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.		061277	1	160
				(2) UNION PACIFIC RR STR. & APPRS. (ROOSEVELT RD.)(LR)(S)				

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONSTRUCTION PLANS FOR STATE HIGHWAY

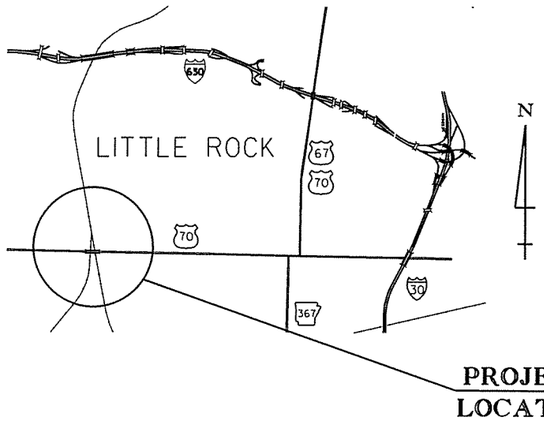
UNION PACIFIC RR STR. & APPRS.
(ROOSEVELT RD.) (LR) (S)

PULASKI COUNTY

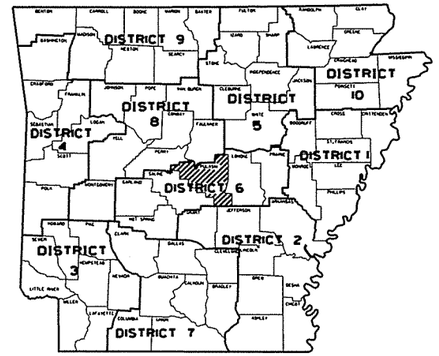
ROUTE 70 SECTION 12

F.A.P. EBS-9253(65)

JOB 061277



VICINITY MAP



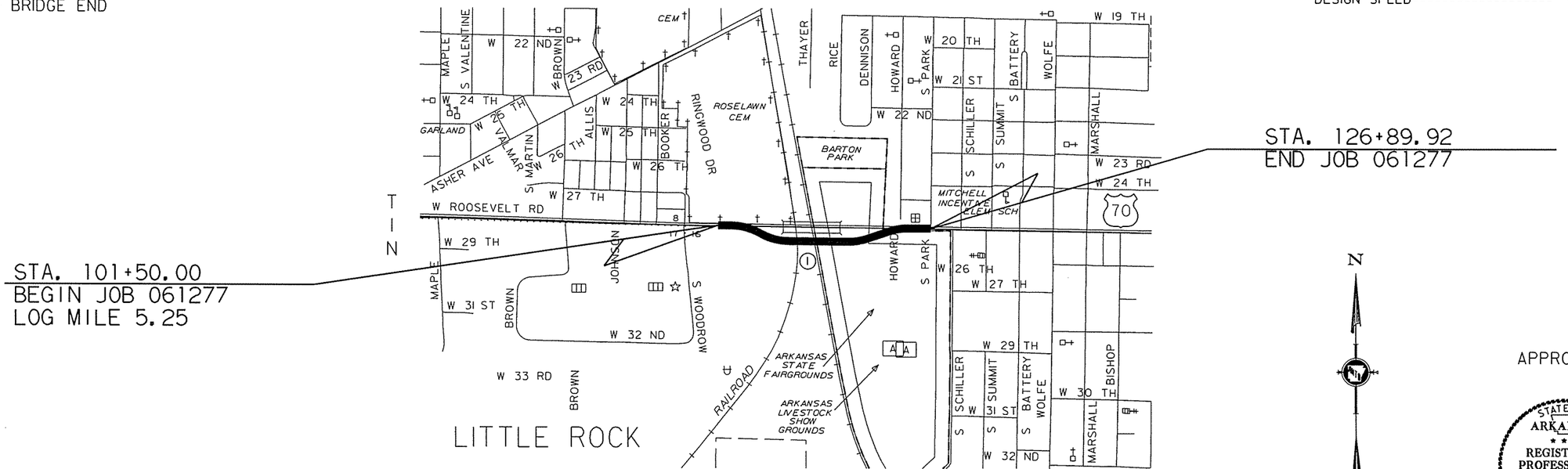
ARKANSAS HIGHWAY DISTRICT 6

BRIDGE DATA

① STA. 110+98.90 - BRIDGE END
BRIDGE NO. 07284
660'-0" CONST. COMPOSITE PLATE GIRDER UNITS (104',148',148',130',130')
50'-0" CLEAR ROADWAY
662'-2½" BRIDGE LENGTH
STA. 117+61.10 - BRIDGE END

NOT TO SCALE

R 12 W



• DESIGN TRAFFIC DATA •

DESIGN YEAR	2034
2014 ADT	13,000
2034 ADT	17,500
2034 DHV	1925
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	5%
DESIGN SPEED	40 MPH

PROJECT COORDINATES:

	BEGIN	MID-POINT	END
LAT.	N34° 43' 31"	N34° 43' 30"	N34° 43' 30"
LON.	W92° 18' 22"	W92° 18' 07"	W92° 17' 52"

GROSS LENGTH OF PROJECT 2539.92 FEET OR 0.481 MILE
NET LENGTH OF ROADWAY 1877.72 FEET OR 0.356 MILE
NET LENGTH OF BRIDGES 662.20 FEET OR 0.125 MILE
NET LENGTH OF PROJECT 2539.92 FEET OR 0.481 MILE

P.E. JOB 061277

APPROVED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4215
RALPH J. HALL

2-27-14

DEPUTY DIRECTOR AND CHIEF ENGINEER

061277

1/31/2014

R061277.DGN

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122 - 160	CROSS SECTIONS			

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

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				6	ARK.			
				JOB NO.		061277	2	160

(2) INDEX OF SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-26-14

2/25/2014

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INDEX OF SHEETS

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(2) GOVERNING SPECS. AND GENERAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14

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 061277
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 061277__	AIRPORT CLEARANCE REQUIREMENTS
JOB 061277__	ASSESSMENT OF WORKING DAYS - SATURDAYS
JOB 061277__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 061277__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 061277__	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 061277__	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 061277__	ELECTRICAL CONDUCTORS-IN-CONDUIT, COPPER
JOB 061277__	EXTENSION FOR PIPE CULVERTS
JOB 061277__	FIBERGLASS CONDUIT
JOB 061277__	FINISHING CONCRETE SURFACES
JOB 061277__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 061277__	HIGH PERFORMANCE PAVEMENT MARKING
JOB 061277__	INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY (UPRR)
JOB 061277__	MAINTENANCE OF TRAFFIC
JOB 061277__	MANDATORY USE OF INTERNET BIDDING
JOB 061277__	NEMA ENCLOSURE
JOB 061277__	NESTING SITES OF MIGRATORY BIRDS
JOB 061277__	ORNAMENTAL FENCING
JOB 061277__	PARTNERING REQUIREMENTS
JOB 061277__	PLASTIC PIPE
JOB 061277__	PREFORMED SILICONE JOINT SEAL
JOB 061277__	PROSECUTION AND PROGRESS
JOB 061277__	RETAINING WALLS
JOB 061277__	ROADWAY ILLUMINATION POLE
JOB 061277__	SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
JOB 061277__	SEQUENCE OF CONSTRUCTION
JOB 061277__	SERVICE POINT ASSEMBLY
JOB 061277__	SHORING
JOB 061277__	SITE USE (A + C METHOD)
JOB 061277__	SPECIAL SAFETY REQUIREMENTS FOR BRIDGES
JOB 061277__	STORM WATER POLLUTION PREVENTION PLAN
JOB 061277__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 061277__	TAMPER RESISTANT PULL BOX INSERT
JOB 061277__	TEXTURED COATING FINISH
JOB 061277__	UNDERPASS LUMINAIRE
JOB 061277__	UTILITY ADJUSTMENTS
JOB 061277__	VALUE ENGINEERING
JOB 061277__	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. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
8. 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.

10/17/2014

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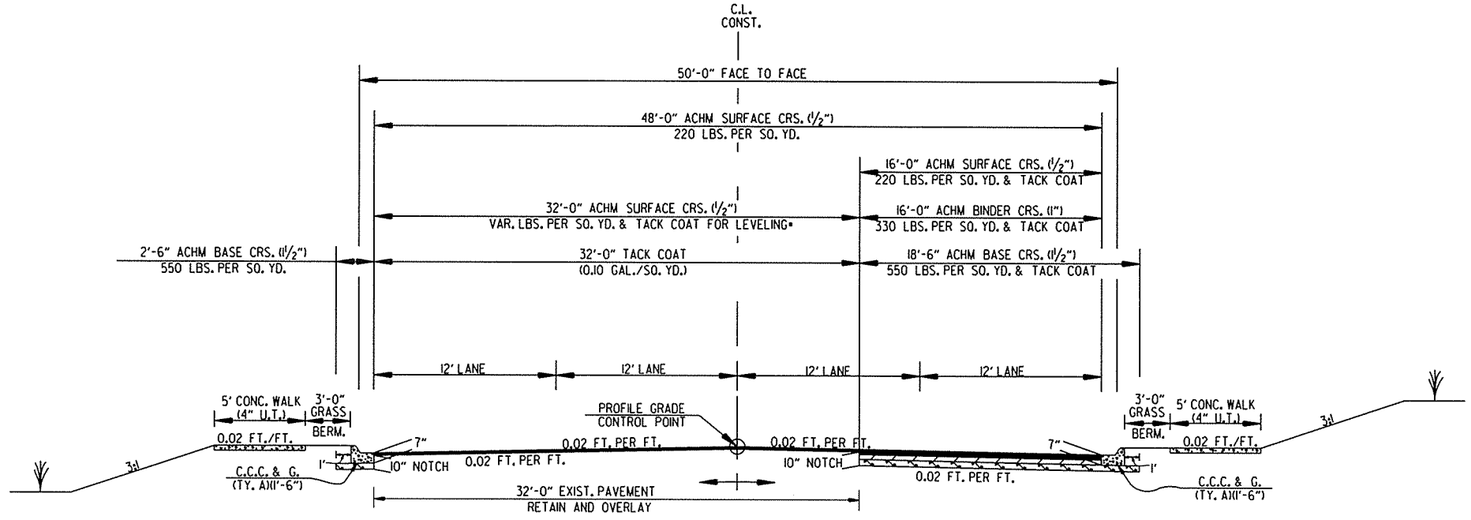
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-26-14



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

NOTCH & WIDEN

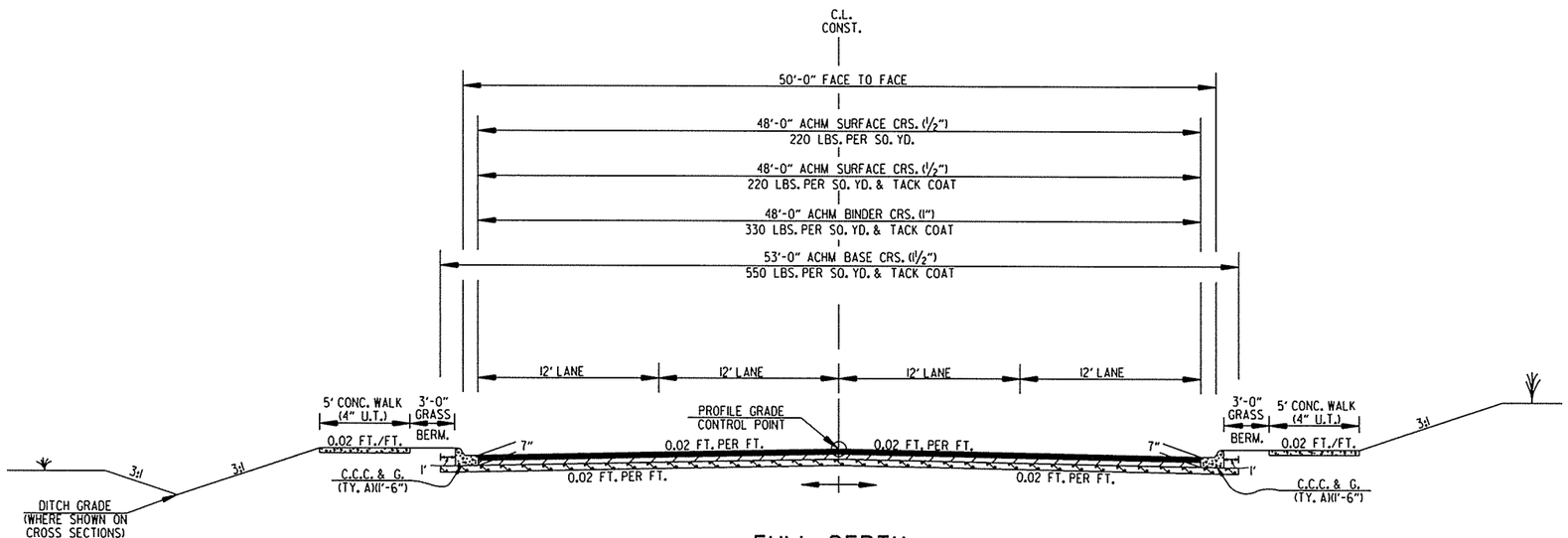
STA. 101+50 - STA. 106+50
STA. 123+44 - STA. 126+89.92

NOTES:
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 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.

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED 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.



FULL DEPTH

STA. 106+50 - STA. 110+74.40
STA. 117+85.60 - STA. 120+94.77

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(2) TYPICAL SECTIONS OF IMPROVEMENT

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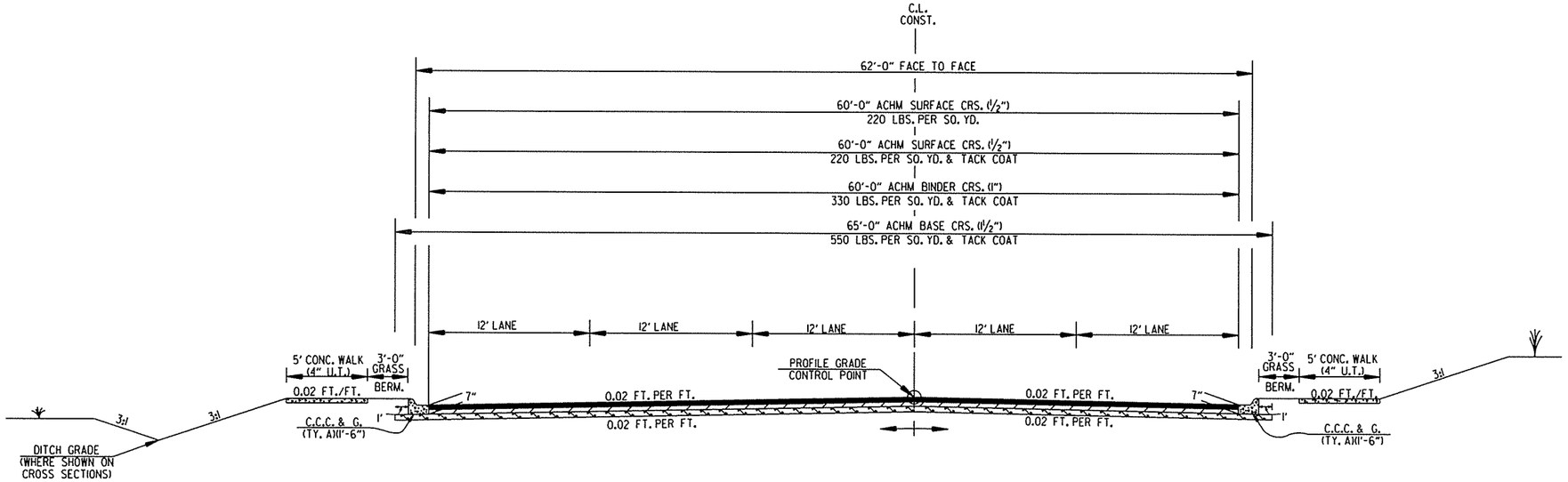

FULL DEPTH WITH RIGHT TURN ONLY LANE
STA. 120+94.77 - STA. 123+44

NOTES:
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.

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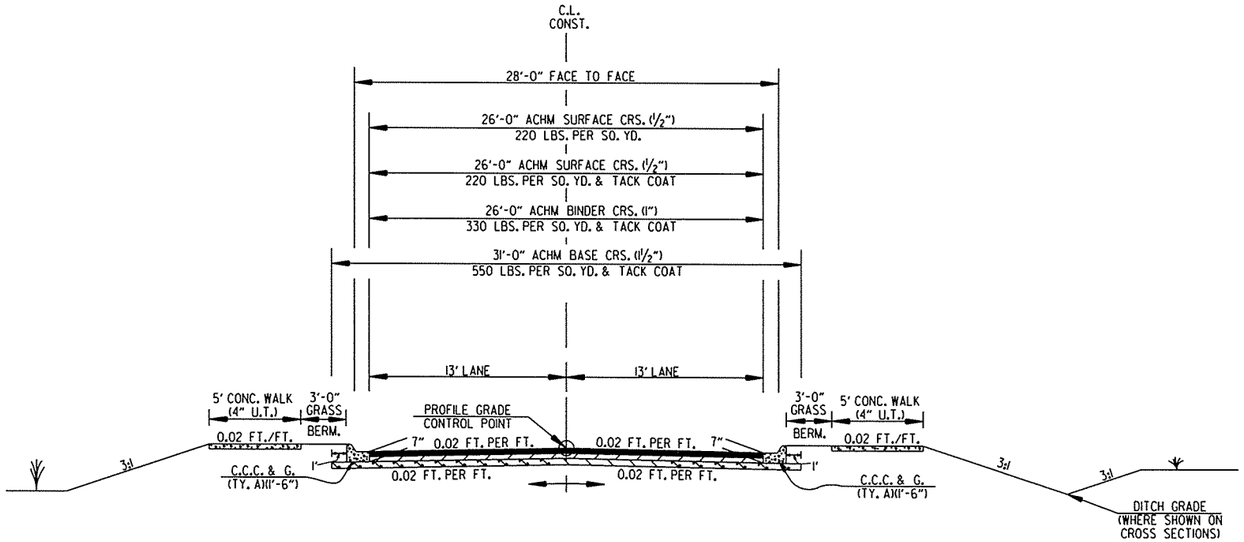

BUS ENTRANCE
STA. 30+25.09 - STA. 33+00

1/31/2014

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TYPICAL SECTIONS OF IMPROVEMENT

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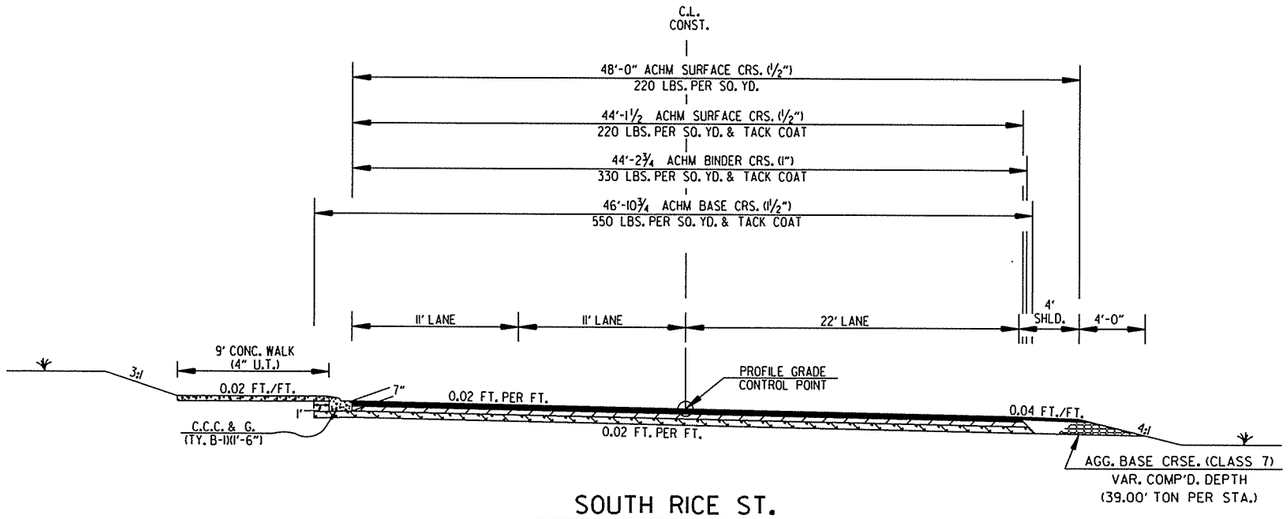
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-26-14



SOUTH RICE ST.

STA. 12+74.79 - STA. 16+04.36

NOTES:
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 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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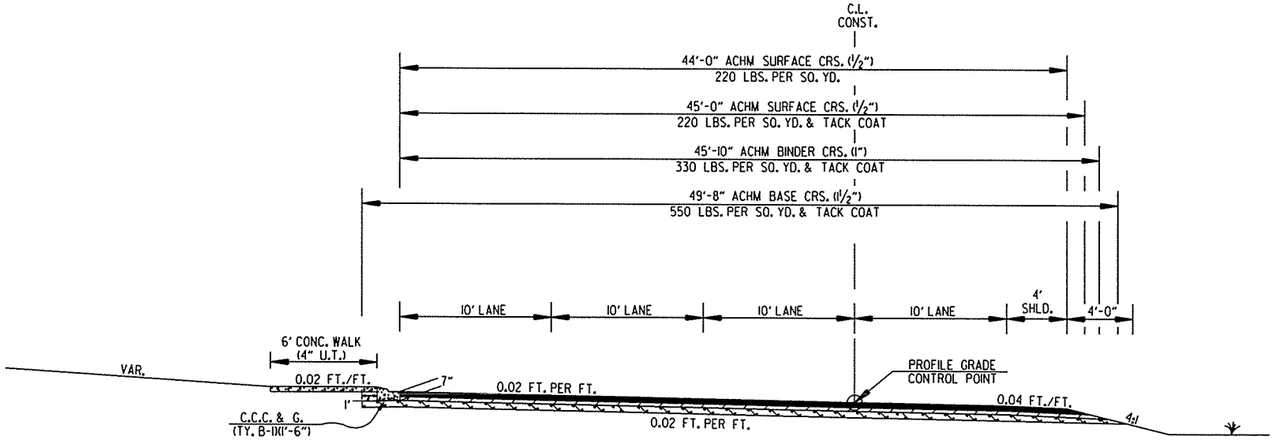

SOUTH RICE ST.

STA. 16+04.36 - STA. 21+65.15

2/25/2014

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TYPICAL SECTIONS OF IMPROVEMENT

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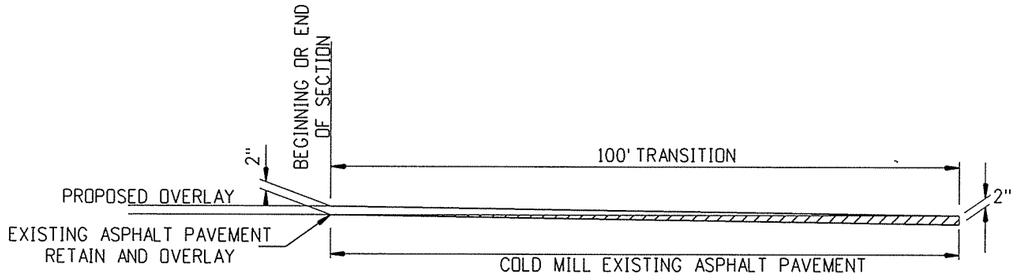
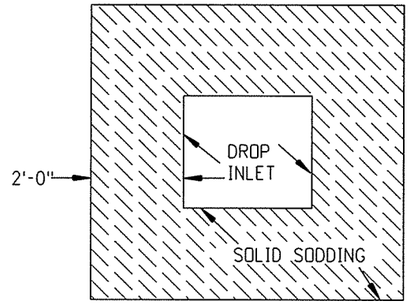
(2) SPECIAL DETAILS

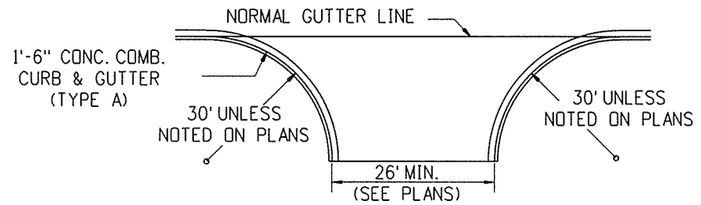


COLD MILLING DETAIL AT EXISTING PAVEMENT TIE-INS

NOTE: 50' PER 1" OF OVERLAY FOR MAIN LANES

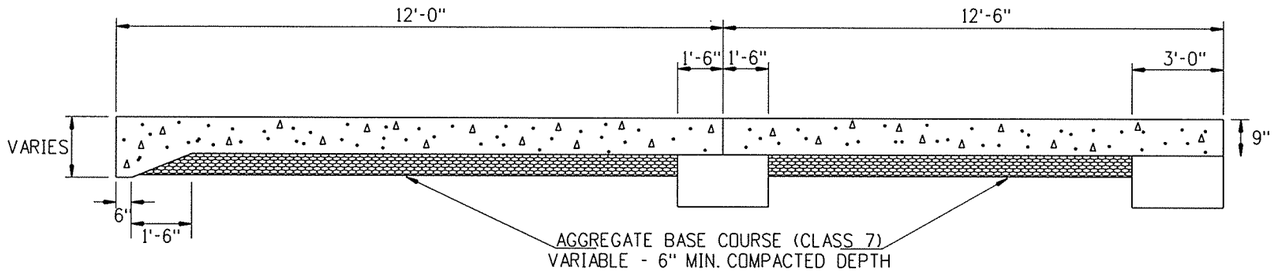


DETAIL FOR SOLID SODDING AROUND DROP INLETS

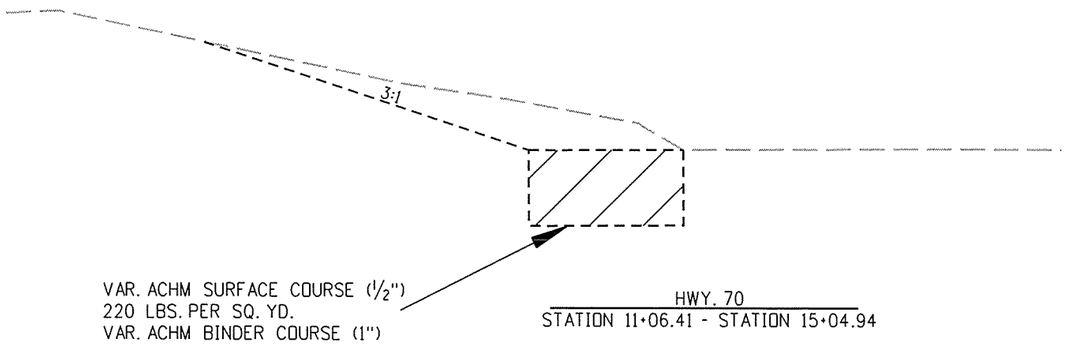


DETAIL OF TURNOUTS ASPHALT STREETS

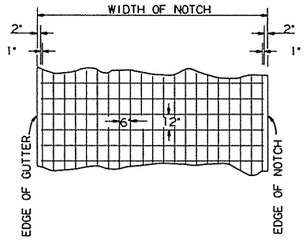
NOTE: THE TYPICAL SECTION FOR THE CITY STREET CONNECTIONS IN THE CURB & GUTTER SECTION SHALL MATCH THE PROPOSED WIDENING SECTION SHOWN FOR THE MAIN LANES. UNLESS OTHERWISE NOTED ON THE PLANS, ALL CITY STREET RADII WILL BE 30'.



SECTION OF APPROACH SLAB



TEMPORARY WIDEN DETAILS



DETAIL OF REINFORCING STEEL FOR P.C.C. BASE PAVEMENT (WIRE MESH TYPE 3)

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 THE 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 (4" U.T.).

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 2-26-14

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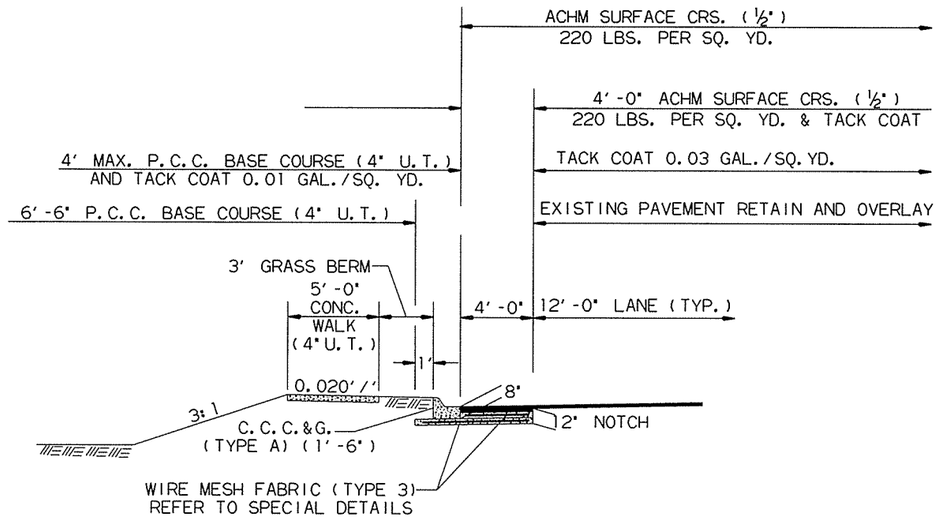
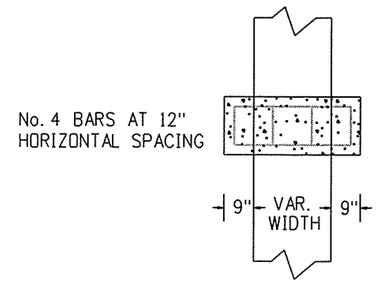
				6	ARK.			
				JOB NO.		061277	8	160

(2) SPECIAL DETAILS



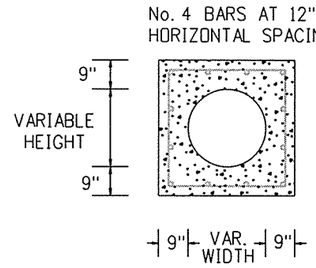
P.C.C. BASE WIDENING DETAIL

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

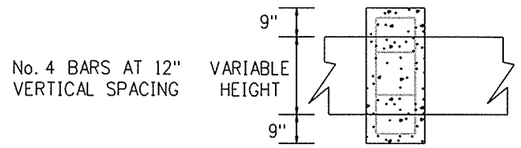


TOP VIEW

MIN 3" COVER



FRONT VIEW



SIDE VIEW

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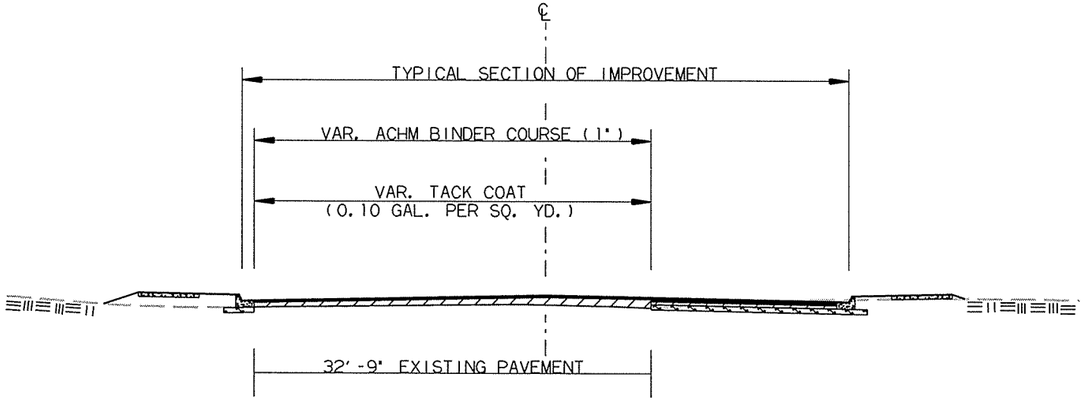


METHOD OF RAISING GRADE

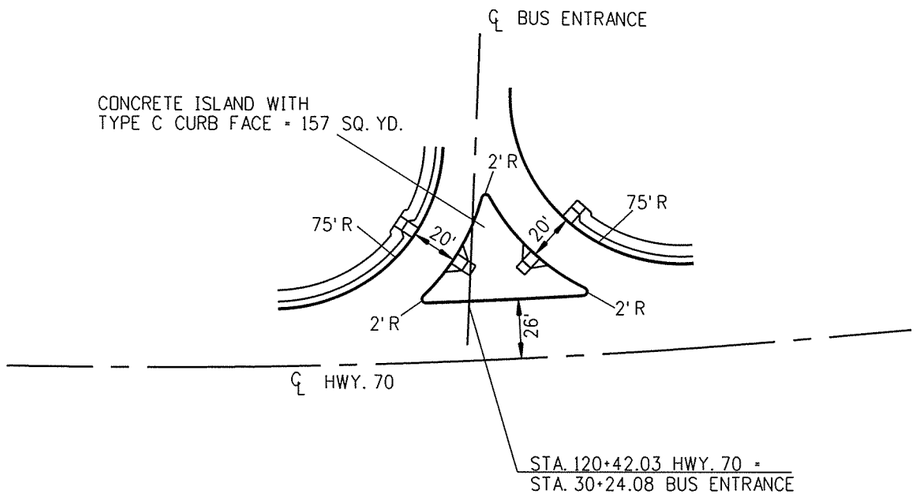
NOTES:

(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, EDITION OF 2014.

PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL



BUS ENTRANCE ISLAND DETAILS

TYPE C CURB FACE

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				6	ARK.			
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(2) TEMPORARY EROSION CONTROL DETAILS

(E-5) SAND BAG DITCH CHECKS
(E-6) ROCK DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE

LEGEND

N

REVISIONS

DATE	REVISION

STATE OF ARKANSAS
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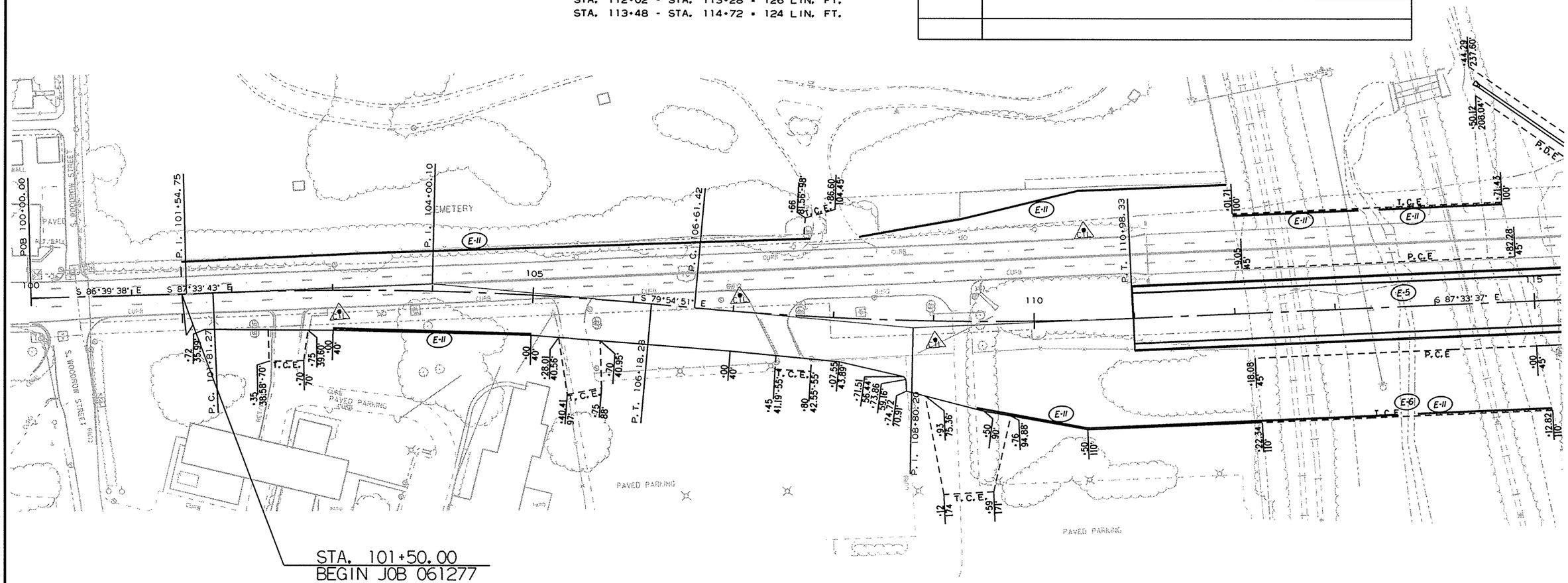
(E-11) SILT FENCE ON LT.

STA. 101+50 - STA. 107+73 = 627 LIN. FT.
STA. 108+22 - STA. 111+97 = 370 LIN. FT.
STA. 112+02 - STA. 113+28 = 126 LIN. FT.
STA. 113+48 - STA. 114+72 = 124 LIN. FT.



STA. 101+50.00
BEGIN JOB 061277
LOG MILE 5.25

(E-11) SILT FENCE ON RT.

STA. 103+00 - STA. 105+00 = 200 LIN. FT.
STA. 109+42 - STA. 113+58 = 422 LIN. FT.
STA. 113+78 - STA. 115+12 = 135 LIN. FT.

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TEMPORARY EROSION CONTROL DETAILS - STAGE 1

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.		061277	10	160

(2) TEMPORARY EROSION CONTROL DETAILS

(E-5) SAND BAG DITCH CHECKS
(E-6) ROCK DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE
LEGEND

N

STA. 12+74.79
BEGIN CONSTRUCTION
S. RICE ST.

STA. 116+84.75 HWY. 70 =
STA. 13+89.23 S. RICE ST.

POB 10+00.00

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(E-11) SILT FENCE ON RT.
STA. 12+65 - STA. 21+66 = 962 LIN. FT.

STA. 126+89.92
END JOB 061277

STA. 21+65.15
END CONSTRUCTION
S. RICE ST.

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TEMPORARY EROSION CONTROL DETAILS - STAGE 1

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.		061277	11	160

(2) TEMPORARY EROSION CONTROL DETAILS

(E-5) SAND BAG DITCH CHECKS
(E-6) ROCK DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE

LEGEND

REVISIONS

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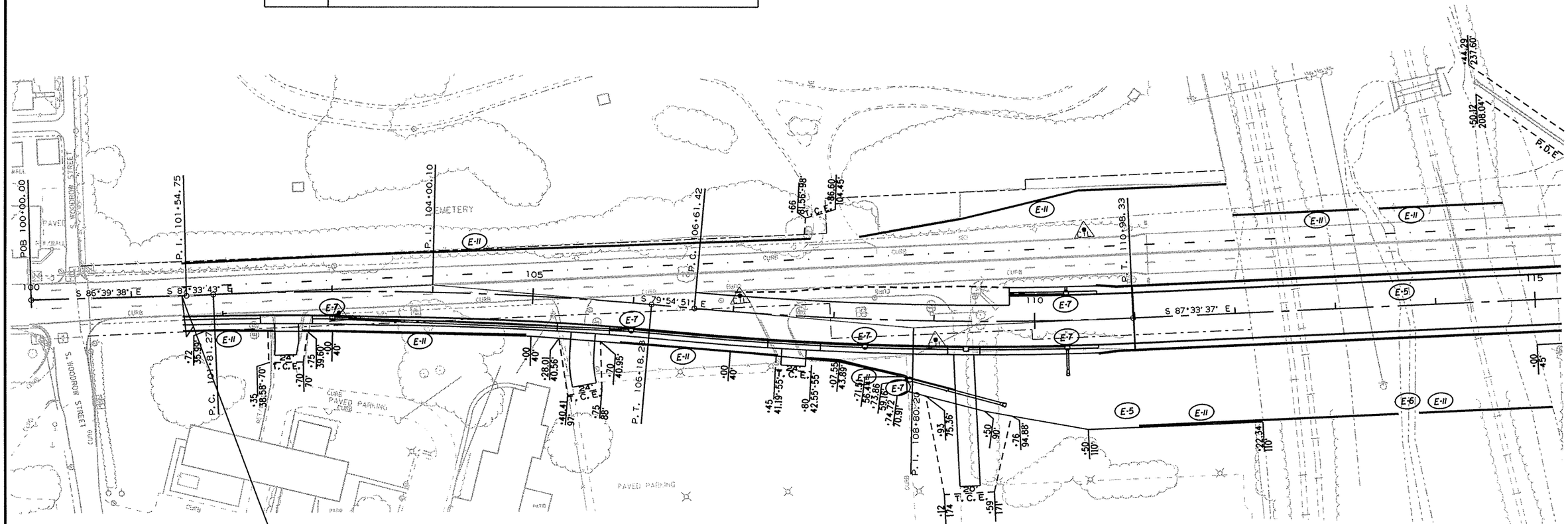

STA. 101+50.00
BEGIN JOB 061277
LOG MILE 5.25

(E-11) SILT FENCE ON RT.

STA. 101+50 - STA. 102+41 = 91 LIN. FT.
STA. 102+70 - STA. 104+96 = 223 LIN. FT.
STA. 105+89 - STA. 107+47 = 158 LIN. FT.
STA. 107+74 - STA. 109+22 = 153 LIN. FT.

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TEMPORARY EROSION CONTROL DETAILS - 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.		061277	12	160

(2) TEMPORARY EROSION CONTROL DETAILS

(E-5) SAND BAG DITCH CHECKS
(E-6) ROCK DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE
LEGEND

N

REVISIONS

DATE	REVISION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
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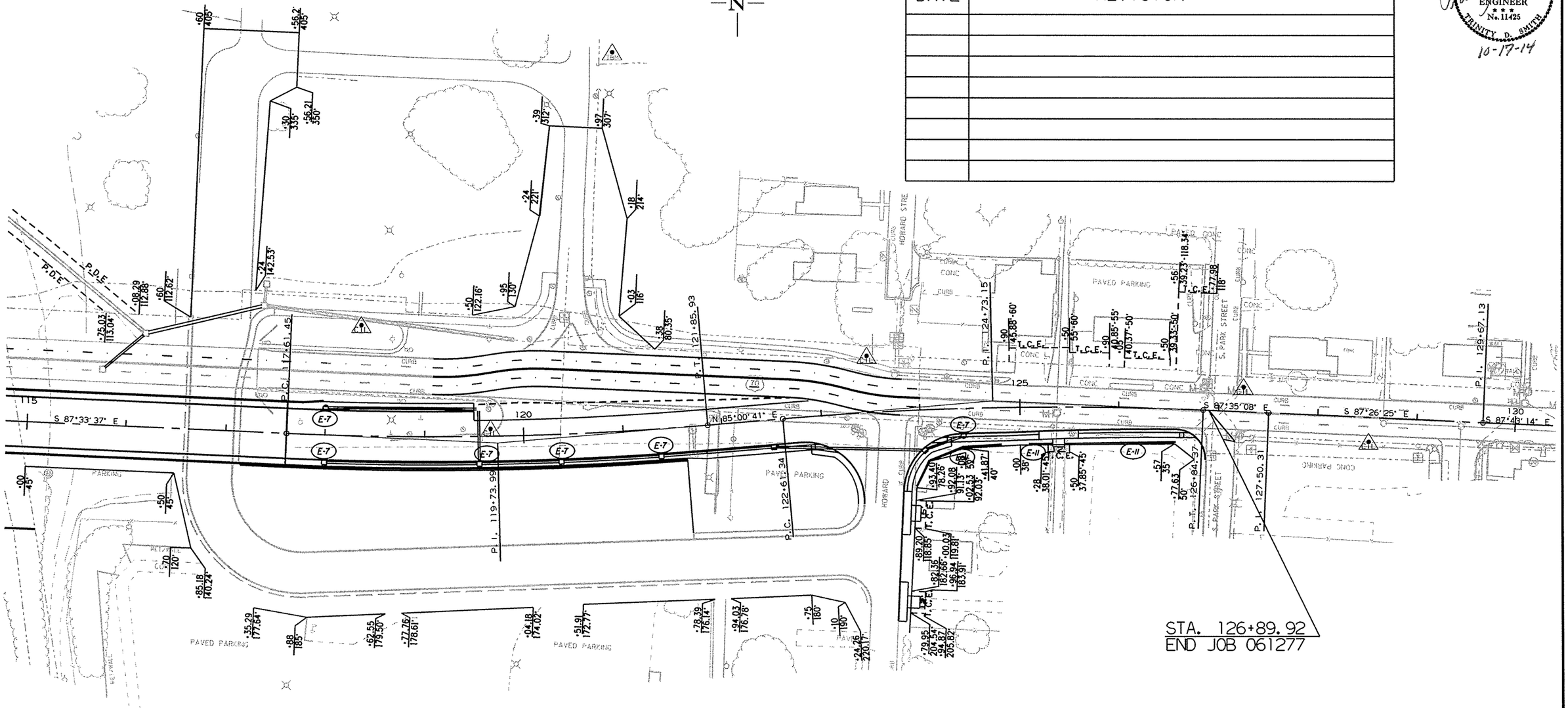

STA. 126+89.92
END JOB 061277

(E-11) SILT FENCE ON RT.

STA. 123+93 - STA. 124+81 = 104 LIN. FT.
STA. 125+08 - STA. 125+33 = 24 LIN. FT.
STA. 125+45 - STA. 126+58 = 112 LIN. FT.

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TEMPORARY EROSION CONTROL DETAILS - 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.		061277	13	160

(2) TEMPORARY EROSION CONTROL DETAILS

(E-5) SAND BAG DITCH CHECKS
(E-6) ROCK DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE
LEGEND

REVISIONS

DATE	REVISION

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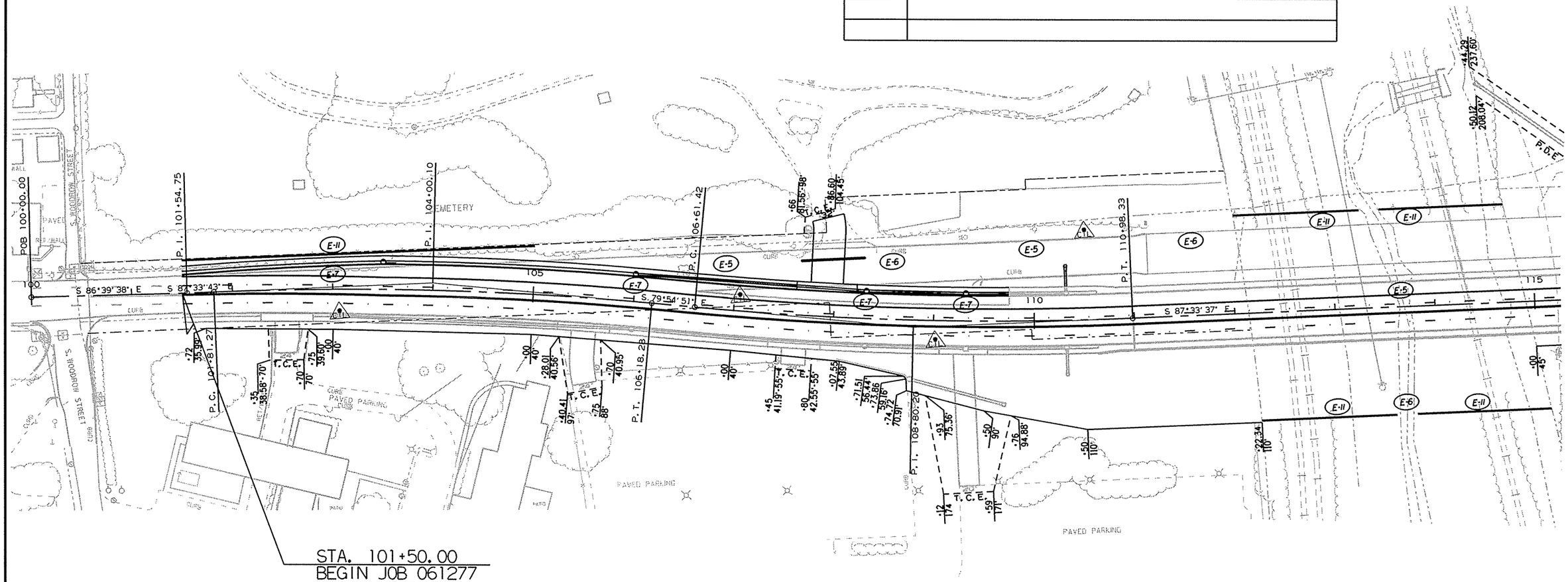
No. 11425
TRINITY D. SMITH
10-17-14

(E-11) SILT FENCE ON LT.
STA. 101+50 - STA. 105+00 = 350 LIN. FT.



STA. 101+50.00
BEGIN JOB 061277
LOG MILE 5.25

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TEMPORARY EROSION CONTROL DETAILS - STAGE 3

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.		061277	14	160

(2) TEMPORARY EROSION CONTROL DETAILS

(E-5) SAND BAG DITCH CHECKS
(E-6) ROCK DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE
LEGEND

(E-11) SILT FENCE ON LT.
STA. 117+44 - STA. 119+47 = 197 LIN. FT.
STA. 119+47 - STA. 120+38 = 225 LIN. FT.
STA. 123+78 - STA. 124+47 = 70 LIN. FT.

N

STA. 33+00.00
END CONSTRUCTION

REVISIONS

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STA. 120+40.01 HWY. 70 =
STA. 30+00.00 BUS ENTRANCE

STA. 30+24.08
BEGIN CONSTRUCTION

STA. 126+89.92
END JOB 061277

TEMPORARY EROSION CONTROL DETAILS - STAGE 3

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				6	ARK.			
				JOB NO.		061277	15	160

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
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TRINITY D. SMITH
2-26-14

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AT THE BEGINNING AND END OF PROJECT AND ON HWY. 70. REFER TO THE SEQUENCE OF CONSTRUCTION SP.

PLACE W20-1(AHEAD) SIGNS ON ALL INTERSECTING STREETS. DELINEATE DRIVEWAYS AND CITY STREETS ON THE SIDE BEING WIDENED WITH TRAFFIC DRUMS (6 PER DRIVE). MAINTAIN TRAFFIC THROUGHOUT THE PROJECT USING TRAFFIC DRUMS PLACED AT 40' O.C.

CONSTRUCT TEMPORARY WIDENING FROM STATION 11+06.41 TO STATION 15+80.25 AND START CONSTRUCTION OF BRIDGE.

CLOSE RICE ST. TO TRAFFIC AND CONSTRUCT RICE ST.

STAGE 2:

OPEN RICE ST. TO TRAFFIC.

REMOVE ALL CONFLICTING PAVEMENT MARKINGS ON HWY 70. APPLY CONSTRUCTION PAVEMENT MARKINGS AND SHIFT TRAFFIC ONTO TEMPORARY WIDENING. MAINTAIN TRAFFIC USING TRAFFIC DRUMS AND VERTICAL PANELS PLACED 40' O.C. ON SIDE BEING WIDENED. DELINEATE DRIVEWAYS AND CITY STREETS ON THE SIDE BEING WIDENED WITH TRAFFIC DRUMS (6 PER DRIVE).

CONSTRUCT THE RT. SIDE OF THE NOTCH AND WIDEN AND FULL DEPTH SECTION AS SHOWN ON THE CROSS SECTIONS UP TO THE FINAL 2" LIFT OF SURFACE COURSE.

CONTINUE CONSTRUCTION OF BRIDGE.

STAGE 3:

REMOVE ALL CONFLICTING PAVEMENT MARKINGS ON HWY. 70. APPLY CONSTRUCTION PAVEMENT MARKINGS AND SHIFT TRAFFIC ONTO NEW CONSTRUCTION. MAINTAIN TRAFFIC USING TRAFFIC DRUMS AT 40' O.C., DELINEATE DRIVEWAYS AND CITY STREETS WITH TRAFFIC DRUMS (6 PER DRIVE).

CLOSE BUS ENTRANCE TO TRAFFIC AND CONSTRUCT BUS ENTRANCE.

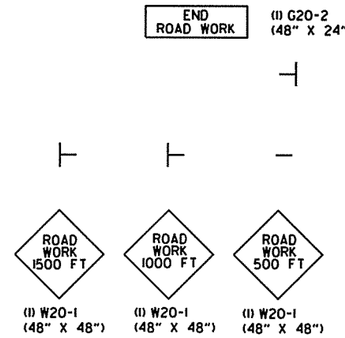
INSTALL TEMPORARY PRECAST BARRIER WALL FROM STATION 118+98 TO STATION 124+22.

REMOVE EXISTING BRIDGE STRUCTURE

CONSTRUCT REMAINING CURB AND GUTTER SECTION ON LEFT FROM STATION 101+50 TO STATION 109+75 AND FROM STATION 119+55 TO STATION 126+89.92.

REMOVE ALL TEMPORARY PRECAST BARRIER WALL, OPEN BUS ENTRANCE TO TRAFFIC, AND APPLY THE FINAL 2" OF ACHM SURFACE AFTER ALL WIDENING HAS BEEN COMPLETE.

APPLY FINAL STRIPING AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.



ADVANCE WARNING SIGN PLACEMENT

PLACE ON HWY. 10 AT THE BEGINNING AND END OF THE PROJECT.
ALL STAGES

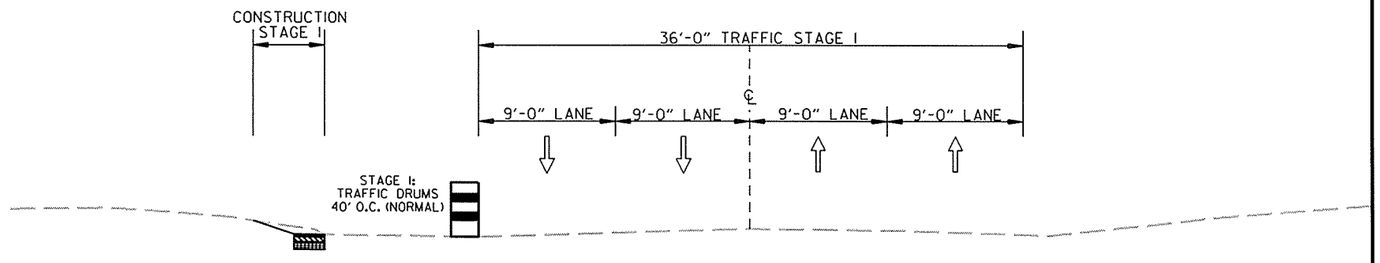
MAINTENANCE OF TRAFFIC QUANTITIES: STAGE 1

SIGNS = 314.0 LIN. FT.
TRAFFIC DRUMS = 15 EACH
BARRICADES = 192 LIN. FT.

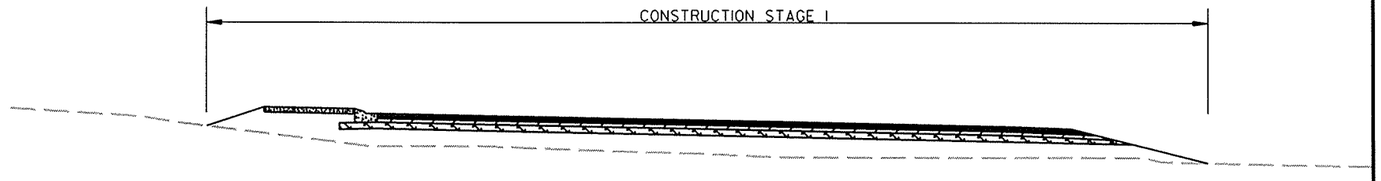
NOTE: TRAFFIC DRUMS 40' O.C. IN CURB & GUTTER SECTION

NOTE: R4-1 TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

DO NOT PASS



TEMPORARY WIDENING MAIN LANES



RICE STREET

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MAINTENANCE OF TRAFFIC - STAGE 1

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				6	ARK.			
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(2) MAINTENANCE OF TRAFFIC

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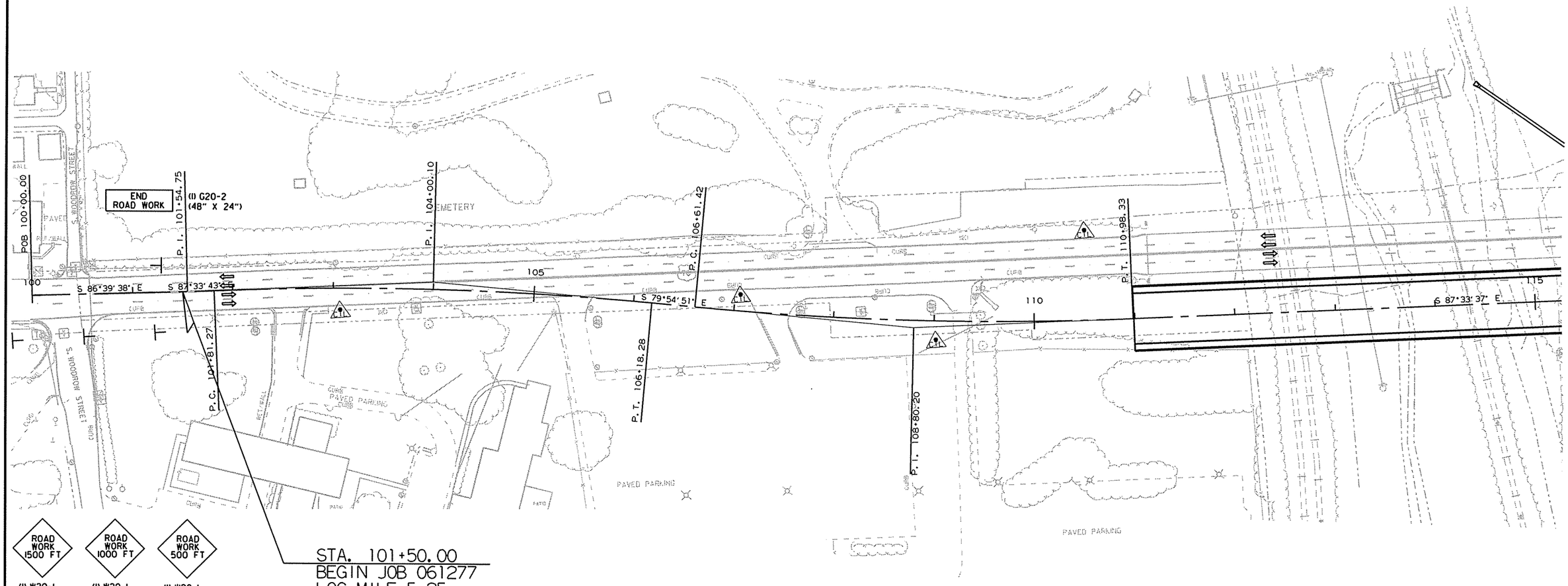

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MAINTENANCE OF TRAFFIC - STAGE 1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
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(2) MAINTENANCE OF TRAFFIC

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STA. 12+74.79
BEGIN CONSTRUCTION
S. RICE ST.

STA. 116+84.75 HWY. 70 =
STA. 13+89.23 S. RICE ST.

ROAD CLOSED (2) RII - 2 (48" X 30")
(2) 8' BARR. TYP. III LT.
(2) 8' BARR. TYP. III RT.

POB 10+00.00

P. I. = 11+32.53
Δ = 11°42' 52" LT.
D = 22°30' 00"
T = 26.12'
L = 52.06'
P.C. 11+06.41
P.T. 11+58.47
NO SUPER

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

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

P. I. = 15+53.79
Δ = 11°57' 08" LT.
D = 22°30' 00"
T = 26.66'
L = 53.12'
P.C. 15+27.13
P.T. 15+80.25
NO SUPER

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

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

ROAD WORK 1500 FT (I) W20-1 (48" X 48")

ROAD WORK 1000 FT (I) W20-1 (48" X 48")

ROAD WORK 500 FT (I) W20-1 (48" X 48")

TRAFFIC DRUMS @ 40' O.C.

P. I. = 11+96.37
Δ = 11°42' 52" RT.
D = 22°30' 00"
T = 26.12'
L = 52.06'
P.C. 11+70.25
P.T. 12+22.32
NO SUPER

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

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

P. I. = 14+91.21
Δ = 11°57' 08" RT.
D = 22°30' 00"
T = 26.66'
L = 53.12'
P.C. 14+64.55
P.T. 15+17.67
NO SUPER

ROAD CLOSED (II) RII - 2 (48" X 30")
(II) 8' BARR. TYP. III LT.
(II) 8' BARR. TYP. III RT.

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

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

STA. 21+65.15
END CONSTRUCTION
S. RICE ST.

STA. 126+89.92
END JOB 061277

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MAINTENANCE OF TRAFFIC - STAGE 1

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.		061277	18	160

(2) MAINTENANCE OF TRAFFIC

STAGE I:

INSTALL ADVANCE WARNING SIGNS AT THE BEGINNING AND END OF PROJECT AND ON HWY. 70. REFER TO THE SEQUENCE OF CONSTRUCTION SP.

PLACE W20-1 (AHEAD) SIGNS ON ALL INTERSECTING STREETS. DELINEATE DRIVEWAYS AND CITY STREETS ON THE SIDE BEING WIDENED WITH TRAFFIC DRUMS (6 PER DRIVE). MAINTAIN TRAFFIC THROUGHOUT THE PROJECT USING TRAFFIC DRUMS PLACED AT 40' O.C.

CONSTRUCT TEMPORARY WIDENING FROM STATION 11+06.41 TO STATION 15+80.25 AND START CONSTRUCTION OF BRIDGE.

CLOSE RICE ST. TO TRAFFIC AND CONSTRUCT RICE ST.

STAGE 2:

OPEN RICE ST. TO TRAFFIC.

REMOVE ALL CONFLICTING PAVEMENT MARKINGS ON HWY 70. APPLY CONSTRUCTION PAVEMENT MARKINGS AND SHIFT TRAFFIC ONTO TEMPORARY WIDENING. MAINTAIN TRAFFIC USING TRAFFIC DRUMS AND VERTICAL PANELS PLACED 40' O.C. ON SIDE BEING WIDENED. DELINEATE DRIVEWAYS AND CITY STREETS ON THE SIDE BEING WIDENED WITH TRAFFIC DRUMS (6 PER DRIVE).

CONSTRUCT THE RT. SIDE OF THE NOTCH AND WIDEN AND FULL DEPTH SECTION AS SHOWN ON THE CROSS SECTIONS UP TO THE FINAL 2" LIFT OF SURFACE COURSE.

CONTINUE CONSTRUCTION OF BRIDGE.

STAGE 3:

REMOVE ALL CONFLICTING PAVEMENT MARKINGS ON HWY. 70. APPLY CONSTRUCTION PAVEMENT MARKINGS AND SHIFT TRAFFIC ONTO NEW CONSTRUCTION. MAINTAIN TRAFFIC USING TRAFFIC DRUMS AT 40' O.C., DELINEATE DRIVEWAYS AND CITY STREETS WITH TRAFFIC DRUMS (6 PER DRIVE).

CLOSE BUS ENTRANCE TO TRAFFIC AND CONSTRUCT BUS ENTRANCE.

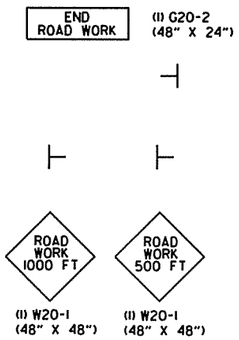
INSTALL TEMPORARY PRECAST BARRIER WALL FROM STATION 118+98 TO STATION 124+22.

REMOVE EXISTING BRIDGE STRUCTURE

CONSTRUCT REMAINING CURB AND GUTTER SECTION ON LEFT FROM STATION 101+50 TO STATION 109+75 AND FROM STATION 119+55 TO STATION 126+89.92.

REMOVE ALL TEMPORARY PRECAST BARRIER WALL, OPEN BUS ENTRANCE TO TRAFFIC, AND APPLY THE FINAL 2" OF ACHM SURFACE AFTER ALL WIDENING HAS BEEN COMPLETE.

APPLY FINAL STRIPING AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.



ADVANCE WARNING SIGN PLACEMENT

PLACE ON HWY. 10 AT THE BEGINNING AND END OF THE PROJECT.
ALL STAGES

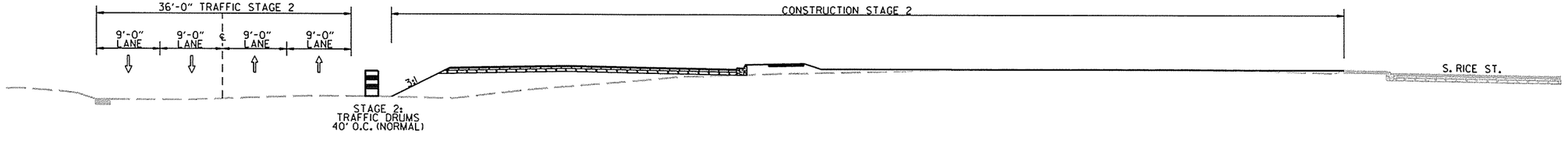
MAINTENANCE OF TRAFFIC QUANTITIES: STAGE II

SIGNS = 214.0 LIN. FT.
VERTICAL PANELS = 10 EACH
TRAFFIC DRUMS = 88 EACH
BARRICADES = 64 LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 1,125 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 2,182 LIN. FT.

NOTE: TRAFFIC DRUMS 40' O.C. IN CURB & GUTTER SECTION

NOTE: VERTICAL PANELS 40' O.C.

NOTE: R4-1 TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



MAINTENANCE OF TRAFFIC - STAGE 2

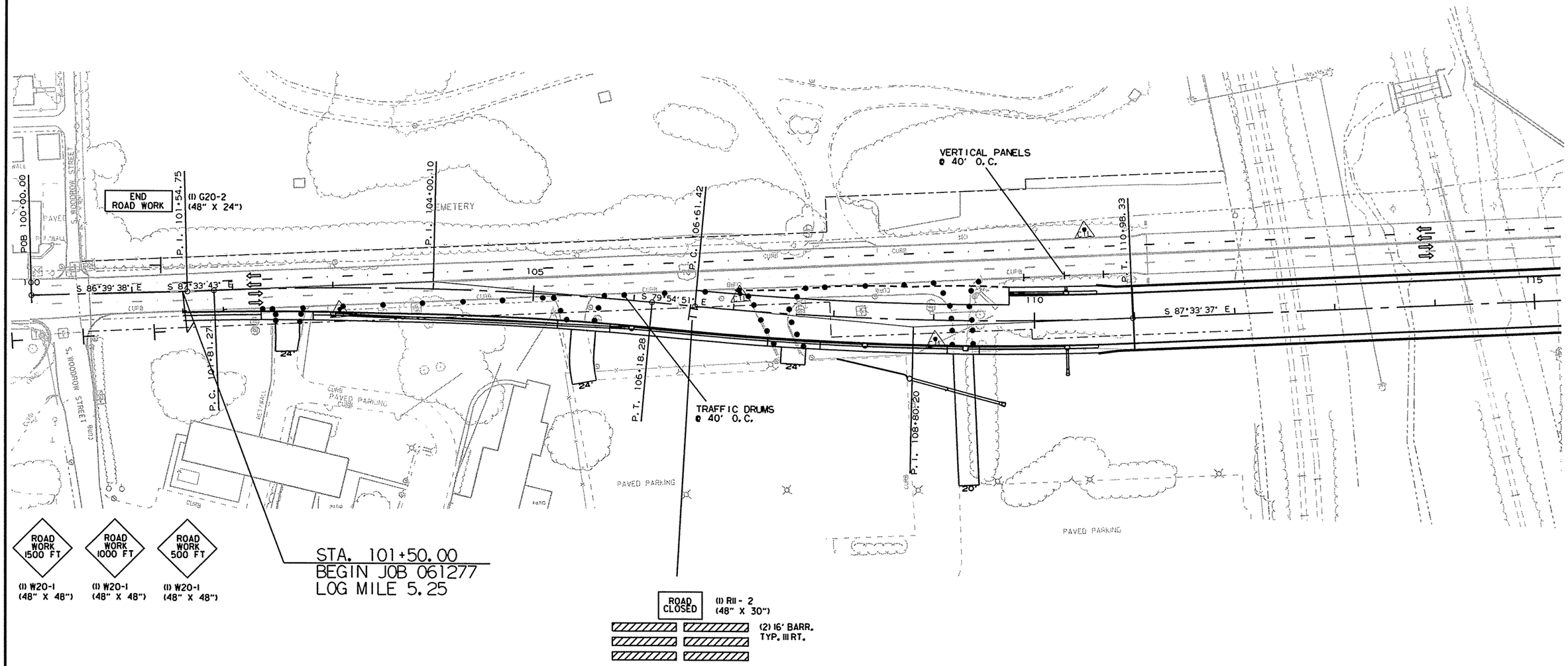
1/31/2014

R061277.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.		061277	19	160

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14



ROAD WORK 1500 FT
(1) W20-1 (48" X 48")

ROAD WORK 1000 FT
(1) W20-1 (48" X 48")

ROAD WORK 500 FT
(1) W20-1 (48" X 48")

STA. 101+50.00
BEGIN JOB 061277
LOG MILE 5.25

ROAD CLOSED
(1) R11 - 2 (48" X 30")
(2) 16' BARR. TYP. III RT.

9/22/2014

R061277.DGN

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.		061277	20	160

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14

N

VERTICAL PANELS @ 40' O.C.

TRAFFIC DRUMS @ 40' O.C.

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

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

ROAD WORK 1500 FT (I) W20-1 (48" X 48")

ROAD WORK 1000 FT (I) W20-1 (48" X 48")

ROAD WORK 500 FT (I) W20-1 (48" X 48")

ROAD CLOSED (I) R11 - 2 (48" X 30")

(2) 16' BARR. TYP. III LT.

STA. 126+89.92
END JOB 061277

MAINTENANCE OF TRAFFIC - STAGE 2

9/22/2014

R061277.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.		061277	21	160

(2) MAINTENANCE OF TRAFFIC

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AT THE BEGINNING AND END OF PROJECT AND ON HWY. 70. REFER TO THE SEQUENCE OF CONSTRUCTION SP.

PLACE W20-1 (AHEAD) SIGNS ON ALL INTERSECTING STREETS. DELINEATE DRIVEWAYS AND CITY STREETS ON THE SIDE BEING WIDENED WITH TRAFFIC DRUMS (6 PER DRIVE). MAINTAIN TRAFFIC THROUGHOUT THE PROJECT USING TRAFFIC DRUMS PLACED AT 40' O.C.

CONSTRUCT TEMPORARY WIDENING FROM STATION 11+06.41 TO STATION 15+80.25 AND START CONSTRUCTION OF BRIDGE.

CLOSE RICE ST. TO TRAFFIC AND CONSTRUCT RICE ST.

STAGE 2:

OPEN RICE ST. TO TRAFFIC.

REMOVE ALL CONFLICTING PAVEMENT MARKINGS ON HWY 70. APPLY CONSTRUCTION PAVEMENT MARKINGS AND SHIFT TRAFFIC ONTO TEMPORARY WIDENING. MAINTAIN TRAFFIC USING TRAFFIC DRUMS AND VERTICAL PANELS PLACED 40' O.C. ON SIDE BEING WIDENED. DELINEATE DRIVEWAYS AND CITY STREETS ON THE SIDE BEING WIDENED WITH TRAFFIC DRUMS (6 PER DRIVE).

CONSTRUCT THE RT. SIDE OF THE NOTCH AND WIDEN AND FULL DEPTH SECTION AS SHOWN ON THE CROSS SECTIONS UP TO THE FINAL 2" LIFT OF SURFACE COURSE.

CONTINUE CONSTRUCTION OF BRIDGE.

STAGE 3:

REMOVE ALL CONFLICTING PAVEMENT MARKINGS ON HWY. 70. APPLY CONSTRUCTION PAVEMENT MARKINGS AND SHIFT TRAFFIC ONTO NEW CONSTRUCTION. MAINTAIN TRAFFIC USING TRAFFIC DRUMS AT 40' O.C., DELINEATE DRIVEWAYS AND CITY STREETS WITH TRAFFIC DRUMS (6 PER DRIVE).

CLOSE BUS ENTRANCE TO TRAFFIC AND CONSTRUCT BUS ENTRANCE.

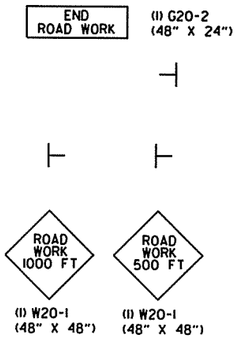
INSTALL TEMPORARY PRECAST BARRIER WALL FROM STATION 118+98 TO STATION 124+22.

REMOVE EXISTING BRIDGE STRUCTURE

CONSTRUCT REMAINING CURB AND GUTTER SECTION ON LEFT FROM STATION 101+50 TO STATION 109+75 AND FROM STATION 119+55 TO STATION 126+89.92.

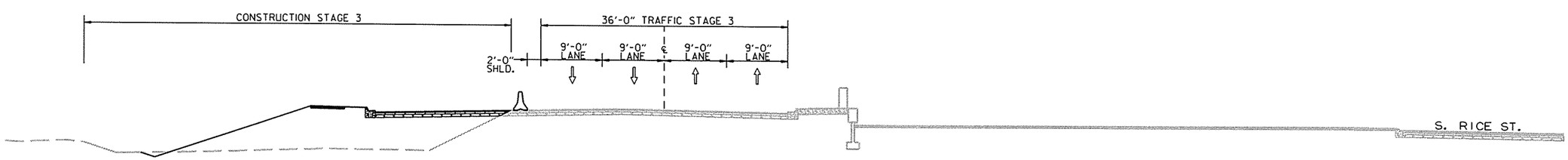
REMOVE ALL TEMPORARY PRECAST BARRIER WALL, OPEN BUS ENTRANCE TO TRAFFIC, AND APPLY THE FINAL 2" OF ACHM SURFACE AFTER ALL WIDENING HAS BEEN COMPLETE.

APPLY FINAL STRIPING AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.



ADVANCE WARNING SIGN PLACEMENT

PLACE ON HWY. 10 AT THE BEGINNING AND END OF THE PROJECT.
ALL STAGES



MAINTENANCE OF TRAFFIC - STAGE 3

MAINTENANCE OF TRAFFIC QUANTITIES: STAGE III

SIGNS = 243.0 LIN. FT.
TRAFFIC DRUMS = 80 EACH
BARRICADES = 64 LIN. FT.
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 526 LIN. FT
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 1,453 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 6,379 LIN. FT.
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS = 2,489 LIN. FT.

NOTE: TRAFFIC DRUMS 40' O.C. IN CURB & GUTTER SECTION

NOTE: R4-1 TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

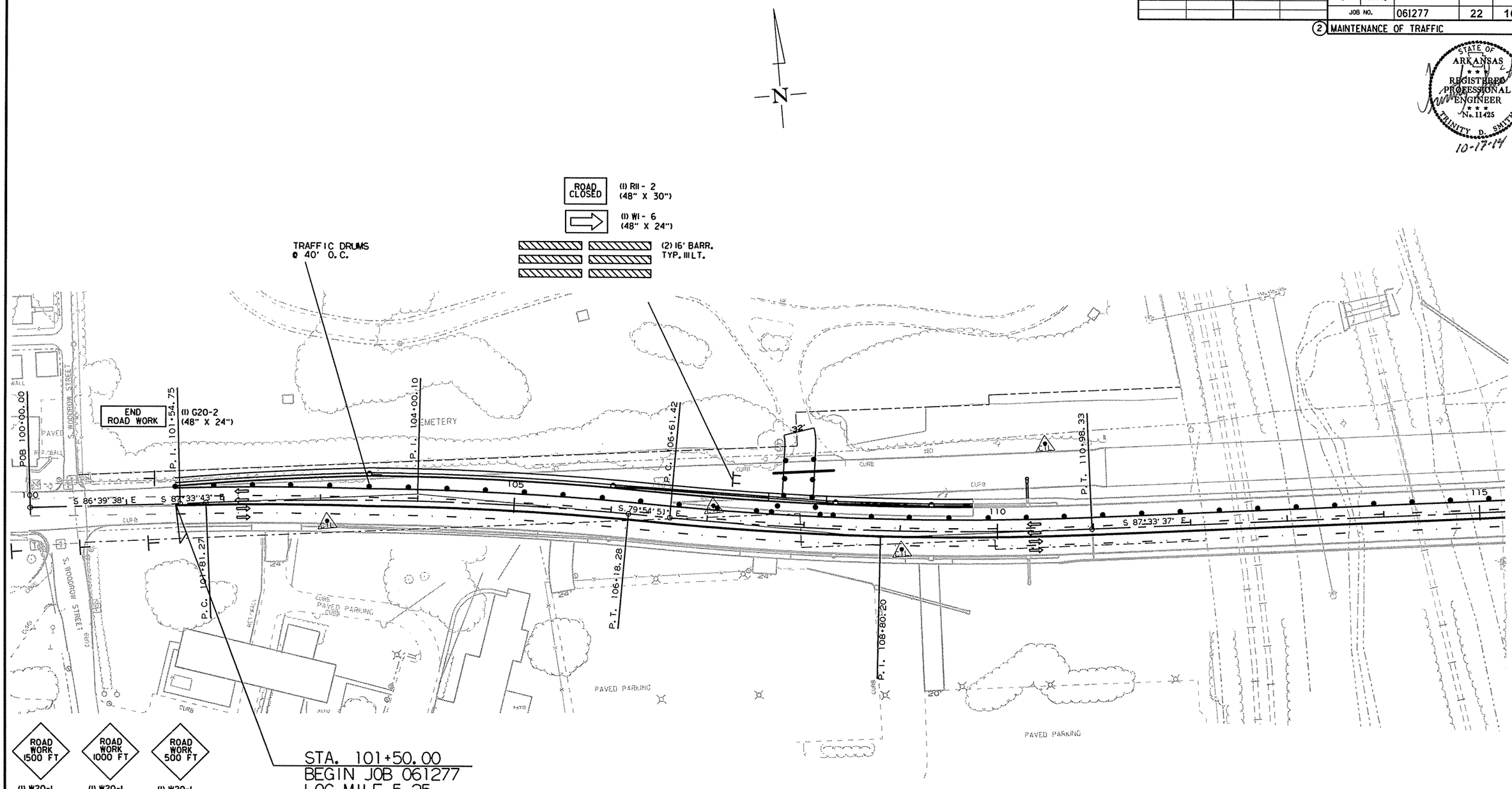
1/31/2014

R061277.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.		061277	22	160

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14



9/22/2014

R061277.DGN

MAINTENANCE OF TRAFFIC - STAGE 3

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.		061277	23	160

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14

ROAD CLOSED
(1) R11 - 2 (48" X 30")
(1) 8' BARR. TYP. III LT.
(1) 8' BARR. TYP. III RT.

N

STA. 33+00.00
END CONSTRUCTION

SAFETY END SECTION

FURNISHING & INSTALLING PRECAST CONCRETE BARRIER = 526 LIN. FT.

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

SAFETY END SECTION

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

TRAFFIC DRUMS @ 40' O.C.

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

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

ROAD WORK 1500 FT (1) W20-1 (48" X 48")

ROAD WORK 1000 FT (1) W20-1 (48" X 48")

ROAD WORK 500 FT (1) W20-1 (48" X 48")

POE 33+85.84

P.C. 117+61.45

P.T. 112+85.93

P.I. 124+73.15

P.I. 129+67.13

S. 2°20'42" W

S 87°33'37" E

N 85°00'41" E

S 87°35'08" E

S 87°26'25" E

S 87°48'14" E

00°00'00" 80.0

P.I. 119+73.99

P.C. 122+61.34

P.T. 126+84.37

P.I. 127+50.31

STA. 120+40.01 HWY. 70 =
STA. 30+00.00 BUS ENTRANCE

PARKING

RETWALL

CONC

PAVED PARKING

HOWARD STREET

S. PARK STREET

CONC PARKING

PAVED

CURB

STA. 30+24.08
BEGIN CONSTRUCTION

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

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

STA. 126+89.92
END JOB 061277

MAINTENANCE OF TRAFFIC - STAGE 3

9/22/2014

R061277.DGN

RAISED PAVEMENT MARKERS (TYPE II)(YELLOW/YELLOW) ARE TO BE PLACED ON THE DOUBLE YELLOW AT 80' INTERVALS.

RAISED PAVEMENT MARKERS (TYPE II)(WHITE/RED) ARE TO BE PLACED ON THE LANE LINES AT 80' INTERVALS.

REFER TO THE PERMANENT PAVEMENT MARKING DETAILS, STD. DRWG. PM-1, AND THE LATEST EDITION OF THE MUTCD FOR ADDITIONAL PAVEMENT MARKING DETAILS.

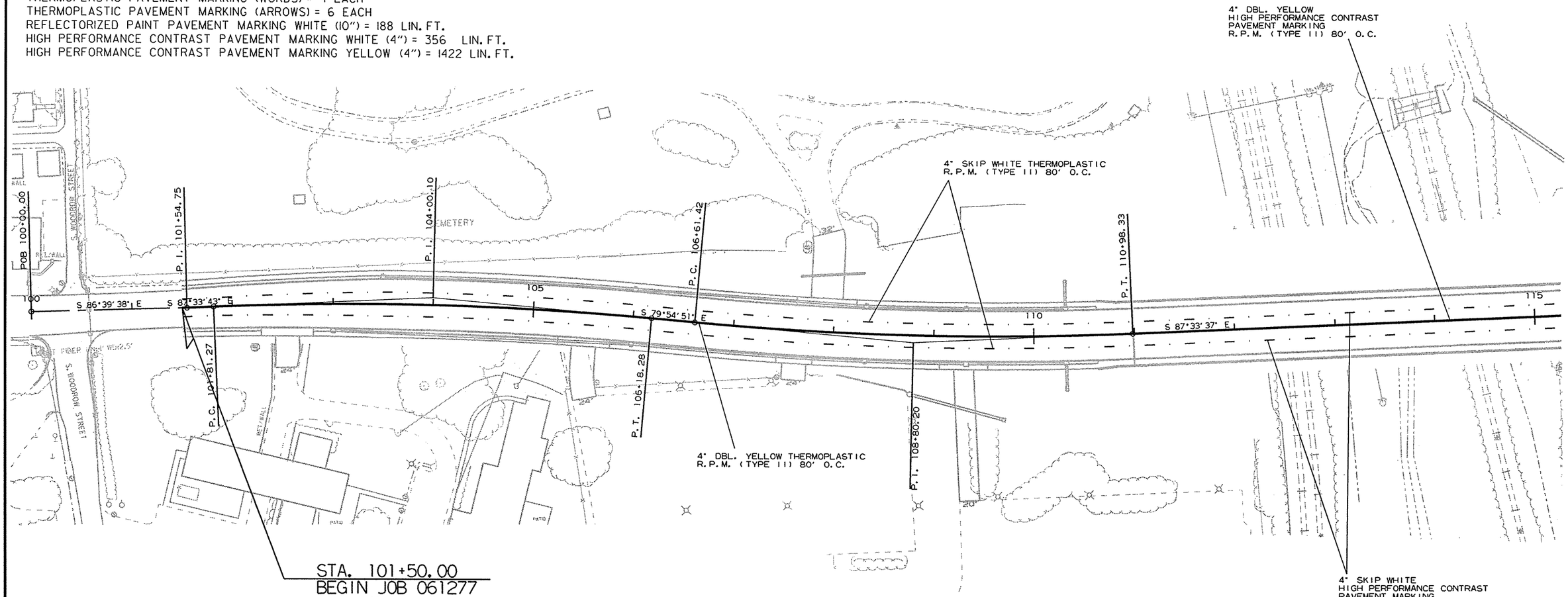
PERMANENT PAVEMENT MARKINGS

RAISED PAVEMENT MARKER TYPE II (WHITE/RED) = 63 EACH
RAISED PAVEMENT MARKER TYPE II (YEL/YEL) = 40 EACH
THERMOPLASTIC PAVEMENT MARKING WHITE (4") = 1447 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (4") = 6008 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING WHITE (8") = 291 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING (WORDS) = 4 EACH
THERMOPLASTIC PAVEMENT MARKING (ARROWS) = 6 EACH
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10") = 188 LIN. FT.
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING WHITE (4") = 356 LIN. FT.
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4") = 1422 LIN. FT.

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.		061277	24	160

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14



8/19/2014

R061277.DGN

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.		061277	25	160

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14

STA. 12+74.79
BEGIN CONSTRUCTION
S. RICE ST.

STA. 116+84.75 HWY. 70 =
STA. 13+89.23 S. RICE ST.

4" DBL. YELLOW HIGH PERFORMANCE CONTRAST PAVEMENT MARKING R.P.M. (TYPE II) 80' O.C.

POB 10+00.00

S 2°38'02" W

4" DBL. YELLOW THERMOPLASTIC

10" WHITE REFLECTORIZED PAINT ON CURB

8" WHITE THERMOPLASTIC ISLAND OUTLINE

4" SOLID WHITE THERMOPLASTIC LINE

CONCRETE ISLAND WITH TYPE C CURB FACE

P.C. 12+73.00
P.T. 13+06.94
P.I. 12+90.00
P.I. 13+31.61
P.C. 13+14.18
P.T. 13+48.99
S 10°16'13" W
17.61.45

P.T. 121+85.93

HOWARD STREET

P.I. 124+73.15

S. PARK STREET

P.I. 129+67.13

115
S 87°33'37" E
120
N 85°00'41" E
125
S 87°35'08" E
S 87°26'25" E
120
S 87°48'14" E

P.C. 14+39.44

S 2°26'23" W

4" DBL. YELLOW THERMOPLASTIC R.P.M. (TYPE II) 80' O.C.

P.I. 119+73.99

4" SKIP WHITE THERMOPLASTIC

P.C. 122+61.34

POE 121+84.02

4" DBL. YELLOW

P.T. 126+84.37

P.I. 127+50.31

15
20
N 87°56'38" E

4" SKIP WHITE THERMOPLASTIC R.P.M. (TYPE II) 80' O.C.

P.I. 15+47.61

P.T. 16+04.36

4" DBL. YELLOW THERMOPLASTIC

4" SKIP WHITE THERMOPLASTIC

4" SKIP WHITE HIGH PERFORMANCE CONTRAST PAVEMENT MARKING R.P.M. (TYPE II) 80' O.C.

STA. 21+65.15
END CONSTRUCTION
S. RICE ST.

STA. 126+89.92
END JOB 061277

PERMANENT PAVEMENT MARKING DETAILS

8/19/2014

R061277.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.		061277	26	160
				(2)	LIGHTING QUANTITIES SHEET			

GENERAL NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.
2. UNDERGROUND CONDUIT INSTALLED UNDER PAVED SURFACES SHALL BE INSTALLED BY A PUSHING OR BORING METHOD.
3. THE CONTRACTOR SHALL PERFORM A 48 HOUR BURN TEST COORDINATED WITH THE JOB ENGINEER.
4. ANY EXISTING EQUIPMENT REMOVED SHALL BECOME THE PROPERTY OF THE CITY.
5. CONDUIT DEFLECTION/EXPANSION FITTINGS SHALL BE INSTALLED AT EACH OF THE BRIDGE AND RETAINING WALL EXPANSION JOINTS. THE DEFLECTION/EXPANSION FITTING USED SHALL BE O-Z/GEDNEY TYPE DX-150 OR AS APPROVED BY THE JOB ENGINEER. THE DEFLECTION/EXPANSION FITTINGS AND STANDARD ADAPTERS SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM NON-METALLIC CONDUIT. THE FITTINGS SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
6. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LFMC) SHALL BE INSTALLED AT TRANSITIONS BETWEEN UNDER-BRIDGE FIBERGLASS CONDUIT AND JUNCTION BOXES. THE LFMC SHALL BE OUTDOOR RATED 1.5" IN DIAMETER WITH A SMOOTH PVC COVERING WITH A GALVANIZED STEEL INNER CORE OR AS APPROVED BY THE JOB ENGINEER. THE LIQUID-TIGHT FITTINGS SHALL BE GALVANIZED STEEL OR AS APPROVED BY THE JOB ENGINEER. THE LFMC AND FITTINGS SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM FIBERGLASS CONDUIT. THE FITTINGS SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
7. ISOLATION SHALL BE PROVIDED BETWEEN BRIDGE GIRDERS AND ATTACHMENT HARDWARE USING A JOINTING COMPOUND AS APPROVED BY JOB ENGINEER.

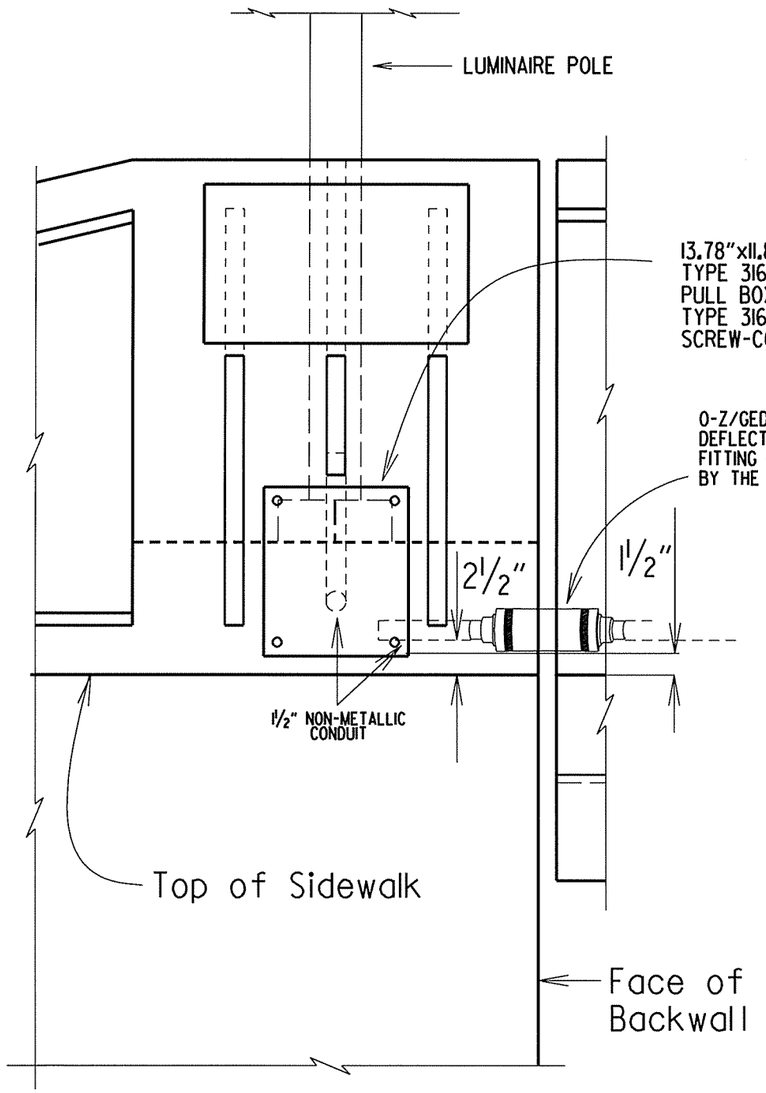
SUMMARY OF QUANTITIES

ITEM NO.	ITEM	QUANTITIES TOTAL	UNIT
710	NON-METALLIC CONDUIT (1.5")	1867	LIN. FT.
SP	NEMA 4X STAINLESS STEEL JUNCTION BOX	21	EACH
SP	FIBERGLASS CONDUIT H.D. (1.5")	70	LIN. FT.

