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.		100686	1	185
				(2)	BLACK ROCK - PORTIA (S)			

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

BLACK ROCK - PORTIA (S)

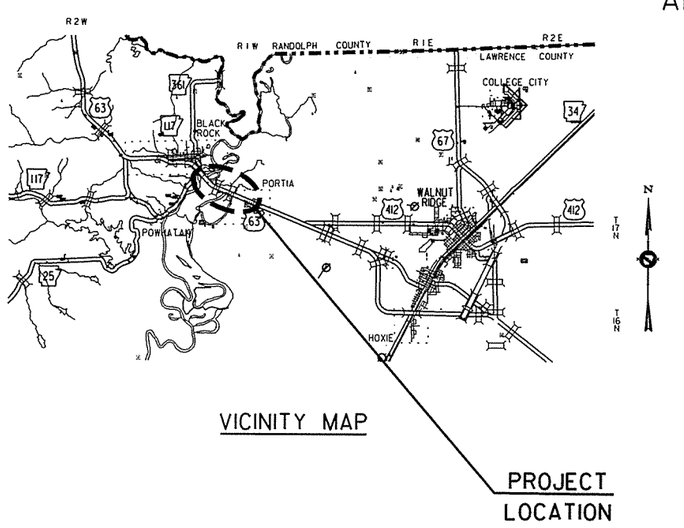
LAWRENCE COUNTY

ROUTE 63 SECTION 3

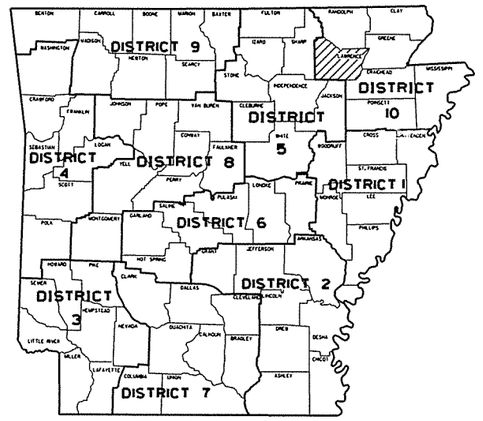
JOB 100686

F. A. P. EBS-0038(46)

NOT TO SCALE



VICINITY MAP



ARK. HWY. DIST. NO. 10

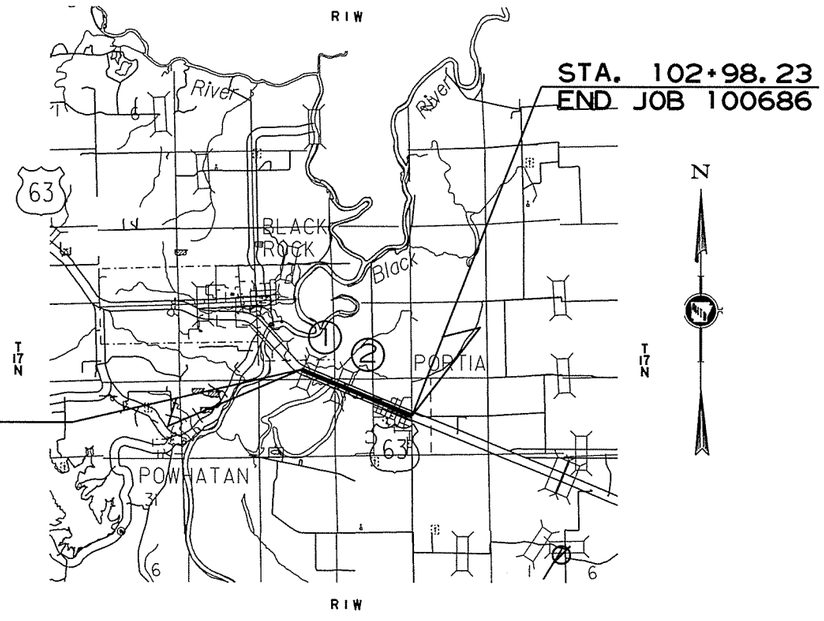
•DESIGN TRAFFIC DATA•

DESIGN YEAR	2034
2014 ADT	11000
2034 ADT	14500
2034 DHV	1595
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	15%
DESIGN SPEED (RURAL)	60 MPH
DESIGN SPEED (URBAN)	45 MPH

BRIDGE CONSTRUCTION DATA

(1) STA. 23+74.85 - BRIDGE END
BRIDGE NO. 07285
75' CLEAR ROADWAY
202.30' BRIDGE LENGTH
200.00' CONT. COMP. W-BEAM UNIT (60',80',60')
STA. 25+77.15 - BRIDGE END
LOG MILE 16.64

(2) STA. 48+70.92 - BRIDGE END
BRIDGE NO. 07286
75' CLEAR ROADWAY
304.16' BRIDGE LENGTH
302.00' CONT. COMP. W-BEAM UNIT (52',66',66',66',52')
STA. 51+75.08 - BRIDGE END
LOG MILE 17.11



STA. 102+98.23
END JOB 100686

STA. 21+77.55
BEGIN JOB 100686
LOG MILE 16.60

PROJECT COORDINATES

	BEGIN	MID-POINT	END
LAT.	N 36° 5' 40"	N 36° 05' 58"	N 36° 5' 7"
LON.	W 91° 5' 20"	W 91° 05' 41"	W 91° 3' 50"

GROSS LENGTH OF PROJECT	8120.68	FEET	OR	1.538	MILES
NET " " ROADWAY	7614.22	"	"	1.442	"
NET " " BRIDGES	506.46	"	"	0.096	"
NET " " PROJECT	8120.68	"	"	1.538	"

APPROVED

STATE OF ARKANSAS
2-28-14
REGISTERED PROFESSIONAL ENGINEER
No. 4215
RALPH J. HALL

DEPUTY DIRECTOR
AND CHIEF ENGINEER

P.E. JOB 100686
NON-PART.

2/25/2014 r100686.dgn

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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.		100686	2	185

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

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

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 100686
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 100686	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 100686	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 100686	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 100686	CONTRACTOR PROVIDED CULTURAL RESOURCES CLEARANCE FOR OFF-SITE LOCATIONS
JOB 100686	COORDINATION OF WORK
JOB 100686	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 100686	DRILLED SHAFT FOUNDATIONS
JOB 100686	ELECTRONIC SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 100686	GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION BRIDGE 07285
JOB 100686	GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION BRIDGE 07286
JOB 100686	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 100686	HIGH PERFORMANCE PAVEMENT MARKING
JOB 100686	INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY (BNSF)
JOB 100686	MANDATORY USE OF INTERNET BIDDING
JOB 100686	NESTING SITES OF MIGRATORY BIRDS
JOB 100686	NONDESTRUCTIVE TESTING OF DRILLED SHAFTS
JOB 100686	PARTNERING REQUIREMENTS
JOB 100686	PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS
JOB 100686	PLASTIC PIPE
JOB 100686	PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB 100686	RESTRAINING CONDITIONS
JOB 100686	SECTION 404 LETTER OF PERMISSION PERMIT REQUIREMENTS
JOB 100686	SHORING
JOB 100686	SOIL STABILIZATION
JOB 100686	STORM WATER POLLUTION PREVENTION PLAN
JOB 100686	UTILITY ADJUSTMENTS
JOB 100686	VALUE ENGINEERING
JOB 100686	WARM MIX ASPHALT
JOB 100686	WELLHEAD PROTECTION

GENERAL NOTES

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

9/23/2014

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INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES

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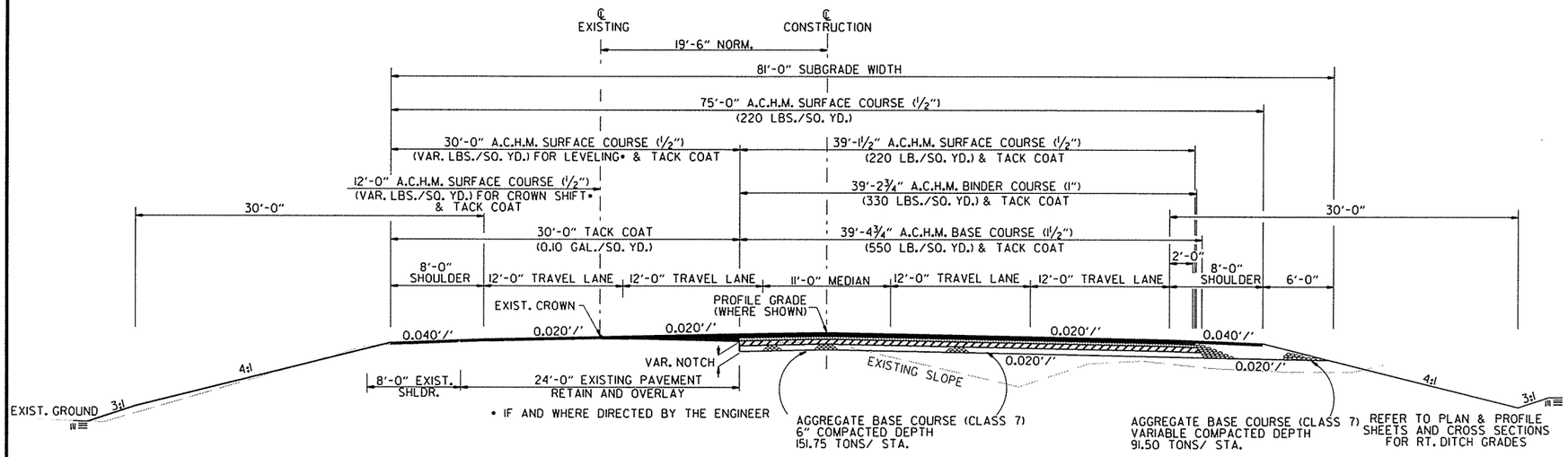
				6	ARK.			
				JOB NO.		100686	3	185

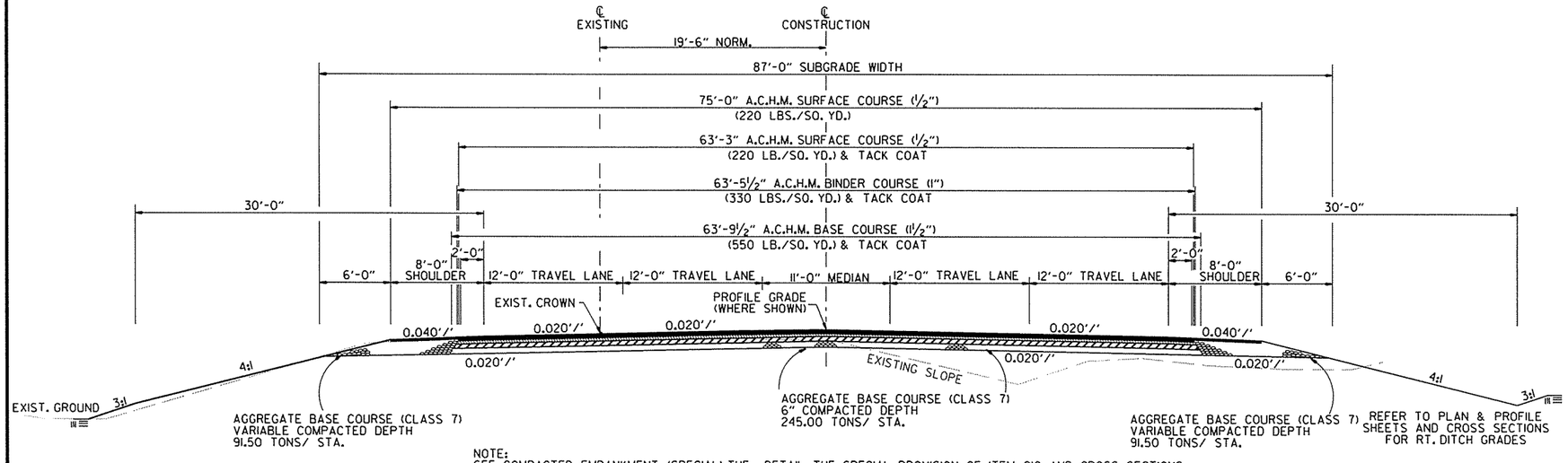
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14



HWY. 63 - 5 LANES (NOTCH AND WIDEN ON RIGHT SECTION) (OPEN SHOULDER)

STA. 21+77.55 TO STA. 22+00.00



NOTE:
SEE COMPACTED EMBANKMENT (SPECIAL) THE DETAIL, THE SPECIAL PROVISION OF ITEM 210 AND CROSS SECTIONS
STA 22+00.00 TO 23+74.85 (B.E.)
STA 25+77.15 (B.E.) TO 29+00.00
STA 45+50.00 TO 48+70.92 (B.E.)
STA 51+75.08 (B.E.) TO 53+50

HWY. 63 - 5 LANES (FULL DEPTH) (OPEN SHOULDER)

STA. 22+00.00 TO STA. 23+24.70
STA. 26+27.30 TO STA. 48+34.42
STA. 52+11.58 TO STA. 53+50.00

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

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

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

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

2/24/2014

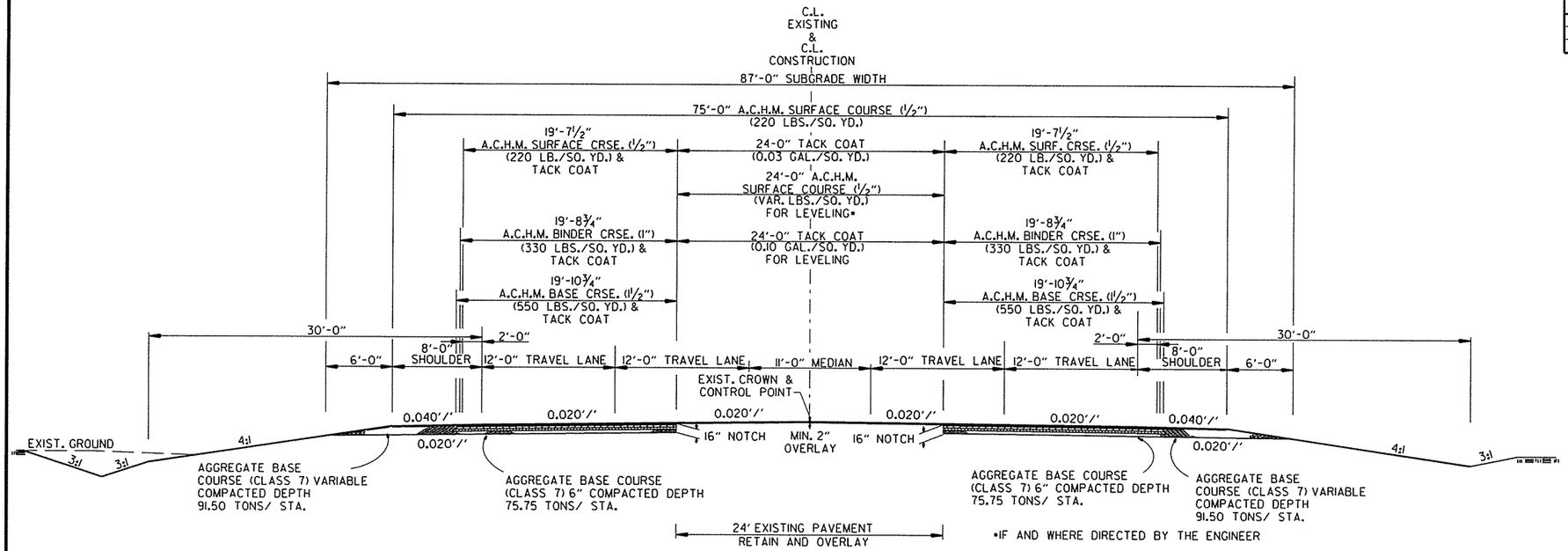
R100686.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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.		100686	4	185

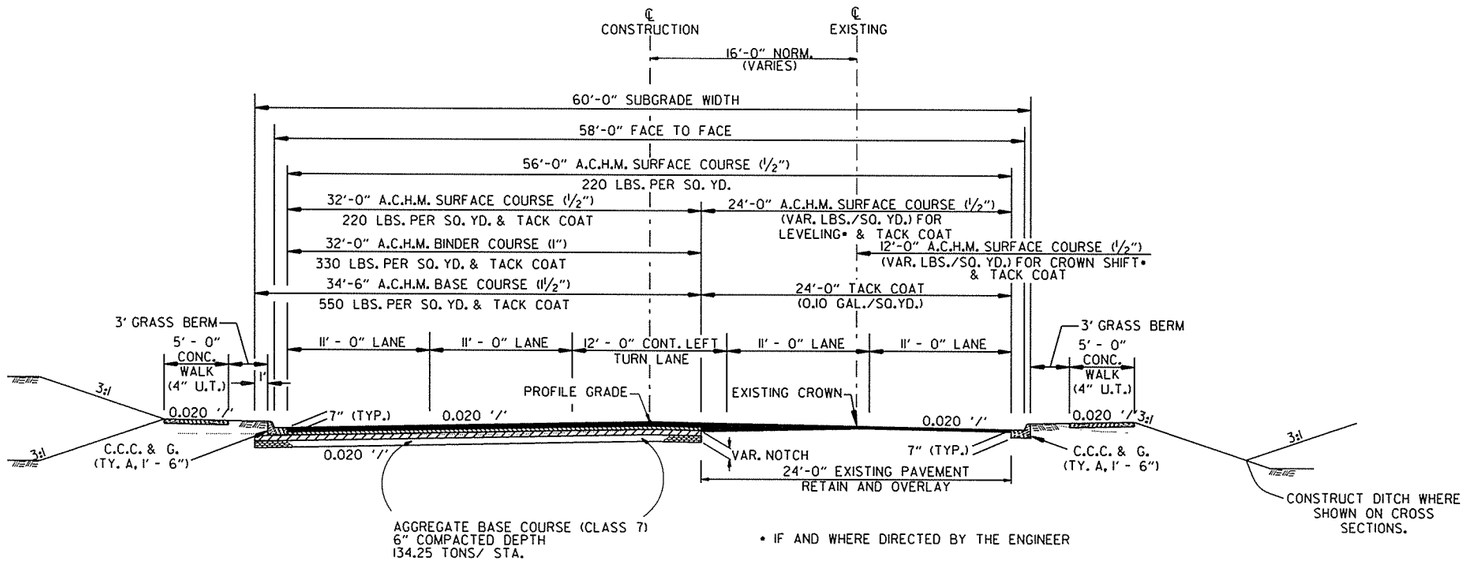
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14



HWY. 63 - 5 LANES (NOTCH AND WIDEN) (OPEN SHOULDER)

STA. 53+50.00 TO STA. 69+92.00
(TRANSITION FROM NOTCH AND WIDEN ON RIGHT SECTION TO NOTCH AND WIDEN ON LEFT SECTION)



HWY. 63 - 5 LANES (NOTCH AND WIDEN ON LEFT SECTION) (CURB AND GUTTER)

STA. 69+92.00 TO STA. 96+86.35
STA. 96+86.35 TO STA. 102+98.23••
••TRANSITION FROM NOTCH AND WIDEN ON LEFT TO NOTCH AND WIDEN ON BOTH SIDES

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

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

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

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.

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

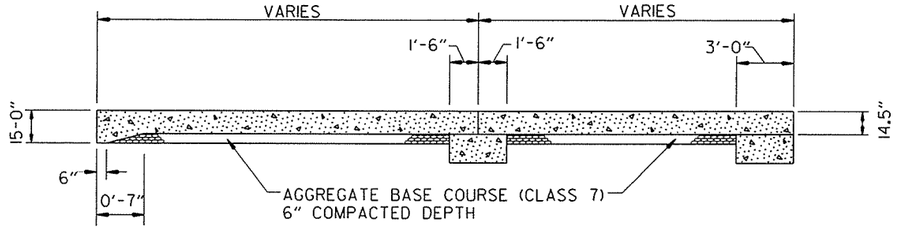
2/24/2014

R100686.DGN

TYPICAL SECTIONS OF IMPROVEMENT

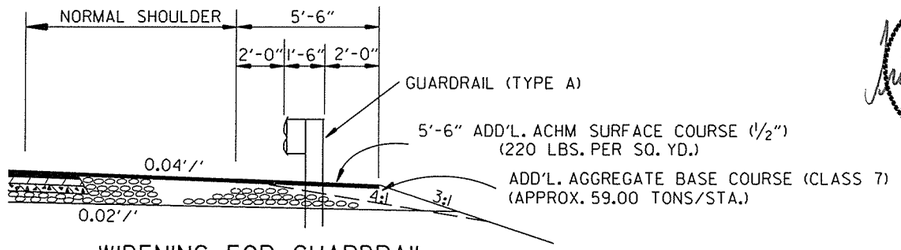
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	5	185

(2) SPECIAL DETAILS



SECTION OF APPROACH SLAB

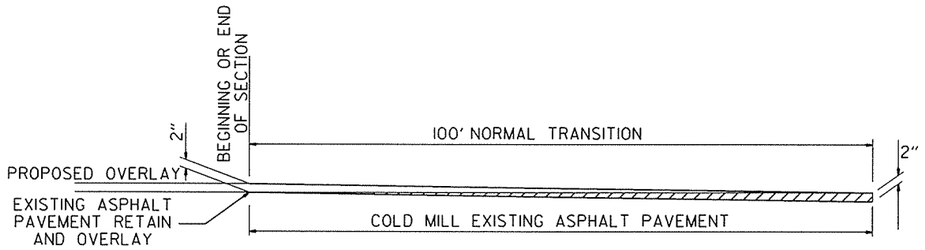
NOTE: REFER TO DETAILS OF TYPE SPECIAL 1 APPROACH SLAB
REFER TO DETAILS OF TYPE SPECIAL 2 APPROACH SLAB



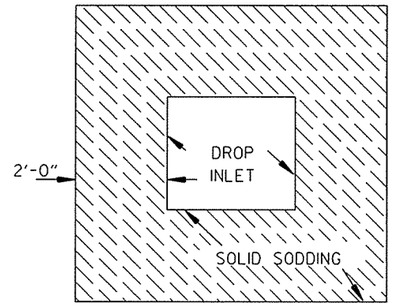
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

WIDENING FOR GUARDRAIL

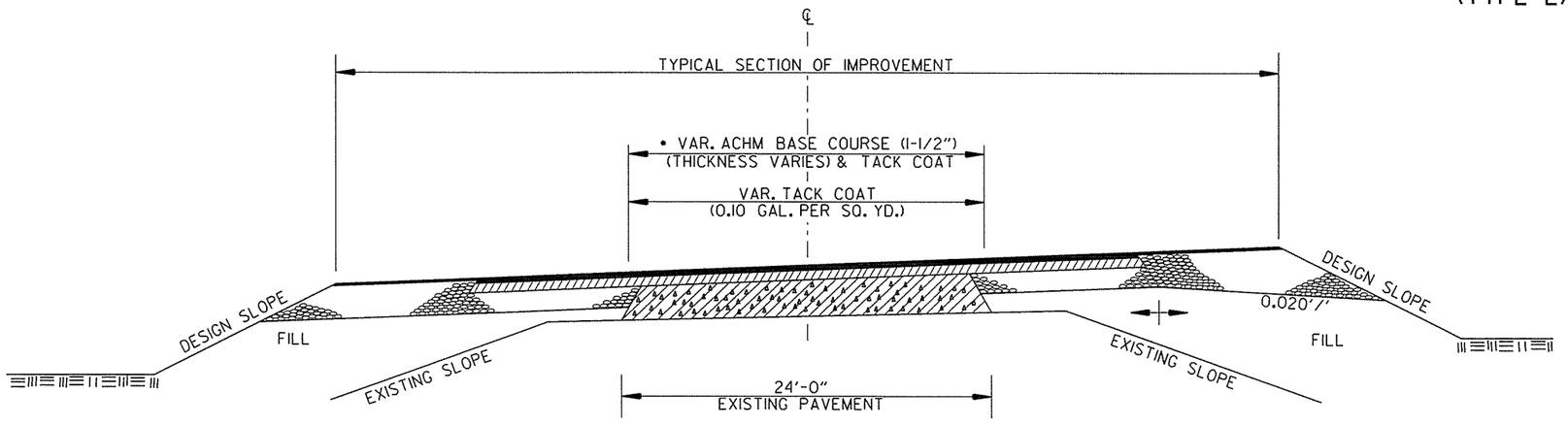
• NOTE: REFER TO STD. DRWG. GR-9A AND CROSS SECTIONS FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL AND FOR GUARDRAIL WIDENING TAPER BACK TO NORMAL SHOULDER.



DETAIL FOR TRANSITIONS



DETAIL FOR SOLID SODDING AROUND DROP INLETS (TYPE E)



• 6" AGGREGATE BASE COURSE (CLASS 7)
TO BE REPLACED WITH A.C.H.M. BASE COURSE (1/2")

METHOD OF RAISING GRADE

NOTES:
(1) THIS DETAIL TO BE USED ONLY IF AND 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.

2/24/2014

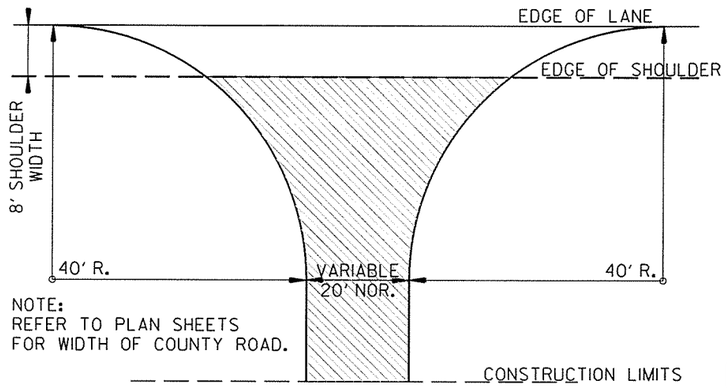
R100686.DGN

SPECIAL 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.		100686	6	185

(2) SPECIAL DETAILS

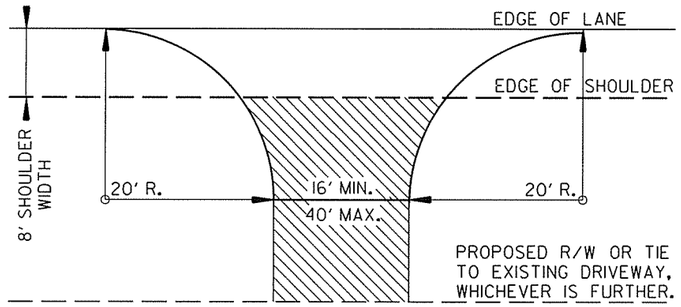
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14



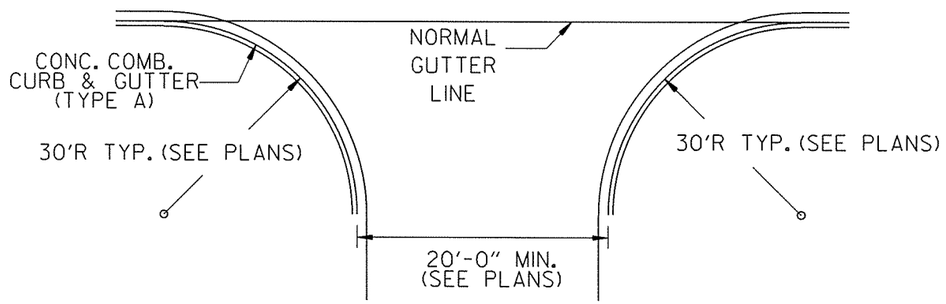
DETAIL FOR COUNTY ROAD TURNOUTS
OPEN SHOULDER SECTION

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

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

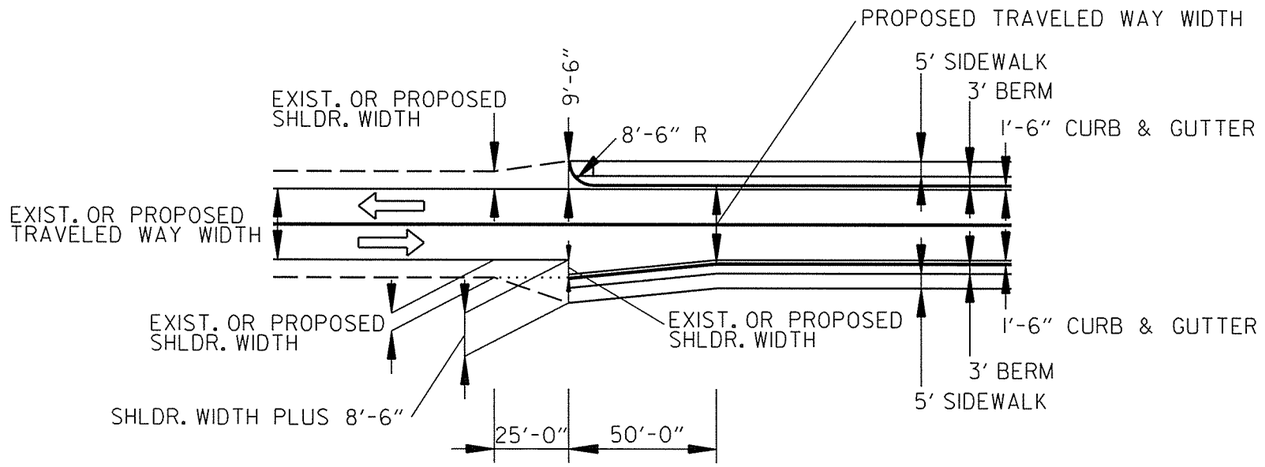


DETAIL FOR DRIVEWAY TURNOUTS
OPEN SHOULDER SECTION



DETAIL OF TURNOUTS, ASPHALT STREETS,
& COUNTY ROADS
CURB & GUTTER SECTION

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



TRANSITION FROM OPEN SHOULDER
TO CURB & GUTTER SECTION

2/24/2014

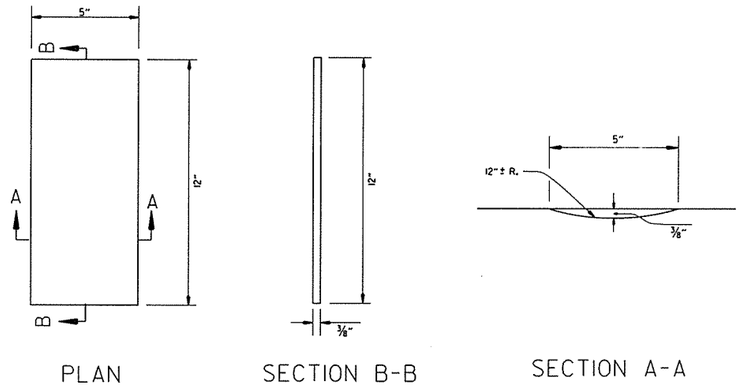
R100686.DGN

SPECIAL 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.		100686	7	185

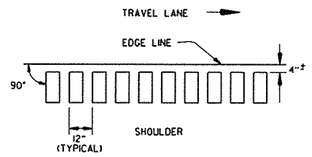
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

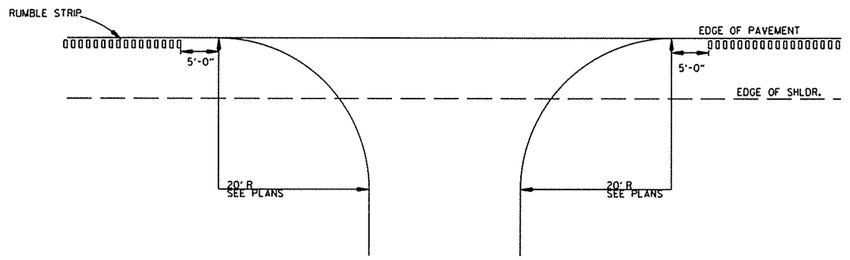


PLAN SECTION B-B SECTION A-A

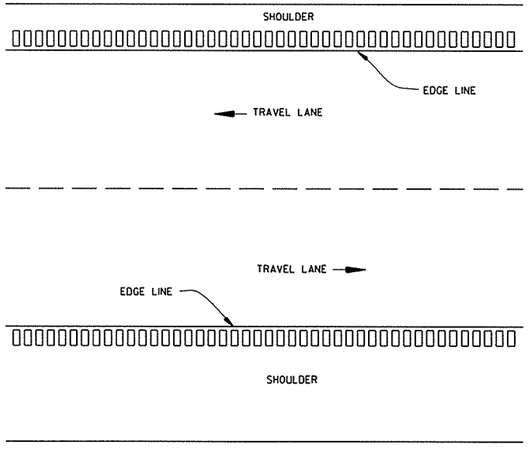
DETAILS OF RUMBLE STRIPS



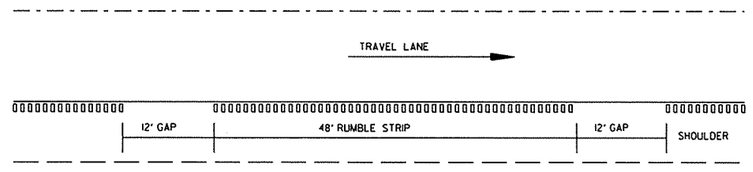
LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW



DETAIL FOR GAP PATTERN RUMBLE STRIP

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

GENERAL NOTES

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

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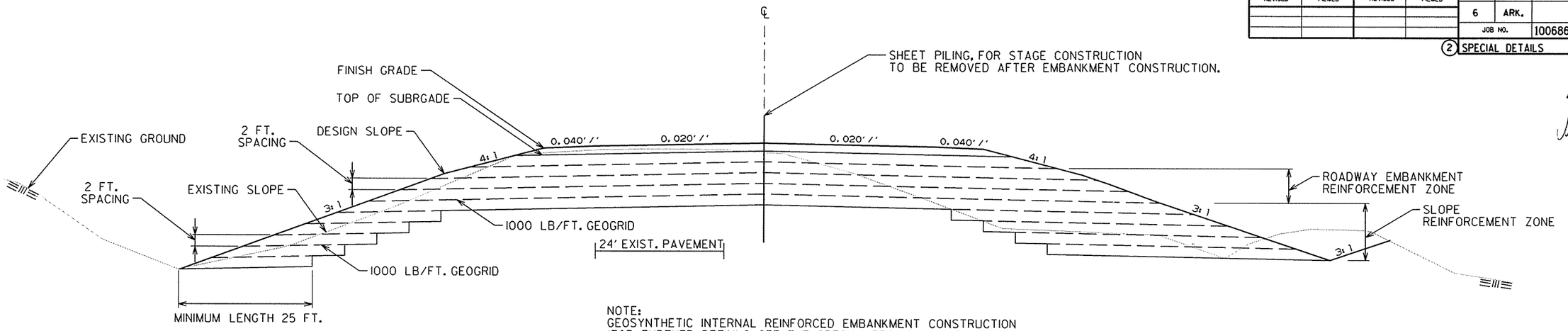
SPECIAL DETAILS

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.		100686	8	185

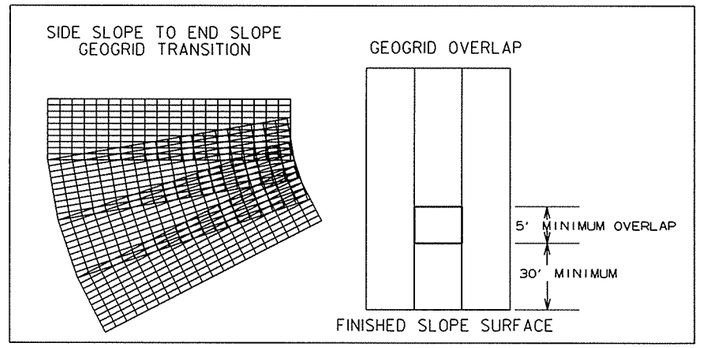
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

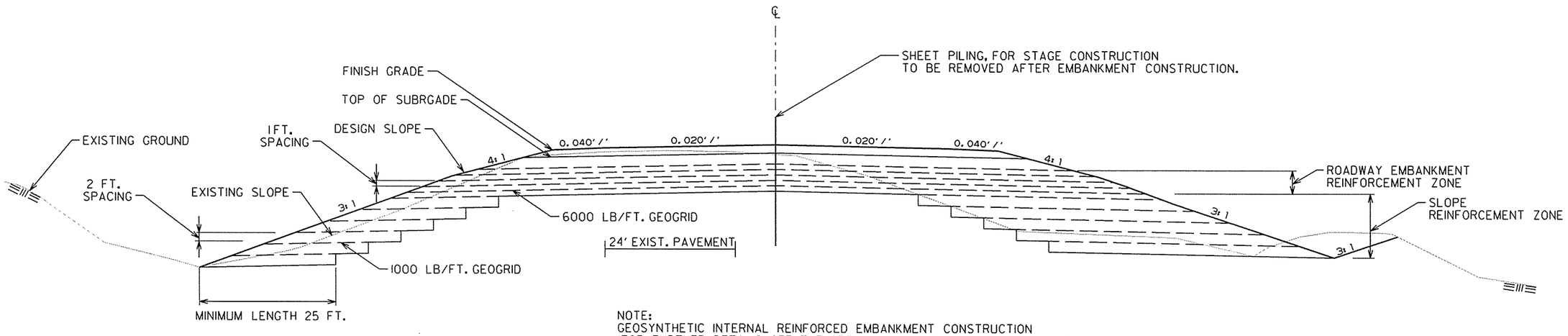


NOTE:
GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION
(FOR FURTHER DETAILS SEE THE SPECIAL PROVISION AND CROSS SECTIONS)
STA 22+00.00 TO 23+97.00
STA 25+54.55 TO 29+00.00

COMPACTED EMBANKMENT (SPECIAL) BRIDGE NO. 07285



GEOGRID SPECIAL DETAILS



NOTE:
GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION
(FOR FURTHER DETAILS SEE THE SPECIAL PROVISION AND CROSS SECTIONS)
STA 45+50.00 TO 48+91.07
STA 51+53.17 TO 53+50.00

COMPACTED EMBANKMENT (SPECIAL) BRIDGE NO. 07286

2/24/2014

R100686.DGN

SPECIAL DETAILS

STAGE 1 TEMPORARY EROSION CONTROL QUANTITIES:

SAND BAG DITCH CHECKS (E-5) = 5324 BAG (22 BAGS PER LOCATION)
DROP INLET SILT FENCE (E-7) = 336 LIN. FT.
DIVERSION DITCH (E-8) = 3084 LIN. FT.
SILT FENCE (E-11) = 1971 LIN. FT.
SLOPE DRAIN (E-12) = 589 LIN. FT.
SEDIMENT BASIN (E-14) = 1070 CU. YD.
OBLITERATION OF SEDIMENT BASIN = 1070 CU. YD.
SEDIMENT REMOVAL AND DISPOSAL = 1403 CU. YD.
DUMPED RIPRAP = 30 CU. YD.

STATION	STATION	SIDE	DIVERSION DITCH LIN. FT.	PIPE FOR SLOPE DRAIN LIN. FT.	DUMPED RIPRAP CU. YD.
21+78	23+80	RT.	202		
22+00		RT.		51	3
25+68	41+50	RT.	1582		
27+00		RT.		55	3
31+00		RT.		57	3
35+00		RT.		71	3
39+00		RT.		91	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.		100686	9	185

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

STA. 21+77.55
BEGIN JOB 100686
& END JOB 100687
L.M. = 16.60

P.I. 16+24.42
P.T. 21+26.63
P.I. 29+91.36 = 0°01'22" RT.
P.I. 34+91.27 = 0°01'48" RT.
S 65°58'31" E
S 65°57'08" E
S 65°55'21" E
CONSTRUCTION C.L.

STA. 21+78-23+95
SILT FENCE = 218 LIN. FT.

2100 CU. FT.
2175 CU. FT.

STA. 28+78-39+00
SILT FENCE = 1022 LIN. FT.

STA. 41+50-48+71
SILT FENCE = 731 LIN. FT.

LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISION BOX

DATE OF REVISION	REVISION

2/24/2014

R100686.DGN

STAGE 1 TEMPORARY EROSION CONTROL DETAILS

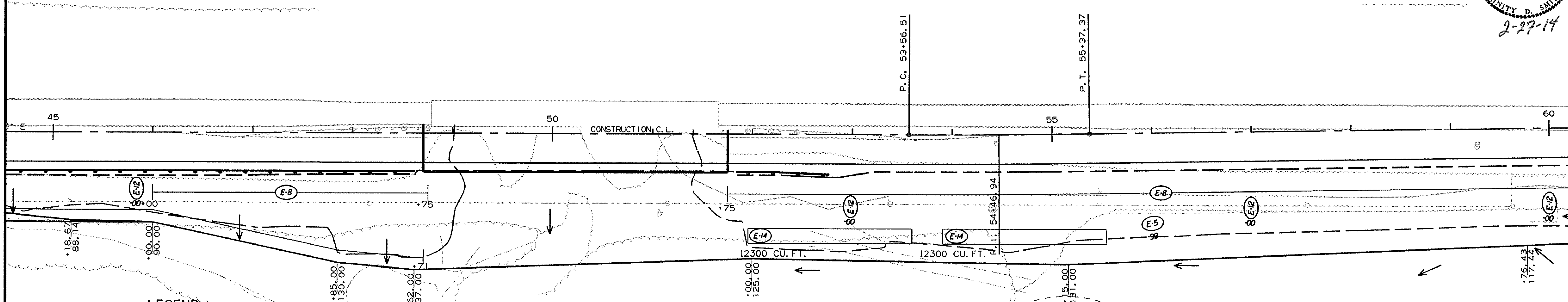
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	10	185

(2) TEMPORARY EROSION CONTROL DETAILS

STATION	STATION	SIDE	DIVERSION DITCH LIN. FT.	PIPE FOR SLOPE DRAIN LIN. FT.	DUMPED RIPRAP CU. YD.
46+00	48+75	RT.	275		
46+00		RT.		49	3
51+75	62+00	RT.	1025		
53+00		RT.		64	3
57+00		RT.		54	3
60+00		RT.		49	3
62+00		RT.		48	3

PI = 54+46.94
Δ = 0°54'15"LT.
D = 0°30'00"
T = 90.43'
L = 180.86'
PC = 53+56.51
PT = 55+37.37
e = NO SUPER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14



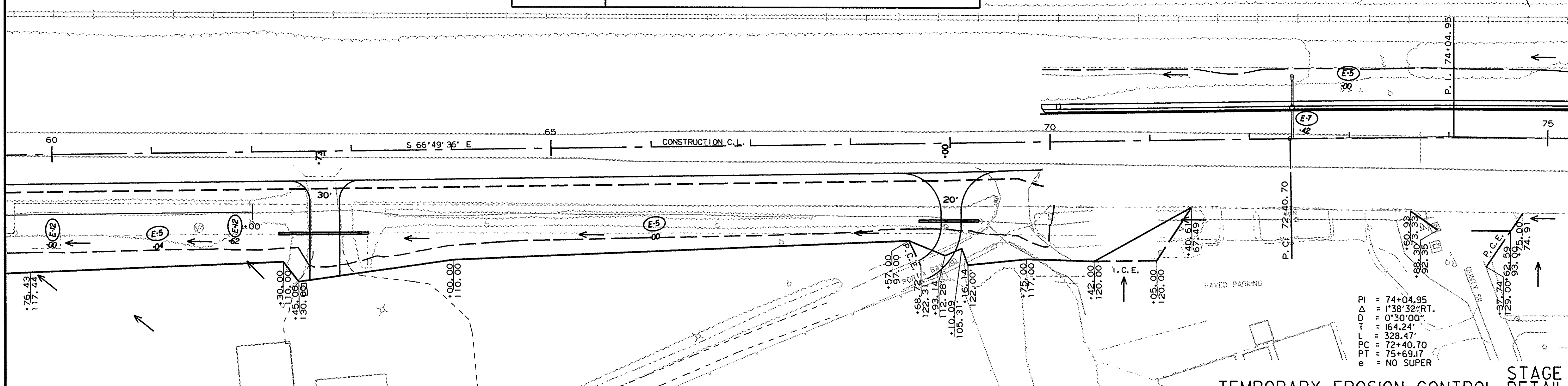
LEGEND

(E-5)	= SAND BAG DITCH CHECK
(E-7)	= DROP INLET SILT FENCE
(E-8)	= DIVERSION DITCH
(E-11)	= SILT FENCE
(E-12)	= SLOPE DRAIN
(E-14) XX CU FT	= SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISION BOX

DATE OF REVISION	REVISION



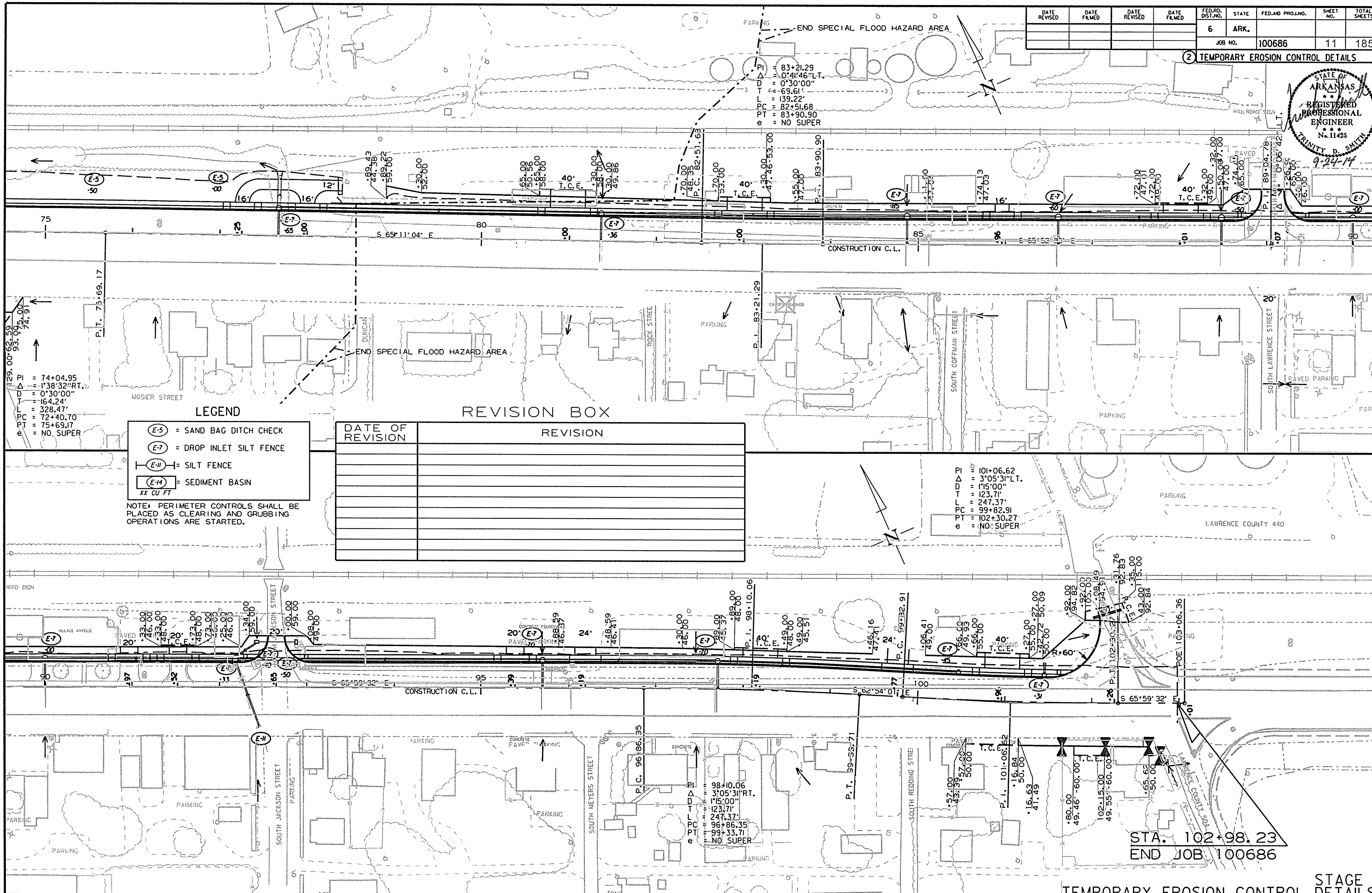
PI = 74+04.95
Δ = 1°38'32"RT.
D = 0°30'00"
T = 164.24'
L = 328.47'
PC = 72+40.70
PT = 75+69.17
e = NO SUPER

STAGE I
TEMPORARY EROSION CONTROL DETAILS

7/8/2013
R100686.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.		100686	11	185

(2) TEMPORARY EROSION CONTROL DETAILS



END SPECIAL FLOOD HAZARD AREA
PI = 83+21.29
Δ = 0°41'46"LT.
D = 0°30'00"
T = 69.61'
L = 139.22'
PC = 82+51.68
PT = 83+90.90
e = NO SUPER
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-24-14
S 65°11'04" E
CONSTRUCTION C.L.
40' T.C.E.
PARKING
DUNCAN
ROCK STREET
SOUTH COFFMAN STREET
SOUTH LAWRENCE STREET
MOSIER STREET
PI = 74+04.95
Δ = 1°38'32"RT.
D = 0°30'00"
T = 164.24'
L = 328.47'
PC = 72+40.70
PT = 75+69.17
e = NO SUPER
PI = 101+06.62
Δ = 3°05'31"LT.
D = 1°15'00"
T = 123.71'
L = 247.37'
PC = 99+82.91
PT = 102+30.27
e = NO SUPER
LAWRENCE COUNTY 440
S 65°59'32" E
S 62°54'01" E
SOUTH JACKSON STREET
SOUTH MEYERS STREET
SOUTH REDDING STREET
PI = 98+10.06
Δ = 3°05'31"RT.
D = 1°15'00"
T = 123.71'
L = 247.37'
PC = 96+86.35
PT = 99+33.71
e = NO SUPER
POE 103+06.36
STA. 102+98.23
END JOB 100686

LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISION BOX

DATE OF REVISION	REVISION

STAGE I
TEMPORARY EROSION CONTROL DETAILS

9/23/2014
R100686.DGN

STAGE 2 TEMPORARY EROSION CONTROL QUANTITIES:

SAND BAG DITCH CHECKS (E-5) = 9196 BAG (22 BAGS PER LOCATION)
DROP INLET SILT FENCE (E-7) = 336 LIN. FT.
DIVERSION DITCH (E-8) = 2688 LIN. FT.
SILT FENCE (E-11) = 439 LIN. FT.
SLOPE DRAIN (E-12) = 457 LIN. FT.
SEDIMENT BASIN (E-14) = 1613 CU. YD.
OBLITERATION OF SEDIMENT BASIN = 1613 CU. YD.
SEDIMENT REMOVAL AND DISPOSAL = 2054 CU. YD.
DUMPED RIPRAP = 21 CU. YD.

STATION	STATION	SIDE	DIVERSION DITCH LIN. FT.	PIPE FOR SLOPE DRAIN LIN. FT.	DUMPED RIPRAP CU. YD.
22+00	23+88	LT.	188		
22+00		LT.		46	3
26+00	45+00	LT.	1900		
31+00		LT.		64	3
35+00		LT.		61	3
39+00		LT.		72	3
43+00		LT.		73	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.		100686	12	185

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
2-27-14
TRINITY D. SMITH

STA. 21+77.55
BEGIN JOB 100686
& END JOB 100687
L.M. = 16.60

P.I. 16+28.42
P.T. 21+26.63
S 65°58'31" E
CONSTRUCTION C.L.
S 65°57'08" E
S 65°55'21" E
P.C.E.
P.I. = 0°01'22" RT. 29+91.36
P.I. = 0°01'48" RT. 34+91.27
P.I. = 0°01'22" RT. 29+91.36

1850 CU. FT.
5300 CU. FT.
5300 CU. FT.

LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISION BOX

DATE OF REVISION	REVISION

2/24/2014

R100686.DGN

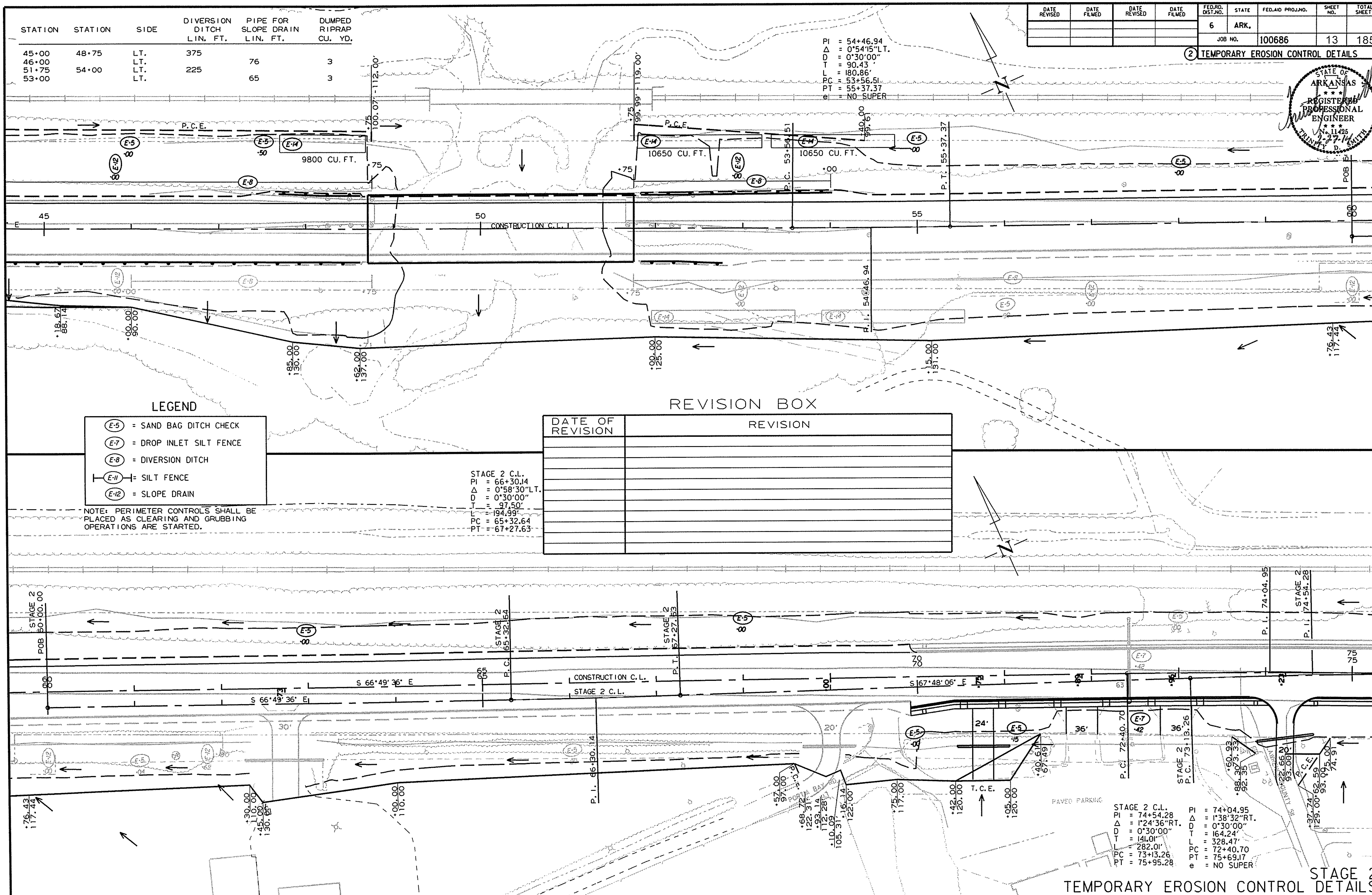
STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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.		100686	13	185

(2) TEMPORARY EROSION CONTROL DETAILS

STATION	STATION	SIDE	DIVERSION DITCH LIN. FT.	PIPE FOR SLOPE DRAIN LIN. FT.	DUMPED RIPRAP CU. YD.
45+00	48+75	LT.	375		
46+00		LT.		76	3
51+75	54+00	LT.	225		
53+00		LT.		65	3

PI = 54+46.94
Δ = 0°54'15"LT.
D = 0°30'00"
T = 90.43'
L = 180.86'
PC = 53+56.51
PT = 55+37.37
e = NO SUPER



LEGEND

(E-5)	= SAND BAG DITCH CHECK
(E-7)	= DROP INLET SILT FENCE
(E-8)	= DIVERSION DITCH
(E-11)	= SILT FENCE
(E-12)	= SLOPE DRAIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

STAGE 2 C.L.
PI = 66+30.14
Δ = 0°58'30"LT.
D = 0°30'00"
T = 97.50'
L = 194.99'
PC = 65+32.64
PT = 67+27.63

REVISION BOX

DATE OF REVISION	REVISION

STAGE 2 C.L.
PI = 74+54.28
Δ = 1°24'36"RT.
D = 0°30'00"
T = 141.01'
L = 282.01'
PC = 73+13.26
PT = 75+95.28

PI = 74+04.95
Δ = 1°38'32"RT.
D = 0°30'00"
T = 164.24'
L = 328.47'
PC = 72+40.70
PT = 75+69.17
e = NO SUPER

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY P. SMITH

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

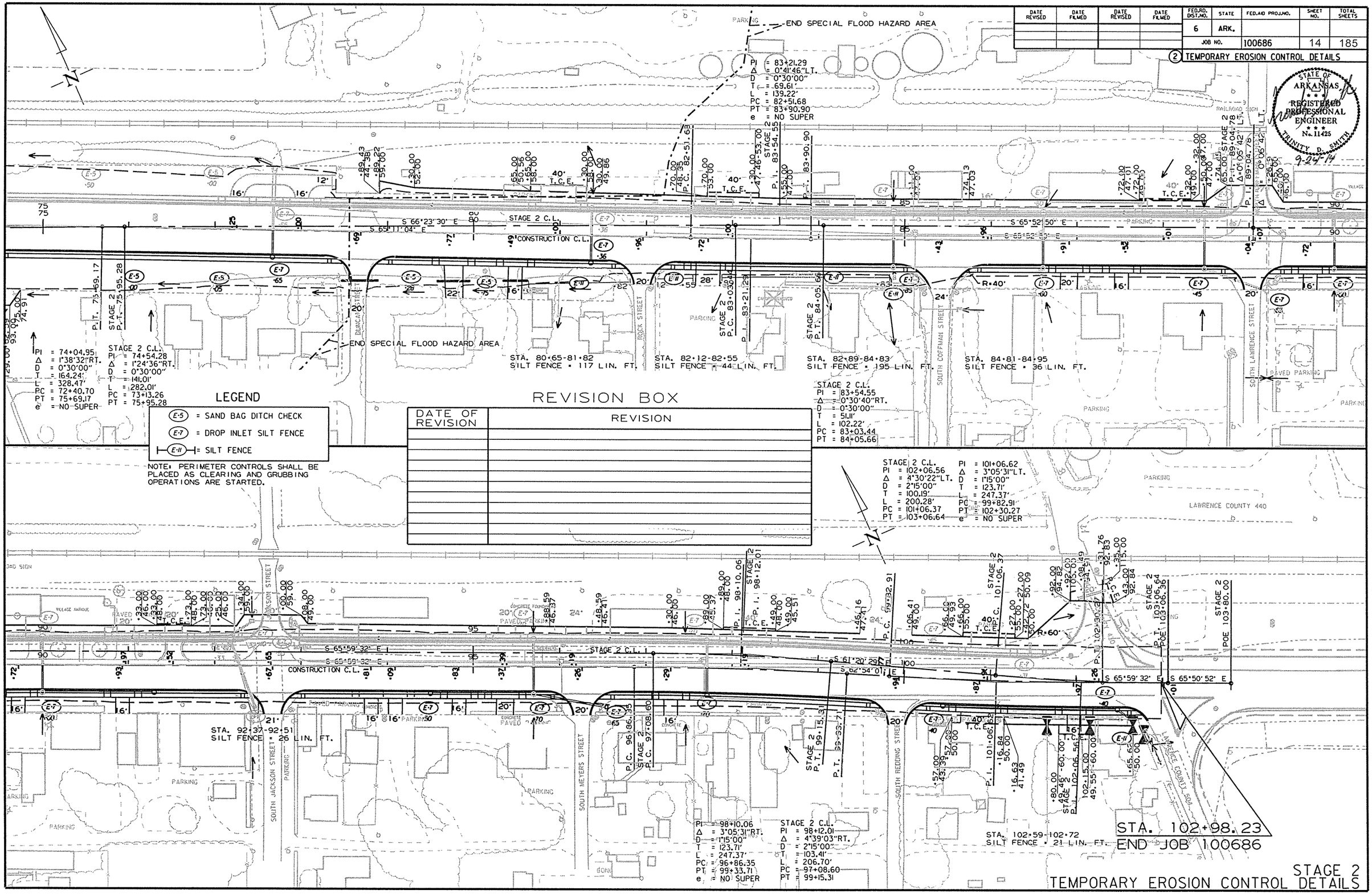
1/31/2014

R100686.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.		100686	14	185

(2) TEMPORARY EROSION CONTROL DETAILS

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



LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISION BOX

DATE OF REVISION	REVISION

9/23/2014

R100686.DGN

STAGE 2 TEMPORARY EROSION 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.		100686	15	185

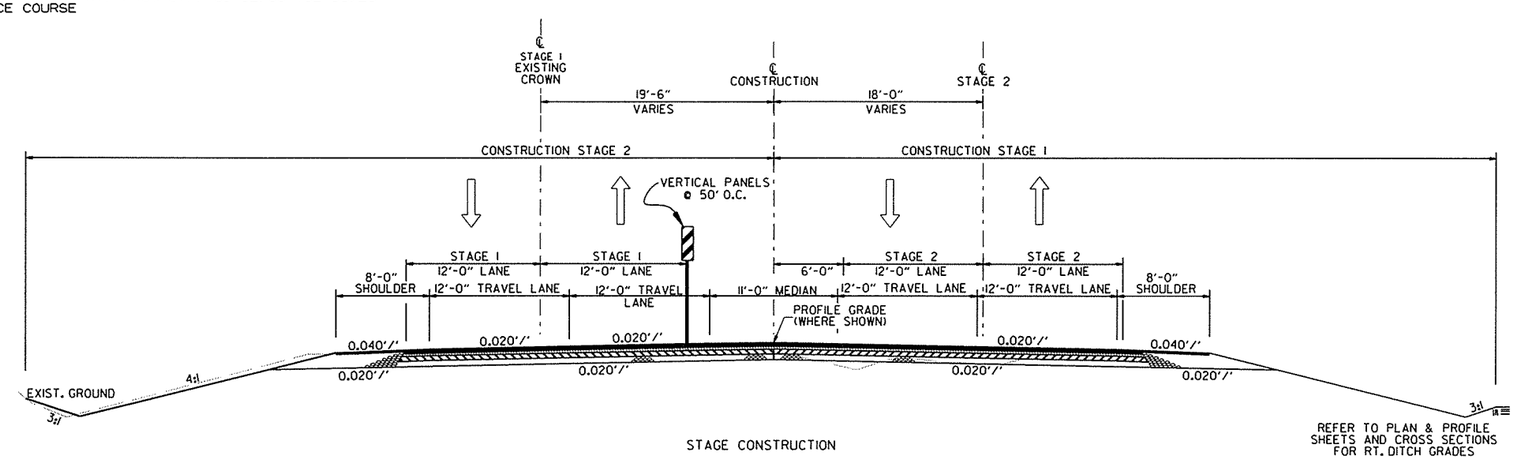
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

SEQUENCE OF CONSTRUCTION

STAGE 1: MAINTAIN TRAFFIC ON EXISTING LANES
CONSTRUCT STRUCTURES FOR RT. MAIN LANES
NOTCH & WIDEN TO RIGHT FROM STA. 21+77.55-69+92.00 INCLUDING THE TRANSITION AREA
CONSTRUCT DROP INLETS, CURB AND GUTTER, SIDE DRAINS AND CROSS DRAINS ON THE LEFT
NOTCH & WIDEN TO THE LEFT FROM STA. 69+92.00-102+98.23 INCLUDING THE TRANSITION AREA

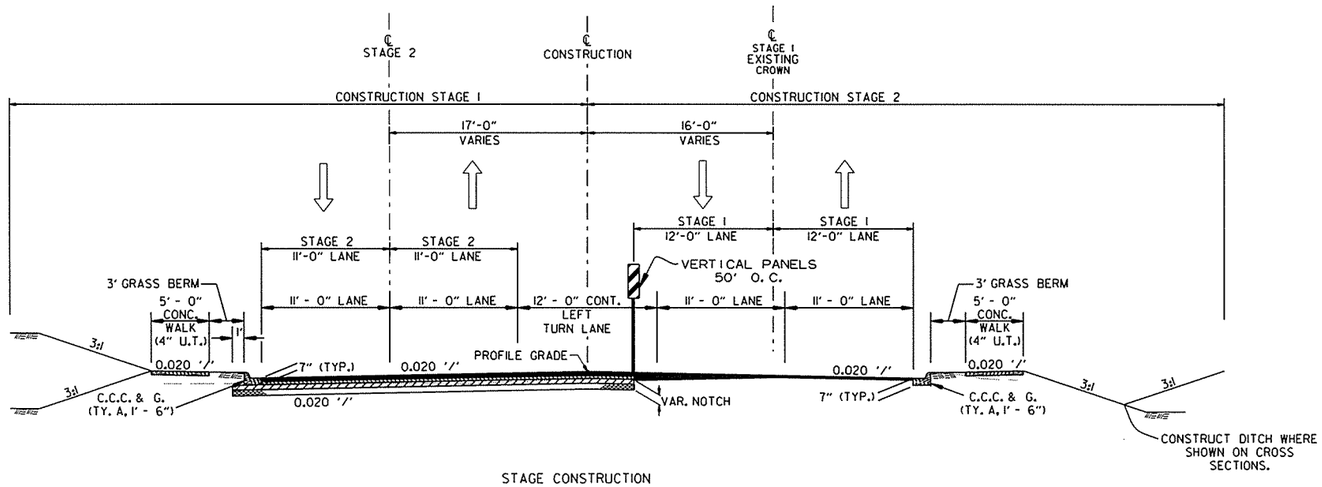
STAGE 2: SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
REMOVE EXISTING STRUCTURES
CONSTRUCT STRUCTURES FOR LT. MAIN LANES
CONSTRUCT DROP INLETS, SIDE DRAINS AND CROSS DRAINS ON THE RIGHT
CONSTRUCT LT. MAIN LANES BY METHOD OF RAISING THE GRADE STA. 21+77.55-48+70.92
CONSTRUCT CURB AND GUTTER ON THE RT. FROM STA. 69+92.00-102+98.23
PLACE FINAL 2" OF SURFACE COURSE
PLACE FINAL STRIPING



STAGE CONSTRUCTION

STA. 21+77.55 TO STA. 53+56.51
STA. 53+56.51 TO STA. 69+92.00••

••TRANSITION FROM NOTCH AND WIDEN ON RIGHT (OPEN SHOULDER) TO NOTCH AND WIDEN ON LEFT (CURB & GUTTER)



STAGE CONSTRUCTION

STA. 69+92.00 TO STA. 96+86.35
STA. 96+86.35 TO STA. 102+98.23••

••TRANSITION FROM NOTCH AND WIDEN ON LEFT TO NOTCH AND WIDEN ON BOTH SIDES

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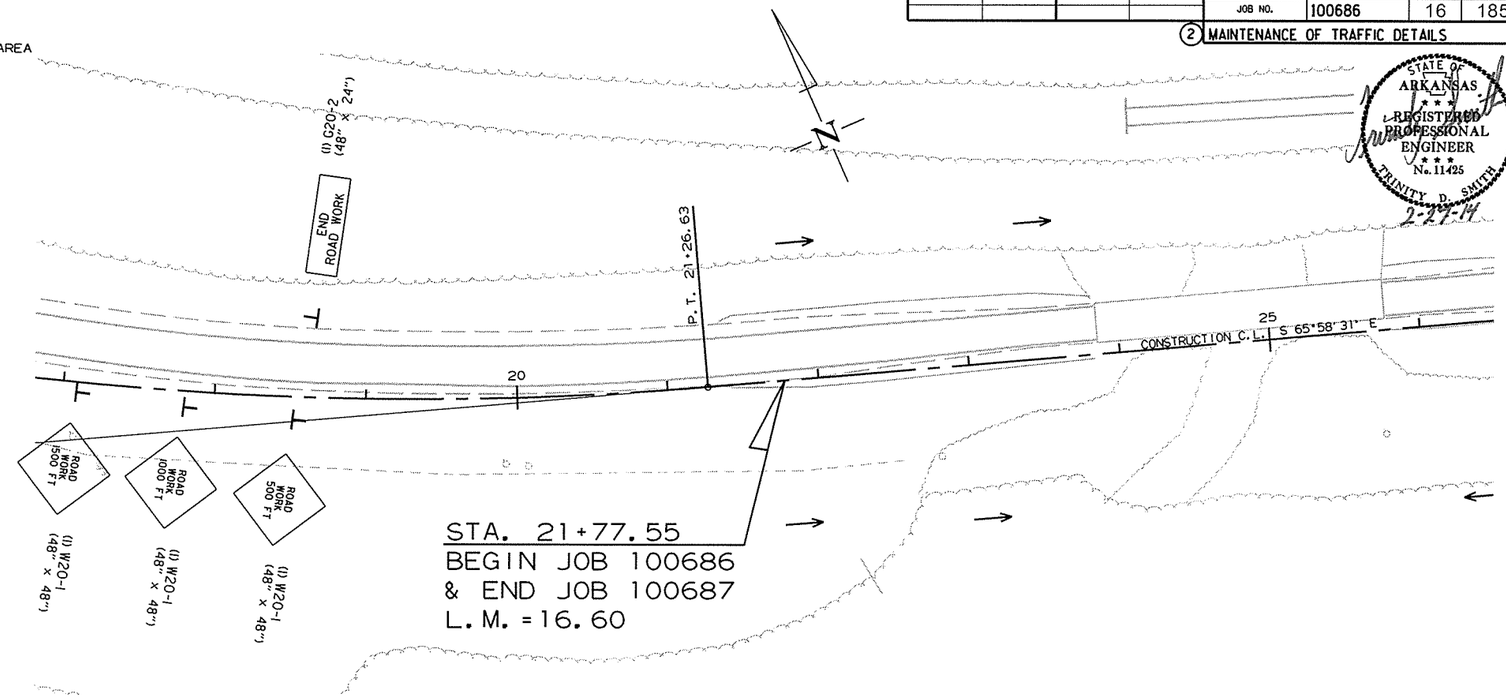
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	16	185

(2) MAINTENANCE OF TRAFFIC DETAILS

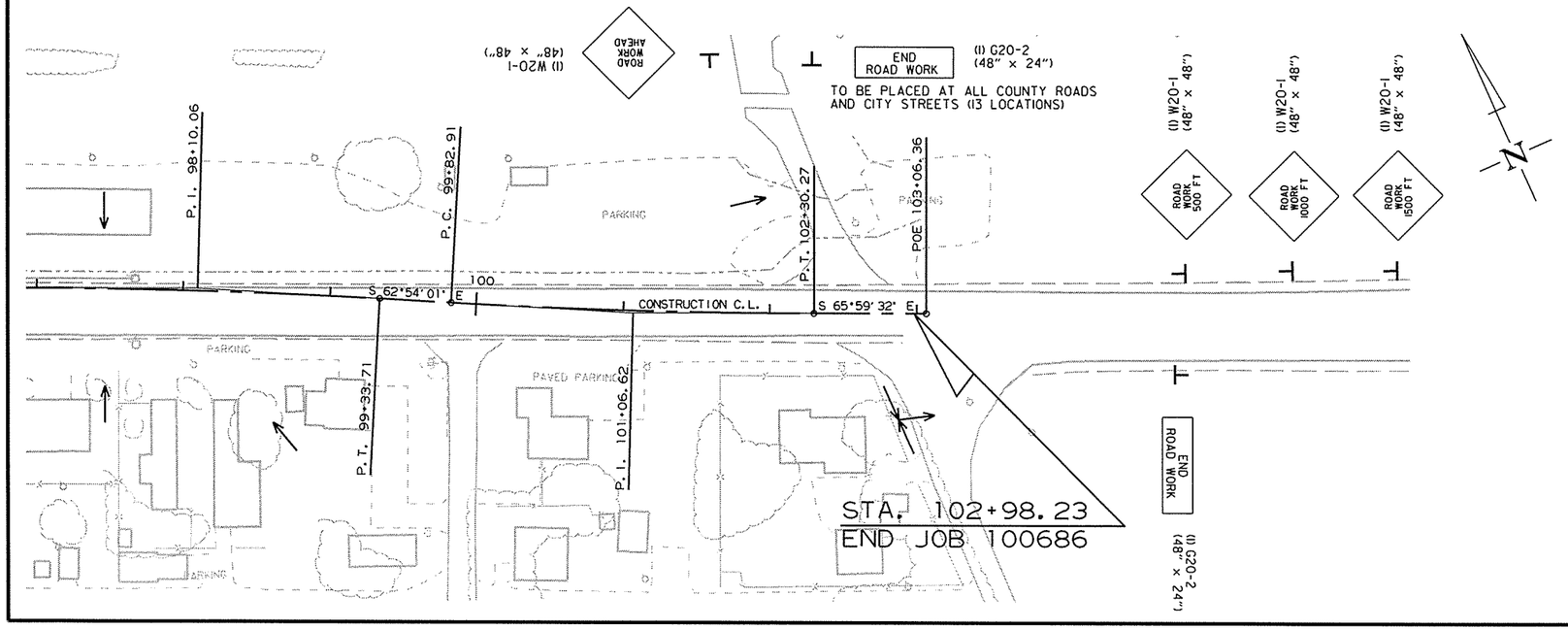
SEQUENCE OF CONSTRUCTION

STAGE 1: MAINTAIN TRAFFIC ON EXISTING LANES
CONSTRUCT STRUCTURES FOR RT. MAIN LANES
NOTCH & WIDEN TO RIGHT FROM STA. 21+77.55-69+92.00 INCLUDING THE TRANSITION AREA
CONSTRUCT DROP INLETS, CURB AND GUTTER, SIDE DRAINS AND CROSS DRAINS ON THE LEFT
NOTCH & WIDEN TO THE LEFT FROM STA. 69+92.00-102+98.23 INCLUDING THE TRANSITION AREA

STAGE 2: SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
REMOVE EXISTING STRUCTURES
CONSTRUCT STRUCTURES FOR LT. MAIN LANES
CONSTRUCT DROP INLETS, SIDE DRAINS AND CROSS DRAINS ON THE RIGHT
CONSTRUCT LT. MAIN LANES BY METHOD OF RAISING THE GRADE STA. 21+77.55-48+70.92
CONSTRUCT CURB AND GUTTER ON THE RT. FROM STA. 69+92.00-102+98.23
PLACE FINAL 2" OF SURFACE COURSE
PLACE FINAL STRIPING



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14



DO NOT PASS (4) R4-1 (24" X 30")

LOW SHOULDER (4) W8-9 (36" X 36")

SHOULDER CLOSED (2) RSP-1 (48" X 30")

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

2/24/2014
R100686.DGN

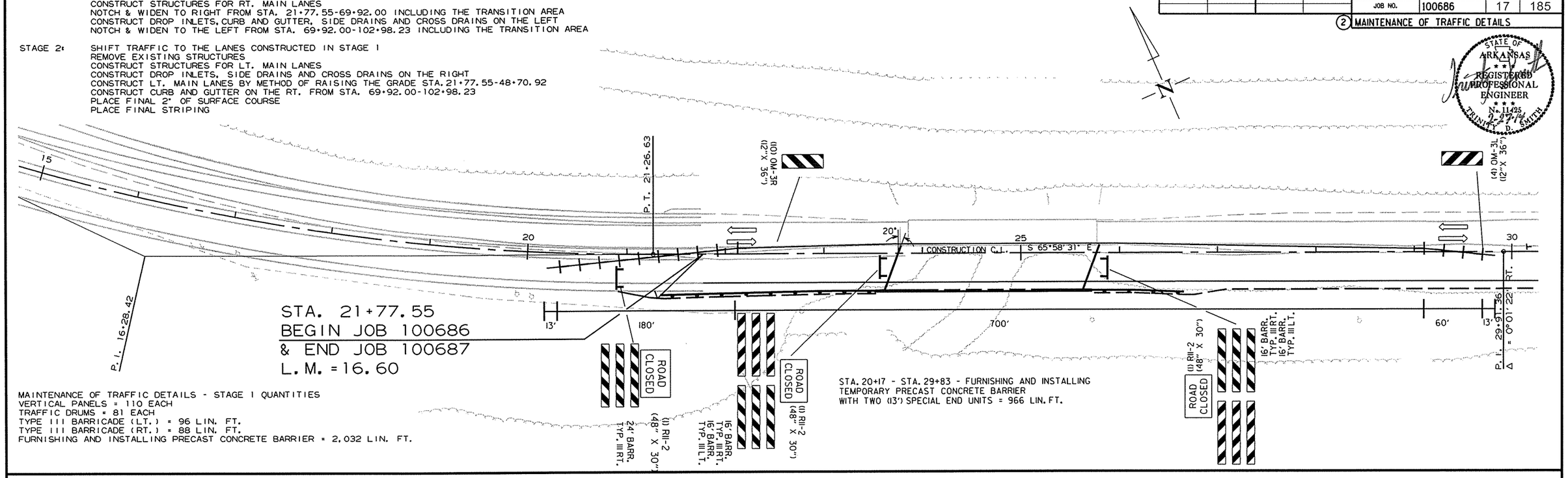
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	17	185

(2) MAINTENANCE OF TRAFFIC DETAILS

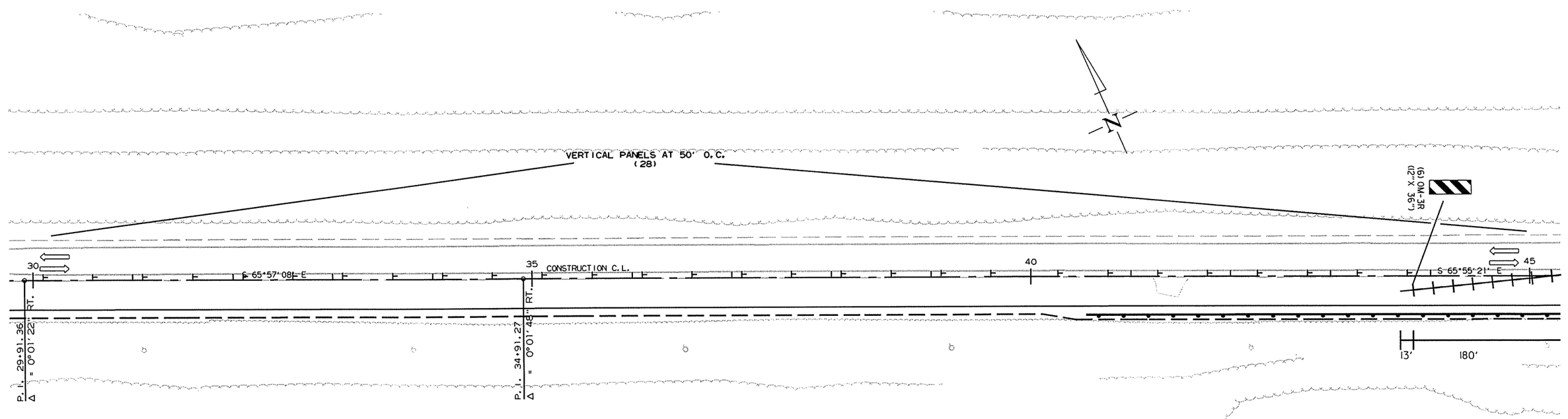
SEQUENCE OF CONSTRUCTION

STAGE 1: MAINTAIN TRAFFIC ON EXISTING LANES
CONSTRUCT STRUCTURES FOR RT. MAIN LANES
NOTCH & WIDEN TO RIGHT FROM STA. 21+77.55-69+92.00 INCLUDING THE TRANSITION AREA
CONSTRUCT DROP INLETS, CURB AND GUTTER, SIDE DRAINS AND CROSS DRAINS ON THE LEFT
NOTCH & WIDEN TO THE LEFT FROM STA. 69+92.00-102+98.23 INCLUDING THE TRANSITION AREA

STAGE 2: SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
REMOVE EXISTING STRUCTURES
CONSTRUCT STRUCTURES FOR LT. MAIN LANES
CONSTRUCT DROP INLETS, SIDE DRAINS AND CROSS DRAINS ON THE RIGHT
CONSTRUCT LT. MAIN LANES BY METHOD OF RAISING THE GRADE STA. 21+77.55-48+70.92
CONSTRUCT CURB AND GUTTER ON THE RT. FROM STA. 69+92.00-102+98.23
PLACE FINAL 2" OF SURFACE COURSE
PLACE FINAL STRIPING



MAINTENANCE OF TRAFFIC DETAILS - STAGE 1 QUANTITIES
VERTICAL PANELS = 110 EACH
TRAFFIC DRUMS = 81 EACH
TYPE III BARRICADE (LT.) = 96 LIN. FT.
TYPE III BARRICADE (RT.) = 88 LIN. FT.
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 2,032 LIN. FT.



STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

1/31/2014

R100686.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.		100686	18	185

(2) MAINTENANCE OF TRAFFIC DETAILS

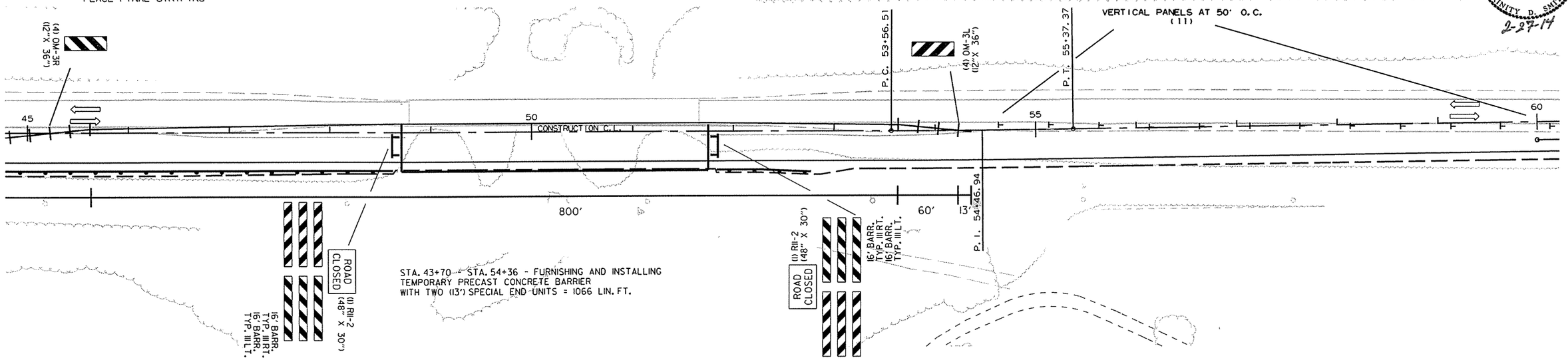
SEQUENCE OF CONSTRUCTION

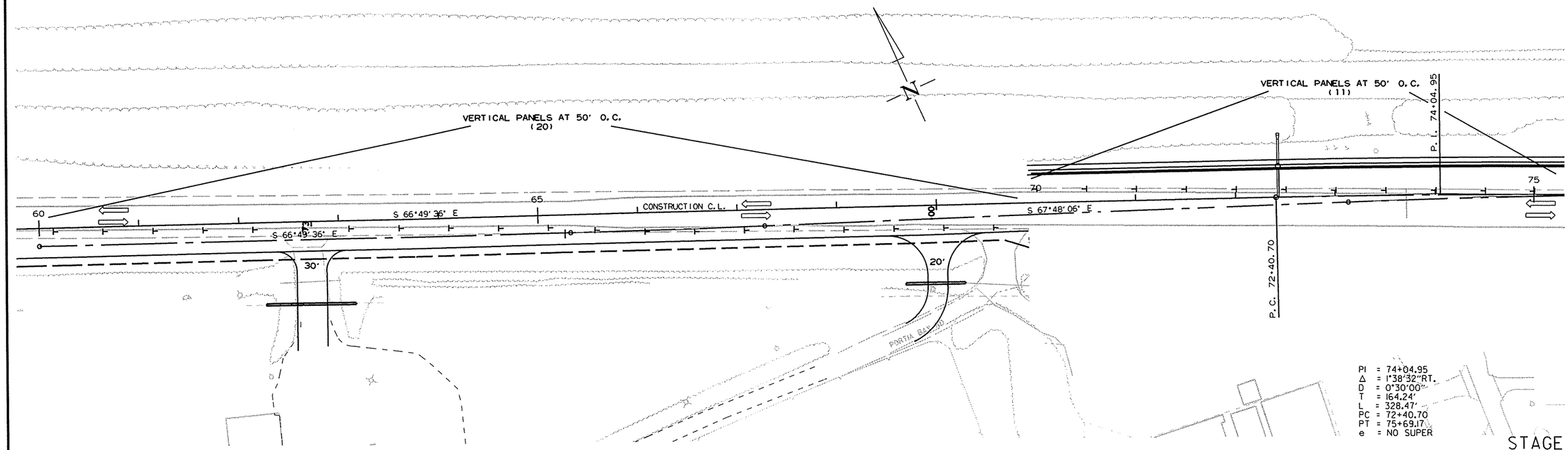
STAGE 1: MAINTAIN TRAFFIC ON EXISTING LANES
CONSTRUCT STRUCTURES FOR RT. MAIN LANES
NOTCH & WIDEN TO RIGHT FROM STA. 21+77.55-69+92.00 INCLUDING THE TRANSITION AREA
CONSTRUCT DROP INLETS, CURB AND GUTTER, SIDE DRAINS AND CROSS DRAINS ON THE LEFT
NOTCH & WIDEN TO THE LEFT FROM STA. 69+92.00-102+98.23 INCLUDING THE TRANSITION AREA

STAGE 2: SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
REMOVE EXISTING STRUCTURES
CONSTRUCT STRUCTURES FOR LT. MAIN LANES
CONSTRUCT DROP INLETS, SIDE DRAINS AND CROSS DRAINS ON THE RIGHT
CONSTRUCT LT. MAIN LANES BY METHOD OF RAISING THE GRADE STA. 21+77.55-48+70.92
CONSTRUCT CURB AND GUTTER ON THE RT. FROM STA. 69+92.00-102+98.23
PLACE FINAL 2" OF SURFACE COURSE
PLACE FINAL STRIPING

PI = 54+46.94
Δ = 0°54'15"LT.
D = 0°30'00"
T = 90.43'
L = 180.86'
PC = 53+56.51
PT = 55+37.37
e = NO SUPER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14





PI = 74+04.95
Δ = 1°38'32"RT.
D = 0°30'00"
T = 164.24'
L = 328.47'
PC = 72+40.70
PT = 75+69.17
e = NO SUPER

STAGE I
MAINTENANCE OF TRAFFIC DETAILS

1/30/2014

R100686.DGN

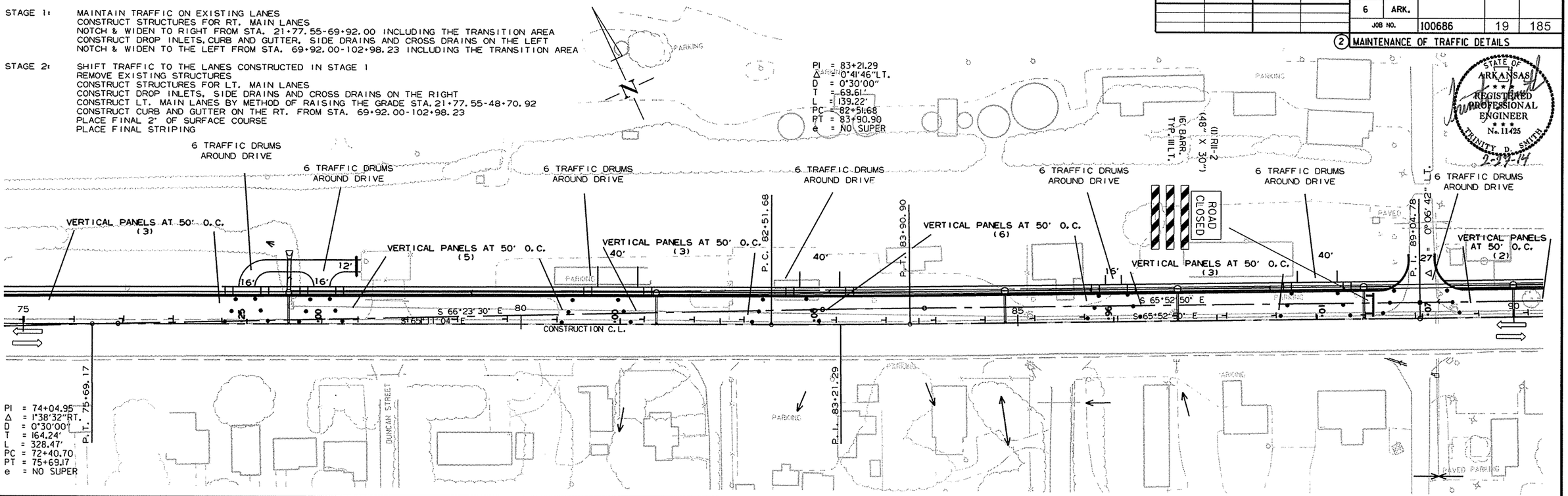
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	19	185

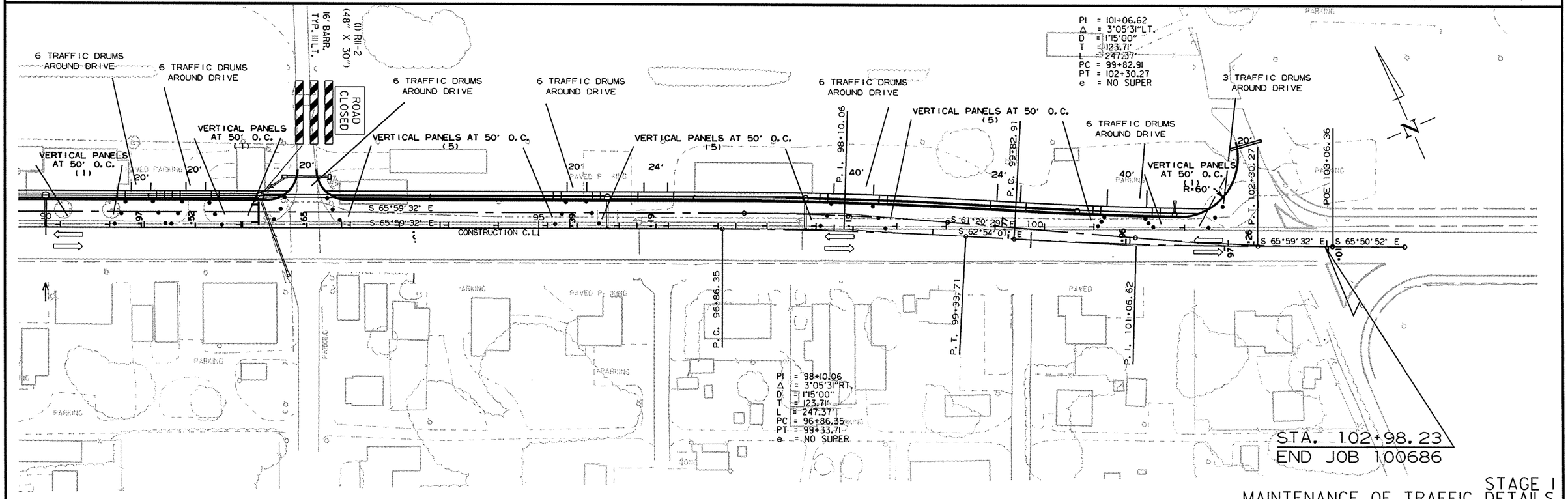
(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION

STAGE 1: MAINTAIN TRAFFIC ON EXISTING LANES
CONSTRUCT STRUCTURES FOR RT. MAIN LANES
NOTCH & WIDEN TO RIGHT FROM STA. 21+77.55-69+92.00 INCLUDING THE TRANSITION AREA
CONSTRUCT DROP INLETS, CURB AND GUTTER, SIDE DRAINS AND CROSS DRAINS ON THE LEFT
NOTCH & WIDEN TO THE LEFT FROM STA. 69+92.00-102+98.23 INCLUDING THE TRANSITION AREA

STAGE 2: SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
REMOVE EXISTING STRUCTURES
CONSTRUCT STRUCTURES FOR LT. MAIN LANES
CONSTRUCT DROP INLETS, SIDE DRAINS AND CROSS DRAINS ON THE RIGHT
CONSTRUCT LT. MAIN LANES BY METHOD OF RAISING THE GRADE STA. 21+77.55-48+70.92
CONSTRUCT CURB AND GUTTER ON THE RT. FROM STA. 69+92.00-102+98.23
PLACE FINAL 2" OF SURFACE COURSE
PLACE FINAL STRIPING





STAGE I
MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

2/24/2014

R100686.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.		100686	20	185

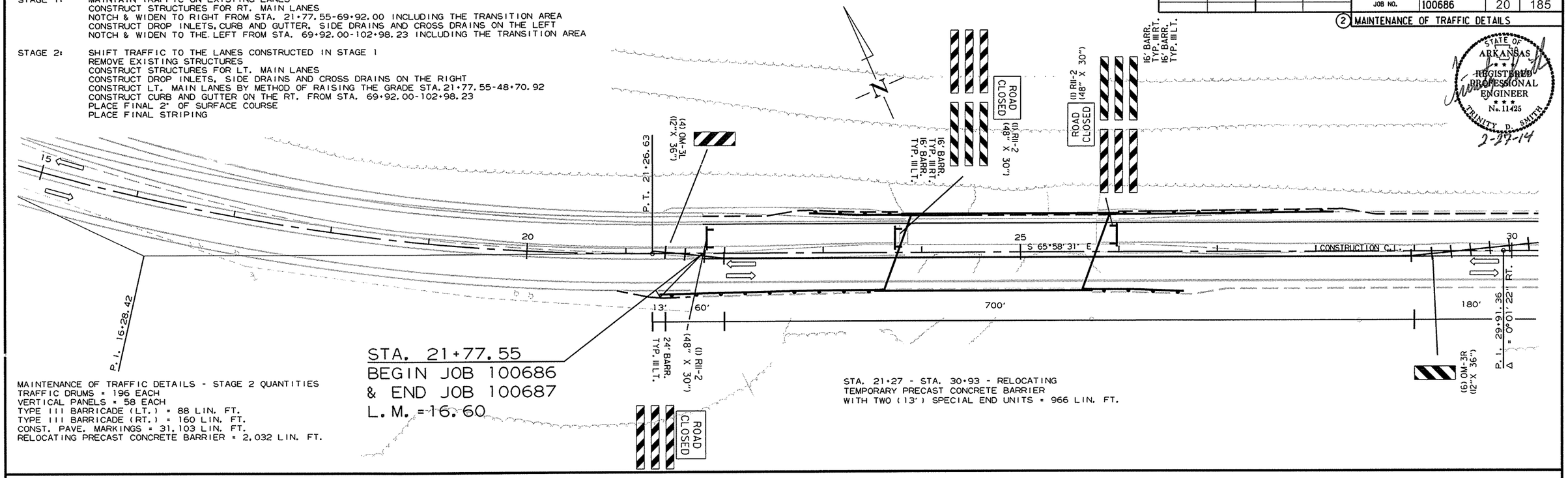
(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION

STAGE 1: MAINTAIN TRAFFIC ON EXISTING LANES
CONSTRUCT STRUCTURES FOR RT. MAIN LANES
NOTCH & WIDEN TO RIGHT FROM STA. 21+77.55-69+92.00 INCLUDING THE TRANSITION AREA
CONSTRUCT DROP INLETS, CURB AND GUTTER, SIDE DRAINS AND CROSS DRAINS ON THE LEFT
NOTCH & WIDEN TO THE LEFT FROM STA. 69+92.00-102+98.23 INCLUDING THE TRANSITION AREA

STAGE 2: SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
REMOVE EXISTING STRUCTURES
CONSTRUCT STRUCTURES FOR LT. MAIN LANES
CONSTRUCT DROP INLETS, SIDE DRAINS AND CROSS DRAINS ON THE RIGHT
CONSTRUCT LT. MAIN LANES BY METHOD OF RAISING THE GRADE STA. 21+77.55-48+70.92
CONSTRUCT CURB AND GUTTER ON THE RT. FROM STA. 69+92.00-102+98.23
PLACE FINAL 2" OF SURFACE COURSE
PLACE FINAL STRIPING

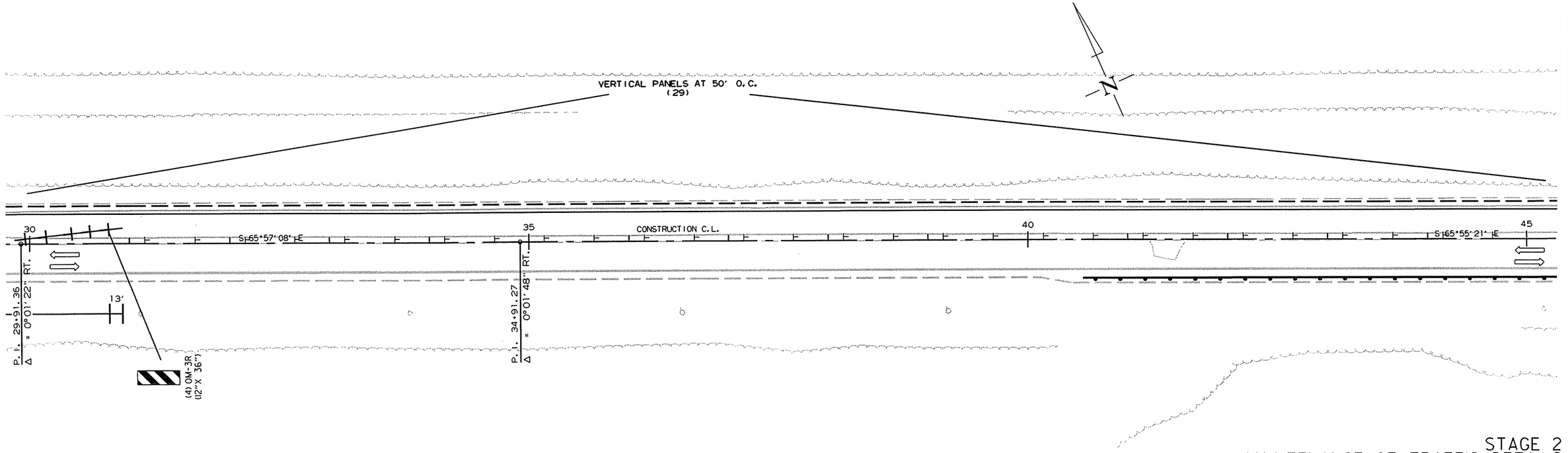
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14



STA. 21+77.55
BEGIN JOB 100686
& END JOB 100687
L. M. = 16.60

MAINTENANCE OF TRAFFIC DETAILS - STAGE 2 QUANTITIES
TRAFFIC DRUMS = 196 EACH
VERTICAL PANELS = 58 EACH
TYPE III BARRICADE (LT.) = 88 LIN. FT.
TYPE III BARRICADE (RT.) = 160 LIN. FT.
CONST. PAVE. MARKINGS = 31,103 LIN. FT.
RELOCATING PRECAST CONCRETE BARRIER = 2,032 LIN. FT.

STA. 21+27 - STA. 30+93 - RELOCATING
TEMPORARY PRECAST CONCRETE BARRIER
WITH TWO (13') SPECIAL END UNITS = 966 LIN. FT.



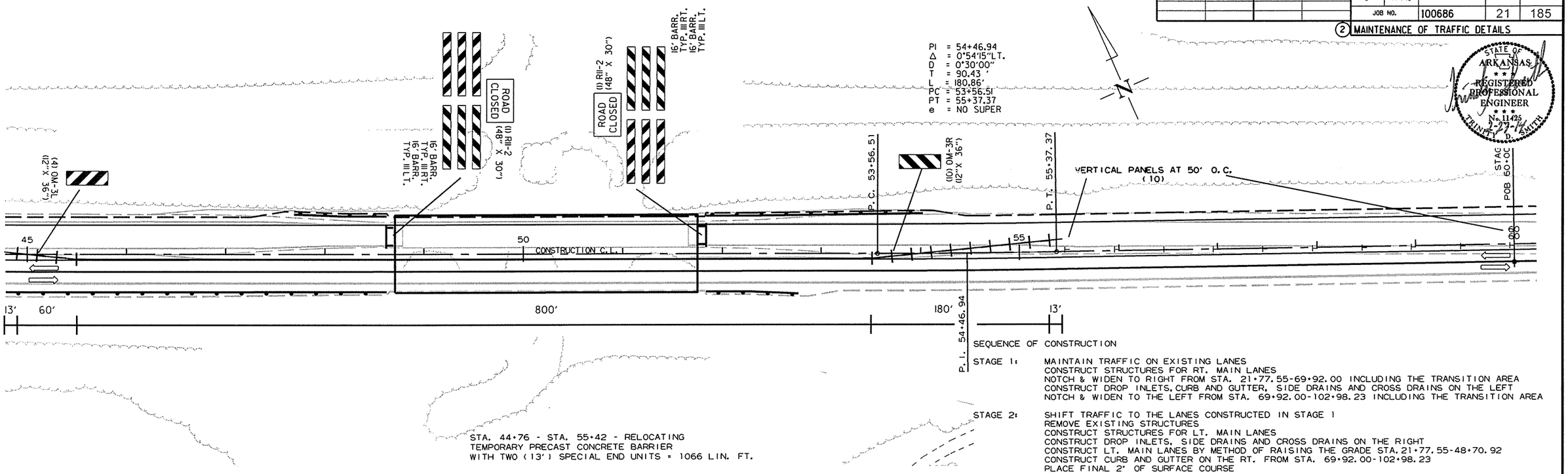
STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

1/31/2014

R100686.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.		100686	21	185

(2) MAINTENANCE OF TRAFFIC DETAILS

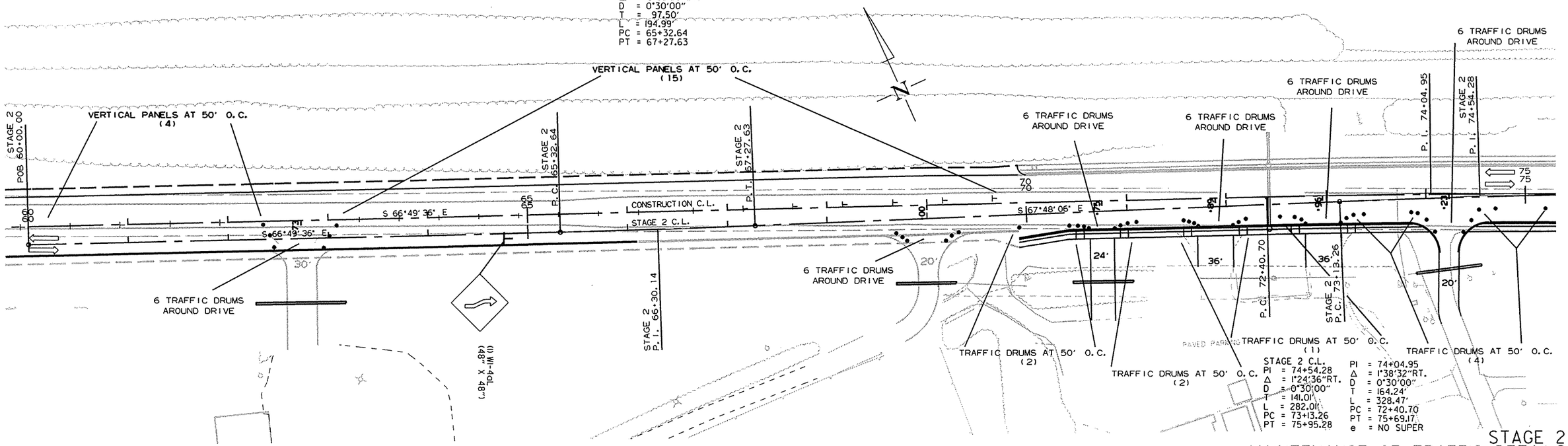


STA. 44+76 - STA. 55+42 - RELOCATING
TEMPORARY PRECAST CONCRETE BARRIER
WITH TWO (13') SPECIAL END UNITS = 1066 LIN. FT.

SEQUENCE OF CONSTRUCTION

STAGE 1: MAINTAIN TRAFFIC ON EXISTING LANES
CONSTRUCT STRUCTURES FOR RT. MAIN LANES
NOTCH & WIDEN TO RIGHT FROM STA. 21+77.55-69+92.00 INCLUDING THE TRANSITION AREA
CONSTRUCT DROP INLETS, CURB AND GUTTER, SIDE DRAINS AND CROSS DRAINS ON THE LEFT
NOTCH & WIDEN TO THE LEFT FROM STA. 69+92.00-102+98.23 INCLUDING THE TRANSITION AREA

STAGE 2: SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
REMOVE EXISTING STRUCTURES
CONSTRUCT STRUCTURES FOR LT. MAIN LANES
CONSTRUCT DROP INLETS, SIDE DRAINS AND CROSS DRAINS ON THE RIGHT
CONSTRUCT LT. MAIN LANES BY METHOD OF RAISING THE GRADE STA. 21+77.55-48+70.92
CONSTRUCT CURB AND GUTTER ON THE RT. FROM STA. 69+92.00-102+98.23
PLACE FINAL 2" OF SURFACE COURSE
PLACE FINAL STRIPING



STAGE 2 C.L.
PI = 74+54.28
Δ = 1°24'36"RT.
D = 0°30'00"
T = 141.01'
L = 282.01'
PC = 73+13.26
PT = 75+95.28

PI = 74+04.95
Δ = 1°38'32"RT.
D = 0°30'00"
T = 164.24'
L = 328.47'
PC = 72+40.70
PT = 75+69.17
e = NO SUPER

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

1/31/2014

R100686.DGN

SEQUENCE OF CONSTRUCTION

STAGE 1: MAINTAIN TRAFFIC ON EXISTING LANES
CONSTRUCT STRUCTURES FOR RT. MAIN LANES
NOTCH & WIDEN TO RIGHT FROM STA. 21+77.55-69+92.00 INCLUDING THE TRANSITION AREA
CONSTRUCT DROP INLETS, CURB AND GUTTER, SIDE DRAINS AND CROSS DRAINS ON THE LEFT
NOTCH & WIDEN TO THE LEFT FROM STA. 69+92.00-102+98.23 INCLUDING THE TRANSITION AREA

STAGE 2: SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
REMOVE EXISTING STRUCTURES
CONSTRUCT STRUCTURES FOR LT. MAIN LANES
CONSTRUCT DROP INLETS, SIDE DRAINS AND CROSS DRAINS ON THE RIGHT
CONSTRUCT LT. MAIN LANES BY METHOD OF RAISING THE GRADE STA. 21+77.55-48+70.92
CONSTRUCT CURB AND GUTTER ON THE RT. FROM STA. 69+92.00-102+98.23
PLACE FINAL 2" OF SURFACE COURSE
PLACE FINAL STRIPING

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.		100686	22	185

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

PI = 83+21.29
Δ = 0°41'46"LT.
D = 0°30'00"
T = 69.61'
L = 139.22'
PC = 82+51.68
PT = 83+90.90
e = NO SUPER

(1) WI-4GL (48" X 48")

6 TRAFFIC DRUMS AROUND DRIVE

STAGE 2 P.I. 89+04.78 Δ=0°06'42" LT.

P.C. 82+51.68
STAGE 2 P.I. 83+54.55
P.T. 83+90.90
STAGE 2 P.T. 75+95.28
P.T. 75+69.17
STAGE 2 P.C. 83+03.44
P.I. 83+21.29
STAGE 2 P.T. 84+05.66

S 66°23'30" E
S 65°52'50" E
STAGE 2 C.L.
CONSTRUCTION C.L.

TRAFFIC DRUMS AT 50' O.C. (6)
TRAFFIC DRUMS AT 50' O.C. (2)
TRAFFIC DRUMS AT 50' O.C. (2)
TRAFFIC DRUMS AT 50' O.C. (4)
TRAFFIC DRUMS AT 50' O.C. (4)

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

PI = 74+04.95
Δ = 1°38'32"RT.
D = 0°30'00"
T = 164.24'
L = 328.47'
PC = 72+40.70
PT = 75+69.17
e = NO SUPER

STAGE 2 C.L.
PI = 74+54.28
Δ = 1°24'36"RT.
D = 0°30'00"
T = 141.01'
L = 282.01'
PC = 73+13.26
PT = 75+95.28

STAGE 2 C.L.
PI = 83+54.55
Δ = 0°30'40"RT.
D = 0°30'00"
T = 51.11'
L = 102.22'
PC = 83+03.44
PT = 84+05.66

STAGE 2 C.L.
PI = 102+06.56
Δ = 4°30'22"LT.
D = 2°15'00"
T = 100.19'
L = 200.28'
PC = 101+06.37
PT = 103+06.64

PI = 101+06.62
Δ = 3°05'31"LT.
D = 1°15'00"
T = 123.71'
L = 247.37'
PC = 99+82.91
PT = 102+30.27
e = NO SUPER

6 TRAFFIC DRUMS AROUND DRIVE

STAGE 2 P.I. 98+10.06
STAGE 2 P.I. 98+12.01
P.C. 99+82.91
STAGE 2 P.C. 101+06.37
STAGE 2 P.T. 102+30.27
STAGE 2 P.T. 103+06.64
POE 103+06.36
STAGE 2 POE 103+80.00
P.C. 96+86.35
STAGE 2 P.C. 97+08.60
STAGE 2 P.T. 99+15.31
STAGE 2 P.I. 101+06.62
STAGE 2 P.I. 102+06.56

S 65°59'32" E
S 61°20'29" E
S 62°54'01" E
S 65°50'52" E
STAGE 2 C.L.
CONSTRUCTION C.L.

TRAFFIC DRUMS AT 50' O.C. (2)
TRAFFIC DRUMS AT 50' O.C. (3)
TRAFFIC DRUMS AT 50' O.C. (1)
TRAFFIC DRUMS AT 50' O.C. (2)
TRAFFIC DRUMS AT 50' O.C. (1)
TRAFFIC DRUMS AT 50' O.C. (4)
TRAFFIC DRUMS AT 50' O.C. (3)
3 TRAFFIC DRUMS AROUND DRIVE

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

PI = 98+10.06
Δ = 3°05'31"RT.
D = 1°15'00"
T = 123.71'
L = 247.37'
PC = 96+86.35
PT = 99+33.71
e = NO SUPER

STAGE 2 C.L.
PI = 98+12.01
Δ = 4°39'03"RT.
D = 2°15'00"
T = 103.41'
L = 206.70'
PC = 97+08.60
PT = 99+15.31

STA. 102+98.23
END JOB 100686

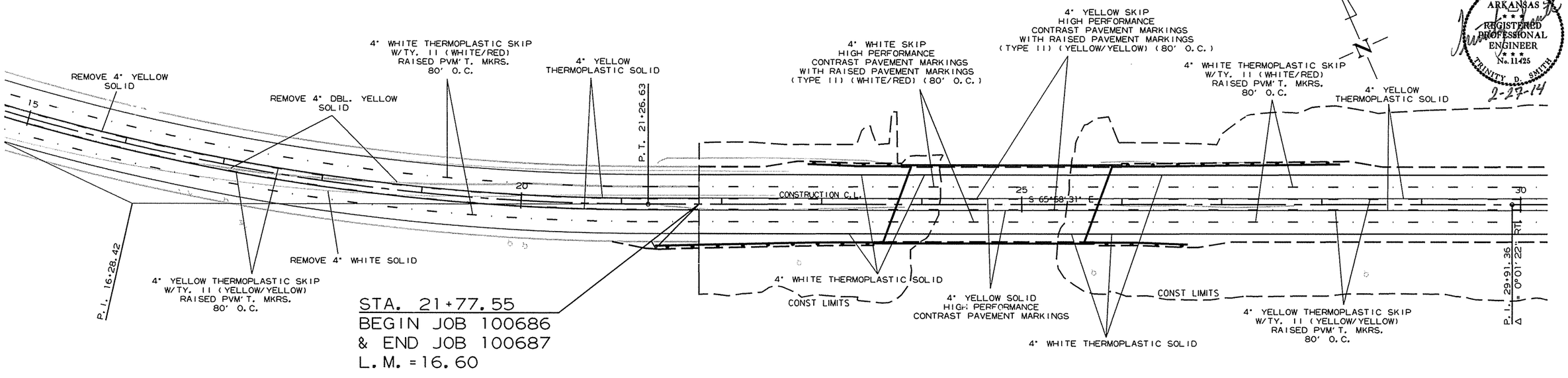
STAGE 2 MAINTENANCE OF TRAFFIC DETAILS

2/25/2014
R100686.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.		100686	23	185

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14



HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS:

4" YELLOW SOLID FOR CENTER TURN LANE = 1,010 LIN. FT.
4" YELLOW SKIP FOR CENTER TURN LANE = 253 LIN. FT.
4" WHITE SKIP LINE = 253 LIN. FT.

REMOVAL OF PERMANENT PAVEMENT MARKINGS:

4" DBL. YELLOW SOLID = 3,252 LIN. FT.
4" WHITE SOLID = 890 LIN. FT.
8" WHITE SOLID = 802 LIN. FT.
(WORDS) = 2 EACH
(ARROWS) = 2 EACH

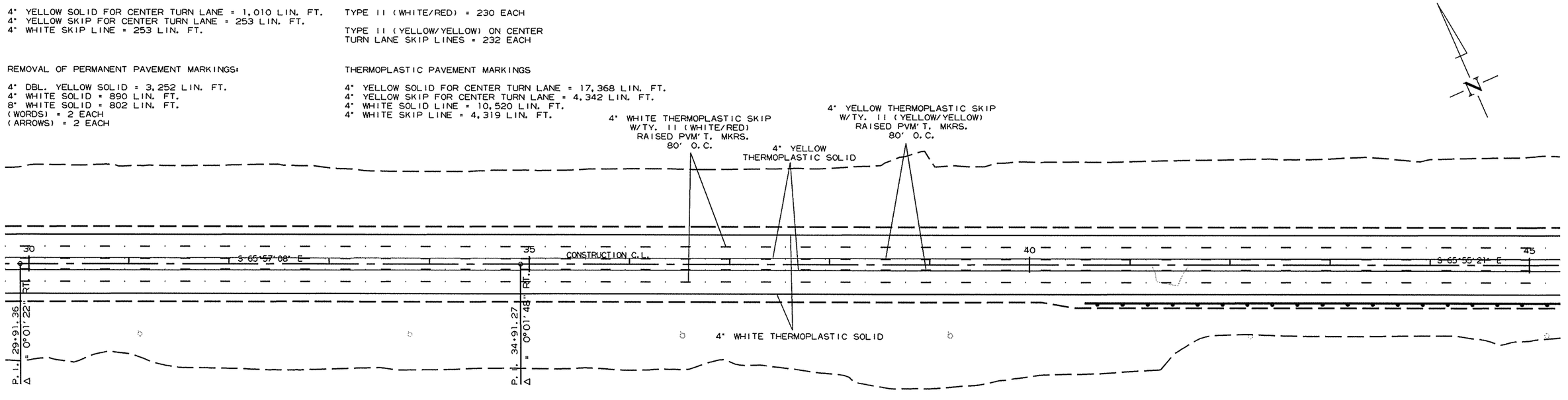
RAISED PAVEMENT MARKERS AT 80' O.C.

TYPE II (WHITE/RED) = 230 EACH

TYPE II (YELLOW/YELLOW) ON CENTER TURN LANE SKIP LINES = 232 EACH

THERMOPLASTIC PAVEMENT MARKINGS

4" YELLOW SOLID FOR CENTER TURN LANE = 17,368 LIN. FT.
4" YELLOW SKIP FOR CENTER TURN LANE = 4,342 LIN. FT.
4" WHITE SOLID LINE = 10,520 LIN. FT.
4" WHITE SKIP LINE = 4,319 LIN. FT.



