Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	1	184
② HWY. 264 INTCHNG. IMPVTS. (S)				

"A FULLY CONTROLLED ACCESS FACILITY"

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONSTRUCTION PLANS FOR STATE HIGHWAY

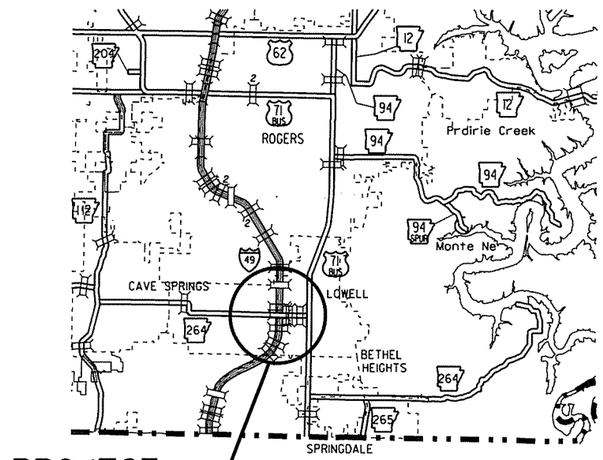
HWY. 264 INTCHNG. IMPVTS. (S)

BENTON COUNTY

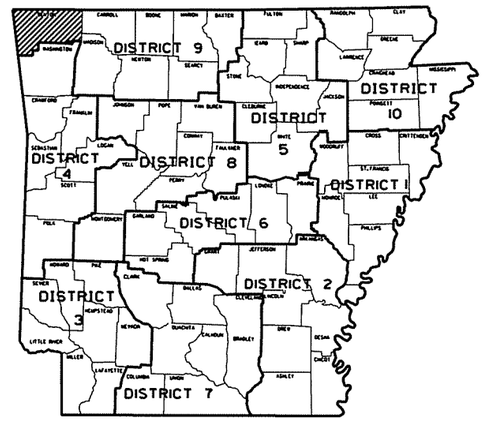
ROUTE 49 SECTION 29

JOB BB0902

FED. AID PROJ. BIM-STPC-B540(211)



VICINITY MAP



ARK. HWY. DIST. NO. 9

BRIDGE STRUCTURES

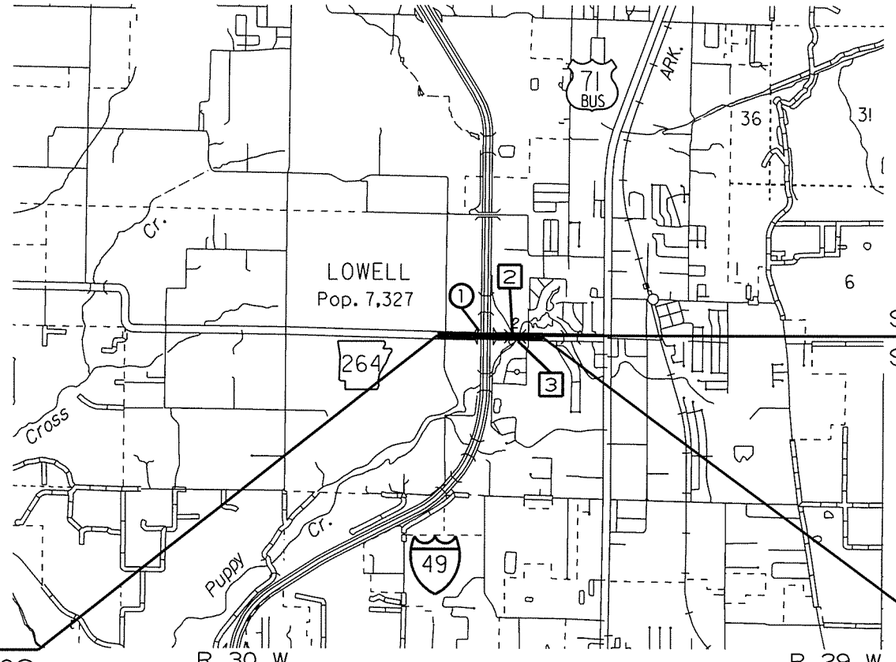
① BR. END STA. 28+62.91
BRIDGE NO. 05949 IN PLACE
52'-0" CLEAR ROADWAY
264'-0" CONT. COMP. W-BEAM UNIT
(50', 86', 86', 42')
RETAIN & WIDEN
58'-0" CLEAR ROADWAY
BR. END STA. 31+29.20
L.M. = 0.73

STRUCTURES OVER 20'-0" SPAN

② STA. 38+00 IN PLACE
TRIPLE 8' X 6' X 92' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
REMOVE HDWL. & WINGWALLS LT. & RT.
RETAIN AND EXTEND 28' LT. , 17' RT.
Q50=1035.8 CFS D.A.=352.3 AC.
SPAN 26.67'
L.M. = 0.61

③ STA. 41+06 IN PLACE
QUINTUPLE 10' X 7' X 86' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT. &
TYPE TM CURB INLETS LT. & RT.
REMOVE HDWL., WINGWALLS, & CURB
INLETS LT. & RT.
RETAIN AND EXTEND 21' LT. & 10' RT.
Q50=3,061 CFS D.A.=4.0 SQ. MILES
SPAN 54.58'
L.M. = 0.55

"NOT TO SCALE"



STA. 14+20.00
BEGIN JOB BB0902
LOG MILE = 1.05

STA. 30+00 ℄ CONST. HWY 264 =
STA. 614+55.22 ℄ I-49

STA. 49+20.00
END JOB BB0902
LOG MILE = 0.39

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2034
2014 ADT	24,000
2034 ADT	33,600
2034 DHV	3696
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	3%
DESIGN SPEED	45 MPH

CERTIFICATE OF AUTHORIZATION
CRAFTON, TULL & ASSOCIATES, INC.
No. 109
ARKANSAS ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
HUBERT BURNS
10/9/14

BEGINNING OF PROJECT
LAT. = N 36°15'16"
LONG. = W 94°09'21"

MID-POINT OF PROJECT
LAT. = N 36°15'16"
LONG. = W 94°08'59"

END OF PROJECT
LAT. = N 36°15'15"
LONG. = W 94°08'38"

GROSS LENGTH OF PROJECT		3500.00	FEET	OR	0.663	MILES
NET	"	" ROADWAY	3233.71	"	" 0.613	"
NET	"	" BRIDGES	266.29	"	" 0.050	"
NET	"	" PROJECT	3500.00	"	" 0.663	"

P.E. BB0902
NON-PART.

USER: jd5103
DESIGN FILE: G:\2103301_Hwy264\TRANSP\dgn\misc\BB0902 Title Sheet.dgn
PLOTTED: 10/9/2014 13:44
SCALE: 200:1
MODEL: TITLE SHEET

G:\2103301_Hwy264\TRANSP\dgn\misc\BB0902 Title Sheet.dgn 10/9/2014 13:44

INDEX OF SHEETS

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
10-09-14
PAUL DAVIS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		2	184

JOB NO. BB0902

INDEX OF SHEETS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	3	184

(2) GOVERNING SPECIFICATIONS & GENERAL NOTES

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 BID PRICE FOR THE VARIOUS BID ITEMS.

5. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.

6. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.

7. 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.

8. 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.

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.

10. THE CONTRACTOR SHALL CONTACT ALL FIBER OPTIC COMPANIES INVOLVED ON THIS PROJECT AT LEAST 5 WORKING DAYS BEFORE CONSTRUCTION, INCLUDING REMOVING AND INSTALLING ANY FENCING, AND TAKE EVERY PRECAUTION NECESSARY TO AVOID CONFLICT WITH THE FIBER OPTIC CABLES. THE CONTRACTOR SHALL TELEPHONE ARKANSAS ONE-CALL SYSTEM AT 800-482-8998 TO DETERMINE THE LOCATION OF THE BURIED FIBER OPTIC CABLES.

11. THIS PROJECT IS COVERED UNDER A NATIONWIDE 14 SECTION 404 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

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 - 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 BB0902	ACTIVATION OF EXISTING TRAFFIC SIGNAL
JOB BB0902	ANTENNA SUPPORT
JOB BB0902	ARCHITECTURAL FINISH
JOB BB0902	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB BB0902	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB BB0902	CABINET DRAWER ASSEMBLY
JOB BB0902	CALCIUM SULFONATE PAINT
JOB BB0902	CLEANING AND PAINTING EXISTING STRUCTURAL STEEL
JOB BB0902	CLOSED LOOP TRAFFIC SYSTEM WITH ETHERNET RADIO COMMUNICATIONS
JOB BB0902	CONCRETE PULL BOX
JOB BB0902	CONCRETE WALKS (SPECIAL)
JOB BB0902	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB BB0902	COORDINATION OF WORK
JOB BB0902	EDGE CARD VIDEO PROCESSOR
JOB BB0902	ELASTOMERIC BEARINGS
JOB BB0902	ELECTRICAL CONDUCTORS FOR LUMINAIRES
JOB BB0902	ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB BB0902	EMPLOYMENT REPORTING
JOB BB0902	EXTENSION FOR PIPE CULVERTS
JOB BB0902	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB BB0902	HIGH PERFORMANCE PAVEMENT MARKING
JOB BB0902	LED COUNTDOWN PEDESTRIAN SIGNAL HEAD
JOB BB0902	LED TRAFFIC SIGNAL HEAD
JOB BB0902	LIGHTING
JOB BB0902	LUMINAIRE ASSEMBLY (CUTOFF TYPE)
JOB BB0902	MAINTENANCE OF PEDESTRIAN TRAFFIC
JOB BB0902	MAINTENANCE OF TRAFFIC
JOB BB0902	MANDATORY USE OF INTERNET BIDDING
JOB BB0902	NESTING SITES OF MIGRATORY BIRDS
JOB BB0902	PARTNERING REQUIREMENTS
JOB BB0902	PLASTIC PIPE
JOB BB0902	PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB BB0902	RELOCATION OF TRAFFIC SIGNAL HEAD
JOB BB0902	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT
JOB BB0902	RESTRAINING CONDITION
JOB BB0902	SEQUENCE OF CONSTRUCTION
JOB BB0902	SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)
JOB BB0902	SHORING
JOB BB0902	SITE USE (A+C METHOD)
JOB BB0902	SOIL STABILIZATION
JOB BB0902	SPECIAL SAFETY REQUIREMENTS
JOB BB0902	STORM WATER POLLUTION PREVENTION PLAN
JOB BB0902	STREET NAME SIGN (MAST ARM MOUNTED)
JOB BB0902	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB BB0902	TEXTURED COATING FINISH
JOB BB0902	UTILITY ADJUSTMENTS
JOB BB0902	VALUE ENGINEERING
JOB BB0902	VIDEO DETECTOR (COLOR)
JOB BB0902	VIDEO DETECTOR ROTATION
JOB BB0902	WARM MIX ASPHALT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-21-14

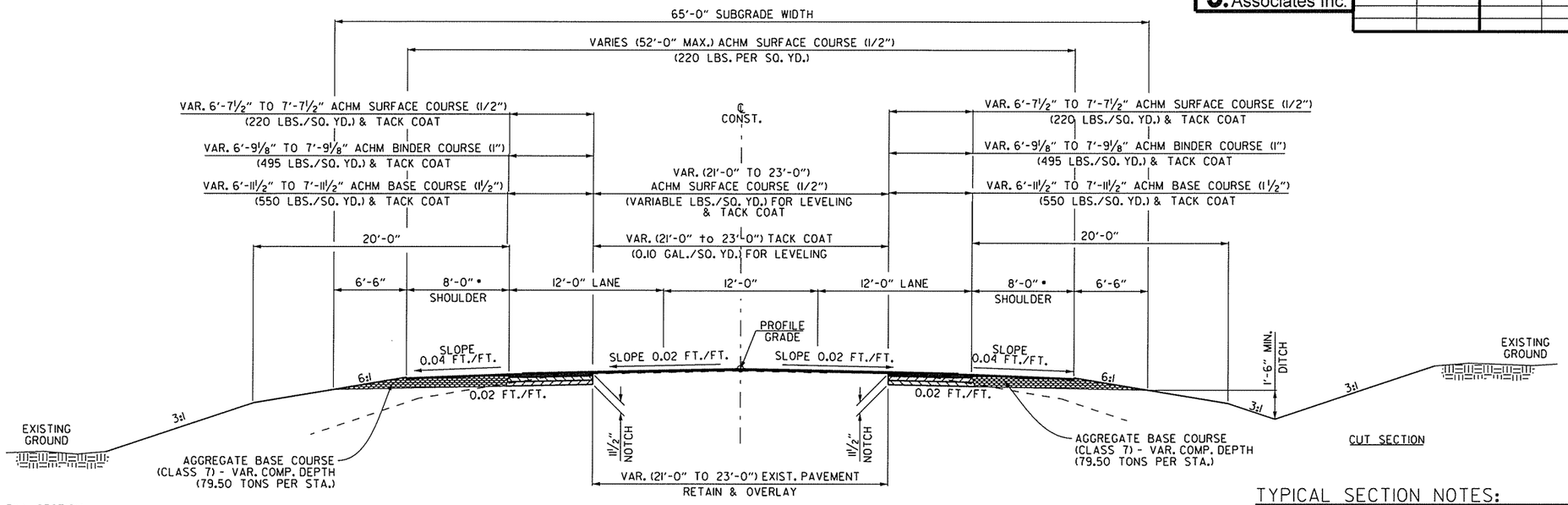
USER: at506
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\misc\BB0902 Index and Govern Spec.dgn
PLOTTED: 10/21/2014 12:53 SCALE: 2:1 MODEL: GOVERNING
G:\12103301_Hwy264\TRANSP\dgn\misc\BB0902 Index and Govern Spec.dgn 10/21/2014 12:53

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	4	184

(2) TYPICAL SECTIONS OF IMPROVEMENT

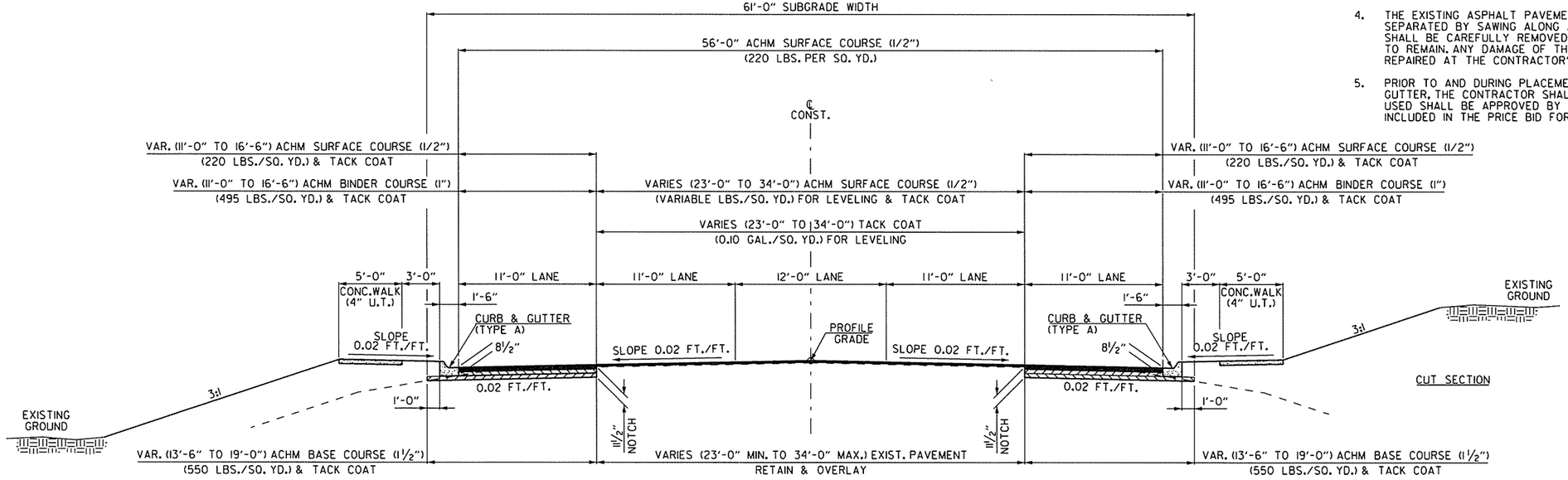
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
15560
10-09-14



#1 TYPICAL SECTION OF IMPROVEMENT
THREE LANES - HWY. 264
NOTCH & WIDENING

STA. 15+55.00 TO STA. 15+76.83 LT.
STA. 15+55.00 TO STA. 15+89.49 RT.

• NOTE:
TRANSITION FROM EXISTING TO TYPICAL SECTION #1
FROM STA. 14+20.00 TO STA. 15+55.00.



#2 TYPICAL SECTION OF IMPROVEMENT
FIVE LANES - HWY. 264
NOTCH & WIDENING

STA. 16+75.00 TO STA. 20+65.00
STA. 24+50.00 TO STA. 28+27.91
STA. 31+64.20 TO STA. 37+00.00

NOTE:
TRANSITION FROM 3-LANES TO TYPICAL SECTION #2
FROM STA. 15+76.83 TO STA. 16+75.00 LT. &
FROM STA. 15+89.49 TO STA. 16+75.00 RT.

NOTE:
TRANSITION FROM TYPICAL SECTION #2 TO TYPICAL SECTION #3
FROM STA. 20+65.00 TO STA. 23+35.00

TYPICAL SECTION NOTES:

1. 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.
2. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
4. 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.
5. 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.

TYPICAL SECTIONS OF IMPROVEMENT

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\typical\BB0902 Typ01.dgn
PLOTTED: 10/9/2014 13:44
SCALE: 20:1
MODEL: TYPICAL SECTIONS OF IMPROVMENT

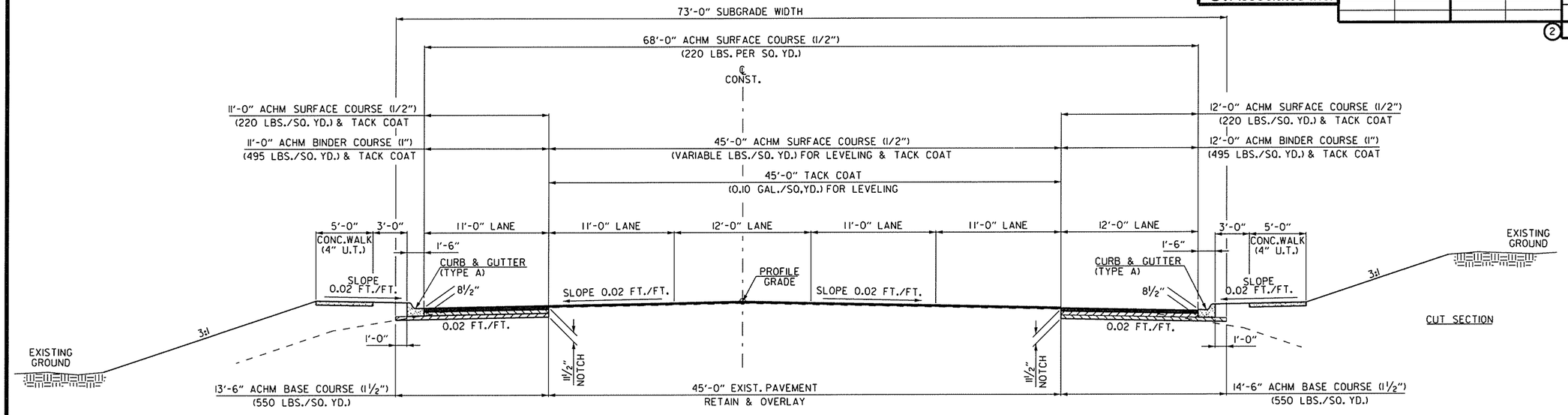
G:\12103301_Hwy264\TRANSP\dgn\typical\BB0902 Typ01.dgn 10/9/2014 13:44

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	5	184

(2) TYPICAL SECTIONS OF IMPROVEMENT

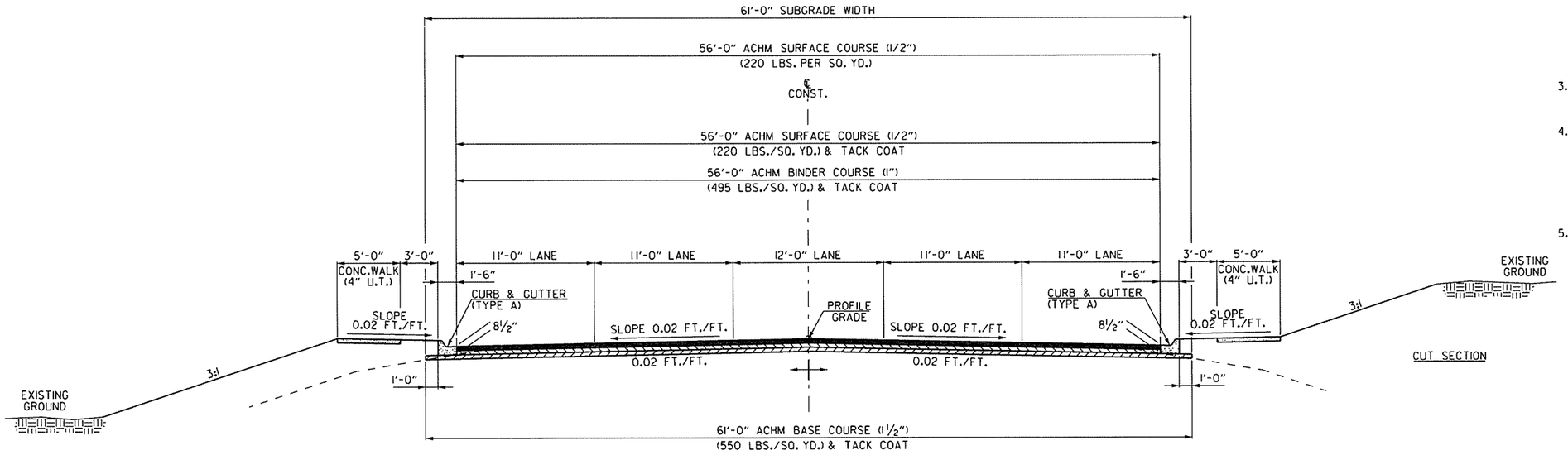
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerome Paul Davis
No. 15560
JEROME PAUL DAVIS
10-09-14



#3 TYPICAL SECTION OF IMPROVEMENT
SIX LANES - HWY. 264
NOTCH & WIDENING

STA. 23+35.00 TO STA. 24+50.00

NOTE:
TRANSITION FROM TYPICAL SECTION #2 TO TYPICAL SECTION #3 FROM STA. 20+65.00 TO STA. 23+35.00



#4 TYPICAL SECTION OF IMPROVEMENT
FIVE LANES - HWY. 264
FULL DEPTH

STA. 28+27.91 TO BRIDGE 05949
BRIDGE 05949 TO STA. 31+64.20

TYPICAL SECTION NOTES:

1. 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.
2. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
4. 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.
5. 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.

TYPICAL SECTIONS OF IMPROVEMENT

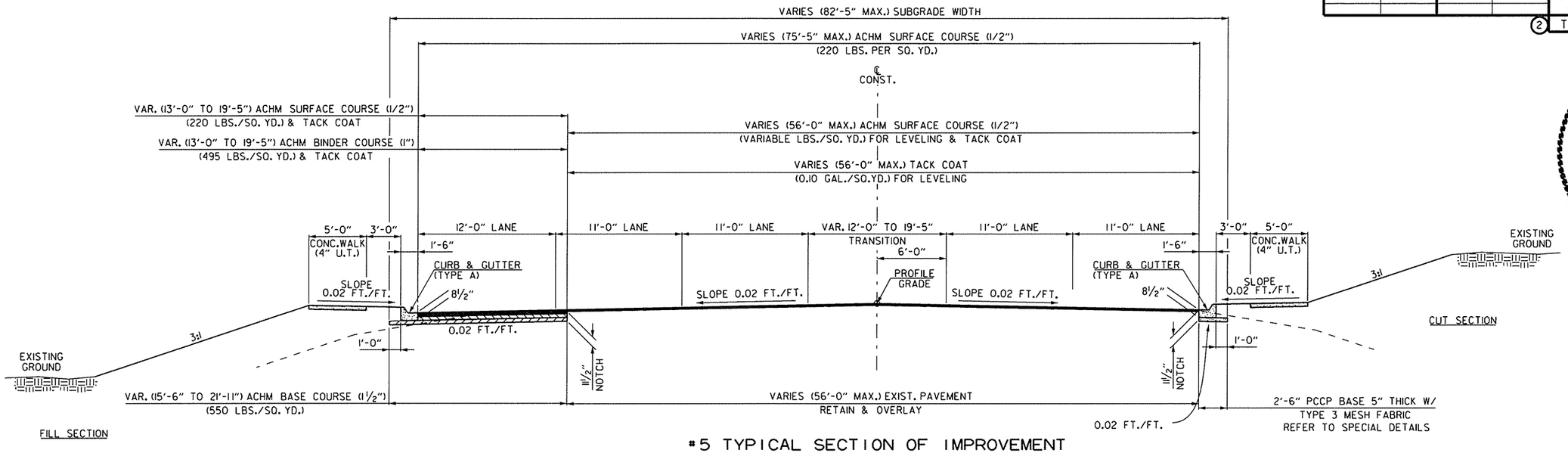
USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\typical\BB0902 Typ02.dgn
PLOTTED: 10/9/2014 13:44
SCALE: 20:1
MODEL: TYPICAL SECTIONS OF IMPROVMENT

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	6	184

(2) TYPICAL SECTIONS OF IMPROVEMENT



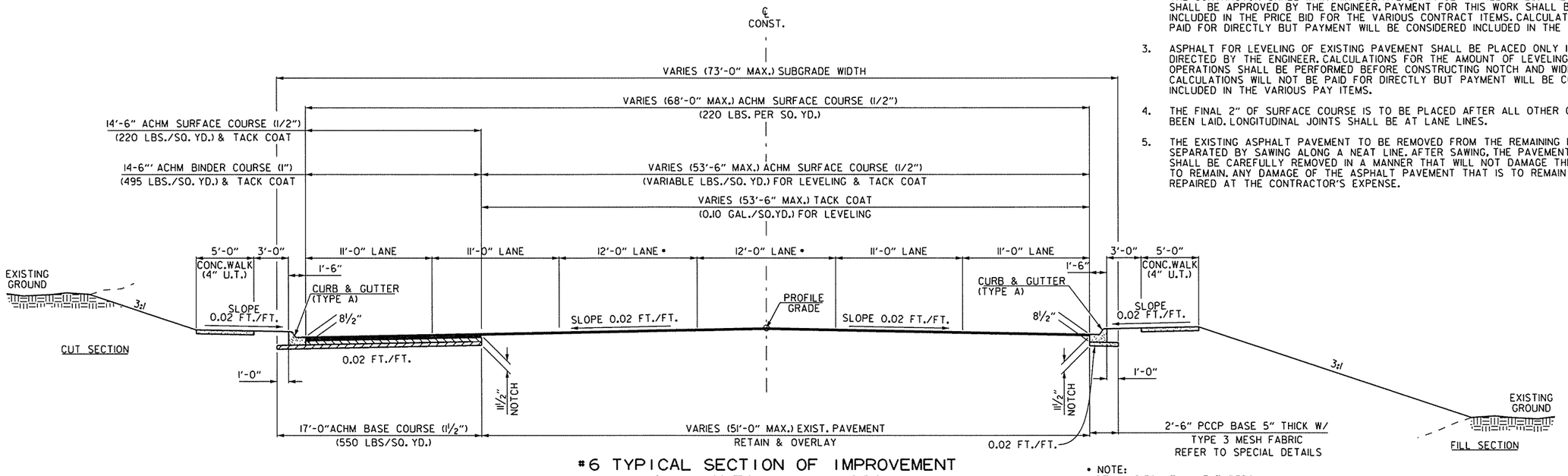
#5 TYPICAL SECTION OF IMPROVEMENT
FIVE LANES - HWY. 264
NOTCH & WIDENING - TRANSITION

STA. 37+00.00 TO STA. 41+05.00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerry Paul Davis
No. 15560
JEROME PAUL DAVIS
10-09-14

TYPICAL SECTION NOTES:

1. 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.
2. PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB AND GUTTER, THE CONTRACTOR SHALL MAINTAIN 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. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
3. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
5. 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.



#6 TYPICAL SECTION OF IMPROVEMENT
SIX LANES - HWY. 264
NOTCH & WIDENING

STA. 41+05.00 TO STA. 46+50.00

• NOTE:
WIDTH VARIES AT LANE TAPERS.
STRIPED TAPER FROM STA. 39+50 TO 42+00.
TRANSITION FROM SECTION #6 TO EXISTING
FROM STA. 46+50.00 TO STA. 49+20.00.
END SIDEWALK LT. & RT. AT STA. 46+60.00.

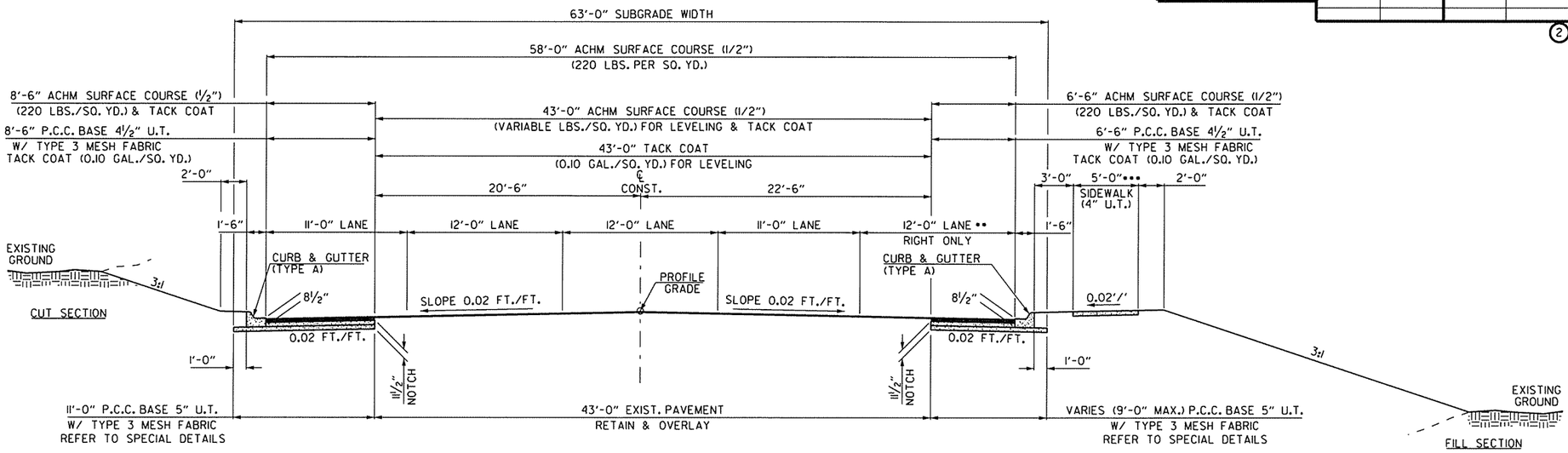
TYPICAL SECTIONS OF IMPROVEMENT

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\typical\BB0902 Typ03.dgn
PLOTTED: 10/9/2014 13:44
SCALE: 20:1
MODEL: TYPICAL SECTIONS OF IMPROVMENT

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	7	184

(2) TYPICAL SECTIONS OF IMPROVEMENT



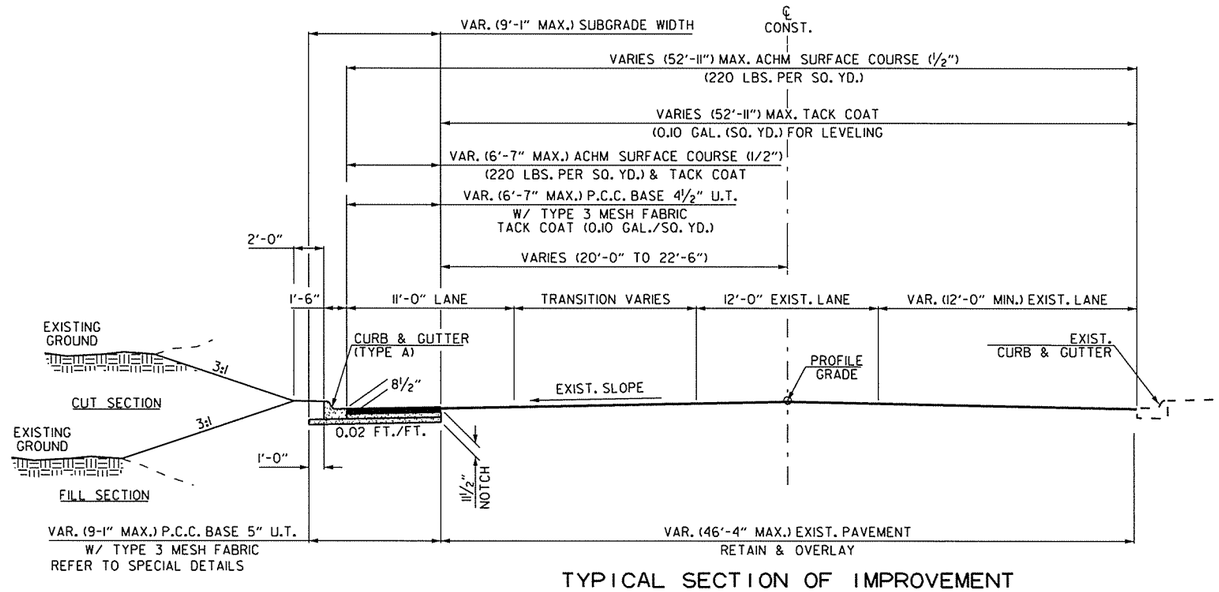
TYPICAL SECTION OF IMPROVEMENT
S. DIXIELAND RD.
NOTCH & WIDENING

STA. 13+90.00 TO STA. 14+71.98

NOTES:
** WIDTH VARIES AT LANE TAPERS. RIGHT TURN LANE TAPER FROM STA. 13+25.18 TO 13+90.
*** 6'-0" SIDEWALK WIDTH AT LOCATIONS WHERE SIDEWALK IS ADJACENT TO BACK OF CURB (STA. 13+25 TO 13+85 ON RT.). SEE SPECIAL DETAILS FOR CONCRETE WALK (TYPE SPECIAL).

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS

10-09-14



TYPICAL SECTION OF IMPROVEMENT
S. DIXIELAND RD.
NOTCH & WIDENING

STA. 12+25.00 TO STA. 13+25.18

TYPICAL SECTION NOTES:

1. 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.
2. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
4. 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.
5. 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.

TYPICAL SECTIONS OF IMPROVEMENT

USER: jd5103
DESIGN FILE: G:\I210330I_Hwy264\TRANSP\dgn\typical\BB0902 Typ04.dgn
PLOTTED: 10/9/2014 13:44
SCALE: 20:1
MODEL: TYPICAL SECTIONS OF IMPROVMENT

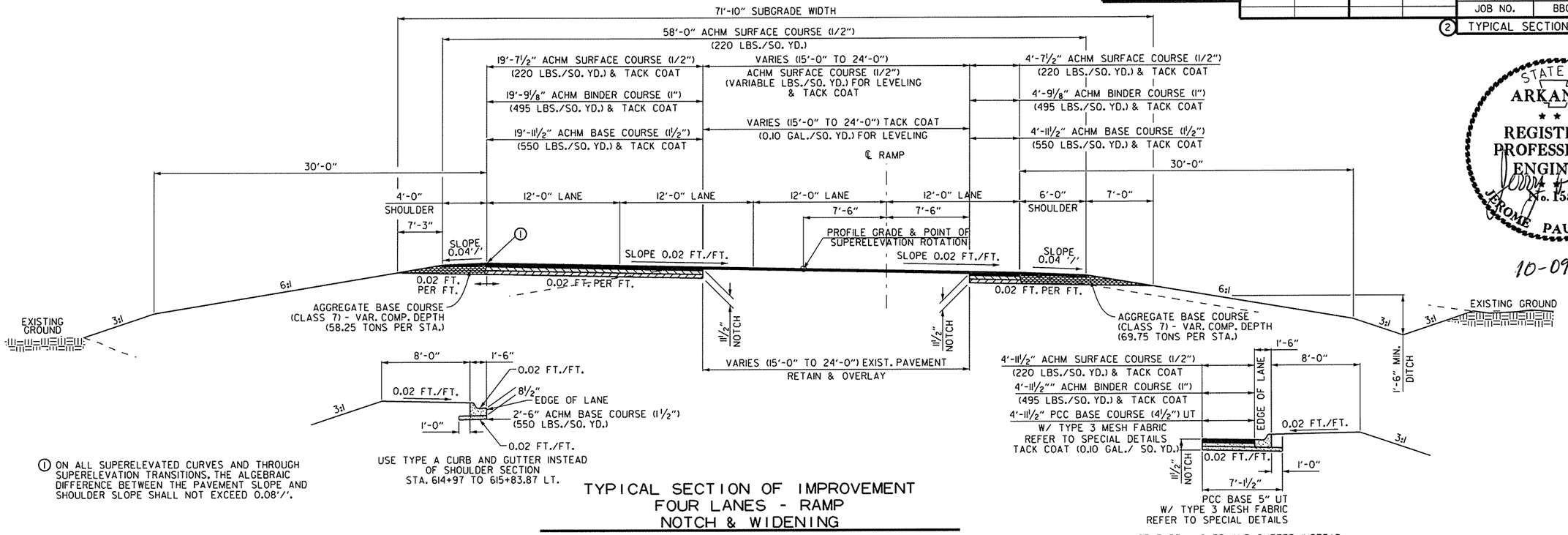
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	8	184

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS

10-09-14

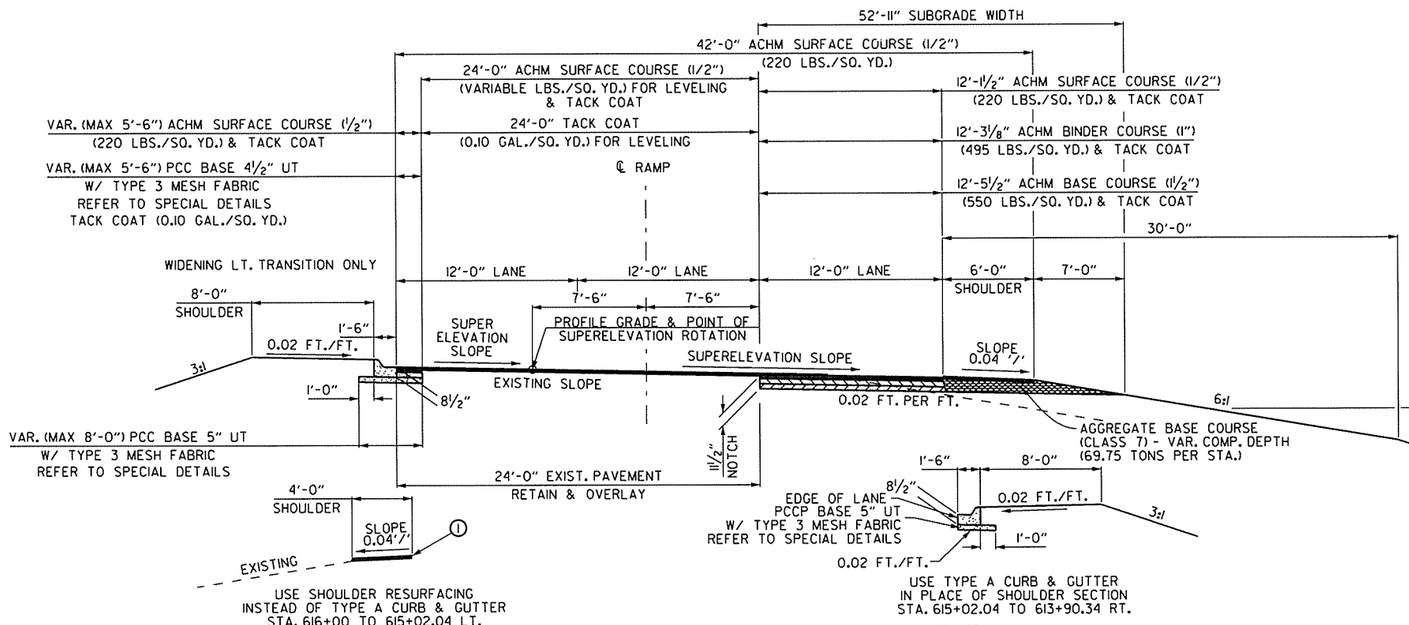


(1) ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN THE PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

NOTE: TRANSITION LEFT SIDE 0'-0" - 19'-6" STA. 608+80 TO 613+76.57
TRANSITION LEFT SIDE 19'-6" - 42'-3" STA. 613+76.57 TO 615+83.47
TRANSITION RIGHT SIDE 0'-0" - 4'-6½" STA. 612+50 TO 613+50
TRANSITION RIGHT SIDE 4'-6½"- 53'-6" STA. 615+09.61 TO 616+03.07

TYPICAL SECTION OF IMPROVEMENT
FOUR LANES - RAMP
NOTCH & WIDENING

(SHOWN IN DIRECTION OF TRAFFIC)
RAMP 1 STA. 608+80 TO STA. 616+03.07



(1) ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN THE PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

NOTE: TRANSITION 0'-0" - 5'-6" - 0'-0" STA. 614+91.61 TO STA. 614+44.29 TO STA. 613+90.30 LT.
TRANSITION 0'-0" - 12'-0" STA. 618+40.00 TO STA. 614+85.38 RT.
TRANSITION 12'-0" - 55'-9½" STA. 614+85.38 TO STA. 613+90.34 RT.

TYPICAL SECTION OF IMPROVEMENT
THREE LANES - RAMP
NOTCH & WIDENING

(SHOWN IN DIRECTION OF TRAFFIC)
RAMP 3 STA. 616+00 TO STA. 614+85.38

TYPICAL SECTIONS OF IMPROVEMENT

TYPICAL SECTION NOTES:

1. 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.
2. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
4. 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.
5. 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.

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\typical\BB0902 Typ05.dgn
PLOTTED: 10/9/2014 13:44
SCALE: 20:1
MODEL: TYPICAL SECTIONS OF IMPROVMENT

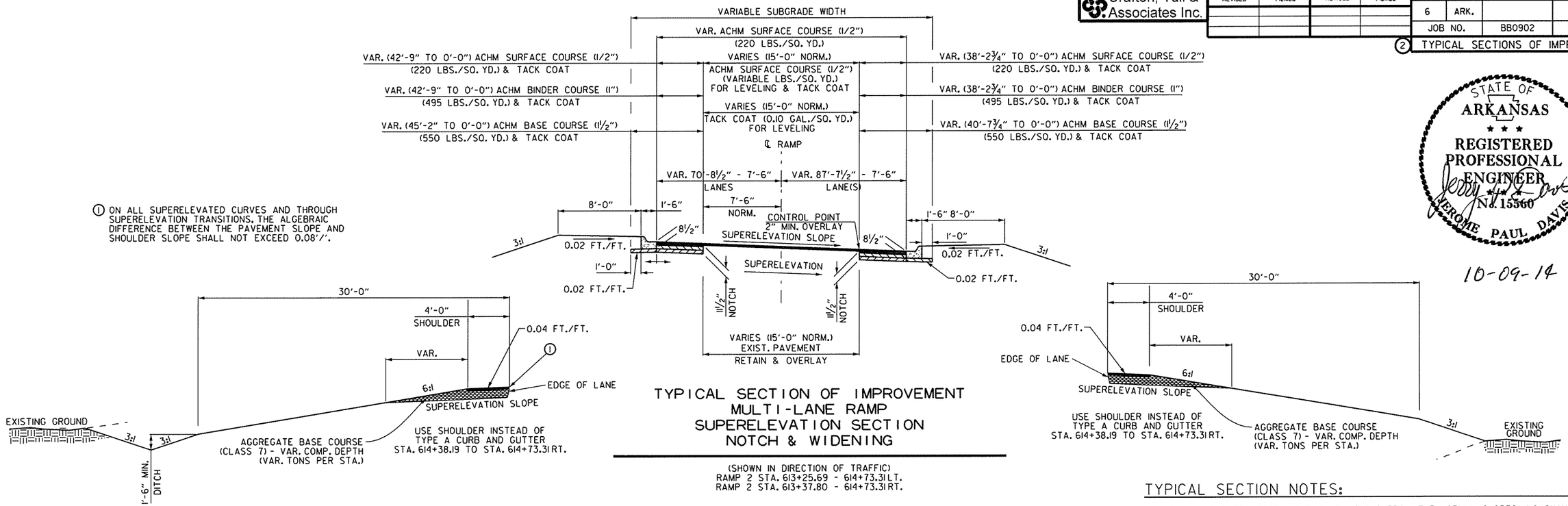
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	9	184

(2) TYPICAL SECTIONS OF IMPROVEMENT

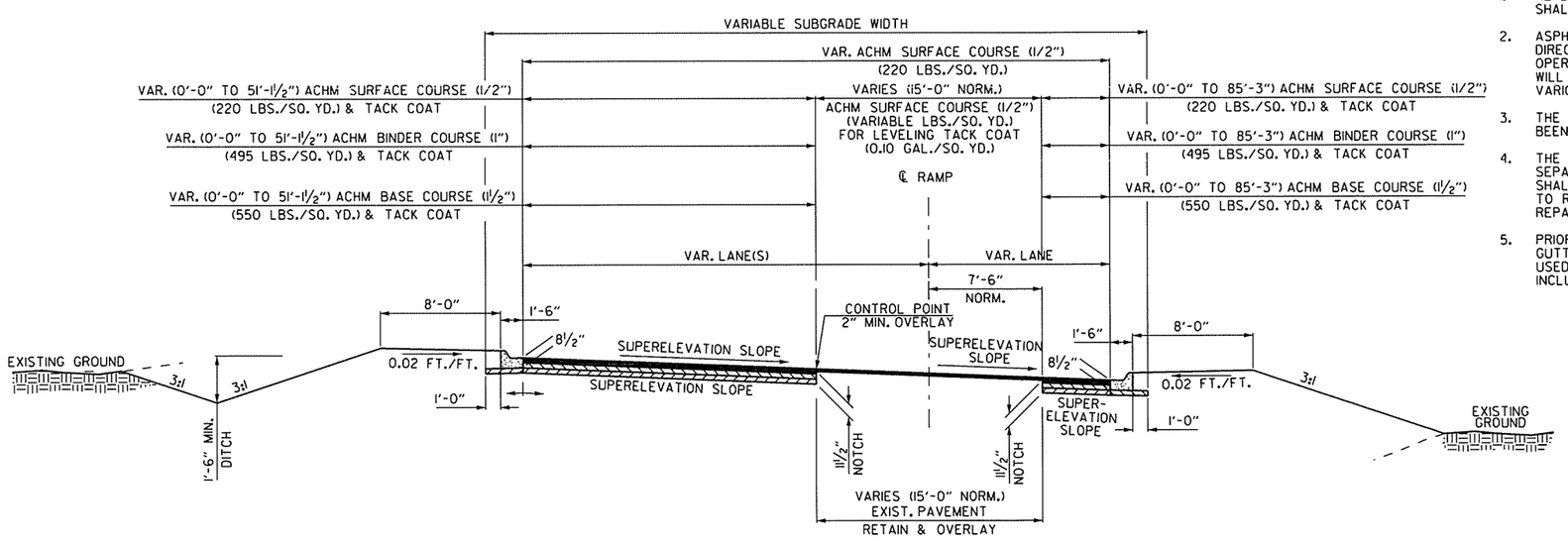
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14

(1) ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN THE PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.



TYPICAL SECTION OF IMPROVEMENT
MULTI-LANE RAMP
SUPERELEVATION SECTION
NOTCH & WIDENING

(SHOWN IN DIRECTION OF TRAFFIC)
RAMP 2 STA. 613+25.69 - 614+73.31 LT.
RAMP 2 STA. 613+37.80 - 614+73.31 RT.



TYPICAL SECTION OF IMPROVEMENT
MULTI-LANE RAMP
SUPERELEVATION SECTION
NOTCH & WIDENING

(SHOWN IN DIRECTION OF TRAFFIC)
RAMP 4 615+20.44 - 614+09.58 LT.
RAMP 4 615+08.01 - 614+09.58 RT.

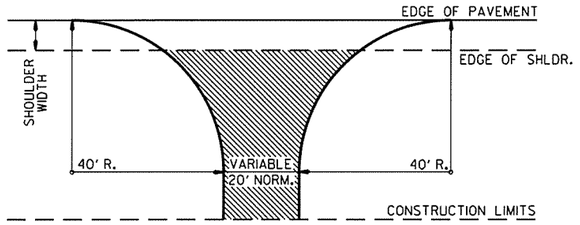
NOTE: TRANSITION RIGHT SIDE 85'-3" - 0'-0" STA. 615+08.01 TO 615+08.01
TRANSITION LEFT SIDE 70'-8 1/2" - 0'-0" STA. 615+20.44 TO 614+09.58

TYPICAL SECTION NOTES:

1. 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.
2. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
4. 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.
5. 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.

TYPICAL SECTIONS OF IMPROVEMENT

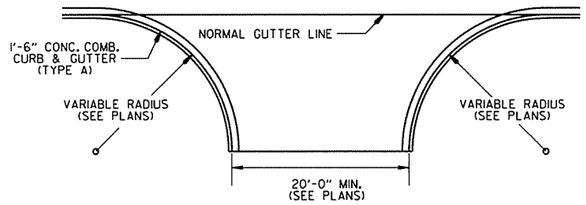
USER: jd5103
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\typical\BB0902 Typ06.dgn
PLOTTED: 10/9/2014 13:44
SCALE: 20:1
MODEL: TYPICAL SECTIONS OF IMPROVMENT



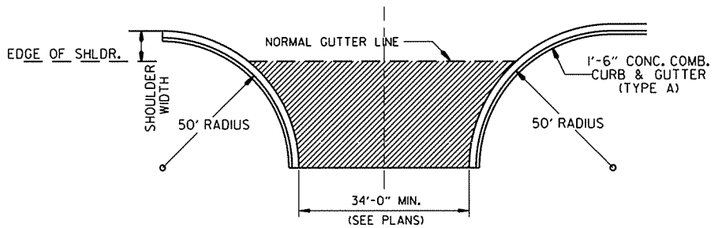
ASPHALT CONCRETE HOT MIX SURFACE COURSE(1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP.DEPTH

NOTE:
REFER TO PLAN SHEETS FOR WIDTHS OF COUNTY ROADS.

DETAIL FOR COUNTY ROAD TURNOUTS

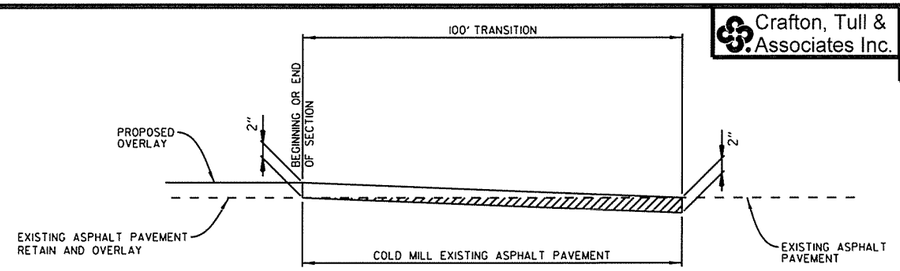


DETAIL FOR COUNTY ROAD TURNOUTS
WITH CURB & GUTTER

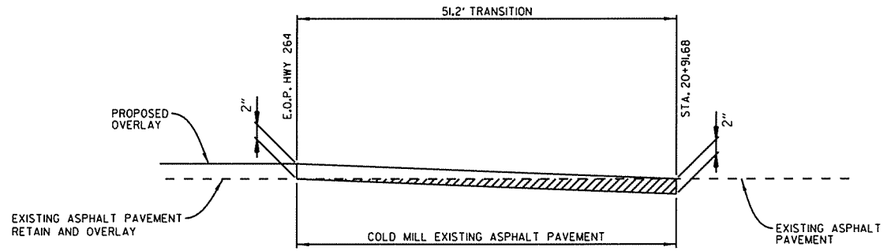


ASPHALT CONCRETE HOT MIX SURFACE COURSE(1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP.DEPTH

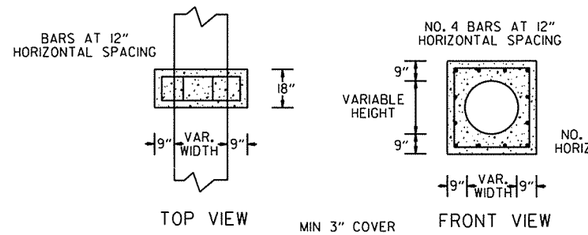
DETAIL FOR GOAD SPRINGS ROAD TURNOUTS
WITH CURB & GUTTER



MILL & OVERLAY TRANSITION DETAIL

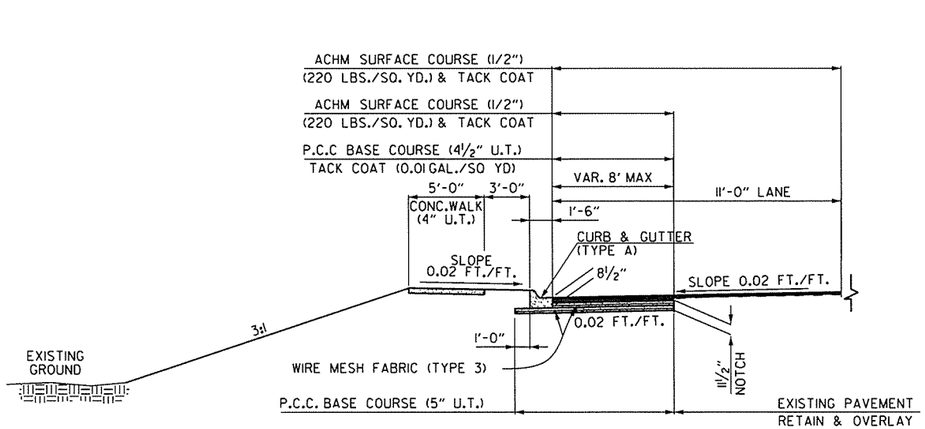


MILL & TRANSITION OVERLAY FOR N. DIXIELAND RD.



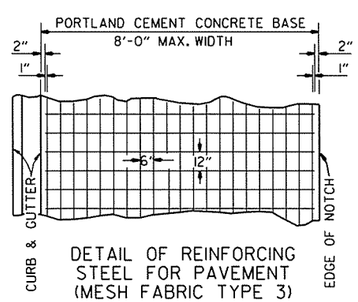
TOP VIEW FRONT VIEW SIDE VIEW

PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL



FILL SECTION

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

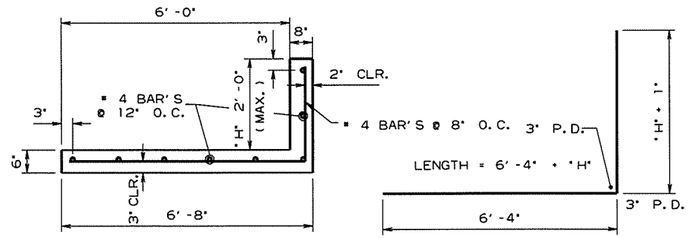


DETAIL OF REINFORCING STEEL FOR PAVEMENT (MESH FABRIC TYPE 3)

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

NOTES:

1. LAP MESH FABRIC MIN. 12" LONGITUDINALLY AND MIN. 6" TRANSVERSELY.
2. MESH FABRIC IS NOT REQUIRED WHEN WIDTH OF PORTLAND CEMENT CONCRETE BASE IS LESS THAN 12".
3. MESH FABRIC (TYPE 3) WILL NOT BE PAID FOR DIRECTLY, BUT FULL COMPENSATION THEREFORE WILL BE CONSIDERED INCLUDED IN THE CONTRACT PRICE BID PER SQ. YD. FOR PORTLAND CEMENT CONCRETE BASE (4.5" U.T.) AND PORTLAND CEMENT CONCRETE BASE (5" U.T.)



CONCRETE WALK (TYPE SPECIAL) DETAILS
MAX HEIGHT 2'-0"

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	10	184

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
Jerry P. Davis
10-9014

SPECIAL DETAILS

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\special_details\BB0902 SpecialDetails.dgn
PLOTTED: 10/9/2014 13:44
SCALE: 20:1
MODEL: SPECIAL DETAILS

G:\12103301_Hwy264\TRANSP\dgn\special_details\BB0902 SpecialDetails.dgn 10/9/2014 13:44

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	11	184

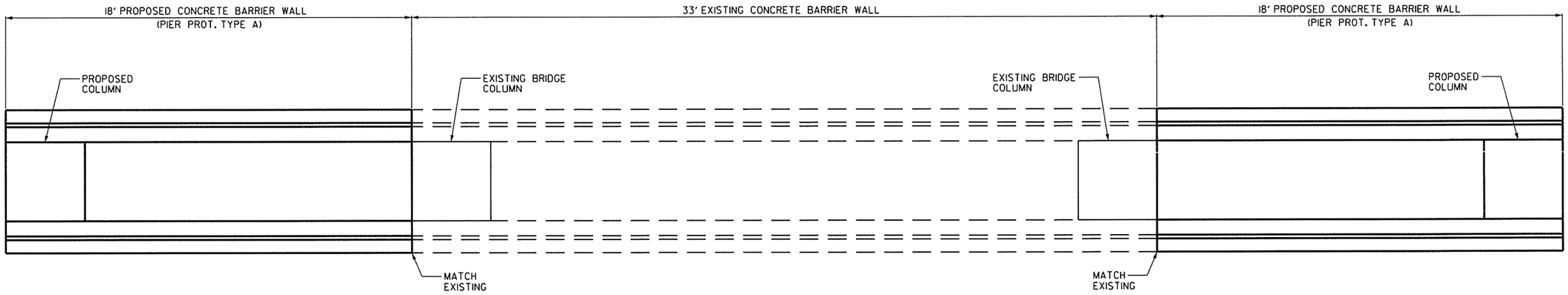
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS

10-09-14

GENERAL NOTES FOR CONCRETE BARRIER WALLS

1. ALL BARRIER WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 631 OF THE STANDARD SPECIFICATIONS, 2014 EDITION.
2. SEE RDWY. STD. DWG. GR-11 FOR DETAILS.



CONCRETE BARRIER WALL LAYOUT

SPECIAL DETAILS

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\special_details\BB0902 SpecialBarrier.dgn
PLOTTED: 10/9/2014 13:44 SCALE: 20:1 MODEL: SPECIAL DETAILS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	12	184

TEMPORARY EROSION CONTROL DETAILS

DATE	REVISION

TEMPORARY EROSION CONTROL DETAILS - STAGE 1

LEGEND

- E-5 • SAND BAG DITCH CHECK
- E-6 • ROCK DITCH CHECK
- E-7 • INLET BARRIER SILT FENCE
- • GENERAL SITE FLOW DIRECTION INDICATOR
- E-4 E-11 • SILT FENCE

50 25 0 25 50 100

GOAD SPRINGS RD.

HWY. 264

RAMP 3

RAMP 4

RAMP 2

RAMP 1

I-49

N. 6TH PL.

S. 6TH PL.

P.C. 615+38.30

P.T. 613+78.98

P.C. 614+17.02

P.T. 614+93.30

P.C. 613+03.78

P.I. 614+19.30 CONCRETE

P.I. 18+45.27 Δ=00°04'09.2" LT

P.I. 20+50.00 Δ=00°06'38.1" RT

P.I. 28+00.00 Δ=00°06'30.0" RT

P.I. 32+00.00 Δ=00°06'30.0" RT

P.I. 40+82.00 Δ=00°03'28.8" LT

PROP. T.C.E.

BEG C/A

END C/A

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
No. 15560
10-09-14

TEMPORARY EROSION CONTROL DETAILS - STAGE 1

USER: jd5103
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\erosion\BB0902 Eros Ctl.dgn
PLOTTED: 10/9/2014 13:45
SCALE: 100:1
MODEL: EROS CTL STAGE 1SHEETS

Crafton, Tull & Associates Inc.

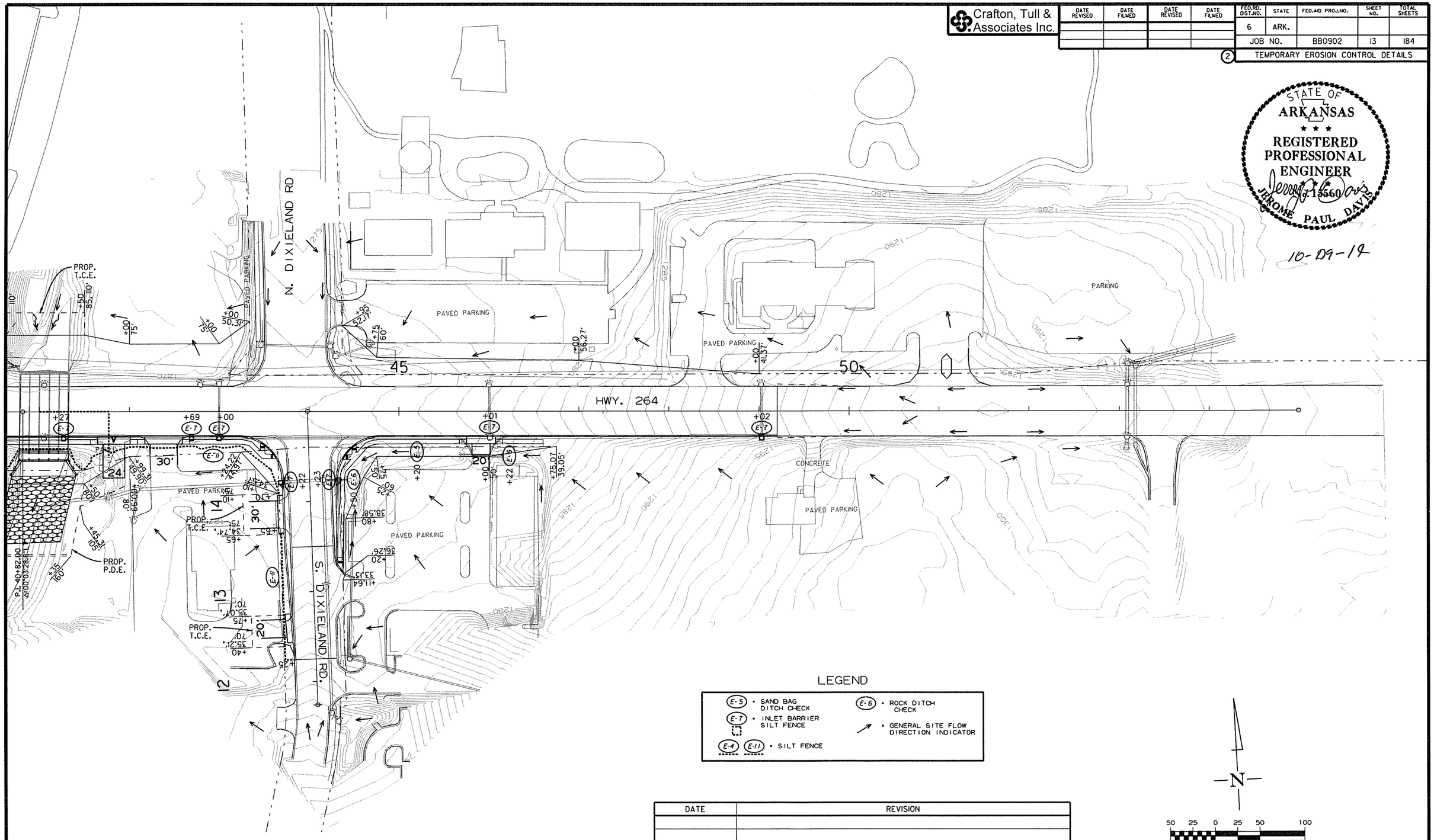
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	13	184

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13560
JEROME PAUL DAVIS

10-09-14



LEGEND

E-5 • SAND BAG DITCH CHECK	E-6 • ROCK DITCH CHECK
E-7 • INLET BARRIER SILT FENCE	• GENERAL SITE FLOW DIRECTION INDICATOR
E-4 E-11 • SILT FENCE	

DATE	REVISION

N

50 25 0 25 50 100

TEMPORARY EROSION CONTROL DETAILS - STAGE 1

USER: jd5103
DESIGN FILE: G:\2103301_Hwy264\TRANSP\dgn\erosion\BB0902 Eros Ctl.dgn
PLOTTED: 10/9/2014 13:45
SCALE: 100:1
MODEL: EROS CTL STAGE 1SHEETS

G:\2103301_Hwy264\TRANSP\dgn\erosion\BB0902 Eros Ctl.dgn 10/9/2014 13:45

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	14	184

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
15560
10-09-14

DATE	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-7) = INLET BARRIER SILT FENCE
- = GENERAL SITE FLOW DIRECTION INDICATOR
- (E-4) (E-11) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS - STAGE 1

TEMPORARY EROSION CONTROL DETAILS - STAGE 1

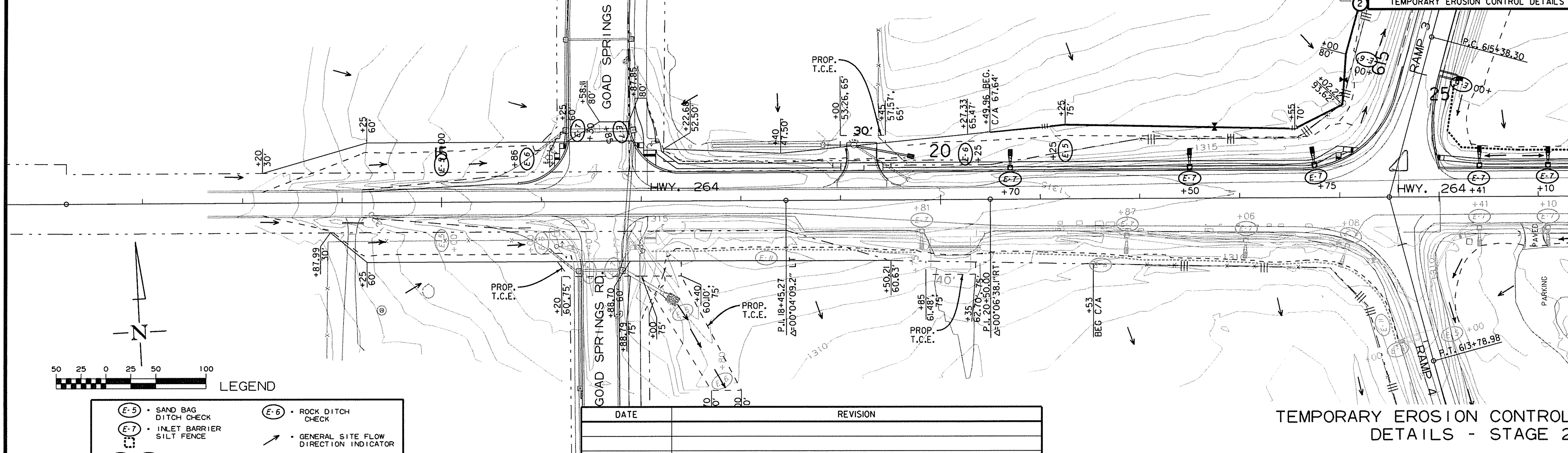
USER: jdsl03
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\erosion\BB0902 Eros Ctl.dgn
PLOTTED: 10/9/2014 13:45
SCALE: 100:1
MODEL: EROS CTL STAGE 1SHEETS

G:\12103301_Hwy264\TRANSP\dgn\erosion\BB0902 Eros Ctl.dgn 10/9/2014 13:45

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	15	184

TEMPORARY EROSION CONTROL DETAILS

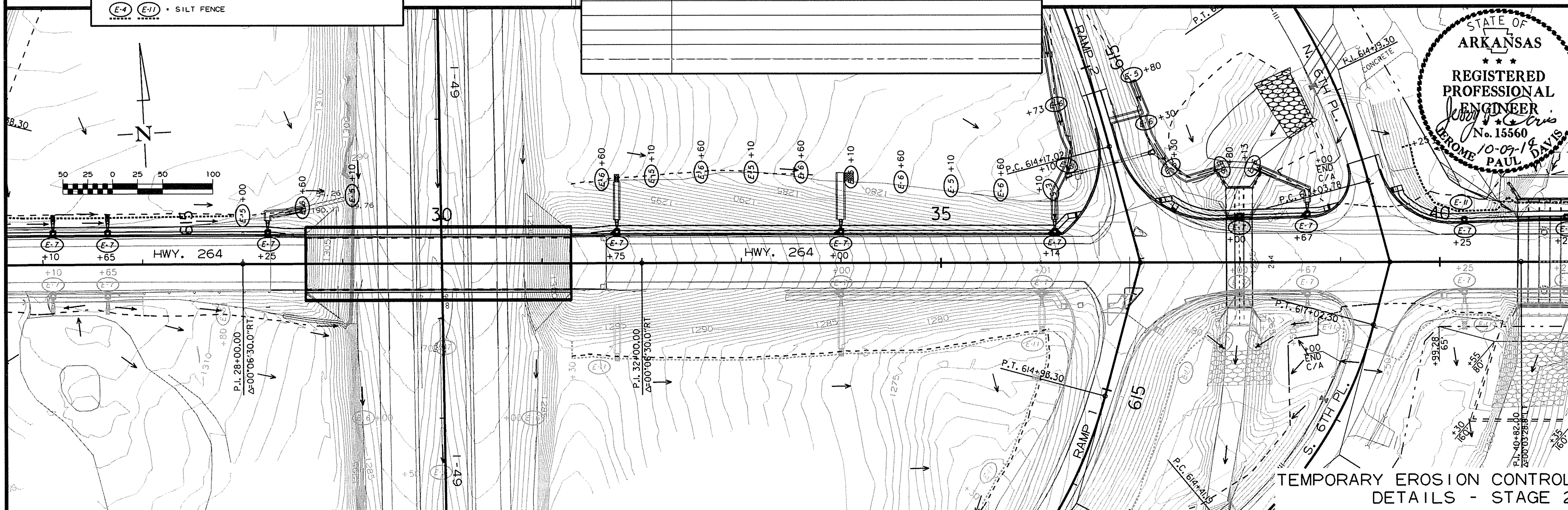


LEGEND

- (E-5) - SAND BAG DITCH CHECK
- (E-6) - ROCK DITCH CHECK
- (E-7) - INLET BARRIER SILT FENCE
- GENERAL SITE FLOW DIRECTION INDICATOR
- (E-4) (E-11) - SILT FENCE

DATE	REVISION

TEMPORARY EROSION CONTROL DETAILS - STAGE 2



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14

TEMPORARY EROSION CONTROL DETAILS - STAGE 2

USER: jd5103 DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\erosion\BB0902 Eros Ctl.dgn PLOTTED: 10/9/2014 13:45 MODEL: EROS CTL STAGE 2 SHEETS SCALE: 100:1

G:\12103301_Hwy264\TRANSP\dgn\erosion\BB0902 Eros Ctl.dgn 10/9/2014 13:45

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	16	184

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS

10-09-14

N. DIXIELAND RD

S. DIXIELAND RD.

HWY. 264

PAVED PARKING

PROP. T.C.E.

PROP. P.D.E.

P.I. 40+82.00
Δ=00°03'28" LT

CONCRETE

LEGEND

- E-5 • SAND BAG DITCH CHECK
- E-6 • ROCK DITCH CHECK
- E-7 • INLET BARRIER SILT FENCE
- GENERAL SITE FLOW DIRECTION INDICATOR
- E-4 E-11 • SILT FENCE

DATE	REVISION

N

50 25 0 25 50 100

TEMPORARY EROSION CONTROL DETAILS - STAGE 2

USER: jd503
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\erosion\BB0902 Eros Ctl.dgn
PLOTTED: 10/9/2014 13:45
SCALE: 100
MODEL: EROS CTL STAGE 2 SHEETS

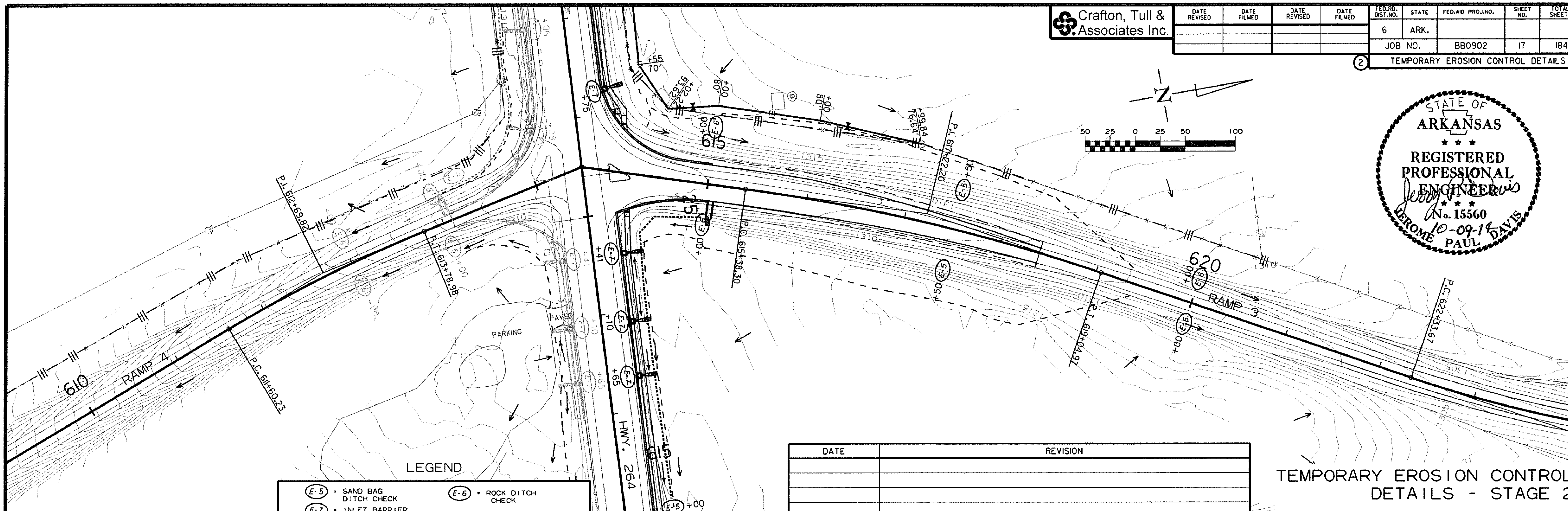
G:\12103301_Hwy264\TRANSP\dgn\erosion\BB0902 Eros Ctl.dgn 10/9/2014 13:45

Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	17	184

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14

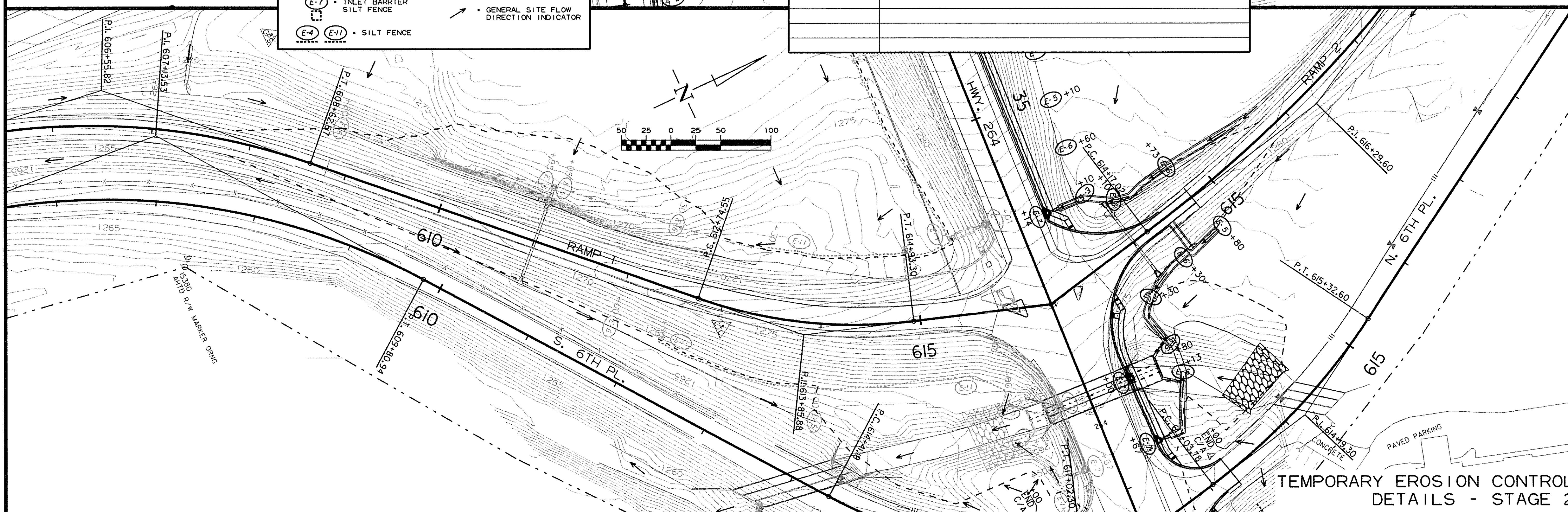


TEMPORARY EROSION CONTROL DETAILS - STAGE 2

LEGEND

(E-5) • SAND BAG DITCH CHECK	(E-6) • ROCK DITCH CHECK
(E-7) • INLET BARRIER SILT FENCE	↗ • GENERAL SITE FLOW DIRECTION INDICATOR
(E-4) (E-11) • SILT FENCE	

DATE	REVISION



TEMPORARY EROSION CONTROL DETAILS - STAGE 2

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\erosion\BB0902 Eros Ctl.dgn
MODEL: EROS CTL STAGE 2 SHEETS
PLOTTED: 10/9/2014 13:45
SCALE: 100:1

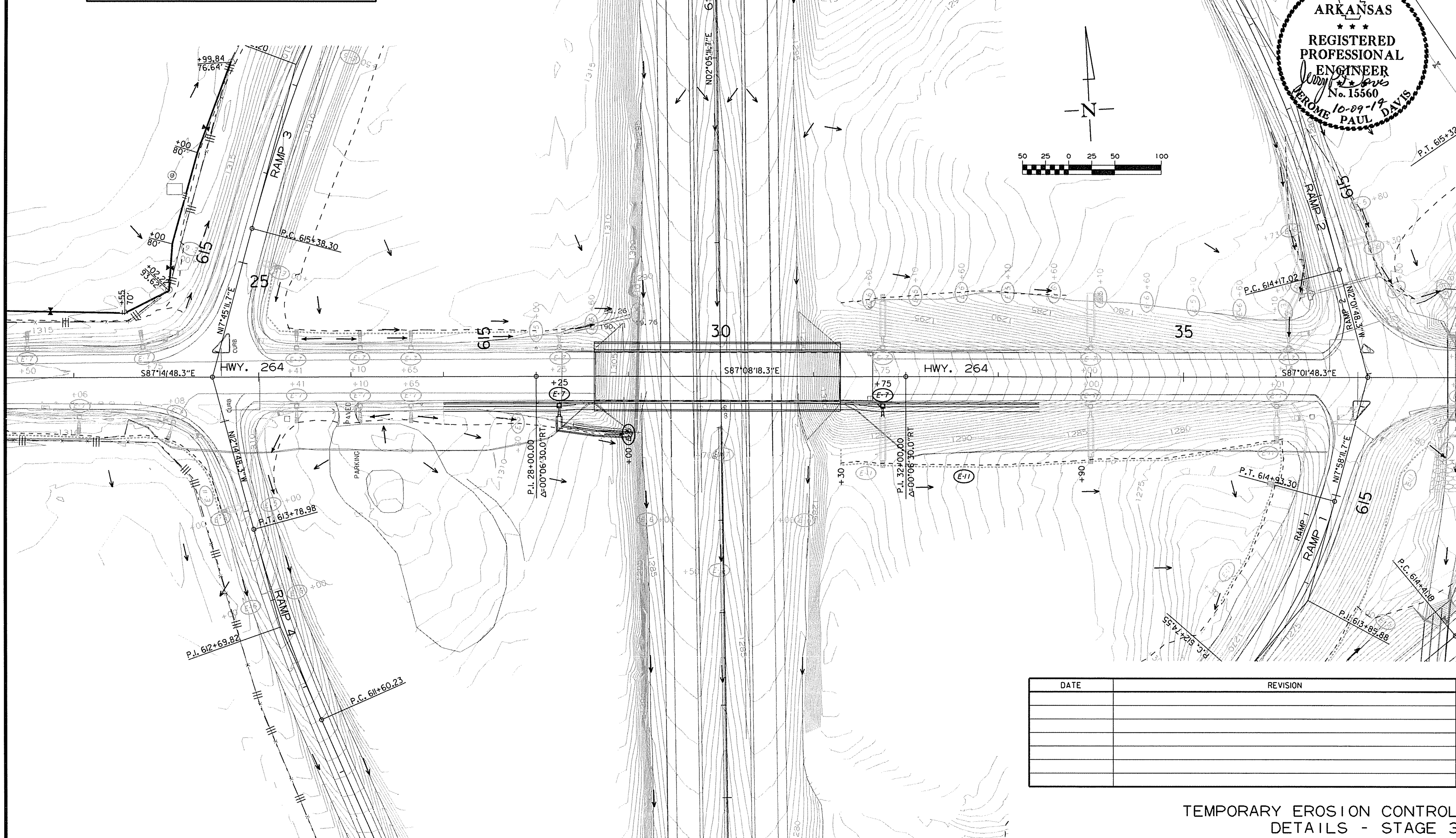
Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		BB0902	18	184

② TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-5) • SAND BAG DITCH CHECK
- (E-6) • ROCK DITCH CHECK
- (E-7) • INLET BARRIER SILT FENCE
- ↗ • GENERAL SITE FLOW DIRECTION INDICATOR
- (E-4) (E-11) • SILT FENCE

STATE OF ARKANSAS ★ ★ ★ REGISTERED PROFESSIONAL ENGINEER No. 15560 JEROME PAUL DAVIS 10-09-12



DATE	REVISION

TEMPORARY EROSION CONTROL DETAILS - STAGE 3

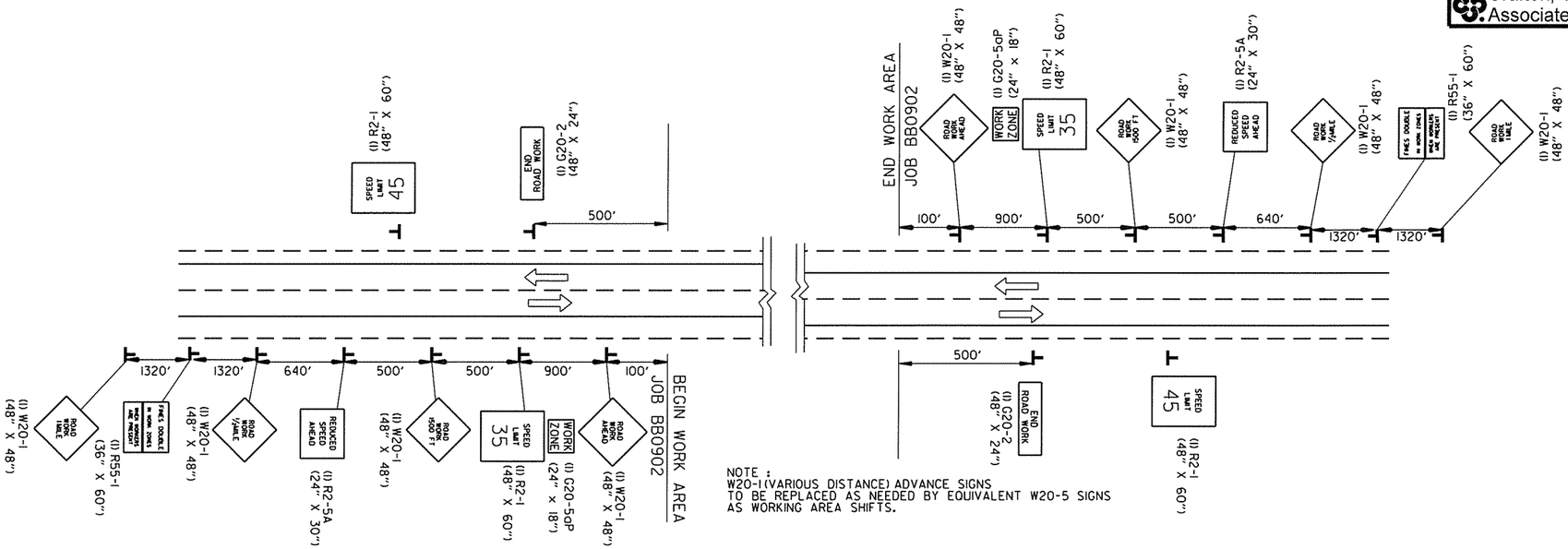
USER: jd5103 DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\erosion\BB0902 Eros Ctl.dgn MODEL: EROS CTL STAGE 3 SHEETS PLOTTED: 10/9/2014 13:45 SCALE: 100I

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	BB0902		19	184

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14



NOTE :
W20-1(VARIOUS DISTANCE) ADVANCE SIGNS TO BE REPLACED AS NEEDED BY EQUIVALENT W20-5 SIGNS AS WORKING AREA SHIFTS.

ADVANCE SIGNS AT BEGINNING AND END OF JOB ALL STAGES

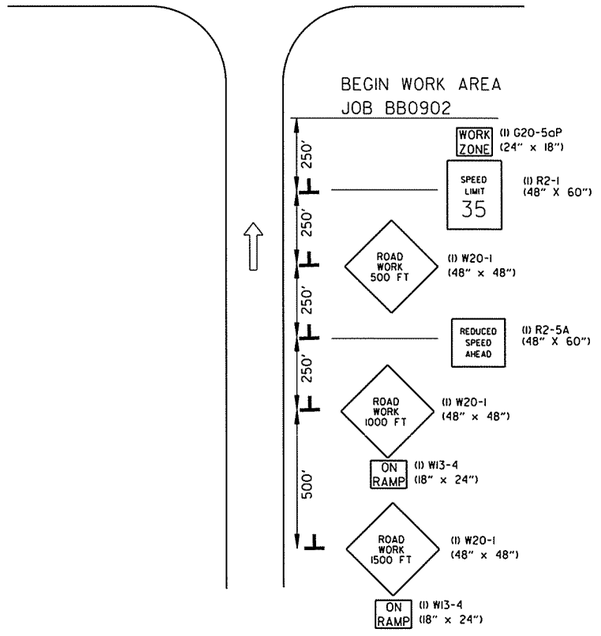
STAGE 1: NOTCH AND WIDEN HWY. 264 RT. INSTALL DROP INLETS ON HWY. 264 RT. EXTEND EXISTING CULVERTS ON HWY. 264 STATIONS 38+00 AND 41+06 RT. NOTCH AND WIDEN RAMP 1 AND RAMP 4. WIDEN BRIDGE NO. 05949 RT. WIDEN CONNECTING STREETS TO HWY. 264 RT. WIDENING WILL NOT INCLUDE FINAL LIFT OF ASPHALT IN STAGE 1.

STAGE 2: NOTCH AND WIDEN HWY. 264 LT. INSTALL DROP INLETS ON HWY. 264 LT. EXTEND EXISTING CULVERTS ON HWY. 264 STATIONS 38+00 AND 41+06 LT. NOTCH AND WIDEN RAMP 2 AND RAMP 3. WIDEN BRIDGE NO. 05949 LT. WIDEN CONNECTING STREETS TO HWY. 264 LT. WIDENING WILL NOT INCLUDE FINAL LIFT OF ASPHALT IN STAGE 2.

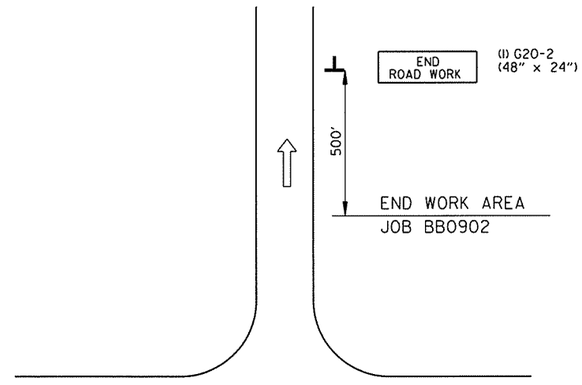
STAGE 3: CONSTRUCT CURB & GUTTER SIDEWALK AT BRIDGE ENDS AND ON BRIDGE RT. SIDE HWY. 264.

STAGE 4: OPEN & OPERATIONAL INCLUDING FINAL 2" ACHM SURFACE COURSE, STRIPING, CLEANUP, AND OPENING COMPLETED ROADWAY TO FULL TWO-WAY TRAFFIC UTILIZING ALL LANES.

ALL STAGES: REFER TO TRAFFIC SIGNAL PLANS FOR SIGNAL STAGING.



ADVANCE SIGNS AT EXIT RAMPS ALL STAGES



ADVANCE SIGNS AT ENTRANCE RAMPS ALL STAGES

MAINTENANCE OF TRAFFIC ADVANCE SIGNS AT JOB ENDS

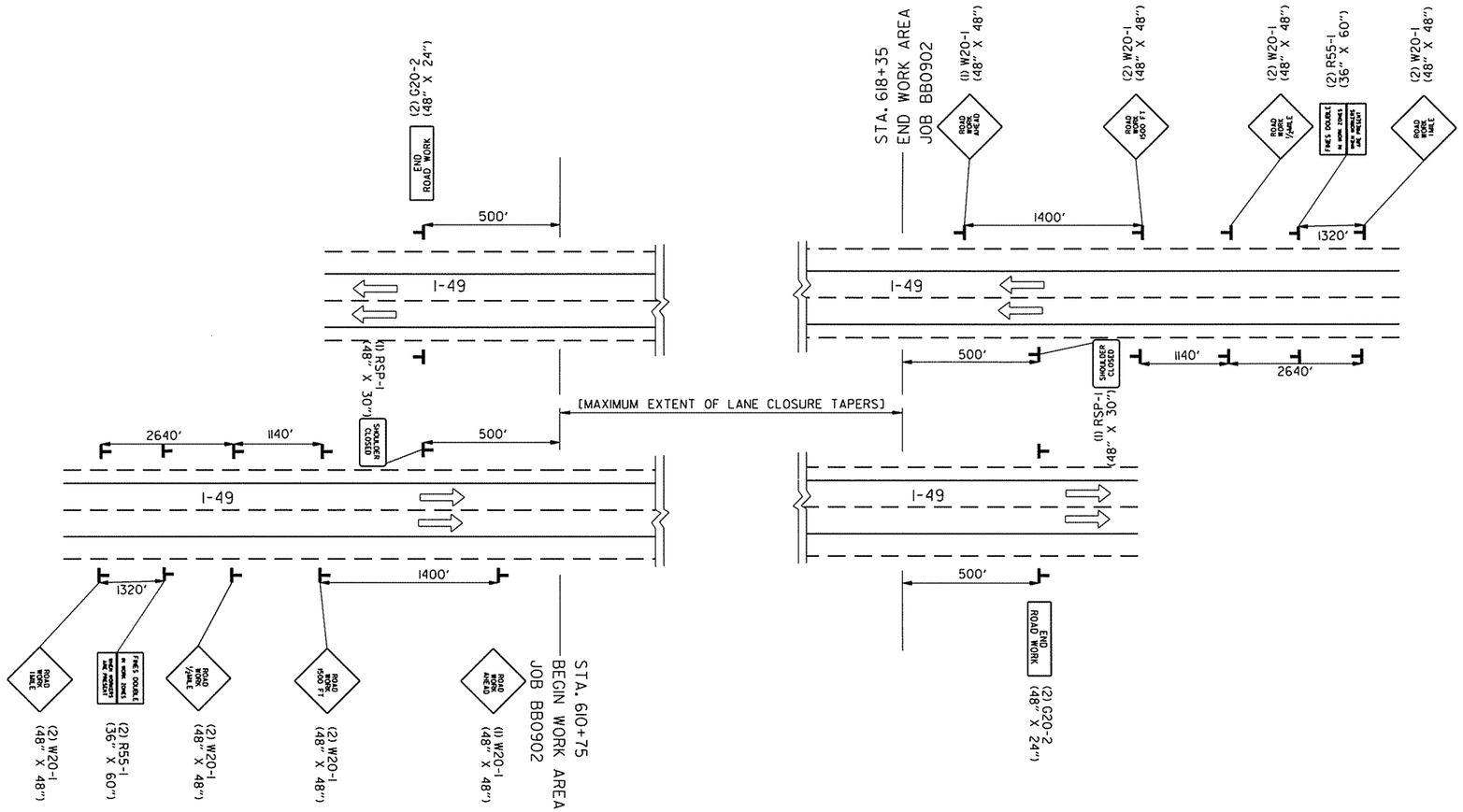
USER: jd5103
DESIGN FILE: G:\2103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn
PLOTTED: 10/9/2014 13:45
SCALE: 100:1
MODEL: MOT STAGE 1SHEETS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	20	184

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerry P. Davis
No. 15560
10-09-14
JEROME PAUL DAVIS



MAINTENANCE OF TRAFFIC
ADVANCE SIGNS ON I-49 AT BRIDGE
STAGES 1, 2 & 3

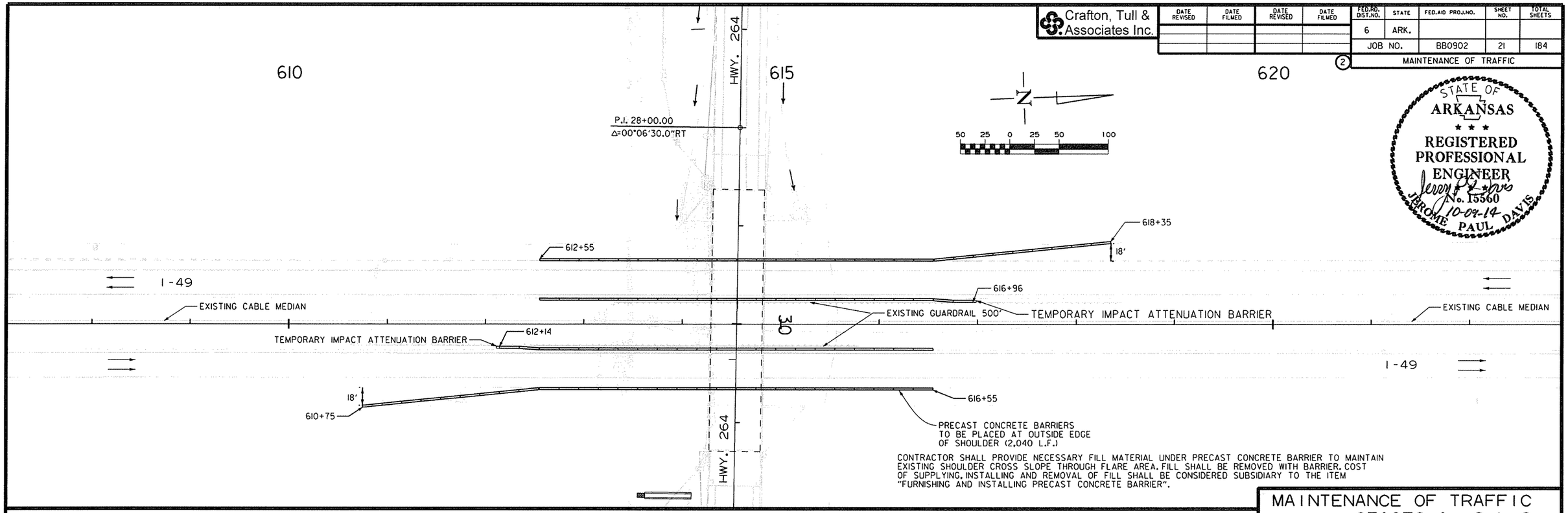
USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn
PLOTTED: 10/9/2014 13:46 SCALE: 1:001 MODEL: MOT STAGE 1SHEETS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	21	184

(2) MAINTENANCE OF TRAFFIC



CONTRACTOR SHALL PROVIDE NECESSARY FILL MATERIAL UNDER PRECAST CONCRETE BARRIER TO MAINTAIN EXISTING SHOULDER CROSS SLOPE THROUGH FLARE AREA. FILL SHALL BE REMOVED WITH BARRIER. COST OF SUPPLYING, INSTALLING AND REMOVAL OF FILL SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM "FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER".

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerry D. Jones
No. 15360
10-09-14
JEROME PAUL DAVIS

MAINTENANCE OF TRAFFIC STAGES 1, 2 & 3

REQUIRED ROADWAY SIGNS:

ROAD WORK XXXX

SHOULDER CLOSED

END ROAD WORK

1. PLACE "ROAD WORK 1 MILE", "ROAD WORK ½ MILE", "ROAD WORK 1500 FEET", "ROAD WORK 1000 FEET", AND "ROAD WORK 500 FEET" SIGNS AT RESPECTIVE DISTANCES FROM BEGINNING OF PRECAST CONCRETE BARRIERS ON BOTH NORTH AND SOUTH APPROACHES TO THE PROJECT. SIGNS SHALL BE INSTALLED ADJACENT TO THE EXISTING EDGE OF ASPHALT.
2. PLACE "SHOULDER CLOSED" SIGNS OFF BOTH SHOULDERS 500' FROM BEGINNING OF PRECAST CONCRETE BARRIERS BOTH NORTH AND SOUTH.
3. PLACE "END ROAD WORK" SIGN 500 FEET FROM END OF PRECAST CONCRETE BARRIERS.

GENERAL NOTES:

1. ALL CONSTRUCTION ACTIVITY MUST BE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO FOLLOW THE MAINTENANCE OF TRAFFIC PLANS AND MINIMIZE DISTURBANCE TO THE PUBLIC DUE TO CONSTRUCTION ACTIVITIES.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY TEMPORARY STRIPING TO MAINTAIN TRAFFIC AS SHOWN ON THE PLANS.

CONSTRUCTION SEQUENCE NOTES:

STAGE 1, 2 & 3: MAINTAIN PRECAST CONCRETE BARRIERS THROUGH DURATION OF PROJECT. LANE CLOSURE OF THE I-49 MAIN LANES WILL NOT BE PERMITTED EXCEPT IN OFF-PEAK TRAFFIC TIMES AS SPECIFIED IN THE SPECIAL PROVISIONS.

MAINTENANCE OF TRAFFIC

USER: jd5103
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn
PLOTTED: 10/9/2014 13:46
SCALE: 1001
MODEL: MOT STAGE 1SHEETS

Crafton, Tull & Associates Inc.

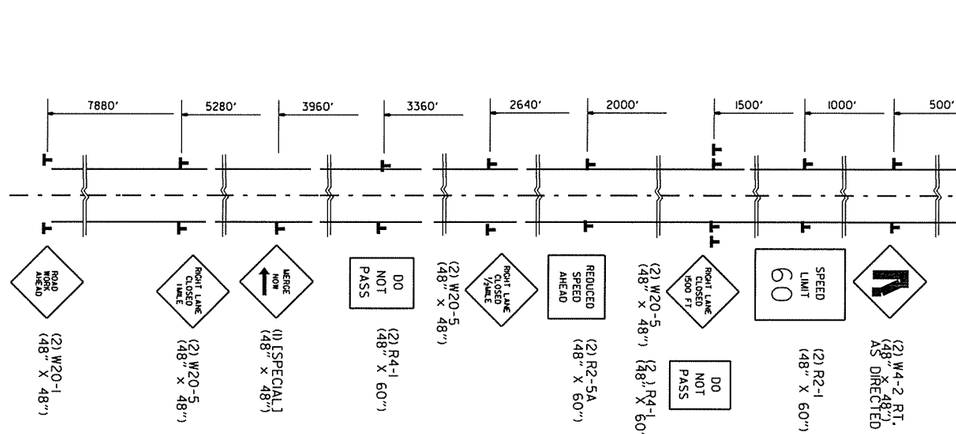
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	22	184

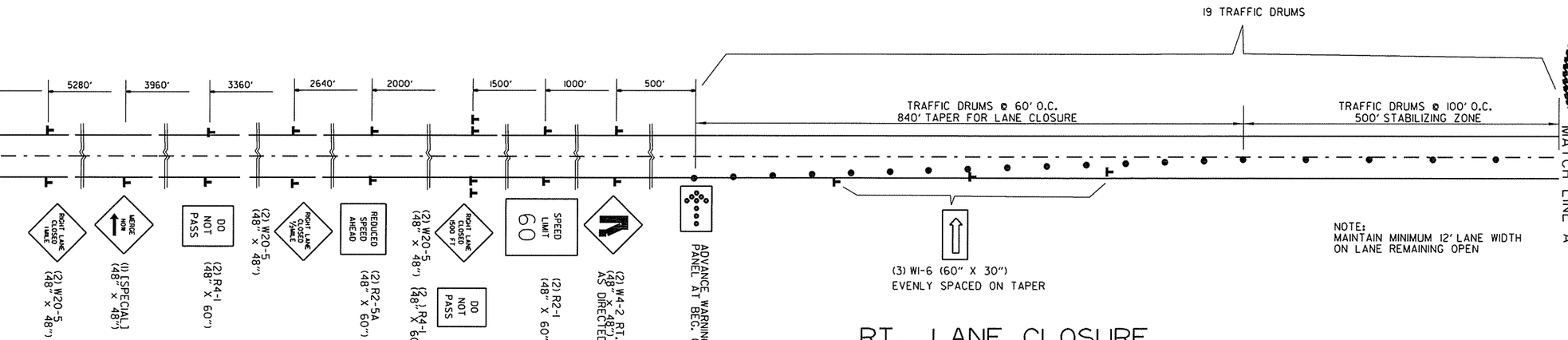
(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14

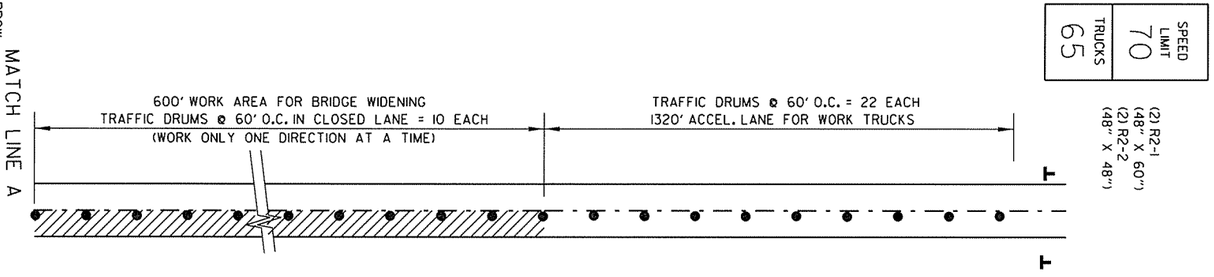
PORTABLE CHANGEABLE MESSAGE SIGN TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



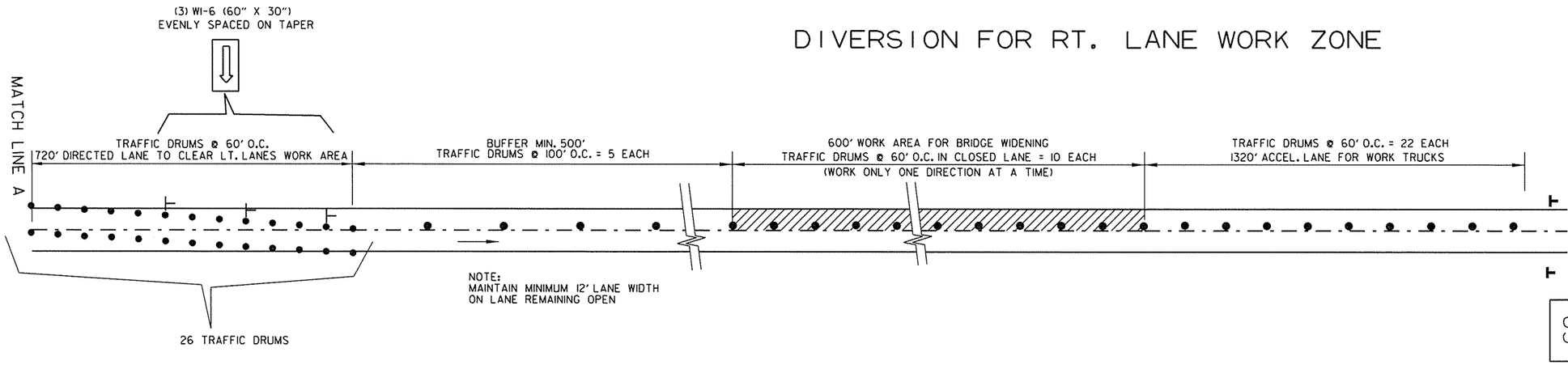
SPEED LIMIT SIGNS ARE ALSO PROVIDED FOR PLACEMENT PAST ENTRANCE RAMPS WITHIN THE WORK ZONE.



RT. LANE CLOSURE



DIVERSION FOR RT. LANE WORK ZONE



DIVERSION FOR LT. LANE WORK ZONE

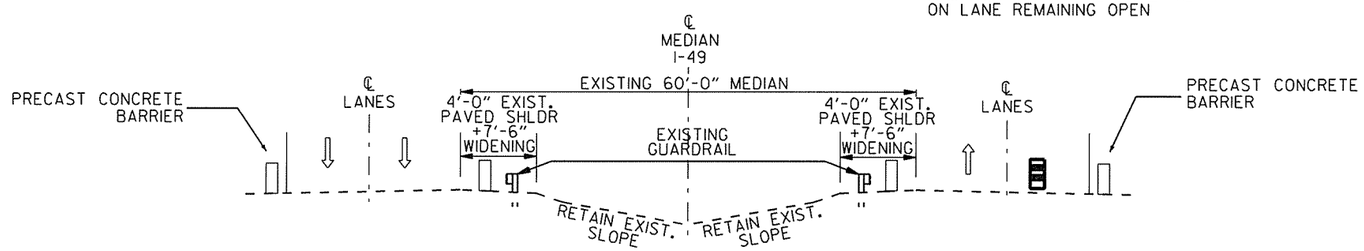
MAINTENANCE OF TRAFFIC LANE CLOSURE I-49

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn
PLOTTED: 10/9/2014 13:46
SCALE: 100:1
MODEL: MOT STAGE 1SHEETS

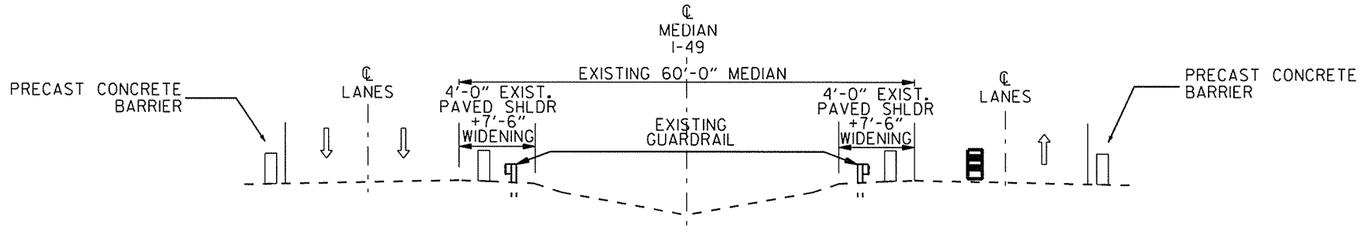
Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		BB0902	23	184
					(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13560
JEROME PAUL DAVIS
10-09-14

NOTE:
MAINTAIN MINIMUM 12' LANE WIDTH
ON LANE REMAINING OPEN



RT. LANE WORK ZONE FOR BRIDGE WIDENING



LT. LANE WORK ZONE FOR BRIDGE WIDENING

NOTE:
MAINTAIN MINIMUM 12' LANE WIDTH
ON LANE REMAINING OPEN

NOTE: ANY WORK ZONE OUTSIDE THE LIMITS OF THE LANE CLOSURE AREA MUST HAVE PRIOR WRITTEN APPROVAL OF THE ENGINEER AND ANY ADDITIONAL TRAFFIC CONTROL DEVICES REQUIRED SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE DEPARTMENT.

NOTE: REFER TO SP-MAINTENANCE OF TRAFFIC FOR LANE CLOSURE LIMITATIONS AND RESTRICTIONS. QUANTITY OF TRAFFIC DRUMS PROVIDED IN THE CONTRACT IS THE MAXIMUM NUMBER REQUIRED FOR ONE LANE CLOSURE.

MAINTENANCE OF TRAFFIC
WORK AREAS I-49

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn
PLOTTED: 10/9/2014 13:46 SCALE: 100.1 MODEL: MOT STAGE 1SHEETS

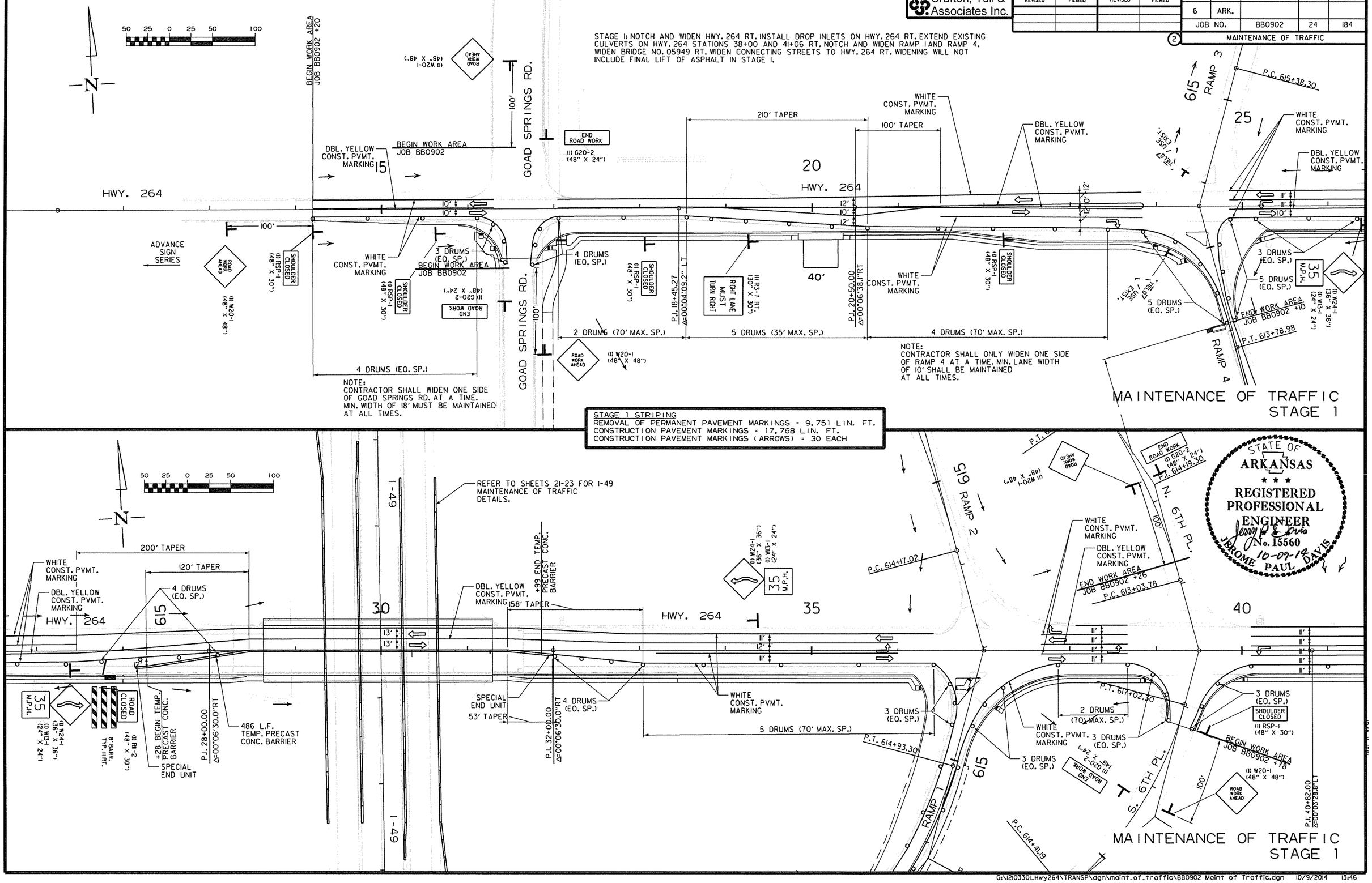
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	24	184

(2) MAINTENANCE OF TRAFFIC

STAGE I: NOTCH AND WIDEN HWY. 264 RT. INSTALL DROP INLETS ON HWY. 264 RT. EXTEND EXISTING CULVERTS ON HWY. 264 STATIONS 38+00 AND 41+06 RT. NOTCH AND WIDEN RAMP 1 AND RAMP 4. WIDEN BRIDGE NO. 05949 RT. WIDEN CONNECTING STREETS TO HWY. 264 RT. WIDENING WILL NOT INCLUDE FINAL LIFT OF ASPHALT IN STAGE I.



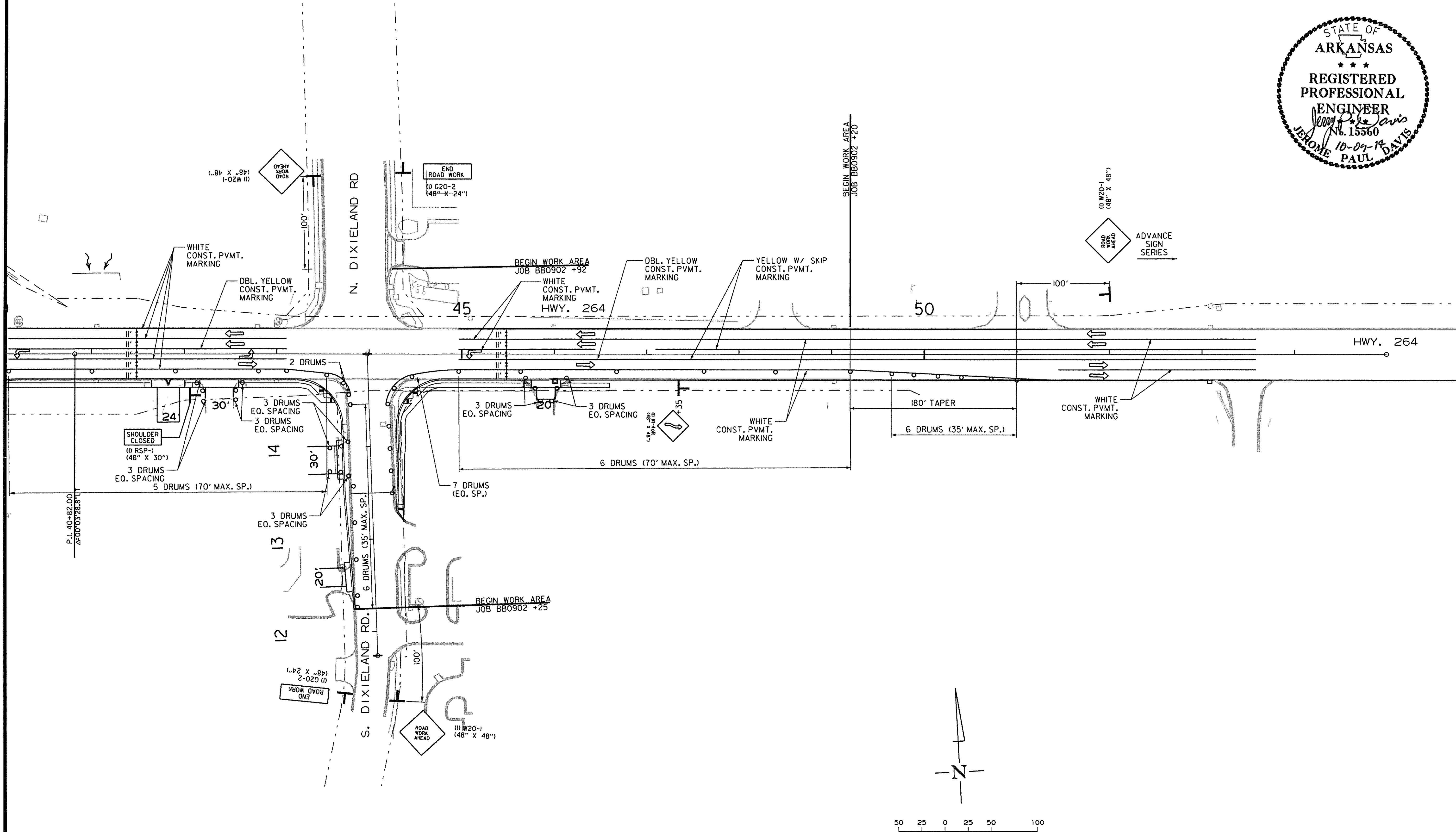
STAGE 1 STRIPING
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 9,751 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 17,768 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS (ARROWS) = 30 EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerry P. Davis
No. 15560
10-09-14
JEROME PAUL DAVIS

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn
PLOTTED: 10/9/2014 13:46
SCALE: 100:1
MODEL: MOT STAGE 1SHEETS

Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		BB0902	25	184
					②	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14

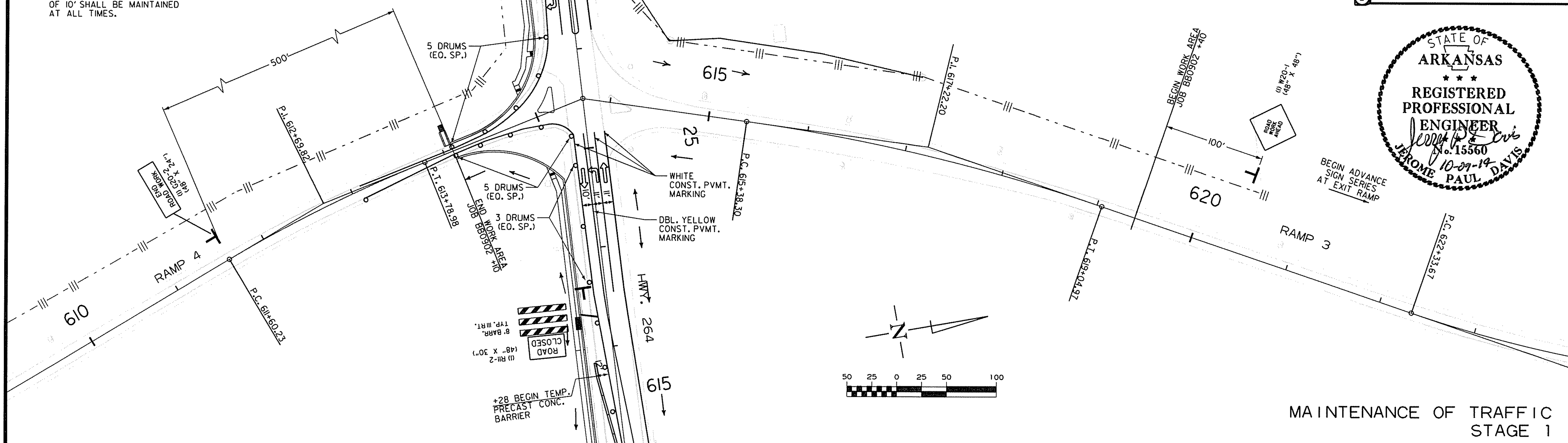


MAINTENANCE OF TRAFFIC
STAGE 1

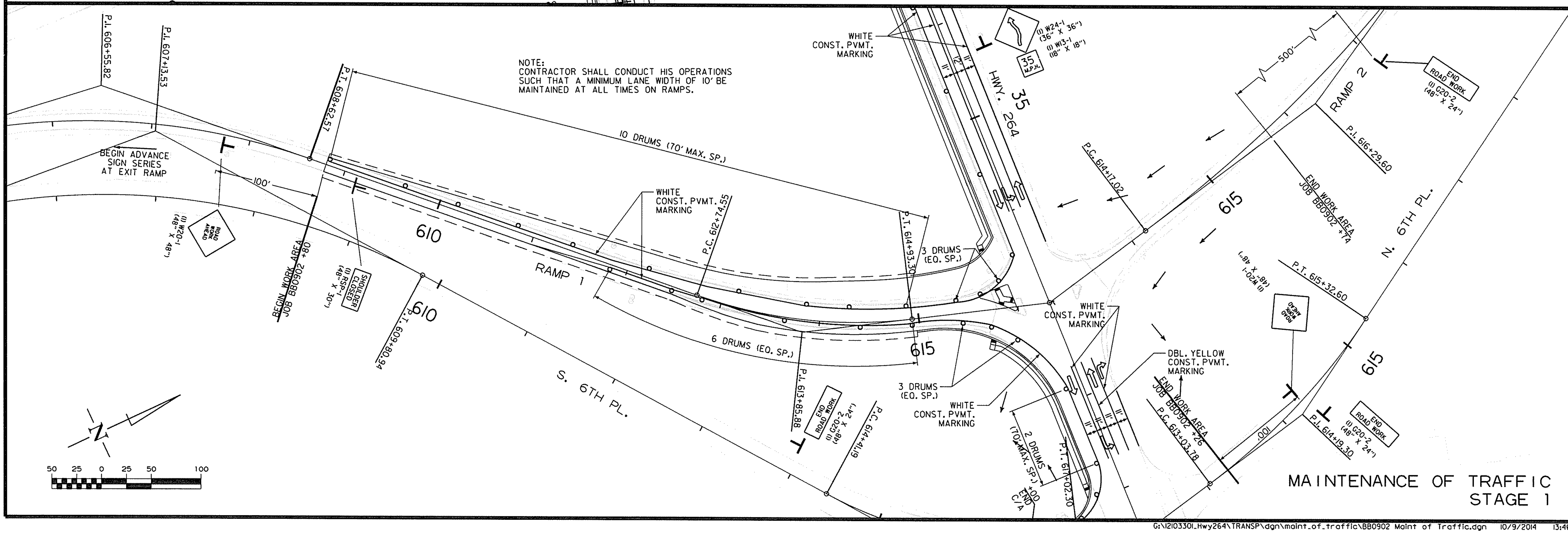
USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn MODEL: MOT STAGE 1SHEETS
PLOTTED: 10/9/2014 13:46 SCALE: 100:1

G:\12103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn 10/9/2014 13:46

Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		BB0902	26	184
					2	MAINTENANCE OF TRAFFIC			



NOTE:
CONTRACTOR SHALL ONLY WIDEN ONE SIDE OF RAMP 4 AT A TIME. MIN. LANE WIDTH OF 10' SHALL BE MAINTAINED AT ALL TIMES.
5 DRUMS (EQ. SP.)
500'
P.I. 612+69.82
P.I. 613+78.98
END WORK AREA JOB BB0902 +10
(1) G20-2 (48" X 24")
END ROAD WORK
RAMP 4
610
P.C. 611+60.23
3 DRUMS (EQ. SP.)
8' BARR. TYP. W/RT.
(1) R11-2 (48" X 30")
ROAD CLOSED
+28 BEGIN TEMP. PRECAST CONC. BARRIER
HWY. 264
615
25
WHITE CONST. PVMT. MARKING
DBL. YELLOW CONST. PVMT. MARKING
P.C. 615+38.30
615
P.I. 617+22.20
BEGIN WORK AREA JOB BB0902 +40
(1) W20-1 (48" X 48")
ROAD WORK AHEAD
100'
620
BEGIN ADVANCE SIGN SERIES AT EXIT RAMP
RAMP 3
P.T. 619+04.97
P.C. 622+33.67
N
50 25 0 25 50 100
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14
MAINTENANCE OF TRAFFIC
STAGE 1



P.I. 606+55.82
P.I. 607+13.53
BEGIN ADVANCE SIGN SERIES AT EXIT RAMP
100'
(1) W20-1 (48" X 48")
ROAD WORK AHEAD
BEGIN WORK AREA JOB BB0902 +80
(1) R5P-1 (48" X 30")
SHOULDER CLOSED
P.T. 608+62.57
NOTE:
CONTRACTOR SHALL CONDUCT HIS OPERATIONS SUCH THAT A MINIMUM LANE WIDTH OF 10' BE MAINTAINED AT ALL TIMES ON RAMPS.
10 DRUMS (70' MAX. SP.)
WHITE CONST. PVMT. MARKING
610
RAMP 1
P.C. 612+74.55
610
P.T. 609+80.94
6 DRUMS (EQ. SP.)
S. 6TH PL.
P.T. 614+93.30
3 DRUMS (EQ. SP.)
615
P.I. 613+85.88
(1) G20-2 (48" X 24")
END ROAD WORK
P.C. 614+41.19
3 DRUMS (EQ. SP.)
WHITE CONST. PVMT. MARKING
2 DRUMS (70' MAX. SP.)
END C/A +00
P.T. 611+02.30
WHITE CONST. PVMT. MARKING
HWY. 264
35
(1) W24-1 (36" X 36")
(1) W13-1 (18" X 18")
35 M.P.H.
P.C. 614+17.02
WHITE CONST. PVMT. MARKING
DBL. YELLOW CONST. PVMT. MARKING
END WORK AREA JOB BB0902 +26
P.C. 613+03.78
500'
RAMP 2
P.I. 616+29.60
(1) G20-2 (48" X 24")
END ROAD WORK
615
END WORK AREA JOB BB0902 +74
N. 6TH PL.
(1) W20-1 (48" X 48")
ROAD WORK AHEAD
P.T. 615+32.60
615
100'
P.I. 614+19.30
(1) G20-2 (48" X 24")
END ROAD WORK
N
50 25 0 25 50 100
MAINTENANCE OF TRAFFIC
STAGE 1

USER: jd5103 DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn MODEL: MOT STAGE 1SHEETS PLOTTED: 10/9/2014 13:46 SCALE: 100:1

G:\12103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn 10/9/2014 13:46

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	27	184

2 MAINTENANCE OF TRAFFIC

NOTE:
REPLACE ADVANCE SIGNS ROAD WORK AHEAD 1/2 MILE
W/ RIGHT LANE CLOSED AHEAD 1/2 MILE W20-5
AND ROAD WORK AHEAD 1500 FEET
W/ RIGHT LANE CLOSED AHEAD 1500 FEET W20-5

NOTE:
CONTRACTOR SHALL MAINTAIN 18'
RDWY. WIDTH OF GOAD SPRGS. RD.

STAGE 2: NOTCH AND WIDEN HWY. 264 LT. INSTALL DROP INLETS HWY. 264 LT. EXTEND EXISTING CULVERTS ON HWY. 264 STATIONS 38+00 AND 41+06 LT. NOTCH AND WIDEN RAMP 2 AND RAMP 3. WIDEN BRIDGE NO. 05949 LT. WIDEN CONNECTING STREETS TO HWY. 264 LT. WIDENING WILL NOT INCLUDE FINAL LIFT OF ASPHALT IN STAGE 2.

BEGIN WORK AREA JOB BB0902 +20

GOAD SPRINGS RD.

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

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

4 DRUMS (70' MAX. SP.)

3 DRUMS (EQ. SP.)

WHITE CONST. PVMT. MARKING

15

100'

BEGIN WORK AREA JOB BB0902

3 DRUMS (EQ. SP.)

3 DRUMS (EQ. SP.)

3 DRUMS (EQ. SP.)

30'

SPEED LIMIT 45

REMOVE & RELOC.

6 DRUMS (70' SP.)

(1) W13-1 (24" X 24")

DBL. YELLOW CONST. PVMT. MARKING

35 M.P.H.

SHOULDER CLOSED

(1) RSP-1 (48" X 30")

20

HWY. 264

4 DRUMS (EQ. SP.)

615 RAMP 3

"YIELD" USE EXIST.

P.C. 615+38.30

10' MIN.

DBL. YELLOW CONST. PVMT. MARKING

25

SHOULDER CLOSED

(1) RSP-1 (48" X 30")

4 DRUMS (EQ. SP.)

N17°19'41.7"E

S87°17'17.3"E

11'

13'

12'

12'

S87°21'26.4"E

11'

13'

S87°14'48.3"E

11'

13'

14'

13'

11'

100'

+55

ADVANCE SIGN SERIES

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

DBL. YELLOW CONST. PVMT. MARKING

BEGIN WORK AREA JOB BB0902

(1) C20-2 (48" X 24") END ROAD WORK

WHITE CONST. PVMT. MARKING

GOAD SPRINGS RD.

100'

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

P.I. 18+45.27
Δ=00°04'09.2" LT

COVER EXIST. SIGN

SPEED LIMIT 45

40'

P.I. 20+50.00
Δ=00°06'38.1" RT

135' LANE TAPER

295' LANE TAPER

RIGHT LANE MUST TURN RIGHT

(1) R3-7 RT. (30" X 30")

WHITE CONST. PVMT. MARKING

"YIELD" USE EXIST.

35 M.P.H.

(1) W24-1 (36" X 36")

N12°14'48.3"W

END WORK AREA JOB BB0902 +10

(1) W13-1 (24" X 24")

P.T. 613+78.98

RAMP 4

N

50 25 0 25 50 100

MAINTENANCE OF TRAFFIC
STAGE 2

STAGE 2 STRIPING
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 17,768 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 19,702 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS (ARROWS) = 52 EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14

+67 END TEMP. PRECAST CONC. BARRIER

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

8' BARR. TYP. III RT.

250' MIN

3 DRUMS (70' SP.)

(1) W13-1 (24" X 24")

RELOCATING 293 L.F. TEMP. PRECAST CONC. BARRIER
173 L.F. TEMP. PRECAST CONC. BARRIER

131' P.C.C.B. TAPER

+36

+67

6 DRUMS (35' SP.)

SPECIAL END UNIT

(1) W24-1 (36" X 36")

35

35 M.P.H.

P.C. 614+17.02

4 DRUMS (EQ. SP.)

RAMP 2

615

P.I. 614+19.30

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

5 DRUMS (EQ. SP.)

RIGHT LANE MUST TURN RIGHT (1) R3-7 RT. (30" X 30")

100'

6TH PL.

4 DRUMS (EQ. SP.)

END WORK AREA JOB BB0902 +25

P.C. 613+03.78

3 DRUMS (EQ. SP.)

6 DRUMS (EQ. SP.)

40

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

(1) W13-1 (24" X 24")

3 DRUMS (EQ. SP.)

160' LANE TAPER

+96

+03

53' P.C.C.B TAPER

+56

4 DRUMS (EQ. SP.)

615

HWY. 264

30

SPECIAL END UNIT

9.50'

12'

14'

12'

HWY. 264

10'

10'

10'

10'

10'

35 M.P.H.

(1) W24-1 (36" X 36")

(1) W13-1 (24" X 24")

WHITE CONST. PVMT. MARKING

DBL. YELLOW CONST. PVMT. MARKING

P.I. 28+00.00
Δ=00°06'30.0" RT

RELOCATING 140 L.F. TEMP. PRECAST CONC. BARRIER

TEMP. IMPACT ATTENUATION BARRIER

+23 BEGIN TEMP. PRECAST CONC. BARRIER

I-49

I-49

RELOCATING 53 L.F. TEMP. PRECAST CONC. BARRIER

P.I. 32+00.00
Δ=00°06'30.0" RT

SPECIAL END UNIT 240' LANE TAPER

+36

+76

WHITE CONST. PVMT. MARKING

DBL. YELLOW CONST. PVMT. MARKING

WHITE CONST. PVMT. MARKING

P.T. 614+93.30

615

RAMP 1

P.T. 617+02.30

WHITE CONST. PVMT. MARKING

DBL. YELLOW CONST. PVMT. MARKING

(1) C20-2 (48" X 24") END ROAD WORK

BEGIN WORK AREA JOB BB0902 +78

100'

S. 6TH PL.

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

P.I. 40+82.00
Δ=00°03'28.8" LT

P.C. 614+41.19

N

50 25 0 25 50 100

MAINTENANCE OF TRAFFIC
STAGE 2

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn
PLOTTED: 10/9/2014 13:46
SCALE: 100:1
MODEL: MOT STAGE 2 SHEETS

G:\12103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn 10/9/2014 13:46

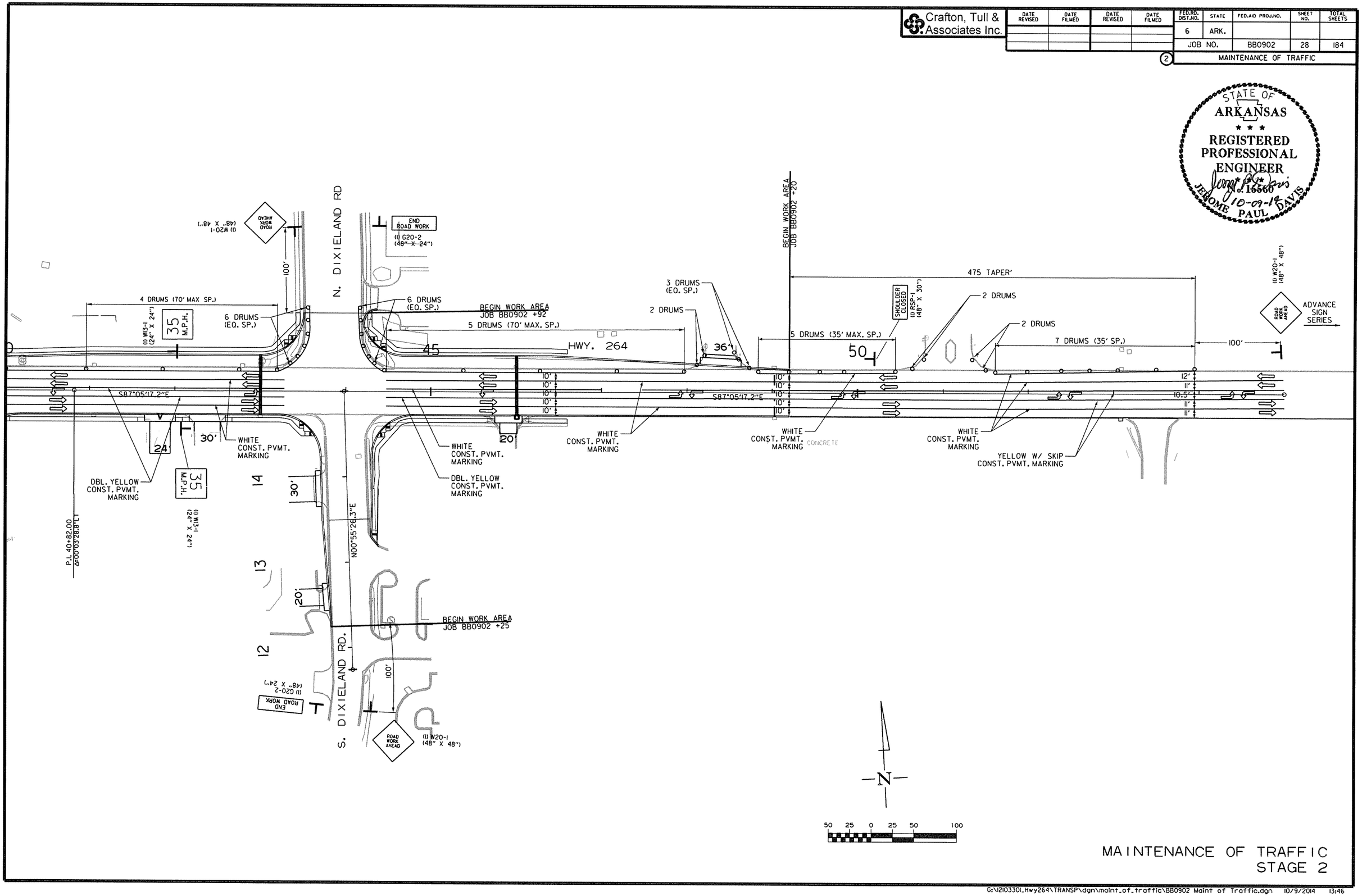
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	BB0902		28	184

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15566
JEROME PAUL DAVIS
10-09-14



MAINTENANCE OF TRAFFIC
STAGE 2

USER: jd5103
DESIGN FILE: G:\2103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn
PLOTTED: 10/9/2014 13:46 SCALE: 100.0' MODEL: MOT STAGE 2 SHEETS

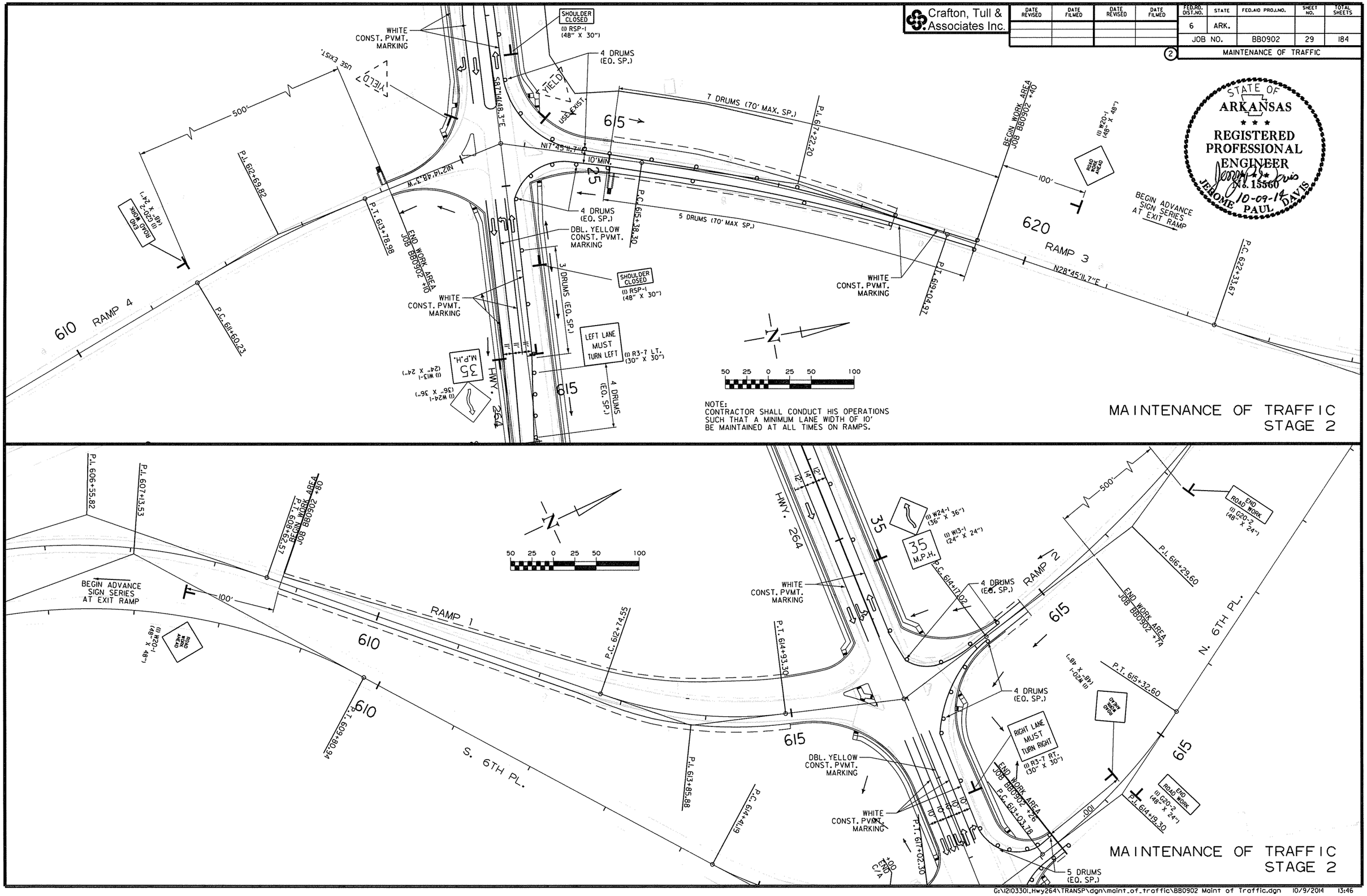
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	29	184

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14



USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn
PLOTTED: 10/9/2014 13:46
SCALE: 100
MODEL: MOT STAGE 2 SHEETS

G:\12103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn 10/9/2014 13:46

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	30	184

(2) MAINTENANCE OF TRAFFIC

STAGE 3: CONSTRUCT CURB & GUTTER SIDEWALK AT BRIDGE ENDS AND ON BRIDGE RT. SIDE HWY. 264.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14

BEGIN WORK AREA JOB BB0902 +20
GOAD SPRINGS RD.
END ROAD WORK (1) G20-2 (48" X 24")
(1) W20-1 (48" X 48") ROAD WORK AHEAD
100'
WHITE CONST. PVMT. MARKING
YELLOW W/ SKIP CONST. PVMT. MARKING
DBL. YELLOW CONST. PVMT. MARKING
BEGIN WORK AREA JOB BB0902
135' TAPER
15
+55
30'
20
HWY. 264
RAMP 3
P.C. 615+38.30
25
615
YELLOW EXIST. USE
ADVANCE SIGN SERIES
(1) W20-1 (48" X 48") ROAD WORK AHEAD
(1) G20-2 (48" X 24") END ROAD WORK
P.I. 18+45.27 Δ=00°04'09.2" LT
40'
P.I. 20+50.00 Δ=00°06'38.1" RT
RIGHT LANE MUST TURN RIGHT
(1) R3-7 RT. (30" X 30")
58+
115' TAPER
+00
11'
12'
3 DRUMS (E.O. SP.)
END WORK AREA JOB BB0902 +10
P.T. 613+78.98
RAMP 4

MAINTENANCE OF TRAFFIC
STAGE 3

STAGE 3 STRIPING
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 19,703 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 14,581 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS (ARROWS) = 40 EACH

NOTE: BARRIER ON I-49 REMOVED AS CONSTRUCTION ACTIVITY IS COMPLETED ON I-49.

