEMPORARY BARRIER WALL.
EXTEND BOX CULVERT AT STA. 255+89.

STA. 259+00 TO STA. 278+28
STRIPE PAVMENT AS SHOWN.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN.

STA. 506+00 TO 511+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

511+00 TO 518+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

STA. 278+28 TO STA. 295+00
STRIPE PAVEMENT AS SHOWN.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN.

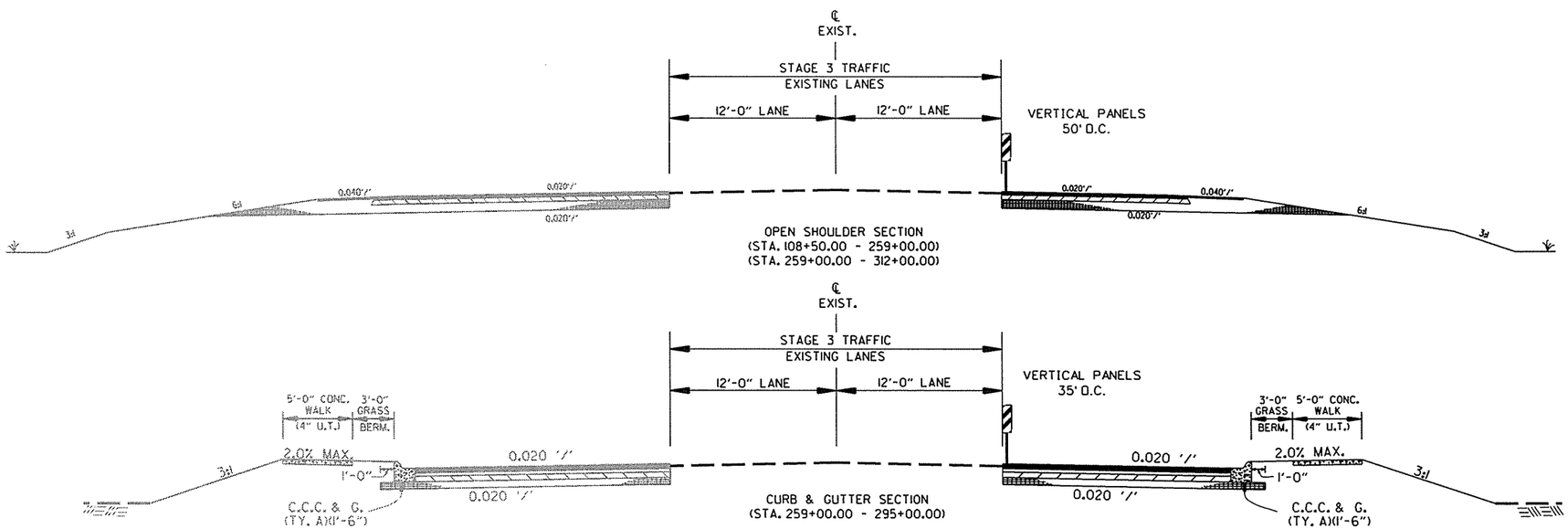
STA. 295+00 TO STA. 312+00
STRIPE PAVEMENT AND TEMPORARY WIDENING AS SHOWN
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.
CONSTRUCT TEMPORARY WIDENING ON RT.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 300+32 AND STA. 307+83.

STAGE 4:
STA. 297+19 TO STA. 309+25
STRIPE NEW PAVEMENT AS SHOWN
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.

APPLY THE FINAL 2" OF ACHM SURFACE AFTER ALL WIDENING HAS BEEN COMPLETED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

⊢ VERTICAL PANELS
● TRAFFIC DRUMS



MAINTENANCE OF TRAFFIC
STAGE 3

9/17/2014

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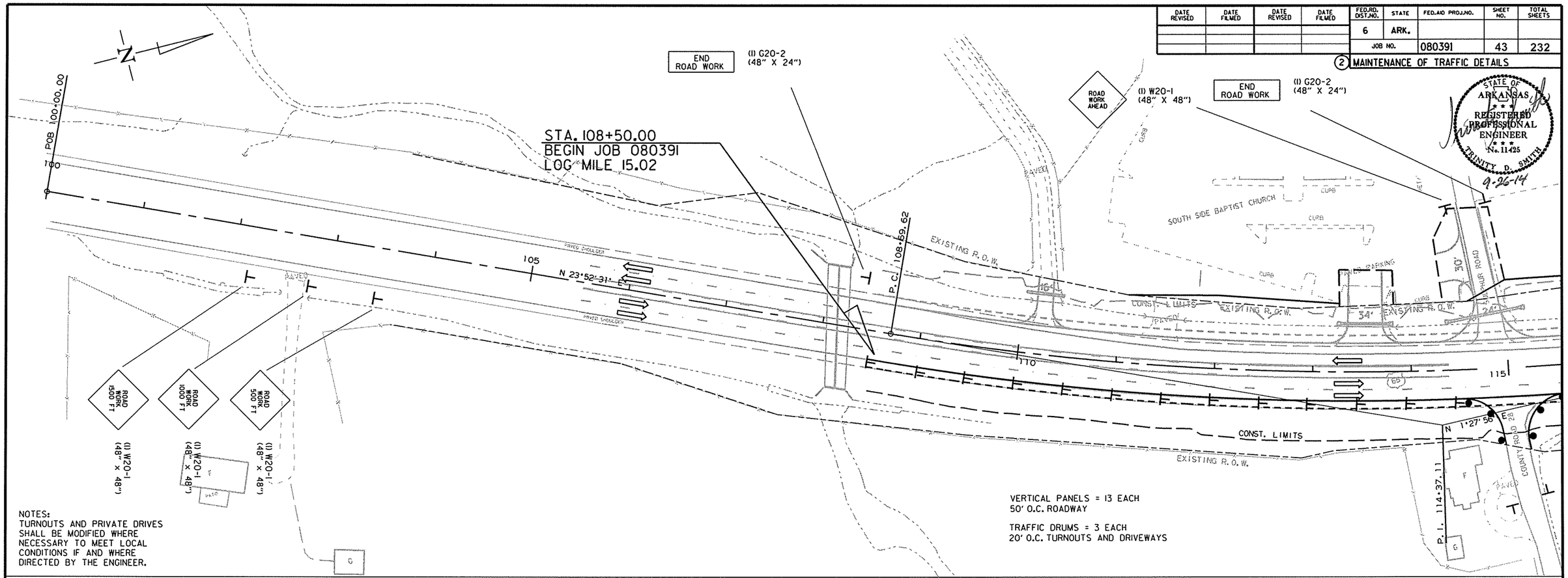
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	43	232

(2) MAINTENANCE OF TRAFFIC DETAILS

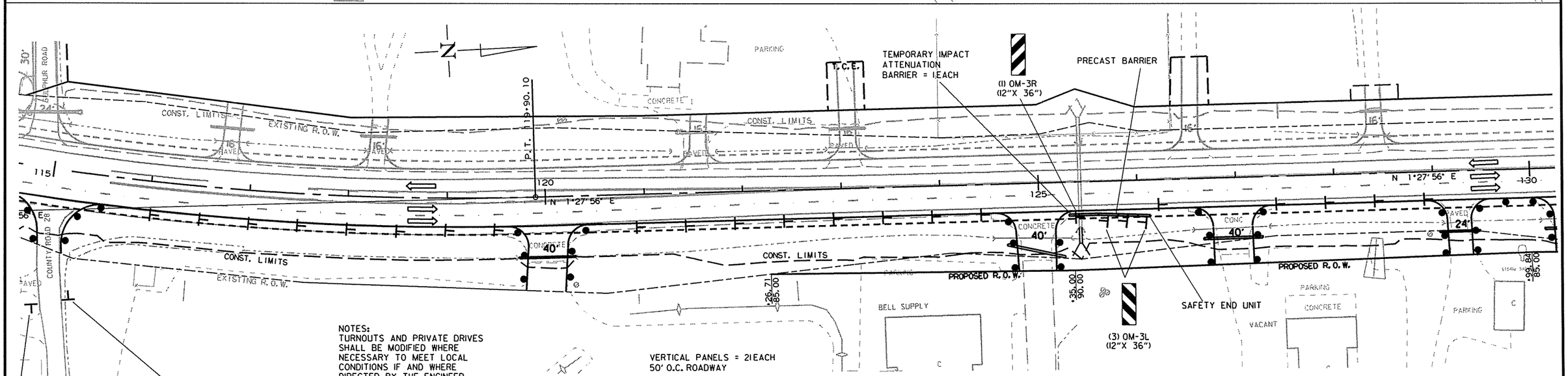
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

VERTICAL PANELS = 13 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 3 EACH
20' O.C. TURNOUTS AND DRIVEWAYS



NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

VERTICAL PANELS = 21 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 28 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

RELOCATE PRECAST CONCRETE BARRIER WALL = 73 LIN. FT. WITH TEMPORARY IMPACT ATTENUATION BARRIER

END ROAD WORK — (1) G20-2 (48" X 24")

ROAD WORK AHEAD — (1) W20-1 (48" X 48")

MAINTENANCE OF TRAFFIC STAGE 3

9/17/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	44	232

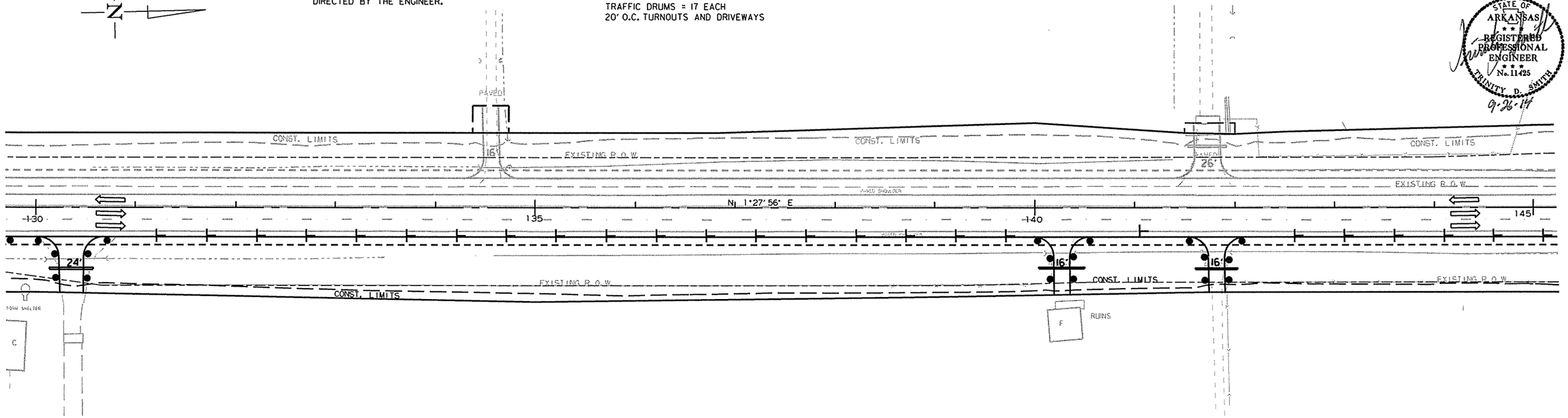
(2) MAINTENANCE OF TRAFFIC DETAILS

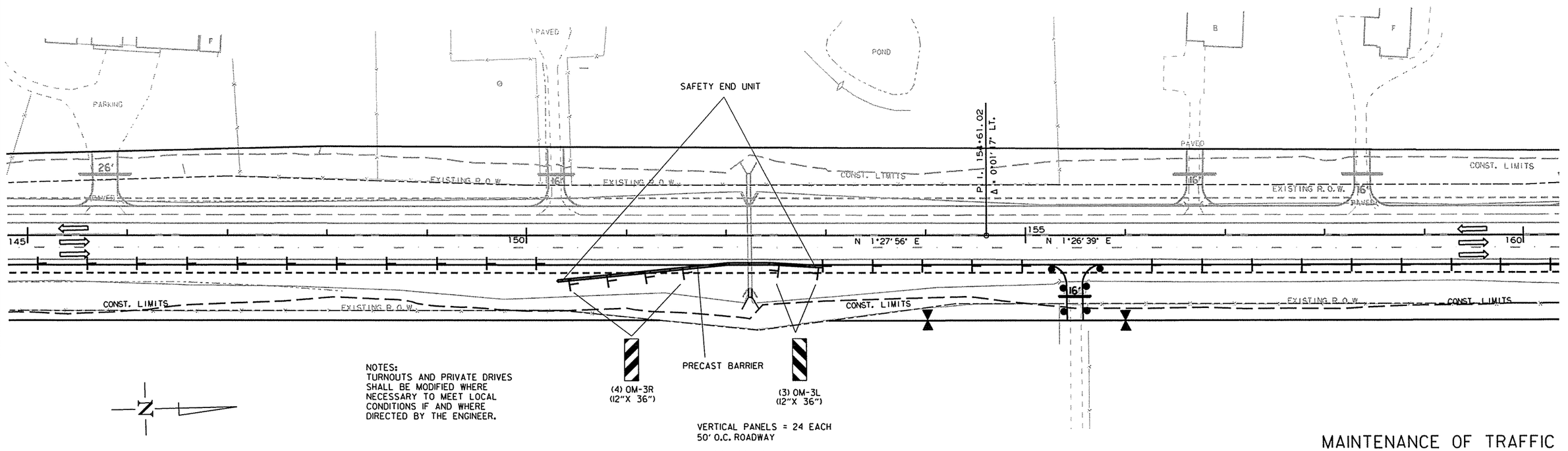
NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

VERTICAL PANELS = 24 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 17 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14





NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

VERTICAL PANELS = 24 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 6 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

RELOCATING PRECAST CONCRETE BARRIER WALL = 266 LIN. FT.

MAINTENANCE OF TRAFFIC STAGE 3

9/17/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	45	232

(2) MAINTENANCE OF TRAFFIC DETAILS

VERTICAL PANELS = 24 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 6 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

ROAD WORK AHEAD
(1) W20-1 (48" X 48")
END ROAD WORK
(1) G20-2 (48" X 24")

PRECAST BARRIER
PROPOSED R.O.W.
SAFETY END UNIT
(4) OM-3R (12"X 36")
RELOCATING PRECAST CONCRETE BARRIER WALL = 226 LIN. FT.

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

ROAD WORK AHEAD
(1) W20-1 (48" X 48")
END ROAD WORK
(1) G20-2 (48" X 24")

TEMPORARY IMPACT ATTENUATION BARRIER = 1EACH
(1) OM-3R (12"X 36")
PRECAST BARRIER
SAFETY END UNIT
(3) OM-3L (12"X 36")

RELOCATE PRECAST CONCRETE BARRIER WALL = 73 LIN. FT. WITH TEMPORARY IMPACT ATTENUATION BARRIER

VERTICAL PANELS = 20 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 36 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

ROAD WORK AHEAD
(1) W20-1 (48" X 48")
END ROAD WORK
(1) G20-2 (48" X 24")

MAINTENANCE OF TRAFFIC STAGE 3

9/17/2014

R080391.DGN

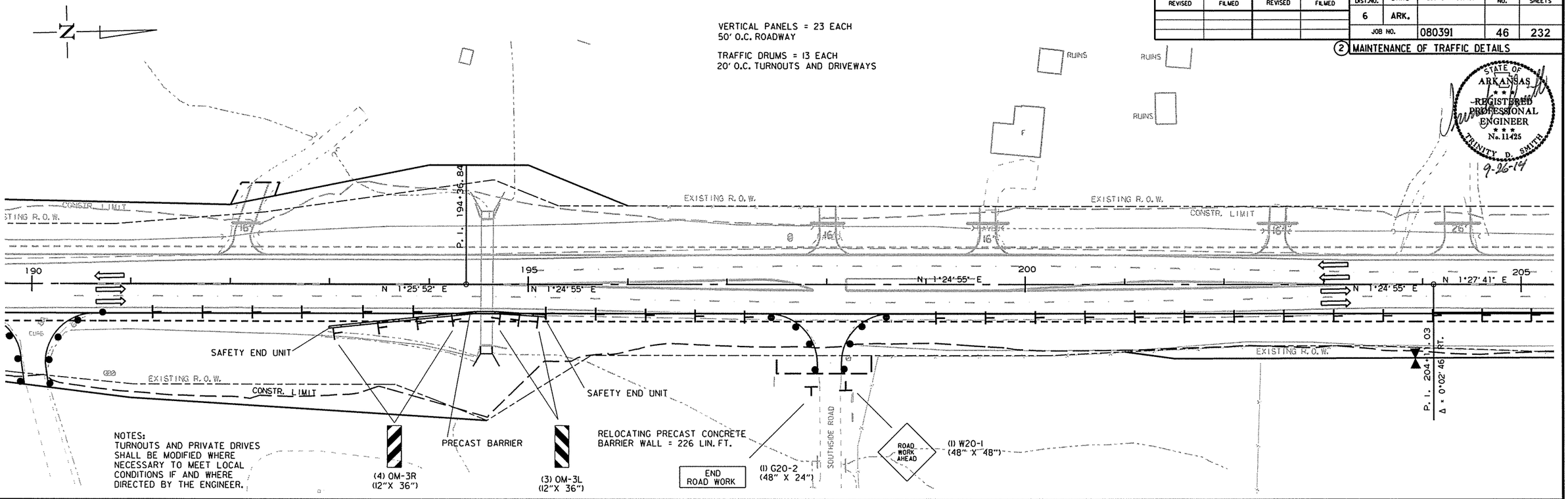
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	46	232

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

VERTICAL PANELS = 23 EACH
50' O.C. ROADWAY

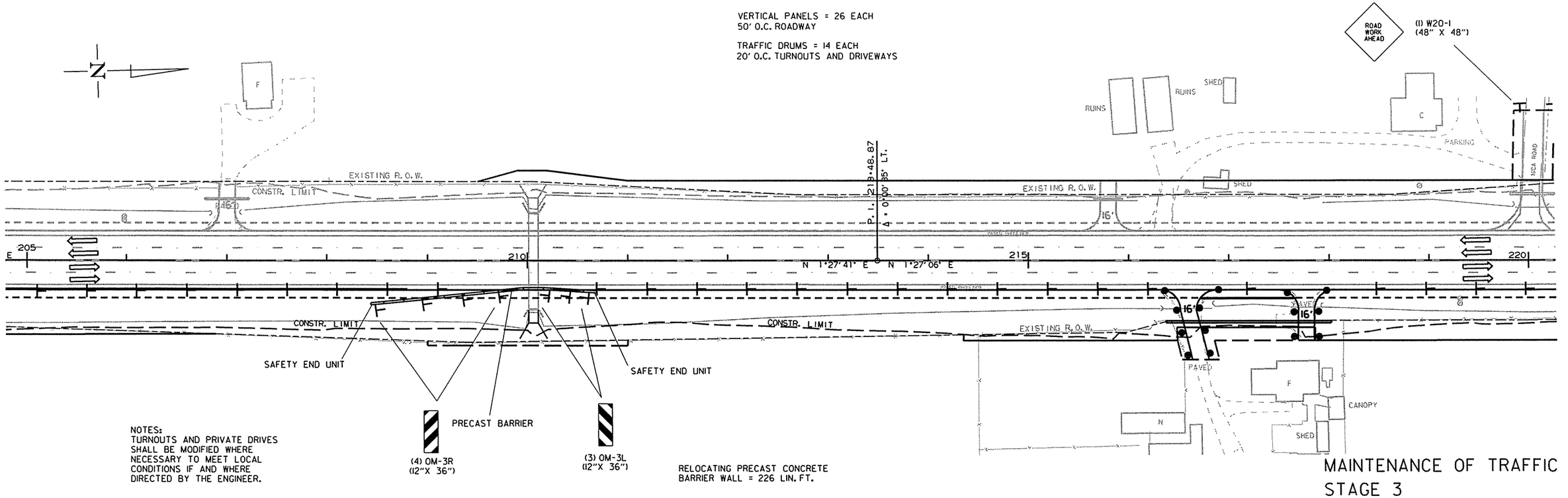
TRAFFIC DRUMS = 13 EACH
20' O.C. TURNOUTS AND DRIVEWAYS



NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

VERTICAL PANELS = 26 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 14 EACH
20' O.C. TURNOUTS AND DRIVEWAYS



NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

RELOCATING PRECAST CONCRETE BARRIER WALL = 226 LIN. FT.

MAINTENANCE OF TRAFFIC STAGE 3

9/17/2014

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	47	232

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

END ROAD WORK
(1) G20-2 (48" X 24")

VERTICAL PANELS = 22 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 27 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

VERTICAL PANELS = 18 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 47 EACH
20' O.C. TURNOUTS AND DRIVEWAYS
50' O.C. ROADWAY

P.I. = 10+98.90
Δ = 12° 51' 27" LT.
D = 8° 00' 00"
T = 80.70'
L = 160.72'
P.C. = 10+18.21
P.T. = 11+78.92

P.I. = 12+25.74
Δ = 6° 34' 45" RT.
D = 8° 00' 00"
T = 41.17'
L = 82.24'
P.C. = 11+84.57
P.T. = 12+66.81

CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 240+60 TO STA. 250+00 = 3855 LIN. FT.

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

MAINTENANCE OF TRAFFIC STAGE 3

9/17/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	48	232

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 250+00 TO STA. 265+00 = 6000 LIN. FT.

TRAFFIC DRUMS = 72 EACH
50' O.C. ROADWAY (OPEN SHOULDER)
35' O.C. ROADWAY (CURB AND GUTTER)
20' O.C. TURNOUTS AND DRIVEWAYS

ROAD CLOSED
(1) RII-2 (48" X 30")
(1) WI-6 (48" X 24")
16' BARR. TYP. III RT.

(3) OM-3L (12"X 36")
(4) OM-3R (12"X 36")
SAFETY END UNIT
PRECAST BARRIER
P.T. 255+66.83
N 30°25'51" W
CONST. LIMITS
EXISTING R.O.W.
PAVED
BAPTIST CHURCH

STA. EQUATION
STA. 255+90.34 BACK =
STA. 256+00.00 AHEAD
RELOCATING PRECAST CONCRETE BARRIER WALL = 226 LIN. FT.

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 265+00 TO STA. 280+00 = 6690 LIN. FT.

STA. 278+28.04 HWY. 65 =
STA. 511+06.59 HWY. 92
Δ = 59° 22' 05"

FIRE DEPARTMENT PARKING
OPEN STORAGE
CALDWELL FEED
CONC PARKING
PAVED PARKING
FIRE DEPARTMENT
WATER DISTRICT
VACANT
CADRON CREEK FISH HOUSE
SIMMONS FIRST NATIONAL BANK
SNAPPY AUTO CENTER
SNAPPY FOOD MART
CANOPY
CAR WASH
180' TAPER
EXIST. R.O.W.
P.C. 510+12.60
P.T. 512+41.75
P.I. 511+28.73
N 30°25'51" W

VERTICAL PANELS = 1EACH
35' O.C. ROADWAY

TRAFFIC DRUMS = 98 EACH
20' O.C. TURNOUTS AND DRIVEWAYS
35' O.C. ROADWAY

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

ROAD CLOSED
(1) RII-2 (48" X 30")
16' BARR. TYP. III LT.
16' BARR. TYP. III RT.

MAINTENANCE OF TRAFFIC STAGE 3

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	49	232

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
9-16-14
TRINITY D. SMITH

CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 280+00 TO STA. 295+00 = 6380 LIN. FT.

VERTICAL PANELS = 5 EACH
35' O.C. ROADWAY

TRAFFIC DRUMS = 112 EACH
20' O.C. TURNOUTS AND DRIVEWAYS
35' O.C. ROADWAY

P.I. = 24+54.92
Δ = 22° 00' 26" LT.
D = 4° 00' 00"
T = 278.52'
L = 550.18'
P.C. = 21+76.39
P.T. = 27+26.57

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

(I) G20-2 (48" X 24") — END ROAD WORK

(I) W20-1 (48" X 48") — ROAD WORK AHEAD

(I) R11-2 (48" X 30") — ROAD CLOSED

16' BARR. TYP. III LT.

CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 295+00 TO STA. 310+00 = 6000 LIN. FT.

P.I. = 36+05.09
Δ = 8° 12' 48" LT.
D = 8° 00' 00"
T = 51.42'
L = 102.67'
P.C. = 35+53.67
P.T. = 36+56.33

(4) OM-3L (12"X 36")

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

P.I. = 46+76.70
Δ = 8° 12' 27" LT.
D = 8° 00' 00"
T = 51.39'
L = 102.59'
P.C. = 46+25.31
P.T. = 47+27.91

(4) OM-3L (12"X 36")

SAFETY END UNIT

P.I. = 34+79.26
Δ = 8° 12' 47" RT.
D = 8° 00' 00"
T = 51.42'
L = 102.67'
P.C. = 34+27.84
P.T. = 35+30.51

(3) OM-3R (12"X 36")

P.I. = 44+01.15
Δ = 0° 59' 57" RT.
D = 8° 00' 00"
T = 6.25'
L = 12.49'
P.C. = 43+94.90
P.T. = 44+07.39

(3) OM-3R (12"X 36")

RELOCATING PRECAST CONCRETE BARRIER WALL = 266 LIN. FT.

TRAFFIC DRUMS = 25 EACH
20' O.C. TURNOUTS AND DRIVEWAYS
50' O.C. ROADWAY

RELOCATING PRECAST CONCRETE BARRIER WALL = 266 LIN. FT.

MAINTENANCE OF TRAFFIC STAGE 3

9/17/2014

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	50	232

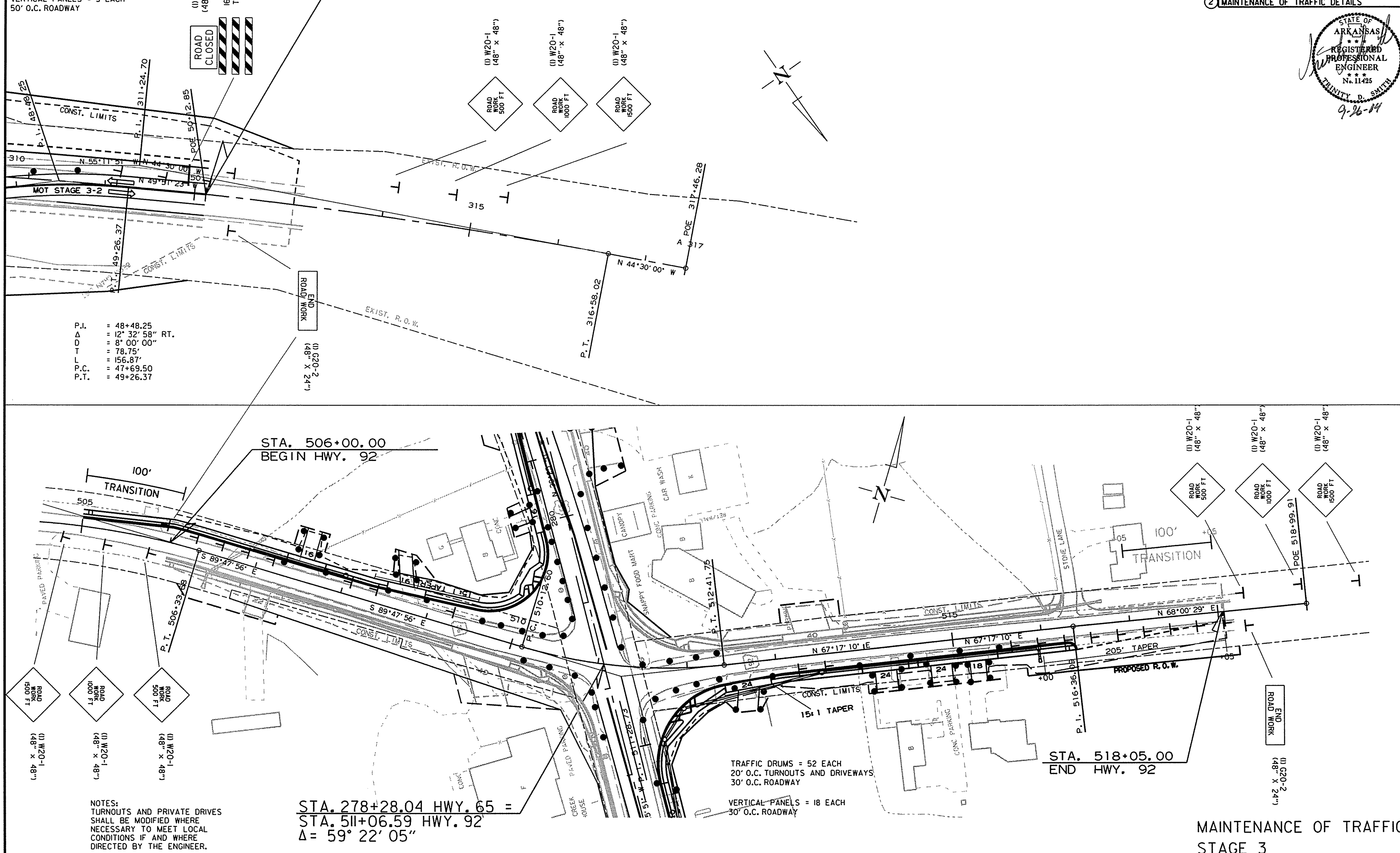
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 9-26-14

TRAFFIC DRUMS = 2 EACH
20' O.C. TURNOUTS AND DRIVEWAYS
50' O.C. ROADWAY

VERTICAL PANELS = 3 EACH
50' O.C. ROADWAY

CONSTRUCTION PAVEMENT MARKINGS (HWY. 65)
STA. 310+00 TO STA. 312+00 = 855 LIN. FT.



STA. 312+00.00
END JOB 080391
(1) R11-2 (48" X 30")
16' BARR. TYP. III RT.
ROAD CLOSED
(1) W20-1 (48" x 48")
ROAD WORK 500 FT
ROAD WORK 1000 FT
ROAD WORK 1500 FT
CONST. LIMITS
EXIST. R.O.W.
MOT STAGE 3-2
N 55°11'51" W
N 44°30'00" W
N 49°51'23" W
P.I. 48+48.25
R.I. 311+24.70
POE 50+12.85
P.T. 49+26.37
POE 317+46.28
P.T. 316+58.02
N 44°30'00" W
END ROAD WORK
(1) G20-2 (48" X 24")
P.I. = 48+48.25
Δ = 12° 32' 58" RT.
D = 8° 00' 00"
T = 78.75'
L = 156.87'
P.C. = 47+69.50
P.T. = 49+26.37
STA. 506+00.00
BEGIN HWY. 92
100'
TRANSITION
S 89°47'56" E
P.T. 506+33.88
P.C. 510+12.60
P.T. 512+41.75
P.I. 516+36.08
POE 518+99.91
N 67°17'10" E
N 68°00'29" E
15:1 TAPER
205' TAPER
PROPOSED R.O.W.
STONE LANE
SNAPPY FOOD MART
CAR WASH
CANOPY
CONC PARKING
PAVED PARKING
CREEK HOUSE
STA. 518+05.00
END HWY. 92
TRAFFIC DRUMS = 52 EACH
20' O.C. TURNOUTS AND DRIVEWAYS
30' O.C. ROADWAY
VERTICAL PANELS = 18 EACH
30' O.C. ROADWAY
STA. 278+28.04 HWY. 65 =
STA. 511+06.59 HWY. 92
Δ= 59° 22' 05"
NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

MAINTENANCE OF TRAFFIC
STAGE 3

9/17/2014

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	51	232

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-16-14

FOR ALL STAGES:
INSTALL THE ADVANCE WARNING SIGNS AT THE BEGINNING AND END OF THE PROJECT ALONG WITH SIGNS INDICATED FOR SIDE STREETS.

STAGE 1:
STA. 251+64 TO STA. 257+10
MAINTAIN TRAFFIC ON EXISTING LANES.
CONSTRUCT TEMPORARY WIDENING ON RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C.

STAGE 2:
STA. 108+50 TO STA. 245+81
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 125+42, STA. 152+24, STA. 175+23, STA. 186+56, STA. 194+59, STA. 210+06.

STA. 245+81 TO STA. 259+00
STRIPE EXISTING PAVEMENT AND TEMPORARY WIDENING AS SHOWN.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED
INSTALL TEMPORARY BARRIER WALL.
EXTEND BOX CULVERT AT STA. 255+89.

STA. 259+00 TO STA 278+28
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN.

STA. 506+00 TO 511+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

511+00 TO 518+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

STA. 278+28 TO STA. 295+00
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

STA. 295+00 TO STA. 312+00
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.
CONSTRUCT TEMPORARY WIDENING ON RT.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 300+32 AND STA. 307+83.

STAGE 3:
STA. 108+50 TO STA. 240+75
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 125+42, STA. 152+24, STA. 175+23, STA. 186+56, STA. 194+59, STA. 210+06.

STA. 240+75 TO STA. 259+00
STRIPE PAVEMENT AS SHOWN.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED
INSTALL TEMPORARY BARRIER WALL.
EXTEND BOX CULVERT AT STA. 255+89.

STA. 259+00 TO STA. 278+28
STRIPE PAVMENT AS SHOWN.
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN.

STA. 506+00 TO 511+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN LT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

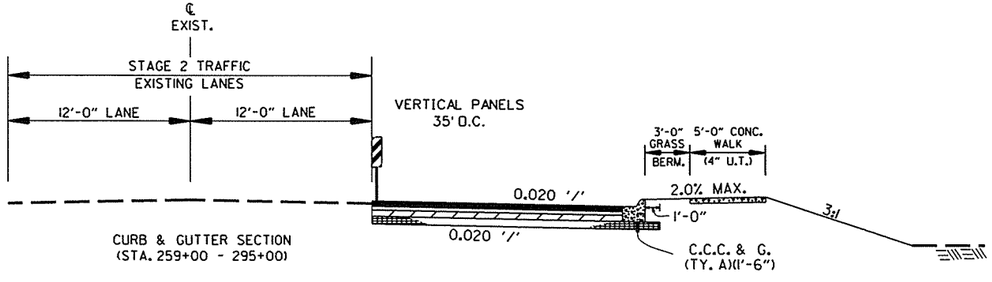
511+00 TO 518+05
MAINTAIN TRAFFIC ON EXISTING LANES.
NOTCH AND WIDEN RT. SIDE OF HWY. 92, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN

STA. 278+28 TO STA. 295+00
STRIPE PAVEMENT AS SHOWN.
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM DRAIN.

STA. 295+00 TO STA. 312+00
STRIPE PAVEMENT AND TEMPORARY WIDENING AS SHOWN
NOTCH AND WIDEN LT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.
CONSTRUCT TEMPORARY WIDENING ON RT.
INSTALL TEMPORARY BARRIER WALLS.
EXTEND BOX CULVERTS AT STA. 300+32 AND STA. 307+83.

STAGE 4:
STA. 297+19 TO STA. 309+25
STRIPE NEW PAVEMENT AS SHOWN
NOTCH AND WIDEN RT. SIDE OF HWY. 65, DELINEATING THE WORK ZONE USING VERTICAL PANELS AT 50' O.C. ON THE SIDE BEING WIDENED.

APPLY THE FINAL 2" OF ACHM SURFACE AFTER ALL WIDENING HAS BEEN COMPLETED



CURB & GUTTER SECTION
(STA. 259+00 - 295+00)

⊢ VERTICAL PANELS
● TRAFFIC DRUMS

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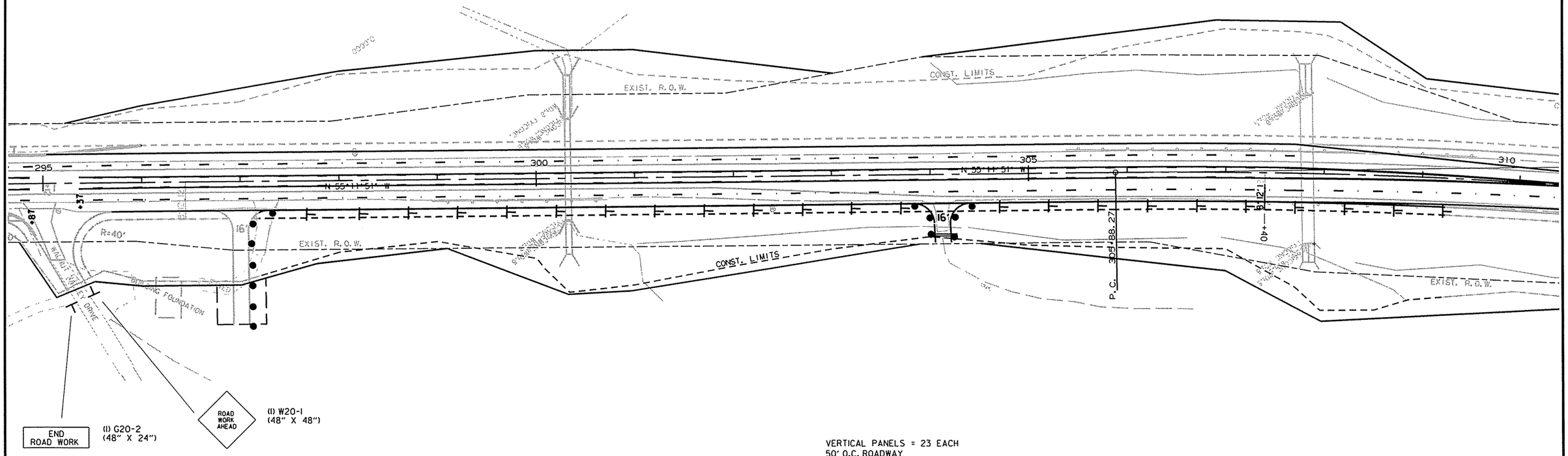
MAINTENANCE OF TRAFFIC DETAILS
STAGE 4

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	52	232

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-14

PERMANENT PAVEMENT MARKINGS (HWY. 65)
STA. 108+50 TO STA. 312+00
SEE PERMANENT PAVEMENT MARKING DETAILS.



VERTICAL PANELS = 23 EACH
50' O.C. ROADWAY

TRAFFIC DRUMS = 13 EACH
20' O.C. TURNOUTS AND DRIVEWAYS

NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

MAINTENANCE OF TRAFFIC DETAILS
STAGE 4

9/4/2014

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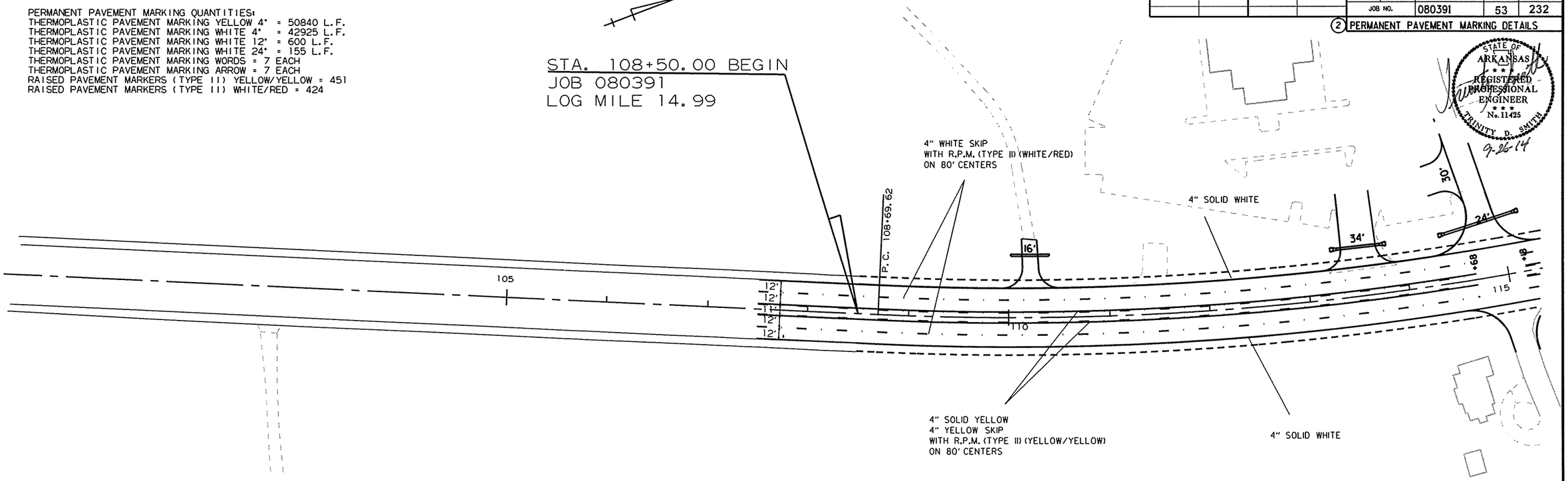
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	53	232

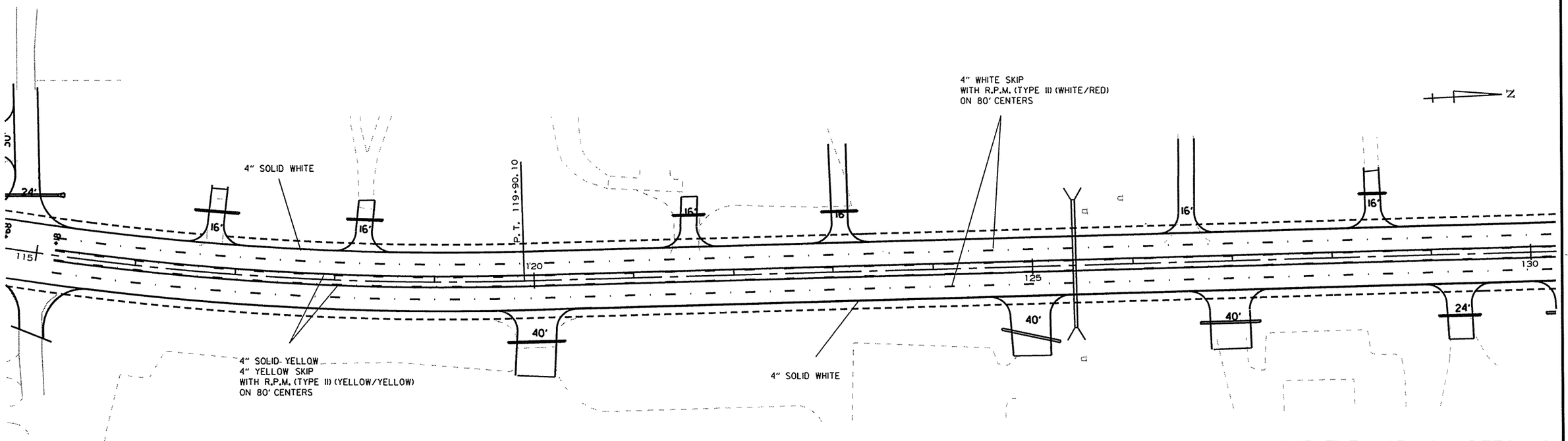
(2) PERMANENT PAVEMENT MARKING DETAILS

PERMANENT PAVEMENT MARKING QUANTITIES:
THERMOPLASTIC PAVEMENT MARKING YELLOW 4" = 50840 L.F.
THERMOPLASTIC PAVEMENT MARKING WHITE 4" = 42925 L.F.
THERMOPLASTIC PAVEMENT MARKING WHITE 12" = 600 L.F.
THERMOPLASTIC PAVEMENT MARKING WHITE 24" = 155 L.F.
THERMOPLASTIC PAVEMENT MARKING WORDS = 7 EACH
THERMOPLASTIC PAVEMENT MARKING ARROW = 7 EACH
RAISED PAVEMENT MARKERS (TYPE II) YELLOW/YELLOW = 451
RAISED PAVEMENT MARKERS (TYPE II) WHITE/RED = 424

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

STA. 108+50.00 BEGIN
JOB 080391
LOG MILE 14.99





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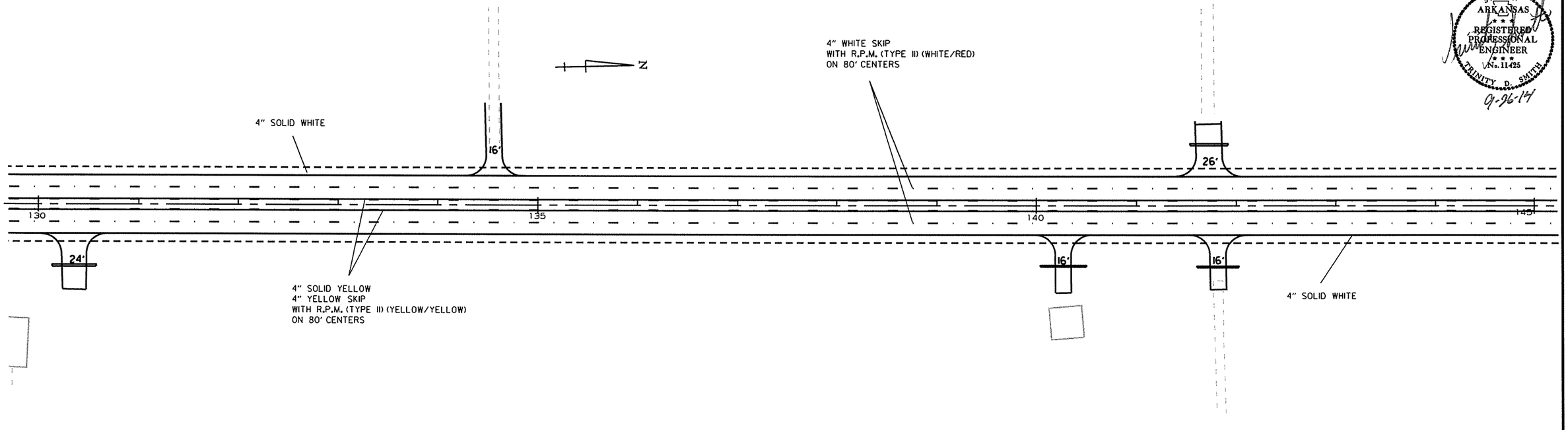
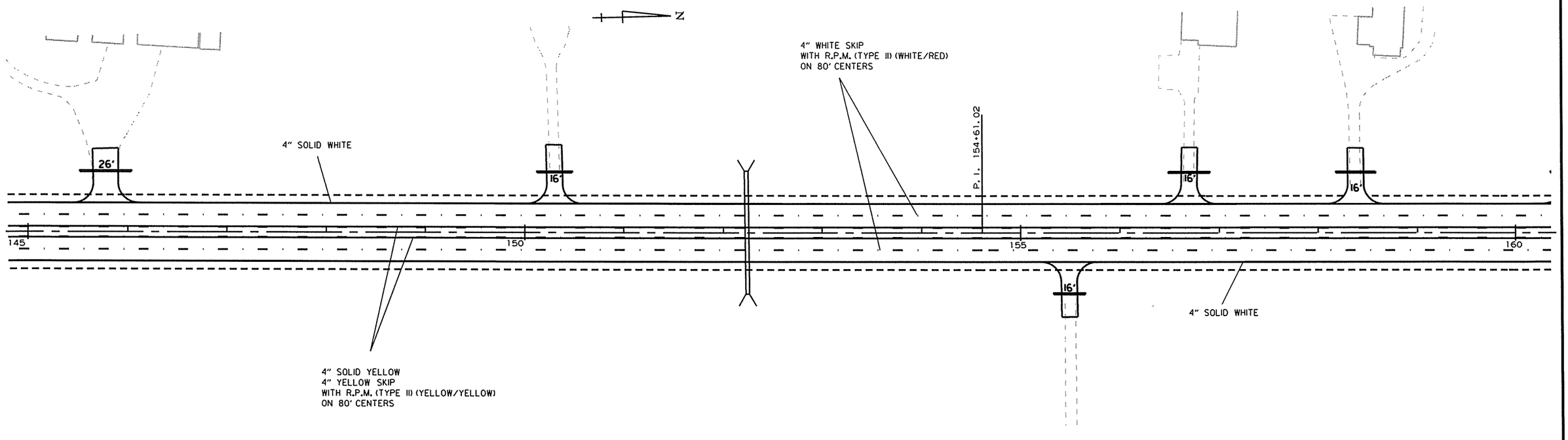
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	54	232

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-16-14





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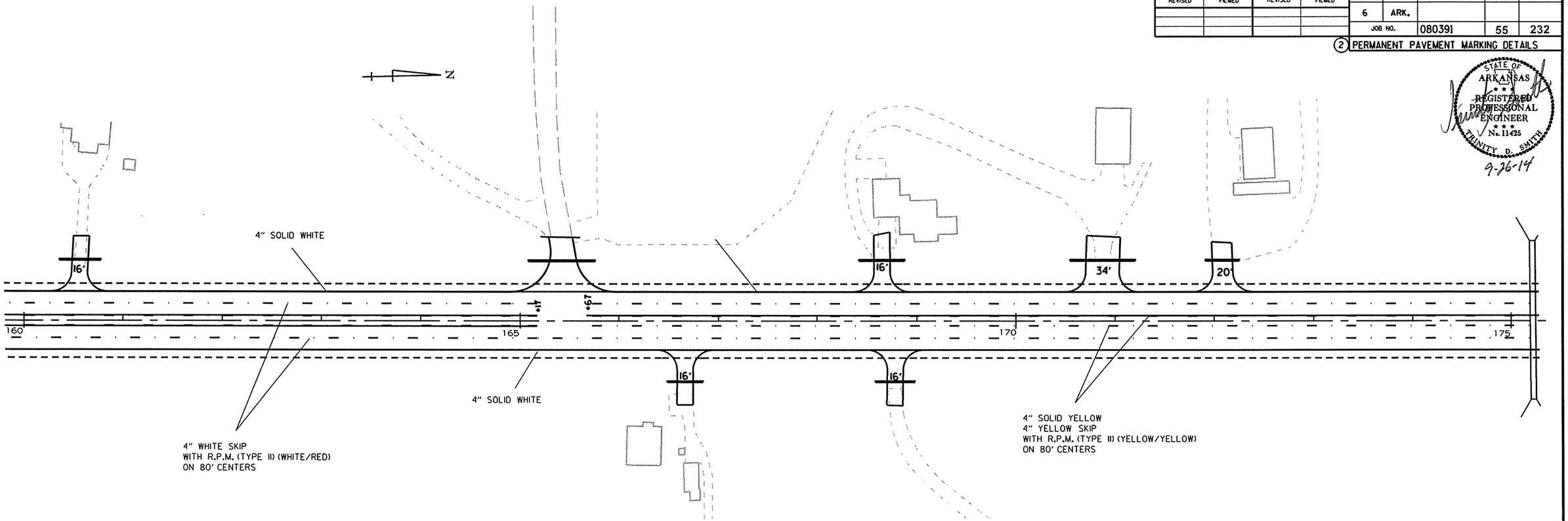
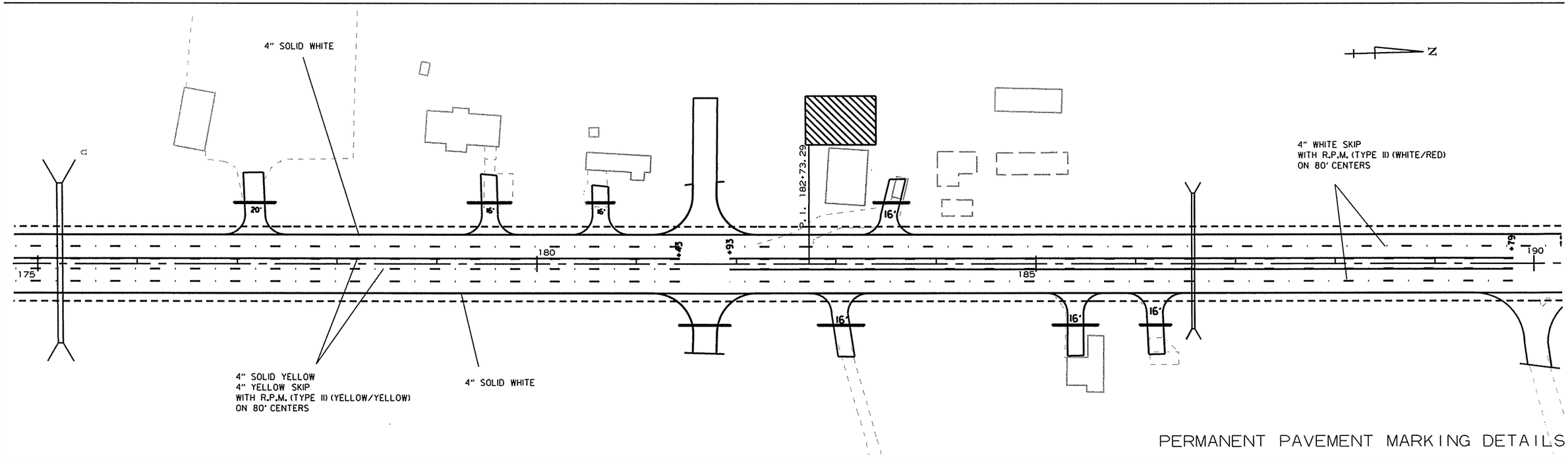
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	55	232

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-16-14





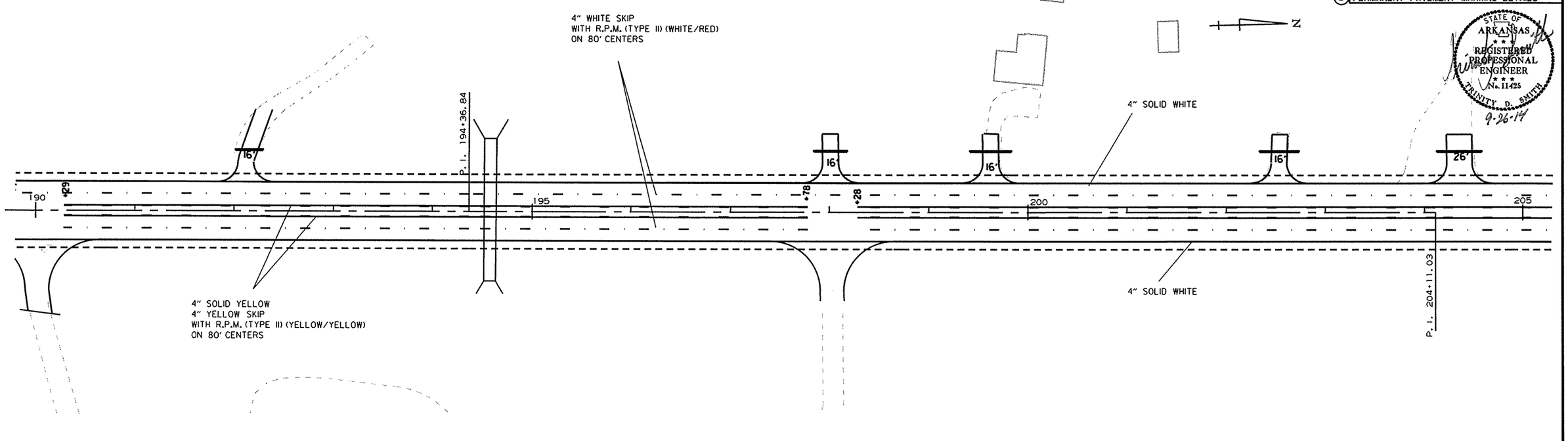
PERMANENT PAVEMENT MARKING DETAILS

9/16/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	56	232

(2) PERMANENT PAVEMENT MARKING DETAILS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

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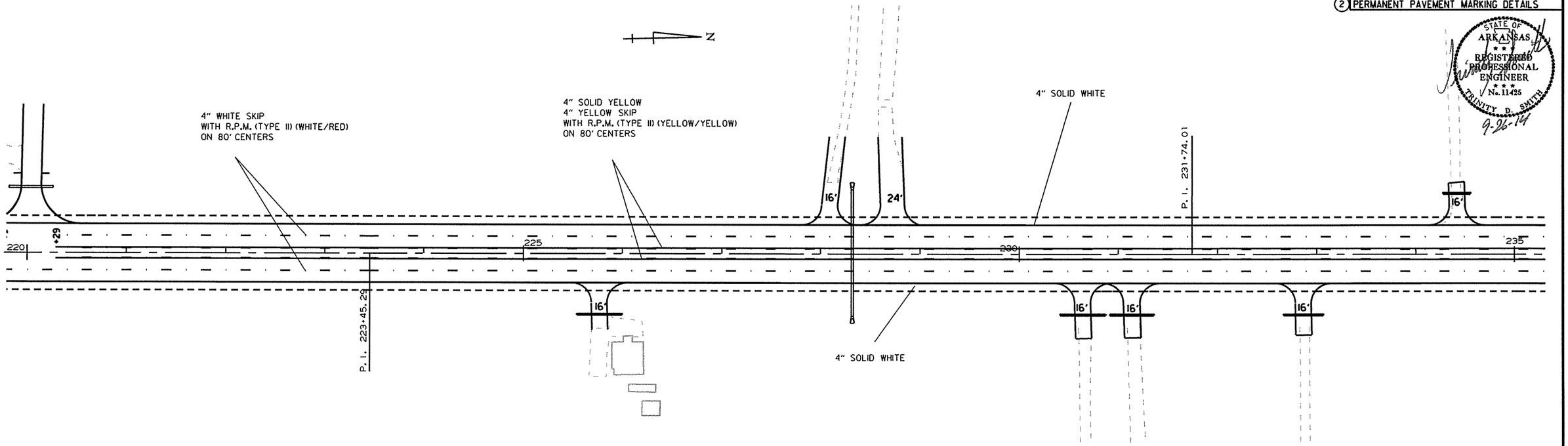
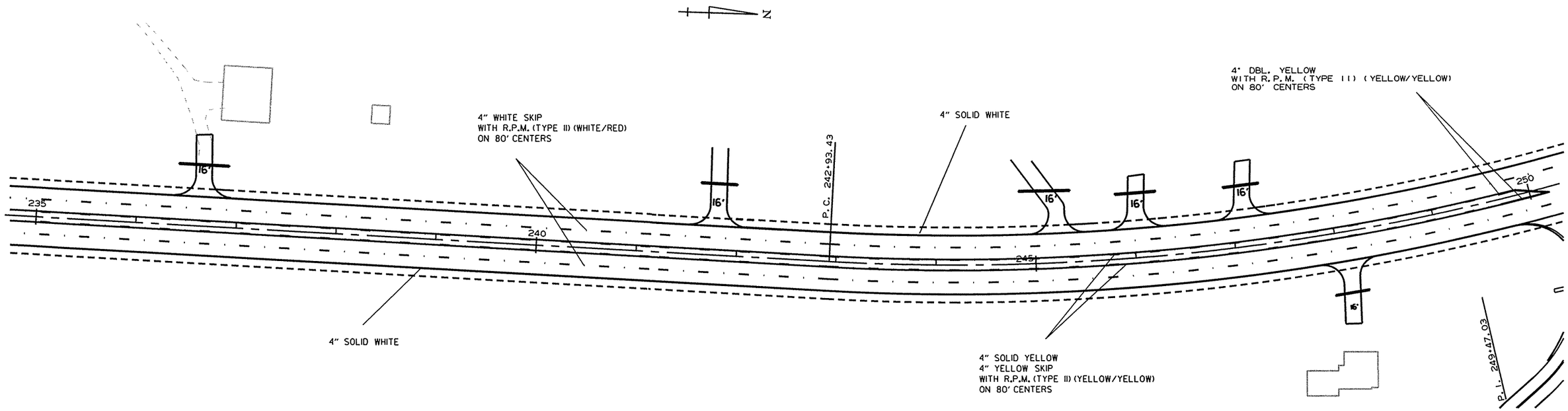
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	57	232

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14





PERMANENT PAVEMENT MARKING DETAILS

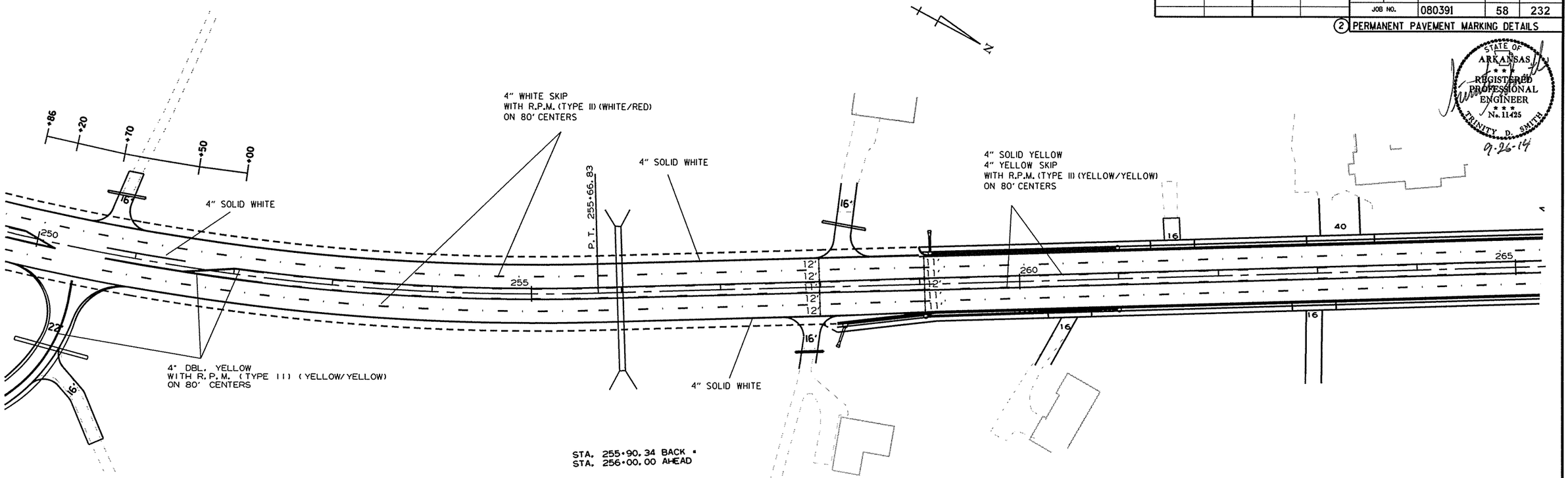
9/16/2014

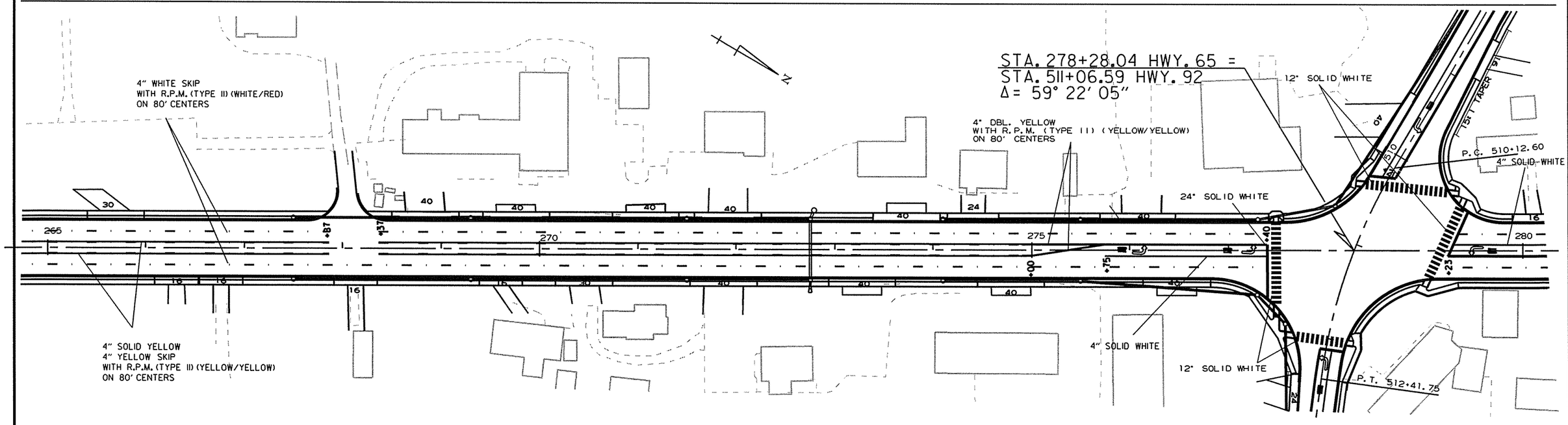
R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	58	232

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14





9/16/2014

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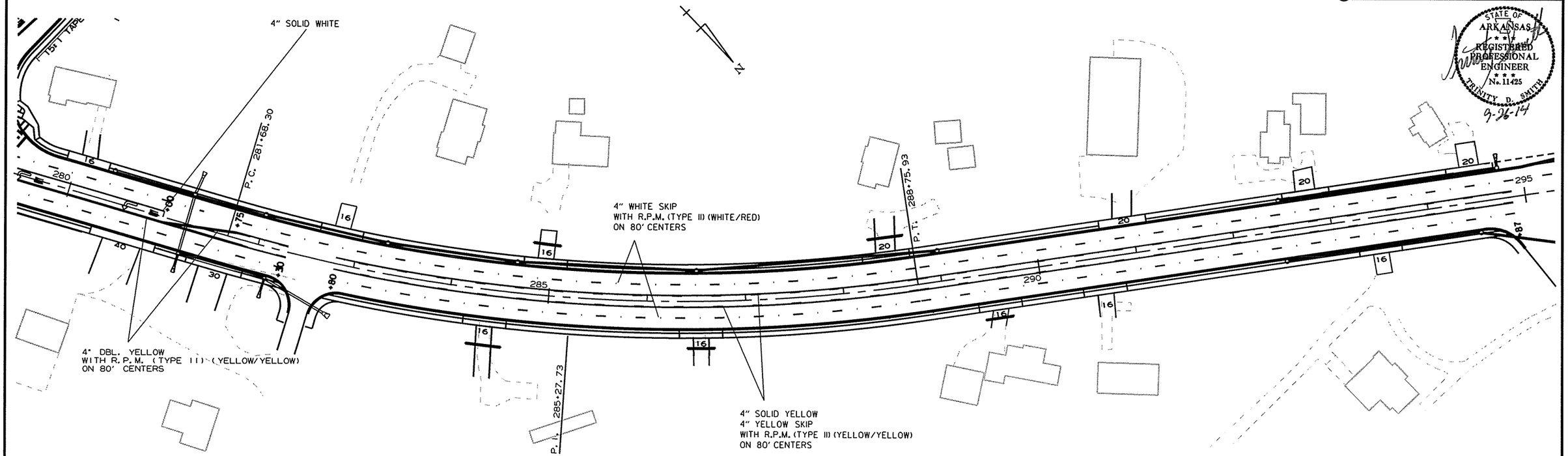
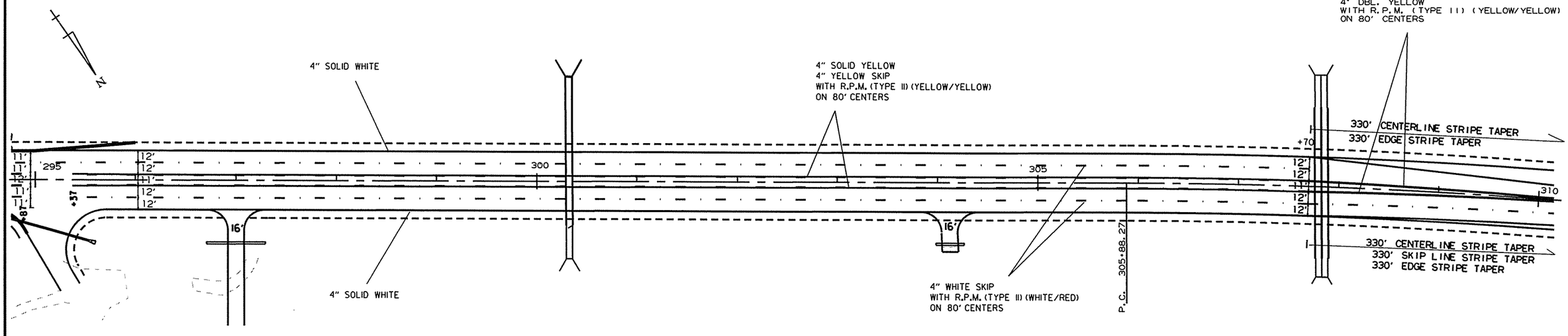
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	59	232

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14





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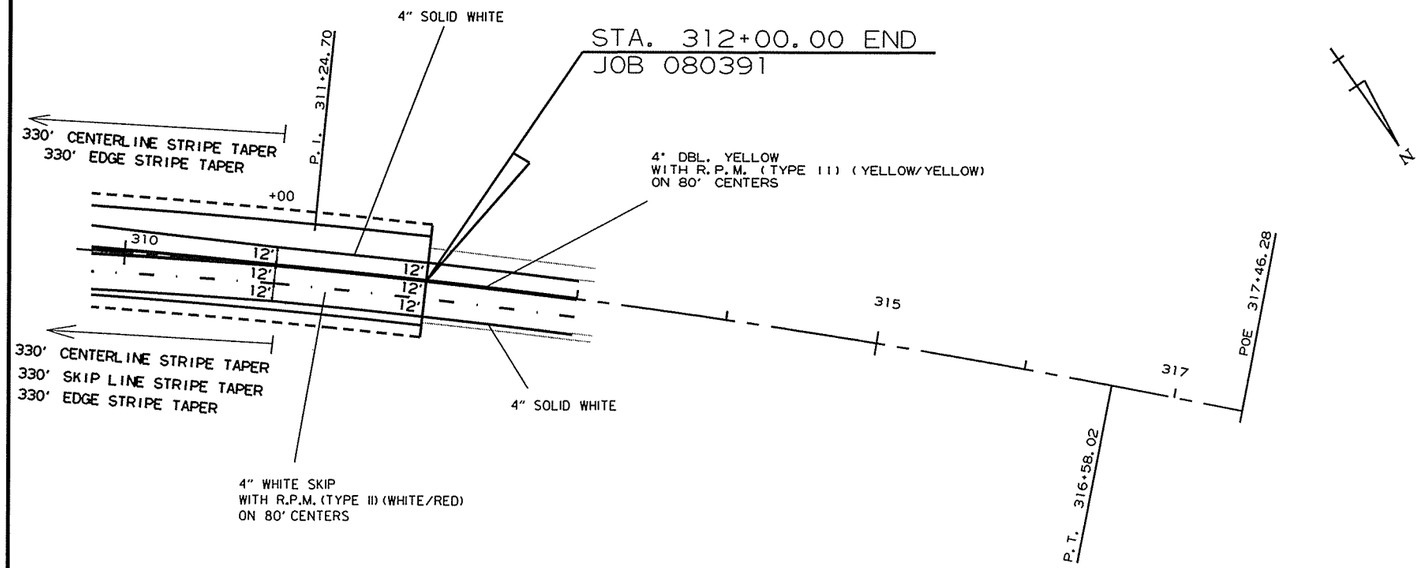
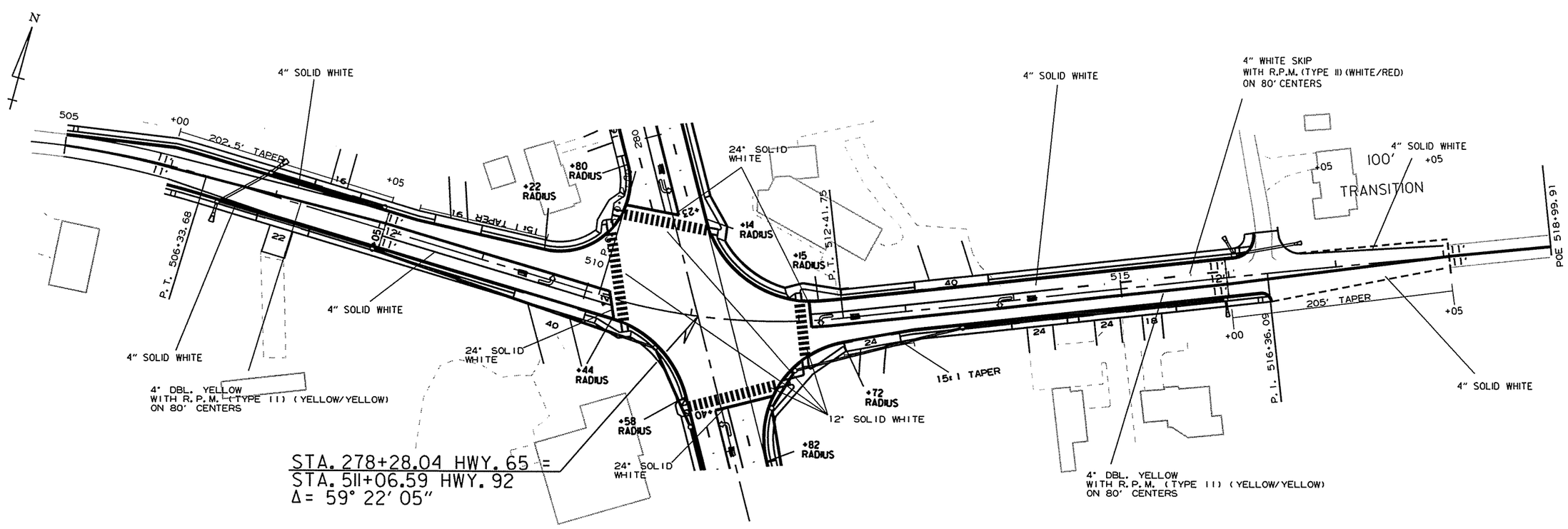
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	60	232

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14





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PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	61	232

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	STAGE 4	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)
												RIGHT	LEFT				
			LIN. FT. - EACH					NO.	SQ. FT.	EACH				LIN. FT.		EACH	
W20-1	ROAD WORK 1500 FT.	48"x48"	4	4	4	4	4	4	64.0								
W20-1	ROAD WORK 1000 FT.	48"x48"	4	4	4	4	4	4	64.0								
W20-1	ROAD WORK 500 FT.	48"x48"	4	4	4	4	4	4	64.0								
W20-1	ROAD WORK AHEAD	48"x48"	9	9	9	9	9	9	144.0								
G20-2	END ROAD WORK	48"x24"		13	13	13	13	13	104.0								
R11-2	ROAD CLOSED	48"x30"		9	7		9	9	90.0								
OM-3L	OBJECT MARKER	12"x36"		27	29		29	29	87.0								
OM-3R	OBJECT MARKER	12"x36"		34	28		34	34	102.0								
W1-6	LARGE ARROW	48"x24"			3		3	3	24.0								
R4-1	DO NOT PASS	24"x30"	6	6	6		6	6	30.0								
RSP-1	SHOULDER CLOSED	48"x30"	6	6	6		6	6	60.0								
	VERTICAL PANELS		13	251	242	23	251			251							
	TRAFFIC DRUMS			598	558	13	598				598						
	TYPE III BARRICADE-RT. (16')			6	4		6					96					
	TYPE III BARRICADE-LT. (16')			3	3		3						48				
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			851			851							851			
	RELOCATING PRECAST CONCRETE BARRIER			1190	1848		3038								3038		
	TEMPORARY IMPACT ATTENUATION BARRIER			1	2		3									3	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			1	2		3										3
TOTALS:									833.0	251	598	96	48	851	3038	3	3

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR 2 MILES. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4" OR LESS, AND THEN NOTCH ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 2	STAGE 3	STAGE 4	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING					
								TYPE II (WHITE/RED)	TYPE II (YEL/YEL)	4" WHITE	4" YELLOW	12" WHITE	24" WHITE	WORDS	ARROWS
	LIN. FT. - EACH				LIN. FT.			EACH		LIN. FT.				EACH	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	2350				2350										
CONSTRUCTION PAVEMENT MARKINGS	91278	29780				121058									
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS			6635				6635								
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)				424				424							
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)				451					451						
THERMOPLASTIC PAVEMENT MARKING WHITE (4")				42925						42925					
THERMOPLASTIC PAVEMENT MARKING YELLOW (4")				50840							50840				
THERMOPLASTIC PAVEMENT MARKING WHITE (12")				600								600			
THERMOPLASTIC PAVEMENT MARKING WHITE (24")				155									155		
THERMOPLASTIC PAVEMENT MARKING WORDS				7										7	
THERMOPLASTIC PAVEMENT MARKING ARROWS				7											7
TOTALS:					2350	121058	6635	424	451	42925	50840	600	155	7	7

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
124+00	126+35	5 STRAND BARB WIRE ON LT.	293
130+65	140+02	4 STRAND BARB WIRE ON RT.	937
141+91	151+33	5 STRAND BARB WIRE ON RT.	952
142+23	144+85	5 STRAND BARB WIRE ON LT.	306
147+11	148+50	5 STRAND BARB WIRE ON LT.	200
148+50	150+14	PIPE FENCE ON LT.	236
150+44	155+35	PIPE FENCE ON LT.	563
153+03	155+33	5 STRAND BARB WIRE ON RT.	230
155+61	158+64	5 STRAND BARB WIRE ON RT.	319
158+64	165+84	5 STRAND BARB WIRE ON RT.	737
168+58	181+48	5 STRAND BARB WIRE ON RT.	1322
175+70	175+70	4 STRAND BARB WIRE ON LT.	125
186+56	189+82	5 STRAND BARB WIRE ON RT.	334
201+00	202+36	5 STRAND BARB WIRE ON RT.	154
202+36	202+90	5 STRAND BARB WIRE ON RT.	452
205+33	208+00	5 STRAND BARB WIRE ON LT.	267
209+00	211+00	5 STRAND BARB WIRE ON RT.	200
209+50	215+62	5 STRAND BARB WIRE ON LT.	613
215+62	217+03	5 STRAND BARB WIRE ON LT.	104
217+03	219+89	5 STRAND BARB WIRE ON LT.	293
218+14	225+33	5 STRAND BARB WIRE ON RT.	744
220+28	227+92	5 STRAND BARB WIRE ON LT.	776
226+45	229+80	5 STRAND BARB WIRE ON RT.	353
229+08	230+93	5 STRAND BARB WIRE ON LT.	192
233+31	242+46	5 STRAND BARB WIRE ON RT.	937
234+00	234+30	5 STRAND BARB WIRE ON LT.	35
234+54	241+54	5 STRAND BARB WIRE ON LT.	705
248+39	249+68	WEB WIRE AND WOOD FENCE ON LT.	159
249+68	251+06	WEB WIRE AND WOOD FENCE ON LT.	142
250+48	252+67	5 RAIL STEEL PIPE ON RT.	312
251+05	257+02	4 STRAND BARB WIRE ON LT.	574
266+59	267+97	4' CHAIN LINK ON RT.	136
267+97	268+58	2 RAIL WOOD FENCE ON RT.	88
275+72	277+53	1 RAIL STEEL PIPE ON RT.	275
280+89	281+59	6 STRAND BARB WIRE ON LT.	70
295+23	295+99	WEB WIRE ON LT.	76
511+50	513+36	PIPE FENCE ON RT.	200
TOTAL:			14411

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
108+50	116+00	HWY. 65	8	8
118+00	142+00	HWY. 65	24	24
145+00	146+00	HWY. 65	1	1
149+00	158+00	HWY. 65	9	9
160+00	164+00	HWY. 65	4	4
165+00	167+00	HWY. 65	2	2
168+00	183+00	HWY. 65	15	15
185+00	221+00	HWY. 65	36	36
229+00	242+00	HWY. 65	13	13
248+00	262+00	HWY. 65	14	14
263+00	265+00	HWY. 65	2	2
266+00	271+00	HWY. 65	5	5
278+00	291+00	HWY. 65	13	13
293+00	310+00	HWY. 65	17	17
506+00	510+00	HWY. 92	4	4
514+00	516+00	HWY. 92	2	2
TOTALS:			169	169

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
108+50	312+00	ENTIRE PROJECT	3500.0	3111.1
		IF AND WHERE DIRECTED BY THE ENGINEER		
TOTAL:				3111.1

NOTE: AVERAGE WIDTH = 8'-0"

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	100
DIRECTED BY THE ENGINEER	
TOTAL:	100

NOTE: QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	
ENTIRE PROJECT	44	44
TOTALS:	44	44

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	62	232

(2) QUANTITIES

REMOVAL AND DISPOSAL ITEMS

STATION	STATION	LOCATION	CURB	CONCRETE ISLANDS	CONCRETE DRIVEWAYS	CONCRETE SLAB	SIGN FOUNDATIONS	GUARDRAIL	SIGNS
			LIN. FT.	SQ. YD.	SQ. YD.	SQ. YD.	EACH	LIN. FT.	EACH
127+45		SIGN AND FOUNDATION ON LT.					1		1
128+41		SIGN AND FOUNDATION ON LT.					1		1
141+94		SIGN ON LEFT.							1
147+93		SIGN ON LEFT.							1
169+94		SIGN ON RIGHT.							1
171+93		SIGN ON LEFT.							1
176+90		SIGN ON LEFT.							1
216+57		SIGN ON LEFT.							1
243+83		SIGN ON LEFT.							1
261+21		SIGN ON RIGHT.							1
268+41		SIGN ON LEFT.							1
272+23		SIGN ON LEFT.							1
272+51		SIGN ON RIGHT.							1
275+17		SIGN ON RIGHT.							1
276+59		SIGN ON RIGHT.							1
281+97		SIGN ON RIGHT.							1
291+51		SIGN ON LEFT.							1
510+56		SIGN ON RIGHT.							1
296+11		CONCRETE SLAB ON RT.				122			
268+93	269+41	CURB ON RT.	48						
269+02	269+59	CURB ON LT.	132						
269+65	270+44	CURB ON RT.	79						
269+99	270+29	CURB ON LT.	43						
270+67	271+65	CURB ON RT.	103						
271+89	272+76	CURB ON RT.	95						
272+82	273+09	CURB ON RT.	20						
272+95	273+49	CURB ON LT.	54						
273+48	273+74	CURB ON RT.	26						
273+89	274+29	CURB ON LT.	40						
274+13	274+39	CURB ON RT.	26						
276+45	277+85	CURB ON RT.	148						
279+07	280+01	CURB ON RT.	220						
280+25	281+28	CURB ON LT.	103						
280+93	281+30	CURB ON RT.	37						
190+10		ISLAND ON RT.		1					
278+15	278+50	ISLAND ON RT.		1					
279+14	278+82	ISLAND ON RT.		1					
279+50	280+53	ISLAND ON RT.		1					
274+78		DRIVE ON RT.			234				
278+40		DRIVE ON RT.			153				
279+28		DRIVE ON RT.			64				
280+72		DRIVE ON RT.			206				
290+64		DRIVE ON RT.			18				
511+92		DRIVE ON LT.			243				
515+24		DRIVE ON RT.			79				
298+94	300+73	EXISTING GUARDRAIL ON RT.						180	
305+39	309+55	EXISTING GUARDRAIL ON LT.						416	
307+12	309+08	EXISTING GUARDRAIL ON RT.						196	
TOTALS:			1174	4	997	122	2	792	18

EARTHWORK

	STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
				CU. YD.		TON
	ENTIRE	PROJECT	STAGE 1-MAIN LANES	35605	46915	
	ENTIRE	PROJECT	STAGE 2-MAIN LANES	32569	51115	
	ENTIRE	PROJECT	STAGE 1-HWY. 92	252	543	
	ENTIRE	PROJECT	STAGE 2-HWY. 92	437	401	
	ENTIRE	PROJECT	APPROACHES	975	9510	
	ENTIRE	PROJECT	TEMPORARY APPROACHES			
	268+12.00		RECORD LOOP		80	
	282+55.00		HAPPY HOLLOW ROAD		110	
	295+12.00		WALNUT VALLEY DRIVE		195	
	516+38.00		STONE LANE		5	
*	ENTIRE	PROJECT	CHANNEL CHANGE - TO BE USED IF	200		
			AND WHERE DIRECTED BY THE ENGINEER			
*	ENTIRE	PROJECT	TO BE USED IF AND WHERE			
			DIRECTED BY THE ENGINEER			400
	TOTALS:			70038	108874	400

* QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
109+00	110+03	HWY. 65 - LT.	103.00	9	103.00	45.78	0.58
110+41	113+32	HWY. 65 - LT.	291.00	10	323.33	129.33	1.63
113+82	114+39	HWY. 65 - LT.	57.00	10	63.33	25.33	0.32
115+21	116+55	HWY. 65 - LT.	134.00	9	134.00	59.56	0.75
116+99	118+10	HWY. 65 - LT.	111.00	9	111.00	49.33	0.62
173+00	175+15	HWY. 65 - RT.	215.00	6	143.33	95.56	1.20
175+40	176+95	HWY. 65 - LT.	155.00	6	103.33	68.89	0.87
175+40	177+00	HWY. 65 - RT.	160.00	6	106.67	71.11	0.90
194+65	197+85	HWY. 65 - LT.	320.00	6	213.33	142.22	1.79
198+17	199+43	HWY. 65 - LT.	126.00	6	84.00	56.00	0.71
199+85	202+32	HWY. 65 - LT.	247.00	6	164.67	109.78	1.38
240+00	241+60	HWY. 65 - LT.	160.00	6	106.67	71.11	0.90
242+00	245+05	HWY. 65 - LT.	305.00	6	203.33	135.56	1.71
245+41	245+83	HWY. 65 - LT.	42.00	6	28.00	18.67	0.24
246+03	246+93	HWY. 65 - LT.	90.00	6	60.00	40.00	0.50
247+33	250+59	HWY. 65 - LT.	326.00	6	217.33	144.89	1.83
254+00	255+90	HWY. 65 - LT.	190.00	6	126.67	84.44	1.06
256+00	257+99	HWY. 65 - LT.	199.00	6	132.67	88.44	1.11
258+43	261+00	HWY. 65 - LT.	257.00	6	171.33	114.22	1.44
284+58	286+40	HWY. 65 - RT.	182.00	6	121.33	80.89	1.02
294+75	297+00	HWY. 65 - LT.	225.00	6	150.00	100.00	1.26
295+53	296+71	HWY. 65 - RT.	118.00	6	78.67	52.44	0.66
297+29	300+50	HWY. 65 - RT.	321.00	6	214.00	142.67	1.80
307+52	312+00	HWY. 65 - LT.	448.00	6	298.67	199.11	2.51
TOTALS:					3458.66	2125.33	26.79

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	100	200
DIRECTED BY THE ENGINEER		
TOTALS:	100	200

BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC....25 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE

DUMPED RIPRAP AND FILTER BLANKET

	STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
			CU. YDS.	SQ. YDS.
	175+23	OUTLET OF PIPE CULVERT	37	73
*		TO BE USED IF AND WHERE	50	100
		DIRECTED BY THE ENGINEER		
	TOTALS:		87	173

*NOTE: QUANTITIES ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

NOTE: FILTER BLANKET SHALL BE GEOTEXTILE FABRIC (TYPE 5).

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL						TEMPORARY EROSION CONTROL										
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	SOLID SODDING	TEMPORARY SEEDING	MULCH COVER	WATER	WATTLE DITCH CHECKS (12") (E-1)	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	DROP INLET SILT FENCE (E-7)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	SQ.YD.	ACRE	ACRE	M.GAL.	LIN. FT.	BAG	CU.YD.	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	STAGE 1							1.00	1.00	20.4	9.0	22	3		530			
ENTIRE	PROJECT	STAGE 2	12.42	24.84	12.42	1280.7	12.42	1103	53.00	53.00	1081.2	441.0	1188	186	450	6895	2274	2274	2711
ENTIRE	PROJECT	STAGE 3	14.06	28.12	14.06	1450.2	14.06	1279				378.0	902	165	450	8120	2522	2522	2977
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.												180.0	440	60	200	1000	1000	1000	1104
TOTALS:			26.48	52.96	26.48	2730.9	26.48	2382	54.00	54.00	1101.6	1008.0	2552	414	1100	16545	5796	5796	6792

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
WATTLE DITCH CHECKS.....9 LIN. FT. / LOCATION
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

NOTE: THE TEMPORARY EROSION CONTROL DEVICES SHOWN ABOVE AND ON THE PLANS SHALL BE INSTALLED IN SUCH A SEQUENCE AS TO DETER EROSION AND SEDIMENTATION ON U.S. WATERWAYS AS EXPLAINED BY THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT.