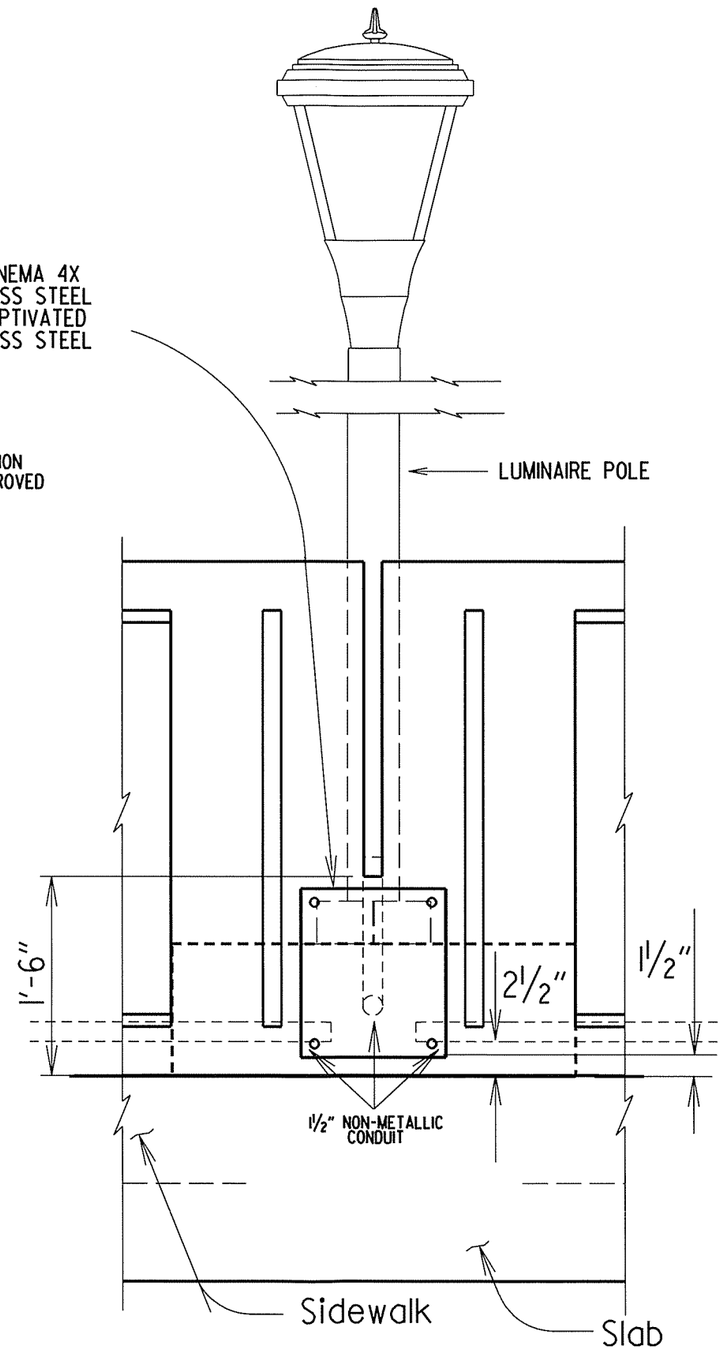
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
2/20/14
L. TONY SULLIVAN

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.		061277	27	160

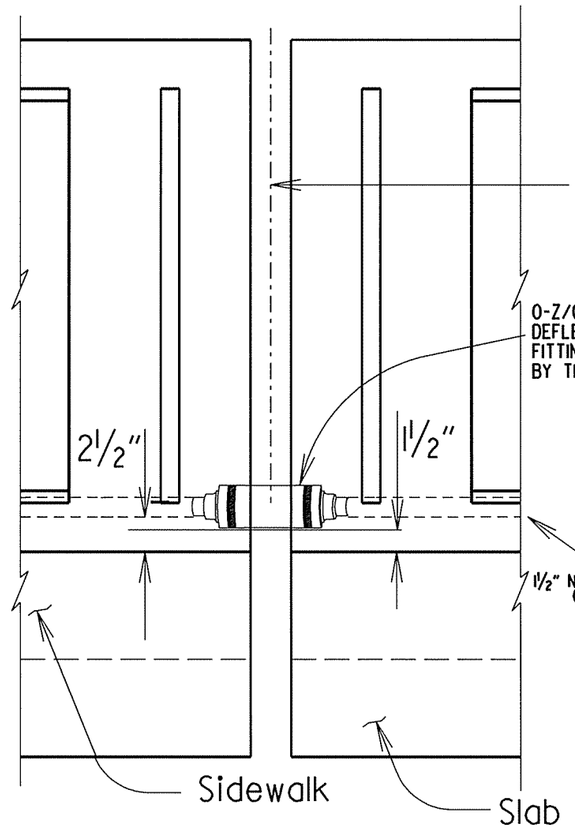
(2) LIGHTING DETAILS



END BENT



WITH PEDESTAL

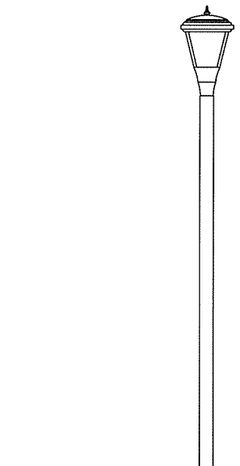


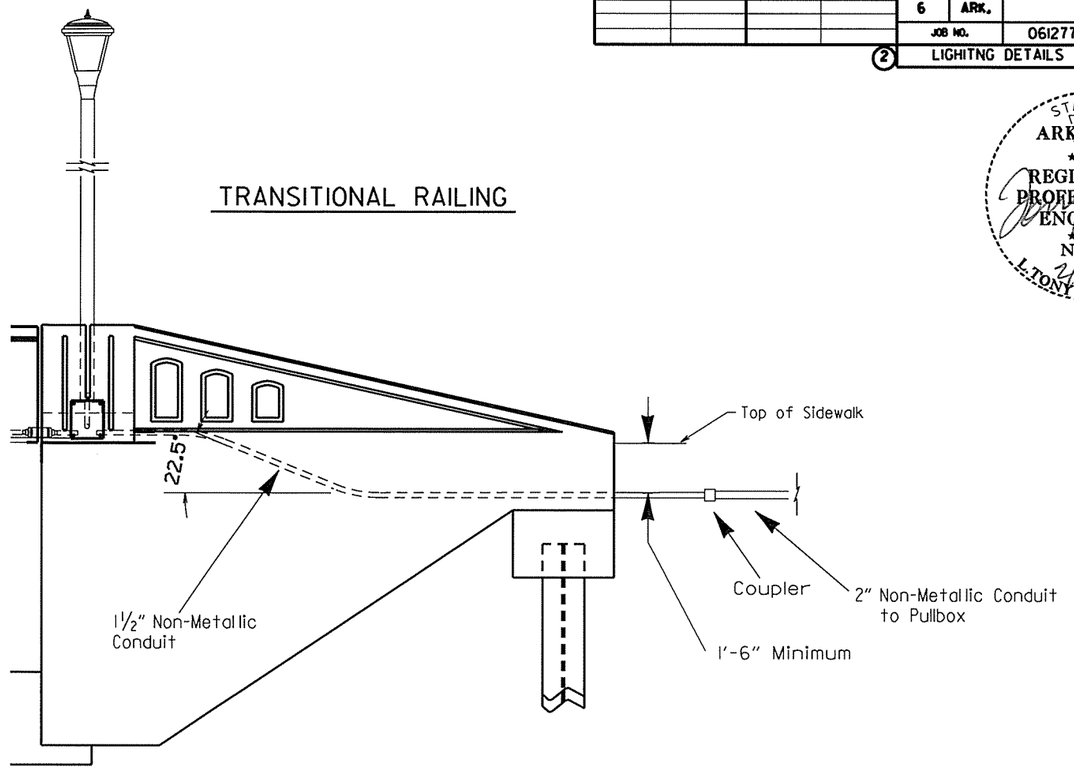
AT EXP. JOINT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
2/20/14
L. TONY SULLIVAN

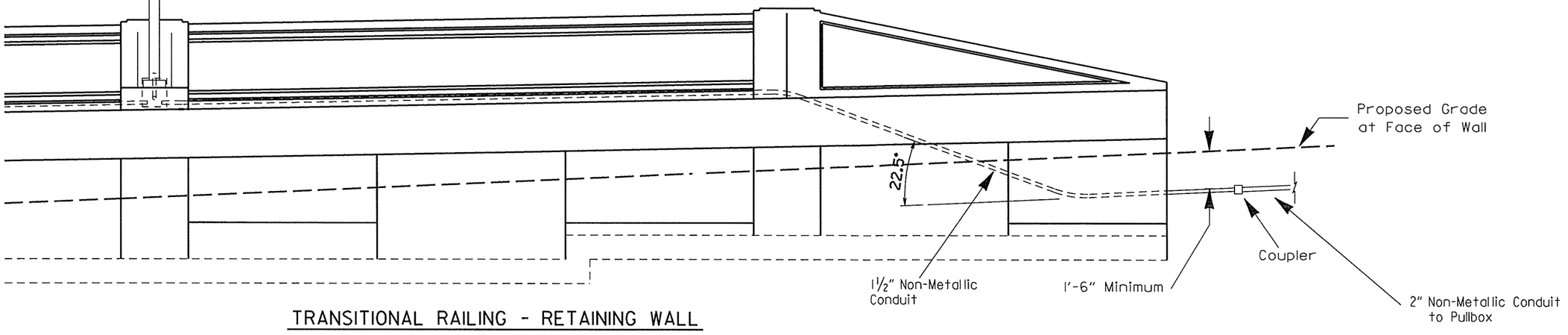
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	28	160
				(2)	LIGHITNG DETAILS			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
2/20/14
L. TONY SULLIVAN





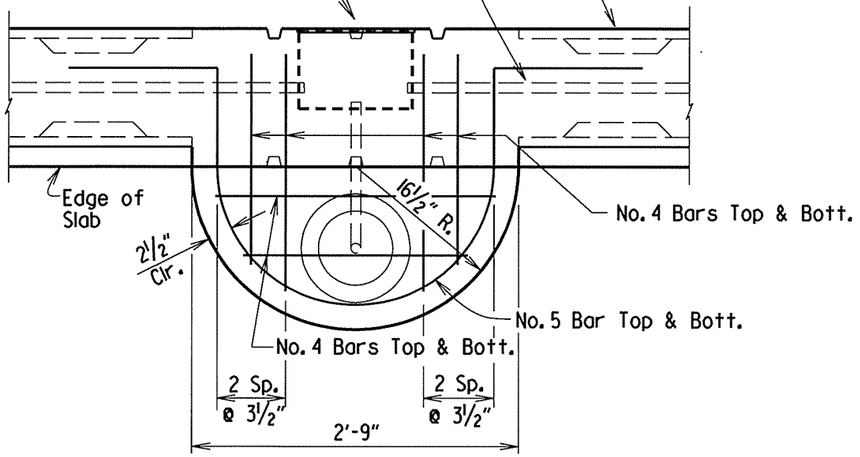
TRANSITIONAL RAILING



TRANSITIONAL RAILING - RETAINING WALL

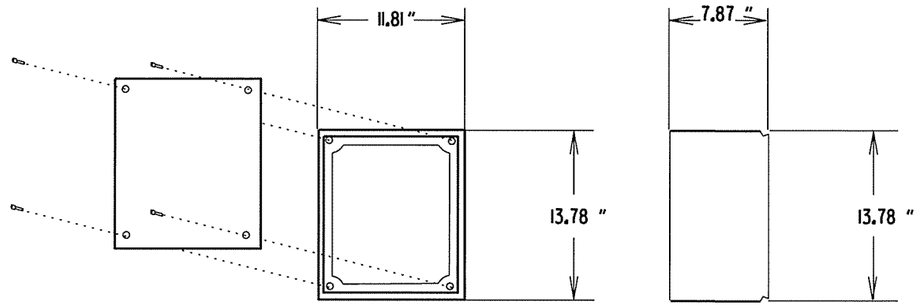
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	29	160
				2	LIGHTING DETAILS			

13.78"x11.81"x7.87" NEMA 4X TYPE 316L STAINLESS STEEL PULL BOX WITH CAPTIVATED TYPE 316L STAINLESS STEEL SCREW-COVER

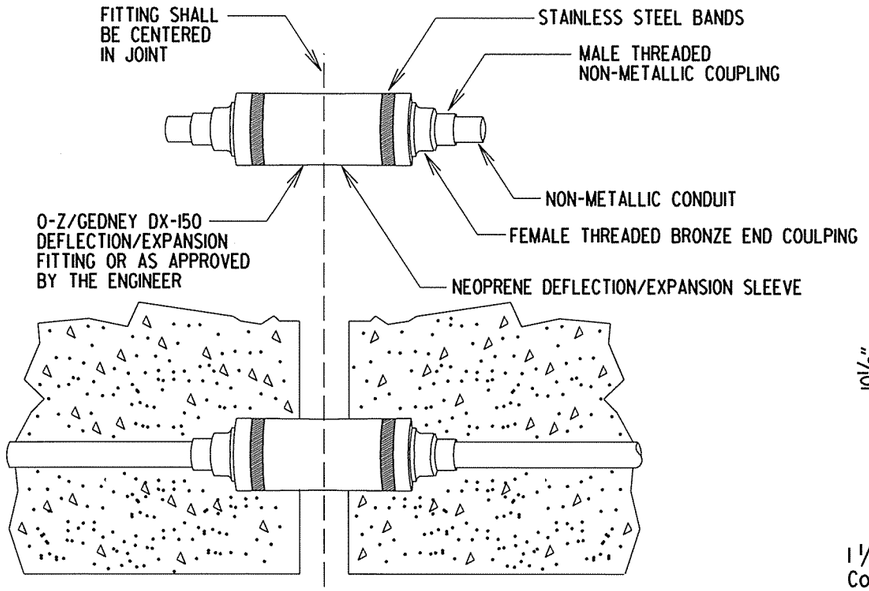


SECTION P-P
PEDESTAL DETAILS

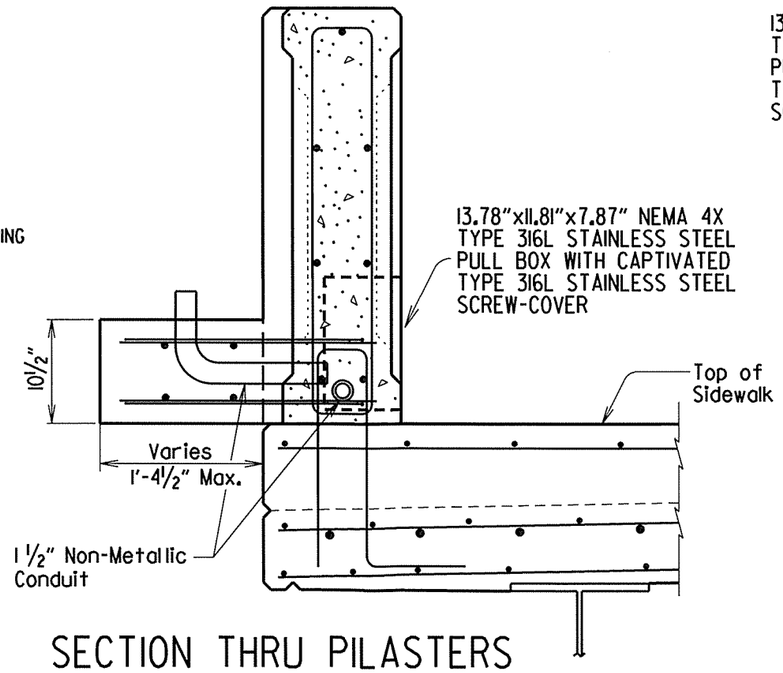
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
2/20/14
J. TONY SULLIVAN



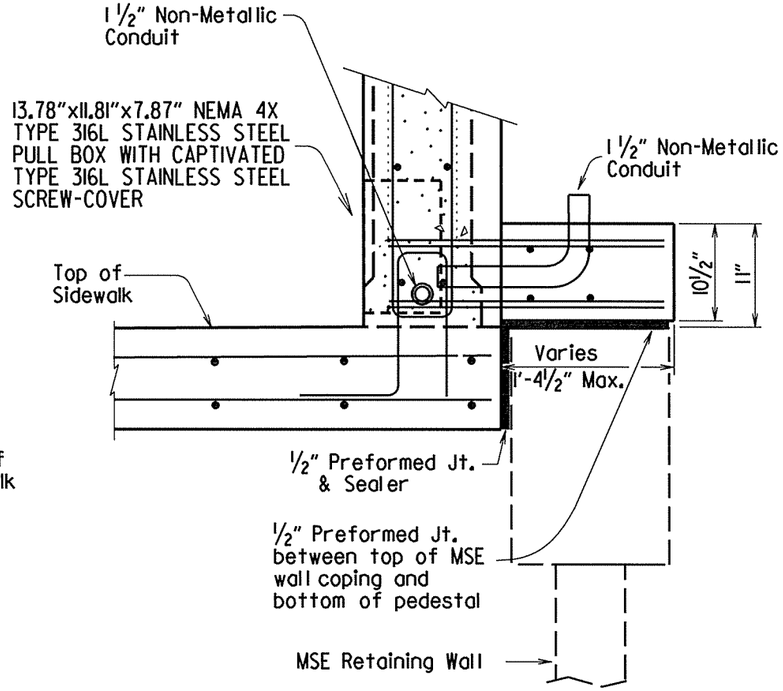
STAINLESS STEEL PULL BOX
NEMA 4X TYPE 316L STAINLESS STEEL



DEFLECTION/EXPANSION FITTING DETAILS

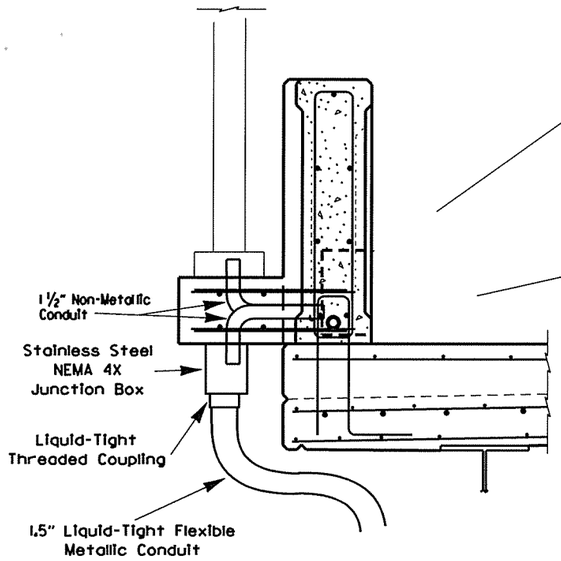


SECTION THRU PILASTERS ON SPANS

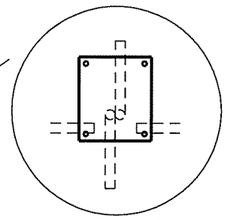


SECTION THRU PILASTERS AT CONCRETE BARRIER WALL

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.		061277	30	160
				(2)	LIGHTING DETAILS			

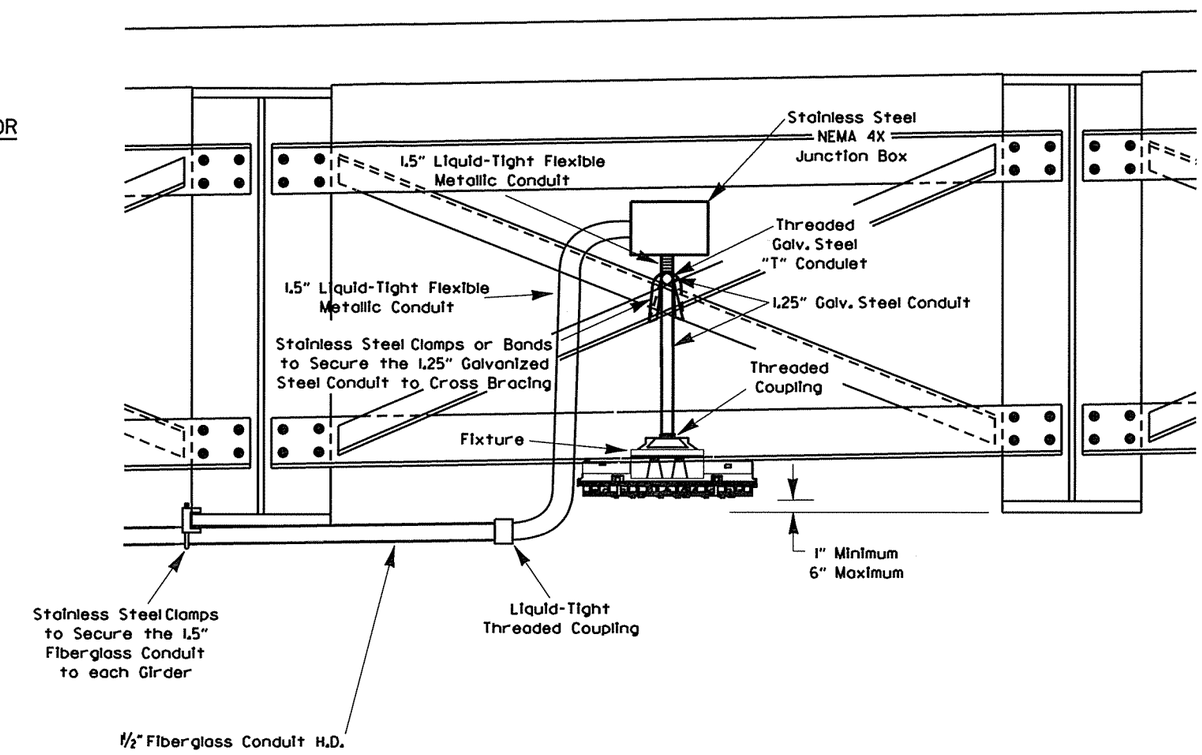


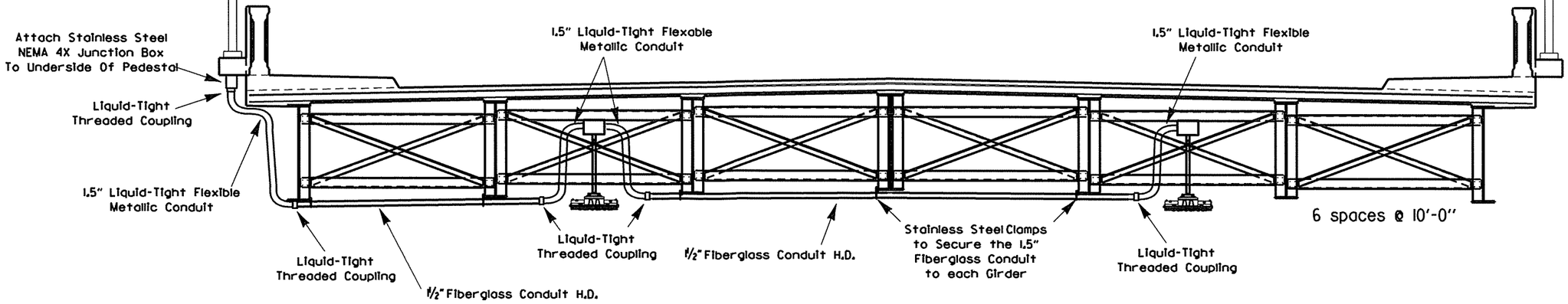
SECTION THRU PILASTER
LOCATED AT CENTER LINE
CONSTRUCTION STATION
116+82.58 (LEFT)



CONDUIT DETAIL ONLY FOR
CL CONST. STA.
116+82.58 (LEFT)

TYPICAL CEILING MOUNTED
UNDERPASS LUMINAIRE





TYPICAL SECTION THRU ROADWAY
LOOKING AHEAD

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
L. TONY SULLIVAN
2/20/14

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.		061277	31	160

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER
											RIGHT	LEFT	
			LIN. FT. - EACH				NO.	SQ. FT.	EACH		LIN. FT.		
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	32.0					
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	32.0					
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	32.0					
W20-1	ROAD WORK AHEAD	48"x48"	3	3	3	3	3	48.0					
G20-2	END ROAD WORK	48"x24"	5	5	5	5	5	40.0					
R11-2	ROAD CLOSED	48"x30"	12	2	2	12	12	120.0					
OM-3L	OBJECT MARKER	12"x36"			3	3	3	9.0					
OM-3R	OBJECT MARKER	12"x36"			4	4	4	12.0					
W1-6	LARGE ARROW	48"x24"			1	1	1	8.0					
R4-1	DO NOT PASS	24"x30"	2	2	2	2	2	10.0					
	VERTICAL PANELS			10		10			10				
	TRAFFIC DRUMS		15	88	80	88				88			
	TYPE III BARRICADE-RT. (8')		13		1	13					104		
	TYPE III BARRICADE-LT. (8')		13		1	13						104	
	TYPE III BARRICADE-RT. (16')			2		2					32		
	TYPE III BARRICADE-LT. (16')			2	2	2						32	
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER				526	526							526
TOTALS:								343.0	10	88	136	136	526

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2014 EDITION.

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	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.	BAG	CU.YD.	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	STAGE 1 - CLEARING AND GRUBBING	0.62	1.24	0.62	63.2	0.62		1.74	1.74	35.5	22	3	50	2966			114
ENTIRE	PROJECT	STAGE 2	0.91	1.82	0.91	99.2	0.91	503	3.91	3.91	79.8	22		300	865			44
ENTIRE	PROJECT	STAGE 3	1.30	2.60	1.30	139.1	1.30	514	2.47	2.47	50.4	88	9	300	842			49
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.									1.00	1.00	20.4	44	12	100	500	32	32	64
TOTALS:			2.83	5.66	2.83	301.5	2.83	1017	9.12	9.12	186.1	176	24	750	5173	32	32	271

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.
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 ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKINGS					REFLECTORIZED PAINT PAVEMENT MARKINGS	HIGH PERFORMANCE CONTRAST PAVEMENT MARKING	
								TYPE II (WHITE/RED)	TYPE II (YEL/YEL)	4" WHITE	4" YELLOW	8" WHITE	WORDS	ARROWS	10" WHITE	4" WHITE	4" YELLOW
	LIN. FT. - EACH			LIN. FT.		LIN. FT.		EACH		LIN. FT.			EACH		LIN. FT.	LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	1125			1125													
CONSTRUCTION PAVEMENT MARKINGS	2182	6379			8561												
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		1453				1453											
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		2489					2489										
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)			63					63									
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)			40						40								
THERMOPLASTIC PAVEMENT MARKINGS WHITE (4")			1447							1447							
THERMOPLASTIC PAVEMENT MARKINGS YELLOW (4")			6008								6008						
THERMOPLASTIC PAVEMENT MARKINGS WHITE (8")			291									291					
THERMOPLASTIC PAVEMENT MARKINGS WORDS			4										4				
THERMOPLASTIC PAVEMENT MARKINGS ARROWS			6											6			
REFLECTORIZED PAINT PAVEMENT MARKINGS WHITE (10")			188												188		
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING WHITE (4")			356													356	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")			1422														1422
TOTALS:				1125	8561	1453	2489	63	40	1447	6008	291	4	6	188	356	1422

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2014 EDITION.

9/22/2014

R061277.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.		061277	32	160

(2) QUANTITIES

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CURB	CURB AND GUTTER	CONCRETE DRIVEWAYS	WALKS	DITCH PAVING	SIGN FOUNDATIONS	BILLBOARDS	BUILDINGS	RETAINING WALL	BRICK COLUMNS	BOLLARDS	CONCRETE AND ROCK WALL	SIGNS	PLANTERS (BRICK)
			LIN. FT.	LIN. FT.	SQ. YD.	SQ. YD.	SQ. YD.	EACH	EACH	EACH	LIN. FT.	EACH	EACH	EACH	EACH	EACH
101+50	103+05.92	RIGHT OF MAIN LANES		169												
102+21		RIGHT OF MAIN LANES						1								
102+21		RIGHT OF MAIN LANES													1	
102+55		RIGHT OF MAIN LANES			50											
102+58		RIGHT OF MAIN LANES									4					
102+68.45	102+95	RIGHT OF MAIN LANES				53										
105+18.20	105+41.82	RIGHT OF MAIN LANES		81												
105+58.12	105+68.73	RIGHT OF MAIN LANES		86												
105+65		RIGHT OF MAIN LANES						1								
105+65		RIGHT OF MAIN LANES													1	
105+68.73	107+22.33	LEFT OF MAIN LANES		176												
107+22.33	107+50	RIGHT OF MAIN LANES		58												
107+45		RIGHT OF MAIN LANES											1			
107+53.92	107+74	RIGHT OF MAIN LANES		49												
107+54.94	109+16.33	LEFT OF MAIN LANES		175												
107+66		RIGHT OF MAIN LANES											1			
107+67		LEFT OF MAIN LANES													1	
107+69		LEFT OF MAIN LANES													1	
107+69		LEFT OF MAIN LANES						1								
108+05	109+25	LEFT OF MAIN LANES												750		
108+97		LEFT OF MAIN LANES													1	
108+97		LEFT OF MAIN LANES						1								
109+20		LEFT OF MAIN LANES						1								
109+37.23	109+64.48	LEFT OF MAIN LANES					19									
109+48.83	111+15.45	LEFT OF MAIN LANES	445													
117+20.27	118+25.74	LEFT OF MAIN LANES	202													
117+20.27	118+87.93	LEFT OF MAIN LANES				276										
117+28.12	124+97.13	LEFT OF MAIN LANES	1321													
117+93	119+12	RIGHT OF MAIN LANES										12				
118+90	119+14	RIGHT OF MAIN LANES								1						
119+12	120+38	RIGHT OF MAIN LANES								1						
119+46.94	121+29.69	LEFT OF MAIN LANES				170										
120+38	120+54	RIGHT OF MAIN LANES								1		2				
120+54	120+78	RIGHT OF MAIN LANES														
120+78	121+92	RIGHT OF MAIN LANES										8				
121+70		LEFT OF MAIN LANES						1								
121+70		LEFT OF MAIN LANES							1							
121+70		LEFT OF MAIN LANES														1
121+75		RIGHT OF MAIN LANES											6			
122+17.85	123+52.54	RIGHT OF MAIN LANES				323										
123+23.31	124+94	LEFT OF MAIN LANES				97										
123+33.15		RIGHT OF MAIN LANES													1	
123+75.21	126+88.73	RIGHT OF MAIN LANES	452													
123+82.68		RIGHT OF MAIN LANES			63											
123+84.68	123+91.34	RIGHT OF MAIN LANES				62										
124+10.32		RIGHT OF MAIN LANES													1	
124+64.43	124+94.08	LEFT OF MAIN LANES									28					
125+12		LEFT OF MAIN LANES			133											
125+72.15		LEFT OF MAIN LANES			52											
125+90.74	126+33.14	LEFT OF MAIN LANES	50													
125+90.74	126+33.14	LEFT OF MAIN LANES				25										
126+56.52		LEFT OF MAIN LANES			50											
126+76.49	127+03.83	LEFT OF MAIN LANES	95													
126+80.81	126+85.45	LEFT OF MAIN LANES				22										
126+84.81		LEFT OF MAIN LANES			50											
12+90.95	13+57.04	CENTER OF RICE STREET	145													
TOTALS:			2710	794	398	1028	19	6	1	3	32	22	8	750	7	1

WHEELCHAIR RAMPS

STATION	LOCATION	TYPE 3	TYPE 4
		SQ.YD.	
120+17	LEFT OF MAIN LANES	3.3	
120+40	LEFT OF MAIN LANES		8.9
120+69	LEFT OF MAIN LANES		8.9
120+90	LEFT OF MAIN LANES	3.3	
123+06	RIGHT OF MAIN LANES	6.5	
124+22	RIGHT OF MAIN LANES	6.6	
126+69	LEFT OF MAIN LANES	5.4	
126+70	RIGHT OF MAIN LANES	5.4	
TOTALS:		30.5	17.8

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
107+66		GATE ON RIGHT (SWINGARM PIPE GATE)		1
107+90	109+20	RIGHT OF MAIN LANES (6' CHAIN LINK, 9' ELECTRIC)	130	
109+36	112+12	RIGHT OF MAIN LANES (6' CHAIN LINK, 9' ELECTRIC)	250	
116+64	117+93	RIGHT OF MAIN LANES (6' SECURITY CHAIN LINK)	318	
117+93	119+12	RIGHT OF MAIN LANES (WROUGHT IRON)	160	
120+38	120+54	RIGHT OF MAIN LANES (WROUGHT IRON)	40	
120+37	121+92	RIGHT OF MAIN LANES (6' SECURITY CHAIN LINK)	346	
120+78	121+92	RIGHT OF MAIN LANES (WROUGHT IRON)	118	
121+70		RIGHT OF MAIN LANES (6' SECURITY CHAIN LINK)	120	
122+13	123+48	RIGHT OF MAIN LANES (6' SECURITY CHAIN LINK)	228	
123+99	125+33	RIGHT OF MAIN LANES (6' SECURITY CHAIN LINK)	202	
125+48	126+90	RIGHT OF MAIN LANES (6' SECURITY CHAIN LINK)	130	
TOTALS:			2042	1

REMOVAL AND DISPOSAL OF CULVERTS AND DROP INLETS

STATION	DESCRIPTION	PIPE CULVERTS	DROP INLETS
		EACH	EACH
108+75.33	D.I. WITH 24" x 83' R.C. PIPE OUTLET ON RIGHT	1	1
108+97.89	D.I. WITH 18" x 53' R.C. PIPE OUTLET ON LEFT	1	1
115+74	D.I. WITH 30" x 81' R.C. PIPE OUTLET AND 20" x 252' R.C. PIPE INLET ON LEFT	2	1
116+16	D.I. WITH 30" x 54' R.C. PIPE OUTLET AND 30' x 118" PIPE IN LET ON LEFT	2	1
120+11.38	D.I. WITH 30" x 17' R.C. PIPE OUTLET ON LEFT	1	1
120+81.72	D.I. WITH 24" x 66' R.C. PIPE OUTLET AND 18" x 55' R.C. PIPE INLET ON LEFT	2	1
123+77	D.I. WITH 24" x 301' R.C. PIPE OUTLET ON LEFT	1	1
124+77.93	D.I. WITH 18" x 102' R.C. PIPE OUTLET ON LEFT	1	1
126+84.58	D.I. ON LEFT		1
TOTALS:		11	9

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				
103+00	34'RT	0-5	44	24	A-7-6(11)	RD/BR
103+00	34'RT	0-5	32	4	A-4(0)	RD/BR
103+00	14'RT	0-5	37	8	A-4(9)	RD/BR
111+80	CL	3.5-5.5	ND	NP	A-4(0)	BR/GR
111+80	CL	0.0-2.0	56	32	A-7-6(21)	DK/BR
117+40	24'RT	8.2-10.2	29	7	A-2-4(0)	GR/BR
117+40	24'RT	4.7-6.7	61	37	A-6(10)	DGB
118+15	34'RT. CL	9.7-11.7	ND	NP	A-2-4(0)	GR/BR
118+15	34'RT. CL	6.2-8.2	34	18	A-6(2)	GR/BR
118+45	34'RT. CL	2-4'	31	17	A-6(8)	RD/BR
120+15	34'RT	8-10.0	66	46	A-7-6(48)	BR/GR
120+15	34'RT	4.5-6.5	76	55	A-7-6(55)	GRAY
120+15	34'RT	1-3.0	51	31	A-7-6(13)	RD/GR
125+00	29'LT	0-5	56	34	A-7-6(25)	RD/BR
125+00	14'LT	0-5	90	58	A-7-5(62)	RD/BR

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.
NP - NON-PLASTIC
ND - NOT DETERMINABLE

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	STONE BACKFILL	SELECT GRANULAR BACKFILL
			CU. YD.		TON	CU. YD.
ENTIRE	PROJECT	STAGE 1-RICE STREET	667	803		
ENTIRE	PROJECT	STAGE 1-TEMPORARY WIDENING	111			
ENTIRE	PROJECT	STAGE 2-MAIN LANES	514	21802		2045
ENTIRE	PROJECT	STAGE 2-BETWEEN RETAINING WALL AND RICE ST.	1869	6		
ENTIRE	PROJECT	STAGE 3-MAIN LANES	5693	4369		
ENTIRE	PROJECT	STAGE 3-BUS TURN-IN	291	1012		
ENTIRE	PROJECT	APPROACHES	80	940		
117+18.50	121+62.98	UNDERCUT - RETAINING WALL			1655	
31+09		SIDEWALK ON LEFT OF BUS ENTRANCE		99		
		HOWARD STREET	230	19		
TOTALS:			9455	29050	1655	2045

NOTE: EARTHWORK QUANTITIES SHOWN ABOVE SHALL BE PAID AS PLAN QUANTITY.

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
101+50	115+00	HWY. 70	14	14
123+00	124+00	HWY. 70	1	1
TOTALS:			15	15

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
109+70.82	110+98.90	RIGHT OF MAIN LANES	128.1	113.9
120+81.52	123+10	LEFT OF MAIN LANES	267.1	237.4
31+21.38	33+00	RIGHT DITCH OF BUS TURN-IN	178.6	158.8
TOTAL:				510.1

NOTE: AVERAGE WIDTH = 8'-0"

10/17/2014

R061277.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.		061277	33	160

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14

DRIVEWAYS & TURNOUTS

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	STANDARD DRAWINGS
										18"	
			FEET	STATION	STATION	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.	
102+54	RT	DRIVEWAY	24	102+28	102+80	46.20	82.5	9.1	33.7		
105+52	RT	DRIVEWAY	24	105+26	105+78	46.20	139.9	15.4	57.1		
107+62	RT	DRIVEWAY	24	107+36	107+88	46.20	44.0	4.8	18.0		
107+92	LT	DRIVEWAY	32	107+62	108+22	53.30	233.8	25.7	95.5	64	PCC-1, PCM-1, PCP-1, PCP-2
109+29	RT	DRIVEWAY	20	109+05	109+53	42.70	267.7	29.4	109.3		
125+11	LT	DRIVEWAY	30	124+82	125+40	51.60	64.9	7.1	26.5		
125+39	RT	DRIVEWAY	12	125+19	125+59	35.60	10.7	1.2	4.4		
125+41	LT	DRIVEWAY	14	125+20	125+62	37.30	17.8	2.0	7.3		
125+69	LT	DRIVEWAY	30	125+40	125+98	51.60	43.0	4.7	17.6		
126+28	LT	DRIVEWAY	30	125+99	126+57	51.60	52.2	5.7	21.3		
126+70	LT	DRIVEWAY	40	126+36	127+04	60.40	96.0	10.6	39.2		
123+69	RT	DRIVEWAY	12	123+49	123+89	35.60	13.1	1.4	5.3		
123+78	RT	DRIVEWAY	16	123+56	124+00	61.30					
* ENTIRE PROJECT TEMPORARY DRIVES									130.0		
TOTALS:						619.60	1065.6	117.1	565.2	64	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.8% MIN. AGGR.....5.2% 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

RETAINING WALLS

STATION	STATION	LOCATION	CONCRETE BARRIER WALL (PARAPET TYPE A)	RETAINING WALL	TEXTURED COATING FINISH
			LIN. FT.	SQ. FT.	SQ.YD.
117+18.50	121+62.98	RIGHT ON MAIN LANES		4945	332
117+61.60	121+62.98	RIGHT ON MAIN LANES	405.4		
TOTALS:			405.4	4945	332

CONCRETE ISLAND

STATION	LOCATION	CURB FACE TYPE	CONCRETE ISLAND
			SQ.YD.
120+53	LEFT OF MAIN LANES	C	157
TOTAL:			157

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	150
ENGINEER	
TOTAL:	150

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

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	25
DIRECTED BY THE ENGINEER	
TOTAL:	25

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
101+50	102+50	MAIN LANES	37	411.11
125+89.92	126+89.92	MAIN LANES	36	400.00
TOTAL:				811.11

NOTE: AVERAGE MILLING DEPTH 1".

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	10	20
DIRECTED BY THE ENGINEER		
TOTALS:	10	20

NOTE: QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.
BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC....25 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE

FENCING

STATION	STATION	LOCATION	* 6' CHAIN LINK FENCE	* 20'-0" GATES
			LIN. FT.	EACH
107+89.89	112+22.34	RIGHT OF MAIN LANES	438	1
123+89.06	125+31.34	RIGHT OF MAIN LANES	180	
125+46.68	126+77.63	RIGHT OF MAIN LANES	135	
TOTALS:			753	1

* DENOTES ALTERNATE BID ITEM.

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
111+00	BRIDGE	1
TOTAL:		1

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

CONCRETE WALKS

STATION	STATION	LOCATION	LENGTH	CONCRETE WALKS
			LIN. FT.	SQ.YD.
101+50	110+62.90	RIGHT OF MAIN LANES	709	394
110+62.90	110+98.90	RIGHT OF MAIN LANES	36	26
121+62.98	121+82.98	RIGHT OF MAIN LANES	20	16
121+82.98	123+37.62	RIGHT OF MAIN LANES	155	113
123+82.33	126+65.87	RIGHT OF MAIN LANES	284	148
101+50	110+62.90	LEFT OF MAIN LANES	853	474
110+62.90	110+98.90	LEFT OF MAIN LANES	36	26
117+61.10	117+97.10	LEFT OF MAIN LANES	36	26
120+89.73	126+85.42	LEFT OF MAIN LANES	596	246
S. RICE ST.				
12+62.87	13+56.56	LEFT	94	73
13+56.56	14+21.90	LEFT	65	67
19+91.04	21+63.31	LEFT	172	123
117+08.25	121+62.98	BETWEEN RETAINING WALL AND RICE STREET ON LEFT	455	441
TOTAL:				2173

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS
			LIN. FT.
* ENTIRE PROJECT TO BE USED IF AND			500
WHERE DIRECTED BY THE ENGINEER			
TOTAL:			500

* NOTE: QUANTITIES ARE 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.

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1' 6")	TYPE B-1 (1' 6")
			LIN. FT.	LIN. FT.
101+50	110+98.90	LEFT OF MAIN LANES	913	
101+50	110+98.90	RIGHT OF MAIN LANES	977	
108+50	108+75	RIGHT OF MAIN LANES IN PARKING LOT	65	
117+61.10	120+33.70	LEFT OF MAIN LANES	278	
120+64.99	126+88.92	LEFT OF MAIN LANES	725	
117+61.10	123+38.14	RIGHT OF MAIN LANES	577	
123+65.12	126+88.73	RIGHT OF MAIN LANES	469	
S. RICE ST.				
12+74.79	21+33.70	LEFT SIDE		815
21+33.70	21+63.81	LEFT SIDE	47	
BUS ENTRANCE				
30+93.94	33+00	LEFT SIDE	206	
31+21.38	33+00	RIGHT SIDE	179	
TOTALS:			4436	815

10/17/2014

R061277.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.		061277	34	160

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	(CLASS III) 24"	(CLASS III) 30"	(CLASS IV) 24"	SIDE DRAIN 12"	PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2 18"	24"	30"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18"	24"	30"	DROP INLETS TYPE C	E	MO	ST	EXT. 4'	8'	JUNCT. BOX (TYPE E)	YARD DRAIN	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.								EACH							EACH				SQ.YD.	M.GAL	
103+50	CONSTRUCT DROP INLET ON LT.						249								1		1						FPC-9M, PCC-1, PCM-1
103+00	CONSTRUCT DROP INLET ON RT.						294								1		1						FPC-9M, PCC-1, PCM-1
106+00	CONSTRUCT DROP INLET ON LT.						227								1			1					FPC-9M, PCC-1, PCM-1
106+00	CONSTRUCT DROP INLET ON RT.						229								1			1					FPC-9M, PCC-1, PCM-1
108+32	CONSTRUCT DROP INLET ON LT.						95								1		1						FPC-9M, PCC-1, PCM-1
108+32	CONSTRUCT DROP INLET ON RT.						97								1		1						FPC-9M, PCC-1, PCM-1
108+77	CONSTRUCT DROP INLET ON RT.		91								1				1			1			8	0.10	FPC-9M, PCC-1, FES-1, FES-2
109+32	CONSTRUCT DROP INLET ON LT.						95								1								FPC-9M, PCC-1, PCM-1
109+32	CONSTRUCT 4' X 4' TYPE ST DROP INLET ON RT.						97									1							FPC-9S, PCC-1, PCM-1
110+32	CONSTRUCT DROP INLET ON LT.	20								1					1		1				5	0.06	FPC-9M, PCC-1, FES-1, FES-2
110+32	CONSTRUCT DROP INLET ON RT.	20								1					1		1				5	0.06	FPC-9M, PCC-1, FES-1, FES-2
115+74	CONSTRUCT 4' X 4' TYPE ST DROP INLET ON LT.						50									1							FPC-9S, PCC-1, PCM-1
116+16	CONSTRUCT 5' X 5' TYPE ST DROP INLET ON LT.			201								1				1					13	0.16	FPC-9S, PCC-1, FES-1, FES-2
117+33.33	CONSTRUCT PIPE OUTLET								117														PCC-1, PCM-1
118+00	CONSTRUCT DROP INLET ON LT.						150								1			1					FPC-9M, PCC-1, PCM-1
118+00	CONSTRUCT 4' X 4' TYPE C DROP INLET ON RT.						152						1					1					FPC-9E, PCC-1, PCM-1
119+55	CONSTRUCT 4' X 4' TYPE C DROP INLET ON LT.							74					1					1					FPC-9E, PCC-1, PCM-1
119+55	CONSTRUCT 4' X 4' TYPE C DROP INLET ON RT.	51											1				1						FPC-9E, PCC-1
119+95.63	CONSTRUCT 5' X 5' TYPE E DROP INLET ON LT.													1									FPC-9
120+37	CONSTRUCT DROP INLET ON LT.							74							1								FPC-9M, PCC-1, PCM-1
120+37	CONSTRUCT 4' X 4' TYPE C DROP INLET ON RT.						79						1										FPC-9E, PCC-1, PCM-1
121+37	CONSTRUCT 4' X 4' TYPE C DROP INLET ON RT.						97						1				1						FPC-9E, PCC-1, PCM-1
121+45	CONSTRUCT DROP INLET ON LT.							104							1		1						FPC-9M, PCC-1, PCM-1
122+50	CONSTRUCT 4' X 4' TYPE E DROP INLET ON RT.						109												1				FPC-9, PCC-1, PCM-1
123+77	CONSTRUCT DROP INLET ON LT.						229								1			1					FPC-9M, PCC-1, PCM-1
124+01.82	CONSTRUCT 4' X 4' TYPE E DROP INLET ON RT.						148												1				FPC-9, PCC-1, PCM-1
124+43	CONSTRUCT DROP INLET ON RT.						38								1		1						FPC-9M, PCC-1, PCM-1
126+79.42	CONSTRUCT DROP INLET ON LT.				10										1								FPC-9M, PCC-1
32+20	CONSTRUCT 4' X 4' TYPE E JUNCTION BOX ON LT.						129												1				FPC-9, PCC-1, PCM-1
32+20	CONSTRUCT DROP INLET ON RT.	6					26			1					1						5	0.06	FPC-9M, PCC-1, PCM-1, FES-1, FES-2
32+50	CONSTRUCT DROP INLET ON LT.						26								1		1						FPC-9M, PCC-1, PCM-1
ENTIRE PROJECT YARD DRAINS IF AND WHERE DIRECTED BY THE ENGINEER						600														6			FPC-9, PCP-1, PCP-2
TOTALS:		97	91	201	10	600	2616	252	117	3	1	1	5	1	18	3	11	7	3	6	36	0.44	

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.

CONCRETE BASE

STATION	STATION	LOCATION	LENGTH	PORTLAND CEMENT CONCRETE BASE AVG. WID.	4" U.T.
			FEET	FEET	SQ. YD.
101+50	102+75.40	RIGHT SIDE - NOTCH	125.40	2.0	27.9
101+50	102+75.40	RIGHT SIDE - UNDER CURB	125.40	4.5	62.7
101+50	103+84.54	LEFT SIDE - NOTCH	234.54	1.7	44.3
101+50	103+84.54	LEFT SIDE - UNDER CURB	234.54	4.2	109.5
103+84.54	106+11	LEFT SIDE - UNDER CURB	226.46	2.5	62.9
123+11	123+40.50	LEFT SIDE - UNDER CURB	29.50	2.5	8.2
123+40.50	126+57.70	LEFT SIDE - NOTCH	317.20	3.6	126.9
123+40.50	126+57.70	LEFT SIDE - UNDER CURB	317.20	6.1	215.0
125+83.69	126+57.45	RIGHT SIDE - NOTCH	73.76	2.2	18.0
125+83.69	126+57.45	RIGHT SIDE - UNDER CURB	73.76	4.7	38.5
126+57.45	126+89.92	RADIUS RIGHT OF MAIN LANES - NOTCH	32.47	VAR.	21.2
126+57.45	126+89.92	RADIUS RIGHT OF MAIN LANES - UNDER CURB	32.47	VAR.	34.4
126+57.70	126+89.92	RADIUS LEFT OF MAIN LANES - NOTCH	32.22	VAR.	24.9
126+57.70	126+89.92	RADIUS LEFT OF MAIN LANES - UNDER CURB	32.22	VAR.	56.0
TOTAL:					850.4

APPROACH SLABS

STATION	STATION	LOCATION	APPROACH SLABS	REINFORCING STEEL RDWY. (GR 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	POUND	TON
110+74.40	110+98.90	MAIN LANES	55.98	4115	35.0
117+61.10	117+85.60	MAIN LANES	55.98	4115	35.0
TOTALS:			111.96	8230	70.0

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	"B"	CONC. DITCH PAVING (TYPE A)	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	FEET	SQ. YD.	SQ. YD.	SQ. YD.	M. GAL.
105+50	107+64.79	LEFT OF MAIN LANES	214.79	8			190.92	95.46	1.20
108+29.61	110+00	LEFT OF MAIN LANES	170.39	16			302.92	75.73	0.95
110+00	110+98.90	LEFT OF MAIN LANES	98.90	26	22	285.71		43.96	0.55
TOTALS:						285.71	493.84	215.15	2.70

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

9/22/2014

R061277.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.		061277	35	160

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-26-14

BASE AND SURFACING

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 76-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON
MAIN LANES																					
101+50	102+75.40	RIGHT SIDE - NOTCH	125.4															2.0	27.9	220.0	3.1
101+50	103+84.54	LEFT SIDE - NOTCH	234.5															1.7	44.3	220.0	4.9
102+75.40	106+11	RIGHT SIDE - NOTCH	335.6			32.8	1223.1	0.03	36.7	18.9	704.8	550.0	193.8	16.4	609.7	330.0	100.6	16.4	609.7	220.0	67.1
106+11	110+74.40	MAIN LANES - FULL DEPTH	463.4			96.0	4942.9	0.03	148.3	53.0	2728.9	550.0	750.4	48.0	2471.5	330.0	407.8	48.0	2471.5	220.0	271.9
117+85.60	120+94.77	MAIN LANES - FULL DEPTH	309.2			96.0	3298.1	0.03	98.9	53.0	1820.8	550.0	500.7	48.0	1649.1	330.0	272.1	48.0	1649.1	220.0	181.4
120+94.77	123+11	MAIN LANES - FULL DEPTH WITH RIGHT TURN LANE	216.2			120.0	2882.7	0.03	86.5	65.0	1561.4	550.0	429.4	60.0	1441.3	330.0	237.8	60.0	1441.3	220.0	158.5
123+11	125+89.69	RIGHT SIDE - NOTCH	278.7			28.4	879.5	0.03	26.4	16.7	517.1	550.0	142.2	14.2	440.2	330.0	72.6	14.2	440.2	220.0	48.4
123+40.50	126+57.70	LEFT SIDE - NOTCH	317.2															3.6	126.9	220.0	14.0
125+89.69	126+57.45	RIGHT SIDE - NOTCH	67.8															2.2	16.6	220.0	1.8
126+57.45	126+89.92	RIGHT SIDE RADIUS - NOTCH	32.5															VAR.	21.2	220.0	2.3
126+57.70	126+89.92	LEFT SIDE RADIUS - NOTCH	32.2															VAR.	24.9	220.0	2.7
101+50	103+50	MAIN LANES - FINAL 2" LIFT	200.0			42.4	942.2	0.03	28.3									42.4	942.2	220.0	103.6
103+50	110+74.40	MAIN LANES - FINAL 2" LIFT	724.4			48.0	3863.5	0.03	115.9									48.0	3863.5	220.0	425.0
117+85.60	120+94.77	MAIN LANES - FINAL 2" LIFT	309.2			48.0	1649.1	0.03	49.5									48.0	1649.1	220.0	181.4
120+94.77	123+44	MAIN LANES - FINAL 2" LIFT	249.2			60.0	1661.3	0.03	49.8									60.0	1661.3	220.0	182.7
123+44	124+85	MAIN LANES - FINAL 2" LIFT	141.0			57.5	900.8	0.03	27.0									57.5	900.8	220.0	99.1
124+85	126+57.45	MAIN LANES - FINAL 2" LIFT	172.5			46.5	891.3	0.03	26.7									46.5	891.3	220.0	98.0
126+57.45	126+89.92	MAIN LANES - FINAL 2" LIFT	32.5			VAR.	181.9	0.03	5.5									VAR.	181.9	220.0	20.0
BUS ENTRANCE																					
30+24.08	30+93.94	FULL DEPTH	69.9			VAR.	1124.0	0.03	33.7	VAR.	620.3	550.0	170.6	VAR.	562.0	330.0	92.7	VAR.	562.0	220.0	61.8
30+24.08	30+93.94	FINAL 2" LIFT	69.9			VAR.	387.3	0.03	11.6									VAR.	387.3	220.0	42.6
30+93.94	31+21.38	FULL DEPTH	27.4			VAR.	253.2	0.03	7.6	VAR.	99.8	550.0	27.4	VAR.	84.4	330.0	13.9	VAR.	84.4	220.0	9.3
30+93.94	31+21.38	FINAL 2" LIFT	27.4			VAR.	84.4	0.03										VAR.	84.4	220.0	9.3
31+21.38	31+70	FULL DEPTH	48.6			78.0	421.2	0.03	12.6	31.0	167.4	550.0	46.0	26.0	140.4	330.0	23.2	26.0	140.4	220.0	15.4
31+21.38	31+70	FINAL 2" LIFT	48.6			26.0	140.4	0.03										26.0	140.4	220.0	15.4
31+70	32+20	FULL DEPTH	50.0			72.9	405.0	0.03	12.2	29.3	162.8	550.0	44.8	24.3	135.0	330.0	22.3	24.3	135.0	220.0	14.9
31+70	32+20	FINAL 2" LIFT	50.0			24.3	135.0	0.03										24.3	135.0	220.0	14.9
32+20	33+00	FULL DEPTH	80.0			67.8	602.7	0.03	18.1	27.6	245.3	550.0	67.5	22.6	200.9	330.0	33.1	22.6	200.9	220.0	22.1
32+20	33+00	FINAL 2" LIFT	80.0			22.6	200.9	0.03										22.6	200.9	220.0	22.1
SOUTH RICE STREET																					
12+74.79	13+48.99	FULL DEPTH	74.2	39.00	28.9	102.1	841.8	0.03	25.3	53.8	443.6	550.0	122.0	51.1	421.3	330.0	69.5	51.0	420.5	220.0	46.3
13+48.99	14+39.41	FULL DEPTH	90.4	39.00	35.3	88.4	887.9	0.03	26.6	46.9	471.1	550.0	129.6	44.2	444.0	330.0	73.3	44.1	443.0	220.0	48.7
14+39.41	15+28.00	FULL DEPTH	88.6	39.00	34.6	86.2	847.6	0.03	25.4	45.8	450.9	550.0	124.0	43.1	424.3	330.0	70.0	43.0	423.3	220.0	46.6
15+28.00	16+04.36	FULL DEPTH	76.4			97.3	786.0	0.03	23.6	50.6	429.5	550.0	118.1	46.7	396.4	330.0	65.4	45.9	389.6	220.0	42.9
16+04.36	21+33.70	FULL DEPTH	529.3			95.5	5616.5	0.03	168.5	49.7	2922.9	550.0	803.8	45.8	2693.5	330.0	444.4	45.0	2646.5	220.0	291.1
21+33.70	21+65.87	FULL DEPTH	32.2			VAR.	433.4	0.03	13.0	VAR.	239.3	550.0	65.8	VAR.	219.1	330.0	36.2	VAR.	214.3	220.0	23.6
12+74.79	13+48.99	FINAL 2" LIFT	74.2			54.9	452.6	0.03	13.6									54.9	452.6	220.0	49.8
13+48.99	14+39.41	FINAL 2" LIFT	90.4			48.0	482.1	0.03	14.5									48.0	482.1	220.0	53.0
14+39.41	15+28.00	FINAL 2" LIFT	88.6			46.9	461.7	0.03	13.9									46.9	461.7	220.0	50.8
15+28.00	16+04.36	FINAL 2" LIFT	76.4			44.9	381.2	0.03	11.4									44.9	381.2	220.0	41.9
16+04.36	21+33.70	FINAL 2" LIFT	529.3			44.0	2587.7	0.03	77.6									44.0	2587.7	220.0	284.6
21+33.70	21+65.87	FINAL 2" LIFT	32.2			VAR.	208.4	0.03	6.3									VAR.	208.4	220.0	22.9
HOWARD STREET																					
123+70						VAR.	2561.1	0.03	76.8	VAR.	940.9	550.0	258.7	VAR.	853.7	330.0	140.9	VAR.	853.7	440.0	187.8
TEMPORARY WIDENING																					
11+06.41	11+96.89	EXISTING ROAD ON LEFT	90.5	VAR.	107.0	VAR.	30.4	0.03	0.9					VAR.	30.4	440.0	6.7	VAR.	30.4	220.0	3.3
12+07.69	12+69.92	EXISTING ROAD ON LEFT	62.2	VAR.	177.8	VAR.	73.5	0.03	2.2					VAR.	73.5	440.0	16.2	VAR.	73.5	220.0	8.1
13+17.25	15+04.94	EXISTING ROAD ON LEFT	187.7	VAR.	267.9	VAR.	36.7	0.03	1.1					VAR.	36.7	440.0	8.1	VAR.	36.7	220.0	4.0
GRADE RAISE																					
102+50	106+50	MAIN LANES - GRADE RAISE	400.0			VAR.	1716.1	0.03	51.5					VAR.	1716.1	550.0	471.9				
123+00	125+00	MAIN LANES - GRADE RAISE	200.0			VAR.	533.3	0.03	16.0	VAR.	91.1	440.0	20.0	VAR.	442.2	330.0	73.0				
LEVELING																					
102+50	106+11	MAIN LANES - LEVELING	361.0			VAR.	1115.6	0.10	111.6									VAR.	1115.6	220.0	122.7
123+11	125+89.92	MAIN LANES - LEVELING	278.9			VAR.	1249.6	0.10	125.0									VAR.	1249.6	220.0	137.5
TOTALS:					651.5		48373.7		1600.1		14617.9		4014.8		15485.7		2751.7		31504.8		3559.3

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.8% MIN. AGGR.....5.2% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.1% MIN. AGGR.....3.9% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22

2/20/2014

R061277.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	36	160
				①	07284 - QUANTITIES - 54038			

SCHEDULE OF BRIDGE QUANTITIES-JOB NO. 061277

BRIDGE NO.	CODE NO.	BRIDGE NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	SP & 802	SP & 802	803	804	804	805	807	808	812	816	SP JOB 061277	SP JOB 061277	SP JOB 061277
				ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE-(SITE NO..)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS I PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	①STEEL PILING (HP 14 X 89)	STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, GR. 50W)	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	CONCRETE RIPRAP	PREFORMED SILICONE JOINT	ORNAMENTAL FENCE	SHORING
				UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LB.	CU. IN.	EA.	CU. YD.	LIN. FT.	LIN. FT.	LUMP SUM
07284	X971	UNION PACIFIC RAILROAD	BENT NO. 1				61.30		0.2	7,740	440	890	1,270	3,654.0		74			
			BENT NO. 2			224	178.75			34,214		1,200		3,806.3					
			BENT NO. 3			448	276.85			50,746		1,140		4,440.7					
			BENT NO. 4			292	254.80			52,883		1,458		7,847.0					
			BENT NO. 5			279	217.90			39,573		1,215		4,263.0					
			BENT NO. 6				57.90		0.2	6,824	480	764	1,270	2,730.0		48			
			400'-0" CONT. COMP. PLATE GIRDER UNIT					921.50	66.9		204,667		798,960		1		128	576	
			260'-0" CONT. COMP. PLATE GIRDER UNIT					598.60	43.5		128,763		498,260				64		
			SITE NO. 1 (STA. 114+50)		1														
			TOTALS FOR JOB NO. 061277			1,243	1,047.50	1,520.10	110.8	191,980	334,350	6,667	1,299,760	26,741.0	1	122	192	576	1

①These Steel Piles are required to be Grade 50 and have special tips which will not be paid for directly, but will be considered subsidiary to the item "Steel Piling (HP 14 X 89)".

AILEEN SCHUBEL
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
Carl J. Puseller
REGISTERED PROFESSIONAL ENGINEER
No. 7510
1/28/14
CARL J. PUSELLER

BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
UNION PACIFIC RR STR. & APPRS.
(ROOSEVELT RD.) (LR) (S)
PULASKI COUNTY

ROUTE 70 SEC. 12

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 6/20/13 FILENAME: b061277_ql.dgn
CHECKED BY: JYP DATE: 1-28-14 SCALE:
DESIGNED BY: — DATE: —

BRIDGE NO. 07284 DRAWING NO. 54038

PRINT DATE: 1/28/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/20/2014				6	ARK.			
				JOB NO.		061277	37	160

(2) SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-20-14

SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM		9030	EBS-9253(65)	UNIT
201	CLEARING			15	STATION
201	GRUBBING			15	STATION
202	REMOVAL AND DISPOSAL OF CURB			2710	LIN. FT.
202	REMOVAL AND DISPOSAL OF CURB AND GUTTER			794	LIN. FT.
202	REMOVAL AND DISPOSAL OF FENCE			2042	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES			1	EACH
202	REMOVAL AND DISPOSAL OF RETAINING WALLS			32	LIN. FT.
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS			398	SQ. YD.
202	REMOVAL AND DISPOSAL OF WALKS			1028	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS			6	EACH
202	REMOVAL AND DISPOSAL OF DROP INLETS			9	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS			11	EACH
202	REMOVAL AND DISPOSAL OF DITCH PAVING			19	SQ. YD.
202	REMOVAL AND DISPOSAL OF BUILDINGS			3	EACH
202	REMOVAL AND DISPOSAL OF BRICK COLUMNS			22	EACH
202	REMOVAL AND DISPOSAL OF BILLBOARDS			1	EACH
202	REMOVAL AND DISPOSAL OF SIGNS			7	EACH
202	REMOVAL AND DISPOSAL OF PLANTERS			1	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE AND ROCK WALL			750	LIN. FT.
202	REMOVAL AND DISPOSAL OF BOLLARDS			8	EACH
207	STONE BACKFILL			1655	TON
210	UNCLASSIFIED EXCAVATION			9455	CU. YD.
SP	SELECT GRANULAR BACKFILL			2045	CU. YD.
210	COMPACTED EMBANKMENT			29050	CU. YD.
303	AGGREGATE BASE COURSE (CLASS 7)			1287	TON
309	PORTLAND CEMENT CONCRETE BASE (4" UNIFORM THICKNESS)			850	SQ. YD.
401	TACK COAT			1620	GAL.
SP & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")			3858	TON
SP & 405	ASPHALT BINDER (PG 70-22) IN ACHM BASE COURSE (1 1/2")			157	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")			2631	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")			121	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")			3485	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")			6	TON
SP, SS, & 407	ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2")			185	TON
412	COLD MILLING ASPHALT PAVEMENT			811	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC			10	TON
SP & 415	ACHM PATCHING OF EXISTING ROADWAY			25	TON
504	APPROACH SLABS			111.96	CU. YD.
505	PORTLAND CEMENT CONCRETE DRIVEWAY			619.60	SQ. YD.
601	MOBILIZATION			1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE			1	EACH
SP & 603	MAINTENANCE OF TRAFFIC			1.00	LUMP SUM
604	SIGNS			343	SQ. FT.
604	BARRICADES			272	LIN. FT.
604	TRAFFIC DRUMS			88	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			526	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS			8561	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS			2489	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS			1453	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS			1125	LIN. FT.
604	VERTICAL PANELS			10	EACH
605	CONCRETE DITCH PAVING (TYPE A)			286	SQ. YD.
605	CONCRETE DITCH PAVING (TYPE B)			494	SQ. YD.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)			97	LIN. FT.
* 606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)		2616	LIN. FT.
* 606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)		2616	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)			91	LIN. FT.
* 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)		252	LIN. FT.
* 606	24" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)		252	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)			10	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)			201	LIN. FT.
* 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)		117	LIN. FT.
* 606	30" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)		117	LIN. FT.
606	12" SIDE DRAIN			600	LIN. FT.
SP & 606	18" SIDE DRAIN			64	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS			3	EACH
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS			1	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS			1	EACH
606	SELECTED PIPE BEDDING			150	CU. YD.
609	DROP INLETS (TYPE C)			5	EACH
609	DROP INLETS (TYPE E)			1	EACH
609	DROP INLETS (TYPE MO)			18	EACH
609	DROP INLETS (TYPE ST)			3	EACH
609	JUNCTION BOXES (TYPE E)			3	EACH
609	DROP INLET EXTENSIONS (4')			11	EACH
609	DROP INLET EXTENSIONS (8')			7	EACH
609	YARD DRAINS			6	EACH
611	4" PIPE UNDERDRAINS			500	LIN. FT.
* 619	6' STEEL CHAIN LINK FENCE	(ALTERNATE NO. 1)		753	LIN. FT.
* 619	6' ALUMINUM CHAIN LINK FENCE	(ALTERNATE NO. 2)		753	LIN. FT.
* 619	20' STEEL GATES	(ALTERNATE NO. 1)		1	EACH
* 619	20' ALUMINUM GATES	(ALTERNATE NO. 2)		1	EACH
620	LIME			6	TON
620	SEEDING			2.83	ACRE
SS & 620	MULCH COVER			11.95	ACRE
620	WATER			490.7	M.GAL.
621	TEMPORARY SEEDING			9.12	ACRE
621	SILT FENCE			5173	LIN. FT.
621	SAND BAG DITCH CHECKS			176	BAG
621	DROP INLET SILT FENCE			750	LIN. FT.
621	SEDIMENT BASIN			32	CU. YD.

* DENOTES ALTERNATE BID ITEMS

SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM NUMBER	ITEM		9030	EBS-9253(65)	UNIT
621	OBLITERATION OF SEDIMENT BASIN			32	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL			271	CU. YD.
621	ROCK DITCH CHECKS			24	CU. YD.
623	SECOND SEEDING APPLICATION			2.83	ACRE
624	SOLID SODDING			1268	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)			510	SQ. YD.
631	CONCRETE BARRIER WALL (PARAPET TYPE A)			405.4	LIN. FT.
632	CONCRETE ISLAND			157	SQ. YD.
633	CONCRETE WALKS			2173	SQ. YD.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")			4436	LIN. FT.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE B-1) (1' 6")			815	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL			1.00	LUMP SUM
641	WHEELCHAIR RAMPS (TYPE 3)			31	SQ. YD.
641	WHEELCHAIR RAMPS (TYPE 4)			18	SQ. YD.
710	NON-METALLIC CONDUIT (1.5")		1867		LIN. FT.
710	NON-METALLIC CONDUIT (2")		1200		LIN. FT.
711	CONCRETE PULL BOX (TYPE 2)		7		EACH
SP	SERVICE POINT ASSEMBLY (5 CIRCUITS)		1		EACH
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10")			188	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")			1447	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (8")			291	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")			6008	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)			4	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)			6	EACH
SP	NEMA 4X STAINLESS STEEL JUNCTION BOX		21		EACH
SP	FIBERGLASS CONDUIT H.D. (1.5")		70		LIN. FT.
SP	TAMPER RESISTANT PULL BOX INSERT		7		EACH
SP	ROADWAY ILLUMINATION POLE (TYPE A, PEDESTAL, 20')		22		EACH
SP	ROADWAY ILLUMINATION POLE (TYPE A, GROUND, 20')		6		EACH
SP	UNDERPASS LUMINAIRE (TYPE B)		2		EACH
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT, COPPER (1C/10 A.W.G. EGC)		11500		LIN. FT.
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING WHITE (4")	(ALTERNATE NO. 1)		356	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE WHITE (4")	(ALTERNATE NO. 2)		356	LIN. FT.
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	(ALTERNATE NO. 1)		1422	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	(ALTERNATE NO. 2)		1422	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)			103	EACH
804	REINFORCING STEEL-ROADWAY (GRADE 60)			8230	POUND
SP	TEXTURED COATING FINISH			332	SQ. YD.
SP	RETAINING WALL			4945	SQ. FT.
	STRUCTURES OVER 20' SPAN				
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)			1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL			1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE			1243	CU. YD.
SP & 802	CLASS S CONCRETE-BRIDGE			1047.50	CU. YD.
SP & 802	CLASS S(AE) CONCRETE-BRIDGE			1520.10	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT			110.8	GAL.
804	REINFORCING STEEL-BRIDGE (GRADE 60)			191980	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)			334350	POUND
805	STEEL PILING (HP 14X89)			6667	LIN. FT.
807	STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270-GR50W)			1299760	POUND
808	ELASTOMERIC BEARINGS			26741.0	CU. IN.
812	BRIDGE NAME PLATE (TYPE D)			1	EACH
816	CONCRETE RIPRAP			122	CU. YD.
SP	PREFORMED SILICONE JOINT			192	LIN. FT.
SP	ORNAMENTAL FENCE			576	LIN. FT.
SP	SHORING			1.00	LUMP SUM

* DENOTES ALTERNATE BID ITEMS

REVISIONS

DATE	REVISION	SHEET NUMBER
11/20/2014	REVISED SPECIAL PROVISION "STORM WATER POLLUTION PREVENTION PLAN"	37

11/17/2014

R061277.DGN

SUMMARY OF QUANTITIES AND REVISIONS

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.		061277	38	160

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-26-14

SURVEY CONTROL COORDINATES

Project Name: s061277
Date: 9/9/2011
Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	2061659.2889	1220524.7101	324.811	CTL	5/8" Rebar with 2" Aluminum Cap
2	2061641.9399	1220923.8452	299.929	CTL	5/8" Rebar with 2" Aluminum Cap
3	2061581.0283	1221114.0255	290.981	CTL	5/8" Rebar with 2" Aluminum Cap
4	2061677.5979	1221270.8223	293.114	CTL	5/8" Rebar with 2" Aluminum Cap
5	2061666.4758	1222049.4217	271.180	CTL	5/8" Rebar with 2" Aluminum Cap
6	2061562.4211	1222179.4992	271.751	CTL	5/8" Rebar with 2" Aluminum Cap
7	2061636.7924	1222557.8080	287.884	CTL	5/8" Rebar with 2" Aluminum Cap
8	2061605.8605	1222936.8315	296.266	CTL	5/8" Rebar with 2" Aluminum Cap
9	2061550.7910	1223062.8897	296.878	CTL	5/8" Rebar with 2" Aluminum Cap
100	2061206.5940	1232131.0906	276.220	GPS	AHTD GPS 600064 RTK ELEV
101	2062714.0917	1232776.4286	297.174	GPS	AHTD GPS 600064A RTK ELEV
102	2070178.2754	1213451.1134	405.810	GPS	AHTD GPS 600027A RTK ELEV
909	2060929.8777	1223132.9755	301.381	TBM	2" ALUM CAP & RBR TBM-909
910	2061943.3264	1222301.1866	278.280	TBM	2" ALUM CAP & RBR TBM-910

Note - Rebar and Cap - Standard -" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.9999736533 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME s061277gi.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

REFERENCE POINTS (1500 SERIES) ARE TO BE USED TO ESTABLISH CONTROL
IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED.
REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0302-SOUTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 600064 - 600064A, 600027A
CONVERGENCE ANGLE: 0-10-06 LEFT AT LT: 34-43-31.25 LG: 092-18-02.01
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

ROOSEVELT ROAD

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	100+00.00	2061698.3499	1220220.3078
8001	PI	101+54.75	2061689.3359	1220374.7936
8002	PC	101+81.27	2061688.2077	1220401.2915
8004	PT	106+18.28	2061640.5770	1220835.3757
8005	PC	106+61.42	2061633.0235	1220877.8417
8007	PT	110+98.33	2061585.3970	1221311.8254
8008	PC	117+61.45	2061557.1689	1221974.3466
8010	PT	121+85.93	2061566.6032	1222398.4213
8011	PC	122+61.34	2061573.1604	1222473.5421
8013	PT	126+84.37	2061582.6557	1222896.1772
8014	PI	127+50.31	2061579.8777	1222962.0614
8015	PI	129+67.13	2061570.1946	1223178.6572
8016	PI	131+99.03	2061560.9713	1223410.3768
8017	POE	134+64.41	2061549.8300	1223675.5218

RICE STREET

POINT NO.	TYPE	STATION	NORTHING	EASTING
8018	POB	10+00.00	2061948.7430	1221920.9229
8019	PC	12+73.00	2061676.0264	1221908.3778
8021	PT	13+06.94	2061642.3266	1221904.5667
8022	PC	13+14.18	2061635.2027	1221903.2759
8024	PT	13+48.99	2061600.6412	1221899.4267
8025	PC	14+39.44	2061510.2732	1221895.5764
8027	PT	16+04.36	2061406.0808	1221999.0735
8028	POE	21+84.07	2061426.8792	1222578.4071

BUS ENTRANCE

POINT NO.	TYPE	STATION	NORTHING	EASTING
8029	POB	30+00.00	2061557.1574	1222252.8184
8030	POE	33+85.84	2061942.6739	1222268.6053

TEMPORARY WIDENING

POINT NO.	TYPE	STATION	NORTHING	EASTING
8031	POB	10+00.00	2061619.0362	1222014.8181
8032	PC	11+06.41	2061614.6478	1222121.1330
8034	PT	11+58.47	2061617.8149	1222173.0105
8035	PC	11+70.25	2061619.7291	1222184.6352
8037	PT	12+22.32	2061622.8962	1222236.5126
8038	PC	14+64.55	2061612.9058	1222478.5425
8040	PT	15+17.67	2061605.2148	1222531.0068
8041	PC	15+27.13	2061602.8762	1222540.1708
8043	PT	15+80.25	2061595.1853	1222592.6351
8044	POE	17+00.00	2061590.2468	1222712.2760

1/31/2014

R061277.DGN

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.		061277	39	160

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-26-14

N

P. I. = 108+80.20
Δ = 7°38'46" LT.
D = 1°45'00"
T = 218.78'
L = 436.91'
P.C. 106+61.42
P.T. 110+98.33
NO SUPER

C. L. CONSTRUCTION
ROOSEVELT ROAD

POB 100+00.00

P. I. 101+54.75
Δ = 0°54'05" LT.

P. I. 104+00.10

P.C. 106+61.42

P.C. 101+81.27

P.T. 106+18.28

P.T. 110+98.33

100 — S 86°39'38" E 154.75' — 8000

26.52'

S 87°33'43" E — 8001 — 8002

105

S 87°30'40" E 399.51'

43.13'

S 79°54'51" E — 8004 — 8005

S 72°14'26" E 199.70'

N 58°22'17" E 184.75'

110

8007

S 87°33'37" E 663.12'

115

P. I. 108+80.20

P. I. = 104+00.10
Δ = 7°38'52" RT.
D = 1°45'00"
T = 218.83'
L = 437.01'
P.C. 101+81.27
P.T. 106+18.28
NO SUPER

SURVEY BASELINE

STA. 101+50.00
BEGIN JOB 061277
LOG MILE 5.25

1/31/2014

R061277.DGN

SURVEY CONTROL 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.		061277	40	160

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
* * *
REGISTERED PROFESSIONAL ENGINEER
* * *
No. 11425
TRINITY D. SMITH
2-26-14

STA. 12+74.79
BEGIN CONSTRUCTION
S. RICE ST.

P. I. = 119+73.99
Δ = 7°25'42" LT.
D = 1°45'00"
T = 212.54'
L = 424.48'
P.C. 117+61.45
P.T. 121+85.93
NO SUPER

STA. 33+00.00
END CONSTRUCTION

C.L. CONSTRUCTION
BUS ENTRANCE

STA. 30+24.08
BEGIN CONSTRUCTION

C.L. CONSTRUCTION
TEMPORARY WIDENING

N

STA. 116+90.09 HWY. 70 =
STA. 13+88.95 S. RICE ST.

P. I. = 12+90.00
Δ = 7°38'11" RT.
D = 22°30'00"
T = 17.00'
L = 33.94'
P.C. 12+73.00
P.T. 13+06.94
NO SUPER

POB 10+00.00

POE 33+85.84

P. I. = 11+32.53
Δ = 11°42'52" LT.
D = 22°30'00"
T = 26.12'
L = 52.06'
P.C. 11+06.41
P.T. 11+58.47
NO SUPER

P. I. = 15+53.79
Δ = 11°57'08" LT.
D = 22°30'00"
T = 26.66'
L = 53.12'
P.C. 15+27.13
P.T. 15+80.25
NO SUPER

P. I. = 13+31.61
Δ = 7°49'50" LT.
D = 22°30'00"
T = 17.43'
L = 34.80'
P.C. 13+14.18
P.T. 13+48.99
NO SUPER

P. I. = 11+96.37
Δ = 11°42'52" RT.
D = 22°30'00"
T = 26.12'
L = 52.06'
P.C. 11+70.25
P.T. 12+22.32
NO SUPER

P. I. = 124+73.15
Δ = 7°24'11" RT.
D = 1°45'00"
T = 211.81'
L = 423.04'
P.C. 122+61.34
P.T. 126+84.37
NO SUPER

P. I. = 129+67.13
Δ = 0°16'49" LT.

STA. 120+40.01 HWY. 70 =
STA. 30+00.00 BUS ENTRANCE

P. I. = 15+47.61
Δ = 94°29'45" LT.
D = 57°17'45"
T = 108.17'
L = 164.93'
P.C. 14+39.44
P.T. 16+04.36
NO SUPER

SURVEY BASELINE

C.L. CONSTRUCTION
S. RICE ST.

P. I. = 14+91.21
Δ = 11°57'08" RT.
D = 22°30'00"
T = 26.66'
L = 53.12'
P.C. 14+64.55
P.T. 15+17.67
NO SUPER

STA. 21+65.15
END CONSTRUCTION
S. RICE ST.

STA. 126+89.92
END JOB 061277

P. I. = 127+50.31
Δ = 0°08'42" RT.

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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.		061277	41	160

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14

STA. 103+50 - CONSTRUCT
DI ON LT. WITH 4' EXTENSION
& 18" X 249' PIPE OUTLET
CONNECT TO DI ON LT. @ STA. 106+00
TY C = 4'x 4'
TY MO = 4'
H = 4'-11"

STA. 106+00 - CONSTRUCT
DI ON LT. WITH 8' EXTENSION
& 18" X 227' PIPE OUTLET
CONNECT TO DI ON LT. @ STA. 108+32
TY C = 4'x 4'
TY MO = 4'
H = 6'-0"

P. I. = 108+80.20
Δ = 7°38'46" LT.
D = 1°45'00"
T = 218.78'
L = 436.91'
P.C. 106+61.42
P.T. 110+98.33
NO SUPER

STA. 108+32 - CONSTRUCT
DI ON LT. WITH 4' EXTENSION
& 18" X 95' PIPE OUTLET
CONNECT TO DI ON LT. @ STA. 109+32
TY C = 4'x 4'
TY MO = 4'
H = 5'-0"

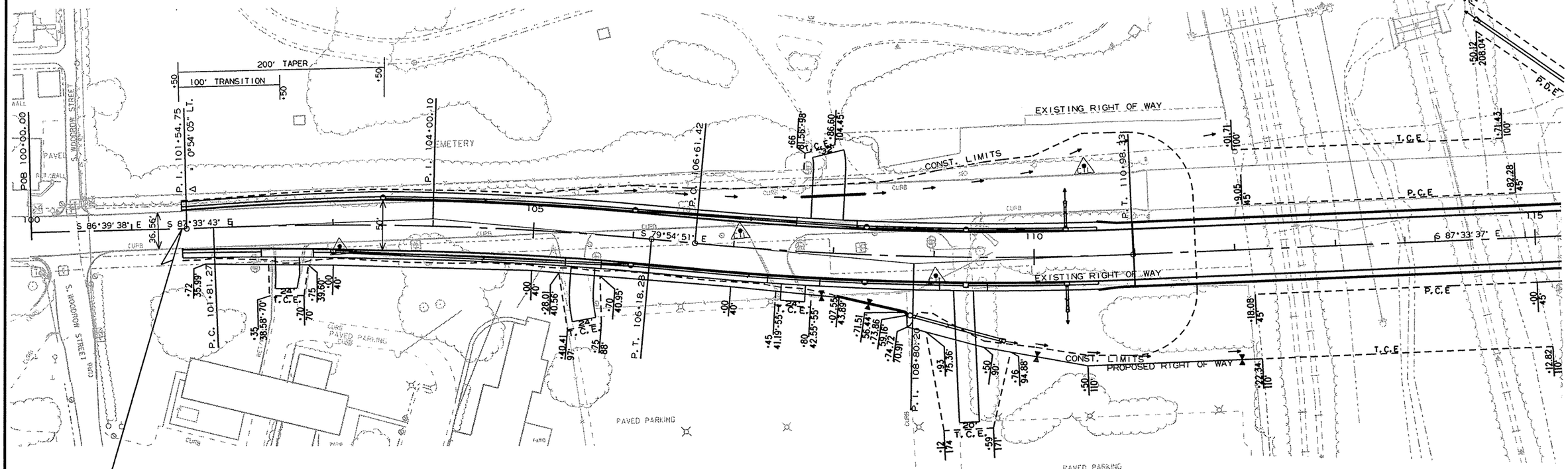
STA. 109+32 - CONSTRUCT
DI ON LT. & 18" X 95' PIPE OUTLET
CONNECT TO DI ON LT. @ STA. 110+32
TY C = 4'x 4'
TY MO = 4'
H = 5'-0"

STA. 107+92 - INSTALL
18" x 64' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 195 CU. YDS.

STA. 110+32 - CONSTRUCT
DI ON LT. WITH 4' EXTENSION
& 18" X 20' R.C. PIPE OUTLET
WITH FES
TY C = 4'x 4'
TY MO = 4'
H = 6'-6"

STA. 110+98.90 - BRIDGE END
BRIDGE NO. 07284
660'-0" CONST. COMPOSITE PLATE GIRDER UNITS (104', 148', 148', 130', 130')
50'-0" CLEAR ROADWAY
662'-2½" BRIDGE LENGTH
STA. 117+61.10 - BRIDGE END

STA. 111+15.42 - STA. 117+29.13 - IN PLACE
615' X 40'
BRIDGE CONSISTING OF (STEEL STRINGER GIRDER AND CONCRETE TEE BEAM). REMOVE AS EXISTING BRIDGE STRUCTURE = 1.00 LUMP SUM



STA. 101+50.00
BEGIN JOB 061277
LOG MILE 5.25

STA. 102+54 CONSTRUCT
APPROACH ON RT = 25 CU. YDS.

STA. 103+00 - CONSTRUCT
DI ON RT. WITH 4' EXTENSION
& 18" X 294' PIPE OUTLET
CONNECT TO DI ON RT. @ STA. 106+00
TY C = 4'x 4'
TY MO = 4'
H = 5'-6"

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

STA. 105+52 CONSTRUCT
APPROACH ON RT.
UNCLASSIFIED EXCAVATION = 35 CU. YDS.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.	GATE
107+66		RT.		1
107+90	109+20	RT.	130	
109+36	112+12	RT.	250	

P. I. = 104+00.10
Δ = 7°38'52" RT.
D = 1°45'00"
T = 218.83'
L = 437.01'
P.C. 101+81.27
P.T. 106+18.28
NO SUPER

STA. 106+00 - CONSTRUCT
DI ON RT. WITH 8' EXTENSION
& 18" X 229' PIPE OUTLET
CONNECT TO DI ON RT. @ STA. 108+32
TY C = 4'x 4'
TY MO = 4'
H = 6'-0"

STA. 107+62 CONSTRUCT
APPROACH OF RT. = 5 CU. YDS.

STA. 108+32 - CONSTRUCT
DI ON RT. WITH 4' EXTENSION
& 18" X 97' PIPE OUTLET
CONNECT TO DI ON RT. @ STA. 109+32
TY C = 4'x 4'
TY MO = 4'
H = 5'-0"

STA. 108+77 - CONSTRUCT
DI ON RT. WITH 8' EXTENSION
& 24" X 91' R.C. PIPE OUTLET
WITH FES
TY C = 4'x 4'
TY MO = 4'
H = 5'-0"

STA. 109+29.29 CONSTRUCT
APPROACH ON RT. = 705 CU. YDS.

STA. 109+32 - CONSTRUCT
DI ON RT. & 18" X 97' PIPE OUTLET
CONNECT TO DI ON RT. @ STA. 110+32
TY ST = 4'x 4'
H = 4'-6"

STA. 110+32 - CONSTRUCT
DI ON RT. WITH 4' EXTENSION
& 18" X 20' R.C. PIPE OUTLET
WITH FES
TY C = 4'x 4'
TY MO = 4'
H = 6'-6"

FLOODPLAIN

FENCING

STA.	STA.	SIDE	TYPE	LIN.FT.	GATES
107+89.89	112+22.34	RT.	6' CHAIN LINK	438	1

HWY. 70

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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.		061277	42	160

(2) PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14

LEFT SIDE

P.V.I. 102+50.00 ELEV. 328.95
103+50 TOP = 322.45 FL = 317.53
-6.50%
18" X 249' @ 6.64%
P.V.C. 104+96.70 ELEV. 312.91
106+00 TOP = 306.99 FL = 300.99
-8.58%
LT. DT. GR. 105+50.00 ELEV. 306.94
LT. DT. GR. 106+00.00 ELEV. 302.65
K 67.02 VC=600' e=6.71'
108+32 TOP = 299.50 FL = 294.50
109+32 TOP = 298.74 FL = 293.74
18" X 227' @ 2.86%
LEFT DITCH GRADE
18" X 95' @ 0.80%
-5.17%
P.V.I. 107+96.70 ELEV. 293.40
18" X 95' @ 0.79%
110+32 TOP = 299.48 FL = 292.98
LT. DT. GR. 110+00.00 ELEV. 281.97
LT. DT. GR. 110+98.90 ELEV. 278.13
K 67.02 VC=600' e=6.71'
P.V.T. 110+96.70 ELEV. 300.75
BRIDGE END 110+98.90
18" X 95' @ 0.79%
3:1
3.88%
LEFT DITCH GRADE
2.45%
P.V.C. 111+68.72 ELEV. 302.52
K 47.93 VC=350' e=-3.19'
P.V.I. 113+43.72 ELEV. 306.80
.60 .80
UNNAMED TRIBUTARY OF FOURCHE CREEK IS CLASSIFIED AS INTERMITTENT. THE TOP OF CHANNEL ELEVATION IS 254 FT. MSL. REFER TO SECTION 110.06(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.
Q50 DESIGN H.W. ELEV. 256.6
30" X 201' @ 1.61%
F.L. OUTLET = 251.13

STA. 101+50.00
BEGIN JOB 061277
LOG MILE 5.25

RIGHT SIDE

P.V.I. 102+50.00 ELEV. 328.95
103+00 TOP = 325.72 FL = 320.22
-6.50%
18" X 294' @ 6.55%
P.V.C. 104+96.70 ELEV. 312.91
106+00 TOP = 306.99 FL = 300.99
K 67.02 VC=600' e=6.71'
108+32 TOP = 299.50 FL = 294.50
109+32 TOP = 298.20 FL = 293.74
18" X 229' @ 2.83%
18" X 97' @ 0.78%
24" X 91' @ 4.35%
P.V.I. 107+96.70 ELEV. 293.40
108+77 TOP = 292.25 FL = 287.25
RIGHT DITCH GRADE
-5.00%
110+32 TOP = 299.48 FL = 292.98
RT. DT. GR. 109+70.82 ELEV. 282.96
RT. DT. GR. 110+50.00 ELEV. 279.00
RT. DT. GR. 110+98.90 ELEV. 277.64
K 67.02 VC=600' e=6.71'
P.V.T. 110+96.70 ELEV. 300.75
BRIDGE END 110+98.90
18" X 97' @ 0.78%
3:1
5.00%
RIGHT DITCH GRADE
2.45%
P.V.C. 111+68.72 ELEV. 302.52
K 47.93 VC=350' e=-3.19'
P.V.I. 113+43.72 ELEV. 306.80
.60 .80
UNNAMED TRIBUTARY OF FOURCHE CREEK IS CLASSIFIED AS INTERMITTENT. THE TOP OF CHANNEL ELEVATION IS 254 FT. MSL. REFER TO SECTION 110.06(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.
Q50 DESIGN H.W. ELEV. 256.6

100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00
350 340 330 320 310 300 290 280 270 260 250 240

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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.		061277	43	160

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14

P. I. = 119+73.99
Δ = 7°25'42" LT.
D = 1°45'00"
T = 212.54'
L = 424.48'
P.C. 117+61.45
P.T. 121+85.93
NO SUPER

STA. 119+55 - CONSTRUCT
DI ON LT. WITH 8' EXTENSION
& 24" X 74' PIPE OUTLET
CONNECT TO DI ON LT. @ STA. 119+95.63
TY C = 4' x 4'
H = 12'-0"

STA. 119+95.63 - CONSTRUCT
DI ON LT.
CONNECT TO EXISTING 30" R.C. PIPE OUTLET
TY E = 5' x 5'
H = 6'-9"

STA. 120+69 ON LT. CONSTRUCT
TYPE 4 WHEELCHAIR RAMP = 8.9 SQ. YDS.

STA. 120+90 ON LT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 3.3 SQ. YDS.

STA. 116+16 - IN PLACE
DI ON LT. WITH PIPE INLET
& PIPE OUTLET
REMOVE & CONSTRUCT
DI ON LT & 30" X 201' R.C. PIPE OUTLET
WITH FES
TY ST = 5' x 5'
H = 6'-11"

STA. 115+74 - IN PLACE
DI ON LT. WITH PIPE INLET
& PIPE OUTLET
REMOVE & CONSTRUCT
DI ON LT & 18" X 50' PIPE OUTLET
CONNECT TO DI ON LT. @ STA. 116+16
TY ST = 4' x 4'
H = 5'-0"

STA. 120+17 ON LT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 3.3 SQ. YDS.

STA. 120+40 ON LT. CONSTRUCT
TYPE 4 WHEELCHAIR RAMP = 8.9 SQ. YDS.

STA. 120+37 - CONSTRUCT
DI ON LT. & 24" X 74' PIPE OUTLET
CONNECT TO DI ON LT. @ STA. 119+55
TY C = 4' x 4'
TY MO = 4'
H = 5'-0"

STA. 118+00 - CONSTRUCT
DI ON LT WITH 8' EXTENSION
& 18" X 150' PIPE OUTLET
CONNECT TO DI ON LT. @ STA. 119+55
TY C = 4' x 4'
TY MO = 4'
H = 5'-0"

STA. 117+34.72 - IN PLACE
DI ON LT & 18"X 16' R.C. PIPE OUTLET
- RETAIN

STA. 117+33.33 - IN PLACE
JUNCTION BOX ON LT - RETAIN
& 30" X 117' R.C. PIPE OUTLET - REMOVE
& CONST. 30" X 117' PIPE OUTLET
CONNECT TO DI ON LT. @ STA. 116+16

STA. 121+45 - CONSTRUCT
DI ON LT. WITH 4' EXTENSION
& 24" X 104' PIPE OUTLET
CONNECT TO DI ON LT. @ STA. 120+37
TY C = 4' x 4'
TY MO = 4'
H = 5'-0"

STA. 123+77 - CONSTRUCT
DI ON LT. WITH 8' EXTENSION
CONNECT TO EXISTING 18" R.C. PIPE OUTLET
& 18" X 229' PIPE OUTLET TO DI ON LT. @ STA. 121+45
TY C = 4' x 4'
TY MO = 4'
H = 6'-1"

STA. 123+83.14 - IN PLACE
DI ON LT & 18"X 68' R.C. PIPE OUTLET
- RETAIN

STA. 125+11 CONSTRUCT
APPROACH ON LT.
UNCLASSIFIED EXCAVATION = 10 CU. YDS.

STA. 125+41 CONSTRUCT
APPROACH ON LT.
UNCLASSIFIED EXCAVATION = 5 CU. YDS.

STA. 125+69 CONSTRUCT
APPROACH ON LT.
UNCLASSIFIED EXCAVATION = 15 CU. YDS.

STA. 126+28 CONSTRUCT
APPROACH ON LT.
UNCLASSIFIED EXCAVATION = 10 CU. YDS.

STA. 126+69 ON LT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5.4 SQ. YDS.

STA. 126+70 CONSTRUCT
APPROACH ON LT. ON S. PARK ST. = 10 CU. YDS.
UNCLASSIFIED EXCAVATION = 5 CU. YDS.

STA. 126+79.42 CONSTRUCT
DI ON LT.
EXTEND EXISTING 24" R.C. PIPE INLET 10' LT.
(CLASS IV) (TYPE 3 BEDDING)
TY C = 4' x 4'
TY MO = 4'
H = 4'-9"

STA. 127+22.39 - IN PLACE
DI ON LT & 24" R.C. PIPE OUTLET
- RETAIN

STA. 127+22.98 - IN PLACE
DI ON RT & 30" R.C. PIPE OUTLET
- RETAIN

CONCRETE ISLAND WITH TYPE C CURB FACE

341' TAPER

100' TRANSITION

200' TAPER

EXISTING RIGHT OF WAY

CONST. LIMITS

PROPOSED RIGHT OF WAY

GRADE TO DRAIN

CURB (TYPE A)

P.O.E.

P.C. 117+61.45

P.I. 119+73.99

P.T. 121+85.93

P.C. 122+61.34

P.I. 124+73.15

P.T. 126+84.37

P.I. 129+67.13
Δ = 0°16'49" LT.

P.I. 127+50.31
Δ = 0°08'42" RT.

N 85°00'41" E

S 87°35'08" E

S 87°26'25" E

PAVED PARKING

CONC. PARKING

HOWARD STREET

S. PARK STREET

CONC. RETAINING WALL

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
116+64	119+07	RT.	318
120+37	121+92	RT.	346
122+13	123+48	RT.	228
123+99	125+33	RT.	202
125+48	126+90	RT.	130

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

CONCRETE WALK

STA. 118+00 - CONSTRUCT
DI ON RT. WITH 8' EXTENSION
& 18" X 152' PIPE OUTLET
CONNECT TO DI ON RT. @ STA. 119+55
TY C = 4' X 4'
H = 5'-0"

STA. 119+55 - CONSTRUCT
DI ON RT. WITH 4' EXTENSION
& 18" X 51' R.C. PIPE OUTLET
CONNECT TO DI ON LT. @ 119+55
TY C = 4' x 4'
H = 6'-6"

STA 121+37 - CONSTRUCT
DI ON RT. WITH 4' EXTENSION
& 18" X 97' PIPE OUTLET
CONNECT TO DI ON RT. @ STA. 120+37
TY C = 4' x 4'
H = 5'-0"

STA. 123+06 ON RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 6.5 SQ. YDS.

STA. 120+37 - CONSTRUCT
DI ON RT. & 18" X 79' PIPE OUTLET
CONNECT TO DI ON RT. @ STA. 119+55
TY C = 4' x 4'
H = 5'-0"

STA. 122+50 - CONSTRUCT
JUNCTION BOX ON RT.
& 18" X 109' PIPE OUTLET
CONNECT TO DI ON RT. @ STA. 121+37
TY E = 4' x 4'
H = 5'-0"

STA. 123+69 CONSTRUCT
APPROACH ON RT. ON
HOWARD ST.

STA. 123+78 CONSTRUCT
APPROACH ON RT. ON
HOWARD ST. = 19 CU. YDS.
UNCLASSIFIED EXCAVATION = 230 CU. YDS.

STA. 124+01.82 - CONSTRUCT
JUNCTION BOX ON RT.
& 18" X 148' PIPE OUTLET
CONNECT TO JB ON RT. @ STA. 122+50
TY E = 4' x 4'
H = 5'-0"

STA. 124+22 ON RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 6.6 SQ. YDS.

STA. 124+43 - CONSTRUCT
DI ON RT. WITH 4' EXTENSION
& 18" X 38' PIPE OUTLET
CONNECT TO JB ON RT. @ STA. 124+01.82
TY C = 4' x 4'
TY MO = 4'
H = 5'-6"

STA. 125+39 CONSTRUCT
APPROACH ON RT.

STA. 126+70 ON RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5.4 SQ. YDS.

P. I. = 124+73.15
Δ = 7°24'11" RT.
D = 1°45'00"
T = 211.81'
L = 423.04'
P.C. 122+61.34
P.T. 126+84.37
NO SUPER

FENCING

STA.	STA.	SIDE	TYPE	LIN.FT.
123+89.06	125+31.34	RT.	6' CHAIN LINK	180
125+46.68	126+77.63	RT.	6' CHAIN LINK	135

STA. 126+89.92
END JOB 061277

HWY. 70

9/22/2014

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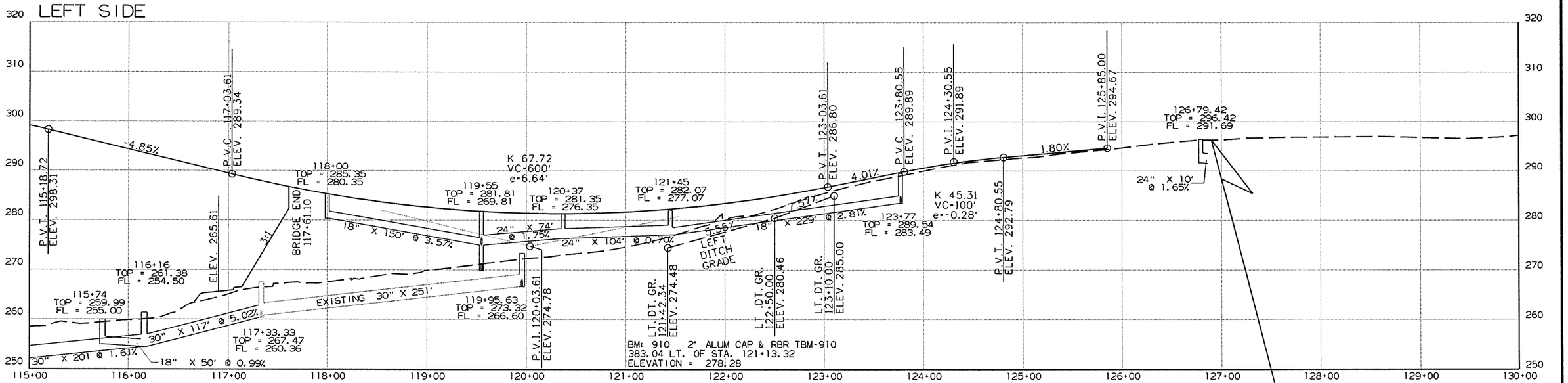
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	44	160

(2) PROFILE SHEETS

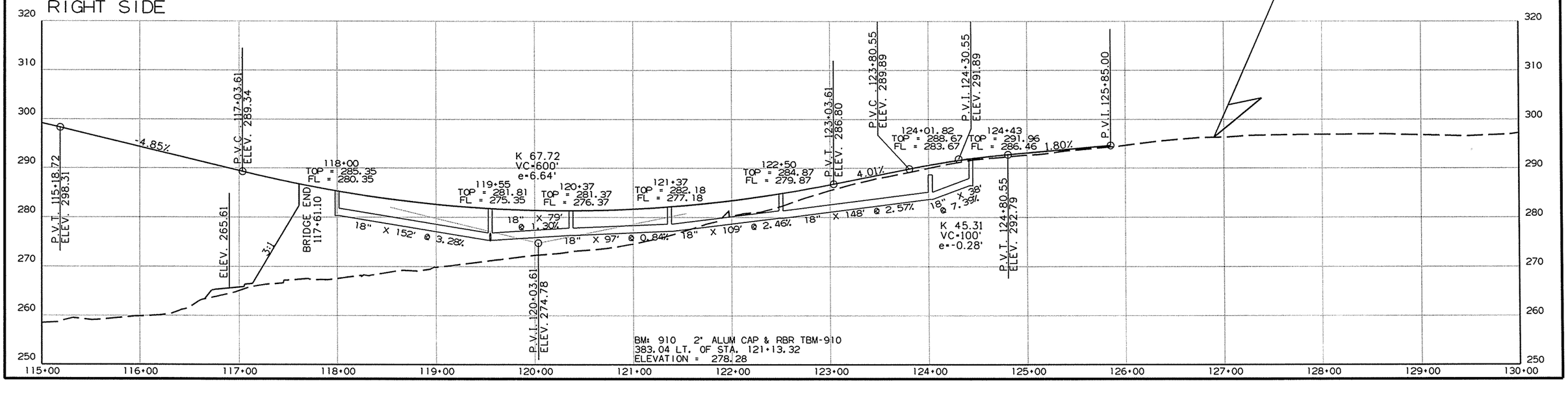
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14

LEFT SIDE



STA. 126+89.92
END JOB 061277

RIGHT SIDE



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R061277.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.		061277	45	160

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-14

STA. 12+74.79
BEGIN CONSTRUCTION
S. RICE ST.

STA. 116+84.75 HWY. 70 =
STA. 13+89.23 S. RICE ST.

N

POB 10+00.00

P.I. = 12+90.00
Δ = 7°38'11" RT.
D = 22°30'00"
T = 17.00'
L = 33.94'
P.C. 12+73.00
P.T. 13+06.94
NO SUPER

P.I. = 13+31.61
Δ = 7°49'50" LT.
D = 22°30'00"
T = 17.43'
L = 34.80'
P.C. 13+14.18
P.T. 13+48.99
NO SUPER

P.I. = 15+47.61
Δ = 94°29'45" LT.
D = 57°17'45"
T = 108.17'
L = 164.93'
P.C. 14+39.44
P.T. 16+04.36
NO SUPER

EXISTING RIGHT OF WAY

CONST. LIMITS

PROPOSED RIGHT OF WAY

PAVED PARKING

GRADE TO DRAIN

HOWARD STREET

S 87°33'37" E

N 87°56'38" E

N 85°00'41" E

CONCRETE WALK

STA. 21+65.15
END CONSTRUCTION
S. RICE ST.

S. RICE ST.

9/22/2014

R061277.DGN

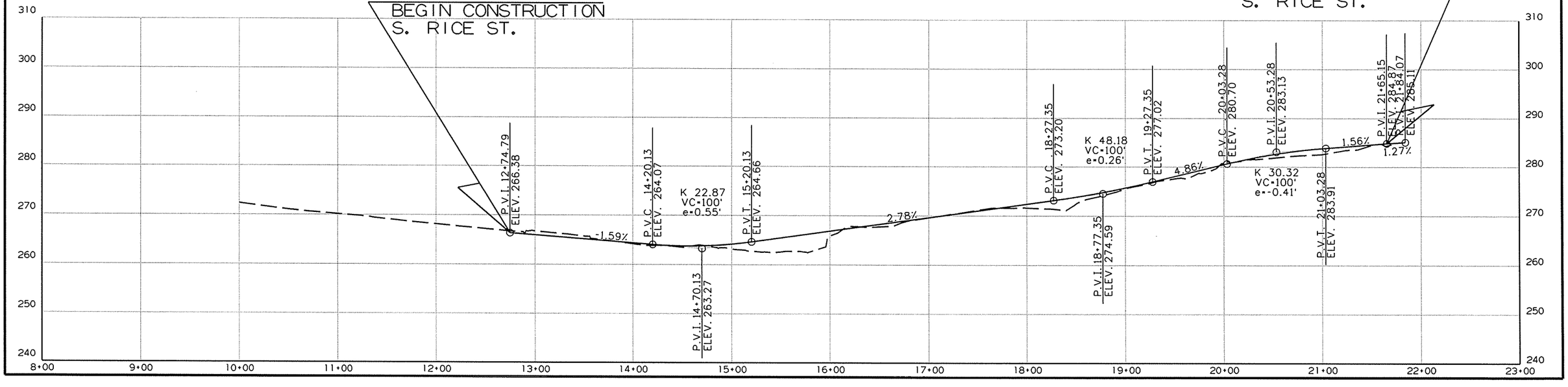
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	46	160

(2) PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-26-14

STA. 12+74.79
BEGIN CONSTRUCTION
S. RICE ST.

STA. 21+65.15
END CONSTRUCTION
S. RICE ST.



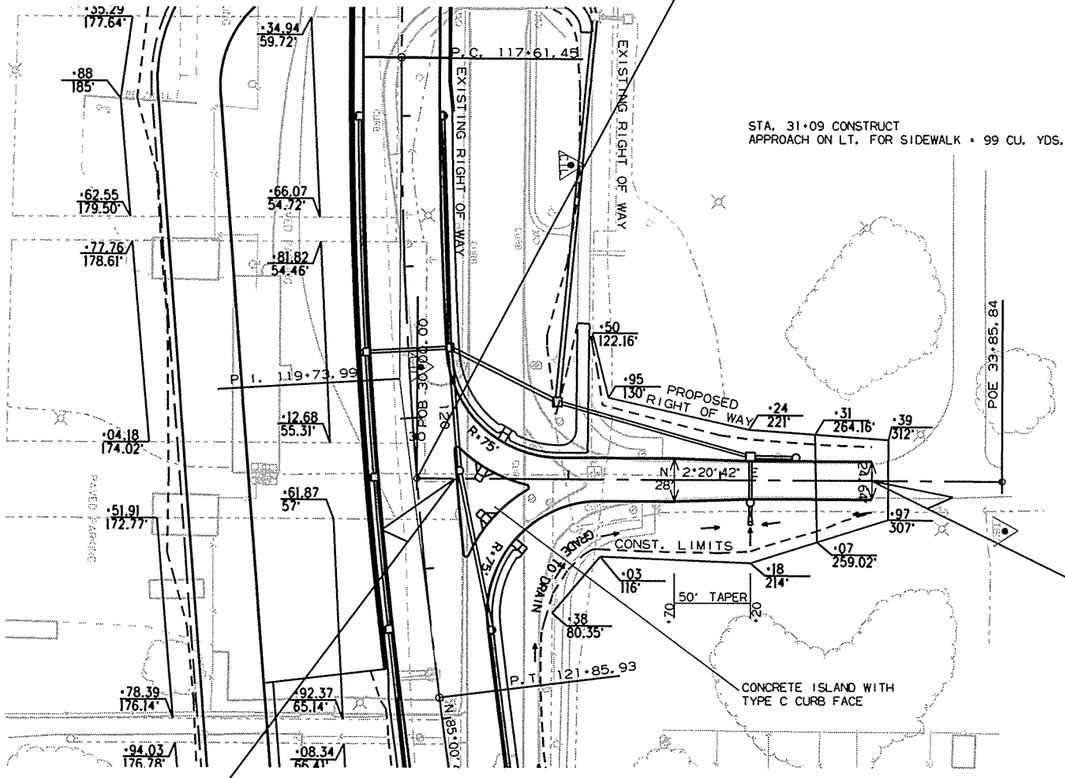
1/31/2014

R061277.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.		061277	47	160

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-26-14



STA. 31+09 CONSTRUCT
APPROACH ON LT. FOR SIDEWALK = 99 CU. YDS.

STA. 119+95.63 - CONSTRUCT
DI ON LT.
CONNECT TO EXISTING 30" R.C. PIPE OUTLET
TY E = 5' x 5'
H = 6'-9"

STA. 32+20 - CONSTRUCT
JUNCTION BOX ON LT.
& 18" X 129' PIPE OUTLET
CONNECT TO DI ON LT. @ STA. 119+95.63
TY E = 4' x 4'
H = 5'-3"

STA. 32+50 - CONSTRUCT
DI ON LT. WITH 4' EXTENSION
& 18" X 26' PIPE OUTLET
CONNECT TO JUNCTION BOX ON LT. @ 32+20
TY C = 4' x 4'
TY MO = 4'
H = 5'-0"

STA. 33+00.00
END CONSTRUCTION
BUS ENTRANCE

STA. 30+24.08
BEGIN CONSTRUCTION
BUS ENTRANCE

STA. 32+20 - CONSTRUCT
DI ON RT. & 18" X 6 R.C. PIPE INLET
WITH FES & 18" X 26' PIPE OUTLET
CONNECT TO JUNCTION BOX ON LT. @ STA. 32+20
TY C = 4' x 4'
TY MO = 4'
H = 5'-0"

1/31/2014

R061277.DGN

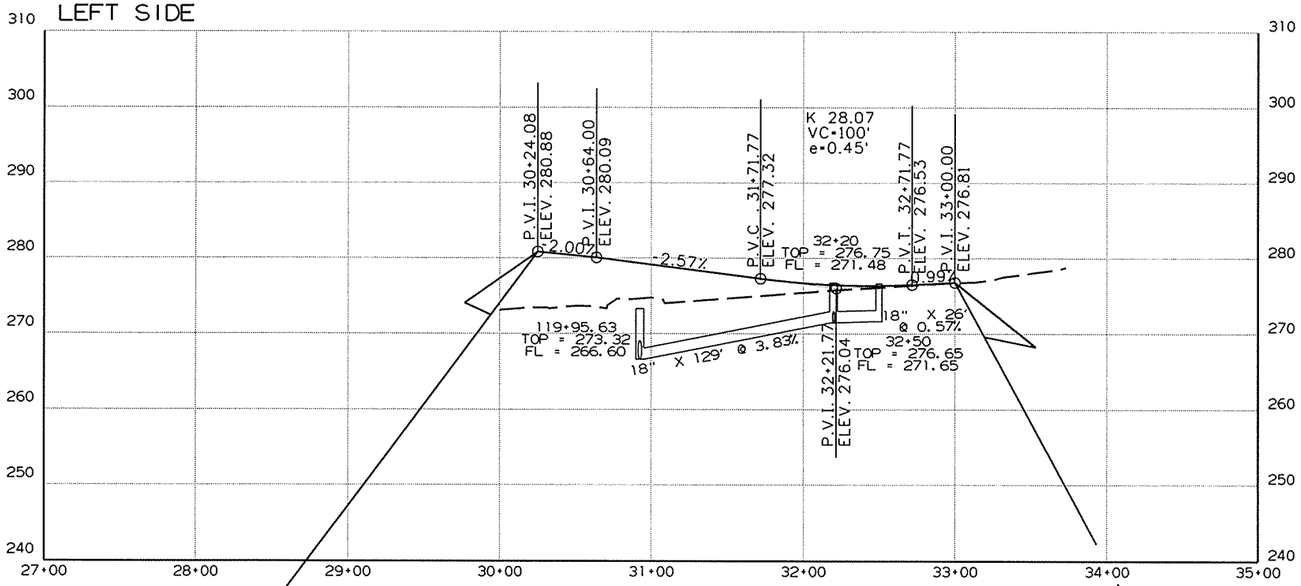
BUS ENTRANCE

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.		061277	48	160

(2) PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-26-14

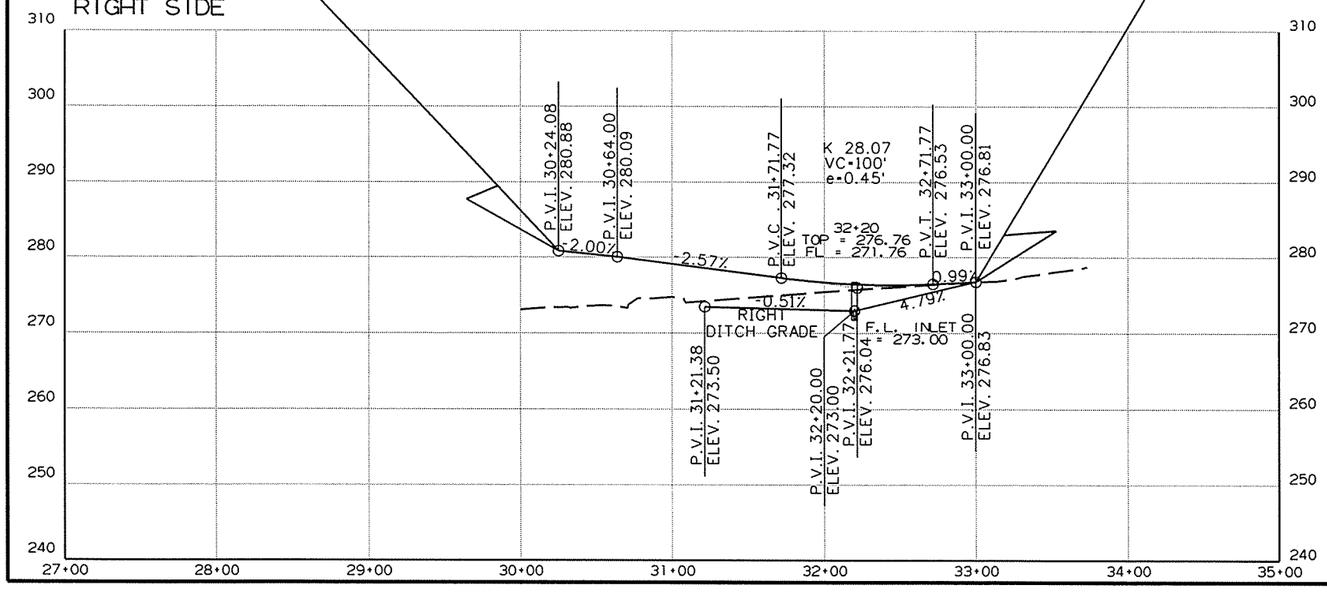
LEFT SIDE



STA. 120+42.11 HWY. 70 25' LT.
= STA. 30+24.08
BEGIN CONSTRUCTION

STA. 33+00.00
END CONSTRUCTION

RIGHT SIDE



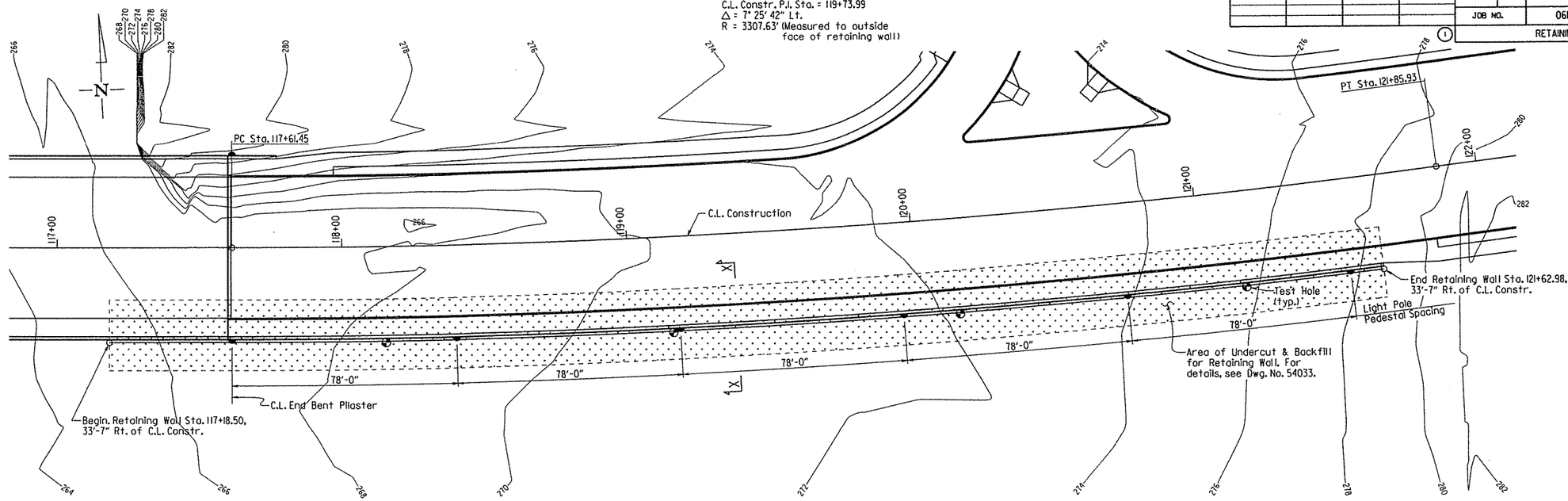
1/31/2014

R061277.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061277	49	160
RETAINING WALL			54032	

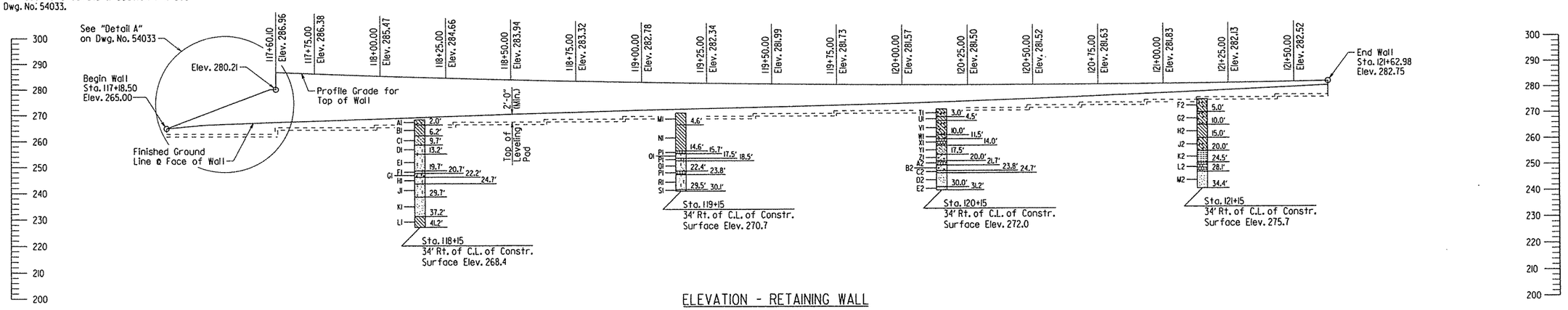
Wall Horizontal Curve Data
C.L. Constr. P.I. Sta. = 119+73.99
Δ = 7° 25' 42" Lt.
R = 3307.63' (Measured to outside face of retaining wall)



PLAN - RETAINING WALL

Notes:
Stations are measured along C.L. Constr.
Offsets are shown to the outside vertical face of retaining wall. Elevations shown are profile grade for top of wall.

