DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	1	101

(2) PRINTERS PLACE-CRAWFORD ST. (HIGDON FERRY RD.) (HOT SPRINGS) (S)

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

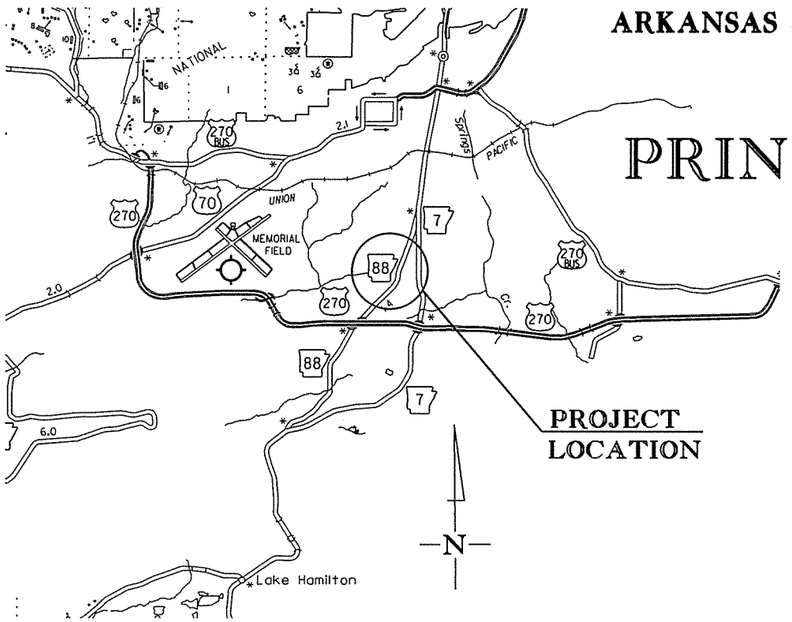
PRINTERS PLACE-CRAWFORD ST. (HIGDON FERRY RD.) (HOT SPRINGS) (S)

GARLAND COUNTY

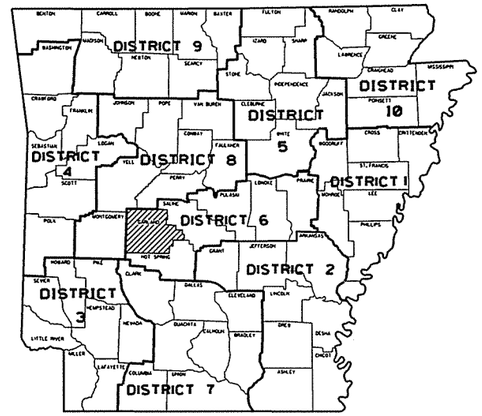
ROUTE 88 SECTION 4

F.A.P. EBS-9210(23)

JOB 061214

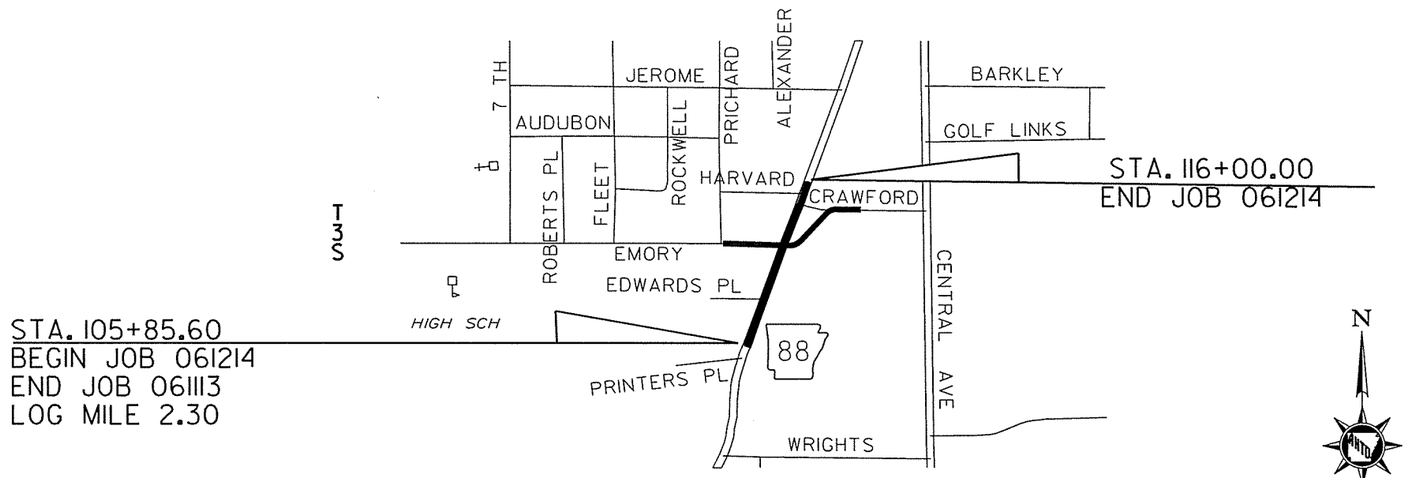


VICINITY MAP



AHTD DISTRICT 6

NOT TO SCALE



• DESIGN TRAFFIC DATA •

DESIGN YEAR	2034
2014 ADT	15,000
2034 ADT	19,500
2034 DHV	2145
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	3%
DESIGN SPEED	30 MPH

APPROVED

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

8-15-14

DEPUTY DIRECTOR AND CHIEF ENGINEER

PROJECT COORDINATES:

	BEGIN	MID	END
LAT.	N34° 28′ 28″	N34° 28′ 33″	N34° 28′ 38″
LON.	W93° 03′ 49″	W93° 03′ 47″	W93° 03′ 44″

GROSS LENGTH OF PROJECT 1014.40 FEET OR 0.192 MILES
NET LENGTH OF ROADWAY 1014.40 FEET OR 0.192 MILES
NET LENGTH OF BRIDGES 0.00 FEET OR 0.00 MILES
NET LENGTH OF PROJECT 1014.40 FEET OR 0.192 MILES

P.E. JOB 061214

061214

9/6/2013

R061214.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	2	101

(2) INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14

INDEX OF SHEETS

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

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND CABLE LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED IF ANC WHERE DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
8. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOV A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVE THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

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 COURSE
620-1	MULCH COVER
JOB 061214	ANTENNA SUPPORT
JOB 061214	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 061214	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 061214	CABINET DRAWER ASSEMBLY
JOB 061214	EDGE CARD VIDEO PROCESSOR
JOB 061214	ELECTRICAL CONDUCTORS FOR LUMINAIRES
JOB 061214	ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB 061214	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 061214	GRAVITY BLOCK RETAINING WALLS
JOB 061214	LED TRAFFIC SIGNAL HEAD
JOB 061214	LED COUNTDOWN PEDESTRIAN SIGNAL HEAD
JOB 061214	LOCAL RADIO WITH ANTENNA
JOB 061214	LUMINAIRE ASSEMBLY (CUTOFF TYPE)
JOB 061214	MAINTENANCE OF TRAFFIC
JOB 061214	MANDATORY USE OF INTERNET BIDDING
JOB 061214	MODULAR BLOCK RETAINING WALLS
JOB 061214	PARTNERING REQUIREMENTS
JOB 061214	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT
JOB 061214	SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)
JOB 061214	SHORING
JOB 061214	SITE USE (A + C METHOD)
JOB 061214	SOIL STABILIZATION
JOB 061214	STORM WATER POLLUTION PREVENTION PLAN
JOB 061214	STREET NAME SIGN (MAST ARM MOUNTED)
JOB 061214	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 061214	SUBMISSION OF CONTRACTOR MATERIALS TEST RESULTS
JOB 061214	SYSTEM LOCAL CONTROLLER
JOB 061214	UTILITY ADJUSTMENTS
JOB 061214	VALUE ENGINEERING
JOB 061214	VIDEO DETECTOR (COLOR)
JOB 061214	WARM MIX ASPHALT

8/14/2013

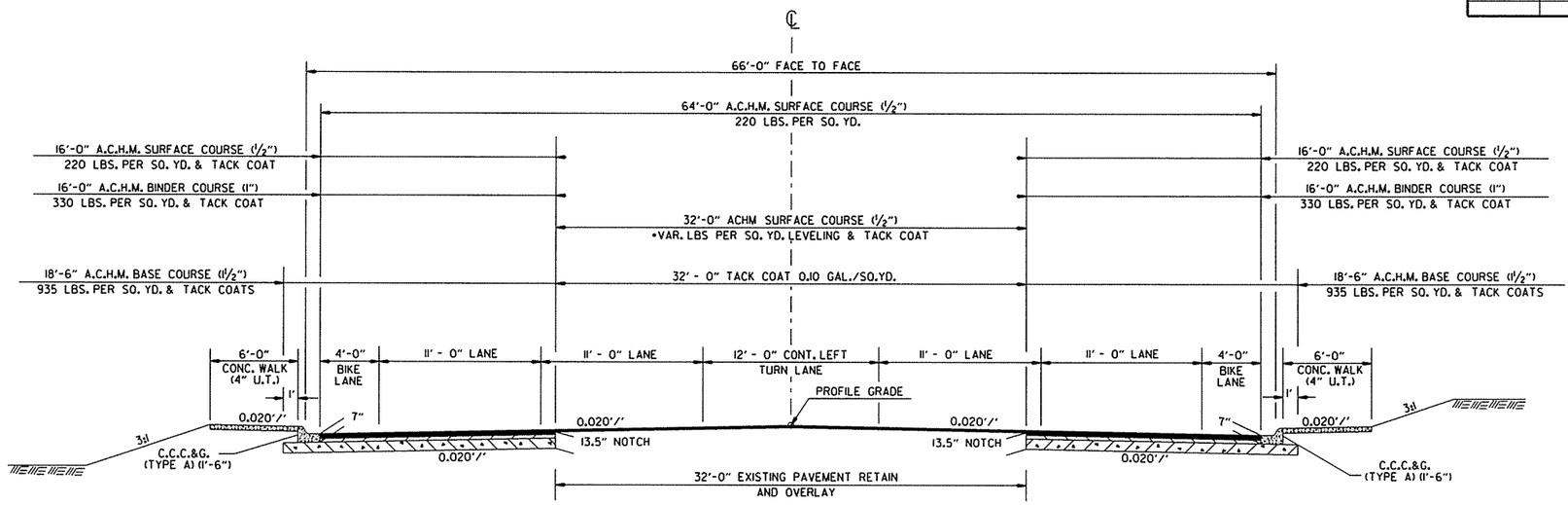
R061214.DGN

INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES

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.		061214	3	101

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14



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

HWY. 88 NOTCH AND WIDEN

STA. 105+85.60 - STA. 109+50.00
STA. 115+00.00 - STA. 116+00.00

NOTES:

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

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

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 DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.

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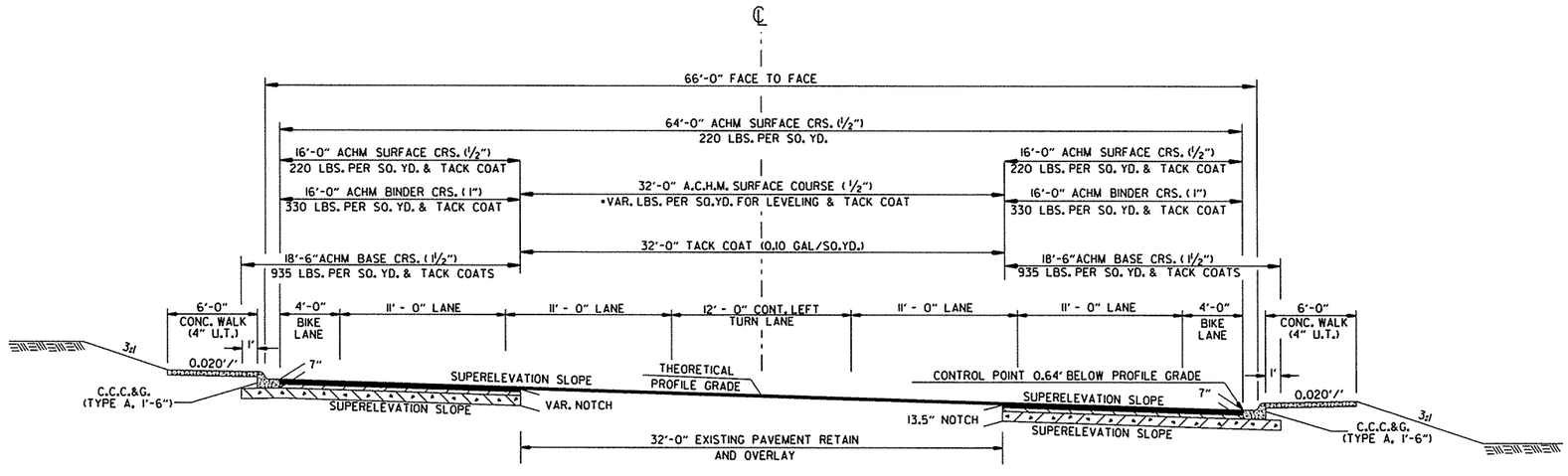

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HWY. 88 - SUPERELEVATION

STA. 109+50.00 - STA. 115+00.00

7/14/2014

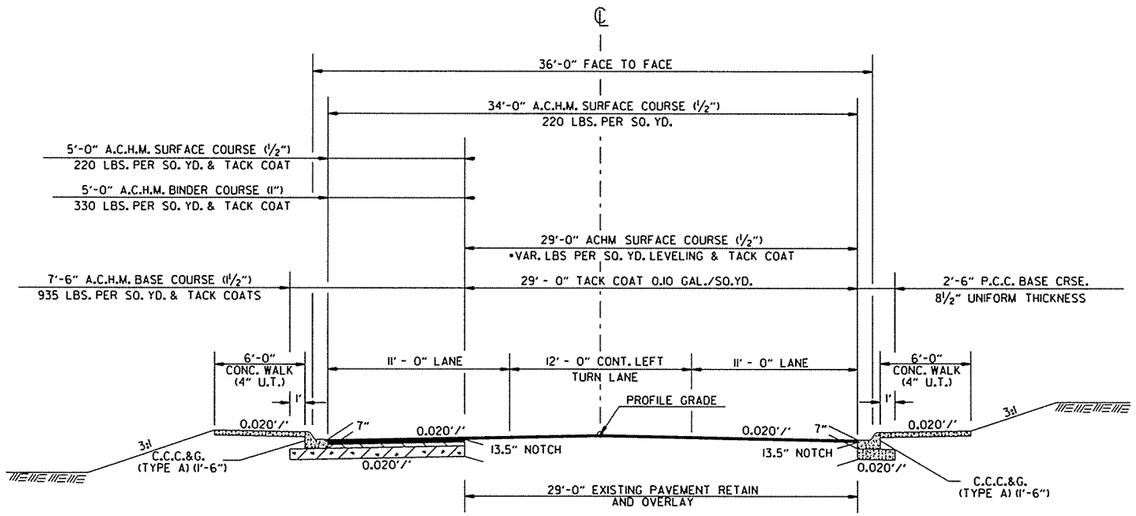
R061214.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	4	101

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
8-26-14



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

EMORY NOTCH AND WIDEN

STA. 500+50.00 - STA. 503+50.00

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7/21/2014

R061214.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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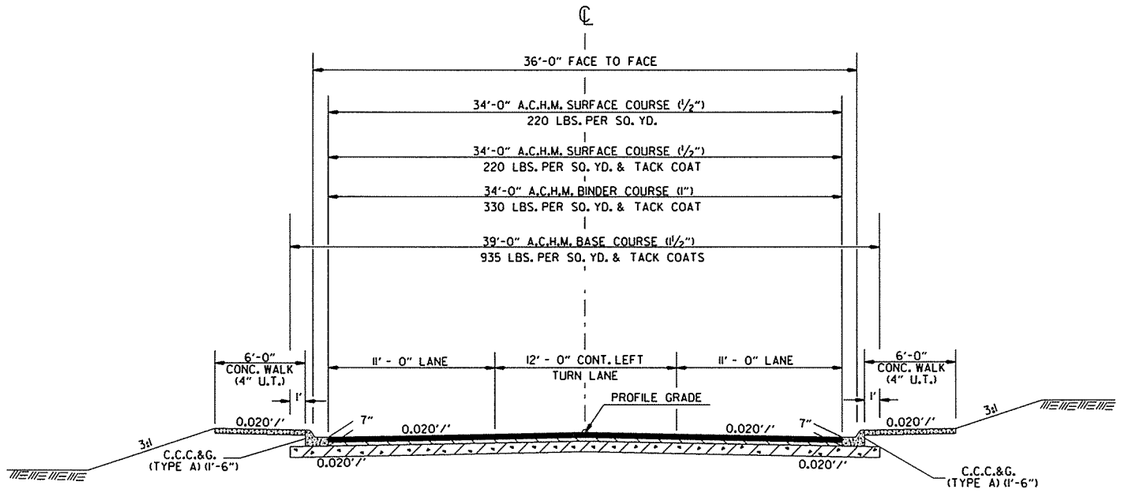
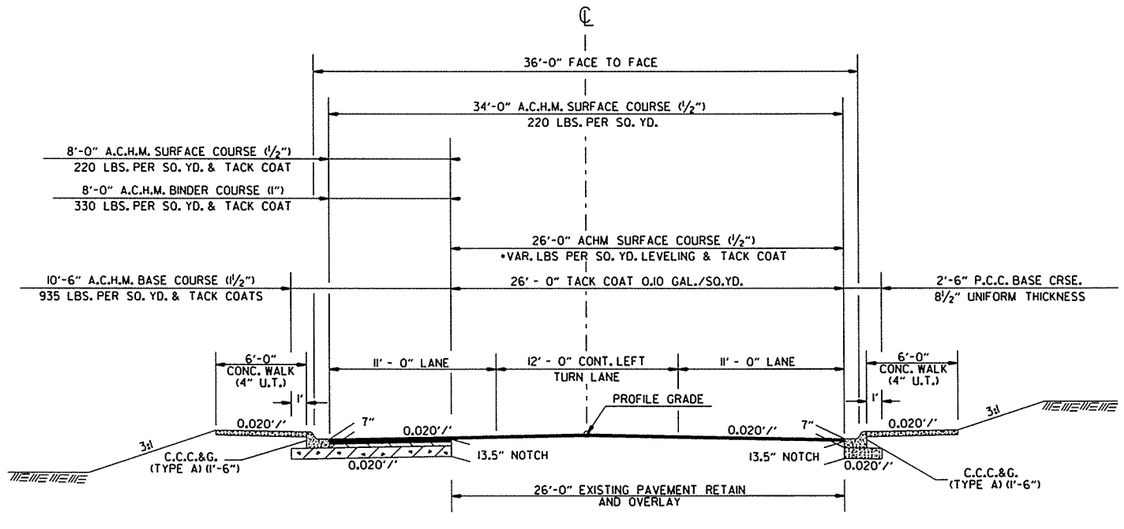
				6	ARK.			
				JOB NO.		061214	5	101

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14



CRAWFORD FULL DEPTH
STA. 504+17.86 - STA. 507+29.03



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

CRAWFORD NOTCH AND WIDEN
STA. 507+50.00 - STA. 511+00.00

NOTES:

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7/21/2014

R061214.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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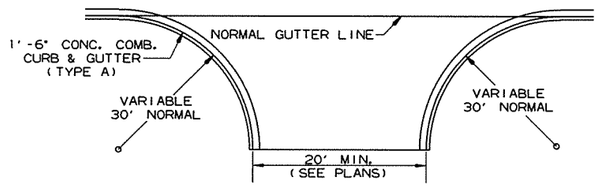
				6	ARK.			
				JOB NO.		061214	6	101

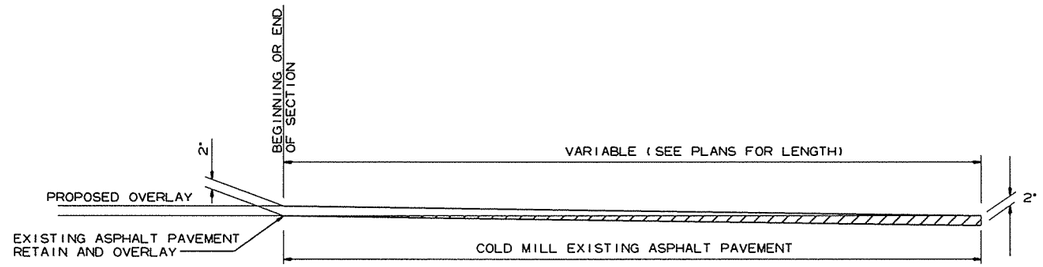
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14

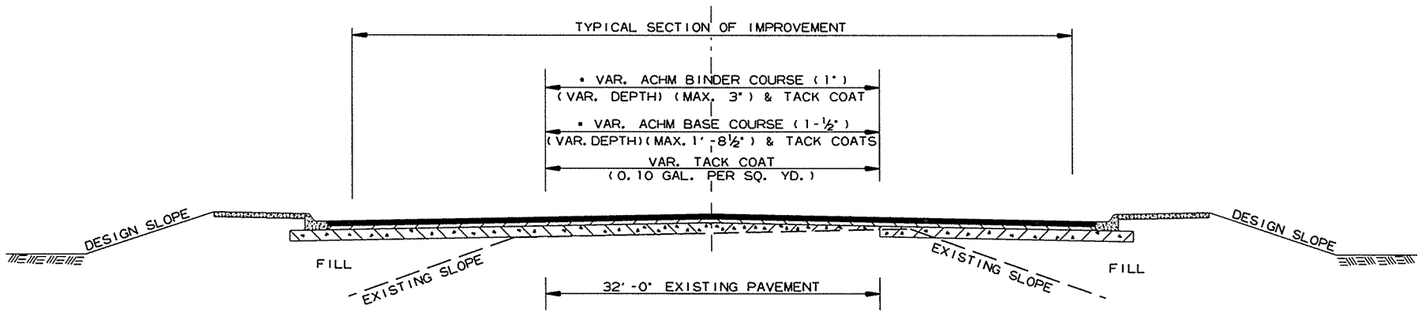


DETAIL OF ASPHALT STREETS

NOTE: PAVEMENT STRUCTURE TO BE SAME AS MAIN LANES.



DETAIL FOR TRANSITIONS



METHOD OF RAISING GRADE

NOTES:

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

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

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

7/21/2014

R061214.DGN

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(2) SPECIAL DETAILS

STATE OF ARKANSAS
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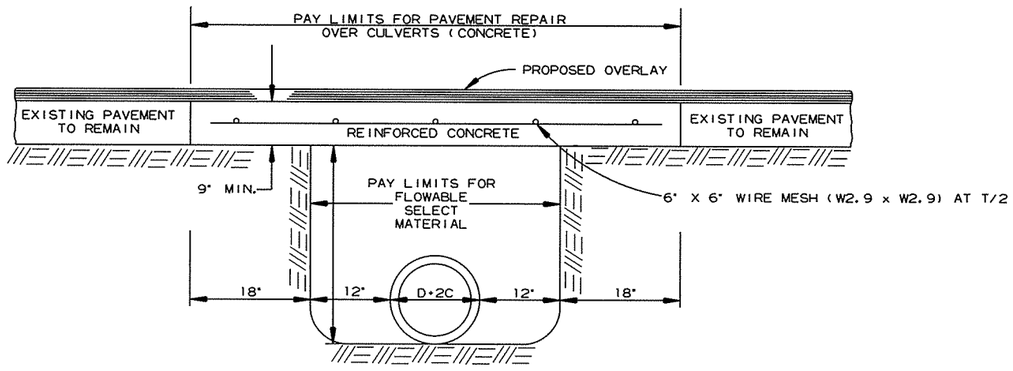
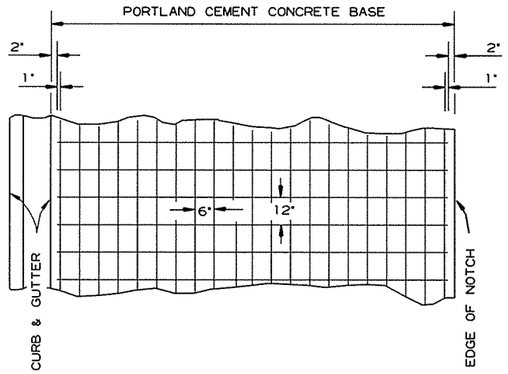


PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

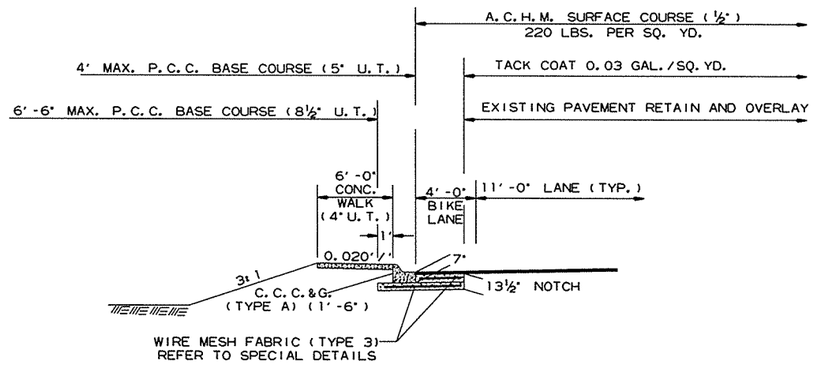


DETAIL OF REINFORCING STEEL FOR CONCRETE BASE (MESH FABRIC TYPE 3)

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 (5" U.T. & 8 1/2" U.T.)



P.C.C. BASE WIDENING DETAIL

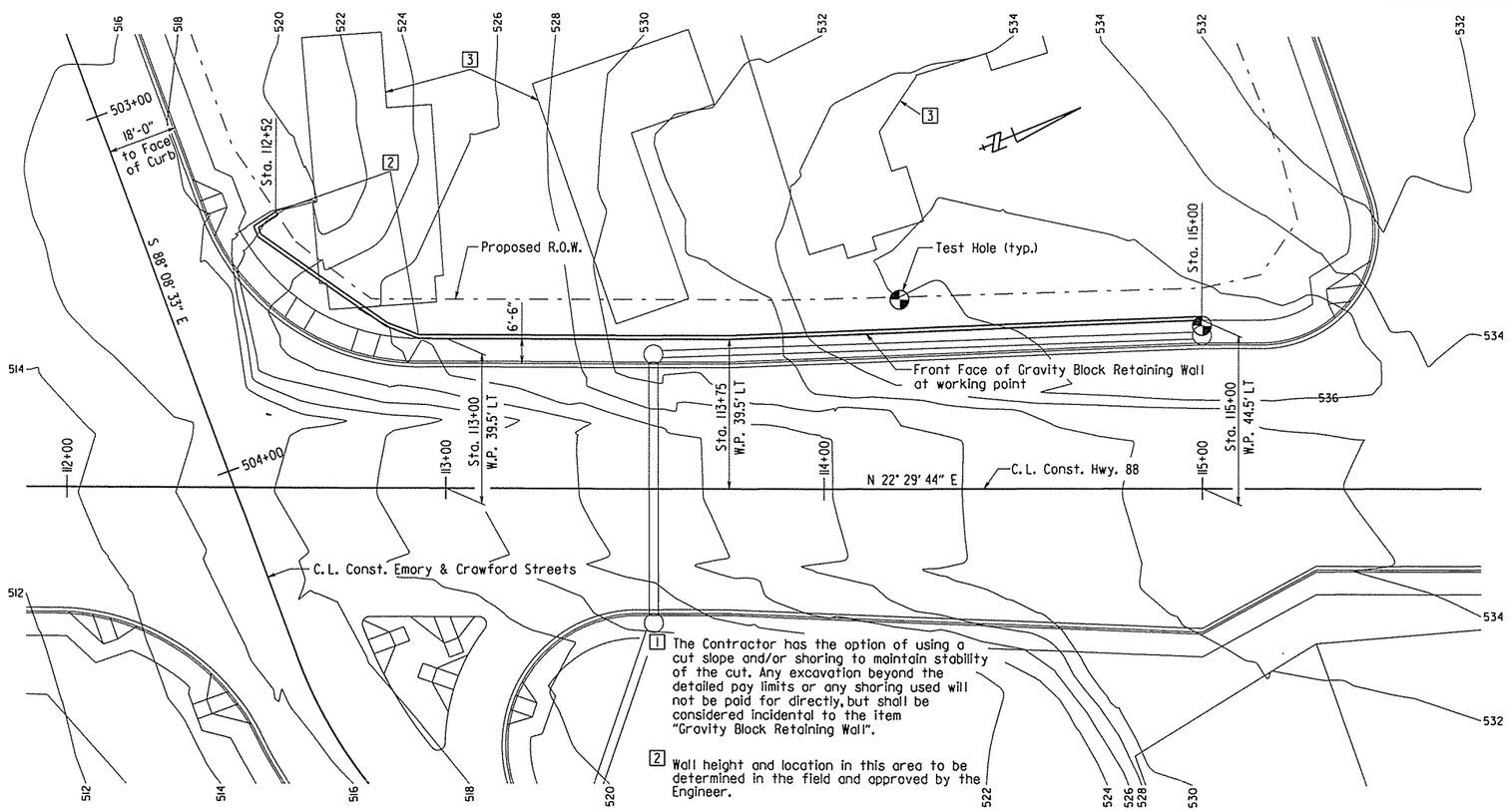
P.C.C. BASE WIDENING TO BE USED AS SHOWN ON THE PLANS.

7/21/2014

R061214.DGN

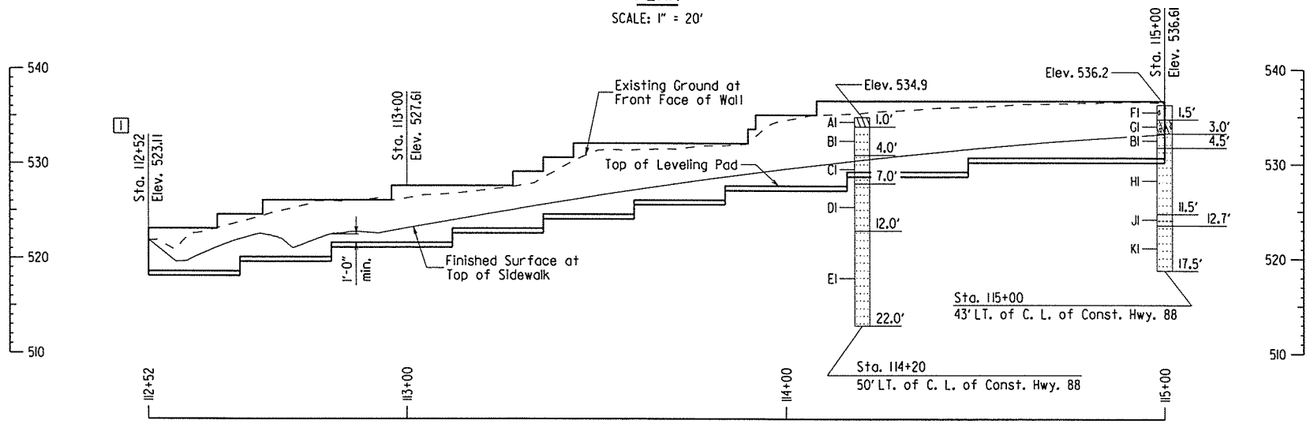
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	8	101

1 SPECIAL DETAILS



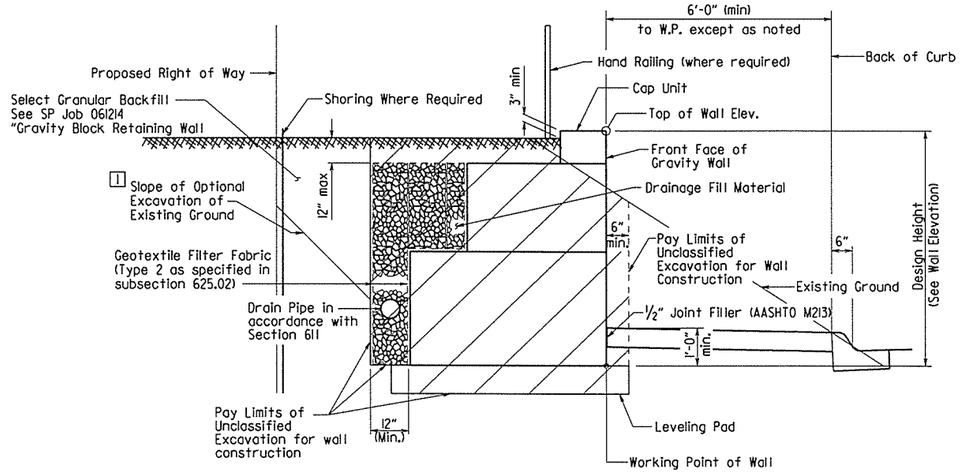
PLAN

SCALE: 1" = 20'



WALL ELEVATION

NO SCALE



TYPICAL GRAVITY BLOCK WALL SECTION (CUT SECTION)

No Scale

BORING LEGEND

A1-Moist, Medium Stiff, Brown Clay with some Organic Matter
B1-SANDSTONE - Light Brown, Poorly-Cemented
C1-SANDSTONE - Light Brown, Thick Bedded, Weathered, Cemented, with Steep Dip and Fractured Layers
D1-SANDSTONE - Reddish Brown and Gray, Thick Bedded, Weathered, Cemented, with Steep Dip and Fractured Layers
E1-SANDSTONE - Light Brown and Gray, Thick Bedded, Weathered, Well-Cemented, with Steep Dip and Fractured Layers
F1-Asphalt Pavement
G1-Moist, Hard, Light Brown to Brown Clay with Sand and Gravel(Sandstone and Asphalt Fragments)
H1-SANDSTONE WITH OCCASIONAL CLAY LAYERS - Light Brown, Medium Bedded, Weathered, Well-Cemented, with Moderate Dip and Fractured Layers
J1-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Steep Dip
K1-SANDSTONE WITH QUARTZ SEAMS - Gray, Very Thick Bedded, Slightly Weathered, Well-Cemented, with Steep Dip

"N" VALUES

Sta. 114+20 - 50' LT. of C. L. of Const.	Sta. 115+00 - 43' LT. of C. L. of Const.
1.0- 1.0, N=60(.01")	2.0- 3.0, N=35
3.0- 3.4, N=60(5")	3.5- 4.2, N=73(9")
4.0- 4.0, N=10(.01")	4.5- 4.5, N=10(.01")

General Notes

Design Specifications: AASHTO LRFD Bridge Design Specifications (2012 Edition) and Special Provision Job 061214 "Gravity Block Retaining Wall".

Seismic Performance Zone: 1

Front face of wall blocks shall be straight. The front face of walls shall have a near vertical alignment.

Cap units shall have a face finish on both sides.

Backfill outside the pay limits of Unclassified Excavation for wall construction shall be select granular backfill. There shall be no direct payment for backfill outside the pay limit area.

The retaining wall, including all drainage fill, block in-fill materials, geotextile fabric, and leveling pad, shall be considered included in the item "Gravity Block Retaining Wall."

Drainage shall be provided behind the wall as specified in SP Job 061214 "Gravity Block Retaining Walls". If pipe underdrains are used for drainage, installation and details shall be in accordance with Std. Dwg. No. PU-1 and Section 611. Work and materials required for pipe underdrains or drainage systems, preformed joint filler and joint sealer shall not be paid for directly, but shall be considered incidental to the item "Gravity Block Retaining Walls".

Details at obstructions and hand rail posts shall be provided by the Wall System Manufacturer. Construction of curb and gutter shall be coordinated with wall construction.

For details of hand railing, see Std. Dwg. SI-1. See Roadway Plans for required locations.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER NO. 7510 CARL D. FUSELIER 3/19/13

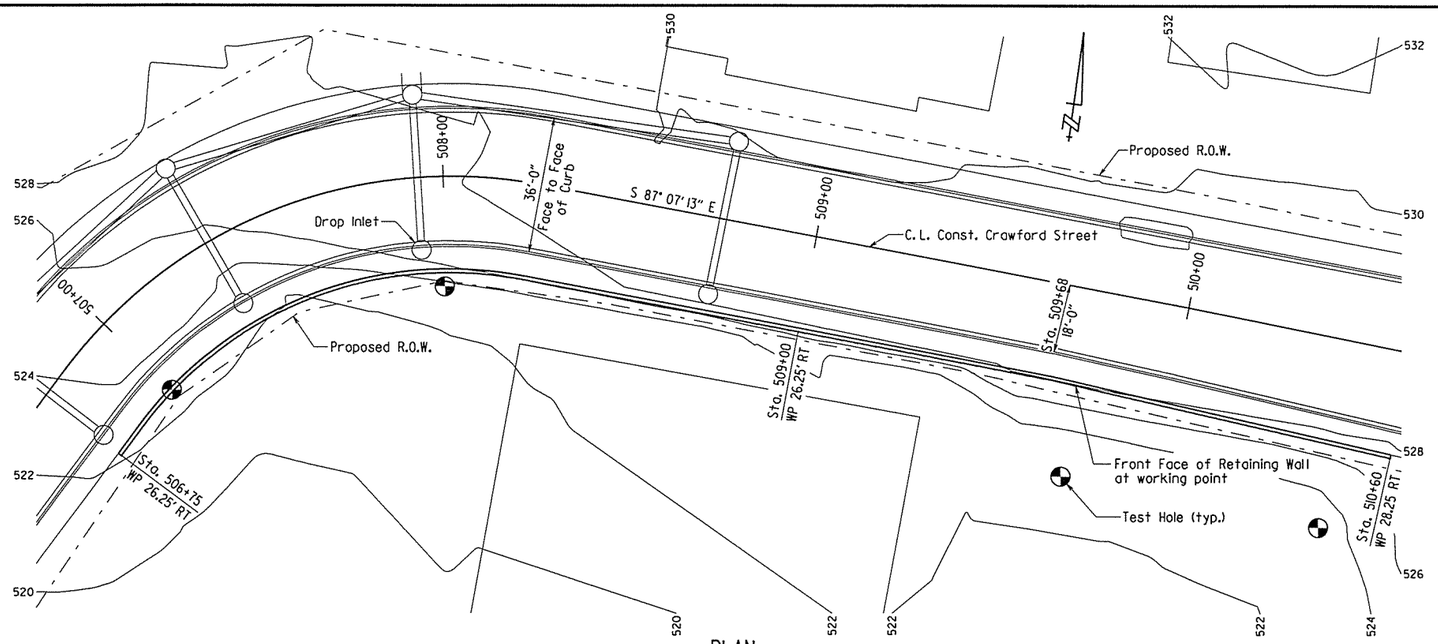
GRAVITY BLOCK RETAINING WALL
STA. 112+52 - 115+00

SPECIAL DETAILS

PRINT DATE: 09-AUG-2013

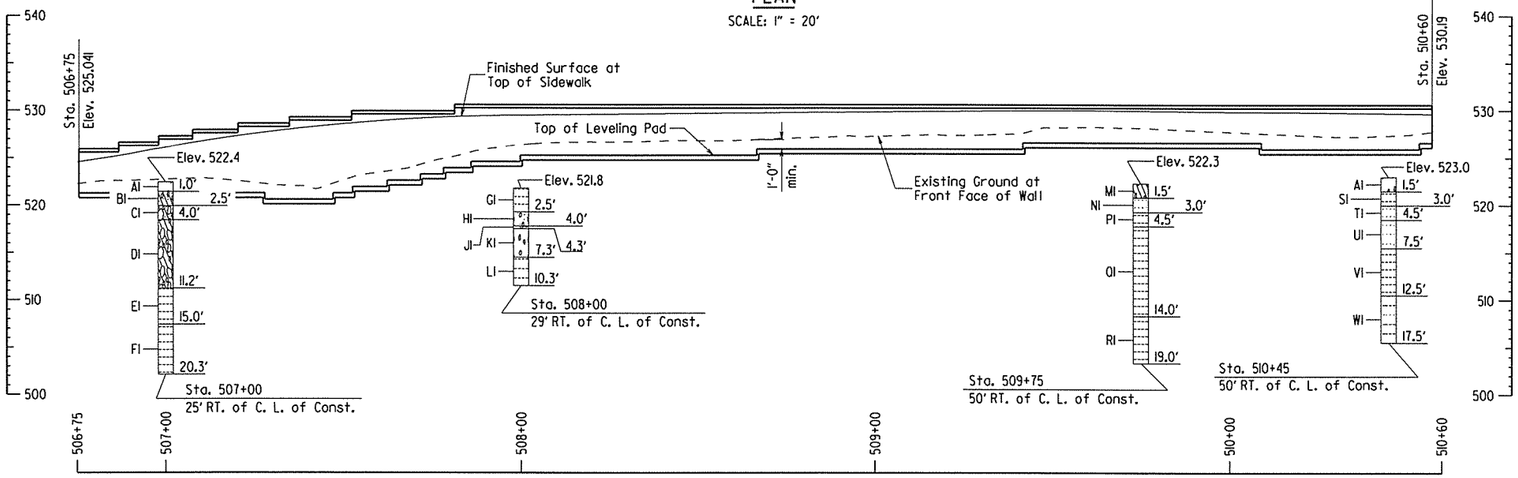
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	9	101

(1) SPECIAL DETAILS



PLAN

SCALE: 1" = 20'



WALL ELEVATION

NO SCALE

BORING LEGEND

A1-Asphalt Pavement
B1-Moist, Medium Stiff, Reddish Brown and Dark Gray Clay with Sand and Gravel (Sandstone and Asphalt Fragments)
C1-Moist, Medium Stiff, Reddish Brown and Dark Gray Clay with Sand, Gravel (Sandstone Fragments) and Cobbles
D1-Moist, Stiff to Very Stiff, Reddish Brown and Gray Clay with Gravel (Sandstone Fragments) and Cobbles
E1-SHALE - Gray, Highly Weathered, Medium Hard
F1-SHALE - Gray, Weathered, Medium Hard
G1-SHALE - Reddish Brown and Dark Gray, Highly Weathered, Soft
H1-Moist, Very Dense, Reddish Brown Sand with Gravel (Sandstone and Quartz Fragments)
J1-Moist, Very Dense, Light Brown Sand with Gravel (Sandstone Fragments) and Cobbles
K1-Sandstone and Quartz Gravel with Trace of Clay
L1-SHALE WITH WEATHERED SHALE AND GRAY AND BROWN FRACTURED SANDSTONE LAYERS - Gray, Laminated, Hard, with Steep Dip
M1-Moist, Hard, Light Brown and Gray Clay with Gravel (Sandstone and Asphalt Fragments)
N1-SANDSTONE - Light Brown and Gray, Poorly-Cemented
P1-SHALE - Dark Gray, Highly Weathered, Medium Hard
Q1-SHALE - Dark Gray, Weathered, Medium Hard
R1-SHALE WITH OCCASIONAL QUARTZ SEAMS AND PYRITE PARTINGS - Dark Gray, Laminated, Slightly Weathered, Hard, with Steep to Vertical Dip a
S1-SHALE WITH SOME BROWN SANDSTONE FRAGMENTS - Gray, Highly Weathered, Soft
T1-SANDSTONE - Light Brown, Poorly-Cemented
U1-SANDSTONE WITHJ SHALE LAYERS - Light Gray, Thick Bedded, Weathered, Cemented, with Moderate Dip and Fractured Layers
V1-SHALE WITH QUARTZ SEAMS - Gray, Laminated, Slightly Weathered, Hard, with Steep Dip and Fractured Layers **
W1-ALTERNATING LAYERS OF SHALE AND SANDSTONE - Dark Gray, Laminated, Slightly Weathered, Hard, with Steep to Vertical Dip (Shale); Gray,

"N" VALUES

Sta. 507+00 - 25' RT. of C. L. of Const.
1.5- 2.5, N=8
3.0- 4.0, N=6
4.5- 5.5, N=13
10.5- 11.5, N=70
15.0- 15.3, N=60(4")
20.0- 20.2, N=60(3")

Sta. 508+00 - 29' RT. of C. L. of Const.
1.5- 2.5, N=13
3.0- 3.3, N=60(4")
4.0- 4.3, N=60(4")

Sta. 509+75 - 50' RT. of C. L. of Const.
2.0- 2.2, N=60(3")
3.5- 3.8, N=60(3")
5.0- 5.0, N=60(6")
9.5- 9.9, N=60(5")
14.0- 14.0, N=10(.01")

Sta. 510+45 - 50' RT. of C. L. of Const.
2.0- 3.0, N=38
3.0- 3.2, N=60(3")

General Notes

Design Specifications: AASHTO LRFD Bridge Design Specifications (2012 Edition) and Special Provision Job 061214 "Modular Block Retaining Walls".

Seismic Performance Zone: 1

Front face of modular block units shall be straight and the front face of wall shall have a near vertical alignment.

Cap units shall have a face finish on both sides and be cemented to wall units with an approved adhesive.

All backfill and drainage fill material placed behind the modular block wall within the reinforcement zone will be paid for as Select Granular Backfill.

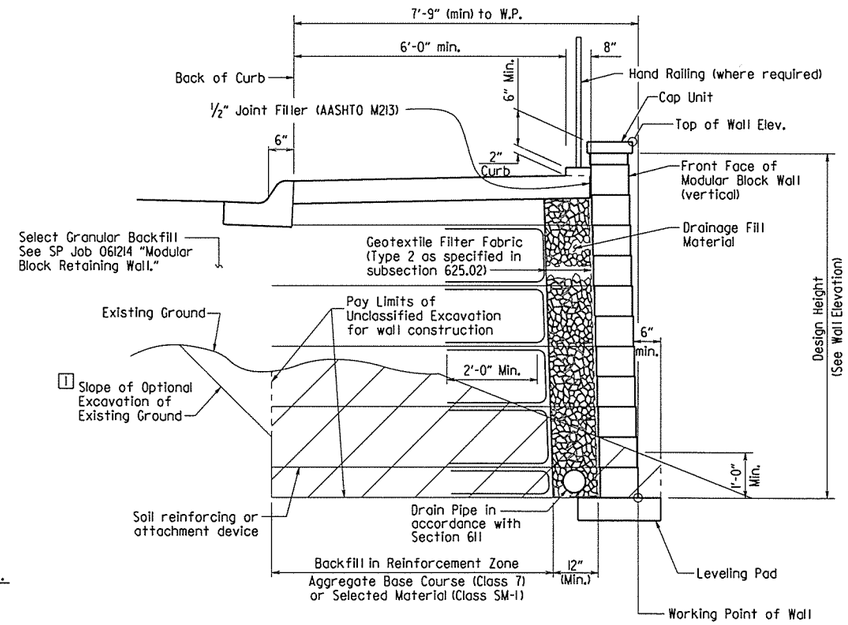
Backfill outside the pay limits of Unclassified Excavation for wall construction shall be select granular backfill and shall be considered included in the item "Modular Block Retaining Wall."

Drainage shall be provided behind the wall as specified in SP Job 061214 "Modular Block Retaining Walls". If pipe underdrains are used for drainage, installation and details shall be in accordance with Std. Dwg. No. PU-1 and Section 611. Work and materials required for pipe underdrains or drainage systems, preformed joint filler and joint sealer shall not be paid for directly, but shall be considered incidental to the item "Modular Block Retaining Wall".

Details of reinforcement at obstructions and for hand railposts shall be provided by the Wall System Manufacturer. Construction of drop inlets shall be coordinated with wall construction.

For details of hand railing, see Std. Dwg. SI-1. See Roadway Plans for required locations.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER
8-9-13



TYPICAL REINFORCED WALL SECTION

(Near Vertical Setback)
No Scale

[1] The Contractor has the option of using a cut slope and/or shoring to maintain stability of the cut. Any excavation beyond the detailed pay limits or any shoring used will not be paid for directly, but shall be considered incidental to the item "Modular Block Retaining Wall."

MODULAR BLOCK RETAINING WALL
STA. 506+75 - 510+60

SPECIAL DETAILS

PRINT DATE: 09-AUG-2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	10	101

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

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

NOTE: RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
8-26-14

STA. 105+85.60
BEGIN JOB 061214
END JOB 061113
LOG MILE 2.30

STA. 116+00.00
END JOB 061214

STA. 500+14-505+72 RT.
SILT FENCE = 58 LIN. FT.

STA. 500+90-502+28 RT.
SILT FENCE = 138 LIN. FT.

STA. 502+54-503+13 RT.
SILT FENCE = 79 LIN. FT.

STA. 114+50-115+12 LT.
SILT FENCE = 116 LIN. FT.

STA. 113+44-114+50 RT.
SILT FENCE = 108 LIN. FT.

STA. 505+39-505+48 LT.
SILT FENCE = 44 LIN. FT.

STA. 106+02-106+39 RT.
SILT FENCE = 37 LIN. FT.

STA. 106+65-108+48 RT.
SILT FENCE = 181 LIN. FT.

STA. 111+00-111+97 RT.
SILT FENCE = 97 LIN. FT.

STA. 504+52-505+81 RT.
SILT FENCE = 201 LIN. FT.

STA. 506+06-506+30 RT.
SILT FENCE = 23 LIN. FT.

STA. 506+67-510+72 RT.
SILT FENCE = 359 LIN. FT.

STAGE ONE TEMPORARY EROSION CONTROL

1. THE CONTRACTOR IS ENCOURAGED TO USE EXISTING STORM DRAINAGE TO REMOVE OFF-SITE RUNOFF UNTIL THE NEW STORM SYSTEM IS OPERATIONAL.

2. INSTALL TEMPORARY EROSION CONTROL ITEMS AS SHOWN ON THE PLANS OR IF AND WHEN INSTRUCTED BY THE ENGINEER. ALL STAGE ONE TEMPORARY EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL PERMANENT EROSION CONTROL ITEMS HAVE BEEN INSTALLED OR IF AND WHERE APPROVED BY THE ENGINEER.

REVISIONS

DATE OF REVISION	REVISION

8/19/2013

R061214.DGN

STAGE I
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	11	101

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

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

NOTE: RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

STATE OF ARKANSAS
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No. 11425
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8-26-14

STA. 105+85-106+11 LT.
SILT FENCE = 28 LIN. FT.

STA. 106+33-108+19 LT.
SILT FENCE = 225 LIN. FT.

STA. 108+99-109+34 LT.
SILT FENCE = 54 LIN. FT.

STA. 110+40-111+57 LT.
SILT FENCE = 129 LIN. FT.

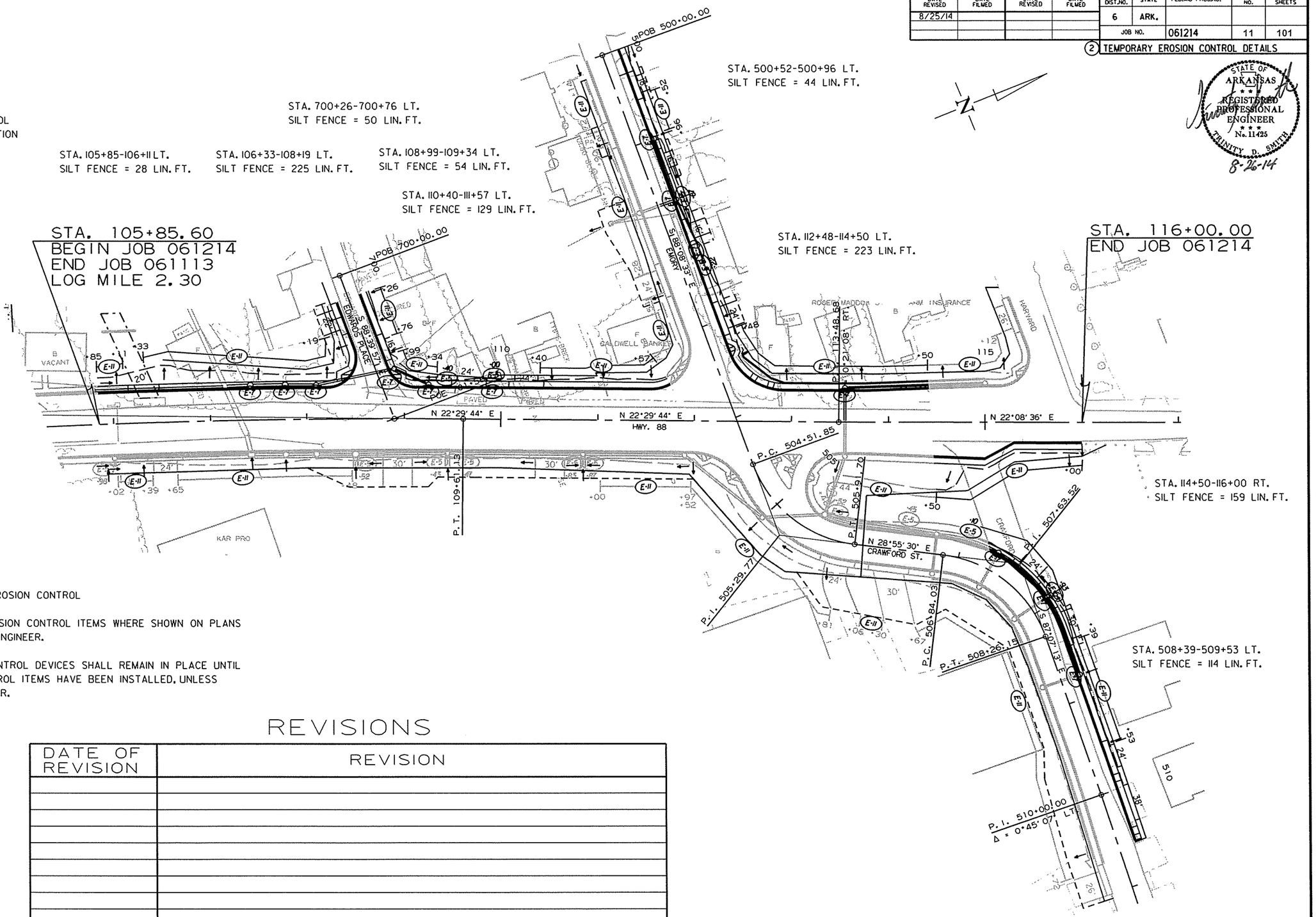
STA. 112+48-114+50 LT.
SILT FENCE = 223 LIN. FT.

STA. 114+50-116+00 RT.
SILT FENCE = 159 LIN. FT.

STA. 508+39-509+53 LT.
SILT FENCE = 114 LIN. FT.

STA. 700+26-700+76 LT.
SILT FENCE = 50 LIN. FT.

STA. 500+52-500+96 LT.
SILT FENCE = 44 LIN. FT.



STAGE TWO TEMPORARY EROSION CONTROL

1. INSTALL TEMPORARY EROSION CONTROL ITEMS WHERE SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

2. TEMPORARY EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL PERMANENT EROSION CONTROL ITEMS HAVE BEEN INSTALLED, UNLESS APPROVED BY THE ENGINEER.

REVISIONS

DATE OF REVISION	REVISION

8/19/2013

R061214.DGN

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	061214		12	101

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14

SEQUENCE OF CONSTRUCTION

STAGE 1:

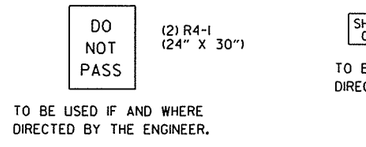
PLACE ALL ADVANCE WARNING SIGNS WHERE SHOWN ON PLANS.
CONSTRUCT LT. SIDE CRAWFORD STA. 504+38.00 TO STA. 507+30.00
CONSTRUCT RT. SIDE CRAWFORD STA. 504+38.00 TO STA. 511+00.00
CONSTRUCT ISLAND AND STA. 113+00.00
NOTCH AND WIDEN RT. SIDE MAIN LANES STA. 105+85.60 TO STA. 114+50.00
NOTCH AND WIDEN LT. SIDE MAIN LANES STA. 114+50.00 TO STA. 116+00.00
NOTCH AND WIDEN RT. SIDE EMORY
NOTCH AND WIDEN RT. SIDE HARVARD
THE CONSTRUCTION OF STAGE 1 AT CRAWFORD SHALL BE A PRIORITY OF THE CONTRACTOR TO MINIMIZE THE TIME OF IMPACT ON LOCAL BUSINESSES.
FROM STA. 505+50 TO STA. 511+00, WHEN THE CONTRACTOR BEGINS STAGE 1 WORK, THERE WILL BE 45 WORKING DAYS TO COMPLETE THE STAGE.
ALL STAGE 1 CONSTRUCTION MUST BE COMPLETED AND NEW TRAFFIC SIGNALS MUST BE OPERATIONAL BEFORE STAGE 2 CONSTRUCTION CAN BEGIN. THE ENGINEER CAN ALLOW STAGE 2 CONSTRUCTION IF CONDITIONS WARRANT.
THE CONTRACTOR SHALL KEEP THE CURRENT SIGNALS AND POLES AT THE INTERSECTION OF EMORY AND HIGDON FERRY IN WORKING CONDITION UNTIL THE NEW SIGNALS ARE IN OPERATION. THE EXISTING POLES AND SIGNALS CANNOT BE REMOVED UNTIL THIS CONDITION IS APPROVED BY THE ENGINEER.

STAGE 2:

ALL ADVANCE WARNING SIGNS FROM STAGE 1 SHALL REMAIN IN PLACE UNLESS DIRECTED BY THE ENGINEER TO MODIFY PLACEMENT.
PLACE STAGE 2 CONSTRUCTION STRIPING AND TRAFFIC CONTROL DEVICES AND REMOVE CONFLICTING STRIPING ON ALL STREETS.
SHIFT TRAFFIC TO CRAWFORD NEW LOCATION
NOTCH AND WIDEN LT. SIDE MAIN LANES STA. 105+85.60 TO STA. 114+50.00
NOTCH AND WIDEN RT. SIDE MAIN LANES STA. 114+50.00 TO STA. 116+00.00
NOTCH AND WIDEN LT. SIDE CRAWFORD STA. 507+30.00 TO STA. 510+00.00
NOTCH AND WIDEN LT. SIDE EMORY

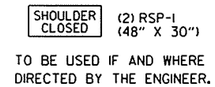
STAGE 3:

REMOVE ALL MAINTENANCE OF TRAFFIC CONTROL DEVICES AND ADVANCE WARNING SIGNS.
FINAL SURFACE COURSE WILL NOT BE PLACED UNTIL ALL AREAS THAT WILL RECEIVE A FINAL SURFACE COURSE ARE READY FOR THE COURSE, UNLESS APPROVED BY THE ENGINEER.
INSTALL PERMANENT PAVEMENT MARKINGS



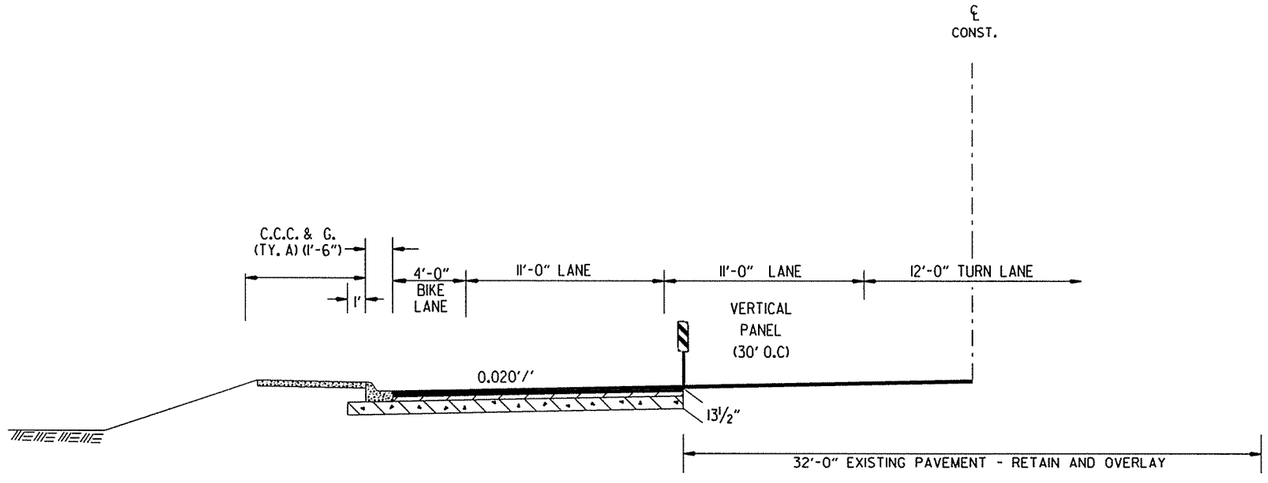
(2) R4-1
(24" X 30")

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.



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

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.



NOTE: TYPICAL SHOWN FOR ONE SIDE. OTHER SIDE IS SIMILAR.

MAINTENANCE OF TRAFFIC - CURB & GUTTER SECTION

NOTE: PLACEMENT OF ADVANCE WARNING SIGNS WILL BE SHOWN ON THE MAINTENANCE OF TRAFFIC PLAN SHEETS FOR EACH STAGE OF CONSTRUCTION.