2/25/2014

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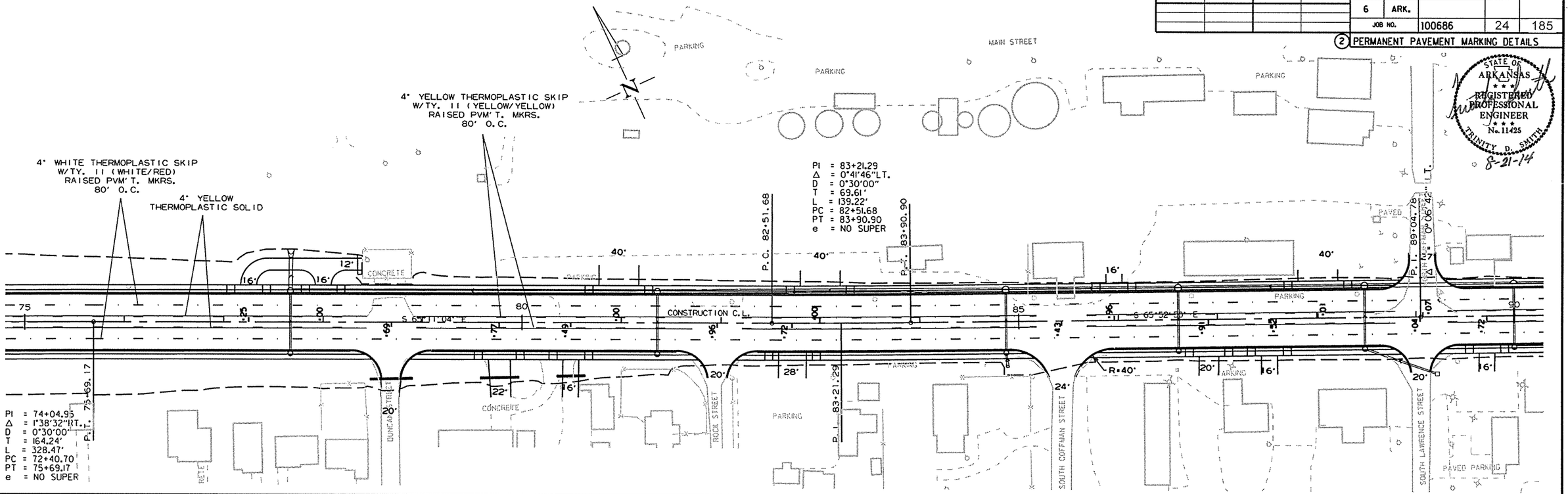
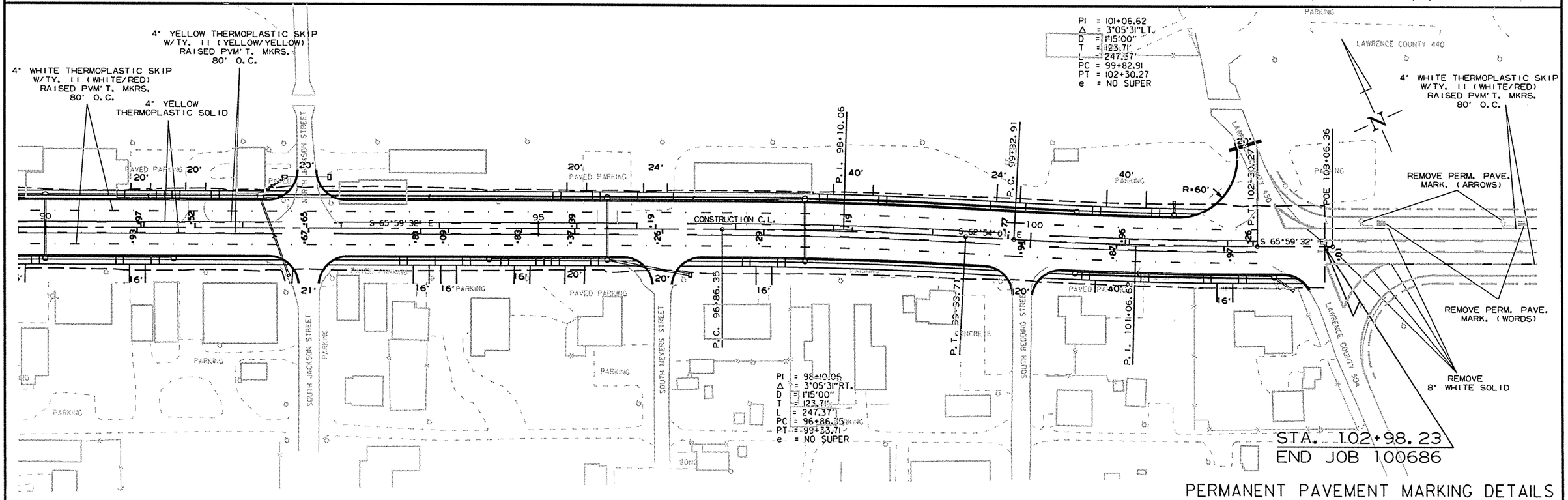
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	24	185

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
8-21-14





PERMANENT PAVEMENT MARKING DETAILS

8/20/2014

R100686.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.		100686	25	185

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER
											RIGHT	LEFT		
			LIN. FT. - EACH				NO.	SQ. FT.	EACH				LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2		2	2	32.0						
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2		2	2	32.0						
W20-1	ROAD WORK 500 FT.	48"x48"	2	2		2	2	32.0						
W20-1	ROAD WORK AHEAD	48"x48"	13	13		13	13	208.0						
G20-2	END ROAD WORK	48"x24"	15	15		15	15	120.0						
W1-4AL	REVERSE CURVE LT.	48"x48"		2		2	2	32.0						
R11-2	ROAD CLOSED	48"x30"	7	11		11	11	110.0						
OM-3L	OBJECT MARKER	12"x36"	20	8		20	20	60.0						
OM-3R	OBJECT MARKER	12"x36"	8	20		20	20	60.0						
R4-1	DO NOT PASS	24"x30"	4	4		4	4	20.0						
RSP-1	SHOULDER CLOSED	48"x30"	2	2		2	2	20.0						
W8-9	LOW SHOULDER	36"X36"	4	4		4	4	36.0						
	VERTICAL PANELS		110	58		110			110					
	TRAFFIC DRUMS		81	196		196				196				
	TYPE III BARRICADE-RT. (16')		4	10		10					160			
	TYPE III BARRICADE-LT. (16')		6	4		6						96		
	TYPE III BARRICADE-RT. (24')		1			1					24			
	TYPE III BARRICADE-LT. (24')			1		1						24		
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		2032			2032							2032	
	RELOCATING PRECAST CONCRETE BARRIER			2032		2032								2032
TOTALS:								762.0	110	196	184	120	2032	2032

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

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF PERMANENT PAVEMENT MARKINGS		RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKINGS		HIGH PERFORMANCE CONTRAST PAVEMENT MARKING	
						WORDS	ARROWS	TYPE II (WHITE/RED)	TYPE II (YEL/YEL)	4" WHITE	4" YELLOW	WHITE (4")	YELLOW (4")
	LIN. FT. - EACH			LIN. FT.		EACH		EACH		LIN. FT.		LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS		380	4564	4944									
REMOVAL OF PERMANENT PAVEMENT MARKINGS (WORDS)			2			2							
REMOVAL OF PERMANENT PAVEMENT MARKINGS (ARROWS)			2				2						
CONSTRUCTION PAVEMENT MARKINGS		31103			31103								
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)			230					230					
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)			232						232				
THERMOPLASTIC PAVEMENT MARKINGS WHITE (4")			14839							14839			
THERMOPLASTIC PAVEMENT MARKINGS YELLOW (4")			21710								21710		
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING WHITE (4")			253									253	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")			1263										1263
TOTALS:				4944	31103	2	2	230	232	14839	21710	253	1263

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

2/27/2014

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	26	185

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
21+78	102+98	PROJECT LIMITS	82	82
TOTALS:			82	82

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	POSTS	GATES
			LIN. FT.	EACH	EACH
77+97	78+43	6' WOOD PRIVACY FENCE (ENCROACHING) ON RT.	72	12	
81+00	81+72	3' ORNAMENTAL FENCE (ENCROACHING) ON RT.	102		
84+07	85+07	4' FENCE (ENCROACHING) ON RT.	100		
101+65	102+78	4' CHAIN LINK FENCE ON RT.	111		2
TOTALS:			385	12	2

REMOVAL AND DISPOSAL OF CULVERTS AND DROP INLETS

STATION	DESCRIPTION	PIPE CULVERTS	DROP INLETS
		EACH	EACH
62+71	24" X 60' C.M. PIPE CULV'T ON RT	1	
69+64	24" X 70' C.M. PIPE CULV'T ON RT	1	
74+07	18" X 52' C.M. PIPE CULV'T ON RT	1	
77+69	24" X 10' R.C. PIPE CULV'T ON RT	1	
77+69	DROP INLET ON LT.		1
78+65	18" X 44' C.M. PIPE CULV'T ON LT	1	
78+65	18" X 40' C.M. PIPE CULV'T ON RT	1	
79+77	18" X 28' C.M. PIPE CULV'T ON RT	1	
80+36	18" X 36' C.M. PIPE CULV'T ON RT	1	
81+41	24" X 741' R.C. PIPE CULV'T ON RT	1	
85+12	DROP INLET ON LT. & RT.		2
85+12	18" X 48' R.C. PIPE CULV'T ON RT	1	
85+15	18" X 10' R.C. PIPE CULV'T ON RT	1	
85+85	24" X 145' R.C. PIPE CULV'T ON RT	1	
86+58	DROP INLET ON LT. & RT.		3
86+58	18" X 43' R.C. PIPE CULV'T ON RT	1	
86+58	18" X 11' R.C. PIPE CULV'T ON RT	1	
89+37	18" X 47' R.C. PIPE CULV'T ON RT	1	
89+99	24" X 277' R.C. PIPE CULV'T ON RT	1	
89+35	DROP INLET ON RT.		1
89+40	DROP INLET ON LT.		1
90+83	24" X 281' R.C. PIPE CULV'T ON RT	1	
92+26	DROP INLET ON LT.		1
92+35	24" X 64' R.C. PIPE CULV'T ON RT	1	
92+44	DROP INLET ON RT.		1
94+15	24" X 371' R.C. PIPE CULV'T ON RT	1	
95+02	18" X 54' R.C. PIPE CULV'T ON RT	1	
96+02	DROP INLET ON LT.		1
96+03	DROP INLET ON RT.		1
96+85	24" X 162' R.C. PIPE CULV'T ON RT	1	
97+68	DROP INLET ON LT. & RT.		2
97+68	18" X 42' R.C. PIPE CULV'T ON RT	1	
102+40	18" X 23' C.M. PIPE CULV'T ON RT	1	
TOTALS:		23	14

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CURB AND GUTTER	CONCRETE DRIVEWAYS	WALKS	FOUNDATIONS	CONCRETE SLABS	HOUSE FOUNDATION	SIGN FOUNDATIONS	GUARDRAIL	TERMINAL ANCHOR POSTS	POSTS	LUMINAIRE POLE & FOUNDATION	BUILDINGS	SIGNS	CANOPY
			LIN. FT.	SQ. YD.	SQ. YD.	SQ. YD.		LIN. FT.	EACH	LIN. FT.	EACH	EACH	EACH	EACH	EACH	EACH
82+08	88+60	CURB AND GUTTER ON LEFT	639													
89+79	91+82	CURB AND GUTTER ON LEFT	165													
92+98	101+21	CURB AND GUTTER ON LEFT	814													
82+12	87+51	CURB AND GUTTER ON RIGHT	497													
93+23	101+23	CURB AND GUTTER ON RIGHT	801													
83+62	84+42	CONCRETE DRIVEWAY ON LEFT		69												
92+96	93+90	CONCRETE DRIVEWAY ON RIGHT		66												
100+06	101+12	CONCRETE DRIVEWAY ON RIGHT		87												
83+62	85+26	CONCRETE WALK ON RIGHT			114											
88+77	88+77	CONCRETE WALK ON LEFT			41											
89+21	90+73	CONCRETE WALK ON RIGHT			106											
92+92	95+95	CONCRETE WALK ON LEFT			205											
94+97	96+03	CONCRETE WALK ON RIGHT			75											
96+41	98+58	CONCRETE WALK ON RIGHT			148											
101+16	102+52	CONCRETE WALK ON RIGHT			94											
95+45	95+94	CONCRETE FOUNDATION ON LEFT				48										
82+55	83+00	CONCRETE SLAB ON LEFT					52									
82+55		BUILDING FOUNDATION ON LEFT						106								
23+00	26+60	SIGNS LT. OF CL HWY. 63													7	
23+00	26+60	SIGNS RT. OF CL HWY. 63													7	
42+50		SIGN RT. OF CL HWY. 63													1	
48+00	52+50	SIGNS LT. OF CL HWY. 63													7	
48+00	52+50	SIGNS RT. OF CL HWY. 63													8	
54+50		SIGN RT. OF CL HWY. 63													1	
57+40		SIGN LT. OF CL HWY. 63													1	
59+25		SIGN RT. OF CL HWY. 63 (DOUBLE SUPPORT)													1	
69+45		SIGN RT. OF CL HWY. 63 (DOUBLE SUPPORT)													1	
69+88		SIGNS RT. OF CL HWY. 63													2	
71+15		SIGN RT. OF CL HWY. 63 (DOUBLE SUPPORT)													1	
76+30		SIGN LT. OF CL HWY. 63 (DOUBLE SUPPORT)													1	
80+15		SIGNS LT. & RT. OF CL HWY. 63													2	
82+05		SIGNS RT. OF CL HWY. 63													2	
82+30		SIGN LT. OF CL HWY. 63													1	
82+88		POST ON RIGHT										1				
83+00		SIGN LT. OF CL HWY. 63							2						1	
85+25		SIGNS RT. OF CL HWY. 63													2	
85+60		SIGN RT. OF CL HWY. 63													1	
87+22		LUMINAIRE POLE & FOUND. (ENCROACH.) ON RT.											1			
87+75		SIGN LT. OF CL HWY. 63													1	
88+80		SIGN LT. OF CL HWY. 63 (DOUBLE SUPPORT)													1	
89+25		SIGN LT. OF CL HWY. 63													1	
89+20		SIGN RT. OF CL HWY. 63													1	
89+30		SIGN RT. OF CL HWY. 63													1	
91+10		SIGN LT. OF CL HWY. 63							1						1	
91+15		SIGN LT. OF CL HWY. 63 (DOUBLE SUPPORT)													1	
92+10		SIGN LT. OF CL HWY. 63							1						1	
92+15		SIGNS LT. OF CL HWY. 63													2	
92+30		SIGN LT. OF CL HWY. 63													1	
92+85		SIGN LT. OF CL HWY. 63													1	
92+90		SIGNS RT. OF CL HWY. 63													3	
95+95		SIGNS LT. OF CL HWY. 63													1	
96+05		SIGN LT. OF CL HWY. 63 (DOUBLE SUPPORT)							2						1	
96+40		SIGNS RT. OF CL HWY. 63													2	
99+80		SIGNS RT. OF CL HWY. 63													2	
101+95		SIGN LT. OF CL HWY. 63 (DOUBLE SUPPORT)													1	
102+25		SIGNS LT. OF CL HWY. 63													2	
21+84	23+84	GUARDRAIL ON LT.								200						
21+84	23+84	GUARDRAIL ON RT.								200						
25+78	27+78	GUARDRAIL ON LT.								200						
25+78	27+78	GUARDRAIL ON RT.								200						
46+77	48+77	GUARDRAIL ON LT.								200						
46+77	48+77	GUARDRAIL ON RT.								200						
51+67	53+67	GUARDRAIL ON LT.								200						
51+67	53+67	GUARDRAIL ON RT.								200						
21+84	53+67	TERMINAL ANCHOR POSTS ON LT.									4					
21+84	53+67	TERMINAL ANCHOR POSTS ON RT.									2					
85+50		BUILDING ON LT.												1		
87+10		BUILDING ON LT.												1		
90+30		BUILDING ON LT.												1		
92+10		BUILDING ON LT.												1		
93+25		BUILDING ON LT.												1		
97+00		BUILDING ON LT.												1		
91+10	91+32	CANOPY (ENCROACHING)														1
91+60	92+34	CANOPY (ENCROACHING)														1
92+95	93+18	CANOPY (ENCROACHING)														1
93+23	93+45	CANOPY (ENCROACHING)														1
TOTALS:			2916	222	783	48	52	106	6	1600	6	1	1	6	71	4

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				6	ARK.			
				JOB NO.		100686	27	185

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
		FEET				
10+00	CL	0-5	32	13	A-6(11)	BROWN
10+00	53'LT	0-5	30	19	A-6(3)	BROWN
10+00	43'LT	0-5	24	14	A-6(1)	BROWN
10+00	CL	0-5	30	16	A-6(12)	BROWN
101+00	19'LT	0-5	21	7	A-4(1)	BROWN
101+00	12'LT	0-5	17	4	A-4(0)	BROWN
18+00	16'LT	0-5	24	13	A-6(1)	BROWN
18+00	5'LT	0-5	25	13	A-2-6(0)	BROWN
28+00	26'RT	0-5	27	15	A-6(6)	BROWN
28+00	37'RT	0-5	28	17	A-6(6)	BROWN
34+00	CL	0-3.0Z	29	16	A-6(6)	BROWN
34+00	13'LT	0-5	29	14	A-6(9)	BROWN
34+00	11'RT	0-5	30	19	A-6(6)	BROWN
42+00	32'RT	0-5	31	18	A-6(11)	BROWN
42+00	22'RT	0-5	28	15	A-6(2)	BROWN
44+15	50'RT CL	6.6-8.1	13	8	A-4 (2)	BR/GR
44+15	50'RT CL	**	11	6	A-4 (0)	***
44+15	50'RT CL	0-1.5	12	6	A-4 (0)	BROWN
44+15	50'RT CL	***	17	12	A-6 (7)	BR/GR
44+15	50'RT CL	**	15	10	A-4 (5)	BR/GR
44+15	50'RT CL	*	15	10	A-4 (5)	BR/GR
44+15	50'RT CL	***	ND	NP	A-2-4 (0)	GRAY
44+15	50'RT CL	**	ND	NP	A-3 (1)	GRAY
44+15	50'RT CL	*	12	7	A-4 (1)	GRAY
44+15	50'RT CL	*	ND	NP	A-3 (1)	GRAY
44+15	50'RT CL	**	13	8	A-4 (2)	BR/GR
44+15	50'RT CL	*	12	7	A-4 (1)	BR/GR
44+15	50'RT CL	8.1-10.1	11	6	A-4 (0)	BR/GR
44+15	50'RT CL	**	ND	NP	A-4 (0)	GRAY
44+15	50'RT CL	*	14	9	A-4 (4)	BR/GR
54+00	CL	0-5	28	13	A-6(4)	BROWN
54+00	12'LT	0-5	34	17	A-6(14)	BROWN
54+00	11'RT	0-5	31	15	A-6(6)	BROWN
62+00	32'RT	0-5	20	8	A-4(1)	BROWN
62+00	20'RT	0-5	26	16	A-6(5)	BROWN
70+00	7'RT	0-5	22	9	A-4(1)	BR/GR
70+00	9'LT	0-5	24	12	A-6(5)	BROWN
70+00	CL	0-5	22	8	A-4(1)	BROWN
70+00	9'LT	0-5	30	16	A-6(10)	BROWN
78+00	27'RT	0-5	ND	NP	A-2-4(0)	BROWN
78+00	19'RT	0-5	ND	NP	A-2-4(0)	GRAY
78+00	10'RT	0-5	ND	NP	A-4(0)	GRAY
86+00	9'LT	0-5	17	2	A-4(0)	BROWN
86+00	17'LT	0-5	18	3	A-4(0)	BROWN
95+00	18'RT	0-5	21	8	A-4(0)	BROWN
95+00	10'RT	0-5	18	5	A-4(0)	BROWN

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
23+89	ABUTMENT ON LEFT	1
48+79	ABUTMENT ON LEFT	1
TOTALS:		2

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

RETAINING WALLS

STATION	STATION	LOCATION	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY
			CU.YDS.	POUNDS	CU.YDS.
78+27	79+02	LT. OF CL HWY. 63	33.89	2851	67
TOTAL:			33.89	2851	67

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	LOCATION	WIDTH	LENGTH	CU.YD.
		FEET		
72+43	EXISTING MAIN LANES	13.92	32.88	19.4
77+67	EXISTING MAIN LANES	13.92	29.33	34.0
81+35	EXISTING MAIN LANES	13.92	29.17	25.1
84+87	EXISTING MAIN LANES	13.92	32.36	27.8
86+61	EXISTING MAIN LANES	13.92	32.40	19.8
88+48	EXISTING MAIN LANES	13.92	32.12	24.8
90+00	EXISTING MAIN LANES	13.92	32.38	25.0
92+18	EXISTING MAIN LANES	13.92	34.34	26.6
95+70	EXISTING MAIN LANES	13.92	29.62	22.9
97+71	EXISTING MAIN LANES	14.42	30.72	30.1
TOTAL:				255.5

AVG. DEPTH = 18.9"

HAND RAILING

STATION	STATION	LOCATION	HAND RAILING
			LIN. FT.
78+27	79+02	LT. OF CL HWY. 63	75
TOTAL:			75

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				6	ARK.			
				JOB NO.		100686	28	185

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP (GROUTED)	FILTER BLANKET
		CU. YDS.	SQ. YDS.
72+43	OUTLET OF PIPE CULVERT	2	3
77+67	OUTLET OF PIPE CULVERT	5	9
101+45	OUTLET OF PIPE CULVERT	2	3
102+47	OUTLET OF PIPE CULVERT	2	3
	TO BE USED IF AND WHERE		
	DIRECTED BY THE ENGINEER		
TOTALS:		11	18

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

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

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	300
ENGINEER	
TOTAL:	300

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

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (DOUBLE)
	EACH	
ENTIRE PROJECT	2	1
TOTALS:	2	1

FENCING

STATION	STATION	LOCATION	* 4' CHAIN LINK FENCE	* 4'-0" GATES	* 16'-0" GATES
			LIN. FT.	EACH	EACH
101+65	102+78	RT. OF CL HWY. 63	102	1	1
TOTALS:			102	1	1

* DENOTES ALTERNATE BID ITEM.

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	**ROCK DITCH CHECKS	DROP INLET SILT FENCE	DIVERSION DITCH	SILT FENCE	SLOPE DRAIN (E-12) PIPE FOR SLOPE DRAINS	SLOPE DRAIN (E-12) DUMPED RIPRAP	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	***SEDIMENT REMOVAL & DISPOSAL
												(E-5)	(E-6)	(E-7)	(E-8)	(E-11)					
			ACRE	TON	ACRE	M.GAL.	ACRE	SQ.YD.	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	STAGE 1	10.22	20.44	10.22	1043.0	10.22	44	11.00	11.00	224.4	5324	726	336	3084	1971	589	30	1070	1070	1639
ENTIRE	PROJECT	STAGE 2	8.45	16.90	8.45	862.2	8.45	25	9.00	9.00	183.6	9196	1254	336	2688	439	457	21	1613	1613	2478
TOTALS:			18.67	37.34	18.67	1905.2	18.67	69	20.00	20.00	408.0	14520	1980	672	5772	2410	1046	51	2683	2683	4117

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.

2/27/2014

R100686.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	29	185

(2) QUANTITIES

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	COMPACTED EMBANKMENT SPECIAL	* SOIL STABILIZATION
			CU. YD.		CU. YD.	TON
ENTIRE	PROJECT	STAGE 1-MAIN LANES	18020	65710	32000	
ENTIRE	PROJECT	STAGE 2-MAIN LANES	26340	18110	27430	
ENTIRE	PROJECT	APPROACHES	5	3400		
		BLACK RIVER RELIEF (BR. NO.07285)	1100			
		BLACK RIVER RELIEF (BR. NO.07286)	915			
		REMOVAL OF WORKROAD (BR. NO. 07286)	640			
		REMOVAL OF WORKROAD (BR. NO. 07286)	85			
* ENTIRE	PROJECT	TO BE USED IF AND WHERE				300
		DIRECTED BY THE ENGINEER				
TOTALS:			47105	87220	59430	300

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

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POSTS (TYPE 1)
			LIN. FT.	EACH		
21+33.05	23+51.80	RT. SIDE	150	1	1	
22+85.35	23+79.10	LT. SIDE	75	1		1
25+72.90	26+66.65	RT. SIDE	75	1		1
26+00.20	28+18.95	LT. SIDE	150	1	1	
40+55.00	48+61.52	RT. SIDE	738	1	1	
47+67.77	48+61.52	LT. SIDE	75	1		1
51+84.48	52+78.23	RT. SIDE	75	1		1
51+84.48	54+03.23	LT. SIDE	150	1	1	
TOTALS:			1488	8	4	4

WHEELCHAIR RAMPS

STATION	LOCATION	TYPE 3
		SQ.YD.
70+00	RT. OF CL HWY. 63	5.0
70+00	LT. OF CL HWY. 63	5.0
73+96	RT. OF CL HWY. 63	7.0
74+50	RT. OF CL HWY. 63	7.0
78+40	RT. OF CL HWY. 63	7.0
78+94	RT. OF CL HWY. 63	7.0
81+67	RT. OF CL HWY. 63	7.0
82+21	RT. OF CL HWY. 63	7.0
85+16	RT. OF CL HWY. 63	7.0
85+64	RT. OF CL HWY. 63	7.0
88+75	LT. OF CL HWY. 63	7.0
88+77	RT. OF CL HWY. 63	7.0
89+31	RT. OF CL HWY. 63	7.0
89+38	LT. OF CL HWY. 63	7.0
92+39	RT. OF CL HWY. 63	7.0
92+39	LT. OF CL HWY. 63	7.0
92+91	LT. OF CL HWY. 63	7.0
92+94	RT. OF CL HWY. 63	7.0
96+05	RT. OF CL HWY. 63	7.0
96+53	RT. OF CL HWY. 63	7.0
99+70	RT. OF CL HWY. 63	7.0
100+18	RT. OF CL HWY. 63	7.0
102+11	LT. OF CL HWY. 63	7.0
102+69	RT. OF CL HWY. 63	7.0
TOTALS:		164.0

ACHM PATCHING OF EXISTING ROADWAY

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

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

CONCRETE WALKS

STATION	STATION	LOCATION	LENGTH	CONCRETE WALKS
			LIN. FT.	SQ.YD.
70+00	70+57	RT. OF CL HWY. 63	57	32
70+93	71+65	RT. OF CL HWY. 63	72	40
72+13	72+72	RT. OF CL HWY. 63	59	33
73+21	73+88	RT. OF CL HWY. 63	67	37
74+57	78+35	RT. OF CL HWY. 63	378	210
79+03	79+60	RT. OF CL HWY. 63	57	32
79+94	80+35	RT. OF CL HWY. 63	41	23
80+63	81+62	RT. OF CL HWY. 63	99	55
82+30	82+52	RT. OF CL HWY. 63	22	12
82+92	84+99	RT. OF CL HWY. 63	207	115
85+87	86+75	RT. OF CL HWY. 63	88	49
87+07	87+38	RT. OF CL HWY. 63	31	17
87+66	88+70	RT. OF CL HWY. 63	104	58
89+38	89+58	RT. OF CL HWY. 63	20	11
89+86	90+79	RT. OF CL HWY. 63	93	52
91+07	92+32	RT. OF CL HWY. 63	125	69
93+01	93+71	RT. OF CL HWY. 63	70	39
94+23	94+70	RT. OF CL HWY. 63	47	26
94+98	95+21	RT. OF CL HWY. 63	23	13
95+53	95+92	RT. OF CL HWY. 63	39	22
96+60	97+15	RT. OF CL HWY. 63	55	31
97+43	99+60	RT. OF CL HWY. 63	217	121
100+28	100+61	RT. OF CL HWY. 63	33	18
101+13	101+83	RT. OF CL HWY. 63	70	39
102+11	102+61	RT. OF CL HWY. 63	50	28
70+01	77+11	LT. OF CL HWY. 63	710	394
77+39	77+86	LT. OF CL HWY. 63	47	26
78+14	80+49	LT. OF CL HWY. 63	235	131
81+01	82+39	LT. OF CL HWY. 63	138	77
82+91	85+82	LT. OF CL HWY. 63	291	162
86+10	87+75	LT. OF CL HWY. 63	165	92
88+27	88+69	LT. OF CL HWY. 63	42	23
89+45	90+81	LT. OF CL HWY. 63	136	76
91+13	91+36	LT. OF CL HWY. 63	23	13
91+68	92+31	LT. OF CL HWY. 63	63	35
92+99	95+23	LT. OF CL HWY. 63	224	124
95+55	97+93	LT. OF CL HWY. 63	238	132
98+45	100+70	LT. OF CL HWY. 63	225	125
101+22	101+60	LT. OF CL HWY. 63	38	21
TOTALS:				2613

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
20+78	21+78	MAIN LANES	59	655.56
102+98	103+98	MAIN LANES	59	655.56
TOTALS:				1311.12

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	50	100
DIRECTED BY THE ENGINEER		
TOTAL:	50	100

NOTE: QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.
BASIS OF ESTIMATE :
ASPHALT..... 25 TON PER MILE
TACK COAT.....50 GAL. PER MILE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
21+77.55	23+21.79	RT. SIDE	115
26+24.39	48+34.42	RT. SIDE	1768
52+11.58	69+92.00	RT. SIDE	1272
21+77.55	23+27.61	LT. SIDE	120
26+30.21	48+34.42	LT. SIDE	1763
52+11.58	69+92.00	LT. SIDE	1424
TOTALS:			6462

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

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1' 6")
			LIN. FT.
69+92	74+13	RT. OF CL HWY. 63	426
74+33	78+59	RT. OF CL HWY. 63	446
78+79	81+86	RT. OF CL HWY. 63	337
82+06	85+29	RT. OF CL HWY. 63	340
85+57	88+94	RT. OF CL HWY. 63	349
89+14	92+56	RT. OF CL HWY. 63	355
92+77	96+16	RT. OF CL HWY. 63	359
96+36	99+84	RT. OF CL HWY. 63	372
100+04	102+82	RT. OF CL HWY. 63	287
69+96	88+93	LT. OF CL HWY. 63	1853
89+21	92+55	LT. OF CL HWY. 63	352
92+75	102+07	LT. OF CL HWY. 63	977
TOTALS:			6453

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
21+78	23+75	RT. OF CL HWY. 63	297	2
25+77	48+71	RT. OF CL HWY. 63	3094	11
51+75	69+92	RT. OF CL HWY. 63	2297	9
69+92	102+98	RT. OF CL HWY. 63	3306	15
21+78	23+75	LT. OF CL HWY. 63	297	2
25+77	48+71	LT. OF CL HWY. 63	3094	11
51+75	69+92	LT. OF CL HWY. 63	2297	9
69+92	102+98	LT. OF CL HWY. 63	3306	15
TOTALS:			17988	74

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.

2/25/2014

R100686.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.		100686	30	185

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	(CLASS III) 42"	(CLASS III) 22"X14"	(CLASS IV) 18"	(CLASS IV) 22"X14"	SIDE DRAIN 12"	PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2 18"	36"	42"	22"X14"	29"X18"	44"X27"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18"	42"	22"X14"	DROP INLETS TYPE E	TYPE MO	EXT. 4'	EXT. 8'	YARD DRAIN	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.												EACH								SQ.YD.	M.GAL	
72+43	CONST. DROP INLET ON RT. WITH R.C. PIPE CULVERT				59													1		1				FPC-9M, PCC-1
72+43	CONST. DROP INLET ON LT. WITH R.C. PIPE CULVERT OUTLET	26												1				1		1				FPC-9M, PCC-1, FES-1, FES-2
77+67	CONST. DROP INLET ON RT. WITH R.C. PIPE CULVERT				59													1		1				FPC-9M, PCC-1
77+67	CONST. DROP INLET ON LT. WITH R.C. PIPE CULVERT OUTLET		32												1			1		1				FPC-9M, PCC-1, FES-1, FES-2
81+36	CONST. DROP INLET ON RT. WITH R.C. PIPE CULVERT				59													1						FPC-9M, PCC-1
81+36	CONST. DROP INLET ON LT. WITH PIPE CULVERT WITH BACK OPEN.									364								1						FPC-9M, PCP-1, PCP-2, PCC-1, PCM-1
84+87	CONST. DROP INLET ON RT. WITH R.C. PIPE CULVERT WITH INLET	8			59									1				1		1				FPC-9M, PCC-1, FES-1, FES-2
84+87	CONST. DROP INLET ON LT. WITH PIPE CULVERT WITH BACK OPEN.									346								1		1				FPC-9M, PCP-1, PCP-2, PCC-1, PCM-1
86+61	CONST. DROP INLET ON RT. WITH R.C. PIPE CULVERT WITH BACK OPEN.				59													1		1				FPC-9M, PCC-1
86+61	CONST. DROP INLET ON LT. WITH ARCH PIPE CULVERT WITH BACK OPEN.												168					1		1				FPC-9M, PCP-1, PCP-2, PCC-1, PCM-1
88+48	CONST. DROP INLET ON RT. WITH R.C. PIPE CULVERT WITH BACK OPEN.	59																1						FPC-9M, PCC-1
88+48	CONST. DROP INLET ON LT. WITH ARCH PIPE CULVERT WITH BACK OPEN.												182					1						FPC-9M, PCP-1, PCP-2, PCC-1, PCM-1
89+21	CONST. DROP INLET ON RT. WITH PIPE CULVERT							74									1					5	0.1	FPC-9, PCP-1, PCP-2, PCC-1, PCM-1
90+00	CONST. DROP INLET ON RT. WITH R.C. PIPE CULVERT WITH BACK OPEN.				59													1		1				FPC-9M, PCC-1
90+00	CONST. DROP INLET ON LT. WITH ARCH PIPE CULVERT												146					1		1				FPC-9M, PCP-1, PCP-2, PCC-1, PCM-1
91+30	CONST. DROP INLET ON RT. WITH PIPE CULVERT WITH BACK OPEN.							126										1						FPC-9M, PCP-1, PCP-2, PCC-1, PCM-1
92+18	CONST. DROP INLET ON LT. WITH ARCH PIPE CULVERT WITH INLET WITH BACK OPEN.				78								213	1				1						FPC-9M, PCC-1, FES-1, FES-2, PCM-1
92+43	CONST. DROP INLET ON LT. WITH PIPE CULVERT							30									1					4	0.1	FPC-9, PCP-1, PCP-2, PCC-1, PCM-1
92+88	CONST. DROP INLET ON LT. WITH PIPE CULVERT							42									1					4	0.1	FPC-9, PCP-1, PCP-2, PCC-1, PCM-1
94+50	CONST. DROP INLET ON RT. WITH PIPE CULVERT WITH BACK OPEN.							116										1						FPC-9M, PCP-1, PCP-2, PCC-1, PCM-1
95+70	CONST. DROP INLET ON RT. WITH R.C. PIPE CULVERT WITH BACK OPEN.				59													1						FPC-9M, PCC-1
95+70	CONST. DROP INLET ON LT. WITH PIPE CULVERT WITH BACK OPEN.								347									1						FPC-9M, PCP-1, PCP-2, PCC-1, PCM-1
96+54	CONST. DROP INLET ON RT. WITH ARCH PIPE CULVERT										82						1					4	0.1	FPC-9, PCP-1, PCP-2, PCC-1, PCM-1
97+71	CONST. DROP INLET ON RT. WITH R.C. ARCH PIPE CULVERT WITH BACK OPEN.					59												1		1				FPC-9M, PCC-1
97+71	CONST. DROP INLET ON LT. WITH ARCH PIPE CULVERT WITH BACK OPEN.											197						1		1				FPC-9M, PCP-1, PCP-2, PCC-1, PCM-1
100+46	CONST. DROP INLET ON LT. WITH PIPE CULVERT							271										1	1					FPC-9M, PCP-1, PCP-2, PCC-1, PCM-1
100+46	CONST. DROP INLET ON RT. WITH PIPE CULVERT WITH BACK OPEN.							199										1	1					FPC-9M, PCP-1, PCP-2, PCC-1, PCM-1
101+45	CONST. DROP INLET ON LT. WITH R.C. ARCH PIPE CULVERT WITH FES			6												1		1						FPC-9M, PCC-1, FES-1, FES-2
102+47	CONST. DROP INLET ON RT. WITH R.C. PIPE CULVERT WITH FES	16												1				1						FPC-9M, PCC-1, FES-1, FES-2
	CONST. YARD DRAIN WITH SIDE DRAIN (AS DIRECTED BY THE ENGINEER)						500														10			FPC-9
TOTALS:		109	32	6	491	59	500	858	347	710	82	197	709	4	1	1	4	25	2	12	10	17	0.4	

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.

2/25/2014
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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.		100686	31	185

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

DRIVEWAYS & TURNOUTS

STATION	SIDE	DRIVEWAY DESCRIPTION	EXTENSION FEET	EXTENSION TYPE	WIDTH FEET	**MODIFIED CURB STATION	**MODIFIED CURB STATION	PORTLAND CEMENT CONCRETE DRIVEWAY SQ. YD.	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22) SQ. YD.	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22) TON	ACHM BINDER COURSE (1") 330 LBS. PER SQ. YD. (PG 64-22) SQ. YD.	ACHM BINDER COURSE (1") 330 LBS. PER SQ. YD. (PG 64-22) TON	ACHM BASE COURSE (1 1/2") 550 LBS. PER SQ. YD. (PG 64-22) SQ. YD.	ACHM BASE COURSE (1 1/2") 550 LBS. PER SQ. YD. (PG 64-22) TON	AGGREGATE BASE COURSE (CLASS 7) TON	SIDE DRAINS 18" LIN. FT.	SIDE DRAINS 24" LIN. FT.	STANDARD DRAWING NUMBERS
62+73	RT.	PRIVATE DRIVE	83.0	ASPHALT	30				320.0	35.2					130.7		94	PCC-1, PCM-1, PCP-1, PCP-2
69+00	RT.	PORTIA BAY RD	93.9	ASPHALT	20				628.0	69.1	314.0	51.8	340.1	93.5	219.8		82	PCC-1, PCM-1, PCP-1, PCP-2
70+75	RT.	COMMERCIAL DRIVE	78.5	ASPHALT	24	70+49	71+01	32.00	209.4	23.0					85.5		84	PCC-1, PCM-1, PCP-1, PCP-2
71+89	RT.	COMMERCIAL DRIVE	27.4	ASPHALT	36	71+57	72+21	42.70	109.8	12.1					44.8			
72+96	RT.	COMMERCIAL DRIVE	30.4	ASPHALT	36	72+64	73+28	42.70	121.7	13.4					49.7			
74+23	RT.	LAWRENCE CO. 511	81.1	ASPHALT	20				486.8	53.5	243.4	40.2	269.5	74.1	170.4		70	PCC-1, PCM-1, PCP-1, PCP-2
77+25	LT.	PRIVATE DRIVE	122.0	ASPHALT	16	77+03	77+47	24.90	217.0	23.9					88.6	20		PCC-1, PCM-1, PCP-1, PCP-2
78+00	LT.	PRIVATE DRIVE	11.3	ASPHALT	16	77+78	78+22	24.90	37.8	4.2					15.4			
78+69	RT.	DUNCAN STREET	36.3	ASPHALT	20				287.8	31.7	143.9	23.7	170.0	46.8	100.7	50		PCC-1, PCM-1, PCP-1, PCP-2
79+77	RT.	PRIVATE DRIVE	34.9	CONCRETE	22	79+52	80+02	115.60								42		PCC-1, PCM-1, PCP-1, PCP-2
80+49	RT.	PRIVATE DRIVE	34.6	ASPHALT	16	80+27	80+71	24.90	61.4	6.8					25.1	34		PCC-1, PCM-1, PCP-1, PCP-2
80+75	LT.	COMMERCIAL DRIVE	16.6	ASPHALT	40	80+41	81+09	46.20	73.9	8.1					30.2			
81+96	RT.	ROCK STREET	14.1	ASPHALT	20				189.0	20.8	94.5	15.6	120.6	33.2	66.2			
82+65	LT.	COMMERCIAL DRIVE	11.6	ASPHALT	40	82+31	82+99	46.20	51.5	5.7					21.0			
82+72	RT.	COMMERCIAL DRIVE	14.6	ASPHALT	28	82+44	83+00	35.60	45.3	5.0					18.5			
85+43	RT.	SOUTH COFFMAN STREET	13.2	ASPHALT	24				309.2	34.0	154.6	25.5	182.9	50.3	108.2			
85+96	LT.	COMMERCIAL DRIVE	5.5	ASPHALT	16	85+74	86+18	24.90	9.8	1.1					4.0			
86+91	RT.	COMMERCIAL DRIVE	15.4	ASPHALT	20	86+67	87+15	28.40	34.2	3.8					14.0			
87+52	RT.	COMMERCIAL DRIVE	15.3	ASPHALT	16	87+30	87+74	24.90	27.1	3.0					11.1			
88+01	LT.	COMMERCIAL DRIVE	7.5	ASPHALT	40	87+67	88+35	46.20	33.5	3.7					13.7			
89+04	RT.	SOUTH LAWRENCE STREET	12.4	ASPHALT	20				181.6	20.0	90.8	15.0	116.9	32.1	63.6			
89+07	LT.	NORTH COFFMAN STREET	21.0	ASPHALT	27				287.0	31.6	143.5	23.7	169.6	46.6	100.5			
89+72	RT.	COMMERCIAL DRIVE	14.9	ASPHALT	16	89+50	89+94	24.90	26.5	2.9					10.8			
90+93	RT.	COMMERCIAL DRIVE	14.9	ASPHALT	16	90+71	91+15	24.90	26.5	2.9					10.8			
90+97	LT.	COMMERCIAL DRIVE	4.5	ASPHALT	20	90+73	91+21	28.40	10.0	1.1					4.1			
91+52	LT.	COMMERCIAL DRIVE	6.5	ASPHALT	20	91+28	91+76	28.40	14.5	1.6					5.9			
92+65	LT.	NORTH JACKSON STREET	14.9	ASPHALT	20				193.0	21.2	96.5	15.9	122.6	33.7	67.6			
92+67	RT.	SOUTH JACKSON STREET	12.3	ASPHALT	21				189.0	20.8	94.5	15.6	120.6	33.2	66.2			
93+81	RT.	COMMERCIAL DRIVE	14.9	CONCRETE	16	93+59	94+03	51.30										
94+09	RT.	COMMERCIAL DRIVE	14.8	ASPHALT	16	93+87	94+31	24.90	26.3	2.9					10.7			
94+83	RT.	COMMERCIAL DRIVE	14.7	CONCRETE	16	94+61	95+05	51.00										
95+37	RT.	COMMERCIAL DRIVE	14.7	CONCRETE	20	95+13	95+61	61.10										
95+39	LT.	COMMERCIAL DRIVE	5.8	CONCRETE	20	95+15	95+63	41.20										
96+19	LT.	COMMERCIAL DRIVE	5.1	ASPHALT	24	95+93	96+45	32.00	13.6	1.5					5.6			
96+26	RT.	SOUTH MEYERS STREET	12.2	ASPHALT	20				180.8	19.9	90.4	14.9	116.5	32.0	63.3			
97+29	RT.	PRIVATE DRIVE	14.5	CONCRETE	16	97+07	97+51	50.60										
98+19	LT.	COMMERCIAL DRIVE	6.5	ASPHALT	40	97+85	98+53	46.20	29.0	3.2					11.8			
99+77	LT.	COMMERCIAL DRIVE	13.5	ASPHALT	24	99+51	100+03	32.00	36.0	4.0					14.7			
99+94	RT.	SOUTH REDDING STREET	12.3	ASPHALT	20				181.0	19.9	90.5	14.9	116.6	32.1	63.4			
100+87	RT.	COMMERCIAL DRIVE	8.6	CONCRETE	40	100+53	101+21	84.40										
100+96	LT.	COMMERCIAL DRIVE	13.6	ASPHALT	40	100+62	101+30	46.20	60.3	6.6					24.6			
101+97	RT.	PRIVATE DRIVE	15.7	CONCRETE	16	101+75	102+19	52.80										
102+26	LT.	LAWRENCE CO. 430	65.0	ASPHALT	20				724.8	79.7	362.4	59.8	207.3	57.0	253.7	38		PCC-1, PCM-1, PCP-1, PCP-2
*	ENTIRE PROJECT TEMPORARY DRIVES														500.0			
TOTALS:								**1240.40**	**5433.1**	**597.9**	**1919.0**	**316.6**	**2053.2**	**564.6**	**2494.9**	**184**	**330**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.6% MIN. AGGR.....5.4% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.1% MIN. AGGR.....3.9% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

** FOR INFORMATION ONLY

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

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.

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTERS (TYPE C) CU.YD.	APPROACH SLABS (TYPE SPECIAL 1) CU.YD.	APPROACH SLABS (TYPE SPECIAL 2) CU.YD.	REINFORCING STEEL RDWY. (GR 60) POUND	AGGREGATE BASE CRS. (CLASS 7) TON
23+24.70	23+74.85	APPROACH SLAB		174.50		19935	94.4
25+77.15	26+27.30	APPROACH SLAB		174.50		19931	94.4
48+34.42	48+70.92	APPROACH SLAB			120.50	14150	83.5
51+75.08	52+11.58	APPROACH SLAB			120.50	14150	83.5
23+21.79	23+61.20	RT. SIDE	14.79			807	
23+27.61	23+88.50	LT. SIDE	14.79			807	
25+63.50	26+24.39	RT. SIDE	14.79			807	
25+90.80	26+30.21	LT. SIDE	14.79			807	
48+34.42	48+70.92	LT. SIDE	14.79			807	
48+34.42	48+70.92	RT. SIDE	14.79			807	
51+75.08	52+11.58	LT. SIDE	14.79			807	
51+75.08	52+11.58	RT. SIDE	14.79			807	
TOTALS:			**118.32**	**349.00**	**241.00**	**74622**	**355.8**

NOTE: USE T =14.5" FOR 8' SHOULDER.

2/27/2014

R100686.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.		100686	32	185

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

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")			
			FEET	TON / STATION	TON	TOTAL WID. FEET	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON
MAIN LANES																					
20+77.55	21+77.55	TRANSITION	100.0			75.0	833.3	0.10	83.3									75.0	833.3	110.0	45.8
21+77.55	22+00.00	HWY. 63 - NOTCH AND WIDEN	22.4	243.25	54.5	147.8	367.9	0.03	11.0	39.4	98.1	550.0	27.0	39.2	97.6	330.0	16.1	114.1	284.0	220.0	31.2
22+00.00	23+24.70	HWY. 63 - FULL DEPTH	124.7	428.00	533.7	190.5	2639.5	0.03	79.2	63.8	884.0	550.0	243.1	63.5	879.8	330.0	145.2	138.3	1916.2	220.0	210.8
26+27.30	29+00.00	HWY. 63 - FULL DEPTH	272.7	428.00	1167.2	190.5	5772.2	0.03	173.2	63.8	1933.1	550.0	531.6	63.5	1924.1	330.0	317.5	138.3	4190.5	220.0	461.0
29+00.00	45+50.00	HWY. 63 - FULL DEPTH	1650.0	428.00	7062.0	190.5	34925.0	0.03	1047.8	63.8	11696.7	550.0	3216.6	63.5	11641.7	330.0	1920.9	138.3	25355.0	220.0	2789.1
45+50.00	48+34.42	HWY. 63 - FULL DEPTH	284.4	428.00	1217.2	190.5	6019.8	0.03	180.6	63.8	2016.1	550.0	554.4	63.5	2006.6	330.0	331.1	138.3	4370.3	220.0	480.7
52+11.58	53+50.00	HWY. 63 - FULL DEPTH	138.4	428.00	592.4	190.5	2929.5	0.03	87.9	63.8	981.1	550.0	269.8	63.5	976.5	330.0	161.1	138.3	2126.7	220.0	233.9
53+50.00	69+92.00	HWY. 63 - NOTCH AND WIDEN	1642.0	334.50	5492.5	142.5	25998.3	0.03	779.9	39.8	7261.3	550.0	1996.9	39.5	7206.6	330.0	1189.1	75.0	13683.3	220.0	1505.2
69+92.00	102+98.23	HWY. 63 - NOTCH AND WIDEN	3306.2	134.25	4438.6	122.5	45001.1	0.03	1350.0	34.5	12673.8	550.0	3485.3	32.0	11755.4	330.0	1939.6	88.0	32327.3	220.0	3556.0
102+98.23	103+98.23	TRANSITION	100.0			75.0	833.3	0.10	83.3									75.0	833.3	110.0	45.8
ADDITIONAL FOR LEVELING & CROWN SHIFT																					
21+78.00	22+00.00	HWY. 63 - LEVELING - NOTCH AND WIDEN	22.0			30.0	73.3	0.10	7.3									30.0	73.3	220.0	8.1
53+50.00	102+98.00	HWY. 63 - LEVELING - NOTCH AND WIDEN	4948.0			24.0	13194.7	0.10	1319.5									24.0	13194.7	220.0	1451.4
ADDITIONAL FOR GRADE RAISE																					
21+78.00	22+00.00	HWY. 63 - NOTCH AND WIDEN	22.0			VAR.	146.7	0.03	4.4					VAR.	170.9	330.0	28.2				
29+00.00	45+50.00	HWY. 63 - FULL DEPTH	1650.0			VAR.	22000.0	0.03	660.0	VAR.	17600.0	550.0	4840.0	24.0	4400.0	330.0	726.0				
69+50.00	100+00.00	HWY. 63 - NOTCH AND WIDEN	3050.0			VAR.	16266.7	0.03	488.0					VAR.	16266.7	330.0	2684.0				
ADDITIONAL FOR GUARDRAIL																					
20+81.05	21+23.05	RT. SIDE (6:1 TAPER)	42.0	30.50	12.8													3.5	16.3	220.0	1.8
21+23.05	21+33.05	RT. SIDE (10' BEYOND GR)	10.0	59.00	5.9													7.0	7.8	220.0	0.9
21+33.05	23+08.05	RT. SIDE (50:1 TAPER)	175.0	45.00	78.8													5.25	102.1	220.0	11.2
23+08.05	23+51.80	RT. SIDE	43.8	30.50	13.4													3.5	17.0	220.0	1.9
22+42.35	22+75.35	LT. SIDE (6:1 TAPER)	33.0	24.25	8.0													2.75	10.1	220.0	1.1
22+75.35	22+85.35	LT. SIDE (10' BEYOND GR)	10.0	47.00	4.7													5.5	6.1	220.0	0.7
22+85.35	23+35.35	LT. SIDE (VAR. TAPER)	50.0	39.00	19.5													4.5	25.0	220.0	2.8
23+35.35	23+79.10	LT. SIDE	43.8	30.50	13.4													3.5	17.0	220.0	1.9
25+72.90	26+16.65	RT. SIDE	43.8	30.50	13.4													3.5	17.0	220.0	1.9
26+16.65	26+66.65	RT. SIDE (VAR. TAPER)	50.0	39.00	19.5													4.5	25.0	220.0	2.8
26+66.65	26+76.65	RT. SIDE (10' BEYOND GR)	10.0	47.00	4.7													5.5	6.1	220.0	0.7
26+76.65	27+09.65	RT. SIDE (6:1 TAPER)	33.0	24.25	8.0													2.75	10.1	220.0	1.1
26+00.20	26+43.95	LT. SIDE	43.8	30.50	13.4													3.5	17.0	220.0	1.9
26+43.95	28+18.95	LT. SIDE (50:1 TAPER)	175.0	45.00	78.8													5.25	102.1	220.0	11.2
28+18.95	28+28.95	LT. SIDE (10' BEYOND GR)	10.0	59.00	5.9													7.0	7.8	220.0	0.9
28+28.95	28+70.95	LT. SIDE (6:1 TAPER)	42.0	30.50	12.8													3.5	16.3	220.0	1.8
40+12.00	40+45.00	RT. SIDE (6:1 TAPER)	33.0	30.50	10.1													3.5	12.8	220.0	1.4
40+45.00	40+55.00	RT. SIDE (10' BEYOND GR)	10.0	59.00	5.9													7.0	7.8	220.0	0.9
40+55.00	48+17.77	RT. SIDE (VAR. TAPER)	762.8	45.00	343.3													5.25	445.0	220.0	49.0
48+17.77	48+61.52	RT. SIDE	43.8	30.50	13.4													3.5	17.0	220.0	1.9
47+24.77	47+57.77	LT. SIDE (6:1 TAPER)	33.0	24.25	8.0													2.75	10.1	220.0	1.1
47+57.77	47+67.77	LT. SIDE (10' BEYOND GR)	10.0	47.00	4.7													5.5	6.1	220.0	0.7
47+67.77	48+17.77	LT. SIDE (VAR. TAPER)	50.0	39.00	19.5													4.5	25.0	220.0	2.8
48+17.77	48+61.52	LT. SIDE	43.8	30.50	13.4													3.5	17.0	220.0	1.9
51+84.48	52+28.23	RT. SIDE	43.8	30.50	13.4													3.5	17.0	220.0	1.9
52+28.23	52+78.23	RT. SIDE (VAR. TAPER)	50.0	39.00	19.5													4.5	25.0	220.0	2.8
52+78.23	52+88.23	RT. SIDE (10' BEYOND GR)	10.0	47.00	4.7													5.5	6.1	220.0	0.7
52+88.23	53+21.23	RT. SIDE (6:1 TAPER)	33.0	24.25	8.0													2.75	10.1	220.0	1.1
51+84.48	52+28.23	LT. SIDE	43.8	30.50	13.4													3.5	17.0	220.0	1.9
52+28.23	54+03.23	LT. SIDE (50:1 TAPER)	175.0	45.00	78.8													5.25	102.1	220.0	11.2
54+03.23	54+13.23	LT. SIDE (10' BEYOND GR)	10.0	59.00	5.9													7.0	7.8	220.0	0.9
54+13.23	54+55.23	LT. SIDE (6:1 TAPER)	42.0	30.50	12.8													3.5	16.3	220.0	1.8
TOTALS:					21445.9		177001.3		6355.4		55144.2		15164.7		57325.9		9458.8		100332.9		10945.6

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.6% MIN. AGGR.....5.4% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.1% MIN. AGGR.....3.9% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

2/25/2014

R100686.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.		100686	33	185
				① 07285 & 07286		- QUANTITIES -	53703	

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 100686

BRIDGE NO. / CODE NO. / NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	802	802	803	804	804	805	807	808	809	812	816	816
		ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	① STEEL SHELL PILING (18'' DIA.)	STRUCTURAL STEEL IN BEAM SPANS (M270, GRADE 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP
		UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LB.	CU. IN.	LIN. FT.	EACH	SQ. YD.	CU. YD.
07285 X071 BLACK RIVER RELIEF	BENTS 1 & 4			95	134.20		0.4	21554	2090	1120	3875				1356	725
	BENTS 2 & 3				140.50			31256	881							
	200' CONT. COMP. W-BM. UNIT					479.10	36.2		105949		361985	3281.0	166	1		
EXIST. BR. NO. 02190 (SITE NO. 1)			1													
TOTALS FOR BRIDGE NO. 07285			1	95	274.70	479.10	36.6	52810	108920	1120	365860	3281.0	166	1	1356	725
07286 X071 BLACK RIVER RELIEF	BENTS 1 & 6			121	127.00		0.7	21002	2008	1240	3740				1494	795
	BENTS 2 - 5				269.70			56768	1802							
	302' CONT. COMP. W-BM. UNIT					721.90	54.6		154570		472390	4935.0	156	1		
EXIST. BR. NO. 02189 (SITE NO. 2)			1													
TOTALS FOR BRIDGE NO. 07286			1	121	396.70	721.90	55.3	77770	158380	1240	476130	4935.0	156	1	1494	795
TOTALS FOR JOB NO. 100686				216	671.40	1201.00	91.9	130580	267300	2360	841990	8216.0	322	2	2850	1520

① PILES SHALL CONFORM TO DWG. NO. 53713.

BRIDGE NO. / CODE NO. / NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	SP JOB 100686	SP JOB 100686	SP JOB 100686	SP JOB 100686	SP JOB 100686
		ITEM	DRILLED SHAFT (48'' DIA.)	PERMANENT STEEL CASING (60'' DIA.)	CROSSHOLE SONIC LOGGING (48'' DIA.)	CORING DRILLED SHAFT	SHORING (SITE NO.)
		UNIT	LIN. FT.	LIN. FT.	EACH	LIN. FT.	LUMP SUM
07285 X071 BLACK RIVER RELIEF	BENTS 1 & 4						
	BENTS 2 & 3		416	336	8	52	
	200' CONT. COMP. W-BM. UNIT						
EXIST. BR. NO. 02190 (SITE NO. 1)							1
TOTALS FOR BRIDGE NO. 07285			416	336	8	52	1
07286 X071 BLACK RIVER RELIEF	BENTS 1 & 6						
	BENTS 2 - 5		896	736	16	56	
	302' CONT. COMP. W-BM. UNIT						
EXIST. BR. NO. 02189 (SITE NO. 2)							1
TOTALS FOR BRIDGE NO. 07286			896	736	16	56	1
TOTALS FOR JOB NO. 100686			1312	1072	24	108	

BRYAN FREELING
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
Carl Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
3/10/14
CARL FUSELIER

BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
BLACK ROCK-PORTIA (S)
LAWRENCE COUNTY

ROUTE 63 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 1-10-13 FILENAME: bl00686_ql.dgn
CHECKED BY: [illegible] DATE: 3-25-13 SCALE: NONE
DESIGNED BY: -- DATE:

BRIDGE NO. 07285 & 07286 DRAWING NO. 53703

PRINT DATE: 2/26/2014

SUMMARY OF QUANTITIES

	ITEM NUMBER	ITEM		QUANTITY	UNIT
	201	CLEARING		82	STATION
	201	GRUBBING		82	STATION
	202	REMOVAL AND DISPOSAL OF CURB AND GUTTER		2916	LIN. FT.
	202	REMOVAL AND DISPOSAL OF FENCE		385	LIN. FT.
	202	REMOVAL AND DISPOSAL OF GATES		2	EACH
	202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS		222	SQ. YD.
	202	REMOVAL AND DISPOSAL OF WALKS		783	SQ. YD.
	202	REMOVAL AND DISPOSAL OF CONCRETE SLABS		52	SQ. YD.
	202	REMOVAL AND DISPOSAL OF FOUNDATIONS		48	SQ. YD.
	202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS		6	EACH
	202	REMOVAL AND DISPOSAL OF HOUSE FOUNDATION		106	LIN. FT.
	202	REMOVAL AND DISPOSAL OF DROP INLETS		14	EACH
	202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		23	EACH
	202	REMOVAL AND DISPOSAL OF GUARDRAIL		1600	LIN. FT.
	202	REMOVAL AND DISPOSAL OF TERMINAL ANCHOR POSTS		6	EACH
	202	REMOVAL AND DISPOSAL OF POSTS		13	EACH
	202	REMOVAL AND DISPOSAL OF LUMINAIRE POLE AND FOUNDATION		1	EACH
	202	REMOVAL AND DISPOSAL OF BUILDINGS		6	EACH
	202	REMOVAL AND DISPOSAL OF SIGNS		71	EACH
	202	REMOVAL AND DISPOSAL OF CANOPY		4	EACH
	210	UNCLASSIFIED EXCAVATION		47105	CU. YD.
	210	COMPACTED EMBANKMENT		87220	CU. YD.
	SP & 210	COMPACTED EMBANKMENT (SPECIAL)		59430	CU. YD.
	SP & 210	SOIL STABILIZATION		300	TON
	303	AGGREGATE BASE COURSE (CLASS 7)		24297	TON
	401	TACK COAT		6455	GAL.
	SP & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")		15116	TON
	SP & 405	ASPHALT BINDER (PG 64-22) IN ACHM BASE COURSE (1 1/2")		613	TON
	SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		9374	TON
	SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		401	TON
	SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		10921	TON
	SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		623	TON
	412	COLD MILLING ASPHALT PAVEMENT		1311	SQ. YD.
	SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		50	TON
	SP & 415	ACHM PATCHING OF EXISTING ROADWAY		100	TON
	504	APPROACH SLABS		590.00	CU. YD.
	504	APPROACH GUTTERS		118.32	CU. YD.
	505	PORTLAND CEMENT CONCRETE DRIVEWAY		1240.40	SQ. YD.
	601	MOBILIZATION		1.00	LUMP SUM
	SP & 602	FURNISHING FIELD OFFICE		1	EACH
	603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
	604	SIGNS		762	SQ. FT.
	604	BARRICADES		304	LIN. FT.
	604	TRAFFIC DRUMS		196	EACH
	604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		2032	LIN. FT.
	604	RELOCATING PRECAST CONCRETE BARRIER		2032	LIN. FT.
	604	CONSTRUCTION PAVEMENT MARKINGS		31103	LIN. FT.
	604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		4944	LIN. FT.
	604	REMOVAL OF PERMANENT PAVEMENT MARKINGS (WORDS)		2	EACH
	604	REMOVAL OF PERMANENT PAVEMENT MARKINGS (ARROWS)		2	EACH
	604	VERTICAL PANELS		110	EACH
	606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		109	LIN. FT.
	606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		491	LIN. FT.
*	606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	858	LIN. FT.
*	606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	858	LIN. FT.
*	606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	347	LIN. FT.
*	606	36" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	347	LIN. FT.
	606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		32	LIN. FT.
*	606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	710	LIN. FT.
*	606	42" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	710	LIN. FT.
	606	22" X 14" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)		6	LIN. FT.
*	606	22" X 14" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	82	LIN. FT.
*	606	21" X 15" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE	(ALTERNATE NO. 2)	82	LIN. FT.
	606	22" X 14" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS IV)		59	LIN. FT.
*	606	29" X 18" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	197	LIN. FT.
*	606	28" X 20" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE	(ALTERNATE NO. 2)	197	LIN. FT.
*	606	44" X 27" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	709	LIN. FT.
*	606	42" X 29" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE	(ALTERNATE NO. 2)	709	LIN. FT.
	606	12" SIDE DRAIN		500	LIN. FT.
	SP & 606	18" SIDE DRAIN		184	LIN. FT.
	SP & 606	24" SIDE DRAIN		330	LIN. FT.
	606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		4	EACH
	606	42" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		1	EACH
	606	22" X 14" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS		1	EACH
	606	SELECTED PIPE BEDDING		300	CU. YD.
	609	DROP INLETS (TYPE E)		4	EACH
	609	DROP INLETS (TYPE MO)		25	EACH
	609	DROP INLET EXTENSIONS (4')		2	EACH
	609	DROP INLET EXTENSIONS (8')		12	EACH
	609	YARD DRAINS		10	EACH
	611	UNDERDRAIN OUTLET PROTECTORS		74	EACH
	611	4" PIPE UNDERDRAINS		17988	LIN. FT.
	615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)		255.5	CU. YD.
	617	GUARDRAIL (TYPE A)		1488	LIN. FT.
	617	GUARDRAIL TERMINAL (TYPE 2)		4	EACH
	617	THRIE BEAM GUARDRAIL TERMINAL		8	EACH
	617	TERMINAL ANCHOR POSTS (TYPE 1)		4	EACH
*	619	4' STEEL CHAIN LINK FENCE	(ALTERNATE NO. 1)	102	LIN. FT.
*	619	4' ALUMINUM CHAIN LINK FENCE	(ALTERNATE NO. 2)	102	LIN. FT.
*	619	4' STEEL GATE	(ALTERNATE NO. 1)	1	EACH
*	619	4' ALUMINUM GATES	(ALTERNATE NO. 2)	1	EACH
*	619	16' STEEL GATES	(ALTERNATE NO. 1)	1	EACH
*	619	16' ALUMINUM GATES	(ALTERNATE NO. 2)	1	EACH
	620	LIME		37	TON
	620	SEEDING		18.67	ACRE
	SS & 620	MULCH COVER		38.67	ACRE
	620	WATER		2313.6	M. GAL.
	621	TEMPORARY SEEDING		20.00	ACRE
	621	SILT FENCE		2410	LIN. FT.
	621	SAND BAG DITCH CHECKS		14520	BAG
	621	DIVERSION DITCH		5772	LIN. FT.
	621	DROP INLET SILT FENCE		672	LIN. FT.
	621	SEDIMENT BASIN		2683	CU. YD.
	621	OBLITERATION OF SEDIMENT BASIN		2683	CU. YD.
	621	SEDIMENT REMOVAL AND DISPOSAL		4117	CU. YD.
	621	PIPE FOR SLOPE DRAINS		1046	LIN. FT.
	621	ROCK DITCH CHECKS		1980	CU. YD.
	623	SECOND SEEDING APPLICATION		18.67	ACRE
	624	SOLID SODDING		86	SQ. YD.
	633	CONCRETE WALKS		2613	SQ. YD.
	633	HAND RAILING		75	LIN. FT.
	634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")		6453	LIN. FT.
	635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
	637	MAILBOXES		2	EACH
	637	MAILBOX SUPPORTS (DOUBLE)		1	EACH
	641	WHEELCHAIR RAMPS (TYPE 3)		164	SQ. YD.
	642	RUMBLE STRIPS IN ASPHALT SHOULDERS		6462	LIN. FT.
	719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")		14839	LIN. FT.
	719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		21710	LIN. FT.
*	SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING WHITE (4")	(ALTERNATE NO. 1)	253	LIN. FT.
*	SP	HIGH PERFORMANCE CONTRAST MARKING TAPE WHITE (4")	(ALTERNATE NO. 2)	253	LIN. FT.
*	SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	(ALTERNATE NO. 1)	1263	LIN. FT.
*	SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	(ALTERNATE NO. 2)	1263	LIN. FT.
	721	RAISED PAVEMENT MARKERS (TYPE II)		462	EACH
	801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY		67	CU. YD.
	802	CLASS S CONCRETE-ROADWAY		33.89	CU. YD.
	804	REINFORCING STEEL-ROADWAY (GRADE 60)		77473	POUND
	816	FILTER BLANKET		18	SQ. YD.
	816	DUMPED RIPRAP		51	CU. YD.
	816	DUMPED RIPRAP (GROUTED)		11	CU. YD.
		STRUCTURES OVER 20' SPAN			
	205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)		1.00	LUMP SUM
	205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)		1.00	LUMP SUM
	636	BRIDGE CONSTRUCTION CONTROL		1.00	LUMP SUM
	801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE		216	CU. YD.
	802	CLASS S CONCRETE-BRIDGE		671.40	CU. YD.
	802	CLASS S(AE) CONCRETE-BRIDGE		1201.00	CU. YD.
	803	CLASS 1 PROTECTIVE SURFACE TREATMENT		91.9	GAL.
	804	REINFORCING STEEL-BRIDGE (GRADE 60)		130580	POUND
	804	EPOXY COATED REINFORCING STEEL (GRADE 60)		267300	POUND
	805	STEEL SHELL PILING (18" DIAMETER)		2360	LIN. FT.
	807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)		841990	POUND
	808	ELASTOMERIC BEARINGS		8216.0	CU. IN.
	809	SILICONE JOINT SEALANT		322	LIN. FT.
	812	BRIDGE NAME PLATE (TYPE D)		2	EACH
	816	FILTER BLANKET		2850	SQ. YD.
	816	DUMPED RIPRAP		1520	CU. YD.
	SP	DRILLED SHAFT (48" DIAMETER)		1312	LIN. FT.
	SP	PERMANENT STEEL CASING (60" DIAMETER)		1072	LIN. FT.
	SP	CROSSHOLE SONIC LOGGING (48" DIAMETER)		24	EACH
	SP	CORING DRILLED SHAFT		108	LIN. FT.
	SP	SHORING (SITE NO. 1)		1.00	LUMP SUM
	SP	SHORING (SITE NO. 2)		1.00	LUMP SUM

* DENOTES ALTERNATE BID ITEMS

REVISIONS

DATE	REVISION	SHEET NUMBER

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

(2) SUMMARY OF QUANTITIES AND REVISIONS

FED.AID DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	100686	34	185

JOB NO.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TIMOTHY D. SMITH

2-27-14

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.		100686	35	185

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

SURVEY CONTROL COORDINATES

Project Name: s100686
Date: 1/18/2012
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
25	638360.3265	1590540.4897	261.902	CTL	•5/8"REBAR W/ CAP, STAMPED T-25
26	638671.6876	1589798.7118	262.794	CTL	•5/8"REBAR W/ CAP, STAMPED T-26
27	639056.0559	1589017.8473	262.372	CTL	•5/8"REBAR W/ CAP, STAMPED T-27
28	639492.1337	1588039.8767	262.315	CTL	•5/8"REBAR W/ CAP, STAMPED T-28
29	639912.1147	1587100.0658	262.864	CTL	•5/8"REBAR W/ CAP, STAMPED T-29
30	640274.8818	1586189.5511	262.936	CTL	•5/8"REBAR W/ CAP
31	640680.6542	1585295.3804	262.811	CTL	•5/8"REBAR W/ CAP
32	641117.0568	1584320.5968	266.065	CTL	•5/8"REBAR W/ CAP
33	641465.5702	1583543.5962	263.960	CTL	•5/8"REBAR W/ CAP
34	641816.7532	1582756.8116	263.464	CTL	•5/8"REBAR W/ CAP, 22.5 S OF CL 63
35	642174.6044	1581956.0073	265.927	CTL	•5/8"REBAR W/ CAP
36	642558.4798	1581198.4512	264.858	CTL	•5/8"REBAR W/ CAP
37	643353.1011	1580453.3681	267.320	CTL	•5/8"REBAR W/ CAP
38	644062.3832	1579834.3669	249.165	CTL	•5/8"REBAR W/ CAP
39	645340.1397	1578751.7367	318.944	CTL	•5/8"REBAR W/ CAP
40	645972.2943	1578207.2998	312.238	CTL	•5/8"REBAR W/ CAP
41	646263.3438	1577562.8791	289.699	CTL	•5/8"REBAR W/ CAP, 22.5 N OF CL OF 63
42	646303.8368	1576781.6017	295.440	CTL	•5/8"REBAR W/ CAP
43	646387.6459	1575910.3774	295.721	CTL	•5/8"REBAR W/ CAP
44	646393.6486	1574995.7479	286.004	CTL	•5/8"REBAR W/ CAP
100	647132.1618	1572657.8173	345.709	GPS	•AHTD GPS 380004
101	647207.3156	1574590.3625	300.637	GPS	•AHTD GPS 380009
102	637624.7490	1588926.2874	260.570	GPS	•AHTD GPS 380010

•Note - Rebar and Cap - Standard - 5/8" 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 0.999959546 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 s100686gi.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 - 0301 NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 380004, 380009, 380010
CONVERGENCE ANGLE: 0-31-36.35 RIGHT AT LT: 36-05-57.6 LG: 091-05-41.1
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

CONSTRUCTION C.L.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	6+96.73	643279.1084	1580462.8482
8001	PC	11+13.38	642962.9677	1580734.2337
8003	PT	21+26.63	642362.4773	1581540.1328
8004	PI	29+91.36	642010.4140	1582329.9578
8005	PI	34+91.27	641806.7047	1582786.4745
8017	PC	53+56.51	641045.7382	1584489.4273
8019	PT	55+37.37	640973.2584	1584655.1266
8020	PC	72+40.70	640302.9752	1586221.0342
8022	PT	75+69.17	640169.4098	1586521.1059
8023	PC	82+51.68	639882.9618	1587140.5937
8025	PT	83+90.90	639825.2991	1587267.3134
8026	PI	89+04.78	639615.3065	1587736.3305
8027	PC	96+86.35	639297.3188	1588450.2830
8029	PT	99+33.71	639190.6288	1588673.4241
8030	PC	99+82.91	639168.2171	1588717.2207
8032	PT	102+30.27	639061.5271	1588940.3617
8016	POE	103+06.36	639030.5724	1589009.8618

STAGE 2 C.L.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8033	POB	60+00.00	640774.6592	1585073.3498
8034	PC	65+32.64	640565.0576	1585563.0185
8036	PT	67+27.63	640489.8564	1585742.9184
8037	PC	73+13.26	640268.5960	1586285.1463
8039	PT	75+95.28	640158.8465	1586544.9176
8040	PC	83+03.44	639875.2395	1587193.8105
8042	PT	84+05.66	639833.8848	1587287.2916
8043	PI	89+04.78	639629.9224	1587742.8402
8044	PC	97+08.60	639302.8807	1588477.1208
8046	PT	99+15.31	639211.2140	1588662.3244
8047	PC	101+06.37	639119.5835	1588829.9786
8049	PT	103+06.64	639030.5390	1589009.3146
8050	POE	103+80.00	639000.5235	1589076.2509

R100686.DGN 2/10/2014

SURVEY CONTROL DETAILS

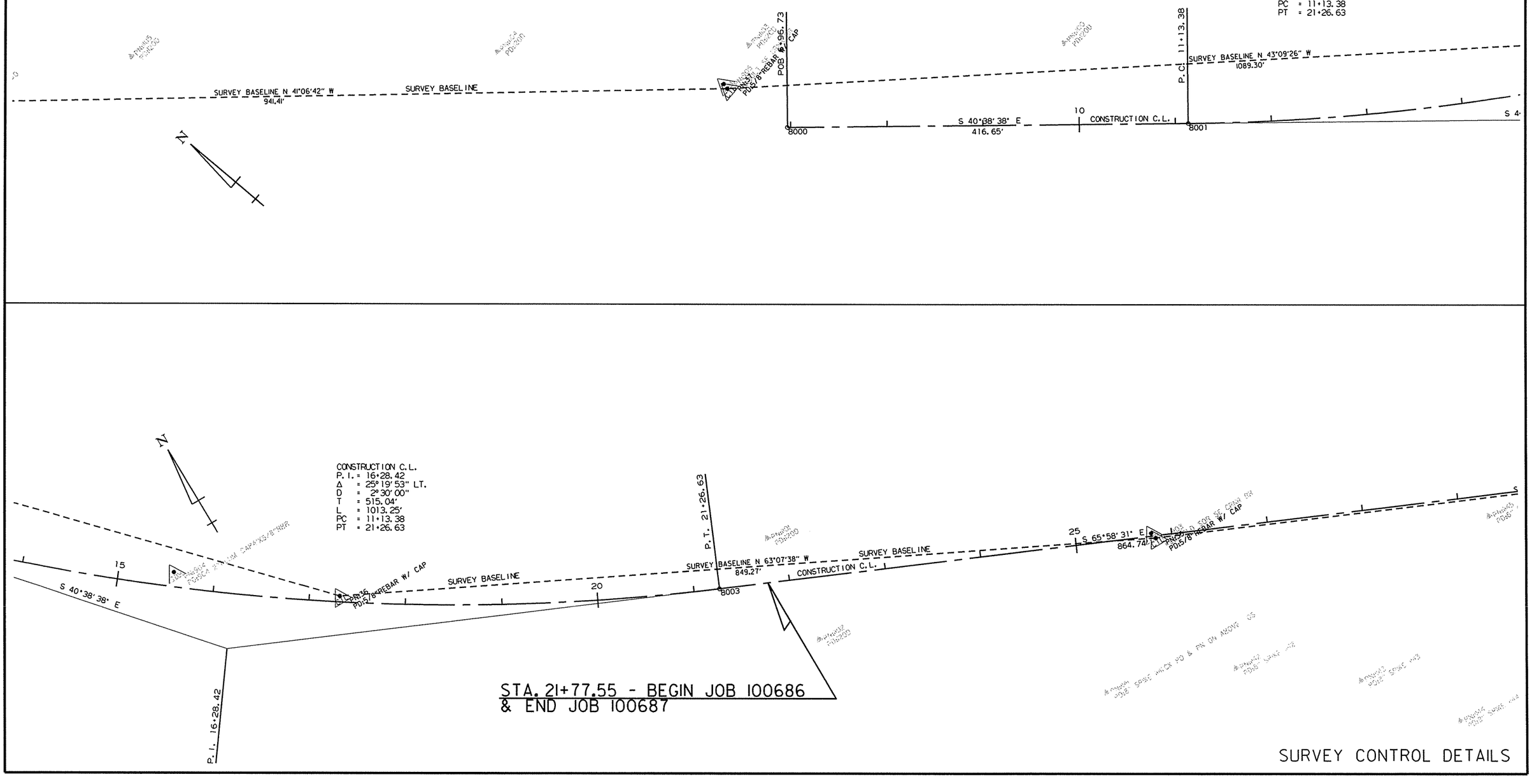
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	36	185

0 50' 100'

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

CONSTRUCTION C.L.
P.I. = 16+28.42
Δ = 25°19'53" LT.
D = 2°30'00"
T = 515.04'
L = 1013.25'
PC = 11+13.38
PT = 21+26.63



SURVEY CONTROL DETAILS

2/10/2014

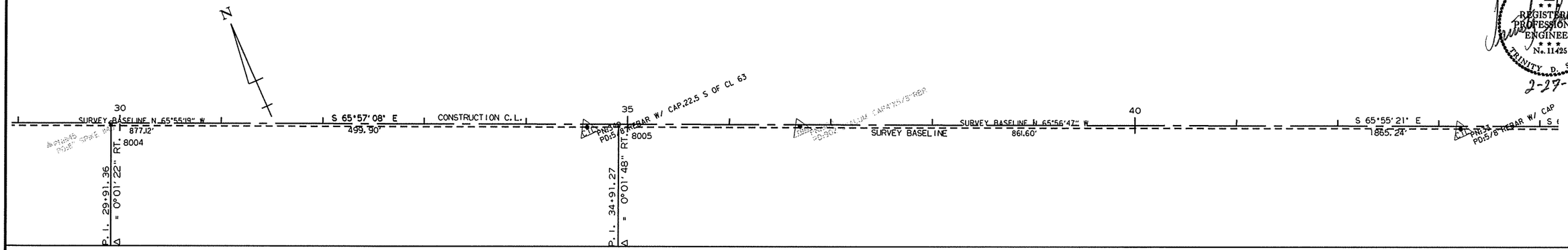
R100686.DGN

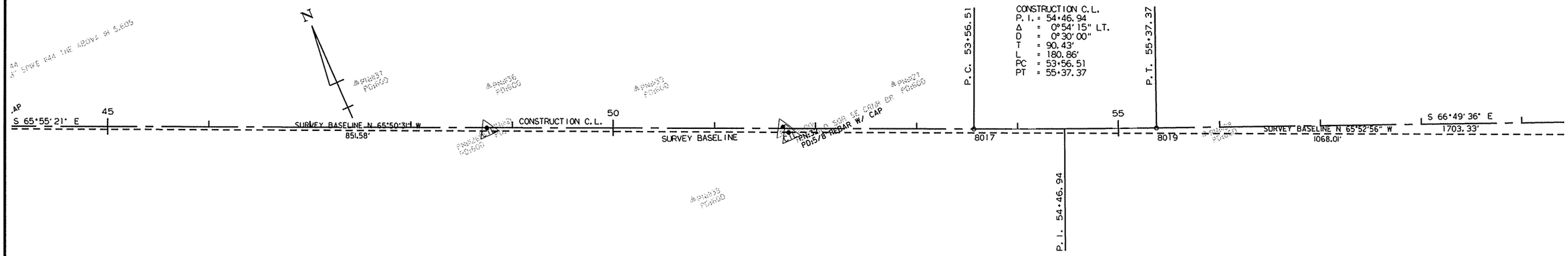
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	37	185

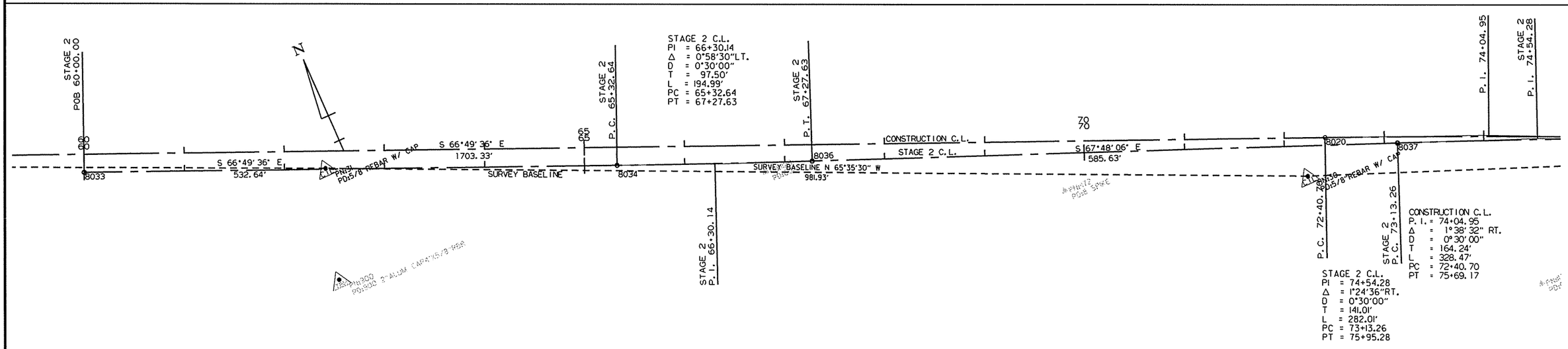
0 50' 100'

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14







SURVEY CONTROL DETAILS

2/10/2014

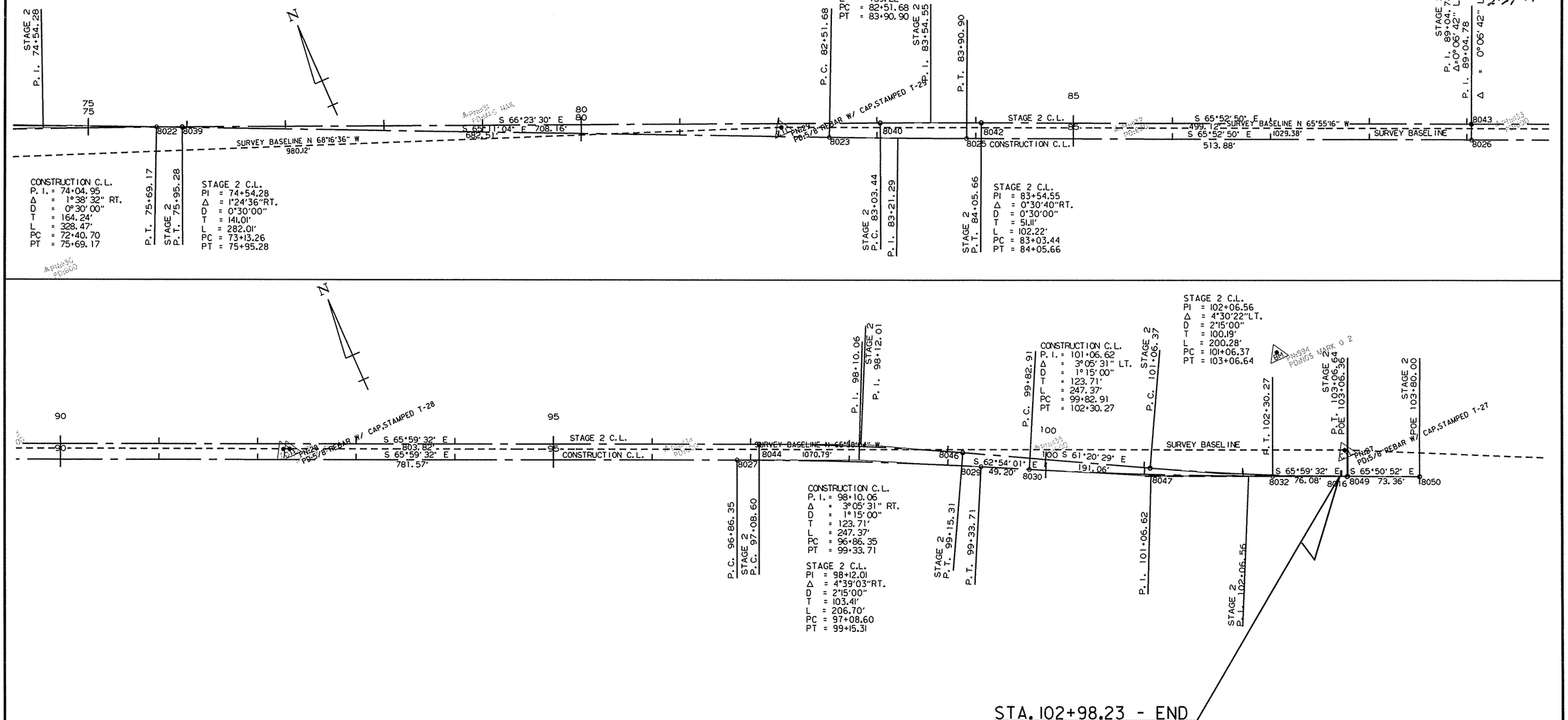
R100686.DGN

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.		100686	38	185

0 50' 100'

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14



STA. 102+98.23 - END
JOB 100686

2/10/2014

R100686.DGN

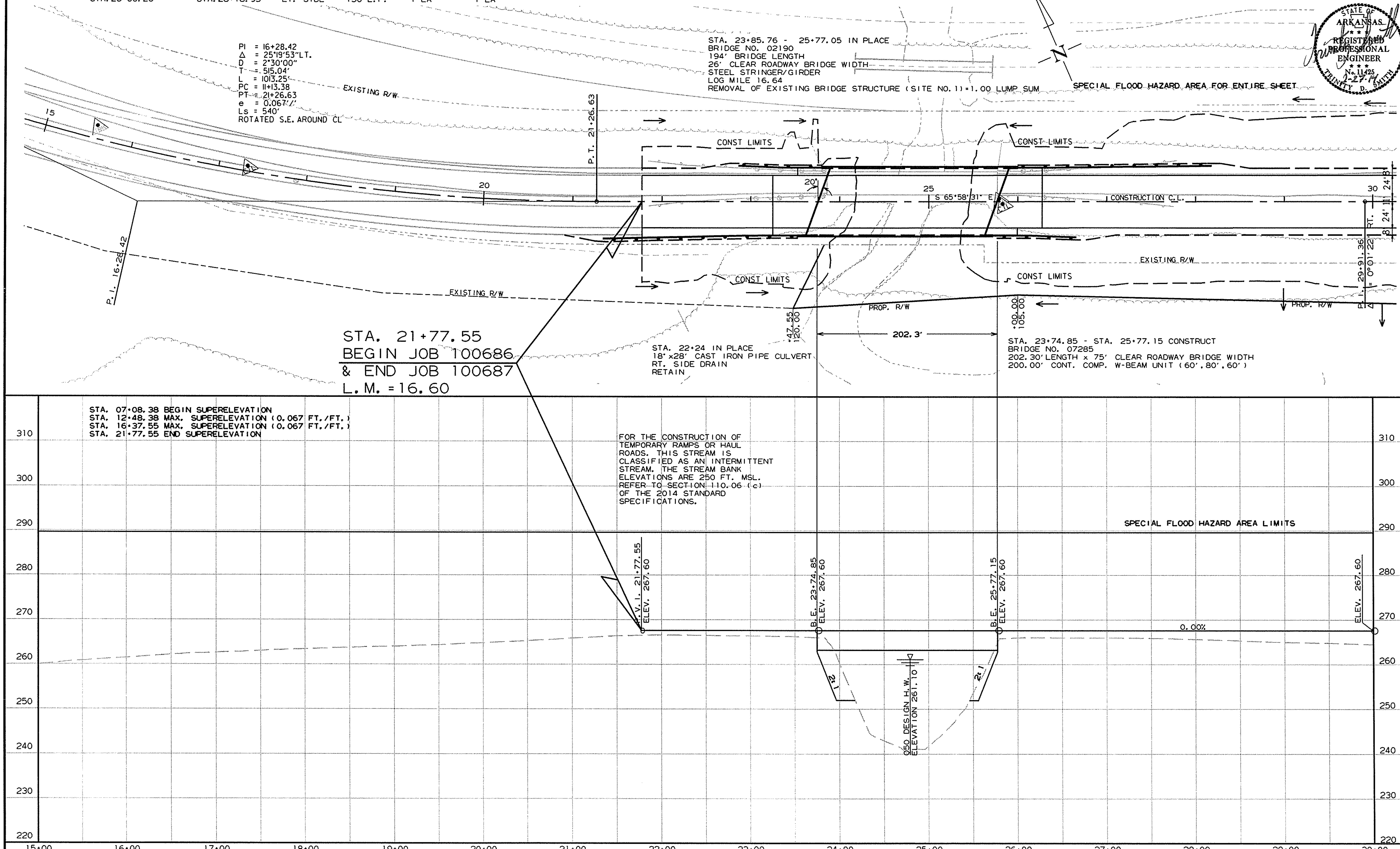
SURVEY CONTROL DETAILS

			GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POST (TYPE 1)
STA. 21+33.05	STA. 23+51.80	RT. SIDE	150 L.F.	1 EA	1 EA	
STA. 22+85.35	STA. 23+79.10	LT. SIDE	75 L.F.	1 EA		1 EA
STA. 25+72.90	STA. 26+66.65	RT. SIDE	75 L.F.	1 EA		1 EA
STA. 26+00.20	STA. 28+18.95	LT. SIDE	150 L.F.	1 EA	1 EA	

REMOVAL & DISPOSAL OF GUARDRAIL

STA. 21+84	STA. 23+84	RT. SIDE	200 LIN. FT.
STA. 25+78	STA. 27+78	RT. SIDE	200 LIN. FT.
STA. 21+84	STA. 23+84	LT. SIDE	200 LIN. FT.
STA. 25+78	STA. 27+78	LT. SIDE	200 LIN. FT.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 2-27-14



PI = 16+28.42
Δ = 25°19'53"LT.
D = 2°30'00"
T = 515.04'
L = 1013.25'
PC = 11+13.38
PT = 21+26.63
e = 0.067'/'
Ls = 540'
ROTATED S.E. AROUND CL
EXISTING R/W
15
20
25
30
P.T. 21+26.63
P.I. 16+28.42
STA. 23+85.76 - 25+77.05 IN PLACE
BRIDGE NO. 02190
194' BRIDGE LENGTH
26' CLEAR ROADWAY BRIDGE WIDTH
STEEL STRINGER/GIRDER
LOG MILE 16.64
REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1) = 1.00 LUMP SUM
N
SPECIAL FLOOD HAZARD AREA FOR ENTIRE SHEET
CONST LIMITS
20°
S 65°58'31" E
CONSTRUCTION C.L.
EXISTING R/W
PROP. R/W
29+91.36 RT. = 0°01'22"
24'
24'
202.3'
47.55
120.00
100.00
105.00
STA. 21+77.55
BEGIN JOB 100686
& END JOB 100687
L.M. = 16.60
STA. 22+24 IN PLACE
18'x28' CAST IRON PIPE CULVERT
RT. SIDE DRAIN
RETAIN
STA. 23+74.85 - STA. 25+77.15 CONSTRUCT
BRIDGE NO. 07285
202.30' LENGTH x 75' CLEAR ROADWAY BRIDGE WIDTH
200.00' CONT. COMP. W-BEAM UNIT (60',80',60')
STA. 07+08.38 BEGIN SUPERELEVATION
STA. 12+48.38 MAX. SUPERELEVATION (0.067 FT./FT.)
STA. 16+37.55 MAX. SUPERELEVATION (0.067 FT./FT.)
STA. 21+77.55 END SUPERELEVATION
FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS. THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 250 FT. MSL. REFER TO SECTION 110.06 (c) OF THE 2014 STANDARD SPECIFICATIONS.
SPECIAL FLOOD HAZARD AREA LIMITS
V.I. 21+77.55 ELEV. 267.60
B.E. 23+74.85 ELEV. 267.60
B.E. 25+77.15 ELEV. 267.60
ELEV. 267.60
0.00%
2:1
2:1
Q50 DESIGN H.W. ELEVATION 261.10
310
300
290
280
270
260
250
240
230
220
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
25+00
26+00
27+00
28+00
29+00
30+00

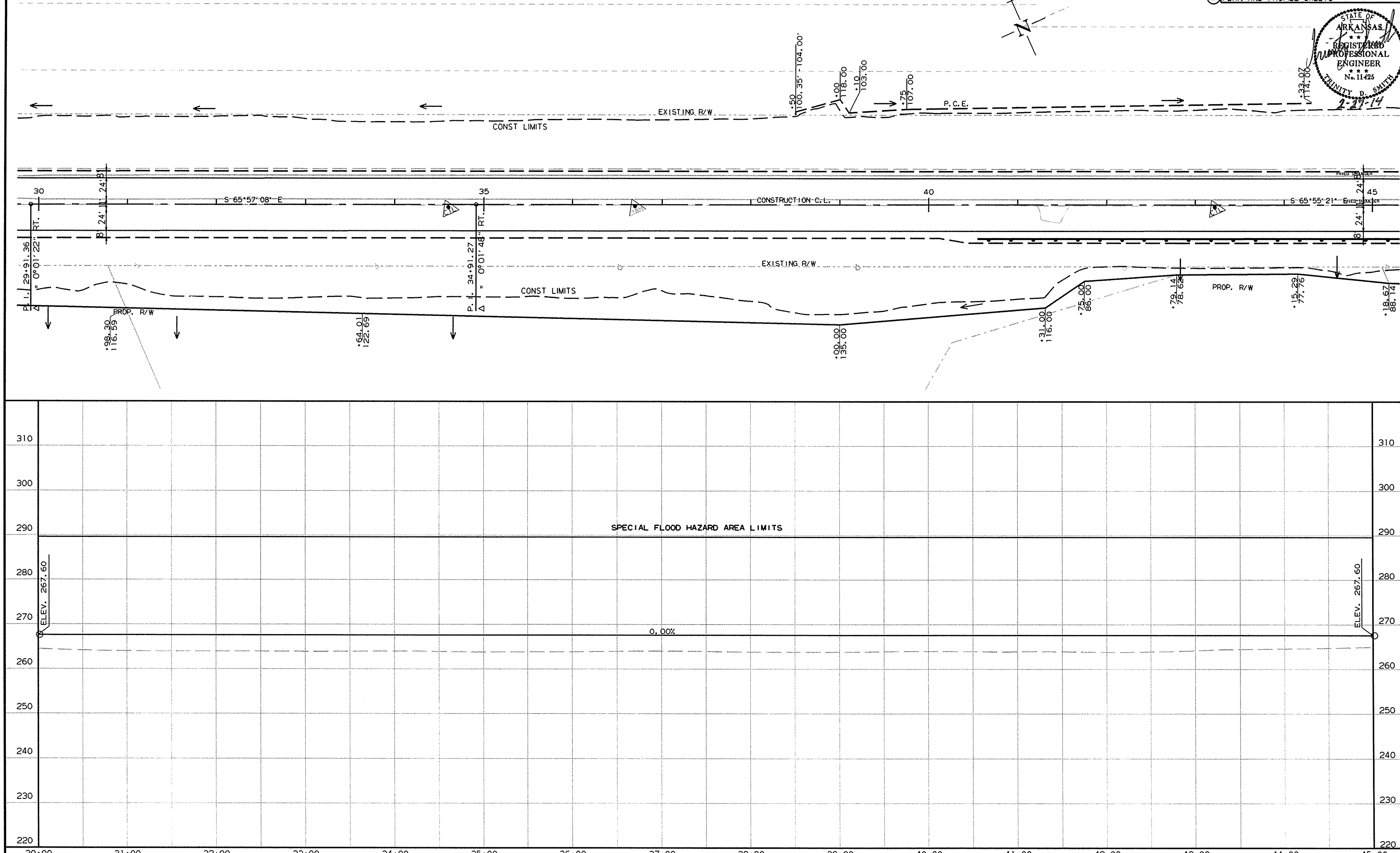
R100686.DGN 2/26/2014

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.		100686	40	185

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH

2-27-14



R100686.DGN 2/26/2014

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.		100686	41	185

(2) PLAN AND PROFILE SHEETS

			GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POST (TYPE 1)
STA. 40+55.00	STA. 48+61.52	RT. SIDE	738 L.F.	1 EA	1 EA	
STA. 47+67.77	STA. 48+61.52	LT. SIDE	75 L.F.	1 EA		1 EA
STA. 51+84.48	STA. 52+78.23	RT. SIDE	75 L.F.	1 EA		1 EA
STA. 51+84.48	STA. 54+03.23	LT. SIDE	150 L.F.	1 EA	1 EA	

REMOVAL & DISPOSAL OF GUARDRAIL

STA. 46+77	STA. 48+77	RT.	200 LIN. FT.
STA. 51+67	STA. 53+67	RT.	200 LIN. FT.
STA. 46+77	STA. 48+77	LT.	200 LIN. FT.
STA. 51+67	STA. 53+67	LT.	200 LIN. FT.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-19-14

SPECIAL FLOOD HAZARD AREA FOR ENTIRE SHEET

PI = 54+46.94
Δ = 0°54'15"LT.
D = 0°30'00"
T = 90.43'
L = 180.86'
PC = 53+56.51
PT = 55+37.37
e = NO SUPER

P.C.E.
CONST LIMITS
100.07 - 112.00
99.99 - 119.00
+75
+40.00 99.61
P.C. 53+56.51
P.T. 55+37.37
EXISTING R/W
CONST LIMITS
45
50
55
60
24' 11" 24' 8"
CONSTRUCTION C.L.
EXISTING R/W
P.I. 54+46.94
CONST LIMITS
PROP. R/W
+18.67 88.14
+00.00 90.00
+85.00 130.00
+62.00 137.00
304.16'
+00.00 125.00
15.00 51.00
+76.43 117.44

STA. 48+70.92 - STA. 51+75.08 CONSTRUCT
BRIDGE NO. 07286
304.16' LENGTH x 75' CLEAR ROADWAY BRIDGE WIDTH
302.00' CONT. COMP.
W-BEAM UNIT (52', 66', 66', 66', 52')

STA. 48+78.68 - 51+65.87 IN PLACE
BRIDGE NO. 02189
290' BRIDGE LENGTH
26' CLEAR ROADWAY BRIDGE WIDTH
STEEL STRINGER/GIRDER
LOG MILE 17.11
REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2) = 1.00 LUMP SUM

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 250 FT. MSL. REFER TO SECTION 110.06 (c) OF THE 2014 STANDARD SPECIFICATIONS.

SPECIAL FLOOD HAZARD AREA LIMITS

310 300 290 280 270 260 250 240 230 220

ELEV. 267.60
0.00%
B.E. 48+70.92 ELEV. 267.60
B.E. 51+75.08 ELEV. 267.60
2:1
2:1
050 DESIGN H.W. ELEVATION 261.10
51+91.00 247.56
P.V.C. 52+20.00 ELEV. 267.60
P.V.I. 53+00.00 ELEV. 267.60
K=154.84
VC=160'
e=-0.21'
P.V.C. 54+00.00 ELEV. 266.57
-1.03%
53+80.00 266.77
P.V.T.
P.V.I. 54+50.00 ELEV. 266.05
K=187.50
VC=100'
e=0.07'
P.V.T. 55+00.00 ELEV. 265.80
-0.50%
P.V.I. 56+00.00 ELEV. 265.30
RT. DITCH GRADE 0.29%

45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00

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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.		100686	42	185

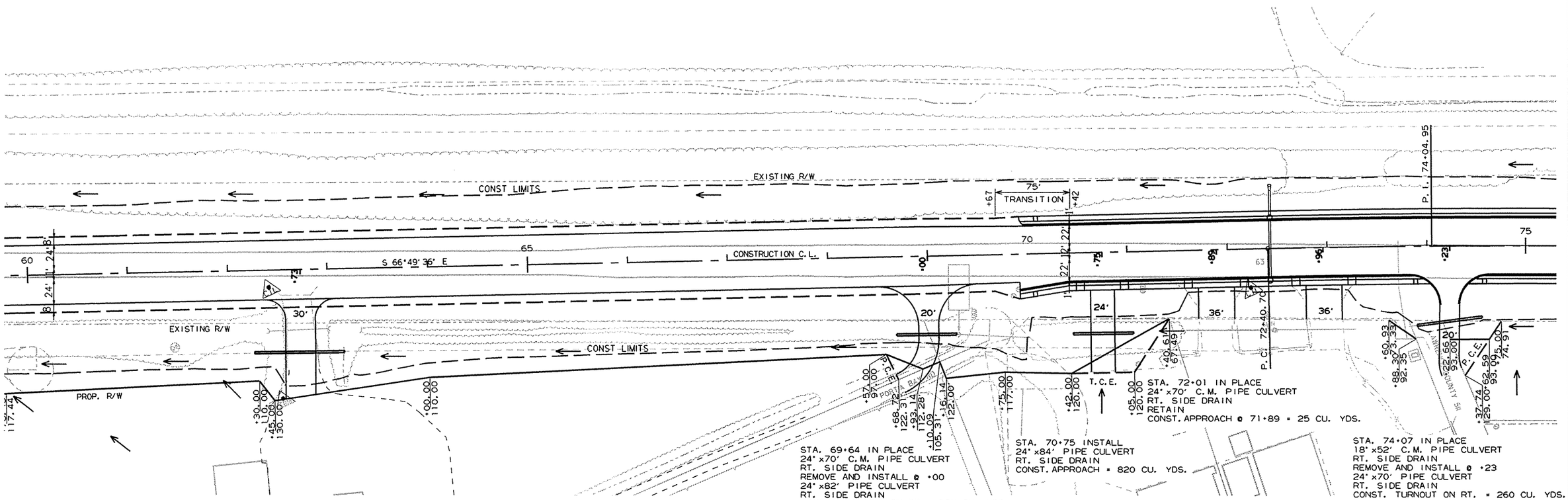
(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

SPECIAL FLOOD HAZARD AREA FOR ENTIRE SHEET

STA. 70+00 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 72+43 CONSTRUCT
DROP INLET ON LT. H= 9' 4"
WITH 8' EXTENSION AND
18" x 26' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 3'



STA. 62+71 IN PLACE
24" x60' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +73
24" x94' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH =655 CU. YDS.

STA. 69+64 IN PLACE
24" x70' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +00
24" x82' PIPE CULVERT
RT. SIDE DRAIN
CONST. TURNOUT ON RT. =385 CU. YDS.

STA. 70+75 INSTALL
24" x84' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 820 CU. YDS.

STA. 71+89 IN PLACE
24" x70' C.M. PIPE CULVERT
RT. SIDE DRAIN
RETAIN
CONST. APPROACH @ 71+89 = 25 CU. YDS.

STA. 72+46 IN PLACE
DROP INLET ON RT.
RETAIN

STA. 72+88 IN PLACE
24" x81' C.M. PIPE CULVERT
RT. SIDE DRAIN
RETAIN
CONST. APPROACH @ +96 = 25 CU. YDS.

STA. 74+07 IN PLACE
18" x52' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +23
24" x70' PIPE CULVERT
RT. SIDE DRAIN
CONST. TURNOUT ON RT. = 260 CU. YDS.

STA. 74+29 IN PLACE
12" x30' C.M. PIPE CULVERT
ON RT.
RETAIN

PI = 74+04.95
Δ = 1°38'32"RT.
D = 0°30'00"
T = 164.24'
L = 328.47'
PC = 72+40.70
PT = 75+69.17
e = NO SUPER

STA. 72+43 CONSTRUCT
DROP INLET ON RT. H= 4' 7"
WITH 8' EXTENSION AND
18" x 59' R.C. PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 3'

STA. 74+63 IN PLACE
12" x28' C.M. PIPE CULVERT
ON RT.
RETAIN

STA. 73+96 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 74+50 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 70+00 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

2/26/2014

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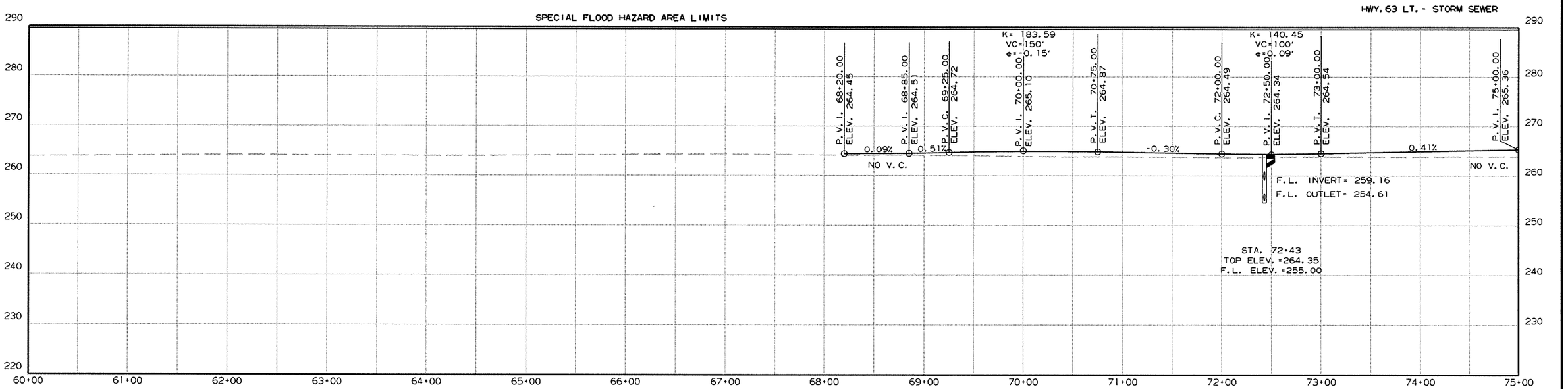
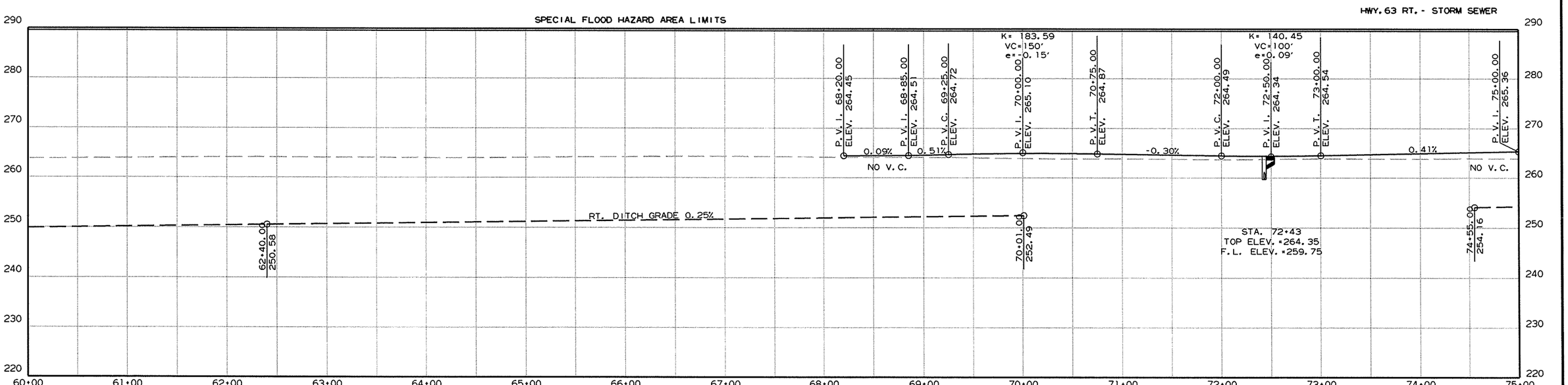
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	43	185

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14





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R100686.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.		100686	44	185

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

RETAINING WALL

STA.	STA.	SIDE	LIN. FT.
78+27	79+02	LT.	75

HAND RAILING

STA.	STA.	SIDE	LIN. FT.
78+27	79+02	LT.	75

STA. 77+69 IN PLACE
24" x 10' R.C. PIPE CULVERT
ON LT.
REMOVE

STA. 77+69 IN PLACE
DROP INLET ON LT.
REMOVE

STA. 77+25 CONSTRUCT
APPROACH ON LT. = 585 CU. YDS.

STA. 78+34 INSTALL
18" x 20' C.M. PIPE CULVERT
LT. SIDE DRAIN

STA. 78+00 CONSTRUCT
APPROACH ON LT. = 15 CU. YDS.

STA. 78+65 IN PLACE
18" x 44' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 77+67 CONSTRUCT
DROP INLET ON LT. H= 8' 6"
WITH 8' EXTENSION AND
42" x 32' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET=5' DIA.
TYPE C DROP INLET =5' x 5'

PI = 83+21.29
Δ = 0°41'46"LT.
D = 0°30'00"
T = 69.61'
L = 139.22'
PC = 82+51.68
PT = 83+90.90
e = NO SUPER

STA. 88+75 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 89+38 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 84+87 CONSTRUCT
DROP INLET ON LT. H= 6' 3"
WITH OPENING IN BACK
WITH 8' EXTENSION AND
42" x 346' PIPE CULVERT
TO DROP INLET ON LT.
TYPE MO DROP INLET=6' DIA.
TYPE C DROP INLET =4' x 5'
42" R.C. PIPE (CLASS III) (TYPE 3 BEDDING)=346 LIN. FT.
42" SLPPMCCS PIPE (TYPE 2 BEDDING)=346 LIN. FT.

STA. 88+48 CONSTRUCT
DROP INLET ON LT. H= 6' 0"
WITH OPENING IN BACK*
44" x 27" x 182' ARCH PIPE CULVERT
TO DROP INLET ON LT.
TYPE MO DROP INLET=6' DIA.
TYPE C DROP INLET =4' x 5'
44" x 27" R.C. ARCH PIPE (CLASS III) (TYPE 3 BEDDING)=182 LIN. FT.
42" x 29" SLPPMCCS ARCH PIPE (TYPE 2 BEDDING)=182 LIN. FT.
*GRADE TO DRAIN

STA. 81+36 CONSTRUCT
DROP INLET ON LT. H= 8' 0"
WITH OPENING IN BACK
42" x 364' PIPE CULVERT
TO DROP INLET ON LT.
TYPE MO DROP INLET=5' DIA.
TYPE C DROP INLET =4' x 5'
42" R.C. PIPE (CLASS III) (TYPE 3 BEDDING)=364 LIN. FT.
42" SLPPMCCS PIPE (TYPE 2 BEDDING)=364 LIN. FT.

STA. 81+41 IN PLACE
24" x 741' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 81+00 CONSTRUCT
APPROACH ON LT. = 30 CU. YDS.

STA. 86+61 CONSTRUCT
DROP INLET ON LT. H= 5' 7"
WITH OPENING IN BACK
WITH 8' EXTENSION AND
44" x 27" x 168' ARCH PIPE CULVERT
TO DROP INLET ON LT.
TYPE MO DROP INLET=6' DIA.
TYPE C DROP INLET =4' x 5'
44" x 27" R.C. ARCH PIPE (CLASS III) (TYPE 3 BEDDING)=168 LIN. FT.
42" x 29" SLPPMCCS ARCH PIPE (TYPE 2 BEDDING)=168 LIN. FT.

STA. 88+01 - CONST.
APPROACH ON LT. = 5 CU. YDS.

STA. 89+07 - CONST.
TURNOUT ON LT. = 5 CU. YDS.

STA. 85+85 IN PLACE
24" x 145' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 89+37 IN PLACE
18" x 47' R.C. PIPE CULVERT
REMOVE

STA. 89+40 IN PLACE
DROP INLET ON LT.
REMOVE

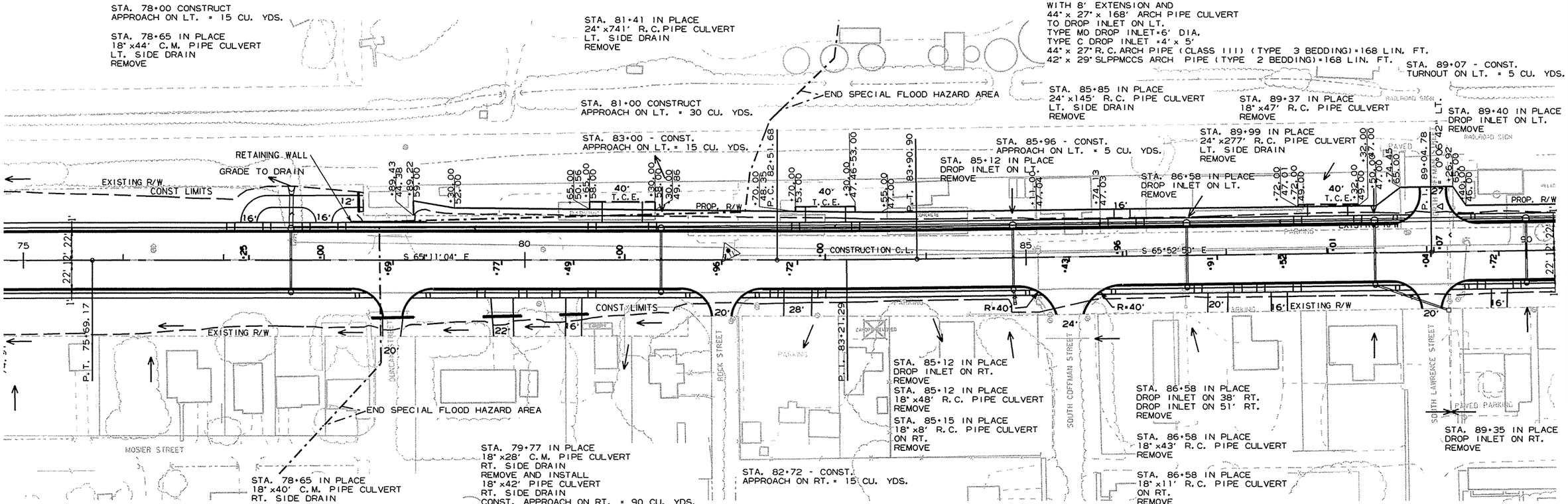
STA. 83+00 - CONST.
APPROACH ON LT. = 15 CU. YDS.

STA. 85+96 - CONST.
APPROACH ON LT. = 5 CU. YDS.

STA. 85+12 IN PLACE
DROP INLET ON LT.
REMOVE

STA. 89+99 IN PLACE
24" x 277' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 86+58 IN PLACE
DROP INLET ON LT.
REMOVE



STA. 78+65 IN PLACE
18" x 40' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +69
18" x 50' PIPE CULVERT
RT. SIDE DRAIN
CONST. TURNOUT ON RT. = 75 CU. YDS.

STA. 79+77 IN PLACE
18" x 28' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 42' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH ON RT. = 90 CU. YDS.

STA. 80+36 IN PLACE
18" x 36' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +49
18" x 34' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH ON RT. = 40 CU. YDS.

STA. 82+72 - CONST.
APPROACH ON RT. = 15 CU. YDS.

STA. 81+96 - CONST.
TURNOUT ON RT. = 5 CU. YDS.

STA. 85+12 IN PLACE
DROP INLET ON RT.
REMOVE
STA. 85+12 IN PLACE
18" x 48' R.C. PIPE CULVERT
REMOVE
STA. 85+15 IN PLACE
18" x 8' R.C. PIPE CULVERT
ON RT.
REMOVE

STA. 86+58 IN PLACE
DROP INLET ON 38' RT.
DROP INLET ON 51' RT.
REMOVE
STA. 86+58 IN PLACE
18" x 43' R.C. PIPE CULVERT
REMOVE
STA. 86+58 IN PLACE
18" x 11' R.C. PIPE CULVERT
ON RT.
REMOVE

STA. 89+35 IN PLACE
DROP INLET ON RT.
REMOVE

PI = 74+04.95
Δ = 1°38'32"RT.
D = 0°30'00"
T = 164.24'
L = 328.47'
PC = 72+40.70
PT = 75+69.17
e = NO SUPER

STA. 77+67 CONSTRUCT
DROP INLET ON RT. H= 4' 6"
WITH 8' EXTENSION AND
18" x 59' R.C. PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 3'

STA. 81+36 CONSTRUCT
DROP INLET ON RT. H= 4' 6"
18" x 59' R.C. PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 3'

STA. 84+87 CONSTRUCT
DROP INLET ON RT. H= 4' 6"
WITH 8' EXTENSION AND
18" x 8' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES* AND
18" x 59' R.C. PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 3'
* GRADE TO DRAIN

STA. 85+40 IN PLACE
18" x 43' R.C. PIPE CULVERT
RT. SIDE DRAIN
RETAIN
CONSTRUCT @ +43
TURNOUT ON RT. = 5 CU. YDS.

STA. 86+91 - CONST.
APPROACH ON RT. = 10 CU. YDS.

STA. 87+52 - CONST.
APPROACH ON RT. = 10 CU. YDS.

STA. 89+04 - CONST.
TURNOUT ON RT. = 5 CU. YDS.

STA. 89+72 - CONST.
APPROACH ON RT. = 10 CU. YDS.

STA. 86+61 CONSTRUCT
DROP INLET ON RT. H= 4' 6"
WITH OPENING IN BACK
WITH 8' EXTENSION AND
18" x 59' R.C. PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 3'

STA. 89+21 CONSTRUCT
DROP INLET ON RT. H= 4' 0" (TO BE FIELD VERIFIED)
18" x 74' PIPE CULVERT
TO DROP INLET ON RT.
TYPE E DROP INLET=3' x 3'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING)=74 LIN. FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING)=74 LIN. FT.

STA. 88+48 CONSTRUCT
DROP INLET ON RT. H= 5' 6"
WITH OPENING IN BACK
18" x 59' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 3'

STA. 88+77 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 89+31 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 78+40 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 78+94 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 81+67 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 82+21 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 85+16 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 85+64 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

2/26/2014

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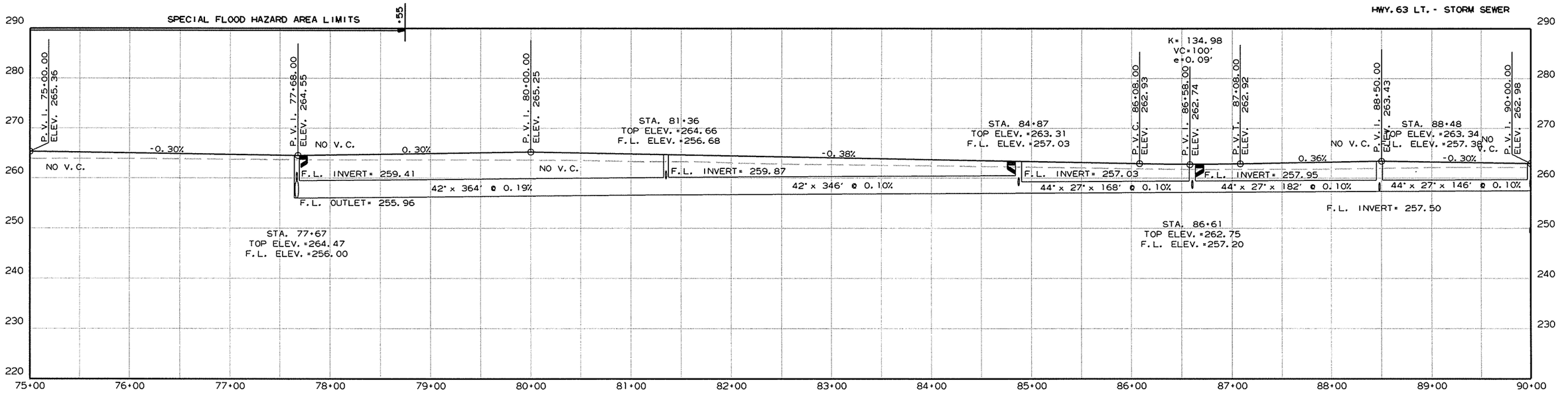
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	45	185

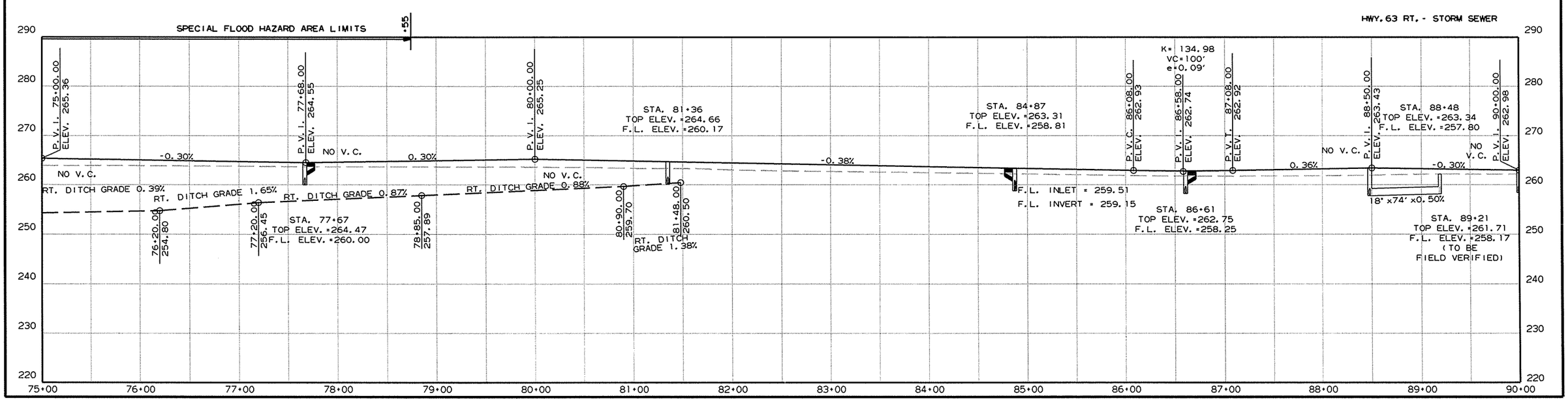
(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

HWY. 63 LT. - STORM SEWER



HWY. 63 RT. - STORM SEWER



7/8/2013

R100686.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.		100686	46	185

(2) PLAN AND PROFILE SHEETS

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

STA. 92+39 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 92+91 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 92+43 CONSTRUCT
DROP INLET ON LT. H= 3'7"
18" x 30' PIPE CULVERT
TO DROP INLET ON LT.
TYPE E DROP INLET=4' x 2'
18" R.C.PIPE (CLASS III) (TYPE 3 BEDDING)=30 LIN. FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING)=30 LIN. FT.

STA. 92+18 CONSTRUCT
DROP INLET ON LT. H= 5'10"
WITH OPENING IN BACK
18" x 78' R.C.PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
WITH FES AND
44" x 27" x 213' ARCH PIPE CULVERT
TO DROP INLET ON LT.
TYPE MO DROP INLET=6' DIA.
TYPE C DROP INLET =5' x 5'
44" x 27" R.C. ARCH PIPE (CLASS III) (TYPE 3 BEDDING)=213 LIN. FT.
42" x 29" SLPPMCCS ARCH PIPE (TYPE 2 BEDDING)=213 LIN. FT.

STA. 92+88 CONSTRUCT
DROP INLET ON LT. H= 3'6"
18" x 42' PIPE CULVERT
TO DROP INLET ON LT.
TYPE E DROP INLET=3' x 2'
18" R.C.PIPE (CLASS III) (TYPE 3 BEDDING)=42 LIN. FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING)=42 LIN. FT.

STA. 100+46 CONSTRUCT
DROP INLET ON LT. H= 3'5"
WITH 4' EXTENSION AND
18" x 271' PIPE CULVERT
TO DROP INLET ON LT.
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 4'
18" R.C.PIPE (CLASS III) (TYPE 3 BEDDING)=271 LIN. FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING)=271 LIN. FT.

PI = 101+06.62
Δ = 3°05'31"LT.
D = 1°15'00"
T = 123.71'
L = 247.37'
PC = 99+82.91
PT = 102+30.27
e = NO SUPER

STA. 97+71 CONSTRUCT
DROP INLET ON LT. H= 3'10"
WITH OPENING IN BACK
WITH 8' EXTENSION AND
29" x 18" x 197' ARCH PIPE CULVERT
TO DROP INLET ON LT.
TYPE MO DROP INLET=5' DIA.
TYPE C DROP INLET =4' x 4'
29" x 18" R.C. ARCH PIPE (CLASS III) (TYPE 3 BEDDING)=197 LIN. FT.
28" x 20" SLPPMCCS ARCH PIPE (TYPE 2 BEDDING)=197 LIN. FT.

STA. 102+11 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 101+45 CONSTRUCT
DROP INLET ON LT. H= 2'2"
22" x 14" x 6' R.C. ARCH PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 3'

STA. 90+00 CONSTRUCT
DROP INLET ON LT. H= 5'4"
WITH 8' EXTENSION AND
44" x 27" x 146' ARCH PIPE CULVERT
TO DROP INLET ON LT.
TYPE MO DROP INLET=6' DIA.
TYPE C DROP INLET =4' x 5'
44" x 27" R.C. ARCH PIPE (CLASS III) (TYPE 3 BEDDING)=146 LIN. FT.
42" x 29" SLPPMCCS ARCH PIPE (TYPE 2 BEDDING)=146 LIN. FT.

STA. 95+70 CONSTRUCT
DROP INLET ON LT. H= 4'10"
WITH OPENING IN BACK
36" x 347' PIPE CULVERT
TO DROP INLET ON LT.
TYPE MO DROP INLET=5' DIA.
TYPE C DROP INLET =4' x 4'
36" R.C.PIPE (CLASS III) (TYPE 3 BEDDING)=347 LIN. FT.
36" SLPPMCCS PIPE (TYPE 2 BEDDING)=347 LIN. FT.

STA. 102+40 IN PLACE
18" x 23' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ -26
18" x 38' PIPE CULVERT
LT. SIDE DRAIN
CONST. TURNOUT ON LT. = 165 CU. YDS.

STA. 90+97 - CONST.
APPROACH ON LT. = 5 CU. YDS.

STA. 92+65 - CONST.
TURNOUT ON LT. = 5 CU. YDS.

STA. 95+39 - CONST.
APPROACH ON LT. = 5 CU. YDS.

STA. 96+19 - CONST.
APPROACH ON LT. = 5 CU. YDS.

STA. 98+19 - CONST.
APPROACH ON LT. = 5 CU. YDS.

STA. 99+77 - CONST.
APPROACH ON LT. = 10 CU. YDS.

STA. 91+52 - CONST.
APPROACH ON LT. = 5 CU. YDS.