I-49
HWY. 264
615
100' TAPER
30
35
+00
+15
115' TAPER
DBL. YELLOW CONST. PVMT. MARKING
WHITE CONST. PVMT. MARKING
SHOULDER CLOSED (1) R5P-1 (48" X 30")
P.I. 28+00.00 Δ=00°06'30.0" RT
P.I. 32+00.00 Δ=00°06'30.0" RT
11 DRUMS MAX. SPACING 70'
(1) W4-1R (48" X 48")
5 DRUMS EVENLY SPACED
P.C. 614+17.02
P.T. 614+93.30
RAMP 1
519
RAMP 2
(1) W20-1 (48" X 48") ROAD WORK AHEAD
P.I. 614+19.30
END ROAD WORK (1) G20-2 (48" X 24")
N. 6TH PL.
100'
END WORK AREA JOB BB0902 +26
P.C. 613+03.78
P.T. 617+02.30
BEGIN WORK AREA JOB BB0902 +78
P.C. 614+41.19
P.I. 40+82.00 Δ=00°03'28.8" LT

MAINTENANCE OF TRAFFIC
STAGE 3

USER: jds103
DESIGN FILE: G:\2103301.Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn
PLOTTED: 10/9/2014 13:47
SCALE: 100'
MODEL: MOT STAGE 3 SHEETS

G:\2103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn 10/9/2014 13:47

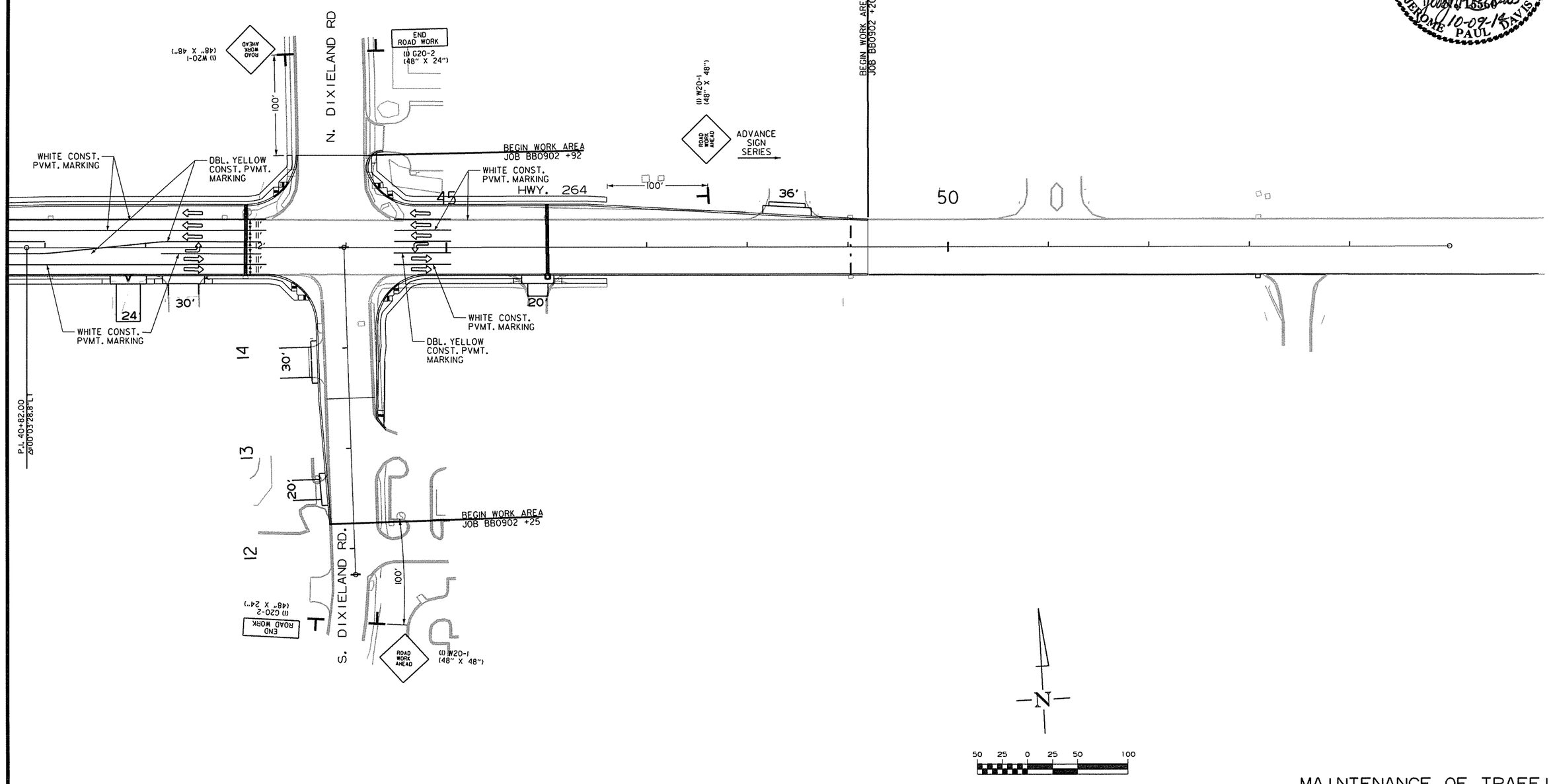
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	31	184

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
10-09-14



MAINTENANCE OF TRAFFIC STAGE 3

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn
PLOTTED: 10/9/2014 13:47 SCALE: 100:1 MODEL: MOT STAGE 3 SHEETS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	32	184

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
No. 13560
10-09-14

WHITE CONST. PVMT. MARKING
DBL. YELLOW CONST. PVMT. MARKING
12'
11'
500'
P.I. 602+69.82
(1) G20-2 (48" X 24")
ROAD WORK END
610 RAMP 4
P.C. 611+60.23
P.I. 603+78.98
5 DRUMS (EO. SP.)
END WORK AREA JOB BB0902 +10
(1) R5P-1 (48" X 30")
SHOULDER CLOSED
HWY. 264
615
25
P.C. 615+38.30
P.I. 617+22.20
BEGIN WORK AREA JOB BB0902 +40
(1) W20-1 (48" X 48")
ROAD WORK AHEAD
100'
620 RAMP 3
BEGIN ADVANCE SIGN SERIES AT EXIT RAMP
P.I. 619+04.97
P.C. 622+33.67
50 25 0 25 50 100

MAINTENANCE OF TRAFFIC
STAGE 3

P.I. 606+55.82
P.I. 607+13.53
BEGIN WORK AREA JOB BB0902 +80
P.I. 608+62.57
BEGIN ADVANCE SIGN SERIES AT EXIT RAMP
100'
(1) W20-1 (48" X 48")
ROAD WORK AHEAD
610 RAMP 1
P.C. 612+74.55
P.I. 609+80.94
610
S. 6TH PL.
P.I. 613+85.88
P.C. 614+41.19
50 25 0 25 50 100
(1) M1-6DR (48" X 48")
5 DRUMS EVENLY SPACED
HWY. 264
35
WHITE CONST. PVMT. MARKING
P.C. 614+17.02
P.I. 614+93.30
615
END WORK AREA JOB BB0902 +74
RAMP 2
500
END ROAD WORK (1) G20-2 (48" X 24")
P.I. 616+29.60
(1) W20-1 (48" X 48")
ROAD WORK AHEAD
P.T. 615+32.60
N. 6TH PL.
615
WHITE CONST. PVMT. MARKING
END WORK AREA JOB BB0902 +26
P.C. 613+03.78
100'
P.I. 614+19.30
WHITE CONST. PVMT. MARKING
DBL. YELLOW CONST. PVMT. MARKING
END +00 C/A
P.T. 617+02.30

MAINTENANCE OF TRAFFIC
STAGE 3

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn
PLOTTED: 10/9/2014 13:47
SCALE: 100:1
MODEL: MOT STAGE 3 SHEETS

G:\12103301_Hwy264\TRANSP\dgn\maint_of_traffic\BB0902 Maint of Traffic.dgn 10/9/2014 13:47

PERMANENT PAVEMENT MARKINGS
THERMOPLASTIC PAVEMENT MARKING WHITE SKIP 4" = 1080 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING WHITE SKIP 8" = 267 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING SOLID WHITE 4" = 5337 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING SOLID WHITE 8" = 237 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW SKIP 4" = 150 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING SOLID YELLOW 4" = 6642 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW 12" = 177 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING WHITE 12" = 5101 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING ARROWS = 37 EACH
THERMOPLASTIC PAVEMENT MARKING WORDS = 24 EACH
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING WHITE SKIP 4" = 160 LIN. FT.
HIGH PERFORMANCE PAVEMENT MARKING SOLID WHITE 4" = 3005 LIN. FT.
HIGH PERFORMANCE PAVEMENT MARKING SOLID YELLOW 4" = 2780 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING 10" WHITE ISLAND OUTLINE = 171 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 70 EACH
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW) = 7 EACH

RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW) ARE TO BE PLACED ON EACH SIDE OF THE CENTER TURN LANE AT 80' INTERVALS.
RAISED PAVEMENT MARKERS (TYPE II) (WHITE/RED) ARE TO BE PLACED ON THE LANE LINES AT 80' INTERVALS.

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

STA. 14+20.00
BEGIN JOB BB0902
LM = 1.05

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	33	184

2 PERMANENT PAVEMENT MARKING DETAILS

50 25 0 25 50 100

N

GOAD SPRINGS RD.

12" WHITE (STOP LINE)
12" WHITE (CROSSWALK)
4" DBL. YELLOW
135' TAPER
15
4" SOLID WHITE
HWY. 264
4" DBL. YELLOW
4" DBL. YELLOW
4" SOLID WHITE
12" WHITE (STOP LINE)
12" WHITE (CROSSWALK)
12" WHITE (STOP LINE)

12" WHITE (CROSSWALK)
RAISED PAVEMENT MARKER TYPE II, (YELLOW/YELLOW) @ 80' O.C. (TYP.)
12" WHITE (STOP LINE)
8" SOLID WHITE
4" SOLID WHITE
30'
20
HWY. 264
4" SKIP WHITE
40'
RAISED PAVEMENT MARKER TYPE II, (WHITE/RED) @ 80' O.C. (TYP.)

STA. 24+50.00 ℄ CONST. HWY. 264 =
STA. 613+72.20 ℄ CONST. RAMP 3
STA. 615+49.42 ℄ CONST. RAMP 4
Δ = 75°00'00"

4"YELLOW WITH SKIP
8" WHITE 3' - 9' SKIP
12" HASH YELLOW
4" SOLID WHITE
12" WHITE (STOP LINE)
10" SOLID WHITE REFLECTORIZED PAINT ON ISLAND WITH 8" SOLID WHITE BORDER
12" WHITE (CROSSWALK)

HIGH PERFORMANCE 4" SOLID WHITE
12" WHITE (CROSSWALK)
HIGH PERFORMANCE 4" SOLID YELLOW
P.C. 615+38.30
615 RAMP 1
25
12" WHITE (STOP LINE)
4" SOLID WHITE
4" DBL. YELLOW
RAMP 4
P.T. 613+78.98
HIGH PERFORMANCE 4" SOLID WHITE
HIGH PERFORMANCE 4" SOLID YELLOW

P.I. 18+45.27 Δ=00°04'08.2" LT
P.I. 20+50.00 Δ=00°06'38.1"RT
BEG C/A

PERMANENT PAVEMENT MARKING DETAILS

50 25 0 25 50 100

N

I-49

HIGH PERFORMANCE CONTRAST 4" SKIP WHITE (ON BRIDGE)
4" SOLID WHITE
4" SKIP WHITE
615
30
HWY. 264
4" SKIP WHITE
4" DBL. YELLOW
HIGH PERFORMANCE 4" DBL. YELLOW (ON BRIDGE)
P.I. 28+00.00 Δ=00°06'30.0"RT
+62.91 BEGIN HIGH PERFORMANCE PAVEMENT MARKING
100' TAPER
+29.20 END HIGH PERFORMANCE PAVEMENT MARKING
P.I. 32+00.00 Δ=00°06'30.0"RT
100' TAPER
4" SOLID WHITE
12" WHITE (STOP LINE)
12" WHITE (CROSSWALK)
HIGH PERFORMANCE 4" SOLID YELLOW
HIGH PERFORMANCE 4" SOLID WHITE

STA. 37+00.00 ℄ CONST. HWY. 264 =
STA. 616+32.06 ℄ CONST. RAMP 1
STA. 612+96.70 ℄ CONST. RAMP 2
Δ = 75°00'00"

RAISED PAVEMENT MARKER TYPE II, (WHITE/RED) @ 80' O.C. (TYP.)
10" SOLID WHITE REFLECTORIZED PAINT ON ISLAND WITH 8" SOLID WHITE BORDER
4" SKIP WHITE
4" DBL. YELLOW
HWY. 264
4" DBL. YELLOW
35
4" SOLID WHITE
12" WHITE (STOP LINE)
12" WHITE (CROSSWALK)
12" HASH YELLOW
4" DBL. YELLOW
12" HASH WHITE
86' TAPER
HIGH PERFORMANCE 4" SOLID YELLOW
HIGH PERFORMANCE 4" SOLID WHITE

HIGH PERFORMANCE 4" SOLID WHITE
HIGH PERFORMANCE 4" SOLID YELLOW
8" SOLID WHITE OUTLINED ISLAND
12" WHITE (CROSSWALK)
12" WHITE (STOP LINE)
4" SOLID WHITE
4" SKIP WHITE
P.C. 613+03.78
P.C. 614+17.02
519 RAMP 2
P.T. 617+02.30
P.C. 614+41.19
RAMP 1
S. 6TH PL.

P.I. 614+19.30
STA. 39+50.00 ℄ CONST. HWY. 264 =
STA. 612+19.30 ℄ CONST. N. 6TH PL.
STA. 617+67.46 ℄ CONST. S. 6TH PL.
Δ = 75°00'00"
N. 6TH PL.
214' TAPER
8" WHITE 3' - 9' SKIP
4" SOLID WHITE
40
4" SKIP WHITE
4" DBL. YELLOW
63' TAPER
P.I. 40+82.00 Δ=00°03'28.8"LT

PERMANENT PAVEMENT MARKING DETAILS

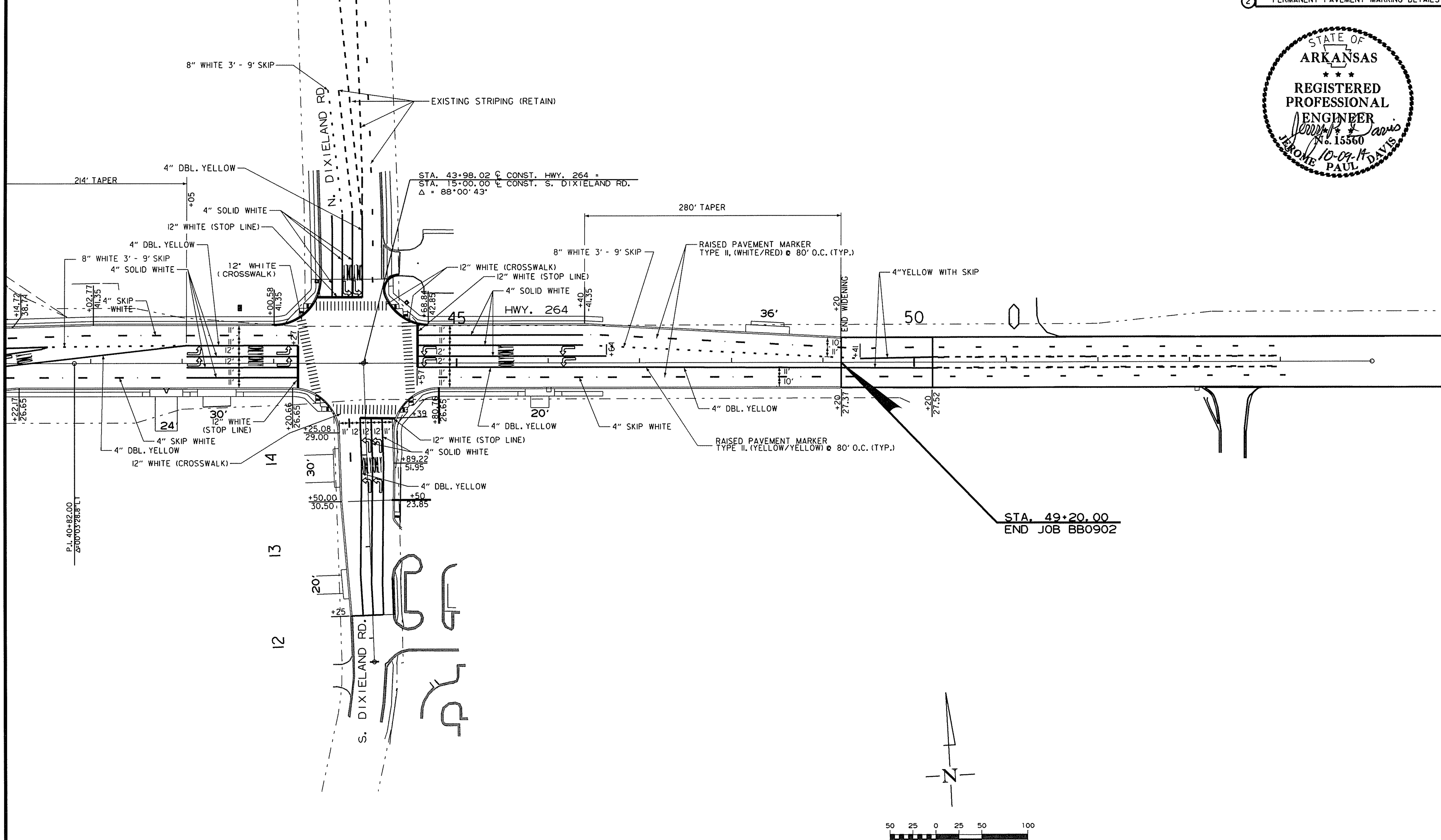
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerry Davis
No. 15560
10-09-14
JEROME PAUL DAVIS

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\misc\BB0902 PP Marking Details.dgn
PLOTTED: 10/9/2014 13:47
MODEL: PERMANENT PAVEMENT MARKING SHEETS
SCALE: 100=1

G:\12103301_Hwy264\TRANSP\dgn\misc\BB0902 PP Marking Details.dgn 10/9/2014 13:47

Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		BB0902	34	184

(2) PERMANENT PAVEMENT MARKING DETAILS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14
8" WHITE 3' - 9' SKIP
EXISTING STRIPING (RETAIN)
N. DIXIELAND RD.
4" DBL. YELLOW
214' TAPER
STA. 43+98.02 ℄ CONST. HWY. 264 =
STA. 15+00.00 ℄ CONST. S. DIXIELAND RD.
Δ = 88°00'43"
4" SOLID WHITE
12" WHITE (STOP LINE)
4" DBL. YELLOW
8" WHITE 3' - 9' SKIP
4" SOLID WHITE
12" WHITE (CROSSWALK)
4" SKIP WHITE
12" WHITE (CROSSWALK)
12" WHITE (STOP LINE)
4" SOLID WHITE
280' TAPER
8" WHITE 3' - 9' SKIP
RAISED PAVEMENT MARKER TYPE II, (WHITE/RED) @ 80' O.C. (TYP.)
4"YELLOW WITH SKIP
END WIDENING
HWY. 264
45
36'
50
30'
24
12" WHITE (STOP LINE)
4" SKIP WHITE
4" DBL. YELLOW
12" WHITE (CROSSWALK)
20'
4" DBL. YELLOW
4" SKIP WHITE
4" DBL. YELLOW
RAISED PAVEMENT MARKER TYPE II, (YELLOW/YELLOW) @ 80' O.C. (TYP.)
12" WHITE (STOP LINE)
4" SOLID WHITE
4" DBL. YELLOW
STA. 49+20.00
END JOB BB0902
P.I. 40+82.00
Δ=00°03'28.8" LT
14
13
12
30'
20'
S. DIXIELAND RD.
N
50 25 0 25 50 100

PERMANENT PAVEMENT MARKING DETAILS

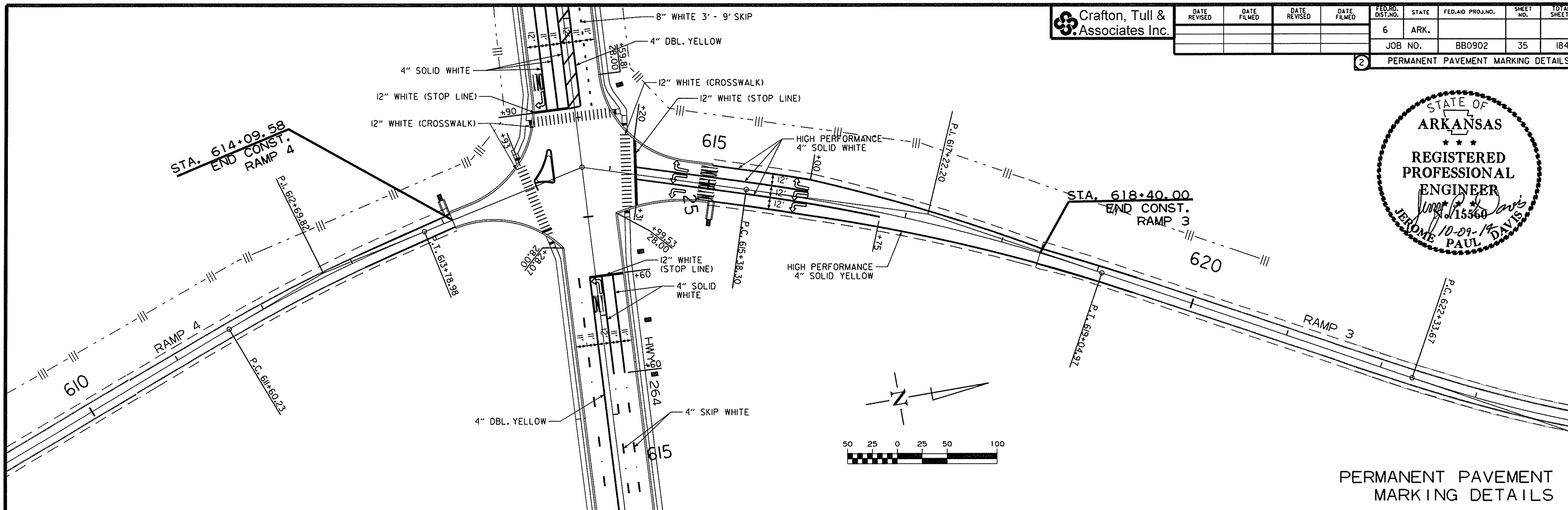
USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\misc\BB0902 PP Marking Details.dgn
PLOTTED: 10/9/2014 13:47 SCALE: 100:1 MODEL: PERMANENT PAVEMENT MARKING SHEETS

G:\12103301_Hwy264\TRANSP\dgn\misc\BB0902 PP Marking Details.dgn 10/9/2014 13:47

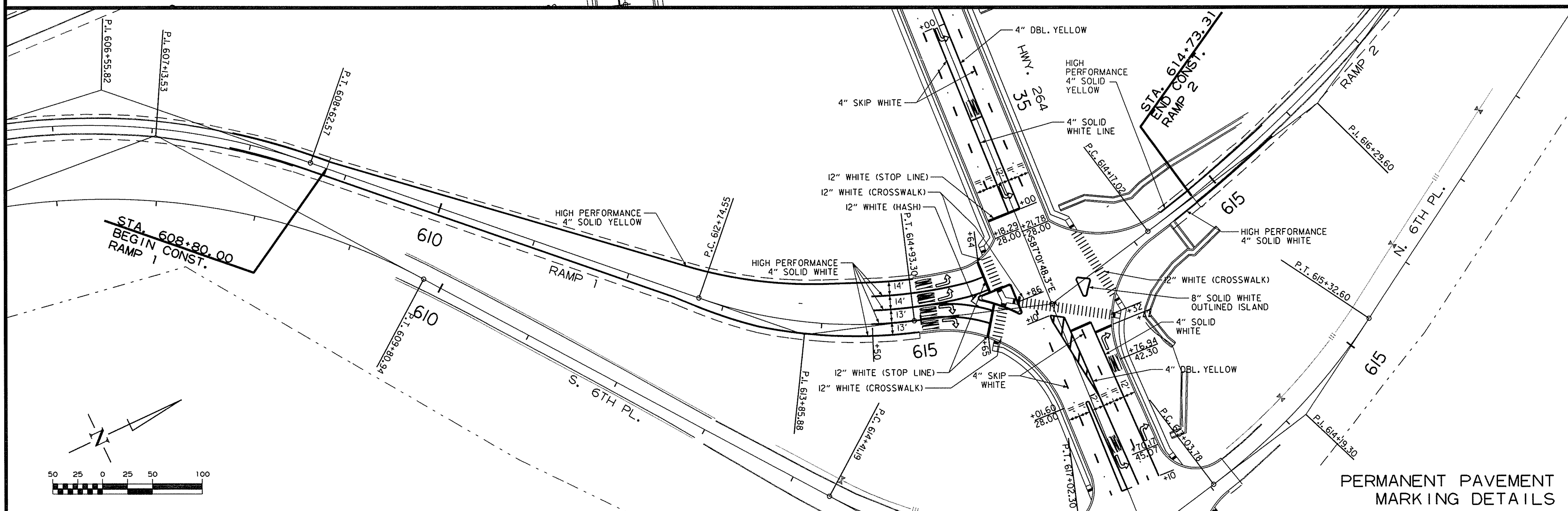
Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		BB0902	35	184

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS ★ ★ ★ REGISTERED PROFESSIONAL ENGINEER No. 15560 JEROME PAUL DAVIS 10-09-14



8" WHITE 3' - 9' SKIP
4" DBL. YELLOW
4" SOLID WHITE
12" WHITE (STOP LINE)
12" WHITE (CROSSWALK)
12" WHITE (CROSSWALK)
12" WHITE (STOP LINE)
STA. 614+09.58 END CONST. RAMP 4
HIGH PERFORMANCE 4" SOLID WHITE
615
STA. 618+40.00 END CONST. RAMP 3
HIGH PERFORMANCE 4" SOLID YELLOW
12" WHITE (STOP LINE)
4" SOLID WHITE
620
RAMP 3
RAMP 4
610
HWY. 264
4" DBL. YELLOW
4" SKIP WHITE
615
P.I. 612+59.82
P.T. 613+78.98
P.C. 611+60.23
P.C. 615+38.30
P.I. 617+22.20
P.I. 619+04.97
P.C. 622+33.67
50 25 0 25 50 100
PERMANENT PAVEMENT MARKING DETAILS



P.I. 606+55.82
P.I. 607+13.53
P.T. 608+62.57
STA. 608+80.00 BEGIN CONST. RAMP 1
610
RAMP 1
HIGH PERFORMANCE 4" SOLID YELLOW
P.C. 612+74.55
HIGH PERFORMANCE 4" SOLID WHITE
610
P.I. 609+80.94
S. 6TH PL.
P.I. 613+85.88
P.C. 614+41.19
615
12" WHITE (STOP LINE)
12" WHITE (CROSSWALK)
12" WHITE (HASH)
P.T. 614+93.30
4" SKIP WHITE
4" DBL. YELLOW
HWY. 264
35
4" SOLID WHITE LINE
HIGH PERFORMANCE 4" SOLID YELLOW
STA. 614+73.31 END CONST. RAMP 2
P.C. 614+17.02
RAMP 2
P.I. 616+29.60
615
HIGH PERFORMANCE 4" SOLID WHITE
N. 6TH PL.
12" WHITE (CROSSWALK)
8" SOLID WHITE OUTLINED ISLAND
4" SOLID WHITE
4" DBL. YELLOW
P.T. 615+32.60
615
12" WHITE (STOP LINE)
12" WHITE (CROSSWALK)
4" SKIP WHITE
P.T. 617+02.30
P.C. 617+03.78
P.I. 614+19.30
S87°01'48.3"E
50 25 0 25 50 100
PERMANENT PAVEMENT MARKING DETAILS

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\misc\BB0902 PP Marking Details.dgn
PLOTTED: 10/9/2014 13:47
MODEL: PERMANENT PAVEMENT MARKING SHEETS
SCALE: 100:1

G:\12103301_Hwy264\TRANSP\dgn\misc\BB0902 PP Marking Details.dgn 10/9/2014 13:47

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	36	184

(2) QUANTITIES

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED		BARRICADES (TYPE III)	TRAFFIC DRUMS	TEMPORARY IMPACT ATTENUATION BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	PORTABLE CHANGEABLE MESSAGE SIGN	ADVANCE WARNING ARROW PANEL	FURNISHING & INSTALLING PRECAST CONCRETE BARRIER	RELOCATING PRECAST CONCRETE BARRIER
			EACH-LIN.FT.			NO.	SQ.FT.	LIN.FT.	EACH			DAY		LIN.FT.	
G20-2	END ROAD WORK	48"x24"	12	12	12	12	96.0								
G20-5aP	WORK ZONE	24"x18"	4	4	4	4	12.0								
R2-1	SPEED LIMIT 35	48"x60"	4	4	4	4	80.0								
R2-1	SPEED LIMIT 60	48"x60"	2	2	2	2	40.0								
R2-1	SPEED LIMIT 70	48"x60"	2	2	2	2	40.0								
R2-2	TRUCKS 65	48"x48"	2	2	2	2	32.0								
R2-5A	REDUCED SPEED AHEAD	48"x60"	2	2	2	2	40.0								
R2-5A	REDUCED SPEED AHEAD	24"x30"	2	2	2	2	10.0								
R3-7 LT.	LEFT LANE MUST TURN LEFT	30"x30"		1		1	6.0								
R3-7 RT.	RIGHT LANE MUST TURN RIGHT	30"x30"	1	2	1	2	13.0								
R4-1	DO NOT PASS	48"x60"	2	2	2	2	40.0								
R11-2	ROAD CLOSED	48"x30"	1	1		1	10.0								
R20-1	SPEED LIMIT 45	48"x60"	2	2	2	2	40.0								
R55-1	FINES DOUBLE IN WORK ZONES	36"x60"	6	6	6	6	90.0								
RSP-1	SHOULDER CLOSED	48"x30"	5	4	4	5	50.0								
SPECIAL 1	MERGE NOW	48"x48"	1	1	1	1	16.0								
W1-4	LANE SHIFT	48"x48"	1			1	16.0								
W1-4BR	DOUBLE LANE SHIFT	48"x48"			1	1	16.0								
W1-6	LARGER ARROW	60"x30"	6	6	6	6	75.0								
W4-2 RT.	RIGHT LANE CLOSING GRAPHIC	48"x48"	2	2	2	2	32.0								
W13-1	35 MPH	24"x24"	2	4		4	16.0								
W13-4	ON RAMP	18"x24"	4	4	4	4	12.0								
W20-1	ROAD WORK AHEAD	48"x48"	10	10	10	10	160.0								
W20-1	ROAD WORK 500 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 1500 FT.	48"x48"	8	8	8	8	128.0								
W20-1	ROAD WORK 1/2 MILE	48"x48"	6	6	6	6	96.0								
W20-1	ROAD WORK 1 MILE	48"x48"	6	6	6	6	96.0								
W20-5	RIGHT LANE CLOSED 1500 FT.	48"x48"	2	2	2	2	32.0								
W20-5	RIGHT LANE CLOSED 1 MILE	48"x48"	2	2	2	2	32.0								
W24-1	LANE SHIFT	36"x36"	2	2		2	18.0								
	TYP. III RT. BARRICADE	8	8	8		8		8							
	TRAFFIC DRUMS		92	101	19	101			101						
	TRAFFIC DRUMS (I-540)		82	82	82	82			82						
	ADVANCE WARNING ARROW PANEL		1	1	1	1							400		
	FURNISHING & INSTALLING PRECAST CONC.		2526	173		2699								2699	
	RELOCATING PRECAST CONCRETE BARRIER			486		486									486
	TEMPORARY IMPACT ATTENUATION BARRIER		2	3						3					
	TEMPORARY IMPACT ATTENUATION BARRIER		2	3							3				
	PORTABLE CHANGEABLE MESSAGE SIGN		2	2	2	2						800			
TOTALS:							1408.0	8	183	3	3	800	400	2699	486

THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2014 EDITION.
NOTE: THE QUANTITY OF TRAFFIC DRUMS PROVIDED FOR I-49 IS FOR ONE SIDE OF ROADWAY FOR THE FULL LENGTH OF THE JOB. HOWEVER,
THE INSTALLATION OF TRAFFIC DRUMS SHALL NEVER EXCEED THE ACTUAL WORK AREA BY MORE THAN 1/4 MILE, UNLESS APPROVED BY THE ENGINEER.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
15360
JEROME PAUL DAVIS

10-21-14

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING							HIGH PERFORMANCE PAVEMENT MARKING			HIGH PERFORMANCE CONTRAST PAVEMENT MARKING	REFLECTORIZED PAVEMENT MARKING
												4"		8"	12"				4"			4"	10"
								ARROWS	ARROWS	TY. II (WHT/RED)	TY. II (YEL/YEL)	WHITE	YELLOW	WHITE	WHITE	YELLOW	WORDS	ARROWS	WHITE	WHITE SKIP	YELLOW	WHITE	WHITE
	LIN. FT.-EACH				LIN. FT.			EACH				LIN. FT.					EACH		LIN. FT.				
REMOVAL OF PERMANENT PAVEMENT MARKINGS	6593				6593																		
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	15001	16989					31990																
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS (ARROWS)	29	50						79															
CONSTRUCTION PAVEMENT MARKINGS			14581			14581																	
CONSTRUCTION PAVEMENT MARKINGS (ARROWS)			35						35														
RAISED PAVEMENT MARKERS (TYPE II) (WHITE/RED)				70						70													
RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW)				30							30												
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING-WHITE				160																		160	
HIGH PERFORMANCE PAVEMENT MARKING-WHITE SKIP(4")				980																980			
HIGH PERFORMANCE PAVEMENT MARKING-WHITE (4")				3005															3005				
HIGH PERFORMANCE PAVEMENT MARKING-YELLOW (4")				2930																	2930		
THERMOPLASTIC PAVEMENT MARKING-WHITE (4")				4198								4198											
THERMOPLASTIC PAVEMENT MARKING-WHITE (12")				4400											4400								
THERMOPLASTIC PAVEMENT MARKING-WHITE (8")				381										381									
THERMOPLASTIC PAVEMENT MARKING-YELLOW (12")				58												58							
THERMOPLASTIC PAVEMENT MARKING-YELLOW (4")				5798									5798										
THERMOPLASTIC PAVEMENT MARKING- WORD				20													20						
THERMOPLASTIC PAVEMENT MARKING-ARROW				31														31					
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10")				171																			171
TOTALS:					6593	14581	31990	79	35	70	30	4198	5798	381	4400	58	20	31	3005	980	2930	160	171

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

QUANTITIES FOR
FAP NO. BIM-B540(211)

USER: at5106
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\quantities\BB0902 Quant_01.dgn
PLOTTED: 10/21/2014 13:15
SCALE: 20:1
MODEL: QUANTITIES

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	37	184

(2) QUANTITIES

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	WIDTH	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	*WATER
			FT.	FT.	SQ.YD.		M.GAL.
28+25	28+62	HWY. 264 ON LT.	46	6.5	33	10	0.1
28+25	29+04	HWY. 264 ON RT.	93	6.5	67	21	0.3
31+75	31+75	HWY. 264 ON RT.	47	6.5	34	10	0.1
31+75	31+75	HWY. 264 ON LT.	38	6.5	27	8	0.1
34+00	34+00	HWY. 264 ON RT.	43	6.5	31	10	0.1
34+00	34+00	HWY. 264 ON LT.	47	6.5	34	10	0.1
36+01	36+01	HWY. 264 ON RT.	20	6.5	14	4	0.1
613+61	615+52	RAMP 2 ON LT.	211	6.5	152	47	0.6
613+62	614+73	RAMP 2 ON RT.	154	6.5	111	34	0.4
37+46	37+85	HWY. 264 ON LT.	40	6.5	29	9	0.1
38+13	38+67	HWY. 264 ON LT.	70	6.5	51	16	0.2
37+66	37+84	HWY. 264 ON RT.	24	6.5	17	5	0.1
38+15	38+67	HWY. 264 ON RT.	73	6.5	53	16	0.2
40+25	40+25	HWY. 264 ON RT.	18	6.5	13	4	0.1
615+05	615+05	RAMP 3 ON RT.	18	6.5	13	4	0.1
614+06	614+06	RAMP 4 ON LT.	15	6.5	11	3	0.1
614+93	614+93	RAMP 1 ON RT.	26	6.5	19	6	0.1
TOTALS:					**709**	**217**	**2.9**

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

REMOVAL AND DISPOSAL OF DITCH PAVING

LOCATION	STATION	STATION	MEASURED LN. FT.	AREA SQ. YD.
RAMP 2 LT.	615+73	616+00	165	64.5
RAMP 2 RT.	614+49.85	613+24	160.5	62.8
264 BRIDGE LT.	28+28.27	29+02.4	75	29.3
264 BRIDGE RT.	28+28.27	29+02.4	75	29.3
TOTAL:				**185.9**

A.C.H.M. PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	
DIRECTED BY THE ENGINEER	200
TOTAL:	**200**

NOTE: QUANTITY IS ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

A.C.H.M. PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	ASPH. CONC. PATCHING FOR M.O.T.	TACK COAT
	TON	GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	50	100
DIRECTED BY THE ENGINEER		
TOTALS:	**50**	**100**

NOTE: QUANTITY IS ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.
BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC ..... 50 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC ..... 100 GAL./MILE

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL						TEMPORARY EROSION CONTROL							
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	SOLID SODDING	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	DROP INLET SILT FENCE (E-7)	SILT FENCE (E-11)	* SEDIMENT REMOVAL AND DISPOSAL
			ACRE	TON	ACRE	M. GAL.	ACRE	SQ. YD.	ACRE	ACRE	M. GAL.	BAG	CU. YD.	LIN.FT.	LIN.FT.	CU. YD.
23+55	24+77	HWY. 264 ON RT. STAGE 1	0.03	0.06	0.03	3.1	0.03		0.03	0.03	0.6	22		18	122	21
24+90	27+00	HWY. 264 ON RT. STAGE 1	0.18	0.36	0.18	18.4	0.18		0.18	0.18	3.7	44		72		6
27+00	29+15	HWY. 264 ON RT. STAGE 1	0.11	0.22	0.11	11.2	0.11		0.11	0.11	2.2	22				2
31+29	33+44	HWY. 264 ON RT. STAGE 1	0.38	0.76	0.38	38.8	0.38		0.38	0.38	7.8			18	232	10
33+44	36+34	HWY. 264 ON RT. STAGE 1	0.31	0.62	0.31	31.6	0.31		0.31	0.31	6.3			36	261	12
607+80	616+01	RAMP 1 ON LT. STAGE 1	0.81	1.62	0.81	82.6	0.81		0.81	0.81	16.5	44	6		190	20
607+80	616+01	RAMP 1 ON RT. STAGE 1	0.61	1.22	0.61	62.2	0.61		0.61	0.61	12.4	22	3		365	21
37+15	39+13	HWY. 264 ON RT. STAGE 1	0.15	0.30	0.15	15.3	0.15		0.15	0.15	3.1	44		36	86	8
39+77	41+71	HWY. 264 ON RT. STAGE 1	0.16	0.32	0.16	17.3	0.16	77	0.16	0.16	3.3			36	295	13
41+81	43+68	HWY. 264 ON RT. STAGE 1	0.01	0.02	0.01	2.5	0.01	121	0.01	0.01	0.2			36	220	10
		S. DIXIELAND RD. ON LT. STAGE 1	0.02	0.04	0.02	3.3	0.02	97	0.02	0.02	0.4			18	151	7
		S. DIXIELAND RD. ON RT. STAGE 1	0.03	0.06	0.03	4.3	0.03	97	0.03	0.03	0.6		3	18		5
44+34	45+84	HWY. 264 ON RT. STAGE 1				1.8		145				22				2
45+84	50+20	HWY. 264 ON RT. STAGE 1				1.8		145					3	36		6
23+55	24+56	HWY. 264 ON LT. STAGE 2	0.06	0.12	0.06	6.1	0.06		0.06	0.06	1.2		3	18		5
614+26	620+00	RAMP 3 ON LT. STAGE 2	0.52	1.04	0.52	53.0	0.52		0.52	0.52	10.6	22	6			11
615+02	620+00	RAMP 3 ON RT. STAGE 2	0.52	1.04	0.52	53.0	0.52		0.52	0.52	10.6	22	6			11
24+94	29+35	HWY. 264 ON LT. STAGE 2	0.24	0.48	0.24	24.5	0.24		0.24	0.24	4.9	44	3	72		10
30+63	36+59	HWY. 264 ON LT. STAGE 2	0.73	1.46	0.73	74.5	0.73		0.73	0.73	14.9	132	18	54		38
36+59	38+99	HWY. 264 ON LT. STAGE 2	0.30	0.60	0.30	30.6	0.30		0.30	0.30	6.1	44	9	36		18
39+49	43+50	HWY. 264 ON LT. STAGE 2	0.15	0.30	0.15	15.3	0.15		0.15	0.15	3.1			90	449	22
44+29	50+20	HWY. 264 ON LT. STAGE 2				5.5		436						54	505	22
614+00	612+50	I-540 ON LT. & RT. STAGE 1											9	18		14
27+00	29+15	HWY. 264 ON RT. STAGE 3*										22		18		2
31+29	33+44	HWY. 264 ON RT. STAGE 3*												18	232	10
ENTIRE JOB:			**5.32**	**10.64**	**5.32**	**556.7**	**5.32**	**1118**	**5.32**	**5.32**	**108.5**	**506**	**69**	**702**	**3108**	**306**
***ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER**			**2.00**	**4.00**	**2.00**	**232.2**	**2.22**	**439**	**2.00**	**2.00**	**40.8**	**208**	**24**	**278**	**1302**	**95**
TOTALS:			**7.32**	**14.64**	**7.32**	**788.9**	**7.54**	**1557**	**7.32**	**7.32**	**149.3**	**714**	**93**	**980**	**4410**	**401**

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
DROP INLET SILT FENCE.....18 LIN.FT./LOCATION
ROCK DITCH CHECKS.....3 CU. YDS. PER DITCH CHECK

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 STANDARD SPECIFICATIONS.

BENCH MARKS

STATION	DESCRIPTION	BENCH MARKS EACH
28+63	BRIDGE END ON RT.	1
41+00	HEADWALL, RC BOX ON RT.	1
TOTAL:		**2**

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS

10-17-14

QUANTITIES FOR
FAP NO. BIM-B540(211)

USER: at5106
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\quantities\BB0902 Quant_02.dgn
PLOTTED: 10/17/2014 14:06
SCALE: 20:1
MODEL: QUANTITIES

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	38	184

(2) QUANTITIES

CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")

STATION	STATION	SIDE	DESCRIPTION	CONC. COMB. CURB AND GUTTER (TYPE A) (1' 6")
				LIN.FT.
23+55	23+72.75	LT	HWY. 264	17
23+77.69	24+64.77	LT	HWY. 264	143
24+99.54	25+38.50	LT	HWY. 264	132
25+43.50	26+07.50	LT	HWY. 264	64
26+12.50	26+62.50	LT	HWY. 264	50
26+67.50	28+22.50	LT	HWY. 264	155
28+27.50	28+62.91	LT	HWY. 264	35
31+29.20	31+68.50	LT	HWY. 264	39
31+77.50	33+93.50	LT	HWY. 264	216
34+02.50	36+07.50	LT	HWY. 264	205
36+20.50	36+56.03	LT	HWY. 264	120
36+70.44	37+92.72	LT	HWY. 264	108
38+01.72	38+60.55	LT	HWY. 264	59
38+69.55	39+08.00	LT	HWY. 264	77
39+39.40	40+22.50	LT	HWY. 264	108
40+27.50	41+25.23	LT	HWY. 264	98
41+34.23	42+60.53	LT	HWY. 264	126
42+65.53	42+93.71	LT	HWY. 264	28
43+06.81	43+46.54	LT	HWY. 264	51
43+49.14	43+51.57	LT	HWY. 264	15
44+20.10	44+21.44	LT	HWY. 264	31
44+23.51	45+97.65	LT	HWY. 264	191
46+06.65	48+99.94	LT	HWY. 264	294
49+04.94	49+20.00	LT	HWY. 264	15
23+55	24+06.12	RT	HWY. 264	51
24+10.84	24+78.95	RT	HWY. 264	119
24+93.44	25+38.50	RT	HWY. 264	123
25+43.50	26+07.50	RT	HWY. 264	64
26+12.50	26+62.50	RT	HWY. 264	50
26+67.50	28+22.50	RT	HWY. 264	155
28+27.50	28+62.91	RT	HWY. 264	35
31+29.20	31+68.50	RT	HWY. 264	38
31+77.50	33+93.50	RT	HWY. 264	216
34+02.50	34+94.50	RT	HWY. 264	192
36+07.50	36+24.50	RT	HWY. 264	108
36+76.65	37+92.74	RT	HWY. 264	169
38+01.77	38+60.44	RT	HWY. 264	59
38+69.44	39+11.81	RT	HWY. 264	81
39+43.78	40+18.50	RT	HWY. 264	106
40+27.50	41+24.42	RT	HWY. 264	97
41+33.42	42+66.70	RT	HWY. 264	133
42+71.70	42+97.43	RT	HWY. 264	26
43+06.43	43+71.64	RT	HWY. 264	93
43+71.95	43+84.94	RT	HWY. 264	191
44+27.06	44+29.89	RT	HWY. 264	96
44+29.94	49+00.32	RT	HWY. 264	497
49+05.32	49+20.00	RT	HWY. 264	19
TOTAL:				5095

CONCRETE WALKS

STATION	STATION	SIDE	DESCRIPTION	LENGTH	CONCRETE WALKS	CONCRETE WALKS (SPECIAL)
				LIN.FT.	SQ.YD.	SQ.YD.
23+55	24+03	LT	HWY. 264	48	27	
25+05	28+63	LT	HWY. 264	361	201	
31+29	36+27	LT	HWY. 264	507	282	
37+25	38+83	LT	HWY. 264	158	88	
39+57	43+41	LT	HWY. 264	415	231	
44+30	46+60	LT	HWY. 264	250	139	
23+55	24+29	RT	HWY. 264	77	43	
25+27	28+63	RT	HWY. 264	341	190	
31+29	36+21	RT	HWY. 264	500	278	
37+17	38+82	RT	HWY. 264	169	94	
40+07	41+57	RT	HWY. 264	150	83	
42+67	43+57	RT	HWY. 264	99	55	
44+34	45+67	RT	HWY. 264	244	102	40
46+15	46+60	RT	HWY. 264	45	25	
TOTALS:					1838	40

CONCRETE ISLANDS

STATION	STATION	LOCATION	CURB FACE TYPE	CONCRETE ISLANDS
				SQ.YD.
24+34	24+60	HWY. 264 RT	"A"	27
36+67	36+95	HWY. 264 RT	"A"	54
TOTAL:				81

WHEELCHAIR RAMPS

STATION	SIDE	TYPE 2	TYPE 3
		SQ. YD.	SQ. YD.
24+00	RT		10
24+00	LT		10
25+00	LT		5
25+25	RT		5
36+25	LT		7
36+25	RT		5
37+30	LT		12
37+15	RT		5
38+75	RT		5
38+85	LT		7
39+50	LT		4
40+00	RT		7
41+57	RT		5
42+03	RT		5
42+12	RT		5
42+67	RT		5
43+35	LT	10	
43+55	RT	10	
44+27	LT		5
44+36	LT	10	
44+43	RT	10	
45+67	RT		5
46+15	RT		5
TOTALS:		40	117

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14

DUMPED RIPRAP

STATION	STATION	SIDE	DUMPED RIPRAP	* FILTER BLANKET
			CU.YD.	SQ.YD.
23+75	23+75	LT	5	9
24+08	24+08	RT	5	9
25+41	25+41	LT	5	9
25+41	25+41	RT	5	9
26+10	26+10	LT	5	9
26+10	26+10	RT	5	9
26+65	26+65	LT	5	9
26+65	26+65	RT	5	9
31+75	31+75	RT	5	9
31+75	31+75	LT	5	9
34+00	34+00	LT	5	9
34+00	34+00	RT	5	9
36+01	36+01	RT	5	9
614+93	614+93	LT RAMP 1	5	9
38+00	38+00	LT	120	240
38+00	38+00	RT	120	240
40+25	40+25	RT	5	9
41+06	41+06	RT	292	583
614+06	614+06	LT RAMP 4	5	9
615+05	615+05	RT RAMP 3	5	9
TOTALS:			617	1216

NOTE: QUANTITIES ARE ESTIMATED. SEE SEC. 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 ENGINEER	30
TOTAL:	30

NOTE: QUANTITY IS ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE A)
			LIN.FT.
23+55	24+03	HWY. 264 ON LT.	54
614+50	617+00	RAMP 3 ON LT.	259
TOTAL:			313

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	EACH
S. DIXIELAND RD. RT	1	1
HWY. 264 LT	1	1
TOTALS:	2	2

QUANTITIES FOR
FAP NO. BIM-B540(211)

USER: ir594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\quantities\BB0902 Quant_03.dgn
PLOTTED: 10/9/2014 16:03
SCALE: 20
MODEL: QUANTITIES

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	39	184

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS

10-17-14

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT CLASS III			SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		DROP INLETS		DROP INLET EXTENSIONS		DROP INLETS ADJUSTED TO GRADE	JUNCTION BOXES	SOLID SODDING	WATER	STD. DWG. NOS.
								TYPE MO	TYPE C				TYPE E			
		18"	24"	30"	36"	18"	30"			4'	8'			SQ. YD.	M.GAL.	
		LIN. FT.						EACH								
23+75	DROP INLET ON LT	4				1		1						5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
24+08	DROP INLET ON RT	8				1		1						5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
25+41	DROP INLET ON LT	5				1		1						5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
25+41	DROP INLET ON RT	4				1		1						5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
26+10	DROP INLET ON LT	4				1		1						5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
26+10	DROP INLET ON RT	4				1		1						5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
26+65	DROP INLET ON LT	4				1		1						5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
26+65	DROP INLET ON RT	4				1		1						5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
28+25	DROP INLET ON LT	4				1		1						5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
28+25	DROP INLET ON RT	4				1		1						5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
31+75	DROP INLET ON LT	4				1		1		1				5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
31+75	DROP INLET ON RT	4				1		1		1				5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
34+00	DROP INLET ON LT	4				1		1		1				5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
34+00	DROP INLET ON RT	4				1		1		1				5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
36+01	DROP INLET ON RT	4				1		1			1			5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
36+14	DROP INLET ON LT	4				1		1			1			5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
37+99	DROP INLET ON RT								1	1						FPC-9,FPC-9E,PCC-1
37+99	DROP INLET ON LT								1	1						FPC-9M,FPC-9E,PCC-1
38+67	DROP INLET ON LT	4				1		1		1				5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
38+67	DROP INLET ON RT	4				1		1		1				5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
40+25	DROP INLET ON LT	53						1								FPC-9M,FPC-9E,PCC-1
40+25	DROP INLET ON RT	4				1		1		1				5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
41+27	DROP INLET ON LT								1	1						FPC-9,FPC-9E,PCC-1
41+27	DROP INLET ON RT								1	1						FPC-9,FPC-9E,PCC-1
42+63	DROP INLET ON LT	4				1		1						5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
42+69.20	DROP INLET ON RT							1								FPC-9M,FPC-9E,PCC-1
43+00	DROP INLET ON LT		75					1			1					FPC-9M,FPC-9E,PCC-1
43+00	DROP INLET ON RT									1		1				FPC-9M,FPC-9E,PCC-1
43+44	DROP INLET ON LT		12					1								FPC-9M,FPC-9E,PCC-1
43+47	JUNCTION BOX ON LT												1			FPC-9
43+68	DROP INLET ON RT				6			1		1						FPC-9M,FPC-9E,PCC-1
44+15	DROP INLET ON RT CONVERT TO MH											1				FPC-9
44+26	DROP INLET ON LT	4						1								FPC-9M,FPC-9E,PCC-1
44+33	DROP INLET ON RT							1		1						FPC-9M,FPC-9E,PCC-1
44+45	JUNCTION BOX ON LT	18											1			FPC-9,PCC-1
46+00	DROP INLET ON LT		75					1		1						FPC-9M,FPC-9E,PCC-1
46+01	DROP INLET ON RT											1				FPC-9M,FPC-9E
49+03	DROP INLET ON LT	61						1		1						FPC-9M,FPC-9E,PCC-1
49+03	DROP INLET ON RT											1				FPC-9M,FPC-9E
611+00	EXTEND PIPE RAMP 1			22			1									FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
614+00	EXTEND PIPE RAMP 2			24			2									FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
TOTALS:		**221**	**162**	**46**	**6**	**20**	**3**	**29**	**4**	**16**	**3**	**4**	**2**	**100**	**1.20**	

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

STRUCTURES OVER 20'-0" SPAN

STATION	DESCRIPTION	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE (ROADWAY)	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR. (ROADWAY)	SOLID SODDING	WATER	STD. DWG. NO.
		LIN. FT.			CU. YD.	POUND	CU. YD.	SQ. YD.	M.GAL.	
38+00	TRIPLE RCB ON LT	8	6	28	70.13	9256	25	14	0.18	W-X003-1, R-300X-X2,RCB-1,RCB-2,RCB-3
38+00	TRIPLE RCB ON RT	8	6	17	48.07	6059	18	14	0.18	W-X003-1, R-300X-X2,RCB-1,RCB-2,RCB-3
41+06	QUINTUPLE RCB ON LT	10	7	21	111.13	19328	40	21	0.26	W-X003-1, R-500X-0,RCB-1,RCB-2,RCB-3
41+06	QUINTUPLE RCB ON RT	10	7	10	67.24	11095	22	21	0.26	W-X003-1, R-500X-0,RCB-1,RCB-2,RCB-3
TOTALS :					**296.57**	**45738**	**105**	**70**	**0.88**	

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

QUANTITIES FOR
FAP NO. BIM-B540(211)

USER: at5106
DESIGN FILE: G:\2103301_Hwy264\TRANSP\dgn\quantities\BB0902 Quant_04.dgn
PLOTTED: 10/17/2014 14:06
SCALE: 20
MODEL: QUANTITIES

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	COLD MILLING ASPHALT PAVEMENT
			SQ.YD.
613+09.96	614+09.96	RAMP 4	281
619+40	618+40	RAMP 3	287
615+73.3	614+73.3	RAMP 2	277
608+79.89	607+79.89	RAMP 1	282
12+25	13+50	DIXIELAND RT.	701
		DIXIELAND LT.	502
50+20	49+20	HWY. 264	609
TOTAL:			**2939**

EARTHWORK

STATION	STATION	LOCATION/DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	SOIL STABILIZATION
			CU.YD.	CU.YD.	TON
23+55	49+20	HWY. 264 STAGE 1	1006	5646	
23+55	49+20	HWY. 264 STAGE 2	2198	5245	
ENTIRE	PROJECT	RAMP 1	3274	2467	
ENTIRE	PROJECT	RAMP 2	177	320	
ENTIRE	PROJECT	RAMP 3	3898	333	
ENTIRE	PROJECT	RAMP 4	37	171	
ENTIRE	PROJECT	S. DIXIELAND	187	44	
37+53	38+77	STORM WATER BASIN LEFT	3557		
36+93	38+49	STORM WATER BASIN RIGHT	968		
ENTIRE	PROJECT	CONSTRUCT APPROACHES		36	
ENTIRE	PROJECT	TO BE USED IF AND WHERE			40
		DIRECTED BY THE ENGINEER			
TOTALS:			**15302**	**14262**	**40**

NOTE: EARTHWORK QUANTITIES AT THE LOCATIONS SHOWN ABOVE SHALL BE PAID FOR AS PLAN QUANTITY.

CONCRETE BARRIER WALL

STATION	STATION	LOCATION	CONCRETE BARRIER WALL PIER PROTECTION TYPE A
			LIN.FT.
614+20	614+30	I-49 MEDIAN	18
614+70	614+88	I-49 MEDIAN	18
TOTAL:			**36**

PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

STATION	LOCATION	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)	TACK COAT (0.03 GALLONS PER SQ. YD.)
		TON	GALLONS
43+00	HWY. 264	27	4.85
46+00	HWY. 264	27	4.85
49+03	HWY. 264	26	4.76
TOTALS:		**80**	**14.46**

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

DRIVEWAYS & TURNOUTS - BASE & SURFACING

STATION	SIDE	LOCATION	WIDTH	ADD'L LENGTH	**MODIFIED CURB		PORTLAND CEMENT CONCRETE DRIVEWAY		ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE CRS. CLASS 7
							TURNOUT	ADD'L.			
			FT.		STATION	STATION	SQ.YD.		SQ. YD.	TON	TON
41+83	RT	HWY. 264	24	37.5	41+57	42+09	32.00	100.00			
42+38	RT	HWY. 264	30	11.5	42+09	42+67	37.33	38.33			
45+91	RT	HWY. 264	20	12.5	45+67	46+15	28.44		27.8	3.1	11.3
48+40	LT	HWY. 264	36	4.0	48+08	48+72	32.00	16.00			
12+60	LT	S DIXIELAND	20	27.6	12+36	12+84	21.33	61.33			
13+87	LT	S DIXIELAND	30	31.9	13+58	14+16	28.00	106.33			
* ENTIRE	PROJECT	ADD'L. FOR TEMP. DRIVES									75.0
TOTALS:							**179.10**	**321.99**	**27.8**	**3.1**	**86.3**

* QUANTITY ESTIMATED
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.
** FOR INFORMATION ONLY.
BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13560
12-02-14
JEROME PAUL DAVIS

QUANTITIES FOR
FAP NO. BIM-B540(211)

USER: dd509
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\quantities\BB0902 Quant_05.dgn MODEL: QUANTITIES
PLOTTED: 12/3/2014 16:28 SCALE: 20:1

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	41	184

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
No. 15560
10-09-14

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	DESCRIPTION	CURB AND GUTTER	CONCRETE DRIVEWAYS	APPROACH SLABS & GUTTERS	ISLAND	CONCRETE WALKS	GUARDRAIL	SIGNS	SIGN FOUNDATIONS	METER POLES	FLAG POLES
				LIN. FT.	SQ.YD.	EACH	SQ.YD.	SQ.YD.	LIN. FT.	EACH			
36+84	37+03	HWY. 264 RT					28						
36+91	37+06	HWY. 264 LT					10						
41+78	41+87	HWY. 264 RT					3						
41+64	42+01	HWY. 264 RT			59								
42+07	42+67	HWY. 264 RT			83								
47+97	48+81	HWY. 264 LT			99								
12+30	12+74	S. DIXIELAND LT			41								
14+11	13+64	S. DIXIELAND LT			55								
26+62	28+64	HWY. 264 RT							202				
27+88	28+64	HWY. 264 LT							76				
31+28	32+05	HWY. 264 RT							76				
31+28	33+31	HWY. 264 LT							202				
28+28	28+64	HWY. 264				1							
28+32	28+64	HWY. 264 LT		35									
28+28	28+64	HWY. 264 RT		36									
31+28	31+64	HWY. 264				1							
31+29	31+64	HWY. 264 LT		35									
31+29	31+64	HWY. 264 RT		35									
40+01	43+51	HWY. 264 LT		377									
40+06	41+65	HWY. 264 RT		159									
41+10		HWY. 264 RT	SIGN							1	1		
42+66	43+75	HWY. 264 RT		121									
42+80		HWY. 264 LT	METER POLE									1	
44+20	47+97	HWY. 264 LT		369									
44+24	45+61	HWY. 264 RT		152									
44+45		HWY. 264 LT	FLAG POLE								1		1
44+48		HWY. 264 LT	FLAG POLE								1		1
44+51		HWY. 264 LT	FLAG POLE								1		1
47+97	49+20	HWY. 264 RT		298									
48+11		HWY. 264 LT	SIGN							1	2		
48+62.29		HWY. 264 LT	SIGN							1	2		
48+82	49+20	HWY. 264 LT		38									
12+74	13+65	S. DIXIELAND LT		90									
13+21	14+44	S. DIXIELAND RT		128				53					
14+11	14+53	S. DIXIELAND LT		42									
20+72	20+92	N. DIXIELAND LT		20									
20+63	20+95	N. DIXIELAND LT		42									
43+02	43+50	HWY. 264 LT						64					
44+24	45+75	HWY. 264 RT						77					
44+30	44+58	HWY. 264 LT						58					
46+04	46+60	HWY. 264 RT						28					
TOTALS:				1977	337	2	41	280	556	3	8	1	3

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
23+55	24+50	HWY. 264	1	1
28+00	29+00	HWY. 264	1	1
31+00	32+00	HWY. 264	1	1
37+50	38+50	HWY. 264	2	2
40+00	43+50	HWY. 264	4	4
44+25	49+00	HWY. 264	5	5
609+60	615+00	RAMP 1	6	6
614+25	619+40	RAMP 3	6	6
TOTALS:			26	26

REMOVAL AND DISPOSAL OF CULVERTS AND DROP INLETS

STATION	DESCRIPTION	PIPE CULVERTS	DROP INLETS
		EACH	EACH
25+96	18" X 28' R.C., RT. SIDE DRAIN HWY. 264	1	
38+00	HDWL. AND WGWLS. LT. SIDE HWY. 264		
38+00	HDWL. AND WGWLS. RT. SIDE HWY. 264		
41+06	D.I LT. SIDE HWY. 264		1
41+06	D.I RT. SIDE HWY. 264		1
41+06	D.I., HDWL. AND WGWLS. LT. SIDE HWY. 264		1
41+06	D.I., HDWL. AND WGWLS. RT. SIDE HWY. 264		1
42+79	D.I AND 18" X 17' R.C., LT. SIDE HWY. 264	1	1
43+00	D.I LT. AND 18" X 57' C.M. CROSS DRAIN, HWY. 264	1	1
43+44	D.I LT. SIDE HWY. 264		1
44+25.70	D.I LT. SIDE HWY. 264		1
46+00	D.I LT. AND 18" X 57' R.C. CROSS DRAIN, HWY. 264	1	1
49+03	D.I LT. AND 18" X 56' C.M. CROSS DRAIN, HWY. 264	1	1
TOTALS:		5	10

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

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
23+55	24+02	HWY. 264 LT	61
614+50	617+00	RAMP 3	255
TOTAL:			316

QUANTITIES FOR
FAP NO. BIM-B540(211)

USER: lr594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\quantities\BB0902 Quant_06.dgn
PLOTTED: 10/9/2014 16:04
SCALE: 201
MODEL: QUANTITIES

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	42	184

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS

10-17-14

BASE AND SURFACING (BOX 1 OF 2)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		ACHM SURFACE COURSE (1/2")				ACHM SURFACE COURSE (1/2") - WIDENING				ACHM BINDER COURSE (1") - WIDENING				ACHM BASE COURSE (1 1/2") - WIDENING				TACK COAT			
				TON / STATION	TON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 76-22 TON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 76-22 TON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID.	SQ.YD.	GALLONS/ SQ.YD.	GALLONS
			FT.			FEET				FT.				FT.				FT.				FT.			
HWY. 264																									
23+55.00	24+50.00	OVERLAY	95.00			51.53	543.93	220.00	59.83													51.53	543.93	0.10	54.39
23+55.00	24+50.00	NOTCH & WIDEN LT. & RT.	95.00			15.94	168.26	220.00	18.51	15.94	168.26	220.00	18.51	15.94	174.30	495.00	43.14	21.37	225.59	550.00	62.04	53.25	562.08	0.03	16.86
24+50.00	28+27.91	OVERLAY	377.91			38.90	1633.41	220.00	179.68													38.90	1633.41	0.10	163.34
24+50.00	28+27.91	NOTCH & WIDEN LT. & RT.	377.91			17.50	734.83	220.00	80.83	17.50	734.83	220.00	80.83	17.50	734.83	495.00	181.87	21.66	909.30	550.00	250.06	56.66	2379.15	0.03	71.37
28+27.91	28+62.91	FULL DEPTH	35.00			56.00	217.78	220.00	23.96	56.00	217.78	220.00	23.96	56.00	217.78	495.00	53.90	61.00	237.22	550.00	65.24	173.00	672.78	0.03	20.18
31+29.20	31+64.20	FULL DEPTH	35.00			56.00	217.78	220.00	23.96	56.00	217.78	220.00	23.96	56.00	217.78	495.00	53.90	61.00	237.22	550.00	65.24	173.00	672.78	0.03	20.18
31+64.20	37+00.00	OVERLAY	535.80			39.67	2361.69	220.00	259.79													39.67	2361.69	0.10	236.17
31+64.20	37+00.00	NOTCH & WIDEN LT. & RT.	535.80			16.36	973.97	220.00	107.14	16.36	973.97	220.00	107.14	16.36	973.97	495.00	241.06	20.61	1226.79	550.00	337.37	53.33	3174.91	0.03	95.25
37+00.00	41+05.00	OVERLAY	405.00			60.08	2703.60	220.00	297.40													60.08	2703.60	0.10	270.36
37+00.00	41+05.00	NOTCH & WIDEN LT.	405.00			8.92	401.40	220.00	44.15	8.92	401.40	220.00	44.15	8.92	401.40	495.00	99.35	11.42	514.00	550.00	141.35	29.26	1316.70	0.03	39.50
41+05.00	46+40.00	OVERLAY	535.00			56.92	3383.58	220.00	372.19													56.92	3383.58	0.10	338.36
41+05.00	46+40.00	NOTCH & WIDEN LT.	535.00			11.31	672.32	220.00	73.96	11.31	672.32	220.00	73.96	11.31	672.32	495.00	166.40	13.81	820.83	550.00	225.73	36.43	2165.56	0.03	64.97
46+40.00	49+20.00	OVERLAY	280.00			53.78	1673.16	220.00	184.05													53.78	1673.16	0.10	167.32
46+40.00	49+20.00	NOTCH & WIDEN LT.	280.00			6.66	207.20	220.00	22.79	6.66	207.20	220.00	22.79	6.66	207.28	495.00	51.30	5.37	167.19	550.00	45.98	18.69	581.47	0.03	17.44
49+20.00	50+20.00	COLD MILL & TRANSITION	100.00			54.53	605.89	220.00	66.65													54.53	605.89	0.10	60.59
RAMPS																									
607+80.00	608+80.00	RAMP 1 - COLD MILL & TRANSITION	100.00			24.73	274.72	220.00	30.22													24.73	274.78	0.10	27.48
608+80.00	614+97.00	RAMP 1 - OVERLAY	617.00			18.44	1264.13	220.00	139.05													18.44	1264.16	0.10	126.42
608+80.00	614+97.00	RAMP 1 - NOTCH & WIDEN LT. & RT.	617.00			14.56	998.49	220.00	109.83	14.56	998.17	220.00	109.80	15.10	1035.30	495.00	256.24	15.23	1043.87	550.00	287.06	44.89	3077.34	0.03	92.32
608+80.00	614+97.00	RAMP 1 - SHOULDERS	617.00	128.00	789.76	10.00	685.56	220.00	75.41																
608+80.00	614+97.00	RAMP 1 - ADDITIONAL FOR SUPERELEVATION	617.00	VAR.	175.00																				
614+97.00	616+01.06	RAMP 1 RETURN - OVERLAY	104.06			39.34	454.82	220.00	50.03													39.34	454.86	0.10	45.49
614+97.00	616+01.06	RAMP 1 RETURN - NOTCH & WIDEN LT. & RT.	104.06			32.18	372.13	220.00	40.93	32.18	372.07	220.00	40.93	24.44	282.53	495.00	69.93	23.06	266.63	550.00	73.32	79.68	921.23	0.03	27.64
613+27.70	614+38.19	RAMP 2 RETURN - OVERLAY	110.49			30.27	371.61	220.00	40.88													30.27	371.61	0.10	37.16
613+27.70	614+38.19	RAMP 2 RETURN - NOTCH & WIDEN LT. & RT.	110.49			18.96	232.77	220.00	25.60	18.96	232.77	220.00	25.60	16.58	203.55	495.00	50.38	13.11	160.95	550.00	44.26	48.65	597.27	0.03	17.92
614+38.19	614+73.31	RAMP 2 - OVERLAY	35.12			15.00	58.53	220.00	6.44													15.00	58.53	0.10	5.85
614+38.19	614+73.31	RAMP 2 - SHOULDERS	35.12	128.00	44.95	10.00	39.02	220.00	4.29																
614+38.19	614+73.31	RAMP 2 - ADDITIONAL FOR SUPERELEVATION	35.12	VAR.	13.40																				
614+73.31	615+73.31	RAMP 2 - COLD MILL & TRANSITION	100.00			24.99	277.68	220.00	30.54													24.99	277.67	0.10	27.77
614+03.20	615+02.04	RAMP 3 RETURN - OVERLAY	98.84			36.67	402.72	220.00	44.30													36.67	402.72	0.10	40.27
614+03.20	615+02.04	RAMP 3 RETURN - NOTCH & WIDEN LT. & RT.	98.84			19.74	216.79	220.00	23.85	19.74	216.79	220.00	23.85	17.06	187.34	495.00	46.37	17.73	194.69	550.00	53.54	54.53	598.82	0.03	17.96
615+02.04	618+40.00	RAMP 3 - OVERLAY	337.96			15.00	563.27	220.00	61.96													15.00	563.27	0.10	56.33
615+02.04	618+40.00	RAMP 3 - NOTCH & WIDEN LT.	337.96			8.09	303.79	220.00	33.42	8.09	303.79	220.00	33.42	8.23	308.87	495.00	76.45	8.42	303.85	550.00	83.56	24.74	928.97	0.03	27.87
615+02.04	618+40.00	RAMP 3 - SHOULDERS	337.96	128.00	432.59	10.00	375.51	220.00	41.31																
615+02.04	618+40.00	RAMP 3 - ADDITIONAL FOR SUPERELEVATION	337.96	VAR.	181.20																				
618+40.00	619+40.00	RAMP 3 - COLD MILL & TRANSITION	100.00			25.20	279.95	220.00	30.79													25.20	280.00	0.10	28.00
613+09.58	614+09.58	RAMP 4 - COLD MILL & TRANSITION	100.00			25.10	278.91	220.00	30.68													25.10	278.89	0.10	27.89
614+09.58	615+18.43	RAMP 4 RETURN - OVERLAY	108.85			21.61	261.41	220.00	28.76													21.61	261.36	0.10	26.14
614+09.58	615+18.43	RAMP 4 RETURN - NOTCH & WIDEN LT. & RT.	108.85			20.15	243.72	220.00	26.81	20.15	243.70	220.00	26.81	16.14	195.22	495.00	48.32	18.04	218.20	550.00	60.01	54.33	657.12	0.03	19.71
SIDE ROADS																									
616+77.58	617+38.00	S. 6TH PL. RETURN - OVERLAY	60.42			54.60	366.55	220.00	40.32													54.60	366.55	0.10	36.66
616+77.58	617+38.00	S. 6TH PL. RETURN - NOTCH & WIDEN LT. & RT.	60.42			1.42	9.53	220.00	1.05	1.42	9.53	220.00	1.05									1.42	9.53	0.03	0.29
612+66.98	613+25.88	N. 6TH PL. RETURN - OVERLAY	58.90			34.46	225.52	220.00	24.81													34.46	225.52	0.10	22.55
612+66.98	613+25.88	N. 6TH PL. RETURN - NOTCH & WIDEN LT. & RT.	58.90			14.03	91.82	220.00	10.10	14.03	91.82	220.00	10.10	8.64	56.54	495.00	13.99	1.16	7.60	550.00	2.09	23.83	155.96	0.03	4.68
12+25.00	13+50.00	S. DIXIELAND RD. - MILL & INLAY	125.00			48.95	679.86	220.00	74.78													48.95	679.86	0.10	67.99
12+25.00	13+50.00	S. DIXIELAND RD. - NOTCH & WIDEN LT. & RT.	125.00			3.96	55.00	220.00	6.05	3.96	55.00	220.00	6.05									3.96	55.00	0.03	1.65
13+50.00	14+72.85	S. DIXIELAND RD. - OVERLAY	122.85			47.89	653.70	220.00	71.91													47.89	653.70	0.10	65.37
13+50.00	14+72.85	S. DIXIELAND RD. - NOTCH & WIDEN LT. & RT.	122.85			18.55	253.21	220.00	27.85	18.55	253.21	220.00	27.85									18.55	253.21	0.03	7.60
		N. DIXIELAND RD. - OVERLAY	50.35			69.10	386.58	220.00	42.52													69.10	386.58	0.10	38.66
		N. DIXIELAND RD. - NOTCH & WIDEN LT. & RT.	50.35			20.11	112.50	220.00	12.38	20.11	112.50	220.00	12.38									20.11	112.50	0.03	3.38
SUBTOTALS (BOX 1 OF 2):					**1636.90**		**27288.60**		**3001.76**		**6482.89**		**713.14**		**5869.01**		**1452.60**		**6533.93**		**1796.85**		**38597.70**		**2537.33**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.0% MIN. AGGR.....4.0% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22

QUANTITIES FOR
FAP NO. BIM-B540(211)

DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\quantities\BB0902 Quant_07.dgn MODEL: QUANTITIES
PLOTTED: 10/17/2014 14:06 SCALE: 20:1

G:\1210330I_Hwy264\TRANSP\dgn\quantities\BB0902 Quant_07.dgn 10/17/2014 14:06

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	43	184

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-17-14

BASE AND SURFACING (BOX 2 OF 2)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		ACHM SURFACE COURSE (1/2")				ACHM SURFACE COURSE (1/2") - WIDENING				ACHM BINDER COURSE (1") - WIDENING				ACHM BASE COURSE (1 1/2") - WIDENING				TACK COAT			
				TON / STATION	TON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 76-22 TON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 76-22 TON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID.	SQ.YD.	GALLONS/ SQ.YD.	GALLONS
			FT.			FEET				FT.				FT.				FT.				FT.			
ADDITIONAL FOR LEVELING																									
23+55.00	24+50.00	HWY. 264 LEVELING	95.00			50.58	533.90	220.00	58.73													50.58	533.90	0.10	53.39
24+50.00	28+27.91	HWY. 264 LEVELING	377.91			39.15	1643.91	220.00	180.83													39.15	1643.91	0.10	164.39
31+64.20	37+00.00	HWY. 264 LEVELING	535.80			39.67	2361.69	220.00	259.79													39.67	2361.69	0.10	236.17
37+00.00	41+05.00	HWY. 264 LEVELING	405.00			60.08	2703.60	220.00	297.40													60.08	2703.60	0.10	270.36
41+05.00	46+40.00	HWY. 264 LEVELING	535.00			56.92	3383.58	220.00	372.19													56.92	3383.58	0.10	338.36
46+40.00	49+20.00	HWY. 264 LEVELING - TAPER	280.00			53.78	1673.16	220.00	184.05													53.78	1673.16	0.10	167.32
608+80.00	616+01.06	RAMP 1 LEVELING	721.06			21.46	1719.33	220.00	189.13													21.46	1719.33	0.10	171.93
613+27.70	614+73.31	RAMP 2 LEVELING	145.61			26.59	430.14	220.00	47.32													26.59	430.20	0.10	43.02
614+03.20	618+40.00	RAMP 3 LEVELING	436.80			19.90	965.99	220.00	106.26													19.90	965.81	0.10	96.58
614+09.58	615+18.43	RAMP 4 LEVELING	108.85			21.61	261.41	220.00	28.76													21.61	261.36	0.10	26.14
616+77.58	617+38.00	S. 6TH PL. LEVELING	60.42			54.60	366.55	220.00	40.32													54.60	366.55	0.10	36.66
612+66.98	613+25.88	N. 6TH PL. LEVELING	58.90			34.46	225.52	220.00	24.81													34.46	225.52	0.10	22.55
13+50.00	14+72.85	S. DIXIELAND RD. LEVELING	122.85			47.89	653.70	220.00	71.91													47.89	653.70	0.10	65.37
		N. DIXIELAND RD. LEVELING	50.40			69.03	386.58	220.00	42.52													69.03	386.57	0.10	38.66
ADDITIONAL FOR MAINTENANCE OF TRAFFIC																									
26+18.00	28+63.00	HWY. 264 RT. STAGE 2	245.00				108.99	220.00	11.99									108.99	660.00	36.00			108.99	0.03	3.27
31+29.00	33+47.00	HWY. 264 RT. STAGE 2	218.00				107.13	220.00	11.78									107.13	660.00	35.40			107.13	0.03	3.21
SUBTOTALS (BOX 1 OF 2):					**1636.90**		**27288.60**		**3001.76**		**6482.89**		**713.14**		**5869.01**		**1452.60**		**6533.93**		**1796.85**		**38597.70**		**2537.33**
SUBTOTALS (BOX 2 OF 2):							**17525.18**		**1927.79**										**216.12**		**71.40**		**17525.00**		**1737.38**
TOTALS:					**1636.90**		**44813.78**		**4929.55**		**6482.89**		**713.10**		**5869.01**		**1452.60**		**6750.05**		**1868.25**		**56122.70**		**4274.71**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.0% MIN. AGGR.....4.0% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22

CONCRETE BASE

STATION	STATION	LOCATION	LENGTH	TACK COAT 0.10 GAL. PER SQ.YD.			PORTLAND CEMENT CONCRETE BASE			
				AVG. WID.	SQ.YD.	GAL.	AVG. WID.	4 1/2 " U.T.	AVG. WID.	5" U.T.
			FT.	FT.			FT.	SQ.YD.	FT.	SQ.YD.
23+75	24+18	CURB AND GUTTER HWY. 264 RT.	43						2.5	32.7
37+84	38+83	CURB AND GUTTER HWY. 264 RT.	99						2.5	27.5
40+11	43+28	CURB AND GUTTER HWY. 264 RT.	317						2.5	88.1
44+74	49+20	CURB AND GUTTER HWY. 264 RT.	446						2.5	124.0
47+55	49+20	CURB AND GUTTER HWY. 264 LT.	165	VAR.	72.1	7.2	VAR.	72.1	VAR.	118.0
SIDE ROADS										
12+25	13+50	NOTCH AND WIDEN S. DIXIELAND RD. ON LT.	125	VAR.	47.3	4.7	VAR.	47.3	2.5	82.0
13+18	13+50	NOTCH AND WIDEN S. DIXIELAND RD. ON RT.	32	VAR.	7.8	0.8	VAR.	7.8	2.5	18.3
13+50	14+73	NOTCH AND WIDEN S. DIXIELAND RD. ON LT.	123	VAR.	132.9	13.3	VAR.	132.9	2.5	167.1
13+50	14+73	NOTCH AND WIDEN S. DIXIELAND RD. ON RT.	123	VAR.	120.4	12.0	VAR.	120.4	2.5	154.6
		NOTCH AND WIDEN N. DIXIELAND RD. ON LT.	50	VAR.	56.5	5.7	VAR.	56.5	2.5	70.4
		NOTCH AND WIDEN N. DIXIELAND RD. ON RT.	50	VAR.	55.5	5.6	VAR.	55.5	2.5	69.4
612+67	613+26	NOTCH AND WIDEN NORTH 6TH PLACE RT.	35	VAR.	24.1	2.4	VAR.	24.1	2.5	45.2
612+67	613+26	NOTCH AND WIDEN NORTH 6TH PLACE LT.	31	VAR.	11.2	1.1	VAR.	11.2	2.5	39.0
616+78	617+38	CURB AND GUTTER SOUTH 6TH PLACE LT.	60						2.5	20.8
616+78	617+38	NOTCH AND WIDEN SOUTH 6TH PLACE RT.	60	VAR.	9.6	1.0	VAR.	9.6	2.5	40.1
RAMPS										
614+97	616+26	NOTCH AND WIDEN RAMP 1 RT.	129	VAR.	89.6	9.0	VAR.	89.6	4.5	134.4
614+00	614+38	NOTCH AND WIDEN RAMP 2 LT.	38	VAR.	13.2	1.3	VAR.	13.2	2.5	23.8
613+36	614+38	NOTCH AND WIDEN RAMP 2 RT.	102	VAR.	16.0	1.6	VAR.	16.0	3.5	48.0
614+12	615+02	NOTCH AND WIDEN RAMP 3 RT.	90	VAR.	29.4	2.9	VAR.	29.4	5.5	49.5
614+10	614+49	NOTCH AND WIDEN RAMP 4 LT.	39	VAR.	14.0	1.4	VAR.	14.0	3.5	25.3
614+10	615+20	NOTCH AND WIDEN RAMP 4 RT.	110	VAR.	34.5	3.5	VAR.	34.5	2.5	60.7
TOTALS:						**73.5**		**734.1**		**1438.9**

QUANTITIES FOR
FAP NO. BIM-B540(211)

DESIGN FILE: G:\1210330l_Hwy264\TRANSP\dgn\quantities\BB0902 Quant_08.dgn MODEL: QUANTITIES
PLOTTED: 10/17/2014 14:07 SCALE: 20:1

G:\1210330l_Hwy264\TRANSP\dgn\quantities\BB0902 Quant_08.dgn 10/17/2014 14:07

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	44	184

(2) QUANTITIES

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE A) LIN.FT.
20+50	23+55	HWY. 264 ON LT.	305
TOTAL:			305

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	DESCRIPTION	FENCE LIN. FT.
21+66	23+55	HWY. 264 LT		239
14+00	16+44	HWY. 264 RT.	3 FT. CHAIN LINK FENCE	264
TOTAL:				503

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED		TRAFFIC DRUMS	VIDEO DETECTOR ROTATION	RELOCATION OF TRAFFIC SIGNAL HEAD
			EACH-LIN.FT.			NO.	SQ.FT.	EACH	EACH	
G20-2	END ROAD WORK	48"x24"	2	2	2	2	16.0			
RSP-1	SHOULDER CLOSED	48"x30"	4	4		4	40.0			
W20-1	ROAD WORK AHEAD	48"x48"	2	2		2	32.0			
	TRAFFIC DRUMS		22	24		24		24		
	RELOCATION OF TRAFFIC SIGNAL HEAD									14
	VIDEO DETECTOR ROTATION								4	
TOTALS:							88.0	24	4	14

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

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT CLASS III 18"	FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS 18"	DROP INLETS TYPE MO	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.	EACH		SQ. YD.	M.GAL.	
19+81	DROP INLET ON RT	4	1	1	5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
20+70	DROP INLET ON LT	4	1	1	5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
21+87	DROP INLET ON RT	4	1	1	5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
22+50	DROP INLET ON LT	4	1	1	5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
23+06	DROP INLET ON RT	4	1	1	5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
TOTALS:		20	5	5	25	0.30	

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

EARTHWORK

STATION	STATION	LOCATION/DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	SOIL STABILIZATION
			CU.YD.	CU.YD.	TON
14+20	23+55	HWY. 264 STAGE 1	621	1200	
14+20	23+55	HWY. 264 STAGE 2	1594	297	
14+20	23+55	CONSTRUCT APPROACHES		146	
ENTIRE	PROJECT	TO BE USED IF AND WHERE			10
		DIRECTED BY THE ENGINEER			
TOTALS:			2215	1643	10

NOTE: EARTHWORK QUANTITIES AT THE LOCATIONS SHOWN ABOVE SHALL BE PAID FOR AS PLAN QUANTITY.

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS ARROWS	CONSTRUCTION PAVEMENT MARKINGS ARROWS	RAISED PAVEMENT MARKERS TY. II (WHT/RED)	RAISED PAVEMENT MARKERS TY. II (YEL/YEL)	THERMOPLASTIC PAVEMENT MARKING 4" WHITE	THERMOPLASTIC PAVEMENT MARKING 4" YELLOW	THERMOPLASTIC PAVEMENT MARKING 8" WHITE	THERMOPLASTIC PAVEMENT MARKING 12" WHITE	THERMOPLASTIC PAVEMENT MARKING 12" YELLOW	THERMOPLASTIC PAVEMENT MARKING WORDS	THERMOPLASTIC PAVEMENT MARKING ARROWS	HIGH PERFORMANCE PAVEMENT MARKING 4" WHITE SKIP
	LIN. FT.-EACH			LIN. FT.		EACH	EACH	EACH		LIN. FT.					EACH		LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS	3157			3157													
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	2767	2713			5480												
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS (ARROWS)	1	2				3											
CONSTRUCTION PAVEMENT MARKINGS (ARROWS)			5				5										
RAISED PAVEMENT MARKERS (TYPE II) (WHITE/RED)			6					6									
RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW)			13						13								
THERMOPLASTIC PAVEMENT MARKING-WHITE (4")			1139							1139							
HIGH PERFORMANCE PAVEMENT MARKING-WHITE SKIP (4")			100														100
THERMOPLASTIC PAVEMENT MARKING-WHITE (12")			701										701				
THERMOPLASTIC PAVEMENT MARKING-WHITE (8")			123									123					
THERMOPLASTIC PAVEMENT MARKING-YELLOW (12")			119											119			
THERMOPLASTIC PAVEMENT MARKING-YELLOW (4")			844								844						
THERMOPLASTIC PAVEMENT MARKING- WORD			4												4		
THERMOPLASTIC PAVEMENT MARKING-ARROW			6													6	
TOTALS:				3157	5480	3	5	6	13	1139	844	123	701	119	4	6	100

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-21-14

QUANTITIES FOR
FAP NO. STPC-B540(211)

USER: a1506
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\quantities\BB0902 Quant_ll.dgn
PLOTTED: 10/21/2014 13:11
SCALE: 20:1
MODEL: QUANTITIES

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	45	184

(2) QUANTITIES

DUMPED RIPRAP

STATION	STATION	SIDE	DUMPED RIPRAP	* FILTER BLANKET
			CU.YD.	SQ.YD.
19+67	19+74	LT.	5	9
19+81	19+81	RT	5	9
20+70	20+70	LT	5	9
22+50	22+50	RT	5	9
21+87	21+87	RT	5	9
23+06	23+06	RT	5	9
TOTALS:			30	54

NOTE: QUANTITIES ARE ESTIMATED. SEE SEC. 104.03 OF THE STANDARD SPECIFICATIONS.
*NOTE: FILTER BLANKET SHALL BE GEOTEXTILE FABRIC (TYPE 5).

CONCRETE WALKS

STATION	STATION	SIDE	DESCRIPTION	LENGTH	CONCRETE WALKS
				LIN.FT.	SQ.YD.
16+08	16+24	LT	HWY. 264 - GOAD SPRGS RD.	16	24
16+94	17+14	LT	HWY. 264 - GOAD SPRGS RD.	20	71
17+14	18+92	LT	HWY. 264	178	105
19+50	23+55	LT	HWY. 264	407	226
16+08	16+36	RT	HWY. 264 - GOAD SPRGS RD.	24	39
16+87	17+15	RT	HWY. 264 - GOAD SPRGS RD.	28	111
17+15	19+76	RT	HWY. 264	261	148
20+44	23+55	RT	HWY. 264	311	173
TOTAL:					897

WHEELCHAIR RAMPS

STATION	SIDE	TYPE 3
		SQ. YD.
16+16	RT	5
16+16	LT	6
16+18	LT	5
16+26	RT	5
16+98	RT	5
17+02	LT	5
17+08	LT	15
17+09	RT	12
18+93	LT	5
19+50	LT	5
19+76	RT	5
20+36	RT	5
TOTAL:		78

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
19+22	18" X 61' C.M., LT. SIDE DRAIN HWY. 264	1
20+10	18" X 53' R.C., RT. SIDE DRAIN HWY. 264	1
TOTAL:		2

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
13+50	17+50	HWY. 264	5	5
21+00	23+55	HWY. 264	3	3
TOTALS:			8	8

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	DESCRIPTION	CONCRETE DRIVEWAYS	CONCRETE WALKS	SIGNS	SIGN FOUNDATIONS	SPRINKLER SYSTEMS	LUMINAIRE POLES	BACKFLOW PREVENTER	WALLS
				SQ.YD.		EACH					LIN. FT.
18+83	19+60	HWY. 264 RT		198							
16+87	17+06	HWY. 264 RT			142						
16+94	17+15	HWY. 264 LT			115						
16+90	19+10	HWY. 264 LT.	SPRINKLER SYSTEM					1			
17+22.89		HWY. 264 RT.	SIGN & FOUNDATION			1	1				
17+70		HWY. 264 LT.	LUMINAIRE & POLES						1		
18+70		HWY. 264 LT.	BACKFLOW PREVENTER							1	
18+92		HWY. 264 LT.	BRICK WALL (SIGN)			1	1				11
19+00		HWY. 264 LT.	LUMINAIRE & POLES						1		
TOTALS:				198	257	2	2	1	2	1	11

CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")

STATION	STATION	SIDE	DESCRIPTION	CONC. COMB. CURB AND GUTTER (TYPE A) (1' 6")
				LIN.FT.
15+76.83	16+26.02	LT	HWY. 264	70
16+92.60	20+67.50	LT	HWY. 264	388
20+72.50	22+47.50	LT	HWY. 264	175
22+52.50	23+55	LT	HWY. 264	103
15+89.49	16+38.06	RT	HWY. 264	67
16+82.43	19+78.50	RT	HWY. 264	307
19+83.50	21+84.57	RT	HWY. 264	201
21+89.56	23+03.57	RT	HWY. 264	114
23+08.56	23+55	RT	HWY. 264	46
TOTAL:				1471

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL						TEMPORARY EROSION CONTROL							
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	SOLID SODDING	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	DROP INLET SILT FENCE (E-7)	SILT FENCE (E-11)	* SEDIMENT REMOVAL AND DISPOSAL
			ACRE	TON	ACRE	M. GAL.	ACRE	SQ. YD.	ACRE	ACRE	M. GAL.	BAG	CU. YD.	LIN.FT.	LIN.FT.	CU. YD.
13+20	16+53	HWY. 264 ON RT STAGE 1	0.16	0.32	0.16	16.3	0.16		0.16	0.16	3.3	22	3	18		12
16+74	19+90	HWY. 264 ON RT. STAGE 1	0.22	0.44	0.22	22.4	0.22		0.22	0.22	4.5	22	3	36	265	18
20+30	23+55	HWY. 264 ON RT. STAGE 1	0.18	0.36	0.18	18.4	0.18		0.18	0.18	3.7	22		36	346	17
13+20	16+60	HWY. 264 ON LT. STAGE 2	0.19	0.38	0.19	19.4	0.19		0.19	0.19	3.9	22	3	18		7
16+83	19+07	HWY. 264 ON LT. STAGE 2	0.02	0.04	0.02	3.7	0.02	135	0.02	0.02	0.4			18		1
19+36	23+55	HWY. 264 ON LT. STAGE 2	0.26	0.52	0.26	26.5	0.26		0.26	0.26	5.3		3	36		6
TOTALS:			1.03	2.06	1.03	106.7	1.03	135	1.03	1.03	21.1	88	12	162	611	61

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
No. 15560
10-17-14

QUANTITIES FOR
FAP NO. STPC-B540(211)

USER: at506
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\quantities\BB0902 Quant_13.dgn
PLOTTED: 10/17/2014 14:07
SCALE: 201
MODEL: QUANTITIES

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
12-02-14				6	ARK.			
				JOB NO.		BB0902	46	184
				(2) QUANTITIES				

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		ACHM SURFACE COURSE (1/2")				ACHM SURFACE COURSE (1/2") - WIDENING				ACHM BINDER COURSE (1") - WIDENING				ACHM BASE COURSE (1 1/2") - WIDENING				TACK COAT			
			FT.	TON / STATION	TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 76-22 TON	AVG. WID. FT.	SQ.YD.	POUND / SQ.YD.	PG 76-22 TON	AVG. WID. FT.	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FT.	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FT.	SQ.YD.	GALLONS/ SQ.YD.	GALLONS
HWY. 264																									
13+20.00	14+20.00	COLD MILL & TRANSITION	100.00			23.76	264.00	220.00	29.04													23.76	264.00	0.10	26.40
14+20.00	15+55.00	TAPER - OVERLAY	135.00			23.69	355.35	220.00	39.09													23.69	355.35	0.10	35.54
14+20.00	15+55.00	TAPER - NOTCH & WIDEN LT. & RT.	135.00	79.50	107.33	16.09	241.35	220.00	26.55	6.63	99.45	220.00	10.94	6.76	101.40	495.00	25.10	6.96	104.40	550.00	28.71	20.35	305.25	0.03	9.16
15+55.00	16+75.00	OVERLAY	120.00			23.70	316.00	220.00	34.76													23.70	316.00	0.10	31.60
15+55.00	16+75.00	NOTCH & WIDEN LT. & RT.	120.00	159.00	190.80	30.30	404.00	220.00	44.44	14.25	190.00	220.00	20.90	14.52	193.60	495.00	47.92	14.92	198.93	550.00	54.71	43.69	582.53	0.03	17.48
16+75.00	21+64.00	OVERLAY	489.00			30.37	1650.10	220.00	181.51													30.37	1650.10	0.10	165.01
16+75.00	21+64.00	NOTCH & WIDEN LT. & RT.	489.00			25.59	1390.39	220.00	152.94	25.59	1390.39	220.00	152.94	25.59	1390.39	495.00	344.12	27.25	1480.55	550.00	407.15	78.43	4261.36	0.03	127.84
21+64.00	22+64.00	OVERLAY	100.00			41.95	466.11	220.00	51.27													41.95	466.11	0.10	46.61
21+64.00	22+64.00	NOTCH & WIDEN LT. & RT.	100.00			20.06	222.89	220.00	24.52	20.06	222.89	220.00	24.52	17.02	189.11	495.00	46.80	23.36	259.57	550.00	71.38	60.44	671.56	0.03	20.15
22+64.00	23+55.00	OVERLAY	91.00			51.55	521.23	220.00	57.34													51.55	521.23	0.10	52.12
22+64.00	23+55.00	NOTCH & WIDEN LT. & RT.	91.00			15.87	176.03	220.00	19.36	15.87	176.03	220.00	19.36	15.87	185.75	495.00	45.97	21.44	216.75	550.00	59.61	53.18	537.71	0.03	16.13
		N. GOAD SPRINGS RD. LT. & RT.	42.40			VARIES	390.43	220.00	42.95	VARIES	98.46	220.00	10.83									VARIES	488.89	0.03	14.67
		S. GOAD SPRINGS RD. LT. & RT.	39.60			VARIES	274.15	220.00	30.16	VARIES	86.55	220.00	9.52									VARIES	360.70	0.03	10.82
ADDITIONAL FOR LEVELING																									
14+20.00	15+55.00	HWY. 264 LEVELING - TAPER	135.00			23.69	355.35	220.00	39.09													23.69	355.35	0.10	35.54
15+55.00	16+75.00	HWY. 264 LEVELING	120.00			23.70	316.00	220.00	34.76													23.70	316.00	0.10	31.60
16+75.00	21+64.00	HWY. 264 LEVELING	489.00			30.37	1650.10	220.00	181.51													30.37	1650.10	0.10	165.01
21+64.00	22+64.00	HWY. 264 LEVELING - TAPER	100.00			41.95	466.11	220.00	51.27													41.95	466.11	0.10	46.61
22+64.00	23+55.00	HWY. 264 LEVELING	91.00			50.58	511.42	220.00	56.26													50.58	511.42	0.10	51.14
		N. GOAD SPRINGS RD. LEVELING	42.40			61.97	291.97	110.00	16.06													61.97	291.95	0.10	29.20
		S. GOAD SPRINGS RD. LEVELING	39.60			42.63	187.59	110.00	10.32													42.63	187.57	0.10	18.76
TOTALS:					**298.13**		**10450.57**		**1123.20**		**2263.77**		**249.01**		**2060.25**		**509.91**		**2260.20**		**621.56**		**14559.29**		**951.39**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.0% MIN. AGGR.....4.0% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22

DRIVEWAYS & TURNOUTS - BASE & SURFACING

STATION	SIDE	LOCATION	WIDTH	ADD'L LENGTH	**MODIFIED CURB		PORTLAND CEMENT CONCRETE DRIVEWAY		ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE CRS. CLASS 7	SIDE DRAINS 18"
							TURNOUT	ADD'L.				
			FT.		STATION	STATION	SQ.YD.		SQ. YD.	TON	TON	LIN. FT.
19+22	LT	HWY. 264	30	20.3	18+93	19+51	37.33	67.67				52
20+10	RT	HWY. 264	40	32.4	19+76	20+44	46.22		144.0	15.8	58.8	58
* ENTIRE	PROJECT	ADD'L. FOR TEMP. DRIVES									25.0	
TOTALS:							**83.55**	**67.67**	**144.0**	**15.8**	**83.8**	**110**

* QUANTITY ESTIMATED
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.
** FOR INFORMATION ONLY.
BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

CONCRETE BASE

STATION	STATION	LOCATION	LENGTH	TACK COAT 0.10 GAL. PER SQ.YD.			PORTLAND CEMENT CONCRETE BASE			
				AVG. WID.	SQ.YD.	GAL.	AVG. WID.	4 1/2 " U.T.	AVG. WID.	5" U.T.
			FT.	FT.			FT.	SQ.YD.	FT.	SQ.YD.
19+57	22+32	NOTCH AND WIDEN HWY. 264 RT.	275	VAR.	105.2	10.5	VAR.	105.2	2.5	181.7
		NOTCH AND WIDEN N. GOAD SPRINGS RD. LT.& RT.	42	VAR.	98.5	9.9	VAR.	98.5	2.5	130.1
		NOTCH AND WIDEN S. GOAD SPRINGS RD. LT.& RT.	40	VAR.	86.6	8.7	VAR.	86.6	2.5	117.5
TOTALS:						**29.1**		**290.3**		**429.3**

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	COLD MILLING ASPHALT PAVEMENT SQ.YD.
14+20	13+20	HWY. 264	265
TOTAL:			**265**

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
12-02-14

QUANTITIES FOR
FAP NO. STPC-B540(211)

USER: dd5109
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\quantities\BB0902 Quant_14.dgn
PLOTTED: 12/3/2014 16:28
SCALE: 201
MODEL: QUANTITIES

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	BB0902		47	184
				① 05949	BRIDGE QUANTITIES			55651

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. BB0902

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	801	802	802	803	804	804	805 ①	805	806	806	807	807 ②	SP & 808	809	812	816	821	SP JOB BB0902	SP JOB BB0902 ②	SP JOB BB0902 ③
			ITEM / UNIT	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE -BRIDGE	CLASS S (AE) CONCRETE -BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL - BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL PILING (HP 12X53)	PREBORING	METAL BRIDGE RAILING (TYPE H)	TRANSITIONAL APPROACH RAILING	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50)	PAINTING STRUCTURAL STEEL	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	CONCRETE RIPRAP	MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO.)	ARCHITECTURAL FINISH	CLEANING AND PAINTING EXISTING STRUCTURAL STEEL	TEXTURED COATING FINISH
				CU. YD.	CU. YD.	CU. YD.	SQ. YD.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	LB.	TON	CU. IN.	LIN. FT.	EACH	CU. YD.	LUMP SUM	SQ. FT.	TON	SQ. YD.
05949	HWY. 264 OVER I-49	BENT NO. 1			14.65		8.8	1538		60	56		2	1660					39		36		78
		BENT NO. 2		62	45.45			7945															228
		BENT NO. 3		137	75.13			8521															278
		BENT NO. 4		82	44.12			7698															214
		BENT NO. 5			14.65		8.8	1538		68			2	1660					55		36		78
		264'-0" CONT. COMP. W-BEAM UNIT				601.80	2348.4		160020			514		222580	113.5	17453.0	160	1			1589		640
		EXIST. BRG. NO. 05949																		1.00		166.7	
		SITE NO. 1																					
TOTALS FOR JOB BB0902			④ 281	194.00	601.80		2366.0	27240	160020	128	56	514	4	225900	113.5	17453.0	160	1	94	1.00	1661	166.7	1516

① STEEL PILING SHALL HAVE SPECIAL DRIVING POINTS WHICH SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM "STEEL PILING (HP 12X53)."

② THE COLOR OF PAINT FOR STRUCTURAL STEEL SHALL CONFORM TO FEDERAL STD. 595B, COLOR CHIP NO. 26122 (DARK GRAY).

③ THE COLOR OF PAINT FOR TEXTURED COATING FINISH SHALL CONFORM TO FEDERAL STD. 595B, COLOR CHIP NO. 37150 (GRAY).

④ INCLUDES APPROXIMATELY 59 CU. YD. OF ROCK EXCAVATION.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
10/09/14
CHARLES A. WIPF

SCHEDULE OF BRIDGE QUANTITIES
INTERSTATE 49 (HWY. 264)
HWY. 264 INTCHNG. IMPVTS. (S)
BENTON COUNTY
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-13-13 FILENAME: bbb0902_ql.dgn
CHECKED BY: JKJ DATE: 06-14-13 SCALE: NOT TO SCALE
DESIGNED BY: CAW DATE: 06-12-13
BRIDGE NO. 05949 DRAWING NO. 55651

USER: lr594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_ql.dgn
PLOTTED: 10/9/2014 16:16 SCALE: 2:1

SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM	QUANTITIES			UNIT
		BIM-B540(211)	STPC-B540(211)	TOTAL	
201	CLEARING	26	8	34	STATION
201	GRUBBING	26	8	34	STATION
202	REMOVAL AND DISPOSAL OF DROP INLETS	10		10	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	5	2	7	EACH
202	REMOVAL AND DISPOSAL OF DITCH PAVING	186		186	SQ. YD.
202	REMOVAL AND DISPOSAL OF FENCE	316	503	819	LIN. FT.
202	REMOVAL AND DISPOSAL OF CURB AND GUTTER	1977		1977	LIN. FT.
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS	337	198	535	SQ. YD.
202	REMOVAL AND DISPOSAL OF ISLANDS	41		41	SQ. YD.
202	REMOVAL AND DISPOSAL OF CONCRETE WALKS	280	257	537	SQ. YD.
202	REMOVAL AND DISPOSAL OF GUARDRAIL	556		556	LIN. FT.
202	REMOVAL AND DISPOSAL OF APPROACH SLAB AND GUTTERS	2		2	EACH
202	REMOVAL AND DISPOSAL OF SIGNS	3	2	5	EACH
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS	8	2	10	EACH
202	REMOVAL AND DISPOSAL OF BACKFLOW PREVENTER		1	1	EACH
202	REMOVAL AND DISPOSAL OF LUMINAIRE POLES		2	2	EACH
202	REMOVAL AND DISPOSAL OF WALLS		11	11	LIN. FT.
202	REMOVAL AND DISPOSAL OF SPRINKLER SYSTEM		1	1	EACH
202	REMOVAL AND DISPOSAL OF METER POLES	1		1	EACH
202	REMOVAL AND DISPOSAL OF FLAG POLE	3		3	EACH
210	UNCLASSIFIED EXCAVATION	15302	2215	17517	CU. YD.
210	COMPACTED EMBANKMENT	14262	1643	15905	CU. YD.
SP & 210	SOIL STABILIZATION	40	10	50	TON
303	AGGREGATE BASE COURSE (CLASS 7)	1723	382	2105	TON
309	PORTLAND CEMENT CONCRETE BASE (4 1/2" UNIFORM THICKNESS)	734	290	1024	SQ. YD.
309	PORTLAND CEMENT CONCRETE BASE (5" UNIFORM THICKNESS)	1439	429	1868	SQ. YD.
401	TACK COAT	4463	980	5443	GAL.
SP & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")	1793	597	2390	TON
SP & 405	ASPHALT BINDER (PG70-22) IN ACHM BASE COURSE (1 1/2")	75	25	100	TON
SP, SS & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	1391	488	1879	TON
SP, SS & 406	ASPHALT BINDER (PG70-22) IN ACHM BINDER COURSE (1")	62	22	84	TON
SP, SS & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	5335	1312	6647	TON
SP, SS & 407	ASPHALT BINDER (PG64-22) IN ACHM SURFACE COURSE (1/2")	1	1	2	TON
SP, SS & 407	ASPHALT BINDER (PG76-22) IN ACHM SURFACE COURSE (1/2")	310	75	385	TON
412	COLD MILLING ASPHALT PAVEMENT	2939	265	3204	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	50		50	TON
SP & 415	ACHM PATCHING OF EXISTING ROADWAY	200		200	TON
505	PORTLAND CEMENT CONCRETE DRIVEWAY	501.09	151.22	652.31	SQ. YD.
601	MOBILIZATION	0.70	0.30	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	0.7	0.3	1	EACH
SP & 603	MAINTENANCE OF TRAFFIC	0.70	0.30	1.00	LUMP SUM
604	SIGNS	1408	88	1496	SQ. FT.
604	BARRICADES	8		8	LIN. FT.
604	TRAFFIC DRUMS	183	24	207	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	2699		2699	LIN. FT.
604	RELOCATING PRECAST CONCRETE BARRIER	486		486	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	14581		14581	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS (ARROWS)	35	5	40	EACH
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	31990	5480	37470	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS (ARROWS)	79	3	82	EACH
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	6593	3157	9750	LIN. FT.
604	ADVANCE WARNING ARROW PANEL	400		400	DAY
604	PORTABLE CHANGEABLE MESSAGE SIGN	800		800	DAY
605	CONCRETE DITCH PAVING (TYPE B)	709		709	SQ. YD.
606	SELECTED PIPE BEDDING	30		30	CU. YD.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	221	20	241	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	162		162	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	46		46	LIN. FT.
606	36" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	6		6	LIN. FT.
SP & 606	18" SIDE DRAIN		110	110	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	20	5	25	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	3		3	EACH
609	DROP INLETS (TYPE C)	4		4	EACH
609	DROP INLETS (TYPE MO)	29	5	34	EACH
609	DROP INLET EXTENSIONS (4')	16		16	EACH
609	DROP INLET EXTENSIONS (8')	3		3	EACH
609	JUNCTION BOXES (TYPE E)	2		2	EACH
610	DROP INLETS ADJUSTED TO GRADE	4		4	EACH
615	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)	80		80	TON
619	WIRE FENCE (TYPE A)	313	305	618	LIN. FT.
620	LIME	15	2	17	TON
620	SEEDING	7.32	1.03	8.35	ACRE
SS & 620	MULCH COVER	14.64	2.06	16.70	ACRE
620	WATER	943.2	128.1	1071.3	M. GAL.
621	TEMPORARY SEEDING	7.32	1.03	8.35	ACRE
621	SILT FENCE	4410	611	5021	LIN. FT.
621	SAND BAG DITCH CHECKS	714	88	802	BAG
621	DROP INLET SILT FENCE	980	162	1142	LIN. FT.
621	SEDIMENT REMOVAL AND DISPOSAL	401	61	462	CU. YD.
621	ROCK DITCH CHECKS	93	12	105	CU. YD.
623	SECOND SEEDING APPLICATION	7.54	1.03	8.57	ACRE
624	SOLID SODDING	1944	160	2104	SQ. YD.
631	CONCRETE BARRIER WALL (PIER PROTECTION TYPE A)	36		36	LIN. FT.
632	CONCRETE ISLAND	81		81	SQ. YD.
633	CONCRETE WALKS	1838	897	2735	SQ. YD.
SP & 633	CONCRETE WALKS (SPECIAL)	40		40	SQ. YD.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")	5095	1471	6566	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL	0.30	0.70	1.00	LUMP SUM
637	MAILBOXES	2		2	EACH
637	MAILBOX SUPPORTS (SINGLE)	2		2	EACH
641	WHEELCHAIR RAMPS (TYPE 2)	40		40	SQ. YD.
641	WHEELCHAIR RAMPS (TYPE 3)	117	78	195	SQ. YD.
SP & 701	SYSTEM LOCAL CONTROLLER TS 2 -TYPE 2 (8 PHASES)	3		3	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	40		40	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	2		2	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (5 SECTION, 1 WAY)	1		1	EACH
SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	22		22	EACH
708	TRAFFIC SIGNAL CABLE (5C/ 14 A.W.G.)	6760		6760	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/ 14 A.W.G.)	162		162	LIN. FT.
708	TRAFFIC SIGNAL CABLE (12C/ 14 A.W.G.)	285		285	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/ 14 A.W.G.)	1106		1106	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")	40		40	LIN. FT.
710	NON-METALLIC CONDUIT (1")	30		30	LIN. FT.
710	NON-METALLIC CONDUIT (2")	191		191	LIN. FT.
710	NON-METALLIC CONDUIT (3")	1254		1254	LIN. FT.
SP & 711	CONCRETE PULL BOX (TYPE 1 HD)	4		4	EACH
SP & 711	CONCRETE PULL BOX (TYPE 2 HD)	15		15	EACH
SP	ANTENNA SUPPORT (SHOE BASE, 30' HT.)	2		2	EACH
SP	ANTENNA SUPPORT (SHOE BASE, 50' HT.)	1		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (32')	1		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (40')	1		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (42'-42')	1		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (42')	1		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')	1		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (54')	3		3	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (68')	2		2	EACH
715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	6		6	EACH
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10")	171		171	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	4198	1139	5337	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (8")	381	123	504	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	4400	701	5101	LIN. FT.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JERRY PAUL DAVIS
13560
12-02-14

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
12-02-14			

(2)

SUMMARY OF QUANTITIES

FED.RD. DISTJNO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	BB0902	48	184

JOB NO.

SUMMARY OF QUANTITIES

SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM	ITEM	QUANTITIES			UNIT
		BIM-B540(211)	STPC-B540(211)	TOTAL	
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	5798	844	6642	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (12")	58	119	177	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	20	4	24	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	31	6	37	EACH
SP & 719	INVERTED PROFILE THERMOPLASTIC PAVEMENT MARKING WHITE (4") (ALTERNATE NO. 1)	3005		3005	LIN. FT.
SP	HIGH PERFORMANCE MARKING TAPE WHITE (4") (ALTERNATE NO. 2)	3005		3005	LIN. FT.
SP & 719	INVERTED PROFILE THERMOPLASTIC PAVEMENT MARKING (SKIP LINE) WHITE (4") (ALTERNATE NO. 1)	980	100	1080	LIN. FT.
SP	HIGH PERFORMANCE MARKING TAPE (SKIP LINE) WHITE (4") (ALTERNATE NO. 2)	980	100	1080	LIN. FT.
SP & 719	INVERTED PROFILE THERMOPLASTIC PAVEMENT MARKING YELLOW (4") (ALTERNATE NO. 1)	2930		2930	LIN. FT.
SP	HIGH PERFORMANCE MARKING TAPE YELLOW (4") (ALTERNATE NO. 2)	2930		2930	LIN. FT.
SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING WHITE (4") (ALTERNATE NO. 1)	160		160	LIN. FT.
SP	HIGH PERFORMANCE CONTRAST MARKING TAPE WHITE (4") (ALTERNATE NO. 2)	160		160	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	100	19	119	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER	3		3	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	3		3	EACH
733	VIDEO CABLE	3605		3605	LIN. FT.
SP & 733	VIDEO DETECTOR (CLR)	19		19	EACH
SP & 733	VIDEO EDGE CARD EXTENDER	1		1	EACH
733	VIDEO MONITOR (CLR)	3		3	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	10		10	EACH
SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)	3		3	EACH
816	DUMPED RIPRAP	617	30	647	CU. YD.
816	FILTER BLANKET	1216	54	1270	SQ. YD.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	1223		1223	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/ 8 A.W.G., EGC)	1838		1838	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/ 6 A.W.G.)	60		60	LIN. FT.
SP	EMERGENCY BACKUP LOCAL RADIO (E-NET 5.8) WITH ANTENNA	1		1	EACH
SP	LOCAL RADIO (E-NET 5.8) WITH ANTENNA	2		2	EACH
SP	LUMINAIRE ASSEMBLY	7		7	EACH
SP	MASTER RADIO (E-NET 5.8) WITH ANTENNA	1		1	EACH
SP	ON-STREET MASTER CONTROLLER	1		1	EACH
SP	RELOCATION OF TRAFFIC SIGNAL HEAD	6	14	20	EACH
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	1.00		1.00	LUMP SUM
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	3		3	EACH
SP	18" STREET NAME SIGN	10		10	EACH
SP	VIDEO DETECTOR ROTATION		4	4	EACH
	STRUCTURES OVER 20'-0" SPAN				
636	BRIDGE CONSTRUCTION CONTROL	1.00		1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	281		281	CU. YD.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	105		105	CU. YD.
802	CLASS S CONCRETE-ROADWAY	296.57		296.57	CU. YD.
802	CLASS S CONCRETE-BRIDGE	194.00		194.00	CU. YD.
802	CLASS S (AE) CONCRETE-BRIDGE	601.80		601.80	CU. YD.
803	CLASS 2 PROTECTIVE SURFACE TREATMENT	2366.0		2366.0	SQ. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	45738		45738	LB.
804	REINFORCING STEEL-BRIDGE (GRADE 60)	27240		27240	LB.
804	EPOXY COATED REINFORCING STEEL (GRADE 60)	160020		160020	LB.
805	STEEL PILING (HP 12X53)	128		128	LIN. FT.
805	PREBORING	56		56	LIN. FT.
806	METAL BRIDGE RAILING (TYPE H)	514		514	LIN. FT.
806	TRANSITIONAL APPROACH RAILING	4		4	EACH
807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50)	225900		225900	LB.
807	PAINTING STRUCTURAL STEEL	113.5		113.5	TON
SP & 808	ELASTOMERIC BEARINGS	17453.0		17453.0	CU. IN.
809	SILICONE JOINT SEALANT	160		160	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	1		1	EACH
816	CONCRETE RIPRAP	94		94	CU. YD.
821	MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 05949)	1.00		1.00	LUMP SUM
SP	ARCHITECTURAL FINISH	1661		1661	SQ. FT.
SP	CLEANING AND PAINTING EXISTING STRUCTURAL STEEL	166.7		166.7	TON
SP	TEXTURED COATING FINISH	1516		1516	SQ. YD.

* DENOTES ALTERNATE BID ITEMS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
12-02-14

REVISIONS

DATE	REVISION	SHEET NUMBER
12-02-14	REVISED QUANTITIES FOR ITEM "SYSTEM LOCAL CONTROLER T2-2 - TYPE 2 (8 PHASES)" REVISED QUANTITIES FOR ITEM "COLD MILLING ASPHALT PAVEMENT"	40,46,48,49, AND 71

SUMMARY OF QUANTITIES AND REVISIONS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED
12-02-14			

(2) SUMMARY OF QUANTITIES AND REVISIONS

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		49	184
JOB NO.		BB0902		

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	50	184

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES

Project Name: BB0902 Survey Control
Date: 2/21/2013
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
63	703093.5841	678132.5067	1287.44	CTL	5/8" Rebar with 2" Aluminum Cap
64	704674.1690	678365.1667	1265.44	CTL	5/8" Rebar with 2" Aluminum Cap
65	705886.2752	678925.4979	1272.74	CTL	5/8" Rebar with 2" Aluminum Cap
66	705527.6525	677992.5425	1285.57	CTL	5/8" Rebar with 2" Aluminum Cap
67	706084.3424	680531.4536	1296.23	CTL	5/8" Rebar with 2" Aluminum Cap
68	706220.6611	679218.5831	1272.14	CTL	5/8" Rebar with 2" Aluminum Cap
69	706190.3989	678478.5182	1307.11	CTL	5/8" Rebar with 2" Aluminum Cap
70	706223.4183	677800.1356	1313.54	CTL	5/8" Rebar with 2" Aluminum Cap
71	706330.1505	676619.7876	1323.47	CTL	5/8" Rebar with 2" Aluminum Cap
72	706104.9189	678321.1202	1287.99	CTL	5/8" Rebar with 2" Aluminum Cap
73	706902.0614	678350.3358	1302.32	CTL	5/8" Rebar with 2" Aluminum Cap
74	707029.8093	678748.4028	1304.74	CTL	5/8" Rebar with 2" Aluminum Cap
75	707030.5671	678097.5328	1306.37	CTL	5/8" Rebar with 2" Aluminum Cap
76	707815.1077	678422.6541	1309.69	CTL	5/8" Rebar with 2" Aluminum Cap
77	708559.6619	678410.9893	1313.91	CTL	5/8" Rebar with 2" Aluminum Cap
78	709422.3826	678481.0117	1314.33	CTL	5/8" Rebar with 2" Aluminum Cap
91	708188.9316	678352.3369	1310.74	CTL	5/8" Rebar with 2" Aluminum Cap
92	707160.6438	678314.6864	1304.34	CTL	5/8" Rebar with 2" Aluminum Cap
93	705873.8972	678268.2609	1282.84	CTL	5/8" Rebar with 2" Aluminum Cap
94	705077.5535	678235.7066	1267.48	CTL	5/8" Rebar with 2" Aluminum Cap
95	704299.1318	678203.3794	1271.48	CTL	5/8" Rebar with 2" Aluminum Cap
96	703629.4554	678131.5351	1285.55	CTL	5/8" Rebar with 2" Aluminum Cap
97	703074.5172	677985.6666	1284.55	CTL	5/8" Rebar with 2" Aluminum Cap
98	702004.9825	677464.3042	1291.64	CTL	5/8" Rebar with 2" Aluminum Cap
99	701370.7345	676955.1799	1308.79	CTL	5/8" Rebar with 2" Aluminum Cap
100	700851.5602	676354.0909	1310.26	CTL	5/8" Rebar with 2" Aluminum Cap
101	700465.5549	675714.1856	1311.70	CTL	5/8" Rebar with 2" Aluminum Cap
102	700195.6915	675140.4283	1312.33	CTL	5/8" Rebar with 2" Aluminum Cap
103	699876.8548	674433.7470	1310.04	CTL	5/8" Rebar with 2" Aluminum Cap
104	699633.3729	673897.7233	1304.81	CTL	5/8" Rebar with 2" Aluminum Cap
105	699300.6563	673165.6804	1293.52	CTL	5/8" Rebar with 2" Aluminum Cap
106	698974.0278	672530.3800	1292.35	CTL	5/8" Rebar with 2" Aluminum Cap
107	698645.1214	671950.2715	1273.24	CTL	5/8" Rebar with 2" Aluminum Cap
108	698323.5724	671395.5823	1258.77	CTL	5/8" Rebar with 2" Aluminum Cap
109	698036.7540	670902.7747	1253.22	CTL	5/8" Rebar with 2" Aluminum Cap
110	697624.0839	670411.2557	1253.83	CTL	5/8" Rebar with 2" Aluminum Cap
111	697072.6646	669984.2869	1257.33	CTL	5/8" Rebar with 2" Aluminum Cap
112	700403.4065	676149.9076	1315.70	CTL	5/8" Rebar with 2" Aluminum Cap
113	700629.7808	676518.7832	1314.68	CTL	5/8" Rebar with 2" Aluminum Cap
114	700176.7232	675752.3604	1318.24	CTL	5/8" Rebar with 2" Aluminum Cap
510	698898.7791	672516.3079	1289.53	GPS	5/8" Rebar with 2" Aluminum Cap AHTD GPS 040051
511	697703.5968	670588.4147	1251.04	GPS	5/8" Rebar with 2" Aluminum Cap AHTD GPS 040051A
512	705599.8001	678469.4071	1273.40	GPS	5/8" Rebar with 2" Aluminum Cap AHTD GPS 040052
513	703836.6020	678245.3223	1282.04	GPS	5/8" Rebar with 2" Aluminum Cap AHTD GPS 040052A
908	701254.3835	676862.7721	1310.07	BM	OVERPASS SOUTH BOUND LANE
910	700434.1495	675535.8992	1312.53	BM	CPS IN POWER POLE
911	699270.2079	673244.6677	1290.31	BM	DROP INLET
912	697858.7129	670783.3865	1249.26	BM	CHISELED SQUARE IN CENTER OF MEDIAN
913	695571.9114	669214.3680	1261.45	BM	CPS IN POWER POLE
953	704798.8046	678203.7373	1262.08	BM	SQUARE CUT IN SOUTH END OF HEADWALL WEST OF I49
954	706143.4119	678342.3297	1285.89	BM	SQUARE CUT IN DROP INLET OF MEDIAN OF I49
955	706100.6223	680244.4081	1290.37	BM	SQUARE CUT IN BACK OF CATCH BASIN SOUTH OF 264
956	706214.8884	679451.3570	1268.61	BM	SQUARE CUT IN CENTER OF HEADWALL NORTH OF 264
957	706206.1984	678207.4017	1313.24	BM	AHTD CAP IN SOUTHWEST CORNER OF BRIDGE=5949 LM 0.83
958	706279.2056	676719.5732	1323.54	BM	CPS IN COMBINATION POLE
959	707355.5667	678386.4451	1303.45	BM	SQUARE CUT IN DROP INLET OF MEDIAN OF I49
960	708275.8313	678420.1109	1309.49	BM	SQUARE CUT IN DROP INLET OF MEDIAN OF I49
979	702511.2849	677826.4837	1275.99	BM	SQUARE CUT IN DROP INLET OF MEDIAN OF I49

*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 0.9999455889 HAS BEEN USED TO COMPUTE THE GROUND COORDINATES LISTED ABOVE.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME S001966GI.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: 040052-040052A AND 040047-040047A
CONVERGENCE ANGLE: 01-15-36.86 LEFT AT LT: 36-17-41.57 LG: 094-09-56.64
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

HWY. 264 (CL Const Hwy. 264)

POINT NAME		STATION	NORTHING	EASTING
8000	POB	11+23.42	706318.6247	676471.0839
8001	PI	18+45.27	706284.4717	677192.1215
8002	PI	20+50.00	706275.0322	677396.6351
8003	PI	28+00.00	706239.0062	678145.7694
8004	PI	32+00.00	706219.0370	678545.2706
8005	PI	40+82.00	706173.3393	679426.0860
8006	POE	55+00.00	706101.3045	680842.2551

I-49 (CL Const I-49)

POINT NAME		STATION	NORTHING	EASTING
8007	POB	595+00.00	704275.0981	678274.3314
8008	POE	640+98.99	708871.0386	678441.7783

N. 6TH PLACE (CL Const North Frontage Rd.)

POINT NAME		STATION	NORTHING	EASTING
8009	POB	612+19.30	706180.1785	679294.2633
8010	PC	613+03.78	706262.7999	679276.6562
	PI	614+19.30	706375.7861	679252.5782
8011	CC		706122.3070	678617.3919
8012	PT	615+32.60	706474.3069	679192.2516
8013	PC	625+93.69	707379.2206	678638.1521
	PI	627+93.70	707549.7974	678533.7040
8014	CC		707731.2205	679213.0119
8015	PT	629+82.56	707749.7366	678539.1983
8016	POE	634+99.94	708266.9267	678553.4105

RAMP 1 (CL Const Ramp 1)

POINT NAME		STATION	NORTHING	EASTING
8018	PC	597+04.87	704478.1098	678328.2631
	PI	598+00.07	704573.2466	678331.7293
8019	CC		704408.5728	680236.8561
8020	PT	598+95.11	704667.5670	678344.6393
8021	PC	604+34.03	705201.5081	678417.7216
	PI	606+55.82	705421.2514	678447.7987
8022	CC		705110.0983	679085.5629
8023	PT	608+62.57	705580.2029	678602.4797
8024	PC	612+74.55	705875.4549	678889.7994
	PI	613+85.88	705955.2410	678967.4419
8025	CC		706208.4456	678547.6154
8026	PT	614+93.30	706061.1394	679001.7889
8027	POE	616+32.06	706193.1313	679044.5990

RAMP 2 (CL Const Ramp 2)

POINT NAME		STATION	NORTHING	EASTING
8027	POB	612+96.70	706193.1313	679044.5990
8028	PC	614+17.02	706310.8068	679019.5217
	PI	616+29.60	706518.7202	678975.2142
8029	CC		706012.2594	677618.5851
8030	PT	618+39.10	706704.8043	678872.4334
8031	PC	624+25.32	707217.9508	678589.0044
	PI	627+14.22	707470.8398	678449.3248
8032	CC		707721.6190	679500.8925
8033	PT	629+88.96	707759.5482	678459.8435

RAMP 3 (CL Const Ramp 3)

POINT NAME		STATION	NORTHING	EASTING
8034	POB	613+72.20	706255.8184	677796.1734
8035	PC	615+38.30	706414.0098	677846.8207
	PI	617+22.20	706589.1509	677902.8947
8036	CC		705831.6591	679665.7298
8037	PT	619+04.97	706750.3746	677991.3570
8038	PC	622+33.67	707038.5452	678149.4739
	PI	624+69.17	707245.0098	678262.7595
8039	CC		707651.0222	677033.2254
8040	PT	626+99.41	707478.3359	678294.7001
8041	PC	631+04.89	707880.0694	678349.6943
	PI	632+00.11	707974.4072	678362.6084
8042	CC		708139.0988	676457.4823
8043	PT	632+95.17	708069.5618	678366.0753

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14

RAMP 4 (CL Const Ramp 4)

POINT NAME		STATION	NORTHING	EASTING
8044	PC	599+53.70	704731.0007	678232.3245
	PI	602+00.02	704977.1606	678241.2930
8045	CC		704774.9188	677026.8973
8046	PT	604+39.66	705207.1282	678153.0316
8047	PC	611+60.23	705879.8532	677894.8403
	PI	612+69.82	705982.1647	677855.5732
8048	CC		706393.1019	679232.1248
8049	PT	613+78.98	706089.2589	677832.3271
8034	POE	615+49.42	706255.8184	677796.1734

S. DIXIELAND RD. (CL Const S Dixieland)

POINT NAME		STATION	NORTHING	EASTING
8050	POB	11+73.98	705831.3051	679736.4382
8051	POE	15+00.00	706157.2856	679741.6954

S. 6TH PLACE (CL Const South Frontage Rd.)

POINT NAME		STATION	NORTHING	EASTING
8052	POB	600+00.00	704740.1949	678454.6938
8053	PC	604+09.18	705148.0421	678487.6510
	PI	607+13.53	705451.4066	678512.1652
8054	CC		705093.7491	679159.5289
8055	PT	609+80.94	705633.6368	678755.9338
8056	PC	614+41.19	705909.2099	679124.5670
	PI	615+76.03	705989.9421	679232.5622
8057	CC		706249.1392	678870.4516
8058	PT	617+02.30	706118.2003	679274.1613
8009	POE	617+67.46	706180.1785	679294.2633

USER: jd5103
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\BB0902 Survey Ctl.dgn
PLOTTED: 10/9/2014 13:48
SCALE: 100=1
MODEL: SURVEY CONTROL DETAILS

SURVEY CONTROL DETAILS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	51	184

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13560
JEROME PAUL DAVIS
10-09-17

N

0 25 50 100 FEET
BAR SCALE

PI 11+23.42

PN:71
PD:RBR ALUM CAP

8000

S87°17'17.3"E

PN:958
PD:CPS IN COMBINATION POLE

15

HWY. 264

PI 18+45.27
Δ=00°04'09.2" LT

8001

S87°21'26.4"E

SURVEY BASELINE S84°49'59"E
1185.16'

20

PI 20+50.00
Δ=00°06'38.1" RT

8002

S87°14'48.3"E

25

8034

PN:70
PD:RBR ALUM CAP

SURVEY BASELINE S77°11'09"E
534.29'

615

N12°14'48.3"W

RAMP 3

PC 615+38.30

8035

N17°45'11.7"E

STA. 24+50.00 ℄ CONST. HWY. 264 =
STA. 613+72.20 ℄ CONST. RAMP 3
STA. 615+49.42 ℄ CONST. RAMP 4
Δ = 75°00'00"

RAMP 3 CURVE DATA
P.I. 617+22.20
Δ = 11°00'00.0" RT.
D = 3°00'00"
T = 183.90'
L = 366.67'
P.C. 615+38.30
P.T. 619+04.97

PT 619+04.97

8037

PI 613+78.98

8049

8029

RAMP 4 CURVE DATA
P.I. 612+69.82
Δ = 8°45'00.0" RT.
D = 4°00'00"
T = 109.59'
L = 218.75'
P.C. 611+60.23
P.T. 613+78.98

RAMP 4

PC 611+60.23

8047

SURVEY CONTROL DETAILS

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\BB0902 Survey Ctl.dgn
PLOTTED: 10/9/2014 13:49
SCALE: 1001
MODEL: SURVEY CONTROL DETAILS

G:\12103301_Hwy264\TRANSP\dgn\BB0902 Survey Ctl.dgn 10/9/2014 13:49

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	52	184

(2) SURVEY CONTROL DETAILS

N

0 25 50 100 FEET
BAR SCALE

RAMP 2 CURVE DATA
P.I. 616+29.60
Δ = 16°53'00.0" LT.
D = 4°00'00"
T = 212.58'
L = 422.08'
P.C. 614+17.02
P.T. 618+39.10

N. 6TH PL. CURVE DATA
P.I. 614+19.30
Δ = 19°27'00.0" LT.
D = 8°30'00"
T = 115.52'
L = 228.82'
P.C. 613+03.78
P.T. 615+32.60

RAMP ICURVE DATA
P.I. 613+85.88
Δ = 26°15'00.0" LT.
D = 12°00'00"
T = 111.33'
L = 218.75'
P.C. 612+74.55
P.T. 614+93.30

S. 6TH PL. CURVE DATA
P.I. 615+76.03
Δ = 35°15'00.0" LT.
D = 13°30'00"
T = 134.84'
L = 261.11'
P.C. 614+41.19
P.T. 617+02.30

STA. 614+55.22 ℄ CONST. HWY. I-49 =
STA. 30+00.00 ℄ CONST. HWY. 264
Δ = 90°46'30" LT.

STA. 37+00.00 ℄ CONST. HWY. 264 =
STA. 616+32.06 ℄ CONST. RAMP 1
STA. 612+96.70 ℄ CONST. RAMP 2
Δ = 75°00'00"

STA. 39+50.00 ℄ CONST. HWY. 264 =
STA. 612+19.30 ℄ CONST. N. 6TH PL.
STA. 617+67.46 ℄ CONST. S. 6TH PL.
Δ = 75°00'00"

PN:957
PD:AHTD CAP IN SOUTHWEST CORNER OF BRIDGE#5949 LM 0.83

PN:69
PD:RBR ALUM CAP

PN:954
PD:SQUARE CUT IN DROP INLET

PN:72
PD:5/8" REBAR & 2" CAP

PN:93
PD:RBR ALUM CAP

PN:65
PD:RBR ALUM CAP

PN:68
PD:RBR ALUM CAP

PN:956
PD:SQUARE CUT

SURVEY BASELINE N02°05'11.7"E 797.68'
SURVEY BASELINE N02°05'56"E 797.68'
SURVEY BASELINE S87°08'18.3"E
SURVEY BASELINE N87°39'30"E 740.68'
SURVEY BASELINE S87°01'48.3"E
SURVEY BASELINE S84°04'19"E 1319.93'
SURVEY BASELINE S77°11'09"E 534.29'
SURVEY BASELINE N61°29'40"E 179.11'
SURVEY BASELINE N12°53'16"E 236.99'
SURVEY BASELINE N02°20'27"E 797.01'
SURVEY BASELINE N12°01'48.3"W
SURVEY BASELINE N17°58'11.7"E

I-49
HWY. 264
N. 6TH PL.
RAMP 2
RAMP 1
S. 6TH PL.

P.I. 618+39.10
P.I. 615+32.60
P.C. 614+17.02
P.C. 613+03.78
P.I. 28+00.00 Δ=00°06'30.0" RT
P.I. 32+00.00 Δ=00°06'30.0" RT
P.I. 40+82.00 Δ=00°03'28.8" LT
P.I. 617+02.30
P.C. 614+93.30
P.C. 612+74.55
P.C. 614+41.19

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14

SURVEY CONTROL DETAILS

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\BB0902 Survey Ctl.dgn
PLOTTED: 10/9/2014 13:49
SCALE: 100:1
MODEL: SURVEY CONTROL DETAILS

G:\12103301_Hwy264\TRANSP\dgn\BB0902 Survey Ctl.dgn 10/9/2014 13:49

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

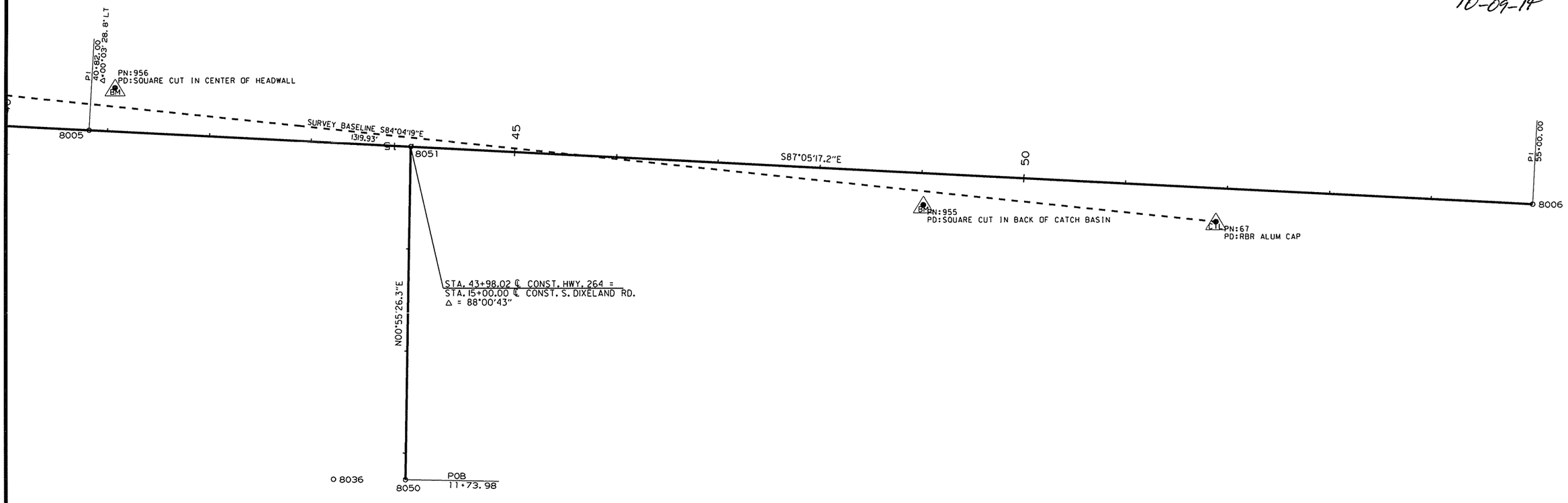
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	53	184

(2) SURVEY CONTROL DETAILS

N

0 25 50 100 FEET
BAR SCALE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15360
JEROME PAUL DAVIS
10-09-14



SURVEY CONTROL DETAILS

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\BB0902 Survey C11.dgn
PLOTTED: 10/9/2014 13:49 SCALE: 100:1 MODEL: SURVEY CONTROL DETAILS

G:\12103301_Hwy264\TRANSP\dgn\BB0902 Survey C11.dgn 10/9/2014 13:49

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	54	184

2 SURVEY CONTROL DETAILS

N

0 25 50 100 FEET
BAR SCALE

RAMP 4 CURVE DATA
P.I. 602+00.02
Δ = 23°05'00.0" LT.
D = 4°45'00"
T = 246.32'
L = 485.96'
P.C. 599+53.70
P.T. 604+39.66

PN:66
PD:RBR ALUM CAP

N20°59'48.3"W

RAMP 4

PT 604+39.66

PC 599+53.70

PN:953
PD:SQUARE CUT IN SOUTH END OF HEADWALL

SURVEY BASELINE N06°07'24"E
673.52'

PN:95
PD:RBR ALUM CAP

SURVEY BASELINE N23°20'06"E
408.45'

SURVEY BASELINE N17°47'36"W
423.65'

PN:94
PD:RBR ALUM CAP

I-49

SURVEY BASELINE N02°20'27"E
797.01'

8044 8046 8007 8018 8020 8021 8052 8053 8023 8055

600 605 610

POB 595+00.00

PC 597+04.87

PT 598+95.11

PN:64
PD:5/8" REBAR & 2" CAP

N07°47'37.8"E

N04°37'11.7"E

PC 604+34.03

PC 604+09.18

POB 600+00.00

RAMP 1 CURVE DATA
P.I. 598+00.07
Δ = 5°42'26.2" RT.
D = 3°00'00"
T = 95.20'
L = 190.24'
P.C. 597+04.87
P.T. 598+95.11

RAMP 1

PN:512
PD:RBR ALUM CAP 040052

RAMP I CURVE DATA
P.I. 606+55.82
Δ = 36°25'33.8" RT.
D = 8°30'00"
T = 221.79'
L = 428.54'
P.C. 604+34.03
P.T. 608+62.57

PT 608+62.57

S. 6TH PL.

S. 6TH PL. CURVE DATA
P.I. 607+13.53
Δ = 48°36'00.0" RT.
D = 8°30'00"
T = 304.35'
L = 571.76'
P.C. 604+09.18
P.T. 609+80.94

PT 609+80.94

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14

SURVEY CONTROL DETAILS

USER: jd5103
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\BB0902 Survey Ctl.dgn
PLOTTED: 10/9/2014 13:49
SCALE: 100:1
MODEL: SURVEY CONTROL DETAILS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	55	184

2 SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
No. 15560
10-09-14

RAMP 3 CURVE DATA
P.I. 624+69.17
Δ = 20°57'30.0" LT.
D = 4°30'00"
T = 235.50'
L = 465.74'
P.C. 622+33.67
P.T. 626+99.41

RAMP 2 CURVE DATA
P.I. 627+14.22
Δ = 31°00'00.0" RT.
D = 5°30'00"
T = 288.90'
L = 563.64'
P.C. 624+25.32
P.T. 629+88.96

N. 6TH PL. CURVE DATA
P.I. 627+93.70
Δ = 33°03'15.0" RT.
D = 8°30'00"
T = 200.01'
L = 388.87'
P.C. 625+93.69
P.T. 629+82.56

N
0 25 50 100 FEET
BAR SCALE

SURVEY CONTROL DETAILS

USER: jds103
DESIGN FILE: G:\1210330l_Hwy264\TRANSP\dgn\BB0902 Survey Ctl.dgn
PLOTTED: 10/9/2014 13:49
SCALE: 100.0
MODEL: SURVEY CONTROL DETAILS

G:\1210330l_Hwy264\TRANSP\dgn\BB0902 Survey Ctl.dgn 10/9/2014 13:49

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	56	184

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
* * *
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
No. 15560
10-09-14

MATCH LINE A

PN:77
PD:5/8" REBAR & 2" CAP

635

PN:960
PD:SQUARE CUT IN DROP INLET

8016 POE 634+99.94

I-49

PN:91
PD:RBR ALUM CAP

SURVEY BASELINE N00°53'51"W 744.65'

632+95.17 PT 8043

RAMP 3 CURVE DATA
P.I. 632+00.11
Δ = 5°42'30.0" LT.
D = 3°00'00"
T = 95.22'
L = 190.28'
P.C. 631+04.89
P.T. 632+95.17

631+04.89 PC 8041

RAMP 3

630

PN:76
PD:5/8" REBAR & 2" CAP

630 106.90 629+88.66 PT 8033

630 629+82.56 PT 8015

N. 6TH PL.

N01°34'26.7"E

SURVEY BASELINE N07°27'04"E 663.31'

N07°47'41.7"E

PN:78
PD:5/8" REBAR & 2" CAP

POE 8008 640+98.99

640

I-49

SURVEY BASELINE N04°38'25"E 865.55'

MATCH LINE A

N

0 25 50 100 FEET
BAR SCALE

SURVEY CONTROL DETAILS

USER: jdsl03
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\BB0902 Survey Ctl.dgn
PLOTTED: 10/9/2014 13:49 SCALE: 100# MODEL: SURVEY CONTROL DETAILS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	57	184

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13560
JEROME PAUL DAVIS
10-09-14

N

50 25 0 25 50 100

STA. 16+16 LT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 6 SQ. YDS.