For additional details & Section X-X see Dwg. No. 54033.



ELEVATION - RETAINING WALL

Note: See Dwg. No. 54033 for Boring Legend.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER 8/4/13
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF RETAINING WALL

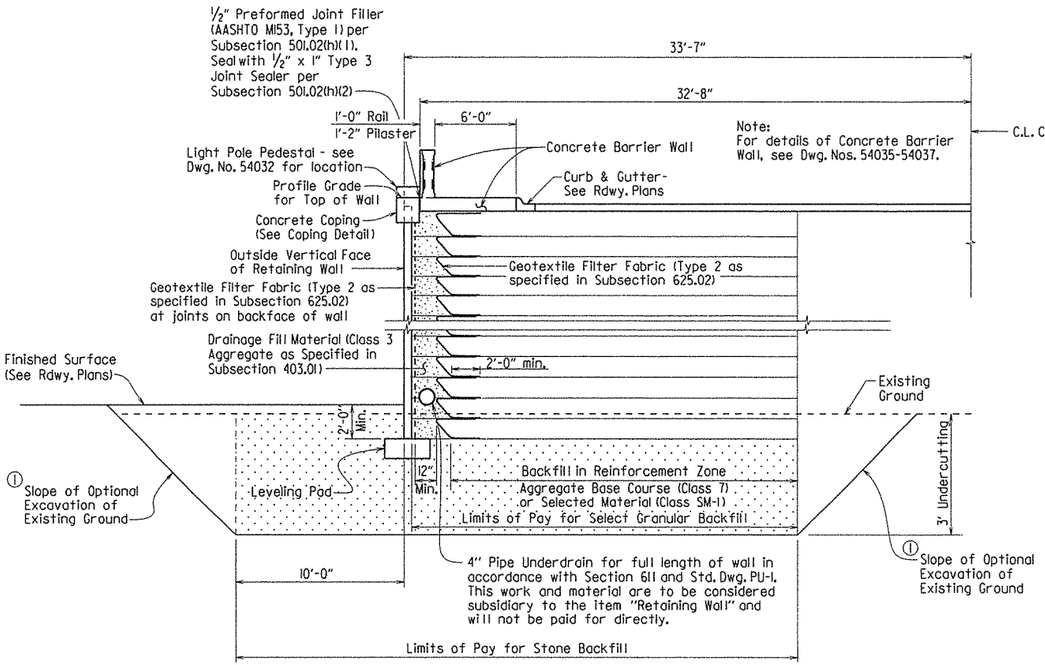
ROUTE 70 SEC. 12
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 2-22-13 FILENAME: b061277_rw.dgn
CHECKED BY: AMS DATE: 7-1-13 SCALE: 1" = 20'-0"
DESIGNED BY: JYP DATE: 2-13

DRAWING NO. 54032

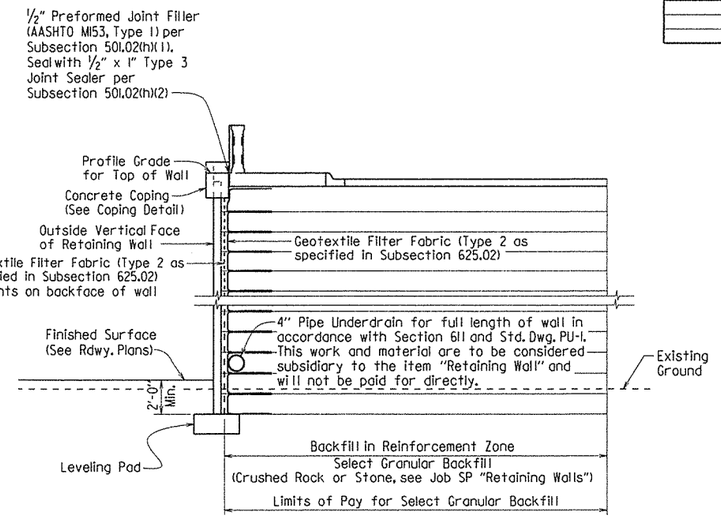
PRINT DATE: 8/26/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	50	160
				①		RETAINING WALL		54033



SECTION X-X (BACKFILL METHOD A)

① The Contractor has the option of using a cut slope or shoring to maintain stability of the cut. Any excavation beyond that required for undercutting and backfill with Stone Backfill or any shoring used will not be paid for directly, but shall be considered incidental to the item "Stone Backfill".



SECTION X-X (BACKFILL METHOD B)

Note: For undercutting and details not shown above, see "Section X-X (Backfill Method A)".

GENERAL NOTES:

Design Specifications: AASHTO LRFD Bridge Design Specifications, Sixth Edition 2012 with 2013 interim revisions.

Retaining Wall Stations are measured along outside vertical face of wall. Elevations shown are profile grade for top of wall. Elevations are approximate. Wall dimensions may vary depending on wall design selected.

Boring logs may be obtained from the Program and Contracts Division upon request.

Undercutting of the existing materials and placement of Stone Backfill beneath the retaining wall's reinforcement zone and within the pay limits shown for the entire length of the wall shall be measured and paid for as "Stone Backfill".

The excavated material may be utilized at other locations within the project area if approved by the Engineer. Excavated material that cannot be utilized shall be disposed of by the Contractor in accordance with Subsection 210.08.

Pipe Underdrains shall be used in the area of backfill as determined by the Engineer.

Reinforcement placement and details for retaining walls may be affected by end bent construction and proposed roadway drainage structures. See End Bent drawings for pile locations and cap details. See Roadway Plans for locations and details of drainage structures.

Preformed joint filler, joint sealer and pipe underdrains will not be paid for directly, but will be considered subsidiary to the item "Retaining Wall".

A Class 3 Textured Coating Finish shall be applied to the exposed face of the concrete wall panels as specified in Special Provision Job 061277 "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). At the Contractor's option a Class 3 finish in lieu of a Class 2 finish may be applied to surfaces of the vertical coping and the coping on the top of the wall in accordance with Special Provision Job 061277 "Finishing Concrete Surfaces".

See Dwg. No. 54034 for details of aesthetic form liners.

See Special Provision Job 061277 "Retaining Walls" for additional information.

BORING LEGEND

A1-Moist, Stiff, Light Gray Clay with Asphalt Fragments
B1-Moist, Stiff, Reddish Brown and Gray Sandy Clay with Iron Nodules
C1-Moist, Loose, Gray and Brown Clayey Sand with some Iron Nodules
D1-Wet, Loose, Gray and Brown Silty Sand with Trace of Clay
E1-Wet, Very Loose to Loose, Gray Silty Sand
F1-Wet, Medium Dense, Gray and Brown Silty Sand
G1-Wet, Medium Dense, Gray and Brown Silty Sand with Weathered Limestone Seams
H1-Wet, Medium Dense, Light Brown and Gray Silty Sand
J1-Wet, Medium Dense, Light Brown Silty Sand with Clay Partings
K1-Moist, Very Dense, Dark Gray Calcareous Sand
L1-Moist, Hard, Light Gray Calcareous Clay with Shells
M1-Moist, Stiff, Brown Clay with some White Weathered Limestone Seams
N1-Moist, Stiff, Brown Clay with some White Weathered Limestone Seams and Iron Nodules
P1-LIMESTONE - Gray, Slightly Weathered Moderately Hard
Q1-Moist, Medium Dense, Reddish Brown to Light Brown Silty Sand
R1-Moist, Dense, Light Brown Silty Sand
S1-Moist, Very Dense, Dark Gray Calcareous Clayey Sand
T1-Moist, Stiff, Reddish Brown Clay with Sand and Gravel (Limestone Fragments)
U1-Moist, Stiff, Gray and Brown Clay
V1-Moist, Stiff, Gray to Gray and Brown Blocky Clay with frequent Layers of Soft, White Weathered Limestone
W1-Moist, Hard, Light Gray to Gray Clay with frequent Layers of Soft, White Weathered Limestone
X1-LIMESTONE WITH FREQUENT CLAY LAYERS - Light Gray, Weathered, Soft
Y1-Wet, Loose, Brown to Gray Sand with Clay
Z1-Moist, Very Dense, Brown and Gray Sand with frequent Limestone Layers
A2-LIMESTONE - Gray, Slightly Weathered, Moderately Hard
B2-Moist, Very Dense, Gray Sand with occasional Calcareous Sandstone Layers
C2-SANDSTONE - Gray, Slightly Weathered, Calcareous Cemented
D2-Moist, Medium Dense, Gray Sand
E2-Moist, Very Dense, Gray Sand with some Calcareous Sandstone
F2-Moist, Stiff, Brown Clay with Asphalt Fragments
G2-Moist, Stiff, Brown and Gray Clay with Weathered Limestone Seams
H2-Moist, Stiff, Gray and Brown Blocky Clay
J2-Moist, Stiff, Light Brown Blocky Clay with Weathered Limestone Seams
K2-SHALE - Light Gray, Weathered, Medium Hard
L2-LIMESTONE - Gray, Slightly Weathered, Moderately Hard, with Slight Dip
M2-Moist, Very Dense, Gray Calcareous Sand with Trace of Clay

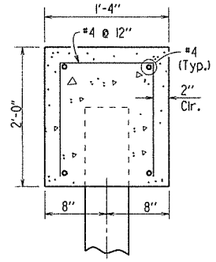
"N" VALUES

Sta. 118+15 - 34' Rt. of C.L. of Constr.
4.5 - 5.5, N=10
8.7 - 9.7, N=12
12.2 - 13.2, N=5
13.7 - 14.7, N=4
16.2 - 17.2, N=5
20.2 - 21.2, N=17
25.2 - 26.2, N=17
27.7 - 28.7, N=20
30.2 - 30.5, N=28 (3")
32.2 - 32.2, N=60 (.01")
34.7 - 34.7, N=60 (.01")
37.7 - 38.7, N=49
40.2 - 41.2, N=59

Sta. 119+15 - 34' Rt. of C.L. of Constr.
5.1 - 6.1, N=12
10.1 - 11.1, N=10
14.6 - 14.6, N=10 (.01")
20.0 - 21.0, N=28
25.0 - 26.0, N=31
30.0 - 30.1, N=30 (1")

Sta. 120+15 - 34' Rt. of C.L. of Constr.
3.5 - 4.5, N=9
7.0 - 8.0, N=16
10.5 - 11.5, N=46
11.7 - 12.1, N=49 (4.5")
14.5 - 15.5, N=9
18.0 - 18.1, N=40 (1.5")
20.0 - 20.0, N=60 (0.5")
22.2 - 22.6, N=60 (5")
25.5 - 26.5, N=27
28.0 - 29.0, N=28
30.5 - 31.2, N=75 (8")

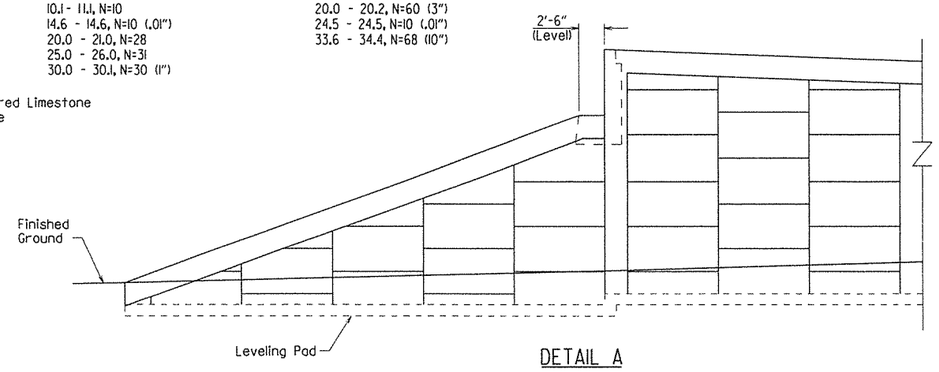
Sta. 121+15 - 34' Rt. of C.L. of Constr.
5.5 - 6.5, N=12
10.5 - 11.5, N=11
15.5 - 16.5, N=12
20.0 - 20.2, N=60 (3")
24.5 - 24.5, N=10 (.01")
33.6 - 34.4, N=68 (10")



COPING DETAIL

Notes:
Reinforcing steel and Class S(AE) Concrete for coping shall not be paid for directly, but will be considered subsidiary to the item "Retaining Wall."

Precast coping may be substituted for cast-in-place coping shown.



DETAIL A

TABLE OF QUANTITIES

(FOR INFORMATION ONLY)

LOCATION / ITEM / UNIT	ITEM NO.	207	SP 061277	SP 061277	SP 061277
	ITEM	STONE BACKFILL	SELECT GRANULAR BACKFILL	RETAINING WALL	② TEXTURED COATING FINISH
	UNIT	TON	CU. YD.	SQ. FT.	SQ. YD.
STA. 117+18.50 TO STA. 121+62.98		1,655	2,045	4,945	322

② Exposed surface of retaining wall (excluding all coping). See Special Provision Job 061277 "Textured Coating Finish".

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9255
8-6-14
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF RETAINING WALL

ROUTE 70 SEC. 12
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

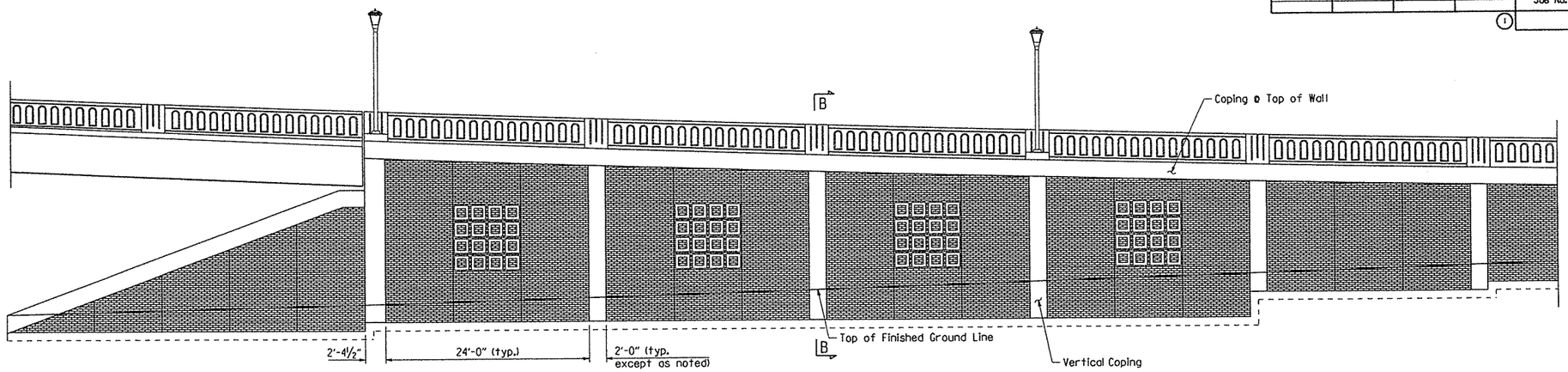
DRAWN BY: JYP DATE: 2-22-13 FILENAME: b061277_rw.dgn
CHECKED BY: AMS DATE: 7-1-13 SCALE: No Scale
DESIGNED BY: JYP DATE: 2-13

DRAWING NO. 54033

PRINT DATE: 8/6/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

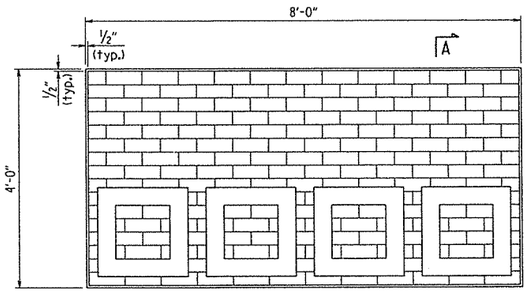
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061277	51	160
AESTHETIC DETAILS			54034	



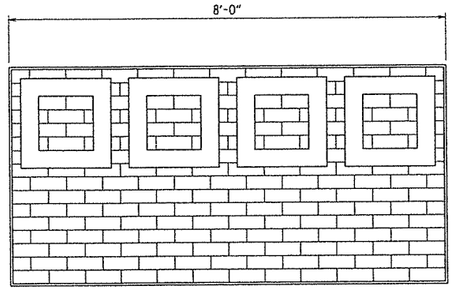
ELEVATION - RETAINING WALL

Notes:
Custom frame pattern shall only be placed on the sections of the Retaining Wall shown above.

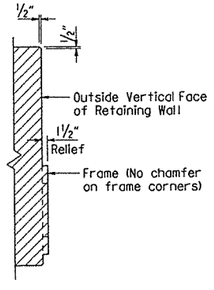
Frame patterns protrude 1½" from brick face of concrete panels.



PANEL 1

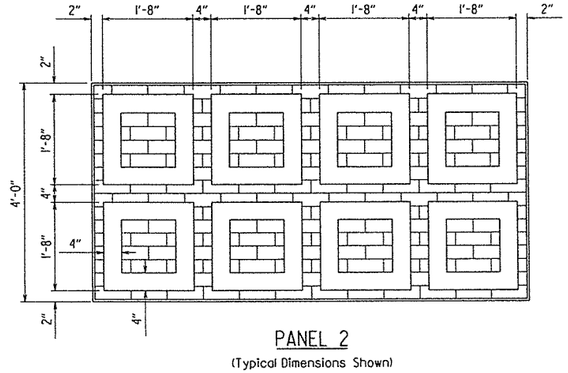


PANEL 3

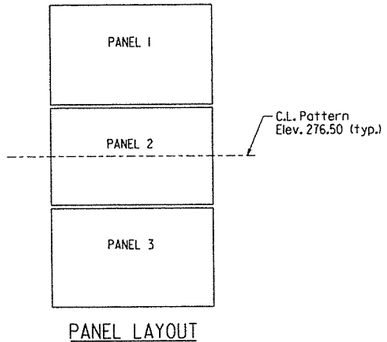


SECTION A-A
Relief is typical for Panels 1-3

SECTION B-B



PANEL 2
(Typical Dimensions Shown)



PANEL LAYOUT

GENERAL NOTES:

See Special Provision Job 061277 "Retaining Walls" for required finish, test panels and approval process.

Approved test panels will be the standard of comparison for detail, workmanship and surface finishes for all other panels. Each individual custom panel will require the approval of the Engineer prior to inclusion in the project.

All aesthetic and special treatments to concrete panels and copings will not be paid for directly, but shall be considered incidental to the item "Retaining Wall".

The same relief and chamfer details shall be used by the Contractor on Panels 1 thru 3.

Actual size, shape and detail of images may be modified to produce a forminer that will achieve the design concept shown. Any modifications will require approval of the Engineer.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/9/13
CARL J. FUSELIER
BRIDGE ENGINEER

DETAILS OF AESTHETIC FORMLINERS FOR RETAINING WALL

ROUTE 70 SEC. 12

ARKANSAS STATE HIGHWAY COMMISSION

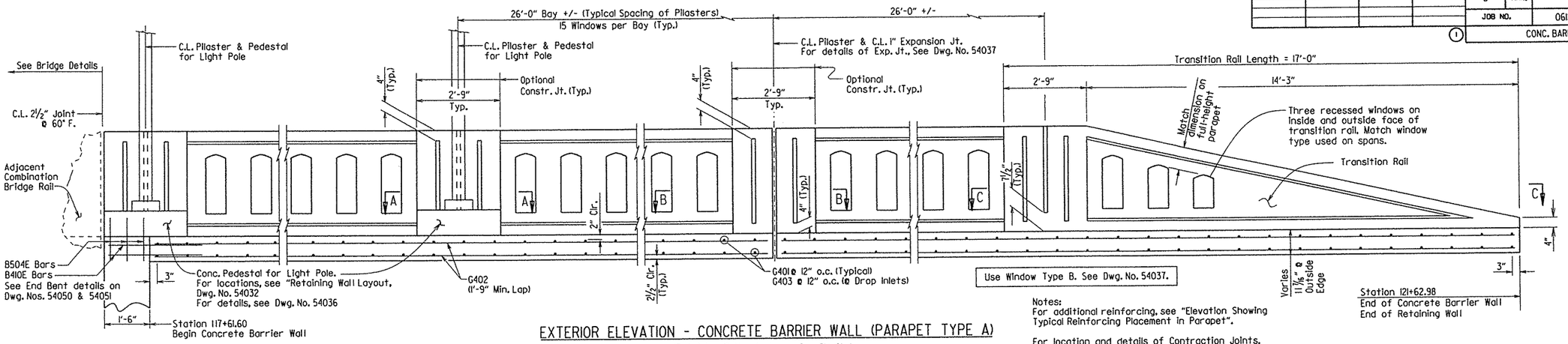
LITTLE ROCK, ARK.

DRAWN BY: JYP	DATE: 2-22-13	FILENAME: b061277_rw.dgn	
CHECKED BY: AMS	DATE: 7-1-13	SCALE: No Scale	
DESIGNED BY: JYP	DATE: 2-13		

DRAWING NO. 54034

PRINT DATE: 8/26/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	52	160
				①		CONC. BARRIER WALLS	54035	



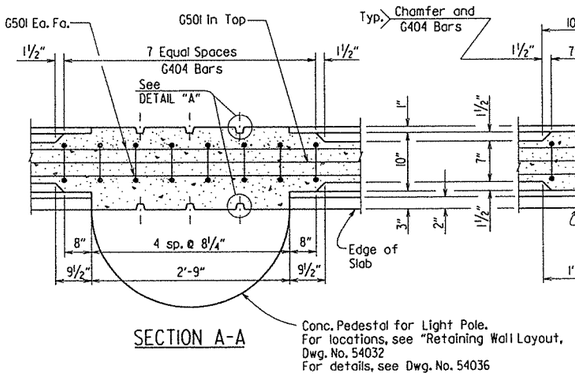
EXTERIOR ELEVATION - CONCRETE BARRIER WALL (PARAPET TYPE A)

(Retaining Wall not shown for Clarity)
Not to Scale

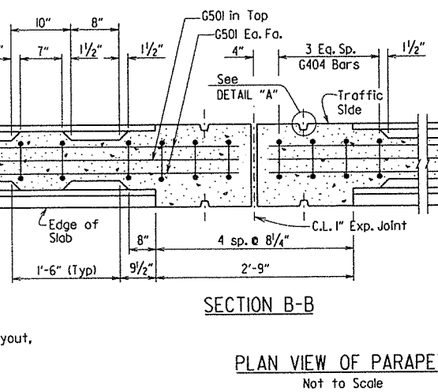
Notes:
For additional reinforcing, see "Elevation Showing Typical Reinforcing Placement in Parapet".

For location and details of Contraction Joints, See Dwg. No. 54037.

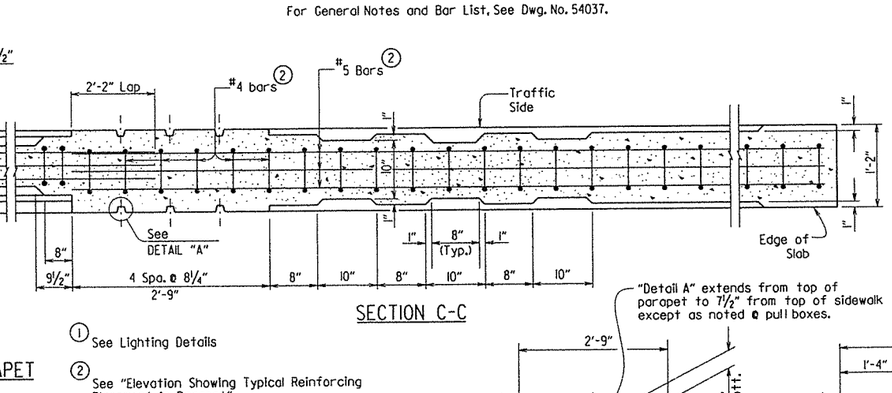
For General Notes and Bar List, See Dwg. No. 54037.



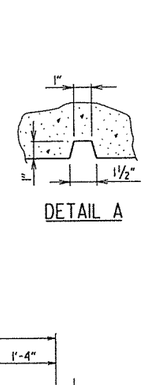
SECTION A-A



SECTION B-B



SECTION C-C

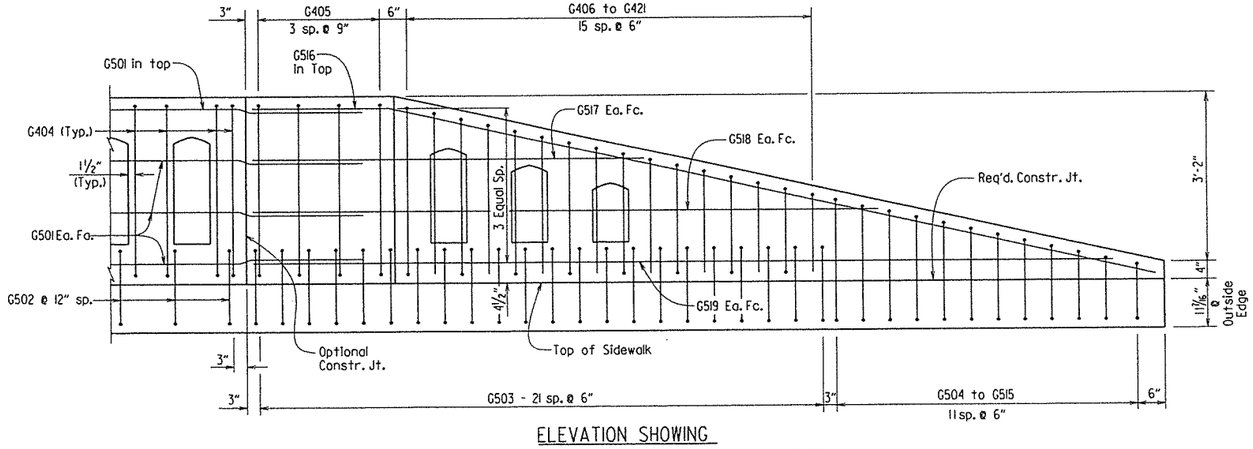


DETAIL A

① See Lighting Details

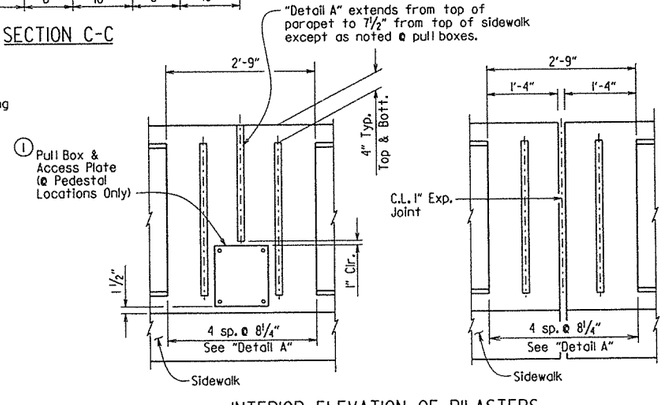
② See "Elevation Showing Typical Reinforcing Placement in Parapet"

PLAN VIEW OF PARAPET
Not to Scale



ELEVATION SHOWING
TYPICAL REINFORCING PLACEMENT IN PARAPET

(Retaining Wall not shown for clarity)
¾" = 1'-0"



INTERIOR ELEVATION OF PILASTERS
¾" = 1'-0"

STATE OF ARKANSAS
Carl J. Puseller
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/14/13
CARL J. PUSELLER
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF
CONCRETE BARRIER WALLS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.W.S. DATE: 4/5/13
CHECKED BY: K.W.Y. DATE: 8/27/13
DESIGNED BY: K.W.Y. DATE: 3/13

FILENAME: b061277_cbw.dgn
SCALE: 3/8"=1'-0" or as shown

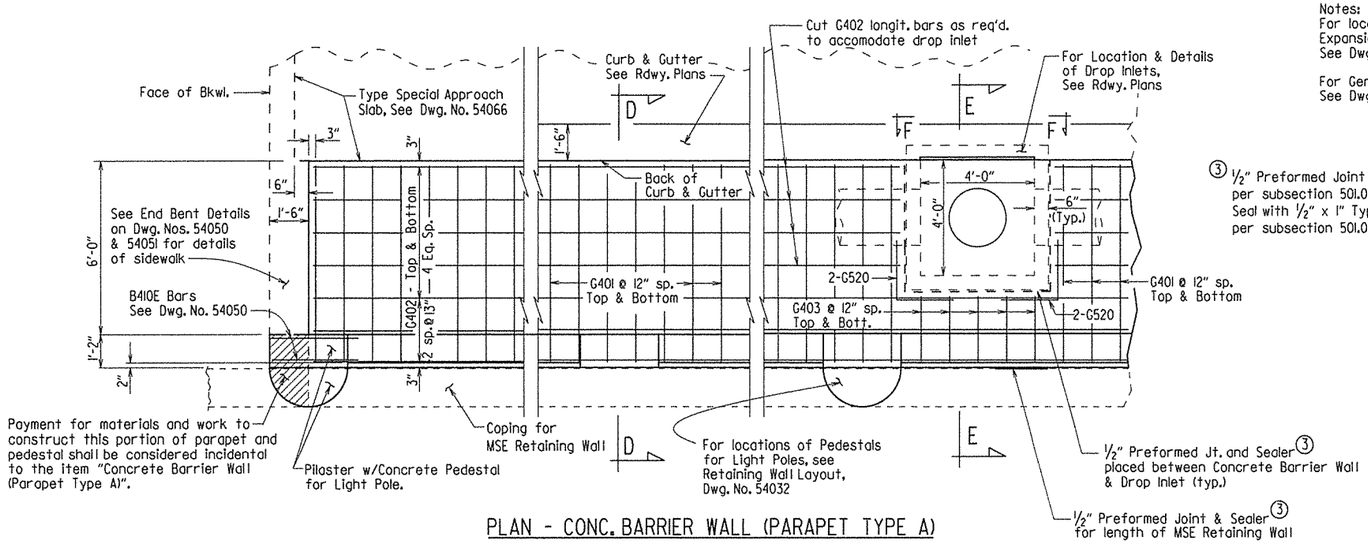
DRAWING NO. 54035

PRINT DATE: 8/27/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	53	160
				①		CONC. BARRIER WALLS	54036	

Notes:
For location and details of Expansion and Contraction Joints, See Dwg. No. 54037.

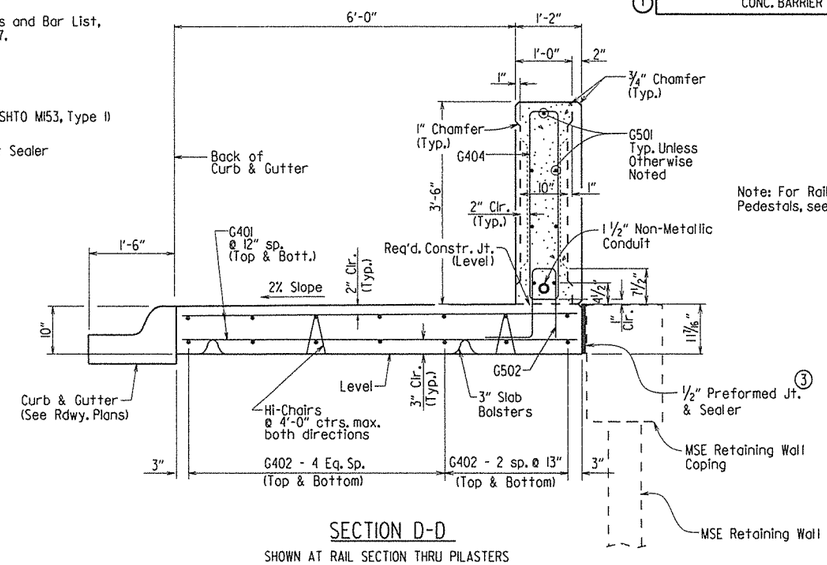
For General Notes and Bar List, See Dwg. No. 54037.



③ ½" Preformed Joint Filler (AASHTO M153, Type II) per subsection 501.02(h)(1). Seal with ½" x 1" Type 3 Joint Sealer per subsection 501.02(h)(2).

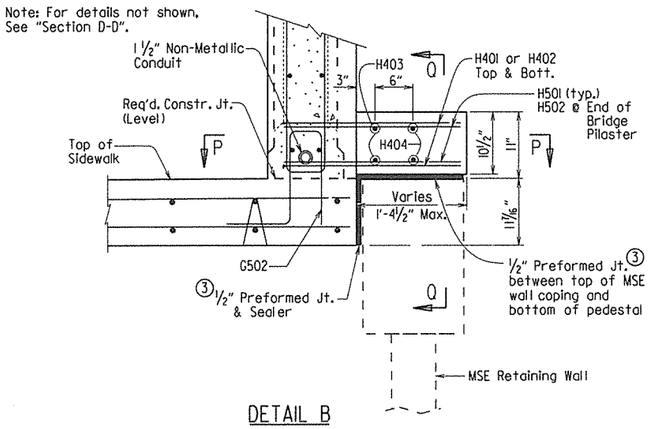
PLAN - CONC. BARRIER WALL (PARAPET TYPE A)

(For PLAN of Parapet Reinforcing, See Dwg. No. 54035)



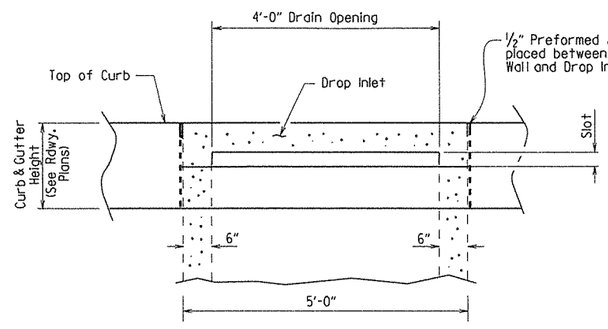
SECTION D-D

SHOWN AT RAIL SECTION THRU PILASTERS
(Looking Ahead)
Scale: ¾" = 1'-0"



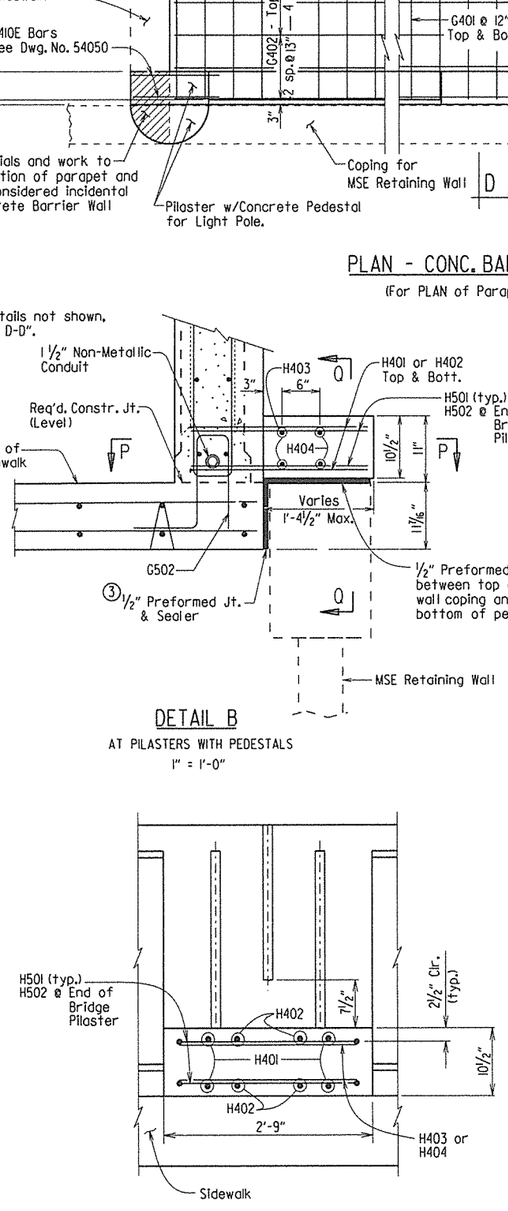
DETAIL B

AT PILASTERS WITH PEDESTALS
1" = 1'-0"



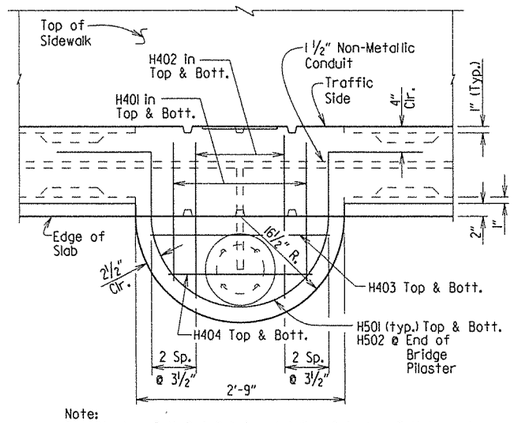
VIEW F-F

N.T.S.



SECTION Q-Q

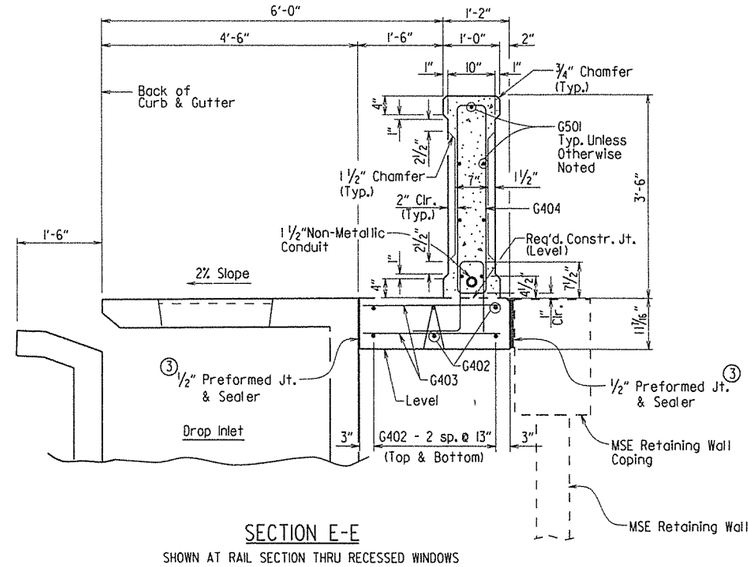
PEDESTAL DETAILS
1" = 1'-0"



Note:
See "Anchor Bolt Details" for details of Anchor Bolt Layout.

SECTION P-P

PEDESTAL DETAILS
1" = 1'-0"



SECTION E-E

SHOWN AT RAIL SECTION THRU RECESSED WINDOWS
(Looking Ahead)
Scale: ¾" = 1'-0"

STATE OF ARKANSAS
CARL J. FUSELIER
REGISTERED PROFESSIONAL ENGINEER
No. 7510
1/28/15
BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF CONCRETE BARRIER WALLS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

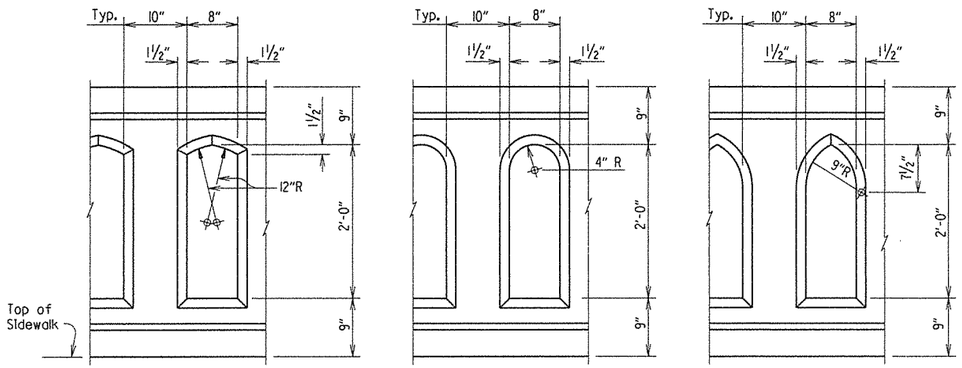
DRAWN BY:	A.M.S.	DATE:	4/5/13
CHECKED BY:	K.W.Y	DATE:	1/28/14
DESIGNED BY:	K.W.Y	DATE:	3/13

FILENAME: b061277_cbw.dgn
SCALE: ¾"=1'-0" or as shown

DRAWING NO. 54036

PRINT DATE: 1/28/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	54	160
				①		CONC. BARRIER WALLS	54037	



TYPE A TYPE B TYPE C

RECESSED WINDOW TYPES

Notes:
Dimensions shown for recessed windows are typical except at transition rail. See "Section C-C" on Dwg. No. 54035 for window dimensions at transition rail.

Same window type shall be used at all locations.

TABLE OF QUANTITIES

(FOR INFORMATION ONLY)

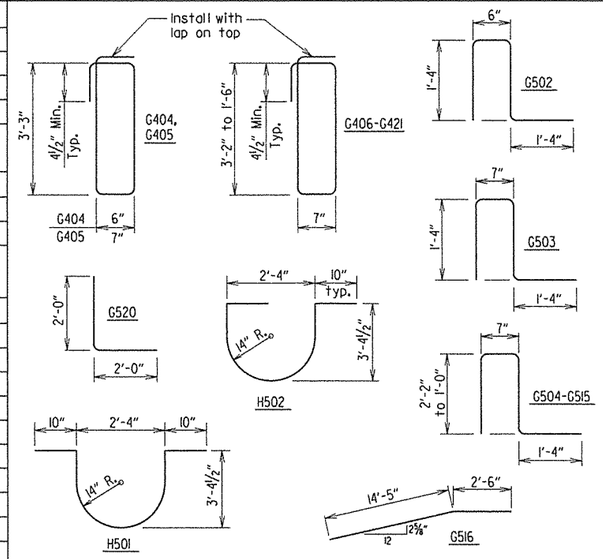
	ITEM 631
	CONCRETE BARRIER WALL (PARAPET TYPE A)
LOCATION	LIN. FT.
STA. 117+61.60 TO STA. 121+62.98 (RIGHT SIDE ONLY)	405.4

Note: Stationing shown is measured along C.L. Construction. Length of Concrete Barrier Wall for payment is computed along outside face of parapet rail.

FOR INFORMATION ONLY
BAR LIST FOR CONCRETE BARRIER WALLS

Mark	Length	Pin Dia.
G401	6'-10"	Str.
G402	*As Required	Str.
G403	2'-4"	Str.
G404	7'-10"	2"
G405	8'-0"	2"
G406 to G421	7'-10" to 4'-6"	2"
G501	*As Required	Str.
G502	4'-3"	2½"
G503	4'-4"	2½"
G504 to G515	5'-11" to 3'-7"	2½"
G516	16'-11"	Str.
G517	7'-4"	Str.
G518	11'-8"	Str.
G519	16'-0"	Str.
G520	3'-11"	2½"
H401	1'-9"	Str.
H402	2'-0"	Str.
H403	2'-4"	Str.
H404	1'-10"	Str.
H501	6'-8"	2½"
H502	6'-8"	2½"

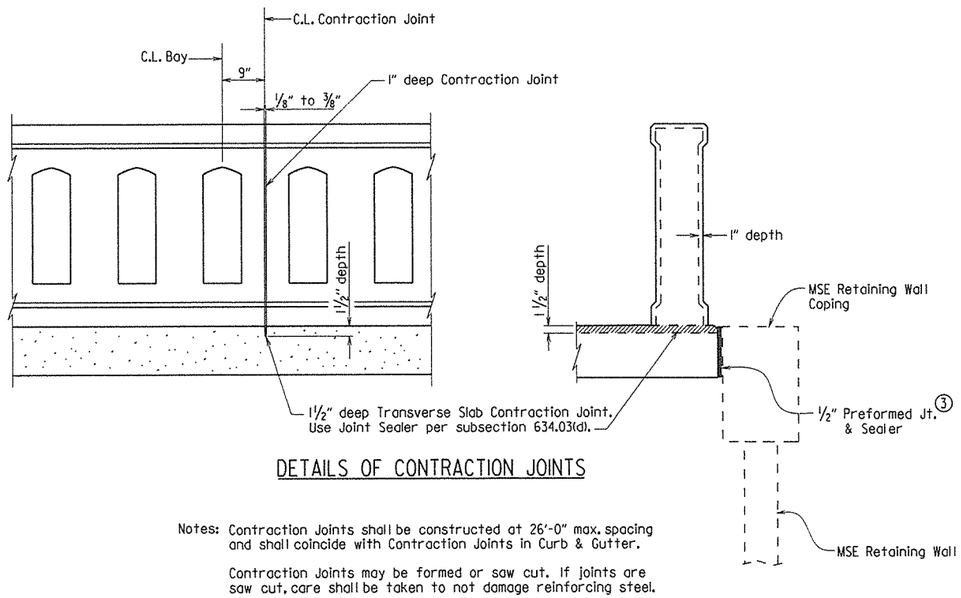
Bending Diagrams



(Dimensions are out to out of bars.)

*Note: Min. Lap Lengths For Longitudinal Bars are as follows: G402 - 1'-9"
G501 - 2'-2"

③ ½" Preformed Joint Filler (AASHTO M153, Type I) per subsection 501.02(h)(1).
Seal with ½" x 1" Type 3 Joint Sealer per subsection 501.02(h)(2).

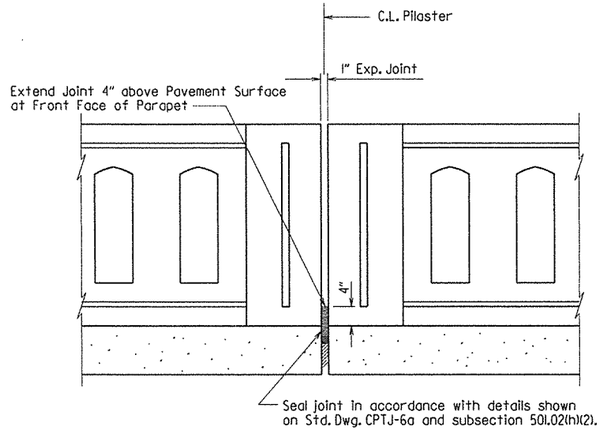


DETAILS OF CONTRACTION JOINTS

Notes: Contraction Joints shall be constructed at 26'-0" max. spacing and shall coincide with Contraction Joints in Curb & Gutter.

Contraction Joints may be formed or saw cut. If joints are saw cut, care shall be taken to not damage reinforcing steel.

1" deep joints in parapet section are not required to be sealed.



DETAILS OF EXPANSION JOINTS

Note: Expansion Joints shall be constructed at 130'-0" maximum spacing and shall not be located at pilasters with pedestals.

GENERAL NOTES

Concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi.

Reinforcing Steel shall be Grade 60, conforming to AASHTO M 31 or M322, Type A with mill test reports (fy = 60,000 psi.).

Reinforcing steel that interferes with pull boxes installed in pilasters shall be cut off 2" shy of pull box. No additional payment will be made for this work.

All longitudinal lines and longitudinal reinforcing steel shall be placed on curves concentric with C.L. Bridge.

Reinforcing Steel, Preformed Joints, Expansion Joints and Sealers shall not be paid for directly. Payment for these items shall be considered incidental to the item "Concrete Barrier Wall (Parapet Type A)".

The sidewalk shall receive a Broomed Finish as specified for final finishing in subsection 802.19 for Class 6 Broomed Finish.

All exposed surfaces of the parapet rail, pedestals and transition rail shall receive a Class 2 Rubbed Finish. At the Contractor's option a Class 3 finish in lieu of a Class 2 finish may be applied in accordance with Special Provision Job 061277 "Finishing Concrete Surfaces".

For additional details of conduit and pull boxes, see Lighting Details.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
1/28/14
CARL J. FUSELIER
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF CONCRETE BARRIER WALLS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.W.S. DATE: 1/5/13
CHECKED BY: K.W.Y. DATE: 1/29/14
DESIGNED BY: K.W.Y. DATE: 1/13

FILENAME: b061277_cbw.dgn
SCALE: No Scale

DRAWING NO. 54037

PRINT DATE: 1/28/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	55	160
				07284		LAYOUT	54039	

FOR R/W DATA, SEE RDWY. PLANS

For Embankment Cut, see Rdwy. Plans

Toe of Cut Slope

Fiber Optic Cable

Direction of Milepost Increase

Approx. 0.96 Miles to RR Milepost 347

Sanitary Sewer

Shoring

PT Sta. 110+98.33

Toe of Fill Slope

50'-0" C.L. Exist. Track to RR R.O.W.

50'-0" C.L. Exist. Track to RR R.O.W.

43'-6" C.L. Exist. Track to RR R.O.W.

56'-6" C.L. Exist. Track to RR R.O.W.

Point of Min. Vertical Clr.

Fiber Optic Cable

Underground Water Line

Existing Gravel Road

Overhead Utility

Existing Bridge No. 01810

Raised Island to be Removed - See Rdwy. Plans

Gas Line

Point of Min. Vertical Clr.

Storm Sewer

Point of Min. Vertical Clr.

For Embankment Cut, see Rdwy. Plans

Toe of Cut Slope

Concrete Riprap, see Std. Dwg. No. 55002

PC Sta. 117+61.45

Toe of Fill Slope

Shoring

Sidewalk: 15'-0" Sidewalk | 3'-0" Berm | 1'-6" Curb & Gutter | IV:3H

Roadway: 50'-0" (Curb to Curb) | 48'-0" Pavement

Sidewalk: 5'-0" Sidewalk | 3'-0" Berm | 1'-6" Curb & Gutter | IV:3H

Sidewalk: 1'-0" Para. Rail | 6'-6" Sidewalk

Sidewalk: 1'-6" Curb & Gutter | 3'-0" Berm | 5'-0" Sidewalk

C.L. Bridge & C.L. Construction

40'-6" Min. C.L. Track to face of Column

C.L. Bridge Station 112+49.10 at C.L. Exist. Union Pacific RR Track

C.L. Bridge Station 112+63.19 at C.L. Exist. Union Pacific RR Track

C.L. Bridge Station 114+33.56 at C.L. Exist. Union Pacific RR Track

S 87°33'37" E

2% Normal Crown

50'-0" Out to Out

65'-4" Out to Out

Test Hole (typ.)

30'-9" Min. Horiz. Clear to face of Column

44'-0" Pvmt.

IV:2.75H or flatter

Gas Line

Approx. 1.2 Mi. to Jct. SH 367

Retaining Wall. For details, see Dwg. Nos. 54032-54033.

Existing S. Rice St.

Approx. 2.4 Mi. to Jct. SH 5

3'-0" (typ.) except at Retaining Wall

Concrete Riprap, see Std. Dwg. No. 55002

Fence

RR ROW

Creek

58'-4" Min. C.L. Track to face of Column

Approx. 0.13 Miles to RR Milepost 306

Pedestal for Light Pole (typ.). For locations, see "Reinforcing Plan and Slab Pouring Sequence" on Dwg. Nos. 54058 & 54060.

Underground Cable

Fence

RET/WALL

ARKANSAS STATE FAIRGROUNDS

Proposed S. Rice St. (See Rdwy. Plans)

RET/WALL

Toe of Fill Slope

Note: Use Type Special Approach Slab at both ends of bridge, see Dwg. No. 54066.

PLAN

① See Special Provision Job 061277 "Shoring".

② Measured at Working Point, see Dwg. No. 54053.

③ Measured to Face of Curb.

④ Existing Wingwall to be partially removed during construction of new bridge.

Total Length of Bridge = 662'-2½"

1'-1¼"

400'-0" Continuous Composite Plate Girder Unit (104', 148', 148')

260'-0" Continuous Composite Plate Girder Unit (130', 130')

1'-1¼"

C.L. 2½" Preformed Silicone Joint (4" Movement Rating)

C.L. 2¾" Preformed Silicone Joint (4" Movement Rating)

C.L. 2½" Preformed Silicone Joint (4" Movement Rating)

Beg. Bridge Sta. 110+98.90
C.L. Deck Elev. 300.81

Slope Intercept Sta. 110+82.90

Proposed Grade Line Along C.L. Bridge

Combination Bridge Rail

C.L. Bent Sta. 112+04.00
C.L. Deck Elev. 303.25 ②

C.L. Deck @ C.L. Bent to Low Side top of cap = 6'-7⅛" ②

C.L. Deck to Low Steel = 6'-3⅛" ②

C.L. Bent Sta. 113+52.00
C.L. Deck Elev. 303.50 ②

C.L. Deck @ C.L. Bent to Low Side top of cap = 6'-7⅛" ②

Ornamental Fence - Both sides of bridge. See Dwg. No. 54065.

C.L. Bent Sta. 115+00.00
C.L. Deck Elev. 299.18 ②

C.L. Deck @ C.L. Bent to Low Side top of cap = 6'-9¼" ②

Light Pole (typ.)

C.L. Bent Sta. 116+30.00
C.L. Deck Elev. 292.91 ②

C.L. Deck @ C.L. Bent to Low Side top of cap = 6'-7⅛" ②

C.L. Deck to Low Steel = 6'-3⅛" ②

End Bridge Sta. 117+61.10
C.L. Deck Elev. 286.80

Slope Intercept Sta. 117+77.10

	350' V.C.		600' V.C.	
	+2.45 %	-4.85 %	-4.85 %	+4.01 %
P.V.I. Sta.	113+43.725		120+03.61	
Elev.	306.80		274.78	

VERTICAL CURVE DATA

Along C.L. Bridge

Existing Ground Line Along C.L. Constr.

Elev. 265.13

Exp.

31'-6"

24'-4" Min. Vert. Clr.

23'-10" Min. Vert. Clr.

C.L. Existing Tracks

Fix

53'-6"

Elev. 243.34

DESIGN H.W. (050) Elev. 256.6

27'-5" Min. Vert. Clr.

C.L. Existing Track

Exp. Exp.

42'-6"

Elev. 249.91

Fix

33'-0"

Elev. 253.25

17'-4" Min. Clr.

Exp.

Proposed S. Rice St.

85' Piles (in wings)

80' Piles

50' Piles

38' Piles

54' Piles

45' Piles

69' Piles

74' Pile (in wing)

BENT NO. 1 2 3 4 5 6

ELEVATION

NOTE: For Soil Boring Data, see Dwg. No. 54040. For General Notes and Hydraulic Data, see Dwg. No. 54041.

STATE OF ARKANSAS
CARL J. FUSELIER
REGISTERED PROFESSIONAL ENGINEER
No. 7510
1/28/14
BRIDGE ENGINEER

SHEET 1 OF 3

LAYOUT OF BRIDGE OVER UNION PACIFIC RR & S. RICE ST. UNION PACIFIC RR STR. & APPRS. (ROOSEVELT RD.) (LR) (S) PULASKI COUNTY

ROUTE 70 SEC. 12

ARKANSAS STATE HIGHWAY COMMISSION

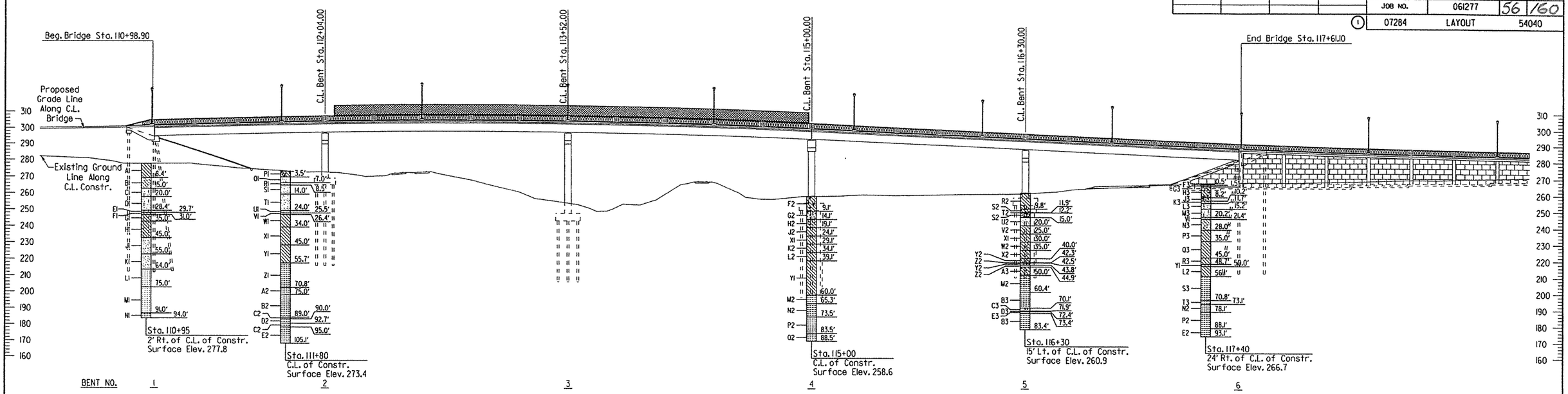
LITTLE ROCK, ARK.

DRAWN BY: JYP	DATE: 12-31-12	FILENAME: b061277_Ll.dgn	
CHECKED BY: K-WW	DATE: 1/13/14	SCALE: 1" = 30'-0"	
DESIGNED BY: JYP	DATE: 12-12		

BRIDGE NO. 07284 DRAWING NO. 54039

PRINT DATE: 1/28/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	56	160
				①	07284	LAYOUT		54040



ELEVATION OF SOIL BORINGS

BORING LEGEND

A1-Moist, Medium Stiff, Dark Brown and Reddish Brown Clay with some Organic Matter and Trace of Gravel (Sandstone Fragments)
B1-Moist, Medium Dense, Light Brown Clayey Sand
C1-Moist, Medium Dense, Light Gray Silty Sand
D1-Wet, Medium Dense, Light Brown Silty Sand
E1-LIMESTONE - Gray, Slightly Weathered, Soft
F1-Moist, Very Stiff, Dark Gray Clay with some Calcareous Seams
G1-Moist, Hard, Light Gray Clay with Silt Seams
H1-Moist, Very Hard, Light Gray Silty Clay
J1-Moist, Very Dense, Light Gray Sand with some Silty Clay Seams
K1-Moist, Very Dense, Light Gray Sand
L1-SANDSTONE - Light Gray, Poorly-Cemented
M1-SANDSTONE - Light Gray, Very Thick Bedded, Poorly-Cemented, with Slight Dip
N1-SHALE WITH OCCASIONAL QUARTZ PARTINGS - Dark Gray, Highly Weathered, Medium Hard, with Steep Dip
P1-Moist, Stiff, Dark Brown Clay with Gravel and Organic Matter
O1-Moist, Stiff, Reddish Brown and Gray Silty Sand
R1-Moist, Medium Dense, Brown Sand
S1-Moist, Loose, Light Gray Sand
T1-Wet, Medium Dense, Light Brown and Gray Sand
U1-Wet, Very Dense, Light Brown and Gray Sand
V1-SANDSTONE - Brown, Cemented
W1-Moist, Very Hard, Light Gray Clay
X1-Moist, Hard, Light Gray Clay
Y1-Moist, Very Hard, Dark Gray Clay
Z1-SHALE - Gray, Highly Weathered, Medium Hard
A2-SHALE - Gray, Laminated, Weathered, Medium Hard, with Moderate Dip and some Slickensides
B2-SHALE - Gray, Laminated, Weathered, Medium Hard, with Moderate Dip
C2-SHALE - Dark Gray, Laminated, Weathered, Medium Hard, with Moderate Dip
D2-SHALE - Gray and Reddish Brown, Laminated, Weathered, Medium Hard, with Moderate Dip
E2-SHALE WITH WEATHERED SHALE LAYERS - Dark Gray, Laminated, Medium Hard, with Moderate Dip
F2-Moist, Soft, Brown and Gray Clay with Organic Matter
G2-Moist, Medium Dense, Brown and Gray Sand with Gravel (Sandstone Fragments) and Clay
H2-Moist, Hard, Gray Sandy Clay with Gravel (Sandstone Fragments)
J2-Moist, Very Hard, Light Gray Clay
K2-Moist, Very Stiff, Light Gray Clay with some Organic Matter
L2-Moist, Hard, Dark Gray Clay
M2-SHALE - Dark Gray, Weathered, Medium Hard
N2-SHALE WITH WEATHERED SHALE LAYERS - Dark Gray, Laminated, Medium Hard, with Slight Dip
P2-SHALE WITH WEATHERED SHALE LAYERS - Dark Gray, Laminated, Hard, with Moderate Dip
O2-SHALE WITH WEATHERED SHALE LAYERS - Dark Gray, Laminated, Hard, with Moderate Dip and some Slickensides
R2-Moist, Stiff, Reddish Brown and Gray Clay with Iron Nodules
S2-Moist, Very Hard, Dark Brown and Gray Clay with Gravel (Sandstone Fragments) and Cobbles
T2-Sandstone Cobbles
U2-Wet, Dense, Light Brown Sand with Trace of Gravel
V2-Moist, Very Stiff, Dark Gray Clay with Shells
W2-Moist, Very Hard, Light Gray Silty Clay with Shells
X2-Moist, Hard, Light Gray Silty Clay
Y2-Moist, Very Hard, Gray Sandy Clay with Gravel (Sandstone Fragments) and Cobbles
Z2-SANDSTONE - Gray, Poorly-Cemented
A3-Moist, Very Hard, Dark Gray Clay with Gravel (Brown Poorly-Cemented Sandstone Fragments)
B3-SHALE WITH WEATHERED SHALE LAYERS - Dark Gray, Laminated, Slightly Calcareous, Medium Hard, with Steep Dip
C3-NOVACULITE - Gray, Thick Bedded, Hard, with Slight Dip
D3-SHALE WITH WEATHERED SHALE LAYERS - Dark Gray, Laminated, Medium Hard, with Steep Dip
E3-SANDSTONE - Gray, Medium Bedded, Cemented, with Slight Dip
F3-Asphalt Pavement (6")
G3-Base Course (12")
H3-Moist, Medium Stiff, Dark Brown and Gray Sandy Clay with Gravel (Sandstone Fragments)
J3-Moist, Medium Dense, Gray and Brown Silty, Clayey Sand with Organic Matter (Wood)
K3-Moist, Loose, Gray and Brown Clayey Sand
L3-Wet, Medium Dense, Gray and Brown Silty Sand
M3-Wet, Medium Dense, Brown and Gray Silty Sand with some Clay
N3-Moist, Medium Dense, Gray Sand with Clay
P3-Moist, Hard, Dark Gray Clay with Highly Weathered Shale
Q3-Moist, Very Hard, Gray Clay
R3-Moist, Hard, Gray Clay
S3-SHALE - Dark Gray, Highly Weathered, Medium Hard
T3-SHALE - Dark Gray, Laminated, Weathered, Medium Hard, with Slight Dip

"N" VALUES

Sta. 110+95 - 2' Rt. of C.L. of Constr.

3.9- 4.9, N=7
8.9- 9.9, N=17
15.5- 16.5, N=19
20.5- 21.5, N=29
25.5- 26.5, N=27
30.5- 31.5, N=50
35.5- 36.3, N=100 (10")
40.5- 41.5, N=89
45.5- 46.5, N=89
50.0- 50.4, N=60 (5")
55.5- 56.5, N=100
60.0- 60.1, N=30 (1")
65.0- 65.0, N=10 (.01")
70.0- 70.2, N=60 (2")
75.0- 75.0, N=60 (.01")
80.0- 80.1, N=60 (1")
85.0- 85.0, N=60 (.01)
93.0- 94.0, N=95

Sta. 111+80 - C.L. of Constr.

2.5- 3.5, N=15
6.0- 7.0, N=13
7.5- 8.5, N=19
9.0- 10.0, N=10
14.5- 15.5, N=20
19.5- 20.5, N=16
24.5- 24.6, N=60 (1")
29.5- 30.5, N=62
34.5- 35.5, N=60
40.5- 41.5, N=42
45.5- 46.3, N=93 (10")
55.5- 55.9, N=60 (5")
65.5- 65.8, N=60 (4")
70.5- 70.8, N=60 (3")

Sta. 115+00 - C.L. of Constr.

4.6- 5.6, N=4
9.6- 10.6, N=30
14.6- 15.6, N=46
19.6- 20.6, N=66
24.6- 25.6, N=38
29.6- 30.6, N=28
34.6- 35.6, N=51
39.6- 40.4, N=102 (10")
44.6- 45.4, N=120 (10")
49.6- 49.8, N=60 (3")
54.6- 55.0, N=60 (5")
60.0- 60.3, N=60 (4")
65.0- 65.2, N=60 (3")

Sta. 116+30 - 15' Lt. of C.L. of Constr.

5.3- 6.3, N=12
10.3- 11.2, N=100 (11")
15.5- 16.5, N=37
20.5- 21.5, N=25
25.5- 26.5, N=56
30.5- 31.5, N=95
35.5- 36.5, N=39
40.5- 40.8, N=60 (4")
45.5- 46.2, N=100 (9")
50.5- 51.5, N=100
55.5- 55.8, N=28 (4")
60.0- 60.3, N=60 (4")

Sta. 117+40 - 24' Rt. of C.L. of Constr.

7.2- 8.2, N=5
10.7- 11.7, N=7
14.2- 15.2, N=12
17.7- 18.7, N=22
19.2- 20.2, N=20
20.2- 20.3, N=60 (1")
22.2- 23.2, N=28
23.7- 24.7, N=56
29.7- 30.7, N=51
35.5- 36.5, N=96
40.5- 41.5, N=103
45.5- 46.5, N=37
50.5- 51.5, N=56
55.5- 56.5, N=102
60.5- 61.0, N=60 (6")
65.0- 65.3, N=60 (5")
70.5- 70.8, N=60 (4")

STATE OF ARKANSAS
Carl L. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/4/13
CARL L. FUSELIER
BRIDGE ENGINEER

SHEET 2 OF 3
LAYOUT OF BRIDGE OVER
UNION PACIFIC RR & S. RICE ST.
UNION PACIFIC RR STR. & APPRS.
(ROOSEVELT RD.) (LR) (S)
PULASKI COUNTY
ROUTE 70 SEC. 12
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 12-31-12
CHECKED BY: KWY DATE: 8/2/13
DESIGNED BY: JYP DATE: 12-12
FILENAME: b061277_LI.dgn
SCALE: 1" = 30'-0"
BRIDGE NO. 07284 DRAWING NO. 54040

PRINT DATE: 8/1/2013

111+00 112+00 113+00 114+00 115+00 116+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	57	160
				① 07284		LAYOUT	54041	

GENERAL NOTES:
BENCH MARK: 5/8" Rebar with 2" Cap, 7.56' Lt. of C.L. Construction Sta. 119+66.80, Elev. = 271.75.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable supplemental specifications and special provisions. Section and subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012).

LIVE LOADING: HL93
SEISMIC PERFORMANCE ZONE: 2

MATERIALS AND STRENGTHS

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (Gr. 60, AASHTO M31 or M322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M270, Gr. 50W)	Fy = 50,000 psi

BORING LOGS: Boring logs may be obtained from the Programs and Contracts Division.

STEEL PILING: All Piling shall be HP 14x89 (Grade 50) and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 160 tons per pile. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. The Contractor shall use approved steel H-Pile driving points on all piles.

Piling at Bent 1 shall be driven after embankment to bottom of cap is in place and to a minimum penetration of 10' below natural ground.

Piling at Bents 2 thru 5 shall be driven to a minimum penetration of 10' below bottom of footing.

Piling at Bent 6 shall be driven after embankment to bottom of cap is in place and to a minimum penetration of 10' below bottom of undercut. Pile casings are required for all piling in Bent 6 within the MSE wall reinforcement zone. Casings shall be installed during backfill of undercut areas and embankment construction and shall extend from bottom of undercut to bottom of cap. Pile casing material shall be of sufficient strength to retain its original form free from harmful distortions after compaction of the fill material surrounding it. The minimum inside diameter of the casing shall be 20". Piles within the MSE wall reinforcement zone shall be driven through the open casings after embankment to bottom of cap is in place. After driving is completed, the pile casing shall be backfilled with approved non-shrink grout or other approved material in a single continuous operation to completely fill voids. Pile casings and backfill will not be paid for directly but shall be considered subsidiary to the item "Steel Piling (HP 14x89)".

Preboring or water jetting may be required to achieve minimum pile penetration. Preboring or water jetting shall cease once the minimum tip elevation is achieved. Any cost associated with achieving the minimum pile penetration shall be included in the item "Steel Piling (HP 14x89)".

FOOTINGS: Footings at Bents 2 thru 5 shall be set a minimum of 2' below natural ground or at the elevations shown on the plans, whichever is lower. Foundations for footings shall be prepared in accordance with subsection 801.04. Excavation shall be backfilled and compacted to the level of the existing ground in accordance with subsection 801.08.

BRIDGE DECK: The concrete bridge deck, except sidewalks, shall be given a tine finish as specified for final finishing in subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall be given a Class 6 Broomed Finish.

DETAIL DRAWINGS:	DRAWING NO.
End Bents	54043, 54044, 54050, 54051
Int. Bents	54045-54049
Steel Piling	55020
Elastomeric Bearings	54052
400'-0" Continuous Plate Girder Unit	54053-54058
260'-0" Continuous Plate Girder Unit	54053-54055, 54059-54060
Deck Drains	54061
Combination Bridge Rail	54062-54064
Ornamental Fence	54065
Type Special Approach Slab	54066

EXISTING BRIDGE: Existing Bridge No. 01810 (L.M. 5.57) is 48.0' wide and 560' long and consists of reinforced concrete deck girder approach spans and steel I-beam main spans supported by steel and concrete columns on spread footings.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, existing Bridge No. 01810 shall be removed in accordance with Section 205. All material from the existing bridge, including additional shoring, shall become the property of the Contractor. The existing beams have a lead paint coating system.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

PRINT DATE: 1/28/2014

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	*NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	1,300	256.3	256.6
Base	100	1,500	256.6	256.9
Extreme	500	2,000	257.3	257.6
Overtopping	>500	-	-	-

*Unconstricted water surface without structure or roadway approaches.

Q100 backwater elevation for existing structure = 256.9
Proposed Low Bridge Chord Elev. = 280.54

Drainage area = 1.0 square miles
Historical H.W. Elev = N/A

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER
1/28/14

BRIDGE ENGINEER

SHEET 3 OF 3
LAYOUT OF BRIDGE OVER UNION PACIFIC RR & S. RICE ST. UNION PACIFIC RR STR. & APPRS. (ROOSEVELT RD.) (LR) (S) PULASKI COUNTY

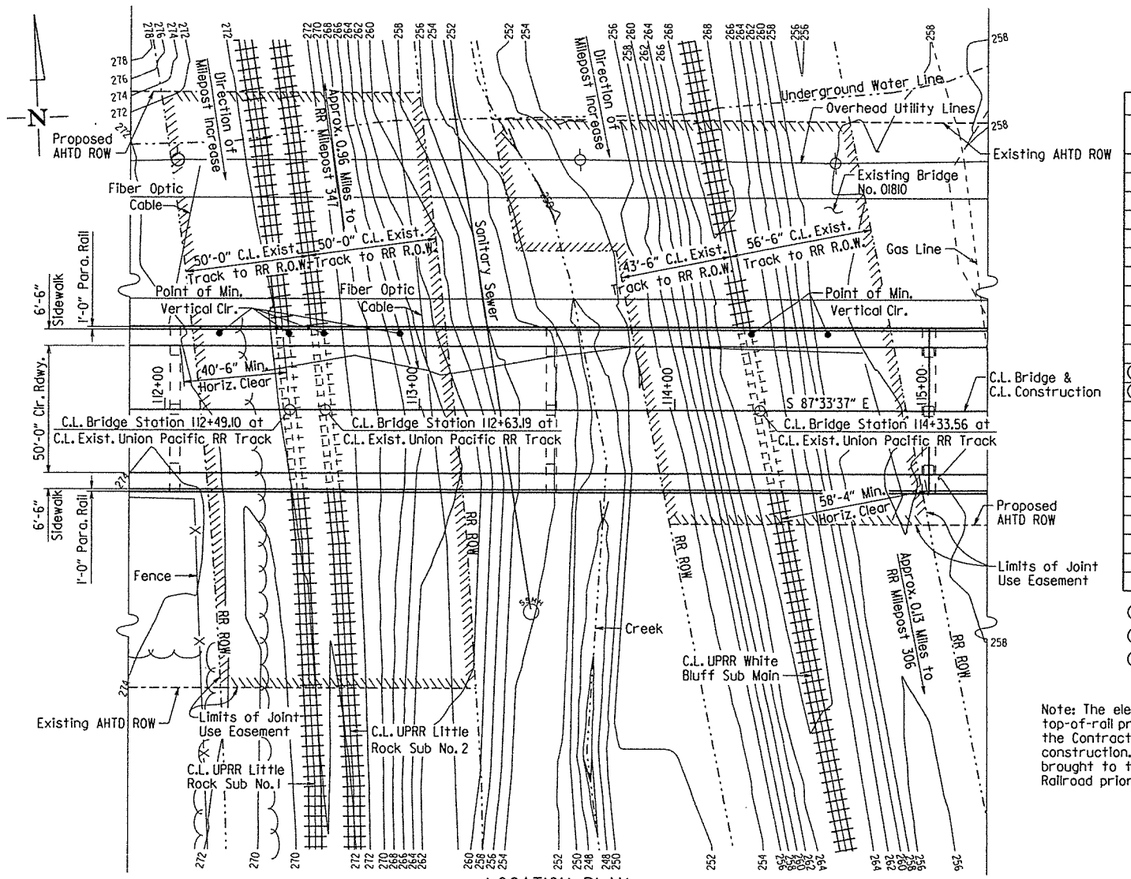
ROUTE 70 SEC. 12

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 12-31-12
CHECKED BY: KWY DATE: 1/28/14
DESIGNED BY: JYP DATE: 12-12
FILENAME: b061277_LI.dgn
SCALE: 1" = 30'-0"

BRIDGE NO. 07284 DRAWING NO. 54041

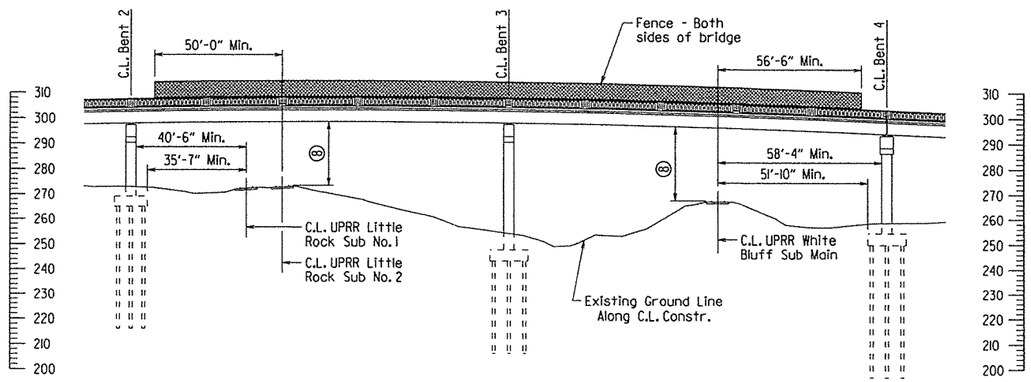
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	58	160
				① 07284		LAYOUT	54042	



LOCATION PLAN

Note:
Existing bents located less than 25' from C.L. Track shall be removed to a depth of 6 feet below base of rail. Excavation will be required a minimum of 8 feet from C.L. Track.

Existing bents located 25' or greater from C.L. Track shall be removed to at least 3 feet below final grade or at least 2 feet below base of rail, whichever is lower, unless otherwise specified by the Railroad.



SECTION NORMAL TO TRACK
(Looking In Direction of Milepost Decrease)

TRACK	⑧ Min. Vertical Clearance AT RAIL	25' FROM C.L. TRACK	32' FROM C.L. TRACK
UPRR Little Rock Sub No. 1	24'-4"	24'-5"	N/A
UPRR Little Rock Sub No. 2	23'-10"	23'-11"	23'-11"
UPRR White Bluff Sub Main	27'-5"	26'-8"	26'-5"

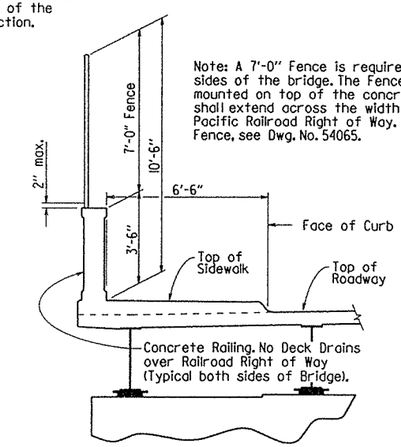
TOP OF RAIL ELEVATIONS

(Stations increase with Milepost increase)

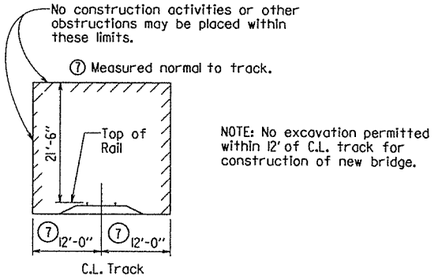
UPRR Little Rock Sub No. 1			UPRR Little Rock Sub No. 2			UPRR White Bluff Sub Main		
Station	Elevation Right Rail	Elevation Left Rail	Station	Elevation Right Rail	Elevation Left Rail	Station	Elevation Right Rail	Elevation Left Rail
0+00	281.54	281.54	0+00	281.24	281.22	0+00	277.47	277.45
1+00	280.62	280.60	1+00	280.32	280.31	1+00	276.57	276.54
2+00	279.64	279.63	2+00	279.38	279.39	2+00	275.68	275.67
3+00	278.67	278.66	3+00	278.41	278.40	3+00	274.85	274.84
4+00	277.62	277.61	4+00	277.44	277.44	4+00	273.98	273.96
5+00	276.51	276.53	5+00	276.54	276.54	5+00	273.08	273.07
6+00	275.52	275.56	6+00	275.77	275.76	6+00	272.16	272.14
7+00	274.77	274.82	7+00	275.15	275.21	7+00	271.15	271.14
8+00	274.06	274.22	8+00	274.58	274.74	8+00	270.20	270.19
9+00	273.38	273.66	9+00	274.01	274.25	9+00	269.20	269.19
10+00	272.77	273.19	10+00	273.46	273.81	10+00	268.15	268.12
①10+41.06	272.58		③10+41.98	273.23		⑤10+42.37	267.74	
②10+41.58		273.01	④10+42.21		273.59	⑥10+41.91		267.72
11+00	272.32	272.75	11+00	272.90	273.30	11+00	267.17	267.16
12+00	271.93	272.37	12+00	272.32	272.74	12+00	266.20	266.17
13+00	271.42	271.86	13+00	271.69	272.12	13+00	265.20	265.18
14+00	270.71	271.17	14+00	271.03	271.45	14+00	264.31	264.30
15+00	269.92	270.38	15+00	270.38	270.81	15+00	263.50	263.50
16+00	269.22	269.65	16+00	269.76	270.17	16+00	262.82	262.83
17+00	268.57	269.01	17+00	269.15	269.56	17+00	262.25	262.25
18+00	267.98	268.44	18+00	268.53	268.96	18+00	261.74	261.75
19+00	267.57	268.01	19+00	267.89	268.30	19+00	261.29	261.31
20+00	267.22	267.64	20+00	267.32	267.76	20+00	260.87	260.85

① Intersection at C.L. Constr. Sta. 112+46.62
② Intersection at C.L. Constr. Sta. 112+51.58
③ Intersection at C.L. Constr. Sta. 112+60.73
④ Intersection at C.L. Constr. Sta. 112+65.64
⑤ Intersection at C.L. Constr. Sta. 114+31.05
⑥ Intersection at C.L. Constr. Sta. 114+36.08

Note: The elevations of the existing top-of-rail profile shall be verified by the Contractor prior to beginning construction. Any discrepancies shall be brought to the attention of the Railroad prior to construction.



TYPICAL SECTION
No Scale



NOTE: No excavation permitted within 12' of C.L. track for construction of new bridge.

MINIMUM CONSTRUCTION CLEARANCES
No Scale

GENERAL NOTES

All demolitions within the Railroad's right-of-way and/or demolition that may impact the Railroad's tracks or operations shall comply with the Railroad's demolition requirements.

Erection over the Railroad's right-of-way shall be designed to cause no interruption to the Railroad's operation. Erection over the Railroad's track shall be developed such that it enables the track(s) to remain open to traffic per the Railroad's requirements.

The Contractor must submit a proposed method of erosion and sediment control and have the method approved by the Railroad prior to beginning any grading on the project site.

Railroad requirements do not allow work within 50 feet of track centerline when a train passes the work site and all personnel must clear the area within 25 feet of the track centerline and secure all equipment when trains are present.

Existing drainage patterns will be maintained. The proposed bridge structure will not significantly change the quantity and/or characteristic of the flow in the Railroad's ditches and/or drainage structure.

Closed Parapet Railing (No Deck Drains) over Railroad Right of Way - Typical on both sides of Bridge.

"The State shall not plow ice, snow or sleet over the sides of the structure. In consideration of this practice, the Carrier waives its request for the State to attach splash boards to sides of the structure." This statement is in the State-Railroad Agreement.

Construction shall comply with the requirements noted in Job 061277 Special Provision "Insurance, Construction, and Flagging Requirements on Railroad Property (UPRR)".

Note: All permanent clearances shall be verified before project closing.

STATE OF ARKANSAS
Carl L. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/14/13
CARL L. FUSELIER

BRIDGE ENGINEER

EXHIBIT A
LAYOUT OF BRIDGE OVER UNION PACIFIC RAILROAD & S. RICE ST. UNION PACIFIC RR STR. & APPRS. (ROOSEVELT RD.) (LR) (S) PULASKI COUNTY

ROUTE 70 SEC. 12

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 12-31-12
CHECKED BY: KWY DATE: 8/12/13
DESIGNED BY: JYP DATE: 12-12

FILENAME: b061277_exA.dgn
SCALE: 1" = 30'-0" or as noted

BRIDGE NO. 07284 DRAWING NO. 54042

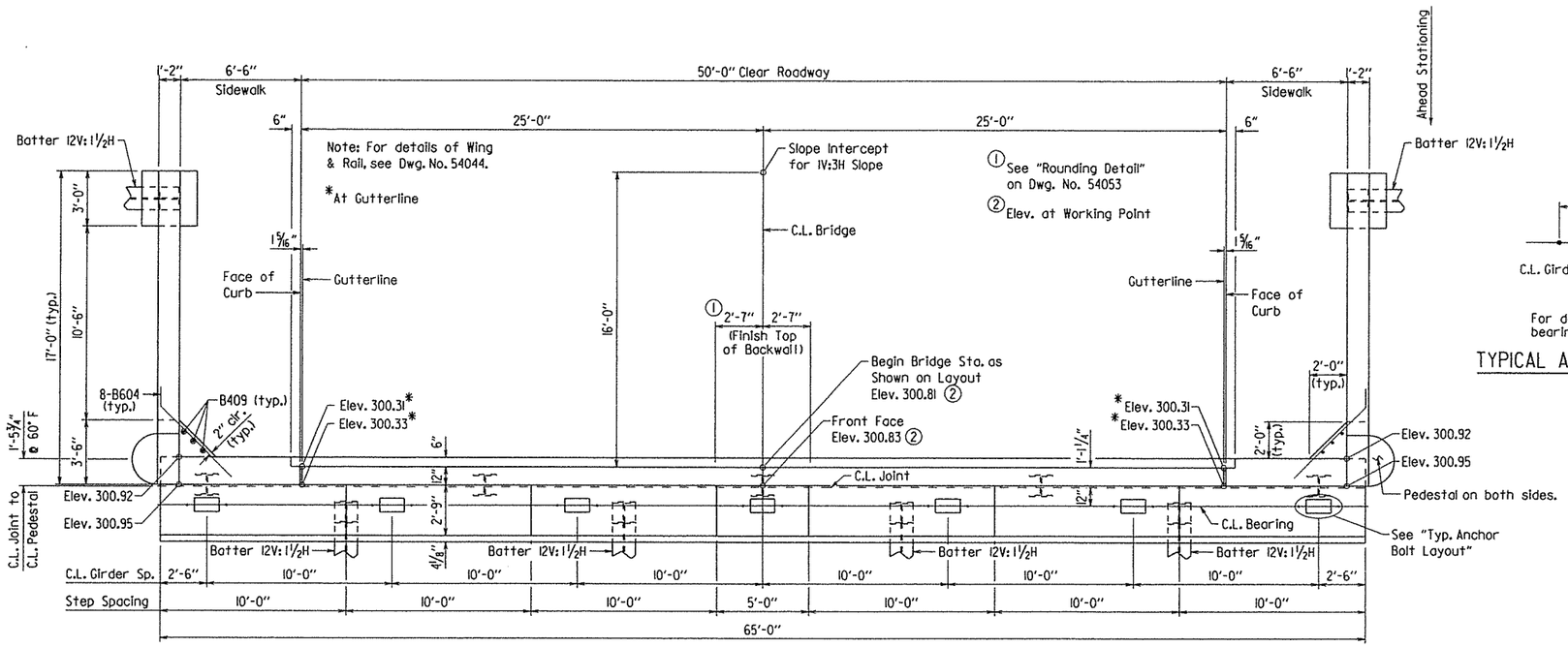
PRINT DATE: 8/1/2013

NOTE: Class I Protective Surface Treatment shall be applied to the top of the backwall, sidewalk, and to the roadway face and top of the rails.

NOTE: Wings and rails are constructed on curves concentric to C.L. Bridge.

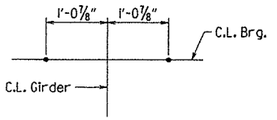
NOTE: For Bar List and General Notes, see Dwg. No. 54044.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	59	160
				① 07284 -		END BENTS	- 54043	



PLAN OF BENT I

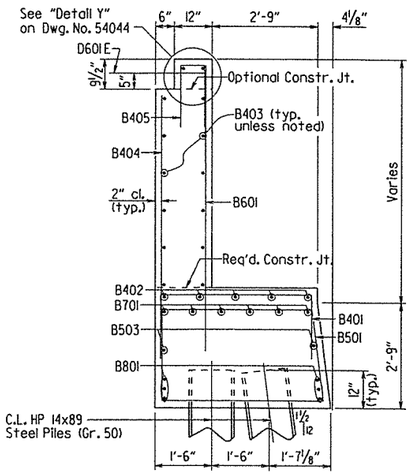
¼" = 1'-0"



For details of elastomeric bearings, see Dwg. No. 54052.

TYPICAL ANCHOR BOLT LAYOUT

¾" = 1'-0"

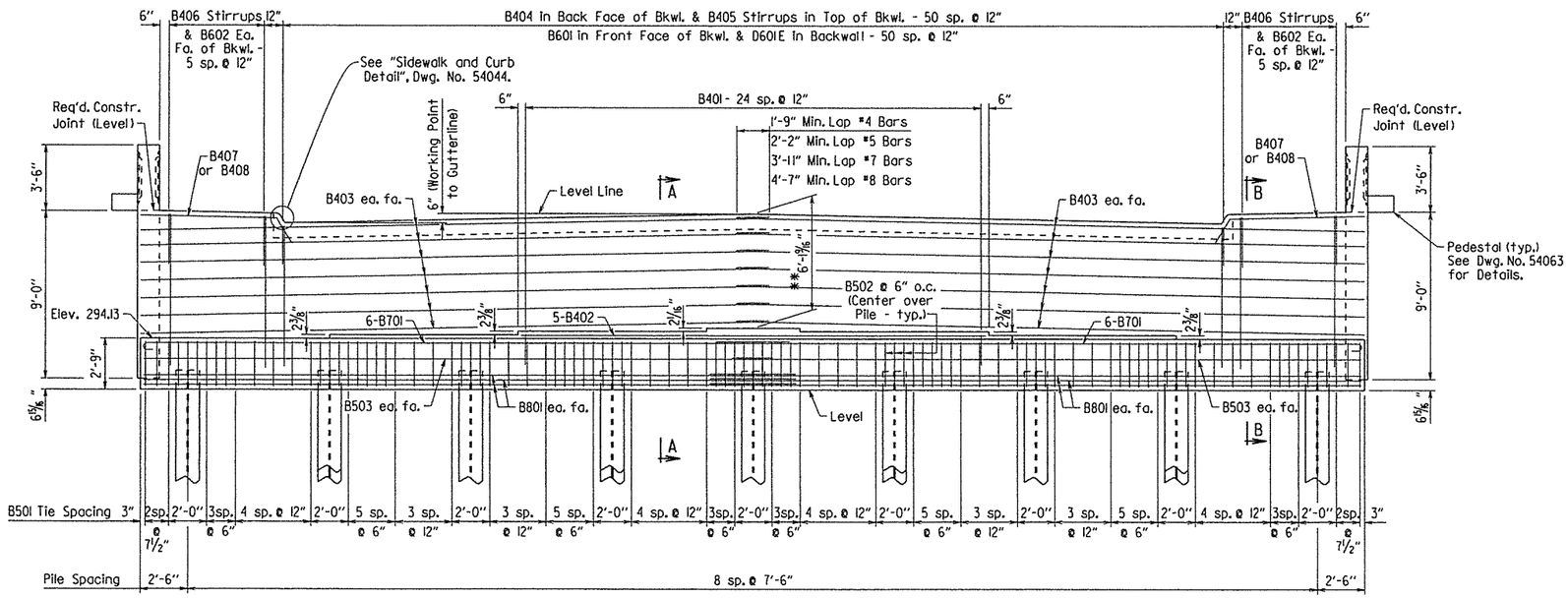


SECTION A-A

½" = 1'-0"

NOTE: The Backwall above the required construction joint shall not be poured until the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See Dwg. No. 54055, "Expansion Device Installation at End Bents", for additional information.

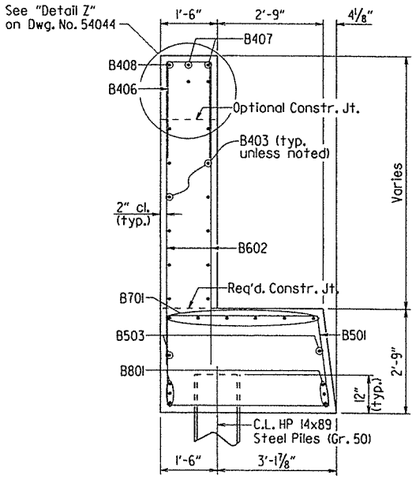
**Measured to Working Point at front face of backwall



ELEVATION OF BENT I

Looking Back

1/4" = 1'-0"



SECTION B-B

½" = 1'-0"

STATE OF ARKANSAS
Carl Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/9/13
CARL FUSELIER

BRIDGE ENGINEER

SHEET 1 OF 2

DETAILS OF END BENT I

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 4-1-13 FILENAME: b061277_bl.dgn

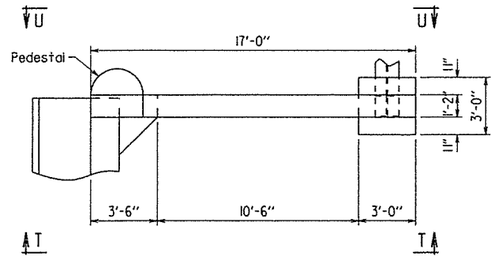
CHECKED BY: KWS DATE: 8/6/13 SCALE: As Noted

DESIGNED BY: JYP DATE: 2-13

BRIDGE NO. 07284 DRAWING NO. 54043

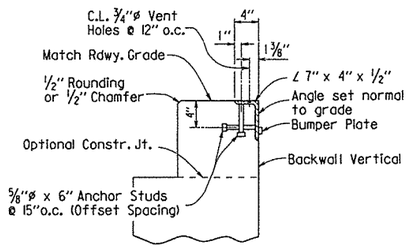
PRINT DATE: 8/1/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	60	160
				①	07284 -	END BENTS	- 54044	



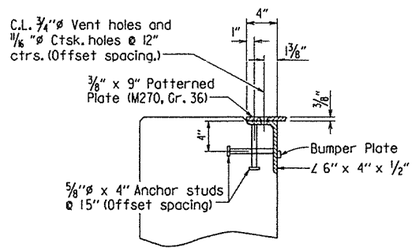
PLAN OF WING & RAIL

1/4" = 1'-0"



DETAIL Y

No Scale

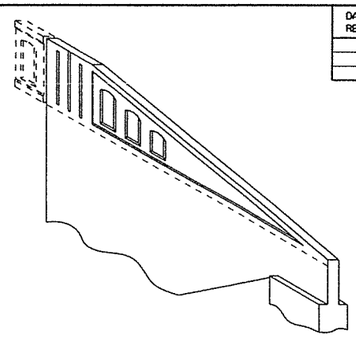


DETAIL Z

No Scale

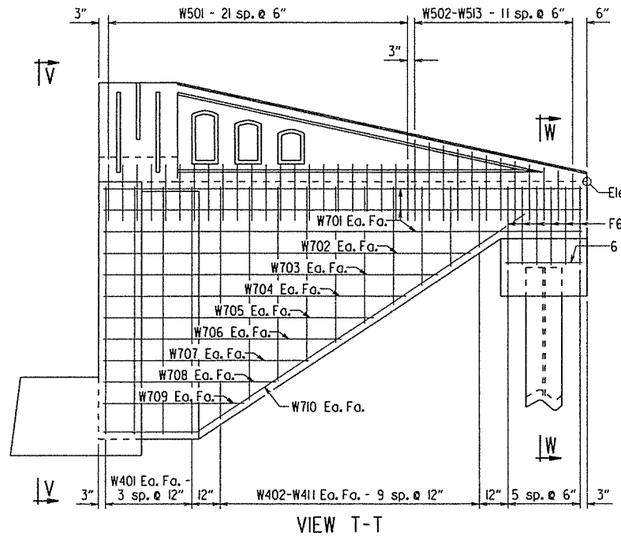
NOTES:
Concrete shall be hand packed under joint armor in the backwall.

For additional joint details, see Dwg. No. 54055.



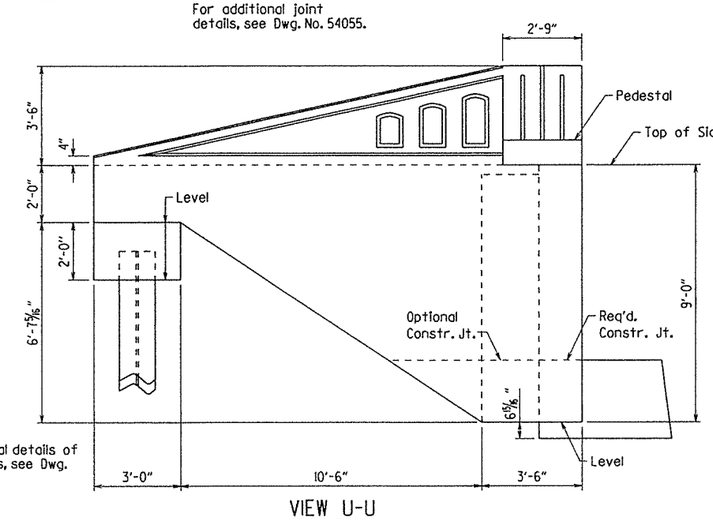
THREE DIMENSIONAL VIEW OF RAIL

No Scale



VIEW T-T

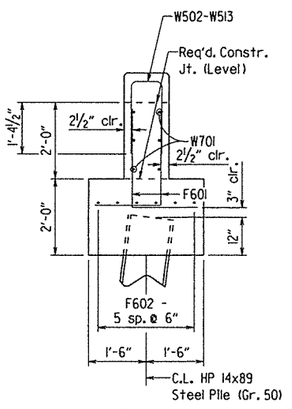
3/8" = 1'-0"



NOTE: For additional details of rails and pedestals, see Dwg. Nos. 54062-54064.

VIEW U-U

3/8" = 1'-0"



SECTION W-W

1/2" = 1'-0"

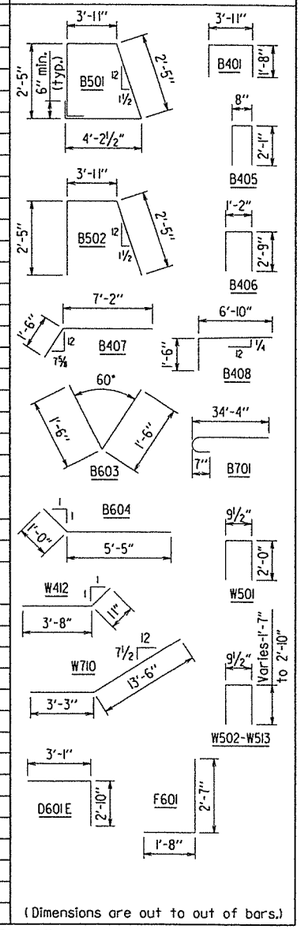
SECTION X-X

3/8" = 1'-0"

BAR LIST

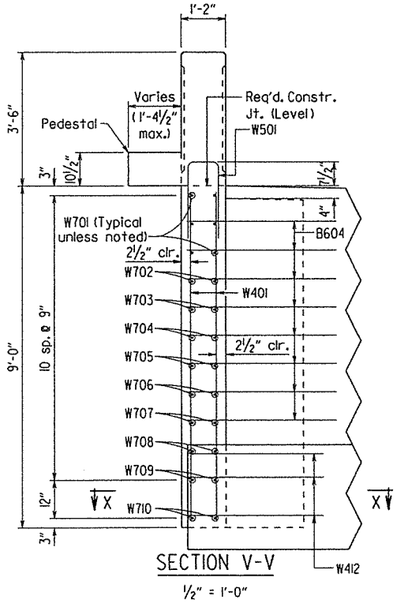
Mark	No. Req'd.	Length	Pin Dia.
B401	25	7'-1"	2"
B402	5	24'-8"	Str.
B403	28	33'-5"	Str.
B404	51	6'-4"	Str.
B405	51	4'-8"	2"
B406	12	6'-6"	2"
B407	4	8'-8"	2"
B408	2	8'-2"	2"
B409	6	8'-3"	Str.
B501	74	13'-6"	2 1/2"
B502	27	8'-7"	2 1/2"
B503	4	33'-7"	Str.
B601	51	7'-7"	Str.
B602	24	8'-2"	Str.
B603	22	2'-11"	4 1/2"
B604	16	6'-5"	4 1/2"
B701	12	35'-2"	5 1/4"
B801	12	34'-8"	Str.
D601E	51	5'-9"	4 1/2"
F601	24	4'-1"	4 1/2"
F602	12	2'-8"	Str.
W401	16	8'-7"	Str.
W402-W411	4 each	8'-0" to 2'-2"	Str.
W412	6	4'-7"	2"
W501	44	4'-7"	2 1/2"
W502-W513	2 each	3'-9" to 6'-3"	2 1/2"
W701	12	16'-8"	Str.
W702	4	12'-9"	Str.
W703	4	11'-7"	Str.
W704	4	10'-6"	Str.
W705	4	9'-4"	Str.
W706	4	8'-3"	Str.
W707	4	7'-1"	Str.
W708	4	6'-0"	Str.
W709	4	4'-10"	Str.
W710	4	16'-9"	5 1/4"

Bending Diagrams



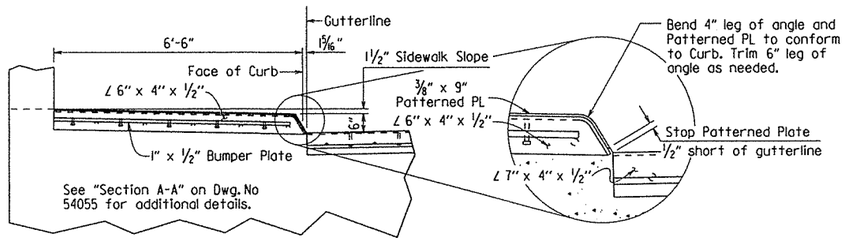
(Dimensions are out to out of bars.)

NOTE: Bars with an "E" suffix shall be epoxy coated.



SECTION V-V

1/2" = 1'-0"



SIDEWALK AND CURB DETAIL

No Scale

GENERAL NOTES

All concrete (except the rail and pedestal) shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

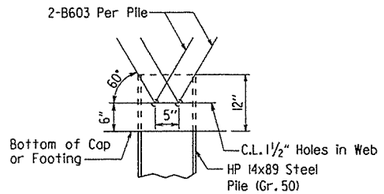
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Structural steel in end bents shall be AASHTO M 270, Grade 50 unless otherwise noted and shall be paid for as "STRUCTURAL STEEL IN PLATE GIRDER SPANS (M 270, GR. 50W)". See additional requirements for cleaning and painting on Dwg. No. 54055.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

All piling shall be Grade 50.