STA. 90+83 IN PLACE
24" x 281' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 92+35 IN PLACE
18" x 64' R.C. PIPE CULVERT
REMOVE

STA. 92+26 IN PLACE
DROP INLET ON LT.
REMOVE

STA. 94+15 IN PLACE
24" x 371' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 96+02 IN PLACE
18" x 54' R.C. PIPE CULVERT
REMOVE

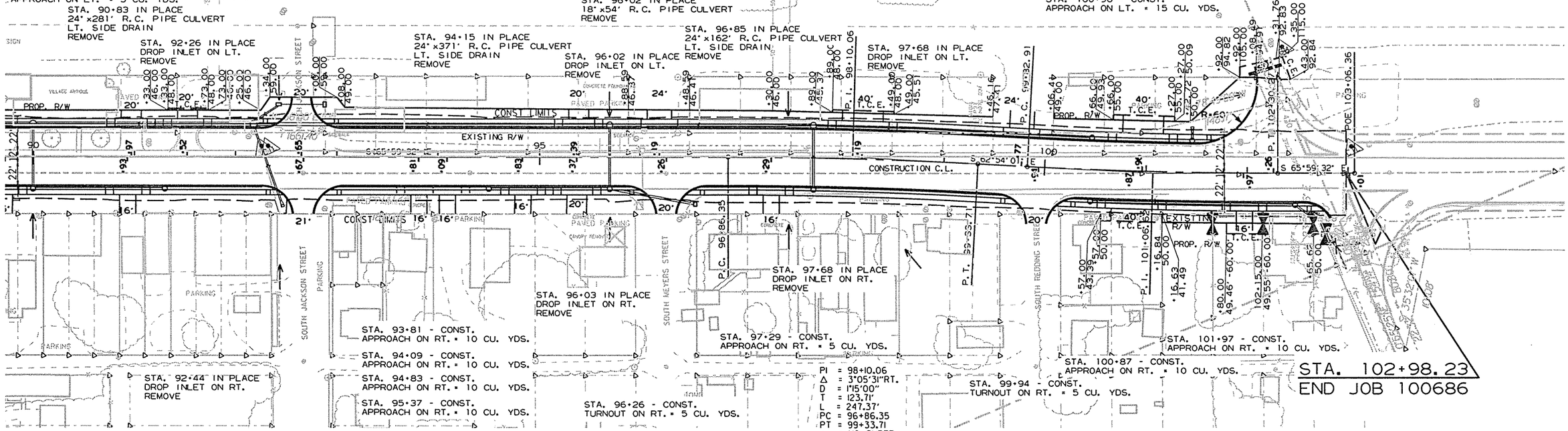
STA. 96+02 IN PLACE REMOVE
DROP INLET ON LT.
REMOVE

STA. 96+85 IN PLACE
24" x 162' R.C. PIPE CULVERT
LT. SIDE DRAIN

STA. 97+68 IN PLACE
18" x 42' R.C. PIPE CULVERT
REMOVE

STA. 97+68 IN PLACE
DROP INLET ON LT.
REMOVE

STA. 100+96 - CONST.
APPROACH ON LT. = 15 CU. YDS.



STA. 92+44 IN PLACE
DROP INLET ON RT.
REMOVE

STA. 93+81 - CONST.
APPROACH ON RT. = 10 CU. YDS.

STA. 94+09 - CONST.
APPROACH ON RT. = 10 CU. YDS.

STA. 94+83 - CONST.
APPROACH ON RT. = 10 CU. YDS.

STA. 95+37 - CONST.
APPROACH ON RT. = 10 CU. YDS.

STA. 96+03 IN PLACE
DROP INLET ON RT.
REMOVE

STA. 96+26 - CONST.
TURNOUT ON RT. = 5 CU. YDS.

STA. 97+29 - CONST.
APPROACH ON RT. = 5 CU. YDS.

PI = 98+10.06
Δ = 3°05'31"RT.
D = 1°15'00"
T = 123.71'
L = 247.37'
PC = 96+86.35
PT = 99+33.71
e = NO SUPER

STA. 99+94 - CONST.
TURNOUT ON RT. = 5 CU. YDS.

STA. 100+87 - CONST.
APPROACH ON RT. = 10 CU. YDS.

STA. 101+97 - CONST.
APPROACH ON RT. = 10 CU. YDS.

STA. 102+98.23
END JOB 100686

STA. 90+93 - CONST.
TURNOUT ON RT. = 10 CU. YDS.

STA. 92+67 - CONST.
TURNOUT ON RT. = 5 CU. YDS.

STA. 90+00 CONSTRUCT
DROP INLET ON RT. H= 4'5"
WITH OPENING IN BACK
WITH 8' EXTENSION AND
18" x 59' R.C.PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 3'

4' CHAIN LINK FENCE

STA.	STA.	SIDE	LIN. FT.	4'-0" GATES	16'-0" GATES
101+65	102+78	RT.	102	1	1

STA. 95+70 CONSTRUCT
DROP INLET ON RT. H= 4'5"
WITH OPENING IN BACK*
18" x 59' R.C.PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 3'
*GRADE TO DRAIN

STA. 97+71 CONSTRUCT
DROP INLET ON RT. H= 3'8"
WITH OPENING IN BACK
WITH 8' EXTENSION AND
22" x 14" x 59' ARCH PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 3'

STA. 100+46 CONSTRUCT
DROP INLET ON RT. H= 2'9"
WITH OPENING IN BACK
WITH 4' EXTENSION AND
18" x 199' PIPE CULVERT
TO DROP INLET ON RT.
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 3'
18" R.C.PIPE (CLASS III) (TYPE 3 BEDDING)=199 LIN. FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING)=199 LIN. FT.

STA. 102+47 CONSTRUCT
DROP INLET ON RT. H= 4'1"
18" x 16' R.C.PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 3'

STA. 96+05 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 96+53 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 98+07 INSTALL ON RT.
MAILBOX SUPPORT (DOUBLE) = 1 EA
MAILBOXES = 2 EA

STA. 99+70 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 102+69 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 92+39 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 92+94 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

STA. 91+30 CONSTRUCT
DROP INLET ON RT. H= 4'1"
WITH OPENING IN BACK
18" x 126' PIPE CULVERT
TO DROP INLET ON RT.
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 4'
18" R.C.PIPE (CLASS III) (TYPE 3 BEDDING)=126 LIN. FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING)=126 LIN. FT.

STA. 94+50 CONSTRUCT
DROP INLET ON RT. H= 4'1"
WITH OPENING IN BACK
18" x 116' PIPE CULVERT
TO DROP INLET ON RT.
TYPE MO DROP INLET=4' DIA.
TYPE C DROP INLET =4' x 4'
18" R.C.PIPE (CLASS III) (TYPE 3 BEDDING)=116 LIN. FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING)=116 LIN. FT.

STA. 96+54 CONSTRUCT
DROP INLET ON RT. H= 2'3"
22" x 14" x 82' ARCH PIPE CULVERT
TO DROP INLET ON RT.
TYPE E DROP INLET=3' x 2'
22" x 14" x 82' R.C. ARCH PIPE (CLASS IV) (TYPE 3 BEDDING)= 82 LIN. FT.
21" x 15" x 82' SLPPMCCS ARCH PIPE (TYPE 2 BEDDING)= 82 LIN. FT.

STA. 100+18 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 7 SQ. YDS.

9/23/2014

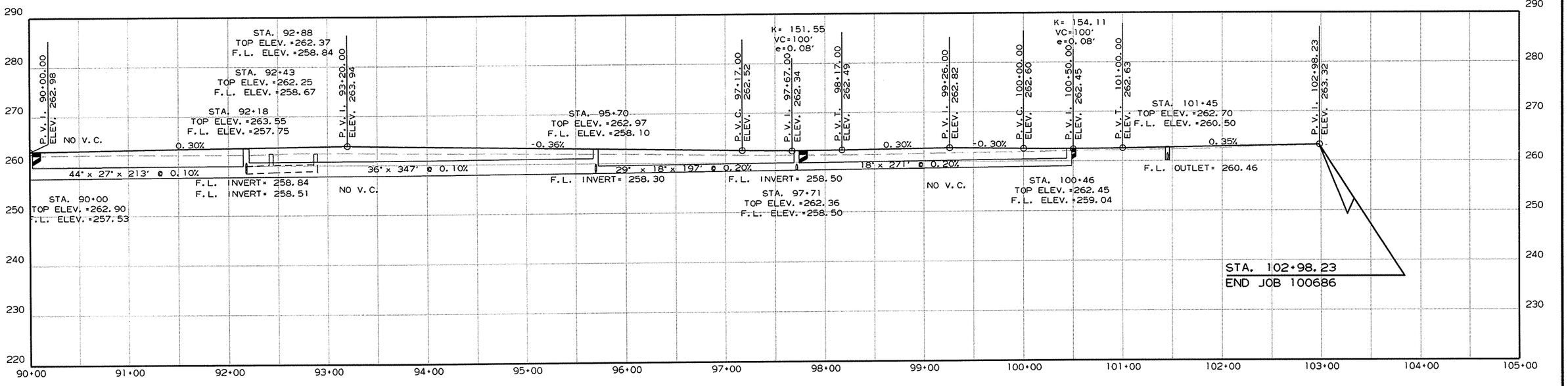
R100686.DGN

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.		100686	47	185

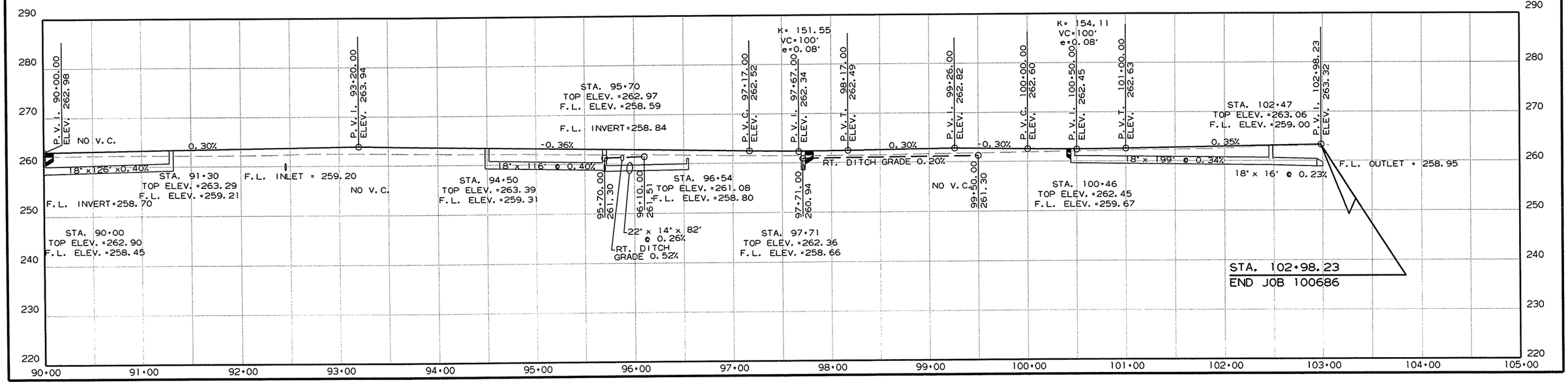
(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-27-14

HWY. 63 LT. - STORM SEWER



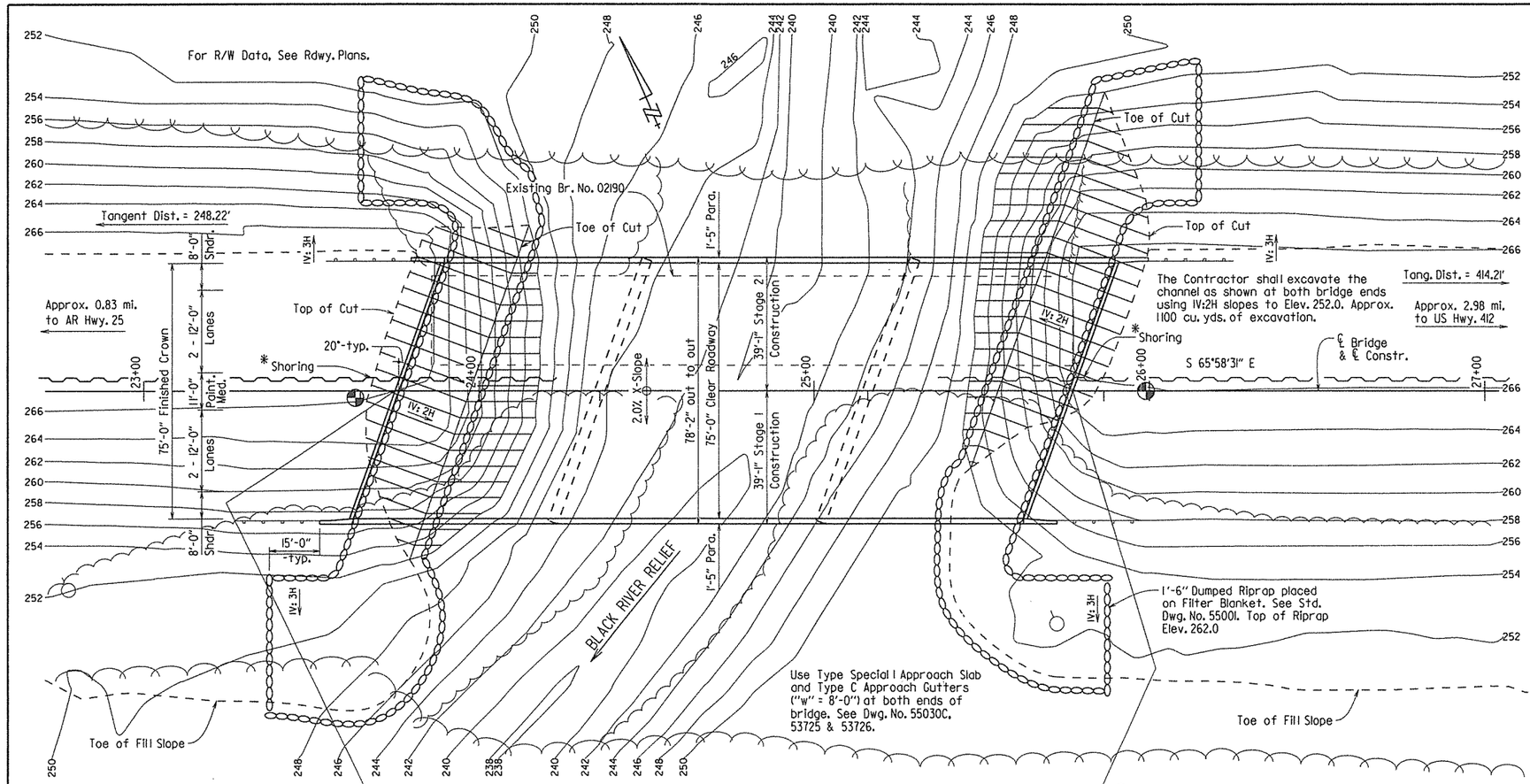
HWY. 63 RT. - STORM SEWER



1/31/2014

R100686.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.		100686	48	185
				(1) 07285 -		LAYOUT	-	53704



*Shoring will be required during Stage I Construction. See SP Job No. 100686 "Shoring" and SP 100686, Bridge No. 02190 "Geosynthetic Internal Reinforced Embankment Construction".

GENERAL NOTES

BENCH MARK: BM 994, NGS MARK O 2, 125.43' Left of Sta. 102+34.56, Elev. 263.95.

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 Specification unless otherwise noted in the Plans.

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

LIVE LOADING: HL-93 SEISMIC ZONE: 3

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (Grade 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 upon request.

STEEL SHELL PILING: Piling for Bents 1 & 4 shall be 18" diameter concrete filled steel shell piles and shall be driven to a minimum safe bearing capacity of 100 tons per pile and into material designated as dolostone on the boring legend. All piling shall be driven with an approved air, steam, or diesel hammer. Piling in end bents shall be driven after embankment to bottom of cap is in place.

Length of piling shown are assumed for estimating quantities and for use in determining payment for cut-off and build-up in accordance with the Standard Specification. Actual lengths to be determined in the field. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g). No piles will be paid for as test piles.

Water jetting or other approved methods are required to ensure piles are driven to rock. Payment will not be paid for directly but shall be considered subsidary to the item "Steel Shell Piling (18" dia.).

DRILLED SHAFTS: All drilled shafts shall be founded a minimum of 10 feet into competent, gray, hard dolostone. No adjustment in plan tip elevation shall be made without prior approval from the Engineer. Methods of construction of the drilled shafts shall be in accordance with Special Provision Job No. 100686 "Drilled Shaft Foundations".

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed on each drilled shaft in accordance with Special Provision Job No. 100686 "Nondestructive Testing of Drilled Shafts".

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

DETAIL DRAWINGS:	DRAWING NO.
End Bents	53707-53712
Int. Bents	53714-53715
200' Cont. Comp. W-Beam Unit	53716-53723
Elastomeric Bearing	53724
Concrete Filled Steel Shell Piles	53713
Type Special I Approach Slab	53725-53726
Type C Approach Gutter	55030C

EXISTING BRIDGE: Existing Bridge No. 02190 (log mile 16.64) is 32' wide and 194' long and consists of six 32' Steel W-Beam spans supported by concrete trestle pile bents. The existing bridge is located at the location of the proposed new bridge.

REMOVAL AND SALVAGE: After Stage I Construction of the new bridge is open to traffic, the Existing Bridge No. 02190 (Site 1) shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
Carl J. Puseliter
REGISTERED PROFESSIONAL ENGINEER
No. 7510
2/10/14
CARL J. PUSELIER

BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER BLACK RIVER RELIEF
BLACK ROCK-PORTIA (S)
LAWRENCE COUNTY

ROUTE 63 SEC. 3

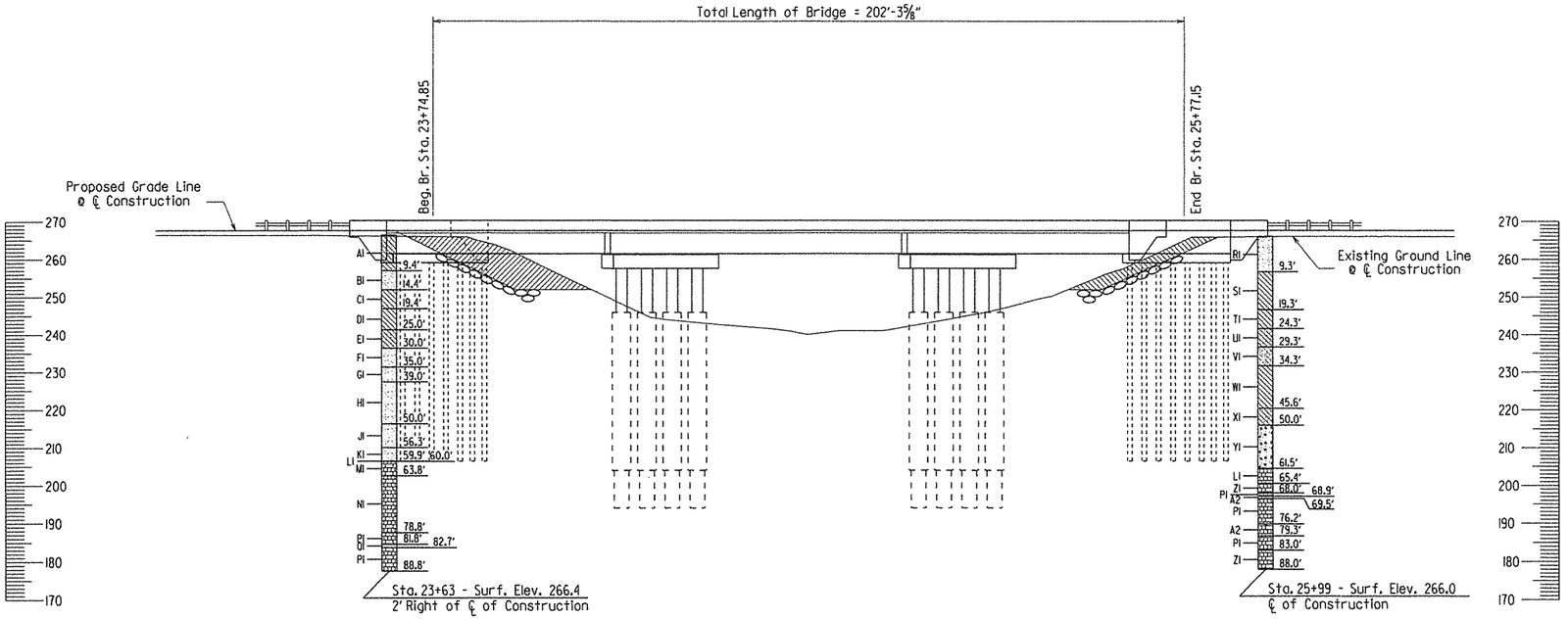
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 4/20/2012 FILENAME: b100686xl_ll.dgn
CHECKED BY: AAN DATE: 4-2-13 SCALE: 1" = 20'
DESIGNED BY: MCB DATE: 4/13

BRIDGE NO. 07285 DRAWING NO. 53704

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.		100686	49	185
				(1) 07285 -		LAYOUT	-	53705



HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	* TOTAL DISCHARGE	DISCHARGE THIS SITE	** NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	CFS	FEET	FEET
Design	50	164,000	8,500	261.1	261.1
Base	100	185,000	9,700	261.9	261.9
Extreme	500	280,000	6,700	264.9	264.9
Overtopping	> 500	NA	NA	NA	NA

*Total discharge includes discharge through this bridge opening, the Black River Relief (Site No. 2), and the Black River.

**Unconstricted water surface without structure or roadway approaches.

Q100 backwater elevation for existing structure = 261.9 feet
Proposed Low Bridge Chord Elev. = 263.20 feet

Drainage area = 7369 square miles
Historical H.W. Elev. = N/A feet

"N" VALUES

Sta. 23+63 - 2' Right of ℄ of Construction

4.9- 5.9, N=5
9.9- 10.9, N=11
14.9- 15.9, N=8
19.9- 20.9, N=14
25.5- 26.5, N=9
30.5- 31.5, N=6
35.5- 36.5, N=15
40.5- 41.5, N=13
45.5- 46.5, N=11
50.5- 51.5, N=16
55.5- 56.5, N=20
59.9- 59.9, N=30(.01')
60.0- 60.0, N=30(.01')

Sta. 25+99 - ℄ of Construction

4.8- 5.8, N=9
9.8- 10.8, N=6
14.8- 15.8, N=7
19.8- 20.8, N=5
24.8- 25.8, N=6
29.8- 30.8, N=2
34.8- 35.8, N=2
39.8- 40.8, N=2
44.8- 45.8, N=4
50.5- 51.5, N=15
55.5- 56.5, N=23
60.5- 61.5, N=18
65.4- 65.4, N=30(.01')

BORING LEGEND

AI-Moist, Soft, Reddish Brown and Gray Sandy Clay
BI-Moist, Medium Dense, Reddish Brown Sand with some Clay
CI-Moist, Medium Stiff, Gray and Brown Clay with Iron Nodules
DI-Moist, Stiff, Brown Clay with Iron Nodules
EI-Moist, Stiff, Brown and Gray Clay with Sand and Iron Nodules
FI-Wet, Loose, Brown Sand
GI-Wet, Medium Dense, Gray Sand
HI-Wet, Medium Dense, Brown and Gray Sand with occasional Gravel
JI-Wet, Medium Dense, Gray Sand with Trace of Gravel
KI-Wet, Medium Dense, Gray Sand with Trace of Gravel and Organic Matter
LI-LIMY DOLOSTONE - Gray, Hard
MI-LIMY DOLOSTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip and Vertically Fractured Layers
NI-LIMY DOLOSTONE - Gray, Thick Bedded, Hard, with Slight Dip
PI-LIMY DOLOSTONE - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip
OI-Cavity (81.8' to 82.7')
RI-Moist, Loose, Brown Sand with some Clay
SI-Moist, Medium Stiff, Gray Clay with some Iron Nodules
TI-Moist, Medium Stiff, Brown Clay
UI-Moist, Medium Dense, Brown Clay with Sand and Iron Nodules
VI-Wet, Very Loose, Brown Sand with Clay and Iron Nodules
WI-Wet, Soft, Gray Clay
XI-Wet, Soft, Gray Clay with Sand
YI-Wet, Medium Dense, Gray Sand with Gravel
ZI-LIMY DOLOSTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip
A2-LIMESTONE WITH CLAY LAYERS - Gray and Brown, Weathered, Soft

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
2/10/14
CARL J. FUSELIER

BRIDGE ENGINEER

PRINT DATE: 2/10/2014

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER BLACK RIVER RELIEF
BLACK ROCK-PORTIA (S)
LAWRENCE COUNTY

ROUTE 63 SEC. 3

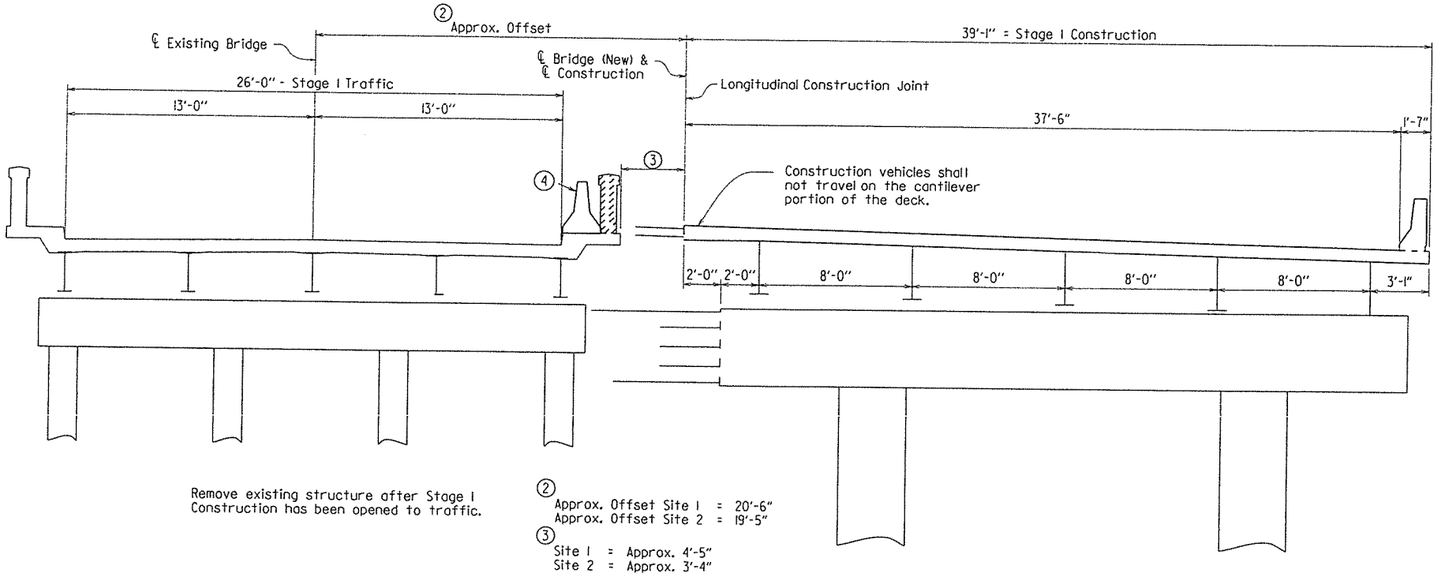
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 4/20/2012 FILENAME: bl00686xl_ll.dgn
CHECKED BY: AOV DATE: 4-2-13 SCALE: NO SCALE
DESIGNED BY: MCB DATE: 04/13

BRIDGE NO. 07285 DRAWING NO. 53705

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.		100686	50	185
				(1) 07285 & 07286		- STAGE CONSTRUCTION - 53706		



Remove existing structure after Stage 1 Construction has been opened to traffic.

(2) Approx. Offset Site 1 = 20'-6"
Approx. Offset Site 2 = 19'-5"

(3) Site 1 = Approx. 4'-5"
Site 2 = Approx. 3'-4"

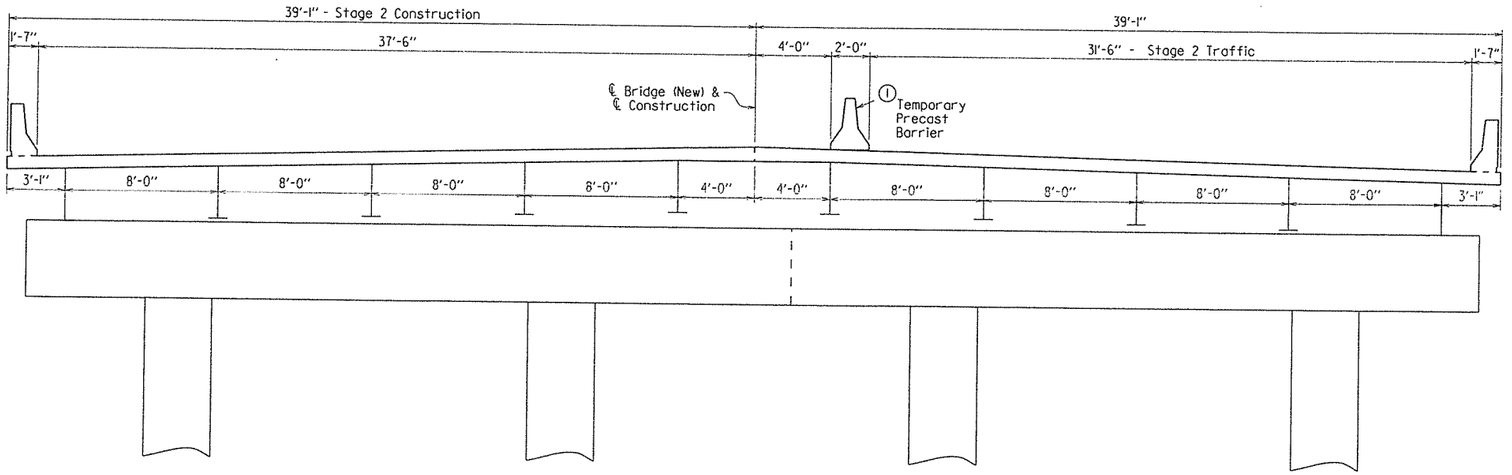
(4) If needed and as approved by the Engineer, the existing rail may be removed as shown and a temporary precast barrier doweled into the existing curb. See Std. Dwg. No. TC-4 for details.

STAGE 1

Looking Ahead

Sections for Stage Construction are shown at Intermediate Bents.

Details which relate to maintenance of traffic are shown in the Bridge Plans for information only. See Roadway Plans for additional details of Stage Construction and Maintenance of Traffic.



(1) For Details of Temporary Precast Barrier, see Std. Dwg. No. TC-4. (Do not connect to new deck)

STAGE 2

Looking Ahead

STATE OF ARKANSAS
Carl J. Fusselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
4/16/13
CARL J. FUSSELIER

BRIDGE ENGINEER

DETAILS OF STAGE CONSTRUCTION
BLACK ROCK-PORTIA (S)
LAWRENCE COUNTY

ROUTE 63 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 4/25/12
CHECKED BY: ADW DATE: 4-2-13
DESIGNED BY: MCB DATE: 04/12

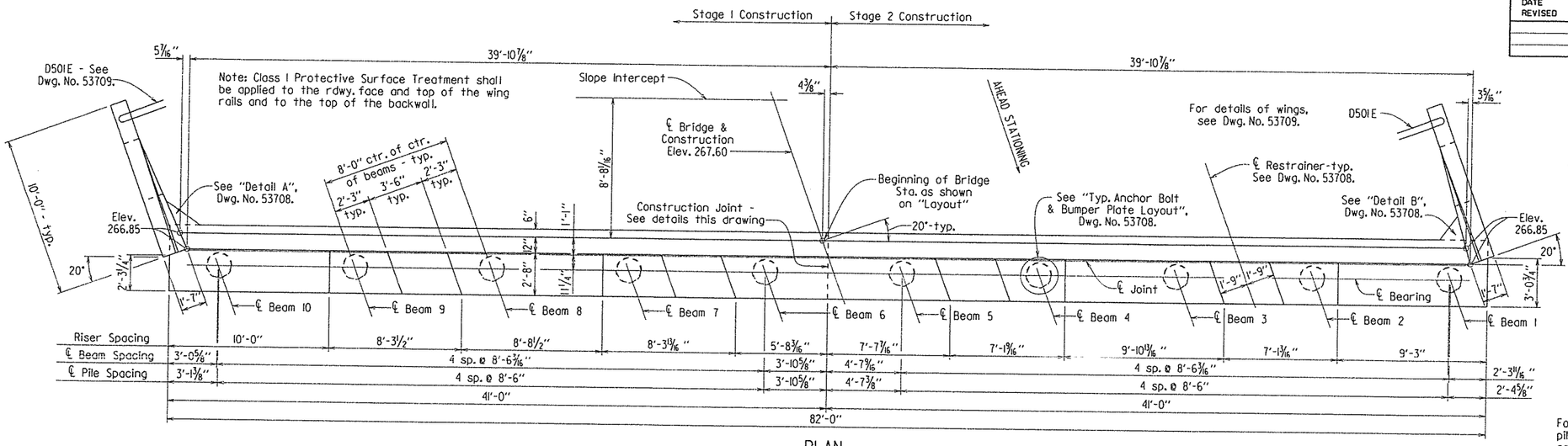
FILENAME: bl00686_sc.dgn
SCALE: NO SCALE

BRIDGE NO. 07285 & 07286 DRAWING NO. 53706

PRINT DATE: 4/12/2013

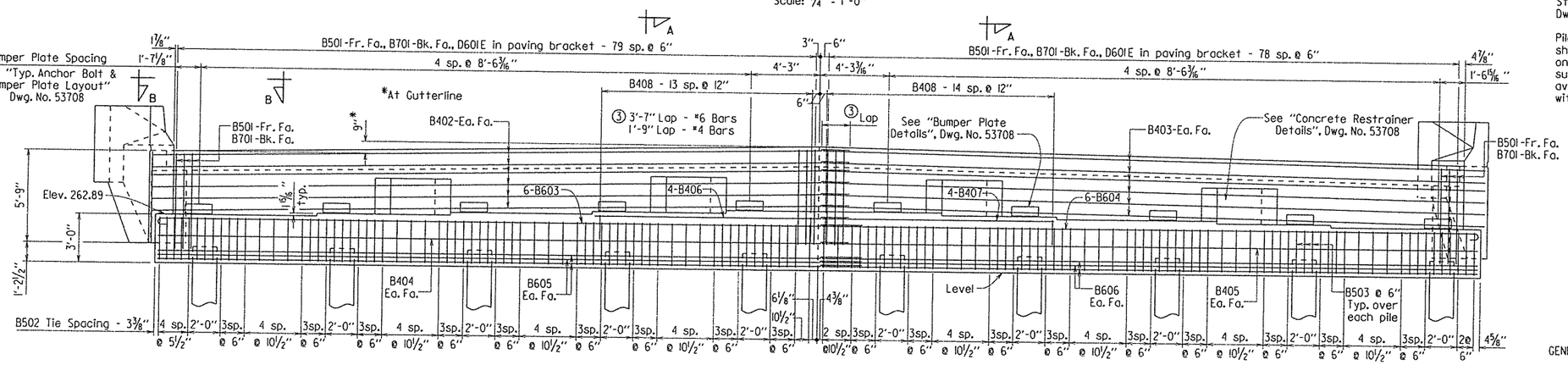
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	51	185

(1) 07285 - END BENT - 53707



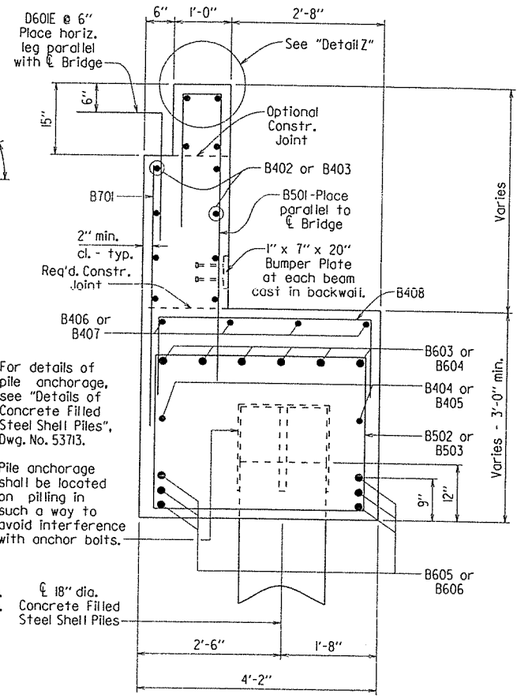
PLAN

Scale: ¼" = 1'-0"



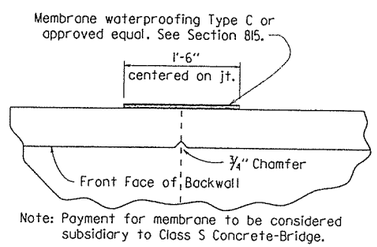
ELEVATION

Looking Back
Scale: ¼" = 1'-0"



SECTION A-A

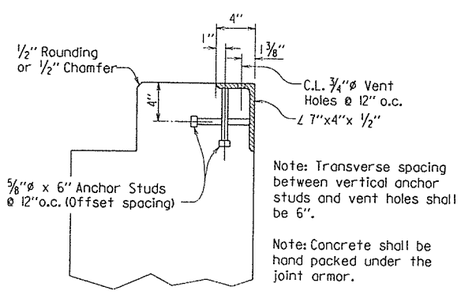
Scale: ¾" = 1'-0"



Note: Payment for membrane to be considered subsidiary to Class S Concrete-Bridge.

CONSTRUCTION JOINT DETAIL

No Scale



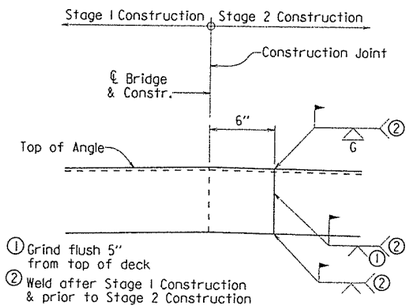
Note: Transverse spacing between vertical anchor studs and vent holes shall be 6".

Note: Concrete shall be hand packed under the joint armor.

Note: For additional joint details, see Dwg. No. 53723.

DETAIL Z

No Scale



DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

Looking Back - Bent 1
No Scale

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

BRIDGE ENGINEER

GENERAL NOTES

All concrete shall be Class "S" and be poured in the dry. 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.

Structural steel in end bents shall be AASHTO M270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M270-Gr. 50W)".

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 53723.

For additional information, See layout.

SHEET 1 OF 3
DETAILS OF BENT NO. 1
BLACK RIVER RELIEF

ROUTE SEC.

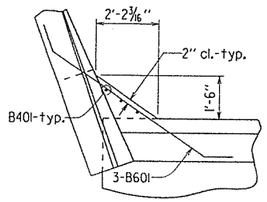
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 3-13-13 FILENAME: b100686x1_b1.dgn
CHECKED BY: MAG DATE: 3/18/13 SCALE: AS NOTED
DESIGNED BY: DBJ DATE: 02/13

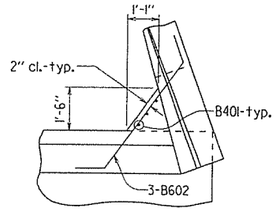
BRIDGE NO. 07285 DRAWING NO. 53707

PRINT DATE: 4/12/2013

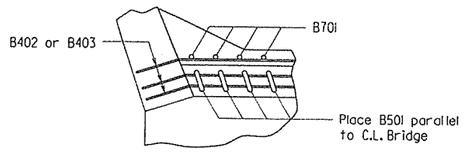
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	52	185
				(1)	07285 -	END BENT	- 53708	



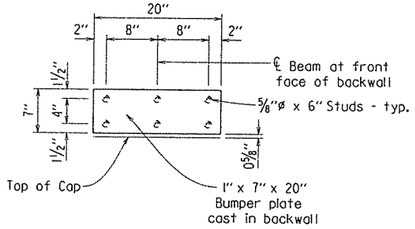
DETAIL A
No Scale



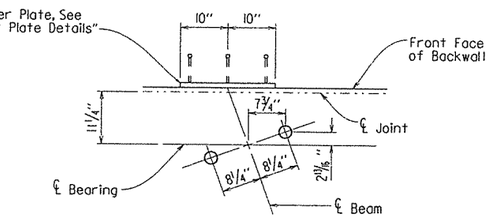
DETAIL B
No Scale



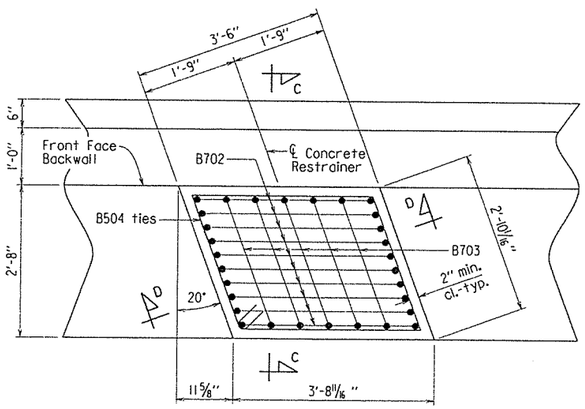
VIEW B-B
No Scale



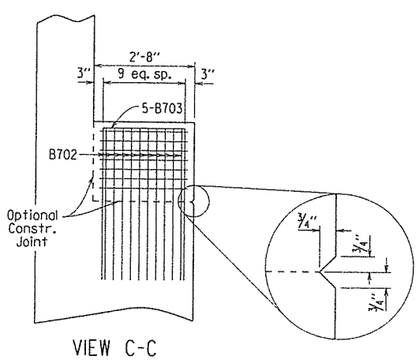
BUMPER PLATE DETAILS
Scale: 1½" = 1'-0"



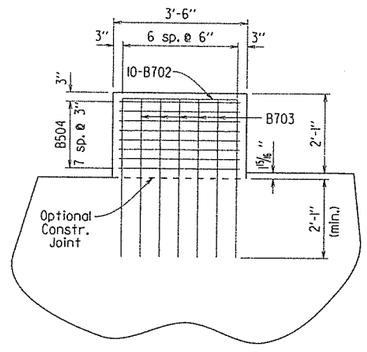
TYP. ANCHOR BOLT & BUMPER PLATE LAYOUT
Scale: ¾" = 1'-0"



CONCRETE RESTRAINER DETAILS
Scale: ¾" = 1'-0"



VIEW C-C
Scale: ½" = 1'-0"

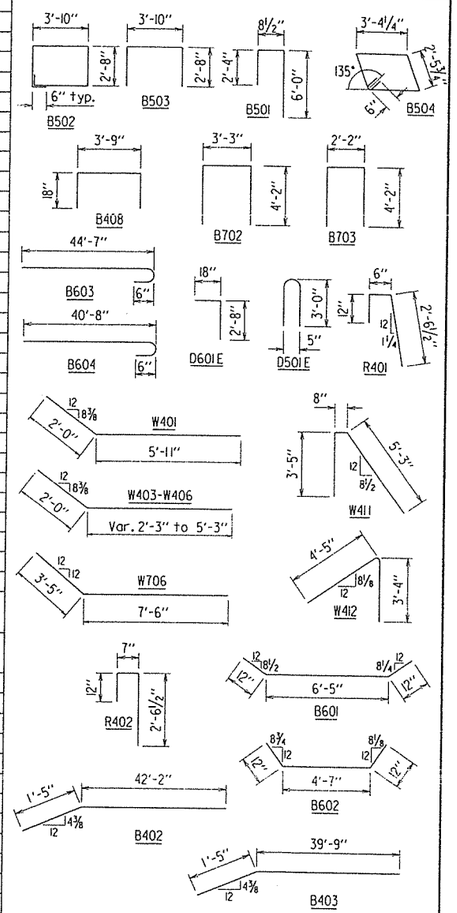


VIEW D-D
Scale: ½" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
B401	6	4'-2"	Str.
B402	12	43'-7"	2"
B403	12	41'-2"	2"
B404	2	42'-9"	Str.
B405	2	40'-8"	Str.
B406	4	15'-9"	Str.
B407	4	14'-5"	Str.
B408	29	6'-7"	2"
B501	159	8'-10"	2½"
B502	107	13'-6"	2½"
B503	30	9'-0"	2½"
B504	32	12'-4"	3¾"
B601	3	8'-5"	4½"
B602	3	6'-5"	4½"
B603	6	45'-3"	4½"
B604	6	41'-4"	4½"
B605	6	44'-7"	Str.
B606	6	40'-8"	Str.
B701	159	6'-8"	Str.
B702	40	11'-3"	5¼"
B703	20	10'-1"	5¼"
R401	8	3'-11"	2"
R402	8	4'-0"	2"
R403	12	9'-8"	Str.
W401	8	7'-10"	2"
W402	8	8'-2"	Str.
W403-W406	2 each	Var. 4'-2" to 7'-3"	2"
W407-W410	2 each	Var. 4'-7" to 7'-8"	Str.
W411	3	9'-2"	2"
W412	3	7'-8"	2"
R601	20	4'-5"	Str.
R602	6	5'-0"	Str.
W701	12	9'-8"	Str.
W702	4	6'-7"	Str.
W703	4	5'-10"	Str.
W704	4	5'-1"	Str.
W705	4	4'-4"	Str.
W706	4	10'-11"	5¼"
D501E	14	6'-2"	3¾"
D601E	159	4'-0"	4½"

BENDING DIAGRAMS



Dimensions are out to out of bars.

Bars designated with an "E" suffix shall be epoxy coated.

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

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF BENT NO. 1
BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

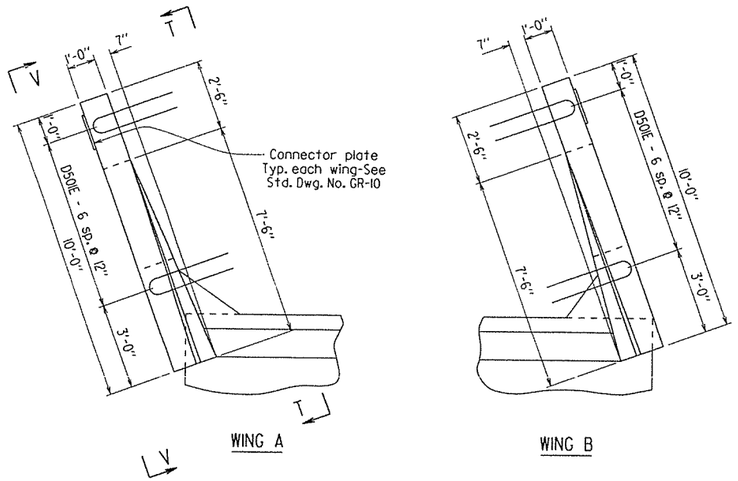
DRAWN BY: KDH DATE: 3-13-13
CHECKED BY: MCG DATE: 3/18/13
DESIGNED BY: DBS DATE: 04/13

FILENAME: bl00686xl_bl.dgn
SCALE: AS NOTED

BRIDGE NO. 07285 DRAWING NO. 53708

PRINT DATE: 4/12/2013

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.		100686	53	185
				(1) 07285 -		END BENTS	- 53709	

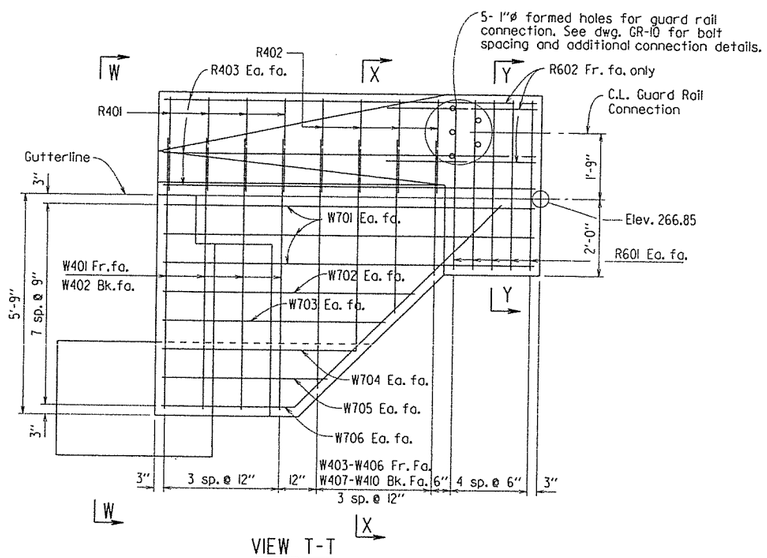


WING A

WING B

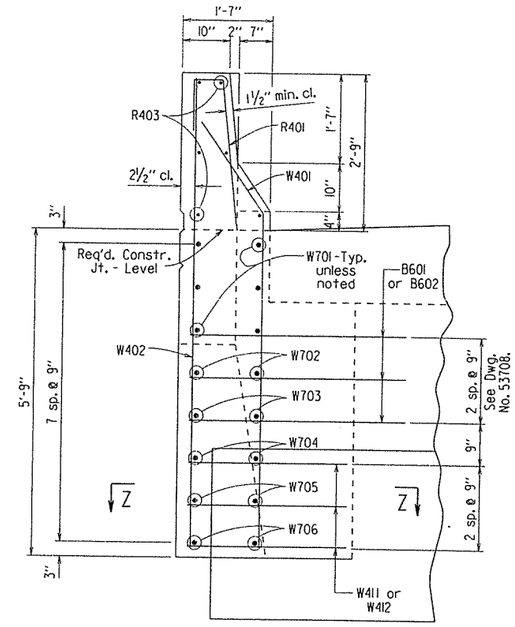
PLAN OF RAIL

Scale: 3/8" = 1'-0"



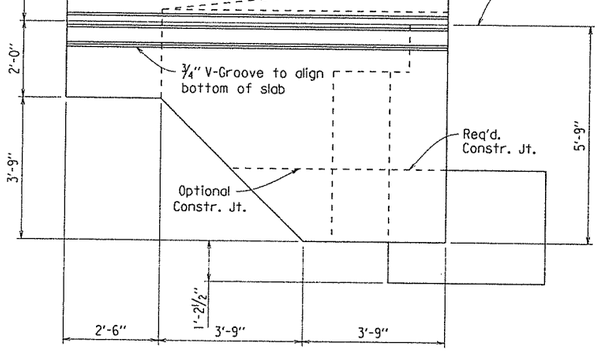
VIEW T-T

Scale: 1/2"= 1'-0"



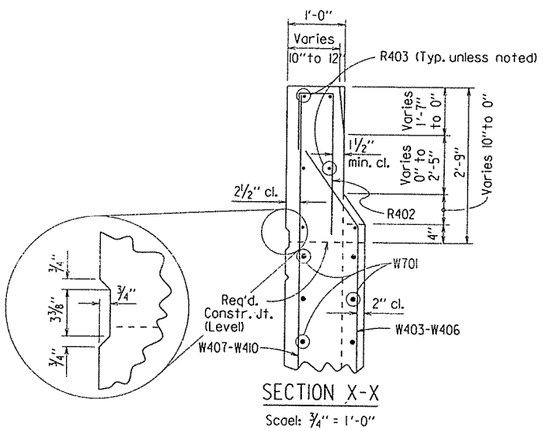
VIEW W-W

Scale: 3/4" = 1'-0"



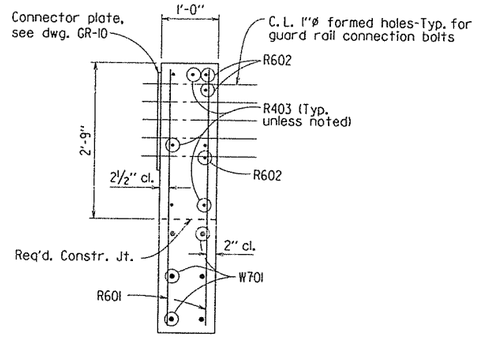
VIEW V-V

Scale: 1/2"= 1'-0"



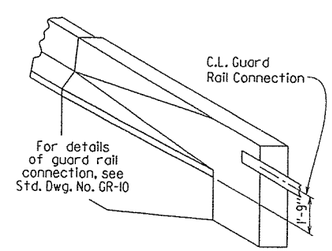
SECTION X-X

Scael: 3/4" = 1'-0"



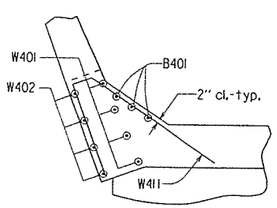
SECTION Y-Y

Scale: 3/4"= 1'-0"



THREE DIMENSIONAL VIEW OF RAIL

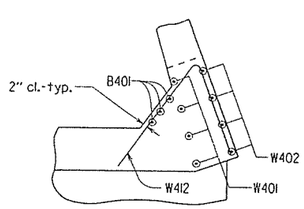
No Scale



WING A

SECTION Z-Z

No Scale



WING B

STATE OF ARKANSAS
Carl L. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL L. FUSELIER 4/16/13

BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF BENT NO. 1
BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 3-15-13
CHECKED BY: MCB DATE: 3/18/13
DESIGNED BY: DBS DATE: 02/13

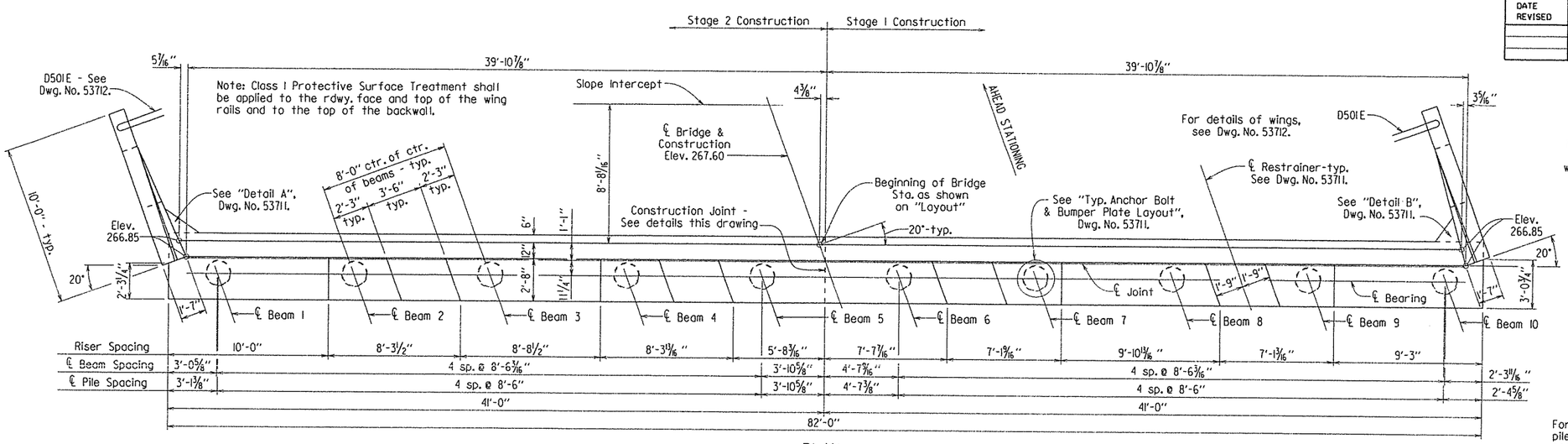
FILENAME: bl00686xl_bl.dgn
SCALE: AS NOTED

BRIDGE NO. 07285

DRAWING NO. 53709

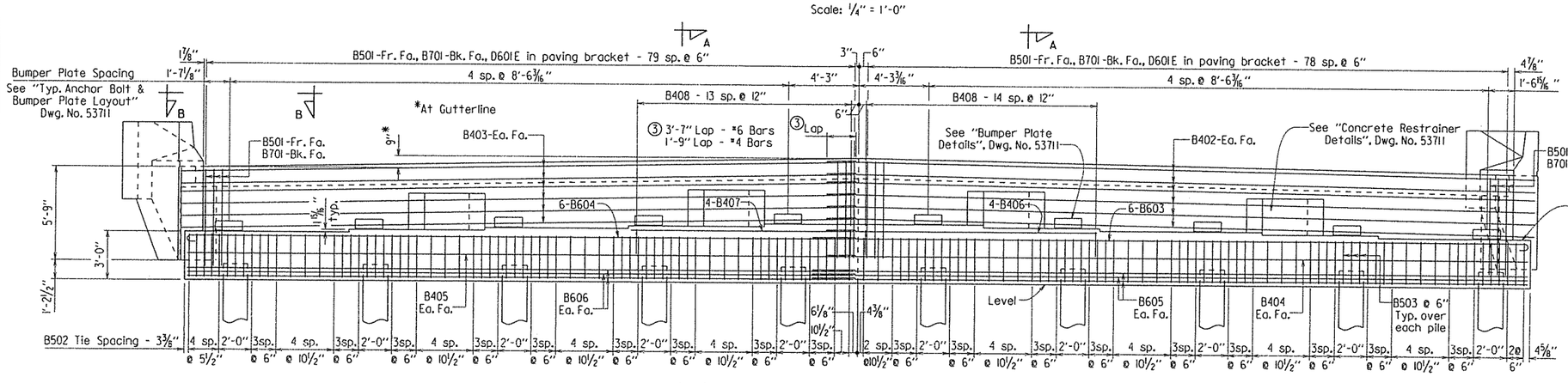
PRINT DATE: 4/12/2013

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.		100686	54	185
				(1)	07285 -	END BENT	- 53710	



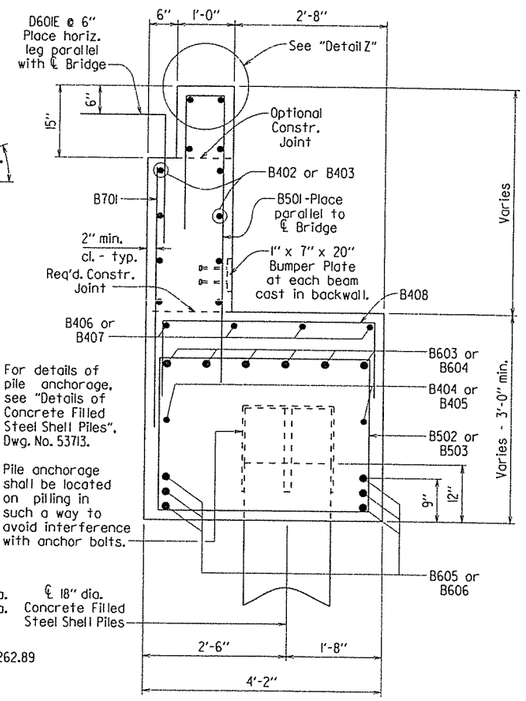
PLAN

Scale: ¼" = 1'-0"



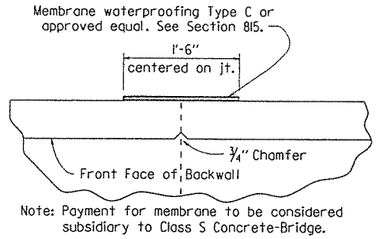
ELEVATION

Looking Ahead
Scale: ¼" = 1'-0"



SECTION A-A

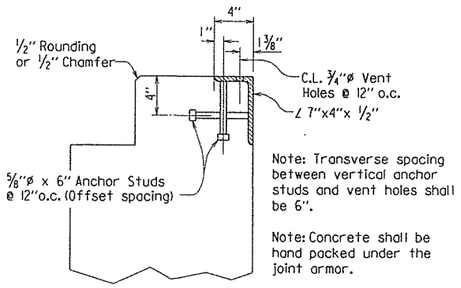
Scale: ¾" = 1'-0"



Note: Payment for membrane to be considered subsidiary to Class S Concrete-Bridge.

CONSTRUCTION JOINT DETAIL

No Scale



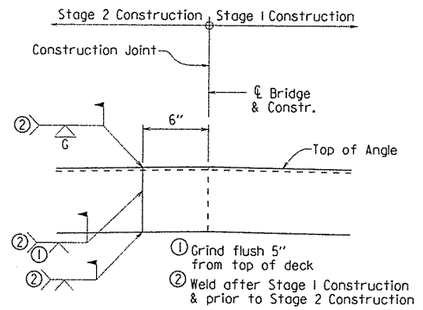
Note: Transverse spacing between vertical anchor studs and vent holes shall be 6".

Note: Concrete shall be hand packed under the joint armor.

Note: For additional joint details, see Dwg. No. 53723.

DETAIL Z

No Scale



DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

Looking Ahead - Bent 4
No Scale

GENERAL NOTES

All concrete shall be Class "S" and be poured in the dry. 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.

Structural steel in end bents shall be AASHTO M270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M270-Gr. 50W)".

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 53723.

For additional information, See layout.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER
4/16/13

BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF BENT NO. 4
BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

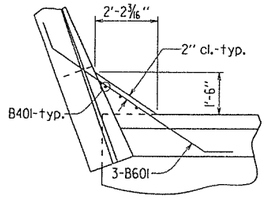
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 3-13-13
CHECKED BY: MLS DATE: 3/21/13
DESIGNED BY: DBJ DATE: 02/13
FILENAME: bl00686x1_b4.dgn
SCALE: AS NOTED

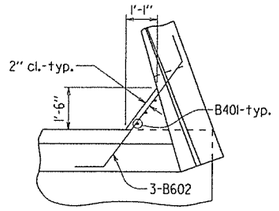
BRIDGE NO. 07285 DRAWING NO. 53710

PRINT DATE: 4/12/2013

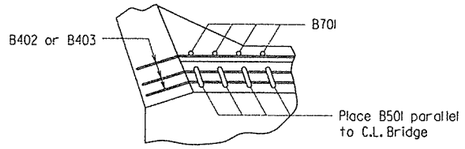
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	55	185
				①	07285 -	END BENT		- 53711



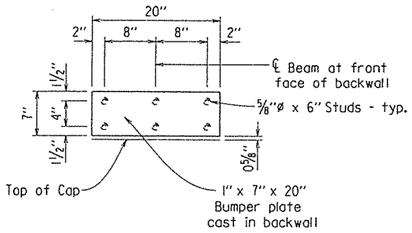
DETAIL A
No Scale



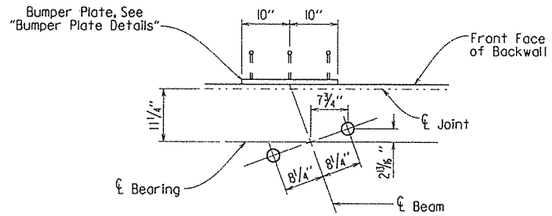
DETAIL B
No Scale



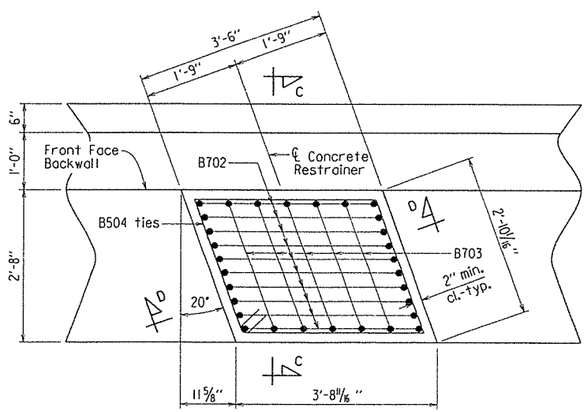
VIEW B-B
No Scale



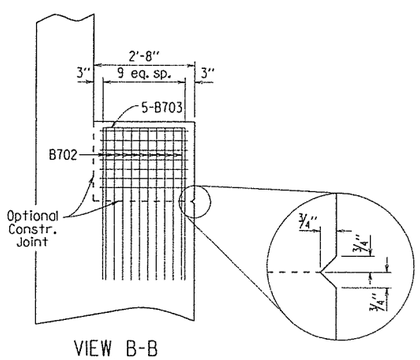
BUMPER PLATE DETAILS
Scale: 1½" = 1'-0"



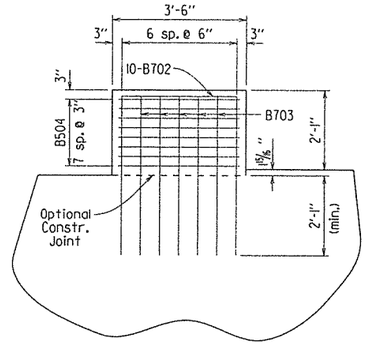
TYP. ANCHOR BOLT & BUMPER PLATE LAYOUT
Scale: ¾" = 1'-0"



CONCRETE RESTRAINER DETAILS
Scale: ¾" = 1'-0"



VIEW B-B
Scale: ½" = 1'-0"

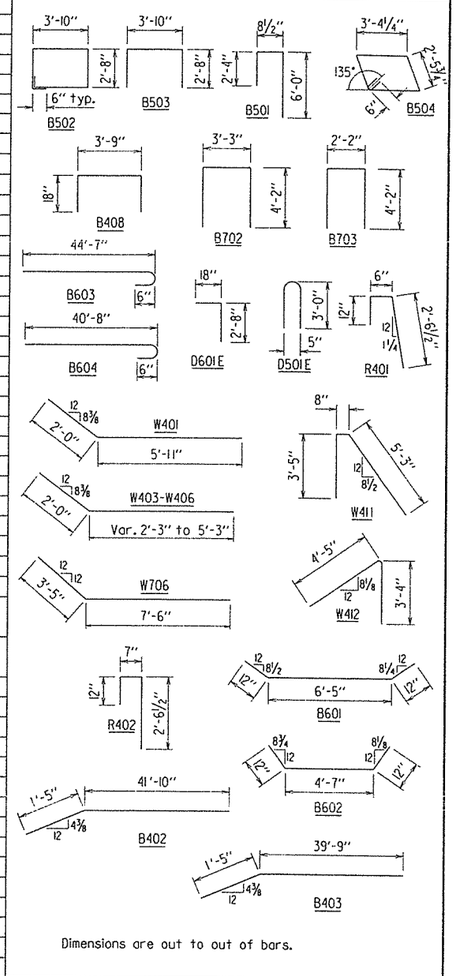


VIEW D-D
Scale: ½" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
B401	6	4'-2"	Str.
B402	12	43'-3"	2"
B403	12	41'-2"	2"
B404	2	42'-9"	Str.
B405	2	40'-8"	Str.
B406	4	16'-6"	Str.
B407	4	13'-7"	Str.
B408	29	6'-7"	2"
B501	159	8'-10"	2½"
B502	107	13'-6"	2½"
B503	30	9'-0"	2½"
B504	32	12'-4"	3¾"
B601	3	8'-5"	4½"
B602	3	6'-5"	4½"
B603	6	45'-3"	4½"
B604	6	41'-4"	4½"
B605	6	44'-7"	Str.
B606	6	40'-8"	Str.
B701	159	6'-8"	Str.
B702	40	11'-3"	5¼"
B703	20	10'-1"	5¼"
R401	8	3'-11"	2"
R402	8	4'-0"	2"
R403	12	9'-8"	Str.
W401	8	7'-10"	2"
W402	8	8'-2"	Str.
W403-W406	2 each	Var. 4'-2" to 7'-3"	2"
W407-W410	2 each	Var. 4'-7" to 7'-8"	Str.
W411	3	9'-2"	2"
W412	3	7'-8"	2"
R601	20	4'-5"	Str.
R602	6	5'-0"	Str.
W701	12	9'-8"	Str.
W702	4	6'-7"	Str.
W703	4	5'-10"	Str.
W704	4	5'-1"	Str.
W705	4	4'-4"	Str.
W706	4	10'-11"	5¼"
D501E	14	6'-2"	3¾"
D601E	159	4'-0"	4½"

BENDING DIAGRAMS



Dimensions are out to out of bars.

Bars designated with an "E" suffix shall be epoxy coated.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
4/16/13
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF BENT NO. 4
BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

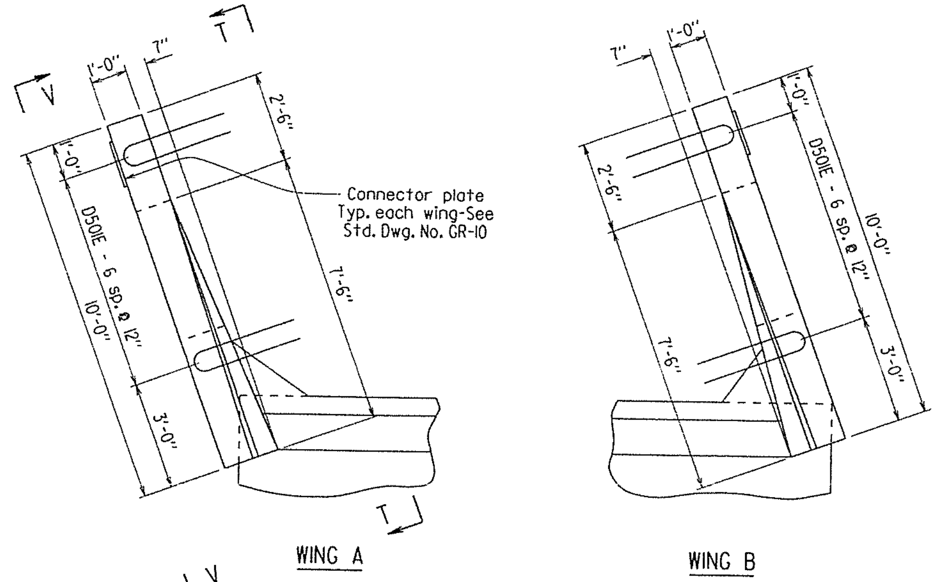
DRAWN BY: KDH DATE: 3-13-13
CHECKED BY: MCS DATE: 3/21/13
DESIGNED BY: DBS DATE: 02/13

FILENAME: bl00686xl_b4.dgn
SCALE: AS NOTED

BRIDGE NO. 07285 DRAWING NO. 53711

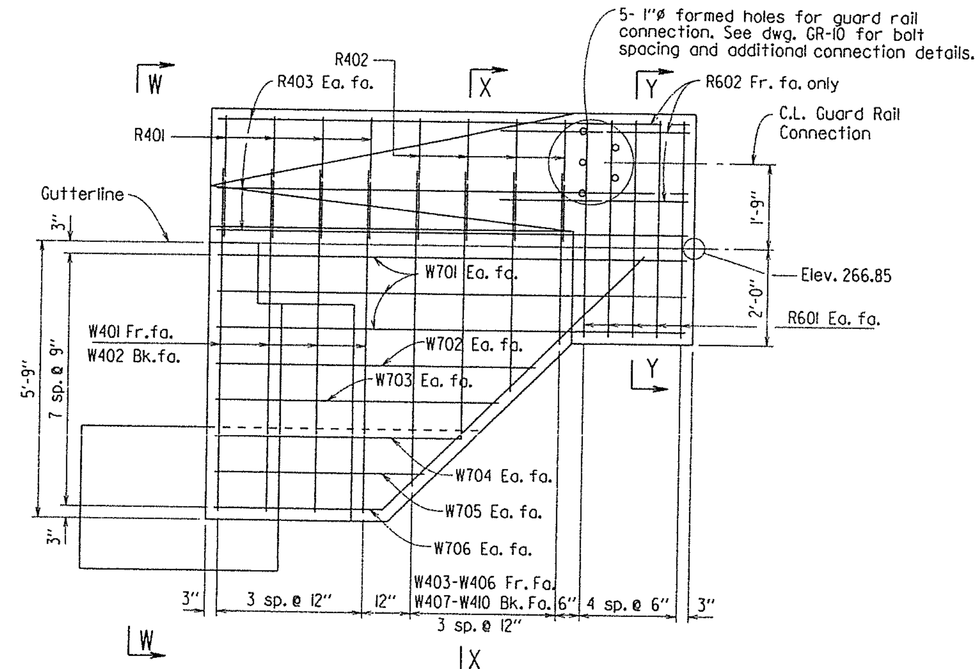
PRINT DATE: 4/12/2013

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.		100686	56	185
				(1) 07285 -		END BENTS	- 53712	



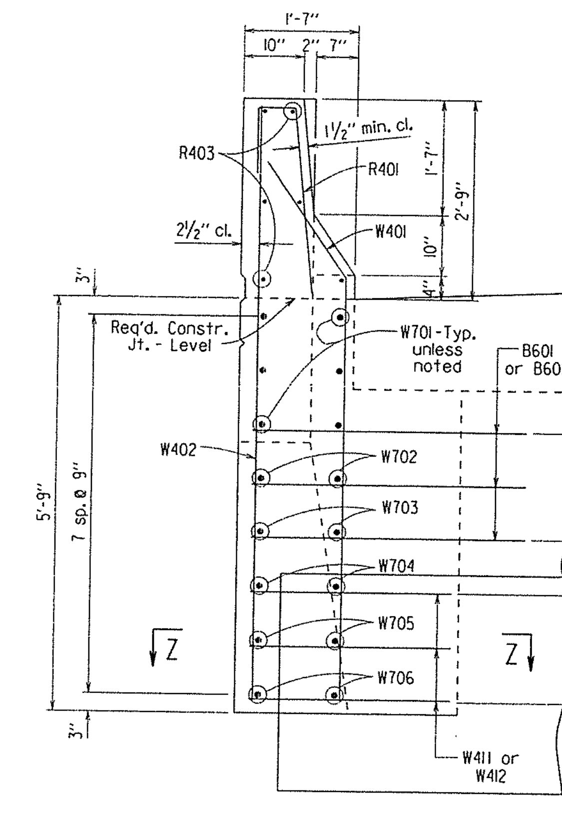
PLAN OF RAIL

Scale: 3/8" = 1'-0"



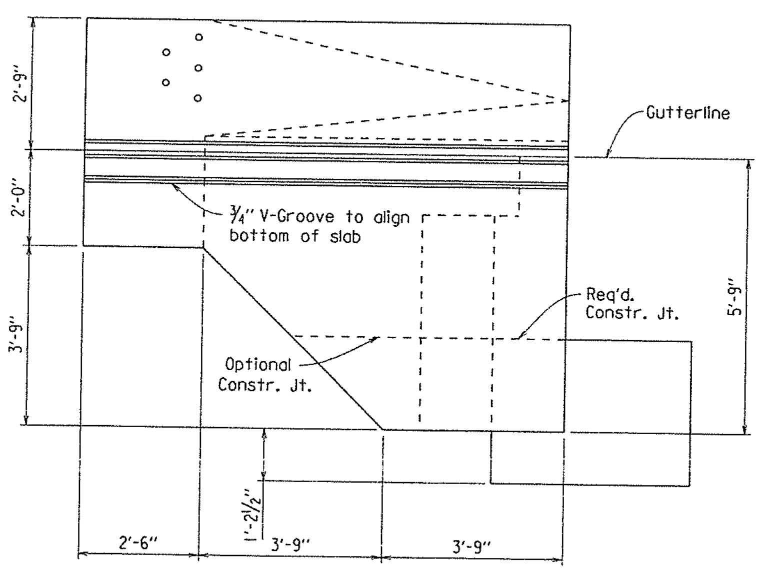
VIEW T-T

Scale: 1/2"= 1'-0"



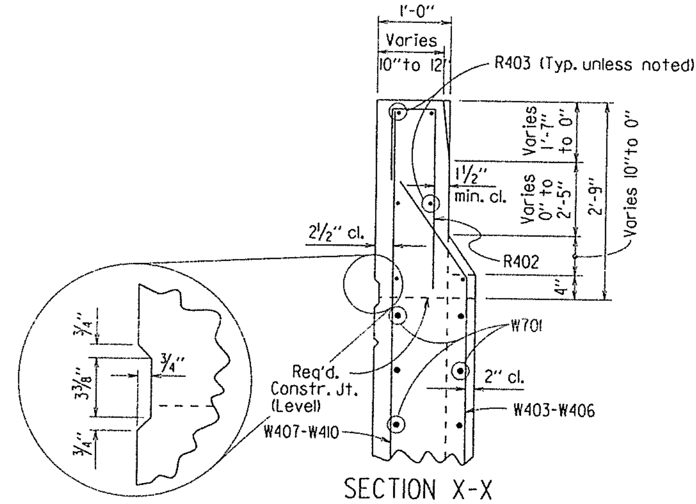
VIEW W-W

Scale: 3/4" = 1'-0"



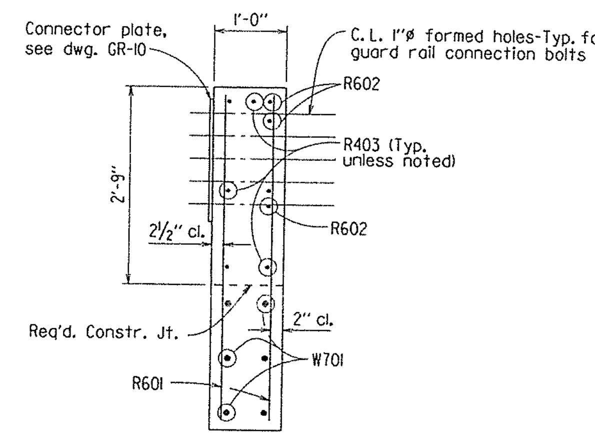
VIEW V-V

Scale: 1/2"= 1'-0"



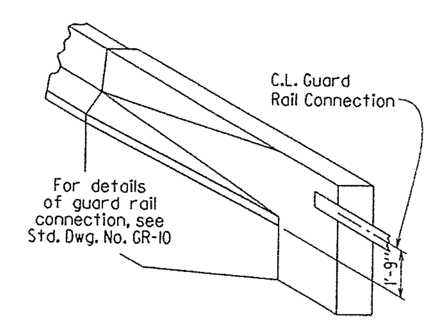
SECTION X-X

Scael: 3/4" = 1'-0"



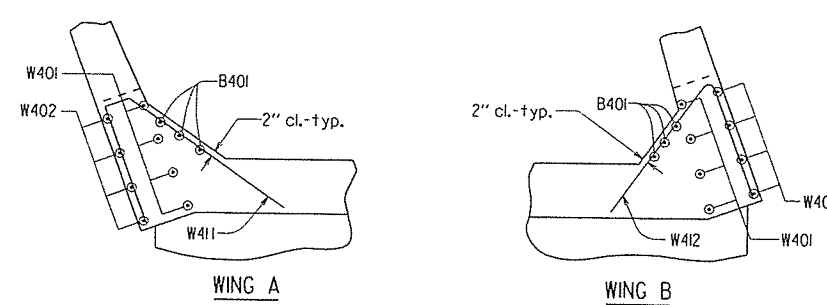
SECTION Y-Y

Scale: 3/4"= 1'-0"



THREE DIMENSIONAL VIEW OF RAIL

No Scale



SECTION Z-Z

No Scale

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

BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF BENT NO. 4
BLACK RIVER RELIEF

ROUTE SEC.

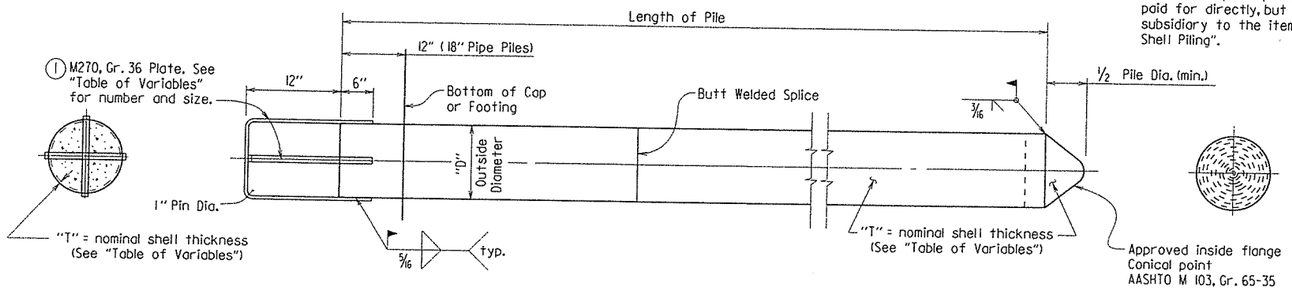
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 3-15-13 FILENAME: b100686xl_b4.dgn
CHECKED BY: MCS DATE: 3/21/13 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 02/13
BRIDGE NO. 07285 DRAWING NO. 53712

PRINT DATE: 4/12/2013

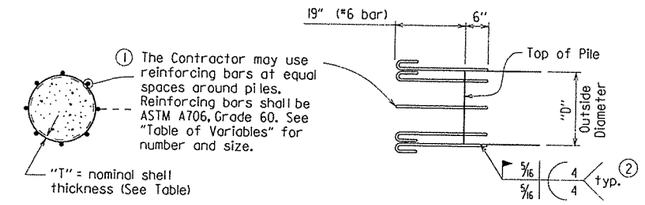
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	57	185
				① 07285 & 07286		STEEL SHELL PILES		53713



Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

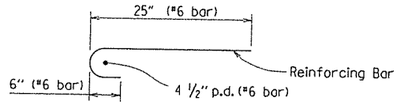
CONCRETE FILLED STEEL SHELL PILE

① Pile anchorage shall be placed to minimize interference with anchor bolts and reinforcing in cap or footing.

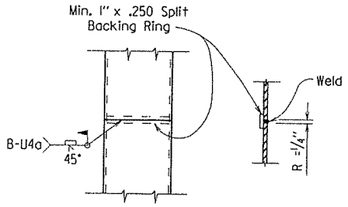


ALTERNATE PILE ANCHORAGE DETAIL

② Welding shall comply with ANSI/AWS D1.4 Structural Welding Code-Reinforcing Steel and applicable portions of ANSI/AWS D1.5 Bridge Welding Code.



HOOKED BAR DETAIL



TYPICAL SPLICE DETAILS

TABLE OF VARIABLES

BRIDGE NUMBER	OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	PILE STRAPS	
			PLATE	REINFORCING
07285	18"	0.50"	2 @ ½" x 1½"	6 - #6
07286	18"	0.50"	2 @ ½" x 1½"	6 - #6

GENERAL NOTES FOR CONCRETE FILLED STEEL SHEEL PILES:

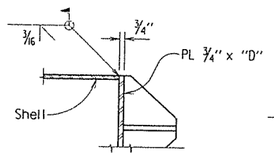
Steel shells shall conform ASTM A252, Grade 3 (Fy = 45,000 psi.).

Concrete used for filling of steel shell shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. and shall be poured in the dry.

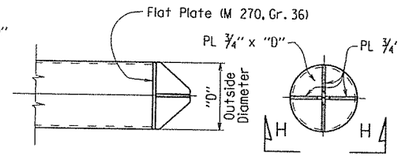
Steel shell piling that extends above the ground and is not protected by pile encasement shall be painted in accordance with subsection 805.02.

See Bridge Layout for size and estimated length of steel shell piles and for additional driving information.

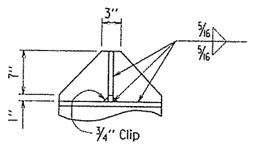
Concrete, structural steel, reinforcing steel (including welding), and painting will not be paid for separately, but will be considered subsidiary to the item "Steel Shell Piling".



PART SECTION



ELEVATION



VIEW H-H

ALTERNATE VANED TIP DETAIL

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

BRIDGE ENGINEER

DETAILS OF CONCRETE FILLED STEEL SHELL PILES

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

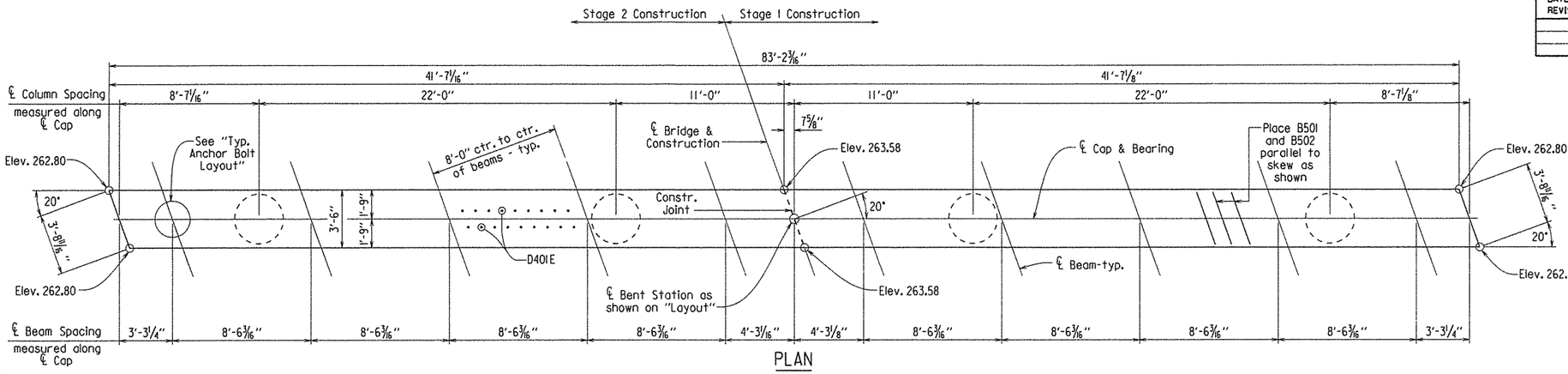
LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 1/10/13 FILENAME: bl00686.ssp.dgn
CHECKED BY: ADAI DATE: 3-25-13 SCALE: NONE
DESIGNED BY: DBS DATE: 02/13

BRIDGE NO. 07285 & 07286 DRAWING NO. 53713

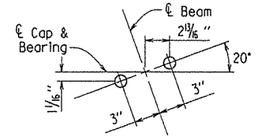
PRINT DATE: 4/12/2013

DATE REVISED	DATE	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL
				6				
				JOB NO.		100686	58	185
				①	07285 -	INT. BENTS	- 53714	



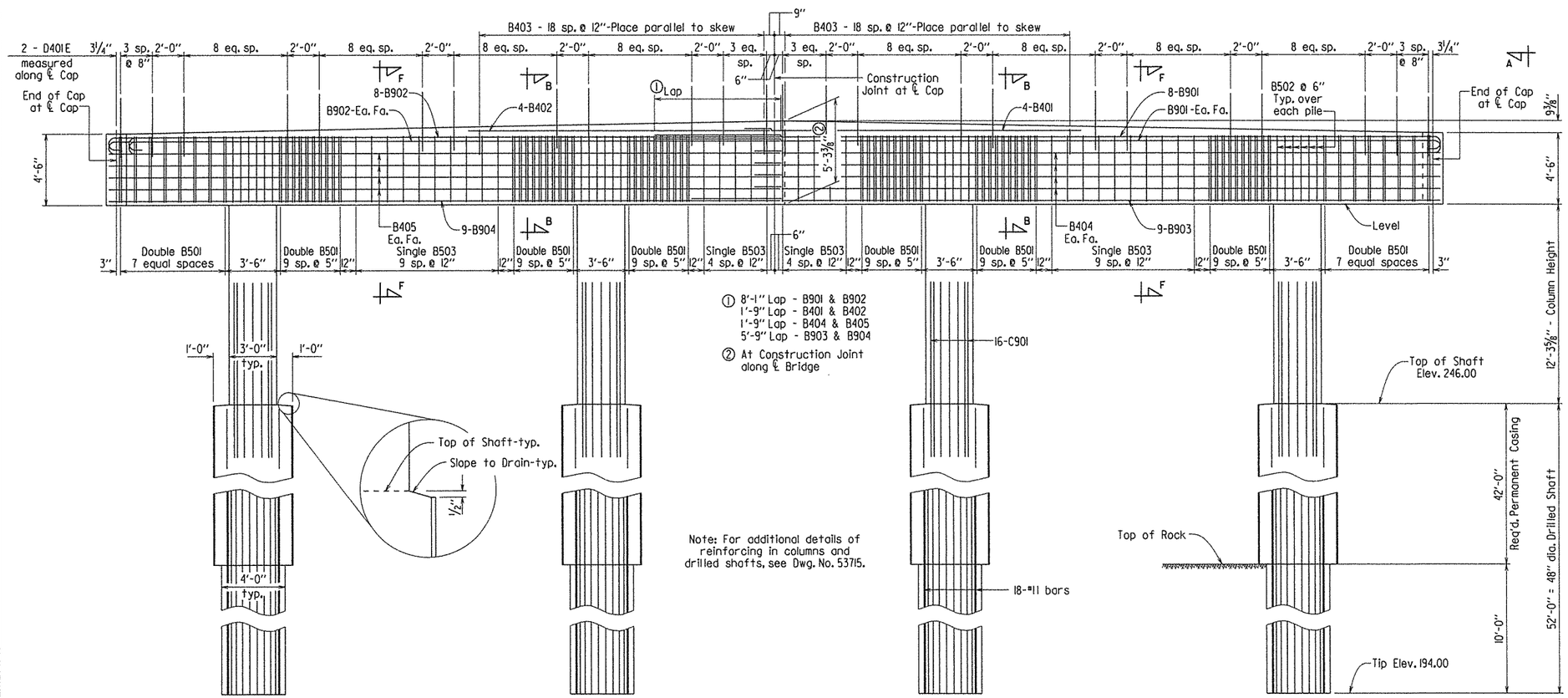
PLAN

Scale: 1/4" = 1'-0"



TYP. ANCHOR BOLT LAYOUT

No Scale



ELEVATION

Looking Ahead

Scale: 1/4" = 1'-0"

Note: For additional details of reinforcing in columns and drilled shafts, see Dwg. No. 53715.

STATE OF ARKANSAS
Carl L. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
2/10/14
CARL L. FUSELIER

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS
BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

DRAWN BY: KDH DATE: 2-28-13 FILENAME: bl00686x1_b2.dgn

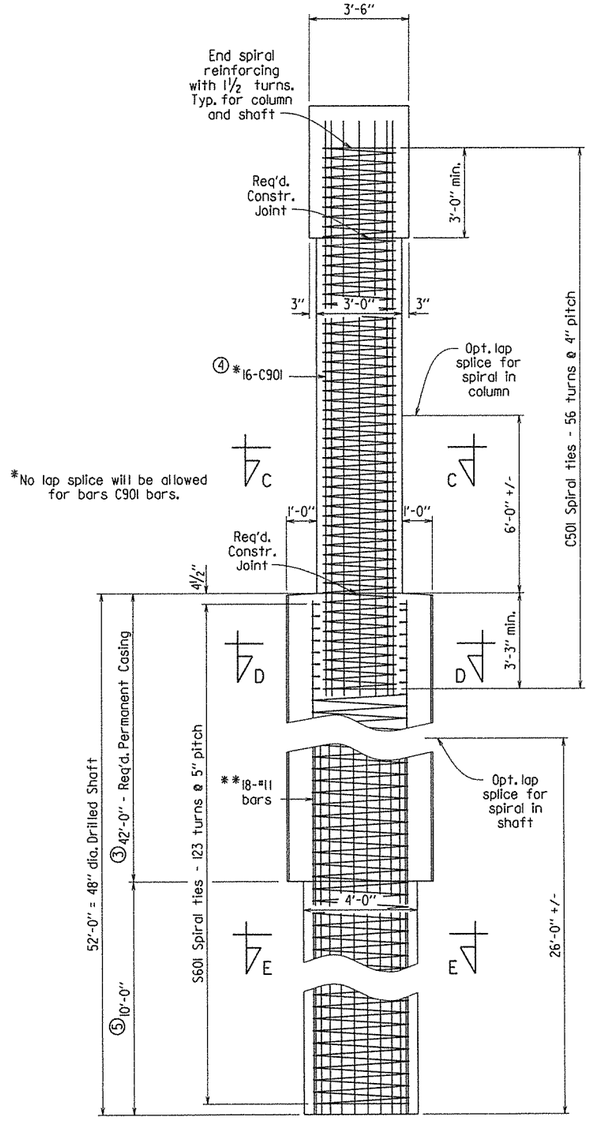
CHECKED BY: MCB DATE: 3/6/13 SCALE: AS NOTED

DESIGNED BY: DBJ DATE: 02/13

BRIDGE NO. 07285 DRAWING NO. 53714

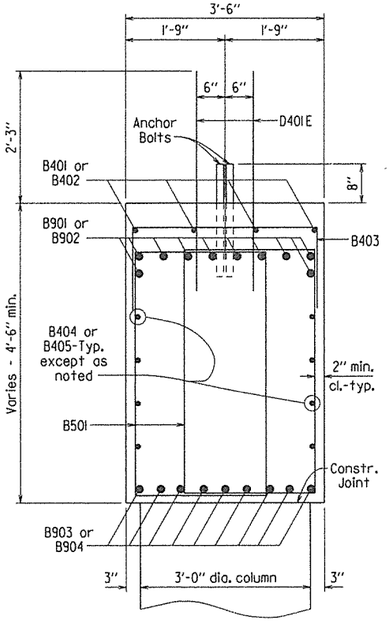
PRINT DATE: 2/10/2014

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.		100686	59	185
				①	07285 -	INT. BENTS	- 53715	

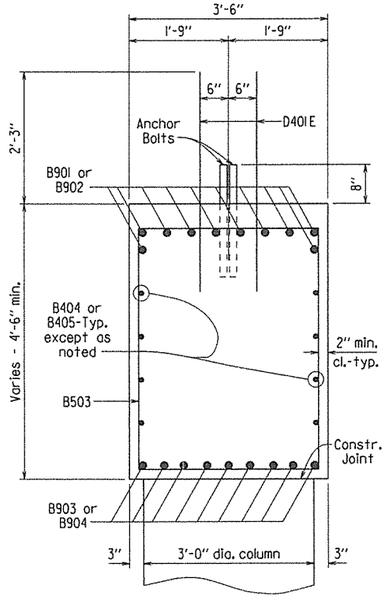


**Lap splices for #11 bars, if required due to the tip elevation being lowered, shall be approved by the Engineer.

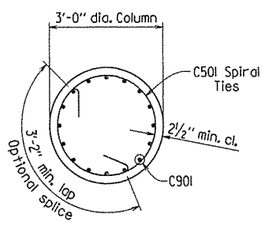
VIEW A-A
Scale: ⅜" = 1'-0"



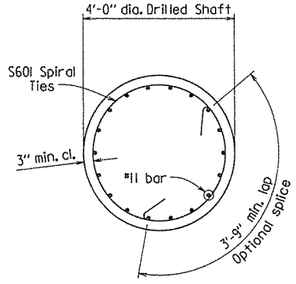
SECTION B-B
Scale: ¾" = 1'-0"



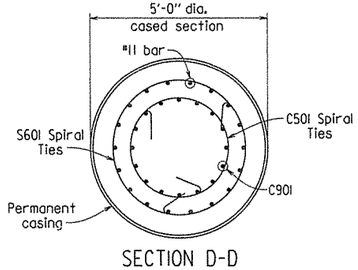
SECTION F-F
Scale: ¾" = 1'-0"



SECTION C-C
Scale: ½" = 1'-0"



SECTION E-E
Scale: ½" = 1'-0"



SECTION D-D
Scale: ½" = 1'-0"

③ Length of Permanent Casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. 100686 "Drilled Shaft Foundations". Permanent casing shall not extend below top of competent rock without approval from the Engineer.

④ The column reinforcing cage, consisting of bars C501 and C901, may be placed before or after concrete placement in the shaft is complete. Vibration of concrete in the top 10 feet of the shaft will be needed to ensure the consolidation of the concrete around the reinforcing steel and to insert the column reinforcing cage. The contractor will be responsible for obtaining satisfactory results.

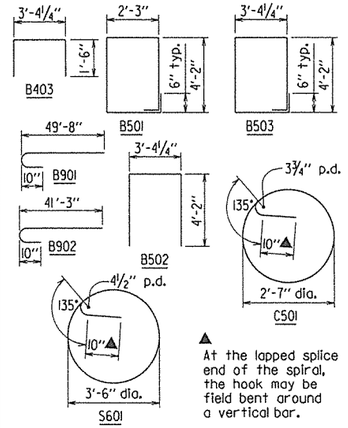
⑤ Minimum penetration into competent rock below permanent casing.

BAR LIST - PER BENT

	MARK	NO. REQ'D.	LENGTH	P.D.
	B401	4	20'-11"	Str.
	B402	4	19'-0"	Str.
	B403	38	6'-2"	2"
	B404	8	43'-4"	Str.
	B405	8	41'-3"	Str.
	D401E	176	3'-9"	Str.
	B501	152	13'-4"	2½"
	B502	24	11'-6"	2½"
	B503	30	15'-7"	2½"
	C501	4	471'-4"	Spiral
⑥	S601	4	1362'-11"	Spiral
	B901	10	50'-11"	9"
	B902	10	42'-6"	9"
	B903	9	47'-4"	Str.
	B904	9	41'-3"	Str.
	C901	64	19'-2"	Str.
⑥	#11 bars	72	51'-9"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.



▲ At the lapped splice end of the spiral, the hook may be field bent around a vertical bar.

⑥ Non-pay item - Subsidiary to SP Job No. 100686 "Drilled Shaft Foundations".

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

GENERAL NOTES

Concrete in the cap and column shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., and shall be poured in the dry. Concrete in the drilled shaft shall be Class S as modified by SP Job No. 100686 "Drilled Shaft Foundations". 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 shall be properly placed to avoid interference with anchor bolts.

For additional information see layout.

Drilled shafts shall conform to SP Job No. 100686 "Drilled Shaft Foundations".

NOTES FOR SPIRAL REINFORCING

Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M322 (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of 0.625" in the column, and a minimum diameter of 0.75" in the drilled shaft.

Column spiral reinforcement shall be paid for at the contract unit price bid per pound for "Reinforcing Steel-Bridge (Grade 60)". No additional payment shall be made for spacers, additional splices, or bracing needed for assembly, shipping, handling, or erecting.

The contractor may elect to use the optional spiral lapped splices at the locations shown on the column or shaft.

Splices in spiral reinforcement shall be lapped a minimum of 60 bar diameters.

Spiral reinforcement at lapped splices shall be terminated by a 135° hook with a 10" tail around a vertical bar. Hook may be field bent. Ends of spirals not lapped shall be terminated with 1½ turns and a 135° hook with a 10" tail around a vertical bar.

STATE OF ARKANSAS
Carl Fuselier
No. 7510
REGISTERED PROFESSIONAL ENGINEER
2/10/14
CARL FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS
BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-28-13 FILENAME: bl00686xl_b2.dgn
CHECKED BY: MCB DATE: 03/4/13 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 02/13

BRIDGE NO. 07285 DRAWING NO. 53715

PRINT DATE: 2/10/2014

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.		100686	60	185
				① 07285 -		W-BEAM UNIT	- 53716	

SLAB REINFORCING

Transverse:
S501E & S502E @ 12" o.c. bent up over beams — Alternate
S503E & S504E @ 12" o.c. in top — Alternate
S402E & S403E @ 12" o.c. in bottom
S506E @ 6" bundled with #5 bars in top at both gutterlines

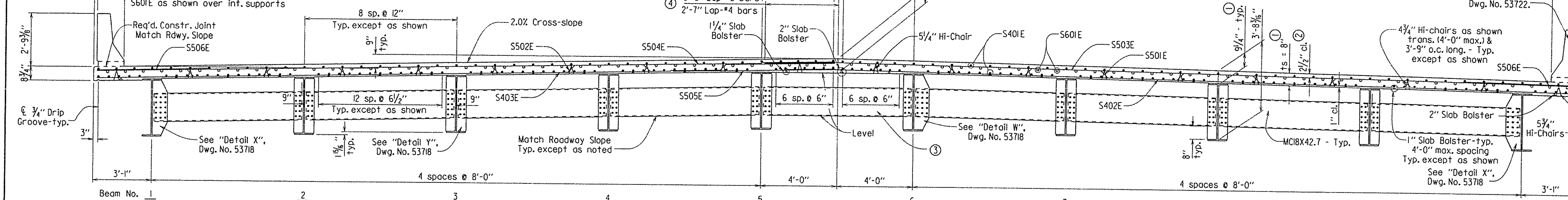
Longitudinal:
S401E as shown (12" max.)
S601E as shown over int. supports

① See "Adjustment for Slab Thickness Tolerance", Dwg. No. 53718.

② Tolerance: Minus = 1/4"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance", Dwg. No. 53718.

NOTE: At Contractor's Option, in lieu of providing bars S501E or S502E, one #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S501E and S502E. Bars in top and bottom shall be Epoxy Coated.

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

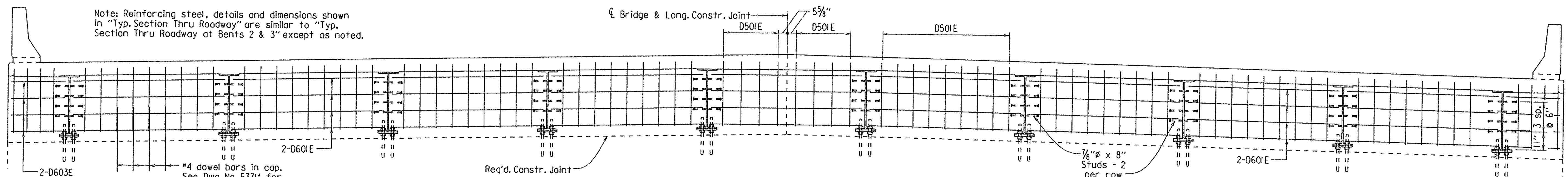


④ Stage 2 transverse reinforcing steel shall not be tied to Stage 1 transverse reinforcing steel.

TYP. SECTION THRU ROADWAY

Looking Ahead
Scale: 3/8" = 1'-0"

Note: Reinforcing steel, details and dimensions shown in "Typ. Section Thru Roadway" are similar to "Typ. Section Thru Roadway at Bents 2 & 3" except as noted.



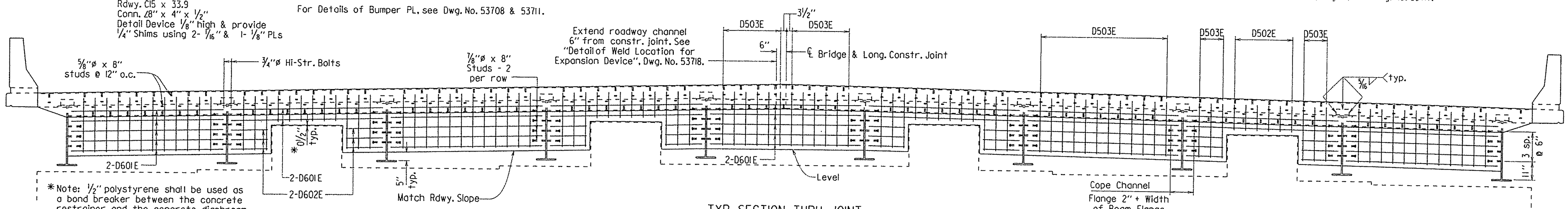
TYP. SECTION THRU ROADWAY AT BENTS 2 & 3

Looking Ahead
Scale: 3/8" = 1'-0"

Note: For spacing and location of reinforcing bars in concrete diaphagms, see Dwg. No. 53717.

Expansion Device:
Rdwy. C15 x 33.9
Conn. ∠8" x 4" x 1/2"
Detail Device 1/8" high & provide 1/4" Shims using 2- 1/16" & 1- 1/8" PLs

For Details of Bumper PL, see Dwg. No. 53708 & 53711.



*Note: 1/2" polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place.

TYP. SECTION THRU JOINT

Looking Ahead - Bent 1
Bent 4 Similar
Scale: 3/8" = 1'-0"

③ In this bay, connection plate widths and diaphragm lengths shall be fabricated, as necessary, to facilitate installation of diaphragms between adjacent beams with significant differential deflections. Hole diameters of 15/16" shall be provided for these connections with a washer supplied under both the nut and head of bolt.

Before the Stage 2 deck pour, loosely install as many bolts as possible on both ends of the diaphragm in this bay to the satisfaction of the Engineer. An external means of supporting the Stage 1 overhang shall be provided and shall remain in place until after completion of the Stage 2 deck pour. See "Deck Support at Longitudinal Construction Joint" detail, Dwg. No. 53722. Install remaining bolts and fully tighten all bolts as soon as practical after completion of the Stage 2 deck pour.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER
4/16/13

BRIDGE ENGINEER

SHEET 1 OF 8
DETAILS OF 200' CONTINUOUS COMPOSITE W-BEAM UNIT
BLACK RIVER RELIEF

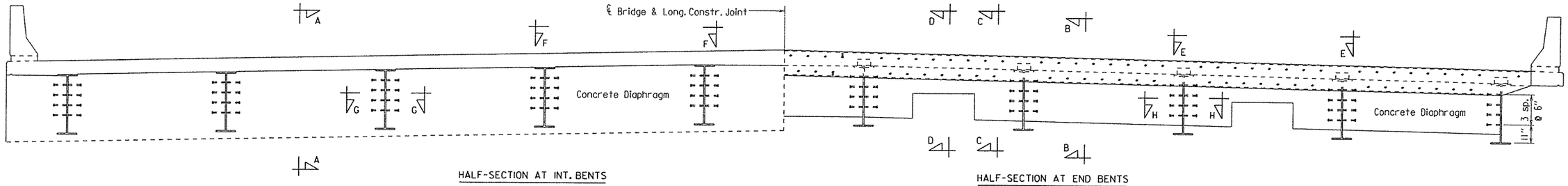
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-8-12
CHECKED BY: ADW DATE: 3-21-13
DESIGNED BY: ADW DATE: 7-12
FILENAME: b100686xl_sl.dgn
SCALE: AS NOTED
BRIDGE NO. 07285
DRAWING NO. 53716

PRINT DATE: 4/12/2013

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.		100686	61	185
				①	07285 -	W-BEAM UNIT	- 53717	

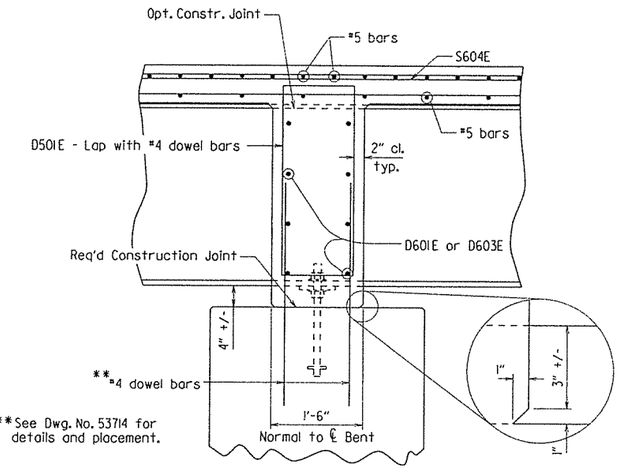


HALF-SECTION AT INT. BENTS

HALF-SECTION AT END BENTS

ROADWAY SECTION AT BENTS SHOWING CONCRETE DIAPHRAGMS

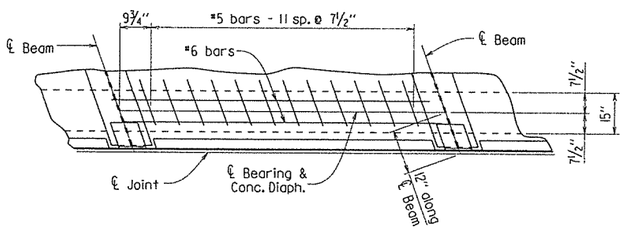
Scale: 3/8" = 1'-0"



**See Dwg. No. 53714 for details and placement.

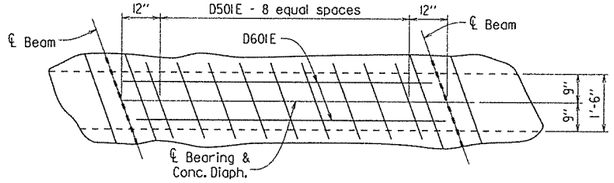
SECTION A-A

No Scale



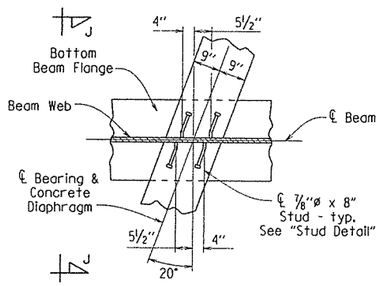
VIEW E-E

Spacing at End Bents
Scale: ½" = 1'-0"



VIEW F-F

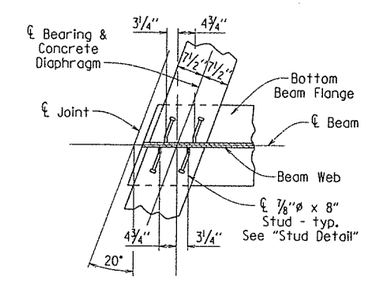
Spacing at Int. Bents
Scale: ½" = 1'-0"



Details shown for interior beams.
Exterior beams similar.

SECTION G-G

No Scale

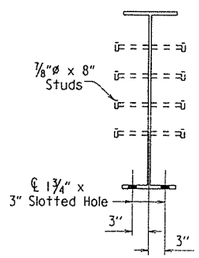


Details shown for interior beams.
Exterior beams similar.

SECTION H-H

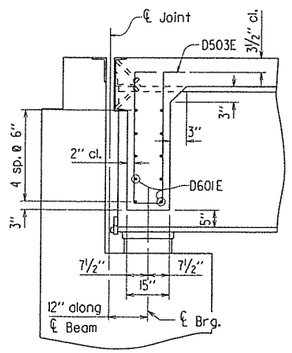
No Scale

Prior to pouring concrete, remove mill scale with wire brush at concrete diaphragms.



VIEW J-J

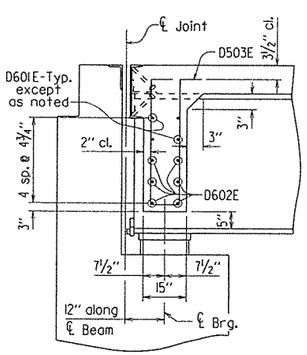
No Scale



SECTION B-B

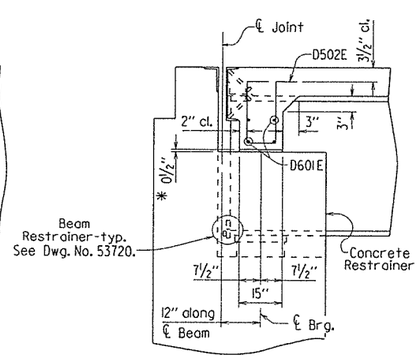
No Scale

Note: Concrete diaphragms at end bents shall be poured monolithically with span.



SECTION C-C

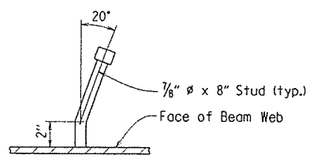
No Scale



SECTION D-D

No Scale

*Note: ½" polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place.



STUD DETAIL

No Scale

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER
9/16/13

BRIDGE ENGINEER

SHEET 2 OF 8
DETAILS OF 200' CONTINUOUS COMPOSITE W-BEAM UNIT
BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-10-12
CHECKED BY: ADH DATE: 3-21-13
DESIGNED BY: ADH DATE: 7-12

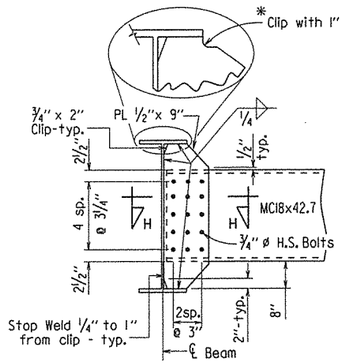
FILENAME: bl00686x1_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07285 DRAWING NO. 53717

PRINT DATE: 4/12/2013

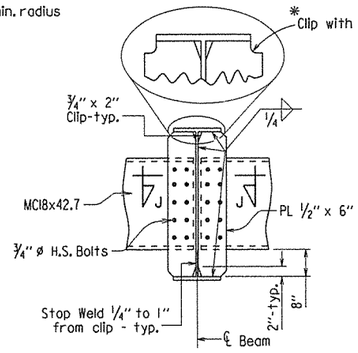
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	62	185
				(1) 07285 -		W-BEAM UNIT	- 53718	

*If permanent steel bridge deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.



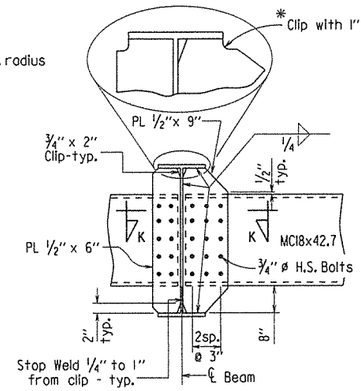
DETAIL X

No Scale



DETAIL Y

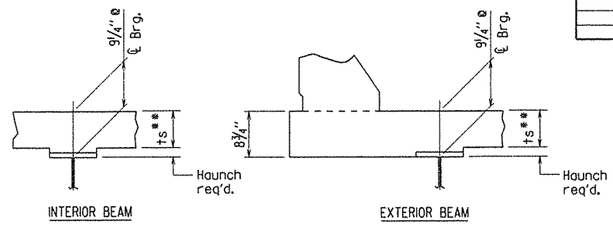
No Scale



DETAIL W

No Scale

Note: Bolts in connections shall be properly installed and tightened in accordance with Subsection 807.7.1.



**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.

Note : ts = slab thickness as shown on superstructure detail drawings.

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.

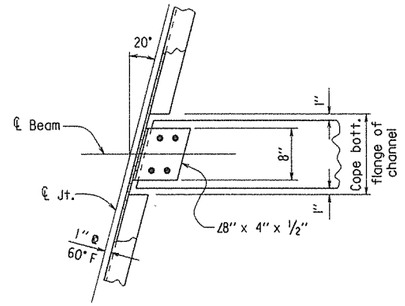
ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

TABLE FOR WELD

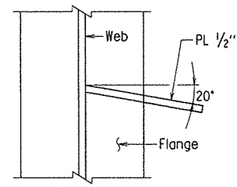
Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To 3/4" inclusive	1/4"	
Over 3/4"	5/16"	

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.



CHANNEL CONNECTION DETAIL

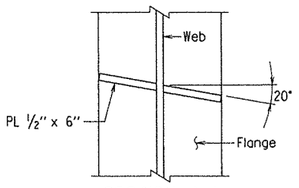
No Scale



SECTION H-H

Typ. for Beams 1 & 10

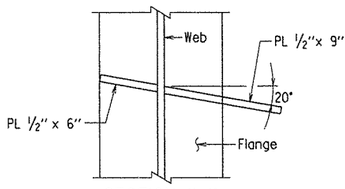
No Scale



SECTION J-J

Typ. for Beams 2-5 & 7-9

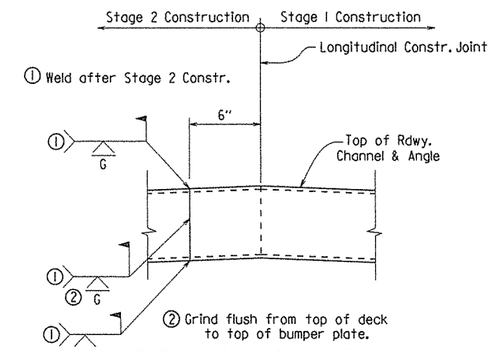
No Scale



SECTION K-K

Typ. for Beam 6

No Scale



DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

No Scale

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 (6th Edition, 2012).

MATERIALS AND STRENGTHS:

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

CONCRETE :
Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" 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. 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 beam. 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 slab and the pouring of the parapet railing.

Removable forms shall be used for concrete diaphragms.

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 Beam 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. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36 or Gr. 50 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 and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Beams 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 Beam Spans (M270, Gr. 50W)".

All beams shall be blocked in their true position in the shop with the webs horizontal. The camber, length of sections, distance between bearings and openings of joints shall be measured with the beams in their true position and this information shall become part of the permanent records for this job. 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 1/4" +/- is allowed for camber.

Flange field splice plates 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.

Field connections shall be bolted with high-strength bolts and shall be 3/4" ø bolts unless otherwise noted. Open Holes shall be 15/16 " ø unless otherwise noted. Holes for 3/4" ø high-strength bolts may be 15/16 " ø if a washer is supplied for use under both the nut and head of the bolt. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges.

Steel diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.7.1 prior to pouring the concrete deck unless otherwised 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.

STATE OF ARKANSAS
Carl J. Puszlier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
2/10/14
CARL J. PUSZLIER

BRIDGE ENGINEER

SHEET 3 OF 8
DETAILS OF 200' CONTINUOUS COMPOSITE W-BEAM UNIT
BLACK RIVER RELIEF

ROUTE SEC.

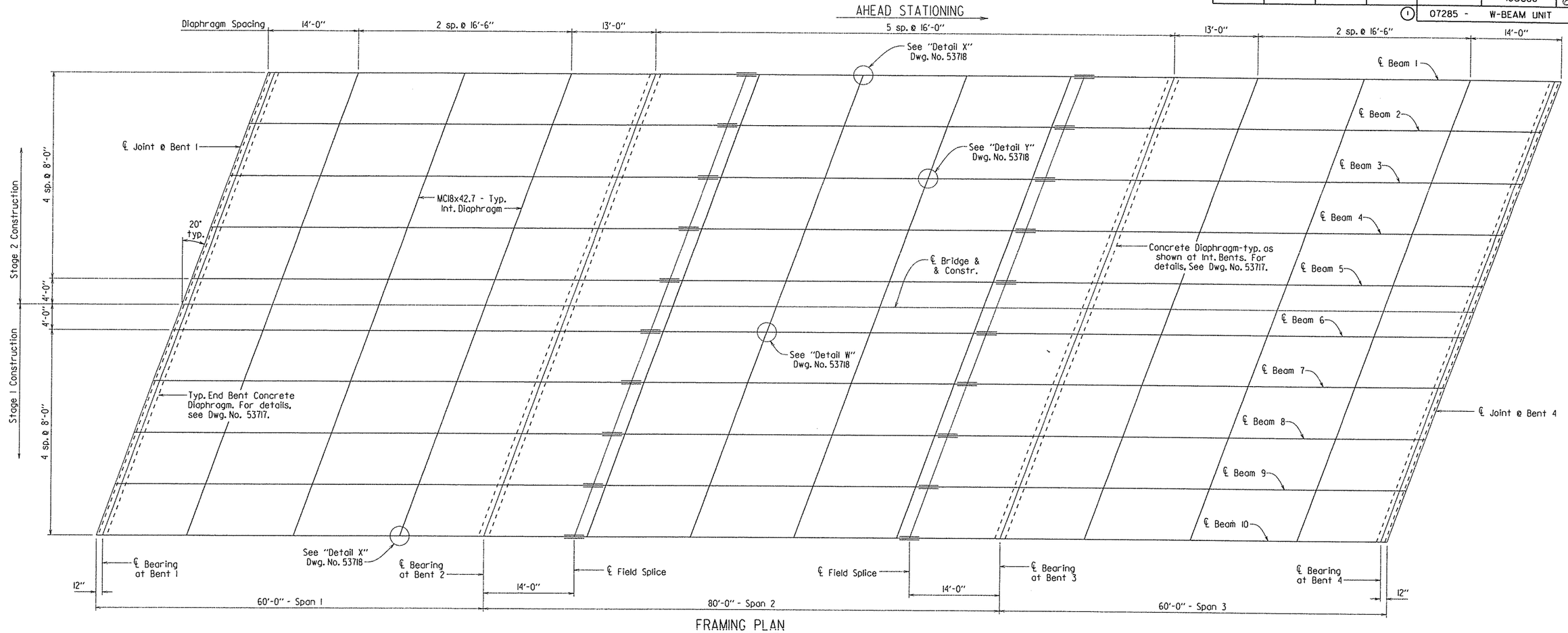
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-12-12
CHECKED BY: ADW DATE: 3-21-13
DESIGNED BY: ADW DATE: 7-12
FILENAME: bl00686xl_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07285 DRAWING NO. 53718

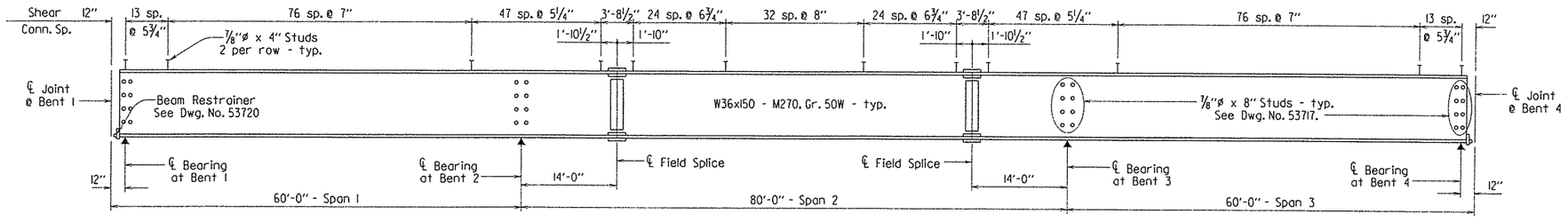
PRINT DATE: 2/10/2014

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.		100686	63	185
				(1)	07285 -	W-BEAM UNIT	- 53719	



FRAMING PLAN

Scale: 1/8" = 1'-0"



BEAM ELEVATION

No Scale

Note: Bolted field splices may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER 4/16/13

BRIDGE ENGINEER

SHEET 4 OF 8
DETAILS OF 200' CONTINUOUS COMPOSITE W-BEAM UNIT BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-14-12
CHECKED BY: AOK DATE: 3-21-13
DESIGNED BY: AOK DATE: 7-12

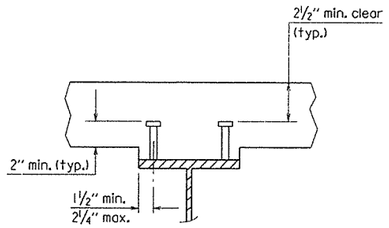
FILENAME: bl00686x1_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07285

DRAWING NO. 53719

PRINT DATE: 4/12/2013

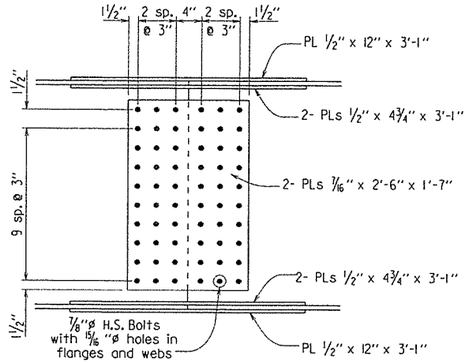
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	64	185
				(1)	07285 -	W-BEAM UNIT	- 53720	



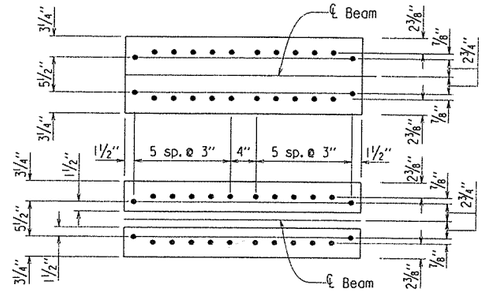
Stud Shear Connectors shown shall be ⅞"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. ¾"ø studs may be used in place of the ⅞"ø studs shown, at the ratio of 1.361 - ¾"ø studs in place of one ⅞"ø stud. ⅞"ø studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

SHEAR CONNECTOR DETAIL

No Scale



WEB SPLICE



FLANGE SPLICE

Note: All field splice plates shall be AASHTO M270, Gr. 50W

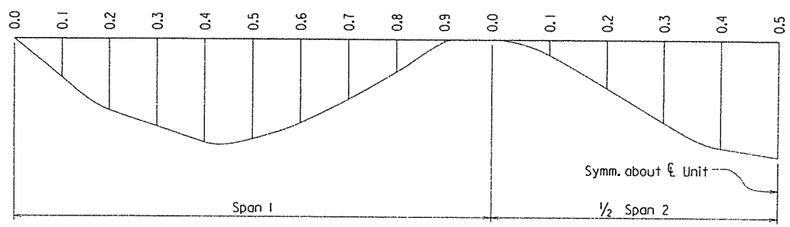
FIELD SPLICE DETAILS

Scale: 1½" = 1'-0"

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

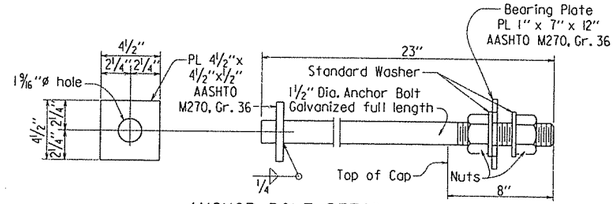
Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Bms. 2-9	Bms. 1 & 10	Bms. 2-9	Bms. 1 & 10	Bms. 2-9	Bms. 1 & 10
1	0	0	0	0	0	0	0
	0.1	0.024	0.022	0.137	0.123	0.140	0.137
	0.2	0.043	0.041	0.249	0.224	0.255	0.249
	0.3	0.056	0.053	0.322	0.289	0.330	0.322
	0.4	0.060	0.056	0.346	0.311	0.354	0.346
	0.5	0.055	0.052	0.321	0.288	0.329	0.320
	0.6	0.044	0.042	0.254	0.228	0.260	0.254
	0.7	0.028	0.026	0.162	0.145	0.166	0.161
	0.8	0.011	0.011	0.066	0.059	0.068	0.066
	0.9	0.000	0.000	-0.001	-0.001	-0.001	-0.001
½ Span 2	0	0	0	0	0	0	0
	0.1	0.026	0.025	0.152	0.136	0.156	0.151
	0.2	0.068	0.064	0.395	0.355	0.405	0.395
	0.3	0.110	0.104	0.636	0.571	0.652	0.635
	0.4	0.139	0.132	0.808	0.725	0.828	0.807
℄ Unit	0.5	0.150	0.142	0.870	0.780	0.891	0.868

Note: Table is symmetrical about ℄ Unit



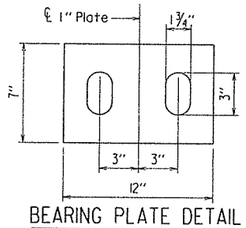
DEAD LOAD DEFLECTIONS DIAGRAM (TYP.)