8/20/2013

R061214.DGN

ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	13	101

(2) MAINTENANCE OF TRAFFIC DETAILS

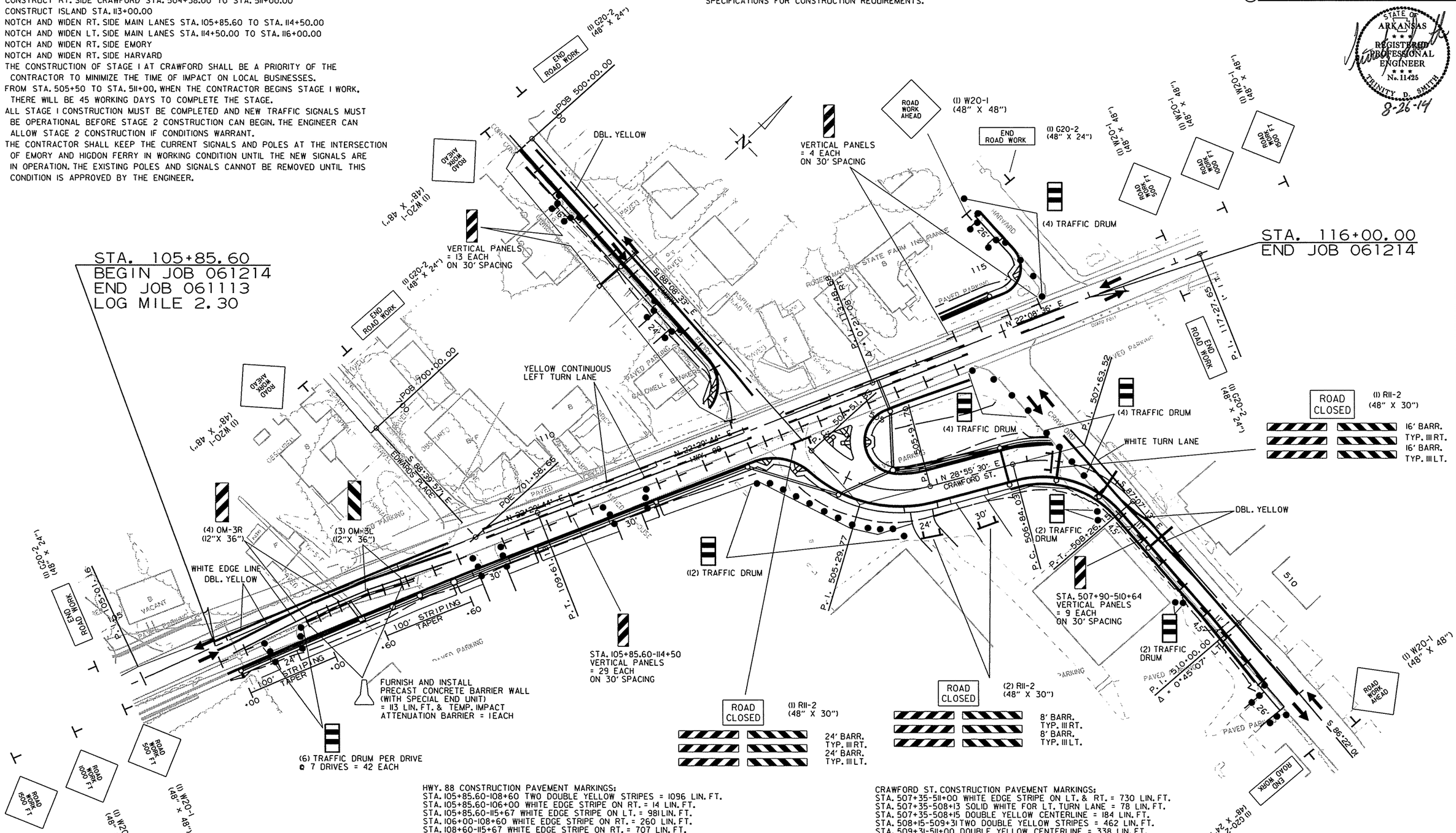
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
8-26-14

STAGE 1:

PLACE ALL ADVANCE WARNING SIGNS WHERE SHOWN ON PLANS.
CONSTRUCT LT. SIDE CRAWFORD STA. 504+38.00 TO STA. 507+30.00
CONSTRUCT RT. SIDE CRAWFORD STA. 504+38.00 TO STA. 511+00.00
CONSTRUCT ISLAND STA. 113+00.00
NOTCH AND WIDEN RT. SIDE MAIN LANES STA. 105+85.60 TO STA. 114+50.00
NOTCH AND WIDEN LT. SIDE MAIN LANES STA. 114+50.00 TO STA. 116+00.00
NOTCH AND WIDEN RT. SIDE EMORY
NOTCH AND WIDEN RT. SIDE HARVARD
THE CONSTRUCTION OF STAGE I AT CRAWFORD SHALL BE A PRIORITY OF THE CONTRACTOR TO MINIMIZE THE TIME OF IMPACT ON LOCAL BUSINESSES.
FROM STA. 505+50 TO STA. 511+00, WHEN THE CONTRACTOR BEGINS STAGE I WORK, THERE WILL BE 45 WORKING DAYS TO COMPLETE THE STAGE.
ALL STAGE I CONSTRUCTION MUST BE COMPLETED AND NEW TRAFFIC SIGNALS MUST BE OPERATIONAL BEFORE STAGE 2 CONSTRUCTION CAN BEGIN. THE ENGINEER CAN ALLOW STAGE 2 CONSTRUCTION IF CONDITIONS WARRANT.
THE CONTRACTOR SHALL KEEP THE CURRENT SIGNALS AND POLES AT THE INTERSECTION OF EMORY AND HIGDON FERRY IN WORKING CONDITION UNTIL THE NEW SIGNALS ARE IN OPERATION. THE EXISTING POLES AND SIGNALS CANNOT BE REMOVED UNTIL THIS CONDITION IS APPROVED BY THE ENGINEER.

EMORY CONSTRUCTION PAVEMENT MARKINGS:
STA. 500+11-503+65 WHITE EDGE STRIPE ON LT. & RT. = 354 LIN. FT.
STA. 500+11-503+65 DOUBLE YELLOW CENTERLINE = 354 LIN. FT.

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



HWY. 88 CONSTRUCTION PAVEMENT MARKINGS:
STA. 105+85.60-108+60 TWO DOUBLE YELLOW STRIPES = 1096 LIN. FT.
STA. 105+85.60-106+00 WHITE EDGE STRIPE ON RT. = 14 LIN. FT.
STA. 105+85.60-115+67 WHITE EDGE STRIPE ON LT. = 981 LIN. FT.
STA. 106+00-108+60 WHITE EDGE STRIPE ON RT. = 260 LIN. FT.
STA. 108+60-115+67 WHITE EDGE STRIPE ON RT. = 707 LIN. FT.
STA. 109+00-112+06 SOLID YELLOW FOR CENTER TURN LANE = 612 LIN. FT.
STA. 109+00-112+06 YELLOW SKIP FOR CENTER TURN LANE = 153 LIN. FT.
STA. 112+49-114+55 SOLID YELLOW FOR CENTER TURN LANE = 412 LIN. FT.
STA. 112+49-114+55 YELLOW SKIP FOR CENTER TURN LANE = 103 LIN. FT.
STA. 115+16-115+67 SOLID YELLOW FOR CENTER TURN LANE = 102 LIN. FT.
STA. 115+16-115+67 YELLOW SKIP FOR CENTER TURN LANE = 26 LIN. FT.

CRAWFORD ST. CONSTRUCTION PAVEMENT MARKINGS:
STA. 507+35-511+00 WHITE EDGE STRIPE ON LT. & RT. = 730 LIN. FT.
STA. 507+35-508+13 SOLID WHITE FOR LT. TURN LANE = 78 LIN. FT.
STA. 507+35-508+15 DOUBLE YELLOW CENTERLINE = 184 LIN. FT.
STA. 508+15-509+31 TWO DOUBLE YELLOW STRIPES = 462 LIN. FT.
STA. 509+31-511+00 DOUBLE YELLOW CENTERLINE = 338 LIN. FT.

8/20/2013

R061214.DGN

STAGE I
MAINTENANCE OF TRAFFIC DETAILS

STAGE 2:

ALL ADVANCE WARNING SIGNS FROM STAGE I SHALL REMAIN IN PLACE UNLESS DIRECTED BY THE ENGINEER TO MODIFY PLACEMENT.
PLACE STAGE 2 CONSTRUCTION STRIPING AND TRAFFIC CONTROL DEVICES AND REMOVE CONFLICTING STRIPING ON ALL STREETS.
SHIFT TRAFFIC TO CRAWFORD NEW LOCATION
NOTCH AND WIDEN LT. SIDE MAIN LANES STA. 105+85.60 TO STA. 114+50.00
NOTCH AND WIDEN RT. SIDE MAIN LANES STA. 114+50.00 TO STA. 116+00.00
NOTCH AND WIDEN LT. SIDE CRAWFORD STA. 507+30.00 TO STA. 510+00.00
NOTCH AND WIDEN LT. SIDE EMORY

EMORY CONSTRUCTION PAVEMENT MARKINGS:
WHITE STOP BAR = 17 LIN. FT.
WHITE CROSS WALK = 70 LIN. FT.

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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	14	101

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
8-26-14

STA. 105+85.60
BEGIN JOB 061214
END JOB 061113
LOG MILE 2.30

STA. 116+00.00
END JOB 061214

(1) G20-2 (48" X 24") END ROAD WORK
POB 500+00.00
STA. 500+00-503+80 VERTICAL PANELS = 13 EACH ON 30' SPACING
(1) W20-1 (48" X 48") ROAD WORK AHEAD
DBL. YELLOW
ROAD CLOSED
(1) R11-2 (48" X 30")
24' BARR. TYP. III RT.
(1) W20-1 (48" X 48") ROAD WORK 500 FT
(1) W20-1 (48" X 48") ROAD WORK 1000 FT
(1) W20-1 (48" X 48") ROAD WORK 1500 FT
(1) G20-2 (48" X 24") END ROAD WORK
POB 700+00.00
STA. 700+25-701+30 VERTICAL PANELS = 8 EACH ON 30' SPACING
(3) TRAFFIC DRUM
(6) TRAFFIC DRUM PER DRIVE @ 13 DRIVES = 78 EACH
STA. 105+85.60-114+50 VERTICAL PANELS = 29 EACH ON 30' SPACING
(1) G20-2 (48" X 24") END ROAD WORK
(1) W20-1 (48" X 48") ROAD WORK 500 FT
WHITE SKIP LINE
YELLOW CONTINUOUS LEFT TURN LANE
WHITE EDGE LINE
WHITE TURN LANE
RIGHT LANE MUST TURN RIGHT
(1) R3-7 RT. (30" X 30")
(8) TRAFFIC DRUM
(5) TRAFFIC DRUM
(12) TRAFFIC DRUM ON 30' SPACING STA. 507+00-510+57
STA. 114+50-116+00 VERTICAL PANELS = 5 EACH ON 30' SPACING
(6) W1-8 (18" X 24")
(1) W1-2L (48" X 48")
(1) W20-1 (48" X 48") ROAD WORK AHEAD
(1) G20-2 (48" X 24") END ROAD WORK
(1) W20-1 (48" X 48") ROAD WORK 500 FT
(1) W20-1 (48" X 48") ROAD WORK 1000 FT
(1) W20-1 (48" X 48") ROAD WORK 1500 FT
(1) W20-1 (48" X 48")
(1) W20-1 (48" X 48") ROAD WORK 500 FT
(1) W20-1 (48" X 48") ROAD WORK 1000 FT
(1) W20-1 (48" X 48") ROAD WORK 1500 FT
ROAD CLOSED
(1) R11-2 (48" X 30")
(1) W1-6 (48" X 24")
32' BARR. TYP. III RT.

HWY. 88 REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS:
STA. 105+85.60-108+60 TWO DOUBLE YELLOW STRIPES = 1096 LIN. FT.
STA. 105+85.60-106+00 WHITE EDGE STRIPE ON RT. = 14 LIN. FT.
STA. 106+00-108+60 WHITE EDGE STRIPE ON RT. = 260 LIN. FT.
STA. 108+60-114+50 WHITE EDGE STRIPE ON RT. = 590 LIN. FT.
STA. 109+00-110+00 SOLID YELLOW FOR CENTER TURN LANE = 200 LIN. FT.
STA. 109+00-110+00 YELLOW SKIP FOR CENTER TURN LANE = 50 LIN. FT.
STA. 112+49-114+00 SOLID YELLOW FOR CENTER TURN LANE = 151 LIN. FT.
STA. 112+49-114+00 YELLOW SKIP FOR CENTER TURN LANE = 38 LIN. FT.

HWY. 88 CONSTRUCTION PAVEMENT MARKINGS:
STA. 105+85.60-108+65 SOLID YELLOW FOR CENTER TURN LANE = 558 LIN. FT.
STA. 105+85.60-108+65 YELLOW SKIP FOR CENTER TURN LANE = 140 LIN. FT.
STA. 105+85.60-110+48 WHITE SKIP LINE = 116 LIN. FT.
STA. 105+85.60-111+98 WHITE EDGE STRIPE ON RT. = 612 LIN. FT.
STA. 110+00-110+50 TWO DOUBLE YELLOW STRIPES = 200 LIN. FT.
STA. 110+48-111+94 TWO WHITE SOLID LANE LINES = 285 LIN. FT.
STA. 110+50-111+87 DOUBLE YELLOW STRIPE = 274 LIN. FT.
STA. 112+99-113+47 DOUBLE YELLOW STRIPE = 96 LIN. FT.
STA. 113+46-114+50 WHITE EDGE LINE ON RT. = 104 LIN. FT.
STA. 113+47-114+00 TWO DOUBLE YELLOW STRIPES = 212 LIN. FT.
STA. 114+50-115+55 WHITE EDGE LINE ON LT. = 168 LIN. FT.
STA. 114+55-115+16 SOLID YELLOW FOR CENTER TURN LANE = 122 LIN. FT.
STA. 114+55-115+16 YELLOW SKIP FOR CENTER TURN LANE = 31 LIN. FT.
FIVE WHITE STOP BARS = 56 LIN. FT.
TWO WHITE CROSS WALKS = 280 LIN. FT.
WORDS = 4 EACH
ARROWS = 4 EACH

CRAWFORD ST. REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS:
STA. 507+35-511+00 WHITE EDGE STRIPE ON LT. & RT. = 730 LIN. FT.
STA. 507+35-508+13 SOLID WHITE FOR LT. TURN LANE = 78 LIN. FT.
STA. 507+35-508+15 DOUBLE YELLOW CENTERLINE = 184 LIN. FT.
STA. 508+15-509+31 TWO DOUBLE YELLOW STRIPES = 462 LIN. FT.
STA. 509+31-511+00 DOUBLE YELLOW CENTERLINE = 338 LIN. FT.

CRAWFORD ST. CONSTRUCTION PAVEMENT MARKINGS:
STA. 504+65-505+80 DOUBLE YELLOW STRIPE = 230 LIN. FT.
STA. 504+66-505+79 SOLID WHITE FOR LT. TURN LANE = 113 LIN. FT.
STA. 505+80-508+11 TWO DOUBLE YELLOW STRIPES = 924 LIN. FT.
STA. 506+32-511+93 WHITE EDGE STRIPE ON LT. = 561 LIN. FT.
STA. 508+11-511+00 DOUBLE YELLOW STRIPE = 578 LIN. FT.
WHITE STRIPE AROUND ISLAND = 191 LIN. FT.
WHITE STOP BAR = 23 LIN. FT.
TWO WHITE CROSS WALKS = 100 LIN. FT.
WORDS = 1 EACH
ARROWS = 1 EACH

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

8/20/2013
R061214.DGN

THERMOPLASTIC PAVEMENT MARKING WHITE (4"):

STA. 105+85.60-108+21 SOLID WHITE EDGE LINE = 235 L.F.
STA. 105+85.60-108+60 WHITE SKIP LANE LINE = 69 L.F.
STA. 105+85.60-111+98 SOLID WHITE EDGE LINE = 612 L.F.
STA. 105+85.60-110+50 WHITE SKIP LANE LINE = 116 L.F.
STA. 109+10-111+82 WHITE SKIP LANE LINE = 68 L.F.
STA. 109+12-111+55 SOLID WHITE EDGE LINE = 243 L.F.
STA. 110+50-111+92 TWO SOLID WHITE LANE LINES = 284 L.F.
STA. 112+80-115+15 SOLID WHITE EDGE LINE = 235 L.F.
STA. 112+89-113+35 TWO SOLID WHITE LANE LINES = 92 L.F.
STA. 113+35-115+55 WHITE SKIP LANE LINE = 55 L.F.

THERMOPLASTIC PAVEMENT MARKING WHITE (8"):

STA. 112+71-113+28 SOLID WHITE AROUND ISLAND = 185 L.F.
STA. 113+50-115+55 SOLID WHITE EDGE LINE = 187 L.F.
STA. 112+71-115+55 SOLID WHITE HATCHING = 367 L.F.

THERMOPLASTIC PAVEMENT MARKING WHITE (12"):

6 STOP BARS = 75 L.F.
2 CROSS WALKS = 330 L.F.

THERMOPLASTIC PAVEMENT MARKING YELLOW (4"):

STA. 105+85.60-110+00 SOLID YELLOW FOR CENTER TURN LANE = 828 L.F.
STA. 105+85.60-110+00 YELLOW SKIP FOR CENTER TURN LANE = 207 L.F.
STA. 110+00-110+50 TWO DOUBLE YELLOW CENTERLINES = 200 L.F.
STA. 110+50-111+86 DOUBLE YELLOW CENTERLINE = 272 L.F.
STA. 113+00-113+89 DOUBLE YELLOW CENTERLINE = 178 L.F.
STA. 113+89-114+00 TWO DOUBLE YELLOW CENTERLINES = 44 L.F.
STA. 114+00-116+00 SOLID YELLOW FOR CENTER TURN LANE = 400 L.F.
STA. 114+00-116+00 YELLOW SKIP FOR CENTER TURN LANE = 100 L.F.

THERMOPLASTIC PAVEMENT MARKING:

WORDS = 4 EACH
ARROWS = 4 EACH
BICYCLE EMBLEMS = 4 EACH

RAISED PAVEMENT MARKERS (TYPE II) (WHITE/RED):

STA. 105+85.60-108+60 WHITE SKIP LANE LINE = 3 EACH
STA. 105+85.60-110+50 WHITE SKIP LANE LINE = 6 EACH
STA. 109+10-111+82 WHITE SKIP LANE LINE = 3 EACH
STA. 110+50-111+92 TWO SOLID WHITE LANE LINES = 4 EACH
STA. 112+89-113+35 TWO SOLID WHITE LANE LINES = 2 EACH
STA. 113+35-115+55 WHITE SKIP LANE LINE = 3 EACH

RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW):

STA. 105+85.60-110+00 CENTER TURN LANE STRIPING = 10 EACH
STA. 110+00-110+50 TWO DOUBLE YELLOW CENTERLINES = 2 EACH
STA. 110+50-111-86 DOUBLE YELLOW CENTERLINE = 2 EACH
STA. 113+00-113+89 DOUBLE YELLOW CENTERLINE = 1 EACH
STA. 113+89-114+00 TWO DOUBLE YELLOW CENTERLINES = 2 EACH
STA. 114+00-116+00 CENTER TURN LANE STRIPING = 6 EACH

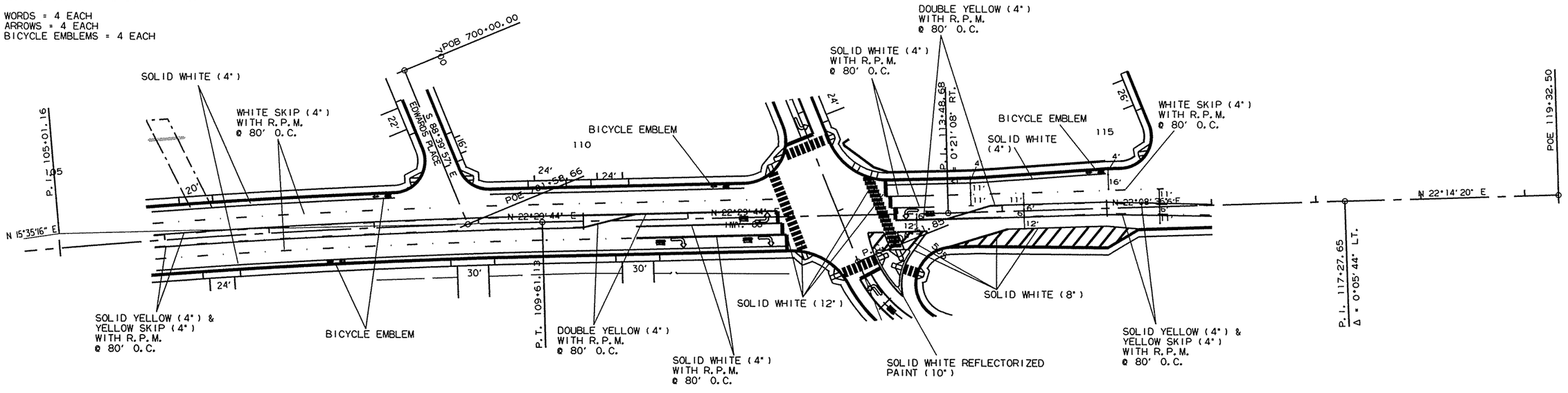
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10"):

STA. 112+78-113+11 SOLID WHITE ON CURB OF ISLAND = 111 L.F.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	15	101

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14



HIGDON FERRY ROAD
PERMANENT PAVEMENT MARKING DETAILS

R061214.DGN 9/18/2012

THERMOPLASTIC PAVEMENT MARKING WHITE (4"):

STA. 499+60-502+00 SOLID WHITE EDGE LINE = 240 L.F.
STA. 499+60-500+69 SOLID WHITE EDGE LINE = 109 L.F.
STA. 502+00-503+23 SOLID WHITE LANE LINE = 123 L.F.
STA. 504+65-505+80 SOLID WHITE LANE LINE = 115 L.F.
STA. 512+50-513+48 SOLID WHITE LANE LINE = 98 L.F.

THERMOPLASTIC PAVEMENT MARKING WHITE (12"):

3 STOP BARS = 81 L.F.
3 CROSS WALKS = 190 L.F.

THERMOPLASTIC PAVEMENT MARKING YELLOW (4"):

STA. 499+60-503+23 DOUBLE YELLOW CENTERLINE = 728 L.F.
STA. 504+65-505+81 DOUBLE YELLOW CENTERLINE = 232 L.F.
STA. 505+81-506+30 TWO DOUBLE YELLOW CENTERLINES = 200 L.F.
STA. 506+30-512+00 SOLID YELLOW FOR CENTER TURN LANE = 1140 L.F.
STA. 506+30-512+00 YELLOW SKIP FOR CENTER TURN LANE = 285 L.F.
STA. 512+00-513+48 DOUBLE YELLOW CENTERLINE = 296 L.F.

THERMOPLASTIC PAVEMENT MARKING:

WORDS = 4 EACH
ARROWS = 4 EACH

RAISED PAVEMENT MARKERS (TYPE II) (WHITE/RED):

STA. 502+00-503+23 SOLID WHITE LANE LINE = 2 EACH
STA. 504+65-505+80 SOLID WHITE LANE LINE = 2 EACH
STA. 512+50-513+48 SOLID WHITE LANE LINE = 2 EACH

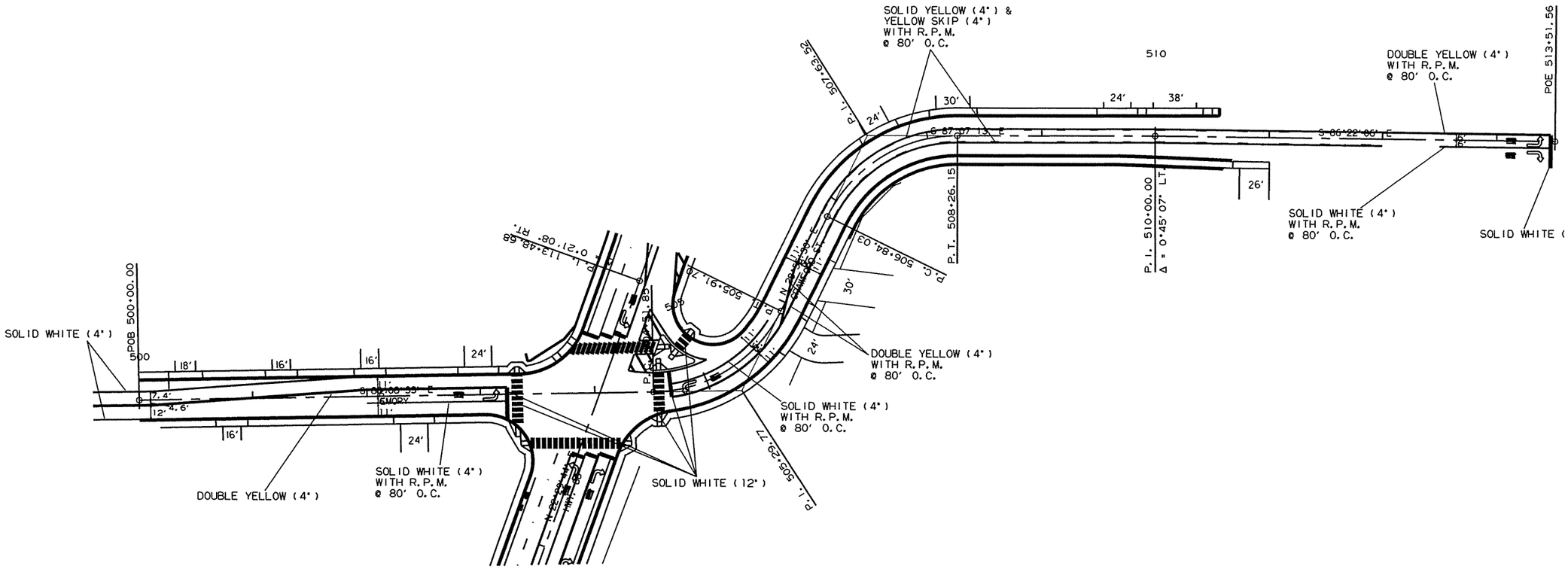
RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW):

STA. 504+65-505+81 DOUBLE YELLOW CENTERLINE = 1 EACH
STA. 505+81-506+30 TWO DOUBLE YELLOW CENTERLINES = 2 EACH
STA. 506+30-512+00 CENTER TURN LANE STRIPING = 14 EACH
STA. 512+00-513+48 DOUBLE YELLOW CENTERLINE = 2 EACH

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	16	101

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14



EMORY - CRAWFORD
PERMANENT PAVEMENT MARKING DETAILS

R061214.DGN 9/18/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	17	101

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURN. & INSTALL PRECAST CONC. BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)
										RIGHT	LEFT			
			LIN.FT. - EACH			NO.	SQ. FT.	EACH		LIN.FT.		LIN. FT.	EACH	EACH
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	32.0							
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	32.0							
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	32.0							
G20-2	END ROAD WORK	48"x24"	6	6	6	6	48.0							
R3-7	RIGHT LANE MUST TURN RIGHT	30"x30"		1	1	1	6.3							
R11-2	ROAD CLOSED	48"x30"	4	2	4	4	40.0							
RSP-1	SHOULDER CLOSED	48"x30"	2	2	2	2	20.0							
OM-3L	OBJECT MARKER	12"x36"	3		3	3	9.0							
OM-3R	OBJECT MARKER	12"x36"	4		4	4	12.0							
W1-2L	LEFT CURVE	48"x48"		1	1	1	16.0							
W1-8	CHEVRON	18"x24"		6	6	6	18.0							
R4-1	DO NOT PASS	24"x30"	2	2	2	2	10.0							
W20-1	ROAD WORK AHEAD	48"x48"	4	4	4	4	64.0							
W1-6	ARROW	48"x24"		1	1	1	8.0							
	VERTICAL PANELS		55	55	55			55						
	TRAFFIC DRUMS		70	106	106				106					
	TYPE III BARRICADE-RT. (8')		2		2					16				
	TYPE III BARRICADE-LT. (8')		2		2						16			
	TYPE III BARRICADE-RT. (16')		1		1					16				
	TYPE III BARRICADE-LT. (16')		1		1						16			
	TYPE III BARRICADE-RT. (24')		1	1	1					24				
	TYPE III BARRICADE-LT. (24')		1		1						24			
	TYPE III BARRICADE-RT. (32')			1	1					32				
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		113		113							113		
	TEMPORARY IMPACT ATTENUATION BARRIER		1		1								1	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		1		1									1
TOTALS:							**347.3**	**55**	**106**	**88**	**56**	**113**	**1**	**1**

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

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

TEMPORARY PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS (WORDS)	CONSTRUCTION PAVEMENT MARKINGS (ARROWS)
	LIN.FT. - EACH		LIN.FT.		EACH	EACH
CONSTRUCTION PAVEMENT MARKINGS	6966	6061		13027		
CONSTRUCTION PAVEMENT MARKINGS (WORDS)		5			5	
CONSTRUCTION PAVEMENT MARKINGS (ARROWS)		5				5
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		4191	4191			
TOTALS:			**4191**	**13027**	**5**	**5**

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

7/21/2014

R061214.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	18	101

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
8-26-14

PERMANENT PAVEMENT MARKINGS

DESCRIPTION	THERMOPLASTIC PAVEMENT MARKINGS							REFLECTORIZED PAINT PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	
	4"		8"	12"	WORDS	ARROWS	BIKE EMBLEM	10"	TYPE II	
	WHITE	YELLOW	WHITE	WHITE				WHITE	WHITE/RED	YELLOW/YELLOW
	LIN.FT.				EACH			LIN.FT.	EACH	
THERMOPLASTIC PAVEMENT MARKINGS WHITE (4")	2694									
THERMOPLASTIC PAVEMENT MARKINGS YELLOW (4")		5110								
THERMOPLASTIC PAVEMENT MARKINGS WHITE (8")			739							
THERMOPLASTIC PAVEMENT MARKINGS WHITE (12")				676						
THERMOPLASTIC PAVEMENT MARKINGS (WORDS)					8					
THERMOPLASTIC PAVEMENT MARKINGS (ARROWS)						8				
THERMOPLASTIC PAVEMENT MARKINGS (BIKE EMBLEM)							4			
REFLECTORIZED PAINT PAVEMENT MARKINGS WHITE (10")								111		
RAISED PAVEMENT MARKERS (TYPE II) (WHITE/RED)									27	
RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW)										42
TOTALS:	2694	5110	739	676	8	8	4	111	27	42

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
105+86	111+00	MAIN LANES LT. & RT.	6	6
112+00	114+00	MAIN LANES LT. & RT.	2	2
500+00	503+00	EMORY ST.	3	3
TOTALS:			11	11

REMOVAL AND DISPOSAL ITEMS

STATION	STATION	LOCATION	CURB	CURB AND GUTTER	CONCRETE PAVEMENT	CONCRETE ISLANDS	CONCRETE DRIVEWAYS	WALKS	STEPS	SIGNS	ROCK RIPRAP	RETAINING WALL
			LIN.FT.	LIN. FT.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	EACH	SQ. YD.	LIN. FT.
HWY. 88												
105+90	107+43	CURB & GUTTER ON LT.		153								
105+90	112+18	CURB & GUTTER ON RT.		628								
106+53		DRIVE ON RT.					23					
106+90		DRIVE ON LT.					13					
108+37		SIGN ON RT.								1		
108+60	108+63	WALK ON RT.						45				
108+95		DRIVE ON RT.					41					
109+07	109+60	WALK ON RT.						31				
109+65		DRIVE ON LT.					178					
109+79		SIGN ON RT.								1		
110+27		DRIVE ON LT.					59					
111+73	111+73	CONCRETE ISLAND ON RT.				3						
111+75		SIGN ON LT.								1		
112+40	113+60	ROCK RIPRAP ON LT.									163	
112+57	114+72	CURB & GUTTER ON RT.		215								
112+83	112+88	WALK AND STEPS ON LT.						23	5			
113+11		SIGN ON LT.								1		
113+67		DRIVE ON LT.					39					
113+86		SIGN ON RT.								1		
114+06	115+21	ROCK RIPRAP ON LT.									103	
114+07	115+60	CURB & GUTTER ON LT.		153	153							
114+07	115+60	WALK ON LT.										
115+37		SIGN ON LT.								1		
EMORY/CRAWFORD												
500+42		DRIVE ON LT.					47					
500+70	501+81	CURB ON RT.	89									
500+85		DRIVE ON RT.					16					
501+24		DRIVE ON LT.					27					
501+63		DRIVE ON RT.					29					
502+03		DRIVE ON LT.					30					
502+65		RETAINING WALL										20
502+70		CURB ON LT.	18									
507+43	507+56	CONCRETE ISLAND ON LT.				12						
510+50	510+75	ROCK RIPRAP ON RT.									44	
507+72	508+09	CONCRETE ISLAND ON LT.				32						
508+38	508+57	CONCRETE ISLAND ON LT.				13						
508+55	508+55	WALK ON LT.						10				
509+16	509+16	WALK ON LT.						4				
509+81		SIGN ON LT.								1		
EDWARDS PLACE												
700+98		DRIVE ON LT.					27					
TOTALS:			107	1149	153	60	529	113	5	7	310	20

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
109+01	109+54	HWY. 88 LT. - PRIVACY FENCE	77
110+34	111+02	HWY. 88 LT. - FENCE	84
TOTAL:			161

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS	JUNCTION BOXES	DROP INLETS
		EACH	EACH	EACH
105+80	24" x 25' R.C. PIPE CULV'T ON LT.	1		
106+04	DROP INLET & OUTLET PIPE ON LT.	1		1
106+04	DROP INLET & 24" OUTLET PIPE ON RT.	1		1
106+52	24" X 133' R.C.STORM DRAIN ON LT.	1		
107+36	30" X 14' R.C. SIDE DRAIN ON LT.	1		
107+42	48" X 21' R.C. STORM DRAIN ON RT.	1		
107+77	30" X 75' R.C. STORM DRAIN ON RT.	1		
107+79	36" X 46' R.C. SIDE DRAIN ON LT.	1		
108+86	18" X 50' R.C. SIDE DRAIN ON LT.	1		
108+94	JUNCTION BOX & 30" X 38' OUTLET PIPE ON LT.	1	1	
109+60	18" X 200' R.C. SIDE DRAIN ON LT.	1		
111+04	12" X 51' PLASTIC DRAIN ON LT.	1		
112+21	18" X 63' R.C. SIDE DRAIN ON LT.	1		
501+19	18" X 26' R.C. SIDE DRAIN ON LT.	1		
501+67	JUNCTION BOX ON RT.		1	
501+81	DROP INLET & 12" X 68' OUTLET PIPE ON LT.	1		1
501+99	14" X 33' R.C. SIDE DRAIN ON LT.	1		
701+10	JUNCTION BOX & INLET PIPE & 24" OUTLET PIPE ON LT.	2	1	
TOTALS:		18	3	3

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

8/25/2014

R061214.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	19	101

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.		TON
105+85.60	116+00	HWY. 88	2119	1433	
500+00	503+69	EMORY	183	176	
504+40	511+00	CRAWFORD ST.	366	619	
700+25	701+23	EDWARDS PLACE	11	65	
115+80		HARVARD		140	
ENTIRE	PROJECT	DRIVEWAYS	55	295	
* ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			100
TOTALS:			2734	2728	100

* QUANTITY ESTIMATED. SEE SECTION 104.03 OF THE STD. SPECS.
NOTE: EARTHWORK QUANTITIES SHOWN ABOVE SHALL BE PAID AS PLAN QUANTITY.

SOIL LOG

STATION	LOCATION	DEPTH FEET	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
99+00	12' LT.	5	31	16	A-6 (7)	BROWN
106+95	12' RT.	5	28	12	A-6 (3)	BROWN
114+95	5' LT.	5	32	14	A-6 (10)	BROWN

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL		TEMPORARY EROSION CONTROL								
			SOLID SODDING	WATER	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	DROP INLET SILT FENCE (E-7)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			SQ.YD.	M.GAL.	ACRE	ACRE	M.GAL.	BAG	LIN.FT.	LIN.FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	STAGE 1						176	450	1441			246
ENTIRE	PROJECT	STAGE 2						132	300	1026			181
ENTIRE	PROJECT		2266.0	28.6									
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.					5.00	5.00	102.0	66	100	250	50	50	129
TOTALS:			2266.0	28.6	5.00	5.00	102.0	374	850	2717	50	50	556

BASIS OF ESTIMATE:
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

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

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH LIN. FT.	CLASS 3 SQ. YD.
105+86	106+00	HWY. 88 ON RT.	14.0	12.4
108+50	111+00	HWY. 88 ON RT.	250.0	222.2
108+95	110+00	HWY. 88 ON LT.	105.0	93.3
505+50	507+00	CRAWFORD ST. ON LT.	150.0	133.3
* ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	100.0	88.9
TOTAL:				550.1

NOTE: AVERAGE WIDTH = 8'-0"

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

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	
ENTIRE PROJECT	11	11
TOTALS:	11	11

4" PIPE UNDERDRAIN

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

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

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

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	(TYPE A) (1' 6") LIN. FT.
105+90	112+51	RT. SIDE HIGDON FERRY	674
105+90	111+92	LT. SIDE HIGDON FERY	642
112+92	115+24	LT. SIDE HIGDON FERRY/RT.HARVARD ST.	408
113+51	116+00	RT. SIDE HIGDON FERRY	250
500+26	503+35	LT. SIDE EMORY/CRAWFORD	309
500+67	503+05	RT. SIDE EMORY/CRAWFORD	238
504+66	510+69	RT. SIDE EMORY/CRAWFORD	603
505+55	113+51	TURN RAMP INSIDE CURB	96
505+55	510+00	LT. SIDE EMORY/CRAWFORD	448
TOTAL:			3668

7/21/2014

R061214.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	20	101

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
8-26-14

PAVEMENT REPAIR AT CROSS DRAIN

STATION	CROSS DRAIN DIAMETER	TRENCH DEPTH	LENGTH	FLOWABLE SELECT MATERIAL	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)
	INCHES	FEET	FEET	CU. YD.	
113+55	24	4.4	32.0	18	5.3
501+67	24	3.8	27.0	12	4.5
507+93	18	2.9	32.0	9	4.7
508+75	18	3.3	27.0	10	3.9
TOTALS:				49	18.4

AVERAGE PAVEMENT REPAIR DEPTH = 12"

SELECTED PIPE BEDDING

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

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

R.C. BOX CULVERTS

STATION	DESCRIPTION	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	STD. DWG. NOS.
		LIN. FT.			CU.YD.	POUND	CU.YD.	
107+03	EXTEND BOX CULVERT RT.	4	4	18	7.21	948	3	RCB-1, RCB-2, RCB-3, R-100X-0
TOTALS:					7.21	948	3	

STRUCTURES

	STATION	SIDE	DESCRIPTION	DROP INLETS (TYPE MO)	JUNCTION BOXES (TYPE E)	DROP INLET EXTENSIONS 4'	DROP INLET EXTENSIONS 8'	REINFORCED CONCRETE PIPE CULVERTS (CLASS III) 18"	(CLASS IV) 24"	(CLASS V) 18"	SIDE DRAINS 12"	ALTERNATE PIPE CULVERTS 18"	24"	30"	FLARED END SECTIONS 18"	YARD DRAINS	SOLID SODDING	WATER	STANDARD DRAWINGS
				EACH	EACH	EACH		LIN. FT.							EACH	EACH	SQ. YD.	M. GAL.	
	105+80	LT.	EXISTING DI WITH PIPE OUTLET										128						PCC, PCM-1
	106+00	RT.	CONST DI W/ 8' EXTENSION & R.C. PIPE INLET W/ F.E.S. & PIPE OUTLET	1			1	2				136			1		5.00	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1, PCM-1
	107+42	LT.	CONST DI W/ 8' EXTENSION & PIPE OUTLET	1			1							22					FPC-9E, FPC-9M, PCC-1, PCM-1
	107+42	RT.	CONST DI TO EXISTING R.C. STORM DRAIN W/ 8' EXT. & R.C. PIPE OUTLET TO R.C. BOX	1			1												FPC-9E, FPC-9M
	107+78	LT.	CONST DI W/ 8' EXTENSION & PIPE OUTLET	1			1							31					FPC-9E, FPC-9M, PCC-1, PCM-1
	107+78	RT.	CONST DI W/ 8' EXTENSION & PIPE OUTLET	1			1							30					FPC-9E, FPC-9M, PCC-1, PCM-1
	108+10	LT.	CONST DI W/ 8' EXTENSION & PIPE OUTLET	1			1						28						FPC-9E, FPC-9M, PCC-1, PCM-1
	108+10	RT.	CONST DI W/ 8' EXTENSION & PIPE OUTLET	1			1							27					FPC-9E, FPC-9M, PCC-1, PCM-1
	108+50	RT.	CONST DI W/PIPE OUTLET	1									35						FPC-9E, FPC-9M, PCC-1, PCM-1
	109+25	LT.	CONST DI W/ 8' EXTENSION & R.C. PIPE OUTLET	1			1					35							FPC-9E, FPC-9M, PCC-1, PCM-1
	109+45	RT.	CONST DI W/ 8' EXTENSION W/ BACK OPENING & PIPE OUTLET	1			1						91						FPC-9E, FPC-9M, PCC-1, PCM-1
	110+85	RT.	CONST DI W/ 8' EXTENSION & PIPE OUTLET	1			1						136						FPC-9E, FPC-9M, PCC-1, PCM-1
	111+90	RT.	CONST DI W/ 8' EXTENSION & PIPE OUTLET	1			1						101						FPC-9E, FPC-9M, PCC-1, PCM-1
	113+55	LT.	CONST DI W/ 8' EXTENSION & R.C. CROSS DRAIN PIPE OUTLET	1			1		67										FPC-9E, FPC-9M, PCC-1
	113+55	RT.	CONST DI W/ 8' EXTENSION & PIPE OUTLET	1			1						59						FPC-9E, FPC-9M, PCC-1, PCM-1
	115+00	LT.	CONST DI W/ 4' EXTENSION & PIPE OUTLET	1		1						141							FPC-9E, FPC-9M, PCC-1, PCM-1
	501+00	LT.	CONST DI W/ 4' EXTENSION & PIPE OUTLET	1		1						63							FPC-9E, FPC-9M, PCC-1, PCM-1
	501+67	LT.	CONST DI W/ 4' EXTENSION & BACK SLOT OPENING & PIPE OUTLET	1		1						37							FPC-9E, FPC-9M, PCC-1
	501+67	RT.	CONST DI W/ 4' EXTENSION & PIPE OUTLET	1		1						28							FPC-9E, FPC-9M, PCC-1, PCM-1
	501+67	RT.	CONST JUNCTION BOX W/ EXIST. PIPE OUTLET		1												4.44	0.06	FPC-9
	502+20	LT.	CONST YARD DRAIN W/ PIPE OUTLET								50					1			FPC-9, PCC-1, PCM-1
	505+00	RT.	CONST DI W/ 4' EXTENSION & PIPE OUTLET	1		1							99						FPC-9E, FPC-9M, PCC-1, PCM-1
	505+50	LT.	CONST DI W/ 8' EXTENSION & R.C. CROSS DRAIN PIPE OUTLET	1			1		60										FPC-9E, FPC-9M, PCC-1
	506+75	LT.	CONST DI W/ 4' EXT & PIPE OUTLET	1		1							113						FPC-9E, FPC-9M, PCC-1, PCM-1
	506+75	RT.	CONST DI W/ R.C. CROSS DRAIN PIPE OUTLET	1						37									FPC-9E, FPC-9M, PCC-1
	507+34	LT.	CONST DI W/ PIPE OUTLET	1									63						FPC-9E, FPC-9M, PCC-1, PCM-1
	507+34	RT.	CONST DI W/ R.C. CROSS DRAIN PIPE OUTLET	1						37									FPC-9E, FPC-9M, PCC-1
	507+93	LT.	CONST DI W/ BACK INLET SLOT & PIPE OUTLET	1								64							FPC-9E, FPC-9M, PCC-1, PCM-1
	507+93	RT.	CONST DI W/ R.C. CROSS DRAIN PIPE OUTLET	1						37									FPC-9E, FPC-9M, PCC-1
	508+75	LT.	CONST DI W/ 4' EXTENSION W/ OPENING IN BACK & PIPE OUTLET	1		1						83							FPC-9E, FPC-9M, PCC-1, PCM-1
	508+75	RT.	CONST DI W/ 4' EXTENSION & R.C. CROSS DRAIN PIPE OUTLET	1		1				37									FPC-9E, FPC-9M, PCC-1
	701+09	LT.	CONST JUNCTION BOX W/ PIPE OUTLET & EXIST. PIPE INLET		1								78						FPC-9, PCC-1, PCM-1
*	ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER								100					2			
	TOTALS:			28	2	8	14	2	127	148	150	587	931	110	1	3	9.44	0.12	

FOR ALL C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.
FOR ALL R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
* NOTE: QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

8/26/2014

R061214.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	21	101

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-24-14

RETAINING WALL

STATION	STATION	LOCATION	UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	SELECT GRANULAR BACKFILL	MODULAR BLOCK RETAINING WALL	GRAVITY BLOCK RETAINING WALL	HAND RAILING
			CU. YD.	CU.YD.	SQ. FT.	SQ. FT.	LIN. FT.
112+52	115+00	HWY. 88	555			1635	249
506+75	510+60	CRAWFORD ST.	360	570	2320		385
TOTALS :			915	570	2320	1635	634

WHEELCHAIR RAMPS

STATION	SIDE	RAMP (TYPE 1) SQ.YD.	RAMP (TYPE 4) SQ.YD.	RAMP (TYPE 6) SQ. YD.
108+40	LT.		21	
108+95	LT.		21	
111+80	LT.	35		
112+10	RT.		20	
112+40	RT.		19	
112+40	LT.		18	
112+50	LT.			18
112+84	RT.		8	
113+00	RT.		8	
113+01	RT.		9	
113+25	RT.		16	
115+35	LT.		20	
510+52	LT.		4	
TOTALS:		35	164	18

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

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

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

ACHM PATCHING OF EXISTING ROADWAY

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

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

CONCRETE WALKS AND ISLANDS

STATION	STATION	DESCRIPTION	CONCRETE WALKS SQ. YDS.	CONCRETE ISLAND SQ. YDS.
105+90	106+16	HIGDON FERRY LT.	17.3	
105+90	106+34	HIGDON FERRY RT.	29.3	
106+48	108+31	HIGDON FERRY LT.	122.0	
106+70	108+72	HIGDON FERRY RT.	134.7	
701+00	109+49	EDWARDS PLACE LT. & HIGDON FERRY RT.	26.0	
109+12	110+30	HIGDON FERRY RT.	78.7	
109+84	110+08	HIGDON FERRY LT.	16.0	
110+44	111+71	HIGDON FERRY LT.	84.7	
110+72	112+00	HIGDON FERRY RT.	85.3	
112+18	112+60	HIGDON FERRY RT.	28.0	
112+93	115+38	HIGDON FERRY TO DRIVE ON HARVARD LT.	191.0	
113+27	116+00	HIGDON FERRY RT.	187.7	
500+00	500+26	EMORY LT.	17.3	
500+00	500+67	EMORY RT.	44.7	
500+56	501+12	EMORY LT.	37.3	
500+95	502+23	EMORY RT.	85.3	
501+40	501+89	EMORY LT.	32.7	
502+17	502+81	EMORY LT.	42.7	
502+59	503+38	EMORY RT.	56.9	
503+17	503+85	EMORY LT.	62.1	
504+26	505+62	CRAWFORD RT.	118.0	
505+06	507+48	CRAWFORD LT.	167.7	
505+94	506+09	CRAWFORD RT.	10.0	
506+51	510+68	CRAWFORD RT.	278.0	
507+80	508+04	CRAWFORD LT.	16.0	
508+43	509+48	CRAWFORD LT.	70.0	
509+84	509+97	CRAWFORD LT.	8.7	
700+25	700+72	EDWARDS PLACE LT.	31.3	
700+59	700+98	EDWARDS PLACE RT.	42.8	
ISLAND ON N.E. CORNER, HIGDON FERRY AT EMORY/CRAWFORD				71
TOTALS:			2122.2	71

NOTE: CONCRETE ISLAND THICKNESS IS 8" U. T.
USE TYPE C CURB FACE ON ISLAND. REFER TO STD. DRAWING DR-1.

DRIVEWAYS & TURNOUTS

STATION	SIDE	WIDTH FEET	** MODIFIED CURB STATION	** MODIFIED CURB STATION	P. C. CONCRETE DRIVEWAY TURNOUTS SQ. YD.	P. C. CONCRETE DRIVEWAY EXTENSIONS SQ. YD.	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22) EXTENSIONS SQ. YD.	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22) EXTENSIONS TON	AGGREGATE BASE COURSE (CLASS 7) TON
HWY. 88									
106+09	LT	20	105+85	106+33	23.10				
106+52	RT	24	106+26	106+78	26.00	32.40			
108+93	RT	30	108+64	109+22	29.80		102.60	11.29	41.89
109+67	LT	24	109+41	109+93	26.00		11.70	1.29	4.78
110+26	LT	24	110+00	110+52	26.00	17.00			
110+51	RT	30	110+22	110+80	29.80	68.80			
EMORY / CRAWFORD									
500+41	LT	18	500+18	500+64	21.70	18.80			
500+81	RT	16	500+59	501+03	20.20	22.20			
501+26	LT	16	501+04	501+48	20.20	16.90			
502+03	LT	16	501+81	502+25	20.20	31.00			
502+41	RT	24	502+15	502+67	26.00		68.00	7.48	27.76
502+99	LT	24	502+73	503+25	26.00		49.30	5.42	20.13
505+80	RT	24	505+54	506+06	26.00		131.10	14.42	53.53
506+29	RT	30	506+00	506+58	29.80		174.00	19.14	71.04
507+66	LT	24	507+40	507+92	26.00		35.60	3.92	14.54
508+25	LT	30	507+96	508+54	29.80		36.70	4.04	14.98
509+66	LT	24	509+40	509+92	26.00		14.50	1.60	5.92
510+17	LT	38	509+84	510+50	24.90		22.40	2.46	9.15
510+87	RT	26	510+60	511+14	21.40		79.40	8.73	32.42
EDWARDS PLACE									
700+42	RT	22	700+17	700+67	22.70		44.30	4.87	18.09
700+86	LT	16	700+64	701+08	20.20		10.60	1.17	4.33
HARVARD									
115+30	RT	26	115+03	115+57	21.40		30.90	3.40	12.62
* ENTIRE PROJECT FOR TEMPORARY DRIVES									200.00
TOTALS:					543.20	207.10	811.10	89.23	531.18

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

** FOR INFORMATION ONLY

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

7/21/2014

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	22	101

(2) QUANTITIES

CONCRETE BASE

STATION	STATION	LOCATION	LENGTH	PORTLAND CEMENT CONCRETE BASE		
				AVG. WID.	5" U.T.	8.5" U.T.
			FEET	FEET	SQ. YD.	SQ. YD.
115+23.53	115+30.00	HWY. 88 - IN FRONT OF CURB ON RT.	6.47	2.20	1.58	
115+23.53	115+30.00	HWY. 88 - UNDER CURB ON RT.	6.47	4.70		3.38
115+30.00	116+00.00	HWY. 88 - IN FRONT OF CURB ON RT.	70.00	0.50	3.89	
115+30.00	116+00.00	HWY. 88 - UNDER CURB ON RT.	70.00	3.00		23.33
500+00.00	503+04.60	EMORY - UNDER CURB ON RT.	304.60	2.50		84.61
503+04.60	503+91.54	EMORY - IN FRONT OF CURB ON RT.	86.94	VAR.	27.53	
503+04.60	503+91.54	EMORY - UNDER CURB ON RT.	86.94	VAR.		48.81
507+29.03	507+72.44	CRAWFORD ST. - UNDER CURB ON LT.	43.41	2.50		12.06
507+72.44	508+06.41	CRAWFORD ST. - IN FRONT OF CURB ON LT. & RT.	33.97	VAR.	6.58	
507+72.44	508+06.41	CRAWFORD ST. - UNDER CURB ON LT. & RT.	33.97	VAR.		25.45
508+06.41	510+23.31	CRAWFORD ST. - UNDER CURB ON RT.	216.90	2.50		60.25
510+23.31	510+57.00	CRAWFORD ST. - IN FRONT OF CURB ON LT.	33.69	VAR.	10.17	
510+23.31	510+57.00	CRAWFORD ST. - UNDER CURB ON LT. & RT.	33.69	VAR.		30.18
510+57.00	510+68.00	CRAWFORD ST. - UNDER CURB ON RT.	11.00	2.50		3.06
700+25.00	701+36.55	EDWARDS PLACE - IN FRONT OF CURB ON LT. & RT.	111.55	VAR.	81.87	
700+25.00	701+36.55	EDWARDS PLACE - UNDER CURB ON LT. & RT.	111.55	VAR.		144.70
TOTALS:					131.62	435.83

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	COLD MILLING ASPHALT PAVEMENT
			SQ. YD.
105+90	106+90	HWY. 88 TIE-IN TO JOB 061113	356
115+50	116+00	HWY. 88 AT HARVARD STREET	562
499+60	500+50	EMORY/CRAWFORD	284
510+00	511+50	EMORY/CRAWFORD	388
699+75	700+25	EDWARDS PLACE TIE- IN	115
TOTAL:			1705

NOTE: AVERAGE MILLING DEPTH 2".- EXCEPT FOR TIE IN AT EDWARDS PLACE 1".
USE 0.10 GALLONS OF TACK COAT PER SQUARE YARD.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
8-26-14

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
				AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 76-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 76-22	TOTAL PG 76-22
			FEET	FEET				FEET			TON	FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																								
105+85.60	113+75.00	HWY. 88	789.40	170.00	14910.89	0.03	447.33	37.00	3245.31	935.00	1517.18	32.00	2806.76	330.00	463.12	32.00	2806.76	220.00	308.74	64.00	5613.51	220.00	617.49	926.23
113+75.00	115+00.00	HWY. 88	125.00	190.00	2638.89	0.03	79.17	42.00	583.33	935.00	272.71	37.00	513.89	330.00	84.79	37.00	513.89	220.00	56.53	69.00	958.33	220.00	105.42	161.95
115+00.00	115+23.53	HWY. 88	23.53	182.38	476.82	0.03	14.30	39.95	104.45	935.00	48.83	34.95	91.37	330.00	15.08	34.95	91.37	220.00	10.05	67.53	176.55	220.00	19.42	29.47
115+23.53	115+30.00	HWY. 88	6.47	141.92	102.02	0.03	3.06	28.38	20.40	935.00	9.54	25.88	18.60	330.00	3.07	25.88	18.60	220.00	2.05	59.28	42.62	220.00	4.69	6.74
115+30.00	116+00.00	HWY. 88	70.00	VAR.	455.51	0.03	13.67	VAR.	77.30	935.00	36.14	VAR.	77.30	330.00	12.75	VAR.	77.30	220.00	8.50	28.75	223.61	220.00	24.60	33.10
500+00.00	503+04.60	EMORY	304.60	VAR.	2099.66	0.03	62.99	VAR.	344.52	935.00	161.06	VAR.	259.91	330.00	42.89	VAR.	259.91	220.00	28.59	34.00	1150.71	220.00	126.58	155.17
503+04.60	503+91.54	EMORY TURNOUT	86.94	VAR.	750.82	0.03	22.52	VAR.	135.26	935.00	63.23	VAR.	106.84	330.00	17.63	VAR.	106.84	220.00	11.75	VAR.	373.46	220.00	41.08	52.83
504+17.86	505+55.27	CRAWFORD ST. TURNOUT	137.41	VAR.	2748.63	0.03	82.46	VAR.	741.38	935.00	346.60	VAR.	668.48	330.00	110.30	VAR.	668.48	220.00	73.53	VAR.	597.39	220.00	65.71	139.24
505+55.27	507+29.03	CRAWFORD ST.	173.76	146.00	2818.77	0.03	84.56	39.00	752.96	935.00	352.01	34.00	656.43	330.00	108.31	34.00	656.43	220.00	72.21	34.00	656.43	220.00	72.21	144.42
507+29.03	507+72.44	CRAWFORD ST.	43.41	VAR.	412.23	0.03	12.37	VAR.	86.19	935.00	40.29	VAR.	75.86	330.00	12.52	VAR.	75.86	220.00	8.34	34.00	163.99	220.00	18.04	26.38
507+72.44	508+06.41	CRAWFORD ST.	33.97																	34.00	128.33	220.00	14.12	14.12
508+06.41	509+97.00	CRAWFORD ST.	190.59	VAR.	1280.57	0.03	38.42	VAR.	204.76	935.00	95.73	VAR.	151.04	330.00	24.92	VAR.	151.04	220.00	16.61	34.00	720.01	220.00	79.20	95.81
509+97.00	510+23.31	CRAWFORD ST.	26.31	55.93	163.50	0.03	4.91	7.67	22.42	935.00	10.48	5.17	15.11	330.00	2.49	5.17	15.11	220.00	1.66	35.42	103.54	220.00	11.39	13.05
510+23.31	510+57.00	CRAWFORD ST.	33.69	36.69	137.34	0.03	4.12													36.69	137.34	220.00	15.11	15.11
510+57.00	510+68.00	CRAWFORD ST.	11.00	VAR.	395.35	0.03	11.86													VAR.	395.35	220.00	43.49	43.49
510+68.00	511+50.00	CRAWFORD ST.	82.00	VAR.	357.01	0.03	10.71													VAR.	357.01	220.00	39.27	39.27
699+75.00	700+25.00	EDWARDS PLACE - TRANSITION	50.00	20.00	111.11	0.10	11.11													20.00	111.11	220.00	12.22	12.22
700+25.00	701+36.55	EDWARDS PLACE	111.55	VAR.	326.35	0.03	9.79													VAR.	326.35	220.00	35.90	35.90
115+80.00		HARVARD	98.00	VAR.	1407.56	0.03	42.23	VAR.	366.12	935.00	171.16	VAR.	337.66	330.00	55.71	VAR.	337.66	220.00	37.14	VAR.	337.66	220.00	37.14	74.28
ADDITIONAL FOR LEVELING																								
105+85.60	116+00.00	HWY. 88	1014.40	32.00	3606.76	0.10	360.68													32.00	3606.76	220.00	396.74	396.74
507+29.03	511+50.00	CRAWFORD ST.	420.97	VAR.	1363.28	0.10	136.33													VAR.	1363.28	220.00	149.96	149.96
700+25.00	701+36.55	EDWARDS PLACE	111.55	VAR.	244.48	0.10	24.45													VAR.	244.48	220.00	26.89	26.89
ADDITIONAL FOR GRADE RAISEE																								
105+85.60	115+50.00	HWY. 88	964.40	VAR.	3427.95	0.03	102.84	VAR.	1082.68	440.00	238.19	VAR.	2345.27	330.00	386.97									
500+50.00	503+91.54	EMORY	341.54	VAR.	317.03	0.03	9.51					VAR.	317.03	330.00	52.31									
507+50.00	510+88.00	CRAWFORD ST.	338.00	VAR.	937.75	0.03	28.13	VAR.	356.11	550.00	97.93	VAR.	581.64	330.00	95.97									
700+25.00	701+36.55	EDWARDS PLACE	111.55	VAR.	444.49	0.03	13.33	VAR.	232.25	550.00	63.87	VAR.	212.24	330.00	35.02									
TOTALS:					41934.77		1630.85		8355.44		3524.95		9235.43		1523.85		5779.25		635.70		17787.82		1956.67	2592.37

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.2% MIN. AGGR.....4.8% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....95.6% MIN. AGGR.....4.4% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22

8/25/2014
R061214.DGN

SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		11	STATION
201	GRUBBING		11	STATION
202	REMOVAL AND DISPOSAL OF CURB		107	LIN. FT.
202	REMOVAL AND DISPOSAL OF CURB AND GUTTER		1149	LIN. FT.
202	REMOVAL AND DISPOSAL OF CONCRETE ISLANDS		60	SQ. YD.
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS		529	SQ. YD.
202	REMOVAL AND DISPOSAL OF STEPS		5	SQ. YD.
202	REMOVAL AND DISPOSAL OF WALKS		113	SQ. YD.
202	REMOVAL AND DISPOSAL OF FENCE		161	LIN. FT.
202	REMOVAL AND DISPOSAL OF CONCRETE PAVEMENT		153	SQ. YD.
202	REMOVAL AND DISPOSAL OF JUNCTION BOXES		3	EACH
202	REMOVAL AND DISPOSAL OF DROP INLETS		3	EACH
202	REMOVAL AND DISPOSAL OF SIGNS		7	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		18	EACH
202	REMOVAL AND DISPOSAL OF ROCK RIPRAP		310	SQ. YD.
202	REMOVAL AND DISPOSAL OF RETAINING WALLS		20	LIN. FT.
206	FLOWABLE SELECT MATERIAL		49	CU. YD.
210	UNCLASSIFIED EXCAVATION		2734	CU. YD.
SP	SELECT GRANULAR BACKFILL		570	CU. YD.
210	COMPACTED EMBANKMENT		2728	CU. YD.
SP & 210	SOIL STABILIZATION		100	TON
303	AGGREGATE BASE COURSE (CLASS 7)		531	TON
309	PORTLAND CEMENT CONCRETE BASE (5" UNIFORM THICKNESS)		132	SQ. YD.
309	PORTLAND CEMENT CONCRETE BASE (8 1/2" UNIFORM THICKNESS)		436	SQ. YD.
401	TACK COAT		1651	GAL.
SP & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")		3370	TON
SP & 405	ASPHALT BINDER (PG 70-22) IN ACHM BASE COURSE (1 1/2")		155	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		1451	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")		73	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		2534	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		5	TON
SP, SS, & 407	ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2")		143	TON
412	COLD MILLING ASPHALT PAVEMENT		1705	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		10	TON
SP & 415	ACHM PATCHING OF EXISTING ROADWAY		25	TON
505	PORTLAND CEMENT CONCRETE DRIVEWAY		750.30	SQ. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
SP & 603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
604	SIGNS		347	SQ. FT.
604	BARRICADES		144	LIN. FT.
604	VERTICAL PANELS		55	EACH
604	TRAFFIC DRUMS		106	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		113	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS		13027	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS (ARROWS)		5	EACH
604	CONSTRUCTION PAVEMENT MARKINGS (WORDS)		5	EACH
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		4191	LIN. FT.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		2	LIN. FT.
* 606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	587	LIN. FT.
* 606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	587	LIN. FT.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)		148	LIN. FT.
* 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	931	LIN. FT.
* 606	24" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	931	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		127	LIN. FT.
* 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	110	LIN. FT.
* 606	30" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	110	LIN. FT.
606	12" SIDE DRAIN		150	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		1	EACH
606	SELECTED PIPE BEDDING		150	CU. YD.
609	DROP INLETS (TYPE MO)		28	EACH
609	JUNCTION BOXES (TYPE E)		2	EACH
609	DROP INLET EXTENSIONS (4')		8	EACH
609	DROP INLET EXTENSIONS (8')		14	EACH
609	YARD DRAINS		3	EACH
611	4" PIPE UNDERDRAINS		500	LIN. FT.
615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)		18.4	CU. YD.
SS & 620	MULCH COVER		5.00	ACRE
620	WATER		130.7	M.GAL.
621	TEMPORARY SEEDING		5.00	ACRE
621	SILT FENCE		2717	LIN. FT.
621	SAND BAG DITCH CHECKS		374	BAG
621	DROP INLET SILT FENCE		850	LIN. FT.
621	SEDIMENT BASIN		50	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		50	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		556	CU. YD.
624	SOLID SODDING		2275	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)		550	SQ. YD.
632	CONCRETE ISLAND		71	SQ. YD.
633	CONCRETE WALKS		2122	SQ. YD.
633	HAND RAILING		634	LIN. FT.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")		3668	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
637	MAILBOXES		11	EACH
637	MAILBOX SUPPORTS (SINGLE)		11	EACH
641	WHEELCHAIR RAMPS (TYPE 1)		35	SQ. YD.
641	WHEELCHAIR RAMPS (TYPE 4)		164	SQ. YD.
641	WHEELCHAIR RAMPS (TYPE 6)		18	SQ. YD.