STA. 16+18 LT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 15+93 IN PLACE
18" X 30' R.C. PIPE CULVERT
W/F.E.S. ON LT.
RETAIN

STA. 16+25 IN PLACE
CURB INLET ON LT.
W/1- 8' EXT. & 1- 4' EXT.
& 38" X 24" X 63' R.C.E. PIPE CULVERT
TO CURB INLET ON LT.
RETAIN

STA. 16+58 LT.
CONSTRUCT APPROACH = 55 C.Y.

N. GOAD SPRINGS RD.

12' BIKE TRAIL
(BY OTHERS)

STA. 16+92 IN PLACE
CURB INLET ON LT.
W/1- 8' EXT.
& 38" X 24" X 136' R.C.E. PIPE CULVERT
TO CURB INLET ON RT.
RETAIN

STA. 18+93 LT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 17+02 LT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 17+08 LT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 15 SQ. YDS.

STA. 19+50 LT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

WIRE FENCE (TYPE A)

STA.	STA.	LOCATION	LIN. FT.
20+50	24+03	HWY. 264 ON LT.	359

STA. 19+22 IN PLACE
18" X 61' C.M. PIPE CULVERT
SIDE DRAIN LT. REMOVE & INSTALL
18" X 52' SIDE DRAIN
(TYPE 2 BEDDING)
CONNECT TO EXIST. JUNCTION
BOX STA. 19+13.47, 37.50' LT.
CONSTRUCT APPROACH. = 5 C.Y.

STA. 20+70 CONSTRUCT
D.I. ON LT. H=2'-5"
WITH 18" x 4' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
OUTLET W/FES ON LT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YD. DUMPED RIPRAP

STA. 22+50 CONSTRUCT
D.I. ON LT. H=2'-5"
WITH 18" x 4' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
OUTLET W/FES ON LT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YD. DUMPED RIPRAP

STA. 24+00 LT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 10 SQ. YDS.

STA. 25+25 LT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 23+75 CONSTRUCT
D.I. ON LT. H=2'-5"
WITH 18" x 4' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
OUTLET W/FES ON LT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YD. DUMPED RIPRAP

PROP. R/W & C/A

PROP. R/W

LIMITS OF CONST.

PROP. T.C.E.

STA. 24+50.00 ℄ CONST. HWY. 264 =
STA. 613+72.20 ℄ CONST. RAMP 3
STA. 615+49.42 ℄ CONST. RAMP 4
Δ = 75°00' 00"

EXIST. R/W & C/A

EXIST. R/W

P.I. 617+22.20

RAMP 3

P.C. 615+38.30

N11°45'11.7"E

100' TRANSITION

135' TAPER

30'

40'

100' TAPER

HWY. 264

S87°17'17.3"E

S87°21'26.4"E

S87°14'48.3"E

STA. 14+20.00
BEGIN JOB BB0902
LM = 1.05

S. GOAD SPRINGS RD.

STA. 14+11 IN PLACE
18" X 22' R.C. PIPE CULVERT SIDE DRAIN RT.
RETAIN

STA. 16+16 RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 16+26 RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 16+07 IN PLACE
18" X 30' R.C. PIPE CULVERT
W/F.E.S. ON RT.
RETAIN

STA. 16+37 IN PLACE
CURB INLET ON RT.
W/1- 8' EXT.
& 24" X 39' R.C. PIPE CULVERT
TO CURB INLET ON RT.
RETAIN

12' BIKE TRAIL
(BY OTHERS)

EXIST. TRAIL ESMT.

STA. 16+98 RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 17+09 RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 12 SQ. YDS.

STA. 16+81 IN PLACE
CURB INLET ON RT.
W/1- 8' EXT.
& 38" X 24" X 42' R.C.E. PIPE CULVERT
TO F.E.S AT STA. 17+26 ON RT.
RETAIN

STA. 19+81 CONSTRUCT
D.I. ON RT. H=2'-5"
WITH 18" x 4' R.C. PIPE CULVERT OUTLET
(CLASS III) (TYPE 3 BEDDING)
W/FES ON RT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YD. DUMPED RIPRAP

STA. 16+58 RT.
CONSTRUCT APPROACH = 40 C.Y.

STA. 19+76 RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 20+36 RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 21+87 CONSTRUCT
D. I. ON RT. H=2'-5"
WITH 18" x 4' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
OUTLET W/FES ON RT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YD. DUMPED RIPRAP

STA. 20+10 IN PLACE
18" X 53' R.C. PIPE CULVERT
SIDE DRAIN RT.
REMOVE & INSTALL
18" X 58' SIDE DRAIN RT.
CONSTRUCT APPROACH = 46 C.Y.

STA. 23+06 CONSTRUCT
D.I. ON RT. H=2'-5"
WITH 18" x 4' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
OUTLET W/FES ON RT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YD. DUMPED RIPRAP

STA. 24+08 CONSTRUCT
D. I. ON RT. H=2'-5"
WITH 18" x 8' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
OUTLET W/FES ON RT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YD. DUMPED RIPRAP

STA. 25+41 CONSTRUCT
D.I. ON LT. H=2'-5"
WITH 18" x 5' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
OUTLET W/FES ON LT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YD. DUMPED RIPRAP

STA. 25+41 CONSTRUCT
D.I. ON RT. H=2'-5"
WITH 18" x 4' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
OUTLET W/FES ON RT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YD. DUMPED RIPRAP

STA. 24+00 RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 10 SQ. YDS.

STA. 25+00 RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

CONCRETE ISLAND
CURB FACE TYPE "A"

STA. 25+96 IN PLACE
18" x 28' R.C. PIPE
CULVERT RT. SIDE DRAIN
REMOVE

P.T. 613+78.98

RAMP 4

P.I. 612+69.82

P.C. 611+60

HWY. 264

USER: jd503
DESIGN FILE: G:\1210330l_Hwy264\TRANSP\dgn\p&p\Plan 01Hwy264.dgn
PLOTTED: 10/9/2014 13:49
SCALE: 100:1
MODEL: PLAN AND PROFILE

G:\1210330l_Hwy264\TRANSP\dgn\p&p\Plan 01Hwy264.dgn 10/9/2014 13:49

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	58	184

2 PROFILE SHEETS

STA. 14+20.00
BEGIN JOB BB0902
LM = 1.05

BM 958 CPS IN COMBINATION POLE
27.62' RT. OF STA 13+73.50
ELEVATION = 1323.54

100' TRANSITION
PVI 15+20.00 ELEV. 1318.33
PVC 15+87.00 Elev 1317.76
PVI 16+87.00 ELEV. 1316.90 PG ELEV. 1317.30
PVI 18+90.00 ELEV. 1316.86
PVI 20+00.00 ELEV. 1316.39
PVC 20+50.00 Elev 1315.91
PVI 24+50.00 ELEV. 1314.19
PVT 17+87.00 Elev 1316.88
PVI 22+00.00 ELEV. 1314.45 PG ELEV. 1314.77
PVT 23+50.00 Elev 1314.29

-0.86%
200' V.C. K = 238
-0.02%
-0.43%
NO V.C.
-0.97%
NO V.C.
-1.94% LT. DT. GR.
PROPOSED GRADE
300' V.C. K = 345
EXISTING GROUND
-0.10%
NO V.C.
0.01%
-0.51% LT. DT. GR.
0.87% LT. DT. GR.

+20 LT. DT. 1314.48
+93 LT. DT. 1313.00
+67.00 LT. DT. 1314.78
+25.00 LT. DT. 1311.72
+14.13 LT. DT. 1310.25
+30.00 LT. DT. 1311.38
+75.00 LT. DT. 1311.77

38'x24' RCEP LT.TO RT.
18" RCP
38'x24' RCEP LT.

15+93, 48.35' LT.
EXIST. F.E.S.
F.L. IN = 1313.00
16+25, 71.46' LT.
EXIST. CURB INLET
TOP = 1316.47
F.L. OUT = 1312.35
16+92, 71.69' LT.
EXIST. CURB INLET
TOP = 1316.45
F.L. OUT = 1312.15
20+70 LT.
TOP = 1315.64
F.L. = 1313.22
22+50 LT.
TOP = 1314.46
F.L. = 1312.04
23+75 LT.
TOP = 1314.17
F.L. = 1311.75
25+41 LT.
TOP = 1314.12
F.L. = 1311.70

HWY. 264 LEFT PROFILE

100' TRANSITION
PVI 15+20.00 ELEV. 1318.33
PVC 15+87.00 Elev 1317.76
PVI 16+87.00 ELEV. 1316.90 PG ELEV. 1317.30
PVI 18+90.00 ELEV. 1316.86
PVI 20+00.00 ELEV. 1316.39
PVC 20+50.00 Elev 1315.91
PVI 24+50.00 ELEV. 1314.19
PVT 17+87.00 Elev 1316.88
PVI 22+00.00 ELEV. 1314.45 PG ELEV. 1314.77
PVT 23+50.00 Elev 1314.29
-0.86%
200' V.C. K = 238
-0.02%
-0.43%
NO V.C.
-0.97%
NO V.C.
PROPOSED GRADE
300' V.C. K = 345
EXISTING GROUND
-0.10%
NO V.C.
0.01%

24" RCP RT.
18" RCP RT.
38'x24' RCEP RT.
38'x24" RCEP LT.TO RT.

-75.00 RT. DT. 1312.24
-1.07% RT. DT. GR.
+00.00 RT. DT. 1310.90
+50.00 RT. DT. 1311.26
0.53% RT. DT. GR.

16+07 - 47.70' RT.
EXIST. F.E.S.
F.L. IN = 1312.55
16+37 - 69.31' RT.
EXIST. CURB INLET
TOP = 1316.70
F.L. OUT = 1311.90
16+81 - 69.31' RT.
EXIST. CURB INLET
TOP = 1316.63
F.L. OUT = 1311.75
17+26 - 95.39' RT.
EXIST. F.E.S.
F.L. OUT = 1311.65
19+81 RT.
TOP = 1316.39
F.L. = 1313.97
21+87 RT.
TOP = 1314.66
F.L. = 1312.24
23+06 RT.
TOP = 1314.08
F.L. = 1311.66
24+08 RT.
TOP = 1313.50
F.L. = 1311.08
25+41 RT.
TOP = 1314.12
F.L. = 1311.70

HWY. 264 RIGHT PROFILE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerome Paul Davis
No. 13560
JEROME PAUL DAVIS
10-09-14

1330 1325 1320 1315 1310 1305 1300 1295 1290 1285

11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\p&p\Profile 01Hwy264.dgn
PLOTTED: 10/9/2014 13:49
SCALE: 100:1

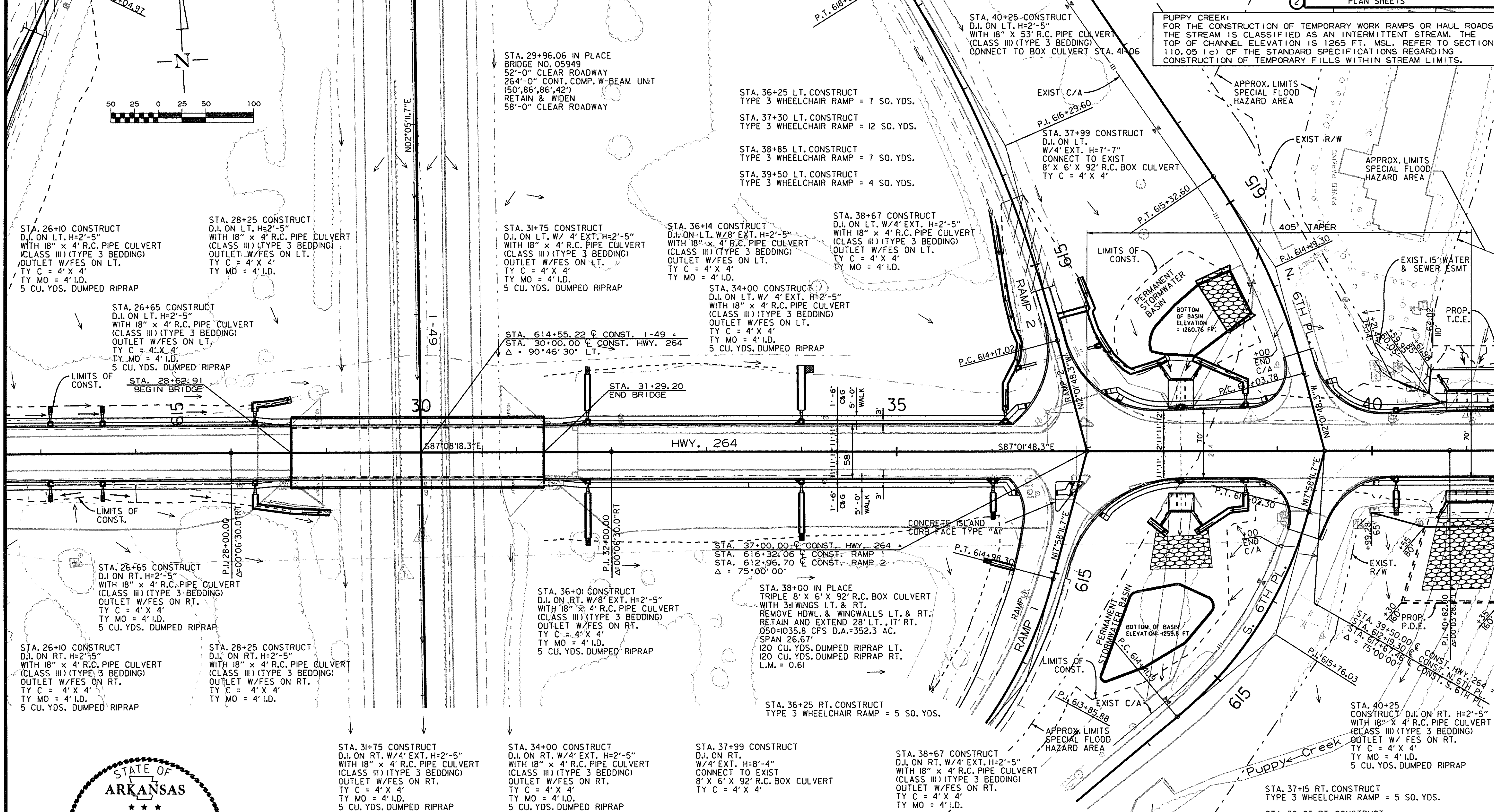
G:\12103301_Hwy264\TRANSP\dgn\p&p\Profile 01Hwy264.dgn 10/9/2014 13:49

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	59	184

2 PLAN SHEETS

PUPPY CREEK:
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS. THE STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE TOP OF CHANNEL ELEVATION IS 1265 FT. MSL. REFER TO SECTION 110.05 (c) OF THE STANDARD SPECIFICATIONS REGARDING CONSTRUCTION OF TEMPORARY FILLS WITHIN STREAM LIMITS.



CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
28+25	28+62	LT. HWY. 264	6'-6"	33
28+25	29+04	RT. HWY. 264	6'-6"	67
31+75	31+75	RT. HWY. 264	6'-6"	34
31+75	31+75	LT. HWY. 264	6'-6"	27
34+00	34+00	RT. HWY. 264	6'-6"	31
34+00	34+00	LT. HWY. 264	6'-6"	34
36+01	36+01	RT. HWY. 264	6'-6"	14
613+61	615+52	LT. RAMP 2	6'-6"	152

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
613+62	614+73	RT. RAMP 2	6'6"	111
37+46	37+85	LT. HWY. 264	6'-6"	29
38+13	38+67	LT. HWY. 264	6'-6"	51
37+66	37+84	RT. HWY. 264	6'-6"	17
38+15	38+67	RT. HWY. 264	6'-6"	53
40+25	40+25	RT.HWY. 264	6'-6"	13

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15560 JEROME PAUL DAVIS 10-09-14

USER: jd5103 DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\p&p\Plan 02 Hwy264.dgn MODEL: PLAN AND PROFILE PLOTTED: 10/9/2014 13:49 SCALE: 100:1

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	60	184

(2) PROFILE SHEETS 1295

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14

266'-3 9/16" EXISTING BRIDGE
IN PLACE
264'-0" CONT. W-BEAM UNIT
BRIDGE NO. 5949
52'-0" CLEAR ROADWAY
RETAIN & WIDEN
58'-0" CLEAR ROADWAY

PVI 27+50.00 ELEV. 1314.21
PVI 28+10.00 ELEV. 1314.07
STA. 28+62.91 BEGIN BRIDGE
PVI 31+00.00 ELEV. 1314.07 PG ELEV. 1310.70
STA. 31+29.20 END BRIDGE

0.01% -0.23% 0.00%
NO V.C. NO V.C.
-0.56% LT. DT. GR.
-0.53% RT. DT. GR.
-1.42% RT. DT. GR.

PROPOSED GRADE
EXISTING GROUND
450' V.C.
K = 75
SSD = 403
-2.99% LT. DT. GR.

-50.00 LT. DT. 1310.48
-50.00 RT. DT. 1311.79
-80.00 RT. DT. 1309.95
PVC 28+75.00 Elev 1314.07
PVT 33+25.00 Elev 1300.60
-80.00 LT. DT. 1280.79

26+10 LT. TOP = 1314.12 F.L. = 1311.70
26+65 LT. TOP = 1314.13 F.L. = 1311.71
28+25 LT. TOP = 1313.99 F.L. = 1311.57
31+75 LT. TOP = 1308.00 F.L. = 1305.58
34+00 LT. TOP = 1296.03 F.L. = 1293.61
26+10 RT. TOP = 1314.12 F.L. = 1311.70
26+65 RT. TOP = 1314.13 F.L. = 1311.71
28+25 RT. TOP = 1313.99 F.L. = 1311.57
31+75 RT. TOP = 1308.00 F.L. = 1305.58
34+00 RT. TOP = 1296.03 F.L. = 1293.61

BM 957 AHTD CAP IN SW CORNER OF BR=5949
29.69' RT. OF STA. 28+63.19
ELEVATION = 1313.24

BM 954 SQUARE CUT IN DROP INLET MEDIAN OF I-49
85.66' RT. OF STA. 30+01.09
ELEVATION = 1285.89

STA. 38+00
INTERMITTENT STREAM
TOP CHANNEL ELEVATION=1267 FT.
+20
FLOODPLAIN LIMITS

PROPOSED GRADE
EXISTING GROUND
-5.99% LT. DT. GR.
425' V.C.
K = 79
200' V.C.
K = 263
-0.58%

PVC 35+47.50 Elev 1287.27
PVI 37+60.00 ELEV. 1274.55 PG ELEV. 1277.42
PVC 39+75.00 Elev 1273.31
PVI 40+75.00 ELEV. 1272.73 PG ELEV. 1272.92
PVT 39+72.50 Elev 1273.32
-50.00 LT. DT. 1275.79
-80.00 LT. DT. 1272.63
-44.00 LT. DT. 1269.39
-85.00 LT. DT. 1261.84
-112.00 LT. DT. 1261.84
-65.00 LT. DT. 1267.81
-80.00 LT. DT. 1260.54

EXISTING BOX
EXIST. FL IN = 1261.65 LT.
EXIST. FL OUT = 1261.27 RT.
NEW FL IN = 1261.76 LT.
NEW FL OUT = 1261.20 RT.

36+14 LT. TOP = 1283.50 F.L. = 1281.08
37+99 LT. TOP = 1275.86
38+67 LT. TOP = 1274.22 F.L. = 1271.80
40+25 LT. TOP = 1272.77 F.L. = 1270.35
37+99 RT. TOP = 1276.15
36+01 RT. TOP = 1284.18 F.L. = 1281.76
38+67 RT. TOP = 1274.56 F.L. = 1272.14
40+25 RT. TOP = 1273.02 F.L. = 1270.60

-19.88% LT. DT. GR.
-11.26% LT. DT. GR.
0.00% LT. DT. GR.
-24.05% RT. DT. GR.
-15.00% RT. DT. GR.
0.00% RT. DT. GR.

EXISTING BOX
EXIST. FL IN = 1260.41 LT.
EXIST. FL IN (24"CMP EAST) = 1263.96
EXIST. FL OUT = 1259.83 RT.
NEW FL IN = 1260.54 LT.
NEW FL OUT = 1259.76 RT.
FL IN 18" R.C. PIPE LT. = 1264.69

PUPPY CREEK:
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS. THE STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE TOP OF CHANNEL ELEVATION IS 1265 FT. MSL. REFER TO SECTION 110.05 (c) OF THE STANDARD SPECIFICATIONS REGARDING CONSTRUCTION OF TEMPORARY FILLS WITHIN STREAM LIMITS.

HWY. 264 LEFT PROFILE

266'-3 9/16" EXISTING BRIDGE
IN PLACE
264'-0" CONT. W-BEAM UNIT
BRIDGE NO. 5949
52'-0" CLEAR ROADWAY
RETAIN & WIDEN
58'-0" CLEAR ROADWAY
PVI 27+50.00 ELEV. 1314.21
PVI 28+10.00 ELEV. 1314.07
STA. 28+62.91 BEGIN BRIDGE
PVI 31+00.00 ELEV. 1314.07 PG ELEV. 1310.70
STA. 31+29.20 END BRIDGE
0.01% -0.23% 0.00%
NO V.C. NO V.C.
0.53% RT. DT. GR.
-1.42% RT. DT. GR.
PROPOSED GRADE
EXISTING GROUND
450' V.C.
K = 75
SSD = 403
-2.99% LT. DT. GR.
-50.00 RT. DT. 1311.79
-80.00 RT. DT. 1309.95
PVC 28+75.00 Elev 1314.07
PVT 33+25.00 Elev 1300.60
26+10 RT. TOP = 1314.12 F.L. = 1311.70
26+65 RT. TOP = 1314.13 F.L. = 1311.71
28+25 RT. TOP = 1313.99 F.L. = 1311.57
31+75 RT. TOP = 1308.00 F.L. = 1305.58
34+00 RT. TOP = 1296.03 F.L. = 1293.61

STA. 38+00
INTERMITTENT STREAM
TOP CHANNEL ELEVATION=1267 FT.
+20
FLOODPLAIN LIMITS

PROPOSED GRADE
EXISTING GROUND
-5.99% LT. DT. GR.
425' V.C.
K = 79
200' V.C.
K = 263
-0.58%
PVC 35+47.50 Elev 1287.27
PVI 37+60.00 ELEV. 1274.55 PG ELEV. 1277.42
PVC 39+75.00 Elev 1273.31
PVI 40+75.00 ELEV. 1272.73 PG ELEV. 1272.92
PVT 39+72.50 Elev 1273.32
-65.00 RT. DT. 1265.93
-85.00 RT. DT. 1261.12
-112.00 RT. DT. 1261.12
-50.00 RT. DT. 1266.82
-80.00 RT. DT. 1259.76
EXISTING BOX
EXIST. FL IN = 1261.65 LT.
EXIST. FL OUT = 1261.27 RT.
NEW FL IN = 1261.76 LT.
NEW FL OUT = 1261.20 RT.
36+01 RT. TOP = 1284.18 F.L. = 1281.76
37+99 RT. TOP = 1276.15
38+67 RT. TOP = 1274.56 F.L. = 1272.14
40+25 RT. TOP = 1273.02 F.L. = 1270.60
-24.05% RT. DT. GR.
-15.00% RT. DT. GR.
0.00% RT. DT. GR.
EXISTING BOX
EXIST. FL IN = 1260.41 LT.
EXIST. FL IN (24"CMP EAST) = 1263.96
EXIST. FL OUT = 1259.83 RT.
NEW FL IN = 1260.54 LT.
NEW FL OUT = 1259.76 RT.
FL IN 18" R.C. PIPE LT. = 1264.69

HWY. 264 RIGHT PROFILE

26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00 40+00 41+00

USER: jd5103
DESIGN FILE: G:\12103301.Hwy264\TRANSP\dgn\p&p\Profile 02 Hwy264.dgn
PLOTTED: 10/9/2014 13:50
SCALE: 100:1

G:\12103301.Hwy264\TRANSP\dgn\p&p\Profile 02 Hwy264.dgn 10/9/2014 13:50

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	61	184
				(2) PLAN SHEETS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13560
JEROME PAUL DAVIS
10-09-14

STA. 43+35 LT. CONSTRUCT
TYPE 2 WHEELCHAIR RAMP = 10 SQ. YDS.

STA. 44+36 LT. CONSTRUCT
TYPE 2 WHEELCHAIR RAMP = 10 SQ. YDS.

STA. 42+27 LT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

APPROX. LIMITS
SPECIAL FLOOD
HAZARD AREA

STA. 43+44 LT.
IN PLACE D.I. REMOVE
CONSTRUCT D.I. H=3'-10"
TY C = 4' X 4'
TY MO = 4'
CONNECT TO 24" OUT
AND 18" X 12" IN

STA. 44+26 IN PLACE
D.I. ON LT. REMOVE
CONSTRUCT D.I. ON LT.
H=3'-10"
TY C = 4' X 4'
TY MO = 4'
CONNECT TO 18" X 4' CULVERT OUT
AND 18" IN

STA. 43+47 CONSTRUCT
4' JUNCTION BOX ON LT.
H=4'-10" CONNECT TO EXIST. 24"
R.C. PIPE CULVERT OUT &
24" X 12' R.C. PIPE CULVERT IN

STA. 44+45 IN PLACE
JUNCTION BOX ON LT. REMOVE
CONSTRUCT ON LT. 4' JUNCTION BOX
H=4'-10" CONNECT
18" X 18' OUT AND EXIST. 18"

N

50 25 0 25 50 100

APPROX. LIMITS
SPECIAL FLOOD
HAZARD AREA

STA. 41+27 CONSTRUCT
D.I. ON LT. H=5'-5"
CONNECT TO EXIST.
10' x 7' x 86' R.C. BOX CULVERT
TY C = 4' X 4'

STA. 42+79 IN PLACE
D.I. ON LT. REMOVE
W/ 18" X 17' R.C. PIPE CULVERT

STA. 43+00 IN PLACE
D.I. ON LT. W/ 18"x 57' C.M. PIPE CULVERT
REMOVE & CONSTRUCT D.I. ON LT.
W/ 24" x 75' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
TO D.I. ON RT.
H= 5'-07 W/8' EXT.
TY C = 4' X 4'
TY MO = 4'

STA. 42+63 CONSTRUCT
D.I. ON LT. H = 2'-5"
18" X 14' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
OUTLET W/ FES ON LT.
TY C = 4' X 4'
TY MO = 4'

85 CU. YDS. RIPRAP

PROP. T.C.E.

N. DIXIELAND RD.

PAVED PARKING

PROP. R/W

LIMITS OF CONST.

END SIDEWALK
46+60 LT.

280'
TAPER

100'
TRANSITION

EXIST. R/W

PAVED PARKING

STA. 46+00 IN PLACE
4' D.I. ON LT. W/ 18"x 57' R.C. PIPE CULVERT
REMOVE & CONSTRUCT
D.I. ON LT. W/ 4' EXT. H=3'-8"
W/ 24"x 75' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
CONNECT TO D.I. ON RT
TY C = 4' X 4'
TY MO = 4'
44.85' LT.

STA. 49+03 IN PLACE
D.I. ON LT. W/ 18"x 56' R.C. PIPE CULVERT
REMOVE & CONSTRUCT D.I. H=4'-2" W/ 4' EXT.
W/ 18"x 61' R.C. PIPE CULVERT
(CLASS III)(TYPE 3 BEDDING)
CONNECT TO D.I. ON RT.
TY C = 4' X 4'
TY MO = 4'

PARKING

STA. 48+40 LT.
CONSTRUCT APPROACH

S87°05'17.2"E

HWY. 264

STA. 43+98.02 ℄ CONST. HWY. 264 =
STA. 15+00.00 ℄ CONST. S. DIXIELAND RD.
Δ = 88°00'43"

STA. 46+01 IN PLACE
GRATE INLET ON RT.
W/24" X 298' C.M. PIPE CULVERT
TO CURB INLET ON RT.
RETAIN & MODIFY TOP TO NEW ELEV.

STA. 49+03 IN PLACE
D.I. ON RT.
W/18" X 299' C.M. PIPE CULVERT
TO D.I. ON RT.
RETAIN & MODIFY TOP TO NEW CURB

STA. 49+20.00
END JOB BB0902
LM=0.39

DENOTES PAVEMENT TRANSITION

STA. 42+69 CONSTRUCT
D.I. ON RT. H=3'-5"
TY C = 4' X 4'
TY MO = 4'
CONNECT TO EXIST. 24"
C.M. PIPE CULVERT

PROP. T.C.E.

PROP. P.D.E.

APPROX. LIMITS
SPECIAL FLOOD
HAZARD AREA

STA. 41+06 IN PLACE
QUINTUPLE 10' X 7' X 86' R.C. BOX CULVERT
WITH 31 WINGS LT. & RT. &
TYPE TM CURB INLETS LT. & RT.
REMOVE HDWL., WINGWALLS, & D.I. LT. & RT.
RETAIN AND EXTEND 21' LT. & 10' RT.
292 CU. YDS. DUMPED RIPRAP RT.
Q50=3061 CFS D.A.=4.0 SQ. MILES
SPAN 54.58'
L.M. = 0.55

STA. 43+00 IN PLACE
D.I. ON RT.
W/24" X 168' C.M. PIPE CULV.
(TYPE 2 BEDDING)
TO D.I. ON RT.
RETAIN & MODIFY TOP TO
NEW CURB ELEV. W/ 4' EXT.

STA. 43+68 IN PLACE
D.I. ON RT. REMOVE
CONSTRUCT D.I. ON RT. H=6'-8"
CONNECT TO EXIST. 36" CMP W/
36" X 6' C.M. PIPE CULVERT
(TYPE 2 BEDDING)
TY C = 4' X 4'
TY MO = 4'

S87°05'17.2"E

PAVED PARKING

PROP. R/W

STA. 42+38 RT.
CONSTRUCT APPROACH

STA. 41+83 RT.
CONSTRUCT APPROACH

STA. 45+91 IN PLACE
DBL. 12" X 44' R.C. PIPE CULVERT
SIDE DRAIN ON RT.
RETAIN
CONSTRUCT APPROACH

STA. 41+27 CONSTRUCT
D.I. ON RT. H=5'-8"
CONNECT TO EXIST.
10' x 7' x 86' R.C. BOX CULVERT
TY C = 4' X 4'

STA. 44+15 IN PLACE
GRATE INLET ON RT.
RETAIN AND MODIFY WITH
LID AND MANHOLE FRAME & COVER
TO NEW PAVEMENT ELEV.

STA. 44+33 CONSTRUCT
D.I. ON RT W/ 4' EXT. H=4'-3".
TY C = 4' X 4'
TY MO = 4'
CONNECT TO EXIST 18" CMP.

STA. 41+57 RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 42+03 RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 43+55 RT. CONSTRUCT
TYPE 2 WHEELCHAIR RAMP = 10 SQ. YDS.

STA. 44+43 RT. CONSTRUCT
TYPE 2 WHEELCHAIR RAMP = 10 SQ. YDS.

STA. 42+12 RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 42+67 RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 45+67 RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

STA. 46+15 RT. CONSTRUCT
TYPE 3 WHEELCHAIR RAMP = 5 SQ. YDS.

HWY. 264

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\p&p\Plan 03 Hwy264.dgn
PLOTTED: 10/9/2014 13:50
SCALE: 100d
MODEL: PLAN AND PROFILE

G:\12103301_Hwy264\TRANSP\dgn\p&p\Plan 03 Hwy264.dgn 10/9/2014 13:50

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	62	184
				(2)	PROFILE SHEETS			1295

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14

FLOODPLAIN LIMITS

PUPPY CREEK:
THIS STREAM IS CLASSIFIED AS INTERMITTENT.
THE TOP OF CHANNEL ELEVATION IS 1265.0 FT. MSL.
REFER TO SECTION 110.06(c) TEMPORARY FILL OF THE
2014 STANDARD SPECIFICATIONS.

PROPOSED GRADE
EXISTING GROUND

·05 CURB INLET LT. RIM-1272.12
PVT 41+75.00 Elev 1272.91
·00 JUNC.BOX LT. RIM-1272.46
PVC 43+50.00 Elev 1273.23
400' V.C. K = 86
PVI 45+50.00 ELEV. 1275.82
PG ELEV. 1273.00
PVT 47+50.00 Elev 1283.25
PVI 48+20.00 ELEV. 1286.63
·02 CURB INLET LT. RIM-1290.36
PVI 49+20.00 ELEV. 1291.23
100' TRANSITION
NO V.C.
0.18%
4.60%
4.93%

41+27 LT. TOP = 1272.52
18' LT.
·79 CURB INLET LT. RIM-1272.38
·00 CURB INLET LT. RIM-1276.92
0.00% LT. DT. GR.
·30.00 LT. DT. 1260.54
42+63 LT. TOP = 1272.73 F.L. = 1270.31
43+00 LT. TOP = 1272.80 F.L. = 1267.84
43+44 - 74.77' LT. TOP = 1272.58 F.L. IN = 1268.79 F.L. OUT = 1268.69
43+47 - 89.80' LT. TOP = 1273.33 F.L. IN = 1268.60 F.L. OUT = 1268.50
44+26 - 72.53' LT. TOP = 1272.96 F.L. IN = 1269.21 F.L. OUT = 1269.15
44+45 - 65.99' LT. TOP = 1275.00 F.L. IN = 1270.20 F.L. OUT = 1270.10
46+00 LT. TOP = 1276.98 F.L. = 1273.31
49+03 LT. TOP = 1290.39 F.L. = 1286.23

BM 956 SQUARE CUT IN CENTER OF HEADWALL N. OF 264
42.78' LT. OF STA. 41+05.13
ELEVATION = 1268.61

BM 955 SQUARE CUT IN BACK OF CATCH BASIN S. OF 264
31.05' RT. OF STA. 49+02.96
ELEVATION = 1290.36

STA. 49+20.00
END JOB BB0902

HWY. 264 LEFT PROFILE

FLOODPLAIN LIMITS

PUPPY CREEK:
THIS STREAM IS CLASSIFIED AS INTERMITTENT.
THE TOP OF CHANNEL ELEVATION IS 1265.0 FT. MSL.
REFER TO SECTION 110.06(c) TEMPORARY FILL OF THE
2014 STANDARD SPECIFICATIONS.

PROPOSED GRADE
EXISTING GROUND

·05 CURB INLET RT. RIM-1272.29
PVT 41+75.00 Elev 1272.91
PVC 43+50.00 Elev 1273.23
400' V.C K = 86
PVI 45+50.00 ELEV. 1273.00 PG ELEV. 1275.82
·01 CURB INLET RT. RIM-1276.25
·00 CURB INLET RT. RIM-1272.69
·03 CURB INLET RT. RIM-1290.34
PVT 47+50.00 Elev 1283.25
PVI 48+20.00 ELEV. 1286.63
PVI 49+20.00 ELEV. 1291.23
100' TRANSITION
NO V.C.
0.18%
4.60%
4.93%

18" CMP RT.
24" CMP RT.
36" CMP RT.
24" CMP RT.
18" CMP RT.

41+27 RT. TOP = 1272.82
0.00% RT. DT. GR.
·30.00 RT. DT. 1259.76
42+69 RT. TOP = 1273.04 F.L. = 1269.65
43+00 RT. TOP = 1273.09 F.L. = 1267.20
43+68 - 78.82' RT. TOP = 1273.01 F.L. IN = 1266.31 F.L. OUT = 1266.21
44+16 - 76.14' RT. TOP = 1272.85 F.L. IN = 1267.21 F.L. OUT = 1267.4
44+33 - 75.85' RT. TOP = 1273.09 F.L. IN = 1268.77 F.L. OUT = 1268.53
46+01 - 39.63' RT. TOP = 277.30 F.L. IN = 1272.06 F.L. OUT = 1271.96
49+03 RT. TOP = 1290.40 F.L. = 1285.66

HWY. 264 RIGHT PROFILE

41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\p&p\Profile 03 Hwy264.dgn
PLOTTED: 10/9/2014 13:50
SCALE: 100:1

G:\12103301_Hwy264\TRANSP\dgn\p&p\Profile 03 Hwy264.dgn 10/9/2014 13:50

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	63	184

(2) PLAN & PROFILE SHEETS

RAMP 1 CURVE DATA
P.I. 606+55.82
Δ = 36°25'33.8" RT.
D = 8°30'00"
T = 221.79'
L = 428.54'
P.C. 604+34.03
P.T. 608+62.57
e = MATCH EXIST. SUPER

STA. 611+00 IN PLACE
30" X 68' R.C. PIPE CULVERT
WITH FES LT. & RT.
RETAIN AND EXTEND 22' LT.
WITH FES LT.
(CLASS III) (TYPE 3 BEDDING)
Q50=31.5 CFS D.A.=9 AC.

RAMP 1 CURVE DATA
P.I. 613+85.88
Δ = 26°15'00.0" LT.
D = 12°00'00"
T = 111.33'
L = 218.75'
P.C. 612+74.55
P.T. 614+93.30
e = 0.099'/'
Ls = 300'

STA. 37+00.00 ℄ CONST. HWY. 264 =
STA. 616+32.06 ℄ CONST. RAMP 1
STA. 612+96.70 ℄ CONST. RAMP 2
Δ = 75°00'00"

50 25 0 25 50 100

I-49

570' TAPER

P.I. 606+55.82

P.I. 607+13.53

P.T. 608+62.57

LIMITS OF CONST.

RAMP 1

4' 15' 6'

N44°13'11.7"E

P.C. 612+74.55

612+50 BEGIN ℄ NOTCH & WIDEN RT.

100' TAPER

50

P.I. 613+85.88

CONCRETE ISLAND CURB FACE TYPE "A"

P.T. 614+93.30

4'

RAMP 1

N17°58'11.7"E

S87°01'48.3"E

RAMP 2

N.-87°10'.4"W

PERMANENT STORMWATER BASIN

BOTTOM OF BASIN ELEVATION 1260.4 FT.

P.C. 614+03.78

N. 6TH PL.

P.I. 614+19.30

PAVED PARKING

CONC.

615

APPROX. LIMITS SPECIAL FLOOD HAZARD AREA

PERMANENT STORMWATER BASIN

P.C. 614+41.98

BOTTOM OF BASIN ELEVATION 1259.4 FT.

P.T. 614+03.30

HWY. 264

N17°58'11.7"E

LIMITS OF CONST.

N.-87°10'.4"W

+21.44 75'

+58.95 60'

+60.05 85'

+64.98 110'

+64.02

PROP. T.C.E.

+50 110'

+50 85'

+90 75'

610

605

STA. 608+80.00
BEGIN CONST.
RAMP 1

P.C. 604+34.03

EXIST. R/W

P.I. 609+80.94

N53°13'11.7"E

S. 6TH PL.

EXIST. C/A & FENCE

615

P.I. 615+76

+99.28 65'

+55 80'

+30 160'

S87°05'

RAMP 1

DENOTES PAVEMENT TRANSITION

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
614+93	614+93	RT. RAMP 1	6'-6"	19

STA. 608+80.00 MATCH EXIST. SUPERELEVATION
STA. 610+20.00 END SUPERELEVATION

STA. 611+99.85.00 BEGIN SUPERELEVATION
STA. 613+83.92 MAX. SUPERELEVATION (0.061'/')
STA. 613+93.93 MAX. SUPERELEVATION (0.061'/')
STA. 615+68.00 END SUPERELEVATION

28.00' RT. OF ℄ HWY. 264 STA. 36+84.73 =
7.50' LT. OF ℄ RAMP 1 STA. 616+01.06
ELEV. 1279.70

PVI 608+80.00
ELEV. 1269.73

PVI 609+80.00
ELEV. 1270.01

PVC 611+00.00
Elev 1270.58

PVI 612+00.00
ELEV. 1271.05
PG ELEV. 1271.47

PVT 613+00.00
Elev 1278.21

EXISTING GROUND

0.28%

NO V.C.

0.47%

200' V.C.
K = 118

2.6%

PROPOSED GRADE

100' TRANSITION

0.51% L.DT.GR.

0.80% DT.GR. LT.

1.62% LT.DT.GR.

608+80.00 LT. DT. 1263.74

610+30.00 LT. DT. 1264.50

611+00.00 LT. DT. 1262.54

613+30.00 LT. DT. 1266.26

FL IN = 1262.47 LT.
FL OUT = 1262.17 RT.

BM 957 AHTD CAP IN SW CORNER OF BR#5949
719.72' LT. OF STA. 610+35.67
ELEVATION = 1313.24

BM 953 SQUARE CUT IN S. END OF HEADWALL W. OF I-49
157.40' LT. OF STA. 600+06.03
ELEVATION = 1262.08

BM 954 SQUARE CUT IN DROP INLET MEDIAN OF I-49
579.23' LT. OF STA. 610+84.77
ELEVATION = 1285.89

1290 1285 1280 1275 1270 1265 1260 1255 1250 1245

605+00 606+00 607+00 608+00 609+00 610+00 611+00 612+00 613+00 614+00 615+00 616+00 617+00 618+00 619+00 620+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15660
JEROME PAUL DAVIS
40-09-14

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\p&p\pp06 Rampl.dgn
PLOTTED: 10/9/2014 13:50
SCALE: 100:1
MODEL: PLAN AND PROFILE

G:\12103301_Hwy264\TRANSP\dgn\p&p\pp06 Rampl.dgn 10/9/2014 13:50

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	64	184

2 PLAN & PROFILE SHEETS

STA. 37+00.00 ℄ CONST. HWY. 264 =
STA. 616+32.06 ℄ CONST. RAMP 1
STA. 612+96.70 ℄ CONST. RAMP 2
Δ = 75°00'00"

STA. 614+00 IN PLACE
30" X 64' R.C. PIPE CULVERT
WITH FES LT. & RT.
RETAIN AND EXTEND 16' LT. & 8' RT.
WITH FES LT. & RT.
(CLASS III) (TYPE 3 BEDDING)
Q50=36.2 CFS D.A.=11.5 AC.

RAMP 2 CURVE DATA
P.I. 616+29.60
Δ = 16°53'00.0" LT.
D = 4°00'00"
T = 212.58'
L = 422.08'
P.C. 614+17.02
P.T. 618+39.10
e = MATCH EXISTING SUPER

STA. 614+73.31
END CONST.
RAMP 2

LIMITS OF CONST.

PERMANENT STORMWATER BASIN
BOTTOM OF BASIN ELEVATION = 1259.8 FT.

PERMANENT STORMWATER BASIN
BOTTOM OF BASIN ELEVATION = 1260.15 FT.

APPROX. LIMITS SPECIAL FLOOD HAZARD AREA

DENOTES PAVEMENT TRANSITION

EXIST. C/A

SFHA

RAMP 1

RAMP 2

HWY. 264

I-49

S. 6TH PL.

N. 6TH PL.

615

620

P.I. 614+40.18

P.C. 614+11.18

P.I. 615+76.03

P.I. 616+02.30

P.C. 614+17.02

P.T. 618+39.10

P.I. 616+29.60

P.T. 615+32.60

P.C. 624+25.32

N38°01'48.3"E

N12°01'48.3"W

N51°58'11.7"E

N28°54'48.3"W

N31°28'48.3"W

PROP. P.D.E.
P.I. 40+82.00
Δ=00°03'28"Lt.

+30 160'
+99.28 65'
+55 80'
+35 160'

100' CONC. END CA

100' CONC. END CA

50 25 0 25 50 100

STA. 613+29.77 TRANSITION FROM HWY. 264
STA. 614+73.31 MATCH EXIST. SUPERELEVATION

28.00' LT. OF ℄ HWY. 264 STA. 36+84.73 =
7.50' LT. OF ℄ RAMP 2 STA. 613+27.70
ELEV. 1279.70

100' TRANSITION

PVI 614+73.31
ELEV. 1279.86

PROPOSED GRADE

EXISTING GROUND

0 1%

+00 LT. DT. 1272.63

2.97% LT. DT. GR.

4.78% RT. 101.58'

1.95% RT. DT. GR.

+90 LT. DT. 1275.30

+92 RT. DT. 1275.07

+60 RT. DT. 1269.99

+90 RT. DT. 1270.77

FL IN = 1272.26 LT.
FL OUT = 1271.02 RT.

1305 1300 1295 1290 1285 1280 1275 1270 1265 1260

612+00 613+00 614+00 615+00 616+00 617+00 618+00 619+00 620+00 621+00 622+00 623+00 624+00

BM 954 SQUARE CUT IN DROP INLET MEDIAN OF I-49
697.21' LT. OF STA. 613+94.44
ELEVATION = 1285.89

BM 957 AHTD CAP IN SW CORNER OF BR#5949
812.46' LT. OF STA. 615+72.02
ELEVATION = 1313.24

BM 959 SQUARE CUT IN DROP INLET MEDIAN OF I-49
131.29' LT. OF STA. 626+20.41
ELEVATION = 1303.45

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerry P. Sands
No. 15560
JEROME PAUL DAVIS
10-09-14

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\p&p\pp07 Ramp2.dgn
PLOTTED: 10/9/2014 13:50
SCALE: 100:1
MODEL: PLAN AND PROFILE

G:\12103301_Hwy264\TRANSP\dgn\p&p\pp07 Ramp2.dgn 10/9/2014 13:50

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	65	184
				(2) PLAN & PROFILE SHEETS				

DENOTES PAVEMENT TRANSITION

RAMP 3 CURVE DATA
P.I. 617+22.20
Δ = 11°00'00.0" RT.
D = 3°00'00"
T = 183.90'
L = 366.67'
P.C. 615+38.30
P.T. 619+04.97
e = 0.040'/'
Ls = 250'

RAMP 3 CURVE DATA
P.I. 624+69.17
Δ = 20°57'30.0" LT.
D = 4°30'00"
T = 235.50'
L = 465.74'
P.C. 622+33.67
P.T. 626+99.41

STA. 618+40.00
END CONST.
RAMP 3

STA. 24+50.00 ℄ CONST. HWY. 264 =
STA. 613+72.20 ℄ CONST. RAMP 3
STA. 615+49.42 ℄ CONST. RAMP 4
Δ = 75°00' 00"

EXIST. R/W & C/A
PROP. R/W & C/A
BEG C/A +53
HWY. 264
240' TAPER
LIMITS OF CONST.
P.I. 617+22.20
P.C. 615+38.30
P.T. 619+04.97
P.C. 622+33.67
P.T. 626+99.41
615
620
625
RAMP 3
RAMP 4
P.I. 613+78.98
S87°41'48.3"E
N17°45'11.7"E
N28°45'11.7"E
N21°41'48.3"W
PAVED DRAIN
I-49
15.57'
93.62'
99.84'
76.64'

WIRE FENCE (TYPE A)

STA.	STA.	LOCATION	LIN. FT.
614+50	617+00	RAMP 3 ON LT.	259

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
615+05	615+05	RT. RAMP 3	6'-6"	13

STA. 614+71.64 BEGIN TRANSITION
STA. 617+21.64 MAX. SUPERELEVATION (0.040'/')
STA. 618+10.63 MAX. SUPERELEVATION (0.040'/')
STA. 618+40.00 MATCH EXIST. SUPERELEVATION (0.0353'/')

28.00' LT. OF ℄ HWY. 264 STA. 24+65.27 =
7.50' RT. OF ℄ RAMP 3 STA. 614+03.20
ELEV. 1313.63

PVI 615+00.00
ELEV. 1313.36
PVI 618+40.00
ELEV. 1310.87
PROPOSED GRADE
EXISTING GROUND
-0.28%
NO V.C.
-0.73%
-0.30% LT. DT. GR.
-0.41% LT. DT. GR.
.05 LT. DT.
1310.25
.75 LT. DT.
1309.32
.25 LT. DT.
1308.71
100'
TRANSITION

BM 954 SQUARE CUT IN DROP INLET MEDIAN OF I-49
554.42' RT. OF STA. 614+31.68
ELEVATION = 1285.89

BM 957 AHTD CAP IN SW CORNER OF BR#5949
406.78' RT. OF STA. 614+50.33
ELEVATION = 1313.24

BM 959 SQUARE CUT IN DROP INLET MEDIAN OF I-49
111.86' RT. OF STA. 625+98.93
ELEVATION = 1303.45

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14

1330 1325 1320 1315 1310 1305 1300 1295 1290 1285

612+00 613+00 614+00 615+00 616+00 617+00 618+00 619+00 620+00 621+00 622+00 623+00 624+00 625+00 626+00

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\p&p\pp04 Ramp3.dgn
PLOTTED: 10/9/2014 13:50
MODEL: PLAN AND PROFILE
SCALE: 100'

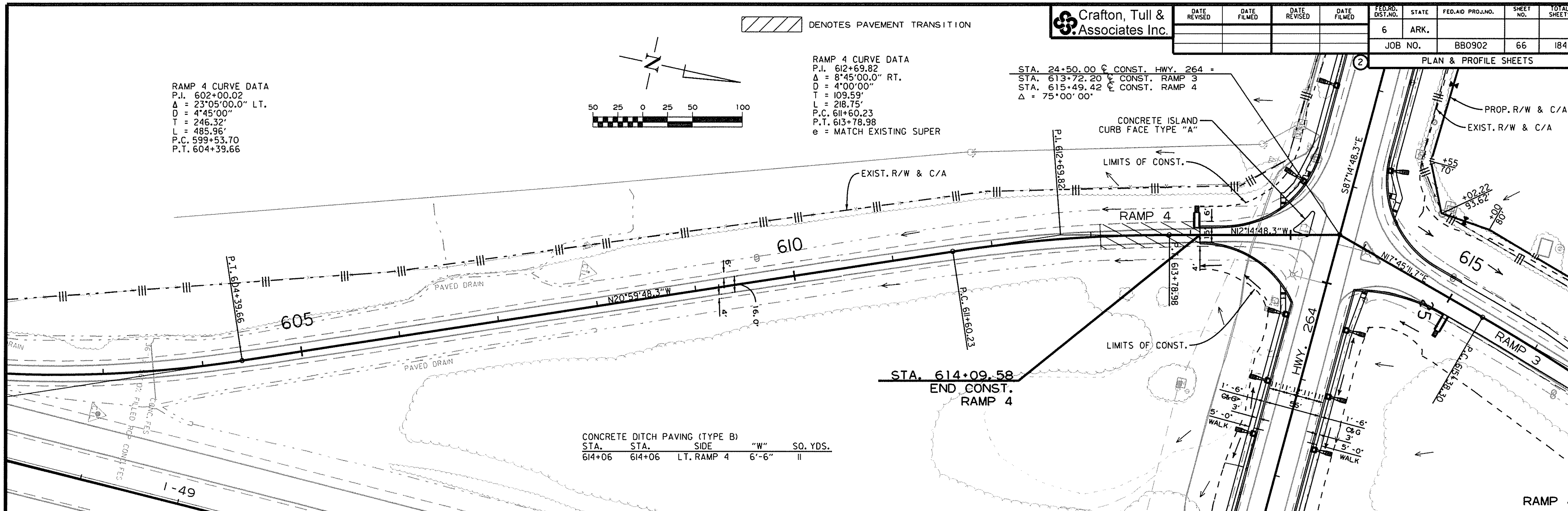
G:\12103301_Hwy264\TRANSP\dgn\p&p\pp04 Ramp3.dgn 10/9/2014 13:50

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	66	184

Crafton, Tull & Associates Inc.

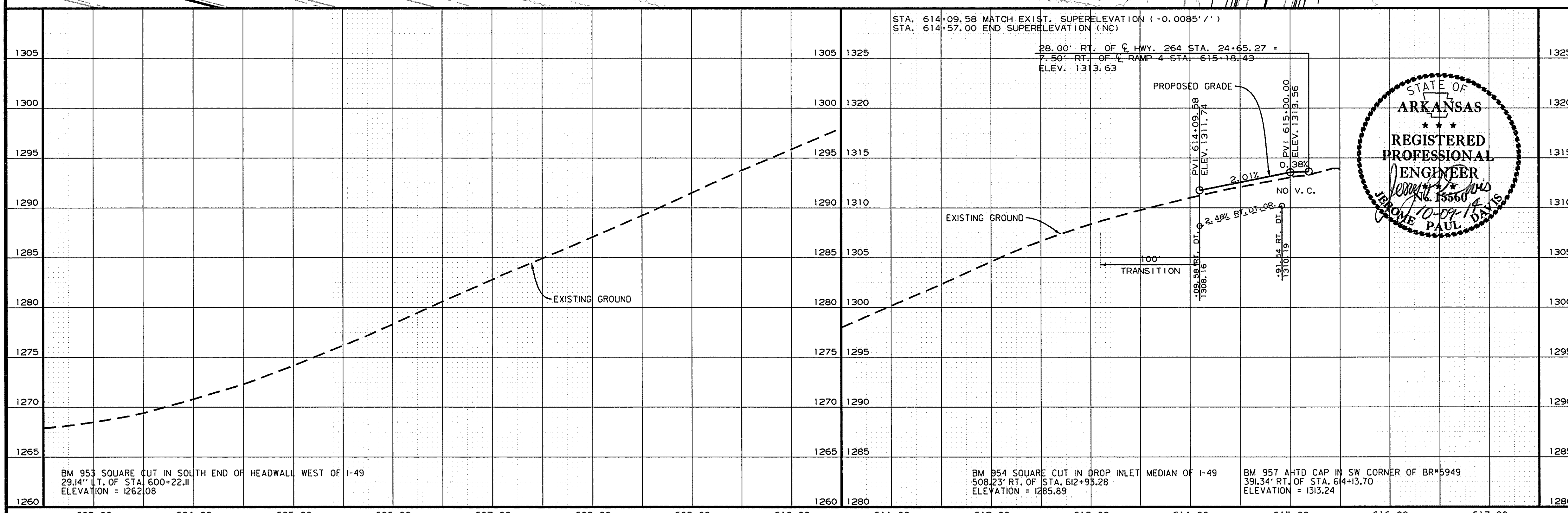
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

PLAN & PROFILE SHEETS



DENOTES PAVEMENT TRANSITION
RAMP 4 CURVE DATA
P.I. 602+00.02
Δ = 23°05'00.0" LT.
D = 4°45'00"
T = 246.32'
L = 485.96'
P.C. 599+53.70
P.T. 604+39.66
RAMP 4 CURVE DATA
P.I. 612+69.82
Δ = 8°45'00.0" RT.
D = 4°00'00"
T = 109.59'
L = 218.75'
P.C. 611+60.23
P.T. 613+78.98
e = MATCH EXISTING SUPER
STA. 24+50.00 ℄ CONST. HWY. 264 =
STA. 613+72.20 ℄ CONST. RAMP 3
STA. 615+49.42 ℄ CONST. RAMP 4
Δ = 75°00'00"
CONCRETE ISLAND CURB FACE TYPE "A"
LIMITS OF CONST.
PROP. R/W & C/A
EXIST. R/W & C/A
STA. 614+09.58
END CONST.
RAMP 4
HWY. 264
RAMP 3
I-49
RAMP 4
605
610
615
N20°59'48.3"W
N12°14'48.3"W
S87°14'48.3"E
N17°45'11.7"E
P.T. 604+39.66
P.I. 612+69.82
P.C. 611+60.23
613+78.98
PAVED DRAIN
CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
614+06	614+06	LT. RAMP 4	6'-6"	11



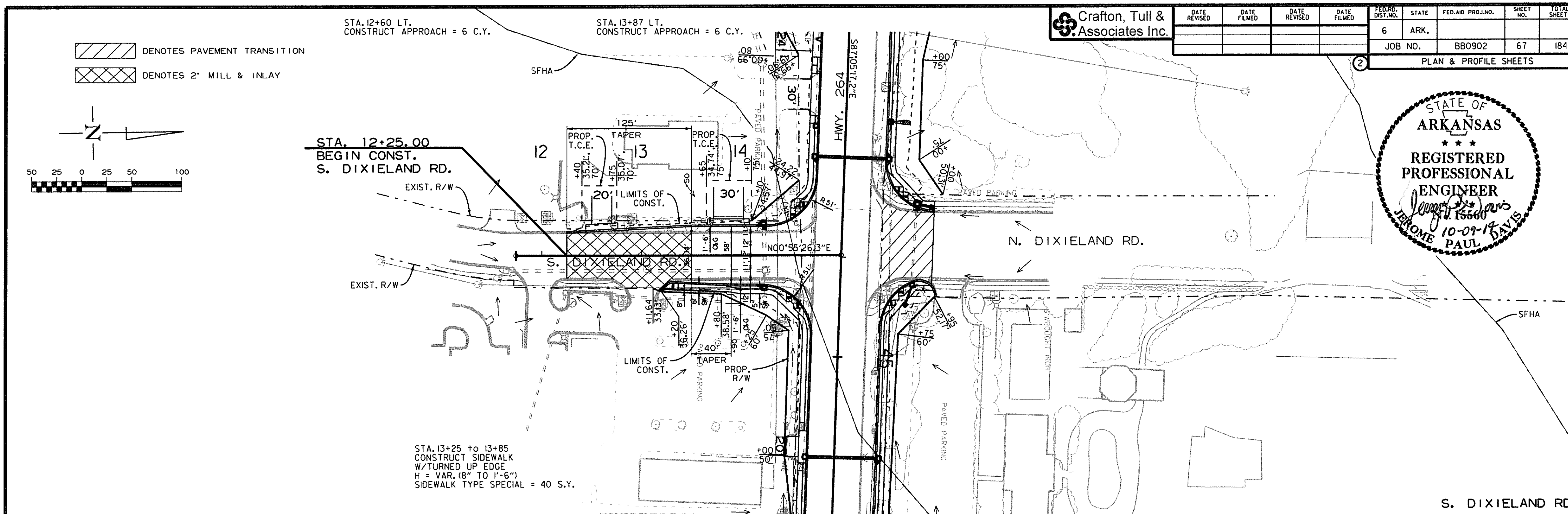
STA. 614+09.58 MATCH EXIST. SUPERELEVATION (-0.0085'/')
STA. 614+57.00 END SUPERELEVATION (NC)
28.00' RT. OF ℄ HWY. 264 STA. 24+65.27 =
7.50' RT. OF ℄ RAMP 4 STA. 615+18.43
ELEV. 1313.63
PROPOSED GRADE
PVI 614+09.58
ELEV. 1311.74
PVI 615+00.00
ELEV. 1313.56
2.01%
0.38%
NO V.C.
EXISTING GROUND
100' TRANSITION
2.48% RT. DT. GR.
BM 953 SQUARE CUT IN SOUTH END OF HEADWALL WEST OF I-49
29.14' LT. OF STA. 600+22.11
ELEVATION = 1262.08
BM 954 SQUARE CUT IN DROP INLET MEDIAN OF I-49
508.23' RT. OF STA. 612+93.28
ELEVATION = 1285.89
BM 957 AHTD CAP IN SW CORNER OF BR#5949
391.34' RT. OF STA. 614+13.70
ELEVATION = 1313.24
603+00
604+00
605+00
606+00
607+00
608+00
609+00
610+00
611+00
612+00
613+00
614+00
615+00
616+00
617+00
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 13560 JEROME PAUL DAVIS 10-09-14

USER: jd5103 DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\p&p\pp05 Ramp4.dgn MODEL: PLAN AND PROFILE SCALE: 100:1 PLOTTED: 10/9/2014 13:50

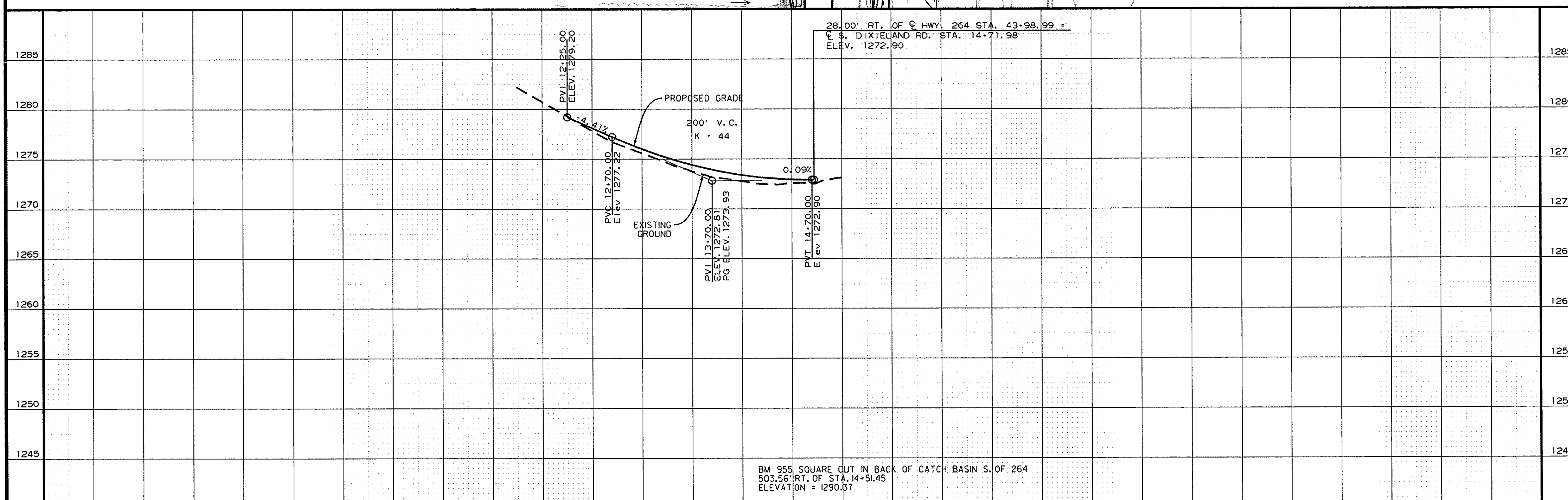
Crafton, Tull & Associates Inc.

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	67	184

PLAN & PROFILE SHEETS



DENOTES PAVEMENT TRANSITION
DENOTES 2" MILL & INLAY
N
50 25 0 25 50 100
STA. 12+60 LT.
CONSTRUCT APPROACH = 6 C.Y.
STA. 13+87 LT.
CONSTRUCT APPROACH = 6 C.Y.
SFHA
STA. 12+25.00
BEGIN CONST.
S. DIXIELAND RD.
EXIST. R/W
PROP. T.C.E.
TAPER
125'
LIMITS OF CONST.
S. DIXIELAND RD.
N00°55'26.3"E
HWY. 264
N. DIXIELAND RD.
PAVED PARKING
PROP. R/W
STA. 13+25 to 13+85
CONSTRUCT SIDEWALK
W/TURNED UP EDGE
H = VAR. (8" TO 1'-6")
SIDEWALK TYPE SPECIAL = 40 S.Y.
S. DIXIELAND RD.
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
10-09-14



28.00' RT. OF ℄ HWY. 264 STA. 43+98.99 =
℄ S. DIXIELAND RD. STA. 14+71.98
ELEV. 1272.90
PVI 12+25.00
ELEV. 1279.20
PROPOSED GRADE
200' V.C.
K = 44
-4.41%
0.09%
PVC 12+70.00
Elev 1277.22
EXISTING GROUND
PVI 13+70.00
ELEV. 1272.81
PG ELEV. 1273.93
PVT 14+70.00
Elev 1272.90
BM 955 SQUARE CUT IN BACK OF CATCH BASIN S. OF 264
503.56' RT. OF STA. 14+51.45
ELEVATION = 1290.37
1285
1280
1275
1270
1265
1260
1255
1250
1245
10+00
11+00
12+00
13+00
14+00
15+00

USER: jd5103 DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\p&p\pp08 S Dixieland.dgn MODEL: PLAN AND PROFILE PLOTTED: 10/9/2014 13:50 SCALE: 100:1

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	68	184

(2) INTERCHANGE LAYOUT - HWY. 264/I-49

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13560
JEROME PAUL DAVIS
10-9-14

STA. 37+00.00 ℄ CONST. HWY. 264 =
STA. 616+32.06 ℄ CONST. RAMP 1
STA. 612+96.70 ℄ CONST. RAMP 2
Δ = 75°00'00"

STA. 43+98.02 ℄ CONST. HWY. 264 =
STA. 15+00.00 ℄ CONST. S. DIXIELAND RD.
Δ = 88°00'43"

STA. 614+55.22
℄ CONST. I-49 =
STA. 30+00.00
℄ CONST. HWY. 264
Δ = 90°46'30" LT.

STA. 39+50.00 ℄ CONST. HWY. 264 =
STA. 612+19.30 ℄ CONST. N. 6TH PL.
STA. 617+67.46 ℄ CONST. S. 6TH PL.
Δ = 75°00'00"

STA. 24+50.00 ℄ CONST. HWY. 264 =
STA. 613+72.20 ℄ CONST. RAMP 3
STA. 615+49.42 ℄ CONST. RAMP 4
Δ = 75°00'00"

NOTE:
DIMENSIONS ARE TO FACE OF CURB WHERE APPLICABLE.

CURVE DATA

NO.	P.I.	P.C.	P.T.	RADIUS	DELTA	D	T	L	e	L.S.	REMARKS
C1	598+00.07	597+04.87	598+95.11	1909.86'	5°42'26.2"	3° 00' 00"	95.20'	190.24'	NC		RAMP 1
C2	606+55.82	604+34.03	608+62.57	674.07'	36°25'33.8"	8° 30' 00"	221.79'	428.54'	-0.087 FT/FT	300'	RAMP 1
C3	613+85.88	612+74.55	614+93.30	477.46'	26°15'00.0"	12° 00' 00"	111.33'	218.75'	0.099 FT/FT	300'	RAMP 1
C4	616+29.60	614+17.02	618+39.10	1432.39'	16°53'00.0"	4° 00' 00"	212.58'	422.08'	0.051 FT/FT	250'	RAMP 2
C5	627+14.22	624+25.32	629+88.96	1041.74'	31°00'00.0"	5° 30' 00"	288.90'	563.64'	-0.066 FT/FT	250'	RAMP 2
C6	617+22.20	615+38.30	619+04.97	1909.86'	11°00'00.0"	3° 00' 00"	183.90'	366.67'	0.040 FT/FT	250'	RAMP 3
C7	624+69.17	622+33.67	626+99.41	1273.24'	20°57'30.0"	4° 30' 00"	235.50'	465.74'	-0.056 FT/FT	250'	RAMP 3
C8	632+00.11	631+04.89	632+95.17	1909.86'	5°42'30.0"	3° 00' 00"	95.22'	190.28'	NC		RAMP 3
C9	602+00.02	599+53.70	604+39.66	1206.23'	23°05'00.0"	4° 45' 00"	246.32'	485.96'	-0.059 FT/FT	250'	RAMP 4
C10	612+69.82	611+60.23	613+78.98	1432.39'	8°45'00.0"	4° 00' 00"	109.59'	218.75'	0.051 FT/FT	250'	RAMP 4
C11	614+19.30	613+03.78	615+32.60	674.07'	19°27'00.0"	8° 30' 00"	115.52'	228.82'	0.061 FT/FT	200'	N. 6TH PL.
C12	627+93.70	625+93.69	629+82.56	674.07'	33°03'15.0"	8° 30' 00"	200.01'	388.87'	0.061 FT/FT	200'	N. 6TH PL.
C13	607+13.53	604+09.18	609+80.94	674.07'	48°36'00.0"	8° 30' 00"	304.35'	571.76'	0.061 FT/FT	200'	S. 6TH PL.
C14	615+76.03	614+41.19	617+02.30	424.41'	35°15'00.0"	13° 30' 00"	134.84'	261.11'	0.082 FT/FT	250'	S. 6TH PL.

INTERCHANGE LAYOUT - HWY. 264/I-49

USER: jd5103
DESIGN FILE: G:\2103301_Hwy264\TRANSP\dgn\p&p\BB0902 Int Layout.dgn
PLOTTED: 10/9/2014 13:50
SCALE: 300'
MODEL: INTERCHANGE LAYOUT

G:\2103301_Hwy264\TRANSP\dgn\p&p\BB0902 Int Layout.dgn 10/9/2014 13:50

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	69	184

(2) INTERCHANGE ROW - HWY. 264/I-49

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
10-09-14

STA. 37+00.00 ℄ CONST. HWY. 264 =
STA. 616+32.06 ℄ CONST. RAMP 1
STA. 612+96.70 ℄ CONST. RAMP 2
Δ = 75°00'00"

STA. 43+98.02 ℄ CONST. HWY. 264 =
STA. 15+00.00 ℄ CONST. S. DIXIELAND RD.
Δ = 88°00'43"

SEE INSET "A" FOR ROW INFO.

STA. 614+55.22
℄ CONST. I-49 =
STA. 30+00.00
℄ CONST. HWY. 264
Δ = 90°46'30" LT.

STA. 39+50.00 ℄ CONST. HWY. 264 =
STA. 612+19.30 ℄ CONST. N. 6TH PL.
STA. 617+67.46 ℄ CONST. S. 6TH PL.
Δ = 75°00'00"

STA. 24+50.00 ℄ CONST. HWY. 264 =
STA. 613+72.20 ℄ CONST. RAMP 3
STA. 615+49.42 ℄ CONST. RAMP 4
Δ = 75°00'00"

150 75 0 75 150 300

NOTE:
DIMENSIONS ARE TO FACE OF CURB WHERE APPLICABLE.

INSET A

100 50 0 50 100 200

INTERCHANGE ROW - HWY. 264/I-49

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\p&p\BB0902 Int Layout ROW.dgn
PLOTTED: 10/9/2014 13:50
SCALE: 300:1
MODEL: INTERCHANGE LAYOUT

G:\12103301_Hwy264\TRANSP\dgn\p&p\BB0902 Int Layout ROW.dgn 10/9/2014 13:50

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.		BB0902	70	184

(2) TRAFFIC SIGNAL NOTES

TRAFFIC SIGNAL NOTES:

1. PERFORM ELECTRICAL WORK IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (2014) NATIONAL ELECTRICAL CODE, NFPA 101 (2012) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.

2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (EGC) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND EGC TO GROUND LUG OF CONTROL CABINET AND TO POLE GROUND. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.

3. CONNECT TO THE EXISTING ELECTRICAL SERVICE AT THE MAIN BREAKER FOR THE SOUTHBOUND RAMPS INTERSECTION. REMOVE AND REINSTALL THE MAIN BREAKER SERVICE POINT FOR THE NORTHBOUND RAMPS INTERSECTION. INSTALL CONDUIT, ELECTRICAL SERVICE WIRE (2c AWG #6 USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO MAINTAIN ELECTRICAL SERVICE. CONDUIT IS PAID FOR AS A SEPARATE ITEM OF THIS CONTRACT. TWO CIRCUIT BREAKERS, CONSIDERED SUBSIDIARY TO THE CONTROL EQUIPMENT FOR STREET LIGHTING ARE INCLUDED FOR EACH INTERSECTION. AS PART OF THE SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2c AWG #12 UF RATED, TYPICAL) SHALL BE KEPT FROM THE CIRCUIT SERVING THE TRAFFIC SIGNAL CONTROL EQUIPMENT FROM THE POINT OF TIE -IN AT THE SECONDARY BREAKER PROVIDED BY THE CONTRACTOR.

4. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.

5. TRAFFIC CONTROLLER CABINET SHALL HAVE 16 LOAD BAYS AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO THE CONTROLLER.

6. CONTROLLER CABINET SHALL BE WIRED SUCH THAT, DURING FLASH OPERATIONS, POWER TO THE LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS.

7. ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARDS AND DETAILS, AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITIONS.

8. CONDUIT INSTALLED UNDER ROADWAY SURFACES SHALL BE INSTALLED BY PUSHING OR BORING METHODS. IF THE ENGINEER DETERMINES THIS IS NOT FEASIBLE, THEN A TRENCHING METHOD MAY BE USED.

9. TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.

10. PAVEMENT MARKING SHOWN FOR REFERENCE ONLY. SEE PAVEMENT MARKING PLAN SHEETS.

11. FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON SPECIAL DETAILS). PAYMENT WILL BE INCLUDED IN SECTION 714, AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

12. ALL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED.
ALL CONDUIT SHALL BE 3" DIAMETER UNLESS SPECIFIED ON PLANS.

13. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.

14. LUMINAIRE ASSEMBLIES SHALL BE OF THE FULL CUTOFF TYPE.

15. HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTUATE THE ASSOCIATED PHASE. COMBINATION (COMB.) DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNT/OCCUPANCY DATA.

TRAFFIC SIGNAL NOTES: (CONT'D).

16. TO DETERMINE UTILITY CLEARANCES ABOVE THE TRAFFIC SIGNAL POLE, REFER TO THE POLE SCHEDULE FOR VERTICAL SHAFT HEIGHT. WHERE THE POLE SCHEDULE INDICATES THAT A LUMINAIRE ARM WILL BE USED, 38 FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINAIRE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINAIRE ARM, A HEIGHT OF 21' SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL 6 FEET SHOULD BE USED DIRECTLY ABOVE "VIDEO DETECTORS" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.

17. THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS 6 FEET. REFER TO TRAFFIC SIGNAL PLANS FOR SPECIFIC LOCATION OF POLES, CONTROLLER AND ANY OTHER NON-BREAKAWAY OBSTRUCTIONS. REFER TO "DESIGN PARAMETERS, MINIMUM CLEAR ZONE DISTANCE" FOR MINIMUM DISTANCE FROM THE EDGE OF TRAVELED WAY TO THE FACE OF A NON-BREAKAWAY POLE OR OBSTRUCTION. TRAFFIC SIGNAL POLES OR ANY OTHER NON-BREAKAWAY OBSTRUCTION SHALL NOT BE INSTALLED WITHIN THE CLEAR ZONE.

18. AS DETERMINED BY THE ENGINEER, FOUNDATION EMBEDMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVING PLAN EMBEDMENT AND AT LEAST HALF OF THE REMAINING PLAN EMBEDMENT LENGTH IS KEYED INTO COMPETENT ROCK.

19. CONNECTION OF TRAFFIC SIGNAL DISPLAYS TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP TO BE INSTALLED IN EACH POLE BEHIND THE HAND-HOLE COVER AT THE BASE OF POLE. THE TERMINAL STRIP SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT THE POLE COVER IS MISSING. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714 -- TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION.

20. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO IMSA STANDARDS.

21. ONE VIDEO PROGRAMMING MODULE SHALL BE PROVIDED FOR AIMING AND SETUP OF DETECTORS IF THE VIDEO SYSTEM CANNOT BE ADJUSTED THROUGH HARDWARE AND SOFTWARE PROVIDED BY ITEMS WITHIN THE JOB.

22. TRAFFIC SIGNAL CONTRACTOR MUST NOTIFY RESIDENT ENGINEER OR ASSIGNED DEPARTMENT PROJECT INSPECTOR EACH DAY PRIOR TO SIGNAL-RELATED WORK. NO WORK ON TRAFFIC SIGNALS WILL BE ALLOWED OR APPROVED WITHOUT THIS PRIOR NOTIFICATION.

23. ALL STEEL POLES SHALL BE DESIGNED TO MEET THE AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", 4TH EDITION (2001, WITH 2003 AND 2006 INTERIMS).

CONSTRUCTION STAGING

24. TRAFFIC SIGNAL CONTROLS MUST BE MAINTAINED DURING CONSTRUCTION.

25. FOR THE INITIAL PHASE OF CONSTRUCTION, SIGNAL DISPLAYS ARE TO BE ADJUSTED FOR THE NEW LANE ASSIGNMENTS.

26. NEW POLES AND DISPLAYS MUST BE INSTALLED AND NEW CONTROLLERS OPERATIONAL FOR TEMPORARY USE BEFORE ANY SIGNAL POLE MAY BE REMOVED.

27. THE INTERSECTIONS MUST BE CONTROLLED BY POLICE DURING 6:00 AM - 7:00 PM HOURS WHEN THE SIGNALS ARE NOT FUNCTIONAL. TEMPORARY STOP CONTROLS WILL ONLY BE PERMITTED DURING NIGHTTIME HOURS. SIGNALS MUST DISPLAY APPROPRIATE FLASHING MODE DURING TIMES OF STOP CONTROL UNLESS POLICE ARE PRESENT.

28. ONCE THE NEW SIGNALS ARE CAPABLE OF INTERSECTION CONTROL (WITH DISPLAYS IN TEMPORARY LOCATIONS), THEN THE NEW SIGNALS MAY BE TURNED ON AND THE EXISTING SIGNALS REMOVED.

29. AT THE INTERSECTION WITH RAMPS 3 AND 4 FOR SOUTHBOUND I-49 IT WILL BE PERMISSIBLE TO TURN ON THE NEW SIGNAL AND REMOVE THE EXISTING SIGNAL BEFORE THE PEDESTRIAN DISPLAYS AND PUSH BUTTONS ARE OPERATIONAL FOR THE EAST-WEST CROSSING ON RAMP 4. THE TIME ALLOWED FOR THIS PERIOD OF DEFICIENT OPERATION WILL BE 48 HOURS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR
10/17/14

LOCATION: HWY. 264
CITY: LOWELL
COUNTY: BENTON
DISTRICT: 9 SCALE: N/A DRAWN BY: rch

DATE: 10/17/14 FILE NAME: NOTES.DGN

USER: 3425I
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\HWY 264\NOTES.DGN
PLOTTED: 10/17/14 15:34 SCALE: SCALE: 20I MODEL: HWY 264 SIGNALS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
12-02-14				6	ARK.			
				JOB NO.		BB0902	71	184

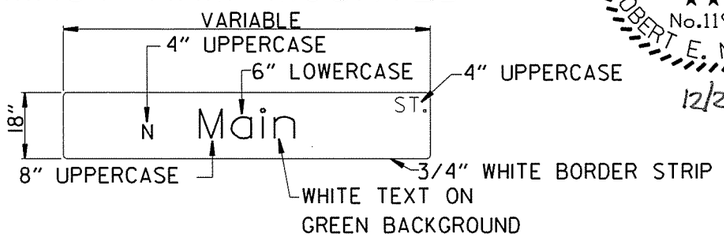
(2) TRAFFIC SIGNAL QUANTITIES

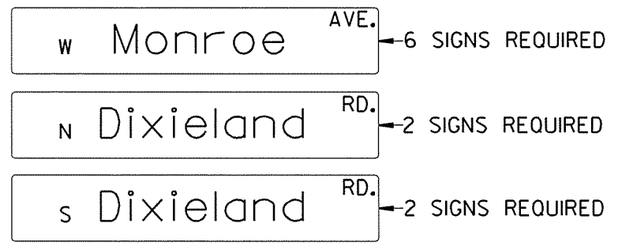
TRAFFIC SIGNAL QUANTITIES

ITEM NO.	ITEM	HWY. 264 SB RAMPS 3 AND 4	HWY. 264 NB RAMPS 1 AND 2	HWY. 264 DIXIELAND STREET	TOTAL QUANTITY	UNIT
SP & 701	SYSTEM LOCAL CONTROLLER TS 2 -TYPE 2 (8 PHASES)	1	1	1	3	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	11	11	18	40	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	1	1		2	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (5 SECTION, 1 WAY)		1		1	EACH
SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	6	8	8	22	EACH
708	TRAFFIC SIGNAL CABLE (5C/ 14 A.W.G.)	2056	2297	2407	6760	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/ 14 A.W.G.)	71	91		162	LIN. FT.
708	TRAFFIC SIGNAL CABLE (12C/ 14 A.W.G.)	26	259		285	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/ 14 A.W.G.)	356	205	545	1106	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")	12	16	12	40	LIN. FT.
710	NON-METALLIC CONDUIT (1")	10	10	10	30	LIN. FT.
710	NON-METALLIC CONDUIT (2")	10	20	161	191	LIN. FT.
710	NON-METALLIC CONDUIT (3")	432	422	400	1254	LIN. FT.
SP & 711	CONCRETE PULL BOX (TYPE 1 HD)	2	2		4	EACH
SP & 711	CONCRETE PULL BOX (TYPE 2 HD)	5	5	5	15	EACH
SP	ANTENNA SUPPORT (SHOE BASE, 30' HT.)		1	1	2	EACH
SP	ANTENNA SUPPORT (SHOE BASE, 50' HT.)	1			1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (32')	1			1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (40')		1		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (42'-42')		1		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (42')		1		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')			1	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (54')	2		1	3	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (68')			2	2	EACH
715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	3	3		6	EACH
733	VIDEO CABLE	1098	865	1642	3605	LIN. FT.
SP & 733	VIDEO DETECTOR (CLR)	6	5	8	19	EACH
SP & 733	VIDEO EDGE CARD EXTENDER			1	1	EACH
733	VIDEO MONITOR (CLR)	1	1	1	3	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	3	3	4	10	EACH
SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)	1	1	1	3	EACH
SP	RELOCATION OF TRAFFIC SIGNAL HEAD				6	EACH *
SP	ON-STREET MASTER CONTROLLER	1			1	EACH
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	329	310	584	1223	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/ 8 A.W.G., EGC)	636	641	561	1838	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/ 6 A.W.G.)	20	20	20	60	LIN. FT.
SP	LOCAL RADIO (E-NET 5.8) WITH ANTENNA		1	1	2	EACH
SP	MASTER RADIO (E-NET 5.8) WITH ANTENNA	1			1	EACH
SP	EMERGENCY BACKUP LOCAL RADIO (E-NET 5.8) WITH ANTENNA	1			1	EACH
SP	LUMINAIRE ASSEMBLY	2	2	3	7	EACH
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	0.33	0.33	0.34	1.00	LUMP SUM
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	1	1	3	EACH
SP	18" STREET NAME SIGN	2	2	6	10	EACH

* AT THE INTERSECTION OF HWY. 264 WITH GOAD SPRINGS ROAD.

OVERHEAD STREET NAME MARKER STANDARD MAST ARM MOUNTED





NOTES:

1. REFLECTIVE SHEETING SHALL COMPLY WITH ASTM 4956 TYPE 8 OR 9 REFLECTIVE SHEETING. SHEETING AND LEGEND SHALL BE APPLIED IN SUCH A MANNER TO PROVIDE WRINKLE- AND BUBBLE-FREE SURFACES. APPLICATION OF SHEETING IS CAUSE FOR REJECTION OF MATERIALS DUE TO WORKMANSHIP.

2. ALUMINUM SIGN BLANK SHALL BE ALLOY 6061-T6 OR 5052-H38. THE ALUMINUM SIGN SHALL ALSO BE ANODIZED. THE ALUMINUM SHEETING SHALL BE 0.100 INCH NOMINAL THICKNESS AND OF THE SIZE SHOWN WITH 1.5" CORNER RADII. PRIOR TO FABRICATION OF THE SIGNS, THE LAYOUT SHALL FIRST BE APPROVED BY AN AGENT OF THE CITY.

3. WHEN CROSSROAD HAS TWO NAMES, THE SIGN FOR THE CROSSROAD TO THE LEFT MAY BE INSTALLED ON THE BACKSIDE OF THE MAST ARM OF THE NEARSIDE LEFT POLE. SEE STD. DETAIL SHEET FOR MORE INFORMATION FOR MOUNTING ON MAST ARM ASSEMBLY.

4. THE CLEARVIEW 5-W-R FONT SHALL BE USED FOR ALL LETTERS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11991
ROBERT E. McIVOR JR.
12/2/14

LOCATION: HWY. 264
CITY: LOWELL
COUNTY: BENTON
DISTRICT: 9 SCALE: N/A DRAWN BY: JC

DATE: 12/02/14 FILE NAME: QUANTITY TABLE.DGN

USER: 11656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\HWY 264\QUANTITY TABLE.DGN MODEL: HWY 264 SIGNALS
PLOTTED: 12/02/14 13:44 SCALE: N/A

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.		BB0902	72	184
				(2)	SIGNALIZATION PLAN SHEET			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR JR.
10/17/14

N

7°31'12"

ANTENNA ORIENTATION
ORIENTED TO THE ROGERS POLICE TOWER

VIRTUAL 6'X6' PULSE ZONES (TYPICAL) 85' BEHIND STOP LINE

615

℄ I-49 SB RAMP 3

Vz 41 COMB.
Vz 71B
Vz 71A

P.C. 615+38.30

PMP. R.O.W.

VIRTUAL PRESENCE ZONE Vz 42

VIRTUAL 6'X50' PRESENCE ZONE Vz72A AND Vz 72B

20

EXIST. R. O. W.

25

PEDESTAL

VIRTUAL 6'X6' DETECTION ZONES 110' BEHIND STOP LINE

VIRTUAL 6'X6' DETECTION ZONES 255' BEHIND STOP LINE

VIRTUAL 6'X50' PRESENCE ZONE Vz12

615

Vz 62A COMB.
Vz 62B

Vz 61A
Vz 61B

℄ HWY 264

Vz 11 COMB.

Vz 21B
Vz 21A

Vz 22B COMB.
Vz 22A

VIRTUAL 6'X6' PULSE ZONE LOCATED 85' BEHIND STOP LINE

VIRTUAL 6'X6' DETECTION ZONES 255' BEHIND STOP LINE

EXIST. R.O.W.

VIRTUAL 6'X6' DETECTION ZONES 110' BEHIND STOP LINE

PEDESTAL

MASTER ANTENNA POLE

SERVICE POLE

PEDESTAL

CONNECT TO EXISTING SERVICE POINT AND MAIN BREAKER BY CONTRACTOR. CONTROLLER MUST BE WITHIN 10 FEET OF BREAKER.

P.I. 20+50.00
*=00°06'38.1"RT

P.I. 28+00.00
*=00°06'30.0"RT

℄ I-49 SB RAMP 4

P.T. 613+78.98

614

P.I. 612+69.82

DETECTOR SPACING CHART

POSTED SPEED	DIST. FROM STOP LINE	
	LEAD ZONE	LAG ZONE
HWY. 264 - 45 MPH	255'	110'

SCALE IN FEET
0 30' 60' 120'

LOCATION: HWY. 264/RAMPS 3 & 4
CITY: LOWELL
COUNTY: BENTON
DISTRICT: 9 DRAWN BY: rch

DATE: 10/17/14 FILE NAME: HWY 264 INTERCHANGE_1.DGN

USER: 3425I
DESIGN FILE: R:\6476731\TRAFFIC SIGNALS\HWY 264\ HWY 264 INTERCHANGE_1.DGN MODEL: HWY 264 SIGNALS
PLOTTED: 10/17/14 15:30 SCALE: 60:I

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.		BB0902	73	184

(2) SIGNALIZATION PLAN SHEET

HWY. 264 AT RAMPS 3 & 4 POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 264 - STA. 25+47.46	40' RT.	677,891.60, 706,211.18
B	HWY. 264 - STA. 24+28.33	70' RT.	677,771.17, 706,187.15
C	HWY. 264 - STA. 23+97.88	58' RT.	677,741.33, 706,200.39
D	HWY. 264 - STA. 23+98.05	54' LT.	677,746.86, 706,311.90
E	HWY. 264 - STA. 25+05.12	43' LT.	677,853.31, 706,296.49
* F	HWY. 264 - STA. 25+25.49	44' RT.	677,869.49, 706,208.63

* SEE NOTE 4. THIS SHEET.

HWY. 264 AT RAMPS 3 & 4 POLE DIMENSIONS

POLE	MAST ARM	MAST ARM ANGLE	POLE HEIGHT	LUM. ARMS	• LUM. ANGLE
A	32'	180°	35'	15'	180°
B	54'	180°	21'		
C			15'		
D	54'	180°	35'	20'	180°
E			15'		
F			15'		
G			50'		

ANGLE MEASURED CLOCKWISE FROM HAND HOLE.

DETECTOR SPACING CHART

POSTED SPEED	DIST. FROM STOP LINE	
	LEAD ZONE	LAG ZONE
HWY. 264 - 45 MPH	255'	110'

DESIGN PARAMETERS

POSTED SPEED LIMIT:
45 MPH EAST AND WEST APPROACH
35 MPH NORTH APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS RADIO
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP LINES
SHOWN ON PAVEMENT MARKING PLAN.
SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE
3' FEET BEHIND CURB

N

7°31'12"

ANTENNA ORIENTATION
ORIENTED TO THE ROGERS POLICE TOWER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
ROBERT E. McIVOR
No. 11991
10/17/14

VIRTUAL 6'X6' PULSE ZONES (TYPICAL) 85' BEHIND STOP LINE

VIRTUAL PRESENCE ZONE Vz 42

VIRTUAL 6'X50' PRESENCE ZONE Vz72A AND Vz 72B

CONC. PULL BOX (TYPE 2 HD) (TYP.)

PEDESTAL

VIRTUAL 6'X6' DETECTION ZONES 110' BEHIND STOP LINE

VIRTUAL 6'X50' PRESENCE ZONE

VIRTUAL 6'X6' PULSE ZONE LOCATED 85' BEHIND STOP LINE

Vz 22B COMB. Vz 22A

VIRTUAL 6'X6' DETECTION ZONES 110' BEHIND STOP LINE

1 1/4" RGS TO MAIN BREAKER

2 - 3" NMC
1 - 2" NMC
1 - 1" NMC

TYPE I HD PULL BOX

SERVICE POLE

MASTER ANTENNA POLE

TYPE I HD PULL BOX

PEDESTAL

CONNECT TO EXISTING SERVICE POINT AND MAIN BREAKER BY CONTRACTOR. CONTROLLER MUST BE WITHIN 10 FEET OF BREAKER.

P.C. 615+38.30

P.T. 613+78.98

615 ℄ I-49 SB RAMP 3

614 ℄ I-49 SB RAMP 4

℄ HWY. 264

PROP. R.O.W.

EXIST. R.O.W.

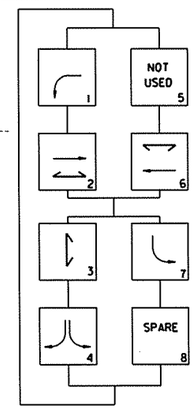
54'

32'

23

25

HWY. 264 AT RAMPS 3 AND 4 PHASING DIAGRAM

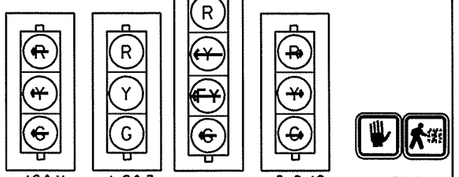


NOTES:

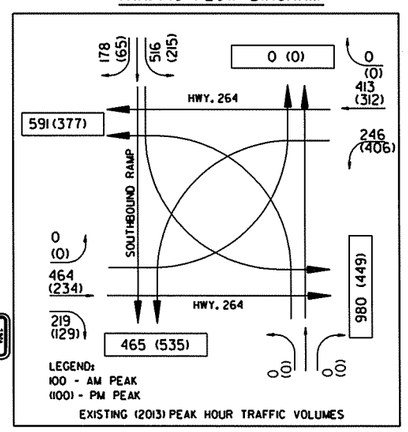
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
3. ALL CONDUITS ARE TO BE 3" DIA. N.M.C., UNLESS IDENTIFIED OTHERWISE
4. SEE TRAFFIC SIGNAL NOTES FOR CONSTRUCTION STAGING INFORMATION.

HWY. 264 SIGNAL FACES @ I-49 SOUTHBOUND RAMPS

12" LENSES



TRAFFIC FLOW DIAGRAM



SCALE IN FEET
0 20' 40' 80'

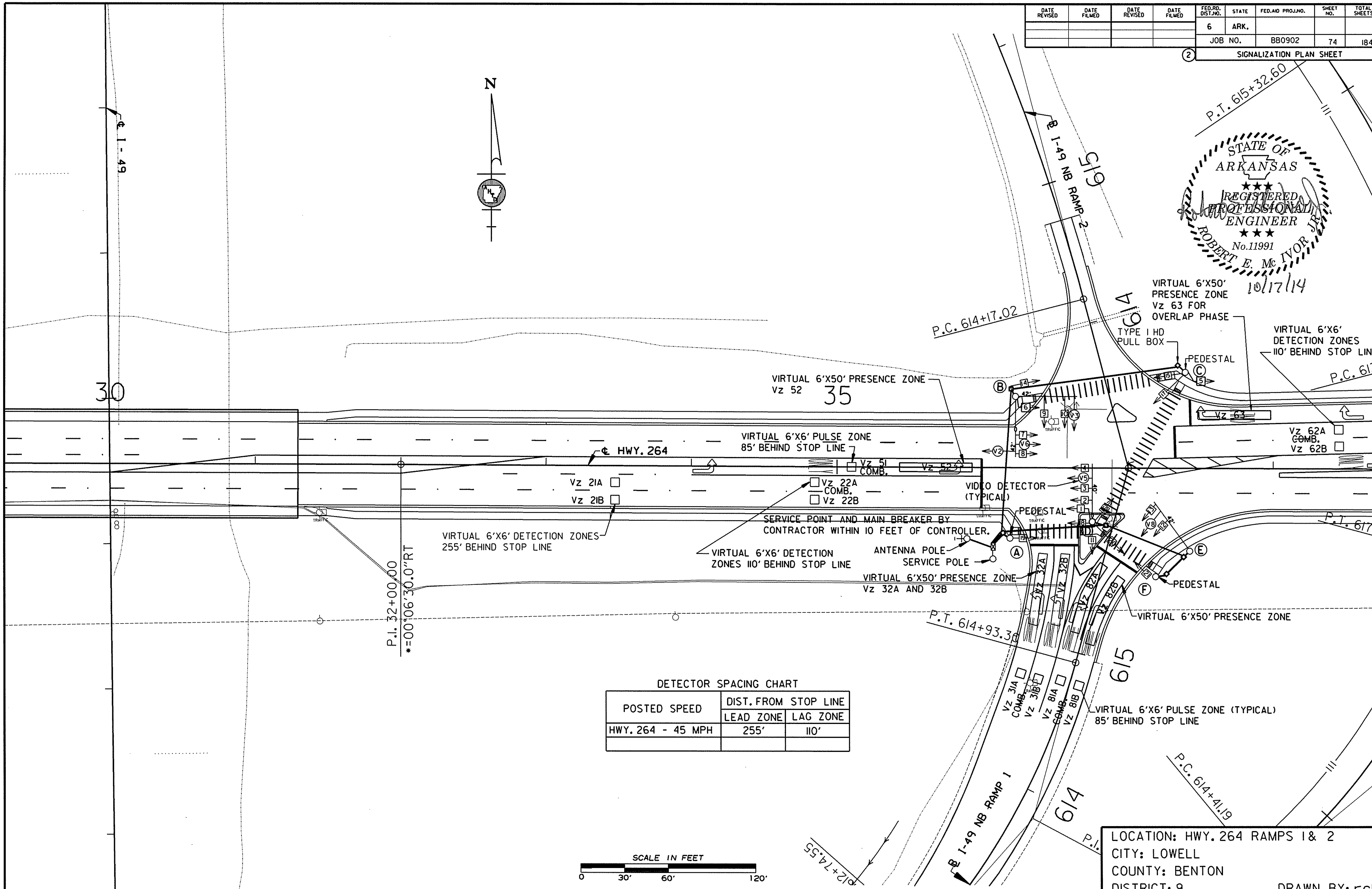
DATE: 10/17/14 FILE NAME: SOUTHBOUND_SIGNAL.DGN

LOCATION: HWY. 264/RAMPS 3 AND 4
CITY: LOWELL
COUNTY: BENTON
DISTRICT: 9 DRAWN BY: rch

USER: 34251
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\HWY 264\SOUTHBOUND SIGNAL.DGN MODEL: HWY 264 SIGNALS
PLOTTED: 10/17/14 15:36 SCALE: 20:1

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.		BB0902	74	184

(2) SIGNALIZATION PLAN SHEET



N
℄ I - 49
30
35
℄ HWY. 264
P.I. 32+00.00
*=00°06'30.0"RT
VIRTUAL 6'X50' PRESENCE ZONE
Vz 52
VIRTUAL 6'X6' PULSE ZONE
85' BEHIND STOP LINE
Vz 51 COMB.
Vz 52
Vz 21A
Vz 21B
Vz 22A COMB.
Vz 22B
VIRTUAL 6'X6' DETECTION ZONES
255' BEHIND STOP LINE
VIRTUAL 6'X6' DETECTION ZONES 110' BEHIND STOP LINE
SERVICE POINT AND MAIN BREAKER BY CONTRACTOR WITHIN 10 FEET OF CONTROLLER.
ANTENNA POLE
SERVICE POLE
VIRTUAL 6'X50' PRESENCE ZONE
Vz 32A AND 32B
VIDEO DETECTOR
(TYPICAL)
PEDESTAL
℄ I-49 NB RAMP 2
615
614
P.C. 614+17.02
P.T. 615+32.60
VIRTUAL 6'X50'
PRESENCE ZONE
Vz 63 FOR
OVERLAP PHASE
TYPE 1 HD
PULL BOX
PEDESTAL
VIRTUAL 6'X6'
DETECTION ZONES
110' BEHIND STOP LINE
P.C. 613+
Vz 63
Vz 62A
COMB.
Vz 62B
P.T. 617+
PEDESTAL
VIRTUAL 6'X50' PRESENCE ZONE
P.T. 614+93.30
Vz 32A
Vz 32B
Vz 82A
Vz 82B
Vz 31A
COMB.
Vz 31B
Vz 81A
COMB.
Vz 81B
VIRTUAL 6'X6' PULSE ZONE (TYPICAL)
85' BEHIND STOP LINE
615
P.C. 614+41.19
614
℄ I-49 NB RAMP 1
612+74.55
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR JR.
10/17/14
SCALE IN FEET
0 30' 60' 120'

DETECTOR SPACING CHART

POSTED SPEED	DIST. FROM STOP LINE	
	LEAD ZONE	LAG ZONE
HWY. 264 - 45 MPH	255'	110'

USER: 34251
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\HWY 264\HWY 264 INTERCHANGE_2.DGN MODEL: HWY 264 SIGNALS
PLOTTED: 10/17/14 15:31 SCALE: 60:1

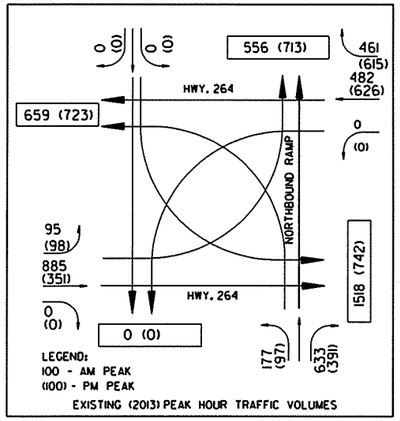
DATE: 10/17/14 FILE NAME: HWY 264 INTERCHANGE_2.DGN

LOCATION: HWY. 264 RAMPS 1& 2
CITY: LOWELL
COUNTY: BENTON
DISTRICT: 9
DRAWN BY: rch

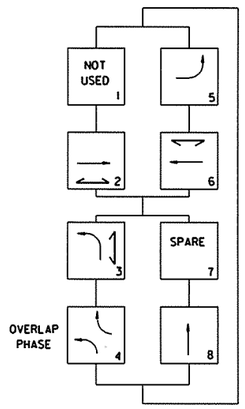
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	75	184

(2) SIGNALIZATION PLAN SHEET

TRAFFIC FLOW DIAGRAM



HWY. 264/RAMPS 1 AND 2 PHASING DIAGRAM



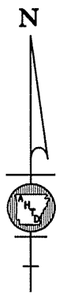
HWY. 264 AT RAMPS 1& 2 POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 264 - 36+19.09	49' RT.	678961.28, 706148.80
B	HWY. 264 - 36+22.64	49' LT.	678969.88, 706246.01
C	HWY. 264 - 37+39.20	66' LT.	679087.17, 706257.04
D	HWY. 264 - 36+75.25	37' RT.	679017.96, 706157.46
E	HWY. 264 - 37+42.59	57' RT.	679084.17, 706134.01
F	HWY. 264 - 37+19.02	75' RT.	679059.73, 706117.61

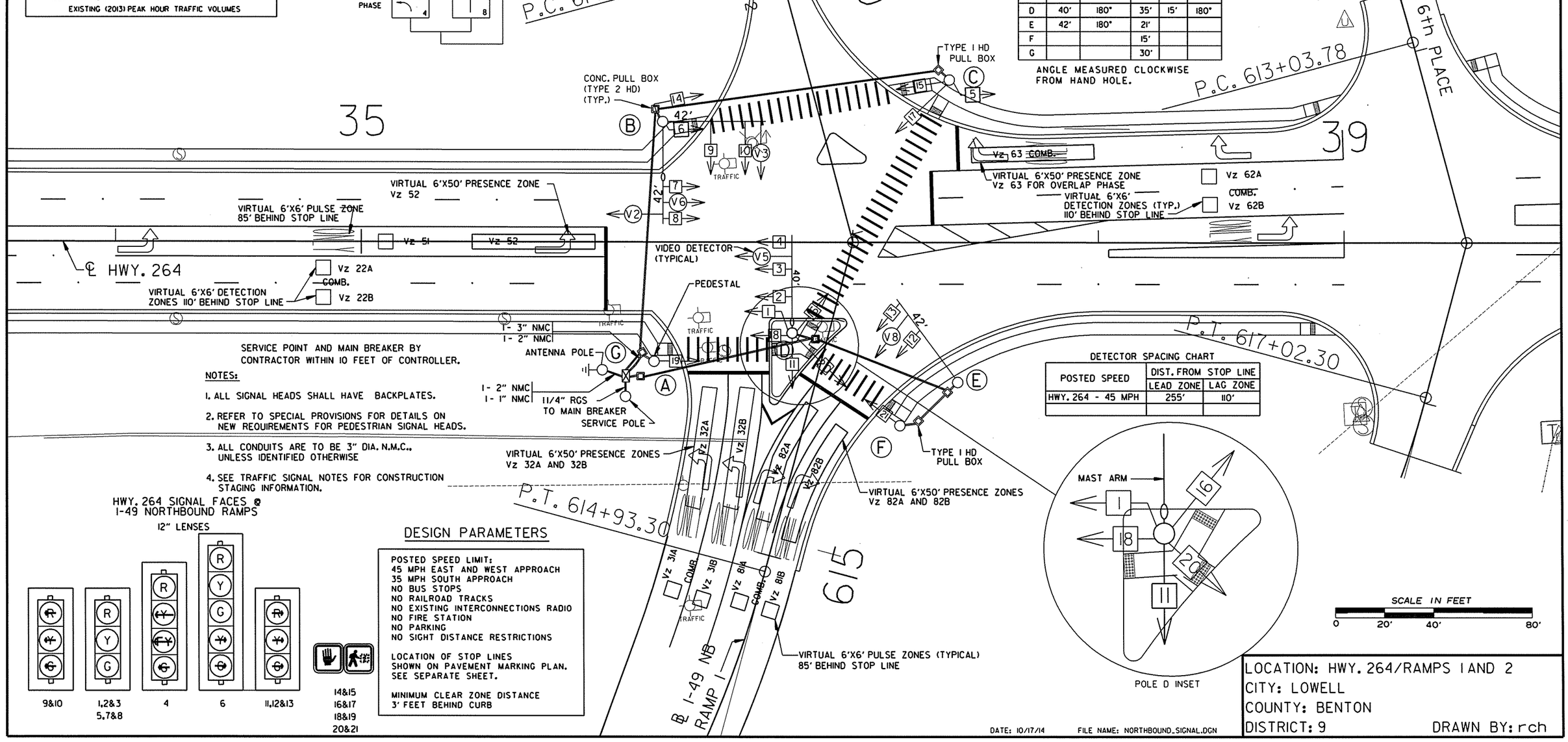
HWY. 264 AT RAMPS 1& 2 POLE DIMENSIONS

POLE	MAST ARM	MAST ARM ANGLE	POLE HEIGHT	LUM. ARMS	• LUM. ANGLE
A			15'		
B	42', 42'	90°, 180°	35'	20'	180°
C			15'		
D	40'	180°	35'	15'	180°
E	42'	180°	21'		
F			15'		
G			30'		

ANGLE MEASURED CLOCKWISE FROM HAND HOLE.



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
ROBERT E. Mc IVOR JR.
No.11991
10/17/14



HWY. 264 SIGNAL FACES @ I-49 NORTHBOUND RAMPS

12" LENSES

DESIGN PARAMETERS

POSTED SPEED LIMIT:
45 MPH EAST AND WEST APPROACH
35 MPH SOUTH APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS RADIO
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP LINES SHOWN ON PAVEMENT MARKING PLAN. SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE 3' FEET BEHIND CURB

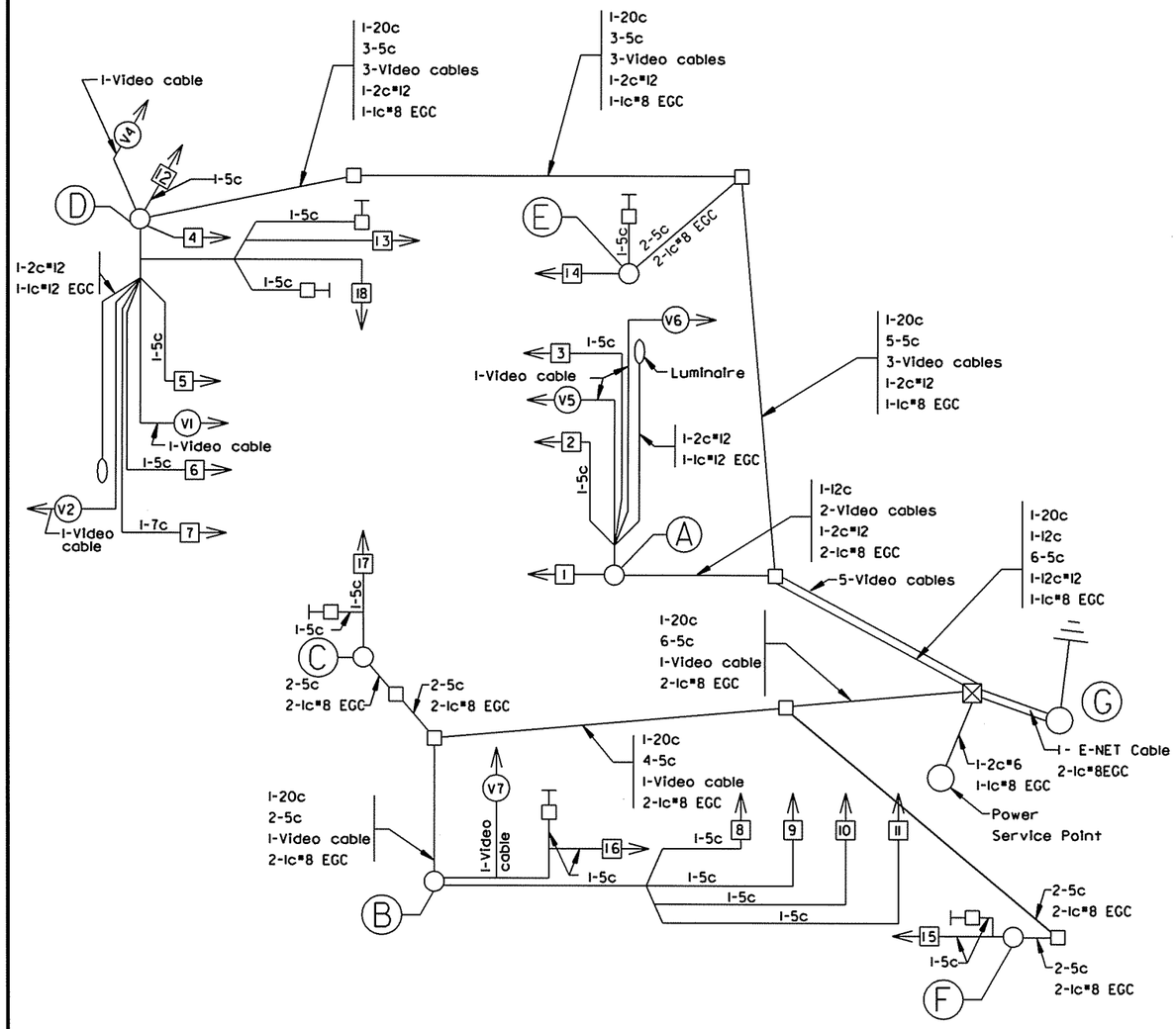
DATE: 10/17/14 FILE NAME: NORTHBOUND_SIGNAL.DGN

LOCATION: HWY. 264/RAMPS 1 AND 2
CITY: LOWELL
COUNTY: BENTON
DISTRICT: 9 DRAWN BY: rch

USER: 3425I
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\HWY 264\NORTHBOUND_SIGNAL.DGN MODEL: HWY 264 SIGNALS
PLOTTED: 10/17/14 15:33 SCALE: 20:1

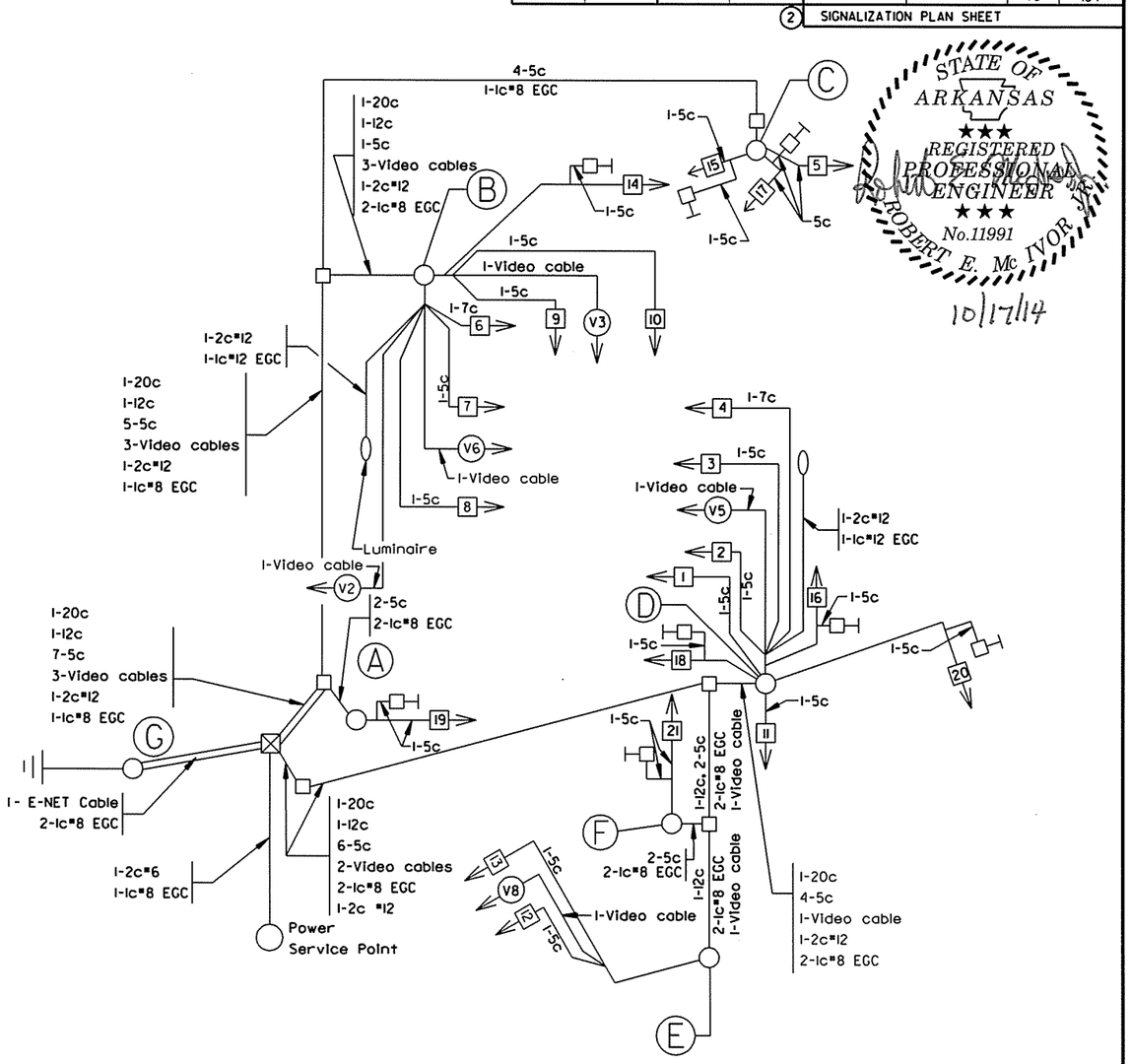
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	76	184

(2) SIGNALIZATION PLAN SHEET



WIRING DIAGRAM

RAMPS 3 AND 4



WIRING DIAGRAM

RAMPS 1 AND 2

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11991
ROBERT E. Mc IVOR JR.
10/17/14

MASTER ANTENNA NOTES:

1. SEE THE SPECIAL PROVISION FOR CLOSED LOOP TRAFFIC SYSTEM WITH ETHERNET RADIO COMMUNICATIONS.
2. A CAT5E CABLE SHALL BE INSTALLED IN THE POLE BETWEEN ANTENNA AND RADIO IN CONTROLLER.

NOTES TO CONTRACTOR:

1. ONE SEPARATE 1-5c IS RUN TO EACH POLE FOR THE PEDESTRIAN PUSH BUTTON.
2. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
3. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.
4. A SEPARATE SOLID GROUND WIRE BETWEEN ALL POLES, CABINET, AND GROUND RODS IS REQUIRED AS SHOWN ON THE STANDARD DRAWINGS. ALL BONDS BETWEEN RODS AND GROUNDING CONDUCTORS ARE TO BE FUSION WELDS.

DATE: 10/17/14 FILE NAME: SOUTHBOUND_SIGNAL_WIRINGDIAGRAM.DGN

LOCATION: HWY. 264/RAMPS 1& 2, 3 & 4
CITY: LOWELL
COUNTY: BENTON
DISTRICT: 9 SCALE: N/A DRAWN BY: rch

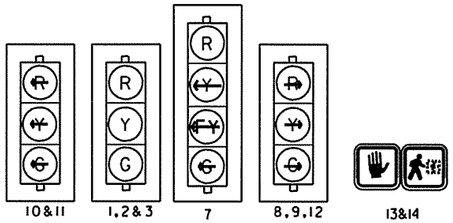
USER: 34251
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\HWY 264\SOUTHBOUND_SIGNAL_WIRINGDIAGRAM.DGN
PLOTTED: 10/17/14 15:40 SCALE: 20:1 MODEL: HWY 264 SIGNALS

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.		BB0902	77	184

(2) SIGNALIZATION PLAN SHEET

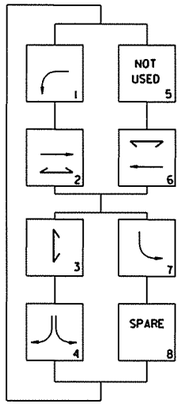
HWY. 264 SIGNAL FACES @ I-49 SOUTHBOUND RAMPS

12" LENSES



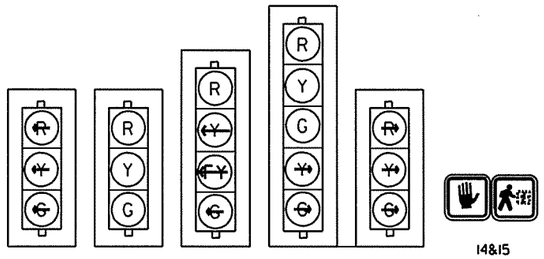
10&11 | 1,2&3 4,5&6 | 7 | 8,9,12 | 13&14 15&16 17&18

HWY. 264 AT RAMPS 3 AND 4 PHASING DIAGRAM



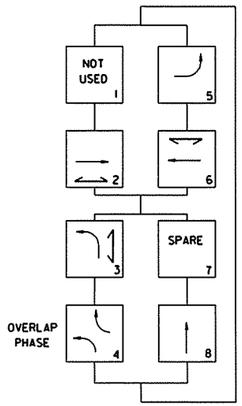
HWY. 264 SIGNAL FACES @ I-49 NORTHBOUND RAMPS

12" LENSES



9&10 | 1,2&3 5,7&8 | 4 | 6 | 11,12&13 | 14&15 16&17 18&19 20&21

HWY. 264/RAMPS 1 AND 2 PHASING DIAGRAM



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11991
ROBERT E. McIVOR JR.
10/17/14

INTERVAL CHART

SIGNAL FACES	HWY. 264/RAMPS 3 AND 4 1+6	CLR.	2+6	CLR.	4+7	CLR.	FLASH SEQ.
7	~~G~~	~~Y~~	~~FY~~	•••	~~R~~	~~R~~	~~R~~
4,5&6	G	••	G	••	R	R	R
1,2&3	R	R	G	Y	R	R	R
8,9&12	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	~~Y~~	~~R~~
10&11	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	~~Y~~	~~R~~
13&14	DW	DW	W	FDW	DW	DW	BLK
15&16	DW	DW	W	FDW	DW	DW	BLK
17&18	DW	DW	DW	DW	W	FDW	BLK

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE.
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE.
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE.

INTERVAL CHART

SIGNAL FACES	HWY. 264/RAMPS 1 AND 2 2+5	CLR.	2+6	CLR.	3+8	CLR.	4 (0)••••	CLR.	FLASH SEQ.
5,7&8	R	R	G	••	R	R	G	••	R
6	R	R	G	••	R	R	~~G~~ >	•	R
4	~~G~~	~~Y~~	~~FY~~	•••	R	R	R	R	R
1,2&3	G	••	G	••	R	R	R	R	R
9&10	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~ ←	~~Y~~	~~R~~	~~R~~	~~R~~
11,12,&13	R	R	R	R	G	••	G	••	R
14&15	DW	DW	W	FDW	DW	DW	DW	DW	BLK
16&17	DW	DW	DW	DW	W	FDW	DW	DW	BLK
18&19	DW	DW	W	FDW	DW	DW	DW	DW	BLK
20&21	DW	DW	W	FDW	DW	DW	DW	DW	BLK

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE
•••• USE PHASE 4 FOR WB RIGHT TURN OVERLAP WITH NB LEFT TURN

DETECTOR SYSTEM DESCRIPTION: JOB BB0902

HWY. 264/RAMPS 3 AND 4 DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS LOCAL		MASTER SYSTEM DETECTOR NUMBERS		
DET. ID*	LOCATION DIRECTION	TYPE	DET.*	CAB. TRM *	AMP. CHN. *	CON. INP. *	PHS	SYSTEM DET.*			
Vz11	WB LEFT TURN FAR	COMB.			1	V9	1	1		CAMERA V1	23"
Vz12	WB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	23"
Vz21 A&B	EB ADVANCE	LOCAL			5	V2	2			CAMERA V2	74"
Vz22 A&B	EB NEAR	COMB.			6	V10	2	2		CAMERA V5	23"
Vz41	SB ADVANCE	COMB.			9	V4	4	4		CAMERA V4	POLE MT
Vz42	SB RIGHT TURN	LOCAL			10	P3	4			CAMERA V7	POLE MT
Vz61 A&B	WB ADVANCE	LOCAL			3	V6	6			CAMERA V6	74"
Vz62 A&B	WB NEAR	COMB.			4	V14	6	6		CAMERA V1	23"
Vz71 A&B	SB LEFT TURN FAR	COMB.			11	V15	7	7		CAMERA V4	POLE MT
Vz72 A&B	SB LEFT TURN	LOCAL			12	V7	7			CAMERA V7	POLE MT
PB2 A&B	I-49 SB ENT. RAMP	PED.				P2	2				
PB4 A&B	HWY. 264 WEST LEG	PED.				P4	4				
PB6 A&B	I-49 SB EXIT RAMP	PED.				P6	6				

SPARE: 7, 8, 13-16

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICULAR INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

DETECTOR SYSTEM DESCRIPTION: JOB BB0902

HWY. 264/RAMPS 1 AND 2 DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS LOCAL		MASTER SYSTEM DETECTOR NUMBERS		
DET. ID*	LOCATION DIRECTION	TYPE	DET.*	CAB. TRM *	AMP. CHN. *	CON. INP. *	PHS	SYSTEM DET.*			
Vz21 A&B	EB ADVANCE	LOCAL			1	V2	2			CAMERA V2	74"
Vz22 A&B	EB NEAR	COMB.			2	V10	2	2		CAMERA V5	23"
Vz31 A&B	NB LEFT TURN FAR	COMB.			9	V11	3	3		CAMERA V3	74"
Vz32 A&B	NB LEFT TURN	LOCAL			10	V3	3			CAMERA V3	74"
Vz51	EB LEFT TURN FAR	COMB.			3	V13	5			CAMERA V5	23"
Vz52	EB LEFT TURN	LOCAL			4	V5	5	5		CAMERA V5	23"
Vz61 A&B	WB ADVANCE	LOCAL			5	V6	6			CAMERA V6	74"
Vz62 A&B	WB NEAR	COMB.			6	V14	6	6		CAMERA V6	74"
Vz63	WB RIGHT TURN	COMB.			7	P1	4(0)	1		CAMERA V6	74"
Vz81 A&B	NB ADVANCE	COMB.			11	V16	8	8		CAMERA V8	23"
Vz82 A&B	NB NEAR	LOCAL			12	V8	8			CAMERA V8	23"
PB2 A&B	I-49 NB EXIT RAMP	PED.				P2	2				
	I-49 NB ENT. RAMP					P6					
PB6 A&B	HWY. 264 EAST LEG	PED.				P8	6				
PB3 A&B		PED.					3				

SPARE: 8, 13-16

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICULAR INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

DATE: 10/17/14 FILE NAME: SOUTHBOUND_SIGNAL_INTERVAL.DGN

LOCATION: HWY. 264/RAMPS 1& 2, 3 & 4
CITY: LOWELL
COUNTY: BENTON
DISTRICT: 9 SCALE: N/A DRAWN BY: rch

USER: 34251
DESIGN FILE: R:\64767J\TRAFFIC SIGNALS\HWY 264\SOUTHBOUND_SIGNALS_INTERVAL.DGN MODEL: HWY 264 SIGNALS
PLOTTED: 10/17/14 15:42 SCALE: 20:1

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.		BB0902	78	184
				(2)	SIGNALIZATION PLAN SHEET			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. McNORJR.
10/17/14

DETECTOR SPACING CHART

POSTED SPEED	DIST. FROM STOP LINE	
	LEAD ZONE	LAG ZONE
HWY. 264 - 45 MPH	255'	110'
DIXIELAND - 45 MPH	255'	110'

N

P.I. 614+19.30

VIRTUAL 6'X6' PULSE ZONES 255' BEHIND STOP LINE — Vz 42A, Vz 42B

VIRTUAL 6'X6' PULSE ZONES 110' BEHIND STOP LINE — Vz 41A COMB., Vz 41B

VIRTUAL 6'X6' PULSE ZONES 85' BEHIND STOP LINE — Vz 71B, Vz 71A

N. DIXIELAND RD.

VIRTUAL 6'X6' DETECTION ZONES 255' BEHIND STOP LINE

VIRTUAL 6'X50' PRESENCE ZONES Vz 72A, 72B

SERVICE POLE
SERVICE POINT AND MAIN BREAKER BY CONTRACTOR WITHIN 10 FEET OF CONTROLLER.
ANTENNA POLE
2" NMC
1" NMC

VIRTUAL 6'X6' PULSE ZONES 110' BEHIND STOP LINE

VIRTUAL 6'X6' PULSE ZONES 255' BEHIND STOP LINE

PROP. R. O. W.

EXIST. R. O. W.

VIRTUAL 6'X50' PRESENCE ZONES Vz 52A, AND 52B

N. 6th PLACE

03.78

40

45

Vz 61A
Vz 61B

VIRTUAL 6'X6' PULSE ZONES 85' BEHIND STOP LINE

Vz 51A, Vz 52A
Vz 51B, Vz 52B

℄ HWY. 264

VIRTUAL 6'X50' PRESENCE ZONES (TYP.)
Vz 12B, Vz 11B
Vz 12A, Vz 11A

Vz 62A COMB., Vz 62B

Vz 21B
Vz 21A

Vz 22B COMB., Vz 22A

VIRTUAL 6'X6' PULSE ZONES (TYPICAL) LOCATED 85' BEHIND STOP LINE

02.30

VIRTUAL 6'X6' PULSE ZONES 255' BEHIND STOP LINE

VIRTUAL 6'X6' PULSE ZONES 110' BEHIND STOP LINE

EXIST. R. O. W.

PROP. R. O. W.

℄ S. 6th PLACE

VIRTUAL 6'X50' PRESENCE ZONES (TYP.) Vz 32A AND 32B

MATCH LINE

VIRTUAL 6'X6' PULSE ZONE LOCATED 255' BEHIND STOP LINE

Vz 81

P.I. 40+82.60
Δ=00°03'28.8"LT

14

13

Vz 31A, Vz 31B
Vz 32A COMB., Vz 32B

VIRTUAL 6'X6' PULSE ZONES (TYP.) LOCATED 85' BEHIND STOP LINE

S. DIXIELAND RD.

Vz 82 COMB.

VIRTUAL 6'X6' PULSE ZONE LOCATED 110' BEHIND STOP LINE

P.I. 615+76.03

SCALE IN FEET
0 30' 60' 120'

LOCATION: HWY. 264/DIXIELAND
CITY: LOWELL
COUNTY: BENTON
DISTRICT: 9
DRAWN BY: rch

USER: 3425I
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\HWY 264\HWY 264 INTERCHANGE_3.DGN
PLOTTED: 10/17/14 15:32
SCALE: 60.0
MODEL: HWY 264 SIGNALS
DATE: 10/17/14
FILE NAME: HWY 264 INTERCHANGE_3.DGN

HWY. 264 AT DIXIELAND RD. POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 264 - STA. 44+47.34	64' LT.	679,794.22, 706,218.97
B	HWY. 264 - STA. 44+56.86	52' RT.	679,897.84, 706,102.86
C	HWY. 264 - STA. 43+50.68	54' RT.	679,691.66, 706,105.58
D	HWY. 264 - STA. 43+24.55	66' LT.	679,671.69, 706,227.38

HWY. 264 AT DIXIELAND RD. POLE DIMENSIONS

POLE	MAST ARM	MAST ARM ANGLE	POLE HEIGHT	LUM. ARMS	• LUM. ANGLE
A	54'	180°	35'	20'	180°
B	68'	180°	35'	20'	180°
C	44'	270°	35'	15'	270°
D	68'	180°	21'		
E			30'		

ANGLE MEASURED CLOCKWISE FROM HAND HOLE.

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.		BB0902	79	184

(2) SIGNALIZATION PLAN SHEET

DESIGN PARAMETERS

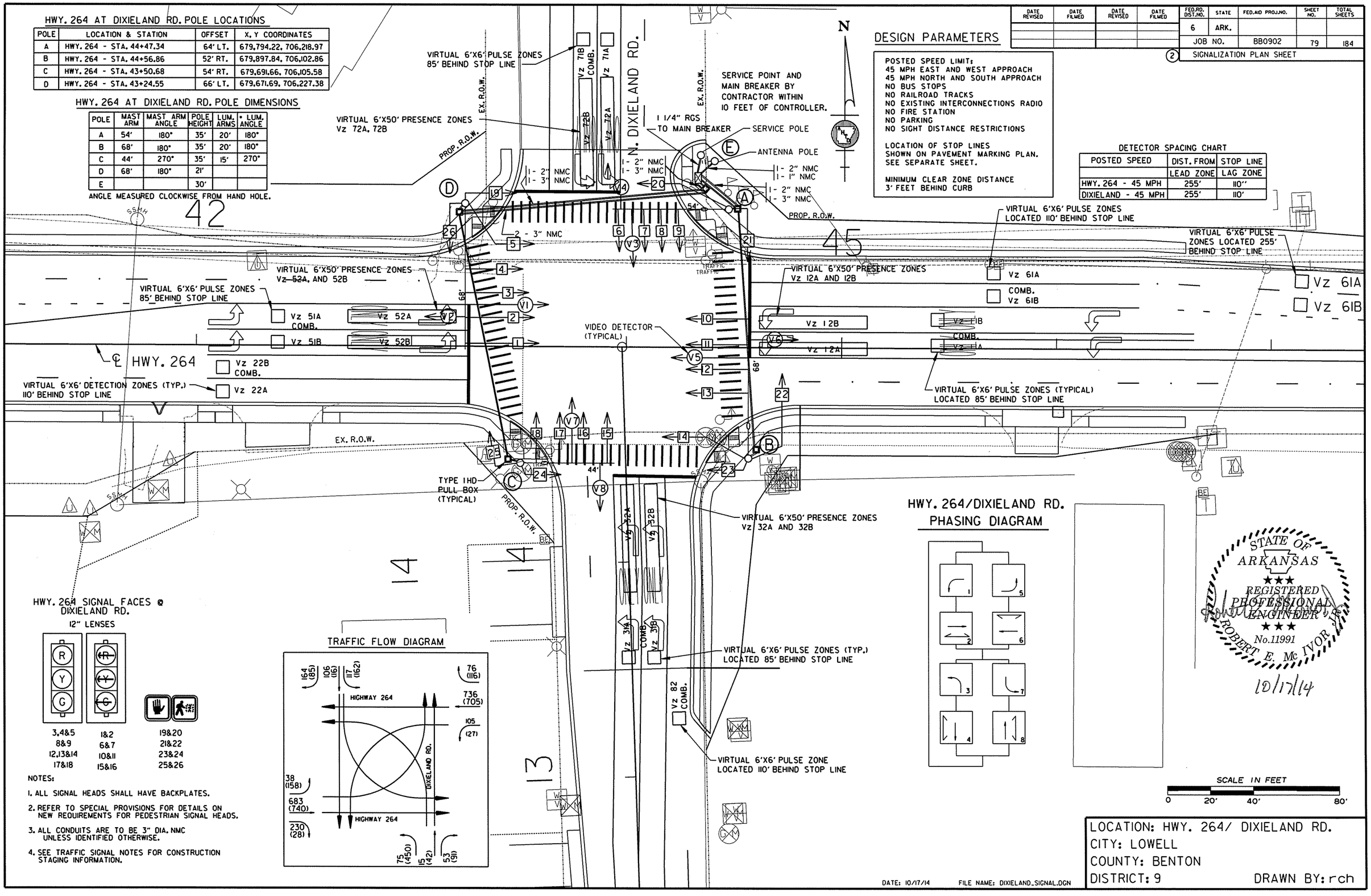
POSTED SPEED LIMIT:
45 MPH EAST AND WEST APPROACH
45 MPH NORTH AND SOUTH APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS RADIO
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP LINES SHOWN ON PAVEMENT MARKING PLAN. SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE 3' FEET BEHIND CURB

DETECTOR SPACING CHART

POSTED SPEED	DIST. FROM STOP LINE	
	LEAD ZONE	LAG ZONE
HWY. 264 - 45 MPH	255'	110''
DIXIELAND - 45 MPH	255'	110'



HWY. 264 SIGNAL FACES @ DIXIELAND RD.

12" LENSES

3,4&5	1&2	19&20
8&9	6&7	21&22
12,13&14	10&11	23&24
17&18	15&16	25&26

NOTES:

1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
3. ALL CONDUITS ARE TO BE 3" DIA. NMC UNLESS IDENTIFIED OTHERWISE.
4. SEE TRAFFIC SIGNAL NOTES FOR CONSTRUCTION STAGING INFORMATION.

TRAFFIC FLOW DIAGRAM

HWY. 264/DIXIELAND RD. PHASING DIAGRAM

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR, JR.
10/17/14

SCALE IN FEET
0 20' 40' 80'

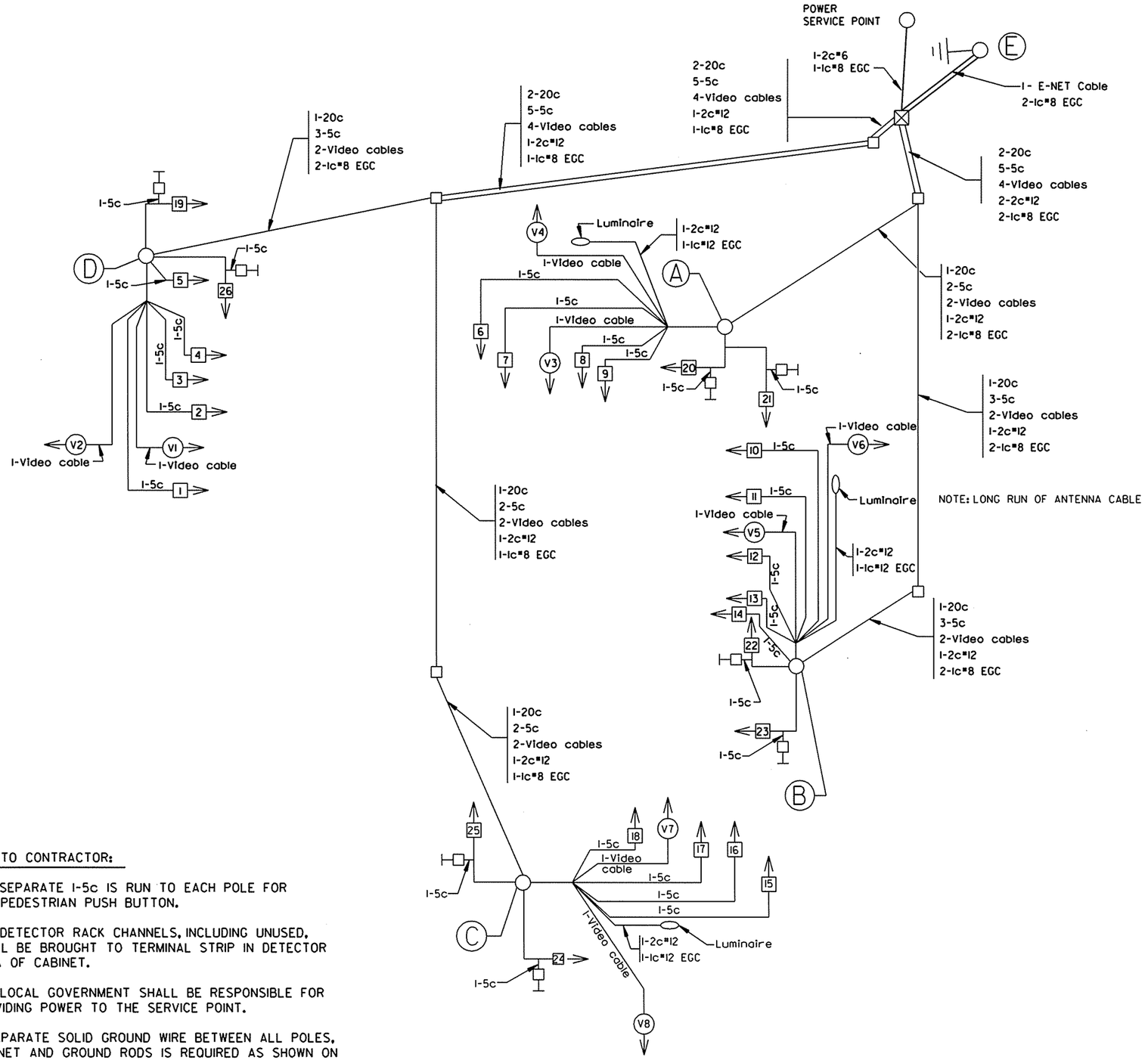
LOCATION: HWY. 264/ DIXIELAND RD.
CITY: LOWELL
COUNTY: BENTON
DISTRICT: 9
DRAWN BY: rch

DATE: 10/17/14 FILE NAME: DIXIELAND_SIGNAL.DGN

USER: 34251
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\HWY 264\DIXIE_SIGNAL.DGN MODEL: HWY 264 SIGNALS
PLOTTED: 10/17/14 15:27 SCALE: 20:1

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.		BB0902	80	184
				(2)	SIGNALIZATION PLAN SHEET			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR JR.
10/17/14



NOTES TO CONTRACTOR:

1. ONE SEPARATE 1-5c IS RUN TO EACH POLE FOR THE PEDESTRIAN PUSH BUTTON.
2. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
3. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.
4. A SEPARATE SOLID GROUND WIRE BETWEEN ALL POLES, CABINET AND GROUND RODS IS REQUIRED AS SHOWN ON THE STANDARD DRAWINGS. ALL BONDS BETWEEN RODS AND GROUNDING CONDUCTORS ARE TO BE FUSION WELDS.

WIRING DIAGRAM

DIXIELAND ROAD

DATE: 10/17/14 FILE NAME: DIXIELAND_SIGNAL_WIRINGDIAGRAM.DGN

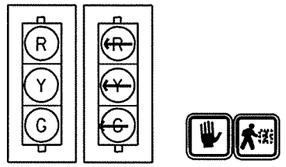
LOCATION: HWY. 264/ DIXIELAND RD.
CITY: LOWELL
COUNTY: BENTON
DISTRICT: 9 SCALE: N/A DRAWN BY: rch

USER: 3425i
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\HWY 264\DIXIELAND_SIGNAL_WIRINGDIAGRAM.DGN
PLOTTED: 10/17/14 15:29 SCALE:20:1 MODEL: HWY 264 SIGNALS

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.		BB0902	81	184
				(2)	SIGNALIZATION PLAN SHEET			

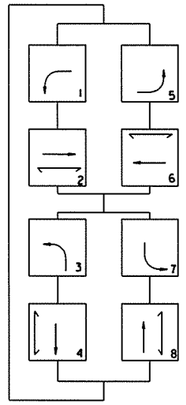
HWY. 264 SIGNAL FACES @ DIXIELAND RD.