Note:
Camber for Dead Load Deflection plus Vertical curve ± ¼" tolerance.
Deflections shown are from a chord from ℄ Bearing to ℄ Bearing.
Vertical curve corrections not included. Negative sign (-) indicates point above chord.



ANCHOR BOLT DETAIL

No Scale

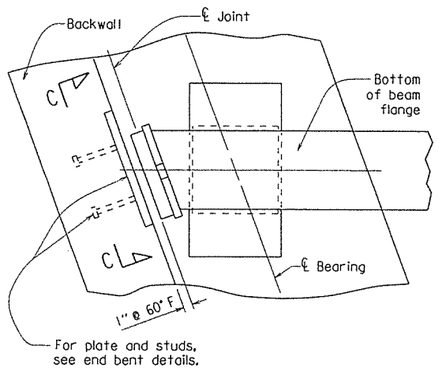


BEARING PLATE DETAIL

No Scale

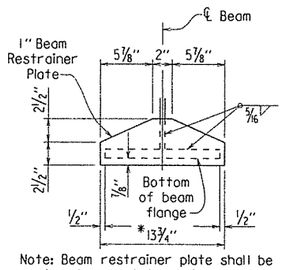
Anchor bolts shall comply with AASHTO M314, Grade 55, with Supplementary Requirement S1, and galvanized according to subsection 807.07. Nuts for bolts shall be as specified in subsection 807.07. Plates, anchor bolts, nuts and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)"

Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.



BEAM RESTRAINER DETAILS

No Scale

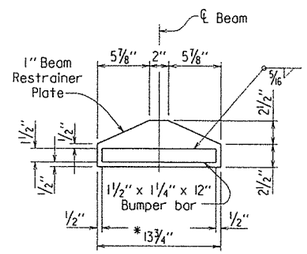


Note: Beam restrainer plate shall be centered on each beam line.

Bumper bar not shown in this view.

SECTION C-C

Scale: 1½" = 1'-0"



Note: Hidden lines of beam are not shown in this view.

SECTION C-C

Scale: 1½" = 1'-0"

*Measured along beam restrainer

STATE OF ARKANSAS
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No. 7510
4643
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BRIDGE ENGINEER

SHEET 5 OF 8
DETAILS OF 200' CONTINUOUS COMPOSITE W-BEAM UNIT BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-16-12
CHECKED BY: ADW DATE: 3-21-13
DESIGNED BY: ADW DATE: 7-12

FILENAME: bl00686xl_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07285 DRAWING NO. 53720

PRINT DATE: 4/12/2013

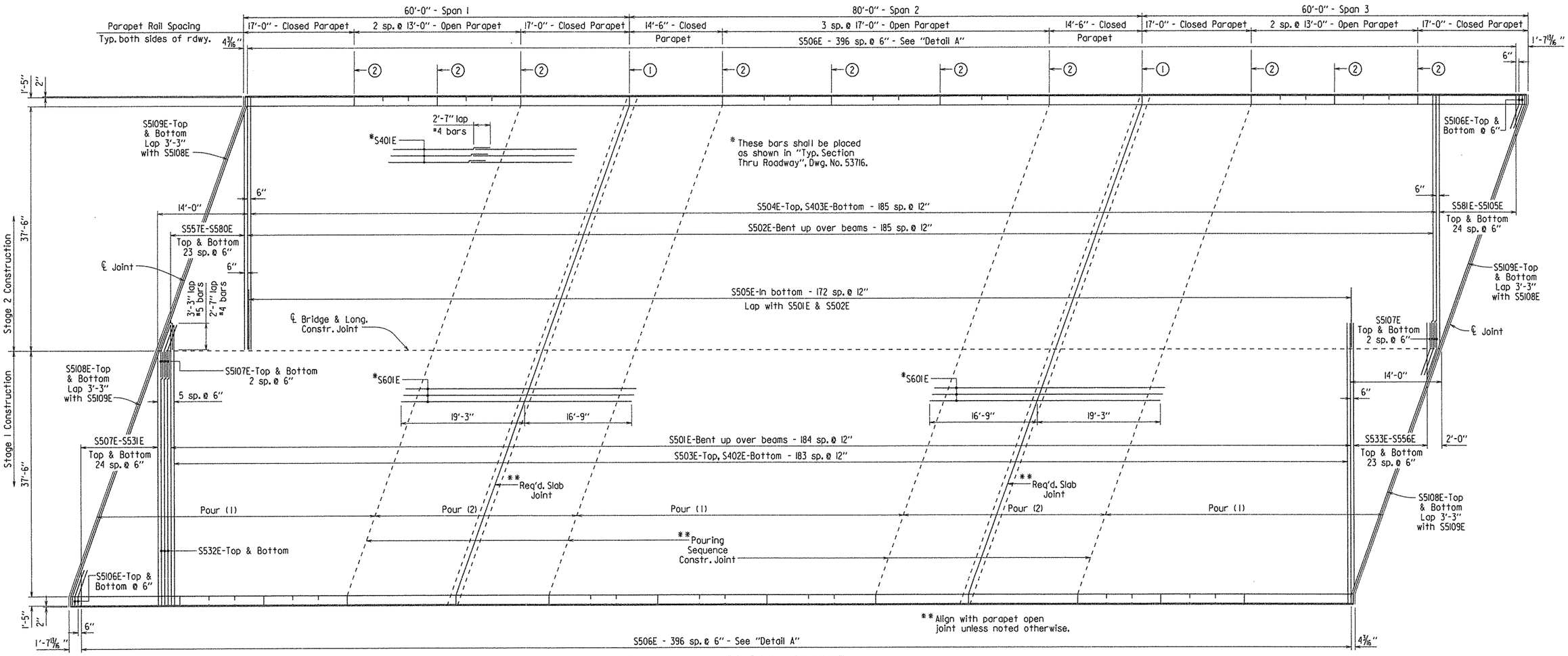
Note: For each stage of construction, pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. Any railing pours made before the entire slab unit for each stage has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

If the concrete diaphragms at intermediate bents are poured separately, a minimum of 48 hours shall between the diaphragm pour and the slab pour. Concrete diaphragms at end bents shall be poured monolithically with the slab.

① ℄ Full-Depth Parapet Joint (¼" to 1" max.). Stop 4" from top of slab. See Dwg. No. 53722.

② ℄ Partial-Depth Parapet Joint (¼" to 1" max.). Stop 1'-2" from top of slab. See Dwg. No. 53722.

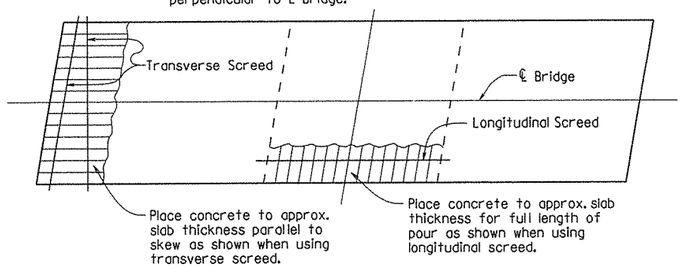
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	65	185
				① 07285 -		W-BEAM UNIT	- 53721	



REINFORCING PLAN AND POURING SEQUENCE

Scale: 1/8" = 1'-0"

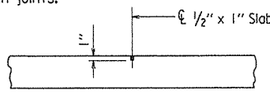
Note: At the contractor's option, the transverse screed may be placed parallel to the skew or perpendicular to ℄ Bridge.



CONCRETE PLACEMENT PROCEDURE

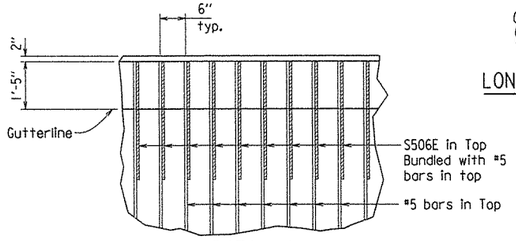
No Scale

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 outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. 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. The joint sealer shall extend across the deck slab (gutterline to gutterline). Slab joints shall align with parapet open joints.



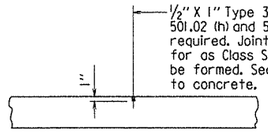
SLAB JOINT DETAIL

No Scale



DETAIL A

No Scale



LONGITUDINAL CONSTRUCTION JOINT

No Scale

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
2/10/14
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 6 OF 8
DETAILS OF 200' CONTINUOUS COMPOSITE W-BEAM UNIT BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

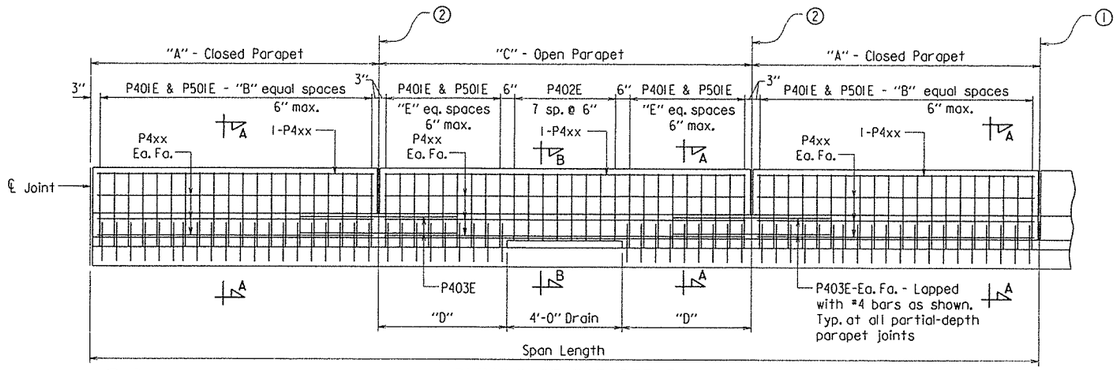
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-17-12
CHECKED BY: ADW DATE: 3-21-13
DESIGNED BY: ADW DATE: 7-12
FILENAME: bl00686xl_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07285 DRAWING NO. 53721

PRINT DATE: 2/10/2014

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.		100686	66	185
				① 07285 -		W-BEAM UNIT	- 53722	



① ℄ Full-Depth Parapet Joint (¼" to 1" max.) as shown in "Reinforcing Plan and Pouring Sequence", Dwg. No. 53721. Stop 4" from top of slab.

DETAILS OF PARAPET RAIL

No Scale

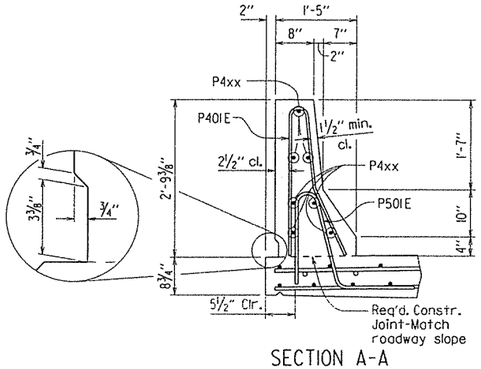
② ℄ Partial-Depth Parapet Joint (¼" to 1" max.) as shown in "Reinforcing Plan and Pouring Sequence", Dwg. No. 53721. Stop 1'-2" from top of slab.

TABLE OF PARAPET RAIL VARIABLES

"A" Closed Parapet	"B"	P4xx Bar
17'-0"	33	P404E
14'-6"	28	P405E

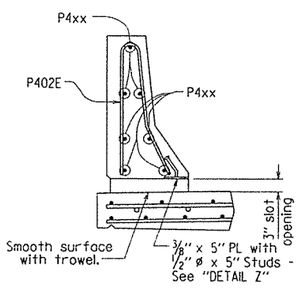
"C" Open Parapet	"D"	"E"	P4xx Bar
13'-0"	4'-6"	8	P406E
17'-0"	6'-6"	12	P404E

Note: For location of Open and Closed Parapet panels, see "Reinforcing Plan and Pouring Sequence", Dwg. No. 53721.



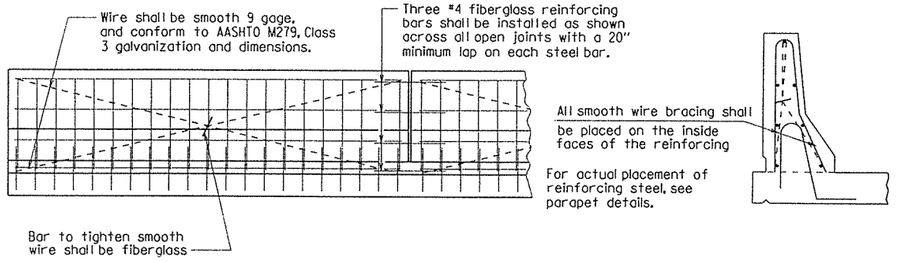
SECTION A-A

Scale: ¾" = 1'-0"



SECTION B-B

Scale: ¾" = 1'-0"

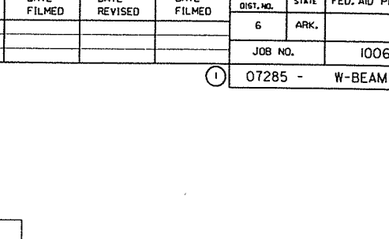


All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

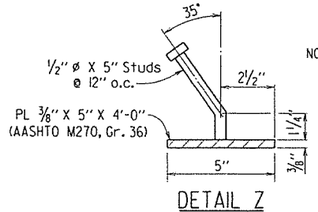
No Scale



Stage 1 external supports in this bay shall remain in place until after completion of the Stage 2 deck pour. See Subsection 802.15 for additional information regarding their removal.

DECK SUPPORT AT LONGITUDINAL CONSTRUCTION JOINT

Looking Ahead
No Scale



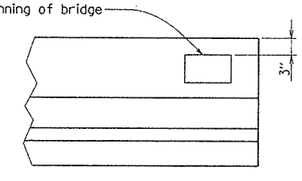
DETAIL Z

No Scale

NOTE: The surfaces of the ⅜" plates which will not be in contact with concrete shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M270, Gr. 50W)."

Parapet studs shall be 5" long, granular flux filled, solid fluxed or equal, and automatically end welded to the plate. Studs and plates shall meet the requirements of Section 807 and shall be measured and paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)."

Place Type D Bridge Name Plate on front face of span rail approx. 2'-0" from front face of backwall on right side beginning of bridge



NAME PLATE DETAIL

No Scale

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

BRIDGE ENGINEER

SHEET 7 OF 8
DETAILS OF 200' CONTINUOUS COMPOSITE W-BEAM UNIT BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

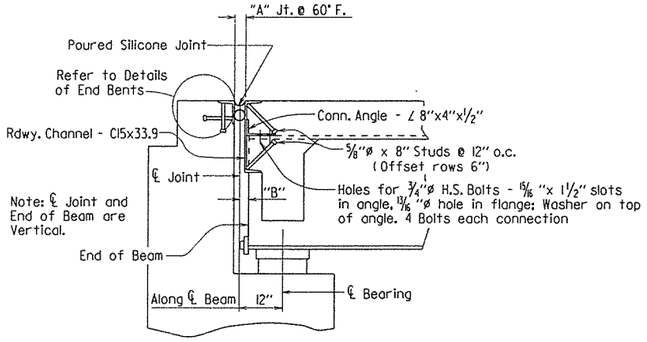
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-19-12 FILENAME: bl00686x1_sl.dgn
CHECKED BY: ADK DATE: 3-21-13 SCALE: AS NOTED
DESIGNED BY: ADK DATE: 7-12

BRIDGE NO. 07285 DRAWING NO. 53722

PRINT DATE: 4/12/2013

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.		100686	67	185
				① 07285 -		W-BEAM UNIT	- 53723	



JOINT AT END BENTS

Perpendicular to ℄ Joint
No Scale

SILICONE JOINT DATA

Bent Number	"A" Width Perpendicular to Joint at 24 Hour Average Temperature ① Of:			"B" Perpendicular to Joint at 60°F	Bumper Bar Size	"D"
	40°F	60°F	80°F			
1 & 4	2⅛"	2"	1⅞"	2¼"	1" x 1"	5"

① 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.

Notes: The temperature limitations recommended by the sealant manufacturer shall be observed.

The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80°F.

② BACKER ROD NOTE:

Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing.

Except as noted, do not install more backer rod than that which can be sealed in the same day.

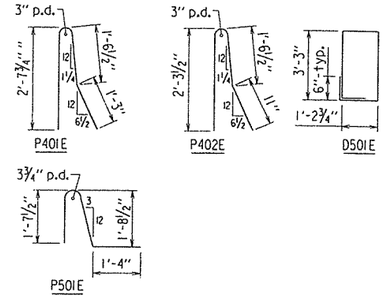
The contractor shall verify separation of the backer rod from the joint material after the joint material has set.

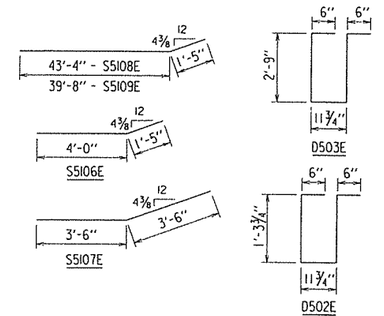
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	MARK	NO. REQ'D.	LENGTH	P.D.
S401E	1248	35'-6"	Str.	S5106E	8	5'-5"	3¾"
S402E	184	41'-8"	Str.	S5107E	12	7'-0"	3¾"
S403E	186	38'-9"	Str.	S5108E	4	44'-9"	3¾"
P401E	688	5'-6"	3"	S5109E	4	41'-1"	3¾"
P402E	112	4'-10"	3"	P501E	688	4'-9"	3¾"
P403E	80	5'-6"	Str.	D501E	176	9'-6"	2½"
P404E	98	16'-8"	Str.	D502E	48	4'-3"	2½"
P405E	28	14'-2"	Str.	D503E	168	7'-1"	2½"
P406E	56	12'-8"	Str.				
S501E	185	43'-4"	3"	S601E	156	36'-0"	Str.
S502E	186	39'-7"	3"	D601E	276	8'-2"	Str.
S503E	184	42'-4"	Str.	D602E	96	1'-11"	Str.
S504E	186	38'-9"	Str.	D603E	32	2'-11"	Str.
S505E	172	9'-3"	Str.				
S506E	794	4'-10"	Str.				
S507E-S531E	2 each	Var. 5'-2" to 38'-2"	Str.				
S532E	6	38'-9"	Str.				
S533E-S556E	2 each	Var. 8'-3" to 39'-10"	Str.				
S557E-S580E	2 each	Var. 4'-7" to 36'-2"	Str.				
S581E-S5105E	2 each	Var. 5'-2" to 38'-2"	Str.				

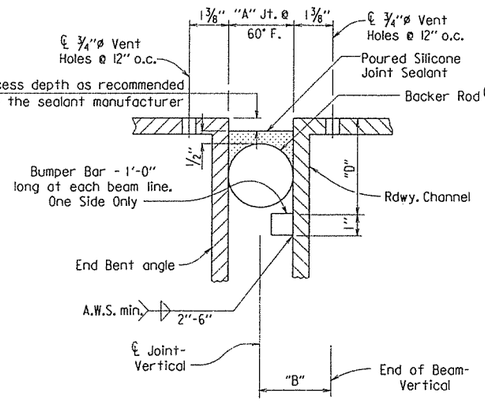
BENDING DIAGRAMS

Dimensions are out to out of bars.



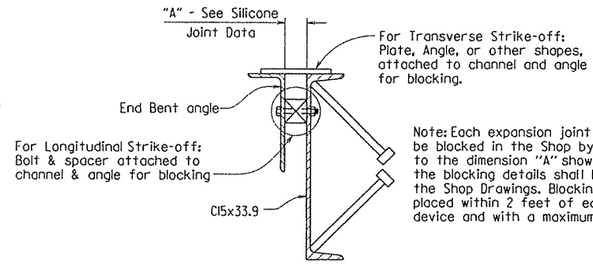


Note: Bars marked with an "E" suffix shall be epoxy coated.



DETAIL OF POURED SILICONE JOINT SEAL

No Scale



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown @ 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

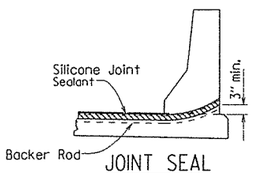
No Scale

EXPANSION DEVICE INSTALLATION AT END BENTS

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

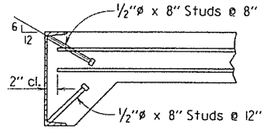
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing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

2) The backwall shall be poured to the optional construction joint after beams 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. Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been placed.



JOINT SEAL PLACEMENT AT CURB

No Scale



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

No Scale

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER 4/14/13

BRIDGE ENGINEER

SHEET 8 OF 8
DETAILS OF 200' CONTINUOUS COMPOSITE W-BEAM UNIT
BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

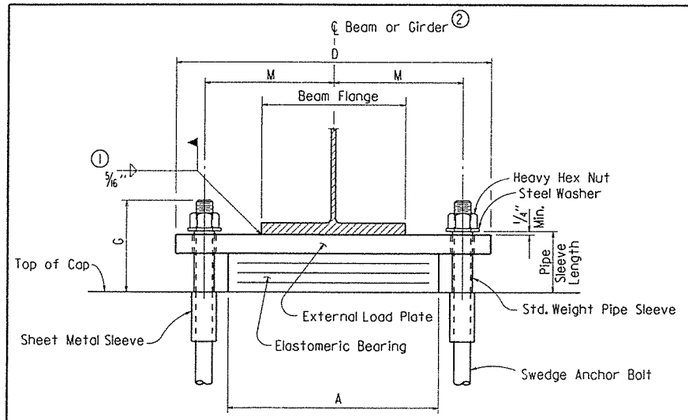
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-19-12 FILENAME: b100686xl_sl.dgn
CHECKED BY: AOH DATE: 3-21-13 SCALE: AS NOTED
DESIGNED BY: AOH DATE: 2-12

BRIDGE NO. 07285 DRAWING NO. 53723

PRINT DATE: 4/12/2013

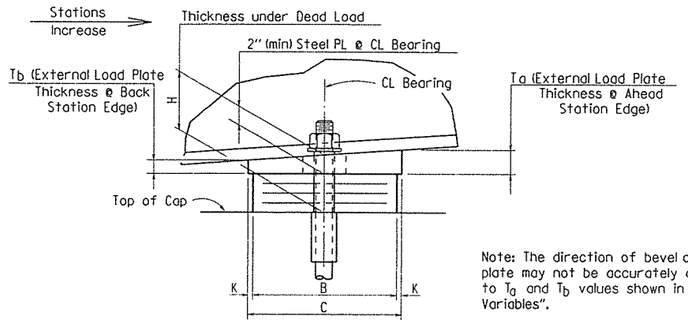
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	68	185
				(1) 07285 -		ELASTO. BRGS.	- 53724	



FRONT VIEW

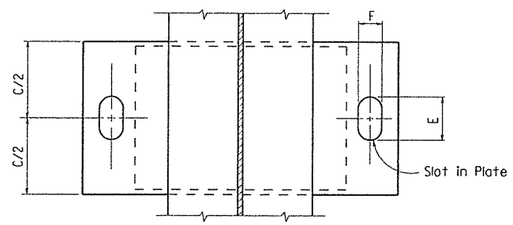
(1) Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.

(2) C.L Elastomeric pad shall be aligned with C.L. Beam.

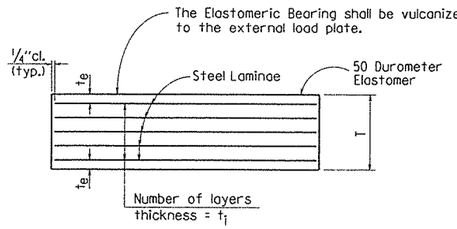


SIDE VIEW

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



PLAN VIEW



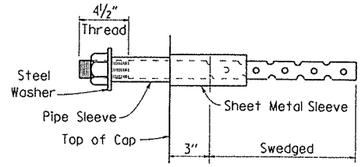
t_e = thickness of elastomer cover on top and bottom of pad

t_i = thickness of elastomer between steel laminae

N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

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.



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 Beam Spans, (M 270, Gr. 50W)"

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 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 shall be completely fabricated (including bevel and bolt holes) 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 Beam 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.

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION BENT NO(S).	LOCATION BEAM 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	K	M	T_a	T_b	ANCHOR BOLT ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
07285	1 & 4	All	Exp.	10	82	6 1/4"	3 3/4"	12 1/2"	7 1/2"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	8 1/2"	21 1/2"	3 5/8"	2"	1/2"	8 1/4"	2.00"	2.00"	1 1/4" X 20"	55	1 1/4" X 4"	3" X 6"	2 1/2"

* Maximum Design Load = Service I Limit State

Tabular Data by : ADN Date: 9-20-12

Checked by : mcB Date: 3/17/13

Designed by : ADN Date: 9-12

STATE OF ARKANSAS Carl J. Fuselier REGISTERED PROFESSIONAL ENGINEER No. 7510 CARL J. FUSELIER 4/16/13

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: Nov.1996 FILENAME: b100686xl_el.dgn

CHECKED BY: AMS DATE: Jul.7.05 SCALE: NONE

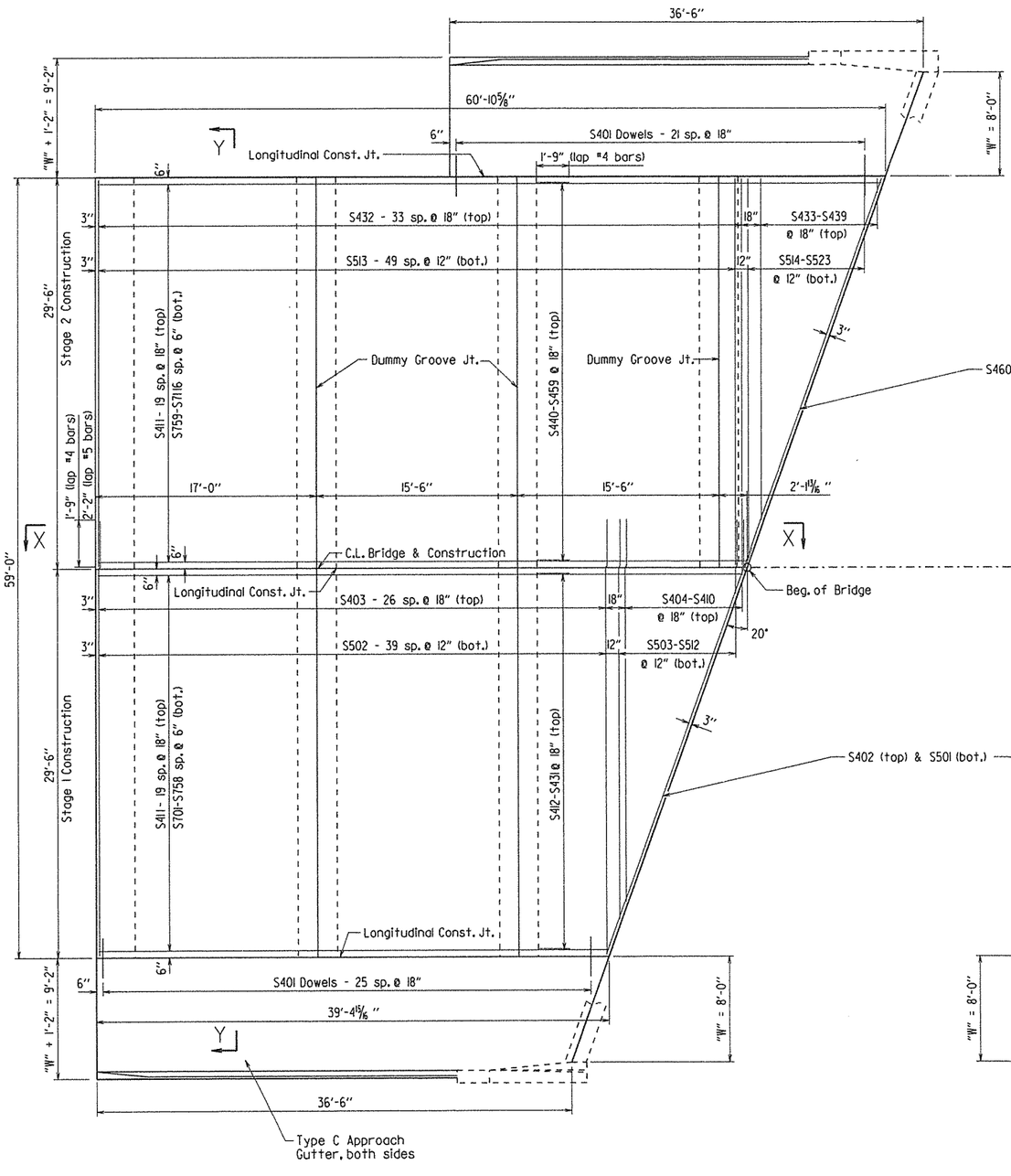
DESIGNED BY: Std. DATE:

BRIDGE NO. 07285 DRAWING NO. 53724

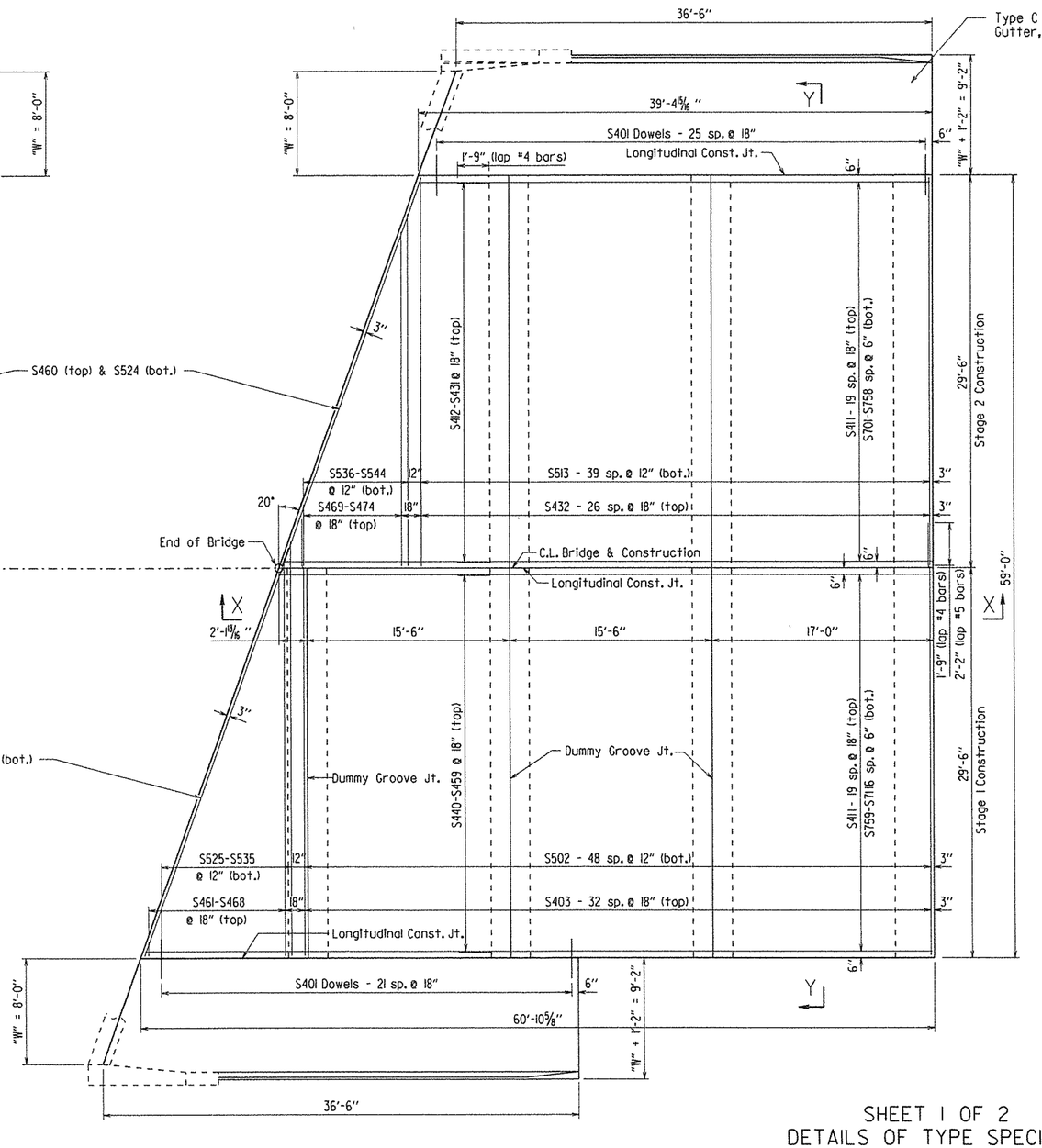
PRINT DATE: 4/12/2013

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.		100686	69	185
① 07285 -	APPR. SLAB		- 53725	



PLAN - APPROCH SLAB



Note: Surface finish for Approach Slabs shall match that used on the bridge deck.

Note: For General Notes, cross-sections, bar list, and additional details, see Dwg. No. 53726.

For details of Approach Gutters, See Std. Dwg. No. 55030C.

STATE OF ARKANSAS
Carl L. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL L. FUSELIER
2/10/14

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF TYPE SPECIAL 1 APPROACH SLAB BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

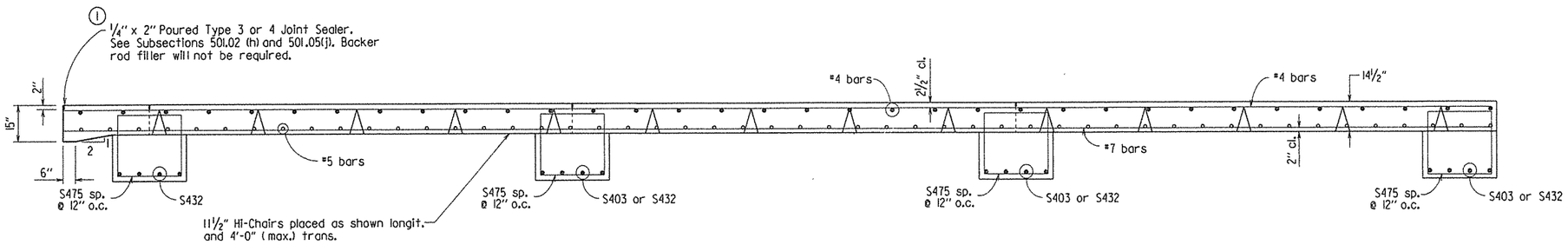
DRAWN BY: ADN DATE: 11-29-12 FILENAME: bl00686x1_as.dgn
CHECKED BY: CSR DATE: 2/3/14 SCALE: 3/16" = 1'-0"
DESIGNED BY: Std. DATE: —

BRIDGE NO. 07285 DRAWING NO. 53725

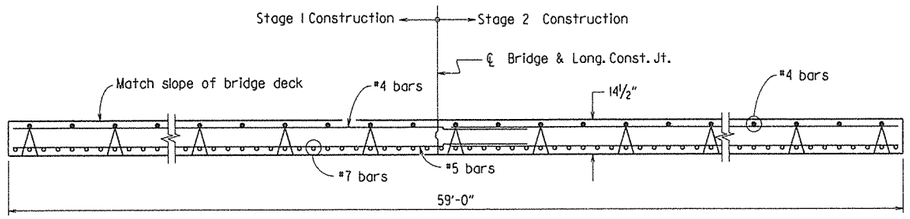
PRINT DATE: 2/10/2014

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.		100686	70	185
① 07285 -		APPR. SLAB	-	53726



SECTION X - X
N.T.S.

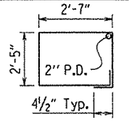


SECTION Y - Y
N.T.S.

BAR LIST

Mark	No. Req'd. Beg. Br.	No. Req'd. End Br.	Length
S401	48	48	3'-0"
S402	1	1	33'-2"
S403	39	45	31'-3"
S404-S410	1 Each	--	27'-3" to 2'-7"
S411	40	40	35'-7"
S412-S431	1 Each	1 Each	5'-5" to 15'-10"
S432	50	43	29'-2"
S433-S439	1 Each	--	25'-9" to 1'-1"
S440-S459	1 Each	1 Each	16'-1" to 26'-6"
S460	1	1	31'-0"
S461-S468	--	1 Each	1'-1" to 30'-1"
S469-S474	--	1 Each	4'-6" to 25'-2"
S475	210	210	10'-4"
S501	1	1	33'-7"
S502	40	49	31'-8"
S503-S512	1 Each	--	29'-1" to 4'-4"
S513	50	40	29'-2"
S514-S523	1 Each	--	28'-6" to 3'-10"
S524	1	1	31'-0"
S525-S535	--	1 Each	3'-10" to 31'-3"
S536-S544	--	1 Each	4'-6" to 26'-6"
S701-S758	1 Each	1 Each	39'-2" to 49'-7"
S759-S7116	1 Each	1 Each	49'-11" to 60'-4"

Bending Diagrams

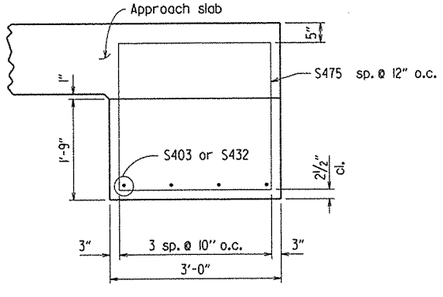


S475

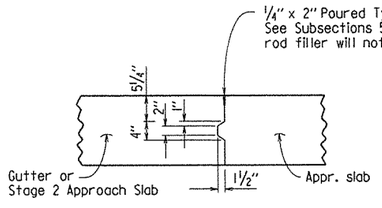
Dimensions are out to out of bar.

TABLE OF QUANTITIES FOR ONE APPROACH SLAB

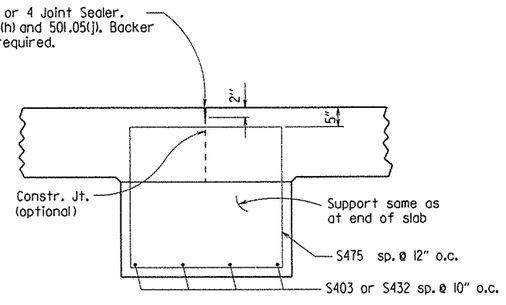
	Slab Width	Reinforcing Steel (lbs.)	Concrete (Cu. Yds.)
Beg. of Bridge	59'-0"	19935	174.50
End of Bridge	59'-0"	19931	174.50



DETAILS OF SUPPORT AT END OF SLAB
N.T.S.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT
N.T.S.



DETAILS OF DUMMY GROOVED JOINT
N.T.S.

① Note: The ½" Preformed Joint AASHTO M153 Type 1 shall be eliminated between concrete faces where dowel bars are used to tie approach slabs and gutters to the bridge components. See Approach Gutter and End Bent details.

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.

Approach Slabs will be measured and paid for in accordance with Section 504.

Joint sealer included in the pay item "Approach Slab".

STATE OF ARKANSAS
Carl J. Fusselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
2/10/14
CARL J. FUSSELIER

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF TYPE SPECIAL 1 APPROACH SLAB BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: ADN DATE: 11/29/2012 FILENAME: bl00686xl_as.dgn
CHECKED BY: CSR DATE: 2/5/14 SCALE: As Shown
DESIGNED BY: Std. DATE: --

BRIDGE NO. 07285 DRAWING NO. 53726

PRINT DATE: 2/10/2014

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.		100686	71	185
				(1)	07286 -	LAYOUT	-	53727

For R/W Data, See Rdwy. Plans.

Approx. 1.34 mi. to AR Hwy. 25

Tangent Dist. over 500'

Toe of Cut

Use Type Special 2 Approach Slab and Type C Approach Gutters ("w" = 8'-0") at both ends of bridge. See Dwg. No. 53743 & 55030C.

BLACK RIVER RELIEF

Remove existing workroad as shown, or as directed by the Engineer to Elev. 240.0. Approx. 640 cu. yds. of excavation.

Sta. 50+93 60.5' Lt.

Sta. 49+89 36.5' Lt.

1'-5" Para.

8'-0" Shdr.

1V: 3H

1V: 2H

2 - 12'-0" Lanes

11'-0" Paint. Med.

2 - 12'-0" Lanes

8'-0" Shdr.

75'-0" Finished Crown

78'-2" out to out

75'-0" Clear Roadway

39'-1" Stage 2 Construction

39'-1" Stage 1 Construction

Top of Cut

*Shoring

49+00

Existing Br. No. 02189

℄ Bridge & ℄ Constr.

243

50+00

Sta. 49+93 7.5' Rt.

Sta. 49+99 23.4' Rt.

2.0% X-Slope

S 65° 55' 21" E

51+00

Sta. 50+39 64.0' Rt.

244

244A

Top of Cut

Toe of Cut

Top of Cut

The Contractor shall excavate the channel as shown at both bridge ends using 1V:2H slopes to Elev. 252.0. Approx. 915 cu. yds. of excavation.

*Shoring

Approx. 2.41 mi. to US Hwy. 412

52+00

Tang. Dist. = 181.43'

15'-0" -typ.

Toe of Fill Slope

1'-6" Dumped Riprap placed on Filter Blanket. See Std. Dwg. No. 55001. Top of Riprap Elev. 262.0

*Shoring will be required during Stage 1 Construction. See SP Job No. 100686 "Shoring" and SP 100686, Bridge No. 02189 "Geosynthetic Internal Reinforced Embankment Construction".

Toe of Fill Slope

Remove existing workroad as shown, or as directed by the Engineer to Elev. 242.0. Approx. 85 cu. yds. of excavation.

PLAN

Total Length of Bridge = 304'-2"

1'-1" 302'-0" Cont. Comp. W-Beam Unit (52', 66', 66', 66', 52') 1'-1"

LEVEL GRADE
℄ Deck Elev. = 267.60

℄ 2" Poured Silicone Jt.

Beg. Br. Sta. 48+70.92

℄ Bent 2 - Sta. 49+24

℄ Bent 3 - Sta. 49+90

Low Steel to Design Flood with backwater = 2.3'

℄ Deck to Low Steel = 4'-2⅛"

℄ Bent 4 - Sta. 50+56

Concrete Parapet Railing

℄ Bent 5 - Sta. 51+22

End Br. Sta. 51+75.08

℄ Deck at ℄ Bent to Low Side Top of Cap	
Bent 2	4'-6⅝"
Bent 3	4'-6¹⁵⁄₁₆"
Bent 4	4'-6¹⁵⁄₁₆"
Bent 5	4'-6⅝"

Slope Intercept Sta. 48+62.25

Guard Rail - See Rdwy. Plans

Slope Intercept Sta. 51+83.75

Existing Ground Line ℄ ℄ Construction

Stations & Elevations are shown along ℄ Bridge. Elevations shown are at working point.

17'-0⅝" Int. Elev. 246.0

17'-0¼" Int. Elev. 246.0

Design Flood (050) Elev. = 261.1 with backwater

17'-0¼" Int. Elev. 246.0

17'-0⅝" Int. Elev. 246.0

Proposed Grade Line ℄ ℄ Construction

56'-0"

61' Piles

48" Dia. Drilled Shafts (Typ.)

60" Dia. Permanent Casing (Typ.)

Elev. 190.0 (Typ.)

63' Piles

Note: For Soil Boring Information and Hydraulic Data, See Dwg. No. 53728.

Bent No. 1 2 3 4 5 6

ELEVATION

PRINT DATE: 2/10/2014

GENERAL NOTES

BENCH MARK: BM 994, NGS MARK 0 2, 125.43' Left of Sta. 102+34.56, Elev. 263.95.

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 Specification unless otherwise noted in the Plans.

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

LIVE LOADING: HL-93 SEISMIC ZONE: 3

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (Grade 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 upon request.

STEEL SHELL PILING: Piling for Bents 1 & 6 shall be 18" diameter concrete filled steel shell piles and shall be driven to a minimum safe bearing capacity of 100 tons per pile and into material designated as limestone or dolostone on the boring legend. All piling shall be driven with an approved air, steam, or diesel hammer. Piling in end bents shall be driven after embankment to bottom of cap is in place.

Length of piling shown are assumed for estimating quantities and for use in determining payment for cut-off and build-up in accordance with the Standard Specification. Actual lengths to be determined in the field. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g). No piles will be paid for as test piles.

Water jetting or other approved methods are required to ensure piles are driven to rock. Payment will not be paid for directly but shall be considered subsidary to the item "Steel Shell Piling (18" dia.).

DRILLED SHAFTS: All drilled shafts shall be founded a minimum of 10 feet into competent, gray, hard dolostone. No adjustment in plan tip elevation shall be made without prior approval from the Engineer. Methods of construction of the drilled shafts shall be in accordance with Special Provision Job No. 100686 "Drilled Shaft Foundations".

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed on each drilled shaft in accordance with Special Provision Job No. 100686 "Nondestructive Testing of Drilled Shafts".

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

DETAIL DRAWINGS:	DRAWING NO.
End Bents	53729-53731
Int. Bents	53732-53733
302' Cont. Comp. W-Beam Unit	53734-53741
Elastomeric Bearings	53742
Concrete Filled Steel Shell Piles	53713
Type Special 2 Approach Slab	53743
Type C Approach Gutters	55030C

EXISTING BRIDGE: Existing Bridge No. 02189 (log mile 17.11) is 32' wide and 290' long and consists of nine 32' Steel W-Beam spans supported by concrete trestle pile bents. The existing bridge is located at the location of the proposed new bridge.

REMOVAL AND SALVAGE: After Stage 1 Construction of the new bridge is open to traffic, the Existing Bridge No. 02189 (Site 2) shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
2/10/14
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER BLACK RIVER RELIEF
BLACK ROCK-PORTIA (S)
LAWRENCE COUNTY

ROUTE 63 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

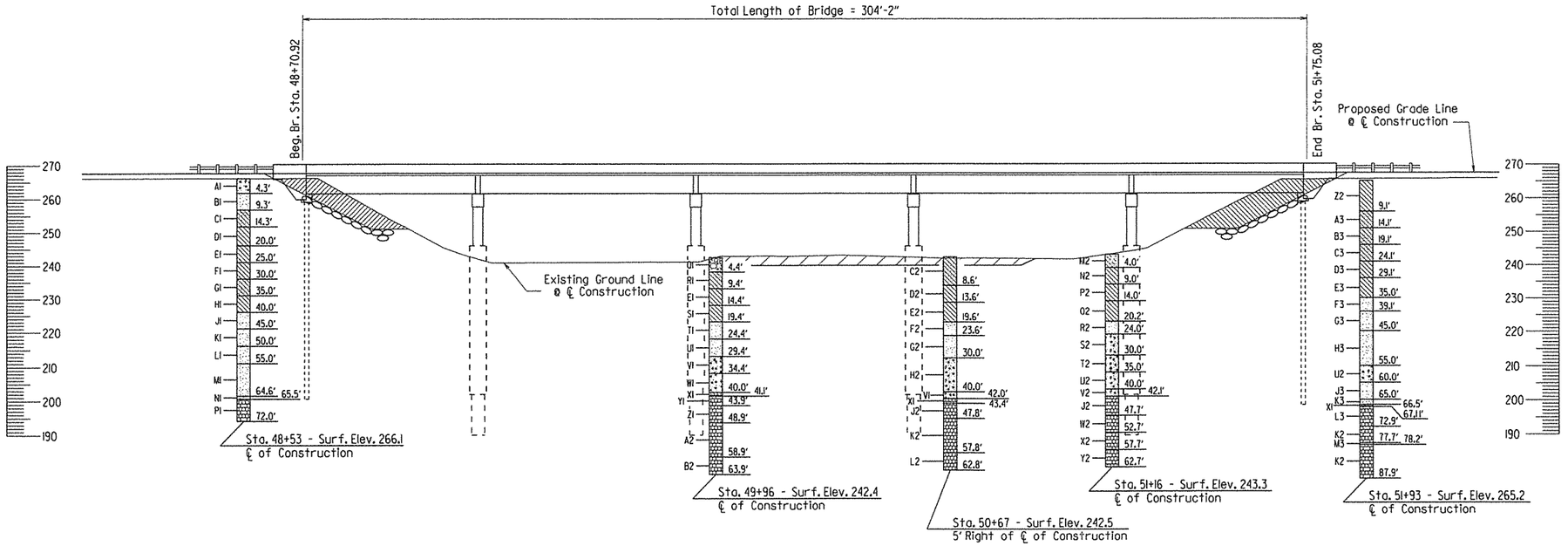
DRAWN BY: MCB DATE: 4/20/2012 FILENAME: bl00686x2_11.dgn

CHECKED BY: ADM DATE: 4-2-13 SCALE: 1" = 20'

DESIGNED BY: MCB DATE: 04/12

BRIDGE NO. 07286 DRAWING NO. 53727

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.		100686	72	185
				07286 -		LAYOUT	-	53728



Bent No. 1 2 3 4 5 6

48+00 49+00 50+00 51+00 52+00

ELEVATION

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	* TOTAL DISCHARGE	DISCHARGE THIS SITE	**NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	CFS	FEET	FEET
Design	50	164,000	17,700	261.1	261.1
Base	100	185,000	19,800	261.9	261.9
Extreme	500	280,000	13,600	264.9	264.9
Overtopping	> 500	NA	NA	NA	NA

*Total discharge includes discharge through this bridge opening, the Black River Relief (Site No. 1), and the Black River.

**Unconstricted water surface without structure or roadway approaches.

0100 backwater elevation for existing structure = 261.9 feet
Proposed Low Bridge Chord Elev. = 263.42 feet

Drainage area = 7369 square miles
Historical H.W. Elev. = N/A feet

"N" VALUES

Sta. 48+53 - ℄ of Construction
4.8- 5.8, N=6
9.8- 10.8, N=7
14.8- 15.8, N=7
20.5- 21.5, N=5
25.5- 26.5, N=4
30.5- 31.5, N=5
35.5- 36.5, N=2
40.5- 41.5, N=20
45.5- 46.5, N=37
50.5- 51.5, N=21
55.5- 56.5, N=18
60.5- 61.5, N=21
65.5- 65.5, N=60(6")

Sta. 49+96 - ℄ of Construction
4.9- 5.9, N=5
9.9- 10.9, N=5
14.9- 15.9, N=3
19.9- 20.9, N=4
24.9- 25.9, N=6
29.9- 30.9, N=11
34.9- 35.9, N=10
40.0- 40.2, N=60(2")

Sta. 50+67 - 5' Right of ℄ of Construction
4.1- 5.1, N=4
9.1- 10.1, N=7
14.1- 15.1, N=4
19.1- 20.1, N=3
24.1- 25.1, N=4
30.5- 31.5, N=8
35.5- 36.5, N=10
40.5- 41.5, N=19
42.0- 42.0, N=60(.01")

Sta. 51+16 - ℄ of Construction
4.5- 5.5, N=5
9.5- 10.5, N=4
14.5- 15.5, N=0
19.5- 20.5, N=3
24.5- 25.5, N=30
30.5- 31.5, N=8
35.5- 36.5, N=21
40.5- 41.5, N=53
42.1- 42.1, N=60(.01")

Sta. 51+93 - ℄ of Construction
4.6- 5.6, N=7
9.6- 10.6, N=9
14.6- 15.6, N=4
19.6- 20.6, N=8
24.6- 25.6, N=11
29.6- 30.6, N=10
34.6- 35.6, N=3
39.6- 40.6, N=17
45.5- 46.5, N=14
50.5- 51.5, N=16
55.5- 56.5, N=23
60.5- 61.5, N=69
65.5- 66.5, N=50
66.7- 66.7, N=30(.01")
67.1- 67.1, N=25(.01")

BORING LEGEND

AI-Moist, Loose, Brown Sand with Gravel
BI-Moist, Loose, Brown Sand
CI-Moist, Medium Stiff, Brown Clay with Sand and Trace of Gravel
DI-Moist, Medium Stiff, Gray Clay with some Iron Nodules
EI-Moist, Medium Stiff, Gray Clay
FI-Wet, Soft, Gray Clay
GI-Moist, Medium Stiff, Brown and Gray Sandy Clay
HI-Wet, Soft, Gray Clay with some Organic Matter
JI-Wet, Medium Dense, Gray Sand
KI-Wet, Dense, Gray Sand
LI-Wet, Medium Dense, Gray Sand with Trace of Gravel and Organic Matter
MI-Wet, Medium Dense, Gray Sand with occasional Gravel
NI-Wet, Very Dense, Gray Sand with occasional Gravel
PI-LIMESTONE - Gray, Hard
QI-Moist, Loose, Gray Sand, Gravel, Cobbles and Boulders
RI-Moist, Medium Stiff, Gray and Brown Sandy Clay with some Organic Matter
SI-Moist, Soft, Dark Gray Clay
TI-Wet, Very Loose, Gray Sand
UI-Wet, Loose, Gray Sand with Trace of Gravel
VI-Wet, Medium Dense, Gray Sand with Gravel and Organic Matter (Wood)
WI-Wet, Medium Dense, Gray Sand with Trace of Gravel
XI-LIMY DOLOSTONE - Gray, Hard
YI-LIMY DOLOSTONE - Gray, Thin Bedded, Slightly Weathered, Hard, with Slight Dip and Vertically Fractured Layers
ZI-LIMY DOLOSTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip
A2-LIMY DOLOSTONE - Gray, Thick Bedded, Hard, with Slight Dip
B2-LIMY DOLOSTONE - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip and Vertically Fractured Layer
C2-Moist, Soft, Brown to Brown and Gray Sandy Clay with some Organic Matter
D2-Moist, Medium Stiff, Brown Clay
E2-Moist, Soft, Brown and Gray Clay
F2-Wet, Very Loose, Brown Sand
G2-Wet, Very Loose, Brown Sand with Trace of Gravel
H2-Wet, Loose, Gray Sand with Gravel
J2-LIMY DOLOSTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip and Fractured Layers
K2-LIMY DOLOSTONE - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip
L2-LIMY DOLOSTONE - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip and Fractured Layers
M2-Moist, Loose, Brown Sand with Clay
N2-Wet, Medium Stiff, Brown Clay with some Iron Nodules
P2-Wet, Soft, Brown and Gray Clay
Q2-Wet, Very Soft, Gray Clay
R2-Wet, Loose, Gray Sand
S2-Wet, Medium Dense, Brown Sand with Gravel
T2-Wet, Loose, Gray Sand with Gravel and Organic Matter (Wood)
U2-Wet, Medium Dense, Gray Sand with Gravel
V2-Wet, Very Dense, Gray Sand with Gravel
W2-LIMY DOLOSTONE - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip and Vertically Fractured Layers
X2-LIMY DOLOSTONE - Gray, Very Thick Bedded, Hard, with Slight Dip
Y2-LIMY DOLOSTONE WITH SHALE LAYER - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip
Z2-Moist, Medium Stiff, Brown Clay with Trace of Gravel
A3-Moist, Stiff, Brown Clay with Sand
B3-Moist, Soft, Gray Clay with Sand
C3-Moist, Medium Stiff, Gray Clay with Sand and Iron Nodules
D3-Moist, Stiff, Gray and Brown Clay
E3-Moist, Stiff, Gray and Brown Clay with Iron Nodules
F3-Wet, Very Loose, Gray Sand
G3-Wet, Medium Dense, Brown Sand
H3-Wet, Medium Dense, Brown and Gray Sand with occasional Gravel
J3-Wet, Very Dense, Gray Sand with occasional Gravel and Trace of Organic Matter
K3-Wet, Very Dense, Gray Sand
L3-LIMY DOLOSTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip and Vertically Fractured Layers
M3-Cavity (77.7' to 78.2')

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
2/10/14
CARL J. FUSELIER
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER BLACK RIVER RELIEF BLACK ROCK-PORTIA (S) LAWRENCE COUNTY

ROUTE 63 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

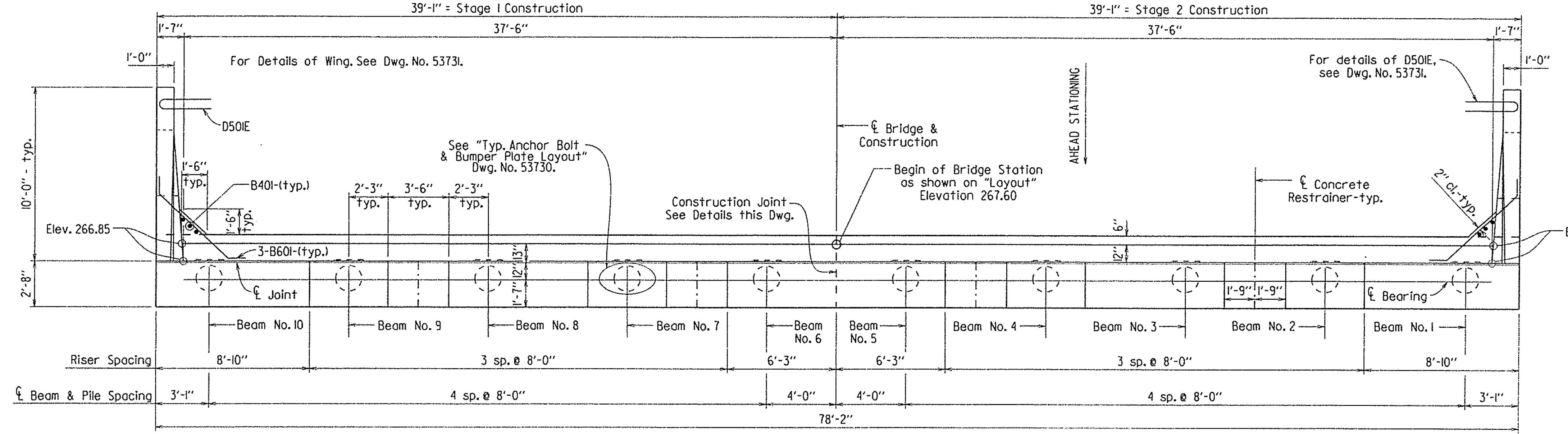
DRAWN BY: MCB DATE: 4/20/2012 FILENAME: bl00686x2_ll.dgn
CHECKED BY: ADM DATE: 4-2-13 SCALE: NO SCALE
DESIGNED BY: MCB DATE: 04/12

BRIDGE NO. 07286 DRAWING NO. 53728

PRINT DATE: 2/10/2014

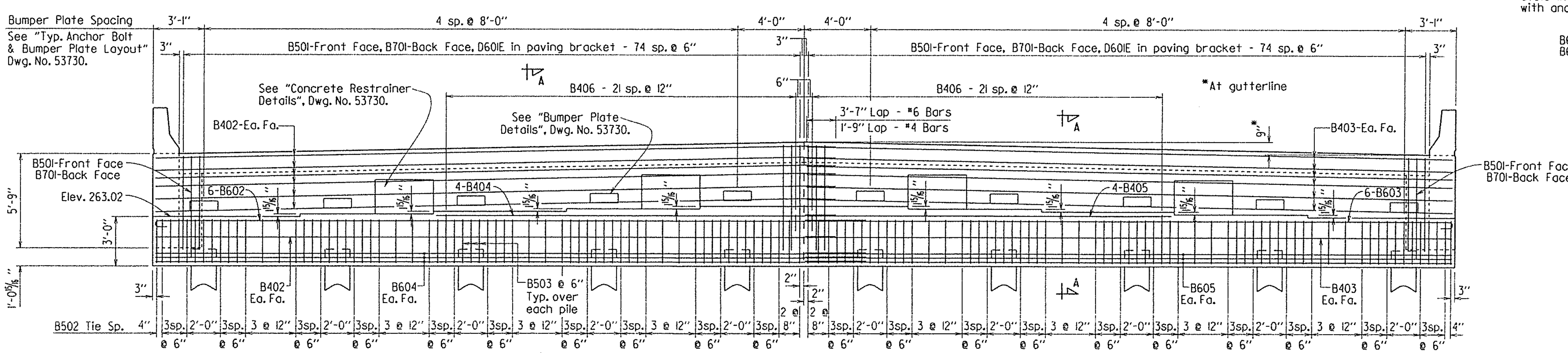
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	73	185
				(1) 07286 -		END BENTS	-	53729

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



PLAN - BENT I

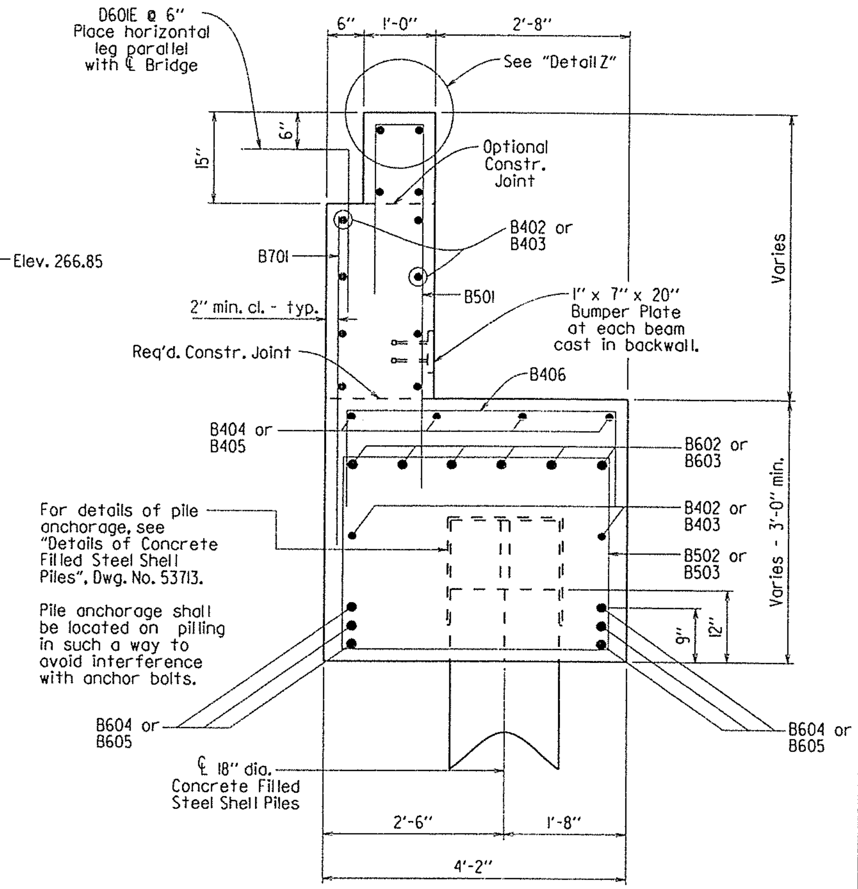
Scale: 1/4" = 1'-0"



ELEVATION - BENT I

Looking Back

Scale: 1/4" = 1'-0"



SECTION A-A

Scale: 3/4" = 1'-0"

GENERAL NOTES

All concrete shall be Class "S" and be poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.

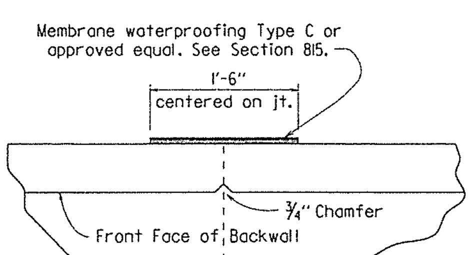
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Structural steel in end bents shall be AASHTO M270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M270-Gr. 50W)".

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 53741.

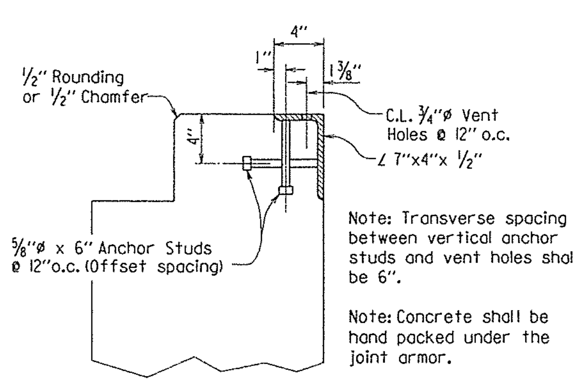
For additional information, See layout.



Note: Payment for membrane to be considered subsidiary to Class S Concrete-Bridge.

CONSTRUCTION JOINT DETAIL

No Scale



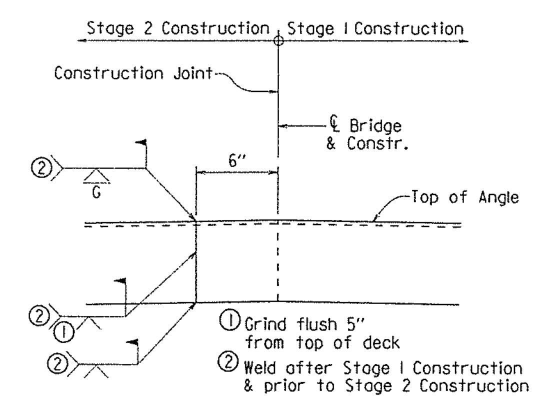
Note: Transverse spacing between vertical anchor studs and vent holes shall be 6".

Note: Concrete shall be hand packed under the joint armor.

Note: For additional joint details, see Dwg. No. 53741.

DETAIL Z

No Scale



DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

Looking Ahead - Bent 6

Bent I Similar

No Scale

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7510 CARL J. FUSELIER 4/16/13

BRIDGE ENGINEER

SHEET I OF 3

DETAILS OF END BENTS

BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

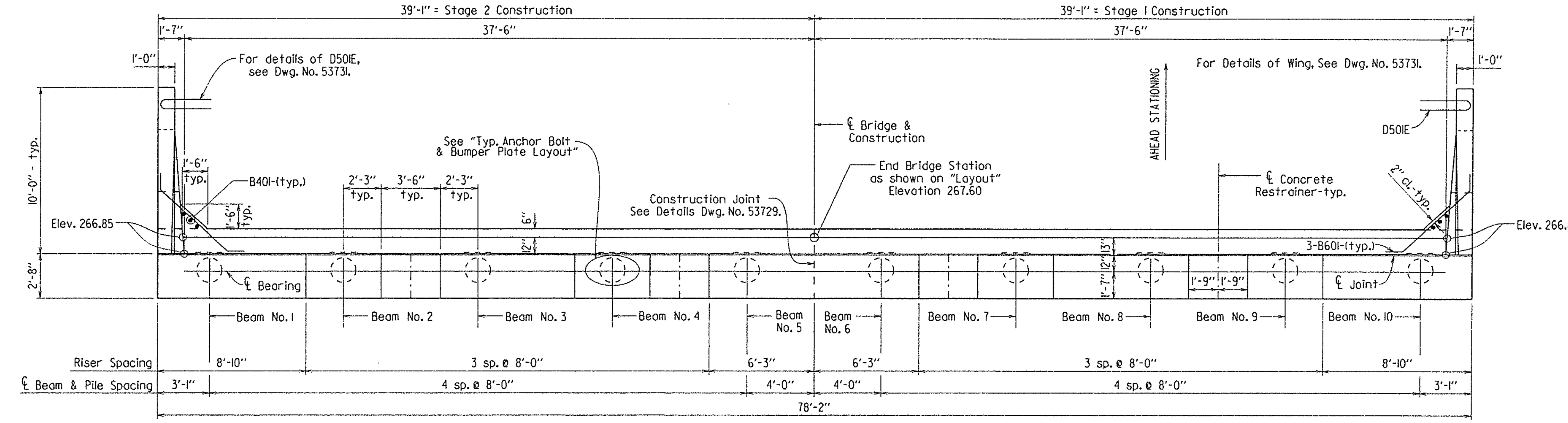
DRAWN BY: CJR	DATE: 3/11/13	FILENAME: bl00686x2_bl.dgn	
CHECKED BY: MCB	DATE: 3/14/13	SCALE: AS NOTED	
DESIGNED BY: DBS	DATE: 02/13		

BRIDGE NO. 07286 DRAWING NO. 53729

PRINT DATE: 4/12/2013

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.		100686	74	185
				① 07286 -		END BENTS	-	53730

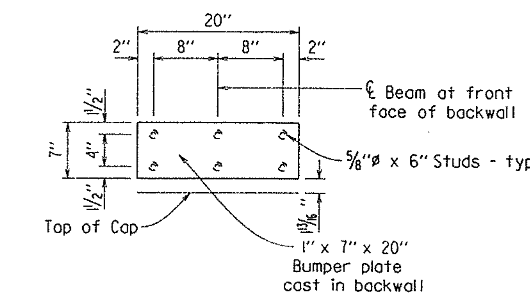
NOTE: Class I Protective Surface Treatment shall be applied to the top of the backwall and to the roadway face and top of the wing rails.



PLAN - BENT 6

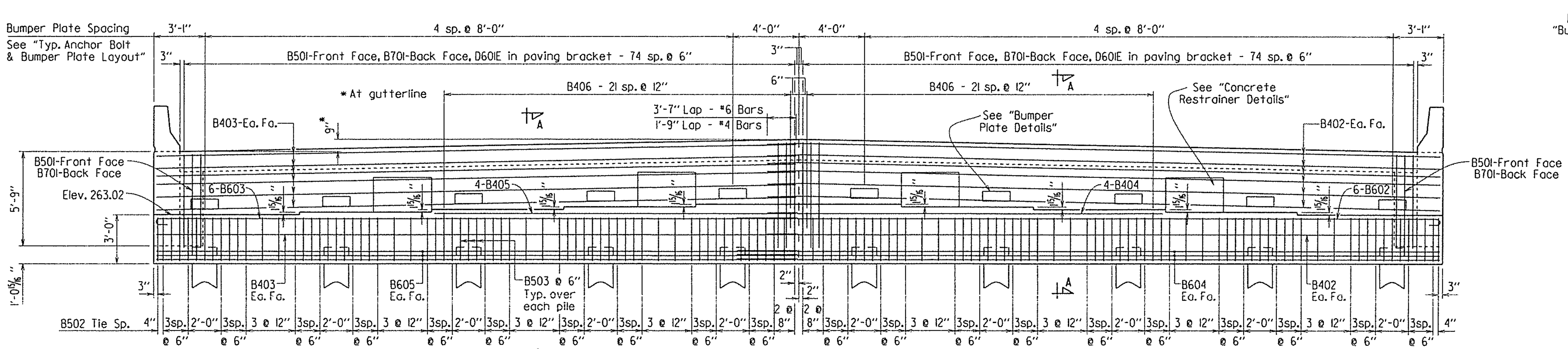
Scale: 1/4" = 1'-0"

See "Section A-A" and General Notes on Dwg. No. 53729.



BUMPER PLATE DETAILS

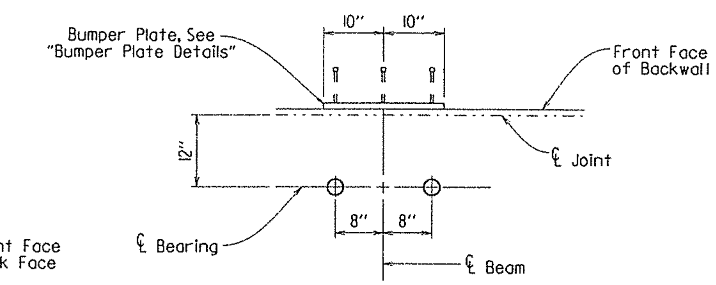
Scale: 1½" = 1'-0"



ELEVATION - BENT 6

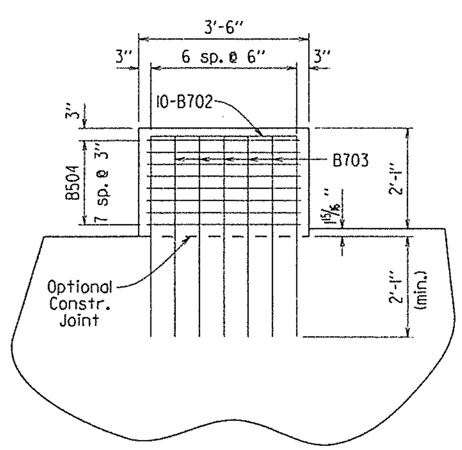
Looking Ahead

Scale: 1/4" = 1'-0"



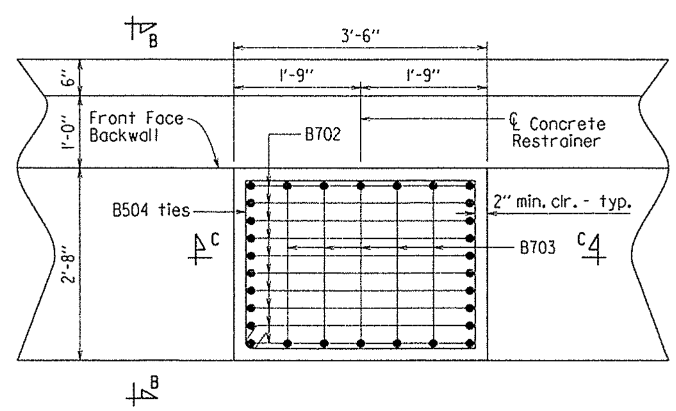
TYP. ANCHOR BOLT & BUMPER PLATE LAYOUT

Scale: 3/4" = 1'-0"



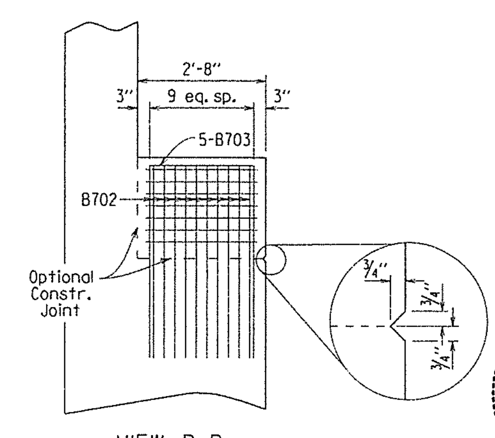
SECTION C-C

Scale: 1/2" = 1'-0"



CONCRETE RESTRAINER DETAILS

Scale: 3/4" = 1'-0"



VIEW B-B

Scale: 1/2" = 1'-0"

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7510 CARL J. FUSELIER 4/16/13

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF END BENTS
BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

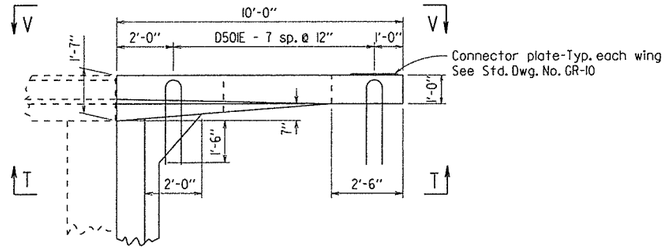
LITTLE ROCK, ARK.

DRAWN BY: CJR	DATE: 3/11/13	FILENAME: bl00686x2_bl.dgn	
CHECKED BY: MLB	DATE: 3/14/13	SCALE: AS NOTED	
DESIGNED BY: DBS	DATE: 02/13		

BRIDGE NO. 07286 DRAWING NO. 53730

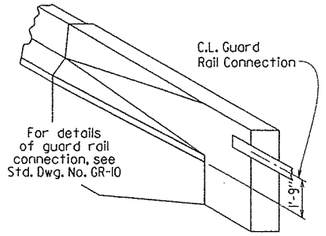
PRINT DATE: 4/12/2013

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.		100686	75	185
				(1) 07286 -		END BENTS	- 53731	



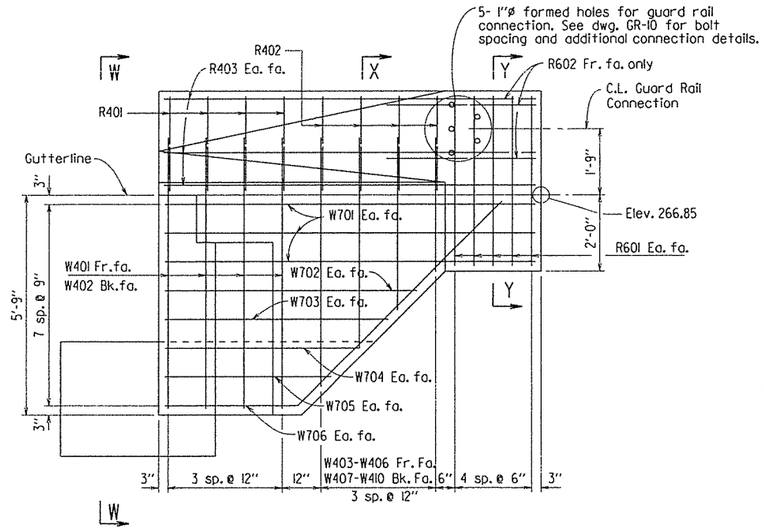
PLAN OF RAIL

Scale: 3/8" = 1'-0"



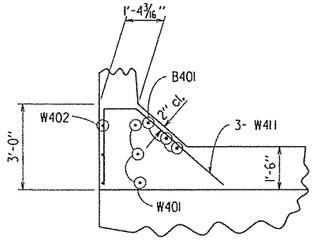
THREE DIMENSIONAL VIEW OF RAIL

No Scale



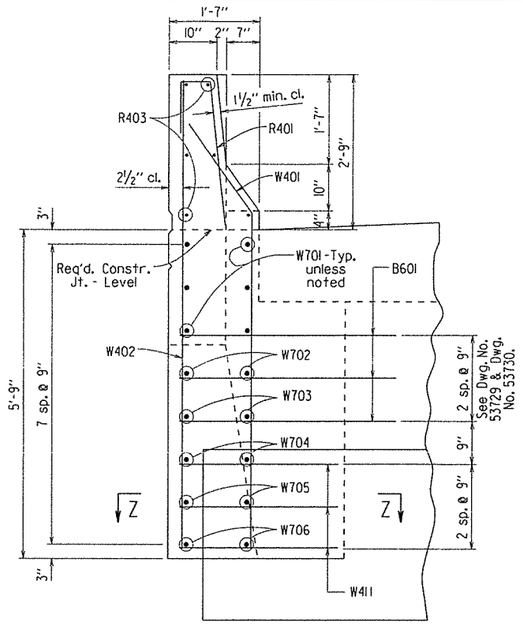
VIEW T-T

Scale: 1/2"= 1'-0"



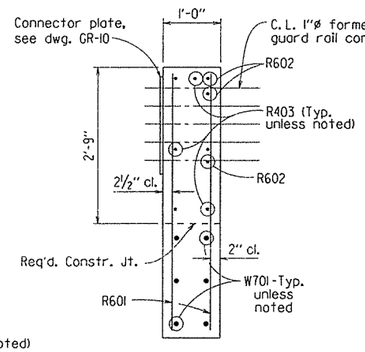
SECTION Z-Z

Scale: 3/8" = 1'-0"



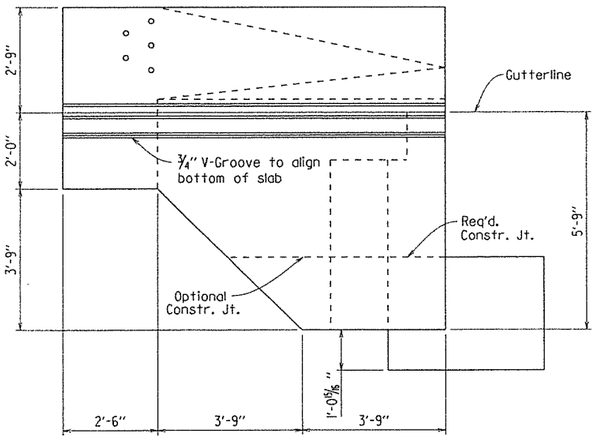
VIEW W-W

Scale: 3/4" = 1'-0"



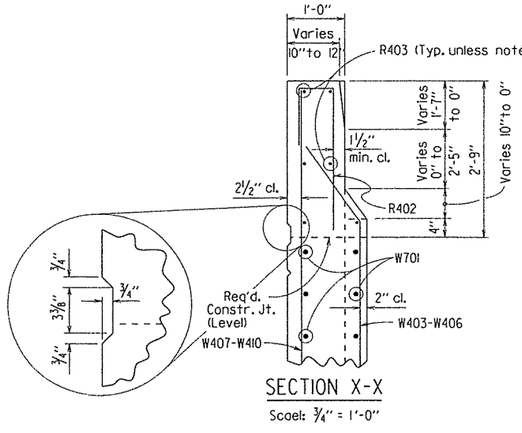
SECTION Y-Y

Scale: 3/4"= 1'-0"



VIEW V-V

Scale: 1/2"= 1'-0"



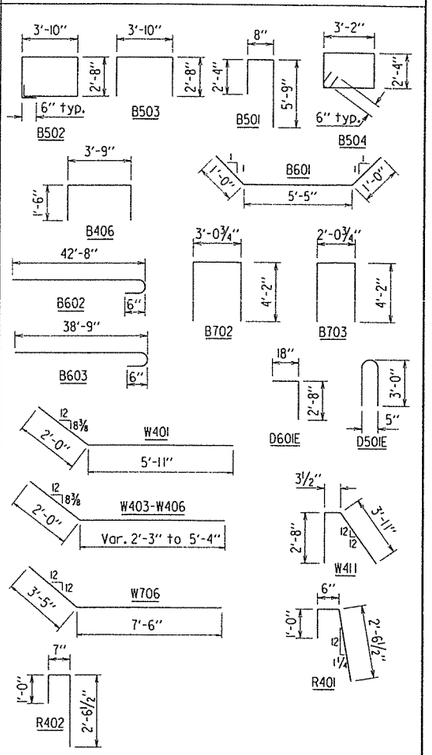
SECTION X-X

Scael: 3/4" = 1'-0"

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	6	4'-2"	Str.
B402	14	40'-10"	Str.
B403	14	38'-9"	Str.
B404	4	24'-0"	Str.
B405	4	21'-11"	Str.
B406	44	6'-1"	2"
B501	150	8'-7"	2 1/2"
B502	102	13'-6"	2 1/2"
B503	30	8'-11"	2 1/2"
B504	32	11"-8"	3 3/4"
B601	6	7'-3"	4 1/2"
B602	6	43'-4"	4 1/2"
B603	6	39'-5"	4 1/2"
B604	6	42'-8"	Str.
B605	6	38'-9"	Str.
B701	150	6'-8"	Str.
B702	40	11'-1"	5 1/4"
B703	20	10'-1"	5 1/4"
R401	8	3'-11"	2"
R402	8	4'-0"	2"
R403	12	9'-8"	Str.
W401	8	7'-10"	2"
W402	8	8'-2"	Str.
W403-W406	2 each	Var. 4'-2" to 7'-3"	2"
W407-W410	2 each	Var. 4'-7" to 7'-7"	Str.
W411	6	6'-9"	2"
R601	20	4'-5"	Str.
R602	6	5'-0"	Str.
W701	12	9'-8"	Str.
W702	4	6'-7"	Str.
W703	4	5'-10"	Str.
W704	4	5'-1"	Str.
W705	4	4'-4"	Str.
W706	4	10'-9"	5 1/4"
D501E	16	6'-2"	3 3/4"
D601E	150	4'-0"	4 1/2"

BENDING DIAGRAMS



Dimensions are out to out of bars.

Bars designated with an "E" suffix shall be epoxy coated.

STATE OF ARKANSAS
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4/16/13
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SHEET 3 OF 3
DETAILS OF END BENTS
BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 3/12/13 FILENAME: bl00686x2_bl.dgn

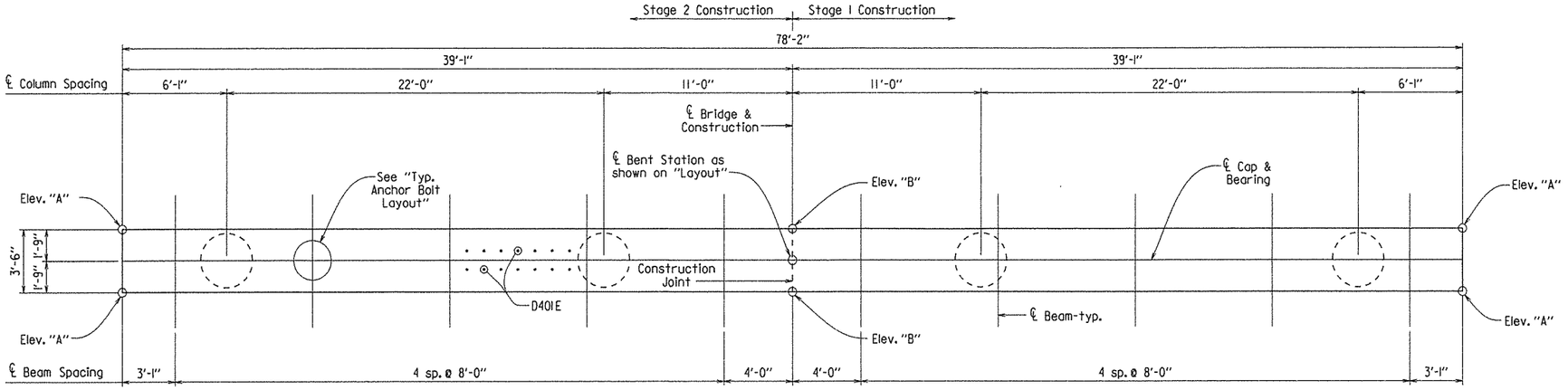
CHECKED BY: MCB DATE: 3/14/13 SCALE: AS NOTED

DESIGNED BY: DBS DATE: 02/13

BRIDGE NO. 07286 DRAWING NO. 53731

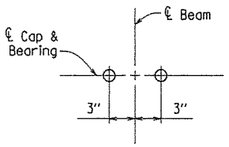
PRINT DATE: 4/12/2013

DATE REVISED	DATE	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL
				6				
				JOB NO.		100686	76	185
				(1) 07286 -		INT. BENTS	- 53732	



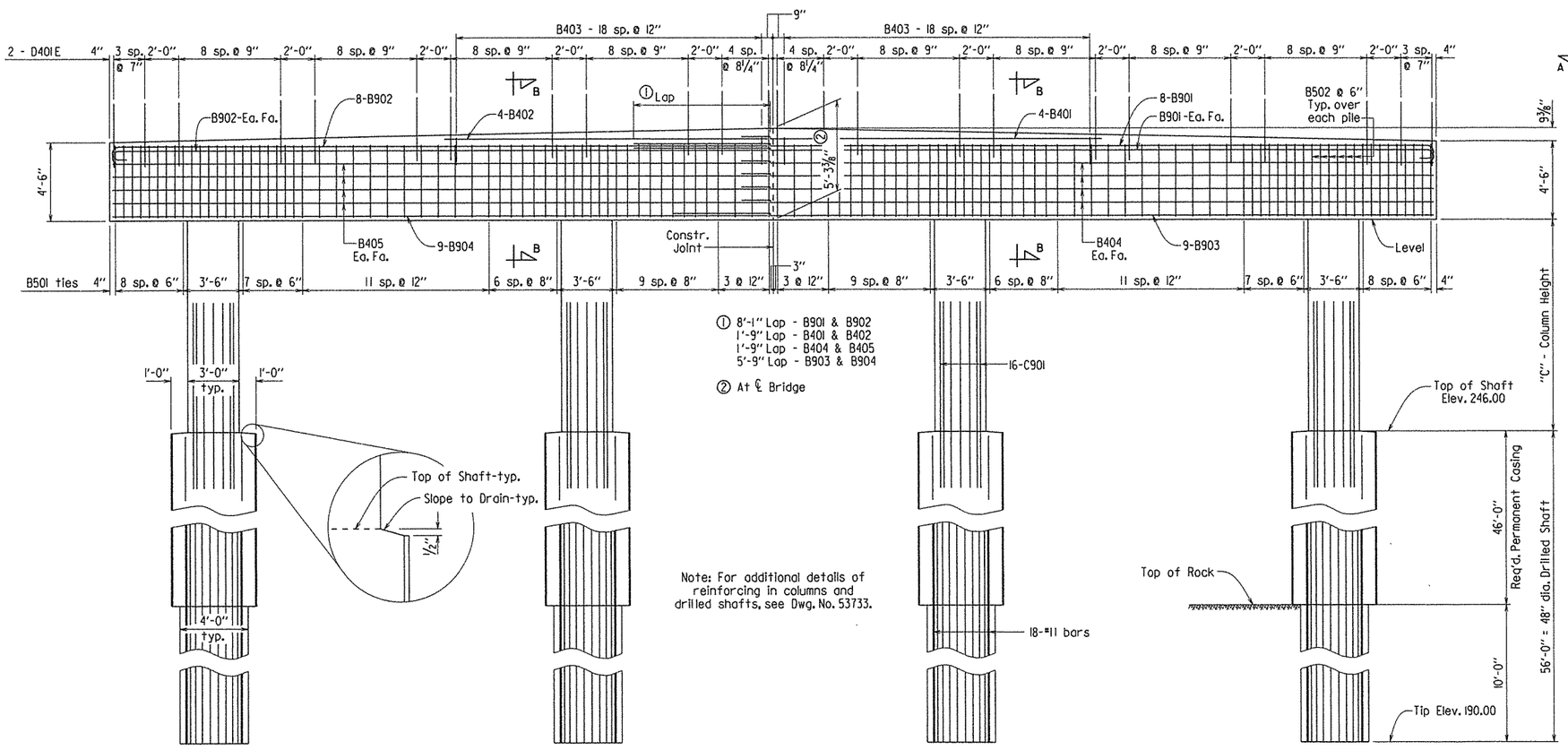
PLAN

Scale: 1/4" = 1'-0"



TYP. ANCHOR BOLT LAYOUT

No Scale



ELEVATION

Looking Ahead

Scale: 1/4" = 1'-0"

TABLE OF VARIABLES

BENT NO.	Elev. "A"	Elev. "B"	"C"
2 & 5	263.05	263.83	12'-6⅝"
3 & 4	263.02	263.80	12'-6¼"

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
2/10/14
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BRIDGE ENGINEER

SHEET 1 OF 2

DETAILS OF INTERMEDIATE BENTS

BLACK RIVER RELIEF

ROUTE SEC.

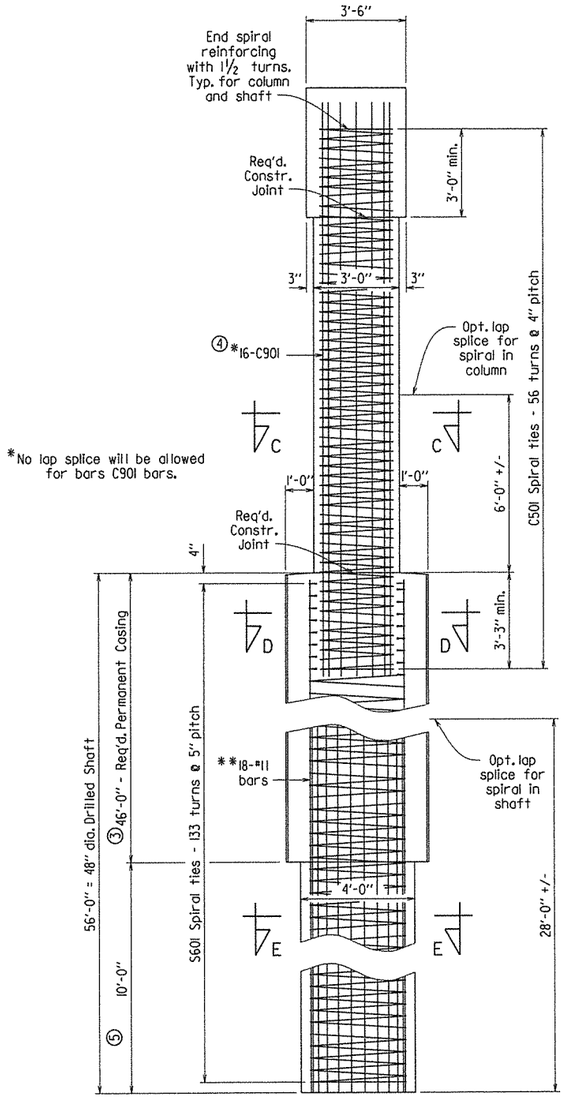
ARKANSAS STATE HIGHWAY COMMISSION

DRAWN BY: KDH DATE: 3-6-13
CHECKED BY: MCS DATE: 3/7/13
DESIGNED BY: DBS DATE: 02/13
FILENAME: bl00686x2_b2.dgn
SCALE: AS NOTED

BRIDGE NO. 07286 DRAWING NO. 53732

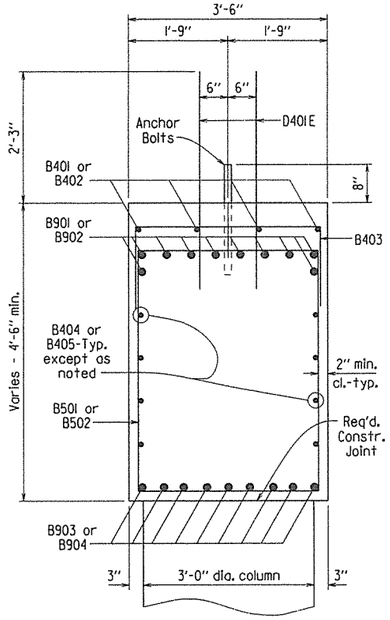
PRINT DATE: 2/10/2014

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.		100686	77	185
				(1) 07286 -		INT. BENTS	- 53733	

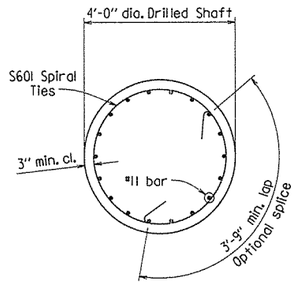


**Lap splices for #11 bars, if required due to the tip elevation being lowered, shall be approved by the Engineer.

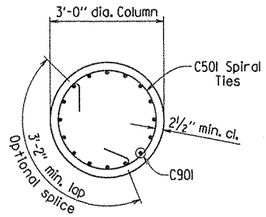
VIEW A-A
Scale: 3/8" = 1'-0"



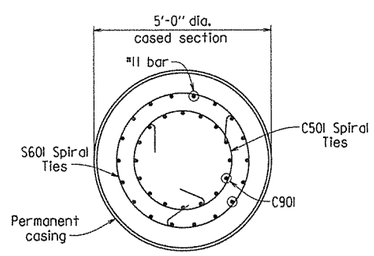
SECTION B-B
Scale: 3/4" = 1'-0"



SECTION E-E
Scale: 1/2" = 1'-0"



SECTION C-C
Scale: 1/2" = 1'-0"



SECTION D-D
Scale: 1/2" = 1'-0"

③ Length of Permanent Casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. 100686 "Drilled Shaft Foundations". Permanent casing shall not extend below top of competent rock without approval from the Engineer.

④ The column reinforcing cage, consisting of bars C50I and C90I, may be placed before or after concrete placement in the shaft is complete. Vibration of concrete in the top 10 feet of the shaft will be needed to ensure the consolidation of the concrete around the reinforcing steel and to insert the column reinforcing cage. The contractor will be responsible for obtaining satisfactory results.

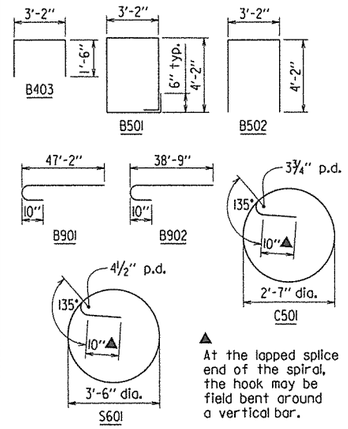
⑤ Minimum penetration into competent rock below permanent casing.

BAR LIST - PER BENT

	MARK	NO. REQ'D.	LENGTH	P.D.
	B40I	4	20'-11"	Str.
	B402	4	19'-0"	Str.
	B403	38	6'-0"	2"
	B404	8	40'-10"	Str.
	B405	8	38'-9"	Str.
	D40IE	180	3'-9"	Str.
	B50I	94	15'-2"	2½"
	B502	24	11'-4"	2½"
	C50I	4	471'-4"	Spiral
⑥	S60I	4	1470'-11"	Spiral
	B90I	10	48'-5"	9"
	B902	10	40'-0"	9"
	B903	9	44'-10"	Str.
	B904	9	38'-9"	Str.
	C90I	64	19'-4"	Str.
⑥	#11 bars	72	55'-9"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.



▲ At the lapped splice end of the spiral, the hook may be field bent around a vertical bar.

⑥ Non-pay item - Subsidiary to SP Job No. 100686 "Drilled Shaft Foundations".

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

GENERAL NOTES

Concrete in the cap and column shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., and shall be poured in the dry. Concrete in the drilled shaft shall be Class S as modified by SP Job No. 100686 "Drilled Shaft Foundations". 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 shall be properly placed to avoid interference with anchor bolts.

For additional information see layout.

Drilled shafts shall conform to SP Job No. 100686 "Drilled Shaft Foundations".

NOTES FOR SPIRAL REINFORCING

Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M322 (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of 0.625" in the column, and a minimum diameter of 0.75" in the drilled shaft.

Column spiral reinforcement shall be paid for at the contract unit price bid per pound for "Reinforcing Steel-Bridge (Grade 60)". No additional payment shall be made for spacers, additional splices, or bracing needed for assembly, shipping, handling, or erecting.

The contractor may elect to use the optional spiral lapped splices at the locations shown on the column or shaft.

Splices in spiral reinforcement shall be lapped a minimum of 60 bar diameters.

Spiral reinforcement at lapped splices shall be terminated by a 135° hook with a 10" tail around a vertical bar. Hook may be field bent. Ends of spirals not lapped shall be terminated with 1½ turns and a 135° hook with a 10" tail around a vertical bar.

STATE OF ARKANSAS
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2/10/14
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SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS
BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 3-6-13
CHECKED BY: DWB DATE: 3/7/13
DESIGNED BY: DBS DATE: 02/13
FILENAME: b100686x2_b2.dgn
SCALE: AS NOTED

BRIDGE NO. 07286 DRAWING NO. 53733

PRINT DATE: 2/10/2014

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.		100686	78	185
				(1) 07286 -		W-BEAM UNIT		- 53734

39'-1" - Stage 2 Construction | 75'-0" Clear Roadway | 39'-1" - Stage 1 Construction

2" | 1'-5" | 37'-6" | 37'-6" | 1'-5" | 2"

SLAB REINFORCING

Transverse:
S501E & S502E @ 12"o.c. bent up over beams — Alternate
S503E & S504E @ 12"o.c. in top
S402E & S403E @ 12"o.c. in bottom
S506E @ 6" bundled with #5 bars in top at both gutterlines

Longitudinal:
S401E as shown (12" max.)
S601E as shown over int. supports

(1) See "Adjustment for Slab Thickness Tolerance", Dwg. No. 53736.

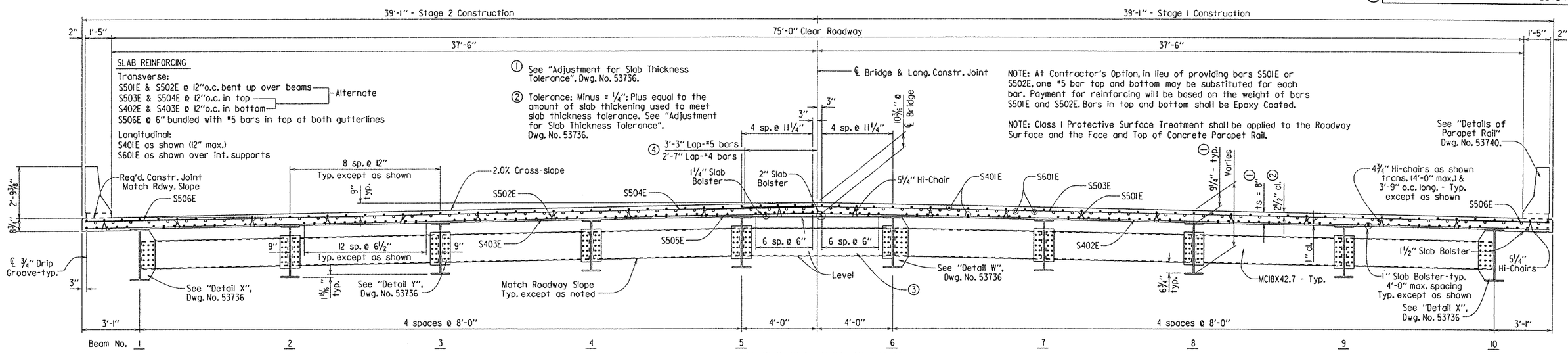
(2) Tolerance: Minus = 1/4"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance", Dwg. No. 53736.

(4) 3'-3" Lap-#5 bars
2'-7" Lap-#4 bars

℄ Bridge & Long. Constr. Joint

NOTE: At Contractor's Option, in lieu of providing bars S501E or S502E, one #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S501E and S502E. Bars in top and bottom shall be Epoxy Coated.

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

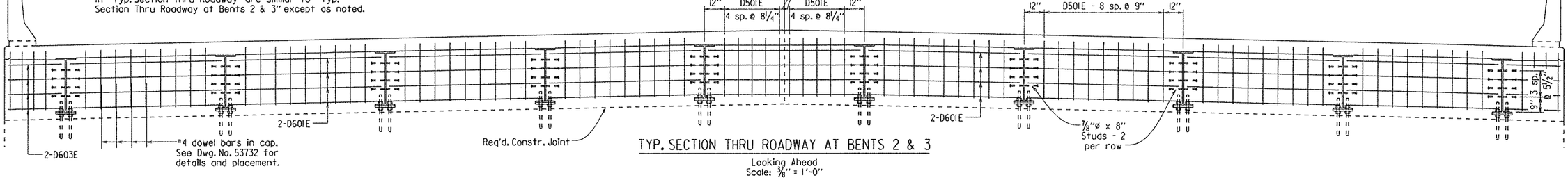


TYP. SECTION THRU ROADWAY

Looking Ahead
Scale: 3/8" = 1'-0"

(4) Stage 2 transverse reinforcing steel shall not be tied to Stage 1 transverse reinforcing steel.

Note: Reinforcing steel, details and dimensions shown in "Typ. Section Thru Roadway" are similar to "Typ. Section Thru Roadway at Bents 2 & 3" except as noted.



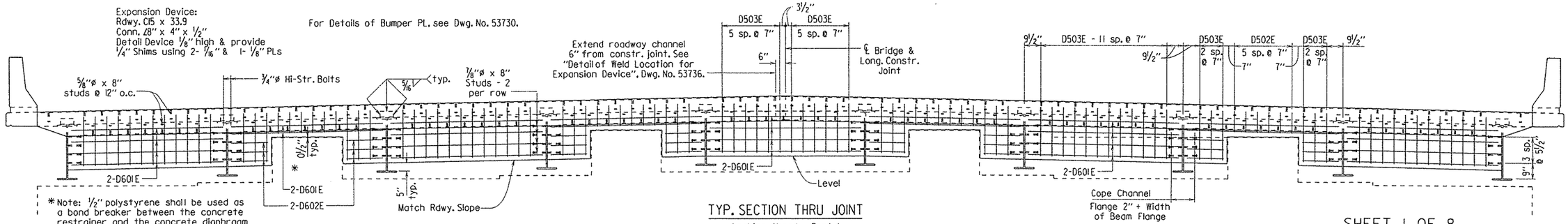
TYP. SECTION THRU ROADWAY AT BENTS 2 & 3

Looking Ahead
Scale: 3/8" = 1'-0"

Expansion Device:
Rdwy. C15 x 33.9
Conn. L8" x 4" x 1/2"
Detail Device 1/8" high & provide 1/4" Shims using 2- 7/16" & 1- 1/8" PLs

For Details of Bumper PL, see Dwg. No. 53730.

Extend roadway channel 6" from constr. joint. See "Detail of Weld Location for Expansion Device", Dwg. No. 53736.



* Note: 1/2" polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place.

TYP. SECTION THRU JOINT

Looking Ahead - Bent 1
Bent 4 Similar
Scale: 3/8" = 1'-0"

(3) In this bay, connection plate widths and diaphragm lengths shall be fabricated, as necessary, to facilitate installation of diaphragms between adjacent beams with significant differential deflections. Hole diameters of 15/16" shall be provided for these connections with a washer supplied under both the nut and head of bolt.

Before the Stage 2 deck pour, loosely install as many bolts as possible on both ends of the diaphragm in this bay to the satisfaction of the Engineer. An external means of supporting the Stage 1 overhang shall be provided and shall remain in place until after completion of the Stage 2 deck pour. See "Deck Support at Longitudinal Construction Joint" detail, Dwg. No. 53740. Install remaining bolts and fully tighten all bolts as soon as practical after completion of the Stage 2 deck pour.

STATE OF ARKANSAS
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4/4/13
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SHEET 1 OF 8
DETAILS OF 302' CONTINUOUS COMPOSITE W-BEAM UNIT BLACK RIVER RELIEF

ROUTE SEC.

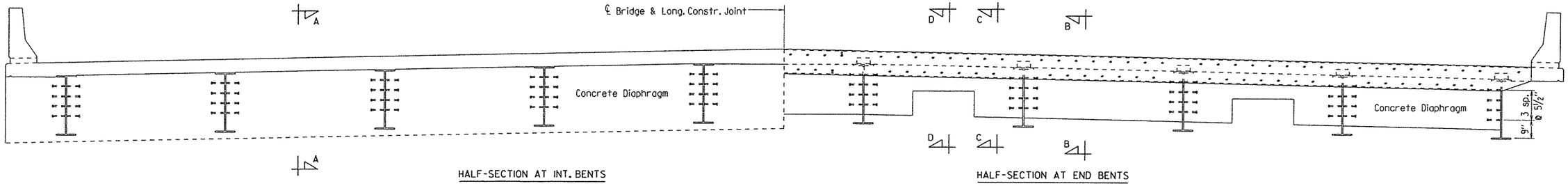
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-23-12 FILENAME: bl00686x2_sl.dgn
CHECKED BY: ADH DATE: 3-21-13 SCALE: AS NOTED
DESIGNED BY: ADH DATE: 7-12

BRIDGE NO. 07286 DRAWING NO. 53734

PRINT DATE: 4/12/2013

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.		100686	79	185
				①	07286 -	W-BEAM UNIT	- 53735	



HALF-SECTION AT INT. BENTS

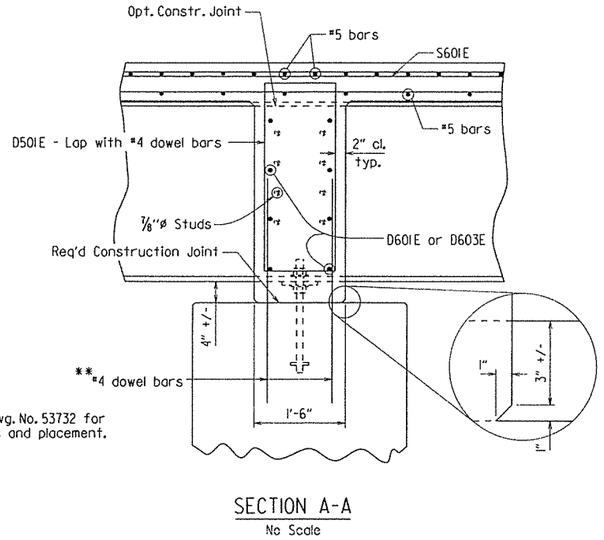
HALF-SECTION AT END BENTS

ROADWAY SECTION AT BENTS SHOWING CONCRETE DIAPHRAGMS

Scale: ⅜" = 1'-0"

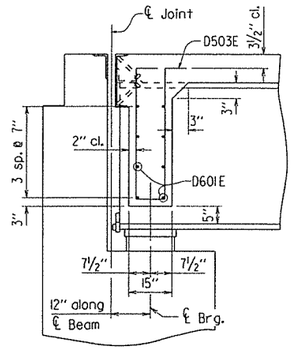
Note: Concrete diaphragms at end bents shall be poured monolithically with span.

*Note: ½" polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place.



SECTION A-A

No Scale



SECTION B-B

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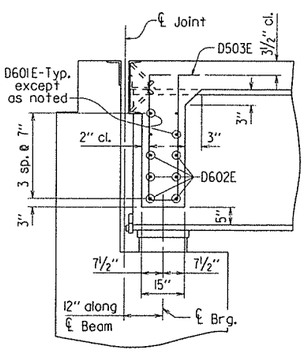
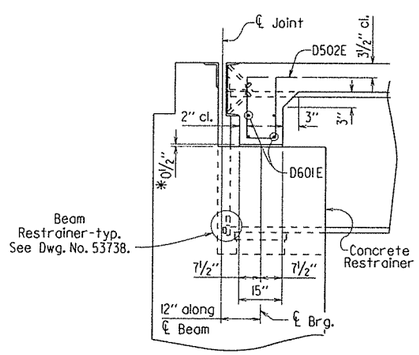


SECTION C-C

No Scale



SECTION D-D

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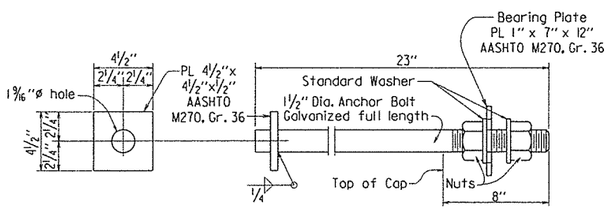
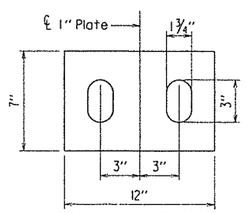


ANCHOR BOLT DETAIL

No Scale

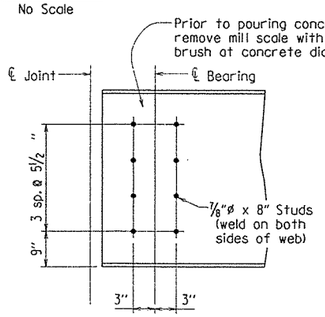


BEARING PLATE DETAIL

No Scale

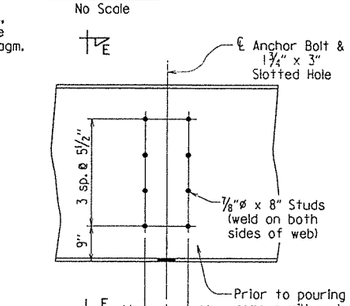
Anchor bolts shall comply with AASHTO M314, Grade 55, with Supplementary Requirement S1, and galvanized according to subsection 807.07. Nuts for bolts shall be as specified in subsection 807.07. Plates, anchor bolts, nuts and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)"

Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.



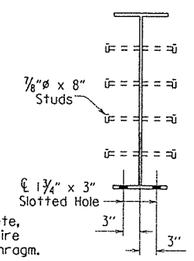
DETAILS OF WEB STUD CONNECTORS AT END BENTS

No Scale



DETAILS OF WEB STUD CONNECTORS AT INTERMEDIATE BENTS

No Scale



VIEW E-E

No Scale

STATE OF ARKANSAS
Carl Yuelli
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL YUELLI FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 8
DETAILS OF 302' CONTINUOUS COMPOSITE W-BEAM UNIT BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-23-12
CHECKED BY: ADN DATE: 3-21-13
DESIGNED BY: ADN DATE: 7-1-12

FILENAME: bl00686x2_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07286

DRAWING NO. 53735

PRINT DATE: 4/12/2013

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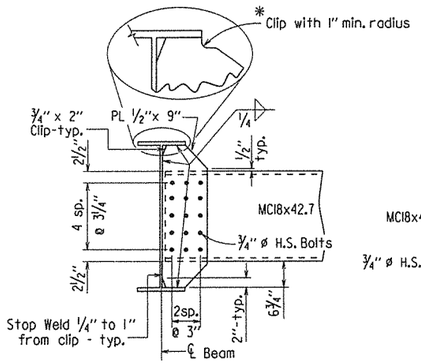
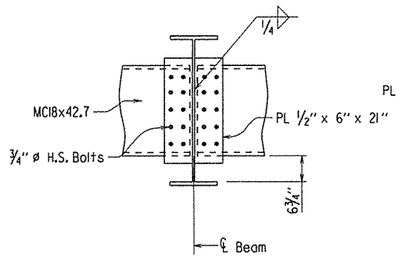
				JOB NO.		100686	80	185
				(1) 07286 -		W-BEAM UNIT	- 53736	



DETAIL X

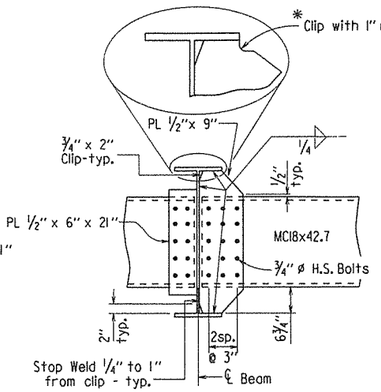
No Scale



DETAIL Y

No Scale

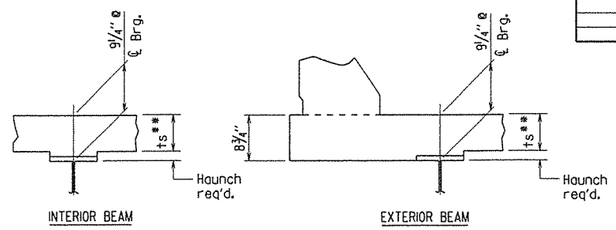
*If permanent steel bridge deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.



DETAIL W

No Scale

Note: Bolts in connections shall be properly installed and tightened in accordance with Subsection 807.71.



** 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.

Note : ts = slab thickness as shown on superstructure detail drawings.

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.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

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.

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 (6th Edition, 2012).

MATERIALS AND STRENGTHS:

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

CONCRETE :
Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" 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. 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 beam. 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 rolling. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing.

Removable forms shall be used for concrete diaphragms.

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 willbe 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 Beam 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. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36 or Gr. 50 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 and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Beams 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 Beam Spans (M270, Gr. 50W)".

All beams shall be blocked in their true position in the shop with the webs horizontal. The camber, length of sections, distance between bearings and openings of joints shall be measured with the beams in their true position and this information shall become part of the permanent records for this job. 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 1/4" +/- is allowed for camber.

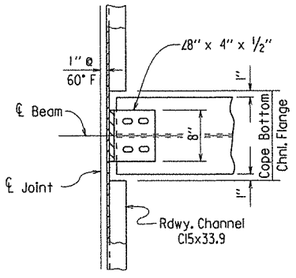
Flange field splice plates shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

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.

Field connections shall be bolted with high-strength bolts and shall be 3/4" ø bolts unless otherwise noted. Open Holes shall be 15/16" ø unless otherwise noted. Holes for 3/4" ø high-strength bolts may be 15/16" ø if a washer is supplied for use under both the nut and head of the bolt. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges.

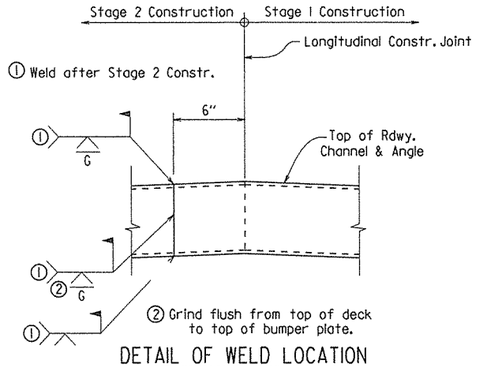
Steel diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck unless otherwised noted.

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.



CHANNEL CONNECTION DETAIL

No Scale



DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

No Scale

STATE OF ARKANSAS
Carl E. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL E. FUSELIER
2/10/14

BRIDGE ENGINEER

SHEET 3 OF 8
DETAILS OF 302' CONTINUOUS COMPOSITE W-BEAM UNIT
BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-23-12
CHECKED BY: ADW DATE: 3-21-13
DESIGNED BY: ADW DATE: 7-12
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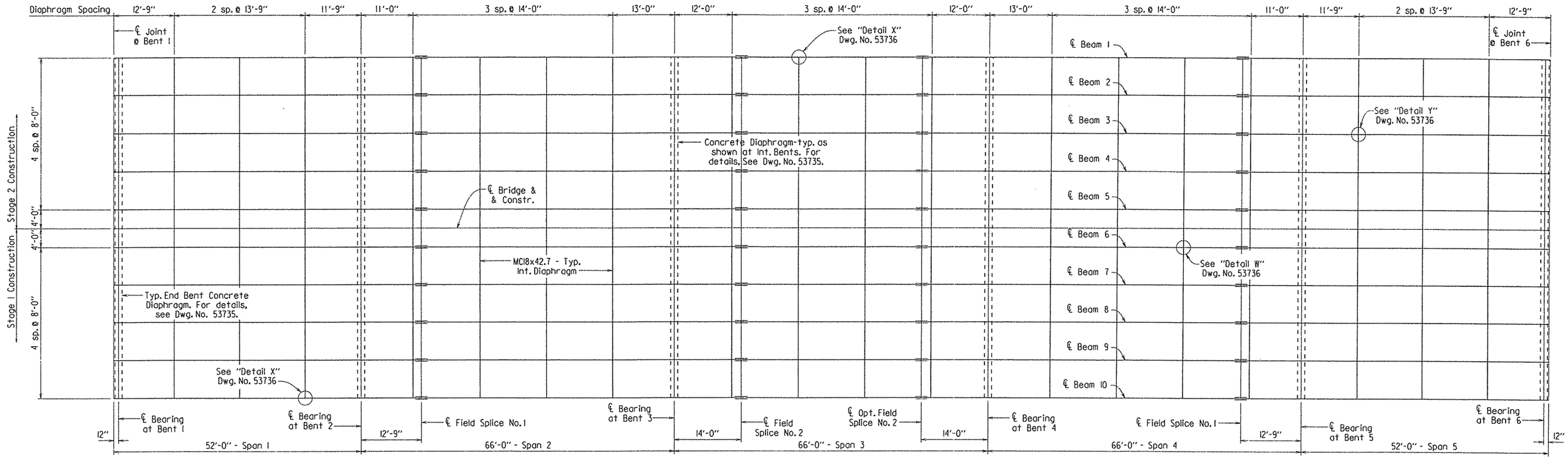
BRIDGE NO. 07286 DRAWING NO. 53736

PRINT DATE: 2/10/2014

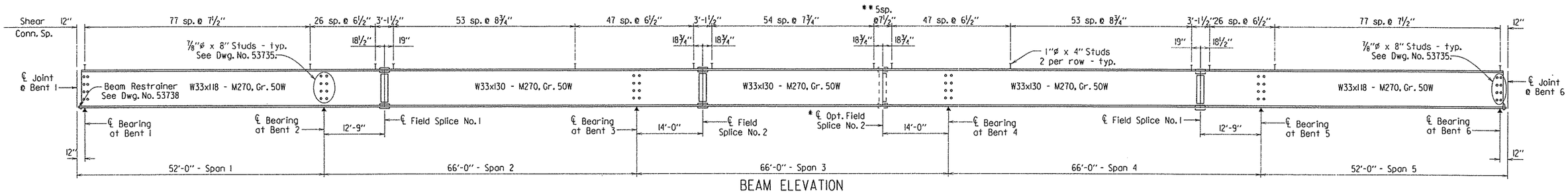
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	81	185
				(1) 07286 -		W-BEAM UNIT	- 53737	

AHEAD STATIONING



FRAMING PLAN

Scale: 1/12 " = 1'-0"



BEAM ELEVATION

No Scale

*At the contractor's option, a field splice may be provided at this location. Payment will be at the contractor's expense.