*QUANTITIES ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

9/10/2014

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REMOVAL AND DISPOSAL OF CULVERTS AND DROP INLETS

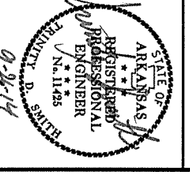
STATION	DESCRIPTION	PIPE CULVERTS	DROP INLETS
		EACH	EACH
110+22	DRIVE ON LT.- 18" X 30' C.M. PIPE CLVT.	1	
111+46	DRIVE ON LT.- 18" X 38' C.M. PIPE CLVT.	1	
113+57	DRIVE ON LT.- 18" X 62' C.M. PIPE CLVT.	1	
114+80	SULPHUR RD. WEST - 18" X 49' C.M. PIPE CLVT.	1	
116+77	DRIVE ON LT.- 18" X 32' C.M. PIPE CLVT.	1	
118+28	DRIVE ON LT.- 18" X 24' C.M. PIPE CLVT.	1	
120+02	DRIVE ON RT. - 18" X 60' R.C. PIPE CLVT.	1	
121+57	DRIVE ON LT.- 18" X 44' C.M. PIPE CLVT.	1	
123+08	DRIVE ON LT.- 18" X 36' C.M. PIPE CLVT.	1	
124+96	DRIVE ON RT. - 24" X 78' R.C. PIPE CLVT.	1	
126+97	DRIVE ON RT. - 24" X 77' R.C. PIPE CLVT.	1	
128+42	DRIVE ON LT.- 18" X 29' C.M. PIPE CLVT.	1	
129+27	DRIVE ON RT. - 18" X 27' C.M. PIPE CLVT.	1	
130+37	DRIVE ON RT. - 24" X 60' C.M. PIPE CLVT.	1	
134+56	DRIVE ON LT.- 18" X 24' C.M. PIPE CLVT.	1	
140+27	DRIVE ON RT. - 18" X 28' C.M. PIPE CLVT.	1	
141+73	DRIVE ON LT.- 24" X 44' C.M. PIPE CLVT.	1	
141+81	DRIVE ON RT. - 18" X 28' C.M. PIPE CLVT.	1	
145+78	DRIVE ON LT.- 18" X 36' C.M. PIPE CLVT.	1	
150+30	DRIVE ON LT.- 18" X 24' C.M. PIPE CLVT.	1	
155+49	DRIVE ON RT. - 18" X 28' C.M. PIPE CLVT.	1	
156+69	DRIVE ON LT.- 18" X 19' C.M. PIPE CLVT.	1	
158+39	DRIVE ON LT.- 18" X 30' C.M. PIPE CLVT.	1	
160+56	DRIVE ON LT.- 18" X 21' C.M. PIPE CLVT.	1	
165+43	SOUTH HILLS DR. ON LT.- 18" X 44' C.M. PIPE CLVT.	1	
166+66	DRIVE ON RT. - 18" X 28' C.M. PIPE CLVT.	1	
168+65	DRIVE ON LT.- 18" X 24' C.M. PIPE CLVT.	1	
168+78	DRIVE ON RT. - 18" X 27' C.M. PIPE CLVT.	1	
170+87	DRIVE ON LT.- 18" X 24' C.M. PIPE CLVT.	1	
172+09	DRIVE ON LT.- 18" X 31' C.M. PIPE CLVT.	1	
177+18	DRIVE ON LT.- 18" X 39' C.M. PIPE CLVT.	1	
179+53	DRIVE ON LT.- 18" X 24' C.M. PIPE CLVT.	1	
180+65	DRIVE ON LT.- 18" X 24' C.M. PIPE CLVT.	1	
181+68	OLD GIN RD. ON RT. - 18" X 34' C.M. PIPE CLVT.	1	
183+04	DRIVE ON RT. - 18" X 28' C.M. PIPE CLVT.	1	
183+53	DRIVE ON LT.- 18" X 24' C.M. PIPE CLVT.	1	
185+39	DRIVE ON RT. - 18" X 30' C.M. PIPE CLVT.	1	
186+19	DRIVE ON RT. - 18" X 27' C.M. PIPE CLVT.	1	
192+12	DRIVE ON LT.- 18" X 30' C.M. PIPE CLVT.	1	
198+01	DRIVE ON LT.- 18" X 30' C.M. PIPE CLVT.	1	
199+64	DRIVE ON LT.- 18" X 28' C.M. PIPE CLVT.	1	
202+53	DRIVE ON LT.- 18" X 32' C.M. PIPE CLVT.	1	
204+36	DRIVE ON LT.- 18" X 87' C.M. PIPE CLVT.	1	
207+00	DRIVE ON LT.- 18" X 27' C.M. PIPE CLVT.	1	
216+60	DRIVE ON RT. - 24" X51' C.M. PIPE CLVT.	1	
217+78	DRIVE ON RT. - 24" X 29' C.M. PIPE CLVT.	1	
220+04	NICA ROAD ON LT. 24" X 30' C.M. PIPE CLVT.	1	
225+77	DRIVE ON RT. - 18" X 28' C.M. PIPE CLVT.	1	
230+64	DRIVE ON RT. - 18" X 28' C.M. PIPE CLVT.	1	
231+15	DRIVE ON RT. - 18" X 28' C.M. PIPE CLVT.	1	
232+86	DRIVE ON RT. - 18" X 28' C.M. PIPE CLVT.	1	
234+42	DRIVE ON LT.- 18" X 26' C.M. PIPE CLVT.	1	
236+66	DRIVE ON LT.- 18" X 34' C.M. PIPE CLVT.	1	
241+80	DRIVE ON LT.- 18" X 28' C.M. PIPE CLVT.	1	
245+23	DRIVE ON LT.- 18" X 32' C.M. & 18" X 19' C.M. PIPE CLVT.	2	
246+03	DRIVE ON LT.- 18" X 32' C.M. PIPE CLVT.	1	
247+13	DRIVE ON LT.- 18" X 32' C.M. PIPE CLVT.	1	
248+09	DRIVE ON RT. - 18" X 24' C.M. PIPE CLVT.	1	
250+37	GRAVESVILLE C.O. - 49" X 32" X 49' C.M. ARCH CLVT.	1	
250+57	DRIVE ON RT. - 18" X 24' C.M. PIPE CLVT.	1	
250+78	DRIVE ON LT.- 18" X 32' C.M. & 18" X 31' C.M. PIPE CLVT.	2	
257+90	DRIVE ON RT. - 18" X 24' C.M. PIPE CLVT.	1	
258+21	DRIVE ON LT.- 18" X 32' C.M. PIPE CLVT.	1	
260+50	DRIVE ON RT. - 18" X 24' C.M. PIPE CLVT.	1	
261+55	DRIVE ON LT.- 18" X 24' C.M. PIPE CLVT.	1	
263+24	DRIVE ON LT.- 18" X 40' C.M. PIPE CLVT.	1	
264+47	DRIVE ON RT.- 18" X 32' C.M. PIPE CLVT.	1	
265+70	DRIVE ON LT.- 18" X 40' C.M. PIPE CLVT.	1	
266+31	DRIVE ON RT. - 18" X 24' C.M. PIPE CLVT.	1	
266+75	DRIVE ON RT. - 18" X 20' C.M. PIPE CLVT.	1	
268+12	RECORD LOOP ON LT.- 18" X 30' C.M. PIPE CLVT.	1	
268+84	DRIVE ON LT.- 24" X 172' C.M. PIPE CLVT.	1	
271+08	DRIVE ON LT.- 24" X 57' C.M. PIPE CLVT.	1	
271+92	DRIVE ON LT.- 24" X 49' PLASTIC PIPE CLVT.	1	
272+80	HWY. 65 ON RT. 24" X 9' PIPE CLVT. & DROP INLET	1	1
281+30	HWY. 65 - DROP INLET & 24" X 17' R.C. PIPE CLVT.	1	1
281+33	HWY. 65 - DROP INLET ON RT.		1
281+63	DRIVE ON RT. - 18" X 33' C.M. PIPE CLVT.	1	
282+55	HAPPY HOLLOW RD. ON RT. - 18" X 40' C.M. PIPE CLVT.	1	
282+81	DRIVE ON LT.- 18" X 40' C.M. PIPE CLVT.	1	
283+33	SIDE DRAIN ON LT.- 18" X 15' C.M. PIPE	1	
283+70	SIDE DRAIN ON RT.- 18" X 24' CM. PIPE	1	
284+40	DRIVE ON RT. - 18" X 18' C.M. PIPE CLVT.	1	
284+95	DRIVE ON LT.- 18" X 24' C.M. PIPE CLVT.	1	
286+54	DRIVE ON RT.- 18" X 24' C.M. PIPE CLVT.	1	
288+47	DRIVE ON LT.- 18" X 32' C.M. PIPE CLVT.	1	
289+56	DRIVE ON RT. - 18" X 24' C.M. PIPE CLVT.	1	
290+64	DRIVE ON RT. - 18" X 21' C.M. PIPE CLVT.	1	
292+79	DRIVE ON LT.- 18" X 25' C.M. PIPE CLVT.	1	
293+46	DRIVE ON RT. - 18" X 24' C.M. PIPE CLVT.	1	
294+47	DRIVE ON LT.- 18" X 24' C.M. PIPE CLVT.	1	
295+12	WALNUT VALLEY ON RT. - 18" X 38' C.M. PIPE CLVT.	1	
297+24	DRIVE ON RT. - 18" X 40' C.M. PIPE CLVT.	1	
304+12	DRIVE ON RT. - 18" X 39' C.M. PIPE CLVT.	1	
506+67	HWY. 92 - 24" X 53' C.M. PIPE CROSS DRAIN	1	
507+14	DRIVE ON RT.- 18" X 30' C.M. PIPE CLVT	1	
507+54	DRIVE ON LT.- 18" X 30' C.M. PIPE CLVT	1	
508+71	DRIVE ON LT.- 18" X 24' C.M. PIPE CLVT	1	
509+27	DRIVE ON RT.- 18" X 39' C.M. PIPE CLVT	1	
512+47	DRIVE ON RT.- 18" X 45' PLASTIC PIPE CLVT	1	
512+57	DRIVE ON RT.- 18" X 24' PLASTIC PIPE CLVT	1	
514+21	DRIVE ON RT.- 18" X 34' C.M. PIPE CLVT	1	
514+84	DRIVE ON RT.- 18" X 34' C.M. PIPE CLVT	1	
515+24	DRIVE ON RT.- 18" X 30' C.M. PIPE CLVT	1	
516+38	STONE LANE ON LT. - 18" X 24' C.M. PIPE CLVT.	1	
TOTALS:		106	3

NOTE: QUANTITIES SHOWN ABOVE SHALL INCLUDE REMOVAL & DISPOSAL OF ALL HEADWALLS AND FLARED END SECTIONS IF APPLICABLE.

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
		FEET				
109+00	64'RT	0-5	31	13	A-6(6)	BROWN
109+00	34'RT	0-5	23	9	A-4(1)	BROWN
109+00	23'RT	0-5	23	9	A-4(2)	BROWN
109+00	64'RT	0-5	24	6	A-4(0)	BROWN
117+00	44'LT	0-5	37	17	A-6(16)	RED
117+00	23'LT	0-5	40	20	A-6(17)	RD/BR
117+00	12'LT	0-5	29	11	A-6(8)	RD/BR
126+00	50'RT	0-4.0Z	25	8	A-4(3)	BROWN
126+00	29'RT	0-5	23	8	A-4(2)	RD/BR
126+00	18'RT	0-5	30	14	A-6(8)	RD/BR
133+00	39'LT	0-2.0Z	20	4	A-4(0)	BROWN
133+00	16'LT	0-4.5Z	19	5	A-4(0)	BROWN
133+00	5'LT	0-2.0Z	ND	NP	A-2-4(0)	BROWN
141+00	45'RT	0-2.0Z	ND	NP	A-4(0)	BROWN
141+00	29'RT	0-5	18	5	A-4(0)	BROWN
141+00	18'RT	0-5	16	3	A-4(0)	BROWN
149+00	34'LT	0-2.0Z	ND	NP	A-4(0)	RD/BR
149+00	16'LT	0-4.0Z	19	7	A-4(0)	RD/BR
149+00	5'LT	0-5	17	4	A-4(0)	RD/BR
157+00	45'RT	0-2.5Z	30	15	A-6(7)	RED
157+00	28'RT	0-4.0Z	25	10	A-4(3)	RED
157+00	16'RT	0-3.0Z	36	20	A-6(14)	RD/BR
165+00	32'LT	0-5	28	11	A-6(6)	RD/BR
165+00	16'LT	0-5	28	14	A-6(6)	RD/BR
165+00	5'LT	0-5	34	16	A-6(9)	BROWN
165+00	32'LT	0-5	23	8	A-4(2)	RD/BR
173+00	50'RT	0-5	22	5	A-4(0)	RD/BR
173+00	28'RT	0-5	22	7	A-4(1)	BROWN
173+00	18'RT	0-5	22	6	A-4(0)	BROWN
181+00	33'LT	0-3.5Z	21	3	A-4(0)	RED
181+00	19'LT	0-5	21	6	A-4(1)	RD/BR
181+00	7'LT	0-5	31	14	A-6(6)	RD/BR
189+00	55'RT	0-2.5Z	19	4	A-4(0)	RD/BR
189+00	28'RT	0-5	18	3	A-4(0)	RD/BR
189+00	19'RT	0-5	20	6	A-4(0)	RD/BR
197+00	55'LT	0-2.0Z	ND	NP	A-4(0)	BROWN
197+00	32'LT	0-5	21	7	A-4(0)	RD/BR
197+00	18'LT	0-5	20	8	A-4(0)	RD/BR
205+00	50'RT	0-5	31	11	A-6(5)	RD/BR
205+00	28'RT	0-5	25	9	A-4(1)	RD/BR
205+00	17'RT	0-5	28	12	A-6(5)	BROWN
213+00	50'LT	0-3.5Z	24	6	A-4(1)	BROWN
213+00	26'LT	0-5	24	8	A-4(2)	BROWN
213+00	16'LT	0-5	27	11	A-6(3)	RD/BR
221+00	47'RT	0-5	23	7	A-4(1)	BROWN
221+00	28'RT	0-5	25	7	A-4(1)	BROWN
221+00	18'RT	0-5	27	9	A-4(3)	RD/BR
229+00	50'LT	0-5	40	22	A-6(17)	BROWN
229+00	26'LT	0-5	28	9	A-4(3)	RD/BR
229+00	16'LT	0-5	21	5	A-4(0)	RD/BR
237+00	45'RT	0-3.0Z	23	7	A-4(1)	BROWN
237+00	29'RT	0-5	22	8	A-4(1)	BROWN
237+00	18'RT	0-5	21	4	A-4(0)	BROWN
245+00	46'LT	0-5	26	9	A-4(4)	RD/BR
245+00	25'LT	0-5	23	7	A-4(1)	BROWN
245+00	17'LT	0-5	26	11	A-6(3)	BROWN
245+00	46'LT	0-5	24	7	A-4(3)	RD/BR
253+00	41'RT	0-5	27	11	A-6(6)	RD/BR
253+00	15'RT	0-5	24	10	A-4(3)	RD/BR
253+00	5'RT	0-5	24	9	A-4(3)	RD/BR
261+00	37'LT	0-5	28	9	A-4(4)	RD/BR
261+00	18'LT	0-5	25	9	A-4(3)	RD/BR
261+00	8'LT	0-5	30	13	A-6(7)	RD/BR
268+00	38'RT	0-5	25	7	A-4(3)	BROWN
269+00	19'RT	0-3.5Z	21	6	A-4(1)	BROWN
269+00	8'RT	0-5	24	9	A-4(3)	BROWN
276+00	21'LT	0-5	24	8	A-4(2)	BROWN
276+00	12'LT	0-5	24	9	A-4(2)	BROWN
285+00	10'RT	0-5	26	7	A-4(3)	BROWN
285+00	10'LT	0-5	24	8	A-4(2)	RD/BR
285+00	21'LT	0-5	29	15	A-6(8)	BROWN
293+00	8'LT	0-5	27	11	A-6(4)	RD/BR
293+00	35'LT	0-2.0Z	31	13	A-6(9)	BROWN
293+00	18'LT	0-5	26	11	A-6(4)	RED
301+00	39'RT	0-5	29	12	A-6(7)	RED
301+00	17'RT	0-5	26	10	A-4(4)	RD/BR
301+00	6'RT	0-5	37	21	A-6(8)	BR/RD

SOIL CHARACTERISTICS TABULATED ABOVE ARE REPRESENTATIVE AT THE LOCATION OF THE SAMPLE, AND FROM SURFACE INDICATIONS ARE TYPICAL FOR THE LIMITS SHOWN. THESE DATA ARE SHOWN FOR INFORMATION ONLY. THE STATE WILL NOT BE RESPONSIBLE FOR VARIATIONS IN THE SOIL CHARACTERISTICS AND/OR EXTENT OF SAME DIFFERING FROM THE ABOVE TABULATIONS.
Z- AUGER REFUSAL
NP - NON-PLASTIC
ND - NOT DETERMINABLE



PLANS REVISED	PLANS FILED	PLANS REVISED	PLANS FILED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	080391	63	232

2 QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	64	232

(2) QUANTITIES

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1' 6")
			LIN. FT.
258+16	260+36	HWY. 65 ON RT.	220
259+00	261+41	HWY. 65 ON LT.	245
260+64	262+82	HWY. 65 ON RT.	218
261+69	262+98	HWY. 65 ON LT.	129
263+09	266+17	HWY. 65 ON RT.	308
263+50	265+49	HWY. 65 ON LT.	199
265+91	267+94	HWY. 65 ON LT.	224
266+45	266+62	HWY. 65 ON RT.	17
266+90	267+99	HWY. 65 ON RT.	109
268+27	269+47	HWY. 65 ON RT.	120
268+15	268+58	HWY. 65 ON LT.	58
269+10	269+50	HWY. 65 ON LT.	40
269+75	270+24	HWY. 65 ON RT.	49
270+02	270+82	HWY. 65 ON LT.	80
270+66	271+61	HWY. 65 ON RT.	95
271+34	271+66	HWY. 65 ON LT.	32
272+13	273+02	HWY. 65 ON RT.	89
272+18	273+47	HWY. 65 ON LT.	129
273+54	274+53	HWY. 65 ON RT.	99
273+99	274+22	HWY. 65 ON LT.	23
274+59	275+86	HWY. 65 ON LT.	127
275+05	276+22	HWY. 65 ON RT.	117
276+38	278+56	HWY. 65 ON LT.	257
276+74	277+68	HWY. 65 ON RT.	165
278+08	280+41	HWY. 65 ON RT.	365
279+58	279+97	HWY. 65 ON LT.	218
280+25	282+66	HWY. 65 ON LT.	241
280+93	281+42	HWY. 65 ON RT.	49
281+84	282+45	HWY. 65 ON RT.	82
282+64	284+25	HWY. 65 ON RT.	178
282+95	284+80	HWY. 65 ON LT.	185
284+52	286+40	HWY. 65 ON RT.	188
285+08	288+31	HWY. 65 ON LT.	323
286+68	289+42	HWY. 65 ON RT.	274
288+64	290+74	HWY. 65 ON LT.	210
289+70	290+49	HWY. 65 ON RT.	79
290+77	293+32	HWY. 65 ON RT.	255
291+06	292+62	HWY. 65 ON LT.	156
292+94	294+31	HWY. 65 ON LT.	137
293+60	294+92	HWY. 65 ON RT.	143
294+54	294+84	HWY. 65 ON RT.	30
294+63	295+00	HWY. 65 ON LT.	37
295+00	295+93	HWY. 65 ON LT.	93
506+00	507+40	HWY. 92 ON LT.	140
506+00	506+97	HWY. 92 ON RT.	97
507+31	509+45	HWY. 92 ON LT.	214
507+68	508+56	HWY. 92 ON RT.	88
512+84	514+03	HWY. 92 ON RT.	119
513+70	516+12	HWY. 92 ON LT.	269
514+39	514+66	HWY. 92 ON RT.	27
515+02	515+10	HWY. 92 ON RT.	8
515+40	516+22	HWY. 92 ON RT.	82
TOTAL:			7436

WHEELCHAIR RAMPS

STATION	LOCATION	TYPE 2	TYPE 3
		SQ.YD.	
258+18	HWY. 65 ON RT. AT TRANSITION		3.4
259+02	HWY. 65 ON LT. AT TRANSITION		4.0
267+72	HWY. 65 ON LT. AT RECORD ST.		5.4
268+38	HWY. 65 ON LT. AT RECORD ST.		5.4
277+48	HWY. 65 ON LT.		3.4
277+49	HWY. 65 ON RT. - S.E. CORNER	10.9	
278+24	HWY. 65 ON RT. - N.E. CORNER		3.8
278+34	HWY. 65 ON LT. - S.W. CORNER		4.2
279+01	HWY. 65 ON RT. - N.E. CORNER		4.1
279+37	HWY. 65 ON LT.- N.W.CORNER,	9.9	
282+28	HWY. 65 ON RT. - AT HAPPY HOLLOW		5.3
282+82	HWY. 65 ON RT. - AT HAPPY HOLLOW		5.3
294+68	HWY. 65 ON RT. - AT WALNUT VALLEY DR.		5.8
505+03	HWY. 92 ON LT. - AT BEGINNING OF C&G		3.3
506+03	HWY. 92 ON RT. - AT BEGINNING OF C&G		3.3
516+12	HWY. 92 ON LT. - AT STONE LN.		4.9
516+22	HWY. 92 ON RT. - TRANSITION		3.9
TOTALS:		20.8	65.5

CONCRETE CURB

STATION	STATION	LOCATION	TYPE B	TYPE D
			LIN. FT.	LIN. FT.
216+71	217+65	HWY. 65 ON RT.	94	
263+43	265+26	HWY. 65 ON LT. (PARKING LOT)		183
268+53	268+63	HWY. 65 ON LT. (PARKING LOT)		10
269+03	269+56	HWY. 65 ON LT. (PARKING LOT)		53
269+96	270+88	HWY. 65 ON LT. (PARKING LOT)		92
271+28	271+72	HWY. 65 ON LT. (PARKING LOT)		44
272+12	273+53	HWY. 65 ON LT. (PARKING LOT)		142
272+58	273+08	HWY. 65 ON RT. (PARKING LOT)		53
273+93	274+05	HWY. 65 ON LT. (PARKING LOT)		12
274+27	274+59	HWY. 65 ON RT. (PARKING LOT)		32
274+99	275+28	HWY. 65 ON RT. (PARKING LOT)		29
275+34	275+92	HWY. 65 ON LT. (PARKING LOT)		59
276+32	278+26	HWY. 65 ON LT. (PARKING LOT)		227
278+23	280+46	HWY. 65 ON RT. (PARKING LOT)		358
280+85	281+48	HWY. 65 ON RT. (PARKING LOT)		63
281+77	281+92	HWY. 65 ON RT. (PARKING LOT)		15
TOTALS:			94	1372

CONCRETE WALKS

STATION	STATION	LOCATION	LENGTH	CONCRETE WALKS	CONCRETE WALKS (TYPE SPECIAL)
			LIN. FT.	SQ.YD.	SQ.YD.
258+16	260+28	HWY. 65 ON RT.	212	118	
259+08	261+33	HWY. 65 ON LT.	225	125	
260+72	262+74	HWY. 65 ON RT.	202	112	
261+77	262+89	HWY. 65 ON LT.	112	62	
263+17	266+09	HWY. 65 ON RT.	292	162	
263+58	265+41	HWY. 65 ON LT.	183	102	
265+99	267+72	HWY. 65 ON LT.	173	96	
266+53	266+54	HWY. 65 ON RT.	1	1	
266+98	267+91	HWY. 65 ON RT.	93	52	
268+35	269+39	HWY. 65 ON RT.	104	58	
268+37	268+50	HWY. 65 ON LT.	13	7	
269+18	269+42	HWY. 65 ON LT.	24	13	
269+83	270+24	HWY. 65 ON RT.	41	23	
270+10	270+74	HWY. 65 ON LT.	64	36	
270+74	271+53	HWY. 65 ON RT.	79	44	
271+42	271+58	HWY. 65 ON LT.	16	9	
272+21	272+94	HWY. 65 ON RT.	73	41	
272+26	273+39	HWY. 65 ON LT.	113	63	
273+62	274+45	HWY. 65 ON RT.	83	46	
274+07	274+14	HWY. 65 ON LT.	7	4	
274+67	275+78	HWY. 65 ON LT.	111	62	
275+13	276+14	HWY. 65 ON RT.	101	56	
276+46	278+54	HWY. 65 ON LT.	236	131	
276+81	277+68	HWY. 65 ON RT.	135	75	
278+08	280+33	HWY. 65 ON RT.	342	190	
279+52	279+89	HWY. 65 ON LT.	191	106	
280+33	282+58	HWY. 65 ON LT.	225	125	
281+01	281+34	HWY. 65 ON RT.	33	18	
281+92	282+24	HWY. 65 ON RT.	32	18	
282+86	284+17	HWY. 65 ON RT.	131	73	
283+03	284+72	HWY. 65 ON LT.	169	94	
284+60	286+33	HWY. 65 ON RT.	173	96	
285+16	288+23	HWY. 65 ON LT.	307	171	
286+76	289+34	HWY. 65 ON RT.	258	143	
288+72	290+66	HWY. 65 ON LT.	194	108	
289+78	290+41	HWY. 65 ON RT.	63	35	
290+85	293+24	HWY. 65 ON RT.	239	133	
291+14	292+54	HWY. 65 ON LT.	140	78	
293+02	294+23	HWY. 65 ON LT.	121	67	
293+60	294+65	HWY. 65 ON RT.	105	58	
294+71	294+92	HWY. 65 ON LT.	21	12	
295+00	295+93	HWY. 65 ON LT. - TRANSITION	93	52	
505+06	507+32	HWY. 92 ON LT.	226	126	
506+00	506+89	HWY. 92 ON RT.	89	49	
507+76	508+48	HWY. 92 ON LT.	72	40	
507+39	509+37	HWY. 92 ON RT.	198	110	
512+93	513+95	HWY. 92 ON RT.	102	57	
513+78	516+12	HWY. 92 ON LT.	234	130	
514+47	514+58	HWY. 92 ON RT.	11	6	
515+48	516+22	HWY. 92 ON RT.	74	41	
512+50	280+25	N.E. CORNER - HWY. 65 & HWY. 92	270		150
TOTALS:				3634	150

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	570
ENGINEER	
TOTAL:	570

NOTE: QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	LOCATION	WIDTH	LENGTH	CU.YD.
		FEET		
228+32	HWY. 65, 24" X 128' R.C. PIPE CROSS DRAIN	8.50	49	21.9
272+75	HWY. 65, 24" X 63' R.C. PIPE CROSS DRAIN	8.50	33	14.7
281+25	HWY. 65, 24" X 63' R.C. PIPE CROSS DRAIN	8.50	44	19.6
282+55	HAPPY HOLLOW, 24" R.C. CROSS DRAIN	8.50	21	9.4
295+00	WALNUT VALLEY, 18" R.C. CROSS DRAIN	7.92	21	8.7
506+71	HWY. 92, 42" R.C. PIPE CROSS DRAIN	8.50	32	14.3
516+15	STONE LANE, 18" R.C. PIPE CROSS DRAIN	7.92	16	6.6
603+04	GRAVESVILLE C.O., 42" R.C. CROSS DRAIN	10.25	25	13.4
TOTAL:				108.6

AVG. DEPTH = 17"

CULVERT CLEAN OUT

STATION	LOCATION	EACH
125+42	3' X 3' X 85' R.C. BOX	1
152+24	4' X 3' X 86' R.C. BOX	1
1175+23	6' X 6' X 135' R.C. BOX	1
186+56	3' X 3' X 107' R.C. BOX	1
194+59	12' X 6' 129' R.C. BOX	1
210+06	10' X 4' X 97' R.C. BOX	1
255+98	6' X 5' X 107' R.C. BOX	1
300+32	6' X 5' X 104' R.C. BOX	1
307+83	DOUBLE 6' X 4' X 150' R.C. BOX	1
TOTAL:		9

PORTLAND CEMENT CONCRETE BASE

STATION	STATION	LOCATION	LENGTH	PORTLAND CEMENT CONCRETE BASE		
				AVG. WID.	6" U.T.	9" U.T.
			FEET	FEET	SQ. YD.	SQ. YD.
281+41	282+16	HWY. 65 ON LT.	75.0	2.0	37.5	16.7
288+11	288+66	HWY. 65 ON LT.	55.0	2.0	27.5	12.2
TOTALS:					65.0	28.9

FENCING

STATION	STATION	LOCATION	WIRE FENCE			* 4' CHAIN LINK FENCE	* 16'-0" GATES
			(TYPE D)	(TYPE D-1)	(TYPE D-2)		
			LIN. FT.				EACH
124+00	126+35	RIGHT OF WAY ON LT.		241			
130+65	140+02	RIGHT OF WAY ON RT.	937				
141+91	151+33	RIGHT OF WAY ON RT.		942			
142+23	144+85	RIGHT OF WAY ON LT.		262			
147+11	148+50	RIGHT OF WAY ON LT.		139			
153+03	155+33	RIGHT OF WAY ON RT.		230			
155+61	158+64	RIGHT OF WAY ON RT.		303			
158+64	165+84	RIGHT OF WAY ON RT.		720			
168+58	181+48	RIGHT OF WAY ON RT.		1297			1
186+56	189+82	RIGHT OF WAY ON RT.		326			
201+00	202+36	RIGHT OF WAY ON RT.		136			
202+36	206+90	RIGHT OF WAY ON RT.		454			
209+00	211+00	RIGHT OF WAY ON RT.		200			
209+50	215+71	RIGHT OF WAY ON LT.		621			
214+35	216+49	RIGHT OF WAY ON RT.		214			
215+88	217+03	RIGHT OF WAY ON LT.		115			
217+03	219+89	RIGHT OF WAY ON LT.		287			
218+14	225+33	RIGHT OF WAY ON RT.		719			
220+28	227+92	RIGHT OF WAY ON LT.		764			
226+45	229+80	RIGHT OF WAY ON RT.		337			
229+08	230+93	RIGHT OF WAY ON LT.		186			
233+31	242+46	RIGHT OF WAY ON RT.		927			
234+00	234+30	RIGHT OF WAY ON LT.		30			
234+54	241+54	RIGHT OF WAY ON LT.		702			1
251+05	257+02	RIGHT OF WAY ON LT.	593				1
266+59	267+97	RIGHT OF WAY ON RT.				118	
280+89	281+59	RIGHT OF WAY ON LT.			82		
TOTALS:			1530	10152	82	118	3

* DENOTES ALTERNATE BID ITEM.

9/10/2014

R080391.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	65	232

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE (CLASS III) 18"	REINFORCED CONCRETE PIPE (CLASS III) 24"	REINFORCED CONCRETE PIPE (CLASS V) 24"	SIDE DRAIN 12"	PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2 18"	PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2 24"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 24"	DROP INLETS TYPE MO	DROP INLETS EXT. 4'	DROP INLETS EXT. 8'	JUNCT. BOX (TYPE E)	YARD DRAIN	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.						EACH							LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL	
125+42	3' X 3' R.C. BOX, EXT. 29' LT. & 15' RT.														3	3	44	17.64	1482	16	8	0.10	SPECIAL DETAIL, RCB-1, RCB-2, RCB-3
152+24	4' X 3' R.C. BOX, EXT. 31' LT. & 8' RT.														4	3	39	20.14	2196	15	12	0.15	R-100X-0, W-X003-1, RCB-1, RCB-2, RCB-3
175+23	6' X 6' R.C. BOX, EXT. 17' LT. & 9' RT.														6	6	26	32.51	2655	23	19	0.24	R-100X-X1, W-X003-1, RCB-1, RCB-2, RCB-3
186+56	3' X 3' R.C. BOX, EXT. 20' LT. & 9' RT.														3	3	29	13.38	1101	13	8	0.10	SPECIAL DETAIL, RCB-1, RCB-2, RCB-3
194+59	12' X 6' R.C. BOX, EXT. 6' LT. & 2' RT.														12	6	8	30.59	3107	22	19	0.24	R-100X-0, W-X002-1, W-X003-1, RCB-1, RCB-2, RCB-3
210+06	10' X 4' R.C. BOX, EXT. 15' LT. & 13' RT.														10	4	28	40.10	3437	28	14	0.18	SPECIAL DETAIL, RCB-1, RCB-2, RCB-3
228+32	24" X 128' R.C. CROSS DRAIN & F.E.S. LT. & RT.		128						2												16	0.20	FES-1, FES-2, PCC -1
255+89	6' X 5' R.C.BOX, EXT. 12' LT. & 32' RT.														6	5	44	35.41	3430	23	17	0.21	R-100X-X1, W-X003-1, RCB-1, RCB-2, RCB-3
258+24	J.B. ON RT., R.C. STUBOUT W/F.E.S.	15											1										FPC-9, FES-1, FES-2, PCC-1
259+11	D.I. ON LT. W/4' EXT. & R.C. STUBOUT W/F.E.S.	14						1		1	1										5	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1
259+05	D.I. ON RT. W/4' EXT. & STORM DRAIN OUTLET					77				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
261+00	D.I. ON LT. W/4' EXT. & STORM DRAIN OUTLET					185				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
261+00	D.I. ON RT. W/4' EXT. & STORM DRAIN OUTLET					191				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
267+50	D.I. ON LT. W/4' EXT. & R.C. PIPE OUTLET					176				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
267+50	D.I. ON RT. W/4' EXT. & STORM DRAIN OUTLET					176				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
269+30	D.I. ON LT. W/4' EXT. & STORM DRAIN OUTLET					216				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
269+30	D.I. ON RT. W/4' EXT. & STORM DRAIN OUTLET					216				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
271+50	D.I. ON LT. W/4' EXT. & STORM DRAIN OUTLET					121				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
271+50	D.I. ON RT. W/4' EXT. & STORM DRAIN OUTLET					121				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
272+75	D.I. ON LT. W/4' EXT. & R.C. STUBOUT W/F.E.S.						6			1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
272+75	D.I. ON RT. W/4' EXT. & R.C. STUB IN W/F.E.S & R.C. OUTLET	4		59				1		1	1										5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
272+79	J.B. ON LT. TIE TO EXISITING 24" X 116' PIPE CLVT.												1										FPC-9
274+10	D.I. ON LT. W/4' EXT. & STORM DRAIN OUTLET					136				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
274+10	D.I. ON RT. W/4' EXT. & STORM DRAIN OUTLET					136				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
275+50	D.I. ON LT. W/4' EXT. & STORM DRAIN OUTLET					176				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
275+50	D.I. ON RT. W/4' EXT. & STORM DRAIN OUTLET					176				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
277+30	D.I. ON LT. W/4' EXT. & STORM DRAIN OUTLET					76				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
277+30	D.I. ON RT. W/4' EXT. & STORM DRAIN OUTLET					37				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
277+60	D.I. ON RT. W/4' EXT. & STORM DRAIN OUTLET					156				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
278+10	D.I. ON LT. W/8' EXT. & STORM DRAIN OUTLET					273				1		1											FPC-9E, FPC-9M, PCC-1, PCM-1
280+40	D.I. ON LT. W/8' EXT. & STORM DRAIN OUTLET					81				1		1											FPC-9E, FPC-9M, PCC-1, PCM-1
281+25	D.I. ON LT. W/8' EXT. & R.C. STUB OUT W/F.E.S.		16						1	1		1									8	0.10	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
281+25	J.B. ON RT., R.C. STUB IN W/FES & R.C.OUTLET	11		60				1					1								5	0.06	FES-1, FES-2, FPC-9, PCC-1
282+00	D.I. ON LT. W/8' EXT. & STORM DRAIN OUTLET					70				1		1											FPC-9E, FPC-9M, PCC-1, PCM-1
282+15	J.B. ON RT., R.C. STUB INS W/FES & R.C.OUTLET	12	67				87	1	1				1								13	0.16	FES-1, FES-2, FPC-9, PCC-1, PCM-1
283+30	D.I. ON LT. W/8' EXT. & STORM DRAIN OUTLET					123				1		1											FPC-9E, FPC-9M, PCC-1, PCM-1
284+65	D.I. ON LT. W/8' EXT. & STORM DRAIN OUTLET					128				1		1											FPC-9E, FPC-9M, PCC-1, PCM-1
286+50	D.I. ON LT. W/8' EXT. & STORM DRAIN OUTLET					177				1		1											FPC-9E, FPC-9M, PCC-1, PCM-1
289+00	D.I. ON LT. W/8' EXT. & STORM DRAIN OUTLET					241				1		1											FPC-9E, FPC-9M, PCC-1, PCM-1
292+50	D.I. ON LT. W/4' EXT. & STORM DRAIN OUTLET					221				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
292+50	D.I. ON RT. W/4' EXT. & STORM DRAIN OUTLET					196				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
294+50	D.I. ON RT. W/4' EXT. & R.C. STUB OUT W/F.E.S.	105						1		1	1										5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
294+75	D.I. ON LT. W/4' EXT. & R.C. STUB OUT W/F.E.S.	6						1		1	1										5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
300+32	6' X 5' R.C.BOX, EXT. 70' LT. & 44' RT.														6	5	114	71.02	7881	40	17	0.21	R-100X-X1, W-X003-1, RCB-1, RCB-2, RCB-3
307+83	DBL. 6' X 4' R.C.BOX, EXT. 65' LT. & 37' RT.														6	4	82	84.10	10402	45	16	0.20	R-200X-X1, W-X002-1, W-X003-1, RCB-1, RCB-2, RCB-3
506+50	D.I. ON RT. W/4' EXT. & R.C. STUB OUT W/F.E.S.		8						1	1	1										8	0.10	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
506+90	D.I. LT. W/ R.C. STUB IN W/FES & R.C.OUTLET		8	53					1	1											8	0.10	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
508+00	D.I. ON LT. W/4' EXT. & STORM DRAIN OUTLET					106				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
508+00	D.I. ON RT. W/8' EXT. & STORM DRAIN OUTLET					146				1		1											FPC-9E, FPC-9M, PCC-1, PCM-1
513+50	D.I. ON RT. W/4' EXT. & STORM DRAIN OUTLET					241				1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
515+95	D.I. ON RT. W/4' EXT. & R.C. STUB OUT W/F.E.S.	7						1		1	1										5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
516+07	D.I. ON LT. W/4' EXT. R.C. STUB IN & OUT W/FES	66						2		1		1									5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER					300									3									
TOTALS:		240	227	172	300	4375	93	9	6	38	27	10	4	3				344.89	35691	225	218	2.71	

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.

NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.

NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

9/10/2014

R080391.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080391		66	232

(2) QUANTITIES

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
172+00	178+00	MAIN LANES	720	4
192+00	197+00	MAIN LANES	580	3
250+00	255+00	MAIN LANES	580	3
279+00	283+00	MAIN LANES	420	
299+00	305+00	MAIN LANES	720	4
* ENTIRE PROJECT TO BE USED IF AND			2000	9
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			5020	23

* NOTE: QUANTITIES ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

UNDERDRAINS SHALL BE STUBBED INTO THE PROPOSED DROP INLET IF AND WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR THIS TO BE INCLUDED IN THE UNIT PRICE BID FOR 4" PIPE UNDERDRAIN.

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
125+42	BOX CULVERT HEADWALL ON LT.	1
152+24	BOX CULVERT HEADWALL ON RT.	1
175+23	BOX CULVERT HEADWALL ON LT.	1
186+56	BOX CULVERT HEADWALL ON RT.	1
194+59	BOX CULVERT HEADWALL ON LT.	1
210+06	BOX CULVERT HEADWALL ON RT.	1
255+89	BOX CULVERT HEADWALL ON LT.	1
300+32	BOX CULVERT HEADWALL ON RT.	1
307+83	BOX CULVERT HEADWALL ON LT.	1
TOTAL:		9

NOTE: SHOWN FOR INFORMATION ONLY. BENCH MARKS SHALL BE FURNISHED AND PLACED BY STATE FORCES.

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
108+50	258+16	HWY. 65	9459
295+16	312+00	HWY. 65	1552
TOTAL:			11011

* QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
107+50	108+50	HWY. 65	59	655.56
312+00	313+00	HWY. 65	36	400.00
505+00	506+00	HWY. 92	22	244.44
517+05	518+05	HWY. 92	22	244.44
TOTAL:				1544.44

NOTE: AVERAGE MILLING DEPTH 1".

DRIVEWAYS & TURNOUTS (BOX 1 OF 2)

STATION	SIDE	LOCATION	WIDTH	**MODIFIED CURB		PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS				SAFETY END SECTIONS	STANDARD DRAWINGS
										18"	24"	42"	22"X14"	24"	
			FEET	STATION	STATION	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.				EACH	
110+22	LT.	DRIVE ON HWY. 65	16				75.0	8.3	30.6		36				PCC-1, PCM-1, PCP-1, PCP-2
113+57	RT.	DRIVE ON HWY. 65	34				255.8	28.1	104.5		44			2	PCC-1, PCM-1, PCP-1, PCP-2, SES-1
114+60	LT.	DRIVE ON SULPHUR ROAD	30				98.6	10.8	40.3						
114+80	LT.	SULPHUR ROAD	24				378.2	41.6	154.4		72			2	PCC-1, PCM-1, PCP-1, PCP-2, SES-1
115+05	RT.	CO. RD. 28	24				138.2	15.2	56.4						
116+77	LT.	DRIVE ON HWY. 65	16				92.8	10.2	37.9	40					PCC-1, PCM-1, PCP-1, PCP-2
118+28	LT.	DRIVE ON HWY. 65	16				79.7	8.8	32.5	34					PCC-1, PCM-1, PCP-1, PCP-2
120+02	RT.	DRIVE ON HWY. 65	40			257.50				62					PCC-1, PCM-1, PCP-1, PCP-2
121+57	LT.	DRIVE ON HWY. 65	16				77.6	8.5	31.7	30					PCC-1, PCM-1, PCP-1, PCP-2
123+08	LT.	DRIVE ON HWY. 65	16				112.1	12.3	45.8						PCC-1, PCM-1, PCP-1, PCP-2
124+96	RT.	DRIVE ON HWY. 65	40			238.50					58				PCC-1, PCM-1, PCP-1, PCP-2
126+54	LT.	DRIVE ON HWY. 65	16				157.7	17.3	64.4						
126+97	RT.	DRIVE ON HWY. 65	40			228.00					58				PCC-1, PCM-1, PCP-1, PCP-2
128+42	LT.	DRIVE ON HWY. 65	16				97.8	10.8	39.9	28					PCC-1, PCM-1, PCP-1, PCP-2
129+27	RT.	DRIVE ON HWY. 65	24				131.9	14.5	53.9	42					PCC-1, PCM-1, PCP-1, PCP-2
130+37	RT.	DRIVE ON HWY. 65	24				132.1	14.5	53.9		42				PCC-1, PCM-1, PCP-1, PCP-2
134+56	LT.	DRIVE ON HWY. 65	16				118.9	13.1	48.6						
140+27	RT.	DRIVE ON HWY. 65	16				92.6	10.2	37.8	46					PCC-1, PCM-1, PCP-1, PCP-2
141+73	LT.	DRIVE ON HWY. 65	26				141.8	15.6	57.9		38				PCC-1, PCM-1, PCP-1, PCP-2
141+81	RT.	DRIVE ON HWY. 65	16				87.6	9.6	35.8	40					PCC-1, PCM-1, PCP-1, PCP-2
145+78	LT.	DRIVE ON HWY. 65	26				138.8	15.3	56.7	50					PCC-1, PCM-1, PCP-1, PCP-2
150+30	LT.	DRIVE ON HWY. 65	16				95.8	10.5	39.1	34					PCC-1, PCM-1, PCP-1, PCP-2
155+49	RT.	DRIVE ON HWY. 65	16				89.1	9.8	36.4	30					PCC-1, PCM-1, PCP-1, PCP-2
156+69	LT.	DRIVE ON HWY. 65	16				91.1	10.0	37.2	42					PCC-1, PCM-1, PCP-1, PCP-2
158+39	LT.	DRIVE ON HWY. 65	16				90.0	9.9	36.8	40					PCC-1, PCM-1, PCP-1, PCP-2
160+56	LT.	DRIVE ON HWY. 65	16				87.5	9.6	35.7	40					PCC-1, PCM-1, PCP-1, PCP-2
165+43	LT.	SOUTH HILLS DR.	24				151.5	16.7	61.9	50					PCC-1, PCM-1, PCP-1, PCP-2
166+66	RT.	DRIVE ON HWY. 65	16				87.7	9.6	35.8	34					PCC-1, PCM-1, PCP-1, PCP-2
168+65	LT.	DRIVE ON HWY. 65	16				93.6	10.3	38.2	44					PCC-1, PCM-1, PCP-1, PCP-2
168+78	RT.	DRIVE ON HWY. 65	16				89.7	9.9	36.6	38					PCC-1, PCM-1, PCP-1, PCP-2
170+87	LT.	DRIVE ON HWY. 65	34				187.0	20.6	76.4	58					PCC-1, PCM-1, PCP-1, PCP-2
172+09	LT.	DRIVE ON HWY. 65	20				97.7	10.7	39.9	32					PCC-1, PCM-1, PCP-1, PCP-2
177+18	LT.	DRIVE ON HWY. 65	20				125.3	13.8	51.2	40					PCC-1, PCM-1, PCP-1, PCP-2
179+53	LT.	DRIVE ON HWY. 65	16				95.8	10.5	39.1	40					PCC-1, PCM-1, PCP-1, PCP-2
180+65	LT.	DRIVE ON HWY. 65	16				76.5	8.4	31.2	30					PCC-1, PCM-1, PCP-1, PCP-2
181+68	LT.	COUNTY ROAD 26	24				407.5	44.8	166.4						
181+68	RT.	OLD GIN ROAD EAST	24				175.5	19.3	71.7	52					PCC-1, PCM-1, PCP-1, PCP-2
183+04	RT.	DRIVE ON HWY. 65	16				100.4	11.0	41.0	46					PCC-1, PCM-1, PCP-1, PCP-2
183+53	LT.	DRIVE ON HWY. 65	16				87.1	9.6	35.6	34					PCC-1, PCM-1, PCP-1, PCP-2
185+39	RT.	DRIVE ON HWY. 65	16				100.3	11.0	41.0	44					PCC-1, PCM-1, PCP-1, PCP-2
186+19	RT.	DRIVE ON HWY. 65	16				97.4	10.7	39.8	30					PCC-1, PCM-1, PCP-1, PCP-2
190+04	RT.	DRIVE ON HWY. 65	24				233.3	25.7	95.3						
190+40	RT.	SOUTHSIDE SCHOOL ROAD	24				186.2	20.5	76.0						
192+12	LT.	DRIVE ON HWY. 65	16				57.4	6.3	23.4				28		PCC-1, PCM-1, PCP-1, PCP-2
198+01	LT.	DRIVE ON HWY. 65	16				76.7	8.4	31.3	32					PCC-1, PCM-1, PCP-1, PCP-2
198+03	RT.	DRIVE ON HWY. 65	24				203.9	22.4	83.3						
199+64	LT.	DRIVE ON HWY. 65	16				76.5	8.4	31.2	38					PCC-1, PCM-1, PCP-1, PCP-2
202+53	LT.	DRIVE ON HWY. 65	16				76.0	8.4	31.0	40					PCC-1, PCM-1, PCP-1, PCP-2
204+36	LT.	DRIVE ON HWY. 65	26				122.2	13.4	49.9	44					PCC-1, PCM-1, PCP-1, PCP-2
207+00	LT.	DRIVE ON HWY. 65	16				76.8	8.4	31.4	42					PCC-1, PCM-1, PCP-1, PCP-2
215+80	LT.	DRIVE ON HWY. 65	16				78.8	8.7	32.2				28		PCC-1, PCM-1, PCP-1, PCP-2
216+60	RT.	DRIVE ON HWY. 65	16				115.5	12.7	47.2		162				PCC-1, PCM-1, PCP-1, PCP-2
217+78	RT.	DRIVE ON HWY. 65	16				119.0	13.1	48.6						PCC-1, PCM-1, PCP-1, PCP-2
220+04	LT.	NICA ROAD	24				305.0	33.6	124.5		44				PCC-1, PCM-1, PCP-1, PCP-2
225+77	RT.	DRIVE ON HWY. 65	16				73.4	8.1	30.0	32					PCC-1, PCM-1, PCP-1, PCP-2
228+09	LT.	DRIVE ON HWY. 65	16				148.2	16.3	60.5						
228+74	LT.	DRIVE ON HWY. 65	24				219.3	24.1	89.5						
230+64	RT.	DRIVE ON HWY. 65	16				88.5	9.7	36.1	44					PCC-1, PCM-1, PCP-1, PCP-2
231+15	RT.	DRIVE ON HWY. 65	16				87.0	9.6	35.5	44					PCC-1, PCM-1, PCP-1, PCP-2
232+86	RT.	DRIVE ON HWY. 65	16				82.0	9.0	33.5	38					PCC-1, PCM-1, PCP-1, PCP-2
234+42	LT.	DRIVE ON HWY. 65	16				66.1	7.3	27.0	28					PCC-1, PCM-1, PCP-1, PCP-2
236+66	LT.	DRIVE ON HWY. 65	16				99.9	11.0	40.8	48					PCC-1, PCM-1, PCP-1, PCP-2
241+80	LT.	DRIVE ON HWY. 65	16				128.6	14.1	52.5	30					PCC-1, PCM-1, PCP-1, PCP-2
245+23	LT.	DRIVE ON HWY. 65	16				123.3	13.6	50.3	38					PCC-1, PCM-1, PCP-1, PCP-2
246+03	LT.	DRIVE ON HWY. 65	16				78.6	8.6	32.1	36					PCC-1, PCM-1, PCP-1, PCP-2
247+13	LT.	DRIVE ON HWY. 65	16				86.2	9.5	35.2	32					PCC-1, PCM-1, PCP-1, PCP-2
SUBTOTALS:						724.00	7842.1	862.3	3202.3	1696	554		56	4	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.4% MIN. AGGR.....5.6% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

* QUANTITY ESTIMATED
SEE SECTION 104.03 OF THE STD. SPECS.
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

** FOR INFORMATION ONLY

NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

9/10/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	67	232

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

DRIVEWAYS & TURNOUTS (BOX 2 OF 2)

STATION	SIDE	LOCATION	WIDTH	**MODIFIED CURB		PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS				SAFETY END SECTIONS	STANDARD DRAWINGS
										18"	24"	42"	22"X14"	24"	
			FEET	STATION	STATION	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.				EACH	
248+09	RT.	DRIVE ON HWY. 65	16				108.3	11.9	44.2	36					PCC-1, PCM-1, PCP-1, PCP-2
250+34	RT.	GRAVESVILLE CUTOFF	22				381.3	41.9	155.7			42			PCC-1, PCM-1, PCP-1, PCP-2
250+57	RT.	DRIVE ON GRAVESVILLE CUTOFF	16				135.1	14.9	55.2						
250+78	LT.	DRIVE ON HWY. 65	16				97.5	10.7	39.8	38					PCC-1, PCM-1, PCP-1, PCP-2
257+90	RT.	DRIVE ON HWY. 65	16				87.0	9.6	35.5		28				PCC-1, PCM-1, PCP-1, PCP-2
258+21	LT.	DRIVE ON HWY. 65	16				115.4	12.7	47.1		32				PCC-1, PCM-1, PCP-1, PCP-2
260+50	RT.	DRIVE ON HWY. 65	16	260+28	260+72	39.10	100.0	11.0	40.8						DR-1
261+55	LT.	DRIVE ON HWY. 65	16	261+33	261+77	39.10	39.4	4.3	16.1						DR-1
262+95	RT.	DRIVE ON HWY. 65	16	262+73	263+17	39.10	132.0	14.5	53.9						DR-1
263+24	LT.	DRIVE ON HWY. 65	40	262+90	263+58	60.40	167.7	18.4	68.5						DR-1
265+70	LT.	DRIVE ON HWY. 65	30	265+41	265+99	51.60	113.3	12.5	46.3						DR-1
266+31	RT.	DRIVE ON HWY. 65	16	266+09	266+53	39.10	35.3	3.9	14.4						DR-1
266+75	RT.	DRIVE ON HWY. 65	16	266+53	266+97	39.10	51.9	5.7	21.2						DR-1
268+13	RT.	DRIVE ON HWY. 65	16	267+91	268+35	39.10	82.0	9.0	33.5						DR-1
268+84	LT.	DRIVE ON HWY. 65	40	268+50	269+18	60.40	91.8	10.1	37.5						DR-1
269+61	RT.	DRIVE ON HWY. 65	16	269+39	269+83	39.10	61.4	6.8	25.1						DR-1
269+76	LT.	DRIVE ON HWY. 65	40	269+42	270+10	60.40	33.2	3.7	13.6						DR-1
270+45	RT.	DRIVE ON HWY. 65	30	270+16	270+74	51.60	62.0	6.8	25.3						DR-1
271+08	LT.	DRIVE ON HWY. 65	40	270+74	271+42	60.40	35.2	3.9	14.4						DR-1
271+87	RT.	DRIVE ON HWY. 65	40	271+53	272+21	60.40	128.8	14.2	52.6						DR-1
271+92	LT.	DRIVE ON HWY. 65	40	271+58	272+26	60.40	110.7	12.2	45.2						DR-1
273+32	RT.	DRIVE ON HWY. 65	40	272+98	273+66	60.40	37.9	4.2	15.5						DR-1
273+73	LT.	DRIVE ON HWY. 65	40	273+39	274+07	60.40	44.9	4.9	18.3						DR-1
274+40	LT.	DRIVE ON HWY. 65	24	274+14	274+66	46.20	49.3	5.4	20.1						DR-1
274+78	RT.	DRIVE ON HWY. 65	40	274+44	275+12	98.40									DR-1
276+12	LT.	DRIVE ON HWY. 65	40	275+78	276+46	60.40	82.8	9.1	33.8						DR-1
276+50	RT.	DRIVE ON HWY. 65	40	276+16	276+84	60.40	38.4	4.2	15.7						DR-1
280+11	LT.	DRIVE ON HWY. 65	16	279+89	280+33	84.10									DR-1
280+67	RT.	DRIVE ON HWY. 65	40	280+33	281+01	236.60									DR-1
281+63	RT.	DRIVE ON HWY. 65	30	281+34	281+92	51.60	131.5	14.5	53.7						DR-1
282+81	LT.	DRIVE ON HWY. 65	16	282+59	283+03	39.10	42.3	4.7	17.3						DR-1
284+40	RT.	DRIVE ON HWY. 65	16	284+18	284+62	39.10	93.3	10.3	38.1	40					DR-1, PCC-1, PCM-1, PCP-1, PCP-2
284+95	LT.	DRIVE ON HWY. 65	16	284+73	285+17	39.10	51.3	5.6	20.9	28					DR-1, PCC-1, PCM-1, PCP-1, PCP-2
286+54	RT.	DRIVE ON HWY. 65	16	286+32	286+76	39.10	50.3	5.5	20.5	28					DR-1, PCC-1, PCM-1, PCP-1, PCP-2
288+47	LT.	DRIVE ON HWY. 65	20	288+23	288+71	42.70	79.0	8.7	32.3	36					DR-1, PCC-1, PCM-1, PCP-1, PCP-2
289+56	RT.	DRIVE ON HWY. 65	16	289+34	289+78	39.10	32.3	3.6	13.2				28		DR-1, PCC-1, PCM-1, PCP-1, PCP-2
290+64	RT.	DRIVE ON HWY. 65	16	290+42	290+86	39.10	45.5	5.0	18.6						DR-1
290+92	LT.	DRIVE ON HWY. 65	20	290+68	291+16	42.70	58.4	6.4	23.8						DR-1
292+79	LT.	DRIVE ON HWY. 65	20	292+55	293+03	42.70	49.1	5.4	20.0						DR-1
293+46	RT.	DRIVE ON HWY. 65	16	293+24	293+68	39.10	38.1	4.2	15.6						DR-1
294+47	LT.	DRIVE ON HWY. 65	20	294+23	294+71	42.70	52.3	5.8	21.4						DR-1
297+00	RT.	DRIVE ON HWY. 65	16				95.8	10.5	39.1		138				PCC-1, PCM-1, PCP-1, PCP-2
304+12	RT.	DRIVE ON HWY. 65	16				58.9	6.5	24.1				28		PCC-1, PCM-1, PCP-1, PCP-2
507+14	RT.	DRIVE ON HWY. 92	22	506+89	507+39	44.40	69.6	7.7	28.4						DR-1
507+54	LT.	DRIVE ON HWY. 92	16	507+32	507+76	39.10	59.6	6.6	24.3						DR-1
508+71	LT.	DRIVE ON HWY. 92	16	508+49	508+93	39.10	67.8	7.5	27.7						DR-1
509+71	RT.	DRIVE ON HWY. 92	40	509+37	510+05	60.40	238.0	26.2	97.2						DR-1
512+66	RT.	DRIVE ON HWY. 92	24	512+40	512+92	46.20	69.5	7.6	28.4						DR-1
513+46	LT.	DRIVE ON HWY. 92	40	513+12	513+80	60.40	151.6	16.7	61.9						DR-1
514+21	RT.	DRIVE ON HWY. 92	24	513+95	514+47	46.20	62.6	6.9	25.6						DR-1
514+84	RT.	DRIVE ON HWY. 92	24	514+58	515+10	46.20	62.8	6.9	25.6						DR-1
515+24	RT.	DRIVE ON HWY. 92	18	515+01	515+47	87.90									DR-1
* ENTIRE PROJECT TEMPORARY DRIVES									1200.0						
SUBTOTALS (BOX 1 OF 2):						724.00	7842.1	862.3	3202.3	1696	554		56	4	
SUBTOTALS (BOX 2 OF 2):						2412.20	4082.2	449.3	2867.0	206	198	42	56		
TOTALS:						**3136.20**	**11924.3**	**1311.6**	**6069.3**	**1902**	**752**	**42**	**112**	**4**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.4% MIN. AGGR.....5.6% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

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** FOR INFORMATION ONLY

NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

9/10/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	68	232

(2) QUANTITIES

BASE AND SURFACING (BOX 1 OF 2)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")											
				TON / STATION	TON	AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	PG 76-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	PG 76-22	TOTAL PG 70-22	TOTAL PG 76-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON	FEET			TON	TON		
MAIN LANES																													
107+50.00	108+50.00	HWY. 65 TRANSITION	100.00			59.00	655.56	0.03	19.67														59.00	655.56	220.00	72.11		72.11	
108+50.00	111+65.00	HWY. 65 N&W LT. (OS)	315.00	130.00	409.50	85.19	2981.65	0.03	89.45	8.21	287.35	440.00	63.22	7.98	279.30	330.00	46.08	7.88	275.80	220.00	30.34		75.00	2625.00	220.00	288.75		319.09	
111+65.00	119+20.00	HWY. 65 N&W LT. (OS)	755.00	150.25	1134.39	95.69	8027.33	0.03	240.82	13.46	1129.14	440.00	248.41	13.23	1109.85	330.00	183.13	13.13	1101.46	220.00	121.16		75.00	6291.67	220.00	692.08		813.24	
119+20.00	124+70.00	HWY. 65 N&W BOTH SIDES (OS)	550.00	278.00	1529.00	104.84	6406.89	0.03	192.21	21.50	1313.89	440.00	289.06	20.69	1264.39	330.00	208.62	20.48	1251.56	220.00	137.67		75.00	4583.33	220.00	504.17		641.84	
124+70.00	187+20.00	HWY. 65 N&W BOTH SIDES (OS)	6250.00	300.50	18781.25	116.38	80819.44	0.03	2424.58	26.92	18694.44	440.00	4112.78	26.46	18375.00	330.00	3031.88	26.25	18229.17	220.00	2005.21		75.00	52083.33	220.00	5729.17		7734.38	
187+20.00	192+50.00	HWY. 65 N&W BOTH SIDES (OS)	530.00	277.50	1470.75	104.36	6145.64	0.03	184.37	20.91	1231.37	440.00	270.90	20.45	1204.28	330.00	198.71	20.24	1191.91	220.00	131.11		75.00	4416.67	220.00	485.83		616.94	
192+50.00	194+25.00	HWY. 65 N&W BOTH SIDES (OS)	175.00	253.75	444.06	92.34	1795.50	0.03	53.87	14.90	289.72	440.00	63.74	14.44	280.78	330.00	46.33	14.23	276.69	220.00	30.44		75.00	1458.33	220.00	160.42		190.86	
194+25.00	197+50.00	HWY. 65 N&W BOTH SIDES (OS)	325.00	234.25	761.31	82.30	2971.94	0.03	89.16	9.88	356.78	440.00	78.49	9.42	340.17	330.00	56.13	9.21	332.58	220.00	36.58		75.00	2708.33	220.00	297.92		334.50	
197+50.00	200+50.00	HWY. 65 N&W BOTH SIDES (OS)	300.00	215.00	645.00	72.38	2412.67	0.03	72.38	4.92	164.00	440.00	36.08	4.46	148.67	330.00	24.53	4.25	141.67	220.00	15.58		75.00	2500.00	220.00	275.00		290.58	
200+50.00	203+50.00	HWY. 65 N&W BOTH SIDES (OS)	300.00	235.25	705.75	82.76	2758.67	0.03	82.76	10.11	337.00	440.00	74.14	9.65	321.67	330.00	53.08	9.44	314.67	220.00	34.61		75.00	2500.00	220.00	275.00		309.61	
203+50.00	238+00.00	HWY. 65 N&W BOTH SIDES (OS)	3450.00	255.75	8823.38	93.29	35761.17	0.03	1072.84	15.37	5891.83	440.00	1296.20	14.91	5715.50	330.00	943.06	14.71	5638.83	220.00	620.27		75.00	28750.00	220.00	3162.50		3782.77	
238+00.00	245+85.00	HWY. 65 N&W BOTH SIDES (OS)	785.00	277.00	2174.45	104.18	9086.81	0.03	272.60	20.82	1815.97	440.00	399.51	20.36	1775.84	330.00	293.01	20.15	1757.53	220.00	193.33		75.00	6541.67	220.00	719.58		912.91	
245+85.00	248+30.00	HWY. 65 N&W BOTH SIDES (OS)	245.00	315.75	773.59	124.12	3378.82	0.03	101.36	30.79	838.17	440.00	184.40	30.33	825.65	330.00	136.23	30.12	819.93	220.00	90.19		75.00	2041.67	220.00	224.58		314.77	
248+30.00	255+40.00	HWY. 65 FULL DEPTH (OS)	710.00	444.50	3155.95	190.46	15025.18	0.03	450.76	63.75	5029.17	440.00	1106.42	63.46	5006.29	330.00	826.04	63.25	4989.72	220.00	548.87		75.00	5916.67	220.00	650.83		1199.70	
255+40.00	255+90.34	HWY. 65 N&W BOTH SIDES (OS)	50.34	319.85	161.01	126.28	706.33	0.03	21.19	31.87	178.26	440.00	39.22	31.41	175.69	330.00	28.99	31.20	174.51	220.00	19.20		75.00	419.50	220.00	46.15		65.35	
256+00.00	258+16.00	HWY. 65 N&W BOTH SIDES (OS)	216.00	320.85	693.04	127.28	3054.72	0.03	91.64	32.87	788.88	440.00	173.55	32.41	777.84	330.00	128.34	32.20	772.80	220.00	85.01		76.00	1824.00	220.00	200.64		285.65	
258+16.00	259+00.00	HWY. 65 N&W BOTH SIDES (OS-CG)	84.00	258.50	217.14	136.35	1272.60	0.03	38.18	38.79	362.04	440.00	79.65	38.56	359.89	330.00	59.38	34.96	326.29	220.00		35.89	64.44	601.44	220.00		66.16		102.05
259+00.00	259+16.00	HWY. 65 N&W BOTH SIDES (OS-CG)	16.00	144.25	23.08	120.80	214.76	0.03	6.44	32.06	57.00	440.00	12.54	32.06	57.00	330.00	9.41	32.06	57.00	220.00		6.27	81.28	144.50	220.00		15.90		22.17
259+16.00	274+15.00	HWY. 65 N&W BOTH SIDES (CG)	1499.00	142.50	2136.08	119.32	19873.41	0.03	596.20	26.42	4400.40	440.00	968.09	31.66	5273.15	330.00	870.07	31.66	5273.15	220.00		580.05	56.00	9327.11	220.00		1025.98		1606.03
274+15.00	276+45.00	HWY. 65 N&W BOTH SIDES (CG)	230.00	122.25	281.18	108.84	2781.47	0.03	83.44	26.42	675.18	440.00	148.54	26.42	675.18	330.00	111.40	26.42	675.18	220.00		74.27	56.00	1431.11	220.00		157.42		231.69
276+45.00	279+75.00	HWY. 65 N&W BOTH SIDES (CG)	330.00	100.25	330.83	97.56	3577.20	0.03	107.32	20.78	761.93	440.00	167.62	20.78	761.93	330.00	125.72	20.78	761.93	220.00		83.81	56.00	2053.33	220.00		225.87		309.68
279+75.00	281+41.00	HWY. 65 N&W BOTH SIDES (CG)	166.00	115.00	190.90	105.14	1939.25	0.03	58.18	24.57	453.18	440.00	99.70	24.57	453.18	330.00	74.77	24.57	453.18	220.00		49.85	56.00	1032.89	220.00		113.62		163.47
281+41.00	282+16.00	HWY. 65 N&W RT. (CG)	75.00	117.75	88.31	111.50	929.17	0.03	27.88	27.75	231.25	440.00	50.88	27.75	231.25	330.00	38.16	27.75	231.25	220.00		25.44	56.00	466.67	220.00		51.33		76.77
282+16.00	285+00.00	HWY. 65 N&W RT. (CG)	284.00	162.00	460.08	129.26	4078.87	0.03	122.37	36.63	1155.88	440.00	254.29	36.63	1155.88	330.00	190.72	36.63	1155.88	220.00		127.15	56.00	1767.11	220.00		194.38		321.53
285+00.00	288+11.00	HWY. 65 N&W RT. (CG)	311.00	163.25	507.71	129.92	4489.46	0.03	134.68	36.96	1277.17	440.00	280.98	36.96	1277.17	330.00	210.73	36.96	1277.17	220.00		140.49	56.00	1935.11	220.00		212.86		353.35
288+11.00	288+66.00	HWY. 65 N&W RT. (CG)	55.00	134.00	73.70	114.86	701.92	0.03	21.06	29.43	179.85	440.00	39.57	29.43	179.85	330.00	29.68	29.43	179.85	220.00		19.78	56.00	342.22	220.00		37.64		57.42
288+66.00	295+00.00	HWY. 65 N&W BOTH SIDES (CG)	634.00	144.00	912.96	120.04	8456.15	0.03	253.68	32.02	2255.63	440.00	496.24	32.02	2255.63	330.00	372.18	32.02	2255.63	220.00		248.12	56.00	3944.89	220.00		433.94		682.06
295+00.00	296+00.00	HWY. 65 N&W BOTH SIDES (CG-OS)	100.00	262.25	262.25	141.25	1569.44	0.03	47.08	39.74	441.56	440.00	97.14	39.51	439.00	330.00	72.44	39.41	437.89	220.00		48.17	63.50	705.56	220.00		77.61		125.78
296+00.00	298+80.00	HWY. 65 N&W BOTH SIDES (OS)	280.00	348.50	975.80	140.98	4386.04	0.03	131.58	39.22	1220.18	440.00	268.44	38.76	1205.87	330.00	198.97	38.55	1199.33	220.00	131.93		75.00	2333.33	220.00	256.67		388.60	
298+80.00	308+20.00	HWY. 65 N&W FULL DEPTH (OS)	940.00	444.50	4178.30	190.46	19892.49	0.03	596.77	63.75	6658.33	440.00	1464.83	63.46	6628.04	330.00	1093.63	63.25	6606.11	220.00	726.67		75.00	7833.33	220.00	861.67		1588.34	
308+20.00	312+00.00	HWY. 65 N&W BOTH SIDES (OS)	380.00	305.50	1160.90	118.95	5022.33	0.03	150.67	28.20	1190.67	440.00	261.95	27.74	1171.24	330.00	193.25	27.54	1162.80	220.00	127.91		75.00	3166.67	220.00	348.33		476.24	
312+00.00	313+00.00	HWY. 65 TRANSITION	100.00			47.50	527.78	0.03	15.83														47.50	527.78	220.00	58.06		58.06	
ADDITIONAL FOR LEVELING																													
108+50.00	111+65.00	HWY. 65 LEVELING (OS)	315.00			53.25	1863.75	0.10	186.38									53.25	1863.75	220.00	205.01							205.01	
111+65.00	119+20.00	HWY. 65 LEVELING (OS)	755.00			48.00	4026.67	0.10	402.67									48.00	4026.67	220.00	442.93							442.93	
119+20.00	124+70.00	HWY. 65 LEVELING (OS)	550.00			43.00	2627.78	0.10	262.78									43.00	2627.78	220.00	289.06							289.06	
124+70.00	187+20.00	HWY. 65 LEVELING (OS)	6250.00			37.00	25694.44	0.10	2569.44									37.00	25694.44	220.00	2826.39							2826.39	
187+20.00	192+50.00	HWY. 65 LEVELING (OS)	530.00			43.00	2532.22	0.10	253.22									43.00	2532.22	220.00	278.54							278.54	
192+50.00	194+25.00	HWY. 65 LEVELING (OS)	175.00			49.00	952.78	0.10	95.28									49.00	952.78	220.00	104.81							104.81	
194+25.00	197+50.00	HWY. 65 LEVELING (OS)	325.00			54.00	1950.00	0.10	195.00									54.00	1950.00	220.00	214.50							214.50	
197+50.00	200+50.00	HWY. 65 LEVELING (OS)	300.00			59.00	1966.67	0.10	196.67									59.00	1966.67	220.00	216.33							216.33	
200+50.00	203+50.00	HWY. 65 LEVELING (OS)	300.00			53.75	1791.67	0.10	179.17									53.75	1791.67	220.00	197.08							197.08	
203+50.00	238+00.00	HWY. 65 LEVELING (OS)	3450.00			48.50	18591.67	0.10	1859.17									48.50	18591.67	220.00	2045.08							2045.08	
238+00.00	245+85.00	HWY. 65 LEVELING (OS)	785.00			42.50	3706.94	0.10	370.69									42.50	3706.94	220.00	407.76							407.76	
245+85.00	248+30.00	HWY. 65 LEVELING (OS)	245.00			32.25	877.92	0.10	87.79									32.25	877.92	220.00	96.57							96.57	
255+40.00	255+90.34	HWY. 65 LEVELING (OS)	50.34			31.00	173.39	0.10	17.34									31.00	173.39	220.00	19.07							19.07	
256+00.00	258+16.00	HWY. 65 LEVELING (OS)	216.00			31.00	744.00	0.10	74.40									31.00	744.00	220.00	81.84							81.84	
258+16.00	259+00.00	HWY. 65 LEVELING (CG)	84.00			26.00	242.67	0.10	24.27									26.00	242.67	220.00	26.69							26.69	
259+00.00	259+16.00	HWY. 65 LEVELING (CG)	16.00			49.25	87.56	0.10	8.76									49.25	87.56	220.00		9.63							9.63
259+16.00	274+15.00	HWY. 65 LEVELING (CG)	1499.00			24.25	4038.97	0.10	403.90									24.25	4038.97	220.00		444.29							444.29
274+15.00	276+45.00	HWY. 65 LEVELING (CG)	230.00			59.25	1514.17	0.10	151.42									59.25	1514.17	220.00		166.56							166.56
276+45.00	279+75.00	HWY. 65 LEVELING (CG)	330.00			35.25	1292.50	0.10	129.25									35.25	1292.50	220.00		142.18							142.18
279+75.00	281+41.00	HWY. 65 LEVELING (CG)	166.00			31.50	581.00	0.10	58.10									31.50	581.00	220.00		63.91							63.91
281+41.00	282+16.00	HWY. 65 LEVELING (CG)	75.00			26.25	218.75	0.10	21.88									26.25	218.75	220.00		24.06							24.06
282+16.00	288+11.00	HWY. 65 LEVELING (CG)	595.00			19.25	1272.64	0.10	127.26									19.25	1272.64	220.00		139.99							139.99
288+11.00	288+66.00	HWY. 65 LEVELING (CG)	55.00			24.50	149.72	0.10	14.97									24.50	149.72	220.00		16.47							16.47
288+66.00	295+00.00	HWY. 65 LEVELING (CG)	634.00			21.00	1479.33	0.10	147.93									21.00	1479.33	220.00		162.73							162.73
295+00.00	298+80.00	HWY. 65 LEVELING (CG)	380.00			24.00	1013.33	0.10	101.33									24.00	1013.33	220.00		111.47							111.47
308+20.00	312+00.00	HWY. 65 LEVELING (OS)	380.00			35.73	1508.60	0.10	150.86									35.73	1508.60	220.00	165.95							165.95	
ADDITIONAL FOR GRADE RAISE																													
170+84.00	177+70.00	HWY. 65	686.00			VAR.	3687.00	0.03	110.61	VAR.	1638.00	198.33	162.43	VAR.	2048.56	252.09	258.21	VAR.	2741.87	174.77	239.60							239.60	
192+30.00	199+79.00	HWY. 65	749.00			VAR.	3365.50	0.03	100.97					VAR.	3365.50	141.63	238.33	VAR.	4575.25	174.98	400.29							400.29	
239+00.00	248+30.00	HWY. 65	930.00			VAR.	7515.25	0.03	225.46	VAR.	3757.62	1031.87	1938.69	VAR.	3757.62	300.73	565.01	VAR.	4276.12	219.25	468.77							468.77	
255+40.00	298+80.00	HWY. 65	4340.00			VAR.	17858.45	0.03	535.75	VAR.	6862.16	339.63	1165.30	VAR.	10518.32	202.52	1065.11	VAR.	11726.27	215.65	1264.39							1264.39	
308+20.00	312+00.00	HWY. 65	380.00			VAR.	3016.00	0.03	90.48	VAR.	1507.99	238.45	179.79	VAR.	1507.99	313.48	236.36	VAR.	1507.99	220.00	165.88							165.88	
506+00.00	511+00.00	HWY. 92	500.00			VAR.	1333.28	0.03	40.00	VAR.	546.00	707.55	193.16	VAR.	787.00	215.43	84.77	VAR.	1283.17	160.65	103.07							103.07	
511+00.00	516+50.00	HWY. 92	550.00			VAR.	2238.12	0.03	67.14	VAR.	1119.06	443.12	247.94	VAR.	1119.06	220.70	123.49	VAR.	1474.00	189.46	139.63							139.63	
SUBTOTALS:					53461.65		381613.40		17111.36		75097.05		17013.89		82829.23		12425.95		167805.28		15485.32	2720.58		162928.78		15309.46	2612.71	30794.78	5333.29

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.4% MIN. AGGR.....5.6% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.0% MIN. AGGR.....4.0% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

9/10/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	69	232

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

BASE AND SURFACING (BOX 2 OF 2)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")											
				TON / STATION	TON	AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	PG 76-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	PG 76-22	TOTAL PG 70-22	TOTAL PG 76-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON	FEET			TON	TON	TON	TON
ADDITIONAL FOR SUPERELEVATION																													
108+50.00	109+48.18	SUPER TRAN. LT. SHLD. ONLY (4.5%-5.5%)	98.18	26.00	25.53																								
109+48.18	118+55.10	MAX SUPER LT. SHLD. ONLY (5.5%)	906.92	28.75	260.74																								
118+55.10	123+95.10	SUPER TRANSITION (5.5%-N.C.)	540.00	45.25	244.35																								
238+88.43	244+28.43	SUPER TRANSITION (N.C.-6.7%)	540.00	54.00	291.60																								
244+28.43	254+31.83	MAX SUPER (6.7%)	1003.40	107.75	1081.16																								
254+31.83	255+09.34	SUPER TRANSITION (6.7%-N.C.)	77.51	54.00	41.86																								
256+00.00	259+81.49	SUPER TRANSITION (6.7%-N.C.)	381.49	55.00	209.82																								
ADDITIONAL FOR STAGE CONSTRUCTION																													
0+00	5+17.90	ADD. WIDENING FOR STAGE 1 (VAR.)	517.90	VAR.	525.75	VAR.	812.81	0.03	24.38					VAR.	812.81	440.00	178.82	VAR.	810.41	220.00	89.15							89.15	
35+00.00	47+56.00	ADD. WIDENING FOR STAGE 2 (VAR.)	1256.00	VAR.	1518.75	VAR.	2437.63	0.03	73.13					VAR.	2437.63	440.00	536.28	VAR.	2431.81	220.00	267.50							267.50	
HWY. 92																													
505+00.00	506+00.00	TRANSITION	100.00			29.00	322.22	0.03	9.67														29.00	322.22	220.00		35.44		35.44
506+00.00	508+32.00	N&W BOTH SIDES (CG)	232.00	65.25	151.38	57.58	1484.28	0.03	44.53	11.79	303.92	440.00	66.86	11.79	303.92	330.00	50.15	11.79	303.92	220.00		33.43	34.00	876.44	220.00		96.41		129.84
508+32.00	509+52.00	N&W BOTH SIDES (CG)	120.00	75.00	90.00	66.56	887.47	0.03	26.62	14.28	190.40	440.00	41.89	14.28	190.40	330.00	31.42	14.28	190.40	220.00		20.94	38.00	506.67	220.00		55.73		76.67
509+52.00	510+76.22	INTERSECTION	124.22	VAR.	245.00	VAR.	1837.50	0.03	55.13	VAR.	612.50	440.00	134.75	VAR.	612.50	330.00	101.06	VAR.	612.50	220.00		67.38	VAR.	612.50	220.00		67.38		134.76
511+36.34	512+39.00	INTERSECTION	102.66	VAR.	228.50	VAR.	1719.39	0.03	51.58	VAR.	573.13	440.00	126.09	VAR.	573.13	330.00	94.57	VAR.	573.13	220.00		63.04	VAR.	573.13	220.00		63.04		126.08
512+39.00	513+04.00	N&W BOTH SIDES (CG)	65.00	77.50	50.38	66.17	477.89	0.03	14.34	14.91	107.68	440.00	23.69	14.91	107.68	330.00	17.77	14.91	107.68	220.00		11.84	36.35	262.53	220.00		28.88		40.72
513+04.00	516+38.00	N&W BOTH SIDES (CG)	334.00	69.50	232.13	59.68	2214.79	0.03	66.44	12.84	476.51	440.00	104.83	12.84	476.51	330.00	78.62	12.84	476.51	220.00		52.42	34.00	1261.78	220.00		138.80		191.22
516+38.00	518+05.00	N&W BOTH SIDES (OS)	167.00	171.75	286.82	54.40	1009.42	0.03	30.28	11.43	212.09	440.00	46.66	10.97	203.55	330.00	33.59	10.76	199.66	220.00		21.96	36.00	668.00	220.00		73.48		95.44
SIDE STREETS																													
268+12.00		RECORD LOOP	73.00	VAR.	104.83	VAR.	585.22	0.03	17.56	VAR.	197.15	440.00	43.37	VAR.	195.07	330.00	32.19	VAR.	194.13	220.00		21.35	VAR.	193.00	220.00		21.23		42.58
282+55.00		HAPPY HOLLOW ROAD	69.00	VAR.	104.92	VAR.	582.29	0.03	17.47	VAR.	196.19	440.00	43.16	VAR.	194.10	330.00	32.03	VAR.	193.14	220.00		21.25	VAR.	192.00	220.00		21.12		42.37
295+12.00		WALNUT VALLEY DRIVE	84.00	VAR.	185.62	VAR.	1014.56	0.03	30.44	VAR.	342.38	440.00	75.32	VAR.	338.19	330.00	55.80	VAR.	336.28	220.00		36.99	VAR.	334.00	220.00		36.74		73.73
516+38.00		STONE LANE	22.53	VAR.	41.20	VAR.	224.65	0.03	6.74	VAR.	75.76	440.00	16.67	VAR.	74.88	330.00	12.36	VAR.	74.48	220.00		8.19	VAR.	74.00	220.00		8.14		16.33
SUBTOTALS (BOX 1 OF 2):					53461.65		381613.40		17111.36		75097.05		17013.89		82829.23		12425.95		167805.28		15485.32	2720.58		162928.78		15309.46	2612.71	30794.78	5333.29
SUBTOTALS (BOX 2 OF 2):					5920.34		15610.12		468.31		3287.71		723.29		6520.37		1254.66		6504.05		356.65	358.79		5876.27			646.39	356.65	1005.18
TOTALS:					**59381.99**		**397223.52**		**17579.67**		**78384.76**		**17737.18**		**89349.60**		**13680.61**		**174309.33**		**15841.97**	**3079.37**		**168805.05**		**15309.46**	**3259.10**	**31151.43**	**6338.47**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.4% MIN. AGGR.....5.6% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.0% MIN. AGGR.....4.0% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22

9/10/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	70	232

(2) SUMMARY OF QUANTITIES AND REVISIONS

SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		169	STATION
201	GRUBBING		169	STATION
202	REMOVAL AND DISPOSAL OF CURB		1174	LIN. FT.
202	REMOVAL AND DISPOSAL OF FENCE		14411	LIN. FT.
202	REMOVAL AND DISPOSAL OF CONCRETE SLABS		122	SQ. YD.
202	REMOVAL AND DISPOSAL OF CONCRETE ISLANDS		4	SQ. YD.
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS		997	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS		2	EACH
202	REMOVAL AND DISPOSAL OF DROP INLETS		3	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		106	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL		792	LIN. FT.
202	REMOVAL AND DISPOSAL OF SIGNS		18	EACH
210	UNCLASSIFIED EXCAVATION		70038	CU. YD.
210	COMPACTED EMBANKMENT		108874	CU. YD.
SP & 210	SOIL STABILIZATION		400	TON
303	AGGREGATE BASE COURSE (CLASS 7)		65451	TON
309	PORTLAND CEMENT CONCRETE BASE (6" UNIFORM THICKNESS)		65	SQ. YD.
309	PORTLAND CEMENT CONCRETE BASE (9" UNIFORM THICKNESS)		29	SQ. YD.
401	TACK COAT		17780	GAL.
SP & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")		17028	TON
SP & 405	ASPHALT BINDER (PG 70-22) IN ACHM BASE COURSE (1 1/2")		709	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		13079	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")		602	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		36630	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		73	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")		1744	TON
SP, SS, & 407	ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2")		355	TON
412	COLD MILLING ASPHALT PAVEMENT		1544	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		100	TON
SP & 415	ACHM PATCHING OF EXISTING ROADWAY		100	TON
505	PORTLAND CEMENT CONCRETE DRIVEWAY		3136.20	SQ. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
604	SIGNS		833	SQ. FT.
604	BARRICADES		144	LIN. FT.
604	TRAFFIC DRUMS		598	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		851	LIN. FT.
604	RELOCATING PRECAST CONCRETE BARRIER		3038	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS		121058	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		6635	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		2350	LIN. FT.
604	VERTICAL PANELS		251	EACH
605	CONCRETE DITCH PAVING (TYPE B)		3459	SQ. YD.
SP	CULVERT CLEAN OUT		9	EACH
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		240	LIN. FT.
* 606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	4375	LIN. FT.
* 606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	4375	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		227	LIN. FT.
* 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	93	LIN. FT.
* 606	24" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	93	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)		172	LIN. FT.
606	12" SIDE DRAIN		300	LIN. FT.
SP & 606	18" SIDE DRAIN		1902	LIN. FT.
SP & 606	24" SIDE DRAIN		752	LIN. FT.
SP & 606	42" SIDE DRAIN		42	LIN. FT.
606	22" X 14" SIDE DRAIN		112	LIN. FT.
606	24" SAFETY END SECTIONS FOR SIDE DRAIN PIPE CULVERTS (CLASS 1)		4	EACH
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		9	EACH
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		6	EACH
606	SELECTED PIPE BEDDING		570	CU. YD.
609	DROP INLETS (TYPE MO)		38	EACH
609	JUNCTION BOXES (TYPE E)		4	EACH
609	DROP INLET EXTENSIONS (4')		27	EACH
609	DROP INLET EXTENSIONS (8')		10	EACH
609	YARD DRAINS		3	EACH
611	UNDERDRAIN OUTLET PROTECTORS		23	EACH
611	4" PIPE UNDERDRAINS		5020	LIN. FT.
615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)		108.6	CU. YD.
619	WIRE FENCE (TYPE D)		1530	LIN. FT.
619	WIRE FENCE (TYPE D-1)		10152	LIN. FT.
619	WIRE FENCE (TYPE D-2)		82	LIN. FT.
* 619	4' STEEL CHAIN LINK FENCE	(ALTERNATE NO. 1)	118	LIN. FT.
* 619	4' ALUMINUM CHAIN LINK FENCE	(ALTERNATE NO. 2)	118	LIN. FT.
* 619	16' STEEL GATES	(ALTERNATE NO. 1)	3	EACH
* 619	16' ALUMINUM GATES	(ALTERNATE NO. 2)	3	EACH
620	LIME		53	TON
620	SEEDING		26.48	ACRE
SS & 620	MULCH COVER		80.48	ACRE
620	WATER		3862.0	M.GAL.
621	TEMPORARY SEEDING		54.00	ACRE
621	SILT FENCE		16545	LIN. FT.
621	SAND BAG DITCH CHECKS		2552	BAG
621	DROP INLET SILT FENCE		1100	LIN. FT.
621	SEDIMENT BASIN		5796	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		5796	CU. YD.

* DENOTES ALTERNATE BID ITEMS.

SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
621	SEDIMENT REMOVAL AND DISPOSAL	6792	CU. YD.
621	ROCK DITCH CHECKS	414	CU. YD.
621	WATTLE (12")	1008	LIN. FT.
623	SECOND SEEDING APPLICATION	26.48	ACRE
624	SOLID SODDING	4725	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	3111	SQ. YD.
633	CONCRETE WALKS	3634	SQ. YD.
633	CONCRETE WALKS (TYPE SPECIAL)	150	SQ. YD.
634	CONCRETE CURB (TYPE B)	94	LIN. FT.
634	CONCRETE CURB (TYPE D)	1372	LIN. FT.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")	7436	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	44	EACH
637	MAILBOX SUPPORTS (SINGLE)	44	EACH
641	WHEELCHAIR RAMPS (TYPE 2)	21	SQ. YD.
641	WHEELCHAIR RAMPS (TYPE 3)	66	SQ. YD.
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	11011	LIN. FT.
SP & 701	ACTUATED CONTROLLER TS 2-TYPE 2 (8 PHASES)	1	EACH
703	FLASHING BEACON CONTROLLER	1	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	12	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	4	EACH
SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	8	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	3122	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	284	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	628	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., EGC)	802	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., EGC)	205	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	20	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	822	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (2")	20	LIN. FT.
710	NON-METALLIC CONDUIT (3")	819	LIN. FT.
711	CONCRETE PULL BOX (TYPE 1 HD)	1	EACH
711	CONCRETE PULL BOX (TYPE 2 HD)	8	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (42')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (52')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (56')	1	EACH
SP	LUMINAIRE ASSEMBLY	4	EACH
715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	5	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	42925	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	600	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (24")	155	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	50840	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	7	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	7	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)	875	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER	3	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	3	EACH
SP & 733	VIDEO DETECTOR (CLR)	9	EACH
733	VIDEO CABLE	1812	LIN. FT.
733	VIDEO MONITOR (CLR)	1	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	5	EACH
SP & 733	VIDEO EDGE CARD EXTENDER	2	EACH
SP & 733	VEHICLE DETECTOR RACK (24 CHANNEL)	1	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	225	CU. YD.
802	CLASS S CONCRETE-ROADWAY	344.89	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	35691	POUND
816	FILTER BLANKET	173	SQ. YD.
816	DUMPED RIPRAP	87	CU. YD.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-14

REVISIONS

DATE	REVISION	SHEET NUMBER

9/15/2014

R080391.DGN

SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	71	232

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES
Project Name: 080391
Date: 9/12/2014
Coordinate System: Arkansas State Plane Coordinates
Based on AHTD GPS PTS : *710009 & 710010*
Projected to Ground Coordinates
Units: U.S. Survey Foot

COORDINATES LISTED BELOW ARE GROUND (Localized) COORDINATES !!!!

Point No.	Northing	SY	Easting	SX	Elevation	SZ	Feature Code	Point Description
1	389704.0466	0.0040	1195372.4769	0.0050	659.98	0.006	CTL	PD:AHTD STD. MONUMENT STAMPED PN:1
2	390602.6263	0.0050	1195874.8203	0.0040	660.19	0.006	CTL	PD:AHTD STD. MONUMENT STAMPED PN:2
3	391475.7667	0.0040	1196078.4732	0.0030	693.18	0.006	CTL	PD:AHTD STD. MONUMENT STAMPED PN:3
4	392389.8468	0.0050	1196099.5150	0.0050	695.54	0.006	CTL	PD:AHTD STD. MONUMENT STAMPED PN:4
5	393255.3830	0.0070	1196122.1791	0.0060	711.32	0.006	CTL	PD:AHTD STD. MONUMENT STAMPED PN:5
6	394125.9572	0.0080	1196170.2859	0.0060	727.98	0.005	CTL	PD:AHTD STD. MONUMENT STAMPED PN:6
7	395103.2096	0.0050	1196170.4962	0.0030	728.67	0.005	CTL	PD:AHTD STD. MONUMENT STAMPED PN:7
8	396009.1443	0.0040	1196193.1200	0.0030	747.08	0.005	CTL	PD:AHTD STD. MONUMENT STAMPED PN:8
9	396582.9470	0.0030	1196236.5584	0.0040	751.94	0.005	CTL	PD:AHTD STD. MONUMENT STAMPED PN:9
10	397522.3012	0.0060	1196259.6916	0.0060	747.97	0.004	CTL	PD:AHTD STD. MONUMENT STAMPED PN:10
11	398422.2761	0.0040	1196253.9879	0.0040	756.05	0.004	CTL	PD:AHTD STD. MONUMENT STAMPED PN:11
12	399373.5253	0.0010	1196289.2674	0.0010	755.26	0.003	CTL	PD:AHTD STD. MONUMENT STAMPED PN:12
13	400293.3675	0.0030	1196298.3195	0.0030	778.35	0.003	CTL	PD:AHTD STD. MONUMENT STAMPED PN:13
14	401265.0998	0.0020	1196321.5595	0.0020	795.22	0.003	CTL	PD:AHTD STD. MONUMENT STAMPED PN:14
15	402192.0090	0.0030	1196345.7490	0.0040	819.46	0.002	CTL	PD:AHTD STD. MONUMENT STAMPED PN:15
16	403067.5010	0.0030	1196381.4262	0.0030	827.37	0.001	CTL	PD:AHTD STD. MONUMENT STAMPED PN:16
17	403496.4370	0.0030	1196308.9484	0.0020	825.55	0.000	CTL	PD:AHTD STD. MONUMENT STAMPED PN:17
18	404255.0601	0.0060	1196316.5290	0.0060	794.20	0.002	CTL	PD:AHTD STD. MONUMENT STAMPED PN:18
19	404981.8523	0.0040	1196093.7527	0.0040	773.25	0.001	CTL	PD:AHTD STD. MONUMENT STAMPED PN:19
100	390795.0458	0.0001	1195753.1339	0.0001	675.06	0.006	GPS	PD:AHTD GPS # 710010
101	391179.4002	0.0050	1194078.7875	0.0040	675.88	0.007	GPS	PD:AHTD GPS # 710009
900	390467.6930	0.0060	1195833.2535	0.0040	655.49	0.006	TBM	PD:AHTD CAP SET IN S.END CON HEADWALL
901	394863.1394	0.0080	1196177.9787	0.0070	726.20	0.005	TBM	PD:CHISELED SQ.CNTR.E.HWY 65
902	399094.8320	0.0110	1196292.9540	0.0110	747.79	0.003	TBM	PD:CHISELED SQ.CNTR.E.HW HWY.65
903	402464.0666	0.0050	1196361.8625	0.0030	822.81	0.002	TBM	PD:CHISELED SQ.CNTR.24"RCP EAST END
904	405136.2756	0.0100	1195977.5248	0.0090	771.25	0.000	TBM	PD:AHTD DISK HDWL= TBM906 PD:JOB 080363

*Standard Primary Control Monument - Rebar and Cap - Standard - 5/8"x 24" Rebar with 2"Aluminum Cap stamped: "(include all common information here)" plus other markings indicated in the point description of the individual point. AHTD monuments will be stamped "Arkansas Hwy & Trans Dept" with "PN: ###" & "Job ######". Monuments that are set by Consultants will be stamped "Arkansas Hwy & Trans Dept" with "PN:###", "Job#######", & "PS#####". The consultant Professional Surveyor in charge will stamp his/her PS license number on the cap.

**Standard GPS Control Point Monument - 5/8" x 48" Rebar with 2.5"Aluminum Cap stamped: "(include all common information here)" plus other markings indicated in the point description of the individual point. These monuments will be stamped "Ark. State Hwy Trans. Dept.", "GPS Survey", & "Point No. #######".

SX, SY, SZ – Represents the standard error estimate of the coordinate values of each point at the 67% confidence level (one sigma) based on the least squares analysis of the control network. See the AASHTO SDMS Technical Data Guide data tag definition for SX:, SY:, and SZ: for additional information. These values shall be used when control points are added and the entire network is reprocessed using least square analysis. A value of 0.001 is defined as fixed (no adjustment) in the least square analysis process. A value of 30 is defined as location by handheld GPS device or scaled from USGS Quadmap.

Reference Control points (1500 series) shall be used to re-establish horizontal datum if the primary control has been destroyed. These reference control points shall not be used for vertical control unless the elevation has been established from the project datum with 3-wire level techiniques.

All additional project control shall be occupied, measured, and adjusted with direct survey ties to at least two of the control points listed in the table above. New survey control shall not be independent of the survey control listed above. This includes horizontal coordinates and elevations.