12" LENSES



3,4&5	1&2	19&20
8&9	6&7	21&22
12,13&14	10&11	23&24
17&18	15&16	25&26

HWY. 264/DIXIELAND RD.
PHASING DIAGRAM



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
ROBERT E. McIVOR, JR.
No.11991
10/17/14

DETECTOR SYSTEM DESCRIPTION: JOB BB0902

HWY. 264/DIXIELAND RD. DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS LOCAL		MASTER SYSTEM DETECTOR NUMBERS	COMMENTS	TUBE LENGTHS
DET. ID#	LOCATION DIRECTION	TYPE	DET.#	CAB. TRM #	AMP. CHN. #	CON. INP. #	PHS	SYSTEM DET.#			
Vz11 A&B	WB LEFT TURN FAR	COMB.			1	V9	1	1		CAMERA V1	23"
Vz12 A&B	WB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	23"
Vz21 A&B	EB ADVANCE	LOCAL			5	V2	2			CAMERA V2	74"
Vz22 A&B	EB NEAR	COMB.			6	V10	2	2		CAMERA V5	74"
Vz31 A&B	NB LEFT TURN FAR	COMB.			9	V11	3	3		CAMERA V3	23"
Vz32 A&B	NB LEFT TURN	LOCAL			10	V3	3			CAMERA V3	23"
Vz41 A&B	SB ADVANCE	LOCAL			13	V4	4			CAMERA V4	74"
Vz42 A&B	SB NEAR	COMB.			14	V12	4	4		CAMERA V7	74"
Vz 51 A&B	EB LEFT TURN FAR	COMB.			7	V13	5	5		CAMERA V5	23"
Vz 52 A&B	EB LEFT TURN	LOCAL			8	V5	5			CAMERA V5	23"
Vz61 A&B	WB ADVANCE	LOCAL			3	V6	6			CAMERA V6	74"
Vz62 A&B	WB NEAR	COMB.			4	V14	6	6		CAMERA V1	74"
Vz71 A&B	SB LEFT TURN FAR	COMB.			15	V15	7	7		CAMERA V7	23"
Vz72 A&B	SB LEFT TURN	LOCAL			16	V7	7			CAMERA V7	23"
Vz 81	NB ADVANCE	LOCAL			11	V8	8			CAMERA V8	74"
Vz 82	NB NEAR	COMB.			12	V16	8	8		CAMERA V3	74"
PB2 A&B	DIXIELAND S. LEG	PED.				P2	2				
PB4 A&B	HWY. 264 W. LEG	PED.				P4	4				
PB6 A&B	DIXIELAND N. LEG	PED.				P6	6				
PB8 A&B	HWY. 264 E. LEG	PED.				P8	8				

CONTROLLER INPUT ABBREVIATION:
V = VEHICLE INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

INTERVAL CHART

SIGNAL FACES	HWY. 264/DIXIELAND RD. 1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	3+7	CLR.	3+8	CLR.	4+7	CLR.	4+8	CLR.	FLASH SEQ.
1&2	~~G~~	•	~~G~~	•	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
3,4&5	R	R	G	••	R	R	G	••	R	R	G	R	R	R	R	R	R
6&7	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	•	~~G~~	•	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
8&9	R	R	R	R	R	R	R	R	R	R	G	••	R	R	G	••	R
10&11	~~G~~	•	~~R~~	R	~~G~~	•	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
12,13&14	R	R	R	R	G	••	G	••	R	R	R	R	R	R	R	R	R
15&16	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	•	~~R~~	~~R~~	~~G~~	•	~~R~~	~~R~~	~~R~~
17&18	R	R	R	R	R	R	R	R	R	R	R	R	G	••	G	••	R
19&20	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	BLK
21&22	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	BLK
23&24	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	BLK
25&26	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	BLK

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE.
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE.
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE.

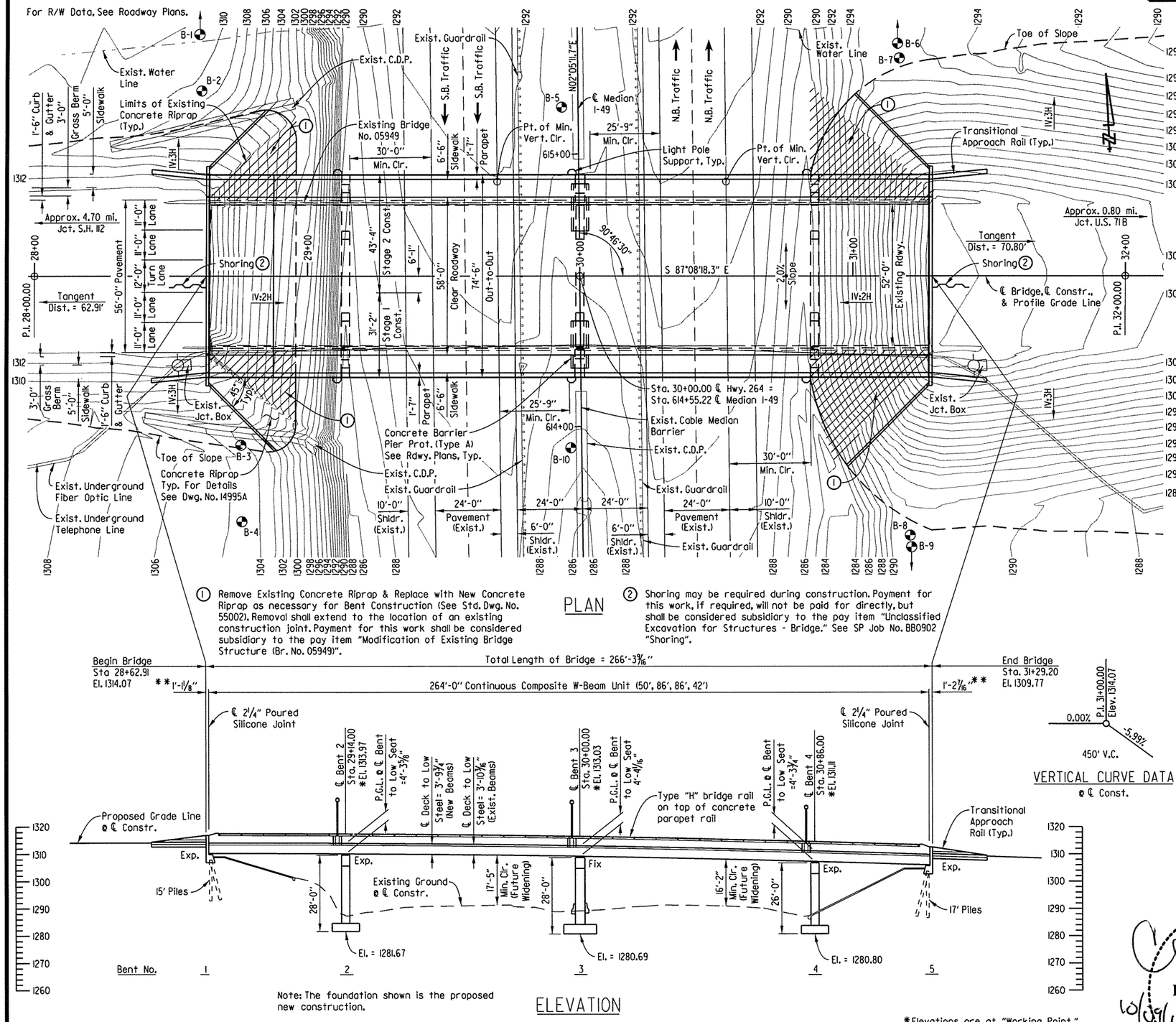
LOCATION: HWY. 264/ DIXIELAND RD.
CITY: LOWELL
COUNTY: BENTON
DISTRICT: 9 SCALE: N/A DRAWN BY: rch

DATE: 10/17/14 FILE NAME: DIXIELAND_SIGNAL_INTERVAL.DGN

USER: 34251
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\HWY 264\DIXELAND.SIGNAL.INTERVAL.DGN MODEL: HWY 264 SIGNALS
PLOTTED: 10/17/14 15:25 SCALE:201

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	82	184
				(1) 05949		LAYOUT		55652



PLAN

(1) Remove Existing Concrete Riprap & Replace with New Concrete Riprap as necessary for Bent Construction (See Std. Dwg. No. 55002). Removal shall extend to the location of an existing construction joint. Payment for this work shall be considered subsidiary to the pay item "Modification of Existing Bridge Structure (Br. No. 05949)".

(2) Shoring may be required during construction. Payment for this work, if required, will not be paid for directly, but shall be considered subsidiary to the pay item "Unclassified Excavation for Structures - Bridge." See SP Job No. BB0902 "Shoring".

Note: The foundation shown is the proposed new construction.

ELEVATION

*Elevations are at "Working Point," See "Rounding Detail" on Dwg. No. 55666

**As measured at top of bridge seat. See Dwg. No. 55674

VERTICAL CURVE DATA
⊕ ℄ Const.

GENERAL NOTES

BENCH MARK: Square cut in drop inlet of median of I-49, 85.66' Rt. Centerline, Sta. 30+01.09, Elev. 1285.89.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications 6th Edition (2012) with current interim specifications (new construction only).

LIVE LOADING: HL-93 SEISMIC PERFORMANCE ZONE: I

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 M 31 or M 322 Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

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

STEEL PILING: All piling shall be HP 12x53 and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 70 tons per pile into the material designated as Hard Limestone on the boring legend. Lengths shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with the Standard Specifications. Piles in End Bent 1 & 5 to be driven after embankment to bottom of cap is in place. On all piles the contractor shall use approved steel H-Pile driving points.

PREBORING: Preboring will be required for all piling in End Bent 1 and shall extend from bottom of cap to a minimum of 3' into rock. A preboring depth of 14' is anticipated. The prebored hole shall be backfilled with lean concrete to the top of rock after pile driving is complete. The remaining length of prebored hole shall be backfilled in accordance with Subsection 805.08(a) to completely fill the remaining voids. The Contractor shall be responsible for keeping prebored holes free from debris prior to back filling which may require the use of temporary casings or other methods. Pile casings and backfill will not be paid for directly but shall be considered subsidiary to the item "Preboring".

FOOTINGS: Footings shall be set a minimum of 2'-0" into material designated as Hard Limestone on the boring legend and shall have a minimum cover over top of footings of 2'. Foundations for footings shall be prepared in accordance with Subsection 801.04. Blasting will not be allowed. Concrete in footings shall be poured directly against excavated surfaces of rock.

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

CLASS 2 PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface, sidewalk surface, and roadway face and top of parapet rail.

TEXTURED COATING FINISH: Class 3 Textured Coating Finish shall be applied to bridge surfaces in accordance with the Special Provision Job No. BB0902 "Textured Coating Finish" and Subsection 802.19(b)(3). The color of the finish shall be Gray and shall match Federal Std. 595B, Color Chip 37150. Texture coating finish applied to the superstructure shall have no texture. Texture coating finish applied to the substructure shall have texture approximating the existing substructure. Textured coating finish shall not be applied on surfaces where Class 2 Protective Surface Treatment is applied.

PAINTING: See Dwg. No. 55673.

DETAIL DRAWINGS:	DRAWING NUMBER
Stage Construction	55654-55656
End Bents	55657-55661
Intermediate Bents	55662-55663
Elastomeric Bearings	55664
Modification Details	55665
264'-0" Cont. Comp. W-Beam Unit	55666-55676
Transitional Approach Railing	55677
Type D Name Plate	55010

For Additional General Notes see Sheet No. 55653

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/31/14

SHEET 1 OF 2

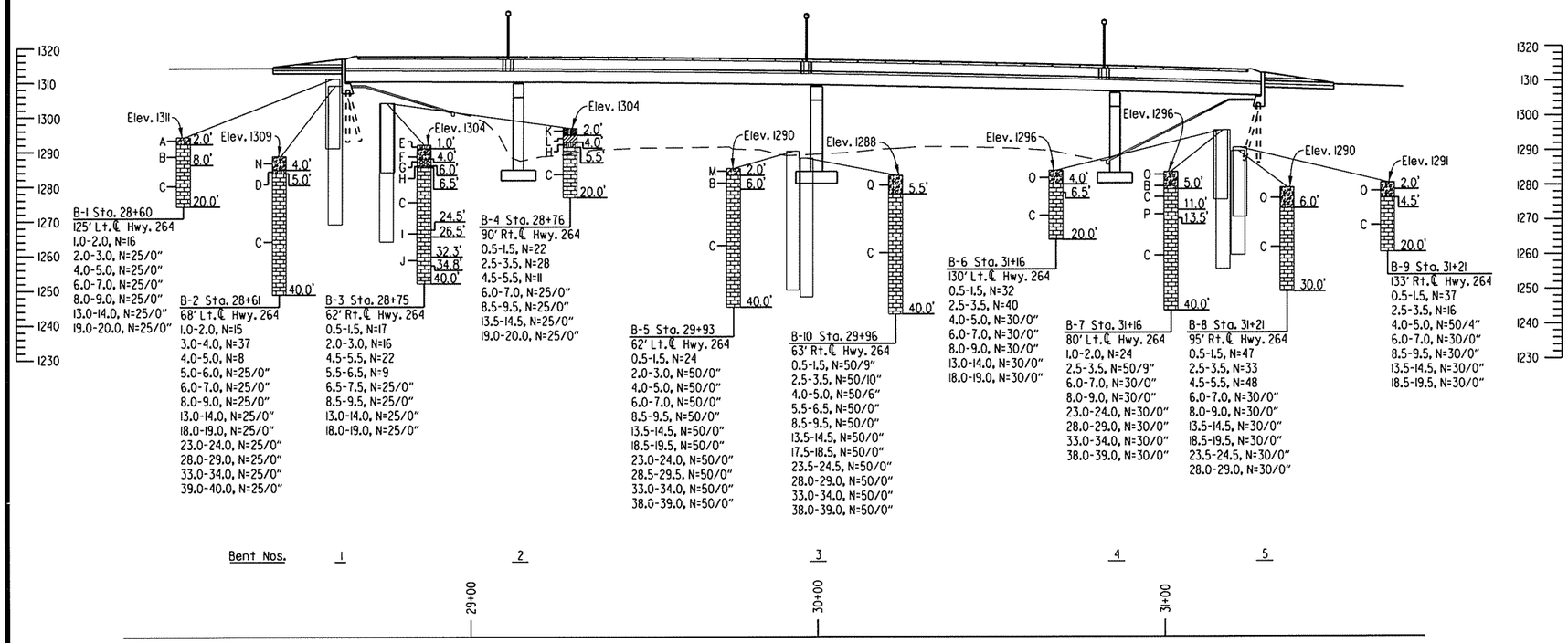
LAYOUT OF BRIDGE OVER INTERSTATE 49 (HWY. 264)
HWY. 264 INTCHNG. IMPVTS. (S)
BENTON COUNTY
ROUTE 49 SEC. 29

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 02-19-13 FILENAME: bbb0902_II.dgn
CHECKED BY: JKJ DATE: 02-22-13 SCALE: 1" = 20'
DESIGNED BY: CAW DATE: 02-07-13
BRIDGE NO. 05949 DRAWING NO. 55652

USER: lr594
DESIGN FILE: G:\2103301_Hwy264\TRANSP\dgn\bridge\bbb0902_II.dgn
PLOTTED: 10/9/2014 16:16 SCALE: 40:1

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.		BB0902	83	184
				(1) 05949		LAYOUT		55653



ELEVATION

BORING LEGEND

A. Firm to stiff, brown to dark brown fine sandy CLAY with chert fragments
B. LIMESTONE with reddish brown clay seams - light gray, slightly weathered, moderately hard
C. LIMESTONE with chert inclusions and seams - light gray, hard to very hard
D. Very stiff, tan and light gray silty CLAY (completely weathered limestone)
E. Stiff, brown silty CLAY with trace organics
F. Firm, brown and reddish brown fine sandy CLAY with chert fragments
G. Stiff, reddish brown and brown clayey SILT
H. Firm to stiff, tan and light gray silty CLAY with limestone inclusions
I. Light gray and gray chert with very close limestone seams and layers at 24.5 to 26.5 ft
J. Light gray chert with very close limestone seams and layers at 32.3 to 34.8 ft
K. Stiff, tan and light brown silty CLAY with chert and limestone fragments
L. Very stiff, tan and brown CLAY
M. Stiff to very stiff, brown fine sandy CLAY with chert fragments - fill
N. Stiff to very stiff brown fine sandy CLAY with chert fragments
O. Very stiff dark brown fine sandy CLAY with chert fragments
P. Very dark gray, reddish brown and light gray LIMESTONE, slightly vuggy, chert with pyrite and bituminous inclusions, small vugs at 11 to 13.5 ft
Q. Very stiff brown fine sandy CLAY with chert fragments - fill

General Notes (Cont'd.)

THE PROPOSED WORK CONSISTS OF: Widening the existing bridge, modifying the existing end bents, constructing new intermediate bents, widening the existing concrete deck, cleaning and painting existing beams and diaphragms (see Method of Work Dwg. No. 55673), removing and replacing portions of the existing concrete riprap, replacing existing bearings at end bents, and replacing the joint seals. For additional requirements in conducting the work, see Section 821.

VERIFICATION: Except as noted, components of the existing bridge are to be retained and joined to proposed work. Information and dimensions shown are based on existing bridge plans. The Contractor is to adhere strictly to requirements for verification of the geometry of the existing bridge and its relationship to the proposed work described in Subsection 821.02 and make necessary adjustments to fit the proposed work to the existing structure. Payment for this work shall be considered subsidiary to the pay item "Modification of Existing Bridge Structure (Br. No. 05949)".

EXISTING BRIDGE: The Existing Bridge No. 05949 is approximately 54.83' wide and 266.3' long and consists of a continuous composite W-beam and reinforced concrete slab span, multi-column intermediate bents on spread footings, one end bent on spread footings, and one steel pile end bent. Plans of the existing structure may be obtained upon request to the Programs and Contracts Division.

REMOVAL AND SALVAGE: All material removed from the existing bridge under item 821 shall be disposed of according to Section 205. All material removed from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans and Special Provisions for more information.

See Dwg. No. 55673 for additional General Notes.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/09/14

SHEET 2 OF 2

LAYOUT OF BRIDGE OVER INTERSTATE 49 (HWY. 264) HWY. 264 INTCHNG. IMPVTS. (S) BENTON COUNTY

ROUTE 49 SEC. 29

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

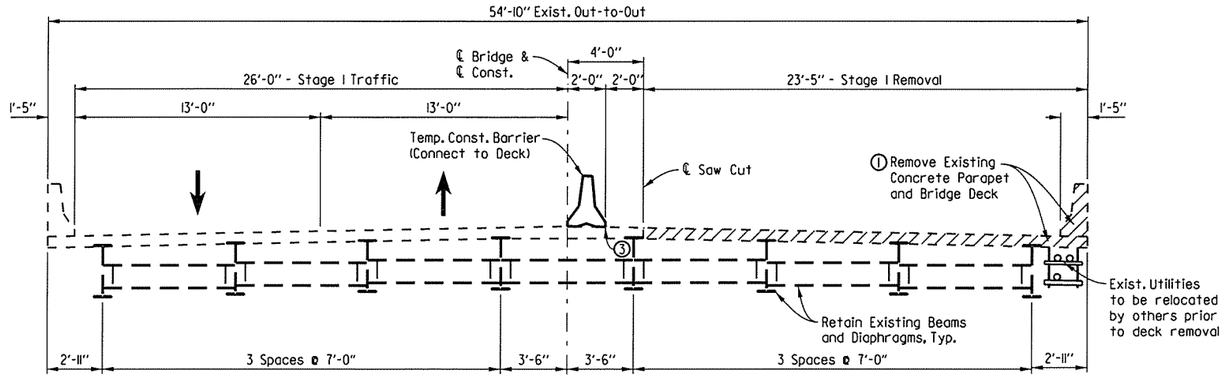
DRAWN BY: BWC DATE: 02-19-13 FILENAME: bbb0902_l2.dgn
CHECKED BY: JKJ DATE: 02-22-13 SCALE: 1" = 20'
DESIGNED BY: CAW DATE: 02-07-13

BRIDGE NO. 05949 DRAWING NO. 55653

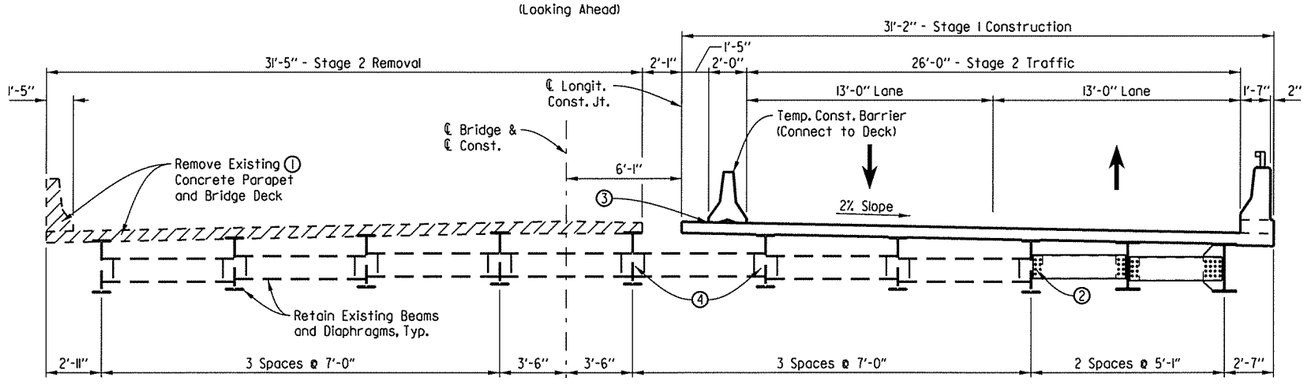
USER: lr594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_l2.dgn
PLOTTED: 10/9/2014 16:16 SCALE: 40:1

Crafton, Tull & Associates Inc.

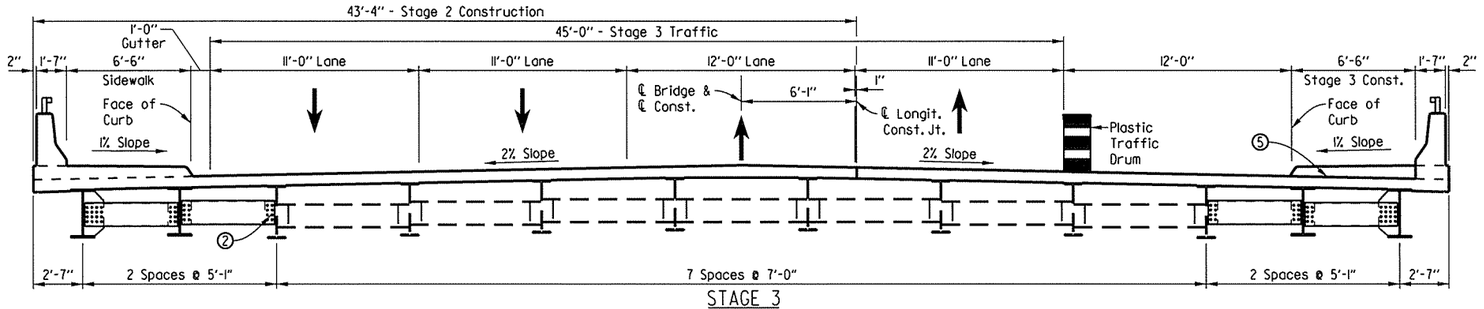
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	84	184
				(1) 05949		STAGE CONST.		55654



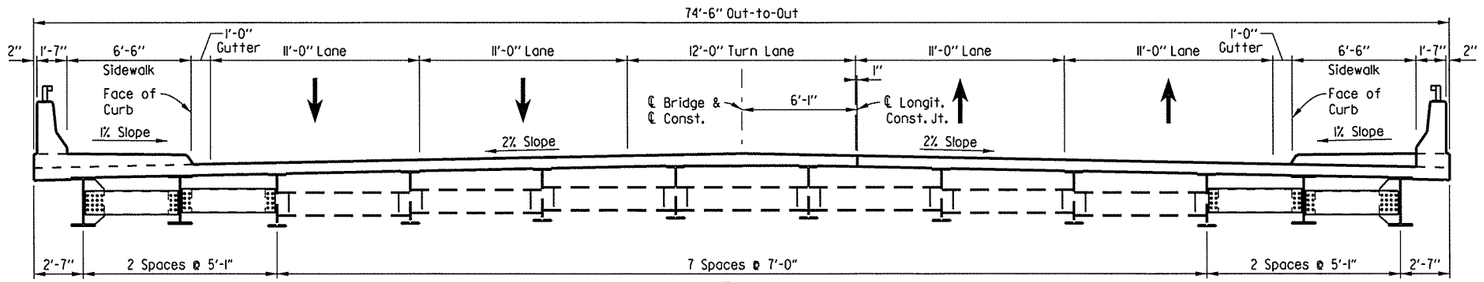
STAGE 1
(Looking Ahead)



STAGE 2
(Looking Ahead)



STAGE 3
(Looking Ahead)



FINAL
(Looking Ahead)

Notes:

(1) Care shall be exercised during the removal of the existing deck to ensure that the bolted field splices, beams, diaphragms, shear studs and connection plates are not damaged. Damaged items that are not salvageable, as determined by the Engineer, shall be replaced by the Contractor at no additional payment. The interior spans of the existing deck over I-49 shall be removed before the end spans are removed in order to ensure stability of the existing bridge.

(2) Install new diaphram and connection plate prior to deck pour. The new connection plate shall be field welded to the existing beam.

(3) For Details of Temporary Precast Concrete Barrier See Std. Dwg. TC-4.

(4) Loosen existing bolted connection prior to Stage 1 deck removal. Replace existing bolted connections at diaphragms with new bolted connection. Do not tighten until after Stage 2 deck pour.

(5) Drill and dowel the proposed sidewalk reinforcement to the new bridge deck using an approved epoxy.

Details which relate to maintenance of traffic are shown on the bridge plans for information only. See Roadway Plans for Maintenance of Traffic.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/09/14

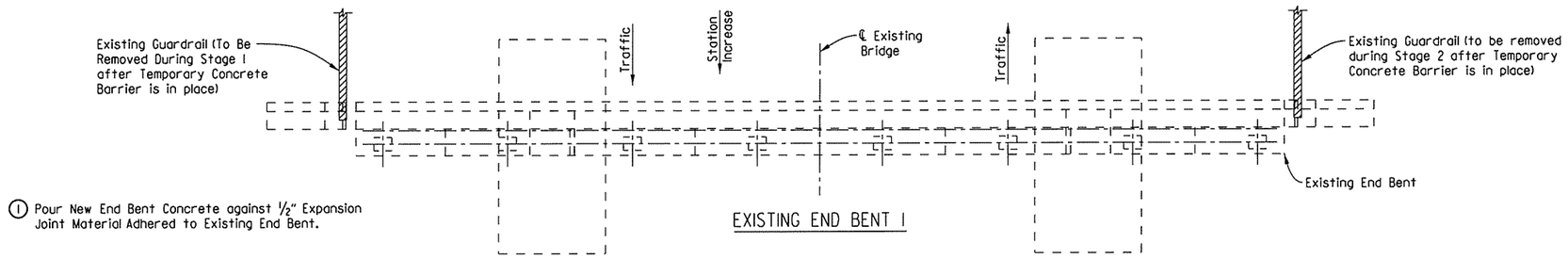
SHEET 1 OF 3
STAGED CONSTRUCTION DETAILS
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-12-13 FILENAME: bbb0902.13.dgn
CHECKED BY: JKJ DATE: 06-13-13 SCALE: 1/4" = 1'-0"
DESIGNED BY: CAW DATE: 05-07-13
BRIDGE NO. 05949 DRAWING NO. 55654

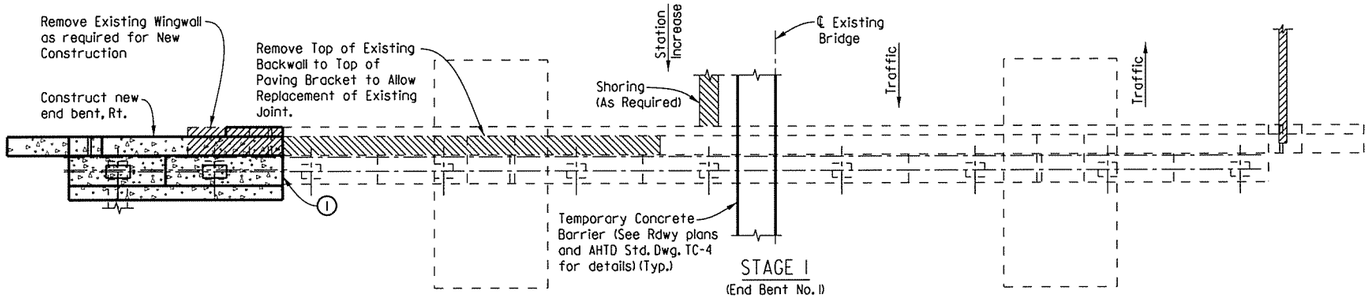
USER: ir594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_13.dgn
PLOTTED: 10/9/2014 16:16 SCALE: 8:1

Crafton, Tull & Associates Inc.

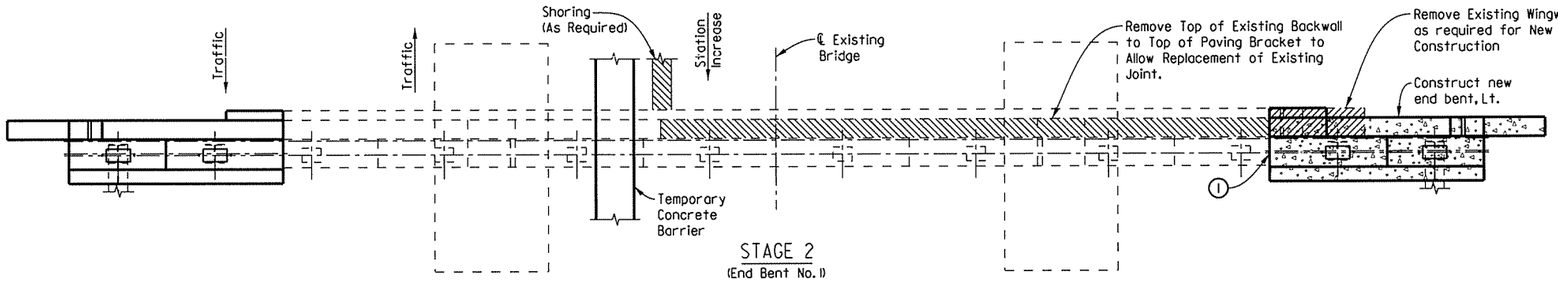
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	85	184
				(1) 05949		STAGE CONST.		55655



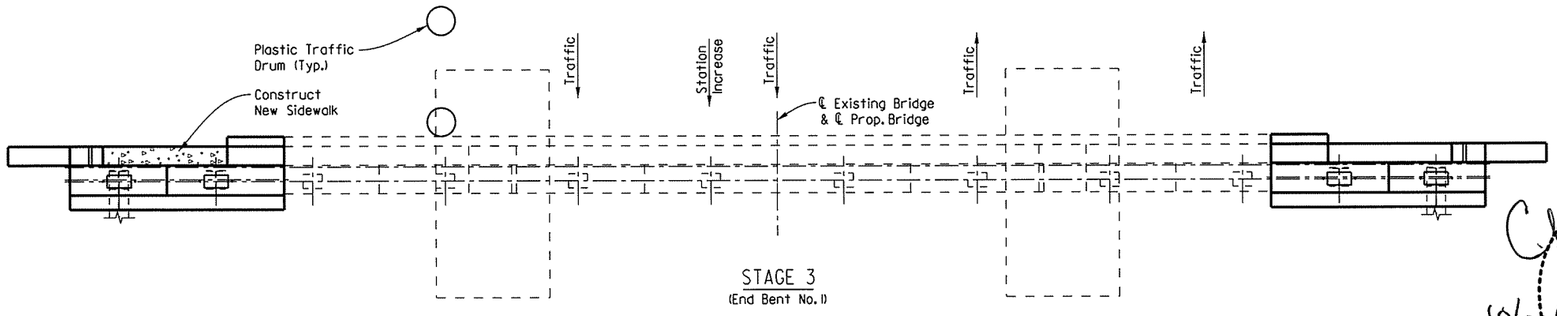
EXISTING END BENT 1



STAGE 1
(End Bent No. 1)



STAGE 2
(End Bent No. 1)



STAGE 3
(End Bent No. 1)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/08/14

SHEET 2 OF 3

STAGED CONSTRUCTION DETAILS

ROUTE 49 SEC. 29

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

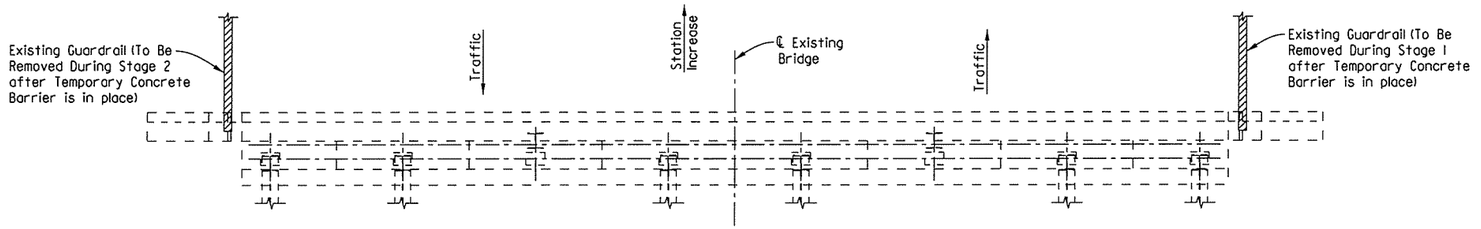
DRAWN BY: BWC DATE: 06-12-13 FILENAME: bbb0902_14.dgn
CHECKED BY: JKJ DATE: 06-13-13 SCALE: NOT TO SCALE
DESIGNED BY: CAW DATE: 05-07-13

BRIDGE NO. 05949 DRAWING NO. 55655

USER: lr594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_14.dgn
PLOTTED: 10/9/2014 16:16 SCALE: 8:1

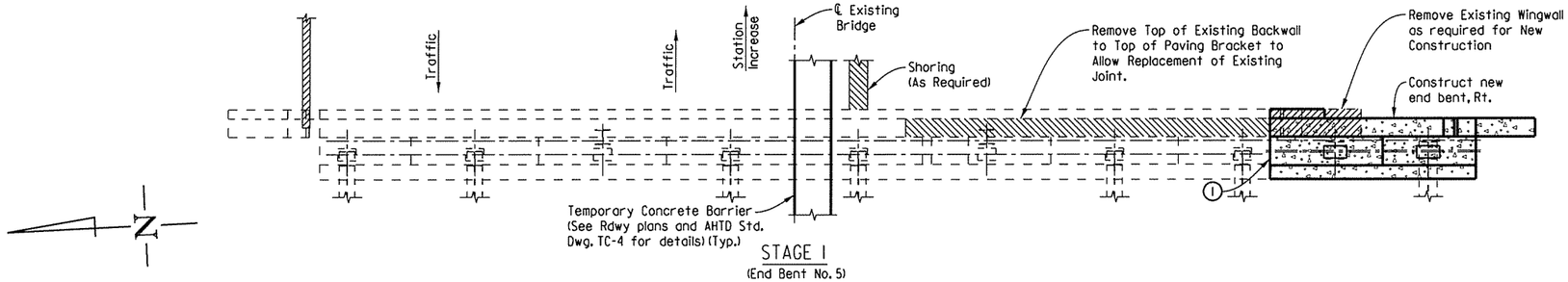
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	86	184
				① 05949		STAGE CONST.		55656

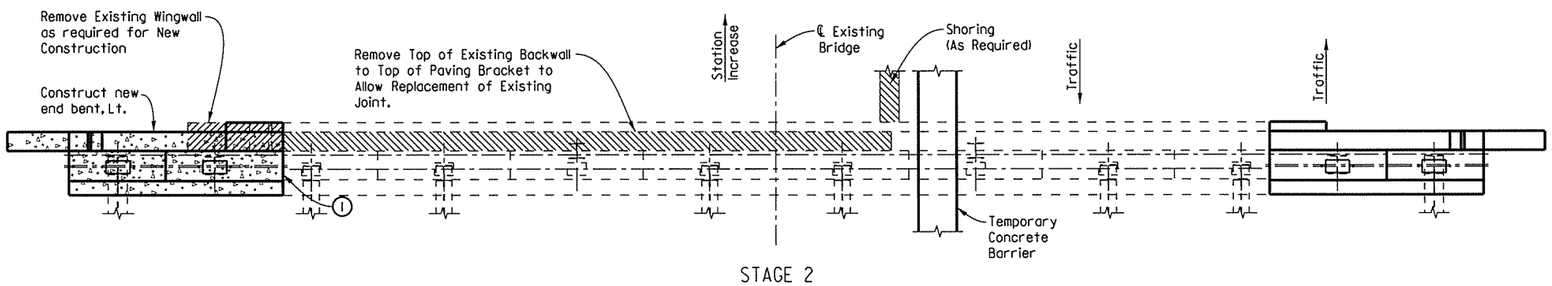


EXISTING END BENT 5

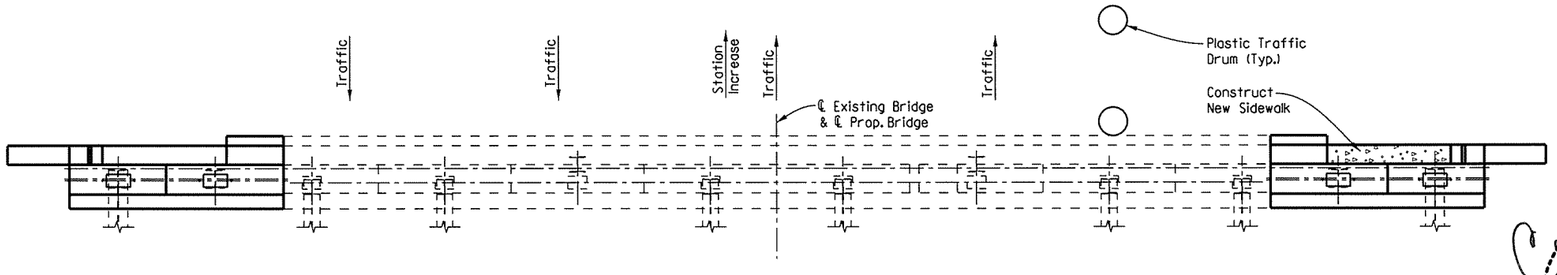
① Intentionally roughen existing cap face prior to doweling and pouring concrete.



STAGE 1
(End Bent No. 5)



STAGE 2
(End Bent No. 5)



STAGE 3
(End Bent No. 5)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/8/14

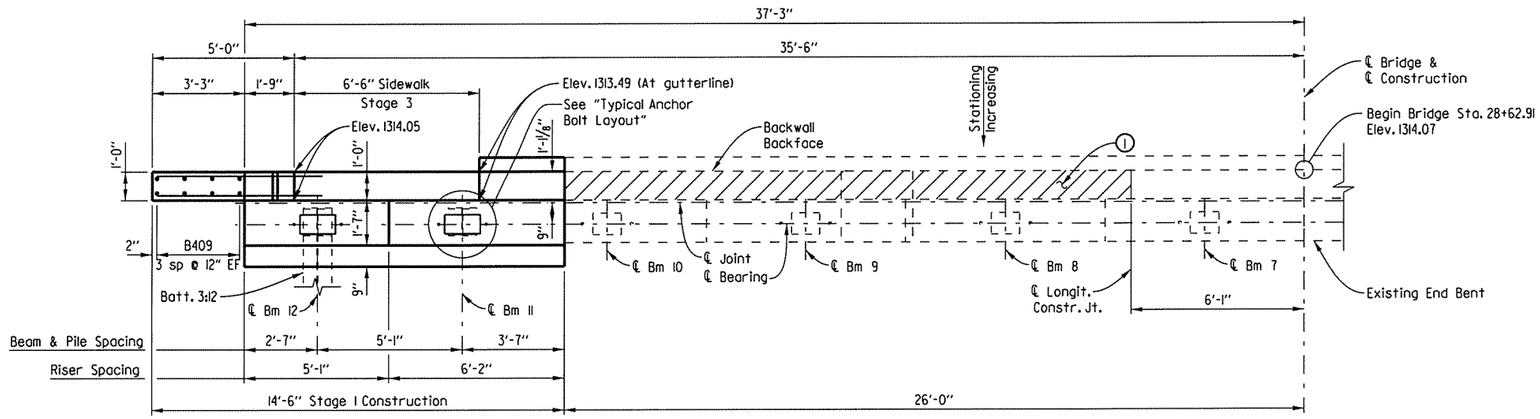
SHEET 3 OF 3
STAGED CONSTRUCTION DETAILS
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-12-13 FILENAME: bbb0902.15.dgn
CHECKED BY: JKJ DATE: 06-13-13 SCALE: NOT TO SCALE
DESIGNED BY: CAW DATE: 05-07-13
BRIDGE NO. 05949 DRAWING NO. 55656

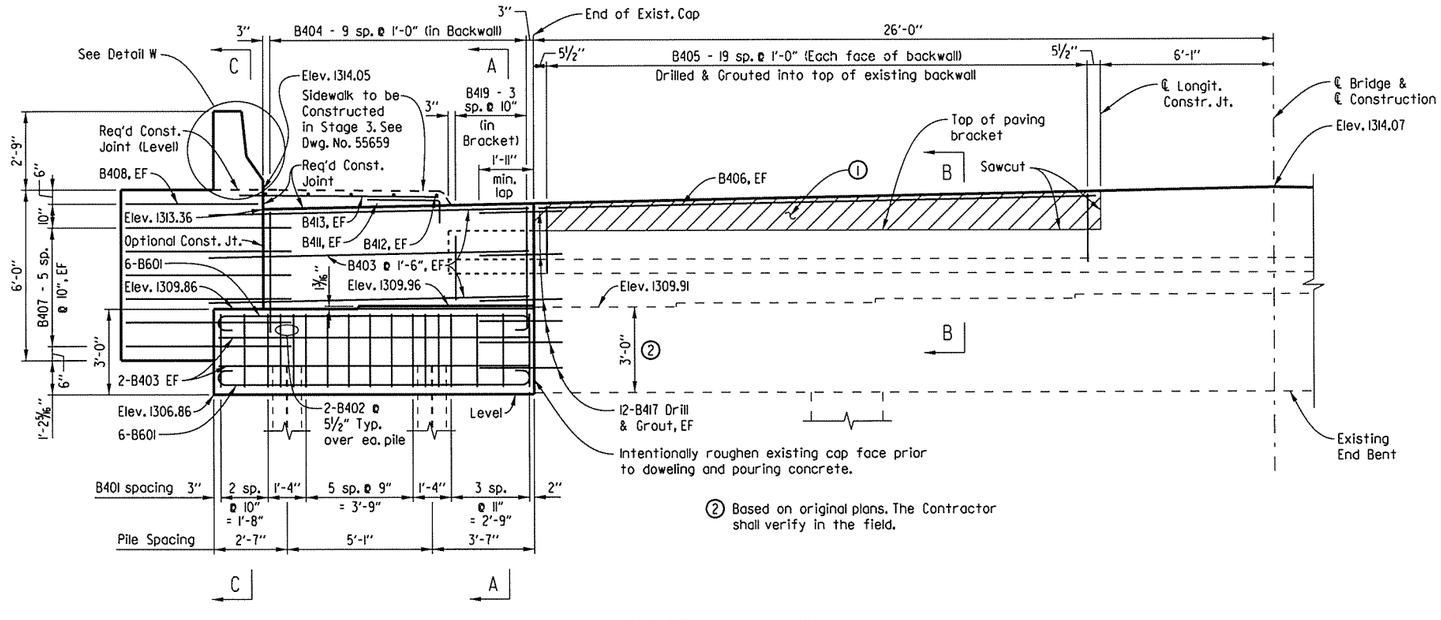
USER: r594
DESIGN FILE: G:\12103301.Hwy264\TRANSP\dgn\bridge\bbb0902.15.dgn
PLOTTED: 10/9/2014 16:16 SCALE: 8:1

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	87	184
				(1) 05949		END BENT 1		55657



END BENT 1 PLAN
(Right Side)
Scale ⅜" = 1'-0"



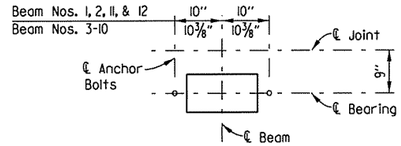
END BENT 1 ELEVATION
(Looking Back Station)
Scale ⅜" = 1'-0"

② Based on original plans. The Contractor shall verify in the field.

Note:
Class 2 Protective Surface Treatment shall be applied to the top of the backwall, roadway face and top of parapet rails. Class 3 Texture Coating shall be applied in accordance with Special Provision Job BB0902 "Textured Coating Finish".

LEGEND
EF = Each Face
FF = Front Face
BF = Back Face

① Remove top of existing backwall down to paving bracket and repour with New Exp. Device during Stage 1 Construction.



TYPICAL ANCHOR BOLT LAYOUT
¾" = 1'-0"

Note:
For Details of Elastomeric Bearings, See Dwg. No. 55664.
For Bar List & Bending Diagrams, See Dwg. No. 55659.
For Details of Wingwall and Rail, See Dwg. No. 55659.

For Sections A-A Thru C-C, See Dwg. No. 55659.

GENERAL NOTES

Work required to remove & dispose of portions of the existing bridge, retain and clean existing reinforcing steel, and required doweling will not be paid for directly but will be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05949)".

Remove existing anchor bolts 1½" below the top of cap and fill the holes with an approved non-shrink grout.

All Concrete shall be Class "S" and poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

All Reinforcing Steel shall be Grade 60 (fy = 60,000 psi) AASHTO M 31 or M 322, Type A with mill test reports.

The backwall shall not be poured before the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See Detail Z for additional information.

Structural Steel in end bents may be ASSHTO M 270, Gr. 36 and shall be included in the bid item "Structural Steel in beam Spans" (M270, Grade 50)".

If anchor bolts in Stage 1 or Stage 2 Construction are drilled into the cap, the top reinforcing bars shall be placed to avoid damage. The existing reinforcing steel in the top of cap may be drilled during placement of anchor bolts for Stage 1 and Stage 2 Construction.

Drill and grout bars where shown using an approved cement or epoxy system. Minimum embedment shall be 12" for cement based grout. Minimum embedment shall be per the manufacturer's recommendations for epoxy based grout.

For additional information, see Dwg. No. 55659

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/9/14

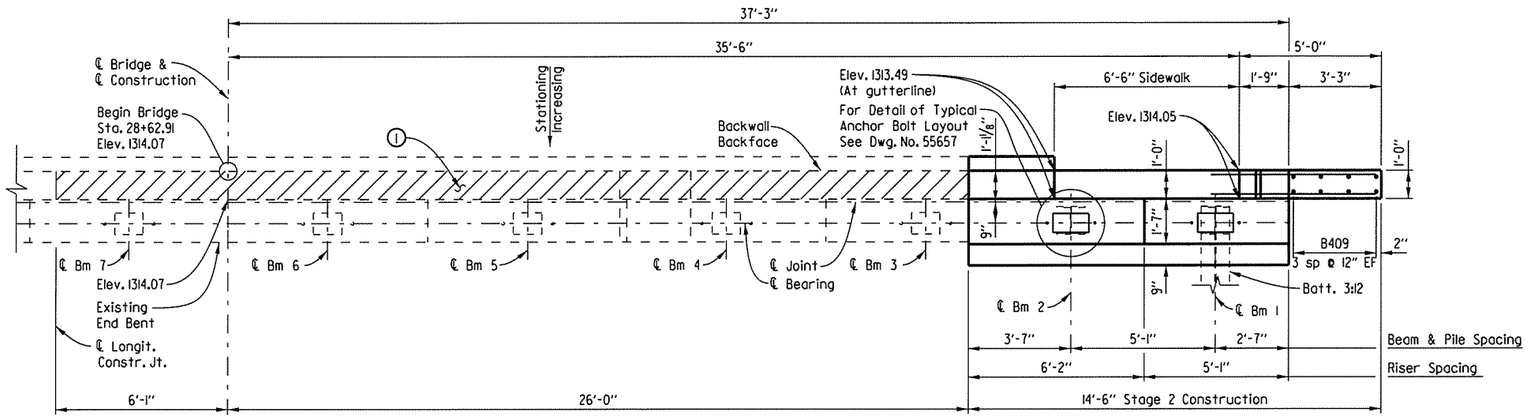
SHEET 1 OF 2
END BENT 1 DETAILS
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-13-13 FILENAME: bbb0902_bil.dgn
CHECKED BY: JKJ DATE: 06-14-13 SCALE: NOT TO SCALE
DESIGNED BY: CAW DATE: 06-03-13
BRIDGE NO. 05949 DRAWING NO. 55657

USER: ir594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_bil.dgn
PLOTTED: 10/9/2014 16:16 SCALE: 5.333333si

Crafton, Tull & Associates Inc.

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.		BB0902	88	184
				① 05949		END BENT 1		55658

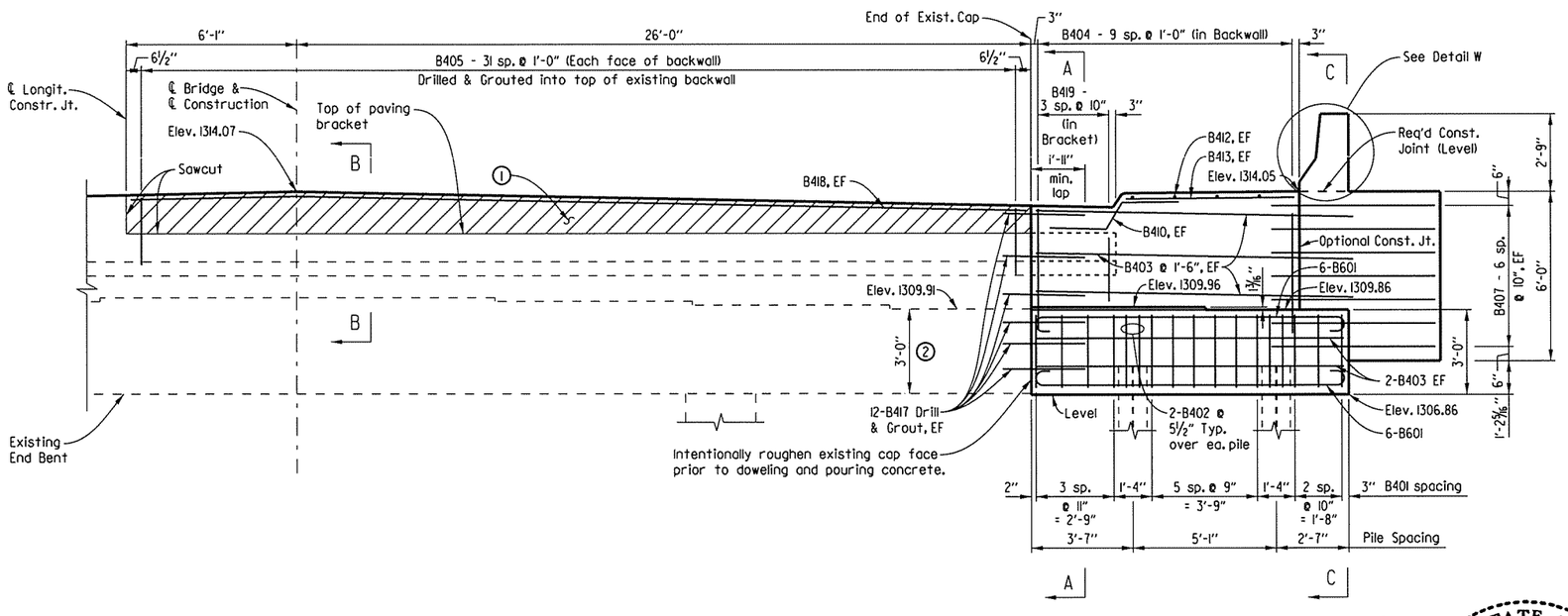


END BENT 1 PLAN
(Left Side)
Scale ⅜" = 1'-0"

① Remove top of existing backwall down to paving bracket and repour with New Exp. Device during Stage 1 Construction.

② Based on original plans. The Contractor shall verify in the field.

See Dwg. No. 55659 for additional details



END BENT 1 ELEVATION
(Looking Back Station)
Scale ⅜" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
9/04/14

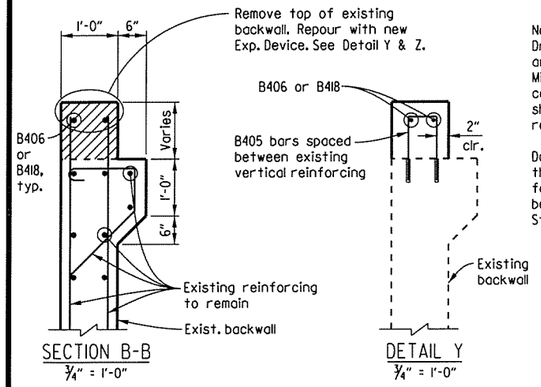
SHEET 2 OF 2
END BENT 1 DETAILS
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-13-13 FILENAME: bbb0902.bl2.dgn
CHECKED BY: JKJ DATE: 06-14-13 SCALE: NOT TO SCALE
DESIGNED BY: CAW DATE: 06-03-13
BRIDGE NO. 05949 DRAWING NO. 55658

USER: lr594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_bl2.dgn
PLOTTED: 10/9/2014 16:16 SCALE: 5.333333:1

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	89	184
				(1) 05949		END BENT DETAILS		55659

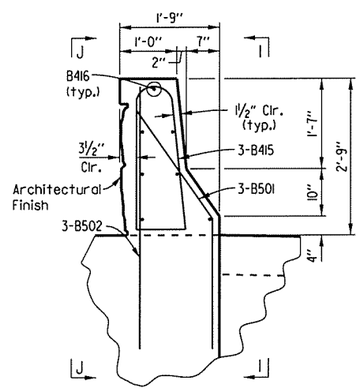


SECTION B-B
3/4" = 1'-0"

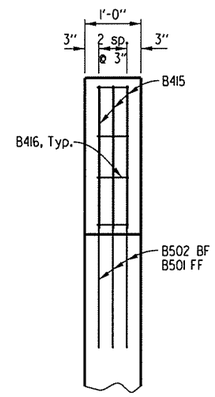
DETAIL Y
3/4" = 1'-0"

Note:
Drill and grout bars where shown using an approved cement or epoxy system. Minimum embedment shall be 1'-0" for cement based grout. Minimum embedment shall be per the manufacturer's recommendations for epoxy based grout.

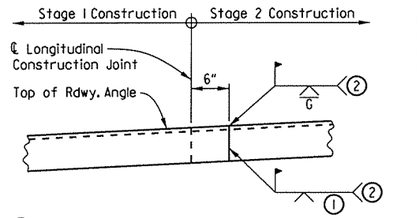
Dowels shall be located to avoid damaging the backwall reinforcing steel. Payement for drill and grout and placement shall be considered subsidiary to "Reinforcing Steel".



DETAIL W
No Scale

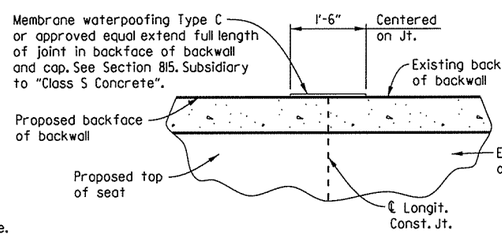


VIEW I-I
No Scale

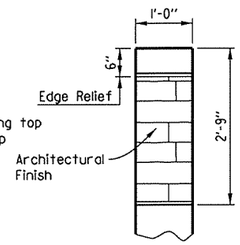


(1) Grind flush from top of deck to top of Bumper Plate.
(2) Weld after Stage 2 Construction.

DETAIL OF WELD LOCATION FOR JOINT ARMOR PLATE
Looking Back - Bent 1
No Scale



CONSTRUCTION JOINT DETAIL
No Scale



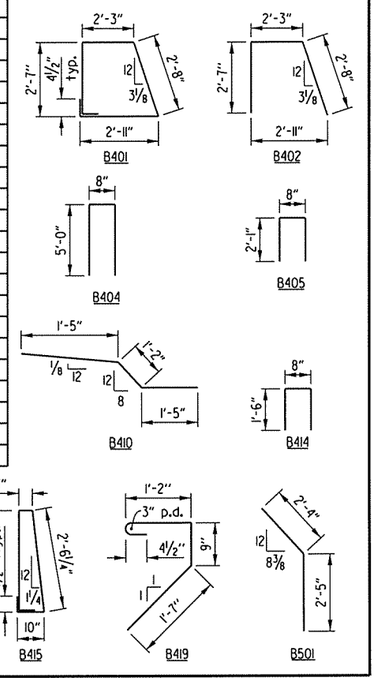
VIEW J-J
No Scale

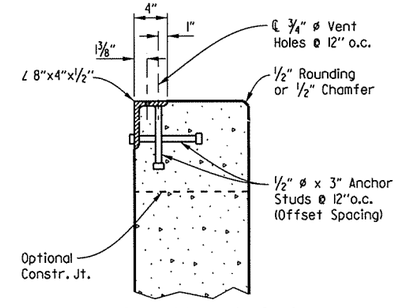
BF refers to Back Face
EF refers to Each Face
FF refers to Front Face
u.n.o. refers to "unless noted otherwise"

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	24	10'-9"	2"
B402	8	7'-4"	2"
B403	20	10'-11"	Str.
B404	20	10'-6"	2"
B405	52	4'-8"	2"
B406	2	19'-7"	Str.
B407	26	5'-10"	Str.
B408	2	4'-8"	Str.
B409	16	5'-8"	Str.
B410	2	3'-10"	3"
B411	2	2'-8"	3"
B412	4	8"	Str.
B413	4	7'-4"	Str.
B414	4	3'-6"	2"
B415	6	6'-9"	2"
B416	14	8"	Str.
B417	24	2'-11"	Str.
B418	2	31'-9"	Str.
B419	16	3'-11"	2"
B420	8	2'-8"	Str.
B501	6	4'-9"	3¾"
B502	6	5'-0"	Str.
B601	24	11'-7"	4½"

BENDING DIAGRAMS
Dimensions are out to out of bars.

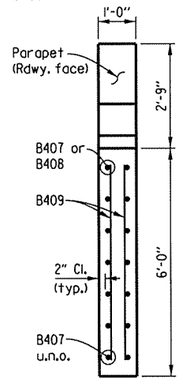




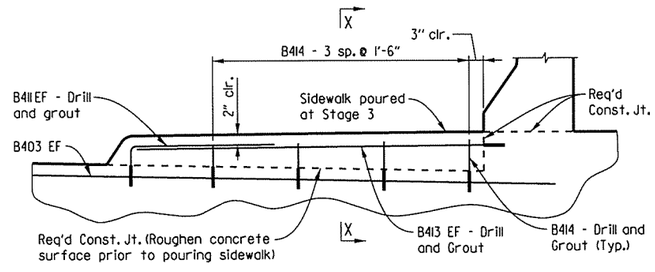
Note: For additional Joint Details, See Dwg. No. 55674

DETAIL Z
No Scale

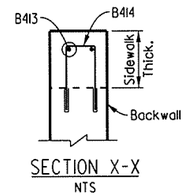
Note: Concrete shall be hand packed under the joint armor in the backwall.



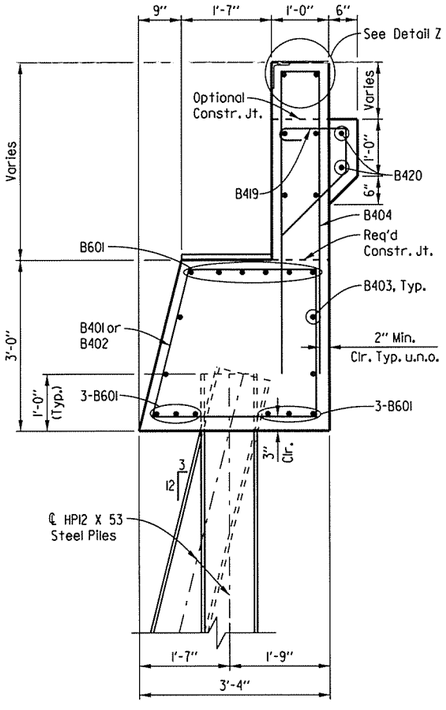
SECTION C-C
½" = 1'-0"



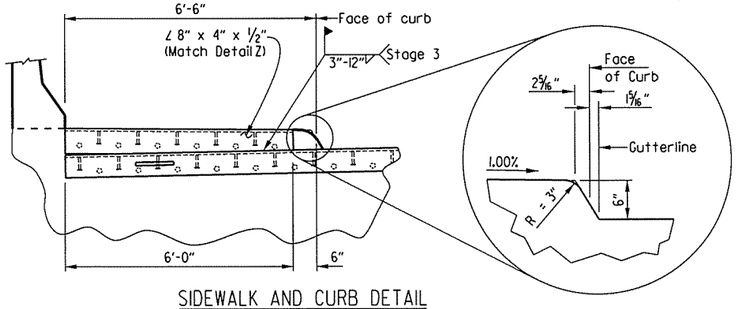
DETAIL A
(Looking ahead, Bent 1)
3/4" = 1'-0"



SECTION X-X
NTS



SECTION A-A
3/4" = 1'-0"



SIDEWALK AND CURB DETAIL
(Looking ℄ front face of backwall)
½" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/08/14

COMMON END BENT DETAILS
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

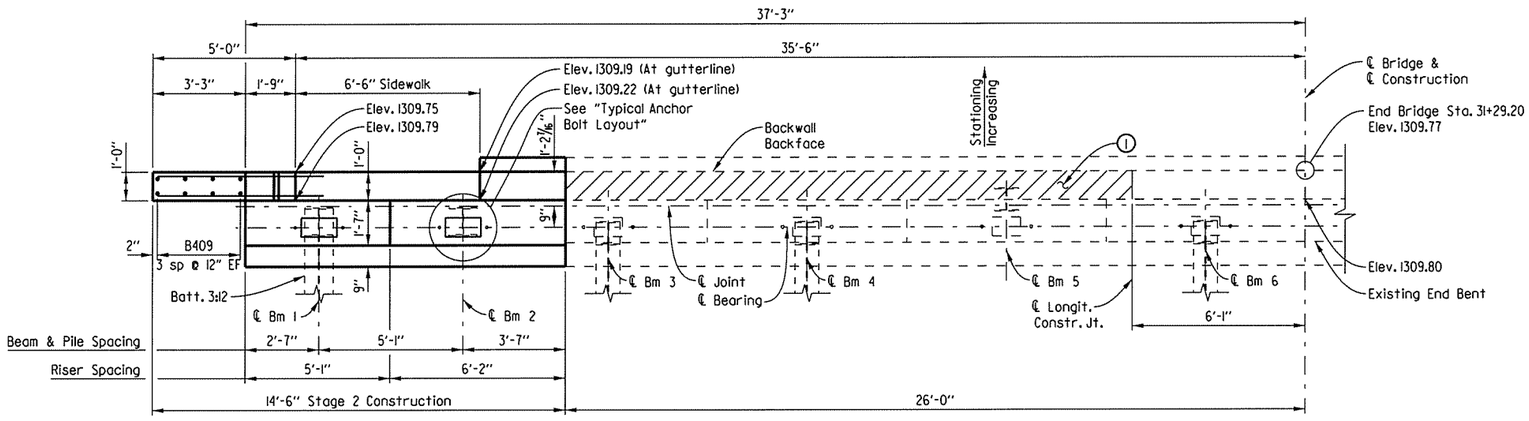
DRAWN BY: BWC DATE: 06-13-13 FILENAME: bbb0902_bl3.dgn
CHECKED BY: JKJ DATE: 06-14-13 SCALE: NOT TO SCALE
DESIGNED BY: CAW DATE: 06-03-13
BRIDGE NO. 05949 DRAWING NO. 55659

USER: ir594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_bl3.dgn SCALE: 8:1
PLOTTED: 10/9/2014 16:16

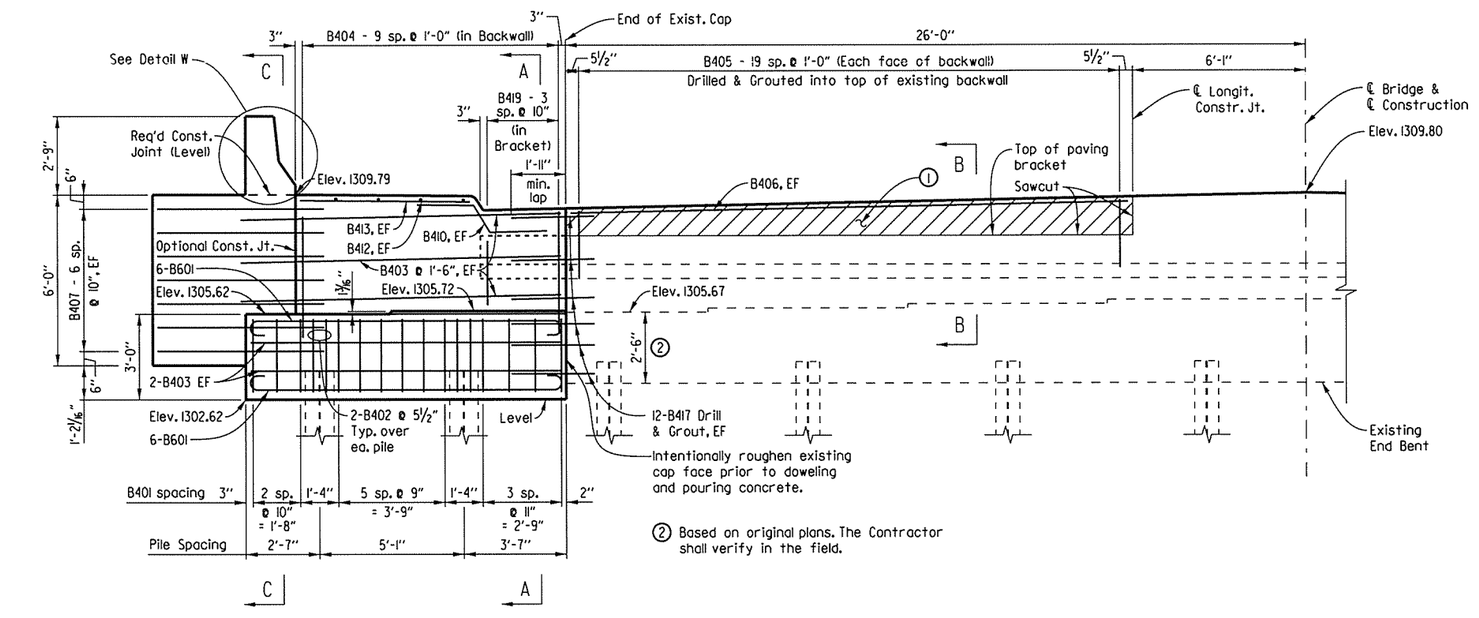
G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_bl3.dgn 10/9/2014 16:16

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	90	184
				(1) 05949		END BENT 5		55660



END BENT 5 PLAN
(Left Side)
Scale 3/8" = 1'-0"



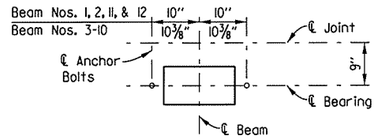
② Based on original plans. The Contractor shall verify in the field.

END BENT 5 ELEVATION
(Looking Ahead Station)
Scale 3/8" = 1'-0"

Note:
Class 2 Protective Surface Treatment shall be applied to the top of the backwall, roadway face and top of parapet rails. Class 3 Texture Coating shall be applied in accordance with Special Provision Job BB0902 "Textured Coating Finish".

LEGEND
EF = Each Face
FF = Front Face
BF = Back Face

① Remove top of existing backwall down to paving bracket and repour with New Exp. Device during Stage I Construction.



TYPICAL ANCHOR BOLT LAYOUT
3/4" = 1'-0"

Note:
For Details of Elastomeric Bearings, See Dwg. No. 55664
For Bar List & Bending Diagrams, See Dwg. No. 55659
For Details of Wingwall and Rail, See Dwg. No. 55659

For Sections A-A Thru C-C, See Dwg. No. 55659

GENERAL NOTES

Work required to remove & dispose of portions of the existing bridge, retain and clean existing reinforcing steel, and required doweling will not be paid for directly but will be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05949)".

Remove existing anchor bolts 1½" below the top of cap and fill the holes with an approved non-shrink grout.

All Concrete shall be Class "S" and poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

All Reinforcing Steel shall be Grade 60 (fy = 60,000 psi) AASHTO M 31 or M 322, Type A with mill test reports.

The backwall shall not be poured before the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See Detail Z for additional information.

Structural Steel in end bents may be ASSHTO M 270, Gr. 36 and shall be included in the bid item "Structural Steel in beam Spans" (M270, Grade 50)".

If anchor bolts in Stage I or Stage 2 Construction are drilled into the cap, the top reinforcing bars shall be placed to avoid damage. The existing reinforcing steel in the top of cap may be drilled during placement of anchor bolts for Stage I and Stage 2 Construction.

Drill and grout bars where shown using an approved cement or epoxy system. Minimum embedment shall be 12" for cement based grout. Minimum embedment shall be per the manufacturer's recommendations for epoxy based grout.

For additional information, see Dwg. No. 55659

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/9/14

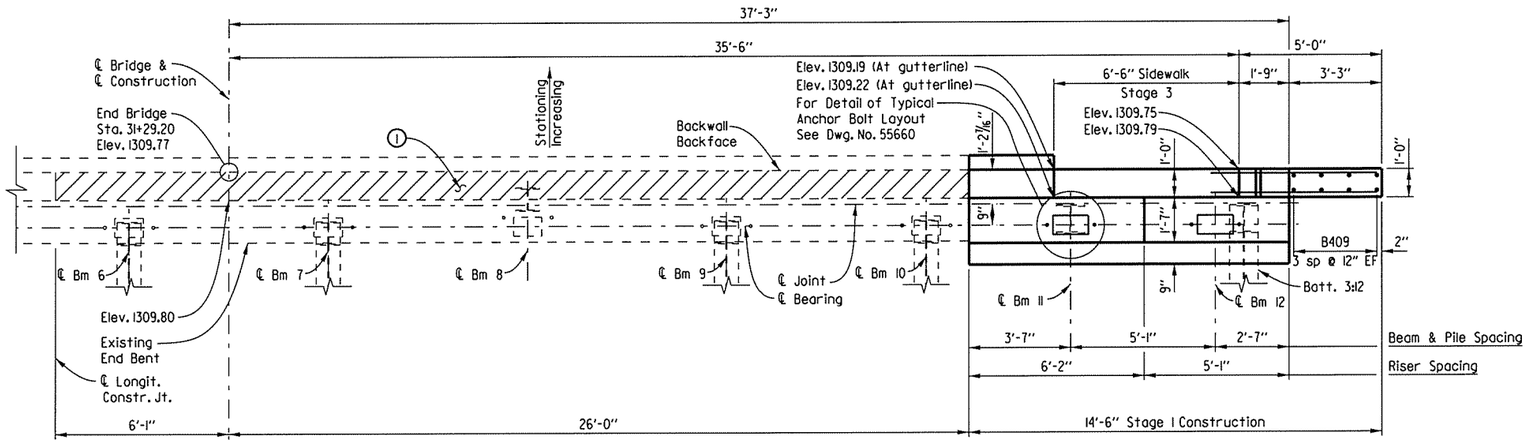
SHEET 1 OF 2
END BENT 5 DETAILS
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-13-13 FILENAME: bbb0902_b51.dgn
CHECKED BY: JKJ DATE: 06-14-13 SCALE: NOT TO SCALE
DESIGNED BY: CAW DATE: 06-03-13
BRIDGE NO. 05949 DRAWING NO. 55660

USER: ir594
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\bridge\bbb0902_b5I.dgn
PLOTTED: 10/9/2014 16:16 SCALE: 5.333333:1

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	91	184
				① 05949		END BENT 5		55661

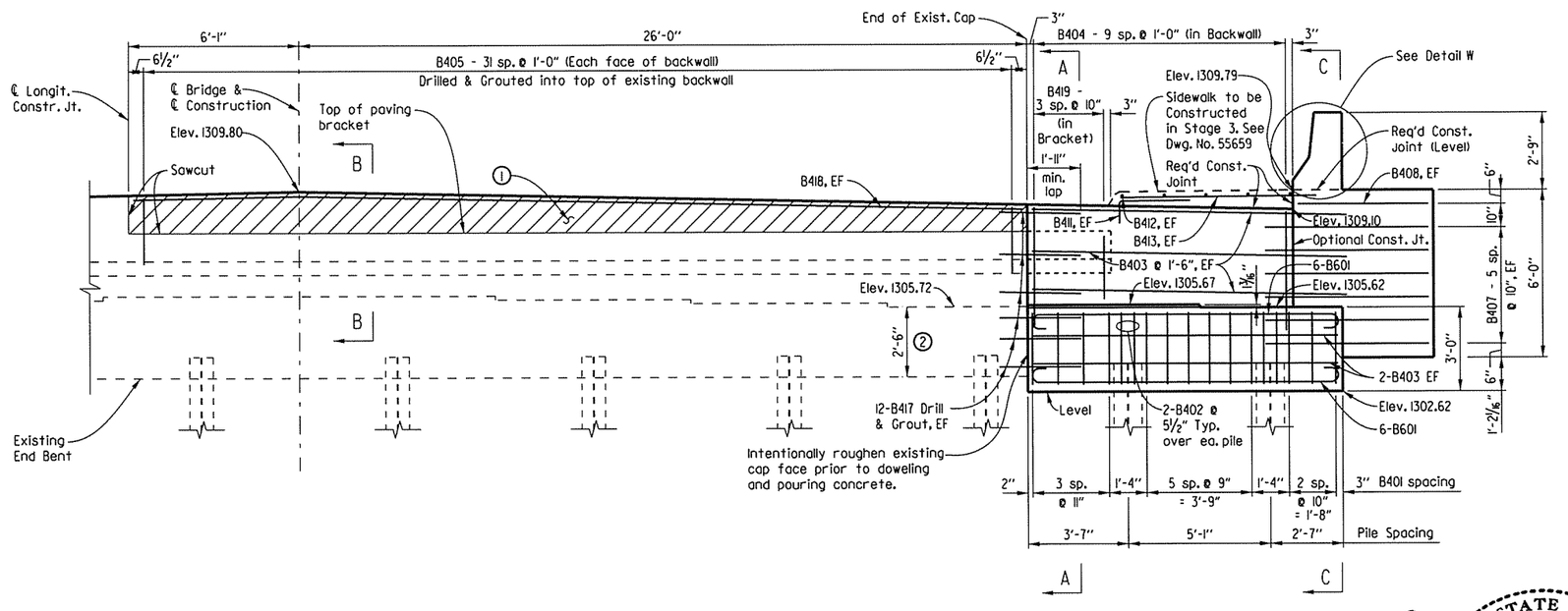


END BENT 5 PLAN
(Right Side)
Scale ⅜" = 1'-0"

① Remove top of existing backwall down to paving bracket and repour with New Exp. Device during Stage 1 Construction.

② Based on original plans. The Contractor shall verify in the field.

See Dwg. No. 55659 for additional details



END BENT 5 ELEVATION
(Looking Back Station)
Scale ⅜" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/09/14

SHEET 2 OF 2
END BENT 5 DETAILS
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-13-13 FILENAME: bbb0902_b52.dgn
CHECKED BY: JKJ DATE: 06-14-13 SCALE: NOT TO SCALE
DESIGNED BY: CAW DATE: 06-03-13
BRIDGE NO. 05949 DRAWING NO. 55661

USER: lr594
DESIGN FILE: G:\1210330l_Hwy264\TRANSP\dgn\bridge\bbb0902_b52.dgn
PLOTTED: 10/9/2014 16:16 SCALE: 5.333333il

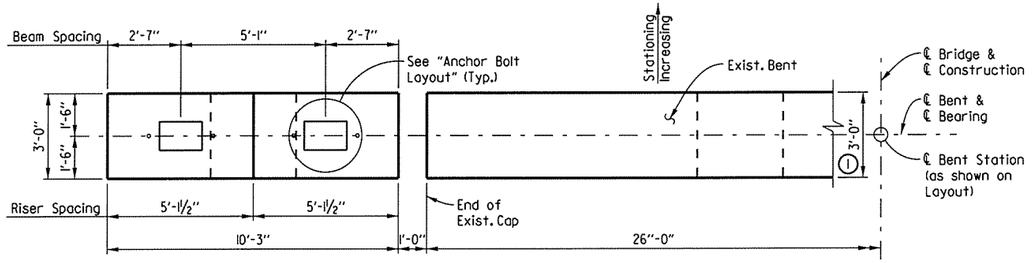
G:\1210330l_Hwy264\TRANSP\dgn\bridge\bbb0902_b52.dgn 10/9/2014 16:16

Crafton, Tull & Associates Inc.

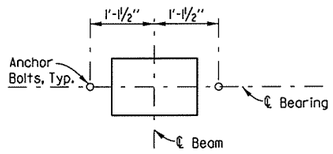
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	92	184

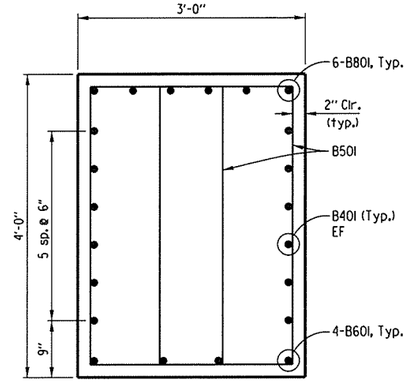
(1) 05949 BENT 2 & 4 DETAILS 55662



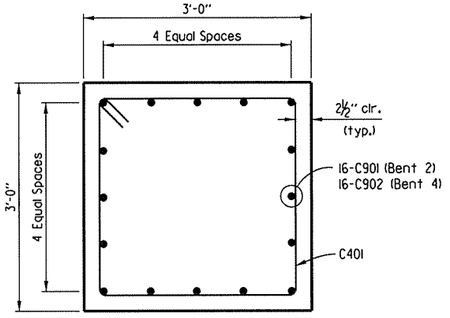
BENT 2 & 4 PLAN
(Left Side Shown,
Right Side Opposite hand)
Scale ⅜" = 1'-0"



ANCHOR BOLT LAYOUT
¾" = 1'-0"



SECTION A-A
1" = 1'-0"



SECTION C-C
1" = 1'-0"

BAR LIST

BENT 2

TABLE SHOWS BAR LIST FOR ONE BENT LEFT AND ONE BENT RIGHT.

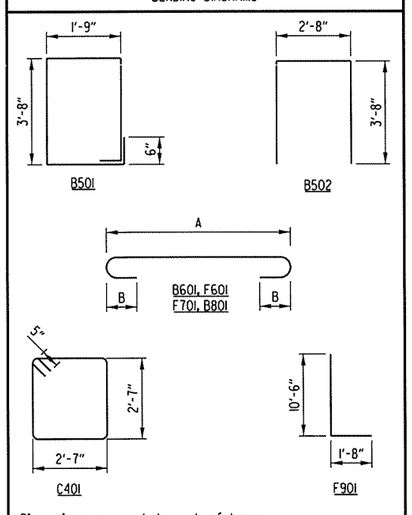
MARK	NO. REQ'D.	LENGTH	'A'	'B'	Pin. Dia.
B401	24	9'-11"			Str.
B501	40	11'-4"			2½"
B502	8	9'-10"			2½"
B601	8	11'-3"	9'-11"	6"	4½"
B801	12	11'-9"	9'-11"	8"	6"
C401	50	10'-10"			3"
C901	32	24'-7"			Str.
F601	40	10'-10"	9'-6"	6"	4½"
F701	76	11'-2"	9'-6"	7"	5¼"
F901	32	11'-11"			9"

BENT 4

TABLE SHOWS BAR LIST FOR ONE BENT LEFT AND ONE BENT RIGHT.

MARK	NO. REQ'D.	LENGTH	'A'	'B'	Pin. Dia.
B401	24	9'-11"			Str.
B501	40	11'-4"			2½"
B502	8	9'-10"			2½"
B601	8	11'-3"	9'-11"	6"	4½"
B801	12	11'-9"	9'-11"	8"	6"
C401	46	10'-10"			3"
C902	32	22'-7"			Str.
F601	40	10'-10"	9'-6"	6"	4½"
F701	76	11'-2"	9'-6"	7"	5¼"
F901	32	11'-11"			9"

BENDING DIAGRAMS



Dimensions are out to out of bars.

GENERAL NOTES

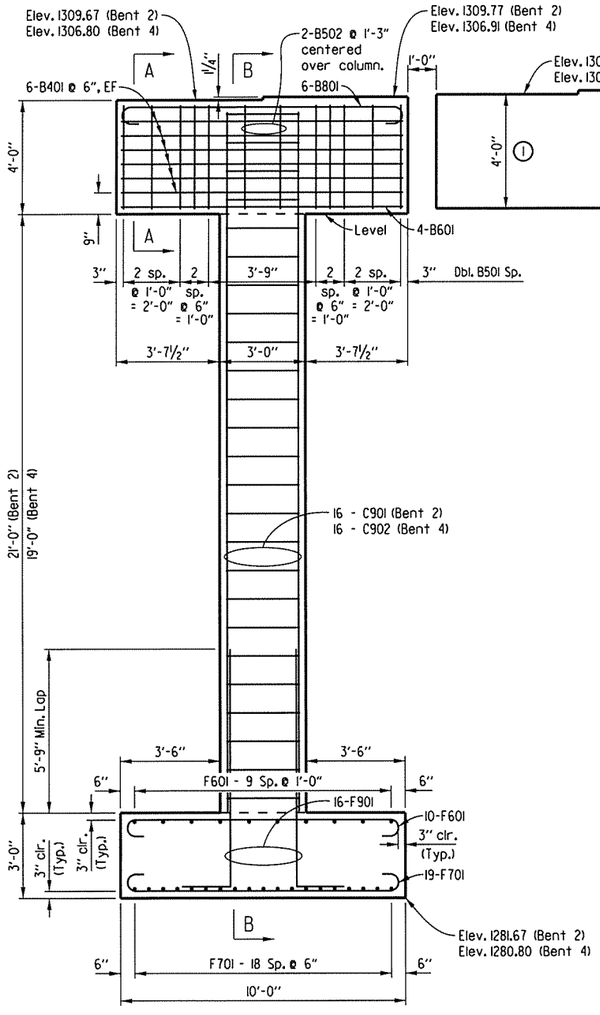
Concrete shall be Class 'S' with a minimum 28 day compressive strength of f'c = 3,500 p.s.i. Concrete shall be poured in the dry. All exposed corners shall be chamfered ¾" unless otherwise noted.

All Reinforcing Steel shall be Grade 60 (fy = 60,000 psi) AASHTO M 31 or M 322, Type A with mill test reports.

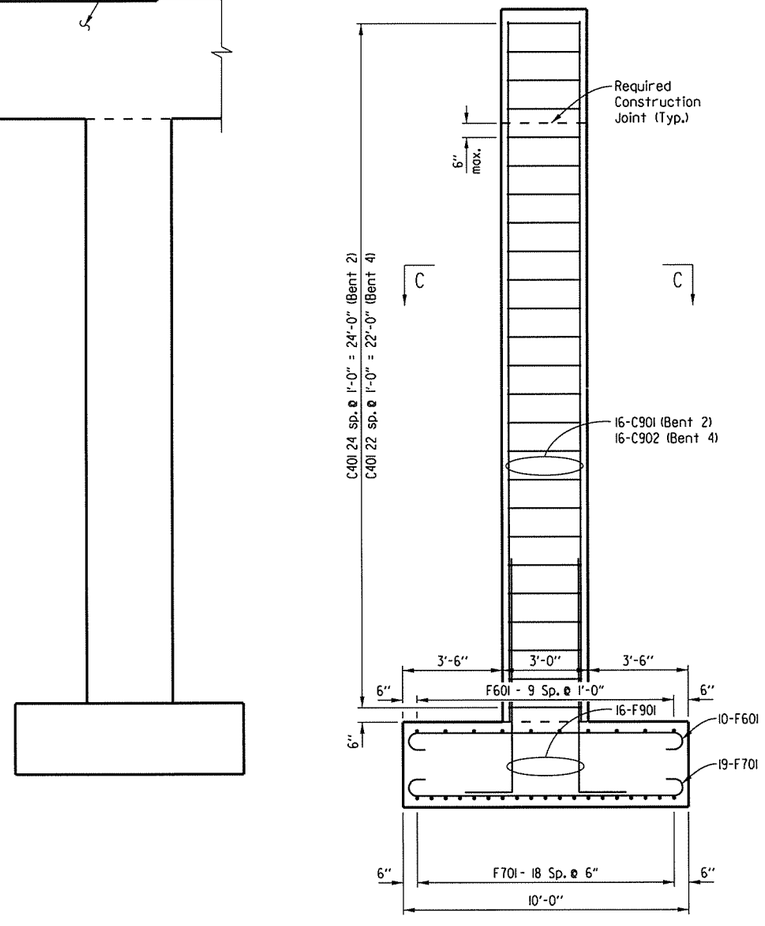
Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For details of Elastomeric Bearings see Dwg. No. 55664

For additional information see Layout.



BENT 2 & 4 ELEVATION
(Looking Ahead)
(Left Side Shown,
Right Side Opposite hand)
Scale ⅜" = 1'-0"



SECTION B-B
Scale ⅜" = 1'-0"

(1) Based on original plans. The Contractor shall verify in the field.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/9/14

BENT 2 & 4 DETAILS

ROUTE 49 SEC. 29

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-13-13 FILENAME: bbb0902_b2.dgn
CHECKED BY: JKJ DATE: 06-14-13 SCALE: SEE DETAILS
DESIGNED BY: CAW DATE: 06-03-13

BRIDGE NO. 05949 DRAWING NO. 55662

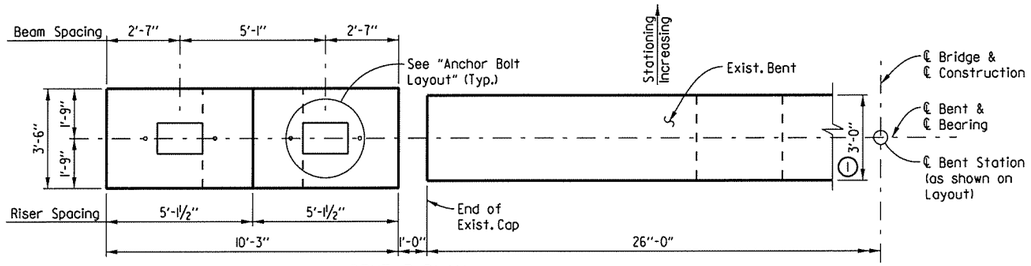
USER: ir594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_b2.dgn
PLOTTED: 10/9/2014 16:16
SCALE: 5.333333:1

Crafton, Tull & Associates Inc.

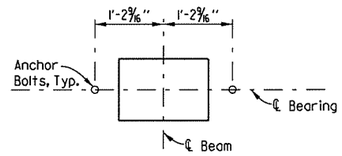
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	93	184

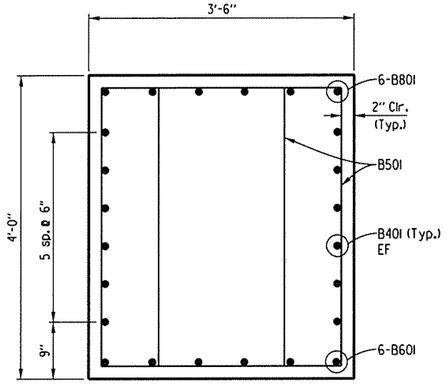
(1) 05949 BENT 3 DETAILS 55663



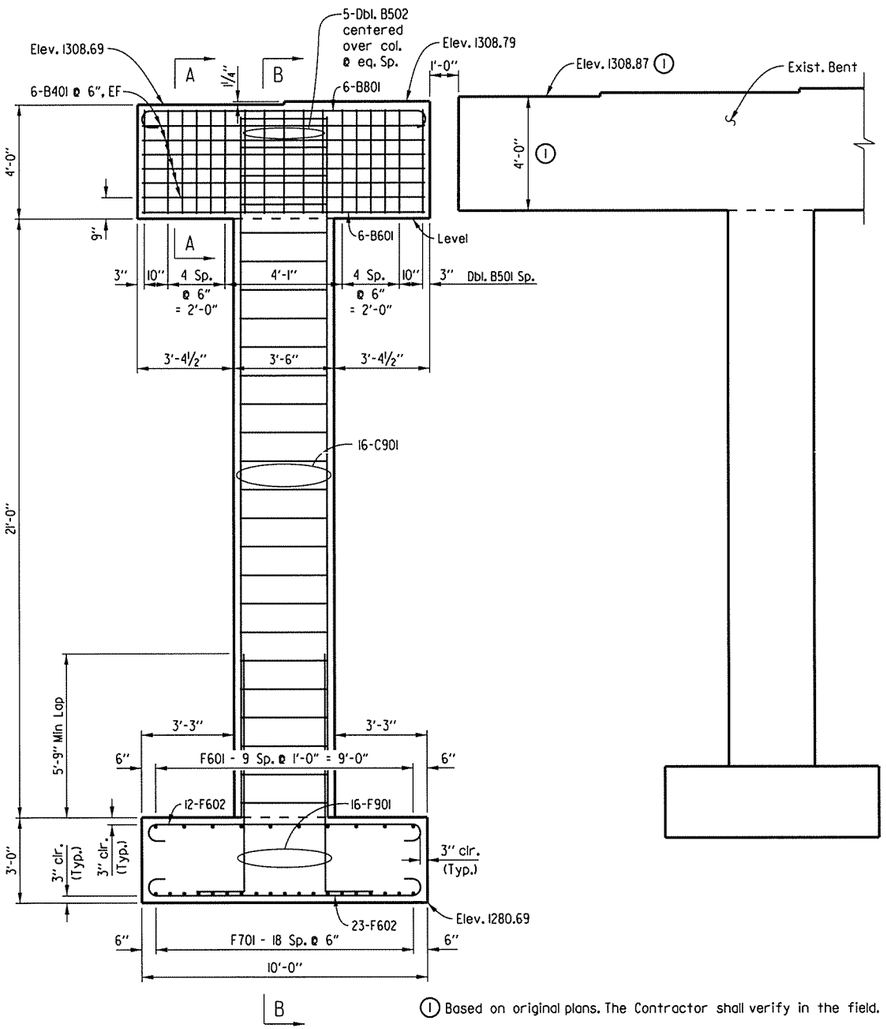
BENT 3 PLAN
(Left Side Shown, Right Side Opposite hand)
Scale ⅜" = 1'-0"



ANCHOR BOLT LAYOUT
¾" = 1'-0"

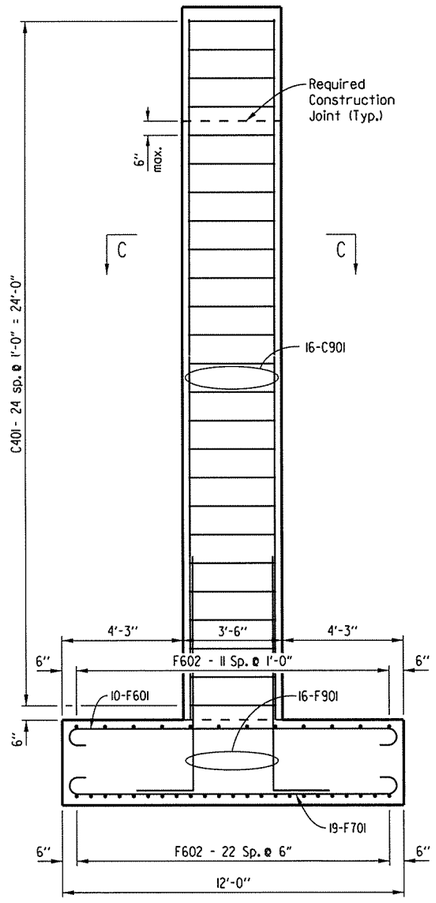


SECTION A-A
1" = 1'-0"

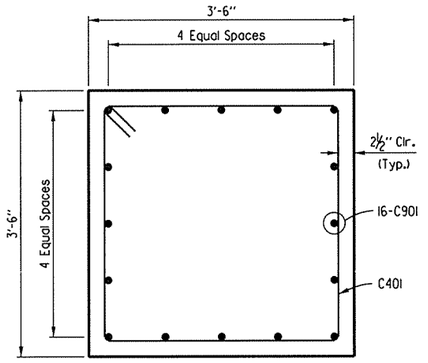


(1) Based on original plans. The Contractor shall verify in the field.

BENT 3 ELEVATION
(Looking Ahead)
(Left Side Shown, Right Side Opposite hand)
Scale ⅜" = 1'-0"



SECTION B-B
Scale ⅜" = 1'-0"



SECTION C-C
1" = 1'-0"

GENERAL NOTES

Concrete shall be Class 'S' with a minimum 28 day compressive strength of f'c = 3,500 p.s.i. Concrete shall be poured in the dry. All exposed corners shall be chamfered ¾" unless otherwise noted.

All Reinforcing Steel shall be Grade 60 (fy = 60,000 psi) AASHTO M 31 or M 322, Type A with mill test reports.

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

For details of Elastomeric Bearings see Dwg. No. 55664

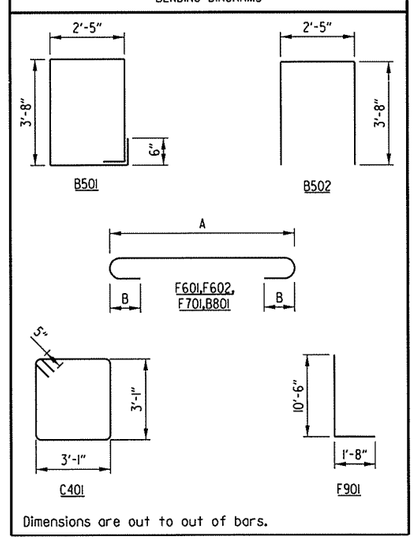
For additional information see Layout.

BAR LIST - BENT 3

TABLE SHOWS BAR LIST FOR ONE BENT LEFT AND ONE BENT RIGHT.

MARK	NO. REQ'D.	LENGTH	'A'	'B'	Pin. Dia.
B40I	24	9'-11"			Str.
B50I	48	12'-8"			2½"
B502	20	9'-7"			2½"
B60I	12	11'-3"			Str.
B80I	12	11'-9"	9'-11"	8"	6"
C40I	50	12'-10"			3"
C90I	32	24'-7"			Str.
F60I	20	12'-10"	11'-6"	6"	4½"
F602	70	10'-10"	9'-6"	6"	4½"
F70I	38	13'-2"	11'-6"	7"	5¼"
F90I	32	11'-11"			9"

BENDING DIAGRAMS



Dimensions are out to out of bars.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/9/14

BENT 3 DETAILS

ROUTE 49 SEC. 29

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-13-13 FILENAME: bbb0902_b3.dgn
CHECKED BY: JKJ DATE: 06-14-13 SCALE: SEE DETAILS
DESIGNED BY: CAW DATE: 06-03-13

BRIDGE NO. 05949 DRAWING NO. 55663

USER: lr594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_b3.dgn
PLOTTED: 10/9/2014 16:16
SCALE: 5.333333si

G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_b3.dgn 10/9/2014 16:16

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	94	184
				① 05949		BEARING DETAILS		55664

TABLE OF FABRICATOR VARIABLES

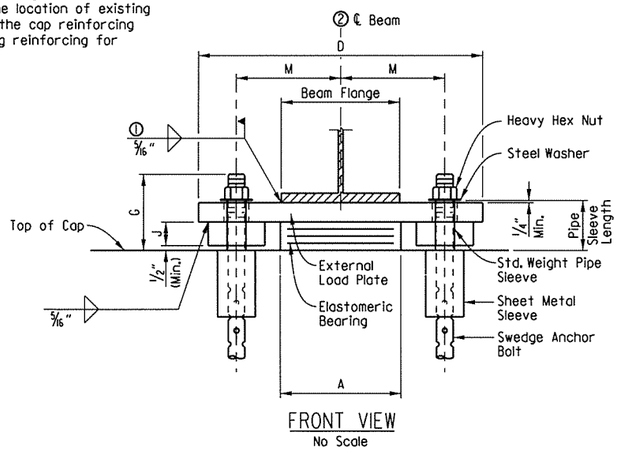
Brg. No.	Location		Bearing Type	No. of Bearings Each Bent	• Maximum Design Load (Kips)	G	H	Elastomeric Pad						External Load Plate									Anchor Bolt				
	Bent No.	Beam No.						A	B	N	T_i	T_e	No. & Thickness of Steel Laminae	T	C	D	E	F	J	K	M	Ta	Tb	Anchor Bolt ø X L	Anchor Bolt Grade	Pipe Sleeve Size (ø X L)	Sheet Metal Sleeve Size (ø X L)	Steel Washer Size (O.D.)
05949	1	1, 2, II & 12	Exp.	4	81	7 9/16"	4 13/16"	15"	8"	4	7/16"	1/4"	5 @ 12 Ga.	2 13/16"	9"	25 1/2"	4"	2 1/4"	---	1/2"	10"	2.00"	2.00"	1 1/2" X 25"	55	1 1/2" X 5 1/16"	3" X 6"	3 1/2"
		3 - 10	Exp.	8	67	6 9/16"	3 13/16"	12"	9"	3	7/16"	1/4"	4 @ 12 Ga.	2 1/4"	10"	26 1/4"	4"	2 1/4"	---	1/2"	③ 10 3/8"	1.56"	1.56"	1 1/2" X 25"	36	1 1/2" X 4 1/16"	3" X 10"	3 1/2"
	2	1, 2, II & 12	Exp.	4	205	8 3/8"	5 7/8"	18"	12"	6	7/16"	1/4"	7 @ 12 Ga.	3 7/8"	13"	35"	3 1/16"	2"	3 3/8"	1/2"	13 1/2"	1.97"	2.03"	1 1/4" X 23"	55	1 1/4" X 6 1/8"	3" X 6"	3"
	3	1, 2, II & 12	Fix.	4	243	9 5/8"	6 3/8"	19"	13"	7	7/16"	1/4"	8 @ 12 Ga.	4 1/16"	14"	38 1/4"	3 1/8"	3 1/8"	3 7/8"	1/2"	14 9/16"	1.88"	2.12"	2" X 39"	55	2 1/2" X 6 5/8"	4" X 6"	4 1/2"
	4	1, 2, II & 12	Exp.	4	201	8 3/8"	5 7/8"	18"	12"	6	7/16"	1/4"	7 @ 12 Ga.	3 7/8"	13"	35"	3 1/16"	2"	3 3/8"	1/2"	13 1/2"	1.82"	2.18"	1 1/4" X 23"	55	1 1/4" X 6 1/8"	3" X 6"	3"
	5	1, 2, II & 12	Exp.	4	69	7 9/16"	4 13/16"	15"	8"	4	7/16"	1/4"	5 @ 12 Ga.	2 13/16"	9"	25 1/2"	3 7/8"	2 1/4"	---	1/2"	10"	1.85"	2.15"	1 1/2" X 25"	55	1 1/2" X 5 1/16"	3" X 6"	3 1/2"
		3 - 10	Exp.	8	60	6 9/16"	3 13/16"	12"	8"	3	7/16"	1/4"	4 @ 12 Ga.	2 1/4"	9"	26 1/4"	3 7/8"	2 1/4"	---	1/2"	③ 10 3/8"	1.41"	1.71"	1 1/2" X 25"	36	1 1/2" X 4 1/16"	3" X 10"	3 1/2"

• Maximum Design Load = Service I Limit State

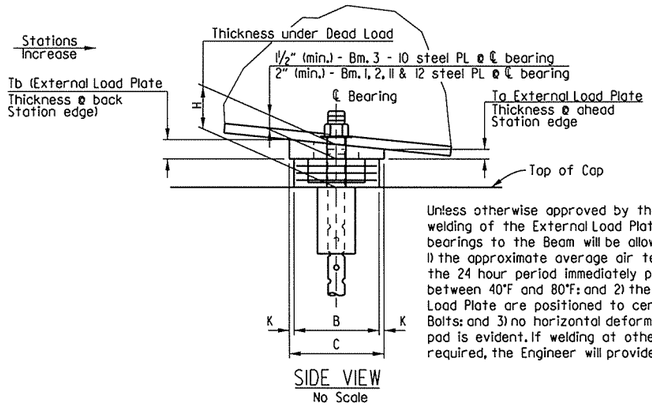
① Care shall be taken to ensure that the External Load plate is in full and complete contact with the Beam Flange before welding begins

② Center line of Beam shall be aligned with center line of Elastomeric pad.

③ Remove existing anchor bolts 1 1/2" below the top of cap and fill holes with approved non-shrink grout. New anchor bolts have been positioned to provide 1" clearance between new and existing anchor bolts. The Contractor shall verify the location of existing anchor bolts at all bents and the cap reinforcing for the int. bents. The existing reinforcing for the end bents may be drilled.

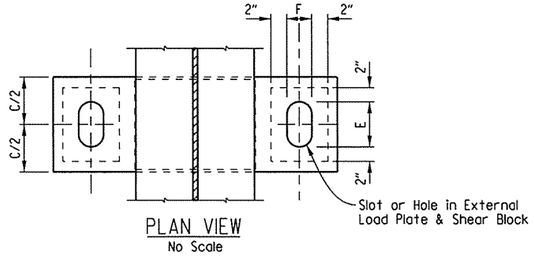


FRONT VIEW
No Scale

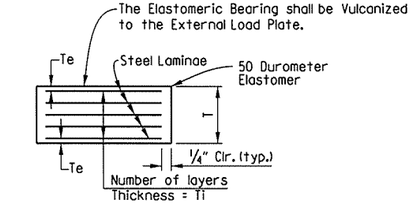


Unless otherwise approved by the Engineer, welding of the External Load Plate at expansion bearings to the Beam will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40°F and 80°F; and 2) the slots in the External Load Plate are positioned to center on the Anchor Bolts; and 3) no horizontal deformation at the Elastomeric pad is evident. If welding at other temperature is required, the Engineer will provide adjustment data.

SIDE VIEW
No Scale

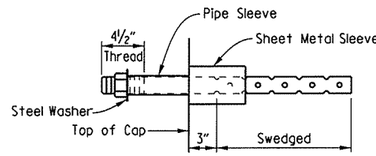


PLAN VIEW
No Scale



Te = thickness of Elastomer cover on top and bottom of pad
Ti = thickness of Elastomer between Steel Laminae
N = number of Elastomer layers of thickness Ti

ELASTOMERIC BEARING
No Scale



ANCHOR BOLT DETAIL
No Scale

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 an AHTD 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 items "Structural Steel in Beam Spans (M 270, Gr. 50)".

GENERAL NOTES

Elastomeric bearings shall conform to Special Provision Job BB0902 "Elastomeric Bearings" and Section 808 of the standard specifications and shall be paid for at the unit price bid for "Elastomeric Bearings". Long-duration testing of random lot samples specified in Subsection 808.05 is not required.

External load plates and shear blocks shall conform to AASHTO M 270, Grade 50. 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 and shear blocks shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. Surfaces 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) and painted according to Subsection 807.75.

Anchor Bolts, Washers and Nuts shall conform to Subsection 807.07 of the Std. Specs. 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.

Unless noted otherwise, bearings shall be seated in accordance with Subsection 808.08.

The cost of the entire bearing assembly shall be subsidiary to the price bid for "Elastomeric Bearings".

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/09/14

DETAILS OF ELASTOMERIC BEARINGS

ROUTE 49 SEC. 29

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-12-13 FILENAME: bbb0902_el.dgn
CHECKED BY: CAW DATE: 06-13-13 SCALE: NOT TO SCALE
DESIGNED BY: JKJ DATE: 05-07-13

BRIDGE NO. 05949 DRAWING NO. 55664

USER: lr594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_el.dgn
PLOTTED: 10/9/2014 16:16 SCALE: 16:1

G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_el.dgn 10/9/2014 16:16

Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		BB0902	95	184
					(1) 05949		MODIFICATION DETAILS		55665

GENERAL NOTES

Governing specifications are the Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 edition), with applicable supplemental specifications and special provisions.

All structural steel shall be AASHTO designation M270, Gr. 50 unless otherwise noted and shall be paid for under the bid item "Modification of Existing Bridge Structure". M270, Gr. 50 steel shall be painted. All exposed surfaces to be cleaned in accordance with Subsection 807.84(e).

All welding to be performed by a certified welder approval by the Engineer. All welding shall conform to the current AASHTO/AWS D1.5 Welding Code.

Structural steel Built-up plates shall be seated in accordance with Subsection 807.66.

WORK TO BE PERFORMED: The Contractor shall verify that the planned bearing build-ups- including the number of each type bearing build-up, the dimensions, bolt spacing, bolt sizes and lengths are correct and consistent with the existing conditions. This information shall be furnished to the Engineer, and also included with the structural steel fabrication drawings submitted for approval to the Engineer.

Nuts for anchor bolts or high strength bolts shall be tightened until all connected pieces are in snug contact. After nuts for high strength bolts are tightened, bolt threads shall be jammed to prevent loosening of the nut.

Loads to determine jack capacities can be found on the following sheets:
Bridge 05949 25010 thru 25011

Sheets from the existing bridge plans can be obtained from the Programs and Contracts Division for Bridge No. 05949. All information required to complete the work should be field verified by the Contractor.

BRIDGE RAISING CONSTRUCTION REQUIREMENTS: Prior to beginning the work, the Contractor shall submit to the Engineer proof of a current license with the Contractors Licensing Board for the State of Arkansas showing that he is licensed to perform this type work. Should the Contractor elect to subcontract this work, the subcontractor shall submit to the Engineer proof of a current license with the Contractors Licensing Board for the State of Arkansas showing that he is licensed to perform this type work.

At least three weeks prior to beginning the raising work, the Contractor shall submit to the Engineer his plan for performing the work for informational and record purposes. The submitted plan shall include, but not be limited to, the following:

- Supporting calculations
- Working drawings
- Details of the procedures, materials, blocking system, and other required supports
- Equipment to be used
- Contingency plan

The plan shall be signed and sealed by an Arkansas Registered Professional Engineer, who will be the Engineer of Record for the raising work. Immediately prior to beginning the raising work the Engineer of Record shall provide written certification to the Department's Resident Engineer that the adequacy of all components has been verified, and that the raising system is installed in accordance with the submitted plan. The Engineer of Record shall be present on the project site during the raising of the existing bridge and shall ensure that the lifting operation proceeds in accordance with his plan.

The proposed method for raising the structure shall conform to the following:

The arrangement of points of load application shall be such that the allowable stresses for bearing, shear and flexure will not be exceeded for any material required to carry the load. The jacks used shall have a minimum capacity of two times the calculated load.

Suitable blocking (i.e. cribbing, shoring, shimming, falsework), independent of the jacking system, shall be provided to prevent the beams/girders from excessive dropping resulting from jack failure or other causes during raising operations and until the beams/girders are in final position on the new build-ups/supports. A maximum incremental lift height of two and one-half inches (2-1/2"), before blocking is installed, will be allowed. Blocking used as temporary supports shall be sized such that the overall lateral stability of the blocking is assured. Incremental blocking shall be carefully placed to maintain lateral stability of the span(s) being lifted should such blocking be required to support the span loads due to repositioning of jacks, failure of jacks, or other anticipated or unanticipated situations. Lateral movement during the jacking operation shall be kept to a minimum.

All jacking shall be from the existing bent cap.

Prior to jacking, the Contractor shall verify that the vertical movement is not restricted by any anchor bolts, sliding plates, closed joints or other appurtenances.

Vertical forces for lifting shall be applied to either the bottom flange or the underside of the top flange of the beams/girders as near the centerline bearings as possible. Care shall be exercised that all beams/girders on a bearing line at the same bent are raised simultaneously and uniformly. In addition, at no time during raising operations shall the relative elevation on a simple span or continuous unit at a bent deviate by more than one and one-half inches (1-1/2") from the relative elevation at any other bent for that span or unit.

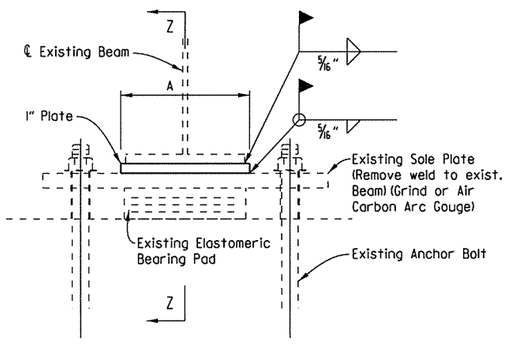
Adequate external guides or force shall be provided to assure true vertical lifting and lateral stability of the span or unit during the jacking operation. Lateral movement during the jacking operation shall be kept to a minimum.

The submitted plan shall include calculations verifying the adequacy of such blocking.

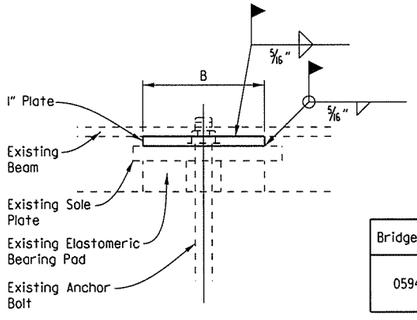
The Contractor shall raise the structure in accordance with the plan submitted to the Engineer. The results obtained by the use of the raising method are the Contractor's responsibility. The Contractor shall be responsible for any damage caused by his operation in the process of raising the structure and shall repair such damage without additional compensation.

The Contractor shall add built-up plates and replace bearings after conc. deck has been removed and before new deck is placed.

Payment shall be subsidiary to "Modification of Existing Bridge Structure (Br. No. 05949)".



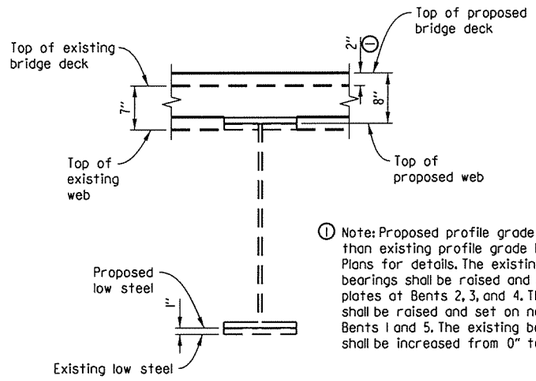
ELASTOMERIC BEARING BUILD-UP
(Bents 2, 3, & 4
Beams 3-10)
No Scale



SECTION Z-Z
No Scale

Bridge No.	Location	A	B
05949	Bts. 2&4	14"	12"
	Bt. 3	15"	13"

Note:
Build-up dimensions are based upon original drawings. It is the Contractor's responsibility to field verify all dimensions of the existing bearings prior to fabrication of build-ups.



(1) Note: Proposed profile grade line is 2" higher than existing profile grade line. See Rdwy. Plans for details. The existing beams and bearings shall be raised and set on 1" steel plates at Bents 2, 3, and 4. The existing beams shall be raised and set on new bearings at Bents 1 and 5. The existing beam haunches shall be increased from 0" to 1".

TYPICAL SECTION AT EXISTING BEAMS
No Scale
Beams 3-10

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/9/14

MODIFICATION DETAILS FOR
EXISTING BRIDGE 05949
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-12-13
CHECKED BY: CAW DATE: 06-13-13
DESIGNED BY: JKJ DATE: 05-07-13
FILENAME: bbb0902.e2.dgn
SCALE: NOT TO SCALE
BRIDGE NO. 05949 DRAWING NO. 55665

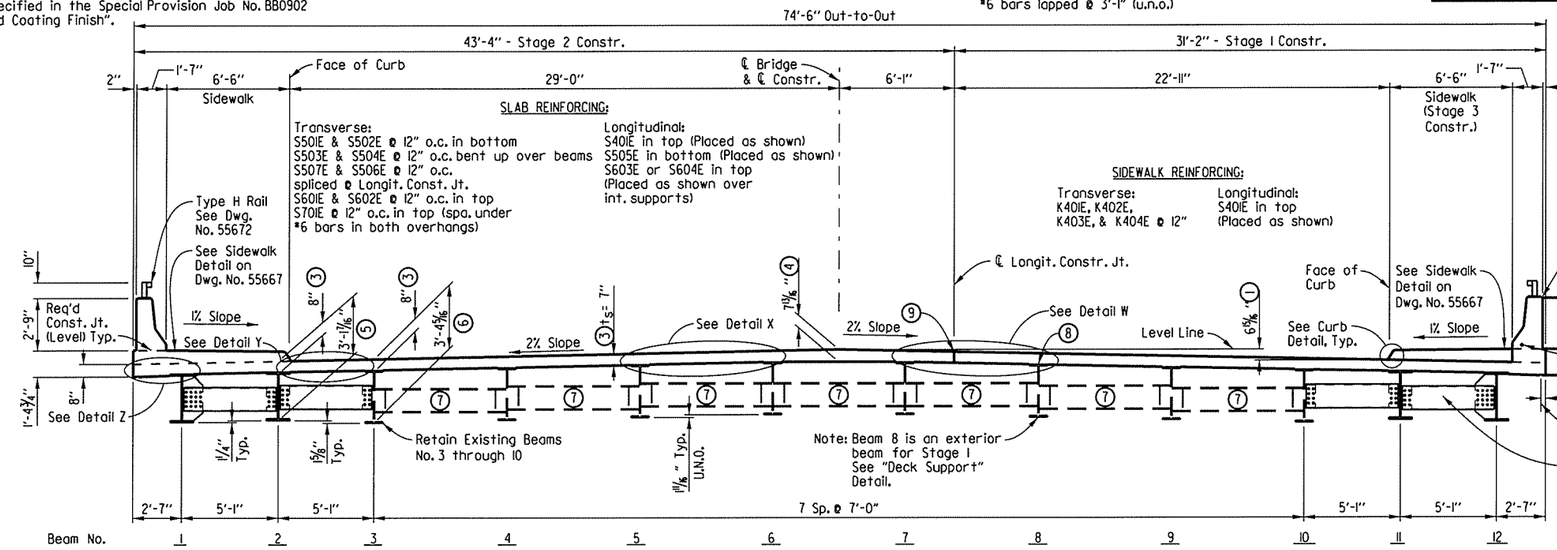
USER: r594
DESIGN FILE: G:\1210330I.Hwy264\TRANSP\dgn\bridge\bbb0902.e2.dgn
PLOTTED: 10/9/2014 16:16 SCALE: 16:1

Note: Class 2 Protective Roadway Surface Treatment shall be applied to the roadway surface, curb and sidewalk surface, and roadway face and top of parapet rail. Class 3 Textured Coating Finish shall be applied to all areas specified in the Special Provision Job No. BB0902 "Textured Coating Finish".

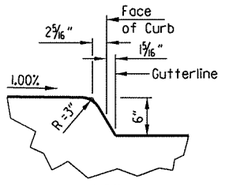
Note: All bars designated with an "E" Suffix are to be Epoxy Coated.
#4 bars lapped @ 1'-6"
#5 bars lapped @ 2'-7" (u.n.o.)
#6 bars lapped @ 3'-1" (u.n.o.)

Crafton, Tull & Associates Inc.

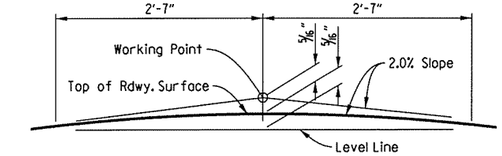
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	96	184
				(1) 05949		SPAN DETAILS		55666



TYPICAL ROADWAY SECTION
(Looking Ahead)
(Reinforcing not shown for clarity)
¼" = 1'-0"



CURB DETAIL



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL
No Scale

Permanent steel bridge bridge deck forms are required. See Special Provision Job No. BB0902 "Special Safety Requirements". The minimum bridge deck thickness shall be maintained as shown on the plans. A corrugation filler, composed of polystyrene or other approved material, shall be adequately bonded to the corrugations. No additional concrete weight of the bridge deck is allowed. The total additional weight of the permanent steel bridge deck forms and corrugation filler shall not exceed 5 p.s.f. The cost of permanent steel bridge deck forms and corrugation filler shall be considered subsidiary to the bid item, "Class S (AE) Concrete - Bridge".

(1) Working Point to gutterline. See "Rounding Detail".

(2) Tolerances: Minus = ¼"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance
See "Adjustment for Slab Thickness Tolerance when Removable Deck Forming is Used".

(3) See "Adjustment for Slab Thickness Tolerance when Removable Deck Forming is Used".

(4) To Working Point. See "Rounding Detail".

(5) Measured at ℄ Bearing and ℄ New Beams, Typ.

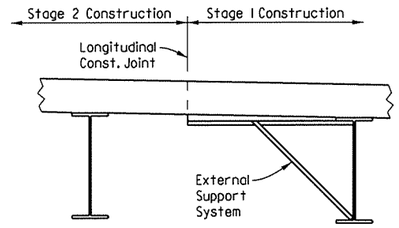
(6) Measured at ℄ Bearing and ℄ Exist. Beams, Typ.

(7) Bolts in the existing diaphragm and end struts may be loosened or removed to the satisfaction of the Engineer to facilitate bearing replacements and install build-up plates. Any existing bolt that is loosened or removed shall be replaced with a new high-strength bolt. The diaphragm and end strut bolts located in the bay between Beam Nos. 7 & 8 shall be tightened after the completion of the Stage 2 Construction deck pour.

Note: 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 AHTD Std. Dwg. No. 14991 for allowable modifications and for tolerances when permanent steel bridge deck forms are used.

(8) After deck removal and prior to installation of new shear connectors, the existing top of beams and shear connectors shall be cleaned. Any damaged shear connectors shall be replaced as directed by the Engineer. Payment will not be paid for directly but shall be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05949)".

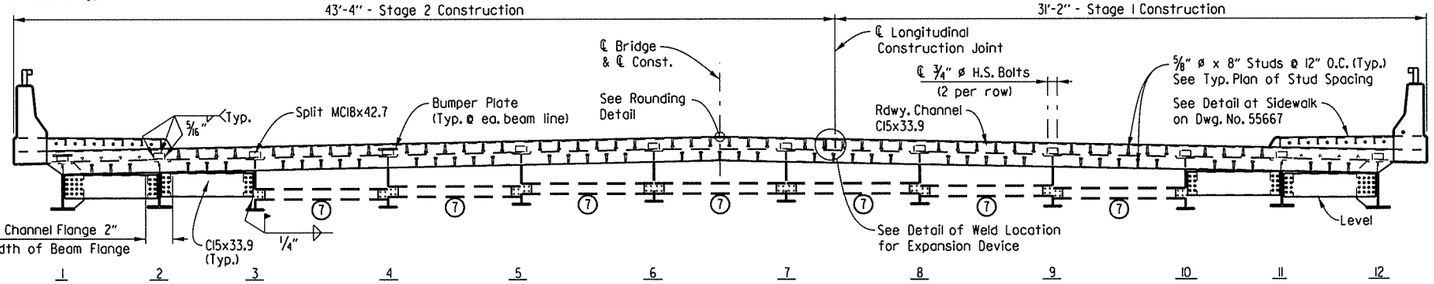
(9) Stage 2 transverse reinforcing steel shall not be tied to Stage 1 transverse reinforcing steel.



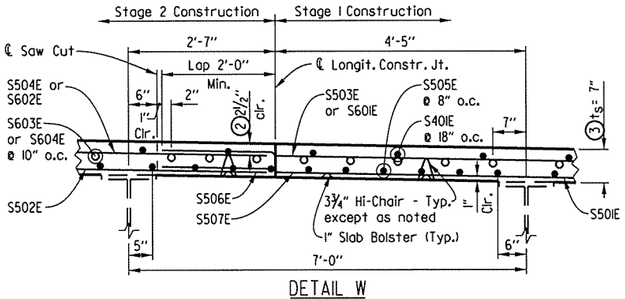
Stage 1 external supports in this bay shall remain in place until after completion of the Stage 2 deck pour. See Subsection 802.15 for additional information regarding their removal.

DECK SUPPORT AT LONGITUDINAL CONSTRUCTION JOINT
Looking Ahead
No Scale

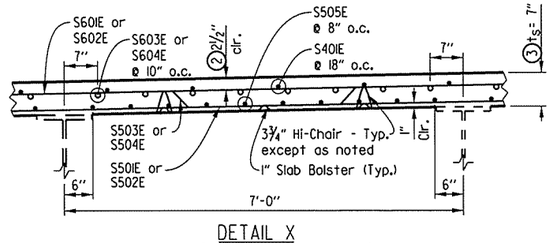
Expansion Device:
Rdwy. Channel-C15x33.9
Conn. Split MC18x42.7
Detail Device ⅛" high & provide ¼" shims using 2-1⁄16" & 1-⅛" PLs.



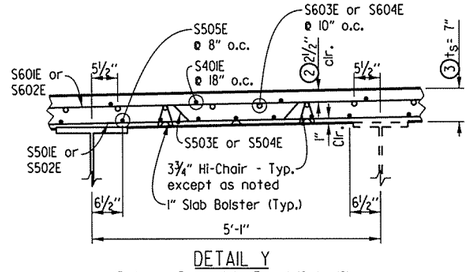
TYP. SECTION THROUGH JOINT
(Looking Ahead at Bent 1, Bent 5 Opposite Hand)
Scale: ¼" = 1'-0"



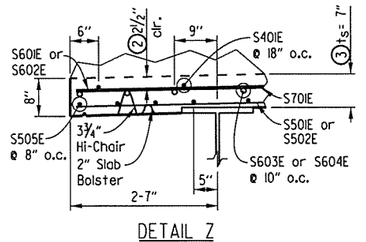
DETAIL W
(Between Beams 7 to 8)
¾" = 1'-0"



DETAIL X
(Between Beams 3 to 7 and 8 to 10)
¾" = 1'-0"



DETAIL Y
(Between Beams 1 to 3 and 10 to 12)
¾" = 1'-0"



DETAIL Z
¾" = 1'-0"

Note: Space Hi-Chairs 4'-0" o.c. long.
Space slab bolsters 4'-0" max. sp.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIFF
10/09/14

SHEET 1 OF 11
264'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

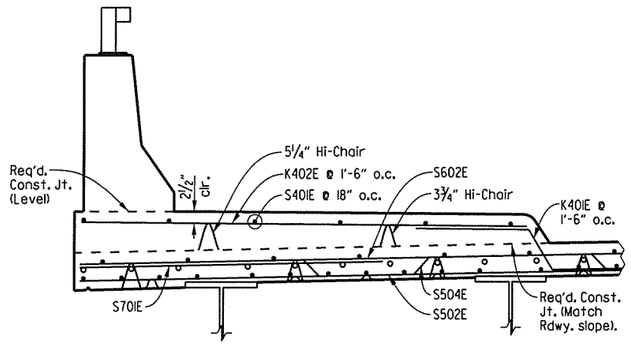
DRAWN BY: BWC DATE: 06-12-13
CHECKED BY: JKJ DATE: 06-13-13
DESIGNED BY: CAW DATE: 05-07-13
FILENAME: bbb0902_sl.dgn
SCALE: 1/4" = 1'-0"

BRIDGE NO. 05949 DRAWING NO. 55666

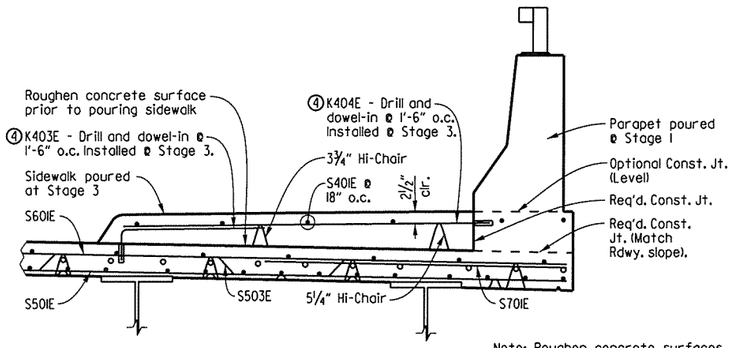
USER: ir594
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\bridge\bbb0902_sl.dgn
PLOTTED: 10/9/2014 16:17
SCALE: 8:1

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	97	184
				(1) 05949		SPAN DETAILS		55667

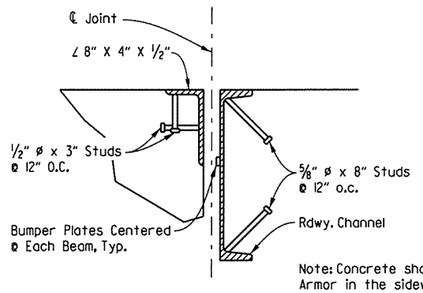


STAGE 2 SIDEWALK DETAIL
Scale: ¾" = 1'-0"



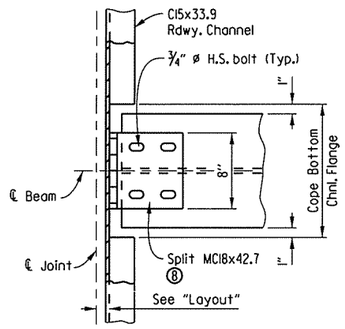
STAGE 3 SIDEWALK DETAIL
Scale: ¾" = 1'-0"

Note: Roughen concrete surfaces before constructing Stage 3 sidewalk.



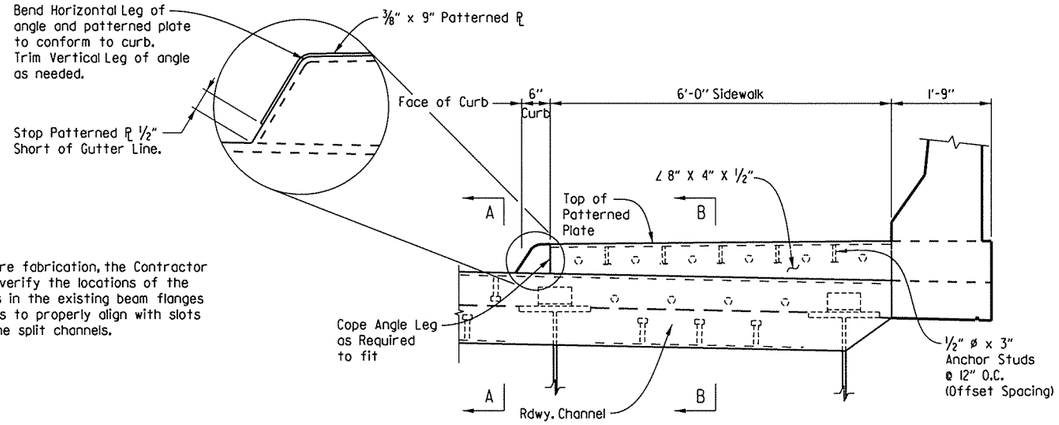
SECTION A-A
No Scale

Note: Concrete shall be hand packed under the Joint Armor in the sidewalk. For expansion joint detail See "Detail of Poured Silicone Joint Seal" Dwg. No. 55674

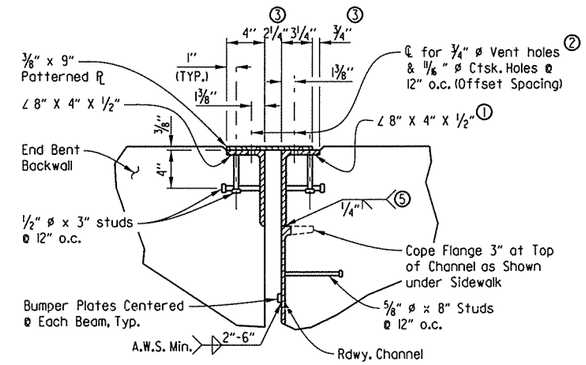


CHANNEL CONNECTION DETAILS
No Scale

⑧ Before fabrication, the Contractor shall verify the locations of the holes in the existing beam flanges so as to properly align with slots in the split channels.



DETAIL AT SIDEWALK
(Looking Ahead, Bent 1 Rt.)
No Scale



SECTION B-B
No Scale

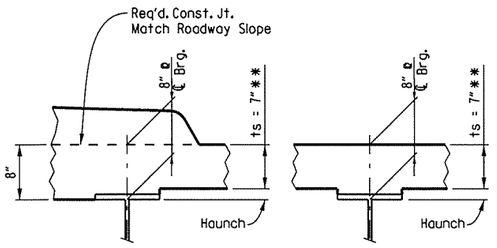
① Trim Vertical Leg of ∠ 8" x 4" x ½" as needed.

② Ctsk. 11/16" ø holes in ⅜" patterned plate. Tap 4" Leg of Angles for ASTM A449 ⅝" ø screws @ 12" o.c. Install screws in the shop and ship as a unit. Screws on the span side to be removed. Screws on backwall side to remain in place after erection. See "Expansion Device Installation" See Dwg. No. 55674.

③ Dimensions Shown @ 60° F.

④ Grout K403E & K404E bars into 4" deep drilled holes. Grout used shall be an approved epoxy grout listed on the OPL. Hole diameter and installation procedure shall be as recommended by the grout manufacturer. Dowels shall be located to avoid damaging deck reinforcing. Payment for grouting and placement shall be considered subsidiary to "Epoxy Coated Reinforcing Steel (Grade 60)".

⑤ Field weld during Stage 3.



EXTERIOR GIRDER INTERIOR GIRDER

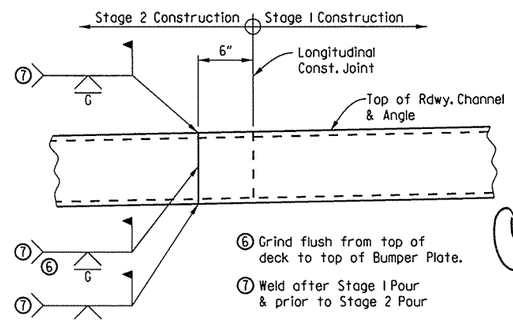
** Tolerance when removable deck forming is used is +½", -1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

Note: ts = slab thickness as shown in "Typical Roadway Section".

Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum - top flange thickness minus 1/16"; Maximum - top flange thickness plus ½". 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



⑥ Grind flush from top of deck to top of Bumper Plate.

⑦ Weld after Stage 1 Pour & prior to Stage 2 Pour

DETAIL OF WELD LOCATION FOR EXPANSION DEVICE
No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/9/14

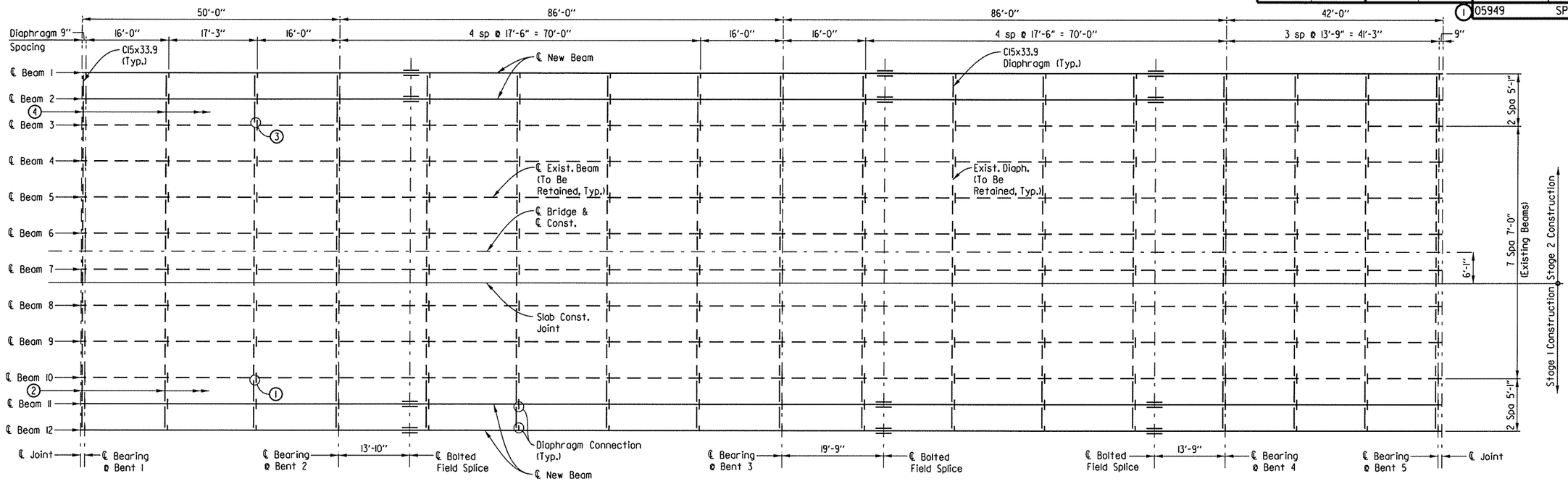
SHEET 2 OF 11
264'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-12-13 FILENAME: bbb0902_s2.dgn
CHECKED BY: JKJ DATE: 06-13-13 SCALE: SEE DETAILS
DESIGNED BY: CAW DATE: 05-07-13
BRIDGE NO. 05949 DRAWING NO. 55667

USER: ir594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_s2.dgn SCALE: 81
PLOTTED: 10/9/2014 16:17

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	98	184
				05949		SPAN DETAILS		55668



FRAMING PLAN

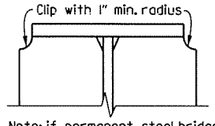
Scale 3/32 " = 1'-0"

① Install new Connection PL's on existing beams during Stage 1 prior to pouring deck slab. (Typ. Beam No. 10)

② Install diaphragms during Stage 1 Construction. Tighten Bolts after all Stage 1 deck pours are complete. (This bay only)

③ Install new Connection PL's on existing beams during Stage 2 prior to pouring deck slab. (Typ. Beam No. 3)

④ Install diaphragms during Stage 2 Construction. Tighten Bolts after all Stage 2 deck pours are complete. (This bay only)

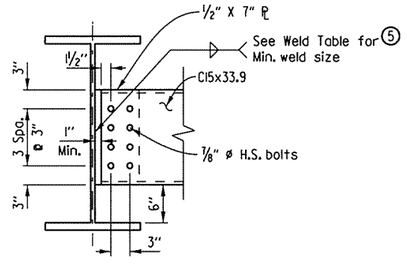


Note: if permanent steel bridge deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.

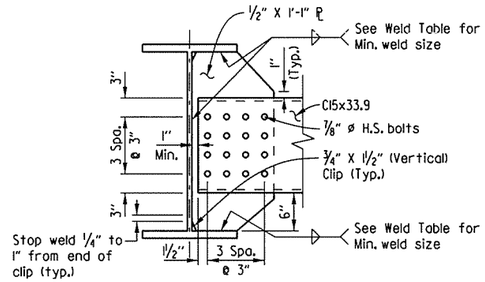
PLATE CLIP DETAIL

No Scale

The existing paint system on the existing beams may consist of a lead based paint system. The Contractor shall take all necessary steps according to state and federal regulations to protect the workers, public, and the environment when modifying the existing beams.



TYPICAL INTERIOR CONNECTION PLATE

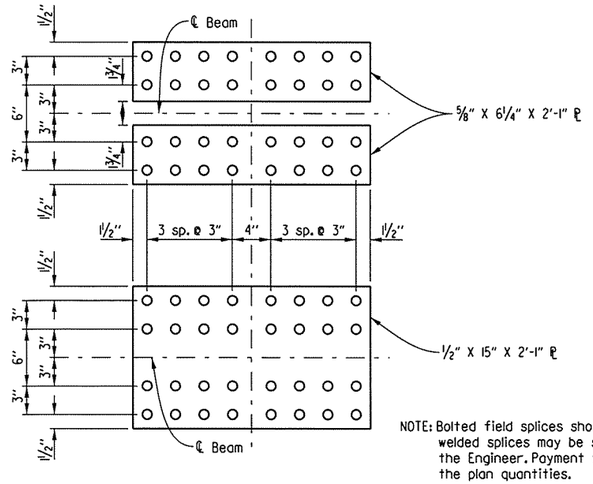


TYPICAL EXTERIOR CONNECTION PLATE

DIAPHRAGM CONNECTION DETAILS

1" = 1'-0"

⑤ Field weld to existing beams no. 3 & 10 during Stage 2 & 1 respectively.

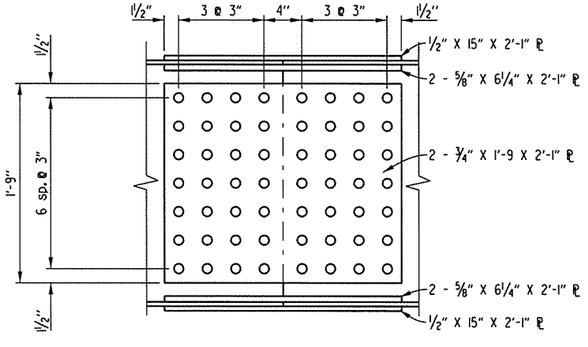


TYP. FLANGE SPLICE PLATES

1 1/2" = 1'-0"

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

All field splice bolts shall be 7/8" ø Hi-str. bolts
All holes for splice bolts shall be 15/16 " ø
All field splice plates shall be AASHTO M270 Gr. 50 steel.



DETAIL OF FIELD SPLICE

1 1/2" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/9/14

SHEET 3 OF 11

264'-0" CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE 49 SEC. 29

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BWC	DATE: 06-12-13	FILENAME: bbb0902_s3.dgn	
CHECKED BY: JKJ	DATE: 06-13-13	SCALE: SEE DETAILS	
DESIGNED BY: CAW	DATE: 05-07-13		

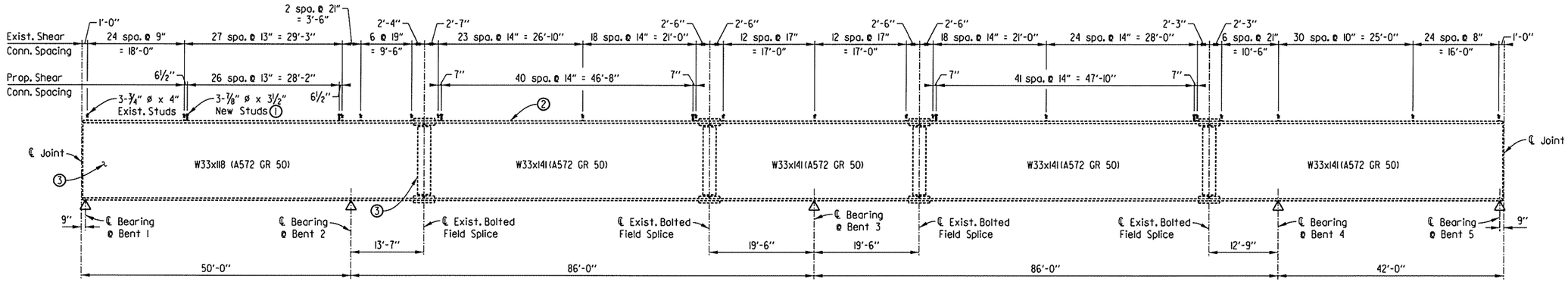
BRIDGE NO. 05949 DRAWING NO. 55668

USER: lr594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_s3.dgn
PLOTTED: 10/9/2014 16:17
SCALE: 21.333333:1

G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_s3.dgn 10/9/2014 16:17

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	99	184
				(1) 05949		SPAN DETAILS		55669



(1) Add one row of new studs between existing rows where indicated.

(2) After deck removal and prior to installation of new shear connectors, the existing top of beams and shear connectors shall be cleaned. Any damaged shear connectors shall be replaced as directed by the Engineer. Payment will not be paid for directly but shall be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05949)".

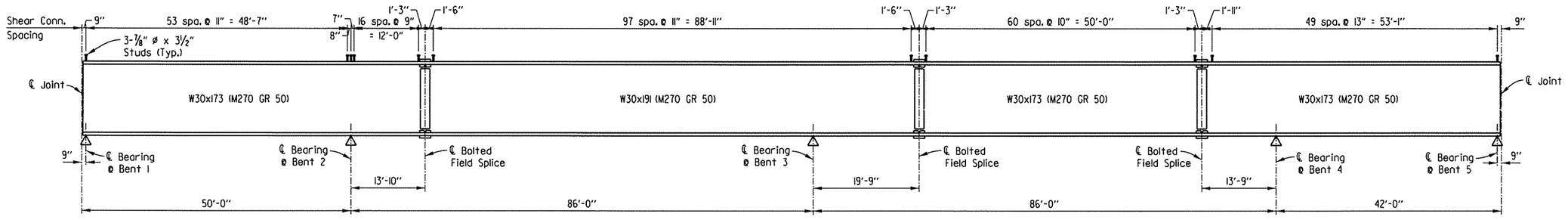
(3) Retain, clean, and paint existing beams, bolted field splices, diaphragms, end struts, and connection plates per Special Provision Job BB0902 "Cleaning and Painting Existing Structural Steel." (Typ.)

BEAM ELEVATION - EXISTING BEAMS NO. 3-10

No Scale

Note: Dimensions and details based on original plans.