For additional information, see Layout.



** Tie or wedge this reinforcing to bear at top of holes.

DETAIL AT PILE TIP

No Scale

STATE OF ARKANSAS
CARL J. FUSELIER
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/14/13

BRIDGE ENGINEER

SHEET 2 OF 2

DETAILS OF END BENT 1

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

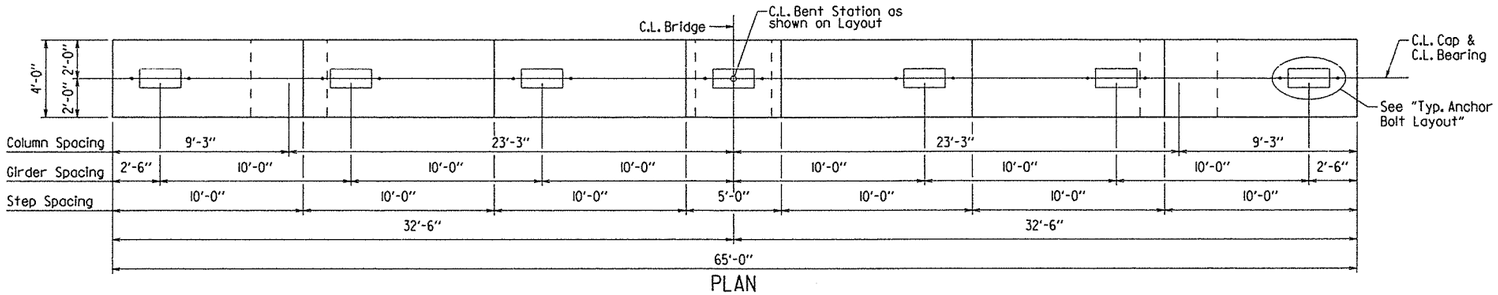
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 4-1-13 FILENAME: b061277_b1.dgn
CHECKED BY: KWY DATE: 8/12/13 SCALE: As Noted
DESIGNED BY: JYP DATE: 8-13

BRIDGE NO. 07284 DRAWING NO. 54044

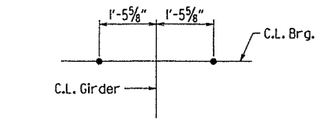
PRINT DATE: 8/2/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	61	160
				(1) 07284 -		BENT 2	- 54045	



PLAN

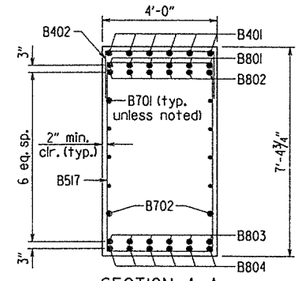
1/4" = 1'-0"



For details of elastomeric bearings, see Dwg. No. 54052.

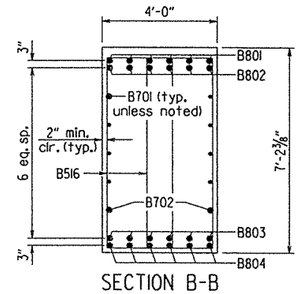
TYPICAL ANCHOR BOLT LAYOUT

1/2" = 1'-0"



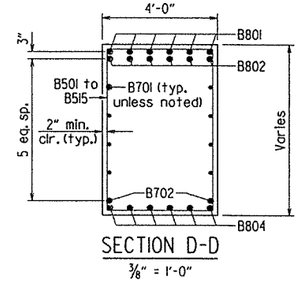
SECTION A-A

3/8" = 1'-0"



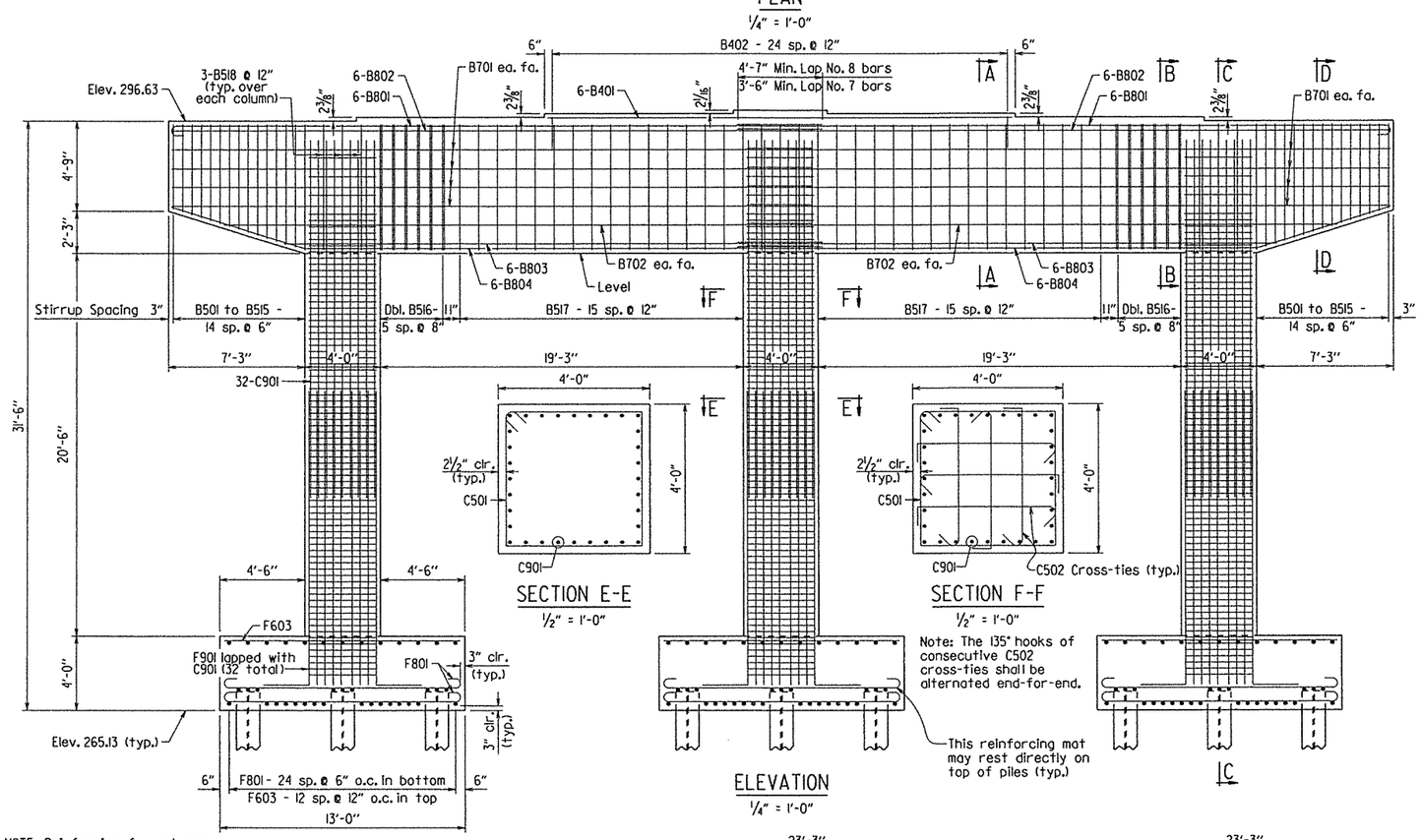
SECTION B-B

3/8" = 1'-0"



SECTION D-D

3/8" = 1'-0"



SECTION E-E

1/2" = 1'-0"

SECTION F-F

1/2" = 1'-0"

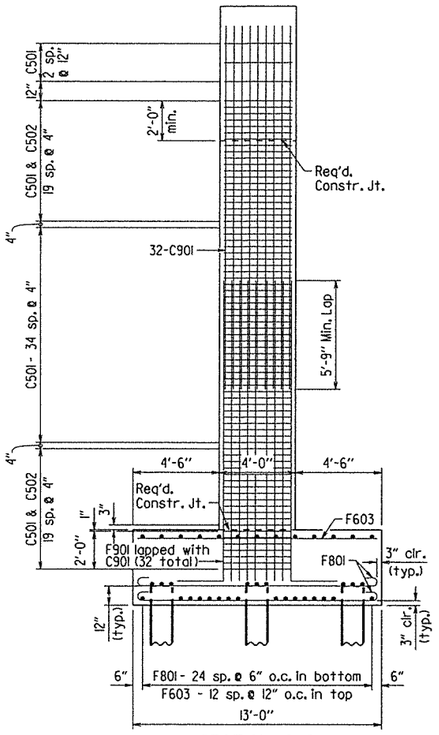
Note: The 135° hooks of consecutive C502 cross-ties shall be alternated end-for-end.

This reinforcing mat may rest directly on top of piles (typ.)

ELEVATION

1/4" = 1'-0"

IC

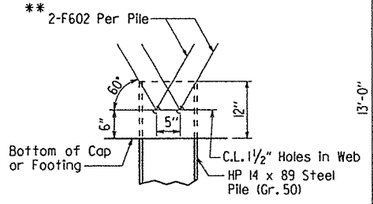


SECTION C-C

1/4" = 1'-0"

NOTE: Reinforcing for columns and footings are typical.

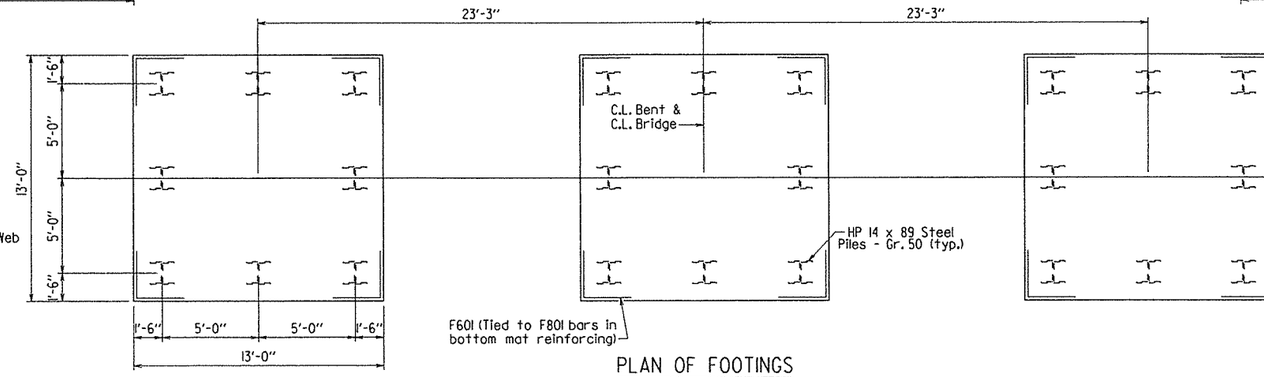
NOTE: For General Notes and Bar List see Dwg. No. 54049.



** Tie or wedge this reinforcing to bear at top of holes.

DETAIL AT PILE TIP

No Scale



PLAN OF FOOTINGS

1/4" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELLIER
8/14/13

BRIDGE ENGINEER

DETAILS OF BENT 2

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 3-22-13 FILENAME: b061277_b2.dgn

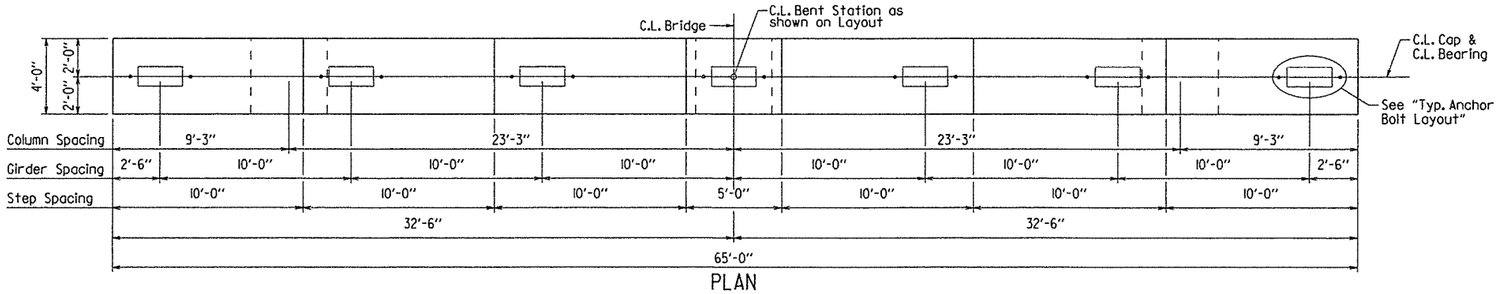
CHECKED BY: KWY DATE: 8/14/13 SCALE: As Noted

DESIGNED BY: JYP DATE: 2-13

BRIDGE NO. 07284 DRAWING NO. 54045

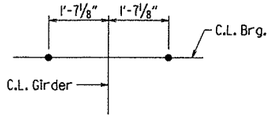
PRINT DATE: 8/1/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	62	160
				(1) 07284 -		BENT 3	- 54046	



PLAN

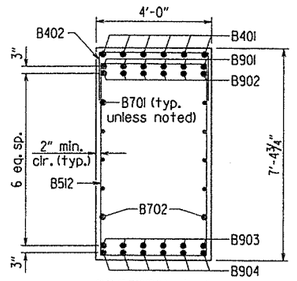
1/4" = 1'-0"



For details of elastomeric bearings, see Dwg. No. 54052.

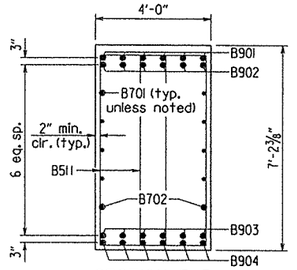
TYPICAL ANCHOR BOLT LAYOUT

1/2" = 1'-0"



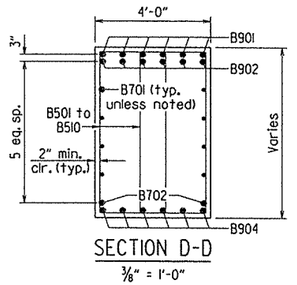
SECTION A-A

3/8" = 1'-0"



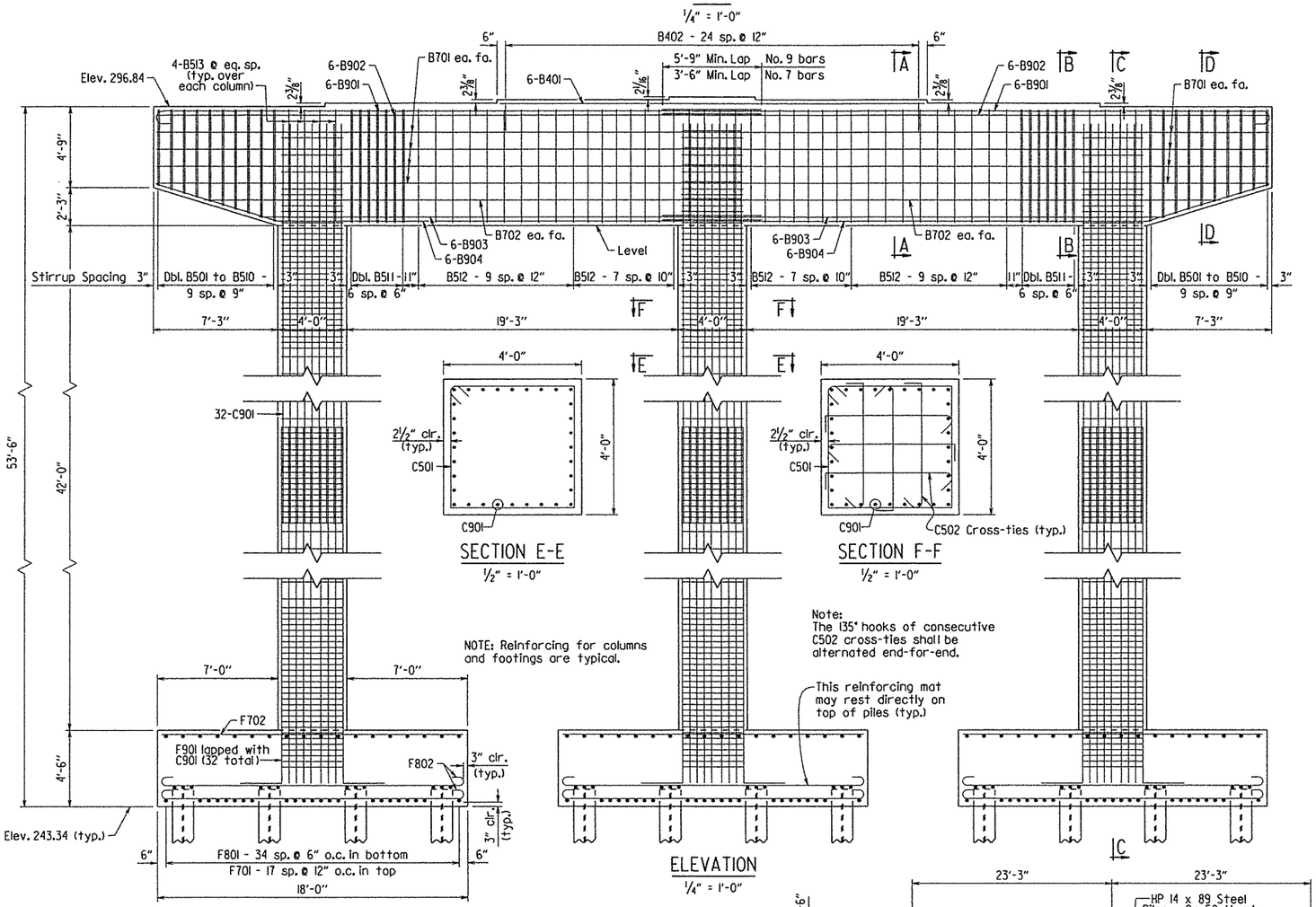
SECTION B-B

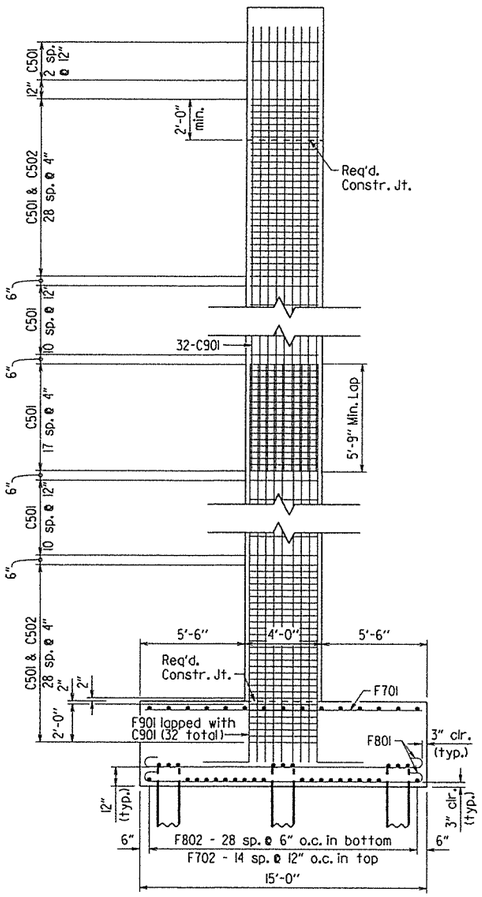
3/8" = 1'-0"



SECTION D-D

3/8" = 1'-0"





SECTION C-C

1/4" = 1'-0"

NOTE: For General Notes and Bar List see Dwg. No. 54049.

Note: For "Detail at Pile Tip", see Dwg. No. 54045.

STATE OF ARKANSAS
Carl J. Fusselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/4/13
CARL J. FUSSELIER
BRIDGE ENGINEER

DETAILS OF BENT 3

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

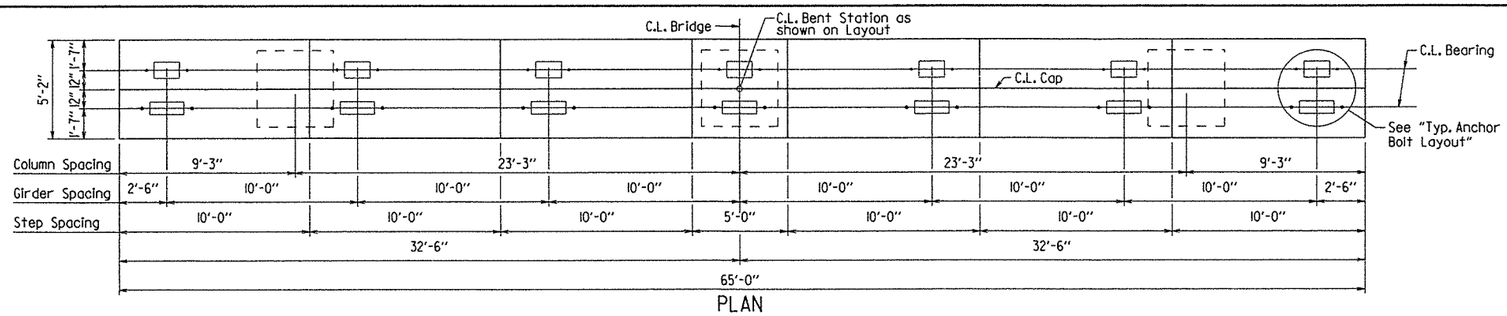
LITTLE ROCK, ARK.

DRAWN BY: JYP	DATE: 3-26-13	FILENAME: b061277_b2.dgn	
CHECKED BY: KWY	DATE: 8/6/13	SCALE: As Noted	
DESIGNED BY: JYP	DATE: 2-13		

BRIDGE NO. 07284 DRAWING NO. 54046

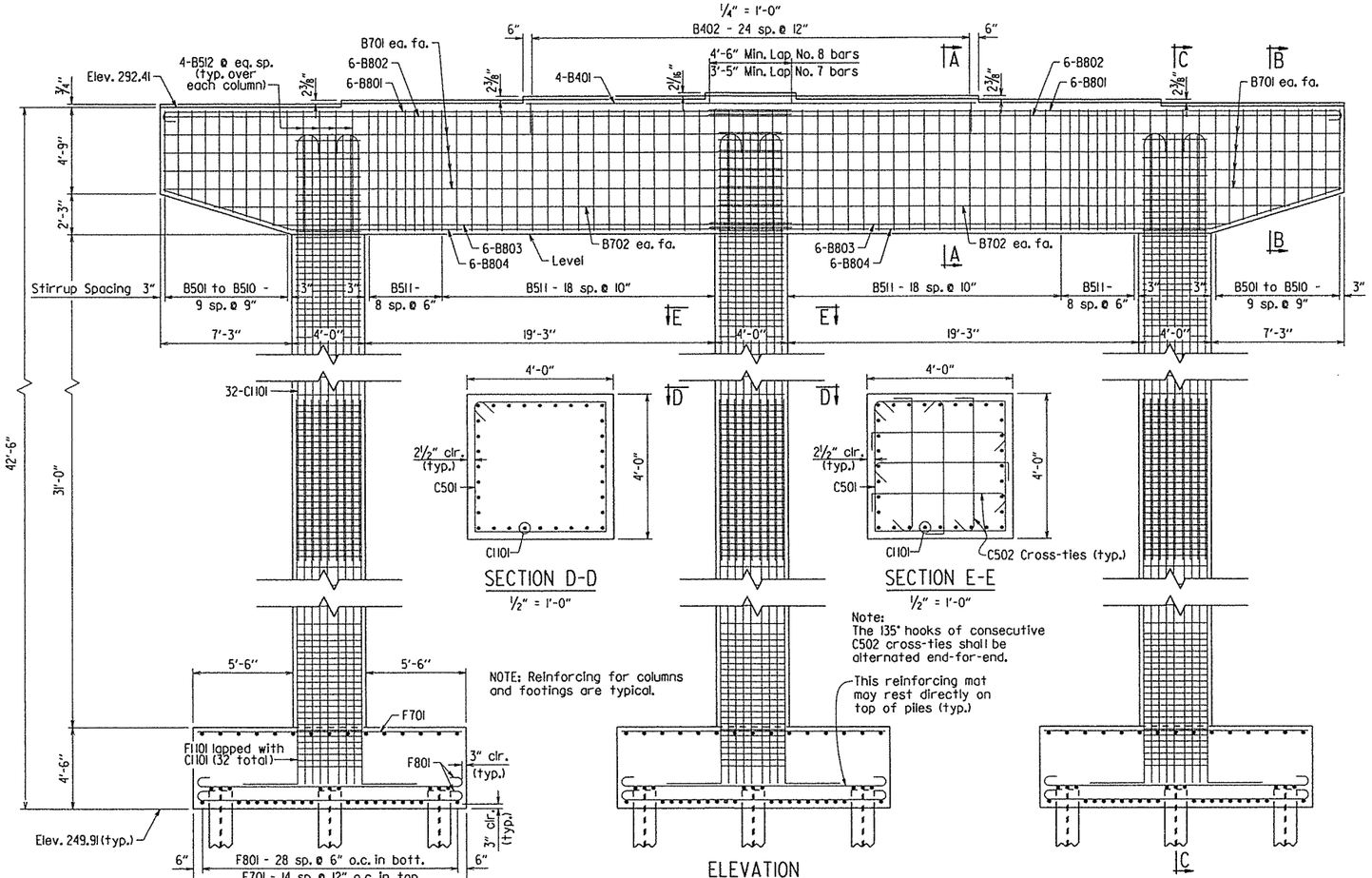
PRINT DATE: 8/1/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	63	160
				(1) 07284 -		BENT 4	- 54047	



PLAN

1/4" = 1'-0"



SECTION D-D

1/2" = 1'-0"

SECTION E-E

1/2" = 1'-0"

NOTE: Reinforcing for columns and footings are typical.

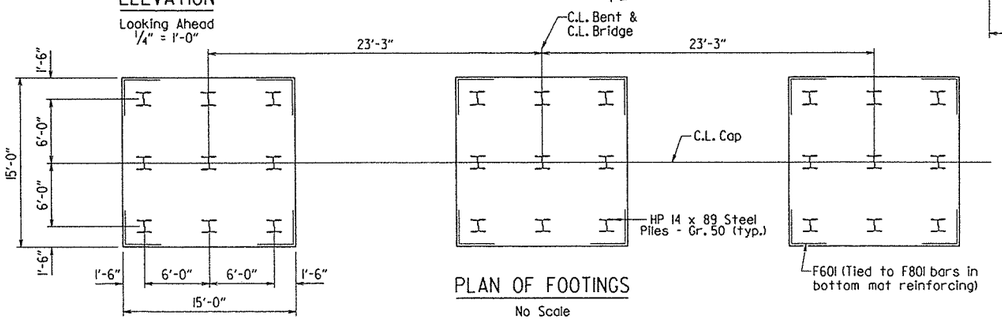
Note:
The 135° hooks of consecutive C502 cross-ties shall be alternated end-for-end.

This reinforcing mat may rest directly on top of piles (typ.)

ELEVATION

Looking Ahead

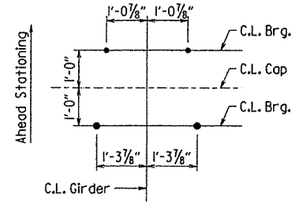
1/4" = 1'-0"



PLAN OF FOOTINGS

No Scale

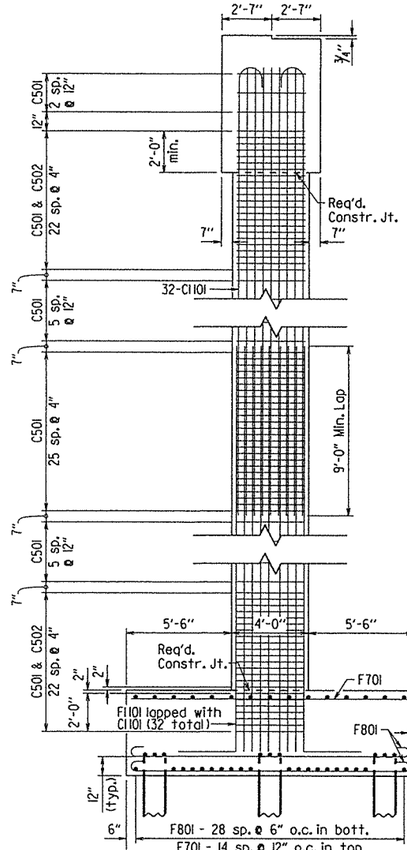
Note: For "Detail at Pile Tip", see Dwg. No. 54045.



For details of elastomeric bearings, see Dwg. No. 54052.

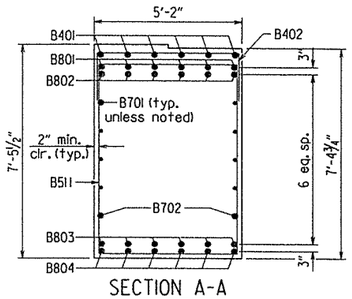
TYPICAL ANCHOR BOLT LAYOUT

1/2" = 1'-0"



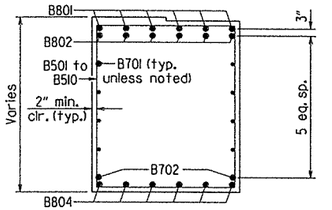
SECTION C-C

1/4" = 1'-0"



SECTION A-A

3/8" = 1'-0"



SECTION B-B

3/8" = 1'-0"

NOTE: For General Notes and Bar List see Dwg. No. 54049.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

DETAILS OF BENT 4

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 3-27-13 FILENAME: b061277_b2.dgn

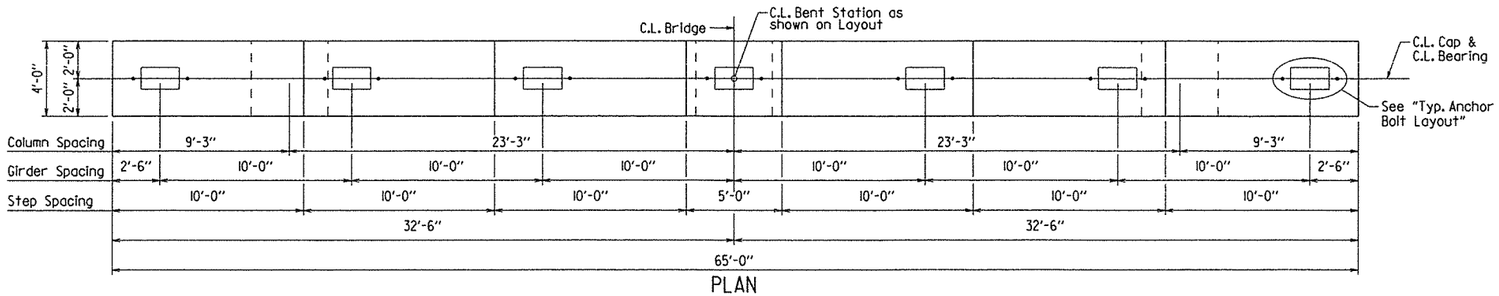
CHECKED BY: LWW DATE: 8/2/13 SCALE: As Noted

DESIGNED BY: JYP DATE: 2-13

BRIDGE NO. 07284 DRAWING NO. 54047

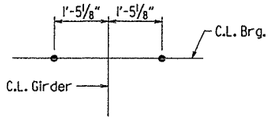
PRINT DATE: 8/2/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	64	160
				1	07284 -	BENT 5	- 54048	



PLAN

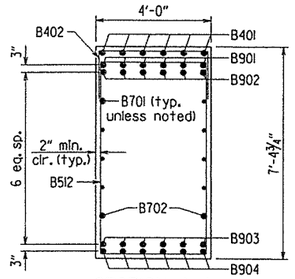
1/4" = 1'-0"



For details of elastomeric bearings, see Dwg. No. 54052.

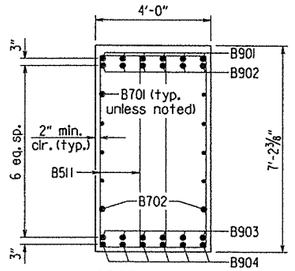
TYPICAL ANCHOR BOLT LAYOUT

½" = 1'-0"



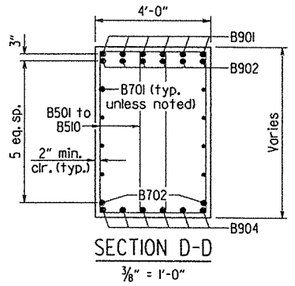
SECTION A-A

⅜" = 1'-0"



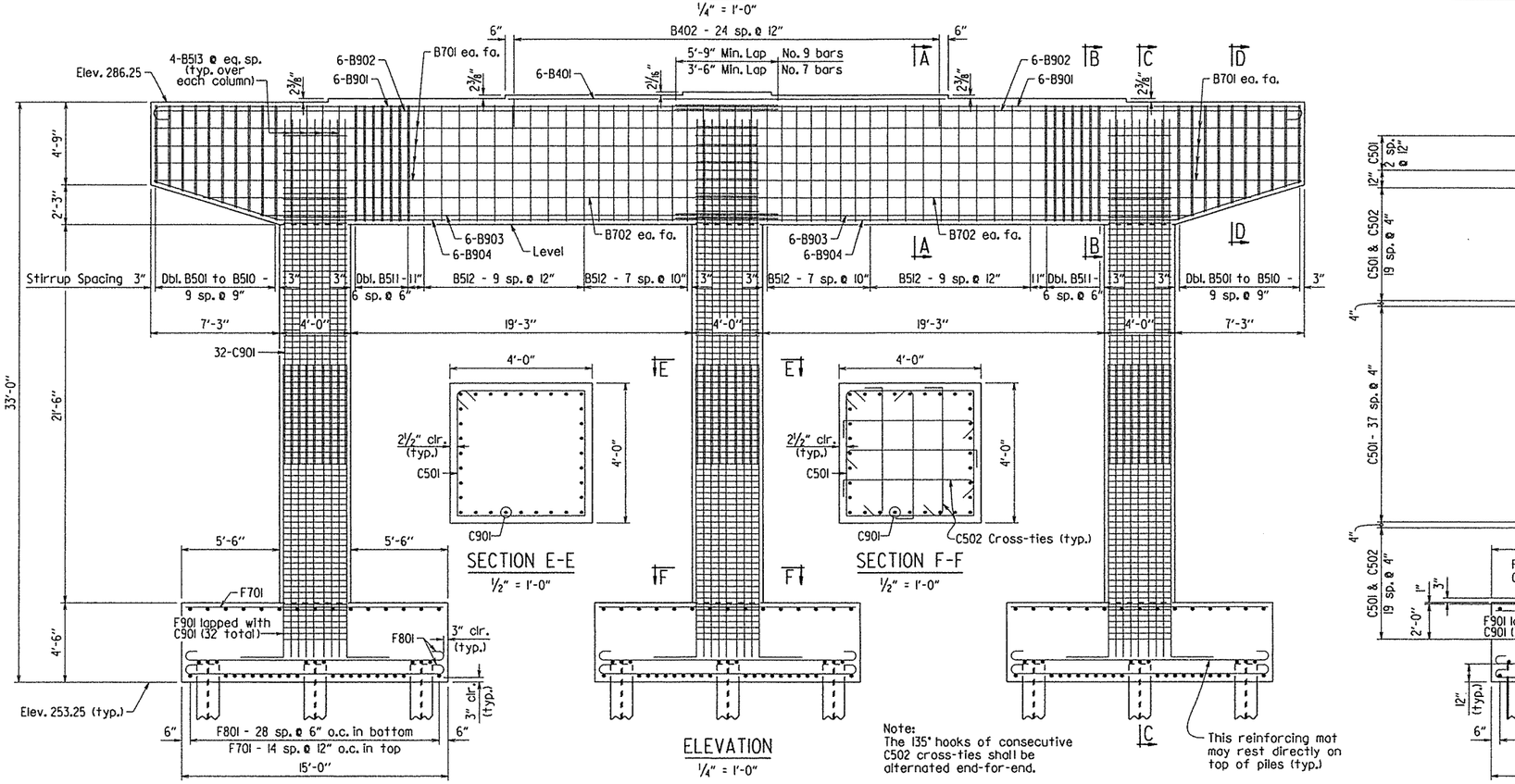
SECTION B-B

⅜" = 1'-0"



SECTION D-D

⅜" = 1'-0"



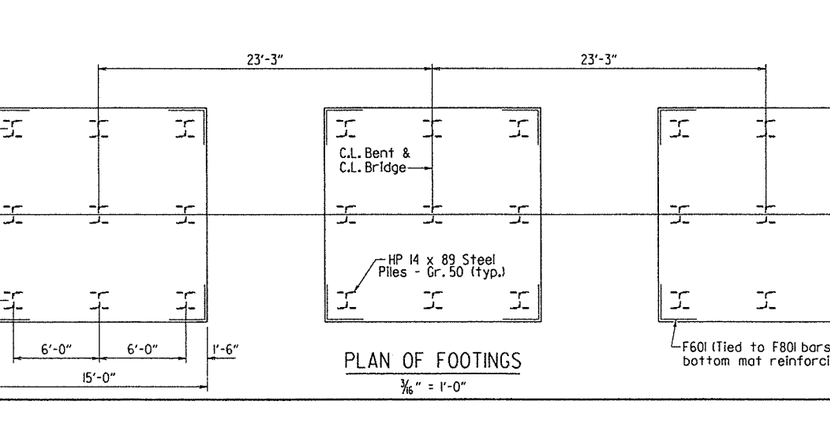
NOTE: Reinforcing for columns and footings are typical.

SECTION E-E

½" = 1'-0"

SECTION F-F

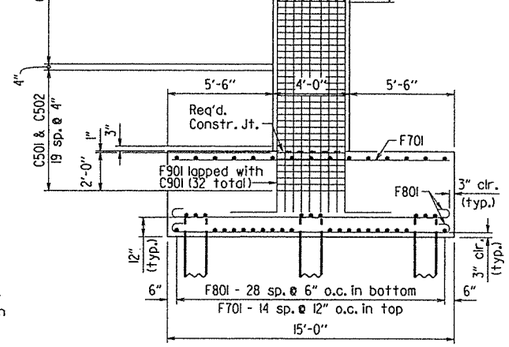
½" = 1'-0"



ELEVATION

¼" = 1'-0"

Note:
The 135° hooks of consecutive C502 cross-ties shall be alternated end-for-end.



SECTION C-C

¼" = 1'-0"

NOTE: For General Notes and Bar List see Dwg. No. 54049.

PLAN OF FOOTINGS

3/16" = 1'-0"

F601 (Tied to F801 bars in bottom mat reinforcing)

Note: For "Detail at Pile Tip", see Dwg. No. 54045.

STATE OF ARKANSAS
Carl J. Pusellier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. PUSELLIER
8/14/13

BRIDGE ENGINEER

DETAILS OF BENT 5

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 3-27-13 FILENAME: b061277_b2.dgn

CHECKED BY: KWY DATE: 8/14/13 SCALE: As Noted

DESIGNED BY: JYP DATE: 2-13

BRIDGE NO. 07284 DRAWING NO. 54048

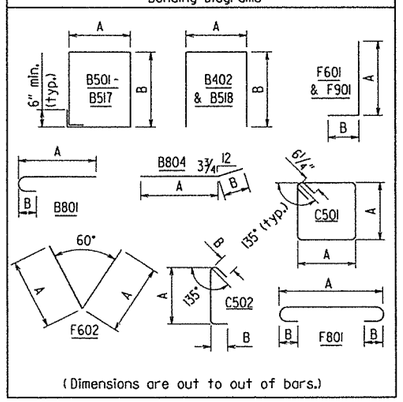
PRINT DATE: 8/1/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	65	160
				(1)	07284 -	INT. BENTS	- 54049	

BAR LIST BENT 2

Mark	No. Req'd.	Length	A	B	Pin Dia.
B401	6	24'-8"			Str.
B402	25	6'-10"	3'-8"	1'-8"	2"
B501-B515	2 each	16'-9" to 21'-1"	3'-8"	4'-5½" to 6'-7½"	2½"
B516	24	18'-6"	2'-4"	6'-8"	2½"
B517	32	21'-2"	3'-8"	6'-8"	2½"
B518	9	16'-10"	3'-8"	6'-8"	2½"
B701	16	34'-1"			Str.
B702	4	31'-4"			Str.
B801	12	35'-7"	34'-8"	8"	6"
B802	12	34'-8"			Str.
B803	12	28'-8"			Str.
B804	12	34'-11"	27'-6"	7'-5"	6"
C501	234	15'-0"	3'-7"		3¾"
C502	720	4'-5"	3'-7"	6"	2½"
C901	96	19'-2"			Str.
F601	12	4'-10"	2'-6"	2'-6"	4½"
F602	48	2'-11"	1'-6"		4½"
F603	78	12'-6"			Str.
F801	150	14'-4"	12'-6"	8"	6"
F901	96	17'-5"	16'-0"	1'-8"	9"

Bending Diagrams

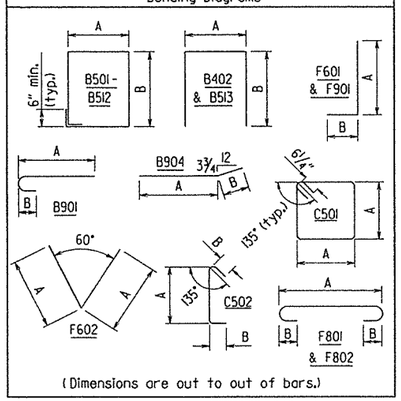


(Dimensions are out to out of bars.)

BAR LIST BENT 3

Mark	No. Req'd.	Length	A	B	Pin Dia.
B401	6	24'-8"			Str.
B402	25	6'-10"	3'-8"	1'-8"	2"
B501-B510	4 each	16'-9" to 20'-11"	3'-8"	4'-5½" to 6'-6½"	2½"
B511	28	18'-6"	2'-4"	6'-8"	2½"
B512	34	21'-2"	3'-8"	6'-8"	2½"
B513	12	16'-10"	3'-8"	6'-8"	2½"
B701	16	34'-1"			Str.
B702	4	31'-4"			Str.
B901	12	36'-6"	35'-3"	10"	9"
B902	12	35'-3"			Str.
B903	12	29'-3"			Str.
B904	12	35'-7"	28'-2"	7'-5"	9"
C501	303	15'-0"	3'-7"		3¾"
C502	1044	4'-5"	3'-7"	6"	3¾"
C901	96	29'-11"			Str.
F601	12	4'-10"	2'-6"	2'-6"	4½"
F602	60	2'-11"	1'-6"		4½"
F701	54	14'-6"			Str.
F702	45	17'-6"			Str.
F801	105	16'-4"	14'-6"	8"	6"
F802	87	19'-4"	17'-6"	8"	6"
F901	96	28'-8"	27'-3"	1'-8"	9"

Bending Diagrams

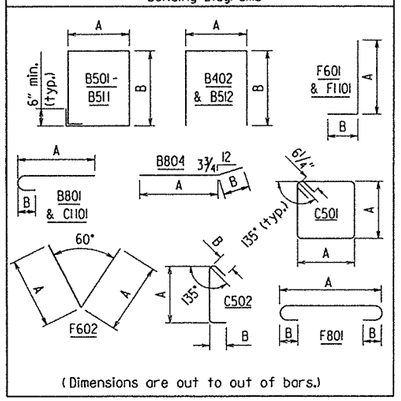


(Dimensions are out to out of bars.)

BAR LIST BENT 4

Mark	No. Req'd.	Length	A	B	Pin Dia.
B401	6	24'-8"			Str.
B402	25	8'-0"	4'-10"	1'-8"	2"
B501-B510	2 each	19'-1" to 23'-3"	4'-10"	4'-5½" to 6'-6½"	2½"
B511	54	23'-6"	4'-10"	6'-8"	2½"
B512	12	18'-0"	4'-10"	6'-8"	2½"
B701	16	34'-1"			Str.
B702	4	31'-4"			Str.
B801	12	35'-7"	34'-8"	8"	6"
B802	12	34'-8"			Str.
B803	12	28'-8"			Str.
B804	12	34'-11"	27'-6"	7'-5"	6"
C501	261	15'-0"	3'-7"		3¾"
C502	828	4'-5"	3'-7"	6"	3¾"
C1101	96	27'-0"	25'-6"	12½"	11¼"
F601	12	4'-10"	2'-6"	2'-6"	4½"
F602	54	2'-11"	1'-6"		4½"
F701	90	14'-6"			Str.
F801	174	16'-4"	14'-6"	8"	6"
F1101	96	25'-0"	23'-4"	2'-0"	11¼"

Bending Diagrams

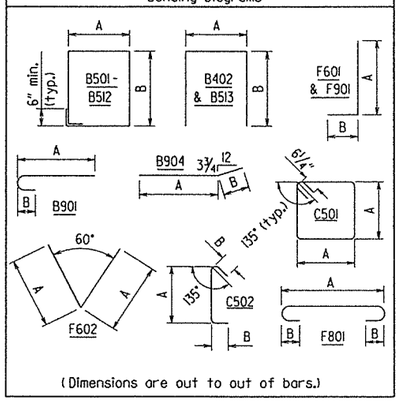


(Dimensions are out to out of bars.)

BAR LIST BENT 5

Mark	No. Req'd.	Length	A	B	Pin Dia.
B401	6	24'-8"			Str.
B402	25	6'-10"	3'-8"	1'-8"	2"
B501-B510	4 each	16'-9" to 20'-11"	3'-8"	4'-5½" to 6'-6½"	2½"
B511	28	18'-6"	2'-4"	6'-8"	2½"
B512	34	21'-2"	3'-8"	6'-8"	2½"
B513	12	16'-10"	3'-8"	6'-8"	2½"
B701	16	34'-1"			Str.
B702	4	31'-4"			Str.
B901	12	36'-6"	35'-3"	10"	9"
B902	12	35'-3"			Str.
B903	12	29'-3"			Str.
B904	12	35'-7"	28'-2"	7'-5"	9"
C501	243	15'-0"	3'-7"		3¾"
C502	720	4'-5"	3'-7"	6"	3¾"
C901	96	19'-8"			Str.
F601	12	4'-10"	2'-6"	2'-6"	4½"
F602	54	2'-11"	1'-6"		4½"
F701	90	14'-6"			Str.
F801	174	16'-4"	14'-6"	8"	6"
F901	96	18'-5"	17'-0"	1'-8"	9"

Bending Diagrams



(Dimensions are out to out of bars.)

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

STATE OF ARKANSAS
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COMMON DETAILS OF INTERMEDIATE BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 3-27-13 FILENAME: b061277_b2.dgn
CHECKED BY: KWY DATE: 8/2/13 SCALE: As Noted
DESIGNED BY: JYP DATE: 2-13

BRIDGE NO. 07284 DRAWING NO. 54049

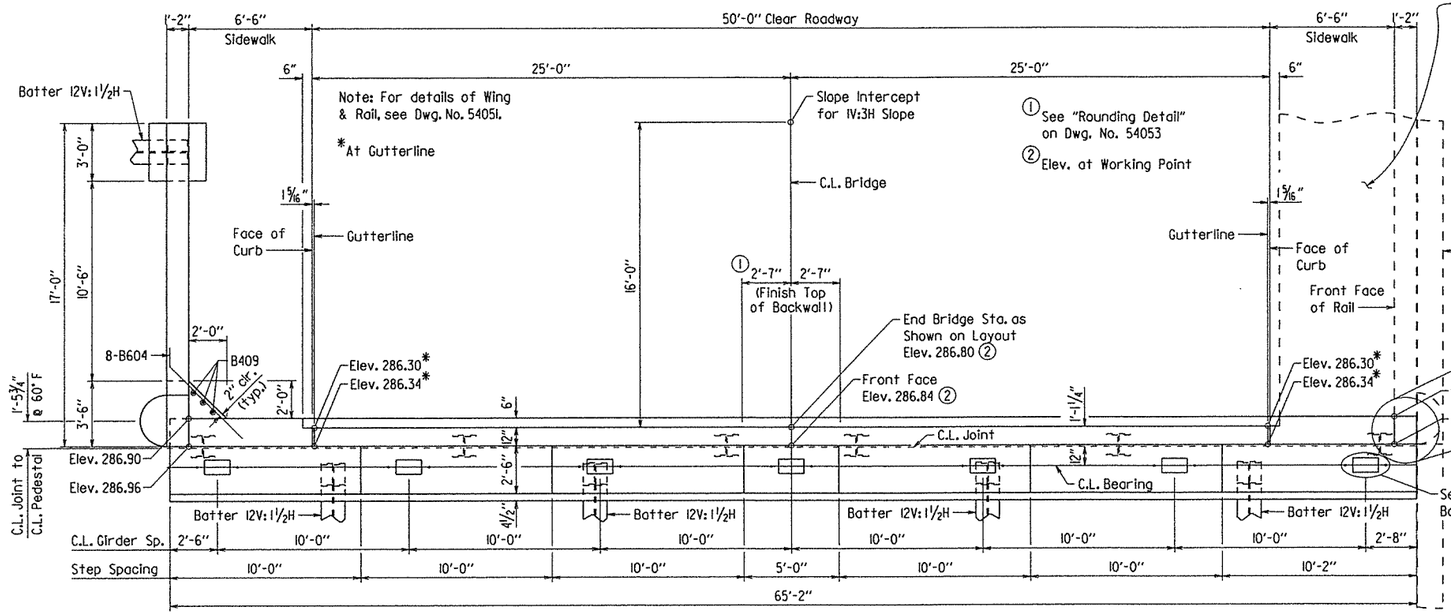
PRINT DATE: 8/1/2013

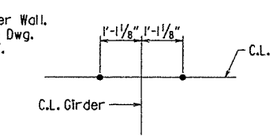
NOTE: Class I Protective Surface Treatment shall be applied to the top of the backwall, sidewalk, and to the roadway face and top of the rails.

NOTE: Wing and rail are constructed on curves concentric to C.L. Bridge.

NOTE: For Bar List and General Notes, see Dwg. No. 54051.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	66	160
				①	07284 -	END BENTS	- 54050	

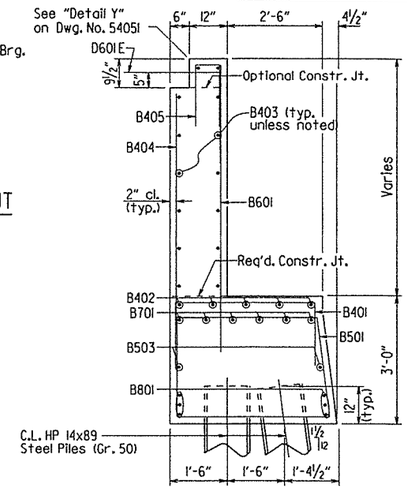




For details of elastomeric bearings, see Dwg. No. 54052.

TYPICAL ANCHOR BOLT LAYOUT

½" = 1'-0"



SECTION A-A

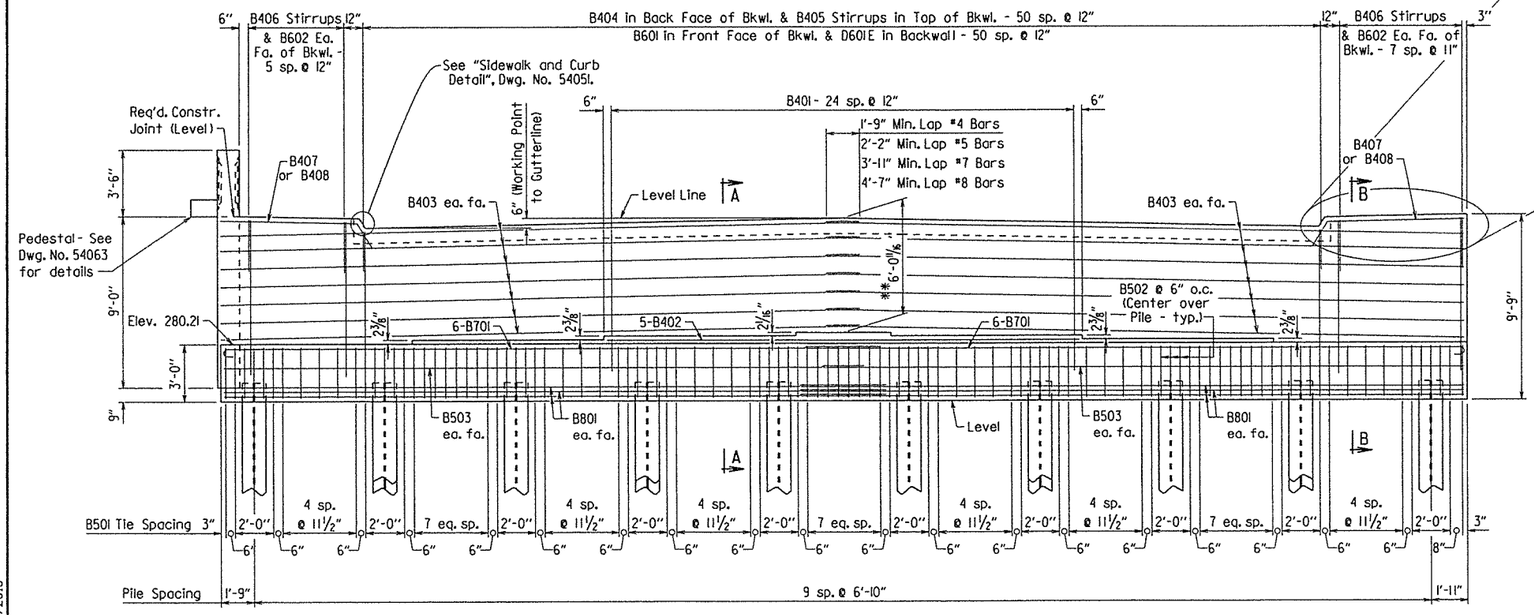
½" = 1'-0"

NOTE: The Backwall above the required construction joint shall not be poured until the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See Dwg. No. 54055, "Expansion Device Installation at End Bents", for additional information.

PLAN OF BENT 6

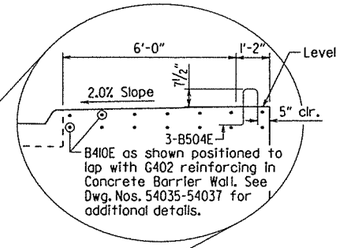
¼" = 1'-0"

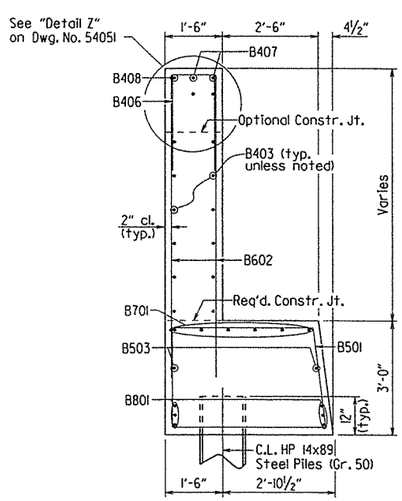
**Measured to Working Point at front face of backwall



ELEVATION OF BENT 6

Looking Ahead
¼" = 1'-0"





SECTION B-B

½" = 1'-0"

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SHEET 1 OF 2

DETAILS OF END BENT 6

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

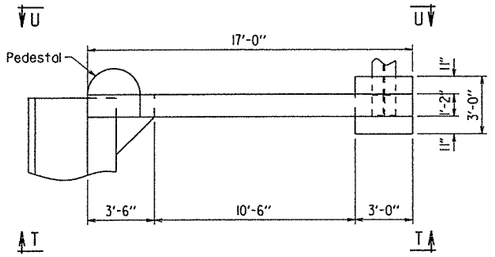
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 4-1-13
CHECKED BY: KWY DATE: 8/2/13
DESIGNED BY: JYP DATE: 2-13
FILENAME: b061277_bl.dgn
SCALE: As Noted

BRIDGE NO. 07284 DRAWING NO. 54050

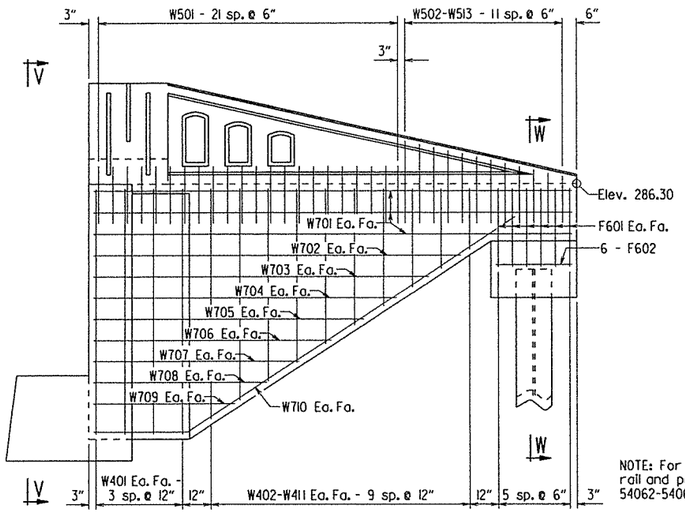
PRINT DATE: 8/1/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	67	160
				(1)	07284 -	END BENTS	- 54051	



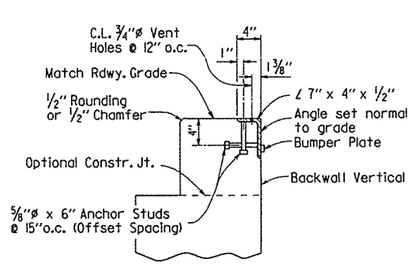
PLAN OF WING & RAIL

1/4" = 1'-0"



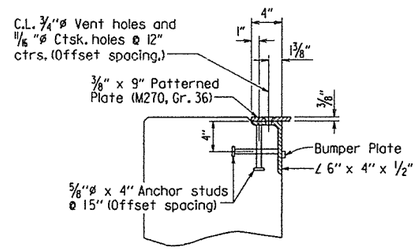
VIEW T-T

3/8" = 1'-0"



DETAIL Y

No Scale

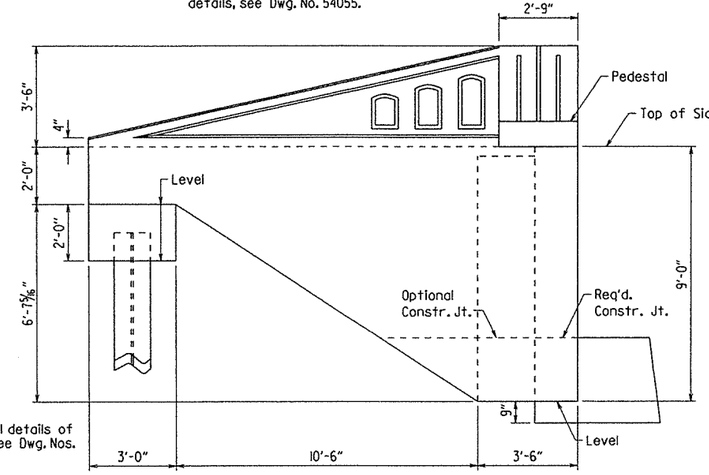


DETAIL Z

No Scale

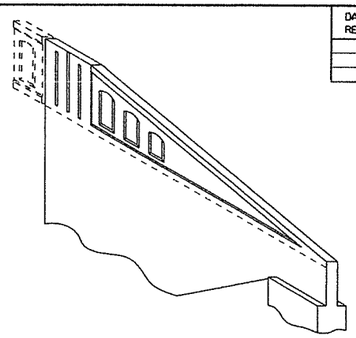
NOTES:
Concrete shall be hand packed under joint armor in the backwall.

For additional joint details, see Dwg. No. 54055.



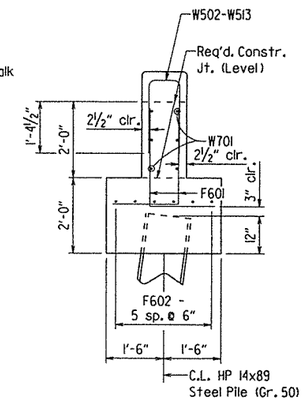
NOTE: For additional details of rail and pedestal, see Dwg. Nos. 54062-54064.

VIEW U-U



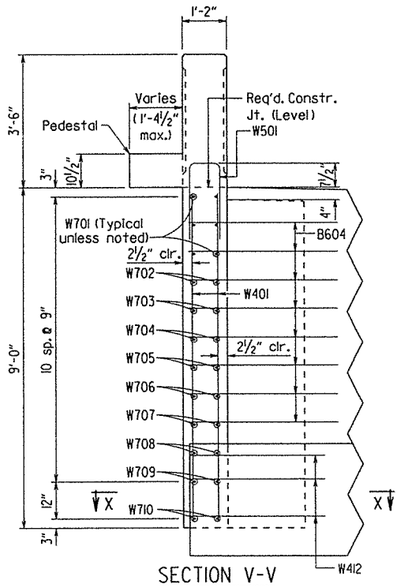
THREE DIMENSIONAL VIEW OF RAIL

No Scale



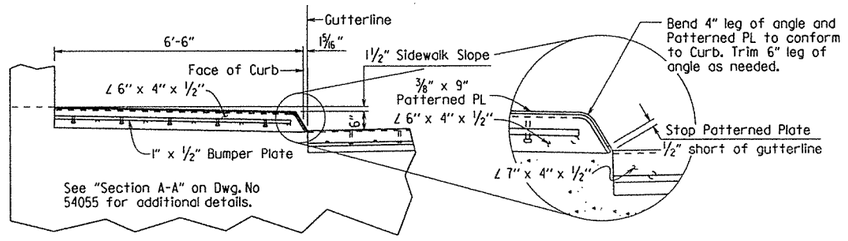
SECTION W-W

1/2" = 1'-0"



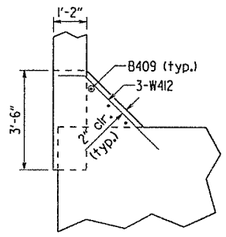
SECTION V-V

1/2" = 1'-0"



SIDEWALK AND CURB DETAIL

No Scale



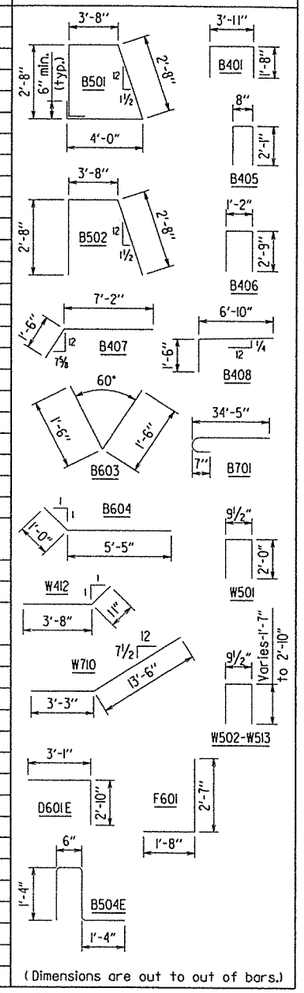
SECTION X-X

3/8" = 1'-0"

BAR LIST

Mark	No. Req'd.	Length	Pin Dia.
B401	25	7'-1"	2"
B402	5	24'-8"	Str.
B403	28	33'-5"	Str.
B404	51	6'-4"	Str.
B405	51	4'-8"	2"
B406	14	6'-6"	2"
B407	4	8'-8"	2"
B408	2	8'-2"	2"
B409	3	8'-3"	Str.
B410E	14	3'-1"	Str.
B501	76	13'-6"	2 1/2"
B502	30	8'-10"	2 1/2"
B503	4	33'-7"	Str.
B504E	3	4'-2"	2 1/2"
B601	51	7'-7"	Str.
B602	28	8'-2"	Str.
B603	22	2'-11"	4 1/2"
B604	8	6'-5"	4 1/2"
B701	12	35'-3"	5 1/4"
B801	12	34'-9"	Str.
D601E	51	5'-9"	4 1/2"
F601	12	4'-1"	4 1/2"
F602	6	2'-8"	Str.
W401	8	8'-7"	Str.
W402-W411	2 each	8'-0" to 2'-2"	Str.
W412	3	4'-7"	2"
W501	22	4'-7"	2 1/2"
W502-W513	1 each	3'-9" to 6'-3"	2 1/2"
W701	6	16'-8"	Str.
W702	2	12'-9"	Str.
W703	2	11'-7"	Str.
W704	2	10'-6"	Str.
W705	2	9'-4"	Str.
W706	2	8'-3"	Str.
W707	2	7'-1"	Str.
W708	2	6'-0"	Str.
W709	2	4'-10"	Str.
W710	2	16'-9"	5 1/4"

Bending Diagrams



(Dimensions are out to out of bars.)

NOTE: Bars with an "E" suffix shall be epoxy coated.

GENERAL NOTES

All concrete (except the rail and pedestal) shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

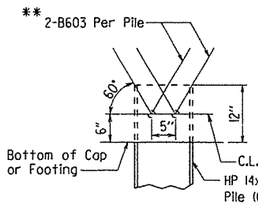
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Structural steel in end bents shall be AASHTO M 270, Grade 50 unless otherwise noted and shall be paid for as "STRUCTURAL STEEL IN PLATE GIRDER SPANS (M 270, GR. 50W)". See additional requirements for cleaning and painting on Dwg. No. 54055.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

All piling shall be Grade 50.

For additional information, see Layout.



** Tie or wedge this reinforcing to bear at top of holes.

DETAIL AT PILE TIP

No Scale

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SHEET 2 OF 2

DETAILS OF END BENT 6

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

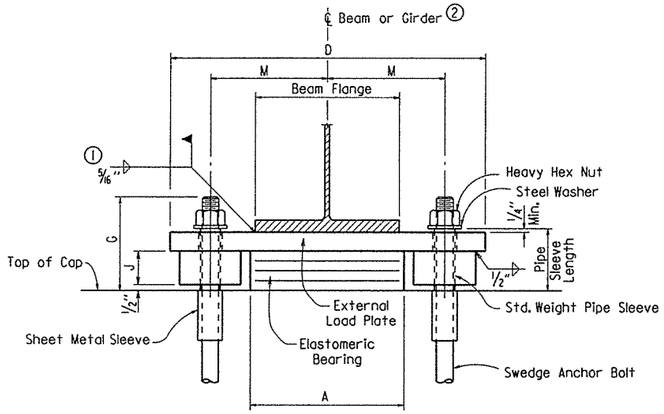
DRAWN BY: JYP DATE: 4-1-13
CHECKED BY: KWY DATE: 6/6/13
DESIGNED BY: JYP DATE: 2-13

FILENAME: b061277_bl.dgn
SCALE: As Noted

BRIDGE NO. 07284 DRAWING NO. 54051

PRINT DATE: 8/2/2013

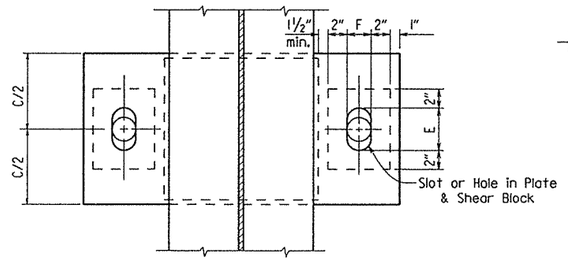
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	68	160
				①	07284	Elasto. Bearings	54052	



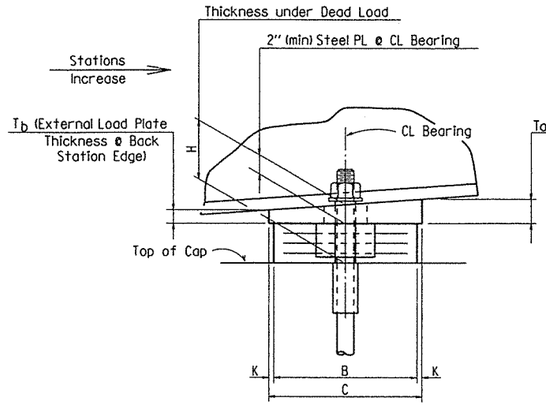
FRONT VIEW

① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.

② C.L Elastomeric pad shall be aligned with C.L. Girder.



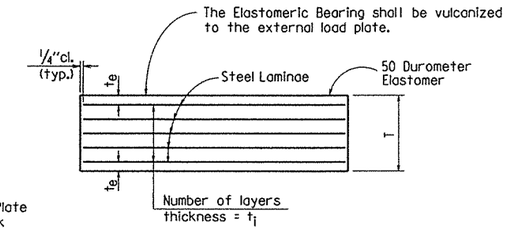
PLAN VIEW



SIDE VIEW

Note: The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in Table of Fabricator Variables.

Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

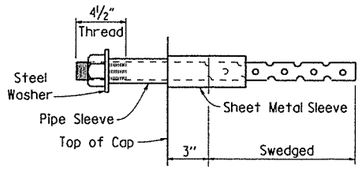


t_e = thickness of elastomer cover on top and bottom of pad

t_i = thickness of elastomer between steel laminae

N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING



ANCHOR BOLT DETAIL

NOTE: Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. Bolts placed in drilled holes shall be accurately set and fixed using a OPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. 50W)."

TABLE OF FABRICATOR VARIABLES

* Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION BENT NO(S).	LOCATION BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	EXTERNAL LOAD PLATE C	D	E	F	J	K	M	T_a	T_b	ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
07284	1	All	Exp.	7	159	8 5/8"	5 5/16"	16"	9"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"	10"	34 1/2"	5 3/8"	2 5/8"	3 1/8"	1/2"	12 7/8"	2.12"	1.88"	1 3/4" x 28 1/2"	55	2" x 5 7/8"	4" x 6"	3 3/8"
	2	All	Exp.	7	450	7 1/8"	3 11/16"	25"	12"	2	1/2"	1/4"	3 @ 12 Ga.	1 13/16"	13"	44 1/2"	4 7/8"	3 1/8"	1 5/16"	1/2"	17 5/8"	2.11"	1.89"	2" x 29 1/2"	55	2 1/2" x 4 1/8"	4" x 9"	3 3/4"
	3	All	Fix	7	553	7 3/8"	3 11/16"	28"	12 1/2"	2	1/2"	1/4"	3 @ 12 Ga.	1 13/16"	13 1/2"	47 1/2"	3 1/8"	3 1/8"	1 5/16"	1/2"	19 1/8"	1.91"	2.09"	2 1/4" x 33"	55	2 1/2" x 4 1/8"	4" x 9"	4"
	4 Back	All	Exp.	7	213	9 5/8"	6 1/8"	21 1/2"	8"	6	1/2"	1/4"	7 @ 12 Ga.	4 1/4"	9"	41"	6 3/4"	3 1/8"	3 3/4"	1/2"	15 7/8"	1.80"	2.20"	2 1/4" x 35"	55	2 1/2" x 6 3/8"	4" x 9"	4"
	4 Ahead	All	Exp.	7	187	7 3/8"	4 3/8"	16"	10"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	11"	34 1/2"	4 7/8"	2 5/8"	1 15/16"	1/2"	12 7/8"	1.75"	2.25"	1 3/4" x 28"	55	2" x 4 5/8"	4" x 9"	3 3/8"
	5	All	Fix	7	519	7 3/8"	3 11/16"	24"	14"	2	1/2"	1/4"	3 @ 12 Ga.	1 13/16"	15"	43 1/2"	3 1/8"	3 1/8"	1 5/16"	1/2"	17 1/8"	1.64"	2.36"	2 1/4" x 33"	55	2 1/2" x 4 1/8"	4" x 9"	4"
	6	All	Exp.	7	187	7 5/8"	4 3/8"	16"	10"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	11"	35 1/2"	5 3/8"	3 1/8"	1 15/16"	1/2"	13 1/8"	1.78"	2.22"	2" x 29 1/2"	55	2 1/2" x 4 5/8"	4" x 6"	3 3/4"

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 of the Standard Specifications and shall be paid for at the unit price bid for "Elastomeric Bearings".

External load plates and shear blocks shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, Class 50.

External load plates with shear blocks shall be completely fabricated (including bevel, bolt holes and all shop welding) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with subsection 808.03. Other surfaces shall be blast cleaned in accordance with subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to subsection 807.07 of the Standard Specifications. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Plate Girder Spans (M270, Gr. 50W)."

Bearings shall be seated in accordance with subsection 808.08. This work and materials are considered as subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

STATE OF ARKANSAS
Carl J. Fusselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/14/13
CARL J. FUSSELIER

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS WITH SHEAR BLOCKS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 03-25-13 FILENAME: b061277_el.dgn

CHECKED BY: JNP DATE: 8-2-13 SCALE: NONE

DESIGNED BY: JNP DATE: 1-13

BRIDGE NO. 07284 DRAWING NO. 54052

PRINT DATE: 8/1/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	69	160
				①	07284 - COMMON - 54053			

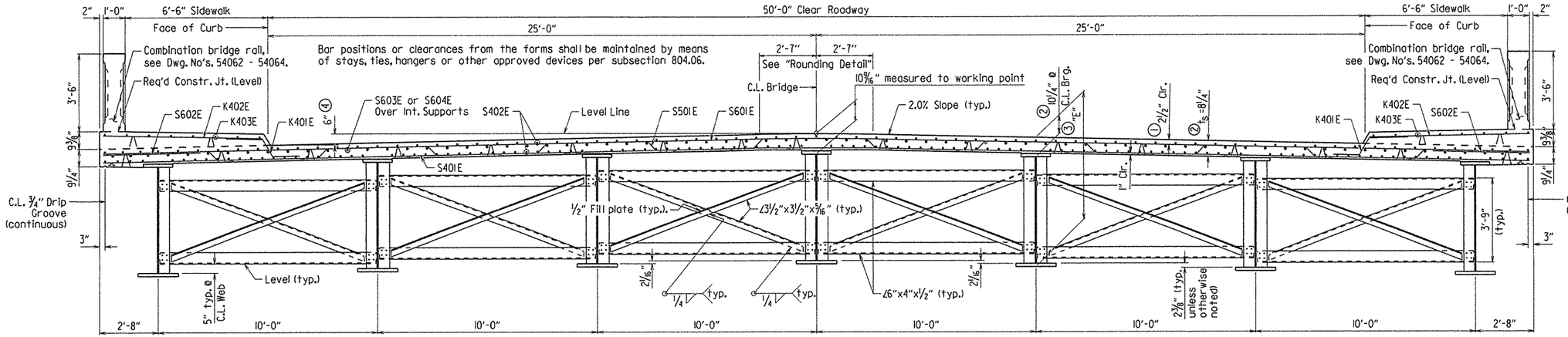
Slab Reinforcing:

Longitudinal: S402E as shown
S603E or S604E as shown, see "Reinforcing Plan & Slab Pouring Sequence" on Dwg. No's. 54058 and 54060.

Transverse: S501E @ 12" o.c. bent up over beams — Alternate
S601E @ 12" o.c. in top, S401E @ 12" o.c. in bottom
S602E @ 6" in top of overhangs (bundled with S501E and S601E bars)

NOTE: At the Contractor's option, in lieu of providing bars S501E, one epoxy coated #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S501E.

NOTE: Class I Protective Surface Treatment shall be applied to the Roadway and Sidewalk Surface and to the Roadway Face & Top of the Concrete Bridge Rail.



TYPICAL ROADWAY SECTION

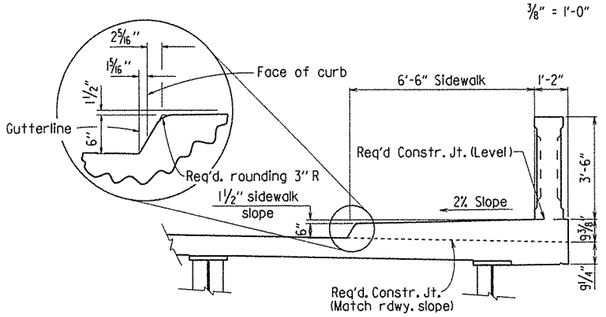
3/8" = 1'-0"

① Tolerance: Minus = 1/4"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".

② See "Adjustment for Slab Thickness Tolerance".

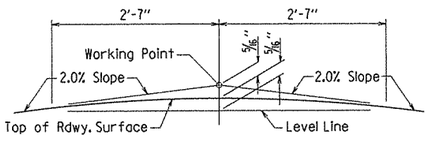
③ "E" equals 5'-7 1/4" plus bottom flange thickness measured at C.L. Bearing & C.L. Girder.

④ Working Point to top of slab at Face of Curb.



SIDEWALK & CURB DETAIL

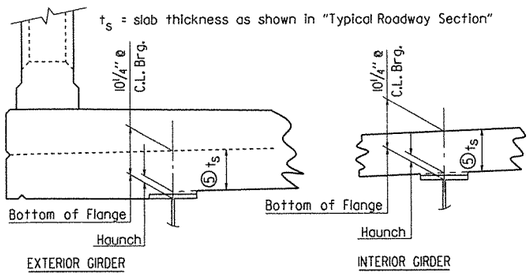
1/2" = 1'-0"



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

NTS



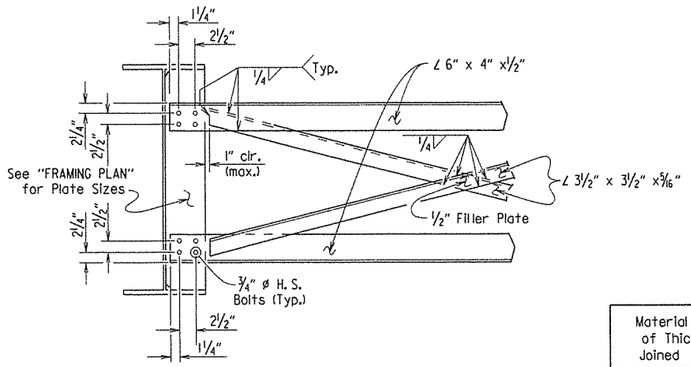
⑤ Tolerance when removable deck forming is used is + 1/2", - 1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

NTS

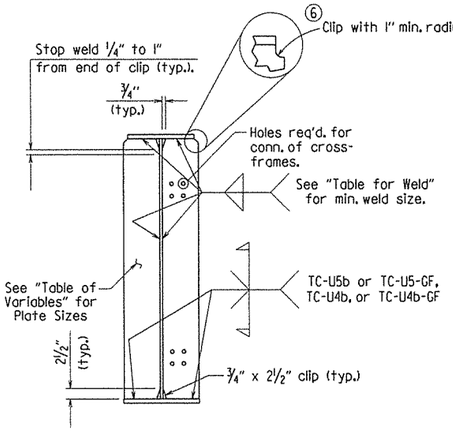
NOTES:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1 3/4". No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.



TYPICAL CROSSFRAME CONNECTION

NTS

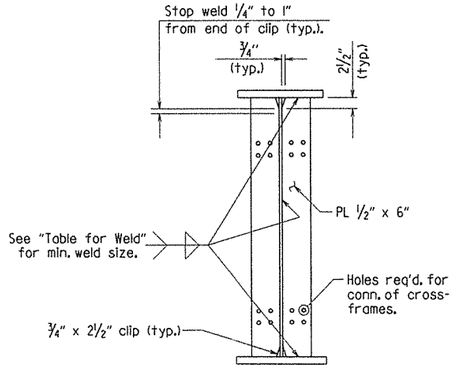


NOTE: Bearing stiffeners shall be vertical in final position.

BEARING STIFFENER DETAILS

NTS

⑥ If permanent steel bridge deck forms are used, the Fabricator shall clip plate as necessary to accomodate the deck form supports.



CROSS-FRAME CONNECTION DETAIL

NTS

TABLE OF VARIABLES

Bent No(s).	1	2	3	4 Ahead & 6	4 Back & 5
Plate Size	6 3/4" x 5/8"	10 11/16" x 15/16"	11 11/16" x 1 1/16"	7 11/16" x 11/16"	9 11/16" x 7/8"

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To 3/4" Inclusive	1/4"	
Over 3/4"	5/16"	

NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.

STATE OF ARKANSAS
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11/20/14
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SHEET 1 OF 3

DETAILS COMMON TO PLATE GIRDER UNITS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	ACP	DATE:	02/15/13	FILENAME:	b061277_sl.dgn
CHECKED BY:	JNP	DATE:	1-29-14	SCALE:	3/8" = 1'-0"
DESIGNED BY:	JNP	DATE:	1-13		

BRIDGE NO. 07284 DRAWING NO. 54053

PRINT DATE: 1/28/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	70	160
				(1)	07284 - COMMON - 54054			

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012).

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c =	4,000 psi
Reinforcing Steel (Gr. 60, AASHTO M31 or M322, Type A)	fy =	60,000 psi
Structural Steel (M 270, Gr. 50W)	Fy =	50,000 psi
Structural Steel (M 270, Gr. 36)	Fy =	36,000 psi

CONCRETE :
Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete deck shall be given a tine finish in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. The sidewalk shall receive a Broomed Finish as specified for final finishing in subsection 802.19 for Class 6, Broomed Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the girder. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the railing. A minimum of 72 hours shall elapse between completion of the sidewalk and the pouring of the bridge railing.

REINFORCING STEEL :
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL :
All structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Plate Girder Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with subsection 807.84(e) unless otherwise noted. See Dwg. No. 54055 for cleaning and painting requirements at expansion device. Structural steel completely embedded in concrete may be AASHTO M 270, Grade 36 unless otherwise noted.

Drawings show general features of design only. Shop drawings shall be made in accordance with the specifications, submitted and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Girder web and flange plates and field splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

All girders shall be assembled in the shop as specified in Section 807.54 and blocked in their true position with webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Web and flange plates for main members and flange splice plates for main members shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching falsework support devices or screed rail supports to the structural steel that do not exceed the limitations of subsection 802.13 will not require approval prior to construction. All welding shall conform to subsection 807.26.

Girder webs may be made by shop splicing with minimum lengths of 25 feet for sections. Flange plates longer than 50 feet may be made by shop splicing with minimum lengths of 25 feet for sections. No additional payment for welds for these splices will be made.

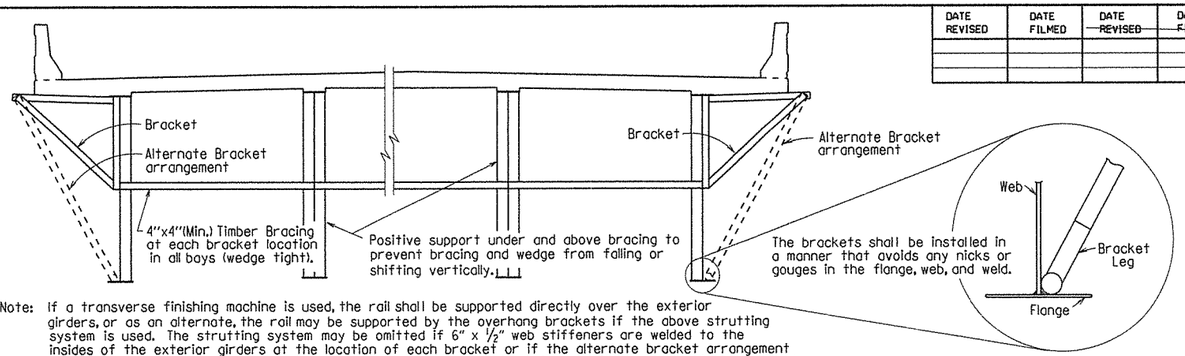
Groove welds in web and flange plates shall be Quality Control (Q.C.) tested by nondestructive testing, as required by the governing specifications in subsection 807.23(b). Fillet welds at flange to web plate connections shall be Q.C. tested by the magnetic particle method. All Quality Control (Q.C.) testing is at the Contractor's expense.

Field connections shall be bolted with high-strength bolts and shall be ¾" ø bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior girder webs and on the bottom of the girder flanges. Holes for ¾" ø high-strength bolts may be ⅞" ø diameter if a washer is supplied for use under both the nut and head of the bolt.

Cross-frames shall be installed as girders are erected. All bolts in cross-frames and field splices shall be installed and tightened in accordance with subsection 807.71 prior to pouring the concrete deck unless otherwise noted.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the Manufacturer.

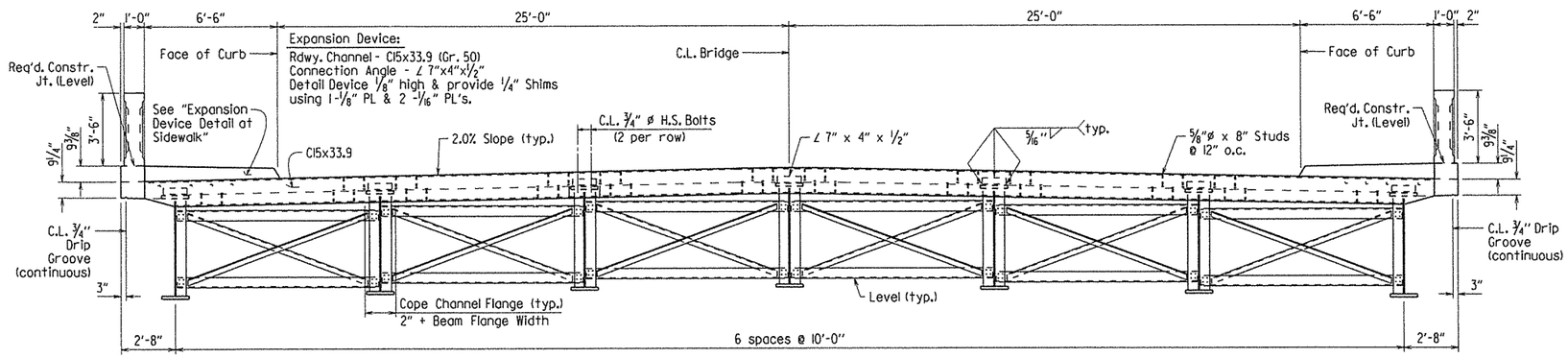
PRINT DATE: 1/28/2014



Note: If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if 6" x ½" web stiffeners are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The Alternate Bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the details for cross frame connection plates shown on Drawing No. 54053. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

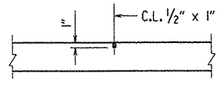
SCREED RAIL SUPPORT

½" = 1'-0"



ROADWAY SECTION NEAR JOINT

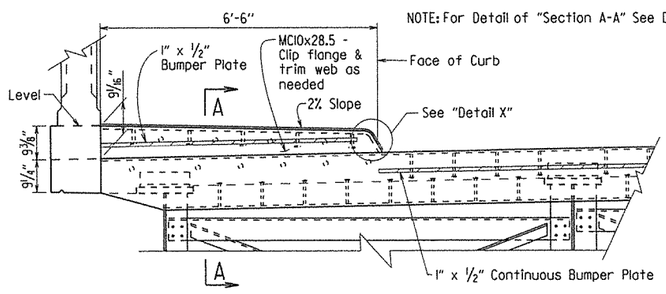
½" = 1'-0"



Use Type 3 or 4 Joint Sealer. See subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the front face of the bridge rail and shall be installed before the sidewalk is poured. After installation of the joint in the sidewalk and prior to pouring the bridge rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and across the top of the sidewalk to the front face of bridge rail. No joint sealer shall be placed on the deck slab under the sidewalk. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations.

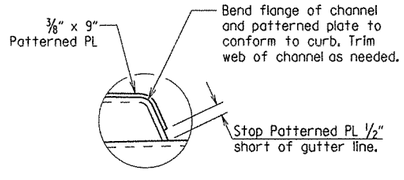
SLAB JOINT DETAIL

NTS



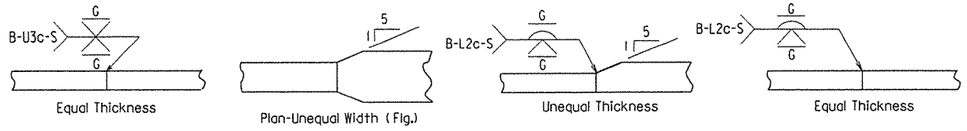
EXPANSION DEVICE DETAIL AT SIDEWALK

¼" = 1'-0"



DETAIL X

NTS



DETAILS OF WELDED SPLICES

NTS

STATE OF ARKANSAS
Carl J. Puseller
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No. 7510
1/28/14
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SHEET 2 OF 3

DETAILS COMMON TO PLATE GIRDER UNITS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

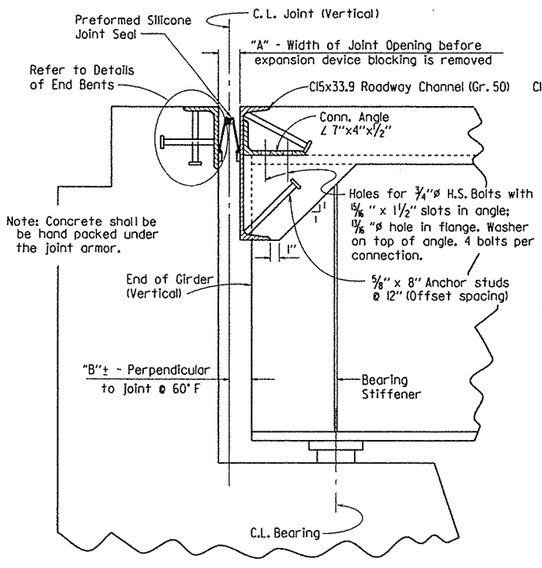
LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 02/15/13
CHECKED BY: JHP DATE: 1-28-14
DESIGNED BY: JHP DATE: 1-13

FILENAME: b061277_sl.dgn
SCALE: ⅜" = 1'-0"

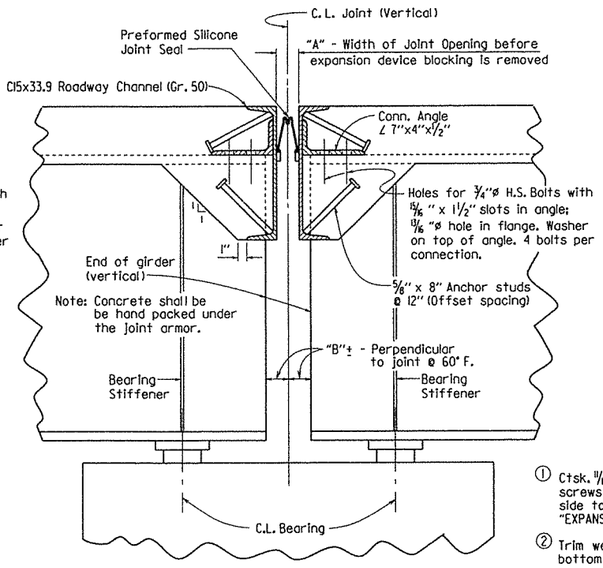
BRIDGE NO. 07284 DRAWING NO. 54054

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	71	160
				①	07284 - COMMON - 54055			



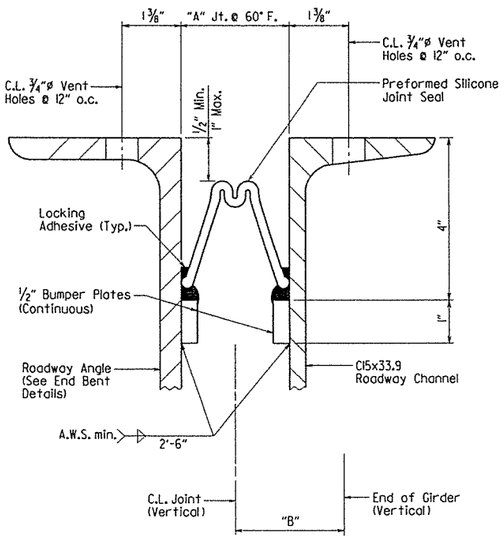
Note: Section taken perpendicular to C.L. Joint

SECTION THRU JOINT AT END BENT

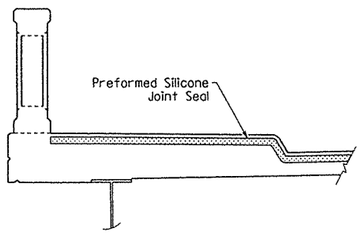


Note: Section taken perpendicular to C.L. Joint

SECTION THRU JOINT AT INTERIOR BENT



DETAIL OF PREFORMED SILICONE JOINT SEAL



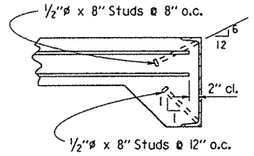
JOINT SEAL PLACEMENT AT CURB AND SIDEWALK

PREFORMED SILICONE JOINT SEAL DATA

Bent No.	Movement Rating	"A" Width Perpendicular to Joint at 24 Hour Average Temperature* Of: 40°F	60°F	80°F	"B" Perpendicular to Joint at 60°F
1	4"	2¾"	2½"	2¼"	2½" ±
4	4"	3 3/16"	2¾"	2 5/16"	2⅝" ±
6	4"	2 11/16"	2½"	2 5/16"	2½" ±

* The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

The temperature limitations recommended by the joint seal Manufacturer shall be observed. The seal shall be installed only when the ambient air temperature is a minimum of 40° F and rising.



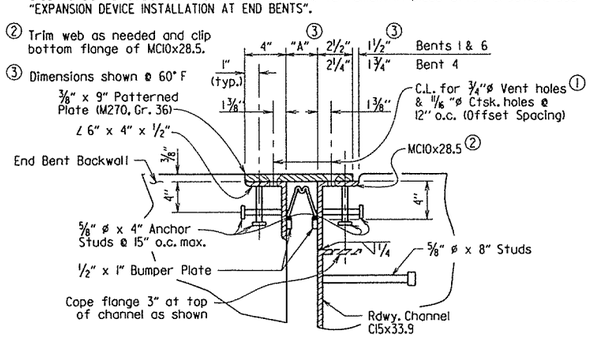
NOTE: As an alternate to ⅝"ø studs, ½"ø x 8" studs spaced as shown may be used. Use weight of ⅝" ø stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

① Ctsk. 11/16 "ø holes in ⅜" Patterned Plate. Tap 4" leg of angles for ASTM A449 ⅝" ø screws @ 12" o.c. Install screws in the shop and ship as a unit. Screws on the span side to be removed. Screws on backwall side to remain in place after erection. See "EXPANSION DEVICE INSTALLATION AT END BENTS".

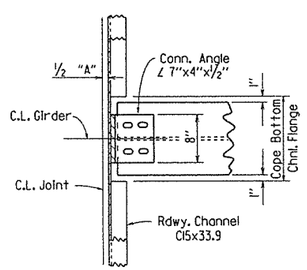
② Trim web as needed and clip bottom flange of MC10x28.5.

③ Dimensions shown @ 60° F

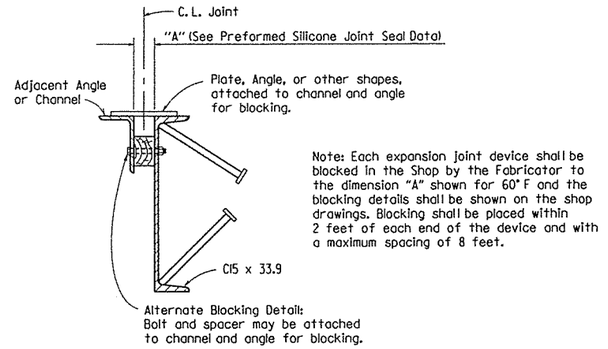


NOTE: Concrete shall be hand packed under the joint armor in the sidewalk. For additional details of Expansion Device at Sidewalk, see Dwg. No. 54054.

SECTION A-A



CHANNEL CONNECTION DETAIL



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

The Contractor may elect to install the expansion device using one of the following two alternatives:

1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, and the opening adjusted for temperature and grade.

2) The backwall shall be poured to the optional construction joint after girders are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature and grade.

EXPANSION DEVICE INSTALLATION AT INTERIOR BENTS:

After all girders on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.

Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.

GENERAL NOTES FOR PREFORMED SILICONE JOINT SEAL:

The joint seal shall provide for the movement rating(s) shown in the "PREFORMED SILICONE JOINT SEAL DATA" table. The joint seal shall be capable of sealing the deck surface and barrier rail to prevent moisture and other contaminants from descending through the joint.

Surfaces of the structural steel in the roadway and sidewalk joint armor not completely embedded in concrete and the patterned plate shall be cleaned in accordance with subsection 807.04(b) and shop painted with a OPL approved inorganic zinc-rich primer with a concrete gray color. No finish system shall be applied. The Contractor shall repair any damage to the primer at his expense and to the satisfaction of the Engineer prior to installation of the joint seal. Painting will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

The preformed silicone joint seal shall be paid for in accordance with Special Provision Job 061277 "Preformed Silicone Joint Seal".

STATE OF ARKANSAS Carl J. Fuselier REGISTERED PROFESSIONAL ENGINEER No. 7510 8/4/13 CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 3 OF 3

DETAILS COMMON TO PLATE GIRDER UNITS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 02/20/13 FILENAME: b061277_sl.dgn

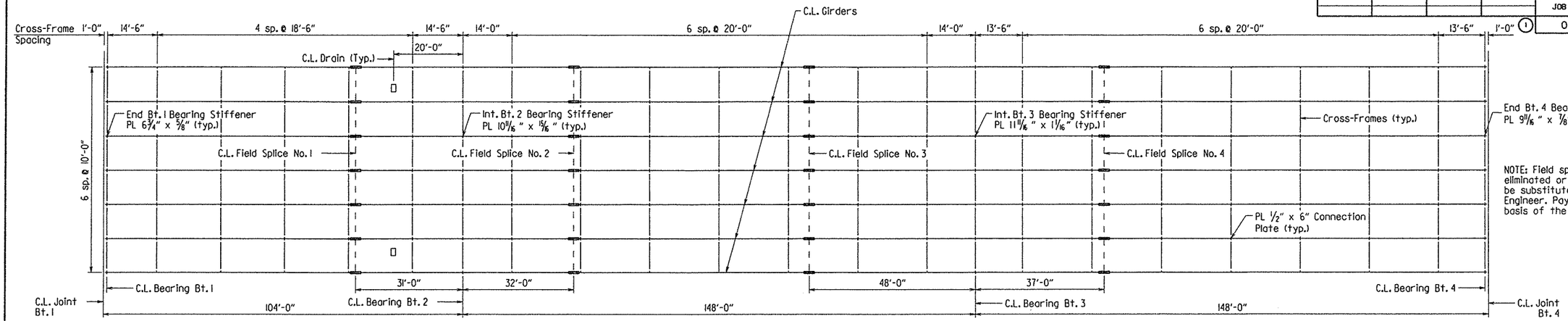
CHECKED BY: JHP DATE: 8-2-13 SCALE: No Scale

DESIGNED BY: JHP DATE: 1-13

BRIDGE NO. 07284 DRAWING NO. 54055

PRINT DATE: 8/28/2013

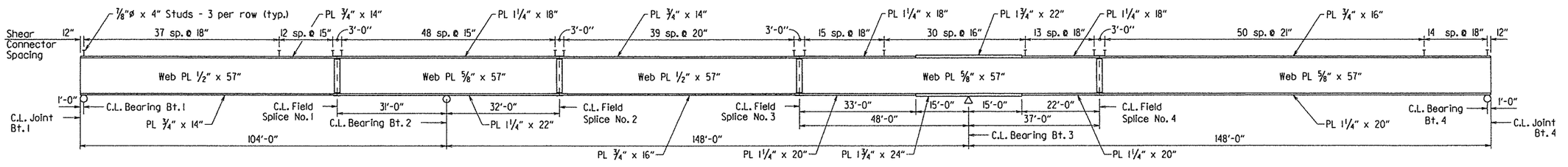
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	72	160
				07284 - 400' UNIT - 54056				



NOTE: Field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.

FRAMING PLAN

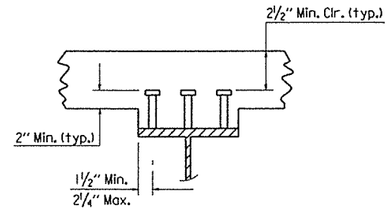
1/16" = 1'-0"



TYP. GIRDER ELEVATION

NTS

Note: All web and flange plates shall be AASHTO M270, Gr. 50W steel.



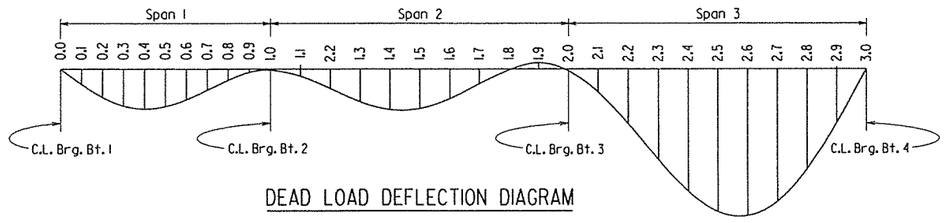
Stud Shear Connectors shown shall be 7/8"ø x 4" automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. 3/4"ø studs may be used in place of the 7/8"ø studs shown at the ratio of 1.361-3/4"ø studs in place on one 7/8"ø stud. 7/8"ø studs will be used as the basis for measurement of structural steel in shear connectors.