Positional Accuracy:
- Horizontal - GPS (1.0 cm± 1PPM) *PN: 100-101*
- Horizontal - Primary (2.0cm± 20PPM): *PN:1-19*
- Horizontal - Secondary (3 cm ± 50PPM): *PN:N/A*
- Vertical - NGS 1st Order (±4mm x √dist in km) *PN:N/A*
- Vertical - NGS 2nd Order (±6mm x √dist in km) *PN:N/A*
- Vertical - NGS 3rd Order (±8mm x √dist in km) *PN:N/A*

Horizontal Datum: NAD 1983 (1997) State Plane Zone: 0301 - North Zone
The adjustment year is based on metadata in the SDMS Control file
A project CAF of: 0.9999047538 has been used to compute the above coordinates.
The project CAF shall have a minimum precision of 9 digits right of the decimal.
This CAF is intended for use within the project limits only.
Grid Distance = Ground Distance X CAF
If Coordinates are listed as Ground:
To compute Grid Coordinates, multiply the Ground Coordinates by CAF about the origin of X=0 & Y=0
If Coordinates are listed as Grid:
To compute Ground Coordinates, divide the Grid Coordinates by CAF about the origin of X=0 & Y=0

Vertical Datum: NAVD 1988 based NGS BM: H 210 (JOB# 080363)
A project Elevation Factor of: 0.9999644520 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 743.19 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points: 1-19, 100-101 From NGS BM: H 210 ***NOTE: ELEVATION BASED ON TBM-906 & T-1 FROM JOB #080363 WHICH ARE BASED ON NGS POINT H 210***

Basis of Bearing: Grid Bearings based on AHTD GPS points: *710009 & 710010*
Convergence Angle is: 00 13 36.8 LEFT at PN: 12
LT: 35-15-17.07 N LG: 092-13-56.53 W
Grid Azimuth = Astronomical Azimuth - Convergence Angle

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

HWY. 65 CONSTRUCTION CENTERLINE

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	100+00.00	389750.0227	1195445.2163
8001	PC	108+69.62	390545.2281	1195797.1906
8003	PT	119+90.10	391631.4730	1196041.3950
8004	PI	154+61.02	395101.2493	1196130.1611
8005	PI	182+73.29	397912.6341	1196201.0407
8006	PI	194+36.84	399075.8162	1196230.0999
8007	PI	204+11.03	400049.7095	1196254.1609
8008	PI	213+48.87	400987.2453	1196278.0792
8009	PI	223+45.29	401983.3410	1196303.3212
8010	PI	231+74.01	402811.8000	1196324.3200
8011	PC	242+93.43	403930.8802	1196351.7534
8013	PT	255+66.83	405147.8503	1196036.7238
8014	PC	281+68.30	407382.6230	1194723.9782
8016	PT	288+75.93	407897.6777	1194246.7956
8017	PC	305+88.27	408874.9909	1192840.7512
8019	PT	316+58.02	409563.7707	1192024.2789
8020	POE	317+46.28	409626.7262	1191962.4125

HWY. 92 CONSTRUCTION CENTERLINE

POINT NO.	TYPE	STATION	NORTHING	EASTING
8021	POB	500+00.00	406865.1167	1193840.9824
8022	PC	501+64.02	406953.6690	1193979.0488
8024	PT	506+33.68	407083.1968	1194423.8151
8025	PC	510+12.60	407081.8667	1194802.7292
8027	PT	512+41.75	407126.2991	1195025.9763
8028	PI	516+36.09	407278.5647	1195389.7314
8029	POE	518+99.91	407377.3613	1195634.3598

MOT STAGE 1

POINT NO.	TYPE	STATION	NORTHING	EASTING
8030	POB	0+00.00	404794.0733	1196233.3553
8031	PC	1+87.22	404966.9946	1196161.5820
8033	PT	4+07.92	405154.6848	1196047.1533
8034	PC	4+21.56	405165.1015	1196038.3514
8036	PT	5+42.03	405263.2102	1195968.6851
8037	POE	5+52.10	405271.8848	1195963.5633

MOT STAGE 3-1

POINT NO.	TYPE	STATION	NORTHING	EASTING
8038	POB	10+00.00	403922.4304	1196352.5534
8039	PC	10+18.21	403940.6308	1196352.9755
8041	PT	11+78.92	404100.3771	1196338.7189
8042	PC	11+84.57	404105.9101	1196337.5903
8044	PT	12+66.81	404187.2562	1196325.8115
8045	POE	12+99.92	404220.2389	1196322.9552

MOT STAGE 3-2

POINT NO.	TYPE	STATION	NORTHING	EASTING
8046	POB	20+00.00	407393.2410	1194701.8781
8047	PC	21+76.39	407540.8558	1194605.3175
8049	PT	27+26.57	407932.9079	1194224.1440
8050	PC	34+27.84	408333.1554	1193648.3144
8052	PT	35+30.51	408397.5837	1193568.4934
8053	PC	35+53.67	408413.3803	1193551.5629
8055	PT	36+56.33	408477.8085	1193471.7419
8056	PC	43+94.90	408899.3446	1192865.2848
8058	PT	44+07.39	408906.5625	1192855.0913
8059	PC	46+25.31	409034.0431	1192678.3457
8061	PT	47+27.91	409087.9043	1192591.1295
8062	PC	47+69.50	409107.1684	1192554.2715
8064	PT	49+26.37	409194.4152	1192424.2814
8065	POE	50+12.85	409250.1752	1192358.1662

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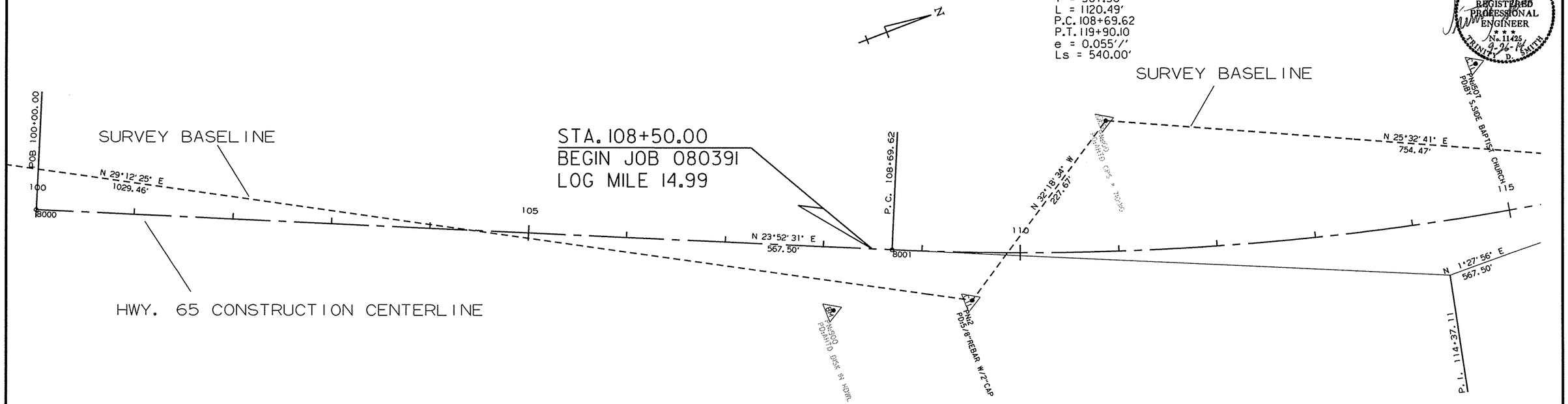
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	72	232

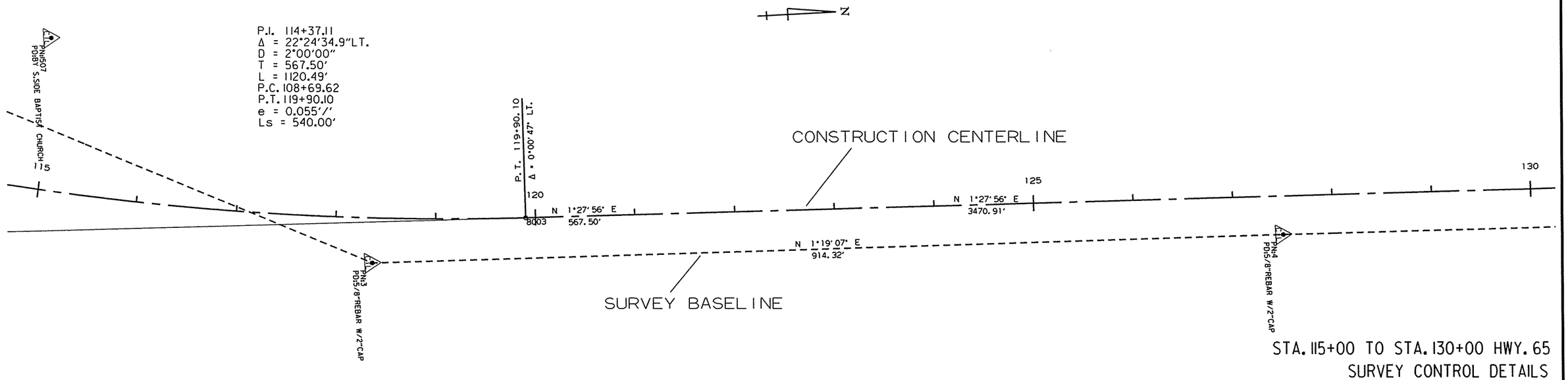
(2) SURVEY CONTROL DETAILS

P.I. 114+37.11
Δ = 22°24'34.9"LT.
D = 2°00'00"
T = 567.50
L = 1120.49'
P.C. 108+69.62
P.T. 119+90.10
e = 0.055'/'
Ls = 540.00'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
9-26-14
TRINITY D. SMITH



STA. 100+00 TO STA. 115+00 HWY. 65



STA. 115+00 TO STA. 130+00 HWY. 65
SURVEY CONTROL DETAILS

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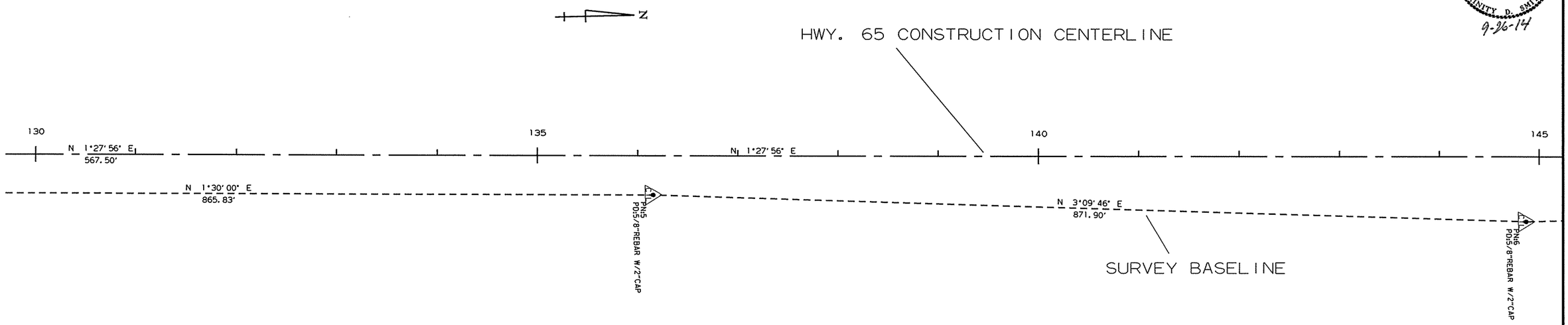
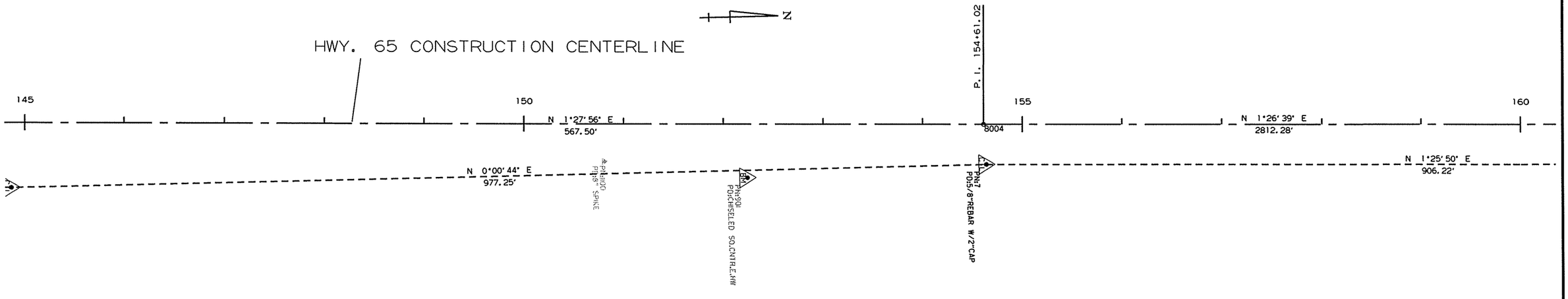
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	73	232

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



STA. 130+00 TO STA. 145+00 HWY. 65



STA. 145+00 TO STA. 160+00 HWY. 65

SURVEY CONTROL DETAILS

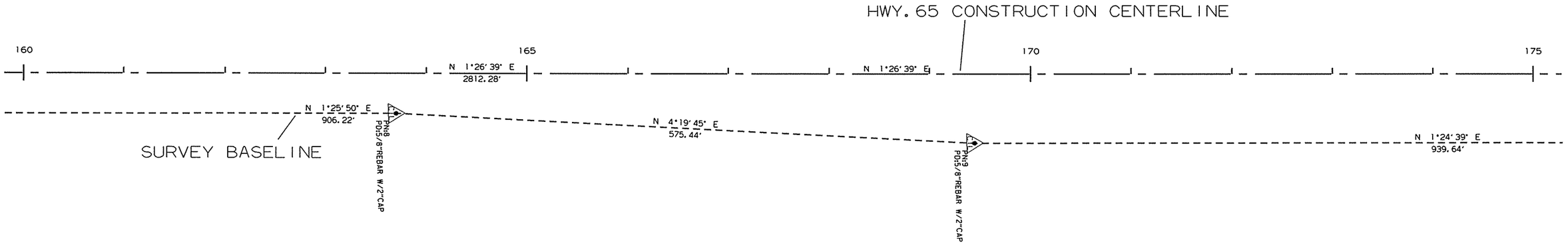
9/25/2014

R080391.DGN

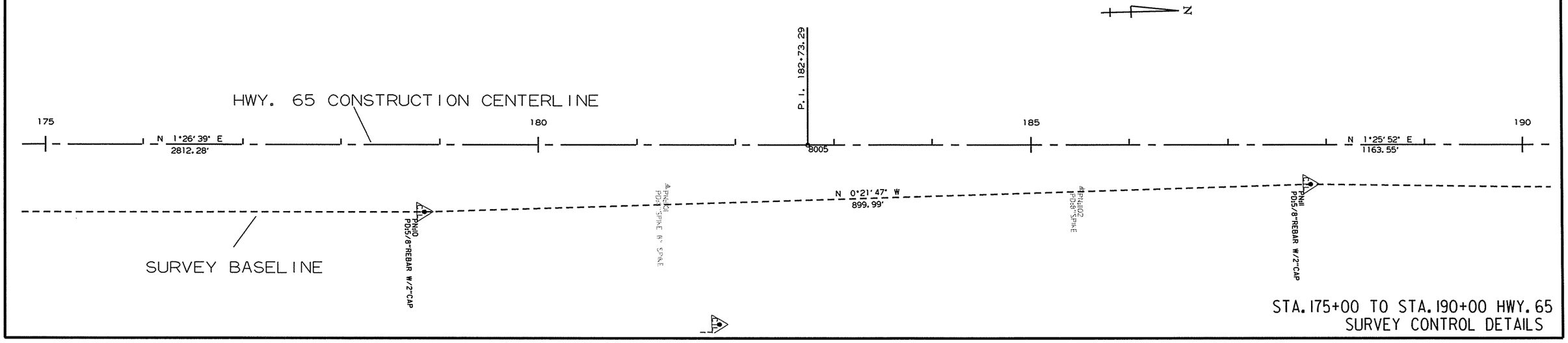
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	74	232

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



STA. 160+00 TO STA. 175+00 HWY. 65



STA. 175+00 TO STA. 190+00 HWY. 65
SURVEY CONTROL DETAILS

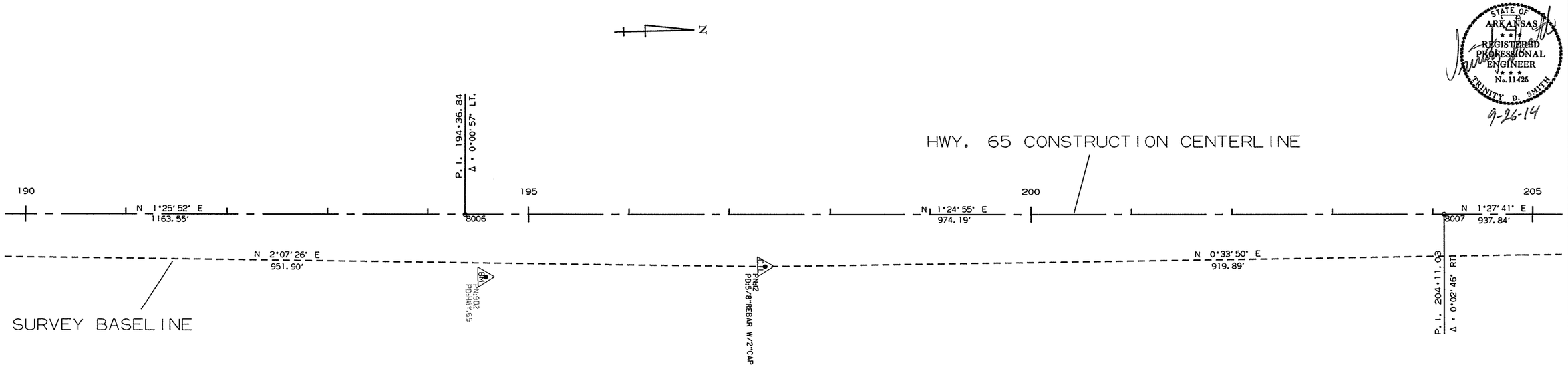
9/25/2014

R080391.DGN

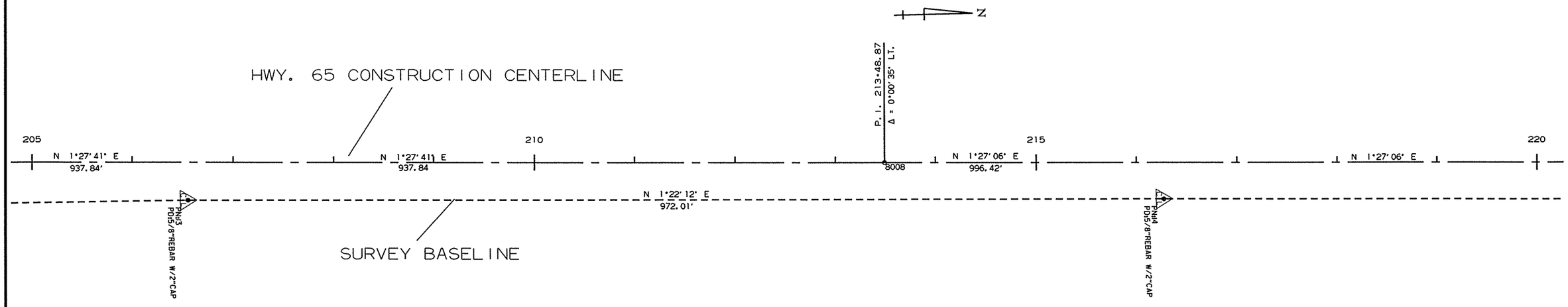
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	75	232

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



STA. 190+00 TO STA. 205+00 HWY. 65



STA. 205+00 TO STA. 220+00 HWY. 65

SURVEY CONTROL DETAILS

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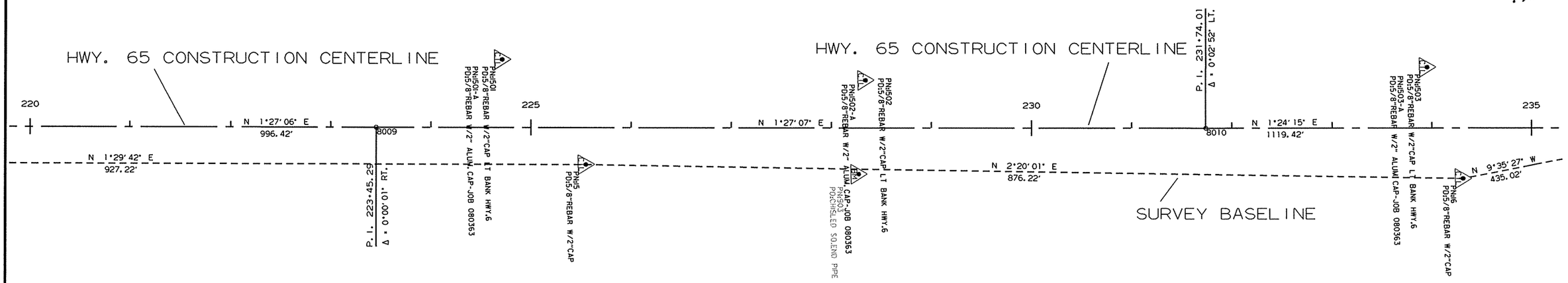
R080391.DGN

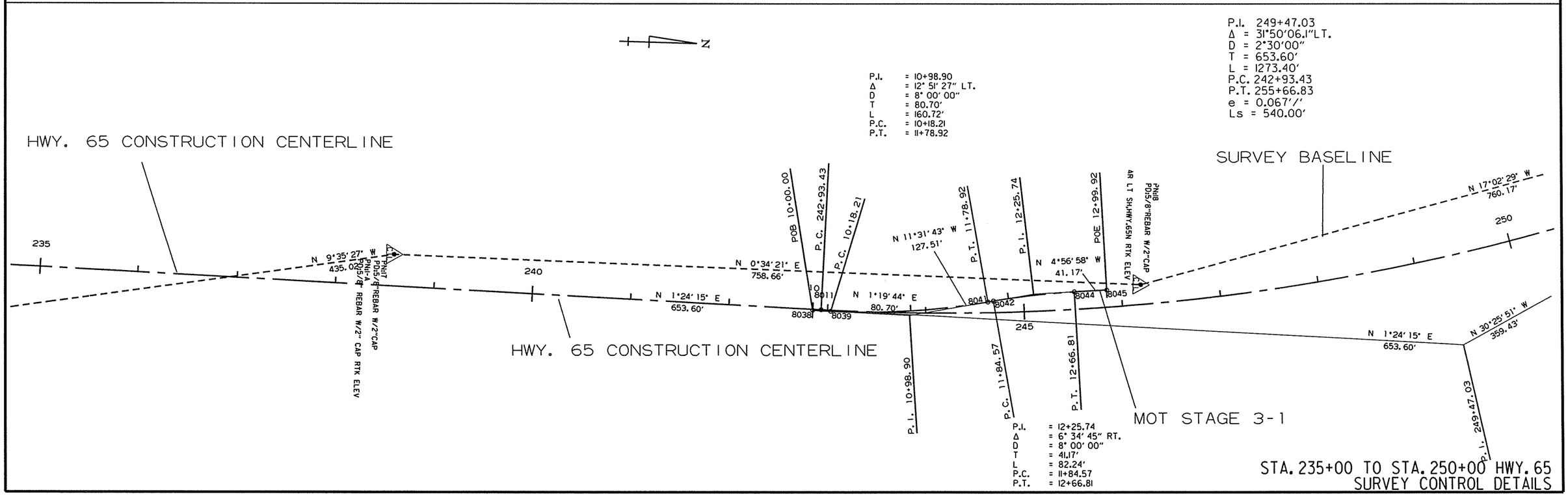
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	76	232

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



STA. 220+00 TO STA. 235+00 HWY. 65



STA. 235+00 TO STA. 250+00 HWY. 65
SURVEY CONTROL DETAILS

9/25/2014

R080391.DGN

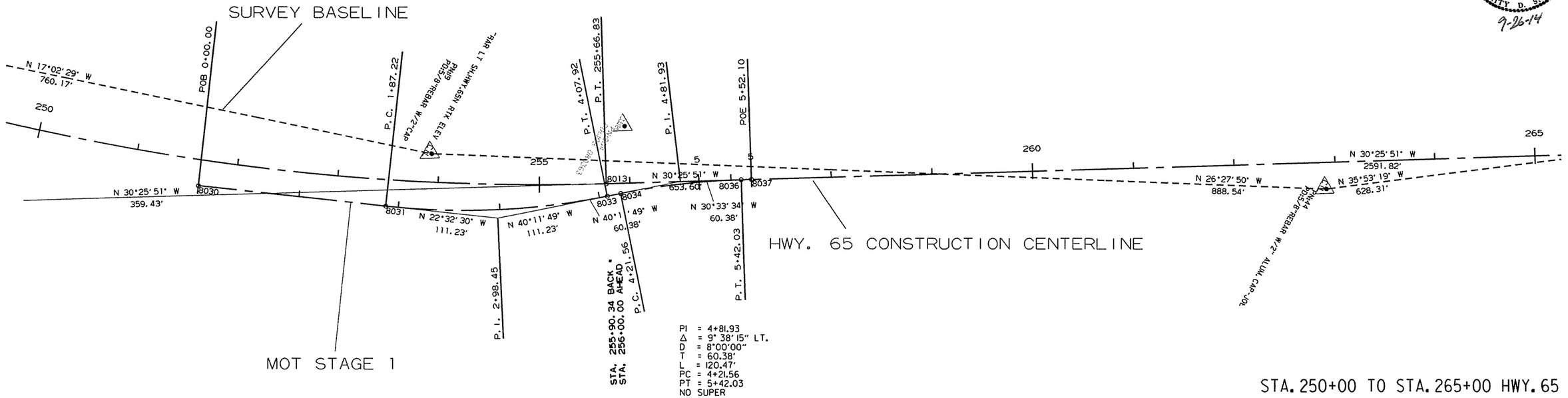
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	77	232

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

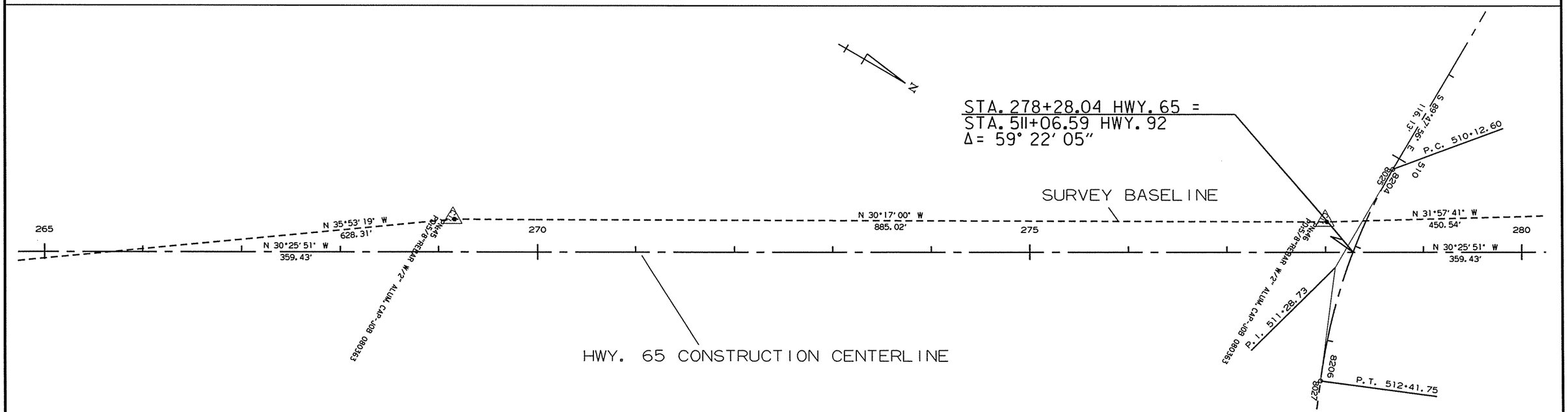
P.I. 249+47.03
Δ = 31°50'06.1" LT.
D = 2°30'00"
T = 653.60'
L = 1273.40'
P.C. 242+93.43
P.T. 255+66.83
e = 0.067'/'
Ls = 540.00'

PI = 2+98.45
Δ = 17° 39' 20" LT.
D = 8°00'00"
T = 111.23'
L = 220.69
PC = 1+87.22
PT = 4+07.92
NO SUPER



PI = 4+81.93
Δ = 9° 38' 15" LT.
D = 8°00'00"
T = 60.38'
L = 120.47'
PC = 4+21.56
PT = 5+42.03
NO SUPER

STA. 250+00 TO STA. 265+00 HWY. 65



STA. 265+00 TO STA. 280+00 HWY. 65
SURVEY CONTROL DETAILS

9/25/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	78	232

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

P.I. = 24+54.92
Δ = 22° 00' 26" LT.
D = 4° 00' 00"
T = 278.52'
L = 550.18'
P.C. = 21+76.39
P.T. = 27+26.57

SURVEY BASELINE

P.I. 285+27.73
Δ = 24°46'00.7"LT.
D = 3°30'00"
T = 359.43'
L = 707.62'
P.C. 281+68.30
P.T. 288+75.93
e = 0.030'/'
Ls = 450.00'

HWY. 65 CONSTRUCTION CENTERLINE

CONSTRUCTION CENTERLINE

MOT STAGE 3-2

STA. 280+00 TO STA. 295+00 HWY. 65

P.I. = 36+05.09
Δ = 8° 12' 48" LT.
D = 8° 00' 00"
T = 51.42'
L = 102.67'
P.C. = 35+53.67
P.T. = 36+56.33

HWY. 65 CONSTRUCTION CENTERLINE

SURVEY BASELINE

MOT STAGE 3-2

P.I. = 46+76.70
Δ = 8° 12' 27" LT.
D = 8° 00' 00"
T = 51.39'
L = 102.59'
P.C. = 46+25.31
P.T. = 47+27.91

P.I. 311+24.70
Δ = 10°41'51.0"RT.
D = 1°00'00"
T = 536.43'
L = 1069.75'
P.C. 305+88.27
P.T. 316+58.02
e = 0.030'/'
Ls = 540.00'

P.I. = 34+79.26
Δ = 8° 12' 47" RT.
D = 8° 00' 00"
T = 51.42'
L = 102.67'
P.C. = 34+27.84
P.T. = 35+30.51

P.I. = 44+01.15
Δ = 0° 59' 57" RT.
D = 8° 00' 00"
T = 6.25'
L = 12.49'
P.C. = 43+94.90
P.T. = 44+07.39

STA. 295+00 TO STA. 310+00 HWY. 65

SURVEY CONTROL DETAILS

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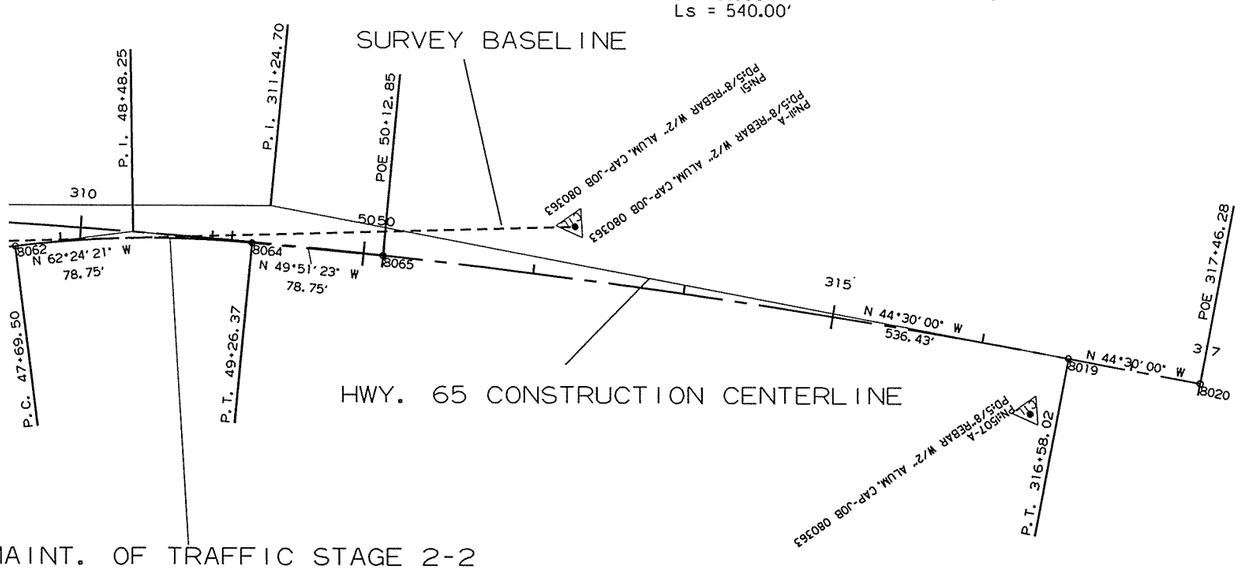
R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	79	232

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

P.I. 311+24.70
Δ = 10°41'51.0"RT.
D = 1°00'00"
T = 536.43'
L = 1069.75'
P.C. 305+88.27
P.T. 316+58.02
e = 0.030'/'
Ls = 540.00'



MAINT. OF TRAFFIC STAGE 2-2

P.I. = 48+48.25
Δ = 12° 32' 58" RT.
D = 8° 00' 00"
T = 78.75'
L = 156.87'
P.C. = 47+69.50
P.T. = 49+26.37

9/25/2014

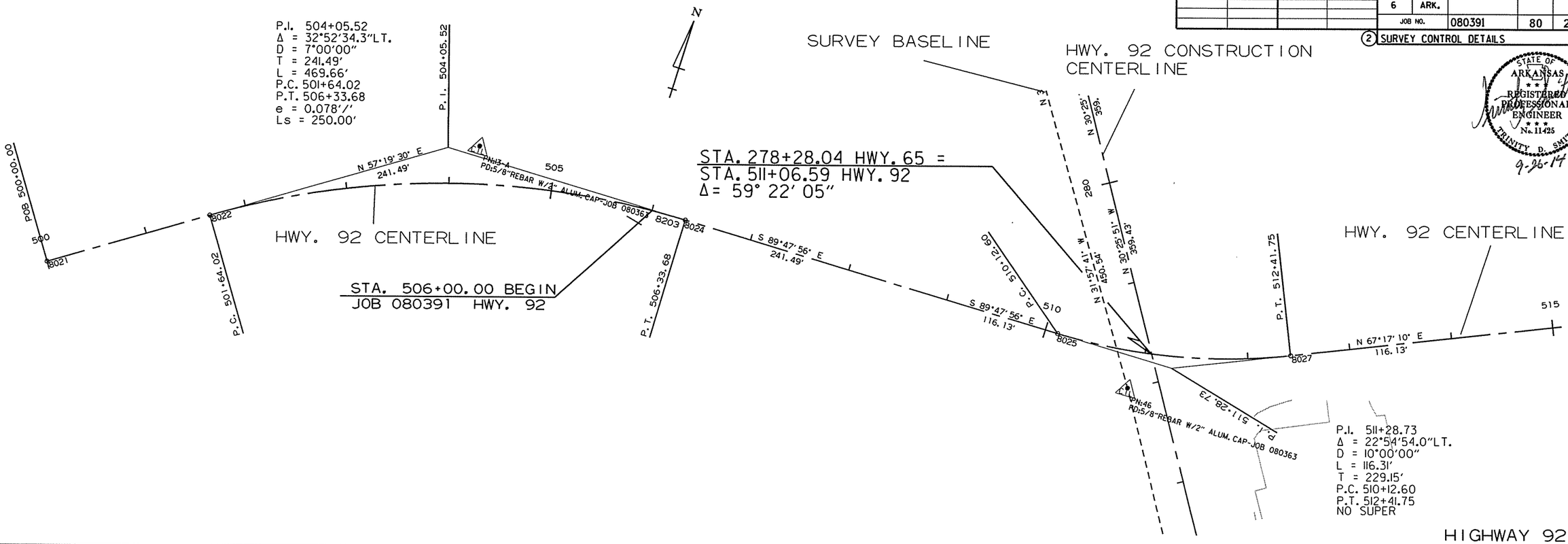
R080391.DGN

STA. 310+00 TO STA. 317+46 HWY. 65
SURVEY CONTROL DETAILS

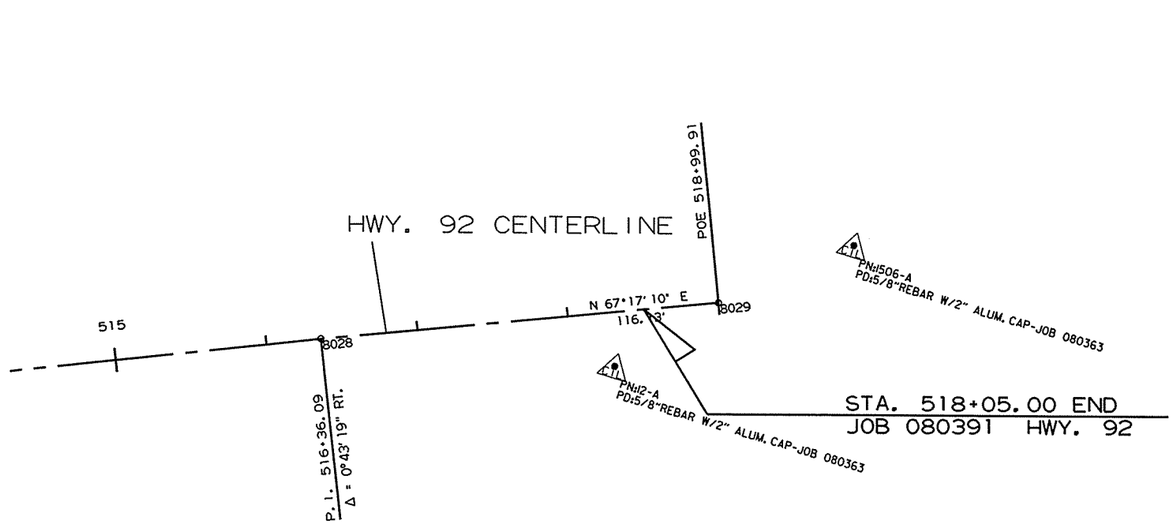
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	80	232

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



HIGHWAY 92



HIGHWAY 92
SURVEY CONTROL DETAILS

9/25/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	81	232

(2) PLAN AND PROFILE SHEETS

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SQ. YDS.
109+00	110+03	LT.	9'	103.00
110+41	113+32	LT.	10'	323.33
113+82	114+39	LT.	10'	63.33

STA. 110+22 IN PLACE
18" x 30' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" x 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 80 CU. YDS.

STA. 111+46 IN PLACE
18" x 38' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 113+57 IN PLACE
18" x 62' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" x 44' PIPE CULVERT
LT. SIDE DRAIN W/S.E.S.
CONSTRUCT APPROACH = 55 CU. YDS.

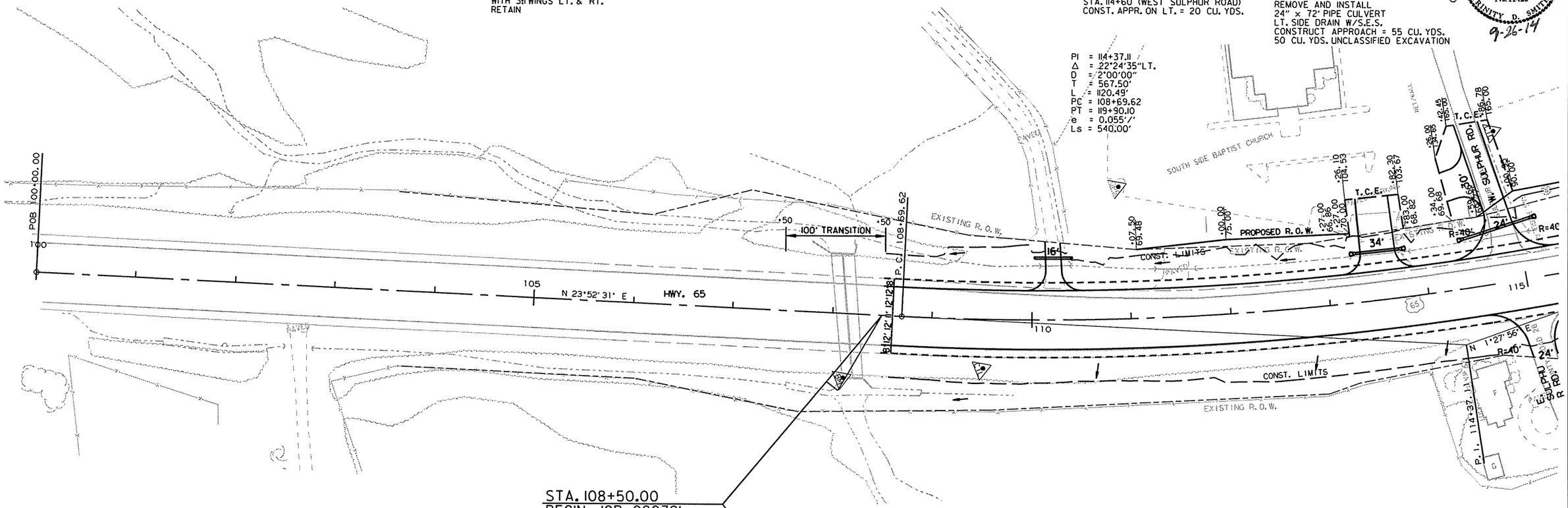
STA. 114+60 (WEST SULPHUR ROAD)
CONST. APPR. ON LT. = 20 CU. YDS.

STA. 114+80 - CO. RD. 836
(WEST SULPHUR RD.) IN PLACE
18" x 49' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" x 72' PIPE CULVERT
LT. SIDE DRAIN W/S.E.S.
CONSTRUCT APPROACH = 55 CU. YDS.
50 CU. YDS. UNCLASSIFIED EXCAVATION

STA. 125+42 IN PLACE
DBL. 9' x 4' x 126' R.C. BOX CULVERT
WITH 31 WINGS LT. & RT.
RETAIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

PI = 114+37.11
Δ = 22°24'35"LT.
D = 2°00'00"
T = 567.50'
L = 1120.49'
PC = 108+69.62
PT = 119+90.10
e = 0.055'/'
Ls = 540.00'



STA. 108+50.00
BEGIN JOB 080391
LOG MILE 15.02

HWY. 65

UNLESS OTHERWISE NOTED, ALL CONCRETE PIPE CULVERTS ARE TO BE CLASS III WITH A TYPE 3 BEDDING. ALL METAL PIPES ARE TO HAVE A TYPE 2 BEDDING.

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 108+50.00 MATCH EXISTING (0.045'/')
STA. 109+48.18 MAX. SUPER. 0.055 '/'
STA. 118+55.10 MAX. SUPER. 0.055 '/'
STA. 123+95.10 END SUPERELEVATION

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	82	232

(2) PLAN AND PROFILE SHEETS

STA. 116+77 IN PLACE
18" x 32' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 100 CU. YDS.

STA. 118+28 IN PLACE
18" x 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 55 CU. YDS.

STA. 121+57 IN PLACE
18" x 44' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 40 CU. YDS.

FENCING

STA.	STA.	SIDE	TYPE	LINEAR FT.
124+00	126+35	LT.	D-1	235

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SQ. YDS.
115+21	116+55	LT.	9'	134.00
116+99	118+10	LT.	9'	110.00

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
124+00	126+35	LT.	293

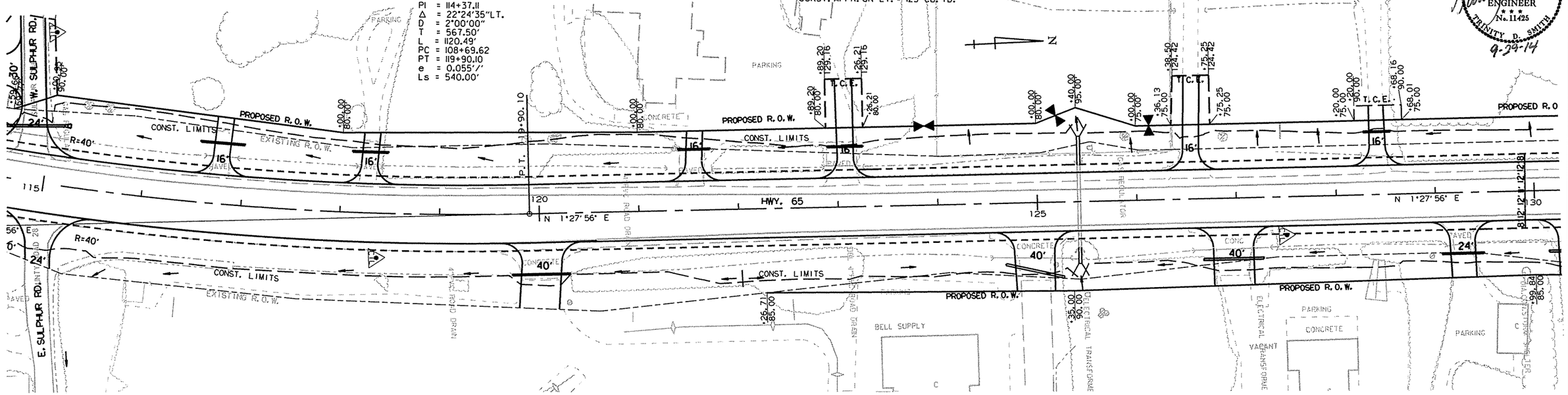
PI = 114+37.11
Δ = 22°24'35"LT.
D = 2°00'00"
T = 567.50'
L = 1120.49'
PC = 108+69.62
PT = 119+90.10
e = 0.055'/'
Ls = 540.00'

STA. 123+08 - IN PLACE
18" X 36' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
18" x 28' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. ON LT. = 125 CU. YD.

STA. 126+54
CONST. APPR. ON LT. = 160 CU. YD.

STA. 128+42 IN PLACE
18" x 29' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 60 CU. YDS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-24-14



STA. 115+05 -CO. RD. 28
(EAST SULPHUR RD.) CONSTRUCT
ROAD TURNOUT ON RT.
CONSTRUCT APPROACH = 45 CU. YDS.

STA. 120+02 IN PLACE
18" x 60' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 62' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 160 CU. YDS.

STA. 125+42 IN PLACE
3' x 3' x 85' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 29' LT. AND 15' RT.
TO A COMPLETED LENGTH OF 129'
Q50 = 22 CFS D.A. = 8 ACRES

STA. 124+96 IN PLACE
24" x 78' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" x 58' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 140 CU. YDS.

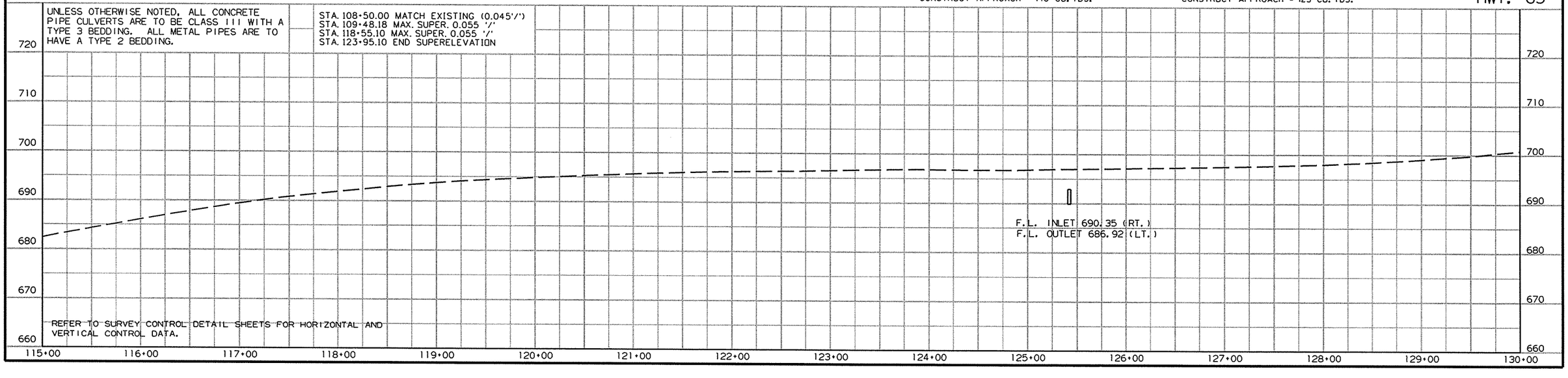
STA. 126+97 IN PLACE
24" x 77' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" x 58' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 125 CU. YDS.

STA. 129+27 IN PLACE
18" x 27' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 42' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 90 CU. YDS.

HWY. 65

UNLESS OTHERWISE NOTED, ALL CONCRETE PIPE CULVERTS ARE TO BE CLASS III WITH A TYPE 3 BEDDING. ALL METAL PIPES ARE TO HAVE A TYPE 2 BEDDING.

STA. 108+50.00 MATCH EXISTING (0.045'/')
STA. 109+48.18 MAX. SUPER. 0.055 '/'
STA. 118+55.10 MAX. SUPER. 0.055 '/'
STA. 123+95.10 END SUPERELEVATION



REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

9/17/2014

R080391.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	83	232

(2) PLAN AND PROFILE SHEETS

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
130+65	140+02	RT.	937
141+91	151+33	RT.	952
142+23	144+85	LT.	306

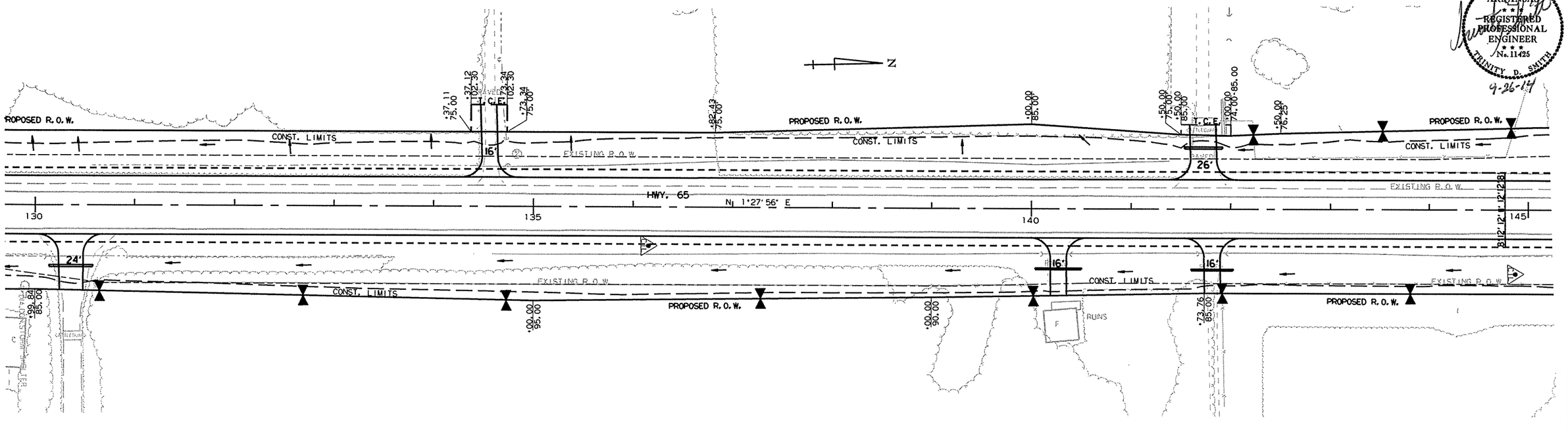
STA. 134+56 IN PLACE
24" x 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND
CONSTRUCT APPROACH = 60 CU. YDS.

FENCING

STA.	STA.	SIDE	TYPE	LINEAR FT.
142+23	144+85	LT.	D-1	262

STA. 141+73 IN PLACE
24" x 44' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" x 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 90 CU. YDS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



FENCING

STA.	STA.	SIDE	TYPE	LINEAR FT.
130+65	140+02	RT	D	937
141+91	151+33	RT.	D-1	942

STA. 130+37 IN PLACE
24" x 60' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" x 42' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 80 CU. YDS.

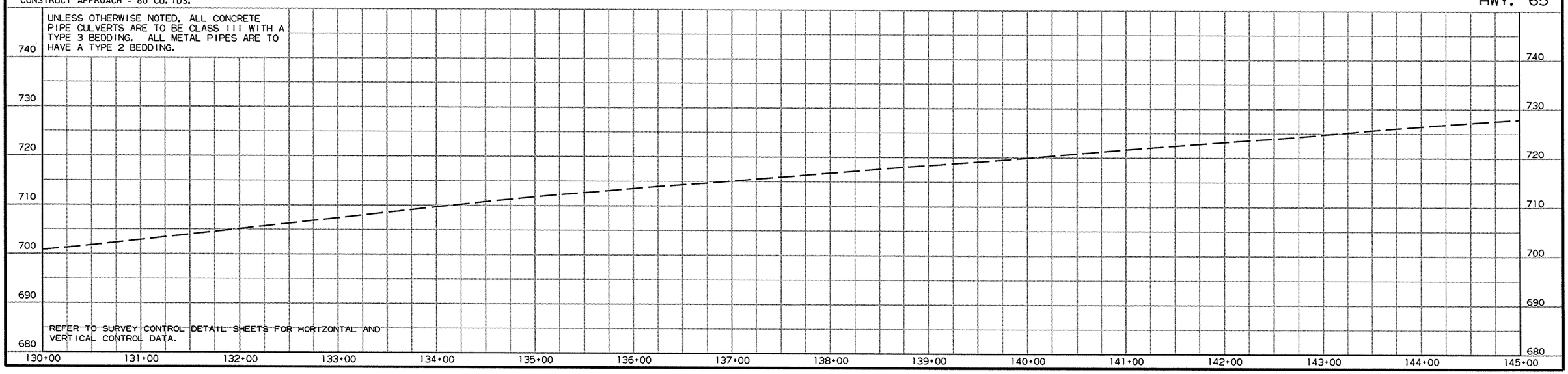
STA. 140+27 IN PLACE
18" x 28' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 46' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 145 CU. YDS.

STA. 141+81 IN PLACE
18" x 28' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 40' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 100 CU. YDS.

HWY. 65

UNLESS OTHERWISE NOTED, ALL CONCRETE PIPE CULVERTS ARE TO BE CLASS III WITH A TYPE 3 BEDDING. ALL METAL PIPES ARE TO HAVE A TYPE 2 BEDDING.

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.



9/17/2014

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				6	ARK.			
				JOB NO.		080391	84	232

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
9-26-14

STA. 145+78 IN PLACE
18" x 36' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 50' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 140 CU. YDS.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
147+11	148+50	LT.	200
148+50	150+14	LT.	236
150+44	155+35	LT.	563
153+03	155+33	RT.	230
155+61	158+64	RT.	319
158+64	165+84	RT.	737

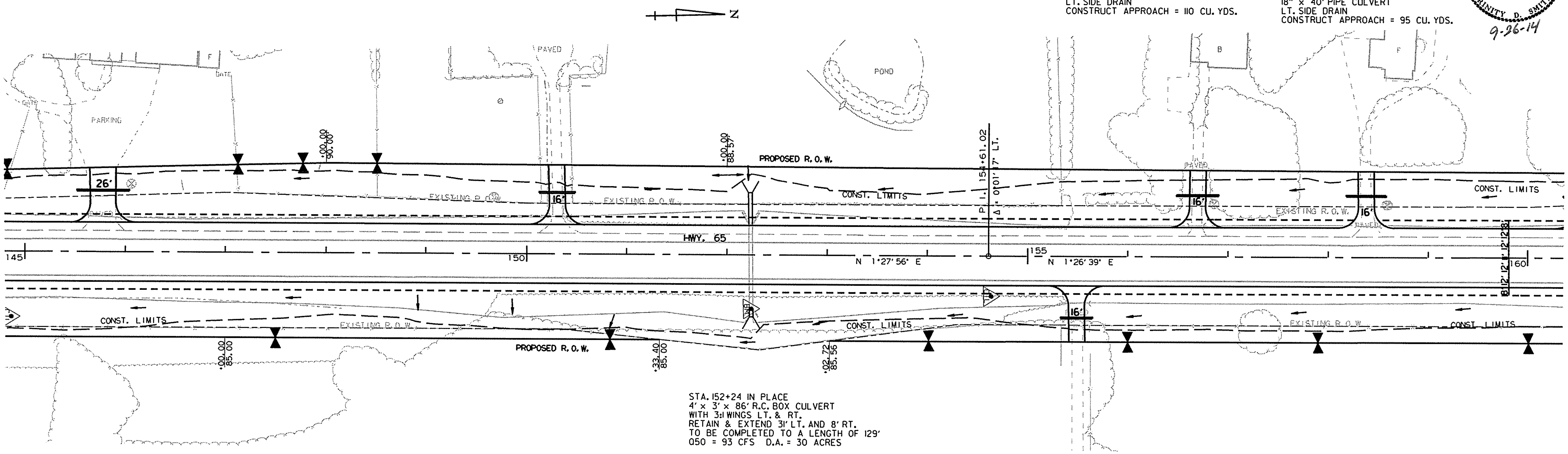
STA. 150+30 IN PLACE
18" x 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 65 CU. YDS.

FENCING

STA.	STA.	SIDE	TYPE	LINEAR FT.
147+11	148+50	LT.	D-1	139

STA. 156+69 IN PLACE
18" x 19' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 110 CU. YDS.

STA. 158+39 IN PLACE
18" x 23' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 95 CU. YDS.



STA. 152+24 IN PLACE
4' x 3' x 86' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 31' LT. AND 8' RT.
TO BE COMPLETED TO A LENGTH OF 129'
Q50 = 93 CFS D.A. = 30 ACRES

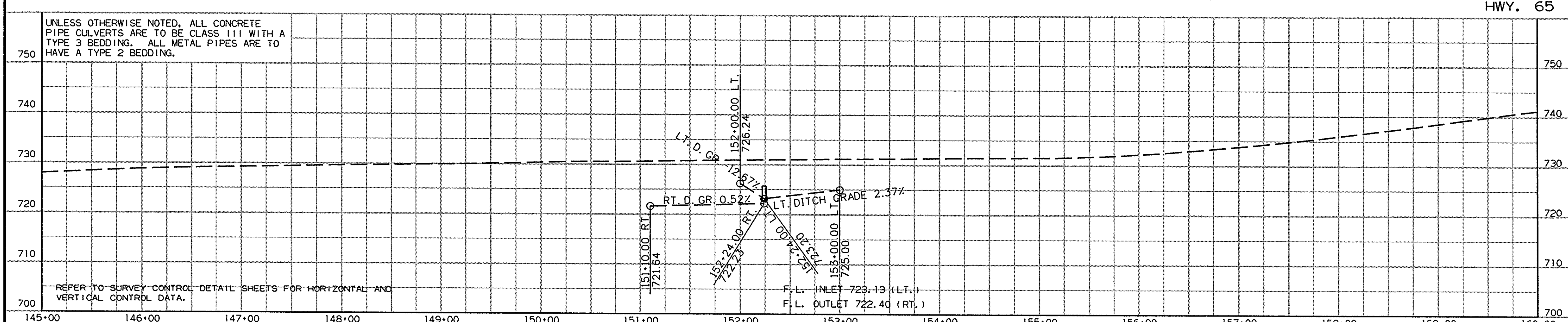
FENCING

STA.	STA.	SIDE	TYPE	LINEAR FT.
153+03	155+33	RT.	D-1	230
155+61	158+64	RT.	D-1	303
158+64	165+84	RT.	D-1	720

STA. 155+49 IN PLACE
18" x 28' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YDS.

HWY. 65

UNLESS OTHERWISE NOTED, ALL CONCRETE PIPE CULVERTS ARE TO BE CLASS III WITH A TYPE 3 BEDDING. ALL METAL PIPES ARE TO HAVE A TYPE 2 BEDDING.



REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	85	232

(2) PLAN AND PROFILE SHEETS

STA. 160+56 IN PLACE
18" x 21' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 100 CU. YDS.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
168+58	181+48	RT.	1322

STA. 165+43 - SOUTH HILLS DR.
IN PLACE
18" x 44' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 68' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 140 CU. YDS.

STA. 168+65 IN PLACE
18" x 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 44' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 135 CU. YDS.

STA. 170+87 IN PLACE
18" x 42' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 58' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 165 CU. YDS.

STA. 172+09 IN PLACE
18" x 31' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 45 CU. YDS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

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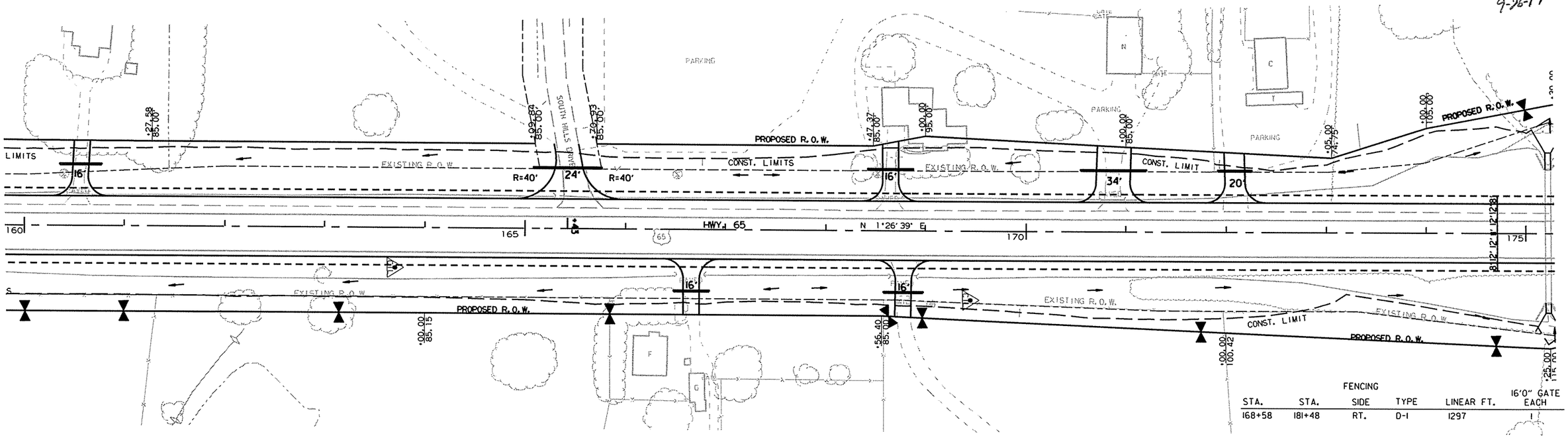


FENCING

STA.	STA.	SIDE	TYPE	LINEAR FT.	16'0" GATE EACH
168+58	181+48	RT.	D-1	1297	1

CONCRETE DITCH PAVING

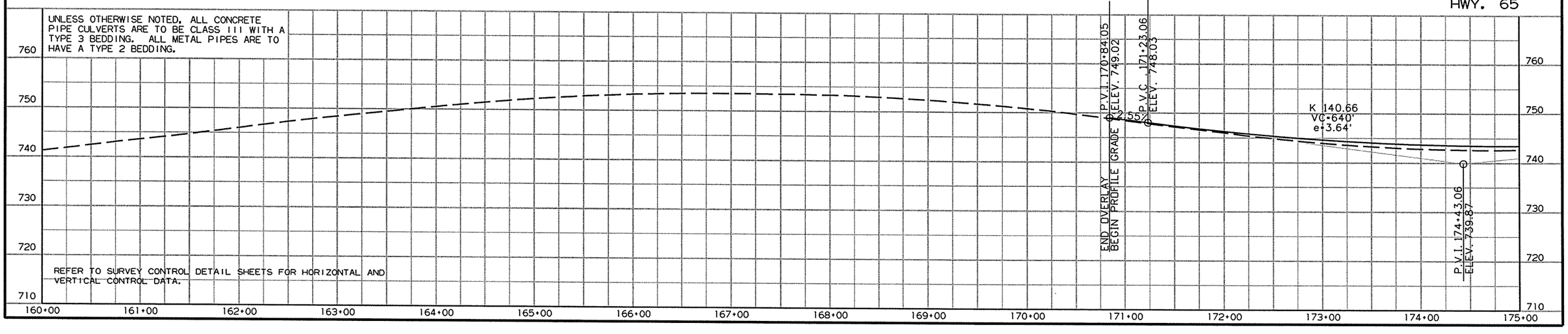
STA.	STA.	SIDE	"W"	SQ. YDS.
173+00	175+15	RT.	6'	143.3

STA. 166+66 IN PLACE
18" x 28' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 34' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 60 CU. YDS.

STA. 168+78 IN PLACE
18" x 27' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 38' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 80 CU. YDS.

HWY. 65

UNLESS OTHERWISE NOTED, ALL CONCRETE PIPE CULVERTS ARE TO BE CLASS III WITH A TYPE 3 BEDDING. ALL METAL PIPES ARE TO HAVE A TYPE 2 BEDDING.



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				6	ARK.			
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(2) PLAN AND PROFILE SHEETS

STA. 177+18 IN PLACE
18" x 39' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 80 CU. YDS.

STA. 179+53 IN PLACE
18" x 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 95 CU. YDS.

STA. 180+65 IN PLACE
18" x 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YDS.

STA. 181+68 - CO. RD. 26 WEST
(OLD GIN ROAD WEST) CONSTRUCT
ROAD TURNOUT ON LT.
CONSTRUCT APPROACH = 310 CU. YDS.

STA. 183+53 IN PLACE
18" x 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 60 CU. YDS.

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SQ. YDS.
175+40	176+95	LT.	6'	103.3

RESTRAINING CONDITION
SEE SECTION 107.10(c) OF THE
STANDARD SPECIFICATIONS.

STATE OF ARKANSAS
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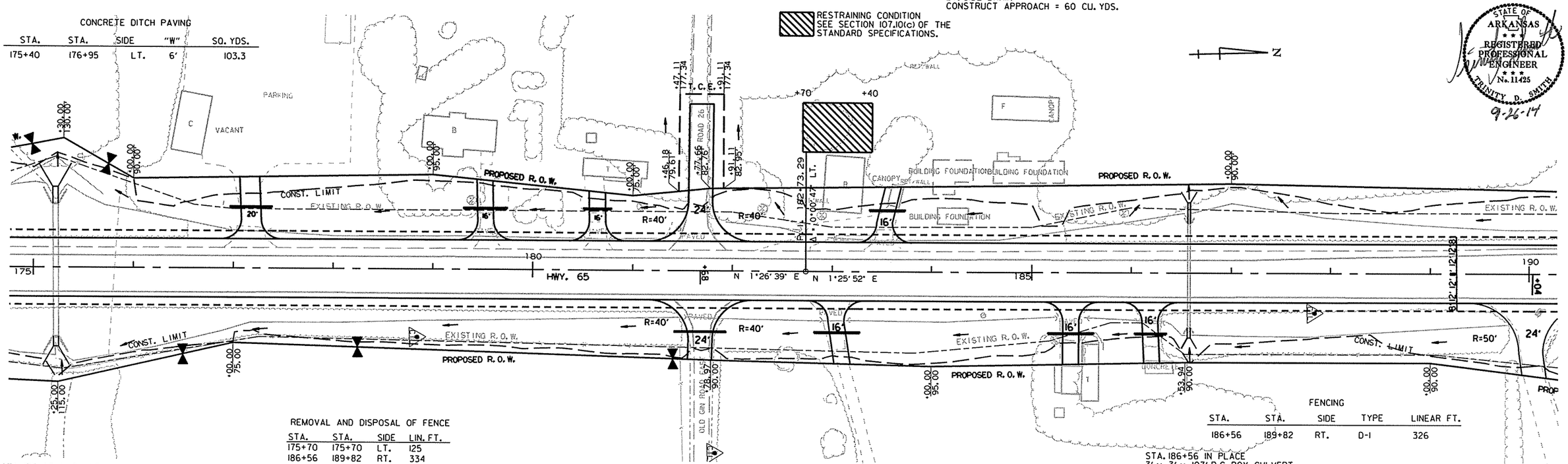


REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
175+70	175+70	LT.	125
186+56	189+82	RT.	334

FENCING

STA.	STA.	SIDE	TYPE	LINEAR FT.
186+56	189+82	RT.	D-1	326

STA. 175+23 IN PLACE
6' x 6' x 135' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 17' LT. AND 9' RT.
050 = 168 CFS D.A. = 61 ACRES

STA. 186+56 IN PLACE
3' x 3' x 107' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 20' LT. AND 9' RT.
050 = 69 CFS D.A. = 18 ACRES

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SQ. YDS.
175+40	177+00	RT.	6'	106.7

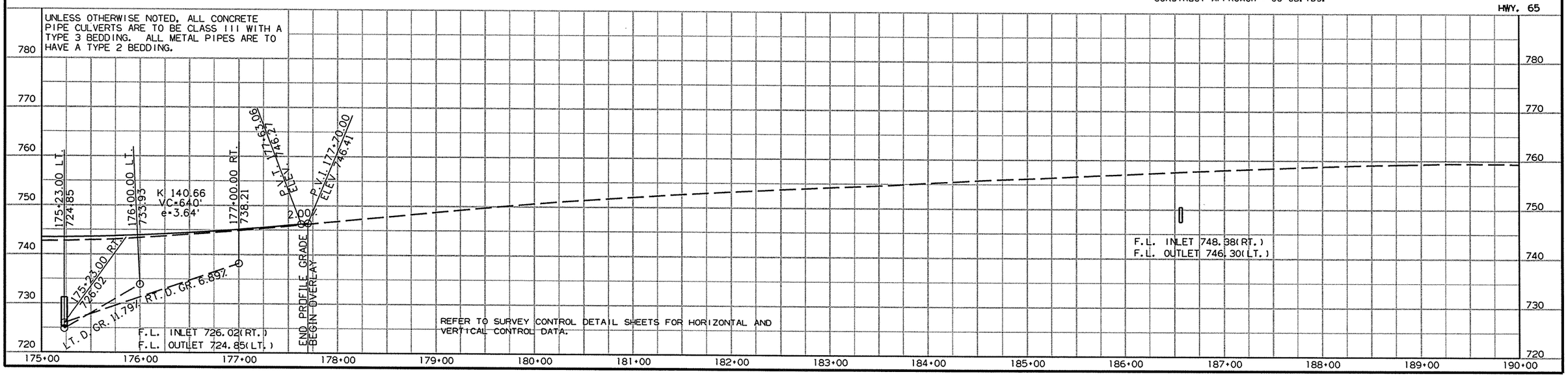
STA. 181+68 - CO. RD. 26
(OLD GIN ROAD EAST) IN PLACE
18" X 34' C.M. PIPE CULVERT
REMOVE AND INSTALL
18" X 52' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 160 CU. YDS.

STA. 183+04 IN PLACE
18" x 28' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 46' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 150 CU. YDS.

STA. 185+39 IN PLACE
18" x 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 44' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 130 CU. YDS.

STA. 186+19 IN PLACE
18" x 27' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 30 PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 60 CU. YDS.

UNLESS OTHERWISE NOTED, ALL CONCRETE PIPE CULVERTS ARE TO BE CLASS III WITH A TYPE 3 BEDDING. ALL METAL PIPES ARE TO HAVE A TYPE 2 BEDDING.



REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

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				6	ARK.			
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(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

STA. 192+12 IN PLACE
18" x 30' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 45 CU. YDS.

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SQ. YDS.
194+65	197+85	LT.	6'	213.3
198+17	199+43	LT.	6'	84.0
199+85	202+32	LT.	6'	164.7

STA. 198+01 IN PLACE
18" x 30' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 45 CU. YDS.

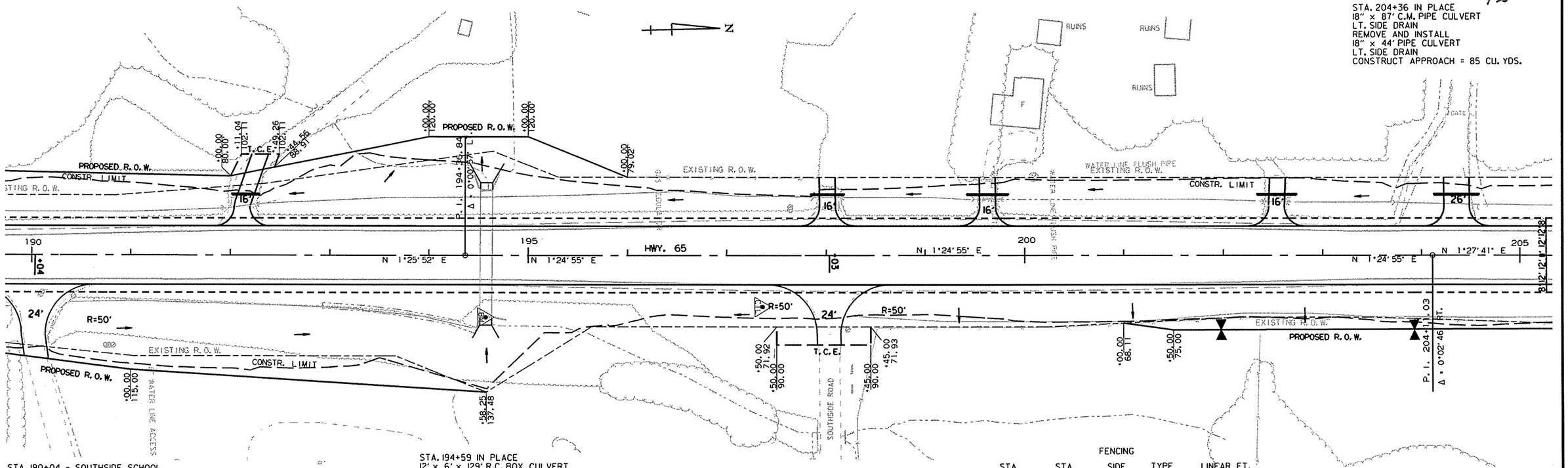
STA. 199+64 IN PLACE
18" x 28' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 85 CU. YDS.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
201+00	202+36	RT.	154
202+36	202+90	RT.	452

STA. 202+53 IN PLACE
18" x 32' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 100 CU. YDS.

STA. 204+36 IN PLACE
18" x 87' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 44' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 85 CU. YDS.



STA. 190+04 - SOUTHSIDE SCHOOL
CONST. APPR. ON RT. = 285 CU. YDS.

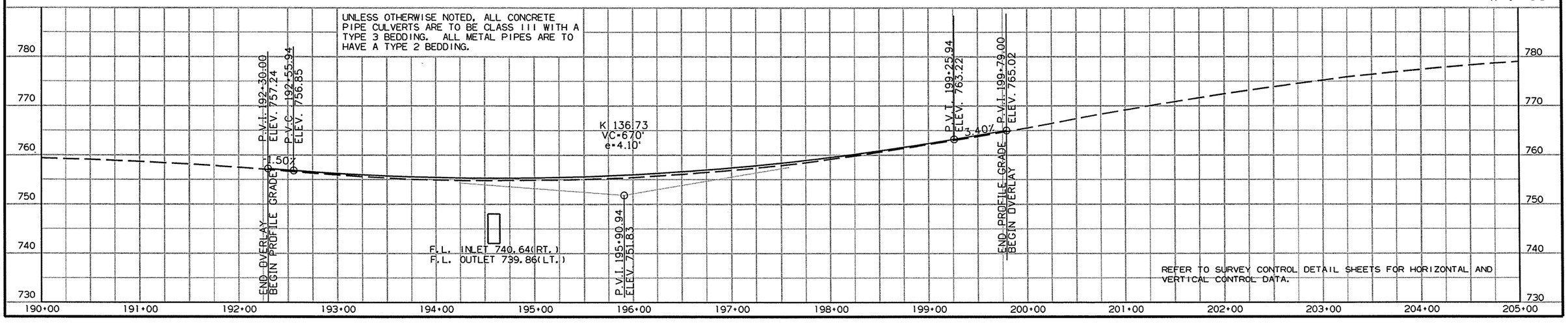
STA. 194+59 IN PLACE
12' x 6' x 129' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 7' LT. AND 8' RT.
Q50 = 273 CFS D.A. = 103 ACRES

STA. 198+03 - SOUTHSIDE SCHOOL
CONST. APPR. ON RT.= 85 CU. YDS.

FENCING

STA.	STA.	SIDE	TYPE	LINEAR FT.
201+00	202+36	RT.	D-1	136
202+36	206+90	RT.	D-1	454

HWY. 65



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				6	ARK.			
				JOB NO.		080391	88	232

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

STA. 207+00 IN PLACE
18" x 27' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 105 CU. YDS.

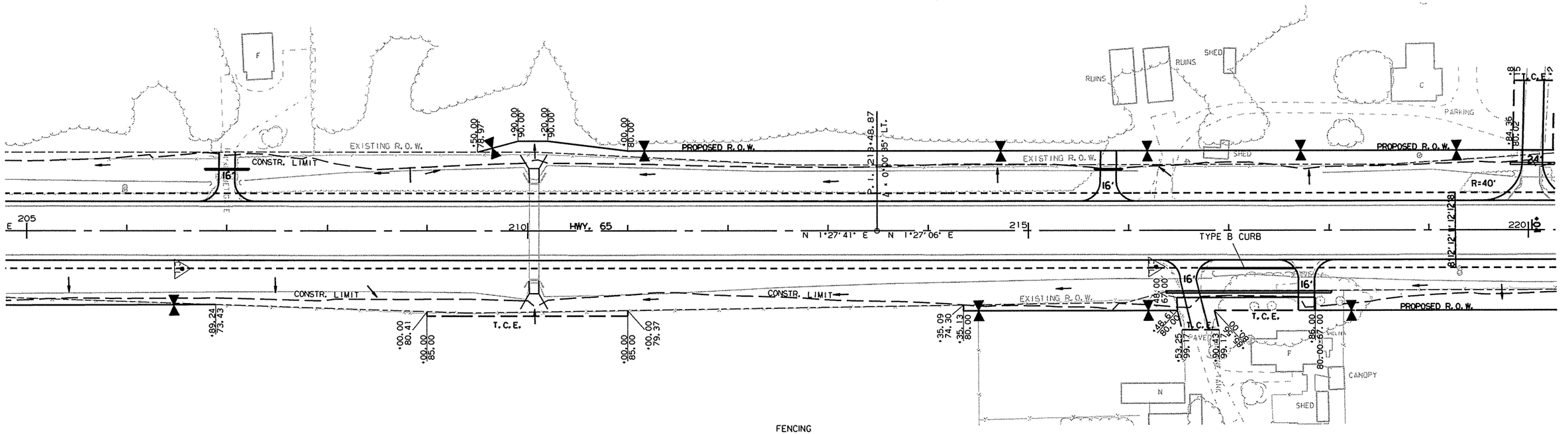
REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
205+33	208+00	LT.	267
209+00	211+00	RT.	200
209+50	215+62	LT.	613
215+62	217+03	LT.	104
217+03	219+89	LT.	293
218+14	225+33	RT.	744

STA. 215+80 INSTALL
18" x 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 40 CU. YDS.

FENCING

STA.	STA.	SIDE	TYPE	LINEAR FT.
209+50	215+71	LT.	D-1	621
215+88	217+03	LT.	D-1	115
217+03	219+89	LT.	D-1	287



FENCING

STA.	STA.	SIDE	TYPE	LINEAR FT.
209+00	211+00	RT.	D-1	200
214+35	216+49	RT.	D-1	214
218+14	225+33	RT.	D-1	719

STA. 210+06 IN PLACE
10' x 4' x 97' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 15' LT. AND 13' RT.
050 = 233 CFS D.A. = 88 ACRES

NOTE: DO NOT DISTURB TREES IN THE T.C.E. AREA ON RT.

STA. 216+60 IN PLACE
24" x 51' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONSTRUCT APPROACH = 140 CU. YDS.

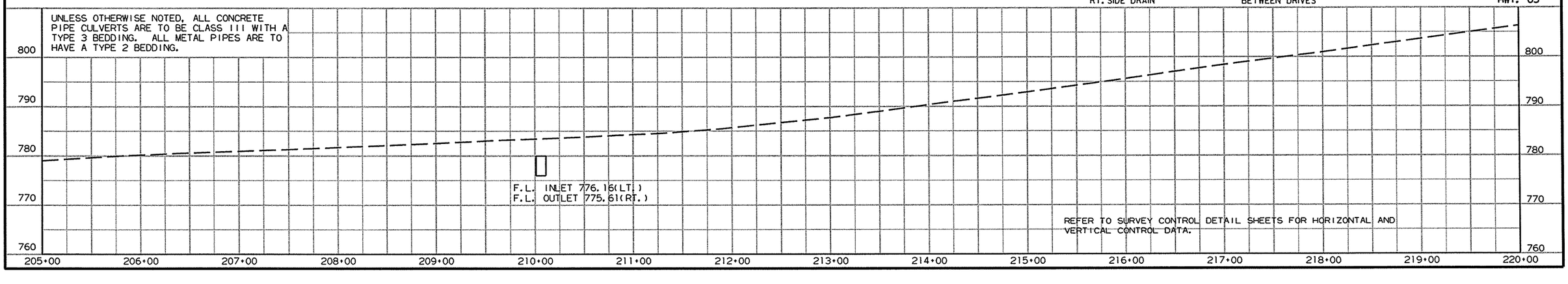
STA. 217+78 IN PLACE
24" x 29' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONSTRUCT APPROACH = 160 CU. YDS.

STA. 216+37 TO STA. 218+02
INSTALL 24" X 165'
RT. SIDE DRAIN

STA. 216+72 TO STA. 217+65
TYPE B CONCRETE CURB
PLACED BEHIND SHOULDER
BETWEEN DRIVES

HWY. 65

UNLESS OTHERWISE NOTED, ALL CONCRETE PIPE CULVERTS ARE TO BE CLASS III WITH A TYPE 3 BEDDING. ALL METAL PIPES ARE TO HAVE A TYPE 2 BEDDING.



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				6	ARK.			
				JOB NO.		080391	89	232

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
9-26-14

STA. 220+04 - NICA ROAD
IN PLACE
24" x 30' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" x 44' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 265 CU. YDS.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
220+28	227+92	LT.	776
226+45	229+80	RT.	353
229+08	230+93	LT.	192
233+31	242+46	RT.	937
234+00	234+30	LT.	35
234+54	541+54	LT.	705

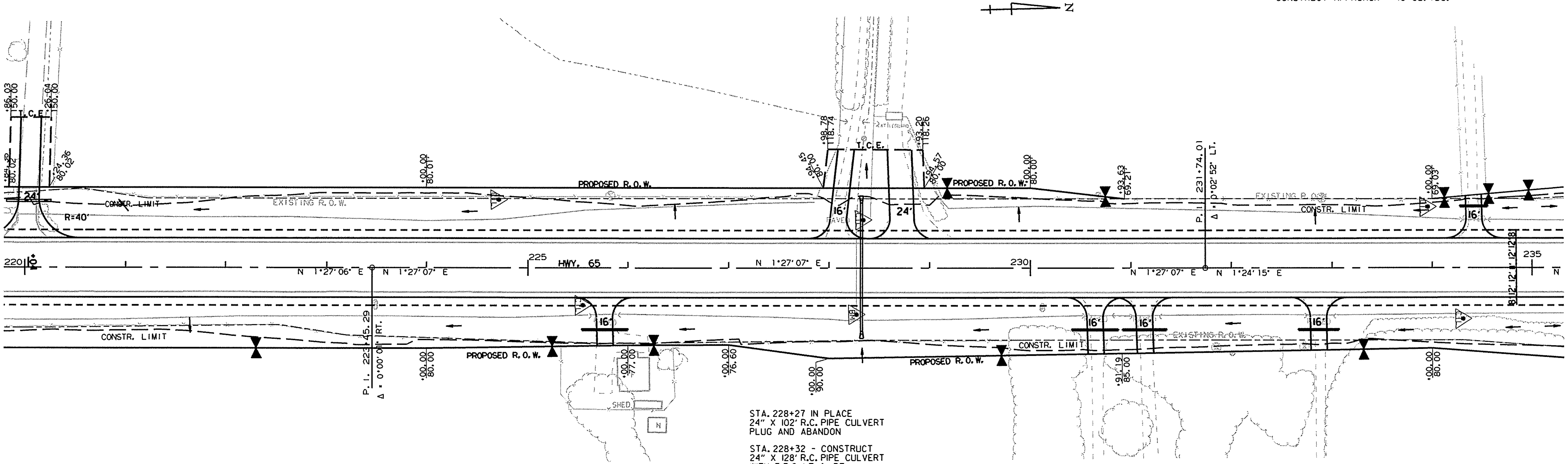
STA. 228+09 CONSTRUCT
APPROACH ON LT. = 145 CU. YDS.

STA. 228+74 CONSTRUCT
APPROACH ON LT. = 205 CU. YDS.

FENCING

STA.	STA.	SIDE	TYPE	LINEAR FT.	16'0" GATE EACH
220+28	227+92	LT.	D-I	764	
229+08	230+93	LT.	D-I	186	
234+00	234+30	LT.	D-I	30	
234+54	241+54	LT.	D-I	702	1

STA. 234+42 IN PLACE
18" x 26' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 40 CU. YDS.



STA. 228+27 IN PLACE
24" X 102' R.C. PIPE CULVERT
PLUG AND ABANDON

STA. 228+32 - CONSTRUCT
24" X 128' R.C. PIPE CULVERT
WITH F.E.S. LT. & RT.
Q50 = 22 CFS D.A. = 6 ACRES

FENCING

STA.	STA.	SIDE	TYPE	LINEAR FT.
218+14	225+33	RT.	D-I	719
226+45	229+80	RT.	D-I	337
233+31	242+46	RT.	D-I	927

STA. 225+77 IN PLACE
18" x 28' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 90 CU. YDS.

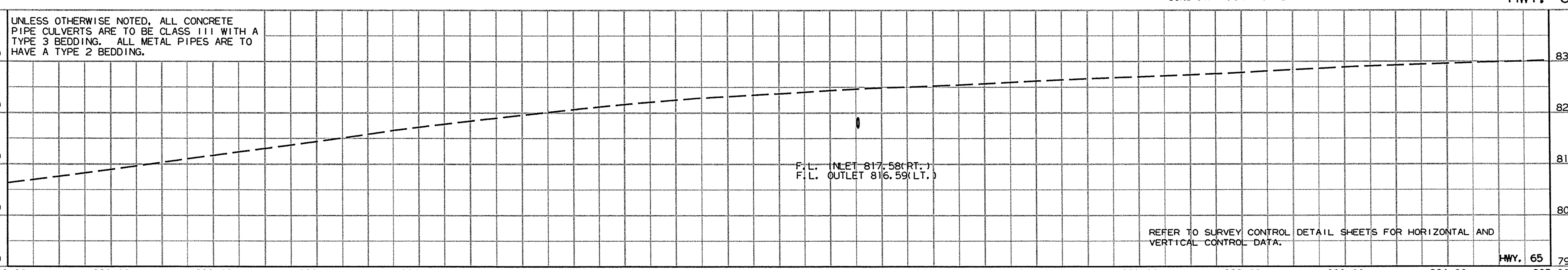
STA. 230+64 IN PLACE
18" x 28' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE & INSTALL
18" x 44' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. ON RT. = 135 CU. YDS.

STA. 231+15 IN PLACE
18" x 28' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE & INSTALL
18" x 44' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. ON RT. = 125 CU. YDS.

STA. 232+86 IN PLACE
18" x 28' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 38' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 80 CU. YDS.

HWY. 65

UNLESS OTHERWISE NOTED, ALL CONCRETE PIPE CULVERTS ARE TO BE CLASS III WITH A TYPE 3 BEDDING. ALL METAL PIPES ARE TO HAVE A TYPE 2 BEDDING.



REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	90	232

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

STA. 236+66 IN PLACE
18" x 34' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 48' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 185 CU. YDS.

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SQ. YDS.
240+00	241+60	LT.	6'	106.7
242+00	245+05	LT.	6'	203.3
245+41	245+83	LT.	6'	28.0
246+03	246+93	LT.	6'	60.0
247+33	250+59	LT.	6'	217.3

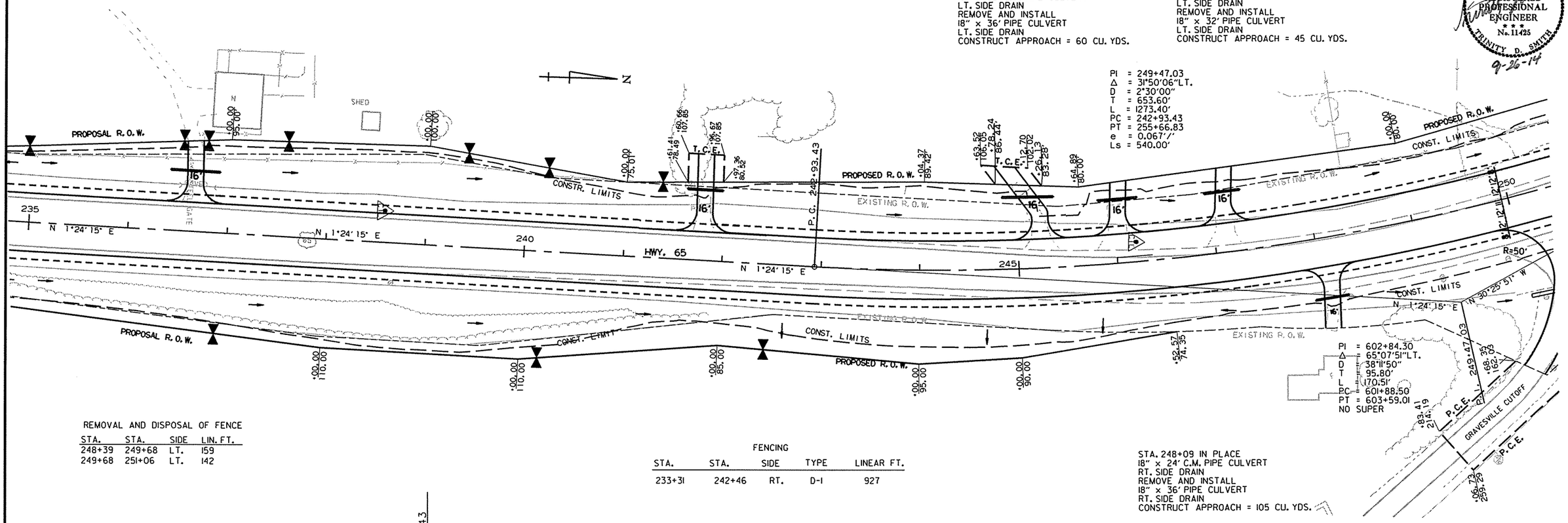
STA. 241+80 IN PLACE
18" x 28' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 90 CU. YDS.

STA. 245+23 IN PLACE
18" x 32' C.M. PIPE CULVERT
LT. SIDE DRAIN - REMOVE
18" X 19' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 95 CU. YDS.

STA. 246+03 IN PLACE
18" x 32' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 60 CU. YDS.

STA. 247+13 IN PLACE
18" x 32' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 45 CU. YDS.