* DENOTES ALTERNATE BID ITEM.

SUMMARY OF QUANTITIES

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED
8/25/14			

(2) SUMMARY OF QUANTITIES

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		23	101

JOB NO. 061214

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRENT R. SMITH

8/27/14

SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 701	SYSTEM LOCAL CONTROLLER TS 2-TYPE 2, E-NET (8 PHASES)	1	EACH
SP	ANTENNA SUPPORT (SHOE BASE, 50' HT.)	1	EACH
SP	LOCAL REPEATER RADIO WITH ANTENNA	1	EACH
SP	ANTENNA CABLE (TYPE 6)	70	LIN. FT.
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	8	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	4	EACH
SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	8	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	1933	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	250	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	592	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., EGC)	515	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., EGC)	185	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	20	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	774	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (2")	20	LIN. FT.
710	NON-METALLIC CONDUIT (3")	720	LIN. FT.
711	CONCRETE PULL BOX (TYPE 2)	3	EACH
711	CONCRETE PULL BOX (TYPE 2 HD)	5	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (32')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (36')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (54')	1	EACH
SP	LUMINAIRE ASSEMBLY	4	EACH
715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	3	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	1.00	LUMP SUM
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10")	111	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	2694	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (8")	739	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	676	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	5110	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	8	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	8	EACH
719	THERMOPLASTIC PAVEMENT MARKING (BIKE EMBLEMS)	4	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)	69	EACH
SP	18" STREET NAME SIGN	6	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER	1	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	1	EACH
SP & 733	VIDEO DETECTOR (CLR)	8	EACH
733	VIDEO CABLE	1642	LIN. FT.
733	VIDEO MONITOR (CLR)	1	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	5	EACH
SP & 733	VIDEO EDGE CARD EXTENDER	2	EACH
SP & 733	VEHICLE DETECTOR RACK (24 CHANNEL)	1	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	918	CU. YD.
802	CLASS S CONCRETE-ROADWAY	7.21	CU. YD.
SP	MODULAR BLOCK RETAINING WALLS	2320	SQ. FT.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	948	POUND
SP	GRAVITY BLOCK RETAINING WALL	1635	SQ. FT.

REVISIONS

DATE	REVISION	SHEET NUMBER
8/25/2014	REVISED THE WIDTH OF THE TYPICAL SECTION AND THE ACHM SURFACE COURSE QUANTITY FOR EMORY; ADDED THE R&D OF DROP INLETS, JUNCTION BOXES, AND PIPE CULVERTS; REVISED THE STORM SEWER AT THE INTERSECTION OF EDWARDS PLACE AND HWY. 88; REVISED THE R&D OF ROCK RIPRAP; REVISED THE STORM SEWER ON EMORY AT STA. 501+67	4, 10, 11, 14, 18, 20, 22- 24, 28-32, 79, 90, & 101
8/27/2014	REVISED STORM WATER POLLUTION PREVENTION PLAN SPECIAL PREVENTION	24

SUMMARY OF QUANTITIES & REVISIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
8/25/14			
8/27/14			

(2) SUMMARY OF QUANTITIES AND REVISIONS

FED.RD. DIV.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.				
061214			24	101

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	25	101

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14

SURVEY CONTROL COORDINATES

Project Name: 061214.alg
Date: 8/15/2013
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
1	1975073.0255	993005.5935	566.34	CTL	*CPS
2	1973985.6003	992684.4382	556.01	CTL	*CPS
3	1972892.0707	992250.4244	534.13	CTL	*CPS
4	1971741.0667	991800.9945	516.33	CTL	*CAP REBAR LT SH
5	1971437.4918	991754.8810	542.15	CTL	*CAP REBAR LT SH
6	1970048.5858	990499.4991	542.16	CTL	*CAP REBAR LT SH
7	1969819.7405	990267.5186	553.94	CTL	*CAP REBAR LT SH
8	1968563.1176	989006.7333	516.92	CTL	*REBAR*CAP
9	1967282.2208	988191.1777	544.59	CTL	*REBAR/CAP RT BANK
10	1966259.7425	987601.0361	492.91	CTL	*REBAR*CAP
11	964341.9006	987058.2571	475.86	CTL	*REBAR*CAP
12	1963897.5890	986734.2026	498.18	CTL	*REBAR*CAP ZC: 498.175000
13	1963538.3989	986277.0901	487.91	CTL	*REBAR*CAP
14	1963181.6989	985546.2118	497.19	CTL	*REBAR*CAP
15	1963135.8415	985307.3908	487.14	CTL	*CPS
16	1968941.0861	988437.6313	560.83	CTL	*CPS IN ON RAMP
17	1968927.0501	990043.0316	531.09	CTL	*REBAR*CAP
18	1968902.0182	991200.2311	523.30	CTL	*CPS IN SH
19	1968673.5989	993504.1542	534.02	CTL	*REBAR*CAP
23	1972628.5161	992148.8315	518.34	CTL	*5/8" REBAR 2" ALUMN. CAP
24	1971708.0660	991839.0086	542.32	CTL	*5/8" REBAR 2" ALUMN. CAP
100	1968832.5279	989016.9501	560.17	GPS	*GPS 260005
101	1968861.8091	992501.6164	503.59	GPS	*GPS CAP 260005A
102	1962791.6285	985976.4674	450.33	GPS	*GPS 260004
103	1963610.0643	987611.5879	455.96	GPS	*GPS 2600041
702	1974582.8464	992825.0798	567.12	HPT	*CPS
703	1972352.5462	992028.9277	497.14	CTL	*CPS
704	1970771.5544	991246.0465	564.57	HPT	*CPS CURB ISLAND
705	1969250.4125	989648.2058	565.29	HPT	*CPS
706	1966672.6357	987787.9042	528.42	HPT	*CPS
707	1964790.1455	987580.4576	463.93	HPT	*HPT-707 CPS TEMPERANCE RD
708	1962506.9169	984769.1531	450.57	HPT	*CPS
900	1974997.4275	984055.6668	532.10	BM	*NGS AP 1970 STA A3 HOT
901	1976434.8874	993179.2516	590.44	BM	*CHSLD SQ IN CURB
902	1974527.2452	992840.1730	566.40	BM	*CHSLD SQ IN SIDE WALK
903	1972985.6227	992300.0602	536.29	BM	*CHSLD SQ IN S. END SIDEWALK
904	1971308.5050	991667.0043	543.86	BM	*CHLSD SQ IN E. CA BASIN
905	1970188.0944	990574.4858	539.87	BM	*CHLSD SQ IN E. CA BASIN
906	1968919.1845	989132.1258	562.47	BM	*AHTD CAP BR 6369 AHTD BM * 260038
907	1966476.4489	987681.0502	509.50	BM	*TBM-907 CHSL SQ TOP CB LT
908	1964728.4728	987536.3422	465.28	BM	*TBM-908 CHSLD SQ SOUTH CB
909	1963549.6887	986296.6665	489.34	BM	*CHSLD SQ IN WR S. BUDS CAR CENTER
910	1962631.2383	984928.5582	451.04	BM	*CHSLD SQ IN CA
911	1971148.9440	983574.3208	424.46	BM	*AHTD CAP BR 6374
999	2018969.7993	1033436.9340	486.82	BM	*NGS W 104

*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).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.999924438 HAS BEEN USED TO COMPUTE THE ABOVE LISTED GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GROUND COORDINATES ARE PROJECTED FROM AR. STATE PLANE GRID COORDINATES BY SCALING ALL X,Y COORDINATE VALUES WITH THE INVERSE (1/X) OF THE COMBINED AJUSTMENT FACTOR (CAF) ABOUT X=0, Y=0.

GRID COORDINATES ARE STORED UNDER FILE NAME. s060686gi.ctl
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 ELEVATIONS FOR POINTS 1-24, 100-103, AND 900-999 WERE ESTABLISHED BY 3-WIRE LEVEL TECHNIQUES FROM NGS BENCHMARKS.

POSITIONAL ACCURACY:

HORIZONTAL-GPS(POINTS 100-103): 1.0 CM 10 PPM, PRIMARY CONTROL(POINTS 1-24): 2.0 CM 20 PPM

VERTICAL-POSITIONAL ACCURACY IS THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 260005, 260005A, 260004, 2600041
CONVERGENCE ANGLE: 0 36 01.8031 LEFT AT PN: 100
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

LT: 34-27-56.58 LG: 093-04-22.49

GRID NORTHING: 1968683.7590 GRID EASTING: 988942.2180

GROUND NORTHING: 1968832.5279 GROUND EASTING: 989016.9501

HWY. 88

POINT NO.	TYPE	STATION	NORTHING	EASTING
8007	POB	99+86.97	1971434.5320	991692.5278
8008	PC	100+40.08	1971485.6906	991706.7999
8009	PT	109+61.13	1972355.8118	992007.1163
8004	PI	113+48.68	1972713.8767	992155.4000
8005	PI	117+27.65	1973064.8961	992298.2436
8006	POE	119+32.50	1973254.5080	992375.7734

EMORY/CRAWFORD ST.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8018	POB	500+00.00	1972630.4060	991711.1642
8019	PC	504+51.85	1972615.7597	992162.7795
8021	PT	505+91.70	1972681.4345	992278.3472
8022	PC	506+84.03	1972762.2438	992323.0026
8024	PT	508+26.15	1972827.8247	992440.8397
8025	PI	510+00.00	1972819.0908	992614.4691
8026	POE	513+51.56	1972796.8233	992965.3192

EDWARDS PLACE

POINT NO.	TYPE	STATION	NORTHING	EASTING
8016	POB	700+00.00	1972293.5094	991821.5263
8027	POE	701+58.66	1972289.8153	991980.1455

7/21/2014

R061214.DGN

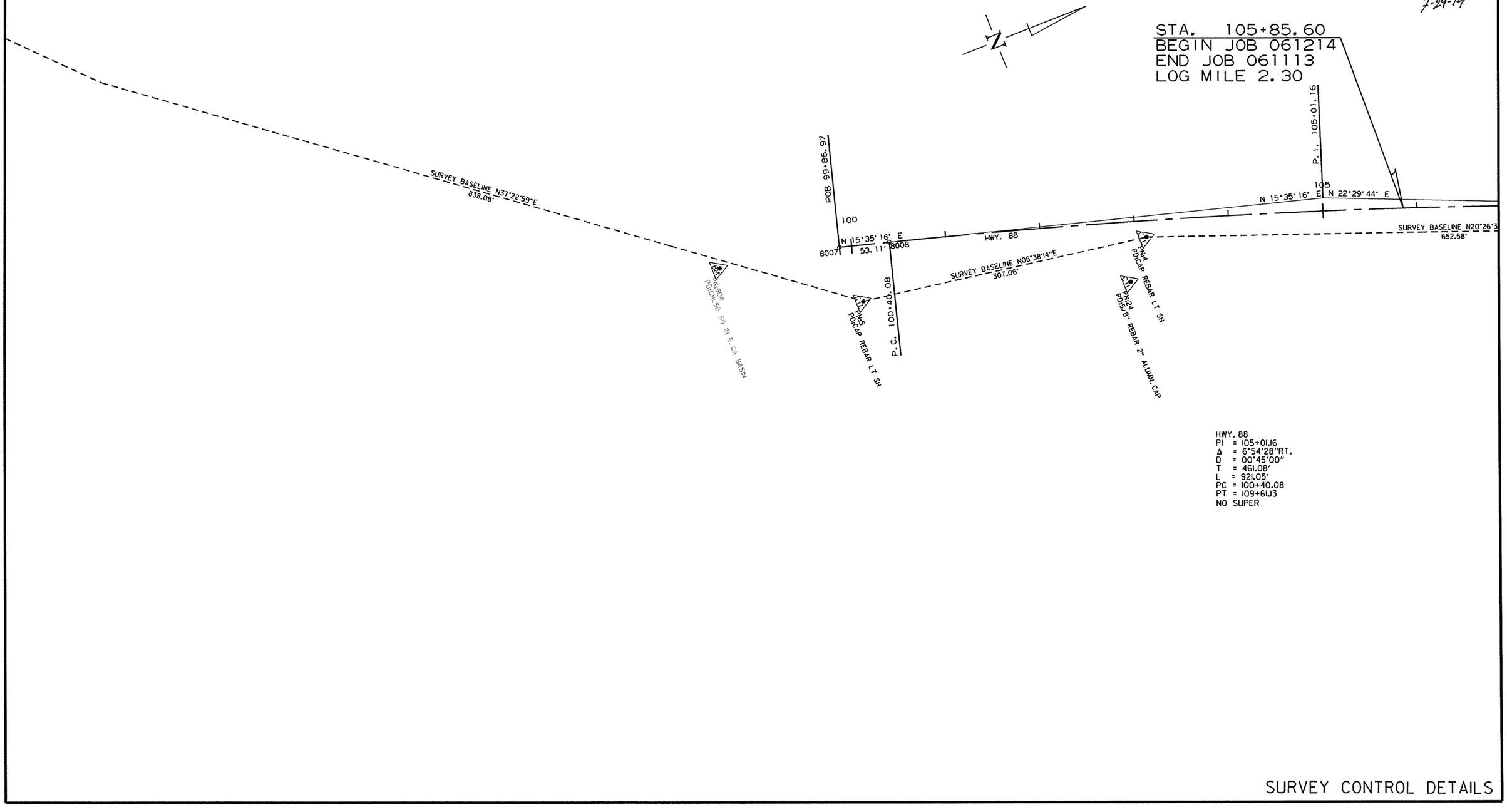
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	26	101

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14

STA. 105+85.60
BEGIN JOB 061214
END JOB 061113
LOG MILE 2.30



HWY. 88
PI = 105+01.16
Δ = 6°54'28"RT.
D = 00°45'00"
T = 461.08'
L = 921.05'
PC = 100+40.08
PT = 109+61.13
NO SUPER

7/21/2014

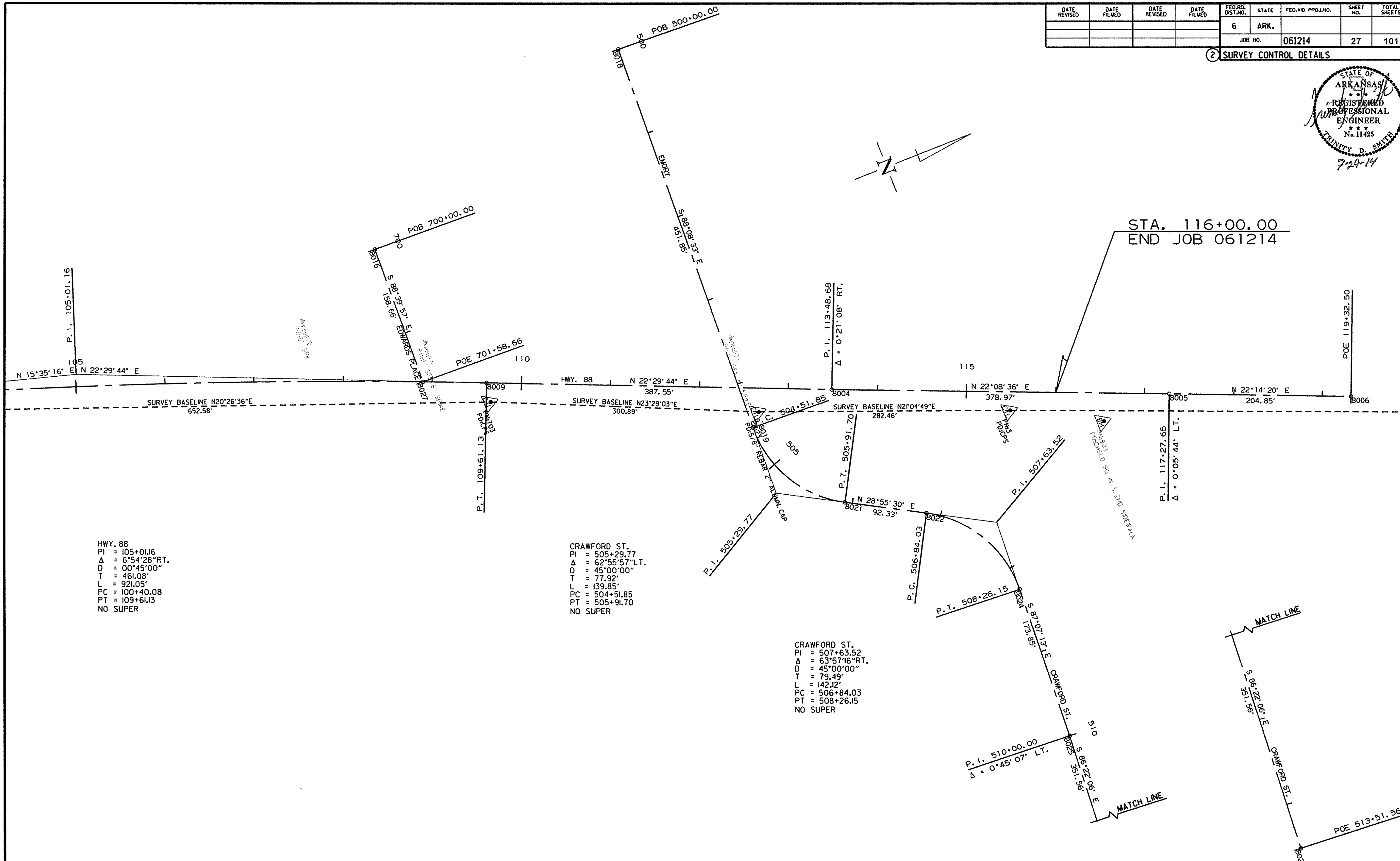
R061214.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	27	101

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14



POB 500+00.00
500
8018
EMORY
S 88°08' 33" E
451.85'
POB 700+00.00
700
8016
S 88°39' 57" E
158.66'
EDWARDS PLACE
8027
POE 701+58.66
P. I. 105+01.16
105
110
115
N 15°35' 16" E
N 22°29' 44" E
HWY. 88
N 22°29' 44" E
387.55'
SURVEY BASELINE N20°26'36"E
652.58'
SURVEY BASELINE N23°29'03"E
300.89'
SURVEY BASELINE N21°04'49"E
282.46'
8009
PN:703
PD:CPS
P. T. 109+61.13
P. I. 113+48.68
Δ = 0°21' 08" RT.
8004
STA. 116+00.00
END JOB 061214
N 22°08' 36" E
378.97'
PN:3
PD:CPS
BM
8005
N 22°14' 20" E
204.85'
8006
POE 119+32.50
P. I. 117+27.65
Δ = 0°05' 44" LT.
P. C. 504+51.85
8019
PD:5/8" REBAR 2" ALUMN. CAP
505
P. T. 505+91.70
P. I. 505+29.77
8021
N 28°55' 30" E
92.33'
8022
P. C. 506+84.03
P. I. 507+63.52
P. T. 508+26.15
8024
S 87°07' 13" E
173.85'
CRAWFORD ST.
510
8025
P. I. 510+00.00
Δ = 0°45' 07" LT.
S 86°22' 06" E
351.56'
MATCH LINE
MATCH LINE
S 86°22' 06" E
351.56'
CRAWFORD ST.
POE 513+51.56
8026
HWY. 88
PI = 105+01.16
Δ = 6°54'28"RT.
D = 00°45'00"
T = 461.08'
L = 921.05'
PC = 100+40.08
PT = 109+61.13
NO SUPER
CRAWFORD ST.
PI = 505+29.77
Δ = 62°55'57"LT.
D = 45°00'00"
T = 77.92'
L = 139.85'
PC = 504+51.85
PT = 505+91.70
NO SUPER
CRAWFORD ST.
PI = 507+63.52
Δ = 63°57'16"RT.
D = 45°00'00"
T = 79.49'
L = 142.12'
PC = 506+84.03
PT = 508+26.15
NO SUPER

7/21/2014

R061214.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	28	101

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
8-26-14

DENOTES COLD MILLING

STA. 105+80 - IN PLACE
D.I. ON LT.
& 24" x 25' PIPE OUTLET
REMOVE PIPE AND CONSTRUCT
24" x 128' R.C. PIPE CULVERT
CONNECT TO EXISTING R.C. BOX CULVERT LT.

STA. 106+04 - IN PLACE
DROP INLET ON LT. WITH
18" x 37' R.C. PIPE OUTLET
REMOVE

STA. 106+09 - IN PLACE
18" x 34' LT. SIDE DRAIN
& EXISTING DRIVE
RETAIN & CONST.
NEW APRON FOR DRIVE

STA. 107+42 - CONSTRUCT
D.I. ON LT. WITH 8' EXTENSION
& 30" x 22' PIPE OUTLET
CONNECT TO EXISTING R.C. BOX LT.
TY C = 4' x 4'
TY MO = 5' I.D.
H = 7' 11"

EDWARDS PLACE
STA. 700+42 - CONSTRUCT
APPROACH ON RT. = 10 CU. YDS.

EDWARDS PLACE
STA. 700+86 CONSTRUCT
APPROACH ON LT.

STA. 107+78 - CONSTRUCT
D.I. ON LT. WITH 8' EXTENSION
& 30" x 31' PIPE OUTLET
CONNECT TO D.I. @ STA. 107+42 LT.
TY C = 4' x 4'
TY MO = 5' I.D.
H = 6' 8"

STA. 108+10 - CONSTRUCT
D.I. ON LT. WITH 8' EXTENSION
& 24" x 28' PIPE OUTLET
CONNECT TO D.I. @ STA. 107+78 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 6' 1"

STA. 108+40 LT. - CONSTRUCT
WHEELCHAIR RAMP (TYPE 4) = 21 SQ. YDS.

STA. 108+95 LT. - CONSTRUCT
WHEELCHAIR RAMP (TYPE 4) = 21 SQ. YDS.

STA. 109+25 - CONSTRUCT
D.I. ON LT. WITH 8' EXTENSION
& 18" x 35' PIPE OUTLET
CONNECT TO J.B. @ STA. 701+09 LT. (EDWARDS PLACE)
TY C = 4' x 4'
TY MO = 4' I.D.
H = 3' 6"

STA. 109+67 CONSTRUCT
APPROACH ON LT.

STA. 111+80 LT. - CONSTRUCT
WHEELCHAIR RAMP (TYPE 1) = 35 SQ. YDS.

STA. 112+40 LT. - CONSTRUCT
WHEELCHAIR RAMP (TYPE 4) = 18 SQ. YDS.

STA. 112+50 LT. - CONSTRUCT
WHEELCHAIR RAMP (TYPE 6) = 18 SQ. YDS.

STA. 108+94 - IN PLACE
JUNCTION BOX ON LT. WITH
30" x 38' PLASTIC PIPE OUTLET
REMOVE

STA. 110+26 CONSTRUCT
APPROACH ON LT. = 10 CU. YDS.
UNCLASSIFIED EXCAVATION

STA. 113+55 - CONSTRUCT
D.I. ON LT. WITH 8' EXTENSION
& 24" x 67' R.C. PIPE OUTLET (CLASS IV)
CONNECT TO D.I. @ STA. 113+55 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5' 1"

STA. 115+00 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 18" x 141' PIPE OUTLET
CONNECT TO D.I. @ STA. 113+55 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 3' 7"

STA. 115+30 CONSTRUCT
APPROACH ON LT. ON HARVARD

STA. 115+80 CONSTRUCT
APPROACH ON LT. = 140 CU. YD.

STA. 115+35 LT. - CONSTRUCT
WHEELCHAIR RAMP (TYPE 4) = 20 SQ. YDS.

RETAINING WALL

STA.	STA.	SIDE	SQ. FT.
112+52	115+00	LT.	1635

STA. 105+85.60
BEGIN JOB 061214
END JOB 06113
LOG MILE 2.30

STA. 116+00.00
END JOB 061214

STA. 108+89.83 HWY. 88 =
STA. 701+58.66 EDWARDS PL.
Δ = 69° 22' 30"

STA. 112+44.15 HWY. 88 =
STA. 504+04.45 EMORY/CRAWFORD
Δ = 69° 21' 42"

HIGDON FERRY RD.
PI = 105+01.16
Δ = 6°54'28"RT.
D = 00°45'00"
T = 461.08'
L = 921.05'
PC = 100+40.08
PT = 109+61.13
NO SUPER

STA. 106+00 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION
& 18"x2' R.C. STUB INLET FES.
& 18" x 136' PIPE OUTLET
CONNECT TO D.I. @ STA. 107+42 RT.
TY C = 4' X 4'
TY MO = 4' I.D.
H = 4' 0"

STA. 106+04 - IN PLACE
DROP INLET ON RT.
REMOVE

ALL R.C. PIPE CULVERTS SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED.

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

STA. 106+52 CONSTRUCT
APPROACH ON RT. = 15 CU. YDS.
UNCLASSIFIED EXCAVATION

STA. 107+31 - IN PLACE
4' x 4' x 166' R.C. BOX CULV'T.
RETAIN AND EXTEND 18' RT.
TO A COMPLETED LENGTH OF 184'
CONNECT TO D.I. @ STA. 107+42 RT.

STA. 107+42 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION
TY C = 6' x 4'
H = 9' 0"

STA. 107+78 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION
& 30" x 30' PIPE OUTLET
CONNECT TO D.I. @ STA. 107+42 RT.
TY C = 4' x 4'
TY MO = 5' I.D.
H = 4' 11"

STA. 108+10 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION
& 30" X 27' PIPE OUTLET
CONNECT TO D.I. @ STA. 107+78 RT.
TY C = 4' x 4'
TY MO = 5' I.D.
H = 4' 6"

STA. 112+10 RT. - CONSTRUCT
WHEELCHAIR RAMP (TYPE 4) = 20 SQ. YDS.

STA. 112+40 RT. - CONSTRUCT
WHEELCHAIR RAMP (TYPE 4) = 19 SQ. YDS.

CRAWFORD ST.
PI = 505+29.77
Δ = 62°55'57"LT.
D = 45°00'00"
T = 77.92'
L = 139.85'
PC = 504+51.85
PT = 505+91.70
NO SUPER

CRAWFORD ST.
PI = 507+63.52
Δ = 63°57'16"RT.
D = 45°00'00"
T = 79.49'
L = 142.12'
PC = 506+84.03
PT = 508+26.15
NO SUPER

STA. 108+50 - CONSTRUCT
D.I. ON RT. WITH OPENING IN BACK
& 24" x 35' PIPE OUTLET
CONNECT TO D.I. @ STA. 108+10 RT.
TY C = 4' X 4'
TY MO = 4' I.D.
H = 4' 0"

STA. 108+93 CONSTRUCT
APPROACH ON RT.

STA. 109+45 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION
WITH OPENING IN THE BACK
& 24" x 91' PIPE OUTLET
CONNECT TO D.I. @ STA. 108+50 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4' 6"

STA. 110+85 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION
& OPENING IN BACK
& 24" x 136' PIPE OUTLET
CONNECT TO D.I. @ STA. 109+45 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4' 9"

STA. 112+84 RT. - CONSTRUCT
WHEELCHAIR RAMP (TYPE 4) = 8 SQ. YDS.

STA. 113+00 RT. - CONSTRUCT
WHEELCHAIR RAMP (TYPE 4) = 8 SQ. YDS.

STA. 113+01 RT. - CONSTRUCT
WHEELCHAIR RAMP (TYPE 4) = 9 SQ. YDS.

STA. 113+25 RT. - CONSTRUCT
WHEELCHAIR RAMP (TYPE 4) = 16 SQ. YDS.

STA. 110+51 CONSTRUCT
APPROACH ON RT.

STA. 111+90 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION
& 24" x 101' PIPE OUTLET
CONNECT TO D.I. @ STA. 110+85 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4' 0"

STA. 113+55 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION
& 24" x 59' PIPE OUTLET
CONNECT TO D.I. @ STA. 505+50 LT. (CRAWFORD)
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5' 7"

HWY. 88

7/13/2014

R061214.DGN

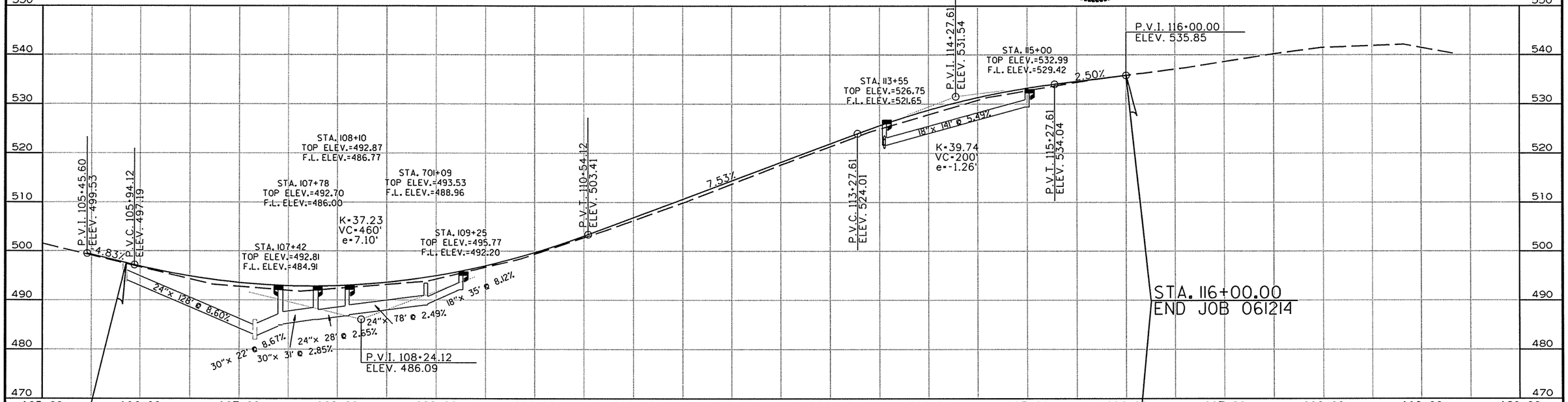
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	29	101

(2) PROFILE SHEETS

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

STA. 109+50.00 - BEGIN SUPERELEVATION (N.C.)
STA. 111+50.00 - MAX. SUPERELEVATION (R.C.)
STA. 113+00.00 - MAX. SUPERELEVATION (R.C.)
STA. 115+00.00 - END SUPERELEVATION (N.C.)

HWY. 88 LT.



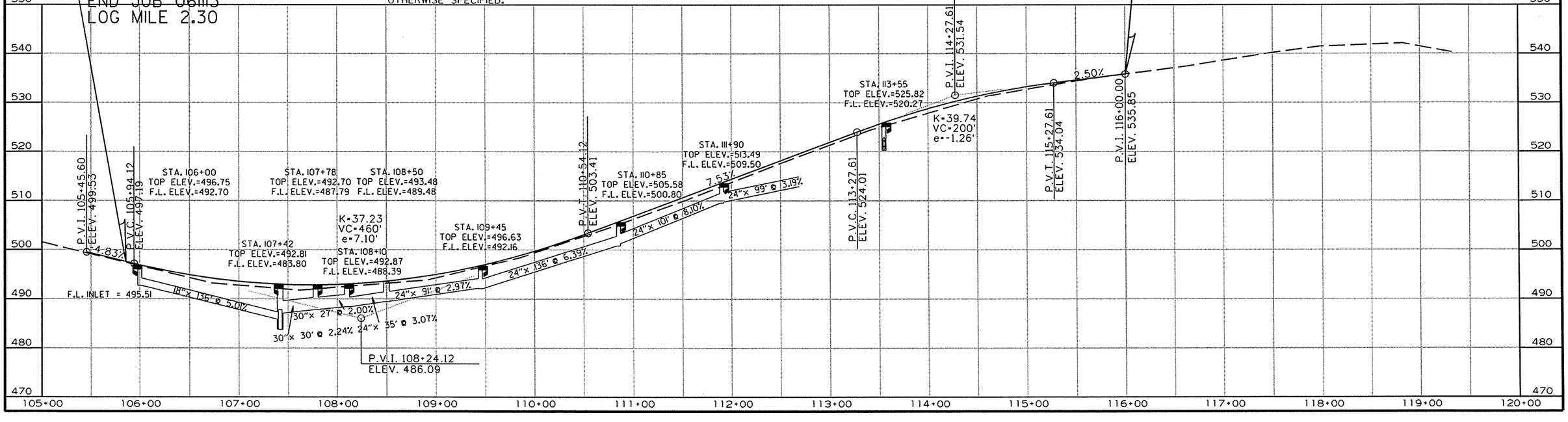
ALL R.C. PIPE CULVERTS SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED.

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

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

STA. 105+85.60
BEGIN JOB 061214
END JOB 06113
LOG MILE 2.30

HWY. 88 RT.



R061214.DGN 7/13/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	30	101

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
8-26-14

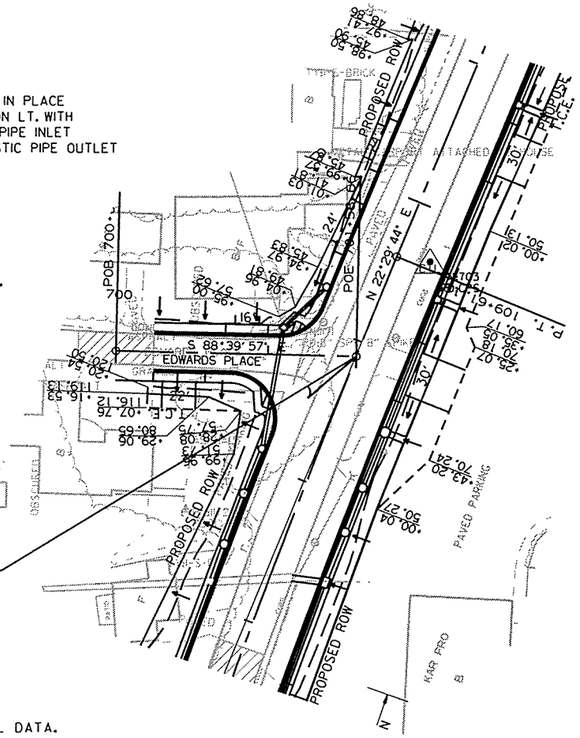
STA. 701+09 - CONSTRUCT
JUNCTION BOX ON LT.
WITH EXISTING 18" R.C. PIPE INLET
& 24" x 78' PIPE OUTLET
CONNECT TO D.I. @ STA. 108+10 LT.
TY E - 3' x 3'
H = 4' 7"

STA. 701+10 - IN PLACE
DROP INLET ON LT. WITH
12" x 10' R.C. PIPE INLET
18" x 13' PLASTIC PIPE OUTLET
REMOVE

STA. 700+81 LT. CONST.
APPROACH = 5 CU. YDS.

STA. 700+42 RT. CONST.
APPROACH = 10 CU. YDS.

STA. 108+89.83 HWY. 88 =
STA. 701+58.66 EDWARDS PLACE
Δ = 69° 22' 30"

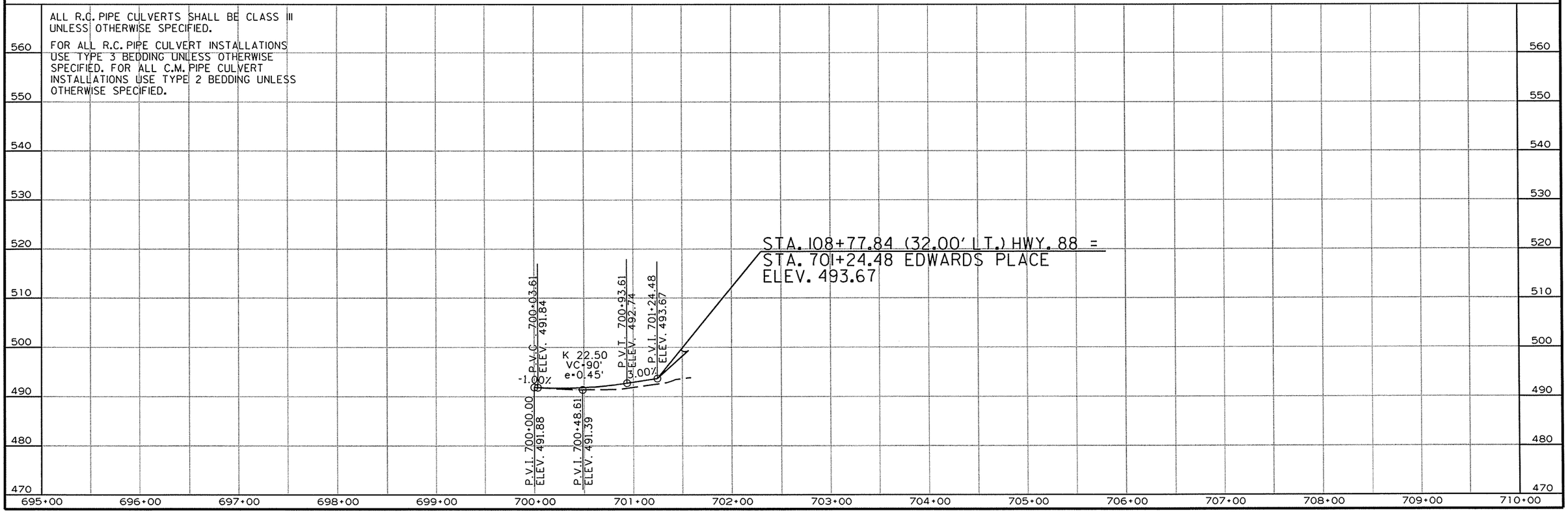


EDWARDS PLACE

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

ALL R.C. PIPE CULVERTS SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED.

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



7/13/2014

R061214.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AND PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	31	101

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
8-26-14

DENOTES COLD MILLING

STA. 500+41 CONSTRUCT
APPROACH ON LT.
UNCLASS. EXCAV. = 5 CU. YDS.

STA. 501+00 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& OPENING IN BACK
& 18" x 63' PIPE OUTLET
CONNECT TO D.I. @ STA. 501+67 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 3' 8"

STA. 501+26 CONSTRUCT
APPROACH ON LT.

STA. 501+67 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
W/ OPENING IN BACK
& 18 x 37' PIPE OUTLET
(CLASS V) (TYPE 3 BEDDING)
CONNECT TO D.I. @ STA. 501+67 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4' 0"

STA. 501+81 - IN PLACE
DROP INLET ON RT. WITH
12" x 68' R.C. PIPE OUTLET
REMOVE

STA. 502+03 CONSTRUCT
APPROACH ON LT. = 5 CU. YDS.
UNCLASSIFIED EXCAVATION

STA. 502+20 CONSTRUCT
YARD DRAIN ON LT.
12" x 50' SIDE DRAIN
CONNECT TO D.I. @ STA. 501+67 LT.

STA. 502+99 CONSTRUCT
APPROACH ON LT. = 20 CU. YDS.
UNCLASSIFIED EXCAVATION

STA. 505+50 - CONSTRUCT
D.I. ON LT. WITH 8' EXTENSION
& OPENING IN BACK
& 24" x 60' R.C. PIPE OUTLET
(CLASS IV) (TYPE 3 BEDDING)
CONNECT TO D.I. @ STA. 505+00 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4' 5"

STA. 506+75 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 24" x 113' PIPE OUTLET
CONNECT TO D.I. @ STA. 505+50 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4' 2"

STA. 505+30-505+50 FLATTEN SIDE
SLOPES ON LT. FOR COVER OVER PIPE

STA. 507+34 - CONSTRUCT
D.I. ON LT.
& 24" x 63' PIPE OUTLET
CONNECT TO D.I. @ STA. 506+75 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4' 2"

STA. 507+66 CONSTRUCT
APPROACH ON LT. = 5 CU. YDS.

STA. 507+93 - CONSTRUCT
D.I. ON LT. WITH OPENING IN BACK
& 18" x 64' PIPE OUTLET
CONNECT TO D.I. @ STA. 507+34 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4' 2"

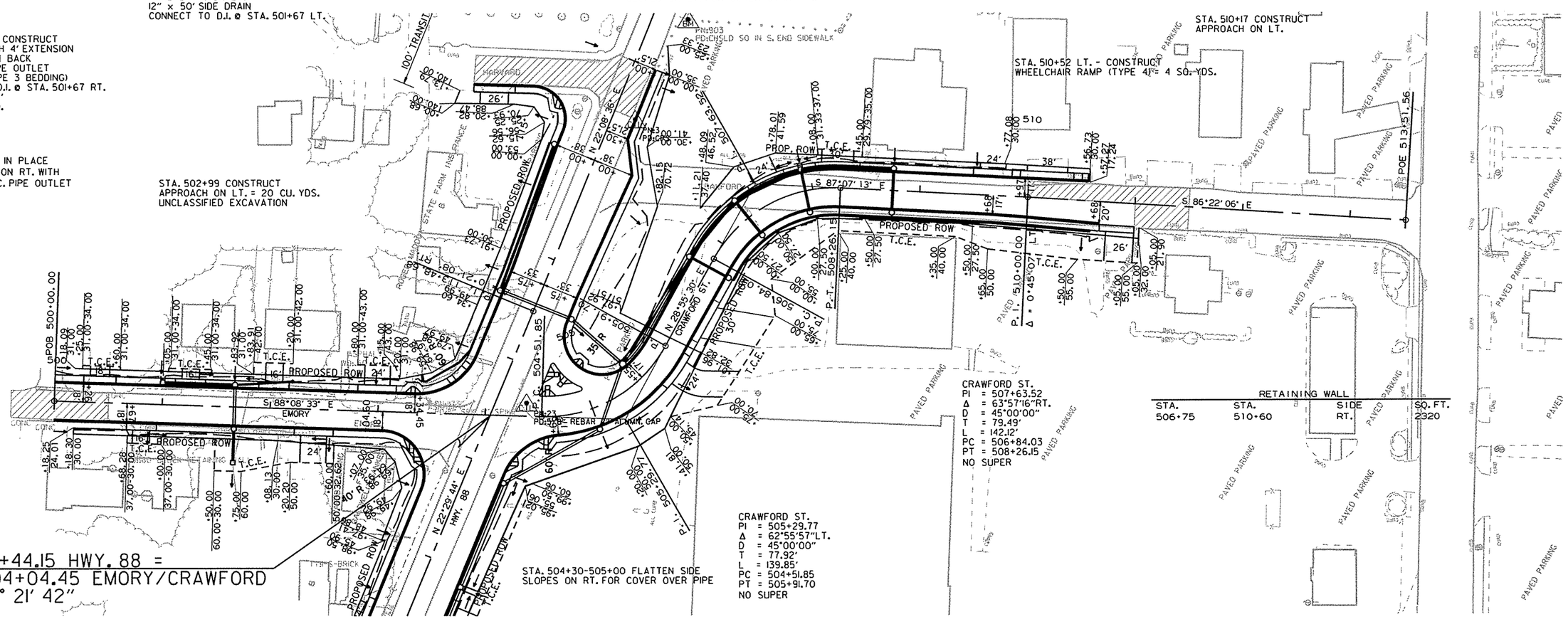
STA. 508+25 CONSTRUCT
APPROACH ON LT. = 5 CU. YDS.

STA. 508+75 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 18" x 83' PIPE OUTLET
CONNECT TO D.I. @ STA. 507+93 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4' 3"

STA. 509+66 CONSTRUCT
APPROACH ON LT.
UNCLASS. EXCAV. = 5 CU. YDS.

STA. 510+17 CONSTRUCT
APPROACH ON LT.

STA. 510+52 LT. - CONSTRUCT
WHEELCHAIR RAMP (TYPE 4) = 4 SQ. YDS.



STA. 112+44.15 HWY. 88 =
STA. 504+04.45 EMORY/CRAWFORD
Δ = 69° 21' 42"

CRAWFORD ST.
PI = 505+29.77
Δ = 62°55'57"LT.
D = 45°00'00"
T = 77.92'
L = 139.85'
PC = 504+51.85
PT = 505+91.70
NO SUPER

CRAWFORD ST.
PI = 507+63.52
Δ = 63°57'16"RT.
D = 45°00'00"
T = 79.49'
L = 142.12'
PC = 506+84.03
PT = 508+26.15
NO SUPER

RETAINING WALL

STA.	STA.	SIDE	SQ. FT.
506+75	510+60	RT.	2320

STA. 504+30-505+00 FLATTEN SIDE
SLOPES ON RT. FOR COVER OVER PIPE

STA. 500+81 CONSTRUCT
APPROACH ON RT. = 5 CU. YDS.

STA. 501+67 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 18" x 28' PIPE OUTLET
CONNECT TO JUNCTION BOX @ STA. 501+67 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5' 2"

STA. 501+67 - CONSTRUCT
JUNCTION BOX ON RT.
CONNECT TO EXISTING 12" PIPE.
TY E = 3' x 3'
H = 5' 4"

STA. 501+67 - IN PLACE
JUNCTION BOX ON RT. WITH
REMOVE

STA. 502+41 CONSTRUCT
APPROACH ON RT. = 25 CU. YDS.

STA. 505+00 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 24" x 99' PIPE OUTLET
CONNECT TO D.I. @ STA. 111+90 RT. (HWY. 88)
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5' 1"

STA. 505+80 CONSTRUCT
APPROACH ON RT. = 35 CU. YDS.

STA. 506+29 CONSTRUCT
APPROACH ON RT. = 35 CU. YDS.

STA. 506+75 - CONSTRUCT
D.I. ON RT.
& 18" x 37' R.C. PIPE OUTLET
(CLASS V) (TYPE 3 BEDDING)
CONNECT TO D.I. @ STA. 506+75 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4' 0"

STA. 507+34 - CONSTRUCT
D.I. ON RT.
& 18" x 37' R.C. PIPE OUTLET
(CLASS V)(TYPE 3 BEDDING)
CONNECT TO D.I. @ STA. 507+34 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4' 0"

STA. 507+93 - CONSTRUCT
D.I. ON RT.
& 18" x 37' R.C. PIPE OUTLET
(CLASS V)(TYPE 3 BEDDING)
CONNECT TO D.I. @ STA. 507+93 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4' 0"

STA. 508+75 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 18" x 37' R.C. PIPE OUTLET
(CLASS V)(TYPE 3 BEDDING)
CONNECT TO D.I. @ STA. 508+75 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4' 0"

STA. 510+87 CONSTRUCT
APPROACH ON RT. = 20 CU. YDS.

ALL R.C. PIPE CULVERTS SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED.

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

7/13/2014

R061214.DGN

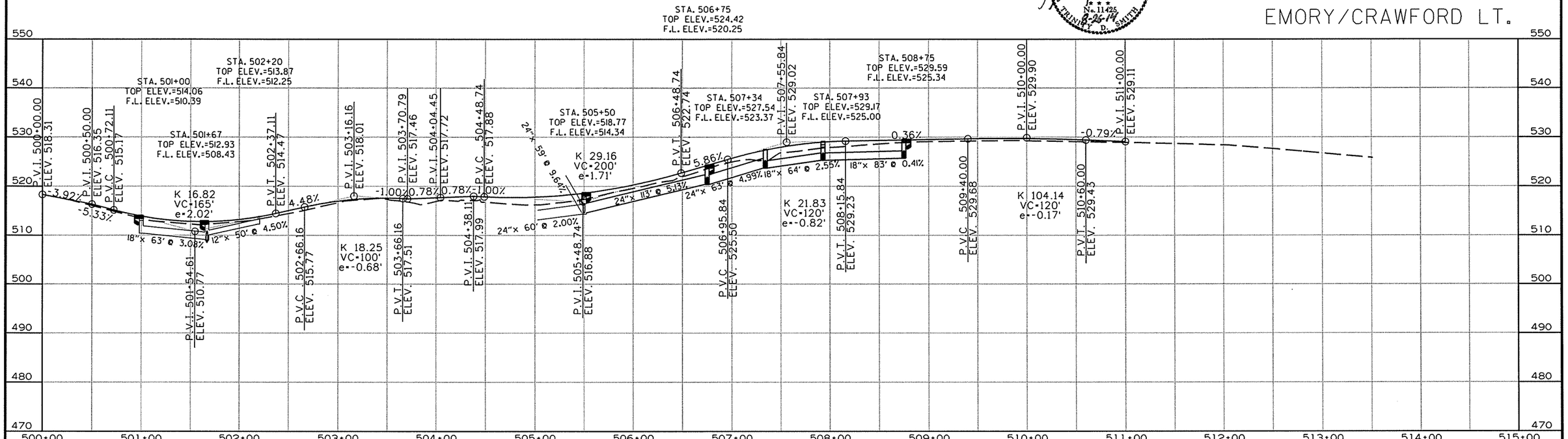
EMORY/CRAWFORD

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	32	101

(2) PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
8-25-14
TRINITY D. SMITH

EMORY/CRAWFORD LT.

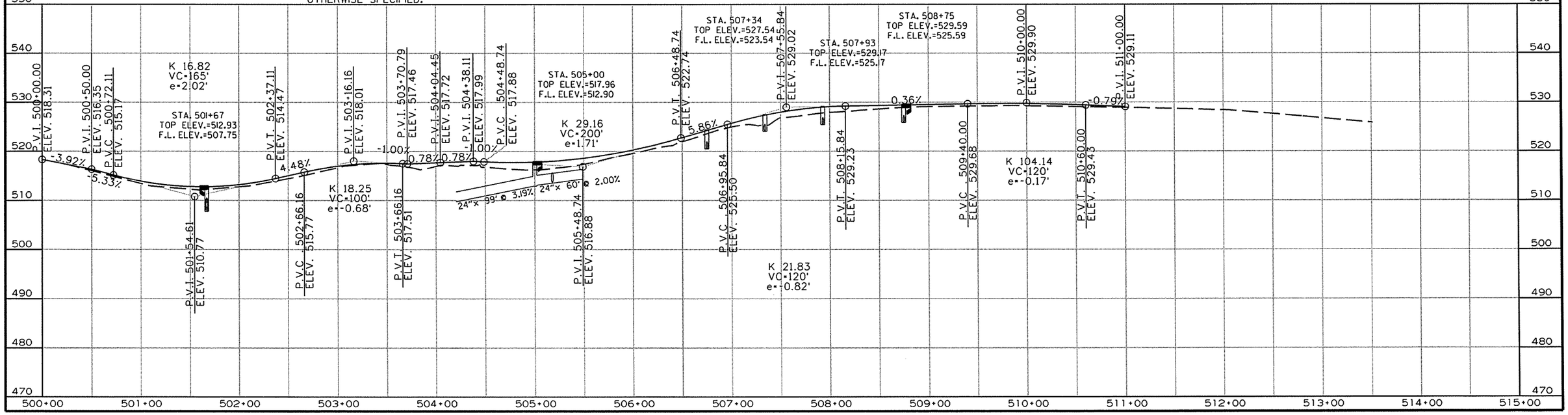


ALL R.C. PIPE CULVERTS SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED.

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

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

EMORY/CRAWFORD RT.



R061214.DGN 7/13/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	33	101

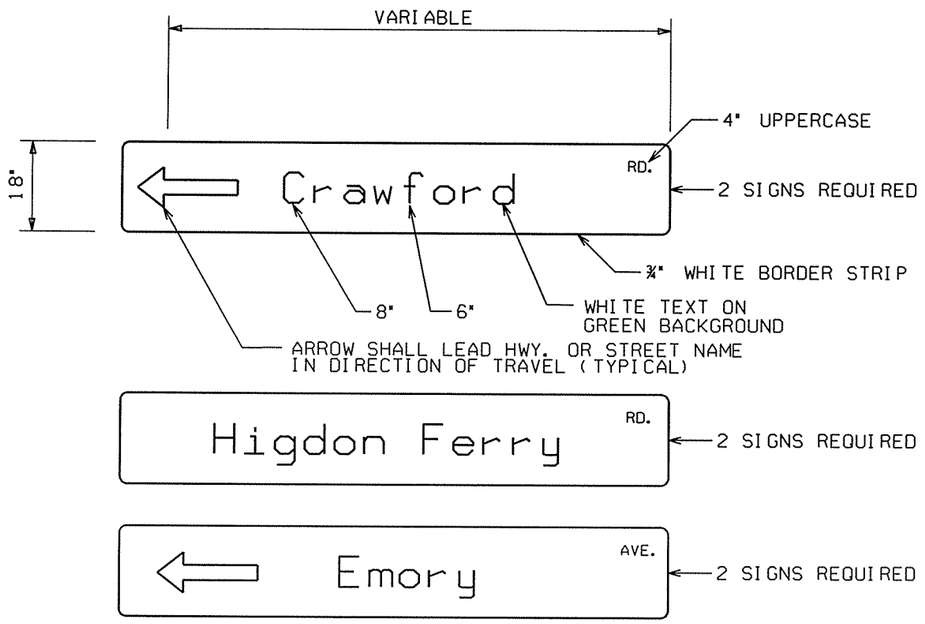
(2) TRAFFIC SIGNAL QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14

TRAFFIC SIGNAL QUANTITIES

ITEM NO.	ITEM	QUANTITY	UNIT
SP&701	SYSTEM LOCAL CONTROLLER TS2-TYPE 2, E-NET (8 PHASES)	1	EACH
SP&706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	8	EACH
SP&706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	4	EACH
SP&707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	8	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	1933	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	250	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	592	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (2")	20	LIN. FT.
710	NON-METALLIC CONDUIT (3")	720	LIN. FT.
711	CONCRETE PULL BOX (TYPE 2 HD)	5	EACH
711	CONCRETE PULL BOX (TYPE 2)	3	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (32')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (36')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (54')	1	EACH
715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	3	EACH
733	VIDEO CABLE	1642	LIN. FT.
• SP&733	VIDEO DETECTOR (CLR)	8	EACH
SP&733	VIDEO EDGE CARD EXTENDER	2	EACH
733	VIDEO MONITOR (CLR)	1	EACH
• SP&733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	5	EACH
SP&733	VEHICLE DETECTOR RACK (24 CHANNEL)	1	EACH
SP	ANTENNA CABLE (TYPE 6)	70	LIN. FT.
SP	ANTENNA SUPPORT (SHOE BASE, 50' HT.)	1	EACH
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., EGC)	515	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., EGC)	185	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	20	LIN. FT.
SP	LOCAL REPEATER RADIO WITH ANTENNA	1	EACH
SP	LUMINAIRE ASSEMBLY	4	EACH
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	774	LIN. FT.
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	1.00	LUMP SUM
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
SP	18" STREET NAME SIGN	6	EACH

• ONE SPARE VIDEO DETECTOR AND ONE SPARE VIDEO PROCESSOR SHALL BE SUPPLIED.



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.