SHEAR CONNECTOR DETAIL

NTS

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet + Sidewalk	
		Exterior Girder	Interior Girder	Exterior Girder	Interior Girder	Exterior Girder	Interior Girder
1	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.089	0.096	0.490	0.622	0.629	0.673
	0.2	0.164	0.176	0.896	1.136	1.150	1.230
	0.3	0.213	0.229	1.158	1.469	1.486	1.590
	0.4	0.232	0.250	1.250	1.584	1.603	1.714
	0.5	0.220	0.237	1.171	1.483	1.500	1.605
	0.6	0.183	0.196	0.951	1.204	1.216	1.302
	0.7	0.128	0.137	0.650	0.822	0.827	0.887
	0.8	0.070	0.075	0.346	0.437	0.435	0.470
	0.9	0.023	0.024	0.105	0.131	0.127	0.139
2	1.0	0.000	0.000	0.000	0.000	0.000	0.000
	1.1	0.030	0.032	0.178	0.227	0.255	0.256
	1.2	0.098	0.106	0.575	0.733	0.800	0.818
	1.3	0.166	0.180	0.995	1.271	1.373	1.413
	1.4	0.199	0.217	1.243	1.590	1.715	1.767
	1.5	0.181	0.199	1.204	1.544	1.677	1.722
	1.6	0.115	0.129	0.883	1.140	1.262	1.283
	1.7	0.026	0.033	0.406	0.534	0.627	0.619
	1.8	-0.048	-0.048	-0.028	-0.019	0.033	0.006
	1.9	-0.068	-0.071	-0.215	-0.262	-0.247	-0.273
3	2.0	0.000	0.000	0.000	0.000	0.000	0.000
	2.1	0.169	0.178	0.665	0.827	0.851	0.896
	2.2	0.414	0.436	1.684	2.099	2.167	2.277
	2.3	0.684	0.721	2.843	3.550	3.658	3.851
	2.4	0.917	0.968	3.865	4.830	4.967	5.236
	2.5	1.062	1.122	4.518	5.650	5.799	6.122
	2.6	1.087	1.149	4.654	5.822	5.967	6.305
	2.7	0.978	1.034	4.207	5.265	5.390	5.700
	2.8	0.742	0.784	3.199	4.004	4.096	4.334
	2.9	0.401	0.424	1.733	2.170	2.218	2.349
	3.0	0.000	0.000	0.000	0.000	0.000	0.000



DEAD LOAD DEFLECTION DIAGRAM

NOTE: Camber for Dead Load Deflection plus vertical curve +/- 1/4" tolerance.
Deflections shown are along C.L. Girder from a chord from C.L. Bearing to C.L. Bearing.
Negative sign (-) indicates point above chord. Vertical curve corrections not included.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/4/13
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 1 OF 3

DETAILS OF 400'-0" CONTINUOUS PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

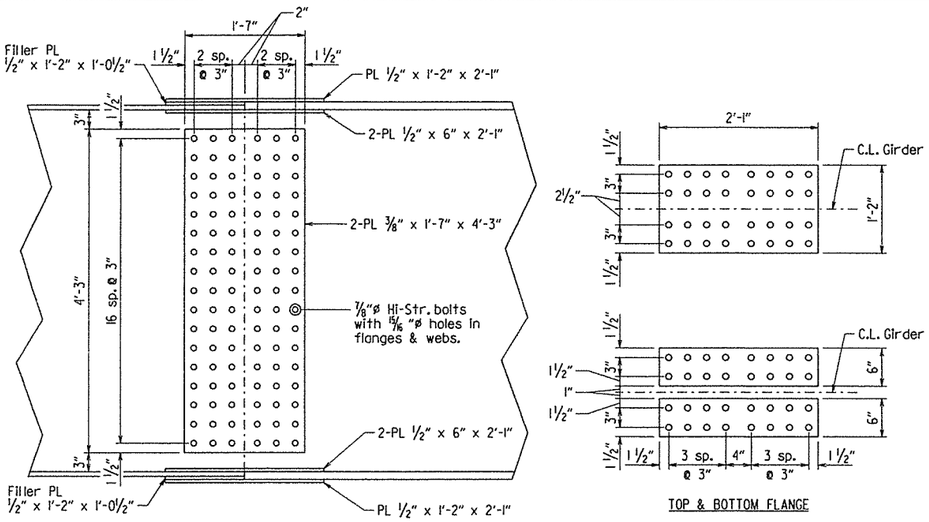
LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 02/15/13 FILENAME: b061277_sl.dgn
CHECKED BY: JNP DATE: 8-2-13 SCALE: As Shown
DESIGNED BY: JNP DATE: 1-13

BRIDGE NO. 07284 DRAWING NO. 54056

PRINT DATE: 8/1/2013

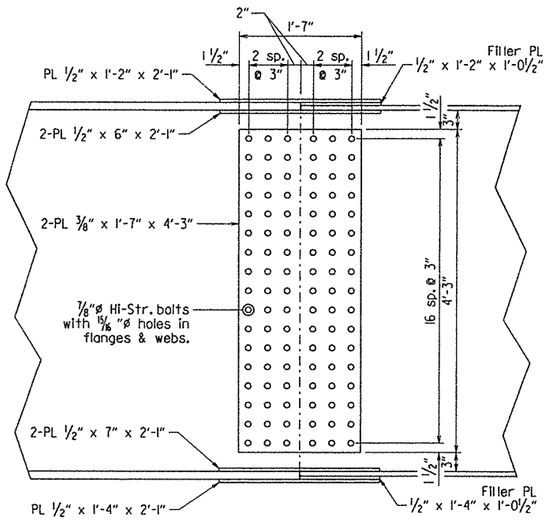
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	73	160
				(1)	07284 - 400' UNIT - 54057			

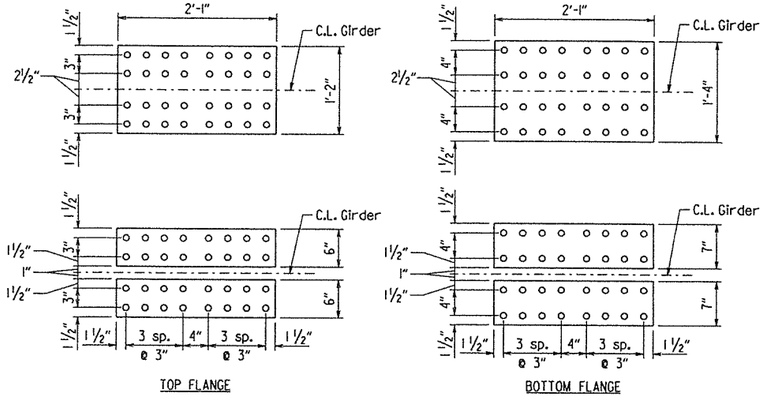


TOP & BOTTOM FLANGE

DETAILS OF FIELD SPLICE NO. 1

1" = 1'-0"



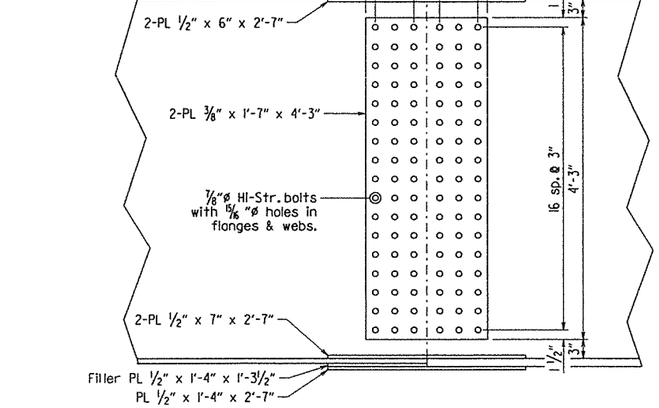


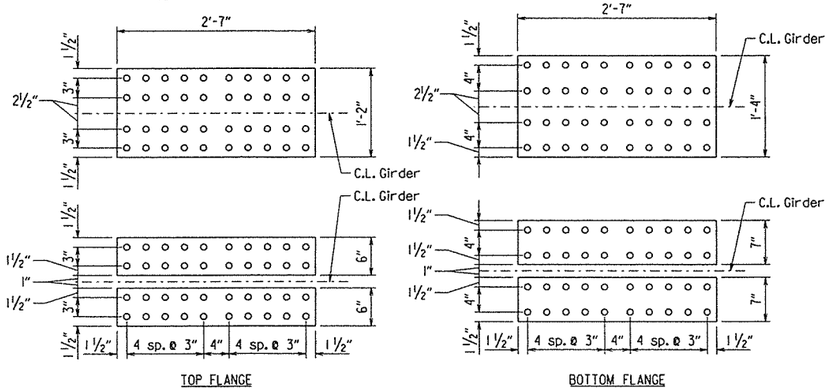
TOP FLANGE

BOTTOM FLANGE

DETAILS OF FIELD SPLICE NO. 2

1" = 1'-0"



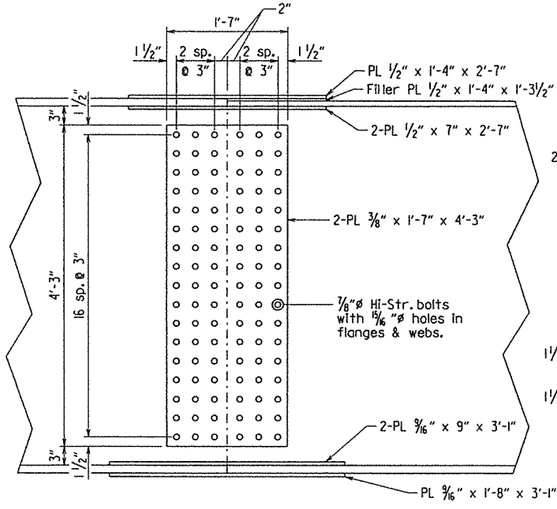


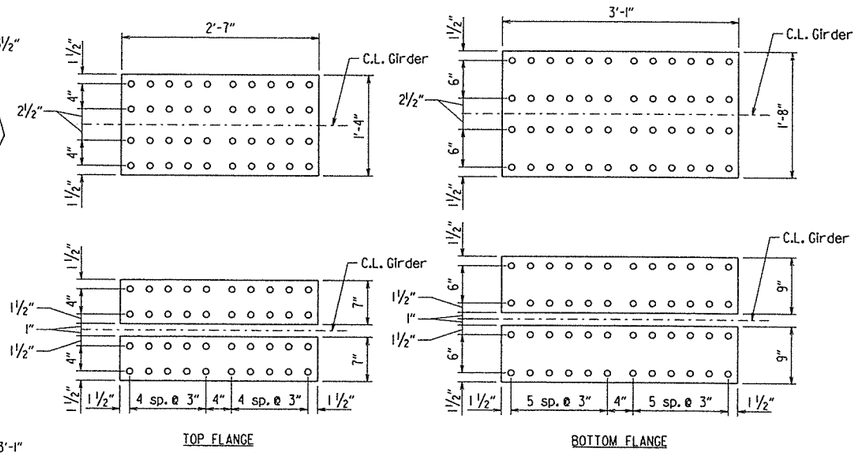
TOP FLANGE

BOTTOM FLANGE

DETAILS OF FIELD SPLICE NO. 3

1" = 1'-0"





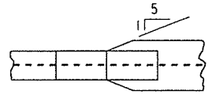
TOP FLANGE

BOTTOM FLANGE

DETAILS OF FIELD SPLICE NO. 4

1" = 1'-0"

NOTE: All field splice bolts shall be ⅞"ø Hi-strength bolts.
All holes for splice bolts shall be 15/16 "ø.
All field splice plates shall be AASHTO M270, Gr. 50W steel.



FIELD SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS

NTS

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/4/13
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 3

DETAILS OF 400'-0" CONTINUOUS PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

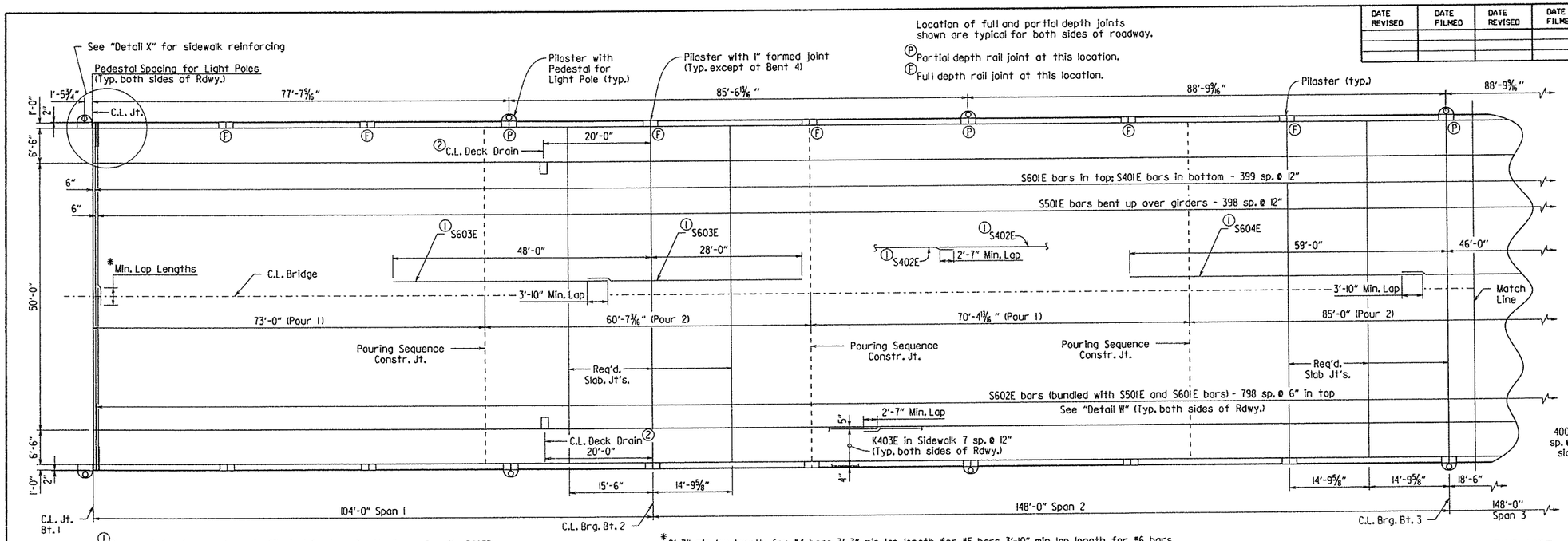
LITTLE ROCK, ARK.

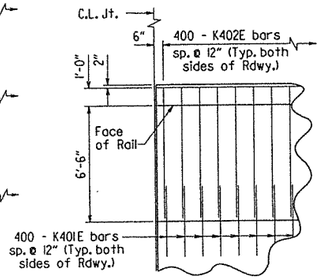
DRAWN BY: ACP DATE: 04/09/13
CHECKED BY: JNP DATE: 8-2-13
DESIGNED BY: JNP DATE: 1-13
FILENAME: b061277_sl.dgn
SCALE: 1" = 1'-0"

BRIDGE NO. 07284 DRAWING NO. 54057

PRINT DATE: 8/1/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	74	160
				1	07284 - 400' UNIT - 54058			

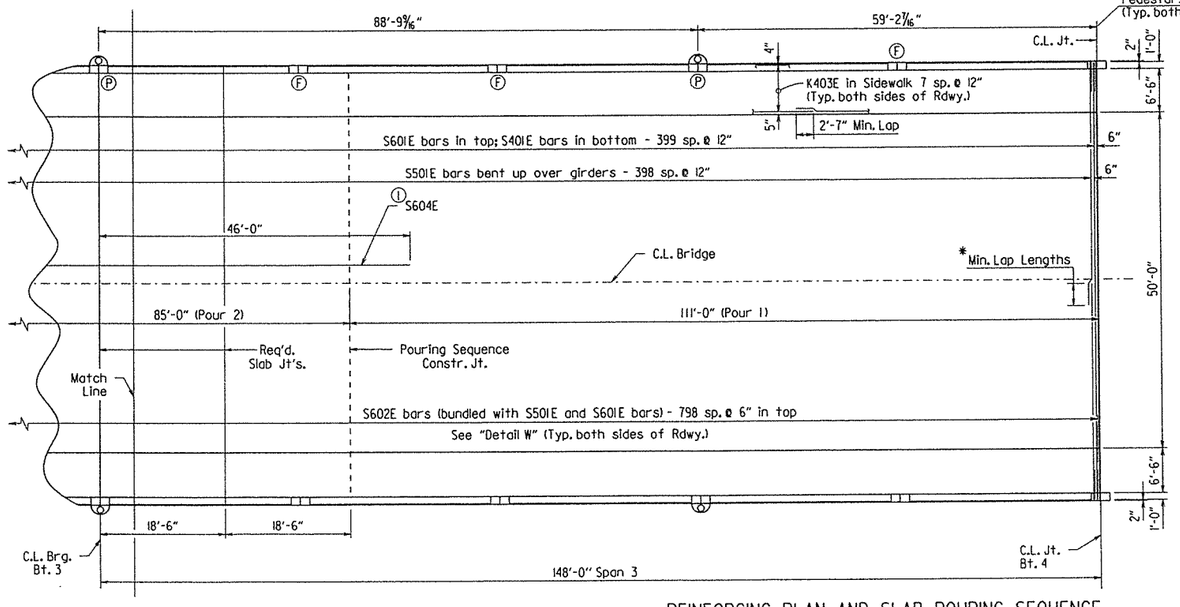




DETAIL X
⅛" = 1'-0"

① Place reinforcing as shown in "Typical Roadway Section", see Dwg. No. 54053.
② For Details of Deck Drain, see Dwg. No. 54061.

* 2'-7" min. lap length for #4 bars, 3'-3" min. lap length for #5 bars, 3'-10" min. lap length for #6 bars



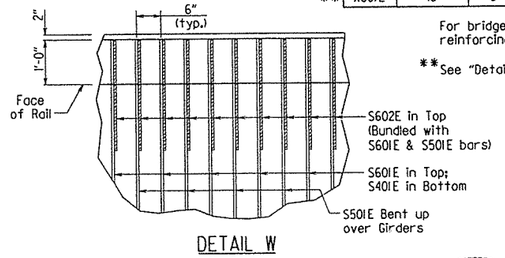
REINFORCING PLAN AND SLAB POURING SEQUENCE
3/32" = 1'-0"

Pouring Sequence Notes:
Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours.

A minimum of 7 days shall elapse after the completion of the entire slab unit before pouring the sidewalk. A minimum of 72 hours shall elapse between completion of the sidewalk and the pouring of the bridge railing.

The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

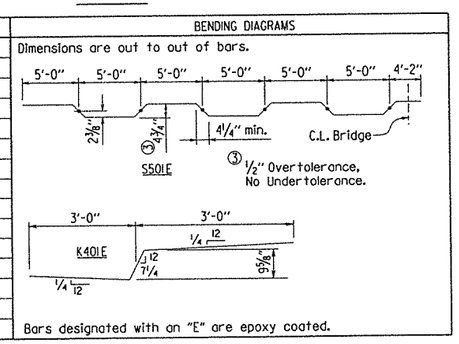
Note: For "Slab Joint Detail", see Dwg. No. 54054.



DETAIL W
No Scale

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
S401E	800	33'-10"	Str.	Dimensions are out to out of bars.
S402E	2,079	38'-8"	Str.	
S501E	798	34'-11"	3"	
S601E	800	34'-5"	Str.	
S602E	1,598	4'-10"	Str.	
S603E	144	39'-11"	Str.	
S604E	144	54'-5"	Str.	
K401E	800	6'-6"	2"	
K402E	800	7'-2"	Str.	
K403E	176	38'-8"	Str.	
** X401E	16	4'-0"	Str.	
** X402E	16	5'-6"	Str.	
** X601E	16	9'-6"	Str.	



Bars designated with an "E" are epoxy coated.

For bridge rail and pedestal details and reinforcing, see Dwg. Nos. 54062-54064.

** See "Details of Deck Drains" on Dwg. No. 54061.

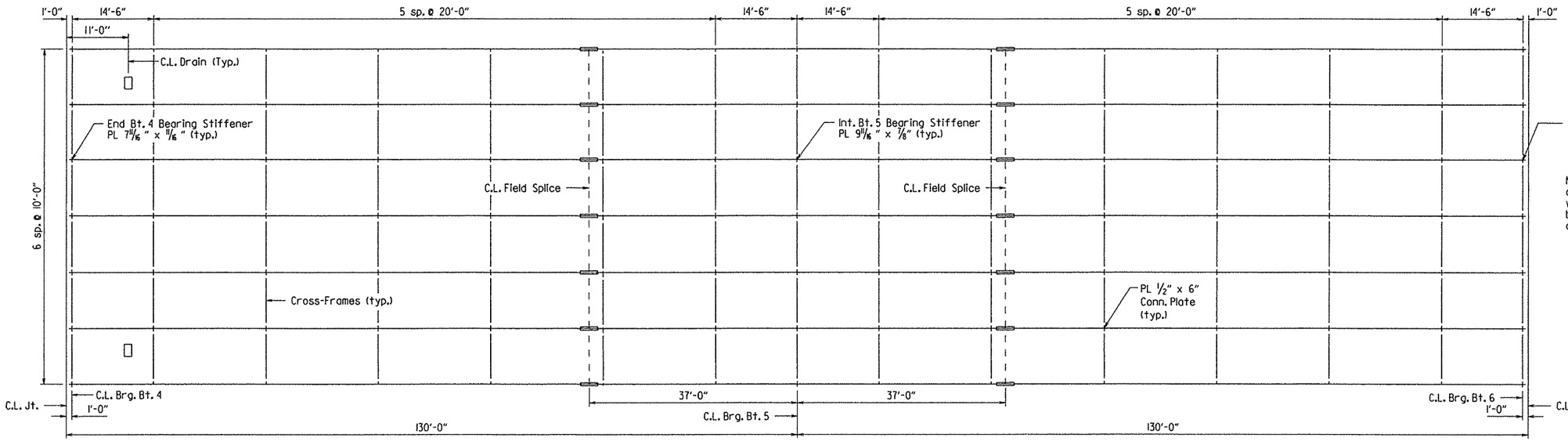
STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/6/13
CARL J. FUSELIER
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF 400'-0" CONTINUOUS PLATE GIRDER UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 02/19/13 FILENAME: b061277_sl.dgn
CHECKED BY: JHP DATE: 8-26-13 SCALE: As Shown
DESIGNED BY: JHP DATE: 1-13
BRIDGE NO. 07284 DRAWING NO. 54058

PRINT DATE: 8/26/2013

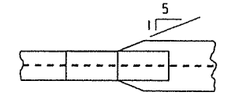
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	75	160
				①	07284 - 260' UNIT - 54059			



FRAMING PLAN

3/32" = 1'-0"

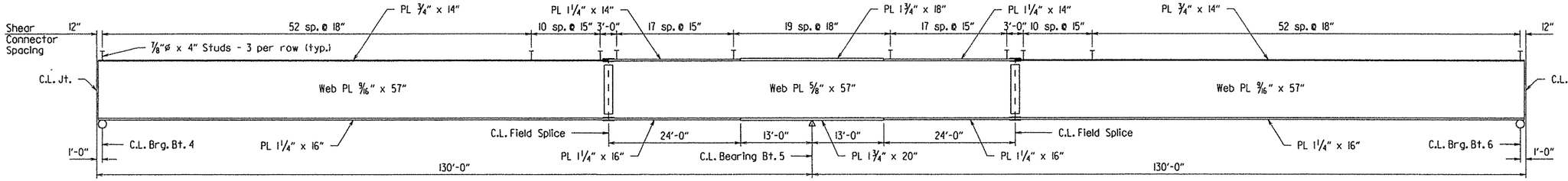
NOTE: Field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.



FIELD SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS

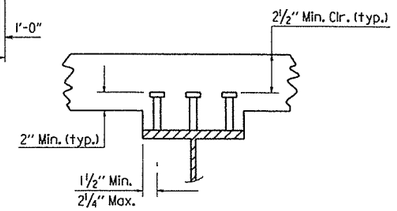
NTS

Note: All web and flange plates shall be AASHTO M270, Gr. 50W steel.



TYP. GIRDER ELEVATION

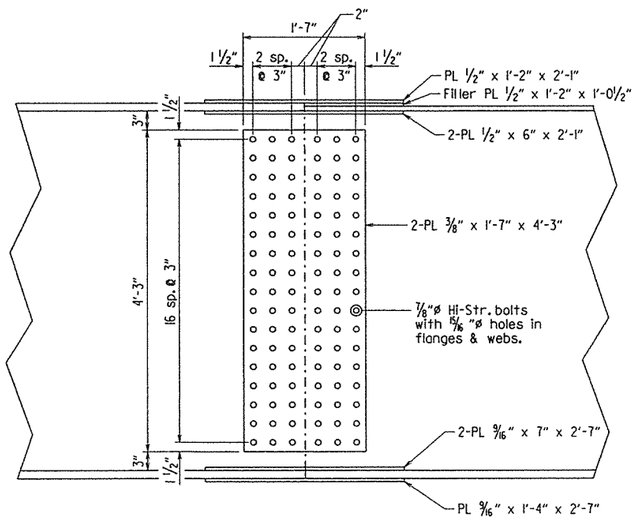
NTS

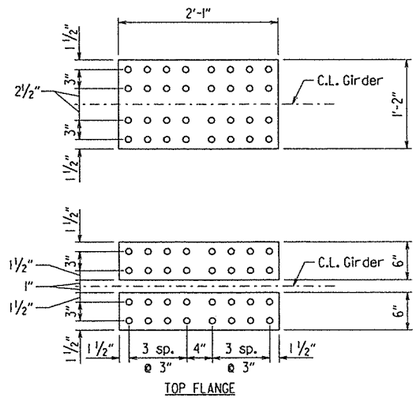


Stud Shear Connectors shown shall be 7/8"ø x 4" automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. 3/4"ø studs may be used in place of the 7/8"ø studs shown at the ratio of 1.361-3/4"ø studs in place on one 7/8"ø stud. 7/8"ø studs will be used as the basis for measurement of structural steel in shear connectors.

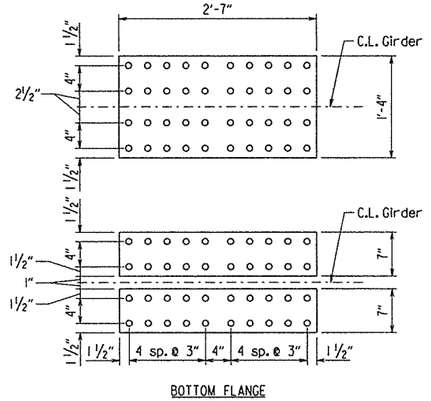
SHEAR CONNECTOR DETAIL

NTS





TOP FLANGE



BOTTOM FLANGE

DETAILS OF FIELD SPLICES

1" = 1'-0"

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/14/13
CARL J. FUSELIER

BRIDGE ENGINEER

PRINT DATE: 8/1/2013

SHEET 1 OF 2

DETAILS OF 260'-0" CONTINUOUS PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 02/20/13 FILENAME: b061277_sl.dgn

CHECKED BY: JWP DATE: 8-2-13 SCALE: As Shown

DESIGNED BY: JWP DATE: 1-13

BRIDGE NO. 07284 DRAWING NO. 54059

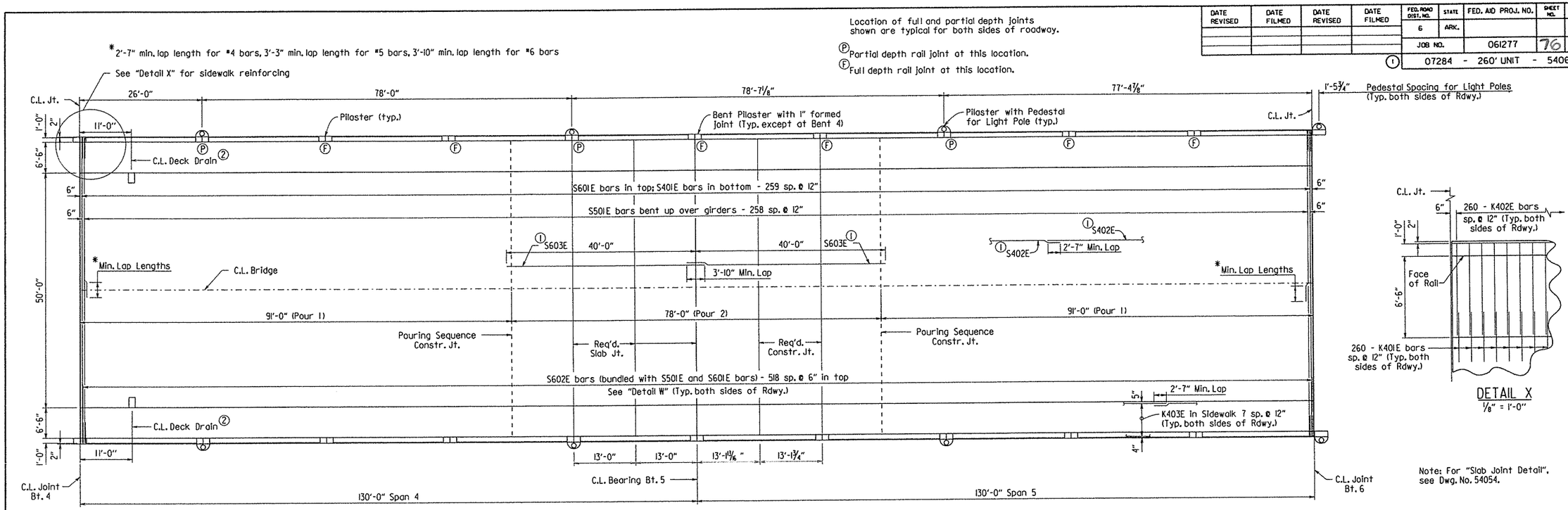
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061277	76	160
(1) 07284 - 260' UNIT - 54060				

Location of full and partial depth joints shown are typical for both sides of roadway.

(P) Partial depth rail joint at this location.

(F) Full depth rail joint at this location.



DETAIL X
⅛" = 1'-0"

Note: For "Slab Joint Detail", see Dwg. No. 54054.

REINFORCING PLAN AND SLAB POURING SEQUENCE
1/12 " = 1'-0"

①Place reinforcing as shown in "Typical Roadway Section", see Dwg. No. 54053.

②For Details of Deck Drain, see Dwg. No. 54061.

Pouring Sequence Notes:
Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pour (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours.

A minimum of 7 days shall elapse after the completion of the entire slab unit before pouring the sidewalk. A minimum of 72 hours shall elapse between completion of the sidewalk and the pouring of the bridge railing.

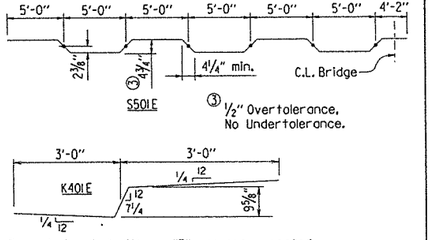
The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	520	33'-10"	Str.
S402E	1,323	39'-4"	Str.
S501E	518	34'-11"	3"
S601E	520	34'-5"	Str.
S602E	1,038	4'-10"	Str.
S603E	144	41'-11"	Str.
K401E	520	6'-6"	2"
K402E	520	7'-2"	Str.
K403E	112	39'-4"	Str.
** X401E	16	4'-0"	Str.
** X402E	16	5'-6"	Str.
** X601E	16	9'-6"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.



Bars designated with an "E" are epoxy coated.

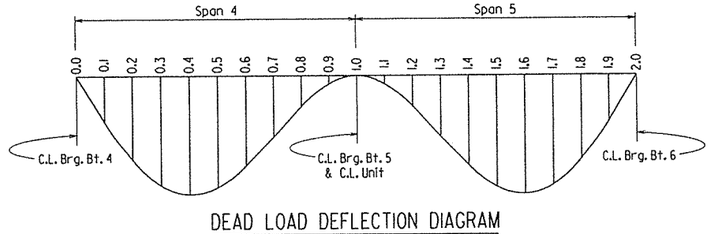
For bridge rail and pedestal details and reinforcing, see Dwg. Nos. 54062-54064.

**See "Details of Deck Drains" on Dwg. No. 54061.

HALF TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

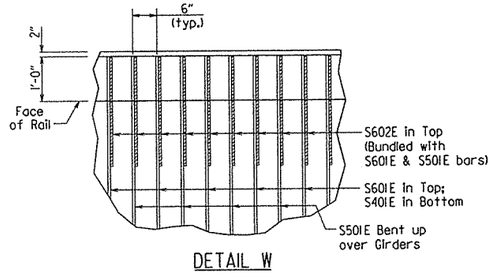
Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet + Sidewalk	
		Exterior Beam	Interior Beam	Exterior Beam	Interior Beam	Exterior Beam	Interior Beam
4	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.201	0.214	0.993	1.254	1.279	1.359
	0.2	0.367	0.392	1.817	2.294	2.341	2.487
	0.3	0.476	0.509	2.355	2.973	3.038	3.225
	0.4	0.516	0.551	2.547	3.216	3.292	3.491
	0.5	0.485	0.518	2.392	3.019	3.100	3.281
	0.6	0.395	0.422	1.943	2.452	2.528	2.668
	0.7	0.268	0.286	1.311	1.654	1.715	1.804
	0.8	0.136	0.145	0.659	0.832	0.869	0.910
	0.9	0.037	0.039	0.177	0.223	0.236	0.245
	1.0	0.000	0.000	0.000	0.000	0.000	0.000

← Symmetrical about C.L. unit



DEAD LOAD DEFLECTION DIAGRAM

NOTE: Camber for Dead Load Deflection plus vertical curve +/- ¼" tolerance. Deflections shown are along C.L. Girder from a chord from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above chord. Vertical curve corrections not included.



DETAIL W
No Scale

STATE OF ARKANSAS
Carl J. Fusellier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/14/13
CARL J. FUSELLIER

BRIDGE ENGINEER

SHEET 2 OF 2

DETAILS OF 260'-0" CONTINUOUS PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 02/20/13 FILENAME: b061277_sl.dgn

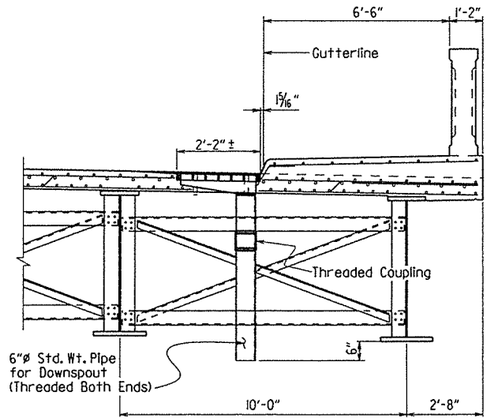
CHECKED BY: JWP DATE: 8-26-13 SCALE: 1/12 " = 1'-0"

DESIGNED BY: JWP DATE: 1-13

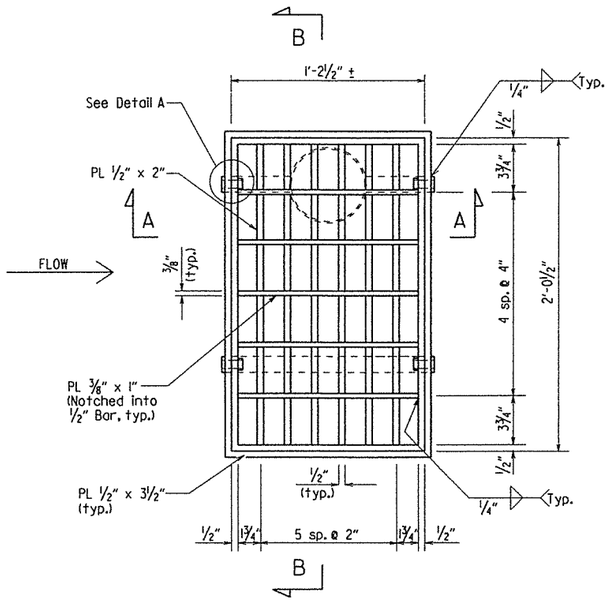
BRIDGE NO. 07284 DRAWING NO. 54060

PRINT DATE: 8/26/2013

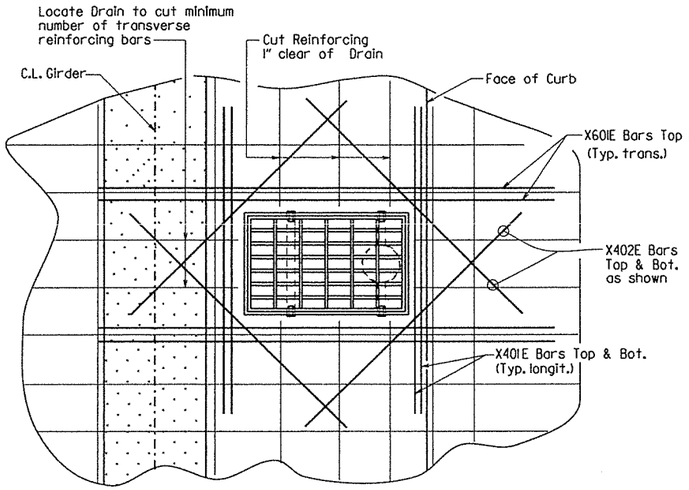
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	77	160
				1	07284	DECK DRAINS	54061	



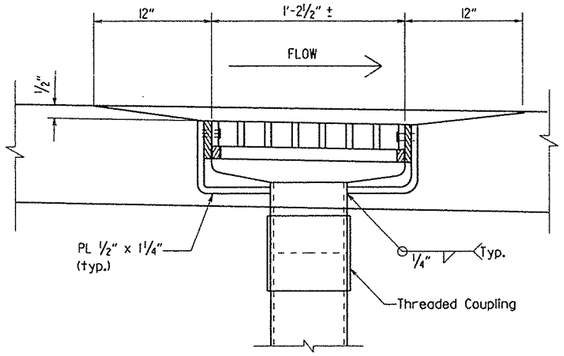
ROADWAY SECTION AT DECK DRAIN



PLAN



PLAN OF REINFORCING AT DECK DRAINS

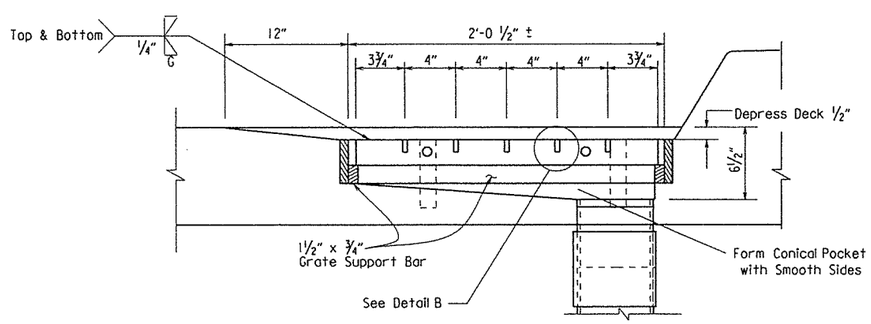


SECTION A-A

BAR LIST FOR ONE DRAIN

(FOR INFORMATION ONLY)

Mark	No. Req'd.	Length
X401E	8	4'-0"
X402E	8	5'-6"
X601E	8	9'-6"



SECTION B-B

GENERAL NOTES:

For Location of Deck Drains, see Superstructure Details.

Drain location may be adjusted to clear cross frame connections and avoid reinforcing bars.

Standard Weight Pipe for Deck Drains shall conform to ASTM A501. All other structural steel shall be AASHTO M 270, Grade 36. After fabrication, all structural steel in drains shall be Galvanized in accordance with AASHTO M 111. Steel Fasteners shall be Galvanized in accordance with AASHTO M 232 or M 298, Class 40 or 50.

Structural Steel in Deck Drains shall not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans, Grade 50W.)"

Top longitudinal reinforcing steel in the slab shall be cut as required to install the deck drains. Two additional No. 4 x 5'-6" straight bars shall be placed longitudinally on each side of the drain.

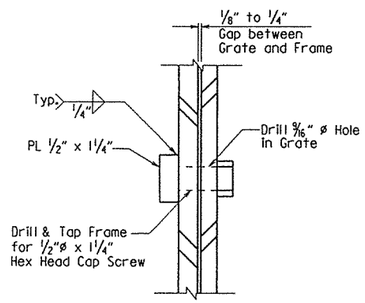
Top and bottom tranverse reinforcing steel in the slab shall be cut as required (Up to a maximum of three bars per mat) to install the deck drain. Two additional No. 6 x 9'-6" straight bars shall be placed transversely per mat on each side of the drain.

One additional No. 4 x 4'-0" straight bar shall be placed at a 45° angle to each corner in both top and bottom mats.

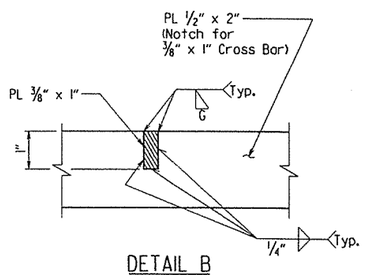
Repair all cut or damaged epoxy bars in accordance with the Standard Specifications.

All additional Reinforcing Steel placed around deck drains shall be epoxy-coated and shall be paid for at the unit price bid for "Epoxy Coated Reinforcing Steel (Grade 60)".

Note: A Pre-Manufactured Grate or Grate and Frame may be submitted for approval by the Engineer in place of the steel fabrication shown in the Plans. Grate shall have an AASHTO-AGC-ARTBA Type 5 or 6 Configuration and shall be designed for a 16,000 lb. wheel load.



DETAIL A



DETAIL B

STATE OF ARKANSAS
CARL J. FUSELIER
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/14/13
CARL J. FUSELIER

BRIDGE ENGINEER

DETAILS OF DECK DRAINS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 4-2-13 FILENAME: b061277_dr.dgn

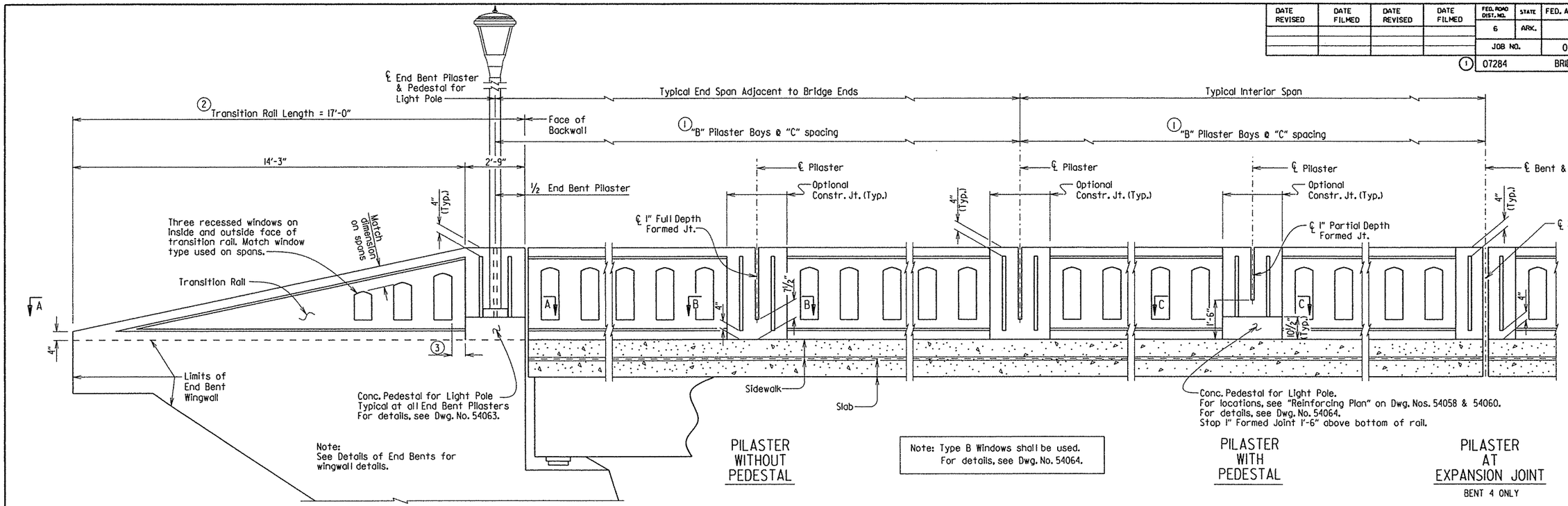
CHECKED BY: JAP DATE: 8-2-13 SCALE: No Scale

DESIGNED BY: STD DATE: —

BRIDGE NO. 07284 DRAWING NO. 54061

PRINT DATE: 8/1/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	78	160
				(1) 07284		BRIDGE RAIL		54062



END BENT PILASTER
WITH PEDESTAL

PILASTER WITHOUT PEDESTAL

PILASTER WITH PEDESTAL

PILASTER AT EXPANSION JOINT
BENT 4 ONLY

(1) See "Table of Variables" on Dwg. No. 54064.

(2) Eliminate Transition Rail on Right Side of End Bent 6 (Looking Ahead). See Dwg. No. 54050.

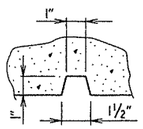
(3) Match spacing to first window in adjacent span.

(4) See "Elevation Showing Typical Reinforcing Placement", on Dwg. No. 54063.

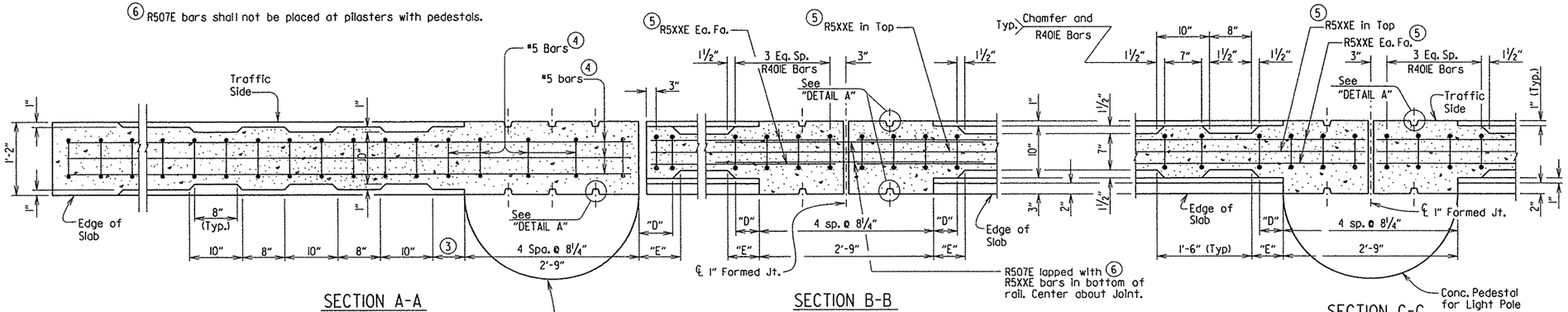
(5) See Dwg. No. 54064 for locations of Bar 5XXE.

(6) R507E bars shall not be placed at pilasters with pedestals.

EXTERIOR ELEVATION OF RAIL
Not to Scale



DETAIL A



SECTION A-A

SECTION B-B

SECTION C-C

Conc. Pedestal for Light Pole
For locations, see "Reinforcing Plan" on Dwg. Nos. 54058 & 54060.
For details, see Dwg. No. 54063.

PLAN VIEW OF RAIL
1" = 1'-0"

Note: For Table of Variables, See Dwg. No. 54064.

GENERAL NOTES

All concrete for bridge and transition railing shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi.

At the Contractor's option a Class 3 finish in lieu of a Class 2 Rubbed finish may be applied to all exposed surfaces of railing and pedestals in accordance with Special Provision Job 061277 "Finishing Concrete Surfaces."

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Reinforcing steel that interferes with pull boxes installed in pilasters shall be cut off 2" shy of pull box. Epoxy coating of cut bars shall be repaired in accordance with subsection 804.05. No additional payment will be made for this work.

Working drawings showing span number, span pilaster and pedestal locations, number of windows between pilasters and spacing to first window shall be submitted to the Engineer for approval prior to pouring railing.

For additional details of conduit and pull boxes, see Lighting Details.

This rail is designed for a TL-2 test level.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/4/13
CARL J. FUSELIER
BRIDGE ENGINEER

SHEET 1 OF 3

DETAILS OF COMBINATION BRIDGE RAIL ROOSEVELT ROAD

ROUTE SEC.

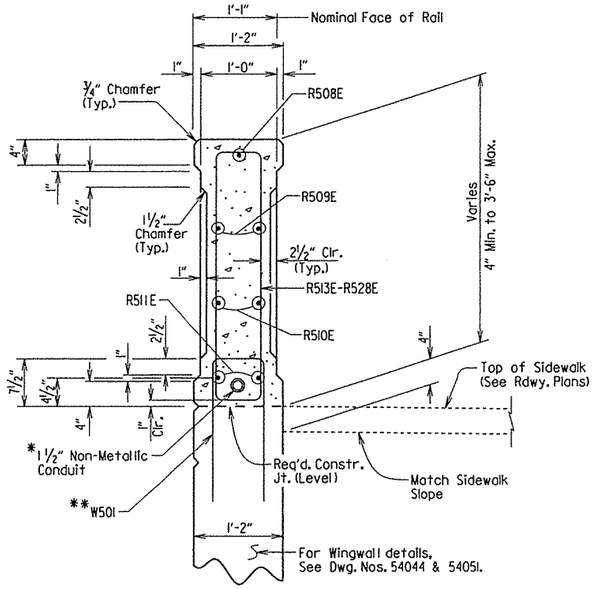
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 3/15/13 FILENAME: b061277_rl.dgn
CHECKED BY: K.W.Y DATE: 8/2/13 SCALE: As Noted
DESIGNED BY: K.W.Y DATE: 8/13

BRIDGE NO. 07284 DRAWING NO. 54062

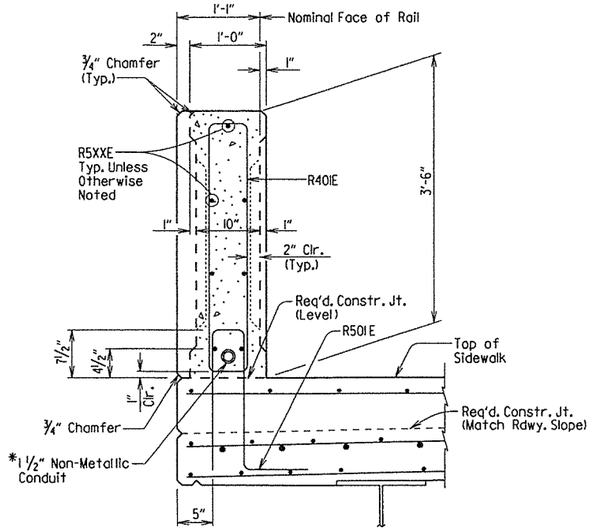
PRINT DATE: 8/1/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	79	160
				1	07284	BRIDGE RAIL		54063



TRANSITION RAIL SECTION THRU WINDOWS ON WINGWALLS

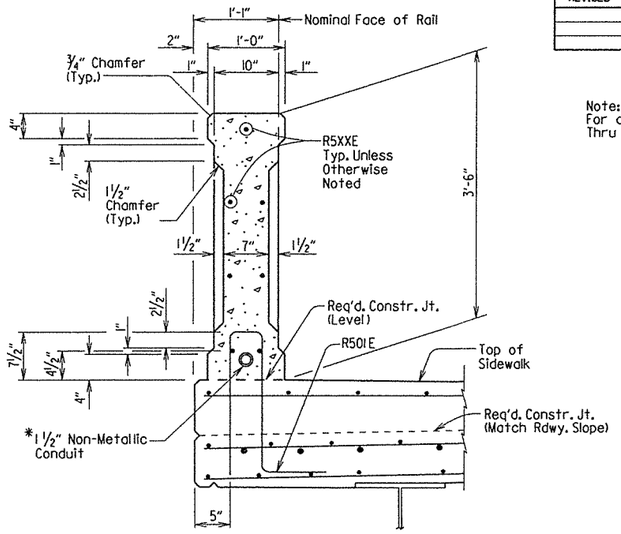
1" = 1'-0"



RAIL SECTION THRU PILASTERS ON SPANS

PEDESTALS FOR LIGHT POLES NOT SHOWN FOR PILASTERS WITH PEDESTALS, SEE "DETAIL B"

1" = 1'-0"

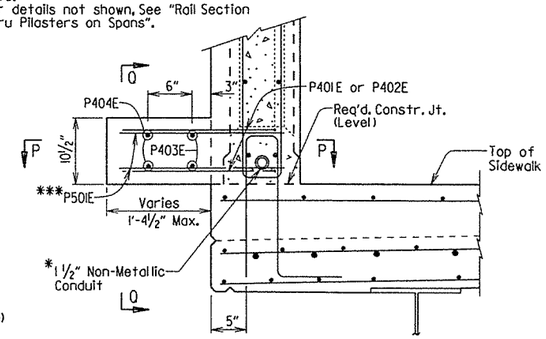


*See Lighting Details

RAIL SECTION THRU WINDOWS ON SPANS

1" = 1'-0"

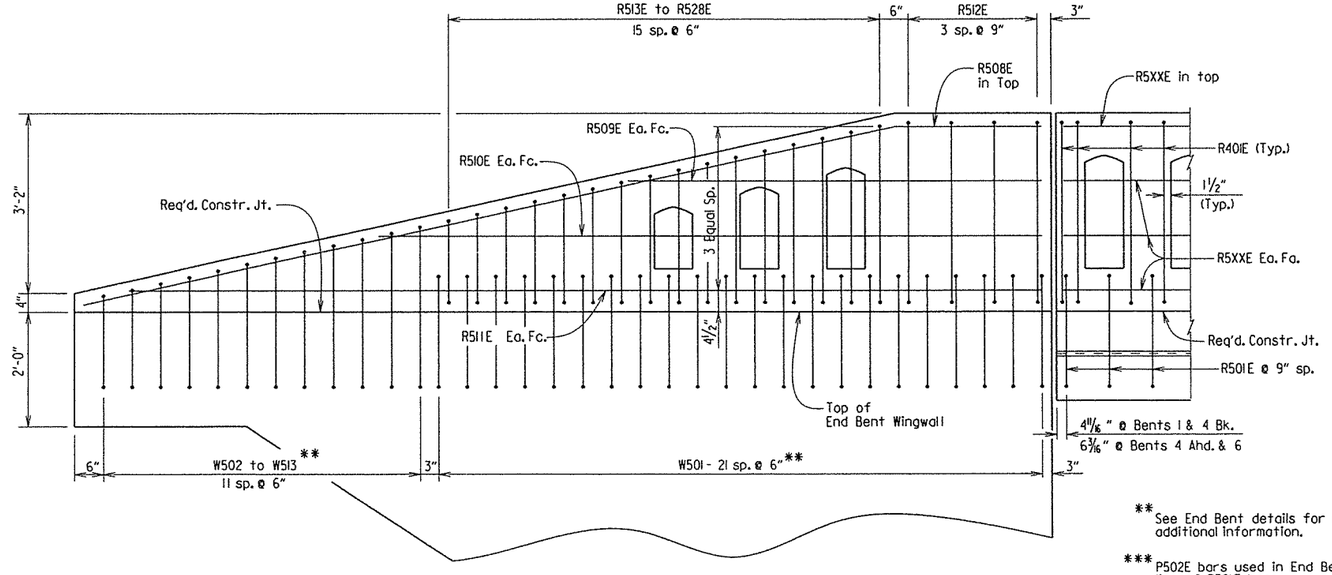
Note:
For details not shown, See "Rail Section Thru Pilasters on Spans".



DETAIL B

AT PILASTERS WITH PEDESTALS

1" = 1'-0"

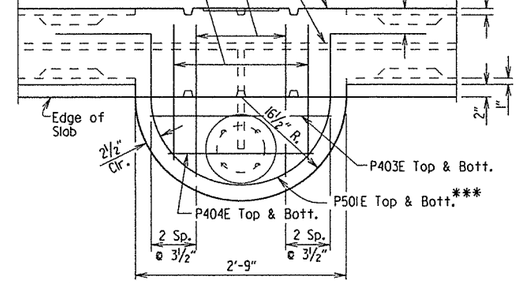


ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT

¾" = 1'-0"

** See End Bent details for reinforcing and additional information.

*** P502E bars used in End Bent Pilasters in lieu of P501E bars.

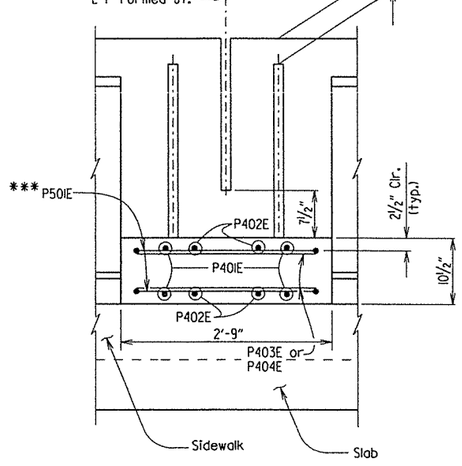


Note:
See "Anchor Bolt Details" for details of Anchor Bolt Layout.

SECTION P-P

PEDESTAL DETAILS

1" = 1'-0"



SECTION Q-Q

PEDESTAL DETAILS

1" = 1'-0"

STATE OF ARKANSAS
Carl A. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL A. FUSELIER 8/4/13

BRIDGE ENGINEER

SHEET 2 OF 3

DETAILS OF COMBINATION BRIDGE RAIL ROOSEVELT ROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 3/15/13 FILENAME: b061277_rl.dgn

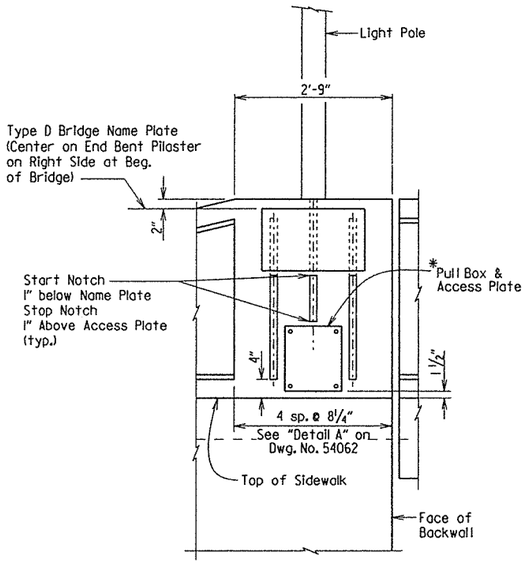
CHECKED BY: KWY DATE: 8/4/13 SCALE: As Noted

DESIGNED BY: KWY DATE: 3/13

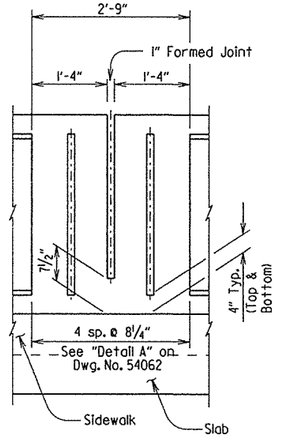
BRIDGE NO. 07284 DRAWING NO. 54063

PRINT DATE: 8/1/2013

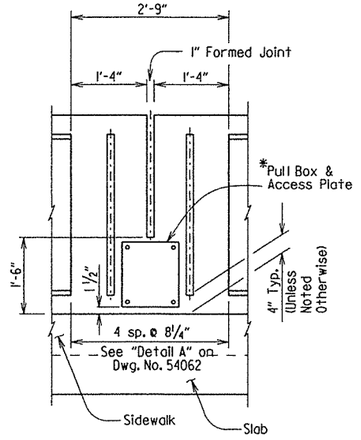
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	80	160
				(1) 07284		BRIDGE RAIL		54064



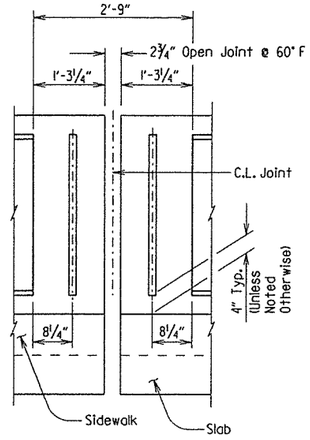
END BENT



WITHOUT PEDESTAL



WITH PEDESTAL



AT EXP. JOINT

BENT 4 ONLY

*See Lighting Details

TABLE OF VARIABLES

Span No.	"B"	"C"	No. of Windows Per Bay	Window Type	"D"	"E"
1	4	26'-4 7/16"	15	B	10 3/16"	11 11/16"
2	5	29'-7 3/16"	17	B	11 5/8"	1'-1 1/8"
3	5	29'-7 3/16"	17	B	11 5/8"	1'-1 1/8"
4	5	26'-0"	15	B	8"	9½"
5	5	26'-3 9/16"	15	B	9¾"	11¼"

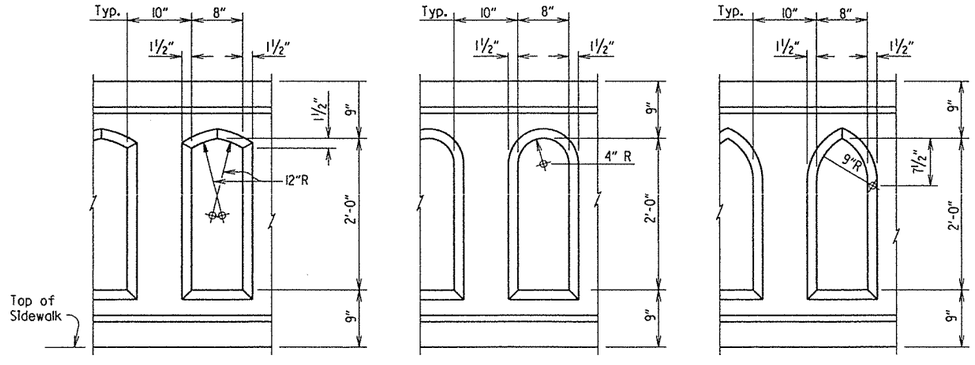
TABLE OF QUANTITIES

(FOR INFORMATION ONLY)

Item 802	Item 804
Class "S(AE)" Concrete -Bridge	Epoxy Coated Reinforcing Steel (Grade 60)
Cu. Yd.	Lb.
147.50	30,170

INTERIOR ELEVATION OF PILASTERS

¾" = 1'-0"



TYPE A TYPE B TYPE C

RECESSED WINDOW TYPES

Not to Scale

Notes:
Dimensions shown are for recessed windows on bridge spans. See "Section A-A" on Dwg. No. 54062 for window dimensions on transition rails.

Same window type shall be used at all locations.

BAR R5XXE LOCATIONS

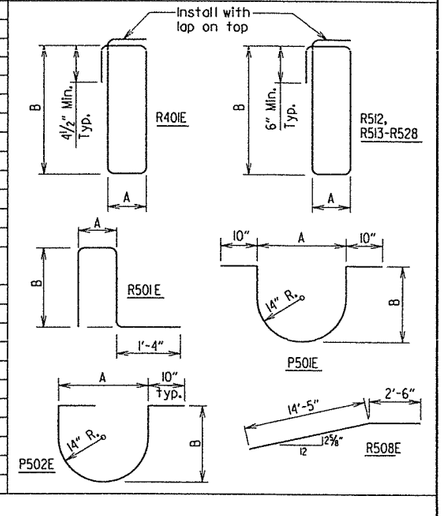
	Bay Length	No. of Bays	R5XXE Bar
**	24'-9 7/16"	2	R502E
	26'-4 7/16"	6	R503E
	29'-7 3/16"	20	R504E
	26'-0"	10	R505E
	26'-3 9/16"	8	R506E
**	24'-8 9/16"	2	R502E

**First and Last Pilaster Bays. Bay length shown measured to end of slab.

BAR LIST

Mark	No. Req'd.	Length	A	B	Pin Dia.
R401E	1800	7'-10"	6"	3'-3"	2"
R501E	1758	5'-4"	6"	1'-11"	2½"
R502E	28	24'-4"	—	—	Str.
R503E	42	26'-0"	—	—	Str.
R504E	140	29'-2"	—	—	Str.
R505E	70	25'-7"	—	—	Str.
R506E	56	25'-10"	—	—	Str.
R507E	60	4'-9"	—	—	Str.
R508E	3	16'-11"	—	—	2½"
R509E	6	7'-2"	—	—	Str.
R510E	6	11'-6"	—	—	Str.
R511E	6	15'-10"	—	—	Str.
R512E	12	8'-2"	7"	3'-3"	2½"
R513E - R528E	3 Ea.	4'-8" to 8'-0"	7"	1'-6" to 3'-2"	2½"
P401E	68	1'-9"	—	—	Str.
P402E	68	2'-0"	—	—	Str.
P403E	34	2'-4"	—	—	Str.
P404E	34	1'-10"	—	—	Str.
P501E	28	6'-8"	2'-4"	3'-4½"	2½"
P502E	6	6'-8"	2'-4"	3'-4½"	2½"
W501	See Abutment Details				
W502 - W513	See Abutment Details				

Bending Diagrams (Dimensions are out to out of bars.)



Notes:
Bars with "E" suffix shall be epoxy-coated.

Bar List includes Reinforcing Steel for rails, pilasters and pedestals on bridge spans and for transition rails, on end bents, except as noted.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
8/4/13
CARL J. FUSELIER
BRIDGE ENGINEER

SHEET 3 OF 3

DETAILS OF COMBINATION BRIDGE RAIL ROOSEVELT ROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 3/15/13 FILENAME: b061277_rl.dgn
CHECKED BY: K.W.Y DATE: 8/2/13 SCALE: As Noted
DESIGNED BY: K.W.Y DATE: 3/13

BRIDGE NO. 07284 DRAWING NO. 54064

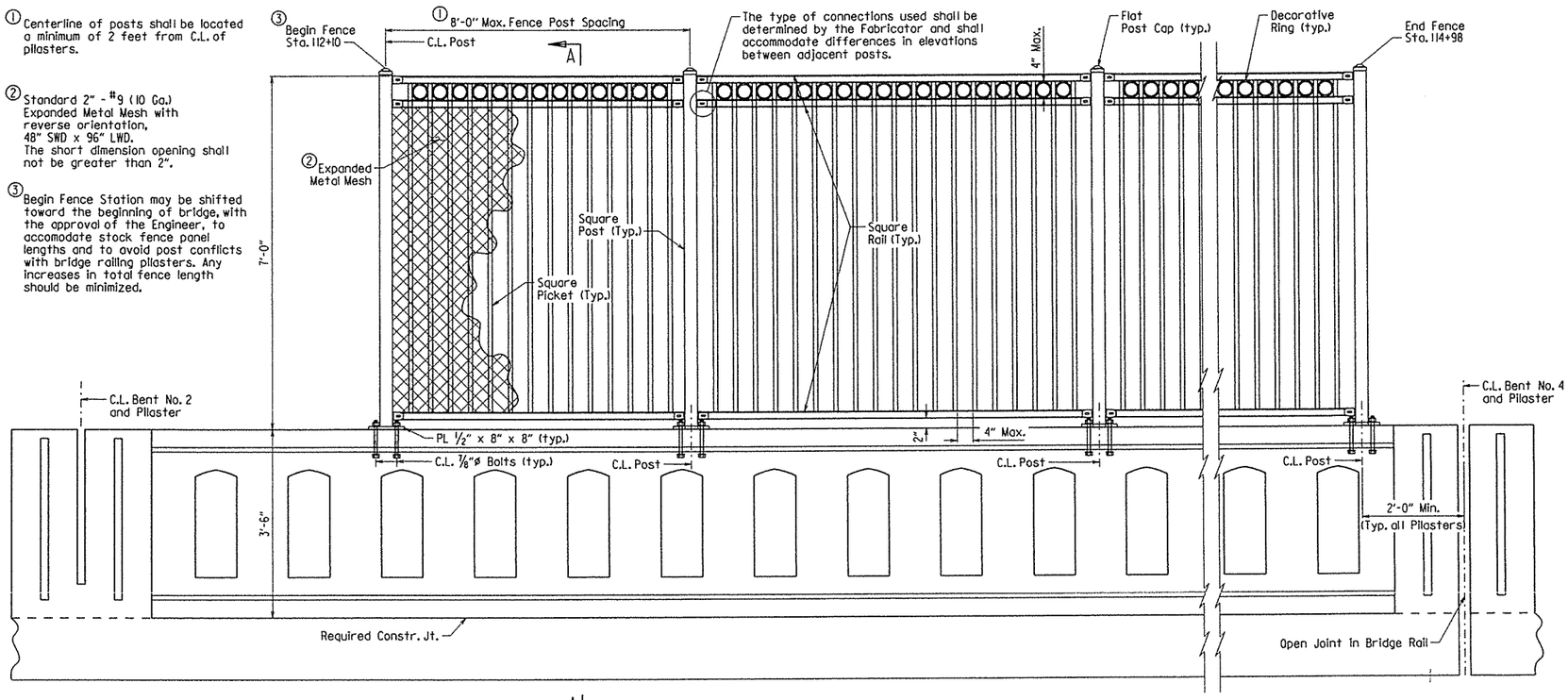
PRINT DATE: 8/1/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	81	160
				①	07284 - ORNAMENTAL FENCE - 54065			

① Centerline of posts shall be located a minimum of 2 feet from C.L. of pilasters.

② Standard 2" - #9 (10 Ga.) Expanded Metal Mesh with reverse orientation, 48" SWD x 96" LWD. The short dimension opening shall not be greater than 2".

③ Begin Fence Station may be shifted toward the beginning of bridge, with the approval of the Engineer, to accomodate stock fence panel lengths and to avoid post conflicts with bridge railing pilasters. Any increases in total fence length should be minimized.

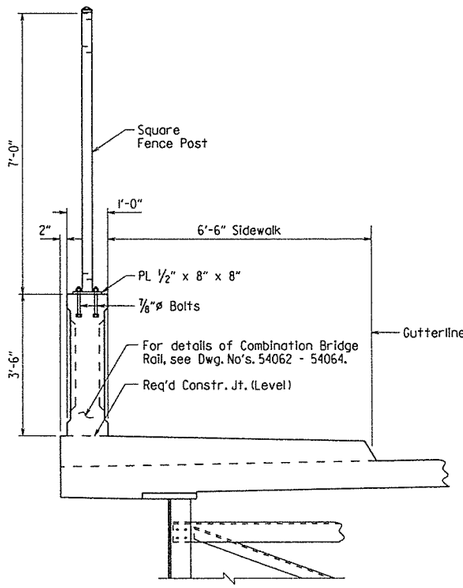


A

ELEVATION VIEW OF ORNAMENTAL FENCE

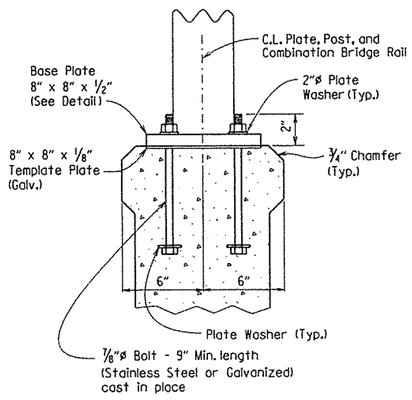
No Scale

Note: Ornamental Fence with expanded metal mesh shall be placed on both sides of bridge between the stations shown.



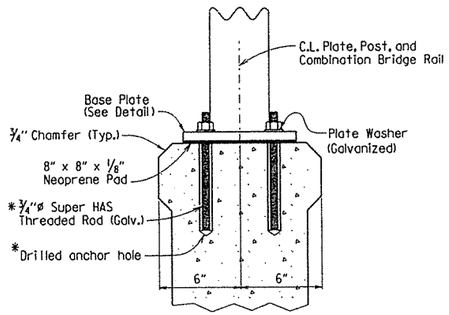
SECTION A-A

½" = 1'-0"



DETAILS OF POST ANCHOR SYSTEM (CAST IN PLACE ANCHORS)

No Scale

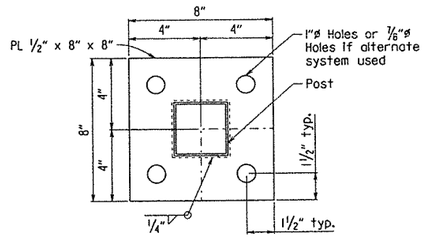


*HILTI HIT RE 500 Epoxy Adhesive Anchor System with 6¾" embedment or an approved equal.

The Epoxy Adhesive Anchor System shall be installed in accordance with Manufacturer's recommendations.

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

NO SCALE



DETAILS OF BASE PLATE

3" = 1'-0"

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
6/4/13
CARL J. FUSELIER

BRIDGE ENGINEER

GENERAL NOTES:

Ornamental Fence Layout shall conform to the vertical and horizontal alignment of the bridge. All posts and pickets shall be plumb (true vertical position).

General details and dimensions of ornamental fence and expanded metal mesh shall be submitted to the Engineer for review and acceptance prior to submitting shop drawings. Shop drawings shall be submitted for review in accordance with Special Provision Job 061277 "Ornamental Fencing" prior to fabrication.

Expanded metal mesh and connecting hardware, base plates, template plates, neoprene pads, and anchor bolts, nuts, and washers will not be paid for directly, but shall be considered incidental to the unit price bid for "Ornamental Fence".

See Special Provision Job 061277 "Ornamental Fencing" for additional information.

POST ANCHOR SYSTEM:

Cast in place anchor bolts shall be of stainless steel or high-strength steel. Stainless steel anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength of 80,000 psi. High-strength steel anchor bolts shall conform to AASHTO M164 or A354-Grade BC, galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.

Plate Washers shall be stainless steel and conform to the requirements of ASTM A167-Type 302 or AASHTO M270, Gr. 36, galvanized in accordance with AASHTO M232 or M298, Class 40 or 50. Plate Washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series).

Nuts shall conform to ASTM A194, Gr. 8 (Stainless Steel) or AASHTO M164, galvanized in accordance with AASHTO M232.

Mixing of Stainless Steel and Galvanized fasteners will not be permitted.

Base plates shall be provided by the Fabricator and shop weld to fence posts. The base plates shall be AASHTO M279, Gr. 36, galvanized in accordance with AASHTO M232 or M298, Grade 40 or 50, and have a black powder coated finish.

Base plates shall not be installed on rail surfaces that are improperly finished, deformed or irregular.

DETAILS OF ORNAMENTAL FENCE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 03/04/13 FILENAME: b061277_fl.dgn

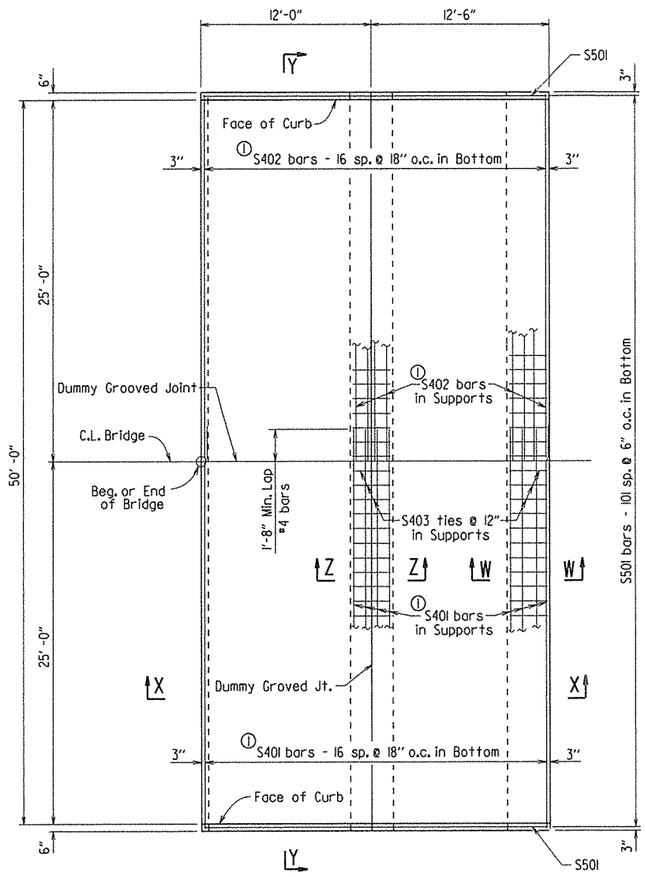
CHECKED BY: AMS DATE: 7/22/13 SCALE: As Shown

DESIGNED BY: — DATE: —

BRIDGE NO. 07284 DRAWING NO. 54065

PRINT DATE: 8/26/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	82	160
				(1) 07284	TYPE SPECIAL APPROACH SLAB			54066



PLAN - APPROACH SLAB

3/16" = 1'-0"

① All transverse reinforcing shall be placed on radial lines. Spacing is measured along C.L. Construction.

Notes:
Top of approach slab shall be given a tine finish as specified for final finishing in subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

All longitudinal lines shall be placed on curves concentric with C.L. Construction.

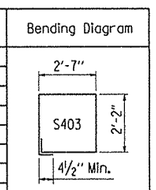
TABLE OF QUANTITIES FOR ONE TYPE SPECIAL APPROACH SLAB

(FOR INFORMATION ONLY)

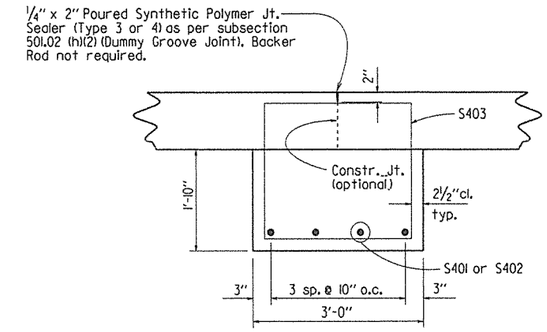
Reinforcing Steel (lbs.)	Concrete (Cu. Yds.)
4,115	55.98

BAR LIST PER APPROACH SLAB

Mark	No. Req'd.	Length	Pin Dia.	Bending Diagram
S401	25	27'-0"	Str.	
S402	25	25'-4"	Str.	
S403	102	9'-10"	2"	
S501	102	24'-2"	Str.	

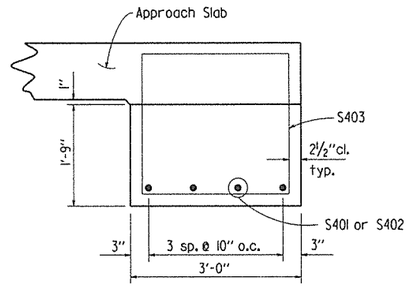


Dimensions are out to out of bars



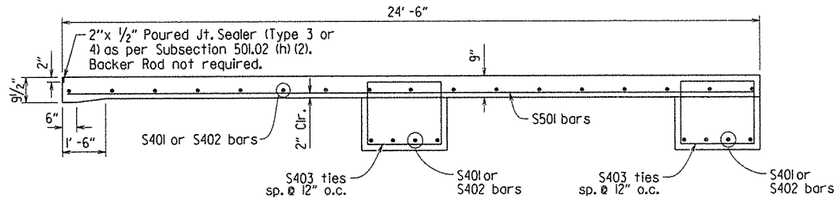
SECTION Z - Z

¾" = 1'-0"



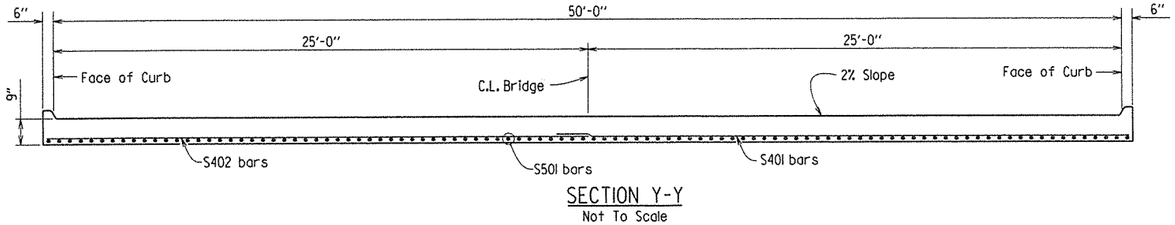
SECTION W - W

¾" = 1'-0"



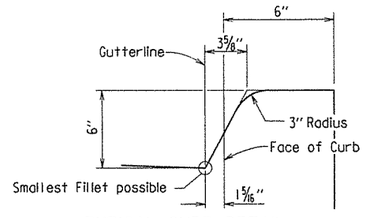
SECTION X-X

⅜" = 1'-0"



SECTION Y-Y

Not To Scale



TYPICAL CURB DETAIL

Not To Scale

GENERAL NOTES:

Concrete shall be Class S(AE) (f'c = 4,000 psi).

All reinforcing steel shall be Grade 60 (Yield Strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports. Fabricate bar lengths to provide 2" minimum cover at each end.

Approach Slabs will be measured and paid for in accordance with Section 504 of the Standard Specifications.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
1/28/14
CARL J. FUSELIER
BRIDGE ENGINEER

DETAILS OF TYPE SPECIAL APPROACH SLAB

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 06-04-13 FILENAME: b061277_as.dgn
CHECKED BY: JYP DATE: 1-28-14 SCALE: AS NOTED
DESIGNED BY: STD DATE: —

BRIDGE NO. 07284 DRAWING NO. 54066

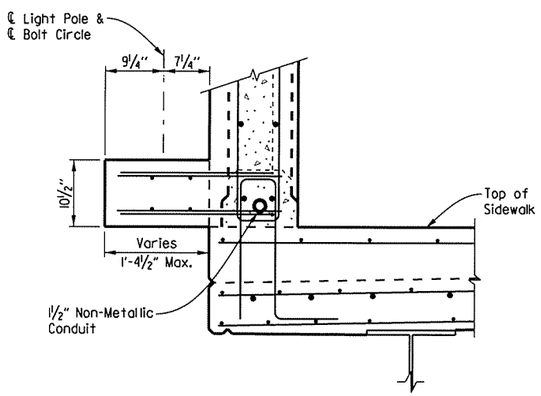
PRINT DATE: 1/28/2014

Crafton, Tull & Associates Inc.

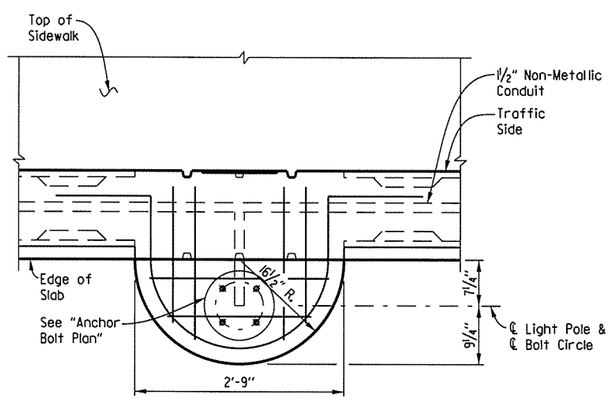
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061277	83	160

(2) 07284 ANCHOR BOLTS

Note:
For details not shown, See
"Details of Combination Bridge Rail".



TYPICAL SECTION
AT PEDESTALS
1" = 1'-0"



Note:
For details not shown, See "Details of Combination Bridge Rail".

PLAN
PEDESTAL DETAILS
1" = 1'-0"

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable supplemental specifications and special provisions. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, Sixth Edition (2013).

Anchor bolts, nuts, and washers shall conform to Section 807.07. Anchor bolts shall be Grade 55.

Anchor bolt assemblies, nuts, and voids shall be furnished and installed by the Contractor. The Contractor shall verify the anchor bolt spacings shown on the plans are correct for the light poles that will be furnished by the light pole supplier.

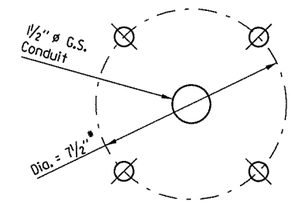
Mixing of Stainless Steel and Galvanized fasteners will not be permitted.

The Contractor shall coordinate the installation of the lighting conduit with the installation of the electrical cable and light poles. The Contractor shall provide access, including any work platform necessary for their access.

The Contractor shall furnish and install conduit as shown on the plans. The conduit, fittings and miscellaneous hardware shall conform to Section 709 of the Standard Specifications. The Contractor shall provide pull wires in the conduit during installation.

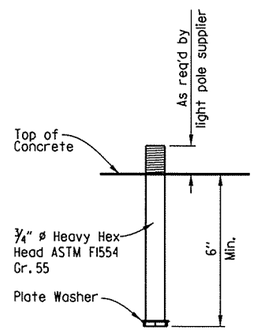
See Bridge plans and Illumination plans for information on lighting details not covered on this sheet.

Payment for anchor bolt materials, installation, and incidentals shall be made under the bid item "Roadway Illumination Pole (Pedestal Mounted)".

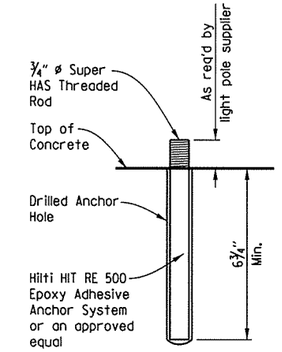


ANCHOR BOLT PLAN
NTS

*Contractor shall verify the bolt circle diameter matches the light pole base prior to installing anchor bolts. The light pole base shall not hang over the face of the pedestal.



ANCHOR BOLT DETAILS
NTS



ALTERNATE ANCHOR BOLT DETAILS
NTS

Note: The Hilti Epoxy Adhesive Anchor System shall be supplied and installed in accordance with manufacturer's recommendations.

CERTIFICATE OF AUTHORIZATION
CRAFTON, TULL & ASSOCIATES, INC.
No. 109
ARKANSAS ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
03/06/14

SHEET 1 OF 1
ANCHOR BOLT DETAILS
ROOSEVELT ROAD
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 07-16-13
CHECKED BY: CAW DATE: 07-15-13
DESIGNED BY: KJC DATE: 07-12-13
FILENAME: 138038_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07284 DRAWING NO.

USER: cw584
DESIGN FILE: G:\138038800.Roosevelt\TRANSP\dgn\bridge\138038_sl.dgn
PLOTTED: 3/6/2014 10:43
SCALE: 2:1
MODEL: $$MODEL$$

GENERAL NOTES:

1. WHERE STATED ELECTRICAL CONTRACTOR IS TO PROVIDE MATERIAL, IT IS TO BE KNOWN THAT PROVIDE MEANS TO FURNISH AND INSTALL.
2. PRIOR TO BID, THE CONTRACTOR SHALL VISIT THE JOB SITE TO DETERMINE ALL EXISTING CONDITIONS AND THE EXTENT OF WORK TO BE DONE.
3. CONTACT UTILITY COMPANY PRIOR TO BID AND INCLUDE ALL FEES REQUIRED FOR CONNECTION OF THE UTILITIES.
4. PROVIDE TEMPORARY ELECTRICAL POWER AND LIGHTING TO JOB SITE, AS REQUIRED.
5. EXISTING ELECTRICAL EQUIPMENT LAYOUT (LIGHT FIXTURES, RECEPTACLES AND DATA OUTLETS, ETC) ARE BASED ON AS-BUILT DRAWINGS AND/OR FIELD OBSERVATIONS. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXACT LOCATIONS IN FIELD.
6. PROVIDE A GROUNDING CONDUCTOR IN ALL RACEWAYS, SIZED PER 2011 NATIONAL ELECTRICAL CODE.
7. ALL CONDUCTORS #10 AND SMALLER SHALL BE SOLID COPPER AND ALL CONDUCTORS #8 AND LARGER SHALL BE STRANDED COPPER USING BOLTED LUGS AT TERMINALS.
8. MINIMUM WIRE SIZE SHALL BE #12 AWG UNLESS OTHERWISE SPECIFIED.
9. ALL WIRING DEVICES SHALL BE INSTALLED PLUMB, SQUARE, AND TRUE. ALL DEVICES INSTALLED AT A SINGLE LOCATION SHALL BE ALIGNED.
10. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING ALL SWITCHES, RECEPTACLES, AND FIXED EQUIPMENT WITH THE BRANCH CIRCUIT PANEL NAME AND NUMBER SERVING EACH DEVICE.
11. ALL WORK SHALL COMPLY WITH THE 2011 EDITION OF THE NATIONAL ELECTRIC CODE.

ITEM NO.	DESCRIPTION	QUANTITIES TOTAL	UNITS
710	NON-METALLIC CONDUIT (2")	1200	LF
711	CONCRETE PULL BOX (TYPE 2)	7	EA
SP	TAMPER RESISTANT PULL BOX INSERT	7	EA
SP	ROADWAY ILLUMINATION POLE (TYPE A, PEDESTAL, 20')	22	EA
SP	ROADWAY ILLUMINATION POLE (TYPE A, GROUND, 20')	6	EA
SP	UNDERPASS LUMINAIRE (TYPE B)	2	EA
SP	SERVICE POINT ASSEMBLY (5 CIRCUIT(S))	1	EA
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT, COPPER (1C/10 A.W.G., EGC)	11,500	LF

ELECTRICAL SYMBOL LEGEND

(NOTE: ALL SYMBOLS MAY NOT BE USED)

SYMBOL	DESCRIPTION
(A)	LIGHT FIXTURE
(A)⊣	WALL BRACKET
(A)	EMERGENCY LIGHT FIXTURE
(A)	SITE LIGHTING POLE (1,2,3,4 HEADS AS INDICATED ON PLANS)
	BATTERY POWERED EMERGENCY LIGHT
	SINGLE RECEPTACLE
	DUPLEX RECEPTACLE
	QUADRA-PLEX RECEPTACLE
	SPECIAL RECEPTACLE
	SECURITY/ TV CAMERA
● PP	UTILITY POWER POLE
(J)	JUNCTION BOX
P	SERVICE POLE
Sx	DISCONNECT SWITCH (DESIGNATION, SEE SWITCH SCHEDULE)
T	TRANSFORMER
	METER
PE	PHOTO ELECTRIC CONTROL SENSOR
TC	TIME CLOCK CONTROLLER
FLUSH / SURFACE	PANELBOARDS
	DISTRIBUTION BOARD
	MULTI-USE PANEL
	ELECTRICAL GROUND
X	CONTROL DESIGNATION
	LIGHTING CONTROL/RELAY DESIGNATION
X	RELAY DESIGNATION

SYMBOL	DESCRIPTION
———	CONDUIT CONCEALED IN WALLS OR ABOVE CEILINGS
– – – – –	CONDUIT CONCEALED IN OR UNDER FLOORS
— E —	EMERGENCY CIRCUIT
— — —	DEMOLITION
— LHD —	LINEAR HEAT DETECTION CABLE
— OHE —	OVERHEAD ELECTRICAL
— OHP —	OVERHEAD PRIMARY
— OHS —	OVERHEAD SECONDARY
— OHT —	OVERHEAD TELEPHONE
— OHC —	OVERHEAD COMMUNICATION
— OHTV —	OVERHEAD TELEVISION
— OHFA —	OVERHEAD FIRE ALARM
– – UGE – –	UNDERGROUND ELECTRICAL
– – UGP – –	UNDERGROUND PRIMARY
– – UGS – –	UNDERGROUND SECONDARY
– – UGT – –	UNDERGROUND TELEPHONE
– – UGC – –	UNDERGROUND COMMUNICATION
– – UGTV – –	UNDERGROUND TELEVISION
– – UGFA –	UNDERGROUND FIRE ALARM
◄◄———	CONDUIT HOMERUN (ARROWS DENOTED NO. OF CKTS)
AM	ABOVE MILLWORK
AFF	ABOVE FINISHED FLOOR, MIDDLE OF DEVICE
AFG	ABOVE FINISHED GRADE
EWC	ELECTRIC WATER COOLER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFEP	GROUND FAULT EQUIPMENT PROTECTION
IG	ISOLATED GROUND
NF	NON-FUSIBLE
NS	NON-SWITCHED
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTED POWER SUPPLY
VFD	VARIABLE FREQUENCY DRIVE UNIT
WP	WEATHERPROOF DEVICE
WR	WEATHERPROOF RATED

CERTIFICATE OF AUTHORIZATION
CRAFTON, TULL & ASSOCIATES, INC.
No. 109
ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12010
JENNIFER CORA KEITH

03/06/14

ELECTRICAL ENGINEER

SHEET 1 OF 7

ELECTRICAL LEGEND AND GENERAL NOTES

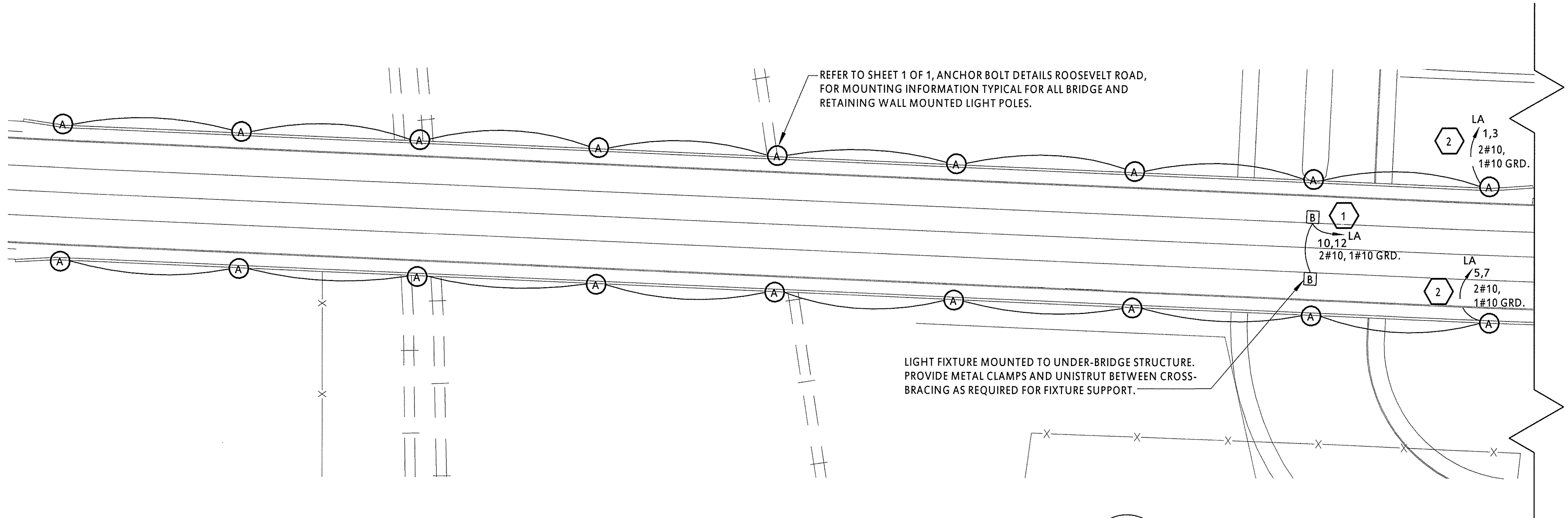
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: G. HOUCK DATE: 9-17-13 FILENAME:
CHECKED BY: DATE: SCALE: As Noted
DESIGNED BY: DATE:

BRIDGE NO. 07284 DRAWING NO.



1 ROOSEVELT RD BRIDGE - ELEC SITE PLAN - WEST

1" = 50'-0"

N

GENERAL NOTES

1. COORDINATE CONDUIT ROUTING, BRIDGE INSTALLATION, AND MOUNTING DETAILS WITH BRIDGE DRAWINGS.
2. PROVIDE COPPER CABLE ANTI-THEFT DEVICES TO SECURE WIRE RUNS AGAINST THEFT. AT EACH PULL BOX LOCATION PROVIDE McCAIN VANDAL RESISTANT PULL BOX INSERT.

KEYED NOTES

NOT ALL KEYED NOTES MAY APPEAR ON EVERY SHEET.

1. ROUTE LIGHTING CIRCUIT VIA LIGHTING CONTACTOR LC-1 THEN TO DESIGNATED BREAKER.
2. COORDINATE CONDUIT CONDUIT ROUTING WITH BRIDGE DRAWINGS. ROUTE CIRCUITRY UNDERGROUND FROM ELECTRICAL PANEL TO J-BOXES LOCATED AT BRIDGE BASE.
3. PROVIDE 2" CONDUIT BORED UNDER ROADWAY. ROUTE TO PULL BOXES.

CERTIFICATE OF AUTHORIZATION
CRAFTON, TULL & ASSOCIATES, INC.
No. 109
ARKANSAS ENGINEER
CERTIFICATE OF AUTHORIZATION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12010
JENNIFER COSTA KEITH
03/06/14

SHEET 2 OF 7

ELECTRICAL
SITE PLAN - WEST

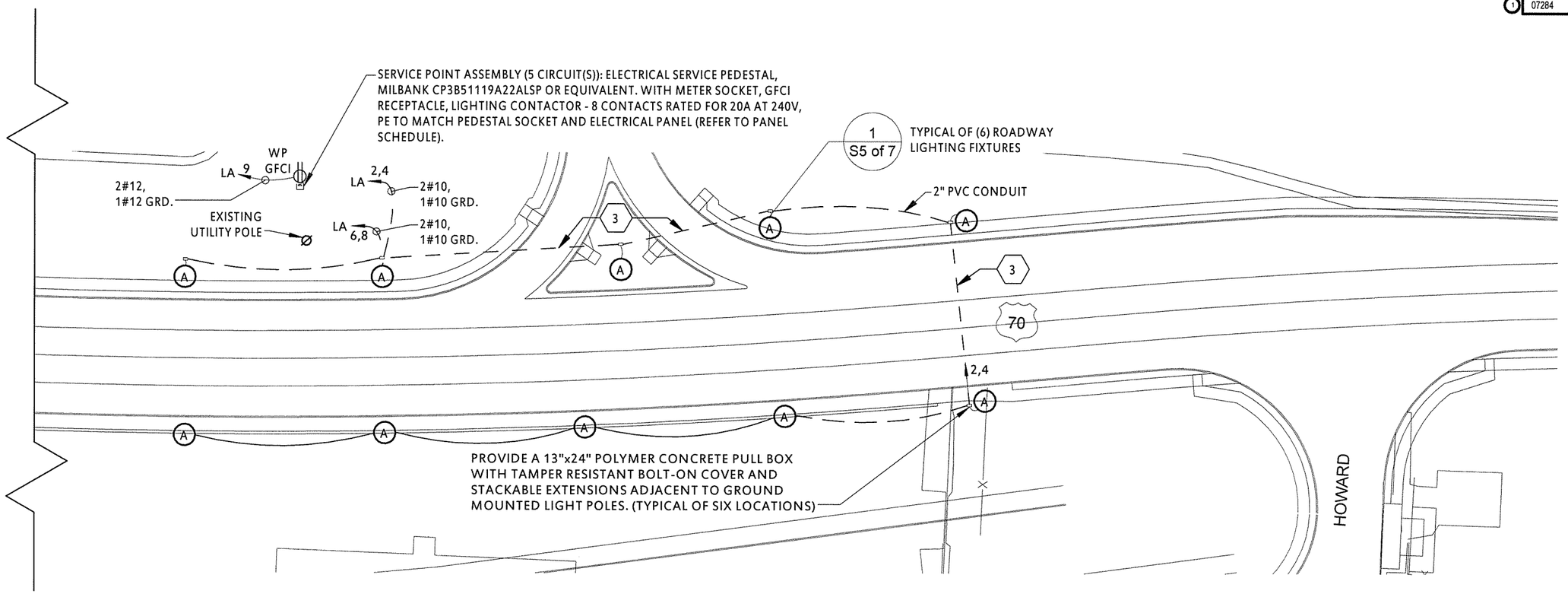
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: G. HOUCK DATE: 9-17-13 FILENAME:
CHECKED BY: DATE: SCALE: As Noted
DESIGNED BY: DATE:
BRIDGE NO. 07284 DRAWING NO.

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED ROAD DIST NO	STATE	FED. AID PROJ. NO.	SHEET NO	TOTAL SHEETS
6	ARK.			
JOB NO		061277	86	160
1 07284		BRIDGE LIGHTING		



1 ROOSEVELT RD BRIDGE - ELEC. SITE PLAN - EAST

1" = 50'-0"

N

GENERAL NOTES

1. COORDINATE CONDUIT ROUTING, BRIDGE INSTALLATION, AND MOUNTING DETAILS WITH BRIDGE DRAWINGS.
2. PROVIDE COPPER CABLE ANTI-THEFT DEVICES TO SECURE WIRE RUNS AGAINST THEFT. AT EACH PULL BOX LOCATION PROVIDE McCAIN VANDAL RESISTANT PULL BOX INSERT.

KEYED NOTES

NOT ALL KEYED NOTES MAY APPEAR ON EVERY SHEET.

1. ROUTE LIGHTING CIRCUIT VIA LIGHTING CONTACTOR LC-1 THEN TO DESIGNATED BREAKER.
2. COORDINATE CONDUIT CONDUIT ROUTING WITH BRIDGE DRAWINGS. ROUTE CIRCUITRY UNDERGROUND FROM ELECTRICAL PANEL TO J-BOXES LOCATED AT BRIDGE BASE.
3. PROVIDE 2" CONDUIT BORED UNDER ROADWAY. ROUTE TO PULL BOXES.

CERTIFICATE OF AUTHORIZATION
CRAFTON, TULL & ASSOCIATES, INC.
No. 109
ARKANSAS ENGINEER
CERTIFICATE OF AUTHORIZATION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
#12010
JENNIFER CORA KEITH
ELECTRICAL ENGINEER

SHEET 3 OF 7

ELECTRICAL
SITE PLAN - EAST

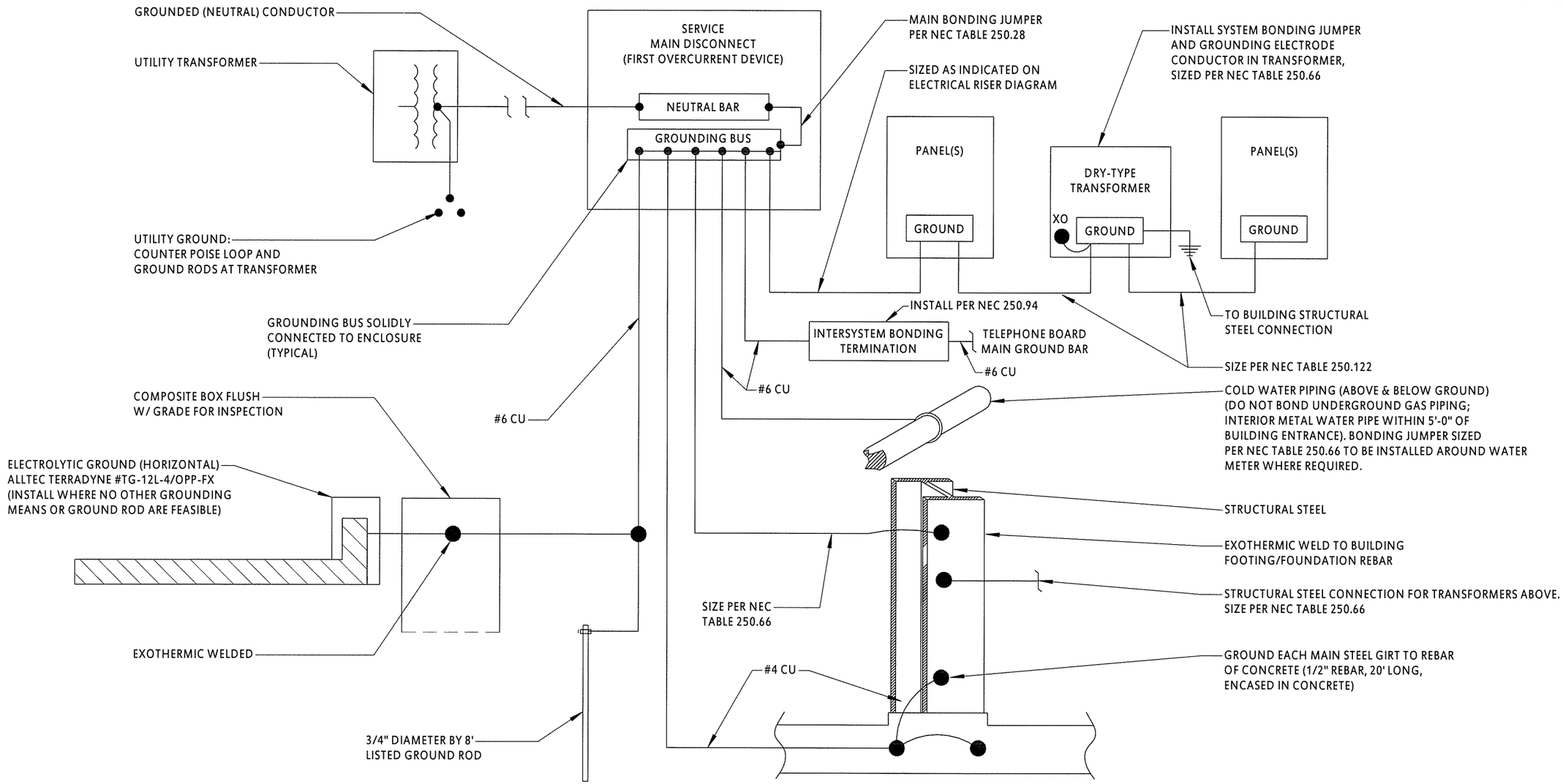
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: G. HOUCK DATE: 9-17-13 FILENAME:
CHECKED BY: DATE: SCALE: As Noted
DESIGNED BY: DATE:

BRIDGE NO. 07284 DRAWING NO.



NOTE: BOND ALL STRUCTURAL STEEL AND INTERIOR METALLIC PIPING, INCLUDING BUT NOT LIMITED TO GAS PIPING AND FIRE SPRINKLER PIPING, PER NEC 250.104.