**If the optional field splice is used, eliminate the shear connectors in this region.

Note: Bolted field splices may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.

STATE OF ARKANSAS
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No. 7510
CARL L. FUSELIER
4/16/13

BRIDGE ENGINEER

SHEET 4 OF 8
DETAILS OF 302' CONTINUOUS COMPOSITE W-BEAM UNIT BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-24-12 FILENAME: bl00686x2_sl.dgn

CHECKED BY: ADH DATE: 3-21-13 SCALE: AS NTOED

DESIGNED BY: ADH DATE: 2-12-

BRIDGE NO. 07286 DRAWING NO. 53737

PRINT DATE: 4/12/2013

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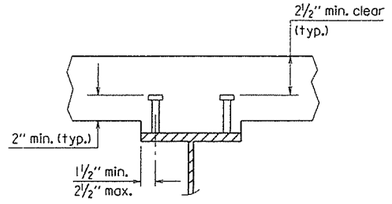
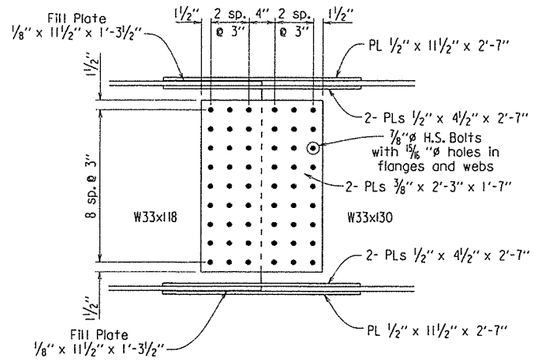


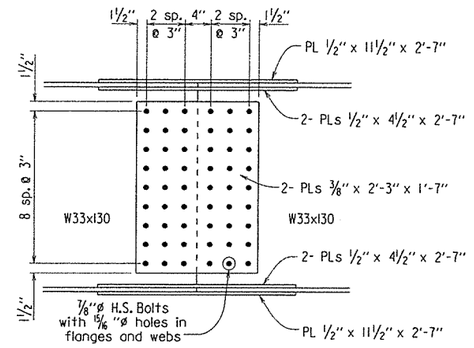
Stud Shear Connectors shown shall be 1"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

SHEAR CONNECTOR DETAIL

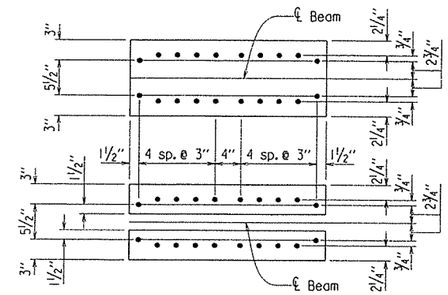
No Scale



WEB SPLICE - FIELD PLICE NO. 1



WEB SPLICE - FIELD SPLICE NO. 2



FLANGE SPLICE - FIELD SPLICE NOS. 1 & 2

Note: All field splice plates shall be AASHTO M270, Gr. 50W.

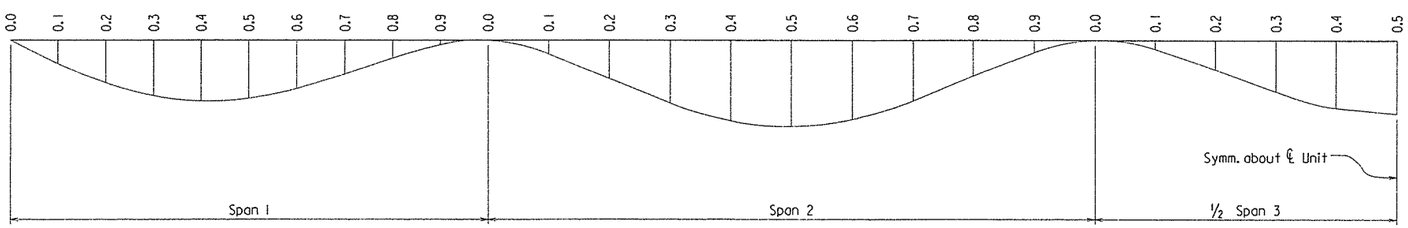
FIELD SPLICE DETAILS

Scale: 1½" = 1'-0"

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

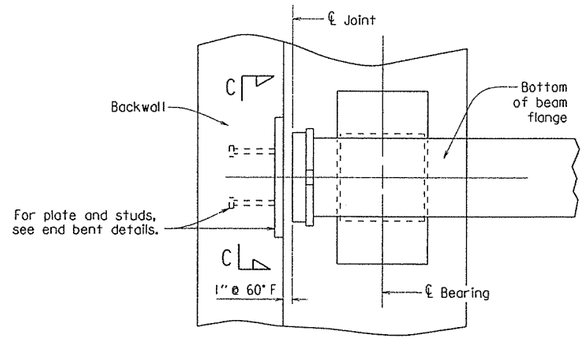
Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Bms. 2-9	Bms. 1 & 10	Bms. 2-9	Bms. 1 & 10	Bms. 2-9	Bms. 1 & 10
1	0	0	0	0	0	0	0
	0.1	0.018	0.017	0.147	0.123	0.150	0.135
	0.2	0.033	0.031	0.270	0.226	0.275	0.248
	0.3	0.043	0.040	0.353	0.295	0.360	0.324
	0.4	0.047	0.043	0.386	0.323	0.394	0.355
	0.5	0.044	0.041	0.369	0.309	0.376	0.339
	0.6	0.036	0.033	0.307	0.257	0.313	0.282
	0.7	0.025	0.023	0.214	0.179	0.218	0.197
	0.8	0.012	0.011	0.111	0.093	0.113	0.102
	0.9	0.002	0.002	0.028	0.023	0.029	0.025
2	0	0	0	0	0	0	0
	0.1	0.013	012	0.084	0.071	0.086	0.078
	0.2	0.035	0.033	0.241	0.203	0.246	0.223
	0.3	0.057	0.054	0.398	0.334	0.406	0.368
	0.4	0.073	0.068	0.508	0.427	0.518	0.470
	0.5	0.077	0.072	0.544	0.457	0.555	0.503
	0.6	0.071	0.066	0.499	0.419	0.509	0.461
	0.7	0.054	0.051	0.383	0.322	0.391	0.354
	0.8	0.032	0.030	0.225	0.189	0.230	0.208
	0.9	0.011	0.010	0.075	0.063	0.077	0.069
½ Span 3	0	0	0	0	0	0	0
	0.1	0.007	0.006	0.054	0.045	0.055	0.050
	0.2	0.024	0.023	0.184	0.154	0.188	0.170
	0.3	0.043	0.040	0.324	0.272	0.331	0.300
	0.4	0.057	0.054	0.427	0.359	0.436	0.396
℄ Unit →	0.5	0.063	0.058	0.465	0.390	0.475	0.430

Note: Table is symmetrical about ℄ Unit



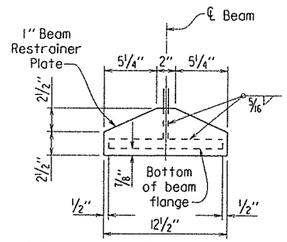
DEAD LOAD DEFLECTIONS DIAGRAM (TYP.)

Note:
Camber for Dead Load Deflection plus Vertical curve ± ¼" tolerance.
Deflections shown are from a chord from ℄ Bearing to ℄ Bearing.
Vertical curve corrections not included.



BEAM RESTRAINER DETAILS

No Scale

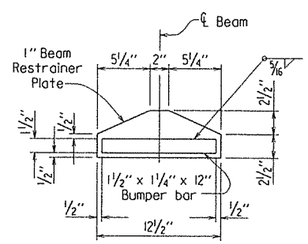


Note: Beam restrainer plate shall be centered on each beam line.

Bumper bar not shown in this view.

SECTION C-C

Scale: 1½" = 1'-0"



Note: Hidden lines of beam are not shown in this view.

SECTION C-C

Scale: 1½" = 1'-0"

STATE OF ARKANSAS
Carl L. Fusselier
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4/16/13
CARL L. FUSSELIER

BRIDGE ENGINEER

SHEET 5 OF 8
DETAILS OF 302' CONTINUOUS COMPOSITE W-BEAM UNIT BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-25-12
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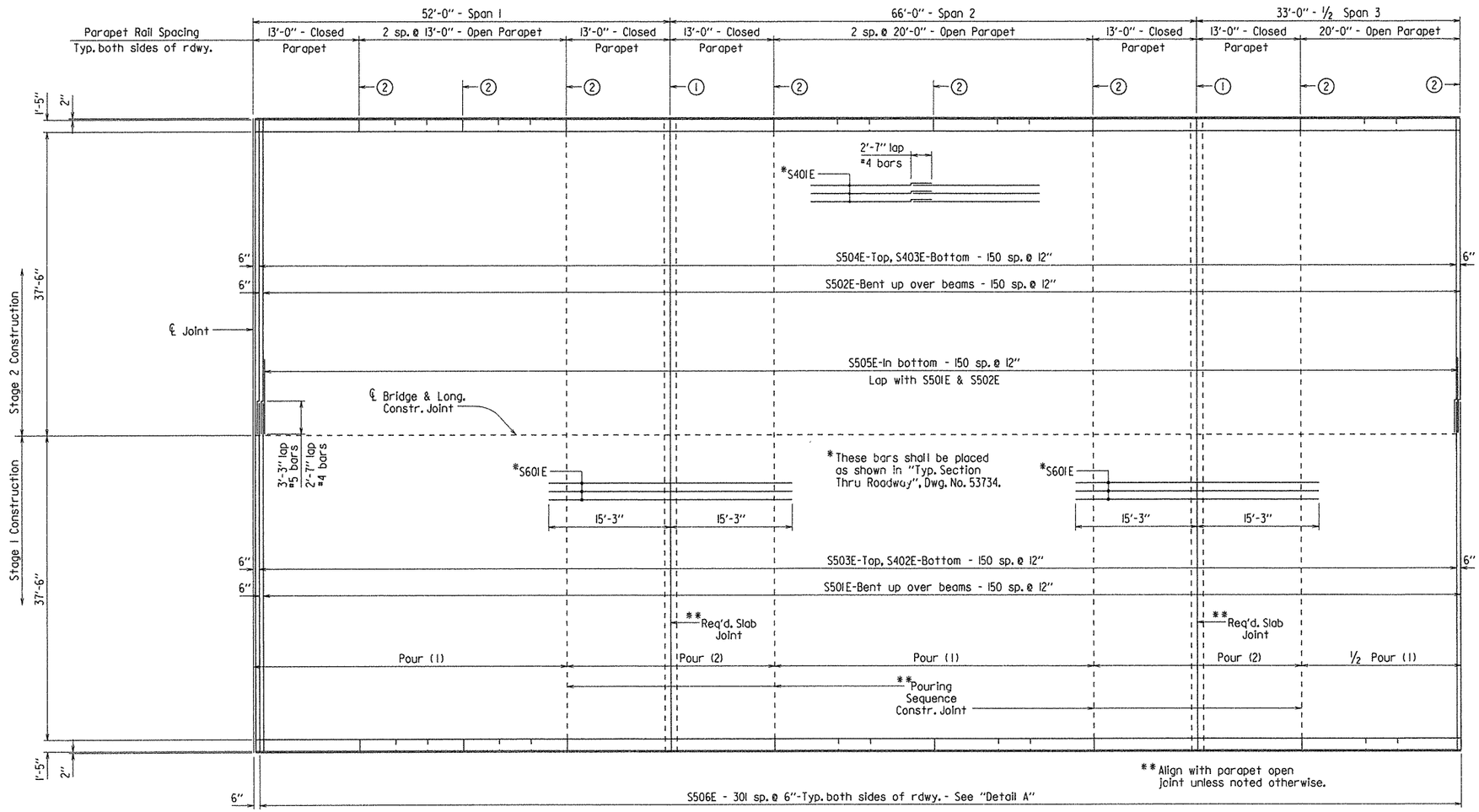
				JOB NO.		100686	B3	185
				(1) 07286 -		W-BEAM UNIT		- 53739



REINFORCING PLAN AND POURING SEQUENCE

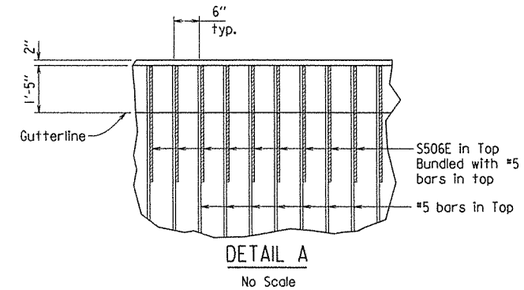
Scale: 1/8" = 1'-0"

① ℄ Full-Depth Parapet Joint (1/4" to 1" max.). Stop 4" from top of slab. See Dwg. No. 53740.

② ℄ Partial-Depth Parapet Joint (1/4" to 1" max.). Stop 1'-2" from top of slab. See Dwg. No. 53740.

Note: For each stage of construction, 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 the end of a pour and the start of an adjacent pour. Any railing pours made before the entire slab unit for each stage has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

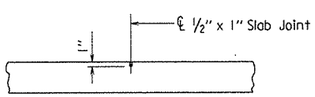
If the concrete diaphragms at intermediate bents are poured separately, a minimum of 48 hours shall between the diaphragm pour and the slab pour. Concrete diaphragms at end bents shall be poured monolithically with the slab.



DETAIL A

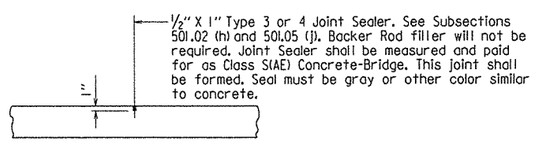
No Scale

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 outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. 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. The joint sealer shall extend across the deck slab (gutterline to gutterline). Slab joints shall align with parapet open joints.



SLAB JOINT DETAIL

No Scale



LONGITUDINAL CONSTRUCTION JOINT

No Scale

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
2/10/14
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 6 OF 8
DETAILS OF 302' CONTINUOUS COMPOSITE W-BEAM UNIT
BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

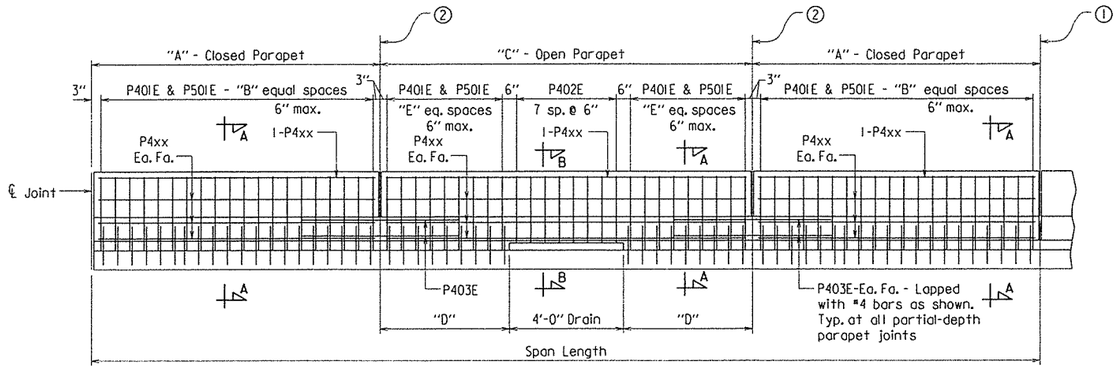
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-29-12 FILENAME: bl00686x2_sl.dgn
CHECKED BY: ADW DATE: 3-21-13 SCALE: AS NOTED
DESIGNED BY: ADW DATE: 7-12

BRIDGE NO. 07286 DRAWING NO. 53739

PRINT DATE: 2/10/2014

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.		100686	84	185
				① 07286 -		W-BEAM UNIT	- 53740	



① ℄ Full-Depth Parapet Joint (¼" to 1" max.) as shown in "Reinforcing Plan and Pouring Sequence", Dwg. No. 53739. Stop 4" from top of slab.

DETAILS OF PARAPET RAIL

No Scale

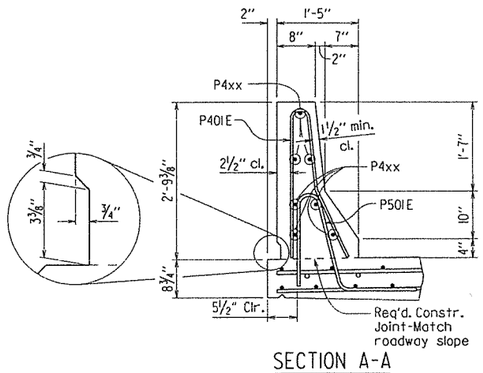
② ℄ Partial-Depth Parapet Joint (¼" to 1" max.) as shown in "Reinforcing Plan and Pouring Sequence", Dwg. No. 53739. Stop 1'-2" from top of slab.

TABLE OF PARAPET RAIL VARIABLES

"A" Closed Parapet	"B"	P4xx Bar
13'-0"	25	P404E

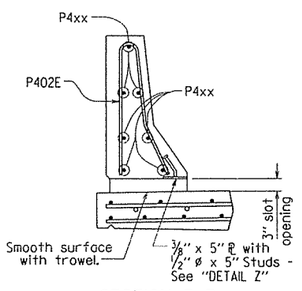
"C" Open Parapet	"D"	"E"	P4xx Bar
13'-0"	4'-6"	8	P404E
20'-0"	8'-0"	15	P405E

Note: For location of Open and Closed Parapet panels, see "Reinforcing Plan and Pouring Sequence", Dwg. No. 53739.



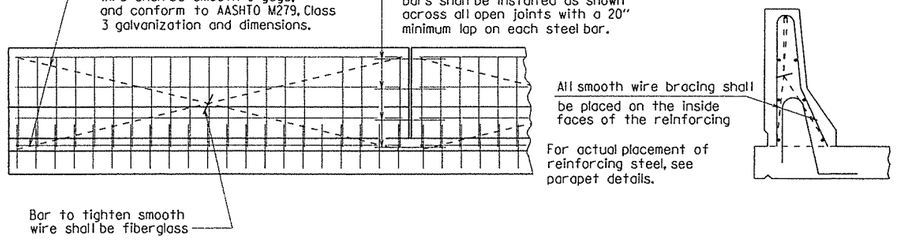
SECTION A-A

Scale: ¾" = 1'-0"



SECTION B-B

Scale: ¾" = 1'-0"

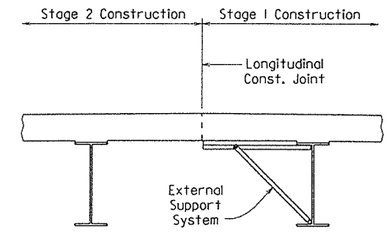


All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practicalto a minimum width of ¼". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

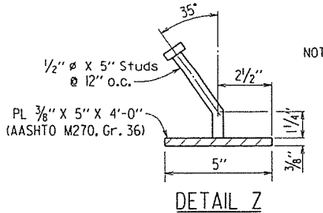
No Scale



Stage 1 external supports in this bay shall remain in place until after completion of the Stage 2 deck pour. See Subsection 802.15 for additional information regarding their removal.

DECK SUPPORT AT LONGITUDINAL CONSTRUCTION JOINT

Looking Ahead
No Scale



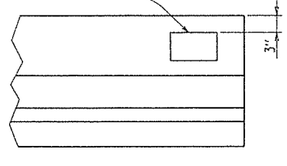
DETAIL Z

No Scale

NOTE: The surfaces of the ⅜" plates which will not be in contact with concrete shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M270, Gr. 50W)."

Parapet studs shall be 5" long, granular flux filled, solid fluxed or equal, and automatically end welded to the plate. Studs and plates shall meet the requirements of Section 807 and shall be measured and paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)."

Place Type D Bridge Name Plate on front face of span rail approx. 2'-0" from front face of backwall on right side beginning of bridge



NAME PLATE DETAIL

No Scale

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

SHEET 7 OF 8
DETAILS OF 302' CONTINUOUS COMPOSITE W-BEAM UNIT BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

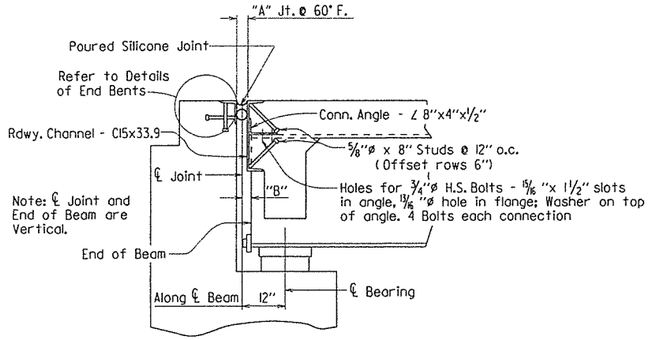
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-30-12
CHECKED BY: AOV DATE: 3-21-13
DESIGNED BY: AOV DATE: 7-12
FILENAME: bl00686x2_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07286 DRAWING NO. 53740

PRINT DATE: 4/12/2013

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.		100686	85	185
				①	07286 -	W-BEAM UNIT	- 53741	



JOINT AT END BENTS

Perpendicular to ℄ Joint
No Scale

SILICONE JOINT DATA

Bent Number	"A" Width Perpendicular to Joint at 24 Hour Average Temperature ① Of:			"B" Perpendicular to Joint at 60°F	Bumper Bar Size	"D"
	40°F	60°F	80°F			
1 & 4	2 1/4"	2"	1 3/4"	2 1/4"	1" x 1"	5"

① 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.

Notes: The temperature limitations recommended by the sealant manufacturer shall be observed.

The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80°F.

② BACKER ROD NOTE:

Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing.

Except as noted, do not install more backer rod that can be sealed in the same day.

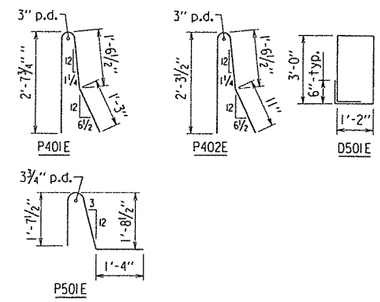
The contractor shall verify separation of the backer rod from the joint material after the joint material has set.

BAR LIST

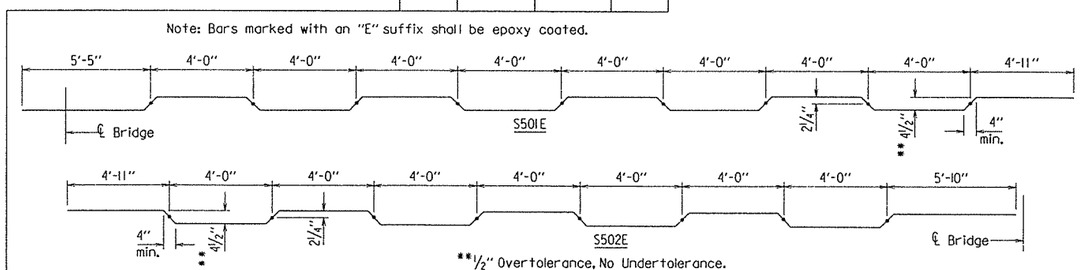
MARK	NO. REQ'D.	LENGTH	P.D.
S401E	1664	40'-0"	Str.
S402E	302	41'-8"	Str.
S403E	302	38'-9"	Str.
P401E	1048	5'-6"	3"
P402E	160	4'-10"	3"
P403E	120	5'-6"	Str.
P404E	196	12'-8"	Str.
P405E	84	19'-8"	Str.
S501E	301	43'-4"	3"
S502E	301	39'-7"	3"
S503E	302	42'-2"	Str.
S504E	302	38'-9"	Str.
S505E	301	9'-3"	Str.
S506E	1206	4'-10"	Str.
P501E	1048	4'-9"	3 3/4"
D501E	180	8'-10"	2 1/2"
D502E	48	3'-8"	2 1/2"
D503E	168	6'-6"	2 1/2"
S601E	312	30'-6"	Str.
D601E	256	7'-8"	Str.
D602E	96	1'-10"	Str.
D603E	32	2'-9"	Str.

BENDING DIAGRAMS

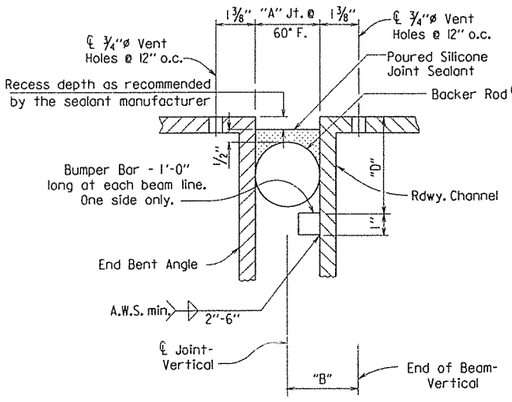
Dimensions are out to out of bars.



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

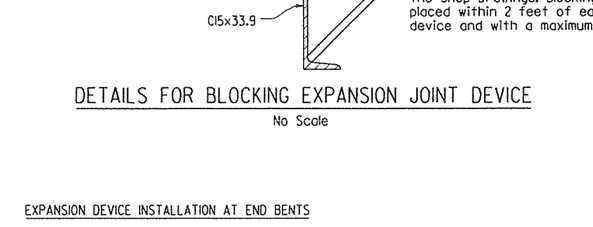


**1/2" Overtolerance, No Undertolerance.



DETAIL OF POURED SILICONE JOINT SEAL

No Scale



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown @ 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

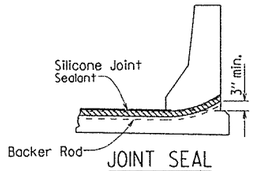
No Scale

EXPANSION DEVICE INSTALLATION AT END BENTS

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

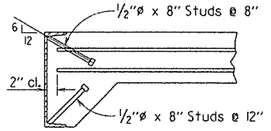
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing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

2) The backwall shall be poured to the optional construction joint after beams 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. Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been placed.



JOINT SEAL PLACEMENT AT CURB

No Scale



Note: As an alternate to 5/8"ø studs, 1/2"ø x 8" studs spaced as shown may be used. Use weight of 5/8"ø stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS

No Scale

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

BRIDGE ENGINEER

SHEET 8 OF 8
DETAILS OF 302' CONTINUOUS COMPOSITE W-BEAM UNIT BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

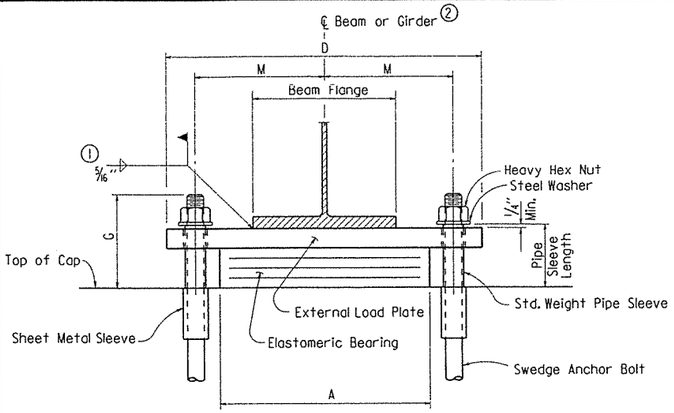
DRAWN BY: KDH DATE: 10-30-12
CHECKED BY: AOM DATE: 3-21-13
DESIGNED BY: AOM DATE: 7-12

FILENAME: bl00686x2_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07286 DRAWING NO. 53741

PRINT DATE: 4/12/2013

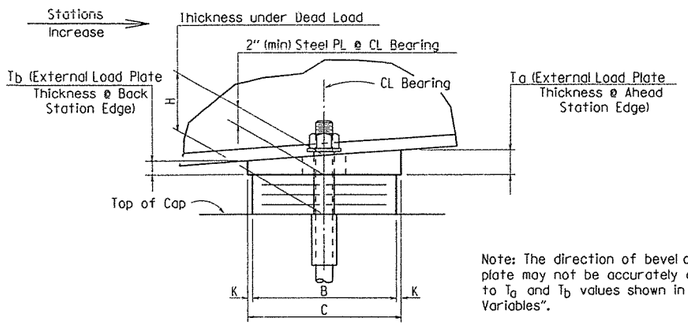
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	86	185
				①	07286 -	ELASTO. BRGS.	- 53742	



FRONT VIEW

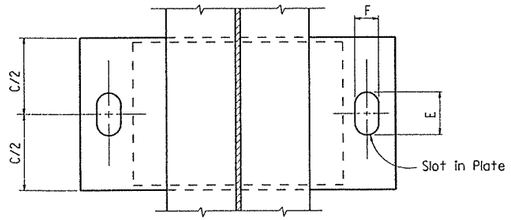
① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.

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

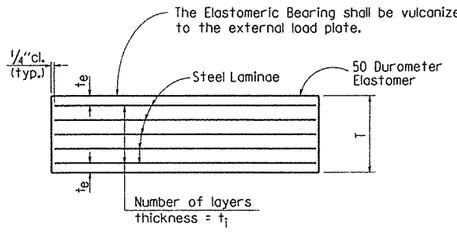


SIDE VIEW

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



PLAN VIEW



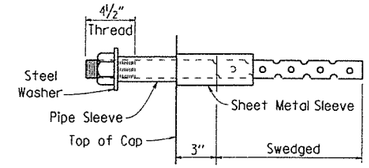
t_e = thickness of elastomer cover on top and bottom of pad

t_i = thickness of elastomer between steel laminae

N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

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.



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 Beam Spans, (M 270, Gr. 50W)"

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 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 shall be completely fabricated (including bevel and bolt holes) 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 Beam 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.

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION BENT NO(S).	LOCATION BEAM 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	K	M	T_a	T_b	ANCHOR BOLT ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
07286	1 & 6	All	Exp.	10	74	7 3/4"	4 15/16"	12"	7"	4	1/2"	1/4"	5 @ 12 Gauge	3"	8 1/2"	21 1/2"	4 3/8"	2"	3/4"	8"	2.00"	2.00"	1 1/4" X 21"	55	1 1/4" X 5 1/2"	3" X 6"	2 1/2"

*Maximum Design Load = Service I Limit State

Tabular Data by : ADN Date: 9-20-12

Checked by : mcb Date: 3/17/13

Designed by : ADM Date: 9-12

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
4/11/13
CARL J. FUSELIER

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: Nov.12.96

CHECKED BY: AMS DATE: Jul.7.05

DESIGNED BY: Std. DATE:

FILENAME: bl00686x2_el.dgn

SCALE: NONE

BRIDGE NO. 07286 DRAWING NO. 53742

PRINT DATE: 4/12/2013

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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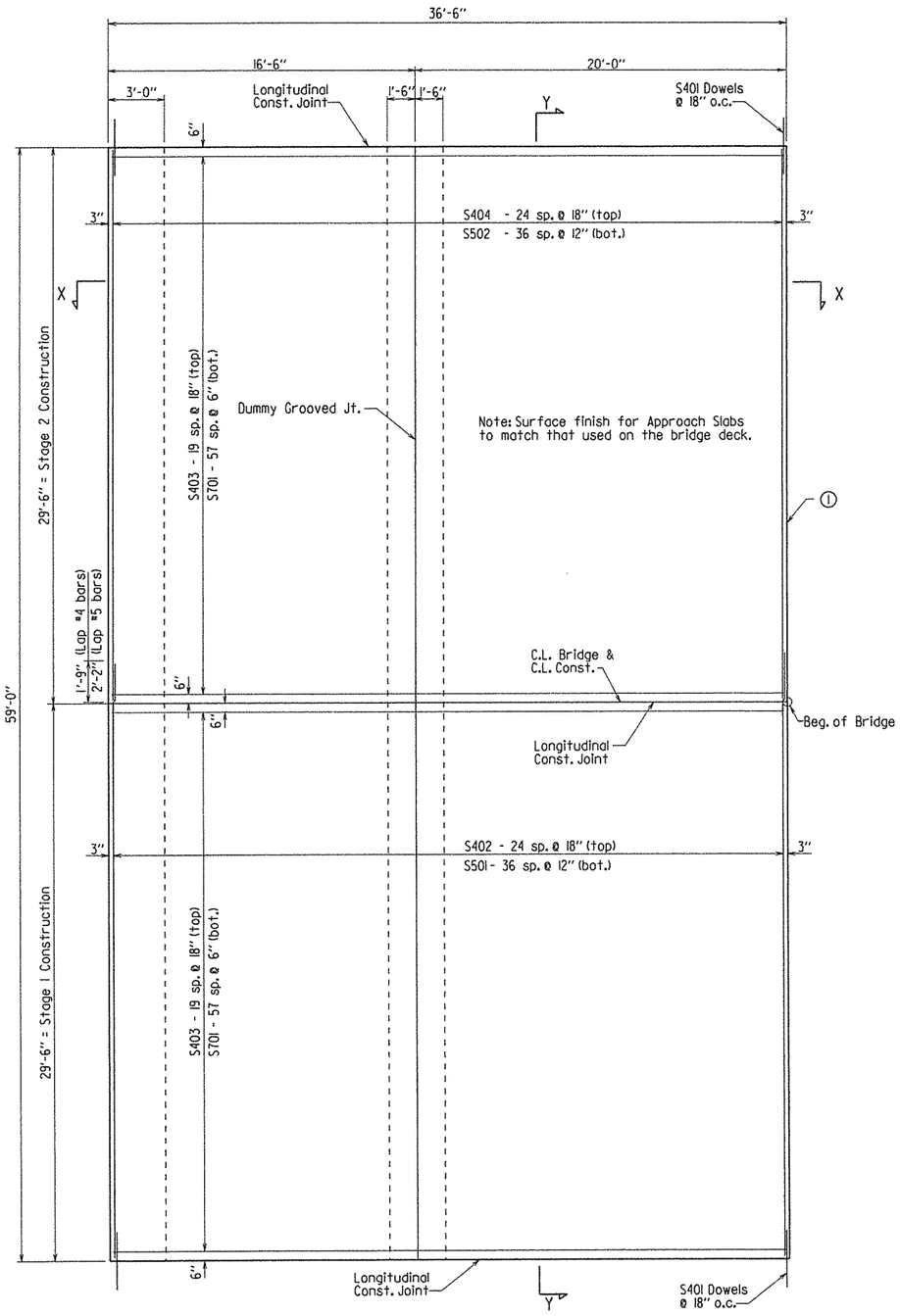
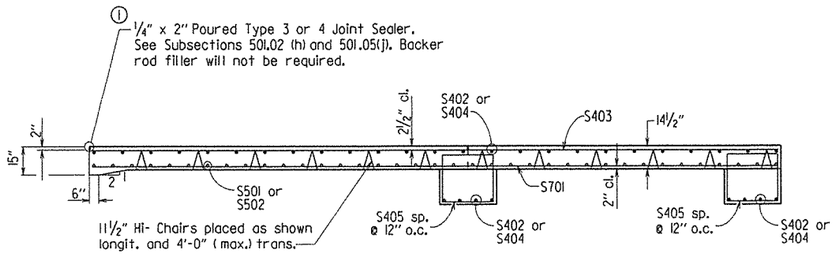
				JOB NO.		100686	87	185
				①	07286 -	APPR. SLAB	-	53743



PLAN-APPROACH SLAB

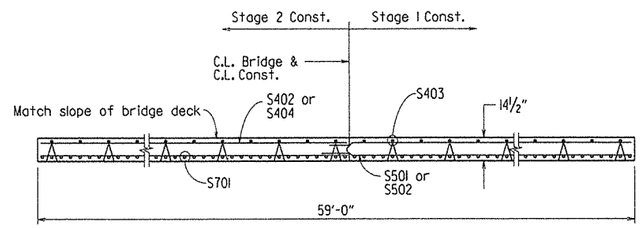
Scale: 1/4" = 1'-0"

Note: Approach Slab Shown for Beg. of Bridge. End of Bridge similar.



SECTION X-X

N.T.S.

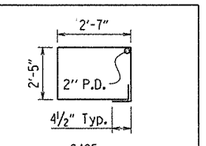


SECTION Y-Y

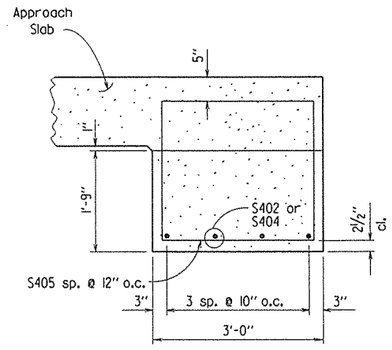
N.T.S.

BAR LIST

Mark	No. Req'd.	Length
S401	50	3'-0"
S402	33	31'-3"
S403	40	36'-2"
S404	33	29'-2"
S405	120	10'-4"
S501	37	31'-8"
S502	37	29'-2"
S701	116	36'-2"

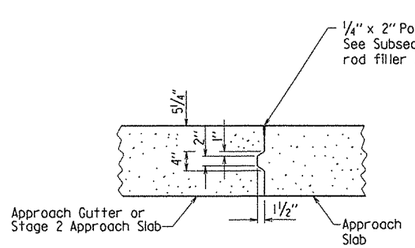


Dimensions are out to out of bar.



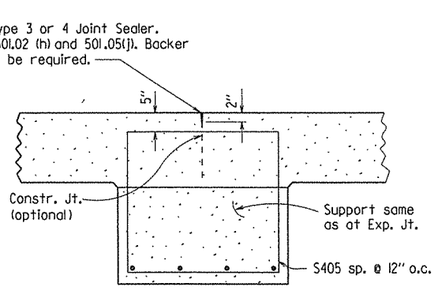
DETAILS OF SUPPORT AT END OF SLAB

N.T.S.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

N.T.S.



DETAILS OF DUMMY GROOVED JOINT

N.T.S.

TABLE OF QUANTITIES FOR ONE APPROACH SLAB

Reinforcing Steel (lb.)	Concrete (Cu. Yds.)
14150	120.50

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.

Approach Slabs will be measured and paid for in accordance with Section 504.

Joint sealer included in the pay item "Approach Slab".

Surface finish for Approach Slabs shall match that used on the bridge deck.

① Note: The 1/2" Preformed Joint AASHTO M153 Type 1 shall be eliminated between concrete faces where dowel bars are used to tie approach slabs and gutters to the bridge components. See Approach Gutter and End Bent details.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
2/10/14
CARL J. FUSELIER

BRIDGE ENGINEER

DETAILS OF TYPE SPECIAL 2 APPROACH SLAB BLACK RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ADN DATE: 12/03/2012 FILENAME: bl00686x2_as.dgn

CHECKED BY: CJF DATE: 2/7/14 SCALE: As Shown

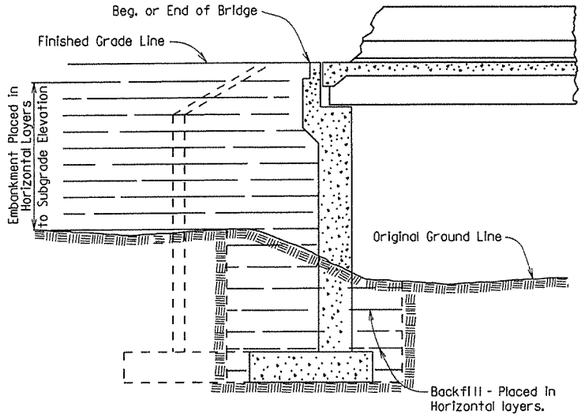
DESIGNED BY: Std. DATE: —

BRIDGE NO. 07286 DRAWING NO. 53743

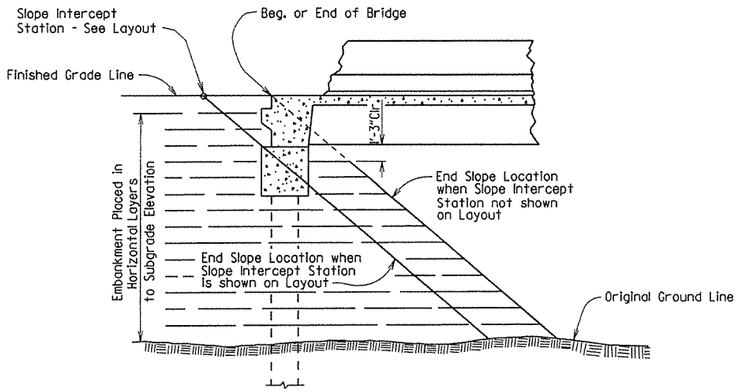
PRINT DATE: 2/10/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		33	
				JOB NO.				

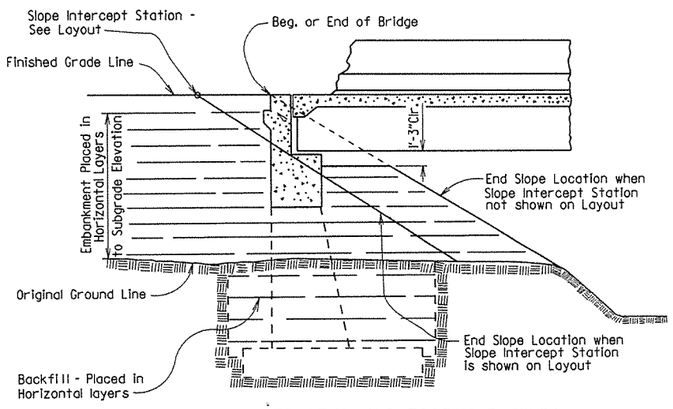
(1) EMBANKMENT & BACKFILL 55000



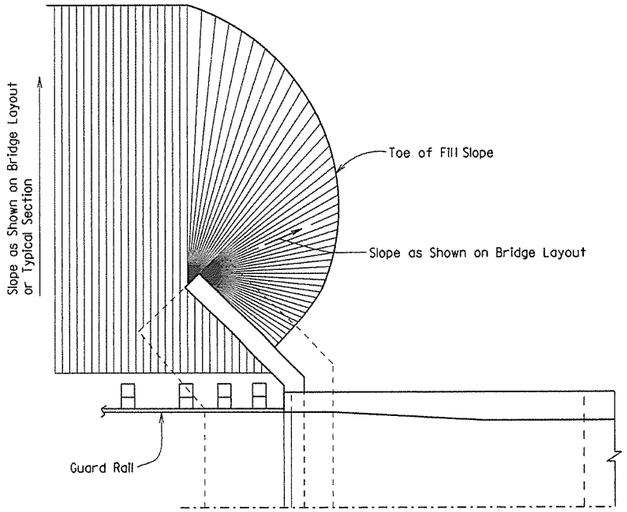
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



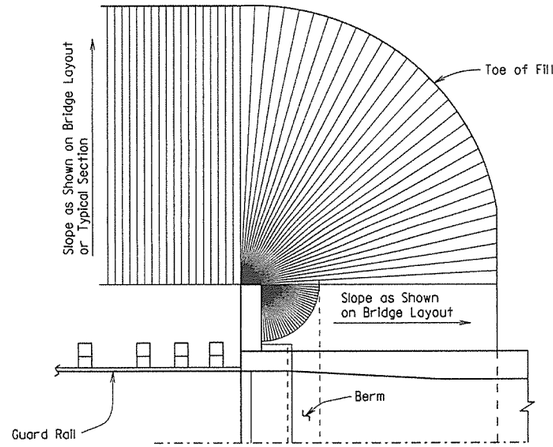
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



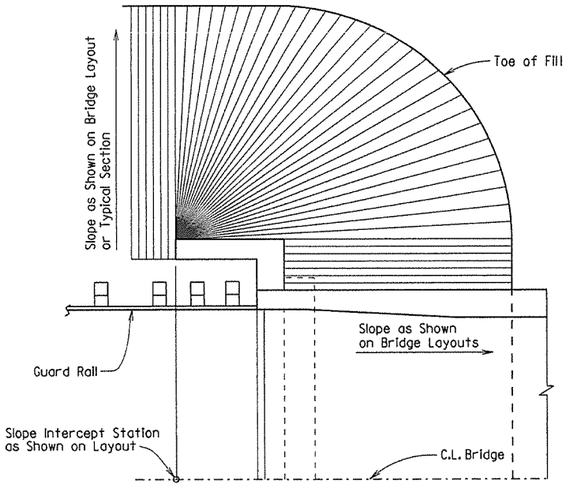
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



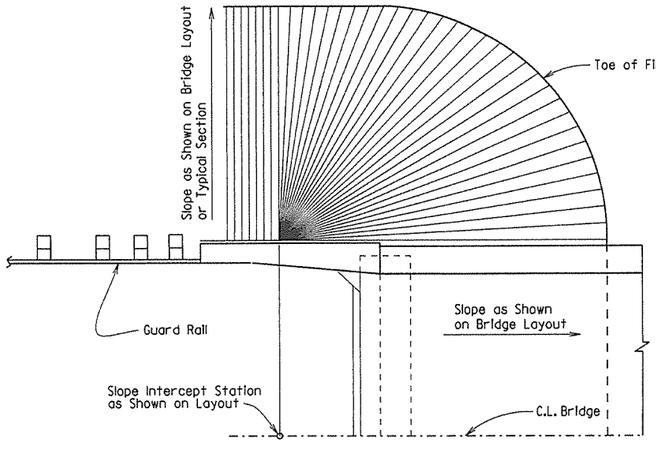
VERTICAL WALL ABUTMENTS



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

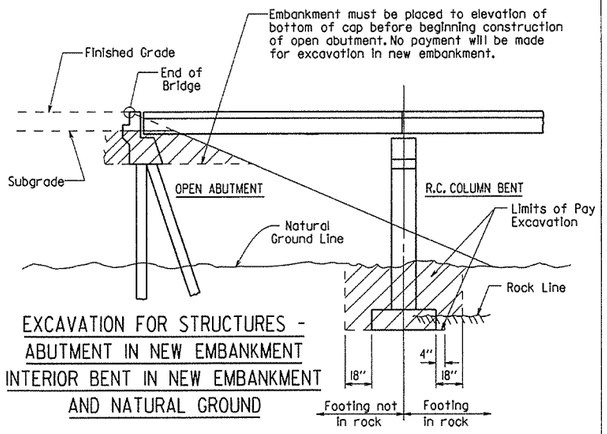
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: -

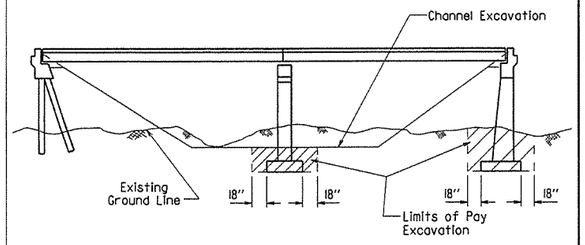
DRAWING NO. 55000

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		99	
				JOB NO.				

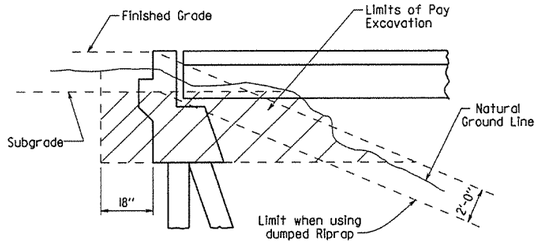
① RIPRAP & EXCAV. 55001



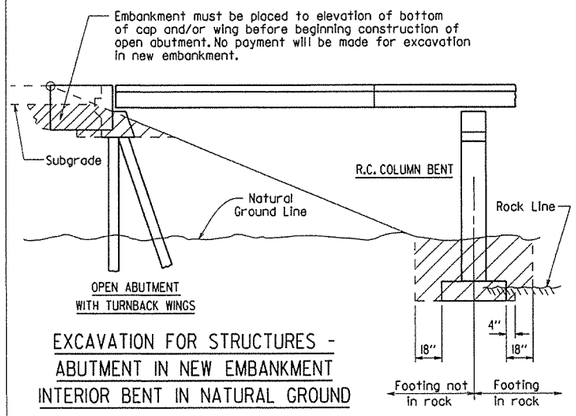
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



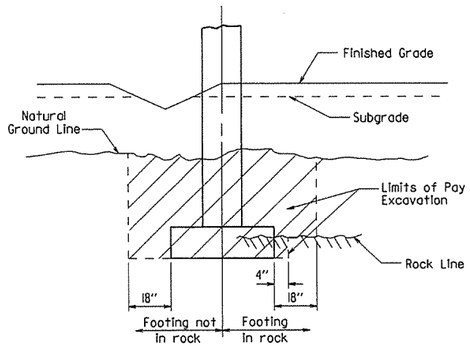
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



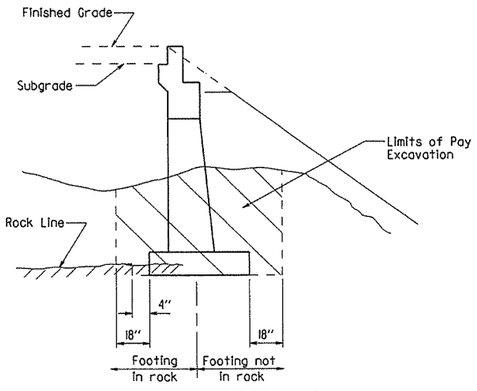
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



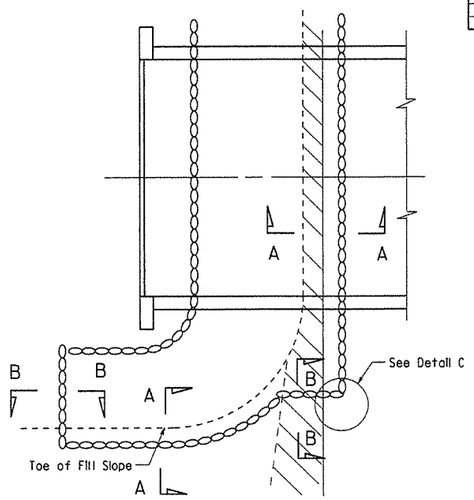
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



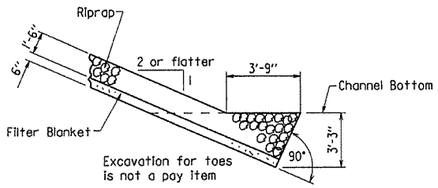
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



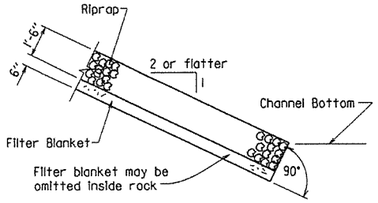
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



PLAN OF DUMPED RIPRAP



SECTION A-A
(Toe Excavation in Soil)

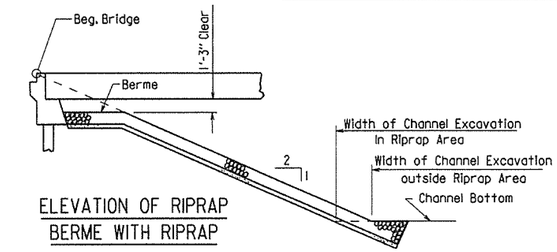


SECTION A-A
(Toe Excavation in Rock)

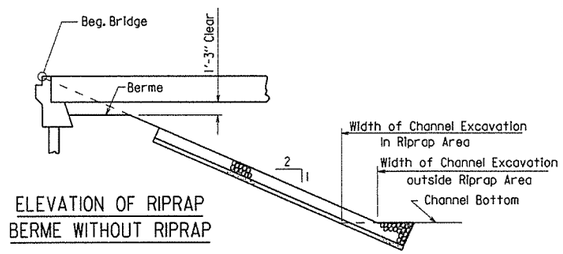
Note : Use this type of toe when rock is encountered which is in a stable condition.

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.

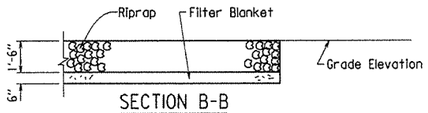
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



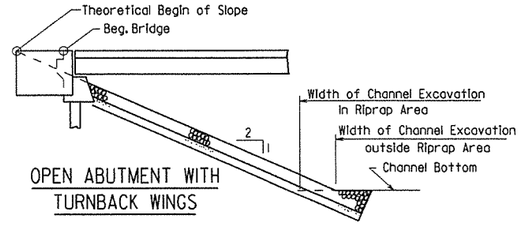
ELEVATION OF RIPRAP BERME WITH RIPRAP



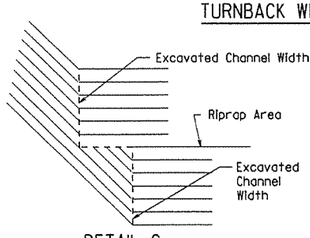
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES

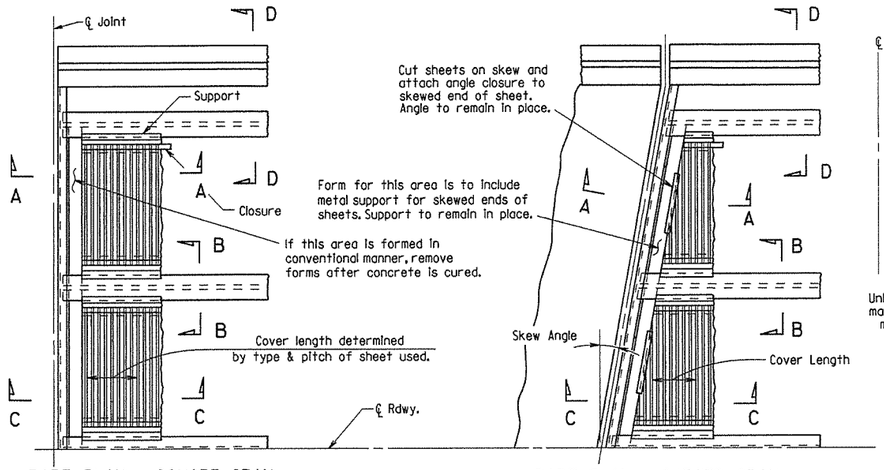
ARKANSAS STATE HIGHWAY COMMISSION

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.		90	
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

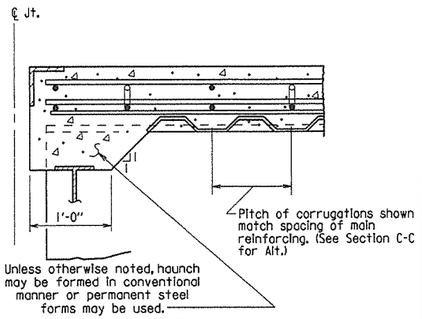


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

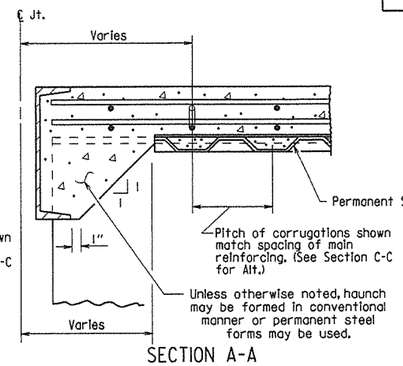
3/8" = 1'-0"



SECTION A-A

N.T.S.

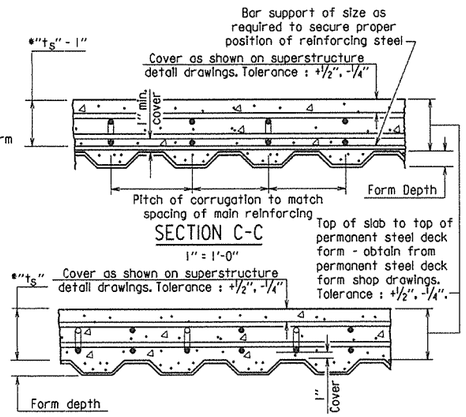
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



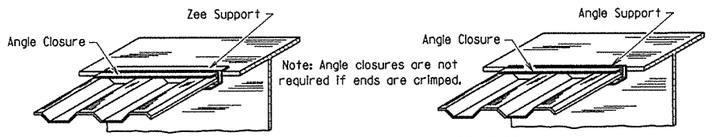
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

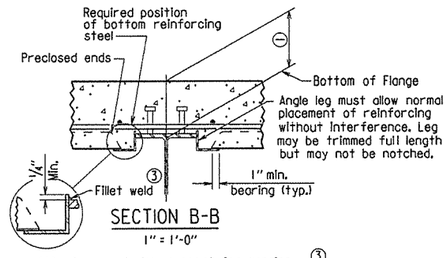
1" = 1'-0"

(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

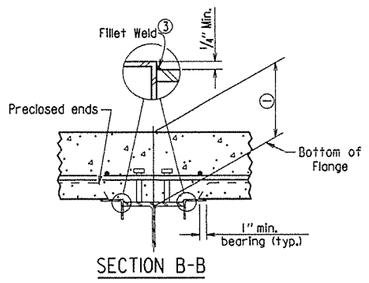


SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

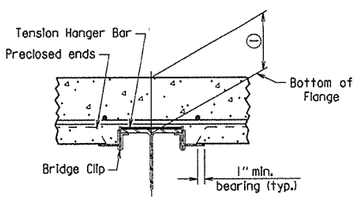
③ Minimum weld: 1/8" x 1' @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

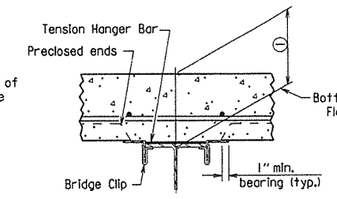
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

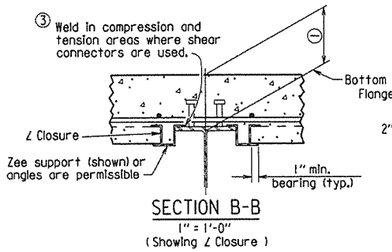
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

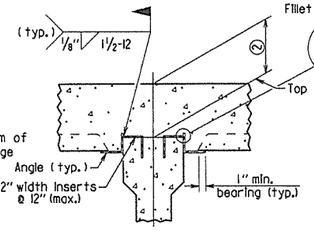
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

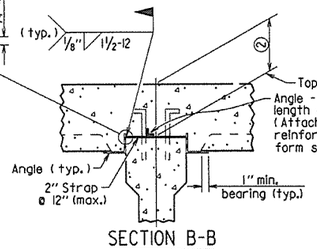


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Insert cast in girder)

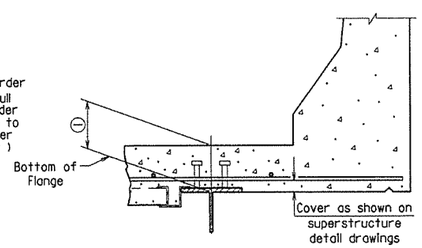


SECTION B-B

(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: —

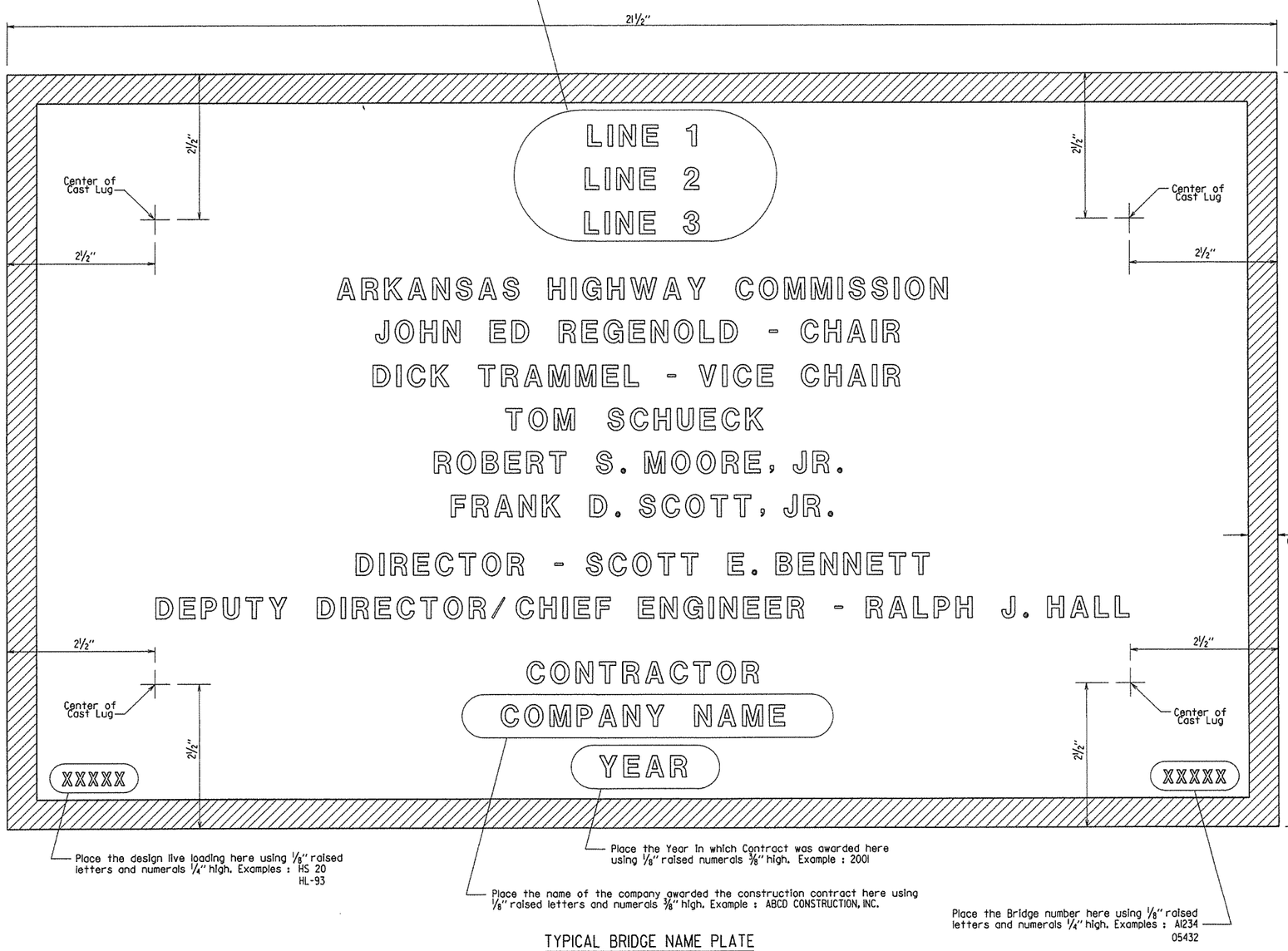
DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		91	
				JOB NO.				

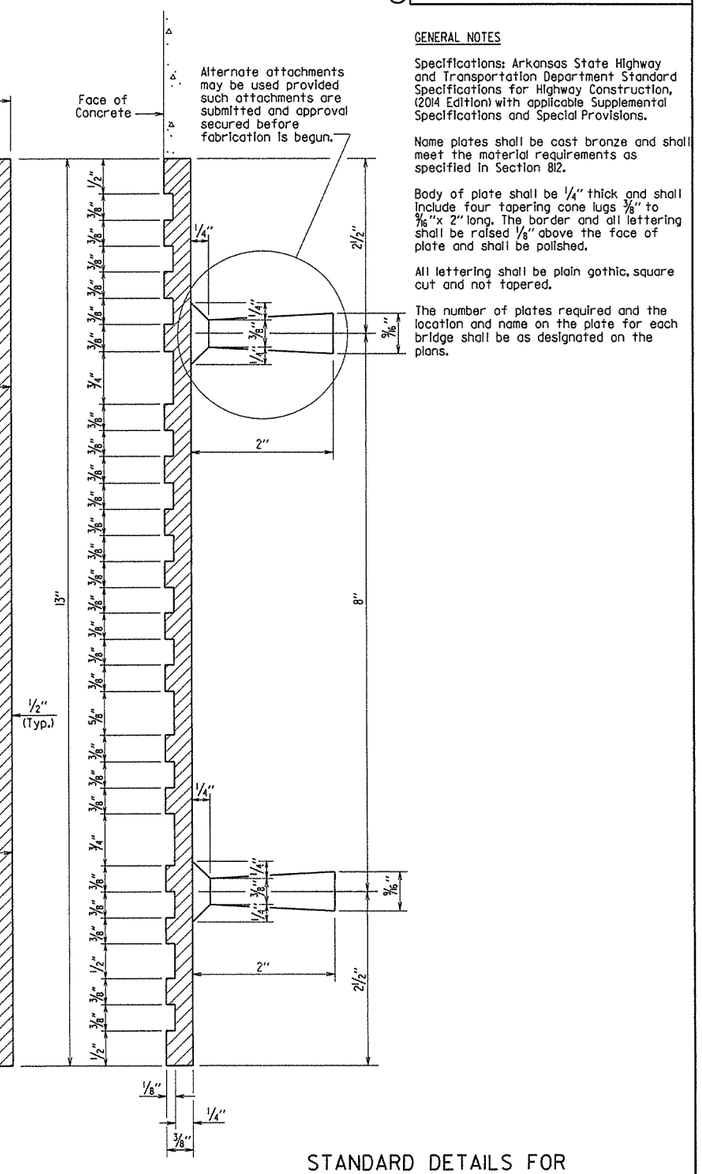
① TYPE D NAME PLATE 55010

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.

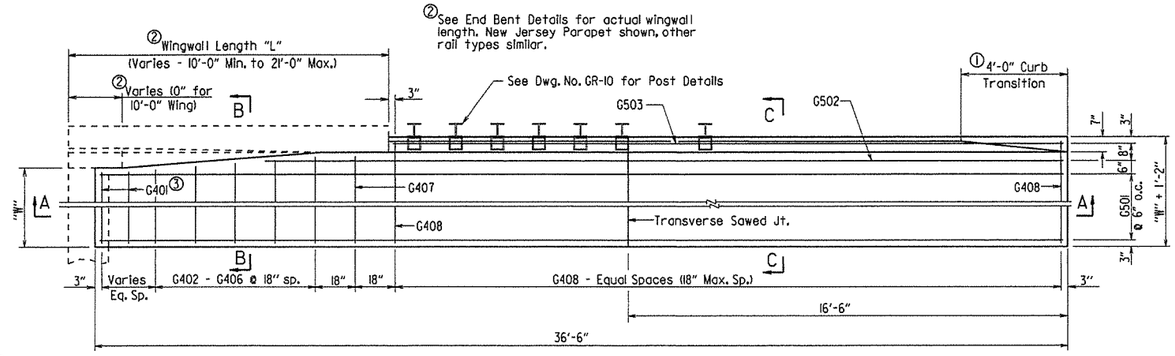
STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

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: ---

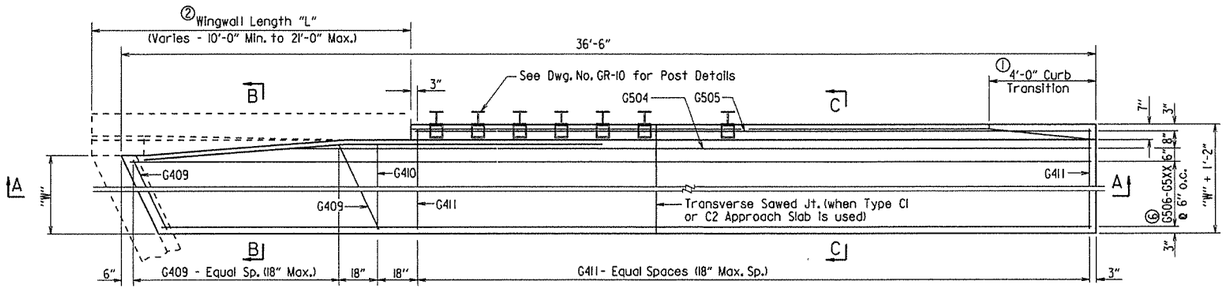
DRAWING NO. 55010

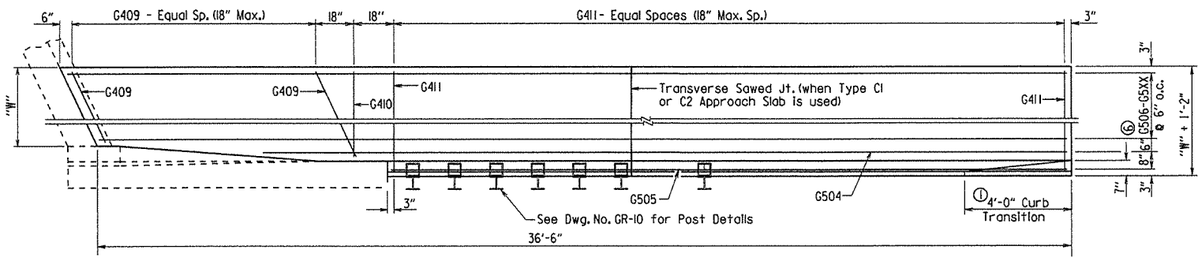
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		93	
				JOB NO.				
				①	TYPE C GUTTERS		55030C	



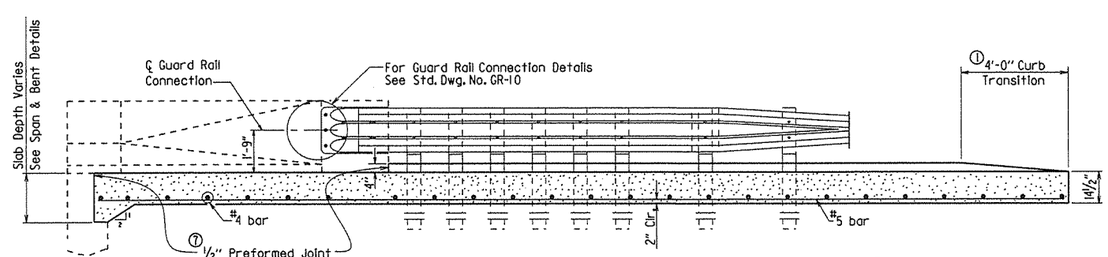
③Provide G401 bars @ 18" max. spacing. Number of G401 bars vary with wingwall length. No G401 bars required for 10'-0" wingwalls.

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





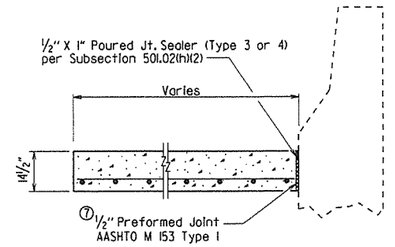
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



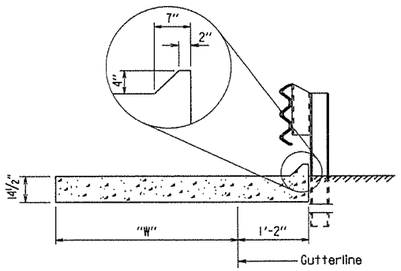
SECTION A-A

①Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

Note:
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

⑦Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type C2 Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

BAR LIST FOR ONE TYPE C GUTTER

	Mark	No. Req'd. for Width "W" 4'-0"	6'-0"	8'-0"	10'-0"	Length
Square Bridge	G401	④	④	④	④	"W"- 4"
	G402-G406	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	"W"+3"
	G408	④	④	④	④	"W"+ 10"
	G501	8	12	16	20	36'-2"
	G502	1	1	1	1	(41'-11") - "L"
	G503	1	1	1	1	(37'-2") - "L"
Skewed Bridge	G409	④	④	④	④	⑤
	G410	1	1	1	1	"W"+3"
	G411	④	④	④	④	"W"+ 10"
	G504	1	1	1	1	⑤
	G505	1	1	1	1	⑤
	G506 - G5XX⑥	1 each	1 each	1 each	1 each	⑤

④No. Req'd. varies with Skew and Wingwall Length.

⑤Bar Lengths vary with Skew and Wingwall Length.

⑥G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'
G525 for "W" = 10'

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
4	445	8.30
6	630	11.55
8	810	14.80
10	995	18.10

Quantities are based on "L" = 10'-0".

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

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.

Approach Gutters will be measured and paid for in accordance with Section 504.

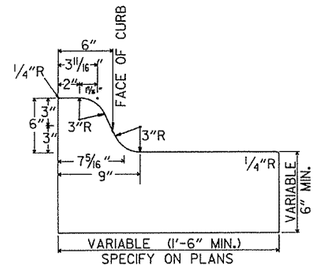
STANDARD DETAILS FOR TYPE C APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

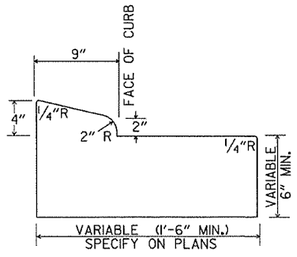
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030c.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: ⅜" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

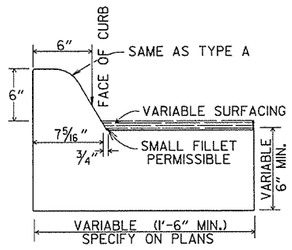
DRAWING NO. 55030C



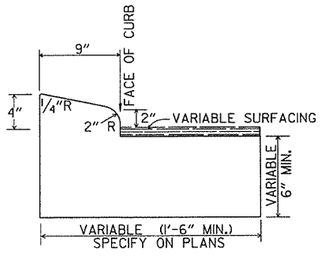
TYPE A



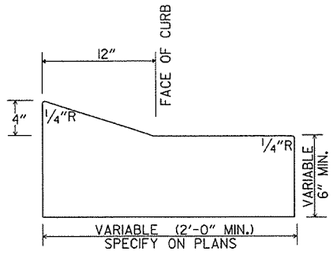
TYPE B-1



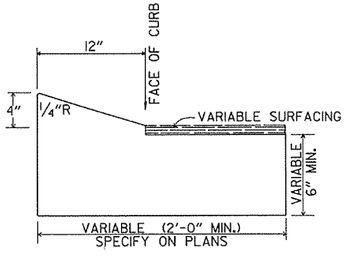
TYPE C



TYPE B-2

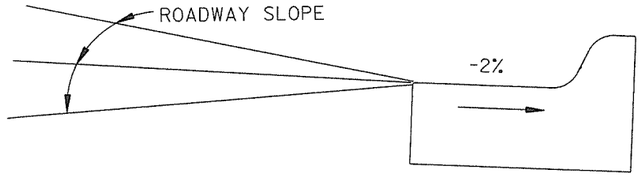


TYPE E-1



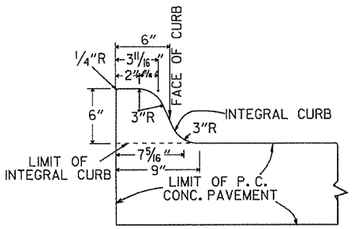
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

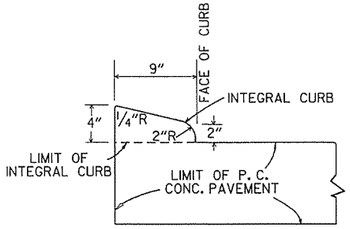


DETAIL OF GUTTER SLOPE

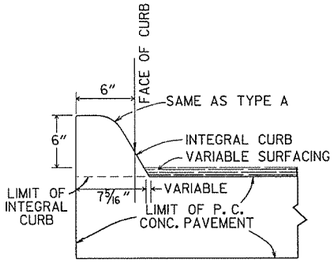
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

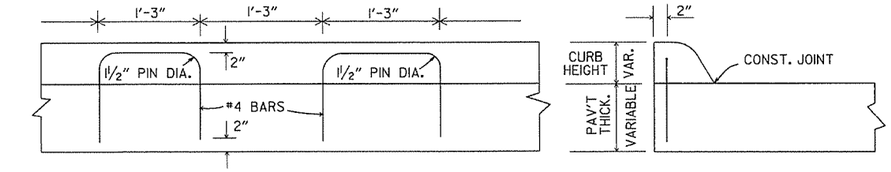


TYPE B



TYPE C

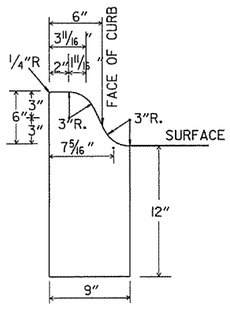
INTEGRAL CURB



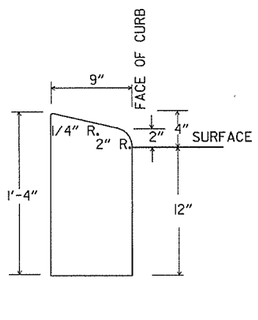
LONGITUDINAL SECTION

ELEVATION

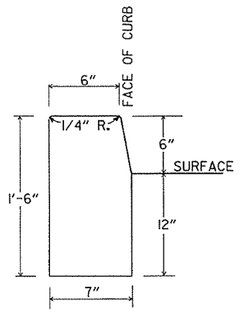
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



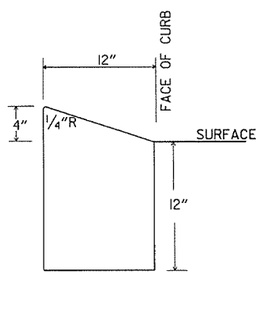
TYPE A



TYPE B

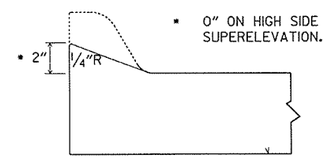


TYPE D



TYPE E

CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

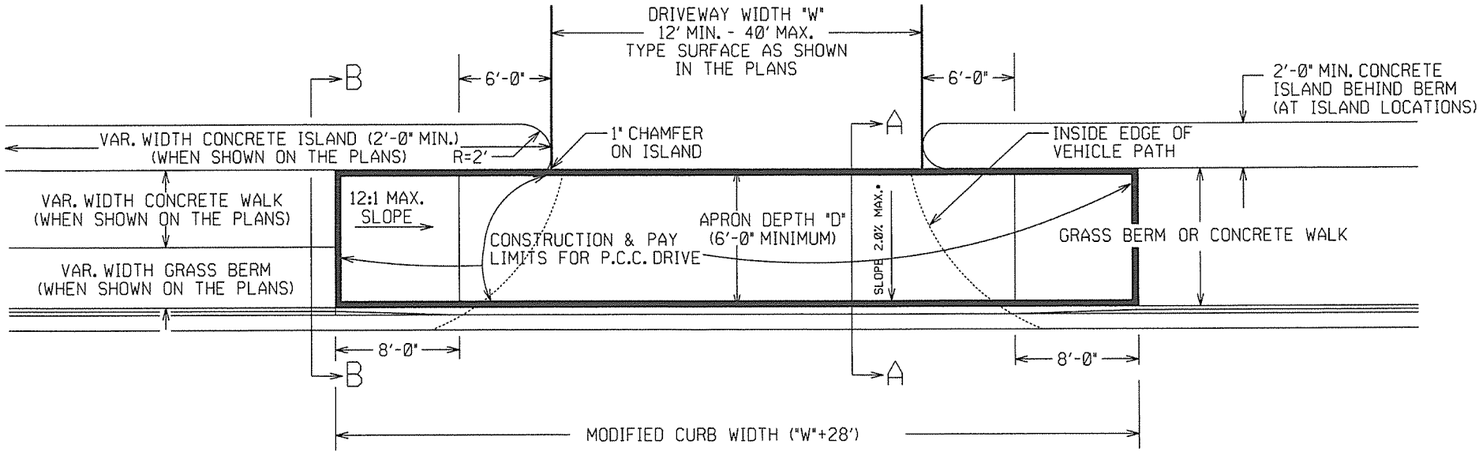
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B I	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

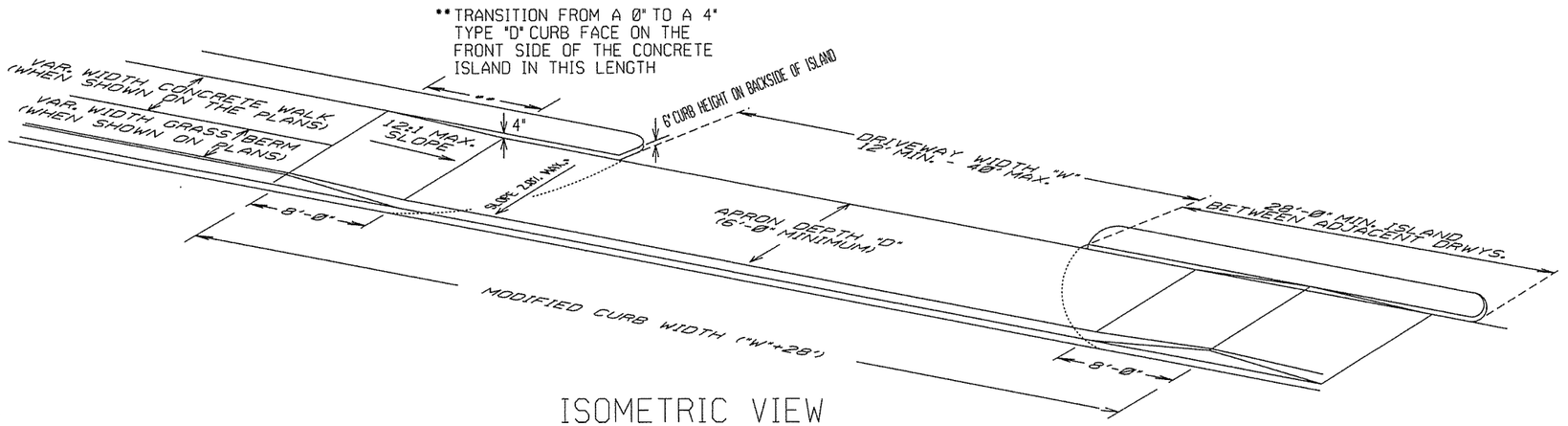
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

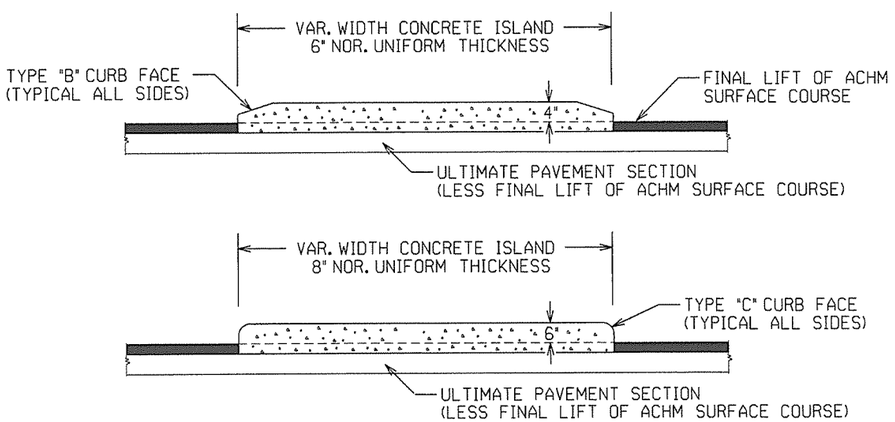
STANDARD DRAWING CG-1



PLAN VIEW

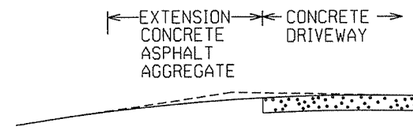


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

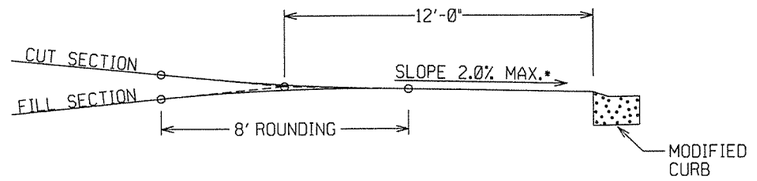
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

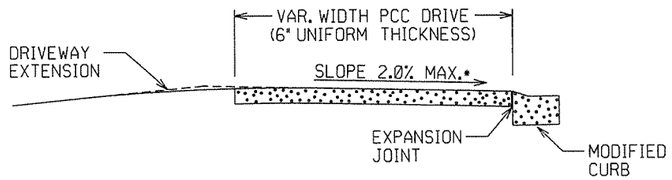
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

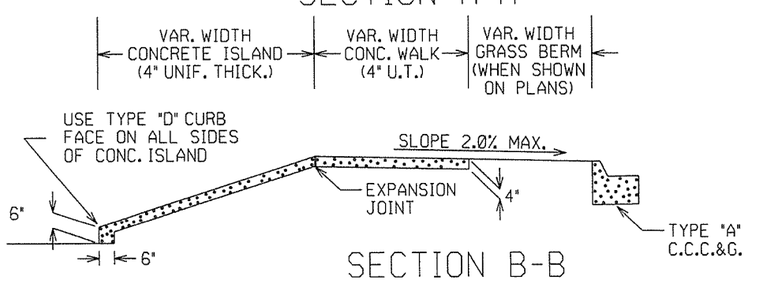


DRIVEWAY VERTICAL ALIGNMENT DETAILS

* NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



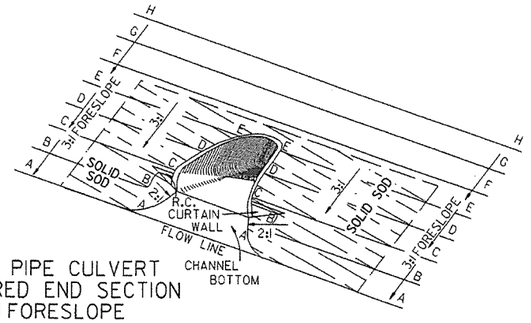
SECTION A-A



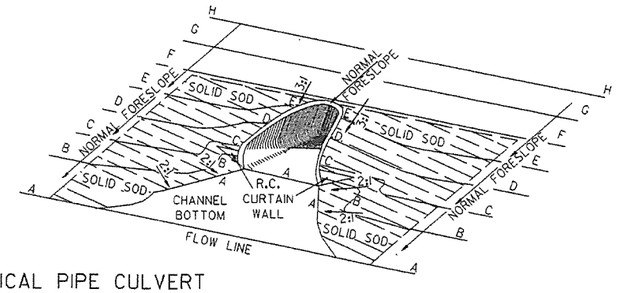
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
2-27-14		REVISED PLAN & ISOMETRIC VIEW
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

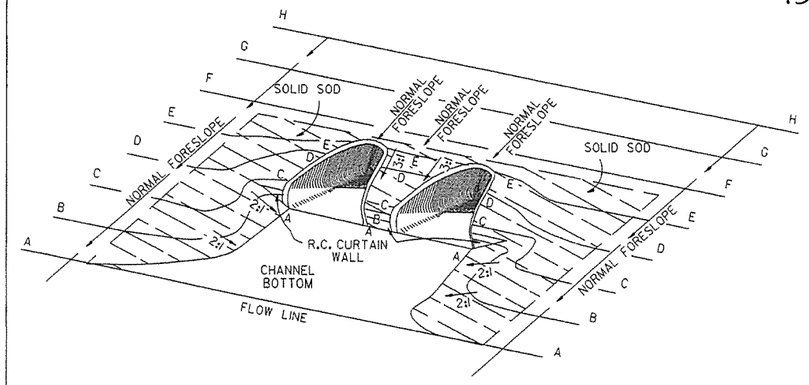
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

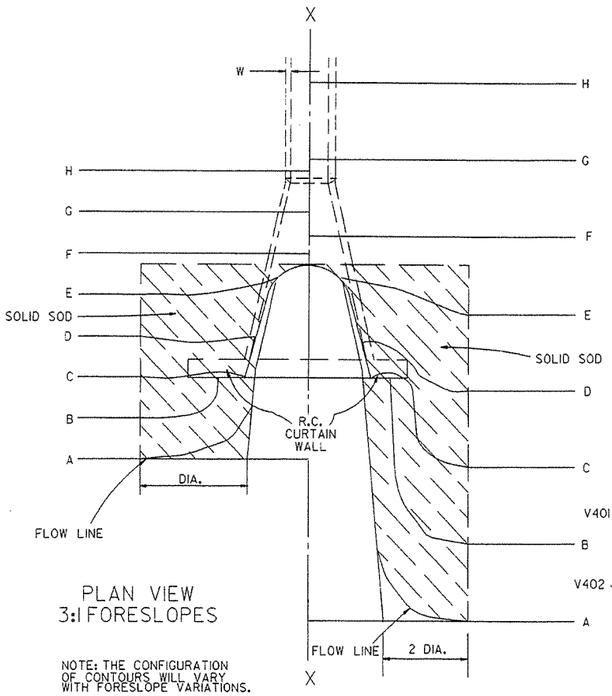
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	1 1/2"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0 1/2"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3 1/2"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1 1/2"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9 1/2"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT								DOUBLE R.C. PIPE CULVERT									
	H401		H402		V401		V402		H401		H402		H403		V401		V402	
	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.
18"	7'-8"	2	1'-11 1/2"	4	1'-7 1/2"	8	8"	8	12'-2"	2	1'-11 1/2"	4	8"	2	1'-7 1/2"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8 1/2"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8 1/2"	12	8"	18
30"	10'-8"	2	2'-4 1/2"	4	1'-11 1/2"	10	8"	12	17'-8"	2	2'-4 1/2"	4	8"	2	1'-11 1/2"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9 1/2"	8	2'-9 1/2"	16	8"	15	23'-8"	2	3'-9 1/2"	8	8"	4	2'-9 1/2"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8 1/2"	12	3'-5 1/2"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5 1/2"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

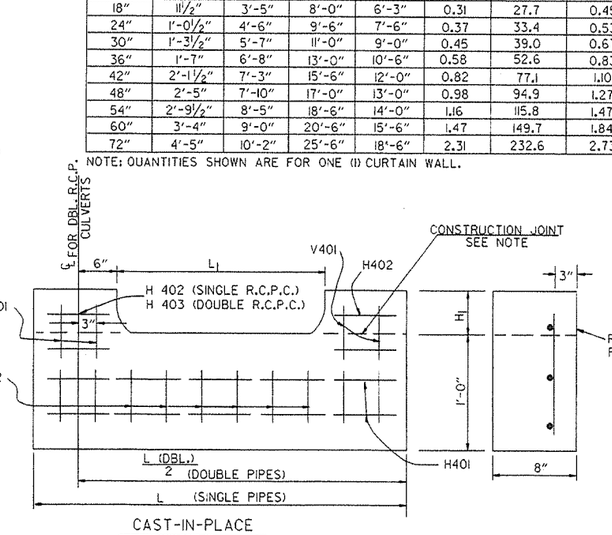
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

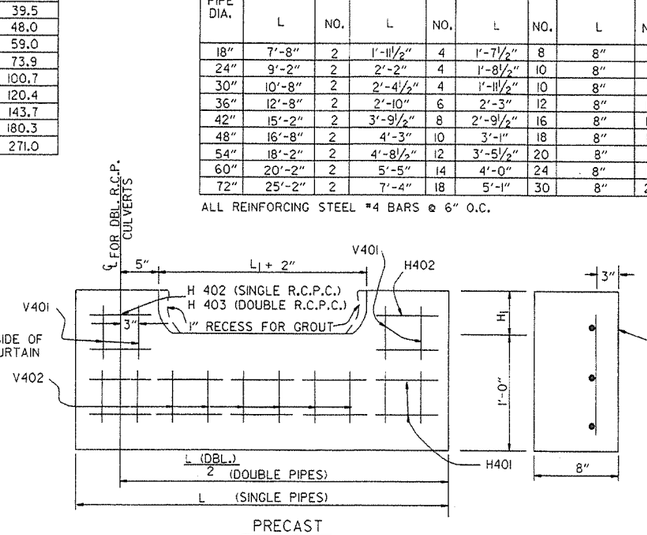
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

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

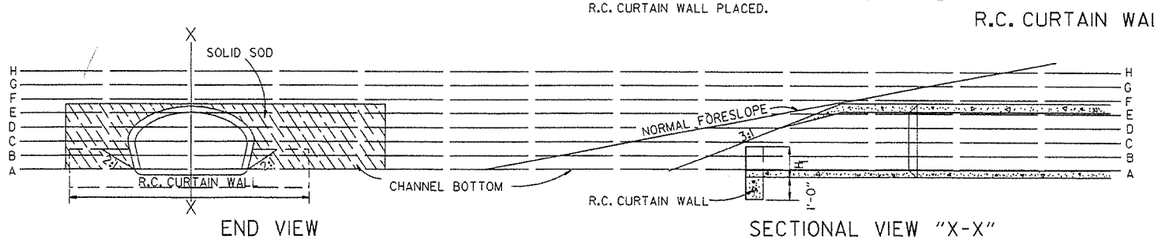
PIPE DIA.	SINGLE R.C.P.C.			DOUBLE R.C.P.C.		
	3:1	4:1	6:1	3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

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 3/4".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W/10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.

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

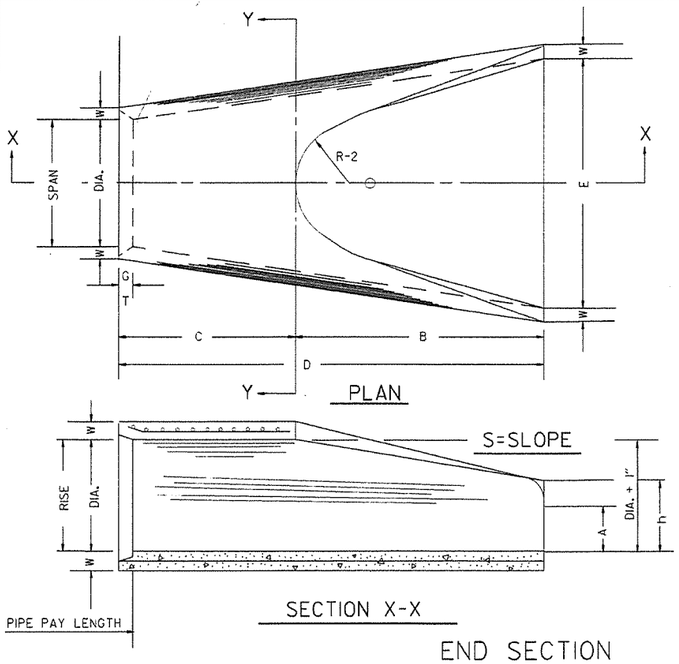
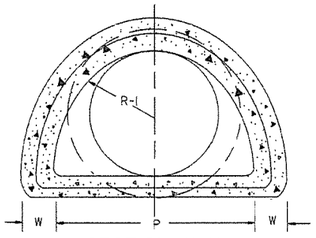
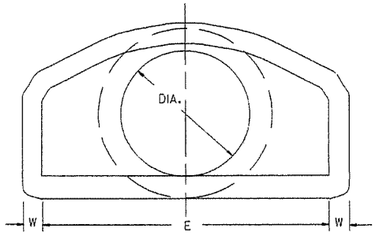


TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. ~ I"	P	R-I	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 1/8"	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'-4⅜"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47 13/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅞"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 15/16"	24"	5"	13250	4'-6"



SECTION Y-Y



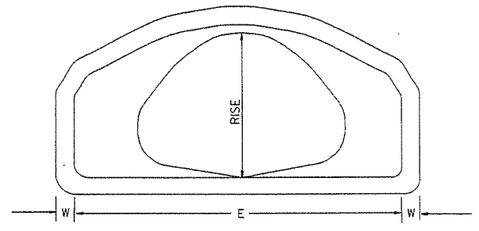
END VIEW

NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

ARCH PIPE

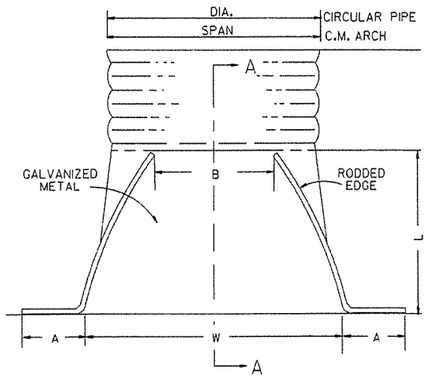
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 1/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 1/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54 5/16"	22"	3½"	2½:1
42	51⅛	51	31 3/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 1/16"	24"	5"	2¼:1

• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.

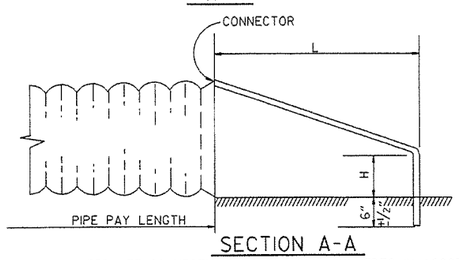


END VIEW
CONCRETE ARCH PIPE

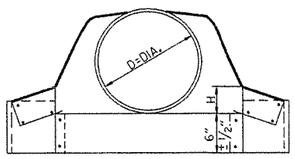
END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS



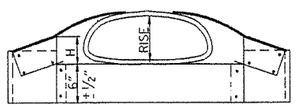
PLAN



SECTION A-A



CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

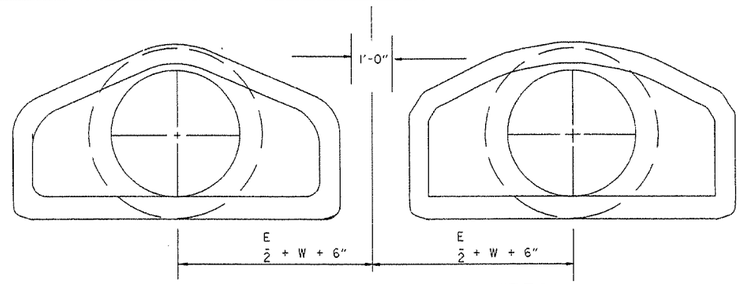
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

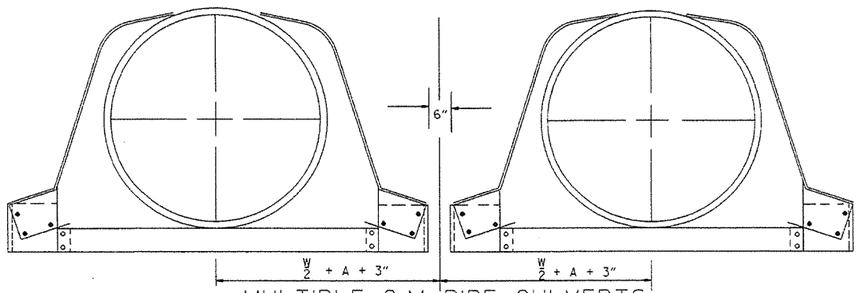
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

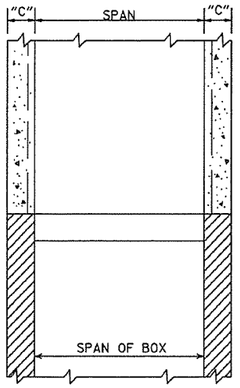
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

ARKANSAS STATE HIGHWAY COMMISION

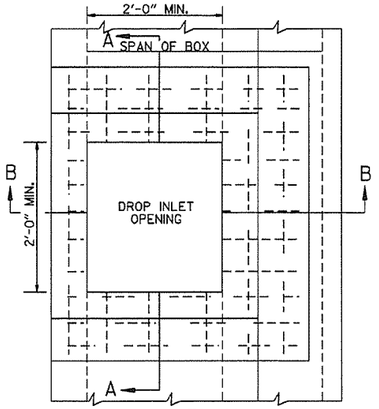
FLARED END SECTION

STANDARD DRAWING FES-2

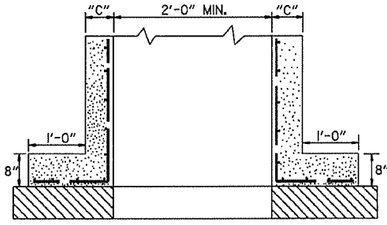
stdfes2.dgn



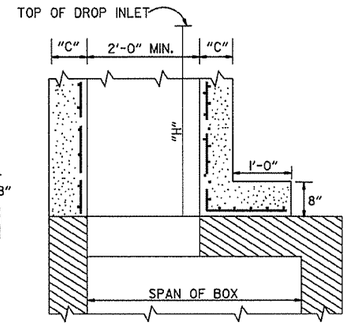
SECTION B-B



PLAN

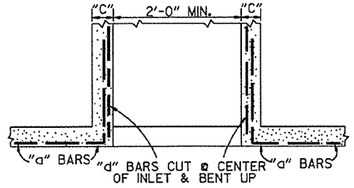


SECTION A-A

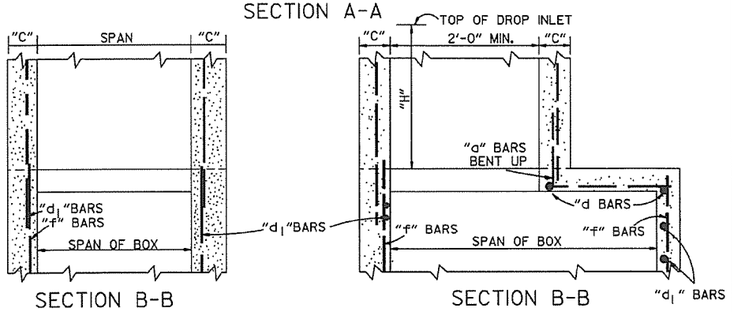


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



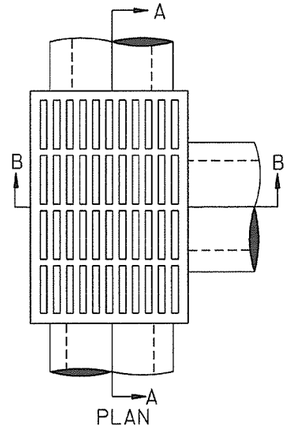
SECTION A-A



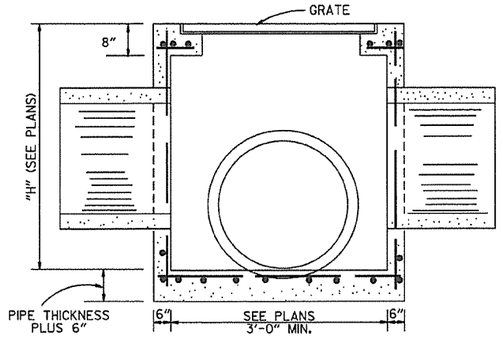
SECTION B-B SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.

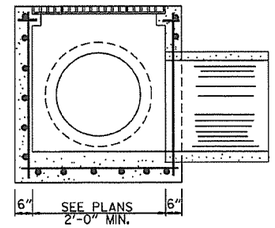


PLAN



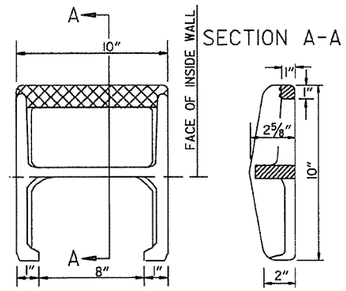
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

DROP INLET (TYPE E)



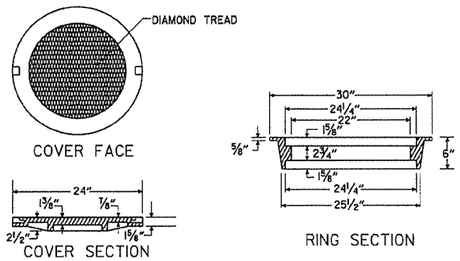
SECTION A-A

APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

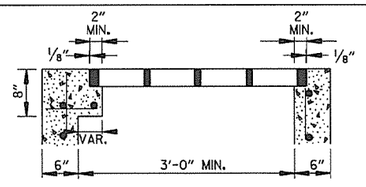
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

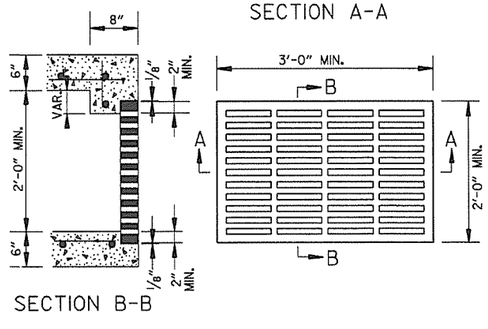


APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



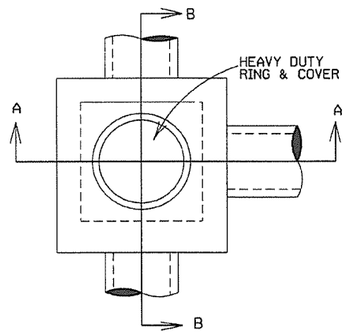
SECTION A-A



SECTION B-B

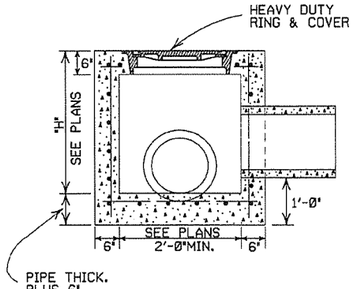
APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

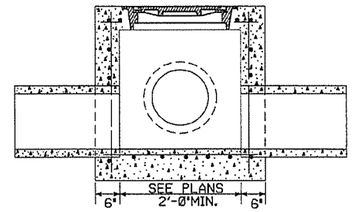


PLAN

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.

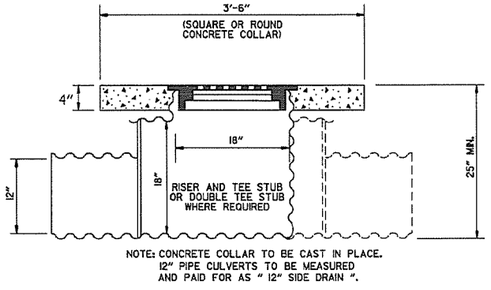


SECTION A-A

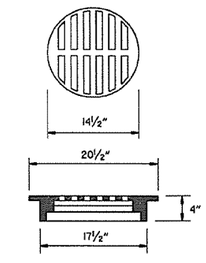


SECTION B-B

JUNCTION BOX (TYPE E)



NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12" PIPE CULVERTS TO BE MEASURED AND PAID FOR AS " 12" SIDE DRAIN ".



USE NEENAH R-5901-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

DETAIL OF YARD DRAIN

GENERAL NOTES:

1. ALL EXPOSED CORNERS SHALL BE ¾" CHAMFERED.
2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL SHALL BE ¾" PREFORMED FIBER.
4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
5. GRATE AND FRAME SHALL NOT BE PAINTED.
6. GRATE SHALL BE BICYCLE SAFE.
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

DATE REV.	REVISION	DATE FILMED
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED DI(TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS & JUNCTION BOXES

STANDARD DRAWING FPC-9

4'-0" LENGTH DROP INLET

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0" CLASS A CONC.	HEIGHT 5'-0" REINF. STEEL	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL
		CU. YDS.	POUNDS	CU. YDS.	POUNDS
18"	2'-6"	1.77	156	0.28	22
24"	2'-6"	1.79	156	0.28	22
30"	3'-2"	2.39	205	0.30	26
36"	3'-8"	2.63	236	0.32	28
42"	4'-4"	2.95	250	0.34	30
48"	4'-10"	3.21	265	0.36	32

NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

DROP INLET EXTENSION

4'-0" CLASS A CONC.	4'-0" REINF. STEEL	8'-0" CLASS A CONC.	8'-0" REINF. STEEL
CU. YDS.	POUNDS	CU. YDS.	POUNDS
0.58	38	0.87	72

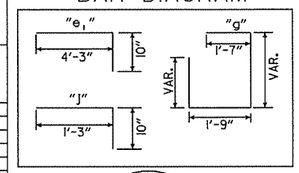
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.

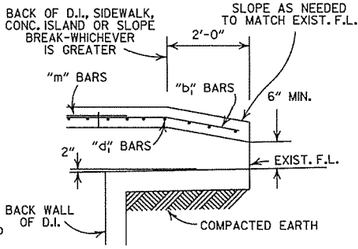
0.04	3		

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET

INSIDE DIA. PIPE	CLASS A CONC.	REINF. STEEL
INCHES	CU. YDS.	POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8

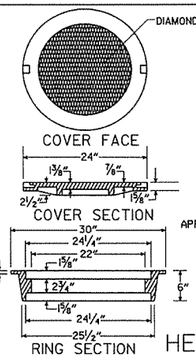
BAR DIAGRAM





BACK OPENING

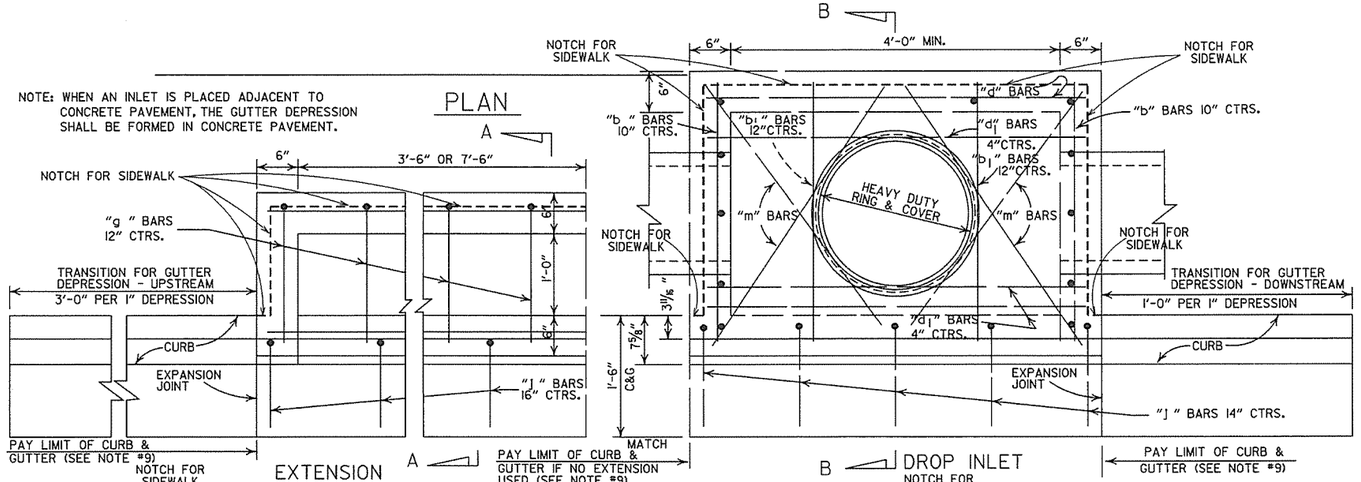
WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).

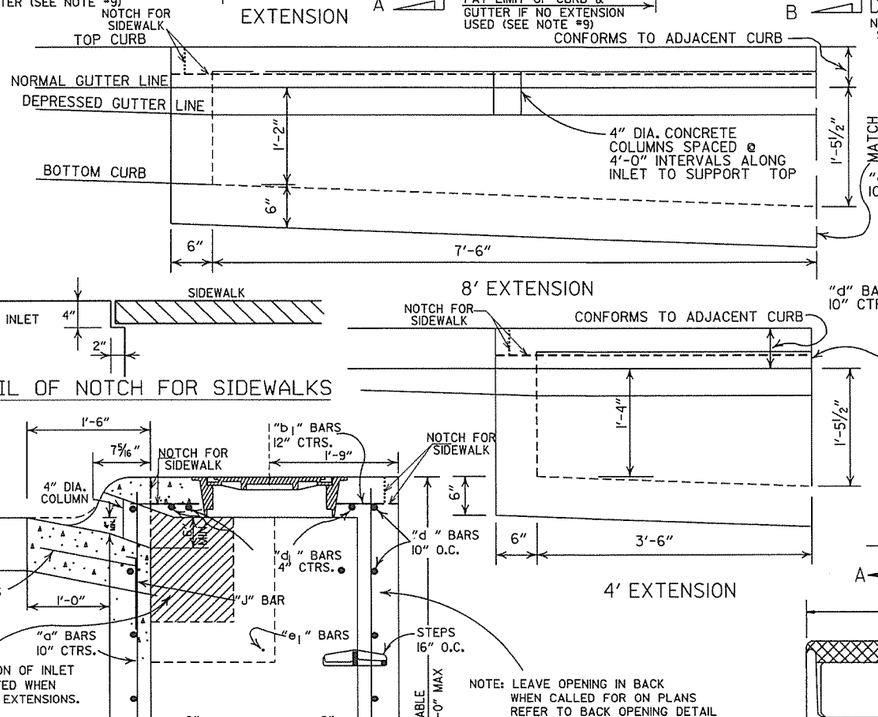


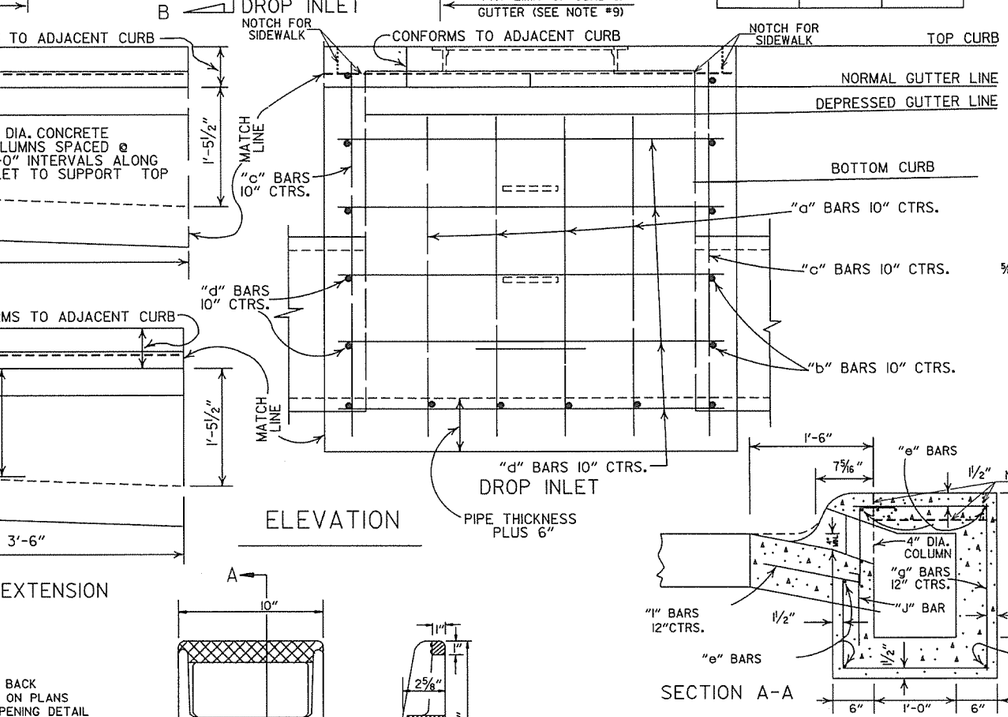
APPROXIMATE TOTAL WEIGHT = 333 LBS.

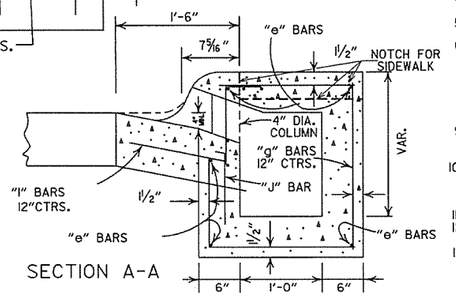
HEAVY DUTY RING & COVER

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. RESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.









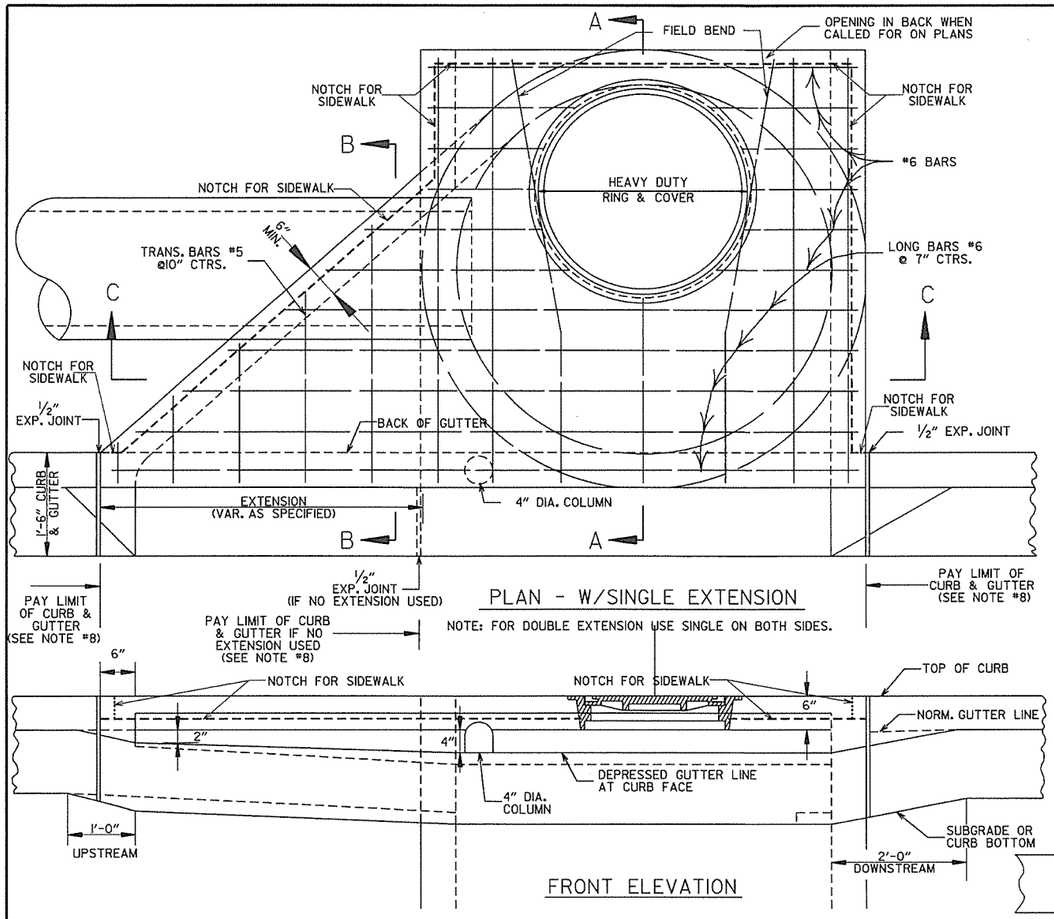
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER ADDED NOTES 9,10,&11	
10-18-96	CORRECTED SPELLING	
4-26-96	ADDED NOTE 8 & REVISED (4')(8') EXTENSION TITLES	10-18-96
4-1-93	REVISED BACK OPENING & NOTE	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

(TYPE C)

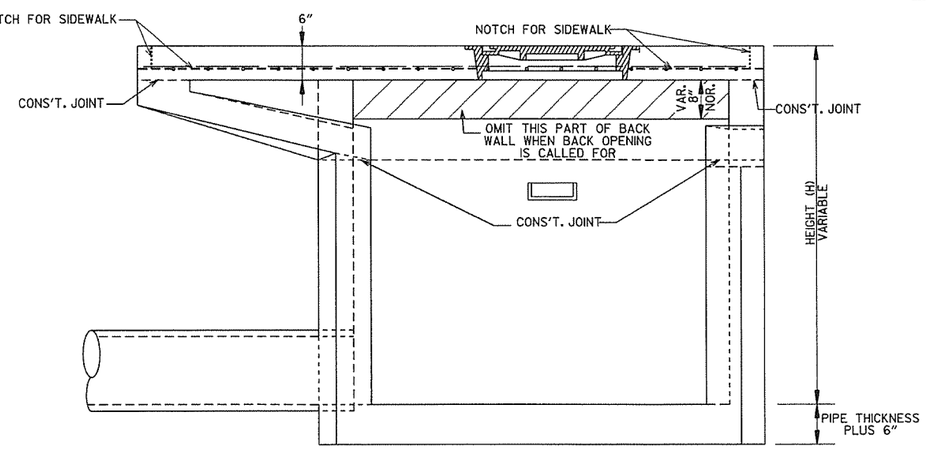
STANDARD DRAWING FPC-9E



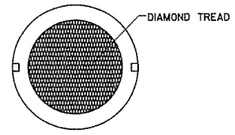
PLAN - W/SINGLE EXTENSION

NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.