DATE: 07-22-14 FILE NAME: t061214.dgn

LOCATION: HWY. 88 (HIGDON FERRY)/CRAWFORD & EMORY
CITY: HOT SPRINGS
COUNTY: GARLAND
DISTRICT: 6 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	34	101

(2) TRAFFIC SIGNAL NOTES

TRAFFIC SIGNAL NOTES:

1. PERFORM ELECTRICAL WORK IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (2012) NATIONAL ELECTRICAL CODE, NFPA 101 (2014) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.
2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (EGC) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND EGC TO GROUND LUG OF CONTROL CABINET AND TO POLE GROUND. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.
3. ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER), GALVANIZED STEEL SERVICE RISER, METER LOOP (IF REQUIRED), AND WEATHERHEAD AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. IF THE SERVICE POINT IS OVER 10 FEET FROM THE CONTROLLER, THE CONTRACTOR SHALL PROVIDE AND INSTALL A SEPARATE TWO CIRCUIT EXTERNAL BREAKER (SECONDARY BREAKER) ON OR NEAR THE TRAFFIC SIGNAL CONTROLLER CABINET AND SHALL INSTALL CONDUIT, ELECTRICAL SERVICE WIRE (2c/#6 USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO TAP INTO THE CITY'S MAIN BREAKER AS PART OF THIS CONTRACT. CONDUIT IS PAID FOR AS A SEPARATE ITEM OF THIS CONTRACT. TWO CIRCUIT BREAKERS, CONSIDERED SUBSIDIARY TO THE CONTROL EQUIPMENT, ARE NEEDED WHERE STREET LIGHTING IS INCLUDED. AS PART OF THE SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2c/#12 AWG UF RATED, TYPICAL) SHALL BE KEPT FROM THE CIRCUIT SERVING THE TRAFFIC SIGNAL CONTROL EQUIPMENT FROM THE POINT OF TIE-IN AT THE SECONDARY BREAKER PROVIDED BY THE CONTRACTOR.
4. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.
5. TRAFFIC CONTROLLER CABINET 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 AS SHOWN IN THE DETAILS MAY BE USED.
9. TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.
10. PAVEMENT MARKING SHOWN FOR REFERENCE ONLY. SEE PAVEMENT MARKING PLAN SHEETS.
11. FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON SPECIAL DETAILS). PAYMENT WILL BE INCLUDED IN SECTION 714, AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
12. ALL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE 3" DIAMETER UNLESS SPECIFIED ON PLANS.
13. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.
14. LUMINAIRE ASSEMBLIES SHALL BE OF THE FULL CUTOFF TYPE.
15. HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTUATE THE ASSOCIATED PHASE. COMBINATION (COMB.) DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNT/OCCUPANCY DATA.
16. THE LOCAL RADIO WITH ANTENNA SHALL BE COMPATIBLE WITH THE EXISTING CLOSED LOOP COORDINATION SYSTEM IN THE CITY.
17. TO DETERMINE UTILITY CLEARANCES ABOVE THE TRAFFIC SIGNAL POLE, REFER TO THE POLE SCHEDULE FOR VERTICAL SHAFT HEIGHT. WHERE THE POLE SCHEDULE INDICATES THAT A LUMINAIRE ARM WILL BE USED, 38 FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINAIRE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINAIRE ARM, A HEIGHT OF 21' SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL 6 FEET SHOULD BE USED DIRECTLY ABOVE "VIDEO DETECTOR" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.
18. THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS 6 FEET. REFER TO TRAFFIC SIGNAL PLANS FOR SPECIFIC LOCATION OF POLES, CONTROLLER AND ANY OTHER NON-BREAKAWAY OBSTRUCTIONS. REFER TO "DESIGN PARAMETERS, MINIMUM CLEAR ZONE DISTANCE" FOR MINIMUM DISTANCE FROM THE EDGE OF TRAVELED WAY TO THE FACE OF A NON-BREAKAWAY POLE OR OBSTRUCTION. TRAFFIC SIGNAL POLES OR ANY OTHER NON-BREAKAWAY OBSTRUCTION SHALL NOT BE INSTALLED WITHIN THE CLEAR ZONE.
19. AS DETERMINED BY THE ENGINEER, FOUNDATION EMBEDMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVING PLAN EMBEDMENT AND AT LEAST HALF OF THE REMAINING PLAN EMBEDMENT LENGTH IS KEYED INTO COMPETENT ROCK.
20. CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP BEHIND HAND-HOLE COVER AT BASE OF POLE. TERMINAL STRIP SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT POLE COVER IS MISSING. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714-TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION.
21. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO ISMA STANDARDS.
22. ONE VIDEO PROGRAMMING MODULE SHALL BE PROVIDED FOR AIMING AND SETUP OF DETECTORS IF THE VIDEO SYSTEM CANNOT BE ADJUSTED THROUGH HARDWARE AND SOFTWARE PROVIDED BY ITEMS WITHIN THE JOB.
23. TRAFFIC SIGNAL CONTRACTOR MUST NOTIFY RESIDENT ENGINEER OR ASSIGNED DEPARTMENT PROJECT INSPECTOR EACH DAY PRIOR TO SIGNAL RELATED WORK. NO WORK ON TRAFFIC SIGNALS WILL BE ALLOWED OR APPROVED WITHOUT THIS PRIOR NOTIFICATION.
24. ALL STEEL POLES SHALL BE DESIGNED TO MEET THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14

DATE: 07-22-14 FILE NAME: t061214.dgn

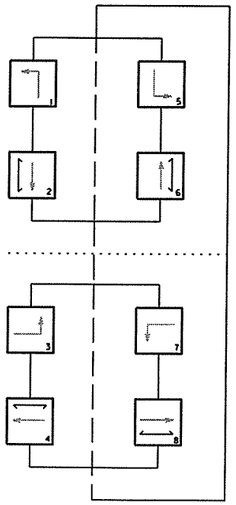
LOCATION: HWY. 88 (HIGDON FERRY)/CRAWFORD & EMORY
CITY: HOT SPRINGS
COUNTY: GARLAND
DISTRICT: 6 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	35	101

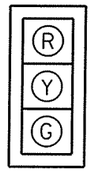
(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14

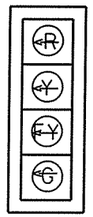
PHASING DIAGRAM



SIGNAL FACES
12" LENSES

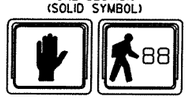


2&3
5&6
8&9
11&12



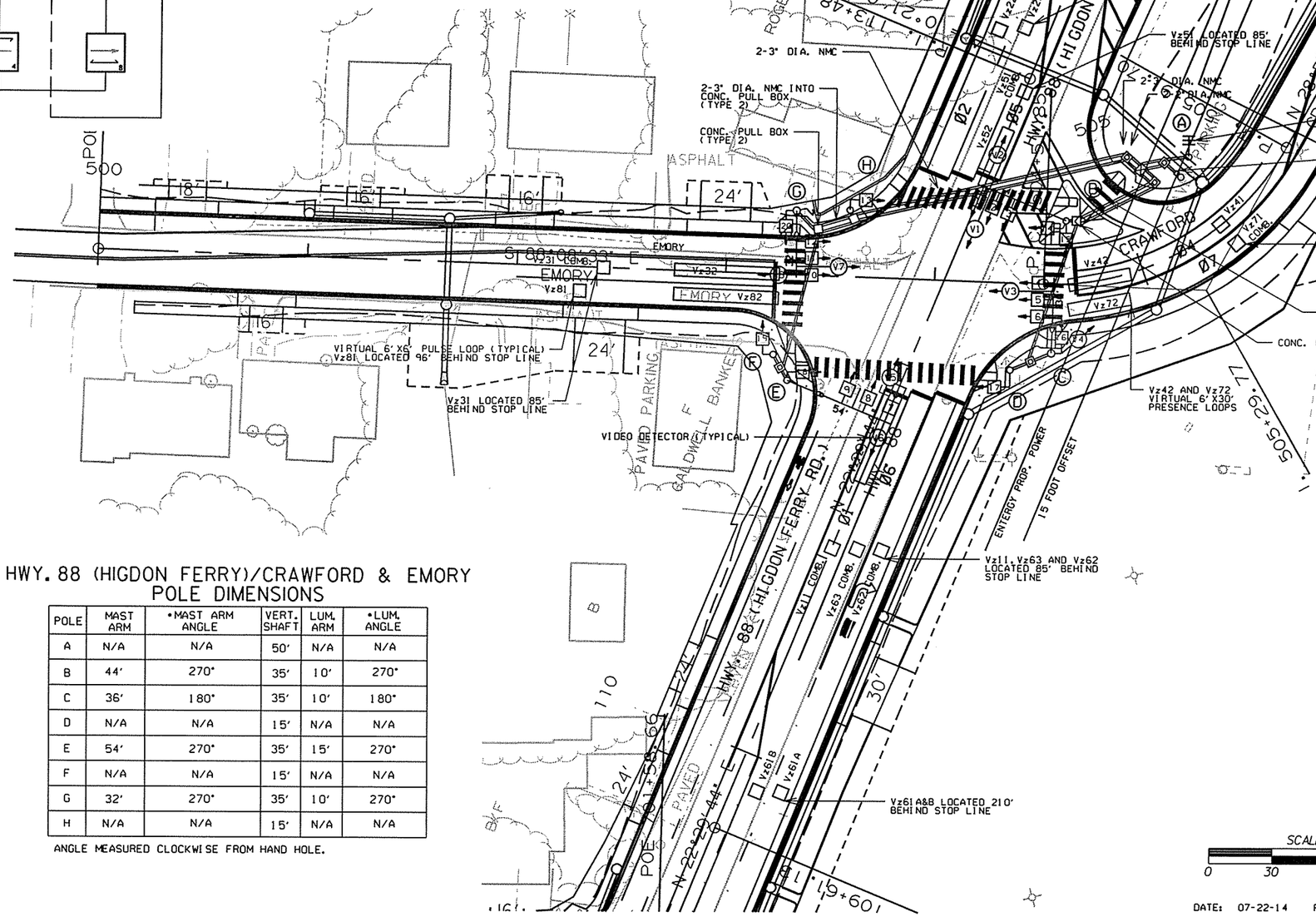
1&7
4&10

ONE SECTION
(SOLID SYMBOL)



13&14
15&16
17&18
19&20

NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS



HWY. 88 (HIGDON FERRY RD.)/CRAWFORD & EMORY ANTENNA ORIENTATION

RADIO ANTENNA ORIENTATION SHALL BE OBTAINED FROM CHARLIE BOCKSNICK OF THE CITY OF HOT SPRINGS PHONE (501) 321-6945.

HWY. 88 (HIGDON FERRY)/CRAWFORD & EMORY POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 88 - STA. 113+43.67	85' RT.	992231.83, 1972676.80
B	HWY. 88 - STA. 112+92.80	43' RT.	992173.34, 1972645.96
C	HWY. 88 - STA. 112+31.93	61' RT.	992166.60, 1972582.87
D	HWY. 88 - STA. 112+16.96	46' RT.	992147.00, 1972574.79
E	HWY. 88 - STA. 111+71.17	51' LT.	992040.51, 1972569.32
F	HWY. 88 - STA. 111+79.91	62' LT.	992033.75, 1972581.58
G	HWY. 88 - STA. 112+47.33	78' LT.	992044.49, 1972650.11
H	HWY. 88 - STA. 112+68.53	51' LT.	992078.05, 1972659.15

NOTE TO CONTRACTOR: EXISTING TRAFFIC SIGNAL OPERATIONS SHALL BE MAINTAINED THROUGHOUT ALL CONSTRUCTION PHASES.

HWY. 88 (HIGDON FERRY)/CRAWFORD & EMORY POLE DIMENSIONS

POLE	MAST ARM	*MAST ARM ANGLE	VERT. SHAFT	LUM. ARM	*LUM. ANGLE
A	N/A	N/A	50'	N/A	N/A
B	44'	270°	35'	10'	270°
C	36'	180°	35'	10'	180°
D	N/A	N/A	15'	N/A	N/A
E	54'	270°	35'	15'	270°
F	N/A	N/A	15'	N/A	N/A
G	32'	270°	35'	10'	270°
H	N/A	N/A	15'	N/A	N/A

ANGLE MEASURED CLOCKWISE FROM HAND HOLE.

SCALE IN FEET
0 30 60 120

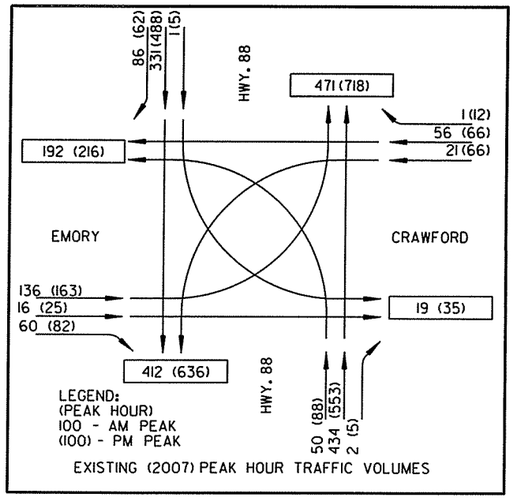
DATE: 07-22-14 FILE NAME: t061214.dgn

LOCATION: HWY. 88 (HIGDON FERRY)/CRAWFORD & EMORY
CITY: HOT SPRINGS
COUNTY: GARLAND
DISTRICT: 6 SCALE: 1"=60' DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	36	101

(2) SIGNALIZATION PLAN SHEET

TRAFFIC FLOW DIAGRAM



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14

2-3" DIA. NMC

2-3" DIA. NMC INTO CONC. PULL BOX (TYPE 2)

CONC. PULL BOX (TYPE 2)

Vz22 AND Vz23 LOCATED 65' BEHIND STOP LINE

Vz51 LOCATED 85' BEHIND STOP LINE

2-3" DIA. NMC

2" DIA. NMC

LOCAL ANTENNA, ANTENNA CABLE SHALL BE INSTALLED IN A SEPARATE 2" DIA. NMC WHICH SHALL CONTAIN NO OTHER POWER CARRYING CONDUCTORS

SERVICE POINT AND MAIN BREAKER BY CONTRACTOR WITH 2" DIA. NMC INTO CONTROLLER WITHIN 10 FEET

Vz41 AND Vz71 LOCATED 85' BEHIND STOP BAR

2-3" DIA. NMC INTO CONTROLLER

CONC. PULL BOX (TYPE 2)

Vz42 AND Vz72 VIRTUAL 6'X30' PRESENCE LOOPS

VIRTUAL 6'X6' PULSE LOOP (TYPICAL) Vz81 LOCATED 96' BEHIND STOP LINE

Vz31 LOCATED 85' BEHIND STOP LINE

VIDEO DETECTOR (TYPICAL)

Vz11, Vz63 AND Vz62 LOCATED 85' BEHIND STOP LINE

DESIGN PARAMETERS

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

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

MINIMUM CLEAR ZONE DISTANCE
3 FEET BEHIND CURB

SCALE IN FEET
0 20 40 80

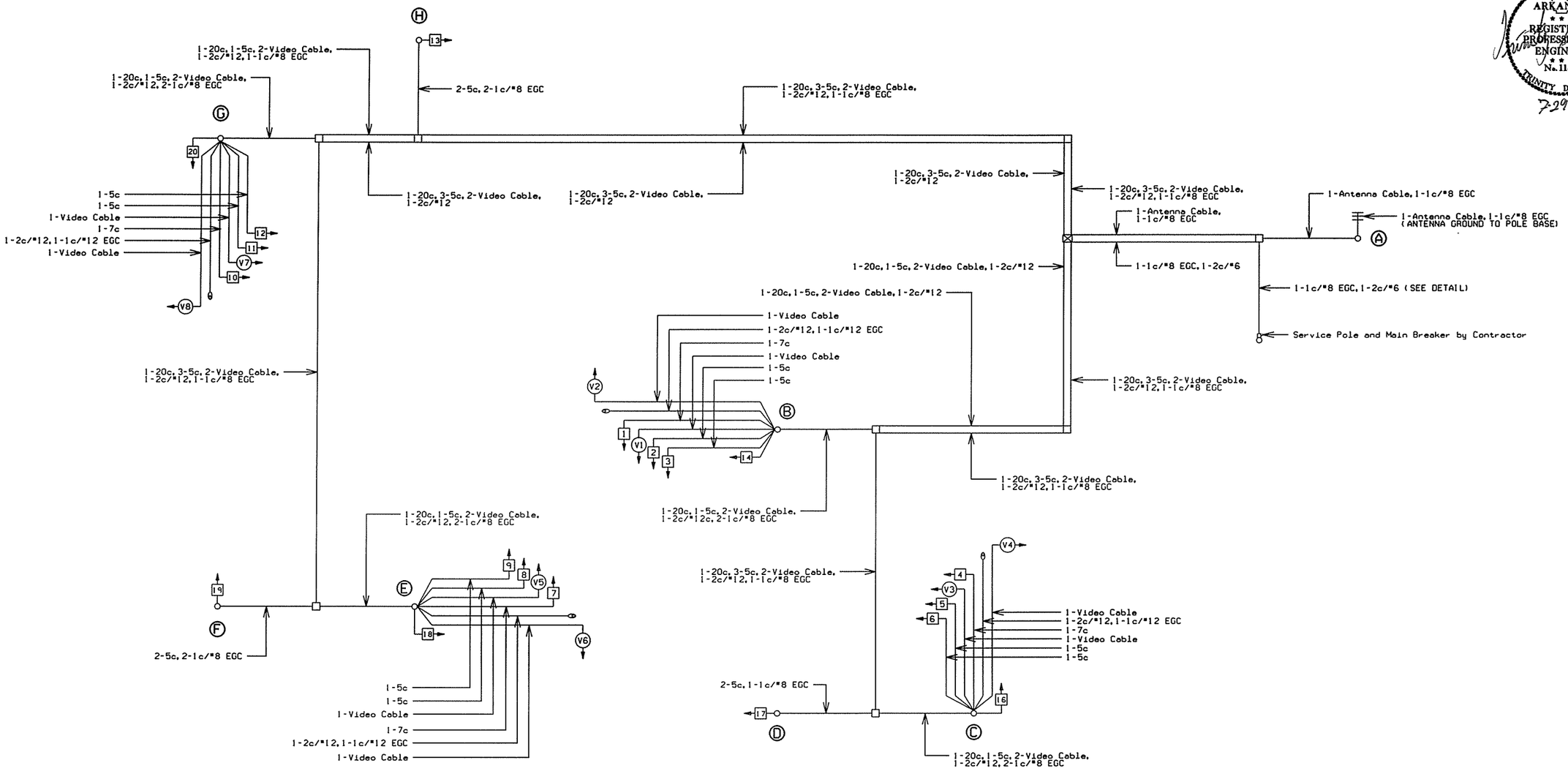
DATE: 07-22-14 FILE NAME: t061214.dgn

LOCATION:	HWY. 88 (HIGDON FERRY) / CRAWFORD & EMORY		
CITY:	HOT SPRINGS		
COUNTY:	GARLAND		
DISTRICT:	6	SCALE: 1" = 40'	DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	37	101

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-29-14



WIRING DIAGRAM

NOTES TO CONTRACTOR:

1. ONE SEPARATE 1-5c IS RUN TO EACH POLE FOR THE PEDESTRIAN PUSH BUTTON.
2. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
3. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.

DATE: 07-22-14 FILE NAME: t061214.dgn

LOCATION:	HWY. 88 (HIGDON FERRY)/CRAWFORD & EMORY		
CITY:	HOT SPRINGS		
COUNTY:	GARLAND		
DISTRICT:	6	SCALE: N/A	DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	38	101

(2) SIGNALIZATION PLAN SHEET

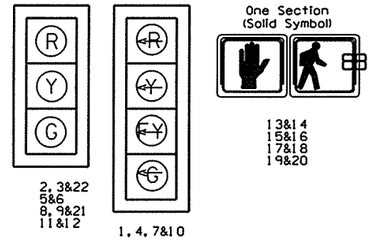
INTERVAL CHART

SIGNAL FACES	HWY. 88 (HIGDON FERRY RD.)/CRAWFORD & EMORY INTERVAL CHART																FLASH SEQ.
	1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	3+7	CLR.	3+8	CLR.	4+7	CLR.	4+8	CLR.	
1	~~G~~	•	~~G~~	•	~~FY~~	•••	~~FY~~	•••	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
2&3	R	R	G	••	R	R	G	••	R	R	R	R	R	R	R	R	R
4	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	•	~~G~~	•	~~FY~~	•••	~~FY~~	•••	~~R~~
5&6	R	R	R	R	R	R	R	R	R	R	G	••	R	R	G	••	R
7	~~G~~	•	~~FY~~	•••	~~G~~	•	~~FY~~	•••	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
8&9	R	R	R	R	G	••	G	••	R	R	R	R	R	R	R	R	R
10	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	•	~~FY~~	•••	~~G~~	•	~~FY~~	•••	~~R~~
11&12	R	R	R	R	R	R	R	R	R	R	R	R	G	••	G	••	R
13&14	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	W	FDW	BLK
15&16	DW	DW	W	FDW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	BLK
17&18	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	W	FDW	BLK
19&20	DW	DW	DW	DW	W	FDW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	BLK

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

SIGNAL FACES

12" LENSES



2, 3&22
5&6
8, 9&21
11&12

1, 4, 7&10

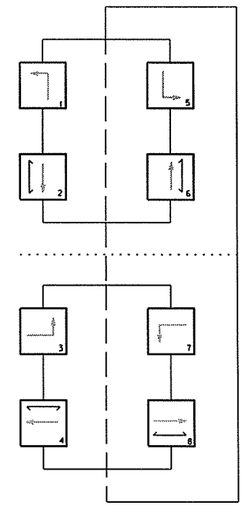
13&14
15&16
17&18
19&20

NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS

DETECTOR SYSTEM DESCRIPTION: JOB 061214										
HOT SPRINGS - HWY. 88/CRAWFORD & EMORY 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	NB LEFT TURN FAR	COMB.			1	V9	1	1		CAMERA V1	23'
Vz12	NB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	23'
Vz21A&B	SB FAR ADVANCE	LOCAL			5	V2	2			CAMERA V2	23'
Vz22	SB NEAR OUTSIDE	COMB.			6	V10	2	2		CAMERA V6	23'
Vz23	SB NEAR INSIDE	COMB.			7	V12	2	4		CAMERA V5	23'
Vz31	EB LEFT TURN FAR	COMB.			9	V11	3	3		CAMERA V3	23'
Vz32	EB LEFT TURN	LOCAL			10	V3	3			CAMERA V3	23'
Vz41	WB FAR ADVANCE	LOCAL			13	V4	4			CAMERA V4	37'
Vz42	WB THRU NEAR	LOCAL			14	P1	4			CAMERA V7	23'
Vz51	SB LEFT TURN FAR	COMB.			17	V13	5	5		CAMERA V5	23'
Vz52	SB LEFT TURN	LOCAL			18	V5	5			CAMERA V5	23'
Vz61A&B	NB FAR ADVANCE	LOCAL			21	V6	6			CAMERA V6	23'
Vz62	NB OUTSIDE NEAR	COMB.			22	V14	6	6		CAMERA V1	23'
Vz63	NB INSIDE NEAR	COMB.			23	V16	6	8		CAMERA V1	23'
Vz71	WB LEFT TURN FAR	COMB.			15	V15	7	7		CAMERA V4	37'
Vz72	WB LEFT TURN	LOCAL			16	V7	7			CAMERA V7	23'
Vz81	EB FAR ADVANCE	LOCAL			11	V8	8			CAMERA V3	58'
Vz82	EB THRU NEAR	LOCAL			12	P3	8			CAMERA V3	23'
PB2A&B	HWY. 88 N. LEG	PED.				P2	2				
PB6A&B	HWY. 88 S. LEG	PED.				P6	6				
PB4A&B	CRAWFORD E. LEG	PED.				P4	4				
PB8A&B	EMORY W. LEG	PED.				P8	8				
					SPARE CHANNELS - 3, 4, 8, 19, 20 AND 24						

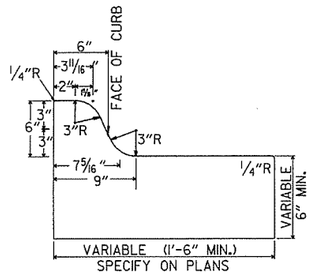
CONTROLLER INPUT ABBREVIATIONS:
V = VEHICLE INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT
NOTE: "AMP CHN" REFERS TO THE DETECTOR RACK OUTPUT POSITION.
THIS IS WIRED TO CONTROLLER INPUT DETECTOR NUMBER WHICH IS PROGRAMMED TO ACTUATE THE DESIGNATED PHASE.

PHASING DIAGRAM

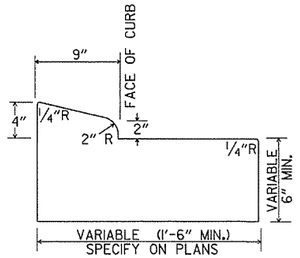


DATE: 07-22-14 FILE NAME: t061214.dgn

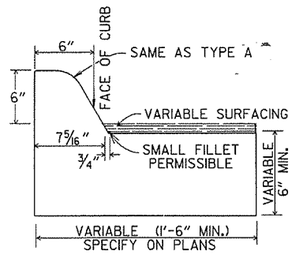
LOCATION: HWY. 88 (HIGDON FERRY)/CRAWFORD & EMORY
CITY: HOT SPRINGS
COUNTY: GARLAND
DISTRICT: 6 SCALE: N/A DRAWN BY: GWE



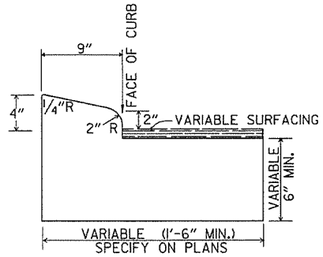
TYPE A



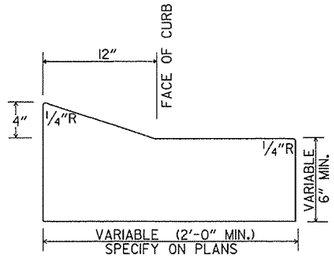
TYPE B-1



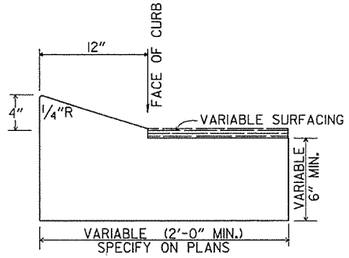
TYPE C



TYPE B-2

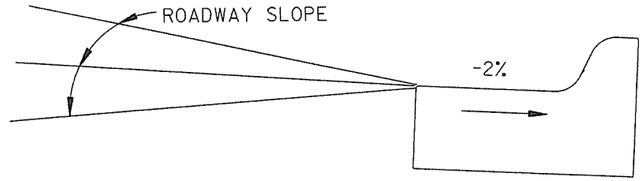


TYPE E-1



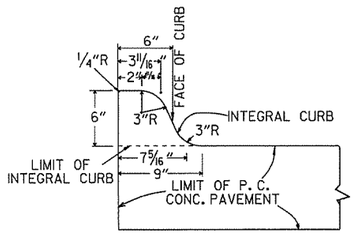
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

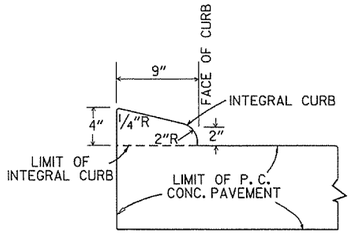


DETAIL OF GUTTER SLOPE

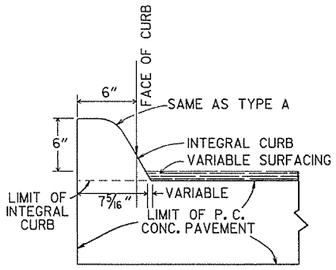
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

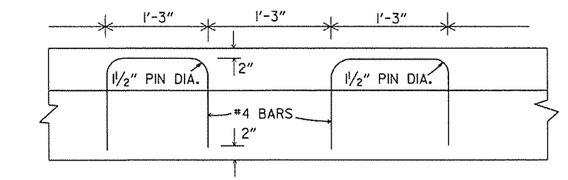


TYPE B



TYPE C

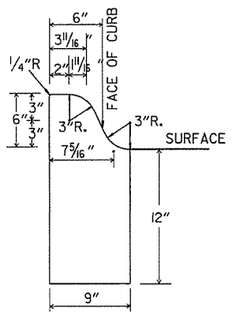
INTEGRAL CURB



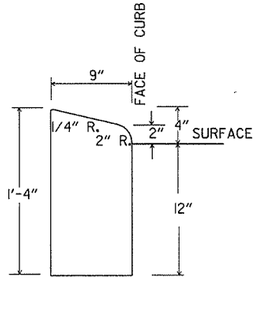
LONGITUDINAL SECTION

ELEVATION

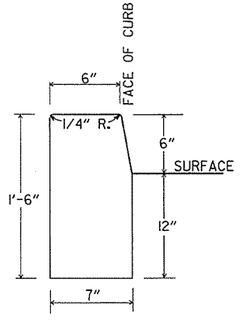
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



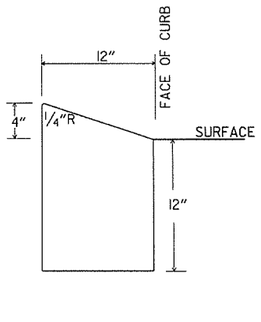
TYPE A



TYPE B

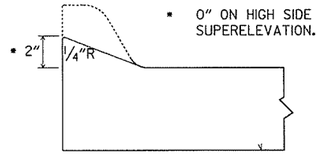


TYPE D



TYPE E

CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

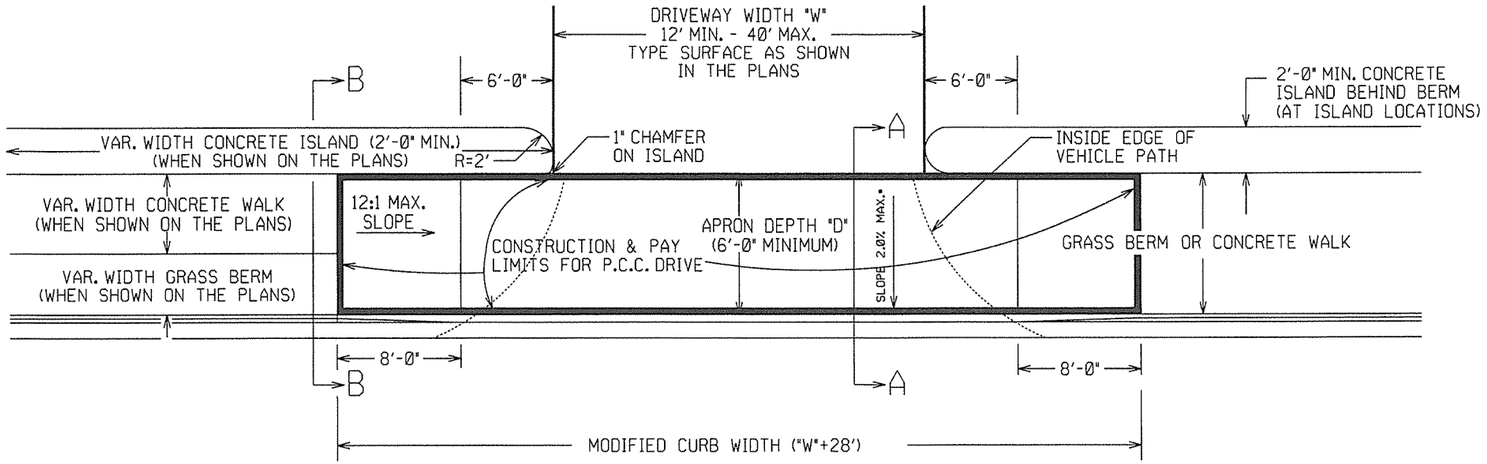
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B I	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

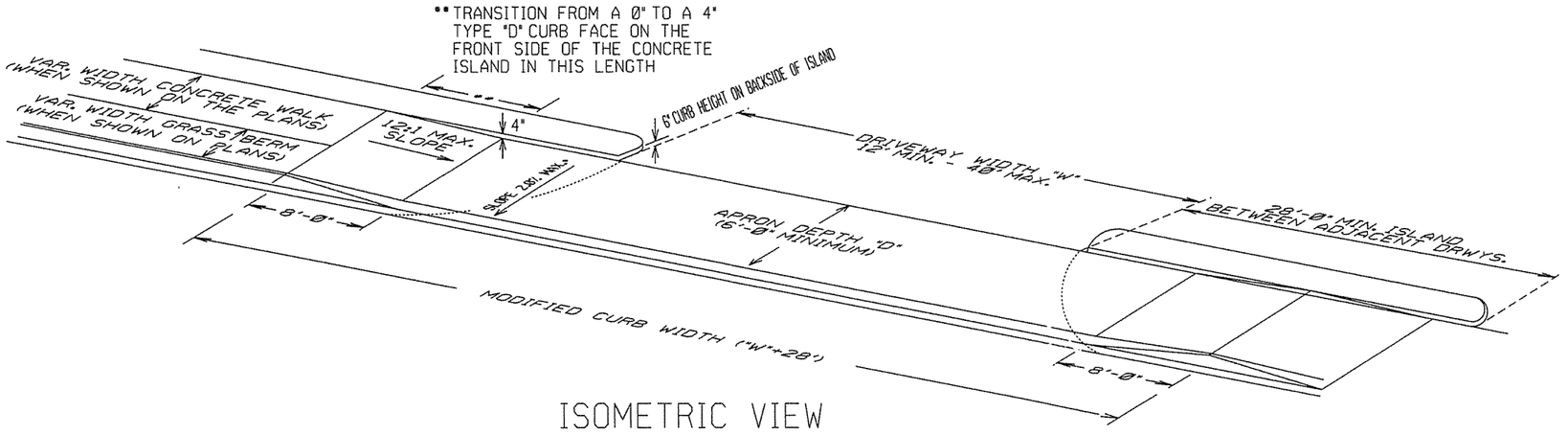
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

STANDARD DRAWING CG-1

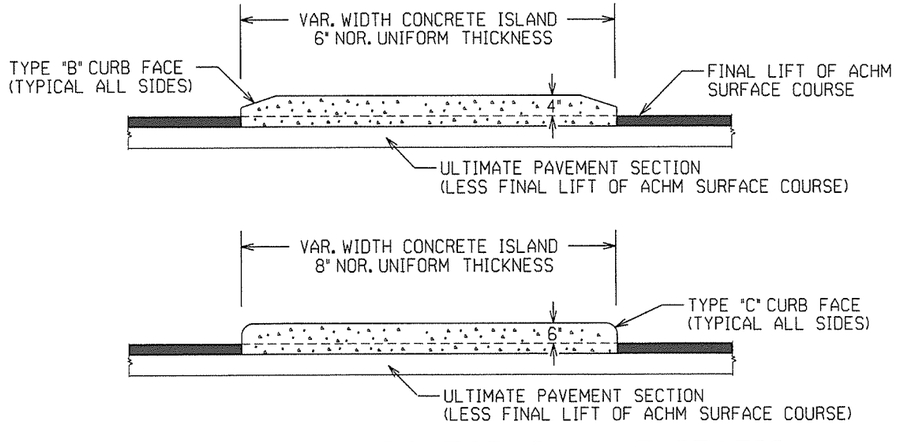


PLAN VIEW

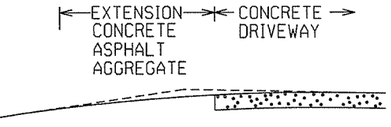


ISOMETRIC VIEW

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



CURBED ISLANDS FOR CHANNELIZATION



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

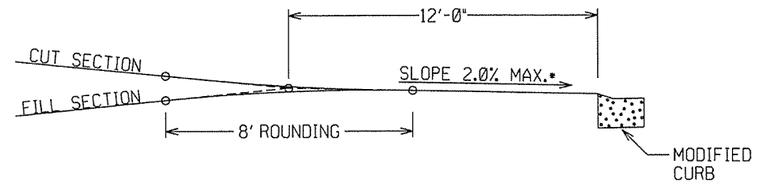
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

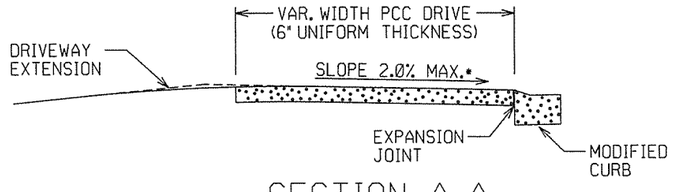
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

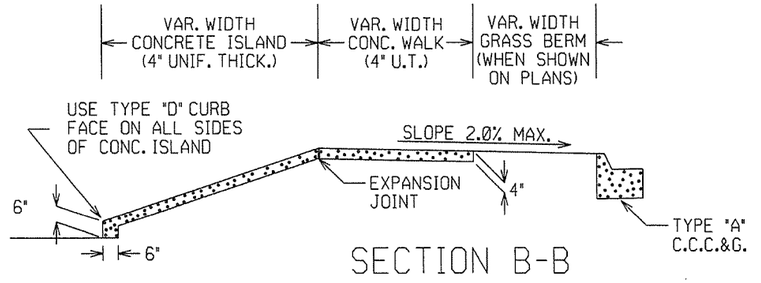


DRIVEWAY VERTICAL ALIGNMENT DETAILS

* NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



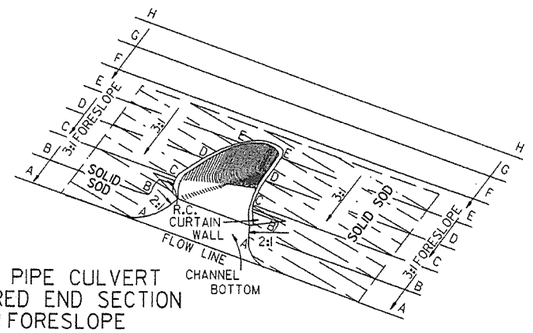
SECTION A-A



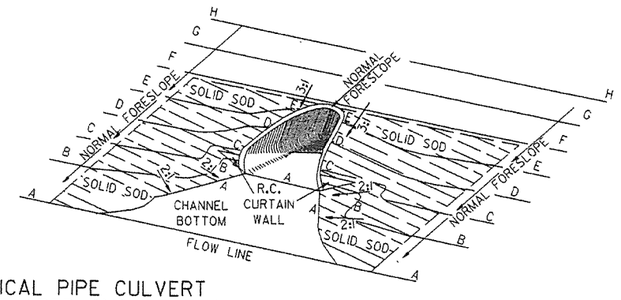
SECTION B-B
CURBED ISLAND BEHIND WALK

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
DATE REV.	DATE FILMED	DESCRIPTION

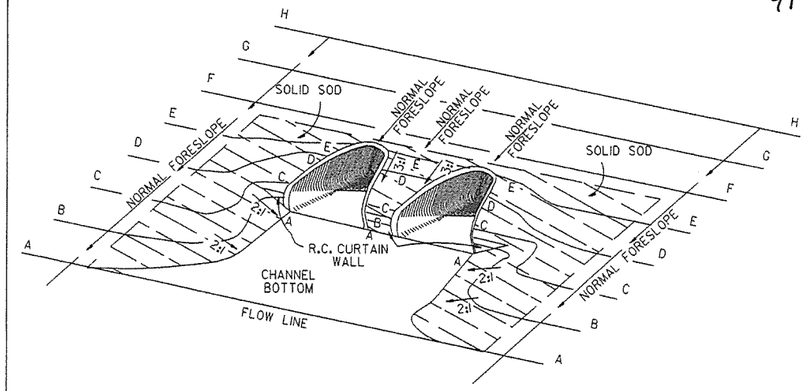
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



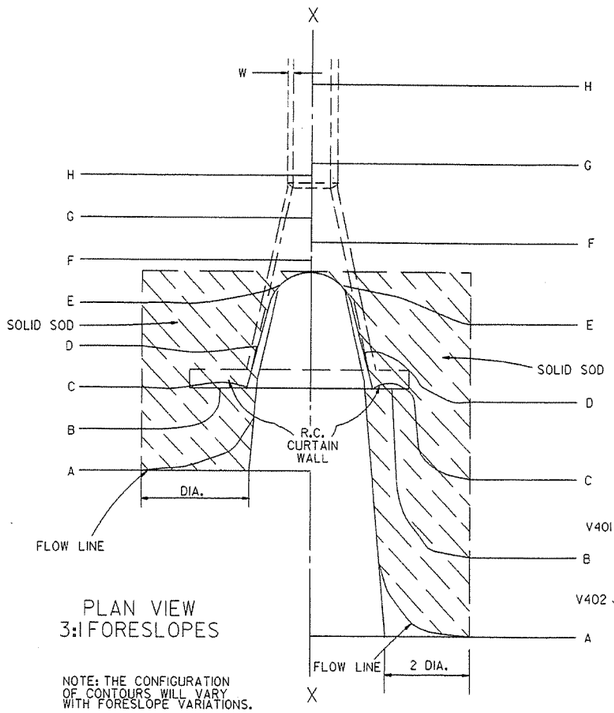
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



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

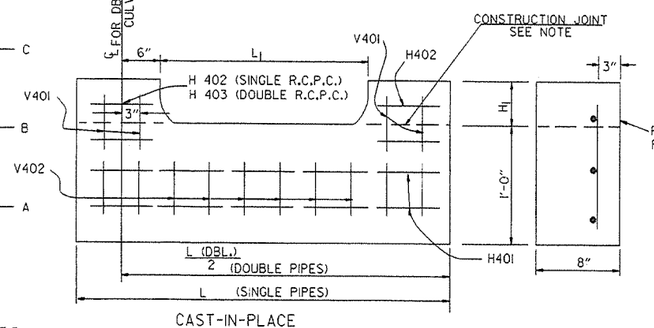
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

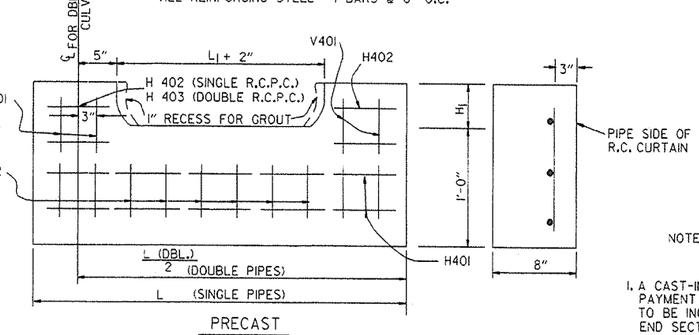
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	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	NO.	H402 L	NO.	V401 L	NO.	V402 L	NO.	DOUBLE R.C. PIPE CULVERT H401 L	NO.	H402 L	NO.	H403 L	NO.	V401 L	NO.	V402 L	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.

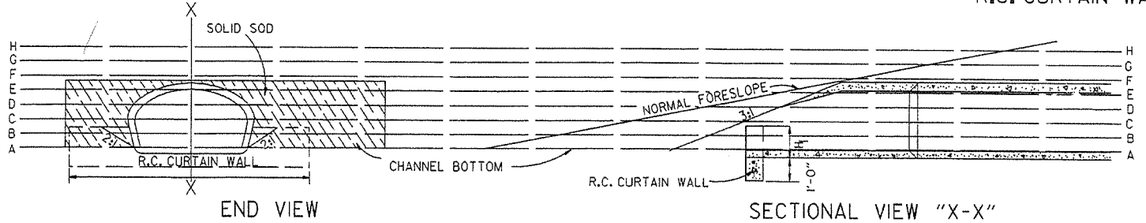
SOLID SODDING

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 W/10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

SECTIONAL VIEW "X-X"

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	10-18-96
10-12-95	CORRECTED SPELLING	
11- 3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

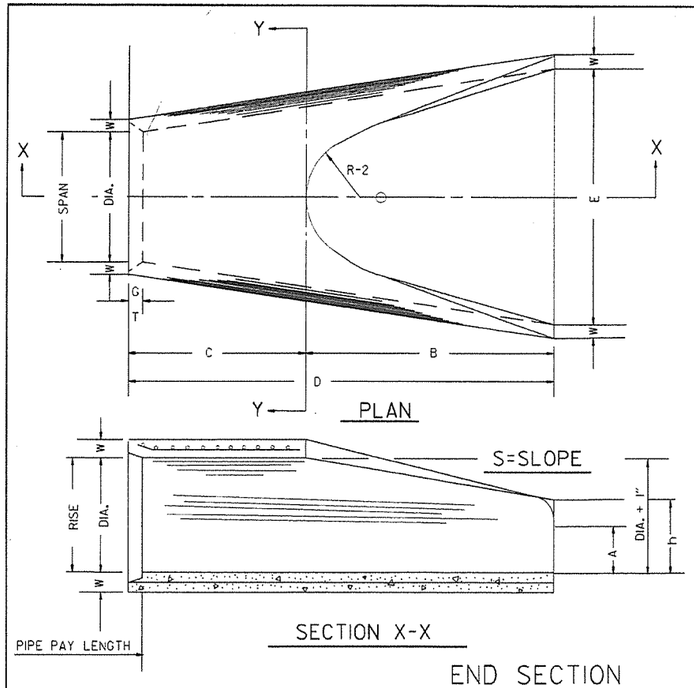
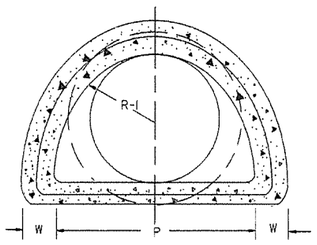
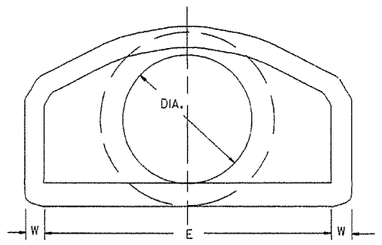


TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15 1/2"	12"	2"	1000	1'-0 1/2"
24"	3"	9 1/2"	3'-7 1/2"	2'-6"	6'-11 1/2"	4'-0"	3:1	25"	33 3/16"	16 13/16"	14"	2 1/2"	1600	1'-1 1/2"
30"	3 1/2"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18 1/16"	15"	3 1/4"	1940	1'-4 3/4"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"	3:1	37"	47 13/16"	24 5/16"	20"	3 1/2"	4100	1'-8"
42"	4 1/2"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53 7/8"	27 1/2"	22"	3 1/2"	5380	2'-2 1/2"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56 1/2"	28 1/2"	22"	3 1/2"	6550	2'-6"
54"	5 1/2"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65 1/2"	33 1/8"	24"	4"	8750	2'-10 1/2"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72 1/2"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 15/16"	24"	5"	13250	4'-6"



SECTION Y-Y



END VIEW

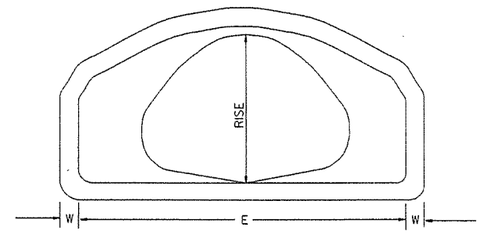
NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

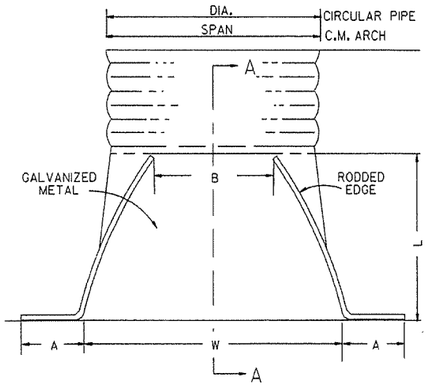
ARCH PIPE

EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1 1/2"	2 1/2:1
18	22	22	13 1/2	14	2 1/2"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32 1/8"	13"	2 1/2"	2 1/2:1
21	26	26	15 1/2	16	2 3/4"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34 1/8"	14"	2 1/2"	2 1/2:1
24	28 1/2	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 13/16"	15"	2 1/2"	2 1/2:1
30	36 1/4	36	22 1/2	23	3 1/2"	10"	3'-1"	3'-0 1/2"	6'-1 1/2"	6'-0"	47 13/16"	20"	3"	2 1/2:1
36	43 3/4	44	26 5/8	27	4"	10 1/2"	4'-0"	2'-1 1/2"	6'-1 1/2"	6'-6"	54 5/16"	22"	3 1/2"	2 1/2:1
42	51 1/8	51	31 5/16	31	4 1/2"	11 1/2"	4'-7"	1-10 1/4"	6'-5 1/4"	7'-2"	59 1/2"	23"	3 3/4"	2 1/2:1
48	58 1/2	59	36	36	5"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	7'-10"	70 5/16"	24"	4 1/4"	2 1/2:1
54	65	65	40	40	5 1/2"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4 3/4"	2 1/4:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 13/16"	24"	5"	2 1/4:1

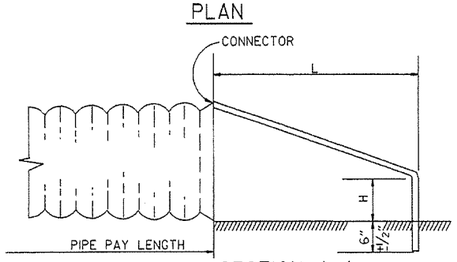
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



END VIEW
CONCRETE ARCH PIPE

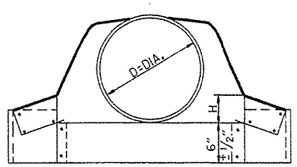


PLAN



SECTION A-A

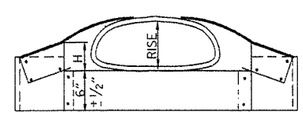
NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.



CIRCULAR PIPE

CIRCULAR PIPE

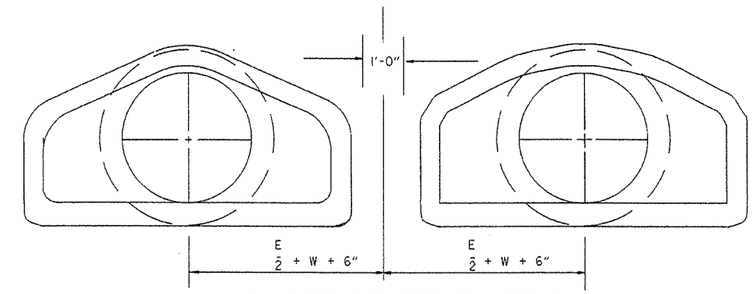
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1 1/2" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2 1/2:1
15	16	7	8	6	26	30	2 1/2:1
18	16	8	10	6	31	36	2 1/2:1
21	16	9	12	6	36	42	2 1/2:1
24	16	10	13	6	41	48	2 1/2:1
30	14	12	16	8	51	60	2 1/2:1
36	14	14	19	9	60	72	2 1/2:1
42	12	16	22	11	69	84	2 1/2:1
48	12	18	27	12	78	90	2 1/2:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1 3/4:1
66	12	18	36	12	87	120	1 1/2:1
72	12	18	39	12	87	126	1 1/3:1



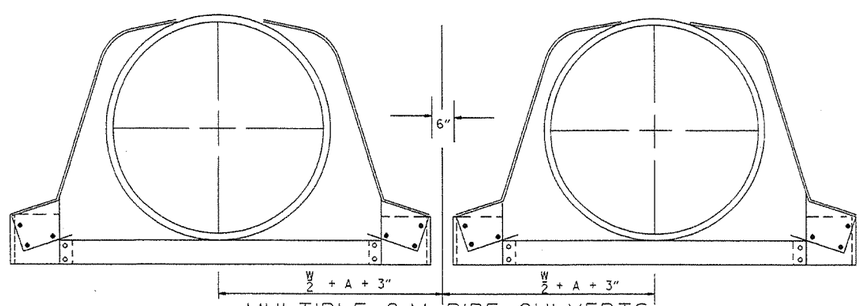
C.M. ARCH PIPE

C.M. ARCH PIPE

EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1 1/2" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2 1/2:1	16
18"	21	15	7	10	6	23	36	2 1/2:1	16
21"	24	18	8	12	6	28	42	2 1/2:1	16
24"	28	20	9	14	6	32	48	2 1/2:1	16
30"	35	24	10	16	6	39	60	2 1/2:1	14
36"	42	29	12	18	8	46	75	2 1/2:1	14
42"	49	33	13	21	9	53	85	2 1/2:1	12
48"	57	38	18	26	12	63	90	2 1/2:1	12
54"	64	43	18	30	12	70	102	2 1/4:1	12
60"	71	47	18	33	12	77	114	2 1/4:1	12



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

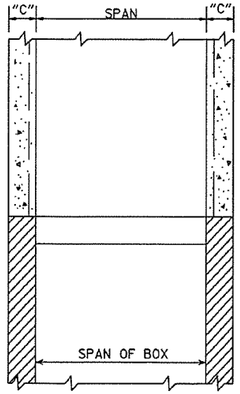
END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS

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

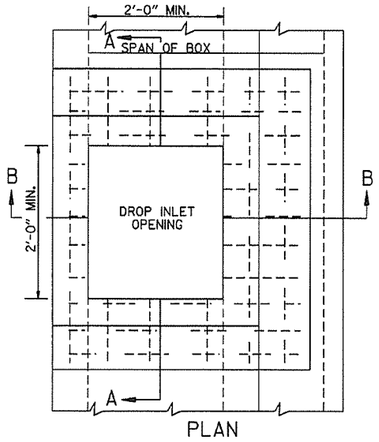
ARKANSAS STATE HIGHWAY COMMISION

FLARED END SECTION

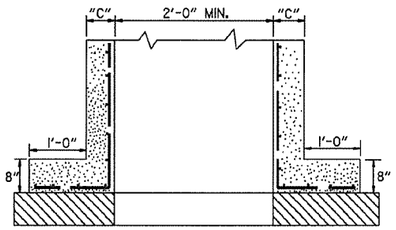
STANDARD DRAWING FES-2



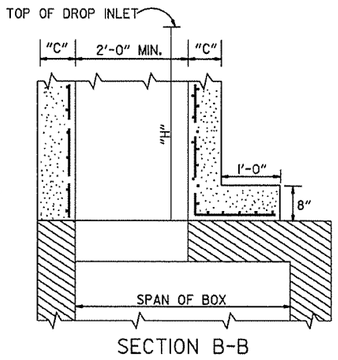
SECTION B-B



PLAN

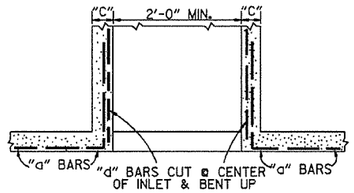


SECTION A-A

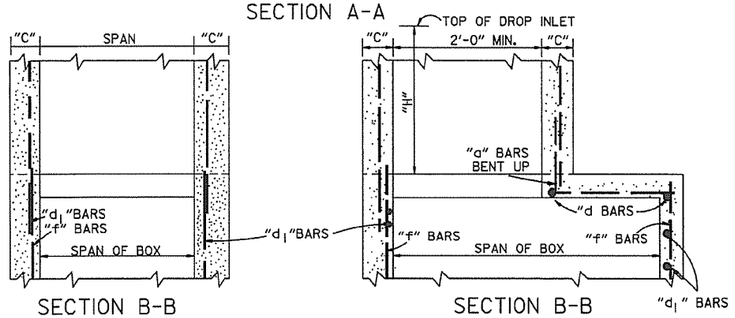


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



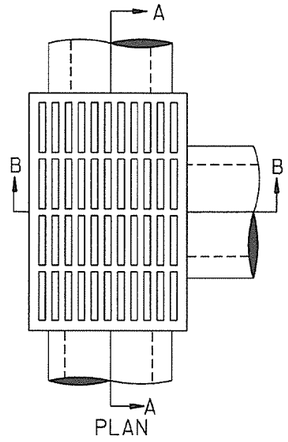
SECTION A-A



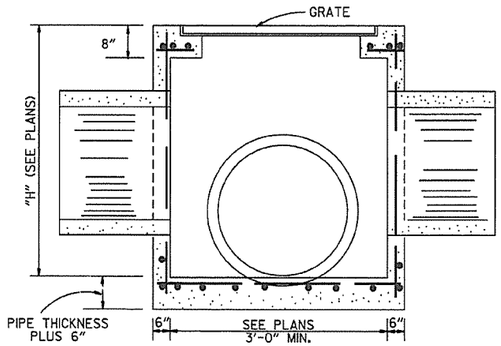
SECTION B-B SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.

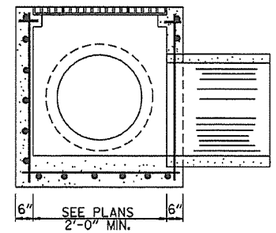


PLAN



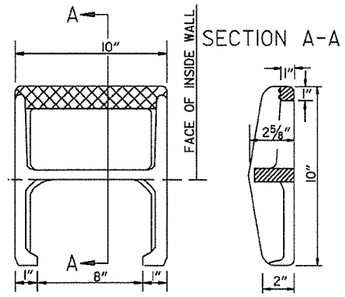
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

DROP INLET (TYPE E)



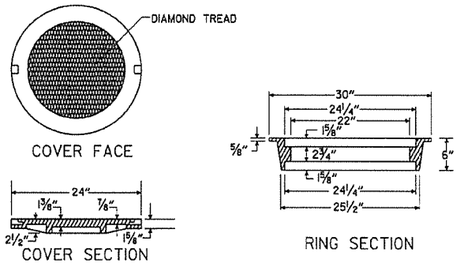
SECTION A-A

APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

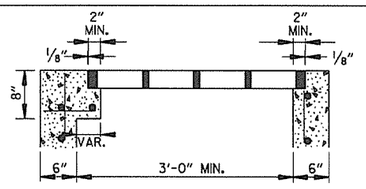
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

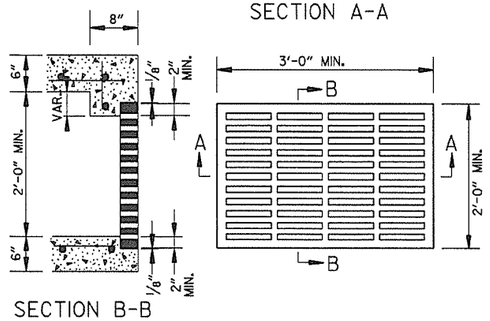


APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



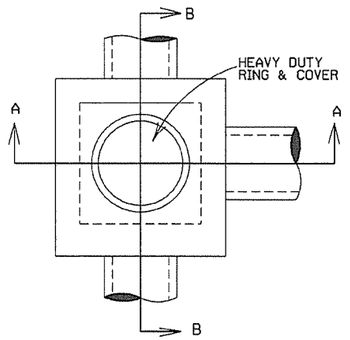
SECTION A-A



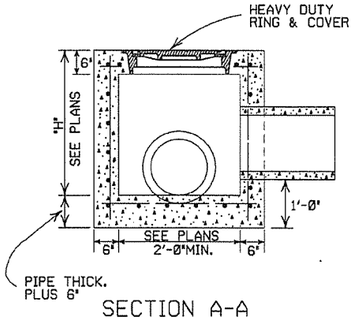
SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

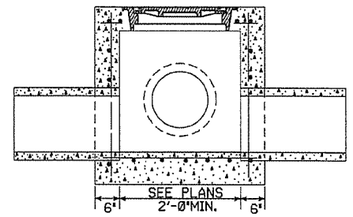


PLAN



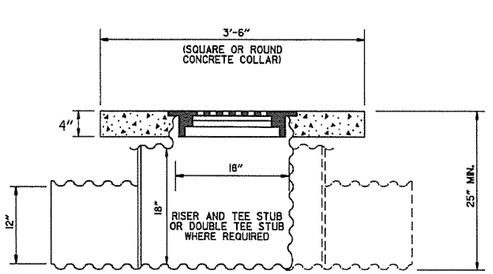
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE JUNCTION BOX TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.

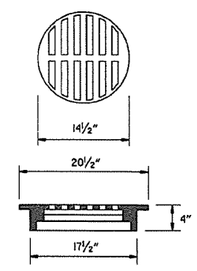


SECTION B-B

JUNCTION BOX (TYPE E)



NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12" PIPE CULVERTS TO BE MEASURED AND PAID FOR AS " 12" SIDE DRAIN ".



USE NEENAH R-5901-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

DETAIL OF YARD DRAIN

GENERAL NOTES:

1. ALL EXPOSED CORNERS SHALL BE ¾" CHAMFERED.
2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL SHALL BE ¾" PREFORMED FIBER.
4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
5. GRATE AND FRAME SHALL NOT BE PAINTED.
6. GRATE SHALL BE BICYCLE SAFE.
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

DATE REV.	REVISION	DATE FILMED
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED DI (TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS & JUNCTION BOXES

STANDARD DRAWING FPC-9

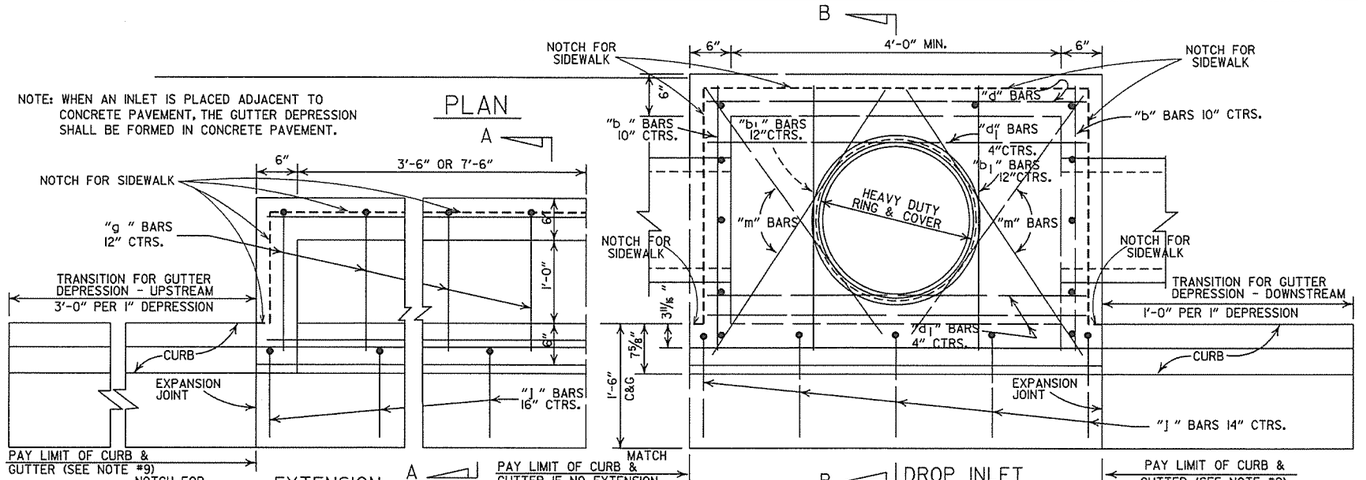
4'-0" LENGTH DROP INLET

DROP INLET EXTENSION

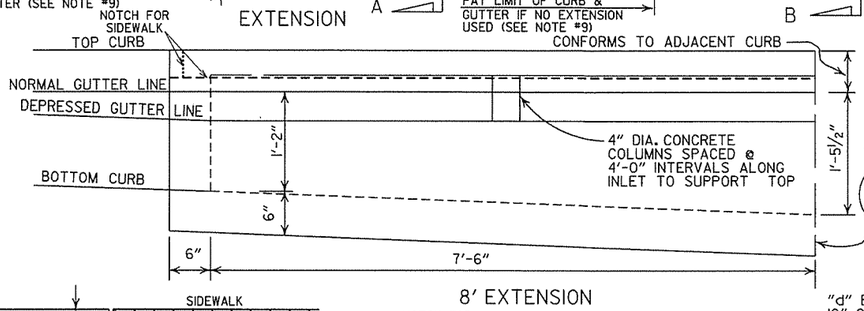
PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0" CLASS A CONC. CU. YDS.	HEIGHT 5'-0" REINF. STEEL POUNDS	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC. CU. YDS.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL POUNDS	4'-0" CLASS A CONC. CU. YDS.	4'-0" REINF. STEEL POUNDS	8'-0" CLASS A CONC. CU. YDS.	8'-0" REINF. STEEL POUNDS
18"	2'-6"	1.77	156	0.28	22	0.58	38	0.87	72
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	DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.			
42"	4'-4"	2.95	250	0.34	30				
48"	4'-10"	3.21	265	0.36	32				
						0.04	3		

NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

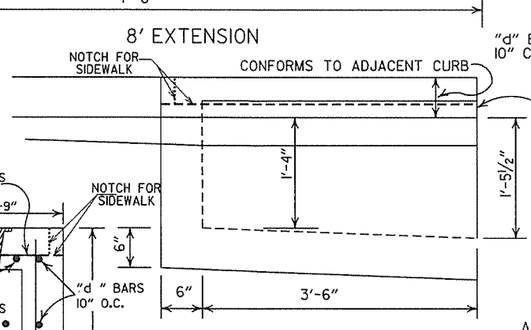
NOTE: WHEN AN INLET IS PLACED ADJACENT TO CONCRETE PAVEMENT, THE GUTTER DEPRESSION SHALL BE FORMED IN CONCRETE PAVEMENT.