1 TYPICAL GROUNDING DETAIL

N.T.S

CERTIFICATE OF AUTHORIZATION
CRAFTON, TULL & ASSOCIATES, INC.
No. 109
ARKANSAS ENGINEER
CERTIFICATE OF AUTHORIZATION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
12010
JENNIFER COPA KEITH
03/06/14
ELECTRICAL ENGINEER

SHEET 4 OF 7

ELECTRICAL DETAILS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: G. HOUCK DATE: 9-17-13 FILENAME:
CHECKED BY: DATE: SCALE: As Noted
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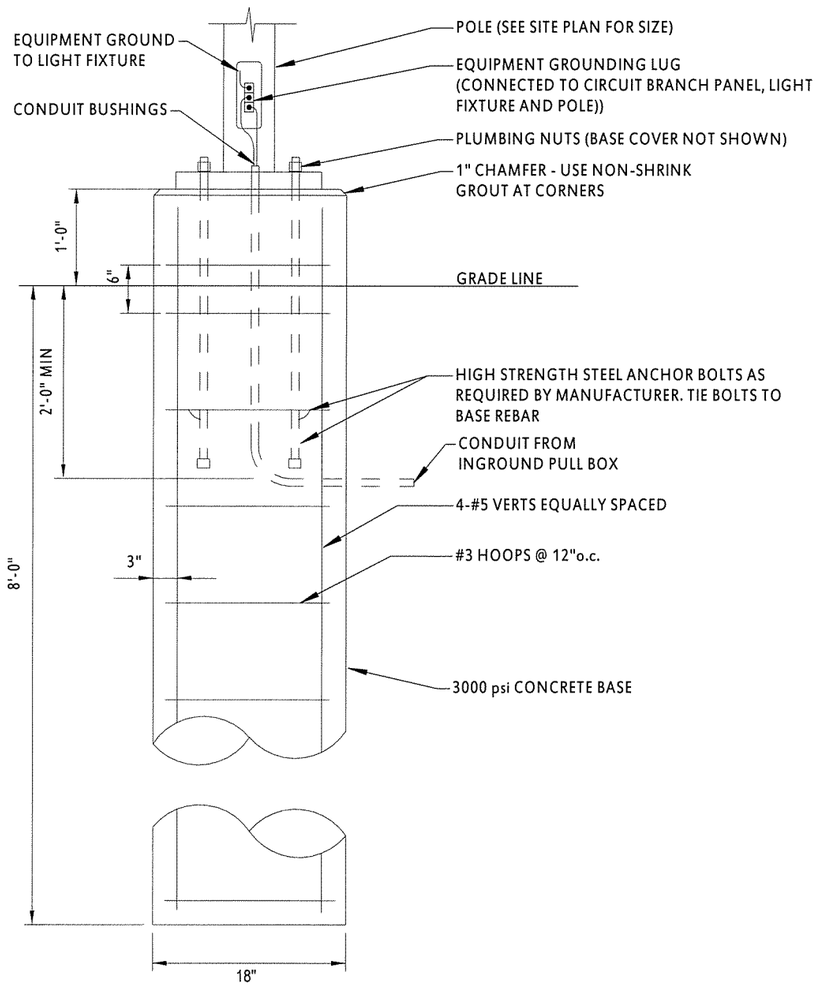
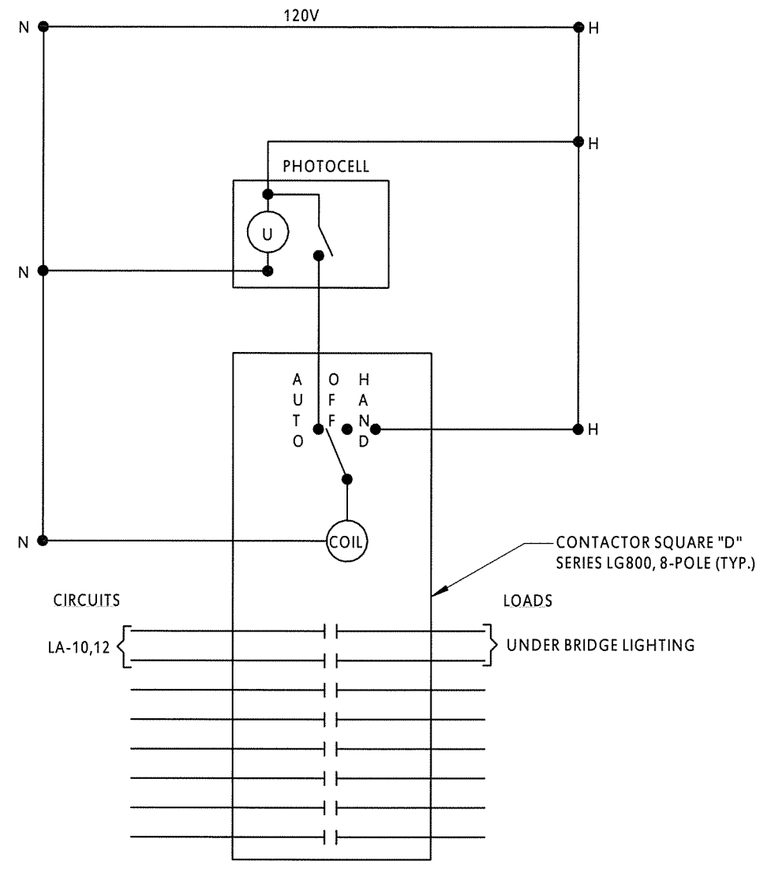


1 LIGHT POLE BASE

1/8" = 1'-0"



2 LIGHTING CONTROLS DIAGRAM

12" = 1'-0"

CERTIFICATE OF AUTHORIZATION
CRAFTON, TULL & ASSOCIATES, INC. No. 109
ARKANSAS ENGINEER
CERTIFICATE OF AUTHORIZATION

STATE OF ARKANSAS
JENNIFER CORA KEITH
REGISTERED PROFESSIONAL ENGINEER
#12010
03/06/14
ELECTRICAL ENGINEER

SHEET 5 OF 7

ELECTRICAL DETAILS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: G. HOUCK DATE: 9-17-13 FILENAME:
CHECKED BY: DATE: SCALE: As Noted
DESIGNED BY: DATE:

BRIDGE NO. 07284 DRAWING NO.

LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER AND MODEL NO	LAMP	VOLTS	MOUNTING	NOTES
A	TERSEN LIGHTING: #TLRC15 63LED 700mA 40K GCF R3 MVOLT DBL PE	LED	240 V	POLE TOP MOUNTING WITH PE, 20' POLE - TERSEN# TPRSAEC205JPTDBL	
B	LITHONIA: DSXPGT LED 40C 700 40K T5M MVOLT DNAXD	LED	240 V	PENDANT MOUNTED TO BRIDGE STRUCTURE	

LA — ELECTRICAL PANEL

AMP RATING:	100 A	VOLTS/PHASE:	120/240/1	SECTION(S):	1	A.I.C. Rating:	22K
MAINS:	MCB	WIRE W/GRD. BAR:	3	TYPE:		MOUNTING:	Integral to Pedestal
MCB RATING:	100 A	CIRCUIT:	24	BUS:		NEMA:	Type 3R

CCT #	Circuit Description	Trip	Poles	Wire	A (kVA)		B (kVA)		Wire	Poles	Trip	Circuit Description	CCT #
1	LIGHTS - NORTH BRIDGE	20 A	2	10	0.43	0.24			10	2	20 A	LIGHTS - SOUTH HIGHWAY	2
3	--	--	--	--			0.43	0.24	--	--	--	--	4
5	LIGHTS - SOUTH BRIDGE	20 A	2	10	0.43	0.24			10	2	20 A	LIGHTS - NORTH HIGHWAY	6
7	--	--	--	--			0.43	0.24	--	--	--	--	8
9	PEDESTAL CONVENIENCE RECEP	20 A	1	12	0.18	0.09			10	2	20 A	LIGHTS - UNDER BRIDGE	10
11	Spare	20 A	1	--			0.00	0.09	--	--	--	--	12
13	Space	--	--	--	0.00	0.00			--	1	20 A	Spare	14
15	Space	--	--	--			0.00	0.00	--	1	20 A	Spare	16
17	Space	--	--	--	0.00	0.00			--	--	--	Space	18
19	Space	--	--	--			0.00	0.00	--	--	--	Space	20
21	Space	--	--	--	0.00	0.00			--	--	--	Space	22
23	Space	--	--	--			0.00	0.00	--	--	--	Space	24
				Total Load:	1.60 kVA		1.42 kVA						
				Total Amps:	13 A		12 A						

Notes:

Panel Totals	
Total Conn. Load:	3 kVA
Total Conn. Amps:	13 A
Total Design Load (kVA):	3 kVA
Total Design Load (Amps):	13 A

CERTIFICATE OF AUTHORIZATION — CRAFTON, TULL & ASSOCIATES, INC. No. 109 — ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — #12010 — JENNIFER COPA HOUCK — 03/06/14

ELECTRICAL ENGINEER

SHEET 6 OF 7

ELECTRICAL SCHEDULES

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: G. HOUCK DATE: 9-17-13 FILENAME:

CHECKED BY: DATE: SCALE: As Noted

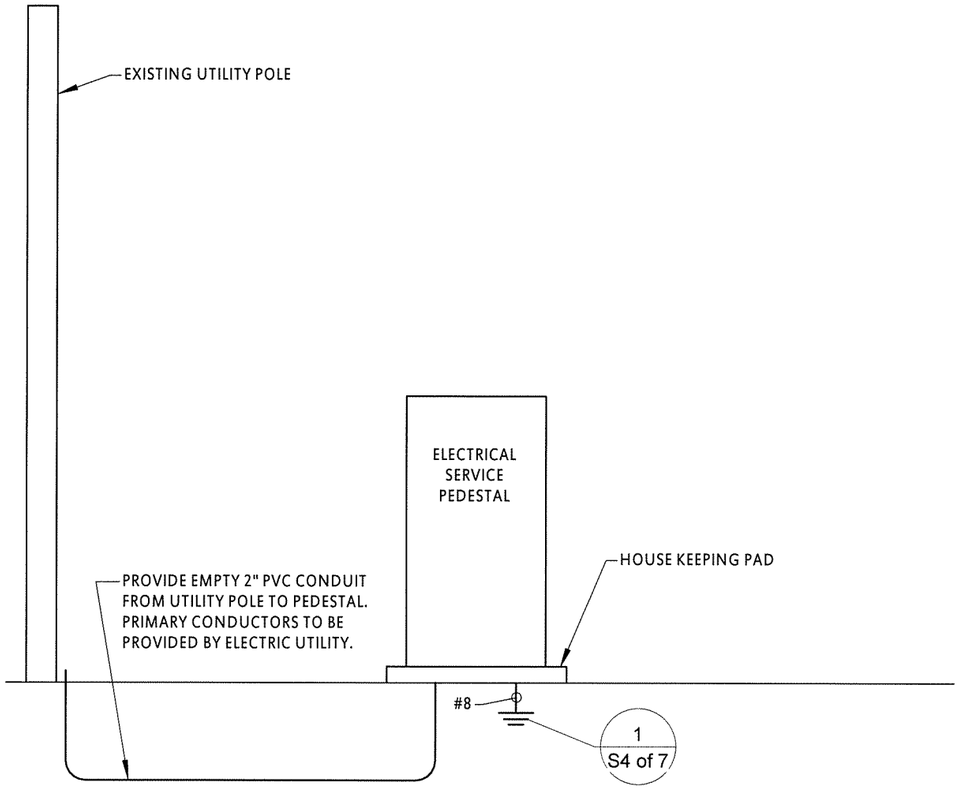
DESIGNED BY: DATE:

BRIDGE NO. 07284 DRAWING NO.

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED ROAD DIST NO	STATE	FED. AID PROJ. NO.	SHEET NO	TOTAL SHEETS
6	ARK.			
JOB NO		061277	90	160
07284		BRIDGE LIGHTING		



NOTE: RISER IS DIAGRAMMATIC, DEPICTING ELECTRICAL RELATIONSHIPS AND IS NOT INTENDED TO COMPLETELY SHOW ALL REQUIRED DEVICES AND ACCESSORIES.

NOTE: REFER TO GROUNDING DETAIL ON SHEET 4 of 7 FOR GROUNDING OF TRANSFORMERS AND PANELS.

NOTE: CONTRACTOR SHALL VERIFY WITH UTILITY COMPANY PRIOR TO BID AND INCLUDE ALL DIFFERENTIAL COSTS, CHANGES, FEES, CONNECTORS, ETC. WHICH MAY BE REQUIRED FOR INITIAL, PERMANENT, UNDERGROUND ELECTRICAL SERVICE.

THE SERVICE EQUIPMENT SHORT CIRCUIT CURRENT WITHSTAND RATING SHALL BE FIELD COORDINATED WITH THE UTILITY COMPANY FOR THE MAXIMUM AVAILABLE FAULT CURRENT. PROVIDE LABELING IN ACCORDANCE WITH NEC 110.24 AT ALL SERVICE EQUIPMENT. LABEL SHALL INCLUDE CALCULATED AVAILABLE FAULT CURRENT AT PANELBOARD AND DATE ON WHICH CALCULATION WAS MADE.

1 ELECTRICAL RISER DIAGRAM

NTS

CERTIFICATE OF AUTHORIZATION
CRAFTON, TULL & ASSOCIATES, INC.
No. 109
ARKANSAS ENGINEER
CERTIFICATE OF AUTHORIZATION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
#12010
JENNIFER CORA KEITH
9/30/14
ELECTRICAL ENGINEER

SHEET 7 OF 7

ELECTRICAL
RISER DIAGRAM

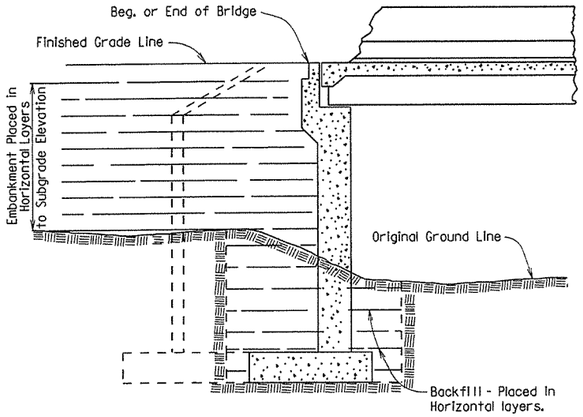
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

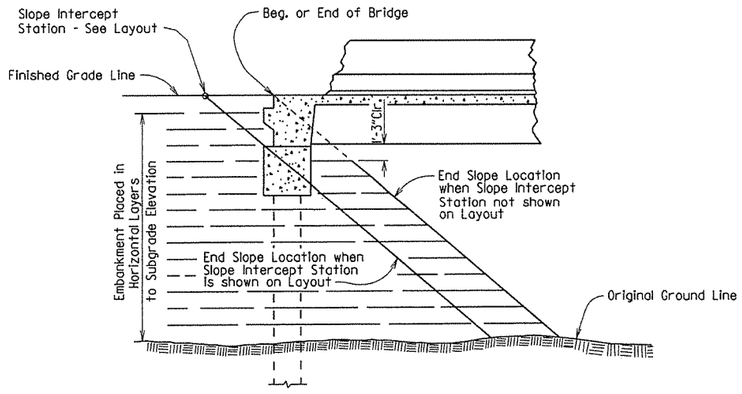
DRAWN BY: G. HOUCK DATE: 9-17-13
CHECKED BY: DATE:
DESIGNED BY: DATE:
FILENAME:
SCALE: As Noted

BRIDGE NO. 07284 DRAWING NO.

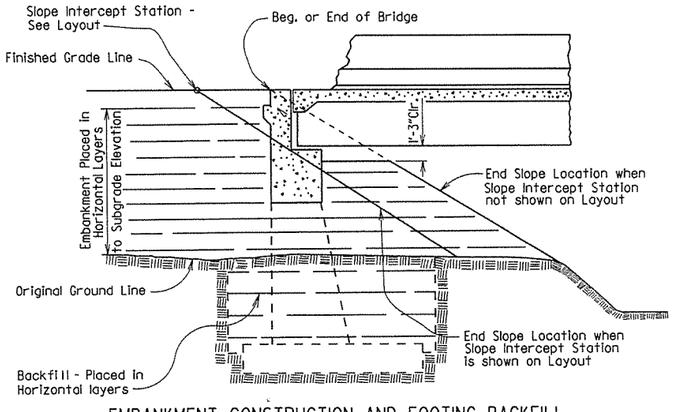
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		91	
				JOB NO.				
				(1) EMBANKMENT & BACKFILL			55000	



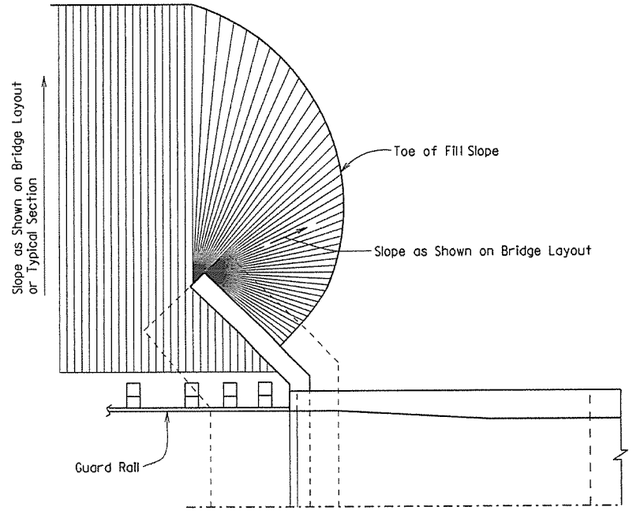
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



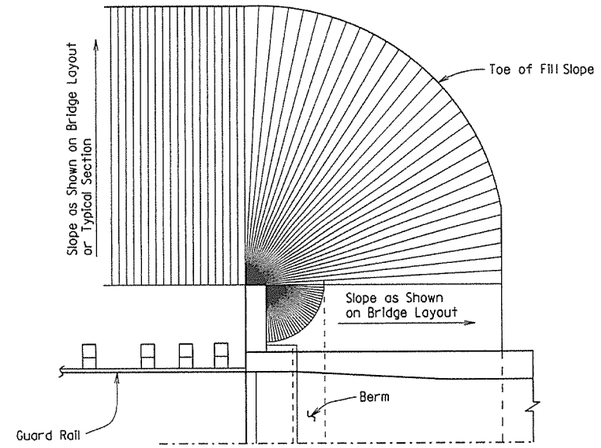
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



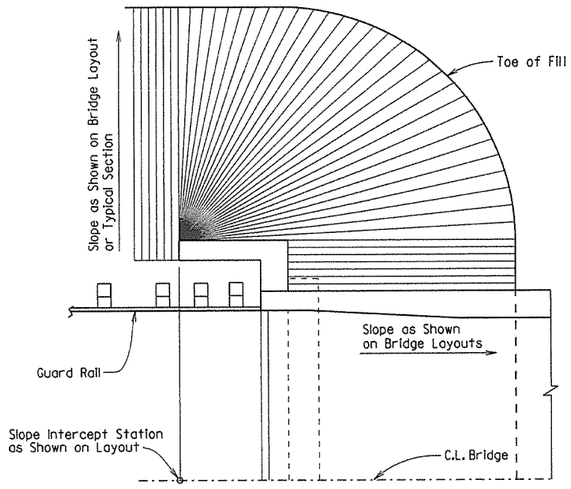
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



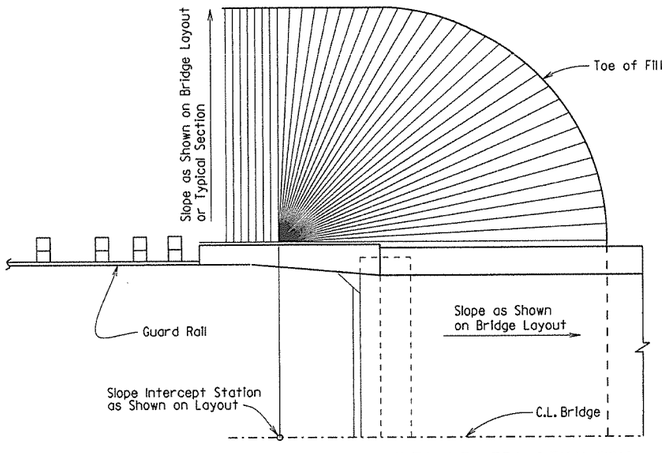
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 6 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to Subsections 210.09, 210.10 and 801.08 for construction requirements.

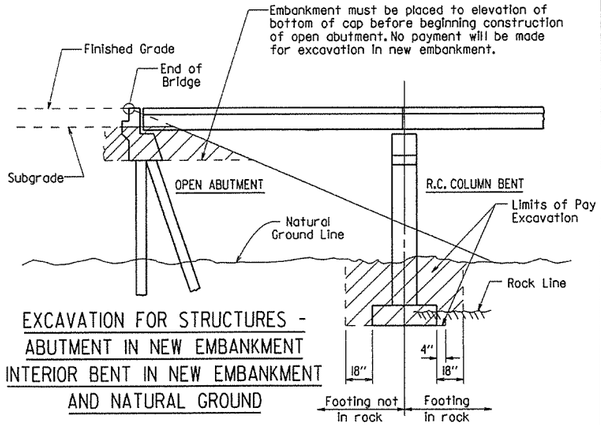
STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

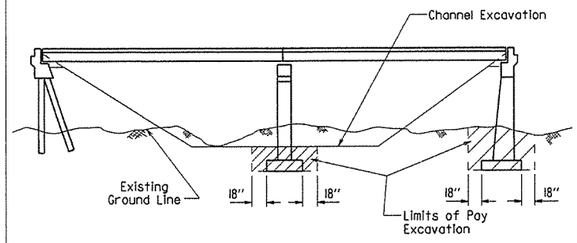
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

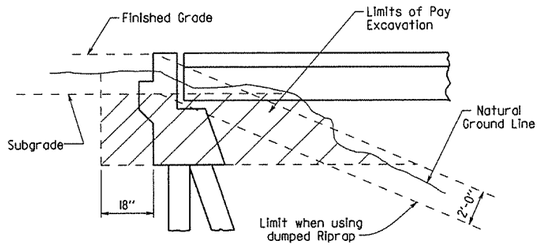
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		92	
				JOB NO.				
				①	RIPRAP & EXCAV. 55001			



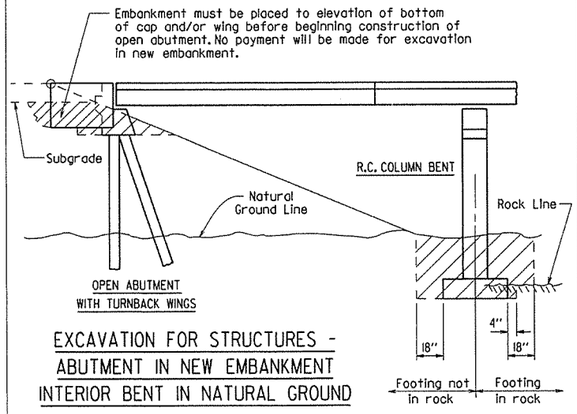
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



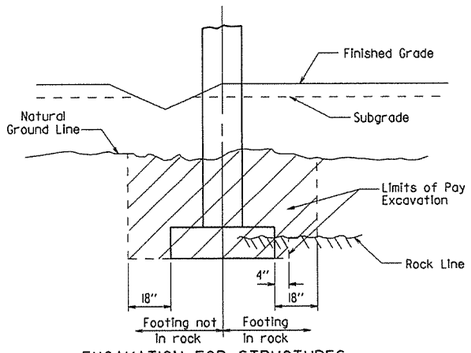
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



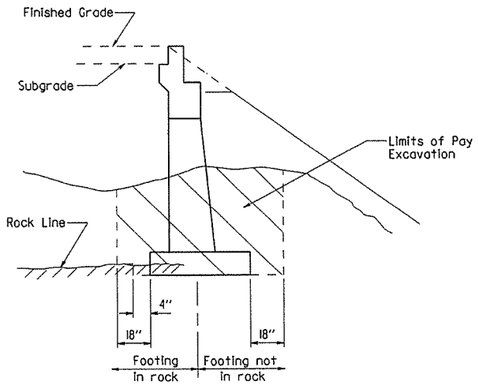
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



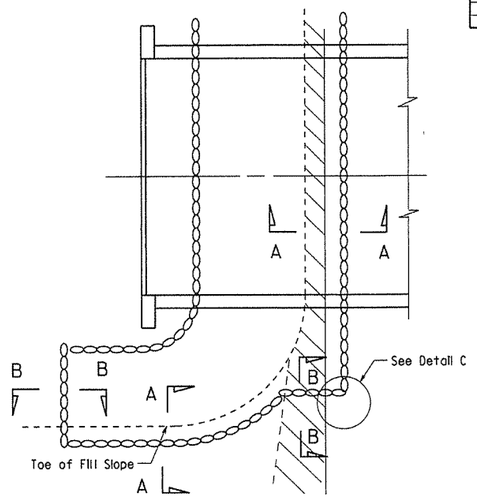
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



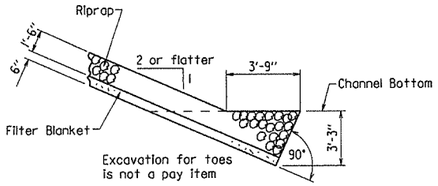
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

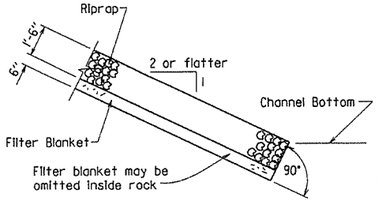


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



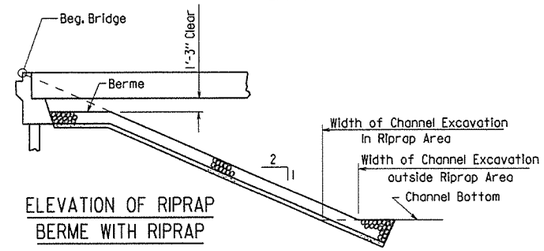
SECTION A-A

(Toe Excavation in Rock)

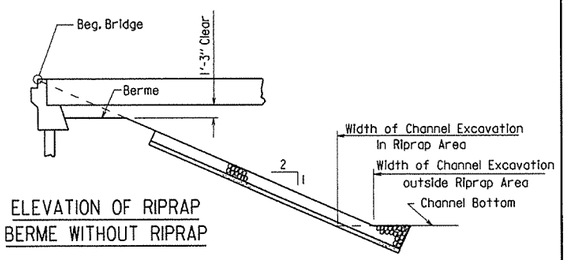
Note : Use this type of toe when rock is encountered which is in a stable condition.

Note : In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

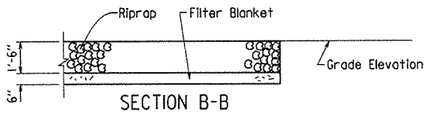
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



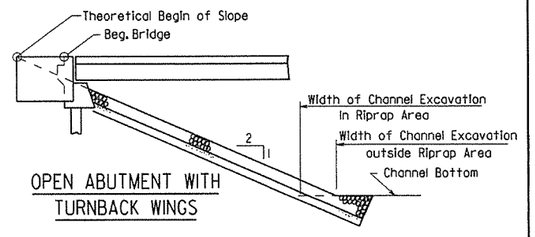
ELEVATION OF RIPRAP BERME WITH RIPRAP



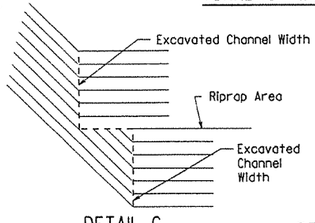
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

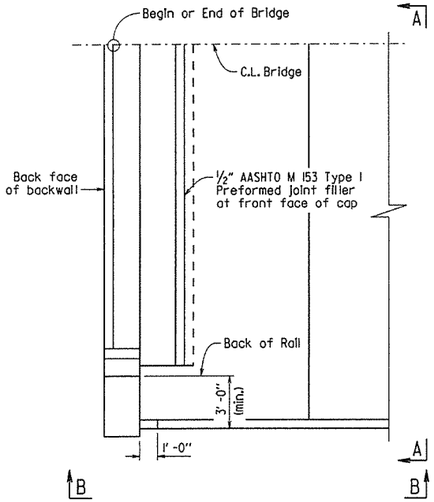
DESIGNED BY: STD. DATE:

DRAWING NO. 55001

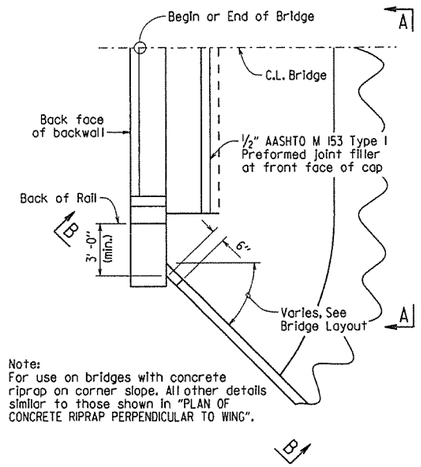
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		93	
				JOB NO.				

① CONCRETE RIPRAP 55002

Note:
Sloped surfaces of concrete riprap to be marked off into blocks (construction joints optional) with an approved grooving tool, spacing the grooved lines about 5' apart.



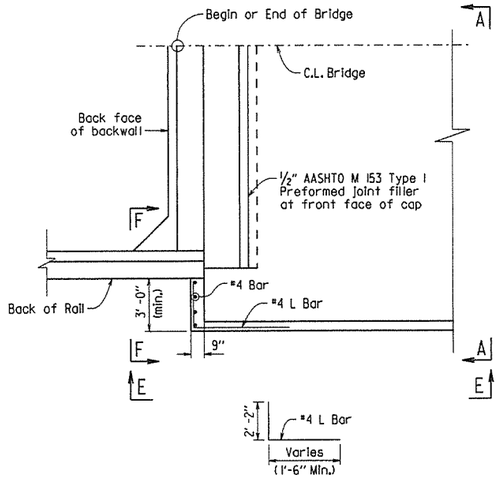
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO WING
¼" = 1'-0"



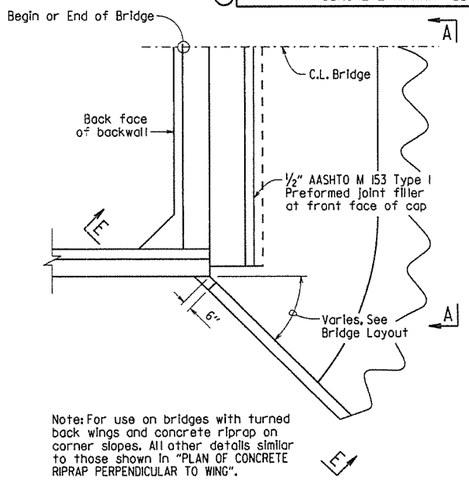
Note:
For use on bridges with concrete riprap on corner slope. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

PLAN OF CONCRETE RIPRAP
AT ANGLE TO WING
¼" = 1'-0"

Note:
For use on bridges with turned back wings. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".



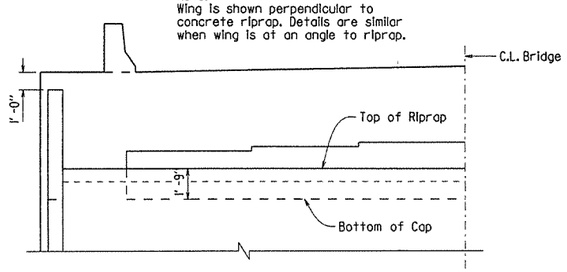
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO TURNED BACK WING
¼" = 1'-0"



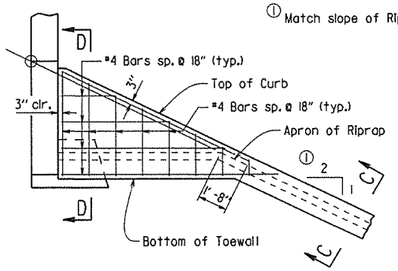
Note: For use on bridges with turned back wings and concrete riprap on corner slopes. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

PLAN OF CONCRETE RIPRAP
AT ANGLE FROM TURNED BACK WING
¼" = 1'-0"

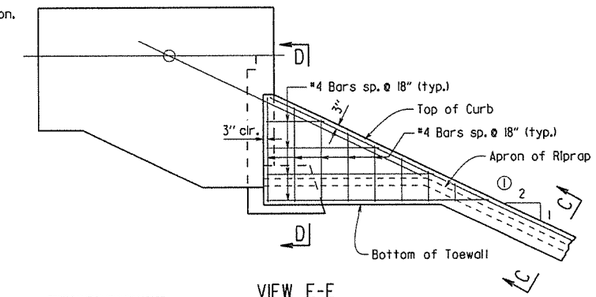
Note:
Wing is shown perpendicular to concrete riprap. Details are similar when wing is at an angle to riprap.



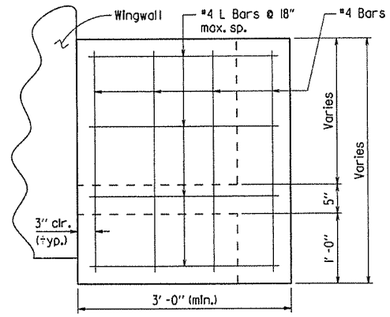
VIEW A-A
¼" = 1'-0"



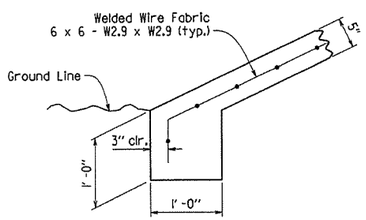
VIEW B-B
¼" = 1'-0"



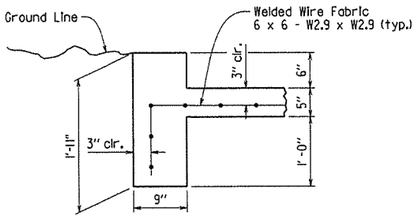
VIEW E-E
¼" = 1'-0"



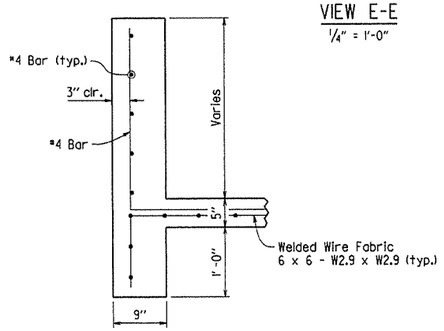
VIEW F-F
1" = 1'-0"



TOE OF CONCRETE RIPRAP
1" = 1'-0"



SECTION C-C
1" = 1'-0"



SECTION D-D
1" = 1'-0"

GENERAL NOTES

All concrete shall be Class A with a minimum compressive strength, f'c = 2,100 psi.

Welded wire fabric shall conform to AASHTO M55 or M221.

STANDARD DETAILS FOR CONCRETE RIPRAP

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 2/27/2014 FILENAME: b55002.dgn
CHECKED BY: BEF DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: Std. DATE: ---

DRAWING NO. 55002

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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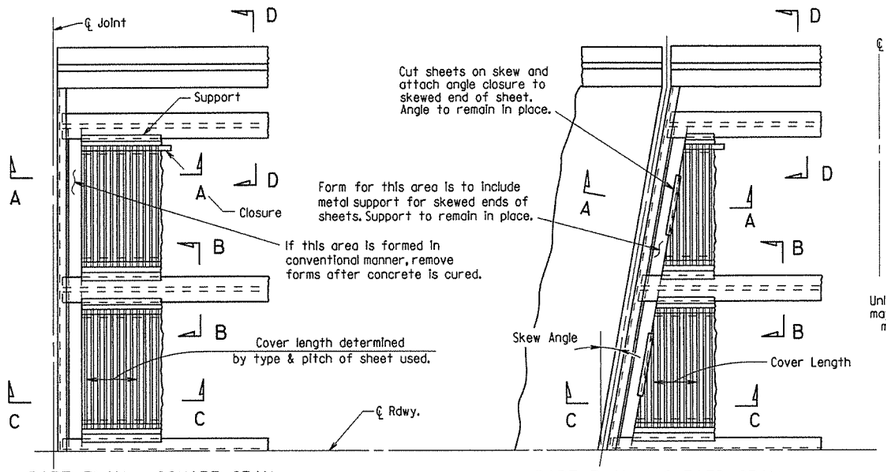
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

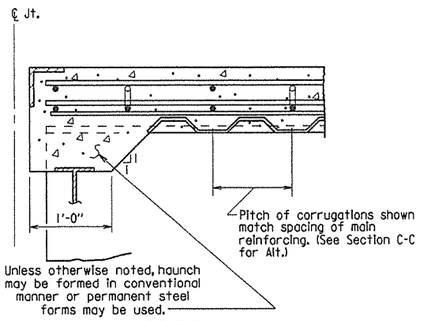


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

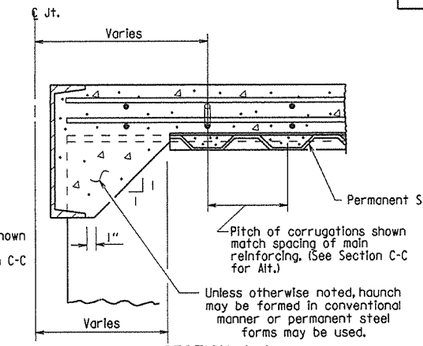
PART PLAN - SKEWED SPAN

3/8" = 1'-0"



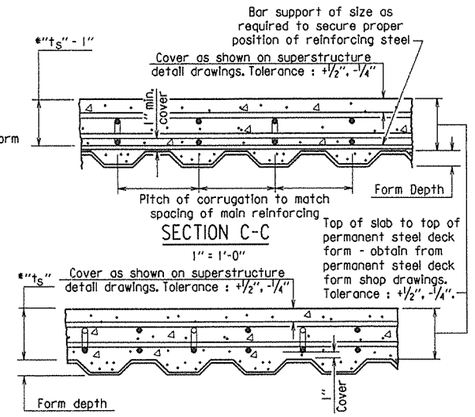
SECTION A-A

N.T.S.
(Angle at end of span)



SECTION A-A

N.T.S.
(Channel at end of span)

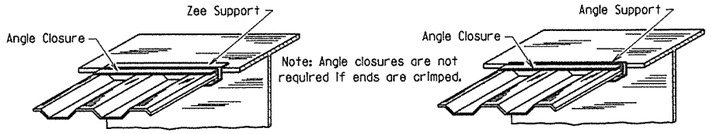


SECTION C-C

1" = 1'-0"

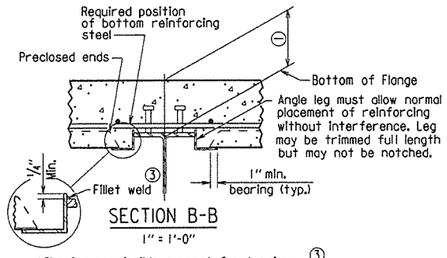
SECTION C-C - ALTERNATE

1" = 1'-0"
(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

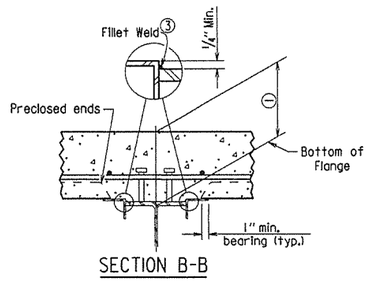
N.T.S.



SECTION B-B

1" = 1'-0"

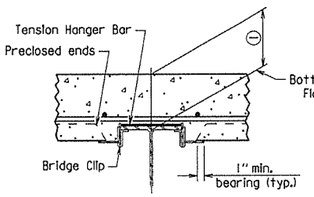
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)



SECTION B-B

1" = 1'-0"

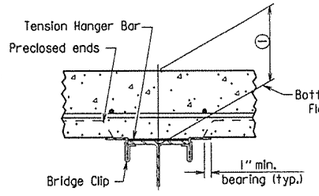
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are not used)

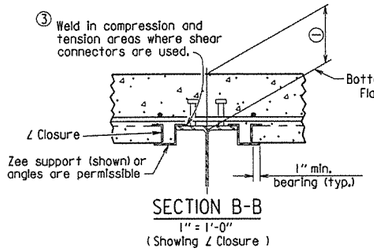


SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are not used)

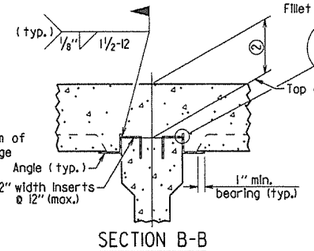
③ Minimum weld: 1/8" x 1' ℄ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

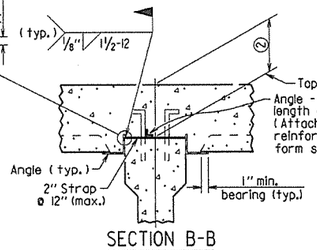


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

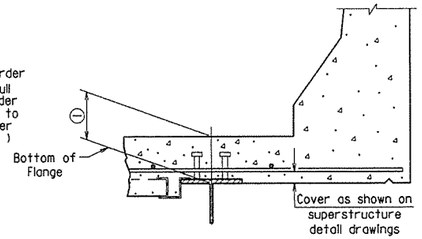


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_s + 1 3/4" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

*t_s = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

Permanent steel deck forms may be used at the Contractor's option and shall be at no additional cost to the Department. Such use may result in changes to the dead load deflection of the girder. Any cost for adjustments due to a change in the dead load deflection will be borne by the Contractor. Payment for deck concrete and structural steel will not be increased due to use of permanent steel deck forms.

Permanent steel deck forms shall conform to Subsection 802.14(b). Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or ∠ supports to the flange must be approved by the Engineer.

Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions.

STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55005.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NONE

DESIGNED BY: STD. DATE: —

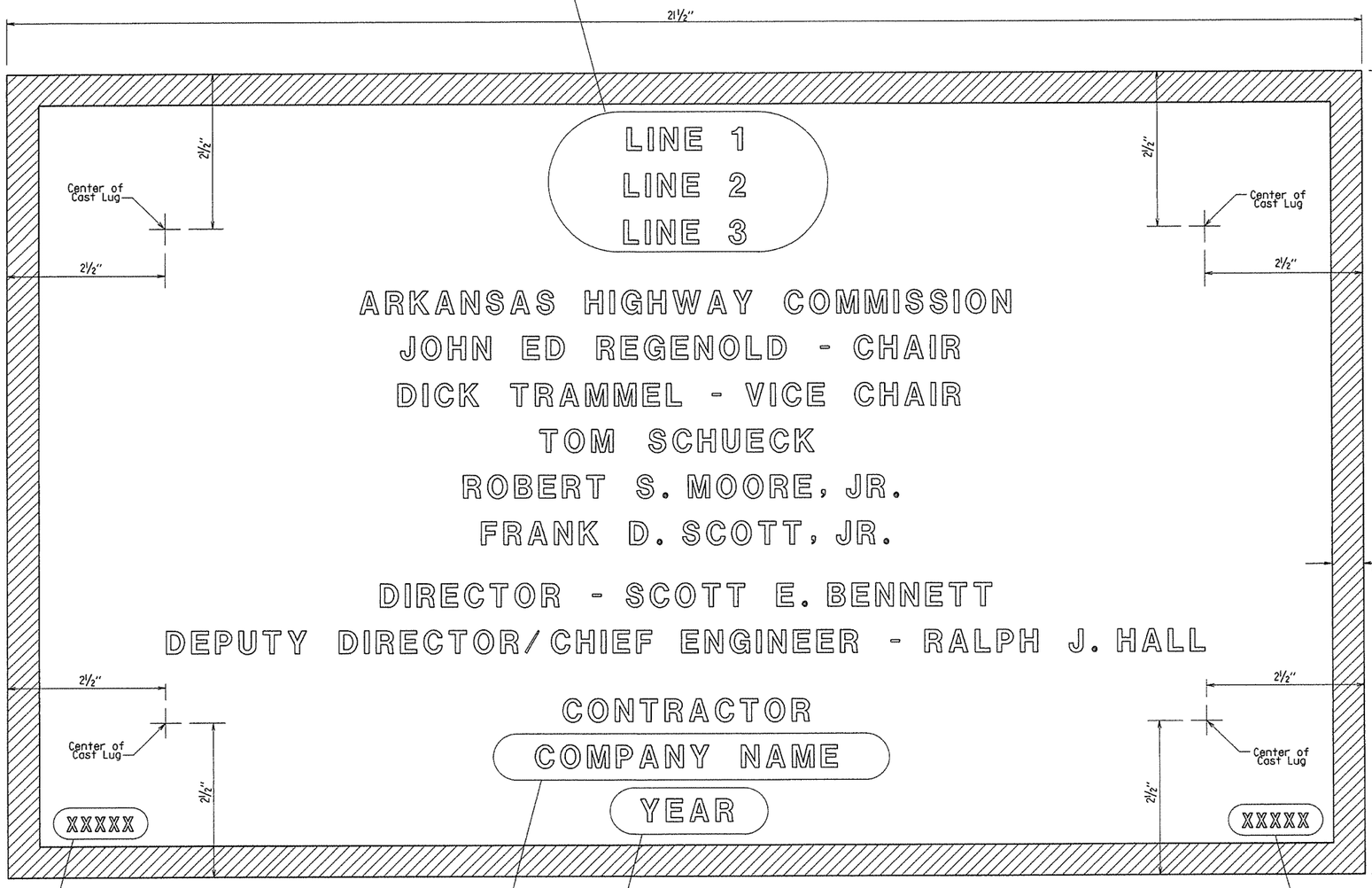
DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		95	
				JOB NO.				

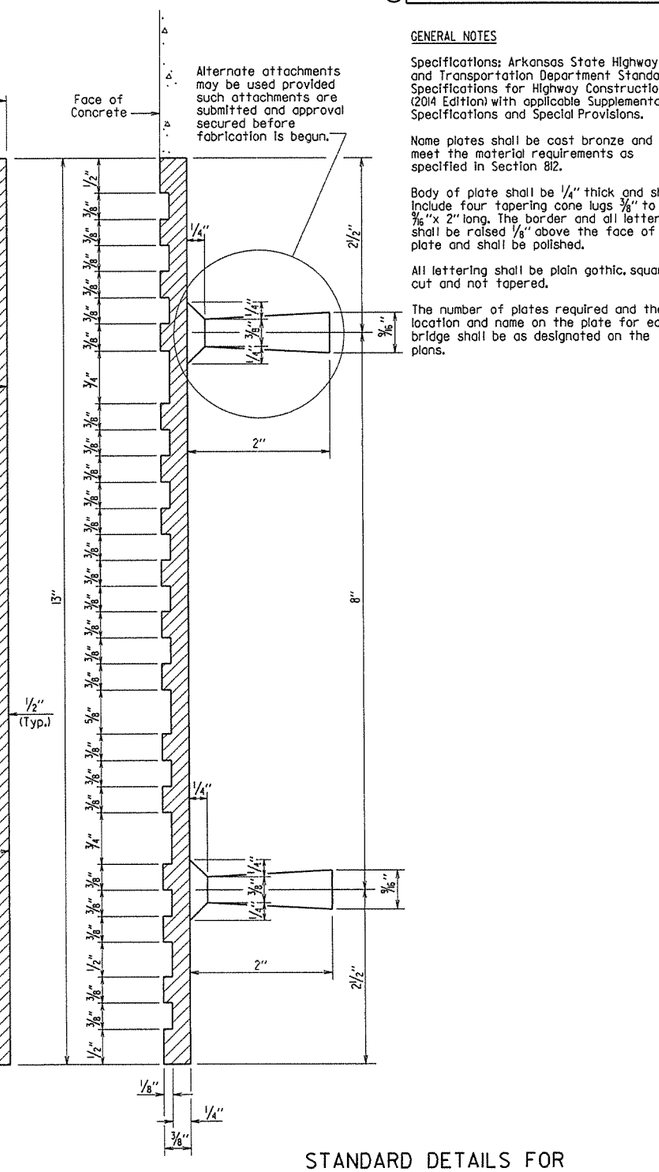
(1) TYPE D NAME PLATE 55010

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	
Line 2	Relief	Railroad	River	Highway 5
Line 3		Overpass	Relief	



TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 9/16" x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55010

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		96	
				JOB NO.				
				①		STEEL H-PILES		55020

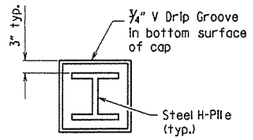
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

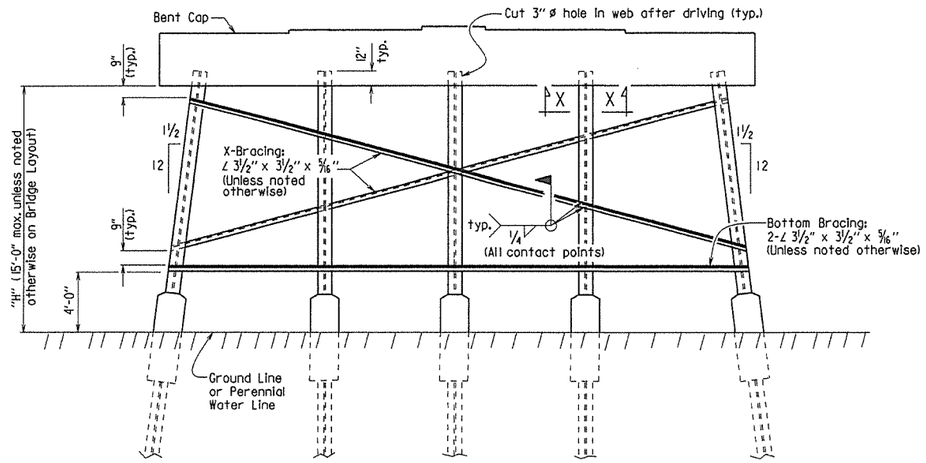
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.

Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



VIEW X-X



Notes:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.

Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.

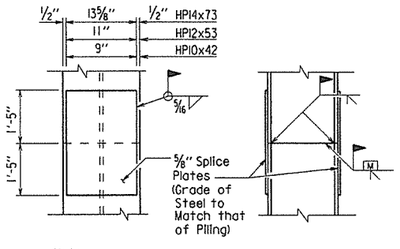
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.

Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)

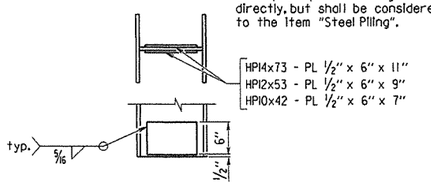


Note:
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

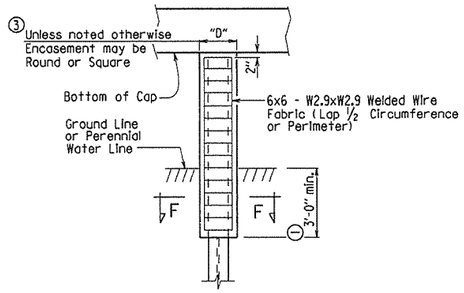
See Bridge Layout for additional notes and required location of pile encasements.

All concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

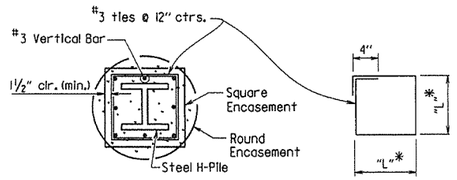
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

Concrete, welded wire fabric or reinforcing steel and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

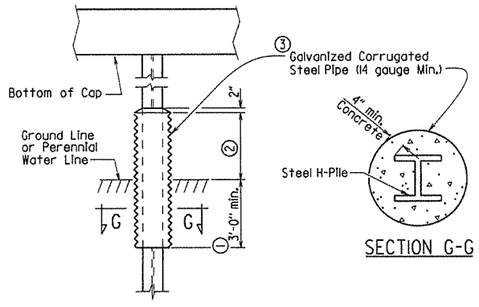


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D" Square Encsmt.	"D" Round Encsmt.	"L"*
HP10x42	1'-7"	2'-0"	1'-4"
HP12x53	1'-8"	2'-2"	1'-5"
HP14x73	1'-11"	2'-6"	1'-8"



SECTION G-G

⑤ ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1½" and a minimum clearance of 1¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

⑤ Alternate pile encasement may not be allowed. See Bridge Layout.

This document was originally issued and sealed by Carl J. Fuselier, PE No. 7510, on February 27, 2014. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

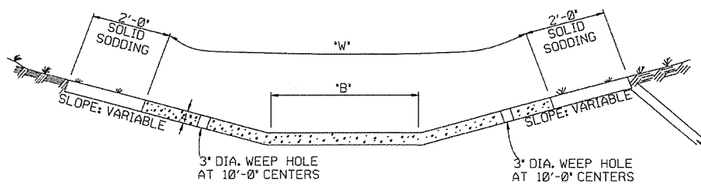
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55020

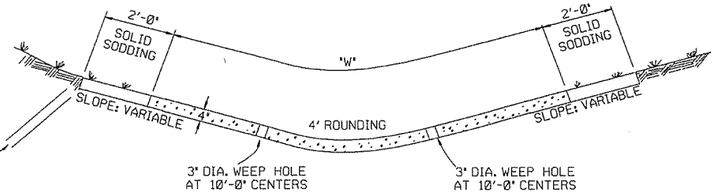
REFER TO TABULATION OF QUANTITIES
FOR 'W' & 'B' DIMENSIONS



TYPE A

EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.

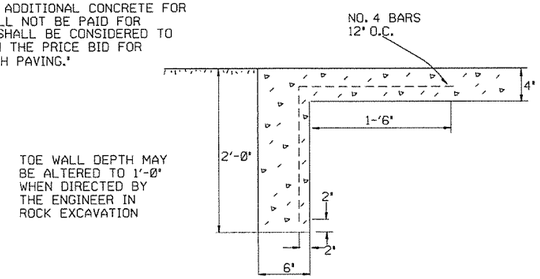
REFER TO TABULATION OF QUANTITIES
FOR 'W' DIMENSIONS



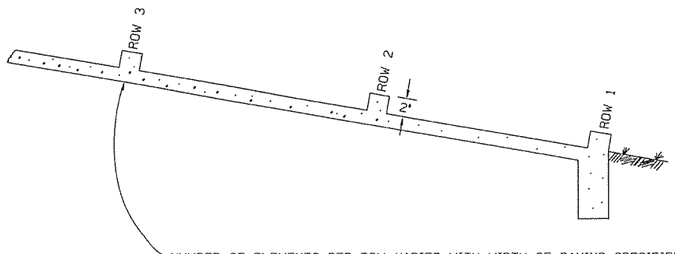
TYPE B

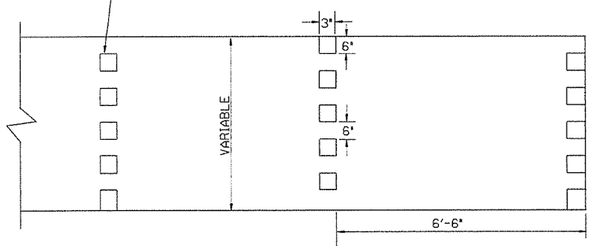
THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR 'CONCRETE DITCH PAVING.'

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.

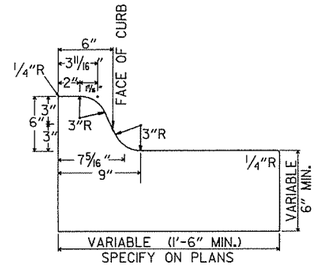
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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

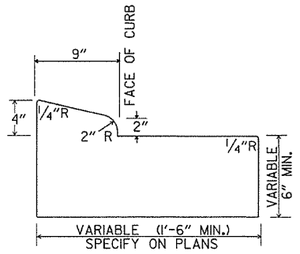
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

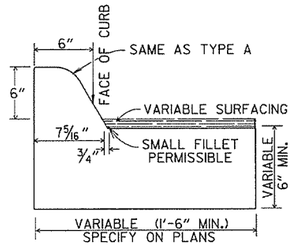
STANDARD DRAWING CDP-1



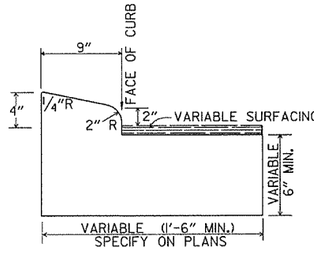
TYPE A



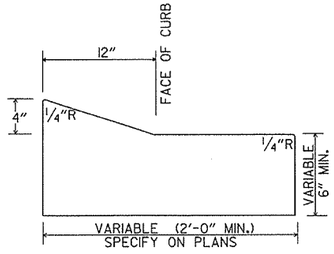
TYPE B-1



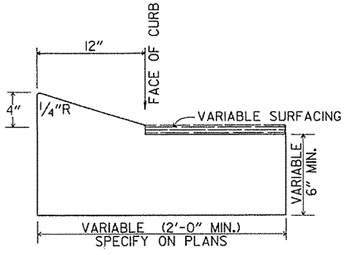
TYPE C



TYPE B-2

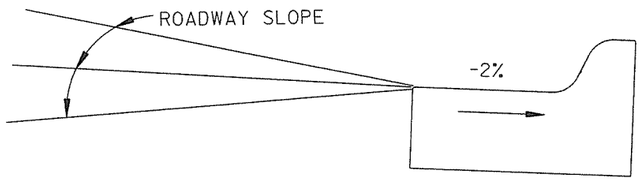


TYPE E-1



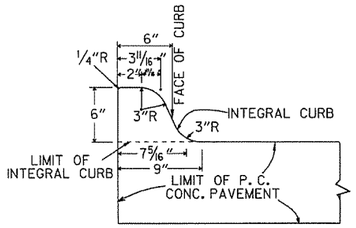
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

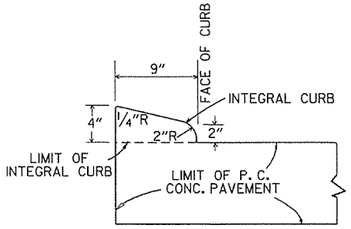


DETAIL OF GUTTER SLOPE

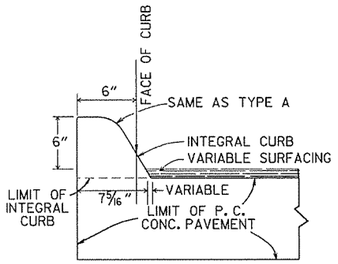
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

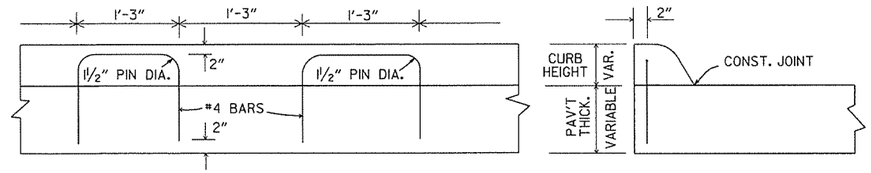


TYPE B



TYPE C

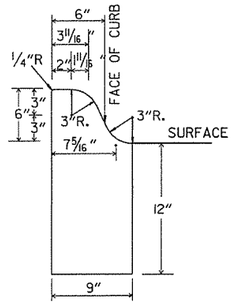
INTEGRAL CURB



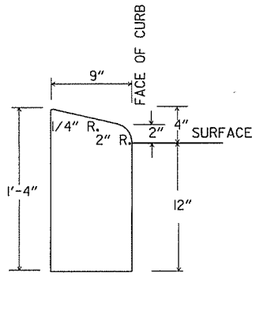
LONGITUDINAL SECTION

ELEVATION

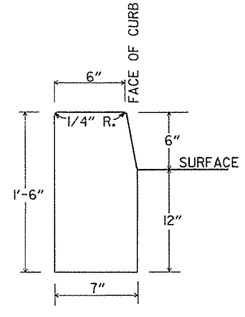
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



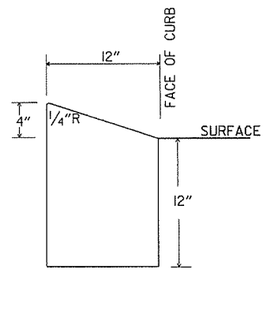
TYPE A



TYPE B

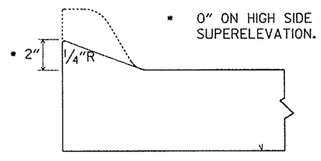


TYPE D



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.

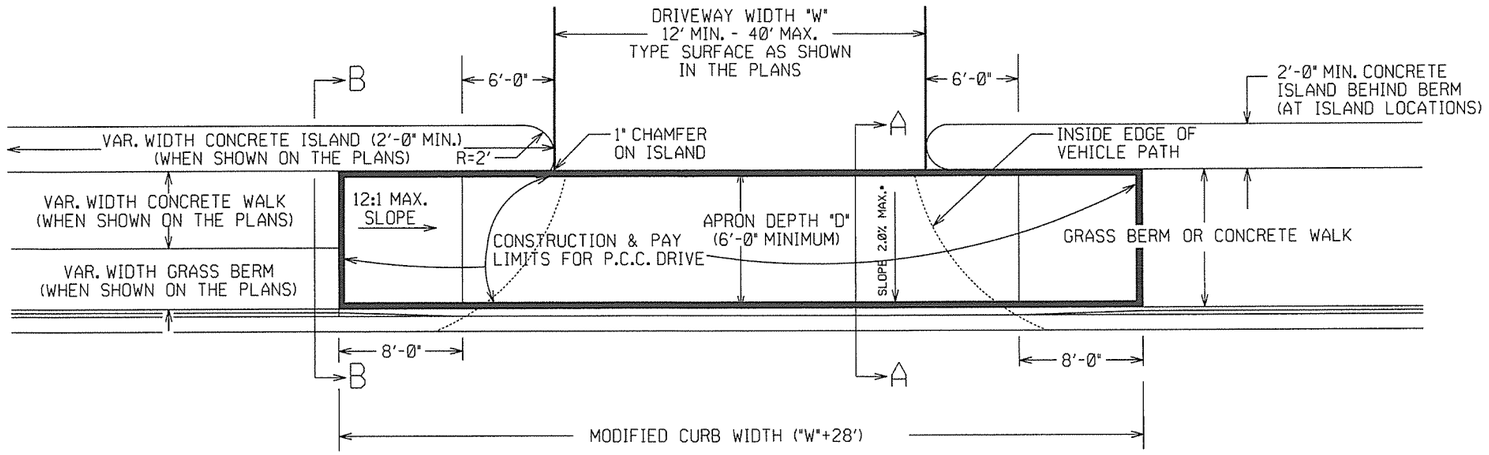
DETAILS OF MODIFIED CURB

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

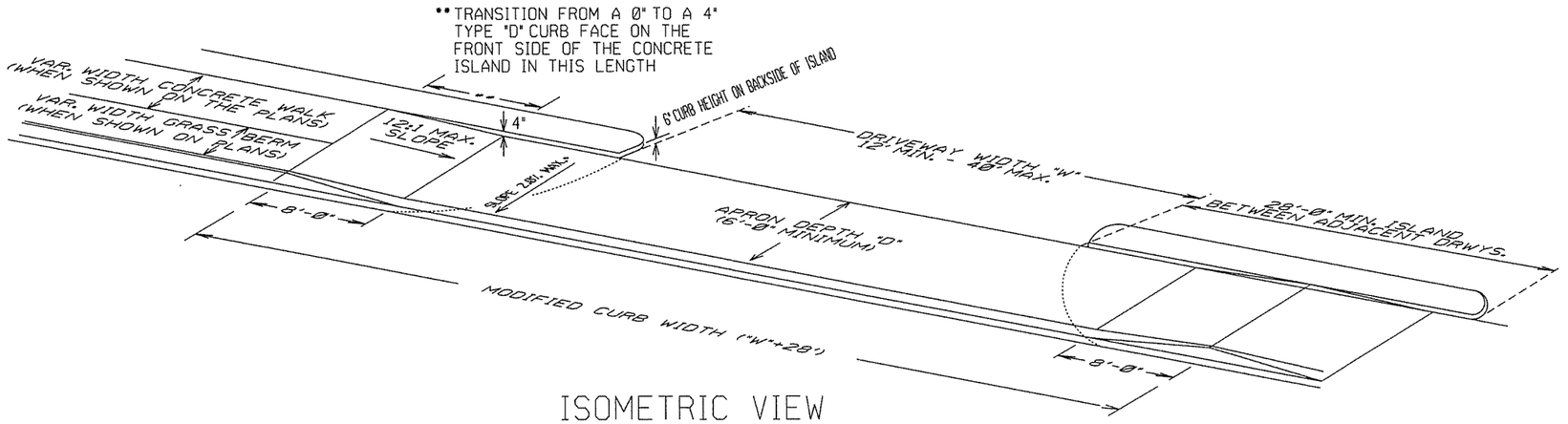
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

STANDARD DRAWING CG-1

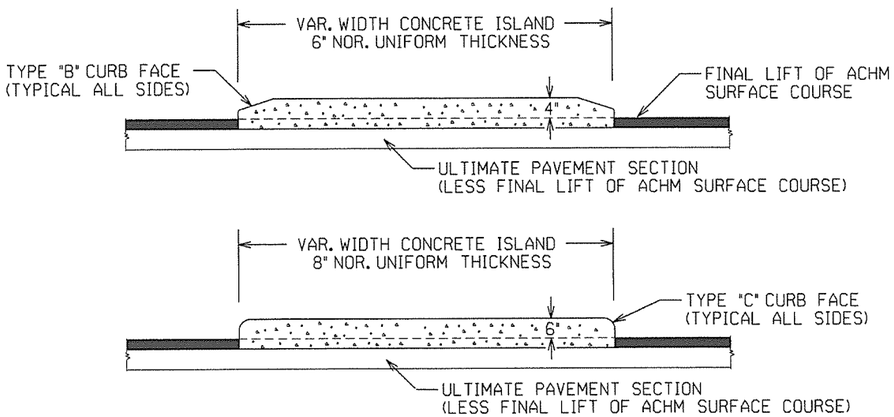


PLAN VIEW

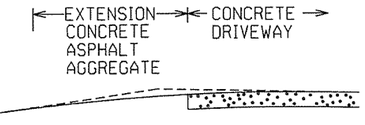


ISOMETRIC VIEW

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".



CURBED ISLANDS FOR CHANNELIZATION



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

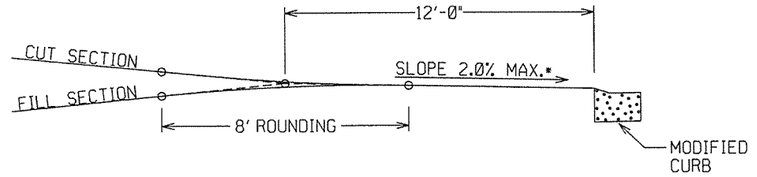
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

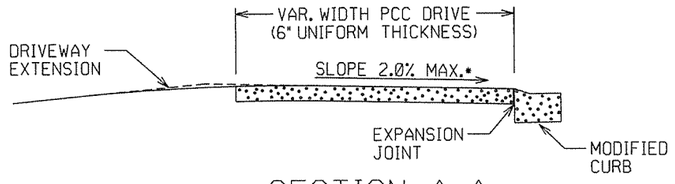
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

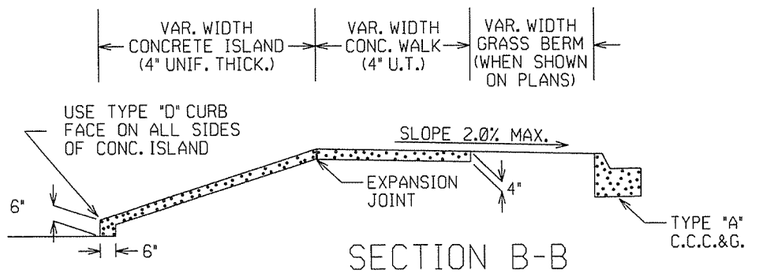


DRIVEWAY VERTICAL ALIGNMENT DETAILS

* NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



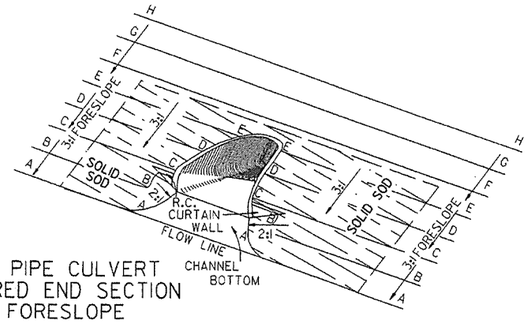
SECTION A-A



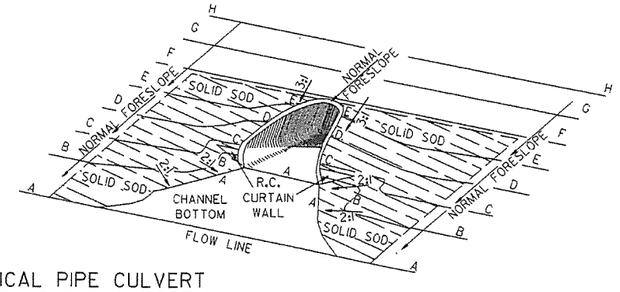
SECTION B-B
CURBED ISLAND BEHIND WALK

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

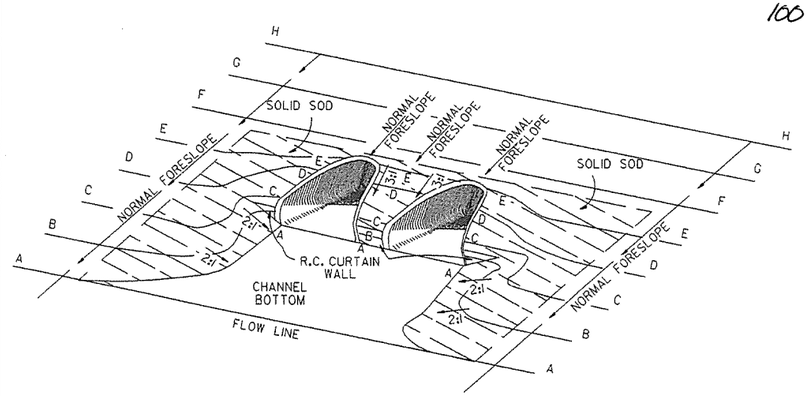
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



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

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

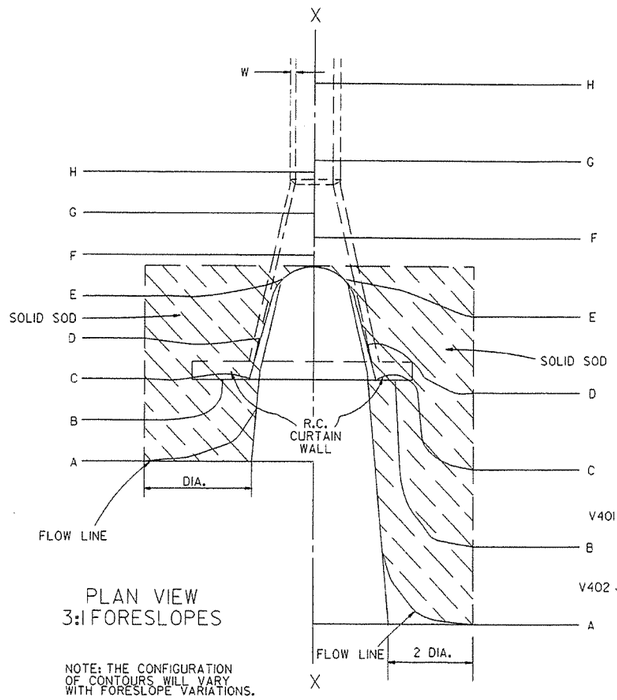
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	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'-9½"	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.

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'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	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'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	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'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	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

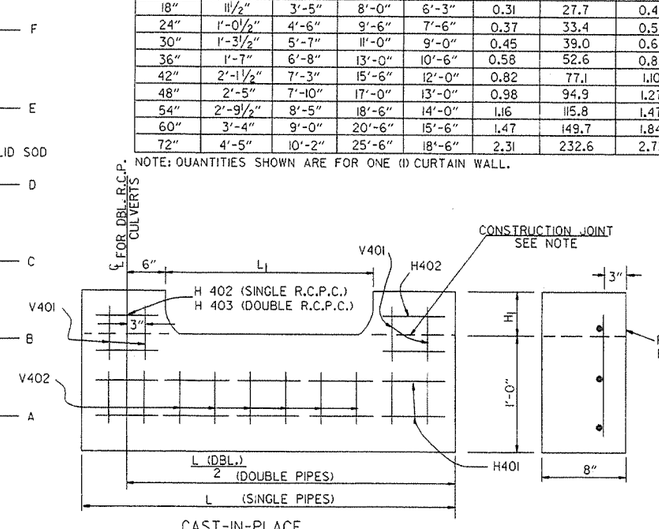
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

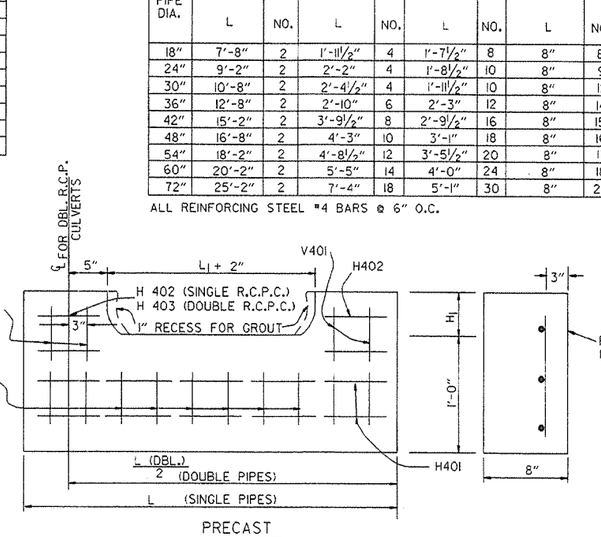
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



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.

SOLID SODDING

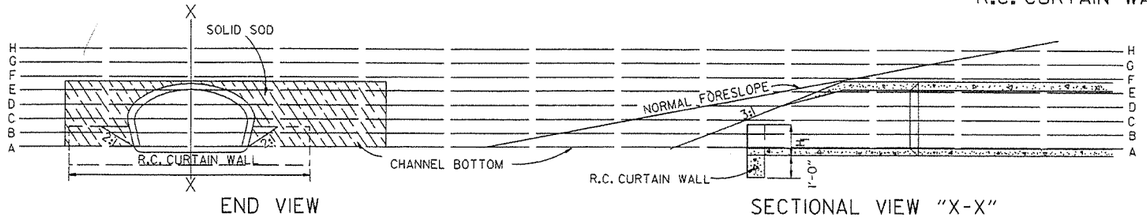
PIPE DIA.	SINGLE R.C.P.C. 3:1	4:1	6:1	DOUBLE R.C.P.C. 3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

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 ¾".
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 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.

R.C. CURTAIN WALL DETAILS



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

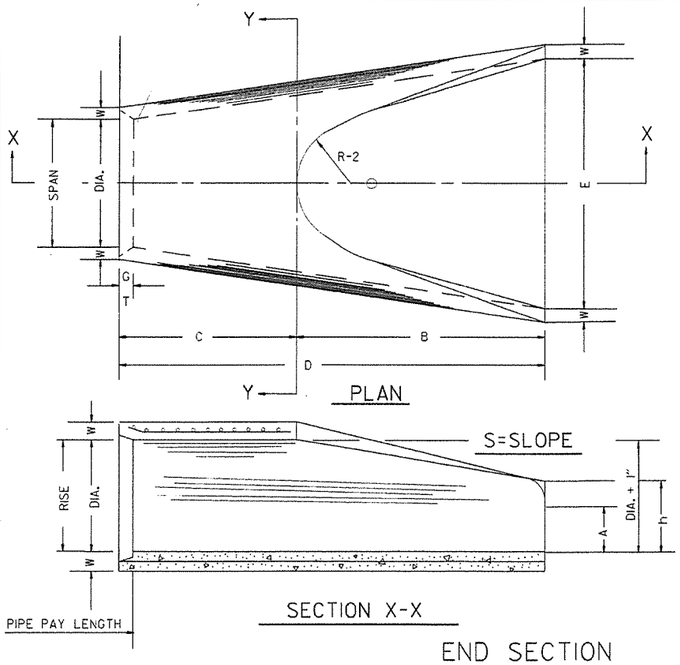
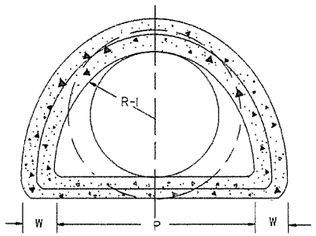
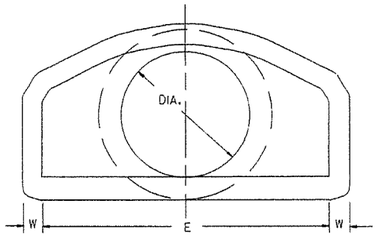


TABLE OF DIMENSIONS

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'-1½"	4'-0"	3:1	25"	33 3/16"	16 15/16"	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'-10¼"	8'-1¼"	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

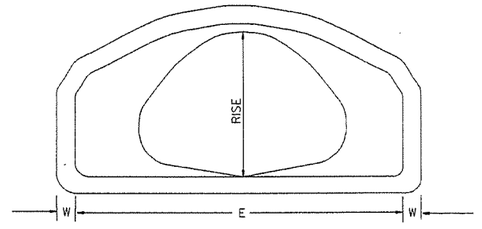
NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

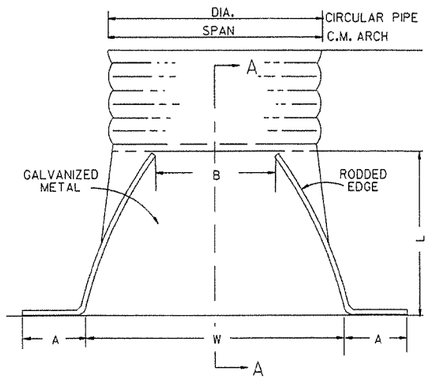
ARCH PIPE

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'-0½"	6'-1½"	6'-0"	47 13/16"	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"	2½:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 13/16"	24"	5"	2½:1

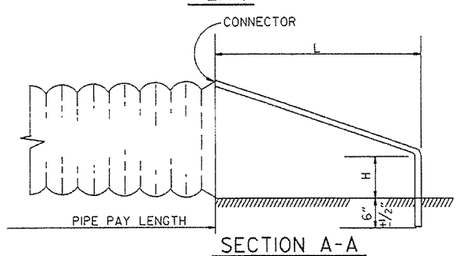
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



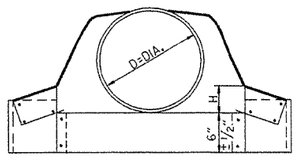
END VIEW
CONCRETE ARCH PIPE



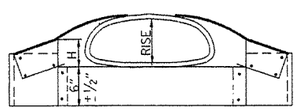
PLAN



SECTION A-A



CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

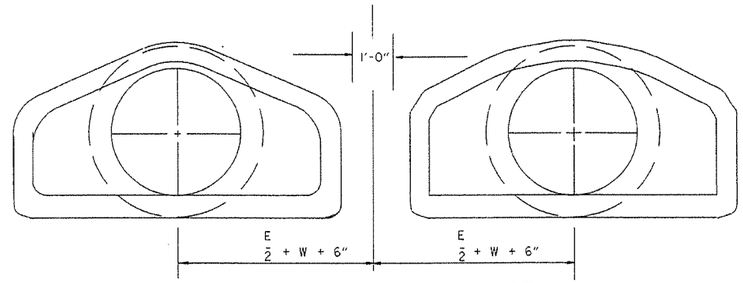
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	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

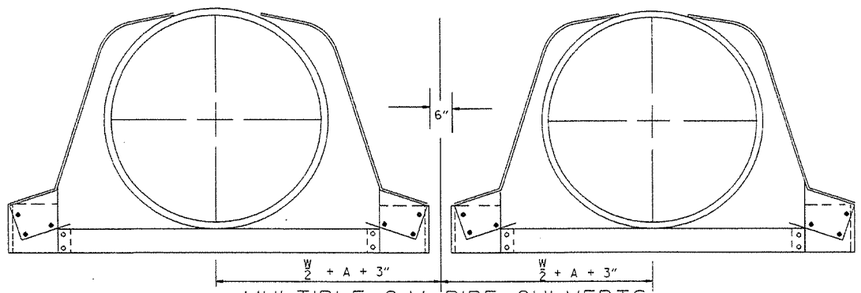
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
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

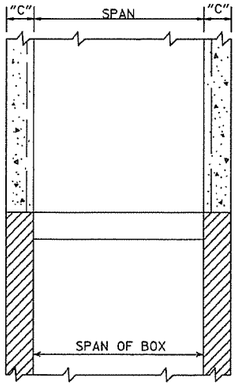
DATE	REVISION	FILE NO.
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
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

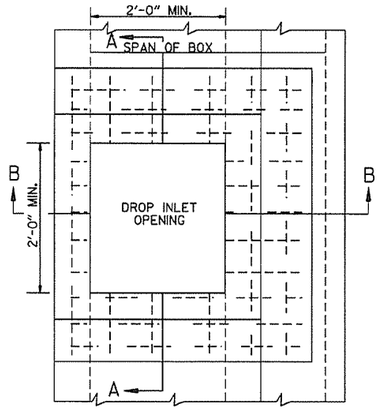
FLARED END SECTION

STANDARD DRAWING FES-2

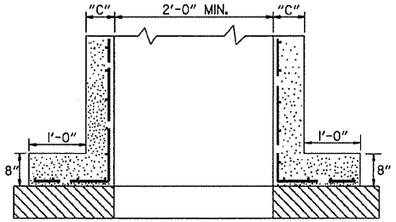
stdfes2.dgn



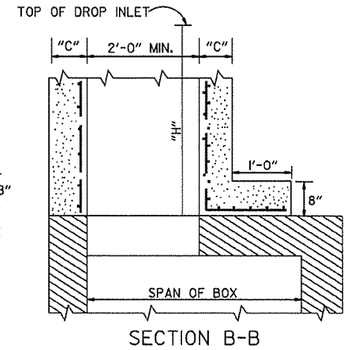
SECTION B-B



PLAN

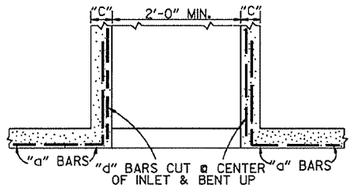


SECTION A-A

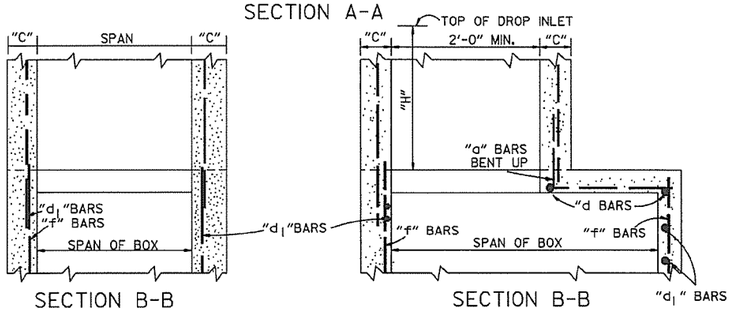


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



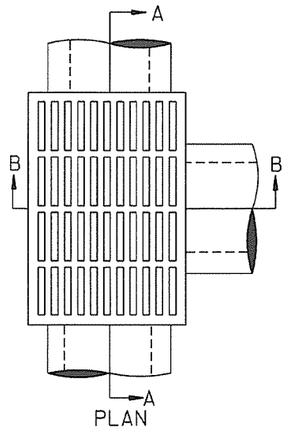
SECTION A-A



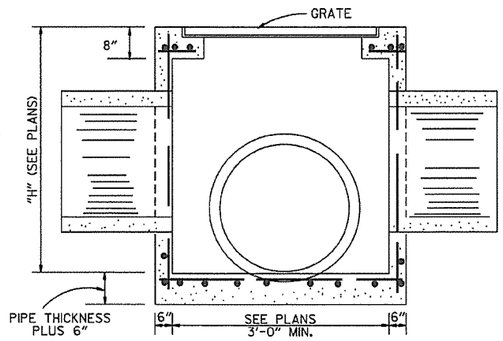
SECTION B-B SECTION B-B

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.

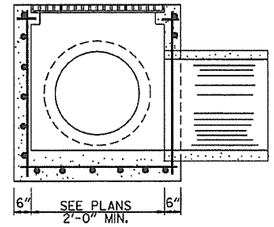


PLAN



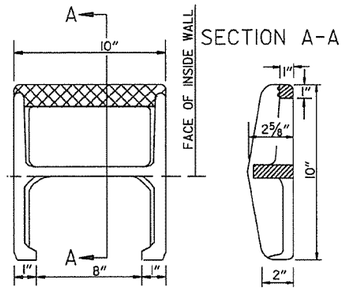
SECTION A-A

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)



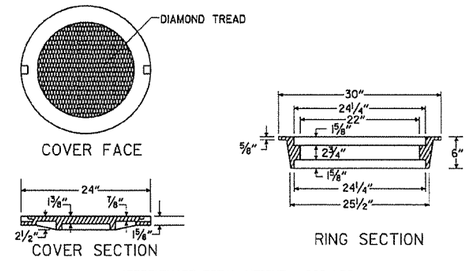
SECTION A-A

APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

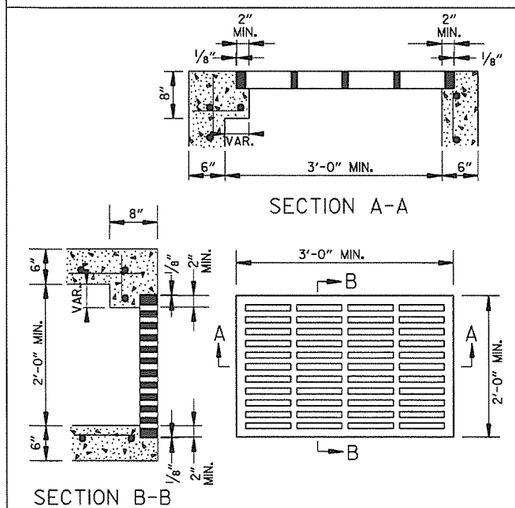
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET



APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

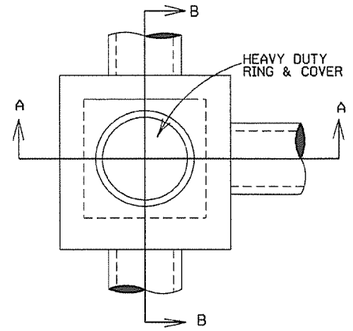


SECTION A-A

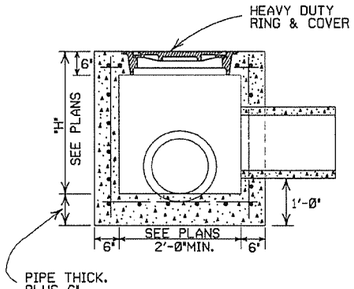
SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

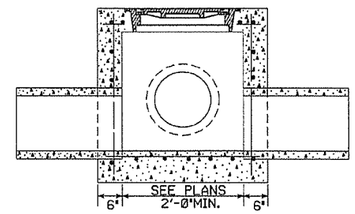


PLAN



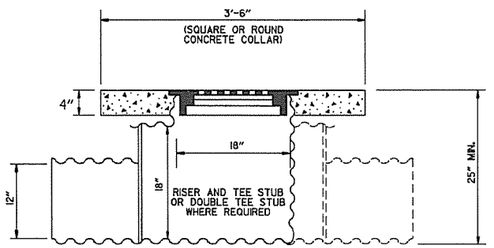
SECTION A-A

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.

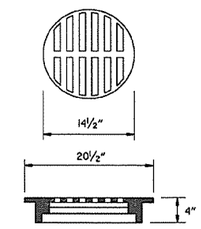


SECTION B-B

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.

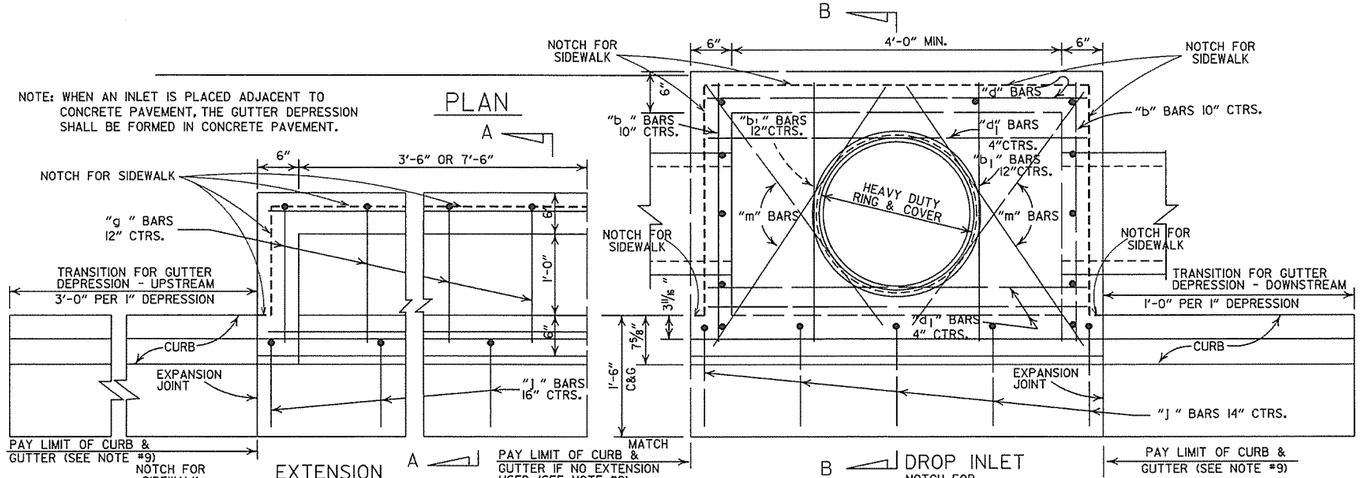
DATE REV.	REVISION	DATE FILMED
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED DI(TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91	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	

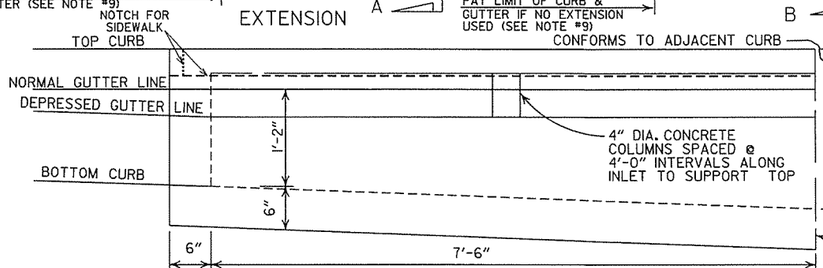
ARKANSAS STATE HIGHWAY COMMISSION

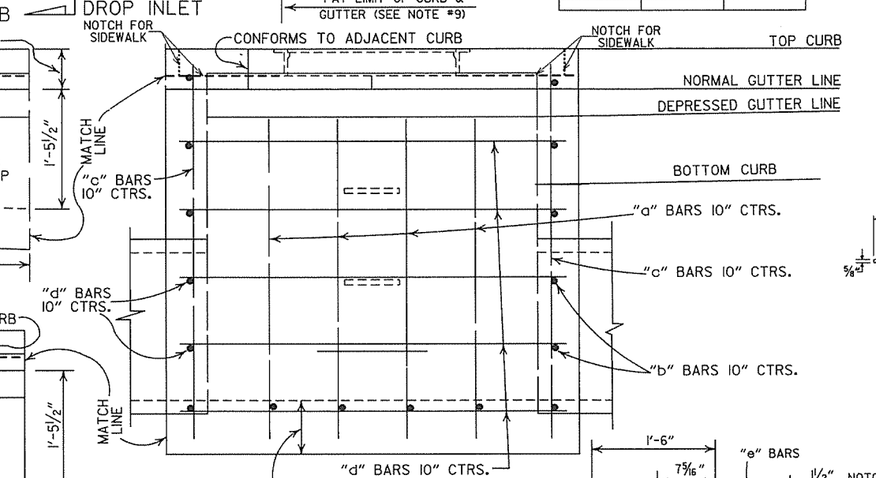
DETAILS OF DROP INLETS & JUNCTION BOXES

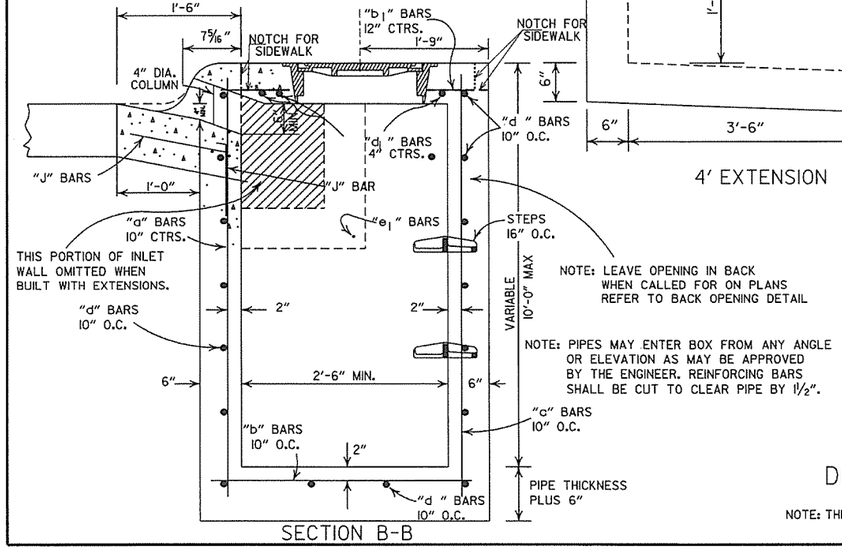
STANDARD DRAWING FPC-9

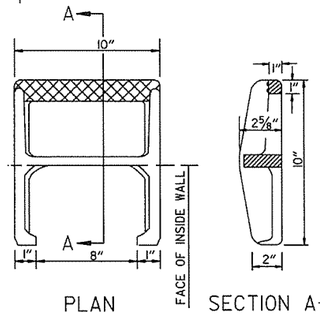
NOTE: WHEN AN INLET IS PLACED ADJACENT TO CONCRETE PAVEMENT, THE GUTTER DEPRESSION SHALL BE FORMED IN CONCRETE PAVEMENT.











APPROX. WEIGHT = 11 LBS. (CAST IRON)

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

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

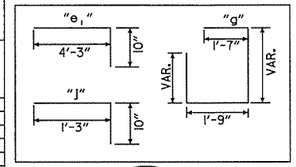
NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

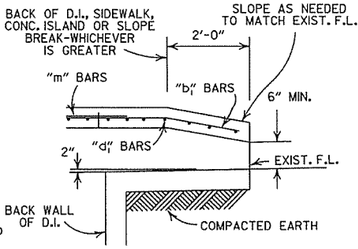
DROP INLET EXTENSION

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

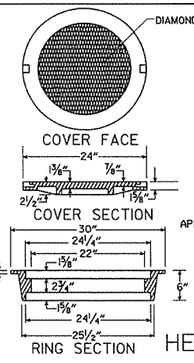
BAR DIAGRAM





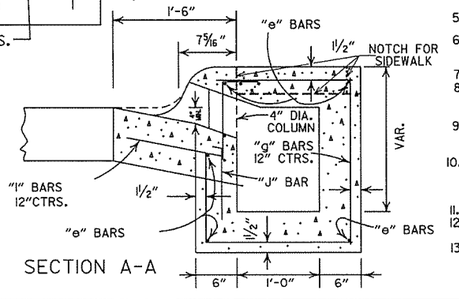
BACK OPENING

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



GENERAL NOTES:

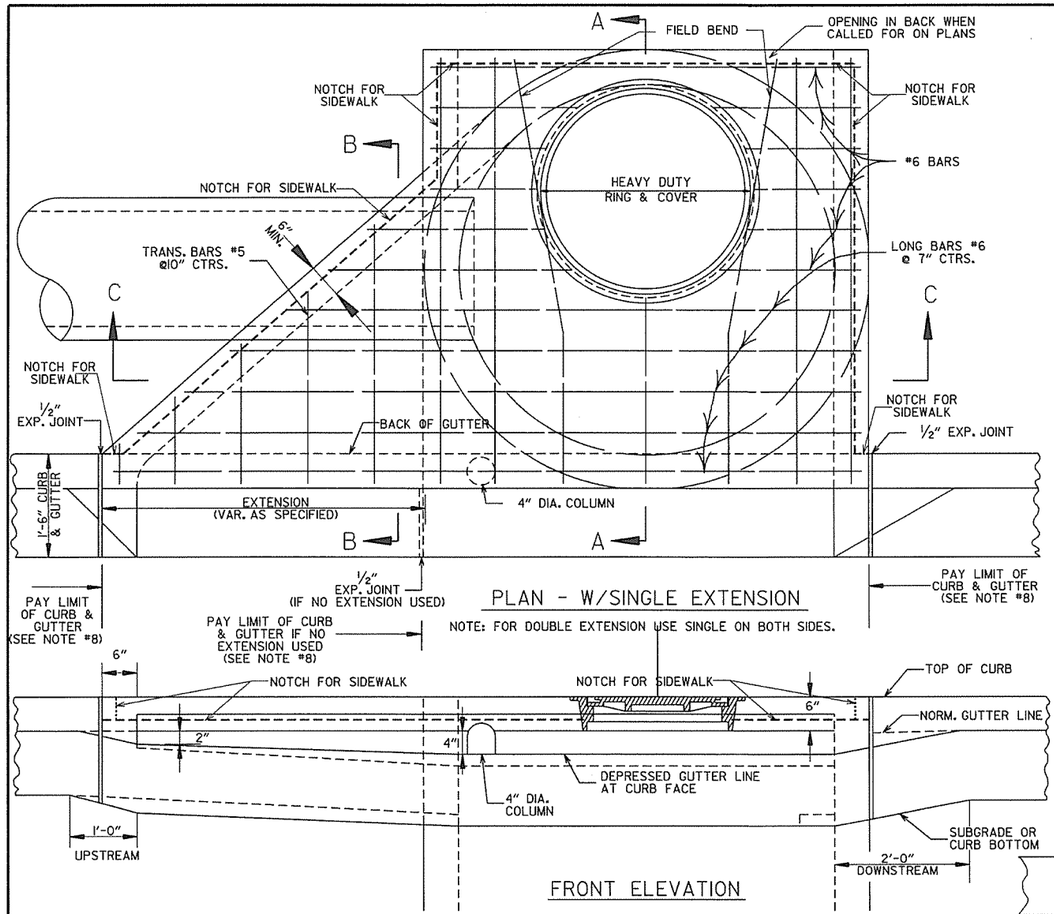
1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE #4 AND HAVE 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. THIS DROP INLET MAY 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"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.

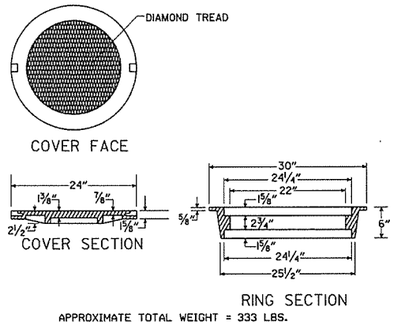
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER 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

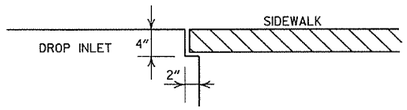




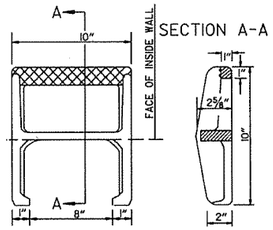
APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

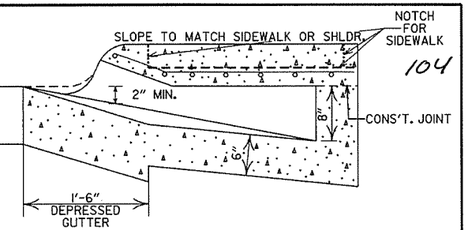
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



DETAIL OF NOTCH FOR SIDEWALKS



SECTION A-A



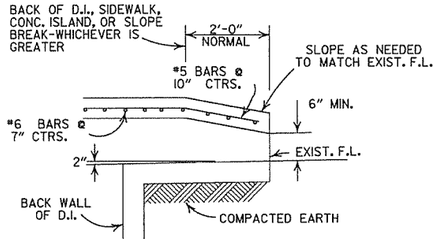
SECTION B-B

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

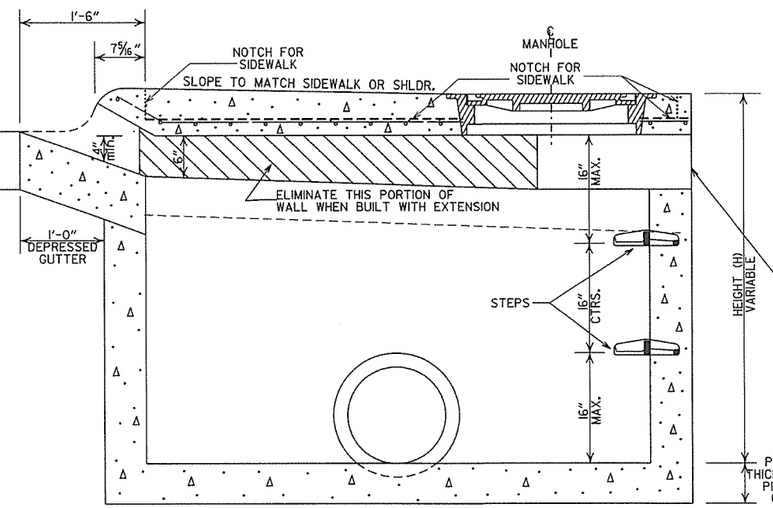


BACK OPENING

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 ¾" 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. 1½" 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

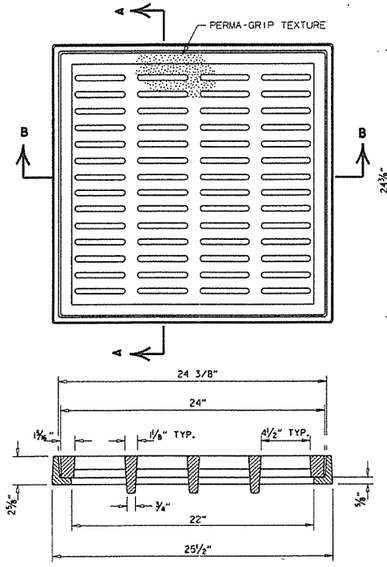
DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS CAST IN PLACE	MINIMUM WALL THICKNESS PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

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	
4-26-95	ADDED NOTE 11 & ADJ. OPENING DIMENSION	
10-12-95	CORRECTED #6 BAR SPACING	
7-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
4-2-95	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
4-23-89	ADDED NOTE 8, MINIMUM WALL THICKNESS	513-1-23-89
7-15-88	ADDED EXTEND NOTE TO SECTION A-A	6357-7-15-88
1-14-87	MODIFIED WALL THICKNESS	183-1-14-87
6-12-87	ISSUED	4-6-12-87

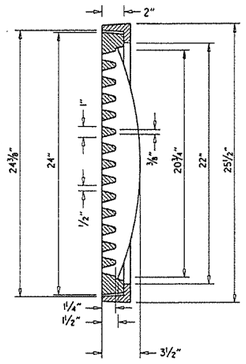
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M



SECTION B-B

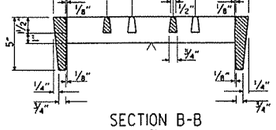


SECTION A-A

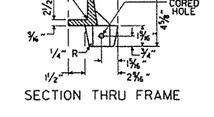
GENERAL NOTES (PEDESTRIAN GRATE & FRAME)

1. THE PEDESTRIAN GRATE SHALL BE ORIENTED IN THE TOP OF THE DROP INLET SO THAT THE ½" OPENINGS ARE PERPENDICULAR TO THE PATH OF PEDESTRIAN TRAVEL.
2. THE PEDESTRIAN 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, & AASHTO M 306.
3. THE GRATE AND FRAME SHALL NOT BE PAINTED.
4. THE GRATE AND FRAME SHALL BE INSTALLED IN THE DROP INLET IN THE ASSEMBLED POSITION.
5. THE APPROXIMATE WEIGHT OF THE GRATE AND FRAME SHALL BE 211 LBS.
6. THE MINIMUM WATERWAY OPENING SHALL BE 122 SQ. IN.