PI = 249+47.03
Δ = 31°50'06"LT.
D = 2°30'00"
T = 653.60'
L = 1273.40'
PC = 242+93.43
PT = 255+66.83
e = 0.067'/'
Ls = 540.00'



REMOVAL AND DISPOSAL OF FENCE

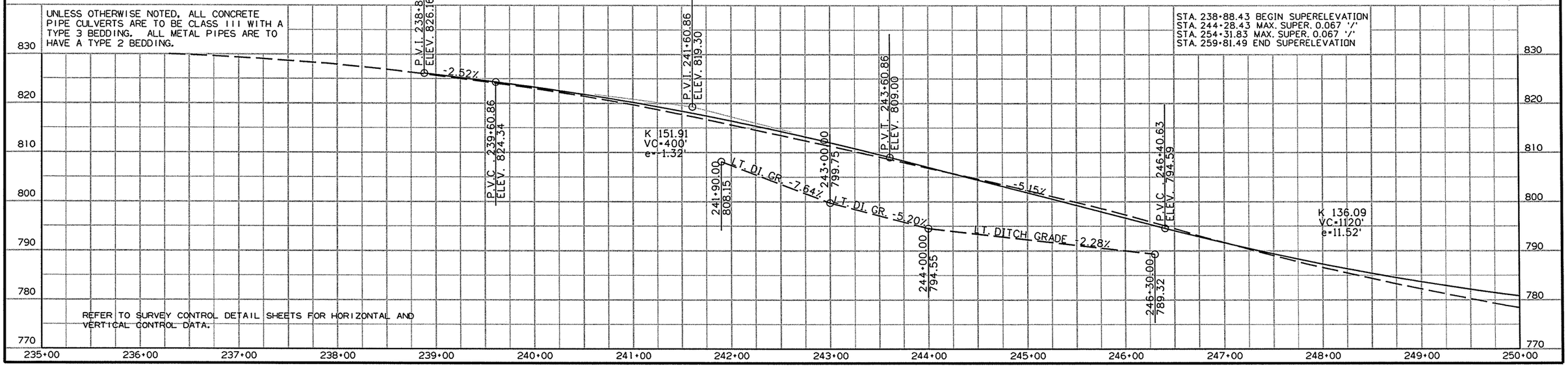
STA.	STA.	SIDE	LIN. FT.
248+39	249+68	LT.	159
249+68	251+06	LT.	142

FENCING

STA.	STA.	SIDE	TYPE	LINEAR FT.
233+31	242+46	RT.	D-1	927

STA. 248+09 IN PLACE
18" x 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 105 CU. YDS.

HWY. 65



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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	91	232

(2) PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

STA. 250+78 IN PLACE
18" x 31' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 90 CU. YDS.

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SQ. YDS.
255+95	257+99	LT.	6'	136.0
258+43	261+00	LT.	6'	171.3

STA. 258+21 IN PLACE
18" x 32' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" x 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 105 CU. YDS.

STA. 261+55 IN PLACE
18" x 24' C.M. PIPE CULVERT
LT. SIDE DRAIN - REMOVE
CONST. APPR. ON LT. = 5 C.Y. (UNCL. EXC.)

STA. 263+24 IN PLACE
18" x 40' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE
CONST. APPR. ON LT. = 35 C.Y. (UNCL. EXC.)

FENCING

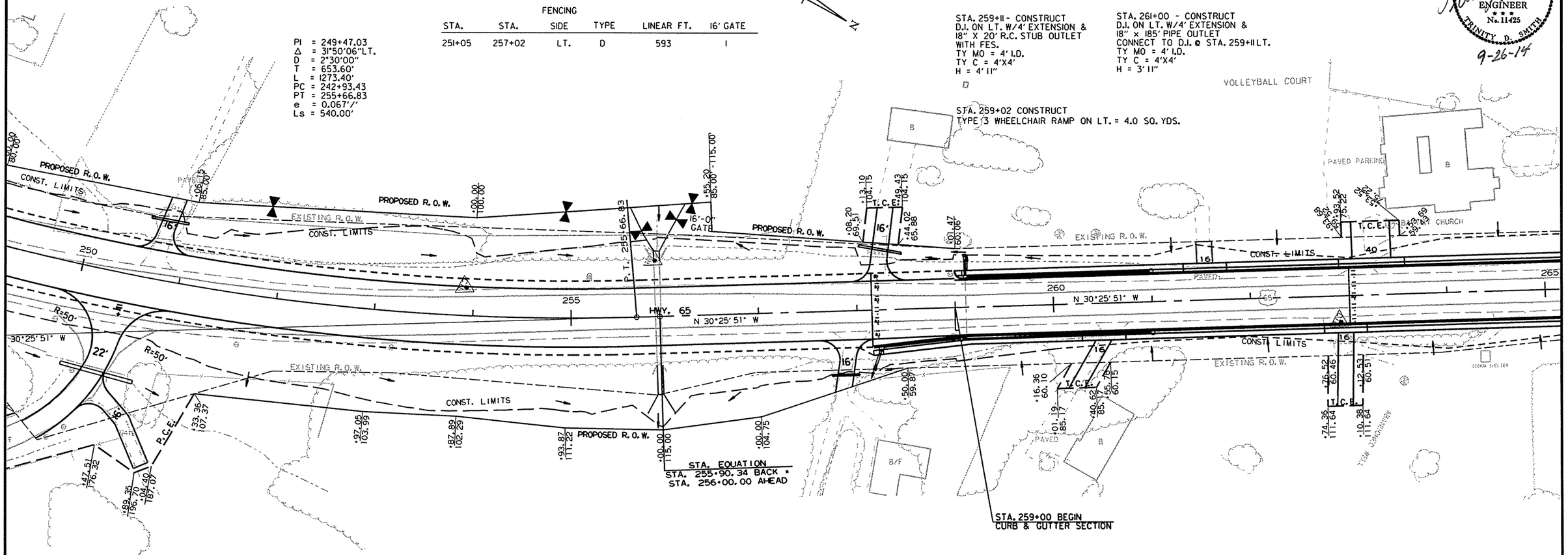
STA.	STA.	SIDE	TYPE	LINEAR FT.	16' GATE
251+05	257+02	LT.	D	593	1

PI = 249+47.03
Δ = 31°50'06"LT.
D = 2°30'00"
T = 653.60'
L = 1273.40'
PC = 242+93.43
PT = 255+66.83
e = 0.067'/'
Ls = 540.00'

STA. 259+11 - CONSTRUCT
D.I. ON LT. W/4' EXTENSION &
18" X 20' R.C. STUB OUTLET
WITH FES.
TY MO = 4' I.D.
TY C = 4'X4'
H = 4' 11"

STA. 261+00 - CONSTRUCT
D.I. ON LT. W/4' EXTENSION &
18" x 185' PIPE OUTLET
CONNECT TO D.I. @ STA. 259+11 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 11"

STA. 259+02 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 4.0 SQ. YDS.



PI = 602+84.30
Δ = 65°07'51"LT.
D = 38°11'50"
T = 95.80'
L = 170.51'
PC = 601+88.50
PT = 603+59.01
NO SUPER

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
250+48	252+67	RT.	312
251+05	257+02	LT.	574

STA. 258+18 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 3.4 SQ. YDS.

STA. 255+89 IN PLACE
6' x 5' x 107' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 12' LT. AND 32' RT.
Q50 = 254 CFS D.A. = 78 ACRES

STA. 258+24 - CONSTRUCT
J.B. ON RT. WITH
18" X 15' R.C. STUB OUTLET
WITH FES.
TY E = 4'X4'
H = 5' 1"

STA. 259+05 - CONSTRUCT
D.I. ON RT. W/4' EXTENSION &
18" X 77' PIPE OUTLET
CONNECT TO J.B. @ STA. 258+18 RT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 5' 6"

STA. 261+00 - CONSTRUCT
D.I. ON RT. W/4' EXTENSION &
18" X 194' PIPE OUTLET
CONNECT TO D.I. @ STA. 259+02 RT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 11"

STA. 250+37 IN PLACE
49" x 32" x 49' C.M. ARCH PIPE CULVERT
RT. SIDE DRAIN
REMOVE & INSTALL
42" x 76' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 660 CU. YDS.

STA. 250+57 IN PLACE
18" x 24' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONST. APPR. ON RT. = 240 CU. YDS.

STA. 257+90 IN PLACE
18" x 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 60 CU. YDS.

STA. 260+50 IN PLACE
18" x 24' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONST. APPR. ON RT. = 5 CU. YDS.

STA. 264+47 IN PLACE
18" x 32' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 262+95 - CONSTRUCT
APPROACH ON RT. = 160 CU. YDS. UNCLASSIFIED EXCAVATION

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HWY. 65

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	92	232

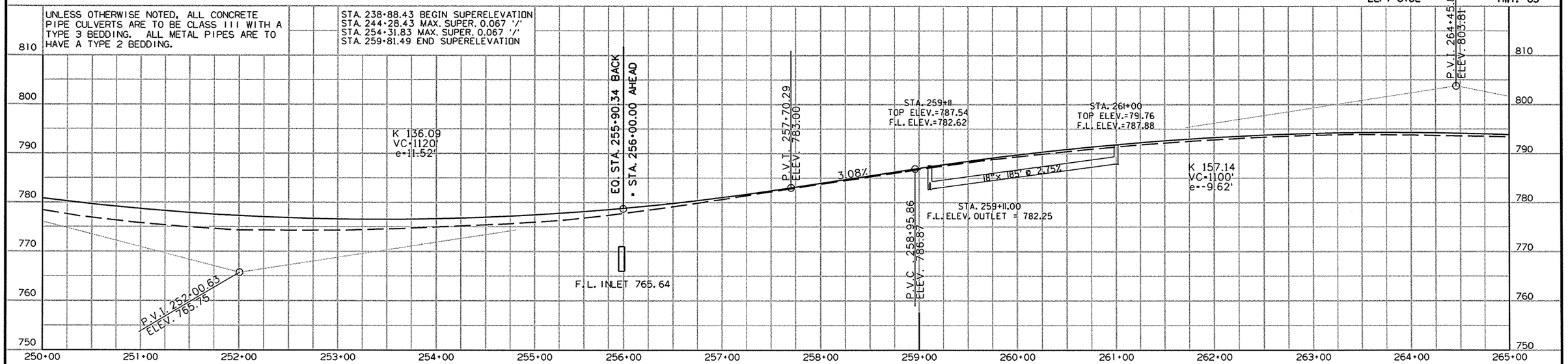
(2) PROFILE SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
9-24-14
TRINITY D. SMITH

LEFT SIDE HWY. 65

UNLESS OTHERWISE NOTED, ALL CONCRETE PIPE CULVERTS ARE TO BE CLASS III WITH A TYPE 3 BEDDING. ALL METAL PIPES ARE TO HAVE A TYPE 2 BEDDING.

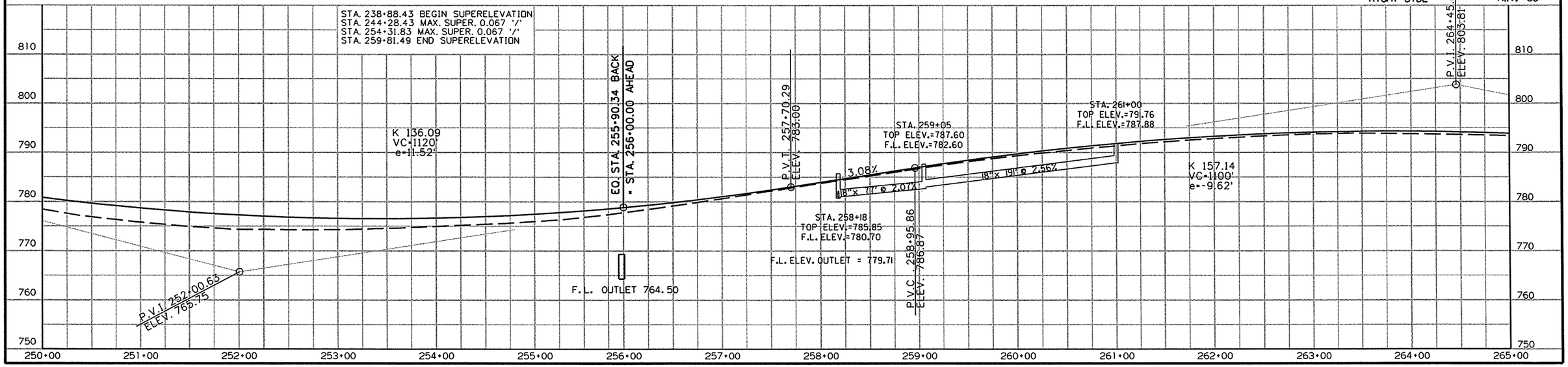
STA. 238+88.43 BEGIN SUPERELEVATION
STA. 244+28.43 MAX. SUPER. 0.067 '/'
STA. 254+31.83 MAX. SUPER. 0.067 '/'
STA. 259+81.49 END SUPERELEVATION



REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

RIGHT SIDE HWY. 65

STA. 238+88.43 BEGIN SUPERELEVATION
STA. 244+28.43 MAX. SUPER. 0.067 '/'
STA. 254+31.83 MAX. SUPER. 0.067 '/'
STA. 259+81.49 END SUPERELEVATION



9/17/2014

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	93	232

(2) PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-25-14

STA. 265+70 IN PLACE
18" x 40' C.M. PIPE CULVERT
LT. SIDE DRAIN - REMOVE
CONST. APPR. ON LT. = 75 C.Y. (UNCL. EXC.)

STA. 268+12 - RECORD LOOP IN PLACE
18" x 30' C.M. PIPE CULVERT
LT. SIDE DRAIN - REMOVE
CONST. APPR. ON LT. = 35 CU. YDS.

STA. 268+84 IN PLACE
24" x 172' C.M. PIPE CULVERT
LT. SIDE DRAIN - REMOVE
CONST. APPR. ON LT. = 20 CU. YDS.

STA. 271+08 IN PLACE
24" x 57' C.M. PIPE CULVERT
LT. SIDE DRAIN - REMOVE
CONST. APPR. ON LT. = 5 CU. YDS.

STA. 273+73 CONSTRUCT
APPROACH ON LT. = 5 CU. YDS.

STA. 274+40 CONSTRUCT
APPROACH ON LT. = 10 CU. YDS.

STA. 269+76 CONSTRUCT
APPROACH ON LT. = 5 C.Y. (UNCL. EXC.)

STA. 271+92 IN PLACE
24" x 49' PLASTIC PIPE CULVERT
LT. SIDE DRAIN - REMOVE
CONST. APPR. ON LT. = 45 CU. YDS.

STA. 276+12 CONSTRUCT
APPROACH ON LT. = 5 CU. YDS.

STA. 277+48 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 3.4 SQ. YDS.

STA. 278+34 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 4.2 SQ. YDS.

STA. 279+37 CONSTRUCT
TYPE 2 WHEELCHAIR RAMP ON LT. = 9.9 SQ. YDS.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
266+59	267+97	RT.	136
267+97	268+58	RT.	88
275+72	277+53	RT.	275

STA. 267+72 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 5.4 SQ. YDS.

STA. 268+38 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 5.4 SQ. YDS.

STA. 272+79 - CONSTRUCT
J.B. ON LT.
E = 4'X4'
H = 6' 2"
TIE TO EXISTING 24"X 116' PIPE CULVERT

STA. 274+10 - CONSTRUCT
D.I. ON LT. W/4' EXTENSION &
18" x 136' PIPE OUTLET
CONNECT TO D.I. @ STA. 275+50 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 6"

STA. 275+50 - CONSTRUCT
D.I. ON LT. W/4' EXTENSION &
18" x 176' PIPE OUTLET
CONNECT TO D.I. @ STA. 277+30 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 5"

STA. 267+50 - CONSTRUCT
D.I. ON LT. W/4' EXTENSION &
18" x 176' PIPE OUTLET
CONNECT TO D.I. @ STA. 269+30 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 4' 1"

STA. 269+30 - CONSTRUCT
D.I. ON LT. W/4' EXTENSION &
18" x 216' PIPE OUTLET
CONNECT TO D.I. @ STA. 271+50 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 11"

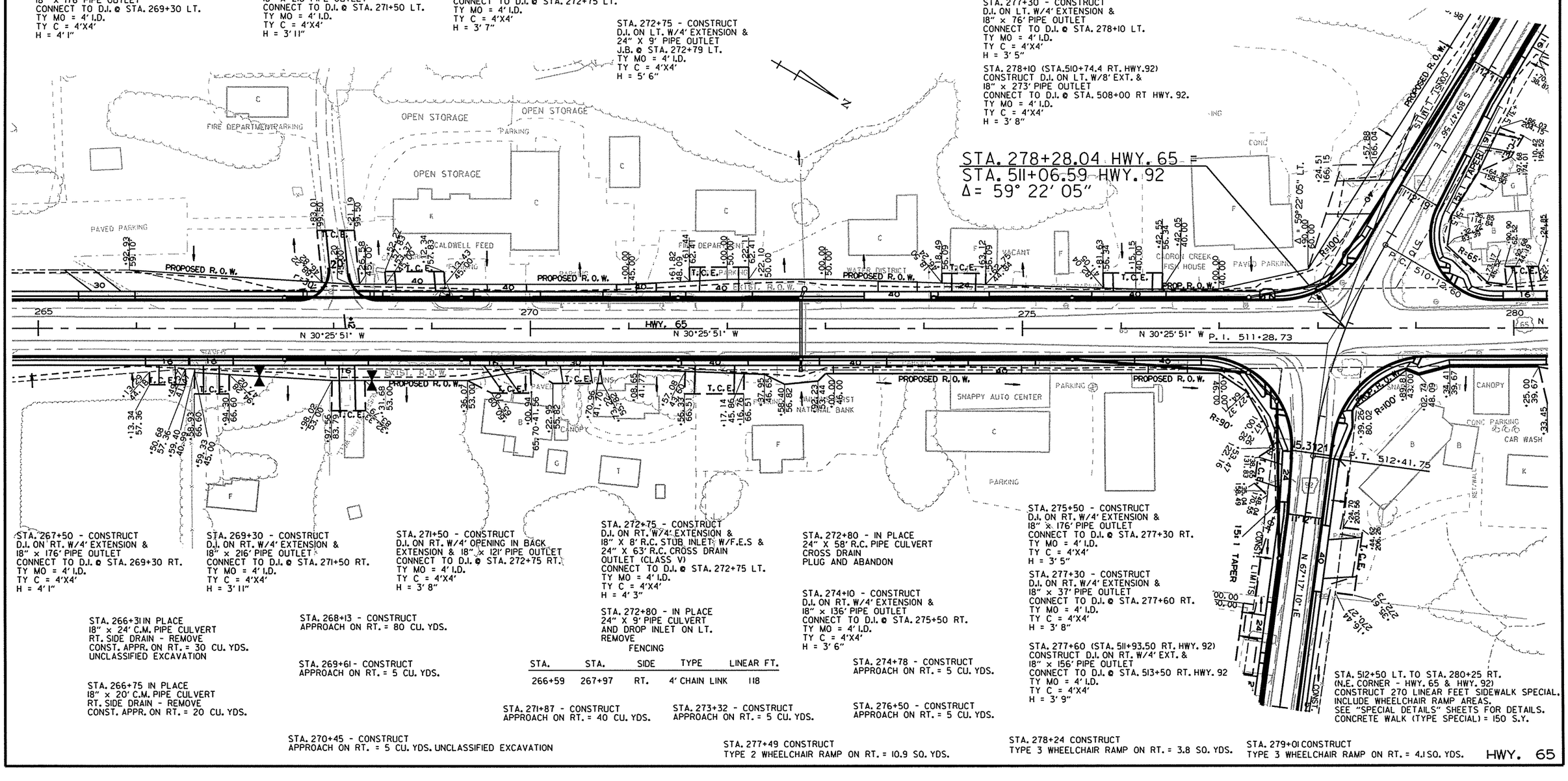
STA. 271+50 - CONSTRUCT
D.I. ON LT. W/4' EXTENSION &
18" x 121' PIPE OUTLET
CONNECT TO D.I. @ STA. 272+75 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 7"

STA. 272+75 - CONSTRUCT
D.I. ON LT. W/4' EXTENSION &
24" X 9' PIPE OUTLET
J.B. @ STA. 272+79 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 5' 6"

STA. 277+30 - CONSTRUCT
D.I. ON LT. W/4' EXTENSION &
18" x 76' PIPE OUTLET
CONNECT TO D.I. @ STA. 278+10 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 5"

STA. 278+10 (STA.510+74.4 RT. HWY.92)
CONSTRUCT D.I. ON LT. W/8' EXT. &
18" x 273' PIPE OUTLET
CONNECT TO D.I. @ STA. 508+00 RT HWY. 92.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 8"

STA. 278+28.04 HWY. 65 =
STA. 511+06.59 HWY. 92
Δ = 59° 22' 05"



STA. 267+50 - CONSTRUCT
D.I. ON RT. W/4' EXTENSION &
18" x 176' PIPE OUTLET
CONNECT TO D.I. @ STA. 269+30 RT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 4' 1"

STA. 269+30 - CONSTRUCT
D.I. ON RT. W/4' EXTENSION &
18" x 216' PIPE OUTLET
CONNECT TO D.I. @ STA. 271+50 RT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 11"

STA. 271+50 - CONSTRUCT
D.I. ON RT. W/4' OPENING IN BACK EXTENSION & 18" x 121' PIPE OUTLET
CONNECT TO D.I. @ STA. 272+75 RT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 8"

STA. 272+75 - CONSTRUCT
D.I. ON RT. W/4' EXTENSION &
18" X 8' R.C. STUB INLET W/F.E.S &
24" X 63' R.C. CROSS DRAIN
OUTLET (CLASS V)
CONNECT TO D.I. @ STA. 272+75 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 4' 3"

STA. 272+80 - IN PLACE
24" X 58' R.C. PIPE CULVERT
CROSS DRAIN
PLUG AND ABANDON

STA. 274+10 - CONSTRUCT
D.I. ON RT. W/4' EXTENSION &
18" x 136' PIPE OUTLET
CONNECT TO D.I. @ STA. 275+50 RT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 6"

STA. 275+50 - CONSTRUCT
D.I. ON RT. W/4' EXTENSION &
18" x 176' PIPE OUTLET
CONNECT TO D.I. @ STA. 277+30 RT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 5"

STA. 277+30 - CONSTRUCT
D.I. ON RT. W/4' EXTENSION &
18" x 37' PIPE OUTLET
CONNECT TO D.I. @ STA. 277+60 RT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 8"

STA. 277+60 (STA. 511+93.50 RT. HWY. 92)
CONSTRUCT D.I. ON RT. W/4' EXT. &
18" x 156' PIPE OUTLET
CONNECT TO D.I. @ STA. 513+50 RT. HWY. 92
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 9"

STA. 266+31 IN PLACE
18" x 24' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONST. APPR. ON RT. = 30 CU. YDS.
UNCLASSIFIED EXCAVATION

STA. 266+75 IN PLACE
18" x 20' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONST. APPR. ON RT. = 20 CU. YDS.

STA. 268+13 - CONSTRUCT
APPROACH ON RT. = 80 CU. YDS.

STA. 269+61 - CONSTRUCT
APPROACH ON RT. = 5 CU. YDS.

FENCING

STA.	STA.	SIDE	TYPE	LINEAR FT.
266+59	267+97	RT.	4' CHAIN LINK	118

STA. 271+87 - CONSTRUCT
APPROACH ON RT. = 40 CU. YDS.

STA. 273+32 - CONSTRUCT
APPROACH ON RT. = 5 CU. YDS.

STA. 274+78 - CONSTRUCT
APPROACH ON RT. = 5 CU. YDS.

STA. 276+50 - CONSTRUCT
APPROACH ON RT. = 5 CU. YDS.

STA. 270+45 - CONSTRUCT
APPROACH ON RT. = 5 CU. YDS. UNCLASSIFIED EXCAVATION

STA. 277+49 CONSTRUCT
TYPE 2 WHEELCHAIR RAMP ON RT. = 10.9 SQ. YDS.

STA. 278+24 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 3.8 SQ. YDS.

STA. 279+01 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 4.1 SQ. YDS.

STA. 512+50 LT. TO STA. 280+25 RT.
(N.E. CORNER - HWY. 65 & HWY. 92)
CONSTRUCT 270 LINEAR FEET SIDEWALK SPECIAL.
INCLUDE WHEELCHAIR RAMP AREAS.
SEE "SPECIAL DETAILS" SHEETS FOR DETAILS.
CONCRETE WALK (TYPE SPECIAL) = 150 S.Y.

HWY. 65

9/17/2014

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				6	ARK.			
				JOB NO.		080391	94	232

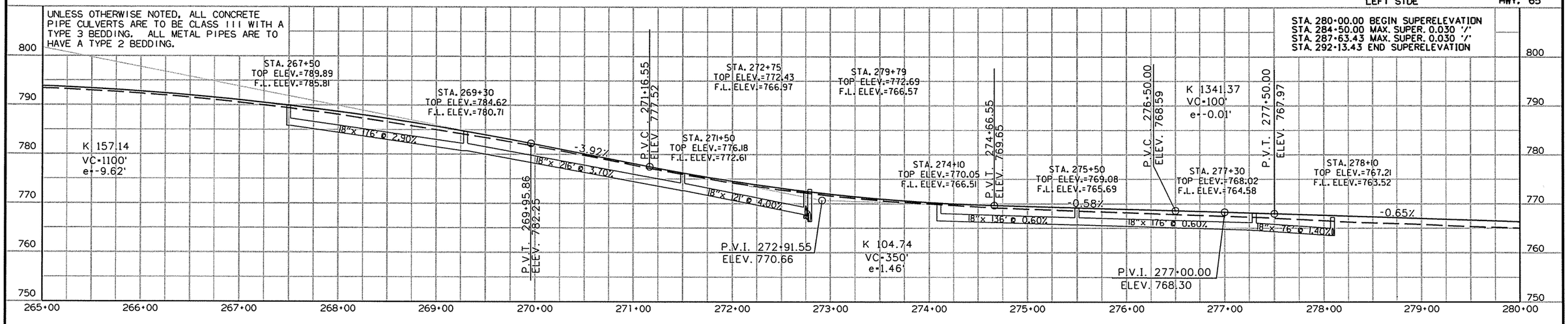
(2) PROFILE SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
9-26-14
TRINITY D. SMITH

LEFT SIDE HWY. 65

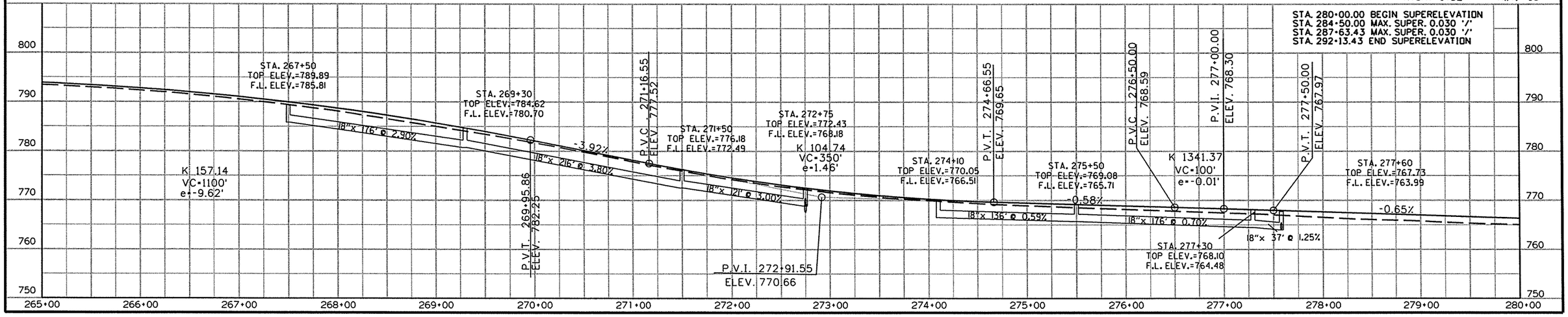
UNLESS OTHERWISE NOTED, ALL CONCRETE PIPE CULVERTS ARE TO BE CLASS III WITH A TYPE 3 BEDDING. ALL METAL PIPES ARE TO HAVE A TYPE 2 BEDDING.

STA. 280+00.00 BEGIN SUPERELEVATION
STA. 284+50.00 MAX. SUPER. 0.030 '/'
STA. 287+63.43 MAX. SUPER. 0.030 '/'
STA. 292+13.43 END SUPERELEVATION



REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

RIGHT SIDE HWY. 65



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				6	ARK.			
				JOB NO.		080391	95	232

(2) PLAN SHEET

STA. 280+11 CONSTRUCT
APPROACH ON LT. = 15 CU. YDS.

FENCING

STA.	STA.	SIDE	TYPE	LINEAR FT.
280+89	281+59	LT.	D-2	82

STA. 282+81 IN PLACE
18" x 40' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 15 CU. YDS.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
280+29	281+59	LT.	70

STA. 283+70 IN PLACE
18" x 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 284+95 IN PLACE
18" x 24' C.M. PIPE CULVERT
LT. SIDE DRAIN - REMOVE
INSTALL 18" SIDE DRAIN
CONST. APPR. ON LT. = 10 CU. YDS.

STA. 288+47 IN PLACE
18" x 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 55 CU. YDS.

STA. 290+92 CONSTRUCT
APPROACH ON LT. = 15 CU. YDS.

STA. 292+79 IN PLACE
18" x 25' C.M. PIPE CULVERT
LT. SIDE DRAIN - REMOVE
CONST. APPR. ON LT. = 5 CU. YDS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-16-14

STA. 294+47 IN PLACE
18" x 24' C.M. PIPE CULVERT
LT. SIDE DRAIN - REMOVE
CONST. APPR. ON LT.

STA. 280+40 - CONSTRUCT
D.I. ON LT. W/8' EXTENSION &
18" x 81' PIPE OUTLET
CONNECT TO D.I. @ STA. 281+25 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 4' 2"

STA. 281+25 - CONSTRUCT
D.I. ON LT. W/8' EXTENSION &
24" X 16' R.C. STUB OUTLET
WITH F.E.S.
TY MO = 4' I.D.
TY C = 4'X4'
H = 6' 7"

STA. 281+30 LT. - IN PLACE
DROP INLET &
24" X 17' R.C. PIPE CULVERT
REMOVE

STA. 282+00- CONSTRUCT
D.I. ON LT. W/8' EXTENSION &
18" x 70' PIPE OUTLET
CONNECT TO D.I. @ STA. 281+25 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 4' 4"

STA. 283+30 - CONSTRUCT
D.I. ON LT. W/8' EXTENSION &
18" x 123' PIPE OUTLET
CONNECT TO D.I. @ STA. 282+00 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 4' 0"

STA. 284+65 - CONSTRUCT
D.I. ON LT. W/8' EXTENSION &
18" x 128' PIPE OUTLET
CONNECT TO D.I. @ STA. 283+30 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 4' 3"

STA. 286+50 - CONSTRUCT
D.I. ON LT. W/8' EXTENSION &
18" x 177' PIPE OUTLET
CONNECT TO D.I. @ STA. 284+65 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 10"

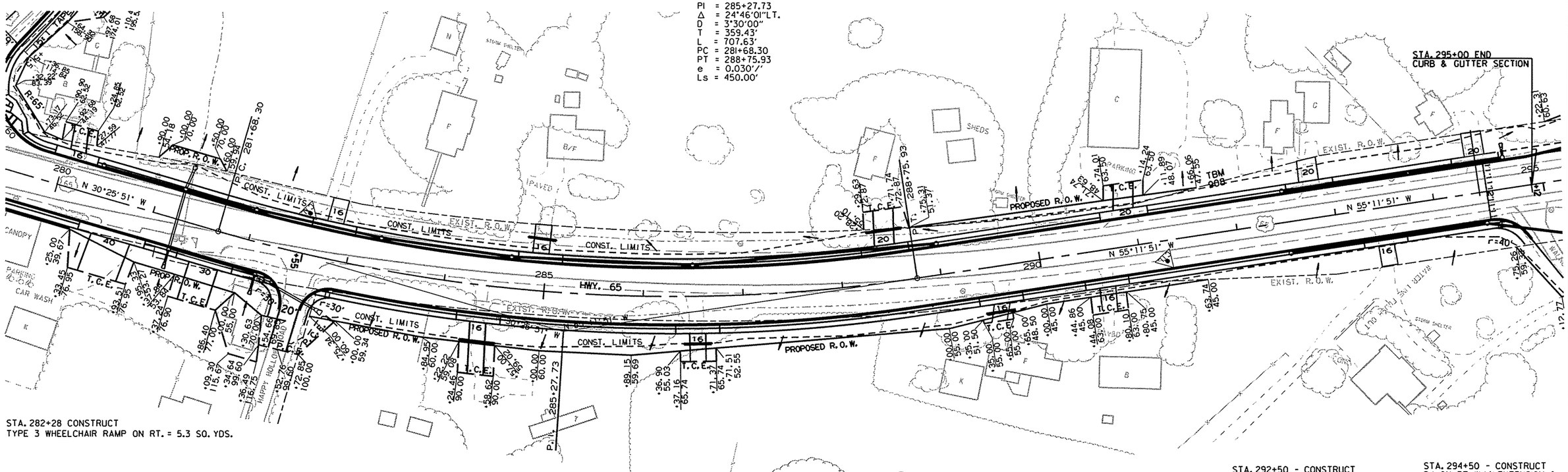
STA. 289+00 - CONSTRUCT
D.I. ON LT. W/8' EXTENSION &
18" x 241' PIPE OUTLET
CONNECT TO D.I. @ STA. 286+50 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 4' 1"

STA. 292+50 - CONSTRUCT
D. I. ON LT. W/4' EXTENSION,
OPENING IN BACK,
& 18" x 221' PIPE OUTLET
CONNECT TO D. I. @ STA. 294+75 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 4' 2"

STA. 294+75 - CONSTRUCT
D.I. ON LT. W/4' EXTENSION &
18" X 6' R.C. STUB OUTLET
WITH FES.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 3"

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SQ. YDS.
294+75	297+00	LT.	6'	150.0



STA. 282+28 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 5.3 SQ. YDS.

STA. 281+25 - CONSTRUCT
J.B. ON RT. WITH
18" X 11' R.C. STUB INLET W/F.E.S.
24"x60' R.C. CROSS
DRAIN OUTLET (CLASS V)
CONNECT TO D.I. @ STA. 281+25 LT.
TY E = 4'X4'
H = 4' 2"

STA. 281+33 RT. - IN PLACE
DROP INLET &
24" X 45' R.C. PIPE CULVERT
REMOVE D.I. &
PLUG AND ABANDON R.C. PIPE

STA. 280+67 - CONSTRUCT
APPROACH ON RT. = 55 CU. YDS.

STA. 282+15 - CONSTRUCT
J.B. ON RT. WITH
24" X 67' R.C. PIPE INLET W/F.E.S.
18" X 12' R.C. STUB INLET W/F.E.S.
24" x 90' PIPE OUTLET
CONNECT TO D.I. @ STA. 281+25 RT.
TY E = 4'X4'
H = 4' 2"

STA. 281+63 IN PLACE
18" x 33' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONST. APPR. ON RT. = 70 CU. YDS.

STA. 282+55 - HAPPY HOLLOW RD.
IN PLACE
18" x 40' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONST. APPR. ON RT. = 150 CU. YDS.

STA. 282+82 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 5.3 SQ. YDS.

STA. 283+33 IN PLACE
18" x 15' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 284+40 IN PLACE
18" x 18' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 40' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 130 CU. YDS.

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SQ. YDS.
284+58	286+40	RT.	6'	121.3

STA. 286+54 IN PLACE
18" x 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 35 CU. YDS.

STA. 289+56 IN PLACE
18" x 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 15 CU. YDS.

STA. 290+64 IN PLACE
18" x 21' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONST. APPR. ON RT. = 15 CU. YDS.

STA. 293+46 IN PLACE
18" x 24' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONST. APPR. ON RT. = 5 CU. YDS.

STA. 294+68 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 5.8 SQ. YDS.

STA. 292+50 - CONSTRUCT
D.I. ON RT. W/4' EXTENSION &
OPENING IN BACK &
18" x 196' PIPE OUTLET
CONNECT TO D.I. @ STA. 294+50 RT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 4' 2"

STA. 294+50 - CONSTRUCT
D.I. ON RT. W/4' EXTENSION &
18" X 105' R.C. STUB OUTLET
WITH FES.
TY MO = 4' I.D.
TY C = 4'X4'
H = 4' 8"

HWY. 65

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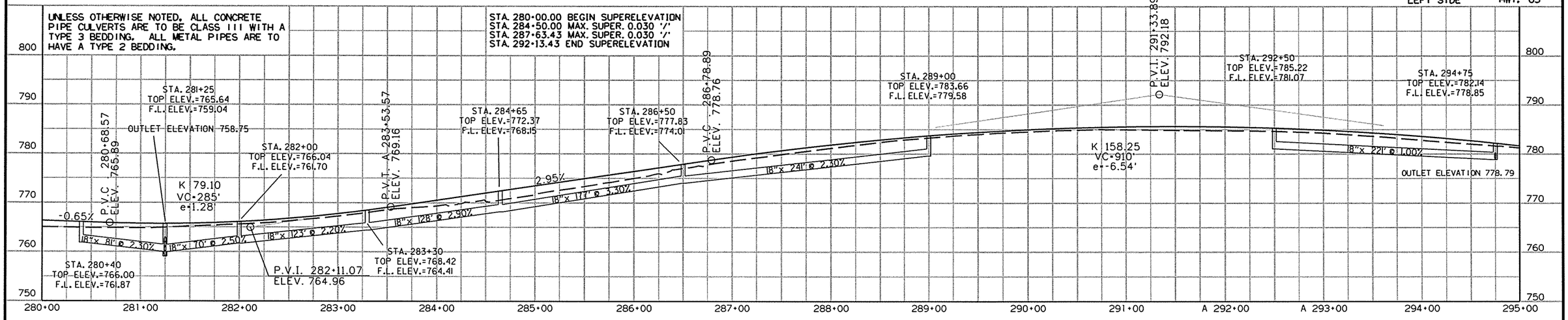
				6	ARK.			
				JOB NO.		080391	96	232

(2) PROFILE SHEET

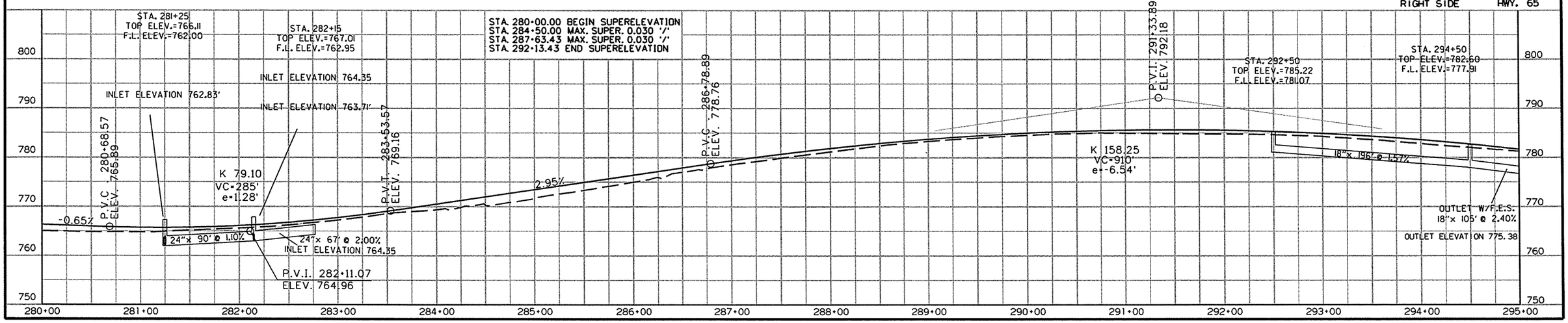
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-16-14

LEFT SIDE HWY. 65



REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

RIGHT SIDE HWY. 65



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				6	ARK.			
				JOB NO.		080391	97	232
				(2) PLAN SHEET				

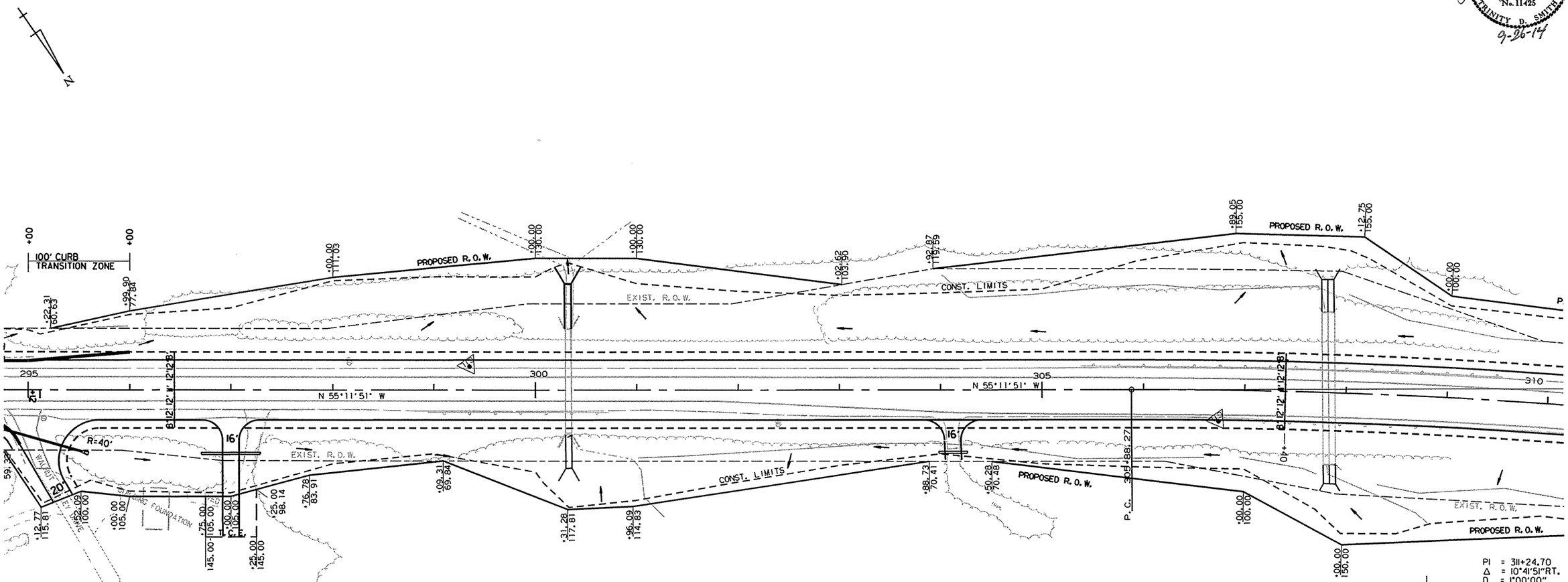
REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
295+23	295+99	LT.	76

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SQ. YDS.
294+75	297+00	LT.	6'	150.0
307+52	312+00	LT.	6'	298.7

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



PI = 311+24.70
Δ = 10°41'51"RT.
D = 1°00'00"
T = 536.43'
L = 1069.75'
PC = 305+88.27
PT = 316+58.02
e = 0.030'/'
Ls = 540.00'

STA. 300+32 IN PLACE
6' x 5' x 104' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 46' LT. AND 34' RT.
Q50 = 310 CFS D.A. = 86 ACRES

STA. 307+83 IN PLACE
DOUBLE 6' x 4' x 150' R.C. BOX CULVERT
WITH 3:1 WING LT. & 2:1 WING RT.
RETAIN & EXTEND 33' LT. AND 19' RT.
Q50 = 457 CFS D.A. = 127 ACRES

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SQ. YDS.
295+53	296+71	RT.	6'	78.7
297+29	300+50	RT.	6'	214.0

STA. 295+12 - WALNUT VALLEY RD.
IN PLACE
18" x 38' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONST. APPR. ON RT. = 70 CU. YDS. UNCL. EXC.

STA. 297+00 IN PLACE
18" x 40' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" x 50' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 485 CU. YDS. FILL
UNCLASSIFIED EXCAV. = 355 CU. YDS. CUT

STA. 304+12 IN PLACE
18" x 39' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 45 CU. YDS.

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				6	ARK.			
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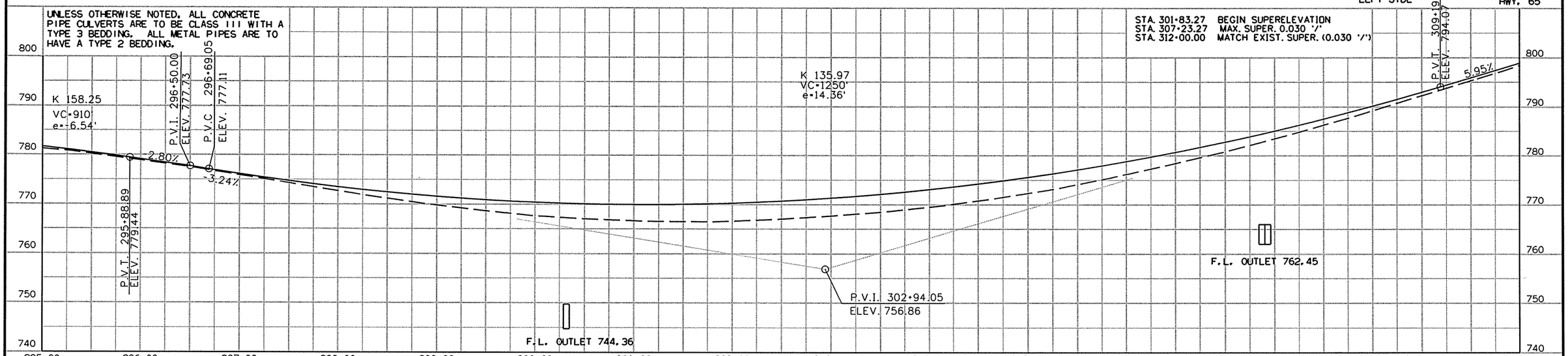
(2) PROFILE SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

UNLESS OTHERWISE NOTED, ALL CONCRETE PIPE CULVERTS ARE TO BE CLASS III WITH A TYPE 3 BEDDING. ALL METAL PIPES ARE TO HAVE A TYPE 2 BEDDING.

LEFT SIDE — HWY. 65

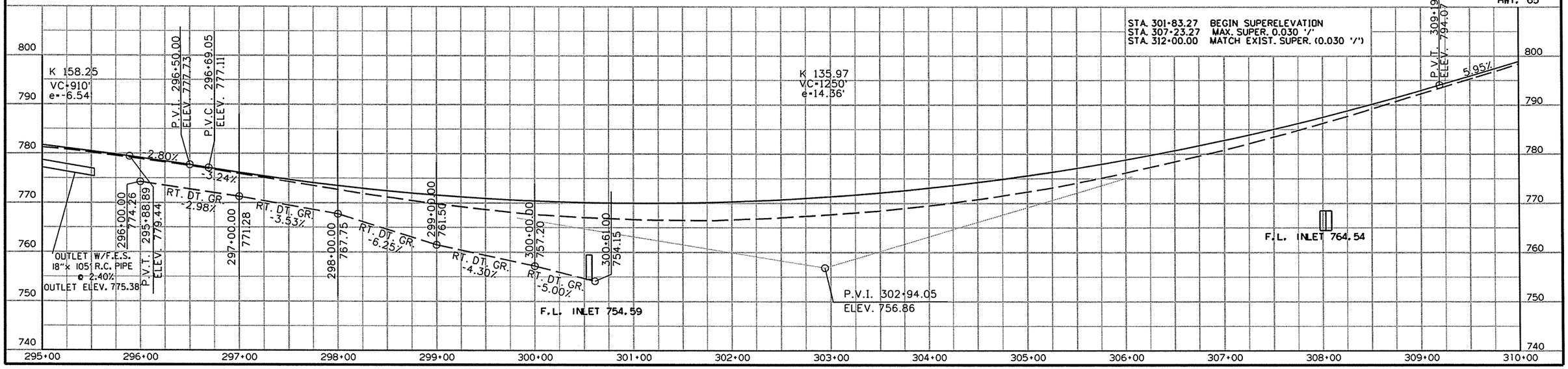
STA. 301+83.27 BEGIN SUPERELEVATION
STA. 307+23.27 MAX. SUPER. 0.030 '/'
STA. 312+00.00 MATCH EXIST. SUPER. (0.030 '/')



REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

RIGHT SIDE — HWY. 65

STA. 301+83.27 BEGIN SUPERELEVATION
STA. 307+23.27 MAX. SUPER. 0.030 '/'
STA. 312+00.00 MATCH EXIST. SUPER. (0.030 '/')



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CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SO. YDS.
307+52	312+00	LT.	6'	298.7

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				6	ARK.			
				JOB NO.		080391	99	232

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

PI = 311+24.70
Δ = 10°41'51"RT.
D = 1°00'00"
T = 536.43'
L = 1069.75'
PC = 305+88.27
PT = 316+58.02
e = 0.030'/'
Ls = 540.00'

N

PROPOSED R.O.W.
CONST. LIMITS
R.I. 311+24.70
+00 100' TRANSITION +00
+00 86.19
+92.35 82.44
310
N 55°11'51" W
N 44°30'00" W
8'
17.5'
12'
12'
12'
13.5'
EXIST. R.O.W.
315
317+46.28
POE
A 317
N 44°30'00" W
P.T. 316+58.02
CONST. LIMITS
O.W.
+00.00 120.00
+89.75 98.68
EXIST. R.O.W.

STA. 312+00.00
END JOB 080391

HWY. 65

STA. 301+83.27 BEGIN SUPERELEVATION
STA. 307+23.27 MAX. SUPER. 0.030 '/'
STA. 312+00.00 MATCH EXIST. SUPER. (0.030 '/')

5.95%
P.V.I. 312+00.00
ELEV. 810.80

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

830 820 810 800 790 780 770

310+00 311+00 312+00 313+00 314+00 315+00 316+00 317+00 318+00 319+00 320+00 321+00 322+00 323+00 324+00 325+00

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				6	ARK.			
				JOB NO.		080391	100	232

(2) PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

STA. 507+54 IN PLACE
18" x 30' C.M. PIPE CULVERT
LT. SIDE DRAIN - REMOVE
CONST. APPR. ON LT. = 25 C.Y. (UNCL. EXC.)

STA. 508+71IN PLACE
18" x 24' C.M. PIPE CULVERT
LT. SIDE DRAIN - REMOVE
CONST. APPR. ON LT. = 40 C.Y. (UNCL. EXC.)

STA. 513+46 - CONSTRUCT
APPROACH ON LT. = 40 CU. YDS.

STA. 505+03 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 3.3 SQ. YDS.

STA. 506+90 - CONSTRUCT
D.I. ON LT.
24" X 8' R.C. STUB INLET WITH F.E.S.
24" X 53' R.C. CROSS DRAIN OUTLET (CLASS V)
CONNECT TO D.I. @ STA. 506+50 RT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 4' 2"

STA. 508+00 - CONSTRUCT
D.I. ON LT. W/4' EXTENSION &
18" x 106' PIPE OUTLET
CONNECT TO D.I. @ STA. 506+90 LT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 8"

PI = 511+28.73
Δ = 22°54'54"LT.
D = 10°00'00"
T = 116.13'
L = 229.15'
PC = 510+12.60
PT = 512+41.75
NO SUPER

STA. 512+50 LT. TO STA. 280+25 RT.
(N.E. CORNER - HWY. 65 & HWY. 92)
CONSTRUCT 270 LINEAR FEET SIDEWALK SPECIAL.
INCLUDE WHEELCHAIR RAMP AREAS.
SEE "SPECIAL DETAILS" SHEETS FOR DETAILS.
CONCRETE WALK (TYPE SPECIAL) = 150 S.Y.

REMOVAL AND DISPOSAL OF FENCE

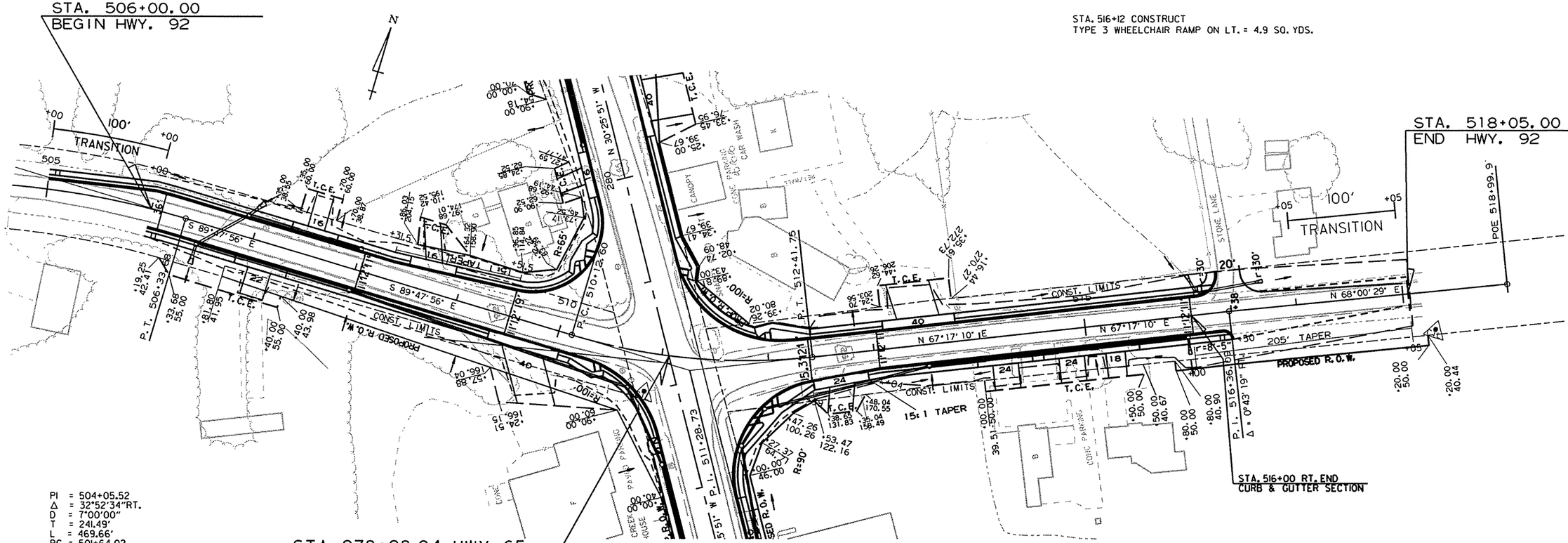
STA.	STA.	SIDE	LIN. FT.
511+50	513+36	RT.	200

STA. 516+38 - STONE LANE
IN PLACE
18" x 24' C.M. PIPE CULVERT
LT. SIDE DRAIN - REMOVE
CONST. APPR. ON LT. = 5 CU. YDS.

STA. 516+07 - CONSTRUCT
D.I. ON LT. W/4' EXTENSION &
18" X 11' R.C. STUB INLET &
WITH F.E.S. &
18" X 55' R.C. PIPE OUTLET
WITH F.E.S.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 10"

STA. 506+67 - IN PLACE
24" X 53' C.M. PIPE CULVERT
CROSS DRAIN
REMOVE

STA. 506+00.00
BEGIN HWY. 92



PI = 504+05.52
Δ = 32°52'34"RT.
D = 7°00'00"
T = 241.49'
L = 469.66'
PC = 501+64.02
PT = 506+33.68
e = 0.078'/'
Ls = 250.00'

STA. 278+28.04 HWY. 65 =
STA. 511+06.59 HWY. 92
Δ = 59° 22' 05"

STA. 516+12 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 4.9 SQ. YDS.

STA. 518+05.00
END HWY. 92

STA. 516+22 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 3.9 SQ. YDS.

STA. 506+03 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 3.3 SQ. YDS.

STA. 506+50 - CONSTRUCT
D.I. ON RT. W/4' EXTENSION &
24" X 9' R.C. STUB OUTLET
WITH F.E.S.
TY MO = 4' I.D.
TY C = 4'X4'
H = 4' 2"

STA. 508+00 - CONSTRUCT
D.I. ON RT. W/8' EXTENSION &
18" x 146' PIPE OUTLET
CONNECT TO D.I. @ STA. 506+50 RT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 8"

STA. 510+74.40 (STA. 278+10 HWY.65)
CONSTRUCT D.I. ON RT. W/8' EXT. &
18" x 272' PIPE OUTLET
CONNECT TO D.I. @ STA. 508+00 RT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 8"

STA. 511+93.50 (STA. 277+60 HWY.65)
CONSTRUCT D.I. ON RT. W/4' EXT. &
18" x 156' PIPE OUTLET
CONNECT TO D.I. @ STA. 513+50 RT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 9"

STA. 513+50 - CONSTRUCT
D.I. ON RT. W/4' EXTENSION
OPENING IN THE BACK &
18" x 241' PIPE OUTLET
CONNECT TO D.I. @ STA. 515+95 RT.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 4"

STA. 515+95 - CONSTRUCT
D.I. ON RT. W/4' EXTENSION &
18" X 7' R.C. STUB OUTLET
WITH F.E.S.
TY MO = 4' I.D.
TY C = 4'X4'
H = 3' 3"

STA. 507+14 IN PLACE
18" x 30' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONST. APPR. ON RT.= 30 CU. YDS.

STA. 509+71IN PLACE
18" x 39' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONST. APPR. ON RT. = 60 C.Y. (UNCL. EXC.)

STA. 512+66 IN PLACE
18" x 45' PLASTIC PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONST. APPR. ON RT. = 5 CU. YDS.

STA. 514+21IN PLACE
18" x 34' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONST. APPR. ON RT. = 5 C.Y. (UNCL. EXC.)

STA. 514+84 IN PLACE
18" x 34' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONST. APPR. ON RT. = 15 C.Y. (UNCL. EXC.)

STA. 515+24 IN PLACE
18" x 30' C.M. PIPE CULVERT
RT. SIDE DRAIN - REMOVE
CONST. APPR. ON RT. = 5 C.Y. (UNCL. EXC.)

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HWY. 92

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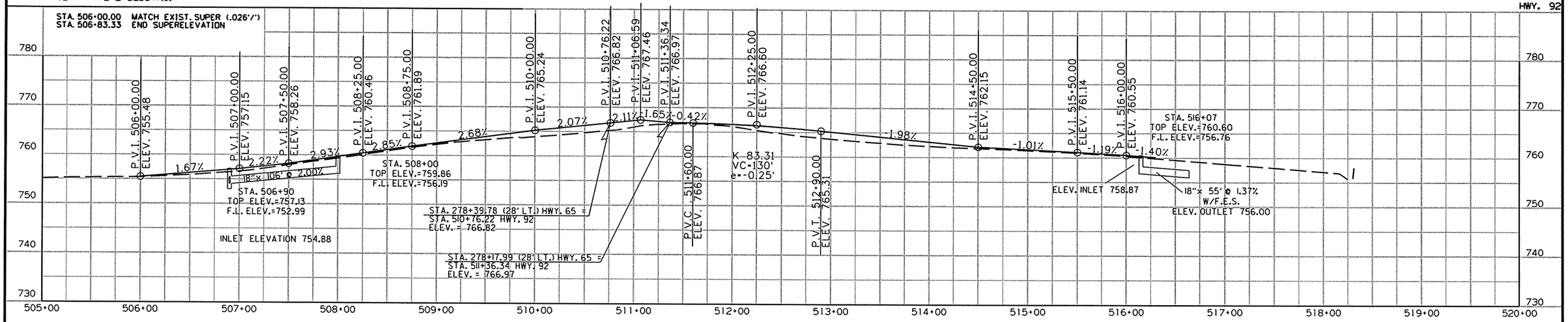
				6	ARK.			
				JOB NO.		080391	101	232

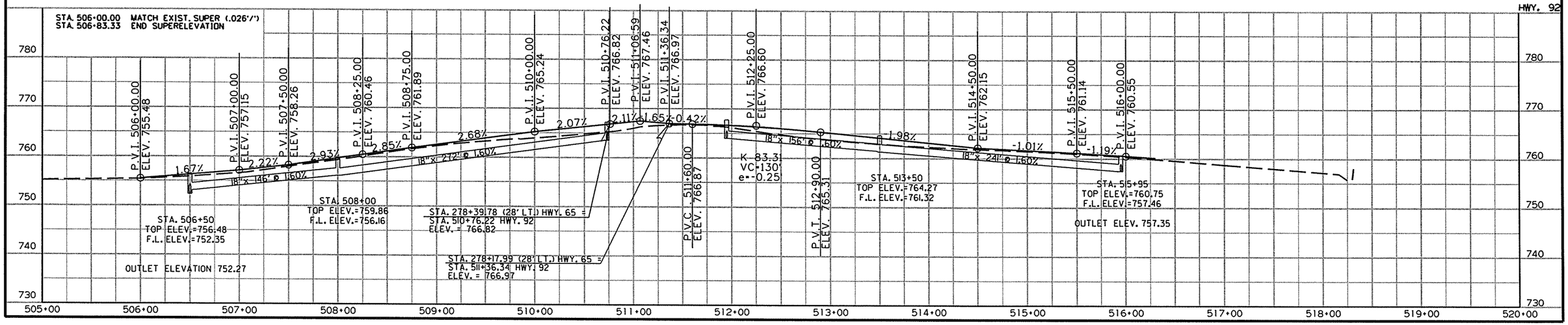
(2) PROFILE SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

UNLESS OTHERWISE NOTED, ALL CONCRETE PIPE CULVERTS ARE TO BE CLASS III WITH A TYPE 3 BEDDING. ALL METAL PIPES ARE TO HAVE A TYPE 2 BEDDING.



REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.



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				6	ARK.			
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(2) TRAFFIC SIGNAL QUANTITIES & NOTES

TRAFFIC SIGNAL NOTES:

1. PERFORM ELECTRICAL WORK IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (2012) NATIONAL ELECTRICAL CODE, NFPA 101(2014) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.
2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (EGC) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND EGC TO GROUND LUG OF CONTROL CABINET AND TO POLE GROUND. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.
3. ELECTRICAL SERVICE SHALL BE PROVIDED BY THE COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER), GALVANIZED STEEL SERVICE RISER, METER LOOP (IF REQUIRED), AND WEATHERHEAD AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. IF THE SERVICE POINT IS OVER 10 FEET FROM THE CONTROLLER, THE CONTRACTOR SHALL PROVIDE AND INSTALL A SEPARATE TWO CIRCUIT EXTERNAL BREAKER (SECONDARY BREAKER) ON OR NEAR THE TRAFFIC SIGNAL CONTROLLER CABINET AND SHALL INSTALL CONDUIT, ELECTRICAL SERVICE WIRE (2c/#6 USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO TAP INTO THE COUNTY'S MAIN BREAKER AS PART OF THIS CONTRACT. CONDUIT IS PAID FOR AS A SEPARATE ITEM OF THIS CONTRACT. TWO CIRCUIT BREAKERS, CONSIDERED SUBSIDIARY TO THE CONTROL EQUIPMENT WHERE STREET LIGHTING IS INCLUDED. AS PART OF THE SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2c/#12 AWG UF RATED, TYPICAL) SHALL BE KEPT FROM THE CIRCUIT SERVING THE TRAFFIC SIGNAL CONTROL EQUIPMENT FROM THE POINT OF TIE-IN AT THE SECONDARY BREAKER PROVIDED BY THE CONTRACTOR.
4. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.
5. TRAFFIC CONTROLLER CABINET SHALL HAVE 16 LOAD BAYS AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO THE CONTROLLER.
6. CONTROLLER CABINET SHALL BE WIRED SUCH THAT DURING FLASH OPERATIONS POWER TO THE LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS.
7. ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARDS AND DETAILS, AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITIONS.
8. CONDUIT INSTALLED UNDER ROADWAY SURFACES SHALL BE INSTALLED BY PUSHING OR BORING METHODS. IF THE ENGINEER DETERMINES THIS IS NOT FEASIBLE, THEN A TRENCHING METHOD MAY BE USED.
9. TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.
10. PAVEMENT MARKING SHOWN FOR REFERENCE ONLY. SEE PAVEMENT MARKING PLAN SHEETS.
11. FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON SPECIAL DETAILS). PAYMENT WILL BE INCLUDED IN SECTION 714, AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
12. ALL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE 3" DIAMETER UNLESS SPECIFIED ON PLANS.
13. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.
14. LUMINAIRE ASSEMBLIES SHALL BE OF THE FULL CUTOFF TYPE.
15. HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTUATE THE ASSOCIATED PHASE. COMBINATION (COMB.) DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNT/OCCUPANCY DATA.
16. THE LOCAL RADIO WITH ANTENNA SHALL BE COMPATIBLE WITH THE EXISTING CLOSED LOOP COORDINATION SYSTEM IN THE COUNTY.
17. TO DETERMINE UTILITY CLEARANCES ABOVE THE TRAFFIC SIGNAL POLE, REFER TO THE POLE SCHEDULE FOR VERTICAL SHAFT HEIGHT. WHERE THE POLE SCHEDULE INDICATES THAT A LUMINAIRE ARM WILL BE USED, 38 FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINAIRE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINAIRE ARM, A HEIGHT OF 21' SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL 6 FEET SHOULD BE USED DIRECTLY ABOVE "VIDEO DETECTOR" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.
18. THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS 6 FEET. REFER TO TRAFFIC SIGNAL PLANS FOR SPECIFIC LOCATION OF POLES, CONTROLLER AND ANY OTHER NON-BREAKAWAY OBSTRUCTIONS. REFER TO "DESIGN PARAMETERS, MINIMUM CLEAR ZONE DISTANCE" FOR MINIMUM DISTANCE FROM THE EDGE OF TRAVELED WAY TO THE FACE OF A NON-BREAKAWAY POLE OR OBSTRUCTION. TRAFFIC SIGNAL POLES OR ANY OTHER NON-BREAKAWAY OBSTRUCTION SHALL NOT BE INSTALLED WITHIN THE CLEAR ZONE.
19. AS DETERMINED BY THE ENGINEER, FOUNDATION EMBEDMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVING PLAN EMBEDMENT AND AT LEAST HALF OF THE REMAINING PLAN EMBEDMENT LENGTH IS KEYED INTO COMPETENT ROCK.
20. CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP BEHIND HAND-HOLE COVER AT BASE OF POLE. TERMINAL STRIP SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT POLE COVER IS MISSING. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714-TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION.
21. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO ISMA STANDARDS.
22. ONE VIDEO PROGRAMMING MODULE SHALL BE PROVIDED FOR AIMING AND SETUP OF DETECTORS IF THE VIDEO SYSTEM CANNOT BE ADJUSTED THROUGH HARDWARE AND SOFTWARE PROVIDED BY ITEMS WITHIN THE JOB.
23. TRAFFIC SIGNAL CONTRACTOR MUST NOTIFY RESIDENT ENGINEER OR ASSIGNED DEPARTMENT PROJECT INSPECTOR EACH DAY PRIOR TO SIGNAL RELATED WORK. NO WORK ON TRAFFIC SIGNALS WILL BE ALLOWED OR APPROVED WITHOUT THIS PRIOR NOTIFICATION.
24. ALL STEEL POLES SHALL BE DESIGNED TO MEET THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-14

TRAFFIC SIGNAL QUANTITIES

ITEM NO.	ITEM	QUANTITY	UNIT
SP&701	ACTUATED CONTROLLER TS 2-TYPE 2 (8 PHASES)	1	EACH
703	FLASHING BEACON CONTROLLER	1	EACH
SP&706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	12	EACH
SP&706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	4	EACH
SP&707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	8	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	3122	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	284	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	628	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (2")	20	LIN. FT.
710	NON-METALLIC CONDUIT (3")	819	LIN. FT.
711	CONCRETE PULL BOX (TYPE 1 HD)	1	EACH
711	CONCRETE PULL BOX (TYPE 2 HD)	8	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (42')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (52')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (56')	1	EACH
715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	5	EACH
733	VIDEO CABLE	1812	LIN. FT.
• SP&733	VIDEO DETECTOR (CLR)	9	EACH
733	VIDEO MONITOR (CLR)	1	EACH
• SP&733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	5	EACH
SP&733	VIDEO EDGE CARD EXTENDER	2	EACH
SP&733	VEHICLE DETECTOR RACK (24 CHANNEL)	1	EACH
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., EGC)	802	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., EGC)	205	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	20	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	822	LIN. FT.
SP	LUMINAIRE ASSEMBLY	4	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH

• ONE SPARE VIDEO DETECTOR AND ONE SPARE VIDEO PROCESSOR SHALL BE SUPPLIED.

DATE: 09-29-14 FILE NAME: t080391.dgn

LOCATION: HWY. 65/HWY. 92
CITY:
COUNTY: VAN BUREN
DISTRICT: 8 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	103	232

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

SIGN MOUNTED FLASHING BEACON LOCATED AT STA. 289+50 ON LT. W3-3 "SIGNAL AHEAD" AND ASSEMBLY TO BE INSTALLED BY THE DEPARTMENT. (SEE SPECIAL PROVISION AND FLASHING BEACON DETAILS).

VIRTUAL 6'X6' PULSE LOOP (TYPICAL)
Vz51 LOCATED 85' BEHIND STOP LINE
VIRTUAL 6'X50' PRESENCE LOOP (TYPICAL)

CONC. PULL BOX (TYPE I HD)

Vz31 LOCATED 85' BEHIND STOP LINE

Vz70 LOCATED 85' BEHIND STOP LINE

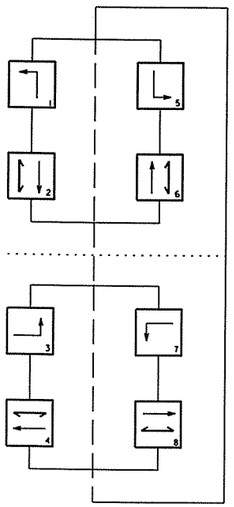
Vz11 LOCATED 85' BEHIND STOP LINE

2-3" DIA. NMC

2-3" DIA. NMC
SERVICE POINT AND MAIN BREAKER BY CONTRACTOR WITHIN 10' OF CONTROLLER

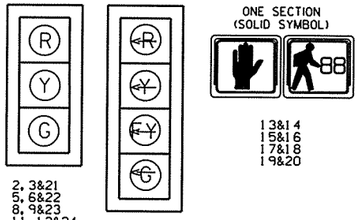
2-3" DIA. NMC INTO CONTROLLER

PHASING DIAGRAM



SIGNAL FACES

12" LENSES



NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS

DETECTOR SPACING CHART

HWY. 65/HWY. 92		
POSTED SPEED	DISTANCE FROM STOP BAR	
	LEAD LOOP	LAG LOOP
HWY. 65 - 45 MPH	330'	115'
HWY. 92 - 45 MPH	330'	115'

HWY. 65/HWY. 92 POLE DIMENSIONS

POLE	MAST ARM	•MAST ARM ANGLE	VERT. SHAFT	LUM. ARM	•LUM. ANGLE
A	52'	270°	35'	15'	270°
B	50'	180°	35'	10'	180°
C	N/A	N/A	15'	N/A	N/A
D	N/A	N/A	15'	N/A	N/A
E	42'	180°	35'	10'	180°
F	N/A	N/A	15'	N/A	N/A
G	56'	180°	35'	25'	180°
H	N/A	N/A	15'	N/A	N/A
I	N/A	N/A	15'	N/A	N/A

ANGLE MEASURED CLOCKWISE FROM HAND HOLE.

SCALE IN FEET
0 30 60 120

DATE: 09-26-14 FILE NAME: t080391.dgn

LOCATION: HWY. 65/HWY. 92
CITY:
COUNTY: VAN BUREN
DISTRICT: 8 SCALE: 1"=60' DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	104	232

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

VIRTUAL 6'X6' PULSE LOOP (TYPICAL)
Vz51 LOCATED 85' BEHIND STOP LINE
VIRTUAL 6'X50' PRESENCE LOOP (TYPICAL)
CONC. PULL BOX (TYPE 1 HD)
Vz31 LOCATED 85' BEHIND STOP LINE
Vz71 LOCATED 85' BEHIND STOP LINE
Vz11 LOCATED 85' BEHIND STOP LINE
2-3" DIA. NMC
2-3" DIA. NMC
SERVICE POINT AND MAIN BREAKER BY CONTRACTOR WITHIN 10' OF CONTROLLER
2-3" DIA. NMC INTO CONTROLLER

DESIGN PARAMETERS

POSTED SPEED LIMIT:
45 MPH EAST AND WEST APPROACH
45 MPH NORTH AND SOUTH APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

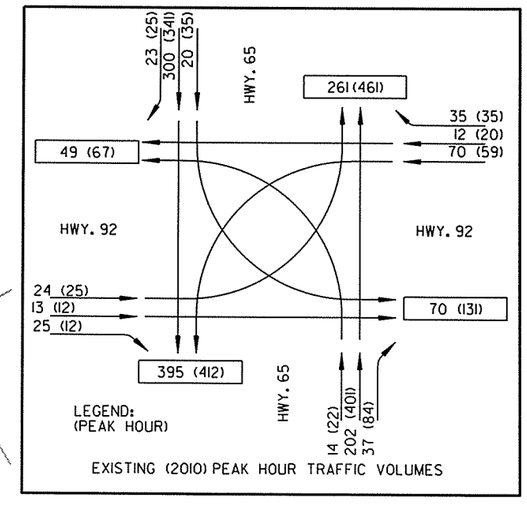
LOCATION OF STOP BARS SHOWN ON PAVEMENT MARKING PLAN. SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE
3 FEET BEHIND CURB

HWY. 65/HWY. 92 POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 65 - STA. A277+88.96	48' LT.	1194874.48, 407031.08
B	HWY. 65 - STA. A278+32.46	74' LT.	1194830.74, 407055.83
C	HWY. 65 - STA. A279+33.13	63' LT.	1194788.78, 407147.95
D	HWY. 65 - STA. A279+46.90	49' LT.	1194794.34, 407167.17
E	HWY. 65 - STA. A279+03.35	39' RT.	1194891.33, 407173.64
F	HWY. 65 - STA. A278+27.77	100' RT.	1194982.32, 407139.44
G	HWY. 65 - STA. A277+46.79	88' RT.	1195013.43, 407063.79
H	HWY. 65 - STA. A277+44.02	68' RT.	1194997.64, 407051.31
I	HWY. 65 - STA. A277+41.34	40' LT.	1194905.73, 406994.21

TRAFFIC FLOW DIAGRAM



EXISTING (2010) PEAK HOUR TRAFFIC VOLUMES

SCALE IN FEET
0 20 40 80

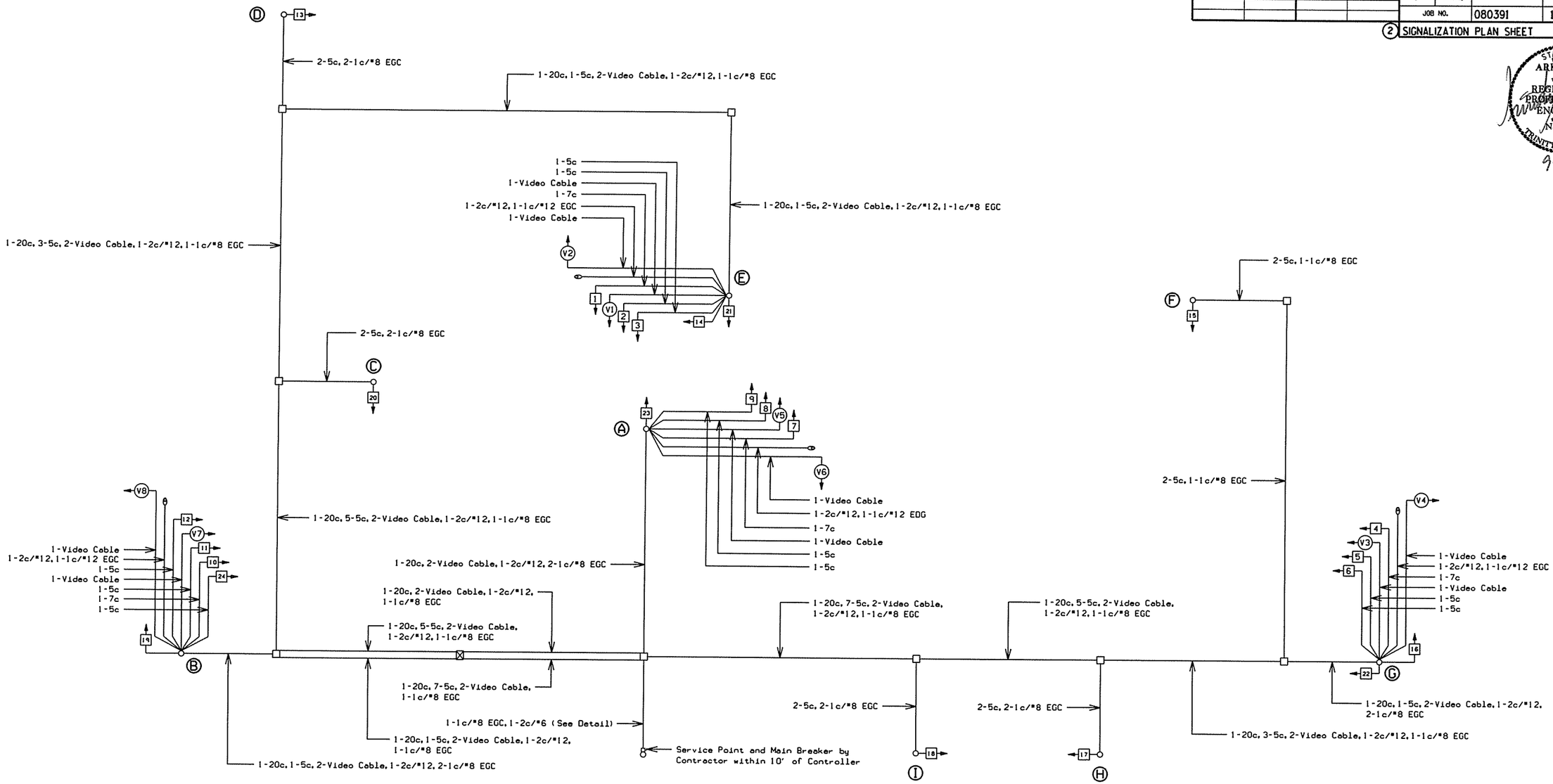
DATE: 09-26-14 FILE NAME: t080391.dgn

LOCATION: HWY. 65/HWY. 92
CITY:
COUNTY: VAN BUREN
DISTRICT: 8 SCALE: 1"=40' DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	105	232

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14



WIRING DIAGRAM

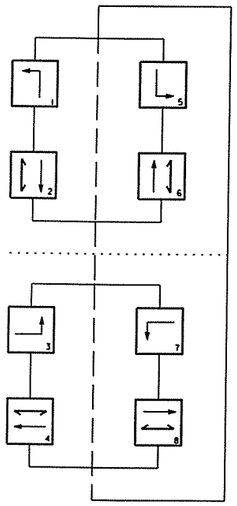
NOTES TO CONTRACTOR:

1. ONE SEPARATE 1-5c IS RUN TO EACH POLE FOR THE PEDESTRIAN PUSH BUTTON.
2. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
3. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.

DATE: 09-26-14 FILE NAME: t080391.dgn

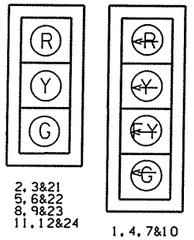
LOCATION: HWY. 65/HWY. 92
CITY:
COUNTY: VAN BUREN
DISTRICT: 8 SCALE: N/A DRAWN BY: GWE

PHASING DIAGRAM



SIGNAL FACES

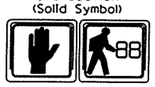
12" LENSES



2, 3&21
5, 6&22
8, 9&23
11, 12&24

1, 4, 7&10

One Section
(Solid Symbol)



13&14
15&16
17&18
19&20

NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080391	106	232

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-26-14

DETECTOR SYSTEM DESCRIPTION: JOB 080391

VAN BUREN COUNTY - HWY. 65/HWY. 92 DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS LOCAL			COMMENTS	TUBE LENGTHS
DET. ID*	LOCATION DIRECTION	TYPE	DET. *	CAB. TRM *	AMP CHN. *	CON. INP.*	PHS	SYSTEM DET. *	MASTER SYSTEM DETECTOR NUMBERS		
Vz11	NB LEFT TURN FAR	COMB.			1	V9	1	1		CAMERA V1	23'
Vz12	NB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	23'
Vz21A&B	SB ADVANCE	LOCAL			5	V2	2			CAMERA V2	23'
Vz22A&B	SB NEAR	COMB.			6	V10	2	2		CAMERA V5	23'
Vz31	EB LEFT TURN FAR	COMB.			9	V11	3	3		CAMERA V3	23'
Vz32	EB LEFT TURN	LOCAL			10	V3	3			CAMERA V3	23'
Vz41	WB ADVANCE	COMB.			15	V12	4	4		CAMERA V7	23'
Vz42	WB NEAR	LOCAL			16	V4	4			CAMERA V7	23'
Vz51	SB LEFT TURN FAR	COMB.			7	V13	5	5		CAMERA V5	23'
Vz52	SB LEFT TURN	LOCAL			8	V5	5			CAMERA V5	23'
Vz61A&B	NB ADVANCE	LOCAL			3	V6	6			CAMERA V6	23'
Vz62A&B	NB NEAR	COMB.			4	V14	6	6		CAMERA V1	23'
Vz71	WB LEFT TURN FAR	COMB.			13	V15	7	7		CAMERA V7	23'
Vz72	WB LEFT TURN	LOCAL			14	V7	7			CAMERA V7	23'
Vz81	EB ADVANCE	COMB.			11	V16	8	8		CAMERA V3	23'
Vz82	EB NEAR	LOCAL			12	V8	8			CAMERA V3	23'
PB2A&B	WAL-MART. W. LEG	PED.				P2	2				
PB4A&B	HWY. 62 N. LEG	PED.				P4	4				
PB6A&B	HWY. 62S E. LEG	PED.				P6	6				
PB8A&B	HWY. 62 S. LEG	PED.				P8	8				
					SPARE						

NOTE:
* 'AMP CHN' REFERS TO THE DETECTOR RACK OUTPUT POSITION AND IS WIRED TO CONTROLLER INPUT DETECTOR NUMBER WHICH IS PROGRAMMED TO ACTUATE THE DESIGNATED PHASE.

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICLE INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

INTERVAL CHART

SIGNAL FACES	HWY. 65/HWY. 92 1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	3+7	CLR.	3+8	CLR.	4+7	CLR.	4+8	CLR.	FLASH SEQ.
1	⇦G	•	⇦G	•	⇦FY	•••	⇦FY	•••	⇦R	⇦R	⇦R	⇦R	⇦R	⇦R	⇦R	⇦R	⇦R
2,3&22	R	R	G	••	R	R	G	••	R	R	R	R	R	R	R	R	R
4	⇦R	⇦R	⇦R	⇦R	⇦R	⇦R	⇦R	⇦R	⇦G	•	⇦G	•	⇦FY	•••	⇦FY	•••	⇦R
5&6	R	R	R	R	R	R	R	R	R	R	G	••	R	R	G	••	R
7	⇦G	•	⇦FY	•••	⇦G	•	⇦FY	•••	⇦R	⇦R	⇦R	⇦R	⇦R	⇦R	⇦R	⇦R	⇦R
8,9&21	R	R	R	R	G	••	G	••	R	R	R	R	R	R	R	R	R
10	⇦R	⇦R	⇦R	⇦R	⇦R	⇦R	⇦R	⇦R	⇦G	•	⇦FY	•••	⇦G	•	⇦FY	•••	⇦R
11&12	R	R	R	R	R	R	R	R	R	R	R	R	G	••	G	••	R
13&14	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	W	FDW	BLK
15&16	DW	DW	W	FDW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	BLK
17&18	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	W	FDW	BLK
19&20	DW	DW	DW	DW	W	FDW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	BLK

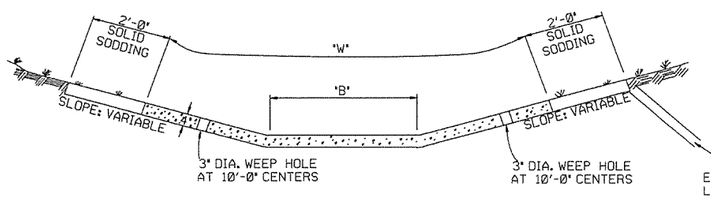
• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE

SCALE IN FEET
0 30 60 120

DATE: 09-26-14 FILE NAME: t080391.dgn

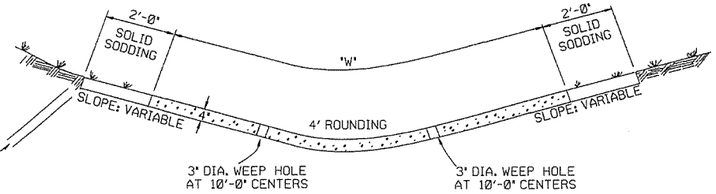
LOCATION: HWY. 65/HWY. 92
CITY:
COUNTY: VAN BUREN
DISTRICT: 8 SCALE: 1"=N/A' DRAWN BY: GWE

REFER TO TABULATION OF QUANTITIES FOR 'W' & 'B' DIMENSIONS



TYPE A

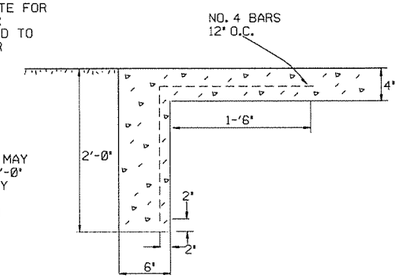
REFER TO TABULATION OF QUANTITIES FOR 'W' DIMENSIONS



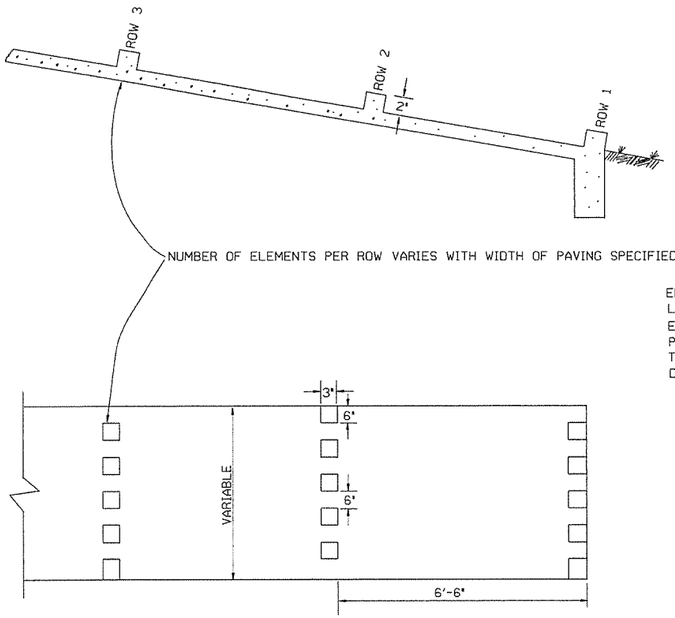
TYPE B

THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR 'CONCRETE DITCH PAVING.'

TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION



TOE WALL DETAIL FOR CONCRETE DITCH PAVING



ENERGY DISSIPATORS
(NO SCALE)

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. THE DISSIPATORS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE UNCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

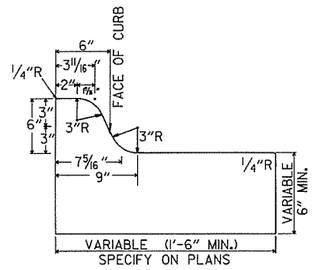
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

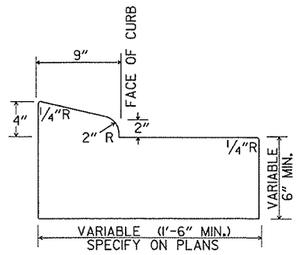
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

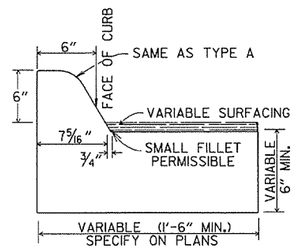
STANDARD DRAWING CDP-1



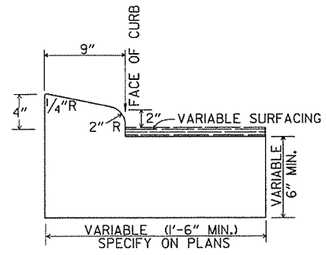
TYPE A



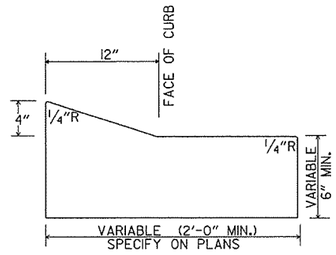
TYPE B-1



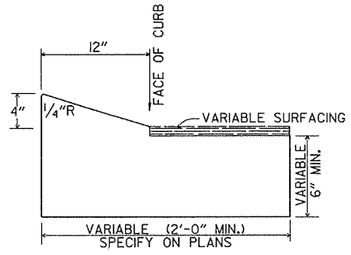
TYPE C



TYPE B-2

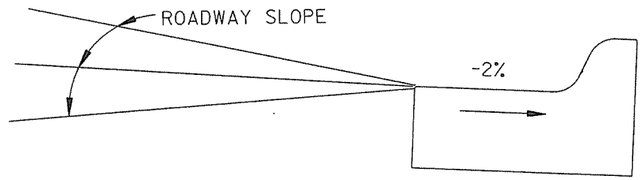


TYPE E-1



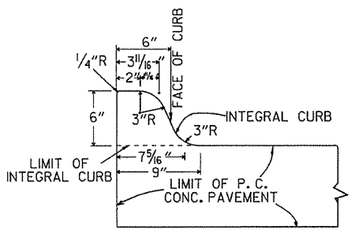
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

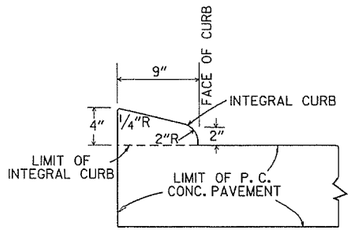


DETAIL OF GUTTER SLOPE

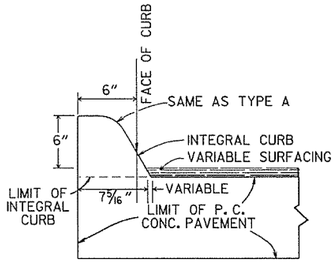
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

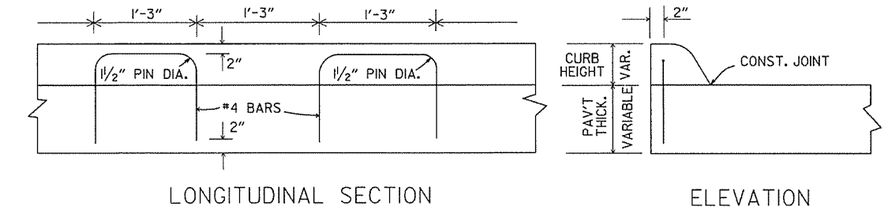


TYPE B



TYPE C

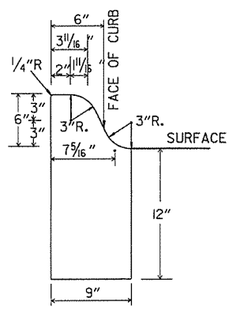
INTEGRAL CURB



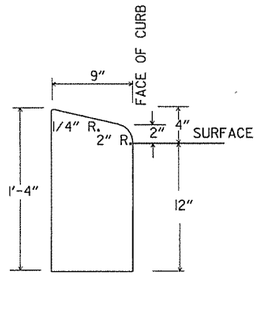
LONGITUDINAL SECTION

ELEVATION

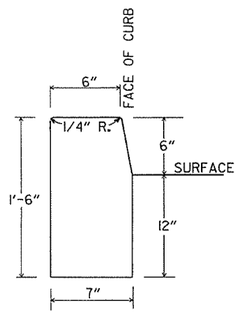
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



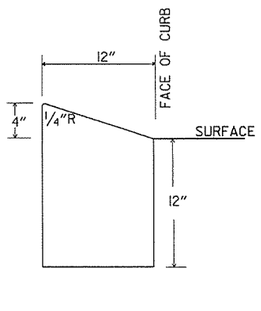
TYPE A



TYPE B

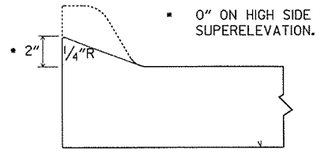


TYPE D



TYPE E

CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

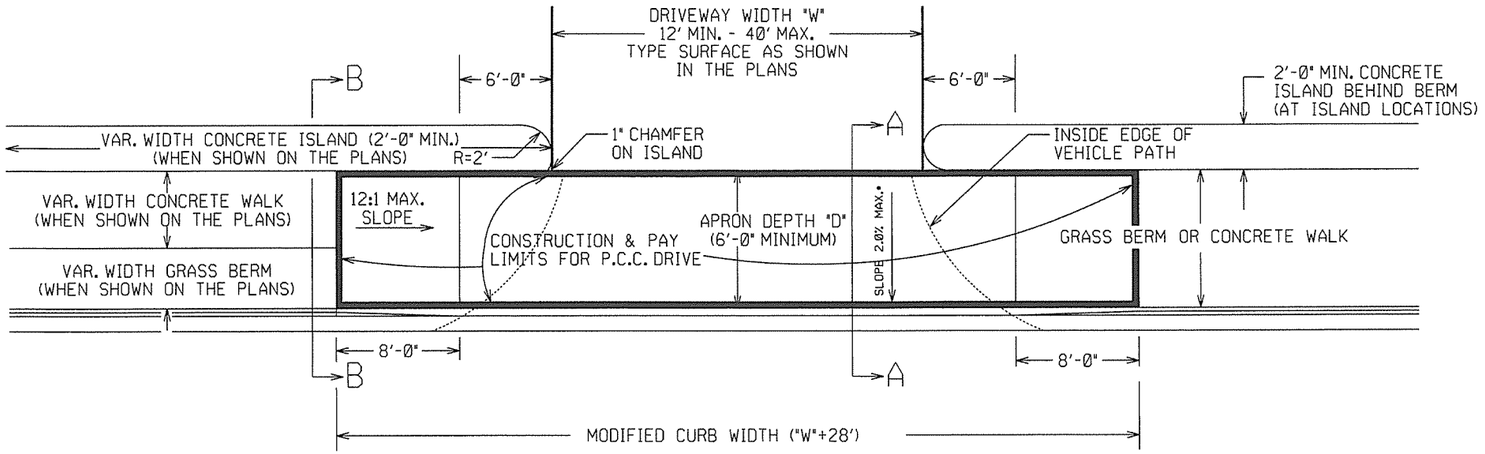
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B I	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

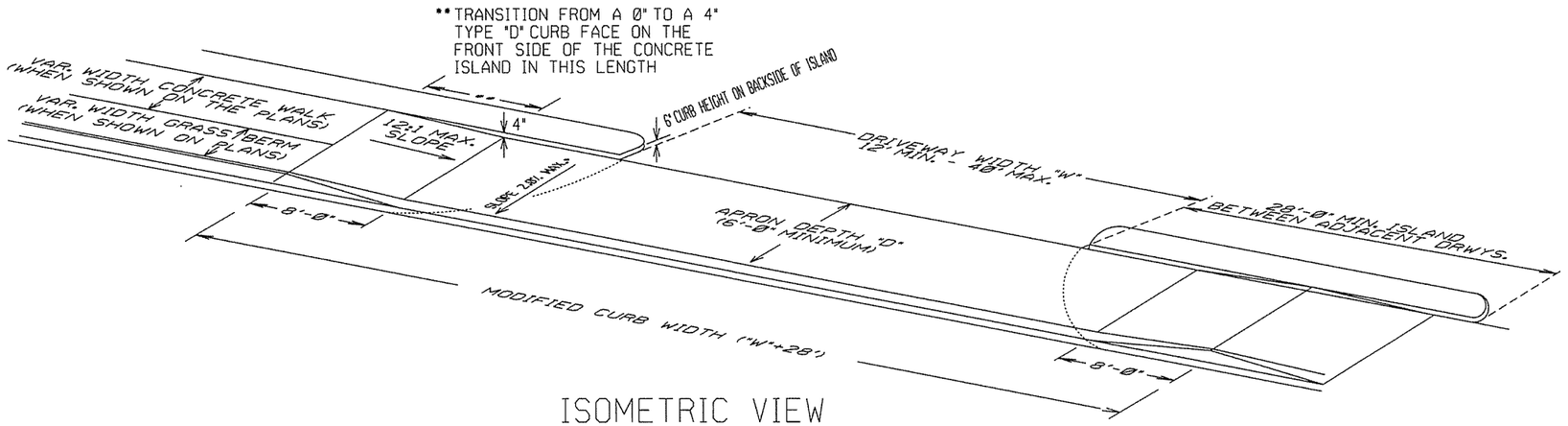
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

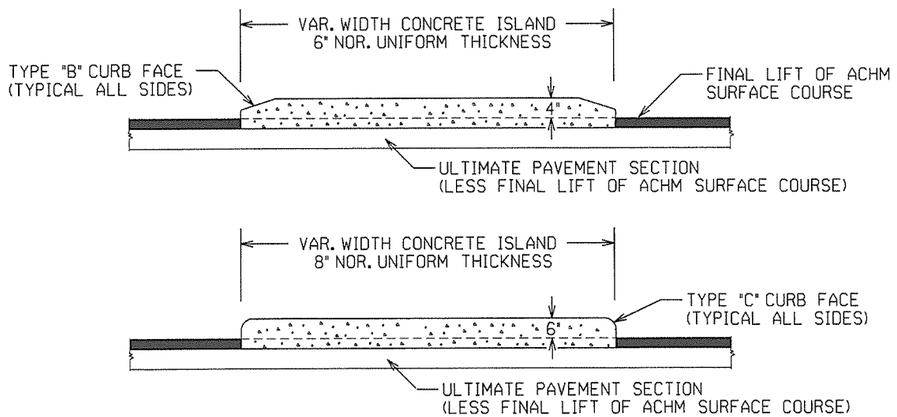
STANDARD DRAWING CG-1



PLAN VIEW

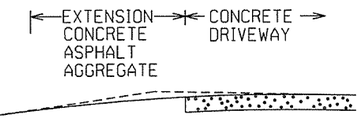


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

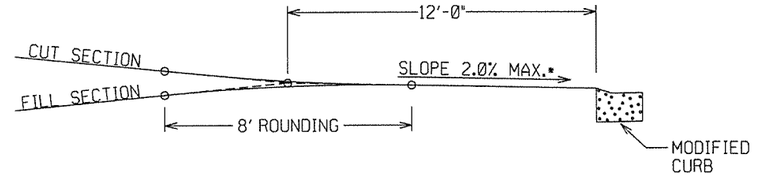
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

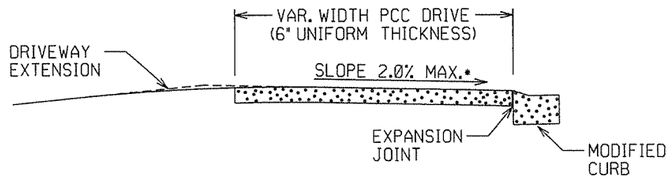
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

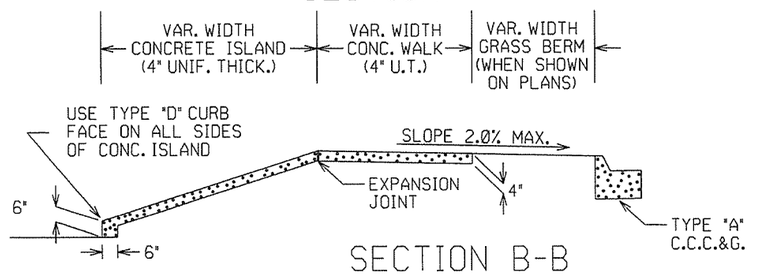


DRIVEWAY VERTICAL ALIGNMENT DETAILS

- NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



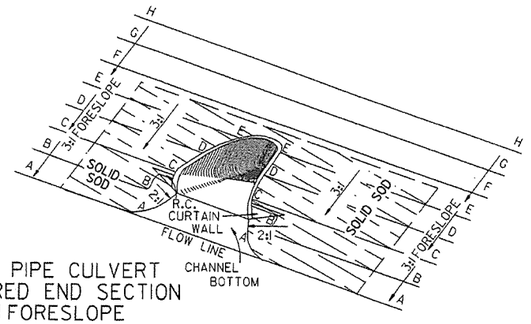
SECTION A-A



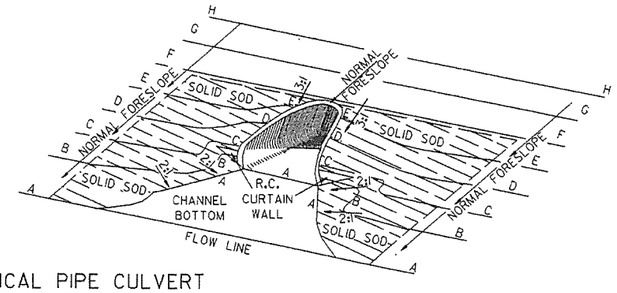
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
2-27-14		REVISED PLAN & ISOMETRIC VIEW
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

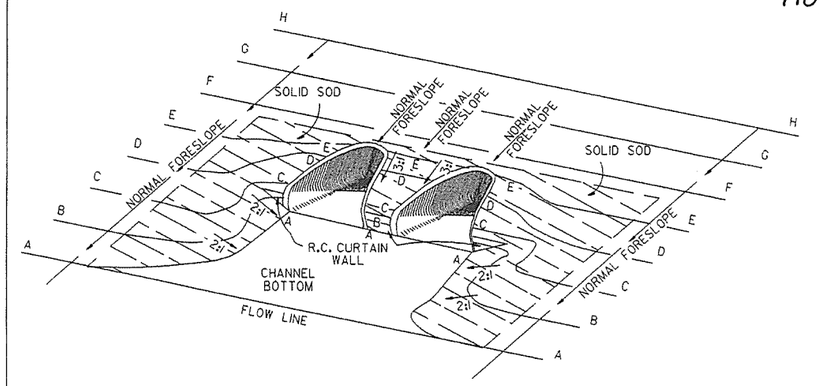
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



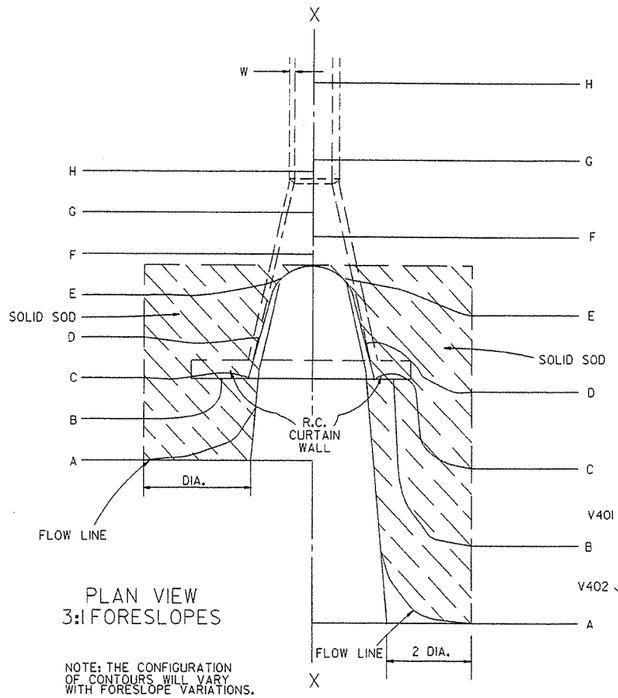
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES



PLAN VIEW
3:1 FORESLOPES

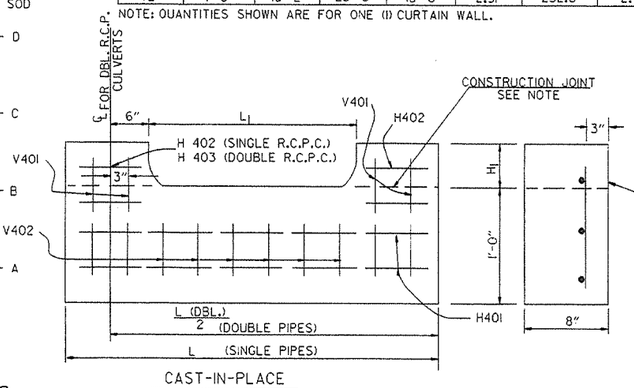
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

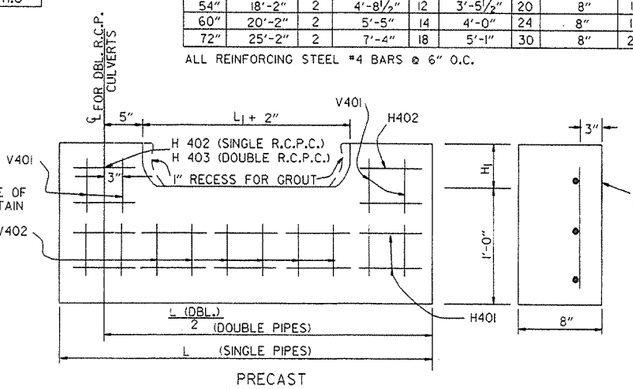
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC. CU. YDS.	SINGLE R.C.P.C. REINF. STEEL LBS.	DOUBLE R.C.P.C. CONC. CU. YDS.	DOUBLE R.C.P.C. REINF. STEEL LBS.
18"	1 1/2"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0 1/2"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3 1/2"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1 1/2"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9 1/2"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.



CAST-IN-PLACE

NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



PRECAST

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

R.C. CURTAIN WALL DETAILS

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	V401 L	V401 NO.	V402 L	V402 NO.	DOUBLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	H403 L	H403 NO.	V401 L	V401 NO.	V402 L	V402 NO.
18"	7'-8"	2	1'-11 1/2"	4	1'-7 1/2"	8	8"	8	12'-2"	2	1'-11 1/2"	4	8"	2	1'-7 1/2"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8 1/2"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8 1/2"	12	8"	18
30"	10'-8"	2	2'-4 1/2"	4	1'-11 1/2"	10	8"	12	17'-8"	2	2'-4 1/2"	4	8"	2	1'-11 1/2"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9 1/2"	8	2'-9 1/2"	16	8"	15	23'-8"	2	3'-9 1/2"	8	8"	4	2'-9 1/2"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8 1/2"	12	3'-5 1/2"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5 1/2"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

ALL REINFORCING STEEL #4 BARS @ 6" O.C.

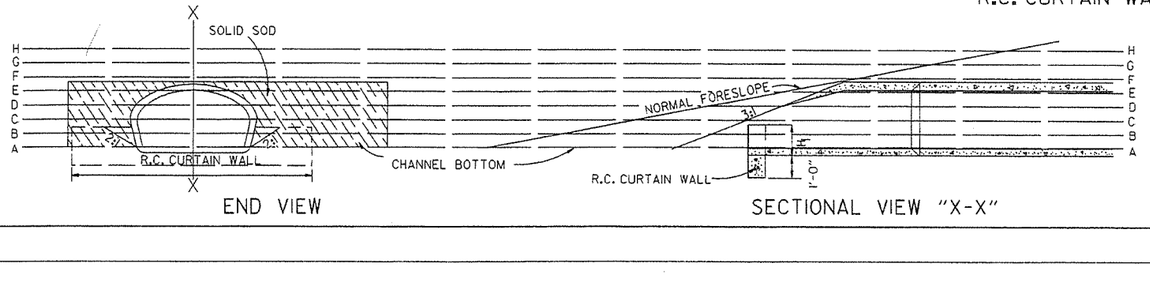
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C. 3:1 SQ. YDS.	SINGLE R.C.P.C. 4:1 SQ. YDS.	SINGLE R.C.P.C. 6:1 SQ. YDS.	DOUBLE R.C.P.C. 3:1 SQ. YDS.	DOUBLE R.C.P.C. 4:1 SQ. YDS.	DOUBLE R.C.P.C. 6:1 SQ. YDS.
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W/10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

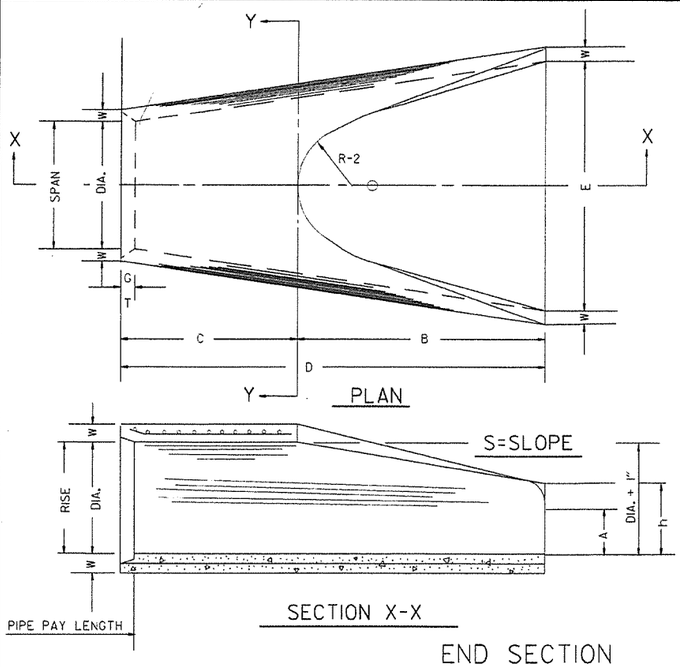
SECTIONAL VIEW "X-X"

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	10-18-96
10-12-95	CORRECTED SPELLING	
11- 3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

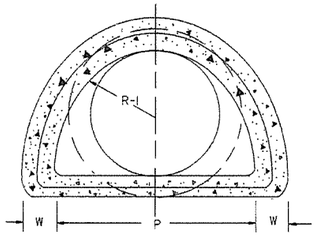
STANDARD DRAWING FES-1



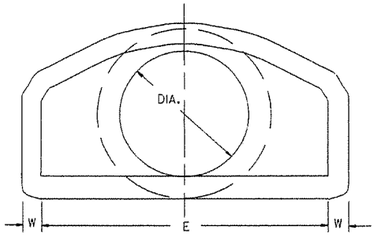
END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. − 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-11½"	4'-0"	3:1	25"	33 3/16"	16 13/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47 13/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅛"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 15/16"	24"	5"	13250	4'-6"



SECTION Y-Y



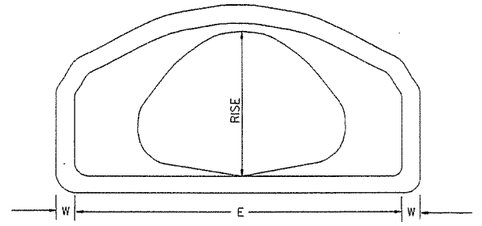
END VIEW

NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

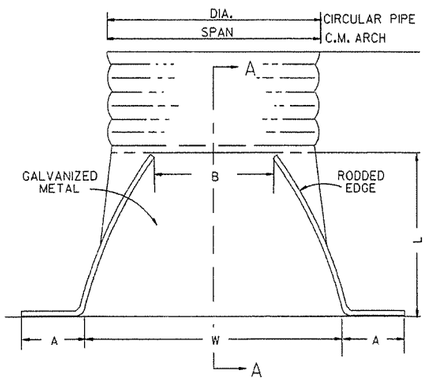
ARCH PIPE

EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 1/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-01½"	6'-1½"	6'-0"	47 1/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54 5/16"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 1/16"	24"	5"	2¼:1

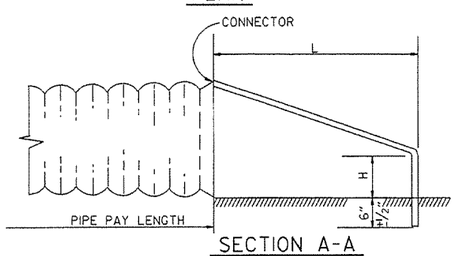
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



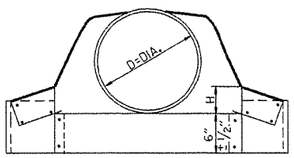
END VIEW
CONCRETE ARCH PIPE



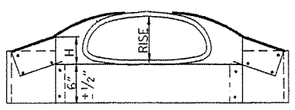
PLAN



SECTION A-A



CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

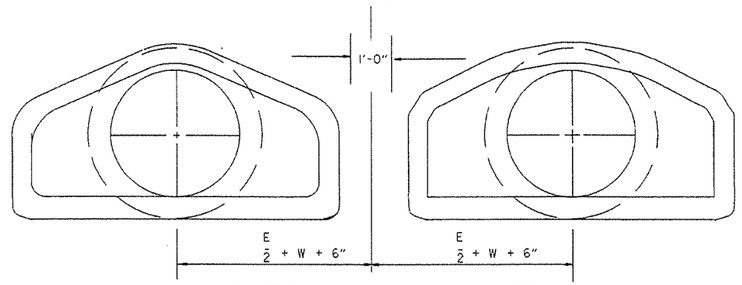
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

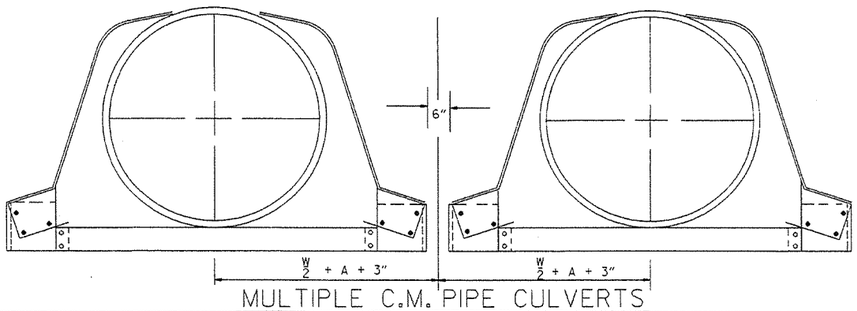
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

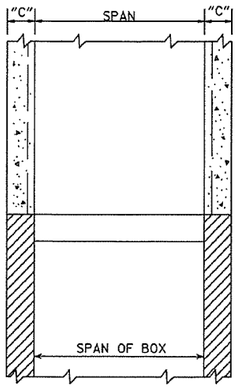
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

ARKANSAS STATE HIGHWAY COMMISION

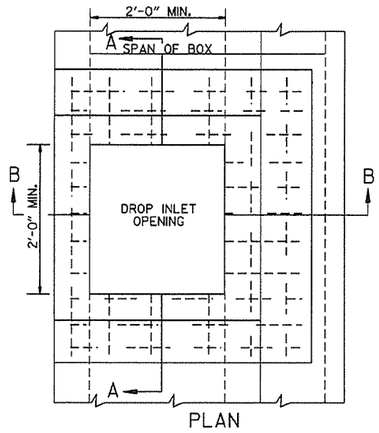
FLARED END SECTION

STANDARD DRAWING FES-2

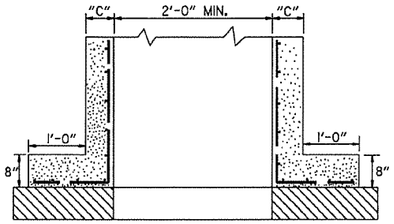
stdfes2.dgn



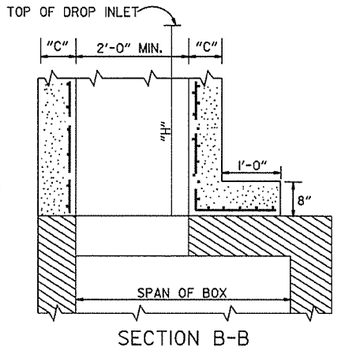
SECTION B-B



PLAN

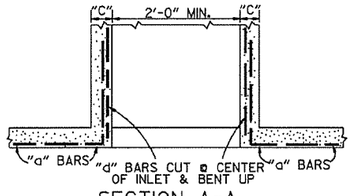


SECTION A-A

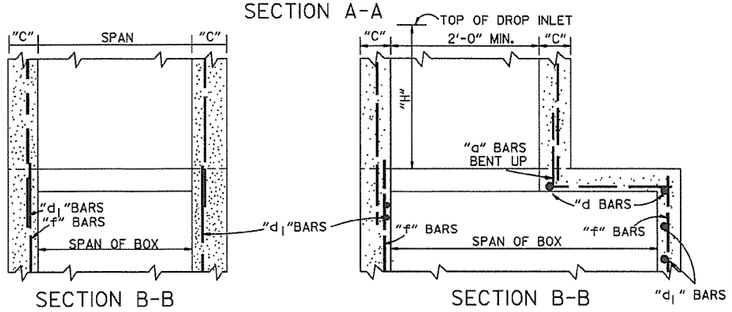


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



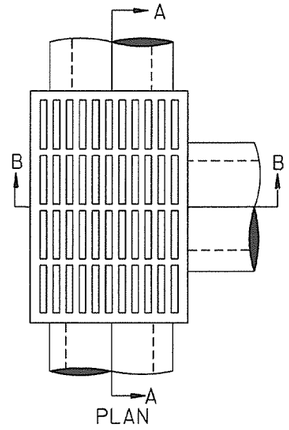
SECTION A-A



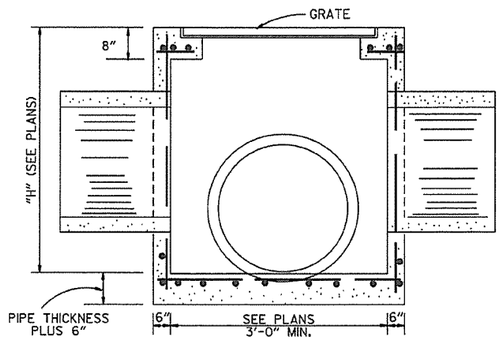
SECTION B-B SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.

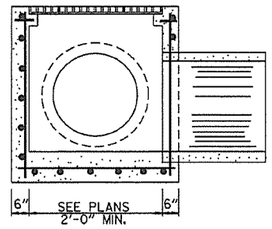


PLAN



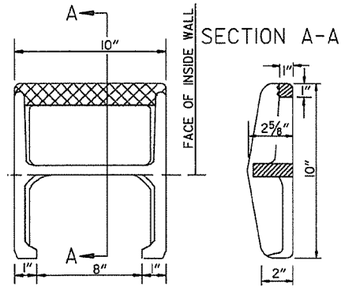
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

DROP INLET (TYPE E)

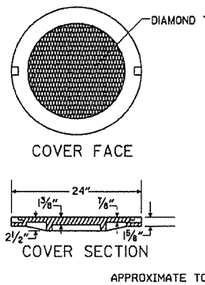


APPROX. WEIGHT = 11 LBS. (CAST IRON)

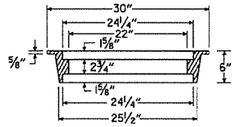
PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET



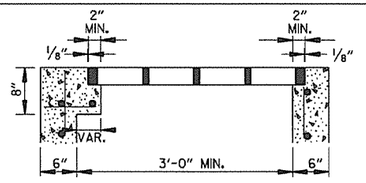
COVER SECTION



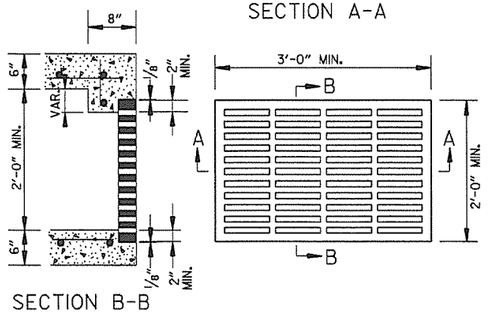
RING SECTION

APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



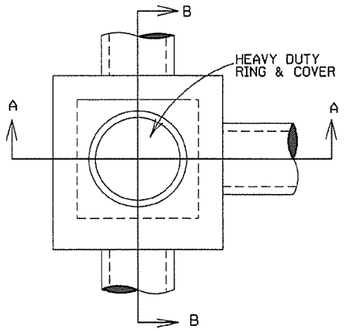
SECTION A-A



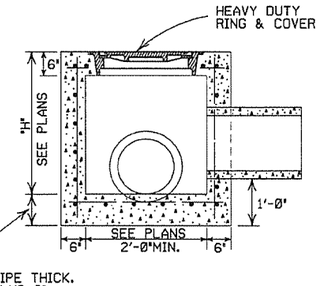
SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

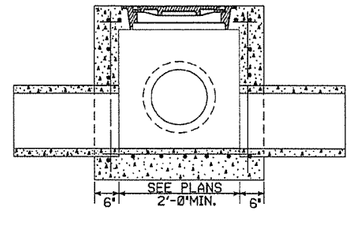


PLAN



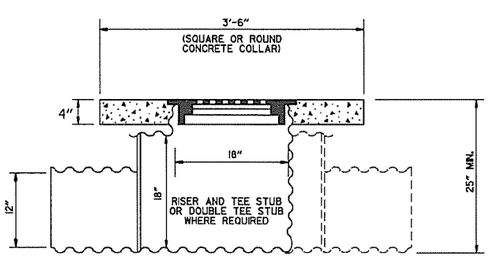
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE JUNCTION BOX TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.

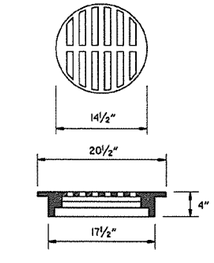


SECTION B-B

JUNCTION BOX (TYPE E)



NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12" PIPE CULVERTS TO BE MEASURED AND PAID FOR AS " 12" SIDE DRAIN ".



USE NEENAH R-5901-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

DETAIL OF YARD DRAIN

GENERAL NOTES:

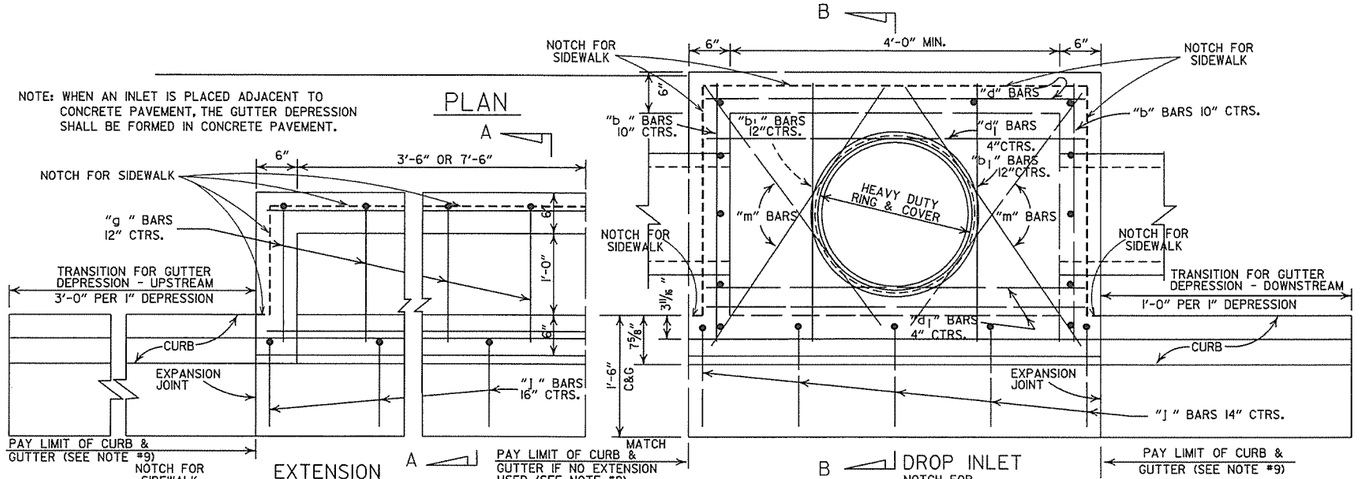
1. ALL EXPOSED CORNERS SHALL BE ¾" CHAMFERED.
2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL SHALL BE ¾" PREFORMED FIBER.
4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
5. GRATE AND FRAME SHALL NOT BE PAINTED.
6. GRATE SHALL BE BICYCLE SAFE.
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

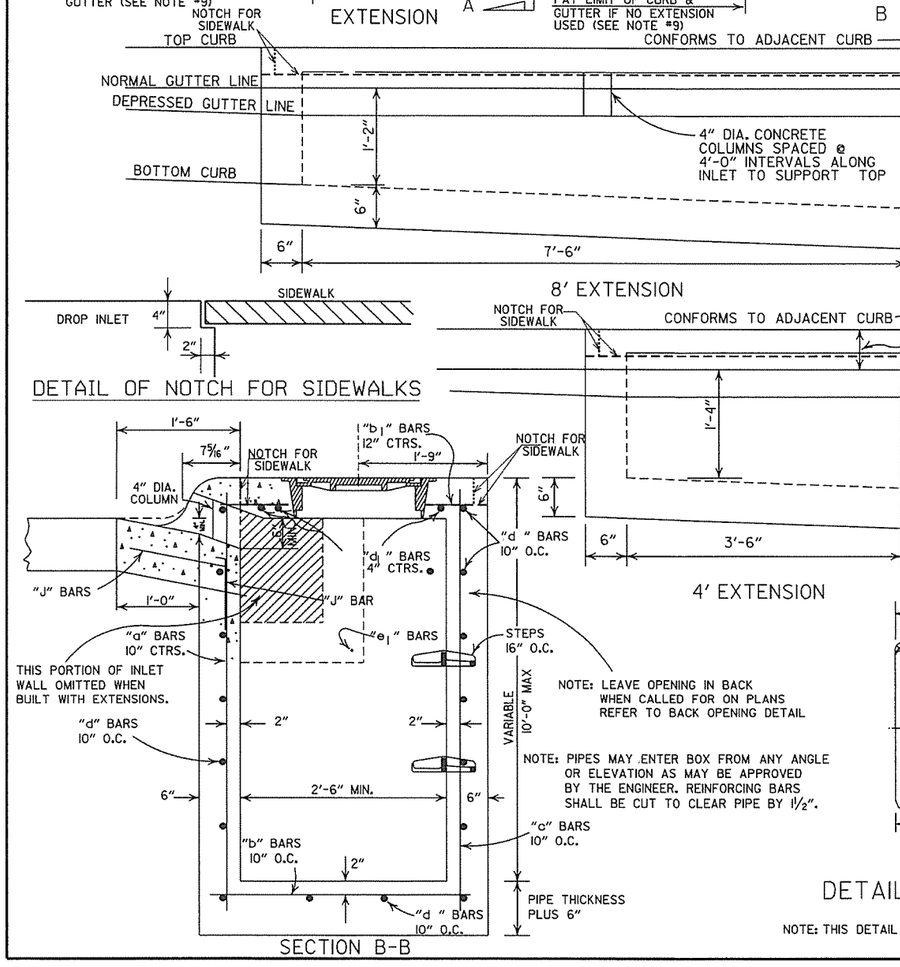
DATE REV.	REVISION	DATE FILMED
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED DI(TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS & JUNCTION BOXES

STANDARD DRAWING FPC-9





4'-0" LENGTH DROP INLET

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0" CLASS A CONC.	HEIGHT 5'-0" REINF. STEEL	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL
		CU. YDS.	POUNDS	CU. YDS.	POUNDS
18"	2'-6"	1.77	156	0.28	22
24"	2'-6"	1.79	156	0.28	22
30"	3'-2"	2.39	205	0.30	26
36"	3'-8"	2.63	236	0.32	28
42"	4'-4"	2.95	250	0.34	30
48"	4'-10"	3.21	265	0.36	32

NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

DROP INLET EXTENSION

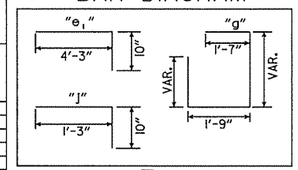
4'-0" CLASS A CONC.	4'-0" REINF. STEEL	8'-0" CLASS A CONC.	8'-0" REINF. STEEL
CU. YDS.	POUNDS	CU. YDS.	POUNDS
0.58	38	0.87	72

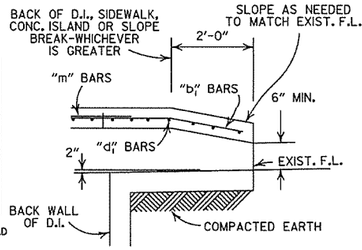
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.

0.04	3		

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET		
INSIDE DIA. PIPE	CLASS A CONC.	REINF. STEEL
INCHES	CU. YDS.	POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8

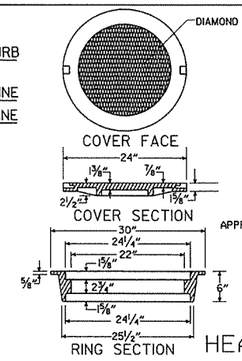
BAR DIAGRAM





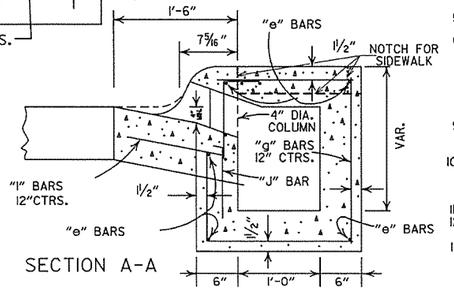
BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).



APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



SECTION A-A

GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE #4 AND HAVE 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
6. WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (F.P.C.-9D).
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
9. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
10. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
11. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
12. 4"×2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

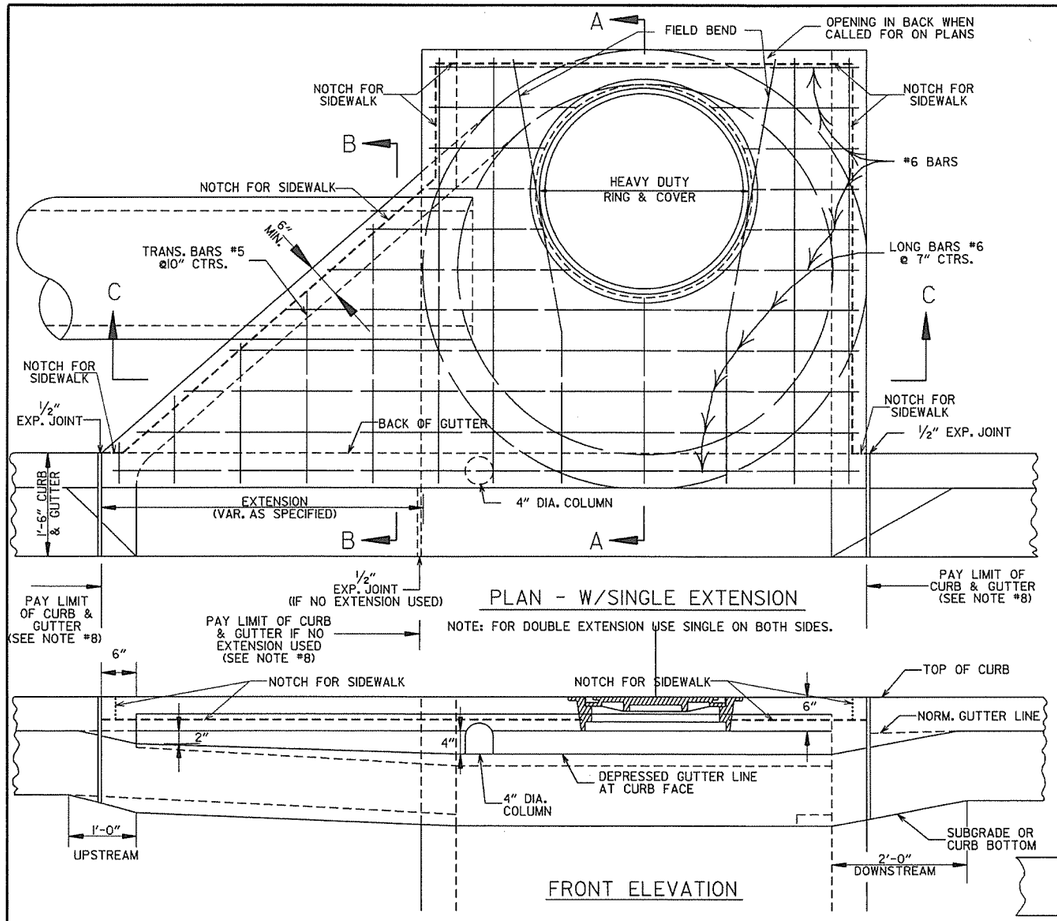
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER ADDED NOTES 9,10,&11	
10-18-96	CORRECTED SPELLING	
4-26-96	ADDED NOTE 8 & REVISED (4')(8') EXTENSION TITLES	10-18-96
4-1-93	REVISED BACK OPENING & NOTE	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

(TYPE C)

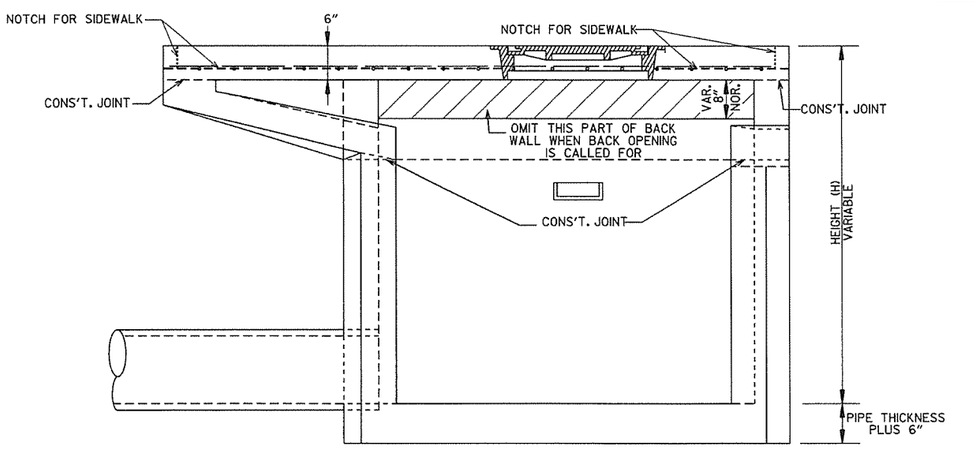
STANDARD DRAWING FPC-9E



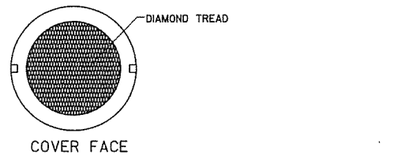
PLAN - W/SINGLE EXTENSION

NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.

FRONT ELEVATION



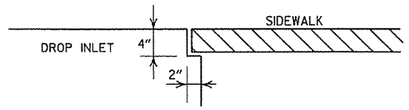
SECTION C-C



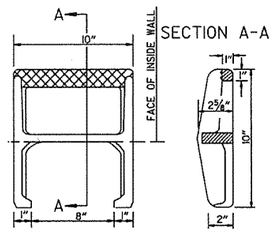
APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



DETAIL OF NOTCH FOR SIDEWALKS

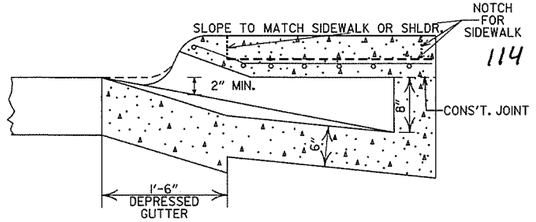


APPROX. WEIGHT = 11 LBS. (CAST IRON)

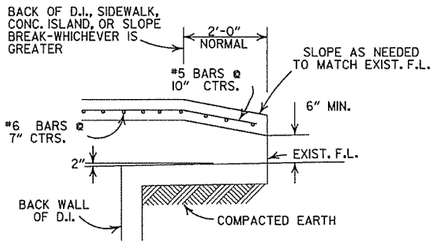
PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET



SECTION B-B

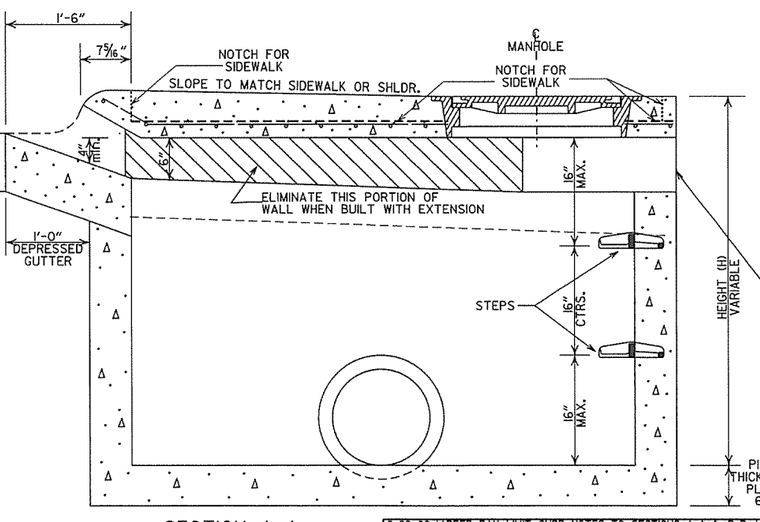


BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE MO).

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1 1/2" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.



SECTION A-A

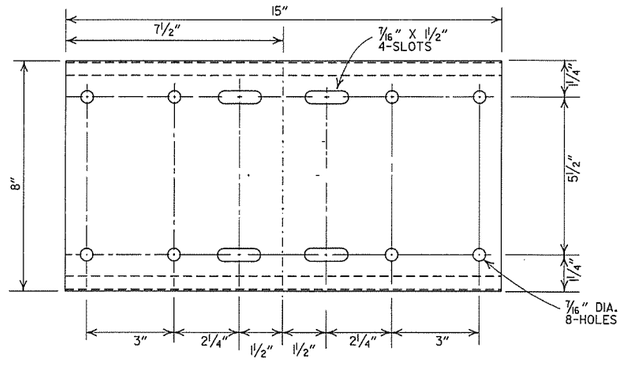
DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS CAST IN PLACE	MINIMUM WALL THICKNESS PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

DATE	REVISIONS	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 11 & ADJ. OPENING DIMENSION	
10-12-95	CORRECTED #6 BAR SPACING	
7-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
2-2-95	TYPE C TO MO (OPEN, BACK DETAIL)	
11-3-94	REVISED GENERAL NOTES	11-3-94
4-1-93	REV. BACK OPEN. DETAIL & NOTE	4-1-93
8-15-91	REVISED NOTES 11,12 & ADDED BK.OPEN DETAIL	8-15-91
11-30-89	ADDED NOTE NO. 12	11-30-89
5-23-89	ADDED NOTE & MINIMUM WALL THICKNESS	5A-5-25-89
7-15-88	ADDED EXTEND NOTE TO SECTION A-A	6.38-7-15-88
1-14-87	MODIFIED WALL THICKNESS	783-1-14-87
6-12-87	ISSUED	4-6-92-87

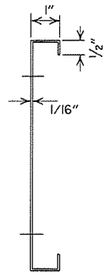
ARKANSAS STATE HIGHWAY COMMISSION

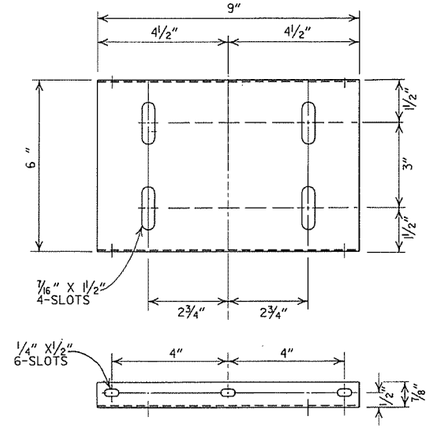
DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M

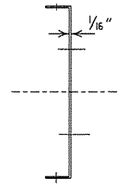


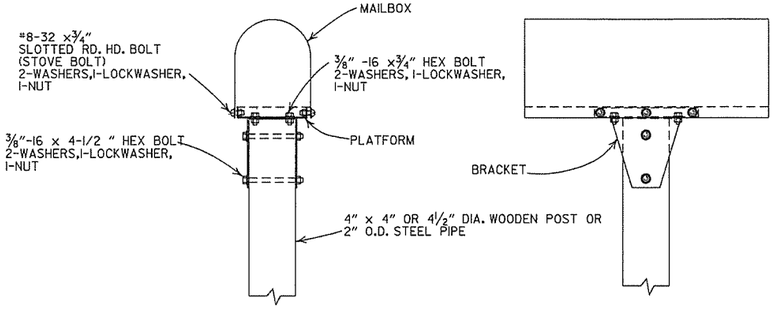
SHELF



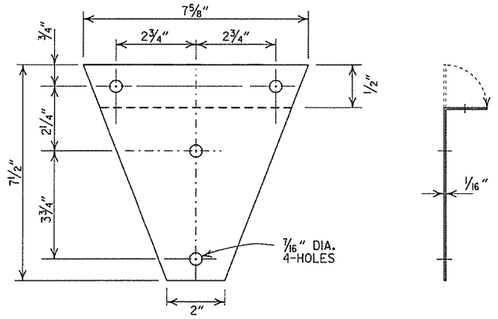


PLATFORM

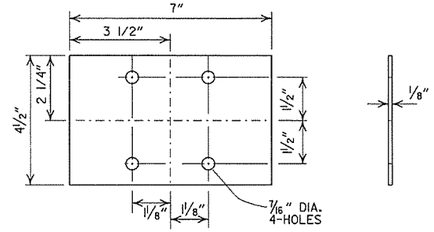




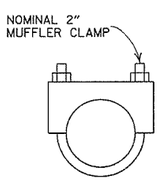
SINGLE INSTALLATION



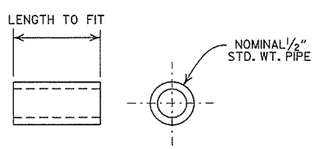
BRACKET



ANTI-TWIST PLATE



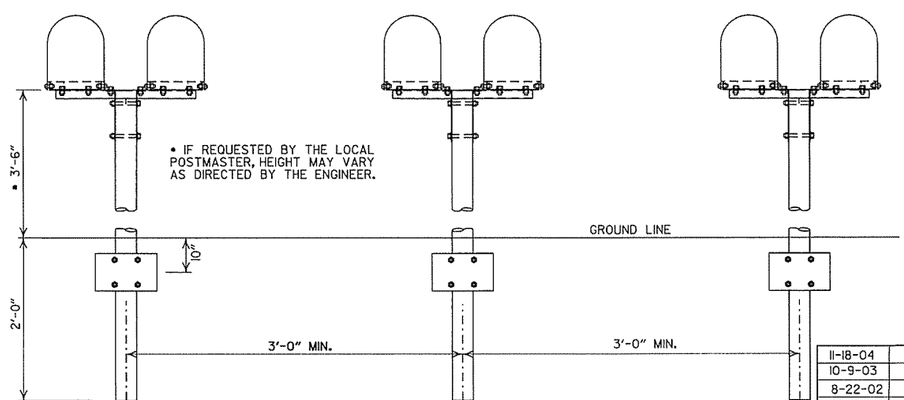
CLAMP



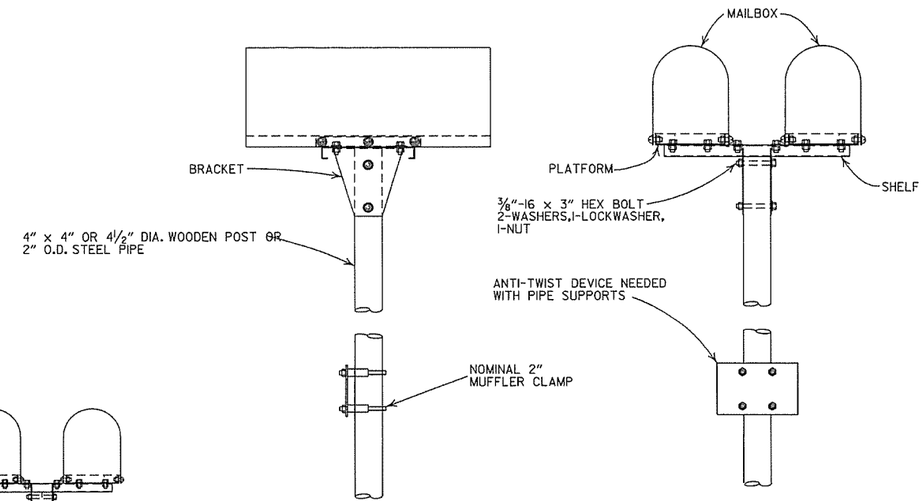
SPACER

GENERAL NOTES

1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



SPACING FOR MULTIPLE POST INSTALLATION



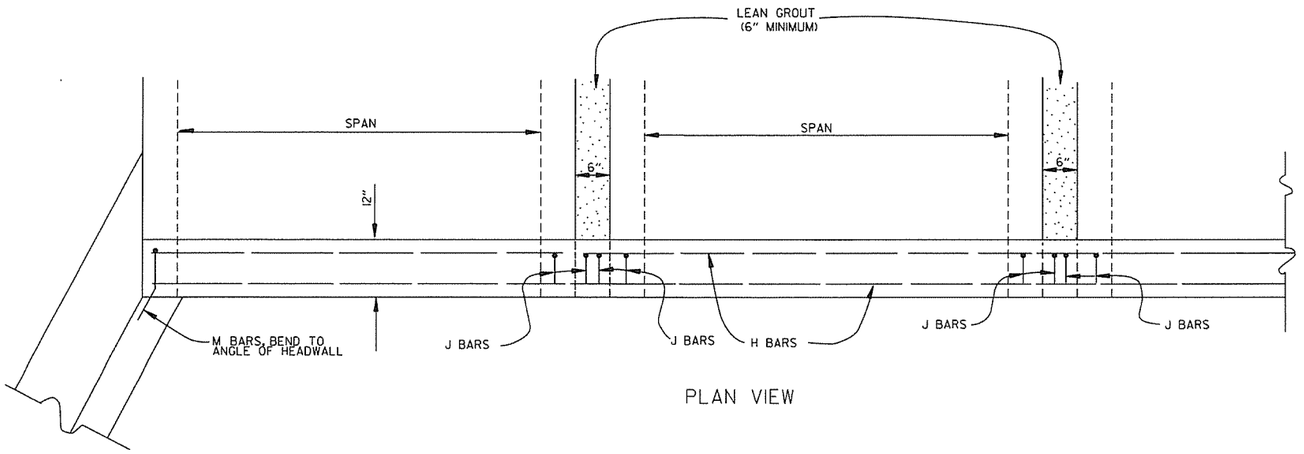
DOUBLE INSTALLATION

DATE	FILMED	REVISION
7-15-88	120-7-15-88	ISSUED
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
8-15-91		ADDED NOTE
9-26-91		NEW PHONE NUMBER
10-1-92		CORRECTED SPELLING
10-18-96		CORRECTED AASHTO
8-22-02		REVISED NOTE 6
10-9-03		REVISED NOTE 6
11-18-04		REVISED NOTES

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

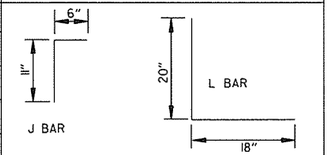
STANDARD DRAWING MB-1



PLAN VIEW

BAR LIST

BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	



• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING. STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS:
PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85.
SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS.
THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE.
THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

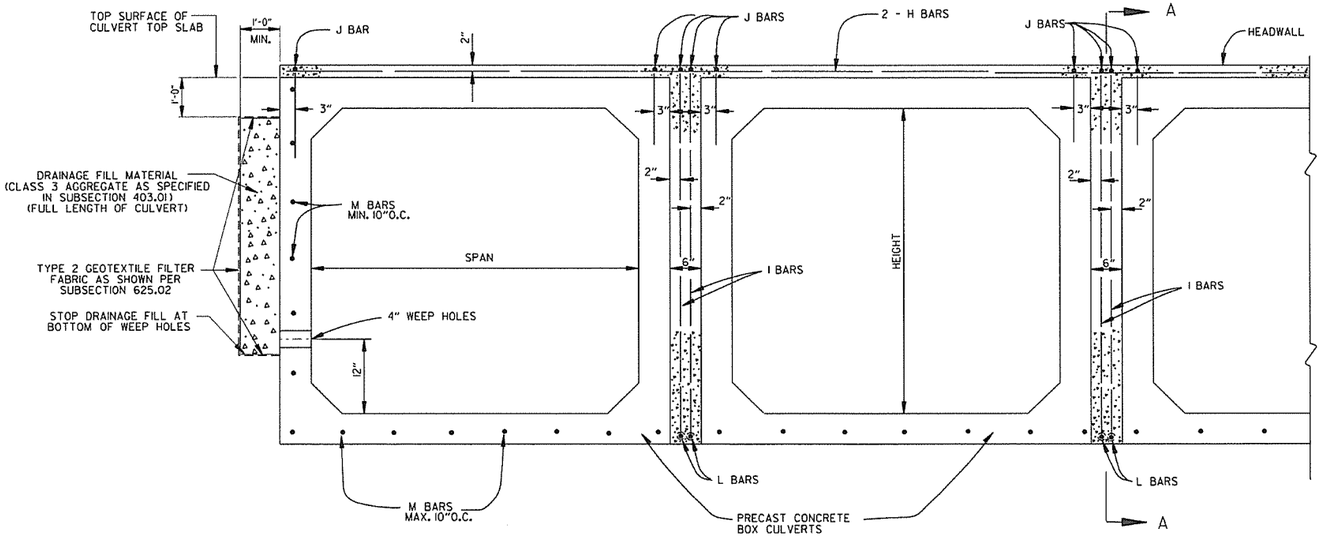
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

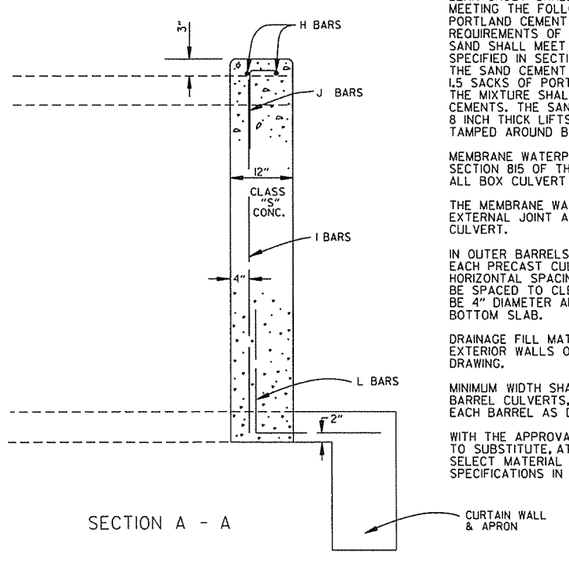
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT. SEE DETAILS ON THIS DRAWING.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.



END VIEW



SECTION A - A

DATE	REVISION	DATE FILMED
12-15-11	ADDED NOTE & DTLS FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11-8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED; JABE	

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31⅝	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

EQUIV. DIA.	AASHTO M 207	
	SPAN	RISE
INCHES	INCHES	
18	23	14
24	30	19
27	34	22
30	38	24
33	42	27
36	45	29
39	49	32
42	53	34
48	60	38
54	68	43
60	76	48
66	83	53
72	91	58
78	98	63
84	106	68

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(1).

NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

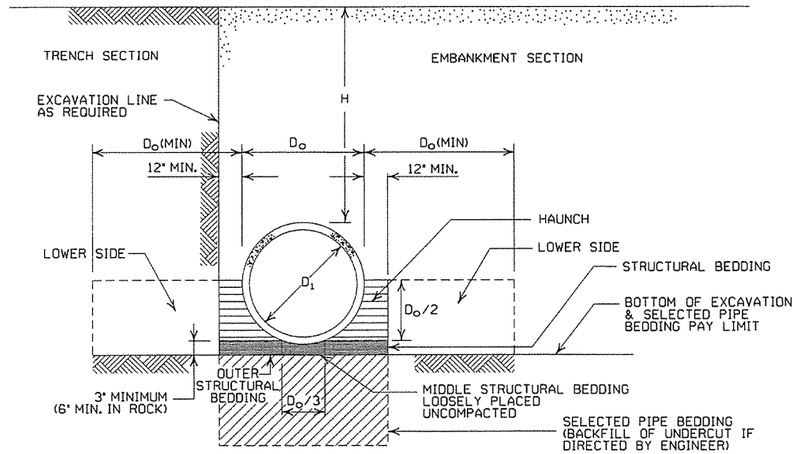
- LEGEND -

D_i = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
▨ = UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

*SM-3 WILL NOT BE ALLOWED.

**MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL			ALUMINUM		
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM		
15	17x13	3	0.064	2	15	0.060	2	15
18	21x15	3	0.064	2	15	0.060	2	15
21	24x18	3	0.064	2.25	15	0.060	2.25	15
24	28x20	3	0.064	2.5	15	0.075	2.5	15
30	35x24	3	0.079	3	12	0.075	3	12
36	42x29	3½	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					
				INSTALLATION TYPE 2	INSTALLATION TYPE 1	INSTALLATION TYPE 2	INSTALLATION TYPE 1	
36	40x31	5	0.079	3	2	12	15	
42	46x36	6	0.079	3	2	13	15	
48	53x41	7	0.079	3	2	13	15	
54	60x46	8	0.079	3	2	13	15	
60	66x51	9	0.079	3	2	13	15	
66	73x55	12	0.079	3	2	15	15	
72	81x59	14	0.079	3	2	15	15	
78	87x63	14	0.079	3	2	15	15	
84	95x67	16	0.109	3	2	15	15	
90	103x71	16	0.109	3	2	15	15	
96	112x75	18	0.109	3	2	15	15	
102	117x79	18	0.109	3	2	15	15	
108	128x83	18	0.138	3	2	15	15	

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.

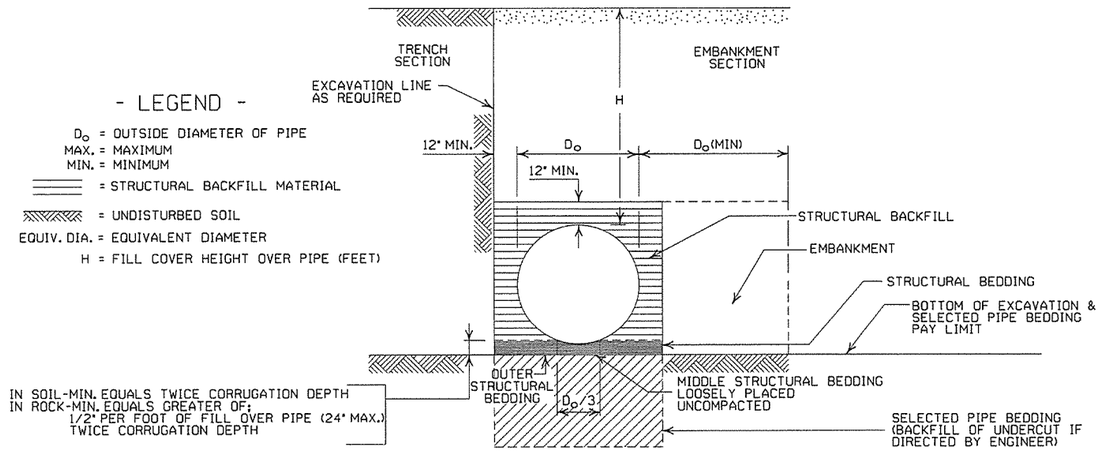
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

  SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

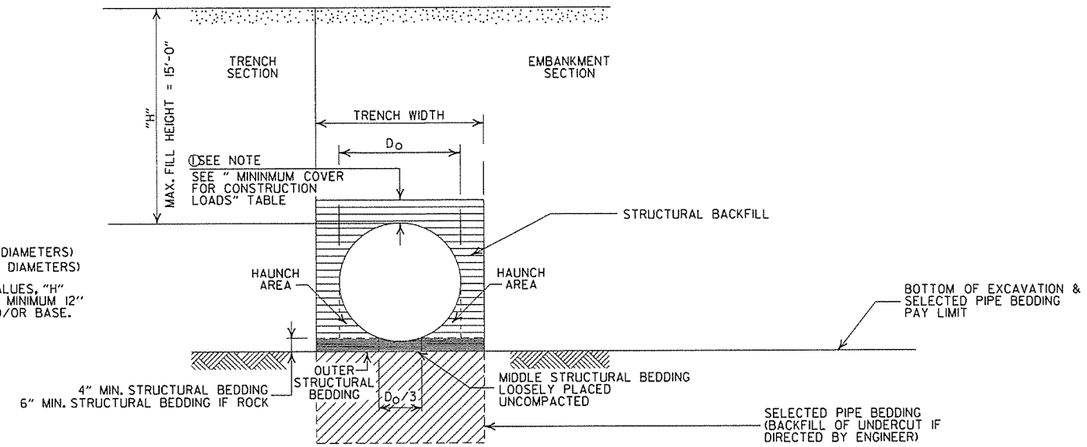
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET) "H" < 10'-0"	TRENCH WIDTH (FEET) "H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS 18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
Ø = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF PVC PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"

MULTIPLE INSTALLATION OF PVC PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

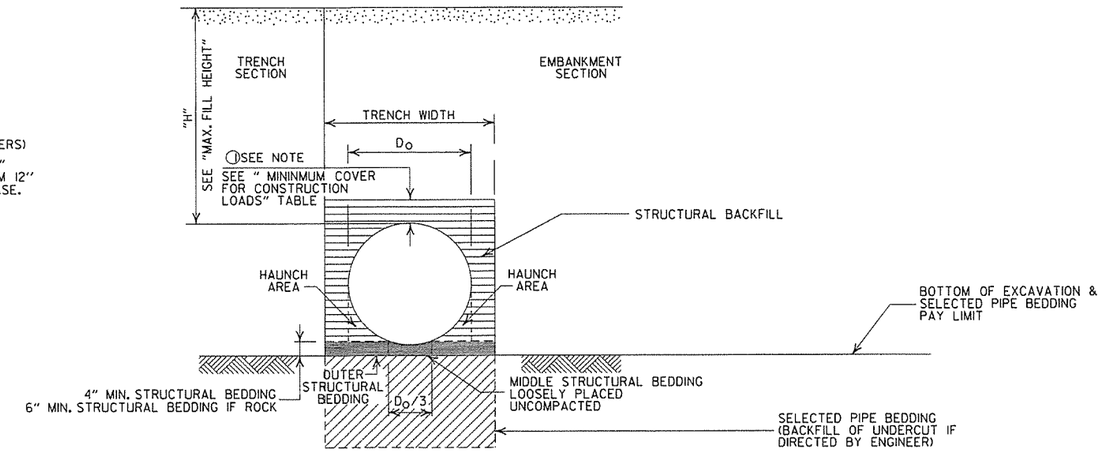
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

① NOTE:
12" MIN. (18" - 36" DIAMETERS)
MINIMUM COVER VALUE, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
18" THRU 36"	2'-0"	2'-6"	3'-0"	3'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
D_O = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

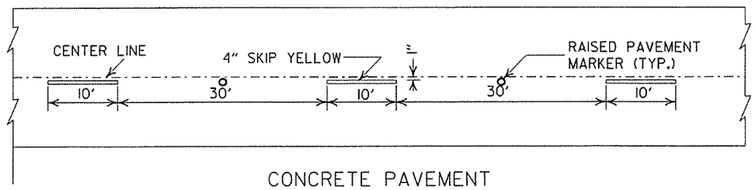
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

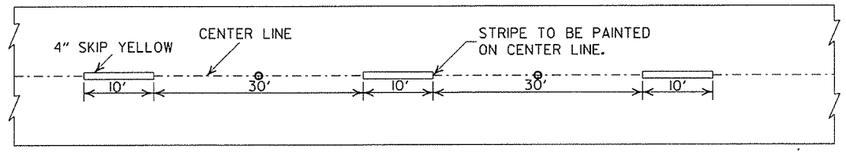
STANDARD DRAWING PCP-2

NOTES:

1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.

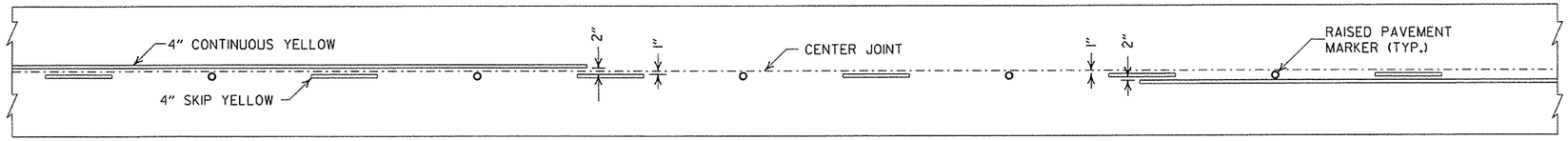


CONCRETE PAVEMENT

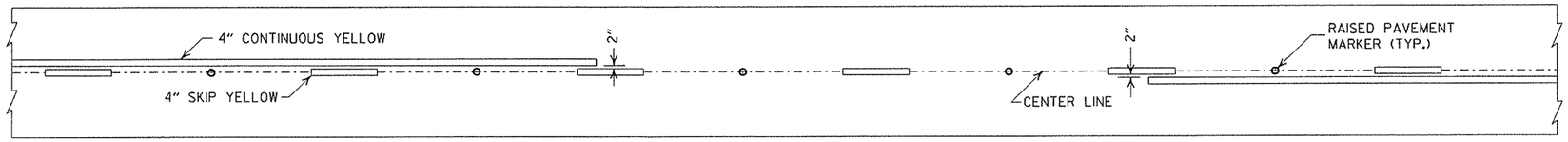


ASPHALT PAVEMENT

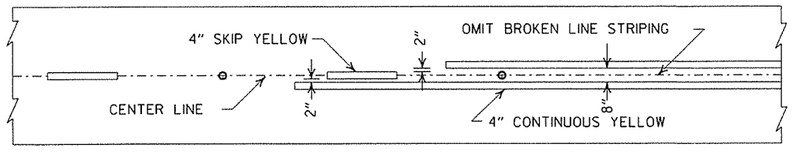
BROKEN LINE STRIPING



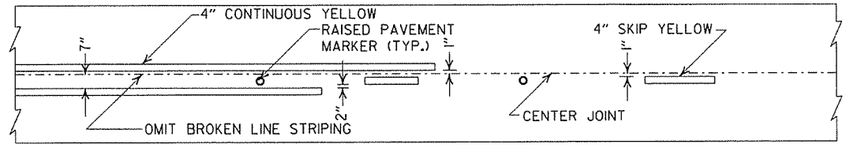
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

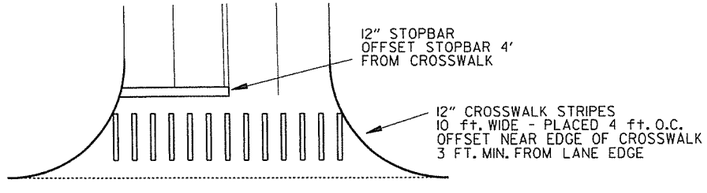


ASPHALT PAVEMENT

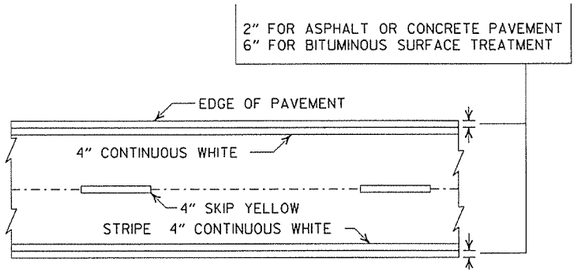


CONCRETE PAVEMENT

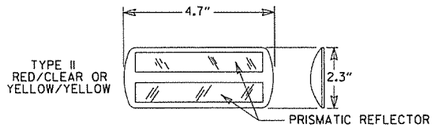
STRIPING AT ADJACENT NO PASSING LANES



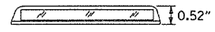
CROSSWALK AND STOPBAR DETAILS



PAVEMENT EDGE LINE MARKING



NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

NOTE:

DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

DATE	REVISION	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80
		FILMED

ARKANSAS STATE HIGHWAY COMMISSION

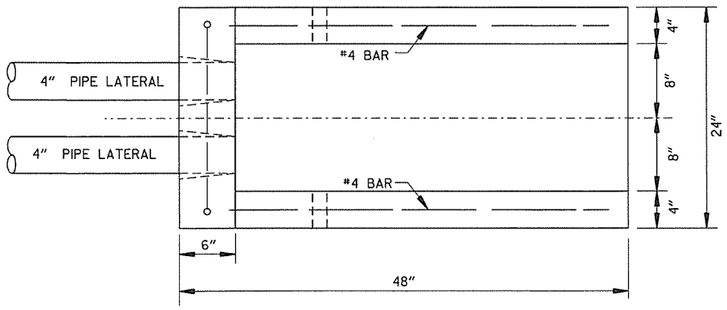
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

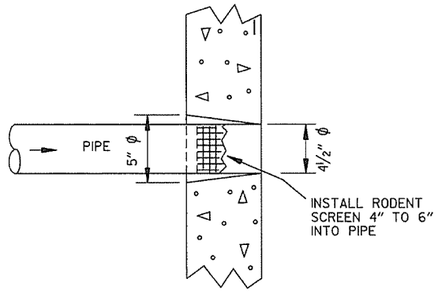
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

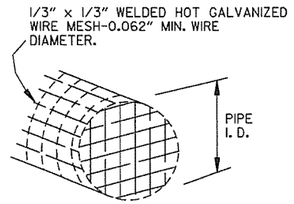
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



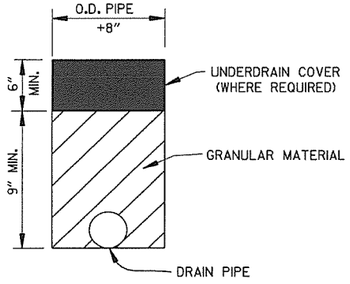
PLAN VIEW

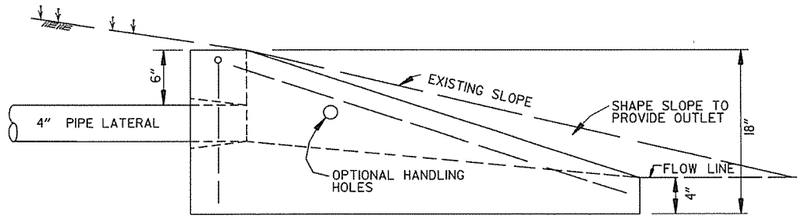


DETAIL OF HOLE FOR 4" PIPE

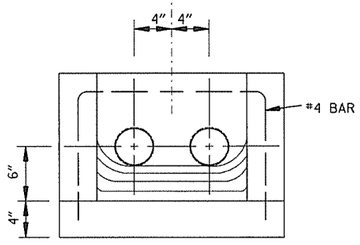


DETAIL OF RODENT SCREEN

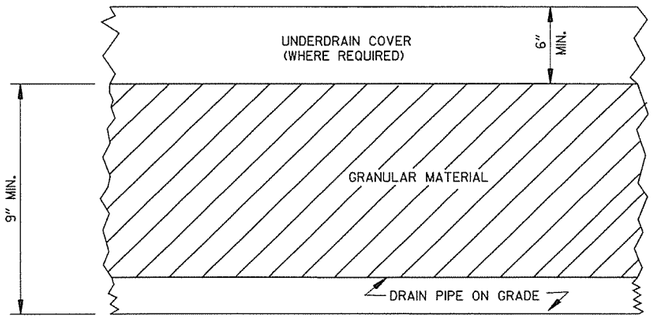




SIDE VIEW

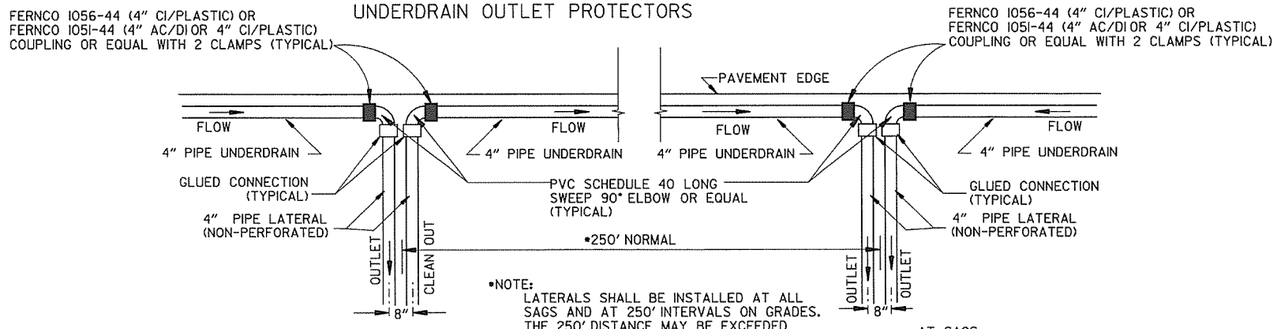


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

DATE	REVISION	DATE FILMED
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

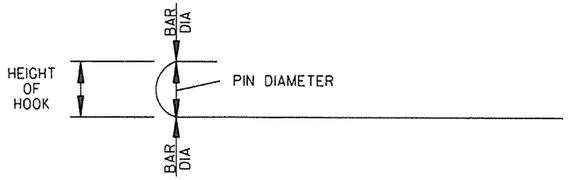
STANDARD DRAWING PU-1

7-20-95 INSTD.PUI

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

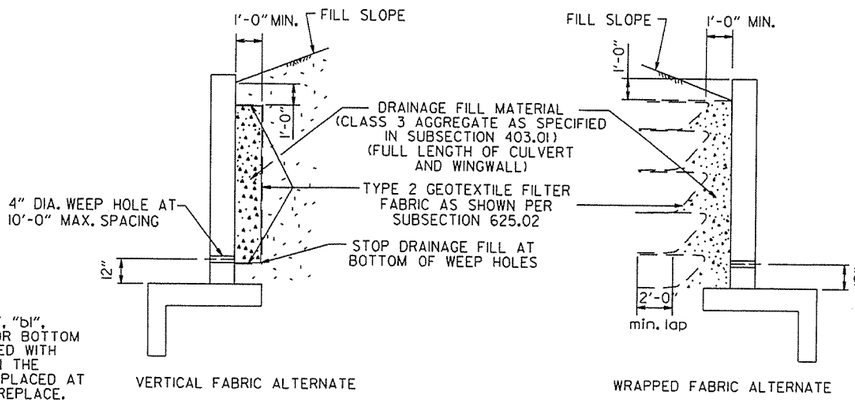
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

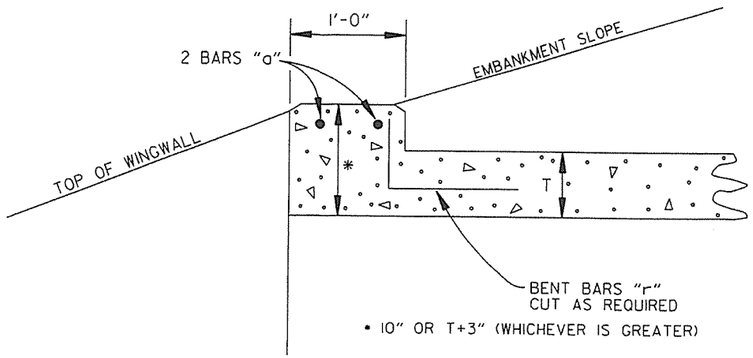
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

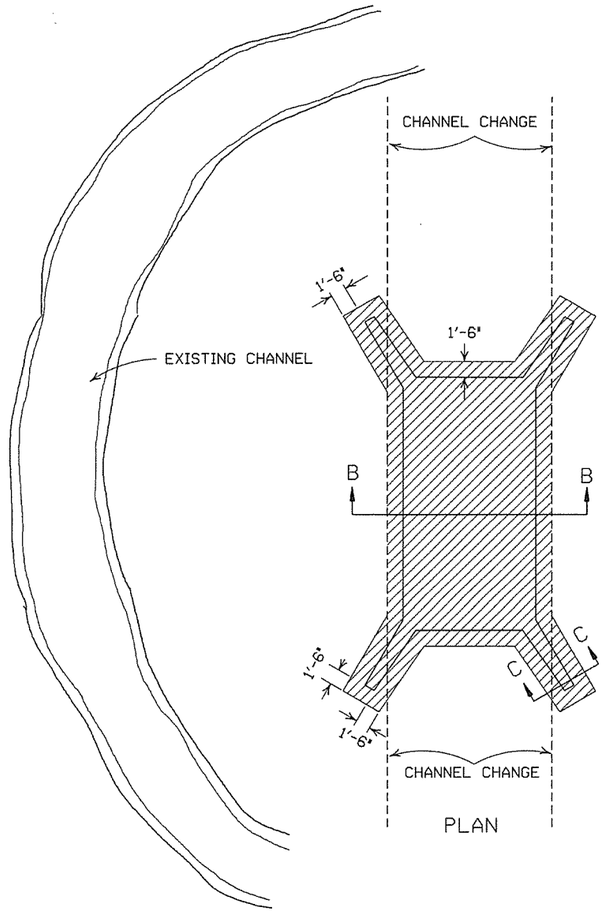
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

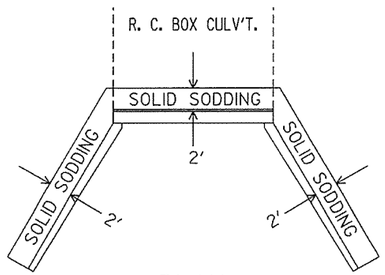
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

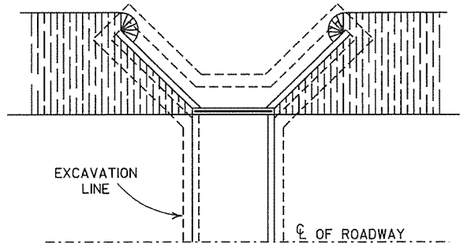
SOLID SODDING



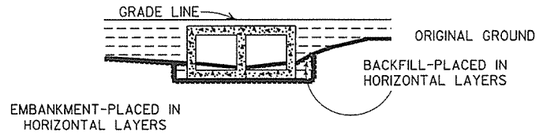
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

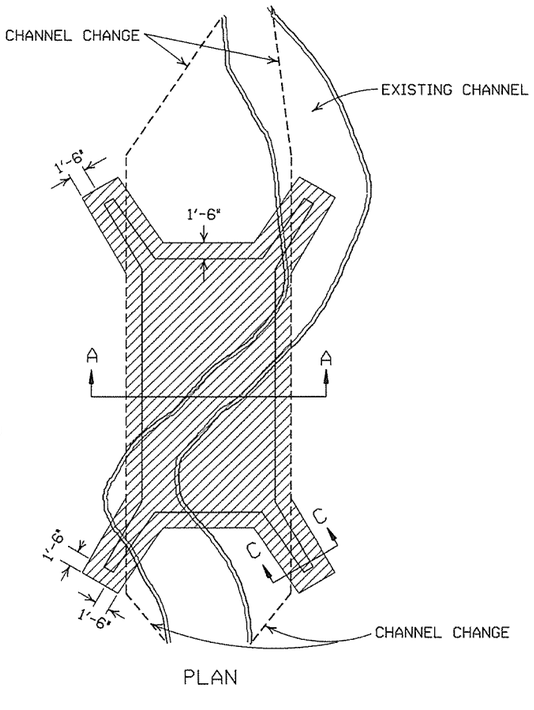


PLAN



LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT



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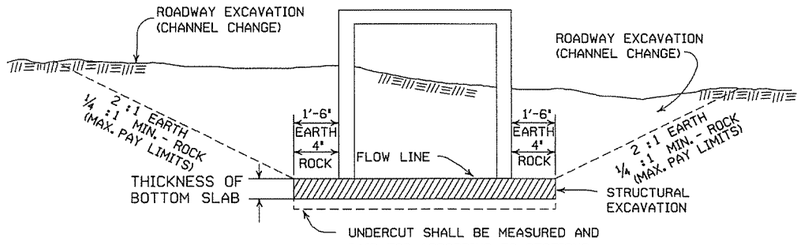
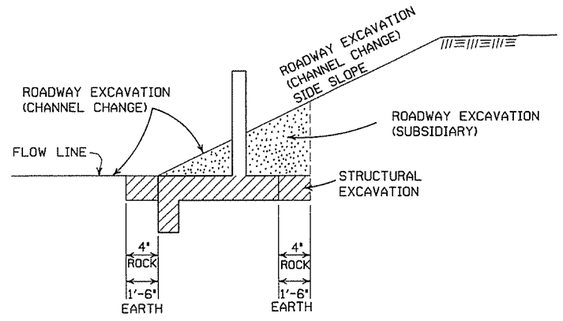
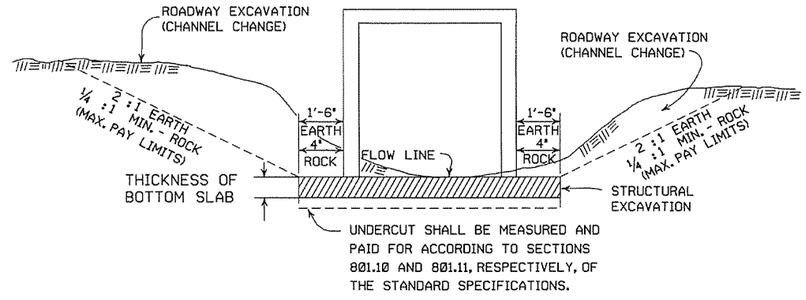


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

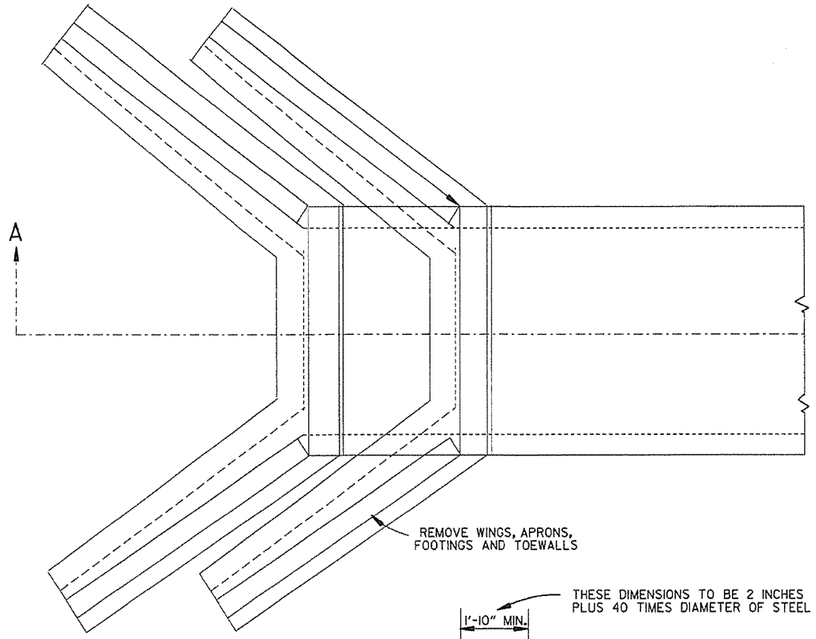
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES	674-1-4-83
	AND ADDED MAXIMUM PAY	
	LIMIT NOTES.	
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

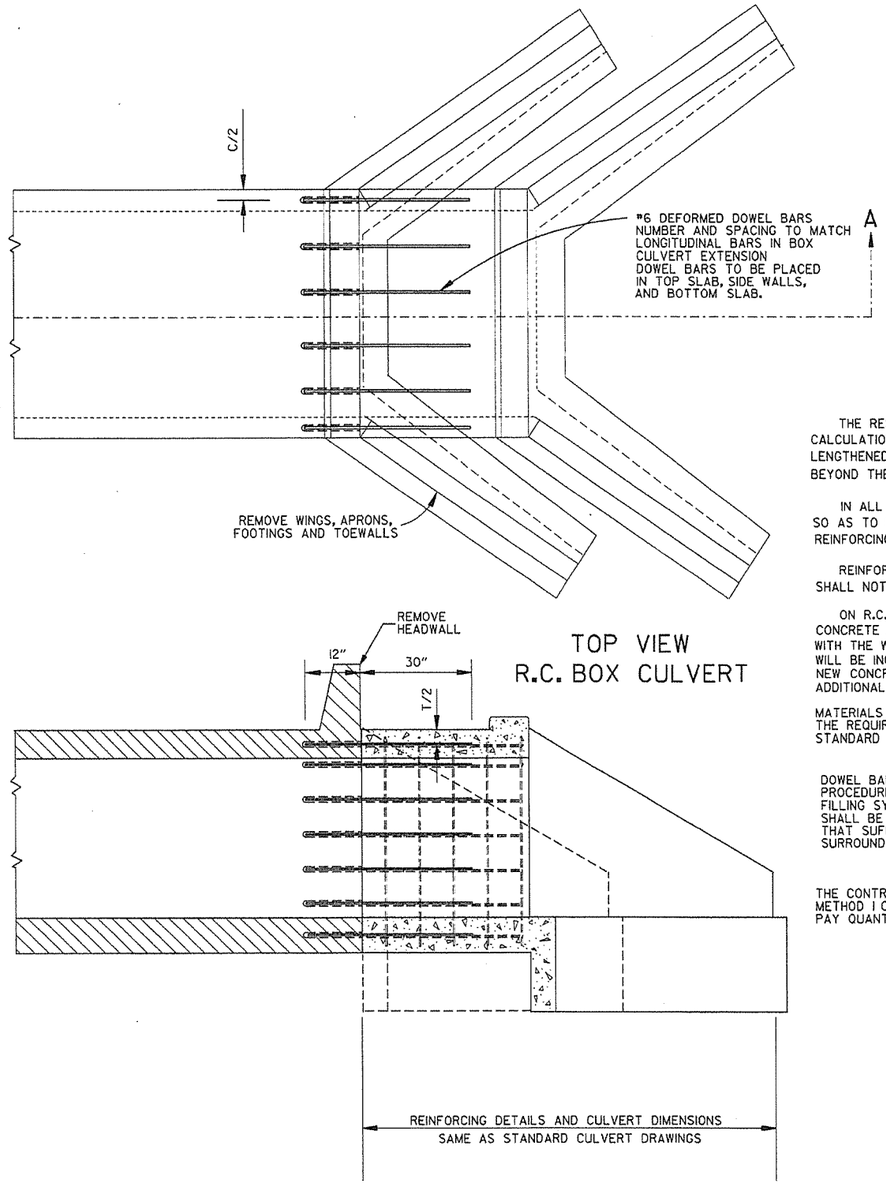
EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2



TOP VIEW
R.C. BOX CULVERT

SECTION A-A
METHOD 1



TOP VIEW
R.C. BOX CULVERT

SECTION A-A
METHOD 2

GENERAL NOTES

	USE FOR METHOD
THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED, MAKING NO ALLOWANCE FOR OVERBREAKAGE BEYOND THE LINES INDICATED.	1
IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PERMIT FULL 40 DIAMETER SPLICE OF REINFORCING STEEL.	1
REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.	1&2
ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON; THE CONCRETE APRON SHALL BE REMOVED WITH THE WINGS. THE COST OF REMOVING ALL OLD CONCRETE WILL BE INCLUDED IN THE PRICE BID PER CUBIC YARD FOR NEW CONCRETE OF THE CLASS SPECIFIED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.	1&2
MATERIALS FOR SECURING DOWEL BARS SHALL MEET THE REQUIREMENTS OF SECTION 507.02 OF THE STANDARD SPECIFICATIONS.	2
DOWEL BARS SHALL BE INSTALLED AS FOLLOWS: THE DRILLING PROCEDURE SHALL BE APPROVED BY THE ENGINEER, THE FILLING SYSTEM SHALL BE APPROVED BY THE ENGINEER. AND SHALL BE AN INJECTION-TYPE SYSTEM WHICH WILL INSURE THAT SUFFICIENT MATERIAL IS INJECTED SO IT COMPLETELY SURROUNDS THE BARS AND FILLS THE HOLES.	2
THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2. REGARDLESS OF WHICH METHOD IS USED, PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1.	1&2

NOTE:
NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.

SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.

DATE	REVISION	DATE FILM
10-12-95	CHANGED DRAWING # FROM 144-A	
4-1-93	ADDED GENERAL NOTE	
10-1-92	ADDED ALT. METHOD OF EXTENSION	
11-30-89	REDRAWN	
1-4-83	ELIMINATED CONCRETE CLASS	
12-20-56	RETRACED	

ARKANSAS STATE HIGHWAY COMMISSION

METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS

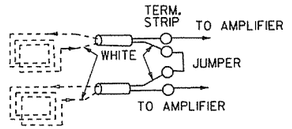
STANDARD DRAWING RCB-3

LOOP DETECTOR INSTALLATION AND TESTING

NOTES:

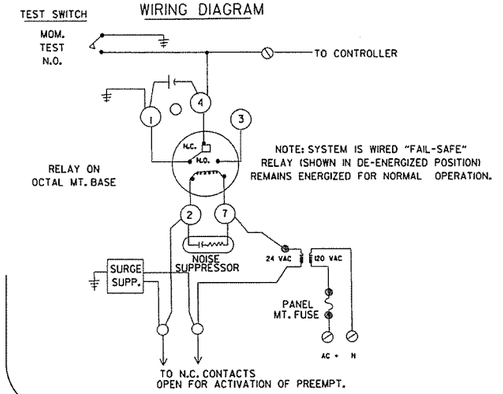
1. LOOPS WITH A PERIMETER GREATER THAN 40' SHALL HAVE TWO TURNS. LOOPS WITH A PERIMETER LESS THAN OR EQUAL TO 40' SHALL HAVE THREE TURNS, UNLESS OTHERWISE NOTED ON THE PLANS. QUADRUPOLE LOOPS SHALL BE TWO TURNS (2-4-2 CONFIGURATION) UNLESS OTHERWISE NOTED.
2. LOOP AND FEEDER WIRE SHALL BE CONTINUOUS WITHOUT SPLICES EXCEPT AT THE LOOP/FEEDER WIRE SPLICE AS SHOWN. SPLICE SHALL BE ROSIN SOLDERED AND WATERPROOFED WITH AN ACCEPTED SPLICE KIT. DRAIN WIRE SHALL BE GROUNDED IN CABINET AND INSULATED AT LOOP TO FEEDER SPLICE.
3. THE LOOP TO FEEDER SPLICE, FEEDER JACKET AND JACKET OF LOOP WIRE IN DUCT SHALL BE COMPLETELY SEALED AND WATERPROOFED.
4. CONTRACTOR MAY MAKE CONNECTIONS TO SIGNAL CABLE AND LOOP TO FEEDER CONNECTION AT TERMINAL STRIPS MOUNTED TO POLE INSIDE HAND HOLD COVER AS SHOWN IN DETAIL. TERMINALS MUST BE EASILY ACCESSIBLE, BUT PROTECTED AGAINST ACCIDENTAL CONTACT. CONNECTION OF POWER CARRYING CIRCUITS MUST BE SEPARATED FROM LOOP OR LOGIC CIRCUITS. ALL CONNECTIONS TO TERMINAL STRIPS SHALL UTILIZE SPADE LUGS OR AS APPROVED BY THE ENGINEER.
5. EACH LOOP SHALL HAVE A SEPARATE "FEEDER WIRE" UNLESS OTHERWISE NOTED. ALL FEEDER WIRES SHALL BE LABELED AS TO LOOP NUMBER AS DESIGNATED ON THE PLANS.
6. ALL LOOP WIRE ENTERING PULL BOXES SHALL BE ENCLOSED IN CONDUIT. EACH LOOP WIRE SHALL ENTER PULL BOX OR POLE BASE THROUGH A SEPARATE PIECE OF ONE INCH (1"O) CONDUIT.
7. LOOP WIRE FROM LOOP TO CONDUIT IS NOT TWISTED. LOOP WIRE IN THE CONDUIT MUST BE TWISTED TWO TO FIVE TURNS PER FOOT.
8. WARRANTY PERIOD FOR LOOPS SHALL NOT COMMENCE UNTIL TESTED BY THE CONTRACTOR AND ACCEPTED BY THE ENGINEER. CONTRACTOR SHALL PERFORM TEST AND PROVIDE A RECORD TO THE ENGINEER AS LISTED IN THE DETECTOR LOOP TESTING PROCEDURE.
9. UNLESS OTHERWISE APPROVED BY THE ENGINEER, BACKER ROD SHALL BE INSTALLED IN SHORT SECTIONS SPACED NOT MORE THAN 18" APART AND WEDGED INTO SLOT TO HOLD CABLE IN PLACE. CABLE SHALL BE TOTALLY ENCAPSULATED IN SEALER.
10. "HOT POUR" SEALER SHALL NOT BE ALLOWED WITH 705-LOOP WIRING IN DUCT.
11. WHERE UNDERGROUND SPLICES OF SIGNAL CABLE ARE REQUIRED, CONNECTIONS SHALL BE SOLDERED AND COMPLETELY WATERPROOFED TO THE SATISFACTION OF THE ENGINEER. WATERPROOFING SHALL EXTEND A MINIMUM OF TWO INCHES PAST THE SIGNAL CABLE JACKET AND SHALL COMPLETELY COVER ALL INDIVIDUAL CONDUCTORS OF THE SIGNAL CABLE. WATERPROOFING DOES NOT APPLY TO CONNECTIONS MADE IN POLE BASES.
12. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE. ONLY ONE NEUTRAL IS REQUIRED FOR PEDESTRIAN SIGNALS. A SEPARATE 5C (TYPICAL) IS PROVIDED FOR PEDESTRIAN PUSH BUTTONS.
13. TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO CONTROLLER. CONTROLLER CABINET SHALL BE WIRED SUCH POWER TO LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS DURING FLASH OPERATION.

SERIES CONNECTED LOOPS

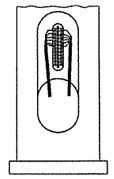


WIND LOOPS COUNTERCLOCKWISE; TAG WIRE EXITING SLOT AND TIE TO WHITE LEAD OF FEEDER WIRE; WHEN LOOPS ARE TIED TO SAME VEHICLE DETECTOR, SERIES CONNECT IN CABINET AS SHOWN.

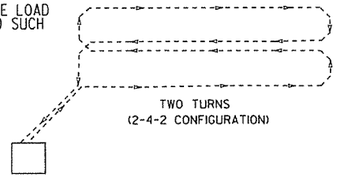
TRAFFIC SIGNAL PRE-EMPTION INTERFACE WIRING DIAGRAM



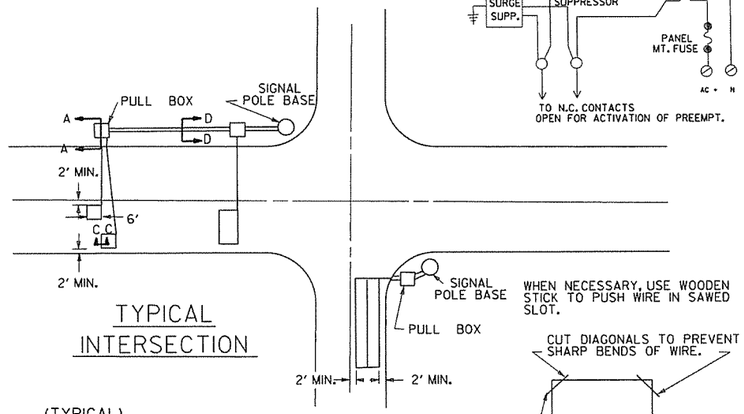
HANDHOLE TERMINAL



QUADRUPOLE LOOP

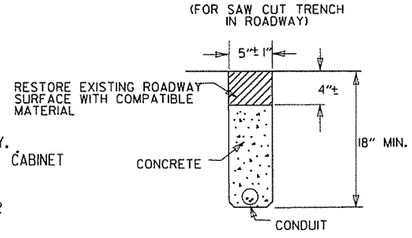


TYPICAL INTERSECTION



TRENCHING DETAIL

(FOR SAW CUT TRENCH IN ROADWAY)

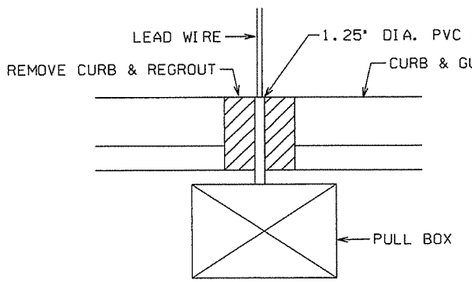


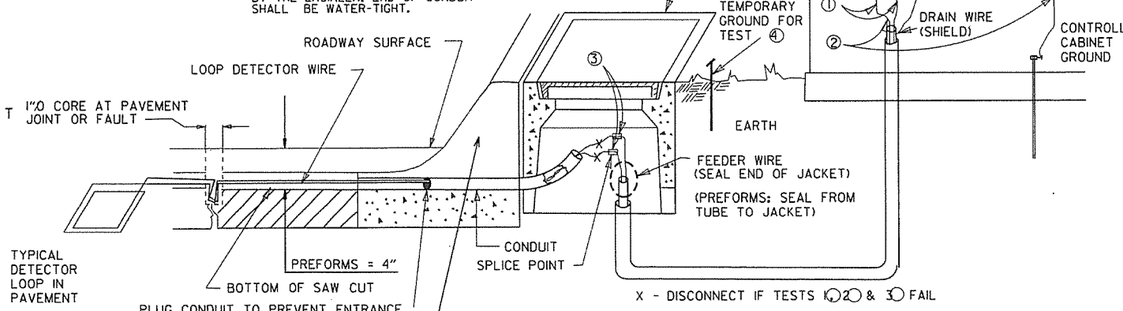
TYPICAL PROCEDURE FOR DETECTOR LOOP TESTING

1. DISCONNECT AND TEST CONTINUITY (< 10 OHMS) IF CONTINUITY IS BAD, GO TO TEST 3
2. TEST INSULATION (@ 500 VOLT TEST > 10 MEG-OHM)

   IF TESTS 1& 2 ARE GOOD, NO FURTHER TESTING IS NECESSARY. RECORDED RESULTS CONSIST OF TESTS 1& 2 FROM CONTROL CABINET WITH FEEDER WIRE CONNECTED TO LOOP.
3. OPEN SPLICE (DO NOT BREAK CONNECTION) REPEAT TEST 1& 2 IF TEST 3 IS BAD, GO TO TEST 4
4. BREAK SPLICE, INSTALL JUMPER IN CABINET, REPEAT TESTS 1& 2 SEPARATELY FOR FEEDER AND FOR LOOP

FAILURES TYPICALLY RESULT FROM BROKEN WIRE IN PAVEMENT, FAULTY INSULATION OF LOOP OR FEEDER WIRE, OR POORLY INSULATED SPLICE CONNECTION.





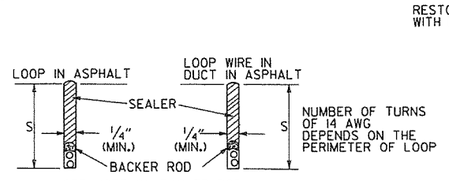
SECTION A-A

1'-6" CONCRETE COMBINATION CURB AND GUTTER

SPECIAL NOTE

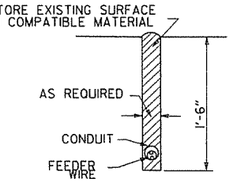
IF FEEDER WIRE JACKET IS LEFT UNSEALED AND WATER IS ALLOWED TO ENTER JACKET, CONTRACTOR WILL BE REQUIRED TO REPLACE FEEDER AT NO COST TO THE DEPARTMENT.

TYPICAL SECTIONS FOR PULSE AND PRESENCE LOOP DETECTORS



SECTION C-C

S=2 ½" IN ASPHALT
S=1½" IN CONCRETE



SECTION D-D

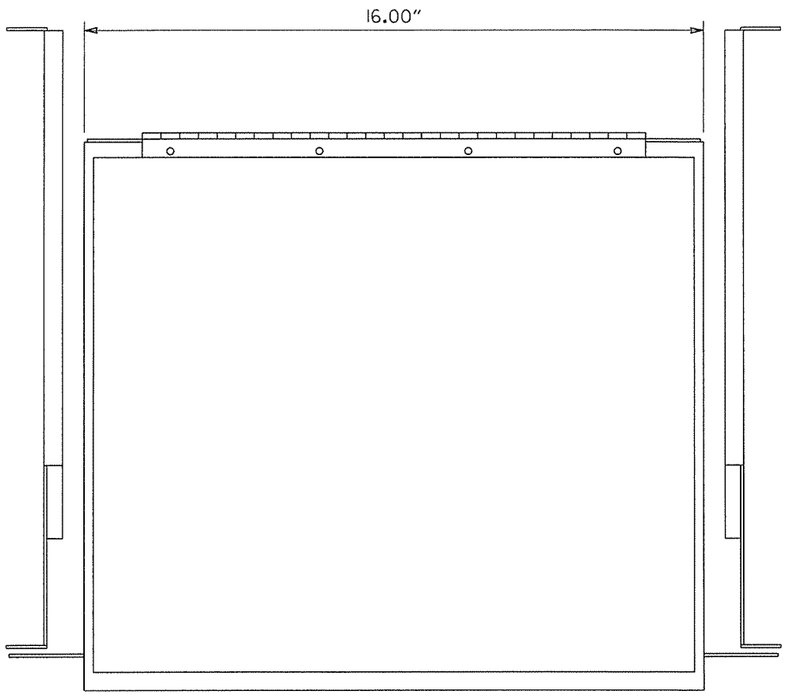
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
5-17-01	REVISED	
4-11-01	REVISED	
2-4-00	REVISED PRE-EMPTION TEST SWITCH	
11-18-98	REVISED NOTES	
11-21-95	ISSUED	

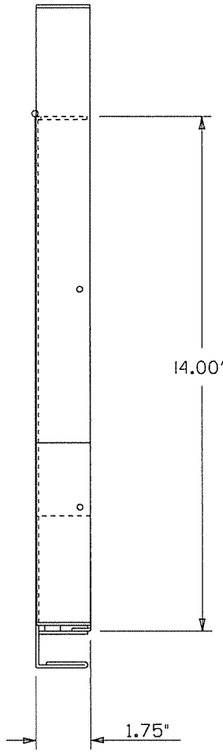
ARKANSAS STATE HIGHWAY COMMISSION

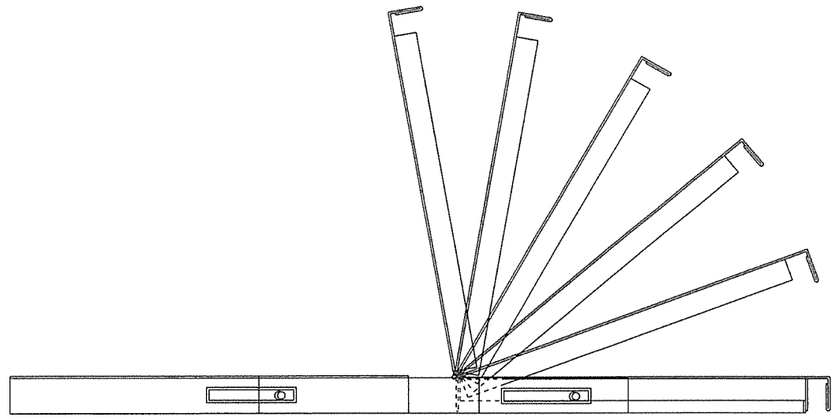
LOOP DETECTOR INSTALLATION

STANDARD DRAWING SD-4

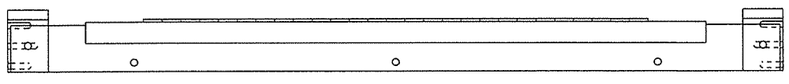
DRAWER PLAN VIEW



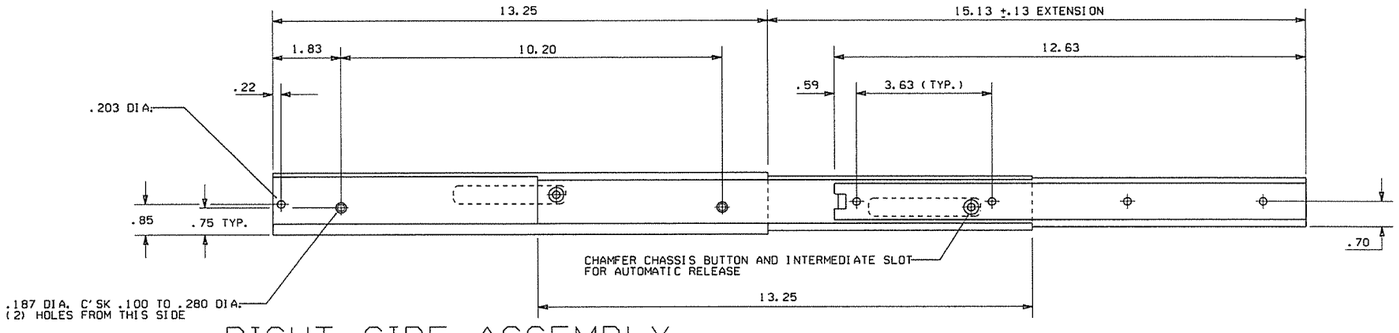




NOTES:
1. RIGHT HAND SLIDE SHOWN, LEFT SLIDE OPPOSITE.
2. GENERAL DEVICES (CC3002-99-0102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.
3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



FRONT VIEW



RIGHT SIDE ASSEMBLY

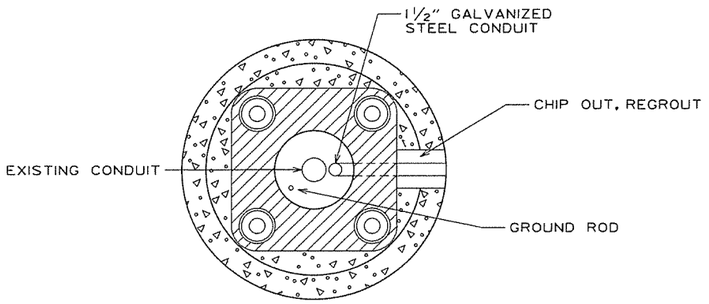
9-12-13	ISSUED AS STANDARD DRAWING	
6-15-05	ISSUED	
DATE	REVISION	DATE FILM

ARKANSAS STATE HIGHWAY COMMISSION

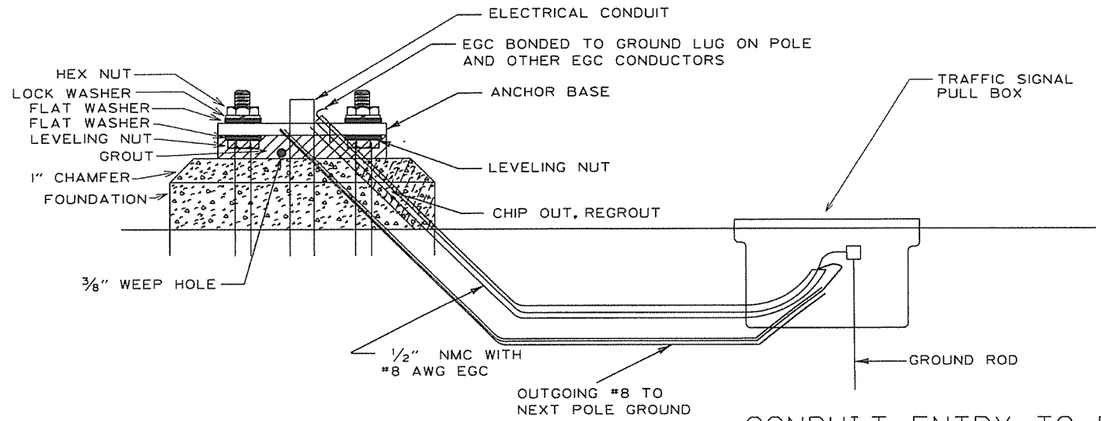
CONTROLLER CABINET
UTILITY DRAWER

STANDARD DRAWING SD-5

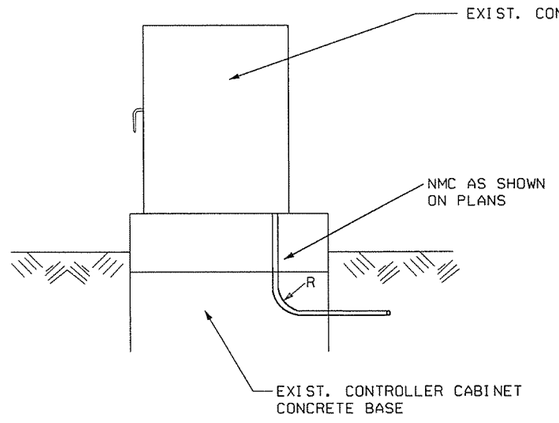
CONDUIT ENTRY TO EXISTING POLE BASE



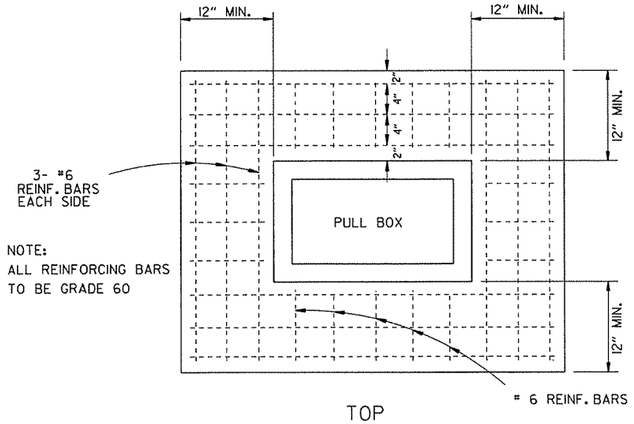
ANCHOR BASE



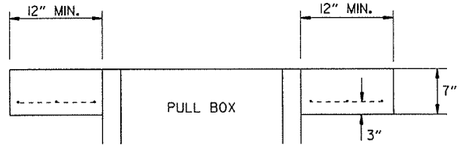
CONDUIT ENTRY TO EXISTING CONTROLLER CABINET



NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.

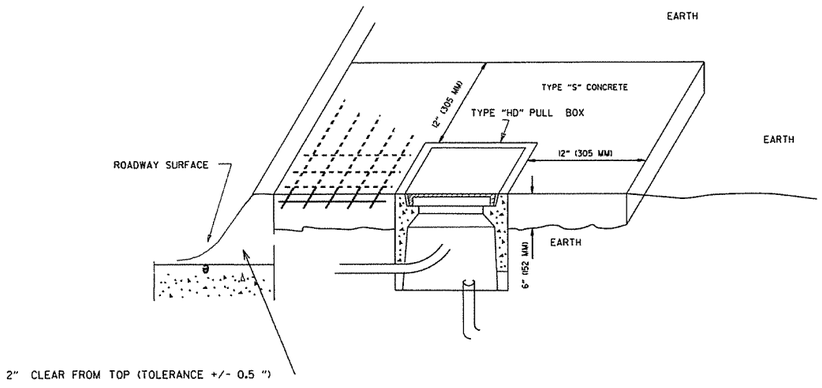


TOP



ELEVATION

TYPE "HD" CONCRETE PULL BOX DETAIL



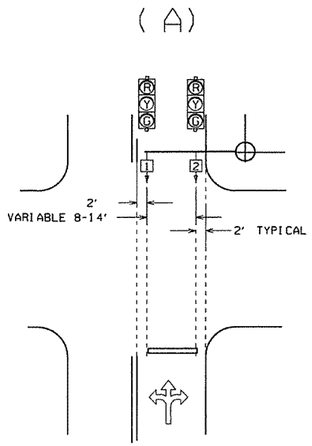
NOTE: ALL TYPE 1 AND TYPE 2 HD PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" (305 MM) WIDE AND 6" (152 MM) IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD PULL BOX. PULL BOX SHALL BE INSTALLED FLUSH TO SURROUNDING GRADE UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. THE CONCRETE SHALL BE CLASS "S." THREE #6 REINFORCING BARS IN THE APRON ON ALL SIDES OF THE PULL BOX IS REQUIRED IN CONCRETE.

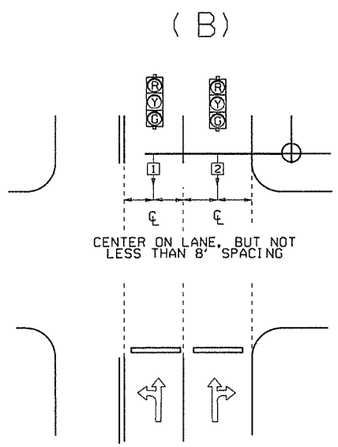
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
5-21-09	REVISED GROUNDING	
7-31-08	ADDED & REVISED CONDUIT ENTRY	
6-23-04	REVISED CLEARANCE AT CURB ENTRY	
1-4-02	ADDED REINFORCING TO BOX APRON	
7-2-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

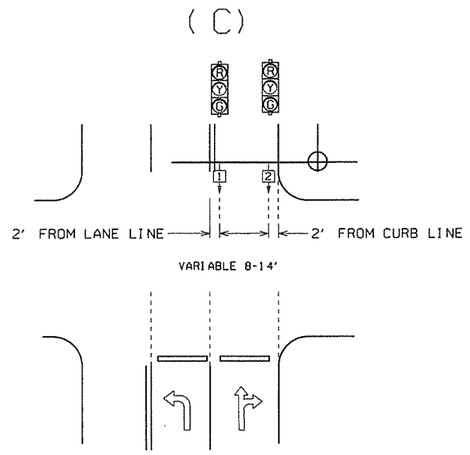
ARKANSAS STATE HIGHWAY COMMISSION

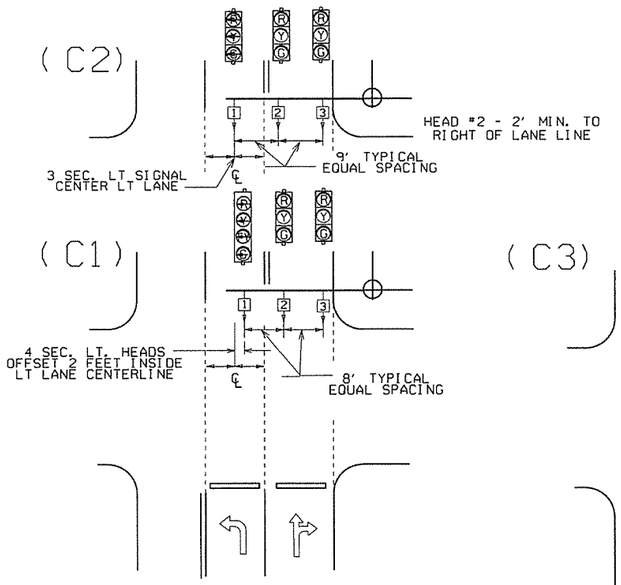
HEAVY DUTY PULL BOX

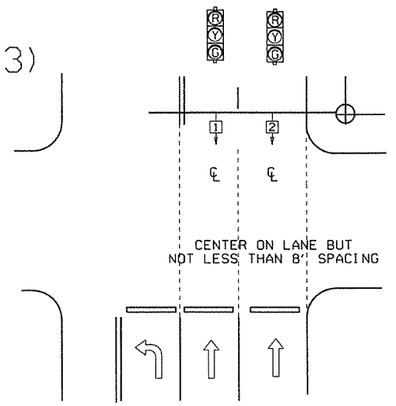
STANDARD DRAWING SD-6

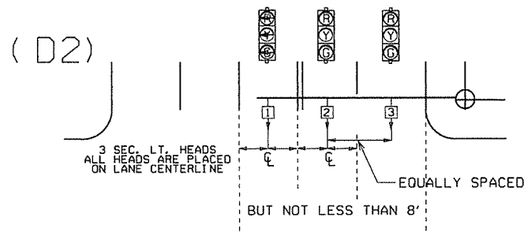


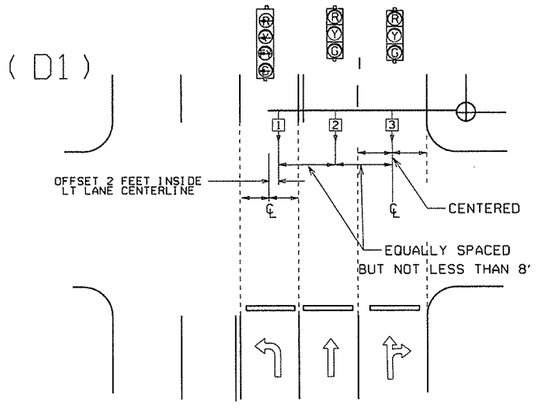




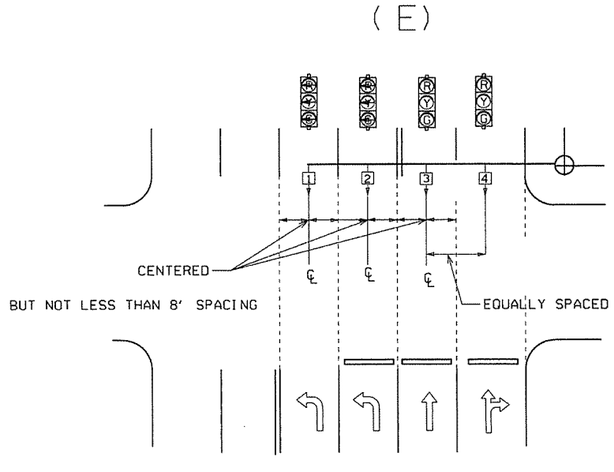








NOTE: WHERE LEFT TURN HEAD (HEAD 1 ON D1 AND D2) IS NOT CALLED FOR ON PLANS, MAST ARM LENGTH MAY STILL BE ALLOWED FOR FUTURE INSTALLATION. HEADS FOR THROUGH MOVEMENTS SHALL STILL BE ALIGNED WITH THROUGH LANES AS SHOWN ON DETAILS.



℄ = CENTER OF LANE FROM APPROACH SIDE

GENERAL NOTES:

1. FOUR SECTION 'PROTECTED/PERMISSIVE' LEFT TURN HEADS SHOULD BE PLACED A MINIMUM OF TWO (2') FEET TO THE RIGHT OF THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

2. THREE SECTION 'PROTECTED' LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

3. WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEET(S) RESULTING IN MAST ARM EXTENDING MORE THAN TWO FEET PAST (TO THE LEFT OF) THE CENTERLINE OF THE APPROACHING LEFT TURN LANE, MAST ARM SHALL BE CUT TO APPROPRIATE LENGTH AS DETERMINED BY THE ENGINEER, AND A NEW END CAP PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THIS PRIOR TO INSTALLING THE MAST ARM IF ADDITIONAL COMPENSATION IS REQUIRED.

4. SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH.

5. ALL SIGNAL HEADS SHOWN ON THIS DETAIL SHEET SHALL BE LOCATED ACCORDING TO THE DIMENSIONS SHOWN IN RELATION TO THE APPROACH SIDE OF THE INTERSECTION.

6. MAXIMUM MOUNTING HEIGHT OF SIGNAL FACES LOCATED BETWEEN 40 FEET AND 53 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 4D-1 OF 2009 MUTCD.

DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
3-11-10	2009 MUTCD	
12-9-99	ISSUED	

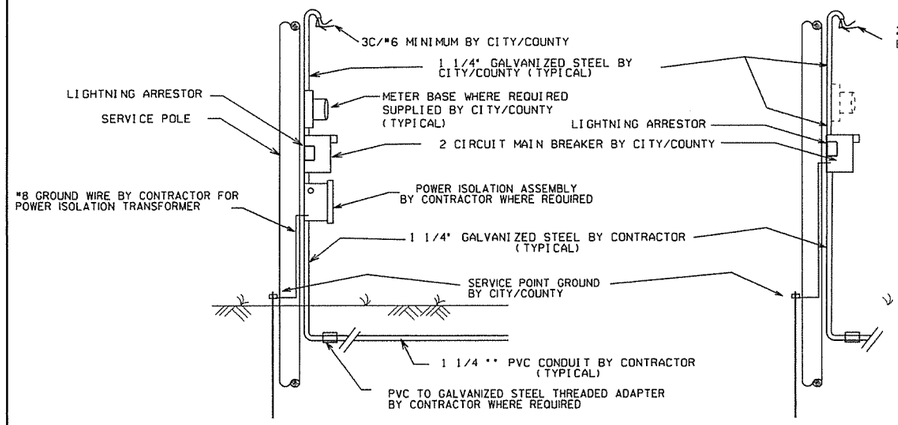
ARKANSAS STATE HIGHWAY COMMISSION

SIGNAL HEAD PLACEMENT

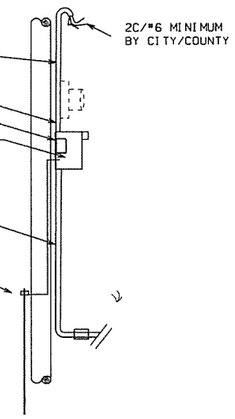
STANDARD DRAWING SD-8

MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

WITH POWER ISOLATION ASSEMBLY

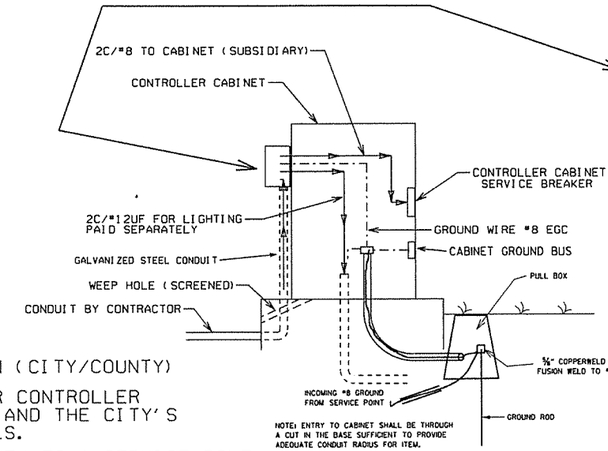


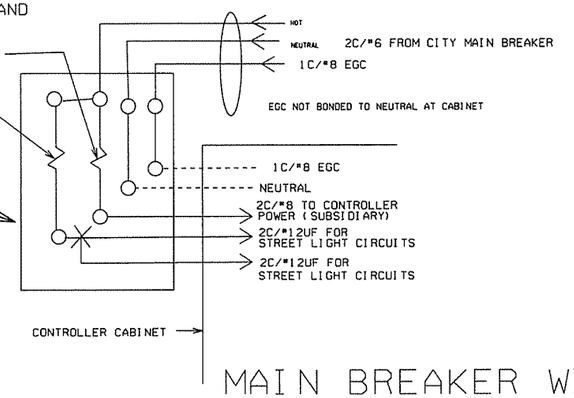
WITHOUT POWER ISOLATION ASSEMBLY



GROUND ROD-A 10' X ⅝" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND ½" NMC SHALL BE INCLUDED IN ITEM 701. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

SECONDARY BREAKER BY CONTRACTOR (SUBSIDIARY)





MAIN BREAKER WIRING (TYPICAL)

NOTES TO CONTRACTOR AND AGENCY RESPONSIBLE FOR MAINTENANCE OF THE INTERSECTION (CITY/COUNTY)

ELECTRICAL SERVICE TYPICALLY FALLS INTO TWO CATEGORIES: MAIN BREAKER NEAR CONTROLLER CABINET; AND MAIN BREAKER NOT NEAR CONTROLLER CABINET. THE CONTRACTOR'S AND THE CITY'S OR COUNTY'S RESPONSIBILITY VARIES ACCORDINGLY AS INDICATED ON THESE DETAILS.

1. ALL SITUATIONS: ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, LIGHTNING ARRESTOR, POWER ISOLATION ASSEMBLY WHERE REQUIRED, METER LOOP IF REQUIRED BY LOCAL UTILITY, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2C/#12 AWG UF RATED, TYPICAL) SHALL BE KEPT SEPARATE FROM THE CIRCUIT SERVING TRAFFIC SIGNAL. SERVICE WIRE AND WIRING FROM THE CONTROLLER TO MAIN BREAKER IS PROVIDED BY THE CONTRACTOR AS A PART OF THIS CONTRACT. WIRE AND WIRING FROM MAIN BREAKER, AND CONNECTION TO THE UTILITY IS THE RESPONSIBILITY OF THE CITY/COUNTY.

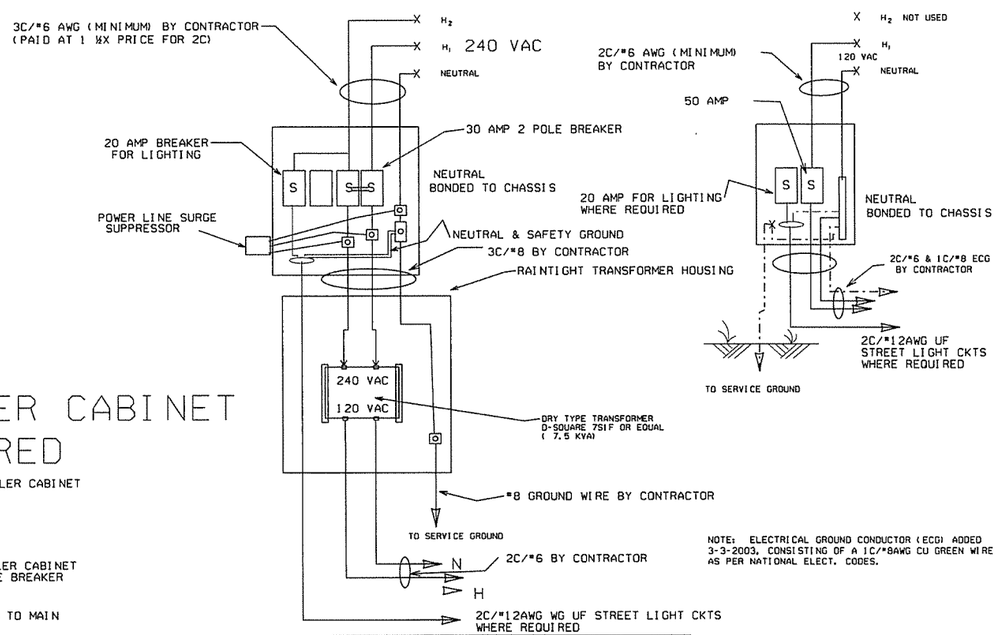
2. MAIN BREAKER NOT NEAR CONTROLLER CABINET: THE MAIN BREAKER ASSEMBLY, GALVANIZED STEEL CONDUIT, WEATHERHEAD AND WIRE ABOVE MAIN BREAKER AND CONNECTION TO THE UTILITY SHALL BE PROVIDED BY CITY/COUNTY. CONTRACTOR SHALL PROVIDE AS PART OF CONTRACT SECONDARY BREAKER, CONDUIT, WIRE AND WIRING TO THE MAIN BREAKER.

3. MAIN BREAKER NEAR CONTROLLER CABINET: ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER LOOP IS REQUIRED, METER BASE AND HARDWARE IS PROVIDED BY THE CITY/COUNTY AND INSTALLED BY THE CONTRACTOR.

SERVICE GROUND IS TYPICALLY TIED TO NEUTRAL AT THE MAIN BREAKER. AS SUCH, CONTROLLER GROUND IS NOT TIED TO NEUTRAL AT SECONDARY BREAKER OR IN CONTROLLER CABINET.

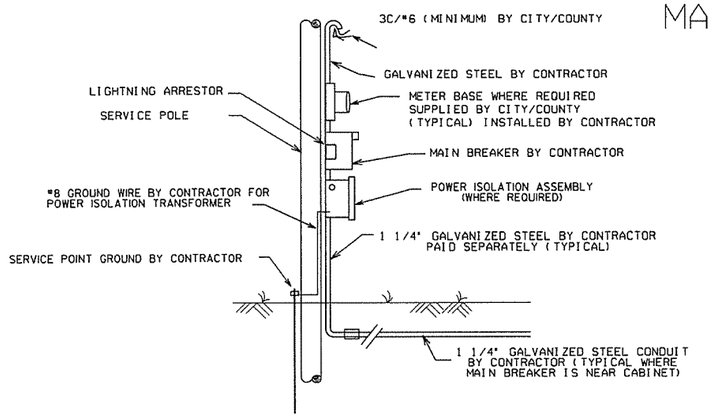
WITH POWER ISOLATION ASSEMBLY
4 CIRCUIT MAIN BREAKER

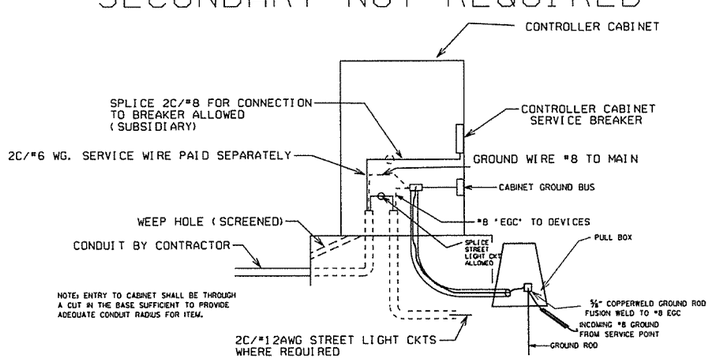
WITHOUT POWER ISOLATION ASSEMBLY
2 CIRCUIT MAIN BREAKER



NOTE: ELECTRICAL GROUND CONDUCTOR (EGC) ADDED 3-3-2003, CONSISTING OF A 1C/#8AWG CU GREEN WIRE AS PER NATIONAL ELECT. CODES.

MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED





DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
4-18-13	ADDED LIGHTNING ARRESTOR	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
3-3-03	ADDED EGC NOTE	
9-26-01	REVISED	
12-27-99	REVISED	
7-28-99	REVISED	
2-5-99	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SERVICE POINT

STANDARD DRAWING SD-9

NOTES, PED AND TRAFFIC SIGNAL HEAD SIGNS:
EACH ITEM "TRAFFIC SIGNAL HEAD (4 SEC., 1-WAY)" SHALL INCLUDE A SPECIAL SIGN AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD UNLESS REMOVED WITHIN THE SIGNAL PLAN NOTES.

EACH ITEM "TRAFFIC SIGNAL HEAD (3 SEC., 1-WAY)" TO BE USED AS A LEFT TURN INDICATION ONLY SHALL INCLUDE A SIGN (R10-10) AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD.

EACH PEDESTRIAN PUSHBUTTON SHALL HAVE ONE R10-3E SIGN ATTACHED TO THE POLE ABOVE THE BUTTON. ALL SIGN FACES SHALL BE CONSTRUCTED OF HIGH INTENSITY SHEETING (TYPE III) WITH SILKSCREEN LEGEND AND BORDER.

ALL SIGN BLANKS SHALL BE CONSTRUCTED OF ALUMINUM ALLOY (ASTM DESIGNATION B-209. ALLOY 5052-H38) WITH THICKNESS OF 0.100 INCH.

GENERAL NOTES:
1. MAST ARM POLES SHALL BE MOUNTED A MINIMUM OF 4 FT. BEHIND CURB OR SHOULDER.

2. OCTAGONAL POLES AND ARMS MEETING THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS CAN BE INSTALLED IN LIEU OF ROUND. ALL POLES AND ARMS IN A JOB MUST BE THE SAME SHAPE.

3. MINIMUM STRUCTURAL REQUIREMENTS:
DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

USE FATIGUE CATEGORY I FOR ALL STRUCTURES ON ROUTES WHERE THE SPEED LIMIT IS 65 MPH AND GREATER AT THE STRUCTURE LOCATION AND ON ROUTES WHERE SPEED LIMIT IS GREATER THAN 45 MPH WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY II FOR STRUCTURES ON ROUTES WITH A SPEED LIMIT LESS THAN 65 MPH AND GREATER THAN 45 MPH WITH ARMS LESS THAN 60' AND ROUTES WITH SPEED LIMITS OF 45 MPH AND LESS WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY III FOR ALL STRUCTURES WHERE SPEED LIMIT IS 45 MPH AND LESS AND ARMS LESS THAN 60'.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH.

STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN 1/2" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

DEAD LOAD: AS A MINIMUM, DESIGN SHALL BE BASED ON THE FIXED ATTACHMENTS SHOWN BELOW OR AS MODIFIED IN THE PLANS.

ALL SIGNAL HEADS TO BE ONE WAY, 12 INCH, AND HAVE 5 IN. BACK PLATES:

HEADS AT END OF ARM - ONE 4 SEC., 85 LB., 16.0 SQ. FT. ONE SIGN MOUNTED 3 FT. FROM SIGNAL * 2' X 0' X 2' * 6"; 20 LB. REMAINING HEADS SPACED A 8 FT. * 3 SEC., 56 LB., TWO 5 SEC):
14.4 SQ. FT. DESIGN TO ACCOMMODATE (INCLUDING
2 HEADS FOR ARMS 10 TO 16 FT.
2 HEADS FOR ARMS 10 TO 16 FT.; INCLUDING LB.
3 HEADS FOR 18 TO 24 FT. ARMS;
4 HEADS FOR OVER 26 FT. ARMS.

STREET NAME SIGN -- 72" X 18", 36 LB., MOUNTED SUCH THAT OUTSIDE EDGE IS NOT GREATER THAN 12 FT. FROM POLE. DEPENDING UPON POSITION OF SIGNAL HEAD ADJACENT TO POLE, SIGN MAY OVERLAP POLE SHAFT
ROADWAY LUMINAIRES (WHERE REQUIRED ON PLAN SHEET) * VARIABLE ARM LENGTH (MAX.), 3.3 SQ. FT., 75 LB. PED SIGNALS -- TWO 2 SEC. 12 INCH MOUNTED 8 FT. FROM BASE OF POLE.
POST MOUNTED 3 SEC. SIGNAL HEAD AT 10 FT. ON SIDE OF POLE.

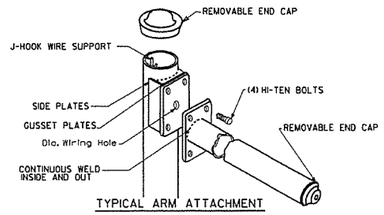
4. POLE/MAST ARM CAP -- POLE AND MAST ARMS CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

5. HAND HOLE -- HAND HOLES SHALL BE 4 X 6 INCHES FOR STANDARD, AND 3 X 5 INCHES FOR PED POLES. MINIMUM PLACED APPROXIMATELY 12 INCHES FROM BASE, AND SHALL BE FIXED WITH A BOLT DOWN COVER. A VACUUM FORMED ABS COVER IS AN ACCEPTABLE ALTERNATE TO STEEL. POLES GREATER THAN 21 FT. IN HEIGHT (FOR ROADWAY LUMINAIRE ATTACHMENT) SHALL INCLUDE A HAND HOLD WITHIN 12 INCHES OF MAST ARM(S) ATTACHMENT(S).

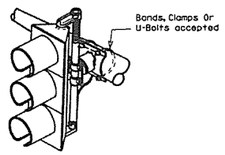
6. POLE/MAST ARM TAPER AND SLOPE - AVERAGE TAPER OF SIGNAL ARMS AND POLE SHALL BE 0.125 TO 0.15 INCHES PER FT.

MAST ARM CENTERLINE ANGLE AT ATTACHMENT POINT WITH POLE SHALL MAINTAIN NOT LESS THAN 0.5 DEGREES OR MORE THAN 4 DEGREES POSITIVE SLOPE WITH A LINE PERPENDICULAR TO THE POLE CENTERLINE. THE ARM SHALL MAINTAIN A POSITIVE AFTER IT IS PLACED UNDER LOAD.

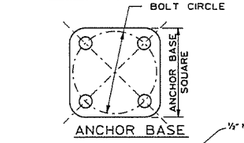
7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.



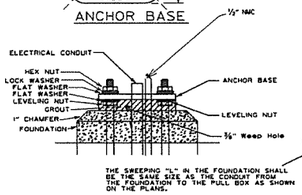
TYPICAL ARM ATTACHMENT

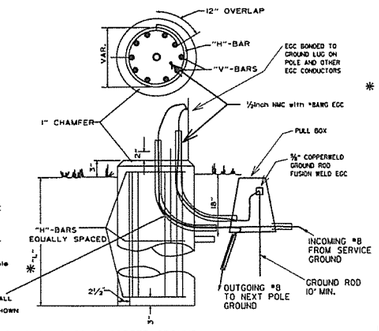


NOTE: THE SIGNAL SHALL BE CONNECTED TO THE MAST ARM BY BRACKETING AS DIRECTED BY THE ENGINEER.



ANCHOR BASE



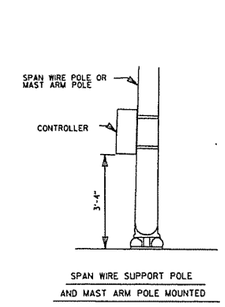


THE GROUND ROD SHALL BE FUSION WELDED TO A 1C/#8 A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX.

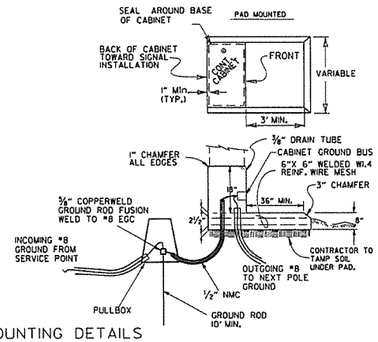
TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING. ALL REINFORCING STEEL SHALL BE GRADE 40 MIN.

ARM LENGTH	FDN. DIAMETER	DEPTH "L" *	STEEL		
			VERT.	HORZ.	O/C.
PED	30"	7'-0"	12-#7 (6'-6")	10-#4	8.44"
2' to 12'	30"	10'-6"	12-#7 (10'-0")	15-#4	8.42"
over 12' to 20'	30"	11'-6"	12-#7 (11'-0")	16-#4	8.66"
over 20' to 35'	36"	12'-6"	13-#8 (12'-0")	17-#4	8.88"
over 35' to 50'	36"	13'-6"	13-#8 (13'-0")	19-#4	8.56"
over 50' to 72'	42"	14'-6"	18-#8 (14'-0")	20-#4	8.74"
Twins to 20'	30"	16'-0"	12-#6 (15'-6")	22-#4	8.76"
Twins over 20' to 44'	36"	16'-0"	13-#8 (15'-6")	22-#4	8.76"
Twins over 44' to 50'	42"	16'-0"	18-#8 (15'-6")	22-#4	8.76"
Twins over 50' to 72'	42"	16'-6"	18-#8 (16'-0")	23-#4	8.64"



SPAN WIRE SUPPORT POLE AND MAST ARM POLE MOUNTED



CONTROLLER CABINET MOUNTING DETAILS

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CABINET ORIENTATION SHALL BE SUCH THAT THE BACK OF THE CABINET IS PARALLEL TO THE STREET AND POSITIONED TO ALLOW VISIBILITY OF THE SIGNAL DISPLAY WHILE OBSERVING THE CONTROLLER FRONT PANEL.

8. GROUND ROD - A 10' X 5/8" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 714 FOR SIGNAL POLES AND ITEM 701 FOR THE CONTROLLER. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

9. POLE BASE/FOUNDATION - ANCHOR BOLTS SHALL INCLUDE AS A MINIMUM, ONE LEVELING NUT, TWO FLAT WASHERS, ONE LOCK WASHER, AND ONE HEX. NUT. PERIMETER OF ANCHOR BASE SHALL BE GROUTED WITH A 1/4" WEEP HOLE. ALL CONCRETE SHALL BE CLASS "S" OR GREATER.

10. CONCRETE - ALL CONCRETE FOR CONTROLLER CABINET AND POLE FOUNDATIONS SHALL BE CLASS "S" OR GREATER.

11. PEDESTRIAN PHASES - PEDESTRIAN MOVEMENTS SHALL BE PUSH BUTTON ACTUATED AND CONCURRENTLY TIMED, UNLESS OTHERWISE INDICATED ON THE PLAN SHEET(S). FURNISHING AND INSTALLING PED PUSH SWITCH SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM PEDESTRIAN SIGNAL HEAD.

SIGNAL OPERATION NOTES:

FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORK DAYS OR AS DIRECTED BY THE ENGINEER. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.

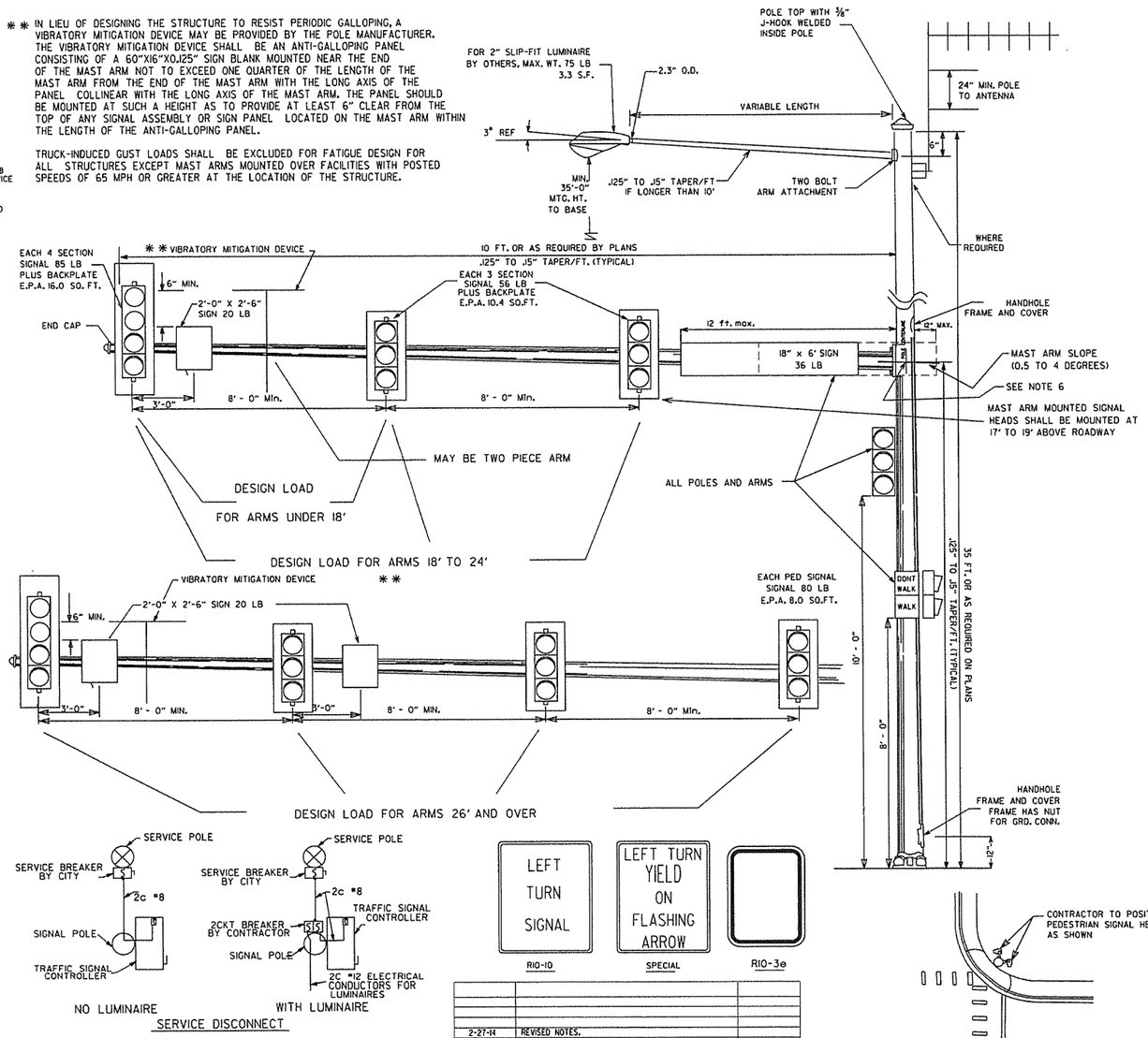
THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD. AT THE TIME INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATIONS IN FLASH SEQUENCE.

SPECIAL NOTE: 90 MPH WIND ZONE DESIGN, SEE NOTE 3. MINIMUM STRUCTURAL REQUIREMENTS.

* WHEN THE GROUND ELEVATION AT THE POLE IS LOWER THAN THE ROADWAY ELEVATION, THE LENGTH OF FOUNDATION ABOVE THE GROUND MAY BE INCREASED TO PROVIDE THE REQUIRED SIGNAL HEAD CLEARANCE ABOVE THE ROADWAY. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 18" OR LESS, NO INCREASE IN DEPTH "L" WILL BE REQUIRED. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 5'-6" OR LESS, INCREASE DEPTH "L" BY 1'-0". FOR LENGTHS GREATER THAN 5'-6", DEPTH "L" SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. LONGITUDINAL REINFORCING, AS SHOWN IN THE TABLE, SHALL BE PROVIDED FOR THE LENGTH OF THE EXTENDED SHAFT AND #4 TIES SHALL BE PROVIDED AT A SPACING NOT TO EXCEED 9" ON CENTERS. PAYMENT WILL BE IN ACCORDANCE WITH SECTION 714 OF THE STANDARD SPECIFICATIONS.

** IN LIEU OF DESIGNING THE STRUCTURE TO RESIST PERIODIC GALLOPING, A VIBRATORY MITIGATION DEVICE MAY BE PROVIDED BY THE POLE MANUFACTURER. THE VIBRATORY MITIGATION DEVICE SHALL BE AN ANTI-GALLOPING PANEL CONSISTING OF A 60"X16"X0.125" SIGN BLANK MOUNTED NEAR THE END OF THE MAST ARM NOT TO EXCEED ONE QUARTER OF THE LENGTH OF THE MAST ARM FROM THE END OF THE MAST ARM WITH THE LONG AXIS OF THE PANEL COLLINEAR WITH THE LONG AXIS OF THE MAST ARM. THE PANEL SHOULD BE MOUNTED AT SUCH A HEIGHT AS TO PROVIDE AT LEAST 6" CLEAR FROM THE TOP OF ANY SIGNAL ASSEMBLY OR SIGN PANEL LOCATED ON THE MAST ARM WITHIN THE LENGTH OF THE ANTI-GALLOPING PANEL.

TRUCK-INDUCED GUST LOADS SHALL BE EXCLUDED FOR FATIGUE DESIGN FOR ALL STRUCTURES EXCEPT MAST ARMS MOUNTED OVER FACILITIES WITH POSTED SPEEDS OF 65 MPH OR GREATER AT THE LOCATION OF THE STRUCTURE.



DATE	REVISION	DATE FILM
2-27-14	REVISED NOTES.	
9-12-13	ISSUED AS STANDARD DRAWING	
7-21-11	REVISED VMD, SIGNAL HEADS	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
4-25-08	ADDED VIBRATORY MITIGATION DEVICE & NOTES	
4-18-08	REVISED AASHTO NOTES	
4-17-08	REVISED TO 2001 AASHTO STANDARDS	
10-12-04	REVISED CABINET ORIENTATION	
6-23-04	REVISED	
5-1-04	REV. NOTE 3/AASHTO REQUIREMENTS	
6-11-01	REV. NOTES & POLE MAST ARM SLOPE	
4-1-01	REVISED POLE TAPERS	
4-25-00	REV. NOTES & SIGNAL HEAD PLACEMENT	
11-22-99	REVISED FOUNDATION DETAILS	
11-17-98	REVISED DETAILS AND NOTES	
11-21-95	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

STEEL POLE WITH MAST ARM

STANDARD DRAWING SD-11

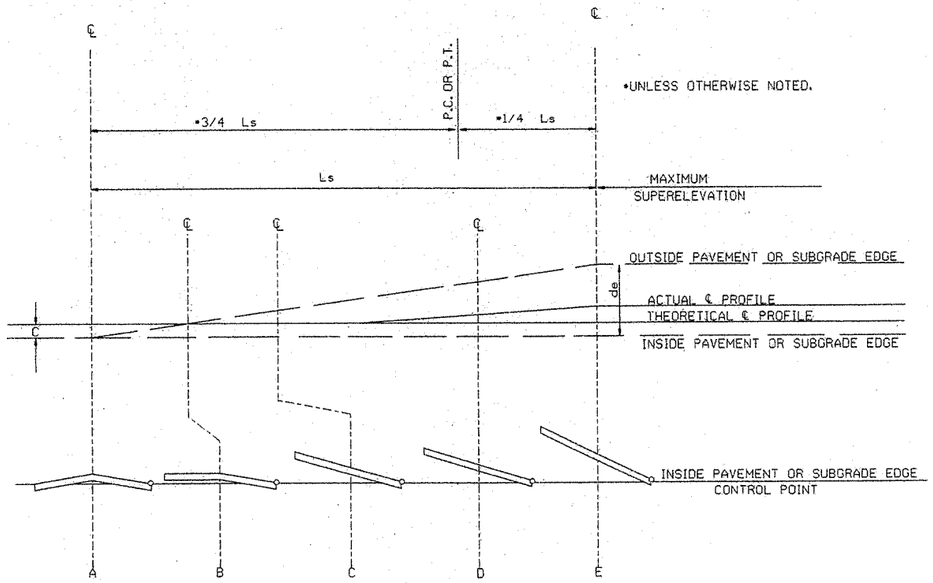
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45′	N.C.			N.C.			R.C.			0.022			0.023			0.028		
1° 00′	N.C.			N.C.			0.021			0.026			0.030			0.037	275	300
1° 15′	N.C.			R.C.			0.026			0.032			0.037			0.046		
1° 30′	N.C.			0.021			0.031	200		0.037	225		0.043	250		0.054		
1° 45′	N.C.			0.025	175		0.036			0.043		300	0.049		300	0.062		
2° 00′	R.C.			0.028			0.040			0.048			0.055			0.070		
2° 15′	R.C.			0.031			0.045		250	0.053			0.061			0.078	300	350
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085	315	
2° 45′	0.023			0.037		200	0.053			0.063			0.072			0.091	335	
3° 00′	0.025	150		0.040			0.057			0.067	230		0.077	260		0.096	350	400
3° 15′	0.027			0.043			0.061			0.072	245		0.082	275		0.098	360	
3° 30′	0.029			0.046			0.065	205		0.076	255		0.086	285		0.100	360	
3° 45′	0.031		200	0.049			0.069	215		0.080	265		0.090	295				
4° 00′	0.033			0.051			0.072	225		0.083	270		0.093	305	350			
4° 30′	0.037			0.056			0.078	240		0.087	280		0.096	315				
5° 00′	0.040			0.061			0.083	250		0.091	295		0.098	320				
5° 30′	0.043			0.066	185		0.088	260		0.094	300	350						
6° 00′	0.046			0.070	190		0.092	270	300	0.096	305							
6° 30′	0.050			0.074	200		0.095	280		0.100	315							
7° 00′	0.053			0.078	210		0.098	285										
7° 30′	0.056			0.081	215		0.099	290										
8° 00′	0.058			0.084	220	250	0.100	290										
8° 30′	0.061			0.087	225													
9° 00′	0.063			0.089	230													
10° 00′	0.068	160		0.094	235													
11° 00′	0.072	170		0.097	250													
12° 00′	0.076	175		0.099	250													
13° 00′	0.080	180		0.100	250													
14° 00′	0.083	190																
15° 00′	0.086	195																
16° 00′	0.089	200																
17° 00′	0.091	200																
18° 00′	0.093	205																
19° 00′	0.095	210																
20° 00′	0.097	215	250															
21° 00′	0.098	215																
22° 00′	0.099	215																
23° 00′	0.099	215																
24° 00′	0.100	220																

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 3° 30′

ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
e - RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
C - NORMAL CROWN (FT.)



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

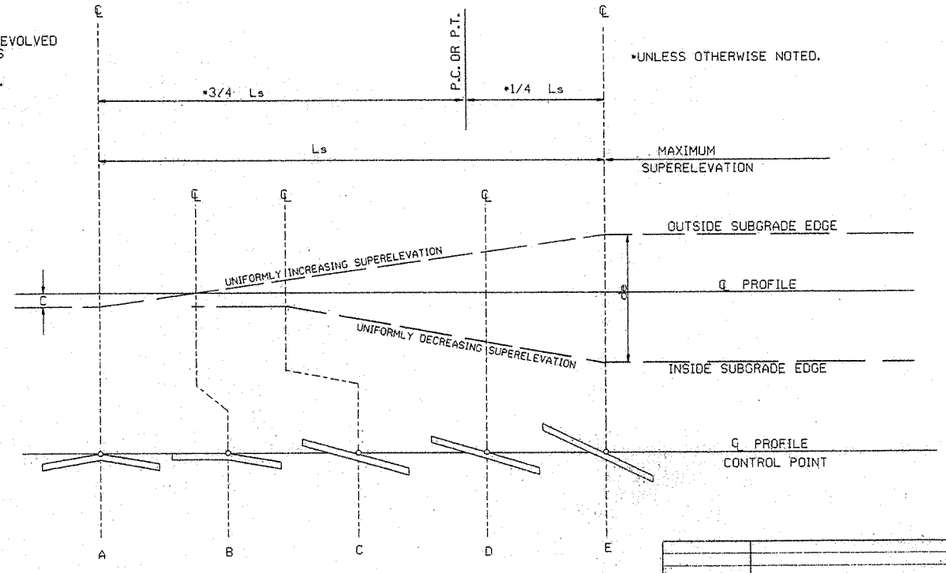
GENERAL NOTES

1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

3 LANE UNDIVIDED - - - - - +20%
4 LANE UNDIVIDED - - - - - +50%
5 LANE UNDIVIDED - - - - - +80%
6 LANE UNDIVIDED - - - - - +100%

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

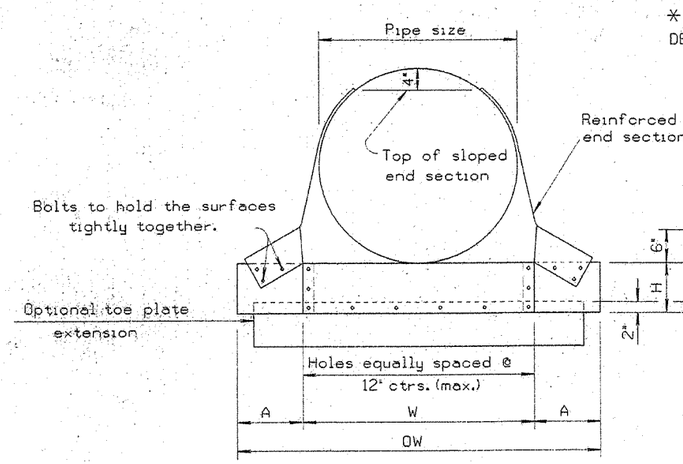
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

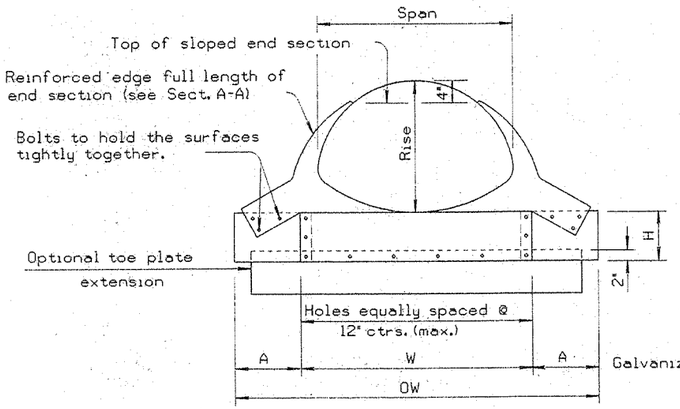
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

FILE STDSE2.DGN



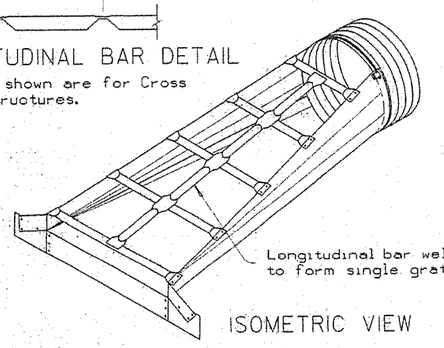
FRONT VIEW CIRCULAR PIPE



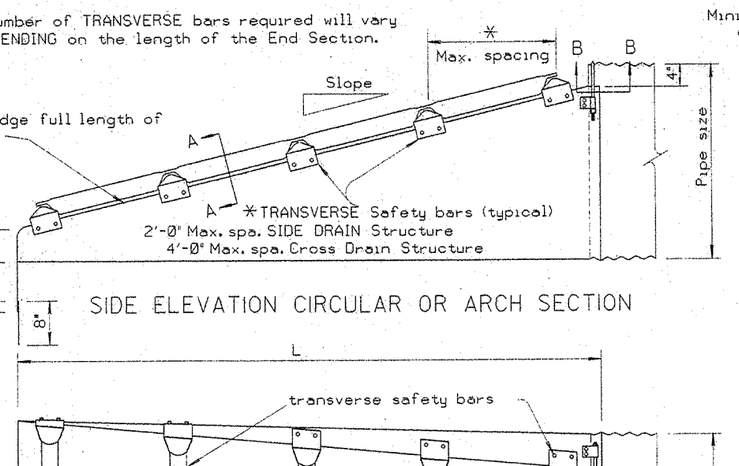
FRONT VIEW ARCH PIPE

LONGITUDINAL BAR DETAIL

Note: Bars shown are for Cross Drain Structures.

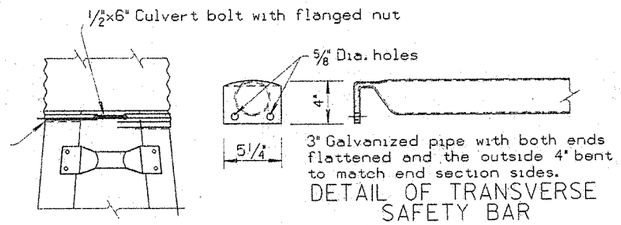


ISOMETRIC VIEW



SIDE ELEVATION CIRCULAR OR ARCH SECTION

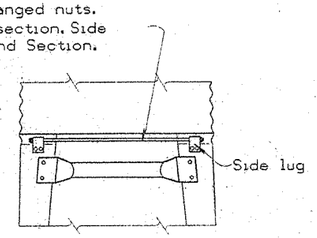
TOP VIEW CIRCULAR OR ARCH SECTION



DETAIL OF TRANSVERSE SAFETY BAR

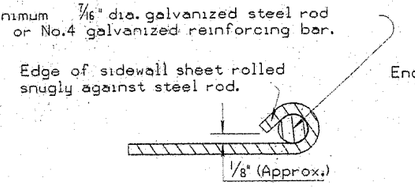
TYPE #1 CONNECTOR DETAIL

For 15" thru 24" pipe

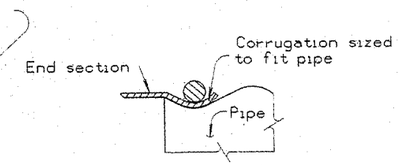


TYPE #2 CONNECTOR DETAIL

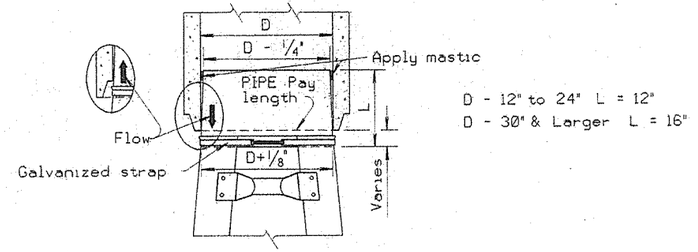
For 30" and larger round pipes & 21"x15" thru 64"x43" arch pipes



SECTION A-A



SECTION B-B



Note: Metal end section to be firmly wedged INTO PIPE END BEFORE BACKFILLING PIPE.

(Tapered sleeve to be 12 Ga. smooth galvanized steel in accordance with AASHTO M 218.)

STEEL END SECTION FOR CONCRETE PIPE
(Alternate for Concrete End Section)

GENERAL NOTES

End sections shall be fabricated from galvanzied steel meeting the requirements of SUBSECTION 606.02(c)(1) OF THE STANDARD SPECIFICATIONS.
When specified optional toe plate extension shall be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension shall be same gauge as end section.
Dimensions shall be overall width less 6" by 8" high.
Attachment to circular pipes 15" through 24" diameter shall be made with Type #1 straps. All other sizes shall be attached with Type #2 rods and lugs.
Safety bars shall be fabricated from steel pipe meeting the requirements of ASTM A-53 Schedule 40 Specifications. Safety bars shall be hot dipped galvanized after fabrication.

All work and materials required for construction and installation of safety end section shall be included in the PRICE BID EACH FOR SAFETY END SECTIONS FOR PIPE CULVERTS.
Longitudinal and transverse bars will be required for cross drain structures when span is greater than 30", no safety bars will be REQUIRED FOR 30" SPAN OR LESS WHEN USED ON CROSS DRAIN STRUCTURES.
Transverse bars will be required for all sizes of side drain structures.
Class 1 safety end sections shall be end sections with a 4:1 slope.
Class 2 safety end sections shall be end sections with a 6:1 slope.

SAFETY END SECTIONS FOR ARCH PIPES

Equiv. Dia.	Nom. W.W. Area Sq Ft	Pipe Arch Span (In.)	Pipe Arch Rise (In.)	Min. Gauge End Sect.	Dimensions in Inches A	H	W	OW	Slope	L (In)	Slope	L (In)
18"	1.6	21	15	16	8	6	27	43	4:1	20	6:1	30
21"	2.2	24	18	16	8	6	30	46	4:1	32	6:1	48
24"	2.9	28	20	16	8	6	34	50	4:1	40	6:1	60
30"	4.5	35	24	14	12	9	41	65	4:1	56	6:1	84
36"	6.5	42	29	12	12	9	48	72	4:1	76	6:1	114
42"	8.9	49	33	12	16	12	55	87	4:1	92	6:1	138
48"	11.6	57	38	12	16	12	63	95	4:1	112	6:1	168
54"	14.7	64	43	12	16	12	70	102	4:1	132	6:1	198
60"	18.1	71	47	12	16	12	77	109	4:1	148	6:1	222
72"	26.0	83	57	12	16	12	89	121	4:1	188	6:1	282

SAFETY END SECTIONS FOR CIRCULAR PIPES

Pipe Dia.	Min. Gauge Ends	Dimensions in Inches A 1"Tol	H 1"Tol	W 2"Tol	OW	L Dimensions in Inches Slope	L	Slope	L
15"	16	8	6	21	37	4:1	20	6:1	30
18"	16	8	6	24	40	4:1	32	6:1	48
21"	16	8	6	27	43	4:1	44	6:1	66
24"	16	8	6	30	46	4:1	56	6:1	84
30"	12	12	9	36	60	4:1	80	6:1	120
36"	12	12	9	42	66	4:1	104	6:1	156
42"	12	16	12	48	80	4:1	128	6:1	192
48"	12	16	12	54	86	4:1	152	6:1	228
54"	12	16	12	60	92	4:1	176	6:1	264
60"	12	16	12	66	98	4:1	200	6:1	300

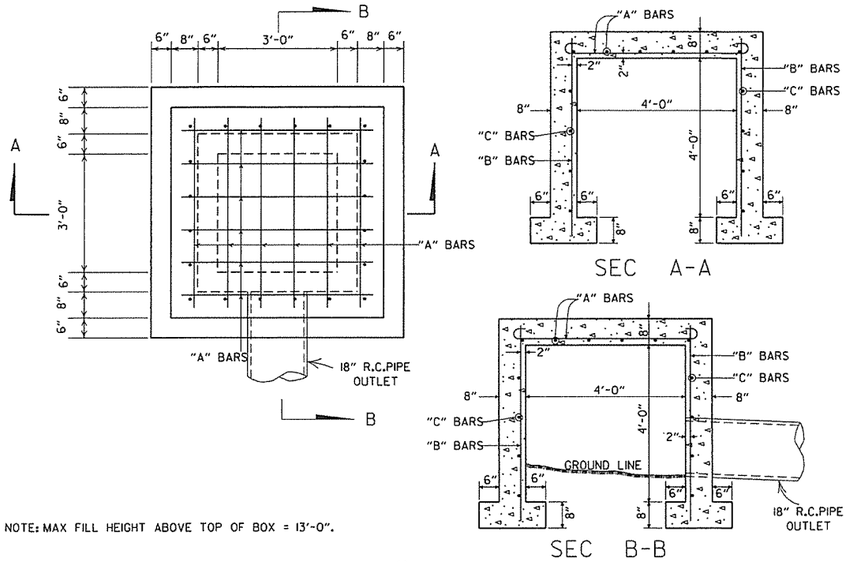
DATE	REVISION	DATE FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
8-15-91	DRAWN & ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SAFETY END SECTION FOR CIRCULAR AND ARCH PIPES

STANDARD DRAWING SES-1

FILE stdsesl.dgn

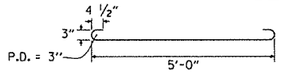


NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



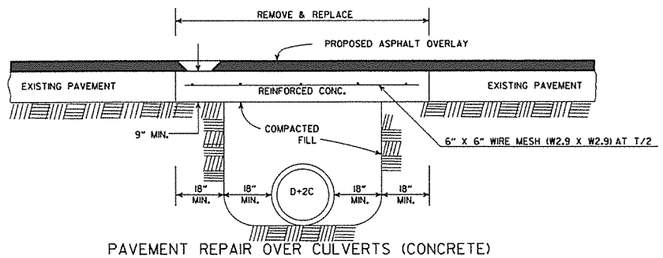
"A" BARS

QUANTITIES

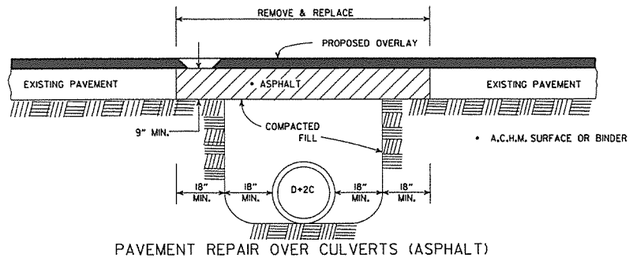
CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

GENERAL NOTE:
THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



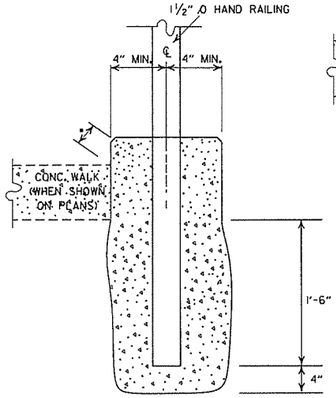
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



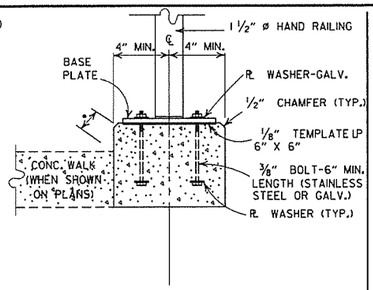
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

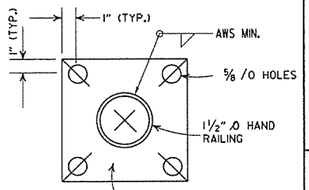
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

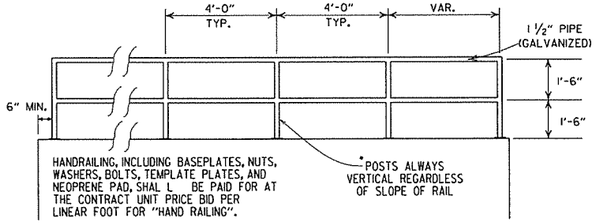


POST CONNECTION TO WALL

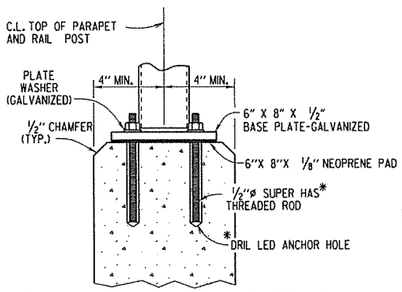


BASE PLATE

POST CONNECTION DETAILS



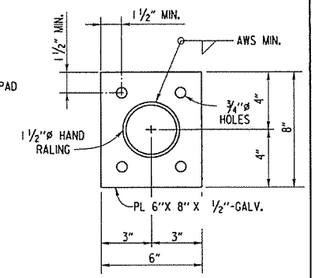
HAND RAILING SHALL CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

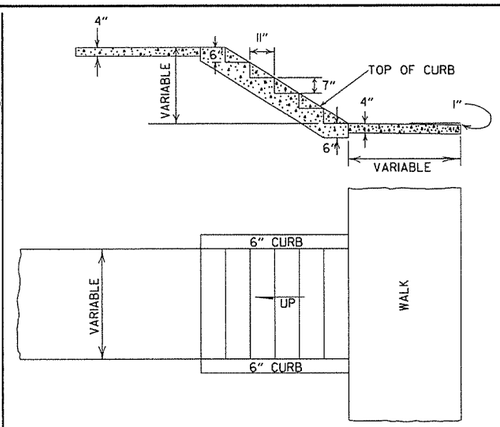
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45° INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILMED
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE;REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

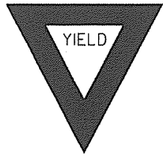
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1

R1-1

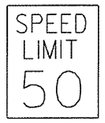
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5A

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5C

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

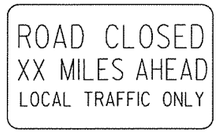
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2

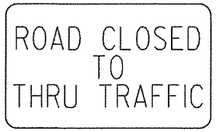
48"X30"

RII-3A



60"X30"

RII-4

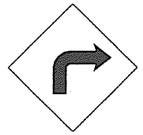


60"X30"

RSP-1

48"X30"

WI-1



STD. 36"X36"
FWY. 48"X48"

WI-2

STD. 36"X36"
FWY. 48"X48"

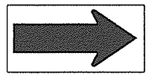
WI-3

STD. 48"X48"

WI-4

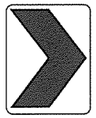
STD. 48"X48"

WI-6



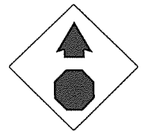
STD. 48"X24"
SPECIAL 60"X30"

WI-8



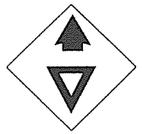
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



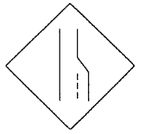
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



STD. 36"X36"
FWY. 48"X48"

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

EXPWY. 36"X36"
FWY. 48"X48"

W9-2

STD. 36"X36"
FWY. 48"X48"

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

STD. 36"X36"
FWY. 48"X48"

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

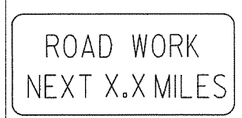
W8-11

STD. 36"X36"
FWY. 48"X48"

W8-9

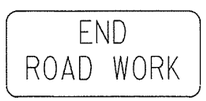
STD. 36"X36"
FWY. 48"X48"

G20-1



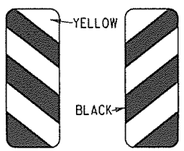
60"X24"

G20-2



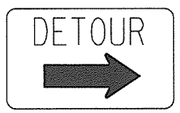
48"X24"

OM-3L OM-3R



12"X36"

M4-9

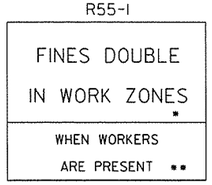


STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1



36"X60"

* USE 6" C LETTERS
** USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

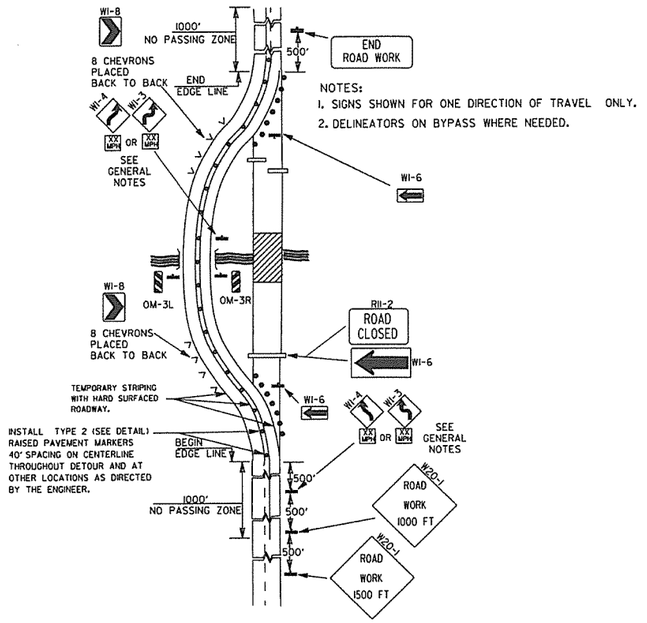
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

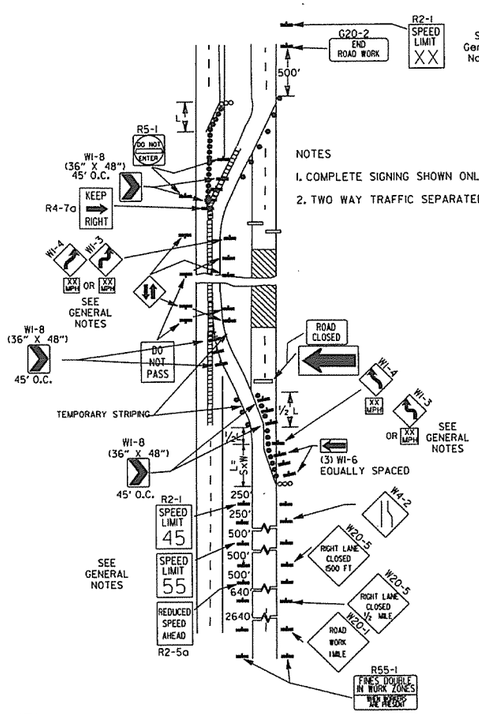
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



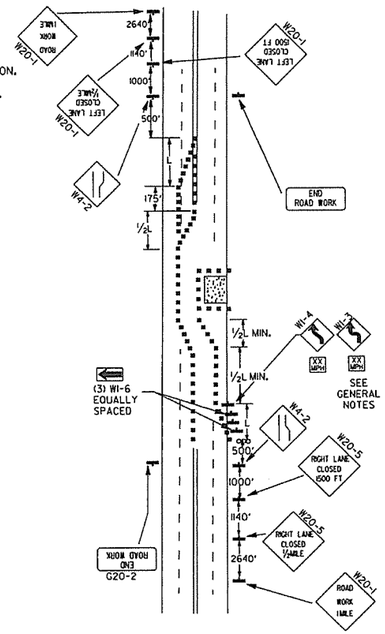
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

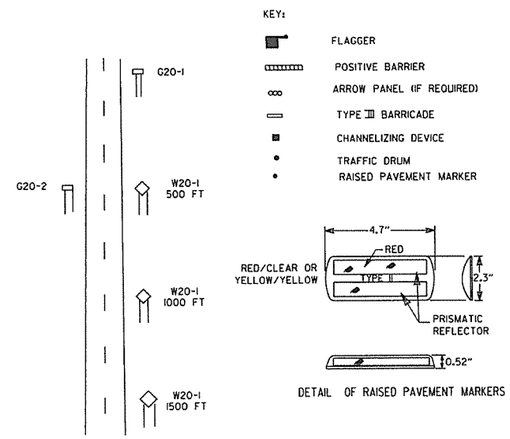


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.