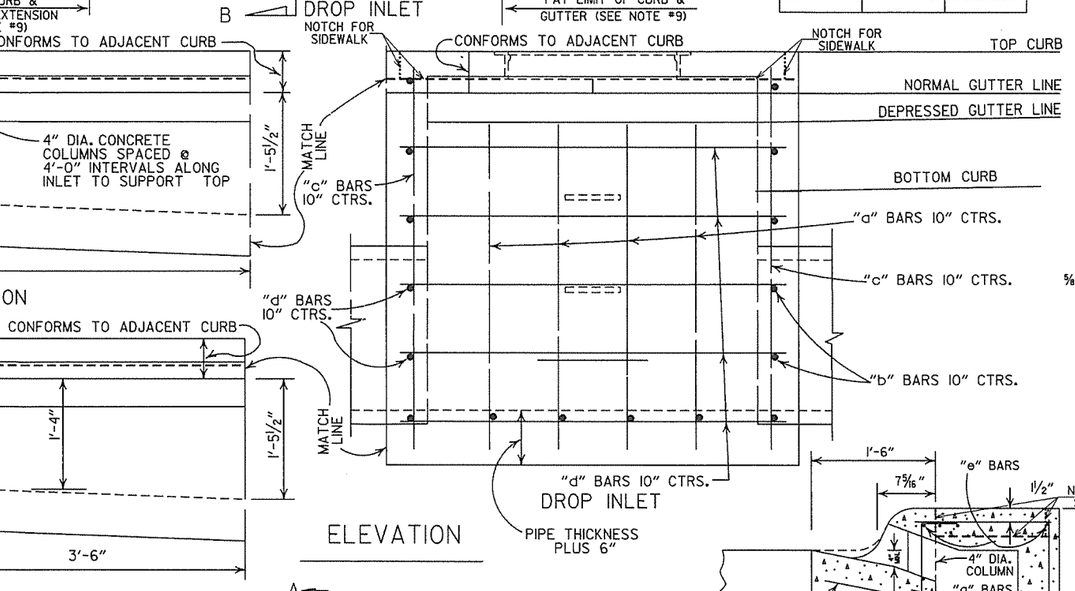
EXTENSION



8' EXTENSION



4' EXTENSION

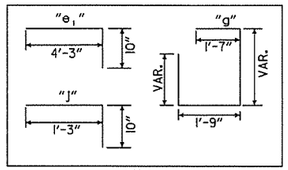


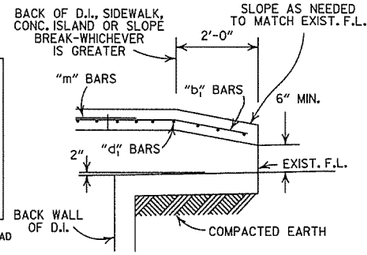
DROP INLET

ELEVATION

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

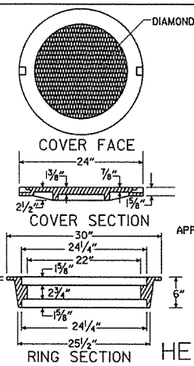
BAR DIAMOND





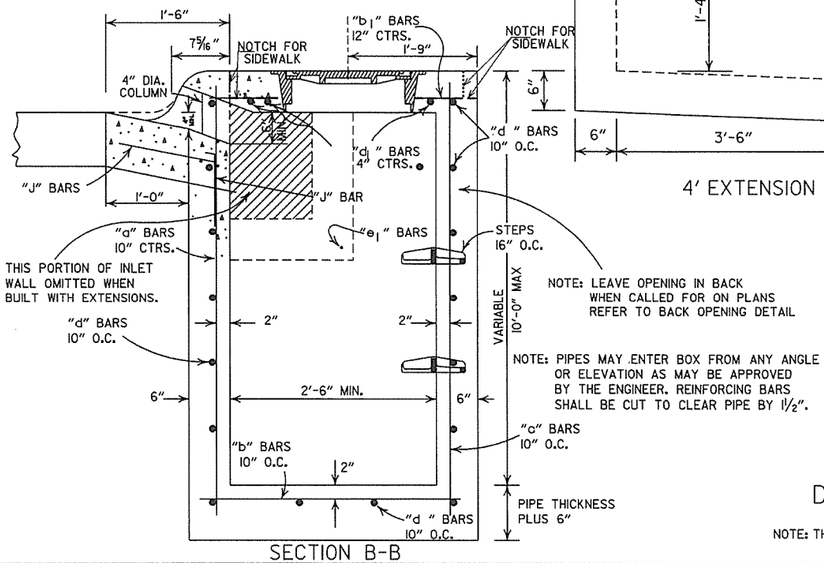
BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).

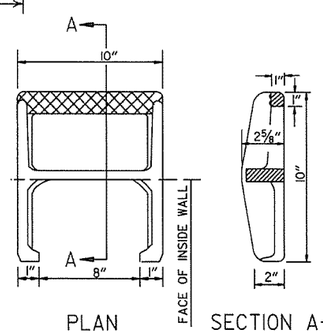


APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



SECTION B-B

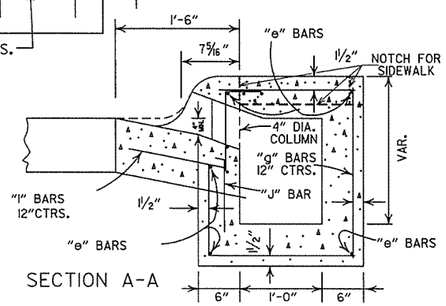


PLAN SECTION A-A

DETAIL OF STEP FOR DROP INLET

APPROX. WEIGHT = 11 LBS. (CAST IRON)

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.



SECTION A-A

GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE #4 AND HAVE 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
6. WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (F.P.C.-9D).
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
9. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
10. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
11. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
12. 4"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.

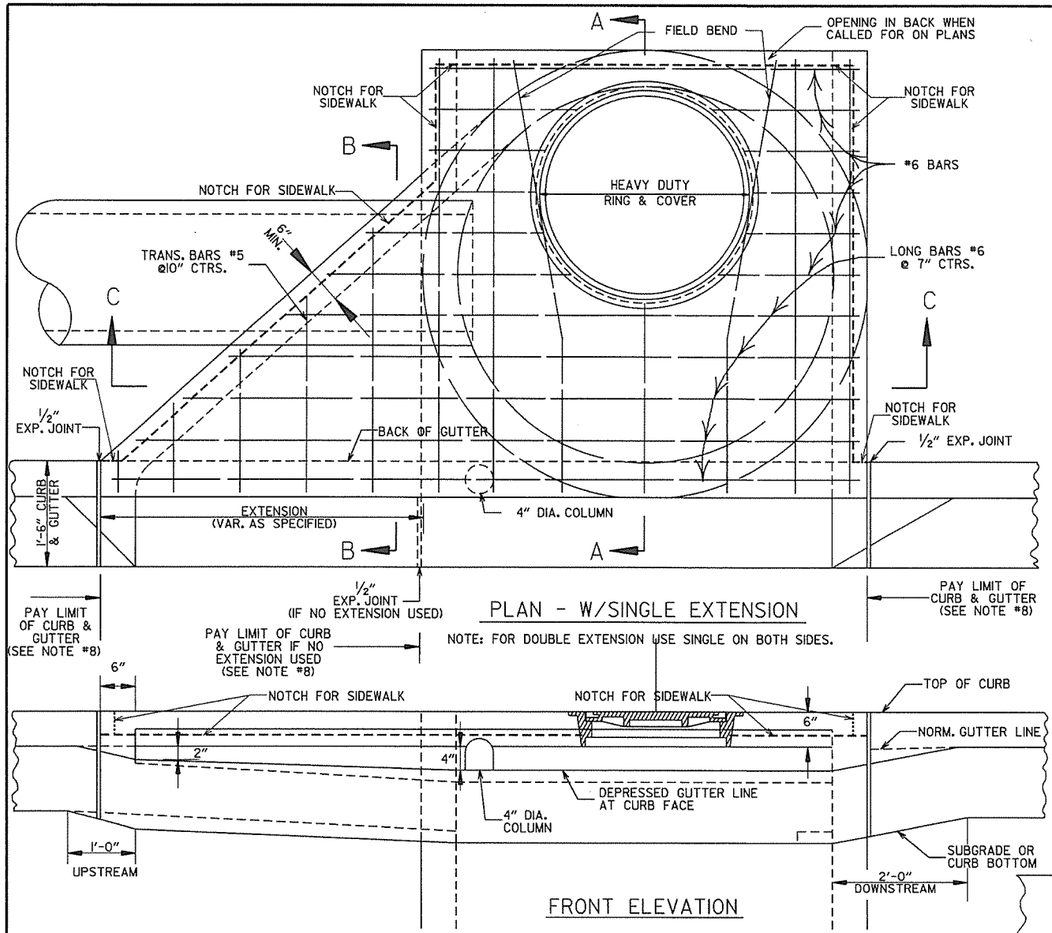
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER 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)

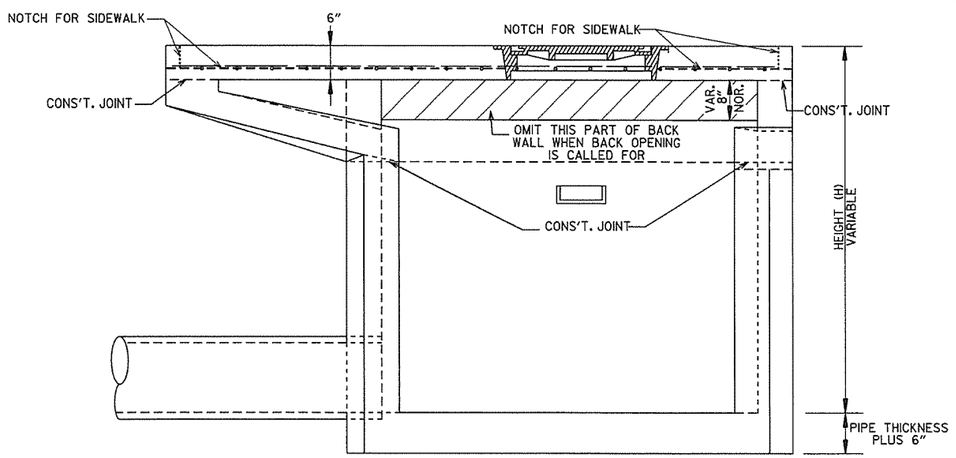
STANDARD DRAWING FPC-9E



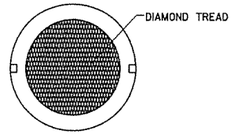
PLAN - W/SINGLE EXTENSION

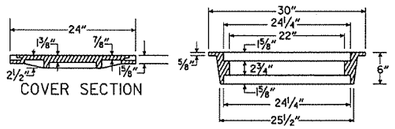
NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.

FRONT ELEVATION



SECTION C-C

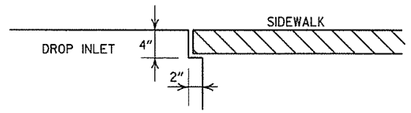




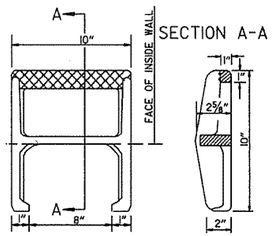
APPROXIMATE TOTAL WEIGHT = 333 LBS.

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

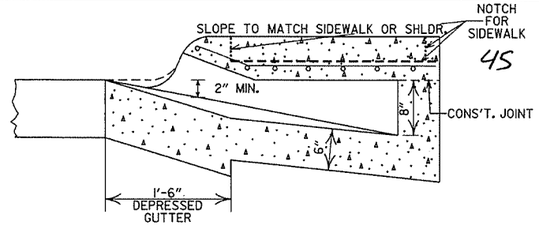


APPROX. WEIGHT = 11 LBS. (CAST IRON)

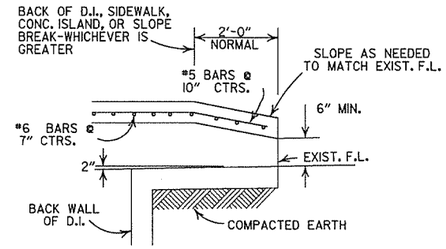
PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

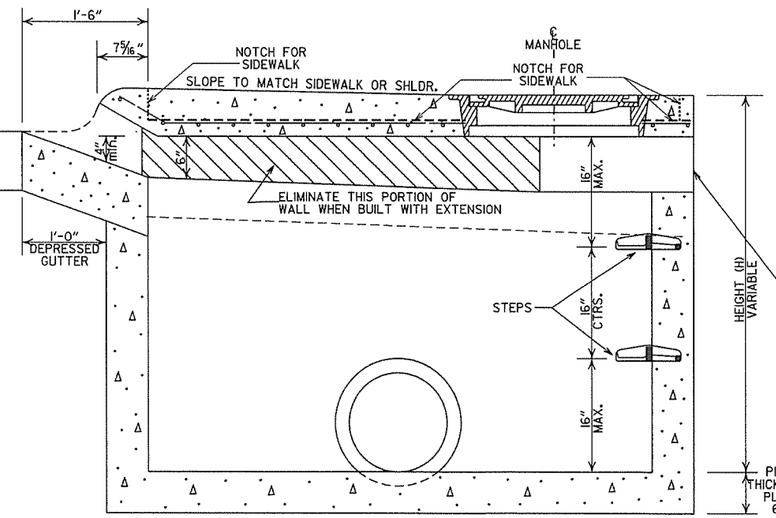


SECTION B-B



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).



SECTION A-A

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1 1/2" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

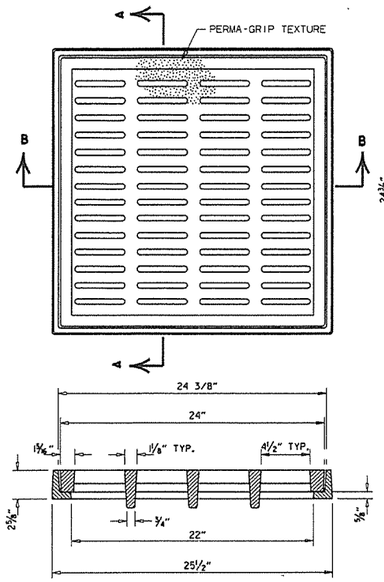
	MINIMUM WALL THICKNESS	
DIA. OF D.I.	DIA. OF OUTLET PIPE	CAST IN PLACE	PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

DATE	REVISIONS	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 11 ADJ. OPENING DIMENSION	
10-12-95	CORRECTED *6 BAR SPACING	
7-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
2-2-95	TYPE C TO MO (OPEN, BACK DETAIL)	
11-3-94	REVISED GENERAL NOTES	11-3-94
4-1-93	REV. BACK OPEN DETAIL & NOTE	4-1-93
8-15-91	REVISED NOTES 11,12 & ADDED BK.OPEN DETAIL	8-15-91
11-30-89	ADDED NOTE NO. 12	11-30-89
5-23-89	ADDED NOTE & MINIMUM WALL THICKNESS	505-5-23-89
7-15-88	ADDED EXTEND NOTE TO SECTION A-A	638-7-15-88
1-14-87	MODIFIED WALL THICKNESS	783-1-14-87
6-12-87	ISSUED	4-6-12-87

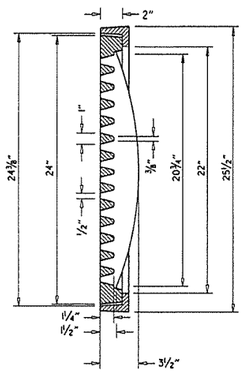
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M



SECTION B-B

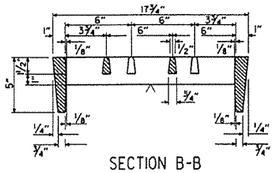


SECTION A-A

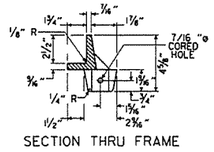
DETAILS OF PEDESTRIAN GRATE AND FRAME

GENERAL NOTES (PEDESTRIAN GRATE & FRAME)

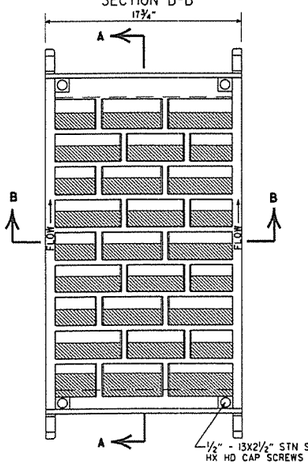
1. THE PEDESTRIAN GRATE SHALL BE ORIENTED IN THE TOP OF THE DROP INLET SO THAT THE ½" OPENINGS ARE PERPENDICULAR TO THE PATH OF PEDESTRIAN TRAVEL.
2. THE PEDESTRIAN GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
3. THE GRATE AND FRAME SHALL NOT BE PAINTED.
4. THE GRATE AND FRAME SHALL BE INSTALLED IN THE DROP INLET IN THE ASSEMBLED POSITION.
5. THE APPROXIMATE WEIGHT OF THE GRATE AND FRAME SHALL BE 211LBS.
6. THE MINIMUM WATERWAY OPENING SHALL BE 122 SQ. IN.

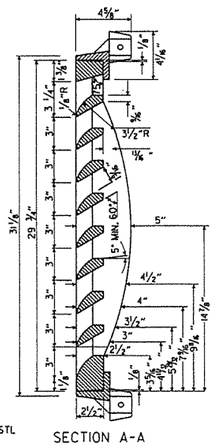


SECTION B-B



SECTION THRU FRAME



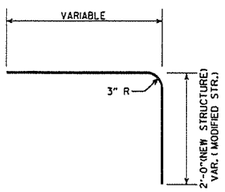


SECTION A-A

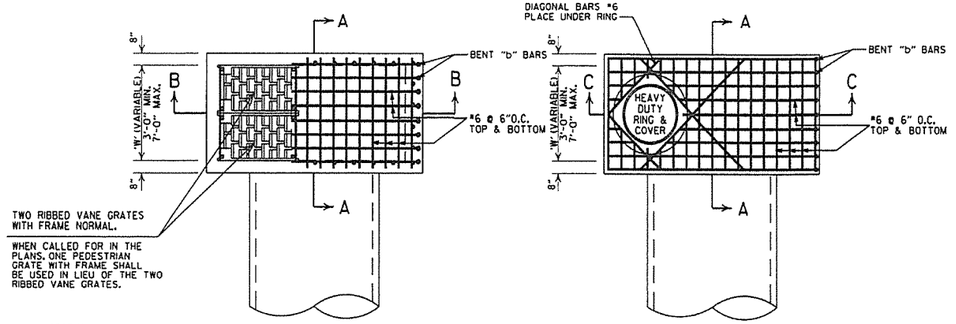
DETAILS OF RIBBED VANE GRATE AND FRAME

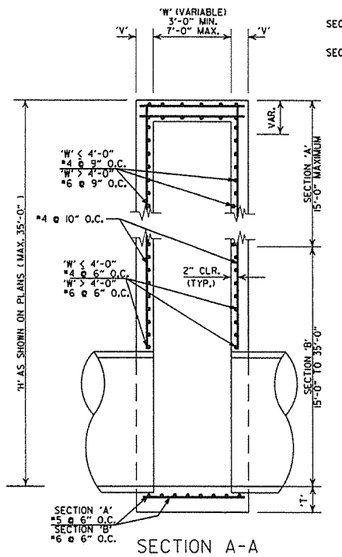
GENERAL NOTES (RIBBED VANE GRATE & FRAME)

1. RIBBED VANE GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
2. GRATE AND FRAME SHALL NOT BE PAINTED.
3. GRATE AND FRAME SHALL BE INSTALLED IN DROP INLET IN ASSEMBLED POSITION.
4. APPROXIMATE WEIGHT OF GRATE SHALL BE 170 LBS.



DETAIL OF BENT "b" BAR





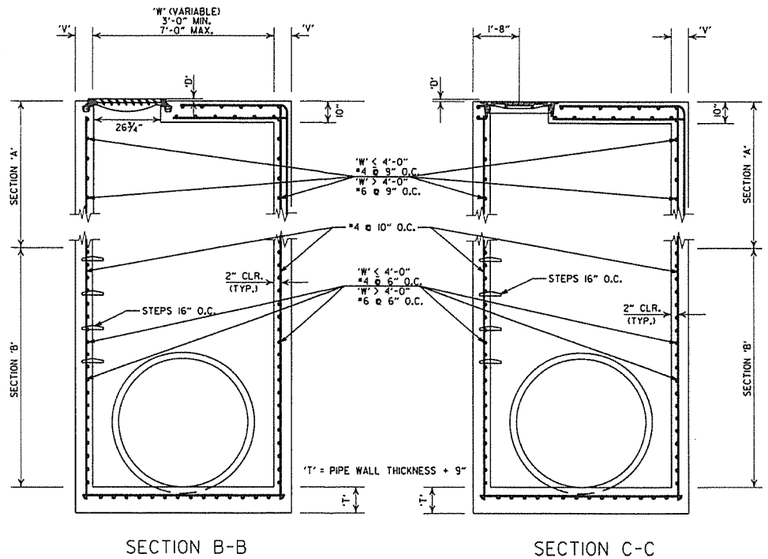
SECTION A-A

DETAILS OF DROP INLET (TYPE ST)

SECTION 'A' 'V' = 8"

SECTION 'B' (W<4'-0") 'V' = 8"

SECTION 'B' (W>4'-0") 'V' = 10"



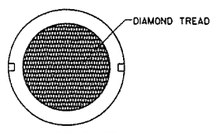
SECTION B-B

SECTION C-C

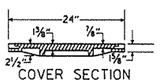
DETAILS OF JUNCTION BOX (TYPE ST)

GENERAL NOTES (TYPE ST DROP INLET & JUNCTION BOX)

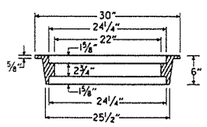
1. THE 'D' DIMENSION SHALL MATCH THE FINAL LIFT OF ACHM SURFACE COURSE SHOWN IN THE PLANS WHEN ASPHALT PAVING SURROUNDS THE GRATE OR RING COVER, AND SHALL BE 0" AT OTHER INSTALLATIONS.
2. THE STEPS SHALL BE OMITTED WHERE 'H' IS LESS THAN 4'-0".
3. ALL EXPOSED CORNERS ARE TO HAVE A ¾" CHAMFER.



COVER FACE



COVER SECTION



RING SECTION

HEAVY DUTY RING & COVER

APPROXIMATE TOTAL WEIGHT = 333 LBS.

GENERAL NOTES (HEAVY DUTY RING & COVER):

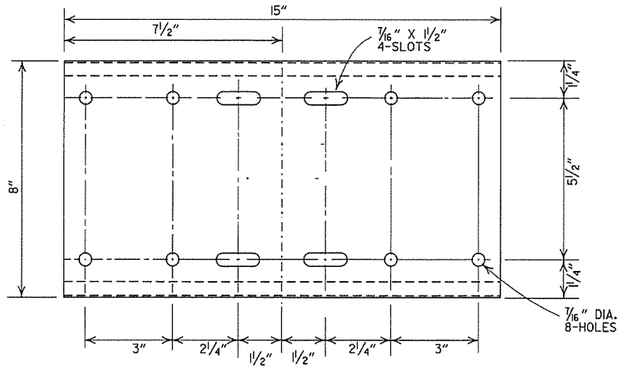
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
4. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

DATE REVISED	DATE FILMED	DESCRIPTION
7-26-12		REMOVED NOTE 4, REVISED 'T', REVISED BOTTOM SLAB REBAR FOR SECTION 'A', SHOWED REBAR CLEARANCE IN SECTIONS
11-16-01		ADDED NOTE 4
1-12-00		REVISED HEAVY DUTY RING & COVER
5-13-99		ADDED PEDESTRIAN FRAME & GRATE
7-02-98		REMOVED NOTE 5, REV. DIMENSIONS, ADDED HEAVY DUTY RING & COVER ADDED AASHTO REF. REVISED GRATE
10-18-96		REVISED ASTM REF. TO AASHTO
10-1-92		REVISED & REISSUED
8-15-91	8-15-91	REVISED & REISSUED

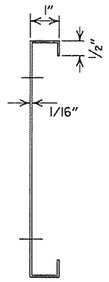
ARKANSAS STATE HIGHWAY COMMISSION

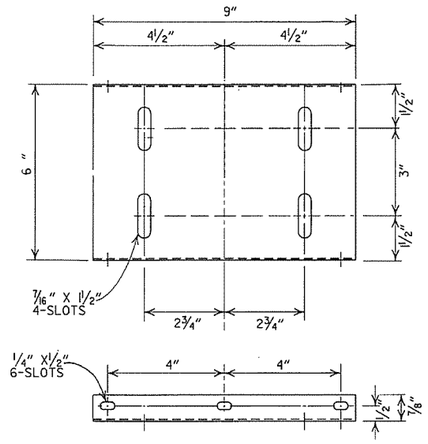
DETAILS OF DROP INLET & JUNCTION BOX (TYPE ST)

STANDARD DRAWING FPC-9S

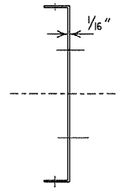


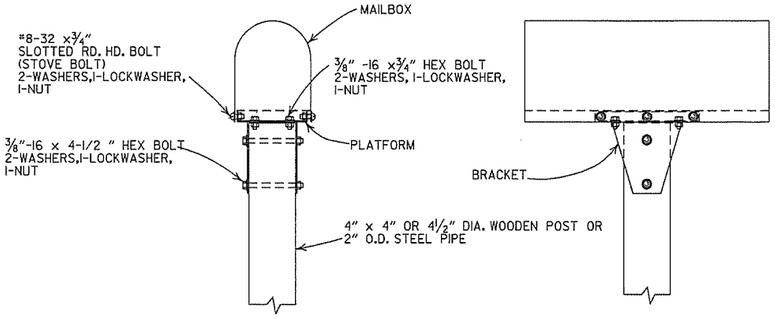
SHELF



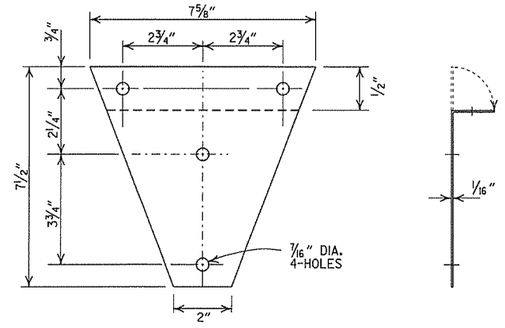


PLATFORM





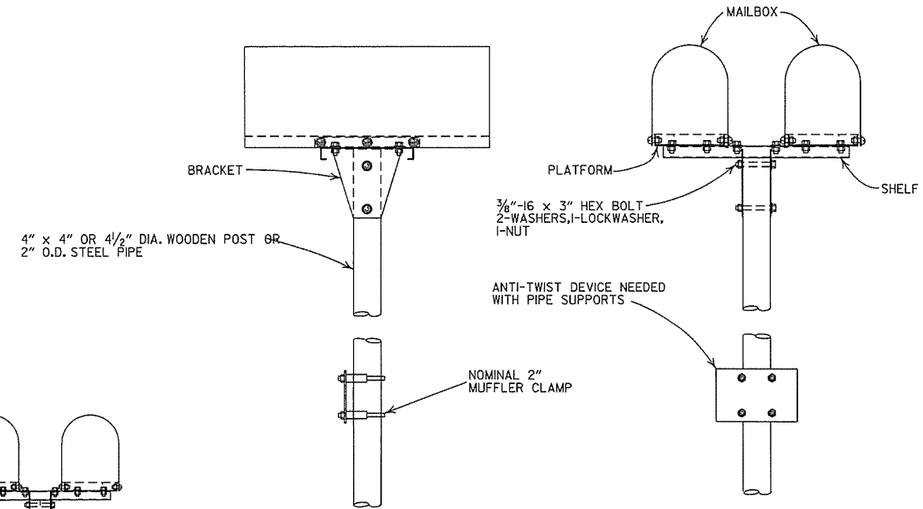
SINGLE INSTALLATION



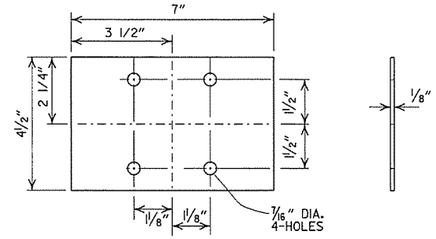
BRACKET

GENERAL NOTES

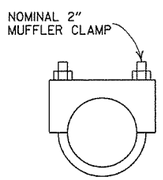
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM 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.



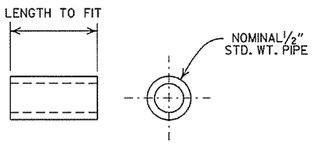
DOUBLE INSTALLATION



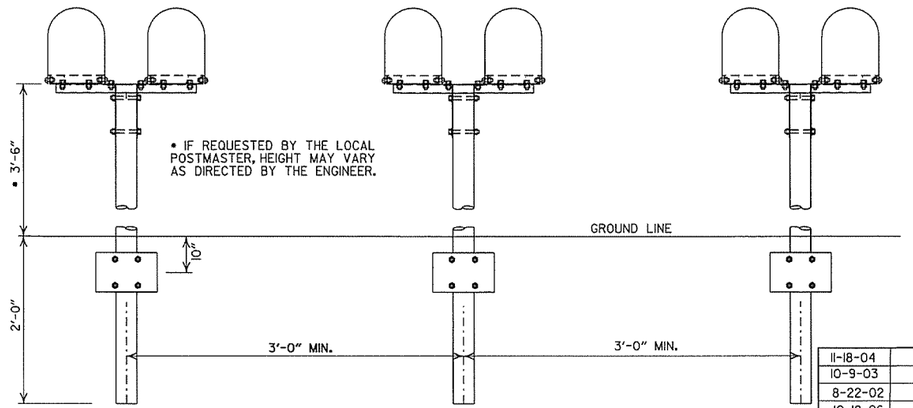
ANTI-TWIST PLATE



CLAMP



SPACER



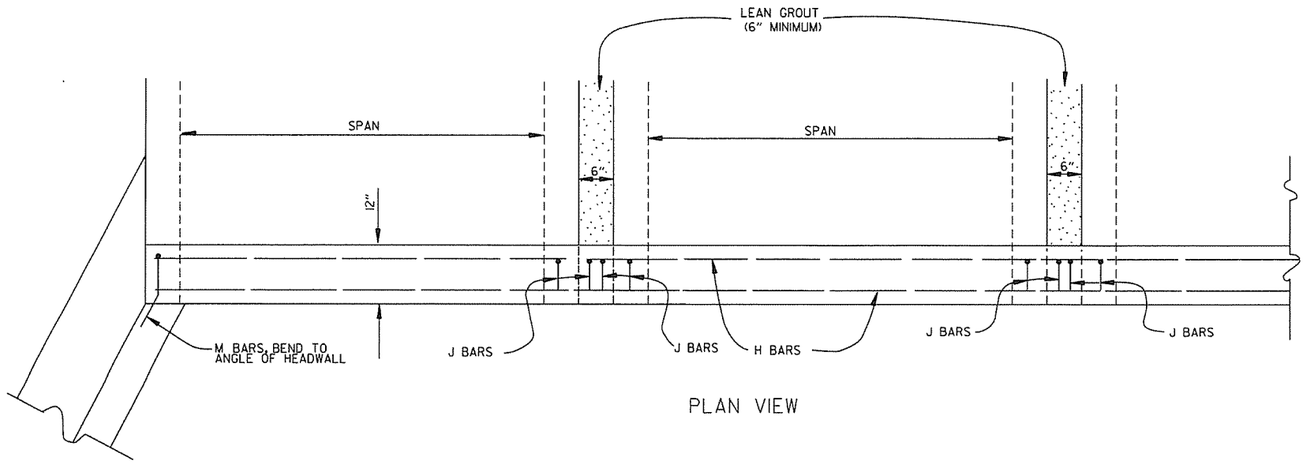
SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

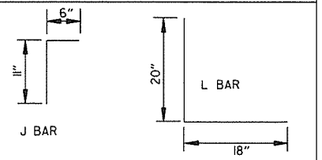
STANDARD DRAWING MB-1



PLAN VIEW

BAR LIST

BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	



• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING. STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS:
PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85.
SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS.
THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE.
THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

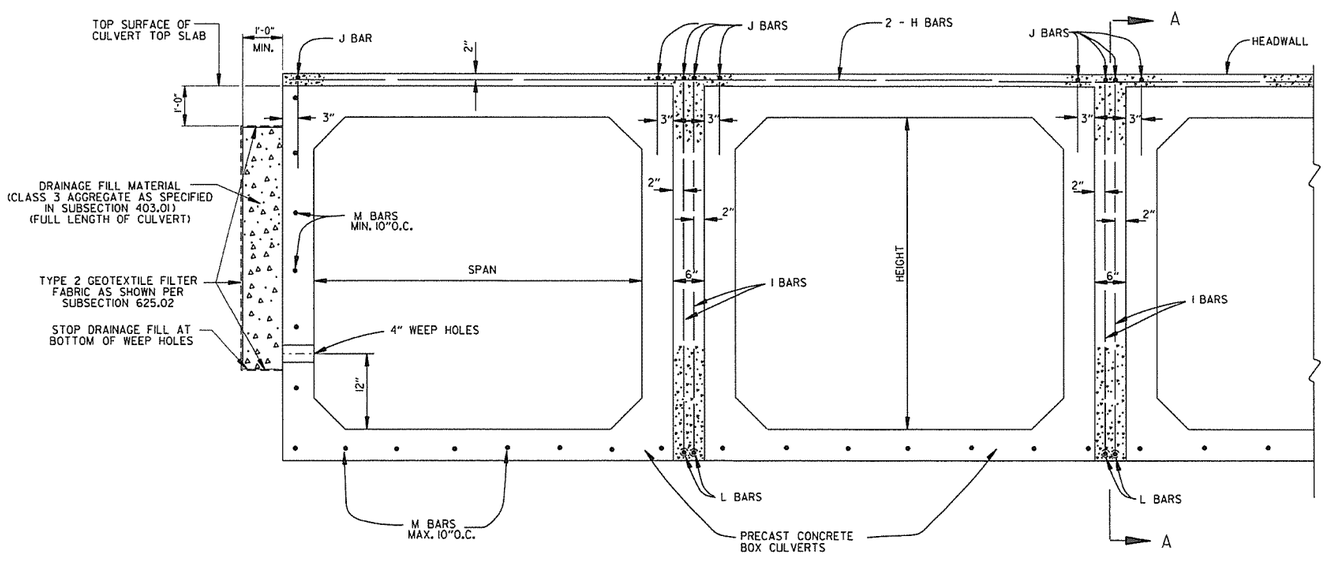
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

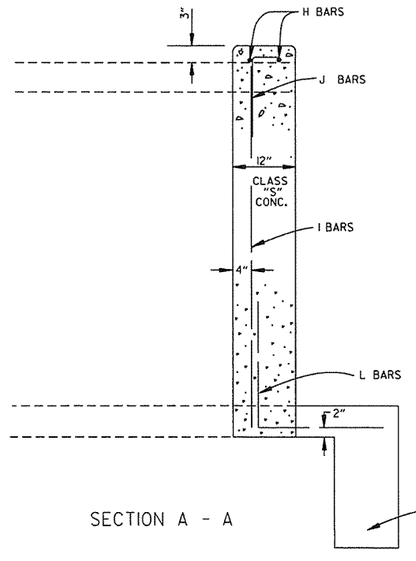
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.



END VIEW



SECTION A - A

DATE	REVISION	DATE FILMED
12-15-11	ADDED NOTE & DTLS FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED; JABE	

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	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.

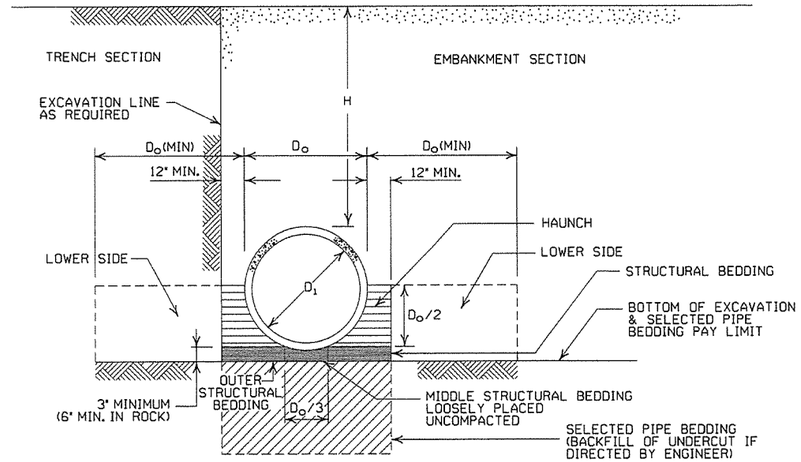
- LEGEND -

D_1 = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
= UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

*SM-3 WILL NOT BE ALLOWED.

**MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL					ALUMINUM				
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)	
				INSTALLATION		INSTALLATION			INSTALLATION		INSTALLATION	
				TYPE 1		TYPE 1			TYPE 1		TYPE 1	
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
15	17x13	3	0.064	2		15		0.060	2		15	
18	21x15	3	0.064	2		15		0.060	2		15	
21	24x18	3	0.064	2.25		15		0.060	2.25		15	
24	28x20	3	0.064	2.5		15		0.075	2.5		15	
30	35x24	3	0.079	3		12		0.075	3		12	
36	42x29	3½	0.079	3		12		0.105	3		12	
42	49x33	4	0.079	3		12		0.105	3		12	
48	57x38	5	0.109	3		13		0.135	3		13	
54	64x43	6	0.109	3		14		0.135	3		14	
60	71x47	7	0.138	3		15		0.164	3		15	
66	77x52	8	0.168	3		15						
72	83x57	9	0.168	3		15						
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM									
				INSTALLATION		INSTALLATION						
				TYPE 2	TYPE 1	TYPE 2	TYPE 1					
36	40x31	5	0.079	3	2	12	15					
42	46x36	6	0.079	3	2	13	15					
48	53x41	7	0.079	3	2	13	15					
54	60x46	8	0.079	3	2	13	15					
60	66x51	9	0.079	3	2	13	15					
66	73x55	12	0.079	3	2	15	15					
72	81x59	14	0.079	3	2	15	15					
78	87x63	14	0.079	3	2	15	15					
84	95x67	16	0.109	3	2	15	15					
90	103x71	16	0.109	3	2	15	15					
96	112x75	18	0.109	3	2	15	15					
102	117x79	18	0.109	3	2	15	15					
108	128x83	18	0.138	3	2	15	15					

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.

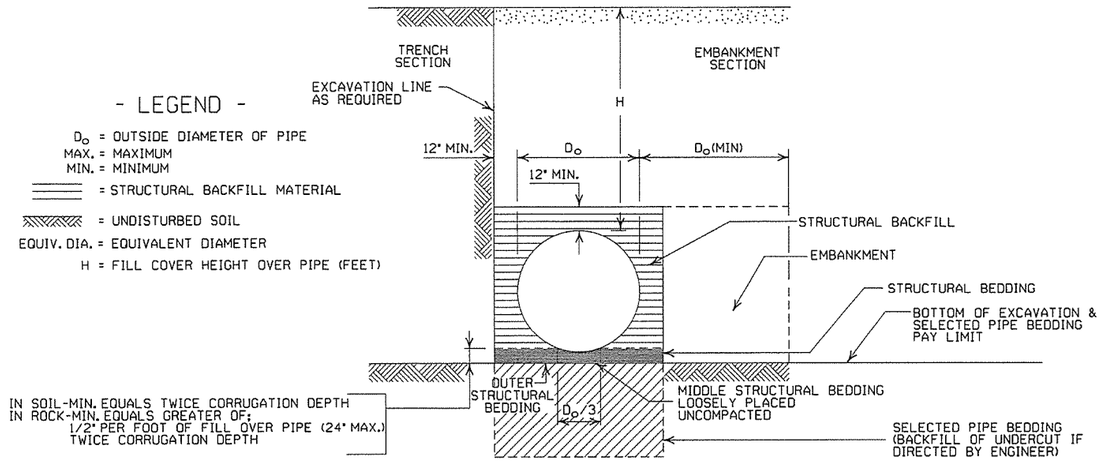
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8



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	

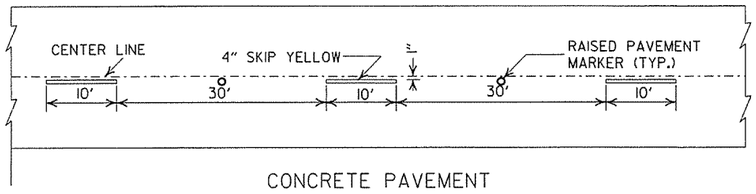
ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

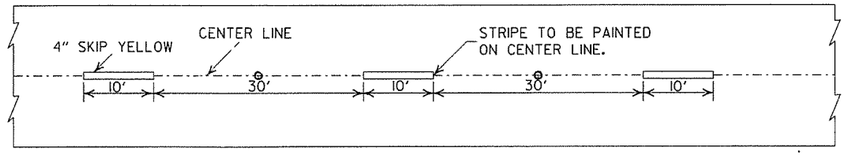
STANDARD DRAWING PCM-1

NOTES:

1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.

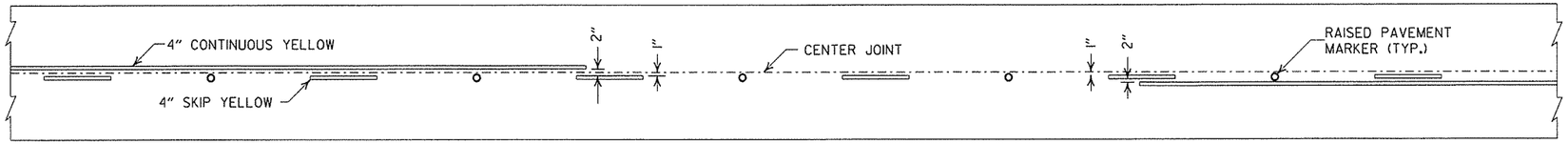


CONCRETE PAVEMENT

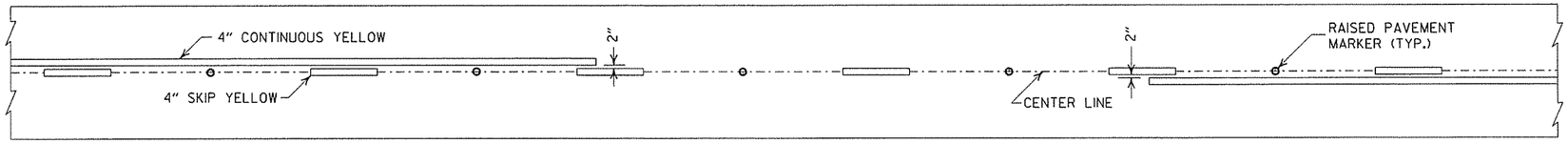


ASPHALT PAVEMENT

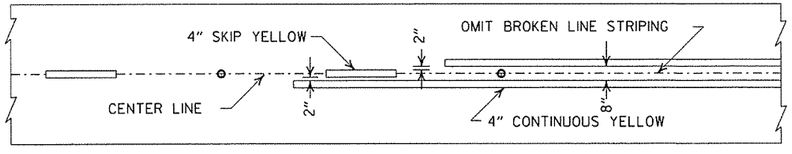
BROKEN LINE STRIPING



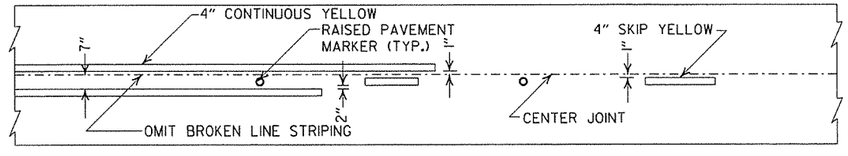
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

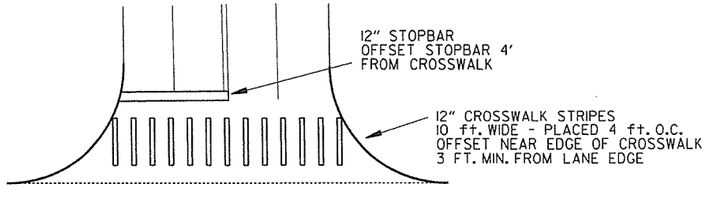


ASPHALT PAVEMENT



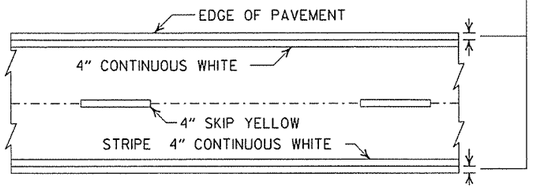
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

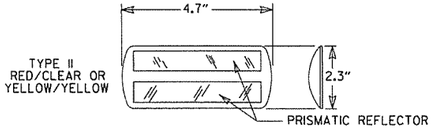


CROSSWALK AND STOPBAR DETAILS

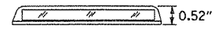
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING



NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

NOTE:

DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

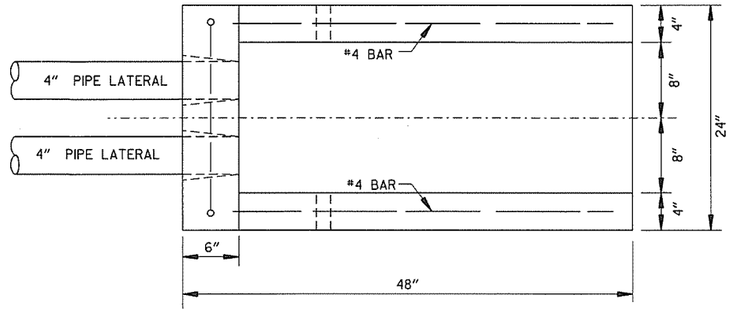
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

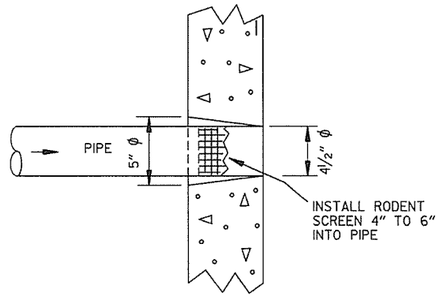
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

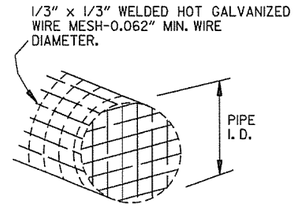
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



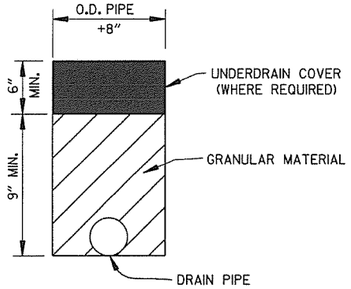
PLAN VIEW

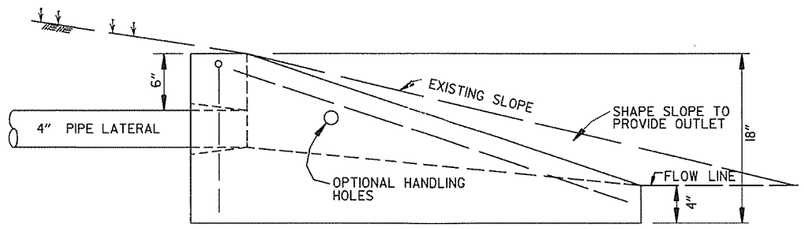


DETAIL OF HOLE FOR 4" PIPE

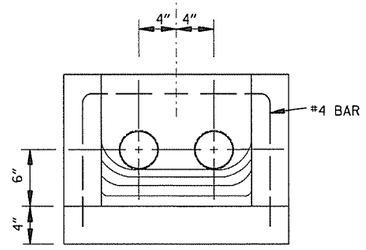


DETAIL OF RODENT SCREEN

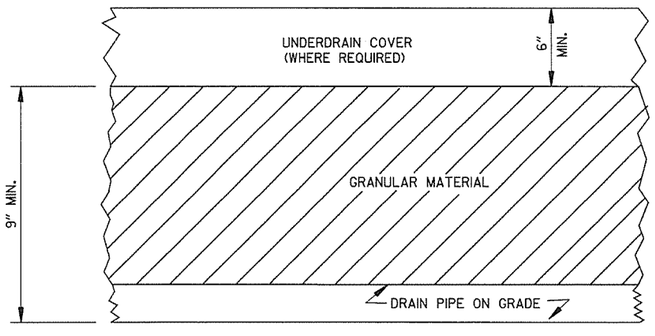




SIDE VIEW

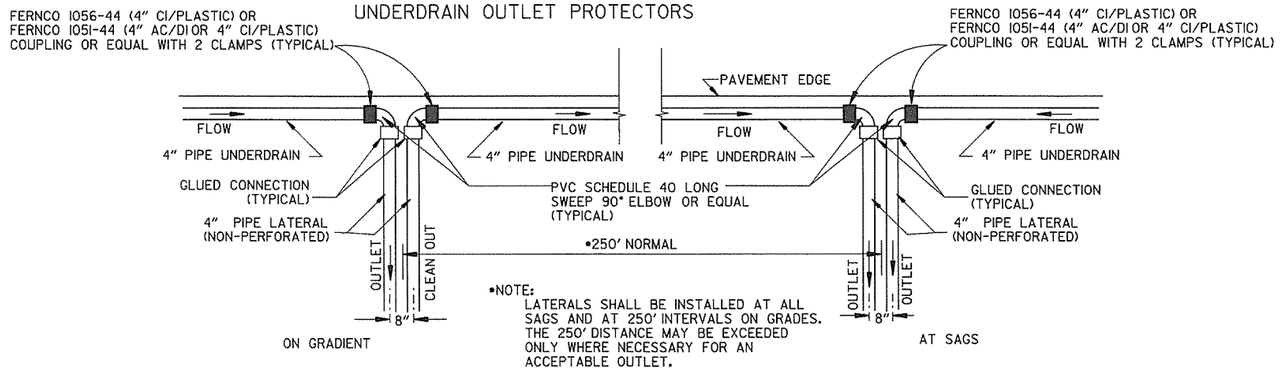


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

DATE	REVISION	DATE FILMED
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

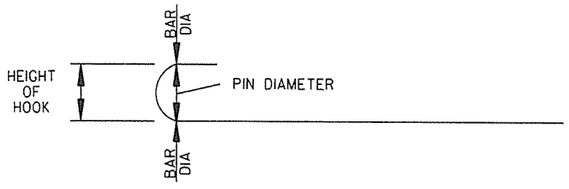
STANDARD DRAWING PU-1

7-20-95 INSTD.PUI

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2 1/4"	4"
4	3 "	4 1/2"
5	3 3/4"	5"
6	4 1/2"	6"
7	5 1/4"	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 2 3/4 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

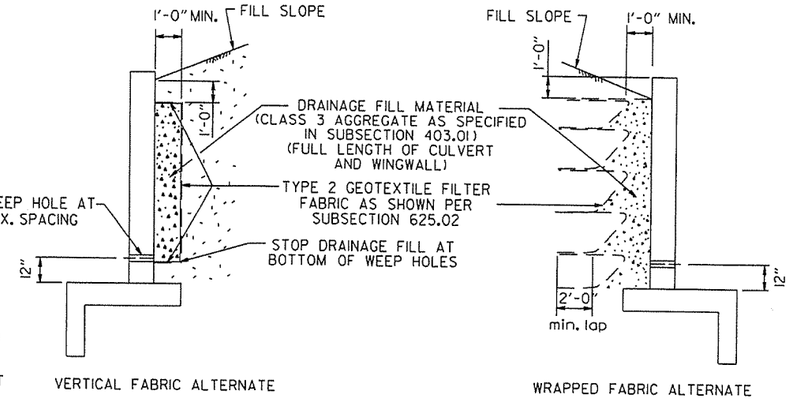
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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.

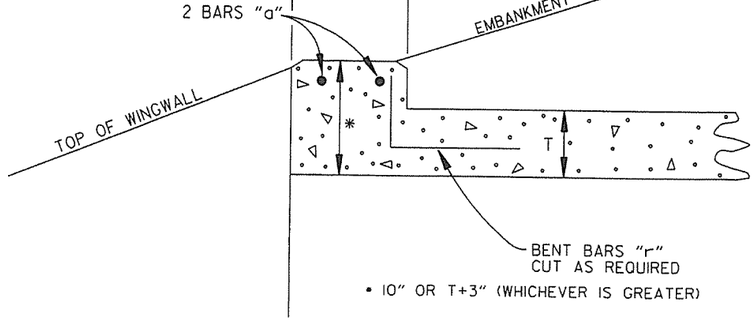
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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 1/2 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.

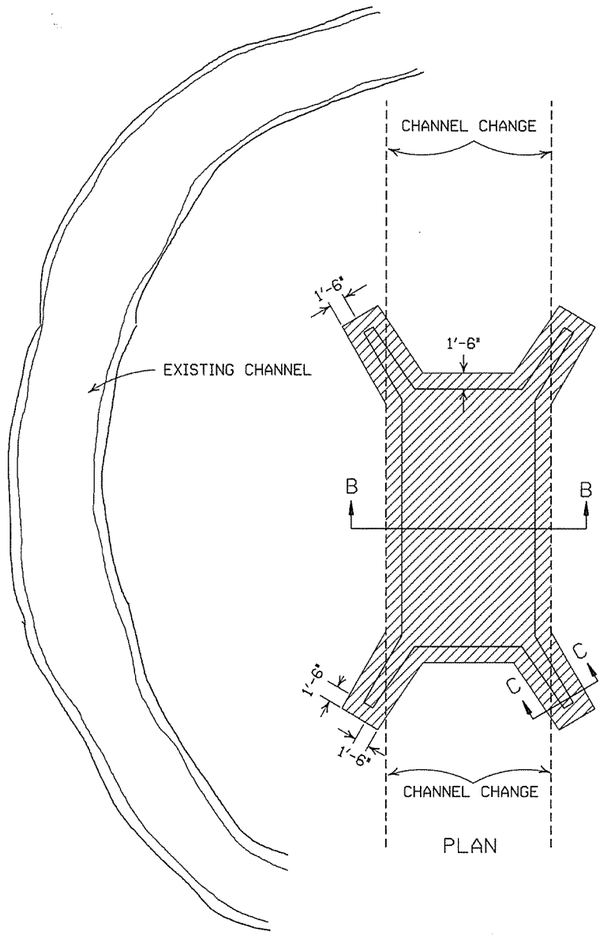
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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

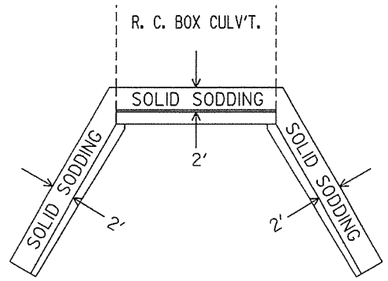
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

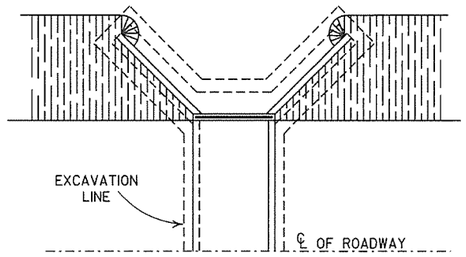
SOLID SODDING



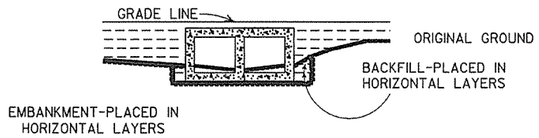
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

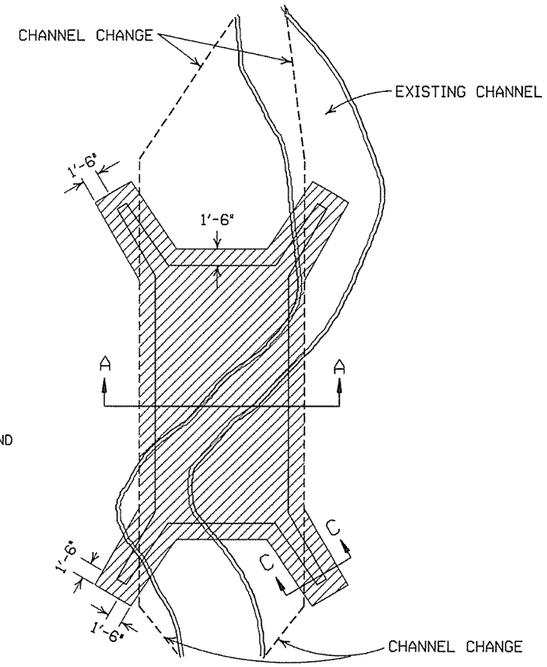


PLAN

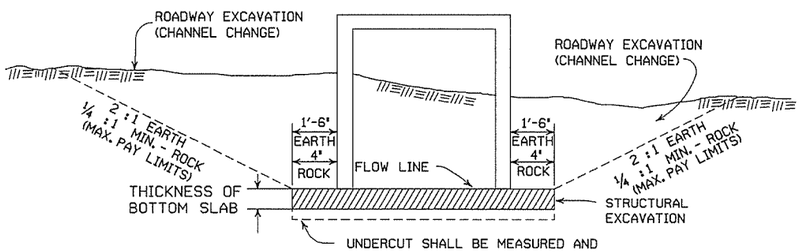


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

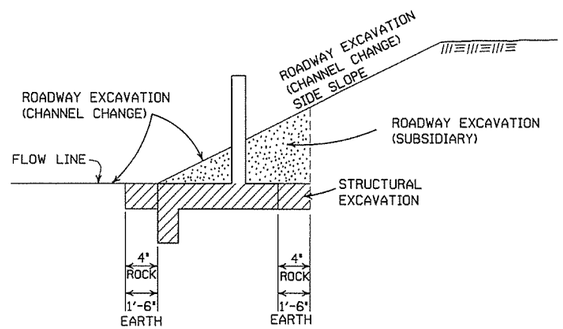


PLAN

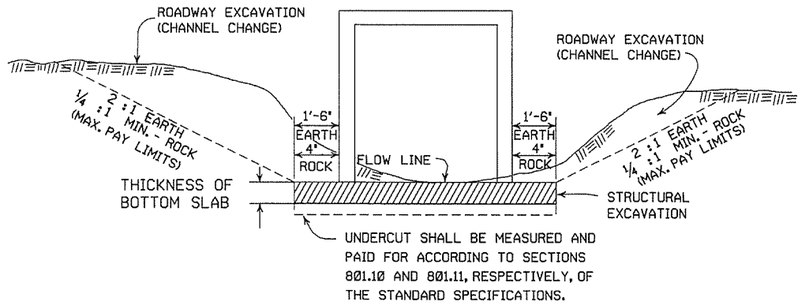


SECTION B-B

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.