Note: The existing paint system on the existing beams may consist of a lead based paint. The Contractor shall take all necessary steps according to state and federal regulations to protect the workers, public, and the environment when modifying the existing beams.



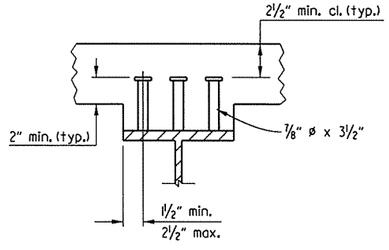
BEAM ELEVATION - PROPOSED BEAMS NO. 1-2 & 11-12

No Scale

TABLE FOR WELDS

Material Thickness of Thicker Part Joined (inches)	Minimum Size of Fillet Weld (inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	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.



SHEAR CONNECTOR DETAIL

No Scale

Stud Shear Connectors shown shall be ⅞" ø x 3½" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the manufacturer.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/9/14

SHEET 4 OF 11
264'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-12-13 FILENAME: bbb0902_s4.dgn
CHECKED BY: JKJ DATE: 06-13-13 SCALE: SEE DETAILS
DESIGNED BY: CAW DATE: 05-07-13
BRIDGE NO. 05949 DRAWING NO. 55669

USER: lr594
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\bridge\bbb0902_s4.dgn
PLOTTED: 10/9/2014 16:17
SCALE: 21.333333:1

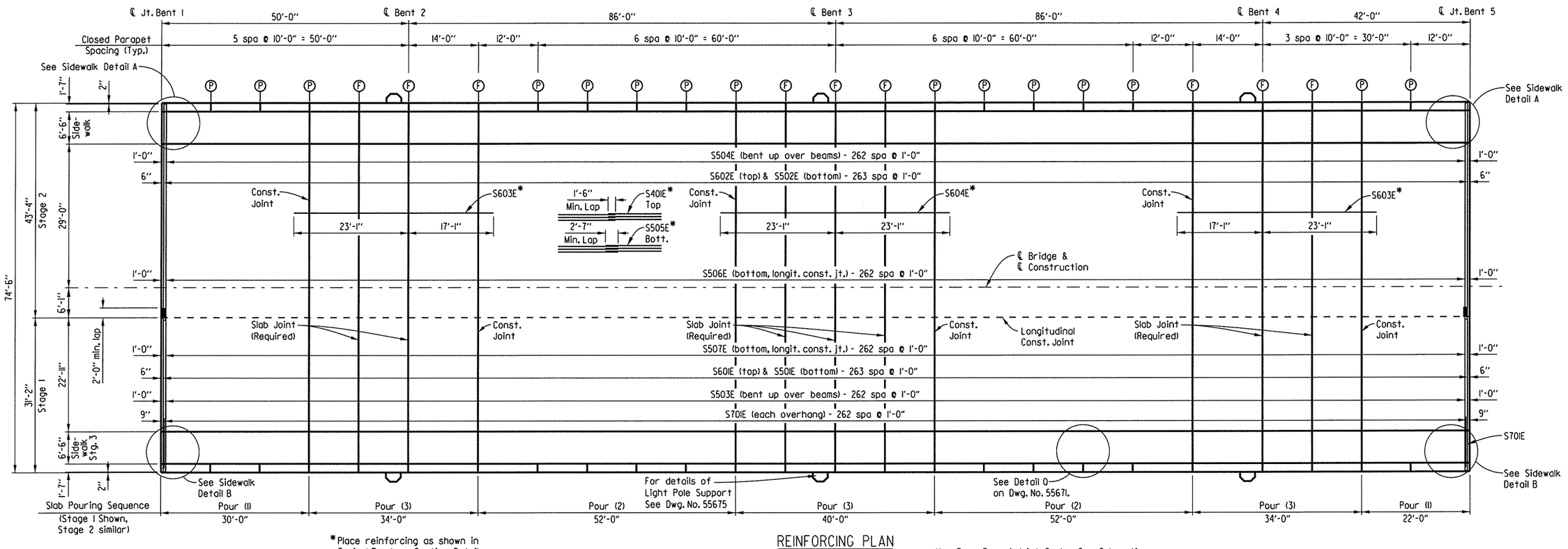
Ⓕ ℄ Full-Depth Parapet Joint (¼" to 1" Max.) Stop 4" from top of sidewalk. (Typ.)

Ⓟ ℄ Partial-Depth Parapet Joint (¼" to 1" Max.) Stop 1-2" from top of sidewalk. (Typ.)

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	100	184
(1) 05949		SPAN DETAILS		55670

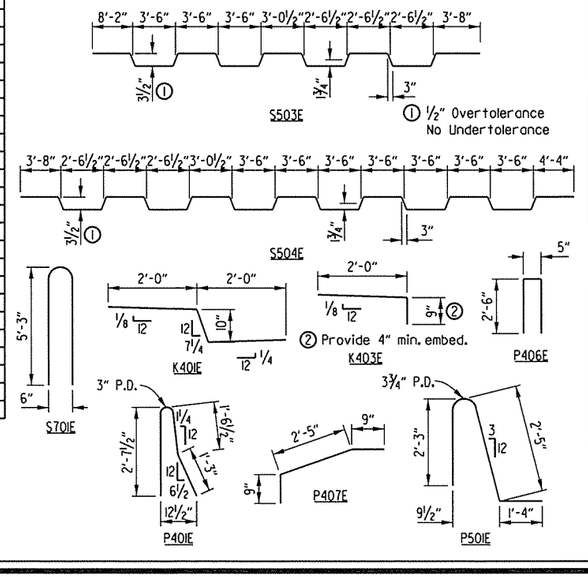


*Place reinforcing as shown in Typical Roadway Section Details.

BAR LIST

Mark	Number Required	Length	Pin Diameter
S401E	455	39'-0"	Str.
S501E	264	33'-0"	Str.
S502E	264	43'-2"	Str.
S503E	263	33'-8"	3"
S504E	263	44'-2"	3"
S505E	636	45'-3"	Str.
S506E	263	4'-6"	Str.
S507E	263	6'-4"	Str.
S601E	264	33'-0"	Str.
S602E	264	43'-2"	Str.
S603E	172	40'-2"	Str.
S604E	86	46'-2"	Str.
S701E	526	10'-9"	5¼"
K401E	176	4'-9"	3"
K402E	176	7'-11"	Str.
K403E	176	2'-8"	3"
K404E	176	6'-6"	Str.
P401E	1006	5'-6"	3"
P402E	28	39'-0"	Str.
P403E	200	9'-7"	Str.
P404E	30	11'-7"	Str.
P405E	20	13'-7"	Str.
P406E	12	5'-3"	3"
P407E	8	3'-10"	3"
P501E	1006	6'-1"	2½"

Bending Diagrams
Bars with "E" suffix shall be epoxy coated.
(Dimensions are Out to Out of Bars)



REINFORCING PLAN

No Scale

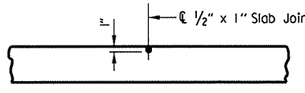
Notes:

Required slab joints and pouring sequence construction joints shall align with open joints at the front face of the parapets.

Pours with the same number may be placed simultaneously or separately. For each stage, all Pours (1) must be placed before Pours (2) can be placed. Likewise, all Pours (2) must be placed before Pours (3) 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. A minimum of 72 hours shall elapse between the completion of the deck for each stage before pouring the sidewalk. A minimum of 72 hours shall elapse between the completion of the sidewalk in Stage 2 and pouring of the parapet rail. Any railing or sidewalk pours made before the entire slab in the respective stage has been placed must be approved by the Engineer.

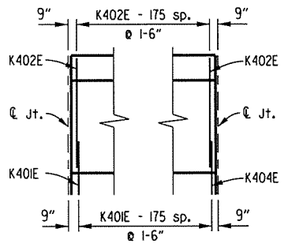
The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

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 and across the sidewalk. 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 and sidewalk (face of parapet to face of parapet). Slab joints shall align with parapet open joints.



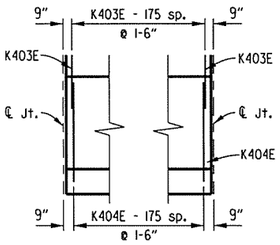
SLAB JOINT DETAIL

No Scale



SIDEWALK DETAIL A

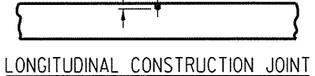
⅜" = 1'-0"



SIDEWALK DETAIL B

⅜" = 1'-0"

½" x 1" 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. This joint shall be formed. Seal must be gray or other color similar to concrete.



LONGITUDINAL CONSTRUCTION JOINT

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/09/14

SHEET 5 OF 11

264'-0" CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE 49 SEC. 29

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-12-13 FILENAME: bbb0902_s5.dgn

CHECKED BY: JKJ DATE: 06-13-13 SCALE: SEE DETAILS

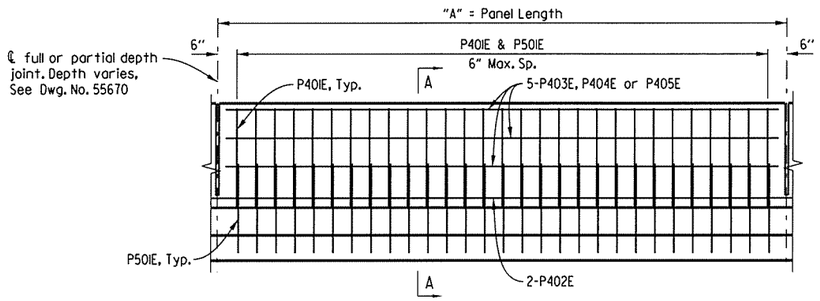
DESIGNED BY: CAW DATE: 05-07-13

BRIDGE NO. 05949 DRAWING NO. 55670

USER: ir594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_s5.dgn
PLOTTED: 10/9/2014 16:17
SCALE: 2\:333333\:1

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	101	184
				(1) 05949		SPAN DETAILS		55671

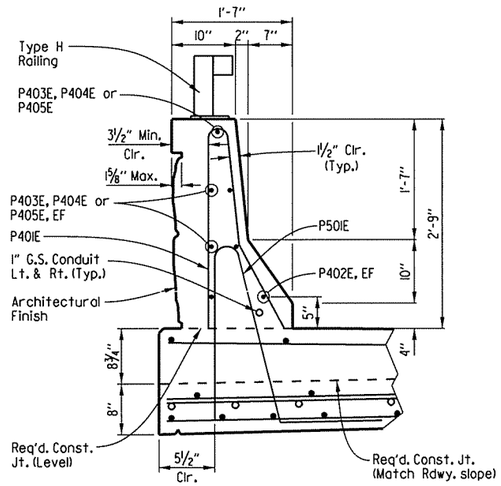


NOTE: See Dwg. No. 55670 for parapet layout.

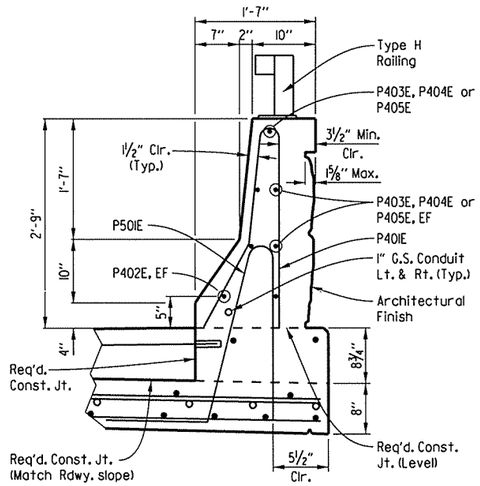
DETAILS OF CLOSED PARAPET
1/2" = 1'-0"

PARAPET RAIL VARIABLES

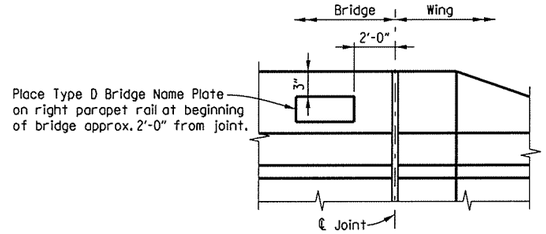
PARAPET TYPE	"A"	"B"	"C"	LONGITUDINAL REINFORCING
CLOSED	10'-0"	- - -	- - -	P402E, P403E
CLOSED	12'-0"	- - -	- - -	P402E, P404E
CLOSED	14'-0"	- - -	- - -	P402E, P405E



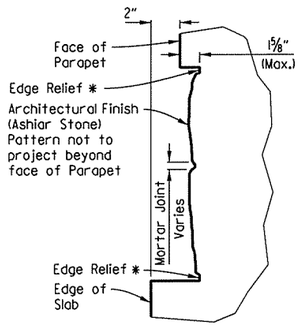
STAGE 2 SECTION A-A
1" = 1'-0"



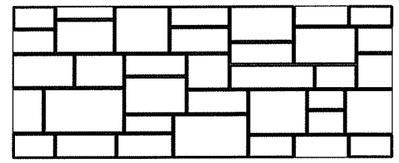
STAGE 1 SECTION A-A
(Note: Stage 3 Construction Shown)
1" = 1'-0"



NAME PLATE DETAIL
No Scale



SECTION B-B
No Scale



ARCHITECTURAL FINISH DETAIL
(Ashlar Stone)
No Scale

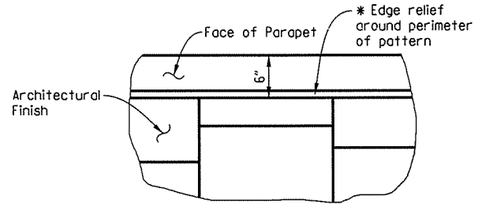
General Notes:

The pattern finish shall be applied to the exposed surfaces in accordance with the Special Provision Job No. BB0902 "Architectural Finish" and as shown in plans. Care shall be taken with form liner handling and installation to insure aesthetic quality of the pattern finish is maintained. Where form liner panels require modification to conform to the location, dimensions, and lines shown in the plans, the Contractor shall provide edge relief matching that of the unaltered form liner, Payment for pattern finish shall be in accordance with Special Provision Job No. BB0902 "Architectural Finish".

No adjustments will made in concrete volume due to the use of "Architectural Finish". Class "S(AE)" Concrete shall be measured in accordance with Subsection 802.24(a). Care shall be taken in placing concrete to avoid segregation and to eliminate flow lines.

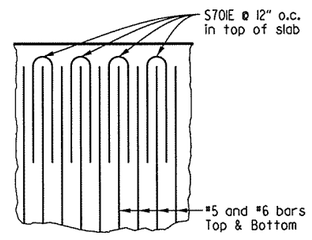
Class 3 Textured Coated Finish shall be applied to surfaces as specified in Special Provision Job No. BB0902 "Textured Coating Finish".

For details and dimensions not shown see Dwg. No. 55670

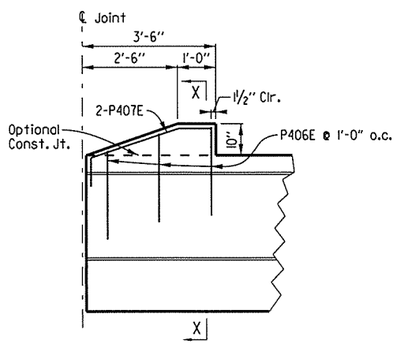


EDGE DETAIL
No Scale

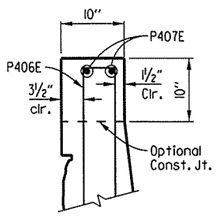
* Provide edge relief around perimeter of pattern. Edge relief dimensions shall match manufacturers edge distance.



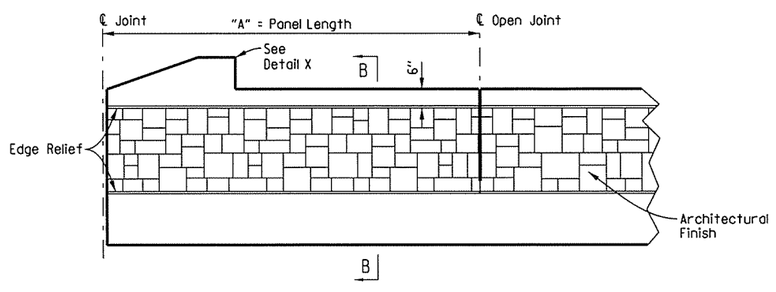
DETAIL Q
No Scale



DETAIL X
1/2" = 1'-0"



SECTION X-X
1" = 1'-0"



DETAILS OF PARAPET ENHANCEMENT
No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/29/14

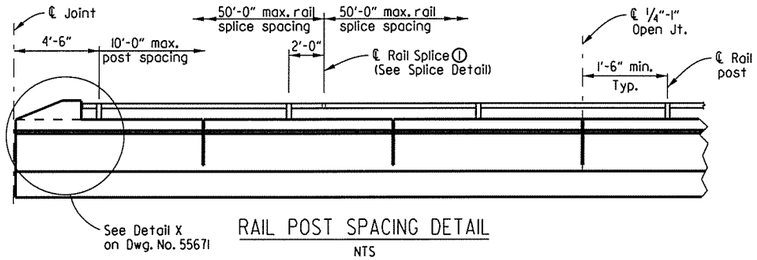
SHEET 6 OF 11
264'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	BWC	DATE:	06-12-13	FILENAME:	bbb0902_s6.dgn
CHECKED BY:	JKJ	DATE:	06-13-13	SCALE:	1" = 1'-0"
DESIGNED BY:	CAW	DATE:	05-07-13		

BRIDGE NO. 05949 DRAWING NO. 55671

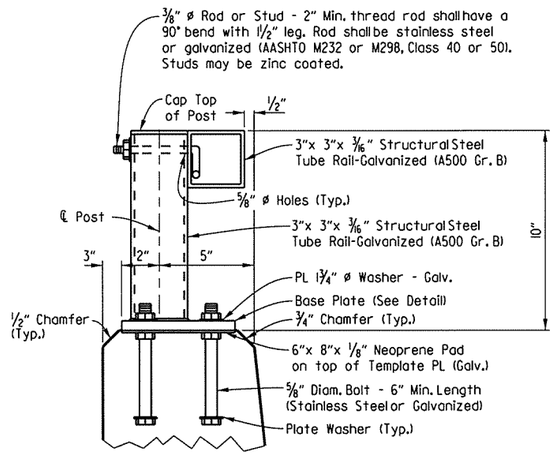
USER: r594
DESIGN FILE: G:\2103301.Hwy264\TRANSP\dgn\Bridge\bbb0902_s6.dgn
PLOTTED: 10/9/2014 16:17 SCALE: 2:1

Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		BB0902	102	184
					(1) 05949		SPAN DETAILS		55672

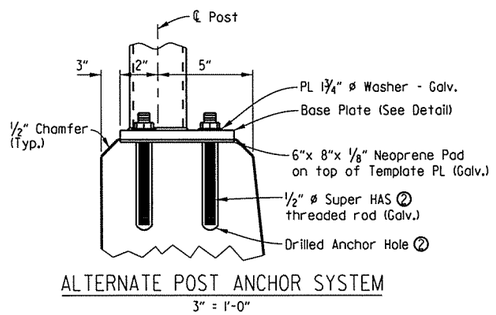


RAIL POST SPACING DETAIL
NTS

(1) Note: Splices to be at 50' maximum spacing. Rail sections must be fabricated to attach to at least three posts. ℄ Splices shall be located at a minimum of 2'-0" from ℄ Post.

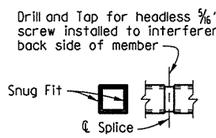


TYPE H RAIL
3" = 1'-0"

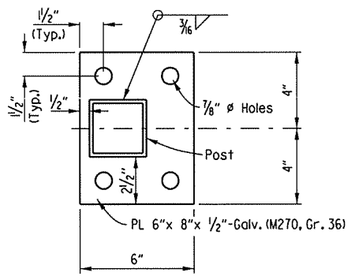


ALTERNATE POST ANCHOR SYSTEM
3" = 1'-0"

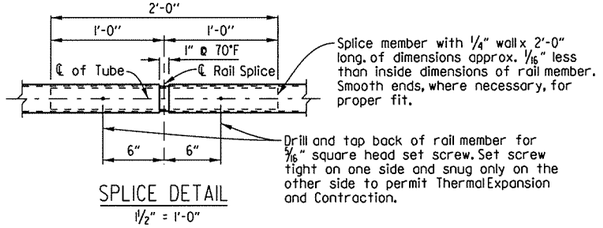
(2) Hilti HIT RE 500 Epoxy Adhesive Anchor System with 4 1/2" embedment or an approved equal. The Hilti Epoxy Adhesive Anchor System shall be installed in accordance with manufacturer's recommendations.



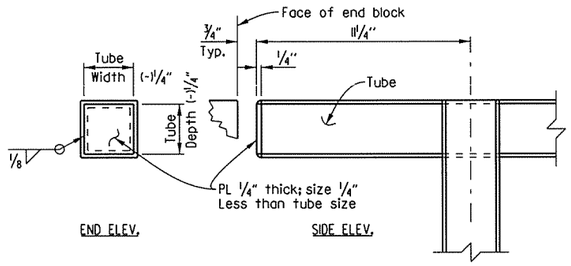
ALTERNATE INSTALLATION



BASE PLATE
3" = 1'-0"



SPLICE DETAIL
1 1/2" = 1'-0"



DETAILS OF END CAPS
3" = 1'-0"

GENERAL NOTES FOR BRIDGE RAILING

Rail layout shall conform to vertical and horizontal alignment of the bridge. All Posts shall be vertical.

Base plates shall not be placed upon areas that are improperly finished, deformed or irregular.

Shop drawings showing details of railing shall be submitted and approval secured prior to fabrication.

MATERIALS:

Structural Tubing shall be AASHTO M270, Gr. 36 or ASTM A500-Grade B. Railing, Base Plates, End Cap Plates and Misc. Steel shall be AASHTO M270 Gr. 36.

Cast in place anchor bolts shall be of stainless steel or high strength steel. Stainless steel anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength of 80,000 psi. High strength steel anchor bolts shall conform to AASHTO M164 or A354-Grade BC, galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.

Bolts shall conform to the requirements of ASTM A193 Grade B8, B8N or B8C, Class 2 (Stainless Steel).

Nuts shall conform to AASHTO M292, Gr. 8A (Stainless Steel) or AASHTO M232 or M298, Class 40 or 50 (Galvanized).

Washers shall be Stainless Steel and conform to the requirements of ASTM A167-Type 302 with dimensions meeting ASTM F436 or high-strength steel conforming to AASHTO M293 and galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.

Splice Set Screws shall conform to the requirements of ASTM A193 or A320-Grade B8 (Stainless Steel) or AASHTO M270, Gr. 36 (Galvanized).

Plate Washers shall be Stainless Steel and conform to the requirements of ASTM A167-Type 302 or AASHTO M270, Gr. 36, galvanized in accordance with AASHTO M232 or M298, Class 40 or 50. Plate Washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series).

Threads for bolts, screws, and nuts shall conform to American Standard Course Series, Class 2 FIT, ASA Specification B1.1.

Mixing of Stainless Steel and Galvanized fastners will not permitted.

Steel Rail Members shall be galvanized in accordance with AASHTO M111, after fabrication and shall receive a powder coating process after galvanizing. Galvanizing shall not interfere with the powder coating process. Galvanized surfaces shall be prepared in accordance with Subsection 807.87 and the powder coating manufacturer's recommendations before application of the powder coating process. The powder coating process shall be a two coat process applied using electrostatic spray. The base coat shall be a thermosetting epoxy powder with a minimum thickness of 2 - 4 mils. The top coat shall be tough polyester powder with a minimum thickness of 2 - 4 mils. Color shall be Bronze as approved by the Engineer. Coated galvanized framework shall have a salt spray resistance of 3000 hours using ASTM B117 without loss of adhesion. The powder coating process shall be in accordance with Manufacturer recommendations.

Metal Bridge Railing, including posts, fasteners, base plates, template plates, anchor bolts, neoprene pad, galvanizing and powder coatings; fabrication and erection; and all incidentals necessary to complete the work shall be paid for in accordance with Section 807 at the contact unit price per linear foot bid for "Metal Bridge Railing (Type H).

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/9/14

SHEET 7 OF 11
264'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-12-13 FILENAME: bbb0902_s7.dgn
CHECKED BY: JKJ DATE: 06-13-13 SCALE: 1" = 1'-0"
DESIGNED BY: CAW DATE: 05-07-13
BRIDGE NO. 05949 DRAWING NO. 55672

USER: lr594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_s7.dgn
PLOTTED: 10/9/2014 16:17
SCALE: 2:1

SUPERSTRUCTURE 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 (2012 Edition) with current interim specifications.

LIVE LOADING: HL-93

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c = 4,000 psi
Reinforcing Steel (Grade 60 AASHTO M 31 or M 322 Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

CONCRETE:
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. 14991 for allowable modifications and for tolerances when Permanent Steel Deck Forms are used.

All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4000 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾".

Concrete thickness, rebar cover, and construction tolerances shown on the plans must be achieved in placement of the slab.

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

Slab joints from Stage 2 construction shall align with slab joints from Stage 1 construction. Required Slab Joints shall align with the parapet open joint.

The sidewalk surface shall be given a Class 6, Broomed Finish. 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.

REINFORCING STEEL:
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. 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)".

NEW STRUCTURAL STEEL:
All new Structural Steel shall be AASHTO M270, Grade 50 unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50)". All exposed surfaces shall be cleaned in accordance with Subsection 807.84 unless otherwise noted. Structural Steel completely embedded in concrete may be AASHTO M 270, Grade 36.

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. Shapes and materials shown in the plans will be the basis of payment and no additional compensation will be made for any adjustments due to substitutions.

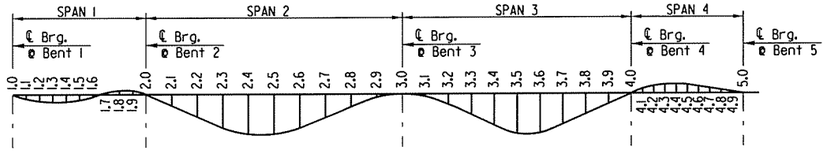
Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of plan quantities.

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 as subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50)"

All beams shall be blocked in their true position in the shop in groups of a minimum of three sections. Beams shall be blocked with webs horizontal and as specified in Subsection 807.54(b)(2). The camber, length of sections, distance between bearings and opening of joints shall be measured with the beams in their true positions and this information shall become part of the permanent records of this job. The component parts shall be match marked in this assembly and those marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60°F. A tolerance of ¼" (plus or minus) 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 to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. Field welding of new diaphragm connection plates to the existing beams shall be as shown in the plans. All welding shall conform to Subsection 807.26.



DEAD LOAD DEFLECTION DIAGRAM

NTS

Field Connections and splices shall be bolted with High-Strength Bolts and shall be ⅞" ø with 15/16" open holes at a spacing of 3" o.c. Bolts shall be placed with heads on the outside face of the exterior Beam Webs and on the bottom of the Beam Flanges. Any existing bolt that is loosened or removed shall be replaced by a new high-strength bolt.

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 noted otherwise.

All contact surfaces between plates at field splices shall be free of oil, rust or scale before assembly.

Bearings at Bents 2, 3, & 4, Beams 3-10 shall be seated in accordance with Subsection 807.66. All other bearings shall be seated in accordance with Subsection 808.08. This work and material are to be considered as subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50)" and will not be paid for directly.

PAINTING STRUCTURAL STEEL:
All new structural steel except galvanized steel and steel which is completely encased in concrete shall be painted in accordance with Subsection 807.75. The color of paint shall conform to Federal Standard 595B, Color Chip No. 26122, Dark Gray.

The existing paint system used on the existing beams consists of a lead based paint system. The Contractor shall take all necessary steps to protect the workers modifying the existing beams. Unless otherwise noted, the existing structural steel shall be cleaned and painted in accordance with Special Provision Job No. BB0902 "Cleaning and Painting Existing Structural Steel". The paint color and finish shall match that used for the new structural steel.

The area of the existing beams where new diaphragm connection plates, new elastomeric bearings, and new shear connectors will be field welded shall be cleaned and painted in accordance with Section 807. Any portion of the top flange that will not be exposed to the atmosphere in the final structure and is left bare during construction operations shall receive a single prime coat in accordance with Section 807 before the new slab is poured.

All structural steel to be painted in accordance with Subsection 807.75 shall receive its final urethane coat and shall have a minimum of 72 hours of dry time prior to applying calcium sulfonate paint to the existing structural steel, unless otherwise directed by the Engineer.

The elastomeric bearing pads shall be protected against overspray.

REMOVAL OF EXISTING DECK:
Care shall be exercised during the removal of the existing deck to ensure that the existing paint system and the existing structural steel, including shear connectors, are not damaged. Damaged items that are not salvageable, as determined by the Engineer, shall be replaced at the Contractor's expense.

The deck removal shall progress in a manner that will ensure the stability of the existing structure. The concrete deck in the end spans shall not be removed before the deck in the interior spans over I-49 have been removed.

The existing concrete deck shall be completely removed to the top flange of the existing beams. The portions of the top flange that will be embedded in new concrete shall be cleaned and free of laitance and protected until the new deck is placed for the respective Stage of Construction. This work will not be paid for directly but will be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05949)".

METHOD OF WORK:
The Contractor shall remove portions of the existing deck in Stages as shown in "Details of Stage Construction" Dwg. No. 55654. After Stage 1 Construction of all bents has been performed to the satisfaction of the Engineer, the Contractor shall loosen the diaphragm and end strut bolts adjacent to Beam No. 8, as shown in the plans, to facilitate the installation of new elastomeric bearings. After all new bearings have been installed, the existing diaphragms and end struts shall be reconnected with new bolts, nuts and washers at Beam 8. For Stage 2, the Contractor shall remove the remaining portion of the existing deck, construct all bents, loosen the diaphragm and end strut bolts adjacent to Bent 7, and raise the remaining existing beams to facilitate installation of the new elastomeric bearings. This work will not be paid for directly but will be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05949)".

The existing structural steel, except top of beam flanges embedded in concrete, shall be cleaned and painted upon completion of all required modifications and deferred until the adjoining concrete work has been placed and finished. The existing structural steel shall be cleaned and painted in accordance with Special Provision Job No. BB0902 "Cleaning and Painting Existing Structural Steel" and "Calcium Sulfonate Paint".

All applicable provisions of Section 807, as determined by the Engineer, shall be followed. See Special Provision Job No. BB0902 "Special Safety Requirements for Bridges" for additional information.

The Contractor may submit an alternate Method of Work. The plan shall be submitted to the Engineer for information and record keeping purposed at least three weeks prior to any work being performed. The submittal shall be prepared and/or approved by an Arkansas Professional Engineer and shall include sufficient details and information to the Engineer's satisfaction. The Contractor shall be responsible for the results obtained by the use the alternate Method of Work. All work, materials, and labor required for the Contractor to develop and execute the plan will not be paid directly but will be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05949)".

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	103	184
				1	05949	SPAN DETAILS		55673

TABLE OF DEAD LOAD DEFLECTIONS - INCHES

Span	Point of Deflection	BEAM NO. 1, 2, 11 & 12						BEAM NO. 3 - 10	
		Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet + Sidewalk		Structural Steel	Structural Steel + Slab
		Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Interior
1	0	0	0	0	0	0	0	0	0
	0.1	0.008	0.008	0.029	0.029	0.048	0.048	0.007	0.05
	0.2	0.013	0.013	0.05	0.05	0.084	0.084	0.012	0.088
	0.3	0.014	0.014	0.058	0.058	0.1	0.1	0.013	0.105
	0.4	0.012	0.012	0.053	0.053	0.092	0.093	0.01	0.099
	0.5	0.005	0.005	0.034	0.035	0.063	0.064	0.005	0.073
	0.6	-0.003	-0.003	0.008	0.008	0.019	0.019	-0.004	0.03
	0.7	-0.012	-0.012	-0.02	-0.021	-0.029	-0.029	-0.011	-0.016
	0.8	-0.017	-0.017	-0.04	-0.04	-0.064	-0.064	-0.016	-0.051
	0.9	-0.015	-0.015	-0.039	-0.039	-0.064	-0.064	-0.014	-0.055
2	0	0	0	0	0	0	0	0	0
	0.1	0.061	0.061	0.172	0.173	0.291	0.292	0.057	0.258
	0.2	0.141	0.141	0.402	0.404	0.676	0.678	0.129	0.598
	0.3	0.213	0.213	0.608	0.611	1.018	1.021	0.193	0.901
	0.4	0.258	0.258	0.737	0.74	1.232	1.235	0.231	1.088
	0.5	0.267	0.267	0.761	0.765	1.273	1.276	0.238	1.123
	0.6	0.238	0.238	0.676	0.679	1.134	1.137	0.21	0.999
	0.7	0.179	0.179	0.503	0.506	0.847	0.849	0.156	0.745
	0.8	0.103	0.103	0.284	0.285	0.48	0.482	0.089	0.425
	0.9	0.033	0.033	0.086	0.086	0.145	0.145	0.027	0.133
3	0	0	0	0	0	0	0	0	0
	0.1	0.028	0.028	0.099	0.1	0.174	0.175	0.028	0.13
	0.2	0.095	0.095	0.313	0.314	0.54	0.542	0.09	0.419
	0.3	0.17	0.17	0.549	0.551	0.939	0.941	0.158	0.737
	0.4	0.231	0.231	0.738	0.741	1.252	1.256	0.211	0.987
	0.5	0.262	0.262	0.831	0.835	1.405	1.41	0.237	1.109
	0.6	0.256	0.256	0.807	0.811	1.362	1.367	0.23	1.075
	0.7	0.213	0.213	0.669	0.672	1.13	1.134	0.19	0.889
	0.8	0.142	0.142	0.446	0.448	0.758	0.76	0.127	0.593
	0.9	0.063	0.063	0.197	0.197	0.334	0.335	0.056	0.261
4	0	0	0	0	0	0	0	0	0
	0.1	-0.016	-0.016	-0.049	-0.049	-0.082	-0.082	-0.014	-0.065
	0.2	-0.022	-0.022	-0.069	-0.07	-0.117	-0.117	-0.02	-0.093
	0.3	-0.023	-0.023	-0.072	-0.072	-0.119	-0.119	-0.02	-0.095
	0.4	-0.02	-0.02	-0.062	-0.062	-0.102	-0.102	-0.018	-0.083
	0.5	-0.015	-0.015	-0.047	-0.047	-0.076	-0.076	-0.014	-0.064
	0.6	-0.01	-0.01	-0.031	-0.031	-0.05	-0.05	-0.009	-0.042
	0.7	-0.006	-0.006	-0.018	-0.018	-0.028	-0.028	-0.005	-0.024
	0.8	-0.003	-0.003	-0.009	-0.009	-0.013	-0.013	-0.003	-0.012
	0.9	-0.001	-0.001	-0.003	-0.003	-0.004	-0.004	-0.001	-0.004
	0	0	0	0	0	0	0	0	0

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

Dead Load Deflections based on use of removable forms.

Revision to the "Table of Dead Load Deflections" may be necessary upon review of the Contractor's submitted forming details.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/9/14

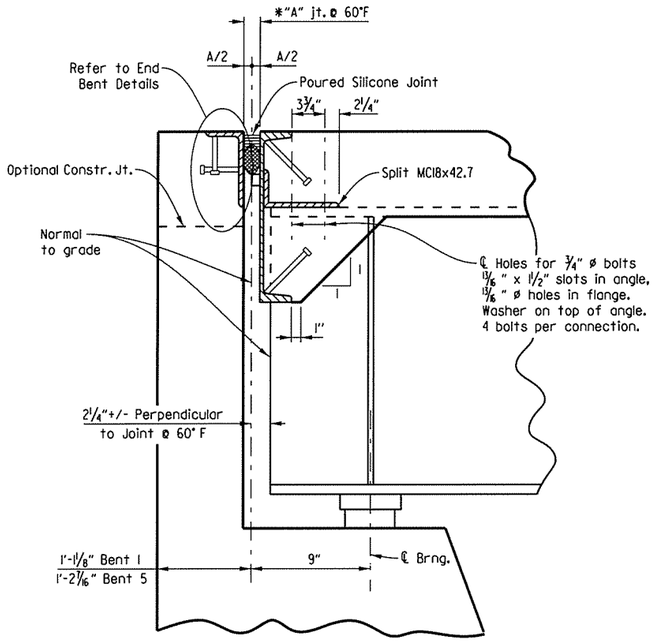
SHEET 8 OF 11
264'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-12-13 FILENAME: bbb0902_s8.dgn
CHECKED BY: JKJ DATE: 06-13-13 SCALE: NOT TO SCALE
DESIGNED BY: CAW DATE: 05-07-13
BRIDGE NO. 05949 DRAWING NO. 55673

USER: tr594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_s8.dgn
PLOTTED: 10/9/2014 16:17
SCALE: 2\:333333\'

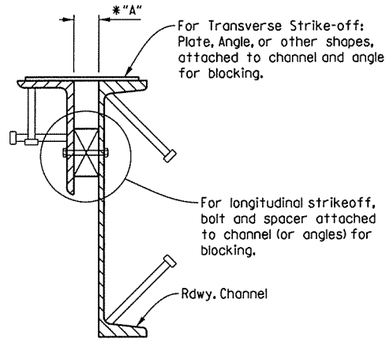
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	104	184
				(1) 05949		SPAN DETAILS		55674



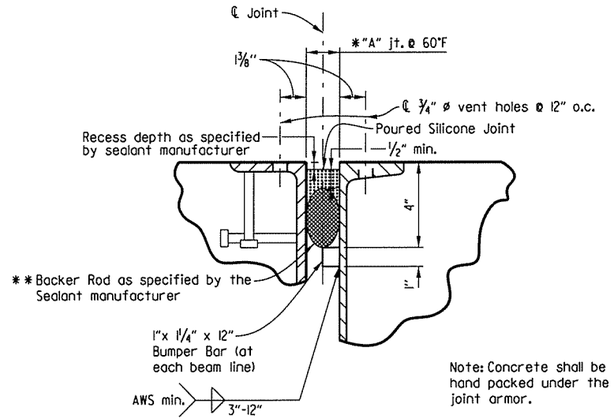
Note: The ℄ of Jt. is normal to profile grade line to match the existing bridge. See Dwg. No. 25008 for Bridge No. 5949.

SECTION THRU JOINT AT END BENTS
N.T.S.



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator and the blocking details shall be shown on the Shop Drawings. Blocking shall not be removed until the slab is complete. 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
N.T.S.



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

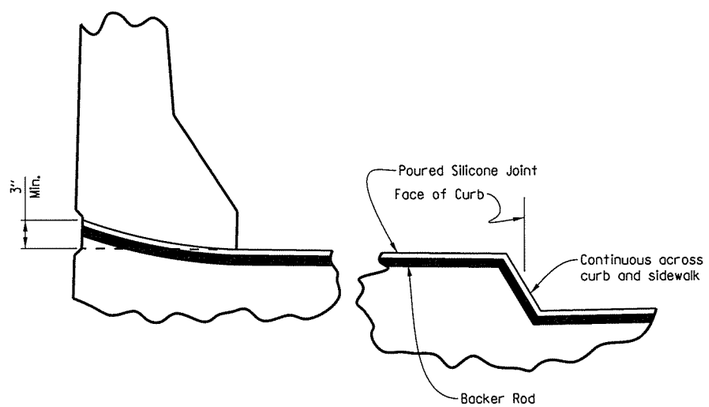
DETAIL OF POURED SILICONE JOINT
N.T.S.

* Installation is limited to 40° F min. and 80° F max. See table of Joint Erection Dimensions for installation temperatures other than 60° F.

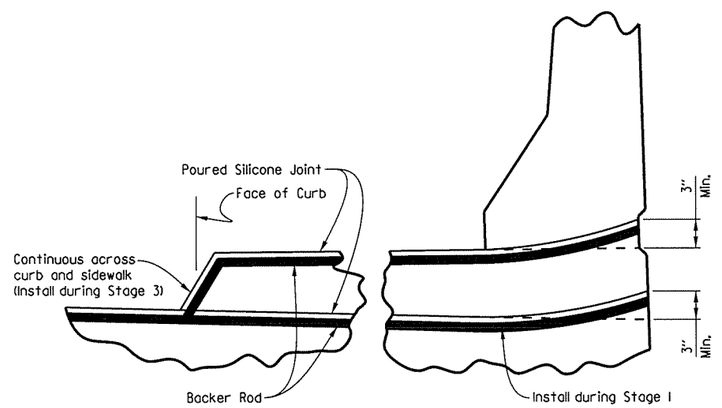
** The Backer Rod shall not exceed the dimensions recommended by the manufacturer. The Contractor shall verify separation of the backer rod from the joint material after joint material has set.

JOINT ERECTION DIMENSIONS

"A" Width perpendicular to joint at 24 hour average temperature of:			
Bent No.	40° F	60° F	80° F
1	2 7/16"	2¼"	2 1/16"
5	2 7/16"	2¼"	2 1/16"



JOINT SEAL PLACEMENT AT LEFT CURB
1½" = 1'-0"



JOINT SEAL PLACEMENT AT RIGHT CURB
1½" = 1'-0"

EXPANSION DEVICE INSTALLATION

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

1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the 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.

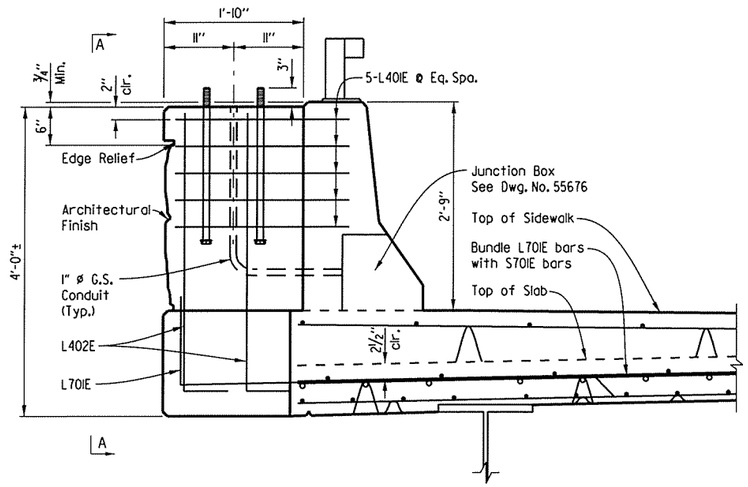
2) The backwall shall be poured to the optional construction joint after beams are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/09/14

SHEET 9 OF 11
264'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-12-13 FILENAME: bbb0902_s9.dgn
CHECKED BY: JKJ DATE: 06-13-13 SCALE: SEE DETAILS
DESIGNED BY: CAW DATE: 05-07-13
BRIDGE NO. 05949 DRAWING NO. 55674

USER: lr594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_s9.dgn
PLOTTED: 10/9/2014 16:17 SCALE: 1.333333



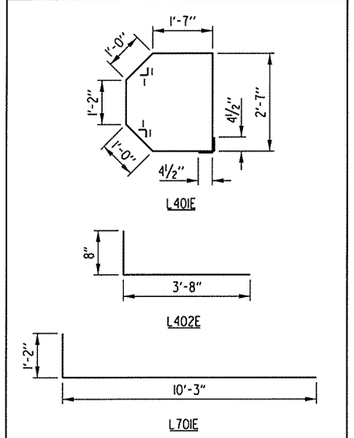
SECTION THRU PARAPET & SLAB AT LIGHT POLE SUPPORT

Note: For details of Architectural Finish, See Dwg. No. 55671

BAR LIST - ONE LIGHT POLE SUPPORT

Mark	No. Req'd.	Length	Pin Dia.
L401E	5	9'-3"	2"
L402E	4	4'-3"	3"
L701E	5	11'-3"	5 1/4"

Bending Diagram
Dimensions are out to out of bars.



GENERAL NOTES

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

All Reinforcing Steel shall be Grade 60 (fy = 60,000 psi) AASHTO M 31 or M 322, Type A with mill test reports.

Architectural Finish shall be applied to the exposed sides of the Light Pole Support. Class 3 Textured Coating Finish shall be applied to the exposed sides of the Light Pole Support. Class 2 Protective Surface Treatment shall be applied to the top of Light Pole Support.

Anchor bolts, nuts, and washers shall conform to Subsection 807.07. Anchor bolts shall be Grade 55.

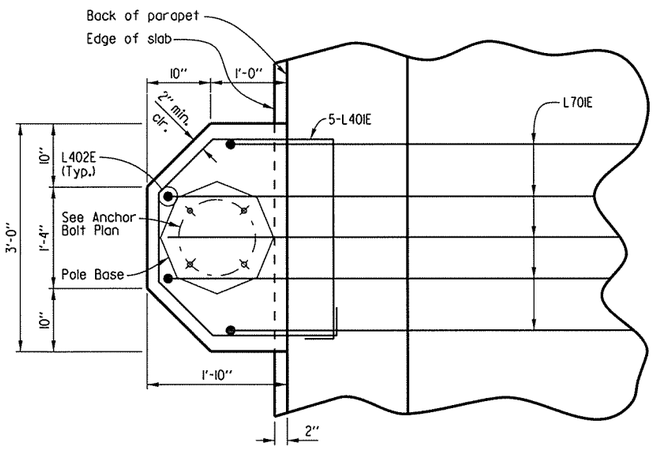
Anchor bolt assemblies, nuts, and voids shall be furnished and installed by the Contractor. The Contractor shall verify the anchor bolt spacings shown on the plans are correct for the light poles that will be furnished by the light pole supplier.

The Contractor shall coordinate the installation of the lighting conduit with the installation of the electrical cable and light poles. The Contractor shall provide access to the junction boxes, including any work platform necessary for their access.

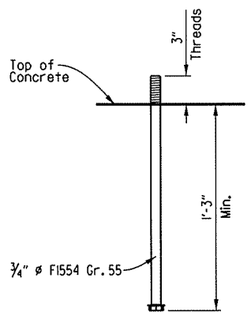
The Contractor shall furnish and install 1" galvanized steel conduit as shown on the plans. The conduit shall be cast into the bottom of the parapet. See Dwg. No. 55676. The conduit, fittings and miscellaneous hardware shall conform to Section 709 of the Standard Specifications. The Contractor shall provide pull wires in the Galvanized Steel (G.S.) conduit during installation.

See Rdwy. plans and Special Provision Job No. BB0902 "Lighting" for information on lighting details not covered on this sheet.

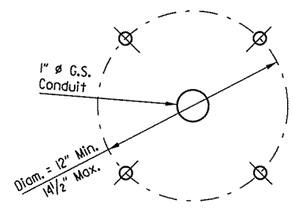
Payment for Class S(AE) Concrete, Reinforcing Steel, Architectural Finish, Class 3 Textured Coating Finish, and Class 2 Protective Surface Treatment shall be made under their respective bid items. Payment for Lighting items shown on the plans, including anchor bolts, anchor plates, nuts, washers, galvanized steel conduit, junction boxes, expansion fittings, and for all materials, labor, equipment, tools, and incidentals necessary to complete the work shall not be paid for directly, but shall be considered subsidiary to other bid items.



LIGHT POLE SUPPORT AT PARAPET PLAN

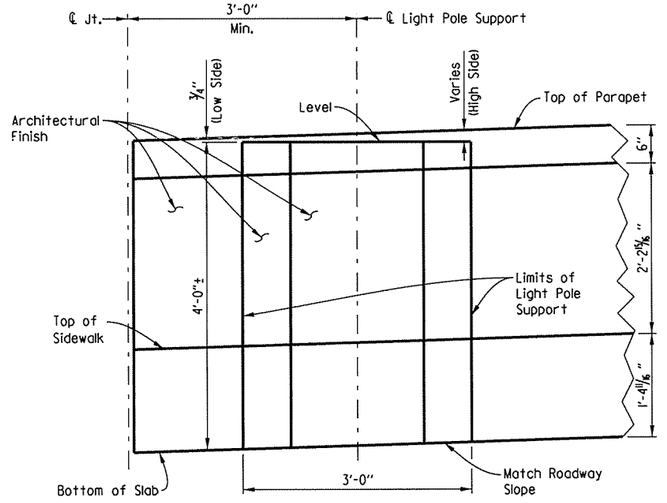


ANCHOR BOLT ELEVATION
(4 bolts per Light Pole)



ANCHOR BOLT PLAN
(6 Light Poles per Bridge)

Note: Contractor shall verify the bolt circle diameter matches the light pole base prior to installing anchor bolts. The light pole base shall not hang over the face of the light standard support.



LIGHT POLE SUPPORT ELEVATION
(Looking at Outside Face)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF

10/9/14

SHEET 10 OF 11
264'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 29
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-12-13
CHECKED BY: JKJ DATE: 06-13-13
DESIGNED BY: CAW DATE: 05-07-13
FILENAME: bbb0902_sl0.dgn
SCALE: NOT TO SCALE

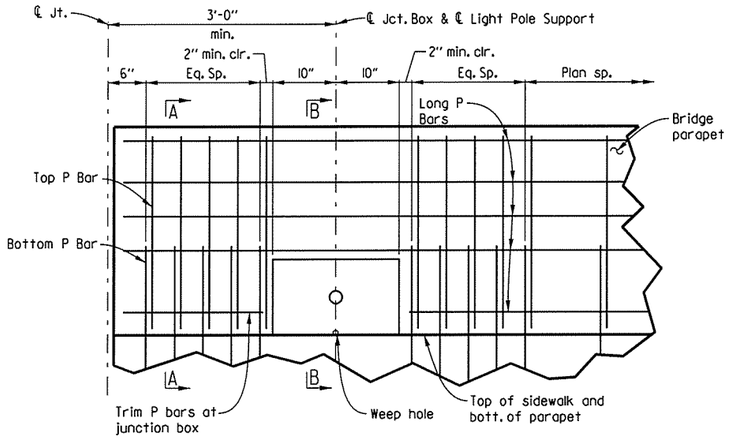
BRIDGE NO. 05949 DRAWING NO. 55675

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	105	184
				(1) 05949		SPAN DETAILS		55675

Crafton, Tull & Associates Inc.

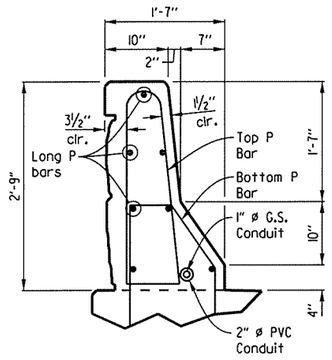
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	106	184
				(1) 05949		SPAN DETAILS		55676



REINFORCEMENT DETAILS FOR JUNCTION BOXES AT BRIDGE ENDS

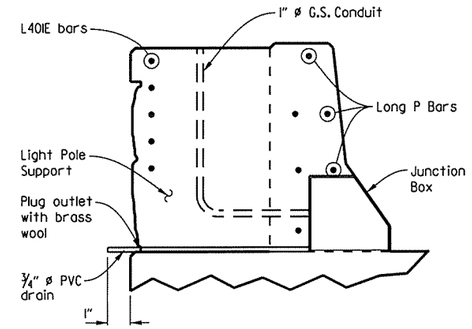
No Scale

Note: Conduit not shown for clarity. When parapet reinforcing conflicts with junction boxes, relocate as shown above.



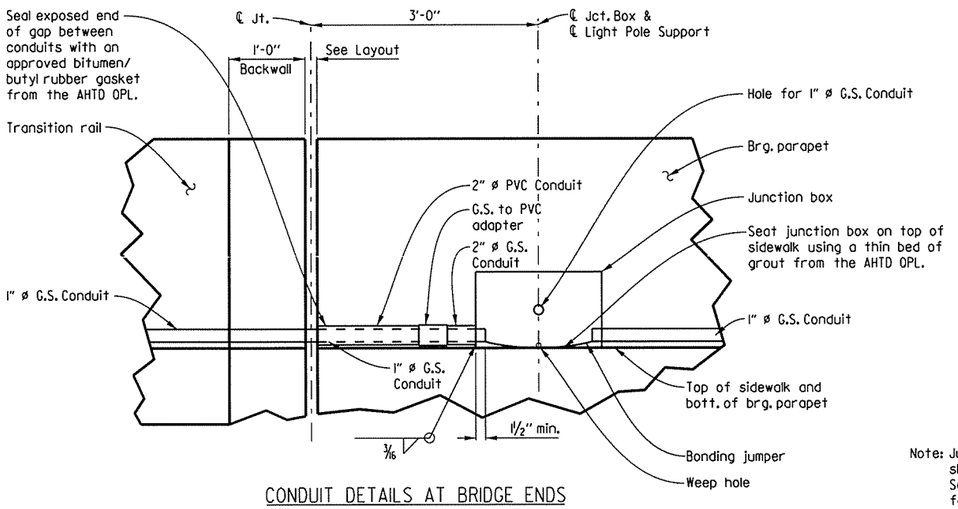
SECTION A-A

No Scale



SECTION B-B

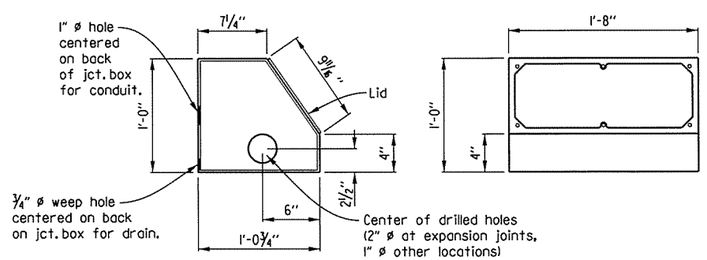
No Scale



CONDUIT DETAILS AT BRIDGE ENDS

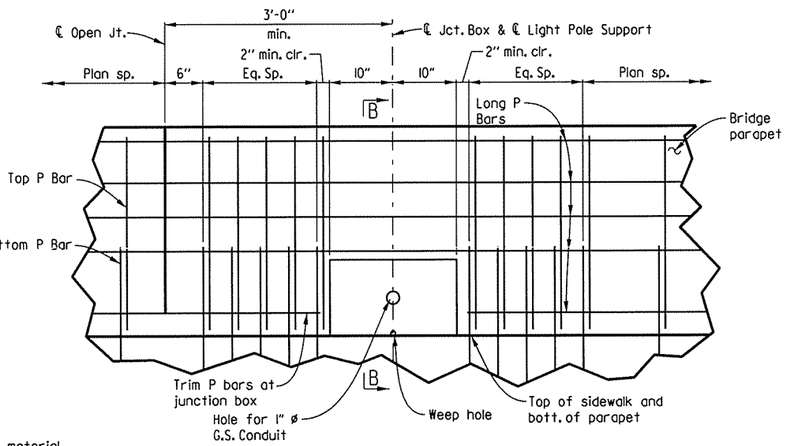
No Scale

Note: Reinforcement not shown for clarity. Place conduit below parapet open joint.



JUNCTION BOX DETAILS (PARAPET)

No Scale



Note: Junction Box material shall be ¼" M270, Gr. 36 steel. Lid material shall be ⅜" A36 steel. Fasteners shall be ⅝" ø x ¾" S.S. FH Socket Screws. Weld per AHTD Std. Spec. Hot dip galvanize after fabrication per AASHTO M 111. Prefabricated Junction Boxes may be substituted by the Contractor if approved by the Engineer. The junction boxes shall be adequately anchored to the parapet by means of an approved mechanical device. Junction Boxes shall not interfere with expansion joints.

Payment for Lighting items shown on the plans, including anchor bolts, anchor plates, nuts, washers, galvanized steel conduit, junction boxes, expansion fittings, and for all materials, labor, equipment, tools, and incidentals necessary to complete the work shall not be paid for directly, but shall be considered subsidiary to other bid items.

REINFORCEMENT DETAILS FOR JUNCTION BOXES AT INTERIOR BENTS

No Scale

Note: Conduit not shown for clarity. When parapet reinforcing conflicts with junction boxes, relocate as shown above.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/09/14

SHEET 11 OF 11

264'-0" CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE 49 SEC. 29

ARKANSAS STATE HIGHWAY COMMISSION

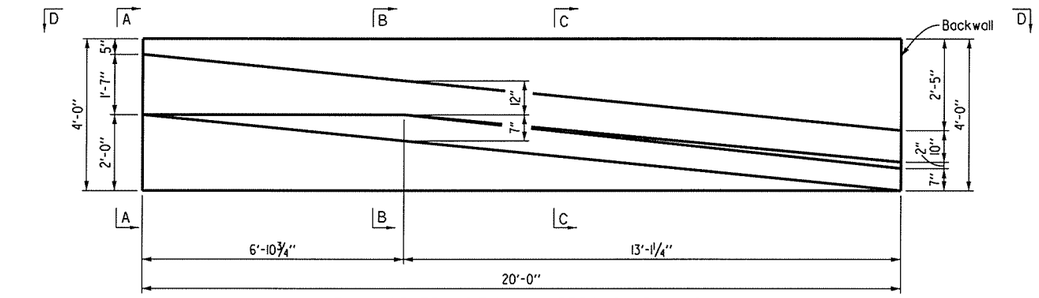
LITTLE ROCK, ARK.

DRAWN BY:	BWC	DATE:	06-12-13	FILENAME:	bbb0902_sll.dgn
CHECKED BY:	JKJ	DATE:	06-13-13	SCALE:	NOT TO SCALE
DESIGNED BY:	CAW	DATE:	05-07-13		

BRIDGE NO. 05949 DRAWING NO. 55676

USER: lr594
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\bridge\bbb0902_sll.dgn SCALE: 2:1
PLOTTED: 10/9/2014 16:17

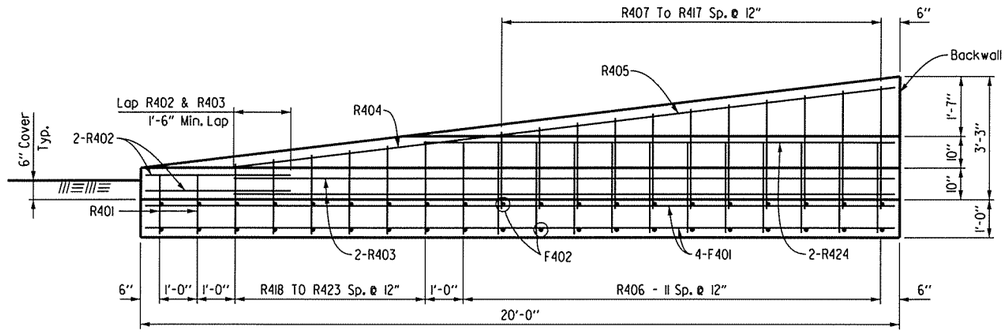
Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		BB0902	107	184
					(1) 05949		TRANS. APPR. RAIL		55677



PLAN OF TRANSITIONAL APPROACH RAILING

Note: Railings on opposite side are opposite hand to each other.

Scale: ½" = 1'-0"



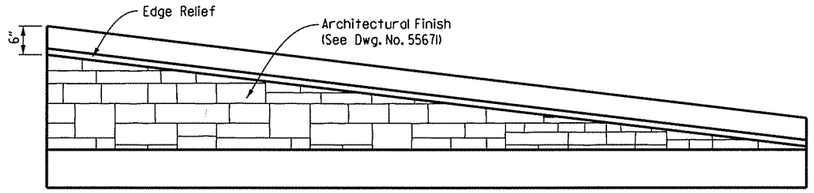
ELEVATION OF TRANSITIONAL APPROACH RAILING

Scale: ½" = 1'-0"

FOR INFORMATION ONLY

SCHEDULE OF QUANTITIES PER RAIL UNIT

Class "S(AE)" Concrete	Reinforcing Steel (Grade 60)	Class 2 Protective Surface Treatment
4.8 Cu. Yds.	420 Lbs.	10 sq. yd.



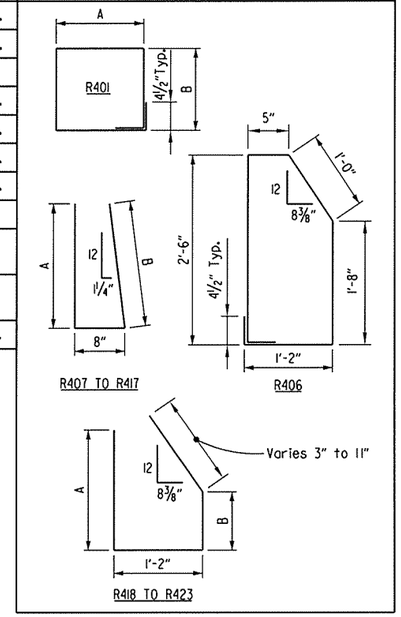
VIEW D - D

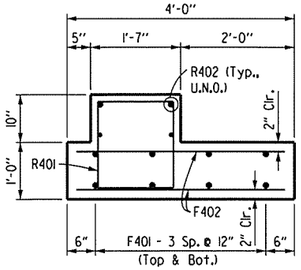
Scale: ½" = 1'-0"

BAR LIST - ONE TRANSITIONAL RAIL

Mark	No. Req'd.	Length	A	B	Pin Dia.
F401	8	19'-8"			Str.
F402	40	3'-8"			Str.
R401	2	5'-8"	1'-2"	1'-6"	2"
R402	4	4'-0"			Str.
R403	4	17'-10"			Str.
R404	2	4'-6"			Str.
R405	2	13'-0"			Str.
R406	12	7'-2"			2"
R407 to R417	1 Ea.	3'-5" to 6'-7"	1'-5" to 3'-0"	1'-5½" to 3'-0½"	2"
R418 to R423	1 Ea.	4'-5" to 5'-11"	1'-6½" to 2'-5"	1'-6½"	2"
R424	2	12'-11"			Str.

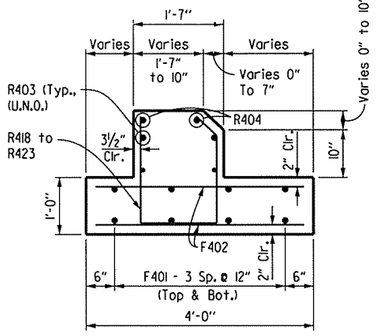
Bending Diagram
Dimensions Are Out To Out Of Bars.





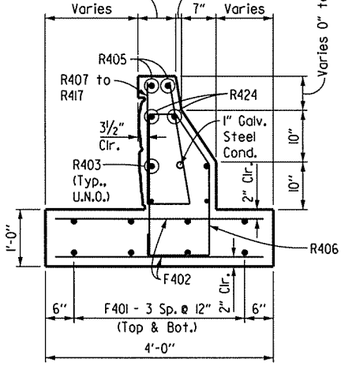
VIEW A - A

¾" = 1'-0"



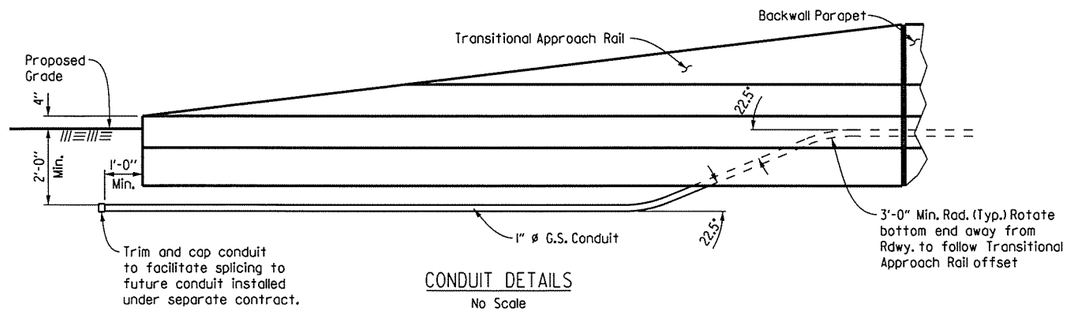
SECTION B - B

¾" = 1'-0"



SECTION C - C

¾" = 1'-0"



CONDUIT DETAILS

No Scale

GENERAL NOTES

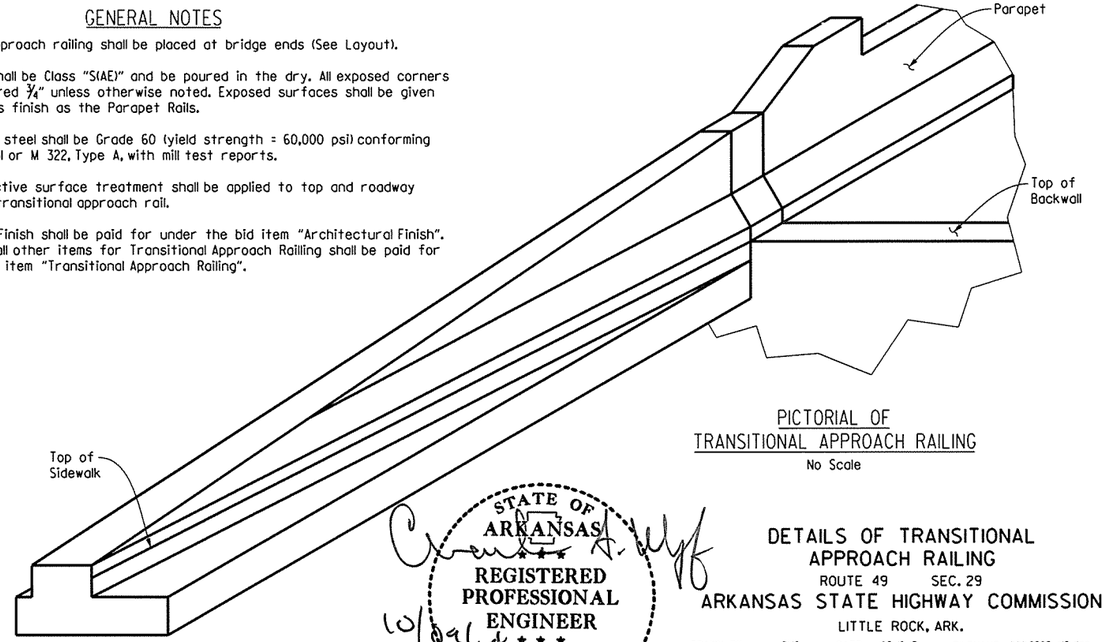
Transitional approach railing shall be placed at bridge ends (See Layout).

All concrete shall be Class "S(AE)" and be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted. Exposed surfaces shall be given the same Class finish as the Parapet Rails.

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.

Class 2 protective surface treatment shall be applied to top and roadway face of the transitional approach rail.

Architectural Finish shall be paid for under the bid item "Architectural Finish". Payment for all other items for Transitional Approach Railing shall be paid for under the bid item "Transitional Approach Railing".



PICTORIAL OF TRANSITIONAL APPROACH RAILING

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
10/9/14

DETAILS OF TRANSITIONAL APPROACH RAILING

ROUTE 49 SEC. 29

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-12-13 FILENAME: bbb0902_sl2.dgn

CHECKED BY: JKJ DATE: 06-13-13 SCALE: SEE DETAILS

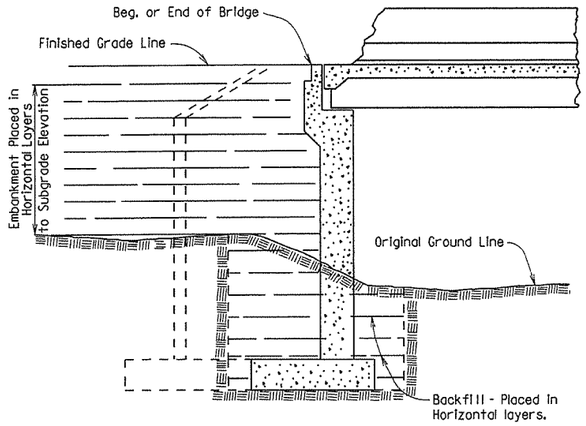
DESIGNED BY: CAW DATE: 05-07-13

BRIDGE NO. 05949 DRAWING NO. 55677

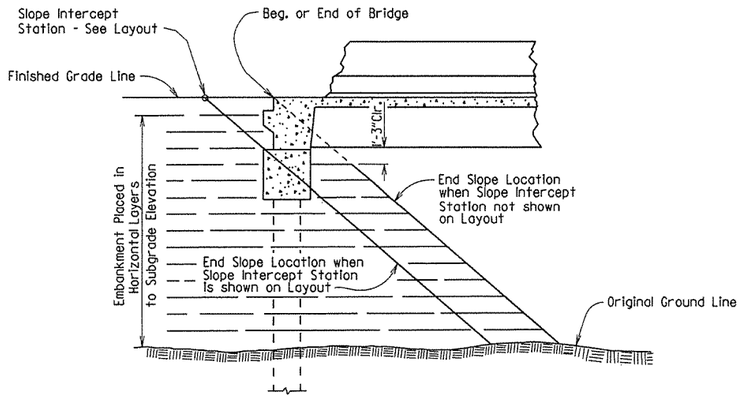
USER: lr594
DESIGN FILE: G:\1210330l_Hwy264\TRANSP\dgn\bridge\bbb0902_sl2.dgn
PLOTTED: 10/9/2014 16:17
SCALE: 4:1

G:\1210330l_Hwy264\TRANSP\dgn\bridge\bbb0902_sl2.dgn 10/9/2014 16:17

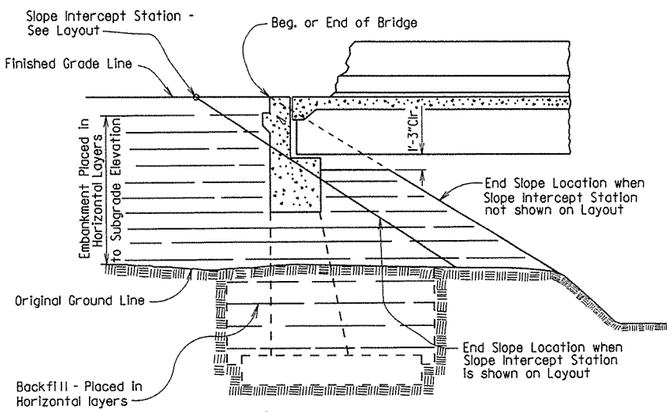
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		109	
				JOB NO.				
				①	EMBANKMENT & BACKFILL		55000	



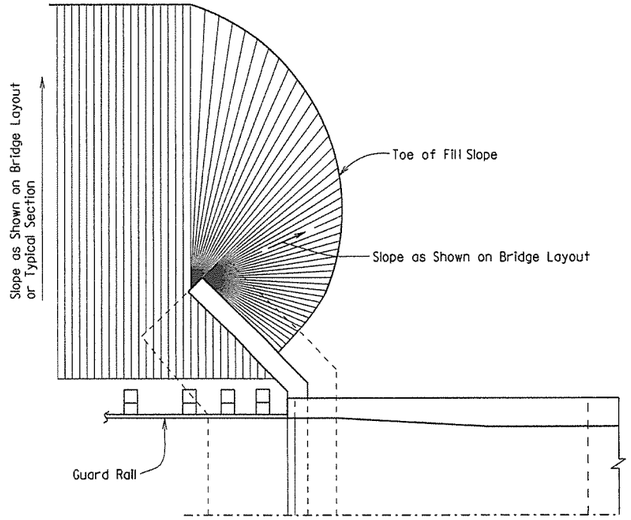
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



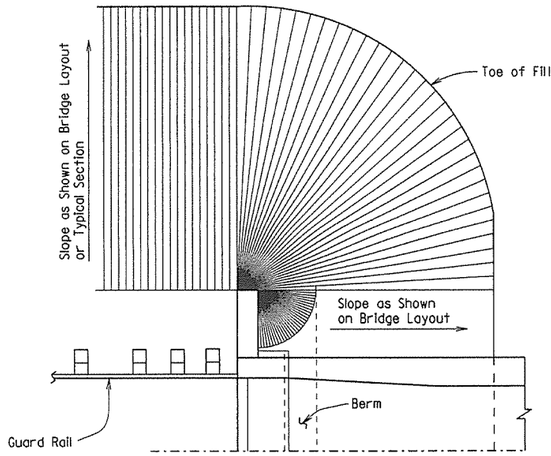
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



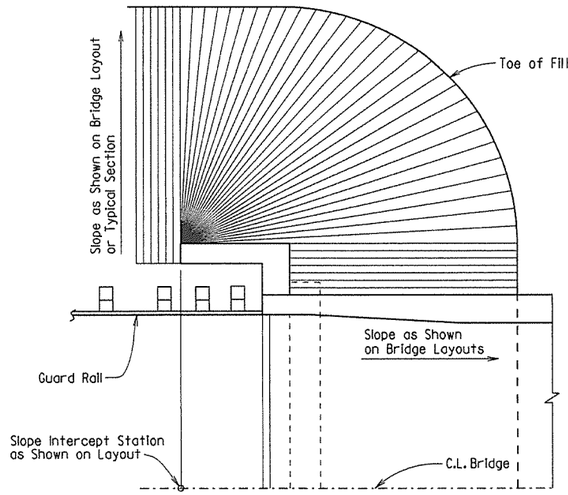
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



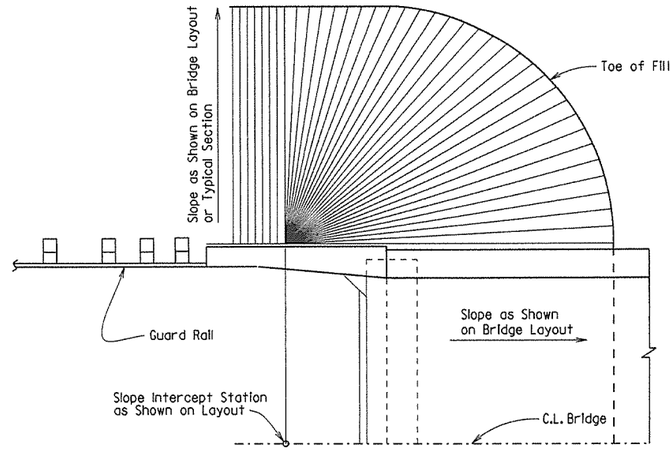
VERTICAL WALL ABUTMENTS



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.

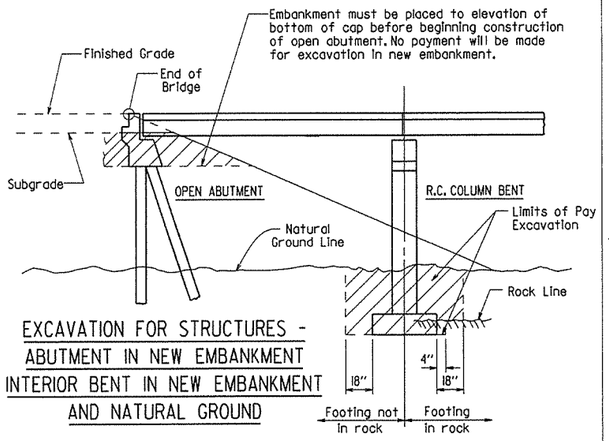
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

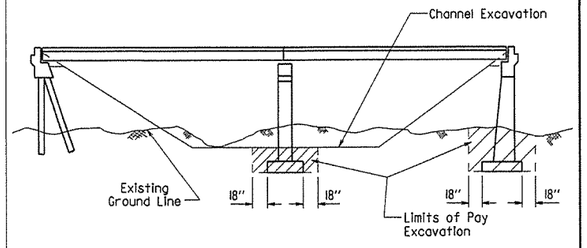
DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

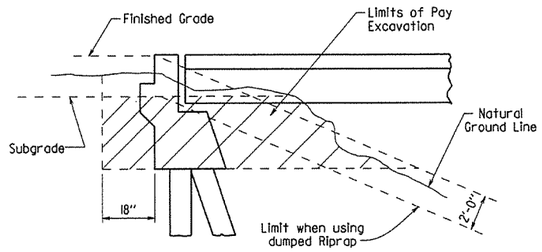
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		109	
				JOB NO.				
				①	RIPRAP & EXCAV. 55001			



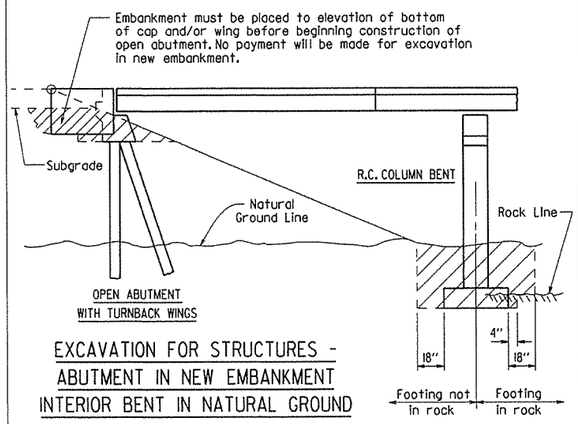
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



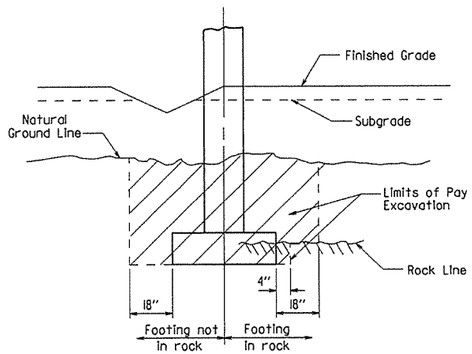
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



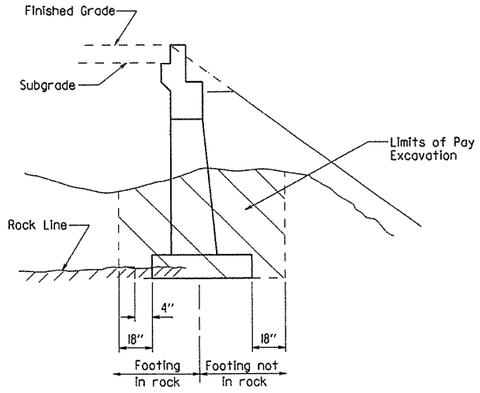
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



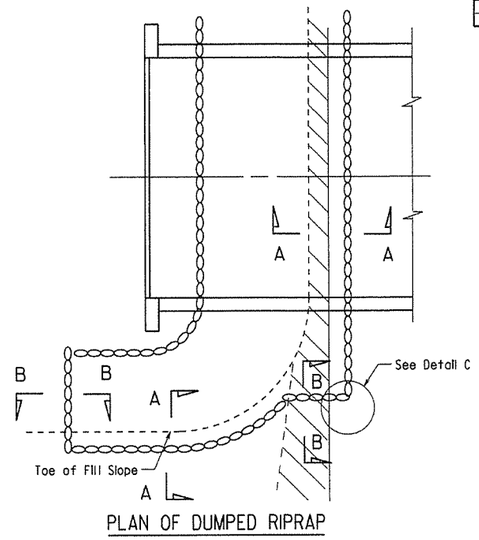
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



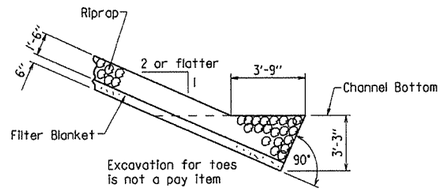
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

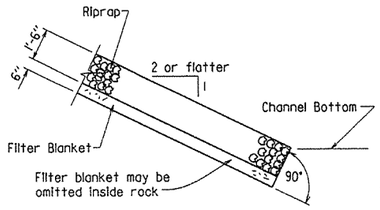


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



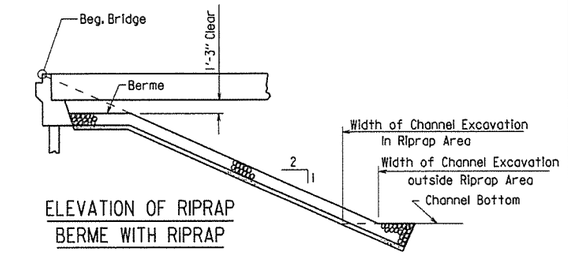
SECTION A-A

(Toe Excavation in Rock)

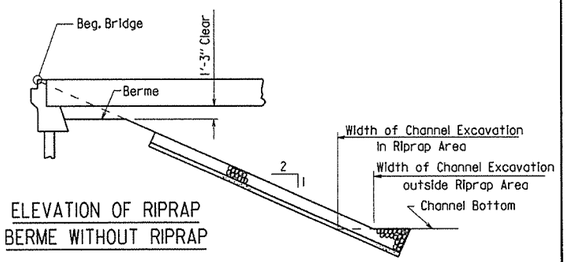
Note : Use this type of toe when rock is encountered which is in a stable condition.

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.

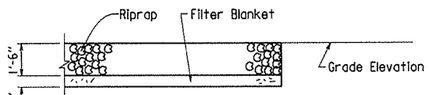
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



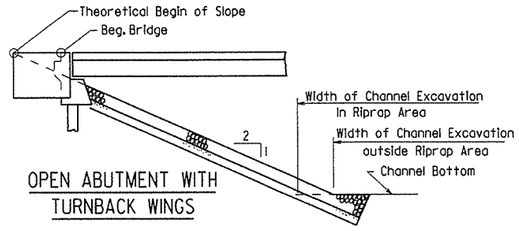
ELEVATION OF RIPRAP BERME WITH RIPRAP



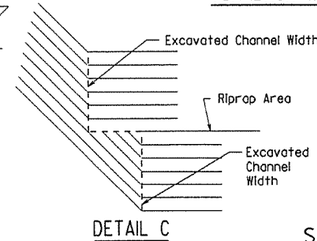
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



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

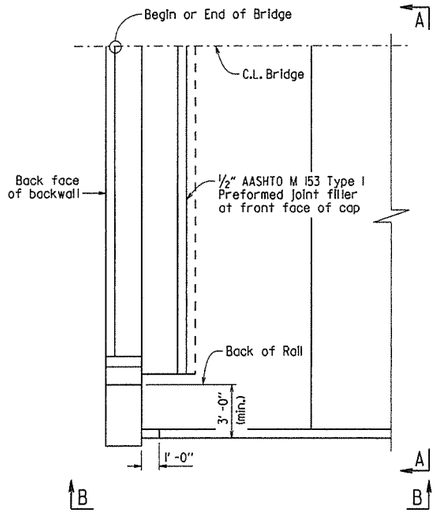
DESIGNED BY: STD. DATE:

DRAWING NO. 55001

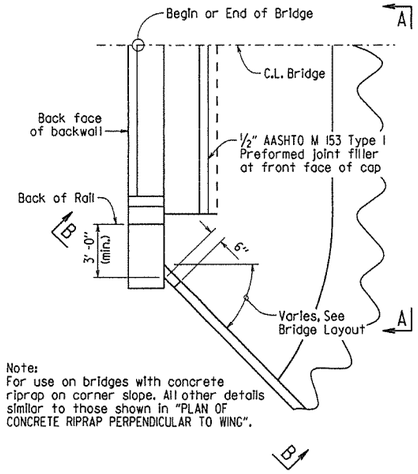
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		110	
				JOB NO.				

① CONCRETE RIPRAP 55002

Note:
Sloped surfaces of concrete riprap to be marked off into blocks (construction joints optional) with an approved grooving tool, spacing the grooved lines about 5' apart.



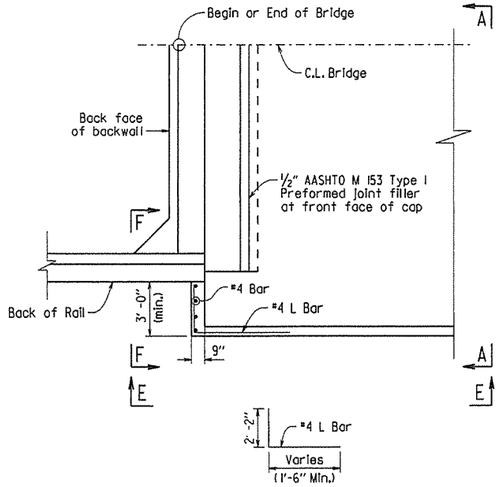
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO WING
¼" = 1'-0"



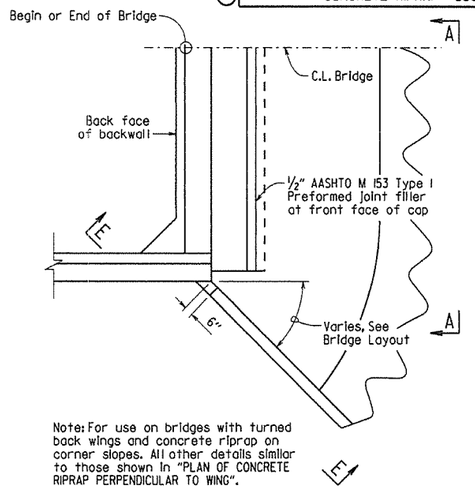
Note:
For use on bridges with concrete riprap on corner slope. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

PLAN OF CONCRETE RIPRAP
AT ANGLE TO WING
¼" = 1'-0"

Note:
For use on bridges with turned back wings. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".



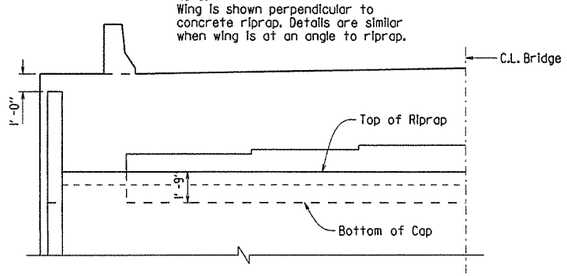
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO TURNED BACK WING
¼" = 1'-0"



Note: For use on bridges with turned back wings and concrete riprap on corner slopes. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

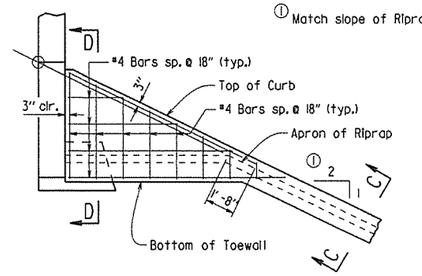
PLAN OF CONCRETE RIPRAP
AT ANGLE FROM TURNED BACK WING
¼" = 1'-0"

Note:
Wing is shown perpendicular to concrete riprap. Details are similar when wing is at an angle to riprap.

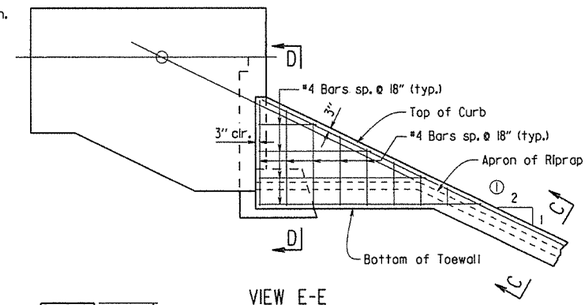


VIEW A-A
¼" = 1'-0"

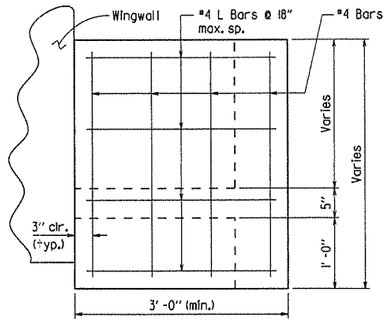
① Match slope of Riprap Apron.



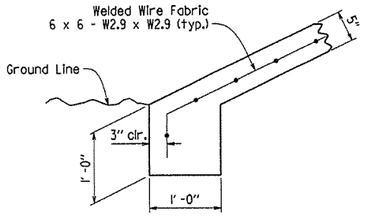
VIEW B-B
¼" = 1'-0"



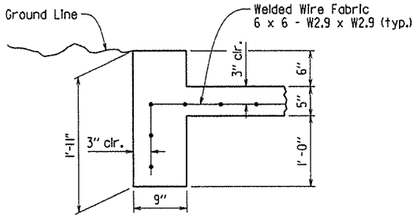
VIEW E-E
¼" = 1'-0"



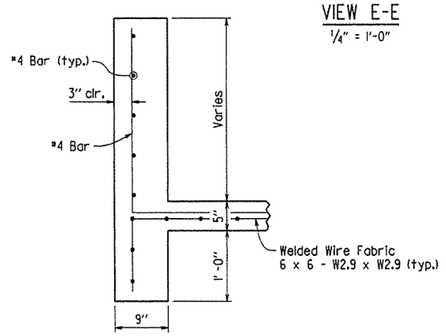
VIEW F-F
1" = 1'-0"



TOE OF CONCRETE RIPRAP
1" = 1'-0"



SECTION C-C
1" = 1'-0"



SECTION D-D
1" = 1'-0"

GENERAL NOTES

All concrete shall be Class A with a minimum compressive strength, f'c = 2,100 psi.

Welded wire fabric shall conform to AASHTO M55 or M221.

STANDARD DETAILS FOR CONCRETE RIPRAP

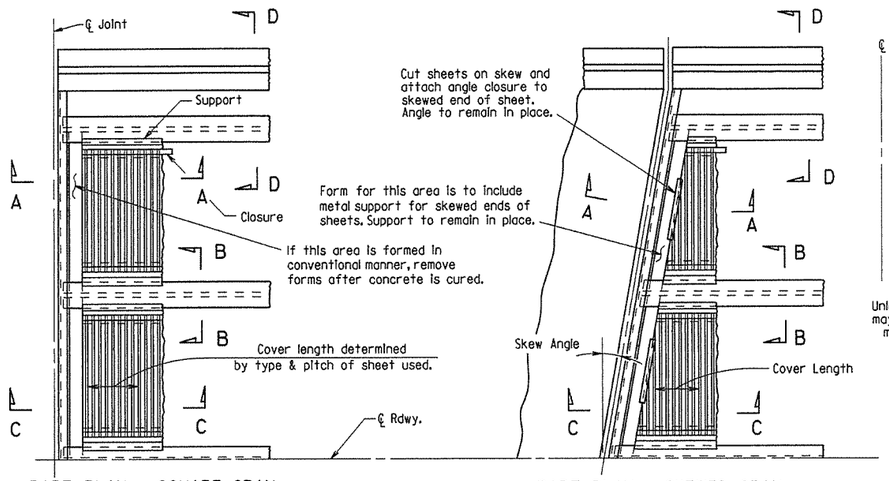
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 2/27/2014 FILENAME: b55002.dgn
CHECKED BY: BEF DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: Std. DATE: ---

DRAWING NO. 55002

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		111	
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

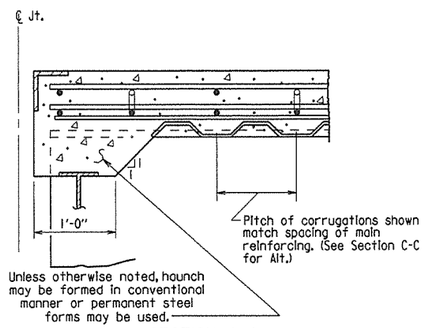


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

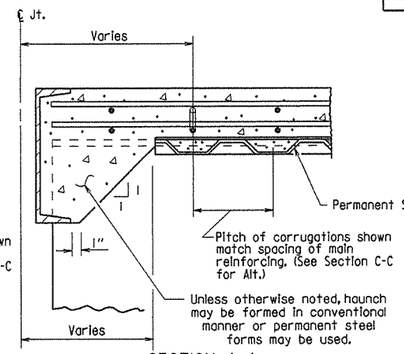
3/8" = 1'-0"



SECTION A-A

N.T.S.

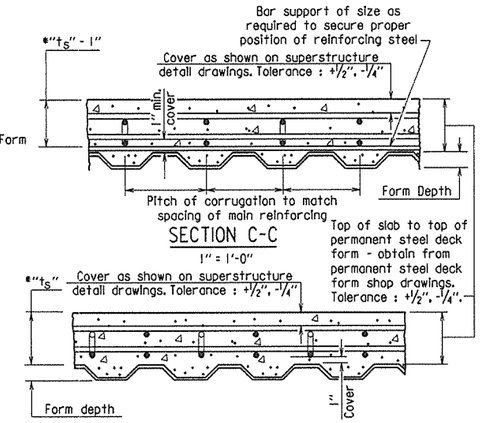
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



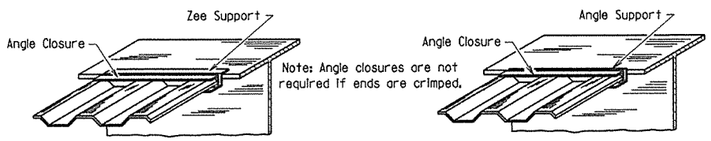
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

(Applicable when corrugations do not match spacing of main reinforcement)



Note: Angle closures are not required if ends are crimped.

SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

*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.

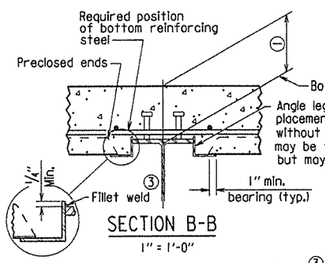
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

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.

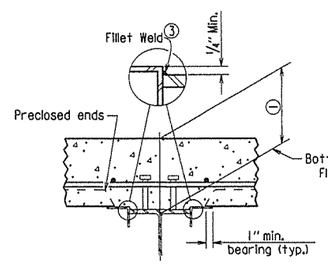


SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

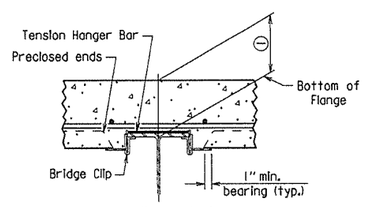
③ Minimum weld: 1/8" x 1' @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

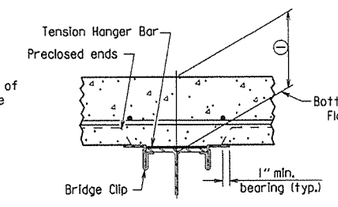
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

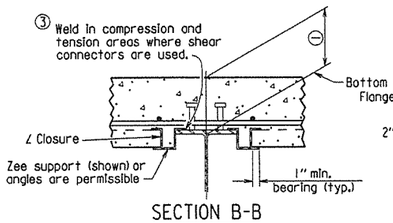
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

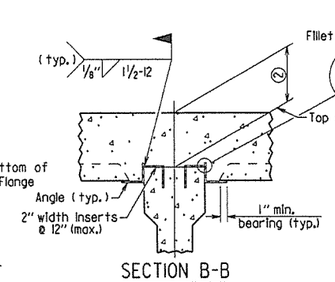
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

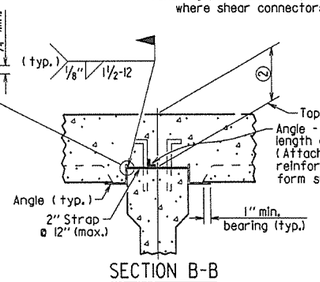


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

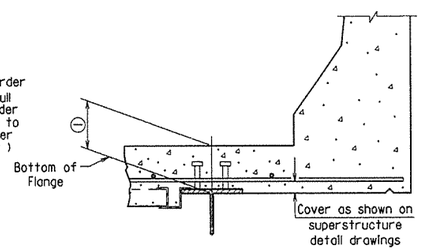


SECTION B-B

(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.

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

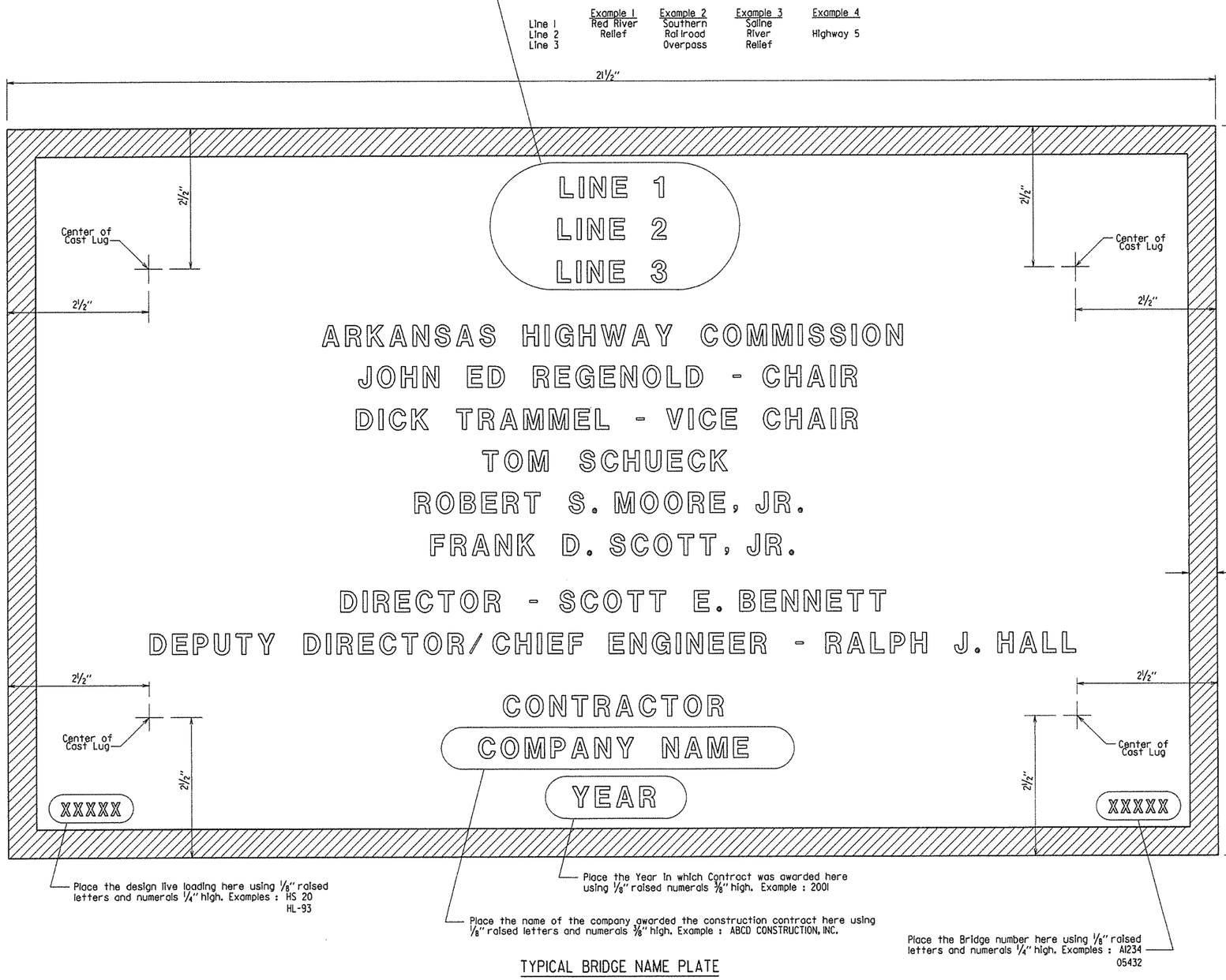
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		112	
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	



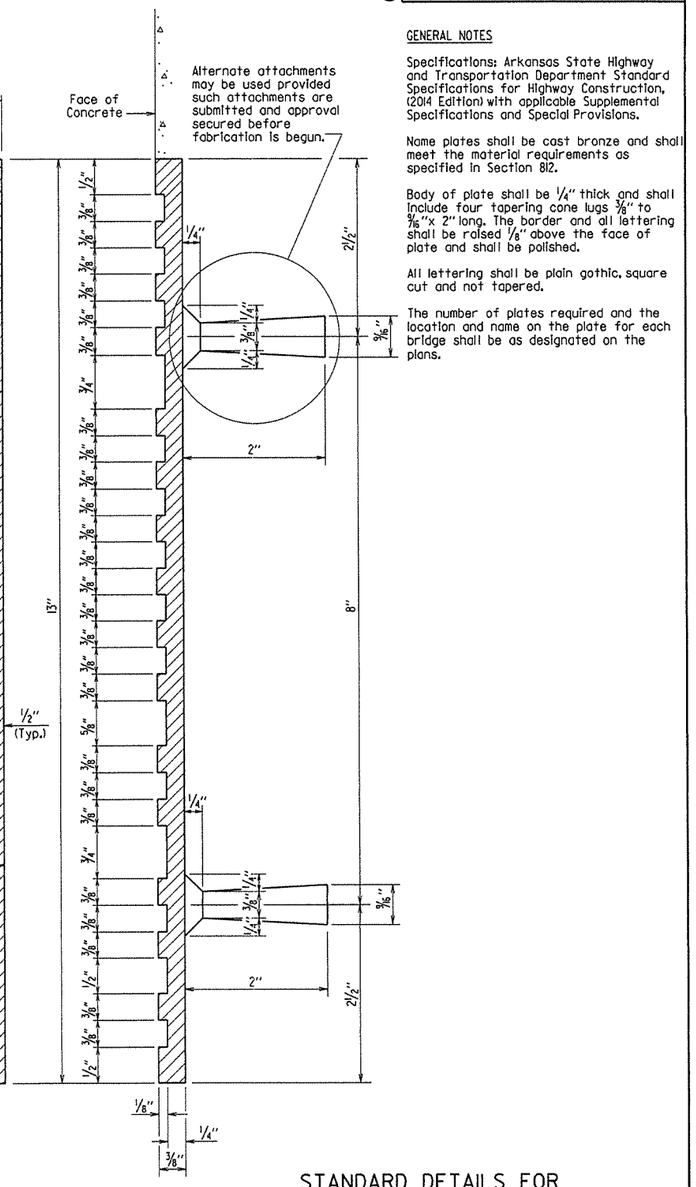
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20
HL-93

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example : 2001

Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example : ABCD CONSTRUCTION, INC.

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples : AI234
05432

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.		113	
				JOB NO.				
				①		STEEL H-PILES		55020

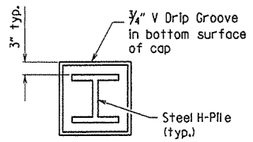
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

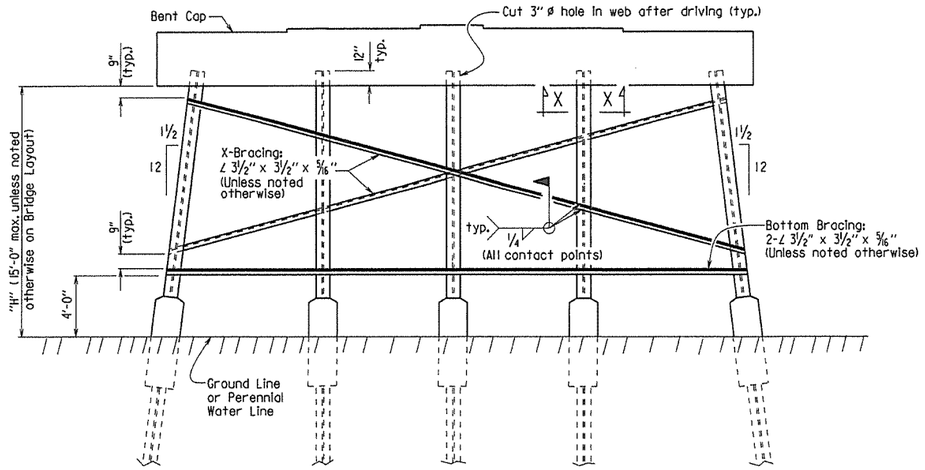
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.

Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



VIEW X-X



Notes:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under item 807.

Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.

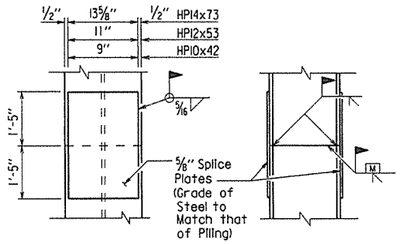
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.

Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)

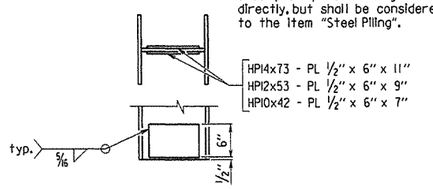


Note:
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

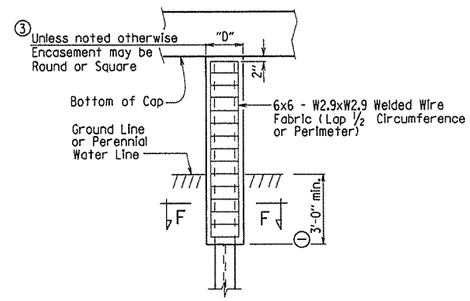
See Bridge Layout for additional notes and required location of pile encasements.

All concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

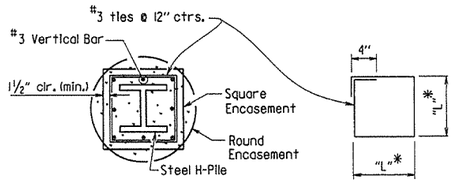
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

Concrete, welded wire fabric or reinforcing steel and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

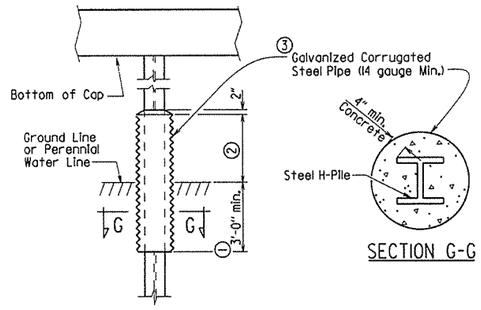


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D" Square Encsmt.	"D" Round Encsmt.	"L"*
HP10x42	1'-7"	2'-0"	1'-4"
HP12x53	1'-8"	2'-2"	1'-5"
HP14x73	1'-11"	2'-6"	1'-8"



SECTION G-G

⑤ ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1 ½" and a minimum clearance of 1 ¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

⑤ Alternate pile encasement may not be allowed. See Bridge Layout.

This document was originally issued and sealed by Carl J. Fuselier, PE No. 7510, on February 27, 2014. This copy is not a signed and sealed document.

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

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

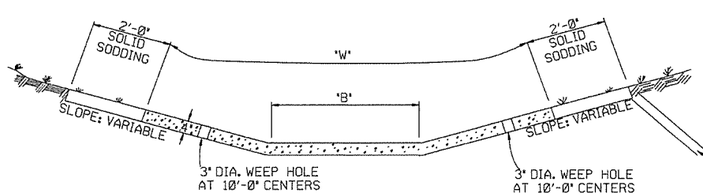
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55020

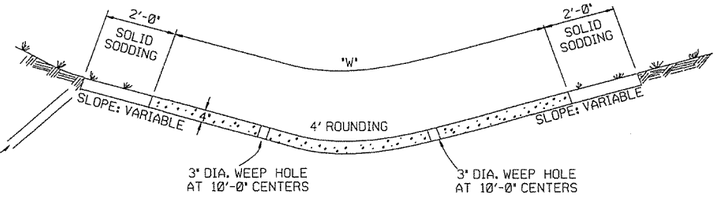
REFER TO TABULATION OF QUANTITIES FOR 'W' & 'B' DIMENSIONS



EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.

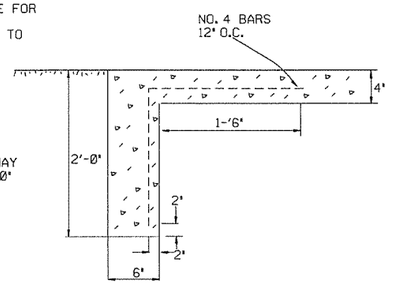
TYPE A

REFER TO TABULATION OF QUANTITIES FOR 'W' DIMENSIONS



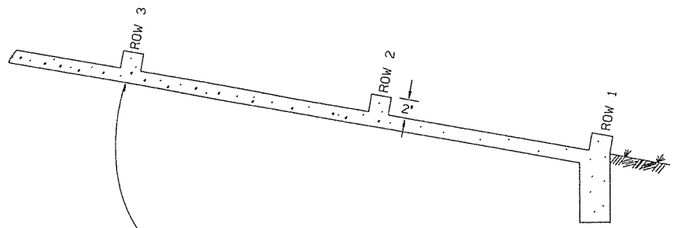
TYPE B

THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR 'CONCRETE DITCH PAVING.'



TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



ENERGY DISSIPATORS
(NO SCALE)

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. THE DISSIPATORS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE UNCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

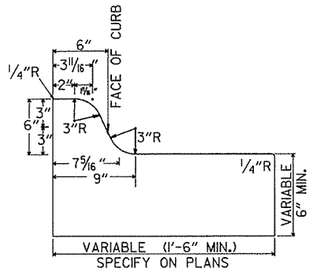
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

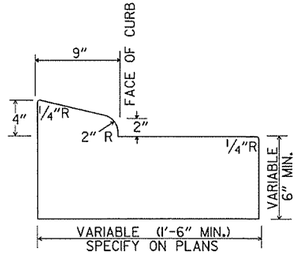
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

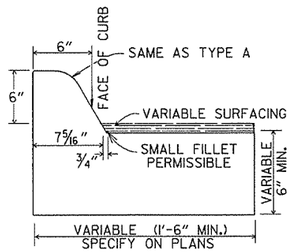
STANDARD DRAWING CDP-1



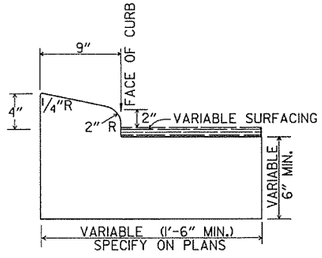
TYPE A



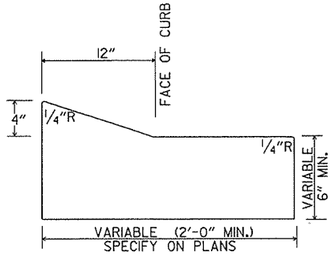
TYPE B-1



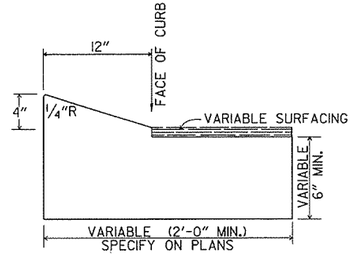
TYPE C



TYPE B-2

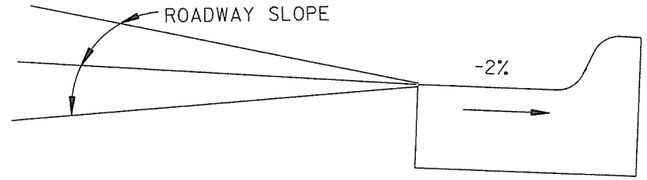


TYPE E-1



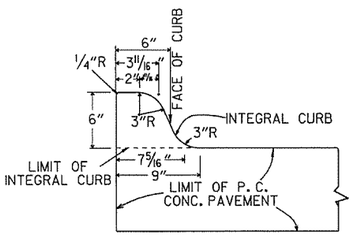
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

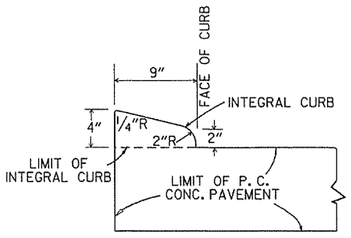


DETAIL OF GUTTER SLOPE

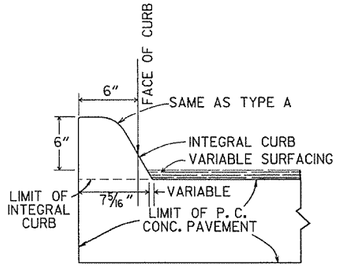
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

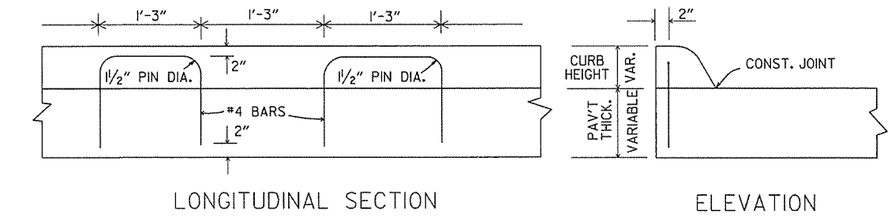


TYPE B

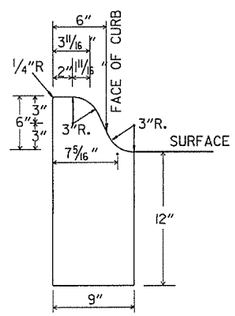


TYPE C

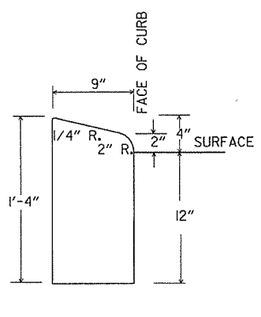
INTEGRAL CURB



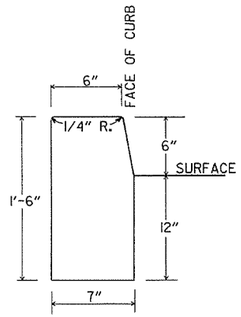
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



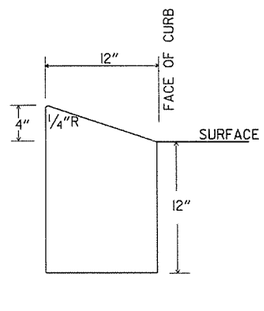
TYPE A



TYPE B

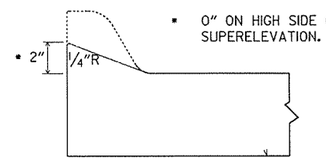


TYPE D



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.

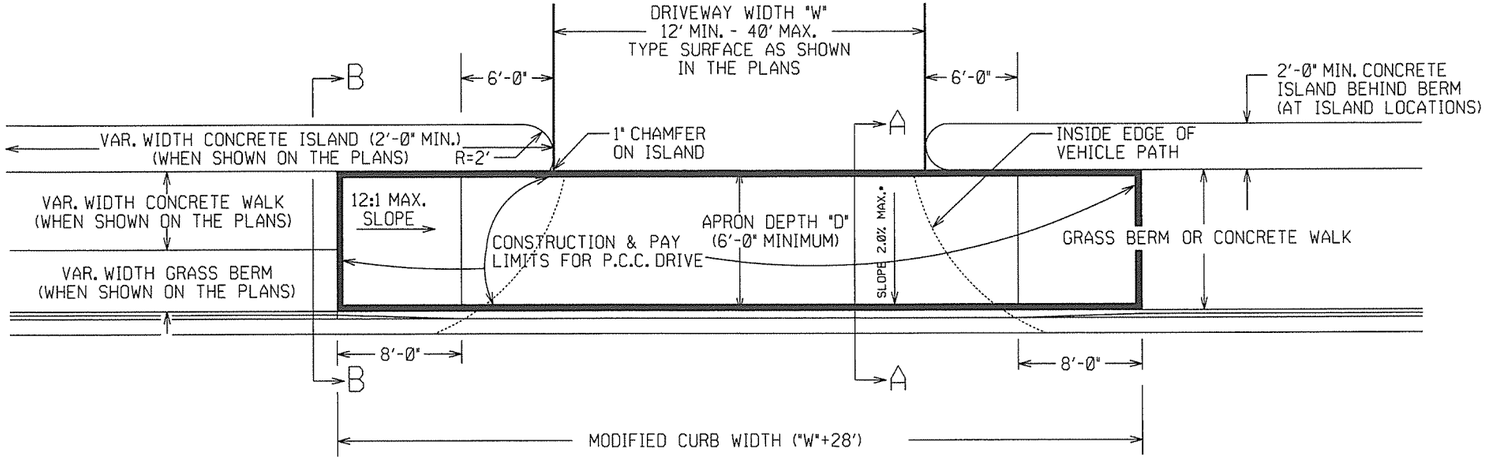
DETAILS OF MODIFIED CURB

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 1	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

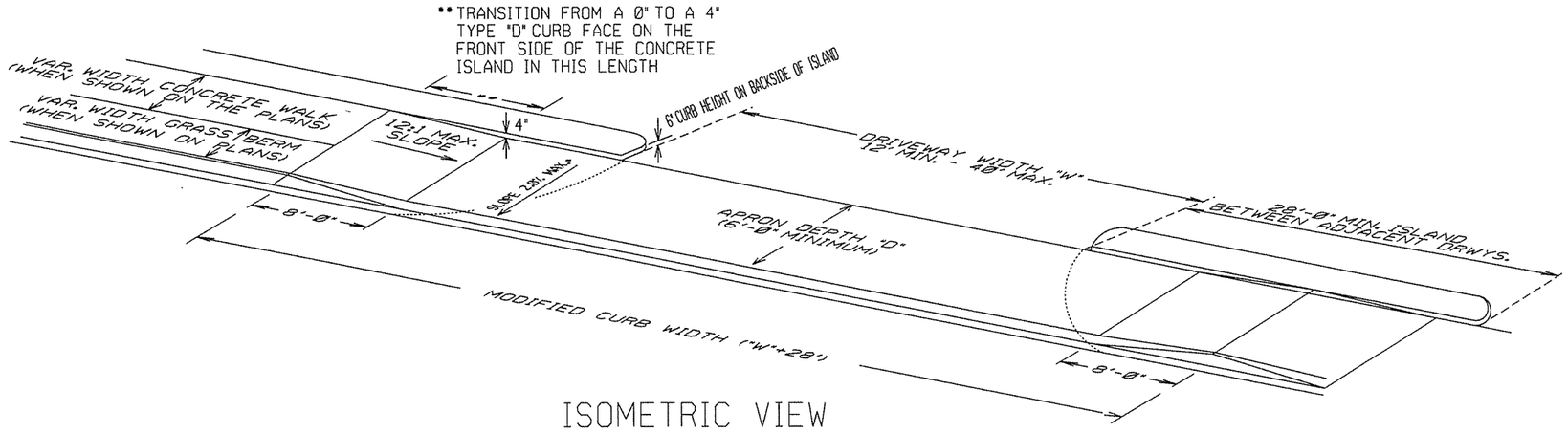
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

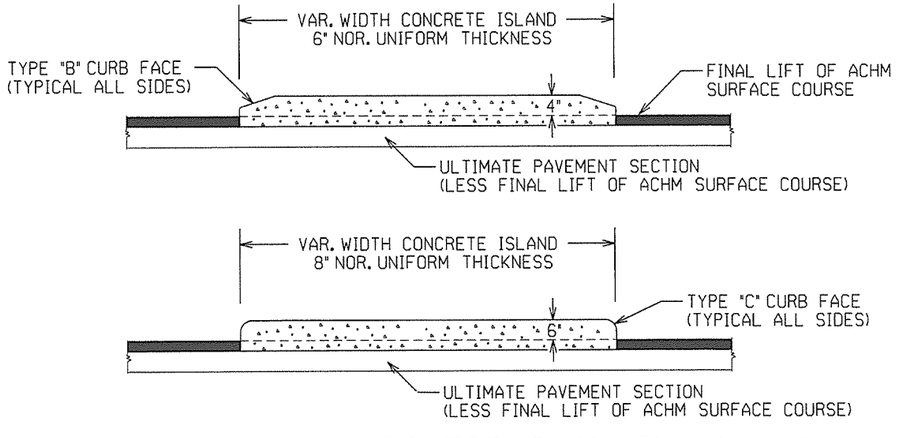
STANDARD DRAWING CG-1



PLAN VIEW

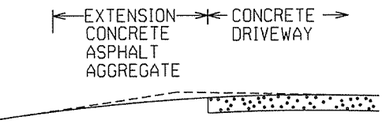


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

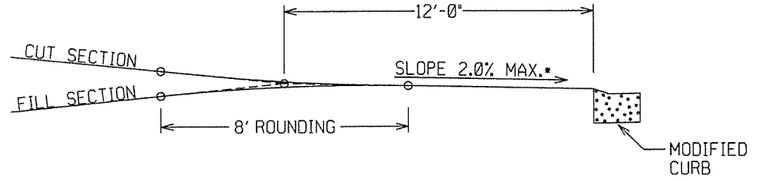
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

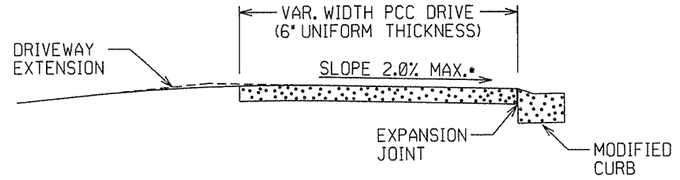
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

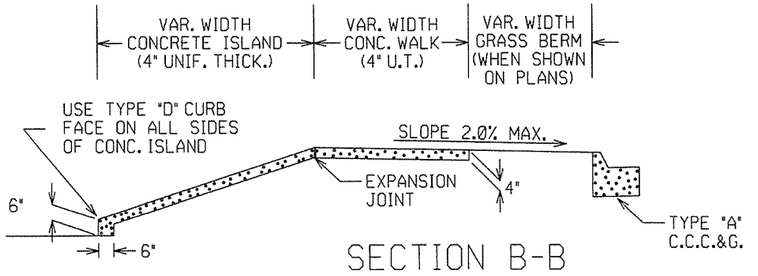


DRIVEWAY VERTICAL ALIGNMENT DETAILS

* NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



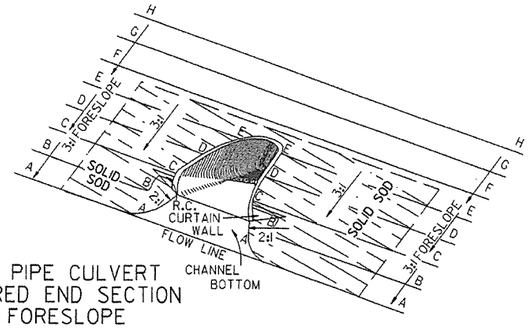
SECTION A-A



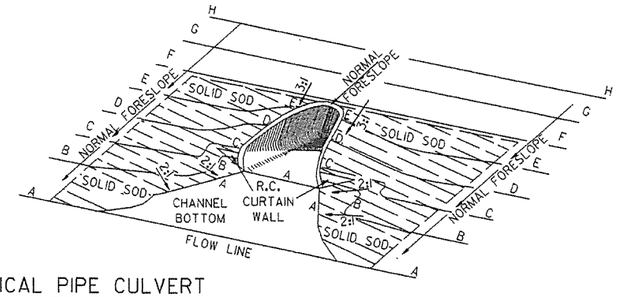
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
2-27-14		REVISED PLAN & ISOMETRIC VIEW
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

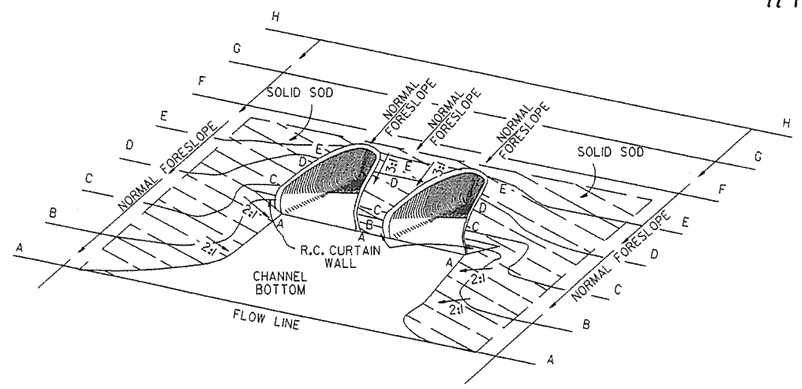
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



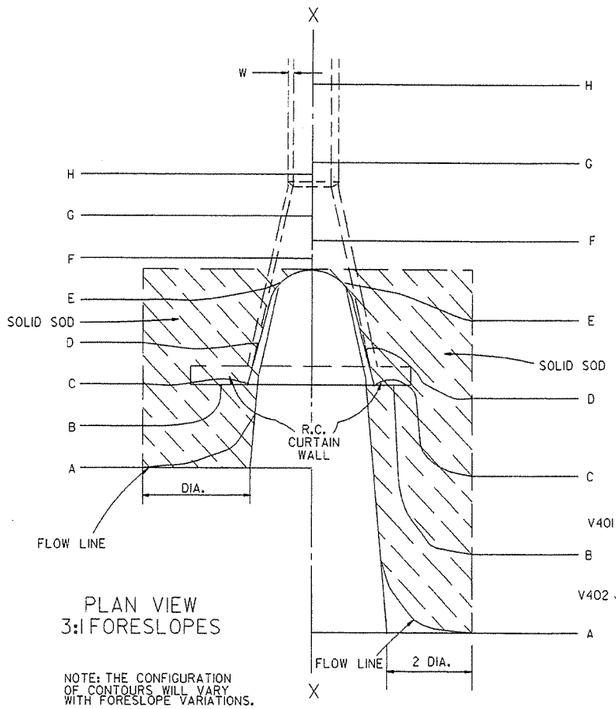
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES



PLAN VIEW
3:1 FORESLOPES

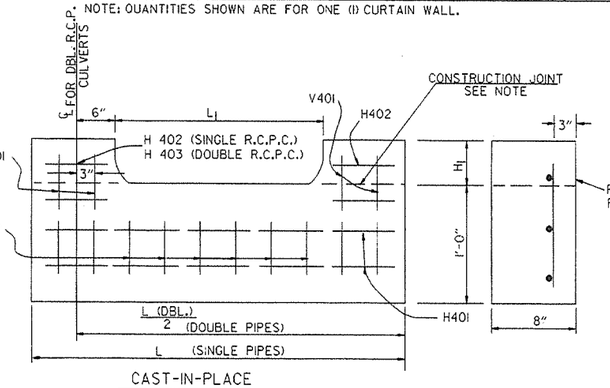
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

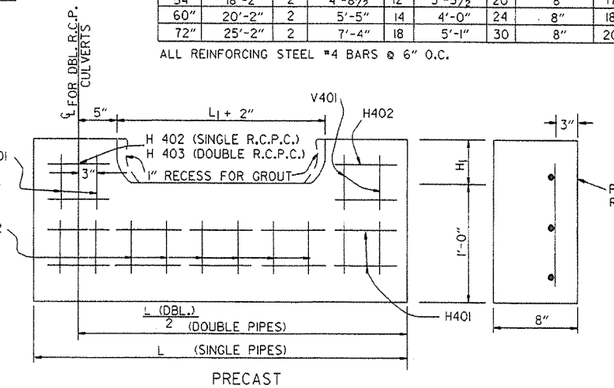
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.



CAST-IN-PLACE

NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



PRECAST

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

R.C. CURTAIN WALL DETAILS

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	V401 L	V401 NO.	V402 L	V402 NO.	DOUBLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	H403 L	H403 NO.	V401 L	V401 NO.	V402 L	V402 NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

ALL REINFORCING STEEL #4 BARS @ 6" O.C.

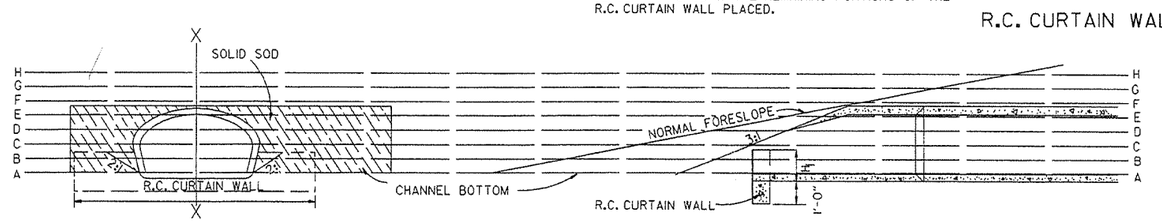
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C. 3:1	4:1	6:1	DOUBLE R.C.P.C. 3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

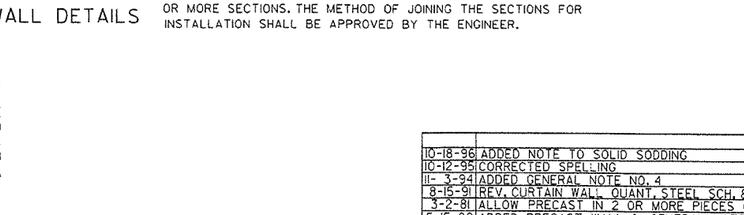
NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW



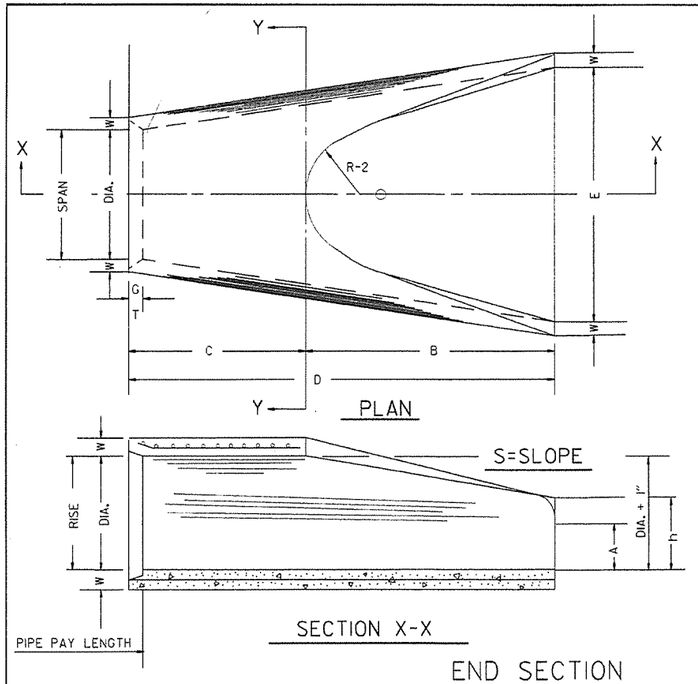
SECTIONAL VIEW "X-X"

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	10-18-96
10-12-95	CORRECTED SPELLING	
11- 3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

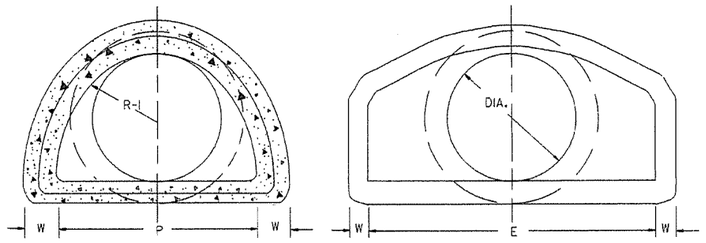
STANDARD DRAWING FES-1



END SECTION
FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33 3/16"	16 13/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47 13/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	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 1/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 5/16"	24"	5"	13250	4'-6"

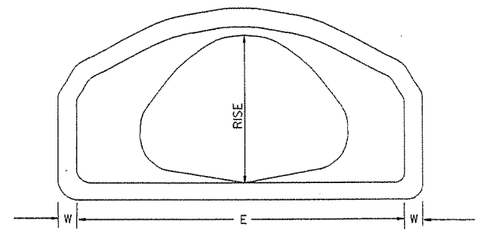


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

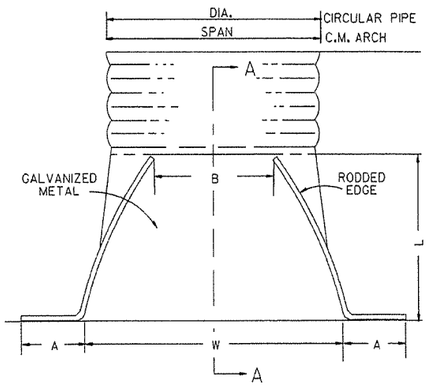
ARCH PIPE

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 13/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 13/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54 3/16"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 13/16"	24"	5"	2¼:1

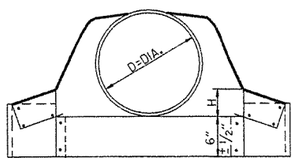
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



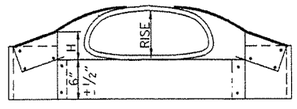
END VIEW
CONCRETE ARCH PIPE



NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.



CIRCULAR PIPE



C.M. ARCH PIPE

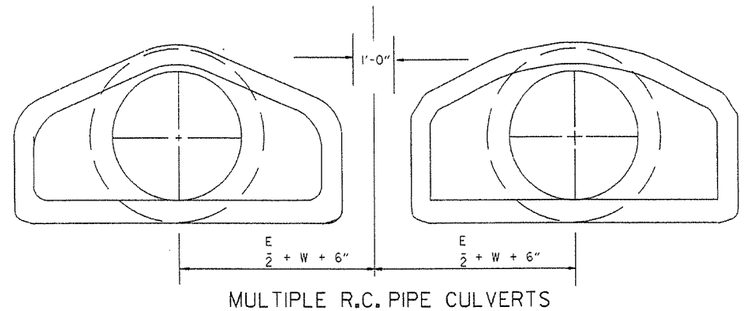
CIRCULAR PIPE

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

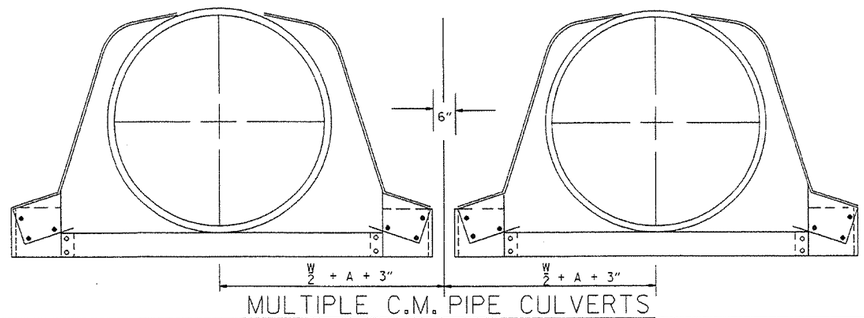
C.M. ARCH PIPE

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

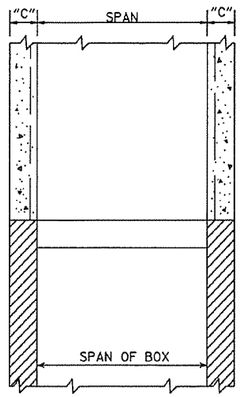
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

ARKANSAS STATE HIGHWAY COMMISION

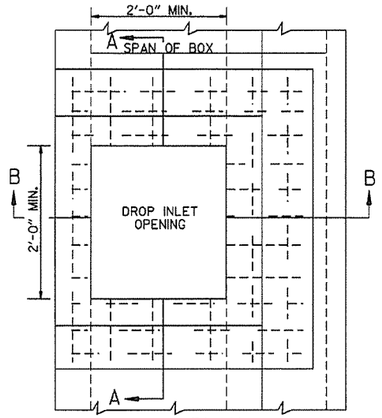
FLARED END SECTION

STANDARD DRAWING FES-2

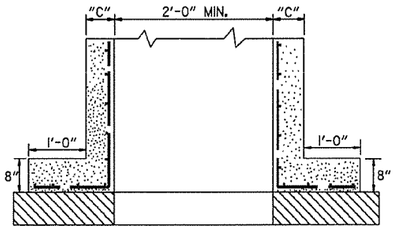
stdfes2.dgn



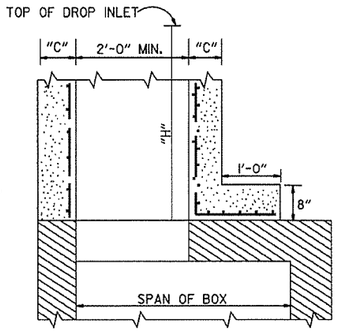
SECTION B-B



PLAN

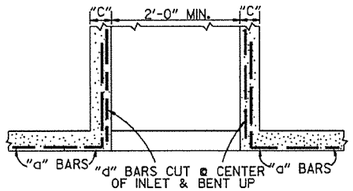


SECTION A-A

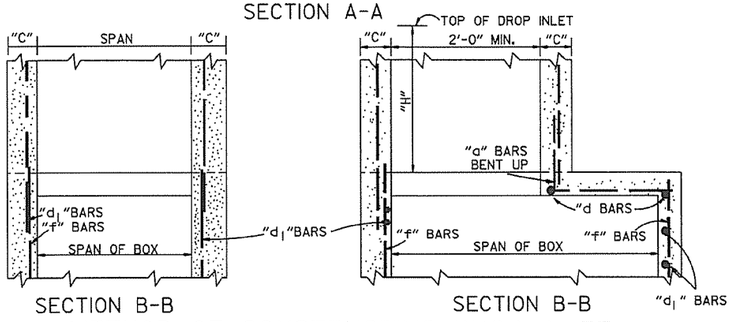


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



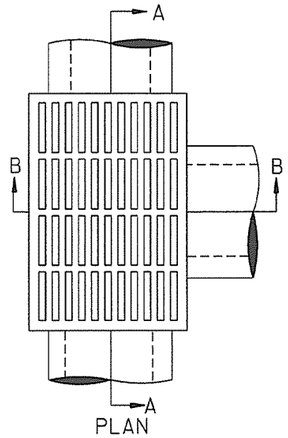
SECTION A-A



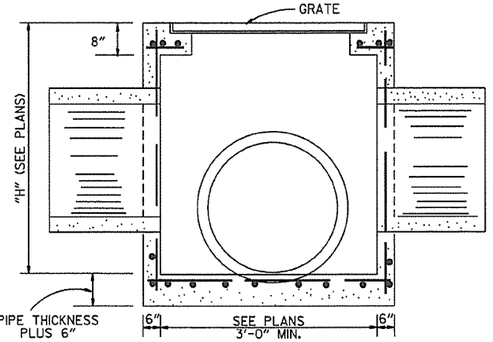
SECTION B-B SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.

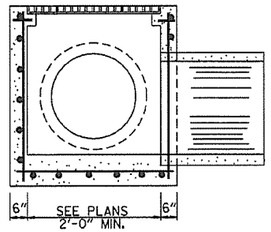


PLAN



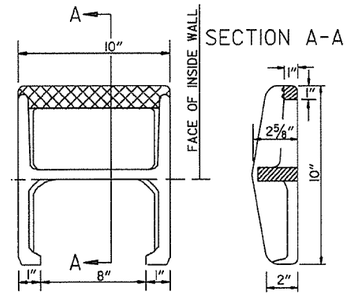
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

DROP INLET (TYPE E)

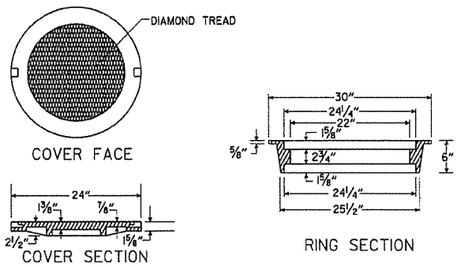


APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

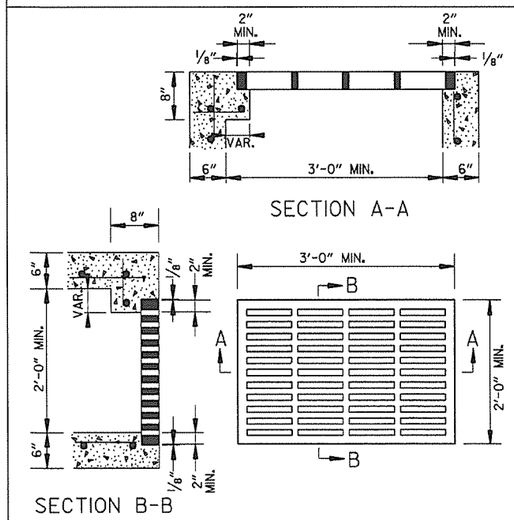
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET



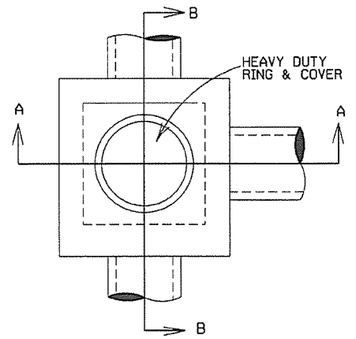
APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

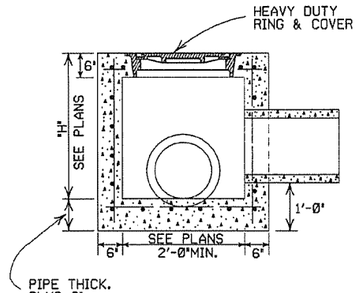


APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

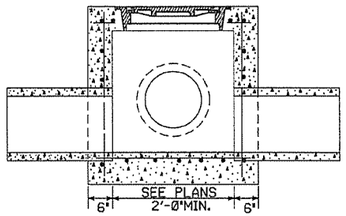


PLAN



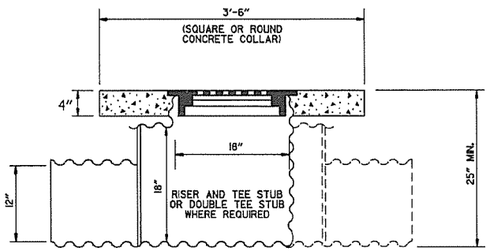
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE JUNCTION BOX TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.