FRONT ELEVATION



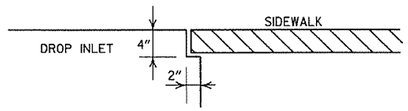
SECTION C-C



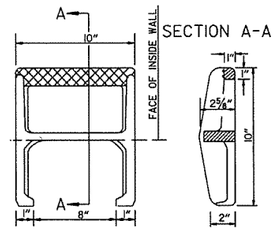
APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



DETAIL OF NOTCH FOR SIDEWALKS

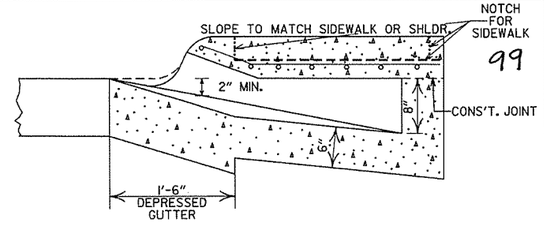


APPROX. WEIGHT = 11 LBS. (CAST IRON)

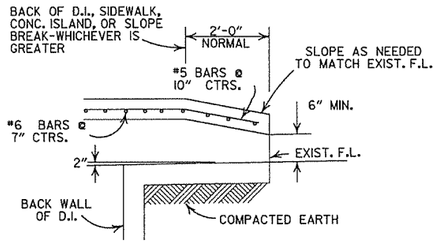
PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET



SECTION B-B

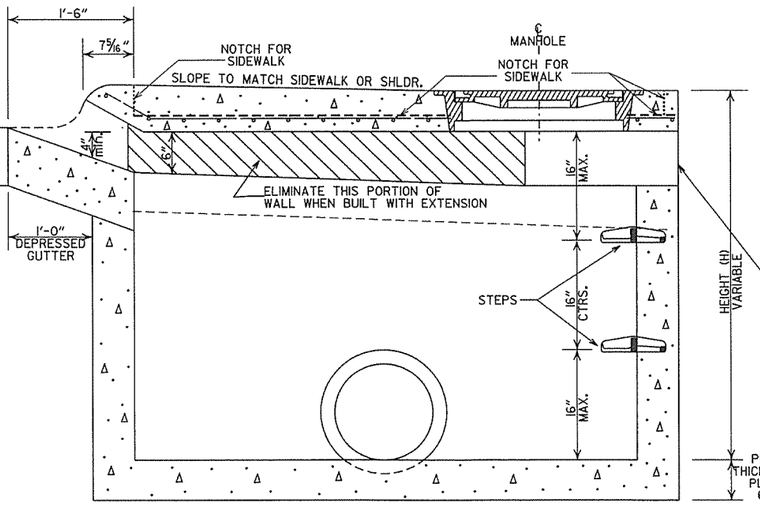


BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE MO).

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1 1/2" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.



SECTION A-A

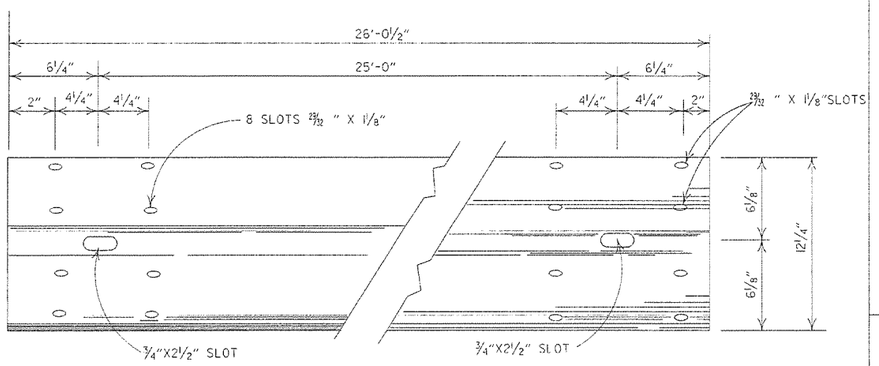
DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS	
		CAST IN PLACE	PRECAST
4' I.D.	12" THRU 27"	5"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

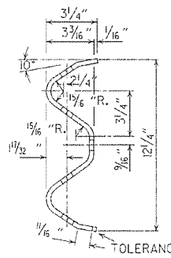
DATE	REVISIONS	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 11 & ADJ. OPENING DIMENSION	
10-12-95	CORRECTED #6 BAR SPACING	
7-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
2-2-95	TYPE C TO MO (OPEN BACK DETAIL)	
11-3-94	REVISED GENERAL NOTES	11-3-94
4-1-93	REV. BACK OPEN. DETAIL & NOTE	4-1-93
8-15-91	REVISED NOTES 11,12 & ADDED BK.OPEN DETAIL	8-15-91
11-30-89	ADDED NOTE NO. 12	11-30-89
5-23-89	ADDED NOTE 8 & MINIMUM WALL THICKNESS	515-5-23-89
7-15-88	ADDED EXTEND NOTE TO SECTION A-A	633-7-15-88
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

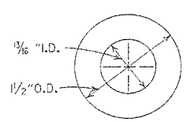




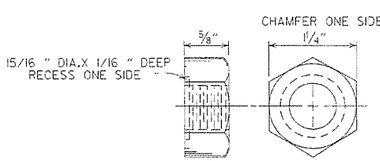
DETAILS OF W-BEAM GUARD RAIL

RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.

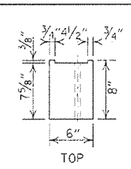
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



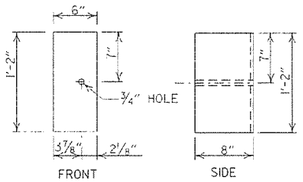
CUT STEEL WASHER



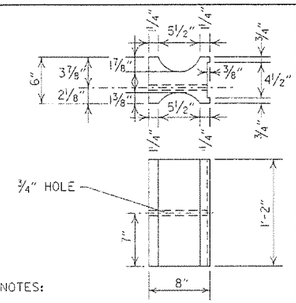
NUT



WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.



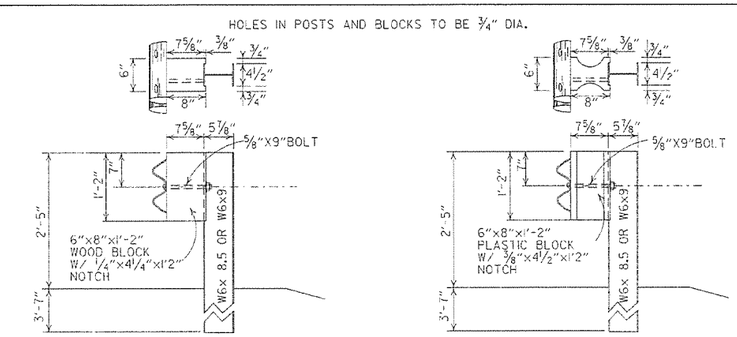
WOOD BLOCKOUT (W-BEAM)



NOTES:
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT (W-BEAM)

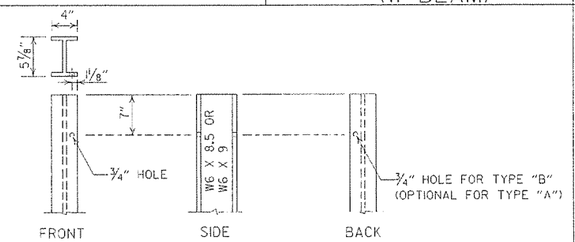
HOLES IN POSTS AND BLOCKS TO BE 3/4" DIA.



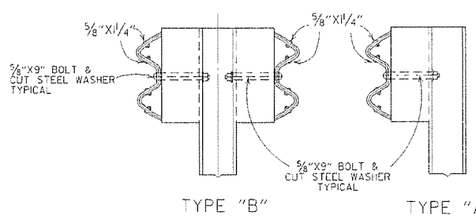
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE 3/4" DIA.

POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - 1/4".

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.

WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO.1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO.1 1350 f SOUTHERN PINE.

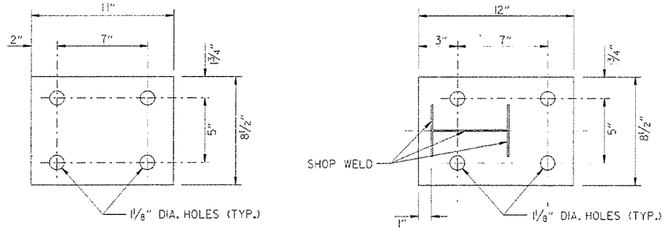
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

DATE	REVISION	DATE FILM
7-4-16	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
4-16-03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
1-12-00	ADDED PLASTIC BLOCKOUT	
8-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE. REVISED HOLES IN STEEL POLES	
4-3-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
6-2-94	ADDED ALT. STEEL POST SIZE	
8-5-93	REVISED STEEL POST SIZE	8-5-93
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED WASHER NOTE	8-15-91
8-2-90	REV. GEN. NOTE & DEPHT OF ANC. POST IN ROCK	8-2-90
7-15-88	REVISED SECTION 3 & GENERAL NOTES	
3-4-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-9-87	REDRAWN & REVISED	802-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

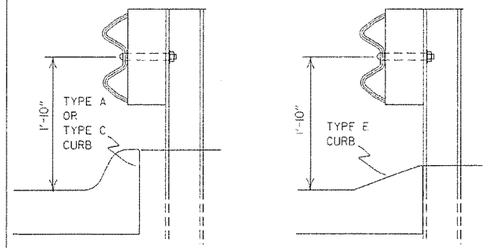
GUARD RAIL DETAILS

STANDARD DRAWING GR-8



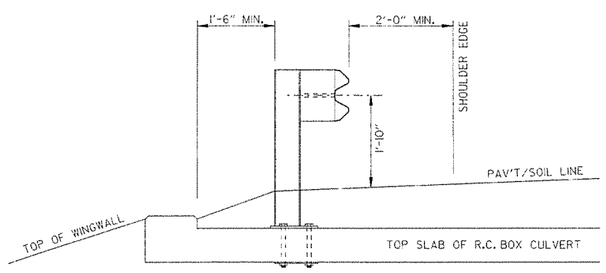
WASHER PLATE BASE PLATE

Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.

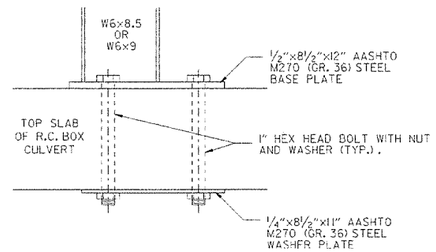


DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

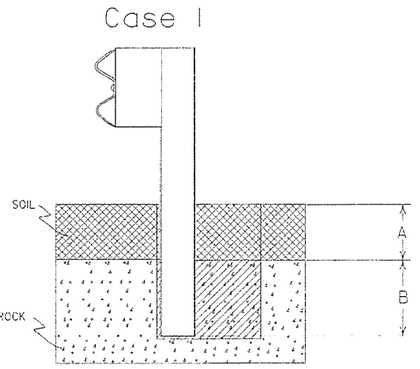
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.

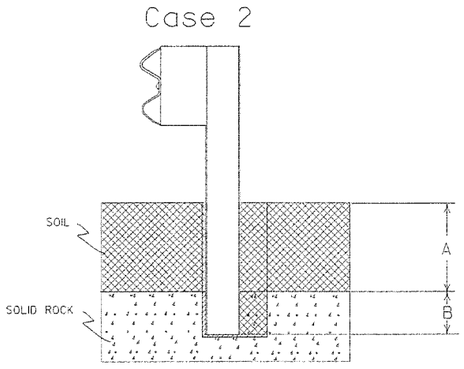


SECTION A-A



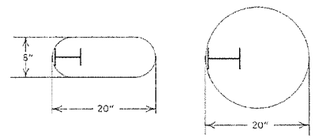
DETAIL OF CONNECTION

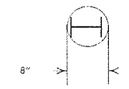




Plan View Steel Posts

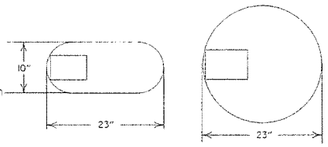
Either hole configuration acceptable

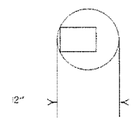




Plan View Wood Posts

Either hole configuration acceptable





Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

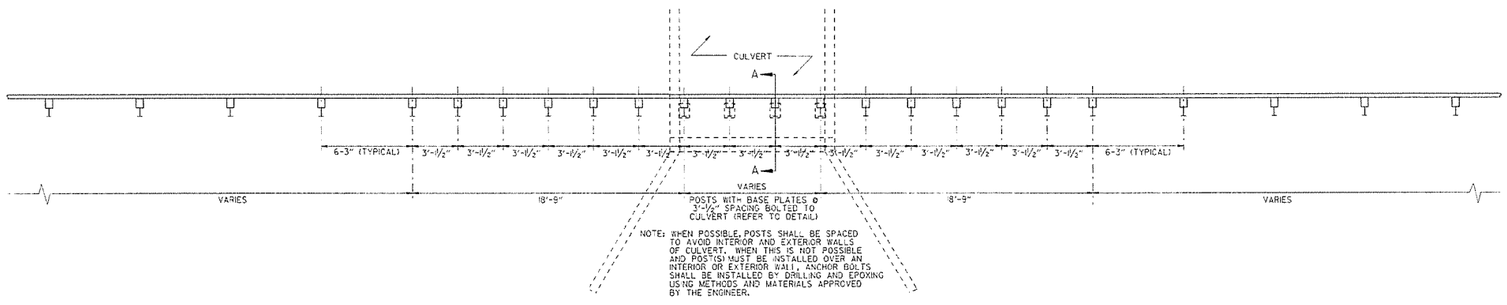
Zone A:
Backfill according to Section 617.03(a).

Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.

Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

Zone A & B:
Backfill according to Section 617.03(a).

DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)



PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DWG. GR-8.

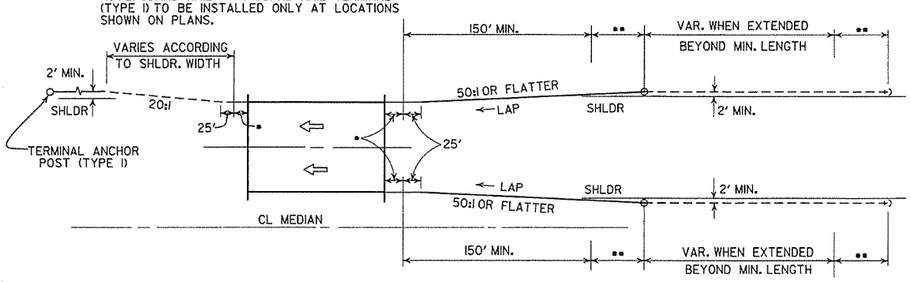
DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
8-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS, ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
3-30-00	REMOVED CONCRETE INSERT ANCHOR	
8-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADD. DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULVT. DELETED DET. OF STEEL LINE POST CONN.& ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
4-3-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
6-2-94	REVISED ALTERNATE POST SIZE	
8-6-93	REVISED STEEL POST SIZE	
10-1-92	REDRAWN & REVISED	10-1-92
8-2-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
7-15-88	CONFORMED TO 1988 SPECS	
3-4-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-9-87	REDRAWN & REVISED	803-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

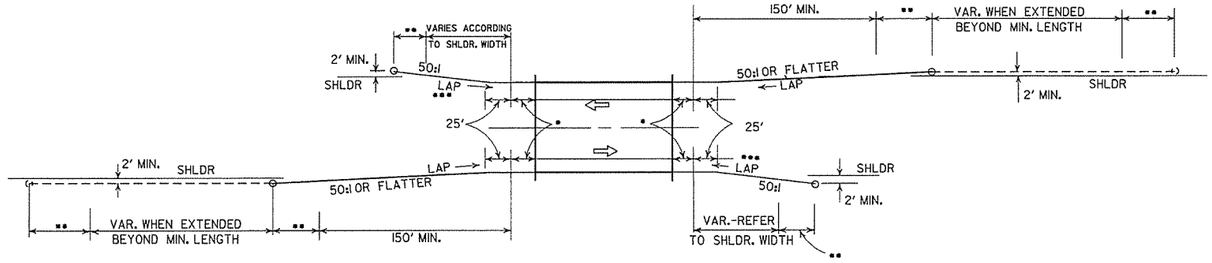
STANDARD DRAWING GR-8A

NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

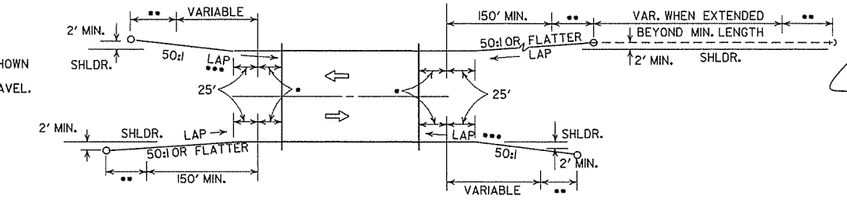
••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

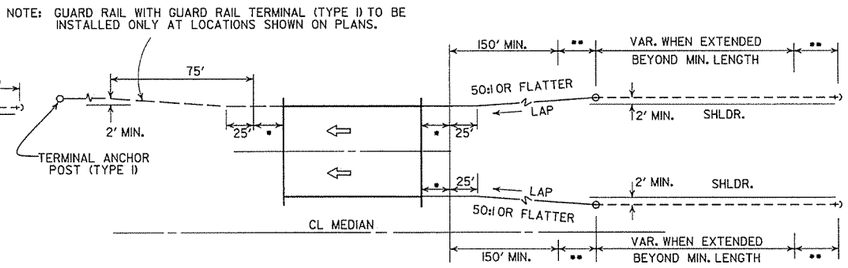
METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

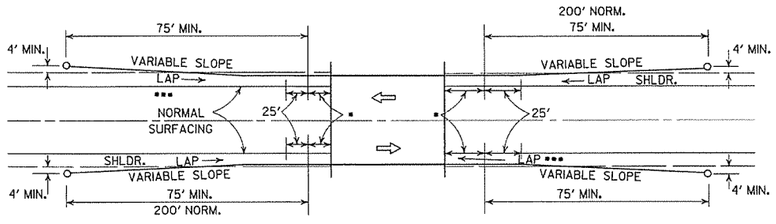
NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

LEGEND

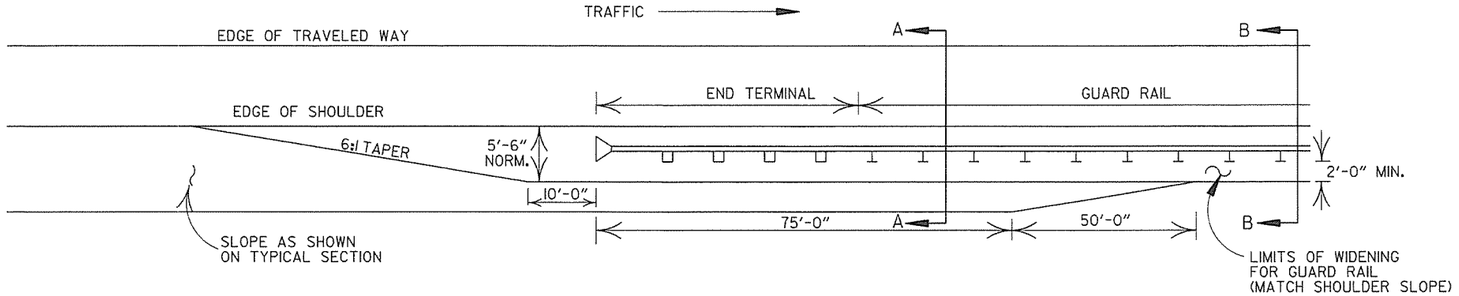
- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

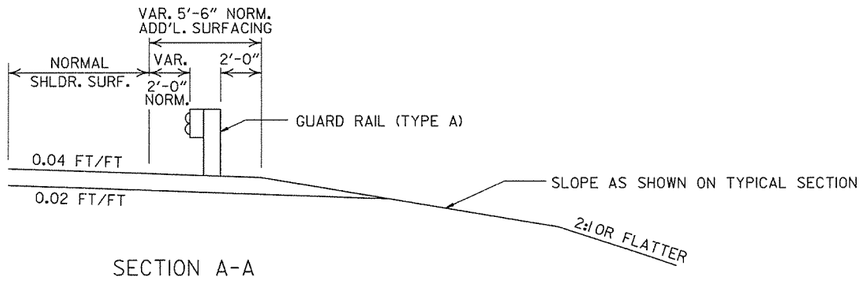
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

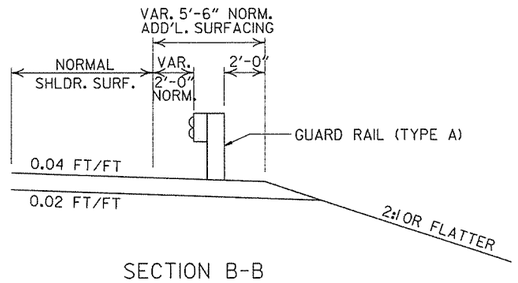
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





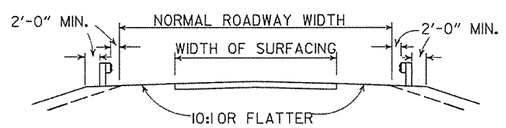
SECTION A-A



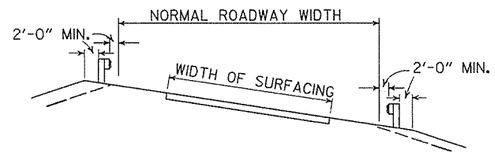
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

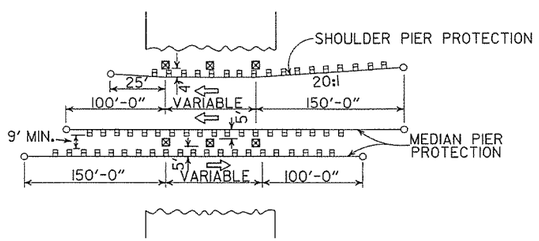


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



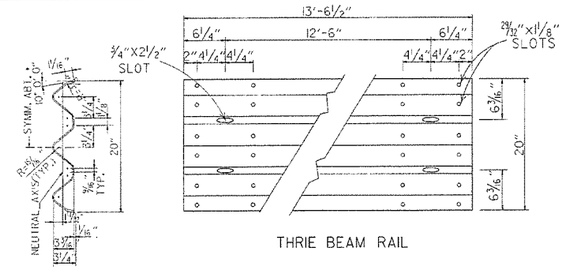
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

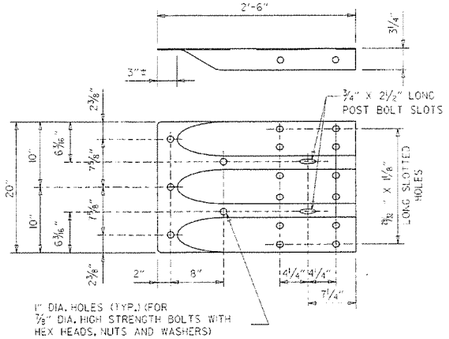
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A



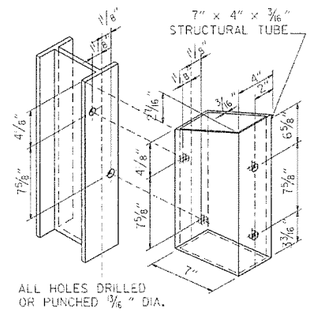
THRIE BEAM RAIL

SECTION THRU THRIE BEAM RAIL



1" DIA. HOLES (TYP.) FOR ⅞" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS)

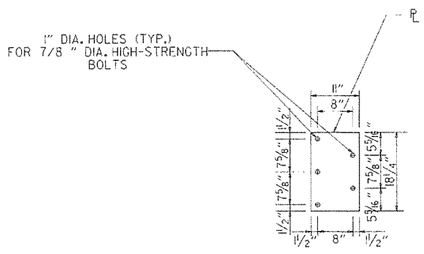
SPECIAL END SHOE



ALL HOLES DRILLED OR PUNCHED ⅜" DIA.

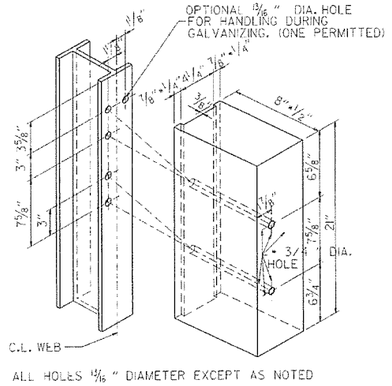
ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



CONNECTOR PLATE

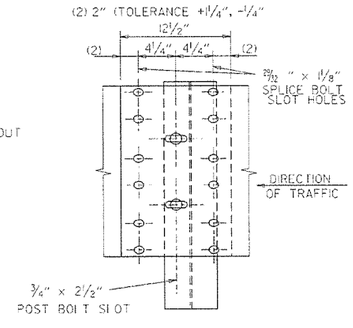
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



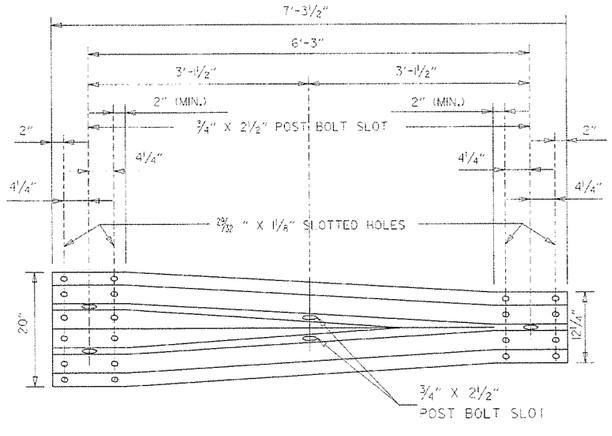
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

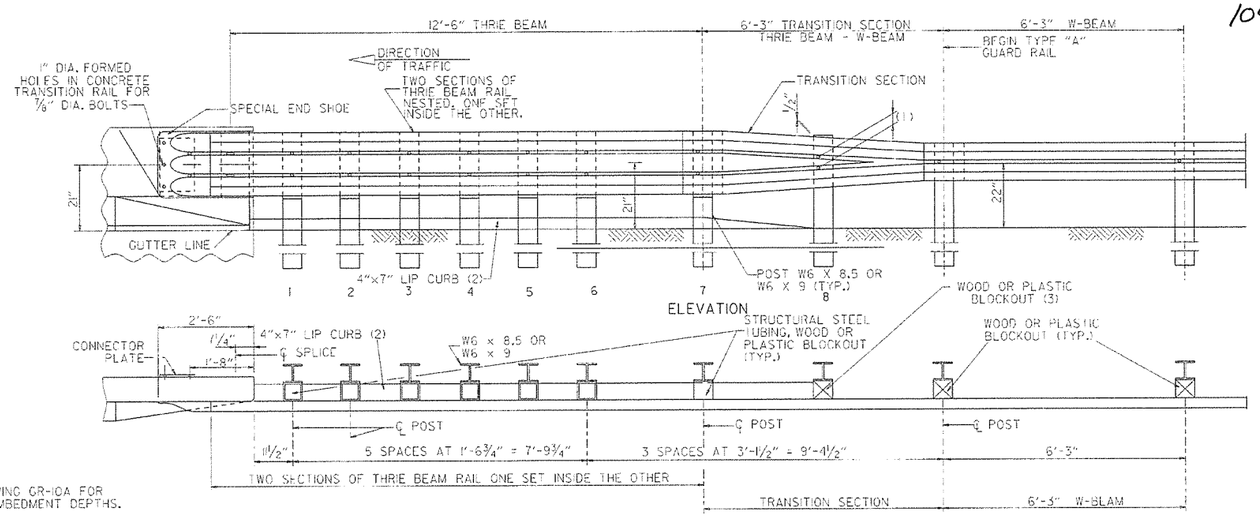
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



THRIE BEAM RAIL SPLICE AT POST



TRANSITION SECTION



NOTE: SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.

(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE II.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-11.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 #) OR NO. 1 1350 f SOUTHERN PINE.

REFER TO STD. DRWG. GR-10A FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

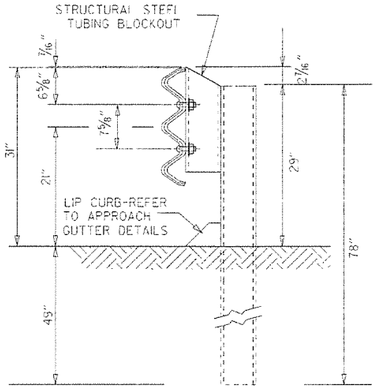
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W BEAM POSTS FOR ENTIRE JOB.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-18-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED NOTE (2)	
6-29-00	MOVED DIMENSION LINES	
5-18-00	ADDED NOTE	
3-30-00	DRAWN & ISSUED	

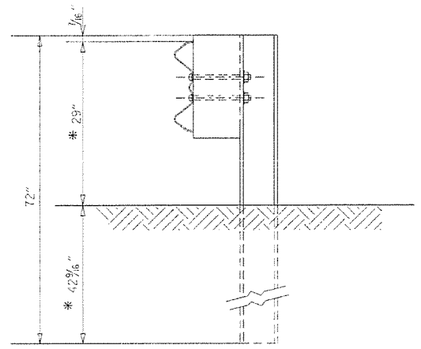
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

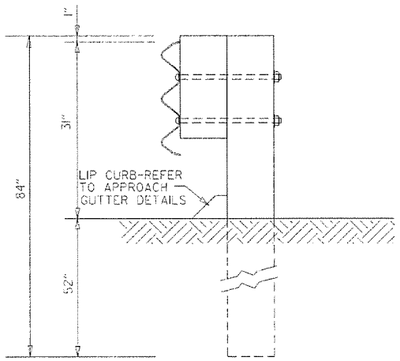


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

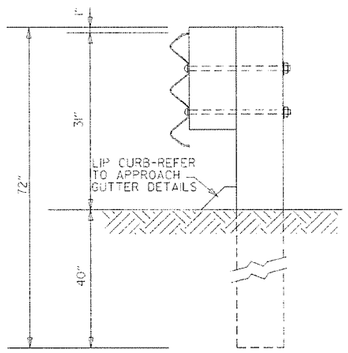


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

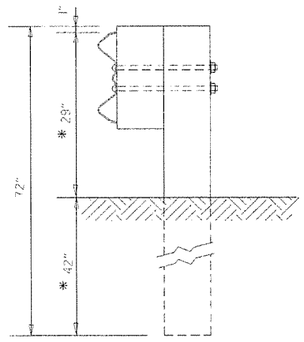
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7



W-BEAM TO THRIE BEAM
TRANSITION RAIL WITH WOOD OR
PLASTIC BLOCKOUT & WOOD POST
POST 8

GENERAL NOTES:

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

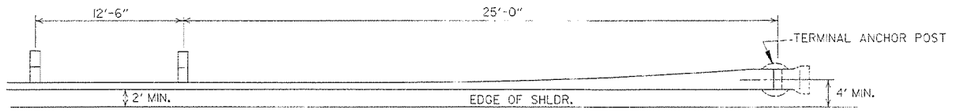
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 (1350 f) SOUTHERN PINE.

DATE	REVISION	DATE FILM
7-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
8-22-02	REVISED LIP CURB NOTE	
3-30-00	DRAWN & ISSUED	

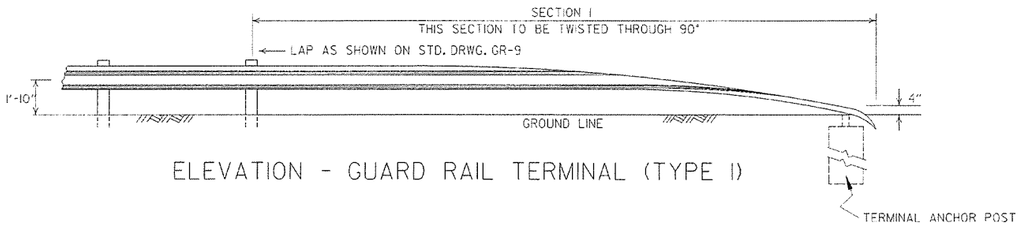
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

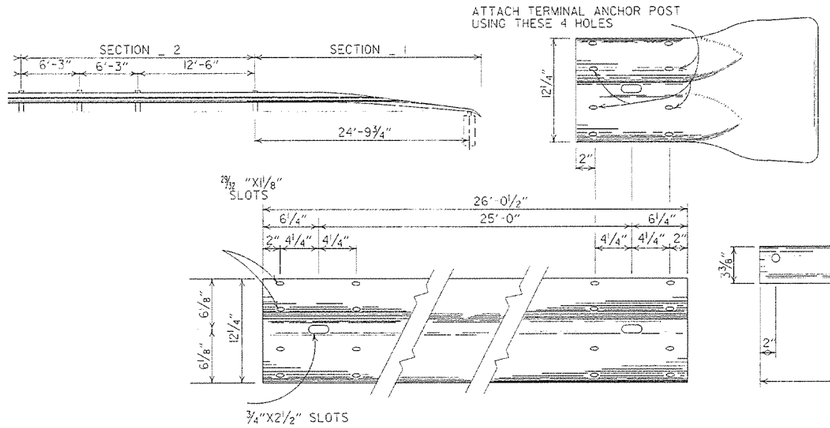


PLAN - GUARD RAIL TERMINAL (TYPE I)



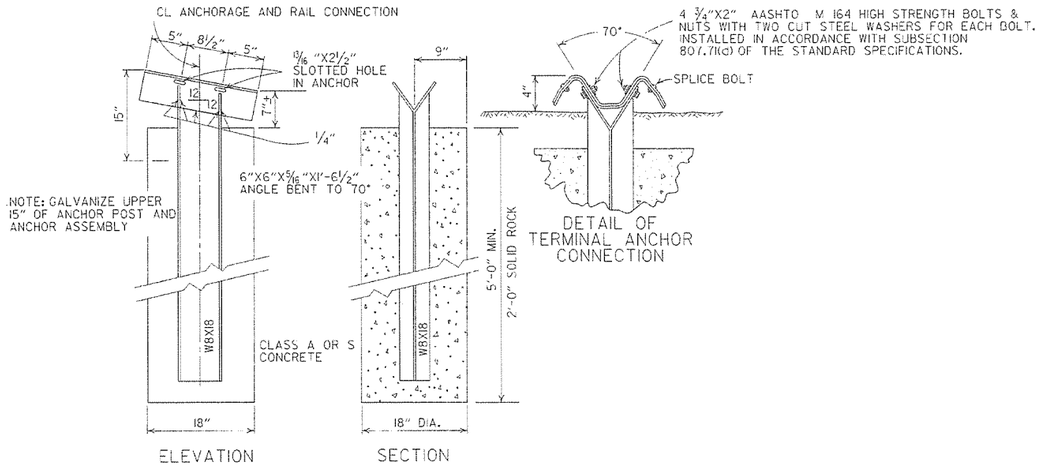
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

NOTE:
SECTIONS 1 AND 2 OF GUARD RAIL TERMINAL SHALL BE PAID FOR AT THE PRICE BID PER LINEAR FOOT OF THE TYPE OF GUARD RAIL SPECIFIED.



SECTION 1

TERMINAL SECTION



NOTE: RAIL MEMBERS MAY BE BOLTED TO ANGLE AT TERMINAL ANCHOR AND THE TWO ASSEMBLIES POSITIONED TO PROPER ALIGNMENT PRIOR TO PLACING CONCRETE AROUND 8 WF 17 POST IF CONTRACTOR SO DESIRES.

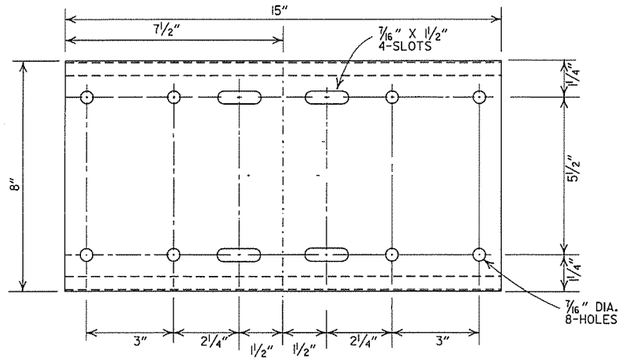
DETAIL OF TERMINAL ANCHOR POST (TYPE I)

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
6-26-97	REVISED LAP NOTE	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-3-94	DIMENSION TERMINAL DETAIL	
11-11-92	ADDED NOTE FOR PAYMENT	11-11-92
10-1-92	DRAWN & ISSUED	10-1-92

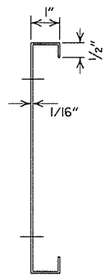
ARKANSAS STATE HIGHWAY COMMISSION

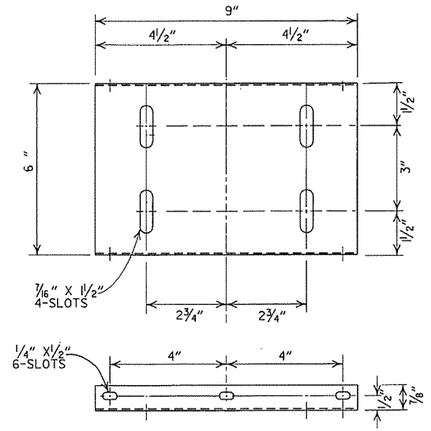
GUARD RAIL DETAILS

STANDARD DRAWING GRT-1

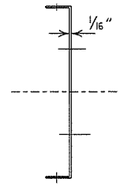


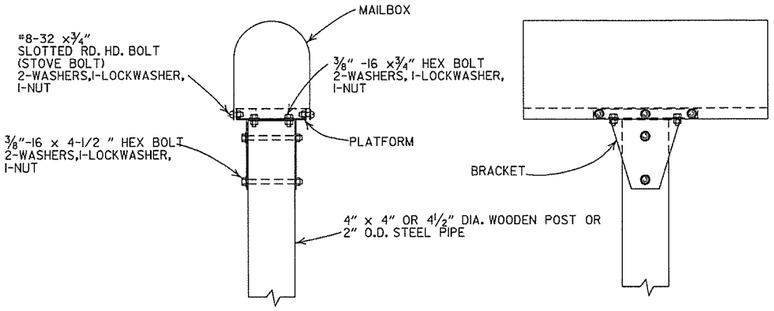
SHELF



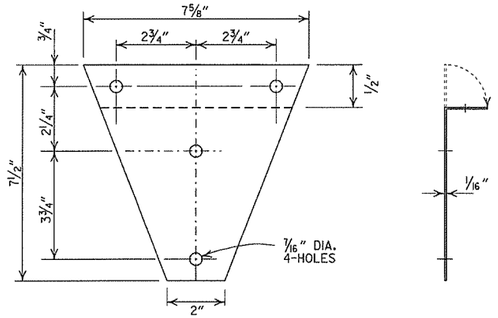


PLATFORM





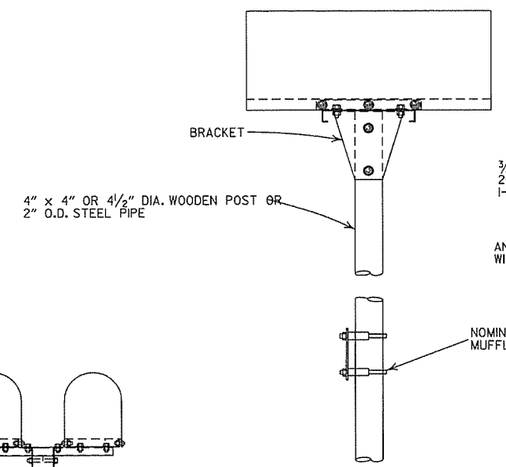
SINGLE INSTALLATION



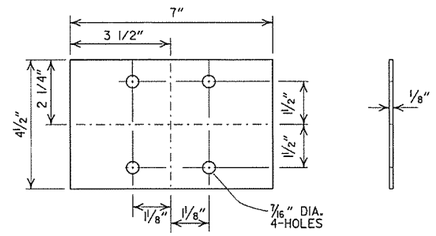
BRACKET

GENERAL NOTES

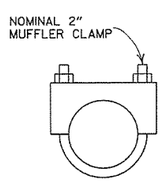
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



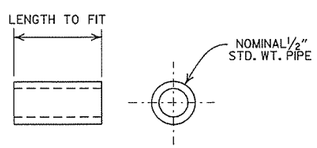
DOUBLE INSTALLATION



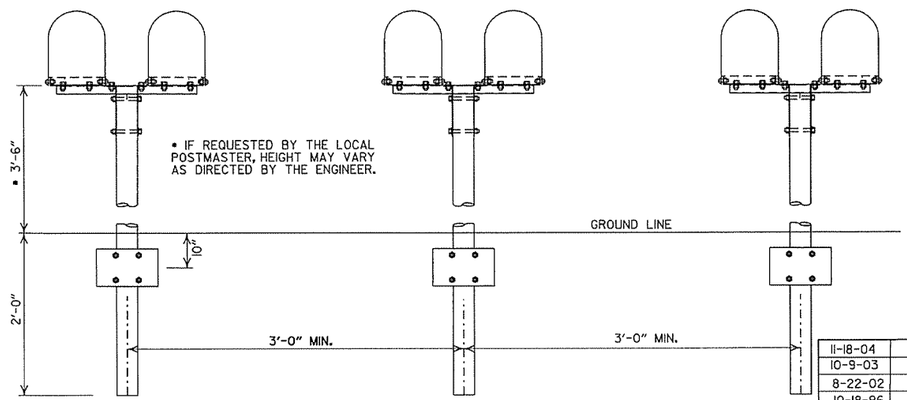
ANTI-TWIST PLATE



CLAMP



SPACER



SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31⅝	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

EQUIV. DIA.	AASHTO M 207	
	SPAN	RISE
INCHES	INCHES	
18	23	14
24	30	19
27	34	22
30	38	24
33	42	27
36	45	29
39	49	32
42	53	34
48	60	38
54	68	43
60	76	48
66	83	53
72	91	58
78	98	63
84	106	68

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(1).

NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

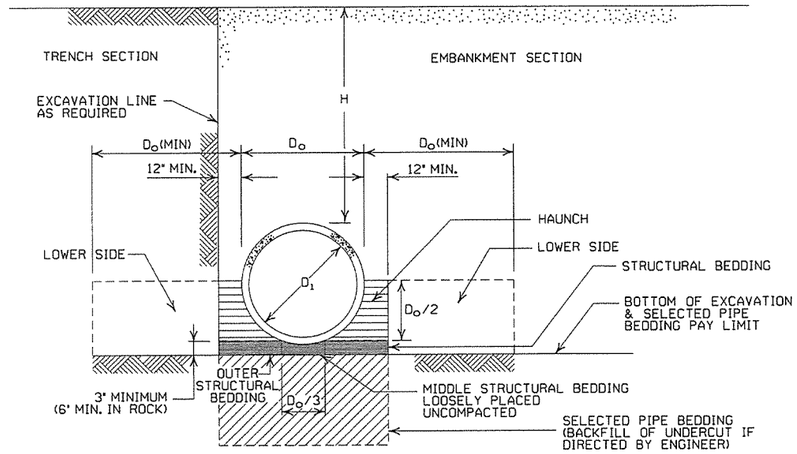
- LEGEND -

D_i = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
▨ = UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

*SM-3 WILL NOT BE ALLOWED.

**MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

	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.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM		
15	17x13	3	0.064	2	15	0.060	2	15
18	21x15	3	0.064	2	15	0.060	2	15
21	24x18	3	0.064	2.25	15	0.060	2.25	15
24	28x20	3	0.064	2.5	15	0.075	2.5	15
30	35x24	3	0.079	3	12	0.075	3	12
36	42x29	3½	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					
				INSTALLATION TYPE 2	INSTALLATION TYPE 1	INSTALLATION TYPE 2	INSTALLATION TYPE 1	
36	40x31	5	0.079	3	2	12	15	
42	46x36	6	0.079	3	2	13	15	
48	53x41	7	0.079	3	2	13	15	
54	60x46	8	0.079	3	2	13	15	
60	66x51	9	0.079	3	2	13	15	
66	73x55	12	0.079	3	2	15	15	
72	81x59	14	0.079	3	2	15	15	
78	87x63	14	0.079	3	2	15	15	
84	95x67	16	0.109	3	2	15	15	
90	103x71	16	0.109	3	2	15	15	
96	112x75	18	0.109	3	2	15	15	
102	117x79	18	0.109	3	2	15	15	
108	128x83	18	0.138	3	2	15	15	

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.

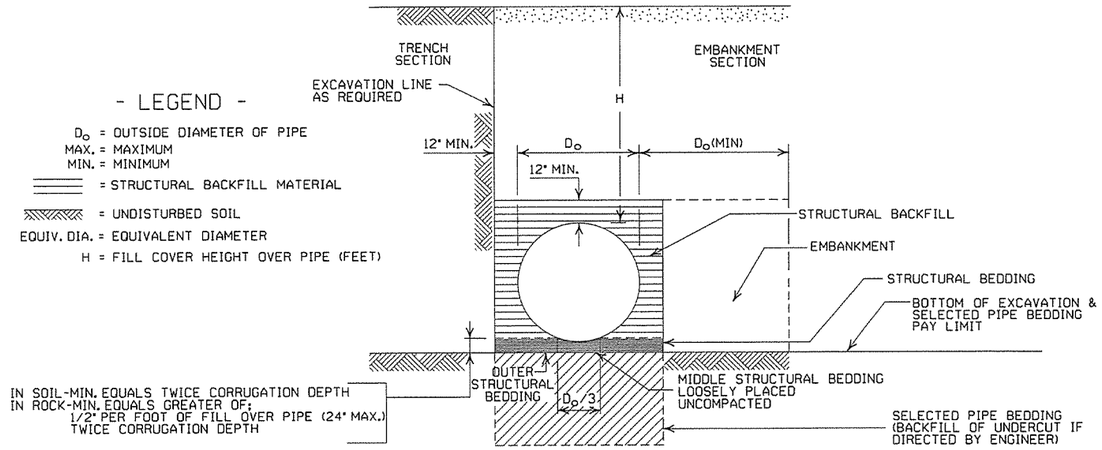
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

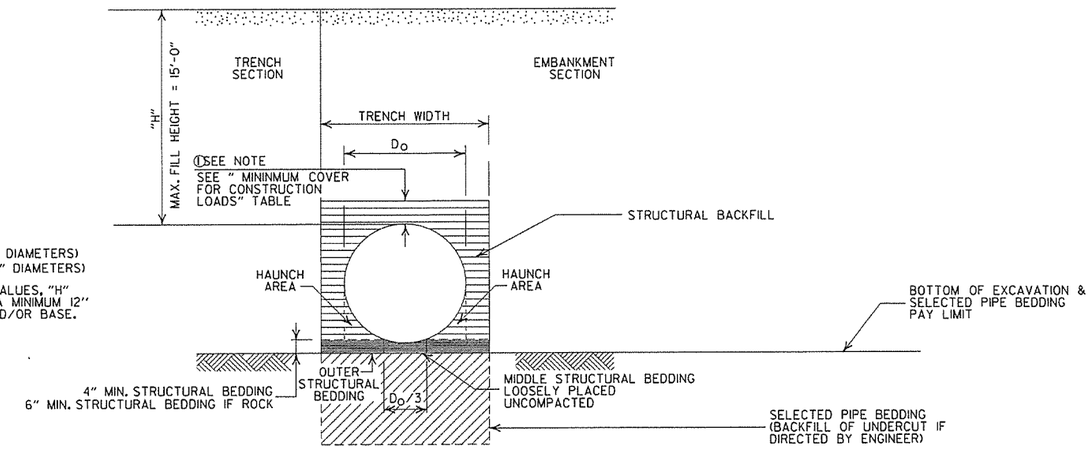
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

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 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF 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

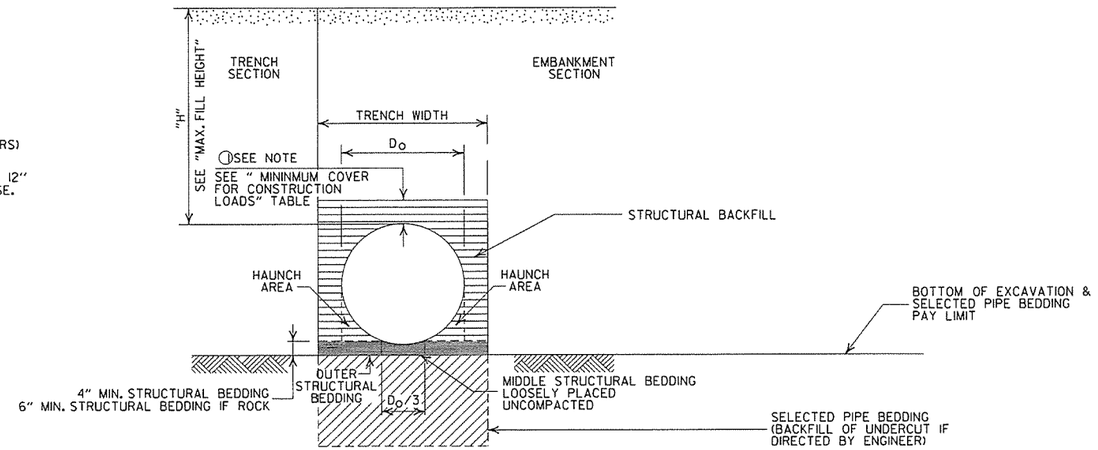
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

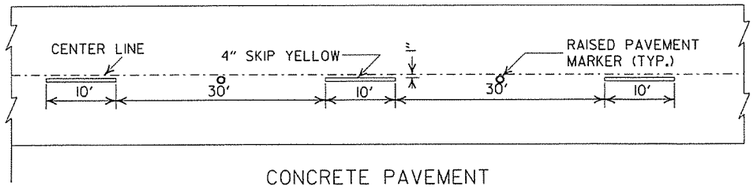
= UNDISTURBED SOIL

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	

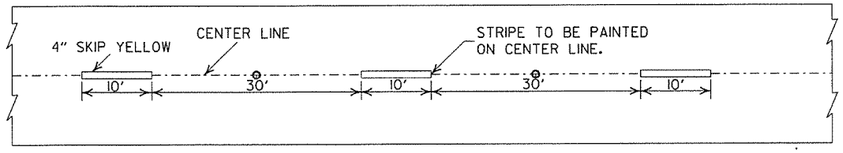
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

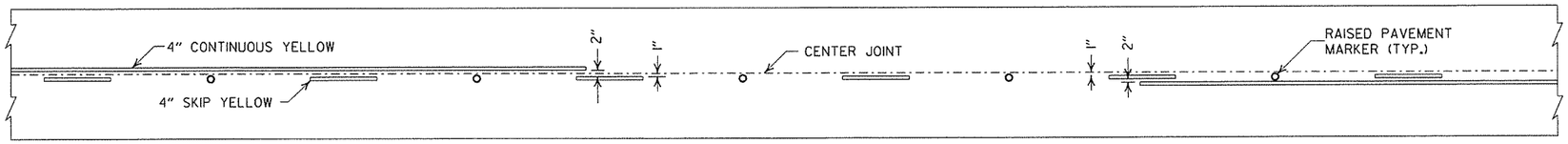


CONCRETE PAVEMENT

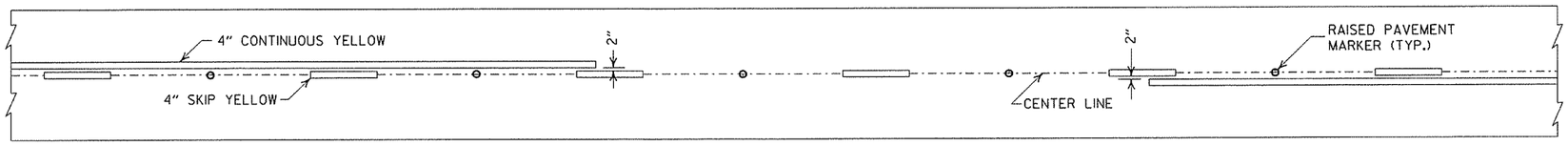


ASPHALT PAVEMENT

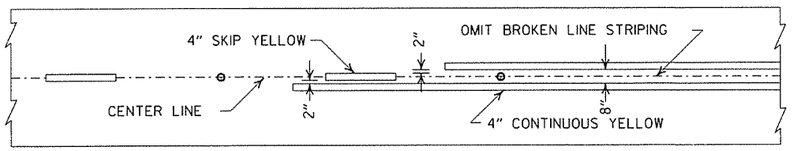
BROKEN LINE STRIPING



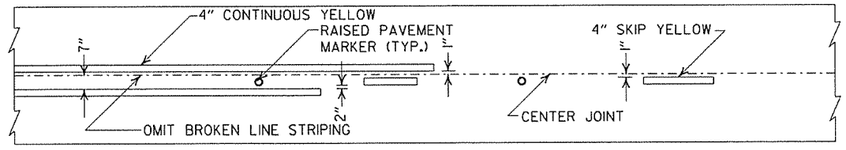
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

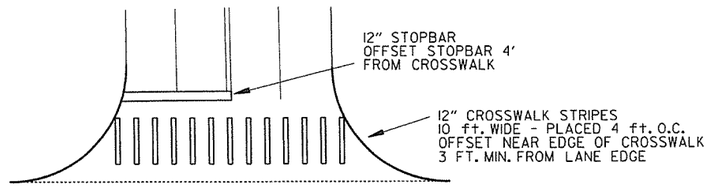


ASPHALT PAVEMENT



CONCRETE PAVEMENT

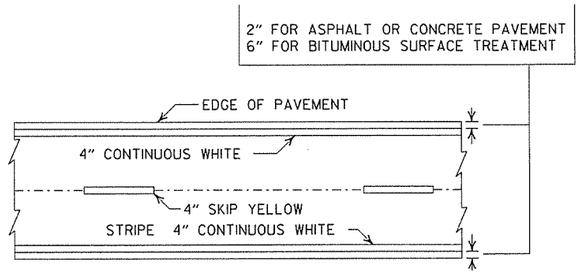
STRIPING AT ADJACENT NO PASSING LANES



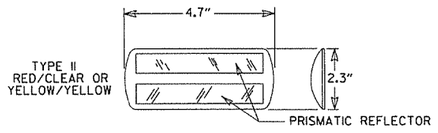
CROSSWALK AND STOPBAR DETAILS

NOTES:

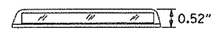
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED 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

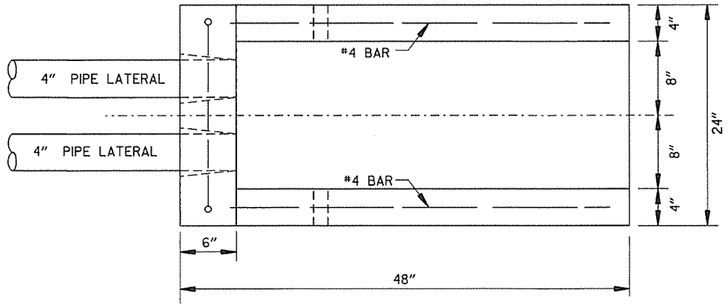
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

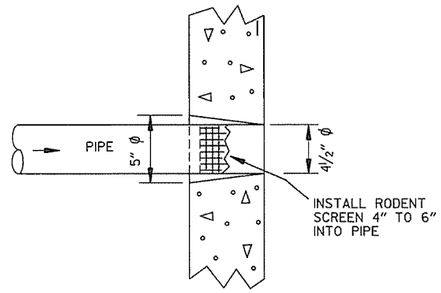
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

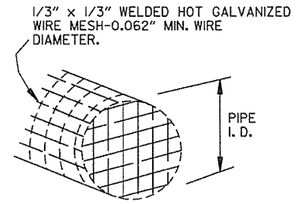
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



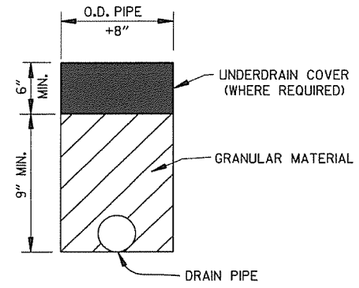
PLAN VIEW

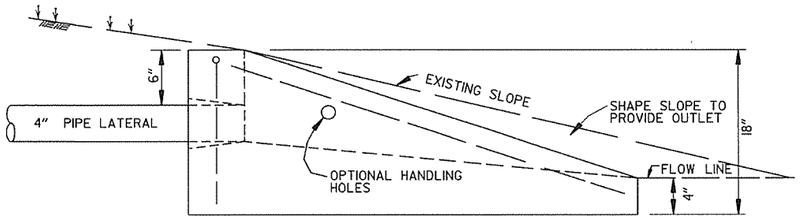


DETAIL OF HOLE FOR 4" PIPE

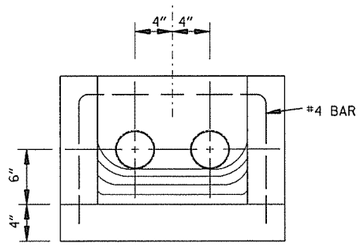


DETAIL OF RODENT SCREEN

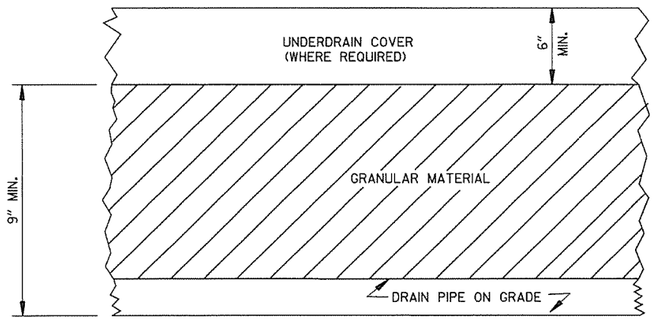




SIDE VIEW

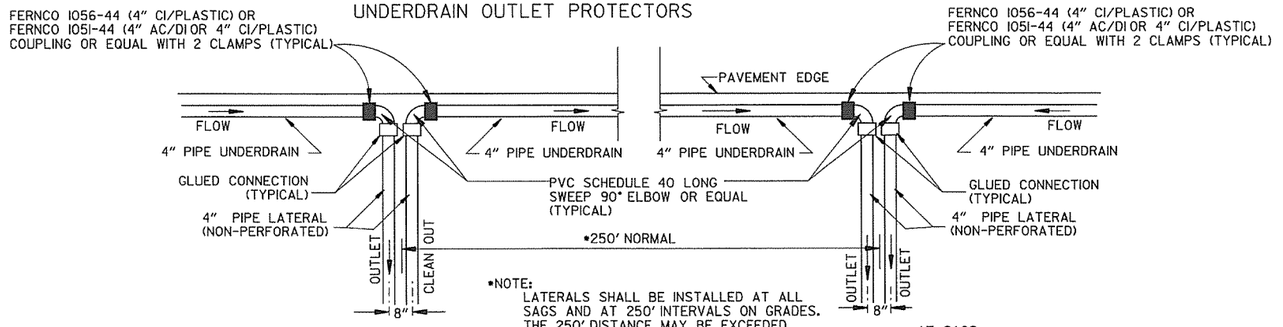


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



•NOTE:
LATERALS SHALL BE INSTALLED AT ALL SAGS AND AT 250' INTERVALS ON GRADES. THE 250' DISTANCE MAY BE EXCEEDED ONLY WHERE NECESSARY FOR AN ACCEPTABLE OUTLET.

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.

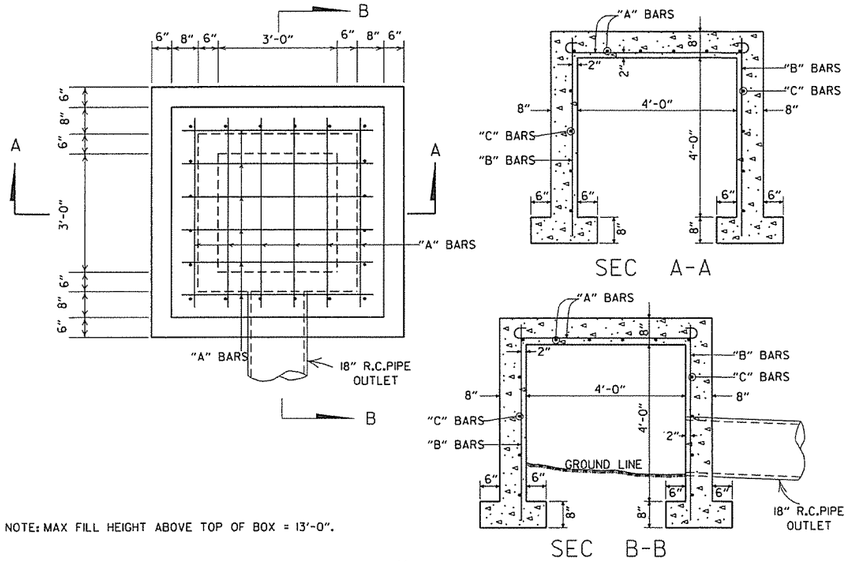
DATE	REVISION	DATE FILMED
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	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

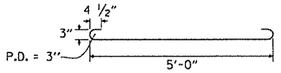


NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



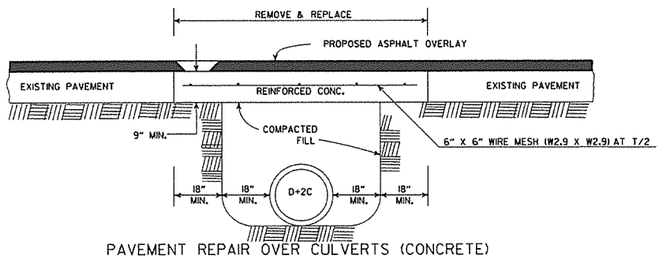
"A" BARS

QUANTITIES

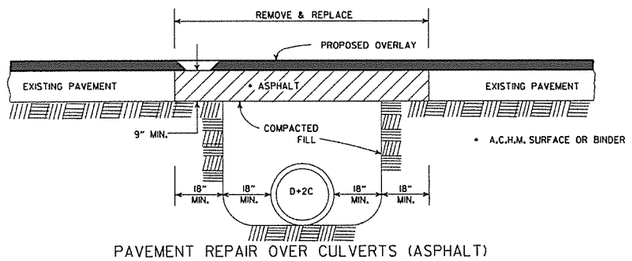
CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

GENERAL NOTE:
THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITTIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



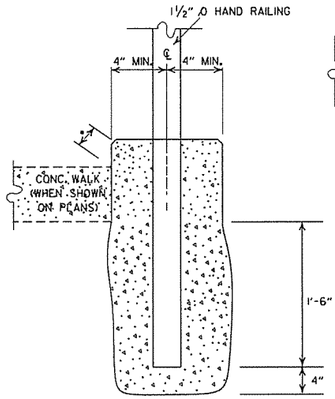
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



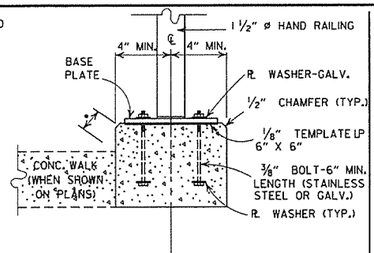
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

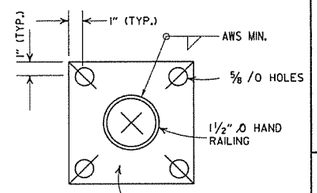
* A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

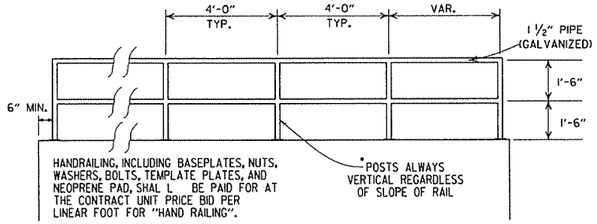


POST CONNECTION TO WALL

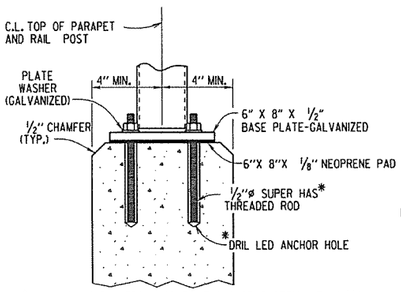


BASE PLATE

POST CONNECTION DETAILS



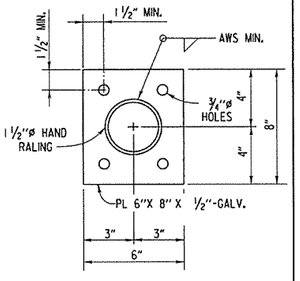
HAND RAILING SHALL CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

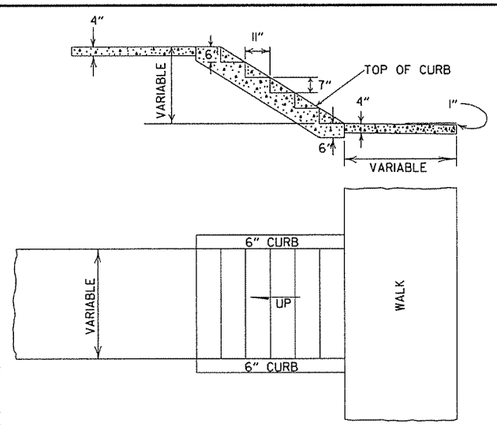
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

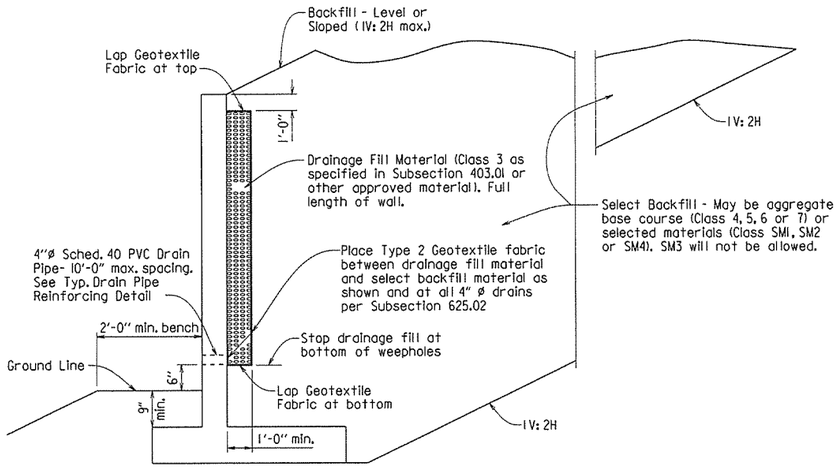
DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILMED
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE;REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

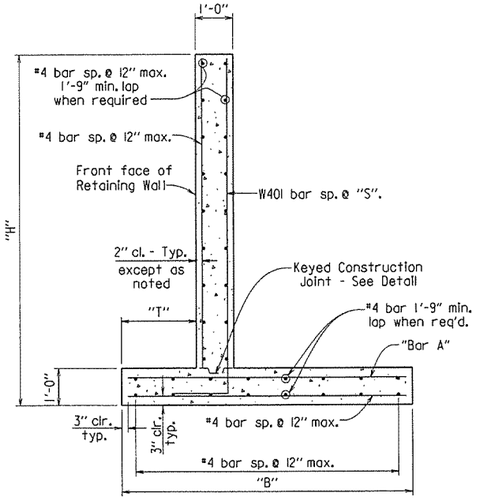
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1



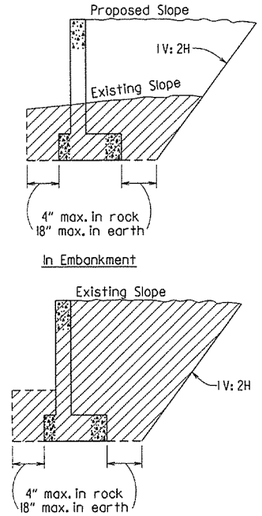
TYPICAL DRAINAGE & BACKFILL DETAILS

N.T.S



TYPICAL SECTION

N.T.S



NOTE: Hatched area denotes maximum limits of pay excavation.

DETAILS OF EXCAVATION

N.T.S

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: 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.

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

LIVE LOAD: Live Load Surcharge is not included in the design of these walls. Vehicular Live Load shall not be allowed within a distance equal to one-half the height of the wall.

CONCRETE: Concrete shall be poured in the dry and all exposed corners to be chamfered ½". All concrete shall be Class S with a minimum 28 day compressive strength f'c = 3,500 psi. A Class 2 Surface finish shall be used on all surfaces of the concrete unless otherwise noted.

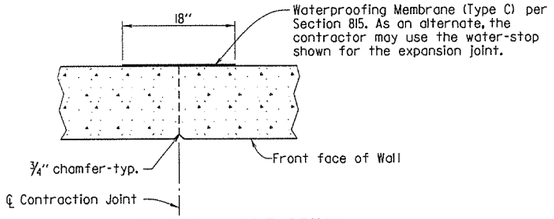
REINFORCING STEEL: All reinforcing steel shall conform to AASHTO M31 orM53, Grade 60.

Foundations for footings shall be prepared in accordance with subsection 801.04. Backfill for retaining walls shall be in accordance with subsection 801.08.

Waterproof Membrane (Type C), waterstops, preformed joints, weep holes & geotextile fabric shall not be paid for directly, but shall be considered subsidiary to Class S Concrete.

Drainage fill material (Class 3) and select backfill shall be measured and paid for as Compacted Embankment.

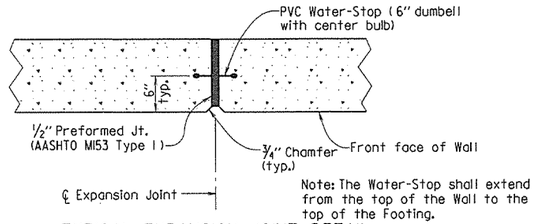
These details are not intended for use along streams or ditches without consideration for scour.



TYPICAL CONTRACTION JOINT DETAIL

N.T.S.

Note: 20'-0" Max. Spacing between Contraction Joints. Horizontal reinforcement shall be continuous through Contraction joints.

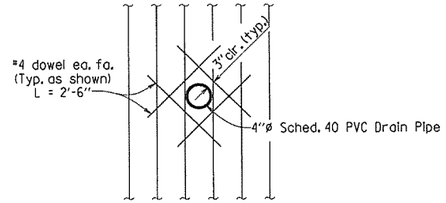


Note: The Water-Stop shall extend from the top of the Wall to the top of the Footing.

TYPICAL EXPANSION JOINT DETAIL

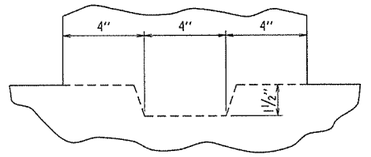
N.T.S.

Note: 60'-0" Max. Spacing between Expansion Joints. Horizontal reinforcing shall stop 2" from ℄ Expansion Joint.



TYPICAL DRAIN PIPE REINFORCING DETAIL

N.T.S



KEYED CONSTRUCTION JOINT DETAIL

N.T.S

SEISMIC ZONE: These walls have been designed for the following site adjusted peak ground accelerations (A_S):
Level Backfill - $A_S \leq .40g$
Sloped Backfill (1V: 2H max.) - $A_S \leq .30g$

TABLE OF RETAINING WALL VARIABLES (LEVEL BACKFILL)

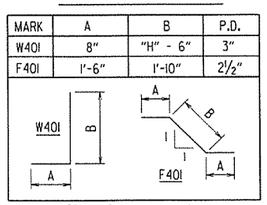
"H"	"T"	"B"	"S"	"Bar A" Size @ Spacing
3'-0"	9"	2'-6"	12"	#4 @ 12"
4'-0"	9"	3'-6"	12"	#4 @ 12"
5'-0"	9"	4'-0"	12"	#4 @ 12"
6'-0"	9"	4'-6"	12"	#4 @ 12"
7'-0"	9"	5'-6"	12"	#4 @ 10"
8'-0"	9"	6'-0"	12"	#5 @ 10"
9'-0"	1'-0"	7'-0"	12"	#5 @ 6½"

TABLE OF RETAINING WALL VARIABLES (SLOPED BACKFILL) (1V: 2H MAX.)

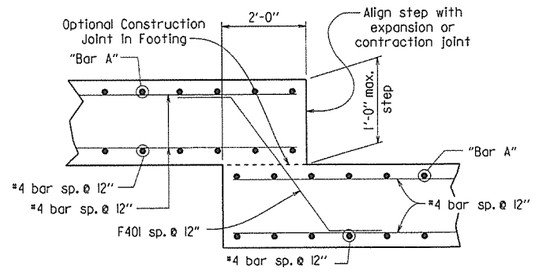
"H"	"T"	"B"	"S"	"Bar A" Size @ Spacing
3'-0"	9"	2'-6"	12"	#4 @ 12"
4'-0"	9"	3'-6"	12"	#4 @ 12"
5'-0"	9"	4'-6"	12"	#4 @ 12"
6'-0"	9"	5'-6"	12"	#4 @ 6"
7'-0"	9"	6'-6"	12"	#5 @ 6½"
8'-0"	1'-6"	8'-0"	7½"	#6 @ 6"
9'-0"	1'-11"	9'-6"	5"	#8 @ 6"

BENDING DIAGRAMS

MARK	A	B	P.D.
W401	8"	"H" - 6"	3"
F401	1'-6"	1'-10"	2½"



Dimensions are out to out of bars.



FOOTING STEP DETAIL

N.T.S.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTES.	
7-26-12	DRAWING ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE RETAINING WALL (WITHOUT LIVE LOAD SURCHARGE)

STANDARD DRAWING SI - 2

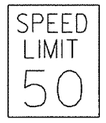
R1-1

STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2

STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5A

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5C

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

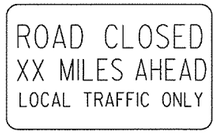
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2

48"X30"

RII-3A



60"X30"

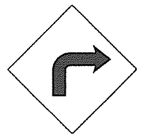
RII-4

60"X30"

RSP-1

48"X30"

WI-1



STD. 36"X36"
FWY. 48"X48"

WI-2

STD. 36"X36"
FWY. 48"X48"

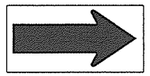
WI-3

STD. 48"X48"

WI-4

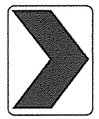
STD. 48"X48"

WI-6



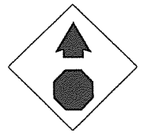
STD. 48"X24"
SPECIAL 60"X30"

WI-8



STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1

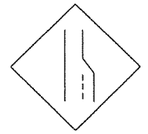


STD. 36"X36"
SPECIAL 48"X48"

W3-2

STD. 36"X36"
SPECIAL 48"X48"

W4-2



STD. 36"X36"
FWY. 48"X48"

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

EXPWY. 36"X36"
FWY. 48"X48"

W9-2

STD. 36"X36"
FWY. 48"X48"

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

STD. 36"X36"
FWY. 48"X48"

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

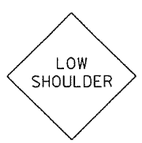
R56-1

STD. 18"X18"

W8-11

STD. 36"X36"
FWY. 48"X48"

W8-9

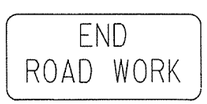


STD. 36"X36"
FWY. 48"X48"

G20-1

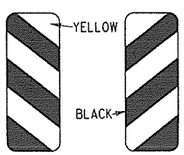
60"X24"

G20-2



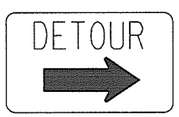
48"X24"

OM-3L OM-3R



12"X36"

M4-9

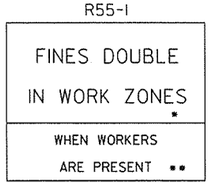


STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1



36"X60"

* USE 6" C LETTERS
** USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE
	AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

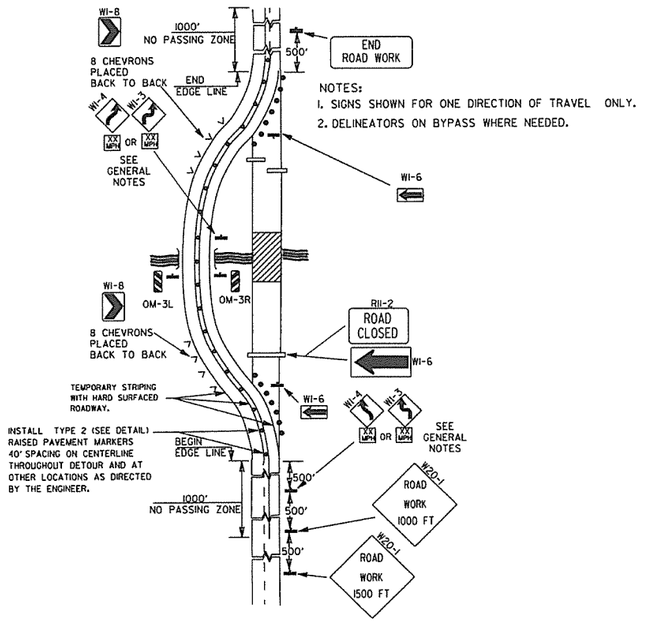
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

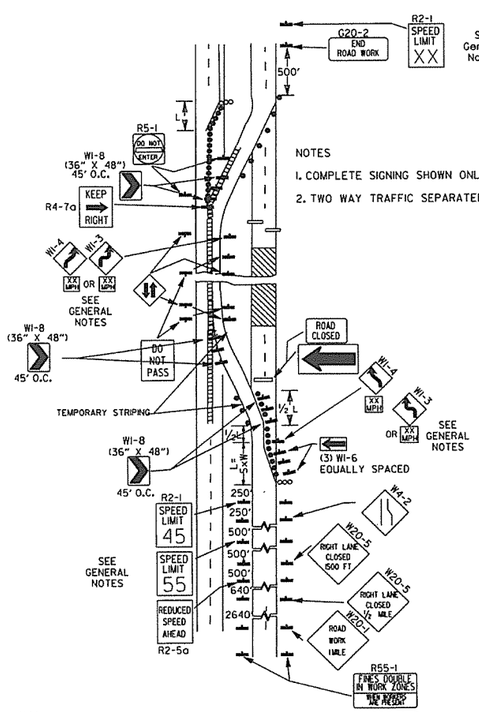
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

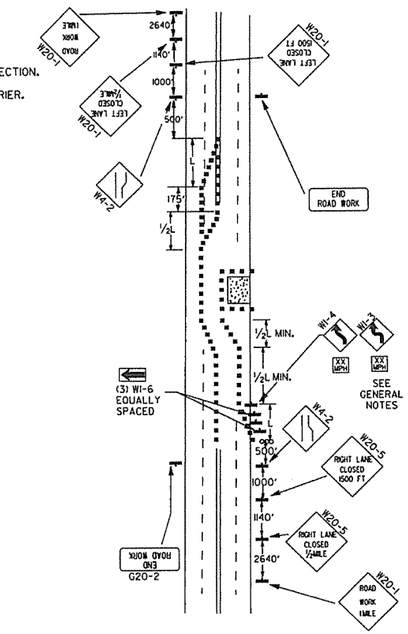
STANDARD DRAWING TC-1



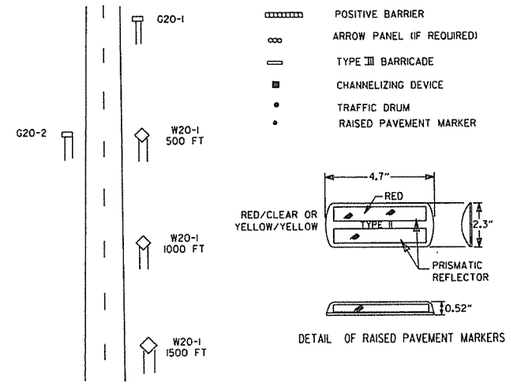
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



(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.



TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

WHERE:

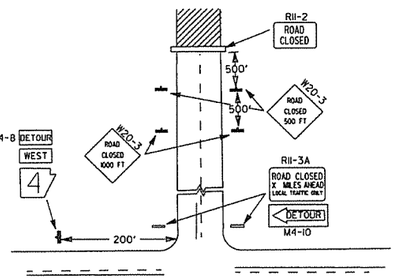
L= MINIMUM LENGTH OF TAPER.

S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.

W= WIDTH OF OFFSET.

GENERAL NOTES:

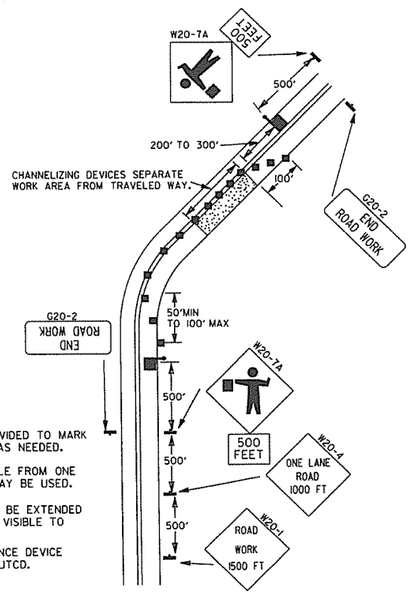
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 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. 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.



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.

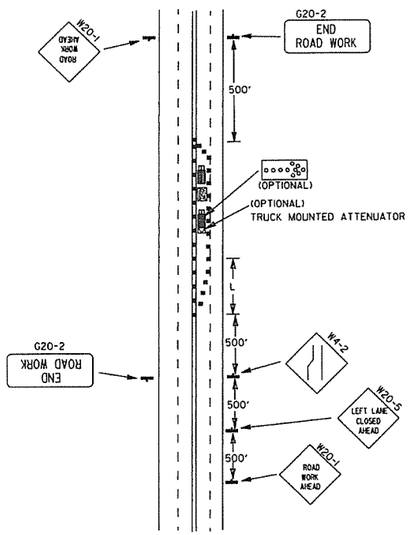
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



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.



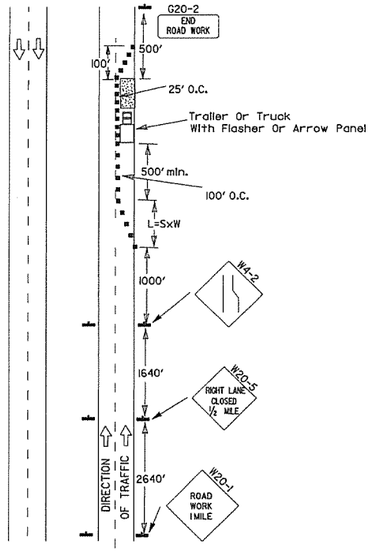
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

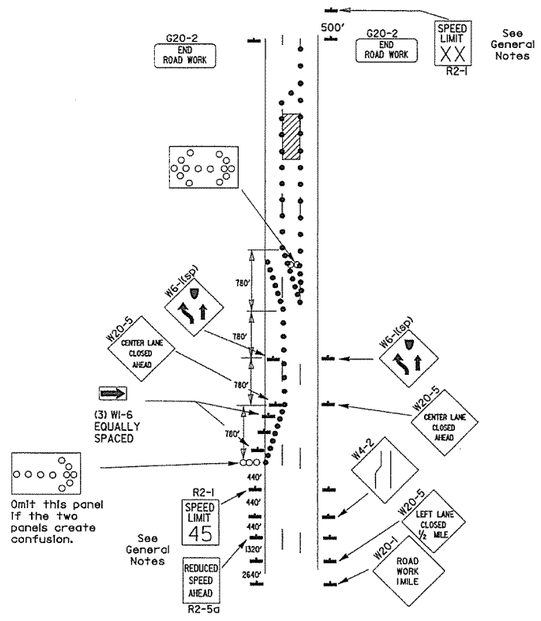
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

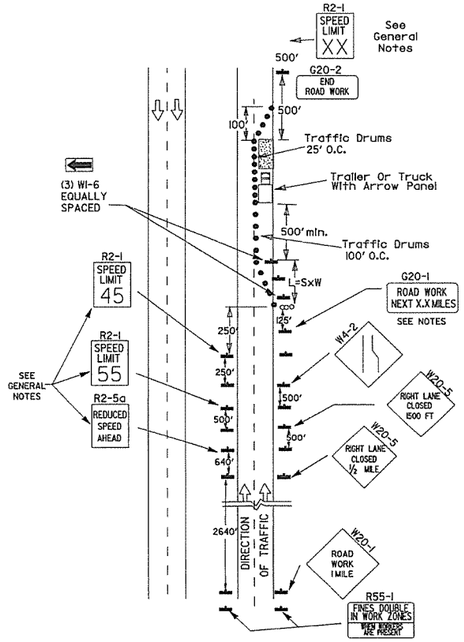
STANDARD DRAWING TC-2



(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)

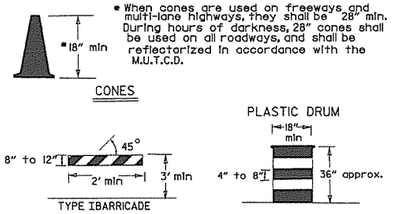
■ Channelizing Device

● Traffic drum

GENERAL NOTES:

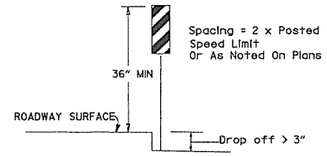
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional 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



NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

VERTICAL PANEL PLACEMENT



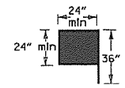
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

* When shown on the plans concrete barrier will be used.

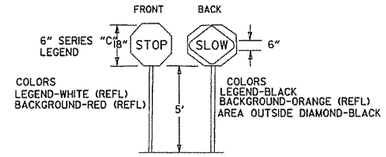
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG

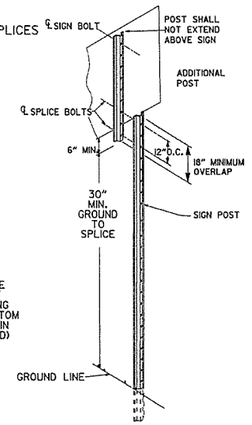


Flag shall be of good grade red material

STOP SLOW PADDLE



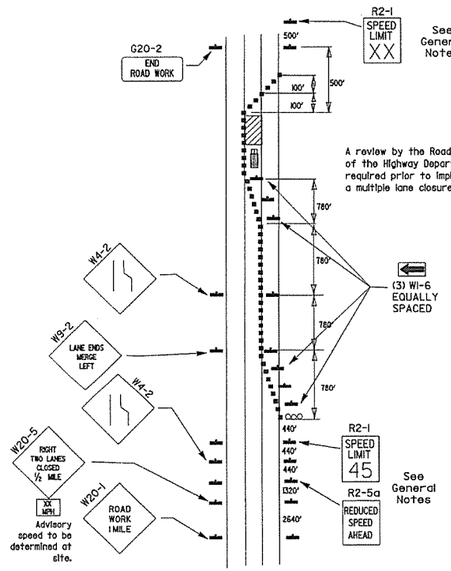
DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



A review by the Roadway Design Division of the Highway Department will be required prior to implementing a multiple lane closure.

(D) Typical application - closing multiple lanes of a multilane highway.

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

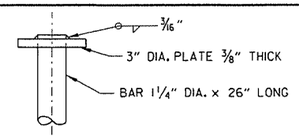
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

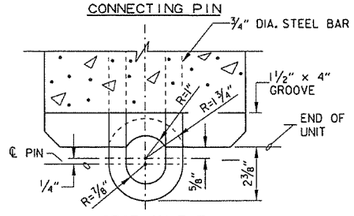
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT

MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2. TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
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"

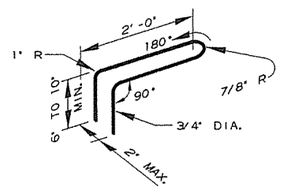


CONNECTING PIN

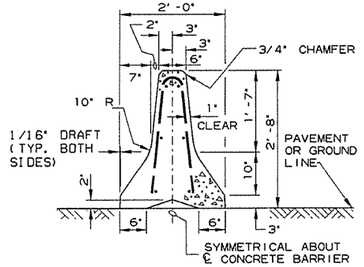


SECTION E-E

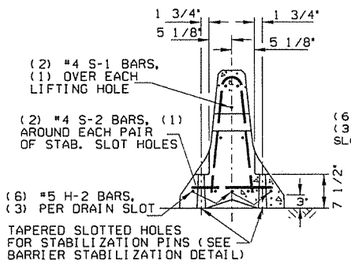
CONNECTION DETAILS



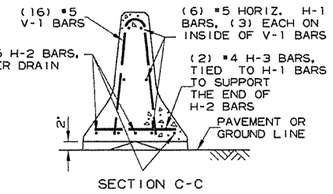
CONNECTION LOOP



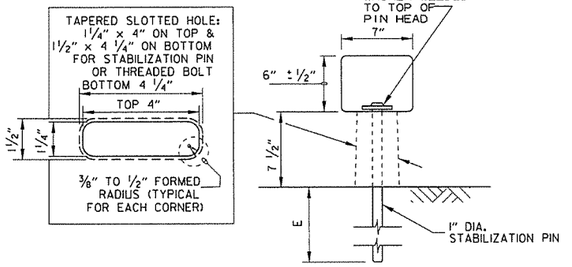
SECTION A-A



SECTION B-B



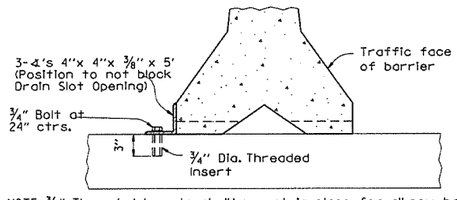
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

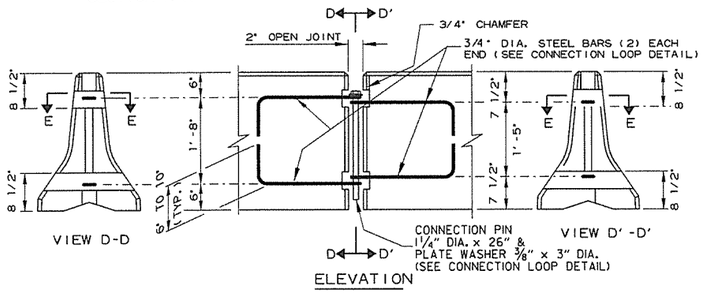
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



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

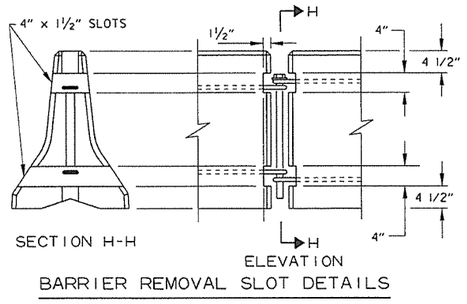
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

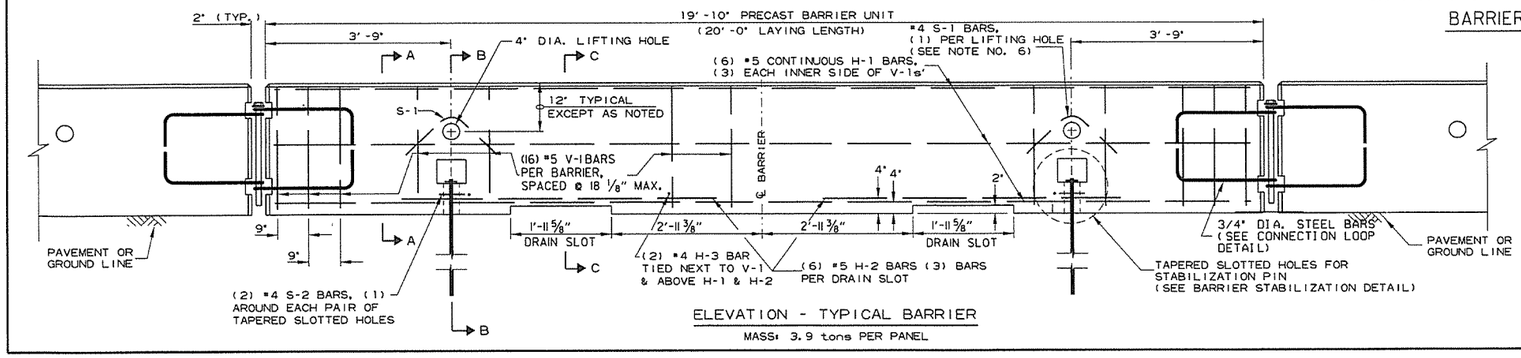
ELEVATION



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.

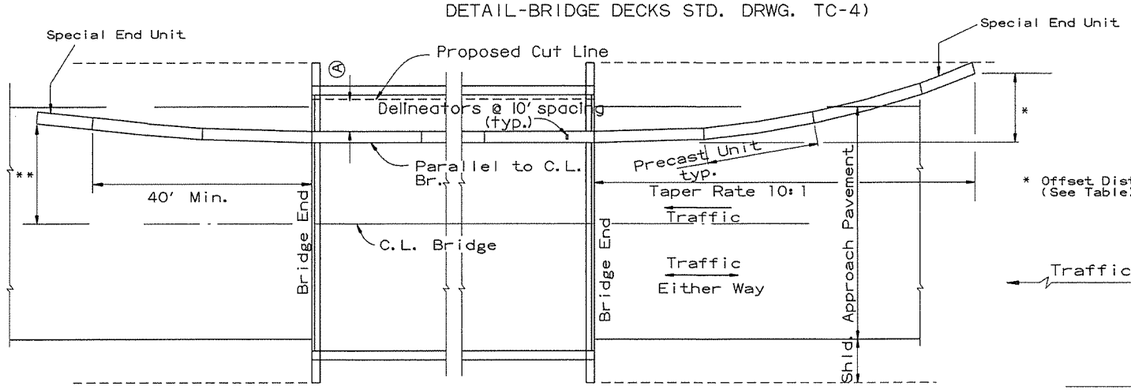
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

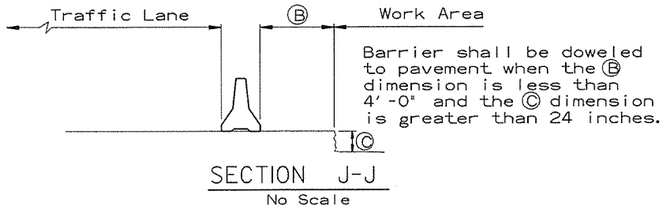
STANDARD DRAWING TC-4

Ⓐ 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

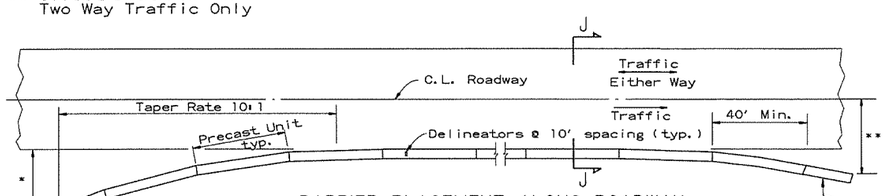


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

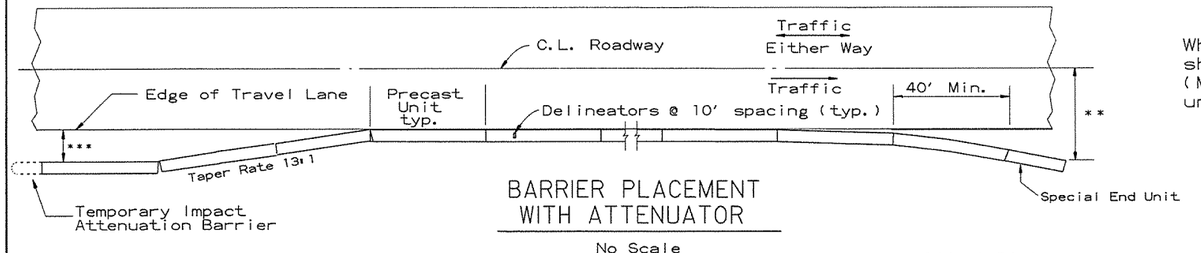
** Offset Distance For Two Way Traffic Only

* Offset Distance (See Table)

Offset Distance Table

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

If offset distance is not attainable, then see 'Barrier Placement With Attenuator' Detail shown below.

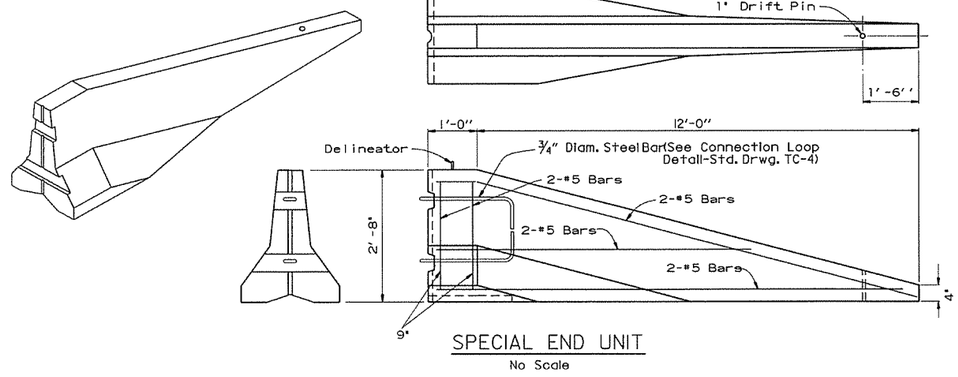


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

** Offset Distance For Two Way Traffic Only



SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

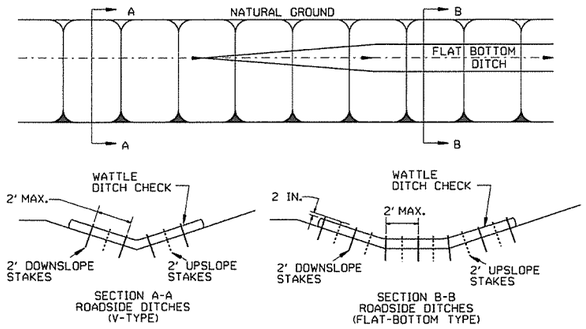
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

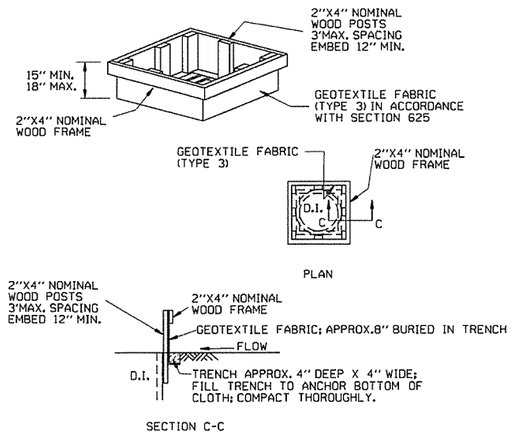
STANDARD DRAWING TC-5

GENERAL NOTES

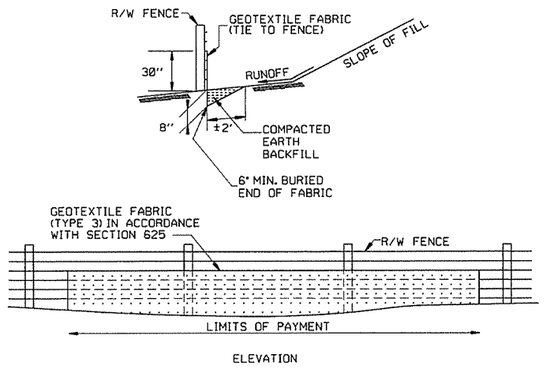
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

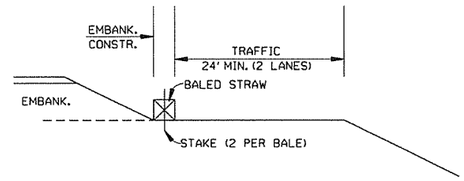
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

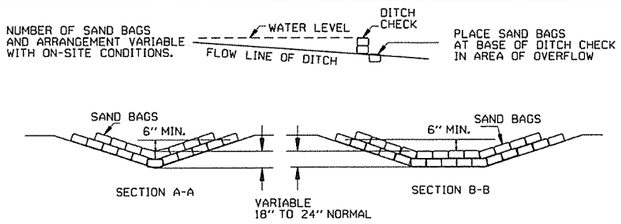
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

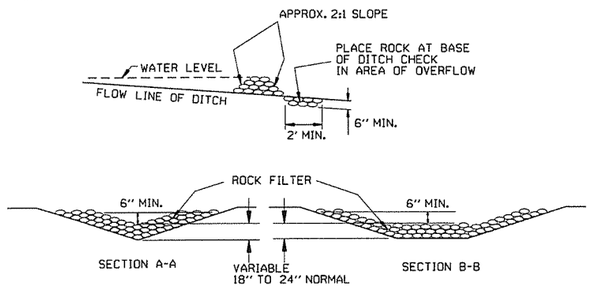
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



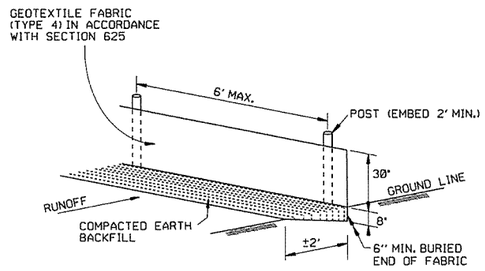
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

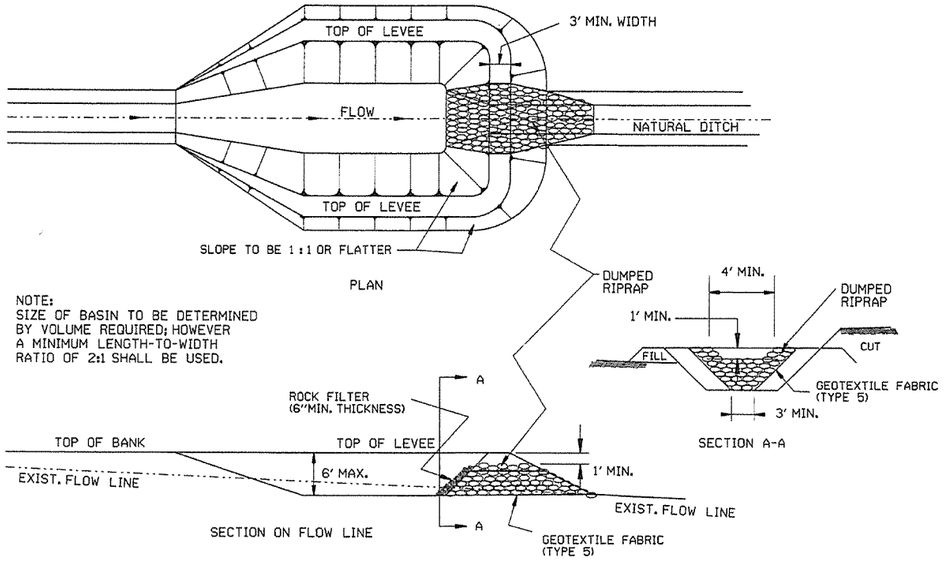
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

DATE	REVISION	FILMED
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
6-2-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
4-1-93	REDRAWN	
10-1-92	REDRAWN	
8-2-76	ISSUED R.D.M.	298-7-28-76

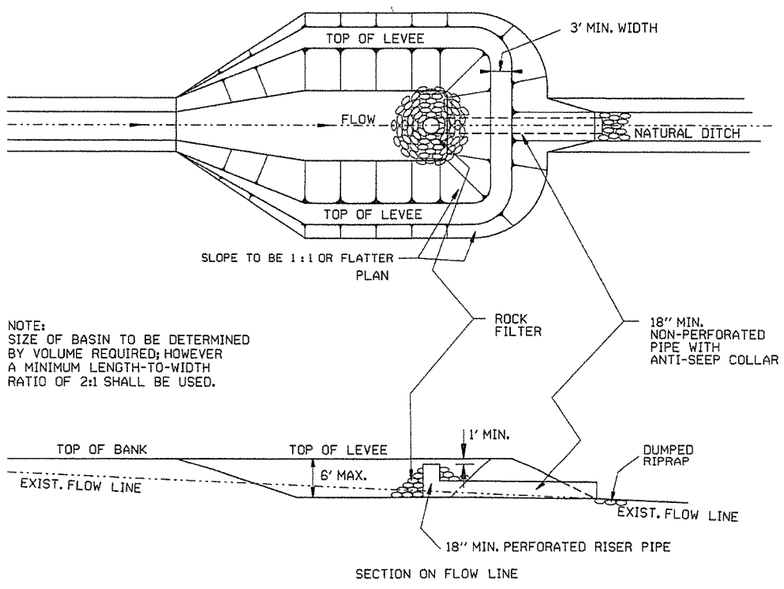
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

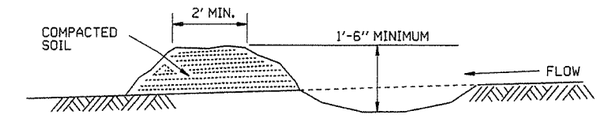
STANDARD DRAWING TEC-1



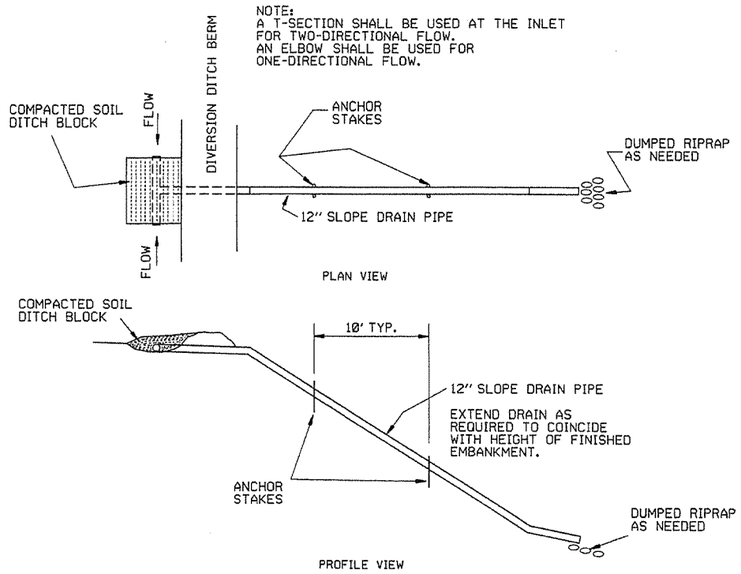
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



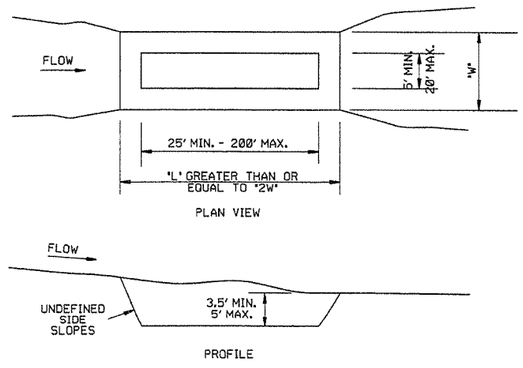
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

DATE	REVISION	FILMED
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13	
4-1-93	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

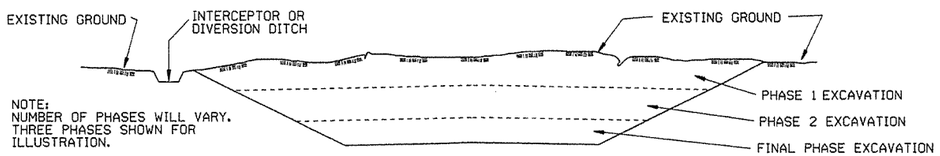
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



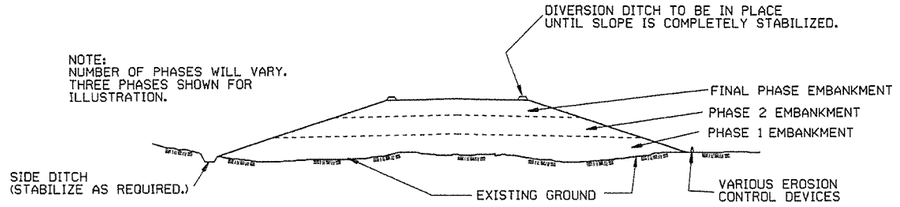
GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

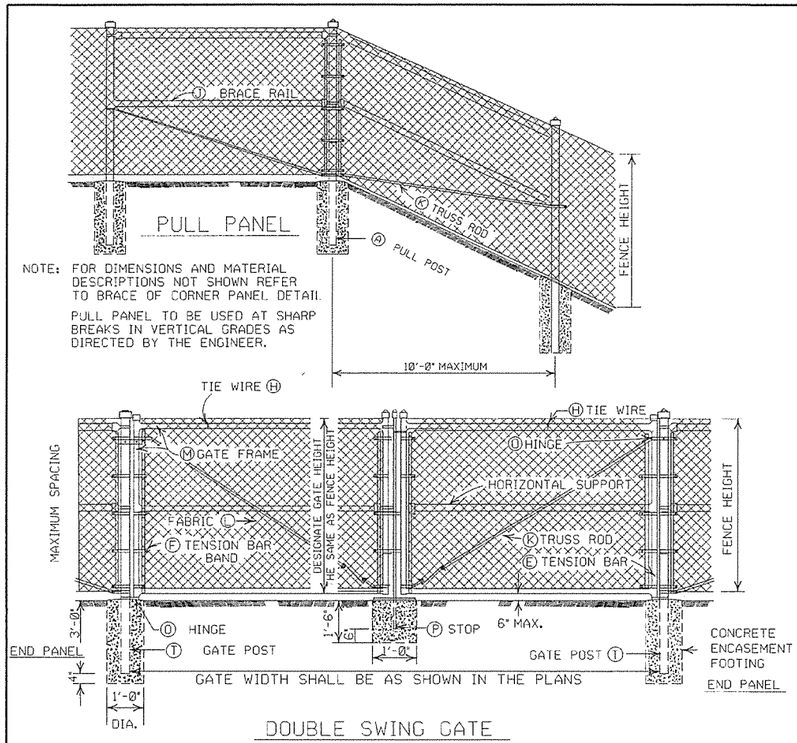
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

stdtec3.dgn

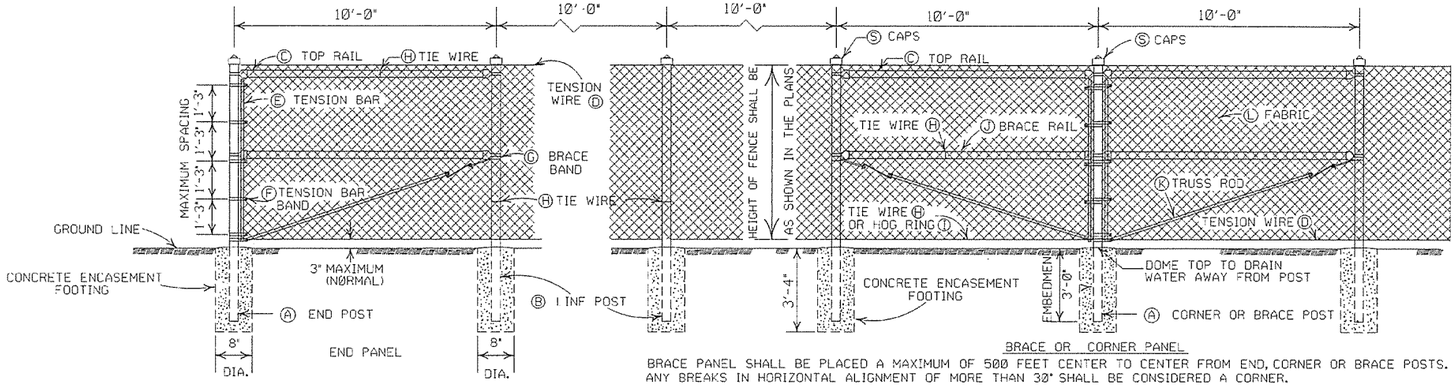


NOTE: FOR DIMENSIONS AND MATERIAL DESCRIPTIONS NOT SHOWN REFER TO BRACE OF CORNER PANEL DETAIL.

PULL PANEL TO BE USED AT SHARP BREAKS IN VERTICAL GRADES AS DIRECTED BY THE ENGINEER.

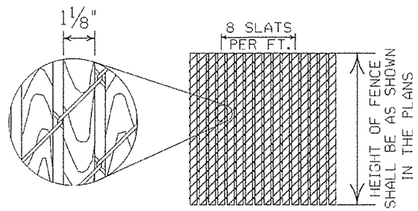
DOUBLE SWING GATE

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.

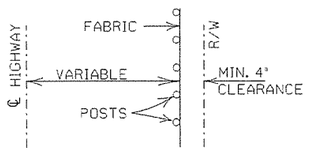
HEIGHT OF FENCE FABRIC	(A) END, PULL CORNER OR BRACE POST	(B) LINE POSTS SIZE	(B) LINE POSTS TIE SPACING	(C) TOP RAIL SIZE	(C) TOP RAIL TIE SPACING	(C) TOP RAIL MIN. LENGTH	(D) TENSION WIRE SIZE	(D) TENSION WIRE TIE SPACING	(E) TENSION BAR SIZE	(E) TENSION BAR LENGTH	(F) TENSION BAR BAND SIZE	(F) TENSION 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 ⅜" ROUND WITH TIGHTNERS AND FITTINGS	9 GA.	2"	KNUCK-ING AND/OR TWIST-ING	2" O.D.	1 TIE EVERY 1'-0"	2" O.D.	1 TIE EVERY 1'-0"	OFFSET	3" O.D.	4" O.D.
OVER 6' TO 12' INCL.														4" O.D.	

NOTE: POST SIZES SHOWN ARE FOR STEEL. WHERE ALUMINUM IS PROVIDED, LINE POSTS SHALL HAVE AN OUT SIDE DIAMETER OF 2½" FOR FENCE HEIGHT OF 6' AND LESS, AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' TO 12'. END, PULL, CORNER OR BRACE POSTS SHALL HAVE AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' AND LESS; AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHTS OF 6' TO 12'. GATE POSTS WHERE GATE WIDTH IS 12' AND LESS SHALL HAVE AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHT OF 6' AND LESS. ALUMINUM TENSION WIRE SHALL BE 0.192" IN DIAMETER. MINIMUM THICKNESS OF MATERIAL FROM WHICH EXPANSION SLEEVES SHALL BE MADE WILL BE 0.078". POSTS AND RAILS MAY HAVE ANY CROSS-SECTIONAL SHAPE THAT WILL MEET THE SPECIFICATIONS.

OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

ALL MISCELLANEOUS FITTINGS AND HARDWARE SHALL MEET THE REQUIREMENTS AND PRODUCTION TOLERANCES AS SET FORTH IN THE SPECIFICATIONS.
9 GAUGE ALUMINUM WIRE SHALL BE ACCEPTABLE FOR TIEING FABRIC TO TUBULAR AND ROLL FORMED MEMBERS OF STEEL FENCE.



INSTALLATION MAY BE MODIFIED AS SHOWN IN THE PLANS

TYPICAL INSTALLATION DIAGRAM

POSTS AND RAILS

SIZE O.D.	GRADE 1 AND ALUMINUM ALLOY O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT. STEEL	LBS. PER LINEAR FT. ALUMINUM	GRADE 2 O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.
1⅝	1.660	0.140	2.27	0.786	1.660	0.111	1.84
2	1.900	0.145	2.72	0.940	1.900	0.120	2.28
2½	2.375	0.154	3.65	1.264	2.375	0.130	3.11
3	2.875	0.203	5.79	2.004	2.875	0.160	4.64
3½	3.500	0.216	7.58	2.621	3.500	0.160	5.71
4	4.000	0.226	9.11	3.151	4.000	0.160	6.56

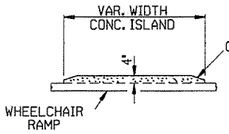
TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181

DATE	REVISION	FILMED
11-17-10	REVISED TRUSS ROD	
12-10-09	REVISED POSTS & RAILS TABLE	
5 21 09	ADDED TABLE & GEN. NOTE (C)	
8-22-02	REVISED NOTES, REMOVED TABLE, & REMOVED FENCE ALTERNATE	
4-3-97	REVISED BRACE RAIL NOTE	
10-18-96	REVISED AASHTO & ASTM REF.	
11-3-94	REVISED NOTE (L)	
10-1-92	DELETED ALTERNATE POST	10-1-92
8-15-91	DELETED ROLL FORMED POST DETAIL & ADDED NOTE	8-15-91 8-15-91
11-30-89	DELETED CLASS CONCRETE	11 30 89
11-17-88	REVISED O.D. SIZES	668-11-17-88
10-30-87	GENERAL REVISIONS	548-10-30-87
4-20-79	REVISED TOP RAIL & TENSION WIRE	695-4-20-79
10-2-72	REVISED AND REDRAWN	530-10-2-72

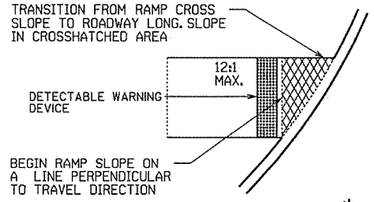
ARKANSAS STATE HIGHWAY COMMISSION

CHAIN LINK FENCE

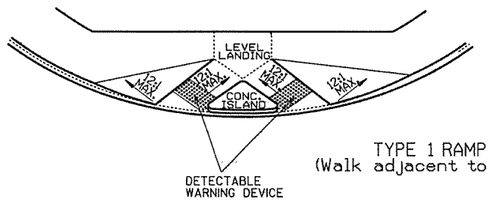
STANDARD DRAWING WF-3



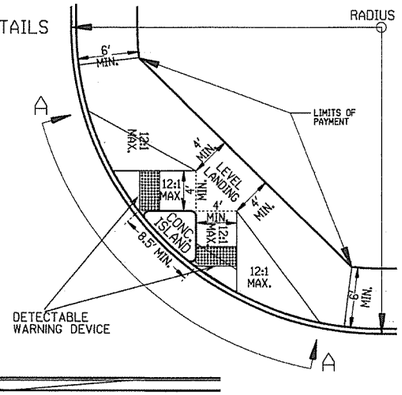
CONCRETE ISLAND DETAIL

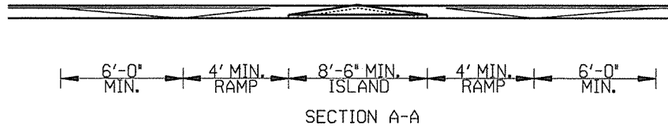


SLOPE TRANSITION DETAILS



TYPE 1 RAMP
(Walk adjacent to curb)

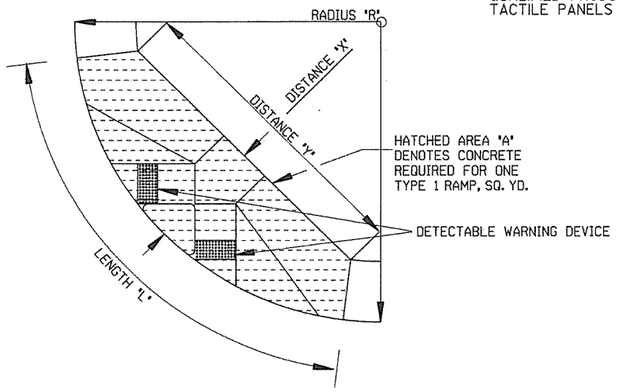




SECTION A-A

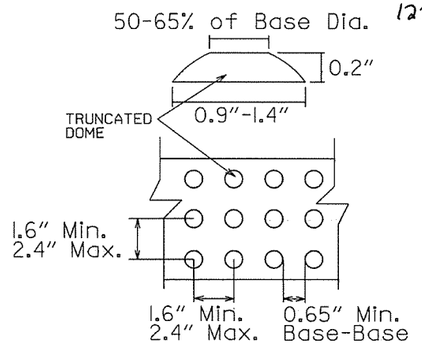
TYPE 1 RAMP DIMENSIONS AND QUANTITIES

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



GENERAL NOTES FOR DETECTABLE WARNING DEVICES

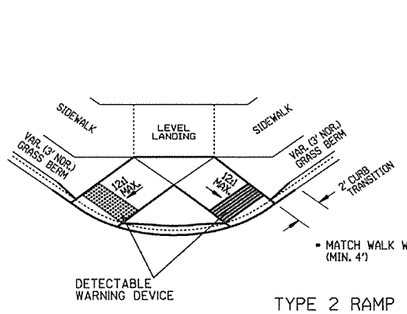
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT 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).



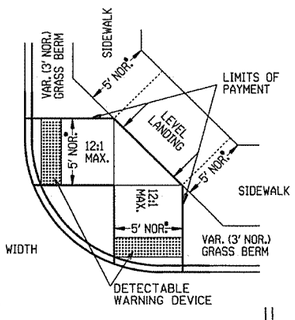
DETECTABLE WARNING DEVICE DETAIL

GENERAL NOTES:

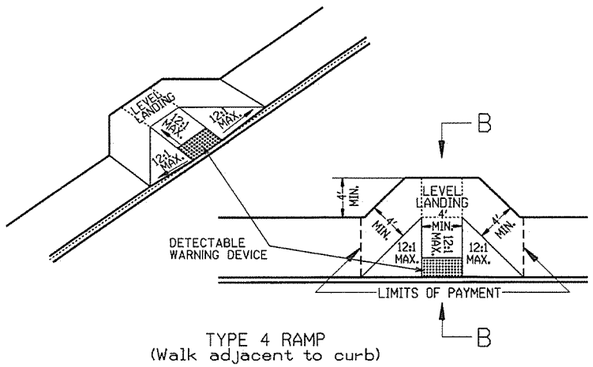
IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.
IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK 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.