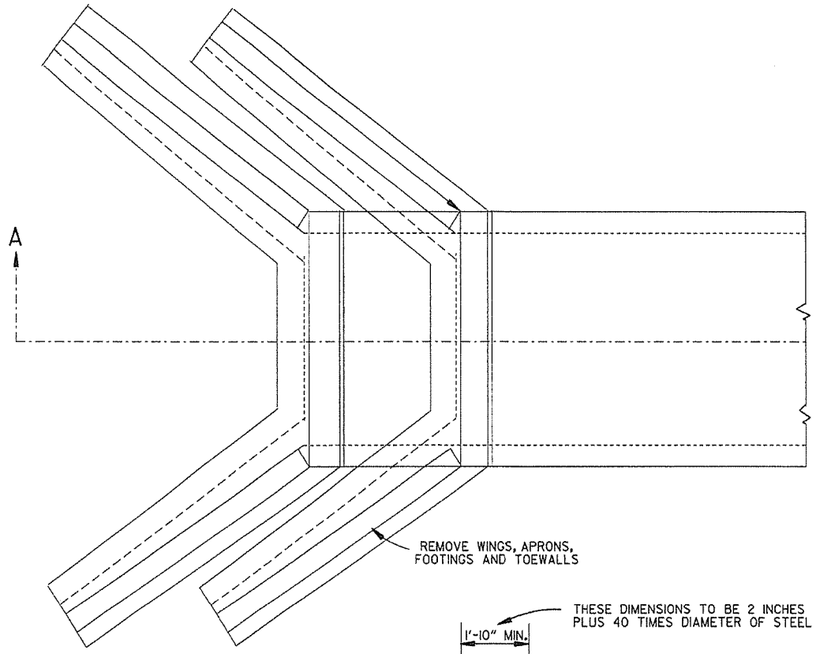
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

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 AND ADDED MAXIMUM PAY LIMIT NOTES.	674-1-4-83
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

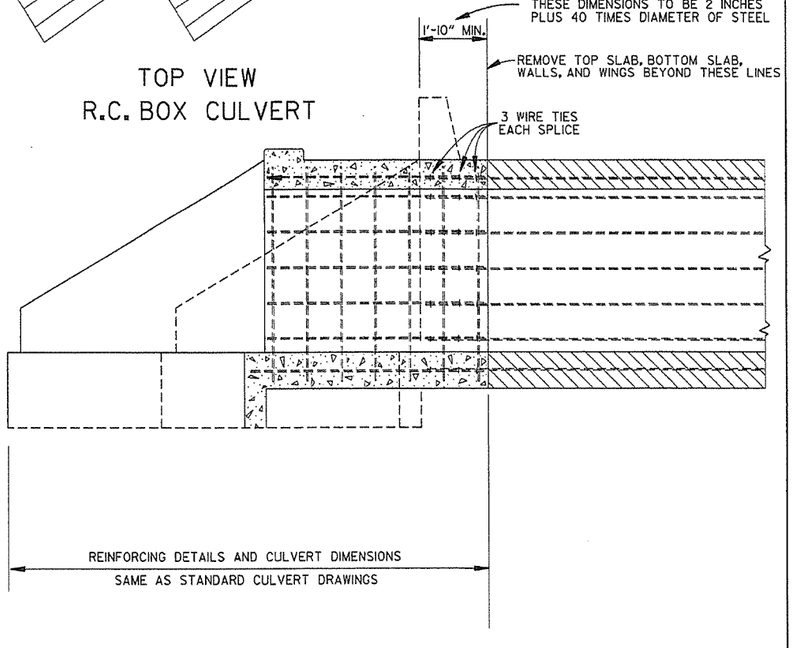
ARKANSAS STATE HIGHWAY COMMISSION

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2

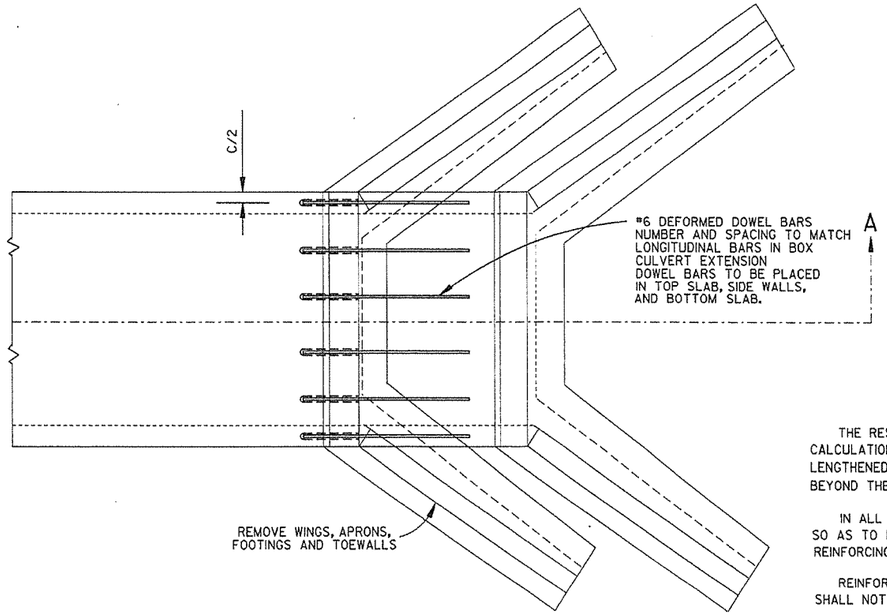


TOP VIEW
R.C. BOX CULVERT

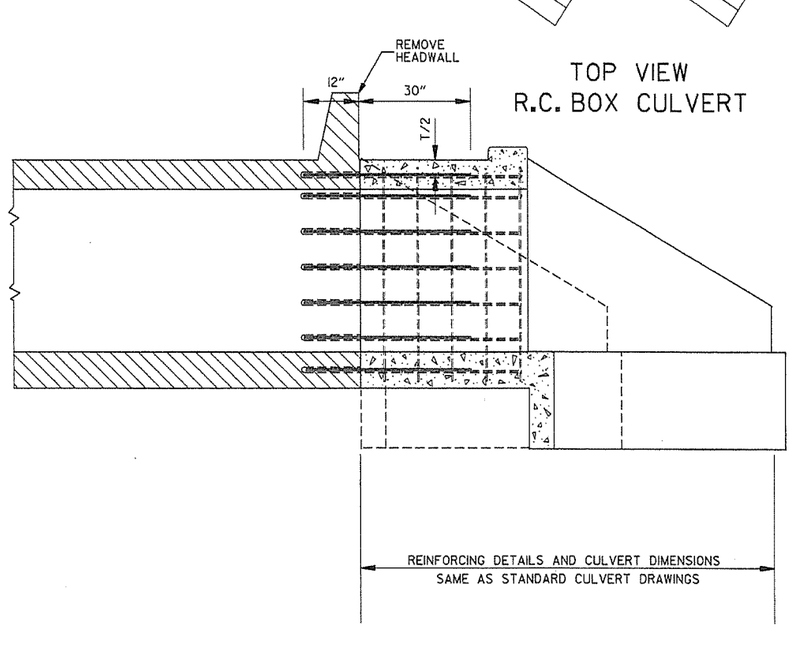


SECTION A-A

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.

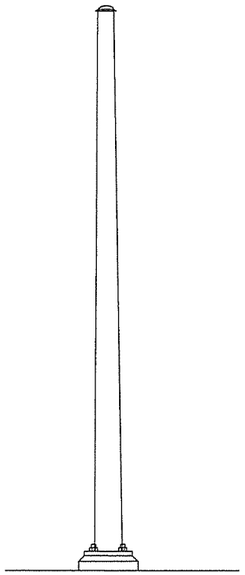
USE FATIGUE CATEGORY II.

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

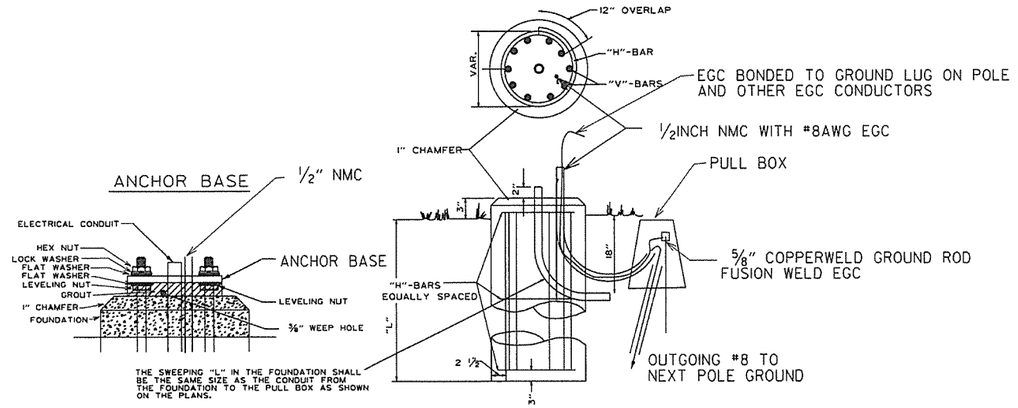
STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN ½" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

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 M31OR M53, GRADE 40 (YIELD STRENGTH=40,000 PSI).

PROVIDE 3" CLEAR TIES. DETAIL 3" TO FIRST TIE AT TOP OF SHAFT.

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	
DATE	REVISION	DATE FILM

ARKANSAS STATE HIGHWAY COMMISSION

ANTENNA POLE

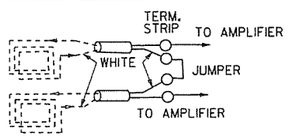
STANDARD DRAWING SD-1

LOOP DETECTOR INSTALLATION AND TESTING

NOTES:

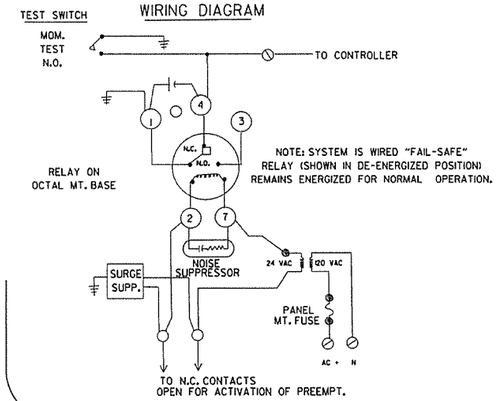
1. LOOPS WITH A PERIMETER GREATER THAN 40' SHALL HAVE TWO TURNS. LOOPS WITH A PERIMETER LESS THAN OR EQUAL TO 40' SHALL HAVE THREE TURNS, UNLESS OTHERWISE NOTED ON THE PLANS. QUADRUPOLE LOOPS SHALL BE TWO TURNS (2-4-2 CONFIGURATION) UNLESS OTHERWISE NOTED.
2. LOOP AND FEEDER WIRE SHALL BE CONTINUOUS WITHOUT SPLICES EXCEPT AT THE LOOP/FEEDER WIRE SPLICE AS SHOWN. SPLICE SHALL BE ROSIN SOLDERED AND WATERPROOFED WITH AN ACCEPTED SPLICE KIT. DRAIN WIRE SHALL BE GROUNDED IN CABINET AND INSULATED AT LOOP TO FEEDER SPLICE.
3. THE LOOP TO FEEDER SPLICE, FEEDER JACKET AND JACKET OF LOOP WIRE IN DUCT SHALL BE COMPLETELY SEALED AND WATERPROOFED.
4. CONTRACTOR MAY MAKE CONNECTIONS TO SIGNAL CABLE AND LOOP TO FEEDER CONNECTION AT TERMINAL STRIPS MOUNTED TO POLE INSIDE HAND HOLD COVER AS SHOWN IN DETAIL. TERMINALS MUST BE EASILY ACCESSIBLE, BUT PROTECTED AGAINST ACCIDENTAL CONTACT. CONNECTION OF POWER CARRYING CIRCUITS MUST BE SEPARATED FROM LOOP OR LOGIC CIRCUITS. ALL CONNECTIONS TO TERMINAL STRIPS SHALL UTILIZE SPADE LUGS OR AS APPROVED BY THE ENGINEER.
5. EACH LOOP SHALL HAVE A SEPARATE "FEEDER WIRE" UNLESS OTHERWISE NOTED. ALL FEEDER WIRES SHALL BE LABELED AS TO LOOP NUMBER AS DESIGNATED ON THE PLANS.
6. ALL LOOP WIRE ENTERING PULL BOXES SHALL BE ENCLOSED IN CONDUIT. EACH LOOP WIRE SHALL ENTER PULL BOX OR POLE BASE THROUGH A SEPARATE PIECE OF ONE INCH (1"O) CONDUIT.
7. LOOP WIRE FROM LOOP TO CONDUIT IS NOT TWISTED. LOOP WIRE IN THE CONDUIT MUST BE TWISTED TWO TO FIVE TURNS PER FOOT.
8. WARRANTY PERIOD FOR LOOPS SHALL NOT COMMENCE UNTIL TESTED BY THE CONTRACTOR AND ACCEPTED BY THE ENGINEER. CONTRACTOR SHALL PERFORM TEST AND PROVIDE A RECORD TO THE ENGINEER AS LISTED IN THE DETECTOR LOOP TESTING PROCEDURE.
9. UNLESS OTHERWISE APPROVED BY THE ENGINEER, BACKER ROD SHALL BE INSTALLED IN SHORT SECTIONS SPACED NOT MORE THAN 18" APART AND WEDGED INTO SLOT TO HOLD CABLE IN PLACE. CABLE SHALL BE TOTALLY ENCAPSULATED IN SEALER.
10. "HOT POUR" SEALER SHALL NOT BE ALLOWED WITH 705-LOOP WIRING IN DUCT.
11. WHERE UNDERGROUND SPLICES OF SIGNAL CABLE ARE REQUIRED, CONNECTIONS SHALL BE SOLDERED AND COMPLETELY WATERPROOFED TO THE SATISFACTION OF THE ENGINEER. WATERPROOFING SHALL EXTEND A MINIMUM OF TWO INCHES PAST THE SIGNAL CABLE JACKET AND SHALL COMPLETELY COVER ALL INDIVIDUAL CONDUCTORS OF THE SIGNAL CABLE. WATERPROOFING DOES NOT APPLY TO CONNECTIONS MADE IN POLE BASES.
12. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE. ONLY ONE NEUTRAL IS REQUIRED FOR PEDESTRIAN SIGNALS. A SEPARATE 5C (TYPICAL) IS PROVIDED FOR PEDESTRIAN PUSH BUTTONS.
13. TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO CONTROLLER. CONTROLLER CABINET SHALL BE WIRED SUCH POWER TO LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS DURING FLASH OPERATION.

SERIES CONNECTED LOOPS

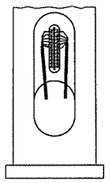


WIND LOOPS COUNTERCLOCKWISE; TAG WIRE EXITING SLOT AND TIE TO WHITE LEAD OF FEEDER WIRE; WHEN LOOPS ARE TIED TO SAME VEHICLE DETECTOR, SERIES CONNECT IN CABINET AS SHOWN.

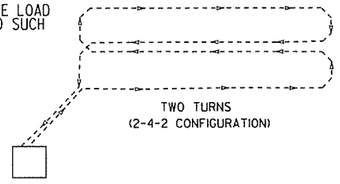
TRAFFIC SIGNAL PRE-EMPTION INTERFACE WIRING DIAGRAM

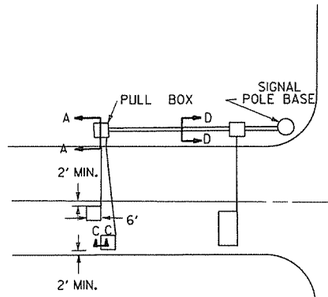


HANDHOLE TERMINAL

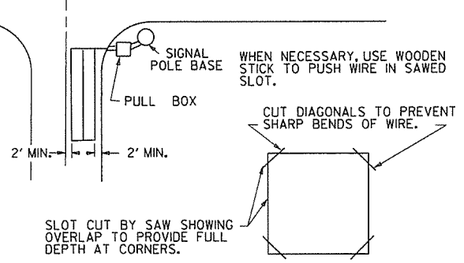


QUADRUPOLE LOOP





TYPICAL INTERSECTION



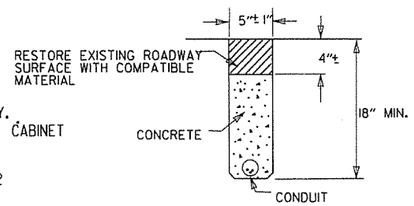
TYPICAL PROCEDURE FOR DETECTOR LOOP TESTING

1. DISCONNECT AND TEST CONTINUITY (< 10 OHMS) IF CONTINUITY IS BAD, GO TO TEST 3
2. TEST INSULATION (@ 500 VOLT TEST > 10 MEG-OHM) IF TESTS 1 & 2 ARE GOOD, NO FURTHER TESTING IS NECESSARY. RECORDED RESULTS CONSIST OF TESTS 1 & 2 FROM CONTROL CABINET WITH FEEDER WIRE CONNECTED TO LOOP.
3. OPEN SPLICE (DO NOT BREAK CONNECTION) REPEAT TEST 1 & 2 IF TEST 3 IS BAD, GO TO TEST 4
4. BREAK SPLICE, INSTALL JUMPER IN CABINET, REPEAT TESTS 1 & 2 SEPARATELY FOR FEEDER AND FOR LOOP

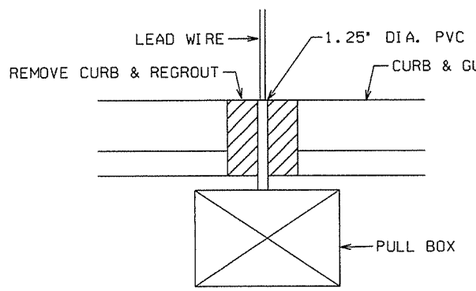
FAILURES TYPICALLY RESULT FROM BROKEN WIRE IN PAVEMENT, FAULTY INSULATION OF LOOP OR FEEDER WIRE, OR POORLY INSULATED SPLICE CONNECTION.

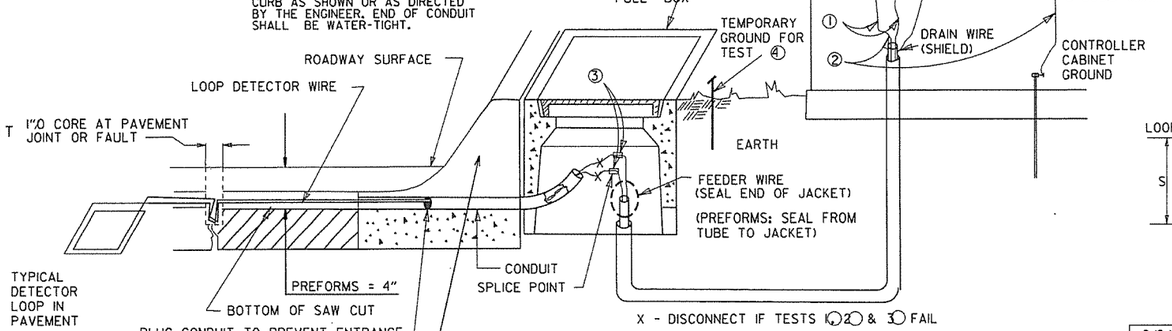
TRENCHING DETAIL

(FOR SAW CUT TRENCH IN ROADWAY)



NOTE: CONDUIT SHALL BE INSTALLED IN CURB AS SHOWN OR AS DIRECTED BY THE ENGINEER. END OF CONDUIT SHALL BE WATER-TIGHT.

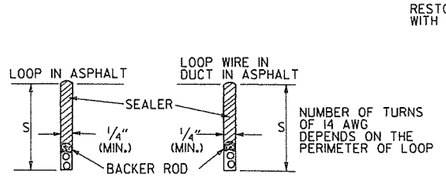




SECTION A-A
1'-6" CONCRETE COMBINATION CURB AND GUTTER

(TYPICAL)

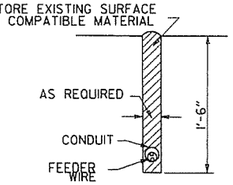
TYPICAL SECTIONS FOR PULSE AND PRESENCE LOOP DETECTORS



SEE NOTE ON BACKER ROD.

SECTION C-C

S=2 1/2" IN ASPHALT
S=1 1/2" IN CONCRETE



SECTION D-D

SPECIAL NOTE

IF FEEDER WIRE JACKET IS LEFT UNSEALED AND WATER IS ALLOWED TO ENTER JACKET, CONTRACTOR WILL BE REQUIRED TO REPLACE FEEDER AT NO COST TO THE DEPARTMENT.

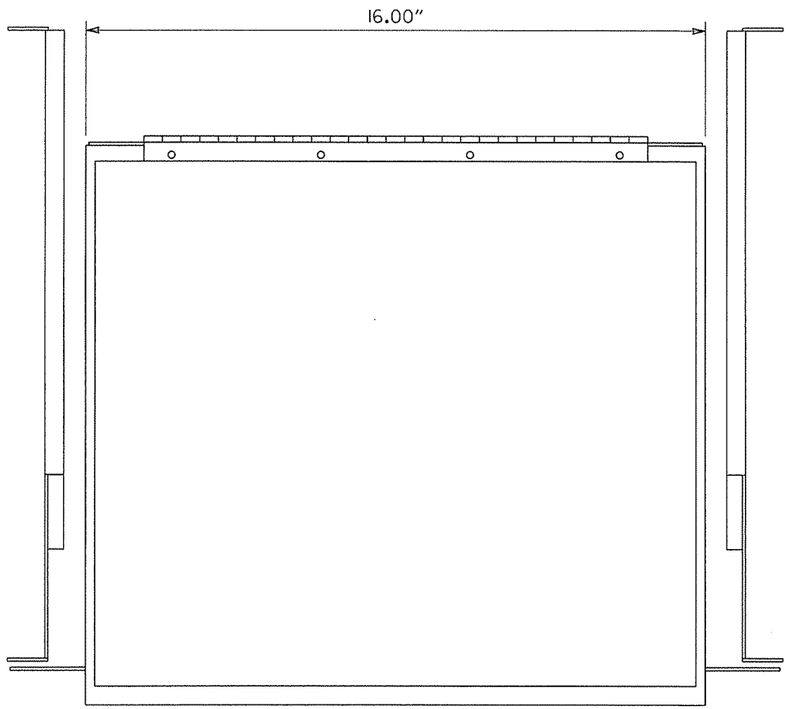
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
5-17-01	REVISED	
4-11-01	REVISED	
2-4-00	REVISED PRE-EMPTION TEST SWITCH	
11-18-98	REVISED NOTES	
11-21-95	ISSUED	

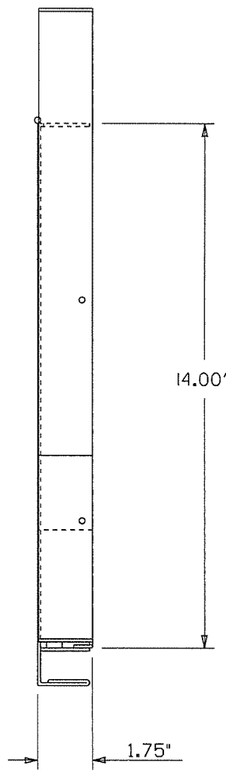
ARKANSAS STATE HIGHWAY COMMISSION

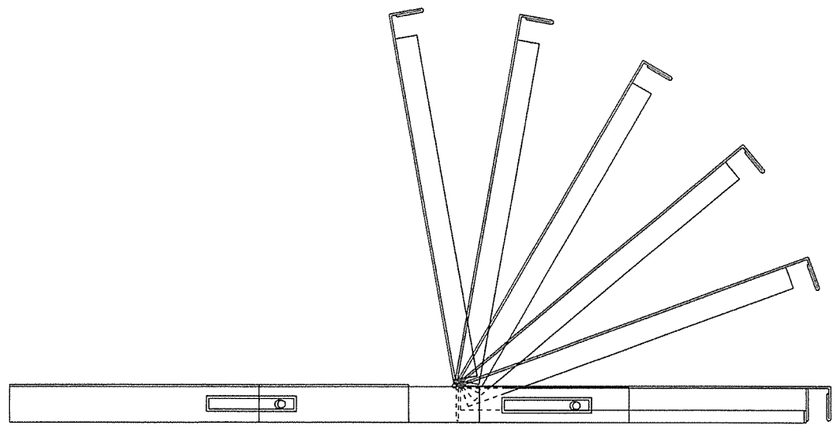
LOOP DETECTOR INSTALLATION

STANDARD DRAWING SD-4

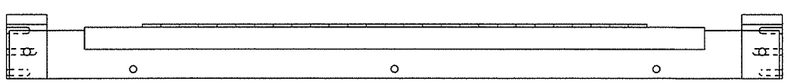
DRAWER PLAN VIEW



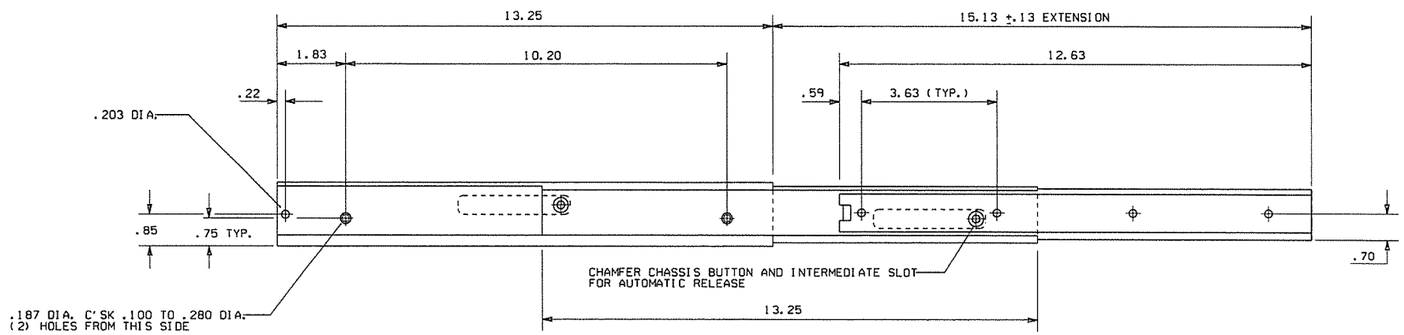




NOTES:
1. RIGHT HAND SLIDE SHOWN. LEFT SLIDE OPPOSITE.
2. GENERAL DEVICES (CC3002-99-0102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.
3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



FRONT VIEW



RIGHT SIDE ASSEMBLY

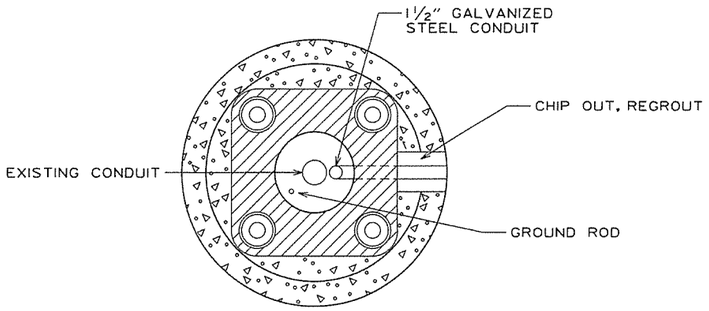
9-12-13	ISSUED AS STANDARD DRAWING	
6-15-05	ISSUED	
DATE	REVISION	DATE FILM

ARKANSAS STATE HIGHWAY COMMISSION

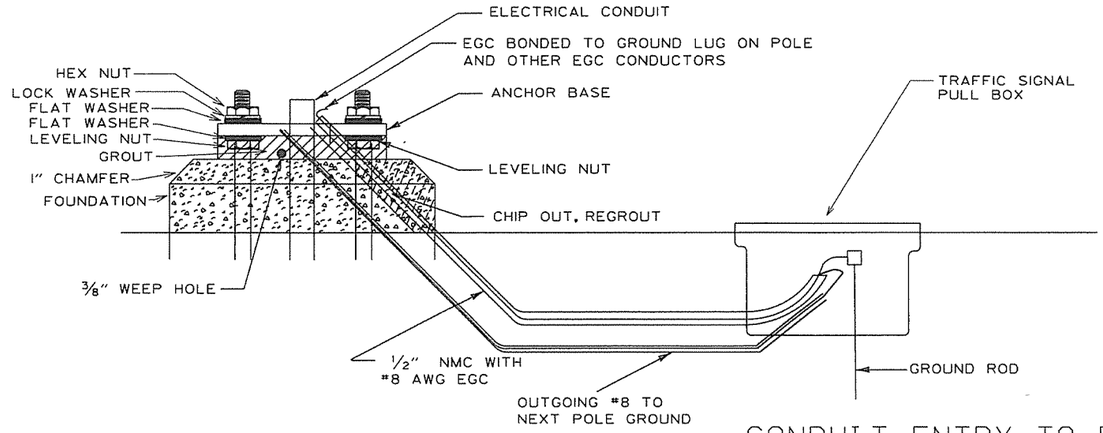
CONTROLLER CABINET
UTILITY DRAWER

STANDARD DRAWING SD-5

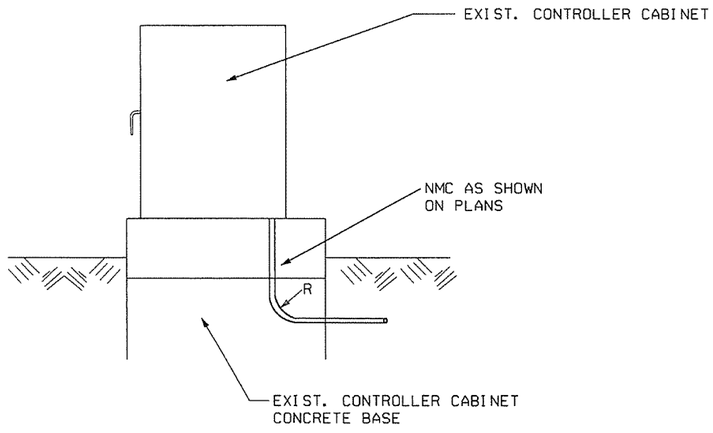
CONDUIT ENTRY TO EXISTING POLE BASE



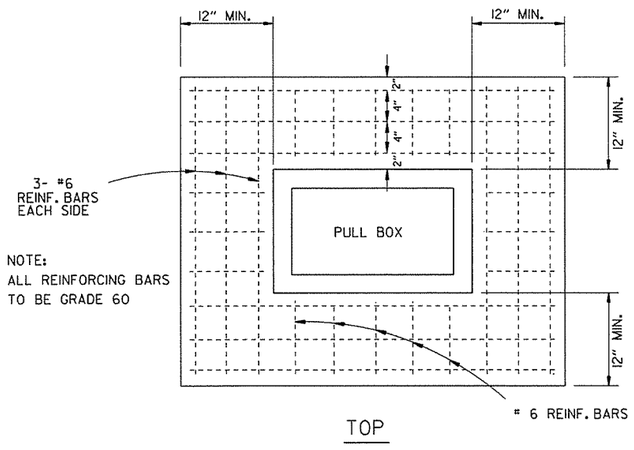
ANCHOR BASE



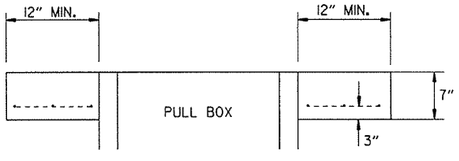
CONDUIT ENTRY TO EXISTING CONTROLLER CABINET



NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.

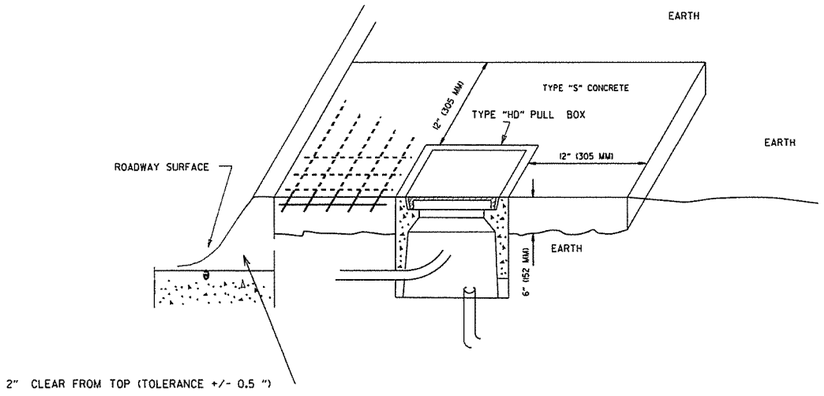


TOP



ELEVATION

TYPE "HD" CONCRETE PULL BOX DETAIL



NOTE: ALL TYPE 1 AND TYPE 2 HD PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" (305 MM) WIDE AND 6" (152 MM) IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD PULL BOX. PULL BOX SHALL BE INSTALLED FLUSH TO SURROUNDING GRADE UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. THE CONCRETE SHALL BE CLASS "S." THREE #6 REINFORCING BARS IN THE APRON ON ALL SIDES OF THE PULL BOX IS REQUIRED IN CONCRETE.

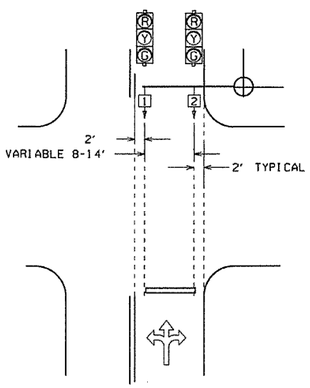
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
5-21-09	REVISED GROUNDING	
7-31-08	ADDED & REVISED CONDUIT ENTRY	
6-23-04	REVISED CLEARANCE AT CURB ENTRY	
1-4-02	ADDED REINFORCING TO BOX APRON	
7-2-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

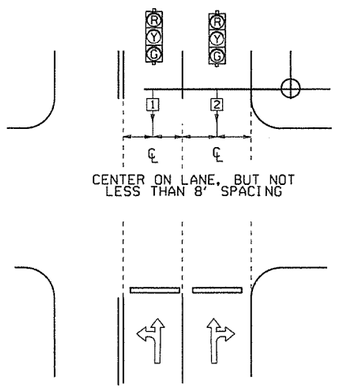
HEAVY DUTY PULL BOX

STANDARD DRAWING SD-6

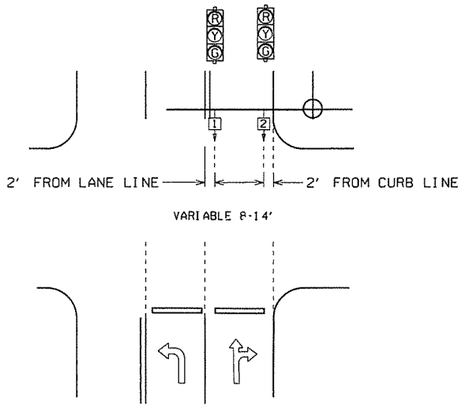
(A)



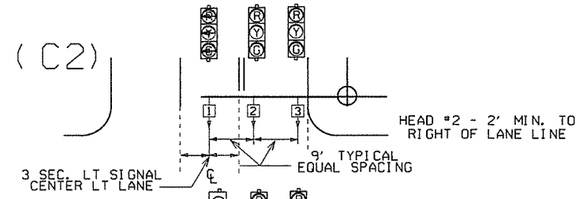
(B)



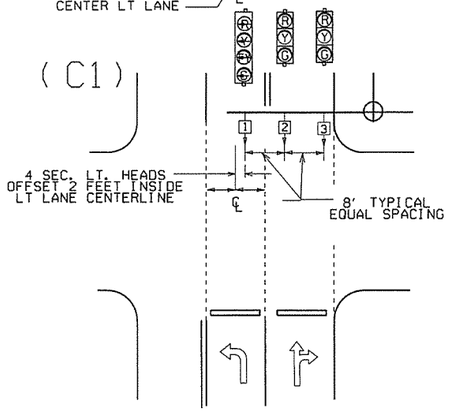
(C)



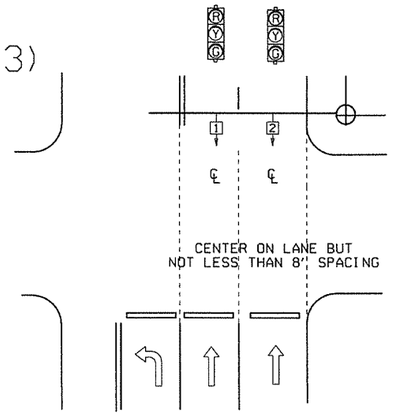
(C2)



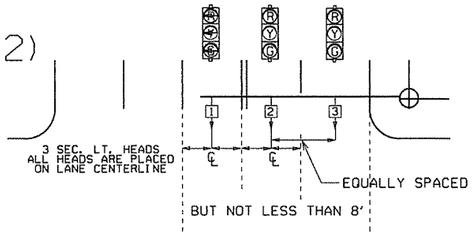
(C1)



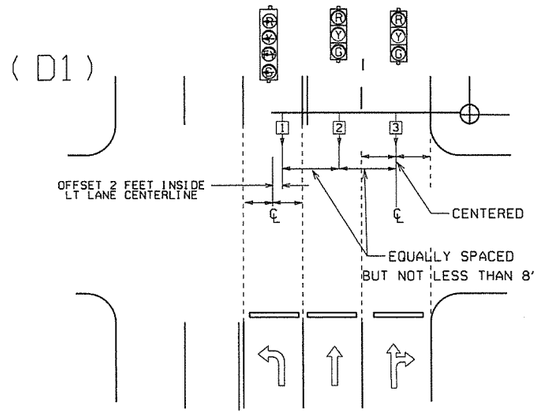
(C3)



(D2)

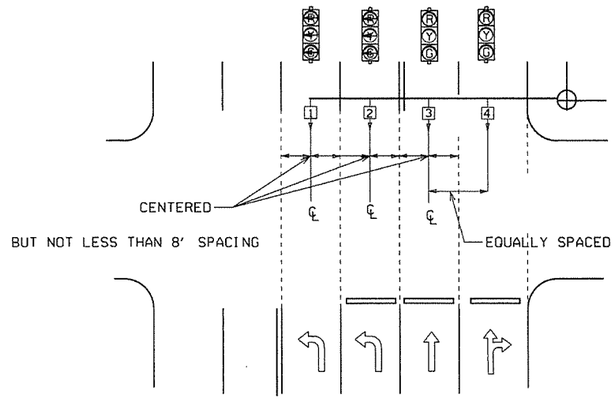


(D1)



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

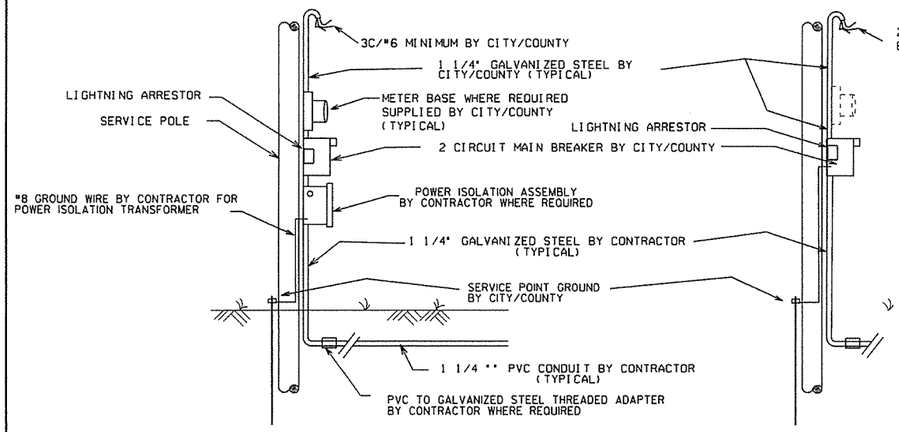
ARKANSAS STATE HIGHWAY COMMISSION

SIGNAL HEAD PLACEMENT

STANDARD DRAWING SD-8

MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

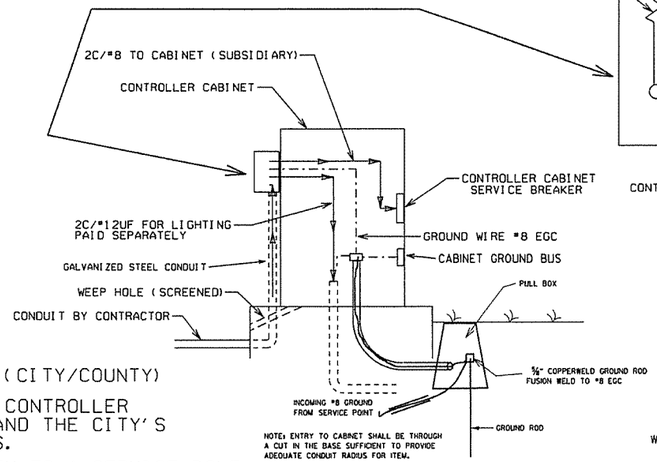
WITH POWER ISOLATION ASSEMBLY

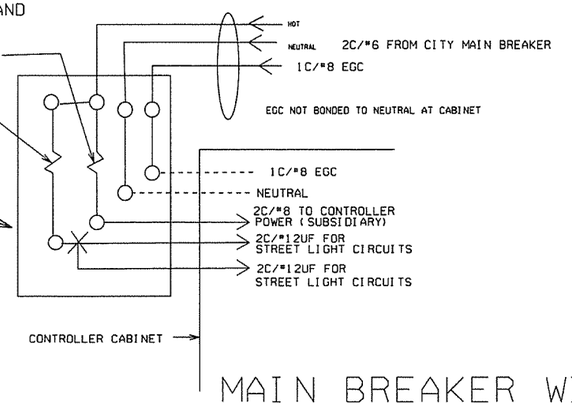


WITHOUT POWER ISOLATION ASSEMBLY

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.

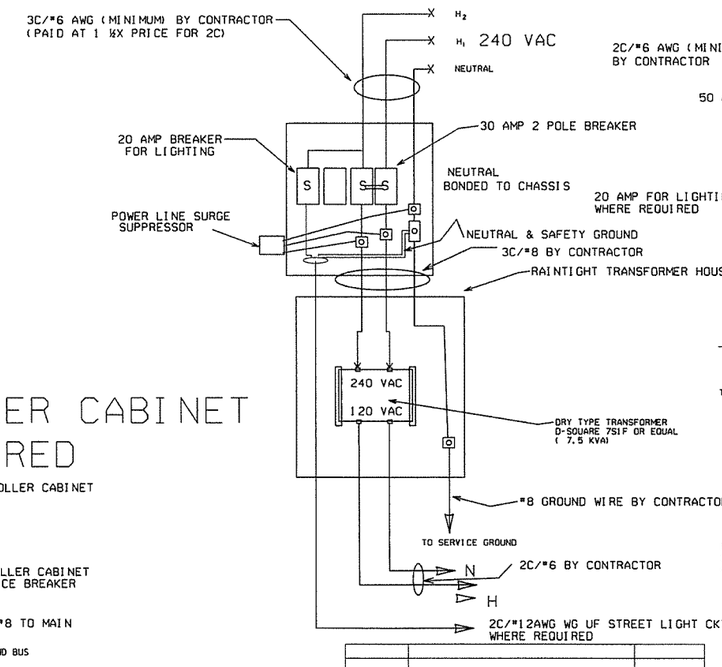
1. ALL SITUATIONS: ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, 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.

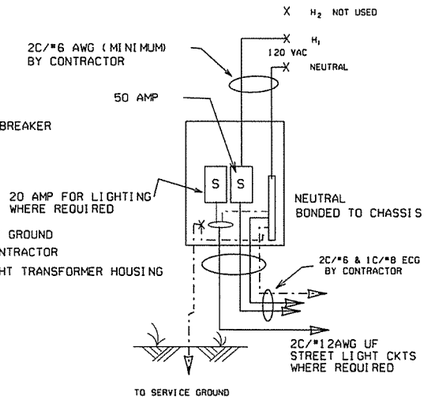
3. MAIN BREAKER NEAR CONTROLLER CABINET: ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER 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

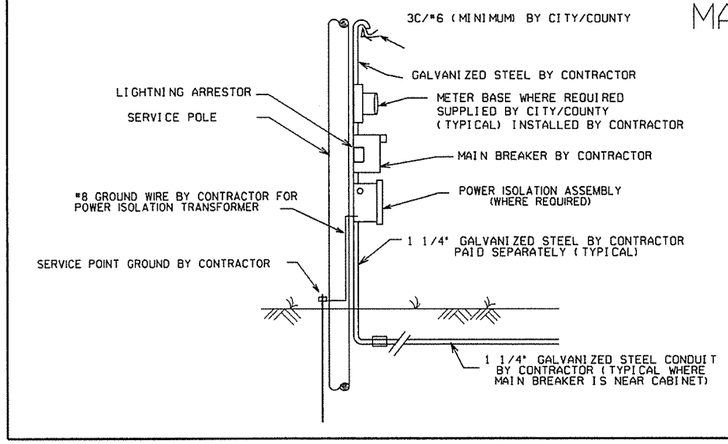


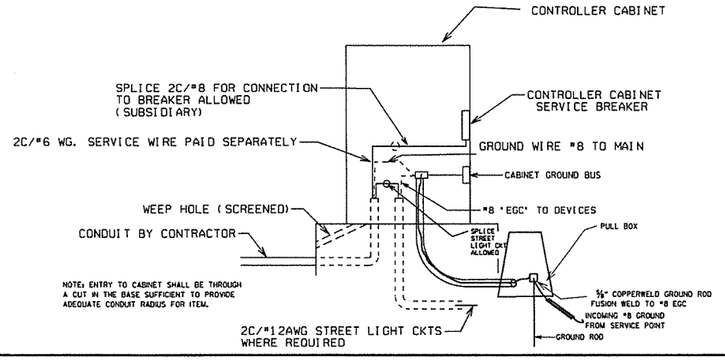
WITHOUT POWER ISOLATION ASSEMBLY
2 CIRCUIT MAIN BREAKER



NOTE: ELECTRICAL GROUND CONDUCTOR (EGC) ADDED 3-3-2003, CONSISTING OF A 1C/#8AWG CU GREEN WIRE AS PER NATIONAL ELECT. CODES.

MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED





DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
4-18-13	ADDED LIGHTNING ARRESTOR	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
3-3-03	ADDED EGC NOTE	
9-26-01	REVISED	
12-27-99	REVISED	
7-28-99	REVISED	
2-5-99	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SERVICE POINT

STANDARD DRAWING SD-9

NOTES, PED AND TRAFFIC SIGNAL HEAD SIGNS:
EACH ITEM "TRAFFIC SIGNAL HEAD (4 SEC., 1-WAY)" SHALL INCLUDE A SPECIAL SIGN AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD UNLESS REMOVED WITHIN THE SIGNAL PLAN NOTES.

EACH ITEM "TRAFFIC SIGNAL HEAD (3 SEC., 1-WAY)" TO BE USED AS A LEFT TURN INDICATION ONLY SHALL INCLUDE A SIGN (R10-10) AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD.

EACH PEDESTRIAN PUSHBUTTON SHALL HAVE ONE R10-3E SIGN ATTACHED TO THE POLE ABOVE THE BUTTON. ALL SIGN FACES SHALL BE CONSTRUCTED OF HIGH INTENSITY SHEETING (TYPE III) WITH SILKSCREEN LEGEND AND BORDER.

ALL SIGN BLANKS SHALL BE CONSTRUCTED OF ALUMINUM ALLOY (ASTM DESIGNATION B-209. ALLOY 5052-H38) WITH THICKNESS OF 0.100 INCH.

GENERAL NOTES:
1. MAST ARM POLES SHALL BE MOUNTED A MINIMUM OF 4 FT. BEHIND CURB OR SHOULDER.

2. OCTAGONAL POLES AND ARMS MEETING THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS CAN BE INSTALLED IN LIEU OF ROUND. ALL POLES AND ARMS IN A JOB MUST BE THE SAME SHAPE.

3. MINIMUM STRUCTURAL REQUIREMENTS:
DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

USE FATIGUE CATEGORY I FOR ALL STRUCTURES ON ROUTES WHERE THE SPEED LIMIT IS 65 MPH AND GREATER AT THE STRUCTURE LOCATION AND ON ROUTES WHERE SPEED LIMIT IS GREATER THAN 45 MPH WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY II FOR STRUCTURES ON ROUTES WITH A SPEED LIMIT LESS THAN 65 MPH AND GREATER THAN 45 MPH WITH ARMS LESS THAN 60' AND ROUTES WITH SPEED LIMITS OF 45 MPH AND LESS WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY III FOR ALL STRUCTURES WHERE SPEED LIMIT IS 45 MPH AND LESS AND ARMS LESS THAN 60'.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH.

STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN 1/2" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

DEAD LOAD: AS A MINIMUM, DESIGN SHALL BE BASED ON THE FIXED ATTACHMENTS SHOWN BELOW OR AS MODIFIED IN THE PLANS.

ALL SIGNAL HEADS TO BE ONE WAY, 12 INCH, AND HAVE 5 IN. BACK PLATES:

HEADS AT END OF ARM - ONE 4 SEC., 85 LB., 16.0 SQ. FT. ONE SIGN MOUNTED 3 FT. FROM SIGNAL * 2' X 0" X 2' * 6"; 20 LB. REMAINING HEADS SPACED A 8 FT. * 3 SEC., 56 LB., TWO 5 SEC):
14.4 SQ. FT. DESIGN TO ACCOMMODATE (INCLUDING
2 HEADS FOR ARMS 10 TO 16 FT.
2 HEADS FOR ARMS 10 TO 16 FT.; INCLUDING LB.
3 HEADS FOR 18 TO 24 FT. ARMS;
4 HEADS FOR OVER 26 FT. ARMS.

STREET NAME SIGN -- 72" X 18", 36 LB., MOUNTED SUCH THAT OUTSIDE EDGE IS NOT GREATER THAN 12 FT. FROM POLE. DEPENDING UPON POSITION OF SIGNAL HEAD ADJACENT TO POLE, SIGN MAY OVERLAP POLE SHAFT ROADWAY LUMINAIRES (WHERE REQUIRED ON PLAN SHEET) * VARIABLE ARM LENGTH (MAX.), 3.3 SQ. FT., 75 LB. PED SIGNALS -- TWO 2 SEC. 12 INCH MOUNTED 8 FT. FROM BASE OF POLE.
POST MOUNTED 3 SEC. SIGNAL HEAD AT 10 FT. ON SIDE OF POLE.

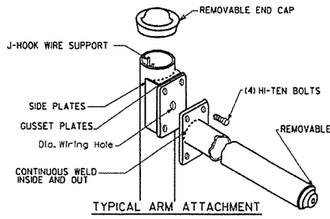
4. POLE/MAST ARM CAP -- POLE AND MAST ARMS CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

5. HAND HOLE -- HAND HOLES SHALL BE 4 X 6 INCHES FOR STANDARD, AND 3 X 5 INCHES FOR PED POLES, MINIMUM PLACED APPROXIMATELY 12 INCHES FROM BASE, AND SHALL BE FIXED WITH A BOLT DOWN COVER. A VACUUM FORMED ABS COVER IS AN ACCEPTABLE ALTERNATE TO STEEL. POLES GREATER THAN 21 FT. IN HEIGHT (FOR ROADWAY LUMINAIRE ATTACHMENT) SHALL INCLUDE A HAND HOLD WITHIN 12 INCHES OF MAST ARM(S) ATTACHMENT(S).

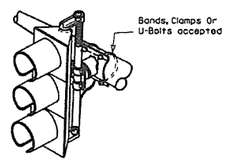
6. POLE/MAST ARM TAPER AND SLOPE - AVERAGE TAPER OF SIGNAL ARMS AND POLE SHALL BE 0.125 TO 0.15 INCHES PER FT.

MAST ARM CENTERLINE ANGLE AT ATTACHMENT POINT WITH POLE SHALL MAINTAIN NOT LESS THAN 0.5 DEGREES OR MORE THAN 4 DEGREES POSITIVE SLOPE WITH A LINE PERPENDICULAR TO THE POLE CENTERLINE. THE ARM SHALL MAINTAIN A POSITIVE AFTER IT IS PLACED UNDER LOAD.

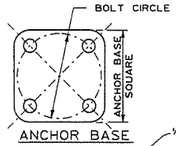
7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.



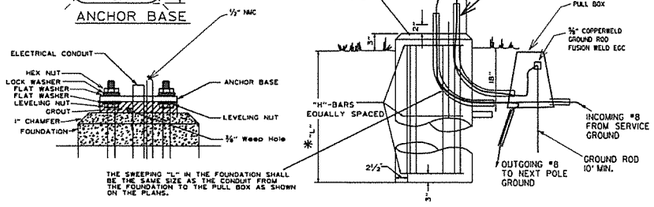
TYPICAL ARM ATTACHMENT



NOTE: THE SIGNAL SHALL BE CONNECTED TO THE MAST ARM BY BRACKETING AS DIRECTED BY THE ENGINEER.



ANCHOR BASE

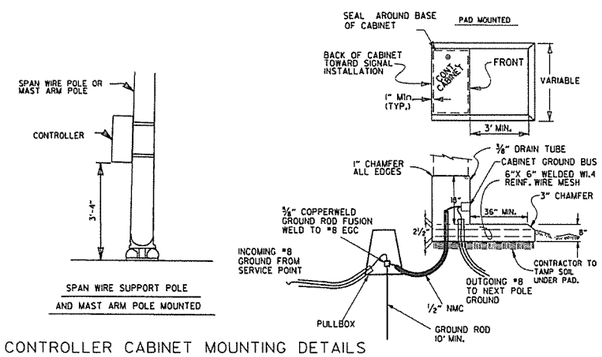


THE GROUND ROD SHALL BE FUSION WELDED TO A 1C/#8 A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX.

TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING. ALL REINFORCING STEEL SHALL BE GRADE 40 MIN.

ARM LENGTH	FDN. DIAMETER	DEPTH "L" *	STEEL VERT.	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.

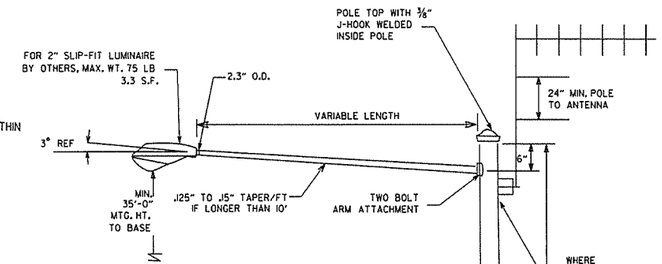
THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD, AT THE TIME INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATIONS IN FLASH SEQUENCE.

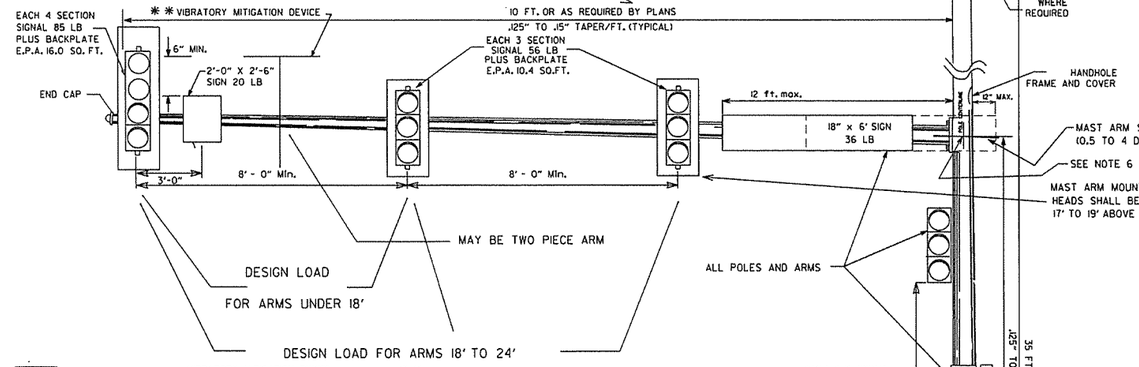
SPECIAL NOTE: 90 MPH WIND ZONE DESIGN, SEE NOTE 3. MINIMUM STRUCTURAL REQUIREMENTS.

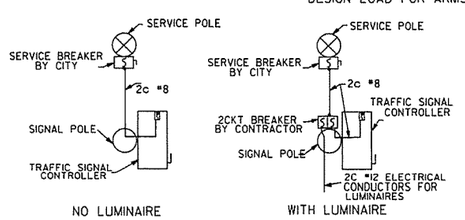
* WHEN THE GROUND ELEVATION AT THE POLE IS LOWER THAN THE ROADWAY ELEVATION, THE LENGTH OF FOUNDATION ABOVE THE GROUND MAY BE INCREASED TO PROVIDE THE REQUIRED SIGNAL HEAD CLEARANCE ABOVE THE ROADWAY. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 18" OR LESS, NO INCREASE IN DEPTH "L" WILL 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.

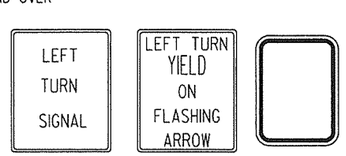
TRUCK-INDUCED GUST LOADS SHALL BE EXCLUDED FOR FATIGUE DESIGN FOR ALL STRUCTURES EXCEPT MAST ARMS MOUNTED OVER FACILITIES WITH POSTED SPEEDS OF 65 MPH OR GREATER AT THE LOCATION OF THE STRUCTURE.

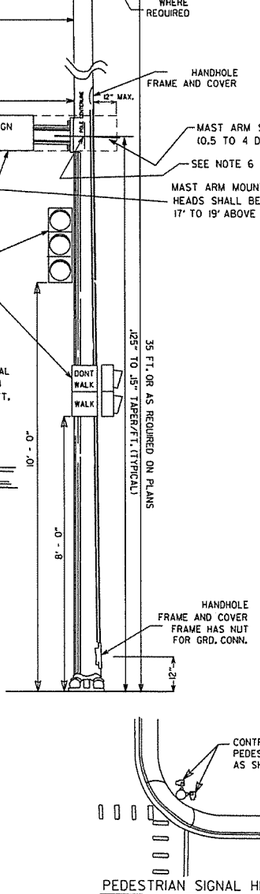


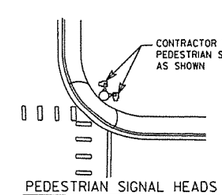




SERVICE DISCONNECT







PEDESTRIAN SIGNAL HEADS

2-27-14	REVISED NOTES.	
9-12-13	ISSUED AS STANDARD DRAWING	
7-21-11	REVISED VMD, SIGNAL HEADS	
5-20-09	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	
5-6-04	REV. NOTE 3/AASHTO REQUIREMENTS	
6-11-01	REV. NOTES & POLE MAST ARM SLOPE	
4-9-01	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	
DATE	REVISION	SHEET NO.

ARKANSAS STATE HIGHWAY COMMISSION

STEEL POLE WITH MAST ARM

STANDARD DRAWING NO. [illegible]

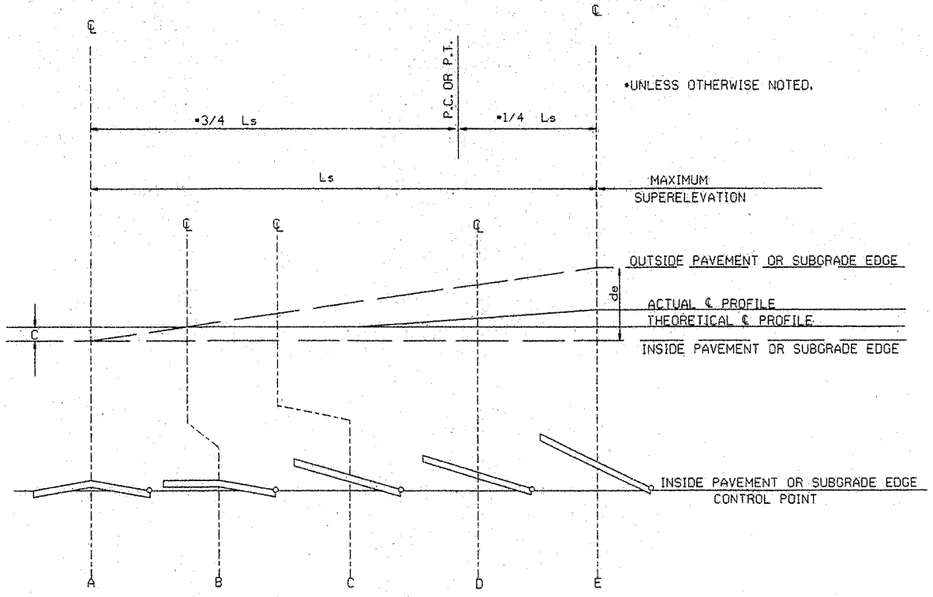
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45′	N.C.			N.C.			R.C.			0.022			0.023			0.028		
1° 00′	N.C.			N.C.			0.021			0.026			0.030			0.037	275	300
1° 15′	N.C.			R.C.			0.026			0.032			0.037			0.046		
1° 30′	N.C.			0.021			0.031	200		0.037	225		0.043	250		0.054		
1° 45′	N.C.			0.025	175		0.036			0.043		300	0.049		300	0.062		
2° 00′	R.C.			0.028			0.040			0.048			0.055			0.070		
2° 15′	R.C.			0.031			0.045		250	0.053			0.061			0.078	300	350
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085	315	
2° 45′	0.023			0.037			0.053			0.063			0.072			0.091	335	
3° 00′	0.025			0.040		200	0.057			0.057	230		0.077	260		0.096	350	400
3° 15′	0.027	150		0.043			0.061			0.072	245		0.082	275		0.098	360	
3° 30′	0.029			0.046			0.065	205		0.076	255		0.086	285	350	0.100	360	
3° 45′	0.031		200	0.049			0.069	215		0.080	265		0.090	295		D MAX = 3° 30′		
4° 00′	0.033			0.051			0.072	225		0.083	270		0.093	305				
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	350	0.098	320				
5° 30′	0.043			0.066	185		0.088	260		0.094	300		D MAX = 5° 15′					
6° 00′	0.046			0.070	190		0.092	270		0.096	305							
6° 30′	0.050			0.074	200		0.095	280	300	0.100	315							
7° 00′	0.053			0.078	210		0.098	285		D MAX = 6° 30′								
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.)