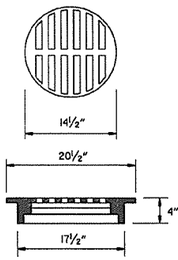


SECTION B-B

JUNCTION BOX (TYPE E)



NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12" PIPE CULVERTS TO BE MEASURED AND PAID FOR AS " 12" SIDE DRAIN ".



USE NEENAH R-5901-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

DETAIL OF YARD DRAIN

GENERAL NOTES:

1. ALL EXPOSED CORNERS SHALL BE ¾" CHAMFERED.
2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL SHALL BE ¾" PREFORMED FIBER.
4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
5. GRATE AND FRAME SHALL NOT BE PAINTED.
6. GRATE SHALL BE BICYCLE SAFE.
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

DATE REV.	REVISION	DATE FILMED
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED DI (TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS & JUNCTION BOXES

STANDARD DRAWING FPC-9

4'-0" LENGTH DROP INLET

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0" CLASS A CONC. CU. YDS.	HEIGHT 5'-0" REINF. STEEL POUNDS	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC. CU. YDS.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL 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. CU. YDS.	4'-0" REINF. STEEL POUNDS	8'-0" CLASS A CONC. CU. YDS.	8'-0" REINF. STEEL POUNDS
0.58	38	0.87	72

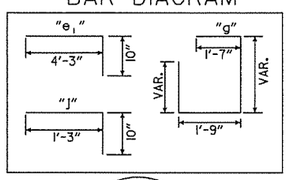
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.

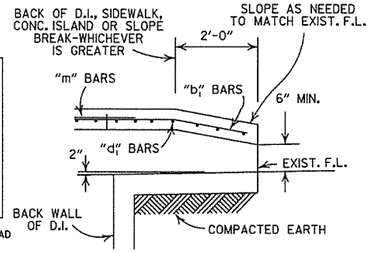
0.04	3		

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET

INSIDE DIA. PIPE	CLASS A CONC.	REINF. STEEL
INCHES	CU. YDS.	POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8

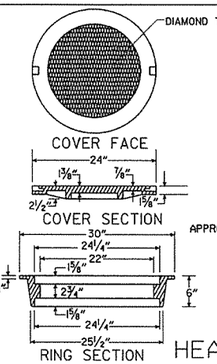
BAR DIAGRAM





BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).



APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE #4 AND HAVE 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
6. WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (F.P.C.-9D).
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
9. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
10. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
11. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

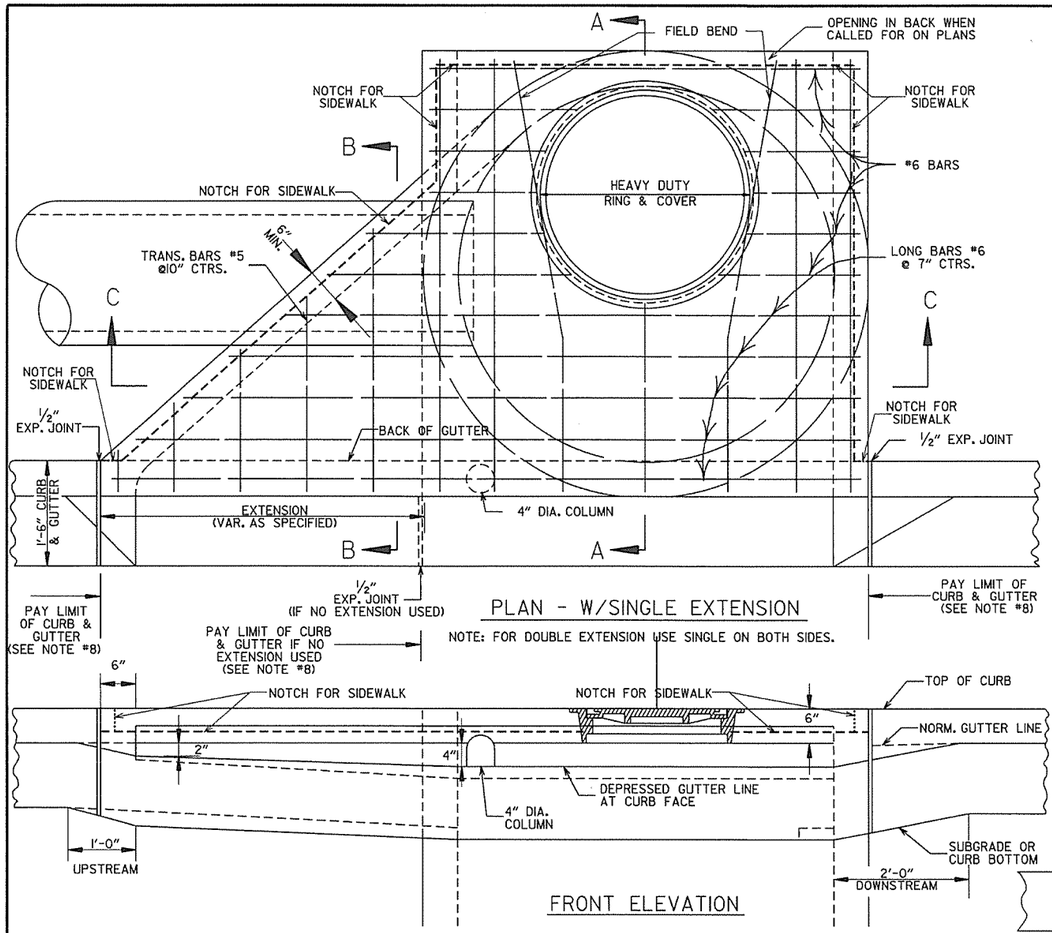
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER ADDED NOTES 9,10,&11	
10-18-96	CORRECTED SPELLING	
4-26-96	ADDED NOTE 8 & REVISED (4')(8') EXTENSION TITLES	10-18-96
4-1-93	REVISED BACK OPENING & NOTE	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

(TYPE C)

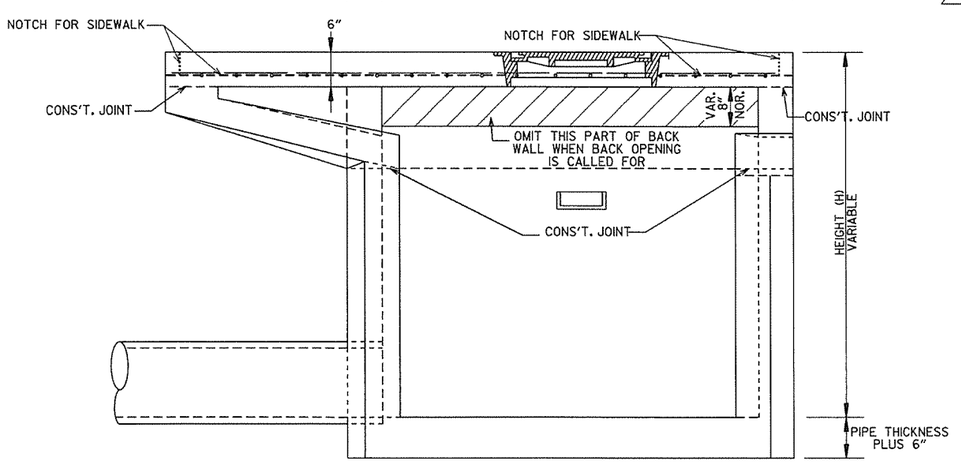
STANDARD DRAWING FPC-9E



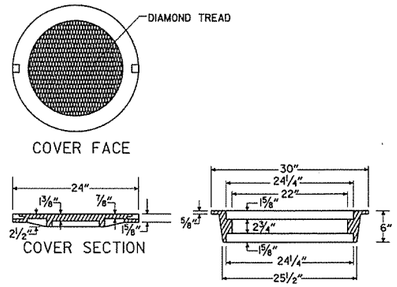
PLAN - W/SINGLE EXTENSION

NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.

FRONT ELEVATION



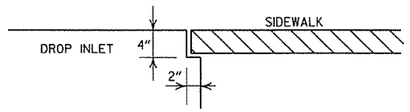
SECTION C-C



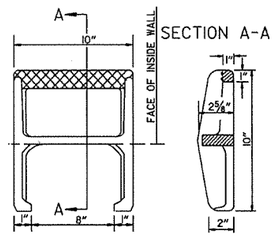
APPROXIMATE TOTAL WEIGHT = 333 LBS.

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

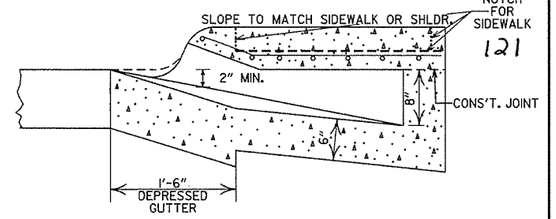


APPROX. WEIGHT = 11 LBS. (CAST IRON)

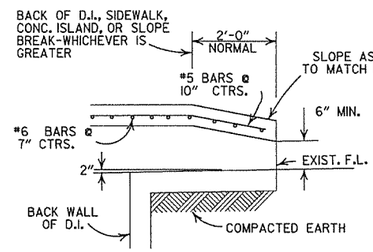
PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET



SECTION B-B

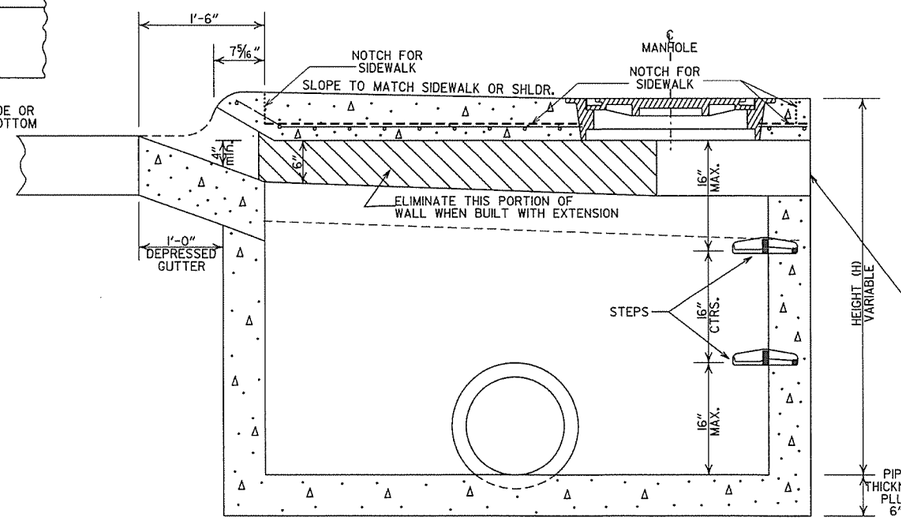


BACK OPENING

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 ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.



SECTION A-A

LEAVE OPENING IN BACK WHEN CALLED FOR ON PLANS REFER TO BACK OPENING DETAIL

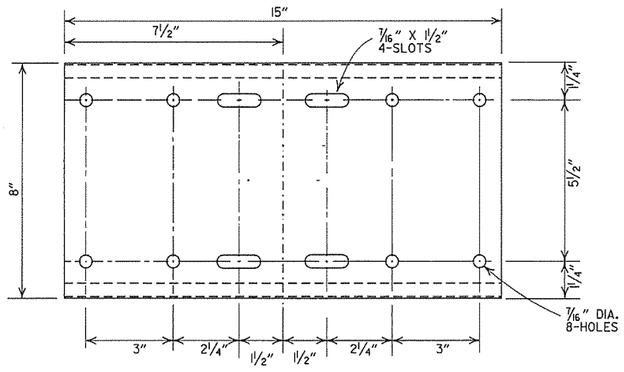
DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS CAST IN PLACE	MINIMUM WALL THICKNESS PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

DATE	REVISIONS	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 12 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)	
11-2-94	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
1-23-89	ADDED NOTE & MINIMUM WALL THICKNESS	513-1-23-89
7-15-88	ADDED EXTEND NOTE TO SECTION A-A	635-7-15-88
1-14-87	MODIFIED WALL THICKNESS	763-1-14-87
6-12-87	ISSUED	4-6-12-87

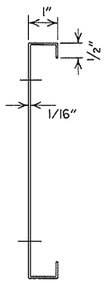
ARKANSAS STATE HIGHWAY COMMISSION

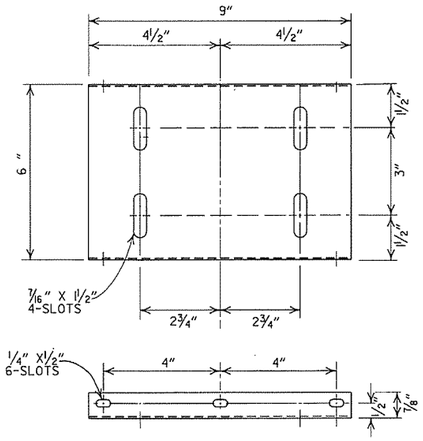
DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M

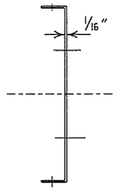


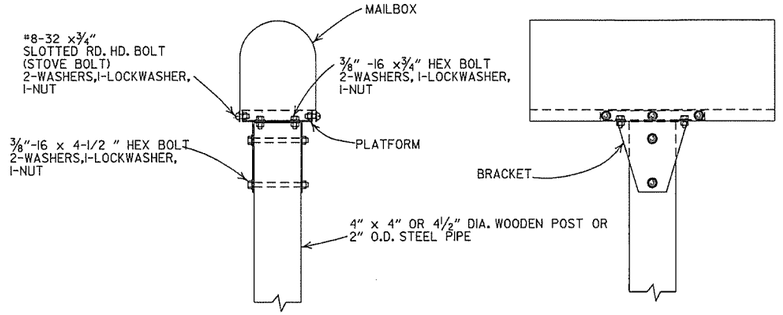
SHELF



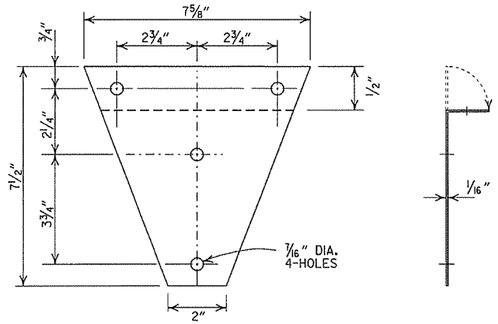


PLATFORM

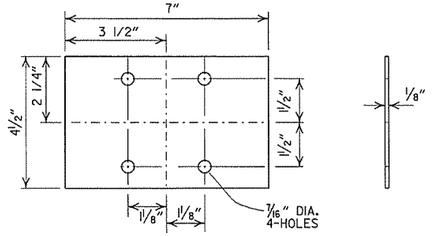




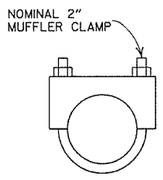
SINGLE INSTALLATION



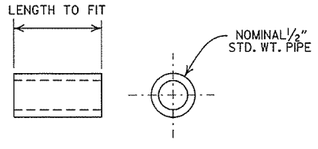
BRACKET



ANTI-TWIST PLATE



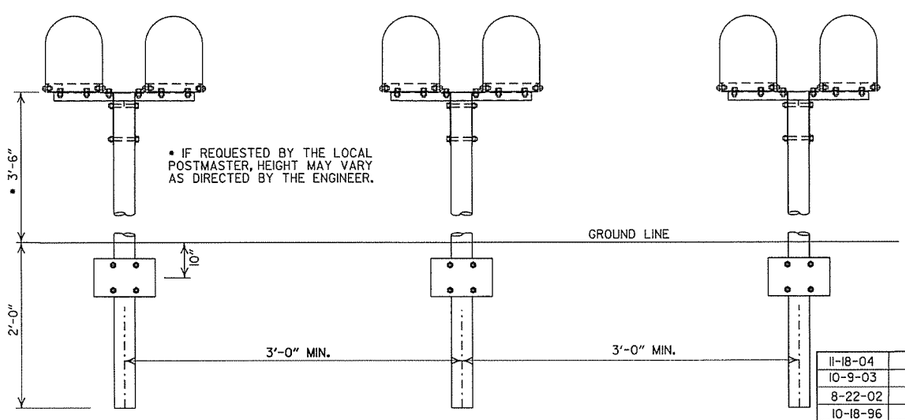
CLAMP



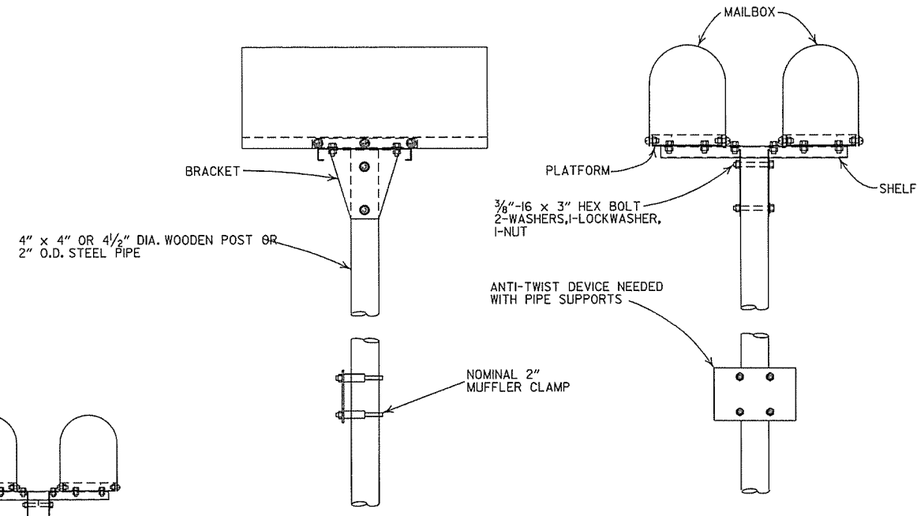
SPACER

GENERAL NOTES

1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



SPACING FOR MULTIPLE POST INSTALLATION



DOUBLE INSTALLATION

DATE	FILMED	REVISION
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	31 5/16	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

EQUIV. DIA.	AASHTO M 207	
	SPAN	RISE
INCHES	INCHES	
18	23	14
24	30	19
27	34	22
30	38	24
33	42	27
36	45	29
39	49	32
42	53	34
48	60	38
54	68	43
60	76	48
66	83	53
72	91	58
78	98	63
84	106	68

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(1).

NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

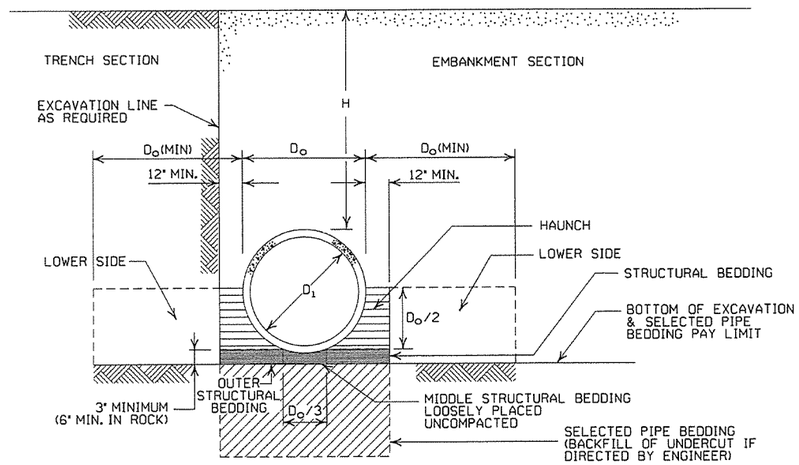
- LEGEND -

D_i = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
▨ = UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

* SM-3 WILL NOT BE ALLOWED.

** MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET) METAL THICKNESS (INCHES) 0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET) METAL THICKNESS IN INCHES 0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	ALUMINUM 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			

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM MIN. THICKNESS REQUIRED INCHES	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

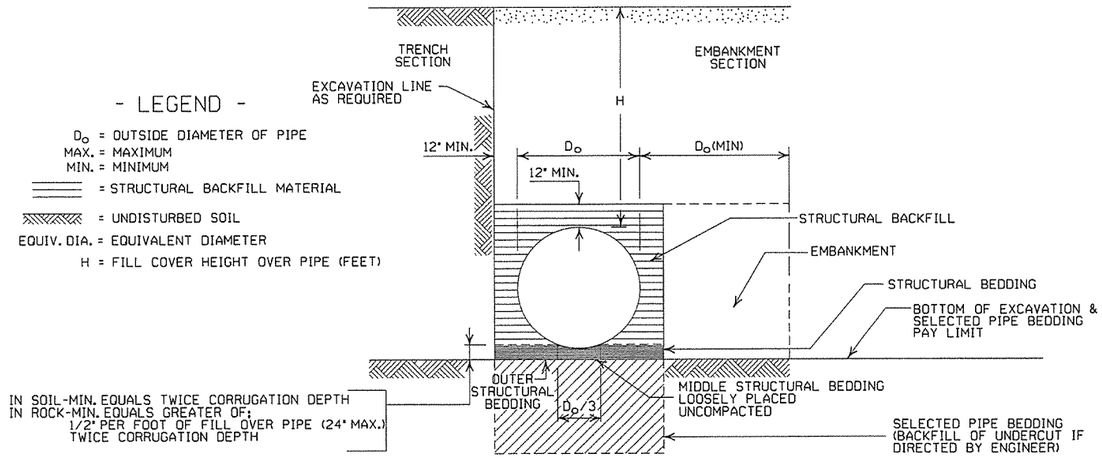
③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES STEEL ZINC COATED	STEEL UNCOATED	ALUMINUM	GAUGE NUMBER
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8

- LEGEND -

D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL
EQUIV. DIA. = EQUIVALENT DIAMETER
H = FILL COVER HEIGHT OVER PIPE (FEET)



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

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 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"

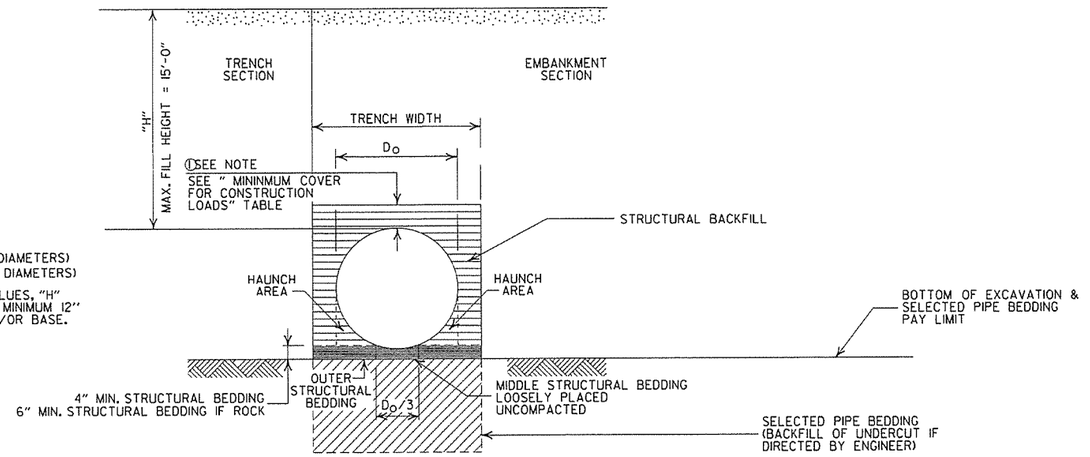
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

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.



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 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

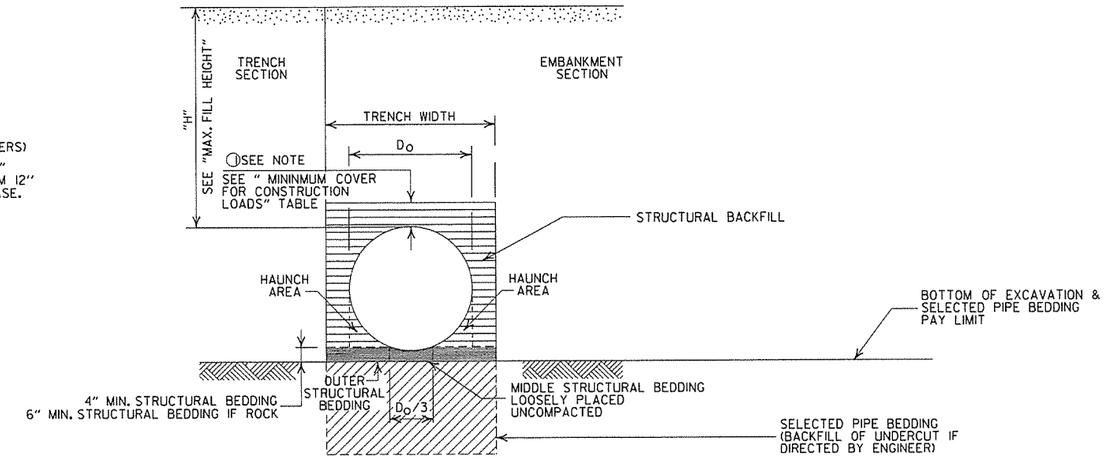
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

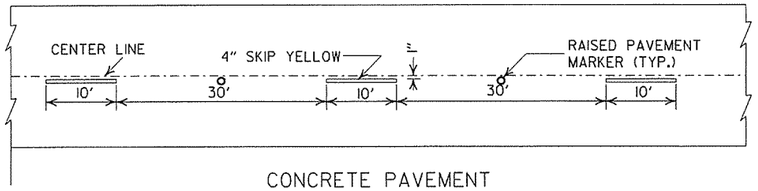
= UNDISTURBED SOIL

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	

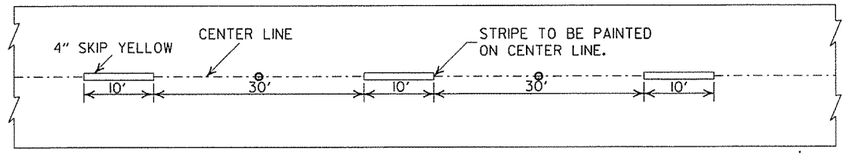
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

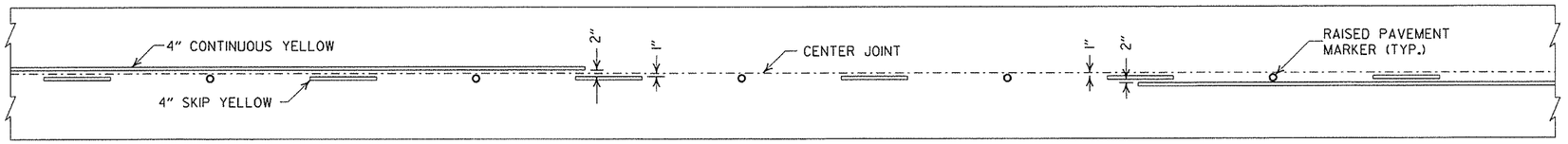


CONCRETE PAVEMENT

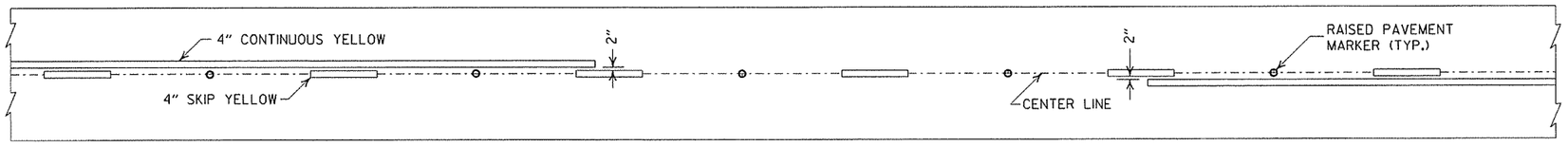


ASPHALT PAVEMENT

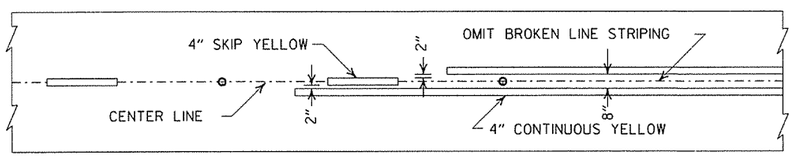
BROKEN LINE STRIPING



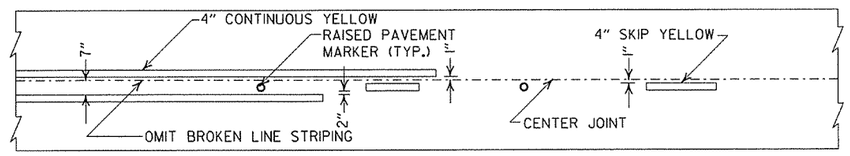
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

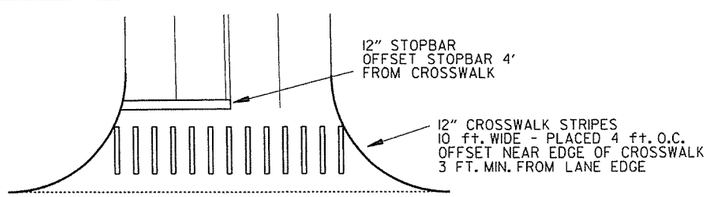


ASPHALT PAVEMENT



CONCRETE PAVEMENT

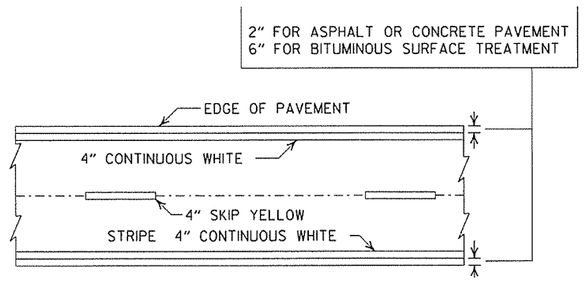
STRIPING AT ADJACENT NO PASSING LANES



CROSSWALK AND STOPBAR DETAILS

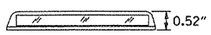
NOTES:

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

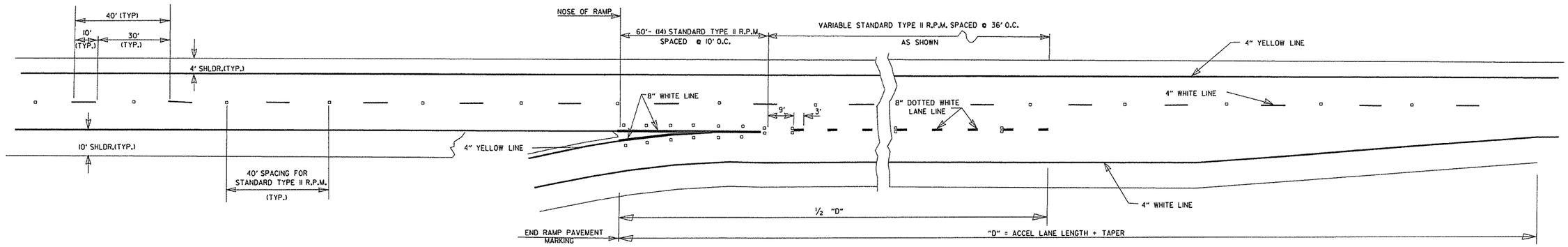
PAVEMENT MARKING QUANTITIES
(BASED ON 700' ACCEL. LANE + 300' TAPER)

ENTRANCE RAMP

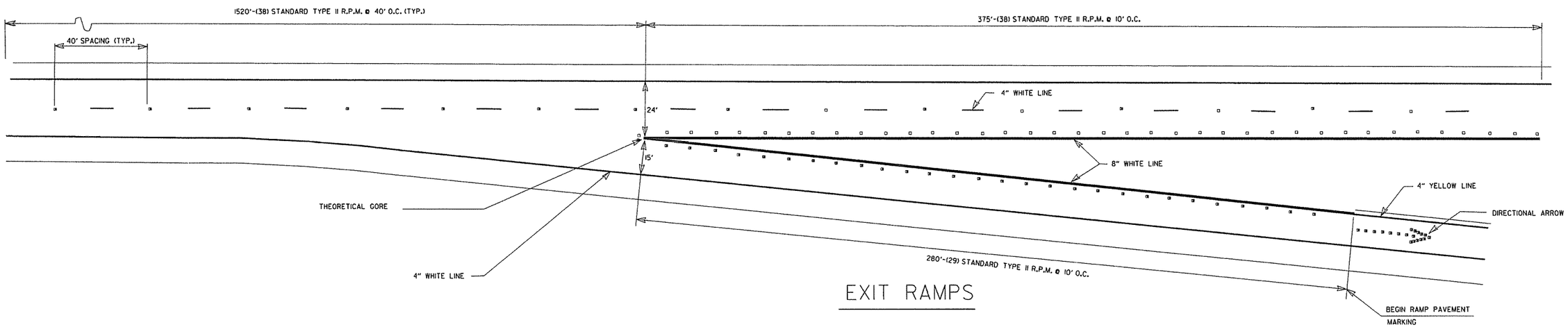
8" WHITE = 228 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH

EXIT RAMP

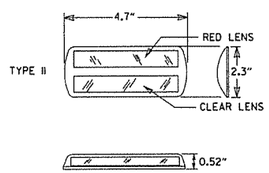
4" WHITE = 280 LIN. FT.
8" WHITE = 655 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 48 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH



ENTRANCE RAMPS

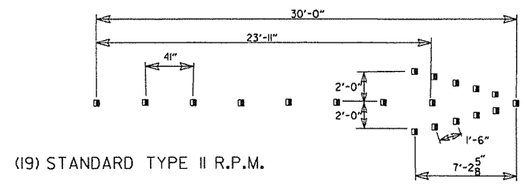


EXIT RAMPS



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.



(19) STANDARD TYPE II R.P.M.

DIRECTIONAL ARROWS

GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND 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	
7-26-12	REVISED RPM NOTATION	
12-15-11	REVISED RPMs ACCORDING TO LATEST POLICY	
11-17-10	REMOVED PLOWABLE PAVEMENT MARKERS	
6-3-10	REVISED PER 2009 MUTCD	
11-18-04	REVISED NOTES	
8-22-02	ADDED & REVISED NOTES; REV. ENTRANCE & EXIT RAMPS	
5-18-00	REMOVED HASHMARKS	
7-02-98	CHANGED TYPES TO ROMAN NUMERALS	
4-26-96	ADDED DIMENSIONS & QUANTITIES; REVISED LANE WIDTH ON EXIT RAMP	
2-2-95	PLACED IN USE	2-2-95

ARKANSAS STATE HIGHWAY COMMISSION

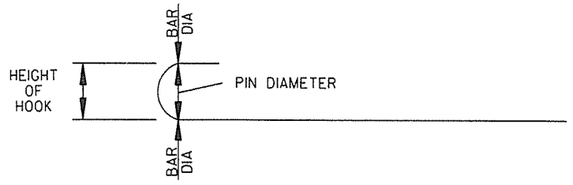
PERMANENT PAVEMENT MARKING ON ACCESS CONTROLLED ROADWAYS

STANDARD DRAWING PM-2

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

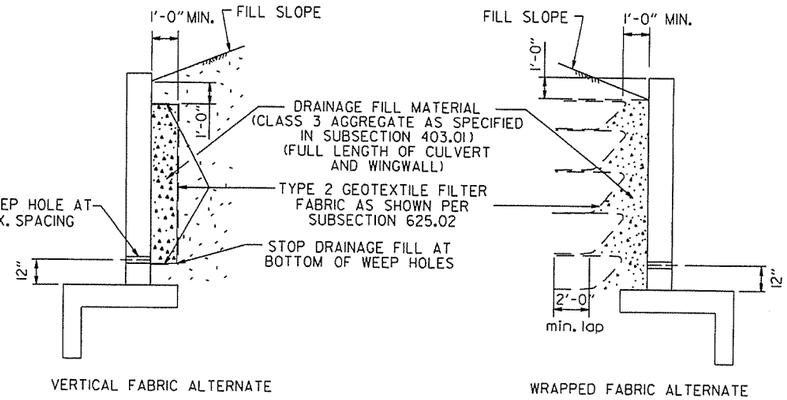
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

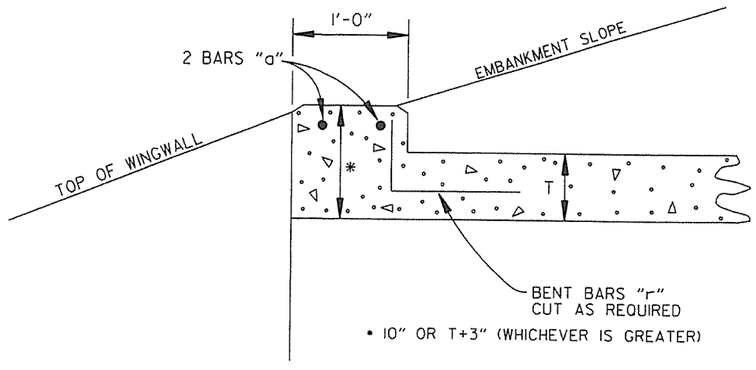
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

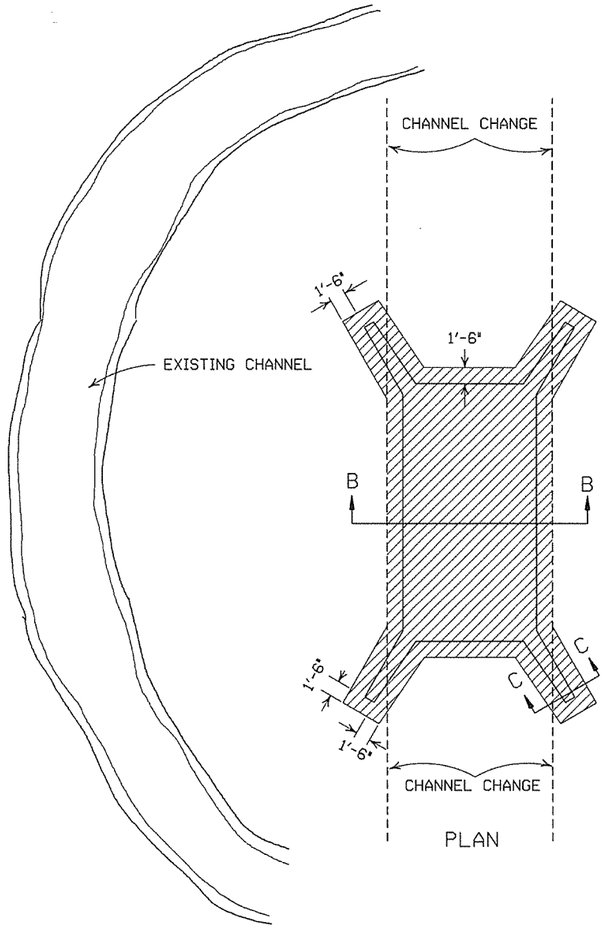
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

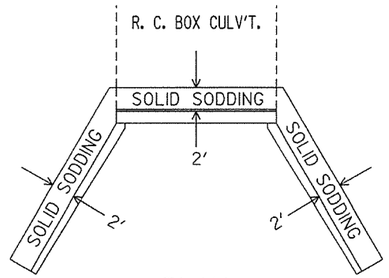
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

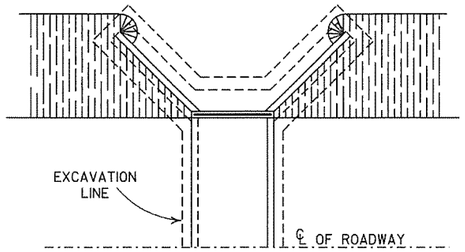
SOLID SODDING



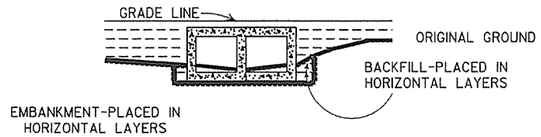
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

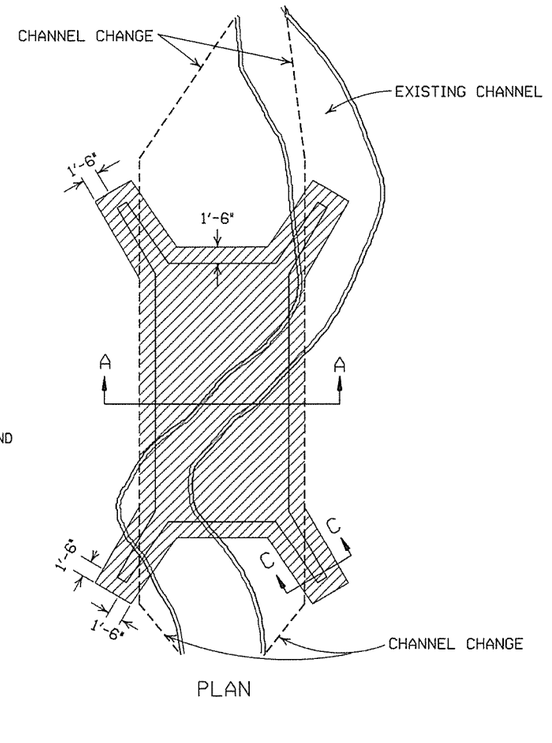


PLAN

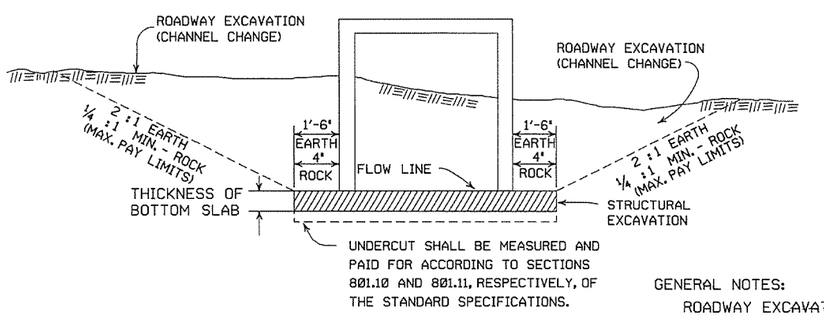


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

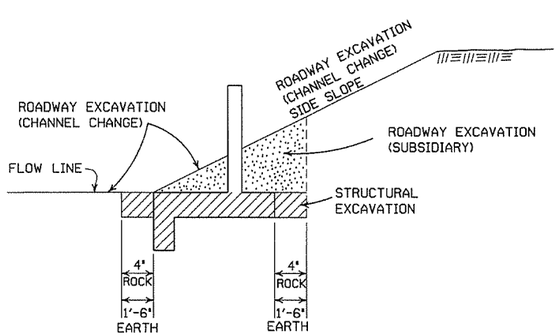


PLAN

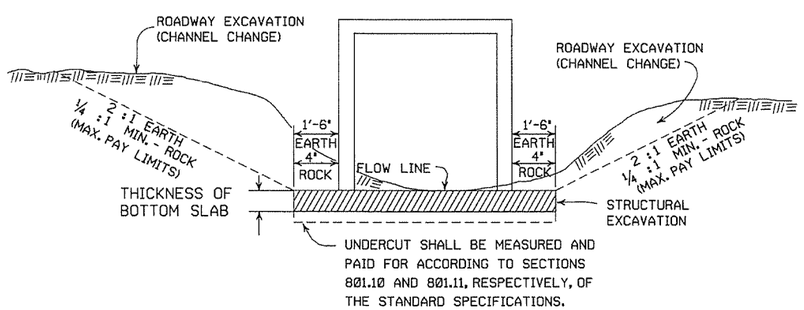


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

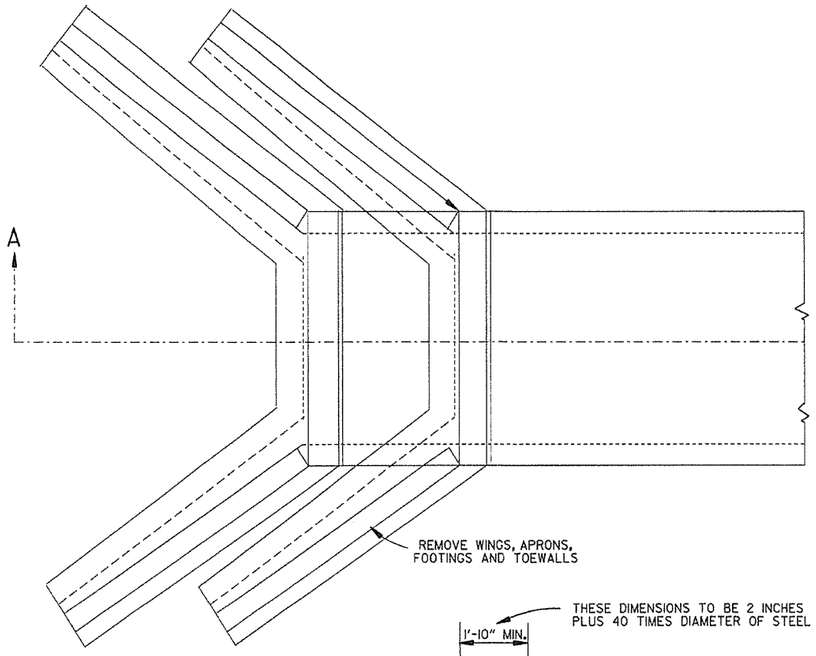
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES	674-1-4-83
	AND ADDED MAXIMUM PAY	
	LIMIT NOTES.	
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

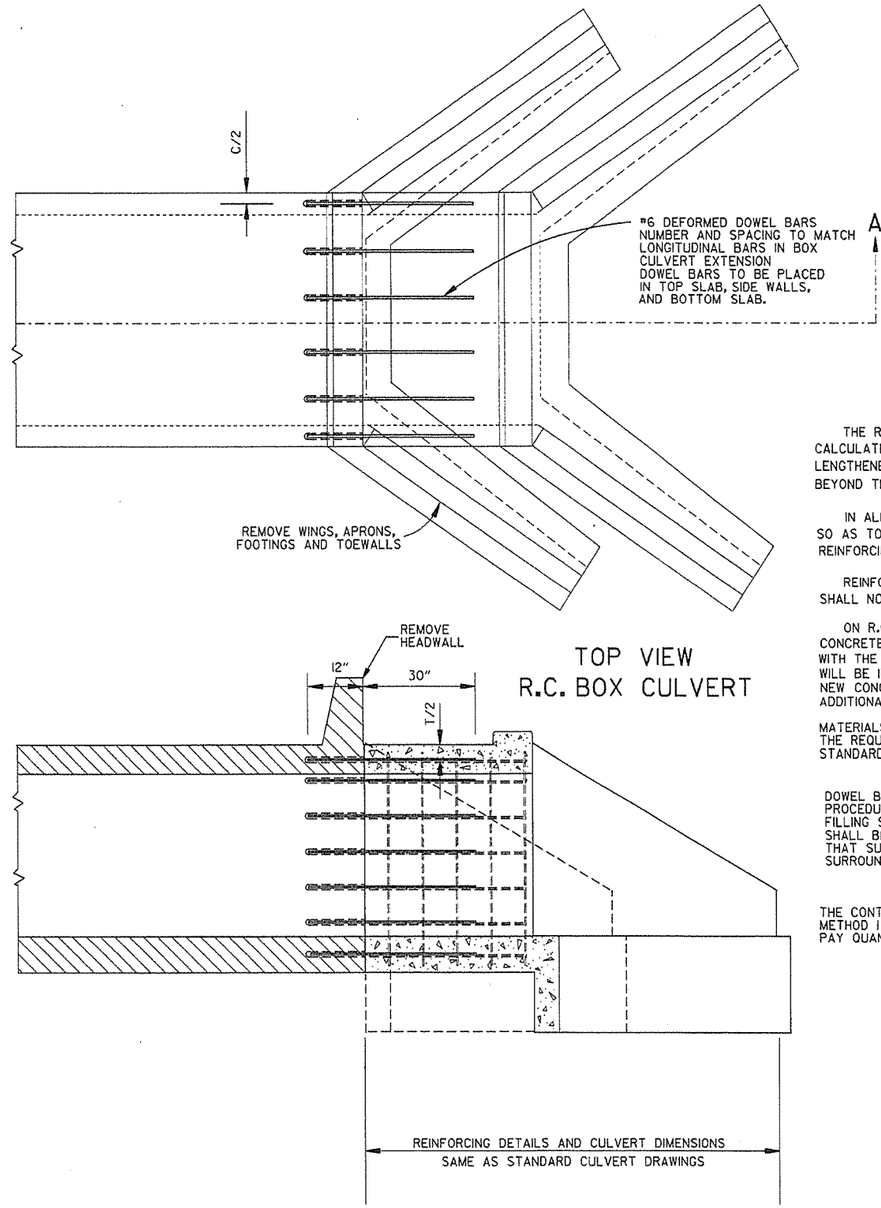
STANDARD DRAWING RCB-2



TOP VIEW
R.C. BOX CULVERT

SECTION A-A

METHOD 1



TOP VIEW
R.C. BOX CULVERT

SECTION A-A

METHOD 2

GENERAL NOTES

	USE FOR METHOD
THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED, MAKING NO ALLOWANCE FOR OVERBREAKAGE BEYOND THE LINES INDICATED.	1
IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PERMIT FULL 40 DIAMETER SPLICE OF REINFORCING STEEL.	1
REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.	1&2
ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON; THE CONCRETE APRON SHALL BE REMOVED WITH THE WINGS. THE COST OF REMOVING ALL OLD CONCRETE WILL BE INCLUDED IN THE PRICE BID PER CUBIC YARD FOR NEW CONCRETE OF THE CLASS SPECIFIED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.	1&2
MATERIALS FOR SECURING DOWEL BARS SHALL MEET THE REQUIREMENTS OF SECTION 507.02 OF THE STANDARD SPECIFICATIONS.	2
DOWEL BARS SHALL BE INSTALLED AS FOLLOWS: THE DRILLING PROCEDURE SHALL BE APPROVED BY THE ENGINEER, THE FILLING SYSTEM SHALL BE APPROVED BY THE ENGINEER, AND SHALL BE AN INJECTION-TYPE SYSTEM WHICH WILL INSURE THAT SUFFICIENT MATERIAL IS INJECTED SO IT COMPLETELY SURROUNDS THE BARS AND FILLS THE HOLES.	2
THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2. REGARDLESS OF WHICH METHOD IS USED, PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1.	1&2

NOTE:
NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.

SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.

DATE	REVISION	DATE FILM
10-12-95	CHANGED DRAWING # FROM 144-A	
4-1-93	ADDED GENERAL NOTE	
10-1-92	ADDED ALT. METHOD OF EXTENSION	
11-30-89	REDRAWN	
1-4-83	ELIMINATED CONCRETE CLASS	
12-20-56	RETRACED	

ARKANSAS STATE HIGHWAY COMMISSION

METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3

DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

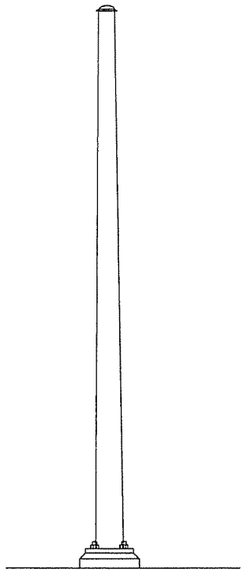
USE FATIGUE CATEGORY II.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH

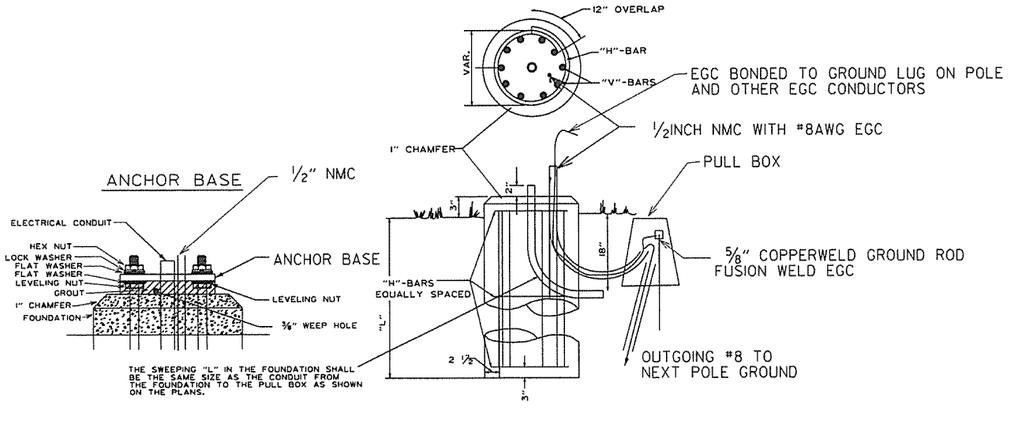
STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN ½" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

THE GROUND ROD SHALL BE FUSION WELDED TO A IC/#8 A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX PAID FOR SEPARATELY AS SHOWN ON THE PLANS.



ANTENNA POLE

NOTE: COMMUNICATION CABLE SHIELD SHALL BE TIED TO GROUND AT ONLY ONE POINT (MASTER CABINET). THE SHIELD SHALL BE MAINTAINED CONTINUOUS (THROUGH ALL SPLICES). PLEASE REFER TO TESTING PROCEDURES IN SPECIAL PROVISIONS.



TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING.

POLE HEIGHT	FOUNDATION DIAMETER	DEPTH "L"	VERTICAL	HORIZONTAL	TIE SPACING
20.0'	30"	5'-6"	12-#7	#4	5 SP @ 12"
25.0'	30"	6'-0"	12-#7	#4	6 SP @ 11"
30.0'	30"	6'-6"	12-#7	#4	6 SP @ 12"
35.0'	30"	7'-0"	12-#7	#4	7 SP @ 11"
40.0'	30"	7'-6"	12-#7	#4	7 SP @ 12"
45.0'	36"	8'-6"	13-#8	#4	8 SP @ 12"
50.0'	36"	9'-6"	13-#8	#4	9 SP @ 12"
55.0'	36"	10'-0"	13-#8	#4	10 SP @ 11"
60.0'	36"	10'-6"	13-#8	#4	10 SP @ 12"
65.0'	36"	11'-0"	13-#8	#4	12 SP @ 10 ½"
70.0'	36"	11'-6"	13-#8	#4	11 SP @ 12"
75.0'	42"	13'-0"	18-#8	#4	14 SP @ 10 ½"
80.0'	42"	13'-6"	18-#8	#4	13 SP @ 12"
85.0'	42"	14'-6"	18-#8	#4	14 SP @ 12"
90.0'	42"	15'-0"	18-#8	#4	18 SP @ 9 ½"

ALL CONCRETE SHALL BE CLASS "S" WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH F'C=3500 PSI. CONCRETE SHALL BE POURED IN THE DRY AND ALL EXPOSED CORNERS CHAMFERED ¾" UNLESS NOTED OTHERWISE.

ALL REINFORCING STEEL SHALL CONFORM TO AASHTO M31 OR M53, GRADE 40 (YIELD STRENGTH=40,000 PSI).

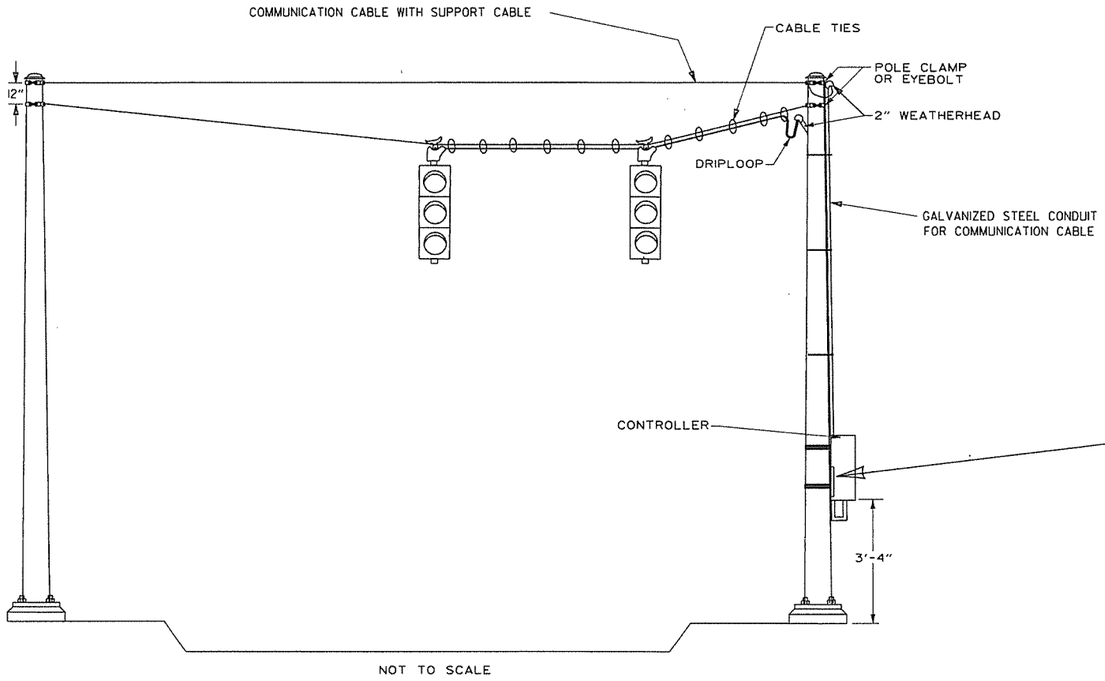
PROVIDE 3" CLEAR TIES. DETAIL 3" TO FIRST TIE AT TOP OF SHAFT.

DATE	REVISION	DATE FILM
2-27-14	REVISED NOTES.	
9-12-13	ISSUED AS STANDARD DRAWING	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
4-18-08	REVISED AASHTO NOTES	
4-17-08	REVISED TO 2001 AASHTO STANDARDS	
9-6-00	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

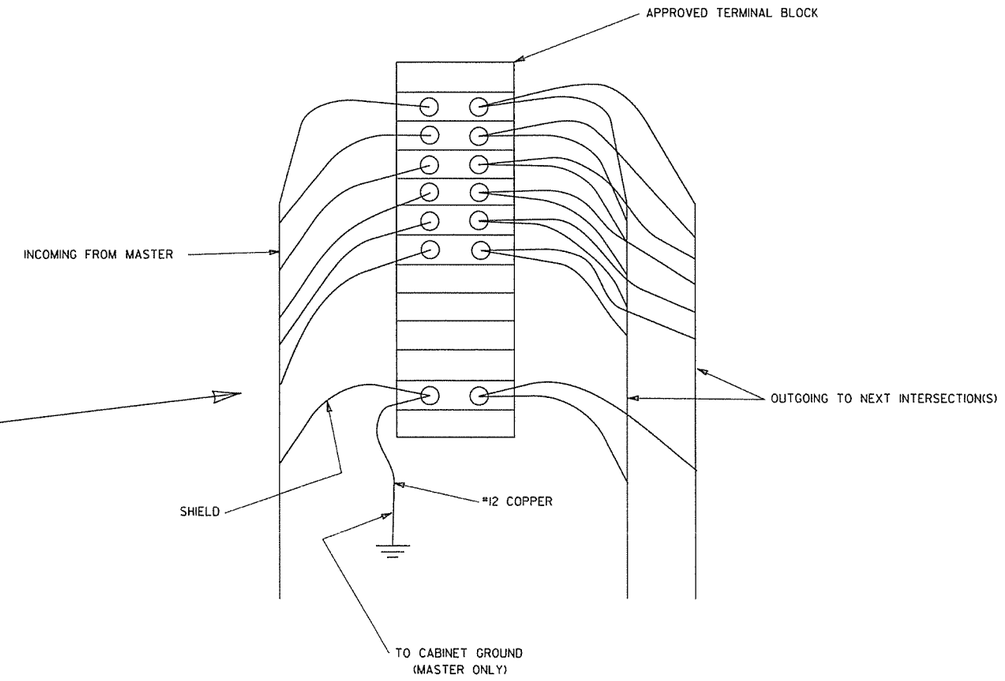
ANTENNA POLE

STANDARD DRAWING SD-1



COMMUNICATION CABLE CROSSING BETWEEN SPAN WIRE POLES

NOTE: COMMUNICATION CABLE SHIELD SHALL BE TIED TO GROUND AT ONLY ONE POINT (MASTER CABINET). THE SHIELD SHALL BE MAINTAINED CONTINUOUS (THROUGH ALL SPLICES). PLEASE REFER TO TESTING PROCEDURES IN SPECIAL PROVISIONS.



TYPICAL WIRING DIAGRAM FOR COMMUNICATION CABLE

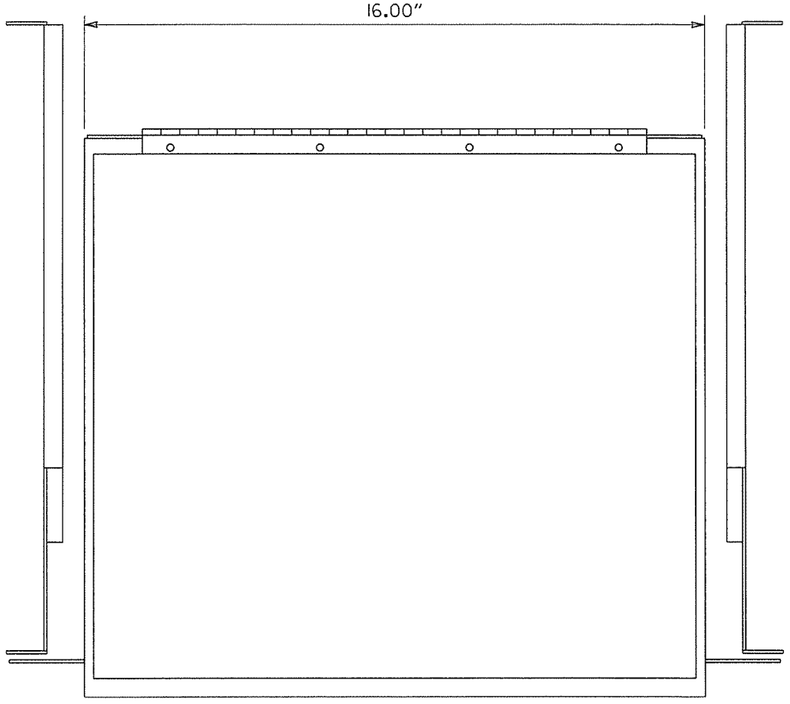
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
12-27-99	REVISED NOTES	
11-18-98	REVISED NOTES	
3-21-92	ISSUED	

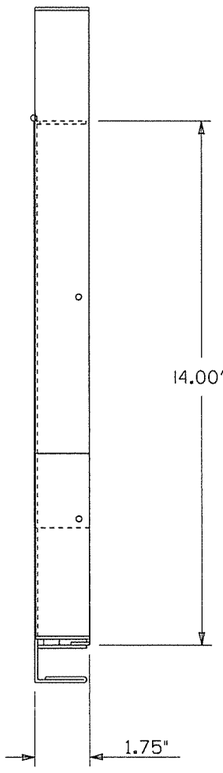
ARKANSAS STATE HIGHWAY COMMISSION

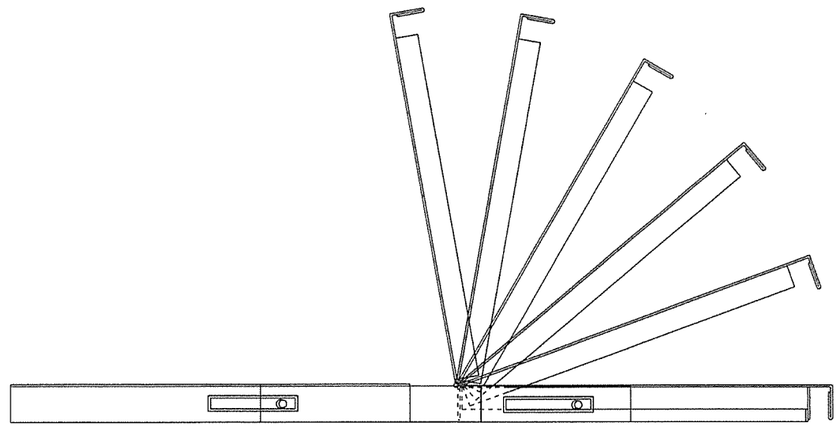
SPAN WIRE INSTALLATION WITH COMMUNICATION CABLE CROSSING

STANDARD DRAWING SD-2

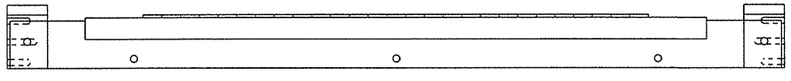
DRAWER PLAN VIEW



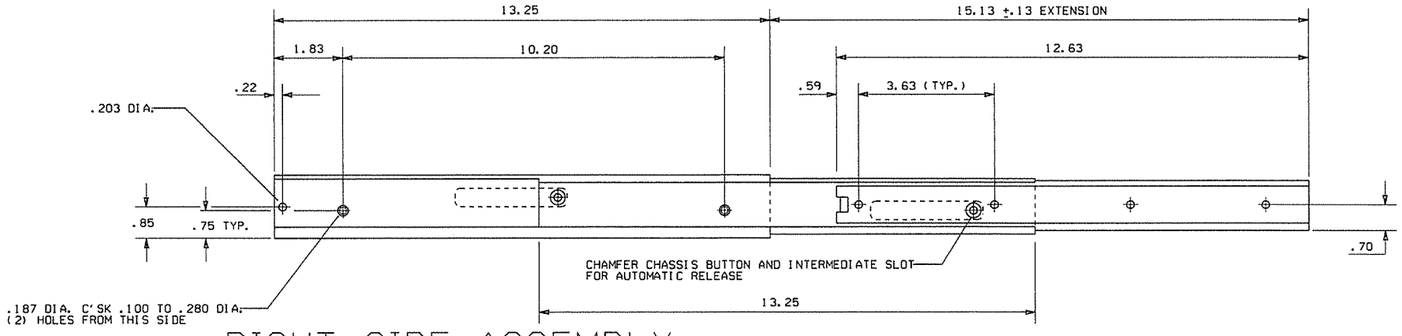




NOTES:
1. RIGHT HAND SLIDE SHOWN, LEFT SLIDE OPPOSITE.
2. GENERAL DEVICES (CC3002-99-0102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.
3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



FRONT VIEW



RIGHT SIDE ASSEMBLY

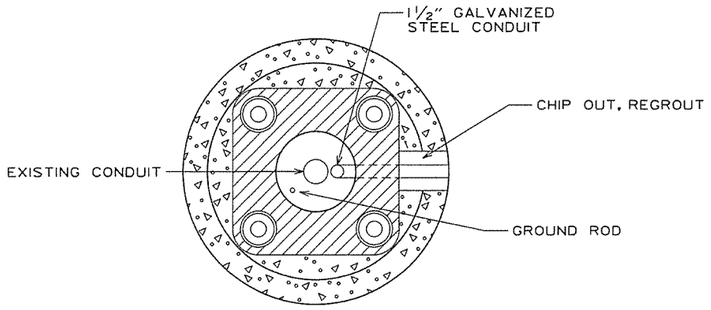
9-12-13	ISSUED AS STANDARD DRAWING	
6-15-05	ISSUED	
DATE	REVISION	DATE FILM

ARKANSAS STATE HIGHWAY COMMISSION

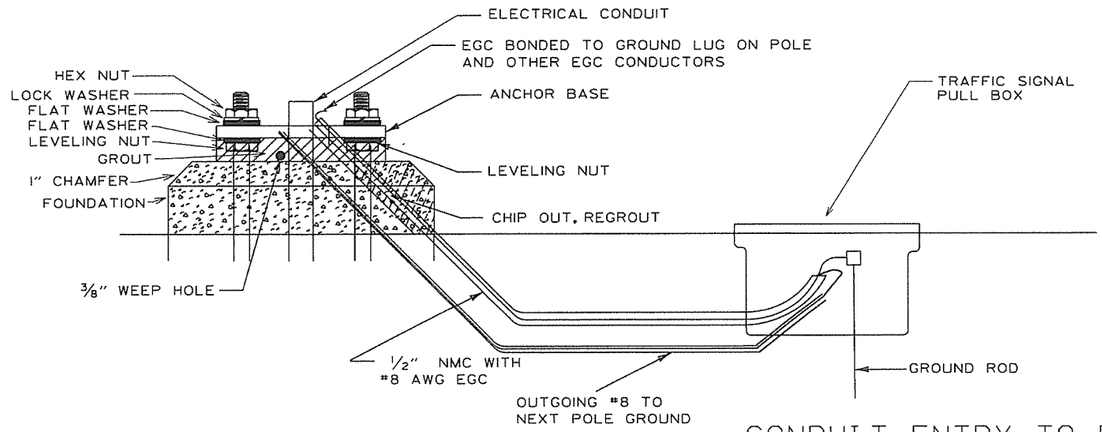
CONTROLLER CABINET
UTILITY DRAWER

STANDARD DRAWING SD-5

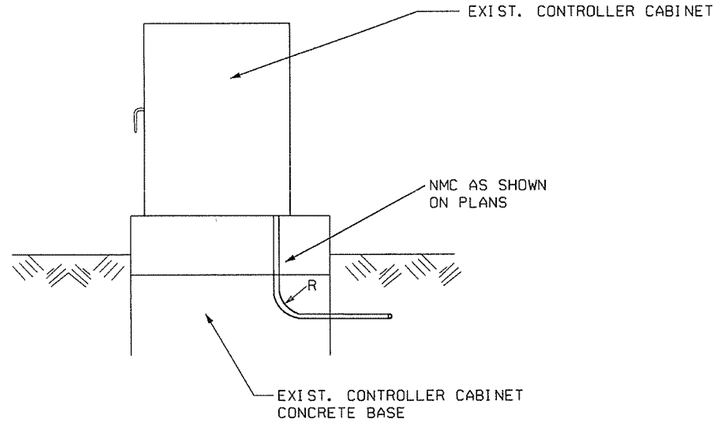
CONDUIT ENTRY TO EXISTING POLE BASE



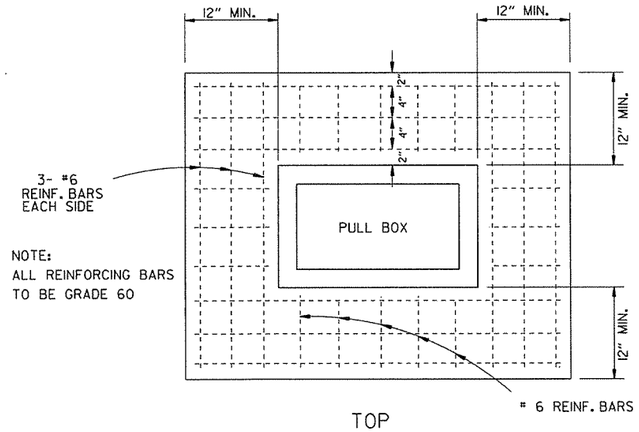
ANCHOR BASE



CONDUIT ENTRY TO EXISTING CONTROLLER CABINET

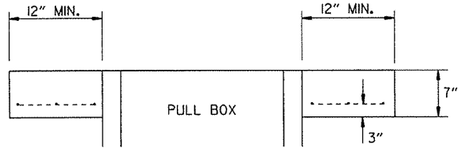


NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.



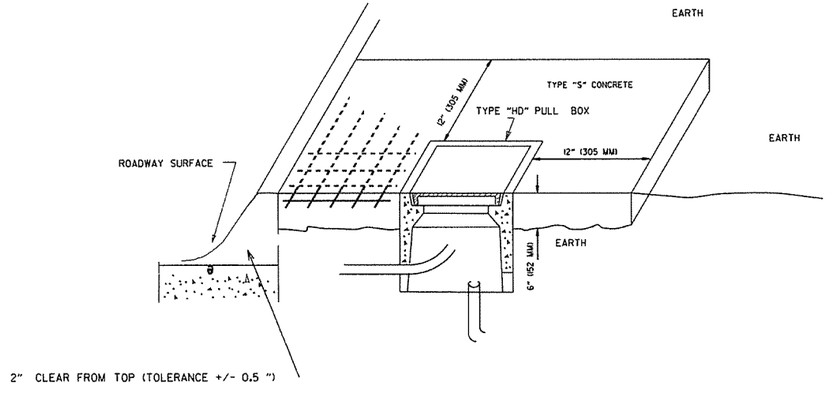
NOTE:
ALL REINFORCING BARS TO BE GRADE 60

TOP



ELEVATION

TYPE "HD" CONCRETE PULL BOX DETAIL



NOTE: ALL TYPE 1 AND TYPE 2 HD PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" (305 MM) WIDE AND 6" (152 MM) IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD PULL BOX. PULL BOX SHALL BE INSTALLED FLUSH TO SURROUNDING GRADE UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. THE CONCRETE SHALL BE CLASS "S." THREE #6 REINFORCING BARS IN THE APRON ON ALL SIDES OF THE PULL BOX IS REQUIRED IN CONCRETE.

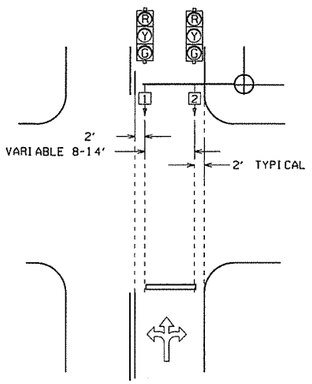
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
5-21-09	REVISED GROUNDING	
7-31-08	ADDED & REVISED CONDUIT ENTRY	
6-23-04	REVISED CLEARANCE AT CURB ENTRY	
1-4-02	ADDED REINFORCING TO BOX APRON	
7-2-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

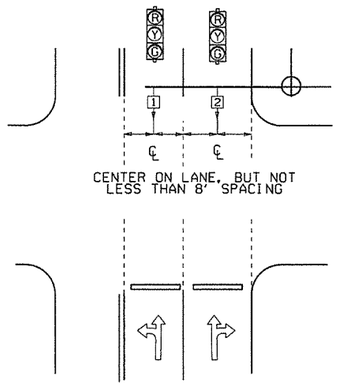
HEAVY DUTY PULL BOX

STANDARD DRAWING SD-6

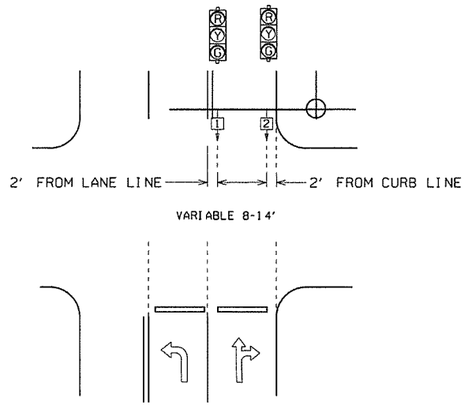
(A)



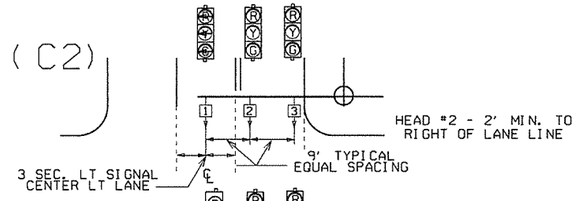
(B)



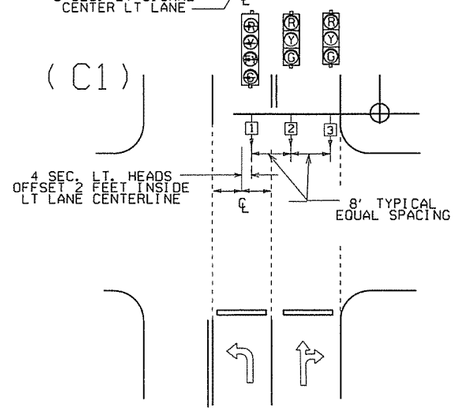
(C)



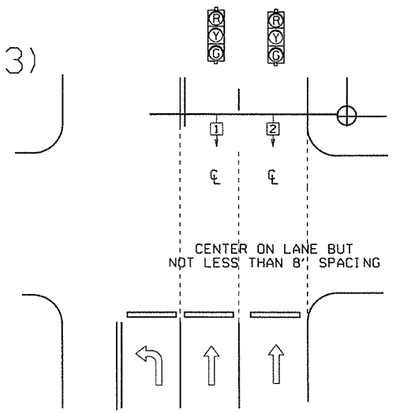
(C2)



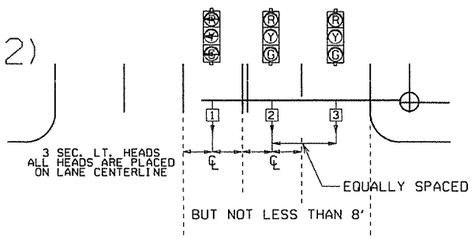
(C1)



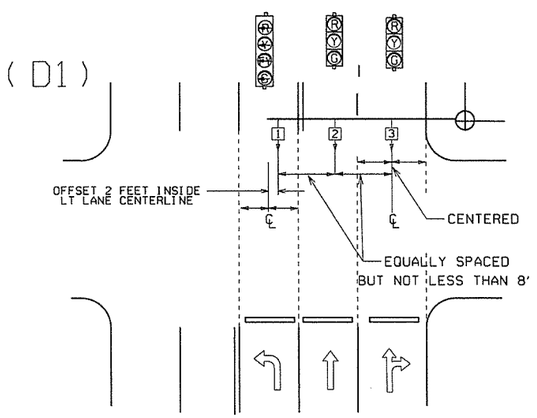
(C3)



(D2)

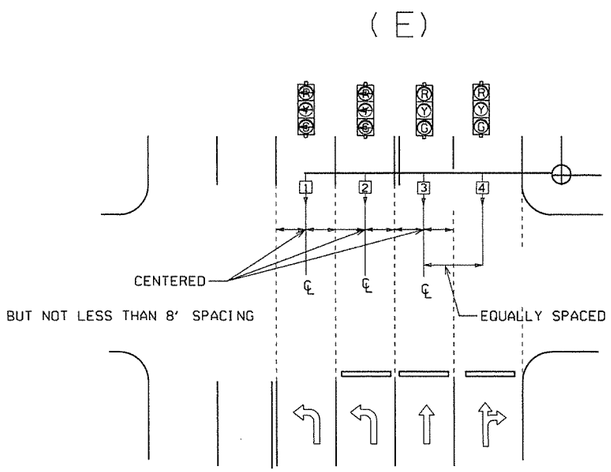


(D1)



NOTE: WHERE LEFT TURN HEAD (HEAD 1 ON D1 AND D2) IS NOT CALLED FOR ON PLANS, MAST ARM LENGTH MAY STILL BE ALLOWED FOR FUTURE INSTALLATION. HEADS FOR THROUGH MOVEMENTS SHALL STILL BE ALIGNED WITH THROUGH LANES AS SHOWN ON DETAILS.

(E)



℄ = CENTER OF LANE FROM APPROACH SIDE

GENERAL NOTES:

1. FOUR SECTION "PROTECTED/PERMISSIVE" LEFT TURN HEADS SHOULD BE PLACED A MINIMUM OF TWO (2') FEET TO THE RIGHT OF THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

2. THREE SECTION "PROTECTED" LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

3. WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEET(S) RESULTING IN MAST ARM EXTENDING MORE THAN TWO FEET PAST (TO THE LEFT OF) THE CENTERLINE OF THE APPROACHING LEFT TURN LANE, MAST ARM SHALL BE CUT TO APPROPRIATE LENGTH AS DETERMINED BY THE ENGINEER, AND A NEW END CAP PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THIS PRIOR TO INSTALLING THE MAST ARM IF ADDITIONAL COMPENSATION IS REQUIRED.

4. SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH.

5. ALL SIGNAL HEADS SHOWN ON THIS DETAIL SHEET SHALL BE LOCATED ACCORDING TO THE DIMENSIONS SHOWN IN RELATION TO THE APPROACH SIDE OF THE INTERSECTION.

6. MAXIMUM MOUNTING HEIGHT OF SIGNAL FACES LOCATED BETWEEN 40 FEET AND 53 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 4D-1 OF 2009 MUTCD.

9-12-13	ISSUED AS STANDARD DRAWING	
3-11-10	2009 MUTCD	
12-9-99	ISSUED	
DATE	REVISION	DATE FILM

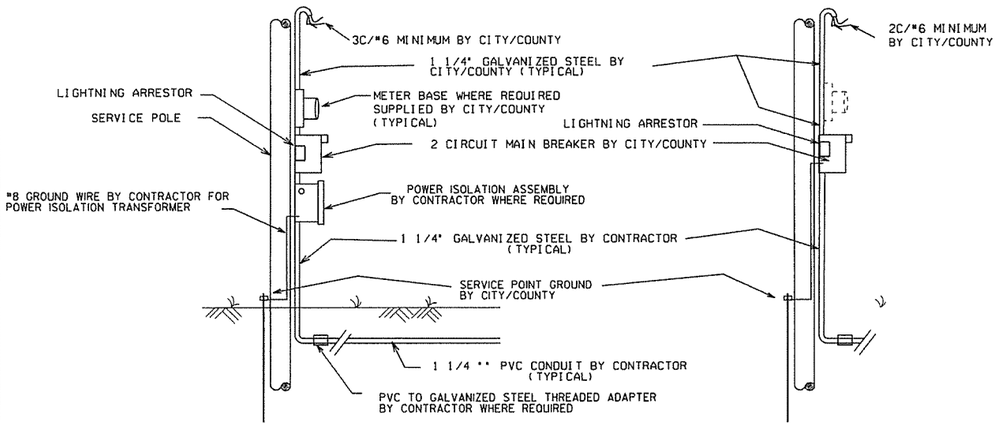
ARKANSAS STATE HIGHWAY COMMISSION

SIGNAL HEAD PLACEMENT

STANDARD DRAWING SD-8

MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

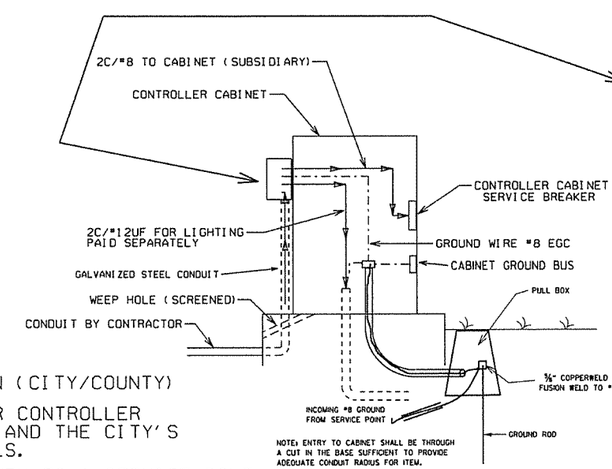
WITH POWER ISOLATION ASSEMBLY

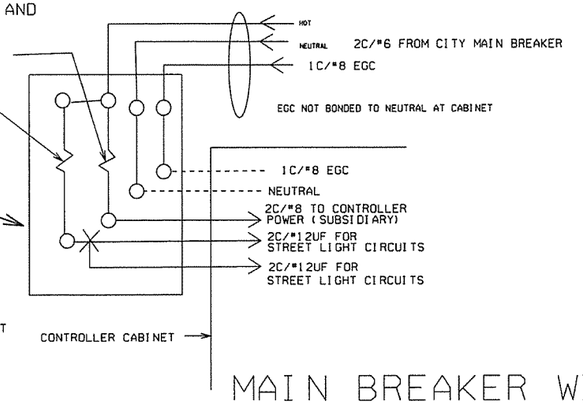


WITHOUT POWER ISOLATION ASSEMBLY

GROUND ROD-A 10' X ⅝" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND ½" NMC SHALL BE INCLUDED IN ITEM 701. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

SECONDARY BREAKER BY CONTRACTOR (SUBSIDIARY)





MAIN BREAKER WIRING (TYPICAL)

NOTES TO CONTRACTOR AND AGENCY RESPONSIBLE FOR MAINTENANCE OF THE INTERSECTION (CITY/COUNTY)

ELECTRICAL SERVICE TYPICALLY FALLS INTO TWO CATEGORIES: MAIN BREAKER NEAR CONTROLLER CABINET; AND MAIN BREAKER NOT NEAR CONTROLLER CABINET. THE CONTRACTOR'S AND THE CITY'S OR COUNTY'S RESPONSIBILITY VARIES ACCORDINGLY AS INDICATED ON THESE DETAILS.

1. ALL SITUATIONS: ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, LIGHTNING ARRESTOR, POWER ISOLATION ASSEMBLY WHERE REQUIRED, METER LOOP IF REQUIRED BY LOCAL UTILITY, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2C/#12 AWG UF RATED, TYPICAL) SHALL BE KEPT SEPARATE FROM THE CIRCUIT SERVING TRAFFIC SIGNAL. SERVICE WIRE AND WIRING FROM THE CONTROLLER TO MAIN BREAKER IS PROVIDED BY THE CONTRACTOR AS A PART OF THIS CONTRACT. WIRE AND WIRING FROM MAIN BREAKER, AND CONNECTION TO THE UTILITY IS THE RESPONSIBILITY OF THE CITY/COUNTY.

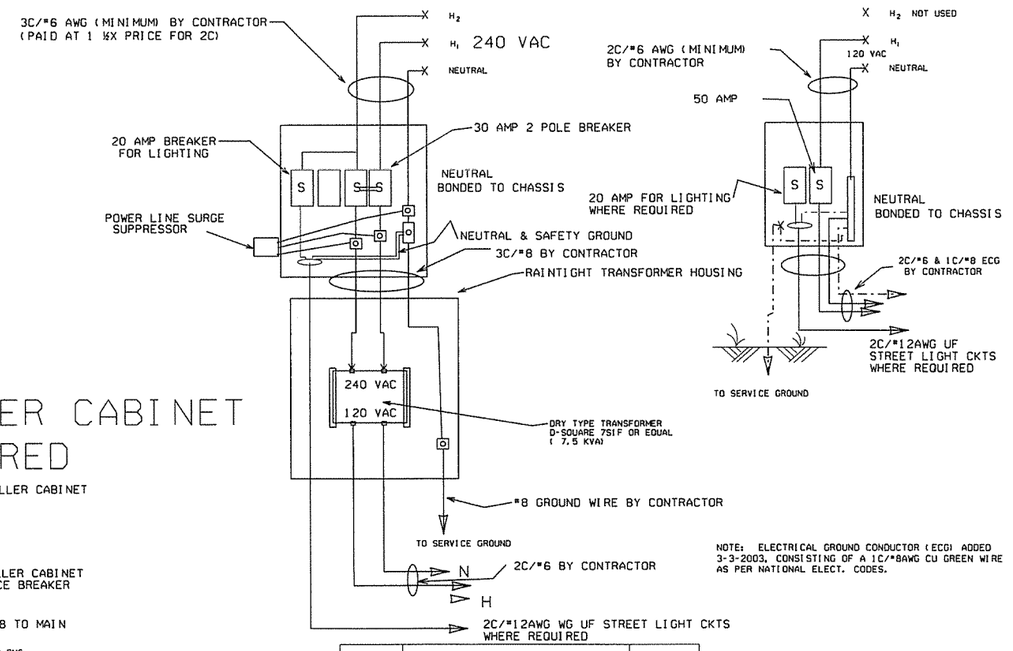
2. MAIN BREAKER NOT NEAR CONTROLLER CABINET: THE MAIN BREAKER ASSEMBLY, GALVANIZED STEEL CONDUIT, WEATHERHEAD AND WIRE ABOVE MAIN BREAKER AND CONNECTION TO THE UTILITY SHALL BE PROVIDED BY CITY/COUNTY. CONTRACTOR SHALL PROVIDE AS PART OF CONTRACT SECONDARY BREAKER, CONDUIT, WIRE AND WIRING TO THE MAIN BREAKER.

3. MAIN BREAKER NEAR CONTROLLER CABINET: ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER LOOP IS REQUIRED, METER BASE AND HARDWARE IS PROVIDED BY THE CITY/COUNTY AND INSTALLED BY THE CONTRACTOR.

SERVICE GROUND IS TYPICALLY TIED TO NEUTRAL AT THE MAIN BREAKER. AS SUCH, CONTROLLER GROUND IS NOT TIED TO NEUTRAL AT SECONDARY BREAKER OR IN CONTROLLER CABINET.

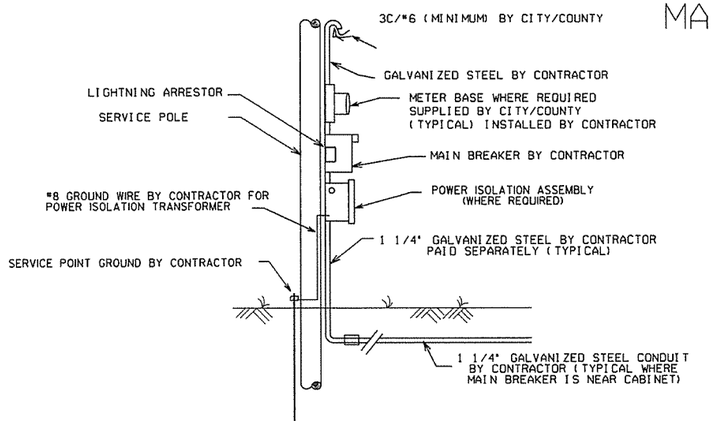
WITH POWER ISOLATION ASSEMBLY
4 CIRCUIT MAIN BREAKER

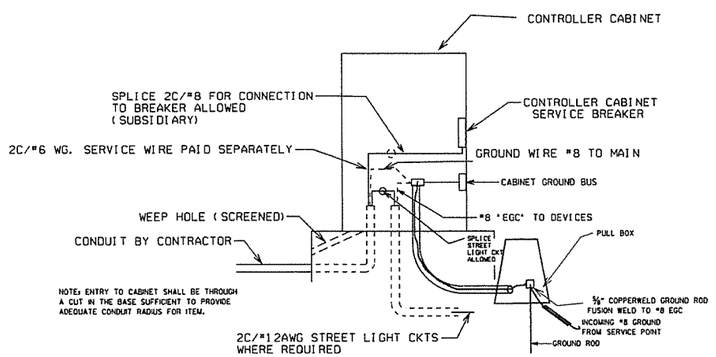
WITHOUT POWER ISOLATION ASSEMBLY
2 CIRCUIT MAIN BREAKER



NOTE: ELECTRICAL GROUND CONDUCTOR (ECG) ADDED 3-3-2003, CONSISTING OF A 1C/#8AWG CU GREEN WIRE AS PER NATIONAL ELECT. CODES.

MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED





DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
4-18-13	ADDED LIGHTNING ARRESTOR	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
3-3-03	ADDED EGC NOTE	
9-26-01	REVISED	
12-27-99	REVISED	
7-28-99	REVISED	
2-5-99	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SERVICE POINT

STANDARD DRAWING SD-9

NOTES, PED AND TRAFFIC SIGNAL HEAD SIGNS:
EACH ITEM "TRAFFIC SIGNAL HEAD (4 SEC., 1-WAY)" SHALL INCLUDE A SPECIAL SIGN AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD UNLESS REMOVED WITHIN THE SIGNAL PLAN NOTES.

EACH ITEM "TRAFFIC SIGNAL HEAD (3 SEC., 1-WAY)" TO BE USED AS A LEFT TURN INDICATION ONLY SHALL INCLUDE A SIGN (R10-10) AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD.

EACH PEDESTRIAN PUSHBUTTON SHALL HAVE ONE R10-3E SIGN ATTACHED TO THE POLE ABOVE THE BUTTON. ALL SIGN FACES SHALL BE CONSTRUCTED OF HIGH INTENSITY SHEETING (TYPE III) WITH SILKSCREEN LEGEND AND BORDER.

ALL SIGN BLANKS SHALL BE CONSTRUCTED OF ALUMINUM ALLOY (ASTM DESIGNATION B-209, ALLOY 5052-H38) WITH THICKNESS OF 0.100 INCH.

GENERAL NOTES:
1. MAST ARM POLES SHALL BE MOUNTED A MINIMUM OF 4 FT. BEHIND CURB OR SHOULDER.

2. OCTAGONAL POLES AND ARMS MEETING THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS CAN BE INSTALLED IN LIEU OF ROUND. ALL POLES AND ARMS IN A JOB MUST BE THE SAME SHAPE.

3. MINIMUM STRUCTURAL REQUIREMENTS:
DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

USE FATIGUE CATEGORY I FOR ALL STRUCTURES ON ROUTES WHERE THE SPEED LIMIT IS 65 MPH AND GREATER AT THE STRUCTURE LOCATION AND ON ROUTES WHERE SPEED LIMIT IS GREATER THAN 45 MPH WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY II FOR STRUCTURES ON ROUTES WITH A SPEED LIMIT LESS THAN 65 MPH AND GREATER THAN 45 MPH WITH ARMS LESS THAN 60' AND ROUTES WITH SPEED LIMITS OF 45 MPH AND LESS WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY III FOR ALL STRUCTURES WHERE SPEED LIMIT IS 45 MPH AND LESS AND ARMS LESS THAN 60'.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH.

STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN 1/2" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

DEAD LOAD: AS A MINIMUM, DESIGN SHALL BE BASED ON THE FIXED ATTACHMENTS SHOWN BELOW OR AS MODIFIED IN THE PLANS.

ALL SIGNAL HEADS TO BE ONE WAY, 12 INCH, AND HAVE 5 IN. BACK PLATES:

HEADS AT END OF ARM - ONE 4 SEC., 85 LB., 16.0 SQ. FT. ONE SIGN MOUNTED 3 FT. FROM SIGNAL * 2' X 6', 20 LB. REMAINING HEADS SPACED A 8 FT. * 3 SEC., 56 LB., TWO 5 SEC):
14.4 SQ. FT. DESIGN TO ACCOMMODATE (INCLUDING
2 HEADS FOR ARMS 10 TO 16 FT.
2 HEADS FOR ARMS 10 TO 16 FT., INCLUDING LB.
3 HEADS FOR 18 TO 24 FT. ARMS;
4 HEADS FOR OVER 26 FT. ARMS.

STREET NAME SIGN -- 72" X 18", 36 LB., MOUNTED SUCH THAT OUTSIDE EDGE IS NOT GREATER THAN 12 FT. FROM POLE. DEPENDING UPON POSITION OF SIGNAL HEAD ADJACENT TO POLE, SIGN MAY OVERLAP POLE SHAFT
ROADWAY LUMINAIRES (WHERE REQUIRED ON PLAN SHEET) * VARIABLE ARM LENGTH (MAX.), 3.3 SQ. FT., 75 LB. PED SIGNALS -- TWO 2 SEC. 12 INCH MOUNTED 8 FT. FROM BASE OF POLE.
POST MOUNTED 3 SEC. SIGNAL HEAD AT 10 FT. ON SIDE OF POLE.

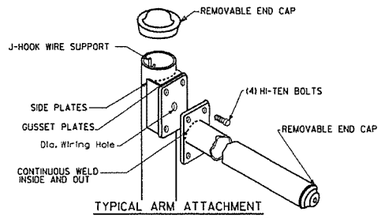
4. POLE/MAST ARM CAP -- POLE AND MAST ARMS CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

5. HAND HOLE -- HAND HOLES SHALL BE 4 X 6 INCHES FOR STANDARD, AND 3 X 5 INCHES FOR PED POLES, MINIMUM PLACED APPROXIMATELY 12 INCHES FROM BASE, AND SHALL BE FIXED WITH A BOLT DOWN COVER. A VACUUM FORMED ABS COVER IS AN ACCEPTABLE ALTERNATE TO STEEL. POLES GREATER THAN 21 FT. IN HEIGHT (FOR ROADWAY LUMINAIRE ATTACHMENT) SHALL INCLUDE A HAND HOLD WITHIN 12 INCHES OF MAST ARM(S) ATTACHMENT(S).

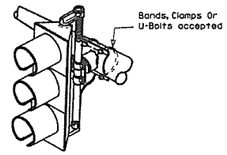
6. POLE/MAST ARM TAPER AND SLOPE - AVERAGE TAPER OF SIGNAL ARMS AND POLE SHALL BE 0.125 TO 0.15 INCHES PER FT.

MAST ARM CENTERLINE ANGLE AT ATTACHMENT POINT WITH POLE SHALL MAINTAIN NOT LESS THAN 0.5 DEGREES OR MORE THAN 4 DEGREES POSITIVE SLOPE WITH A LINE PERPENDICULAR TO THE POLE CENTERLINE. THE ARM SHALL MAINTAIN A POSITIVE AFTER IT IS PLACED UNDER LOAD.

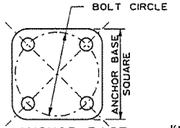
7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.



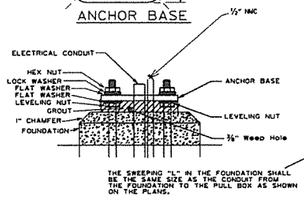
TYPICAL ARM ATTACHMENT

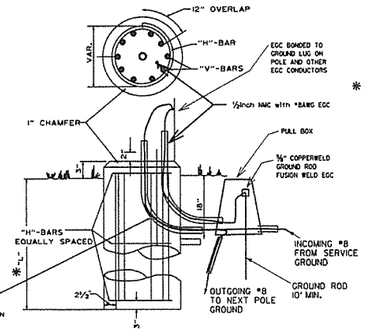


NOTE: THE SIGNAL SHALL BE CONNECTED TO THE MAST ARM BY BRACKETING AS DIRECTED BY THE ENGINEER.



ANCHOR BASE



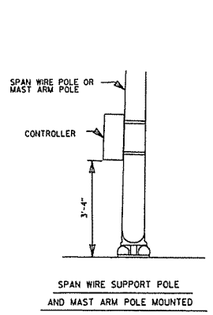


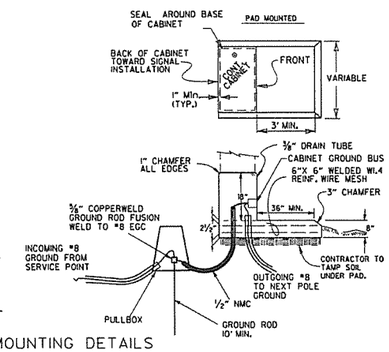
THE GROUND ROD SHALL BE FUSION WELDED TO A 1C/#8 A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX.

TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING. ALL REINFORCING STEEL SHALL BE GRADE 40 MIN.

ARM LENGTH	FDN. DIAMETER	DEPTH "L" *	STEEL VERT.	STEEL HORZ.	STEEL O/C.
PED	30"	7'-0"	12-#7 (6'-6")	10-#4	8.44"
2' to 12'	30"	10'-6"	12-#7 (10'-0")	15-#4	8.42"
over 12' to 20'	30"	11'-6"	12-#7 (11'-0")	16-#4	8.66"
over 20' to 35'	36"	12'-6"	13-#8 (12'-0")	17-#4	8.88"
over 35' to 50'	36"	13'-6"	13-#8 (13'-0")	19-#4	8.56"
over 50' to 72'	42"	14'-6"	18-#8 (14'-0")	20-#4	8.74"
Twins to 20'	30"	16'-0"	12-#6 (15'-6")	22-#4	8.76"
Twins over 20' to 44'	36"	16'-0"	13-#8 (15'-6")	22-#4	8.76"
Twins over 44' to 50'	42"	16'-0"	18-#8 (15'-6")	22-#4	8.76"
Twins over 50' to 72'	42"	16'-6"	18-#8 (16'-0")	23-#4	8.64"





CONTROLLER CABINET MOUNTING DETAILS

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CABINET ORIENTATION SHALL BE SUCH THAT THE BACK OF THE CABINET IS PARALLEL TO THE STREET AND POSITIONED TO ALLOW VISIBILITY OF THE SIGNAL DISPLAY WHILE OBSERVING THE CONTROLLER FRONT PANEL.

8. GROUND ROD - A 10' X 5/8" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 714 FOR SIGNAL POLES AND ITEM 701 FOR THE CONTROLLER. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

9. POLE BASE/FOUNDATION - ANCHOR BOLTS SHALL INCLUDE AS A MINIMUM, ONE LEVELING NUT, TWO FLAT WASHERS, ONE LOCK WASHER, AND ONE HEX. NUT. PERIMETER OF ANCHOR BASE SHALL BE GROUTED WITH A 1/4" WEEP HOLE. ALL CONCRETE SHALL BE CLASS "S" OR GREATER.

10. CONCRETE - ALL CONCRETE FOR CONTROLLER CABINET AND POLE FOUNDATIONS SHALL BE CLASS "S" OR GREATER.

11. PEDESTRIAN PHASES - PEDESTRIAN MOVEMENTS SHALL BE PUSH BUTTON ACTUATED AND CONCURRENTLY TIMED, UNLESS OTHERWISE INDICATED ON THE PLAN SHEET(S). FURNISHING AND INSTALLING PED PUSH SWITCH SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM PEDESTRIAN SIGNAL HEAD.

SIGNAL OPERATION NOTES:

FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORK DAYS OR AS DIRECTED BY THE ENGINEER. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.

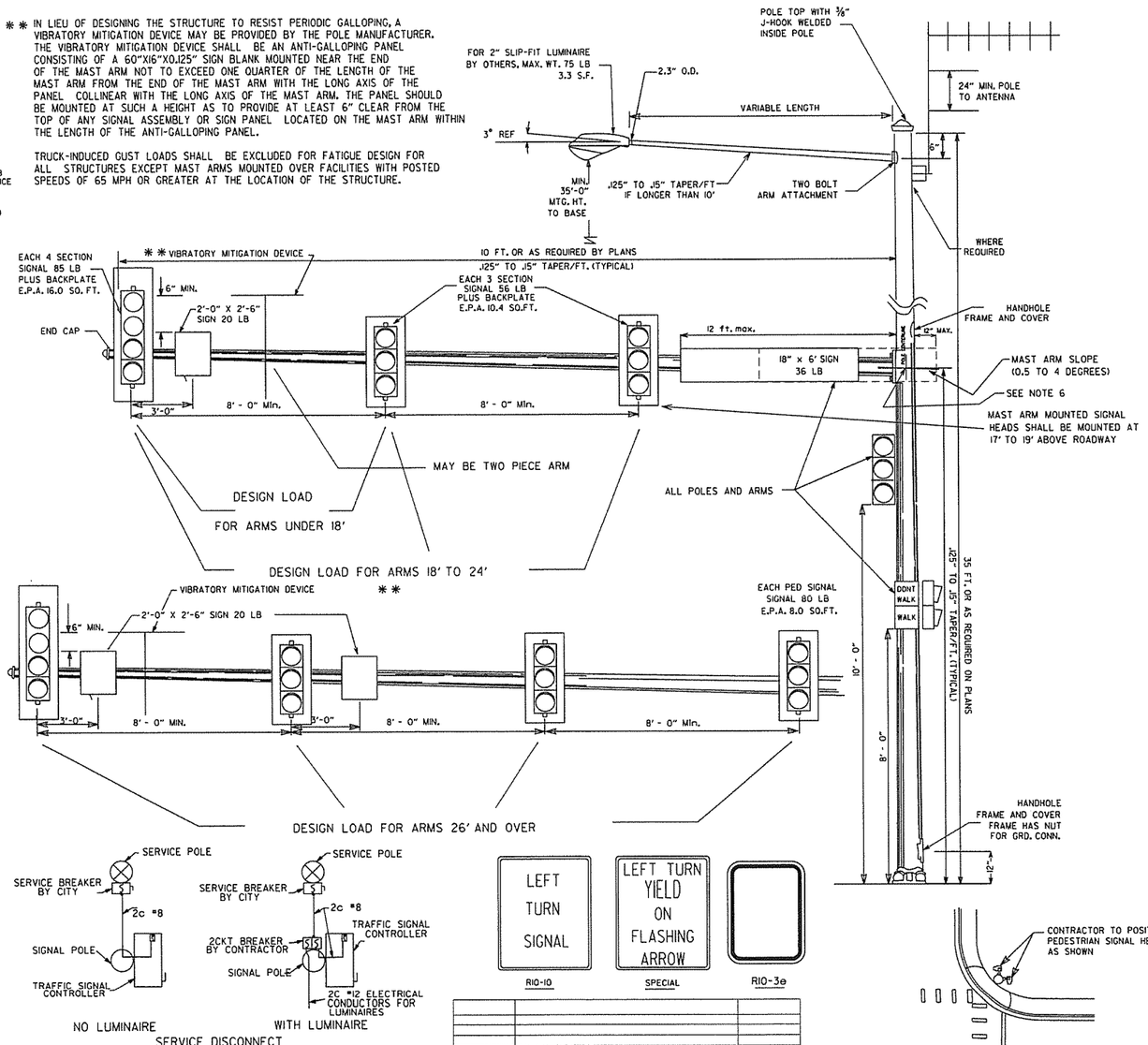
THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD. AT THE TIME INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATIONS IN FLASH SEQUENCE.

SPECIAL NOTE: 90 MPH WIND ZONE DESIGN, SEE NOTE 3. MINIMUM STRUCTURAL REQUIREMENTS.

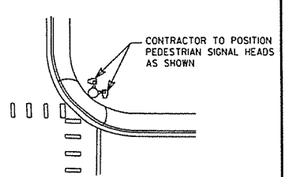
* WHEN THE GROUND ELEVATION AT THE POLE IS LOWER THAN THE ROADWAY ELEVATION, THE LENGTH OF FOUNDATION ABOVE THE GROUND MAY BE INCREASED TO PROVIDE THE REQUIRED SIGNAL HEAD CLEARANCE ABOVE THE ROADWAY. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 18" OR LESS, NO INCREASE IN DEPTH "L" WILL BE REQUIRED. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 5'-6" OR LESS, INCREASE DEPTH "L" BY 1'-0". FOR LENGTHS GREATER THAN 5'-6", DEPTH "L" SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. LONGITUDINAL REINFORCING, AS SHOWN IN THE TABLE, SHALL BE PROVIDED FOR THE LENGTH OF THE EXTENDED SHAFT AND #4 TIES SHALL BE PROVIDED AT A SPACING NOT TO EXCEED 9" ON CENTERS. PAYMENT WILL BE IN ACCORDANCE WITH SECTION 714 OF THE STANDARD SPECIFICATIONS.

** IN LIEU OF DESIGNING THE STRUCTURE TO RESIST PERIODIC GALLOPING, A VIBRATORY MITIGATION DEVICE MAY BE PROVIDED BY THE POLE MANUFACTURER. THE VIBRATORY MITIGATION DEVICE SHALL BE AN ANTI-GALLOPING PANEL CONSISTING OF A 60"X16"X0.125" SIGN BLANK MOUNTED NEAR THE END OF THE MAST ARM NOT TO EXCEED ONE QUARTER OF THE LENGTH OF THE MAST ARM FROM THE END OF THE MAST ARM WITH THE LONG AXIS OF THE PANEL COLLINEAR WITH THE LONG AXIS OF THE MAST ARM. THE PANEL SHOULD BE MOUNTED AT SUCH A HEIGHT AS TO PROVIDE AT LEAST 6" CLEAR FROM THE TOP OF ANY SIGNAL ASSEMBLY OR SIGN PANEL LOCATED ON THE MAST ARM WITHIN THE LENGTH OF THE ANTI-GALLOPING PANEL.

TRUCK-INDUCED GUST LOADS SHALL BE EXCLUDED FOR FATIGUE DESIGN FOR ALL STRUCTURES EXCEPT MAST ARMS MOUNTED OVER FACILITIES WITH POSTED SPEEDS OF 65 MPH OR GREATER AT THE LOCATION OF THE STRUCTURE.



SERVICE DISCONNECT



PEDESTRIAN SIGNAL HEADS

DATE	REVISION	DATE FILM
2-27-14	REVISED NOTES.	
9-12-13	ISSUED AS STANDARD DRAWING	
7-21-11	REVISED VMD, SIGNAL HEADS	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
4-25-08	ADDED VIBRATORY MITIGATION DEVICE & NOTES	
4-18-08	REVISED AASHTO NOTES	
4-17-08	REVISED TO 2001 AASHTO STANDARDS	
10-12-04	REVISED CABINET ORIENTATION	
6-23-04	REVISED	
5-3-04	REV. NOTE 3/AASHTO REQUIREMENTS	
6-11-01	REV. NOTES & POLE MAST ARM SLOPE	
4-8-01	REVISED POLE TAPERS	
4-25-00	REV. NOTES & SIGNAL HEAD PLACEMENT	
11-22-99	REVISED FOUNDATION DETAILS	
11-17-98	REVISED DETAILS AND NOTES	
11-21-95	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

STEEL POLE WITH MAST ARM

STANDARD DRAWING SD-11

SUPERELEVATION TABLE FOR ONE - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			40 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH		
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)	
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE
0° 15′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45′	N.C.			N.C.			R.C.			0.022			0.023			0.025			0.028		
1° 00′	N.C.			N.C.			0.021			0.026			0.030			0.033	250		0.037	275	
1° 15′	N.C.			R.C.			0.026			0.032			0.037			0.041			0.046		
1° 30′	N.C.			0.021			0.031	200		0.037	225		0.043	250		0.048			0.054		
1° 45′	N.C.			0.025	175		0.036			0.043			0.049			0.055			0.062		
2° 00′	R.C.			0.028			0.040			0.048			0.055			0.062			0.070		
2° 15′	R.C.			0.031			0.045		300	0.053			0.061			0.069	265		0.078	300	400
2° 30′	0.021			0.034			0.049			0.058			0.067			0.075	280		0.085	315	
2° 45′	0.023			0.037			0.053			0.063			0.072			0.081	300		0.091	335	
3° 00′	0.025	150		0.040		250	0.057			0.067	230		0.077	260		0.087	315		0.096	350	
3° 15′	0.027			0.043			0.061			0.072	245		0.082	275		0.090	325	400	0.098	360	450
3° 30′	0.029			0.046			0.065	205		0.076	255		0.086	285		0.095	340		0.100	360	
3° 45′	0.031		250	0.049			0.069	215		0.080	265		0.090	295	400	0.097	345				
4° 00′	0.033			0.051			0.072	225		0.083	270		0.093	305		0.099	350				
4° 30′	0.037			0.056			0.078	240		0.087	280		0.096	315							
5° 00′	0.040			0.061			0.083	250		0.091	295	400	0.098	320							
5° 30′	0.043			0.066	185		0.088	260		0.094	300										
6° 00′	0.046			0.070	190		0.092	270		0.096	305										
6° 30′	0.050			0.074	200		0.095	280	350	0.100	315										
7° 00′	0.053			0.078	210		0.098	285													
7° 30′	0.056			0.081	215		0.099	290													
8° 00′	0.058			0.084	220	300	0.100	290													
8° 30′	0.061			0.087	225																
9° 00′	0.063			0.089	230																
10° 00′	0.068	160		0.094	235																
11° 00′	0.072	170		0.097	250																
12° 00′	0.076	175		0.099	250																
13° 00′	0.080	180		0.100	250																
14° 00′	0.083	190																			
15° 00′	0.086	195																			
16° 00′	0.089	200																			
17° 00′	0.091	200																			
18° 00′	0.093	205																			
19° 00′	0.095	210																			
20° 00′	0.097	215	300																		
21° 00′	0.098	215																			
22° 00′	0.099	215																			
23° 00′	0.099	215																			
24° 00′	0.100	220																			

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 4° 15′ | D MAX = 3° 30′

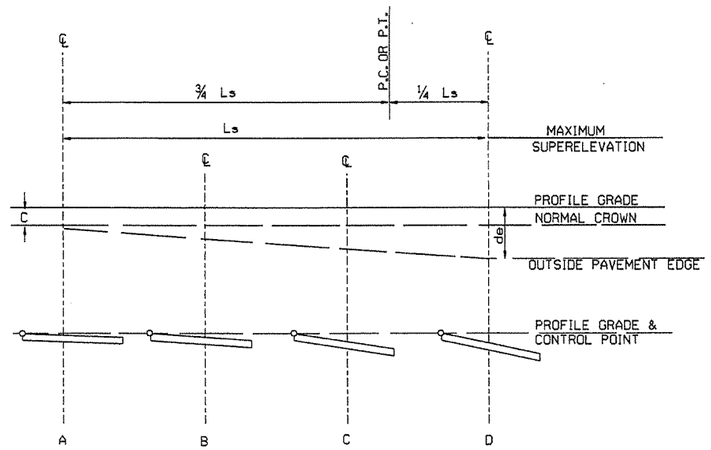
GENERAL NOTES

1. ON PAVEMENT WITH ONE-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE PROFILE GRADE POINT.
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L_s MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. MINIMUM L_s VALUES MAY BE USED FOR RAMPS; DESIRABLE VALUES SHALL APPLY TO MAIN LANES.
5. DIVIDED PAVEMENTS WIDER THAN 4 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLOWS:

6 LANE DIVIDED---------+20%
8 LANE DIVIDED---------+50%

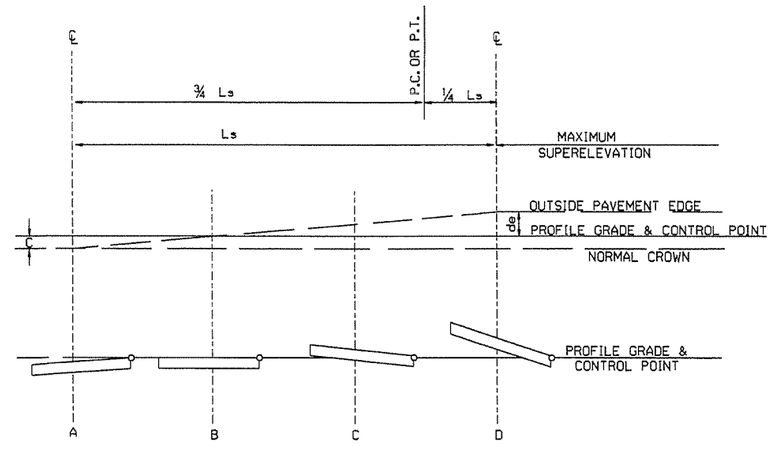
ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
S - SUPERELEVATION
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT
e - MAXIMUM RATE OF SUPERELEVATION (FT. PER FT.)
L_s - LENGTH OF SUPERELEVATION TRANSITION (FT.)
C - NORMAL CROWN (FT.)



ONE-WAY TRAFFIC
INSIDE LANE

SUPERELEVATION FORMULA = $S = -\frac{L(de+C)}{Ls} - C$



ONE-WAY TRAFFIC
OUTSIDE LANE

SUPERELEVATION FORMULA = $S = +\frac{L(de+C)}{Ls} - C$

DATE	REVISION	DATE FILMED
01-09-87	ISSUED	578-1-15-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC

STANDARD DRAWING SE-1

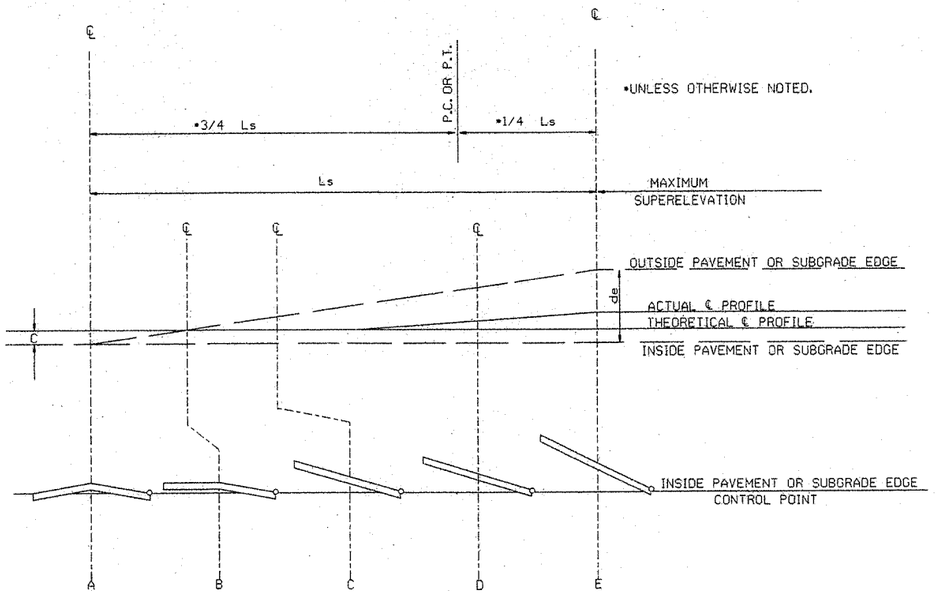
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N. C.			N. C.			N. C.			N. C.			N. C.			N. C.		
0° 30′	N. C.			N. C.			N. C.			0. 022			0. 023			0. 028		
0° 45′	N. C.			N. C.			R. C.			0. 026			0. 030			0. 037	275	300
1° 00′	N. C.			N. C.			0. 021			0. 032			0. 037			0. 046		
1° 15′	N. C.			R. C.			0. 026			0. 037			0. 043	250	300	0. 054		
1° 30′	N. C.			0. 021			0. 031	200		0. 043	225	300	0. 049			0. 062		
1° 45′	N. C.			0. 025	175		0. 036			0. 048			0. 055			0. 070		
2° 00′	R. C.			0. 028			0. 040			0. 053			0. 061			0. 078	300	350
2° 15′	R. C.			0. 031			0. 045		250	0. 058			0. 067			0. 085	315	
2° 30′	0. 021			0. 034			0. 049			0. 063			0. 072			0. 091	335	
2° 45′	0. 023			0. 037			0. 053			0. 067	230		0. 077	260		0. 096	350	400
3° 00′	0. 025	150		0. 040		200	0. 057			0. 072	245		0. 082	275		0. 098	360	
3° 15′	0. 027			0. 043			0. 061			0. 076	255		0. 086	285		0. 100	360	
3° 30′	0. 029			0. 046			0. 065	205		0. 080	265		0. 090	295		D MAX = 3° 30′		
3° 45′	0. 031		200	0. 049			0. 069	215		0. 083	270		0. 093	305	350			
4° 00′	0. 033			0. 051			0. 072	225		0. 087	280		0. 096	315				
4° 30′	0. 037			0. 056			0. 078	240		0. 091	295		0. 098	320				
5° 00′	0. 040			0. 061			0. 083	250		0. 094	300	350	D MAX = 5° 15′					
5° 30′	0. 043			0. 066	185		0. 088	260		0. 096	305							
6° 00′	0. 046			0. 070	190		0. 092	270		0. 100	315							
6° 30′	0. 050			0. 074	200		0. 095	280	300	D MAX = 6° 30′								
7° 00′	0. 053			0. 078	210		0. 098	285										
7° 30′	0. 056			0. 081	215		0. 099	290										
8° 00′	0. 058			0. 084	220		0. 100	290										
8° 30′	0. 061			0. 087	225	250	D MAX = 8° 15′											
9° 00′	0. 063			0. 089	230													
10° 00′	0. 068	160		0. 094	235													
11° 00′	0. 072	170		0. 097	250													
12° 00′	0. 076	175		0. 099	250													
13° 00′	0. 080	180		0. 100	250													
14° 00′	0. 083	190		D MAX = 13° 15′														
15° 00′	0. 086	195																
16° 00′	0. 089	200																
17° 00′	0. 091	200																
18° 00′	0. 093	205																
19° 00′	0. 095	210																
20° 00′	0. 097	215	250															
21° 00′	0. 098	215																
22° 00′	0. 099	215																
23° 00′	0. 099	215																
24° 00′	0. 100	220																

D MAX = 24° 45′

ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
e - RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
C - NORMAL CROWN (FT.)



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

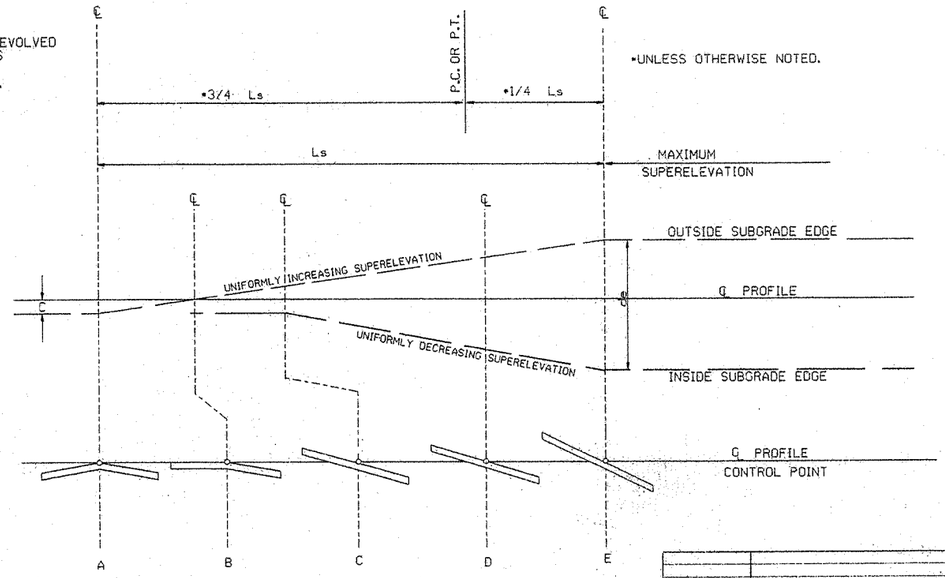
GENERAL NOTES

1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

3 LANE UNDIVIDED - - - - - +20%
4 LANE UNDIVIDED - - - - - +50%
5 LANE UNDIVIDED - - - - - +80%
6 LANE UNDIVIDED - - - - - +100%

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

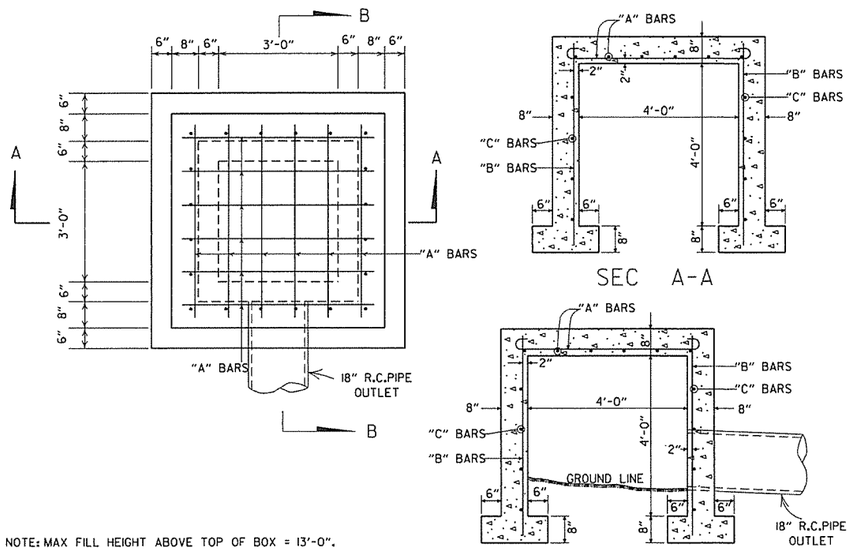
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

FILE STDSE2.DGN

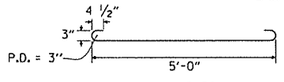


NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 1/2"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



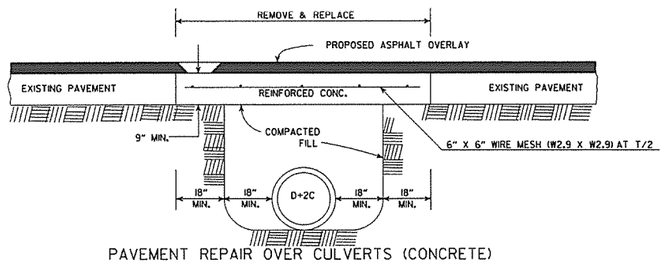
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

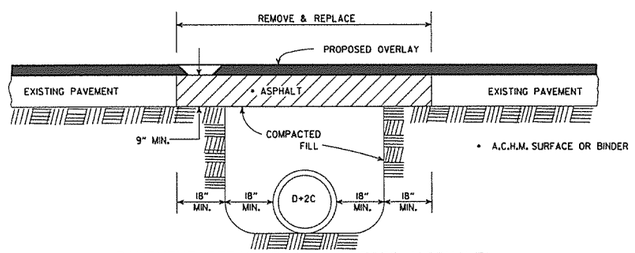
GENERAL NOTE:

THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



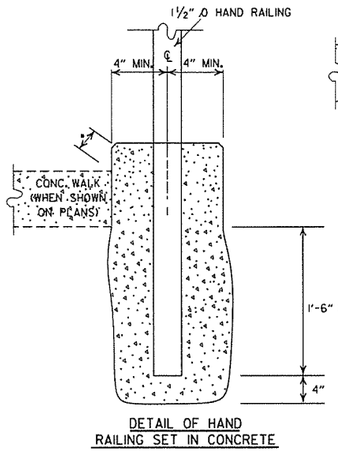
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



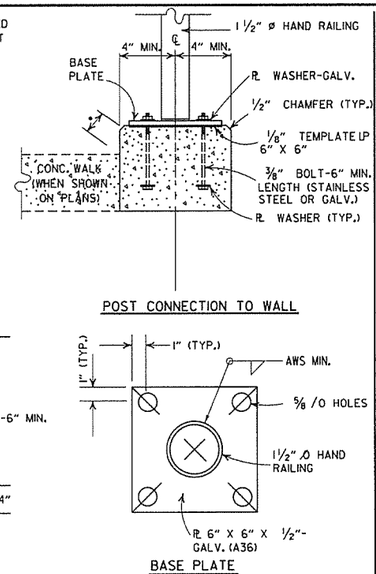
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

* A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



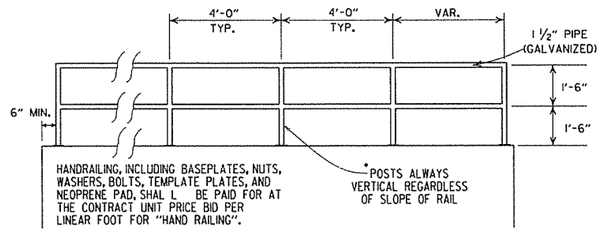
DETAIL OF HAND RAILING SET IN CONCRETE



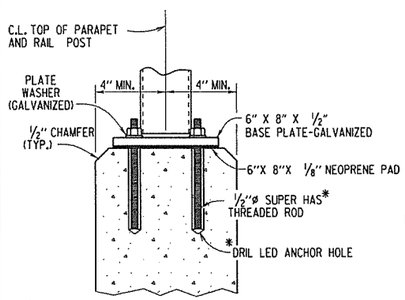
POST CONNECTION TO WALL

BASE PLATE

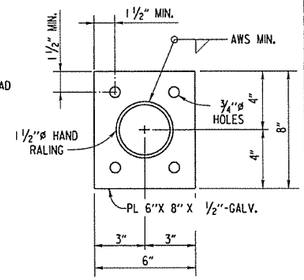
POST CONNECTION DETAILS



HAND RAILING SHALL CONFORM TO SECTION 633.



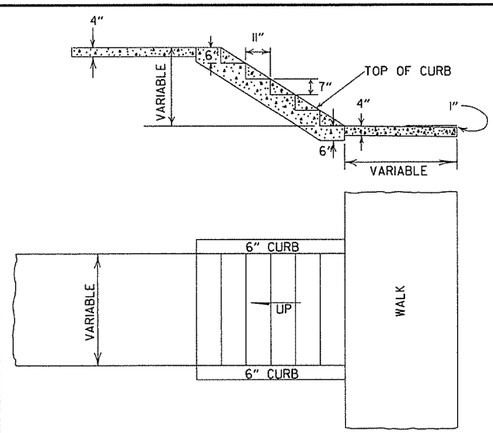
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILMED
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE;REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

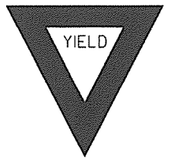
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1

R1-1

STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2

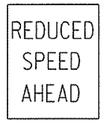


STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5A



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5C

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

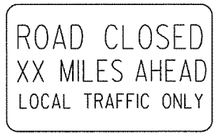
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2

48"X30"

R11-3A



60"X30"

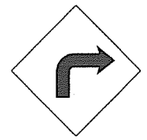
R11-4

60"X30"

RSP-1

48"X30"

W1-1



STD. 36"X36"
FWY. 48"X48"

W1-2

STD. 36"X36"
FWY. 48"X48"

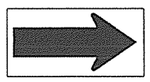
W1-3

STD. 48"X48"

W1-4

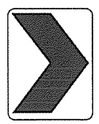
STD. 48"X48"

W1-6



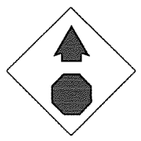
STD. 48"X24"
SPECIAL 60"X30"

W1-8



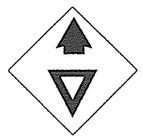
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



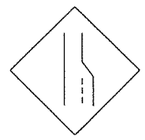
STD. 36"X36"
SPECIAL 48"X48"

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"

W13-1

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"

W1-4b

STD. 48"X48"

R56-1

STD. 18"X18"

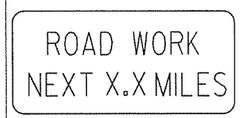
W8-11

STD. 36"X36"
FWY. 48"X48"

W8-9

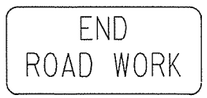
STD. 36"X36"
FWY. 48"X48"

G20-1



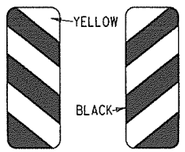
60"X24"

G20-2



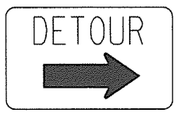
48"X24"

OM-3L OM-3R



12"X36"

M4-9



STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1

FINES DOUBLE
IN WORK ZONES *

WHEN WORKERS
ARE PRESENT **

36"X60"

* USE 6" C LETTERS
** USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.

2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.

3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.

• 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.

• 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.

6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.

7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.

8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.

9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.

10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

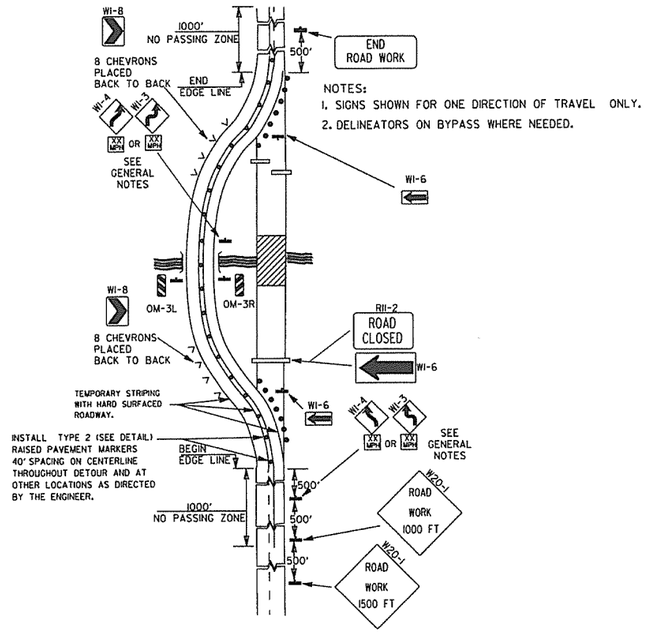
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

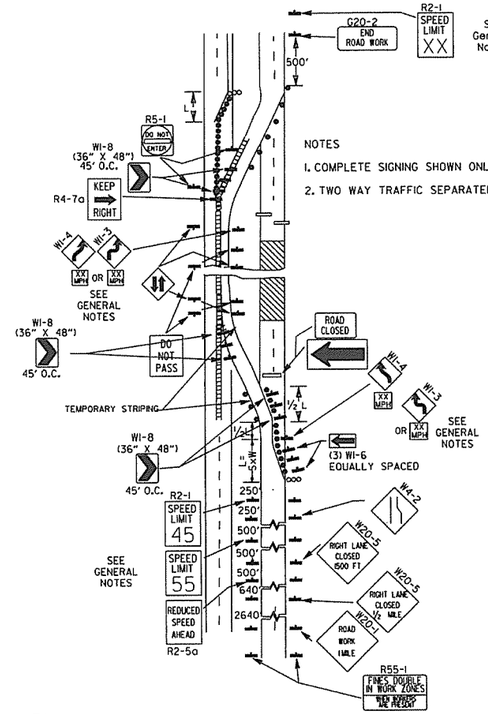
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



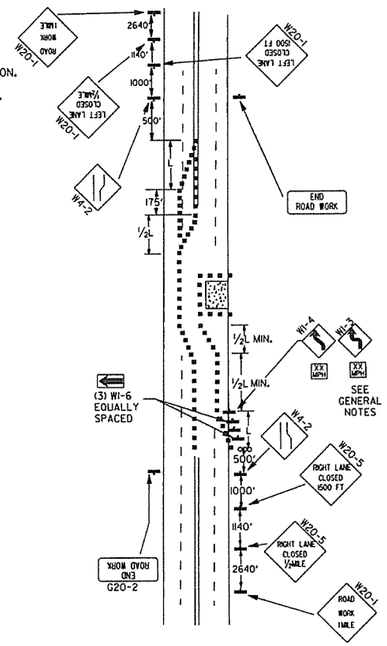
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

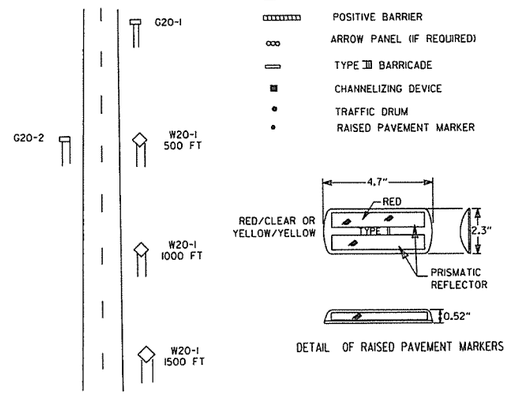


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

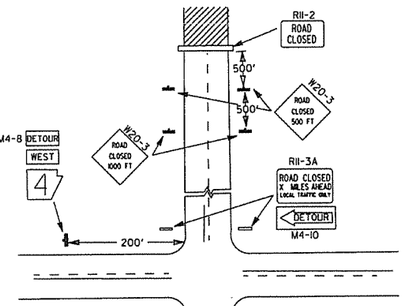
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

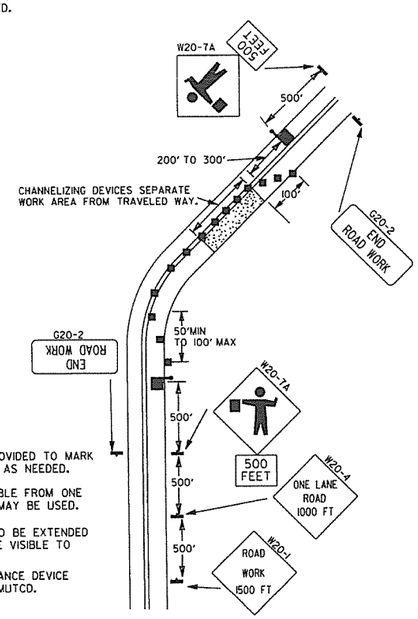


TYPICAL ADVANCE WARNING SIGN PLACEMENT



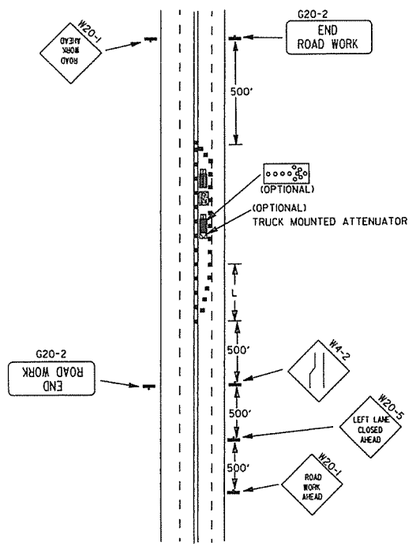
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

GENERAL NOTES:

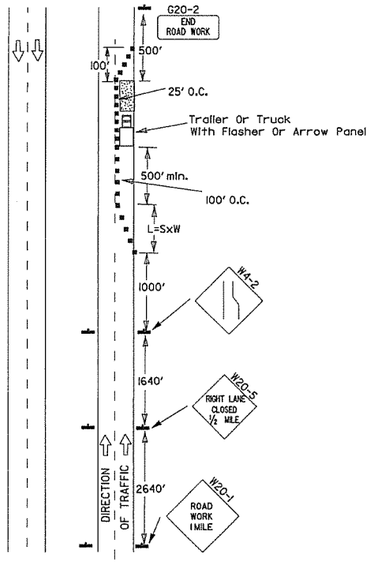
1. ADVISORY SPEED POSTED ON WI-3 OR WI-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON WI-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

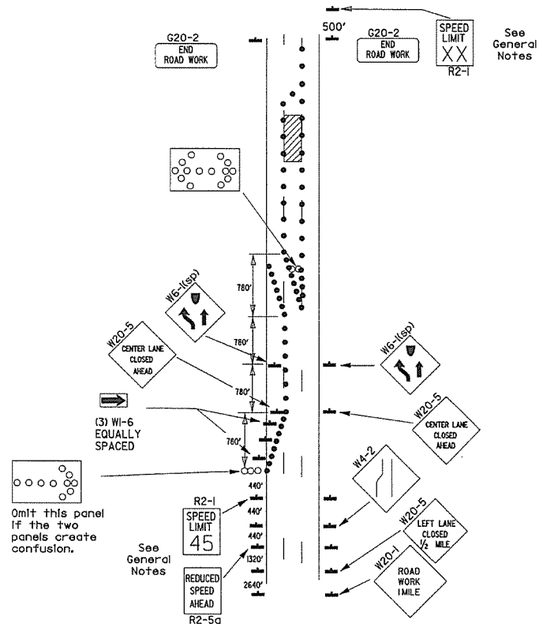
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

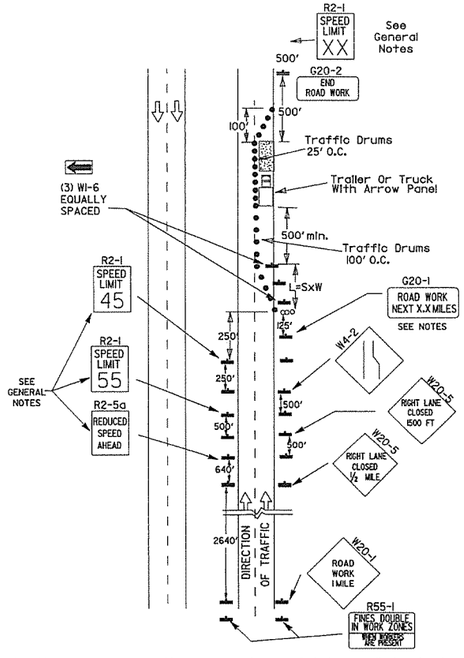
STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



(B) Typical application - 3-lane oneway roadway where center lane is closed.