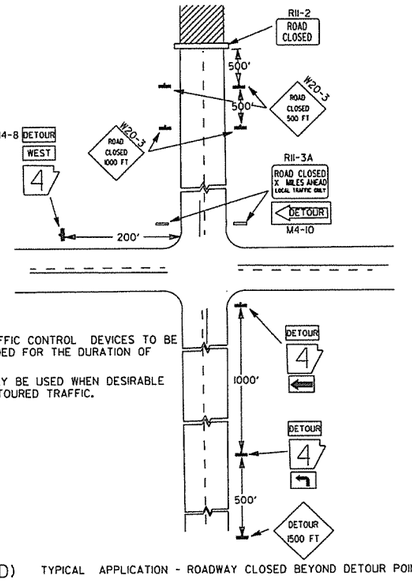


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



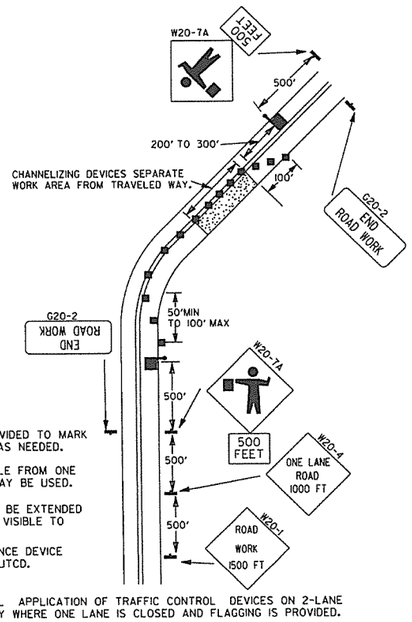
DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT



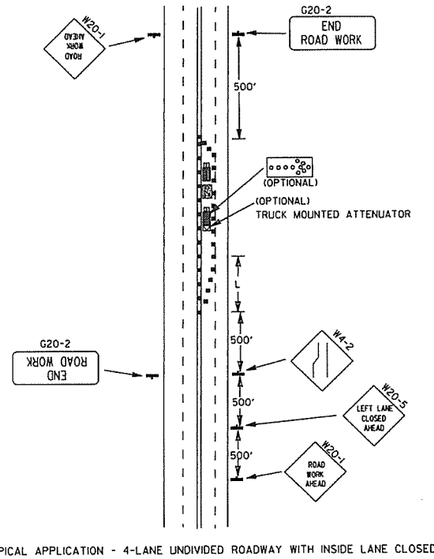
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

TAPER FORMULAE:

$L = SXW$ FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

GENERAL NOTES:

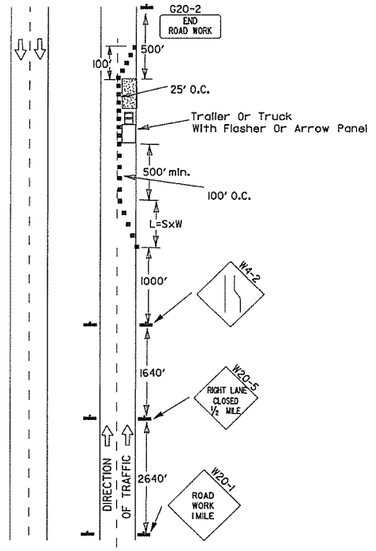
1. ADVISORY SPEED POSTED ON WI-3 OR WI-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON WI-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

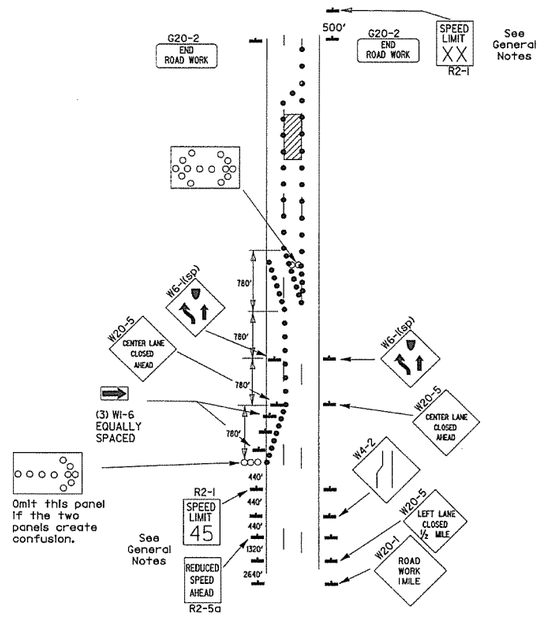
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

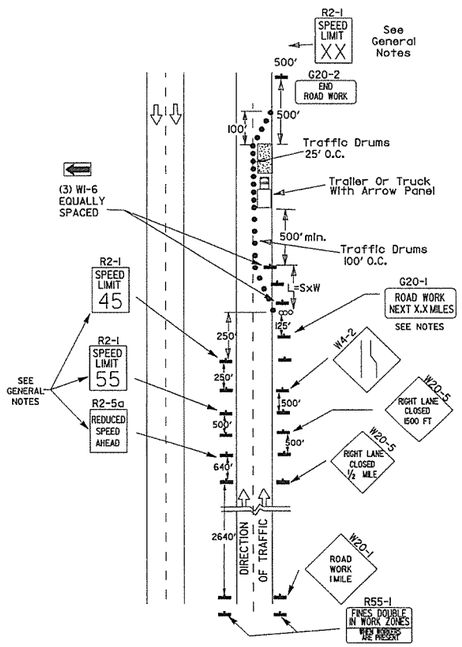
STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



(B) Typical application - 3-lane oneway roadway where center lane is closed.



(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

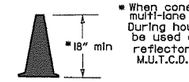
KEY:

- ○○○ Arrow Panel (If Required)
- ■ Channelizing Device
- ● Traffic drum

GENERAL NOTES:

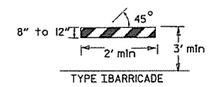
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

Channelizing devices



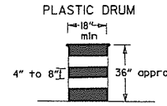
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

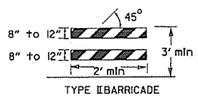
CONES



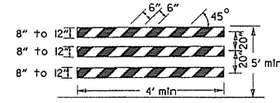
TYPE I BARRICADE

PLASTIC DRUM



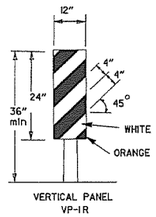


TYPE II BARRICADE



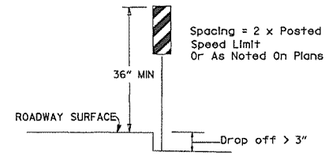
TYPE III BARRICADE

NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



VERTICAL PANEL
VP-1R

VERTICAL PANEL PLACEMENT



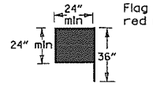
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

* When shown on the plans concrete barrier will be used.

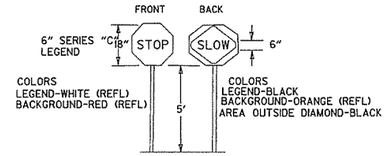
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG

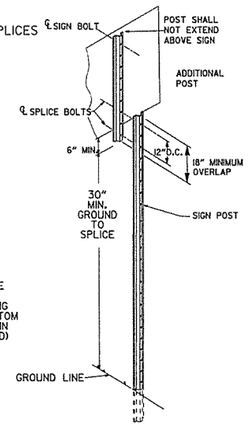


Flag shall be of good grade red material

STOP SLOW PADDLE



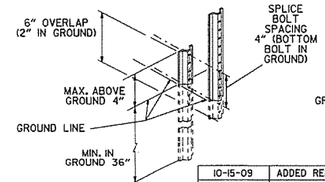
DETAIL OF SPLICES

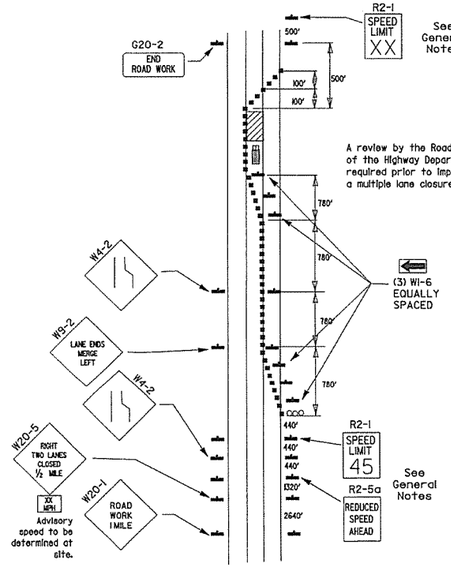


NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.





(D) Typical application - closing multiple lanes of a multilane highway.

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

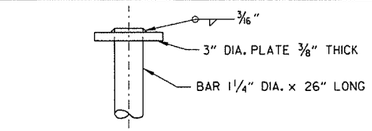
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

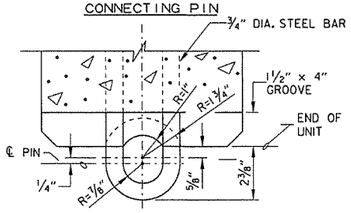
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT

MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2. TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", 90°, 3 3/8" R, LIFTING HOLE
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9", 2 3/16" R, 12°, 9 1/2", 2'-1 3/8", 4 3/8"

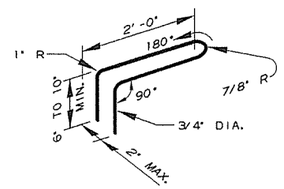


CONNECTING PIN

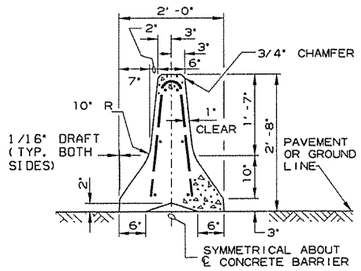


SECTION E-E

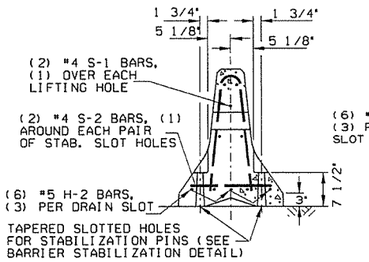
CONNECTION DETAILS



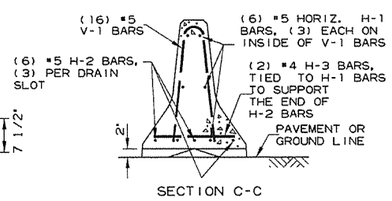
CONNECTION LOOP



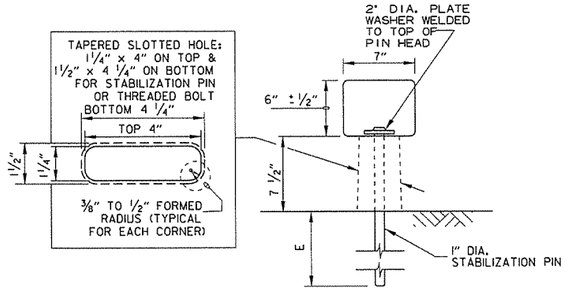
SECTION A-A



SECTION B-B



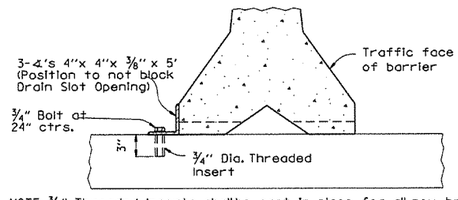
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

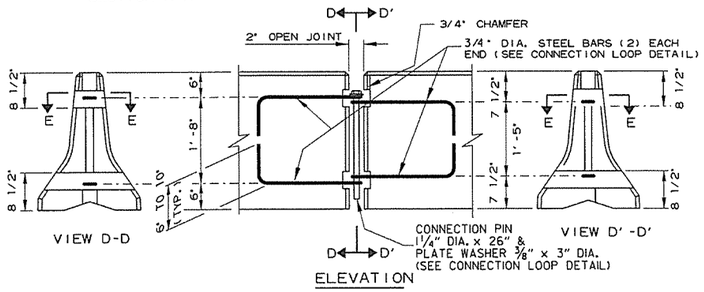
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



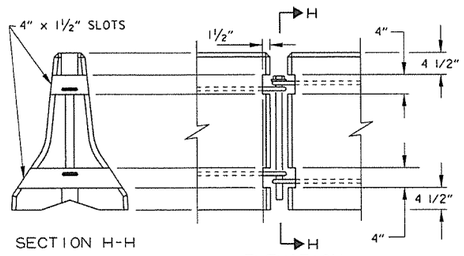
NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the Inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL

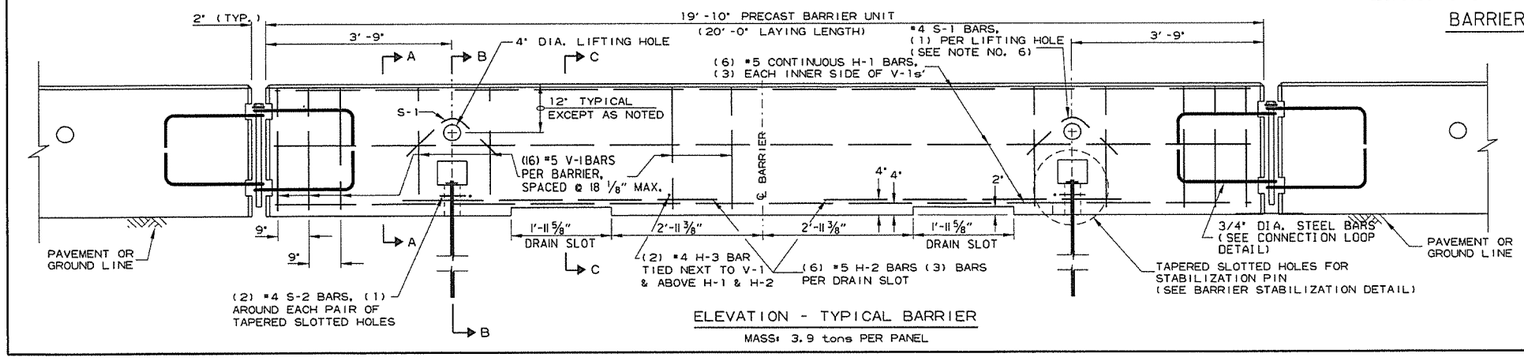
BRIDGE DECKS



ELEVATION



BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

General Notes

1. The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.

2. Materials shall meet the following minimum requirements:
   Concrete: 2500 psi compressive strength at 28 days.
   Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
   Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.
   Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

   In applications where barrier wall is within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
   Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
   Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.

3. Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.

4. Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.

5. Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.

6. A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

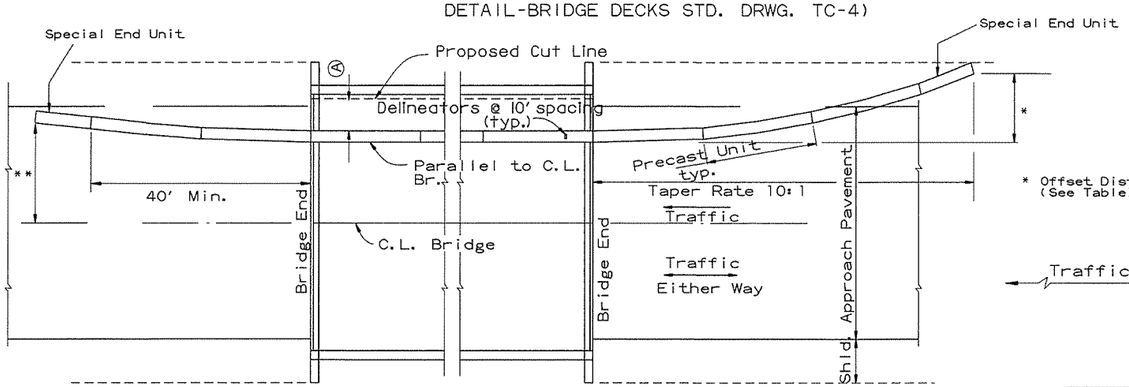
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

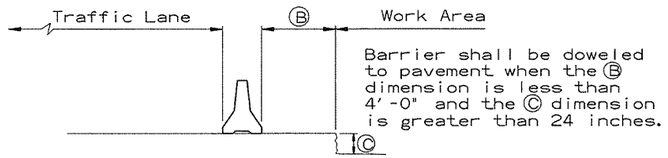
STANDARD DRAWING TC-4

Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

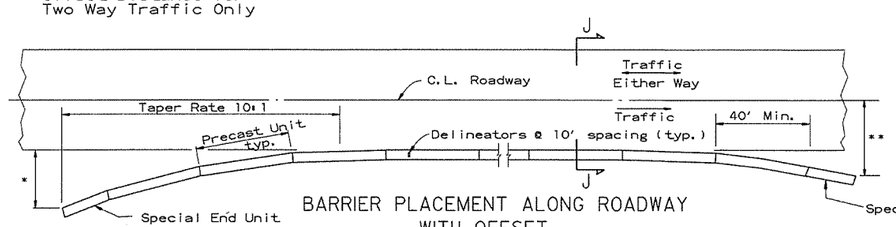
No Scale



SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

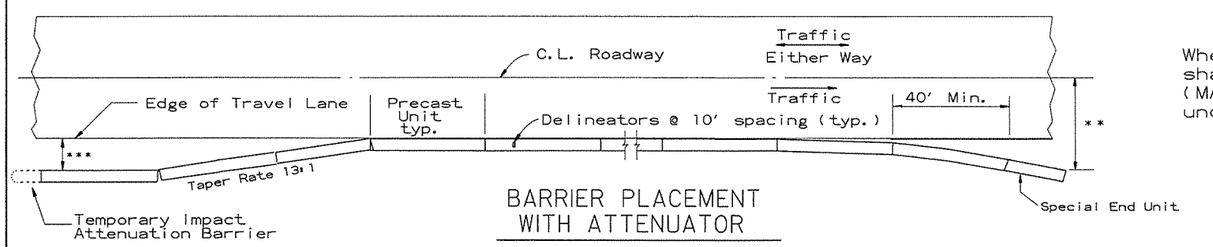
** Offset Distance For Two Way Traffic Only

* Offset Distance (See Table)

Offset Distance Table

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

If offset distance is not attainable, then see 'Barrier Placement With Attenuator' Detail shown below.

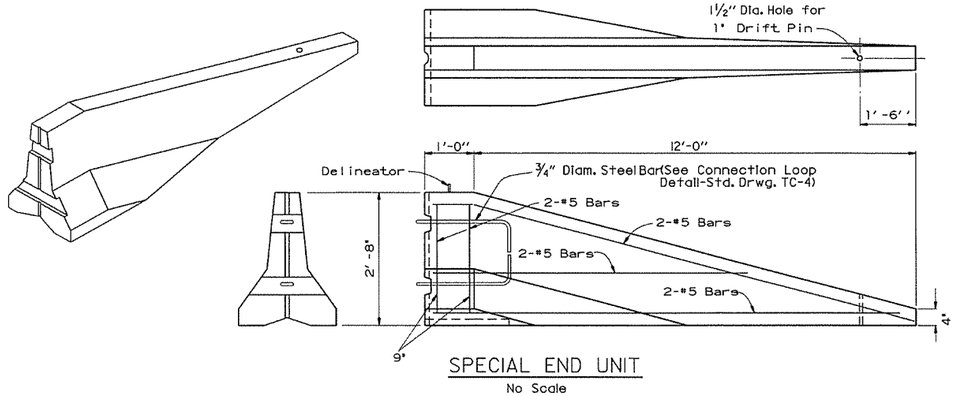


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

***Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator



SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

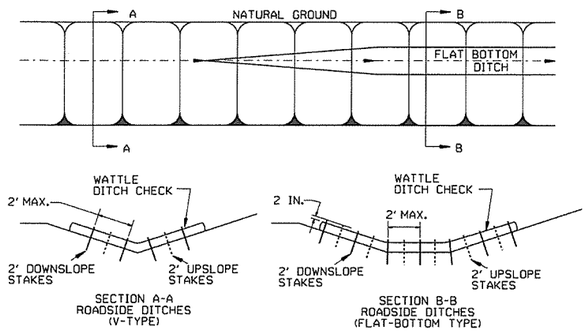
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

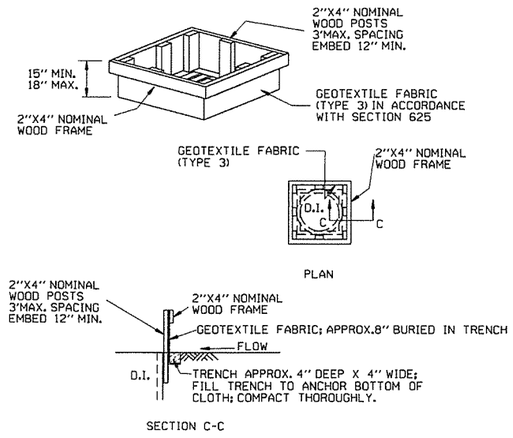
STANDARD DRAWING TC-5

GENERAL NOTES

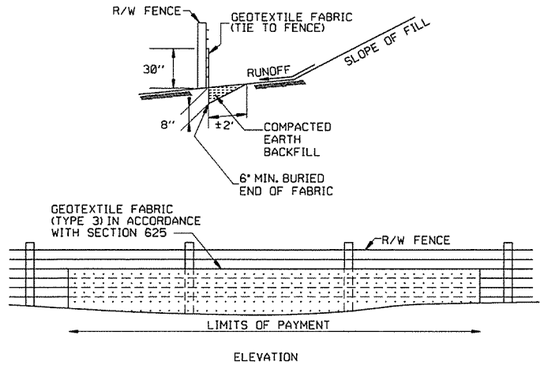
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

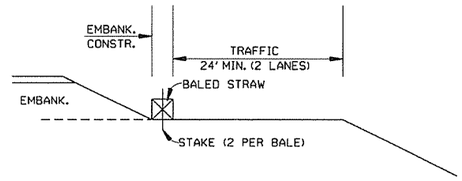
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

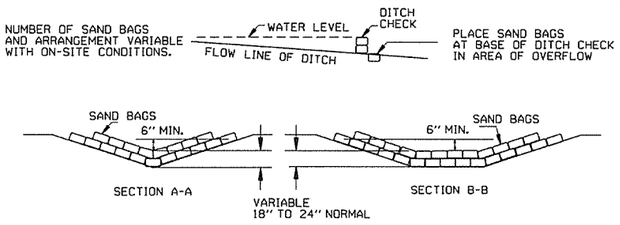
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

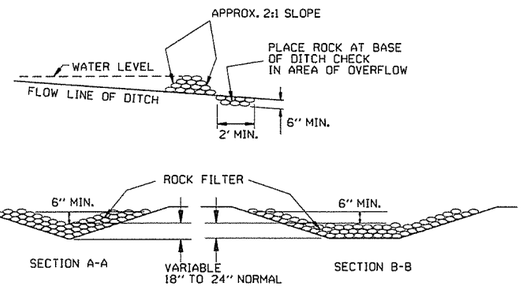
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



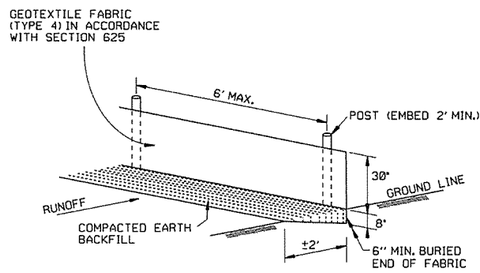
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

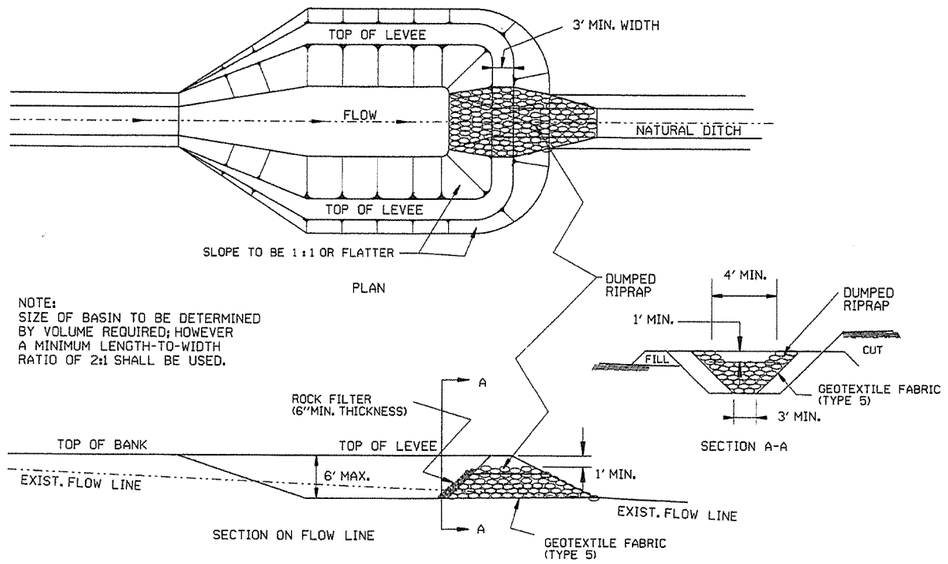
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

DATE	REVISION	FILMED
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
6-2-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
4-1-93	REDRAWN	
10-1-92	REDRAWN	
8-2-76	ISSUED R.D.M.	298-7-28-76

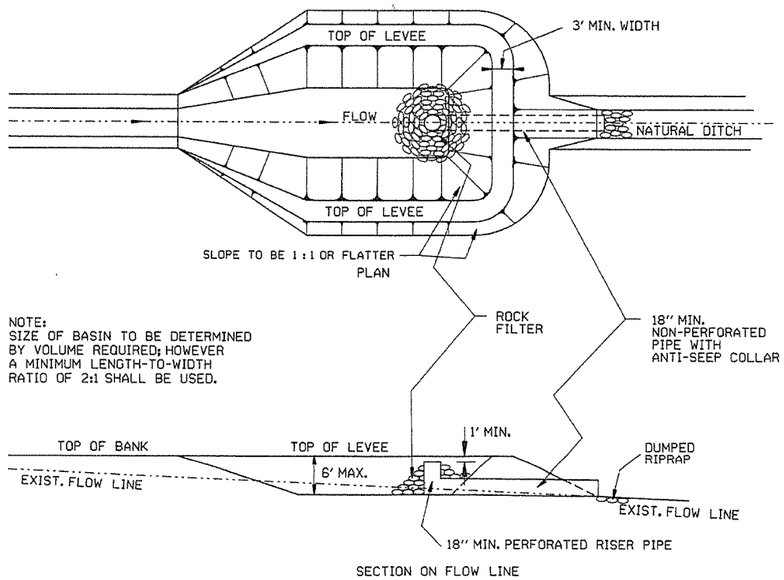
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

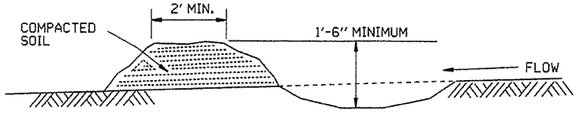
STANDARD DRAWING TEC-1



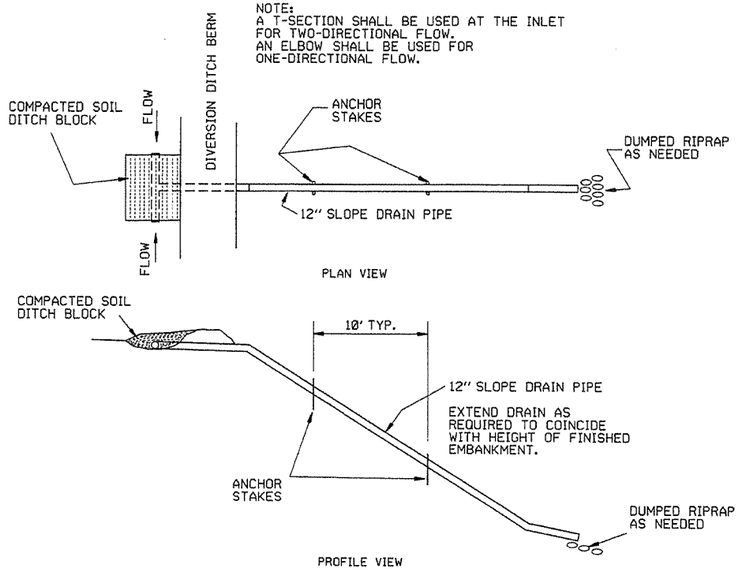
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



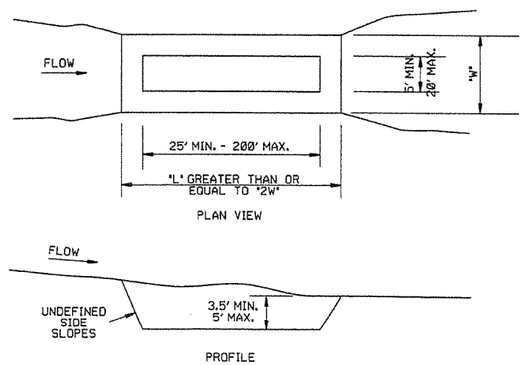
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

DATE	REVISION	FILMED
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13	
4-1-93	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

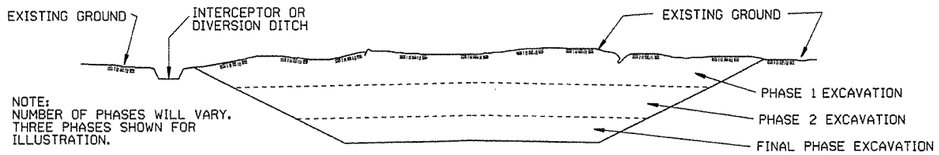
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



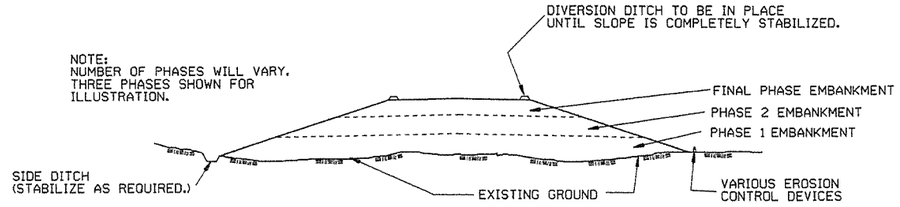
GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

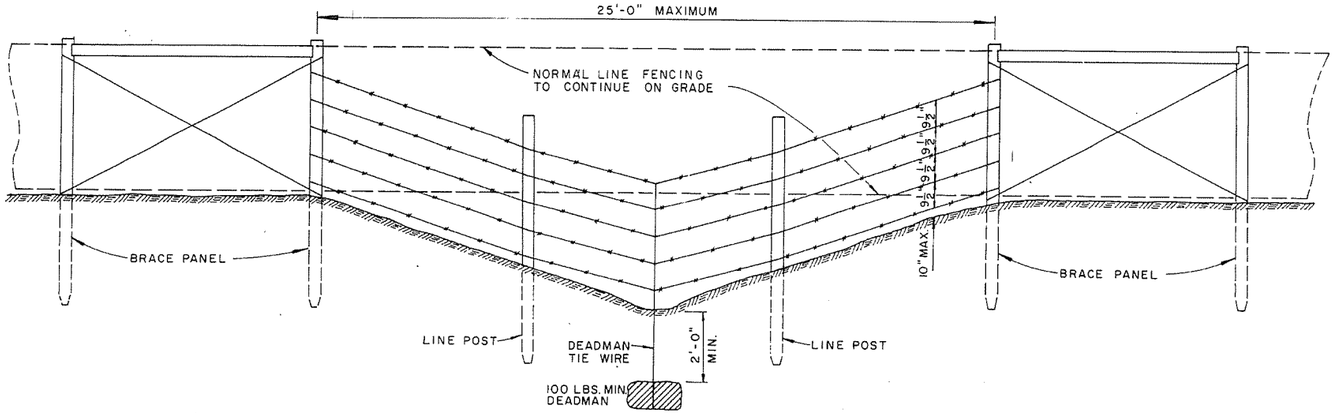
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

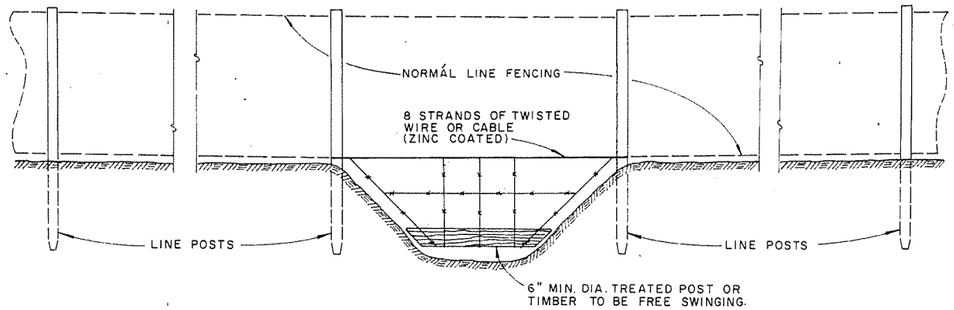
ARKANSAS STATE HIGHWAY COMMISSION

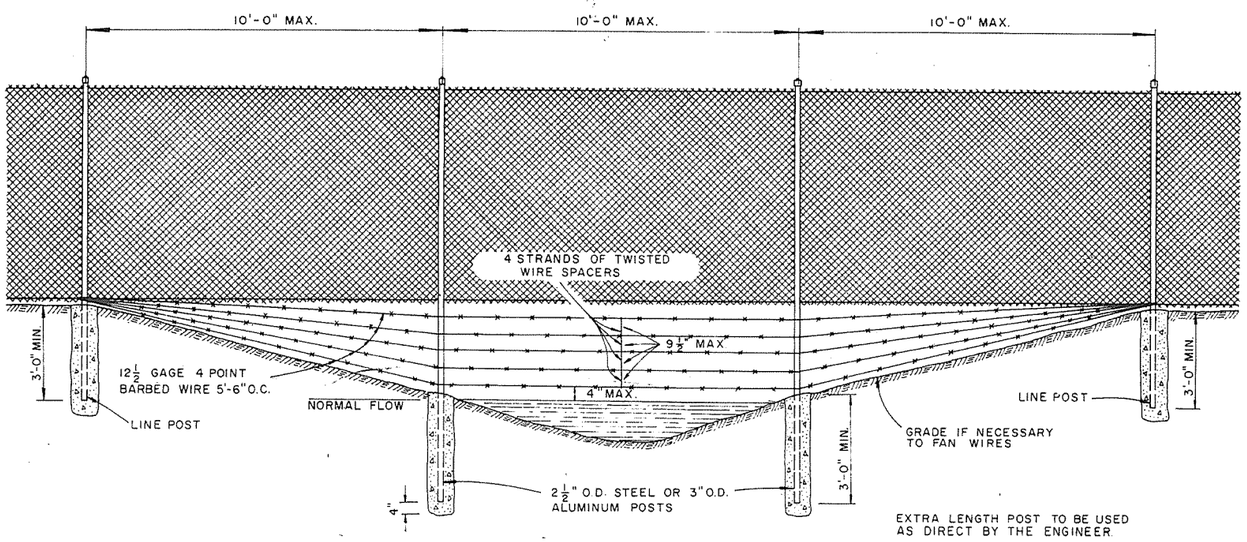
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

stdtec3.dgn







GENERAL NOTES:

THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION. INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER.

WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.

IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN.

PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

DATE	REVISION	DATE FILM'D.
4-20-79	REVISED TOP RAIL & TENSION WIRE	676-4-20-79
10-2-72	REVISED & REDRAWN	529-10-2-72

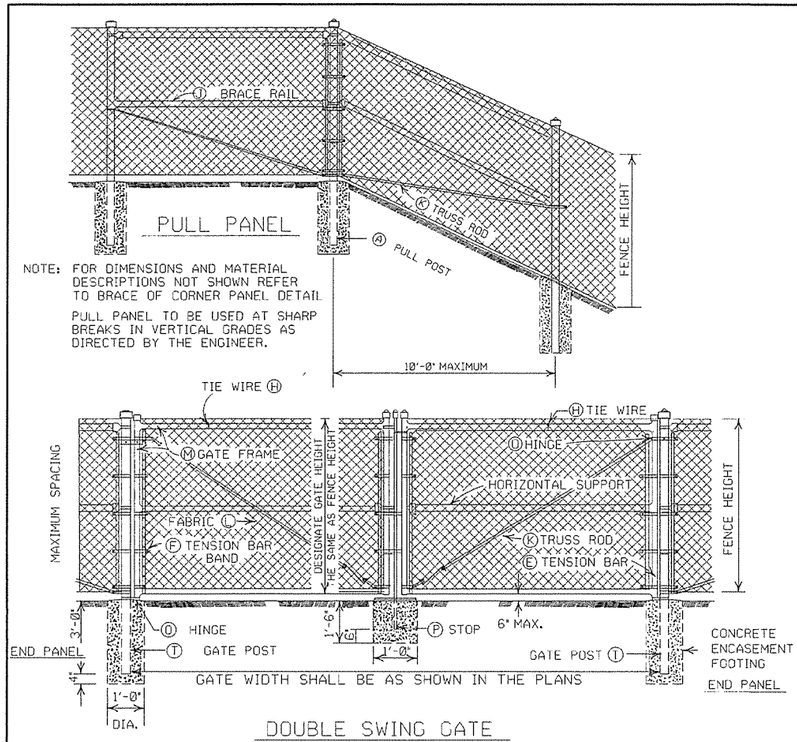
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE WATER GAPS

STANDARD DRAWING

WF-2

1M—11-71—4700—PPASCo

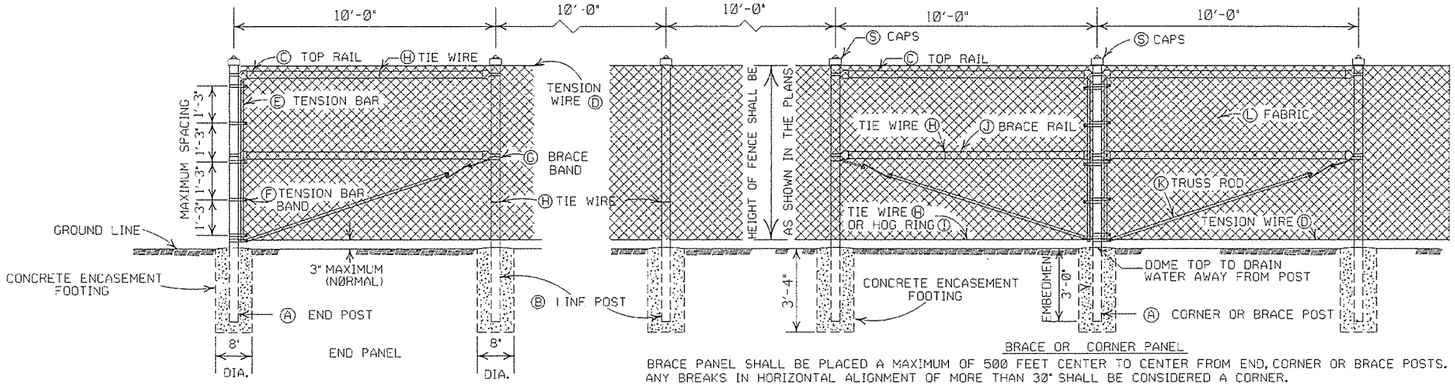


DOUBLE SWING GATE

NOTE: FOR DIMENSIONS AND MATERIAL DESCRIPTIONS NOT SHOWN REFER TO BRACE OF CORNER PANEL DETAIL.

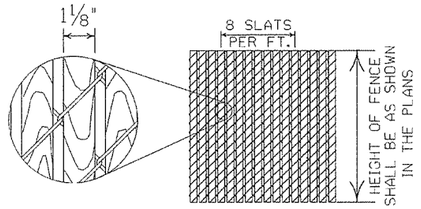
PULL PANEL TO BE USED AT SHARP BREAKS IN VERTICAL GRADES AS DIRECTED BY THE ENGINEER.

POST SPACING DETAIL



BRACE OR CORNER PANEL

BRACE PANEL SHALL BE PLACED A MAXIMUM OF 500 FEET CENTER TO CENTER FROM END, CORNER OR BRACE POSTS. ANY BREAKS IN HORIZONTAL ALIGNMENT OF MORE THAN 30° SHALL BE CONSIDERED A CORNER.



1⅛" X ¼" REDWOOD SLATS(LENGTH TO MATCH HEIGHT OF FENCE)

DETAIL OF REDWOOD SLAT INSTALLATION

(WHERE APPLICABLE)

GENERAL NOTES:

(C) CHAIN LINK FENCE BEING PLACED ON PRIVATE PROPERTY SHALL INCLUDE A TOP RAIL. ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LIN. FT. OF CHAIN LINK FENCE.

(D) TENSION WIRE: SHALL BE SECURED TO ALL TERMINAL, PULL, BRACE OR CORNER POSTS WITH TENSION BAR BANDS.

(J) BRACE RAIL: BRACE RAILS SHALL BE PROVIDED AT ALL TERMINAL, PULL, BRACE OR CORNER POSTS HALFWAY BETWEEN THE TOP RAIL AND GROUND LEVEL WHEN TOPRAIL IS SPECIFIED AND TWELVE INCHES (12") DOWN FROM TOP OF FABRIC WHEN TOP TENSION WIRE IS SPECIFIED. BRACE RAIL SHALL EXTEND FROM SUCH POST TO THE FIRST ADJACENT LINE POST.

(L) FABRIC: SHALL CONFORM TO THE SPECIFICATIONS.

(M) GATE FRAMES: SHALL BE CONSTRUCTED OF TUBULAR MEMBERS ASSEMBLED BY USE OF HEAVY PRESSED STEEL, MALLEABLE FITTINGS OR BY WELDING. ALL GATES SHALL HAVE ONE HORIZONTAL SUPPORT EXTENDING THE WIDTH OF THE GATE AT THE MIDPOINTS OF VERTICAL FRAME MEMBERS. THE COMPLETE FRAME SHALL BE RIGID AND HAVE AMPLE STRENGTH TO BE FREE FROM SAG AND TWIST.

(O) HINGES: SHALL BE OF HEAVY PATTERN, OF ADEQUATE STRENGTH FOR GATE, AND WITH LARGE BEARING SURFACES FOR CLAMPING IN POSITION. THE HINGE SHALL BE OF THE PROPER TYPE TO ALLOW FOR THE DESIGNATED DEGREE OF SWING. THE HINGE SHALL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON.

(P) LATCHES AND STOPS: SHALL BE PROVIDED FOR ALL GATES. GATES SHALL HAVE A DROP BAR LATCH. LATCHES SHALL BE ARRANGED FOR LOCKING. THE STOP FOR DROP BAR LATCHES SHALL BE SET IN CONCRETE AND ENGAGE THE PLUNGER OF THE BAR LATCH.

(S) CAPS: ALL POSTS, EXCEPT ROLL FORMED POSTS AND "T" POSTS SHALL BE CAPPED OVER THE EXTERIOR OF THE POST, AND SHALL CONFORM TO ASTM F626.

CONCRETE REQUIRED FOR THE EMBEDMENT OF ALL POSTS SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR CHAIN LINK FENCE.

POSTS SHALL BE SPACED EQUIDISTANT ON A MAXIMUM OF 10' CENTERS.

EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

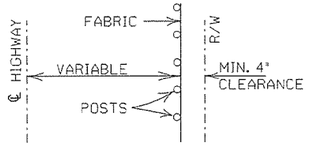
HEIGHT OF FENCE FABRIC	(A) END, PULL CORNER OR BRACE POST	(B) LINE POSTS SIZE	(B) LINE POSTS TIE SPACING	(C) TOP RAIL SIZE	(C) TOP RAIL TIE SPACING	(C) TOP RAIL MIN. LENGTH	(D) TENSION WIRE SIZE	(D) TENSION WIRE TIE SPACING	(E) TENSION BAR SIZE	(E) TENSION BAR LENGTH	(F) TENSION BAR BAND SIZE	(F) TENSION BAR BAND BOLT SIZE	(F) TENSION BAR BAND SPACING	(G) BRACE BAND SIZE	(G) BRACE BAND BOLT SIZE
6' AND LESS	2½" O.D.	2" O.D.	1 TIE EVERY 1'-2" OF FABRIC HEIGHT	1⅝" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	MIN. OF ⅜"X ¾"	MIN. OF 2" LESS THAN FABRIC HEIGHT	MIN. OF ¾" X 0.074	⅝"X 1¼"	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	MIN. OF ¾" X 0.105	⅝"X 1¼"
OVER 6' TO 12' INCL.	3 " O.D.	2½" O.D.													

HEIGHT OF FENCE FABRIC	(H) TIE WIRE	(I) HOG RING	(J) BRACE RAIL SIZE	(J) BRACE RAIL TIE SPACING	(K) TRUSS ROD	(L) FABRIC SIZE	(L) FABRIC MESH	(L) FABRIC SELVAGE	(M) GATE FRAME SIZE	(M) GATE FRAME TIE SPACING	(N) HORIZONTAL SUPPORT SIZE	(N) HORIZONTAL SUPPORT TIE SPACING	(O) HINGE TYPE	(T) GATE POST GATE WIDTH 12' AND LESS	(T) GATE POST GATE WIDTH OVER 12' TO 24' INCL.
6' AND LESS	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1⅝" O.D.	1 TIE EVERY 2'-0"	MIN. OF ⅜" ROUND WITH TIGHTNERS AND FITTINGS	9 GA.	2"	KNUCK -ING AND/OR TWIST -ING	2" O.D.	1 TIE EVERY 1'-0"	2" O.D.	1 TIE EVERY 1'-0"	OFFSET	3' O.D.	4" O.D.
OVER 6' TO 12' INCL.														4" O.D.	

NOTE: POST SIZES SHOWN ARE FOR STEEL. WHERE ALUMINUM IS PROVIDED, LINE POSTS SHALL HAVE AN OUT SIDE DIAMETER OF 2½" FOR FENCE HEIGHT OF 6' AND LESS, AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' TO 12'. END, PULL, CORNER OR BRACE POSTS SHALL HAVE AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' AND LESS; AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHTS OF 6' TO 12'. GATE POSTS WHERE GATE WIDTH IS 12' AND LESS SHALL HAVE AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHT OF 6' AND LESS. ALUMINUM TENSION WIRE SHALL BE 0.192" IN DIAMETER. MINIMUM THICKNESS OF MATERIAL FROM WHICH EXPANSION SLEEVES SHALL BE MADE WILL BE 0.078". POSTS AND RAILS MAY HAVE ANY CROSS-SECTIONAL SHAPE THAT WILL MEET THE SPECIFICATIONS.

OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

ALL MISCELLANEOUS FITTINGS AND HARDWARE SHALL MEET THE REQUIREMENTS AND PRODUCTION TOLERANCES AS SET FORTH IN THE SPECIFICATIONS.
9 GAUGE ALUMINUM WIRE SHALL BE ACCEPTABLE FOR TIEING FABRIC TO TUBULAR AND ROLL FORMED MEMBERS OF STEEL FENCE.



INSTALLATION MAY BE MODIFIED AS SHOWN IN THE PLANS

TYPICAL INSTALLATION DIAGRAM

POSTS AND RAILS

SIZE O.D.	GRADE 1 AND ALUMINUM ALLOY O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT. STEEL	LBS. PER LINEAR FT. ALUMINUM	GRADE 2 O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.
1⅝	1.660	0.140	2.27	0.786	1.660	0.111	1.84
2	1.900	0.145	2.72	0.940	1.900	0.120	2.28
2½	2.375	0.154	3.65	1.264	2.375	0.130	3.11
3	2.875	0.203	5.79	2.004	2.875	0.160	4.64
3½	3.500	0.216	7.58	2.621	3.500	0.160	5.71
4	4.000	0.226	9.11	3.151	4.000	0.160	6.56

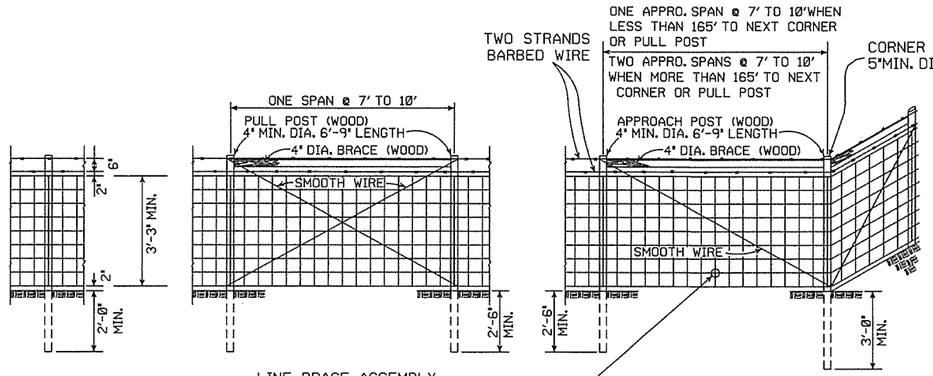
TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181

DATE	REVISION	FILMED
11-17-10	REVISED TRUSS ROD	
12-10-09	REVISED POSTS & RAILS TABLE	
5-21-09	ADDED TABLE & GEN. NOTE (C)	
8-22-02	REVISED NOTES, REMOVED TABLE, & REMOVED FENCE ALTERNATE	
4-3-97	REVISED BRACE RAIL NOTE	
10-18-96	REVISED AASHTO & ASTM REF.	
11-3-94	REVISED NOTE (L)	
10-1-92	DELETED ALTERNATE POST	10-1-92
8-15-91	DELETED ROLL FORMED POST DETAIL & ADDED NOTE	8-15-91 8-15-91
11-30-89	DELETED CLASS CONCRETE	11 30 89
11-17-88	REVISED O.D. SIZES	668-11-17-88
10-30-87	GENERAL REVISIONS	548-10-30-87
4-20-79	REVISED TOP RAIL & TENSION WIRE	695-4-20-79
10-2-72	REVISED AND REDRAWN	530-10-2-72

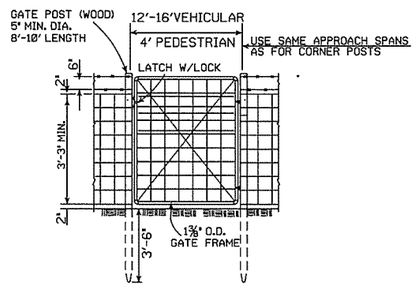
ARKANSAS STATE HIGHWAY COMMISSION

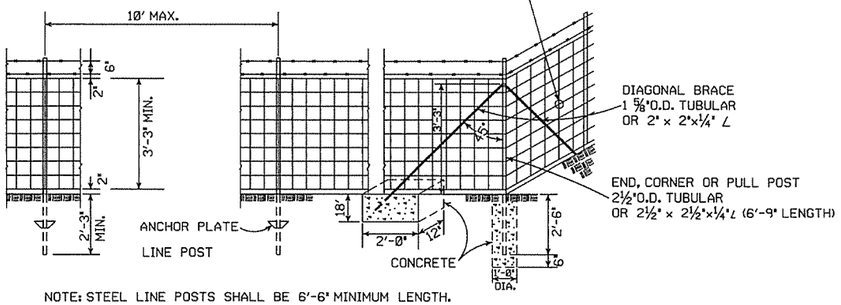
CHAIN LINK FENCE

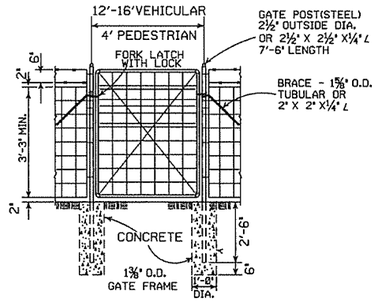
STANDARD DRAWING WF-3



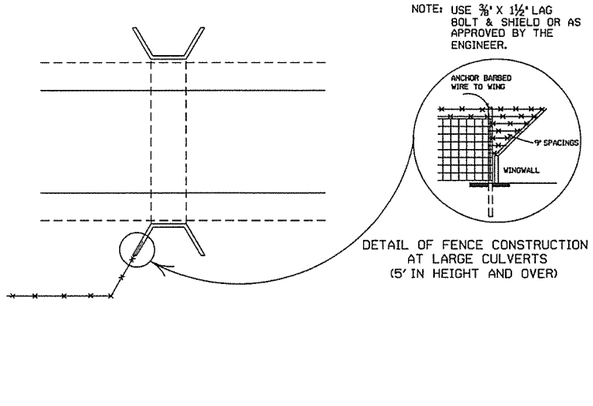
TYPE C FENCE (WOOD POSTS)







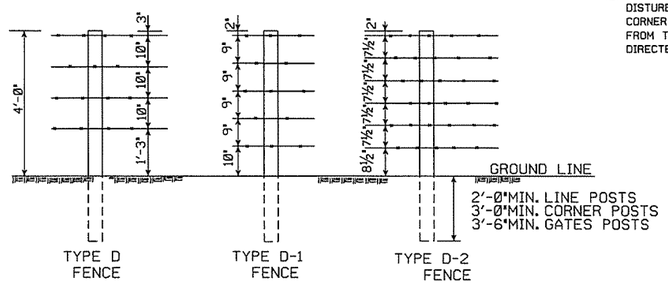
NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.



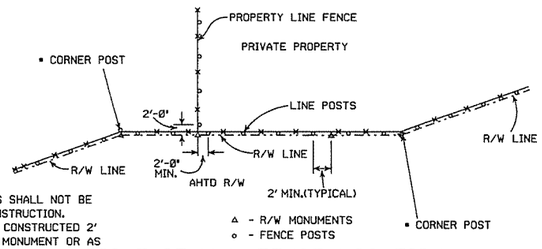
DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

TYPE C FENCE (STEEL POSTS)

4 STRANDS BARBED WIRE (D)
5 STRANDS BARBED WIRE (D-1)
6 STRANDS BARBED WIRE (D-2)

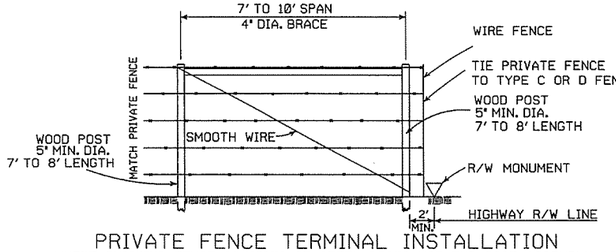


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION

WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.

GENERAL NOTES:

STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED.
TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE - 1" TO +2".
TUBULAR POSTS MUST BE PAINTED OR GALVANIZED.

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

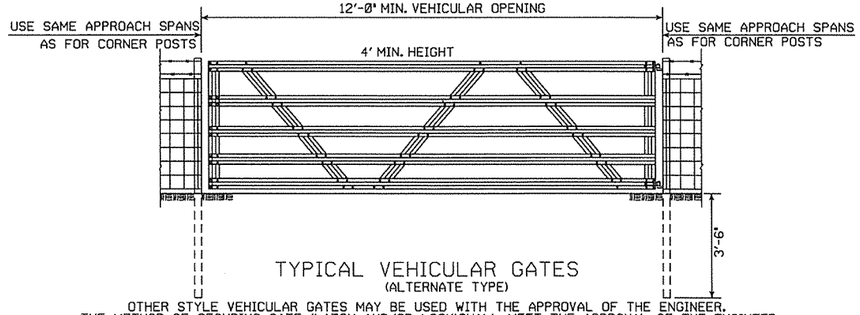
DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.



TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)

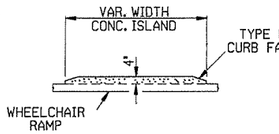
OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
7-15-88	ADDED SPLICE NOTE	700-7-15-88
10-30-87	GENERAL REVISIONS	549-10-30-87
11-1-84	MAX. POST SPACING MIN. WIRE GAUGE	507-11-1-84
1-4-83	MIN. DIA. LINE POST	648-1-4-83
3-2-81	TOLERANCE FOR POST LENGTH	722-3-2-81
12-1-72	ADDED D-1 & FENCE INSTALLATION	564-12-1-72
10-2-72	REVISED AND REDRAWN	540-10-2-72

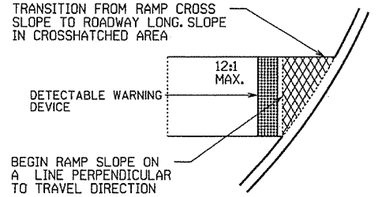
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE C AND D

STANDARD DRAWING WF-4



CONCRETE ISLAND DETAIL



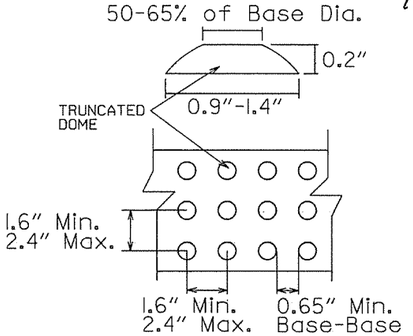
SLOPE TRANSITION DETAILS

TYPE 1 RAMP DIMENSIONS AND QUANTITIES

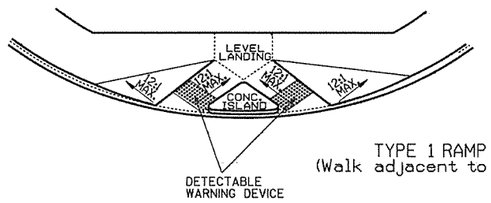
RADIUS 'R' FEET	DISTANCE 'X' FEET	DISTANCE 'Y' FEET	LENGTH 'L' FEET	RAMP AREA 'A' SQ. YD.
15	11.67	18.82	32.18	26.21
20	11.52	22.28	35.46	30.07
25	11.43	26.60	38.77	33.80
30	11.37	30.26	40.93	36.90
35	11.33	33.51	43.11	39.77
40	11.30	36.45	45.26	42.45
45	11.27	39.16	47.34	44.97
50	11.25	41.69	49.36	47.35
55	11.24	44.07	51.31	49.63
60	11.22	46.33	53.21	51.80

GENERAL NOTES FOR DETECTABLE WARNING DEVICES

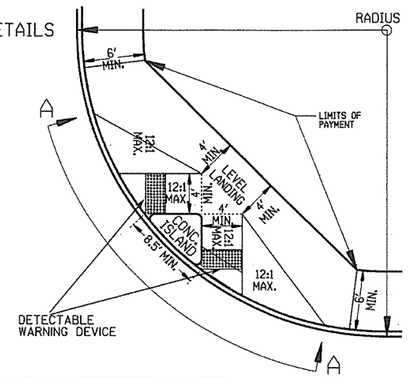
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE.
DETECTABLE WARNING DEVICE SHALL BE ON THE AHTD QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).

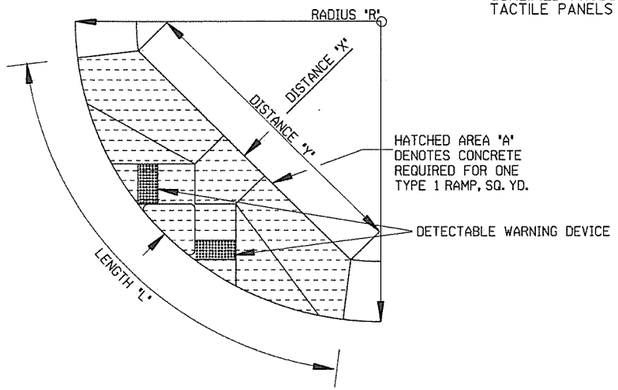


DETECTABLE WARNING DEVICE DETAIL



TYPE 1 RAMP
(Walk adjacent to curb)

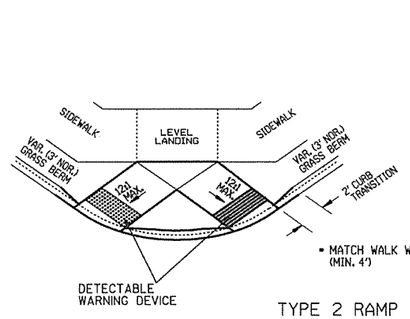




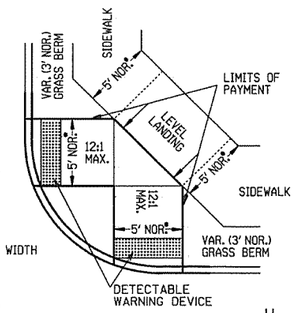
SECTION A-A

GENERAL NOTES:

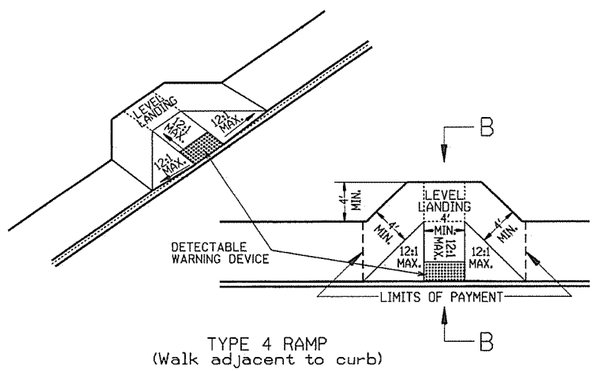
IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.
IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK LOCATIONS.
THE LENGTH OF THE RAMP SHALL BE SUCH THAT THE SLOPE DOES NOT EXCEED 12:1. THE SURFACE TEXTURE OF THE RAMP SHALL CONFORM TO A CLASS 6 FINISH ACCORDING TO SECTION 802.19.
THE NORMAL GUTTER GRADE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.
ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
THE MINIMUM THICKNESS OF THE RAMP, WALK, & LANDING SHALL BE 4".
THE MINIMUM WIDTH OF THE RAMPS SHALL BE THE WALK WIDTH OR 36", WHICHEVER IS GREATER.
RAMPS SHALL BE MODIFIED AS NECESSARY TO INSURE THAT THEY ARE PARALLEL TO A LINE DRAWN FROM THE CENTER OF ONE RAMP TO THE CENTER OF THE RAMP ON THE OPPOSITE SIDE OF THE INTERSECTION.
THE DIMENSIONS AND QUANTITIES SHOWN ON THIS DRAWING ARE FOR A 90° INTERSECTION ONLY. DIMENSIONS AND QUANTITIES FOR SKEWED INTERSECTIONS WILL VARY, AND ARE TO BE DETERMINED BY THE ENGINEER.



TYPE 2 RAMP



NOTE:
THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGTITUDINAL GRADE.



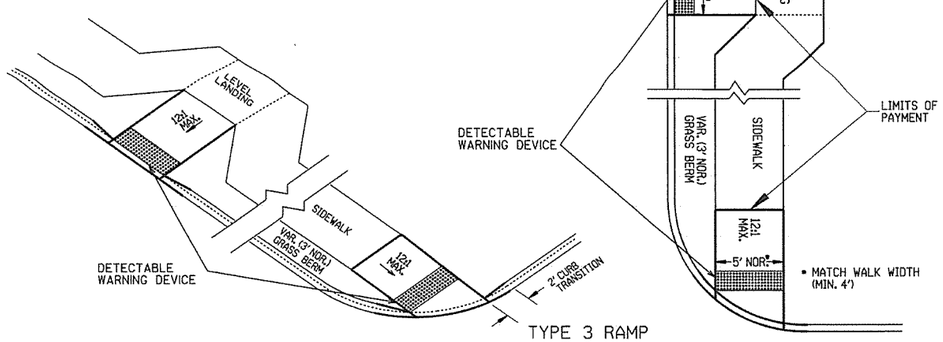
TYPE 4 RAMP
(Walk adjacent to curb)

RAMP SELECTION CRITERIA

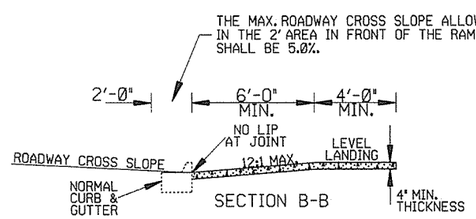
FIRST CHOICE	TYPE 1	CORNER LOCATIONS WITH THE WALK ADJACENT TO THE CURB (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 2	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE INSUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 3	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE SUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 4	TANGENT LOCATIONS (BOTH NEW CONSTRUCTION AND ALTERATIONS).
SECOND CHOICE	TYPE 5	TANGENT LOCATIONS (ALTERATIONS ONLY).
THIRD CHOICE	TYPE 6	CORNER LOCATIONS (ALTERATIONS ONLY). THIS RAMP MAY BE USED ONLY IF THE TYPE 5 RAMPS CANNOT BE PLACED AT THE ENDS OF THE RADIUS.
FOURTH CHOICE		IF SITE CONSTRAINTS PREVENT THE CONSTRUCTION OF ANY OF THE TYPES LISTED, THEN AND ONLY THEN CAN THE 12:1 MAX. SLOPE ON THE RAMP BE EXCEEDED TO PROVIDE ACCESS TO THE STREET LEVEL (ALTERATIONS ONLY). THE SLOPE CAN BE STEEPENED TO A 10:1 MAX. FOR A MAX. LENGTH OF 5' OR A 8:1 MAX. FOR A MAX. LENGTH OF 2'. SLOPES STEEPER THAN 8:1 ARE NOT ALLOWED UNDER ANY CIRCUMSTANCES.

NOTE: IN ALTERATIONS, THE SELECTION OF THE TYPE OF WHEELCHAIR RAMP TO BE CONSTRUCTED SHALL BE BASED ON THE AMOUNT OF RIGHT-OF-WAY AVAILABLE, AND ON THE PRESENCE OF OTHER SITE CONSTRAINTS (UTILITIES, BUILDINGS, ETC.). THE TABLE ABOVE LISTS THE ORDER IN WHICH THE RAMPS ARE TO BE CONSIDERED.

AN ALTERATION IS DEFINED AS A PROJECT THAT CHANGES OR AFFECTS THE USE OF A PEDESTRIAN PATHWAY (OVERLAYS, SIGNALIZATION PROJECTS, ETC.) BUT DOES NOT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY. ALL PROJECTS THAT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY WILL USUALLY BE CONSIDERED NEW CONSTRUCTION FOR THE PURPOSES OF THE CHART ABOVE.



TYPE 3 RAMP



SECTION B-B

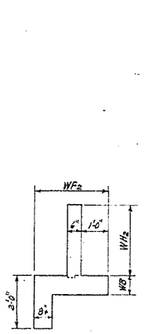
DATE	REVISION	DATE FILM
11-10-05	REVISED TO NEW SIDEWALK POLICY	
10-9-03	REVISED GEN. NOTES & ADDED NOTE	
4-10-03	REV. DETECTABLE WARNING DEVICES	
8-22-02	ADD DETECTABLE WARNING DEVICES	
3-30-00	ADD. SLOPE TRANS. & REV. ISL. DIMS.	
1-18-98	REVISED NOTES	
8-12-98	REVISED TEXTURE	
7-02-98	REDRAWN & REISSUED	
10-18-96	CORRECTED DIMENSIONS	10-18-96
5-24-90	FROM8:1TO12:1MAX.SLOPES	5-24-90
7-15-88	ADJUSTED MAX. SLOPE	652-7-15-88
7-14-88	INCLUD."CONC. ISLD."IN PAY ITEM	-------
6-02-76	ISSUED-P.H.D.	299-7-28-76

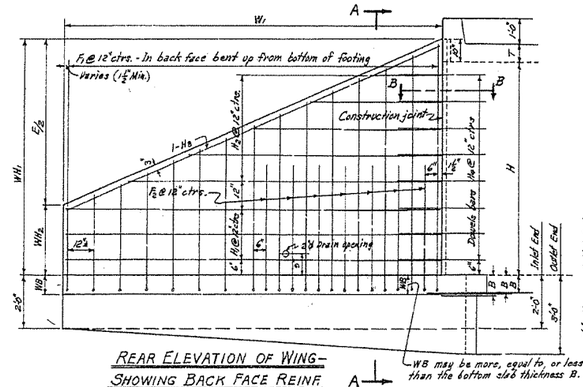
ARKANSAS STATE HIGHWAY COMMISSION

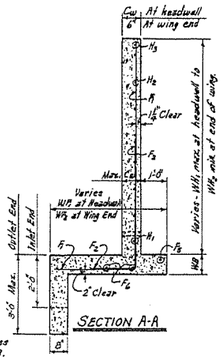
WHEELCHAIR RAMPS
NEW CONSTRUCTION
AND ALTERATIONS

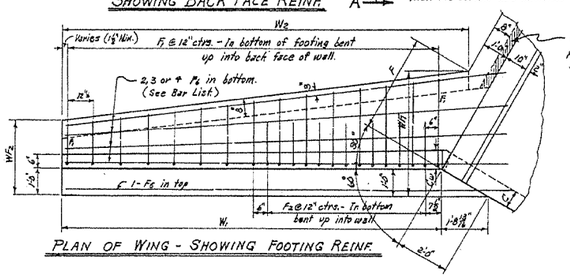
STANDARD DRAWING WR-1

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			147	
JOB No.					

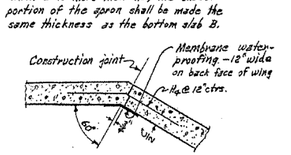




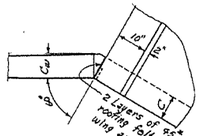




When B is more than WB, the shaded portion of the apron shall be made the same thickness as the bottom slab B.



Note:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.



WING DIMENSIONS

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL C.	WINGWALL HEIGHTS		WIDTHS OF WING FOOTINGS		PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HEADWALL TO END OF WING	LENGTH OF WINGWALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING	
			AT HEADWALL	AT END OF WING	AT HEADWALL	AT END OF WING					CLASS S CONCRETE	
H	WB	Cw	WH1	WH2	W1	W3	F	E	W1	W2	INLET END	OUTLET END
											CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-4"	2'-0"	0'-11⅞"	4'-5"	5'-0"	4'-7½"	0.606	0.670
3'	7"	6"	3'-10"	1'-0"	2'-6"	2'-1½"	1'-4⅝"	5'-8"	6'-6⅝"	6'-0⅝"	0.908	0.996
4'	7"	6"	4'-10"	1'-9"	3'-0"	2'-8"	1'-9"	7'-0"	8'-1"	8'-1"	1.267	1.376
5'	7"	6"	5'-10"	1'-8"	3'-9"	2'-6½"	2'-1⅞"	8'-9"	9'-7⅞"	9'-9⅜"	1.679	1.810
		7"	5'-10"	1'-8"	3'-9"	2'-6½"	2'-1⅞"	8'-9"	9'-7⅞"	9'-9⅜"	1.750	1.881
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6"	9'-8"	11'-2"	11'-6½"	2.330	2.483
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6"	9'-8"	11'-2"	11'-6½"	2.379	2.531
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6"	9'-8"	11'-2"	11'-6½"	2.427	2.580
7'	8½"	7½"	7'-10"	2'-4"	4'-2"	2'-9½"	3'-1⅛"	11'-0"	12'-8½"	13'-0⅛"	3.054	3.250
		8"	7'-10"	2'-4"	4'-2"	2'-9½"	3'-1⅛"	11'-0"	12'-8½"	13'-0⅛"	3.117	3.293
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	12'-9"	14'-3"	15'-2⅜"	3.905	4.106

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W3.

APRON DIMENSION W2

W3 = (CW - 2F)

CLEAR SPAN	CLEAR HEIGHT	2 × FOOTING DIMENSION	SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT		QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT	
			CW	W2	CW	W2	CW	W2	CW	W2	CW	W2
S	H	2F										
4'	2'	1'-11½"	5'-0"	3'-0⅝"	9'-8"	7'-0½"	14'-4"	12'-6⅝"	19'-0"	17'-0⅝"	23'-8"	21'-0⅝"
	3'	2'-8⅜"	5'-0"	2'-3⅜"	9'-8"	6'-11⅝"	14'-4"	11'-7⅝"	19'-0"	16'-3⅝"	23'-8"	20'-11⅝"
	4'	3'-6"	5'-0"	1'-6"	9'-8"	6'-2"	14'-9"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
	5'	4'-3⅜"	5'-0"	0'-8⅜"	9'-8"	5'-4⅜"	14'-9"	10'-0⅜"	19'-0"	14'-8⅜"	23'-8"	19'-4⅜"
	6'	5'-0⅝"	5'-2"	0'-1⅞"	9'-11"	4'-11⅛"	14'-8"	9'-7⅛"	19'-5"	14'-4⅛"	24'-2"	19'-1⅛"
5'	3'	2'-8⅜"	6'-0"	0'-3⅜"	11'-8"	8'-11⅝"	17'-4"	14'-7⅝"	23'-0"	20'-3⅝"	28'-8"	25'-11⅝"
	4'	3'-6"	6'-0"	2'-6"	11'-8"	8'-2"	17'-4"	13'-10"	23'-0"	19'-6"	28'-8"	25'-2"
	5'	4'-3⅜"	6'-0"	1'-8⅜"	11'-8"	7'-4⅜"	17'-4"	13'-0⅜"	23'-0"	18'-8⅜"	28'-8"	24'-4⅜"
	6'	5'-0⅝"	6'-2"	1'-1⅞"	11'-11"	6'-10⅛"	17'-8"	12'-7⅛"	23'-5"	18'-4⅛"	29'-2"	24'-1⅛"
	7'	6'-2⅛"	6'-3"	0'-0⅛"	12'-1"	5'-10⅛"	17'-11"	11'-8⅛"	23'-9"	17'-6⅛"	29'-7"	23'-6⅛"
6'	3'	2'-8⅜"	7'-0"	0'-3⅜"	13'-8"	10'-11⅝"	20'-4"	17'-7⅝"	27'-0"	24'-3⅝"	33'-8"	30'-11⅝"
	4'	3'-6"	7'-0"	2'-6"	13'-8"	10'-2"	20'-4"	16'-10"	27'-0"	23'-6"	33'-8"	30'-2"
	5'	4'-3⅜"	7'-0"	2'-0⅜"	13'-8"	9'-4⅜"	20'-4"	16'-0⅜"	27'-0"	22'-8⅜"	33'-8"	29'-4⅜"
	6'	5'-0⅝"	7'-2"	2'-1⅞"	13'-11"	8'-10⅛"	20'-8"	15'-7⅛"	27'-5"	22'-4⅛"	34'-2"	29'-1⅛"
	7'	6'-2⅛"	7'-3"	1'-0⅛"	14'-1"	7'-10⅛"	20'-11"	14'-8⅛"	27'-9"	21'-6⅛"	34'-7"	28'-6⅛"
	8'	7'-1⅜"	7'-4"	0'-0"	14'-2"	6'-10"	21'-0"	13'-8"	27'-10"	20'-6"	34'-8"	27'-4"
7'	4'	3'-6"	8'-0"	0'-6"	15'-8"	12'-2"	23'-4"	19'-10"	31'-0"	27'-6"	38'-8"	35'-2"
	5'	4'-3⅜"	8'-0"	0'-3⅜"	15'-8"	11'-4⅜"	23'-4"	19'-0⅜"	31'-0"	26'-8⅜"	38'-8"	34'-4⅜"
	6'	5'-0⅝"	8'-2"	3'-1⅞"	15'-11"	10'-10⅛"	23'-8"	18'-7⅛"	31'-5"	26'-4⅛"	39'-2"	34'-1⅛"
	7'	6'-2⅛"	8'-5"	2'-0⅛"	16'-1"	9'-10⅛"	23'-11"	17'-8⅛"	31'-9"	25'-6⅛"	39'-7"	33'-6⅛"
	8'	7'-1⅜"	8'-8"	1'-0"	16'-2"	8'-10"	24'-0"	16'-8"	31'-10"	24'-6"	39'-8"	32'-4"
8'	4'	3'-6"	9'-0"	0'-6"	17'-8"	14'-2"	26'-4"	22'-10"	35'-0"	31'-6"	43'-8"	40'-2"
	5'	4'-3⅜"	9'-2"	0'-3⅜"	17'-11"	13'-4⅜"	26'-8"	22'-1⅛"	35'-5"	31'-1⅛"	44'-2"	39'-6⅜"
	6'	5'-0⅝"	9'-2"	4'-1⅞"	17'-11"	12'-10⅛"	26'-8"	21'-7⅛"	35'-5"	30'-6⅛"	44'-2"	39'-1⅛"
	7'	6'-2⅛"	9'-3"	3'-0⅛"	18'-1"	11'-10⅛"	26'-11"	20'-8⅛"	35'-9"	29'-6⅛"	44'-7"	38'-6⅛"
	8'	7'-1⅜"	9'-6"	2'-0"	18'-2"	10'-10"	27'-0"	19'-8"	35'-10"	28'-6"	44'-8"	37'-4"
9'	5'	4'-3⅜"	10'-2"	5'-0⅜"	19'-11"	15'-7⅜"	30'-8"	25'-0⅜"	39'-5"	35'-1⅜"	49'-2"	44'-0⅜"
	6'	5'-0⅝"	10'-3"	5'-2⅛"	20'-1"	15'-0⅛"	29'-11"	24'-1⅛"	39'-9"	34'-3⅛"	49'-7"	44'-1⅛"
	7'	6'-2⅛"	10'-5"	4'-0⅛"	20'-1"	13'-10⅛"	29'-11"	23'-2⅛"	39'-9"	33'-6⅛"	49'-7"	43'-3⅛"
	8'	7'-1⅜"	10'-10"	3'-0"	20'-2"	12'-10"	30'-0"	22'-8"	39'-10"	32'-6"	49'-8"	42'-4"
10'	5'	4'-3⅜"	11'-2"	6'-0⅜"	21'-11"	17'-7⅜"	32'-8"	28'-0⅜"	43'-5"	39'-1⅜"	54'-2"	49'-10⅜"
	6'	5'-0⅝"	11'-3"	6'-2⅛"	22'-1"	17'-0⅛"	32'-11"	27'-1⅛"	43'-9"	38'-3⅛"	54'-7"	49'-1⅛"
	7'	6'-2⅛"	11'-5"	5'-0⅛"	22'-1"	15'-10⅛"	32'-11"	26'-1⅛"	43'-9"	37'-6⅛"	54'-7"	48'-3⅛"
	8'	7'-1⅜"	11'-10"	4'-0"	22'-2"	14'-10"	33'-0"	25'-8"	43'-10"	36'-6"	54'-8"	47'-4"
11'	6'	5'-0⅝"	12'-3"	7'-3⅛"	24'-1"	19'-1⅛"	36'-0"	30'-1⅛"	47'-10"	42'-3⅛"		
	7'	6'-2⅛"	12'-5"	6'-1⅛"	24'-2"	17'-11⅛"	36'-0"	29'-2⅛"	47'-10"	41'-7⅛"		
	8'	7'-1⅜"	12'-8"	5'-0"	24'-2"	16'-10"	36'-0"	28'-0"	47'-10"	40'-6"		
12'	6'	5'-0⅝"	13'-1"	8'-3⅛"	26'-2"	21'-1⅛"	39'-0"	33'-1⅛"	51'-10"	46'-3⅛"		
	7'	6'-2⅛"	13'-3"	7'-1⅛"	26'-2"	19'-11⅛"	39'-0"	32'-2⅛"	51'-10"	45'-7⅛"		
	8'	7'-1⅜"	13'-6"	6'-0"	26'-2"	18'-10"	39'-0"	31'-0"	51'-10"	44'-6"		

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	⊛ REINFORCING STEEL - FOR 4 WINGS	CLASS S CONCRETE - 4 WINGS				
					HEADWALLS, WINGWALLS, FOOTINGS AND APRONS				
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	81.0	3.30	4.25	5.21	6.17	7.13
	3'	6"	7"	119.8	4.45	5.41	6.37	7.33	8.29
	4'	6"	7"	183.3	5.83	6.79	7.74	8.70	9.66
	5'	6"	7"	253.2	7.41	8.37	9.33	10.29	11.25
	6'	7"	8"	415.6	9.97	10.95	11.96	12.98	13.92
5'	3'	6"	7"	119.8	4.67	5.83	6.99	8.16	9.33
	4'	6"	7"	183.3	6.04	7.20	8.36	9.53	10.70
	5'	6"	7"	253.2	7.63	8.78	9.95	11.12	12.28
	6'	7"	8"	415.6	10.19	11.38	12.57	13.77	14.96
	7'	7½	8½	797.6	12.98	14.19	15.41	16.63	17.85
6'	3'	6"	7"	119.8	4.88	6.26	7.62	9.00	10.38
	4'	6"	7"	183.3	6.25	7.63	8.99	10.37	11.75
	5'	6"	7"	253.2	7.83	9.22	10.57	11.96	13.33
	6'	7"	8"	415.6	10.40	11.81	13.20	14.61	16.01
	7'	7½	8½	797.6	13.19	14.63	16.04	17.47	18.90
	8'	8"	9"	1004.9	16.50	17.93	19.36	20.79	22.23
7'	4'	6"	7"	183.3	6.47	8.07	9.68	11.25	12.85
	5'	6"	7"	253.2	8.05	9.66	11.23	12.84	14.44
	6'	7"	8"	415.6	10.62	12.25	13.88	15.46	17.08
	7'	7½	8½	797.6	13.42	15.06	16.68	18.32	19.96
	8'	8"	9"	1004.9	16.72	18.37	20.00	21.65	23.29
8'	4'	6"	7"	183.3	6.69	8.52	10.32	12.15	13.95
	5'	7"	7"	253.2	8.59	10.49	12.26	14.11	15.92
	6'	7"	8"	415.6	10.86	12.69	14.51	16.36	18.17
	7'	7½	8½	797.6	13.63	16.50	17.34	19.21	21.08
	8'	8	9"	1004.9	16.94	18.81	20.65	22.51	24.36
9'	5'	7"	7"	253.2	8.81	10.90	12.92	15.00	17.02
	6'	7½	8"	415.6	11.27	13.38	15.42	17.52	19.54
	7'	7½	8½	797.6	13.85	15.94	18.00	20.10	22.14
	8'	8"	9"	1004.9	17.14	19.24	21.31	23.41	25.45
10'	5'	7"	7"	253.2	9.04	11.35	13.60	15.91	18.08
	6'	7½	8"	415.6	11.50	13.83	15.10	18.33	20.61
	7'	7½	8½	797.6	14.08	16.41	18.68	20.91	23.20
	8'	8"	9"	1004.9	17.38	19.71	21.98	24.32	26.50
11'	6'	8"	8"	415.6	11.93	14.51	17.00	19.97	
	7'	8"	8½	797.6	14.56	17.15	19.64	22.11	
	8'	8"	9"	1004.9	17.59	20.18	22.67	25.14	
12'	6'	8"	8"	415.6	12.16	14.99	17.70	20.92	
	7'	8"	8½	797.6	14.79	17.62	20.33	23.06	
	8'	8"	9"	1004.9	17.82	20.65	23.36	26.09	

⊛ For reinforcing steel in Headwalls and Aprons, see Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾ chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-

Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 24000 #/□"

NOTE:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. as listed below.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-X1	R-200X-X1	R-300X-X1	R-400X-X1	R-500X-X1
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		

CLASS S CONCRETE

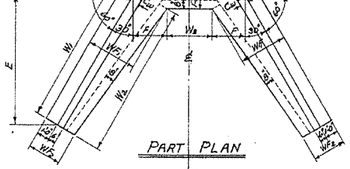
ARKANSAS STATE HIGHWAY COMMISSION

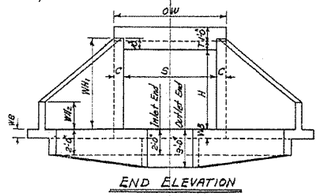
DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 2:1 SLOPES

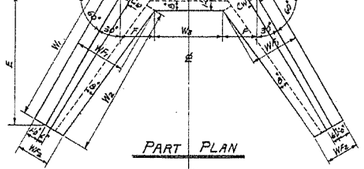
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

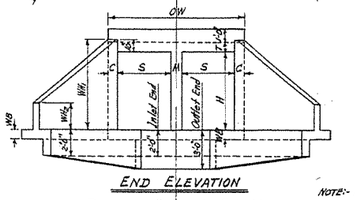
STANDARD DRAWING NO. W-X002-1





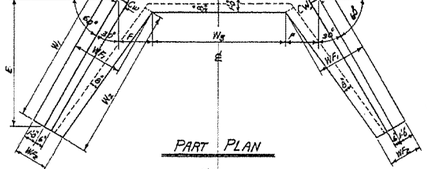
SINGLE BARREL CULVERT

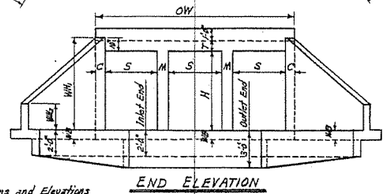




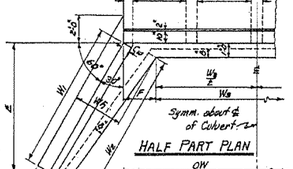
DOUBLE BARREL CULVERT

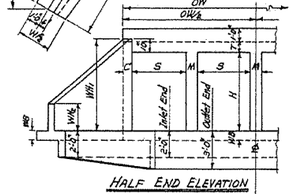
NOTE:- Plans and Elevations are not to scale.



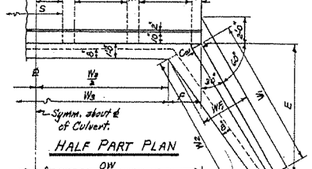


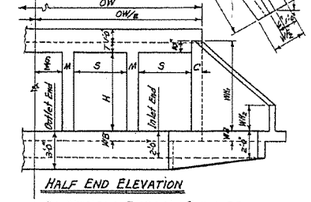
TRIPLE BARREL CULVERT





QUADRUPLE BARREL CULVERT



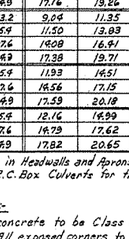


QUINTUPLE BARREL CULVERT

BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT	F1 BENT: In bottom of footing, bent up into back face of wing. One bar of each length.							F2 BENT: In bottom of footing, bent up into back face of wing. All, with F1 bars.						F5 STRAIGHT: Longitudinal in top of wing footing heel.			F6 STRAIGHT: Longitudinal in bottom of wing footing toe.			H1 STRAIGHT: Horizontal in back face of wing.			H2 STRAIGHT: Horizontal in back face of wing, One bar of each length.					H3 STRAIGHT: In back face of wing at top-on slope.			H4 BENT: Dowels thru construction joint at headwall.				QUANTITY - REINFORCING STEEL PER WING	BAR BENDING DIAGRAMS
				LENGTHS VARY		X	Y																													
H	SIZE	SPACING	NO. REQD	MIN.	MAX.	MIN. MAX.	MIN. MAX.	SIZE	SPACING	NO. REQD	LENGTH	X	Y	SIZE	NO. REQD	LENGTH	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTHS VARY MAX.	LENGTHS VARY MIN.	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	X	LB.	
2'	#3	12"	6	1'-6"	3'-10"	0'-8"	1'-0" 0'-11"	—	—	—	—	—	—	#3	1	7'-6"	#3	2	6'-3"	#3	12"	1	4'-9"	#3	12"	1	—	2'-8"	#3	1	5'-1"	#3	12"	2	2'-8"	1'-4"	20.2	
3'	#3	12"	7	2'-2"	5'-3"	0'-10"	1'-4" 1'-5"	—	—	—	—	—	—	#3	1	9'-0"	#3	2	8'-0"	#3	12"	1	6'-3"	#3	12"	2	5'-0"	2'-8"	#3	1	6'-9"	#3	12"	3	2'-8"	1'-4"	29.9	
4'	#3	12"	9	2'-4"	6'-7"	0'-11"	1'-8" 1'-6"	—	—	—	—	—	—	#3	1	10'-7"	#3	3	9'-9"	#3	12"	1	7'-10"	#3	12"	3	7'-6"	2'-8"	#3	1	8'-5"	#3	12"	4	2'-8"	1'-4"	45.8	
5'	#3	12"	10	3'-0"	7'-10"	1'-1"	1'-11" 2'-0"	#3	12"	3	3'-6"	1'-1"	2'-6"	#3	1	12'-1"	#3	3	11'-6"	#3	12"	2	9'-8"	#3	12"	3	7'-6"	2'-8"	#3	1	10'-1"	#3	12"	5	2'-8"	1'-4"	68.3	
6'	#4	12"	12	3'-5"	9'-3"	1'-2"	2'-3" 2'-4"	#3	12"	3	4'-6"	1'-4"	3'-3"	#3	1	13'-8"	#3	3	13'-3"	#3	12"	2	11'-11"	#3	12"	4	9'-8"	2'-8"	#3	1	11'-8"	#3	12"	6	2'-8"	1'-4"	103.8	
7'	#4	12"	13	4'-1"	10'-9"	1'-4"	2'-9" 2'-10"	#3	12"	5	5'-6"	1'-7"	4'-0"	#3	1	15'-5"	#4	4	15'-0"	#4	12"	2	13'-5"	#4	12"	4	11'-0"	2'-8"	#3	1	13'-5"	#4	12"	7	3'-6"	1'-9"	139.9	
8'	#4	12"	15	4'-5"	12'-3"	1'-5"	3'-2" 3'-1"	#3	12"	7	6'-6"	1'-10"	4'-9"	#3	1	16'-3"	#4	4	16'-9"	#4	12"	3	14'-10"	#4	12"	5	12'-10"	2'-8"	#3	1	15'-2"	#4	12"	8	3'-6"	1'-9"	261.2	

BAR BENDING DIAGRAMS



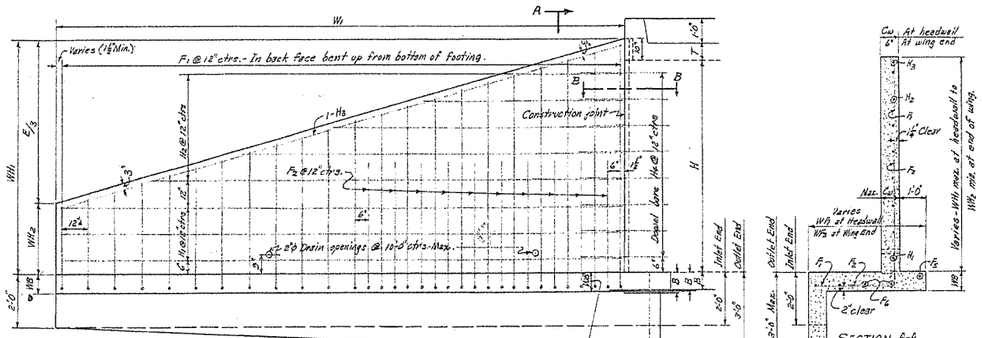
MEMBRANE:- A membrane waterproofing 12" wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric, shall be applied to the back face of wing to cover the construction joints in wings.

REVISIONS:- Membrane added. 5-12-66 W.C.H.

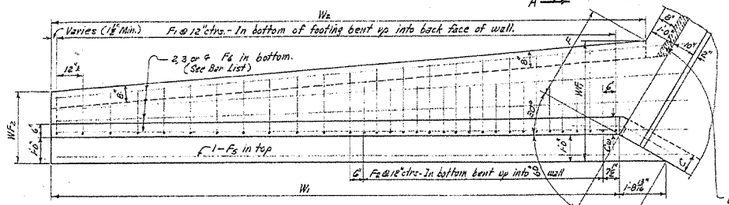
Quantities by - W.C.H. Checked by - J.S.M. - 5-5-65

(1)

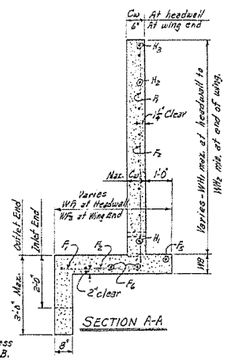
FED. ROAD DIV. NO.	STATE	FED. AID PROJECT	SHEET NO.	TOTAL SHEETS
6	ARK.		148	
JOB NO.				



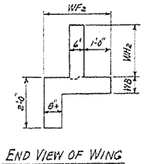
REAR ELEVATION OF WING - SHOWING BACK FACE REINF.



PLAN OF WING - SHOWING FOOTING REINF.

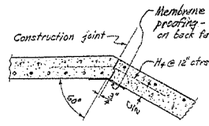


WB may be more, equal to, or less than the bottom slab thickness B.

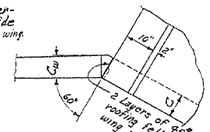


END VIEW OF WING

When B is more than W8, the shaded portion of the apron shall be made the same thickness as the barrel base B.



SECTION B-B THRU CONSTRUCTION JOINT



DETAIL AT TOP OF WING

Note:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

WING DIMENSIONS

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = C	WINGWALL HEIGHTS: AT HEADWALL	WINGWALL HEIGHTS: AT END OF WING	WIDTHS OF WING FOOTINGS: AT HEADWALL	WIDTHS OF WING FOOTINGS: AT END OF WING	PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HDWL. TO END OF WING	LENGTH OF WING WALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE: INLET END	* QUANTITY PER WING CLASS S CONCRETE: OUTLET END
H	WB	C_W	WH_1	WH_2	W6	W5	F	E	W_1	W_2	CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-4"	2'-0"	0'-11⅜"	6'-6"	7'-6"	7'-1⅝"	0.889	0.986
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-0⅜"	8'-6"	9'-0⅜"	9'-7⅝"	1.338	1.466
4'	7"	6"	4'-10"	1'-0"	3'-0"	2'-3"	1'-0"	10'-6"	12'-1½"	12'-1½"	1.666	2.027
5'	7"	6"	5'-10"	1'-0"	3'-4"	2'-4⅝"	2'-1⅜"	12'-6"	14'-3⅝"	14'-7½"	2.978	2.668
		7"	5'-10"	1'-0"	3'-4"	2'-4⅝"	2'-1⅜"	12'-6"	14'-5⅝"	14'-7½"	2.582	2.772
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-4⅝"	14'-6"	16'-9"	17'-1⅝"	3.440	3.661
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5⅛"	14'-6"	16'-9"	17'-1½"	3.511	3.732
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5⅝"	14'-6"	16'-9"	17'-1⅝"	3.582	3.803
7'	8½"	7½"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅜"	19'-8⅜"	4.505	4.798
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅜"	19'-8⅜"	4.597	4.851
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	18'-6"	21'-0⅜"	22'-4"	5.761	6.049

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W_3.