•UNLESS OTHERWISE NOTED.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

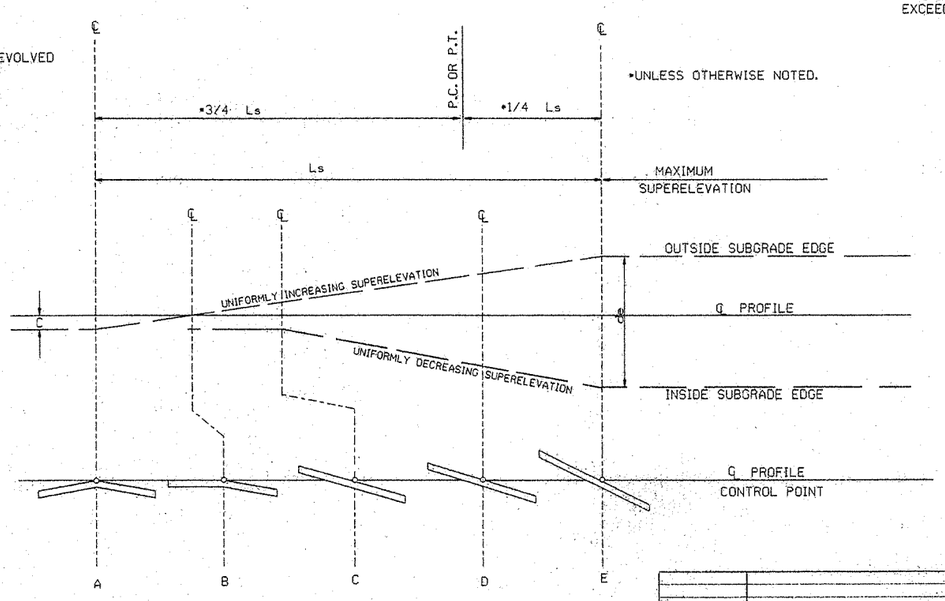
GENERAL NOTES

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.



•UNLESS OTHERWISE NOTED.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

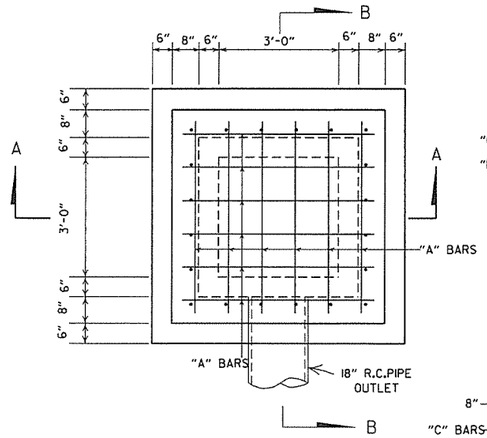
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

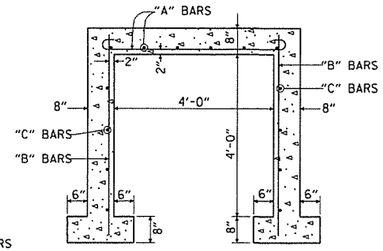
ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

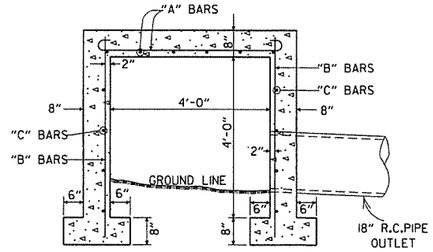
STANDARD DRAWING SE-2

FILE STDSE2.DGN





SEC A-A



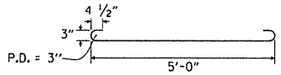
SEC B-B

NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



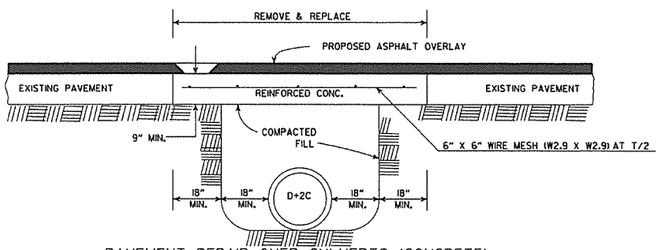
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

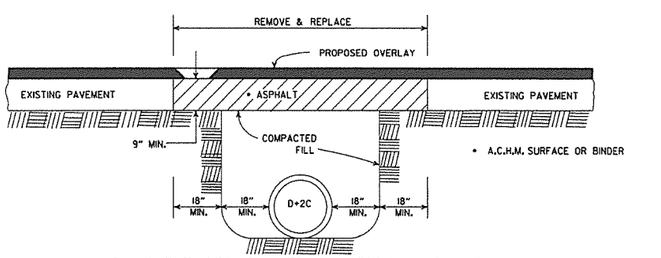
GENERAL NOTE:

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



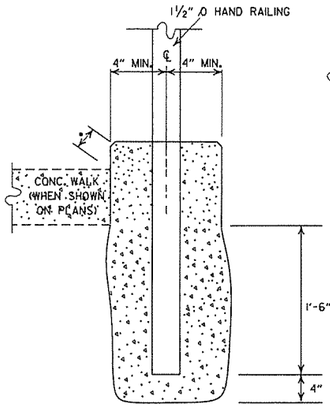
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



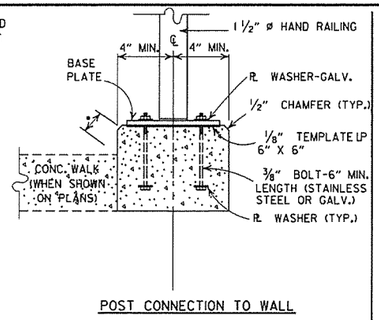
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

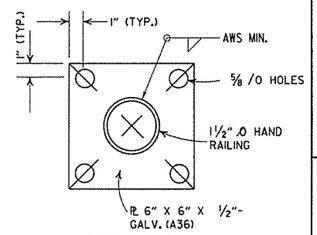
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

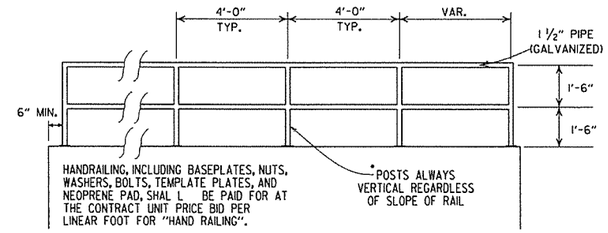


POST CONNECTION TO WALL

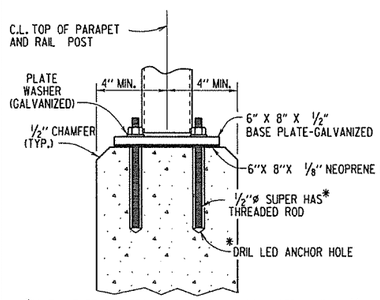


BASE PLATE

POST CONNECTION DETAILS



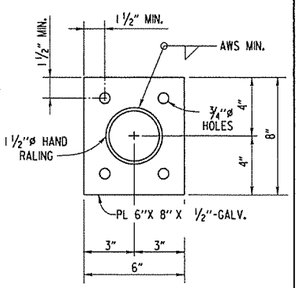
HAND RAILING SHAL L CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHAL L BE INSTAL LED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

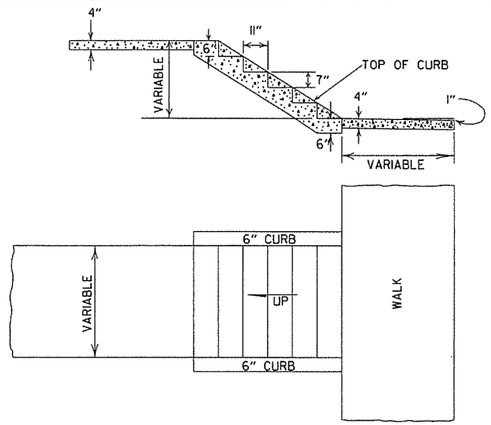
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45° INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILMED
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE;REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1

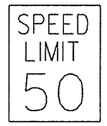
R1-1

STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2

STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5A

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5C

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

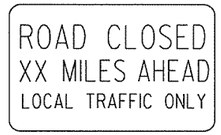
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2

48"X30"

RII-3A



60"X30"

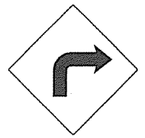
RII-4

60"X30"

RSP-1

48"X30"

WI-1



STD. 36"X36"
FWY. 48"X48"

WI-2

STD. 36"X36"
FWY. 48"X48"

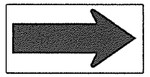
WI-3

STD. 48"X48"

WI-4

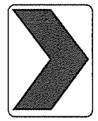
STD. 48"X48"

WI-6



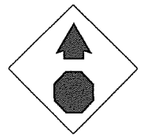
STD. 48"X24"
SPECIAL 60"X30"

WI-8



STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1

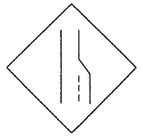


STD. 36"X36"
SPECIAL 48"X48"

W3-2

STD. 36"X36"
SPECIAL 48"X48"

W4-2



STD. 36"X36"
FWY. 48"X48"

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

EXPWY. 36"X36"
FWY. 48"X48"

W9-2

STD. 36"X36"
FWY. 48"X48"

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

STD. 36"X36"
FWY. 48"X48"

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

W8-11

STD. 36"X36"
FWY. 48"X48"

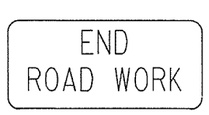
W8-9

STD. 36"X36"
FWY. 48"X48"

G20-1

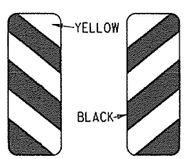
60"X24"

G20-2



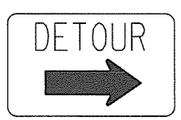
48"X24"

OM-3L OM-3R



12"X36"

M4-9



STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1

FINES DOUBLE
IN WORK ZONES *
WHEN WORKERS
ARE PRESENT **

36"X60"

* USE 6" C LETTERS
** USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ MILE
1500 FT	1 MILE
	AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.

2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.

3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.

• 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.

• 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.

6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.

7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.

8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.

9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.

10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

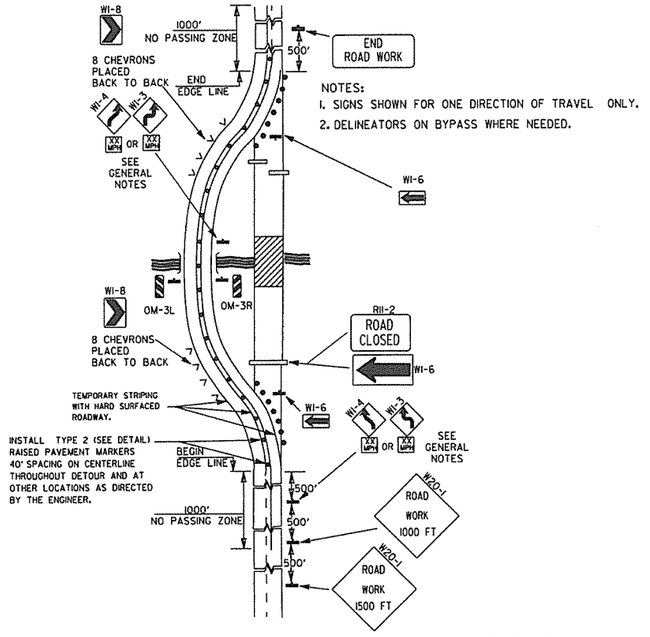
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

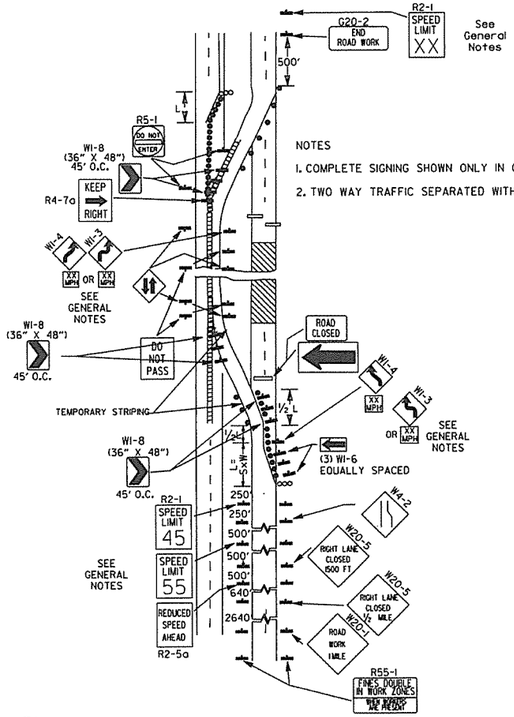
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



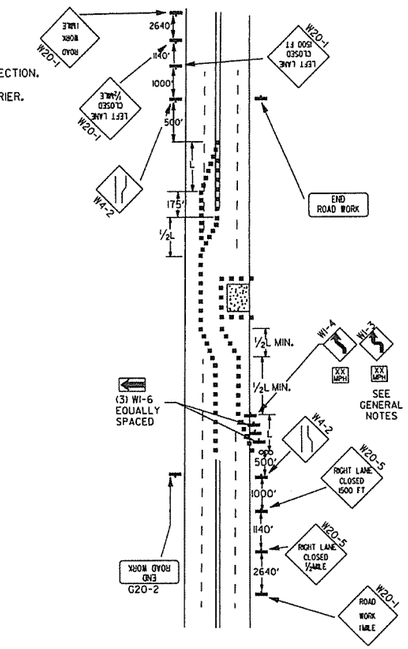
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

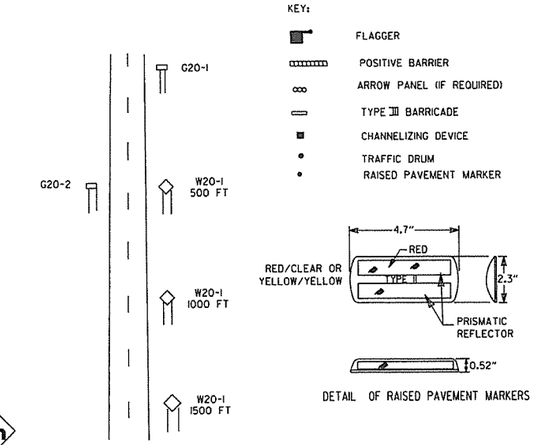


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.

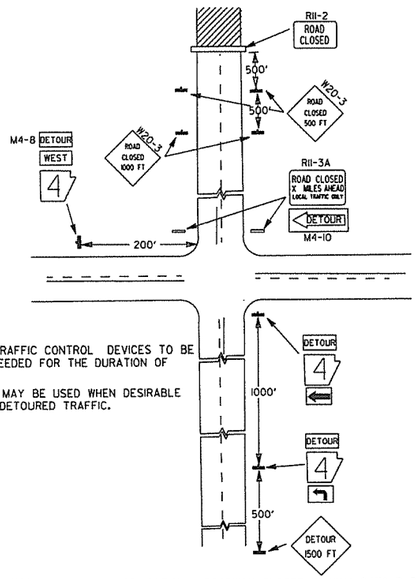


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



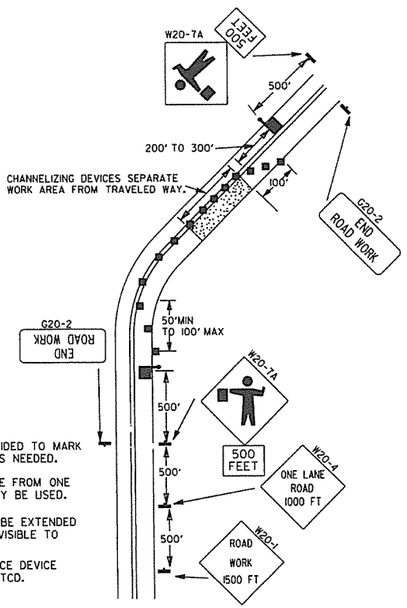
DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT



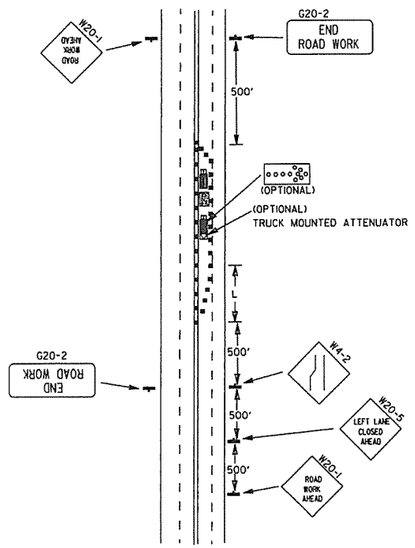
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

GENERAL NOTES:

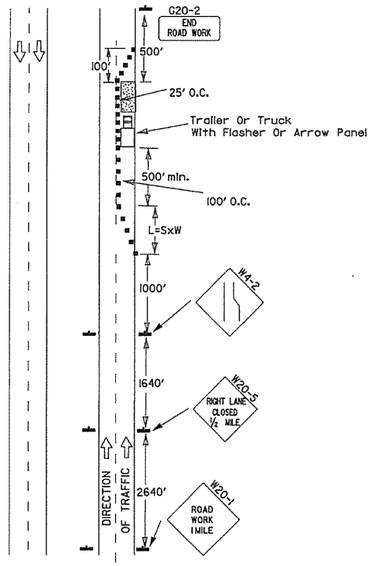
1. ADVISORY SPEED POSTED ON WI-3 OR WI-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (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	

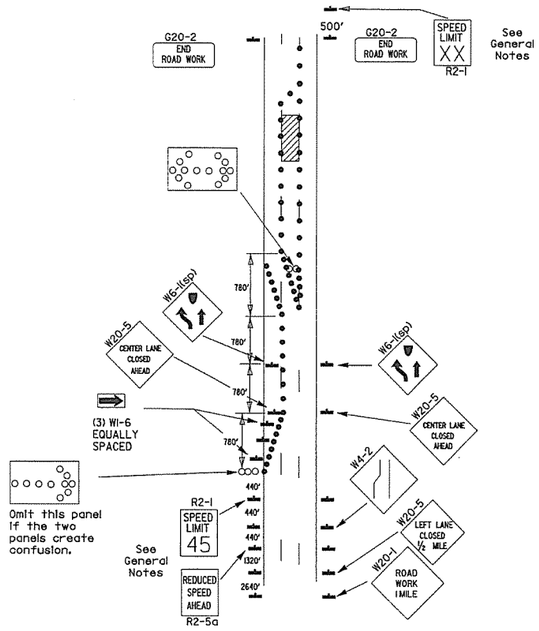
ARKANSAS STATE HIGHWAY COMMISSION

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.



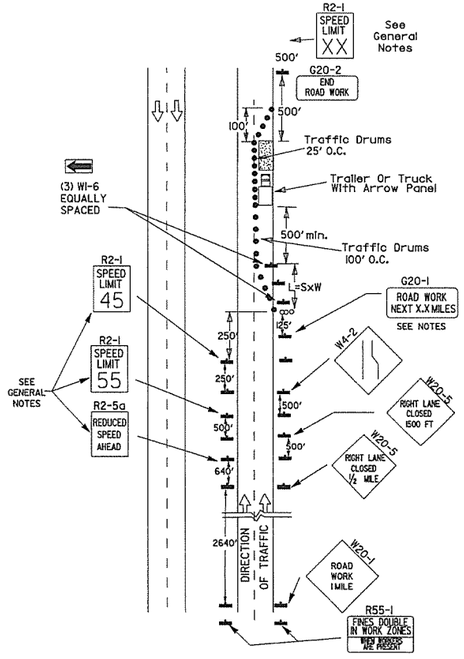
(B) Typical application - 3-lane oneway roadway where center lane is closed.

KEY:

- Arrow Panel (If Required)
- Channelizing Device
- Traffic drum

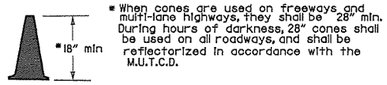
GENERAL NOTES:

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 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. 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.



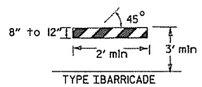
(C) Typical application - construction operatipns of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

Channelizing devices



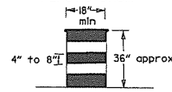
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

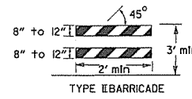
CONES



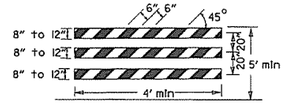
TYPE I BARRICADE

PLASTIC DRUM



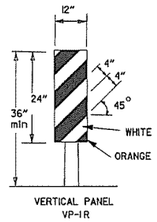


TYPE II BARRICADE



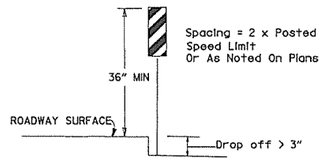
TYPE III BARRICADE

NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



VERTICAL PANEL
VP-1R

VERTICAL PANEL PLACEMENT



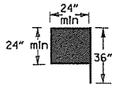
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

* When shown on the plans concrete barrier will be used.

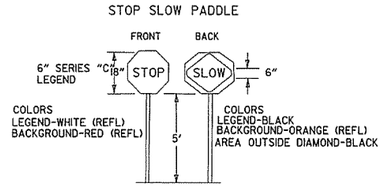
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

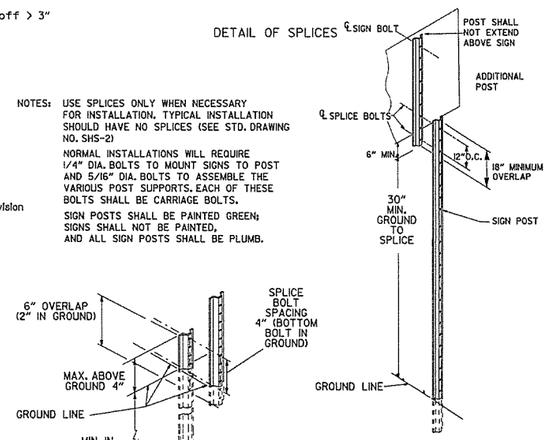
FLAG



Flag shall be of good grade red material

STOP SLOW PADDLE

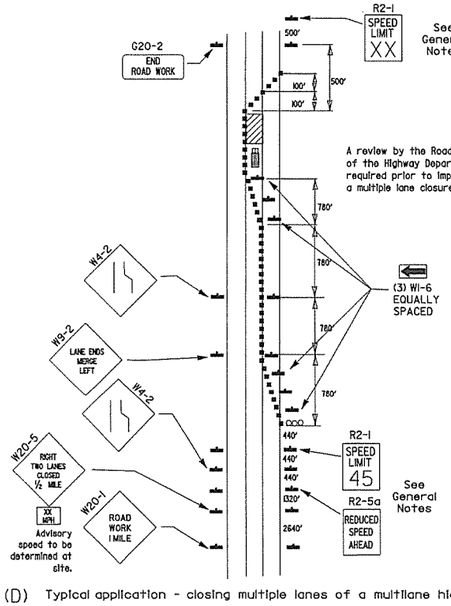




NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



(D) Typical application - closing multiple lanes of a multilane highway.

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

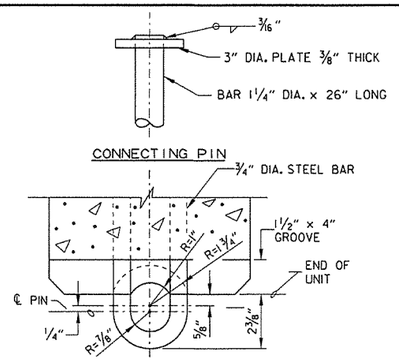
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

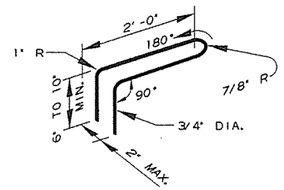
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT

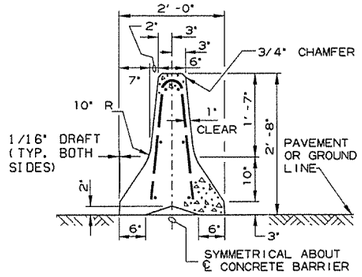
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", 90°, 3 3/8" R, LIFTING HOLE
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S & DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 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°, 2'-1 3/8", 4 3/8", 9 1/2"



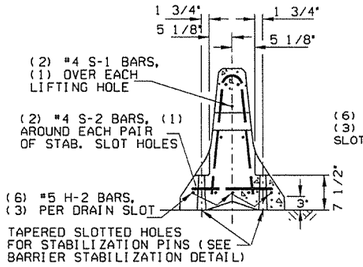
CONNECTION DETAILS



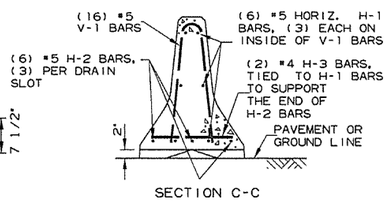
CONNECTION LOOP



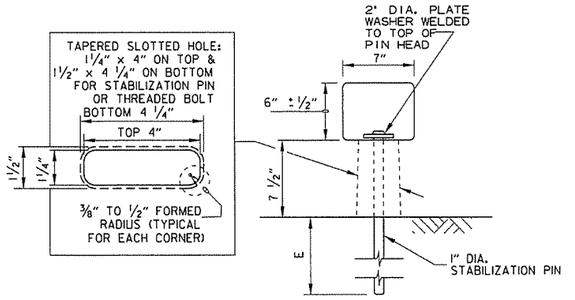
SECTION A-A



SECTION B-B



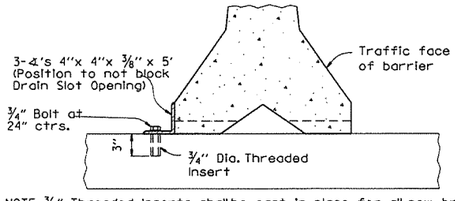
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

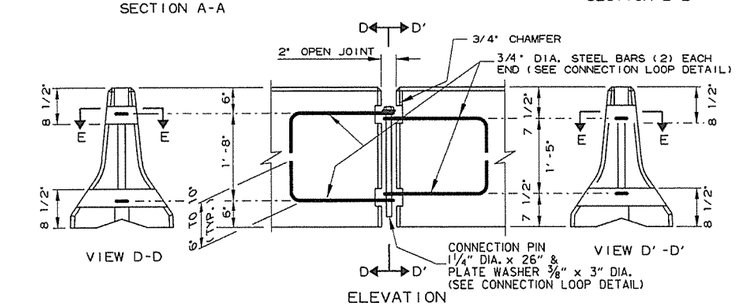
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL

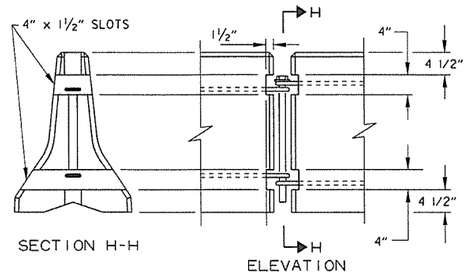
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

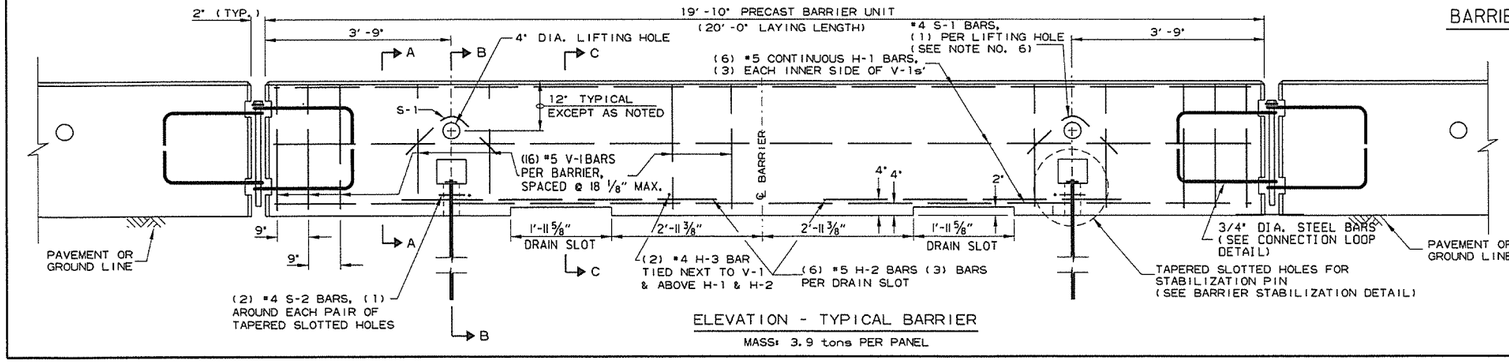
ELEVATION



SECTION H-H

ELEVATION

BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

General Notes

1. The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.
2. Materials shall meet the following minimum requirements:
   Concrete: 2500 psi compressive strength at 28 days.
   Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
   Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.
   Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

   In applications where barrier wall is within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
   Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
   Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.
3. Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.
4. Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.
5. Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.
6. A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

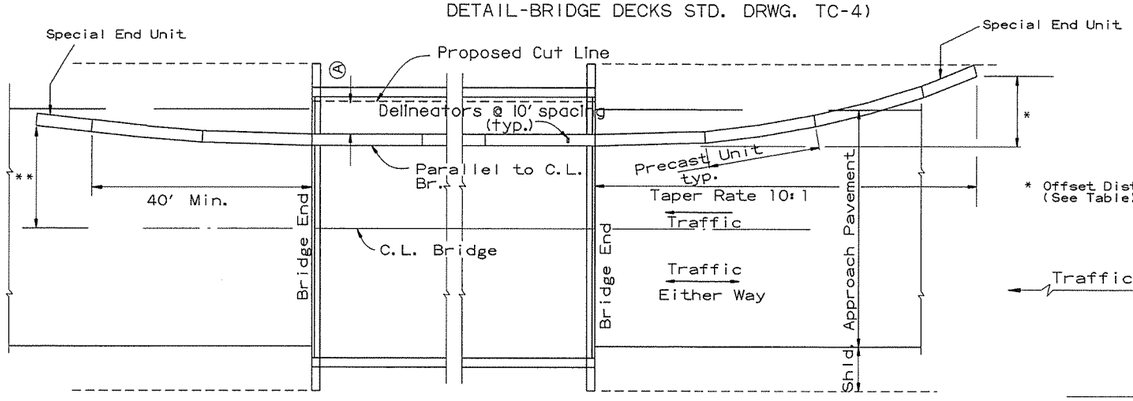
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

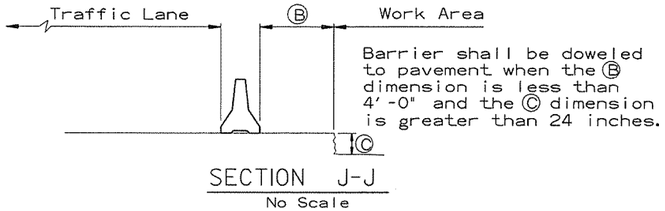
STANDARD DRAWING TC-4

Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

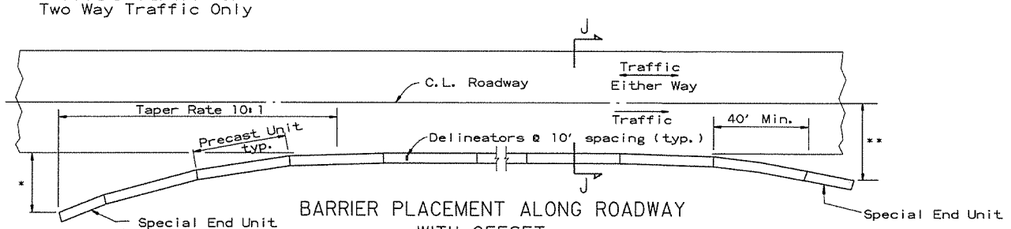


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

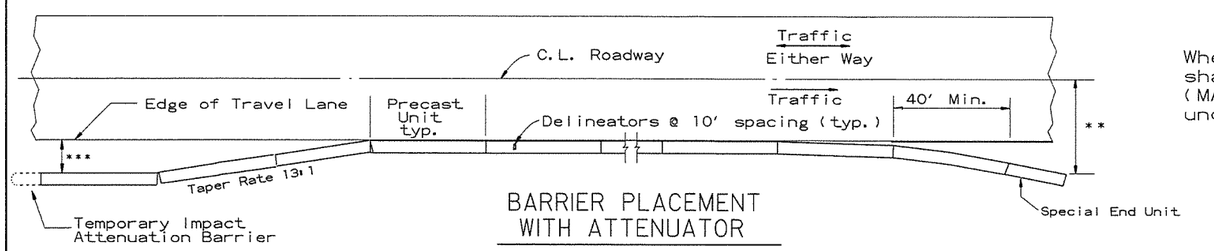
** Offset Distance For Two Way Traffic Only

* Offset Distance (See Table)

Offset Distance Table

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

If offset distance is not attainable, then see 'Barrier Placement With Attenuator' Detail shown below.

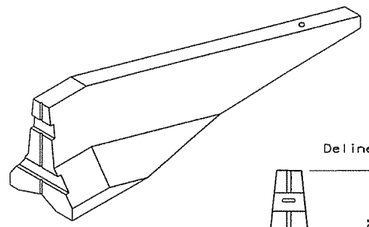


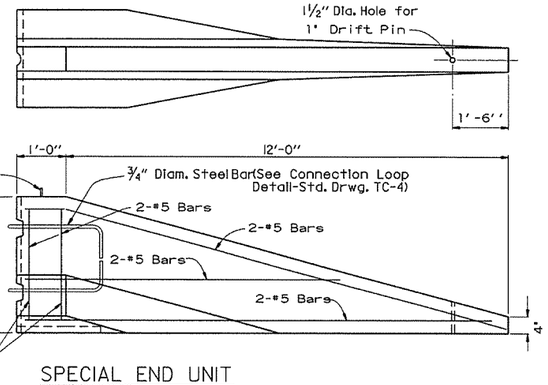
BARRIER PLACEMENT WITH ATTENUATOR

No Scale

*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

** Offset Distance For Two Way Traffic Only





SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

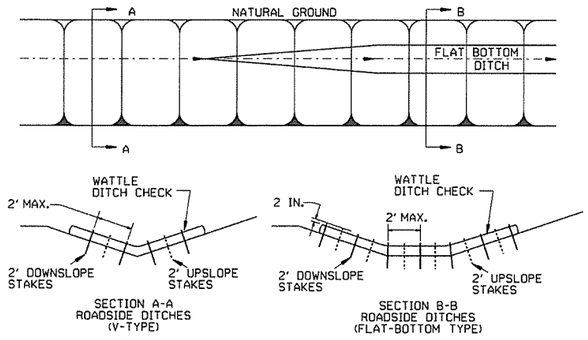
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

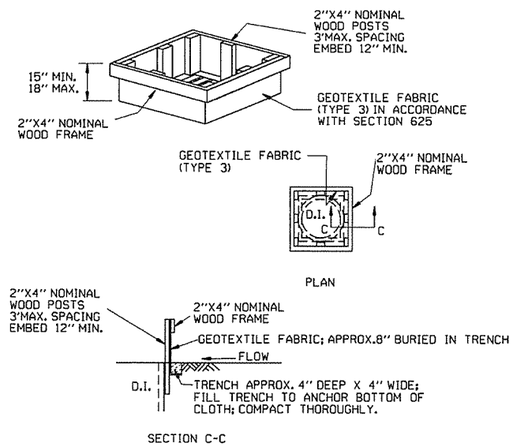
STANDARD DRAWING TC-5

GENERAL NOTES

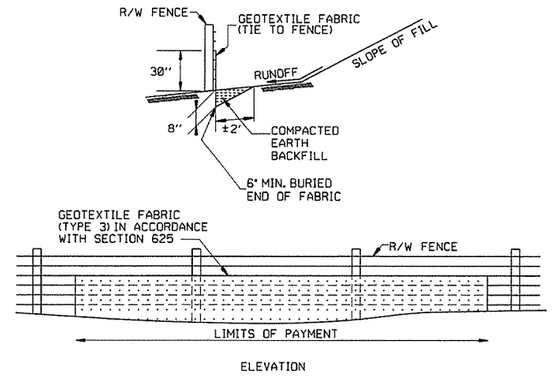
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

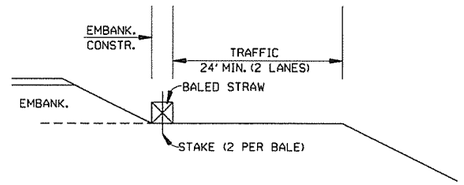
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

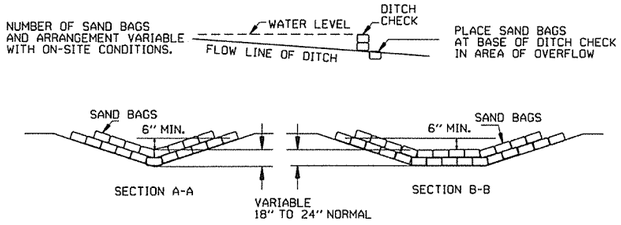
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

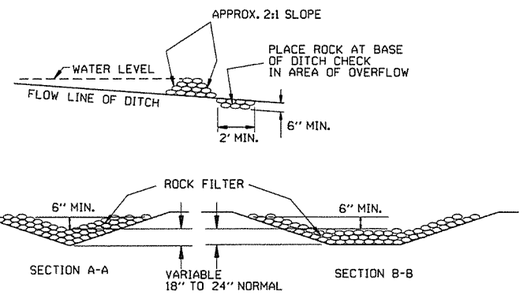
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



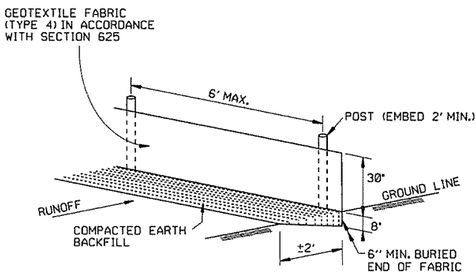
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

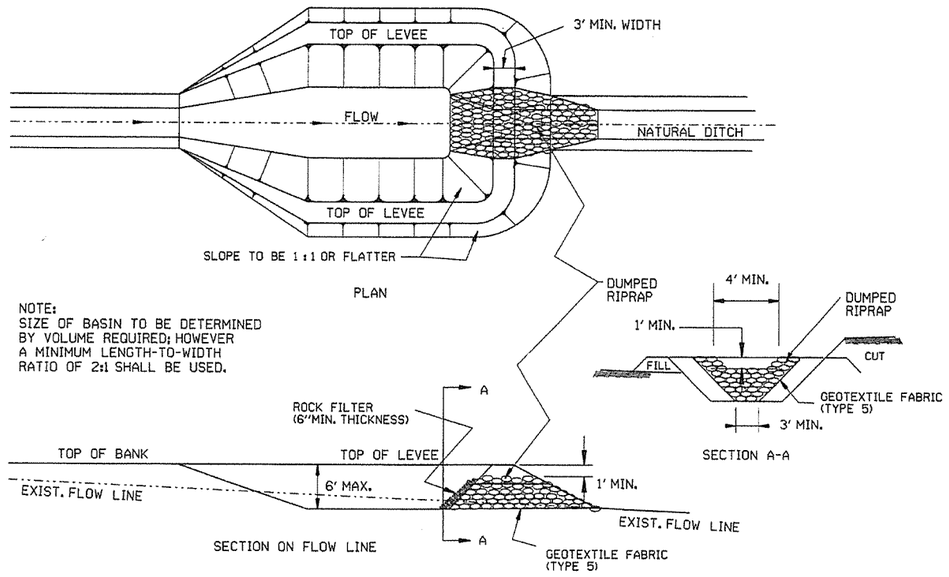
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

DATE	REVISION	FILMED
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
6-2-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
4-1-93	REDRAWN	
10-1-92	REDRAWN	
8-2-76	ISSUED R.D.M.	298-7-28-76

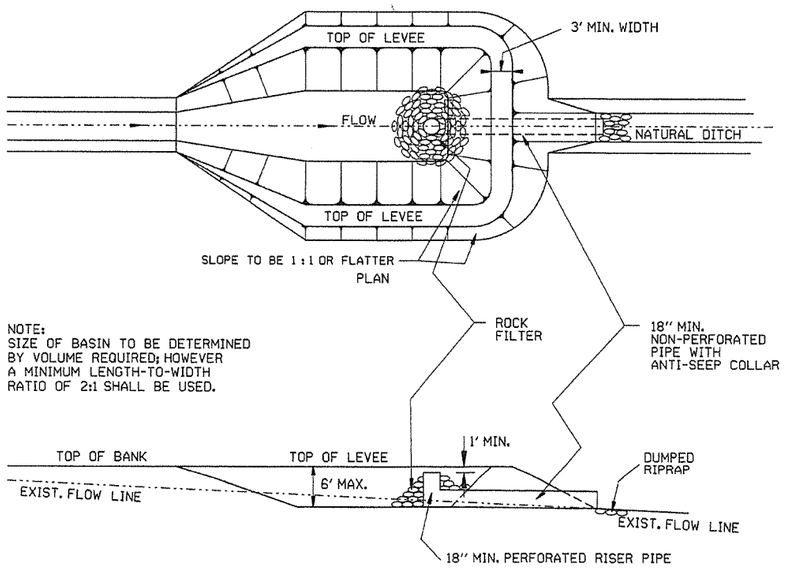
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

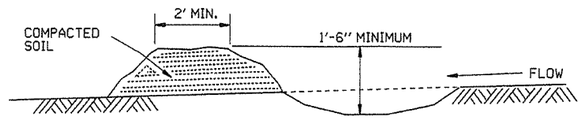
STANDARD DRAWING TEC-1



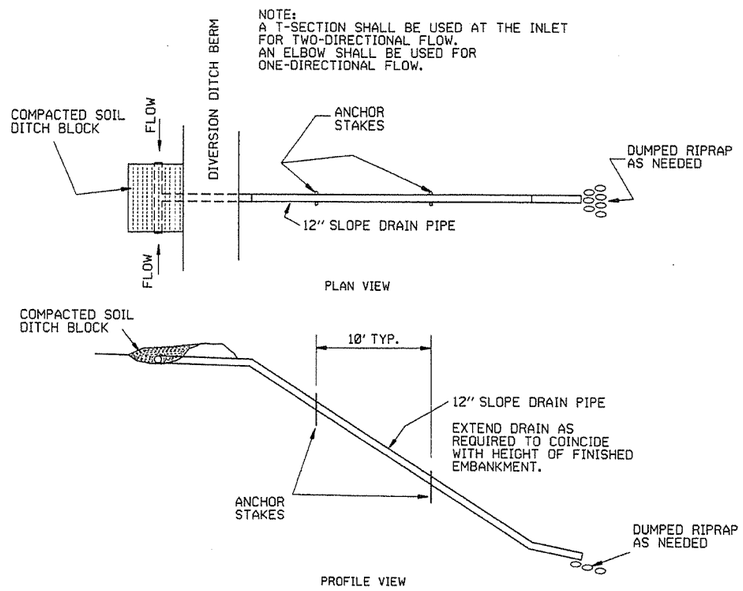
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



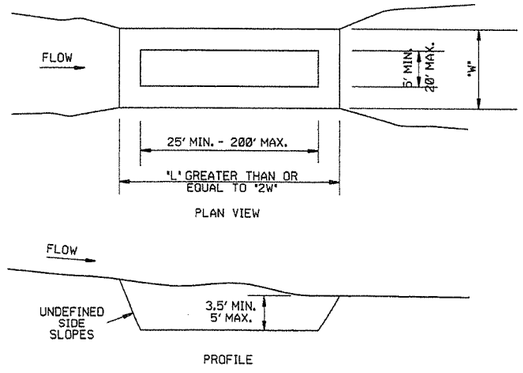
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

DATE	REVISION	FILMED
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13	
4-1-93	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

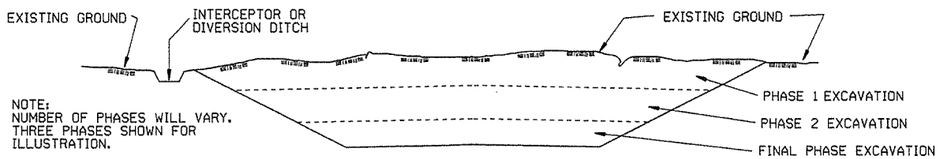
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



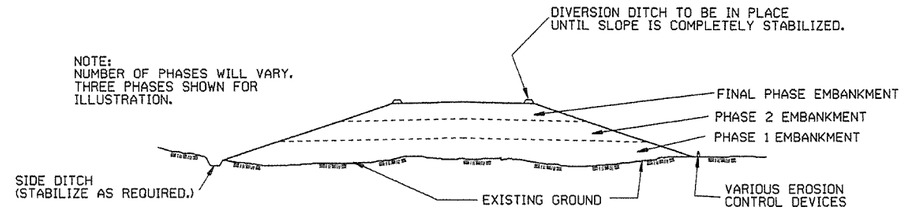
GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

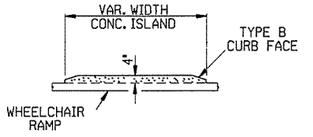
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

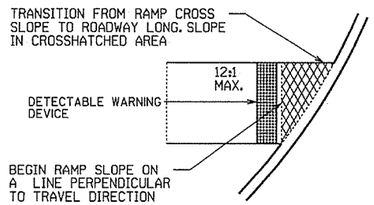
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3



CONCRETE ISLAND DETAIL



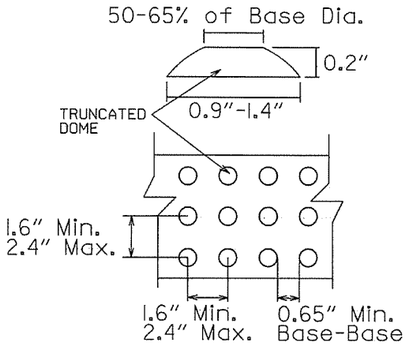
SLOPE TRANSITION DETAILS

TYPE 1 RAMP DIMENSIONS AND QUANTITIES

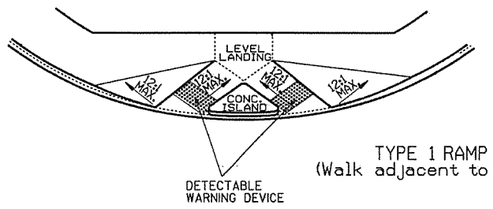
RADIUS "R" FEET	DISTANCE "X" FEET	DISTANCE "Y" FEET	LENGTH "L" FEET	RAMP AREA "A" SQ. YD.
15	11.67	18.82	32.18	26.21
20	11.52	22.28	35.46	30.07
25	11.43	26.60	38.77	33.80
30	11.37	30.26	40.93	36.90
35	11.33	33.51	43.11	39.77
40	11.30	36.45	45.26	42.45
45	11.27	39.16	47.34	44.97
50	11.25	41.69	49.36	47.35
55	11.24	44.07	51.31	49.63
60	11.22	46.33	53.21	51.80

GENERAL NOTES FOR DETECTABLE WARNING DEVICES

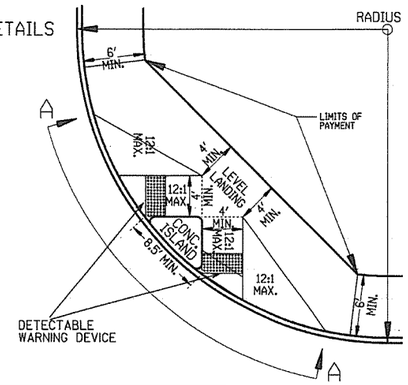
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT 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).

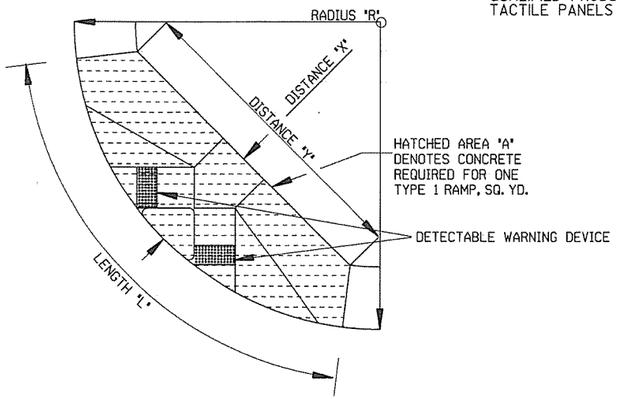


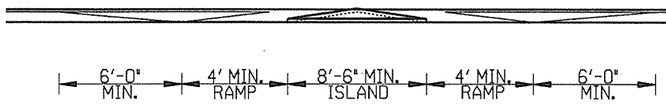
DETECTABLE WARNING DEVICE DETAIL



TYPE 1 RAMP
(Walk adjacent to curb)





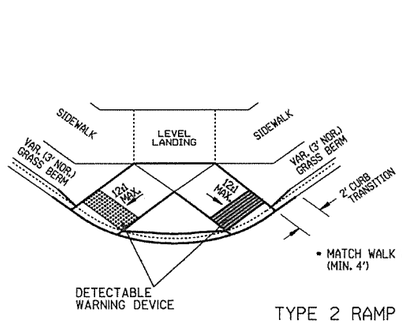


SECTION A-A

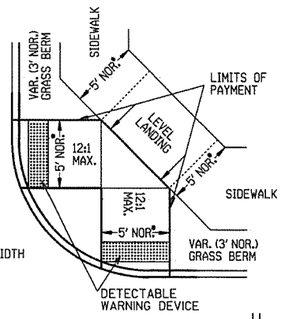
NOTE:
THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGTITUDINAL GRADE.

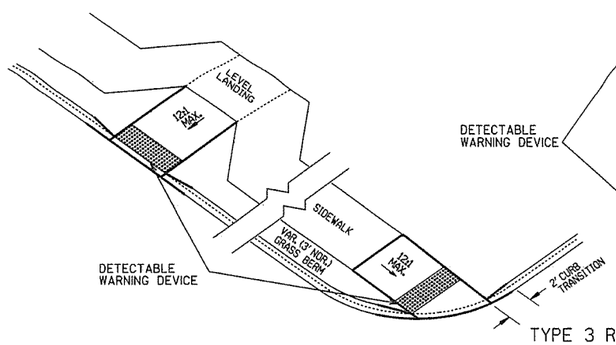
GENERAL NOTES:

IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.
IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK LOCATIONS.
THE LENGTH OF THE RAMP SHALL BE SUCH THAT THE SLOPE DOES NOT EXCEED 12:1. THE SURFACE TEXTURE OF THE RAMP SHALL CONFORM TO A CLASS 6 FINISH ACCORDING TO SECTION 802.19.
THE NORMAL GUTTER GRADE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.
ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
THE MINIMUM THICKNESS OF THE RAMP, WALK, & LANDING SHALL BE 4".
THE MINIMUM WIDTH OF THE RAMPS SHALL BE THE WALK WIDTH OR 36", WHICHEVER IS GREATER.
RAMPS SHALL BE MODIFIED AS NECESSARY TO INSURE THAT THEY ARE PARALLEL TO A LINE DRAWN FROM THE CENTER OF ONE RAMP TO THE CENTER OF THE RAMP ON THE OPPOSITE SIDE OF THE INTERSECTION.
THE DIMENSIONS AND QUANTITIES SHOWN ON THIS DRAWING ARE FOR A 90° INTERSECTION ONLY. DIMENSIONS AND QUANTITIES FOR SKEWED INTERSECTIONS WILL VARY, AND ARE TO BE DETERMINED BY THE ENGINEER.

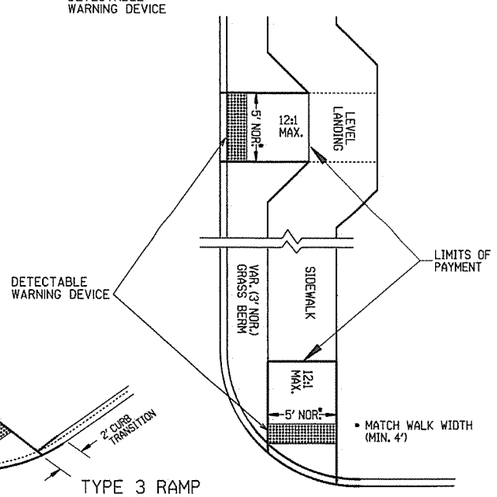


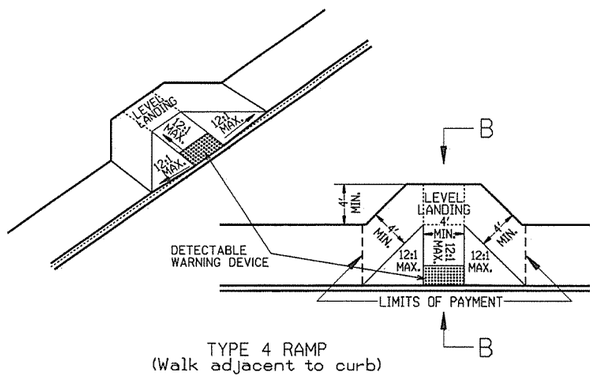
TYPE 2 RAMP



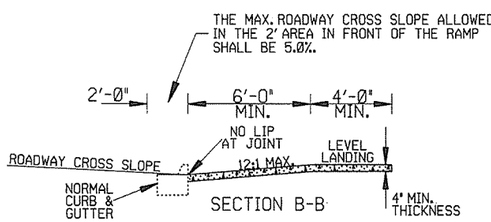


TYPE 3 RAMP





TYPE 4 RAMP
(Walk adjacent to curb)



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.	
8-18-98	REVISED NOTES	
8-12-98	REVISED TEXTURE	
7-02-98	REDRAWN & REISSUED	
10-18-96	CORRECTED DIMENSIONS	10-18-96
5-24-90	FROM8:1TO12:1MAX.SLOPES	5-24-90
7-15-88	ADJUSTED MAX. SLOPE	652-7-15-88
7-14-88	INCLUD."CONC. ISLD."IN PAY ITEM	-------
6-02-76	ISSUED-P.H.D.	299-7-28-76

ARKANSAS STATE HIGHWAY COMMISSION

WHEELCHAIR RAMPS
NEW CONSTRUCTION
AND ALTERATIONS

STANDARD DRAWING WR-1

RESHOT 3-4-93

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					

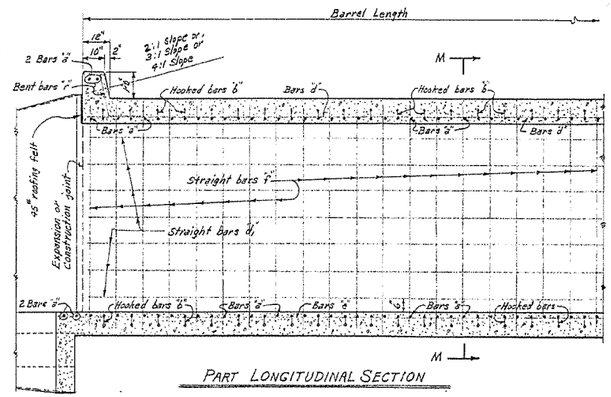
BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"a" bars STRAIGHT In Top and Bottom Slabs of Barrel. 2 Add'l. In Apron and Headwall - Each. SIZE	"a" bars SPACING	"a" bars NUMBER REQ'D 3:1	"a" bars NUMBER REQ'D 4:1	"a" bars LENGTH	"b" bars BENT - See Diagram below. In Top and Bottom Slabs of Barrel. Alternate with "a" bars. SIZE	"b" bars SPACING	"b" bars NUMBER REQ'D 3:1	"b" bars NUMBER REQ'D 4:1	"b" bars LENGTH	X	"d" bars STRAIGHT Longitudinal in Top Slab of Barrel SIZE	"d" bars SPACING	"d" bars No. REQ'D	"d" bars LENGTH	"d'" bars STRAIGHT Longitudinal in Sidewalls SIZE	"d'" bars SPACING	"d'" bars No. REQ'D	"d'" bars LENGTH	"e" bars. Longitudinal in Bottom Slab of Barrel SIZE	"e" bars. SPACING	"e" bars. No. REQ'D	"e" bars. LENGTH	"f" bars STRAIGHT Verticals in Side walls SIZE	"f" bars SPACING	"f" bars NUMBER REQ'D 3:1	"f" bars NUMBER REQ'D 4:1	"f" bars LENGTH
0'-0" TO 5'-0" MAXIMUM	1 @ 4'	2'	#5	13"	120	120	4'-9"	#5	10½"	110	110	5'-10"	4'-8"	#5	10½"	6		#4	12"	4				#4	12"	5		#4	12"	120	120	2'-11"
		3'			120	120	4'-9"			110	110	5'-10"	4'-8"			6				6						5				120	120	3'-11"
		4'			120	120	4'-9"			110	110	5'-10"	4'-8"			8				6						5				120	120	4'-11"
		5'			120	120	4'-9"			110	110	5'-10"	4'-8"			10				6						5				120	120	5'-11"
		6'			120	120	4'-11"			110	110	6'-0"	4'-10"			12				6						5				120	120	6'-11"
	1 @ 5'	3'			120	120	5'-9"			110	110	6'-10"	5'-8"			7				6						6				120	120	4'-6"
		4'			120	120	5'-9"			110	110	6'-10"	5'-8"			8				7						6				120	120	5'-6"
		5'	#6	13"	120	120	5'-9"	#6	13"	110	110	6'-10"	5'-8"	#5	10½"	7		#4	12"	10				#4	12"	6		#4	12"	120	120	6'-8"
		6'			120	120	5'-11"			110	110	7'-0"	5'-10"			12				12						6				120	120	7'-0"
		7'			120	120	6'-0"			110	110	7'-1"	5'-11"			15				15						6				120	120	8'-0"
		3'			128	128	6'-9"			118	118	7'-10"	6'-8"			8				6						7				120	120	4'-1"
		4'			128	128	6'-9"			118	118	7'-10"	6'-8"			8				8						7				120	120	5'-1"
	1 @ 6'	5'			128	128	6'-9"			118	118	7'-10"	6'-8"			10				8						7				120	120	6'-1"
		6'			128	128	6'-11"			118	118	8'-0"	6'-10"			12				8						7				120	120	7'-1"
		7'			128	128	7'-0"			118	118	8'-1"	6'-11"			14				8						7				120	120	8'-1"
		8'			128	128	7'-1"			118	118	8'-2"	7'-0"			16				8						7				120	120	9'-1"
		4'			140	140	7'-9"			130	130	8'-10"	7'-8"			9				8						8				120	120	5'-2"
		5'			140	140	7'-9"			130	130	8'-10"	7'-8"			9				9						8				120	120	6'-2"
	1 @ 7'	6'	#6	11"	140	140	7'-11"	#6	11"	130	130	9'-0"	7'-10"	#5	10½"	9	(1'-8" Lap)	#4	12"	12	(1'-3" Lap)			#4	12"	8	(1'-3" Lap)	#4	12"	120	120	7'-2"
		7'			140	140	8'-0"			130	130	9'-1"	7'-11"			9				14						8				120	120	8'-2"
		8'			140	140	8'-1"			130	130	9'-2"	8'-0"			9				16						8				10"	164	164	9'-2"
		9'			140	140	8'-3"			130	130	9'-4"	8'-2"			9				18						8				#5	12"	120	120	10'-2"
		4'			128	128	8'-9"			118	118	9'-10"	8'-8"			11				8						9				120	120	5'-8"
		5'			128	128	8'-11"			118	118	10'-0"	8'-10"			11				10						9				120	120	6'-8"
	1 @ 8'	6'			128	128	8'-11"			118	118	10'-0"	8'-10"			11				12						9				120	120	7'-8"
		7'	#7	12"	128	128	9'-0"	#6	12"	118	118	10'-1"	8'-11"	#5	10"	11		#4	12"	14				#4	12"	9		#4	12"	120	120	8'-8"
		8'			128	128	9'-1"			118	118	10'-2"	9'-0"			11				16						9				10"	164	164	9'-5"
		9'			128	128	9'-3"			118	118	10'-4"	9'-2"			11				18						9				#5	12"	120	120	10'-11"
		10'			128	128	9'-5"			118	118	10'-6"	9'-4"			11				20						9				11"	132	132	11'-9"
		5'			140	140	9'-11"			130	130	11'-0"	9'-10"			12				10						10				120	120	6'-5"
		6'			140	140	10'-0"			130	130	11'-1"	9'-11"			12				12						10				120	120	7'-5"
	1 @ 9'	7'			140	140	10'-0"			130	130	11'-1"	9'-11"			14				16						10				120	120	8'-5"
		8'	#7	11"	140	140	10'-1"	#6	11"	130	130	11'-2"	10'-0"	#5	10"	12		#4	12"	16				#4	12"	10		#4	12"	164	164	9'-5"
		9'			140	140	10'-3"			130	130	11'-4"	10'-2"			12				18						10				12"	120	120	10'-5"
		10'			140	140	10'-5"			130	130	11'-6"	10'-4"			12				20						10				#5	11"	132	132	11'-5"
		11'			140	140	10'-7"			130	130	11'-8"	10'-6"			12				22						10				10"	164	164	12'-5"
		5'			128	128	10'-11"			118	118	12'-2"	10'-10"			13				10						11				120	120	6'-4"
		6'			128	128	11'-0"			118	118	12'-3"	10'-11"			13				12						11				120	120	7'-4"
	1 @ 10'	7'			128	128	11'-0"			118	118	12'-3"	10'-11"			13				14						11				120	120	8'-4"
		8'	#7	12"	128	128	11'-1"	#7	12"	118	118	12'-4"	11'-0"	#5	10"	13		#4	12"	16				#4	12"	11		#4	12"	164	164	9'-4"
		9'			128	128	11'-2"			118	118	12'-6"	11'-2"			13				18						11				12"	120	120	10'-4"
		10'			128	128	11'-3"			118	118	12'-8"	11'-4"			13				20						11				#5	11"	132	132	11'-5"
		11'			128	128	11'-5"			118	118	12'-10"	11'-5"			13				22						11				10"	164	164	12'-6"
		12'			128	128	11'-7"			118	118	13'-0"	11'-8"			13				24						11				#6	12"	120	120	13'-6"
		6'			140	140	12'-1"			130	130	13'-5"	12'-0"			15				12						12				12"	120	120	7'-7"
		7'			140	140	12'-1"			130	130	13'-5"	12'-0"			15				14						12				120	120	8'-7"
	1 @ 11'	8'			140	140	12'-1"			130	130	13'-6"	12'-0"			15				16						12				10"	164	164	9'-7"
		9'	#7	11"	140	140	12'-3"	#7	11"	130	130	13'-6"	12'-2"	#5	9½"	15		#4	12"	18				#4	12"	12		#4	12"	12"	120	120	10'-7"
		10'			140	140	12'-5"			130	130	13'-6"	12'-4"			15				20						12				#5	11"	132	132	11'-7"
		11'			140	140	12'-7"			130	130	13'-10"	12'-6"			15				22						12				10"	164	164	12'-7"
		12'			140	140	12'-9"			130	130	14'-0"	12'-8"			15				24						12				#6	12"	120	120	13'-7"
		6'			128	128	13'-1"			118	118	14'-2"	12'-10"			16				12						13				12"	120	120	7'-9"
		7'			128	128	13'-1"			118	118	14'-2"	12'-10"			16				14						13				120	120	8'-9"
	1 @ 12'	8'			128	128	13'-1"			118	118	14'-2"	12'-10"			16				16						13				10"	164	164	9'-9"
		9'	#8	12"	128	128	13'-3"	#7	12"	118	118	14'-4"	13'-0"	#5	9½"	16		#4	12"	18				#4	12"	13		#4	12"	12"	120	120	10'-9"
		10'			128	128	13'-5"			118	118	14'-8"	13'-2"			16				20						13				#5	11"	132	132	11'-9"
		11'			128	128	13'-7"			118	118	14'-10"	13'-4"			16				22						13				10"	164	164	12'-9"
		12'			128	128	13'-9"			118	118	15'-0"	13'-8"			16				24						13				#6	12"	120	120	13'-9"