(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

KEY:

○○○ Arrow Panel (If Required)

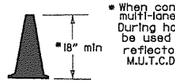
■ Channelizing Device

● Traffic drum

GENERAL NOTES:

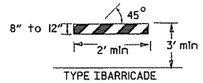
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-155mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

Channelizing devices



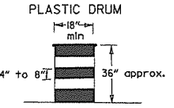
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

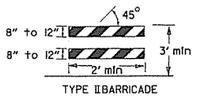
CONES



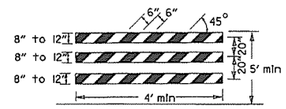
TYPE I BARRICADE

PLASTIC DRUM

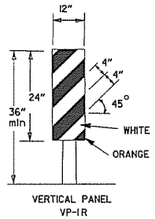




TYPE II BARRICADE



TYPE III BARRICADE



VERTICAL PANEL
VP-1R

NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

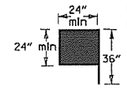
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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.

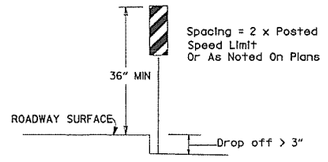
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG

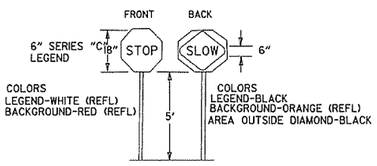


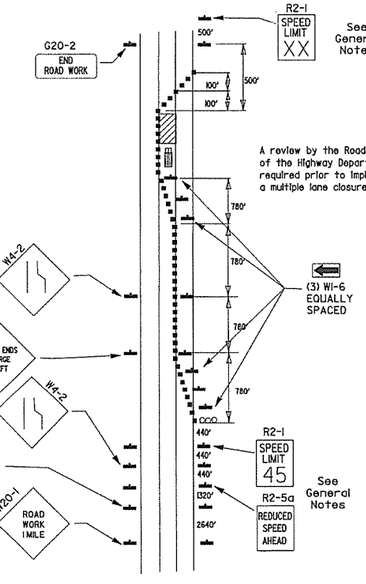
Flag shall be of good grade red material

VERTICAL PANEL PLACEMENT



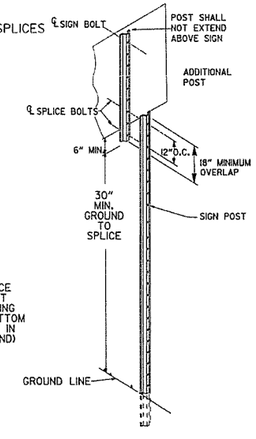
STOP SLOW PADDLE





(D) Typical application - closing multiple lanes of a multilane highway.

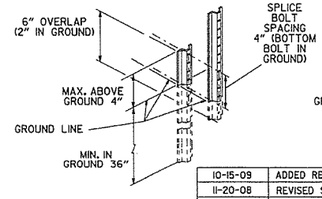
DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

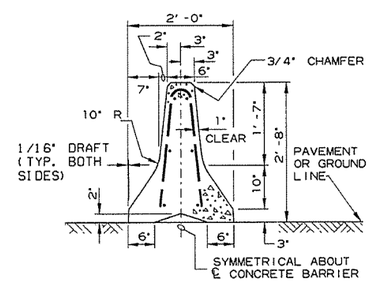
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

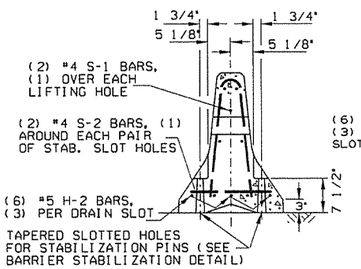
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT

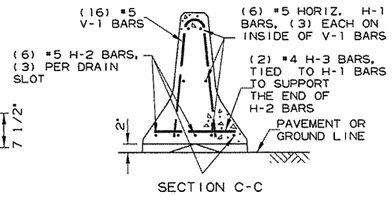
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", 90°, 3 3/8" R, LIFTING HOLE
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9", 2 3/16" R, 12°, ±9 1/2", 2'-1 3/8", 4 3/8"



SECTION A-A



SECTION B-B

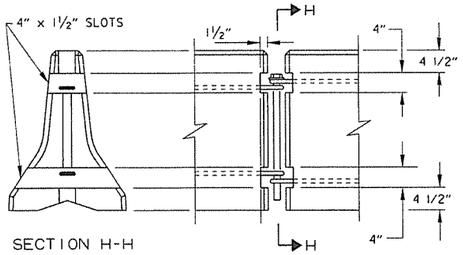


SECTION C-C

VIEW D-D

VIEW D'-D'

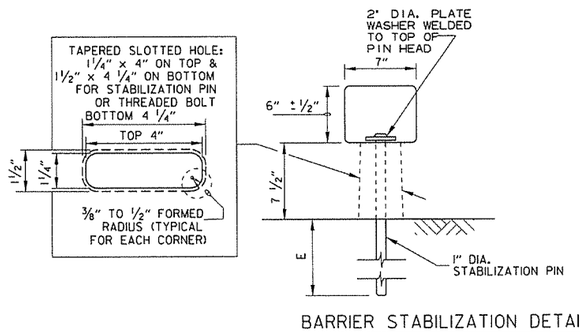
ELEVATION



SECTION H-H

ELEVATION

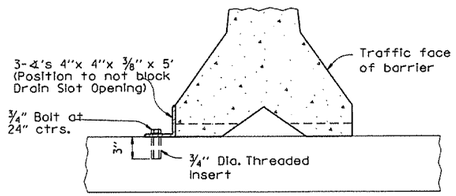
BARRIER REMOVAL SLOT DETAILS



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

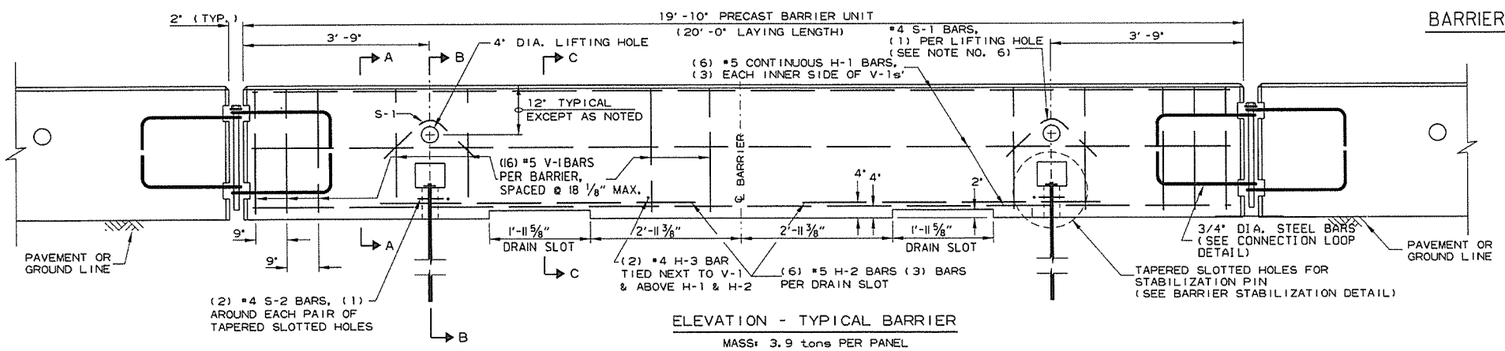
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL

BRIDGE DECKS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

General Notes

1. The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.

2. Materials shall meet the following minimum requirements:
   Concrete: 2500 psi compressive strength at 28 days.
   Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
   Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.
   Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

   In applications where barrier wall is within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
   Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
   Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.

3. Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.

4. Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.

5. Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.

6. A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

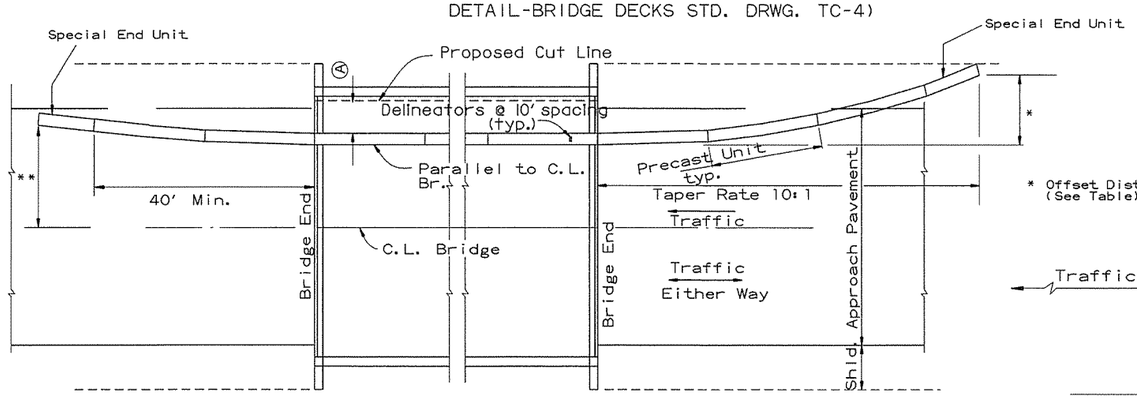
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

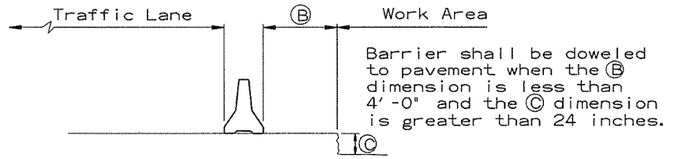
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

* Offset Distance (See Table)

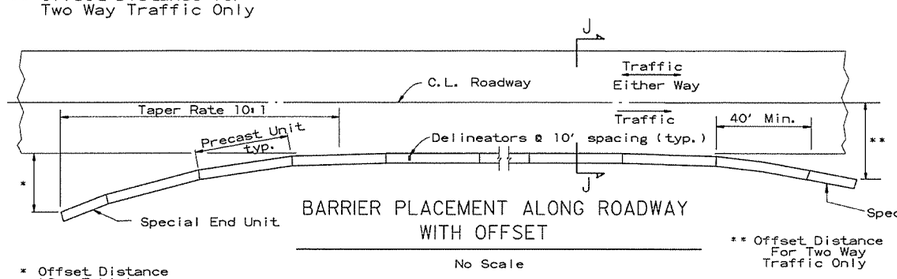


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

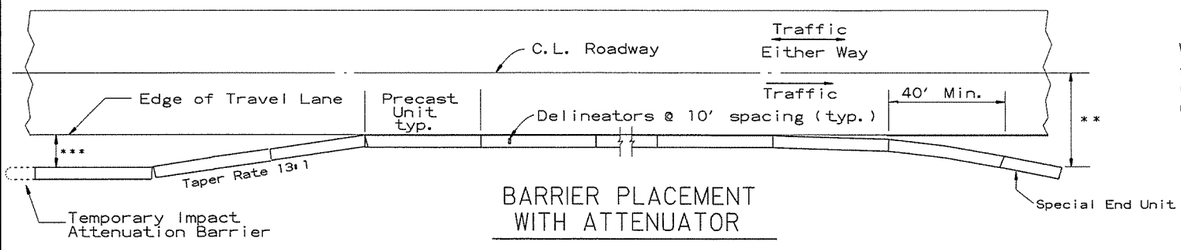
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

If offset distance is not attainable, then see "Barrier Placement With Attenuator" Detail shown below.

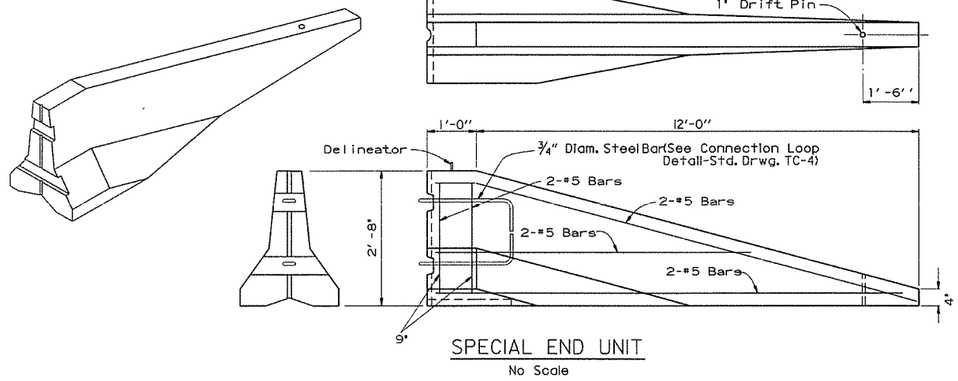


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator



SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

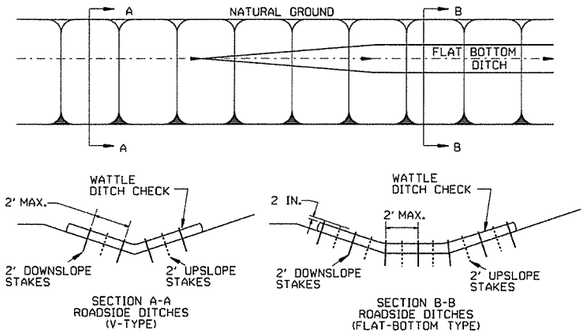
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

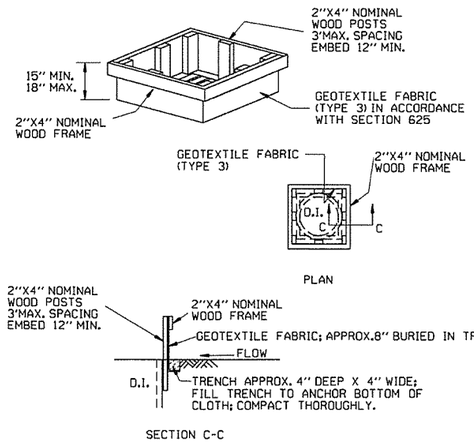
STANDARD DRAWING TC-5

GENERAL NOTES

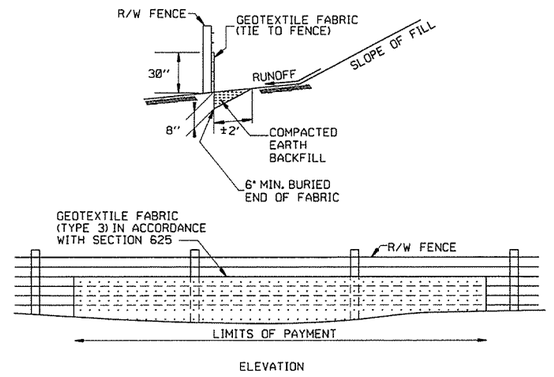
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

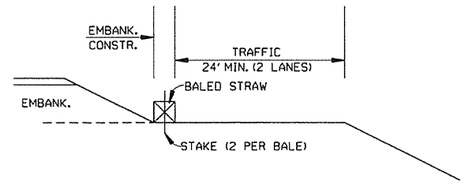
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

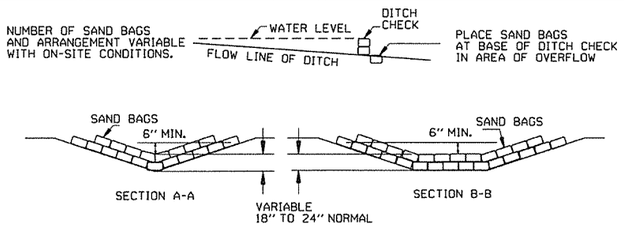
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

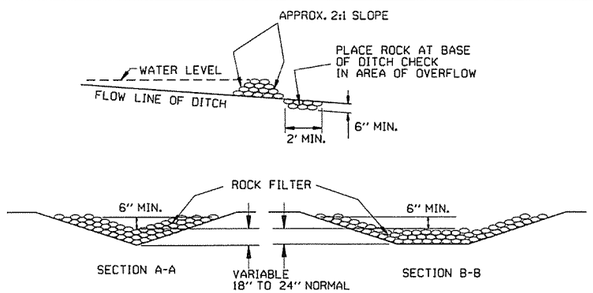
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



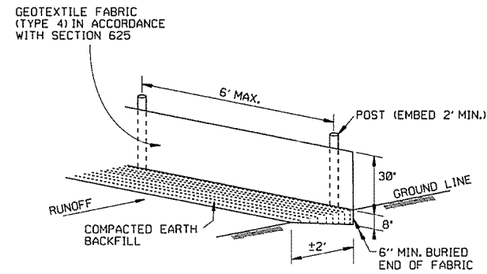
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

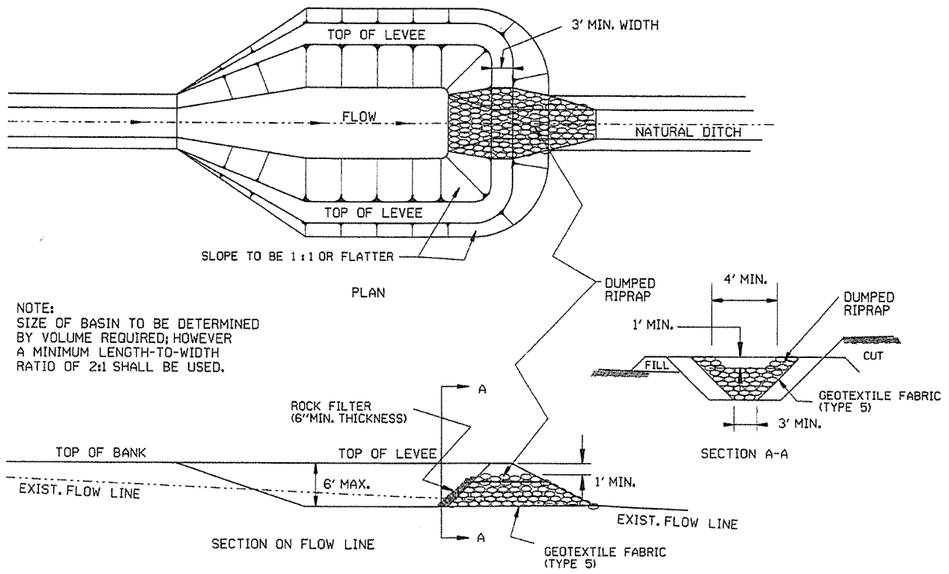
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

DATE	REVISION	FILMED
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
6-2-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
4-1-93	REDRAWN	
10-1-92	REDRAWN	
8-2-76	ISSUED R.D.M.	298-7-28-76

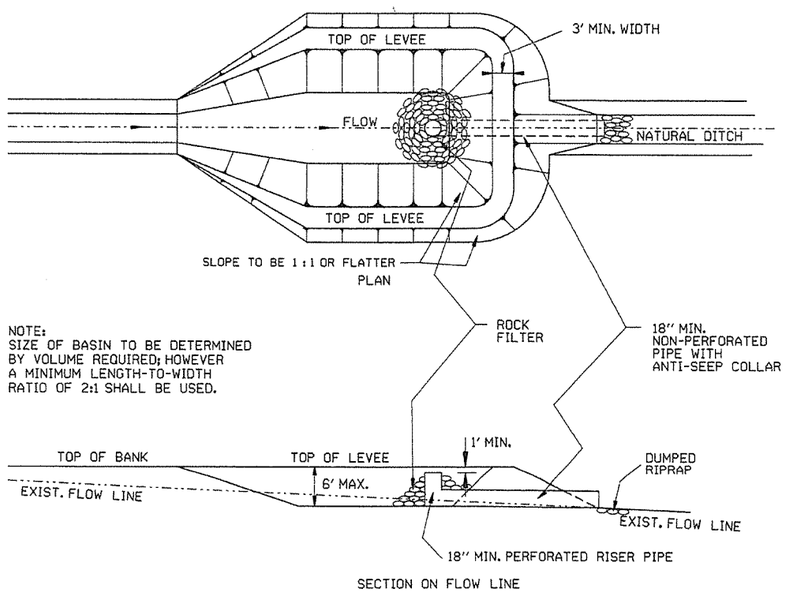
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

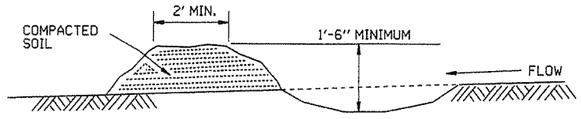
STANDARD DRAWING TEC-1



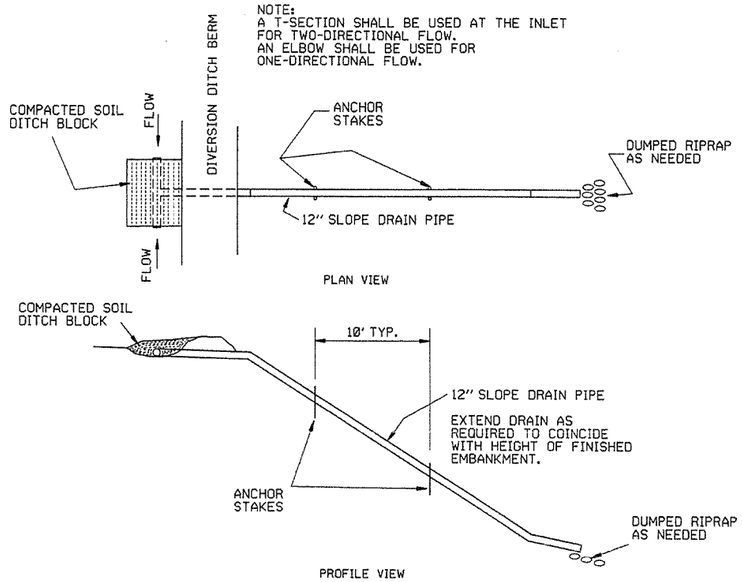
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



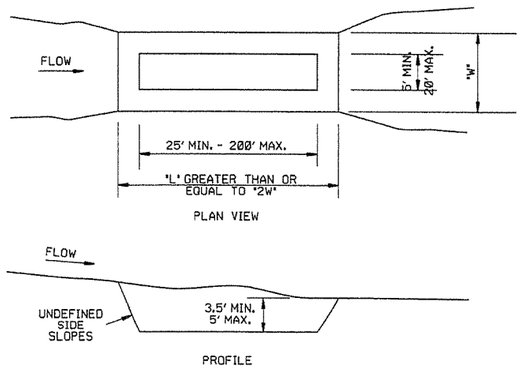
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

DATE	REVISION	FILMED
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13	
4-1-93	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

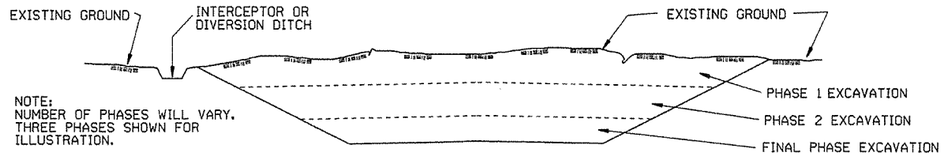
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



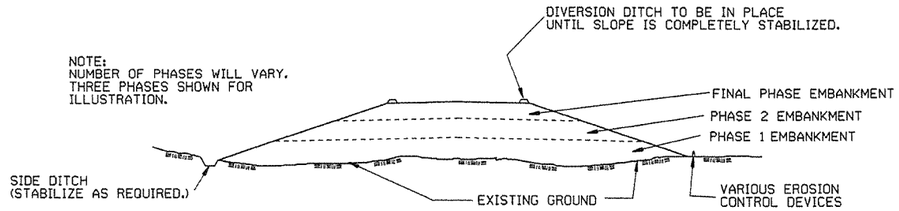
GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

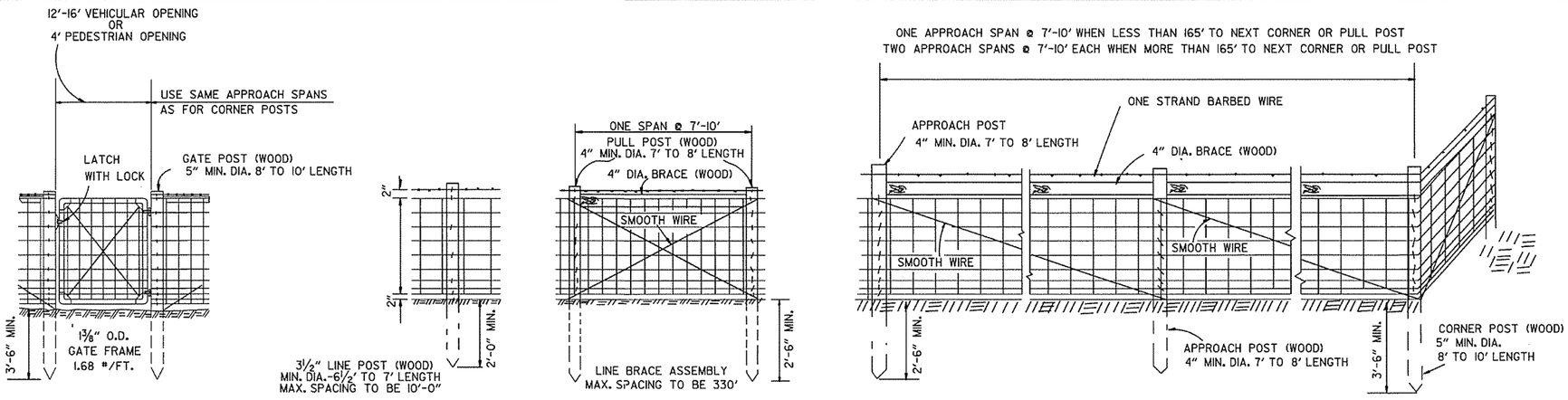
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

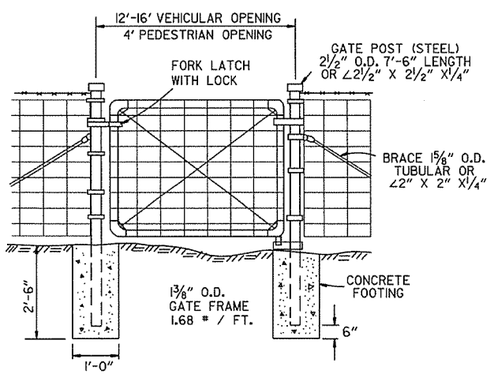
TEMPORARY EROSION CONTROL DEVICES

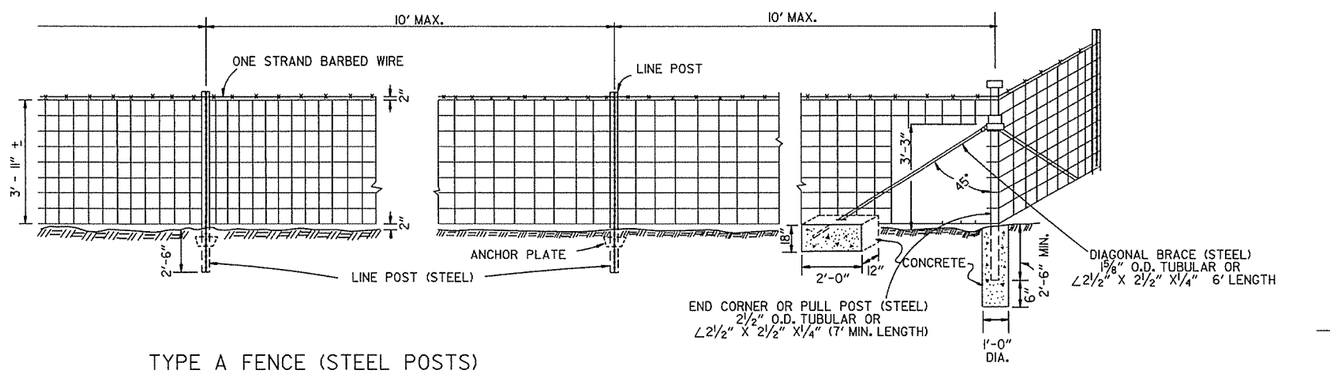
STANDARD DRAWING TEC-3



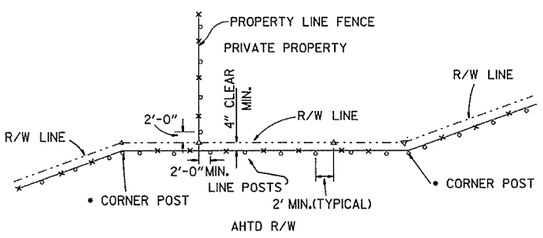
NOTE: STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE A FENCE (WOOD POSTS)





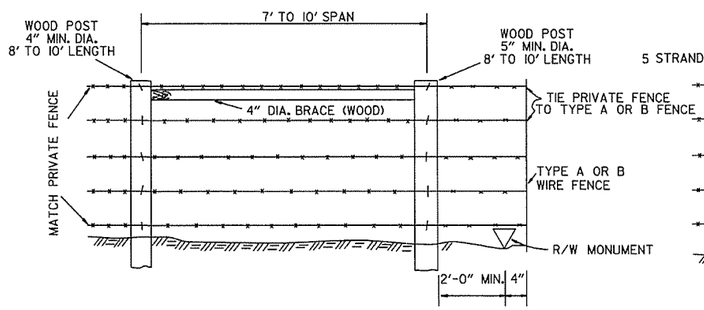
TYPE A FENCE (STEEL POSTS)



*NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

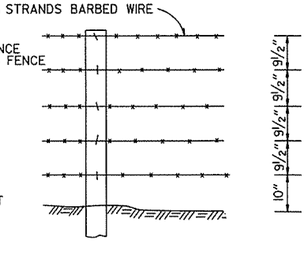
△ - R/W MONUMENTS
○ - FENCE POSTS

RIGHT-OF-WAY FENCE LOCATION



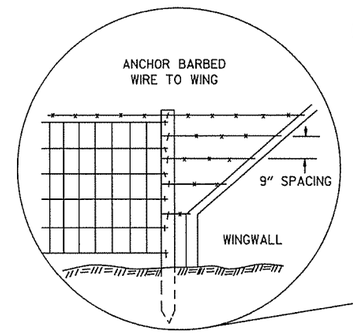
WHERE EXISTING PRIVATE FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN WITH TYPE A FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.

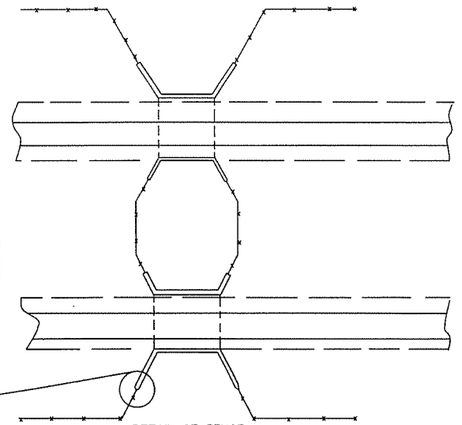
PRIVATE FENCE TERMINAL INSTALLATION



SPACING AND SIZE OF POSTS FOR TYPE B FENCE SHALL BE THE SAME AS TYPE A FENCE.

TYPE B FENCE





DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

GENERAL NOTES:

STEEL LINE POSTS SHALL BE GALVANIZED, 7 FT. IN LENGTH.

TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK).

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF WOOD LINE POSTS OF 7' LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

GATE HINGES AND LATCHES WITH LOCKS TO BE OF A TYPE APPROVED BY THE ENGINEER. DRIVEWAY GATES, EITHER SINGLE 12' OR 16' OR DOUBLE 6' TO 8' OPENINGS OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE FOR USE BY MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON THE PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF BANK TO THE BRIDGE STRUCTURE, A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO THE BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

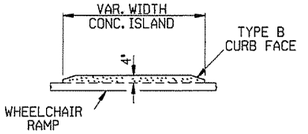
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD"; AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRE A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

DATE	REVISION	DATE FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	ADDED CORNER POST NOTE	6-2-94
8-5-93	REVISED R-O-W LOCATION DETAIL	8-5-93
10-1-92	ADDED STAPLE NOTE	
8-2-90	REV'D PULL POST LENGTH	
11-30-89	DELETED CLASS CONC.	
7-15-88	ADDED SPLICE NOTES	
7-15-88	ADDED HEIGHT DIMENSION	
4-3-87	REVISED VARIOUS NOTES	
	AND GENERAL NOTES	
11-1-84	MAX. POST SPACING	
1-4-83	MIN. DIA. LINE POST	
10-2-72	REVISED & REDRAWN	

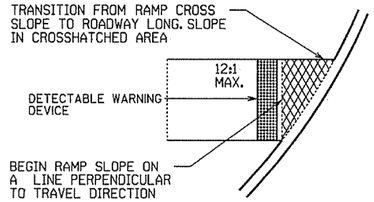
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE A AND B

STANDARD DRAWING WF-1



CONCRETE ISLAND DETAIL



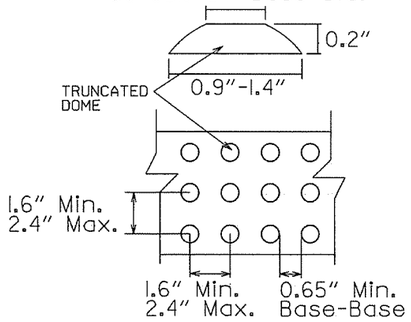
SLOPE TRANSITION DETAILS

TYPE 1 RAMP DIMENSIONS AND QUANTITIES

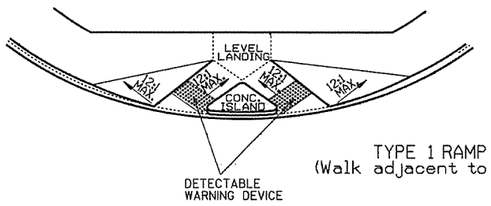
RADIUS 'R' FEET	DISTANCE 'X' FEET	DISTANCE 'Y' FEET	LENGTH 'L' FEET	RAMP AREA 'A' SQ. YD.
15	11.67	18.82	32.18	26.21
20	11.52	22.28	35.46	30.07
25	11.43	26.60	38.77	33.80
30	11.37	30.26	40.93	36.90
35	11.33	33.51	43.11	39.77
40	11.30	36.45	45.26	42.45
45	11.27	39.16	47.34	44.97
50	11.25	41.69	49.36	47.35
55	11.24	44.07	51.31	49.63
60	11.22	46.33	53.21	51.80

GENERAL NOTES FOR DETECTABLE WARNING DEVICES

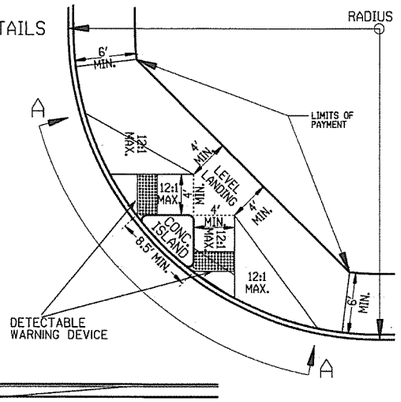
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE.
DETECTABLE WARNING DEVICE SHALL BE ON THE AHTD QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).

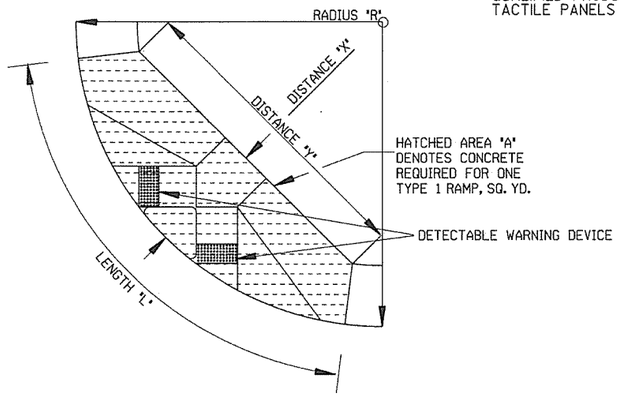


DETECTABLE WARNING DEVICE DETAIL



TYPE 1 RAMP
(Walk adjacent to curb)

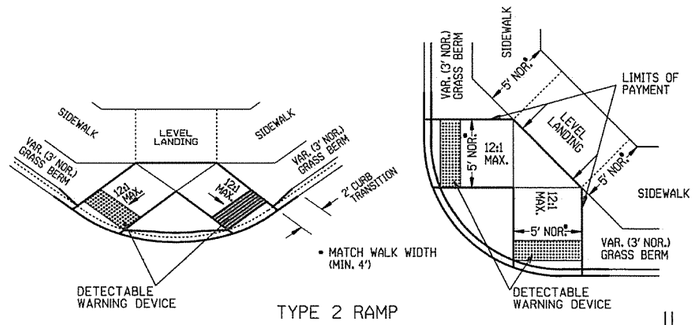




SECTION A-A

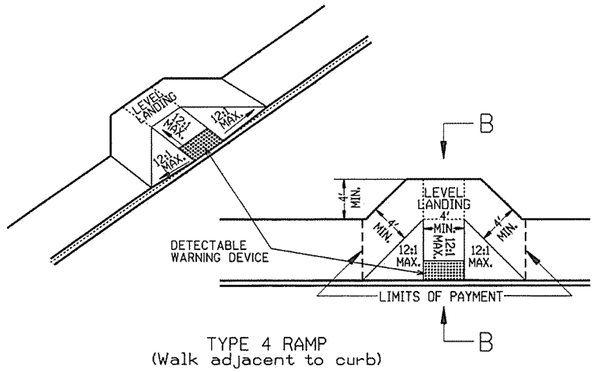
GENERAL NOTES:

IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.
IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK LOCATIONS.
THE LENGTH OF THE RAMP SHALL BE SUCH THAT THE SLOPE DOES NOT EXCEED 12:1. THE SURFACE TEXTURE OF THE RAMP SHALL CONFORM TO A CLASS 6 FINISH ACCORDING TO SECTION 802.19.
THE NORMAL GUTTER GRADE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.
ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
THE MINIMUM THICKNESS OF THE RAMP, WALK, & LANDING SHALL BE 4".
THE MINIMUM WIDTH OF THE RAMPS SHALL BE THE WALK WIDTH OR 36", WHICHEVER IS GREATER.
RAMPS SHALL BE MODIFIED AS NECESSARY TO INSURE THAT THEY ARE PARALLEL TO A LINE DRAWN FROM THE CENTER OF ONE RAMP TO THE CENTER OF THE RAMP ON THE OPPOSITE SIDE OF THE INTERSECTION.
THE DIMENSIONS AND QUANTITIES SHOWN ON THIS DRAWING ARE FOR A 90° INTERSECTION ONLY. DIMENSIONS AND QUANTITIES FOR SKEWED INTERSECTIONS WILL VARY, AND ARE TO BE DETERMINED BY THE ENGINEER.

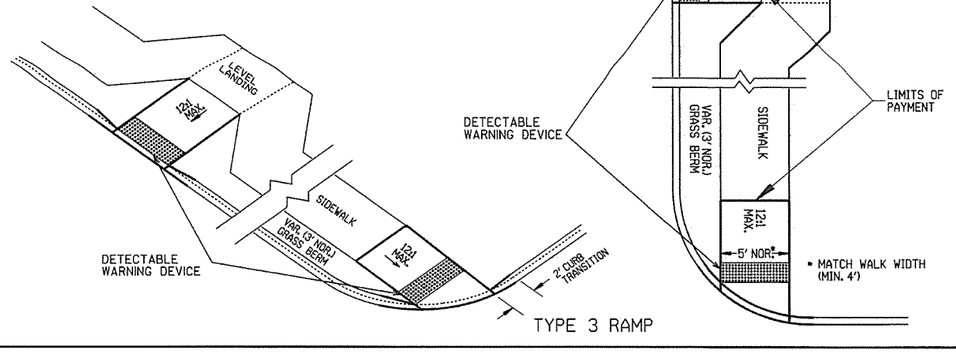


TYPE 2 RAMP

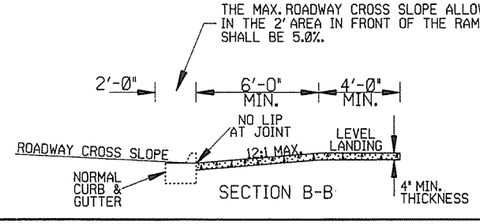
NOTE:
THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGTITUDINAL GRADE.



TYPE 4 RAMP
(Walk adjacent to curb)



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	FROM8TO12%MAX.SLOPES	5-24-90
7-15-88	ADJUSTED MAX. SLOPE	652-1-15-88
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

RESHOT 3-5-93 164

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			152	
JOB No.					

BAR LIST FOR VARIOUS SECTIONS OF BARREL

SECTION & BAR GROUP	LENGTHS OF SECTION	DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	"a" bars: STRAIGHT. In Top and Bottom Slab of Barrel. 2 Add'l in Apron and Headwall- Each.					"b" bars: BENT- See Diagram below. In Bottom of Top Slab bent up over Division Walls- hooked. Alternate with "a" and "c" bars.								"b2" bars: BENT- See Diagram below. In Top of Bottom Slab bent down under Division Walls- hooked. Alternate with "a" and "c" bars								"c" bars: STRAIGHT. In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars.					"d" bars: STRAIGHT. Longitudinal in Top Slab of Barrel				"d1" bars: STRAIGHT. Longitudinal in Sidewalls and Division Walls				"e" bars: STRAIGHT. Longitudinal in Bottom Slab of Barrel.				"f" bars: STRAIGHT. Vertical in Sidewalls and Division Walls				
		D	S	H	SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z	SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z	SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
SECTION "A" & BAR GROUP "A"	3:1 = 22'-0" 4:1 = 32'-0"	0' TO 10'-0"	3 @ 8'	5'	#5	12"	48	68	26'-5"	#6	12"	22	32	28'-1"	0'-5"	3'-11"	6'-5"	#6	12"	22	32	28'-2"	0'-5½"	3'-10"	6'-5"	#6	12"	44	64	17'-6"	#4	12"	37	33'-5" for 32'-0" Section	#4	12"	30	33'-3" for 32'-0" Section	#4	12"	37	34'-3" for 32'-0" Section	#4	12"	132	192	6'-2"
				6'			48	68	26'-5"			22	32	28'-1"	0'-5"	3'-11"	6'-5"			22	32	28'-2"	0'-5½"	3'-10"	6'-5"			44	64	17'-6"			37				36				37				132	192	7'-2"
				7'			48	68	26'-8"			22	32	28'-4"	0'-5"	4'-0"	6'-5½"			22	32	28'-5"	0'-5½"	3'-11"	6'-5½"			44	64	17'-8"			37				42				37			10"	162	234	8'-2"
				8'			48	68	26'-9"			22	32	28'-5"	0'-5"	4'-0"	6'-6"			22	32	28'-6"	0'-5½"	3'-11"	6'-6"			44	64	17'-8"			37				48				37		#5	11"	144	210	9'-2"
				9'			48	68	27'-1"			22	32	28'-9"	0'-5"	4'-1"	6'-7"			22	32	28'-10"	0'-5½"	4'-0"	6'-7"			44	64	17'-10"			37				54				37			10"	162	234	10'-2"
				10'			48	68	27'-5"			22	32	29'-1"	0'-5"	4'-2"	6'-8"			22	32	29'-2"	0'-5½"	4'-1"	6'-8"			44	64	18'-0"			37				60				37		#6	12"	132	192	11'-2"
			3 @ 10'	6'	#6	11"	52	74	32'-8"	#6	11"	24	35	34'-6"	0'-6½"	4'-9"	7'-11½"	#6	11"	24	35	34'-7"	0'-7"	4'-8"	7'-11½"	#7	11"	48	70	21'-8"	#4	12"	43		#4	12"	36		#4	12"	43		#4	12"	132	192	7'-5"
				7'			52	74	32'-8"			24	35	34'-6"	0'-6½"	4'-9"	7'-11½"			24	35	34'-7"	0'-7"	4'-8"	7'-11½"			48	70	21'-8"			43				42				43			10"	162	234	8'-5"
				8'			52	74	32'-9"			24	35	34'-7"	0'-6½"	4'-9"	8'-0"			24	35	34'-8"	0'-7"	4'-8"	8'-0"			48	70	21'-8"			43				48				43		#5	12"	132	192	9'-5"
				9'			52	74	33'-1"			24	35	34'-11"	0'-6½"	4'-10"	8'-1"			24	35	35'-0"	0'-7"	4'-9"	8'-1"			48	70	21'-10"			43				54				43			10"	162	234	10'-5"
				10'			52	74	33'-5"			24	35	35'-3"	0'-6½"	4'-11"	8'-2"			24	35	35'-4"	0'-7"	4'-10"	8'-2"			48	70	22'-0"			43				60				43		#6	12"	132	192	11'-5"
				11'			52	74	33'-7"			24	35	35'-5"	0'-6½"	4'-11"	8'-3"			24	35	35'-6"	0'-7"	4'-10"	8'-3"			48	70	22'-0"			43				66				43			11"	144	210	12'-5"
				12'			52	74	33'-9"			24	35	35'-7"	0'-6½"	4'-11"	8'-4"			24	35	35'-8"	0'-7"	4'-10"	8'-4"			48	70	22'-0"			43				72				43			10"	162	234	13'-5"
			3 @ 12'	6'	#6	11"	52	74	38'-9"	#7	11"	24	35	40'-11"	0'-7¾"	5'-6½"	9'-6"	#7	11"	24	35	41'-0"	0'-8¼"	5'-5½"	9'-6"	#7	11"	48	70	25'-8"	#4	12"	49		#4	12"	36		#4	12"	49		#4	12"	132	192	7'-8"
				7'			52	74	38'-9"			24	35	40'-11"	0'-7¾"	5'-6½"	9'-6"			24	35	41'-0"	0'-8¼"	5'-5½"	9'-6"			48	70	25'-8"			49				42				49				132	192	8'-8"
				8'			52	74	38'-9"			24	35	40'-11"	0'-7¾"	5'-6½"	9'-6"			24	35	41'-0"	0'-8¼"	5'-5½"	9'-6"			48	70	25'-8"			49				48				49		#5	12"	132	192	9'-8"
				9'			52	74	39'-1"			24	35	41'-3"	0'-7¾"	5'-7½"	9'-7"			24	35	41'-4"	0'-8¼"	5'-6½"	9'-7"			48	70	25'-10"			49				54				49			10"	162	234	10'-8"
				10'			52	74	39'-5"			24	35	41'-7"	0'-7¾"	5'-8½"	9'-8"			24	35	41'-8"	0'-8¼"	5'-7½"	9'-8"			48	70	26'-0"			49				60				49		#6	12"	132	192	11'-8"
				11'			52	74	39'-7"			24	35	41'-9"	0'-7¾"	5'-8½"	9'-9"			24	35	41'-10"	0'-8¼"	5'-7½"	9'-9"			48	70	26'-0"			49				66				49			11"	144	210	12'-8"
				12'			52	74	39'-9"			24	35	41'-11"	0'-7¾"	5'-8½"	9'-10"			24	35	42'-0"	0'-8¼"	5'-7½"	9'-10"			48	70	26'-0"			49				72				49			9"	180	258	13'-8"
SECTION "B" & BAR GROUP "B"	3:1 = 11'-0" 4:1 = 16'-0"	10'-0" TO 15'-0"	3 @ 8'	5'	#5	11"	24	36	26'-5"	#6	11"	12	17	28'-3"	0'-6"	3'-9"	6'-5"	#6	11"	12	17	28'-4"	0'-6½"	3'-8"	6'-5"	#6	11"	24	36	17'-6"	#4	12"	37	34'-3" for 33'-0" Length Section	#4	12"	30	34'-3" for 33'-0" Length Section	#4	12"	37	34'-3" for 33'-0" Length Section.	#4	12"	66	96	6'-4"
				6'			24	36	26'-5"			12	17	28'-3"	0'-6"	3'-9"	6'-5"			12	17	28'-4"	0'-6½"	3'-8"	6'-5"			24	36	17'-6"			37				36				37				66	96	7'-4"
				7'			24	36	26'-8"			12	17	28'-6"	0'-6"	3'-10"	6'-5½"			12	17	28'-7"	0'-6½"	3'-9"	6'-5½"			24	36	17'-8"			37				42				37		#5	12"	66	96	8'-4"
				8'			24	36	26'-9"			12	17	28'-7"	0'-6"	3'-10"	6'-6"			12	17	28'-8"	0'-6½"	3'-9"	6'-6"			24	36	17'-8"			37				48				37			9"	90	126	9'-4"
				9'			24	36	27'-1"			12	17	28'-11"	0'-6"	3'-11"	6'-7"			12	17	29'-0"	0'-6½"	3'-10"	6'-7"			24	36	17'-10"			37				54				37		#6	11"	72	102	10'-4"
				10'			24	36	27'-5"			12	17	29'-3"	0'-6"	4'-0"	6'-8"			12	17	29'-4"	0'-6½"	3'-11"	6'-8"			24	36	18'-0"			37				60				37			10"	84	120	11'-4"
			3 @ 10'	6'	#6	13"	20	30	32'-8"	#7	13"	10	14	34'-10"	0'-7½"	4'-7"	7'-11½"	#7	13"	10	14	34'-11"	0'-8"	4'-6"	7'-11½"	#8	13"	20	30	21'-8"	#4	12"	43		#4	12"	36		#4	12"	43		#4	12"	66	96	7'-8"
				7'			20	30	32'-8"			10	14	34'-10"	0'-7½"	4'-7"	7'-11½"			10	14	34'-11"	0'-8"	4'-6"	7'-11½"			20	30	21'-8"			43				42				43		#5	12"	66	96	8'-8"
				8'			20	30	32'-9"			10	14	34'-11"	0'-7½"	4'-7"	8'-0"			10	14	35'-0"	0'-8"	4'-6"	8'-0"			20	30	21'-8"			43				48				43			9"	90	132	9'-8"
				9'			20	30	33'-1"			10	14	35'-3"	0'-7½"	4'-8"	8'-1"			10	14	35'-4"	0'-8"	4'-7"	8'-1"			20	30	21'-10"			43				54				43		#6	12"	66	96	10'-8"
				10'			20	30	33'-5"			10	14	35'-7"	0'-7½"	4'-9"	8'-2"			10	14	35'-8"	0'-8"	4'-8"	8'-2"			20	30	22'-0"			43				60				43			10"	84	120	11'-8"
				11'			20	30	33'-7"			10	14	35'-9"	0'-7½"	4'-9"	8'-3"			10	14	35'-10"	0'-8"	4'-8"	8'-3"			20	30	22'-0"			43				66				43			9"	90	132	12'-8"
				12'			20	30	33'-9"			10	14	35'-11"	0'-7½"	4'-9"	8'-4"			10	14	36'-0"	0'-8"	4'-8"	8'-4"			20	30	22'-0"			43				72				43			8"	96	144	13'-8"
			3 @ 12'	6'	#7	12"	22	32	38'-9"	#7	12"	11	16	41'-2"	0'-9¼"	5'-3½"	9'-6"	#7	12"	11	16	41'-3"	0'-9¾"	5'-2½"	9'-6"	#9	12"	22	32	25'-8"	#4	12"	49		#4	12"	36		#4	12"	49		#4	12"	66	96	7'-11"
				7'			22	32	38'-9"			11	16	41'-2"	0'-9¼"	5'-3½"	9'-6"			11	16	41'-3"	0'-9¾"	5'-2½"	9'-6"			22	32	25'-8"			49				42				49			9"	90	132	8'-11"
				8'			22	32	38'-9"			11	16	41'-2"	0'-9¼"	5'-3½"	9'-6"			11	16	41'-3"	0'-9¾"	5'-2½"	9'-6"			22	32	25'-8"			49				48				49		#6	12"	66	96	9'-11"
				9'			22	32	39'-1"			11	16	41'-6"	0'-9¼"	5'-4½"	9'-7"			11	16	41'-7"	0'-9¾"	5'-3½"	9'-7"			22	32	25'-10"			49				54				49			11"	72	102	10'-11"
				10'			22	32	39'-5"			11	16	41'-10"	0'-9¼"	5'-5½"	9'-8"			11	16	41'-11"	0'-9¾"	5'-4½"	9'-8"			22	32	26'-0"			49				60				49			9"	90	132	11'-11"
				11'			22	32	39'-7"			11	16	42'-0"	0'-9¼"	5'-5½"	9'-9"			11	16	42'-1"	0'-9¾"	5'-4½"	9'-9"			22	32	26'-0"			49				66				49		#7	11"	72	108	12'-11"
				12'			22	32	39'-9"			11	16	42'-2"	0'-9¼"	5'-5½"	9'-10"			11	16	42'-3"	0'-9¾"	5'-4½"	9'-10"			22	32	26'-0"			49				72				49			10"	78	114	13'-11"
SECTION "C" & BAR GROUP "C"	3:1 = 11'-0" 4:1 = 16'-0"	15'-0" TO 20'-0"	3 @ 8'	5'	#6	11"	24	34	26'-5"	#6	11"	12	18	28'-4"	0'-7"	3'-7"	6'-5"	#6	11"	12	18	28'-5"	0'-7½"	3'-6"	6'-5"	#7	11"	24	34	17'-6"	#4	12"	37		#4	12"	30		#4	12"	37		#4	12"	66	96	6'-6"
				6'			24	34	26'-5"			12	18	28'-4"	0'-7"	3'-7"	6'-5"			12	18	28'-5"	0'-7½"	3'-6"	6'-5"			24	34	17'-6"			37				36				37				66	96	7'-6"
				7'			24	34	26'-8"			12	18	28'-7"	0'-7"	3'-8"	6'-5½"			12	18	28'-8"	0'-7½"	3'-7"	6'-5½"			24	34	17'-8"			37				42				37		#5	11"	72	102	8'-6"
				8'			24	34	26'-9"			12	18	28'-8"	0'-7"	3'-8"	6'-6"			12	18	28'-9"	0'-7½"	3'-7"	6'-6"			24	34	17'-8"			37				48				37		#6	11"	72	102	9'-6"
				9'			24	34	27'-1"			12	18	29'-0"	0'-7"	3'-9"	6'-7"			12	18	29'-1"	0'-7½"	3'-8"	6'-7"			24	34	17'-10"			37				54				37			10"	78	114	10'-6"
				10'			24	34	27'-5"			12	18	29'-4"	0'-7"	3'-10"	6'-8"			12	18	29'-5"	0'-7½"	3'-9"	6'-8"			24	34	18'-0"			37				60				37		#7	10"	78	114	11'-6"
			3 @ 10'	6'	#7	12"	22	32	32'-9"	#7	12"	11	16	35'-1"	0'-8¾"	4'-4½"	8'-0"	#7	12"	11	16	35'-2"	0'-9¼"	4'-3½"	8'-0"	#8	12"	22	32	21'-8"	#4	12"	43		#4	12"	36		#4	12"	43		#4	12"	66	96	7'-10"
				7'			22	32	32'-9"			11	16	35'-1"	0'-8¾"	4'-4½"	8'-0"			11	16	35'-2"	0'-9¼"	4'-3½"	8'-0"			22	32	21'-8"			43				42				43		#5	12"	66	96	8'-10"
				8'			22	32	32'-10"			11	16	35'-2"	0'-8¾"	4'-4½"	8'-0½"			11	16	35'-3"	0'-9¼"	4'-3½"	8'-0½"			22	32	21'-8"			43				48				43		#6	12"	66	96	9'-10"
				9'			22	32	33'-2"			11	16	35'-6"	0'-8¾"	4'-5½"	8'-1½"			11	16	35'-7"	0'-9¼"	4'-4½"	8'-1½"			22	32	21'-10"			43				54				43			10"	78	114	10'-10"
				10'			22	32	33'-5"			11	16	35'-10"	0'-8¾"	4'-6½"	8'-2½"			11	16	35'-11"	0'-9¼"	4'-5½"	8'-2½"			22	32	22'-0"			43				60				43		#7	12"	66	96	11'-10"
				11'			22	32	33'-7"			11	16	35'-11"	0'-8¾"	4'-6½"	8'-3"			11	16	36'-0"	0'-9¼"	4'-5½"	8'-3"			22	32	22'-0"			43				66				43			10"	78	114	12'-10"
				12'			22	32	33'-9"			11	16	36'-1"	0'-8¾"	4'-6½"	8'-4"			11	16	36'-2"	0'-9¼"	4'-5½"	8'-4"			22	32	22'-0"			43				72				43			9"	90	126	13'-10"
			3 @ 12'	6'	#7	12"	22	32	38'-9"	#8	12"	11	16	41'-6"	0'-10¾"	5'-0½"	9'-6"	#8	12"	11	16	41'-7"	0'-11¼"	4'-11½"	9'-6"	#9	12"	22	32	25'-8"	#4	12"	49		#4	12"	36		#4	12"	49		#4	12"	66	96	8'-2"
				7'			22	32	38'-9"			11	16	41'-6"	0'-10¾"	5'-0½"	9'-6"			11	16	41'-7"	0'-11¼"	4'-11½"	9'-6"			22	32	25'-8"			49				42				49		#5	11"	72	102	9'-2"
				8'			22	32	38'-10"			11	16	41'-8"	0'-10¾"	5'-0½"	9'-6¾"			11	16	41'-9"	0'-11¼"	4'-11½"	9'-6¾"			22	32	25'-8"			49				48				49		#6	12"	66	96	10'-2"
				9'			22	32	39'-2"			11	16	41'-11"	0'-10¾"	5'-1½"	9'-7½"			11	16	42'-0"	0'-11¼"	5'-0½"	9'-7½"			22	32	25'-10"			49				54				49			10"	78	114	11'-2"
				10'			22	32	39'-5"			11	16	42'-3"	0'-10¾"	5'-2½"	9'-8½"			11	16	42'-4"	0'-11¼"	5'-1½"	9'-8½"			22	32	26'-0"			49				60				49		#7	11"	72	102	12'-2"
				11'			22	32	39'-7"			11	16	42'-5"	0'-10¾"	5'-2½"	9'-9½"			11	16	42'-6"	0'-11¼"	5'-1½"	9'-9½"			22	32	26'-0"			49				66				49			10"	84	114	13'-2"
				12'			22	32	39'-9"			11	16	42'-7"	0'-10¾"	5'-2½"	9'-10½"			11	16	42'-8"	0'-11¼"	5'-1½"	9'-10½"			22	32	26'-0"			49				72				49			8"	96	144	14'-2"
SECTION "D" & BAR GROUP "D"	Varies with Length of Barrel	20'-0" TO 25'-0"	3 @ 8'	5'	#6	12"	Varies with length of Barrel.	Varies with length of Barrel.	26'-5"	#7	12"	Varies with length of Barrel.	Varies with length of Barrel.	28'-7"	0'-7¾"	3'-5½"	6'-5"	#7	12"	Varies with length of Barrel.	Varies with length of Barrel.	28'-8"	0'-8¼"	3'-4½"	6'-5"	#7	12"	Varies with length of Barrel.	Varies with length of Barrel.	17'-6"	#4	12"	37	Varies with length of Barrel.	#4	12"	30	Varies with length of Barrel.	#4	12"	37	Varies with length of Barrel.	#4	12"	Varies with length of Barrel.	Varies with length of Barrel.	6'-8"
				6'					26'-6"					28'-9"	0'-7¾"	3'-5½"	6'-5¾"					28'-10"	0'-8¼"	3'-4½"	6'-5¾"					17'-6"			37				36				37			10"			7'-8"
				7'					26'-10"					29'-0"	0'-7¾"	3'-6½"	6'-6½"					29'-1"	0'-8¼"	3'-5½"	6'-6½"					17'-8"			37				42				37		#5	10"			8'-8"
				8'					26'-11"					29'-2"	0'-7¾"	3'-6½"	6'-7¼"					29'-3"	0'-8¼"	3'-5½"	6'-7¼"					17'-8"			37				48				37		#6	11"			9'-8"
				9'					27'-3"					29'-5"	0'-7¾"	3'-7½"	6'-8"					29'-6"	0'-8¼"	3'-6½"	6'-8"					17'-10"			37				54				37			9"			10'-8"
				10'					27'-7"					29'-9"	0'-7¾"	3'-8½"	6'-9"					29'-10"	0'-8¼"	3'-7½"	6'-9"					18'-0"			37				60				37			8"			11'-8"
			3 @ 10'	6'	#7	11"			32'-9"	#7	11"			35'-3"	0'-10"	4'-2"	8'-0"	#7	11"			35'-4"	0'-10½"	4'-1"	8'-0"	#8	11"			21'-8"	#4	12"	43		#4	12"	36		#4	12"	43		#4	12"			8'-1"
				7'					32'-10"					35'-4"	0'-10"	4'-2"	8'-0½"					35'-5"	0'-10½"	4'-1"	8'-0½"					21'-8"			43				42				43		#5	11"			9'-1"
				8'					32'-11"					35'-6"	0'-10"	4'-2"	8'-1¼"					35'-7"	0'-10½"	4'-1"	8'-1¼"					21'-8"			43				48				43		#6	12"			10'-1"
				9'					33'-3"					35'-10"	0'-10"	4'-3"	8'-2½"					35'-11"	0'-10½"	4'-2"	8'-2½"					21'-10"			43				54				43			10"			11'-1"
				10'					33'-7"					36'-2"	0'-10"	4'-4"	8'-3½"					36'-3"	0'-10½"	4'-3"	8'-3½"					22'-0"			43				60				43		#7	11"			12'-1"
				11'					33'-9"					36'-3"	0'-10"	4'-4"	8'-4"					36'-4"	0'-10½"	4'-3"	8'-4"					22'-0"			43				66				43			9"			13'-1"
				12'					33'-10"					36'-5"	0'-10"	4'-4"	8'-4¾"					36'-6"	0'-10½"	4'-3"	8'-4¾"					22'-0"			43				72				43			8"			14'-1"
			3 @ 12'	6'	#7	11"			38'-9"	#8	11"			41'-9"	1'-0¼"	4'-9½"	9'-6"	#8	11"			41'-10"	1'-0¾"	4'-8½"	9'-6"	#9	11"			25'-8"	#4	11"	52		#4	12"	36		#4	11"	52		#4	12"			8'-5"
				7'					38'-10"					41'-10"	1'-0¼"	4'-9½"	9'-6¾"					41'-11"	1'-0¾"	4'-8½"	9'-6¾"					25'-8"			52				42				52		#5	11"			9'-5"
				8'					39'-0"					42'-0"	1'-0¼"	4'-9½"	9'-7½"					42'-1"	1'-0¾"	4'-8½"	9'-7½"					25'-8"			52				48				52		#6	12"			10'-5"
				9'					39'-4"					42'-4"	1'-0¼"	4'-10½"	9'-8½"					42'-5"	1'-0¾"	4'-9½"	9'-8½"					25'-10"			52				54				52			10"			11'-5"
				10'					39'-7"					42'-7"	1'-0¼"	4'-11½"	9'-9½"					42'-8"	1'-0¾"	4'-10½"	9'-9½"					26'-0"			52				60				52		#7	11"			12'-5"
				11'					39'-9"					42'-9"	1'-0¼"	4'-11½"	9'-10½"					42'-10"	1'-0¾"	4'-10½"	9'-10½"					26'-0"			52				66				52			9"			13'-5"
				12'					39'-11"					42'-11"	1'-0¼"	4'-11½"	9'-11¼"					43'-0"	1'-0¾"	4'-10½"	9'-11¼"					26'-0"			52				72				52			8"			14'-5"

NOTE:- Bars for each Section to be marked with the Section-letter, thus for Section B, the bars should be marked Ba, Bb, Bb2, Bc, Bd, Bd1, Be and Bf.

Designed by:- W.C.H. 8-7-62 Checked by:- RHS 8-10-62
Drawn by:- W.C.H. 8-15-62 Checked by:- RHS 8-20-62
Quantities by:- W.C.H. 8-17-62 Checked by:- RHS 8-20-62

DIMENSIONS / QUANTITIES

MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS: CLEAR SPANS	CLEAR HEIGHT	SQ.FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF DIVISION WALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	UNIT QUANTITIES: CLASS S CONC. PER LIN. FT. OF BARREL	REINFORCING STEEL: PER LIN. FT. OF BARREL	ADDITIONAL: PER LAP	ADDITIONAL: TWO HEADWALLS & APRONS
D	S	H	A	OW	T	C	M	B	OH	CU.YD.	LB.	LB.	LB.
SECTION "A" - 10'-0"	3 @ 8'	5'	120	26'-8"	8½"	7"	9"	9"	6'-5½"	1.934	286.35	86.84	372.06
		6'	144	26'-8"		7"	9"		7'-5½"	2.033	294.37	91.85	372.06
		7'	168	26'-11"		7½"	10"		8'-5½"	2.210	310.70	96.86	374.14
		8'	192	27'-0"		8"	10"		9'-5½"	2.347	338.44	101.87	379.84
		9'	216	27'-4"		9"	11"		10'-5½"	2.587	358.41	106.88	377.62
		10'	240	27'-8"		10"	12"		11'-5½"	2.852	388.90	111.89	380.40
	3 @ 10'	6'	180	32'-11"	10"	7½"	10"	10½"	7'-8½"	2.731	428.10	101.87	582.24
		7'	210	32'-11"		7½"	10"		8'-8½"	2.839	442.86	106.88	582.24
		8'	240	33'-0"		8"	10"		9'-8½"	2.977	465.86	111.89	583.24
		9'	270	33'-4"		9"	11"		10'-8½"	3.220	492.09	116.90	587.24
		10'	300	33'-8"		10"	12"		11'-8½"	3.488	522.69	121.91	591.25
		11'	330	33'-10"		11"	12"		12'-8½"	3.702	547.98	126.92	593.25
		12'	360	34'-0"		12"	12"		13'-8½"	3.929	576.10	131.93	595.25
	3 @ 12'	6'	216	39'-0"	11½"	8"	10"	12"	7'-11½"	3.495	544.35	111.89	704.76
		7'	252	39'-0"		8"	10"		8'-11½"	3.606	552.37	116.90	704.76
		8'	288	39'-0"		8"	10"		9'-11½"	3.718	582.13	121.91	704.76
		9'	324	39'-4"		9"	11"		10'-11½"	3.964	609.07	126.92	708.77
		10'	360	39'-8"		10"	12"		11'-11½"	4.235	641.44	131.93	712.77
		11'	396	39'-10"		11"	12"		12'-11½"	4.451	666.13	136.94	714.78
		12'	432	40'-0"		12"	12"		13'-11½"	4.679	711.11	141.95	716.78
SECTION "B" - 15'-0"	3 @ 8'	5'	120	26'-8"	9½"	7"	9"	10"	6'-7½"	2.099	305.03	86.84	
		6'	144	26'-8"		7"	9"		7'-7½"	2.198	313.05	91.85	
		7'	168	26'-11"		7½"	10"		8'-7½"	2.376	341.75	96.86	
		8'	192	27'-0"		8"	10"		9'-7½"	2.514	371.95	101.87	
		9'	216	27'-4"		9"	11"		10'-7½"	2.756	402.07	106.88	
		10'	240	27'-8"		10"	12"		11'-7½"	3.023	429.44	111.89	
	3 @ 10'	6'	180	32'-11"	11¼"	7½"	10"	11¾"	7'-11"	2.985	441.21	101.87	
		7'	210	32'-11"		7½"	10"		8'-11"	3.093	468.72	106.88	
		8'	240	33'-0"		8"	10"		9'-11"	3.231	499.70	111.89	
		9'	270	33'-4"		9"	11"		10'-11"	3.477	522.18	116.90	
		10'	300	33'-8"		10"	12"		11'-11"	3.748	559.23	121.91	
		11'	330	33'-10"		11"	12"		12'-11"	3.963	590.37	126.92	
		12'	360	34'-0"		12"	12"		13'-11"	4.191	628.01	131.93	
	3 @ 12'	6'	216	39'-0"	13"	8"	10"	13½"	8'-2½"	3.656	622.65	111.89	
		7'	252	39'-0"		8"	10"		9'-2½"	3.968	642.57	116.90	
		8'	288	39'-0"		8"	10"		10'-2½"	4.079	688.30	121.91	
		9'	324	39'-4"		9"	11"		11'-2½"	4.328	714.12	126.92	
		10'	360	39'-8"		10"	12"		12'-2½"	4.602	757.69	131.93	
		11'	396	39'-10"		11"	12"		13'-2½"	4.820	792.68	136.94	
		12'	432	40'-0"		12"	12"		14'-2½"	5.049	830.04	141.95	
SECTION "C" - 20'-0"	3 @ 8'	5'	120	26'-8"	10½"	7"	9"	11"	6'-9½"	2.263	353.13	86.84	
		6'	144	26'-8½"		7¼"	9"		7'-9½"	2.374	361.14	91.85	
		7'	168	26'-11½"		7¾"	10"		8'-9½"	2.556	395.50	96.86	
		8'	192	27'-0½"		8¼"	10"		9'-9½"	2.696	435.42	101.87	
		9'	216	27'-4½"		9¼"	11"		10'-9½"	2.942	462.51	106.88	
		10'	240	27'-8½"		10¼"	12"		11'-9½"	3.212	525.14	111.89	
	3 @ 10'	6'	180	33'-0"	12½"	8"	10"	13"	8'-1½"	3.264	506.07	101.87	
		7'	210	33'-0"		8"	10"		9'-1½"	3.375	533.96	106.88	
		8'	240	33'-1"		8½"	10"		10'-1½"	3.517	571.98	111.89	
		9'	270	33'-5"		9½"	11"		11'-1½"	3.769	608.15	116.90	
		10'	300	33'-8½"		10½"	12"		12'-1½"	4.026	643.90	121.91	
		11'	330	33'-10"		11"	12"		13'-1½"	4.225	692.17	126.92	
		12'	360	34'-0"		12"	12"		14'-1½"	4.454	734.88	131.93	
	3 @ 12'	6'	216	39'-0"	14½"	8"	10"	15"	8'-5½"	4.218	677.02	111.89	
		7'	252	39'-0"		8"	10"		9'-5½"	4.329	710.88	116.90	
		8'	288	39'-1½"		8¾"	10"		10'-5½"	4.488	745.16	121.91	
		9'	324	39'-5"		9½"	11"		11'-5½"	4.728	782.14	126.92	
		10'	360	39'-8½"		10¼"	12"		12'-5½"	4.989	832.09	131.93	
		11'	396	39'-10½"		11¼"	12"		13'-5½"	5.209	868.67	136.94	
		12'	432	40'-0½"		12¼"	12"		14'-5½"	5.442	941.08	141.95	
SECTION "D" - 25'-0"	3 @ 8'	5'	120	26'-8"	11½"	7"	9"	12"	6'-11½"	2.428	369.11	86.84	
		6'	144	26'-9½"		7¾"	9"		7'-11½"	2.564	379.20	91.85	
		7'	168	27'-1"		8½"	10"		8'-11½"	2.764	414.12	96.86	
		8'	192	27'-2½"		9¼"	10"		9'-11½"	2.924	449.02	101.87	
		9'	216	27'-6"		10"	11"		10'-11½"	3.161	488.86	106.88	
		10'	240	27'-10"		11"	12"		11'-11½"	3.439	525.45	111.89	
	3 @ 10'	6'	180	33'-0"	13¾"	8"	10"	14¼"	8'-4"	3.519	543.55	101.87	
		7'	210	33'-1"		8½"	10"		9'-4"	3.658	577.92	106.88	
		8'	240	33'-2½"		9¼"	10"		10'-4"	3.820	611.90	111.89	
		9'	270	33'-6½"		10¼"	11"		11'-4"	4.079	647.87	116.90	
		10'	300	33'-10½"		11½"	12"		12'-4"	4.363	698.60	121.91	
		11'	330	34'-0"		12"	12"		13'-4"	4.568	756.00	126.92	
		12'	360	34'-1½"		12¾"	12"		14'-4"	4.782	806.26	131.93	
	3 @ 12'	6'	216	39'-0"	16"	8"	10"	16½"	8'-8½"	4.579	783.92	116.90	
		7'	252	39'-1½"		8¾"	10"		9'-8½"	4.735	769.34	121.91	
		8'	288	39'-3"		9½"	10"		10'-8½"	4.900	809.65	126.92	
		9'	324	39'-7"		10½"	11"		11'-8½"	5.165	842.91	131.93	
		10'	360	39'-10½"		11½"	12"		12'-8½"	5.435	893.38	136.94	
		11'	396	40'-0½"		12¼"	12"		13'-8½"	5.663	952.37	141.95	
		12'	432	40'-2½"		13¼"	12"		14'-8½"	5.904	1003.92	146.96	

TYPICAL SECTION M-M

NOTE:- For details of wings and bar lists, see Drawing Nos. W-X002-1 or W-X002-2, W-X003-1 or W-X003-2, and W-X004-1 or W-X004-2.

PART LONGITUDINAL SECTION

NOTE:- See Table at lower left for SECTIONS and Bar Groups to be used for Various Depths of Cover.

TYPICAL LONGITUDINAL SECTION-SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections, with Bar Groups to be shown on Cross Section Sheets.

SECTIONS & BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER.

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS: A	B	C		MID-SECTION AND BAR GROUP
5.0' to 9.5'	✓				A
10.0' to 14.5'	✓				B
15.0' to 19.5'	✓	✓			C
20.0' to 25.0'	✓	✓	✓		D

NOTE:- This drawing to be used in conjunction with Standard Drawing Nos. W-X003-1 or W-X003-2, and W-X004-1 or W-X004-2. Also Drawing Nos. W-X002-1 or W-X002-2.

CLASS S CONCRETE

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS
#6	3"	5"	1'-1½"
#7	3⅜"	5¾"	1'-3¾"
#8	4"	6½"	1'-6"

BENDING DIAGRAM FOR BARS "b" and "b2"

DOWEL BARS FOR TWO HEADWALLS: S	SIZE	SPACING	NO. REQ'D	LENGTH	X	Bars "f" Dowel bars in Headwalls.
8'	#4	12"±	54	2'-10"	1'-5"	
10'	#4	12"±	66	3'-0"	1'-6"	
12'	#4	12"±	78	3'-4"	1'-8"	

NOTE:- Dimension are to centers of bars ("b" and "b2")

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.

BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diameters.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division walls and slabs shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

LENGTH OF SECTIONS FOR SKEWED CULVERTS

SKEW ANGLE	SEC. OF SKEW ANGLE	3:1 SLOPES SECTIONS: A	3:1 SLOPES SECTIONS: B, or C	4:1 SLOPES SECTIONS: A	4:1 SLOPES SECTIONS: B, or C
0°	1.0	22.0'	11.0'	32.0'	16.0'
15°	1.0353	22.776'	11.388'	33.129'	16.564'
30°	1.1547	*	12.702'	*	18.475'
45°	1.4142	*	15.556'	*	22.627'

* Variable, see Drawings for Skewed Culverts.

REVISIONS:-
Wing Drwg. Nos.- W.C.H. 1-14-63.
Bar size, spacing, no., & quant. for 10' Spans, Sect. "C" & "D", W.C.H. 1-13-65.

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS
FOR
REINFORCED CONCRETE BOX CULVERTS

8', 10' & 12' SPANS 3:1 OR 4:1 SLOPES
TRIPLES OVER 5'-0" COVER

STANDARD DRAWING No. R-300X-X2

(23)

Reshot 3-5-93

442 ~~170~~

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			153	
JOB No.					

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"a" bars STRAIGHT In Top and Bottom Slab of Barrel. 2 Add'l in Apron and Headwall - Each. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	"b" bars. BENT - See Diagram below. In Bottom of Top Slab bent up over Division Walls - hooked. Alternate with "a" and "c" bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z
0'-0" TO 5'-0" MAXIMUM	5 @ 4'	2'	#5	12"	128	128	23'-5"	#5	12"	59	59	25'-0"	0'-3"	2'-2"	3'-4¼"
		3'			128	128	23'-5"			59	59	25'-0"	0'-3"	2'-2"	3'-4¼"
		4'			128	128	23'-5"			59	59	25'-0"	0'-3"	2'-2"	3'-4¼"
		5'			128	128	23'-5"			59	59	25'-0"	0'-3"	2'-2"	3'-4¼"
		6'			128	128	23'-11"			59	59	25'-6"	0'-3"	2'-3"	3'-5¼"
	5 @ 5'	3'	#6	12"	128	128	28'-5"	#5	12"	59	59	30'-2"	0'-3½"	2'-7"	4'-1¼"
		4'			128	128	28'-5"			59	59	30'-2"	0'-3½"	2'-7"	4'-1¼"
		5'			128	128	28'-5"			59	59	30'-2"	0'-3½"	2'-7"	4'-1¼"
		6'			128	128	28'-11"			59	59	30'-8"	0'-3½"	2'-8"	4'-2¼"
		7'			128	128	29'-4"			59	59	31'-1"	0'-3½"	2'-9"	4'-2¾"
	5 @ 6'	3'	#6	11"	140	140	33'-5"	#5	11"	65	65	35'-3"	0'-4"	3'-0"	4'-10¼"
		4'			140	140	33'-5"			65	65	35'-3"	0'-4"	3'-0"	4'-10¼"
		5'			140	140	33'-5"			65	65	35'-3"	0'-4"	3'-0"	4'-10¼"
		6'			140	140	33'-11"			65	65	35'-9"	0'-4"	3'-1"	4'-11¼"
		7'			140	140	34'-4"			65	65	36'-2"	0'-4"	3'-2"	4'-11¾"
		8'			140	140	34'-5"			65	65	36'-3"	0'-4"	3'-2"	5'-0¼"
	5 @ 7'	4'	#6	12"	128	128	38'-5"	#6	12"	59	59	40'-7"	0'-4½"	3'-5"	5'-7"
		5'			128	128	38'-5"			59	59	40'-7"	0'-4½"	3'-5"	5'-7"
		6'			128	128	38'-11"			59	59	41'-1"	0'-4½"	3'-6"	5'-8"
		7'			128	128	39'-4"			59	59	41'-6"	0'-4½"	3'-7"	5'-8½"
		8'			128	128	39'-5"			59	59	41'-7"	0'-4½"	3'-7"	5'-9"
		9'			128	128	39'-11"			59	59	42'-1"	0'-4½"	3'-8"	5'-10"
	5 @ 8'	4'	⊛ #6	11"	280	280	22'-9"	⊛ #6	11"	130	130	23'-10"	0'-5"	3'-10"	6'-4"
		5'			280	280	23'-0"			130	130	24'-1"	0'-5"	3'-11"	6'-5"
		6'			280	280	23'-0"			130	130	24'-1"	0'-5"	3'-11"	6'-5"
		7'			280	280	23'-4"			130	130	24'-4"	0'-5"	4'-0"	6'-5½"
		8'			280	280	23'-4"			130	130	24'-4"	0'-5"	4'-0"	6'-6"
		9'			280	280	23'-6"			130	130	24'-7"	0'-5"	4'-1"	6'-7"
		10'			280	280	23'-9"			130	130	24'-10"	0'-5"	4'-2"	6'-8"
	5 @ 9'	5'	⊛ #6	11"	280	280	25'-6"	⊛ #6	11"	130	130	26'-8"	0'-5½"	4'-4"	7'-2"
		6'			280	280	25'-8"			130	130	26'-11"	0'-5½"	4'-5"	7'-2½"
		7'			280	280	25'-8"			130	130	26'-11"	0'-5½"	4'-5"	7'-2½"
		8'			280	280	25'-9"			130	130	26'-11"	0'-5½"	4'-5"	7'-3"
		9'			280	280	26'-0"			130	130	27'-2"	0'-5½"	4'-6"	7'-4"
		10'			280	280	26'-3"			130	130	27'-5"	0'-5½"	4'-7"	7'-5"
		11'			280	280	26'-4"			130	130	27'-6"	0'-5½"	4'-7"	7'-6"
	5 @ 10'	5'	⊛ #7	12"	256	256	28'-2"	⊛ #6	12"	118	118	29'-3"	0'-6"	4'-9"	7'-11"
		6'			256	256	28'-4"			118	118	29'-6"	0'-6"	4'-10"	7'-11½"
		7'			256	256	28'-4"			118	118	29'-6"	0'-6"	4'-10"	7'-11½"
		8'			256	256	28'-5"			118	118	29'-6"	0'-6"	4'-10"	8'-0"
		9'			256	256	28'-6"			118	118	29'-9"	0'-6"	4'-11"	8'-1"
		10'			256	256	28'-11"			118	118	30'-0"	0'-6"	5'-0"	8'-2"
		11'			256	256	29'-0"			118	118	30'-1"	0'-6"	5'-0"	8'-3"
		12'			256	256	29'-1"			118	118	30'-2"	0'-6"	5'-0"	8'-4"

S	H	"b2" bars. BENT - See Diagram below. In Top of Bottom Slab bent down under Division Walls - hooked. Alternate with "a" and "c" bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z	"c" bars STRAIGHT In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
5 @ 4'	2'	#5	12"	59	59	24'-10"	0'-2½"	2'-3"	3'-4¼"	#5	12"	120	120	18'-8"
	3'			59	59	24'-10"	0'-2½"	2'-3"	3'-4¼"			120	120	18'-8"
	4'			59	59	24'-10"	0'-2½"	2'-3"	3'-4¼"			120	120	18'-8"
	5'			59	59	24'-10"	0'-2½"	2'-3"	3'-4¼"			120	120	18'-8"
	6'			59	59	25'-4"	0'-2½"	2'-4"	3'-5¼"			120	120	19'-0"
5 @ 5'	3'	#5	12"	59	59	30'-0"	0'-3"	2'-8"	4'-1¼"	#6	12"	120	120	22'-8"
	4'			59	59	30'-0"	0'-3"	2'-8"	4'-1¼"			120	120	22'-8"
	5'			59	59	30'-0"	0'-3"	2'-8"	4'-1¼"			120	120	22'-8"
	6'			59	59	30'-6"	0'-3"	2'-9"	4'-2¼"			120	120	23'-0"
	7'			59	59	30'-11"	0'-3"	2'-10"	4'-2¾"			120	120	23'-4"
5 @ 6'	3'	#5	11"	65	65	35'-2"	0'-3½"	3'-1"	4'-10¼"	#6	11"	132	132	26'-8"
	4'			65	65	35'-2"	0'-3½"	3'-1"	4'-10¼"			132	132	26'-8"
	5'			65	65	35'-2"	0'-3½"	3'-1"	4'-10¼"			132	132	26'-8"
	6'			65	65	35'-8"	0'-3½"	3'-2"	4'-11¼"			132	132	27'-0"
	7'			65	65	36'-1"	0'-3½"	3'-3"	4'-11¾"			132	132	27'-4"
	8'			65	65	36'-2"	0'-3½"	3'-3"	5'-0¼"			132	132	27'-4"
5 @ 7'	4'	#6	12"	59	59	40'-6"	0'-4¼"	3'-5½"	5'-7"	#6	12"	120	120	30'-8"
	5'			59	59	40'-6"	0'-4¼"	3'-5½"	5'-7"			120	120	30'-8"
	6'			59	59	41'-0"	0'-4¼"	3'-6½"	5'-8"			120	120	31'-0"
	7'			59	59	41'-5"	0'-4¼"	3'-7½"	5'-8½"			120	120	31'-4"
	8'			59	59	41'-6"	0'-4¼"	3'-7½"	5'-9"			120	120	31'-4"
	9'			59	59	42'-0"	0'-4¼"	3'-8½"	5'-10"			120	120	31'-8"
5 @ 8'	4'	⊛ #6	11"	130	130	23'-10"	0'-5"	3'-10"	6'-4"	#6	11"	132	132	34'-8"
	5'			130	130	24'-1"	0'-5"	3'-11"	6'-5"			132	132	35'-0"
	6'			130	130	24'-1"	0'-5"	3'-11"	6'-5"			132	132	35'-0"
	7'			130	130	24'-4"	0'-5"	4'-0"	6'-5½"			132	132	35'-4"
	8'			130	130	24'-4"	0'-5"	4'-0"	6'-6"			132	132	35'-4"
	9'			130	130	24'-7"	0'-5"	4'-1"	6'-7"			132	132	35'-8"
	10'			130	130	24'-10"	0'-5"	4'-2"	6'-8"			132	132	36'-0"
5 @ 9'	5'	⊛ #6	11"	130	130	26'-8"	0'-5½"	4'-4"	7'-2"	#6	11"	132	132	39'-0"
	6'			130	130	26'-11"	0'-5½"	4'-5"	7'-2½"			132	132	39'-4"
	7'			130	130	26'-11"	0'-5½"	4'-5"	7'-2½"			132	132	39'-4"
	8'			130	130	26'-11"	0'-5½"	4'-5"	7'-3"			132	132	39'-4"
	9'			130	130	27'-2"	0'-5½"	4'-6"	7'-4"			132	132	39'-8"
	10'			130	130	27'-5"	0'-5½"	4'-7"	7'-5"			132	132	40'-0"
	11'			130	130	27'-6"	0'-5½"	4'-7"	7'-6"			132	132	40'-0"
5 @ 10'	5'	⊛ #6	12"	118	118	29'-3"	0'-6"	4'-9"	7'-11"	⊛ #7	12"	240	240	22'-8"
	6'			118	118	29'-6"	0'-6"	4'-10"	7'-11½"			240	240	22'-10"
	7'			118	118	29'-6"	0'-6"	4'-10"	7'-11½"			240	240	22'-10"
	8'			118	118	29'-6"	0'-6"	4'-10"	8'-0"			240	240	22'-10"
	9'			118	118	29'-9"	0'-6"	4'-11"	8'-1"			240	240	23'-0"
	10'			118	118	30'-0"	0'-6"	5'-0"	8'-2"			240	240	23'-2"
	11'			118	118	30'-1"	0'-6"	5'-0"	8'-3"			240	240	23'-2"
	12'			118	118	30'-2"	0'-6"	5'-0"	8'-4"			240	240	23'-2"

S	H	"d" bars STRAIGHT Longitudinal in Top Slab of Barrel SIZE	SPACING	NO. REQ'D	LENGTH	"d1" bars STRAIGHT Longitudinal in Sidewalls and Division Walls SIZE	SPACING	NO. REQ'D	LENGTH	"e" bars STRAIGHT Longitudinal in Bottom Slab of Barrel. SIZE	SPACING	NO. REQ'D	LENGTH	"f" bars STRAIGHT Vertical in Sidewalls and Division Walls SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
5 @ 4'	2'	#5	12"	38	2 @ 30'-8" for 60'-0" Length Barrel. (1'-8" Lap.)	#4	12"	20	2 @ 30'-6" for 60'-0" Length Barrel. (1'-3" Lap.)	#4	12"	38	2 @ 31'-6" for 60'-0" Length Barrel. (1'-3" Lap.)	#4	12"	600	600	2'-10"
	3'			38				30				38				600	600	3'-10"
	4'			38				40				38				600	600	4'-10"
	5'			38				50				38				600	600	5'-10"
	6'			38				60				38				600	600	6'-10"
5 @ 5'	3'	#5	11½"	44		#4	12"	30		#4	12"	43		#4	12"	600	600	3'-11"
	4'			44				40				43				600	600	4'-11"
	5'			44				50				43				600	600	5'-11"
	6'			44				60				43				600	600	6'-11"
	7'			44				70				43				600	600	7'-11"
5 @ 6'	3'	#5	11½"	49		#4	12"	30		#4	12"	48		#4	12"	600	600	4'-0"
	4'			49				40				48				600	600	5'-0"
	5'			49				50				48				600	600	6'-0"
	6'			49				60				48				600	600	7'-0"
	7'			49				70				48				600	600	8'-0"
	8'			49				80				48			10"	720	720	9'-0"
5 @ 7'	4'	#5	11½"	54		#4	12"	40		#4	12"	53		#4	12"	600	600	5'-1"
	5'			54				50				53				600	600	6'-1"
	6'			54				60				53				600	600	7'-1"
	7'			54				70				53				600	600	8'-1"
	8'			54				80				53			10"	720	720	9'-1"
	9'			54				90				53		#5	12"	600	600	10'-1"
5 @ 8'	4'	#5	11½"	60		#4	12"	40		#4	12"	58		#4	12"	600	600	5'-2"
	5'			60				50				58				600	600	6'-2"
	6'			60				60				58				600	600	7'-2"
	7'			60				70				58				600	600	8'-2"
	8'			60				80				58			10"	720	720	9'-2"
	9'			60				90				58		#5	12"	600	600	10'-2"
	10'			60				100				58			11"	660	660	11'-2"
5 @ 9'	5'	#5	11½"	69		#4	12"	50		#4	12"	67		#4	12"	600	600	6'-3"
	6'			69				60				67				600	600	7'-3"
	7'			69				70				67				600	600	8'-3"
	8'			69				80				67			10"	720	720	9'-3"
	9'			69				90				67		#5	12"	600	600	10'-3"
	10'			69				100				67			11"	660	660	11'-3"
	11'			69				110				67			10"	720	720	12'-3"
5 @ 10'	5'	#5	11½"	74		#4	12"	50		#4	12"	72		#4	12"	600	600	6'-4"
	6'			74				60				72				600	600	7'-4"
	7'			74				70				72				600	600	8'-4"
	8'			74				80				72			10"	720	720	9'-4"
	9'			74				90				72		#5	12"	600	600	10'-4"
	10'			74				100				72			11"	660	660	11'-4"
	11'			74				110				72			10"	720	720	12'-4"
	12'			74				120				72		#6	12"	600	600	13'-4"

⊛ These "a", "b", "b2" and "c" bars are to be spliced at center of the middle span to make a full length bar. Lap #6 bars 2'-0" min. and #7 bars 2'-4" min.

DIMENSIONS — QUANTITIES

MAX. DESIGN DEPTH OF COVER D	BARREL DIMENSIONS CLEAR SPANS S	CLEAR HEIGHT H	SQ. FT. OPENING A	OVERALL WIDTH OW	THICKNESS OF TOP SLAB T	THICKNESS OF SIDEWALLS C	THICKNESS OF DIVISION WALLS M	THICKNESS OF BOTTOM SLAB B	OVERALL HEIGHT OH	UNIT QUANTITIES CLASS S CONC. PER LIN. FT. OF BARREL CU.YD.	REINFORCING STEEL PER LIN. FT. OF BARREL LB.	ADDITIONAL PER LAP LB.	ADDITIONAL TWO HEADWALLS & APRONS LB.
5'-0"	5 @ 4'	2'	40	23'-8"	6½"	6"	8"	6"	3'-0½"	1.185	237.07	114.49	326.87
		3'	60	23'-8"		6"	8"		4'-0½"	1.321	250.43	122.84	326.87
		4'	80	23'-8"		6"	8"		5'-0½"	1.456	263.79	131.19	326.87
		5'	100	23'-8"		6"	8"		6'-0½"	1.592	277.15	139.54	326.87
		6'	120	24'-2"		7"	9"		7'-0½"	1.858	293.29	147.89	331.05
	5 @ 5'	3'	75	28'-8"	7"	6"	8"	6½"	4'-1½"	1.602	337.03	137.44	499.10
		4'	100	28'-8"		6"	8"		5'-1½"	1.738	350.39	145.79	499.10
		5'	125	28'-8"		6"	8"		6'-1½"	1.873	363.75	154.14	499.10
		6'	150	29'-2"		7"	9"		7'-1½"	2.141	380.65	162.49	505.11
		7'	175	29'-7"		7½"	10"		8'-1½"	2.421	397.14	170.84	510.12
	5 @ 6'	3'	90	33'-8"	7½"	6"	8"	7"	4'-2½"	1.914	406.95	150.31	586.96
		4'	120	33'-8"		6"	8"		5'-2½"	2.050	420.31	158.66	586.96
		5'	150	33'-8"		6"	8"		6'-2½"	2.186	433.67	167.01	586.96
		6'	180	34'-2"		7"	9"		7'-2½"	2.455	450.90	175.36	592.97
		7'	210	34'-7"		7½"	10"		8'-2½"	2.736	467.67	183.71	597.98
		8'	240	34'-8"		8"	10"		9'-2½"	2.934	493.51	192.06	598.98
	5 @ 7'	4'	140	38'-8"	8"	6"	8"	7¾"	5'-3¾"	2.423	481.72	171.53	674.93
		5'	175	38'-8"		6"	8"		6'-3¾"	2.559	495.08	179.88	674.93
		6'	210	39'-2"		7"	9"		7'-3¾"	2.830	512.44	188.23	680.94
		7'	245	39'-7"		7½"	10"		8'-3¾"	3.112	529.31	196.58	685.95
		8'	280	39'-8"		8"	10"		9'-3¾"	3.311	555.30	204.93	686.95
		9'	315	40'-2"		9"	11"		10'-3¾"	3.675	598.35	213.28	692.95
	5 @ 8'	4'	160	43'-8"	8½"	6"	8"	8½"	5'-5"	2.834	581.48	186.13	789.55
		5'	200	44'-2"		7"	9"		6'-5"	3.089	599.21	194.48	795.55
		6'	240	44'-2"		7"	9"		7'-5"	3.243	612.57	202.83	795.55
		7'	280	44'-7"		7½"	10"		8'-5"	3.528	630.84	211.18	803.57
		8'	320	44'-8"		8"	10"		9'-5"	3.726	656.95	219.53	803.57
		9'	360	45'-2"		9"	11"		10'-5"	4.092	699.51	227.88	807.57
		10'	400	45'-8"		10"	12"		11'-5"	4.495	731.58	236.23	813.59
	5 @ 9'	5'	225	49'-2"	9"	7"	9"	9"	6'-6"	3.503	661.59	217.64	891.60
		6'	270	49'-7"		7½"	10"		7'-6"	3.773	678.77	225.99	895.60
		7'	315	49'-7"		7½"	10"		8'-6"	3.943	692.13	234.34	895.60
		8'	360	49'-8"		8"	10"		9'-6"	4.142	718.40	242.69	897.60
		9'	405	50'-2"		9"	11"		10'-6"	4.509	762.21	251.04	903.61
		10'	450	50'-8"		10"	12"		11'-6"	4.914	794.35	259.39	909.62
		11'	495	50'-10"		11"	12"		12'-6"	5.201	827.44	267.74	911.62
	5 @ 10'	5'	250	54'-2"	9½"	7"	9"	9½"	6'-7"	3.948	792.33	230.51	1231.67
		6'	300	54'-7"		7½"	10"		7'-7"	4.219	809.92	238.86	1237.12
		7'	350	54'-7"		7½"	10"		8'-7"	4.389	823.28	247.21	1237.12
		8'	400	54'-8"		8"	10"		9'-7"	4.588	849.79	255.56	1239.85
		9'	450	55'-2"		9"	11"		10'-7"	4.957	894.24	263.91	1248.02
		10'	500	55'-8"		10"	12"		11'-7"	5.363	927.10	272.26	1256.20
		11'	550	55'-10"		11"	12"		12'-7"	5.651	960.38	280.61	1258.93
		12'	600	56'-0"		12"	12"		13'-7"	5.951	1014.19	288.96	1261.65

NOTE:- For details of wings and bar list see Drawing Nos. W-X002-1 or W-X002-2, W-X003-1 or W-X003-2, and W-X004-1 or W-X004-2.

PART LONGITUDINAL SECTION

TYPICAL SECTION M-M

LONGITUDINAL SECTION

BAR SIZE	PIN DIAM.	K	ADD FOR HOOKS	SPAN	BENDING DIAGRAM FOR BARS "b" and "b2"
#5	2½"	4¼"	0'-11½"	4', 5', 6', & 7'	
#6	3"	5"	1'-2"		
#6	3"	5"	0'-7"	8', 9', & 10'	

NOTE:- Dimensions are to centers of bars. ("b" and "b2").

DOWEL BARS FOR TWO HEADWALLS

5 SPANS @	SIZE	SPACING	NO. REQ'D	LENGTH	X	Bars "r" Dowel bars in Headwalls
4'	#4	12"±	50	2'-5"	1'-2½"	
5'	#4	12"±	60	2'-6"	1'-3"	
6'	#4	12"±	70	2'-7"	1'-3½"	
7'	#4	12"±	80	2'-8"	1'-4"	
8'	#4	12"±	90	2'-9"	1'-4½"	
9'	#4	12"±	100	2'-10"	1'-5"	
10'	#4	12"±	110	2'-11"	1'-5½"	

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.

BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diameters.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division walls and slabs shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

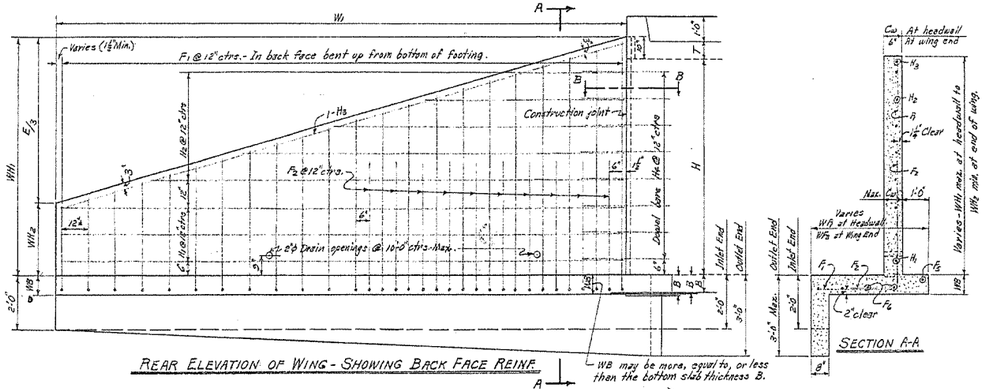
NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X003-1 or W-X003-2 and W-X004-1 or W-X004-2. Also Drawings Nos. W-X002-1 or W-X002-2.

CLASS S CONCRETE

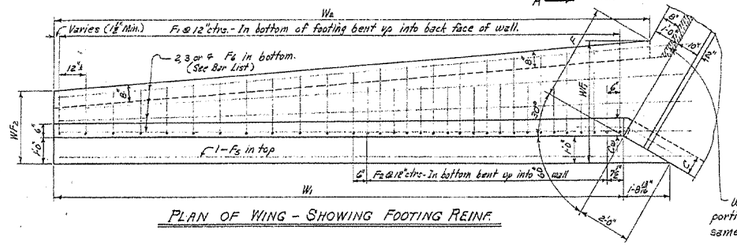
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD BARREL SECTIONS
FOR
REINFORCED CONCRETE BOX CULVERTS
4',5',6',7',8',9' & 10' SPANS — 3:1 OR 4:1 SLOPES
QUINTUPLES — UNDER 5'-0" COVER
STANDARD DRAWING NO. R-500X-0

Designed By:- W.C.H. 1-23-63. Checked By:- 5-24-63 RHS
Drawn By:- W.C.H. 3-15-63. Checked By:- 5-27-63 RHS
Quantities By:- W.C.H. 3-18-63. Checked By:- 5-27-63 RHS

FED. ROAD NO.	STATE	FED. AID PROJECT	SHEET NO.	TOTAL SHEETS
			154	
JOB NO.				

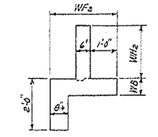


REAR ELEVATION OF WING - SHOWING BACK FACE REINF.



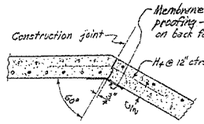
PLAN OF WING - SHOWING FOOTING REINF.

SECTION A-A

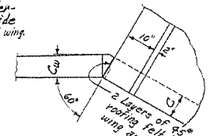


END VIEW OF WING

When B is more than WB, the shaded portion of the apron shall be made the same thickness as the barrel base B.



SECTION B-B THRU CONSTRUCTION JOINT



DETAIL AT TOP OF WING

Note:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

WING DIMENSIONS

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = C	WINGWALL HEIGHTS		WIDTHS OF WING FOOTINGS		PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HDWL. TO END OF WING	LENGTH OF WING WALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE	
			AT HEADWALL	AT END OF WING	AT HEADWALL	AT END OF WING					INLET END	OUTLET END
H	WB	C_W	WH_1	WH_2	W_5	W_6	F	E	W_1	W_2	CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-9"	2'-0"	0'-11½"	6'-6"	7'-6"	7'-1½"	0.889	0.996
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-3⅜"	8'-6"	9'-3⅜"	9'-7½"	1.338	1.466
4'	7"	6"	4'-10"	1'-0"	3'-0"	2'-3"	1'-3"	10'-6"	12'-1⅜"	12'-1½"	1.868	2.027
5'	7"	6"	5'-10"	1'-0"	3'-4"	2'-4½"	2'-1⅜"	12'-6"	14'-5⅜"	14'-7½"	2.478	2.669
		7"	5'-10"	1'-0"	3'-4"	2'-5½"	2'-1⅜"	12'-6"	14'-5⅜"	14'-7½"	2.582	2.772
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅜"	14'-6"	16'-9"	17'-1⅝"	3.390	3.661
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅜"	14'-6"	16'-9"	17'-1½"	3.811	3.732
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅜"	14'-6"	16'-9"	17'-1⅝"	3.582	3.803
7'	8⅛"	7⅛"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅜"	16'-6"	19'-2⅝"	19'-8⅜"	4.505	4.758
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅜"	16'-6"	19'-2⅝"	19'-8⅜"	4.597	4.851
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	18'-6"	21'-6⅝"	22'-1⅜"	5.761	6.047

* Quantity per wing does not include headwall or that portion of apron or footwall for the length W_3.

APRON DIMENSION W_3

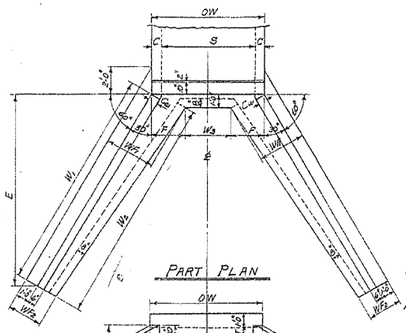
$W_3 = (OW - 2F)$

CLEAR SPAN	CLEAR HEIGHT	FOOTING DIMENSION	SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT		QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT	
S	H	2F	OW	W_3	OW	W_3	OW	W_3	OW	W_3	OW	W_3
4'	2'	1'-11½"	5'-0"	3'-0⅝"	9'-8"	7'-6⅝"	14'-4"	12'-4⅝"	19'-0"	17'-0⅝"	23'-8"	21'-8⅝"
	3'	2'-8⅜"	5'-0"	2'-3⅜"	9'-8"	6'-11⅜"	14'-4"	11'-7⅛"	19'-0"	16'-3⅛"	23'-8"	20'-11⅝"
	4'	3'-6"	5'-0"	1'-6"	9'-8"	6'-2"	14'-4"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
	5'	4'-3⅝"	5'-0"	0'-8⅝"	9'-8"	5'-4⅝"	14'-4"	10'-0⅝"	19'-0"	14'-8⅝"	23'-8"	19'-9⅝"
	6'	5'-0⅝"	5'-2"	0'-1⅝"	9'-11"	4'-10⅝"	14'-8"	9'-7⅝"	19'-5"	14'-2⅝"	24'-2"	19'-1⅝"
5'	3'	2'-8⅜"	6'-0"	3'-3⅝"	11'-8"	8'-11⅝"	17'-4"	14'-7⅛"	23'-0"	20'-3⅛"	28'-8"	26'-11⅝"
	4'	3'-6"	6'-0"	2'-6"	11'-8"	8'-2"	17'-4"	13'-10"	23'-0"	19'-6"	28'-8"	25'-2"
	5'	4'-3⅝"	6'-0"	1'-8⅝"	11'-8"	7'-4⅝"	17'-4"	13'-0⅝"	23'-0"	18'-8⅝"	28'-8"	24'-9⅝"
	6'	5'-0⅝"	6'-2"	1'-1⅝"	11'-11"	6'-10⅝"	17'-8"	12'-7⅝"	23'-5"	18'-2⅝"	29'-2"	24'-1⅝"
	7'	6'-2⅝"	6'-3"	0'-0⅝"	12'-1"	5'-10⅝"	17'-11"	11'-8⅝"	23'-9"	17'-8⅝"	29'-7"	23'-4⅝"
6'	3'	2'-8⅜"	7'-0"	4'-3⅝"	13'-8"	10'-11⅝"	20'-6"	17'-7⅛"	27'-0"	24'-3⅛"	33'-8"	30'-11⅝"
	4'	3'-6"	7'-0"	3'-6"	13'-8"	10'-2"	20'-6"	16'-10"	27'-0"	23'-6"	33'-8"	30'-2"
	5'	4'-3⅝"	7'-0"	2'-8⅝"	13'-9"	9'-4⅝"	20'-9"	16'-0⅝"	27'-3"	22'-8⅝"	33'-8"	29'-4⅝"
	6'	5'-0⅝"	7'-2"	2'-1⅝"	13'-11"	8'-10⅝"	20'-8"	15'-7⅝"	27'-5"	22'-2⅝"	34'-2"	29'-1⅝"
	7'	6'-2⅝"	7'-3"	1'-0⅝"	14'-1"	7'-10⅝"	20'-11"	14'-8⅝"	27'-8"	21'-4⅝"	34'-7"	28'-4⅝"
	8'	7'-4"	7'-6"	0'-0"	14'-2"	6'-10"	21'-0"	13'-8"	27'-10"	20'-6"	34'-10"	27'-10"
7'	4'	3'-6"	8'-0"	4'-6"	15'-8"	12'-8"	23'-4"	19'-10"	31'-0"	27'-6"	38'-8"	35'-2"
	5'	4'-3⅝"	8'-0"	3'-8⅝"	15'-9"	11'-8⅝"	23'-6"	19'-0⅝"	31'-0"	26'-8⅝"	38'-8"	34'-8⅝"
	6'	5'-0⅝"	8'-2"	3'-1⅝"	15'-11"	10'-10⅝"	23'-8"	18'-7⅝"	31'-5"	26'-1⅝"	39'-2"	34'-1⅝"
	7'	6'-2⅝"	8'-3"	2'-0⅝"	16'-1"	9'-10⅝"	23'-11"	17'-8⅝"	31'-9"	25'-2⅝"	39'-7"	33'-4⅝"
	8'	7'-4"	8'-6"	1'-0"	16'-2"	8'-10"	24'-0"	16'-8"	31'-10"	24'-6"	39'-8"	32'-4"
8'	4'	3'-6"	9'-0"	5'-6"	17'-8"	14'-8"	26'-4"	22'-10"	35'-0"	31'-4"	43'-8"	40'-2"
	5'	4'-3⅜"	9'-2"	4'-10⅜"	17'-11"	13'-7⅜"	26'-8"	22'-0⅜"	35'-5"	31'-1⅜"	44'-2"	39'-10⅜"
	6'	5'-0⅛"	9'-2"	4'-1⅛"	17'-11"	12'-10⅛"	26'-5"	21'-2⅛"	35'-5"	30'-1⅝"	44'-2"	39'-1⅛"
	7'	6'-2⅛"	9'-3"	3'-0⅛"	18'-1"	11'-10⅛"	26'-11"	20'-3⅛"	35'-9"	29'-1⅝"	44'-7"	38'-4⅛"
	8'	7'-4"	9'-4"	2'-0"	18'-2"	10'-10"	27'-0"	19'-8"	35'-10"	28'-6"	44'-8"	37'-10"
9'	5'	4'-3⅜"	10'-5"	5'-10⅜"	19'-11"	15'-7⅜"	29'-8"	25'-4⅜"	39'-5"	35'-1⅜"	49'-2"	44'-10⅜"
	6'	5'-0⅛"	10'-3"	5'-1⅛"	20'-1"	15'-0⅛"	29'-11"	24'-6⅛"	39'-9"	34'-5⅝"	49'-7"	44'-1⅛"
	7'	6'-2⅛"	10'-3"	4'-0⅛"	20'-1"	13'-10⅛"	29'-11"	23'-6⅛"	39'-9"	33'-5⅝"	49'-7"	43'-1⅛"
	8'	7'-4"	10'-4"	3'-0"	20'-2"	12'-10"	30'-0"	22'-8"	39'-10"	32'-6"	49'-8"	42'-4"
10'	5'	4'-3⅜"	11'-2"	6'-10⅜"	21'-11"	17'-7⅜"	32'-8"	28'-4⅜"	43'-5"	39'-1⅜"	54'-2"	49'-10⅜"
	6'	5'-0⅛"	11'-3"	6'-2⅛"	22'-1"	17'-0⅛"	32'-11"	27'-10⅛"	43'-9"	38'-5⅝"	54'-7"	49'-1⅛"
	7'	6'-2⅛"	11'-3"	5'-0⅛"	22'-1"	15'-10⅛"	32'-11"	26'-10⅛"	43'-9"	37'-5⅝"	54'-7"	48'-1⅛"
	8'	7'-4"	11'-4"	4'-0"	22'-2"	14'-10"	33'-0"	25'-8"	43'-10"	36'-4"	54'-8"	47'-4"
11'	6'	5'-0⅛"	12'-3"	7'-3⅛"	24'-2"	19'-1⅛"	36'-0"	30'-11⅛"	47'-10"	42'-9⅛"		
	7'	6'-2⅛"	12'-4"	6'-1⅛"	24'-2"	17'-11⅛"	36'-0"	29'-9⅛"	47'-10"	41'-7⅛"		
	8'	7'-4"	12'-5"	5'-0"	24'-3"	16'-10"	36'-0"	28'-8"	47'-10"	40'-6"		
12'	6'	5'-0⅛"	13'-0"	8'-3⅛"	26'-2"	21'-1⅛"	39'-0"	33'-11⅛"	51'-10"	46'-9⅛"		
	7'	6'-2⅛"	13'-0"	7'-1⅛"	26'-2"	19'-11⅛"	39'-0"	32'-9⅛"	51'-10"	45'-7⅛"		
	8'	7'-4"	13'-0"	6'-0"	26'-2"	18'-10"	39'-0"	31'-8"	51'-10"	44'-6"		

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL - LBS. FOR 4 WINGS	CLASS S CONCRETE - 4 WINGS HEADWALLS, WINGWALLS, FOOTINGS, TOE WALLS AND APRONS					
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT	
S	H	C_W	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	
4'	2'	6"	7'	108.0	4.50	5.46	6.42	7.38	8.34	
	3'	6"	7'	169.9	6.26	7.21	8.17	9.13	10.09	
	4'	6"	7'	259.6	8.33	9.28	10.24	11.20	12.16	
	5'	6"	7'	357.8	10.72	11.68	12.64	13.60	14.56	
	6'	6"	8"	583.1	14.55	15.53	16.52	17.51	18.49	
5'	3'	6"	7'	164.9	6.47	7.63	8.79	9.96	11.12	
	4'	6"	7'	259.6	8.54	9.70	10.87	12.03	13.20	
	5'	6"	7'	357.8	10.94	12.10	13.26	14.42	15.59	
	6'	7"	8"	583.1	14.77	15.96	17.15	18.34	19.54	
	7'	7½"	8½"	1136.6	18.94	20.15	21.37	22.59	23.80	
6'	3'	6"	7'	164.9	6.68	8.06	9.42	10.80	12.18	
	4'	6"	7'	259.6	8.75	10.14	11.49	12.87	14.25	
	5'	6"	7'	357.8	11.15	12.53	13.89	15.27	16.65	
	6'	7"	8"	583.1	14.98	16.39	17.78	19.18	20.59	
	7'	7½"	8½"	1136.6	19.15	20.58	22.00	23.43	24.86	
	8'	8"	9"	1925.6	24.09	25.53	26.96	28.39	29.83	
7'	4'	6"	7'	259.6	8.97	10.58	12.15	13.76	15.35	
	5'	6"	7'	357.8	11.36	12.97	14.54	16.15	17.75	
	6'	7"	8"	583.1	15.20	16.82	18.42	20.04	21.66	
	7'	7½"	8½"	1136.6	19.38	21.02	22.69	24.28	25.92	
	8'	8"	9"	1925.6	24.32	25.97	27.60	29.25	30.89	
8'	4'	6"	7'	259.6	9.19	11.03	12.82	14.65	16.45	
	5'	7"	7'	357.8	12.03	13.89	15.70	17.55	19.34	
	6'	7"	8"	583.1	15.92	17.27	19.09	20.93	22.75	
	7'	7½"	8½"	1136.6	19.59	21.46	23.30	25.16	26.93	
	8'	8"	9"	1925.6	24.54	26.41	28.24	30.11	31.94	
9'	5'	7"	7'	357.8	12.26	14.34	16.87	18.95	20.97	
	6'	7½"	8'	583.1	15.94	18.04	20.03	22.19	24.23	
	7'	7½"	8½"	1136.6	19.81	21.91	23.96	26.06	28.10	
	8'	8"	9"	1925.6	24.76	26.86	28.91	31.00	33.05	
10'	5'	7"	7'	357.8	12.49	14.80	17.05	19.26	21.52	
	6'	7½"	8'	583.1	16.17	18.50	20.77	22.99	25.28	
	7'	7½"	8½"	1136.6	20.04	22.37	24.64	26.87	29.15	
	8'	8"	9"	1925.6	24.98	27.31	29.58	31.81	34.10	
11'	6'	8"	8'	583.1	16.69	19.27	21.76	24.23		
	7'	8"	8½"	1136.6	20.64	23.22	25.71	28.18		
	8'	8"	9"	1925.6	25.19	27.77	30.27	32.74		
12'	6'	8"	8"	583.1	16.92	19.75	22.45	25.18		
	7'	8"	8½"	1136.6	20.87	23.69	26.40	29.13		
	8'	8"	9"	1925.6	25.42	28.25	30.96	33.69		

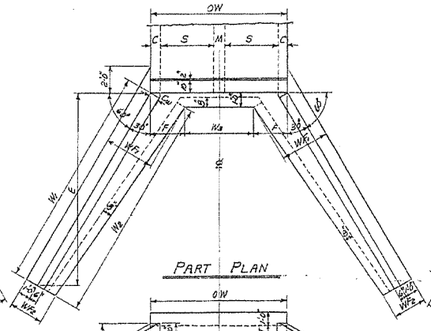
* For reinforcing steel in Headwalls and Aprons, See Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.



PART PLAN

END ELEVATION

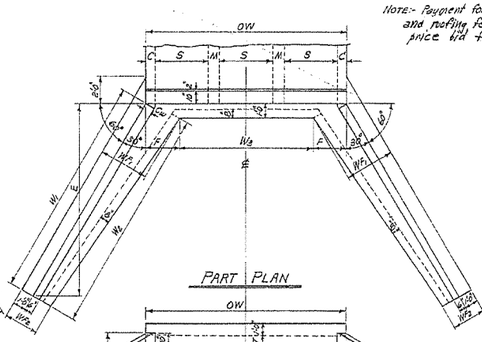
SINGLE BARREL CULVERT



PART PLAN

END ELEVATION

DOUBLE BARREL CULVERT

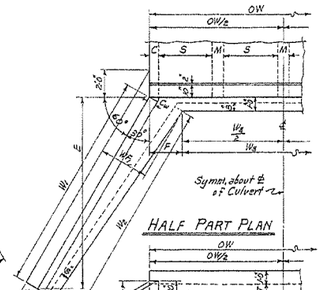


PART PLAN

END ELEVATION

TRIPLE BARREL CULVERT

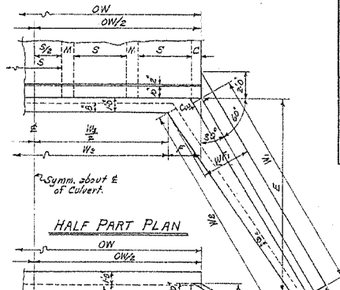
NOTE:- Plans and Elevations are not to scale.



HALF PART PLAN

HALF END ELEVATION

QUADRUPLE BARREL CULVERT



HALF PART PLAN

HALF END ELEVATION

QUINTUPLE BARREL CULVERT

BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT	F_1 Bent: In bottom of footing, bent up into back face of wing. One bar of each length.								F_2 Bent: In bottom of footing, bent up into back face of wing. Alt. with F_1 bars.						F_5 Straight: Longitudinal in top of wing footing heel.			F_6 Straight: Longitudinal in bottom of wing toe.			H_1 Horizontal in back face of wing.			H_2 Straight: Horizontal in back face of wing. One bar of each length.						H_3 In back face of wing at top-on slope.			H_4 Bent: Dowels thru construction joint at headwall.				QUANTITY REINFORCING STEEL PER WING
				LENGTHS VARY																					LENGTHS VARY											
H	SIZE	SPACING	NO. REQD	MIN.	MAX.	MIN.	MAX.	X	Y	SIZE	SPACING	NO. REQD	LENGTH	X	Y	SIZE	NO. REQD	LENGTH	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	MAX.	MIN.	SIZE	SPACING	NO. REQD	LENGTH	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	X	LB.
2'	#3	12"	8	1'-6"	3'-10"	0'-8"	1'-0"	0'-11"	2'-11"	—	—	—	—	—	—	#3	1	9'-8"	#3	2	8'-6"	#3	12"	1	7'-2"	#3	12"	1	—	9'-0"	#3	1	7'-9"	#3	12"	2	2'-8"	1'-9"	27.0
3'	#3	12"	10	2'-2"	5'-2"	0'-10"	1'-3"	1'-5"	3'-6"	—	—	—	—	—	—	#3	1	12'-0"	#3	2	11'-0"	#3	12"	1	9'-6"	#3	12"	2	7'-6"	9'-0"	#3	1	9'-3"	#3	12"	3	2'-8"	1'-6"	41.1
4'	#3	12"	13	2'-9"	6'-6"	0'-11"	1'-7"	1'-6"	5'-0"	—	—	—	—	—	—	#3	1	14'-9"	#3	3	13'-6"	#3	12"	1	11'-10"	#3	12"	3	10'-11"	9'-0"	#3	1	10'-2"	#3	12"	4	2'-8"	1'-9"	63.7
5'	#3	12"	15	2'-11"	7'-10"	1'-1"	1'-11"	1'-11"	6'-10"	#3	12"	4	3'-6"	1'-1"	2'-6"	#3	1	16'-8"	#3	3	16'-3"	#5	12"	2	14'-2"	#3	12"	3	10'-11"	9'-0"	#3	1	10'-7"	#3	12"	5	2'-8"	1'-9"	89.5
6'	#3	12"	17	3'-6"	9'-3"	1'-2"	2'-3"	2'-5"	7'-1"	#3	12"	4	4'-6"	1'-5"	3'-3"	#3	1	19'-0"	#3	3	18'-6"	#3	12"	2	16'-6"	#3	12"	4	14'-8"	9'-0"	#3	1	13'-0"	#3	12"	6	2'-8"	1'-9"	145.8
7'	#4	12"	20	3'-9"	10'-9"	1'-3"	2'-9"	2'-7"	8'-1"	#4	12"	7	5'-6"	1'-7"	4'-0"	#4	1	21'-4"	#4	4	21'-0"	#4	12"	2	18'-9"	#4	12"	5	17'-9"	9'-0"	#4	1	15'-5"	#4	12"	7	3'-6"	1'-9"	283.7
8'	#4	12"	22	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	10	6'-6"	1'-10"	4'-9"	#4	1	23'-8"	#4	4	23'-9"	#4	12"	3	21'-1"	#4	12"	5	17'-9"	9'-0"	#4	1	21'-10"	#4	12"	8	3'-6"	1'-9"	356.4

BAR BENDING DIAGRAMS

NOTE:- Dimensions are to bar centers.

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

REVISIONS:- Membrane added. 5-10-66 W.C.H.

Designed By:- W.C.H. 6-20-62. Checked By:- RHS - 1-9-63
Drawn By:- W.C.H. 12-9-62. Checked By:- RHS - 1-31-63
Quantities By:- W.C.H. 12-19-62. Checked By:- RHS - 3-29-63
Rechecked By:-

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾ chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-

Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. as listed below.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-X1	R-200X-X1	R-300X-X1	R-400X-X1	R-500X-X1
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X003-1

MVI. 68

Crafton, Tull & Associates Inc.

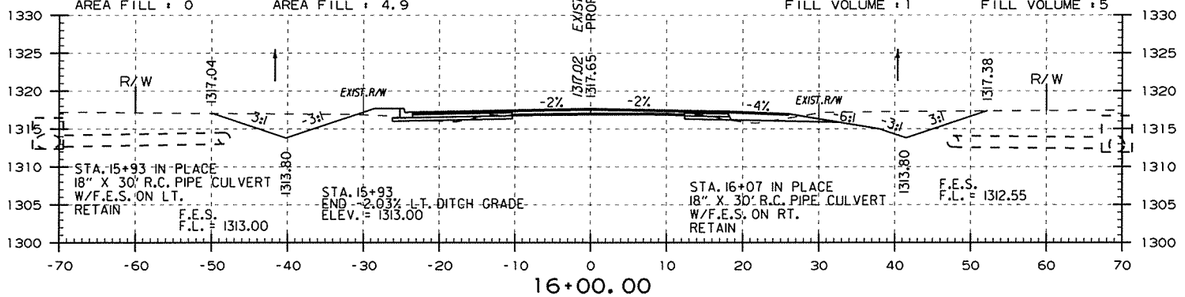
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	155	184

1 CROSS SECTIONS

STA. 16+25 IN PLACE
CURB INLET ON LT.
W/1- 8' EXT. & 1- 4' EXT.
& 38" X 24" X 63' R.C.E. PIPE CULVERT
TO CURB INLET ON LT.
RETAIN

TOP = 1316.47
F.L. = 1312.35

STAGE 1 AREA CUT = 66.6 AREA FILL = 0
STAGE 2 AREA CUT = 34.3 AREA FILL = 4.9
EXIST.(TYP.) PROPOSED (TYP.)
STAGE 1 CUT VOLUME = 93 FILL VOLUME = 1
STAGE 2 CUT VOLUME = 81 FILL VOLUME = 5

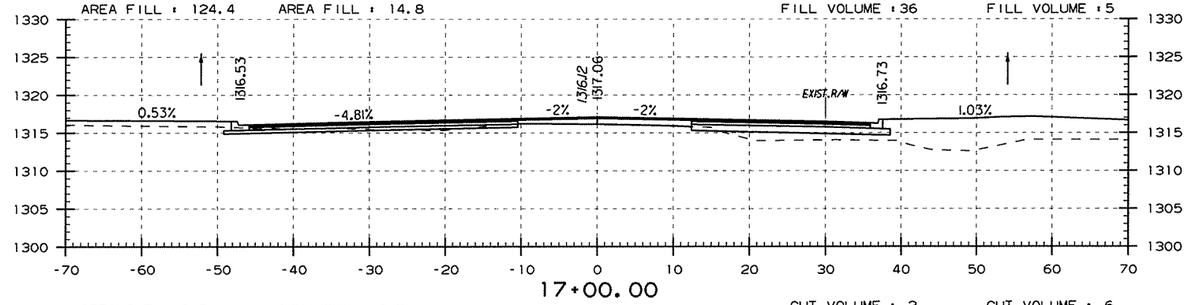


16+00.00

STA. 16+37 IN PLACE
CURB INLET ON RT.
W/1- 8' EXT.
& 24" X 39' R.C. PIPE CULVERT
TO CURB INLET ON RT.
RETAIN

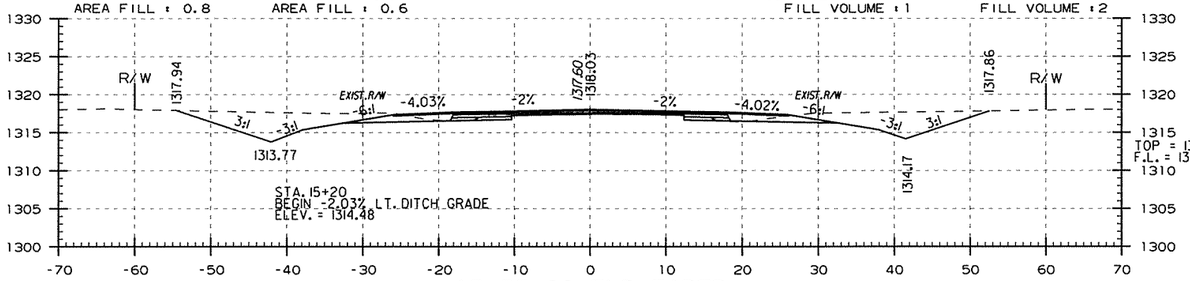
TOP = 1316.70
F.L. = 1311.90

STAGE 1 AREA CUT = 1.5 AREA FILL = 124.4
STAGE 2 AREA CUT = 12.4 AREA FILL = 14.8
STAGE 1 CUT VOLUME = 0 FILL VOLUME = 36
STAGE 2 CUT VOLUME = 4 FILL VOLUME = 5



17+00.00

AREA CUT = 44.9 AREA FILL = 0.8
AREA CUT = 63.4 AREA FILL = 0.6
CUT VOLUME = 108 FILL VOLUME = 1
CUT VOLUME = 123 FILL VOLUME = 2

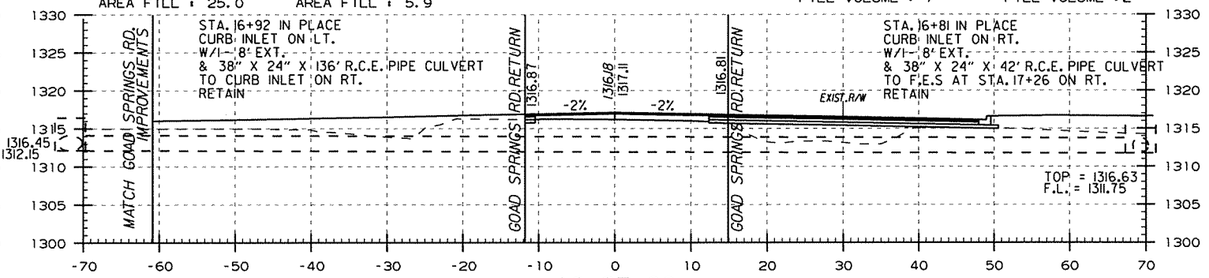


15+55.00 END TAPER

STA. 16+92 IN PLACE
CURB INLET ON LT.
W/1- 8' EXT.
& 38" X 24" X 136' R.C.E. PIPE CULVERT
TO CURB INLET ON RT.
RETAIN

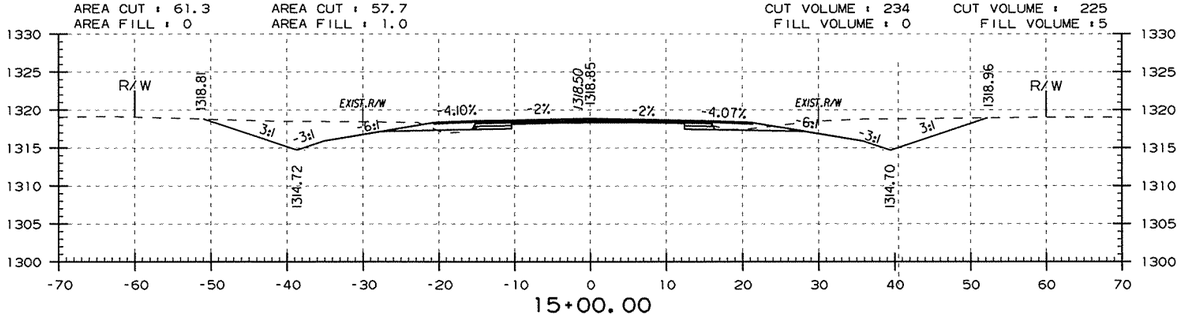
TOP = 1316.45
F.L. = 1312.15

AREA CUT = 0.0 AREA FILL = 25.0
AREA CUT = 4.3 AREA FILL = 5.9
CUT VOLUME = 2 FILL VOLUME = 7
CUT VOLUME = 6 FILL VOLUME = 2



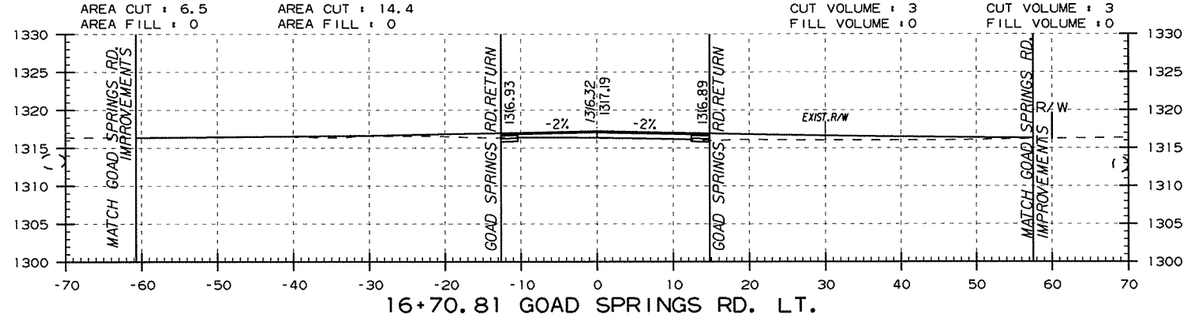
16+87.00

AREA CUT = 61.3 AREA FILL = 0
AREA CUT = 57.7 AREA FILL = 1.0
CUT VOLUME = 234 FILL VOLUME = 0
CUT VOLUME = 225 FILL VOLUME = 5



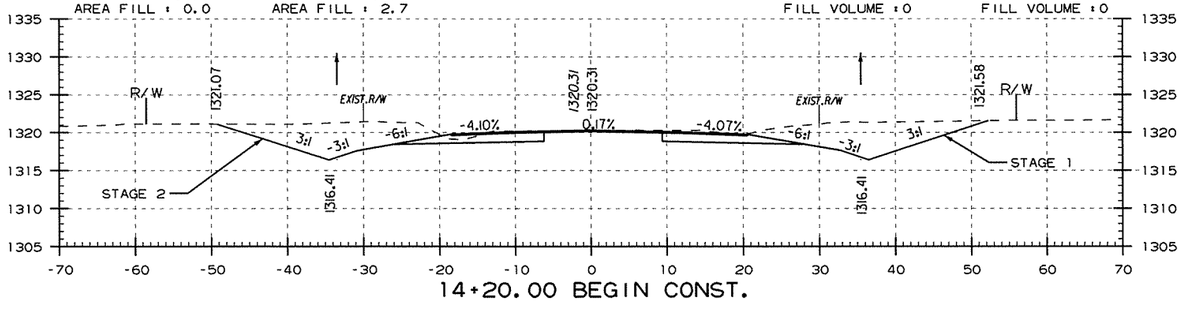
15+00.00

AREA CUT = 6.5 AREA FILL = 0
AREA CUT = 14.4 AREA FILL = 0
CUT VOLUME = 3 FILL VOLUME = 0
CUT VOLUME = 3 FILL VOLUME = 0



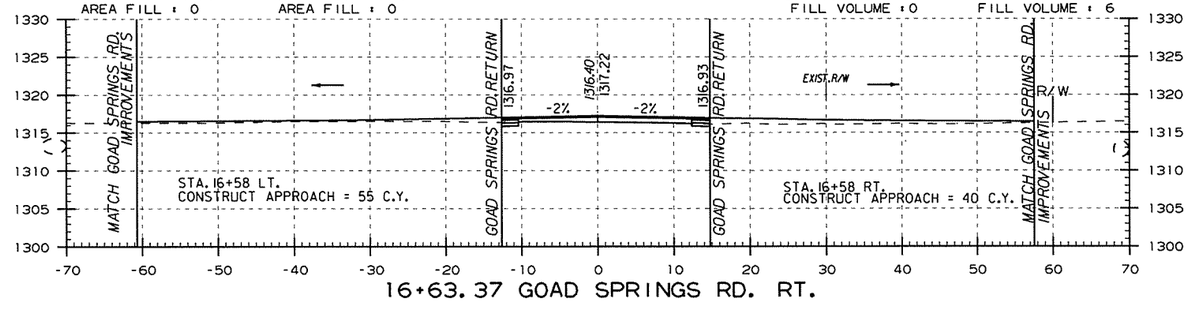
16+70.81 GOAD SPRINGS RD. LT.

AREA CUT = 96.9 AREA FILL = 0.0
AREA CUT = 94.5 AREA FILL = 2.7
CUT VOLUME = 0 FILL VOLUME = 0
CUT VOLUME = 0 FILL VOLUME = 0



14+20.00 BEGIN CONST.

AREA CUT = 12.7 AREA FILL = 0
AREA CUT = 7.4 AREA FILL = 0
CUT VOLUME = 93 FILL VOLUME = 0
CUT VOLUME = 49 FILL VOLUME = 6



16+63.37 GOAD SPRINGS RD. RT.

HWY. 264 STA. 14+20.00 TO STA. 17+00.00

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:11
SCALE: 20:1

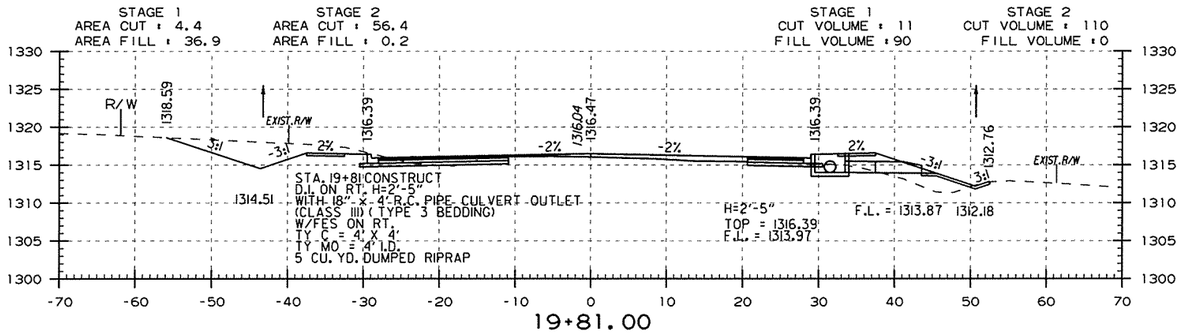
G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn 10/9/2014 15:11

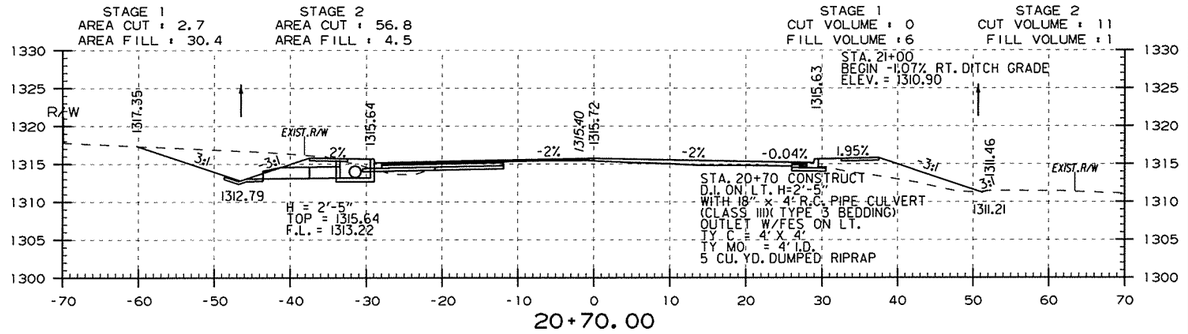
Crafton, Tull & Associates Inc.