APRON DIMENSION W_3

$W_3 = (OW - 2F)$

CLEAR SPAN S	CLEAR HEIGHT H	FOOTING DIMENSION 2F	SINGLE BARREL CULVERT: OW	SINGLE BARREL CULVERT: W_3	DOUBLE BARREL CULVERT: OW	DOUBLE BARREL CULVERT: W_3	TRIPLE BARREL CULVERT: OW	TRIPLE BARREL CULVERT: W_3	QUADRUPLE BARREL CULVERT: OW	QUADRUPLE BARREL CULVERT: W_3	QUINTUPLE BARREL CULVERT: OW	QUINTUPLE BARREL CULVERT: W_3
4'	2'	1'-11⅝"	5'-0"	3'-0⅜"	9'-8"	7'-8⅜"	14'-4"	12'-4⅜"	19'-0"	17'-0⅜"	23'-8"	21'-8⅜"
	3'	2'-8⅜"	5'-0"	2'-3⅛"	9'-8"	6'-11⅛"	14'-4"	11'-7⅛"	19'-0"	16'-3⅛"	23'-8"	20'-11⅛"
	4'	3'-4"	5'-0"	1'-6"	9'-8"	6'-2"	14'-4"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
	5'	4'-1⅜"	5'-0"	0'-8⅝"	9'-8"	5'-4⅜"	14'-4"	10'-0⅜"	19'-0"	14'-8⅜"	23'-8"	19'-8⅜"
	6'	5'-0⅛"	5'-2"	0'-1⅜"	9'-11"	4'-11⅜"	14'-8"	9'-7⅛"	19'-5"	14'-2⅛"	24'-2"	19'-1⅛"
5'	3'	2'-8⅜"	6'-0"	3'-3⅜"	11'-8"	8'-11⅛"	17'-4"	14'-7⅛"	23'-0"	20'-3⅛"	28'-8"	25'-11⅛"
	4'	3'-4"	6'-0"	2'-6"	11'-8"	8'-2"	17'-4"	13'-10"	23'-0"	19'-6"	28'-8"	25'-2"
	5'	4'-1⅜"	6'-0"	1'-8⅝"	11'-8"	7'-4⅜"	17'-4"	13'-0⅜"	23'-0"	18'-8⅜"	28'-8"	24'-8⅜"
	6'	5'-0⅛"	6'-2"	1'-1⅜"	11'-11"	6'-10⅜"	17'-8"	12'-7⅛"	23'-5"	18'-2⅛"	29'-2"	24'-1⅛"
	7'	6'-2⅝"	6'-3"	0'-0⅝"	12'-1"	5'-10⅜"	17'-11"	11'-8⅝"	23'-9"	17'-4⅝"	29'-7"	23'-1⅝"
6'	3'	2'-8⅜"	7'-0"	4'-3⅜"	13'-8"	10'-11⅛"	20'-4"	17'-7⅛"	27'-0"	24'-3⅛"	33'-8"	30'-11⅛"
	4'	3'-4"	7'-0"	3'-6"	13'-8"	10'-2"	20'-4"	16'-10"	27'-0"	23'-6"	33'-8"	30'-2"
	5'	4'-1⅜"	7'-0"	2'-8⅝"	13'-9"	9'-4⅜"	20'-4"	16'-0⅜"	27'-1"	22'-8⅜"	33'-8"	29'-8⅜"
	6'	5'-0⅛"	7'-2"	2'-1⅜"	13'-11"	8'-10⅜"	20'-8"	15'-7⅛"	27'-5"	22'-2⅛"	34'-2"	29'-1⅛"
	7'	6'-2⅝"	7'-3"	1'-0⅝"	14'-1"	7'-10⅜"	20'-11"	14'-8⅝"	27'-9"	21'-4⅝"	34'-7"	28'-4⅝"
	8'	7'-4"	7'-4"	0'-0"	14'-2"	6'-10"	21'-0"	13'-8"	27'-10"	20'-6"	34'-8"	27'-6"
7'	4'	3'-4"	8'-0"	4'-6"	15'-8"	12'-6"	23'-4"	19'-10"	31'-0"	27'-6"	38'-8"	35'-2"
	5'	4'-1⅜"	8'-0"	3'-8⅝"	15'-9"	11'-4⅜"	23'-6"	19'-0⅜"	31'-0"	26'-8⅜"	38'-8"	34'-8⅜"
	6'	5'-0⅛"	8'-2"	3'-1⅜"	15'-11"	10'-10⅜"	23'-8"	18'-7⅛"	31'-5"	26'-2⅛"	39'-2"	34'-1⅛"
	7'	6'-2⅝"	8'-3"	2'-0⅝"	16'-1"	9'-10⅜"	23'-11"	17'-8⅝"	31'-9"	25'-4⅝"	39'-7"	33'-4⅝"
	8'	7'-4"	8'-4"	1'-0"	16'-2"	8'-10"	24'-0"	16'-8"	31'-10"	24'-6"	39'-8"	32'-6"
8'	4'	3'-4"	9'-0"	5'-6"	17'-6"	14'-2"	26'-4"	22'-10"	35'-0"	31'-2"	43'-8"	40'-2"
	5'	4'-1⅜"	9'-2"	4'-10⅜"	17'-11"	13'-7⅜"	26'-8"	22'-0⅜"	35'-5"	31'-1⅜"	44'-2"	39'-10⅜"
	6'	5'-0⅛"	9'-2"	4'-1⅜"	17'-11"	12'-10⅜"	26'-8"	21'-1⅞"	35'-5"	30'-4⅛"	44'-2"	39'-1⅛"
	7'	6'-2⅝"	9'-3"	3'-0⅝"	18'-1"	11'-10⅜"	26'-11"	20'-2⅝"	35'-9"	29'-6⅝"	44'-7"	38'-4⅝"
	8'	7'-4"	9'-4"	2'-0"	18'-2"	10'-10"	27'-0"	19'-2"	35'-10"	28'-6"	44'-8"	37'-6"
9'	5'	4'-1⅜"	10'-2"	5'-10⅜"	19'-11"	15'-7⅜"	29'-8"	25'-4⅛"	39'-5"	35'-1⅛"	49'-2"	44'-10⅛"
	6'	5'-0⅛"	10'-3"	5'-1⅜"	20'-1"	15'-0⅜"	29'-11"	24'-5⅝"	39'-9"	34'-3⅝"	49'-7"	44'-1⅝"
	7'	6'-2⅝"	10'-3"	4'-0⅝"	20'-1"	14'-0⅜"	29'-11"	23'-6⅝"	39'-9"	33'-4⅝"	49'-7"	43'-4⅝"
	8'	7'-4"	10'-4"	3'-0"	20'-2"	13'-0"	30'-0"	22'-6"	39'-10"	32'-6"	49'-8"	42'-6"
10'	5'	4'-1⅜"	11'-2"	6'-10⅜"	21'-11"	17'-7⅜"	32'-8"	28'-4⅛"	43'-5"	39'-1⅛"	54'-2"	49'-10⅛"
	6'	5'-0⅛"	11'-3"	6'-1⅜"	22'-1"	17'-0⅜"	32'-11"	27'-5⅝"	43'-9"	38'-3⅝"	54'-7"	49'-1⅝"
	7'	6'-2⅝"	11'-3"	5'-0⅝"	22'-1"	16'-0⅜"	32'-11"	26'-6⅝"	43'-9"	37'-4⅝"	54'-7"	48'-4⅝"
	8'	7'-4"	11'-4"	4'-0"	22'-2"	14'-10"	33'-0"	25'-6"	43'-10"	36'-6"	54'-8"	47'-6"
11'	6'	5'-0⅛"	12'-0"	7'-1⅜"	23'-8"	19'-1⅜"	34'-0"	30'-1⅛"	47'-0"	42'-1⅛"		
	7'	6'-2⅝"	12'-1"	6'-0⅝"	23'-8"	18'-1⅜"	34'-0"	29'-2⅝"	47'-0"	41'-2⅝"		
	8'	7'-4"	12'-2"	5'-0"	23'-8"	16'-10"	34'-0"	28'-0"	47'-0"	40'-6"		
12'	6'	5'-0⅛"	13'-0"	8'-3⅝"	26'-2"	21'-1⅛"	39'-0"	33'-1⅛"	51'-10"	46'-1⅛"		
	7'	6'-2⅝"	13'-0"	7'-2⅝"	26'-2"	19'-11⅛"	39'-0"	32'-0⅝"	51'-10"	45'-0⅝"		
	8'	7'-4"	13'-0"	6'-0"	26'-2"	18'-10"	39'-0"	31'-0"	51'-10"	44'-6"		

QUANTITIES

CLEAR SPAN S	CLEAR HEIGHT H	THICKNESS OF WINGS AT HEADWALL C_W	THICKNESS OF WING FOOTING WB	REINFORCING STEEL - FOR 4 WINGS L.B.	CLASS S CONCRETE - 4 WINGS (HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS): SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
					CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	108.0	4.50	5.46	6.42	7.38	8.34
	3'	6"	7"	164.9	6.26	7.21	8.17	9.13	10.09
	4'	6"	7"	254.6	8.33	9.28	10.24	11.20	12.16
	5'	6"	7"	357.8	10.72	11.68	12.64	13.60	14.56
	6'	7"	8"	583.1	14.55	15.53	16.52	17.51	18.49
5'	3'	6"	7"	164.9	6.47	7.68	8.79	9.96	11.12
	4'	6"	7"	254.6	8.56	9.70	10.87	12.03	13.20
	5'	6"	7"	357.8	10.96	12.10	13.26	14.43	15.59
	6'	7"	8"	583.1	14.77	15.96	17.15	18.34	19.54
	7'	7⅞"	8½"	1139.6	18.96	20.15	21.37	22.59	23.80
6'	3'	6"	7"	164.9	6.68	8.06	9.42	10.80	12.18
	4'	6"	7"	254.6	8.75	10.19	11.99	12.87	14.25
	5'	6"	7"	357.8	11.16	12.53	13.89	15.27	16.65
	6'	7"	8"	583.1	14.98	16.39	17.78	19.18	20.59
	7'	7⅞"	8½"	1139.6	19.15	20.58	22.00	23.43	24.86
	8'	8"	9"	1925.6	25.09	25.53	26.96	28.39	29.83
7'	4'	6"	7"	254.6	8.97	10.58	12.15	13.76	15.35
	5'	6"	7"	357.8	11.36	12.97	14.58	16.15	17.75
	6'	7"	8"	583.1	15.20	16.82	18.42	20.04	21.66
	7'	7⅞"	8½"	1139.6	19.38	21.02	22.69	24.29	25.92
	8'	8"	9"	1925.6	24.32	25.97	27.60	29.25	30.89
8'	4'	6"	7"	254.6	9.19	11.03	12.82	14.65	16.45
	5'	7"	7"	357.8	12.03	13.89	15.70	17.55	19.36
	6'	7"	8"	583.1	15.42	17.27	19.09	20.93	22.75
	7'	7⅞"	8½"	1139.6	19.59	21.46	23.30	25.16	26.93
	8'	8"	9"	1925.6	24.54	26.41	28.24	30.11	31.96
9'	5'	7"	7"	357.8	12.26	14.19	16.87	18.95	20.67
	6'	7⅞"	8"	583.1	15.94	18.04	20.09	22.19	24.23
	7'	7⅞"	8½"	1139.6	19.81	21.91	23.96	26.06	28.10
	8'	8"	9"	1925.6	24.76	26.86	28.91	31.00	33.05
10'	5'	7"	7"	357.8	12.49	14.80	17.05	19.24	21.52
	6'	7⅞"	8"	583.1	16.17	18.50	20.77	22.99	25.28
	7'	7⅞"	8½"	1139.6	20.04	22.37	24.64	26.87	29.15
	8'	8"	9"	1925.6	24.98	27.31	29.58	31.81	34.10
11'	6'	8"	8"	583.1	16.69	19.27	21.76	24.23	
	7'	8"	8½"	1139.6	20.64	23.22	25.71	28.18	
	8'	8"	9"	1925.6	25.19	27.77	30.27	32.74	
12'	6'	8"	8"	583.1	16.92	19.75	22.45	25.18	
	7'	8"	8½"	1139.6	20.87	23.69	26.40	29.19	
	8'	8"	9"	1925.6	25.42	28.25	30.96	33.69	

© For reinforcing steel in Headwalls and Aprons, See Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-

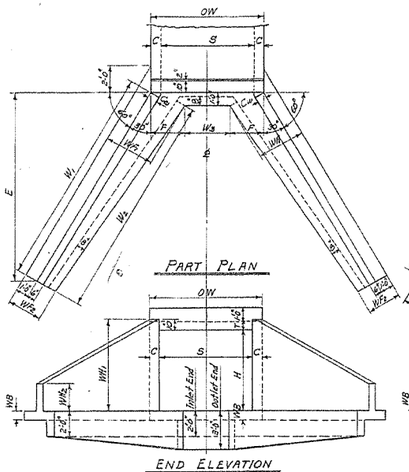
Class S Concrete (n=10) 1200#/□"

Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. as listed below.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-X1	R-200X-X1	R-300X-X1	R-400X-X1	R-500X-X1
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		

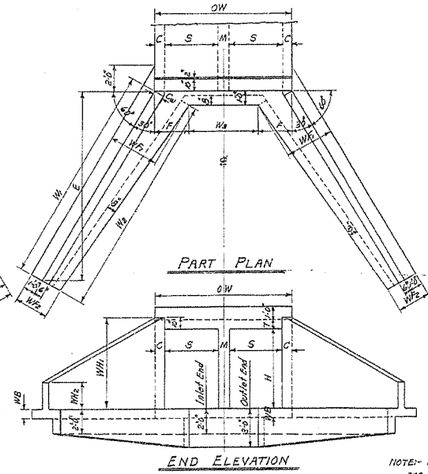
CLASS S CONCRETE



PART PLAN

END ELEVATION

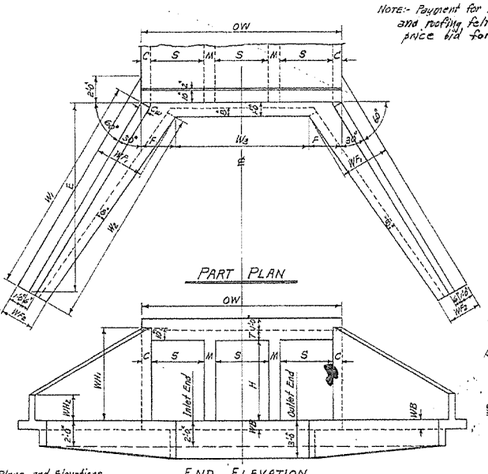
SINGLE BARREL CULVERT



PART PLAN

END ELEVATION

DOUBLE BARREL CULVERT

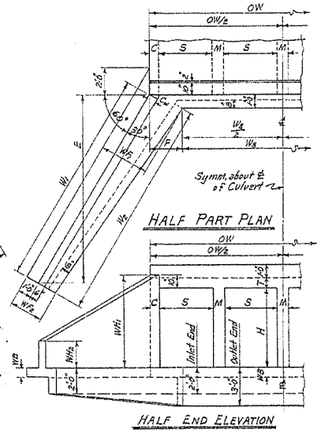


PART PLAN

END ELEVATION

TRIPLE BARREL CULVERT

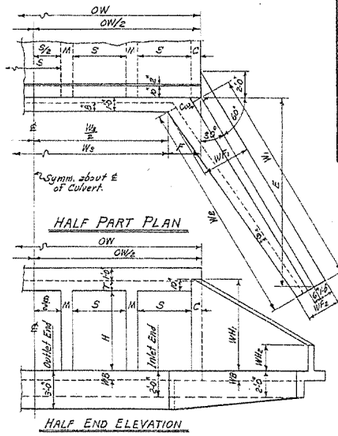
NOTE:- Plans and Elevations are not to scale.



HALF PART PLAN

HALF END ELEVATION

QUADRUPLE BARREL CULVERT



HALF PART PLAN

HALF END ELEVATION

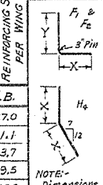
QUINTUPLE BARREL CULVERT

MEMBRANES:- A membrane waterproofing 12" wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT H	F_1 Bent: In bottom of footing, bent up into back face of wing. One bar of each length. SIZE	SPACING	NO. REQ'D	LENGTHS VARY X MIN.	X MAX.	Y MIN.	Y MAX.	F_2 Bent: In bottom of footing, bent up into back face of wing. Alt. with F_1 bars. SIZE	SPACING	NO. REQ'D	LENGTH	X	Y	F_3 Straight: Longitudinal in top of wing footing heel. SIZE	NO. REQ'D	LENGTH	F_4 Straight: Longitudinal in bottom of wing footing toe. SIZE	NO. REQ'D	LENGTH	H_1 Straight: Horizontal in back face of wing. SIZE	SPACING	NO. REQ'D	LENGTH	H_2 Straight: Horizontal in back face of wing. One bar of each length. SIZE	SPACING	NO. REQ'D	LENGTHS VARY MAX.	LENGTHS VARY MIN.	H_3 Straight: In back face of wing at top-on slope. SIZE	NO. REQ'D	LENGTH	H_4 Bent: Dowels thru construction joint at headwall. SIZE	SPACING	NO. REQ'D	LENGTH	X	QUANTITY REINFORCING STEEL PER WING L.B.
2'	#3	12"	8	1'-6"	3'-10"	0'-8"	1'-0"	0'-11"	2'-11"	—	—	—	—	#3	1	9'-8"	#3	2	6'-6"	#3	12"	1	7'-2"	#3	12"	1	—	9'-8"	#3	1	7'-9"	#3	12"	2	2'-8"	1'-9"	27.0
3'	#3	12"	10	2'-2"	5'-2"	0'-8"	1'-3"	1'-5"	4'-0"	—	—	—	—	#3	1	12'-0"	#3	2	11'-0"	#3	12"	1	9'-6"	#3	12"	2	7'-6"	4'-6"	#3	1	9'-9"	#3	12"	3	2'-8"	1'-6"	41.1
4'	#3	12"	13	2'-9"	6'-6"	0'-11"	1'-7"	1'-8"	5'-0"	—	—	—	—	#3	1	14'-9"	#3	3	13'-6"	#3	12"	1	11'-10"	#3	12"	3	10'-11"	4'-6"	#3	1	12'-2"	#3	12"	4	2'-8"	1'-9"	63.7
5'	#3	12"	15	2'-11"	7'-10"	1'-1"	1'-11"	1'-11"	6'-0"	#3	12"	4	3'-6"	1'-1"	2'-6"	#3	1	16'-8"	#3	3	16'-0"	#5	12"	2	14'-2"	#3	12"	3	10'-11"	4'-6"	#3	1	14'-7"	#3	12"	5	2'-8"	1'-9"	89.5
6'	#4	12"	17	3'-6"	9'-3"	1'-2"	2'-3"	2'-5"	7'-1"	#3	12"	4	4'-6"	1'-4"	3'-3"	#3	1	19'-0"	#3	3	18'-6"	#3	12"	2	16'-6"	#3	12"	4	14'-6"	4'-6"	#3	1	17'-0"	#3	12"	6	2'-8"	1'-9"	145.6
7'	#4	12"	20	3'-9"	10'-9"	1'-3"	2'-9"	2'-7"	8'-1"	#4	12"	5	5'-6"	1'-7"	4'-0"	#4	1	21'-4"	#4	4	21'-0"	#4	12"	2	18'-9"	#4	12"	5	17'-9"	4'-6"	#4	1	19'-5"	#4	12"	7	3'-6"	1'-9"	263.7
8'	#4	12"	22	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	10	6'-6"	1'-10"	4'-9"	#4	1	23'-8"	#4	4	23'-8"	#4	12"	3	21'-1"	#4	12"	5	17'-9"	4'-6"	#4	1	21'-10"	#4	12"	8	3'-6"	1'-9"	356.4

BAR BENDING DIAGRAMS



REVISIONS:- Membrane added. 5-10-66 W.C.H.

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X003-1

Designed By:- W.C.H. 6-20-62. Checked By:- RAS - 1-9-63
Drawn By:- W.C.H. 12-4-62. Checked By:- RAS - 1-31-63
Quantities By:- W.C.H. 12-17-62. Recheked By:- RAS - 2-20-63

RESHOT 3-4-93

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			149	
JOB No.					

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

"a" bars — STRAIGHT — In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall - Each.
"b" bars — BENT - See Diagram below. In Top and Bottom Slabs of Barrel. Alternate with "a" bars.

DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"a" Size	"a" Spacing	"a" Number Req'd 3:1	"a" Number Req'd 4:1	"a" Length	"b" Size	"b" Spacing	"b" Number Req'd 3:1	"b" Number Req'd 4:1	"b" Length	"b" X
0'-0" TO 5'-0" MAXIMUM	1 @ 4'	2'	#5	13"	120	120	4'-9"	#6	13"	110	110	5'-10"	4'-8"
		3'			120	120	4'-9"			110	110	5'-10"	4'-8"
		4'			120	120	4'-9"			110	110	5'-10"	4'-8"
		5'			120	120	4'-9"			110	110	5'-10"	4'-8"
		6'			120	120	4'-11"			110	110	6'-0"	4'-10"
	1 @ 5'	3'	#6	13"	120	120	5'-9"	#6	13"	110	110	6'-10"	5'-8"
		4'			120	120	5'-9"			110	110	6'-10"	5'-8"
		5'			120	120	5'-9"			110	110	6'-10"	5'-8"
		6'			120	120	5'-11"			110	110	7'-0"	5'-10"
		7'			120	120	6'-0"			110	110	7'-1"	5'-11"
	1 @ 6'	3'	#6	12"	128	128	6'-9"	#6	12"	118	118	7'-10"	6'-8"
		4'			128	128	6'-9"			118	118	7'-10"	6'-8"
		5'			128	128	6'-9"			118	118	7'-10"	6'-8"
		6'			128	128	6'-11"			118	118	8'-0"	6'-10"
		7'			128	128	7'-0"			118	118	8'-1"	6'-11"
		8'			128	128	7'-1"			118	118	8'-2"	7'-0"
	1 @ 7'	4'	#6	11"	140	140	7'-9"	#6	11"	130	130	8'-10"	7'-8"
		5'			140	140	7'-9"			130	130	8'-10"	7'-8"
		6'			140	140	7'-11"			130	130	9'-0"	7'-10"
		7'			140	140	8'-0"			130	130	9'-1"	7'-11"
		8'			140	140	8'-1"			130	130	9'-2"	8'-0"
		9'			140	140	8'-3"			130	130	9'-4"	8'-2"
	1 @ 8'	4'	#7	12"	128	128	8'-9"	#6	12"	118	118	9'-10"	8'-8"
		5'			128	128	8'-11"			118	118	10'-0"	8'-10"
		6'			128	128	8'-11"			118	118	10'-0"	8'-10"
		7'			128	128	9'-0"			118	118	10'-1"	8'-11"
		8'			128	128	9'-1"			118	118	10'-2"	9'-0"
		9'			128	128	9'-3"			118	118	10'-4"	9'-2"
		10'			128	128	9'-5"			118	118	10'-6"	9'-4"
	1 @ 9'	5'	#7	11"	140	140	9'-11"	#6	11"	130	130	11'-0"	9'-10"
		6'			140	140	10'-0"			130	130	11'-1"	9'-11"
		7'			140	140	10'-0"			130	130	11'-1"	9'-11"
		8'			140	140	10'-1"			130	130	11'-2"	10'-0"
		9'			140	140	10'-3"			130	130	11'-4"	10'-2"
		10'			140	140	10'-5"			130	130	11'-6"	10'-4"
		11'			140	140	10'-7"			130	130	11'-8"	10'-6"
	1 @ 10'	5'	#7	12"	128	128	10'-11"	#7	12"	118	118	12'-2"	10'-10"
		6'			128	128	11'-0"			118	118	12'-3"	10'-11"
		7'			128	128	11'-0"			118	118	12'-3"	10'-11"
		8'			128	128	11'-1"			118	118	12'-4"	11'-0"
		9'			128	128	11'-3"			118	118	12'-6"	11'-2"
		10'			128	128	11'-5"			118	118	12'-8"	11'-4"
		11'			128	128	11'-7"			118	118	12'-10"	11'-6"
		12'			128	128	11'-9"			118	118	13'-0"	11'-8"
	1 @ 11'	6'	#7	11"	140	140	12'-1"	#7	11"	130	130	13'-4"	12'-0"
		7'			140	140	12'-1"			130	130	13'-4"	12'-0"
		8'			140	140	12'-1"			130	130	13'-4"	12'-0"
		9'			140	140	12'-3"			130	130	13'-6"	12'-2"
		10'			140	140	12'-5"			130	130	13'-8"	12'-4"
		11'			140	140	12'-7"			130	130	13'-10"	12'-6"
		12'			140	140	12'-9"			130	130	14'-0"	12'-8"
	1 @ 12'	6'	#8	12"	128	128	13'-1"	#7	12"	118	118	14'-4"	13'-0"
		7'			128	128	13'-1"			118	118	14'-4"	13'-0"
		8'			128	128	13'-1"			118	118	14'-4"	13'-0"
		9'			128	128	13'-3"			118	118	14'-6"	13'-2"
		10'			128	128	13'-5"			118	118	14'-8"	13'-4"
		11'			128	128	13'-7"			118	118	14'-10"	13'-6"
		12'			128	128	13'-9"			118	118	15'-0"	13'-8"

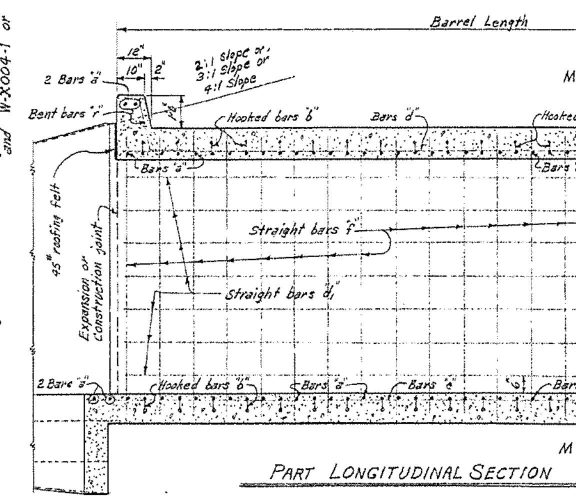
"d" bars — STRAIGHT — Longitudinal in Top Slab of Barrel.
"d1" bars — STRAIGHT — Longitudinal in Sidewalls.
"e" bars — STRAIGHT — Longitudinal in Bottom Slab of Barrel.
"f" bars — STRAIGHT — Verticals in Sidewalls.

S	H	"d" Size	"d" Spacing	"d" No. Req'd	"d" Length	"d1" Size	"d1" Spacing	"d1" No. Req'd	"d1" Length	"e" Size	"e" Spacing	"e" No. Req'd	"e" Length	"f" Size	"f" Spacing	"f" Number Req'd 3:1	"f" Number Req'd 4:1	"f" Length
1 @ 4'	2'	#5	10½"	6	2 @ 30'-8" for 60'-0" Length Barrel. (1'-8" Lap)	#4	12"	4	2 @ 30'-6" for 60'-0" Length Barrel. (1'-3" Lap)	#4	12"	5	2 @ 31'-6" for 60'-0" Length Barrel. (1'-3" Lap)	#4	12"	120	120	2'-11"
	3'			6				6				5				120	120	3'-11"
	4'			6				8				5				120	120	4'-11"
	5'			6				10				5				120	120	5'-11"
	6'			6				12				5				120	120	6'-11"
1 @ 5'	3'	#5	10½"	7		#4	12"	6		#4	12"	6		#4	12"	120	120	4'-0"
	4'			7				8				6				120	120	5'-0"
	5'			7				10				6				120	120	6'-0"
	6'			7				12				6				120	120	7'-0"
	7'			7				14				6				120	120	8'-0"
1 @ 6'	3'	#5	10½"	8		#4	12"	6		#4	12"	7		#4	12"	120	120	4'-1"
	4'			8				8				7				120	120	5'-1"
	5'			8				10				7				120	120	6'-1"
	6'			8				12				7				120	120	7'-1"
	7'			8				14				7				120	120	8'-1"
	8'			8				16				7		#5	12"	120	120	9'-1"
1 @ 7'	4'	#5	10½"	9		#4	12"	8		#4	12"	8		#4	12"	120	120	5'-2"
	5'			9				10				8				120	120	6'-2"
	6'			9				12				8				120	120	7'-2"
	7'			9				14				8				120	120	8'-2"
	8'			9				16				8			10"	144	144	9'-2"
	9'			9				18				8		#5	12"	120	120	10'-2"
1 @ 8'	4'	#5	10"	11		#4	12"	8		#4	12"	9		#4	12"	120	120	5'-4"
	5'			11				10				9				120	120	6'-4"
	6'			11				12				9				120	120	7'-4"
	7'			11				14				9				120	120	8'-4"
	8'			11				16				9			10"	144	144	9'-4"
	9'			11				18				9		#5	12"	120	120	10'-4"
	10'			11				20				9			11"	132	132	11'-4"
1 @ 9'	5'	#5	10"	12		#4	12"	10		#4	12"	10		#4	12"	120	120	6'-5"
	6'			12				12				10				120	120	7'-5"
	7'			12				14				10				120	120	8'-5"
	8'			12				16				10			10"	144	144	9'-5"
	9'			12				18				10		#5	12"	120	120	10'-5"
	10'			12				20				10			11"	132	132	11'-5"
	11'			12				22				10			10"	144	144	12'-5"
1 @ 10'	5'	#5	10"	13		#4	12"	10		#4	12"	11		#4	12"	120	120	6'-6"
	6'			13				12				11				120	120	7'-6"
	7'			13				14				11				120	120	8'-6"
	8'			13				16				11			10"	144	144	9'-6"
	9'			13				18				11		#5	12"	120	120	10'-6"
	10'			13				20				11			11"	132	132	11'-6"
	11'			13				22				11			10"	144	144	12'-6"
	12'			13				24				11		#6	12"	120	120	13'-6"
1 @ 11'	6'	#5	9½"	15		#4	12"	12		#4	12"	12		#4	12"	120	120	7'-7"
	7'			15				14				12				120	120	8'-7"
	8'			15				16				12			10"	144	144	9'-7"
	9'			15				18				12		#5	12"	120	120	10'-7"
	10'			15				20				12			11"	132	132	11'-7"
	11'			15				22				12			10"	144	144	12'-7"
	12'			15				24				12		#6	12"	120	120	13'-7"
1 @ 12'	6'	#5	9½"	16		#4	12"	12		#4	12"	13		#4	12"	120	120	7'-9"
	7'			16				14				13				120	120	8'-9"
	8'			16				16				13			10"	144	144	9'-9"
	9'			16				18				13		#5	12"	120	120	10'-9"
	10'			16				20				13			11"	132	132	11'-9"
	11'			16				22				13			10"	144	144	12'-9"
	12'			16				24				13		#6	12"	120	120	13'-9"

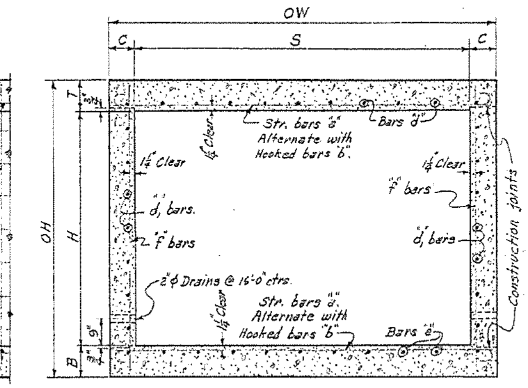
DIMENSIONS / QUANTITIES

MAX. DESIGN DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	SQ. FT. OPENING A	OVERALL WIDTH OW	THICKNESS OF TOP SLAB T	THICKNESS OF SIDEWALLS C	THICKNESS OF BOTTOM SLAB B	OVERALL HEIGHT OH	CLASS S CONC. PER LIN. FT. OF BARREL CU. YD.	REINFORCING STEEL PER LIN. FT. OF BARREL LB.	ADDITIONAL PER LAP LB.	ADDITIONAL TWO HEADWALLS & APRONS LB.
5'-0"	1 @ 4'	2'	8	5'-0"	7"	6"	6½"	3'-1½"	0.282	41.49	17.95	66.35
		3'	12	5'-0"		6"		4'-1½"	0.319	44.16	19.62	66.35
		4'	16	5'-0"		6"		5'-1½"	0.356	46.83	21.29	66.35
		5'	20	5'-0"		6"		6'-1½"	0.394	49.50	22.96	66.35
		6'	24	5'-2"		7"		7'-1½"	0.474	52.96	24.63	67.75
	1 @ 5'	3'	15	6'-0"	7½"	6"	7"	4'-2½"	0.380	55.55	22.19	101.27
		4'	20	6'-0"		6"		5'-2½"	0.417	58.23	23.86	101.27
		5'	25	6'-0"		6"		6'-2½"	0.454	60.90	25.53	101.27
		6'	30	6'-2"		7"		7'-2½"	0.535	64.49	27.20	103.27
		7'	35	6'-3"		7½"		8'-2½"	0.604	67.63	28.87	104.27
	1 @ 6'	3'	18	7'-0"	8"	6"	7½"	4'-3½"	0.446	66.29	24.76	118.96
		4'	24	7'-0"		6"		5'-3½"	0.483	68.96	26.43	118.96
		5'	30	7'-0"		6"		6'-3½"	0.520	71.64	28.10	118.96
		6'	36	7'-2"		7"		7'-3½"	0.602	75.31	29.77	120.96
		7'	42	7'-3"		7½"		8'-3½"	0.671	78.98	31.44	121.97
		8'	48	7'-4"		8"		9'-3½"	0.746	88.47	33.11	122.97
	1 @ 7'	4'	28	8'-0"	8½"	6"	8½"	5'-5"	0.568	81.32	29.01	136.88
		5'	35	8'-0"		6"		6'-5"	0.605	84.00	30.68	136.88
		6'	42	8'-2"		7"		7'-5"	0.688	87.76	32.35	138.88
		7'	49	8'-3"		7½"		8'-5"	0.757	90.98	34.02	139.88
		8'	56	8'-4"		8"		9'-5"	0.832	96.65	35.69	140.88
		9'	63	8'-6"		9"		10'-5"	0.946	105.59	37.36	142.89
	1 @ 8'	4'	32	9'-0"	9½"	6"	9½"	5'-7"	0.676	95.26	33.32	194.07
		5'	40	9'-2"		7"		6'-7"	0.754	99.12	34.99	196.80
		6'	48	9'-2"		7"		7'-7"	0.797	101.79	36.66	196.80
		7'	56	9'-3"		7½"		8'-7"	0.867	105.05	38.33	198.16
		8'	64	9'-4"		8"		9'-7"	0.992	110.81	40.00	199.52
		9'	72	9'-6"		9"		10'-7"	1.057	119.92	41.67	202.25
		10'	80	9'-8"		10"		11'-7"	1.184	126.67	43.34	204.97
	1 @ 9'	5'	45	10'-2"	10"	7"	10"	6'-8"	0.844	114.72	37.56	219.61
		6'	54	10'-3"		7½"		7'-8"	0.910	118.04	39.23	220.97
		7'	63	10'-3"		7½"		8'-8"	0.957	120.71	40.90	220.97
		8'	72	10'-4"		8"		9'-8"	1.033	126.54	42.57	222.33
		9'	81	10'-6"		9"		10'-8"	1.148	135.80	44.24	225.06
		10'	90	10'-8"		10"		11'-8"	1.276	142.68	45.91	227.78
		11'	99	10'-10"		11"		12'-8"	1.416	150.40	47.58	230.51
	1 @ 10'	5'	50	11'-2"	10½"	7"	11"	6'-9½"	0.957	130.64	40.13	242.64
		6'	60	11'-3"		7½"		7'-9½"	1.024	133.99	41.80	244.00
		7'	70	11'-3"		7½"		8'-9½"	1.071	136.66	43.47	244.00
		8'	80	11'-4"		8"		9'-9½"	1.147	142.55	45.14	245.36
		9'	90	11'-6"		9"		10'-9½"	1.263	151.92	46.81	248.09
		10'	100	11'-8"		10"		11'-9½"	1.391	158.89	48.48	250.81
		11'	110	11'-10"		11"		12'-9½"	1.532	166.71	50.15	253.54
		12'	120	12'-0"		12"		13'-9½"	1.685	178.67	51.82	256.26
	1 @ 11'	6'	66	12'-4"	11"	8"	11½"	7'-10½"	1.153	155.16	46.12	268.62
		7'	77	12'-4"		8"		8'-10½"	1.202	157.83	47.79	268.62
		8'	88	12'-4"		8"		9'-10½"	1.252	162.06	49.46	268.62
		9'	99	12'-6"		9"		10'-10½"	1.368	172.60	51.13	271.34
		10'	110	12'-8"		10"		11'-10½"	1.497	179.70	52.80	274.07
		11'	121	12'-10"		11"		12'-10½"	1.638	187.67	54.47	276.79
		12'	132	13'-0"		12"		13'-10½"	1.792	199.79	56.14	279.52
	1 @ 12'	6'	72	13'-4"	11¾"	8"	12¼"	8'-0"	1.284	172.20	48.69	357.62
		7'	84	13'-4"		8"		9'-0"	1.333	174.87	50.36	357.62
		8'	96	13'-4"		8"		10'-0"	1.383	180.15	52.03	357.62
		9'	108	13'-6"		9"		11'-0"	1.500	189.85	53.70	361.18
		10'	120	13'-8"		10"		12'-0"	1.630	197.07	55.37	364.74
		11'	132	13'-10"		11"		13'-0"	1.772	205.16	57.04	368.30
		12'	144	14'-0"		12"		14'-0"	1.926	217.95	58.71	371.86

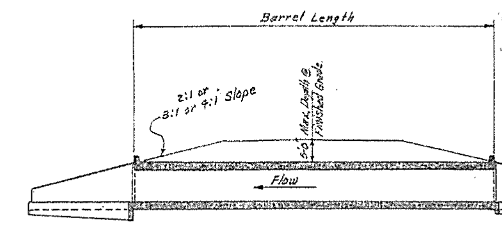
Note:- For details of wings and bar lists, see Drawing Nos. W-X002-1 or W-X002-1, W-X003-1 or W-X003-2 and W-X004-1 or W-X004-2.



PART LONGITUDINAL SECTION



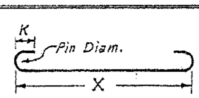
TYPICAL SECTION M-M



LONGITUDINAL SECTION

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS
#6	3"	5"	1'-2"
#7	3½"	5¾"	1'-4"

BENDING DIAGRAM Bars "b".

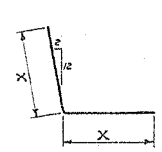


NOTE:- Dimensions are to centers of bars.

DOWEL BARS FOR TWO HEADWALLS

SPAN	SIZE	SPACING	NO. REQ'D	LENGTH	X
4'	#4	11"±	12	2'-6"	1'-3"
5'	#4	11"±	14	2'-7"	1'-3½"
6'	#4	11"±	16	2'-8"	1'-4"
7'	#4	11"±	18	2'-9"	1'-4½"
8'	#4	11½"±	20	2'-11"	1'-5½"
9'	#4	11½"±	22	3'-0"	1'-6"
10'	#4	11½"±	24	3'-1"	1'-6½"
11'	#4	12"±	26	3'-2"	1'-7"
12'	#4	12"±	28	3'-3"	1'-7½"

Bars "r" Dowel bars in Headwalls.



GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diameters.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls and slabs shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Drawing Nos. W-X003-1 or W-X003-2 and W-X004-1 or W-X004-2. Also Drawing Nos. W-X002-1 or W-X002-2.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD BARREL SECTIONS
FOR
REINFORCED CONCRETE BOX CULVERTS
4,5,6,7,8,9,10,11 & 12' SPANS — 3:1 OR 4:1 SLOPES
SINGLES — UNDER 5'-0" COVER
STANDARD DRAWING NO. R-100X-0

Designed By:- W.C.H. 1-23-63. Checked By:- [illegible] 5-8-63
Drawn By:- W.C.H. 2-8-63. Checked By:- [illegible] 5-20-63
Quantities By:- W.C.H. 2-12-63. Checked By:- [illegible] 5-24-63

RESHOT 3-4-93

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			150	
JOB No.					

BAR LIST FOR VARIOUS SECTIONS OF BARREL

"a" bars: STRAIGHT – In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall - Each. "b" bars: BENT - See Diagram at Right. In Top and Bottom Slabs of Barrel. Alternate with "a" bars.

Section & Bar Group	Length of Sections	Depth of Cover D	Clear Span S	Clear Height H	"a" Size	"a" Spacing	"a" No. Req'd 3:1	"a" No. Req'd 4:1	"a" Length	"b" Size	"b" Spacing	"b" No. Req'd 3:1	"b" No. Req'd 4:1	"b" Length	X
SECTION "A" & BAR GROUP "A"	3:1 = 22'-0" 4:1 = 32'-0"	0' TO 10'-0"	1 @ 4'	3'	#4	12"	48	68	4'-9"	#4	12"	44	64	5'-7"	4'-8½"
				4'			48	68	4'-9"			44	64	5'-7"	4'-8½"
				5'			48	68	4'-9"			44	64	5'-7"	4'-8½"
				6'			48	68	4'-11"			44	64	5'-9"	4'-10½"
			1 @ 5'	3'	#5	12"	48	68	5'-9"	#5	12"	44	64	6'-8"	5'-8½"
				4'			48	68	5'-9"			44	64	6'-8"	5'-8½"
				5'			48	68	5'-9"			44	64	6'-8"	5'-8½"
				6'			48	68	5'-11"			44	64	6'-10"	5'-10½"
				7'			48	68	6'-0"			44	64	6'-11"	5'-11½"
			1 @ 6'	4'	#5	12"	48	68	6'-9"	#6	12"	44	64	7'-10"	6'-8"
				5'			48	68	6'-9"			44	64	7'-10"	6'-8"
				6'			48	68	6'-11"			44	64	8'-0"	6'-10"
				7'			48	68	7'-0"			44	64	8'-1"	6'-11"
				8'			48	68	7'-1"			44	64	8'-2"	7'-0"
SECTION "B" & BAR GROUP "B"	3:1 = 11'-0" 4:1 = 16'-0"	10'-0" TO 15'-0"	1 @ 4'	3'	#4	12"	22	32	4'-9"	#5	12"	22	32	5'-8"	4'-8½"
				4'			22	32	4'-9"			22	32	5'-8"	4'-8½"
				5'			22	32	4'-9"			22	32	5'-8"	4'-8½"
				6'			22	32	4'-11"			22	32	5'-10"	4'-10½"
			1 @ 5'	3'	#5	12"	22	32	5'-9"	#6	12"	22	32	6'-10"	5'-8"
				4'			22	32	5'-9"			22	32	6'-10"	5'-8"
				5'			22	32	5'-9"			22	32	6'-10"	5'-8"
				6'			22	32	5'-11"			22	32	7'-0"	5'-10"
				7'			22	32	6'-0"			22	32	7'-1"	5'-11"
			1 @ 6'	4'	#6	12"	22	32	6'-9"	#6	12"	22	32	7'-10"	6'-8"
				5'			22	32	6'-9"			22	32	7'-10"	6'-8"
				6'			22	32	6'-11"			22	32	8'-0"	6'-10"
				7'			22	32	7'-0"			22	32	8'-1"	6'-11"
				8'			22	32	7'-1"			22	32	8'-2"	7'-0"
SECTION "C" & BAR GROUP "C"	3:1 = 11'-0" 4:1 = 16'-0"	15'-0" TO 20'-0"	1 @ 4'	3'	#5	12"	22	32	4'-9"	#5	12"	22	32	5'-8"	4'-8½"
				4'			22	32	4'-9"			22	32	5'-8"	4'-8½"
				5'			22	32	4'-9"			22	32	5'-8"	4'-8½"
				6'			22	32	4'-11"			22	32	5'-10"	4'-10½"
			1 @ 5'	3'	#5	11"	24	36	5'-9"	#6	11"	24	34	6'-10"	5'-8"
				4'			24	36	5'-9"			24	34	6'-10"	5'-8"
				5'			24	36	5'-9"			24	34	6'-10"	5'-8"
				6'			24	36	5'-11"			24	34	7'-0"	5'-10"
				7'			24	36	6'-0"			24	34	7'-1"	5'-11"
			1 @ 6'	4'	#6	11"	24	36	6'-9"	#6	11"	24	34	7'-10"	6'-8"
				5'			24	36	6'-9"			24	34	7'-10"	6'-8"
				6'			24	36	6'-11"			24	34	8'-0"	6'-10"
				7'			24	36	7'-0"			24	34	8'-1"	6'-11"
				8'			24	36	7'-1"			24	34	8'-2"	7'-0"
SECTION "D" & BAR GROUP "D"	3:1 = 11'-0" 4:1 = 16'-0"	20'-0" TO 25'-0"	1 @ 4'	3'	#5	11"	24	36	4'-9"	#5	11"	24	34	5'-8"	4'-8½"
				4'			24	36	4'-9"			24	34	5'-8"	4'-8½"
				5'			24	36	4'-9"			24	34	5'-8"	4'-8½"
				6'			24	36	4'-11"			24	34	5'-10"	4'-10½"
			1 @ 5'	3'	#6	12"	22	32	5'-9"	#6	12"	22	32	6'-10"	5'-8"
				4'			22	32	5'-9"			22	32	6'-10"	5'-8"
				5'			22	32	5'-9"			22	32	6'-11"	5'-9"
				6'			22	32	5'-11"			22	32	7'-1"	5'-11"
				7'			22	32	6'-1"			22	32	7'-2"	6'-0"
			1 @ 6'	4'	#7	12"	22	32	6'-9"	#6	12"	22	32	7'-10"	6'-8"
				5'			22	32	6'-10"			22	32	7'-11"	6'-9"
				6'			22	32	6'-11"			22	32	8'-1"	6'-11"
				7'			22	32	7'-1"			22	32	8'-2"	7'-0"
				8'			22	32	7'-2"			22	32	8'-4"	7'-2"
SECTION "E" & BAR GROUP "E"	3:1 = 11'-0" 4:1 = 16'-0"	25'-0" TO 30'-0"	1 @ 4'	3'	#6	12"	22	32	4'-9"	#5	12"	22	32	5'-8"	4'-8½"
				4'			22	32	4'-9"			22	32	5'-8"	4'-8½"
				5'			22	32	4'-10"			22	32	5'-9"	4'-9½"
				6'			22	32	5'-0"			22	32	5'-11"	4'-11½"
			1 @ 5'	3'	#6	11"	24	34	5'-9"	#6	11"	24	36	6'-10"	5'-8"
				4'			24	34	5'-9"			24	36	6'-10"	5'-8"
				5'			24	34	5'-10"			24	36	7'-0"	5'-10"
				6'			24	34	6'-0"			24	36	7'-2"	6'-0"
				7'			24	34	6'-2"			24	36	7'-3"	6'-1"
			1 @ 6'	4'	#7	11"	24	34	6'-9"	#6	11"	24	36	7'-10"	6'-8"
				5'			24	34	6'-11"			24	36	8'-0"	6'-10"
				6'			24	34	7'-1"			24	36	8'-2"	7'-0"
				7'			24	34	7'-2"			24	36	8'-4"	7'-2"
				8'			24	34	7'-4"			24	36	8'-5"	7'-3"
SECTION "F" & BAR GROUP "F"	3:1 = 11'-0" 4:1 = 16'-0"	30'-0" TO 35'-0"	1 @ 4'	3'	#6	13"	20	30	4'-9"	#6	13"	20	30	5'-10"	4'-8"
				4'			20	30	4'-9"			20	30	5'-10"	4'-8"
				5'			20	30	4'-11"			20	30	6'-0"	4'-10"
				6'			20	30	5'-1"			20	30	6'-2"	5'-0"
			1 @ 5'	3'	#7	12"	22	32	5'-9"	#6	12"	22	32	6'-10"	5'-8"
				4'			22	32	5'-9"			22	32	6'-11"	5'-9"
				5'			22	32	5'-11"			22	32	7'-1"	5'-11"
				6'			22	32	6'-1"			22	32	7'-3"	6'-1"
				7'			22	32	6'-3"			22	32	7'-4"	6'-2"
SECTION "F"	Varies with Length of Barrel	30'-0"	1 @ 6'	4'	#7	12"	Varies with Length of Barrel	Varies with Length of Barrel	6'-10"	#7	12"	Varies with Length of Barrel	Varies with Length of Barrel	8'-1"	6'-9"
				5'					7'-0"					8'-3"	6'-11"
				6'					7'-2"					8'-5"	7'-1"
				7'					7'-4"					8'-7"	7'-3"
				8'					7'-5"					8'-8"	7'-4"
SECTION "G" & BAR GROUP "G"		35'-0" TO 40'-0"	1 @ 4'	3'	#6	12"			4'-9"	#6	12"			5'-10"	4'-8"
				4'					4'-10"					5'-11"	4'-9"
				5'					5'-0"					6'-1"	4'-11"
				6'					5'-2"					6'-3"	5'-1"
			1 @ 5'	3'	#7	11"			5'-9"	#6	11"			6'-10"	5'-8"
				4'					5'-10"					7'-0"	5'-10"
				5'					6'-0"					7'-2"	6'-0"
				6'					6'-2"					7'-4"	6'-2"
				7'					6'-4"					7'-5"	6'-3"

"d" bars, "d1" bars, "e" bars: STRAIGHT – "d": Longitudinal in Top Slab of Barrel; "d1": Longitudinal in Sidewalls; "e": Longitudinal in Bottom Slab of Barrel. "f" bars: STRAIGHT – Verticals in Sidewalls.

Section	S	H	"d" Size	"d" Spacing	"d" No. Req'd	"d" Length	"d1" Size	"d1" Spacing	"d1" No. Req'd	"d1" Length	"e" Size	"e" Spacing	"e" No. Req'd	"e" Length	"f" Size	"f" Spacing	"f" No. Req'd 3:1	"f" No. Req'd 4:1	"f" Length
A	1 @ 4'	3'	#4	12"	5	33'-3" for 32'-0" Section	#4	12"	6	33'-3" for 32'-0" Section	#4	12"	5	34'-3" for 32'-0" Section	#4	12"	44	64	3'-10"
		4'			5				8				5				44	64	4'-10"
		5'			5				10				5				44	64	5'-10"
		6'			5				12				5				44	64	6'-10"
	1 @ 5'	3'	#4	12"	6		#4	12"	6		#4	12"	6		#4	12"	44	64	3'-11"
		4'			6				8				6				44	64	4'-11"
		5'			6				10				6				44	64	5'-11"
		6'			6				12				6				44	64	6'-11"
		7'			6				14				6			10"	54	78	7'-11"
	1 @ 6'	4'	#4	12"	7		#4	12"	8		#4	12"	7		#4	12"	44	64	5'-0"
		5'			7				10				7				44	64	6'-0"
		6'			7				12				7				44	64	7'-0"
		7'			7				14				7			10"	54	78	8'-0"
		8'			7				16				7		#5	11"	48	70	9'-0"
B	1 @ 4'	3'	#4	12"	5	34'-3" for 33'-0" Length Section	#4	12"	6	34'-3" for 33'-0" Length Section	#4	12"	5	34'-3" for 33'-0" Length Section	#4	12"	22	32	3'-10"
		4'			5				8				5				22	32	4'-10"
		5'			5				10				5				22	32	5'-10"
		6'			5				12				5			10"	28	40	6'-10"
	1 @ 5'	3'	#4	12"	6		#4	12"	6		#4	12"	6		#4	12"	22	32	3'-11"
		4'			6				8				6				22	32	4'-11"
		5'			6				10				6				22	32	5'-11"
		6'			6				12				6			11"	24	36	6'-11"
		7'			6				14				6		#5	12"	22	32	7'-11"
	1 @ 6'	4'	#4	12"	7		#4	12"	8		#4	12"	7		#4	12"	22	32	5'-1"
		5'			7				10				7				22	32	6'-1"
		6'			7				12				7			10"	28	40	7'-1"
		7'			7				14				7		#5	11"	24	34	8'-1"
		8'			7				16				7		#6	12"	22	32	9'-1"
C	1 @ 4'	3'	#4	12"	5		#4	12"	6		#4	12"	5		#4	12"	22	32	3'-10"
		4'			5				8				5				22	32	4'-10"
		5'			5				10				5			10"	28	40	5'-10"
		6'			5				12				5		#5	12"	22	32	6'-10"
	1 @ 5'	3'	#4	12"	6		#4	12"	6		#4	12"	6		#4	12"	22	32	4'-0"
		4'			6				8				6				22	32	5'-0"
		5'			6				10				6			11"	24	36	6'-0"
		6'			6				12				6		#5	12"	22	32	7'-0"
		7'			6				14				6		#6	12"	22	32	8'-0"
	1 @ 6'	4'	#4	12"	7		#4	12"	8		#4	12"	7		#4	12"	22	32	5'-2"
		5'			7				10				7				22	32	6'-2"
		6'			7				12				7		#5	12"	22	32	7'-2"
		7'			7				14				7		#6	12"	22	32	8'-2"
		8'			7				16				7			10"	26	38	9'-2"
D	1 @ 4'	3'	#4	12"	5		#4	12"	6		#4	12"	5		#4	12"	22	32	3'-11"
		4'			5				8				5				22	32	4'-11"
		5'			5				10				5		#5	12"	22	32	5'-11"
		6'			5				12				5			10"	26	38	6'-11"
	1 @ 5'	3'	#4	12"	6		#4	12"	6		#4	12"	6		#4	12"	22	32	4'-1"
		4'			6				8				6				22	32	5'-1"
		5'			6				10				6			11"	24	34	6'-1"
		6'			6				12				6		#5	11"	24	34	7'-1"
		7'			6				14				6		#6	12"	22	32	8'-1"
	1 @ 6'	4'	#4	12"	7		#4	12"	8		#4	12"	7		#4	12"	22	32	5'-7"
		5'			7				10				7				22	32	6'-7"
		6'			7				12				7		#5	12"	22	32	7'-7"
		7'			7				14				7		#6	12"	22	32	8'-7"
		8'			7				16				7			10"	26	40	9'-7"
E	1 @ 4'	3'	#4	12"	5		#4	12"	6		#4	12"	5		#4	12"	22	32	4'-0"
		4'			5				8				5				22	32	5'-0"
		5'			5				10				5		#5	12"	22	32	6'-0"
		6'			5				12				5		#6	12"	22	32	7'-0"
	1 @ 5'	3'	#4	12"	6		#4	12"	6		#4	12"	6		#4	12"	22	32	4'-3"
		4'			6				8				6				22	32	5'-3"
		5'			6				10				6			10"	28	40	6'-3"
		6'			6				12				6		#5	11"	24	36	7'-3"
		7'			6				14				6		#6	11"	24	34	8'-3"
	1 @ 6'	4'	#4	11"	8		#4	12"	8		#4	11"	8		#4	12"	22	32	5'-5"
		5'			8				10				8			11"	24	36	6'-5"
		6'			8				12				8		#5	12"	22	32	7'-5"
		7'			8				14				8		#6	12"	22	32	8'-5"
		8'			8				16				8			10"	26	38	9'-5"
F	1 @ 4'	3'	#4	12	5		#4	12"	6		#4	12"	5		#4	12"	22	32	4'-1"
		4'			5				8				5				22	32	5'-1"
		5'			5				10				5		#5	12"	22	32	6'-1"
		6'			5				12				5		#6	12"	22	32	7'-1"
	1 @ 5'	3'	#4	10½"	7		#4	12"	6		#4	10½"	7		#4	12"	22	32	4'-4"
		4'			7				8				7				22	32	5'-4"
		5'			7				10				7			10"	26	36	6'-4"
		6'			7				12				7		#5	11"	24	34	7'-4"
		7'			7				14				7		#6	11"	24	36	8'-4"
F	1 @ 6'	4'	#4	9½"	9	Varies with Length of Barrel	#4	12"	8	Varies with Length of Barrel	#4	9½"	9	Varies with Length of Barrel	#4	12"	Varies with Length of Barrel	Varies with Length of Barrel	5'-7"
		5'			9				10				9			10"			6'-7"
		6'			9				12				9		#5	12"			7'-7"
		7'			9				14				9		#6	12"			8'-7"
		8'			9				16				9			10"			9'-7"
G	1 @ 4'	3'	#4	10½"	6		#4	12"	6		#4	10½"	6		#4	12"			4'-2"
		4'			6				8				6						5'-2"
		5'			6				10				6		#5	12"			6'-2"
		6'			6				12				6		#6	12"			7'-2"
	1 @ 5'	3'	#4	10½"	7		#4	12"	6		#4	10½"	7		#4	12"			4'-5"
		4'			7				8				7						5'-5"
		5'			7				10				7			10"			6'-5"
		6'			7				12				7		#5	11"			7'-5"
		7'			7				14				7		#6	11"			8'-5"

NOTE:- Bars for each Section to be marked with the Section Letter, thus for Section B, the bars should be marked Ba, Bb, Bd, Bd1, Be and Bf.

DIMENSIONS / QUANTITIES

Max. Design Depth of Cover D	Clear Span S	Clear Height H	Sq. Ft. Opening A	Overall Width OW	Thickness of Top Slab T	Thickness of Sidewalls C	Thickness of Bottom Slab B	Overall Height OH	Class S Conc. per Lin. Ft. of Barrel (Cu. Yd.)	Reinforcing Steel per Lin. Ft. of Barrel (Lb.)	Additional per Lap (Lb.)	Additional Two Headwalls & Aprons (Lb.)
SECTION "A" ~ 10'-0"	1 @ 4'	3'	12	5'-0"	6½"	6"	6½"	4'-1"	0.312	29.62	13.36	51.44
		4'	16	5'-0"		6"		5'-1"	0.349	32.29	15.03	51.44
		5'	20	5'-0"		6"		6'-1"	0.386	34.96	16.70	51.44
		6'	24	5'-2"		7"		7'-1"	0.467	38.08	18.37	52.33
	1 @ 5'	3'	15	6'-0"	7"	6"	7"	4'-2"	0.370	43.16	15.03	79.37
		4'	20	6'-0"		6"		5'-2"	0.407	45.83	16.70	79.37
		5'	25	6'-0"		6"		6'-2"	0.444	48.50	18.37	79.37
		6'	30	6'-2"		7"		7'-2"	0.526	51.87	20.04	80.77
		7'	35	6'-3"		7½"		8'-2"	0.594	57.00	21.71	81.46
	1 @ 6'	4'	24	7'-0"	7½"	6"	7½"	5'-3"	0.472	58.99	18.37	93.29
		5'	30	7'-0"		6"		6'-3"	0.509	61.66	20.04	93.29
		6'	36	7'-2"		7"		7'-3"	0.591	65.18	21.71	94.68
		7'	42	7'-3"		7½"		8'-3"	0.660	70.41	23.38	95.37
		8'	48	7'-4"		8"		9'-3"	0.735	79.83	25.05	96.07
SECTION "B" ~ 15'-0"	1 @ 4'	3'	12	5'-0"	6½"	6"	6½"	4'-1"	0.312	33.98	13.36	
		4'	16	5'-0"		6"		5'-1"	0.349	36.65	15.03	
		5'	20	5'-0"		6"		6'-1"	0.386	39.32	16.70	
		6'	24	5'-2"		7"		7'-1"	0.467	44.39	18.37	
	1 @ 5'	3'	15	6'-0"	7"	6"	7"	4'-2"	0.370	49.78	15.03	
		4'	20	6'-0"		6"		5'-2"	0.407	52.45	16.70	
		5'	25	6'-0"		6"		6'-2"	0.444	55.12	18.37	
		6'	30	6'-2"		7"		7'-2"	0.526	59.48	20.04	
		7'	35	6'-3"		7½"		8'-2"	0.594	67.68	21.71	
	1 @ 6'	4'	24	7'-0"	8"	6"	8¼"	5'-4¼"	0.499	65.30	18.37	
		5'	30	7'-0"		6"		6'-4¼"	0.536	66.63	20.04	
		6'	36	7'-2"		7"		7'-4¼"	0.619	73.59	21.71	
		7'	42	7'-3"		7½"		8'-4¼"	0.688	82.41	23.38	
		8'	48	7'-4"		8"		9'-4¼"	0.763	93.19	25.05	
SECTION "C" ~ 20'-0"	1 @ 4'	3'	12	5'-0"	6½"	6"	6¾"	4'-1¼"	0.316	37.54	13.36	
		4'	16	5'-0"		6"		5'-1¼"	0.353	40.21	15.03	
		5'	20	5'-0"		6"		6'-1¼"	0.390	44.44	16.70	
		6'	24	5'-2"		7"		7'-1¼"	0.471	51.38	18.37	
	1 @ 5'	3'	15	6'-0"	7½"	6"	7¾"	4'-3¼"	0.394	52.85	15.03	
		4'	20	6'-0"		6"		5'-3¼"	0.431	55.52	16.70	
		5'	25	6'-0"		6"		6'-3¼"	0.468	58.92	18.37	
		6'	30	6'-2"		7"		7'-3¼"	0.550	67.04	20.04	
		7'	35	6'-3"		7½"		8'-3¼"	0.618	78.27	21.71	
	1 @ 6'	4'	24	7'-0"	8½"	6"	9"	5'-5½"	0.526	69.39	18.37	
		5'	30	7'-0"		6"		6'-5½"	0.563	72.06	20.04	
		6'	36	7'-2"		7"		7'-5½"	0.646	81.20	21.71	
		7'	42	7'-3"		7½"		8'-5½"	0.716	92.67	23.38	
		8'	48	7'-4"		8"		9'-5½"	0.791	103.06	25.05	
SECTION "D" ~ 25'-0"	1 @ 4'	3'	12	5'-0"	6¾"	6"	7¼"	4'-2"	0.327	39.63	13.36	
		4'	16	5'-0"		6"		5'-2"	0.364	42.30	15.03	
		5'	20	5'-0"		6"		6'-2"	0.401	49.41	16.70	
		6'	24	5'-2"		7"		7'-2"	0.483	55.14	18.37	
	1 @ 5'	3'	15	6'-0"	8"	6"	8½"	4'-4½"	0.417	55.28	15.03	
		4'	20	6'-0"		6"		5'-4½"	0.454	57.95	16.70	
		5'	25	6'-0½"		6½"		6'-4½"	0.501	61.61	18.37	
		6'	30	6'-2½"		7½"		7'-4½"	0.585	71.20	20.04	
		7'	35	6'-4"		8"		8'-4½"	0.668	81.45	21.71	
	1 @ 6'	4'	24	7'-0"	9¼"	6"	9¾"	5'-7"	0.559	72.95	18.37	
		5'	30	7'-1"		6½"		6'-7"	0.616	76.21	20.04	
		6'	36	7'-2½"		7¼"		7'-7"	0.691	85.22	21.71	
		7'	42	7'-4"		8"		8'-7"	0.776	97.23	23.38	
		8'	48	7'-5½"		8¾"		9'-7"	0.869	108.02	25.05	
SECTION "E" ~ 30'-0"	1 @ 4'	3'	12	5'-0"	7¼"	6"	7¾"	4'-3"	0.343	42.12	13.36	
		4'	16	5'-0"		6"		5'-3"	0.380	44.79	15.03	
		5'	20	5'-1"		6½"		6'-3"	0.436	52.39	16.70	
		6'	24	5'-3"		7½"		7'-3"	0.521	63.09	18.37	
	1 @ 5'	3'	15	6'-0"	8¾"	6"	9¼"	4'-6"	0.444	58.94	15.03	
		4'	20	6'-0"		6"		5'-6"	0.481	61.61	16.70	
		5'	25	6'-1½"		6¾"		6'-6"	0.549	66.77	18.37	
		6'	30	6'-3½"		7¾"		7'-6"	0.637	75.68	20.04	
		7'	35	6'-5"		8½"		8'-6"	0.724	89.37	21.71	
	1 @ 6'	4'	24	7'-0"	10"	6"	10½"	5'-8½"	0.591	79.04	20.04	
		5'	30	7'-2"		7"		6'-8½"	0.669	83.78	21.71	
		6'	36	7'-4"		8"		7'-8½"	0.760	92.53	23.38	
		7'	42	7'-5½"		8¾"		8'-8½"	0.850	104.59	25.05	
		8'	48	7'-7"		9½"		9'-8½"	0.949	115.61	26.72	
SECTION "F" ~ 35'-0"	1 @ 4'	3'	12	5'-0"	7¾"	6"	8¼"	4'-4"	0.358	45.49	13.36	
		4'	16	5'-0"		6"		5'-4"	0.395	48.16	15.03	
		5'	20	5'-2"		7"		6'-4"	0.471	56.32	16.70	
		6'	24	5'-4"		8"		7'-4"	0.560	67.17	18.37	
	1 @ 5'	3'	15	6'-0"	9¼"	6"	9¾"	4'-7"	0.463	63.18	16.70	
		4'	20	6'-0½"		6¼"		5'-7"	0.509	66.11	18.37	
		5'	25	6'-2½"		7¼"		6'-7"	0.588	71.65	20.04	
		6'	30	6'-4½"		8¼"		7'-7"	0.679	80.70	21.71	
		7'	35	6'-6"		9"		8'-7"	0.770	93.59	23.38	
	1 @ 6'	4'	24	7'-1"	10¾"	6½"	11¼"	5'-10"	0.641	85.81	21.71	
		5'	30	7'-3"		7½"		6'-10"	0.724	91.60	23.38	
		6'	36	7'-5"		8½"		7'-10"	0.818	99.56	25.05	
		7'	42	7'-7"		9½"		8'-10"	0.925	112.23	26.72	
		8'	48	7'-8½"		10¼"		9'-10"	1.030	123.01	28.39	
SECTION "G" ~ 40'-0"	1 @ 4'	3'	12	5'-0"	8¼"	6"	8¾"	4'-5"	0.373	49.38	15.03	
		4'	16	5'-1"		6½"		5'-5"	0.427	52.56	16.70	
		5'	20	5'-3"		7½"		6'-5"	0.507	60.85	18.37	
		6'	24	5'-5"		8½"		7'-5"	0.599	71.86	20.04	
	1 @ 5'	3'	15	6'-0"	9¾"	6"	10¼"	4'-8"	0.481	67.30	16.70	
		4'	20	6'-1½"		6¾"		5'-8"	0.595	70.89	18.37	
		5'	25	6'-3½"		7¾"		6'-8"	0.628	76.56	20.04	
		6'	30	6'-5½"		8¾"		7'-8"	0.723	85.78	21.71	
		7'	35	6'-7"		9½"		8'-8"	0.817	98.84	23.38	

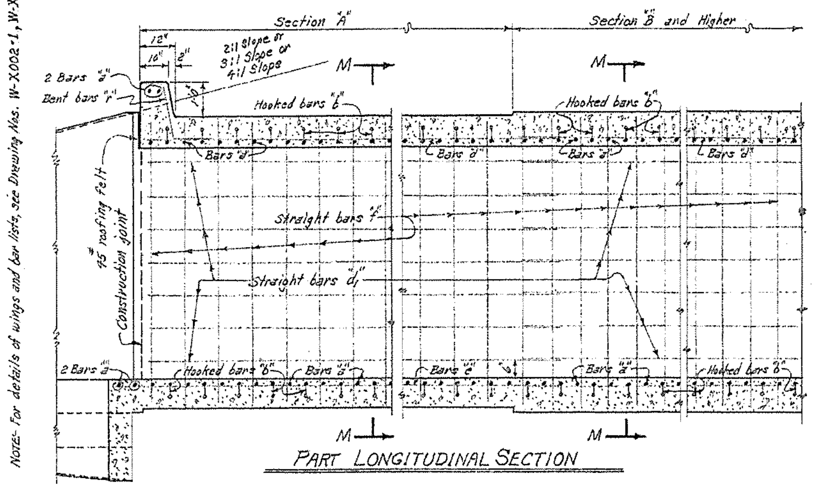
NOTE:- For details of wings and bar lists, see Drawing Nos. W-X002-1, W-X003-1, and W-X004-1.

Bar Size	Pin Diam.	K	Add for 2 Hooks	Bars "b"
#4	2"	4"	0'-10½"	K, Pin Diam., X
#5	2½"	4⅝"	0'-11½"	
#6	3"	5"	1'-2"	
#7	3½"	5¾"	1'-4"	

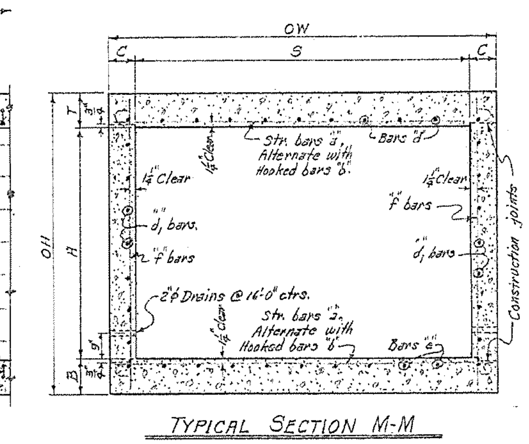
NOTE:- Dimensions are to centers of bars.

DOWEL BARS FOR TWO HEADWALLS

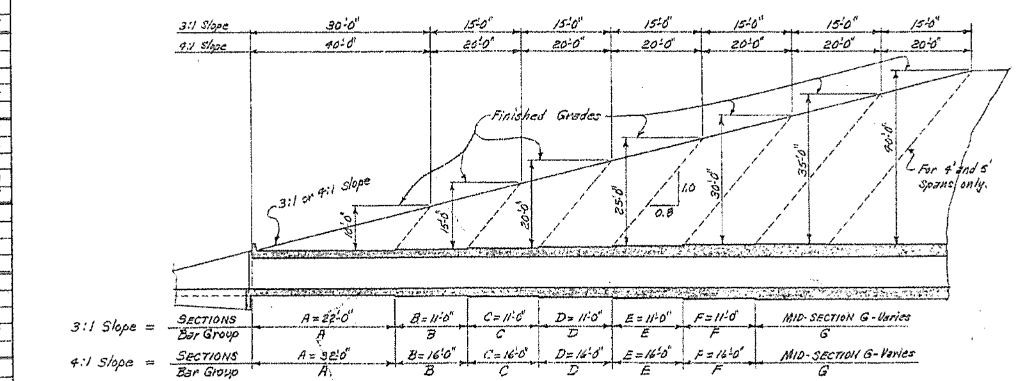
Span	Size	Spacing	No. Req'd	Length	X	Bars "r" Dowel bars in Headwalls
4'	#4	11"	12	2'-5"	1'-2¼"	X, 2, 12, 2" Pin, X
5'	#4	11½"	14	2'-6"	1'-3"	
6'	#4	12"	16	2'-7"	1'-3½"	



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M



TYPICAL LONGITUDINAL SECTION - SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections, with Bar Groups to be shown on Cross Section Sheets.

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

Depths of Cover	Sections & Bar Groups for End Sections: A	B	C	D	E	F	Mid-Section and Bar Group
5.0' to 9.5'	✓						A
10.0' to 14.5'	✓						B
15.0' to 19.5'	✓	✓					C
20.0' to 24.5'	✓	✓	✓				D
25.0' to 29.5'	✓	✓	✓	✓			E
30.0' to 34.5'	✓	✓	✓	✓	✓		F
35.0' to 40.0'	✓	✓	✓	✓	✓	✓	G

LENGTH OF SECTIONS FOR SKEWED CULVERTS

Skew Angle	Sec. of Skew Angle	3:1 Slopes Sections A	3:1 Slopes Sections B,C,D,E or F	4:1 Slopes Sections A	4:1 Slopes Sections B,C,D,E or F
0°	1.0	22.0'	11.0'	32.0'	16.0'
15°	1.0353	22.776'	11.388'	33.129'	16.564'
30°	1.1547	25.403'	12.702'	36.950'	18.475'
45°	1.4142	31.113'	15.556'	45.255'	22.627'

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diameters.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls and slabs shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20,000 #/□"

NOTE:- This drawing to be used in conjunction with Standard Drawing Nos. W-X002-1, W-X003-1 and W-X004-1.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5' & 6' SPANS — 3:1 OR 4:1 SLOPES
SINGLES — OVER 5'-0" COVER

STANDARD DRAWING NO. R-100X-X1

Designed By:- W.C.H. 9-5-62 Checked By:- RHS 11-8-62
Drawn By:- W.C.H. 10-10-62 Checked By:- J.E.M. 11-12-62
Quantities By:- W.C.H. 11-7-62 Checked By:- J.E.M. 11-16-62

(10)

RESHOT 3-5-93 425 ~~158~~

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			151	
JOB No.					

BAR LIST FOR VARIOUS SECTIONS OF BARREL

SECTION & BAR GROUP	LENGTHS OF SECTION	DEPTH OF COVER (D)	CLEAR SPAN (S)	CLEAR HEIGHT (H)	"a" bars – STRAIGHT – In Top and Bottom Slab of Barrel. 2 Add'l in Apron and Headwall – Each. (Size, Spacing, Number Req'd 3:1 / 4:1, Length)	"b" bars – BENT – See Diagram at Right. In Bottom of Top Slab bent up over Division Wall – hooked. Alternate with "a" and "c" bars. (Size, Spacing, Number Req'd 3:1 / 4:1, Length, X, Y, Z)	"b2" bars – BENT – See Diagram at Right. In Top of Bottom Slab bent down under Division Wall – hooked. Alternate with "a" and "c" bars. (Size, Spacing, Number Req'd 3:1 / 4:1, Length, X, Y, Z)	"c" bars – STRAIGHT – In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars. (Size, Spacing, Number Req'd 3:1 / 4:1, Length)	"d" bars – STRAIGHT – Longitudinal in Top Slab of Barrel (Size, Spacing, No. Req'd)	"d1" bars – STRAIGHT – Longitudinal in Sidewalls and Division Walls (Size, Spacing, No. Req'd)	"e" bars – STRAIGHT – Longitudinal in Bottom Slab of Barrel (Size, Spacing, No. Req'd)	"f" bars – STRAIGHT – Vertical in Sidewalls and Division Walls (Size, Spacing, Number Req'd 3:1 / 4:1, Length)
SECTION "A" & BAR GROUP "A"	3:1 = 22'-0"; 4:1 = 32'-0"	0 TO 10'-0"							34'-3" for 32'-0" Section	34'-3" for 32'-0" Section	34'-3" for 32'-0" Section	
SECTION "B" & BAR GROUP "B"	3:1 = 11'-0"; 4:1 = 16'-0"	10'-0" TO 15'-0"										
SECTION "C" & BAR GROUP "C"	3:1 = 11'-0"; 4:1 = 16'-0"	15'-0" TO 20'-0"							34'-3" for 33'-0" Length Section	34'-3" for 33'-0" Length Section	34'-3" for 33'-0" Length Section	
SECTION "D" & BAR GROUP "D"	3:1 = 11'-0"; 4:1 = 16'-0"	20'-0" TO 25'-0"										
SECTION "E" & BAR GROUP "E"	3:1 = 11'-0"; 4:1 = 16'-0"	25'-0" TO 30'-0"										
SECTION "F" & BAR GROUP "F"	3:1 = 11'-0"; 4:1 = 16'-0"	30'-0" TO 35'-0"			Varies with Length of Barrel.	Varies with Length of Barrel.	Varies with Length of Barrel.	Varies with Length of Barrel.	Varies with Length of Barrel.	Varies with Length of Barrel.	Varies with Length of Barrel.	Varies with Length of Barrel.
SECTION "G" & BAR GROUP "G"	Varies with Length of Barrel.	35'-0" TO 40'-0"										

NOTE:- Bars for each Section to be marked with the Section letter, thus for Section B, the bars should be marked Ba, Bb, Bb2, Bc, Bd, Bd1, Be and Bf.

DIMENSIONS / QUANTITIES

MAX. DESIGN DEPTH OF COVER (D)	CLEAR SPANS (S)	CLEAR HEIGHT (H)	SQ. FT. OPENING (A)	OVERALL WIDTH (OW)	THICKNESS OF TOP SLAB (T)	THICKNESS OF SIDEWALLS (C)	THICKNESS OF DIVISION WALL (M)	THICKNESS OF BOTTOM SLAB (B)	OVERALL HEIGHT (OH)	CLASS S CONC. PER LIN. FT. OF BARREL CU.YD.	REINFORCING STEEL PER LIN. FT. OF BARREL LB.	ADDITIONAL PER LAP LB.	ADDITIONAL TWO HEADWALLS & APRONS LB.
SECTION "A" = 10'-0"	2 @ 4'	3'	24	9'-8"	6"	6"	8"	6"	4'-0"	0.543	70.19	33.40	100.20
		4'	32	9'-8"		6"	8"		5'-0"	0.605	75.53	36.74	100.20
		5'	40	9'-8"		6"	8"		6'-0"	0.667	80.87	40.08	100.20
		6'	48	9'-11"		7"	9"		7'-0"	0.793	86.99	43.42	101.54
	2 @ 5'	3'	30	11'-8"	6½"	6"	8"	6½"	4'-1"	0.653	97.61	36.74	121.13
		4'	40	11'-8"		6"	8"		5'-1"	0.715	102.96	40.08	121.13
		5'	50	11'-8"		6"	8"		6'-1"	0.777	108.30	43.42	121.13
		6'	60	11'-11"		7"	9"		7'-1"	0.904	114.77	46.76	122.47
		7'	70	12'-1"		7½"	10"		8'-1"	1.025	132.68	50.10	123.36
	2 @ 6'	4'	48	13'-8"	7¼"	6"	8"	7¾"	5'-3"	0.880	116.47	43.42	142.51
		5'	60	13'-8"		6"	8"		6'-3"	0.941	121.81	46.76	142.51
		6'	72	13'-11"		7"	9"		7'-3"	1.070	128.26	50.10	143.84
		7'	84	14'-1"		7½"	10"		8'-3"	1.192	146.43	53.44	144.73
		8'	96	14'-2"		8"	10"		9'-3"	1.298	156.97	56.78	145.18
SECTION "B" = 15'-0"	2 @ 4'	3'	24	9'-8"	6"	6"	8"	6½"	4'-0½"	0.558	76.27	33.40	
		4'	32	9'-8"		6"	8"		5'-0½"	0.620	81.61	36.74	
		5'	40	9'-8"		6"	8"		6'-0½"	0.682	86.95	40.08	
		6'	48	9'-11"		7"	9"		7'-0½"	0.809	103.34	43.42	
	2 @ 5'	3'	30	11'-8"	7"	6"	8"	7½"	4'-2½"	0.707	98.03	36.74	
		4'	40	11'-8"		6"	8"		5'-2½"	0.769	103.37	40.08	
		5'	50	11'-8"		6"	8"		6'-2½"	0.831	108.71	43.42	
		6'	60	11'-11"		7"	9"		7'-2½"	0.959	118.88	46.76	
		7'	70	12'-1"		7½"	10"		8'-2½"	1.081	136.22	50.10	
	2 @ 6'	4'	48	13'-8"	8"	6"	8"	8½"	5'-4½"	0.943	123.00	43.42	
		5'	60	13'-8"		6"	8"		6'-4½"	1.005	128.35	46.76	
		6'	72	13'-11"		7"	9"		7'-4½"	1.135	138.68	50.10	
		7'	84	14'-1"		7½"	10"		8'-4½"	1.257	156.32	53.44	
		8'	96	14'-2"		8"	10"		9'-4½"	1.363	177.09	56.78	
SECTION "C" = 20'-0"	2 @ 4'	3'	24	9'-8"	6½"	6"	8"	7"	4'-1½"	0.588	80.51	33.40	
		4'	32	9'-8"		6"	8"		5'-1½"	0.650	85.85	36.74	
		5'	40	9'-8"		6"	8"		6'-1½"	0.711	99.95	40.08	
		6'	48	9'-11"		7"	9"		7'-1½"	0.839	110.39	43.42	
	2 @ 5'	3'	30	11'-8"	7¾"	6"	8"	8¼"	4'-4"	0.761	104.24	36.74	
		4'	40	11'-8"		6"	8"		5'-4"	0.823	109.59	40.08	
		5'	50	11'-8"		6"	8"		6'-4"	0.885	118.18	43.42	
		6'	60	11'-11"		7"	9"		7'-4"	1.014	132.11	46.76	
		7'	70	12'-1"		7½"	10"		8'-4"	1.137	154.69	50.10	
	2 @ 6'	4'	48	13'-8"	8¾"	6"	8"	9¼"	5'-6"	1.006	140.89	43.42	
		5'	60	13'-8"		6"	8"		6'-6"	1.068	149.57	46.76	
		6'	72	13'-11"		7"	9"		7'-6"	1.199	163.94	50.10	
		7'	84	14'-1"		7½"	10"		8'-6"	1.323	187.03	53.44	
		8'	96	14'-2"		8"	10"		9'-6"	1.429	207.21	56.78	
SECTION "D" = 25'-0"	2 @ 4'	3'	24	9'-8"	7"	6"	8"	7½"	4'-2½"	0.618	82.12	33.40	
		4'	32	9'-8"		6"	8"		5'-2½"	0.680	87.46	36.74	
		5'	40	9'-8"		6"	8"		6'-2½"	0.741	103.92	40.08	
		6'	48	9'-11"		7"	9"		7'-2½"	0.870	122.24	43.42	
	2 @ 5'	3'	30	11'-8"	8¼"	6"	8"	8¾"	4'-5"	0.797	110.96	36.74	
		4'	40	11'-8"		6"	8"		5'-5"	0.859	116.31	40.08	
		5'	50	11'-8½"		6¼"	8"		6'-5"	0.931	130.90	43.42	
		6'	60	11'-11"		7"	9"		7'-5"	1.051	152.23	46.76	
		7'	70	12'-2"		8"	10"		8'-5"	1.200	166.70	50.10	
	2 @ 6'	4'	48	13'-8"	9½"	6"	8"	10"	5'-7½"	1.069	149.04	43.42	
		5'	60	13'-9"		6½"	8"		6'-7½"	1.152	158.19	46.76	
		6'	72	13'-11½"		7½"	9"		7'-7½"	1.275	175.12	50.10	
		7'	84	14'-2"		8"	10"		8'-7½"	1.414	196.10	53.44	
		8'	96	14'-3½"		8¾"	10"		9'-7½"	1.539	223.89	56.78	
SECTION "E" = 30'-0"	2 @ 4'	3'	24	9'-8"	7½"	6"	8"	8"	4'-3½"	0.648	86.09	33.40	
		4'	32	9'-8"		6"	8"		5'-3½"	0.709	91.43	36.74	
		5'	40	9'-9"		6½"	8"		6'-3½"	0.791	108.33	40.08	
		6'	48	10'-0"		7½"	9"		7'-3½"	0.923	126.86	43.42	
	2 @ 5'	3'	30	11'-8"	9"	6"	8"	9½"	4'-6½"	0.851	119.82	36.74	
		4'	40	11'-8"		6"	8"		5'-6½"	0.913	125.16	40.08	
		5'	50	11'-9½"		6¾"	8"		6'-6½"	1.005	140.27	43.42	
		6'	60	12'-0"		7½"	9"		7'-6½"	1.130	161.92	46.76	
		7'	70	12'-3"		8½"	10"		8'-6½"	1.283	182.00	50.10	
	2 @ 6'	4'	48	13'-8"	10¼"	6"	8"	10¾"	5'-9"	1.133	158.71	43.42	
		5'	60	13'-10"		7"	8"		6'-9"	1.236	168.46	46.76	
		6'	72	14'-1"		8"	9"		7'-9"	1.376	186.18	50.10	
		7'	84	14'-3½"		8¾"	10"		8'-9"	1.520	207.22	53.44	
		8'	96	14'-5"		9½"	10"		9'-9"	1.650	235.72	56.78	
SECTION "F" = 35'-0"	2 @ 4'	3'	24	9'-8"	8"	6"	8"	8½"	4'-4½"	0.677	90.83	33.40	
		4'	32	9'-8"		6"	8"		5'-4½"	0.739	96.17	36.74	
		5'	40	9'-10"		7"	8"		6'-4½"	0.840	113.57	40.08	
		6'	48	10'-1"		8"	9"		7'-4½"	0.976	132.32	43.42	
	2 @ 5'	3'	30	11'-8"	9½"	6"	8"	10"	4'-7½"	0.887	126.75	36.74	
		4'	40	11'-9"		6½"	8"		5'-7½"	0.966	132.52	40.08	
		5'	50	11'-10"		7"	8"		6'-7½"	1.052	147.79	43.42	
		6'	60	12'-1"		8"	9"		7'-7½"	1.190	169.71	46.76	
		7'	70	12'-4"		9"	10"		8'-7½"	1.347	190.02	50.10	
	2 @ 6'	4'	48	13'-9"	11"	6½"	8"	11½"	5'-10½"	1.214	170.52	43.42	
		5'	60	13'-11"		7½"	8"		6'-10½"	1.321	180.40	46.76	
		6'	72	14'-2"		8½"	9"		7'-10½"	1.465	198.42	50.10	
		7'	84	14'-5"		9½"	10"		8'-10½"	1.628	220.08	53.44	
		8'	96	14'-6½"		10¼"	10"		9'-10½"	1.763	248.46	56.78	
SECTION "G" = 40'-0"	2 @ 4'	3'	24	9'-8"	8½"	6"	8"	9"	4'-5½"	0.707	96.47	33.40	
		4'	32	9'-9"		6½"	8"		5'-5½"	0.786	102.16	36.74	
		5'	40	9'-11"		7½"	8"		6'-5½"	0.891	119.78	40.08	
		6'	48	10'-2"		8½"	9"		7'-5½"	1.031	138.77	43.42	
	2 @ 5'	3'	30	11'-8"	10"	6"	8"	10½"	4'-8½"	0.923	134.77	36.74	
		4'	40	11'-9"		6½"	8"		5'-8½"	1.003	141.90	40.08	
		5'	50	11'-11"		7½"	8"		6'-8½"	1.109	156.47	43.42	
		6'	60	12'-2"		8½"	9"		7'-8½"	1.251	176.70	46.76	
		7'	70	12'-5"		9½"	10"		8'-8½"	1.412	199.25	50.10	

DOWEL BARS FOR TWO HEADWALLS

SPAN	SIZE	SPACING	NO. REQ'D	LENGTH	X	Bars "y" Dowel bars in Headwalls
4'	#4	12"	20	2'-4"	1'-2"	
5'	#4	12"	24	2'-5"	1'-2½"	
6'	#4	12"	28	2'-6"	1'-3"	

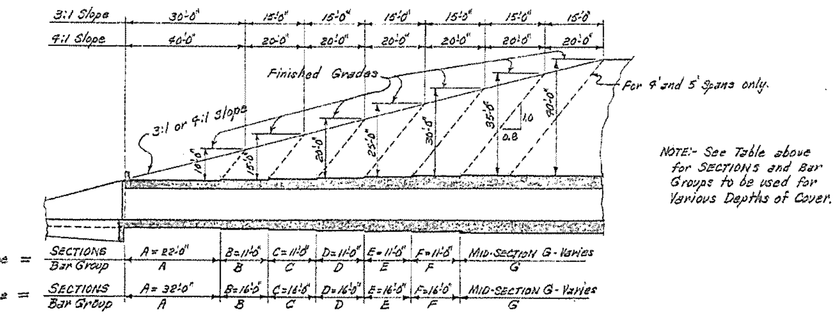
BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM FOR BARS "b" and "b2".
#4	2"	4"	0'-10½"	
#5	2½"	4¼"	0'-11½"	
#6	3"	5"	1'-2"	

NOTE:- Dimensions are to centers of bars. (b & b2)

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

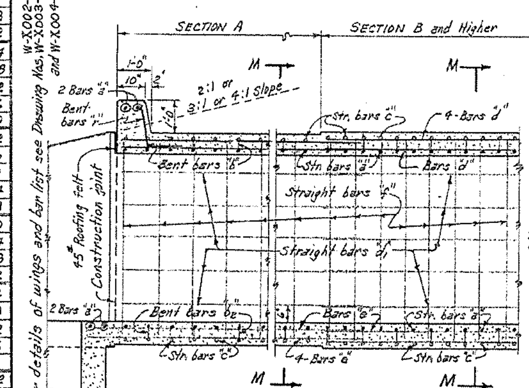
DEPTHS OF COVER	A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	✓						A
10.0' to 14.5'	✓						B
15.0' to 19.5'	✓	✓					C
20.0' to 24.5'	✓	✓	✓				D
25.0' to 29.5'	✓	✓	✓	✓			E
30.0' to 34.5'	✓	✓	✓	✓	✓		F
35.0' to 40.0'	✓	✓	✓	✓	✓	✓	G

(Columns A–F: Sections & Bar Groups for End Sections)

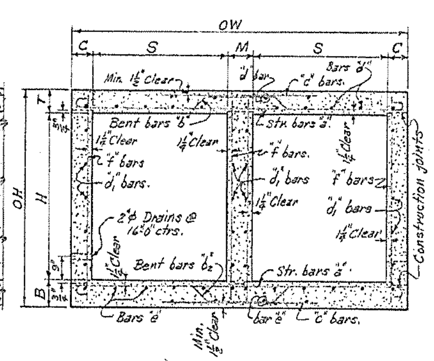


TYPICAL LONGITUDINAL SECTION-SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections, with Bar Groups to be shown on Cross Section Sheets.



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M

LENGTH OF SECTIONS FOR SKEWED CULVERTS

SKEW ANGLE	SEC. OF SKEW ANGLE	3:1 SLOPES SECTIONS A	3:1 SLOPES SECTIONS B,C,D,E OR F	4:1 SLOPES SECTIONS A	4:1 SLOPES SECTIONS B,C,D,E OR F
0°	1.0	22.0'	11.0'	32.0'	16.0'
15°	1.0353	22.776'	11.388'	33.129'	16.564'
30°	1.1547	25.403'	12.702'	36.950'	18.475'
45°	1.4142	31.113'	15.556'	45.255'	22.627'

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-5" length of barrel over 32'-0". Lap longitudinal bars 30 diameters.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division wall and slabs shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Drawing Nos W-X002-1, W-X003-1 and W-X004-1.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5' & 6' SPANS 3:1 OR 4:1 SLOPES
DOUBLES OVER 5'-0" COVER

STANDARD DRAWING NO. R-200X-X1

Designed by:- W.C.H. 9-17-62 Checked by:- RHS 11-12-62
Drawn by:- W.C.H. 10-15-62 Checked by:- RHS 11-19-62
Quantities by:- W.C.H. 11-9-62 Checked by:- RHS 11-20-62