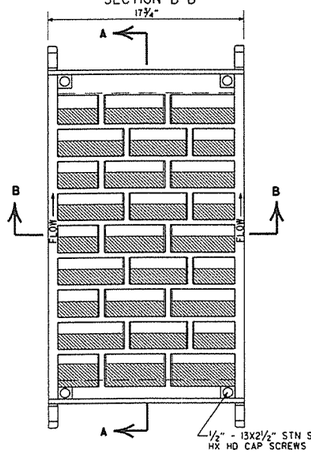
DETAILS OF PEDESTRIAN GRATE AND FRAME

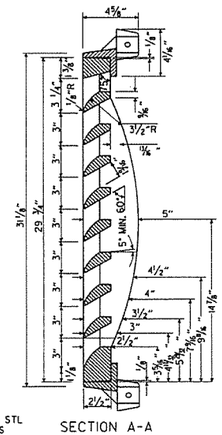


SECTION B-B



SECTION THRU FRAME



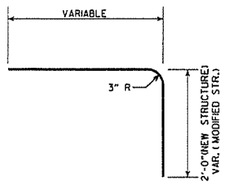


SECTION A-A

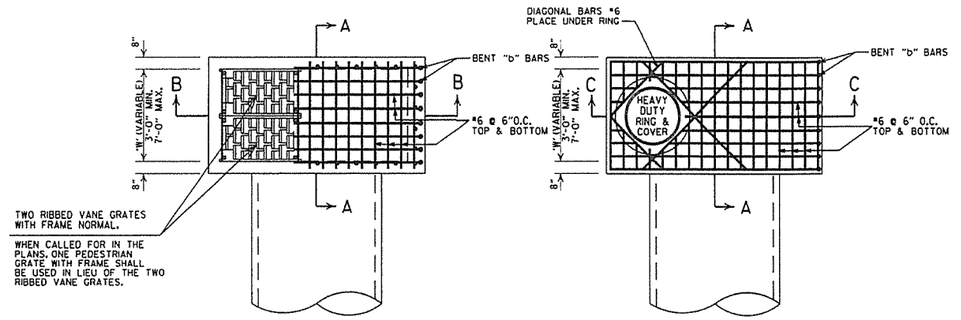
DETAILS OF RIBBED VANE GRATE AND FRAME

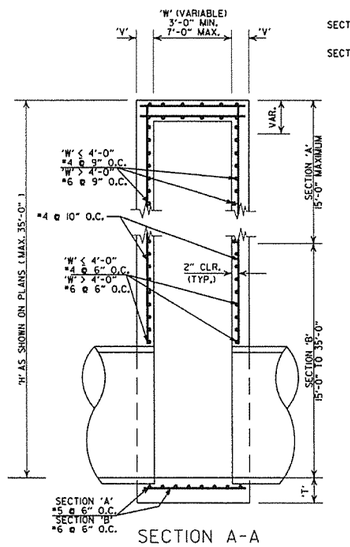
GENERAL NOTES (RIBBED VANE GRATE & FRAME)

1. RIBBED VANE 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, & AASHTO M 306.
2. GRATE AND FRAME SHALL NOT BE PAINTED.
3. GRATE AND FRAME SHALL BE INSTALLED IN DROP INLET IN ASSEMBLED POSITION.
4. APPROXIMATE WEIGHT OF GRATE SHALL BE 170 LBS.



DETAIL OF BENT "b" BAR





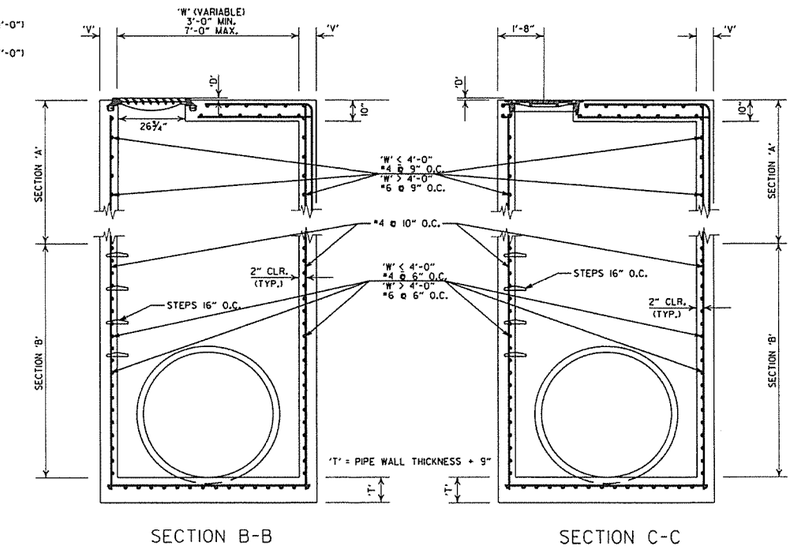
SECTION A-A

DETAILS OF DROP INLET (TYPE ST)

SECTION 'A' 'V' = 8"

SECTION 'B' (W≤4'-0") 'V' = 8"

SECTION 'B' (W>4'-0") 'V' = 10"



SECTION B-B SECTION C-C

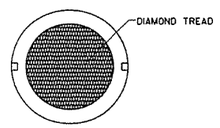
DETAILS OF JUNCTION BOX (TYPE ST)

GENERAL NOTES (TYPE ST DROP INLET & JUNCTION BOX)

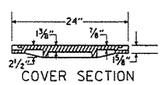
1. THE 'D' DIMENSION SHALL MATCH THE FINAL LIFT OF ACHM SURFACE COURSE SHOWN IN THE PLANS WHEN ASPHALT PAVING SURROUNDS THE GRATE OR RING COVER, AND SHALL BE 0" AT OTHER INSTALLATIONS.
2. THE STEPS SHALL BE OMITTED WHERE 'H' IS LESS THAN 4'-0".
3. ALL EXPOSED CORNERS ARE TO HAVE A ¾" CHAMFER.

GENERAL NOTES (HEAVY DUTY RING & COVER):

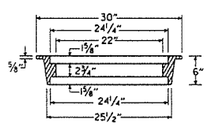
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
4. 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.



COVER FACE



COVER SECTION



RING SECTION

HEAVY DUTY RING & COVER

APPROXIMATE TOTAL WEIGHT = 333 LBS.

DATE REVISED	DATE FILMED	DESCRIPTION
7-26-12		REMOVED NOTE 4, REVISED 'T', REVISED BOTTOM SLAB REBAR FOR SECTION 'A', SHOWED REBAR CLEARANCE IN SECTIONS
11-16-01		ADDED NOTE 4
1-12-00		REVISED HEAVY DUTY RING & COVER
5-13-99		ADDED PEDESTRIAN FRAME & GRATE
7-02-98		REMOVED NOTE 5, REV. DIMENSIONS, ADDED HEAVY DUTY RING & COVER ADDED AASHTO REF. REVISED GRATE
10-18-96		REVISED ASTM REF. TO AASHTO
10-1-92		REVISED & REISSUED
8-15-91	8-15-91	REVISED & REISSUED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET & JUNCTION BOX (TYPE ST)

STANDARD DRAWING FPC-9S

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	ARTD NOMINAL	AASHTO M 206	ARTD 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	31⅞	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.

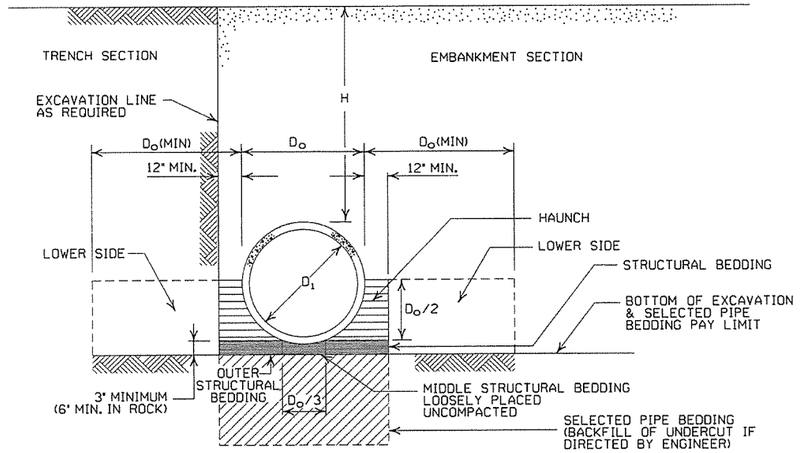
- LEGEND -

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

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	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.)	MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)
				INSTALLATION	INSTALLATION		INSTALLATION	INSTALLATION
				TYPE 1	TYPE 1		TYPE 1	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	INSTALLATION			
				TYPE 2 / TYPE 1	TYPE 2 / 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

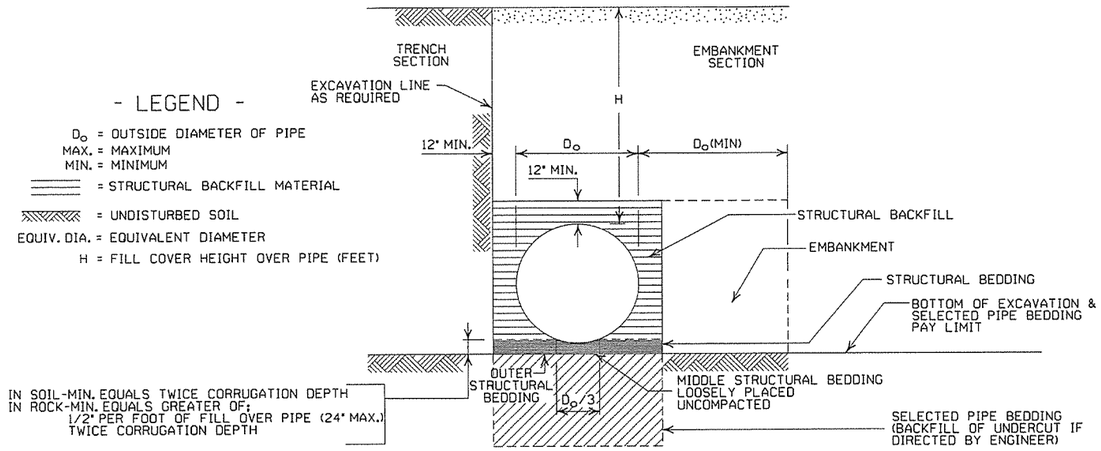
③ SM-3 WILL NOT BE ALLOWED.

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

- LEGEND -

D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL
EQUIV. DIA. = EQUIVALENT DIAMETER
H = FILL COVER HEIGHT OVER PIPE (FEET)



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 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

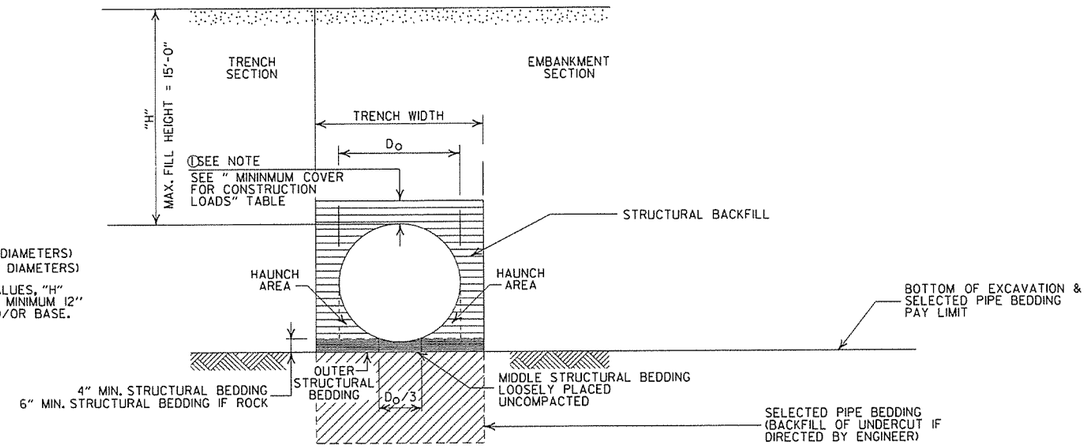
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

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

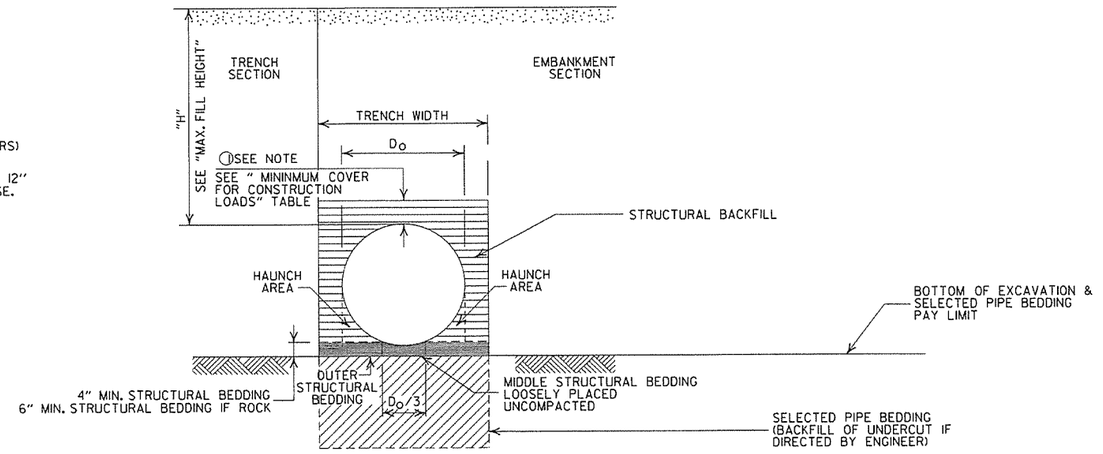
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

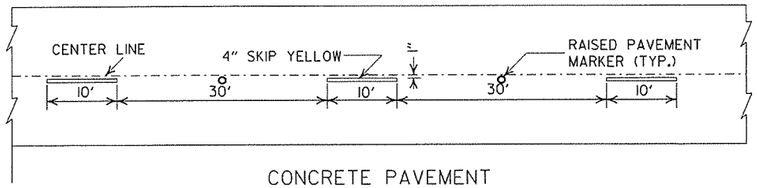
= UNDISTURBED SOIL

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	

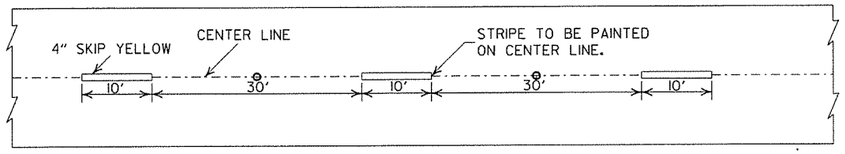
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

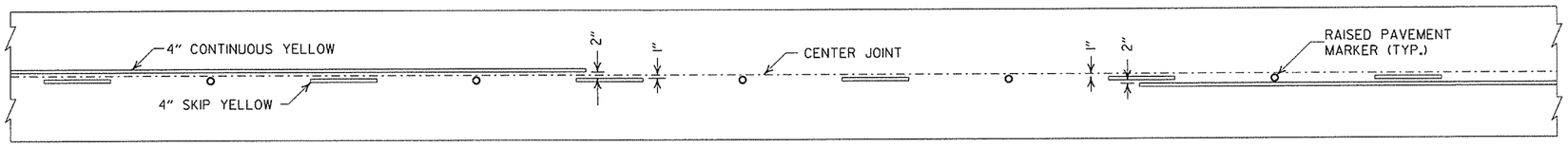


CONCRETE PAVEMENT

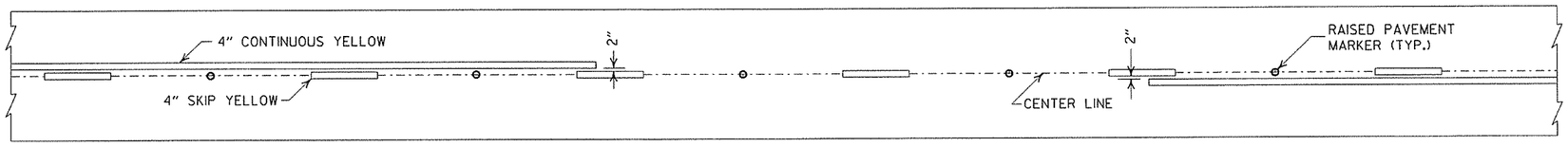


ASPHALT PAVEMENT

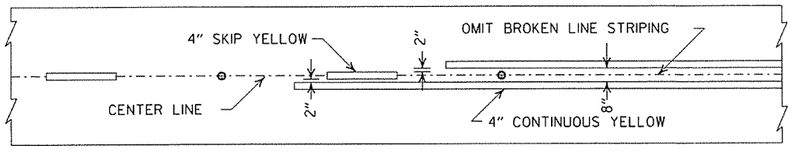
BROKEN LINE STRIPING



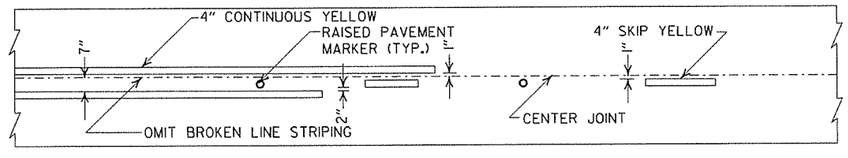
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

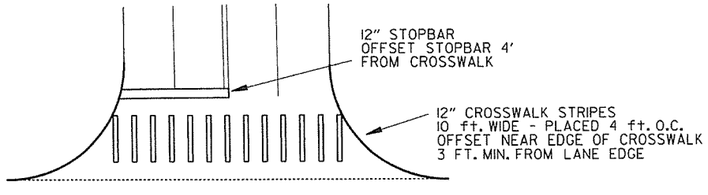


ASPHALT PAVEMENT



CONCRETE PAVEMENT

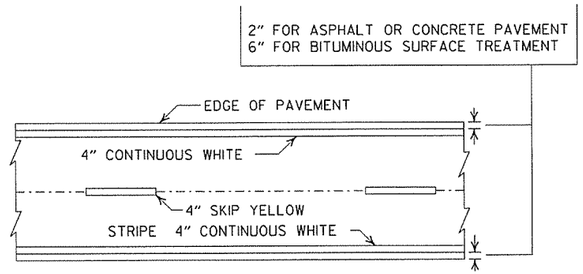
STRIPING AT ADJACENT NO PASSING LANES



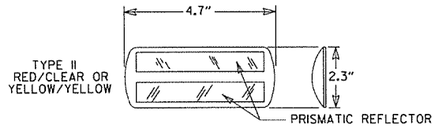
CROSSWALK AND STOPBAR DETAILS

NOTES:

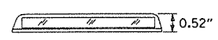
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.



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	FILMED
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

ARKANSAS STATE HIGHWAY COMMISSION

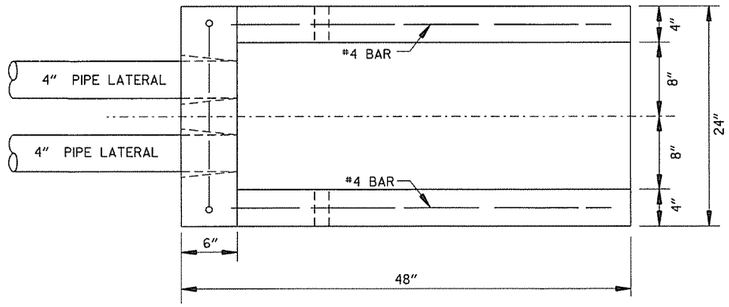
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

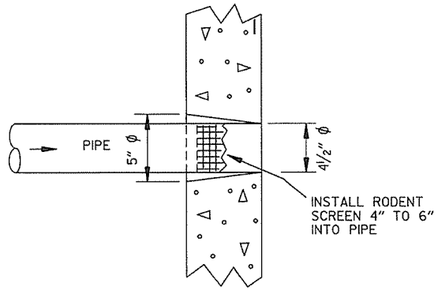
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

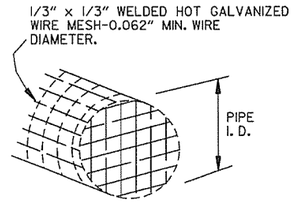
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



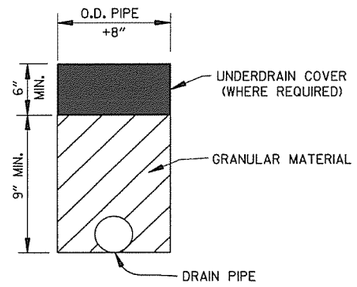
PLAN VIEW

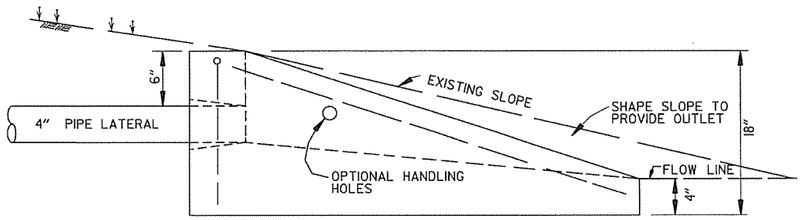


DETAIL OF HOLE FOR 4" PIPE

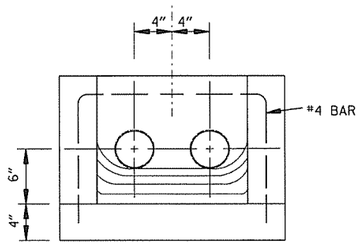


DETAIL OF RODENT SCREEN

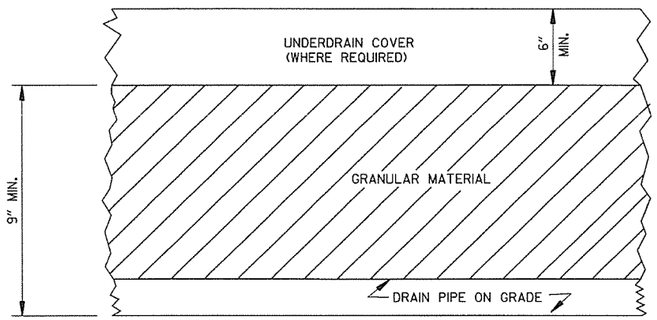




SIDE VIEW

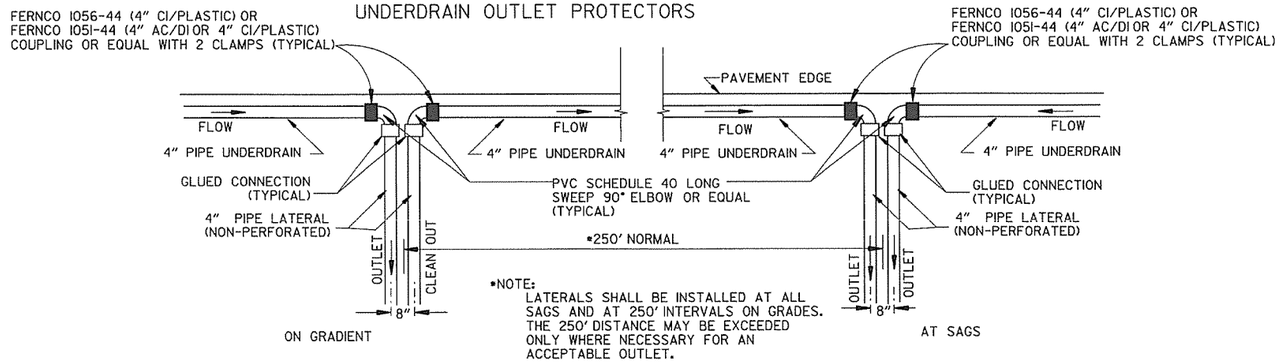


FRONT VIEW



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

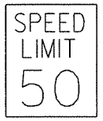
R1-1

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"

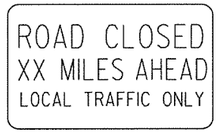
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2

48"X30"

RII-3A



60"X30"

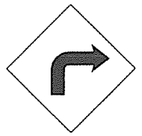
RII-4

60"X30"

RSP-1

48"X30"

WI-1



STD. 36"X36"
FWY. 48"X48"

WI-2

STD. 36"X36"
FWY. 48"X48"

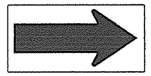
WI-3

STD. 48"X48"

WI-4

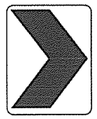
STD. 48"X48"

WI-6



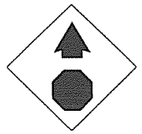
STD. 48"X24"
SPECIAL 60"X30"

WI-8



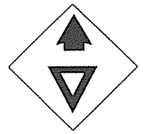
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



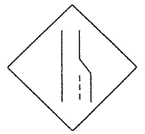
STD. 36"X36"
SPECIAL 48"X48"

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"

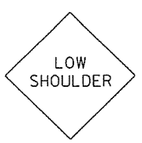
R56-1

STD. 18"X18"

W8-11

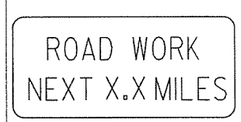
STD. 36"X36"
FWY. 48"X48"

W8-9



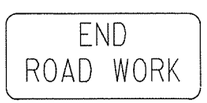
STD. 36"X36"
FWY. 48"X48"

G20-1



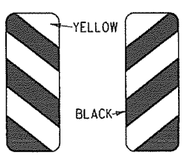
60"X24"

G20-2



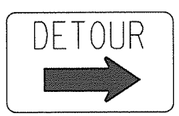
48"X24"

OM-3L OM-3R



12"X36"

M4-9



STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1

FINES DOUBLE
IN WORK ZONES *
WHEN WORKERS
ARE PRESENT **

36"X60"

* USE 6" C LETTERS
** USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ 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.

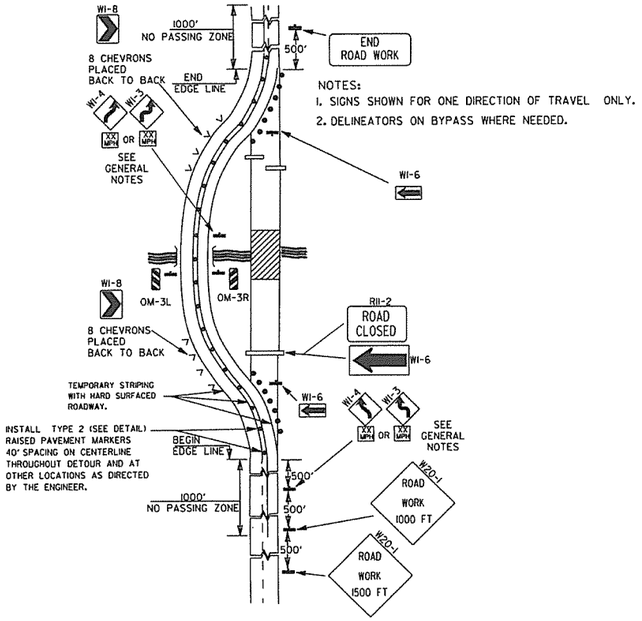
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY 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

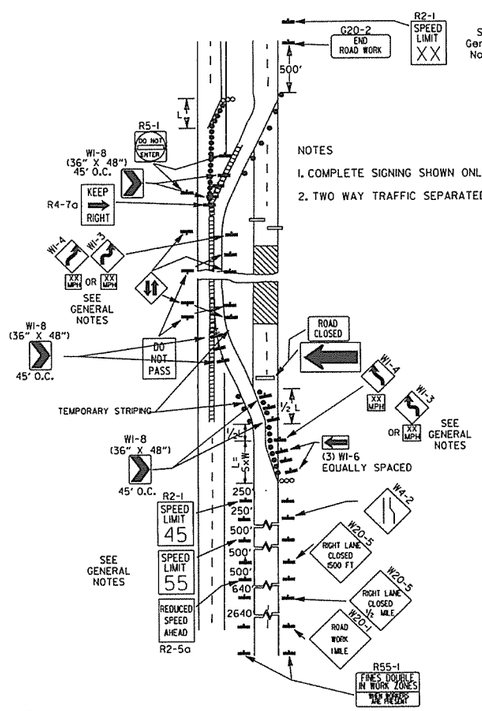
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



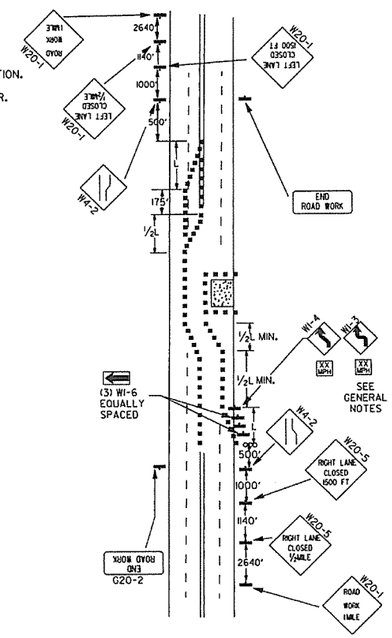
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

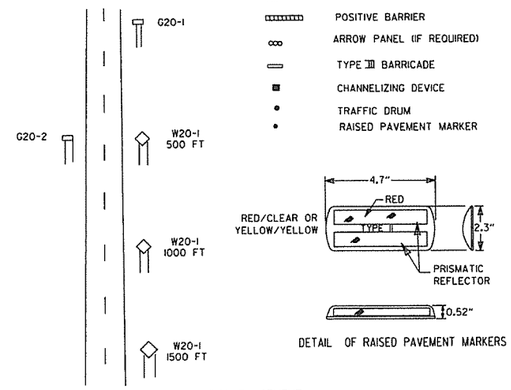


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.

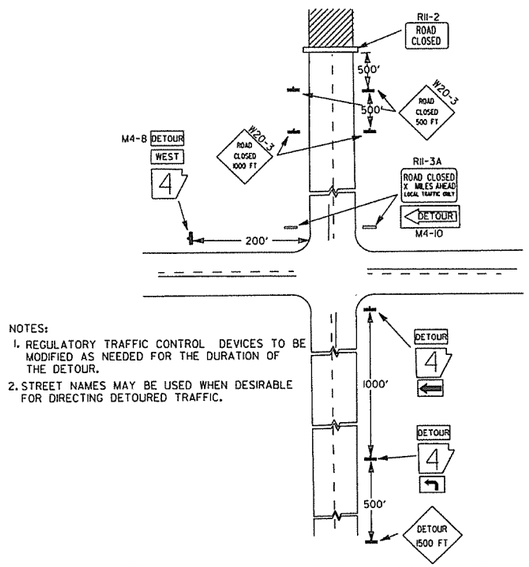


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



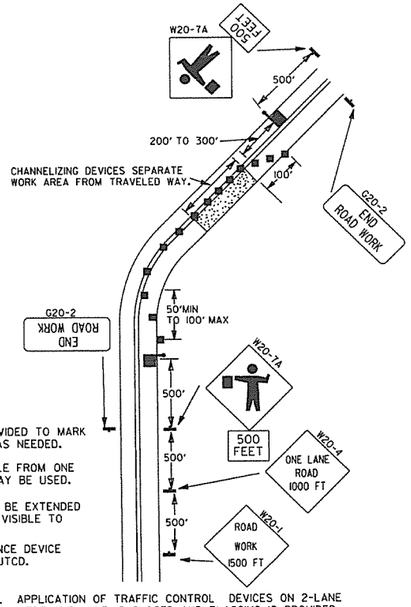
DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT



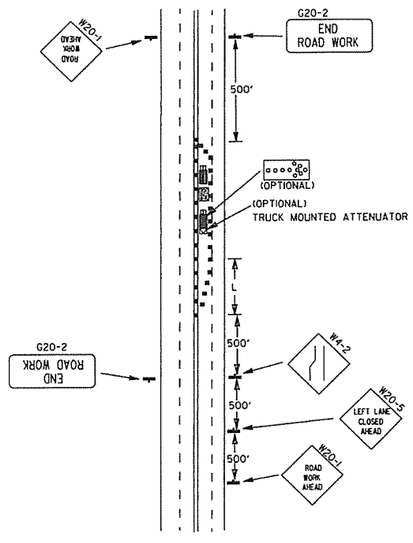
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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:

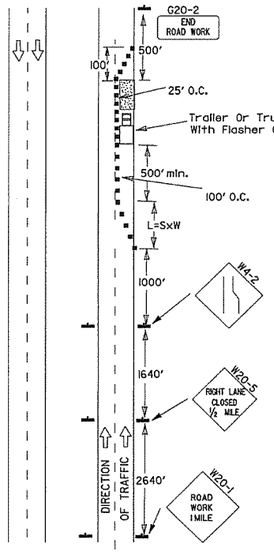
1. ADVISORY SPEED POSTED ON WI-3 OR WI-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED 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 (G) 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	

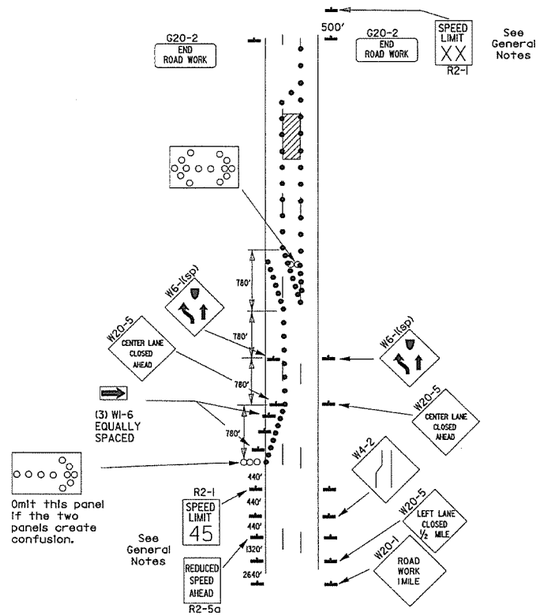
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

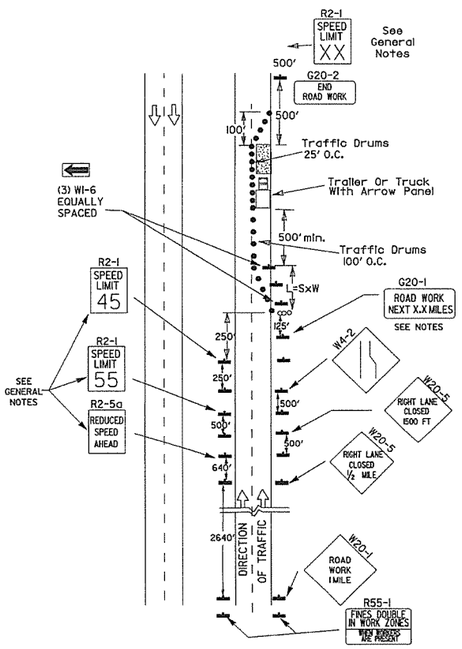
STANDARD DRAWING TC-2



(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

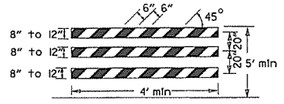
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

CONES

TYPE I BARRICADE

PLASTIC DRUM

TYPE II BARRICADE

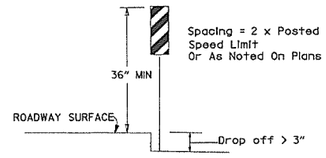


TYPE III BARRICADE

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



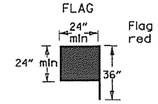
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

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.

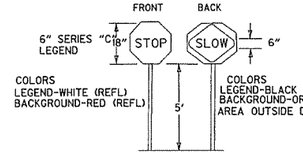
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

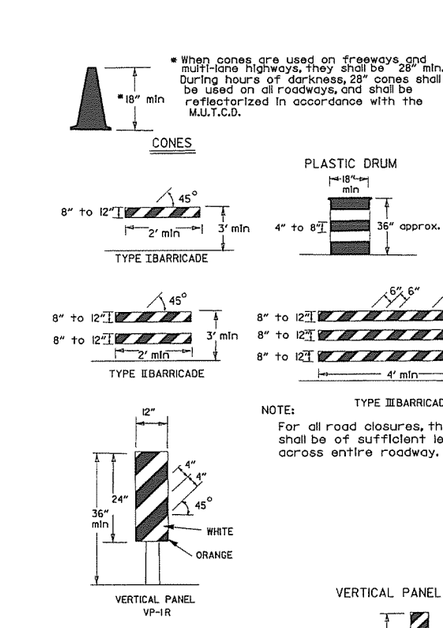
FLAG



Flag shall be of good grade red material

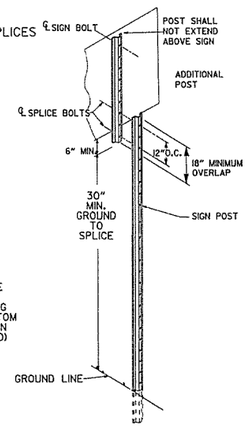
STOP SLOW PADDLE





(D) Typical application - closing multiple lanes of a multilane highway.

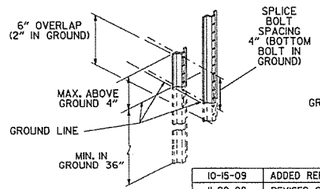
DETAIL OF SPLICES



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.



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	

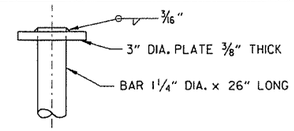
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

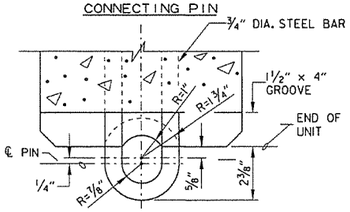
STANDARD DRAWING TC-3

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"

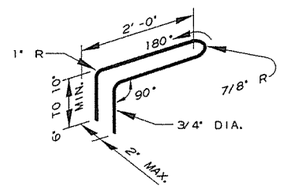


CONNECTING PIN

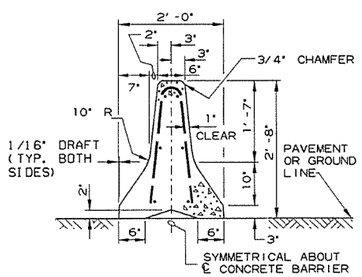


SECTION E-E

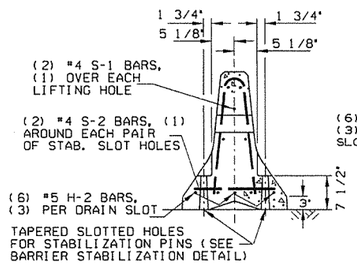
CONNECTION DETAILS



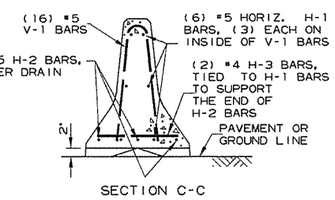
CONNECTION LOOP



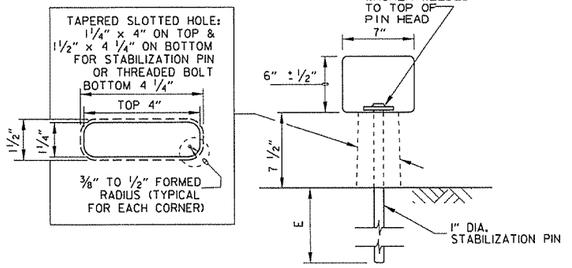
SECTION A-A



SECTION B-B



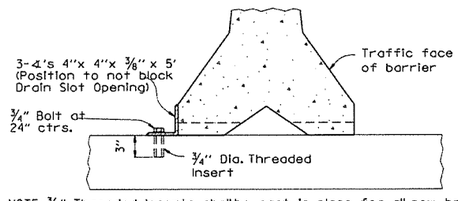
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

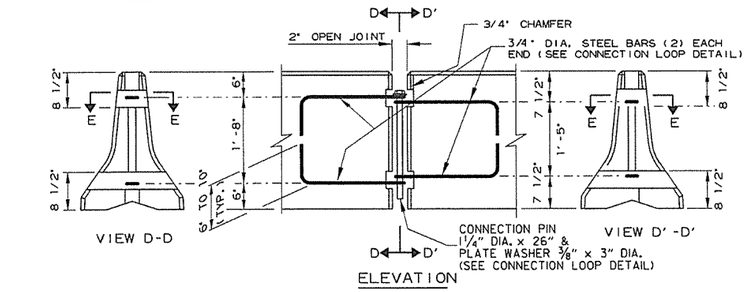
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



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

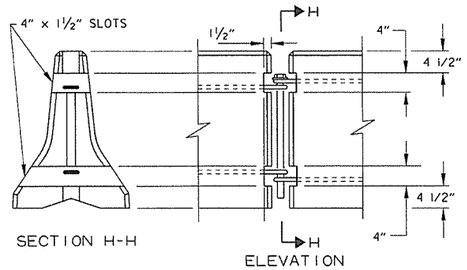
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

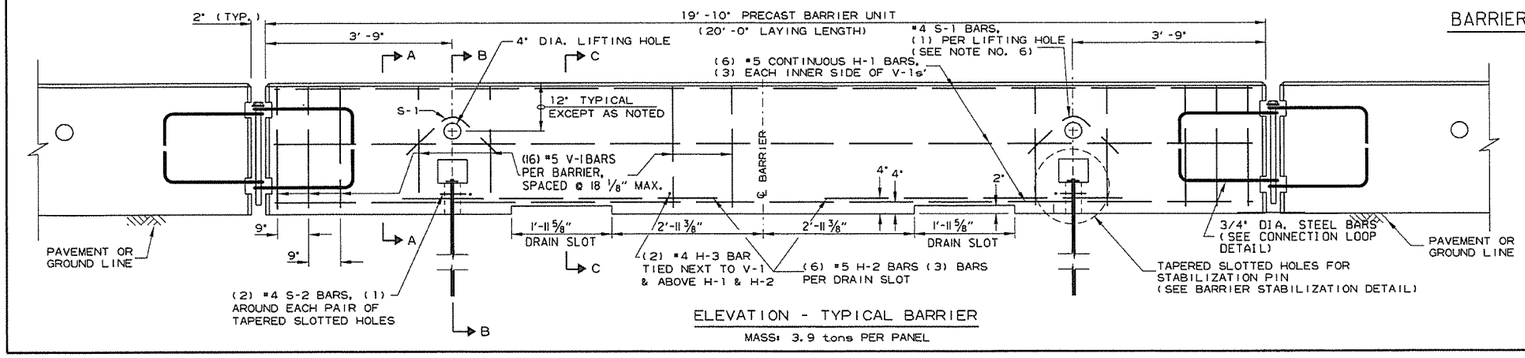
ELEVATION



SECTION H-H

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.

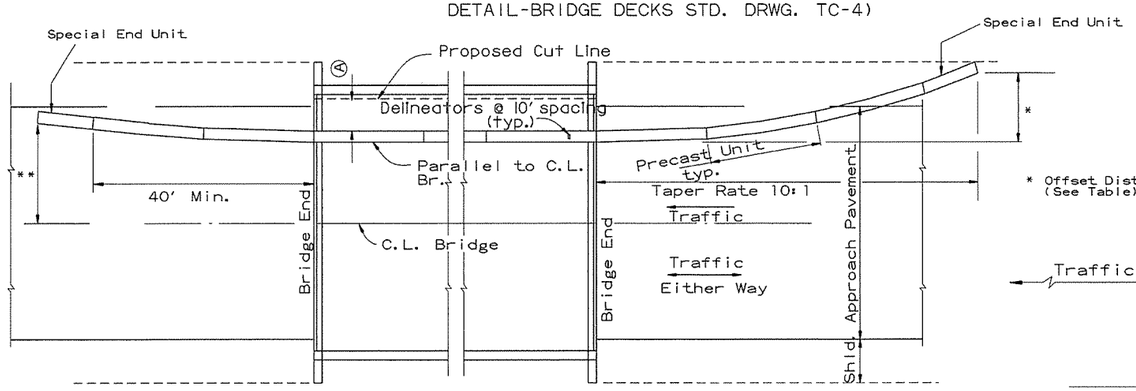
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

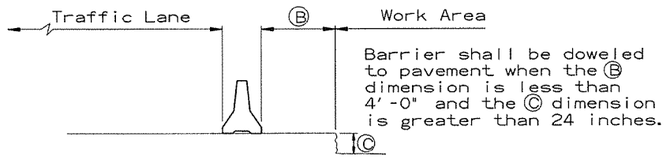
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

* Offset Distance (See Table)

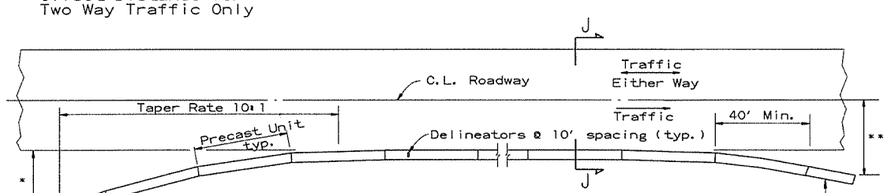


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

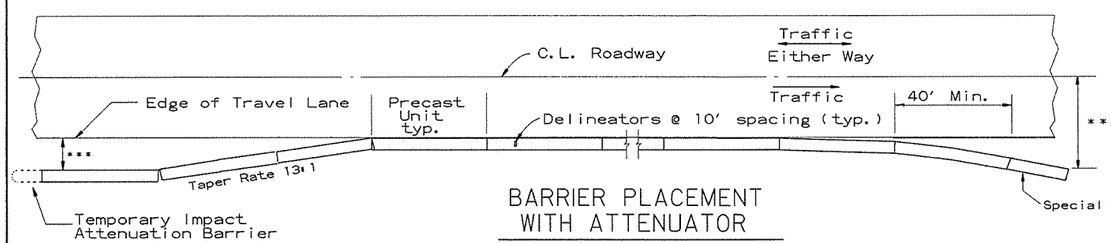
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

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.

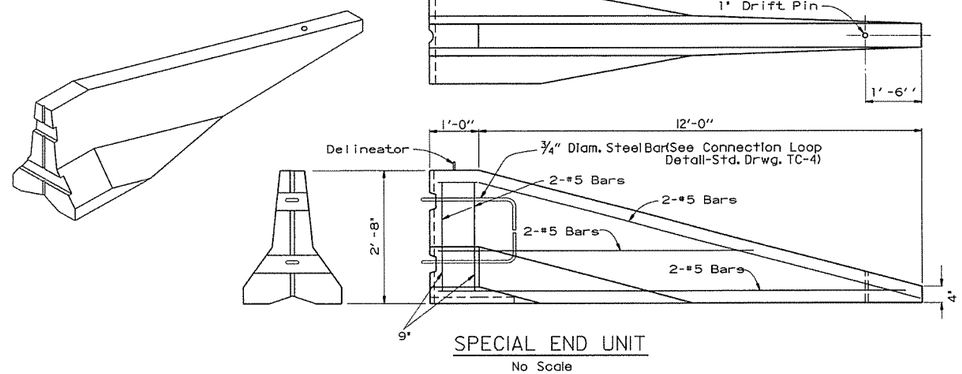


BARRIER PLACEMENT WITH ATTENUATOR

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	

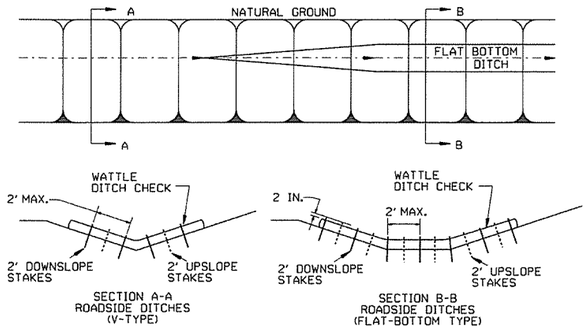
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

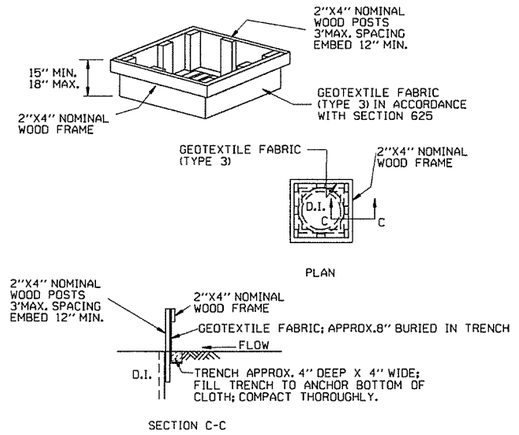
STANDARD DRAWING TC-5

GENERAL NOTES

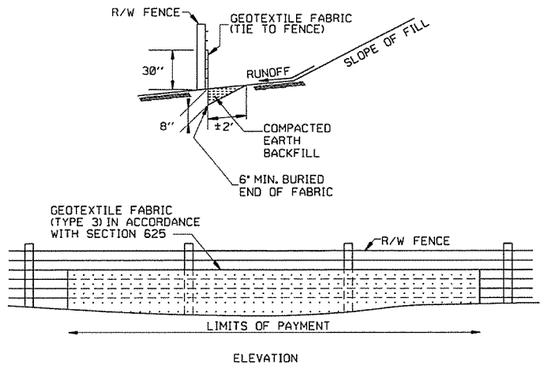
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

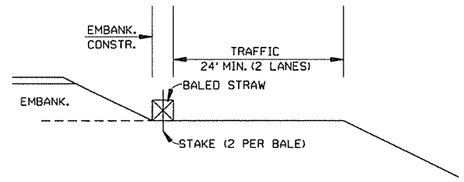
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

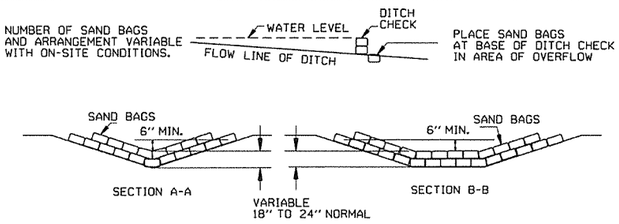
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

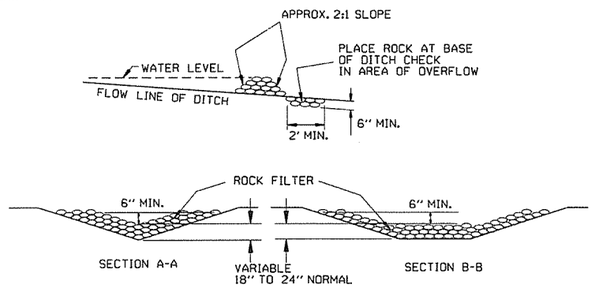
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



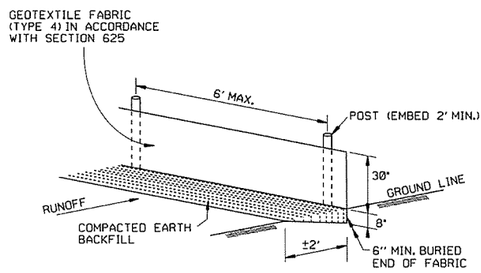
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

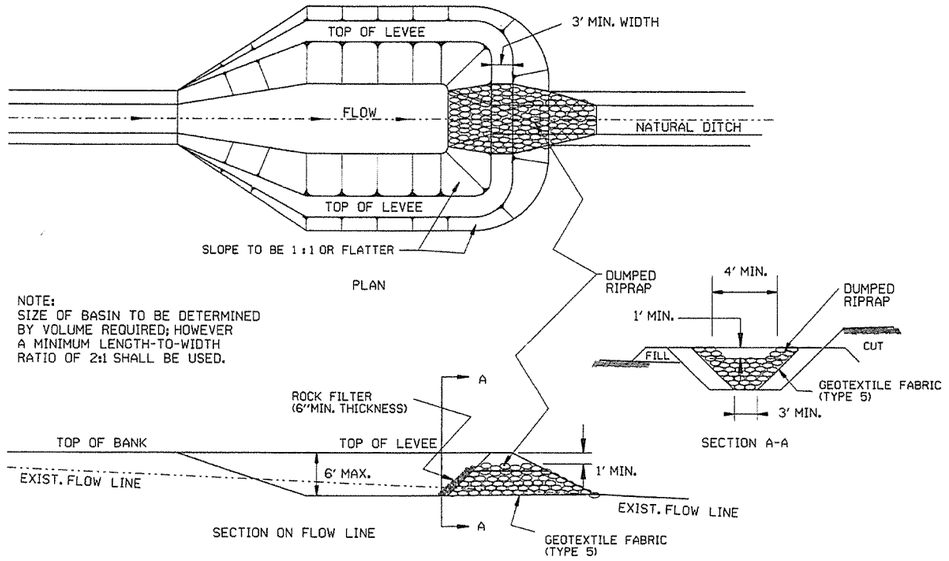
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

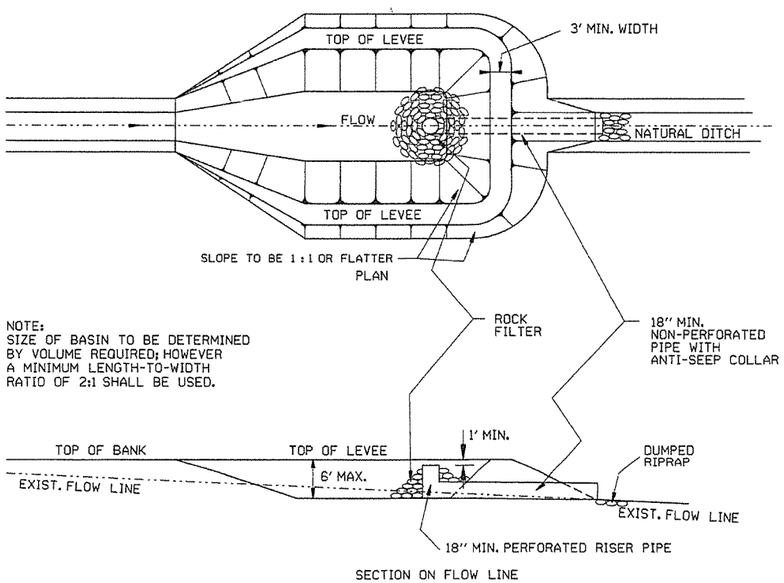
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

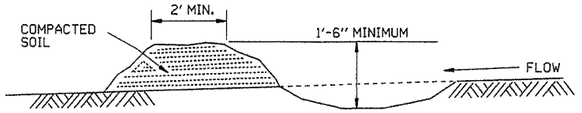
STANDARD DRAWING TEC-1



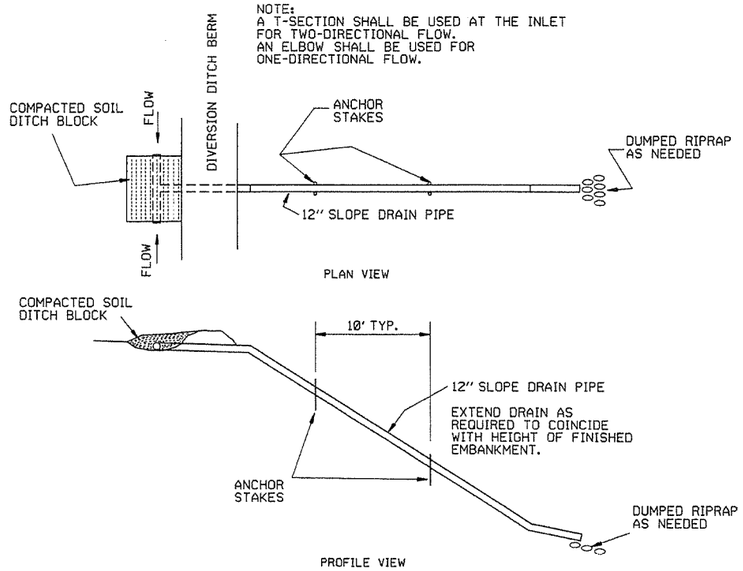
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



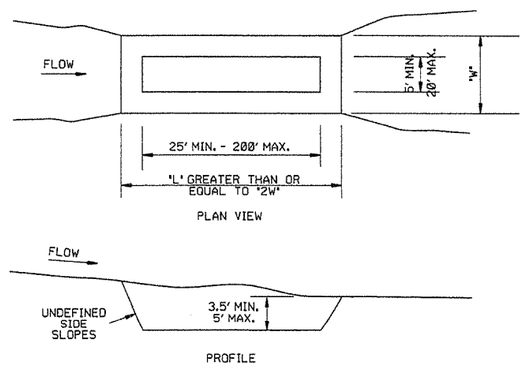
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

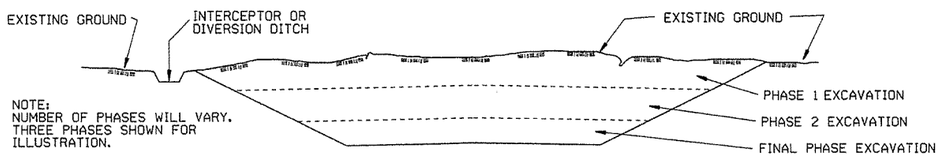
STANDARD DRAWING TEC-2

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



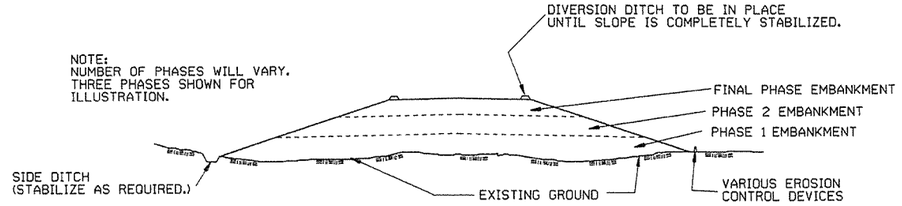
GENERAL NOTE

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

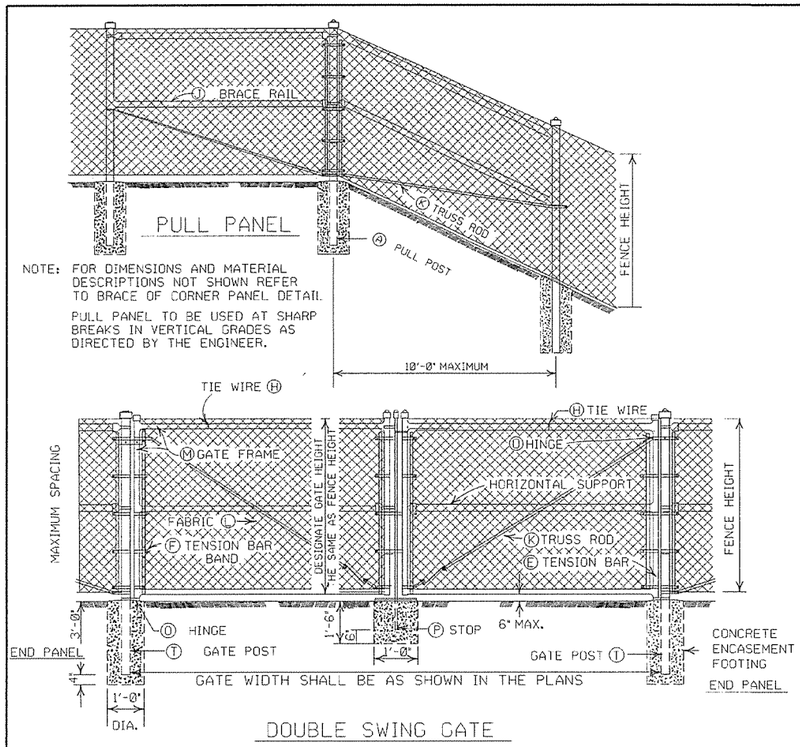
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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

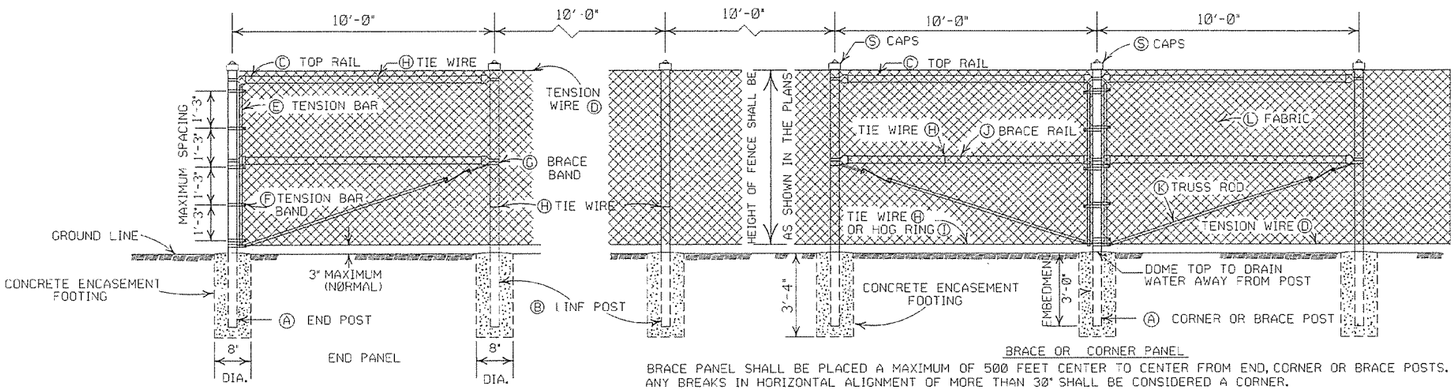
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3



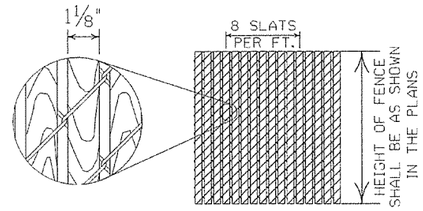
DOUBLE SWING GATE

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.

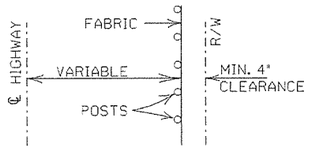
HEIGHT OF FENCE FABRIC	(A) END, PULL CORNER OR BRACE POST	(B) LINE POSTS SIZE	(B) LINE POSTS TIE SPACING	(C) TOP RAIL SIZE	(C) TOP RAIL TIE SPACING	(C) TOP RAIL MIN. LENGTH	(D) TENSION WIRE SIZE	(D) TENSION WIRE TIE SPACING	(E) TENSION BAR SIZE	(E) TENSION BAR LENGTH	(F) TENSION BAR BAND SIZE	(F) TENSION 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 180° SWING	(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 ⅝" 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

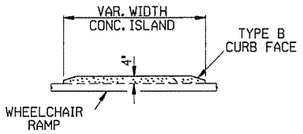
TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181

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
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

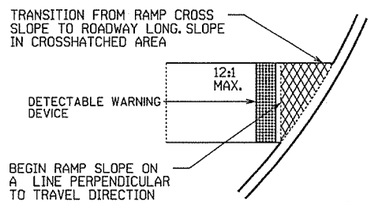
ARKANSAS STATE HIGHWAY COMMISSION

CHAIN LINK FENCE

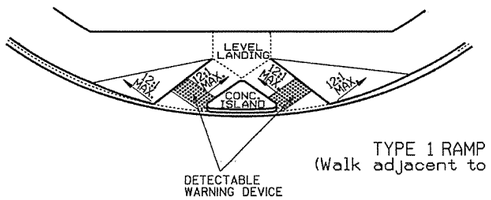
STANDARD DRAWING WF-3



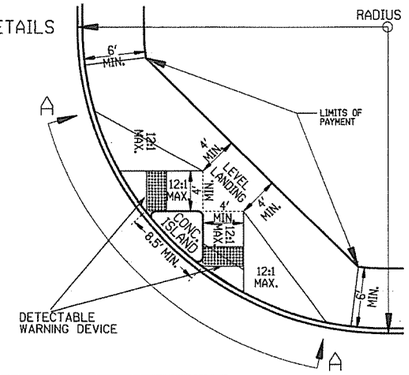
CONCRETE ISLAND DETAIL

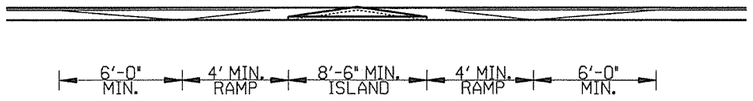


SLOPE TRANSITION DETAILS



TYPE 1 RAMP
(Walk adjacent to curb)

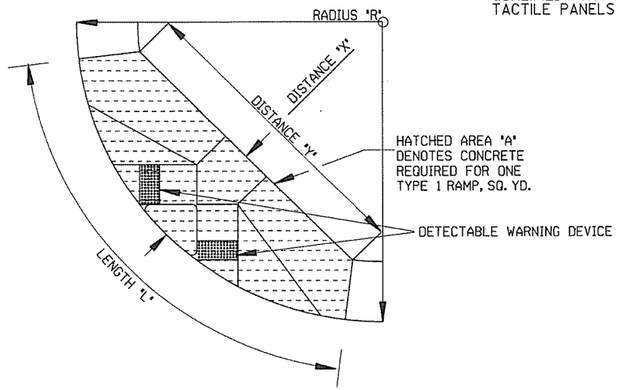




SECTION A-A

TYPE 1 RAMP DIMENSIONS AND QUANTITIES

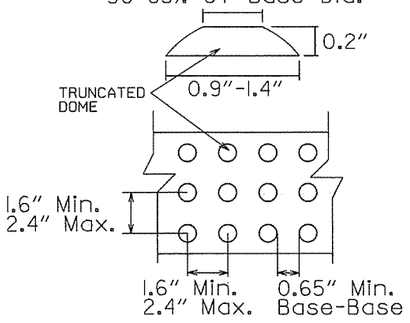
RADIUS 'R' FEET	DISTANCE 'X' FEET	DISTANCE 'Y' FEET	LENGTH 'L' FEET	RAMP AREA 'A' SQ. YD.
15	11.67	18.82	32.18	26.21
20	11.52	22.28	35.46	30.07
25	11.43	26.60	38.77	33.80
30	11.37	30.26	40.93	36.90
35	11.33	33.51	43.11	39.77
40	11.30	36.45	45.26	42.45
45	11.27	39.16	47.34	44.97
50	11.25	41.69	49.36	47.35
55	11.24	44.07	51.31	49.63
60	11.22	46.33	53.21	51.80



NOTE:
THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGTITUDINAL GRADE.

GENERAL NOTES FOR DETECTABLE WARNING DEVICES

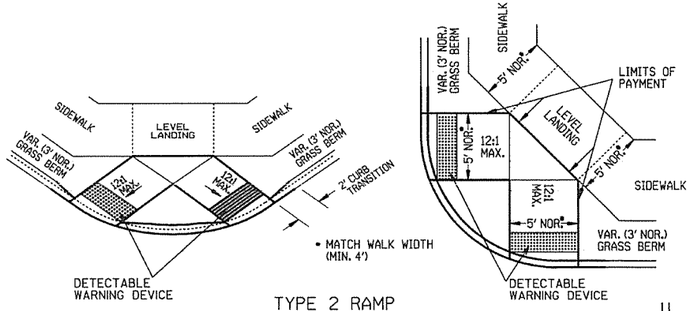
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT 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).



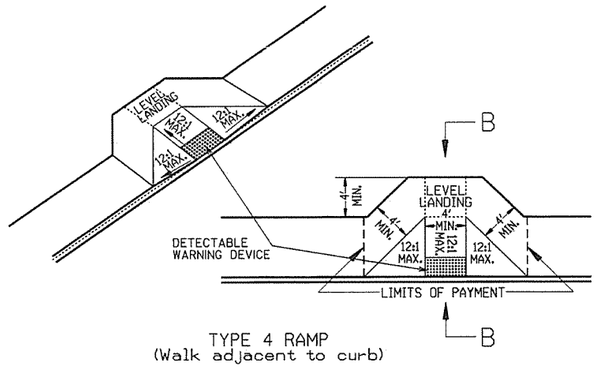
DETECTABLE WARNING DEVICE DETAIL

GENERAL NOTES:

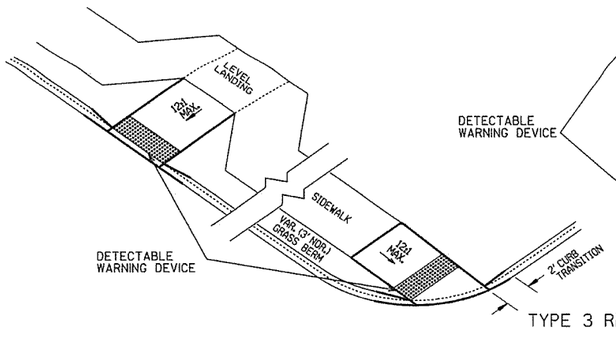
IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.
IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK 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.



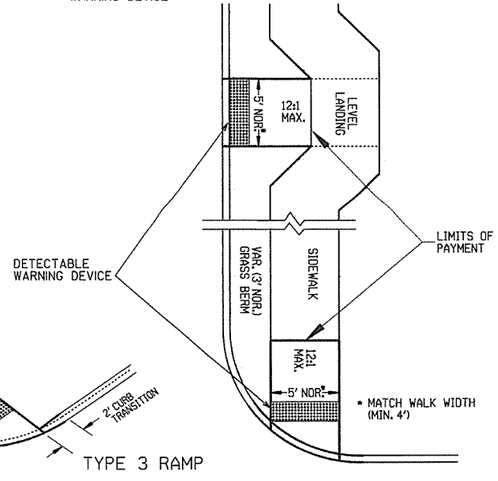
TYPE 2 RAMP

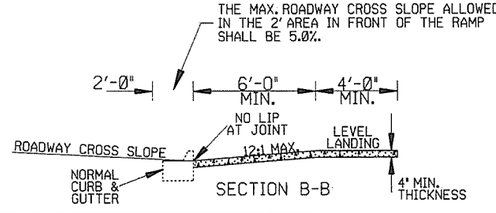


TYPE 4 RAMP
(Walk adjacent to curb)



TYPE 3 RAMP





SECTION B-B

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.

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.	
11-18-98	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

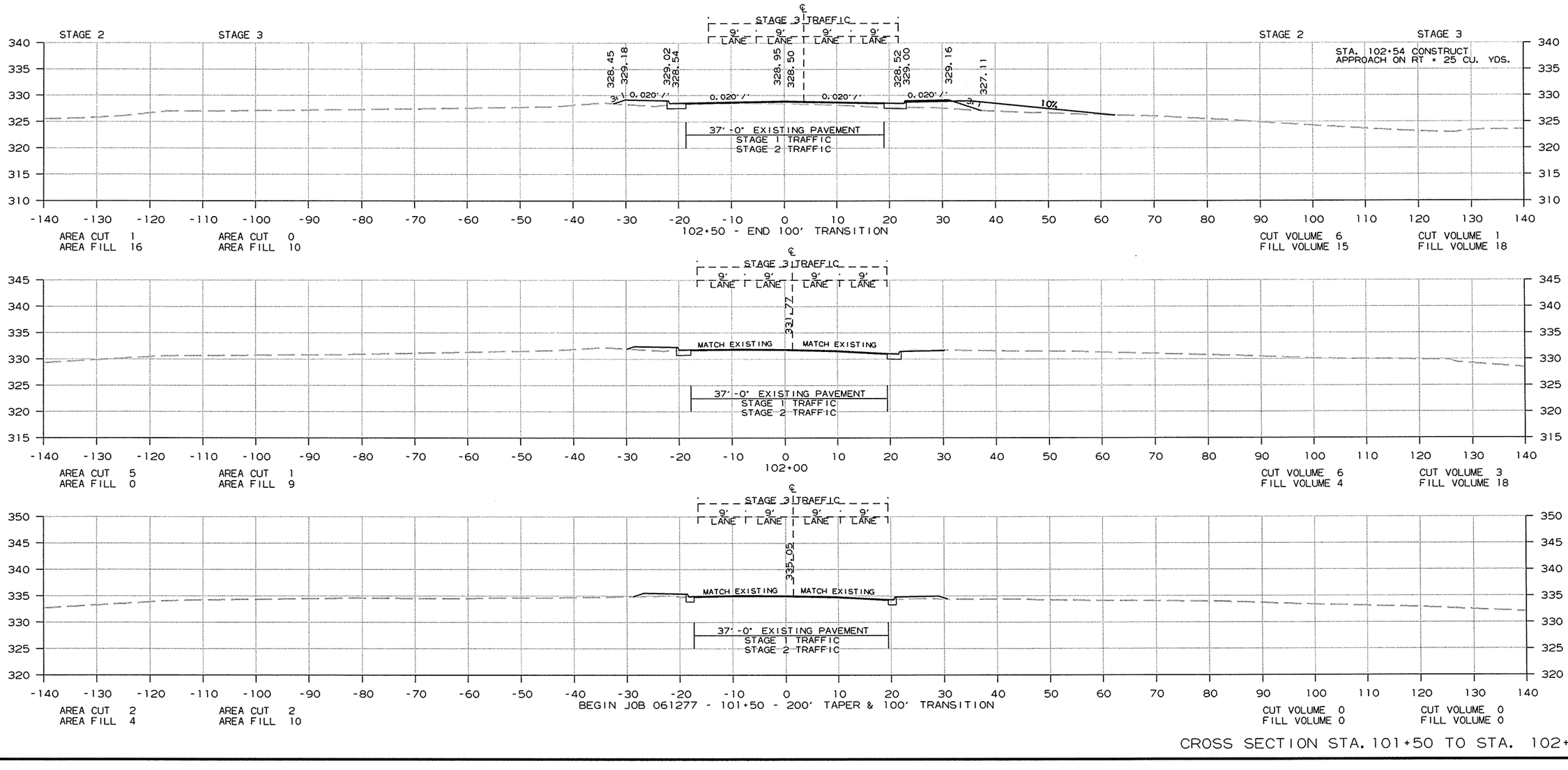
ARKANSAS STATE HIGHWAY COMMISSION

WHEELCHAIR RAMPS NEW CONSTRUCTION AND ALTERATIONS

STANDARD DRAWING WR-1

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.		061277	122	160

(2) CROSS SECTIONS



CROSS SECTION STA. 101+50 TO STA. 102+50

1/31/2014

R061277.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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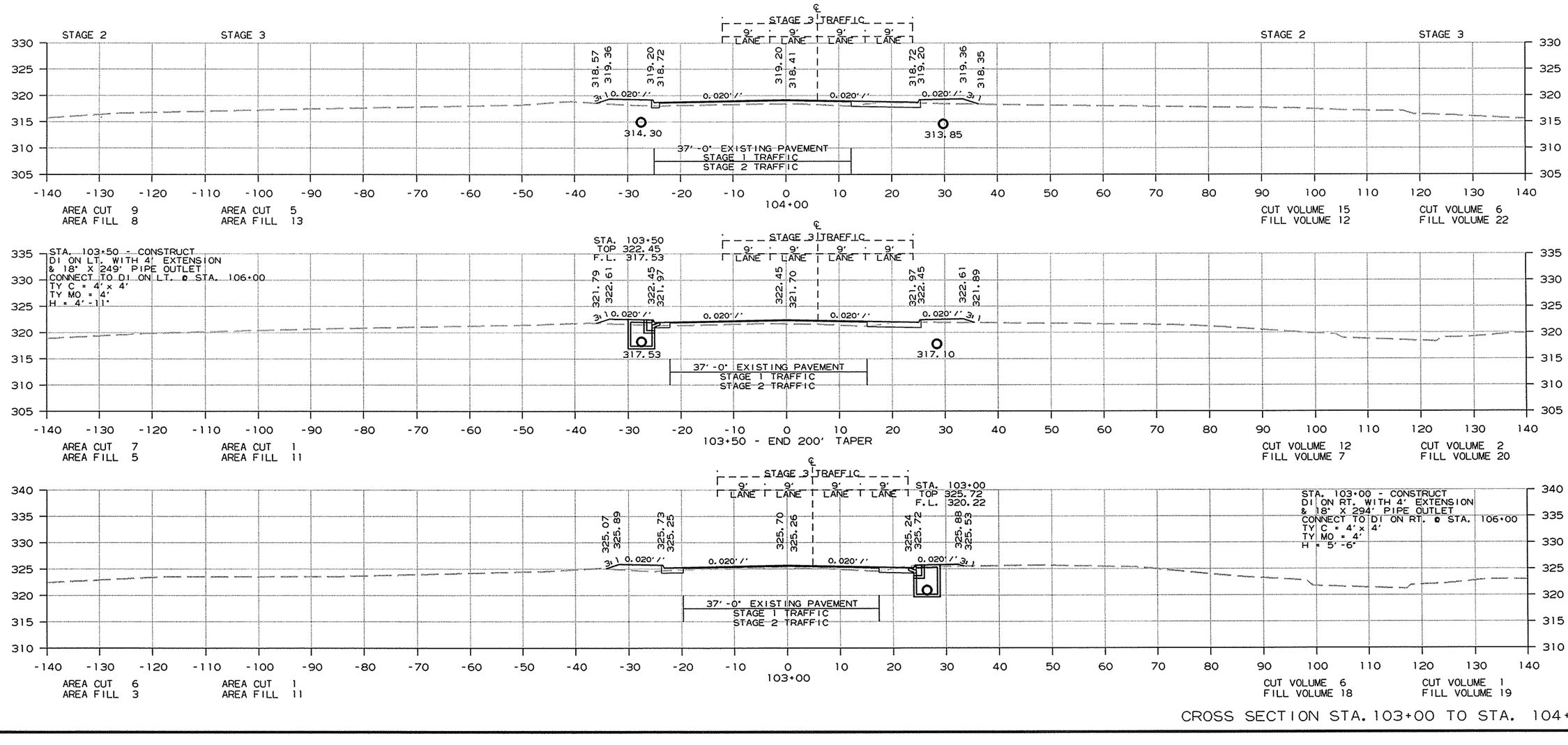
				JOB NO.		061277	123	160

(2) CROSS SECTIONS



CROSS SECTION STA. 103+00 TO STA. 104+00

9/22/2014

R061277.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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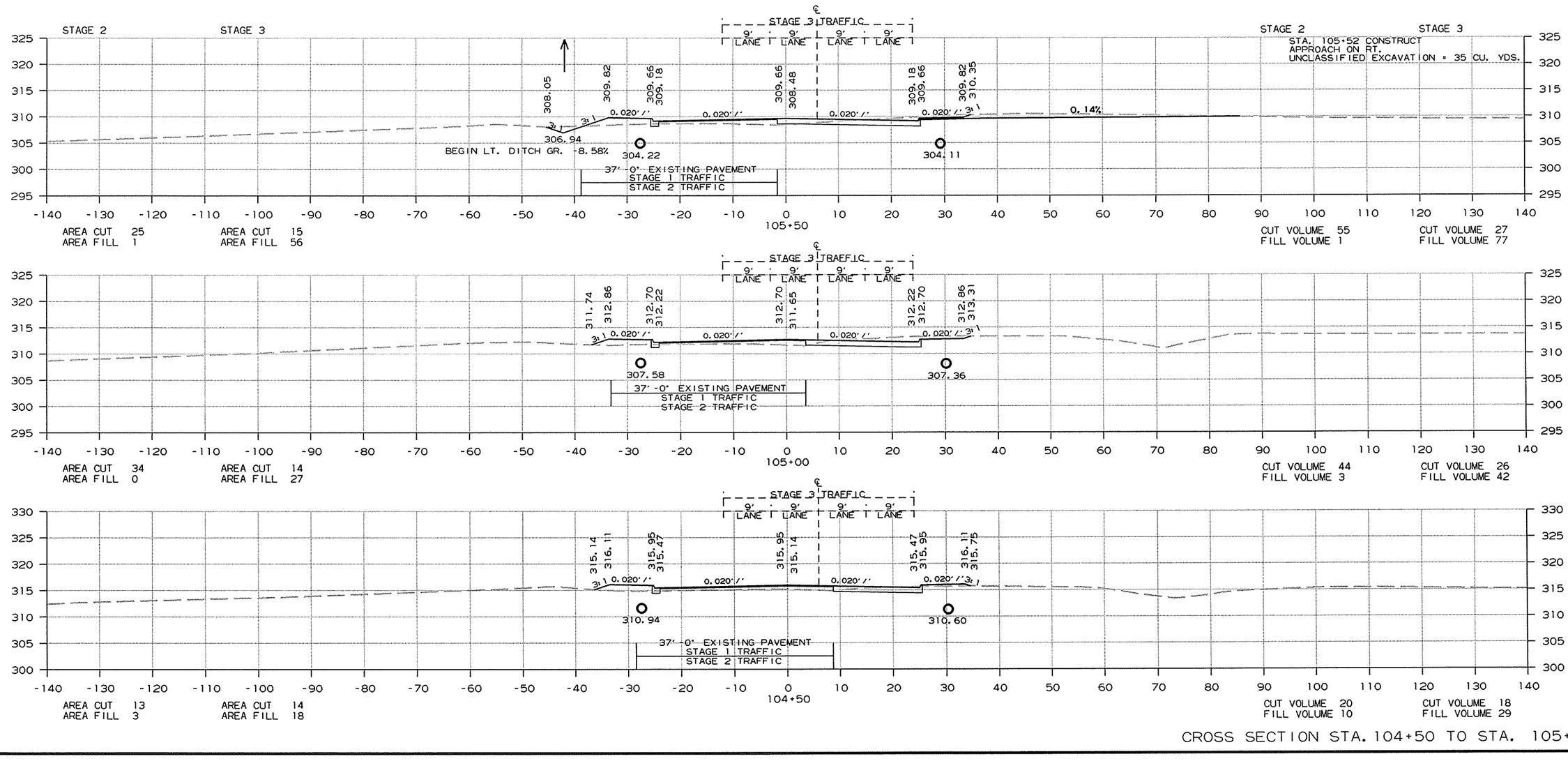
				JOB NO.	061277		124	160

(2) CROSS SECTIONS



CROSS SECTION STA. 104+50 TO STA. 105+50

9/22/2014

R061277.DGN

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				JOB NO.		061277	125	160

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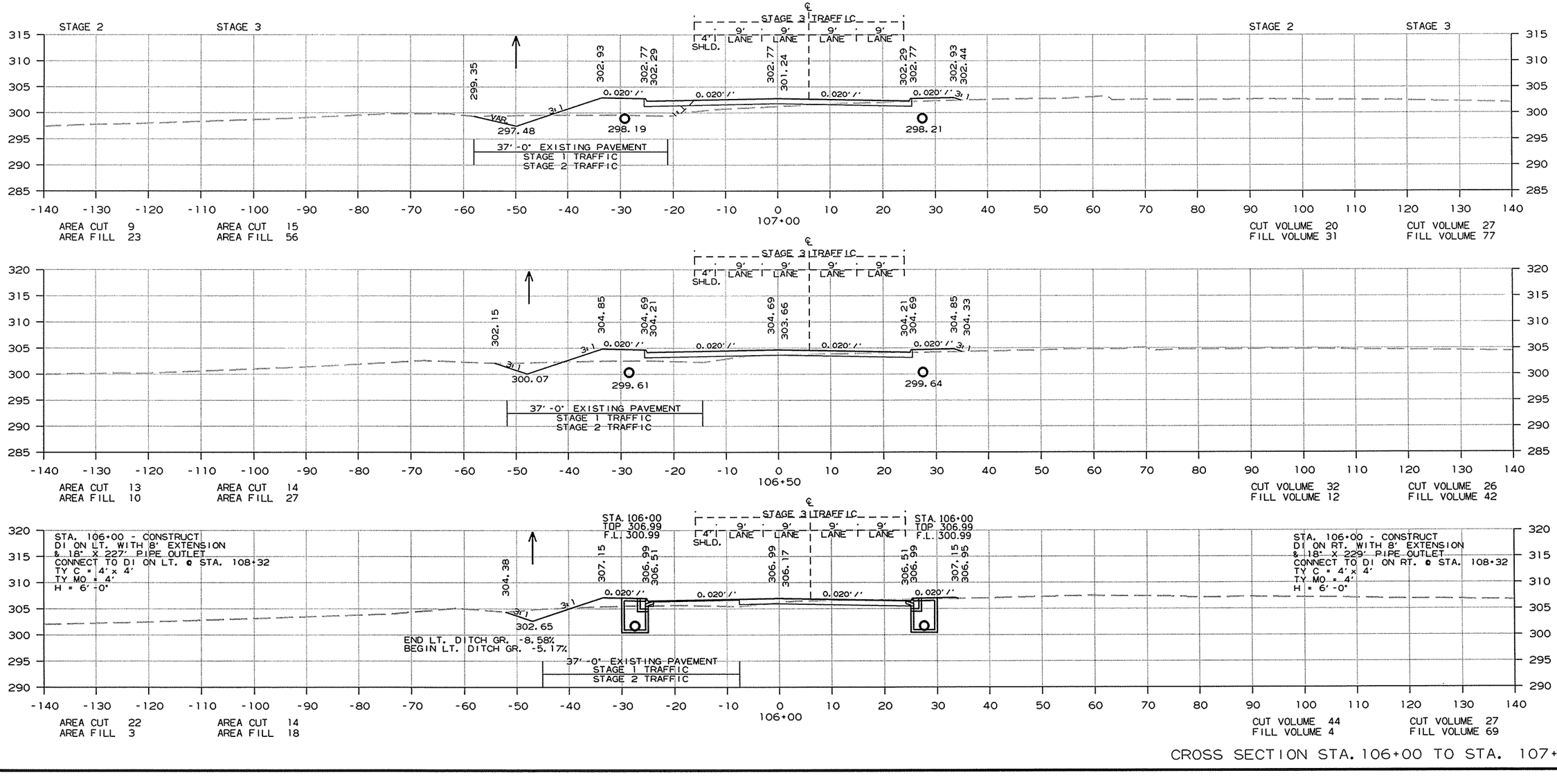

CROSS SECTION STA. 106+00 TO STA. 107+00

9/22/2014

R061277.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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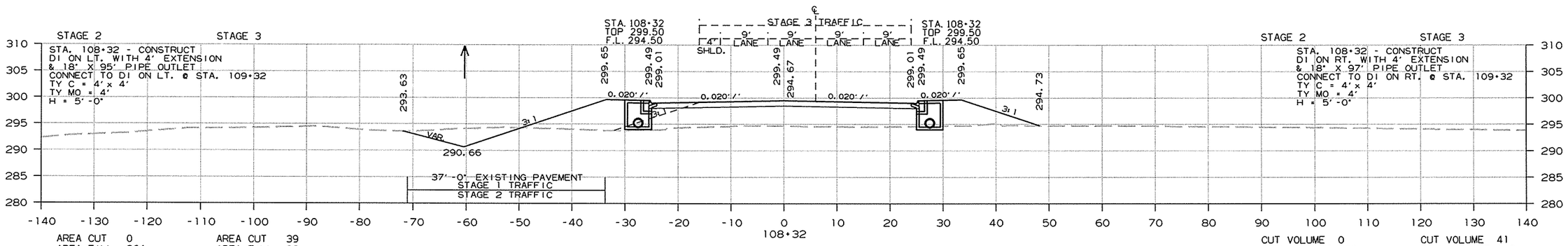
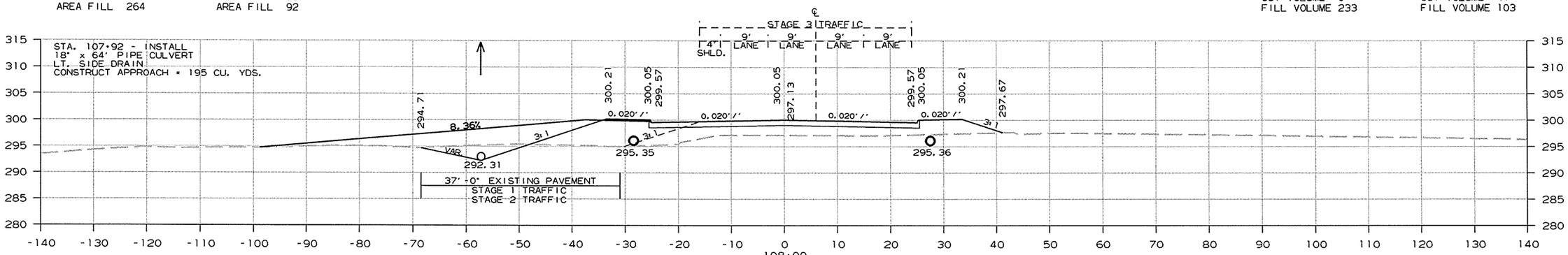
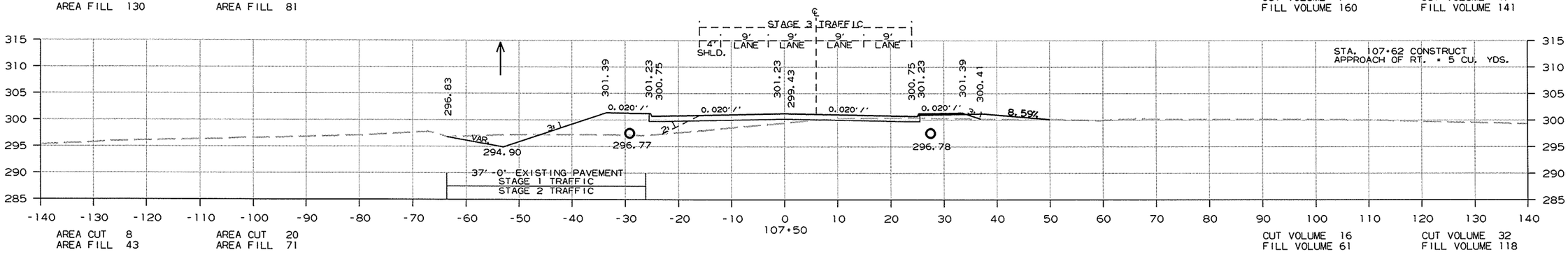
				JOB NO.		061277	126	160

(2) CROSS SECTIONS







CROSS SECTION STA. 107+50 TO STA. 108+32

1/31/2014

R061277.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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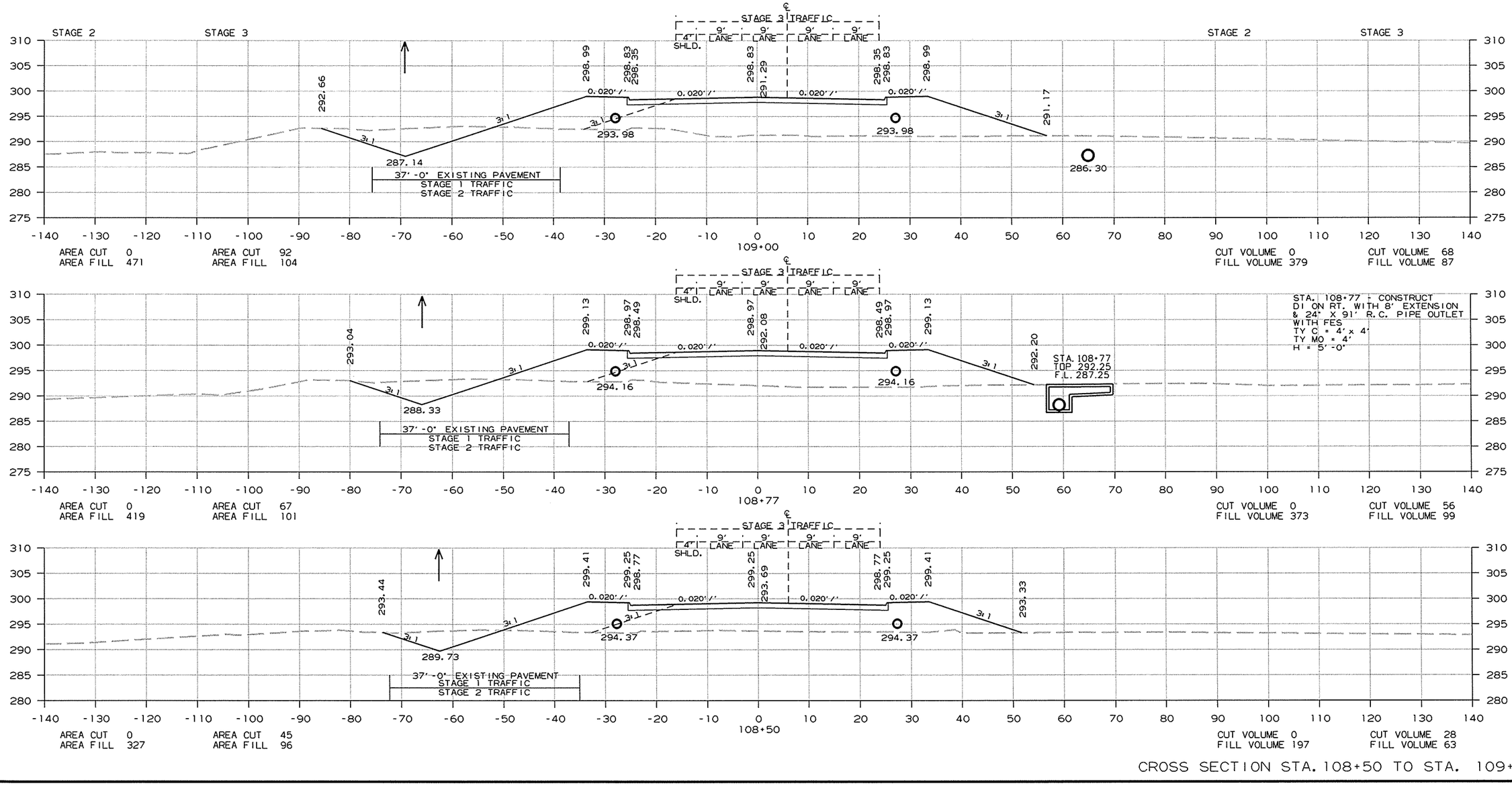
				JOB NO.		061277	127	160

(2) CROSS SECTIONS



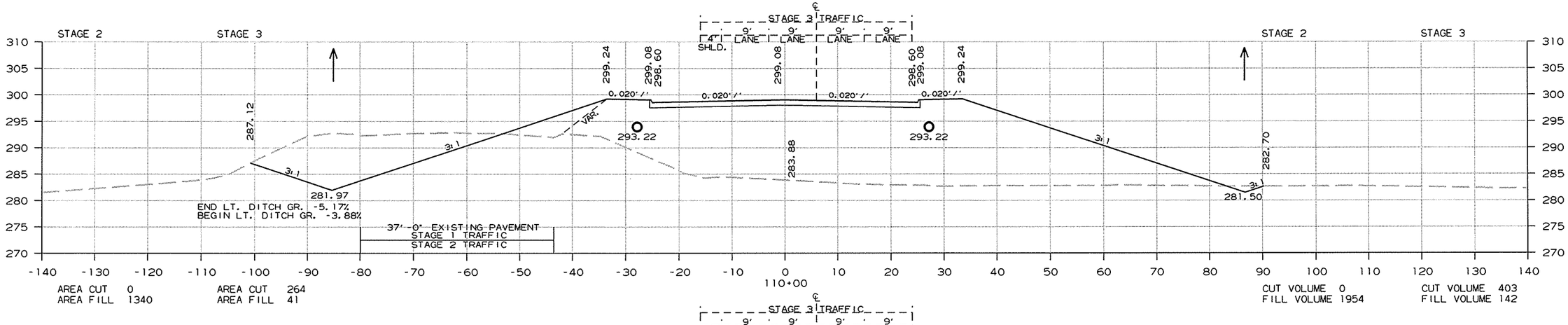
CROSS SECTION STA. 108+50 TO STA. 109+00

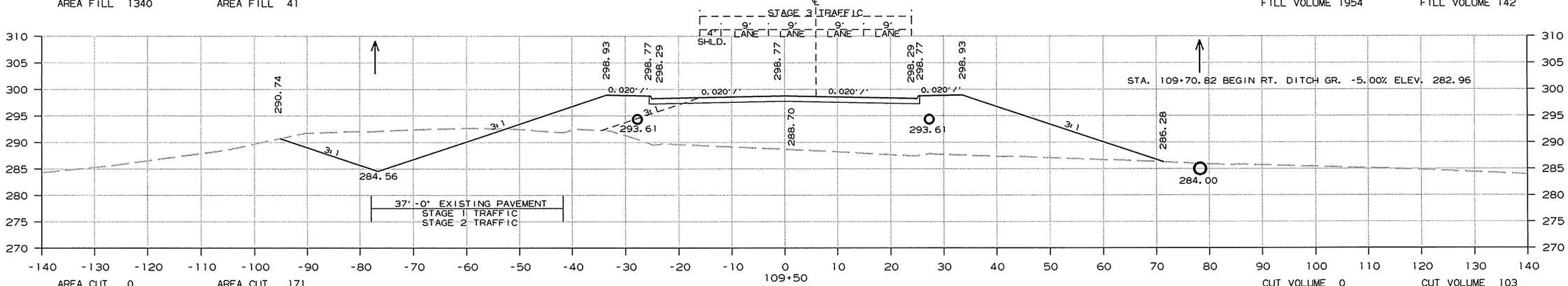
1/31/2014

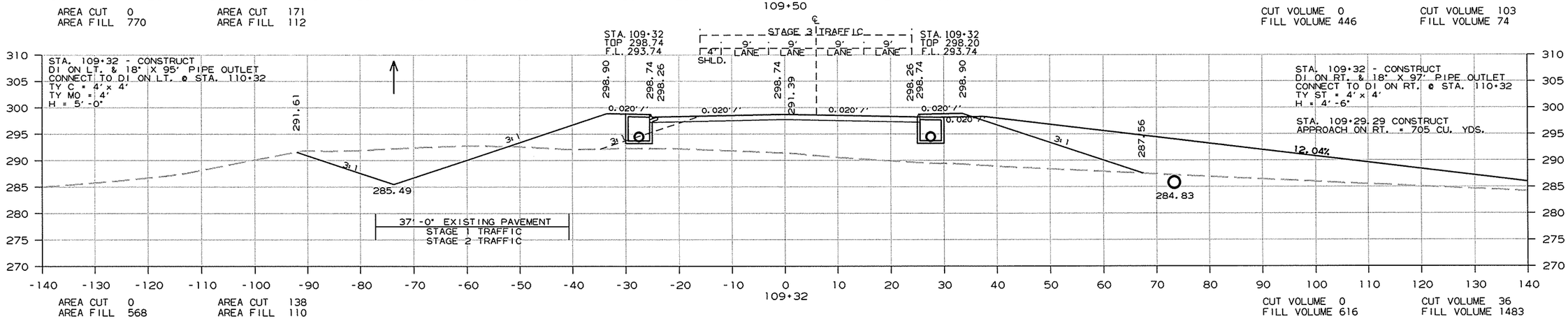
R061277.DGN

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.		061277	128	160

(2) CROSS SECTIONS







CROSS SECTION STA. 109+32 TO STA. 110+00

1/31/2014

R061277.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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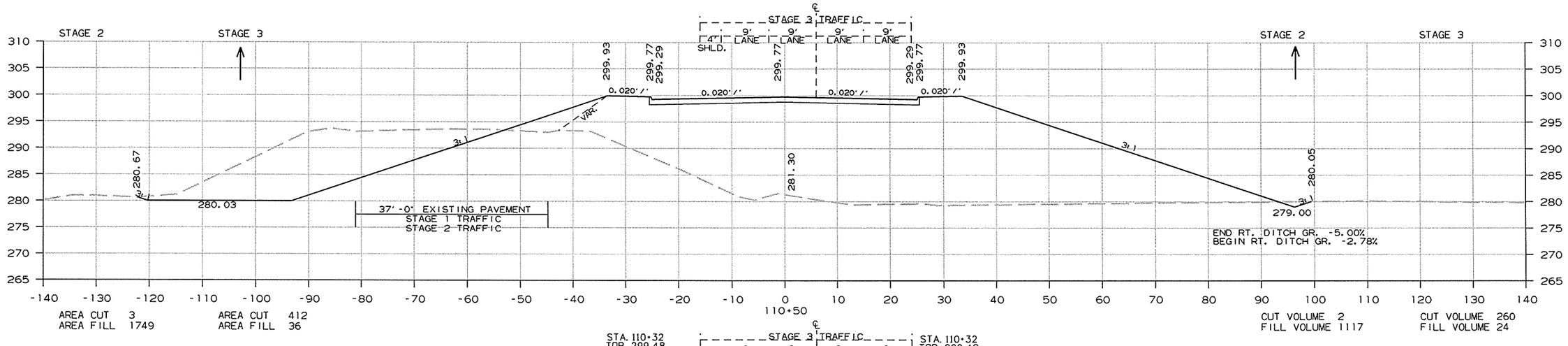
(2) CROSS SECTIONS