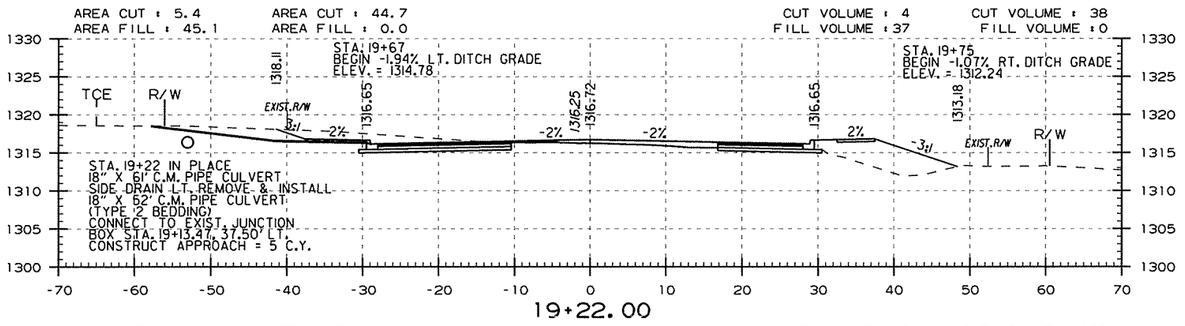
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

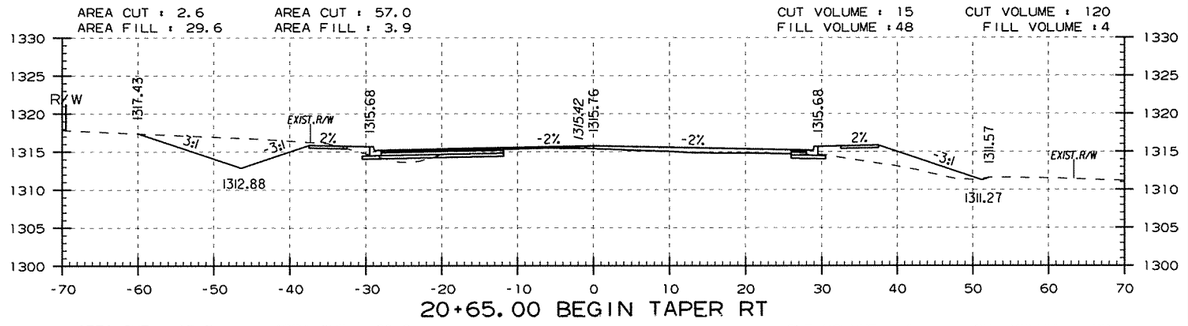
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	156	184

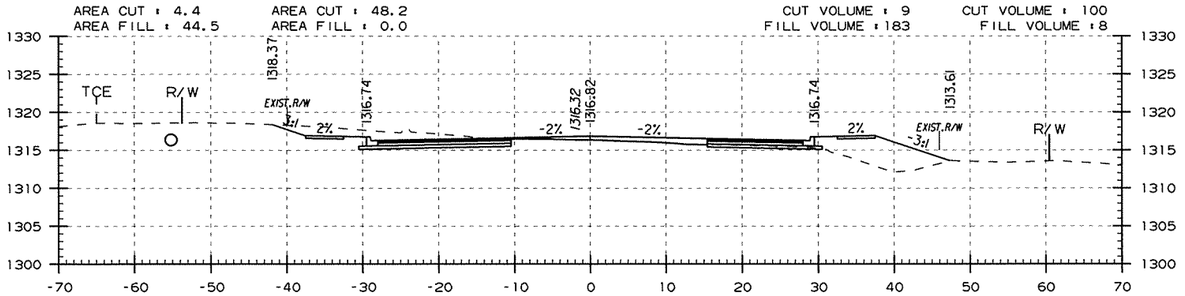
(2) CROSS SECTIONS

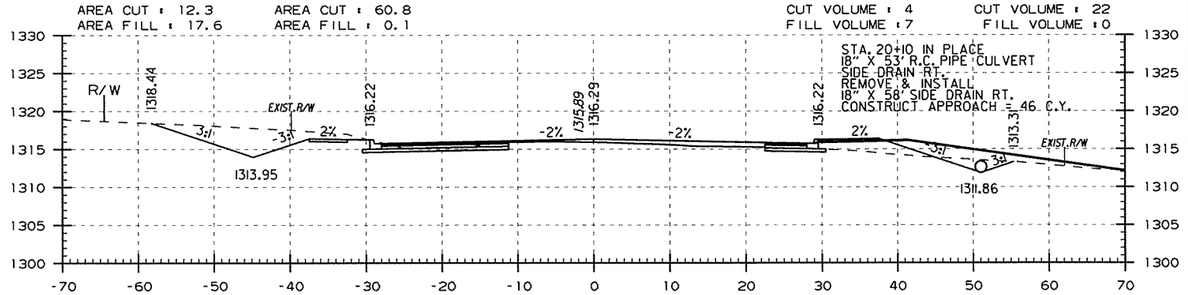


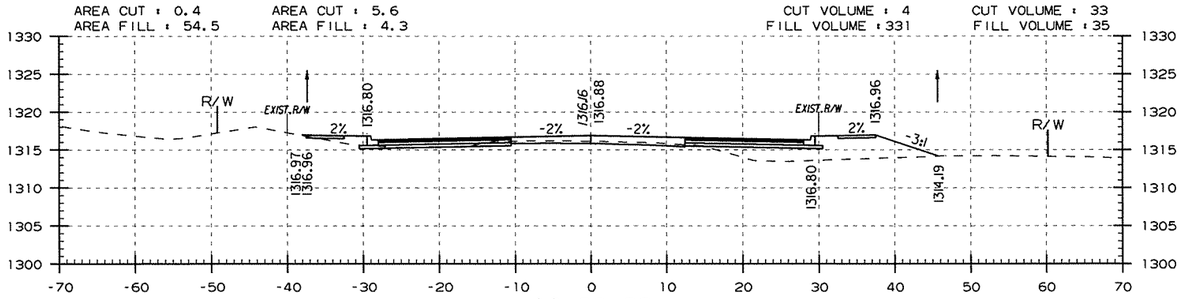


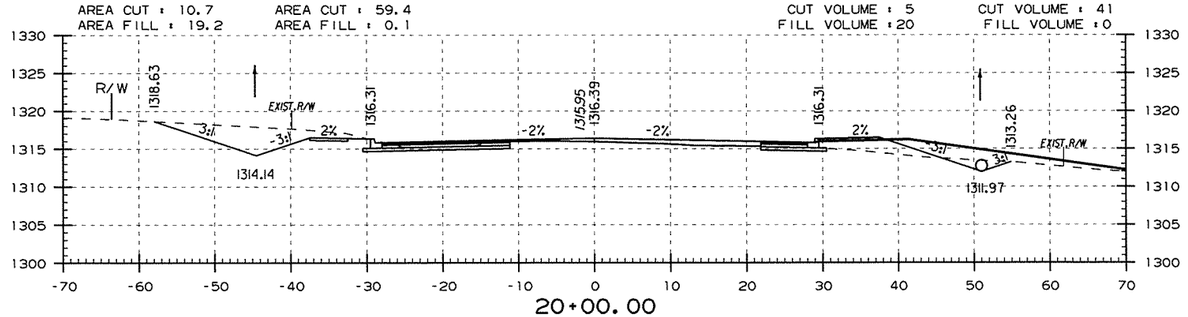












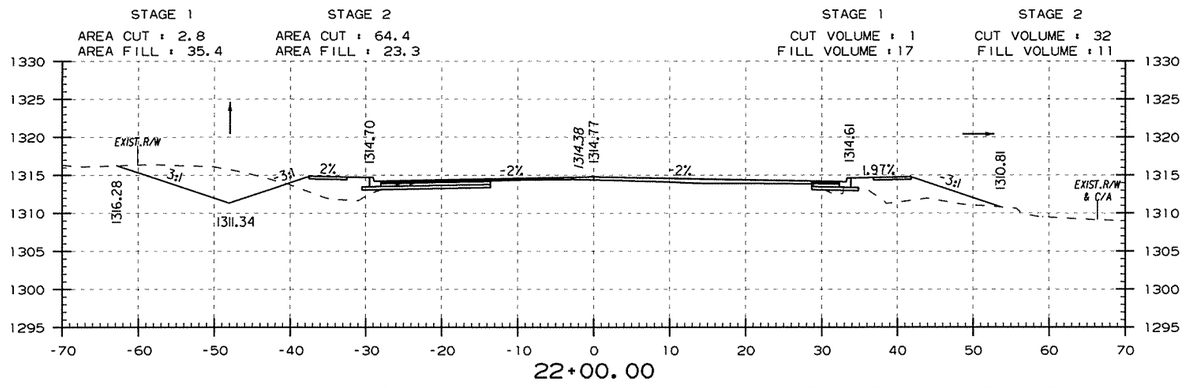
HWY. 264 STA. 18+00.00 TO STA. 20+70.00

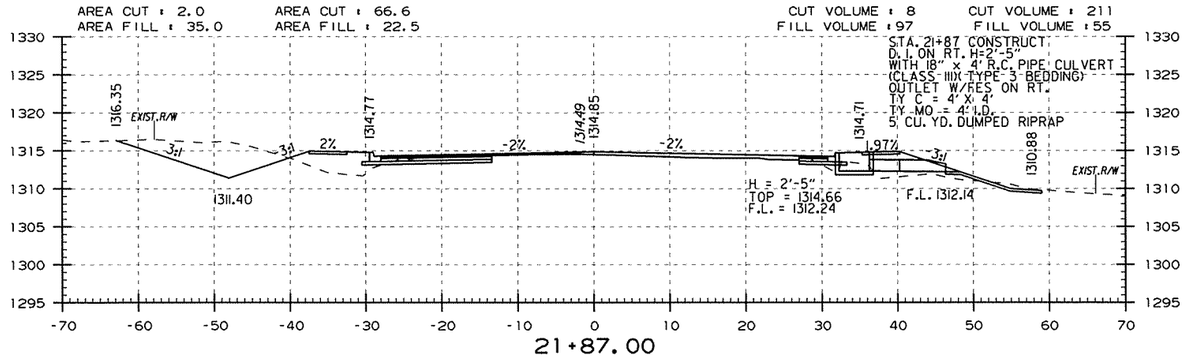
USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:11
SCALE: 20:1
MODEL: CROSS SECTIONS

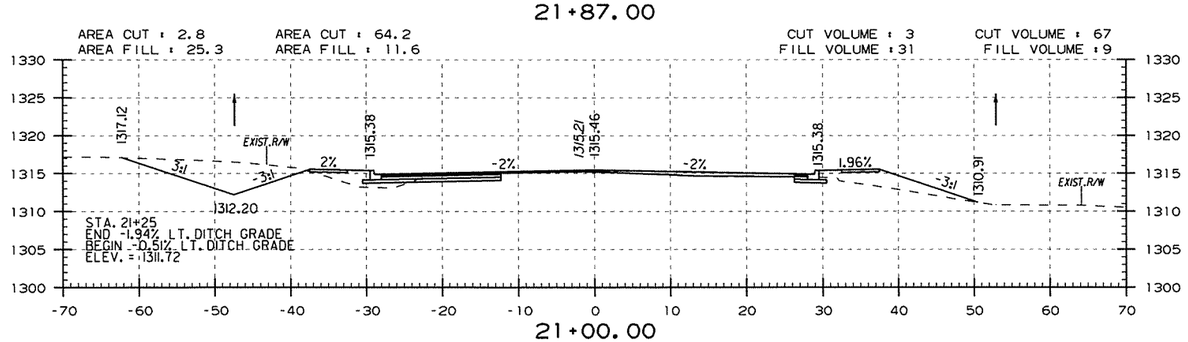
Crafton, Tull & Associates Inc.

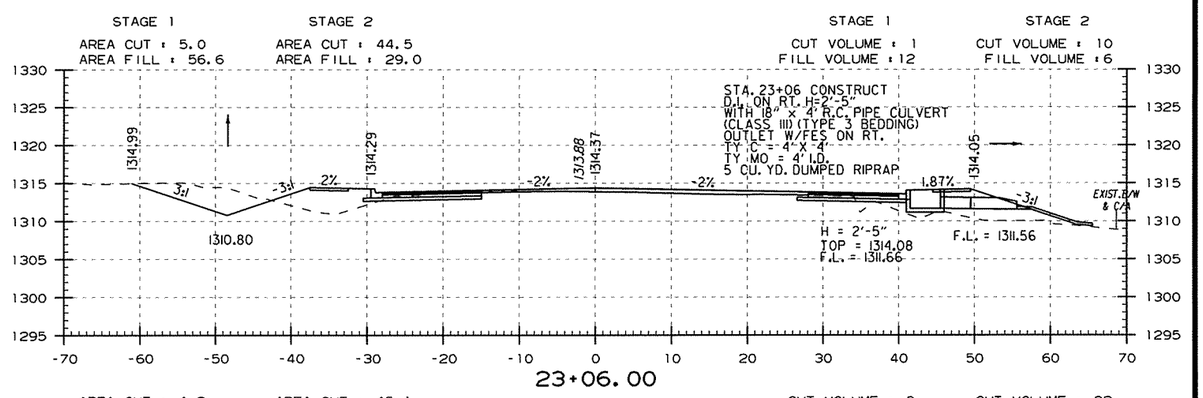
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	157	184

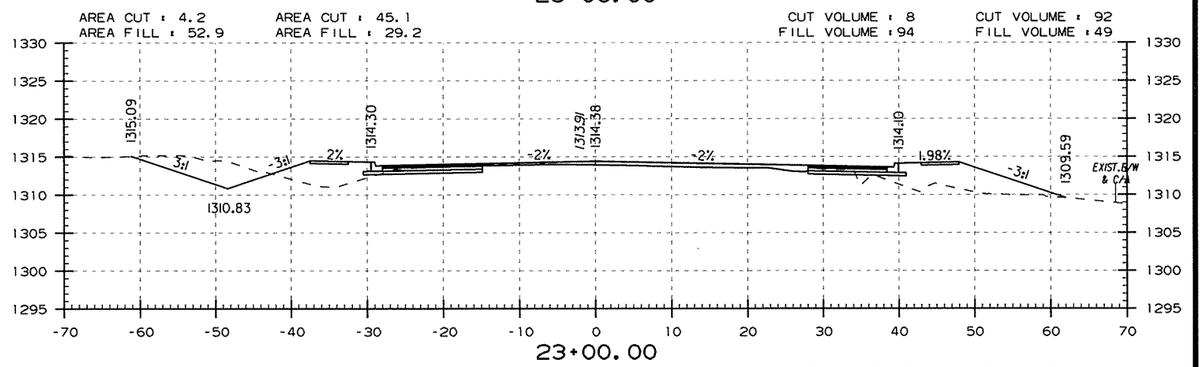
(2) CROSS SECTIONS

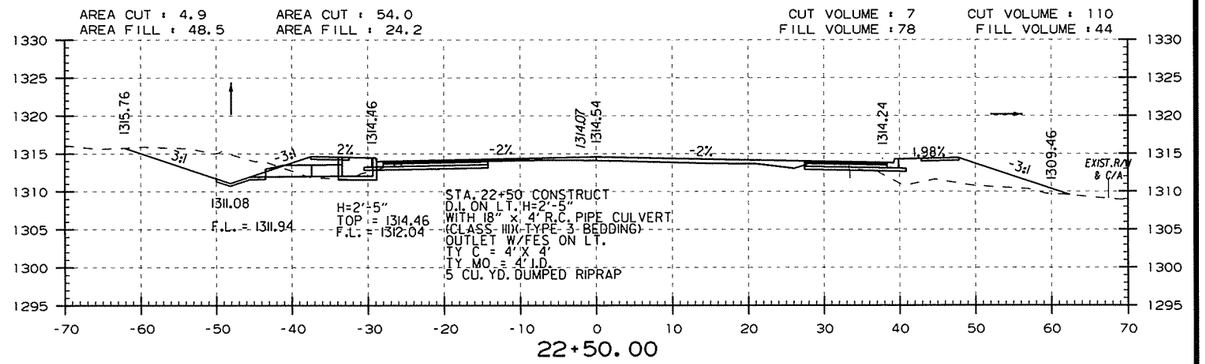












HWY. 264 STA. 21+00.00 TO STA. 23+06.00

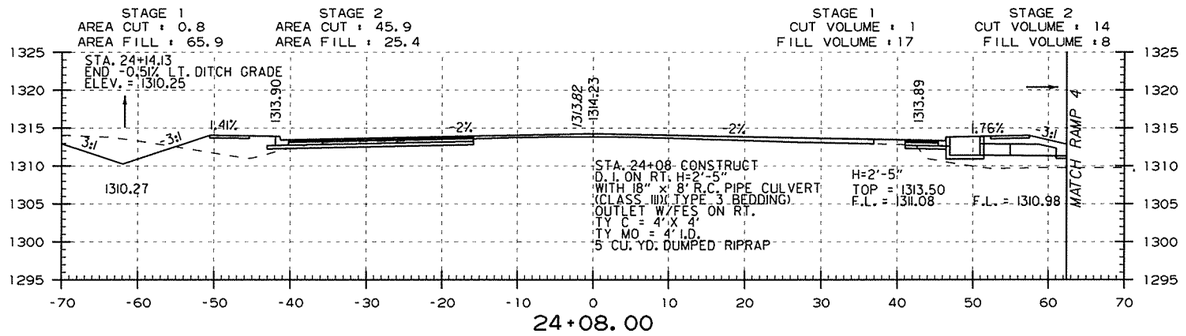
USER: jd503
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn MODEL: CROSS SECTIONS
PLOTTED: 10/9/2014 15:12 SCALE: 20:1

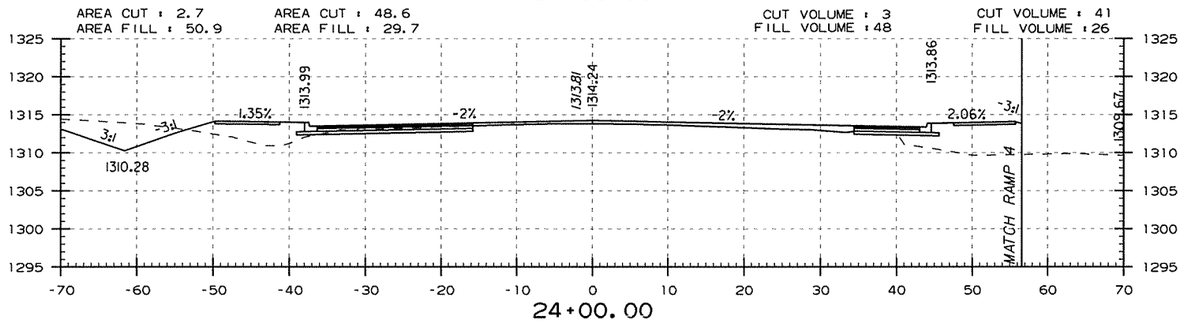
G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn 10/9/2014 15:12

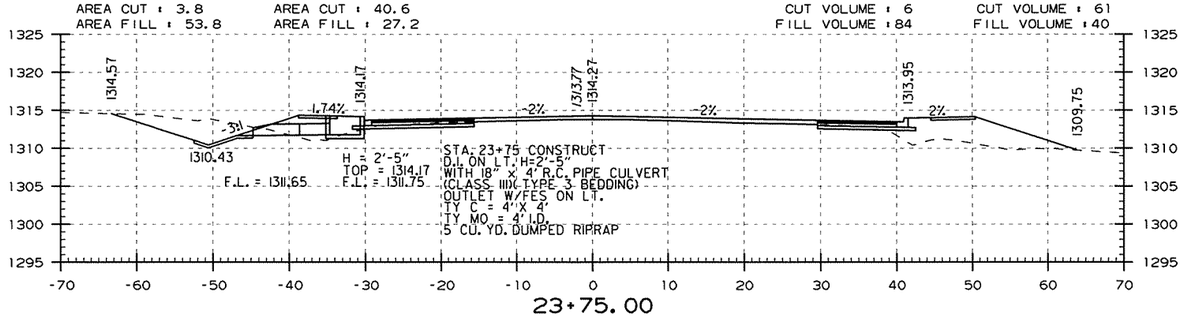
Crafton, Tull & Associates Inc.

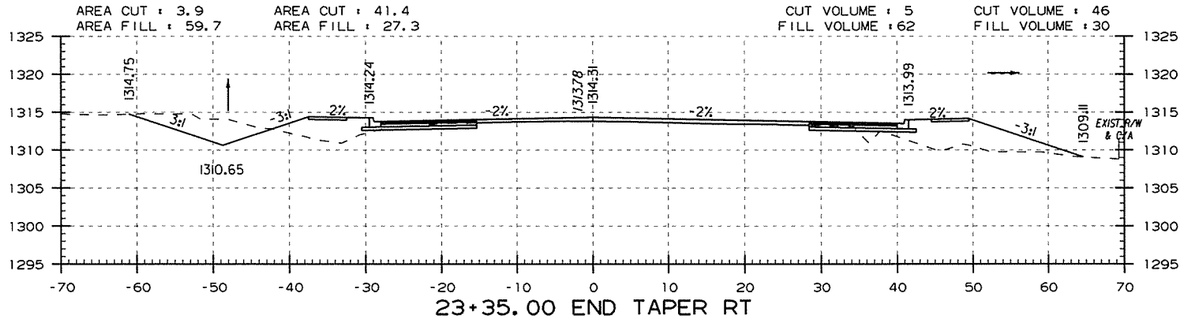
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	158	184

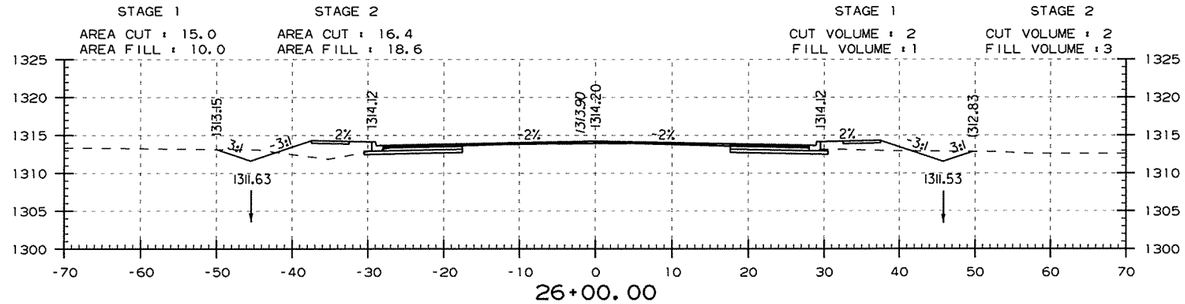
(2) CROSS SECTIONS

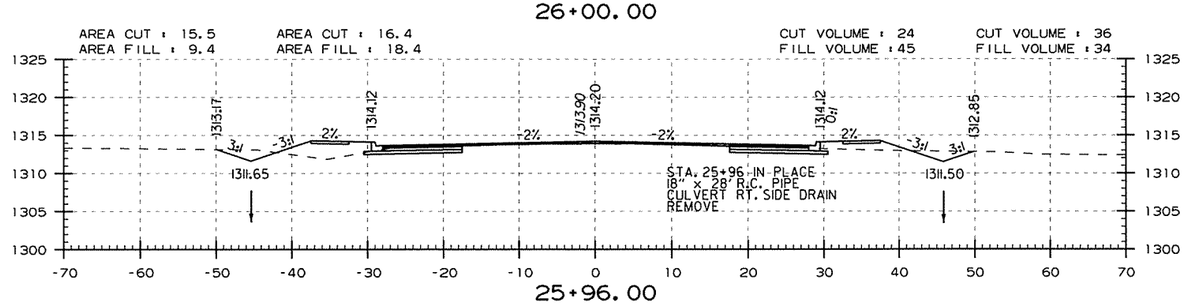


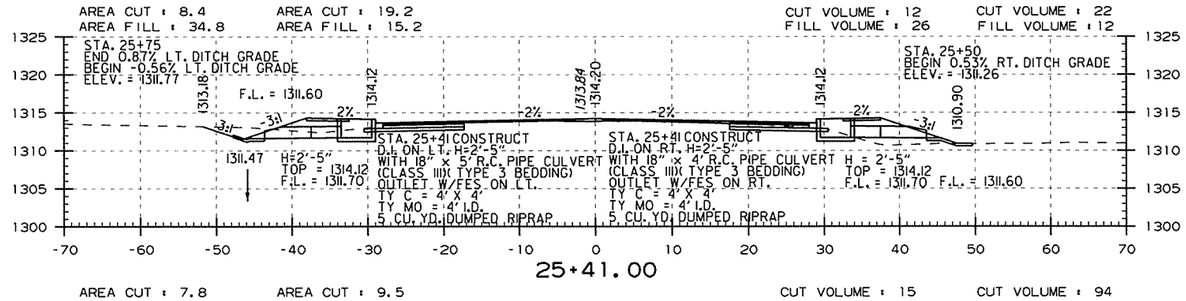


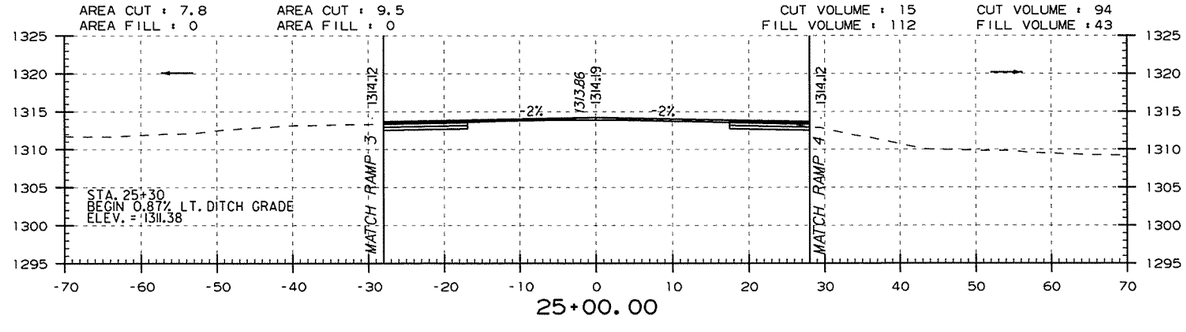












HWY. 264 STA. 23+35.00 TO STA. 26+00.00

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:12
SCALE: 20:1
MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	159	184

(2) CROSS SECTIONS

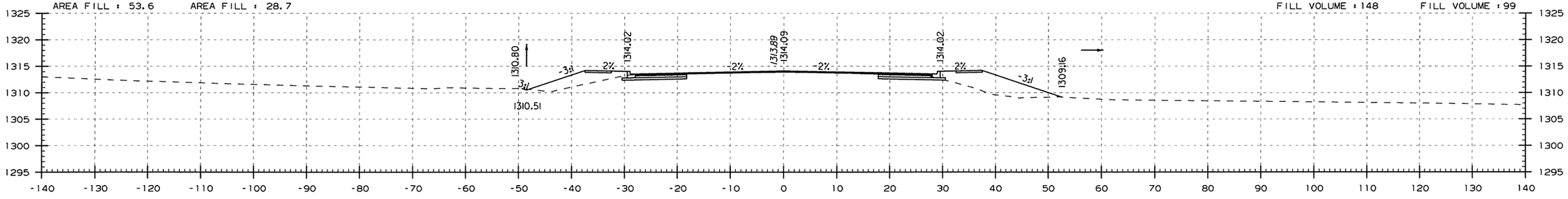
STA. 28+05
END -0.56% LT. DITCH GRADE
ELEV. = 1310.48

STAGE 1
AREA CUT = 9.9
AREA FILL = 53.6

STAGE 2
AREA CUT = 12.1
AREA FILL = 28.7

STAGE 1
CUT VOLUME = 47
FILL VOLUME = 148

STAGE 2
CUT VOLUME = 47
FILL VOLUME = 99



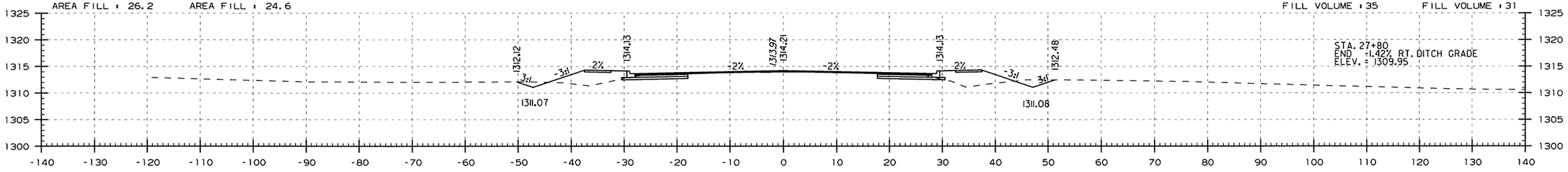
28+00.00

AREA CUT = 15.5
AREA FILL = 26.2

AREA CUT = 13.2
AREA FILL = 24.6

CUT VOLUME = 17
FILL VOLUME = 35

CUT VOLUME = 17
FILL VOLUME = 31



STA. 27+80
END -1.42% RT. DITCH GRADE
ELEV. = 1309.95

27+00.00

AREA CUT = 10.9
AREA FILL = 27.2

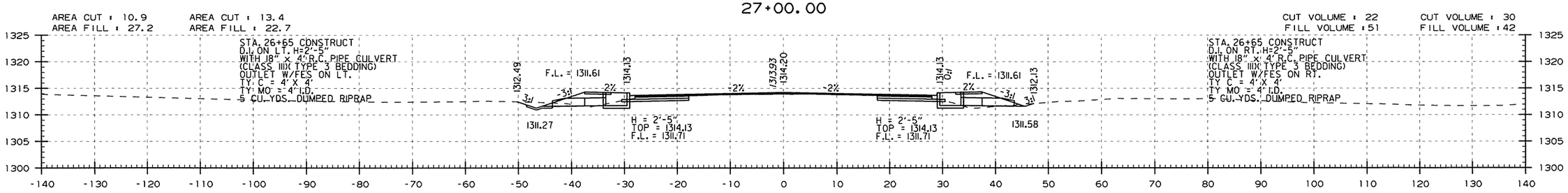
AREA CUT = 13.4
AREA FILL = 22.7

CUT VOLUME = 22
FILL VOLUME = 51

CUT VOLUME = 30
FILL VOLUME = 42

STA. 26+65 CONSTRUCT
D.I. ON LT. H=2'-5"
WITH 18" X 4' R.C. PIPE CULVERT
(CLASS IIII) (TYPE 3 BEDDING)
OUTLET W/FES ON LT.
TY. C = 4' X 4'
TY. MO = 4' I.D.
5 CU. YDS. DUMPED RIPRAP

STA. 26+65 CONSTRUCT
D.I. ON RT. H=2'-5"
WITH 18" X 4' R.C. PIPE CULVERT
(CLASS IIII) (TYPE 3 BEDDING)
OUTLET W/FES ON RT.
TY. C = 4' X 4'
TY. MO = 4' I.D.
5 CU. YDS. DUMPED RIPRAP



26+65.00

STA. 26+50
END 0.53% RT. DITCH GRADE
BEGIN -1.42% RT. DITCH GRADE
ELEV. = 1311.79

AREA CUT = 10.7
AREA FILL = 23.1

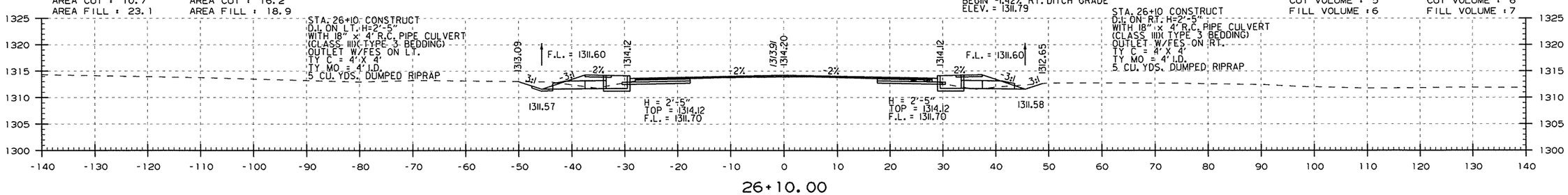
AREA CUT = 16.2
AREA FILL = 18.9

CUT VOLUME = 5
FILL VOLUME = 6

CUT VOLUME = 6
FILL VOLUME = 7

STA. 26+10 CONSTRUCT
D.I. ON LT. H=2'-5"
WITH 18" x 4' R.C. PIPE CULVERT
(CLASS IIII) (TYPE 3 BEDDING)
OUTLET W/FES ON LT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YDS. DUMPED RIPRAP

STA. 26+10 CONSTRUCT
D.I. ON RT. H=2'-5"
WITH 18" x 4' R.C. PIPE CULVERT
(CLASS IIII) (TYPE 3 BEDDING)
OUTLET W/FES ON RT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YDS. DUMPED RIPRAP



26+10.00

HWY. 264 STA. 26+10.00 TO STA. 28+00.00

USER: jd5103
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:12
MODEL: CROSS SECTIONS
SCALE: 20:1

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	160	184

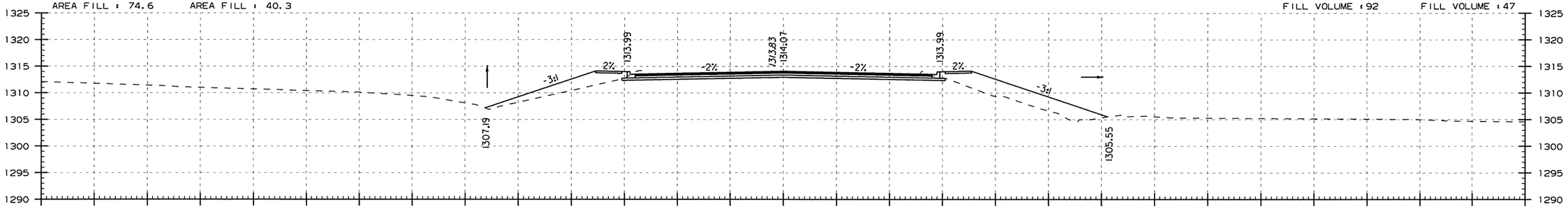
(2) CROSS SECTIONS

STAGE 1
AREA CUT : 27.6
AREA FILL : 74.6

STAGE 2
AREA CUT : 30.1
AREA FILL : 40.3

STAGE 1
CUT VOLUME : 25
FILL VOLUME : 92

STAGE 2
CUT VOLUME : 27
FILL VOLUME : 47



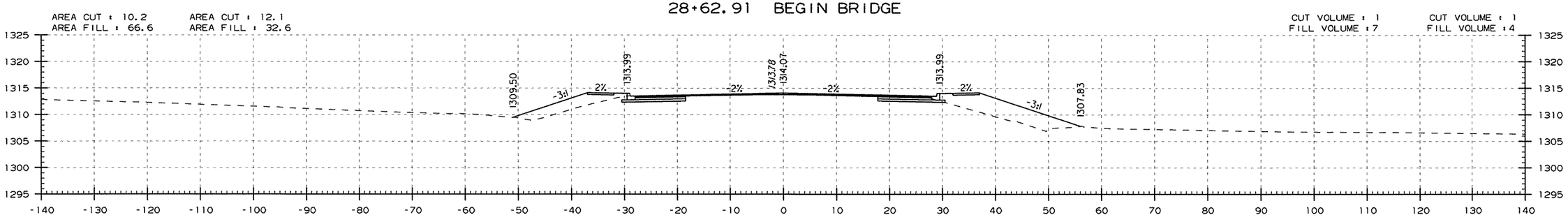
28+62.91 BEGIN BRIDGE

AREA CUT : 10.2
AREA FILL : 66.6

AREA CUT : 12.1
AREA FILL : 32.6

CUT VOLUME : 1
FILL VOLUME : 7

CUT VOLUME : 1
FILL VOLUME : 4



28+27.91 BEGIN FULL-DEPTH

AREA CUT : 9.6
AREA FILL : 65.9

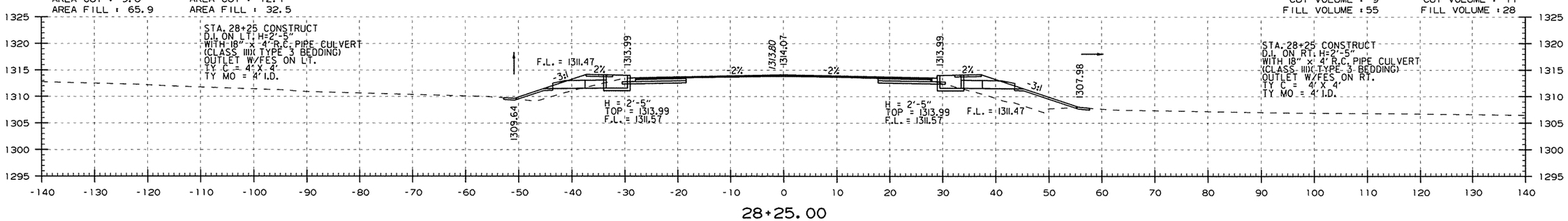
AREA CUT : 12.1
AREA FILL : 32.5

CUT VOLUME : 9
FILL VOLUME : 55

CUT VOLUME : 11
FILL VOLUME : 28

STA. 28+25 CONSTRUCT
D.I. ON LT. H=2'-5"
WITH 18" x 4' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
OUTLET W/FES ON LT.
TY C = 4' X 4'
TY MO = 4' I.D.

STA. 28+25 CONSTRUCT
D.I. ON RT. H=2'-5"
WITH 18" x 4' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
OUTLET W/FES ON RT.
TY C = 4' X 4'
TY MO = 4' I.D.



28+25.00

HWY. 264 STA. 28+25.00 TO STA. 28+62.91

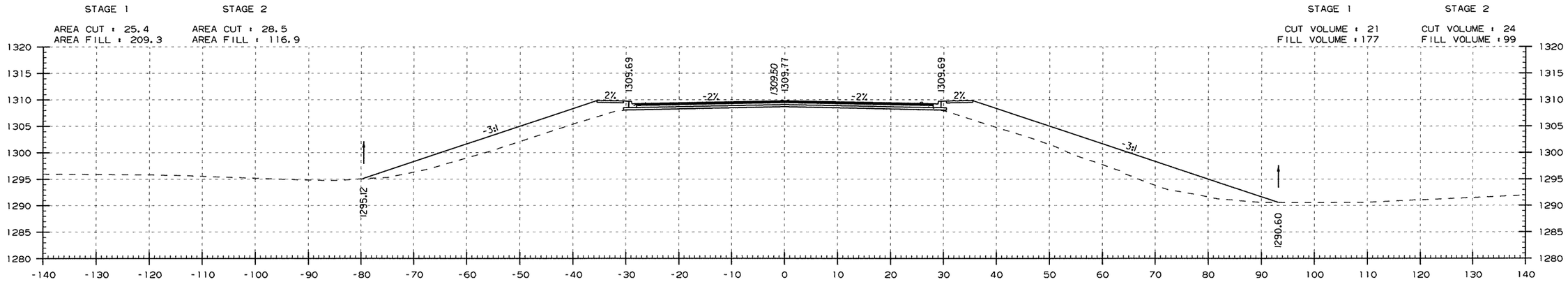
USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:12
SCALE: 20:1
MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

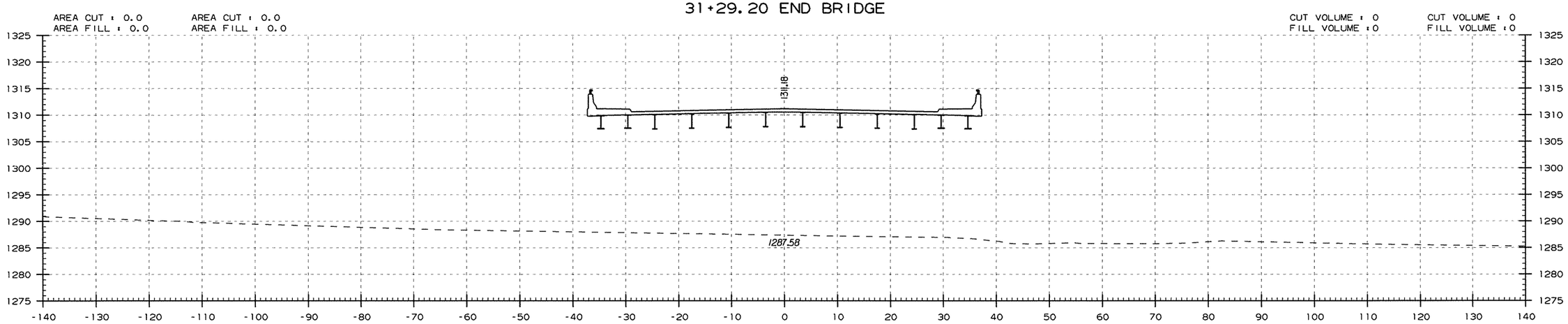
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	161	184

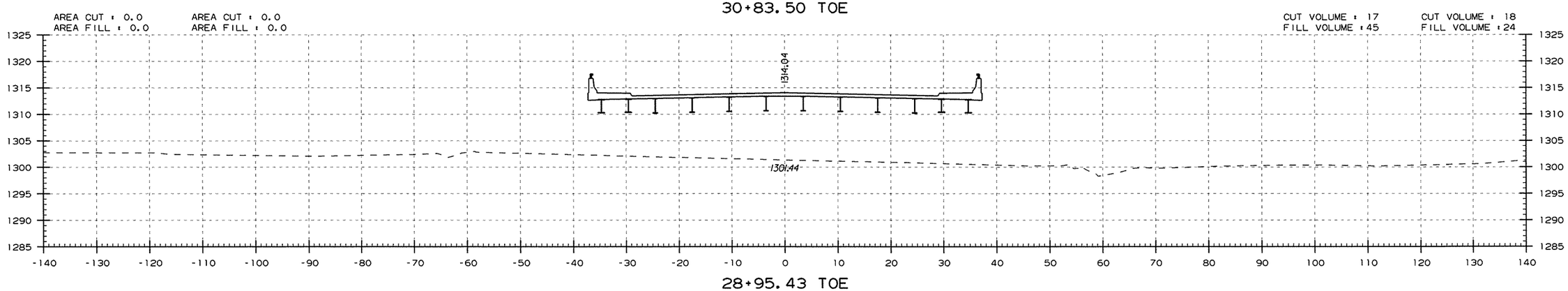
(2) CROSS SECTIONS



31+29.20 END BRIDGE



30+83.50 TOE



28+95.43 TOE

HWY. 264 STA. 28+95.43 TO STA. 31+29.20

USER: jd5103
DESIGN FILE: G:\2103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn MODEL: CROSS SECTIONS
PLOTTED: 10/9/2014 15:12 SCALE: 20:1

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	162	184

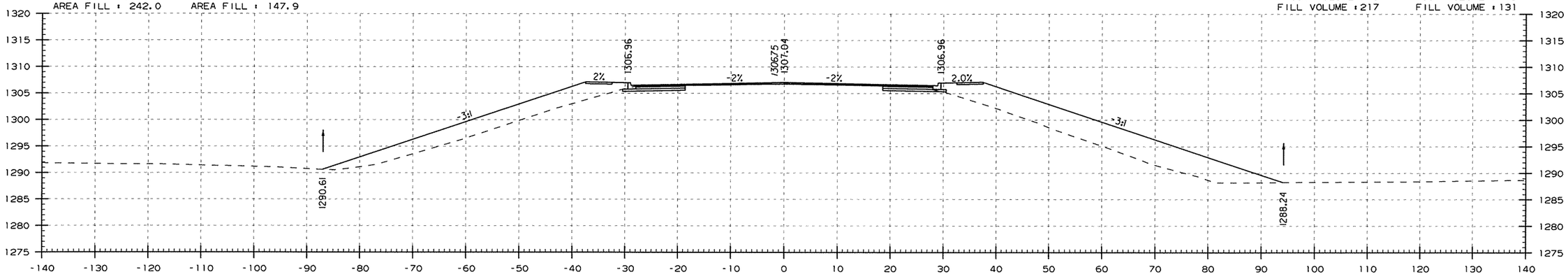
(2) CROSS SECTIONS

STAGE 1
AREA CUT : 8.1
AREA FILL : 242.0

STAGE 2
AREA CUT : 11.2
AREA FILL : 147.9

STAGE 1
CUT VOLUME : 8
FILL VOLUME : 217

STAGE 2
CUT VOLUME : 10
FILL VOLUME : 131



32+00.00

AREA CUT : 10.0
AREA FILL : 227.1

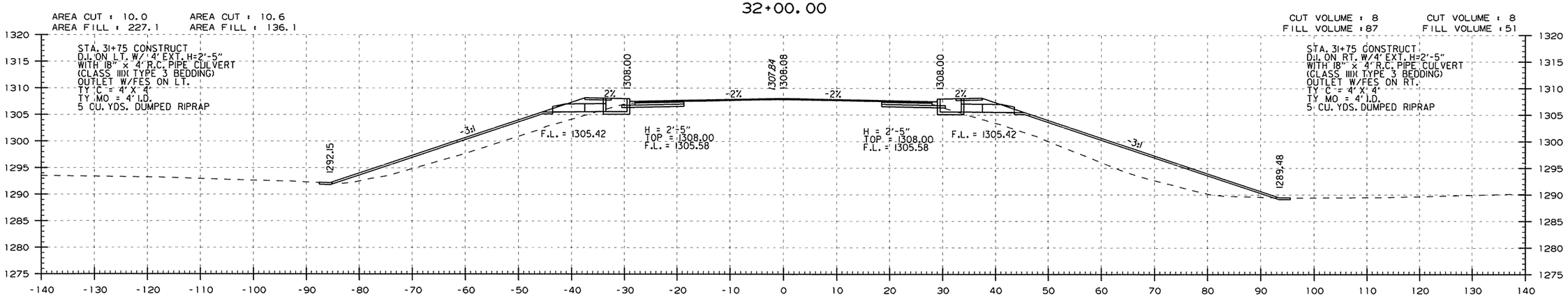
AREA CUT : 10.6
AREA FILL : 136.1

CUT VOLUME : 8
FILL VOLUME : 87

CUT VOLUME : 8
FILL VOLUME : 51

STA. 31+75 CONSTRUCT
D.I. ON LT. W/ 4' EXT. H=2'-5"
WITH 18" x 4' R.C. PIPE CULVERT
(CLASS III)(TYPE 3 BEDDING)
OUTLET W/FES ON LT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YDS. DUMPED RIPRAP

STA. 31+75 CONSTRUCT
D.I. ON RT. W/4' EXT. H=2'-5"
WITH 18" x 4' R.C. PIPE CULVERT
(CLASS III)(TYPE 3 BEDDING)
OUTLET W/FES ON RT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YDS. DUMPED RIPRAP



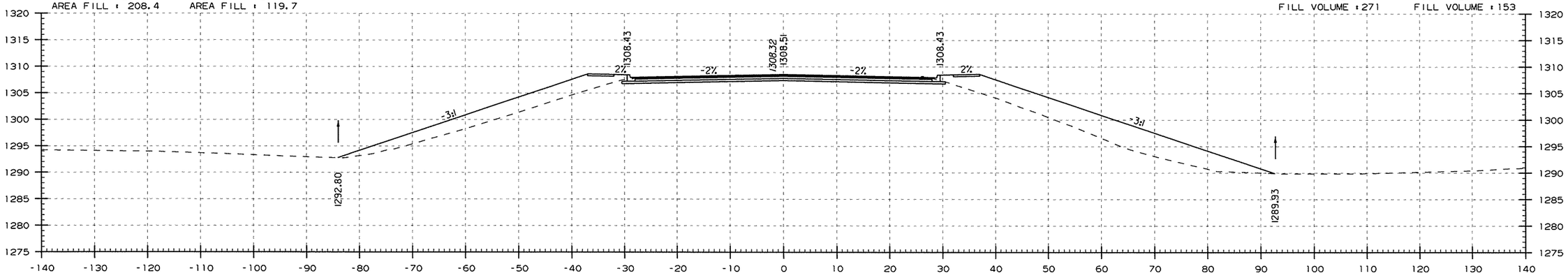
31+75.00

AREA CUT : 29.2
AREA FILL : 208.4

AREA CUT : 29.3
AREA FILL : 119.7

CUT VOLUME : 35
FILL VOLUME : 271

CUT VOLUME : 37
FILL VOLUME : 153



31+64.20 END FULL-DEPTH

HWY. 264 STA. 31+64.20 TO STA. 32+00.00

USER: jd5103
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:12
SCALE: 20:1
MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	163	184

(2) CROSS SECTIONS

HWY. 264 STA. 33+00.00 TO STA. 35+00.00

USER: jd5103
DESIGN FILE: G:\12103301.Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn MODEL: CROSS SECTIONS
PLOTTED: 10/9/2014 15:12 SCALE: 20:1

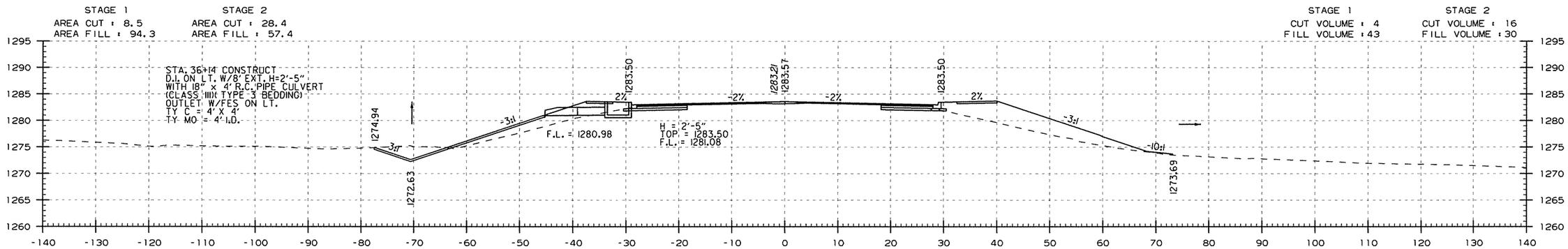
G:\12103301.Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn 10/9/2014 15:12

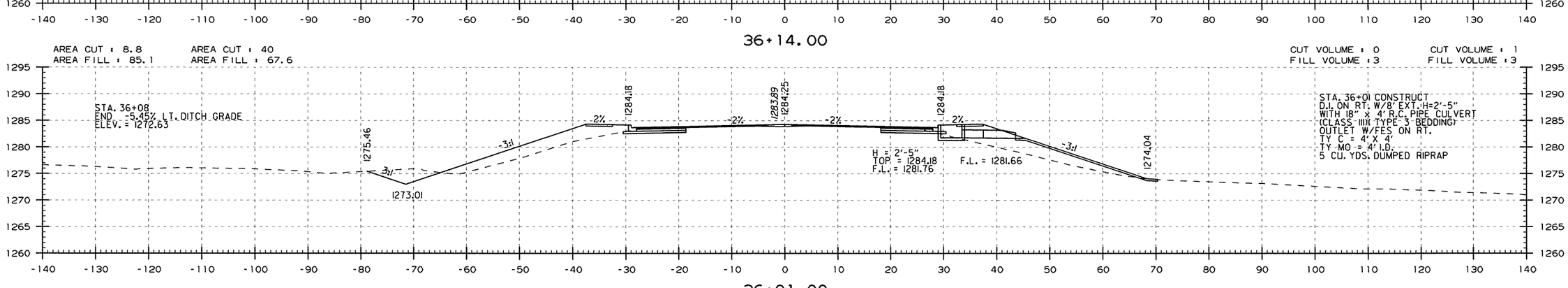
Crafton, Tull & Associates Inc.

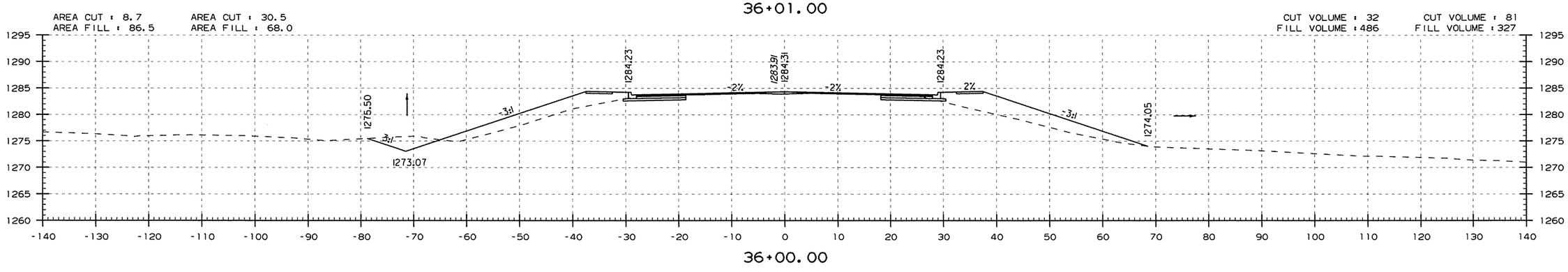
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	164	184

(2) CROSS SECTIONS







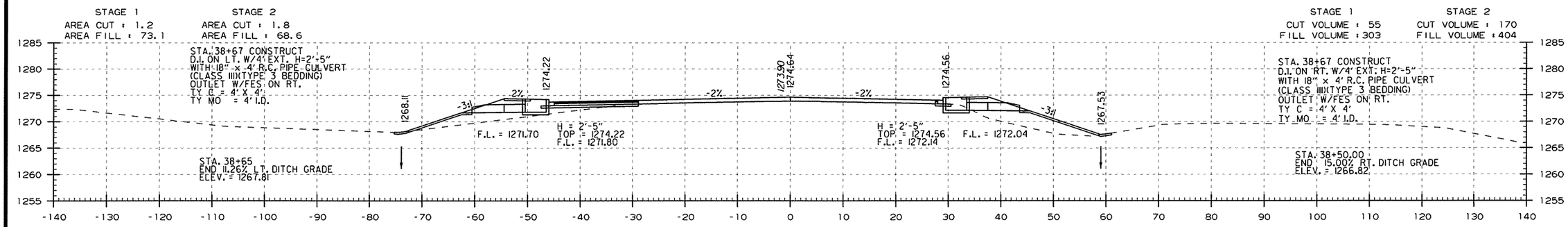
HWY. 264 STA. 36+00.00 TO STA. 36+14.00

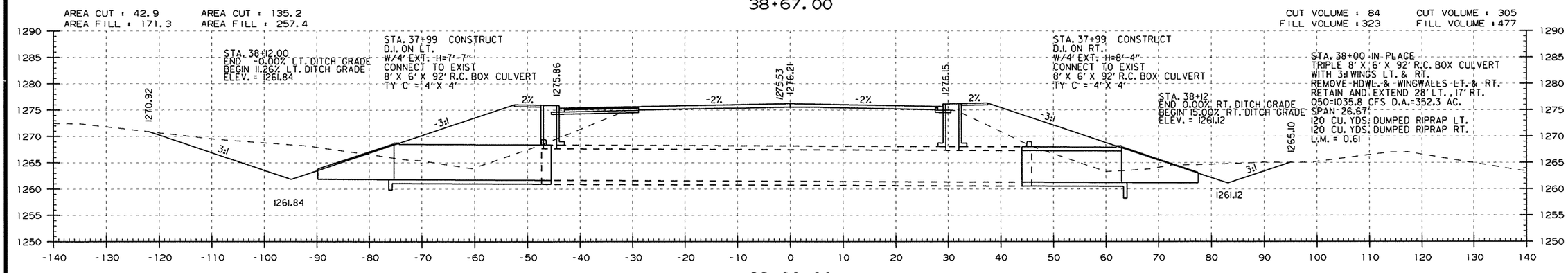
USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn MODEL: CROSS SECTIONS
PLOTTED: 10/9/2014 15:12 SCALE: 20:1

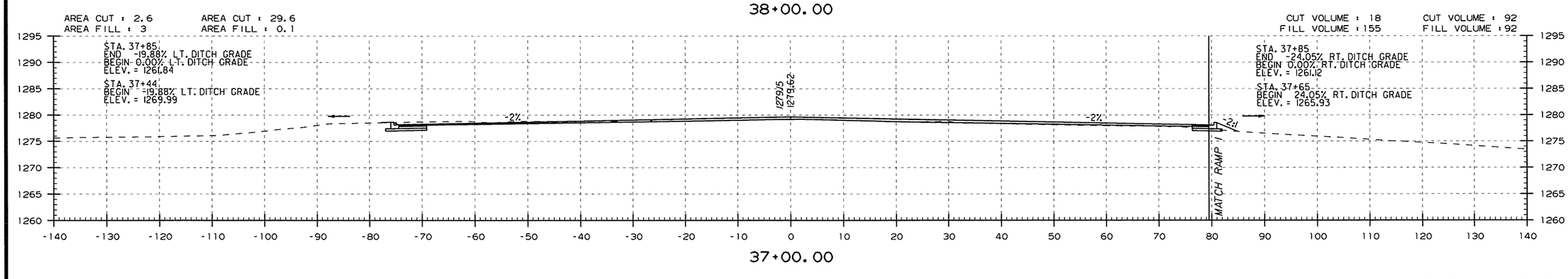
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	165	184

(2) CROSS SECTIONS







HWY. 264 STA. 37+00.00 TO STA. 38+67.00

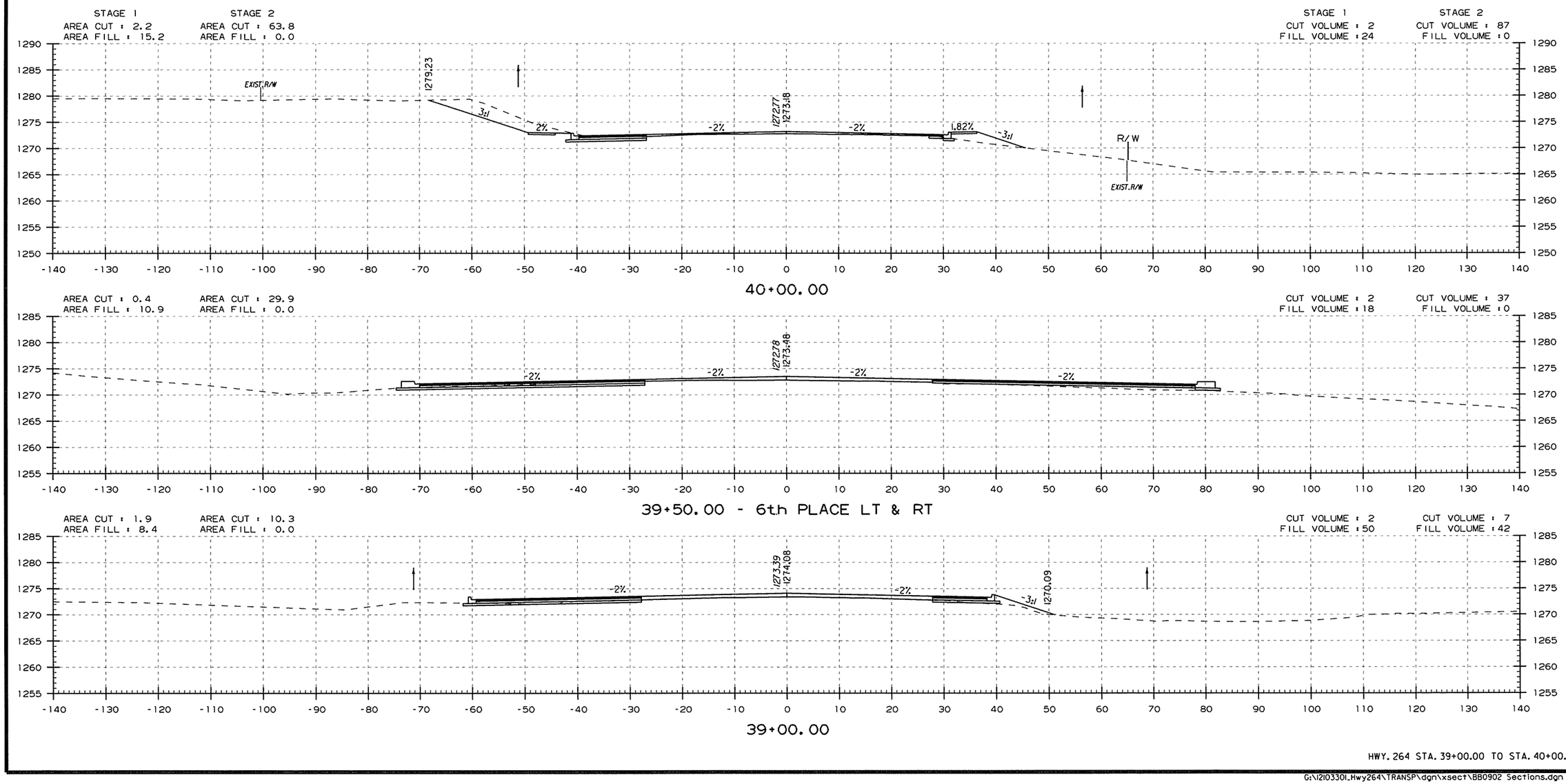
USER: jd5103
DESIGN FILE: G:\2103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn MODEL: CROSS SECTIONS
PLOTTED: 10/9/2014 15:12 SCALE: 20:1

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	166	184

(2) CROSS SECTIONS



HWY. 264 STA. 39+00.00 TO STA. 40+00.00

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:12
SCALE: 20:1
MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	167	184

2 CROSS SECTIONS

HWY. 264 STA. 40+25.00 TO STA. 41+05.00

USER: jd5103
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn MODEL: CROSS SECTIONS
PLOTTED: 10/9/2014 15:12 SCALE: 20:1

G:\1210330I_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn 10/9/2014 15:12

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	168	184

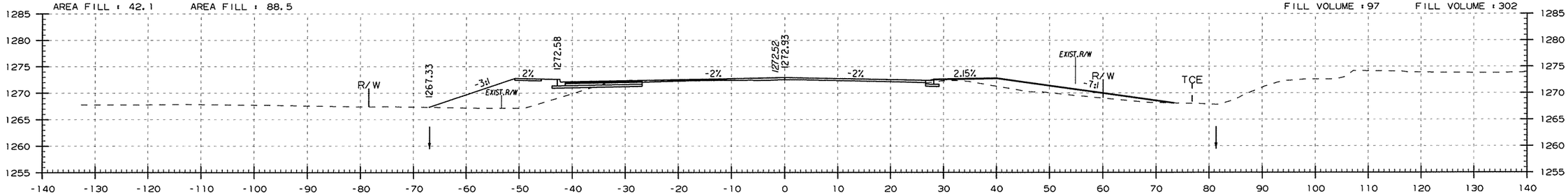
(2) CROSS SECTIONS

STAGE 1
AREA CUT = 1.6
AREA FILL = 42.1

STAGE 2
AREA CUT = 8.6
AREA FILL = 88.5

STAGE 1
CUT VOLUME = 112
FILL VOLUME = 97

STAGE 2
CUT VOLUME = 24
FILL VOLUME = 302



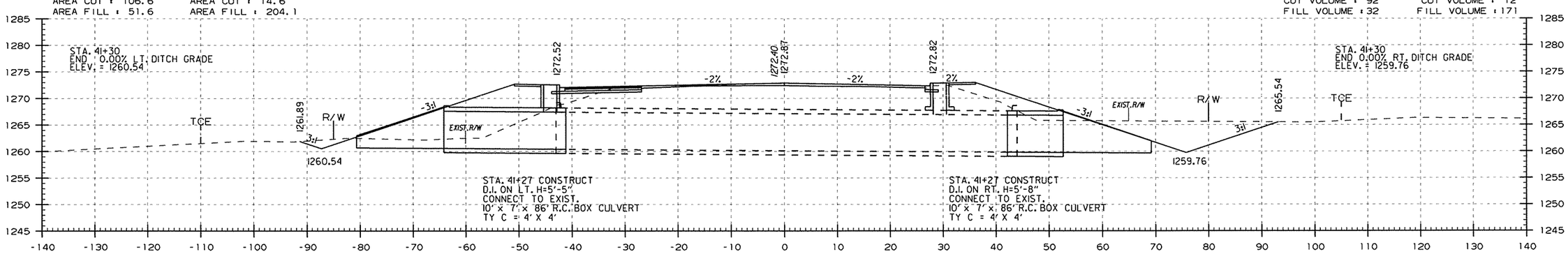
41+82.73 DRIVEWAY RT

AREA CUT = 106.6
AREA FILL = 51.6

AREA CUT = 14.6
AREA FILL = 204.1

CUT VOLUME = 92
FILL VOLUME = 32

CUT VOLUME = 12
FILL VOLUME = 171



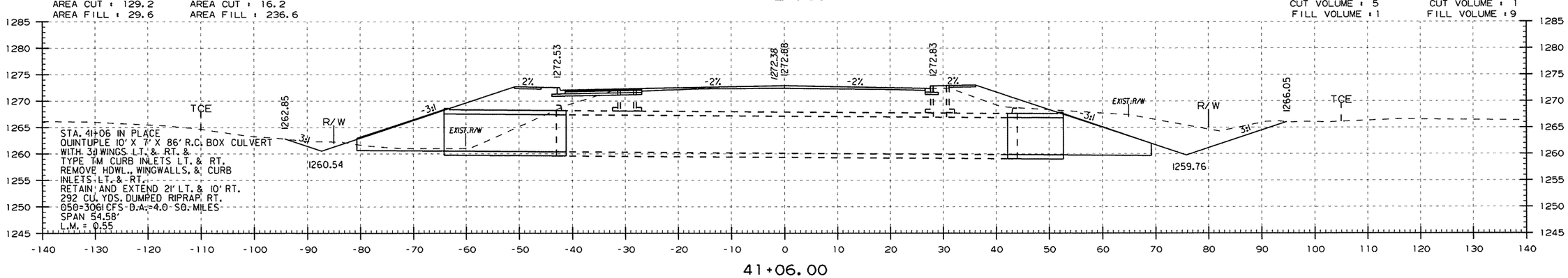
41+27.00

AREA CUT = 129.2
AREA FILL = 29.6

AREA CUT = 16.2
AREA FILL = 236.6

CUT VOLUME = 5
FILL VOLUME = 1

CUT VOLUME = 1
FILL VOLUME = 9



41+06.00

HWY. 264 STA. 41+06.00 TO STA. 41+82.73

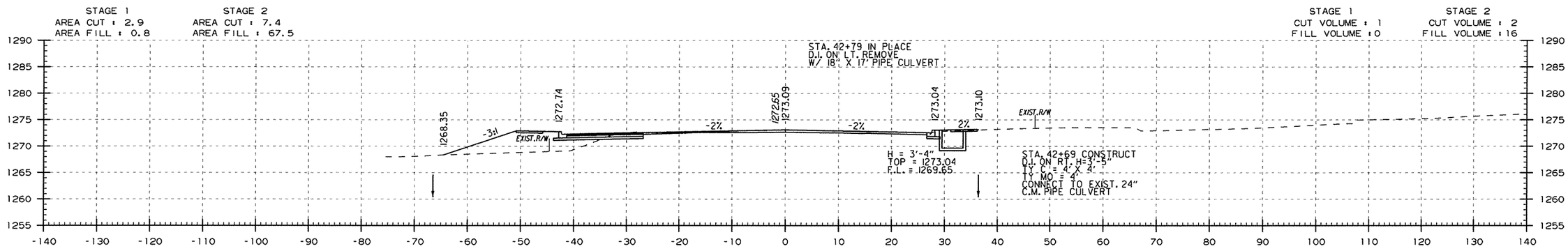
USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:13
SCALE: 20:1
MODEL: CROSS SECTIONS

G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn 10/9/2014 15:13

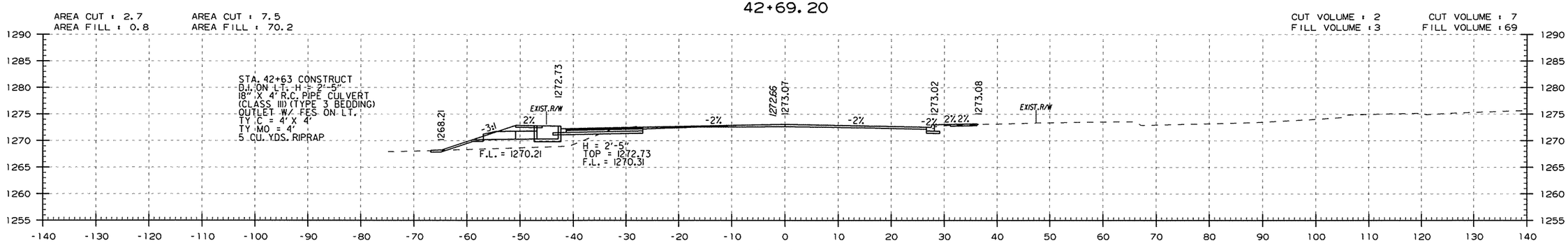
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	169	184

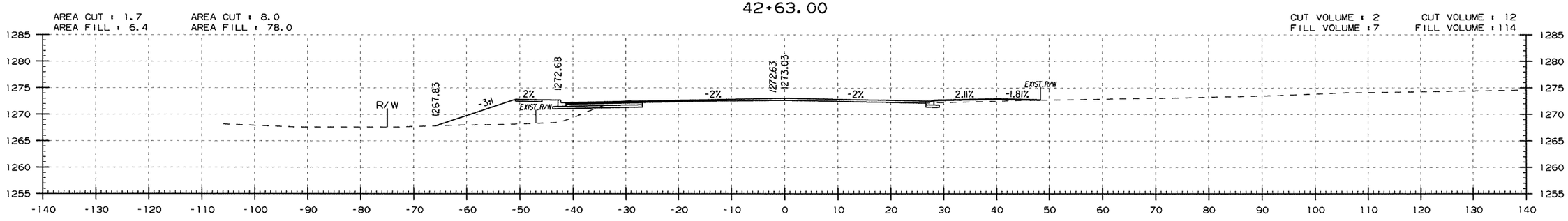
(2) CROSS SECTIONS



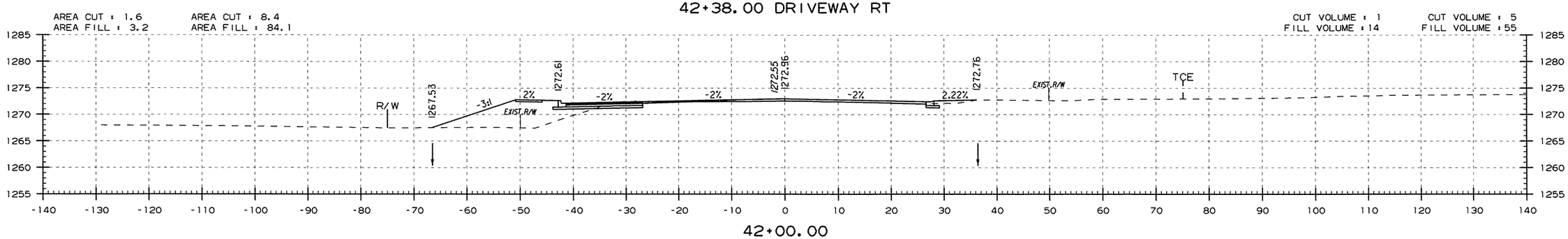
42+69.20



42+63.00



42+38.00 DRIVEWAY RT



42+00.00

HWY. 264 STA. 42+00.00 TO STA. 42+69.20

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:13
MODEL: CROSS SECTIONS
SCALE: 20:1

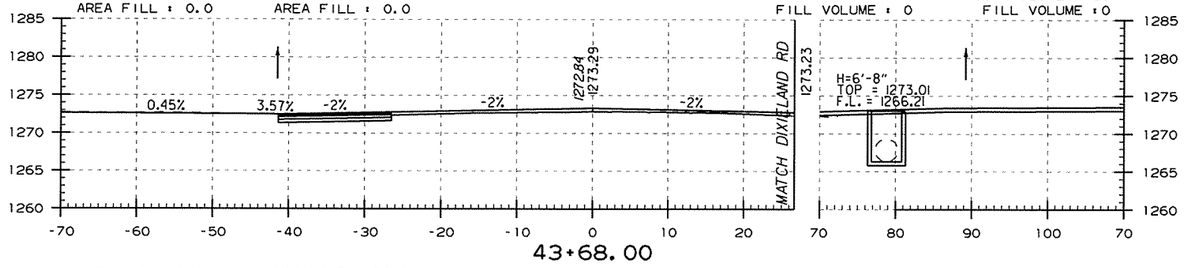
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	170	184

(2) CROSS SECTIONS

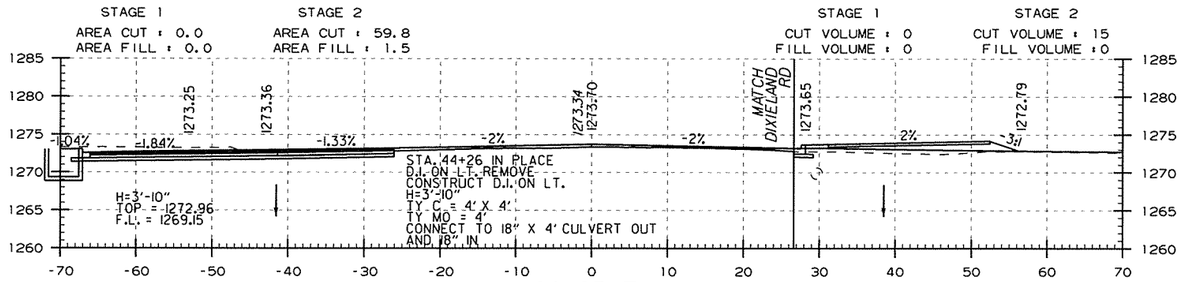
STA. 43+68 IN PLACE
D.I. ON RT. REMOVE
CONSTRUCT D.I. ON RT. H=6'-8"
CONNECT TO EXIST. 36" CM PIPE
CULVERT W/ 36" X 6' CM PIPE
CULVERT (TYPE 2 BEDDING)
TY C = 4' X 4'
TY MO = 4'

STAGE 1 AREA CUT : 0.4 AREA FILL : 0.0
STAGE 2 AREA CUT : 17.4 AREA FILL : 0.0
STAGE 1 CUT VOLUME : 0 FILL VOLUME : 0
STAGE 2 CUT VOLUME : 30 FILL VOLUME : 0



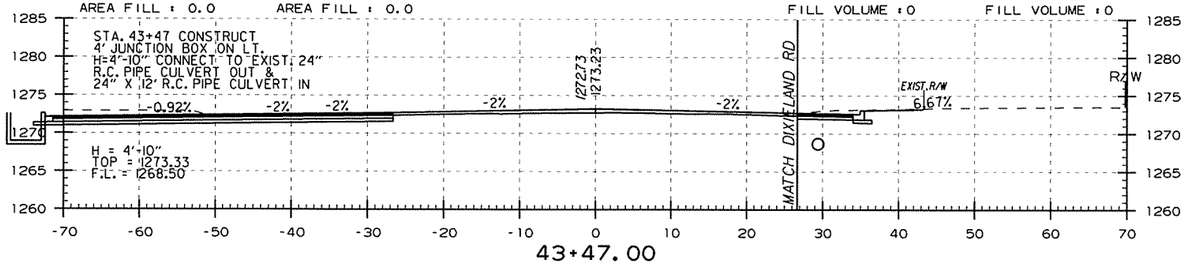
43+68.00

STAGE 1 AREA CUT : 0.0 AREA FILL : 0.0
STAGE 2 AREA CUT : 59.8 AREA FILL : 1.5
STAGE 1 CUT VOLUME : 0 FILL VOLUME : 0
STAGE 2 CUT VOLUME : 15 FILL VOLUME : 0



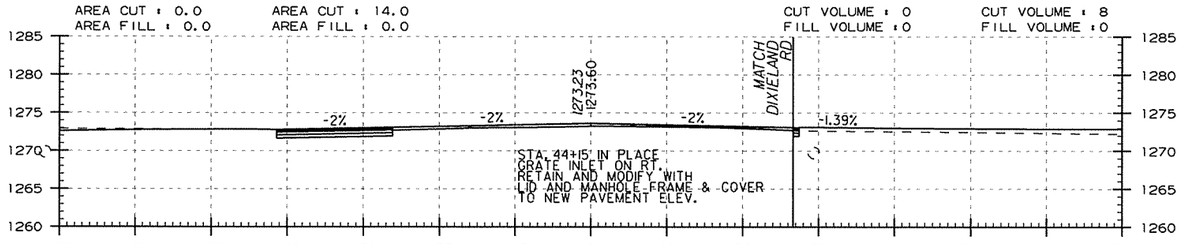
44+25.70

AREA CUT : 0.0 AREA FILL : 0.0
AREA CUT : 59.9 AREA FILL : 0.0
CUT VOLUME : 0 FILL VOLUME : 0
CUT VOLUME : 7 FILL VOLUME : 0



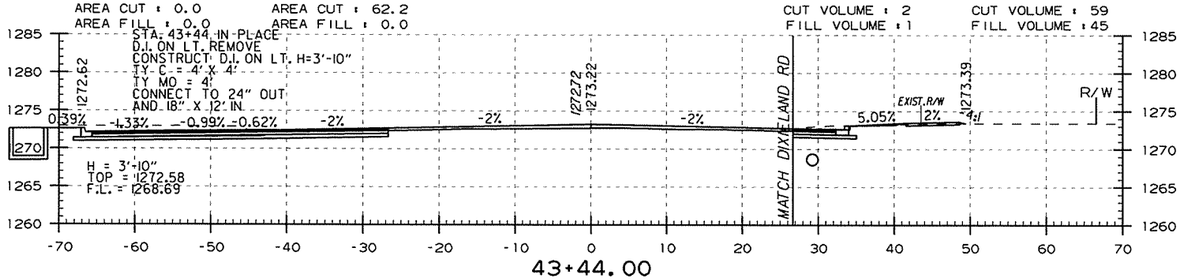
43+47.00

AREA CUT : 0.0 AREA FILL : 0.0
AREA CUT : 14.0 AREA FILL : 0.0
CUT VOLUME : 0 FILL VOLUME : 0
CUT VOLUME : 8 FILL VOLUME : 0



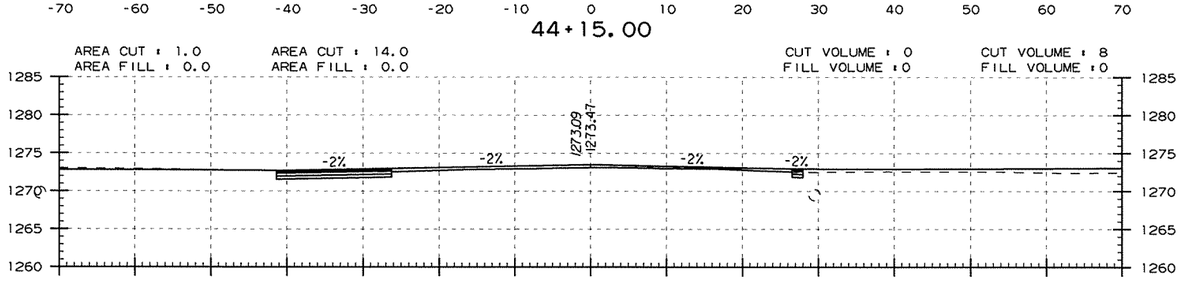
44+15.00

AREA CUT : 0.0 AREA FILL : 0.0
AREA CUT : 62.2 AREA FILL : 0.0
CUT VOLUME : 2 FILL VOLUME : 1
CUT VOLUME : 59 FILL VOLUME : 45



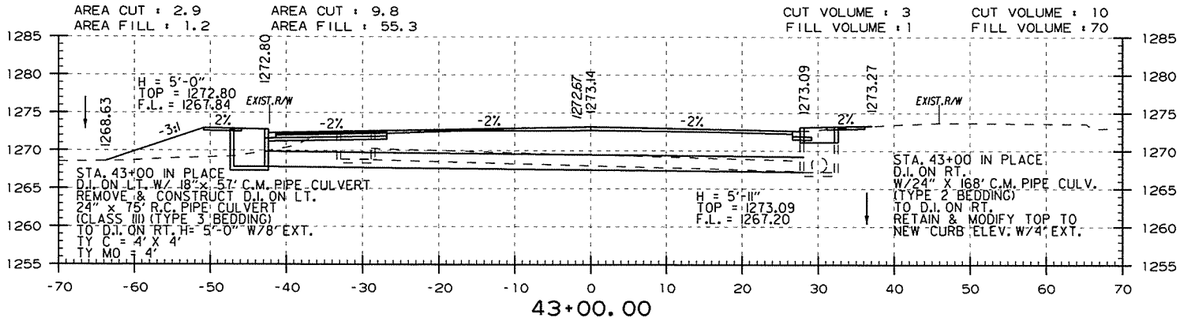
43+44.00

AREA CUT : 1.0 AREA FILL : 0.0
AREA CUT : 14.0 AREA FILL : 0.0
CUT VOLUME : 0 FILL VOLUME : 0
CUT VOLUME : 8 FILL VOLUME : 0



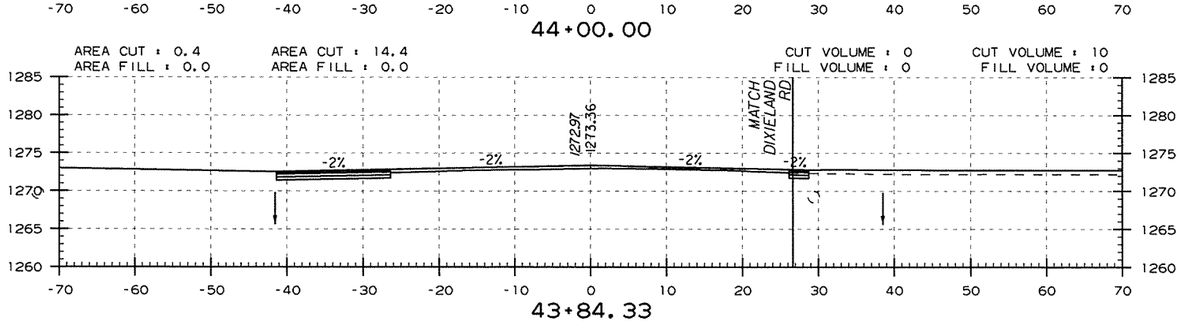
44+00.00

AREA CUT : 2.9 AREA FILL : 1.2
AREA CUT : 9.8 AREA FILL : 55.3
CUT VOLUME : 3 FILL VOLUME : 1
CUT VOLUME : 10 FILL VOLUME : 70



43+00.00

AREA CUT : 0.4 AREA FILL : 0.0
AREA CUT : 14.4 AREA FILL : 0.0
CUT VOLUME : 0 FILL VOLUME : 0
CUT VOLUME : 10 FILL VOLUME : 0



43+84.33

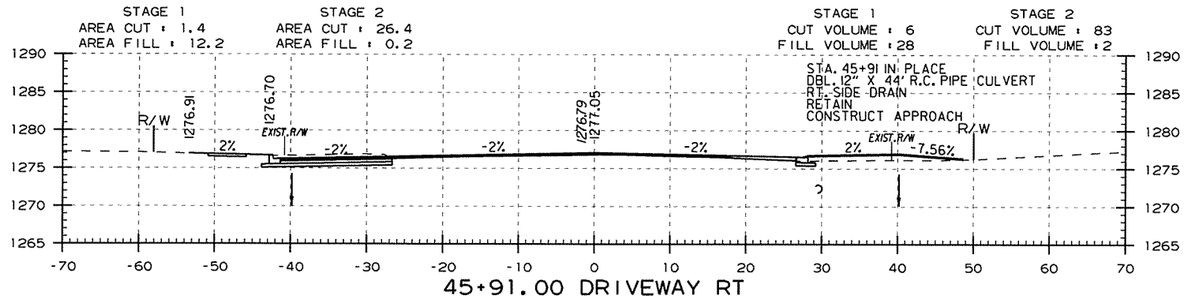
HWY. 264 STA. 43+00.00 TO STA. 44+25.70

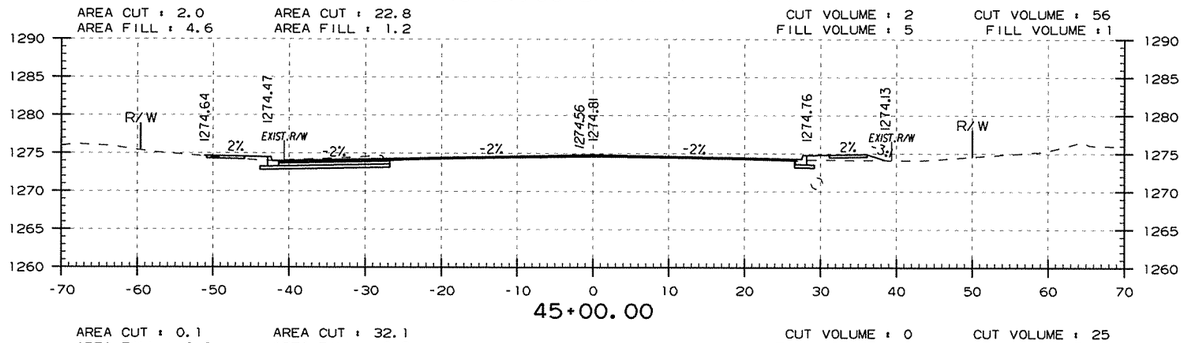
USER: jd5103
DESIGN FILE: G:\2103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:13
SCALE: 20:1
MODEL: CROSS SECTIONS

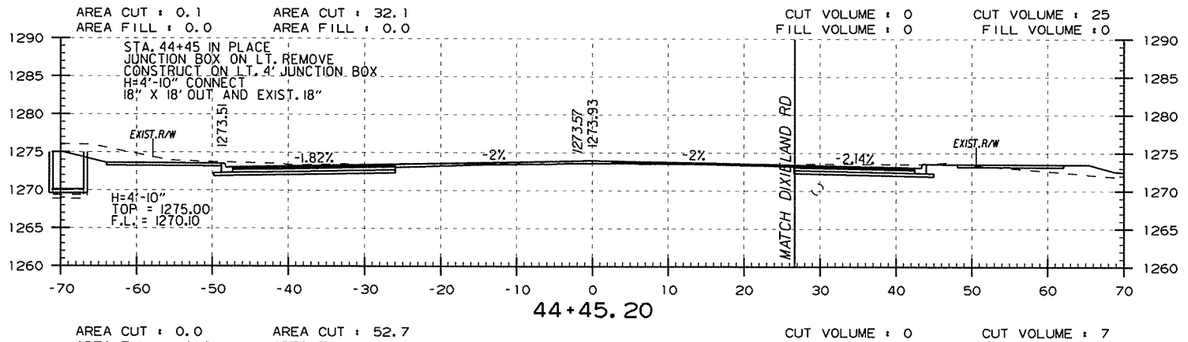
Crafton, Tull & Associates Inc.

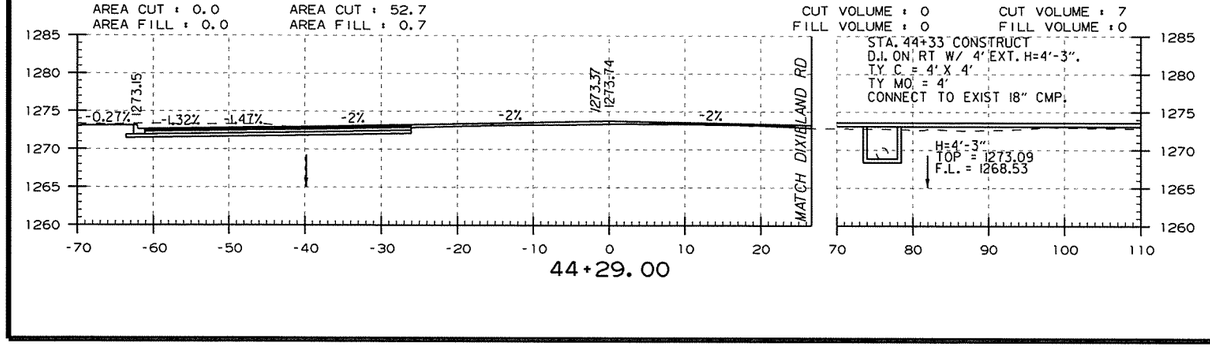
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	171	184

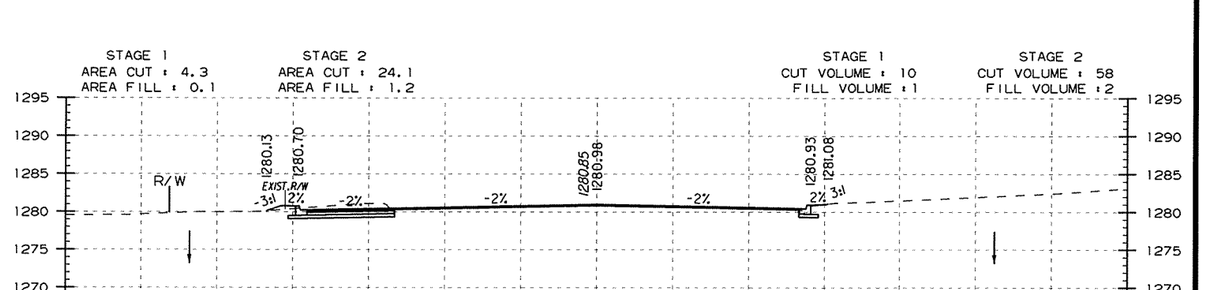
(2) CROSS SECTIONS

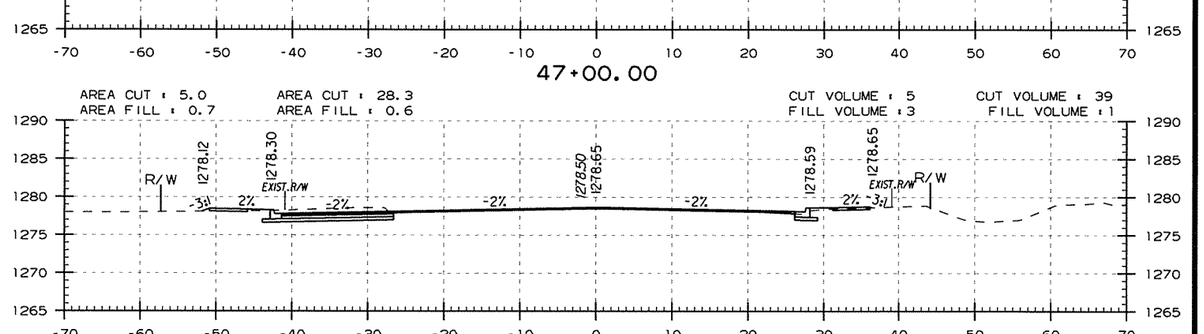


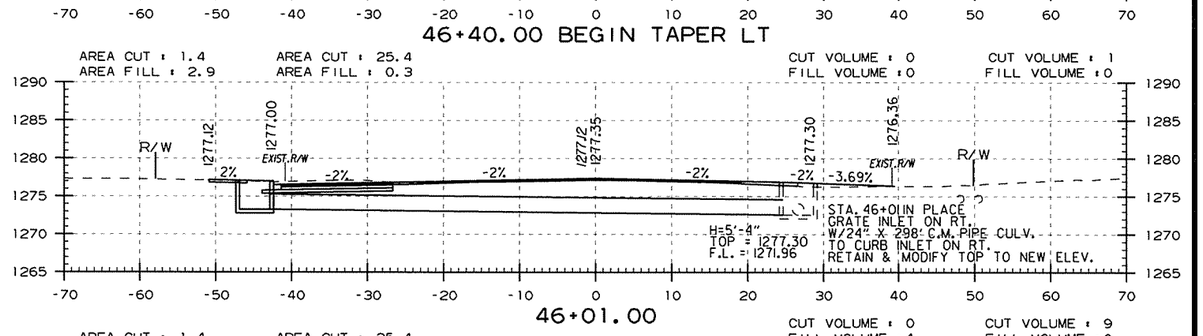


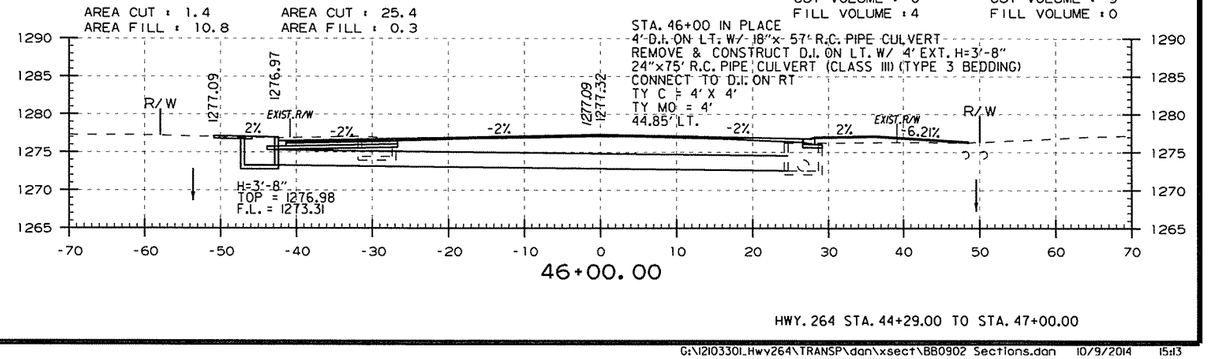












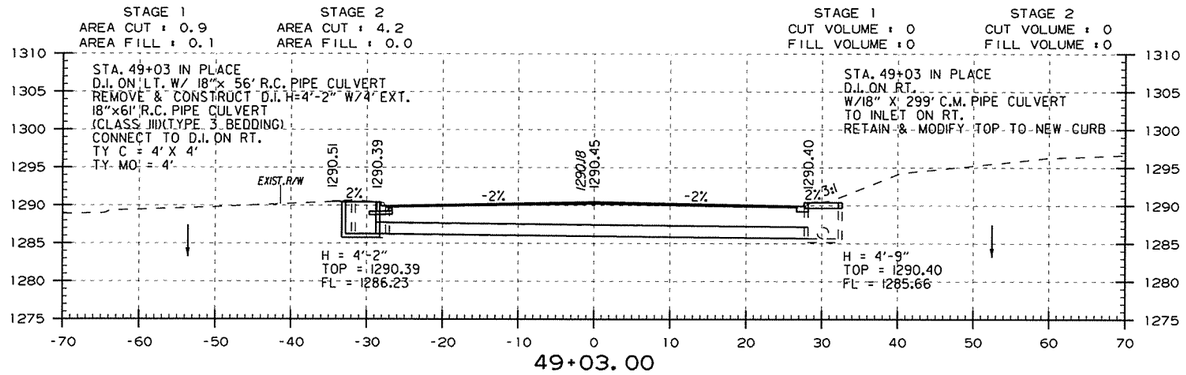
HWY. 264 STA. 44+29.00 TO STA. 47+00.00

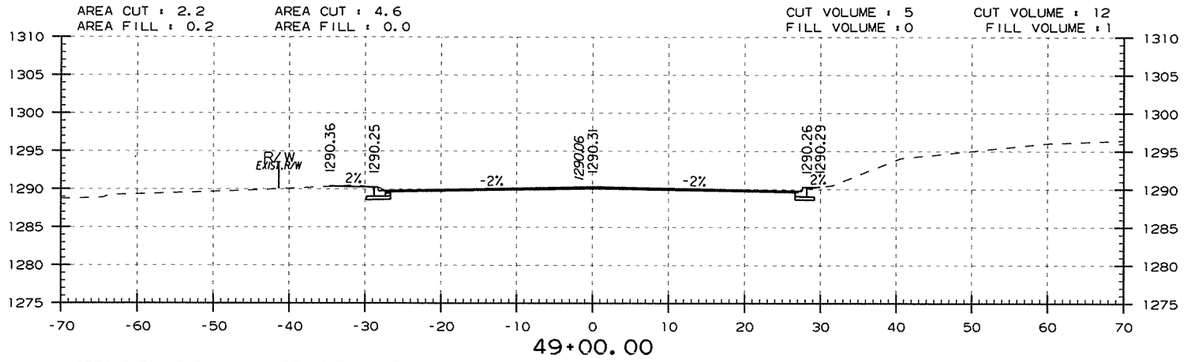
USER: jd5103
DESIGN FILE: G:\2103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:13
MODEL: CROSS SECTIONS
SCALE: 20:1

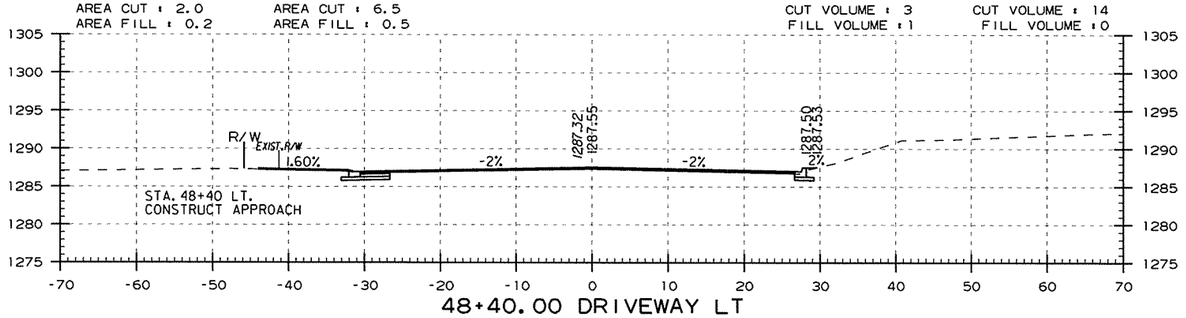
Crafton, Tull & Associates Inc.

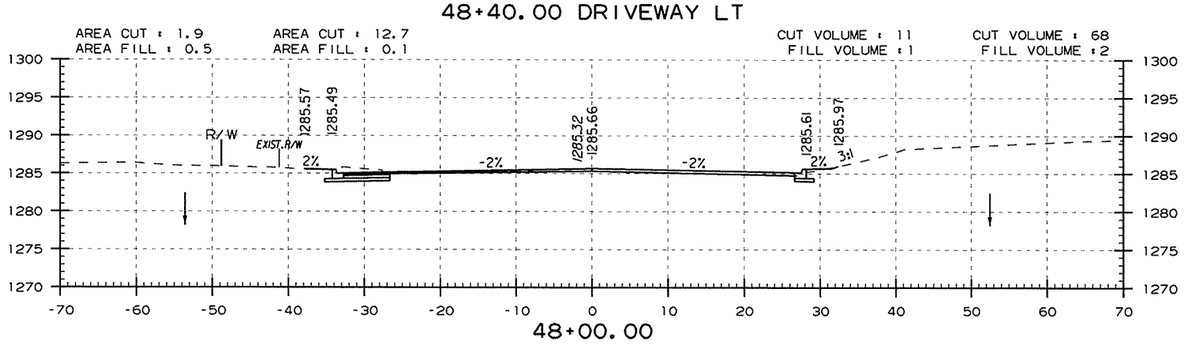
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	172	184

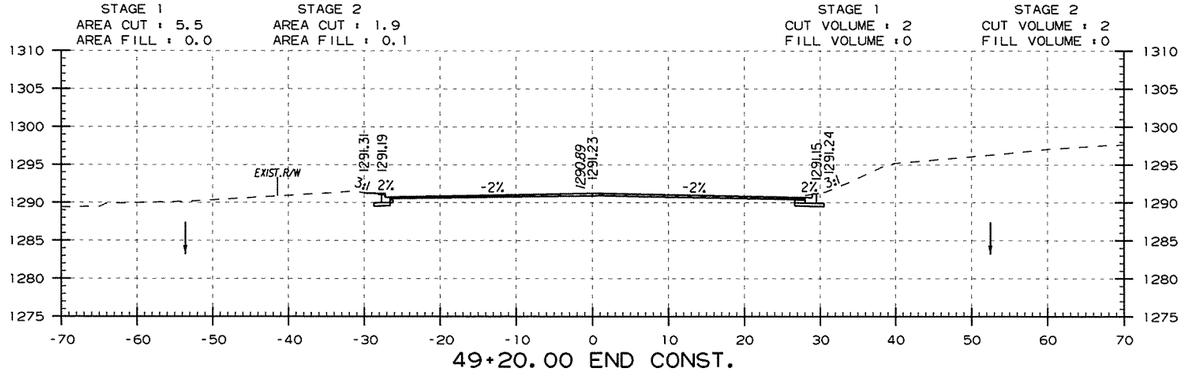
(2) CROSS SECTIONS











HWY. 264 STA. 48+00.00 TO STA. 49+20.00

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:13
SCALE: 20:1
MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

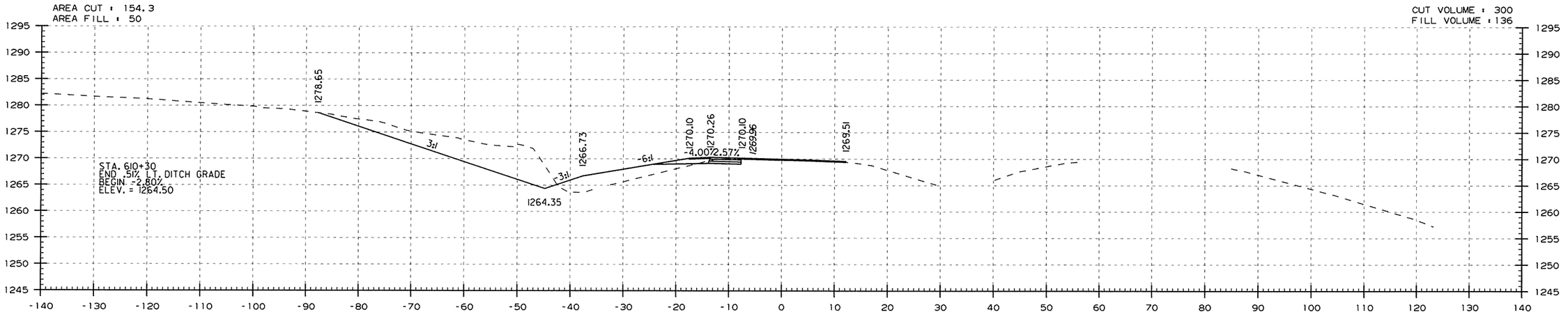
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	173	184

2 CROSS SECTIONS

AREA CUT = 154.3
AREA FILL = 50

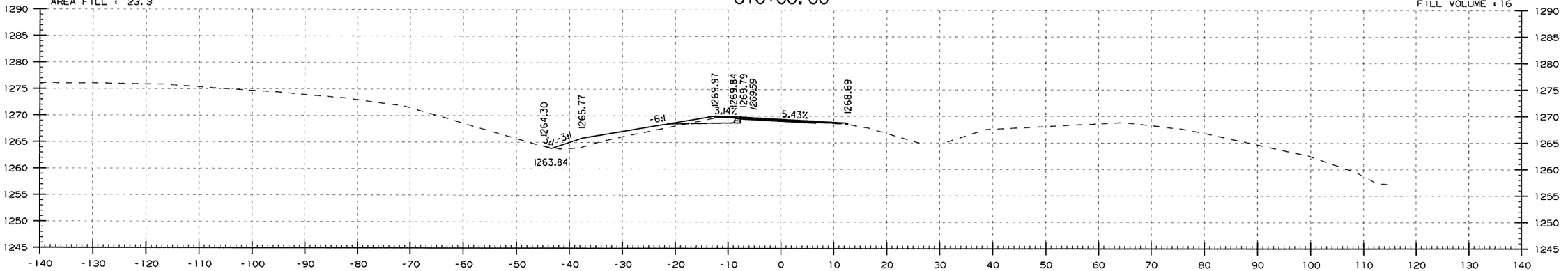
CUT VOLUME = 300
FILL VOLUME = 136



610+00.00

AREA CUT = 7.9
AREA FILL = 23.3

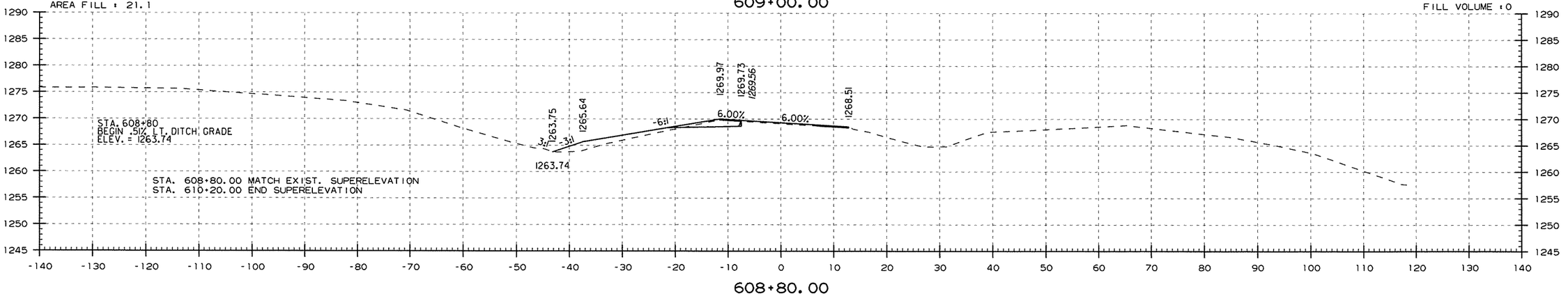
CUT VOLUME = 6
FILL VOLUME = 16



609+00.00

AREA CUT = 9.3
AREA FILL = 21.1

CUT VOLUME = 0
FILL VOLUME = 0



608+80.00

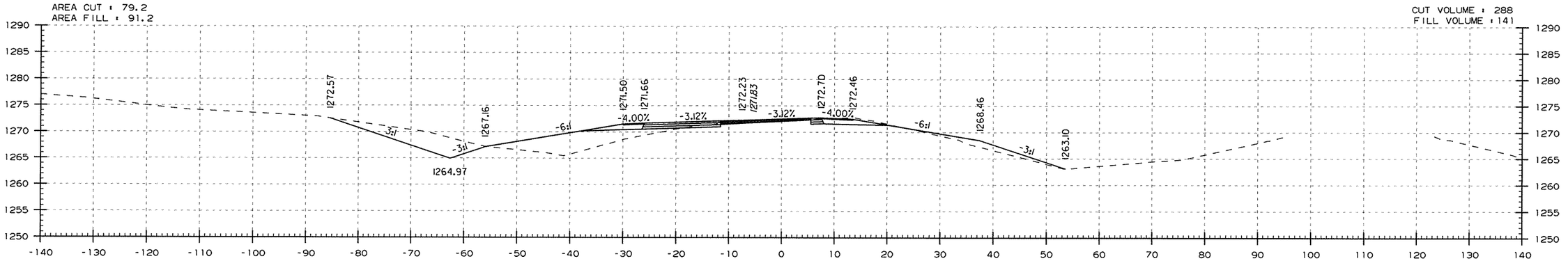
RAMP 1 STA. 608+80.00 TO STA. 610+00.00

USER: jd5103
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:13
SCALE: 20:1
MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	174	184

(2) CROSS SECTIONS



RAMP I STA. 611+00.00 TO STA. 612+50.00

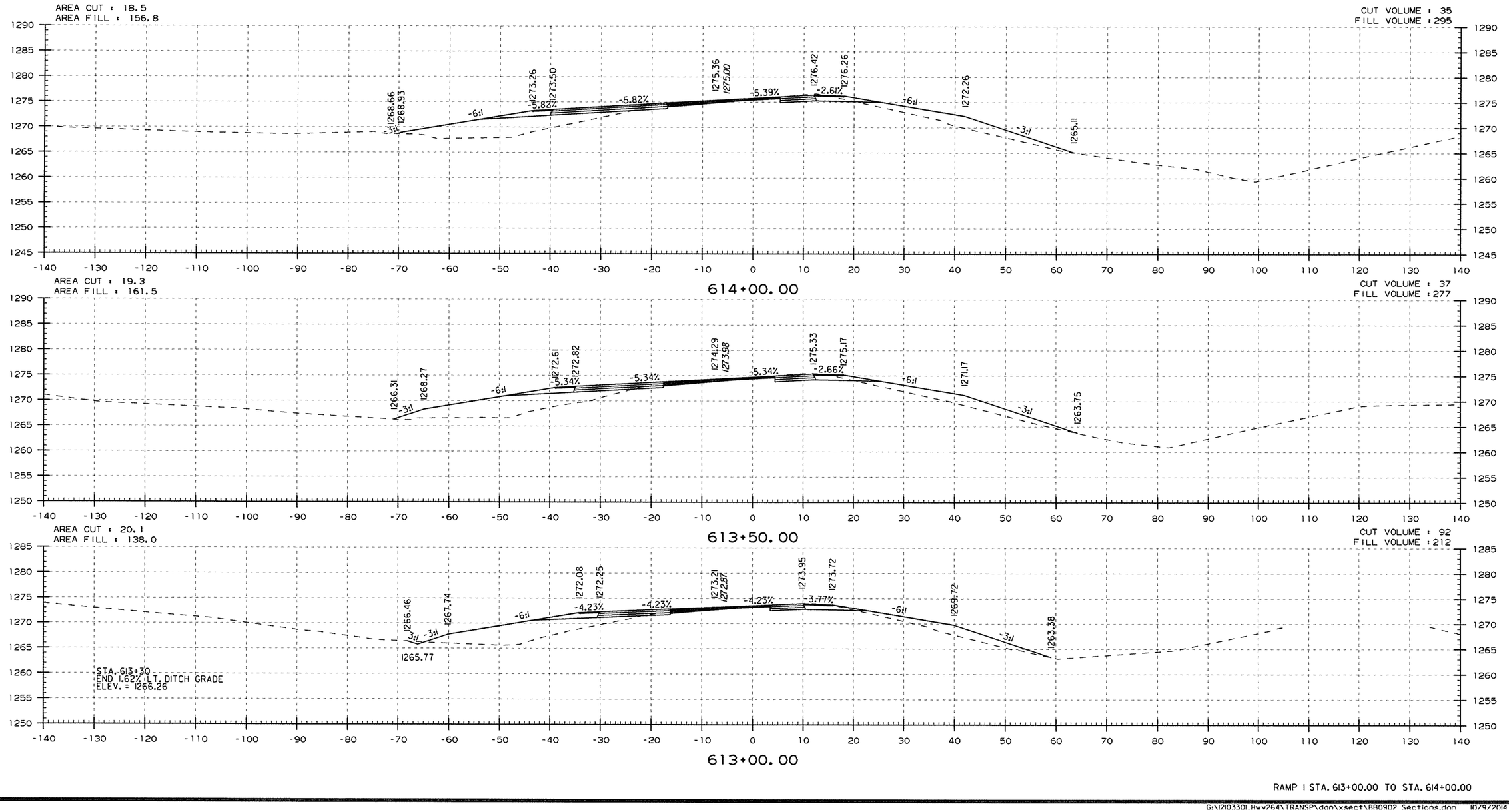
USER: jd5103
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:13
SCALE: 20:1
MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	175	184

2 CROSS SECTIONS



RAMP I STA. 613+00.00 TO STA. 614+00.00

USER: jd503
DESIGN FILE: G:\2103301.Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:13
MODEL: CROSS SECTIONS
SCALE: 20:1

G:\2103301.Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn 10/9/2014 15:13

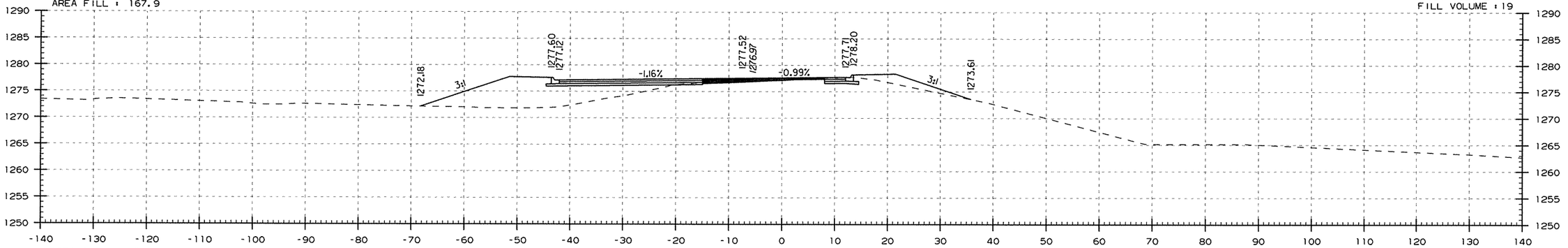
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	176	184

2 CROSS SECTIONS

AREA CUT : 8.2
AREA FILL : 167.9

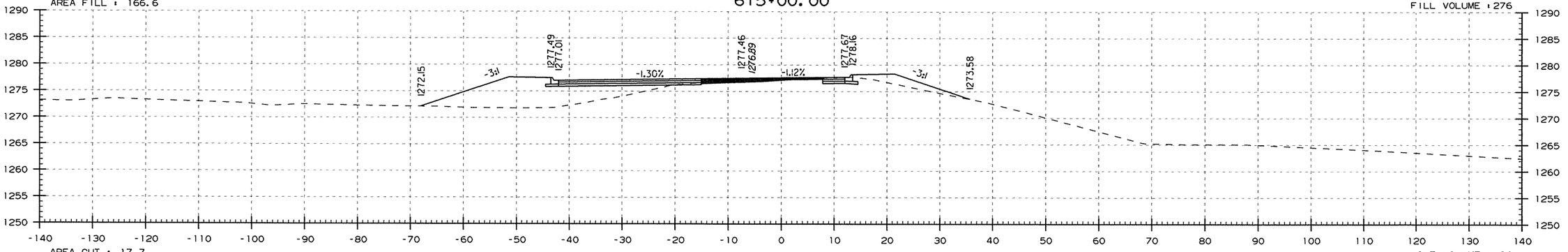
CUT VOLUME : 1
FILL VOLUME : 19



615+00.00

AREA CUT : 8.5
AREA FILL : 166.6

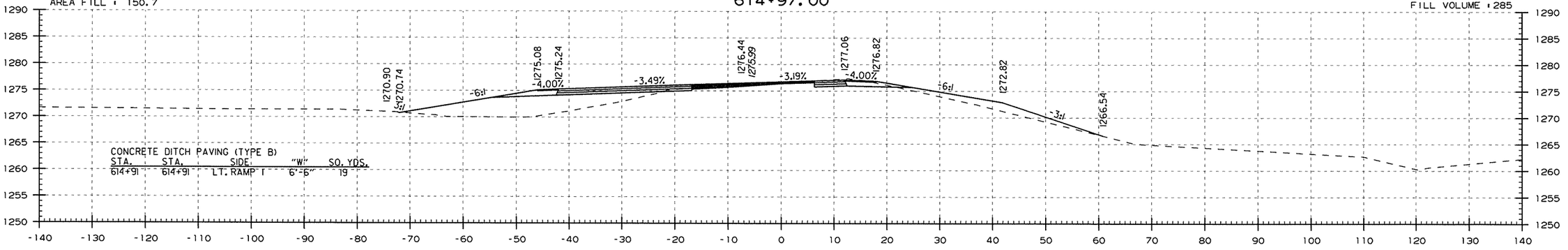
CUT VOLUME : 23
FILL VOLUME : 276



614+97.00

AREA CUT : 17.7
AREA FILL : 150.7

CUT VOLUME : 34
FILL VOLUME : 285



CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
614+91	614+91	LT. RAMP 1	6'-6"	19

614+50.00

RAMP 1 STA. 614+50.00 TO STA. 615+00.00

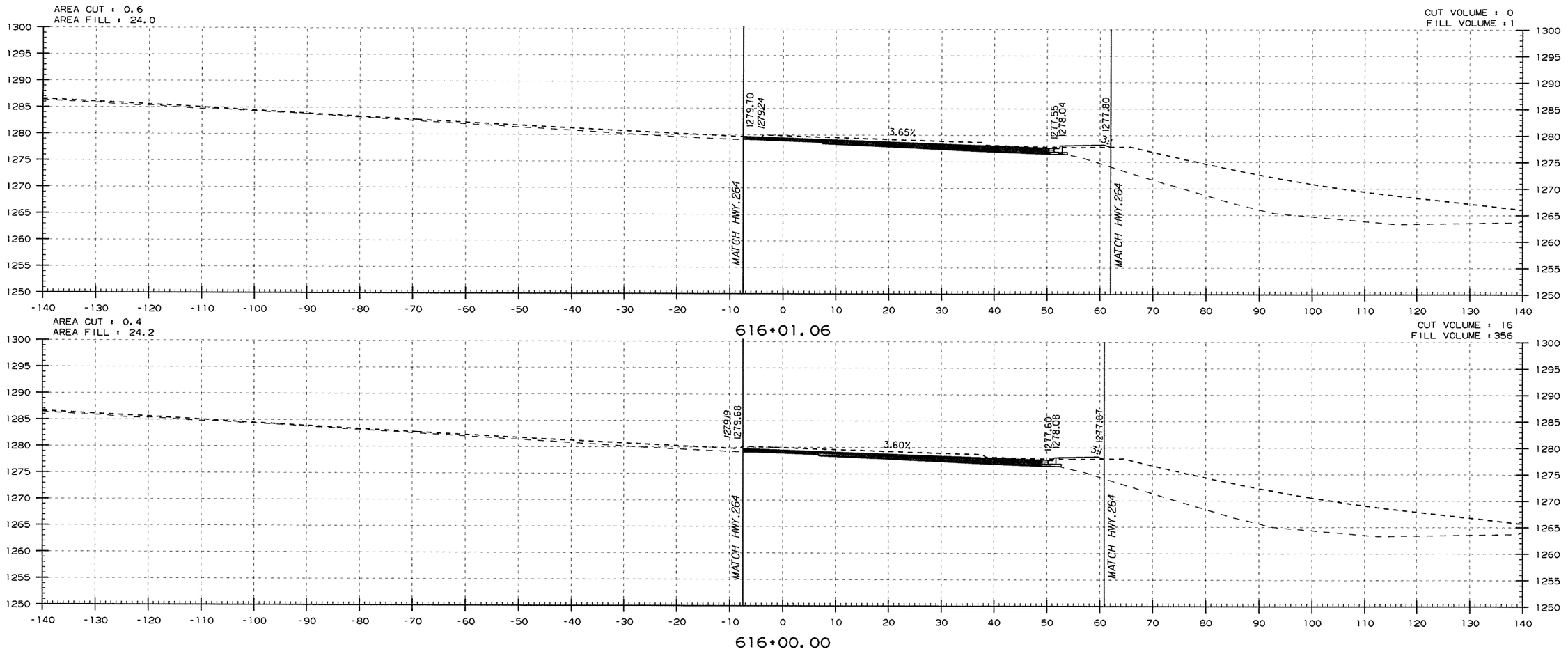
USER: jd5103
DESIGN FILE: G:\2103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:13
SCALE: 20:1
MODEL: CROSS SECTIONS

G:\2103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn 10/9/2014 15:13

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	177	184

(2) CROSS SECTIONS



RAMP 1 STA. 616+00.00 TO STA. 616+01.06

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn MODEL: CROSS SECTIONS
PLOTTED: 10/9/2014 15:14 SCALE: 20:1

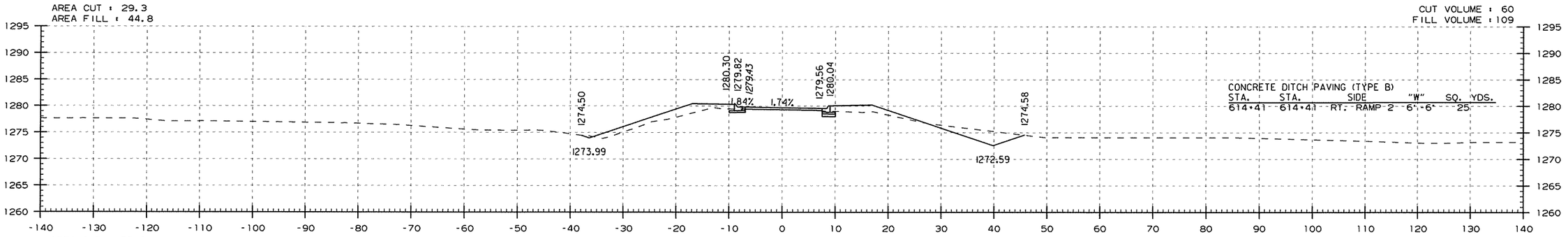
G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn 10/9/2014 15:14

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	178	184

(2) CROSS SECTIONS



RAMP 2 STA. 613+27.70 TO STA. 614+38.19

USER: jd5103
DESIGN FILE: G:\12103301.Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:14
SCALE: 20:1
MODEL: CROSS SECTIONS

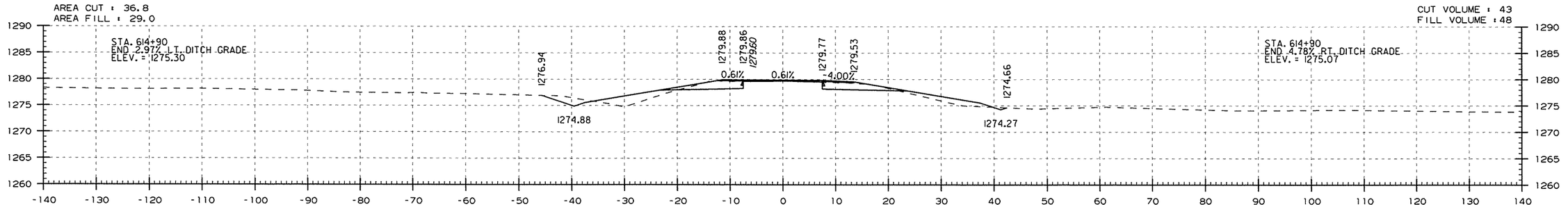
G:\12103301.Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn 10/9/2014 15:14

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	179	184

(2) CROSS SECTIONS



614+73.31 END CONST.

RAMP 2 STA. 614+73.31 TO STA. 614+73.31

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:14
SCALE: 20:1
MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

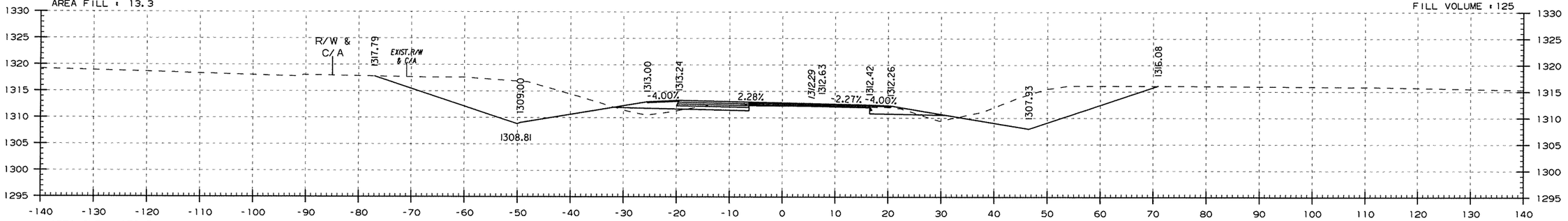
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	180	184

(2) CROSS SECTIONS

AREA CUT = 344.3
AREA FILL = 13.3

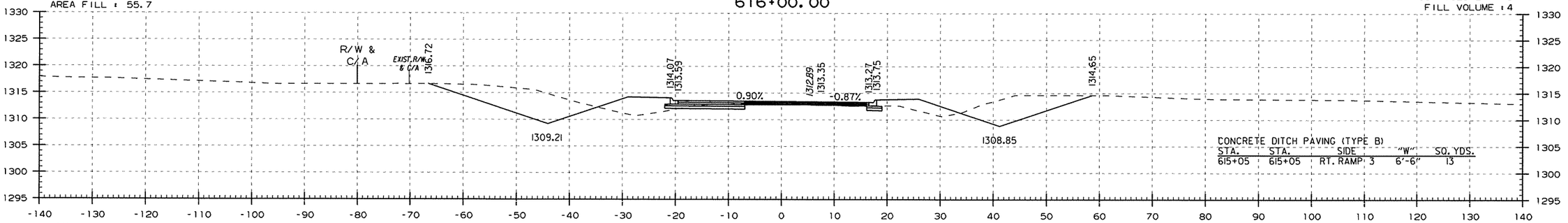
CUT VOLUME = 949
FILL VOLUME = 125



AREA CUT = 178.7
AREA FILL = 55.7

616+00.00

CUT VOLUME = 13
FILL VOLUME = 4



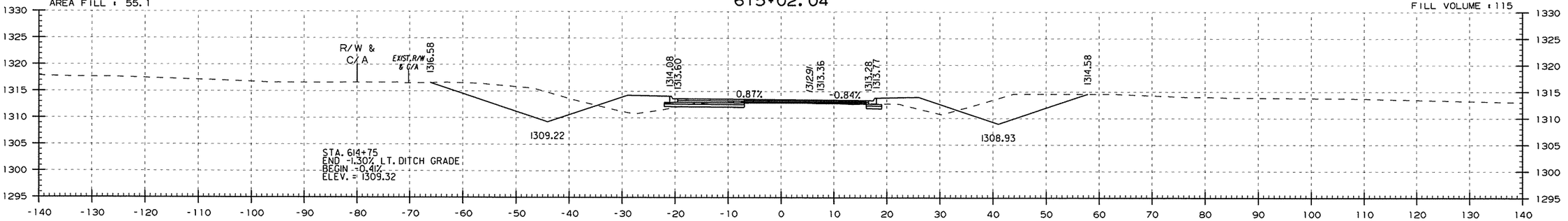
CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
615+05	615+05	RT. RAMP 3	6'-6"	13

AREA CUT = 173.5
AREA FILL = 55.1

615+02.04

CUT VOLUME = 321
FILL VOLUME = 115

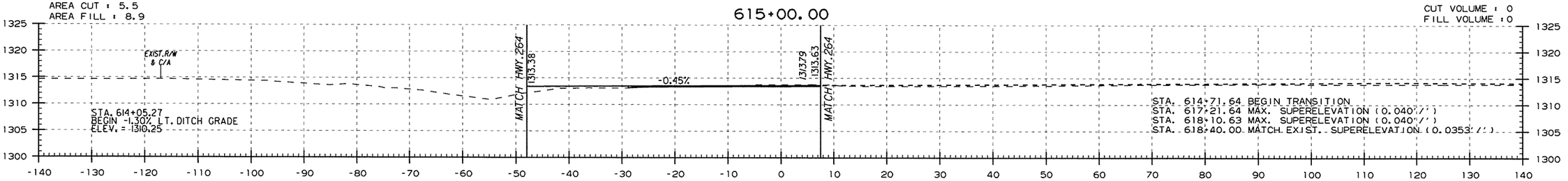


STA. 614+75
END -1.30% LT. DITCH GRADE
BEGIN -0.41%
ELEV. = 1309.32

AREA CUT = 5.5
AREA FILL = 8.9

615+00.00

CUT VOLUME = 0
FILL VOLUME = 0



STA. 614+05.27
BEGIN -1.30% LT. DITCH GRADE
ELEV. = 1310.25

STA. 614+71.64 BEGIN TRANSITION
STA. 617+21.64 MAX. SUPERELEVATION (0.040'/')
STA. 618+10.63 MAX. SUPERELEVATION (0.040'/')
STA. 618+40.00 MATCH EXIST. SUPERELEVATION (0.0353'/')

614+03.20

RAMP 3 STA. 614+03.20 TO STA. 616+00.00

USER: jd5103
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:14
SCALE: 20:1
MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

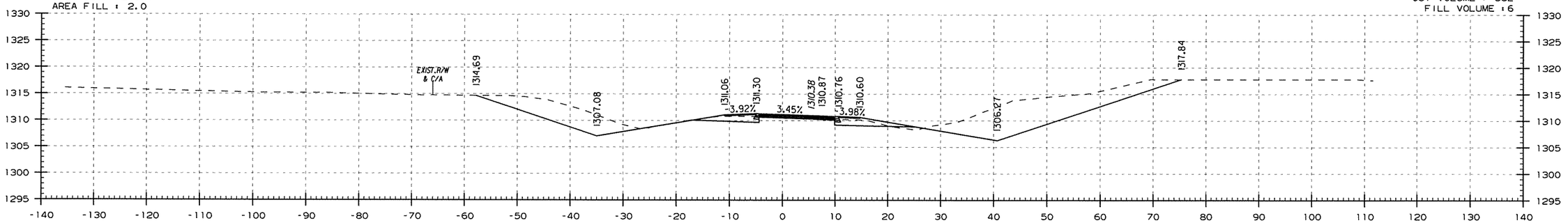
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	181	184

(2) CROSS SECTIONS

AREA CUT = 263.1
AREA FILL = 2.0

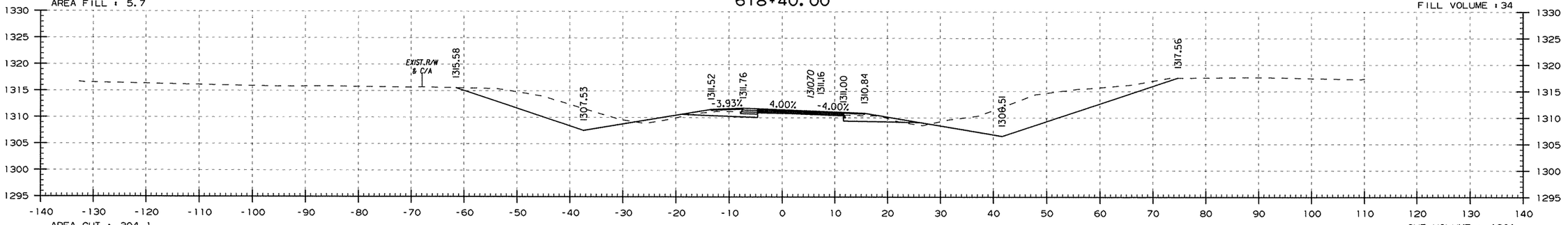
CUT VOLUME = 382
FILL VOLUME = 6



AREA CUT = 253.2
AREA FILL = 5.7

618+40.00

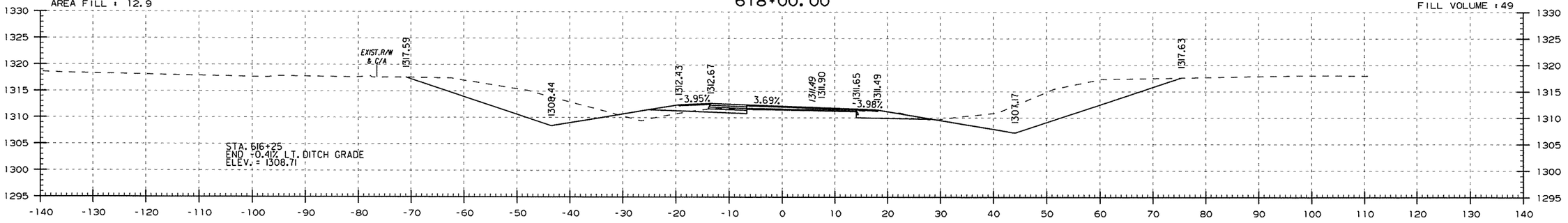
CUT VOLUME = 1032
FILL VOLUME = 34



AREA CUT = 304.1
AREA FILL = 12.9

618+00.00

CUT VOLUME = 1201
FILL VOLUME = 49



617+00.00

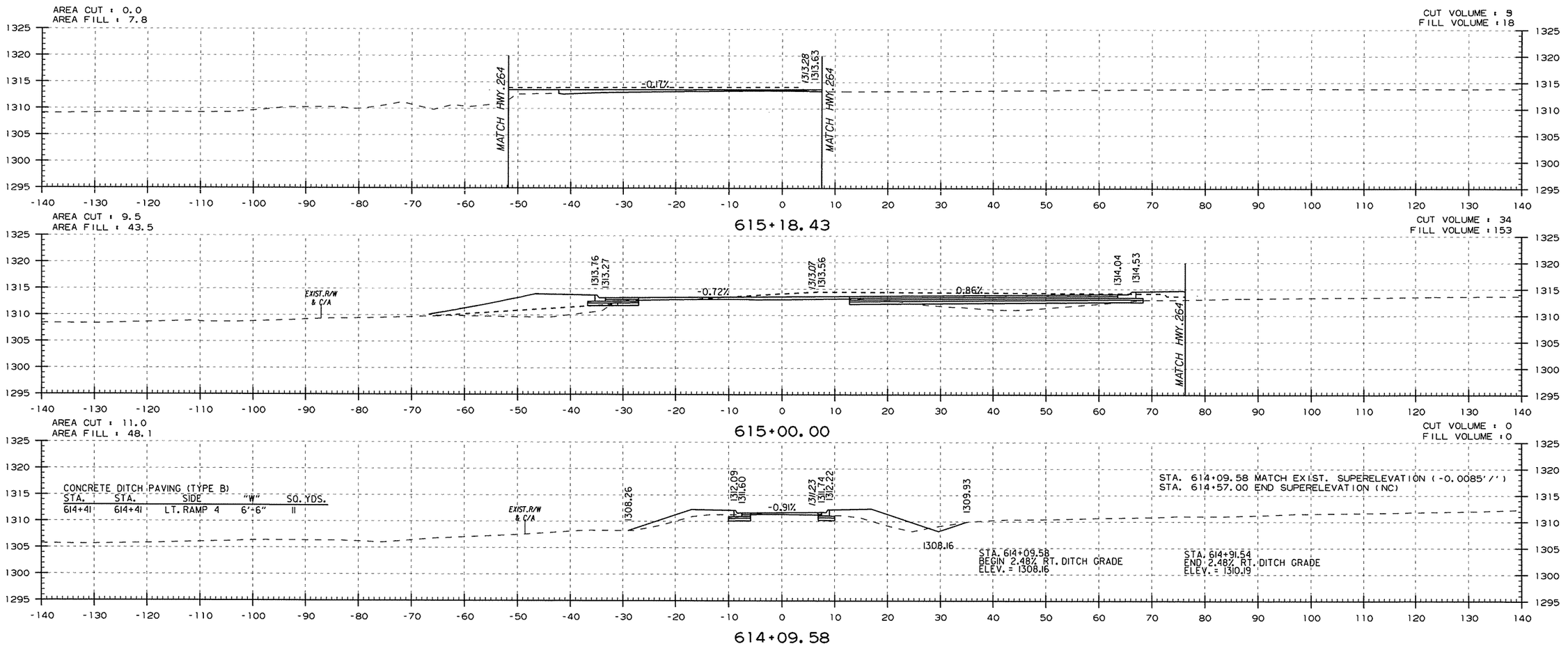
RAMP 3 STA. 617+00.00 TO STA. 618+40.00

USER: jdsl03
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:14
SCALE: 20:1
MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	182	184

(2) CROSS SECTIONS



RAMP 4 STA. 614+09.58 TO STA. 615+18.43

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:14
MODEL: CROSS SECTIONS
SCALE: 20:1

G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn 10/9/2014 15:14

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

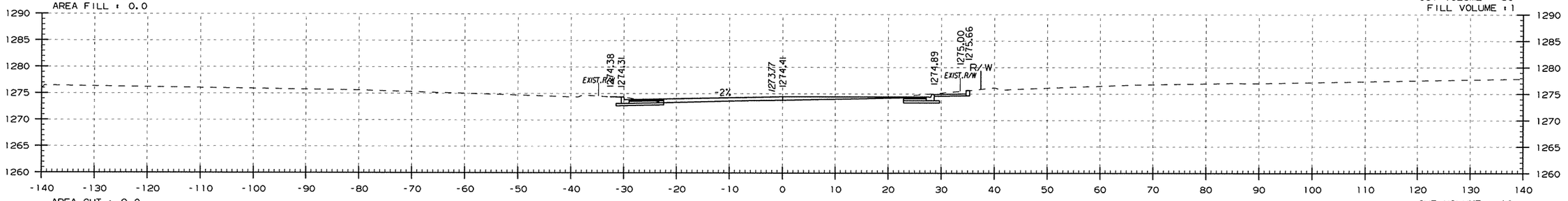
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0902	183	184

(2) CROSS SECTIONS

STA. 13+25 to 13+85
CONSTRUCT SIDEWALK
W/TURNED UP EDGE
H = VAR. (8" TO 1'-6")
SIDEWALK TYPE SPECIAL = 40 S.Y.

AREA CUT : 23.7
AREA FILL : 0.0

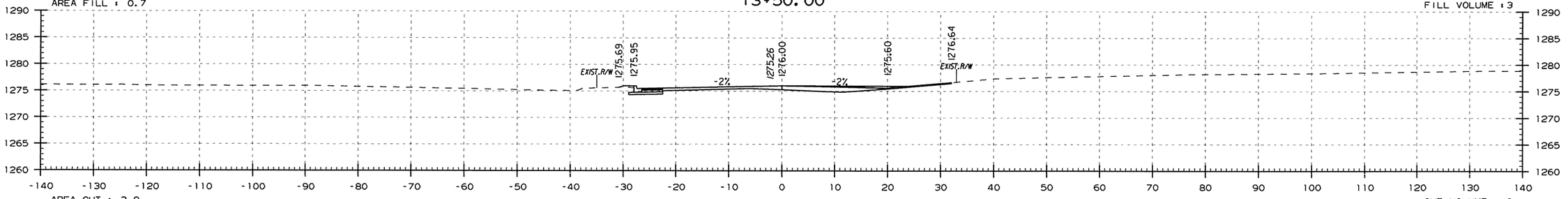
CUT VOLUME : 30
FILL VOLUME : 1



AREA CUT : 9.0
AREA FILL : 0.7

CUT VOLUME : 10
FILL VOLUME : 3

13+50.00

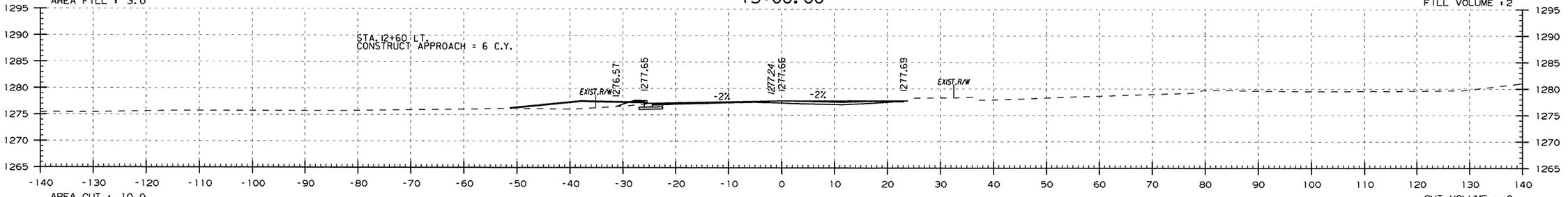


AREA CUT : 3.9
AREA FILL : 3.0

CUT VOLUME : 9
FILL VOLUME : 2

13+00.00

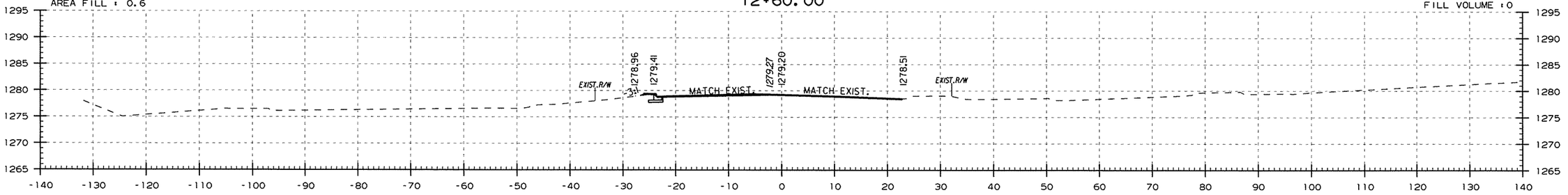
STA. 12+60 LT.
CONSTRUCT APPROACH = 6 C.Y.



AREA CUT : 10.0
AREA FILL : 0.6

CUT VOLUME : 0
FILL VOLUME : 0

12+60.00



12+25.00

S. DIXIELAND RD. STA. 12+25.00 TO STA. 13+50.00

USER: jd5103
DESIGN FILE: G:\1210330I_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:14
SCALE: 20:1
MODEL: CROSS SECTIONS

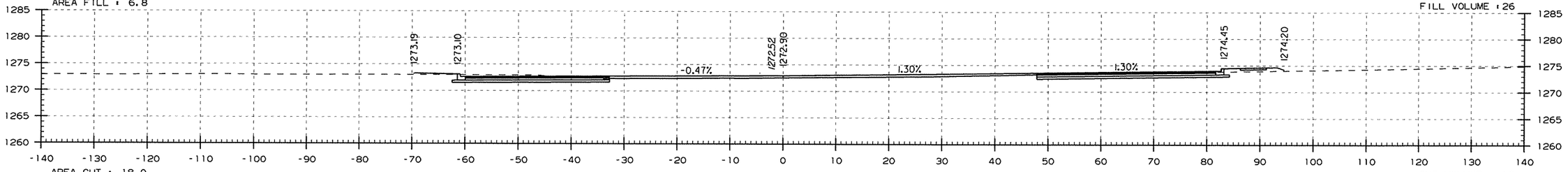
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0902	184	184

(2) CROSS SECTIONS

AREA CUT = 69.7
AREA FILL = 6.8

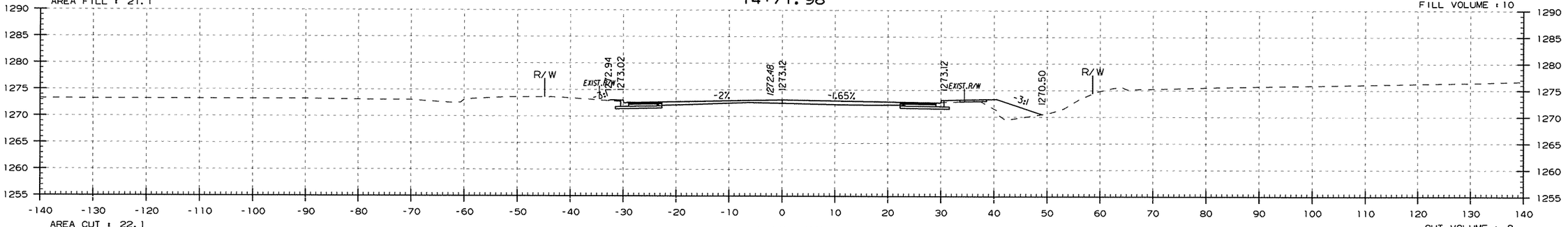
CUT VOLUME = 81
FILL VOLUME = 26



AREA CUT = 18.0
AREA FILL = 21.1

14+71.98

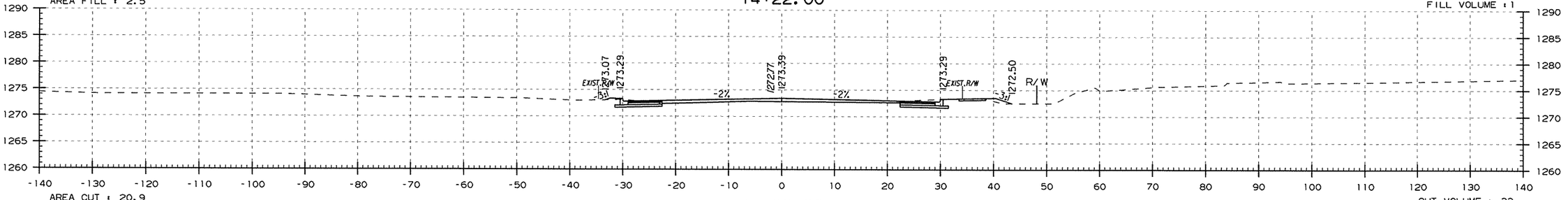
CUT VOLUME = 16
FILL VOLUME = 10



AREA CUT = 22.1
AREA FILL = 2.5

14+22.00

CUT VOLUME = 8
FILL VOLUME = 1

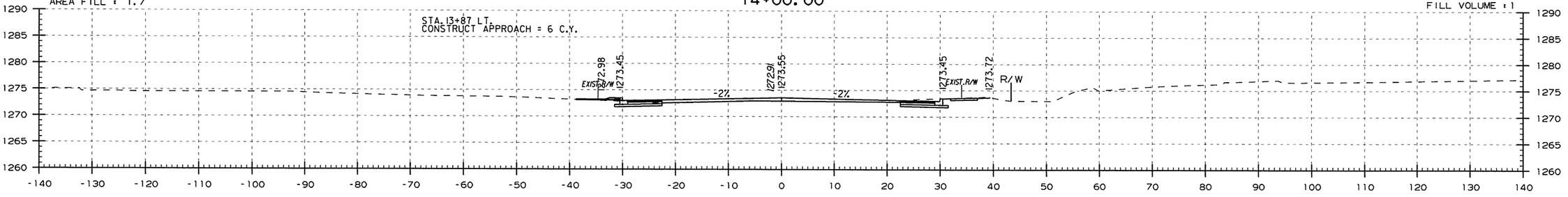


AREA CUT = 20.9
AREA FILL = 1.7

STA. 13+87 LT.
CONSTRUCT APPROACH = 6 C.Y.

13+90.00

CUT VOLUME = 33
FILL VOLUME = 1



S. DIXIELAND RD. STA. 13+90.00 TO STA. 14+71.98

USER: jd5103
DESIGN FILE: G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn
PLOTTED: 10/9/2014 15:14
SCALE: 20:1
MODEL: CROSS SECTIONS

G:\12103301_Hwy264\TRANSP\dgn\xsect\BB0902 Sections.dgn 10/9/2014 15:14