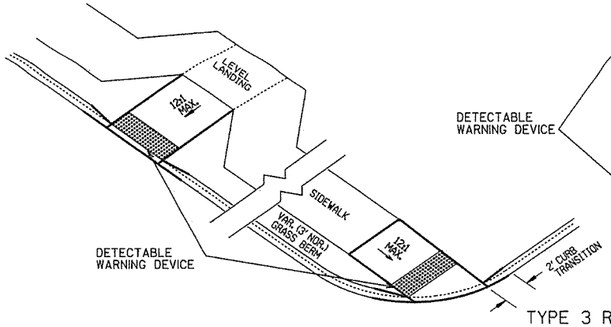
TYPE 2 RAMP



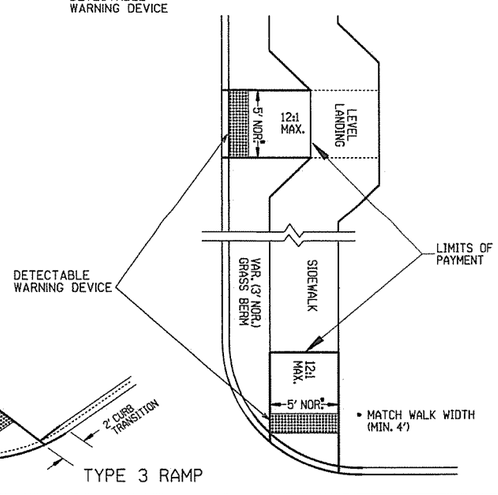
NOTE:
THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGTITUDINAL GRADE.

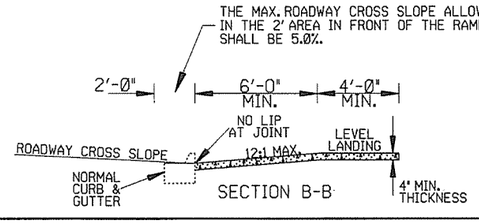


TYPE 4 RAMP
(Walk adjacent to curb)



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

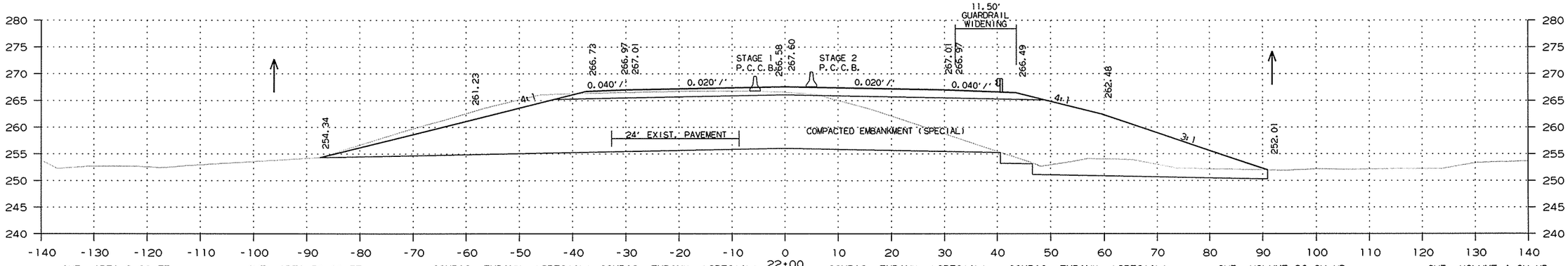
WHEELCHAIR RAMPS
NEW CONSTRUCTION
AND ALTERATIONS

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.		100686	126	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 1 STAGE 2 STAGE 2 STAGE 1 STAGE 2 STAGE 1



CUT AREA 2 SQ.FT.
FILL AREA 506 SQ.FT.

CUT AREA 50 SQ.FT.
FILL AREA 0 SQ.FT.

COMPAC. EMBANK. (SPECIAL)
CUT AREA 351 SQ.FT.
FILL AREA 854 SQ.FT.

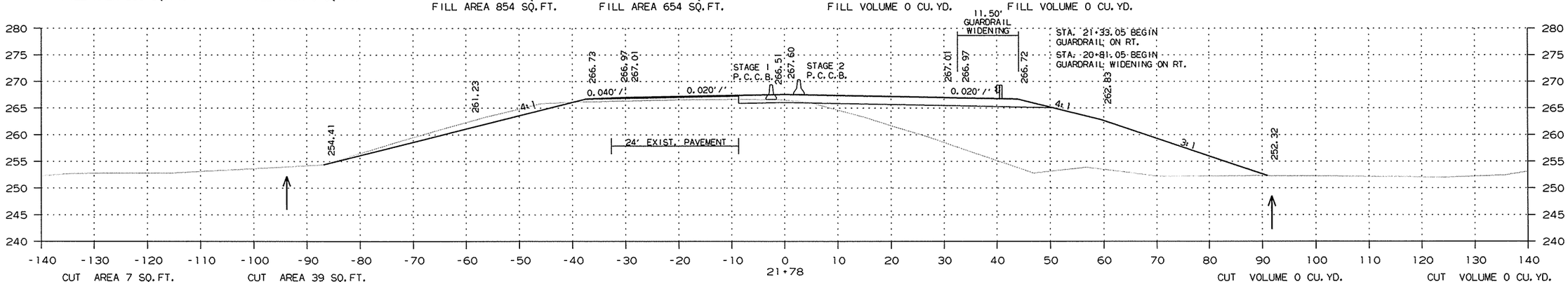
COMPAC. EMBANK. (SPECIAL)
CUT AREA 742 SQ.FT.
FILL AREA 654 SQ.FT.

COMPAC. EMBANK. (SPECIAL)
CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.

COMPAC. EMBANK. (SPECIAL)
CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.

CUT VOLUME 36 CU.YD.
FILL VOLUME 0 CU.YD.

CUT VOLUME 4 CU.YD.
FILL VOLUME 427 CU.YD.



CUT AREA 7 SQ.FT.
FILL AREA 543 SQ.FT.

CUT AREA 39 SQ.FT.
FILL AREA 0 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.

STA. 21+77.55 BEGIN JOB 100686 & END JOB 100687
LOG MILE 16.60

CROSS SECTION STA. 21+78 TO STA. 22+00

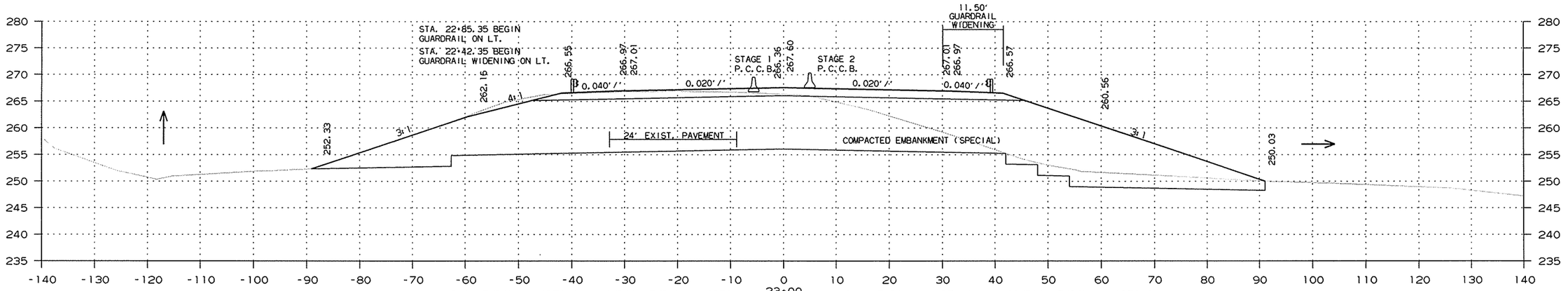
2/26/2014

R100686.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	127	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

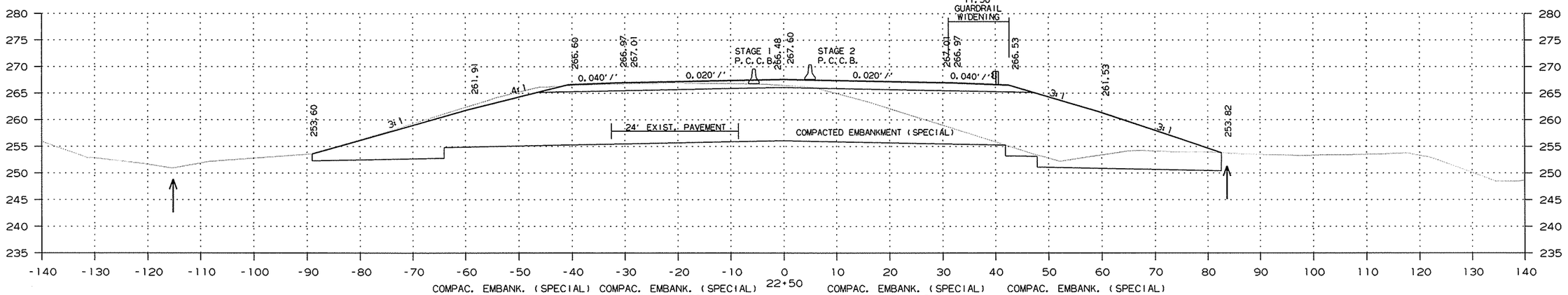


COMPAC. EMBANK. (SPECIAL) CUT AREA 358 SQ.FT. FILL AREA 845 SQ.FT.

COMPAC. EMBANK. (SPECIAL) CUT AREA 766 SQ.FT. FILL AREA 709 SQ.FT.

COMPAC. EMBANK. (SPECIAL) CUT VOLUME 1438 CU.YD. FILL VOLUME 1321 CU.YD.

COMPAC. EMBANK. (SPECIAL) CUT VOLUME 657 CU.YD. FILL VOLUME 1518 CU.YD.



COMPAC. EMBANK. (SPECIAL) CUT AREA 352 SQ.FT. FILL AREA 794 SQ.FT.

COMPAC. EMBANK. (SPECIAL) CUT AREA 787 SQ.FT. FILL AREA 718 SQ.FT.

COMPAC. EMBANK. (SPECIAL) CUT VOLUME 1416 CU.YD. FILL VOLUME 1270 CU.YD.

COMPAC. EMBANK. (SPECIAL) CUT VOLUME 651 CU.YD. FILL VOLUME 1526 CU.YD.

CROSS SECTION STA. 22+50 TO STA. 23+00

2/26/2014

R100686.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.		100686	128	185

(2) CROSS SECTIONS

STAGE 1	STAGE 2	STAGE 2	STAGE 1

B.E. STA. 25+77.15

COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)
CUT AREA 335 SQ.FT.	CUT AREA 801 SQ.FT.	CUT VOLUME 335 CU.YD.	CUT VOLUME 140 CU.YD.
FILL AREA 783 SQ.FT.	FILL AREA 706 SQ.FT.	FILL VOLUME 295 CU.YD.	FILL VOLUME 328 CU.YD.

TOE OF SLOPE STA. 25+54.55

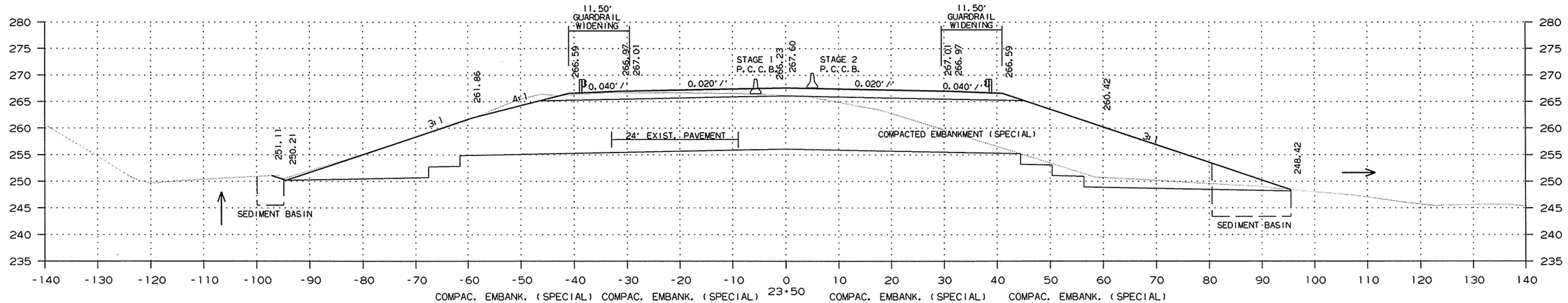
COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)
CUT AREA 0 SQ.FT.	CUT AREA 0 SQ.FT.	CUT VOLUME 0 CU.YD.	CUT VOLUME 0 CU.YD.
FILL AREA 0 SQ.FT.	FILL AREA 0 SQ.FT.	FILL VOLUME 0 CU.YD.	FILL VOLUME 0 CU.YD.

TOE OF SLOPE STA. 23+97

COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)
CUT AREA 0 SQ.FT.	CUT AREA 0 SQ.FT.	CUT VOLUME 329 CU.YD.	CUT VOLUME 135 CU.YD.
FILL AREA 0 SQ.FT.	FILL AREA 0 SQ.FT.	FILL VOLUME 306 CU.YD.	FILL VOLUME 340 CU.YD.

B.E. STA. 23+74.85

COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)
CUT AREA 330 SQ.FT.	CUT AREA 801 SQ.FT.	CUT VOLUME 737 CU.YD.	CUT VOLUME 304 CU.YD.
FILL AREA 829 SQ.FT.	FILL AREA 747 SQ.FT.	FILL VOLUME 688 CU.YD.	FILL VOLUME 763 CU.YD.



COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)
CUT AREA 330 SQ.FT.	CUT AREA 801 SQ.FT.	CUT VOLUME 1451 CU.YD.	CUT VOLUME 637 CU.YD.
FILL AREA 829 SQ.FT.	FILL AREA 747 SQ.FT.	FILL VOLUME 1348 CU.YD.	FILL VOLUME 1550 CU.YD.

CROSS SECTION STA. 23+50

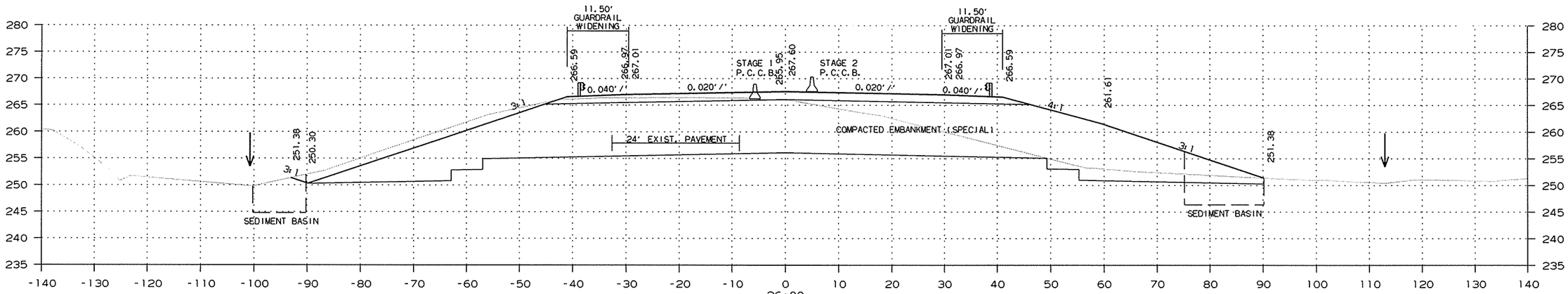
2/26/2014

R100686.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	129	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1



COMPAC. EMBANK. (SPECIAL)
CUT AREA 335 SQ.FT.
FILL AREA 783 SQ.FT.

COMPAC. EMBANK. (SPECIAL)
CUT AREA 801 SQ.FT.
FILL AREA 706 SQ.FT.

COMPAC. EMBANK. (SPECIAL)
CUT VOLUME 678 CU.YD.
FILL VOLUME 597 CU.YD.

COMPAC. EMBANK. (SPECIAL)
CUT VOLUME 284 CU.YD.
FILL VOLUME 663 CU.YD.

2/26/2014

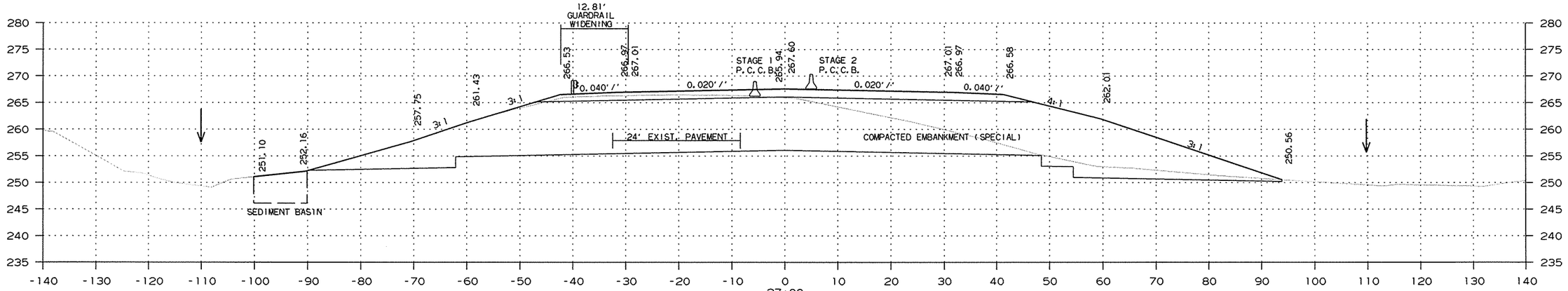
R100686.DGN

CROSS SECTION STA. 26+00

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.		100686	130	185

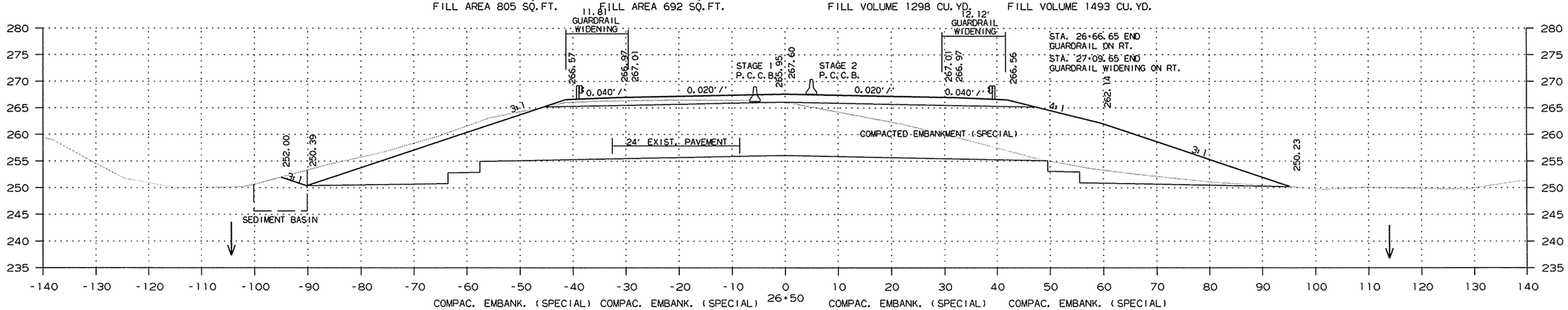
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1



27+00

COMPAC. EMBANK. (SPECIAL) COMPAC. EMBANK. (SPECIAL) COMPAC. EMBANK. (SPECIAL) COMPAC. EMBANK. (SPECIAL)
CUT AREA 328 SQ.FT. CUT AREA 716 SQ.FT. CUT VOLUME 1413 CU.YD. CUT VOLUME 600 CU.YD.
FILL AREA 805 SQ.FT. FILL AREA 692 SQ.FT. FILL VOLUME 1298 CU.YD. FILL VOLUME 1493 CU.YD.



STA. 26+66.65 END GUARDRAIL ON RT.
STA. 27+09.65 END GUARDRAIL WIDENING ON RT.

26+50

COMPAC. EMBANK. (SPECIAL) COMPAC. EMBANK. (SPECIAL) COMPAC. EMBANK. (SPECIAL) COMPAC. EMBANK. (SPECIAL)
CUT AREA 320 SQ.FT. CUT AREA 810 SQ.FT. CUT VOLUME 1492 CU.YD. CUT VOLUME 606 CU.YD.
FILL AREA 807 SQ.FT. FILL AREA 710 SQ.FT. FILL VOLUME 1311 CU.YD. FILL VOLUME 1472 CU.YD.

CROSS SECTION STA. 26+50 TO STA. 27+00

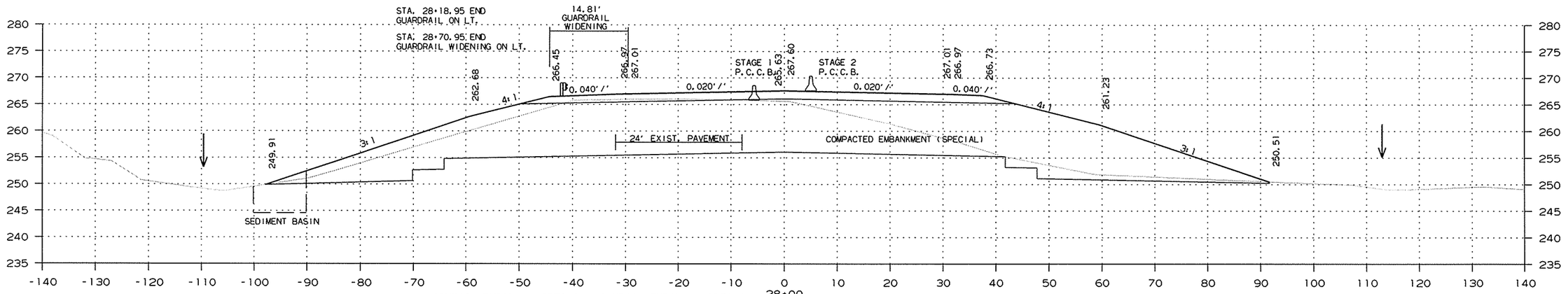
2/26/2014

R100686.DGN

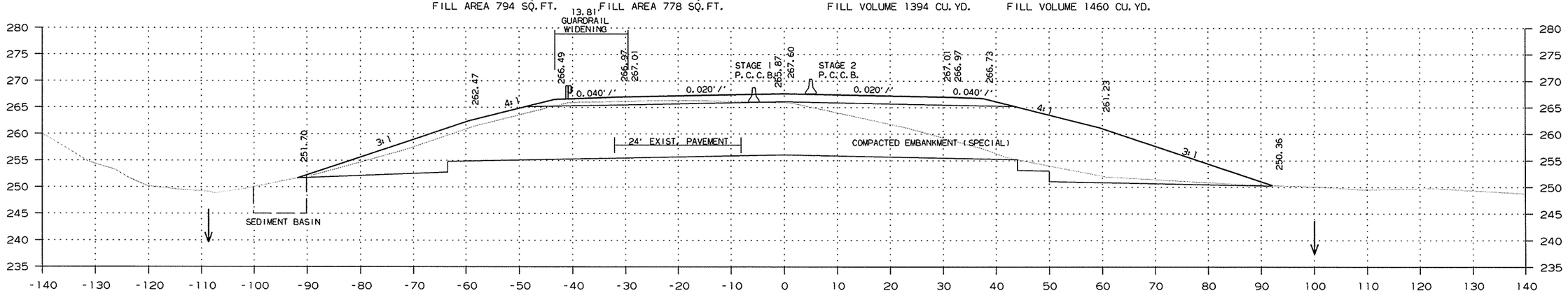
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	131	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1



COMPAC. EMBANK. (SPECIAL) CUT AREA 268 SQ.FT. FILL AREA 794 SQ.FT.
COMPAC. EMBANK. (SPECIAL) CUT AREA 687 SQ.FT. FILL AREA 778 SQ.FT.
28+00
COMPAC. EMBANK. (SPECIAL) CUT VOLUME 899 CU.YD. FILL VOLUME 1394 CU.YD.
COMPAC. EMBANK. (SPECIAL) CUT VOLUME 893 CU.YD. FILL VOLUME 1460 CU.YD.



COMPAC. EMBANK. (SPECIAL) CUT AREA 696 SQ.FT. FILL AREA 783 SQ.FT.
COMPAC. EMBANK. (SPECIAL) CUT AREA 284 SQ.FT. FILL AREA 728 SQ.FT.
27+50
COMPAC. EMBANK. (SPECIAL) CUT VOLUME 926 CU.YD. FILL VOLUME 1315 CU.YD.
COMPAC. EMBANK. (SPECIAL) CUT VOLUME 948 CU.YD. FILL VOLUME 1470 CU.YD.

CROSS SECTION STA. 27+50 TO STA. 28+00

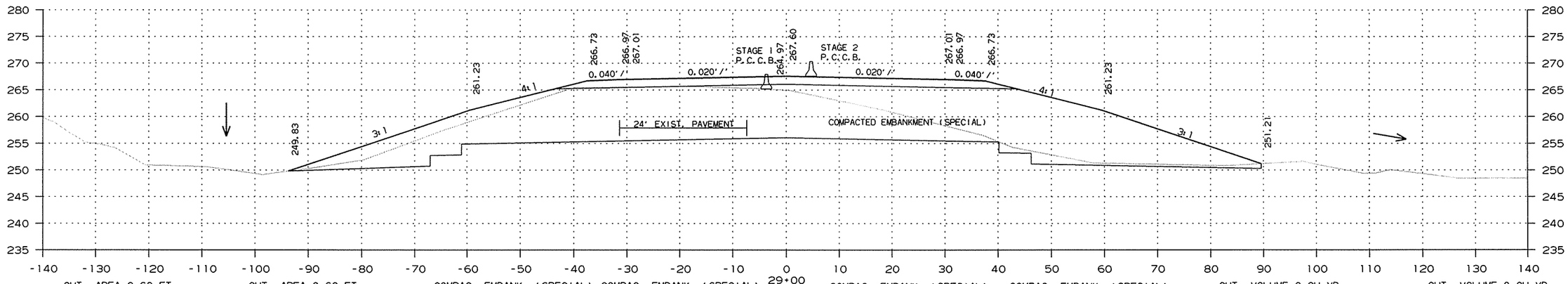
2/26/2014

R100686.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.		100686	132	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 1 STAGE 2 STAGE 2 STAGE 1 STAGE 2 STAGE 1



CUT AREA 0 SQ.FT.
FILL AREA 564 SQ.FT.

CUT AREA 0 SQ.FT.
FILL AREA 100 SQ.FT.

COMPAC. EMBANK. (SPECIAL)
CUT AREA 235 SQ.FT.
FILL AREA 800 SQ.FT.

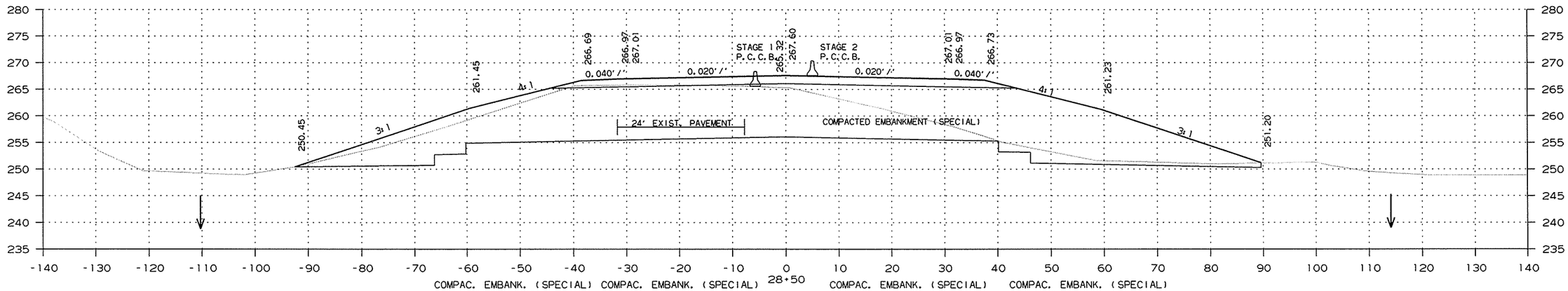
COMPAC. EMBANK. (SPECIAL)
CUT AREA 625 SQ.FT.
FILL AREA 728 SQ.FT.

COMPAC. EMBANK. (SPECIAL)
CUT VOLUME 1190 CU.YD.
FILL VOLUME 1348 CU.YD.

COMPAC. EMBANK. (SPECIAL)
CUT VOLUME 451 CU.YD.
FILL VOLUME 1481 CU.YD.

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.



COMPAC. EMBANK. (SPECIAL)
CUT AREA 252 SQ.FT.
FILL AREA 800 SQ.FT.

COMPAC. EMBANK. (SPECIAL)
CUT AREA 660 SQ.FT.
FILL AREA 728 SQ.FT.

COMPAC. EMBANK. (SPECIAL)
CUT VOLUME 1247 CU.YD.
FILL VOLUME 1394 CU.YD.

COMPAC. EMBANK. (SPECIAL)
CUT VOLUME 481 CU.YD.
FILL VOLUME 1476 CU.YD.

CROSS SECTION STA. 28+50 TO STA. 29+00

2/26/2014

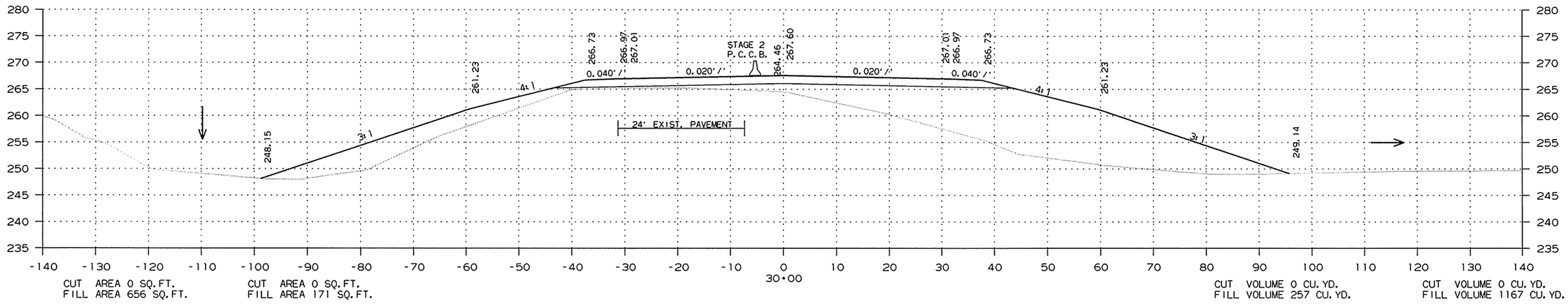
R100686.DGN

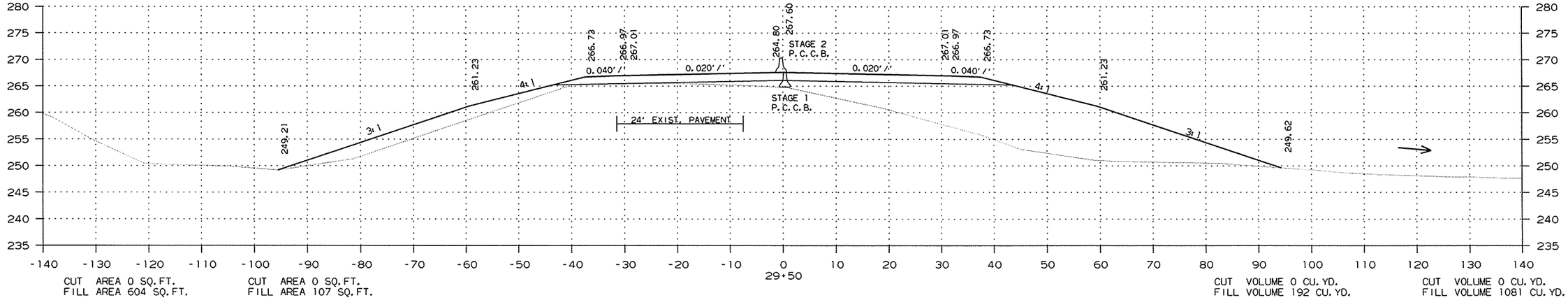
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	133	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 2 STAGE 1





CROSS SECTION STA. 29+50 TO STA. 30+00

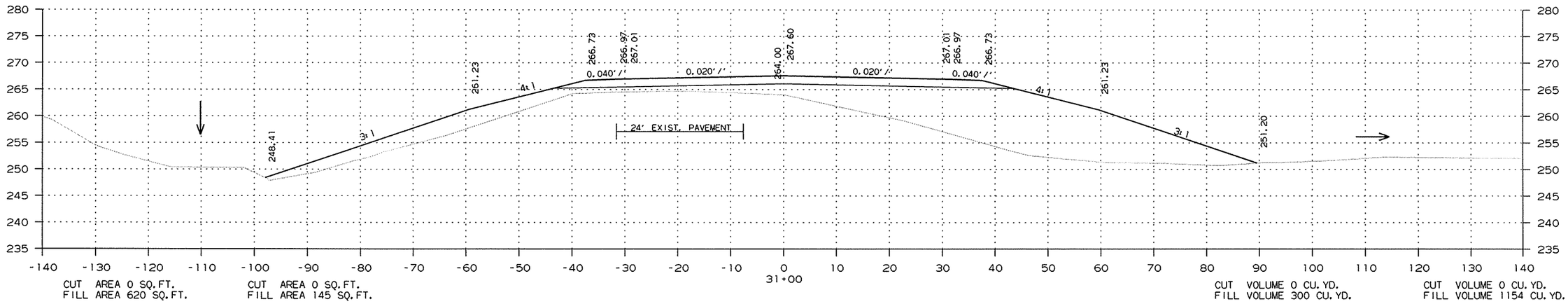
2/26/2014

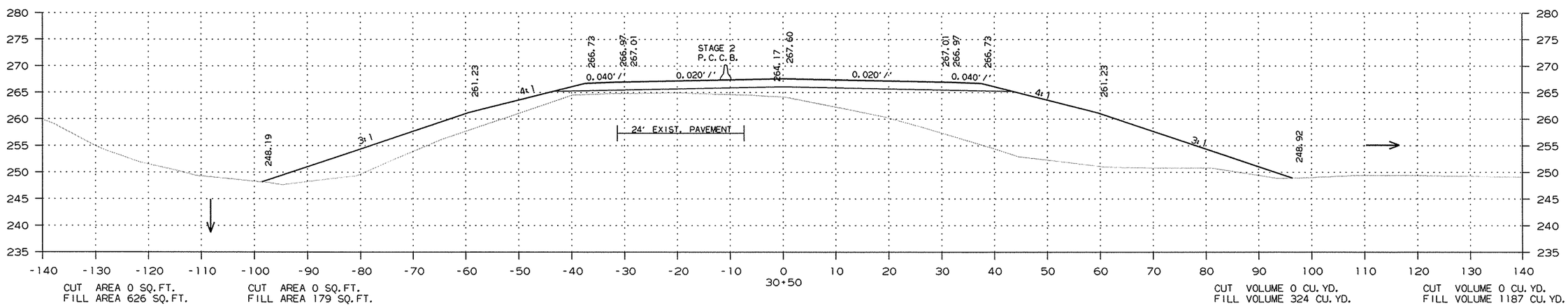
R100686.DGN

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.		100686	134	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1





CROSS SECTION STA. 30+50 TO STA. 31+00

2/26/2014

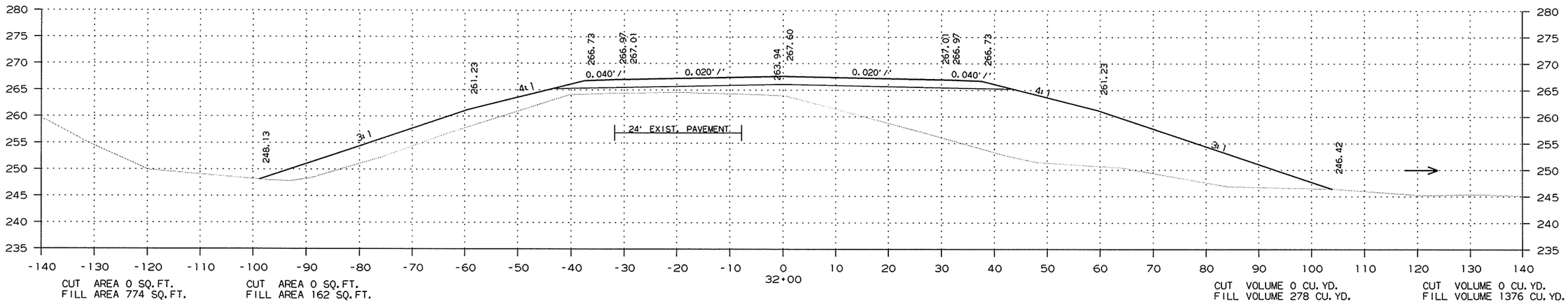
R100686.DGN

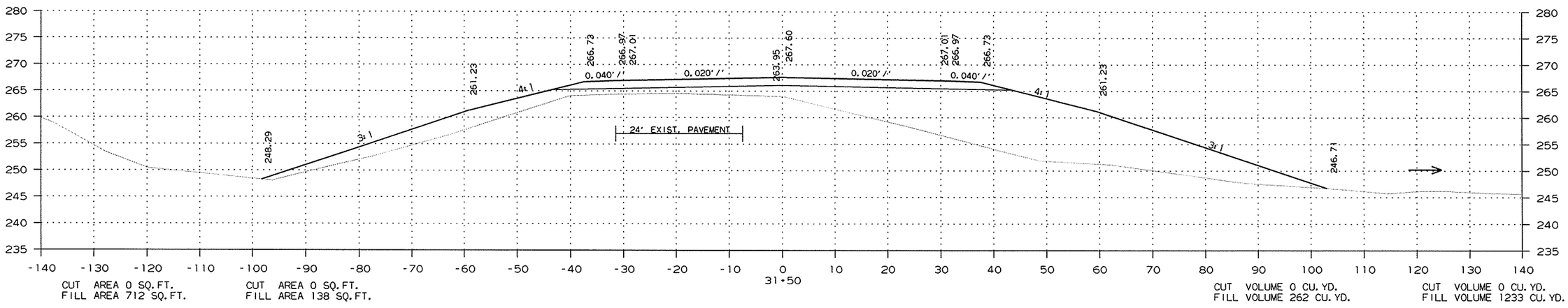
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	135	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 2 STAGE 1





CROSS SECTION STA. 31+50 TO STA. 32+00

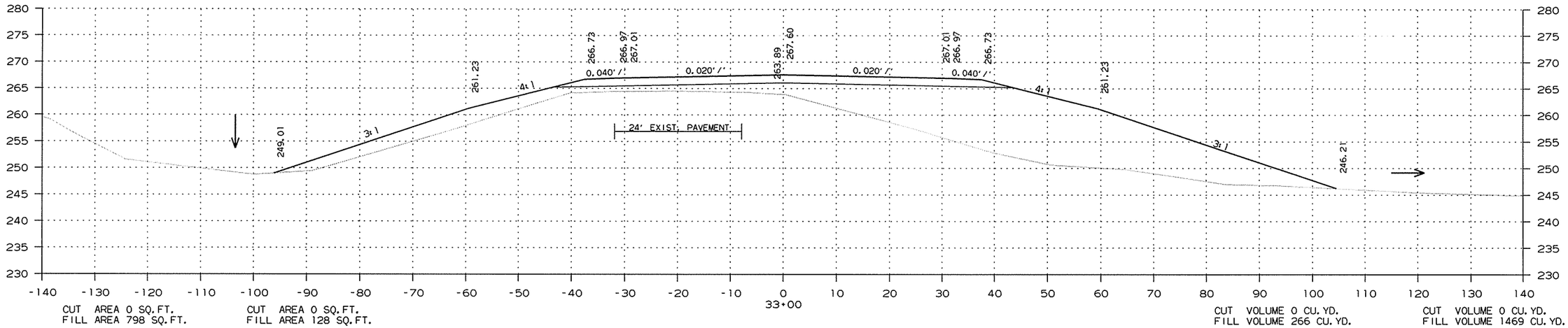
2/26/2014

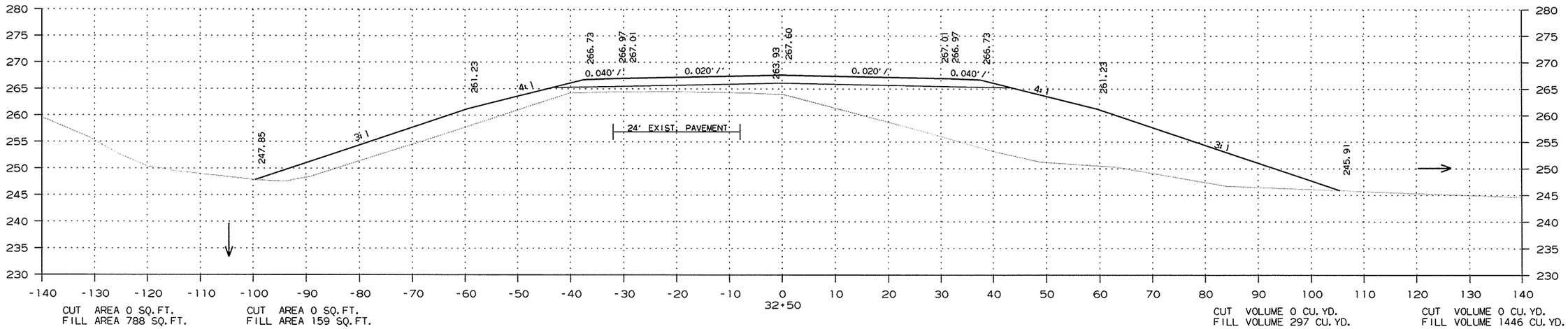
R100686.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	136	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1





CROSS SECTION STA. 32+50 TO STA. 33+00

2/26/2014

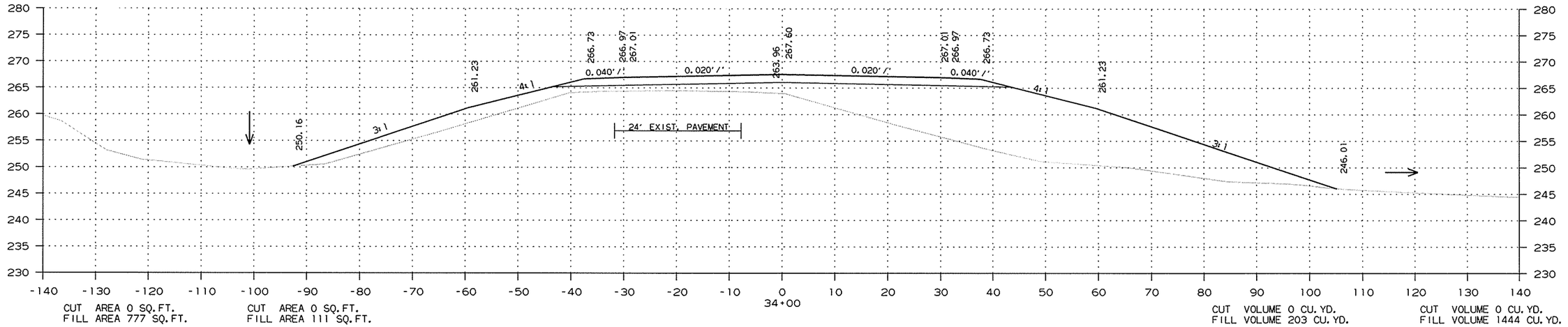
R100686.DGN

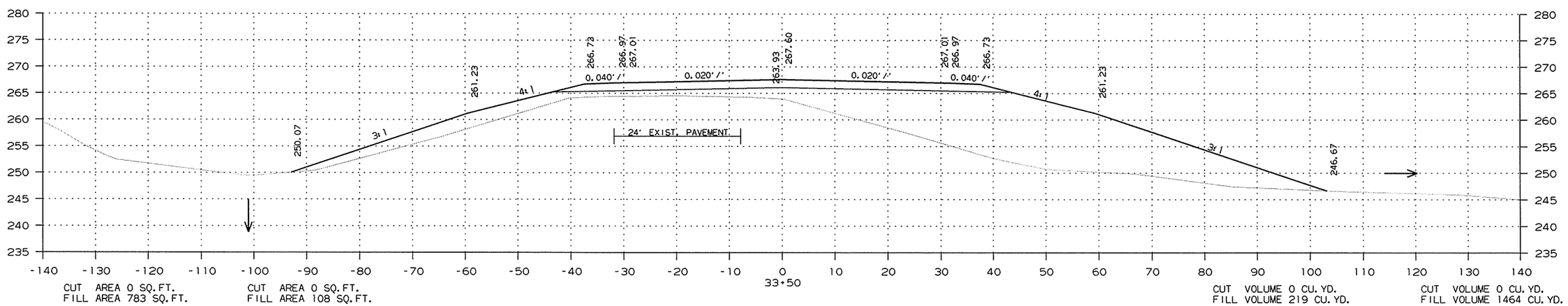
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	137	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 2 STAGE 1





CROSS SECTION STA. 33+50 TO STA. 34+00

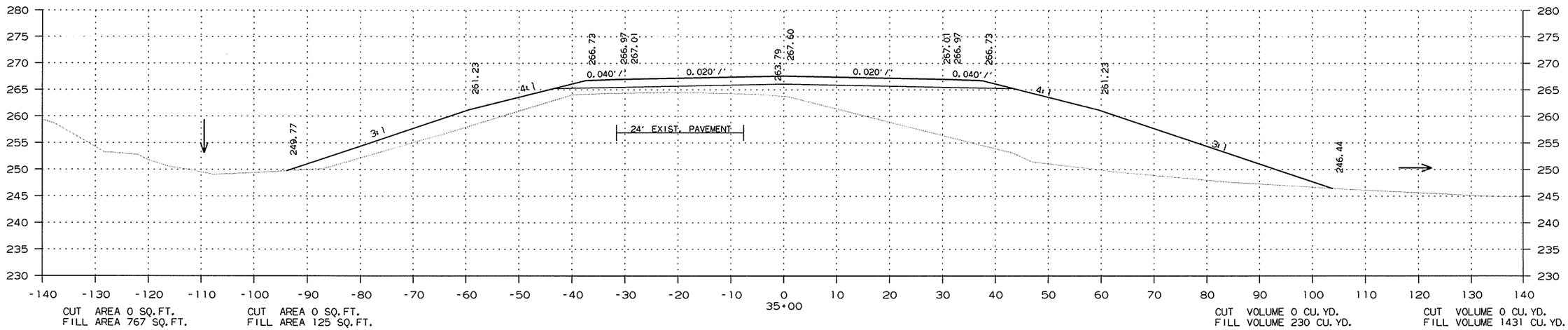
2/26/2014

R100686.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.		100686	138	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

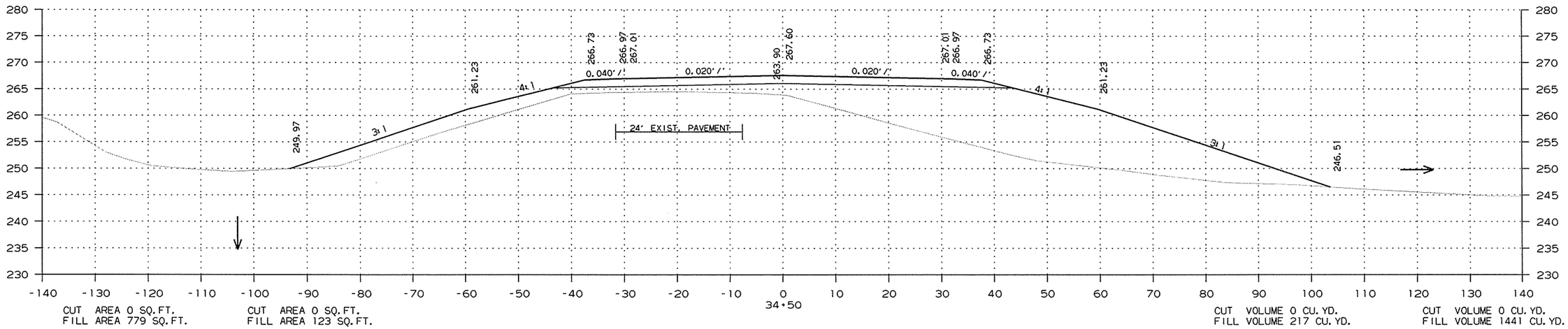


CUT AREA 0 SQ.FT.
FILL AREA 767 SQ.FT.

CUT AREA 0 SQ.FT.
FILL AREA 125 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 230 CU.YD.

CUT VOLUME 0 CU.YD.
FILL VOLUME 1431 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 779 SQ.FT.

CUT AREA 0 SQ.FT.
FILL AREA 123 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 217 CU.YD.

CUT VOLUME 0 CU.YD.
FILL VOLUME 1441 CU.YD.

CROSS SECTION STA. 34+50 TO STA. 35+00

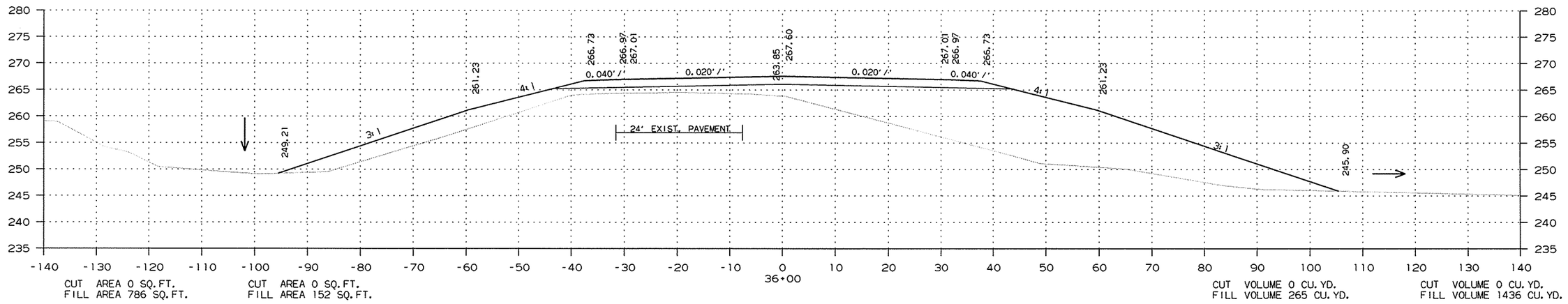
2/26/2014

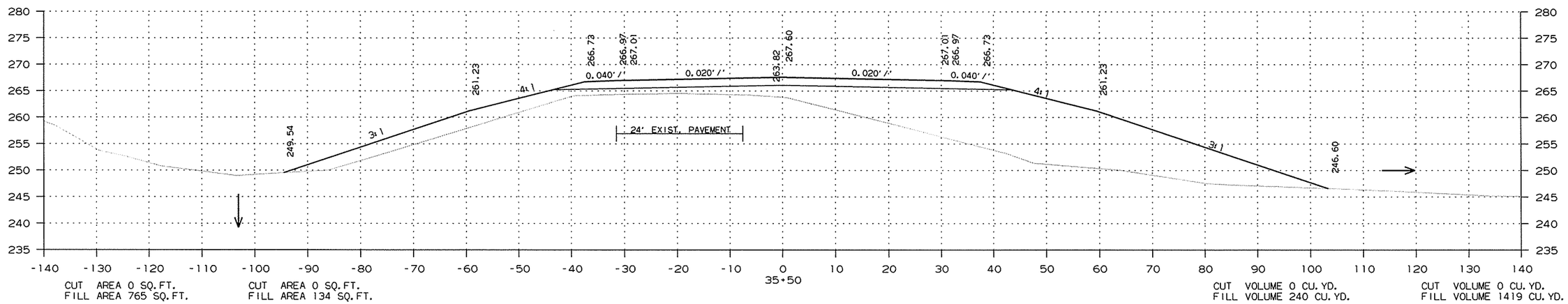
R100686.DGN

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.		100686	139	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1





CROSS SECTION STA. 35+50 TO STA. 36+00

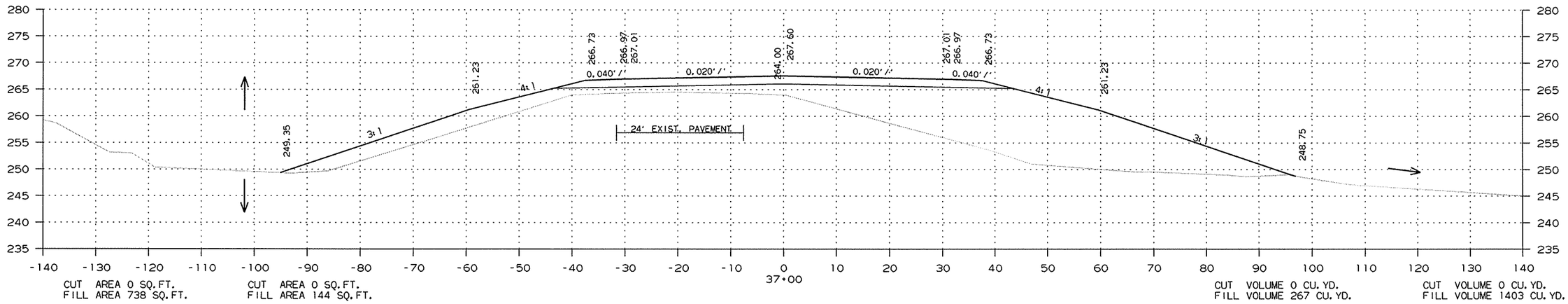
2/26/2014

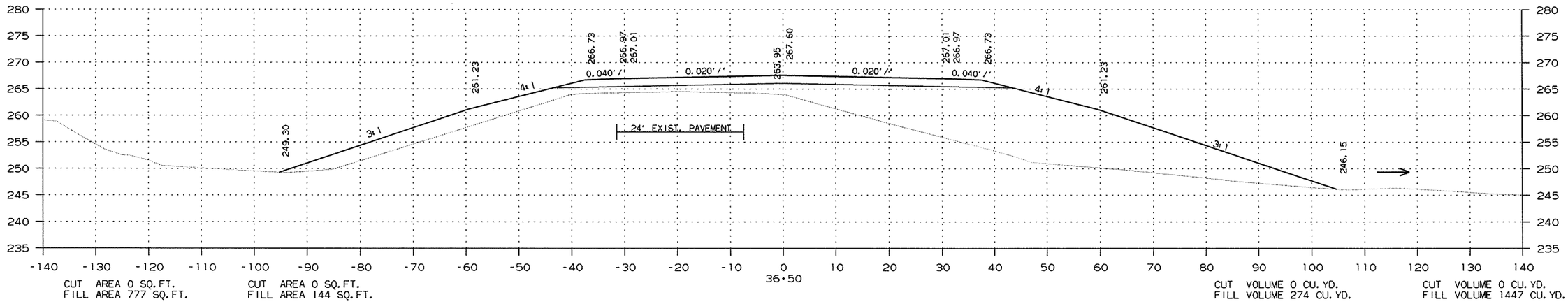
R100686.DGN

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.		100686	140	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1





CROSS SECTION STA. 36+50 TO STA. 37+00

2/26/2014

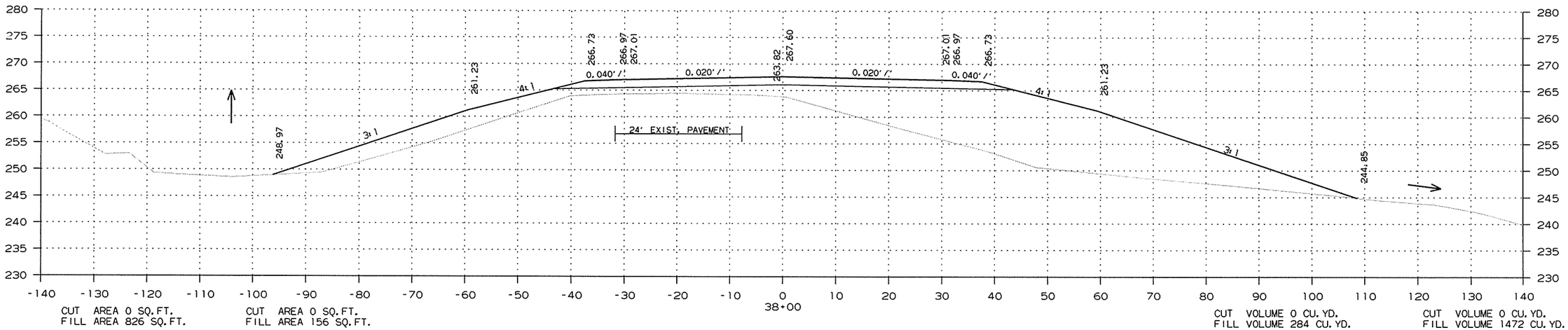
R100686.DGN

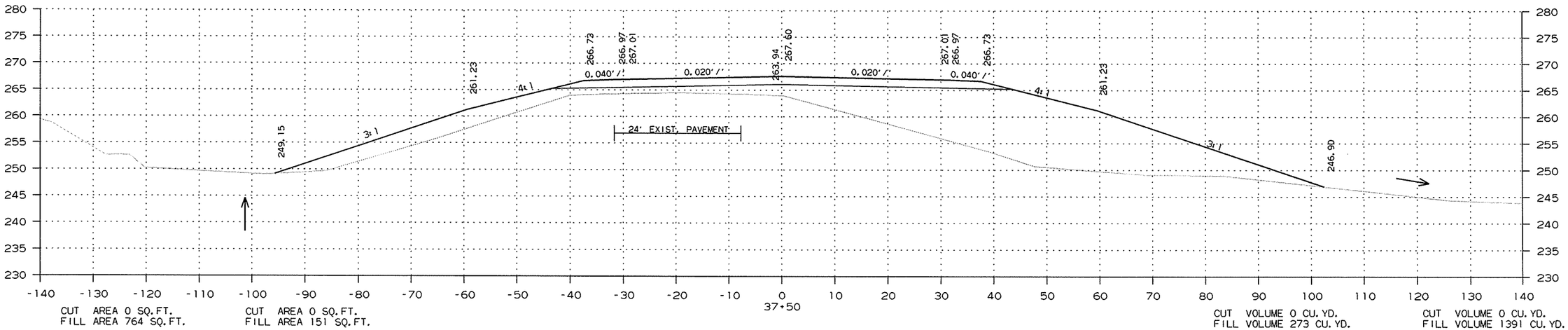
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	141	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 2 STAGE 1





CROSS SECTION STA. 37+50 TO STA. 38+00

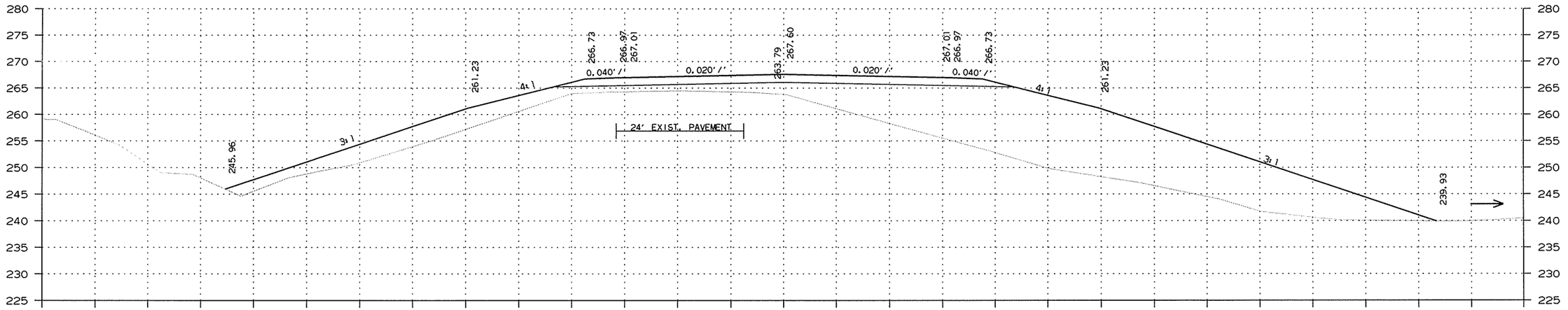
2/26/2014

R100686.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.		100686	142	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

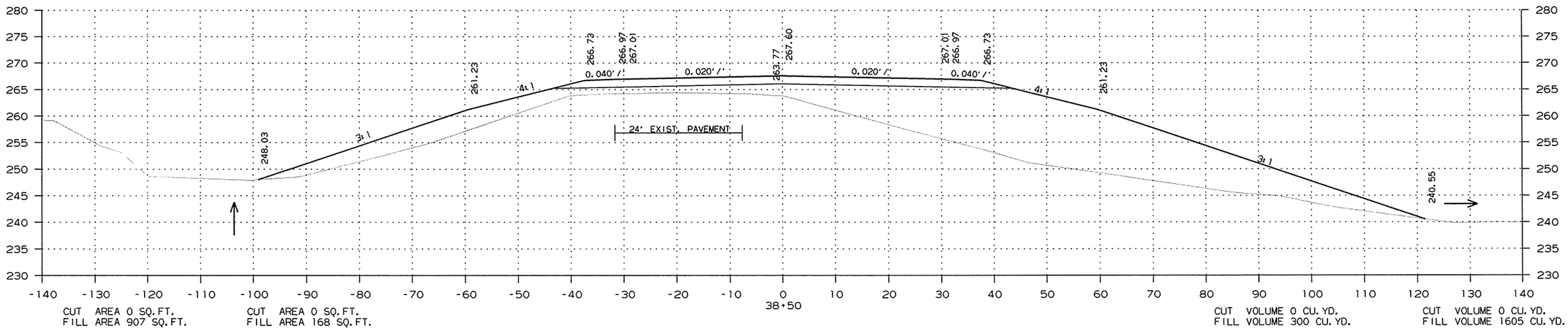


CUT AREA 0 SQ.FT. FILL AREA 1050 SQ.FT.

CUT AREA 0 SQ.FT. FILL AREA 191 SQ.FT.

CUT VOLUME 0 CU.YD. FILL VOLUME 332 CU.YD.

CUT VOLUME 0 CU.YD. FILL VOLUME 1812 CU.YD.



CUT AREA 0 SQ.FT. FILL AREA 907 SQ.FT.

CUT AREA 0 SQ.FT. FILL AREA 168 SQ.FT.

CUT VOLUME 0 CU.YD. FILL VOLUME 300 CU.YD.

CUT VOLUME 0 CU.YD. FILL VOLUME 1605 CU.YD.

CROSS SECTION STA. 38+50 TO STA. 39+00

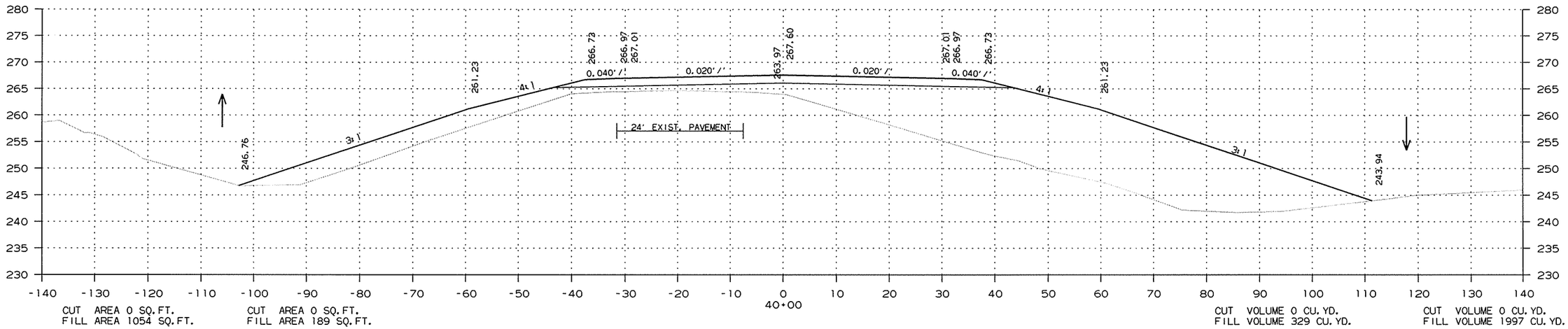
2/26/2014

R100686.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.		100686	143	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

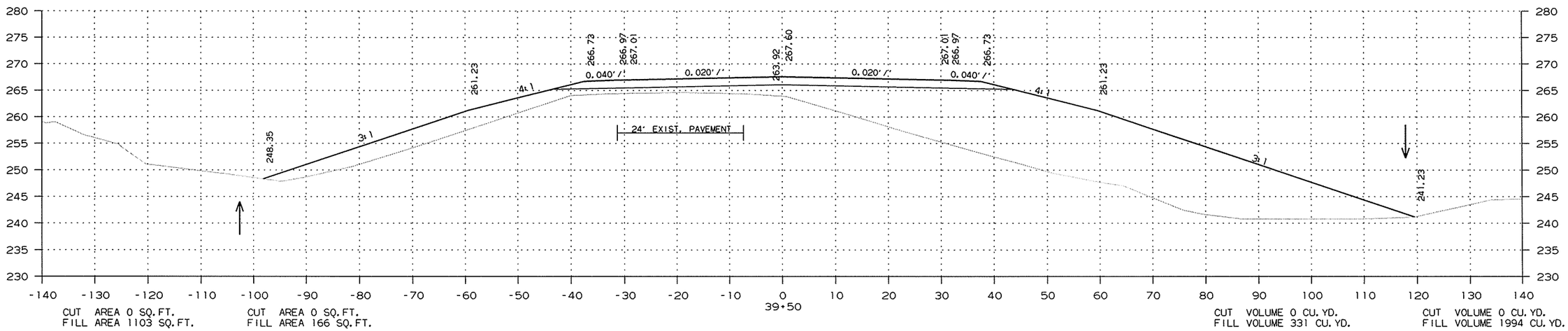


CUT AREA 0 SQ.FT.
FILL AREA 1054 SQ.FT.

CUT AREA 0 SQ.FT.
FILL AREA 189 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 329 CU.YD.

CUT VOLUME 0 CU.YD.
FILL VOLUME 1997 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 1103 SQ.FT.

CUT AREA 0 SQ.FT.
FILL AREA 166 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 331 CU.YD.

CUT VOLUME 0 CU.YD.
FILL VOLUME 1994 CU.YD.

CROSS SECTION STA. 39+50 TO STA. 40+00

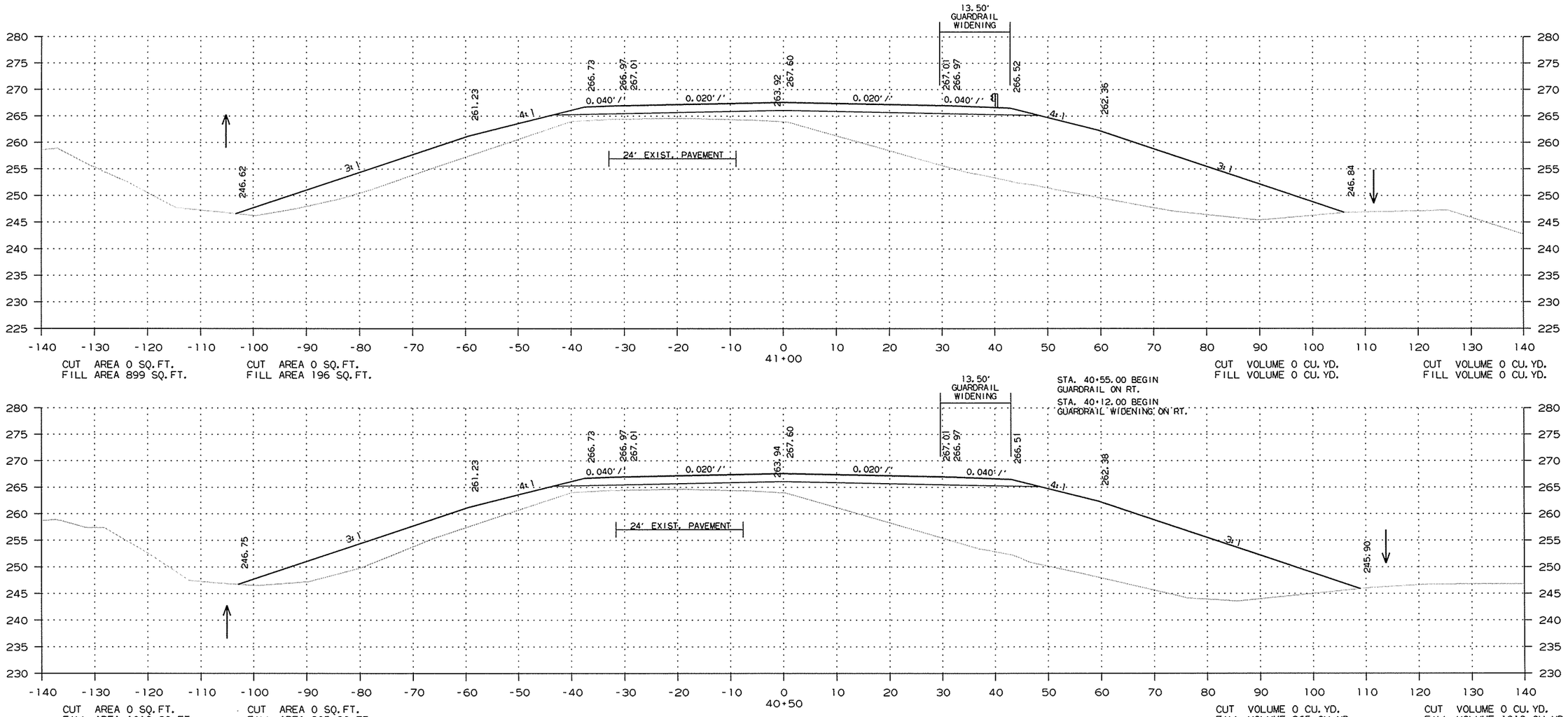
2/26/2014

R100686.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.		100686	144	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1



CROSS SECTION STA. 40+50 TO STA. 41+00

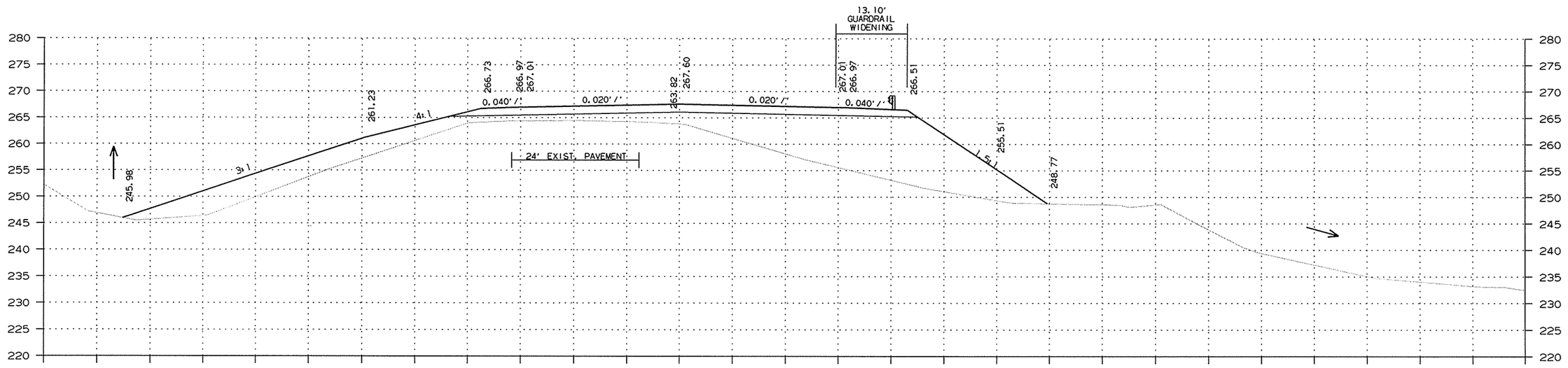
2/26/2014

R100686.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.		100686	145	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2



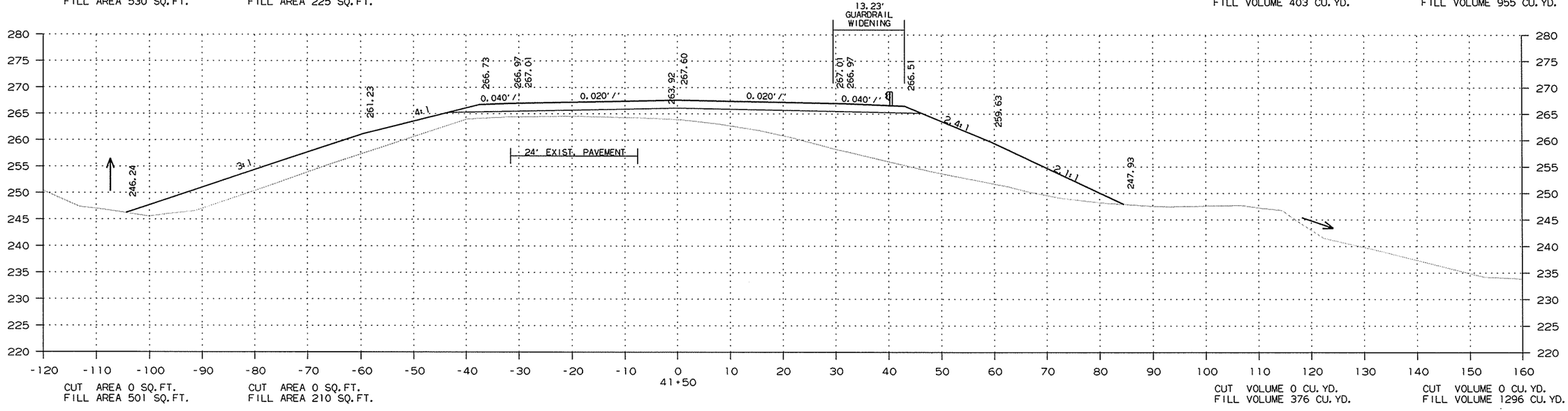
CUT AREA 0 SQ.FT. FILL AREA 530 SQ.FT.

CUT AREA 0 SQ.FT. FILL AREA 225 SQ.FT.

CUT VOLUME 0 CU. YD. FILL VOLUME 403 CU. YD.

CUT VOLUME 0 CU. YD. FILL VOLUME 955 CU. YD.

STAGE 2 STAGE 1



CUT AREA 0 SQ.FT. FILL AREA 501 SQ.FT.

CUT AREA 0 SQ.FT. FILL AREA 210 SQ.FT.

CUT VOLUME 0 CU. YD. FILL VOLUME 376 CU. YD.

CUT VOLUME 0 CU. YD. FILL VOLUME 1296 CU. YD.

CROSS SECTION STA. 41+50 TO STA. 42+00

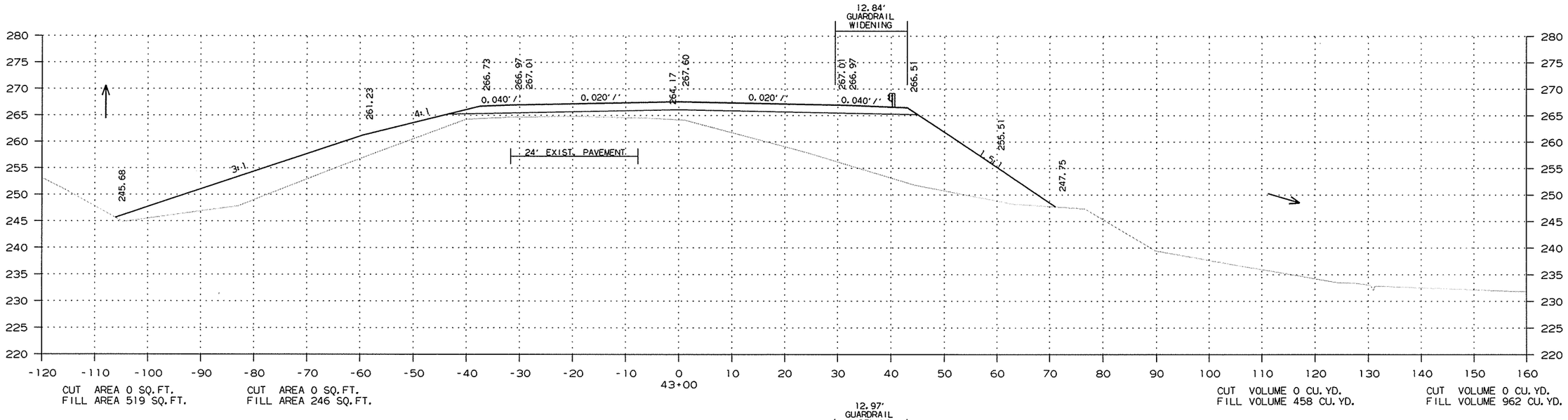
2/26/2014

R100686.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	146	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

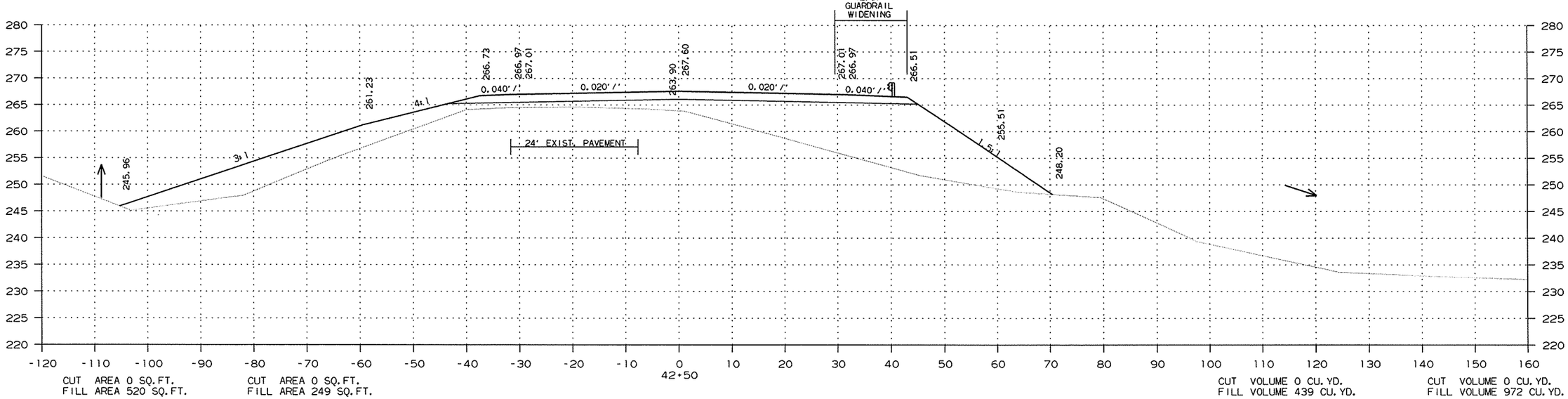


CUT AREA 0 SQ.FT. FILL AREA 519 SQ.FT.

CUT AREA 0 SQ.FT. FILL AREA 246 SQ.FT.

CUT VOLUME 0 CU.YD. FILL VOLUME 458 CU.YD.

CUT VOLUME 0 CU.YD. FILL VOLUME 962 CU.YD.



CUT AREA 0 SQ.FT. FILL AREA 520 SQ.FT.

CUT AREA 0 SQ.FT. FILL AREA 249 SQ.FT.

CUT VOLUME 0 CU.YD. FILL VOLUME 439 CU.YD.

CUT VOLUME 0 CU.YD. FILL VOLUME 972 CU.YD.

CROSS SECTION STA. 42+50 TO STA. 43+00

2/26/2014

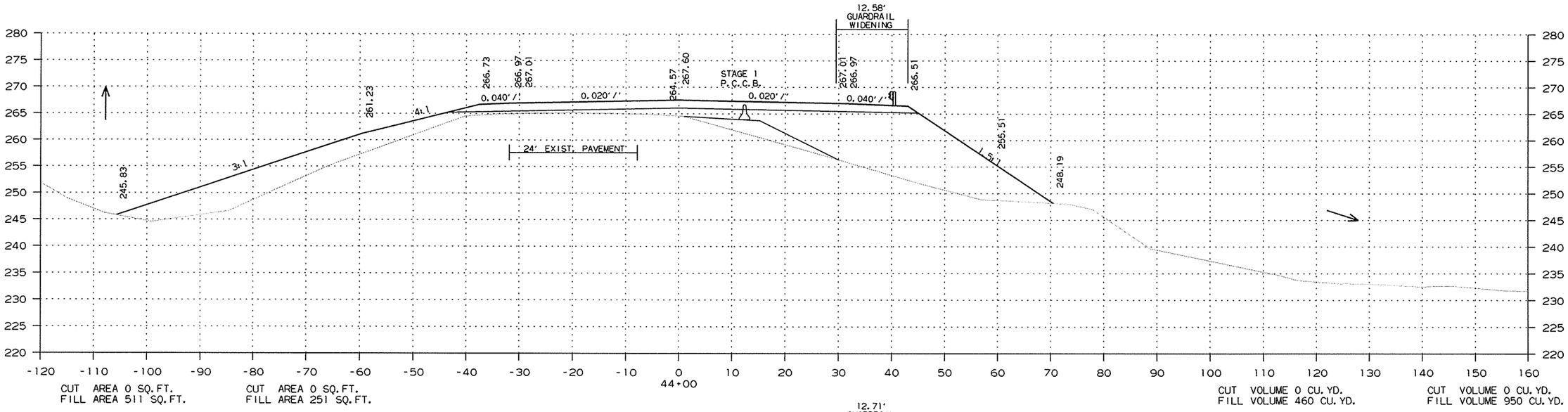
R100686.DGN

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.		100686	147	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 2 STAGE 1

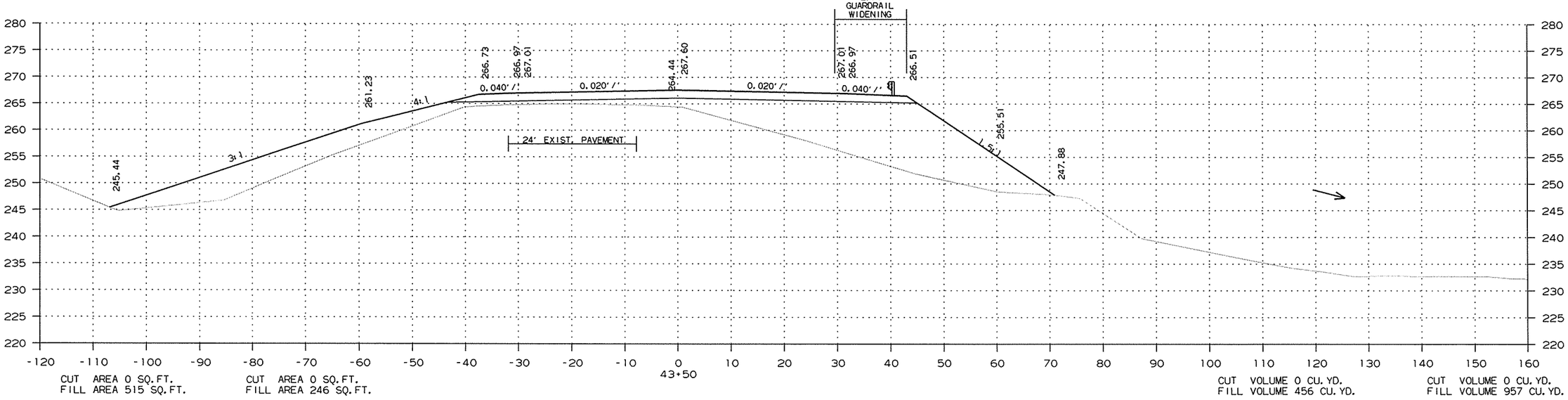


CUT AREA 0 SQ.FT.
FILL AREA 511 SQ.FT.

CUT AREA 0 SQ.FT.
FILL AREA 251 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 460 CU.YD.

CUT VOLUME 0 CU.YD.
FILL VOLUME 950 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 515 SQ.FT.

CUT AREA 0 SQ.FT.
FILL AREA 246 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 456 CU.YD.

CUT VOLUME 0 CU.YD.
FILL VOLUME 957 CU.YD.

CROSS SECTION STA. 43+50 TO STA. 44+00

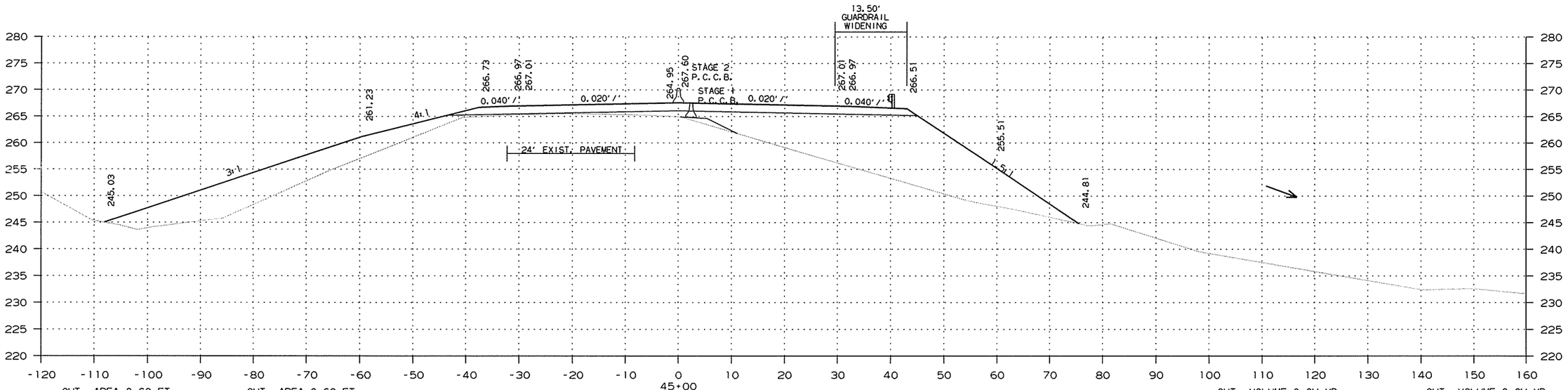
2/26/2014

R100686.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.		100686	148	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 1 STAGE 2 STAGE 1

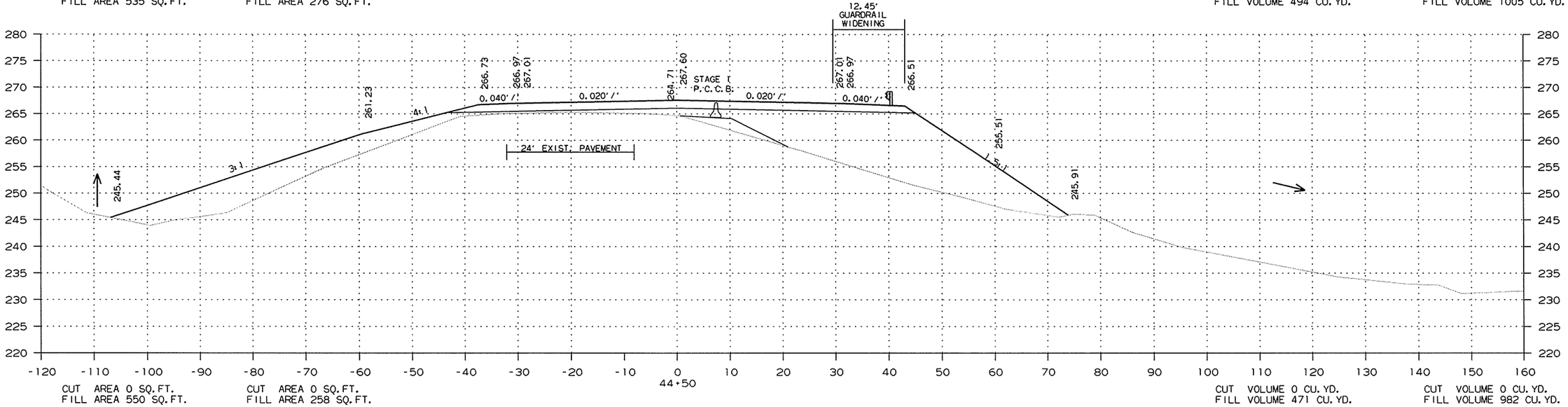


CUT AREA 0 SQ.FT. FILL AREA 535 SQ.FT.

CUT AREA 0 SQ.FT. FILL AREA 276 SQ.FT.

CUT VOLUME 0 CU.YD. FILL VOLUME 494 CU.YD.

CUT VOLUME 0 CU.YD. FILL VOLUME 1005 CU.YD.



CUT AREA 0 SQ.FT. FILL AREA 550 SQ.FT.

CUT AREA 0 SQ.FT. FILL AREA 258 SQ.FT.

CUT VOLUME 0 CU.YD. FILL VOLUME 471 CU.YD.

CUT VOLUME 0 CU.YD. FILL VOLUME 982 CU.YD.

CROSS SECTION STA. 44+50 TO STA. 45+00

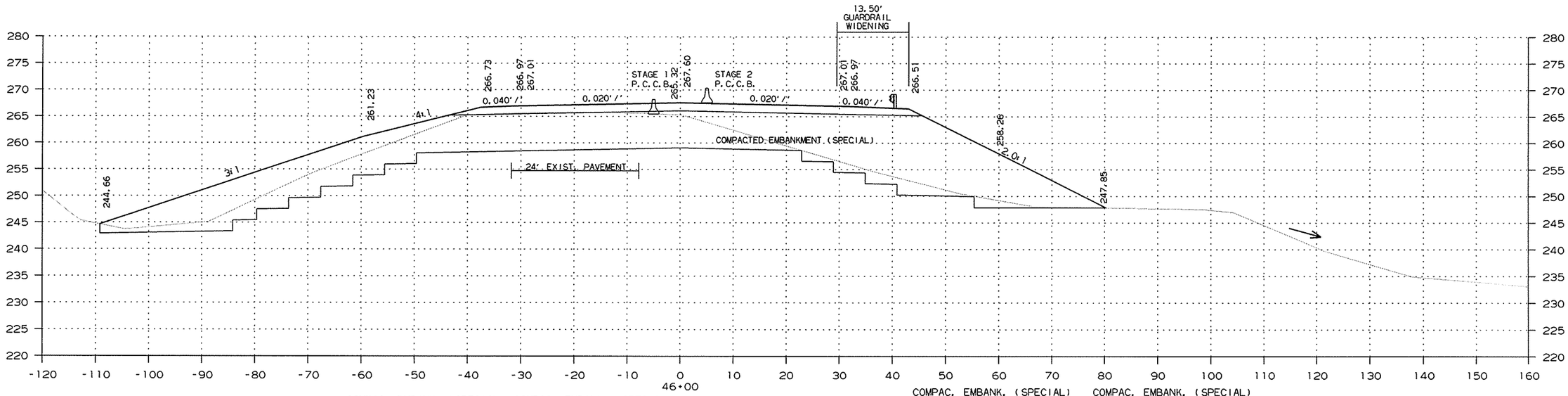
2/26/2014

R100686.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.		100686	149	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 1 STAGE 2 STAGE 2 STAGE 1 STAGE 2 STAGE 1

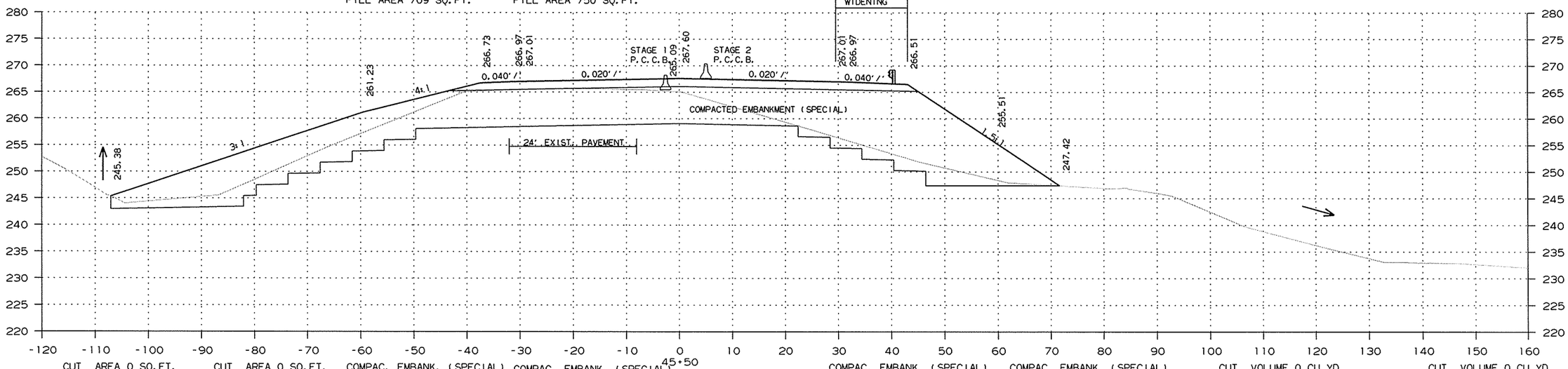


COMPAC. EMBANK. (SPECIAL) CUT AREA 137 SQ.FT. FILL AREA 709 SQ.FT.

COMPAC. EMBANK. (SPECIAL) CUT AREA 505 SQ.FT. FILL AREA 750 SQ.FT.

COMPAC. EMBANK. (SPECIAL) CUT VOLUME 908 CU.YD. FILL VOLUME 1389 CU.YD.

COMPAC. EMBANK. (SPECIAL) CUT VOLUME 264 CU.YD. FILL VOLUME 1264 CU.YD.



CUT AREA 0 SQ.FT. FILL AREA 363 SQ.FT.

CUT AREA 0 SQ.FT. FILL AREA 273 SQ.FT.

COMPAC. EMBANK. (SPECIAL) CUT AREA 148 SQ.FT. FILL AREA 656 SQ.FT.

COMPAC. EMBANK. (SPECIAL) CUT AREA 476 SQ.FT. FILL AREA 750 SQ.FT.

COMPAC. EMBANK. (SPECIAL) CUT VOLUME 0 CU.YD. FILL VOLUME 0 CU.YD.

COMPAC. EMBANK. (SPECIAL) CUT VOLUME 0 CU.YD. FILL VOLUME 0 CU.YD.

CUT VOLUME 0 CU.YD. FILL VOLUME 508 CU.YD.

CUT VOLUME 0 CU.YD. FILL VOLUME 831 CU.YD.

CROSS SECTION STA. 45+50 TO STA. 46+00

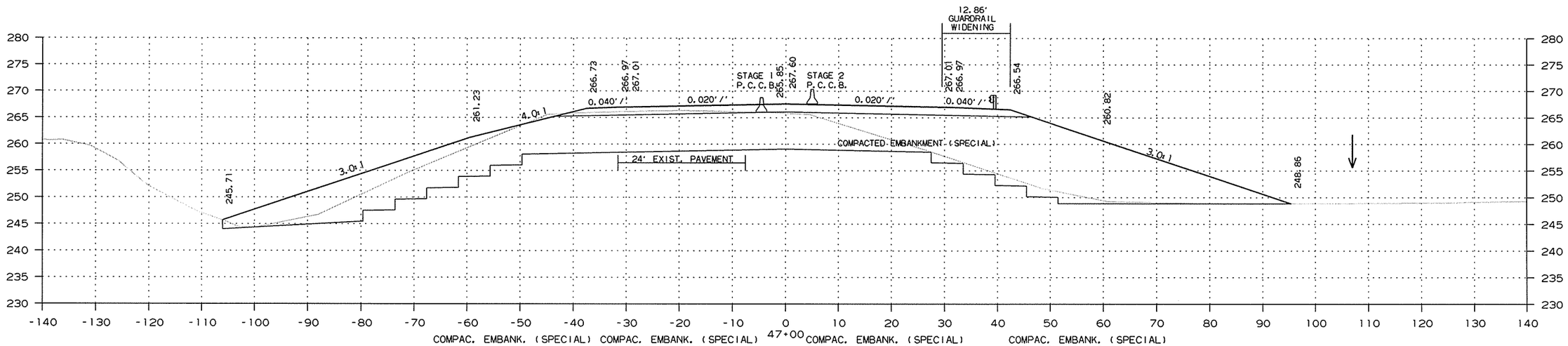
2/26/2014

R100686.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.		100686	150	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1



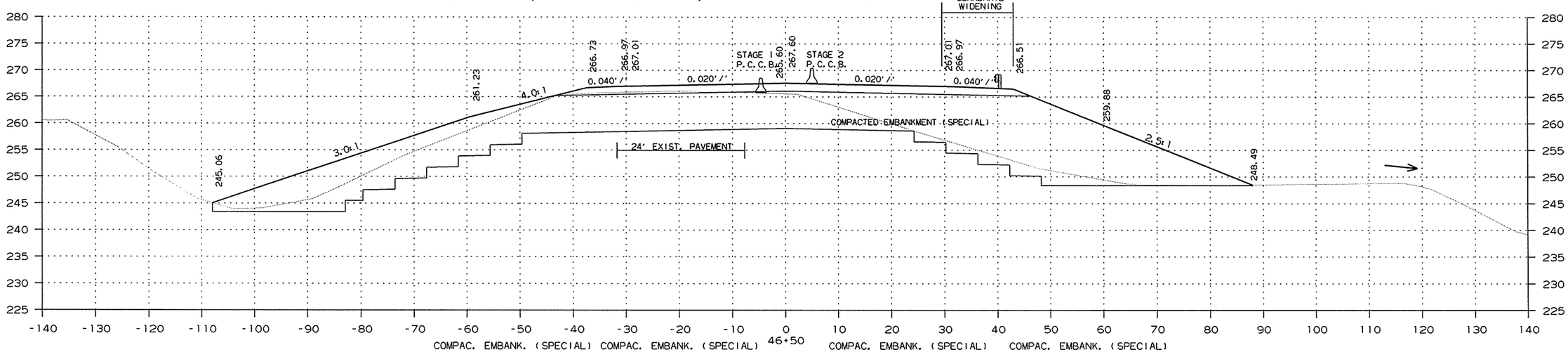
47+00

COMPAC. EMBANK. (SPECIAL) CUT AREA 154 SQ.FT. FILL AREA 797 SQ.FT.

COMPAC. EMBANK. (SPECIAL) CUT AREA 568 SQ.FT. FILL AREA 712 SQ.FT.

COMPAC. EMBANK. (SPECIAL) CUT VOLUME 1039 CU.YD. FILL VOLUME 1349 CU.YD.

COMPAC. EMBANK. (SPECIAL) CUT VOLUME 285 CU.YD. FILL VOLUME 1457 CU.YD.



46+50

COMPAC. EMBANK. (SPECIAL) CUT AREA 154 SQ.FT. FILL AREA 777 SQ.FT.

COMPAC. EMBANK. (SPECIAL) CUT AREA 554 SQ.FT. FILL AREA 745 SQ.FT.

COMPAC. EMBANK. (SPECIAL) CUT VOLUME 981 CU.YD. FILL VOLUME 1384 CU.YD.

COMPAC. EMBANK. (SPECIAL) CUT VOLUME 269 CU.YD. FILL VOLUME 1376 CU.YD.

CROSS SECTION STA. 46+50 TO STA. 47+00

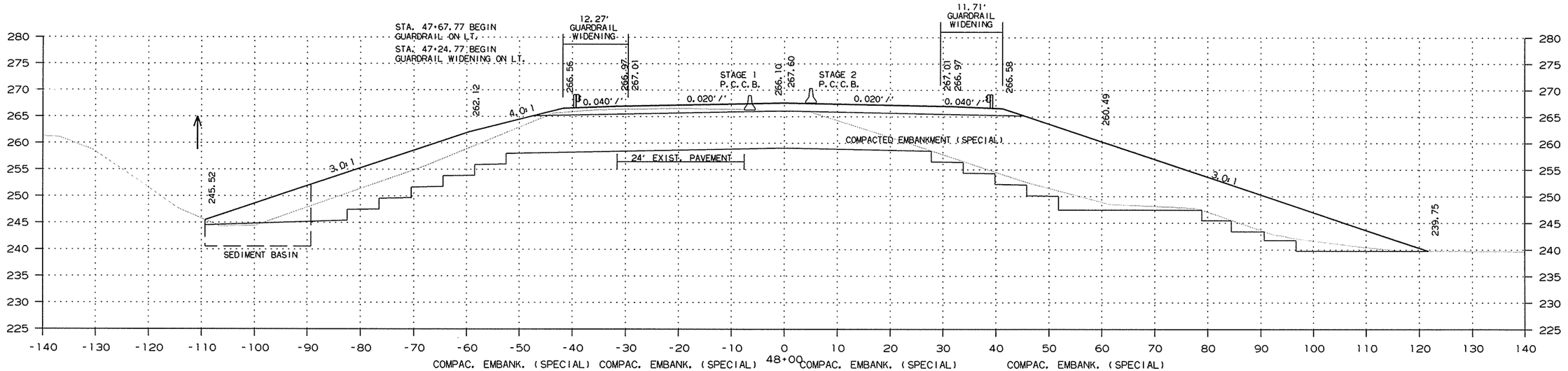
2/26/2014

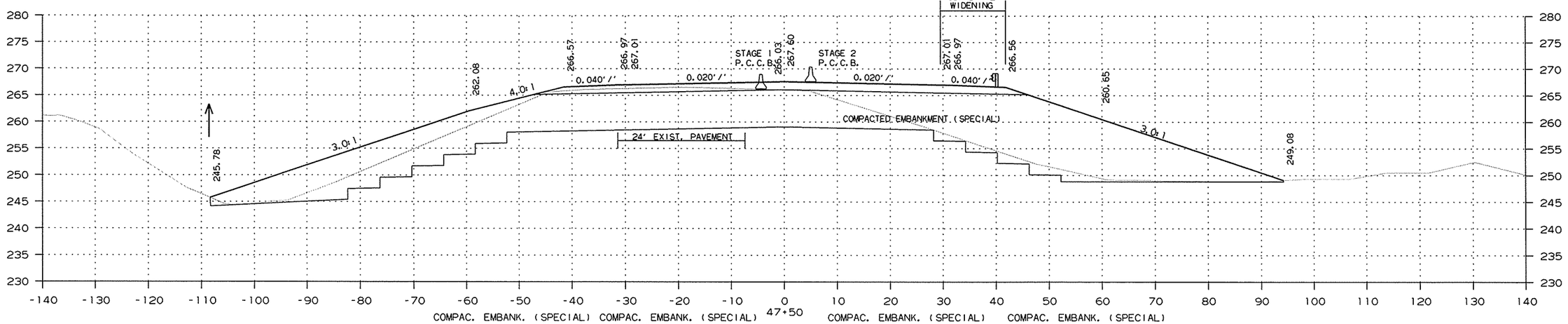
R100686.DGN

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.		100686	151	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1 STAGE 2 STAGE 1





CROSS SECTION STA. 47+50 TO STA. 48+00

2/26/2014

R100686.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.		100686	152	185

(2) CROSS SECTIONS

STAGE 1	STAGE 2	STAGE 2	STAGE 1

B.E. STA. 51+75.08

COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)
CUT AREA 303 SQ.FT.	CUT AREA 633 SQ.FT.	CUT VOLUME 257 CU.YD.	CUT VOLUME 123 CU.YD.
FILL AREA 911 SQ.FT.	FILL AREA 696 SQ.FT.	FILL VOLUME 282 CU.YD.	FILL VOLUME 370 CU.YD.

TOE OF SLOPE STA. 51+53.17

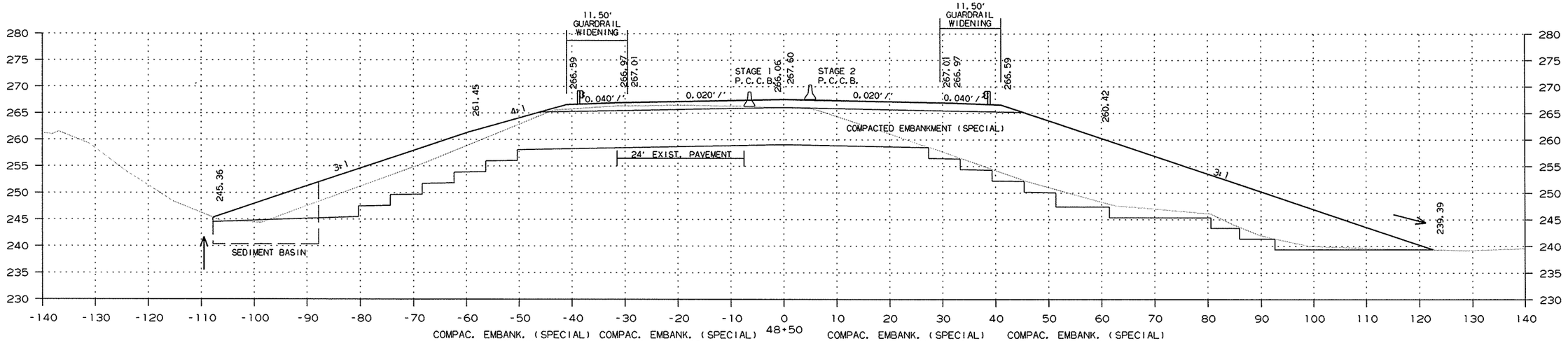
COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)
CUT AREA 0 SQ.FT.	CUT AREA 0 SQ.FT.	CUT VOLUME 0 CU.YD.	CUT VOLUME 0 CU.YD.
FILL AREA 0 SQ.FT.	FILL AREA 0 SQ.FT.	FILL VOLUME 0 CU.YD.	FILL VOLUME 0 CU.YD.

TOE OF SLOPE STA. 48+91.07

COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)
CUT AREA 0 SQ.FT.	CUT AREA 0 SQ.FT.	CUT VOLUME 212 CU.YD.	CUT VOLUME 77 CU.YD.
FILL AREA 0 SQ.FT.	FILL AREA 0 SQ.FT.	FILL VOLUME 266 CU.YD.	FILL VOLUME 406 CU.YD.

B.E. STA. 48+70.92

COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)
CUT AREA 206 SQ.FT.	CUT AREA 568 SQ.FT.	CUT VOLUME 440 CU.YD.	CUT VOLUME 160 CU.YD.
FILL AREA 1088 SQ.FT.	FILL AREA 714 SQ.FT.	FILL VOLUME 553 CU.YD.	FILL VOLUME 843 CU.YD.



COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)	COMPAC. EMBANK. (SPECIAL)
CUT AREA 206 SQ.FT.	CUT AREA 568 SQ.FT.	CUT VOLUME 1041 CU.YD.	CUT VOLUME 396 CU.YD.
FILL AREA 1088 SQ.FT.	FILL AREA 714 SQ.FT.	FILL VOLUME 1335 CU.YD.	FILL VOLUME 1945 CU.YD.

CROSS SECTION STA. 48+50

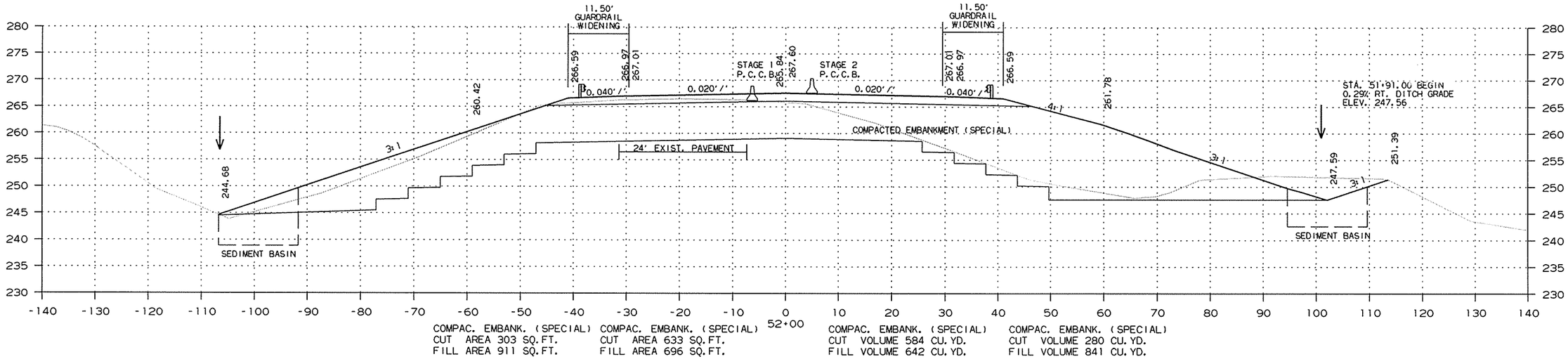
2/26/2014

R100686.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.		100686	153	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1



COMPAC. EMBANK. (SPECIAL)
CUT AREA 303 SQ.FT.
FILL AREA 911 SQ.FT.

COMPAC. EMBANK. (SPECIAL)
CUT AREA 633 SQ.FT.
FILL AREA 696 SQ.FT.

COMPAC. EMBANK. (SPECIAL)
CUT VOLUME 584 CU.YD.
FILL VOLUME 642 CU.YD.

COMPAC. EMBANK. (SPECIAL)
CUT VOLUME 280 CU.YD.
FILL VOLUME 841 CU.YD.

2/26/2014

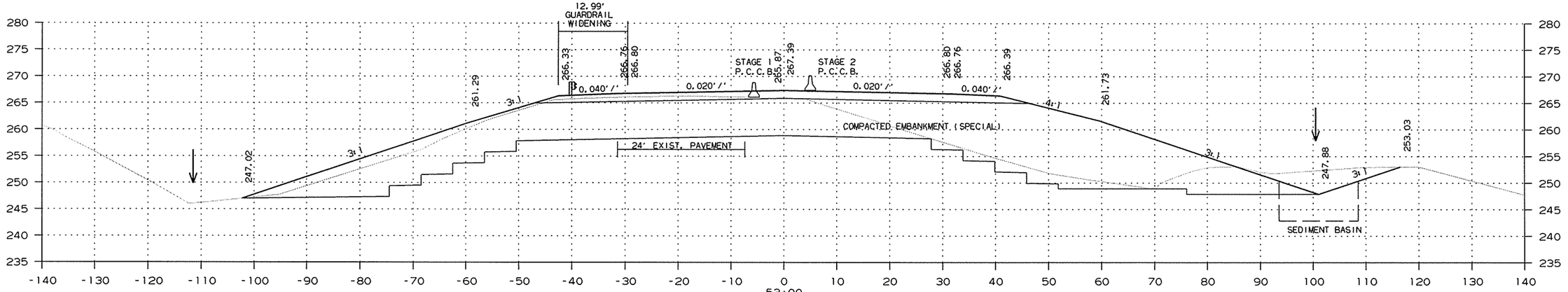
R100686.DGN

CROSS SECTION STA. 52+00

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.		100686	154	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

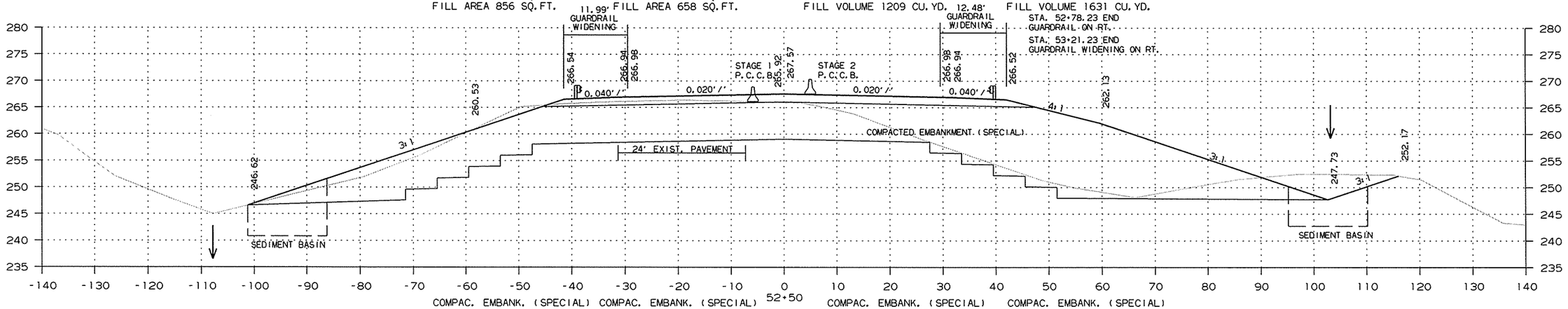


COMPAC. EMBANK. (SPECIAL)
CUT AREA 335 SQ.FT.
FILL AREA 856 SQ.FT.

COMPAC. EMBANK. (SPECIAL)
CUT AREA 610 SQ.FT.
FILL AREA 658 SQ.FT.

COMPAC. EMBANK. (SPECIAL)
CUT VOLUME 1152 CU.YD.
FILL VOLUME 1209 CU.YD.

COMPAC. EMBANK. (SPECIAL)
CUT VOLUME 599 CU.YD.
FILL VOLUME 1631 CU.YD.



COMPAC. EMBANK. (SPECIAL)
CUT AREA 312 SQ.FT.
FILL AREA 905 SQ.FT.

COMPAC. EMBANK. (SPECIAL)
CUT AREA 634 SQ.FT.
FILL AREA 648 SQ.FT.

COMPAC. EMBANK. (SPECIAL)
CUT VOLUME 1173 CU.YD.
FILL VOLUME 1244 CU.YD.

COMPAC. EMBANK. (SPECIAL)
CUT VOLUME 569 CU.YD.
FILL VOLUME 1681 CU.YD.

CROSS SECTION STA. 52+50 TO STA. 53+00

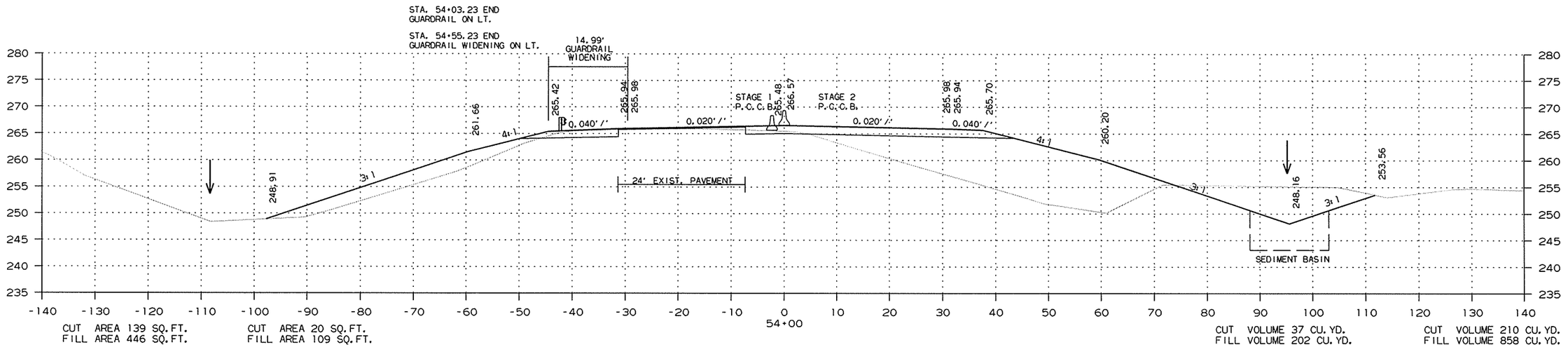
2/26/2014

R100686.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.		100686	155	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 1 STAGE 2 STAGE 2 STAGE 1 STAGE 2 STAGE 1



CROSS SECTION STA. 53+50 TO STA. 54+00

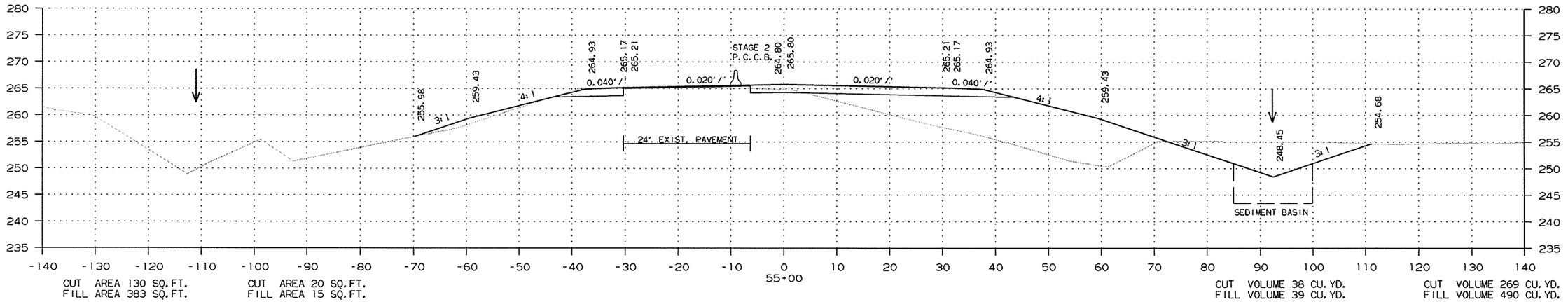
2/26/2014

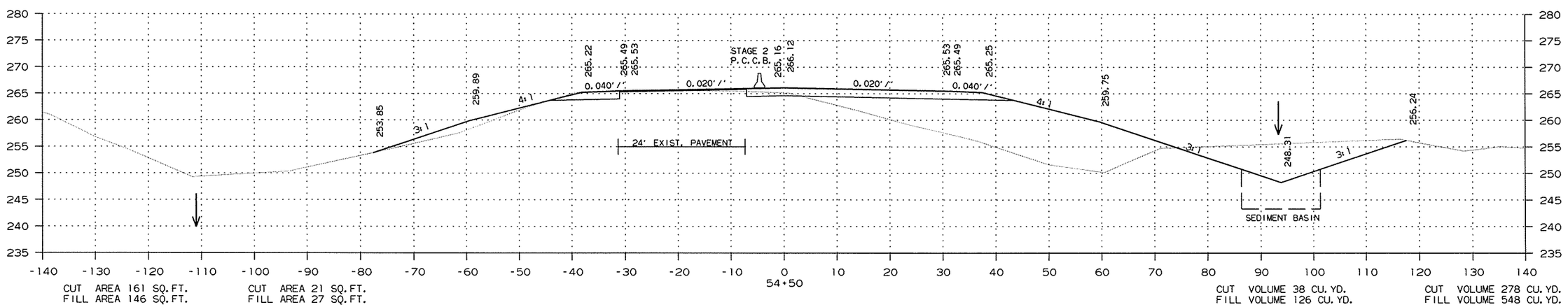
R100686.DGN

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.		100686	156	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1





CROSS SECTION STA. 54+50 TO STA. 55+00

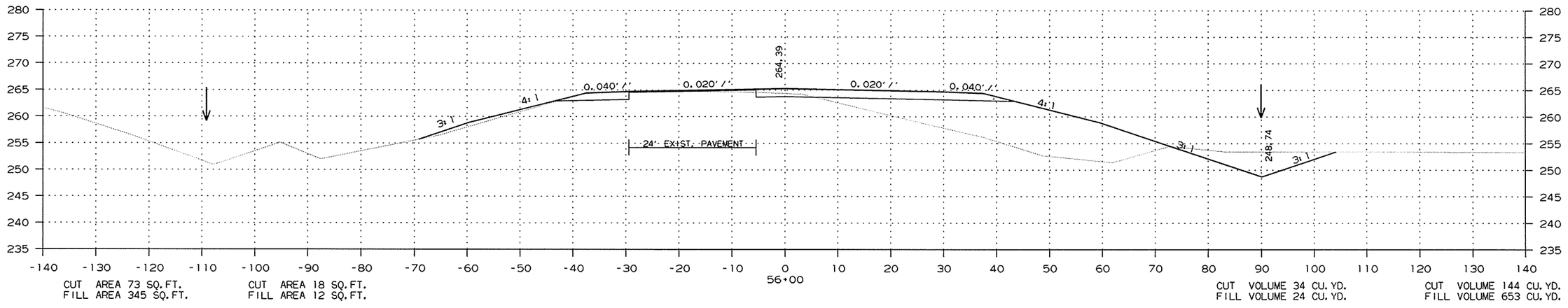
2/26/2014

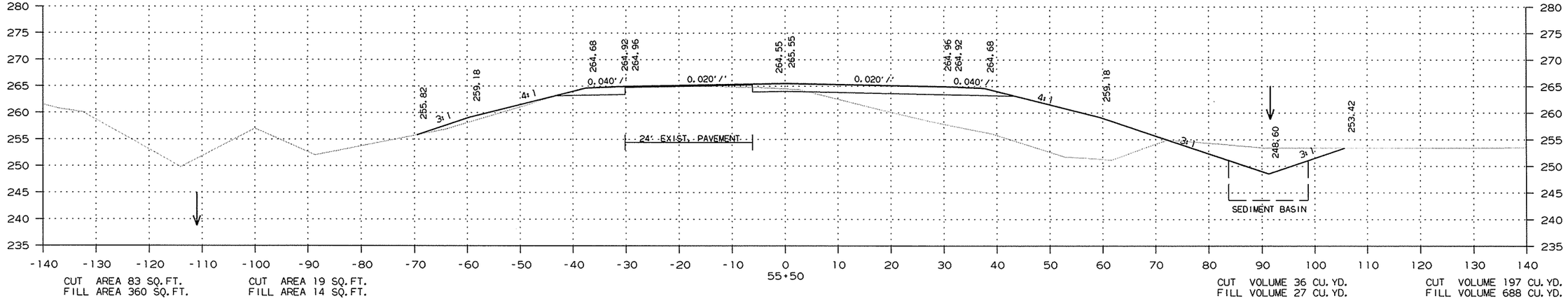
R100686.DGN

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.		100686	157	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1





CROSS SECTION STA. 55+50 TO STA. 56+00

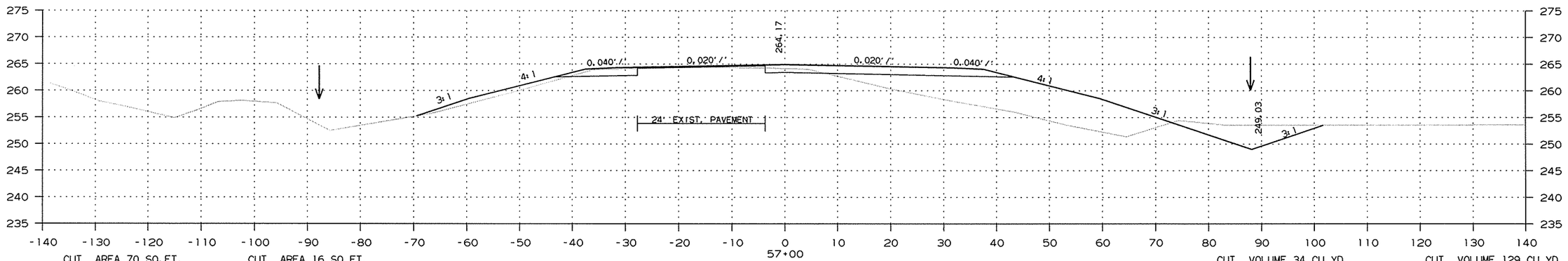
2/26/2014

R100686.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.		100686	158	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

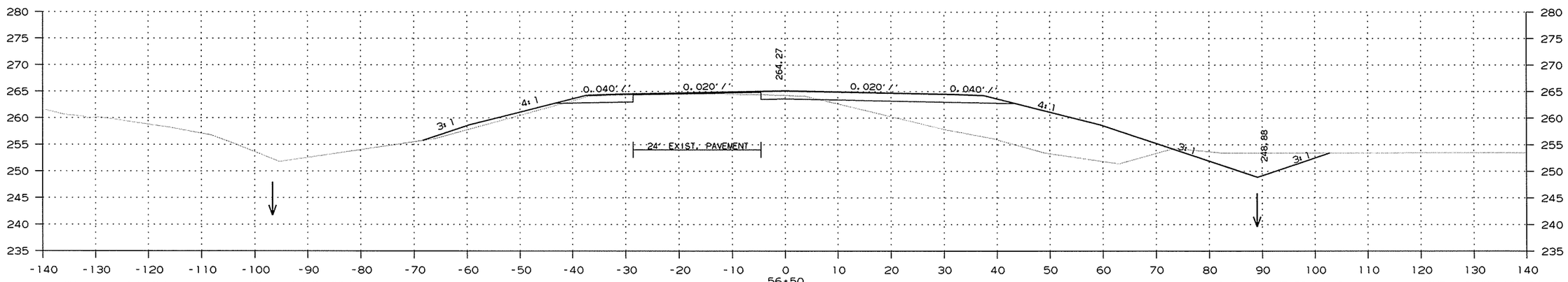


CUT AREA 70 SQ.FT.
FILL AREA 284 SQ.FT.