CROSS SECTION STA. 110+32 TO STA. 110+50

1/31/2014

R061277.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.		061277	130	160

(2) CROSS SECTIONS

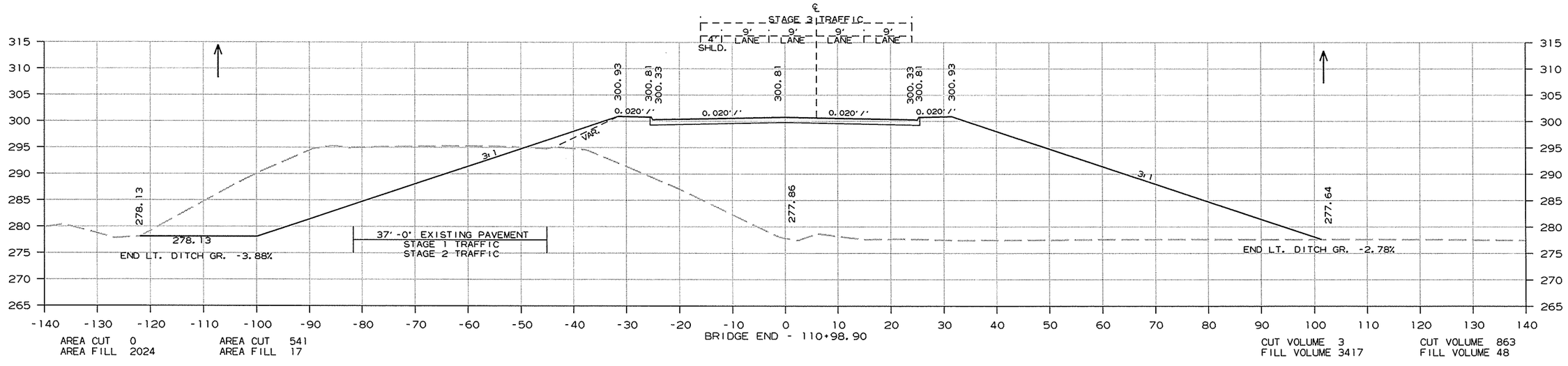
STAGE 2 | STAGE 3

TOE OF SLOPE - 111+61

STAGE 2 | STAGE 3

AREA CUT 0 | AREA CUT 0
AREA FILL 0 | AREA FILL 0

CUT VOLUME 0 | CUT VOLUME 621
FILL VOLUME 2324 | FILL VOLUME 20



AREA CUT 0 | AREA CUT 541
AREA FILL 2024 | AREA FILL 17

CUT VOLUME 3 | CUT VOLUME 863
FILL VOLUME 3417 | FILL VOLUME 48

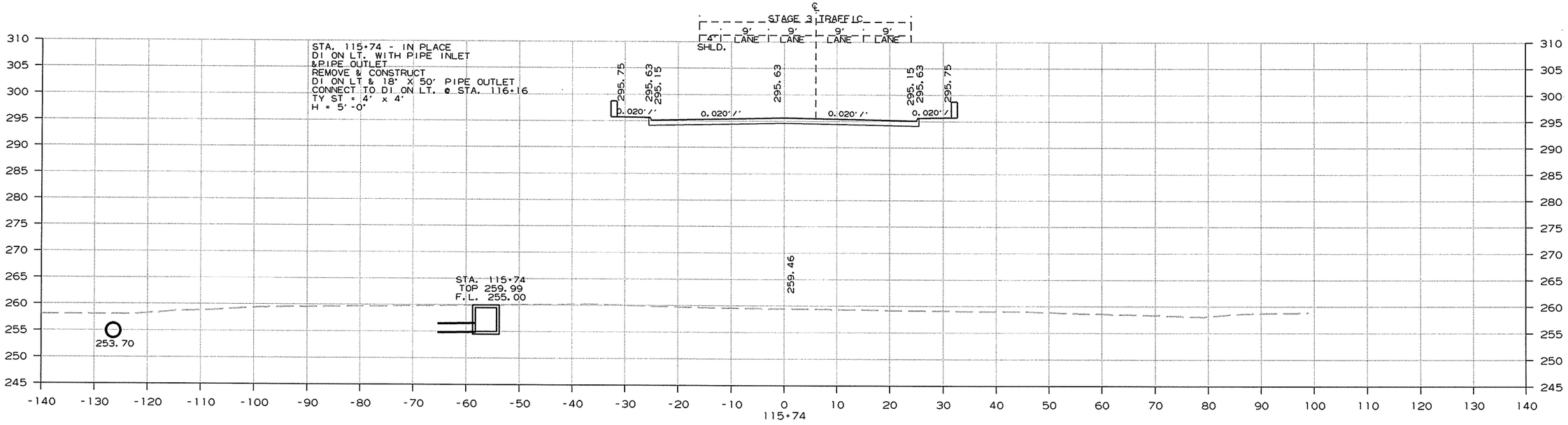
CROSS SECTION STA. 110+98.90 TO STA. 110+98.90

1/31/2014

R061277.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.		061277	131	160

(2) CROSS SECTIONS



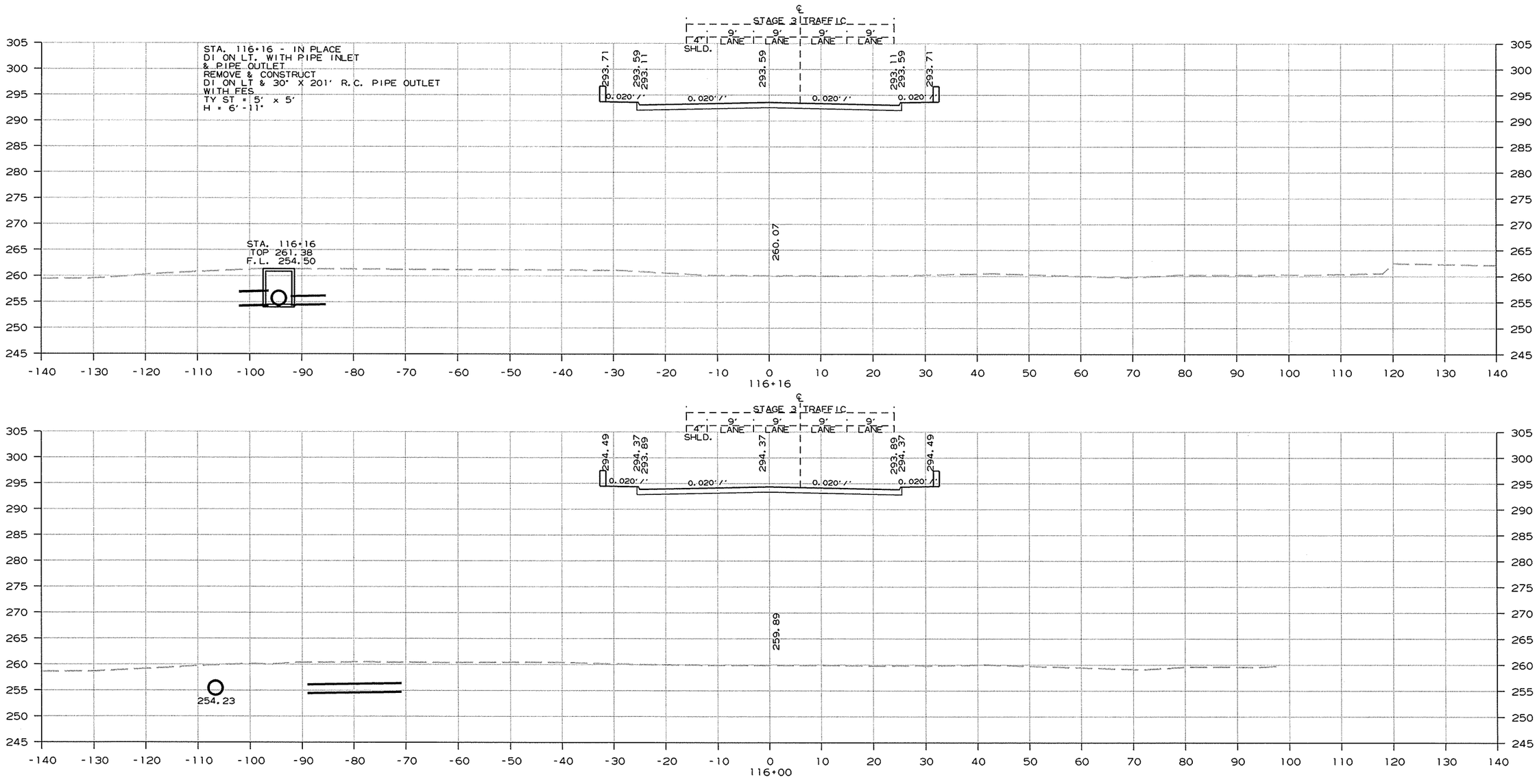
CROSS SECTION STA. 115+74 TO STA. 115+74

1/31/2014

R061277.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.		061277	132	160

(2) CROSS SECTIONS



CROSS SECTION STA. 116+00 TO STA. 116+16

1/31/2014

R061277.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.		061277	133	160

(2) CROSS SECTIONS

STAGE 2

AREA CUT 0
AREA FILL 0

STAGE 3

AREA CUT 0
AREA FILL 0

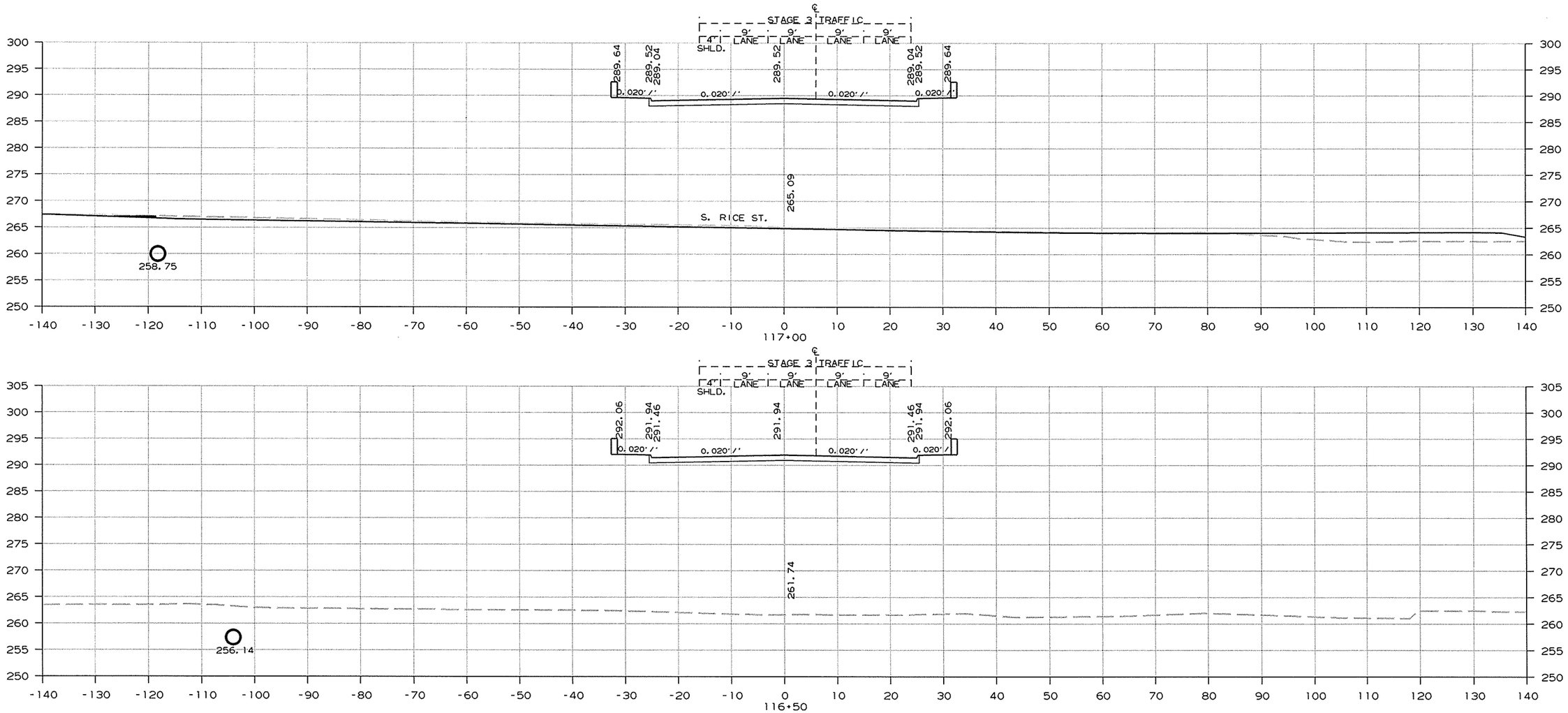
TOE OF SLOPE - 117+18

STAGE 2

CUT VOLUME 0
FILL VOLUME 0

STAGE 3

CUT VOLUME 0
FILL VOLUME 0



CROSS SECTION STA. 116+50 TO STA. 117+00

1/31/2014

R061277.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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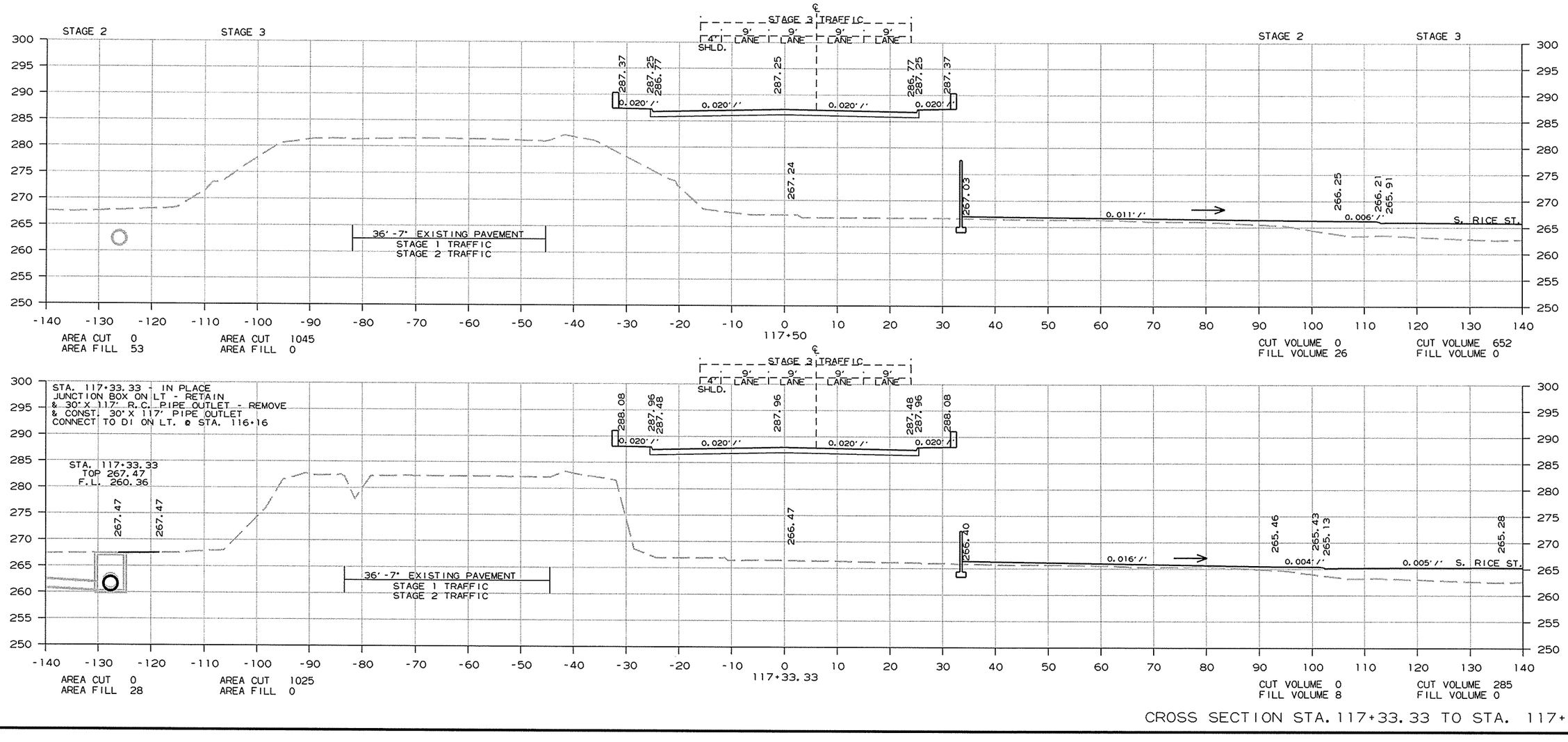
				JOB NO.		061277	134	160

(2) CROSS SECTIONS



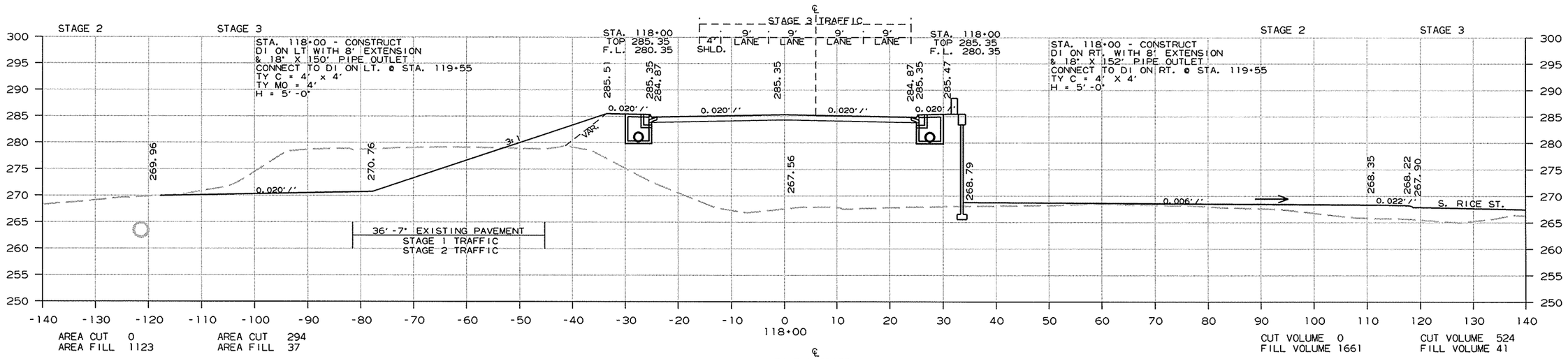
CROSS SECTION STA. 117+33.33 TO STA. 117+50

1/31/2014

R061277.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.		061277	135	160

(2) CROSS SECTIONS



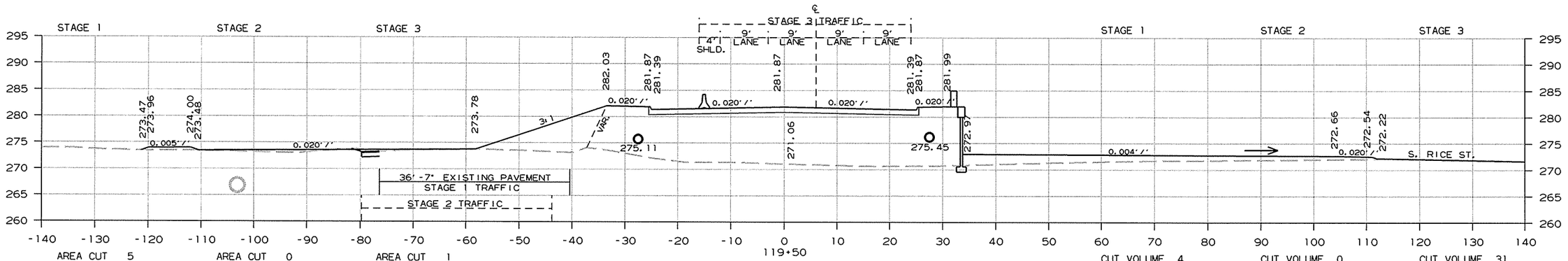
CROSS SECTION STA. 117+61.10 TO STA. 118+00

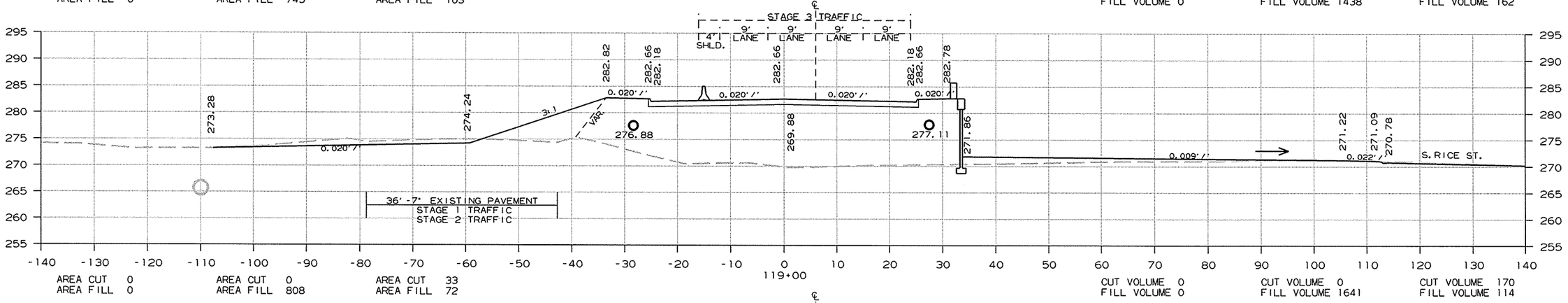
1/31/2014

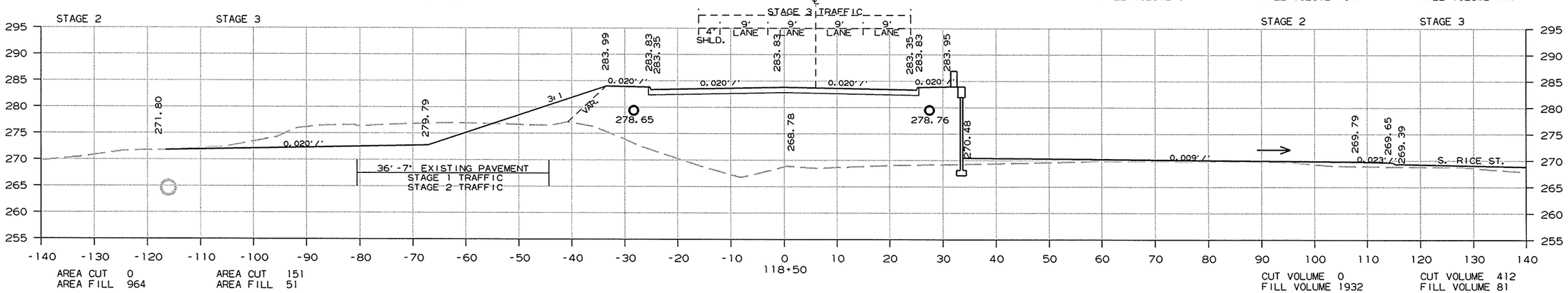
R061277.DGN

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.		061277	136	160

(2) CROSS SECTIONS







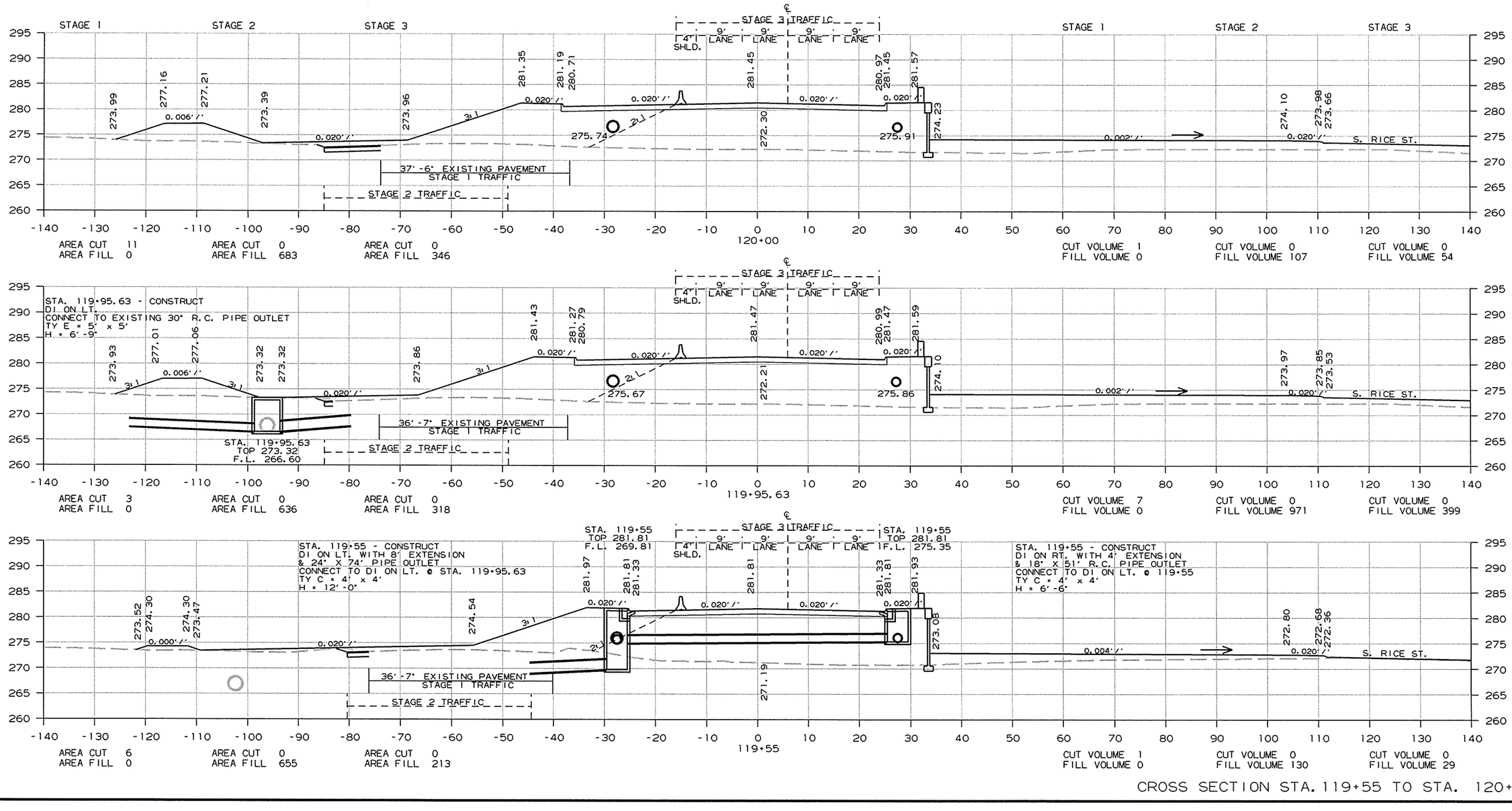
CROSS SECTION STA. 118+50 TO STA. 119+50

1/31/2014

R061277.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.		061277	137	160

(2) CROSS SECTIONS



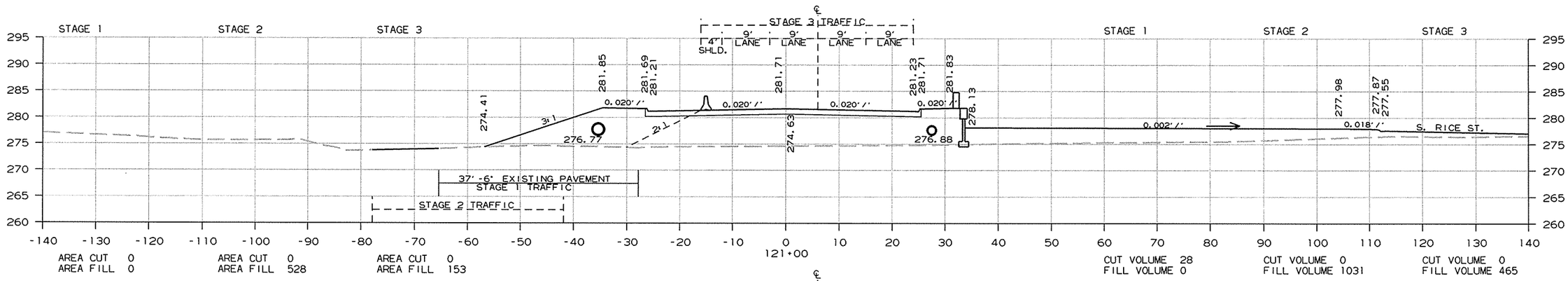
CROSS SECTION STA. 119+55 TO STA. 120+00

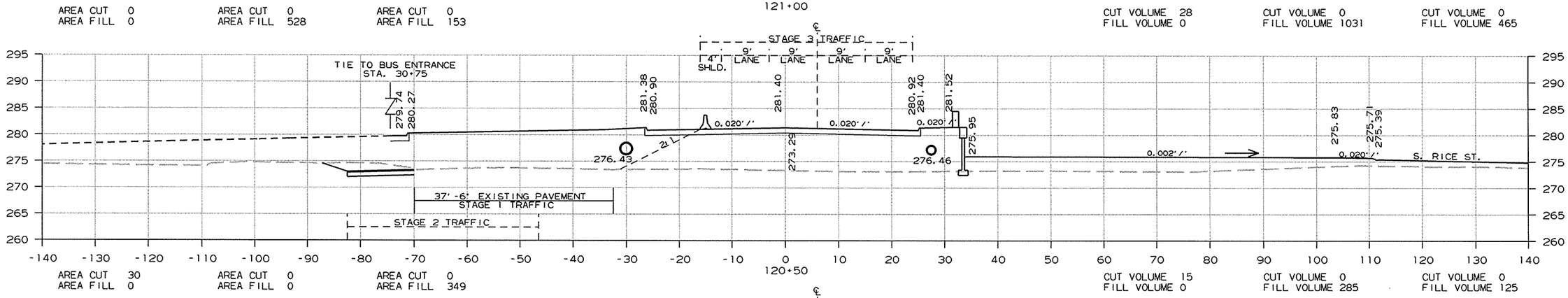
1/31/2014

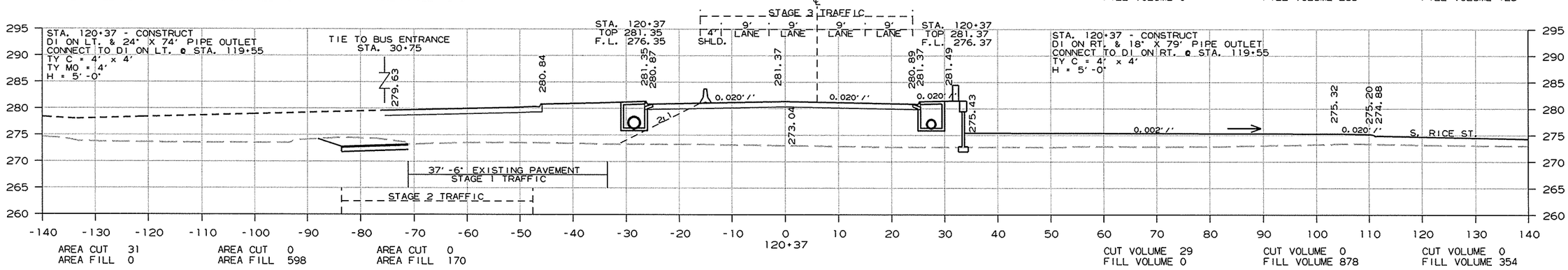
R061277.DGN

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.		061277	138	160

(2) CROSS SECTIONS







CROSS SECTION STA. 120+37 TO STA. 121+00

1/31/2014

R061277.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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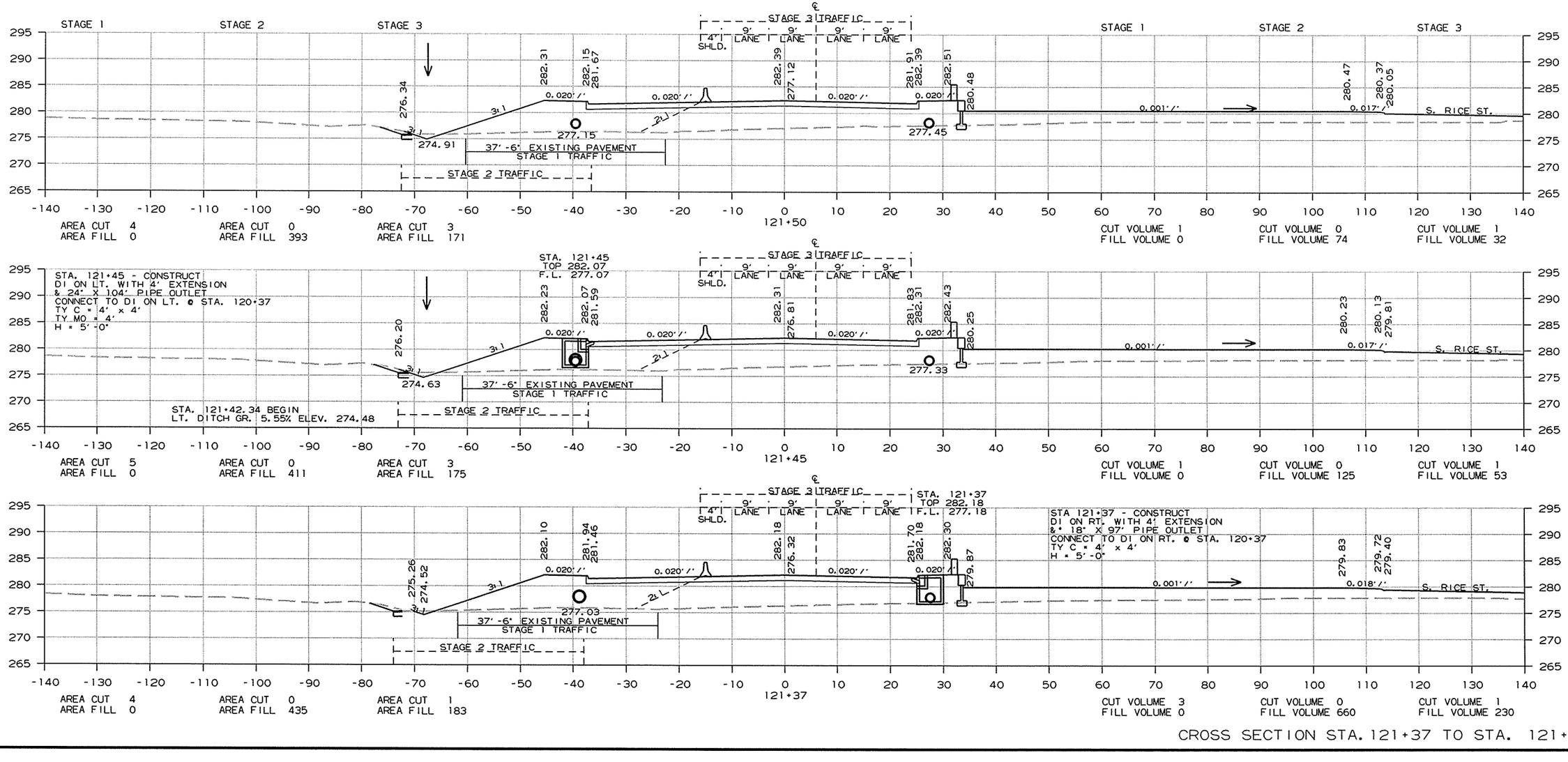
				JOB NO.		061277	139	160

(2) CROSS SECTIONS



CROSS SECTION STA. 121+37 TO STA. 121+50

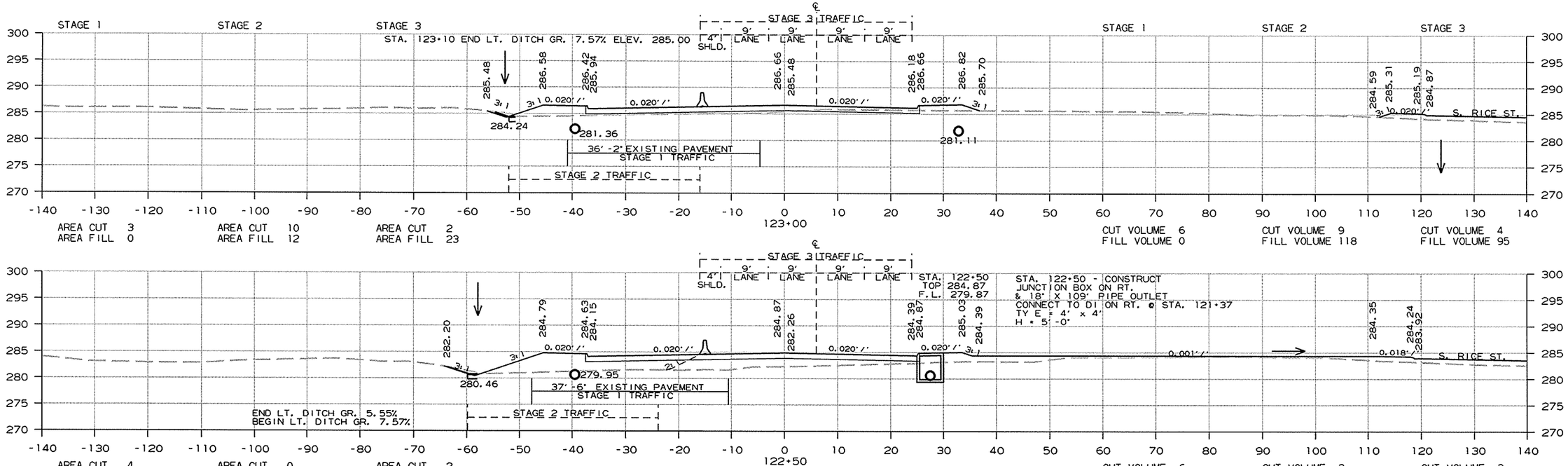
9/22/2014

R061277.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.		061277	140	160

(2) CROSS SECTIONS

STA. 123+44 BEGIN 341' TAPER ON LT.



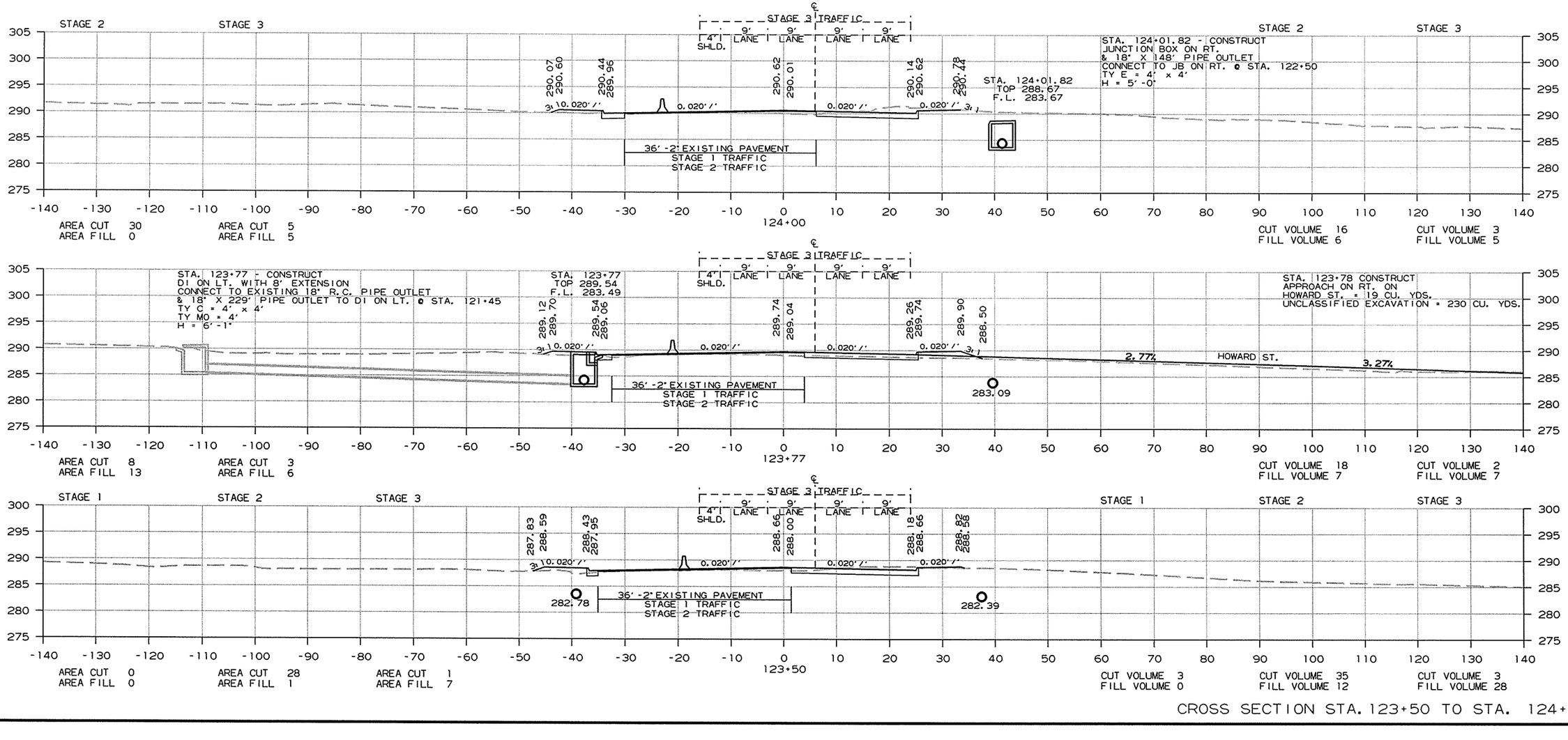
CROSS SECTION STA. 122+00 TO STA. 123+00

9/22/2014

R061277.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.		061277	141	160

(2) CROSS SECTIONS



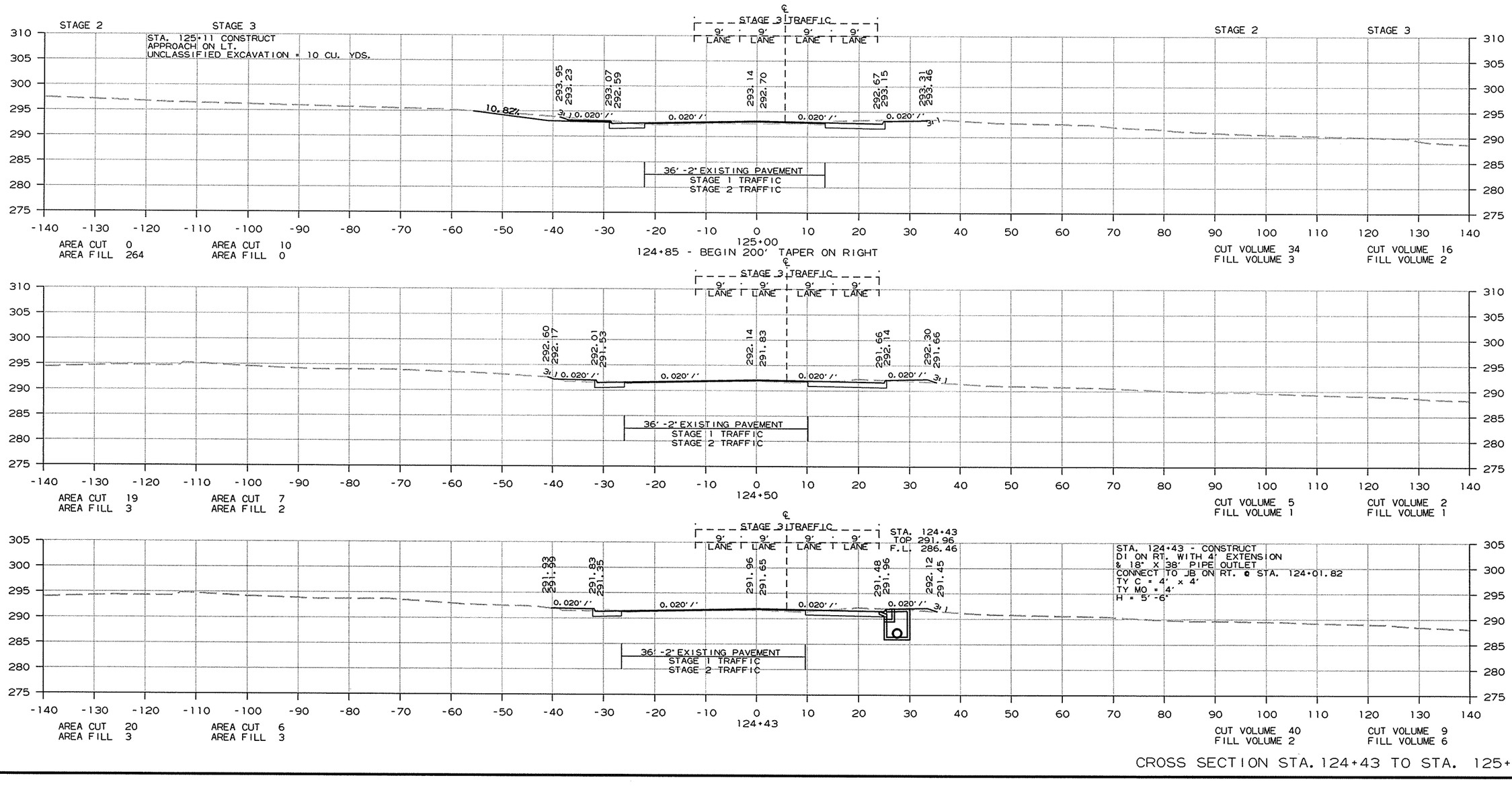
CROSS SECTION STA. 123+50 TO STA. 124+00

9/22/2014

R061277.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.		061277	142	160

(2) CROSS SECTIONS



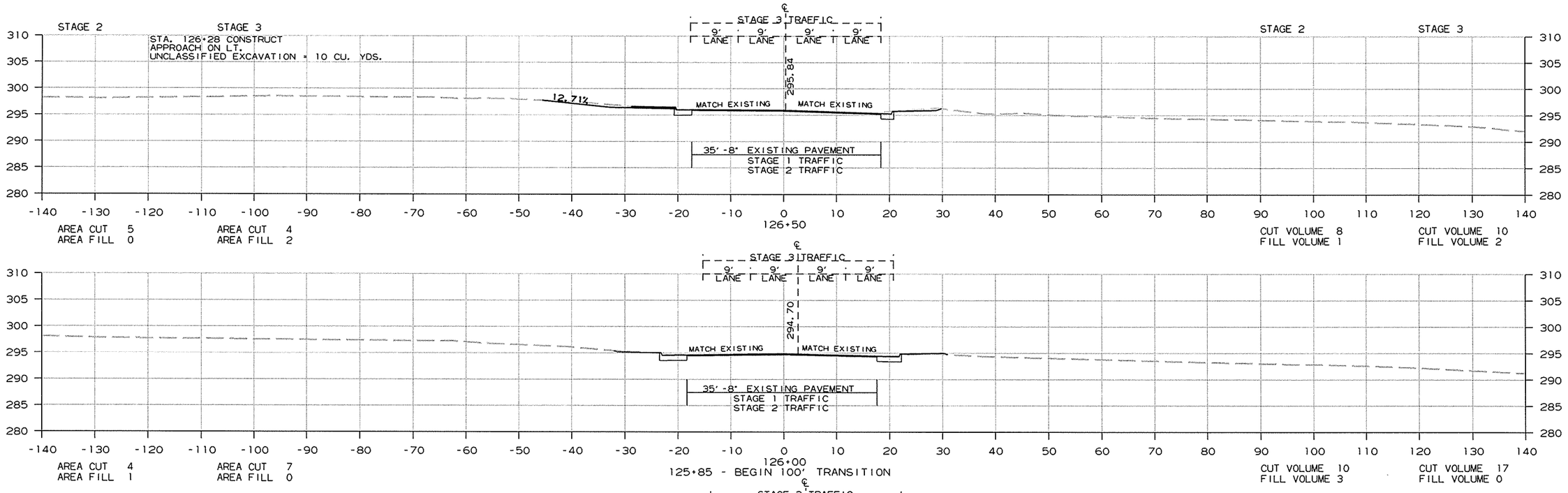
CROSS SECTION STA. 124+43 TO STA. 125+00

9/22/2014

R061277.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.		061277	143	160

(2) CROSS SECTIONS



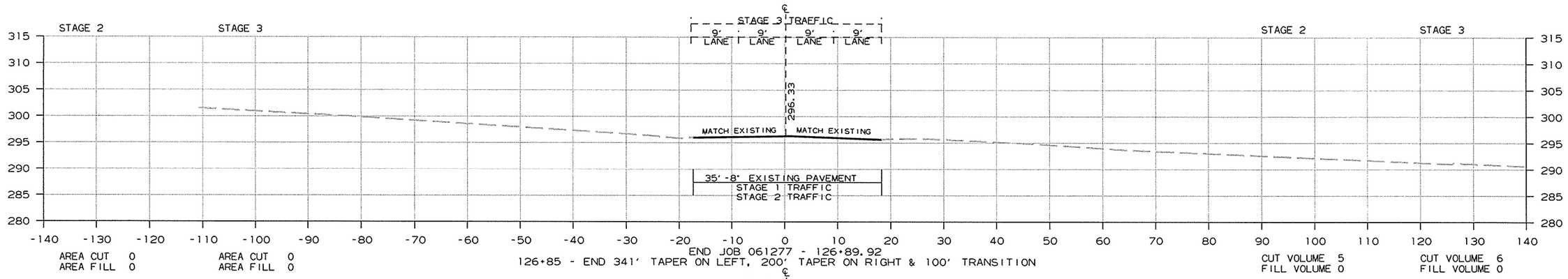
CROSS SECTION STA. 125+50 TO STA. 126+50

1/31/2014

R061277.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.		061277	144	160

(2) CROSS SECTIONS



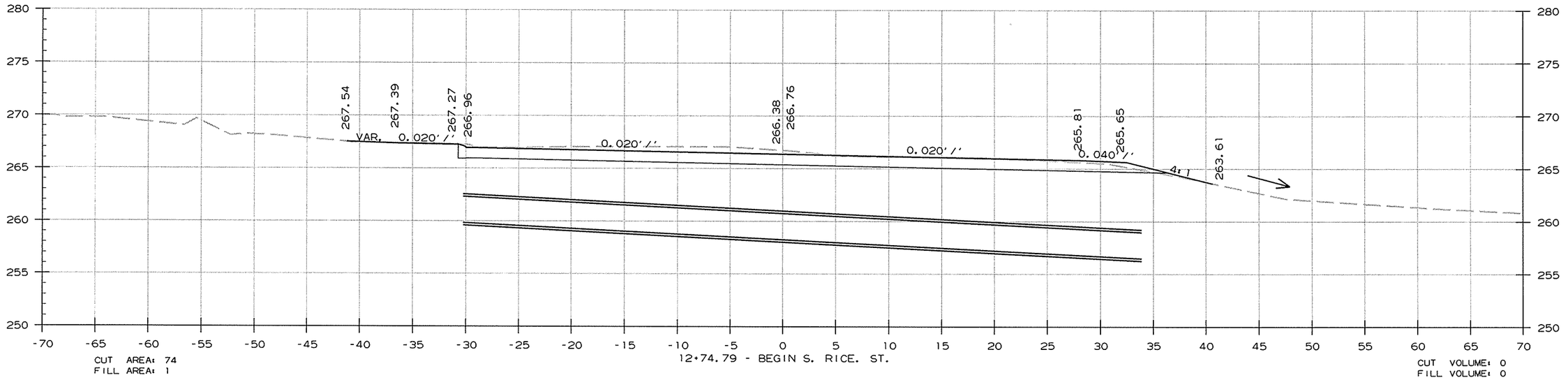
CROSS SECTION STA. 126+79 TO STA. 126+90

1/31/2014

R061277.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.		061277	145	160

(2) CROSS SECTIONS

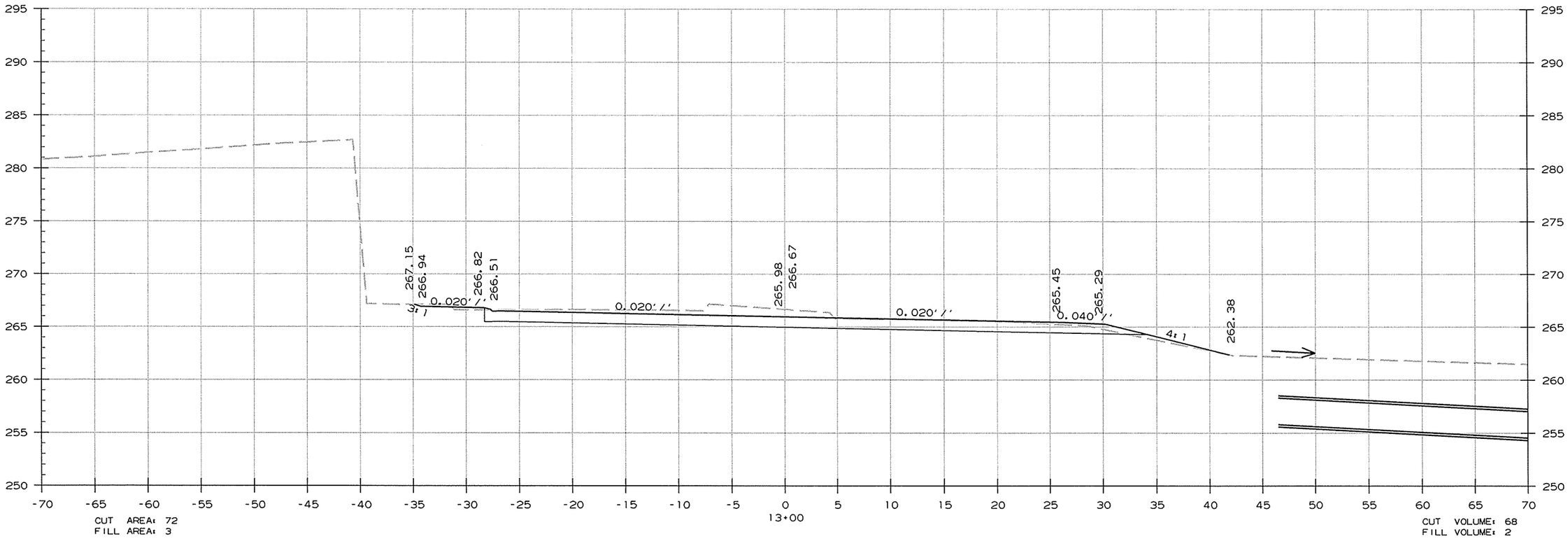


S. RICE ST.
CROSS SECTION STA. 12+49.79 TO STA. 12+75

R061277.DGN 1/31/2014

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.		061277	146	160

(2) CROSS SECTIONS



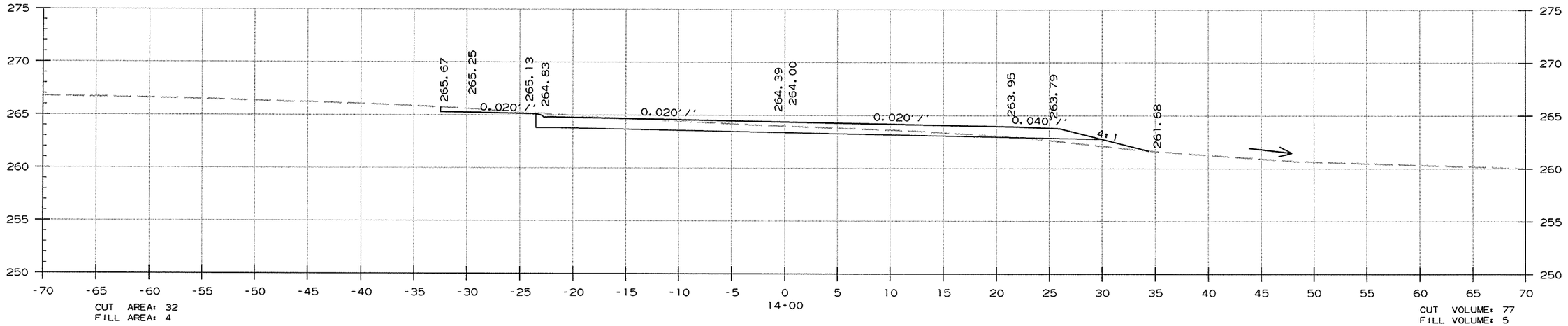
S. RICE ST.
CROSS SECTION STA. 13+00 TO STA. 13+00

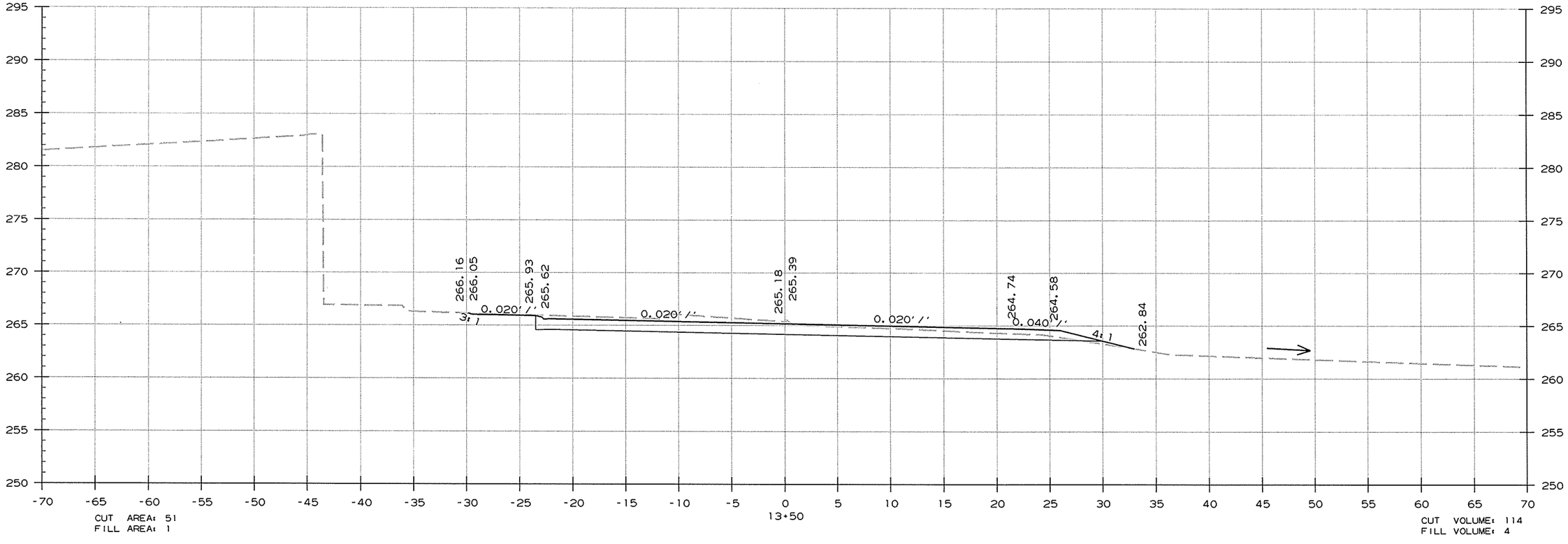
1/31/2014

R061277.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.		061277	147	160

(2) CROSS SECTIONS





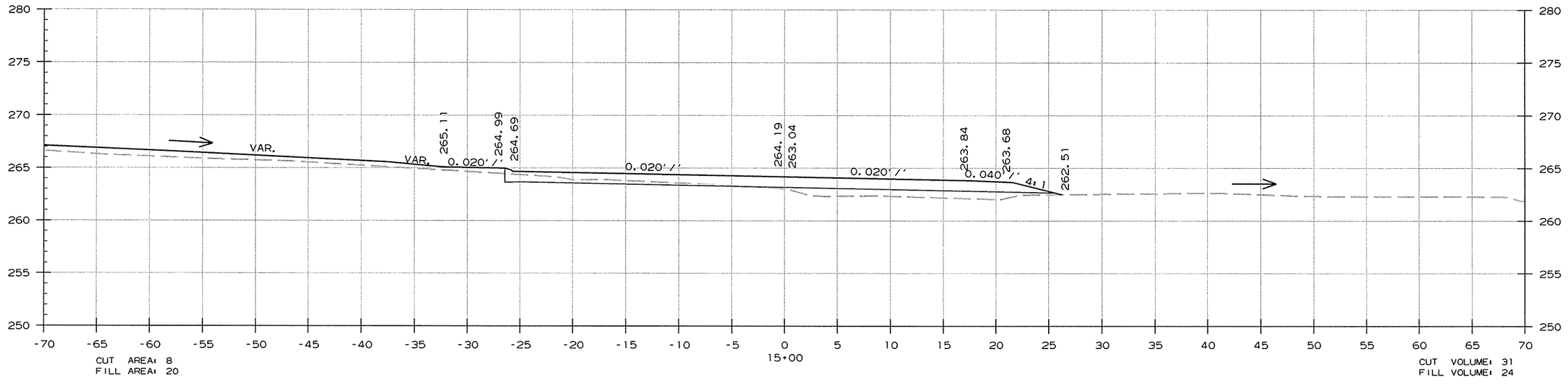
S. RICE ST.
CROSS SECTION STA. 13+50 TO STA. 14+00

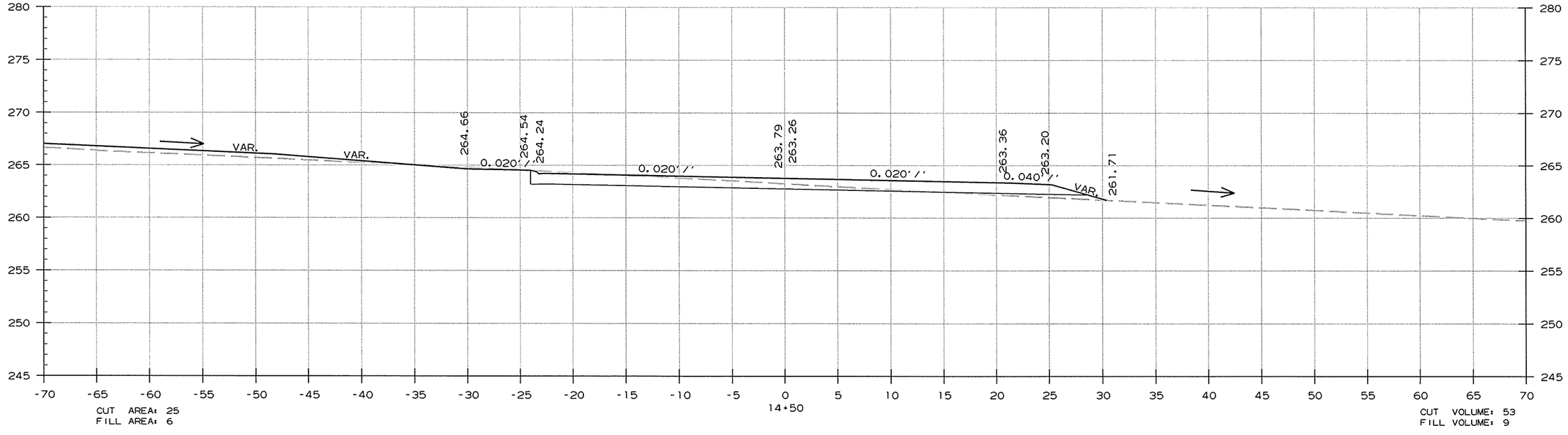
1/31/2014

R061277.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.		061277	148	160

(2) CROSS SECTIONS





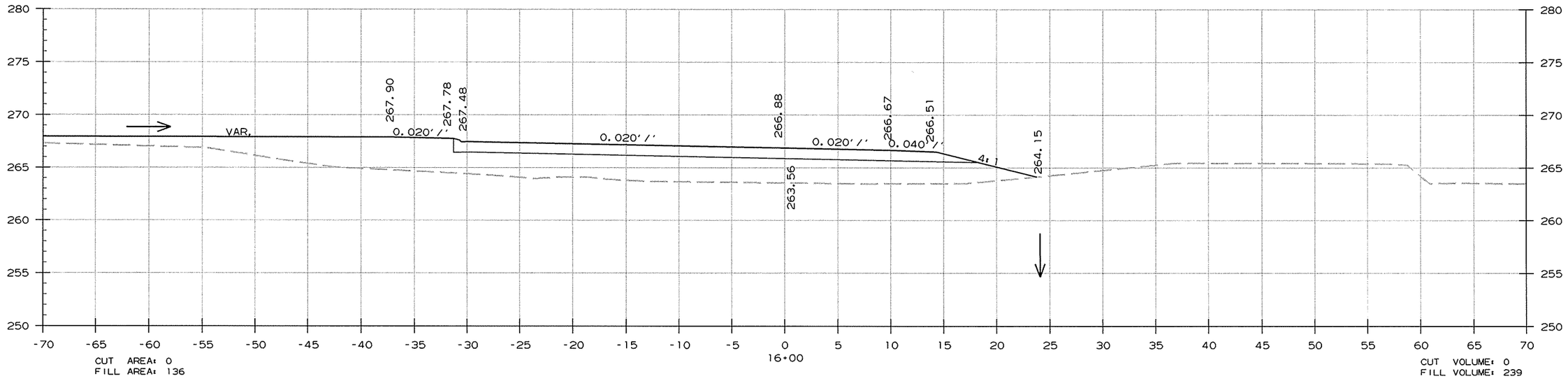
S. RICE ST.
CROSS SECTION STA. 14+50 TO STA. 15+00

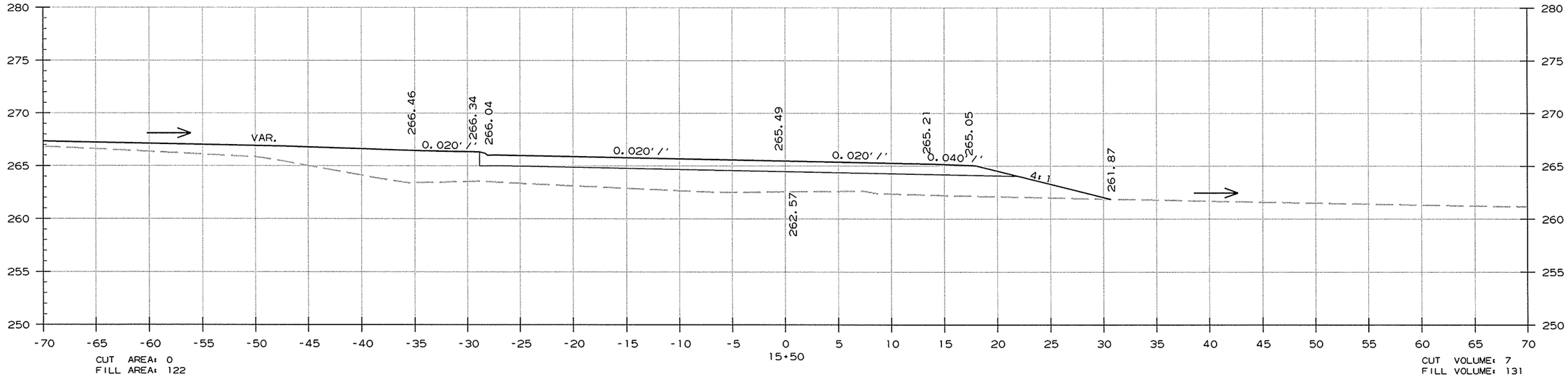
1/31/2014

R061277.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.		061277	149	160

(2) CROSS SECTIONS





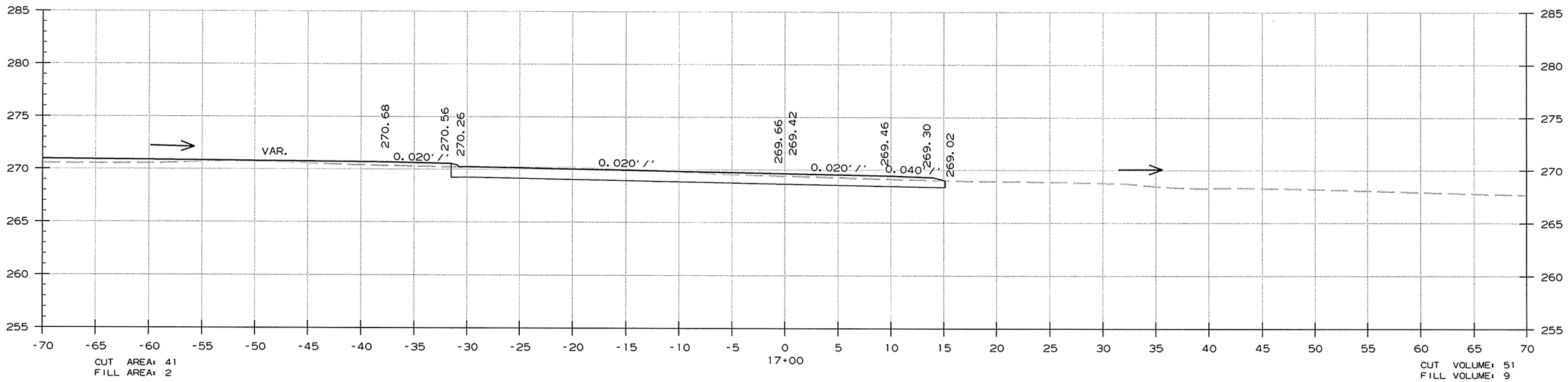
S. RICE ST.
CROSS SECTION STA. 15+50 TO STA. 16+00

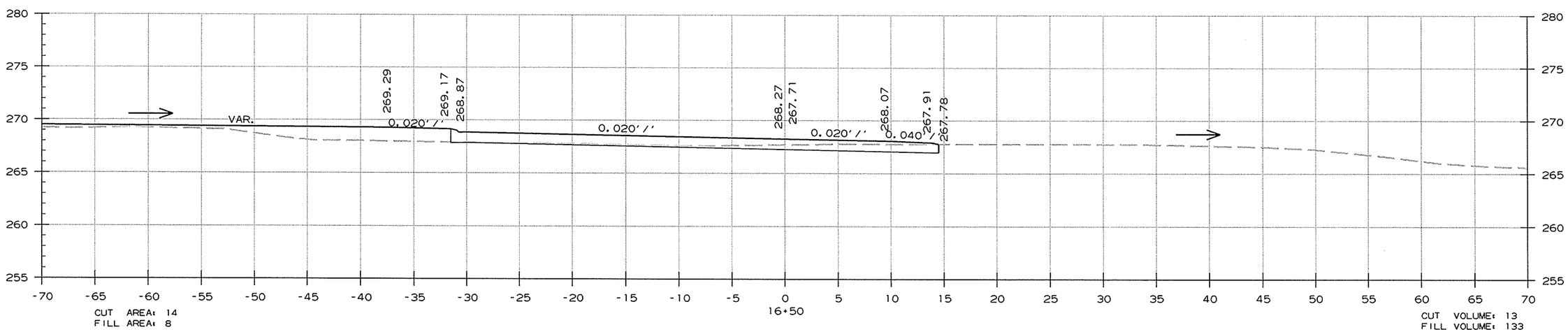
1/31/2014

R061277.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.		061277	150	160

(2) CROSS SECTIONS





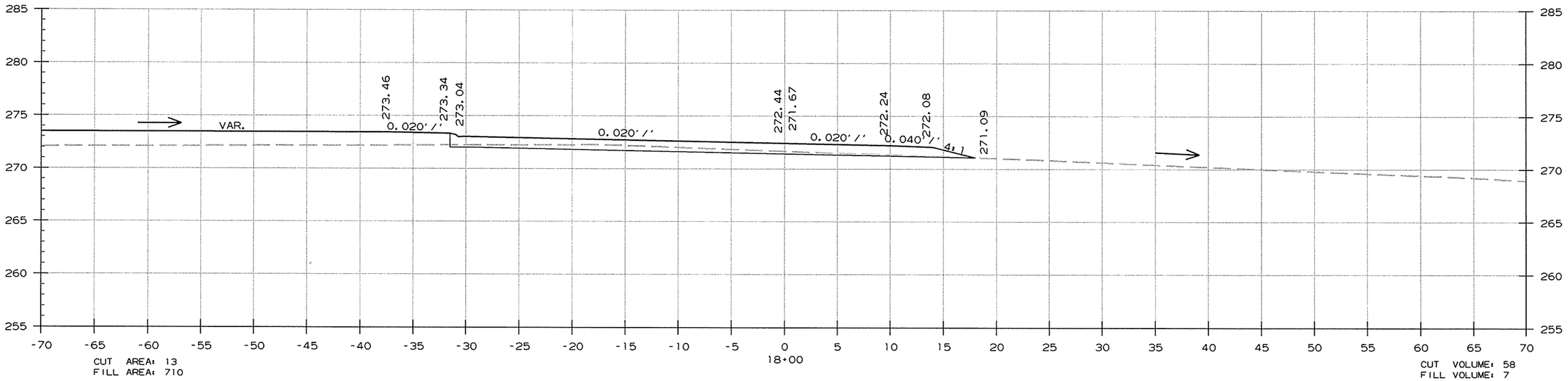
S. RICE ST.
CROSS SECTION STA. 16+50 TO STA. 17+00

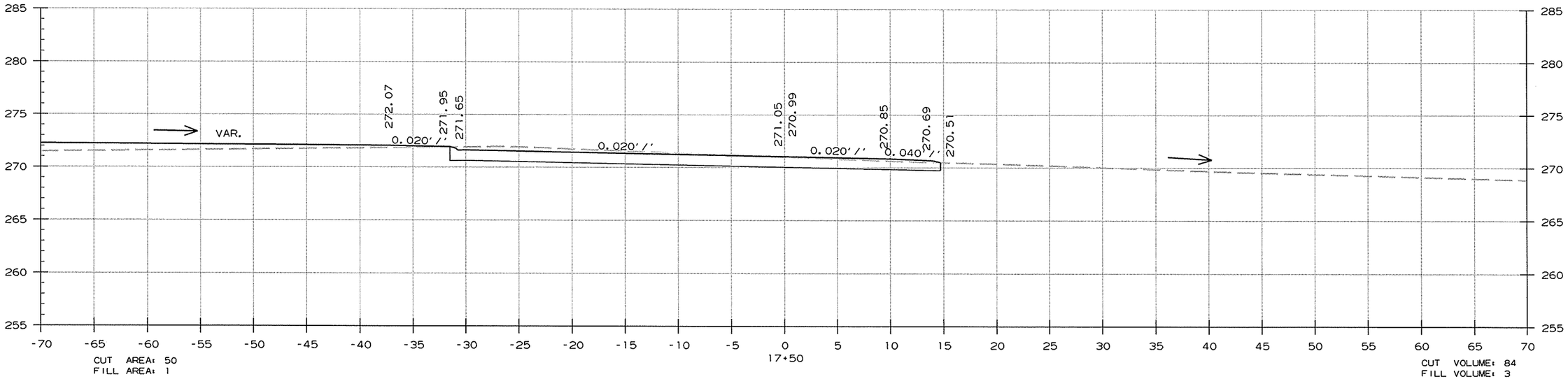
1/31/2014

R061277.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.		061277	151	160

(2) CROSS SECTIONS





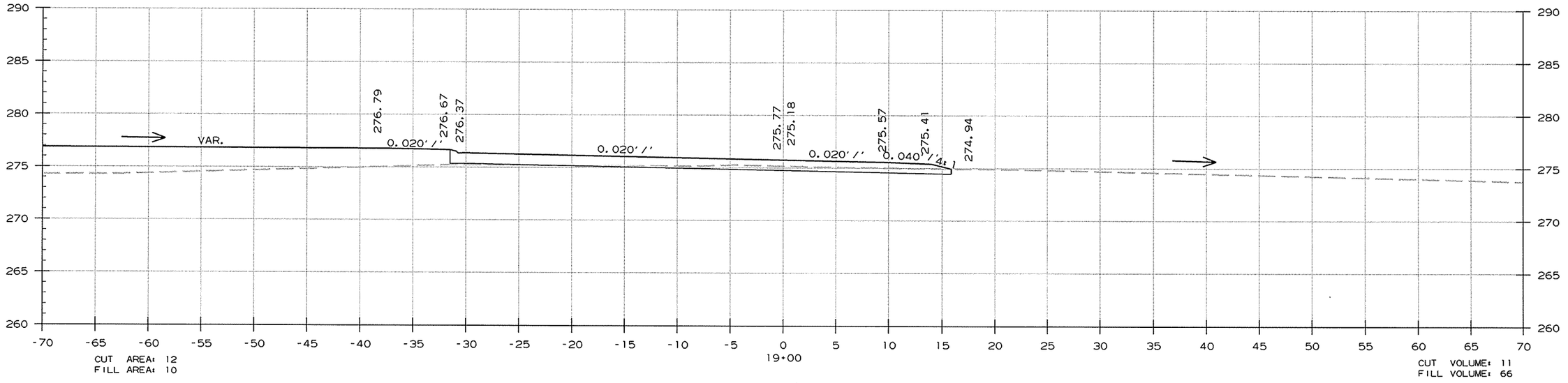
S. RICE ST.
CROSS SECTION STA. 17+50 TO STA. 18+00

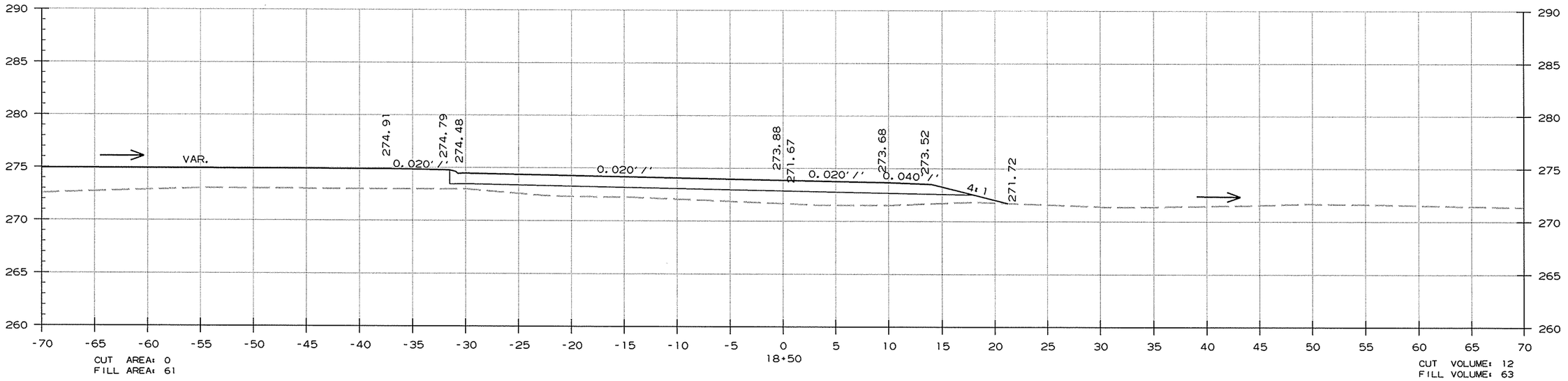
1/31/2014

R061277.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.		061277	152	160

(2) CROSS SECTIONS





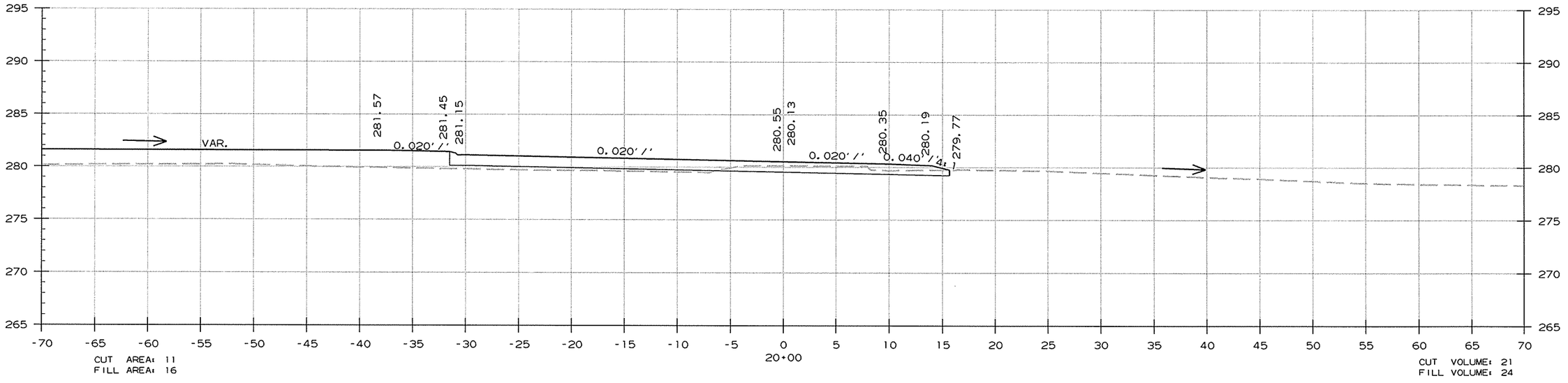
S. RICE ST.
CROSS SECTION STA. 18+50 TO STA. 19+00

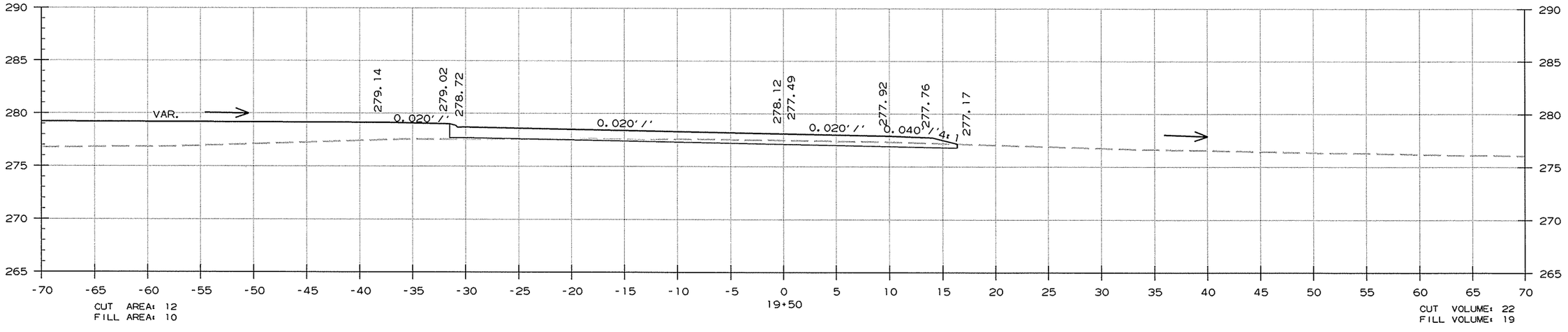
1/31/2014

R061277.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.		061277	153	160

(2) CROSS SECTIONS





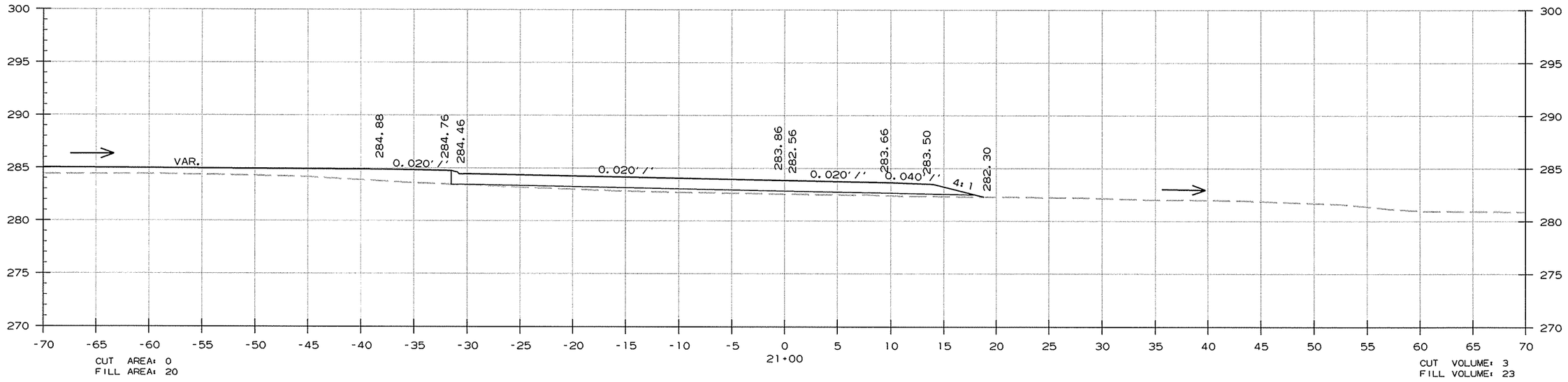
S. RICE ST.
CROSS SECTION STA. 19+50 TO STA. 20+00

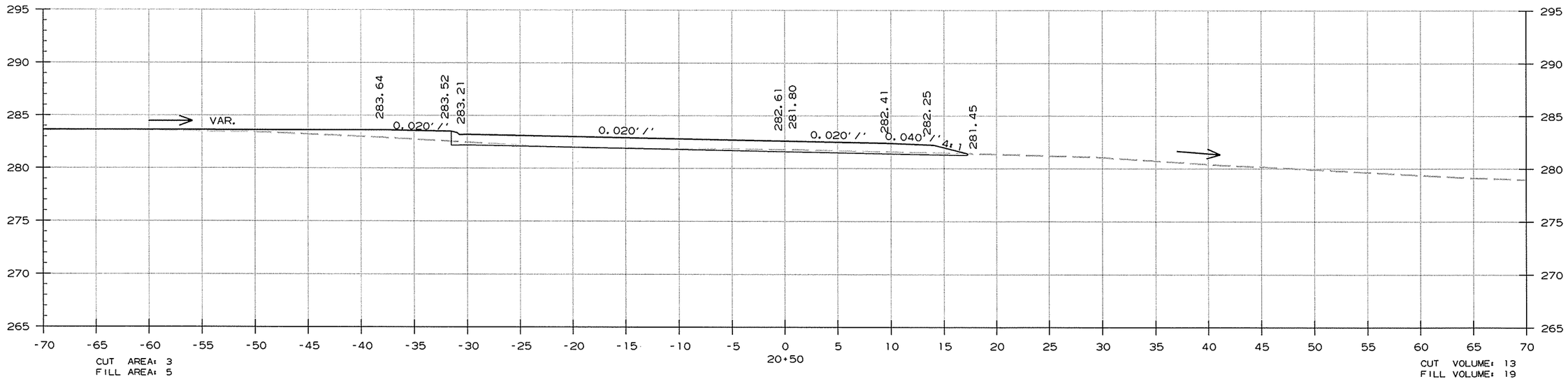
1/31/2014

R061277.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.		061277	154	160

(2) CROSS SECTIONS





S. RICE ST.
CROSS SECTION STA. 20+50 TO STA. 21+00

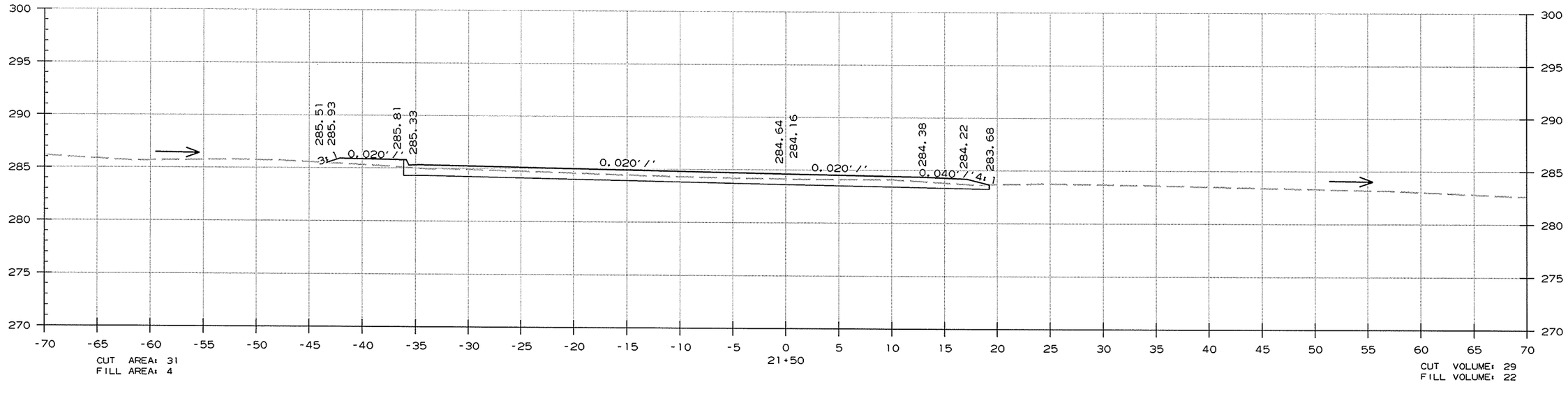
1/31/2014

R061277.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.		061277	155	160

(2) CROSS SECTIONS

STA. 21+65.15 - END S. RICE. ST.



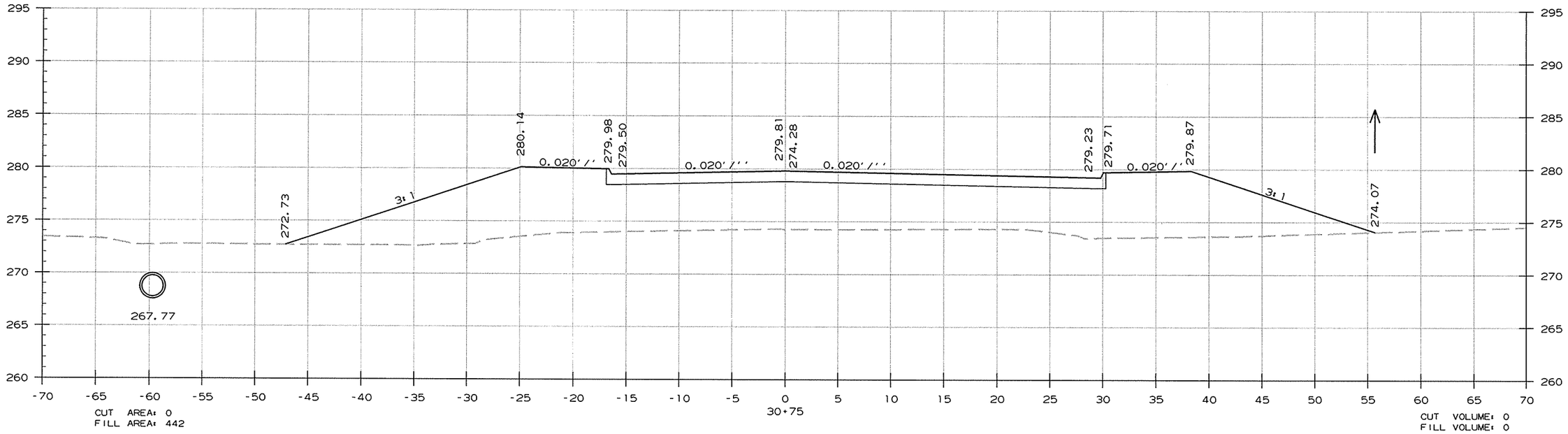
S. RICE ST.
CROSS SECTION STA. 21+50 TO STA. 21+84

1/31/2014

R061277.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.		061277	156	160

(2) CROSS SECTIONS



STA. 30+24.08 - BEGIN BUS ENTRANCE

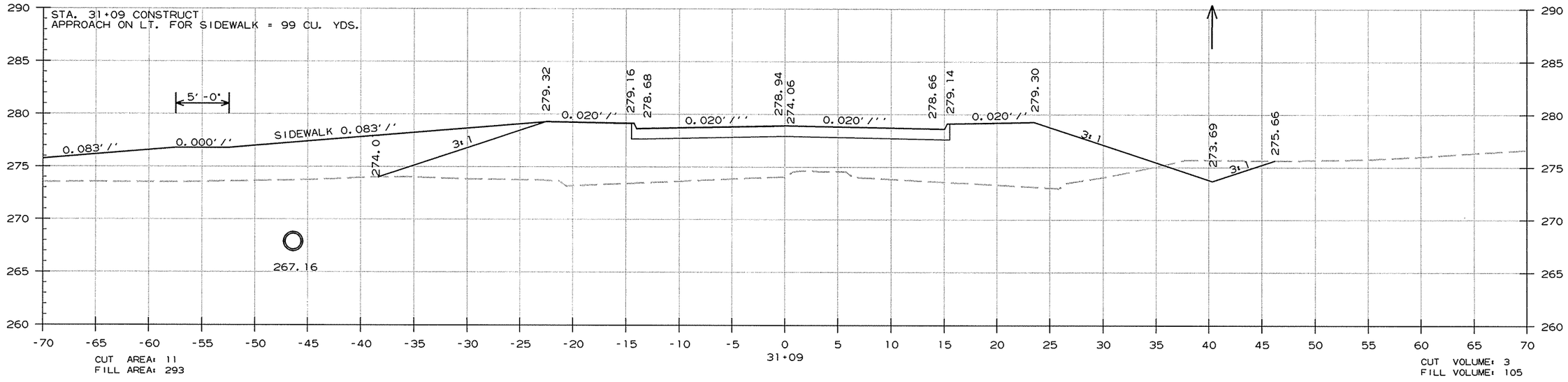
1/31/2014

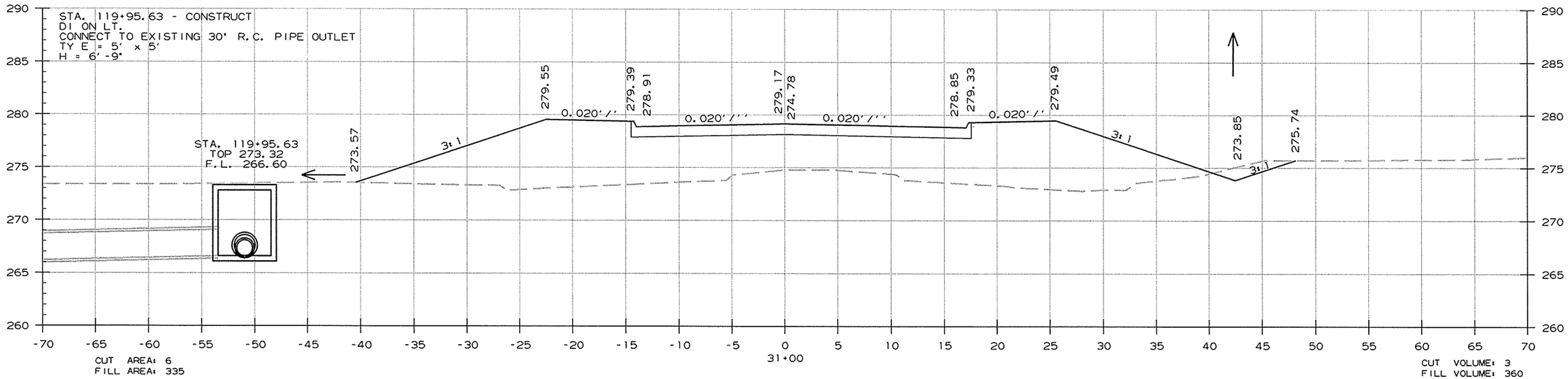
R061277.DGN

BUS ENTRANCE
CROSS SECTION STA. 30+75 TO STA. 30+75

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.		061277	157	160

(2) CROSS SECTIONS





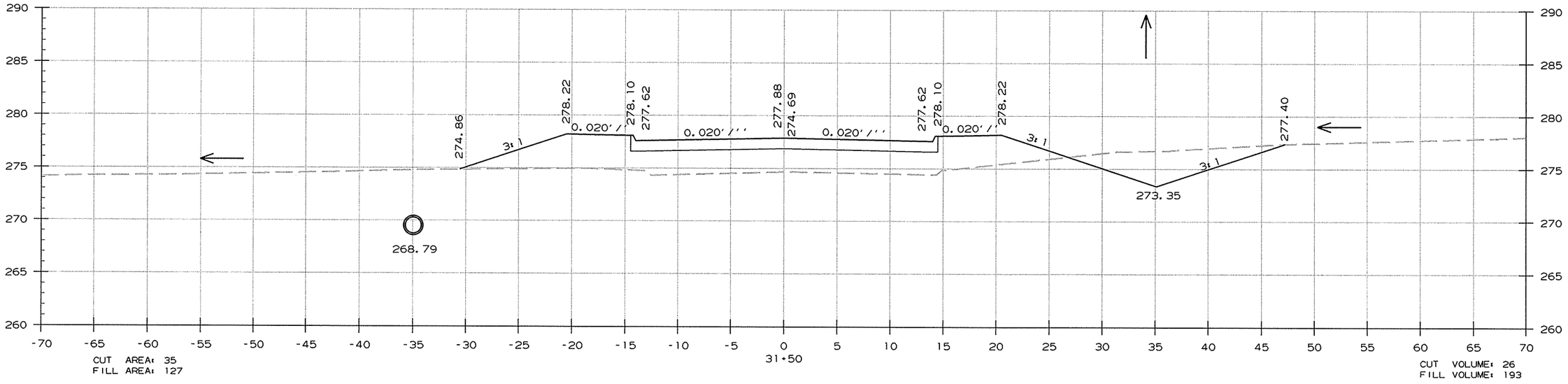
BUS ENTRANCE
CROSS SECTION STA. 31+00 TO STA. 31+09

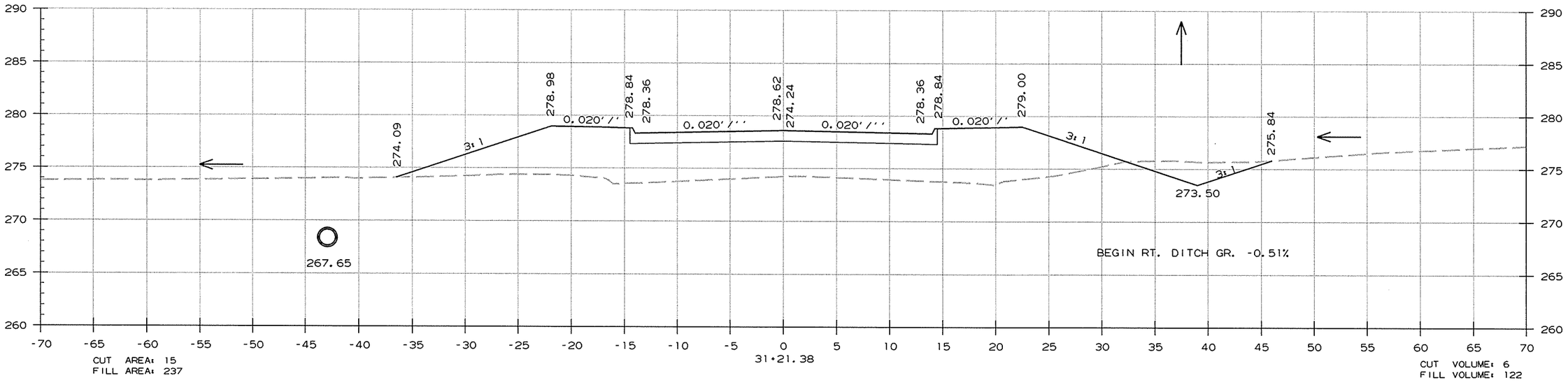
1/31/2014

R061277.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.		061277	158	160

(2) CROSS SECTIONS





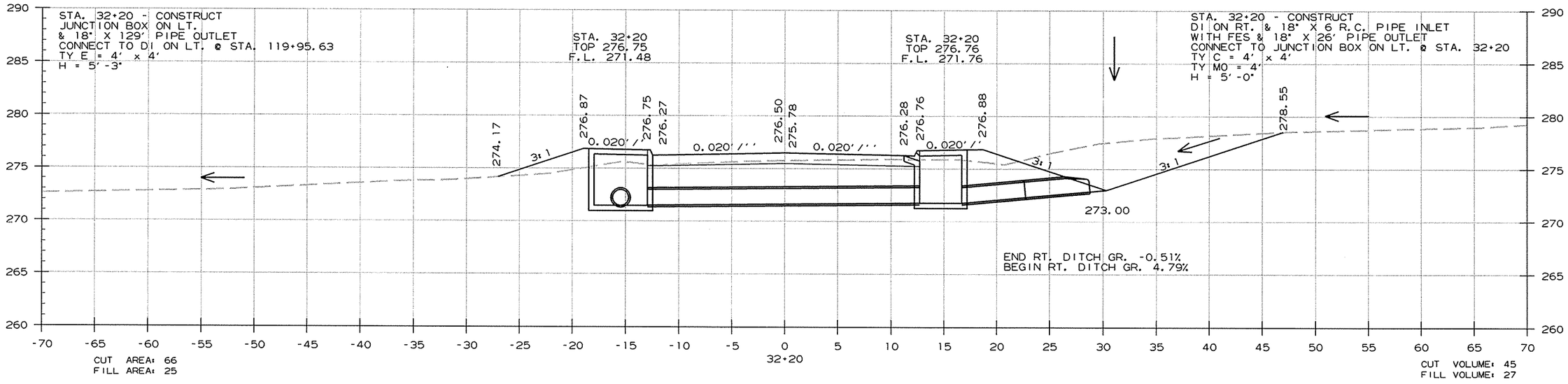
BUS ENTRANCE
CROSS SECTION STA. 31+21 TO STA. 31+50

1/31/2014

R061277.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.		061277	159	160

(2) CROSS SECTIONS



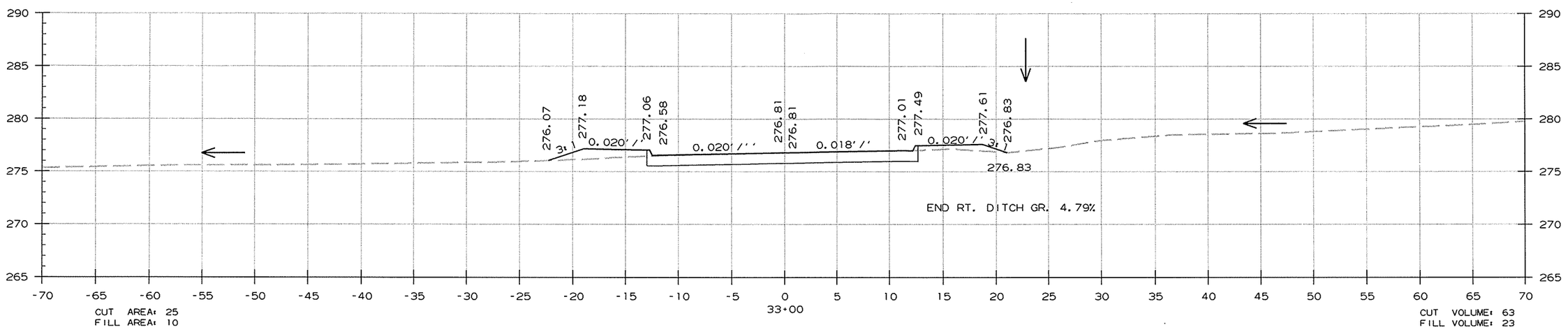
BUS ENTRANCE
CROSS SECTION STA. 32+00 TO STA. 32+20

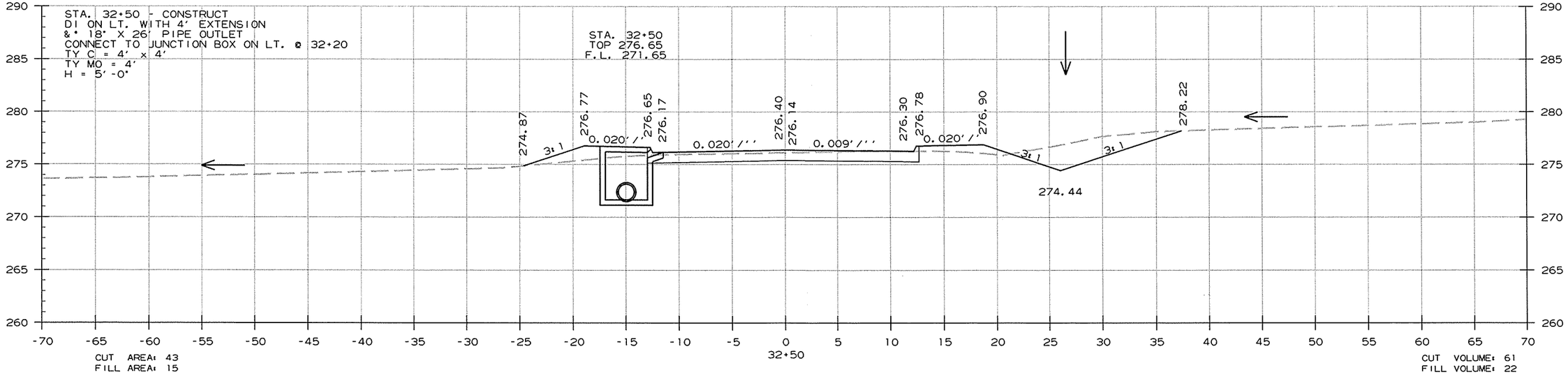
1/31/2014

R061277.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.		061277	160	160

(2) CROSS SECTIONS





BUS ENTRANCE
CROSS SECTION STA. 32+50 TO STA. 33+00

1/31/2014

R061277.DGN