CUT AREA 16 SQ.FT.
FILL AREA 21 SQ.FT.

CUT VOLUME 34 CU.YD.
FILL VOLUME 33 CU.YD.

CUT VOLUME 129 CU.YD.
FILL VOLUME 559 CU.YD.



CUT AREA 69 SQ.FT.
FILL AREA 320 SQ.FT.

CUT AREA 21 SQ.FT.
FILL AREA 15 SQ.FT.

CUT VOLUME 36 CU.YD.
FILL VOLUME 25 CU.YD.

CUT VOLUME 131 CU.YD.
FILL VOLUME 616 CU.YD.

CROSS SECTION STA. 56+50 TO STA. 57+00

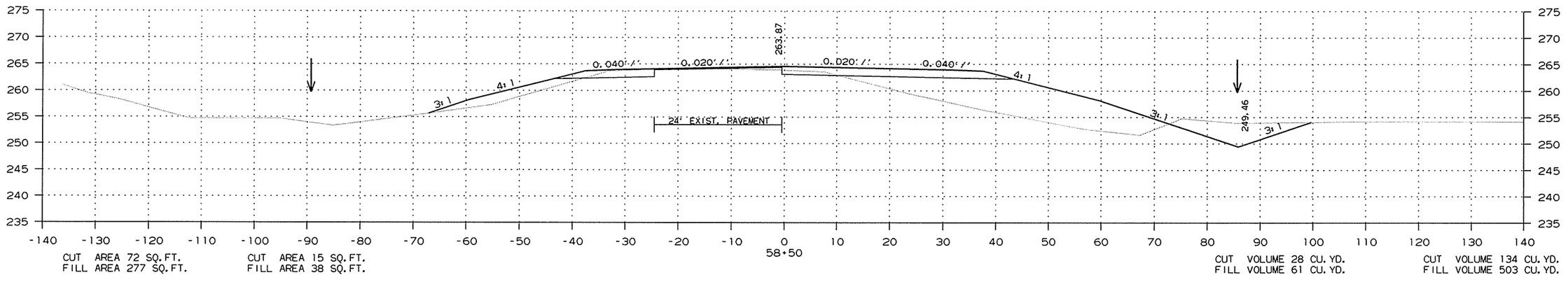
2/26/2014

R100686.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.		100686	159	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

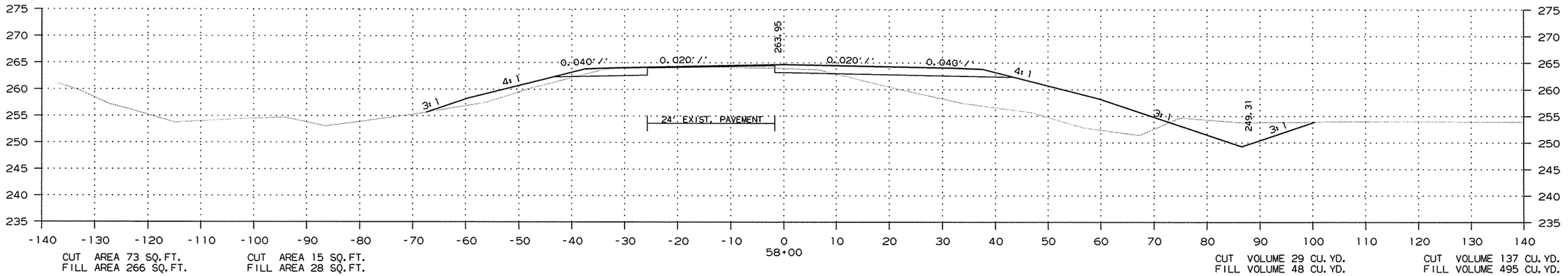


CUT AREA 72 SQ.FT. FILL AREA 277 SQ.FT.

CUT AREA 15 SQ.FT. FILL AREA 38 SQ.FT.

CUT VOLUME 28 CU.YD. FILL VOLUME 61 CU.YD.

CUT VOLUME 134 CU.YD. FILL VOLUME 503 CU.YD.

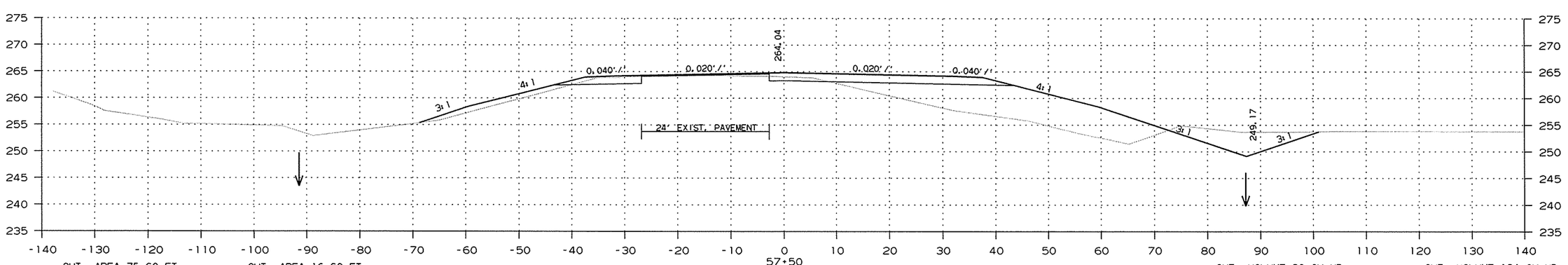


CUT AREA 73 SQ.FT. FILL AREA 266 SQ.FT.

CUT AREA 15 SQ.FT. FILL AREA 28 SQ.FT.

CUT VOLUME 29 CU.YD. FILL VOLUME 48 CU.YD.

CUT VOLUME 137 CU.YD. FILL VOLUME 495 CU.YD.



CUT AREA 75 SQ.FT. FILL AREA 269 SQ.FT.

CUT AREA 16 SQ.FT. FILL AREA 24 SQ.FT.

CUT VOLUME 30 CU.YD. FILL VOLUME 42 CU.YD.

CUT VOLUME 134 CU.YD. FILL VOLUME 512 CU.YD.

CROSS SECTION STA. 57+50 TO STA. 58+50

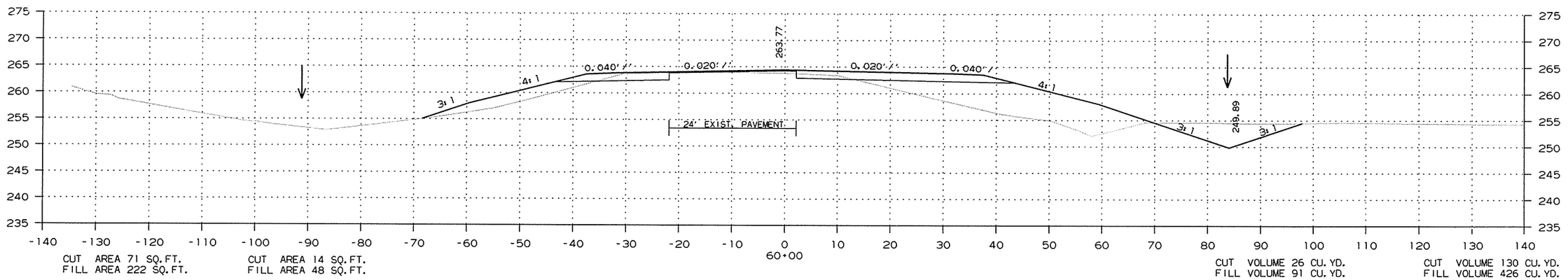
2/26/2014

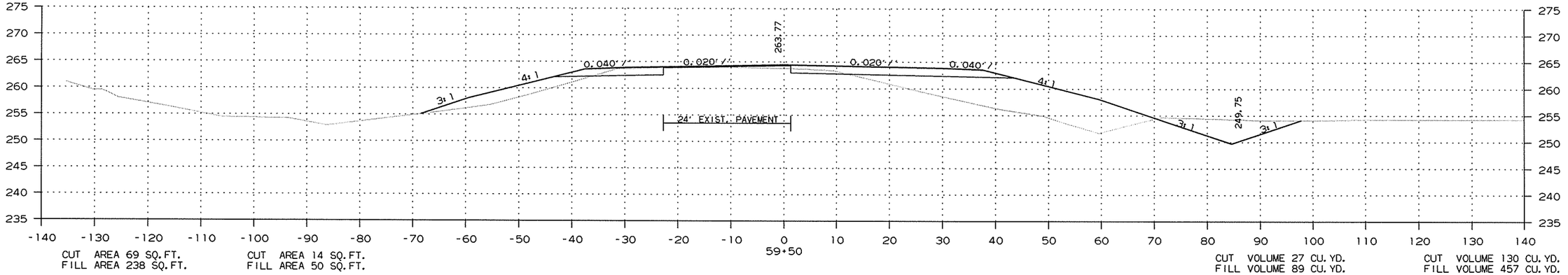
R100686.DGN

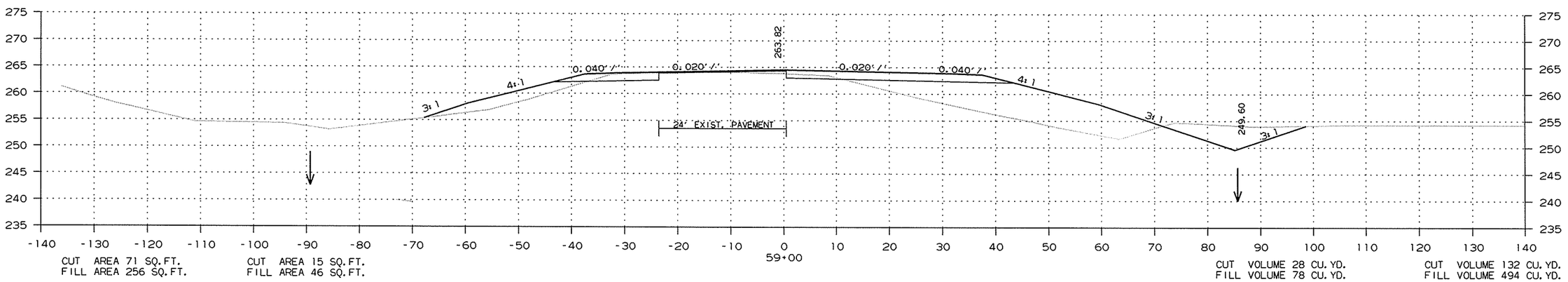
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	160	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2







CROSS SECTION STA. 59+00 TO STA. 60+00

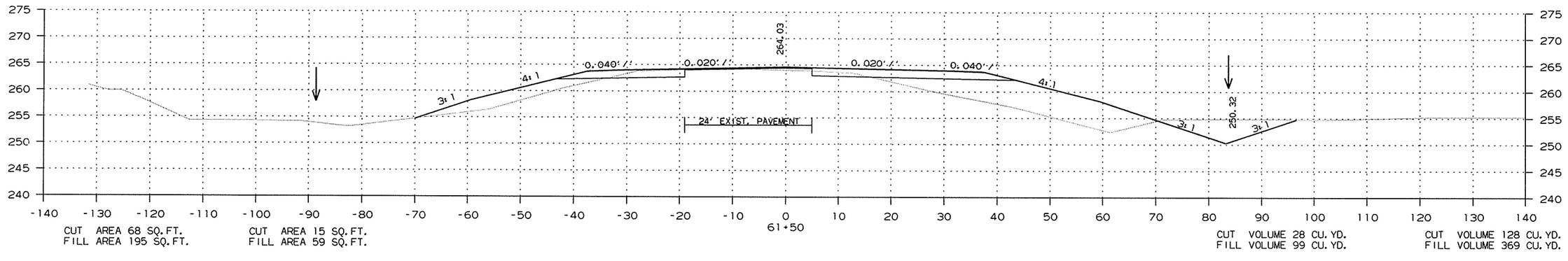
2/26/2014

R100686.DGN

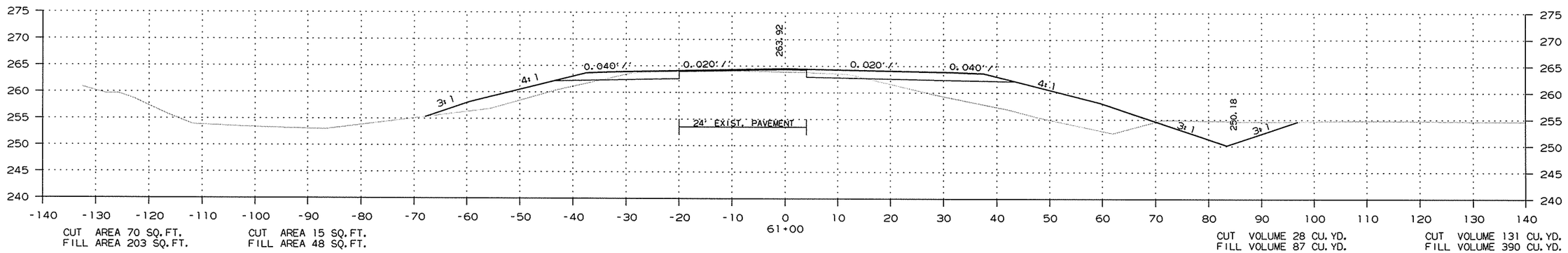
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	161	185

(2) CROSS SECTIONS

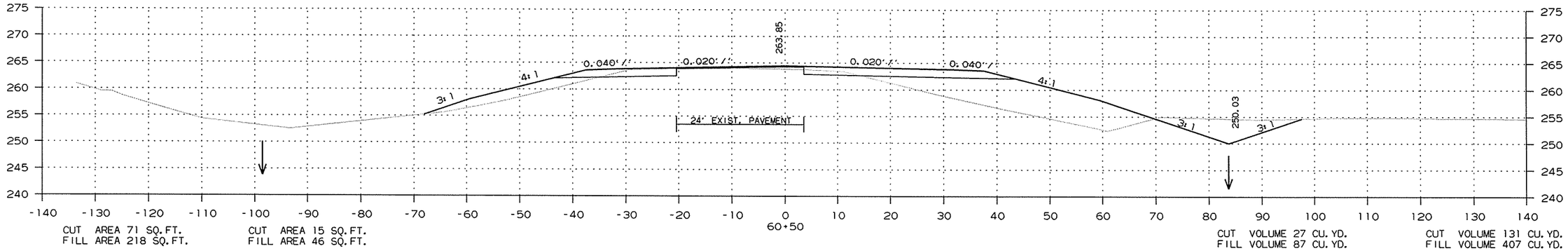
STAGE 1 STAGE 2 STAGE 2 STAGE 1



CUT AREA 68 SQ.FT. FILL AREA 195 SQ.FT.
CUT AREA 15 SQ.FT. FILL AREA 59 SQ.FT.
CUT VOLUME 28 CU.YD. FILL VOLUME 99 CU.YD.
CUT VOLUME 128 CU.YD. FILL VOLUME 369 CU.YD.



CUT AREA 70 SQ.FT. FILL AREA 203 SQ.FT.
CUT AREA 15 SQ.FT. FILL AREA 48 SQ.FT.
CUT VOLUME 28 CU.YD. FILL VOLUME 87 CU.YD.
CUT VOLUME 131 CU.YD. FILL VOLUME 390 CU.YD.



CUT AREA 71 SQ.FT. FILL AREA 218 SQ.FT.
CUT AREA 15 SQ.FT. FILL AREA 46 SQ.FT.
CUT VOLUME 27 CU.YD. FILL VOLUME 87 CU.YD.
CUT VOLUME 131 CU.YD. FILL VOLUME 407 CU.YD.

CROSS SECTION STA. 60+50 TO STA. 61+50

2/26/2014

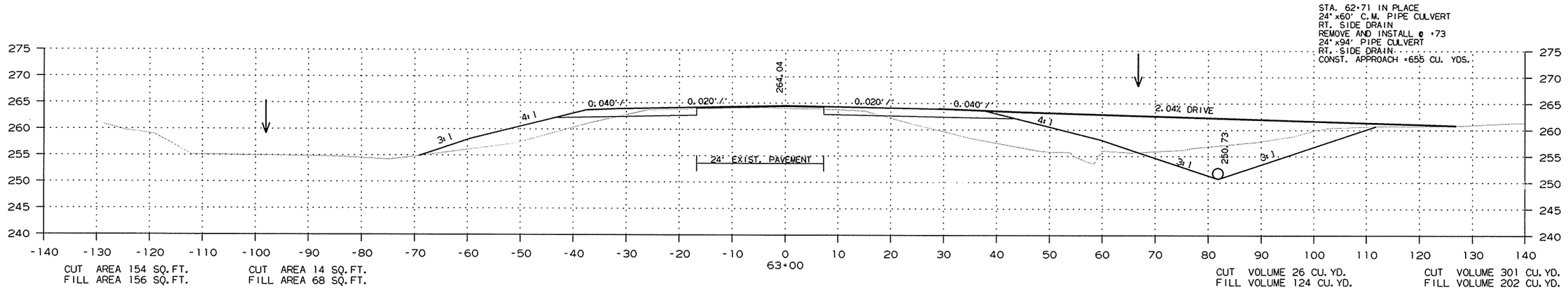
R100686.DGN

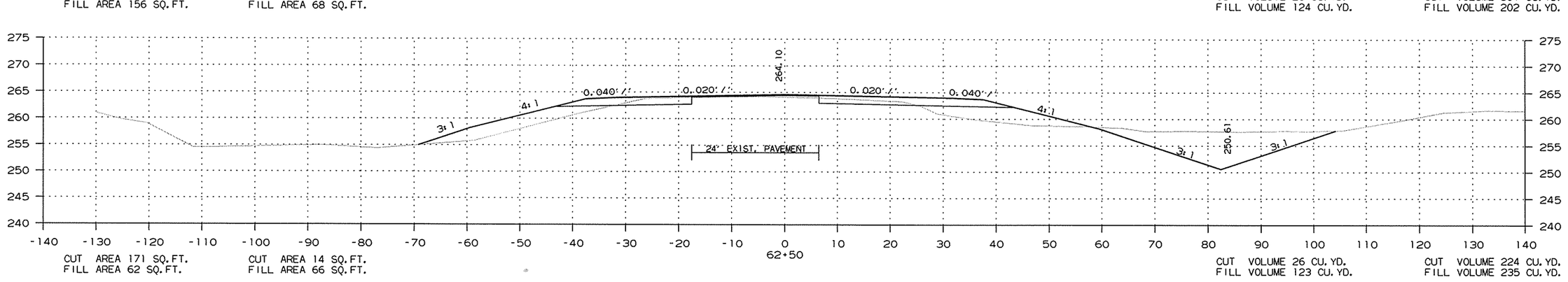
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	162	185

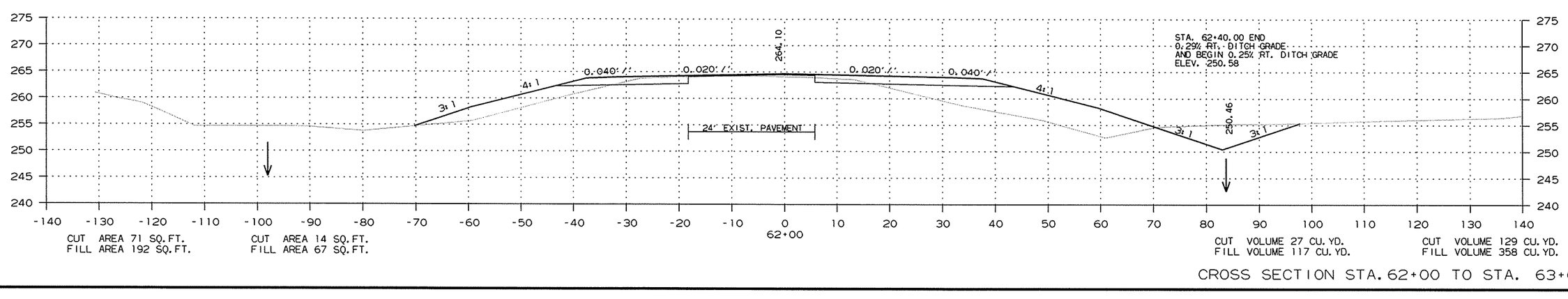
(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 2 STAGE 1







CROSS SECTION STA. 62+00 TO STA. 63+00

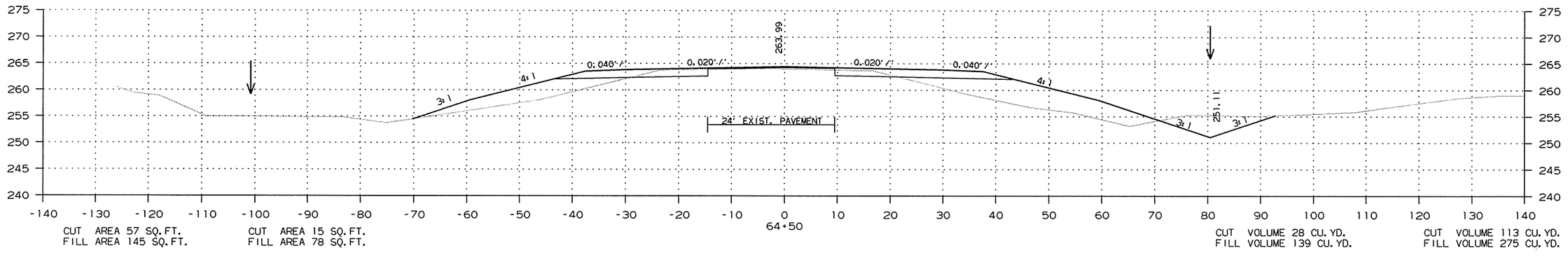
2/26/2014

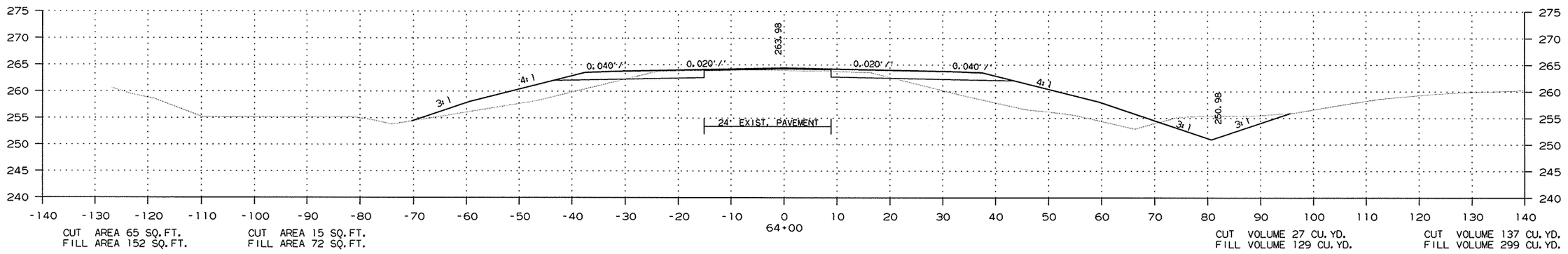
R100686.DGN

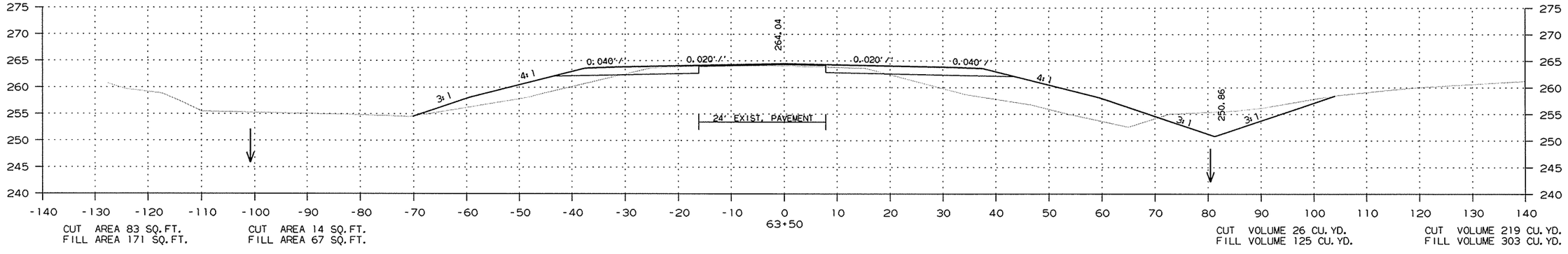
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	163	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1







CROSS SECTION STA. 63+50 TO STA. 64+50

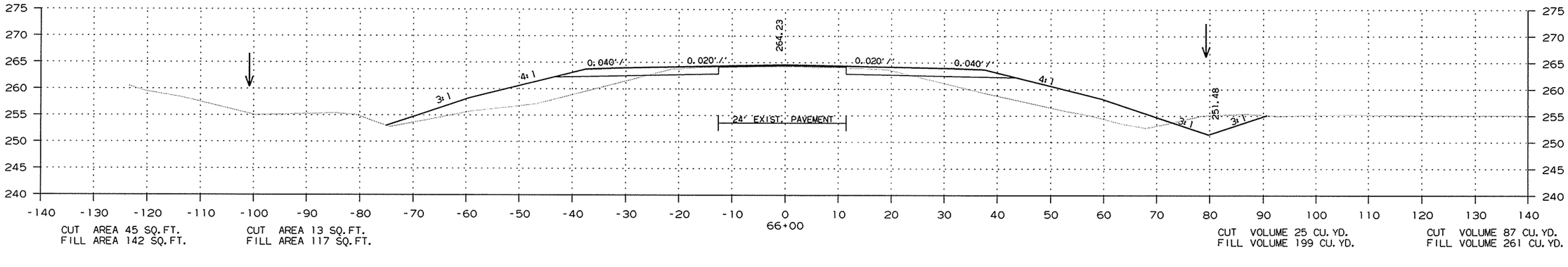
2/26/2014

R100686.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.		100686	164	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

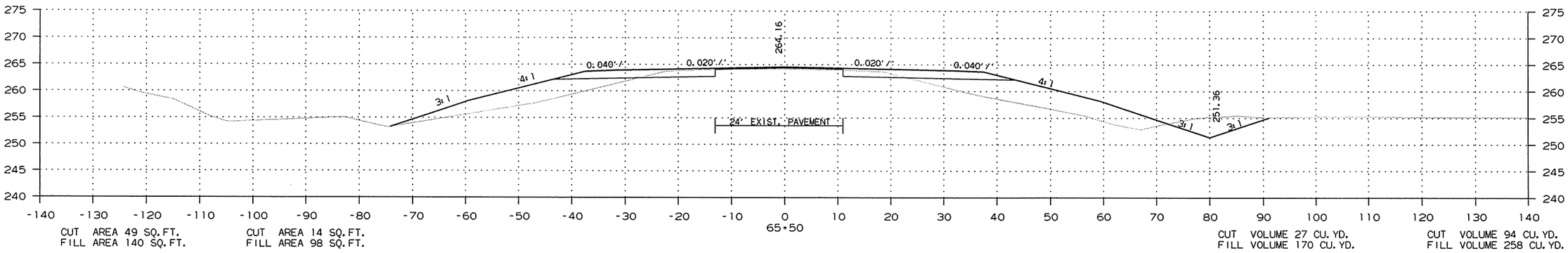


CUT AREA 45 SQ.FT.
FILL AREA 142 SQ.FT.

CUT AREA 13 SQ.FT.
FILL AREA 117 SQ.FT.

CUT VOLUME 25 CU.YD.
FILL VOLUME 199 CU.YD.

CUT VOLUME 87 CU.YD.
FILL VOLUME 261 CU.YD.

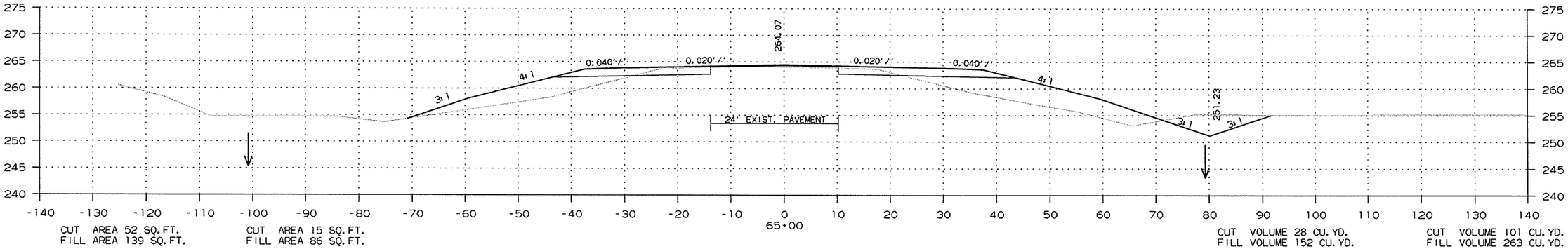


CUT AREA 49 SQ.FT.
FILL AREA 140 SQ.FT.

CUT AREA 14 SQ.FT.
FILL AREA 98 SQ.FT.

CUT VOLUME 27 CU.YD.
FILL VOLUME 170 CU.YD.

CUT VOLUME 94 CU.YD.
FILL VOLUME 258 CU.YD.



CUT AREA 52 SQ.FT.
FILL AREA 139 SQ.FT.

CUT AREA 15 SQ.FT.
FILL AREA 86 SQ.FT.

CUT VOLUME 28 CU.YD.
FILL VOLUME 152 CU.YD.

CUT VOLUME 101 CU.YD.
FILL VOLUME 263 CU.YD.

CROSS SECTION STA. 65+00 TO STA. 66+00

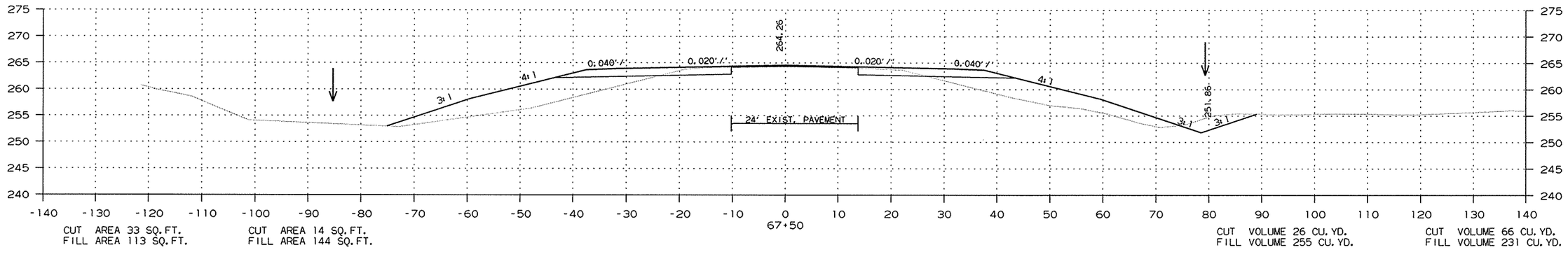
2/26/2014

R100686.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.		100686	165	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

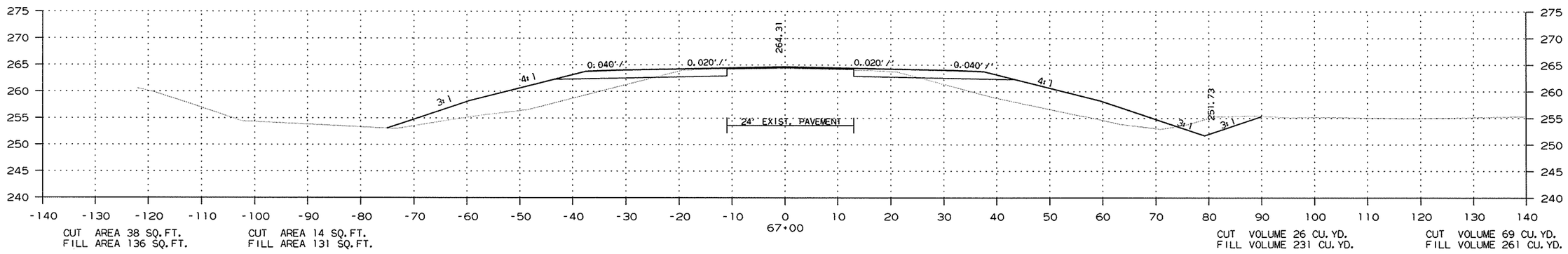


CUT AREA 33 SQ.FT. FILL AREA 113 SQ.FT.

CUT AREA 14 SQ.FT. FILL AREA 144 SQ.FT.

CUT VOLUME 26 CU.YD. FILL VOLUME 255 CU.YD.

CUT VOLUME 66 CU.YD. FILL VOLUME 231 CU.YD.

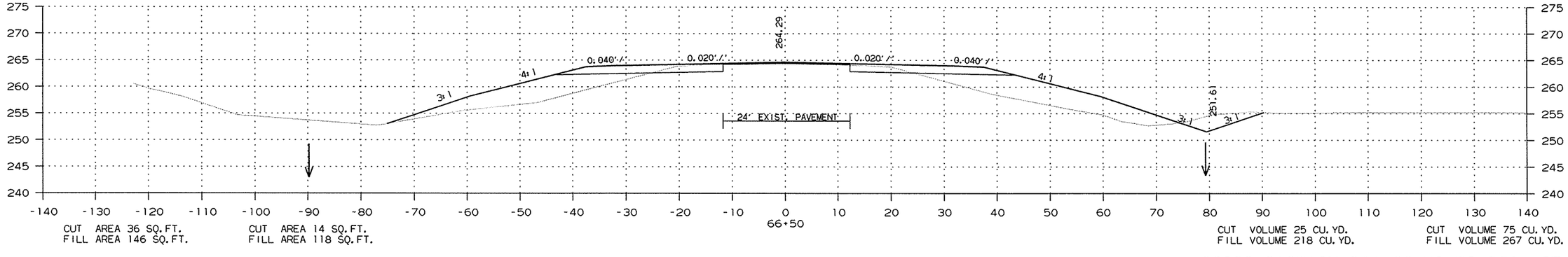


CUT AREA 38 SQ.FT. FILL AREA 136 SQ.FT.

CUT AREA 14 SQ.FT. FILL AREA 131 SQ.FT.

CUT VOLUME 26 CU.YD. FILL VOLUME 231 CU.YD.

CUT VOLUME 69 CU.YD. FILL VOLUME 261 CU.YD.



CUT AREA 36 SQ.FT. FILL AREA 146 SQ.FT.

CUT AREA 14 SQ.FT. FILL AREA 118 SQ.FT.

CUT VOLUME 25 CU.YD. FILL VOLUME 218 CU.YD.

CUT VOLUME 75 CU.YD. FILL VOLUME 267 CU.YD.

CROSS SECTION STA. 66+50 TO STA. 67+50

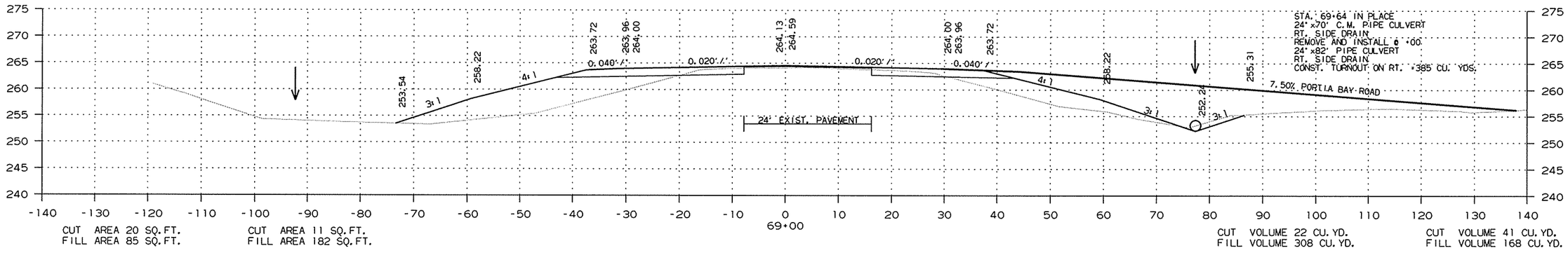
2/26/2014

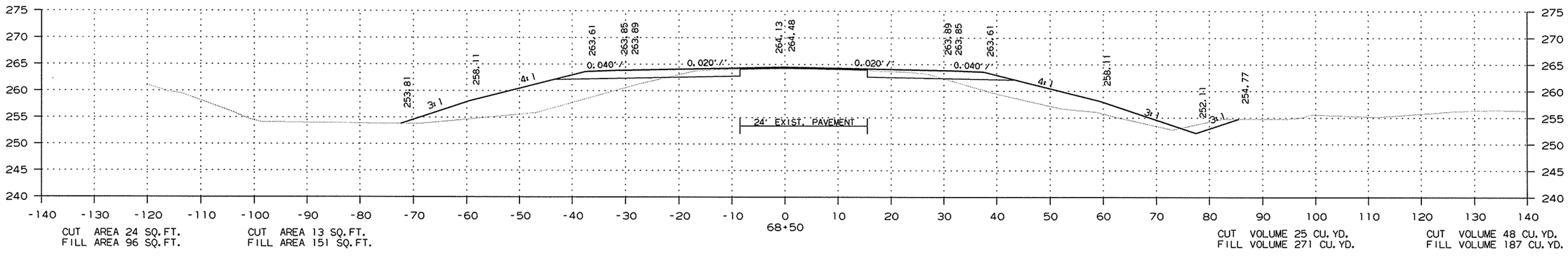
R100686.DGN

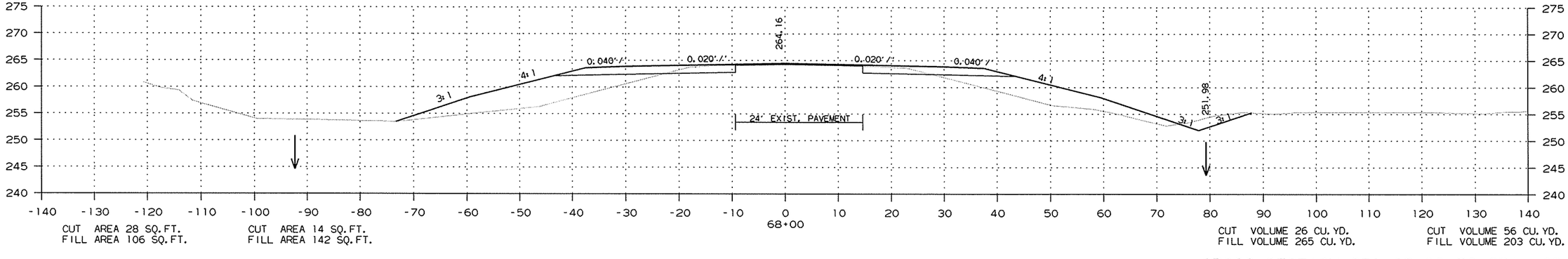
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	166	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1







CROSS SECTION STA. 68+00 TO STA. 69+00

2/26/2014

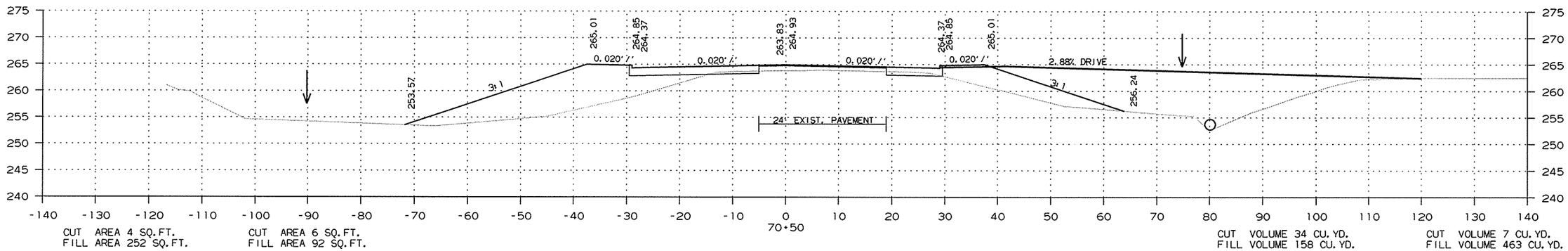
R100686.DGN

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.		100686	167	185

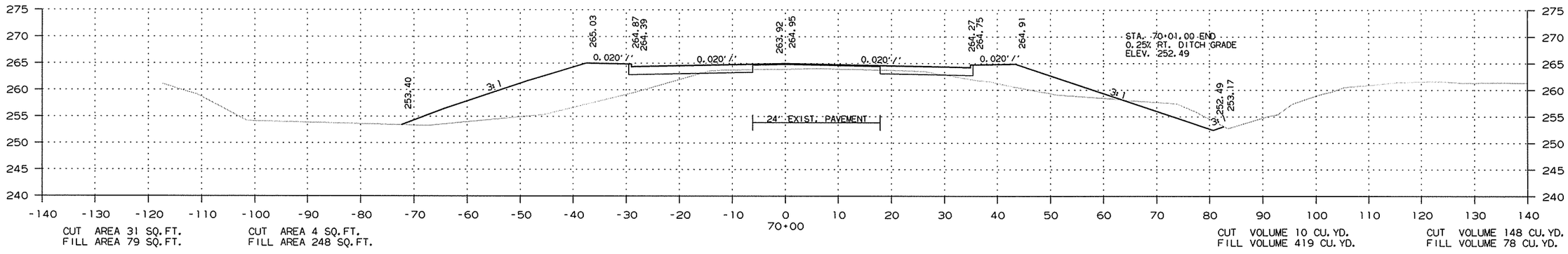
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

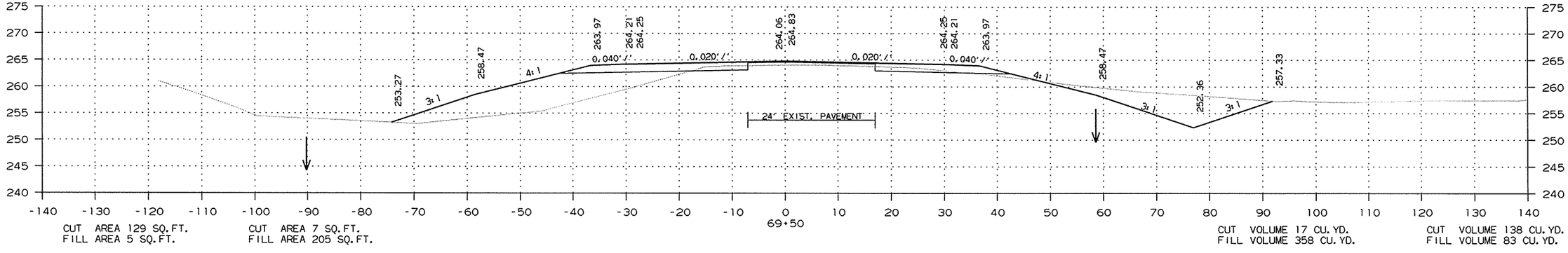
STA. 70+75 INSTALL
24" x84" PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 820 CU. YDS.



CUT AREA 4 SQ.FT. FILL AREA 252 SQ.FT.
CUT AREA 6 SQ.FT. FILL AREA 92 SQ.FT.
CUT VOLUME 34 CU.YD. FILL VOLUME 158 CU.YD.
CUT VOLUME 7 CU.YD. FILL VOLUME 463 CU.YD.



CUT AREA 31 SQ.FT. FILL AREA 79 SQ.FT.
CUT AREA 4 SQ.FT. FILL AREA 248 SQ.FT.
CUT VOLUME 10 CU.YD. FILL VOLUME 419 CU.YD.
CUT VOLUME 148 CU.YD. FILL VOLUME 78 CU.YD.



CUT AREA 129 SQ.FT. FILL AREA 5 SQ.FT.
CUT AREA 7 SQ.FT. FILL AREA 205 SQ.FT.
CUT VOLUME 17 CU.YD. FILL VOLUME 358 CU.YD.
CUT VOLUME 138 CU.YD. FILL VOLUME 83 CU.YD.

CROSS SECTION STA. 69+50 TO STA. 70+50

2/26/2014

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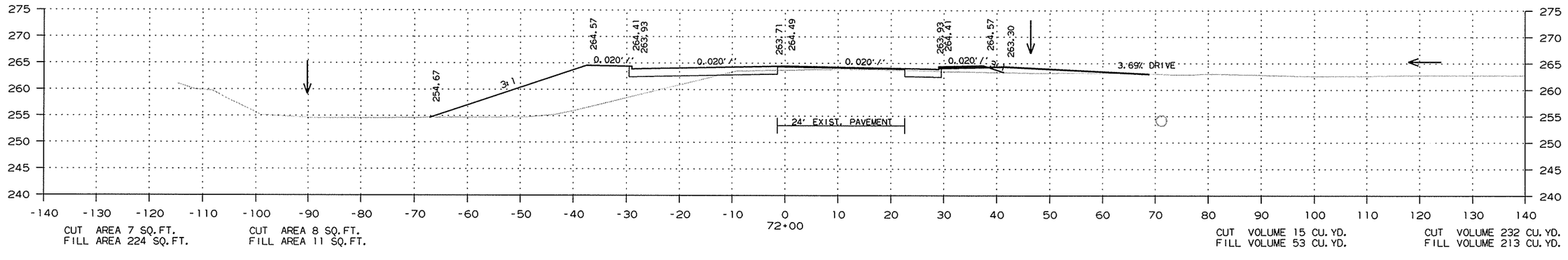
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	168	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

STA. 72+01 IN PLACE
24" x70' C.M. PIPE CULVERT
RT. SIDE DRAIN
RETAIN
CONST. APPROACH @ 71+89 = 25 CU. YDS.

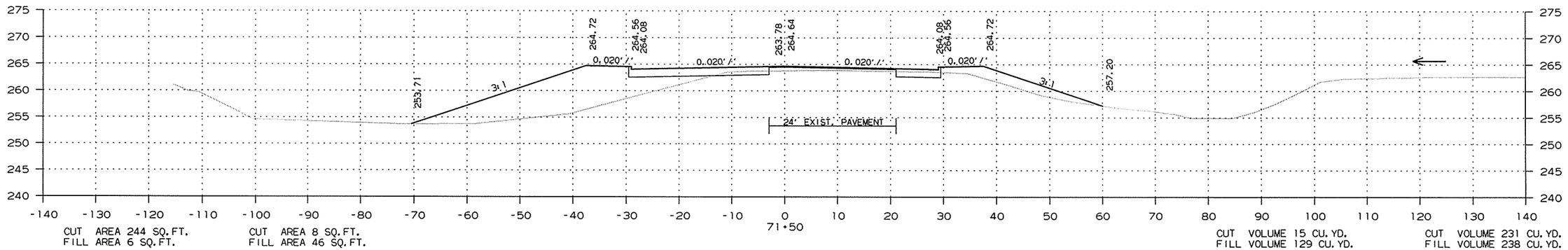


CUT AREA 7 SQ.FT.
FILL AREA 224 SQ.FT.

CUT AREA 8 SQ.FT.
FILL AREA 11 SQ.FT.

CUT VOLUME 15 CU.YD.
FILL VOLUME 53 CU.YD.

CUT VOLUME 232 CU.YD.
FILL VOLUME 213 CU.YD.

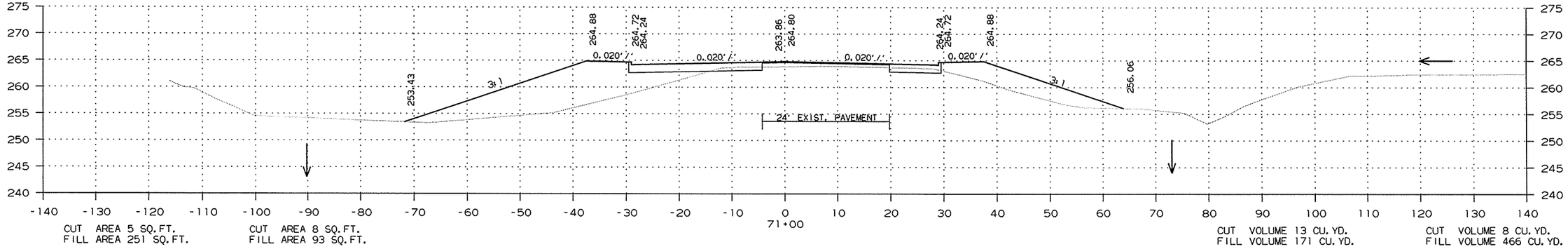


CUT AREA 244 SQ.FT.
FILL AREA 6 SQ.FT.

CUT AREA 8 SQ.FT.
FILL AREA 46 SQ.FT.

CUT VOLUME 15 CU.YD.
FILL VOLUME 129 CU.YD.

CUT VOLUME 231 CU.YD.
FILL VOLUME 238 CU.YD.



CUT AREA 5 SQ.FT.
FILL AREA 251 SQ.FT.

CUT AREA 8 SQ.FT.
FILL AREA 93 SQ.FT.

CUT VOLUME 13 CU.YD.
FILL VOLUME 171 CU.YD.

CUT VOLUME 8 CU.YD.
FILL VOLUME 466 CU.YD.

CROSS SECTION STA. 71+00 TO STA. 72+00

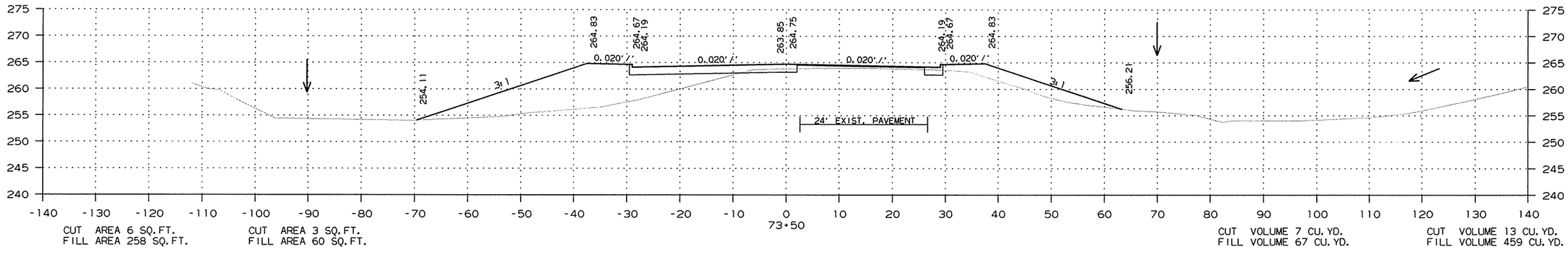
2/26/2014

R100686.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.		100686	169	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

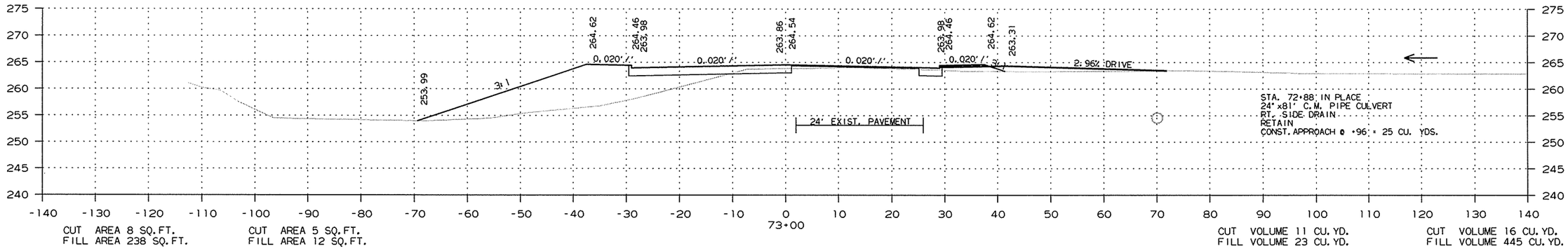


CUT AREA 6 SQ.FT. FILL AREA 258 SQ.FT.

CUT AREA 3 SQ.FT. FILL AREA 60 SQ.FT.

CUT VOLUME 7 CU.YD. FILL VOLUME 67 CU.YD.

CUT VOLUME 13 CU.YD. FILL VOLUME 459 CU.YD.

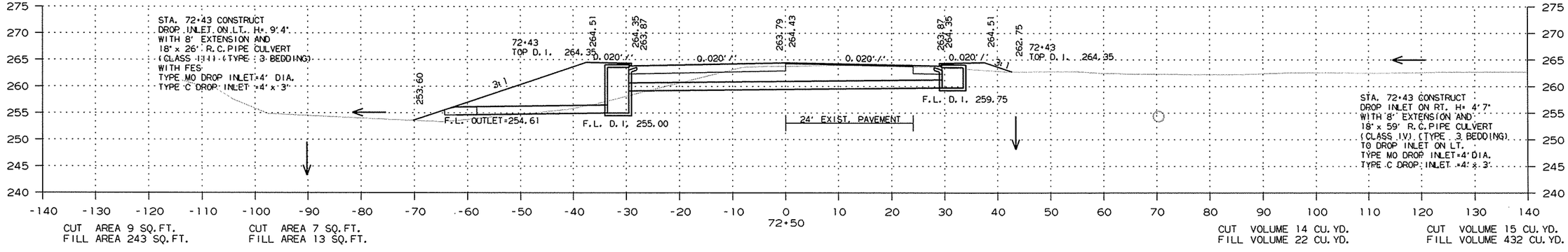


CUT AREA 8 SQ.FT. FILL AREA 238 SQ.FT.

CUT AREA 5 SQ.FT. FILL AREA 12 SQ.FT.

CUT VOLUME 11 CU.YD. FILL VOLUME 23 CU.YD.

CUT VOLUME 16 CU.YD. FILL VOLUME 445 CU.YD.



CUT AREA 9 SQ.FT. FILL AREA 243 SQ.FT.

CUT AREA 7 SQ.FT. FILL AREA 13 SQ.FT.

CUT VOLUME 14 CU.YD. FILL VOLUME 22 CU.YD.

CUT VOLUME 15 CU.YD. FILL VOLUME 432 CU.YD.

CROSS SECTION STA. 72+50 TO STA. 73+50

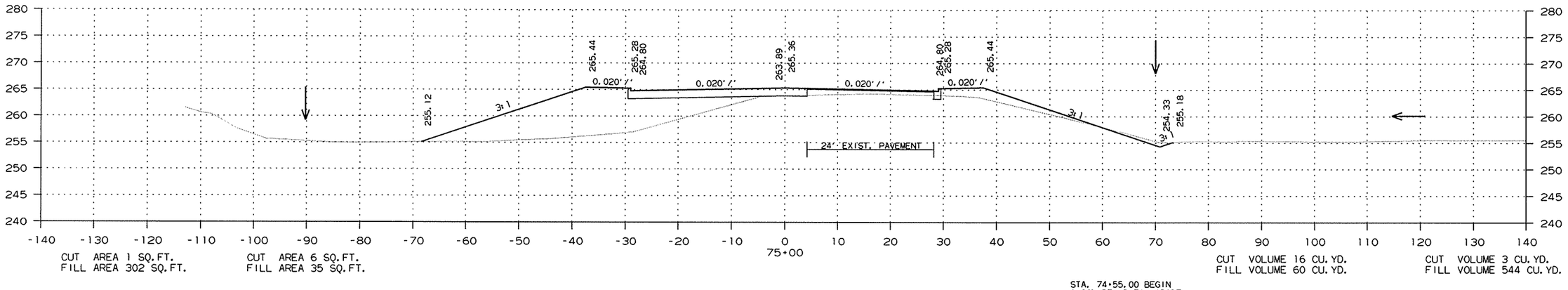
2/26/2014

R100686.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.		100686	170	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

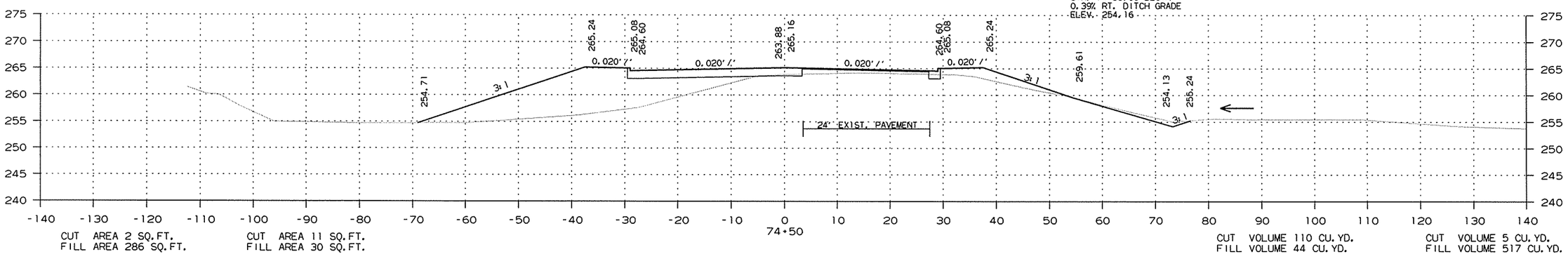


CUT AREA 1 SQ.FT.
FILL AREA 302 SQ.FT.

CUT AREA 6 SQ.FT.
FILL AREA 35 SQ.FT.

CUT VOLUME 16 CU.YD.
FILL VOLUME 60 CU.YD.

CUT VOLUME 3 CU.YD.
FILL VOLUME 544 CU.YD.

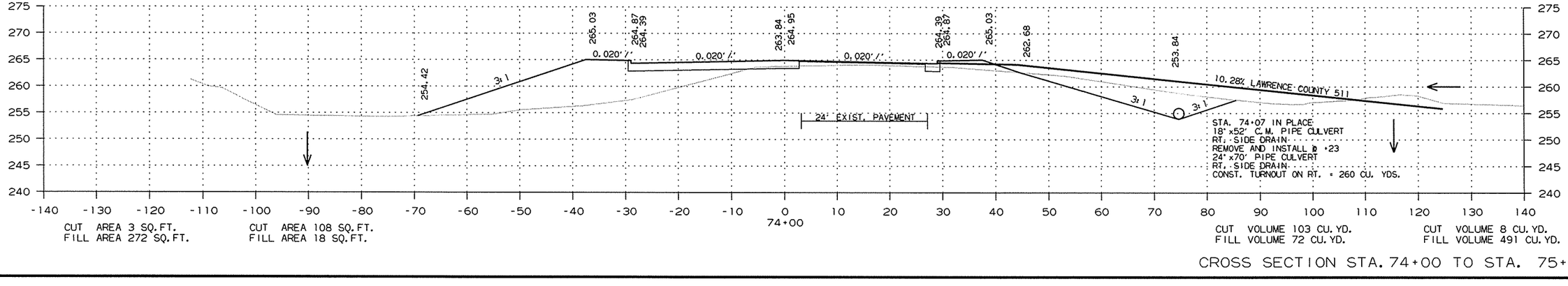


CUT AREA 2 SQ.FT.
FILL AREA 286 SQ.FT.

CUT AREA 11 SQ.FT.
FILL AREA 30 SQ.FT.

CUT VOLUME 110 CU.YD.
FILL VOLUME 44 CU.YD.

CUT VOLUME 5 CU.YD.
FILL VOLUME 517 CU.YD.



STA. 74+07 IN PLACE
18"x52' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +23
24"x70' PIPE CULVERT
RT. SIDE DRAIN
CONST. TURNOUT ON RT. = 260 CU. YDS.

CUT AREA 3 SQ.FT.
FILL AREA 272 SQ.FT.

CUT AREA 108 SQ.FT.
FILL AREA 18 SQ.FT.

CUT VOLUME 103 CU.YD.
FILL VOLUME 72 CU.YD.

CUT VOLUME 8 CU.YD.
FILL VOLUME 491 CU.YD.

CROSS SECTION STA. 74+00 TO STA. 75+00

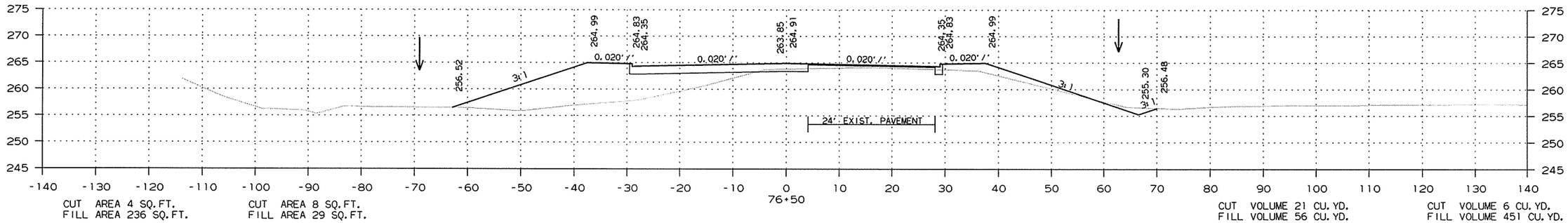
2/26/2014

R100686.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.		100686	171	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

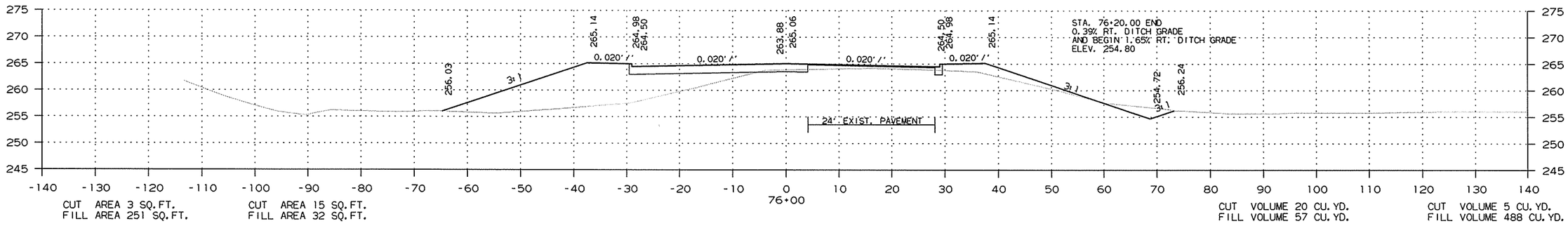


CUT AREA 4 SQ.FT.
FILL AREA 236 SQ.FT.

CUT AREA 8 SQ.FT.
FILL AREA 29 SQ.FT.

CUT VOLUME 21 CU.YD.
FILL VOLUME 56 CU.YD.

CUT VOLUME 6 CU.YD.
FILL VOLUME 451 CU.YD.

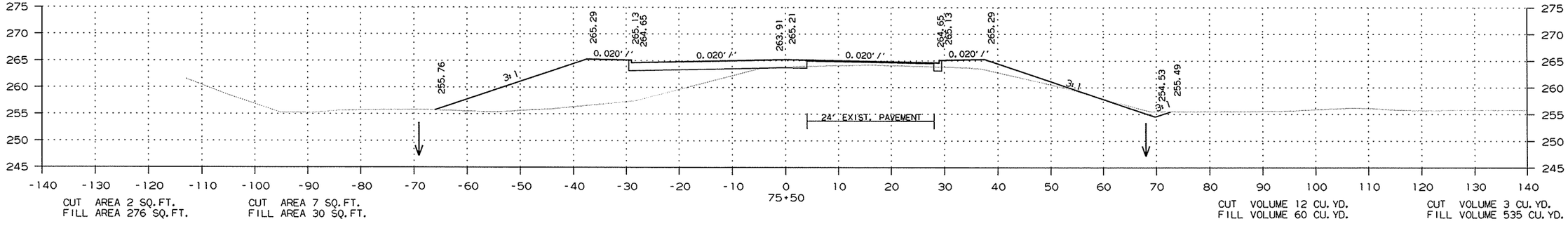


CUT AREA 3 SQ.FT.
FILL AREA 251 SQ.FT.

CUT AREA 15 SQ.FT.
FILL AREA 32 SQ.FT.

CUT VOLUME 20 CU.YD.
FILL VOLUME 57 CU.YD.

CUT VOLUME 5 CU.YD.
FILL VOLUME 488 CU.YD.



CUT AREA 2 SQ.FT.
FILL AREA 276 SQ.FT.

CUT AREA 7 SQ.FT.
FILL AREA 30 SQ.FT.

CUT VOLUME 12 CU.YD.
FILL VOLUME 60 CU.YD.

CUT VOLUME 3 CU.YD.
FILL VOLUME 535 CU.YD.

CROSS SECTION STA. 75+50 TO STA. 76+50

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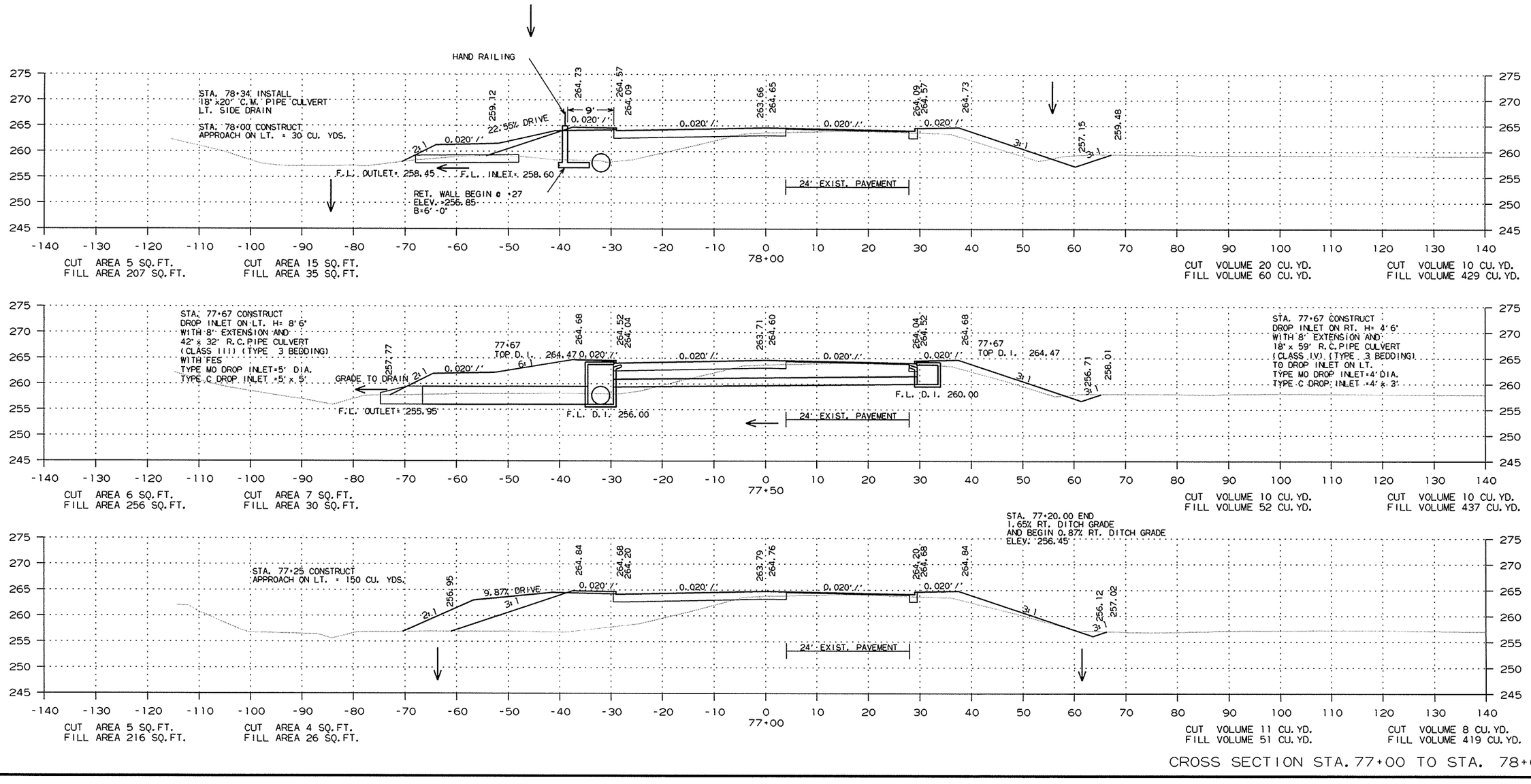
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	172	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 2 STAGE 1



CROSS SECTION STA. 77+00 TO STA. 78+00

2/26/2014

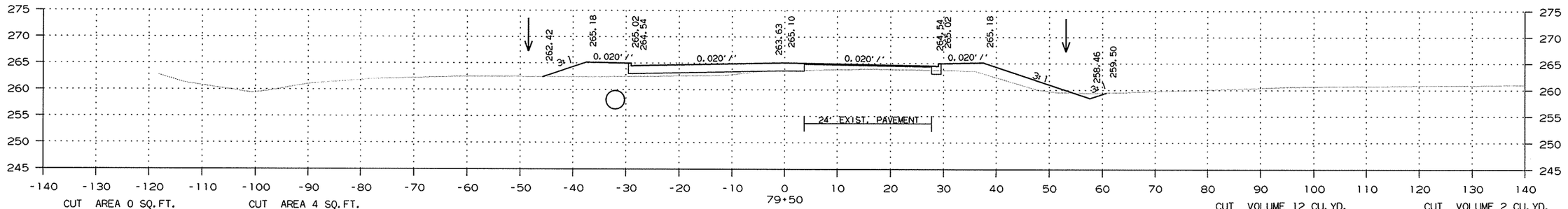
R100686.DGN

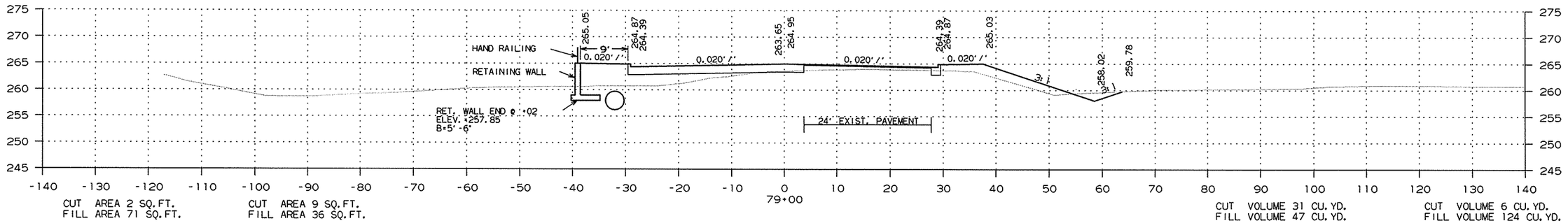
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	173	185

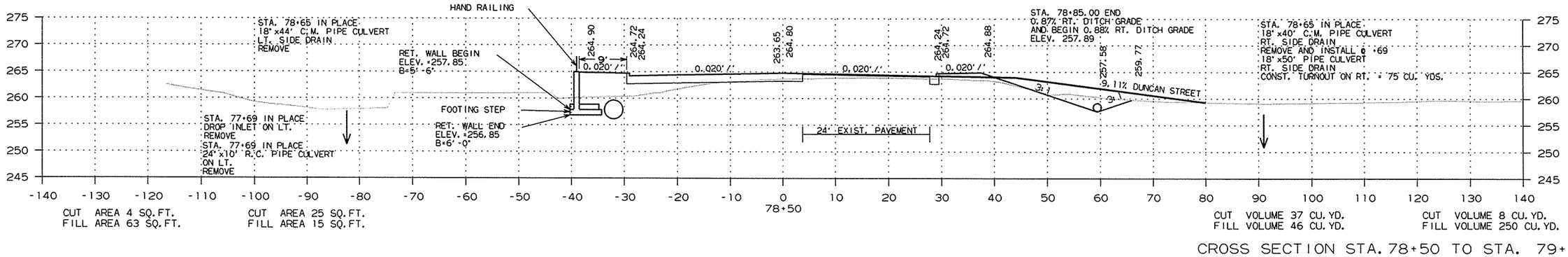
(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 2 STAGE 1







CROSS SECTION STA. 78+50 TO STA. 79+50

2/26/2014

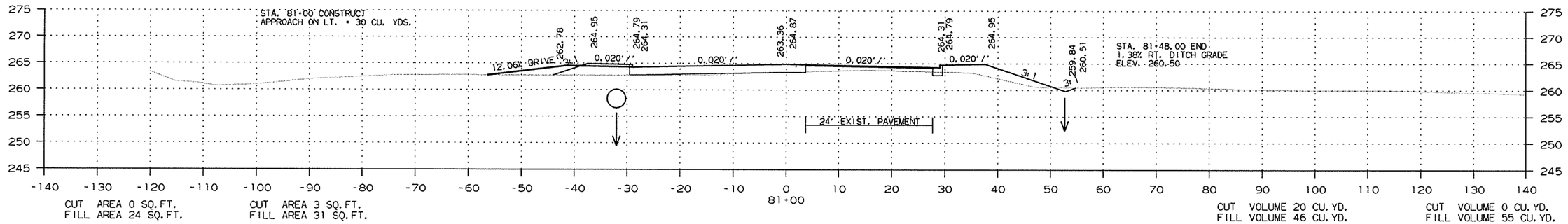
R100686.DGN

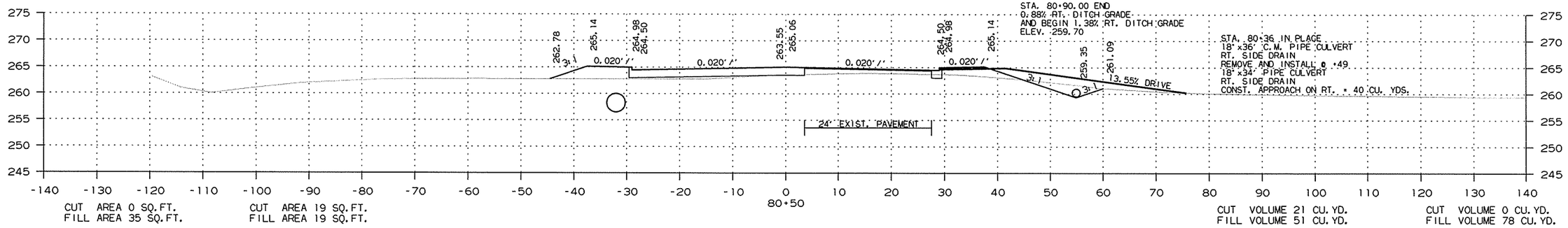
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	174	185

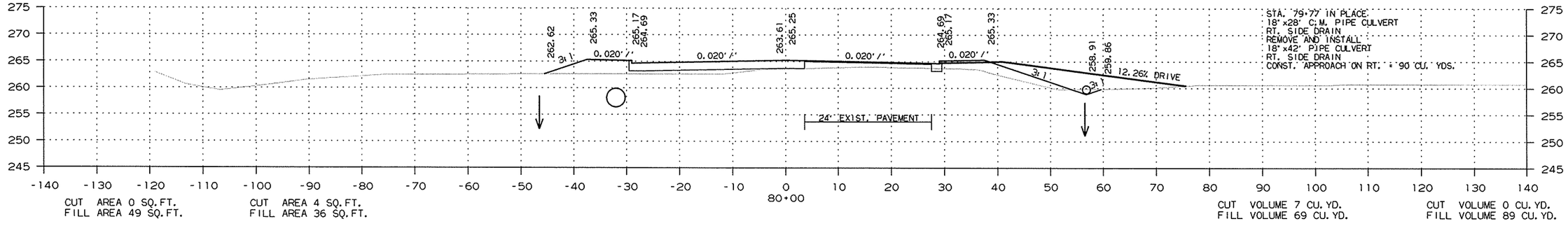
(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 2 STAGE 1







CROSS SECTION STA. 80+00 TO STA. 81+00

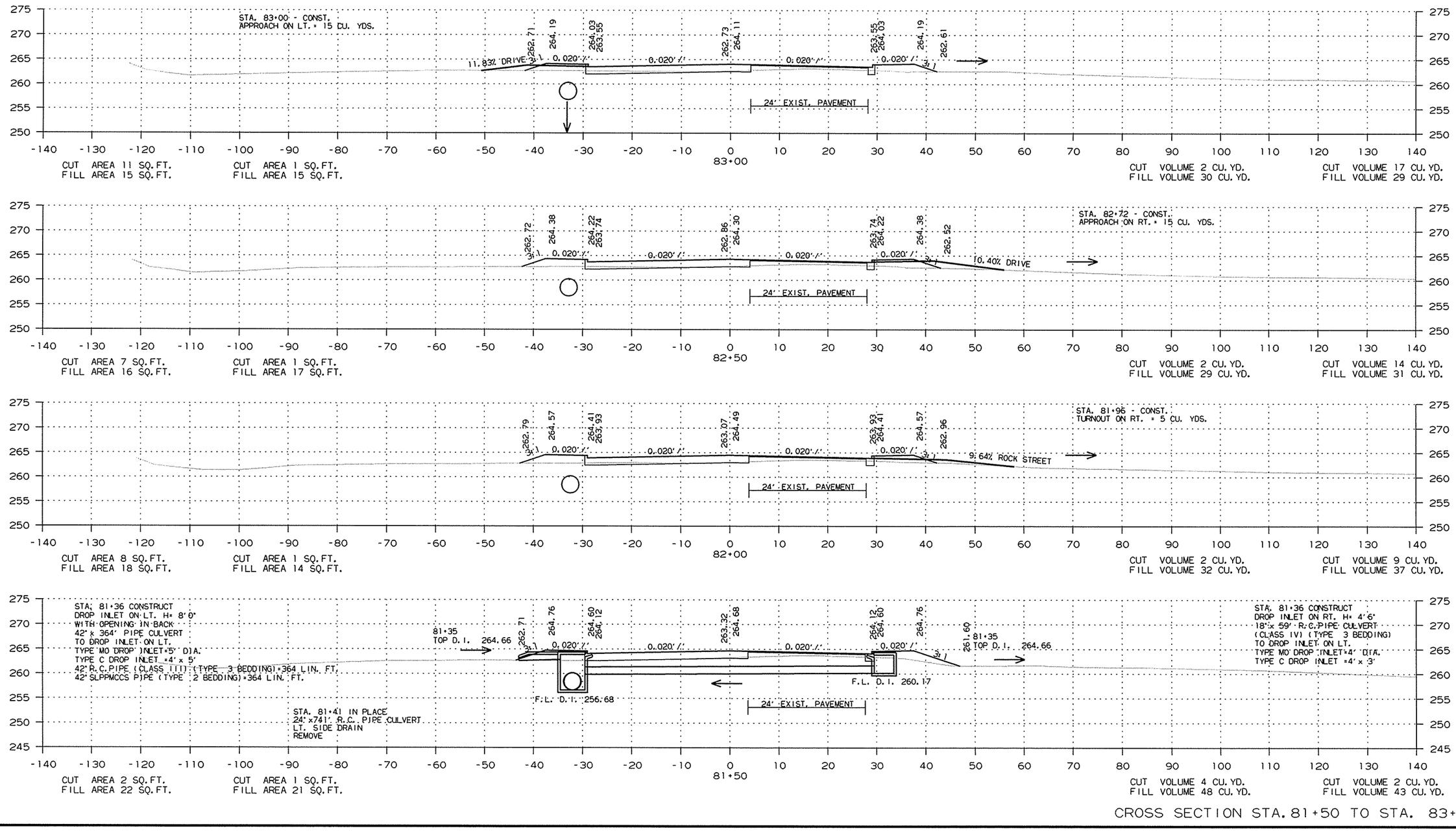
2/26/2014

R100686.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.		100686	175	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1



CROSS SECTION STA. 81+50 TO STA. 83+00

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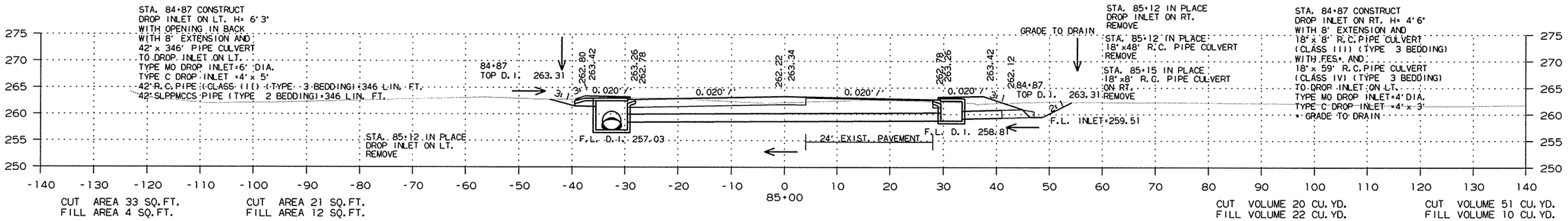
R100686.DGN

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.		100686	176	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

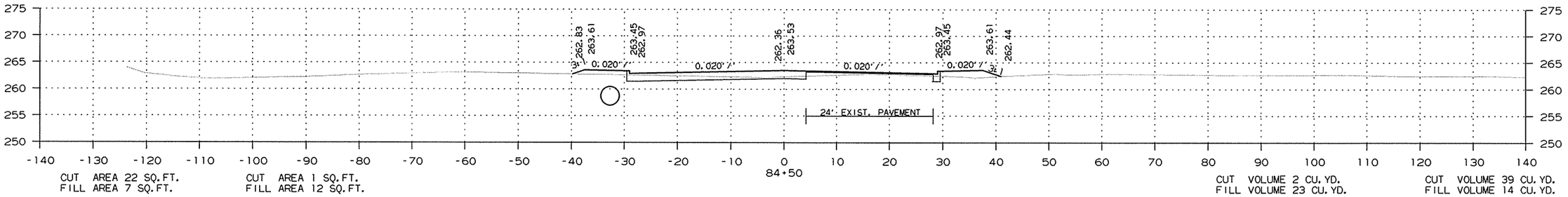


CUT AREA 33 SQ.FT. FILL AREA 4 SQ.FT.

CUT AREA 21 SQ.FT. FILL AREA 12 SQ.FT.

CUT VOLUME 20 CU.YD. FILL VOLUME 22 CU.YD.

CUT VOLUME 51 CU.YD. FILL VOLUME 10 CU.YD.

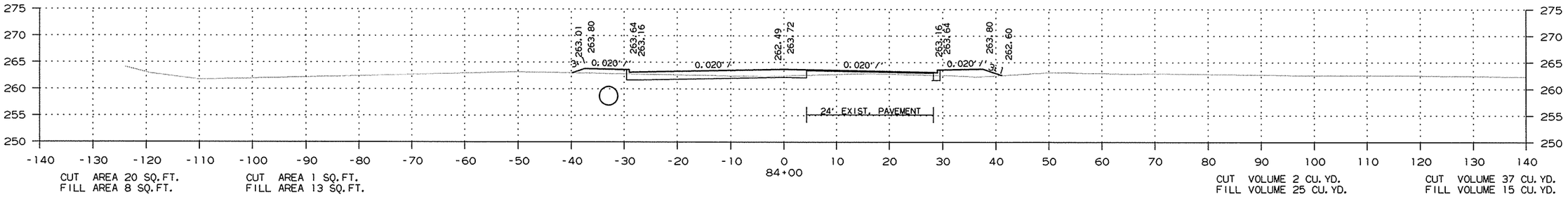


CUT AREA 22 SQ.FT. FILL AREA 7 SQ.FT.

CUT AREA 1 SQ.FT. FILL AREA 12 SQ.FT.

CUT VOLUME 2 CU.YD. FILL VOLUME 23 CU.YD.

CUT VOLUME 39 CU.YD. FILL VOLUME 14 CU.YD.

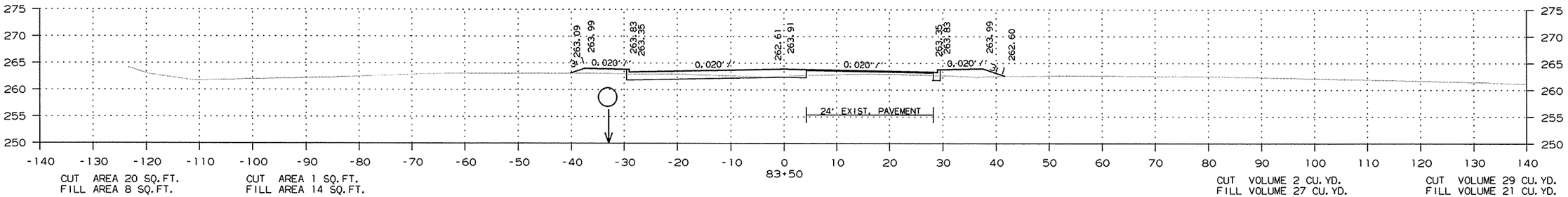


CUT AREA 20 SQ.FT. FILL AREA 8 SQ.FT.

CUT AREA 1 SQ.FT. FILL AREA 13 SQ.FT.

CUT VOLUME 2 CU.YD. FILL VOLUME 25 CU.YD.

CUT VOLUME 37 CU.YD. FILL VOLUME 15 CU.YD.



CUT AREA 20 SQ.FT. FILL AREA 8 SQ.FT.

CUT AREA 1 SQ.FT. FILL AREA 14 SQ.FT.

CUT VOLUME 2 CU.YD. FILL VOLUME 27 CU.YD.

CUT VOLUME 29 CU.YD. FILL VOLUME 21 CU.YD.

CROSS SECTION STA. 83+50 TO STA. 85+00

2/26/2014

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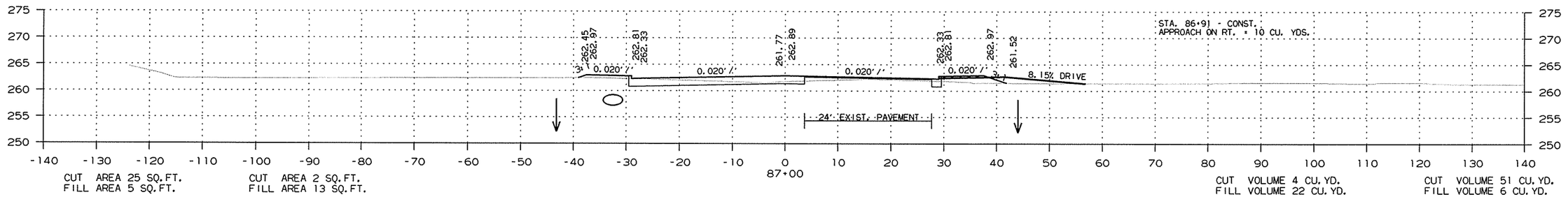
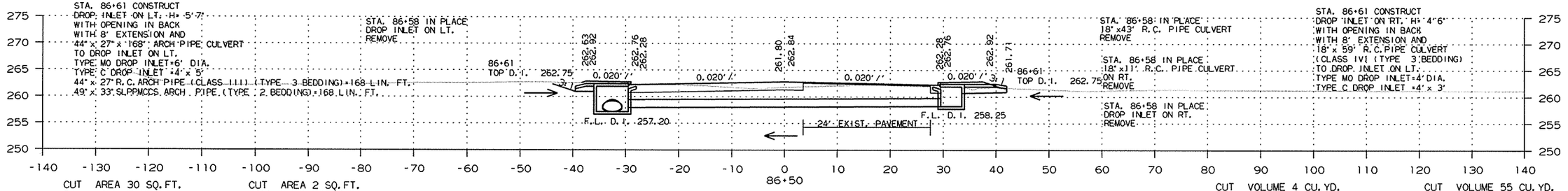
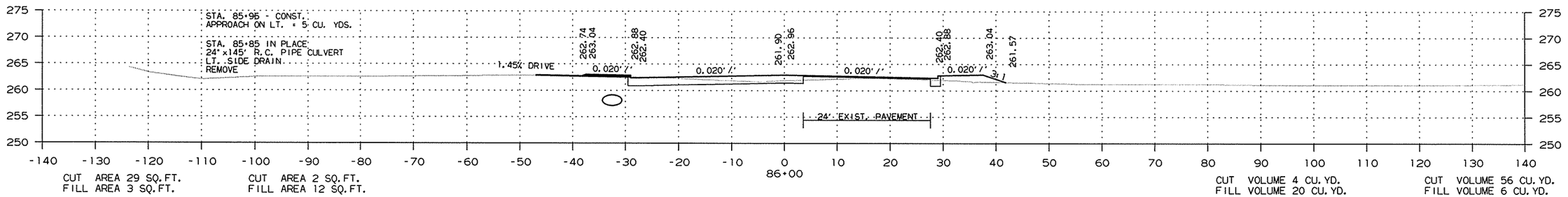
				6	ARK.			
				JOB NO.		100686	177	185

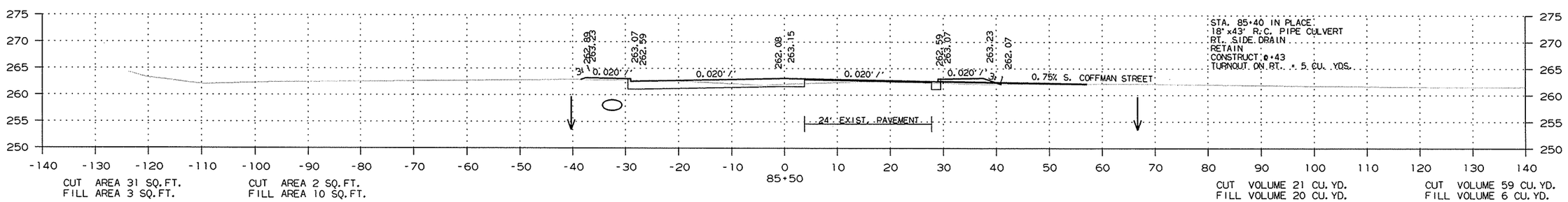
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1









CROSS SECTION STA. 85+50 TO STA. 87+00

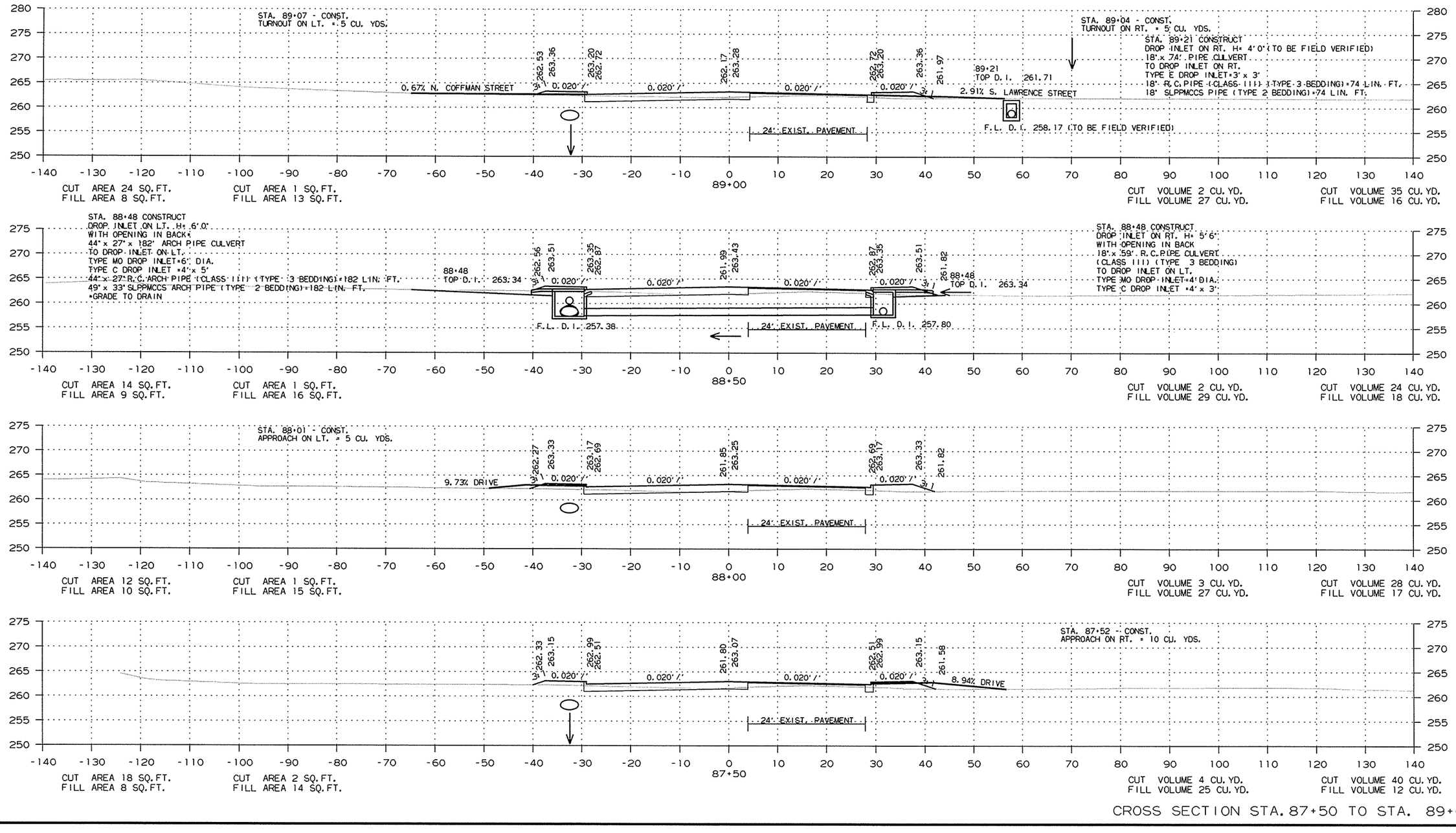
2/26/2014

R100686.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.		100686	178	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1



CROSS SECTION STA. 87+50 TO STA. 89+00

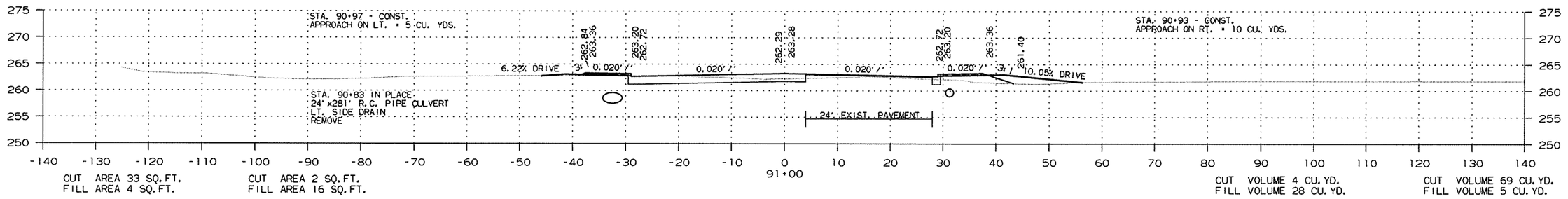
2/26/2014

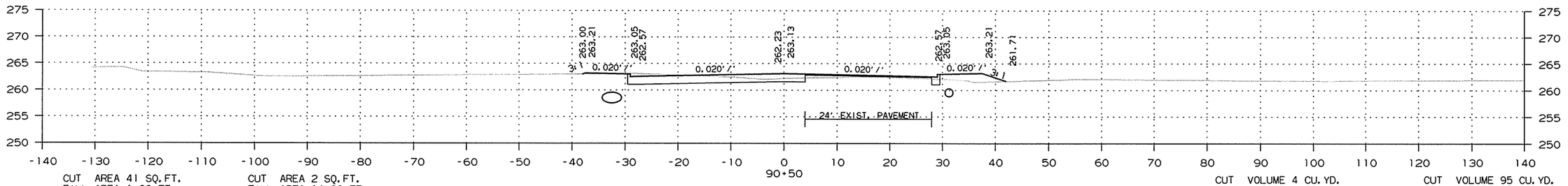
R100686.DGN

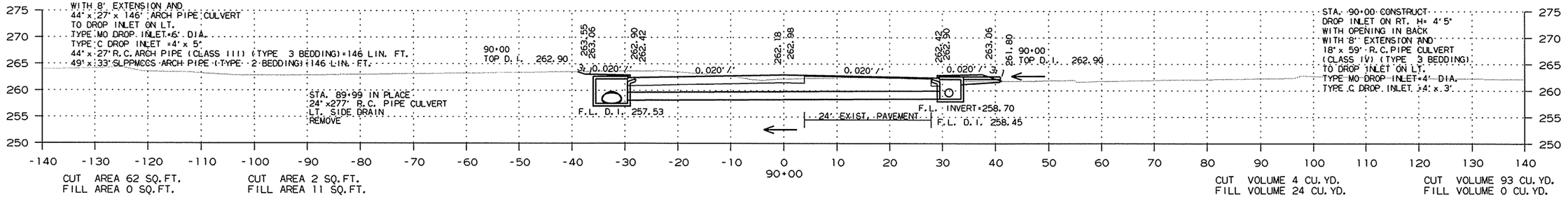
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	179	185

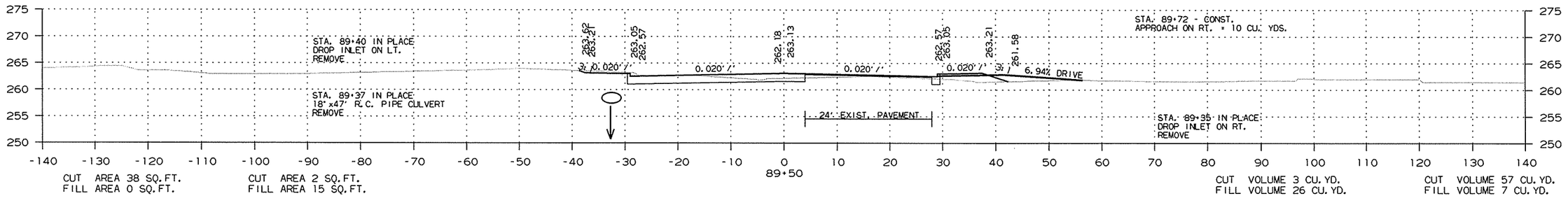
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1









CROSS SECTION STA. 89+50 TO STA. 91+00

2/26/2014

R100686.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.		100686	180	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1

CROSS SECTION STA. 91+50 TO STA. 93+00

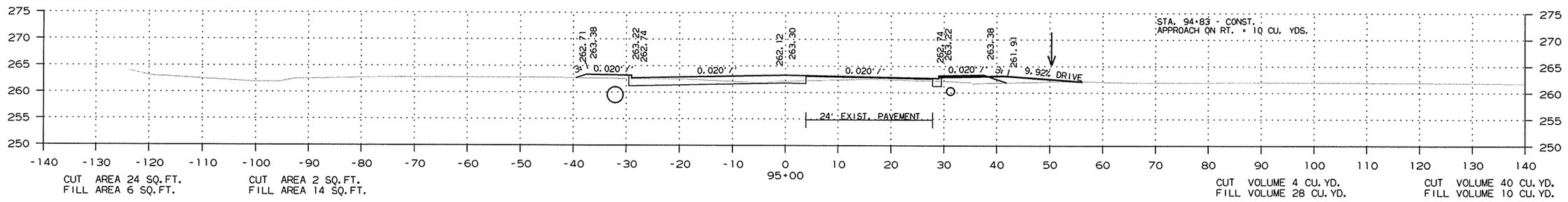
2/26/2014

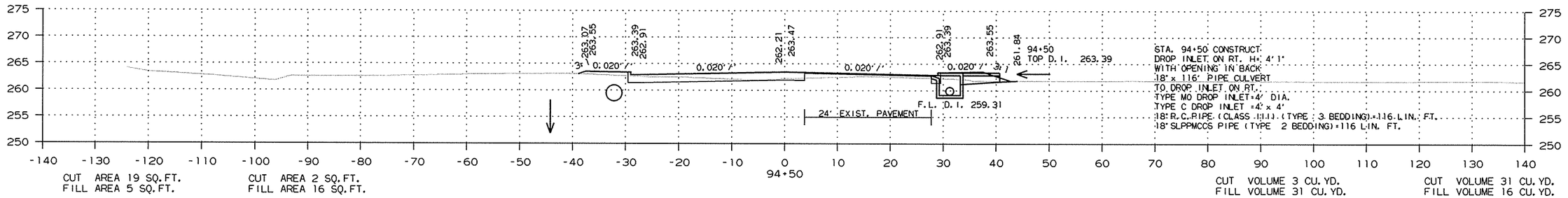
R100686.DGN

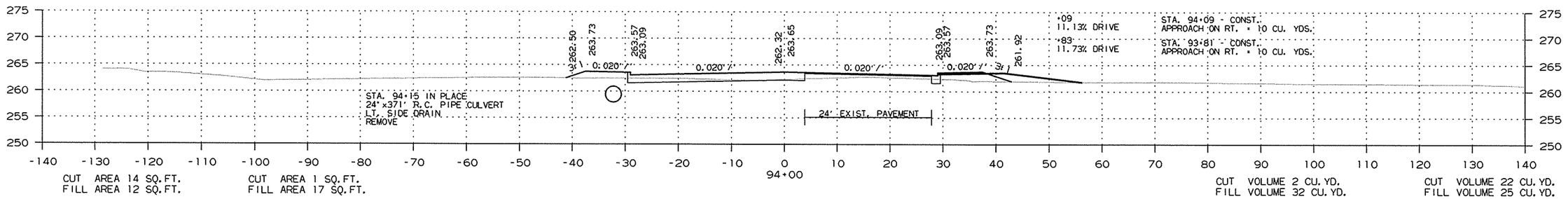
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	181	185

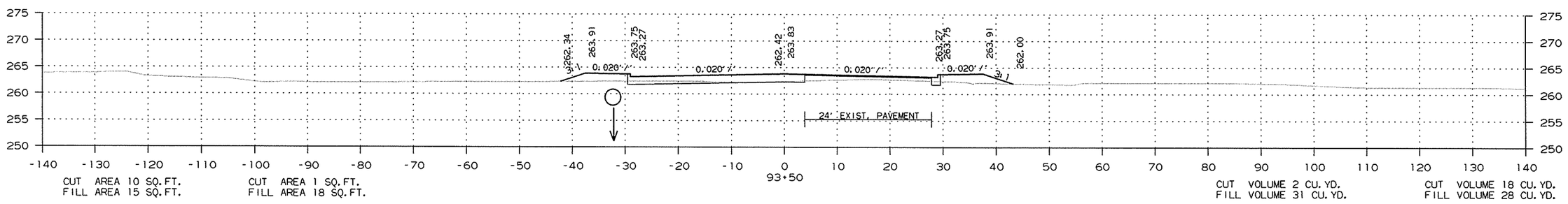
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1









CROSS SECTION STA. 93+50 TO STA. 95+00

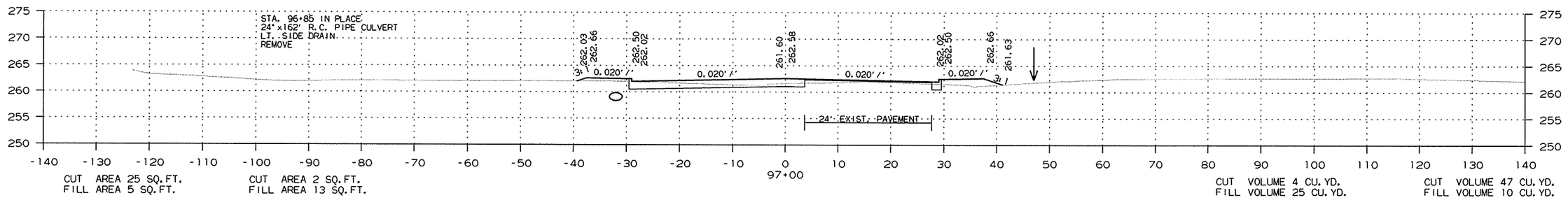
2/26/2014

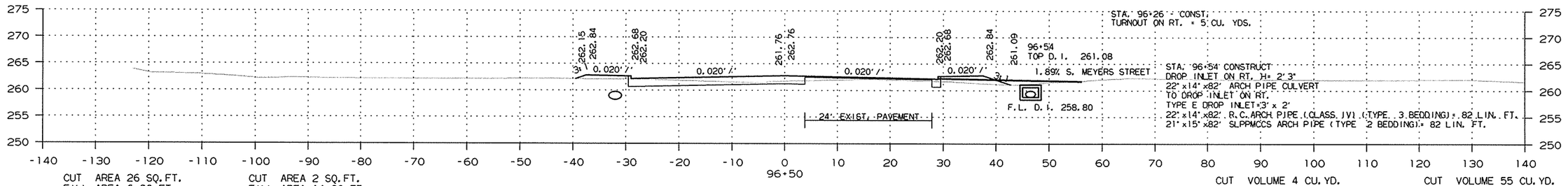
R100686.DGN

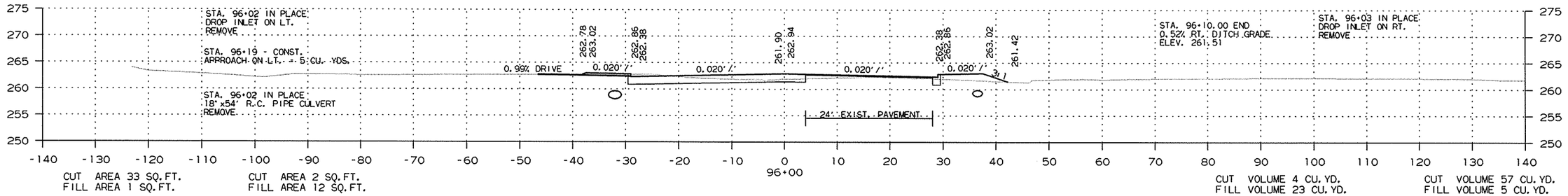
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	182	185

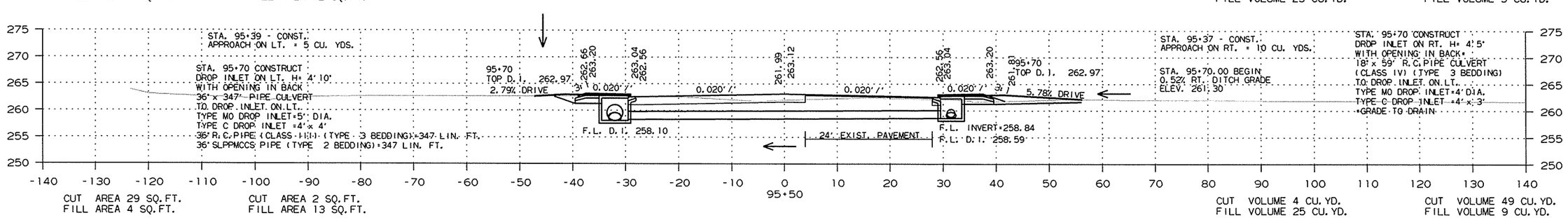
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1









CROSS SECTION STA. 95+50 TO STA. 97+00

2/26/2014

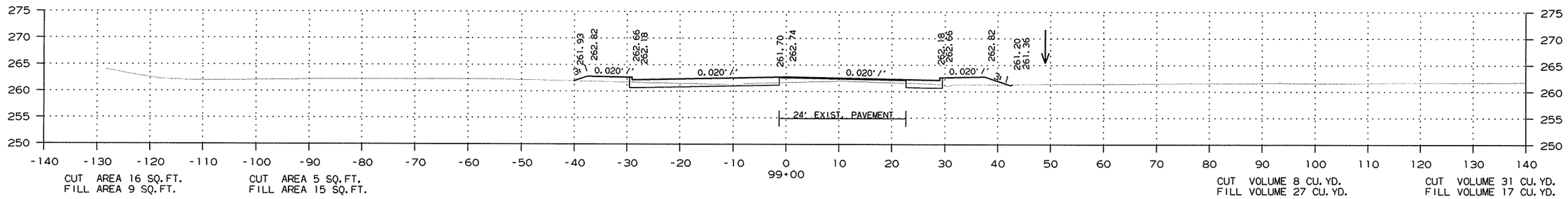
R100686.DGN

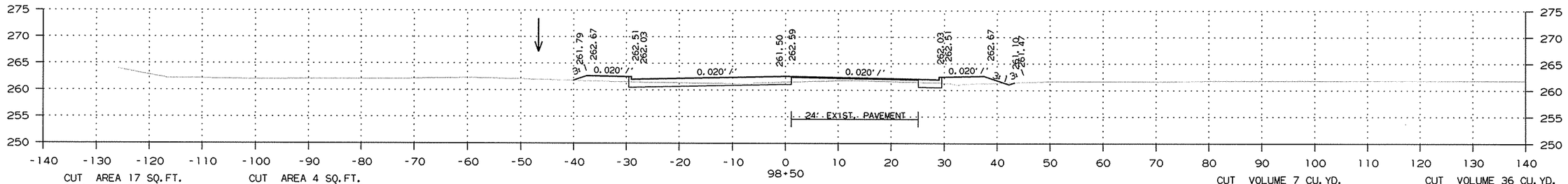
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	183	185

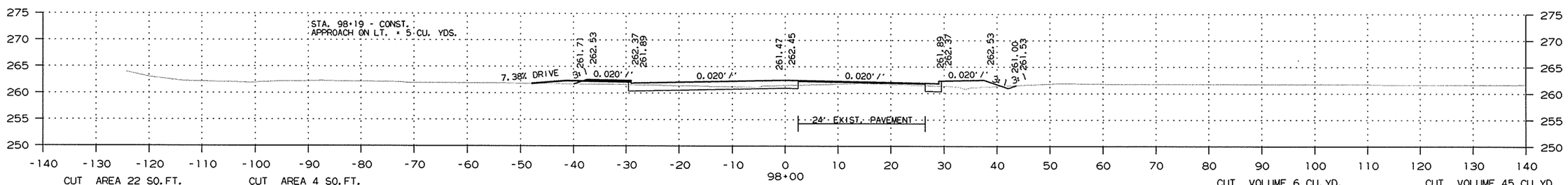
(2) CROSS SECTIONS

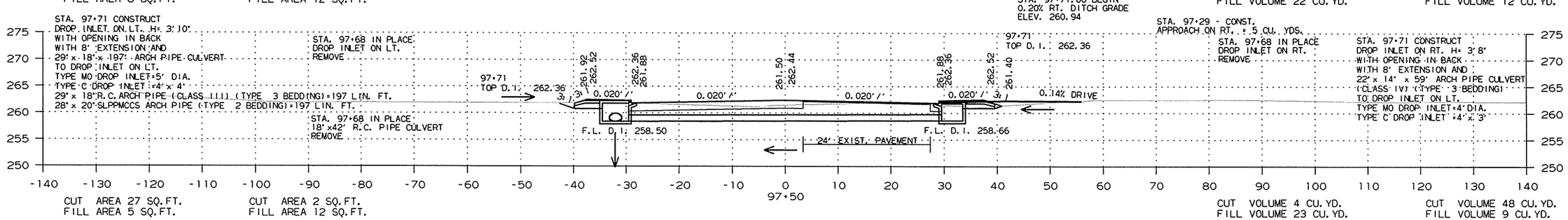
STAGE 1 STAGE 2

STAGE 2 STAGE 1









CROSS SECTION STA. 97+50 TO STA. 99+00

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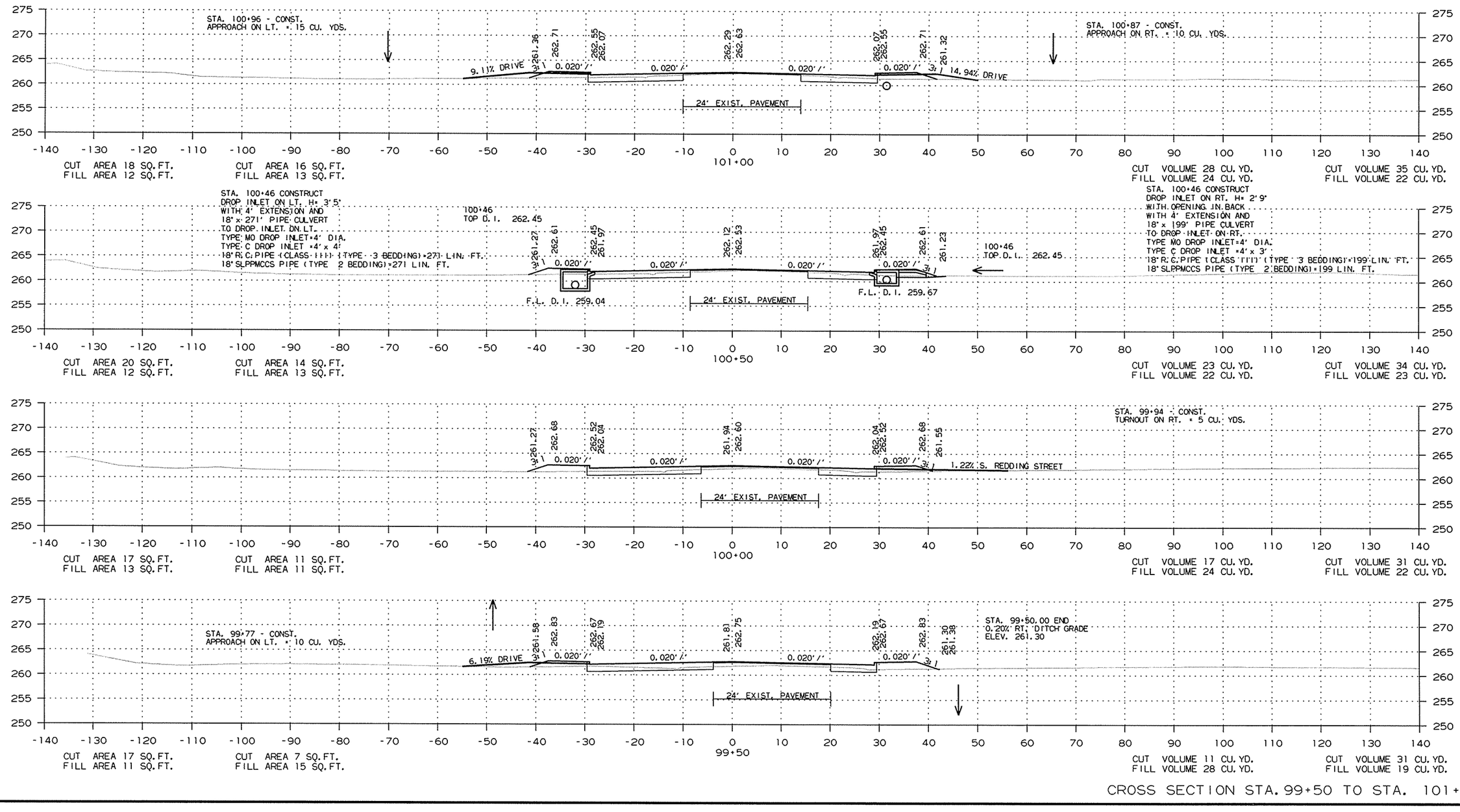
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	184	185

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 2 STAGE 1



CROSS SECTION STA. 99+50 TO STA. 101+00

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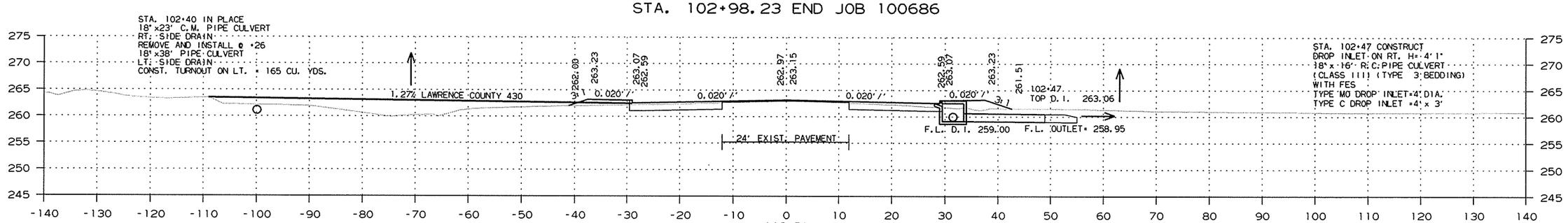
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100686	185	185

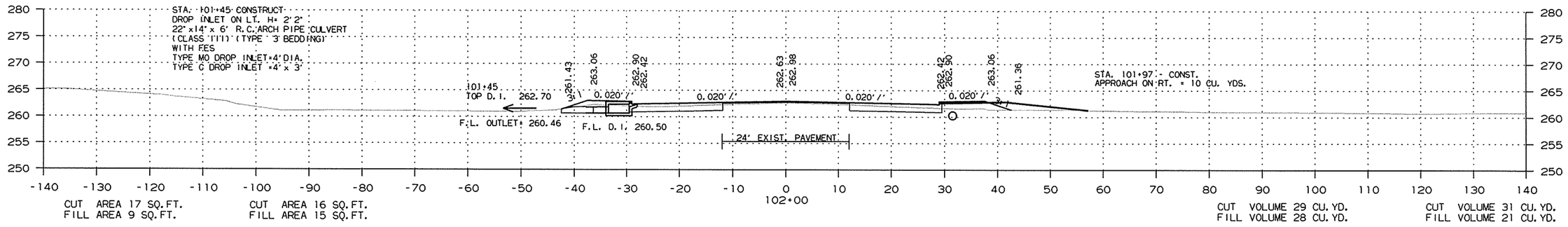
(2) CROSS SECTIONS

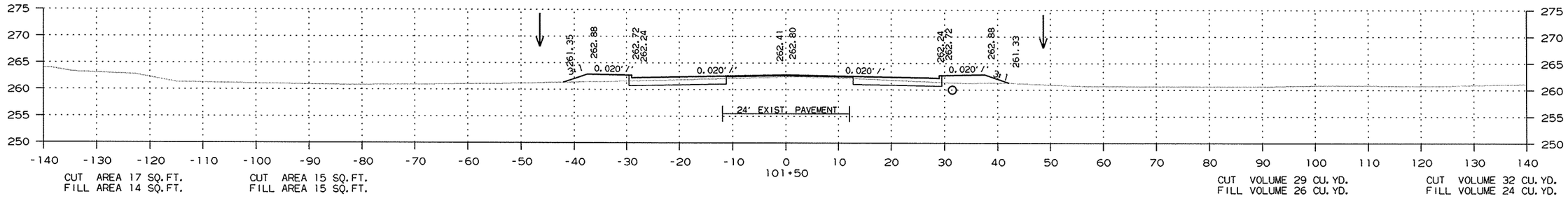
STAGE 1 STAGE 2

STAGE 2 STAGE 1

STA. 102+98.23 END JOB 100686







CROSS SECTION STA. 101+50 TO STA. 102+98.23

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