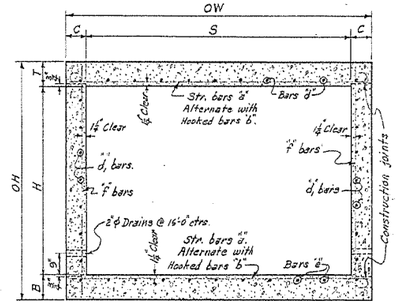
DIMENSIONS — QUANTITIES

MAX. DESIGN DEPTH OF COVER D	CLEAR SPAN S	BARREL DIMENSIONS CLEAR HEIGHT H	SQ. FT. OPENING A	OVERALL WIDTH OW	THICKNESS OF TOP SLAB T	THICKNESS OF SIDEWALLS C	THICKNESS OF BOTTOM SLAB B	OVERALL HEIGHT OH	UNIT QUANTITIES CLASS S CONC. PER LIN. FT. OF BARREL CU.YD.	REINFORCING STEEL PER LIN. FT. OF BARREL LB.	REINFORCING STEEL ADDITIONAL PER LAP LB.	REINFORCING STEEL ADDITIONAL TWO HEADWALLS & APRONS LB.
5'-0"	1 @ 4'	2'	8	5'-0"		6"		3'-1½"	0.282	41.99	17.95	66.35
		3'	12	5'-6"		6"		4'-1½"	0.319	46.16	19.62	66.35
		4'	16	5'-0"	7"	6"	6½"	5'-1½"	0.356	46.83	21.29	66.35
		5'	20	5'-0"		6"		6'-1½"	0.394	49.50	22.96	66.35
		6'	24	5'-2"		7"		7'-1½"	0.474	52.96	26.63	67.75
	1 @ 5'	3'	15	6'-0"		6"		4'-2½"	0.380	55.55	22.19	101.27
		4'	20	6'-0"		6"		5'-2½"	0.417	58.23	23.86	101.27
		5'	25	6'-0"	7½"	6"	7"	6'-2½"	0.454	60.90	25.53	101.27
		6'	30	6'-2"		7"		7'-2½"	0.535	64.99	27.20	103.27
		7'	35	6'-3"		7½"		8'-2½"	0.604	67.63	28.89	104.27
	1 @ 6'	3'	18	7'-0"		6"		4'-3½"	0.496	66.29	28.76	118.94
		4'	24	7'-0"		6"		5'-3½"	0.983	68.94	26.93	118.94
		5'	30	7'-0"		6"		6'-3½"	0.520	71.64	28.10	118.94
		6'	36	7'-2"		7"	7½"	7'-3½"	0.602	75.31	29.77	120.94
		7'	42	7'-3"		7½"		8'-3½"	0.671	78.98	31.44	121.97
		8'	48	7'-4"		8"		9'-3½"	0.746	85.97	33.11	122.87
	1 @ 7'	4'	28	8'-0"		6"		5'-5"	0.568	81.32	29.01	136.88
		5'	35	8'-0"		6"		6'-5"	0.605	84.00	30.68	136.88
		6'	42	8'-2"	8½"	7"	8½"	7'-5"	0.688	87.76	32.35	138.88
		7'	98	8'-3"		7½"		8'-5"	0.757	90.98	39.02	139.88
		8'	56	8'-4"		8"		9'-5"	0.832	96.65	35.69	140.88
		9'	63	8'-6"		9"		10'-5"	0.966	105.59	37.36	142.89
	1 @ 8'	4'	32	9'-0"		6"		5'-7"	0.676	95.26	33.38	194.67
		5'	40	9'-2"		6"		6'-7"	0.756	99.12	34.99	196.80
		6'	48	9'-2"		7"		7'-7"	0.797	101.79	36.66	196.80
		7'	56	9'-3"	9½"	7½"	9½"	8'-7"	0.867	105.05	38.33	198.14
		8'	64	9'-4"		8"		9'-7"	0.992	110.81	40.00	199.52
		9'	72	9'-6"		9"		10'-7"	1.057	119.92	41.67	202.25
		10'	80	9'-8"		10"		11'-7"	1.189	126.67	43.34	204.97
	1 @ 9'	5'	45	10'-2"		7"		6'-8"	0.849	119.72	37.56	219.61
		6'	54	10'-3"		7½"		7'-8"	0.910	118.04	39.23	220.97
		7'	63	10'-3"		7½"		8'-8"	0.957	120.71	40.90	220.97
		8'	72	10'-4"	10"	8"	10"	9'-8"	1.033	126.54	42.57	222.33
		9'	81	10'-6"		9"		10'-8"	1.198	135.80	44.24	225.04
		10'	90	10'-8"		10"		11'-8"	1.276	142.68	45.91	227.78
		11'	99	10'-10"		11"		12'-8"	1.416	150.40	47.58	230.61
	1 @ 10'	5'	50	11'-2"		7"		6'-9½"	0.957	130.64	40.13	242.64
		6'	60	11'-3"		7½"		7'-9½"	1.024	133.99	41.80	244.00
		7'	70	11'-3"		7½"		8'-9½"	1.071	136.66	43.47	244.00
		8'	80	11'-4"	10½"	8"	11"	9'-9½"	1.197	142.55	45.14	245.36
		9'	90	11'-6"		9"		10'-9½"	1.263	151.92	46.81	248.09
		10'	100	11'-8"		10"		11'-9½"	1.391	158.89	48.98	250.81
		11'	110	11'-10"		11"		12'-9½"	1.532	166.71	50.15	253.54
		12'	120	12'-0"		12"		13'-9½"	1.685	178.67	51.82	256.26
	1 @ 11'	6'	66	12'-9"		8"		7'-10½"	1.153	156.16	46.12	268.62
		7'	77	12'-9"		8"		8'-10½"	1.202	157.83	47.79	268.62
		8'	88	12'-9"		9"		9'-10½"	1.252	162.06	49.46	268.62
		9'	99	12'-6"	11"	9"	11½"	10'-10½"	1.366	172.60	51.13	271.34
		10'	110	12'-3"		10"		11'-10½"	1.497	179.70	52.80	274.07
		11'	121	12'-10"		11"		12'-10½"	1.638	187.67	54.47	276.79
		12'	132	13'-0"		12"		13'-10½"	1.792	199.79	56.14	279.52
	1 @ 12'	6'	72	13'-6"		8"		8'-0"	1.284	172.20	48.69	352.62
		7'	84	13'-6"		8"		9'-0"	1.333	174.87	50.36	352.62
		8'	96	13'-9"		8"		10'-0"	1.383	180.15	52.03	352.62
		9'	108	13'-6"	11½"	9"	12½"	11'-0"	1.500	189.85	53.70	361.18
		10'	120	13'-8"		10"		12'-0"	1.630	197.07	55.37	364.74
		11'	132	13'-10"		11"		13'-0"	1.772	205.16	57.04	368.30
		12'	144	14'-0"		12"		14'-0"	1.926	217.95	58.71	371.86

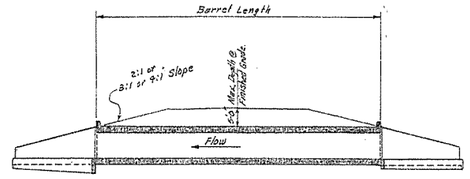
W-X002-1, W-X003-1 or W-X004-1 and W-X002-2, W-X003-2 or W-X004-2.



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M



LONGITUDINAL SECTION

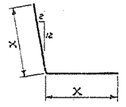
BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM Bars "b".
#6	3"	5"	1'-2"	K, Pin Diam., X
#7	3½"	5⅜"	1'-4"	

NOTE:- Dimensions are to centers of bars.

DOWEL BARS FOR TWO HEADWALLS

SPAN	SIZE	SPACING	NO. REQ'D	LENGTH	X
4'	#4	11"±	12	2'-6"	1'-3"
5'	#4	11"±	14	2'-7"	1'-3⅝"
6'	#4	11"±	16	2'-8"	1'-4"
7'	#4	11"±	18	2'-9"	1'-4⅝"
8'	#4	11⅝"±	20	2'-11"	1'-5½"
9'	#4	11⅝"±	22	3'-0"	1'-6"
10'	#4	11⅝"±	24	3'-1"	1'-6⅝"
11'	#4	12"±	26	3'-2"	1'-7"
12'	#4	12"±	28	3'-3"	1'-7⅛"

Bars "f" Dowel bars in Headwalls.



GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.

BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-6". Lap longitudinal bars 30 diameters.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls and slabs shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 9'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20,000 #/□"

NOTE:- This drawing to be used in conjunction with Standard Drawing Nos. W-X003-1 or W-X003-2 and W-X004-1 or W-X004-2. Also Drawing Nos. W-X002-1 or W-X002-2.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS
FOR
REINFORCED CONCRETE BOX CULVERTS

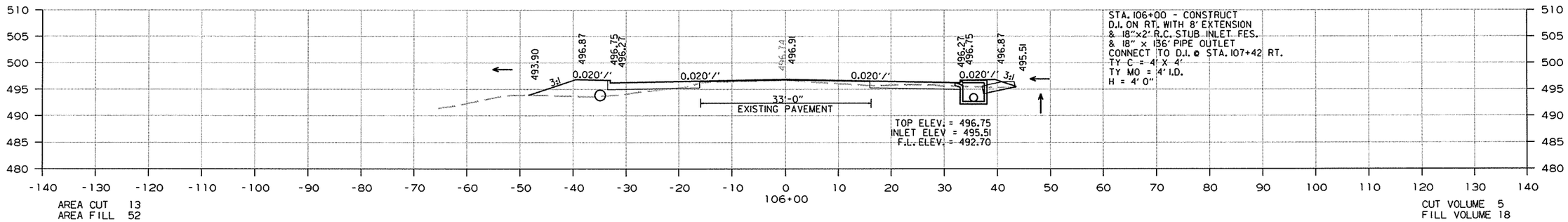
4,5,6,7,8,9,10,11 & 12' SPANS — 3:1 OR 4:1 SLOPES
SINGLES — UNDER 5'-0" COVER

STANDARD DRAWING NO. R-100X-0

Designed By:- W.C.H. 1-23-63. Checked By:- RBG-5-8-63
Drawn By:- W.C.H. 2-8-63. Checked By:- RBG-5-8-63
Quantities By:- W.C.H. 2-12-63. Checked By:- RBG-5-24-63

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	75	101

(2) CROSS SECTIONS



STA. 105+85.60 BEGIN JOB 061214 END JOB 06113

STA. 105+85.60 BEGIN 100' TRANSITION

CROSS SECTION STA. 105+85 TO STA. 106+00

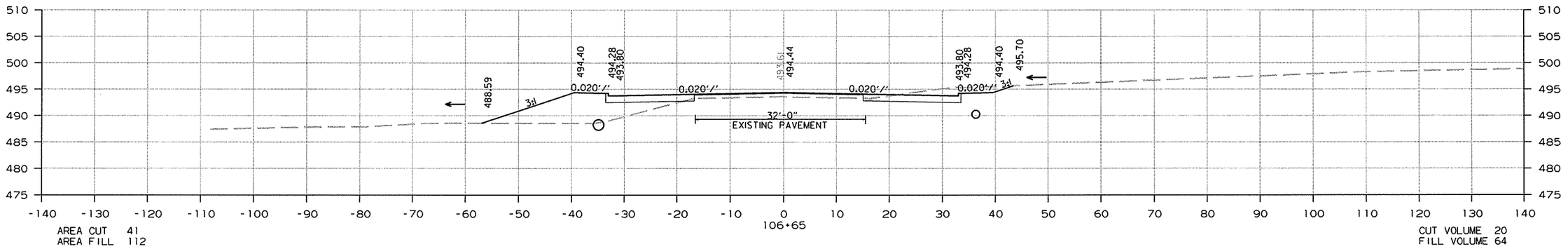
7/13/2014

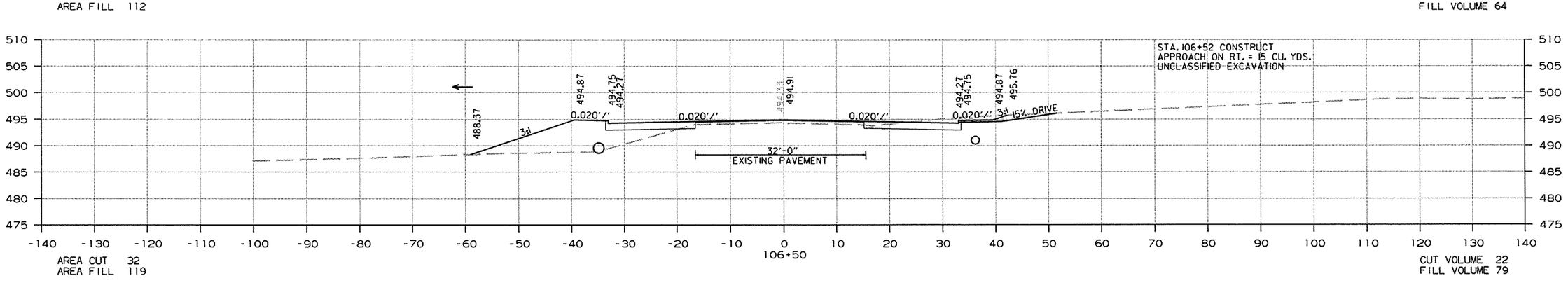
R061214.DGN

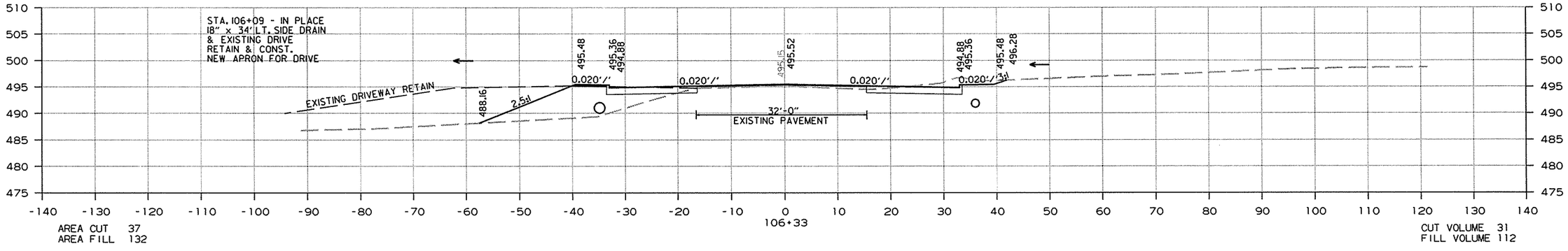
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	76	101

(2) CROSS SECTIONS

STA. 106+85.60 END 100' TRANSITION







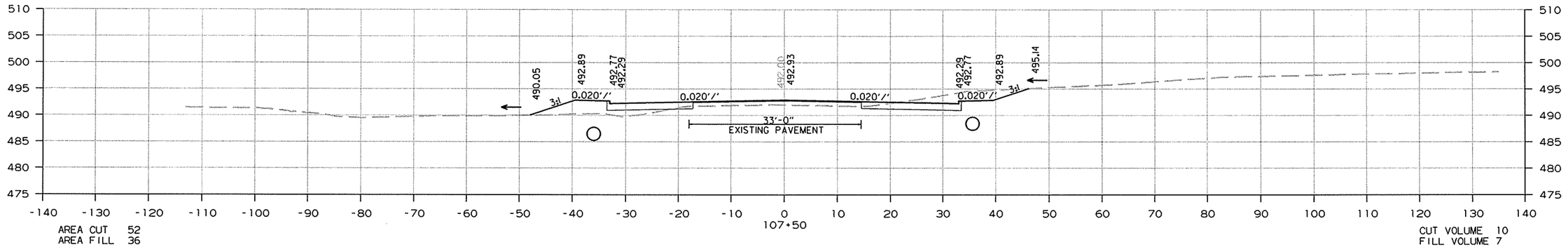
CROSS SECTION STA. 106+33 TO STA. 106+65

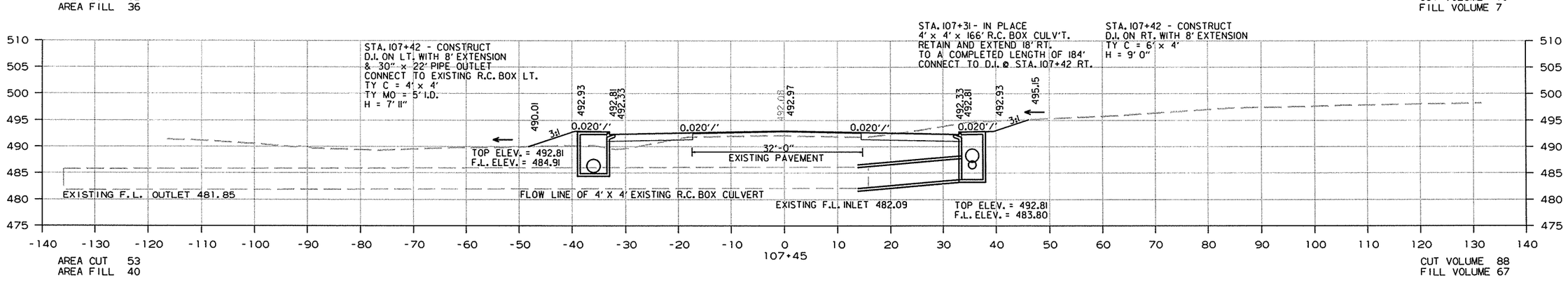
7/13/2014

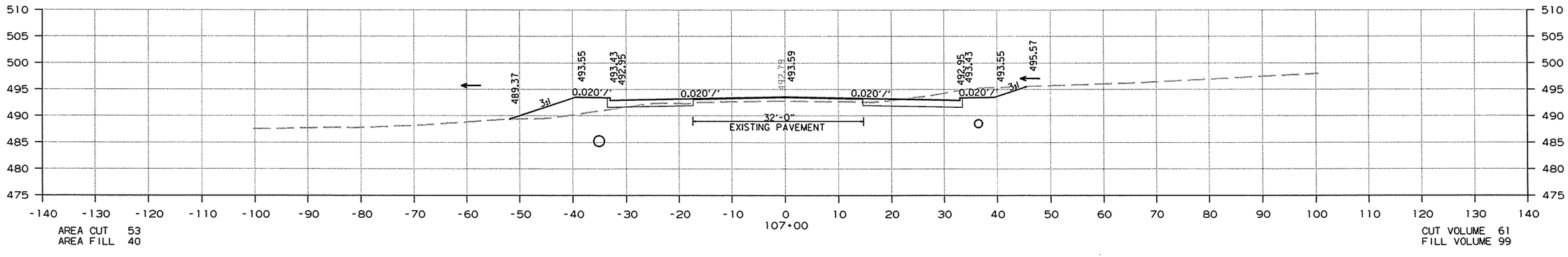
R061214.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	77	101

(2) CROSS SECTIONS







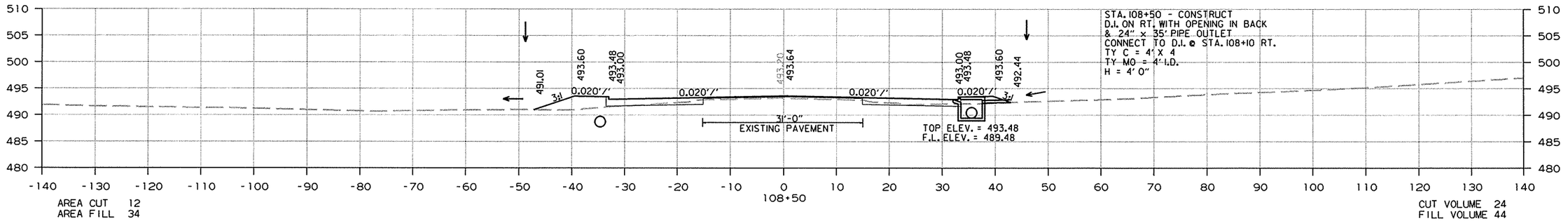
CROSS SECTION STA. 107+00 TO STA. 107+50

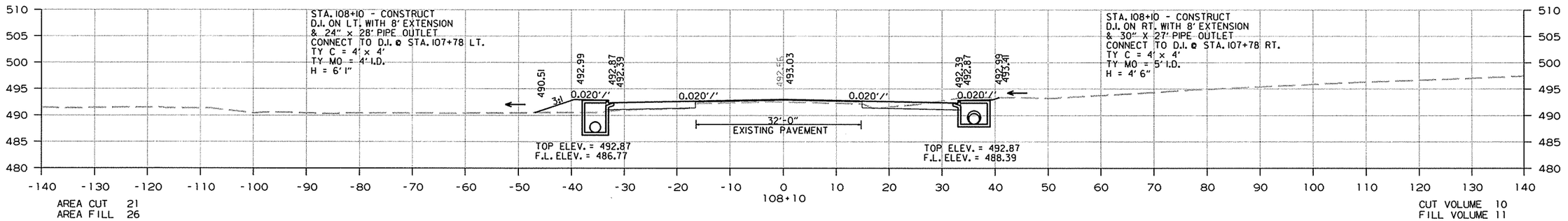
7/13/2014

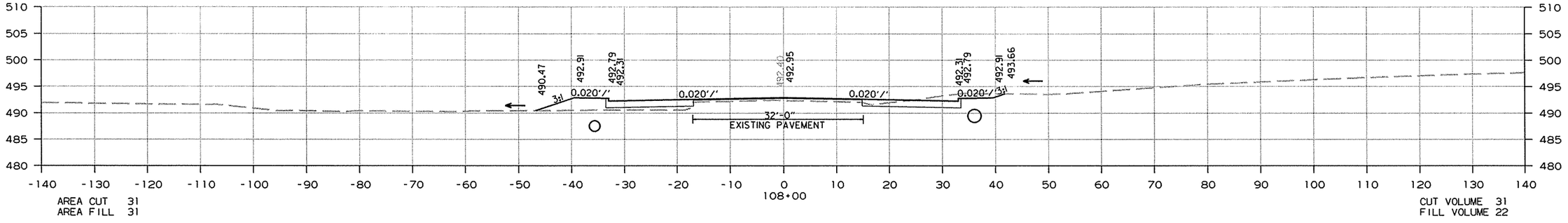
R061214.DGN

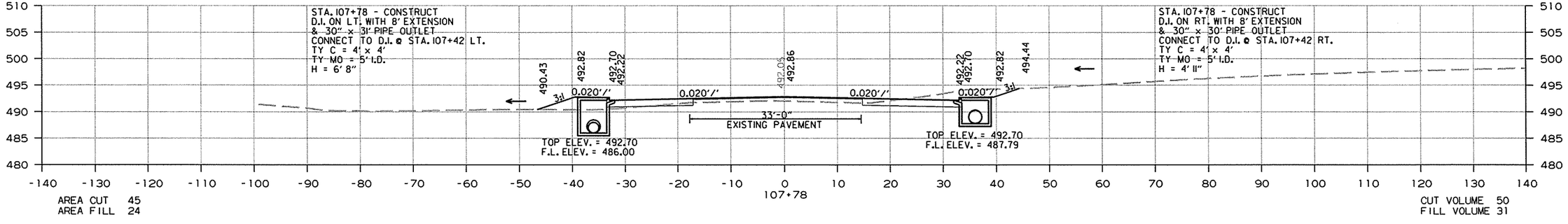
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	78	101

(2) CROSS SECTIONS









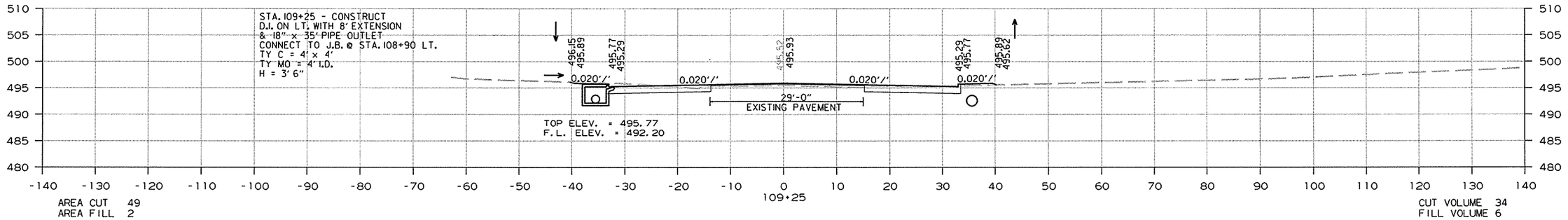
CROSS SECTION STA. 107+78 TO STA. 108+50

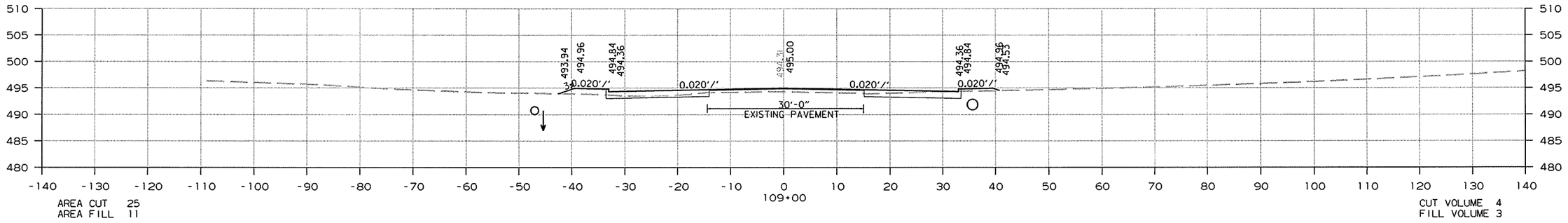
7/13/2014

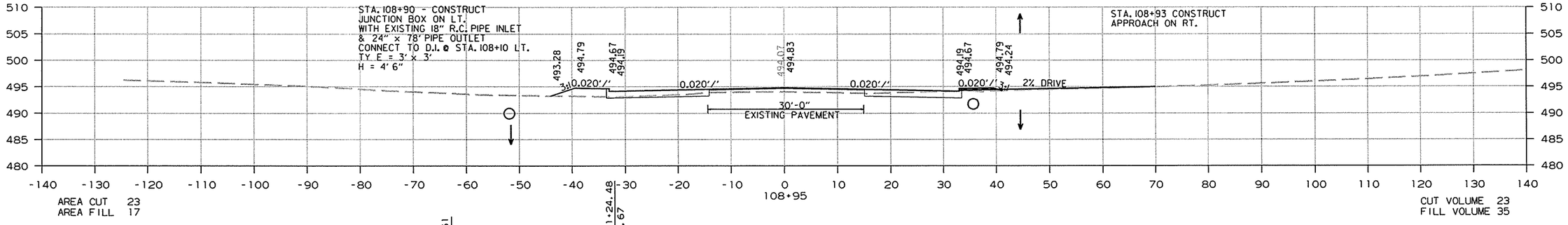
R061214.DGN

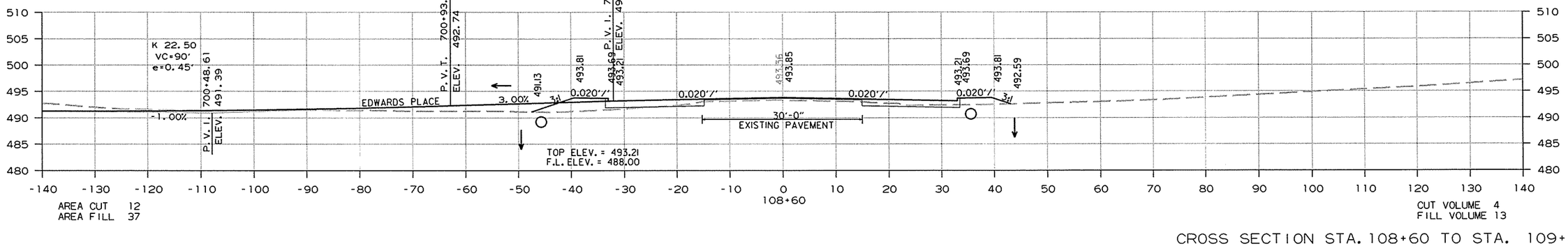
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	79	101

(2) CROSS SECTIONS









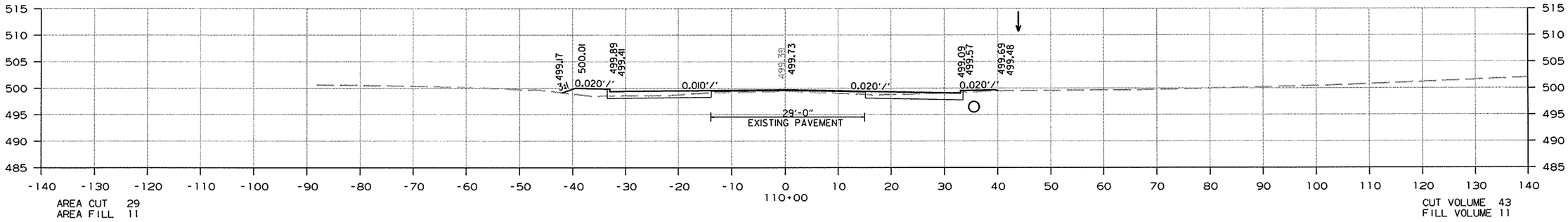
CROSS SECTION STA. 108+60 TO STA. 109+25

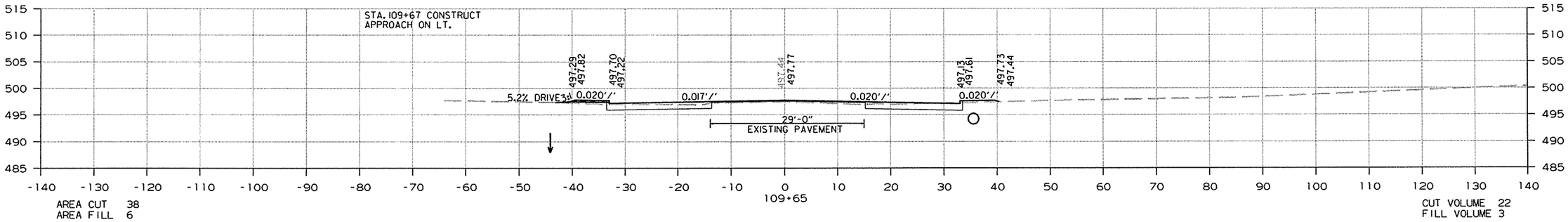
7/21/2014

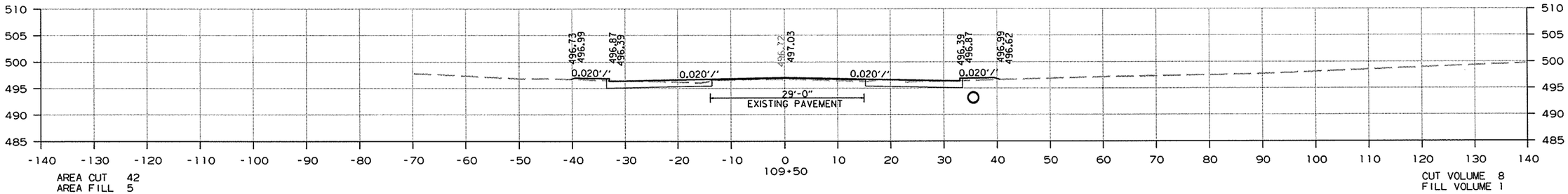
R061214.DGN

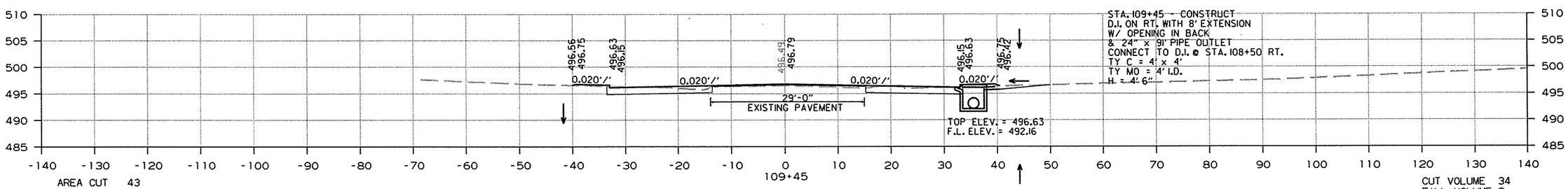
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	80	101

(2) CROSS SECTIONS









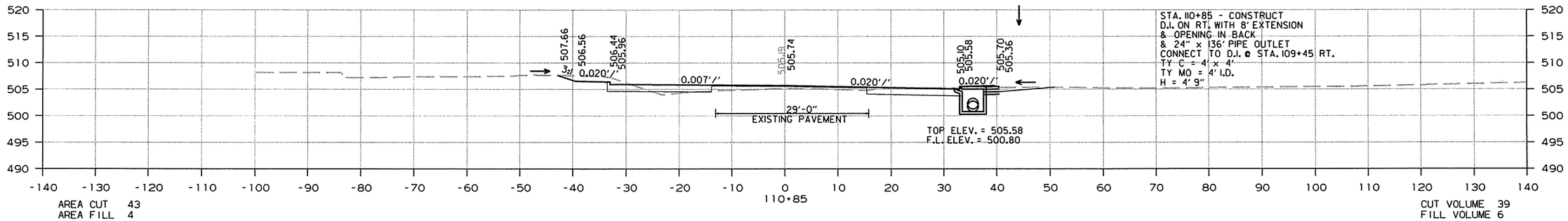
CROSS SECTION STA. 109+45 TO STA. 110+00

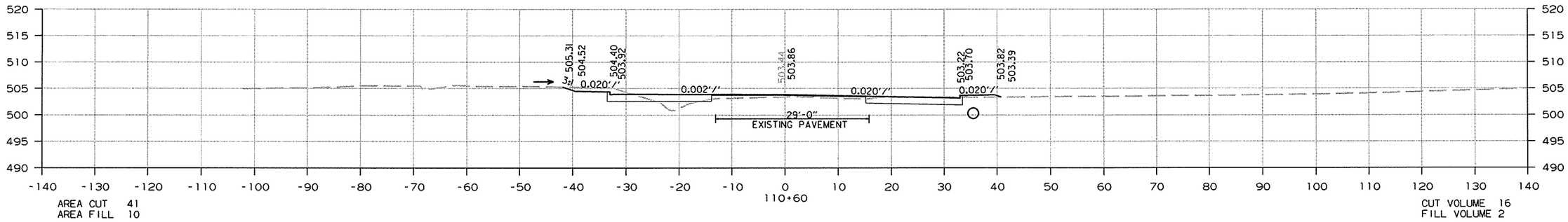
7/13/2014

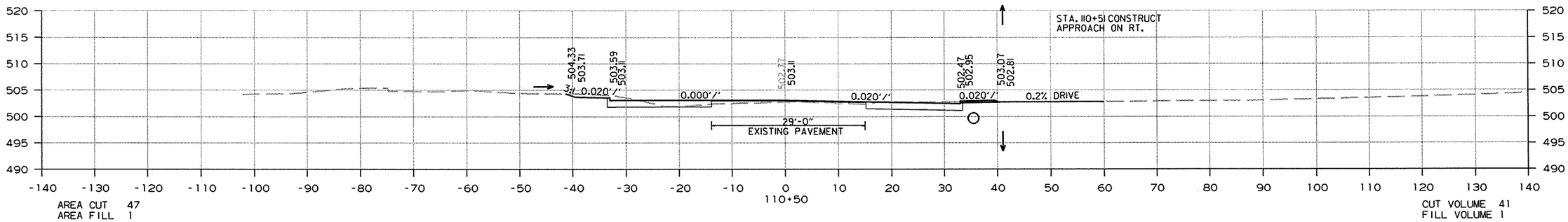
R061214.DGN

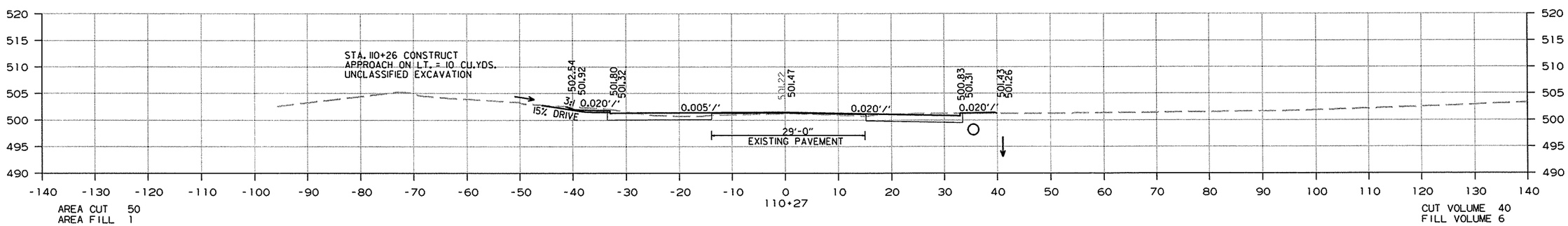
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	81	101

(2) CROSS SECTIONS









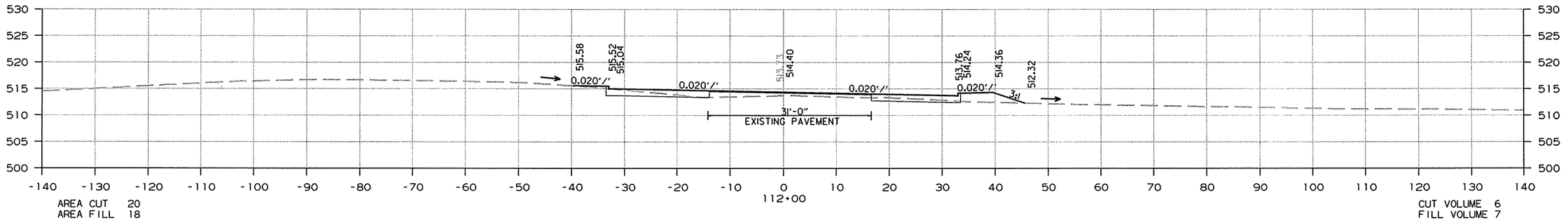
CROSS SECTION STA. 110+27 TO STA. 110+85

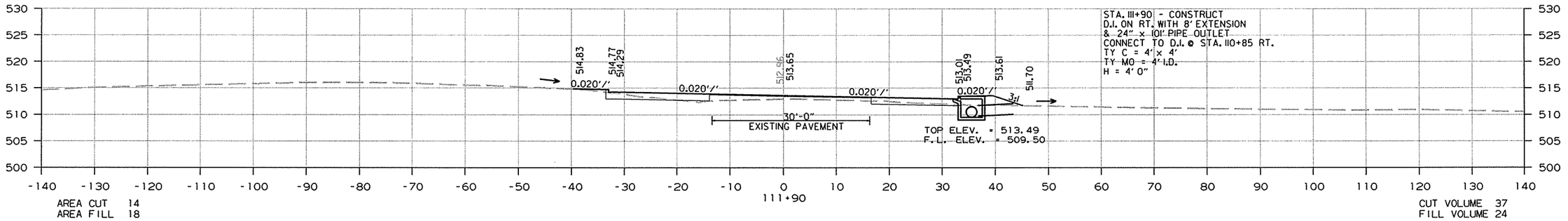
7/13/2014

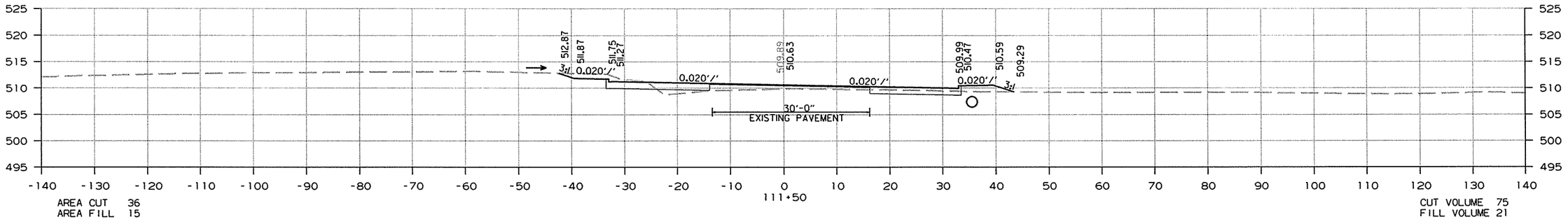
R061214.DGN

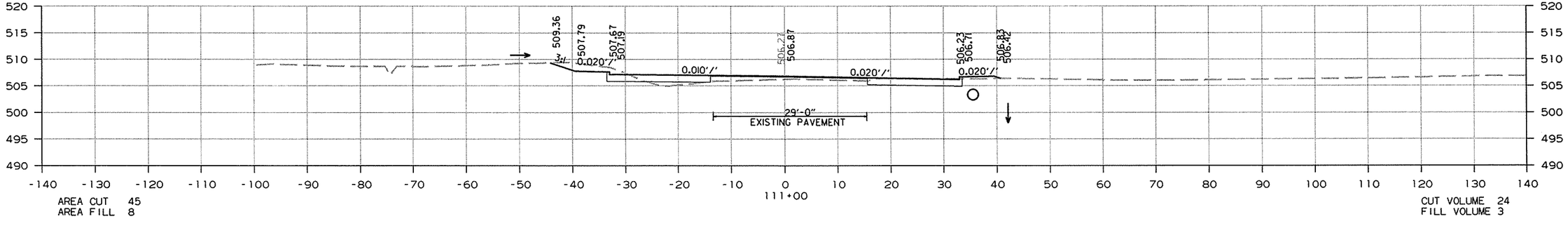
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	82	101

(2) CROSS SECTIONS









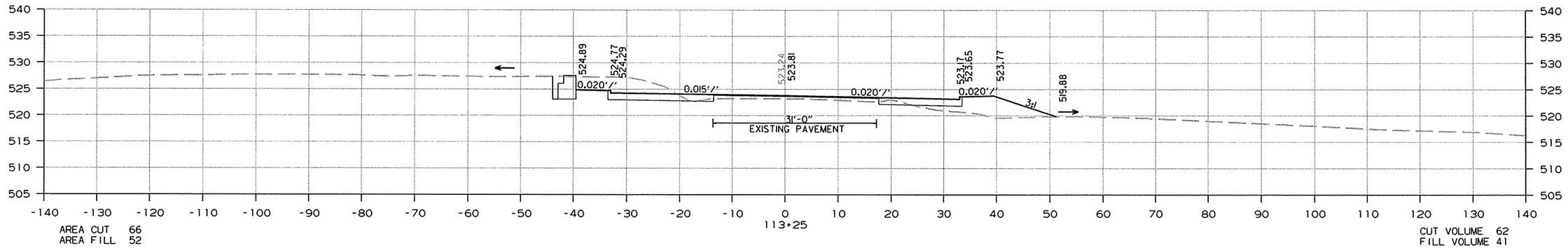
CROSS SECTION STA. 111+00 TO STA. 112+00

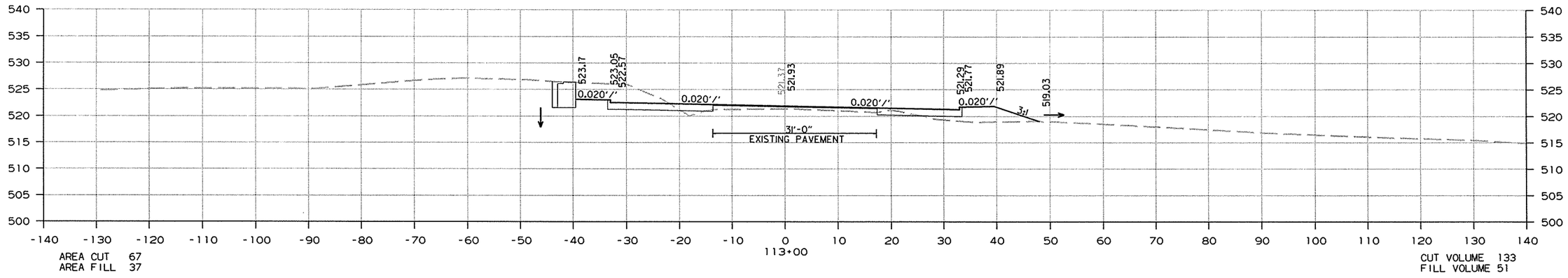
7/13/2014

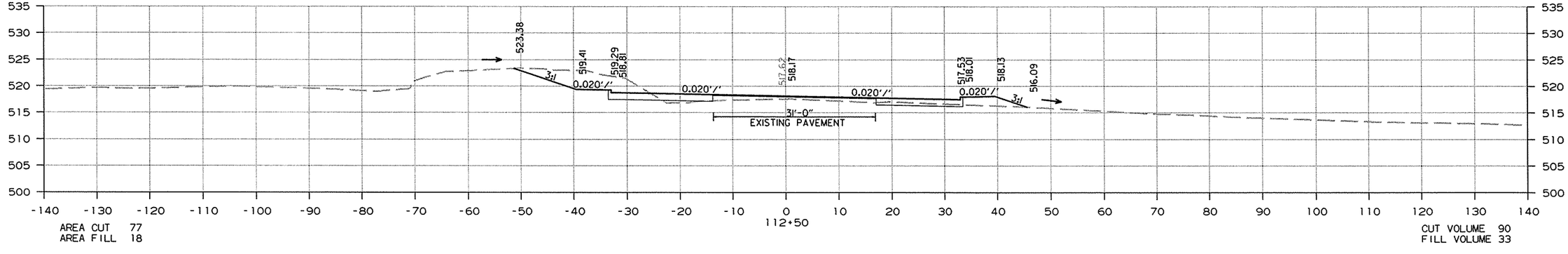
R061214.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	83	101

(2) CROSS SECTIONS







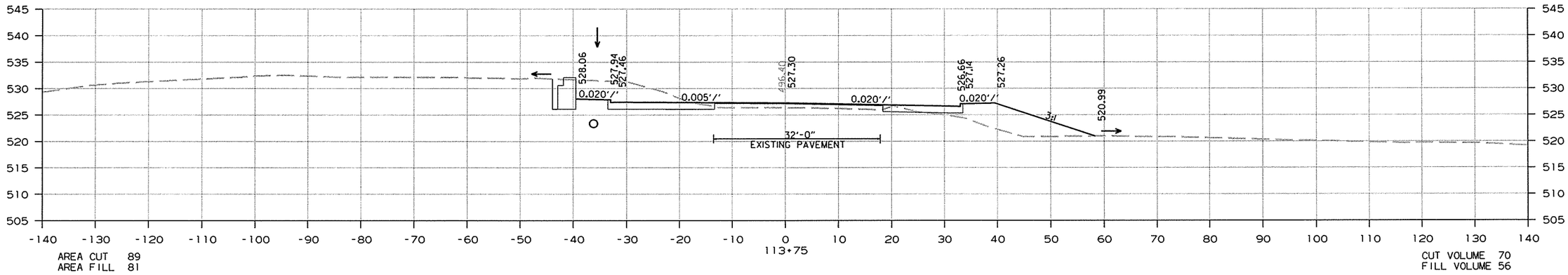
CROSS SECTION STA. 112+50 TO STA. 113+25

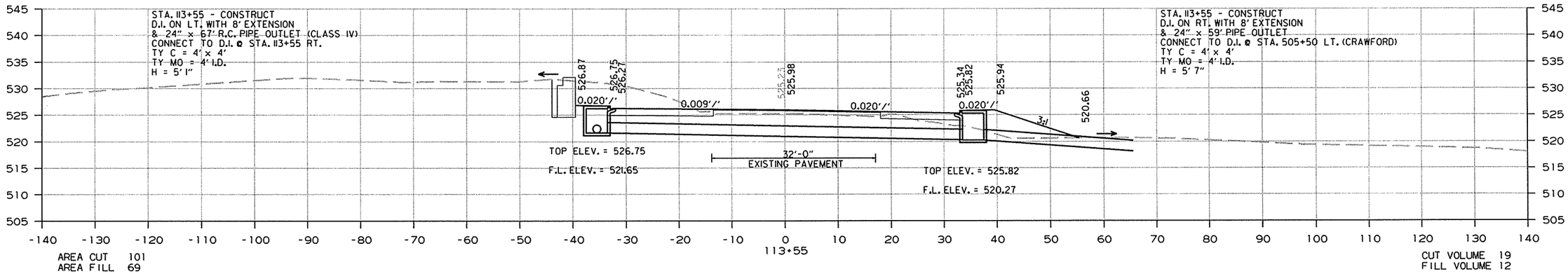
7/13/2014

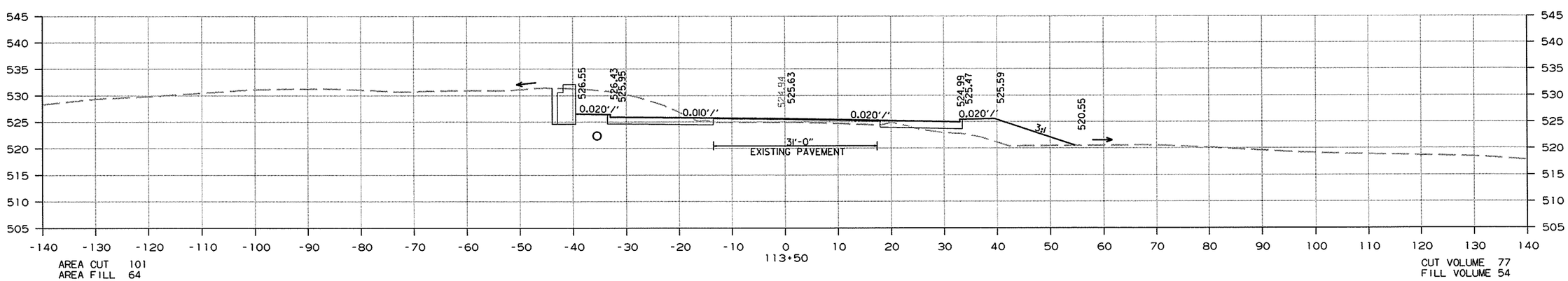
R061214.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	84	101

(2) CROSS SECTIONS







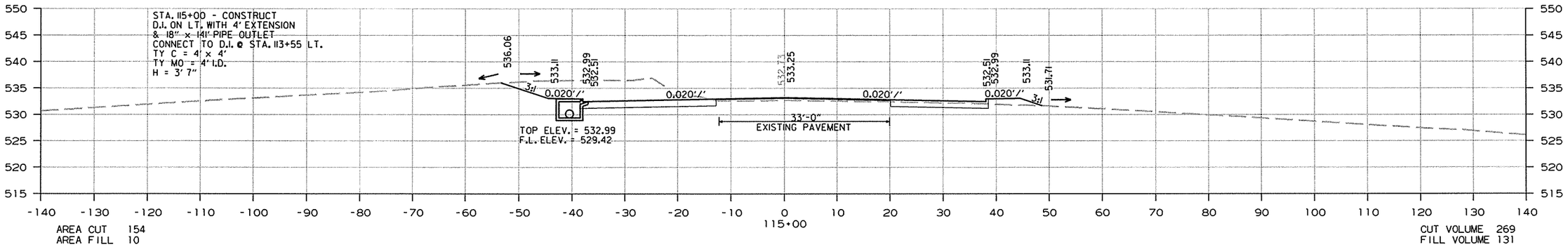
CROSS SECTION STA. 113+50 TO STA. 113+75

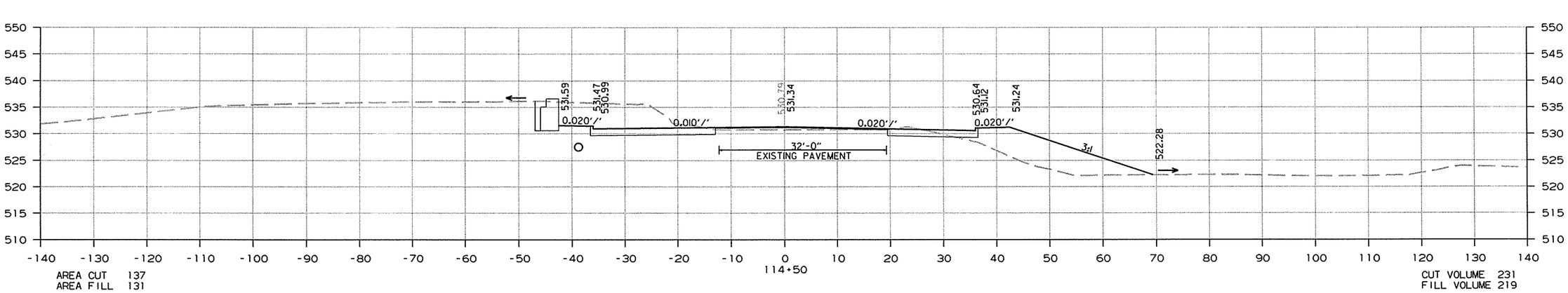
7/13/2014

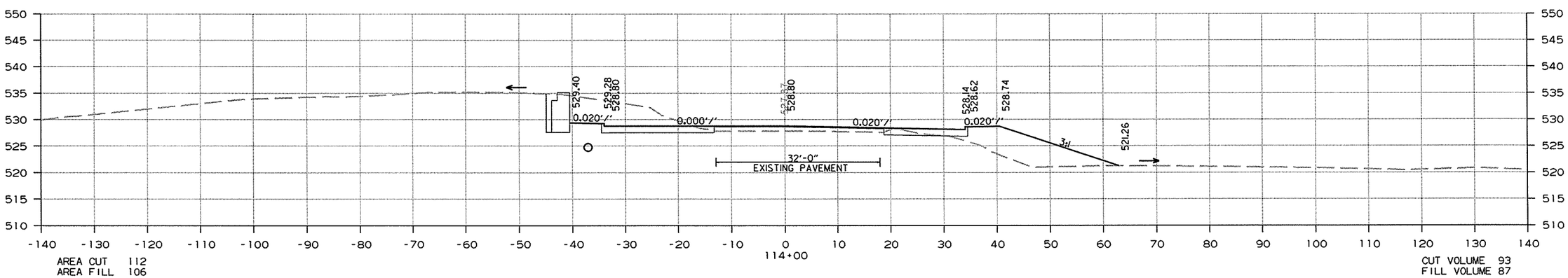
R061214.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	85	101

(2) CROSS SECTIONS







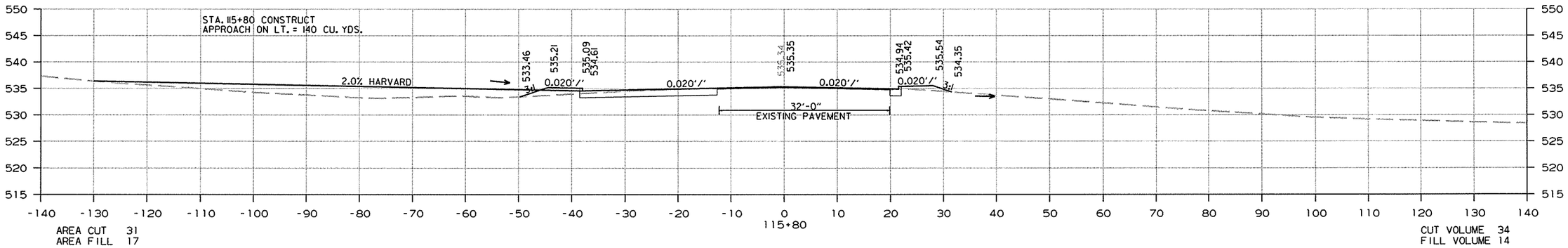
CROSS SECTION STA. 114+00 TO STA. 115+00

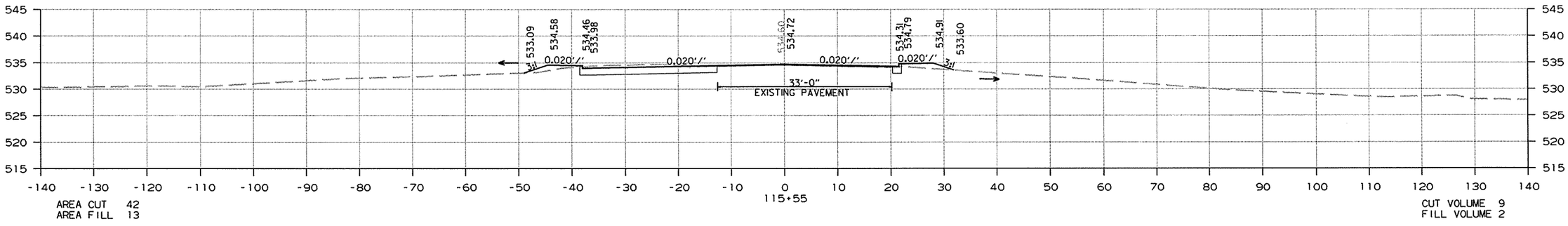
7/13/2014

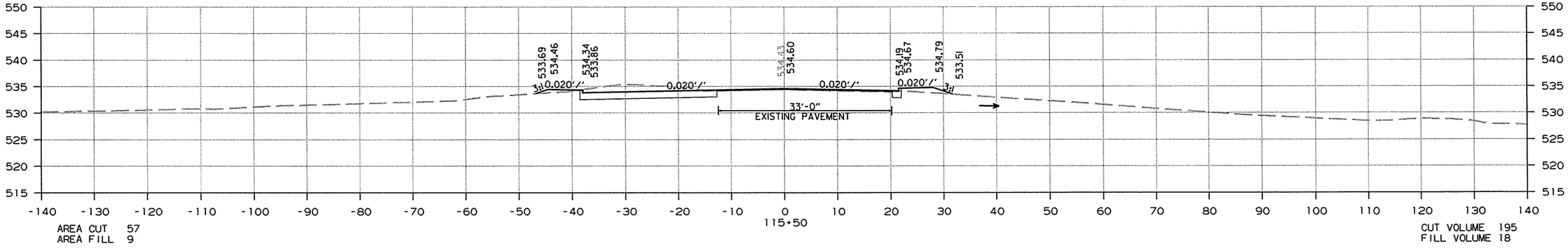
R061214.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	86	101

(2) CROSS SECTIONS







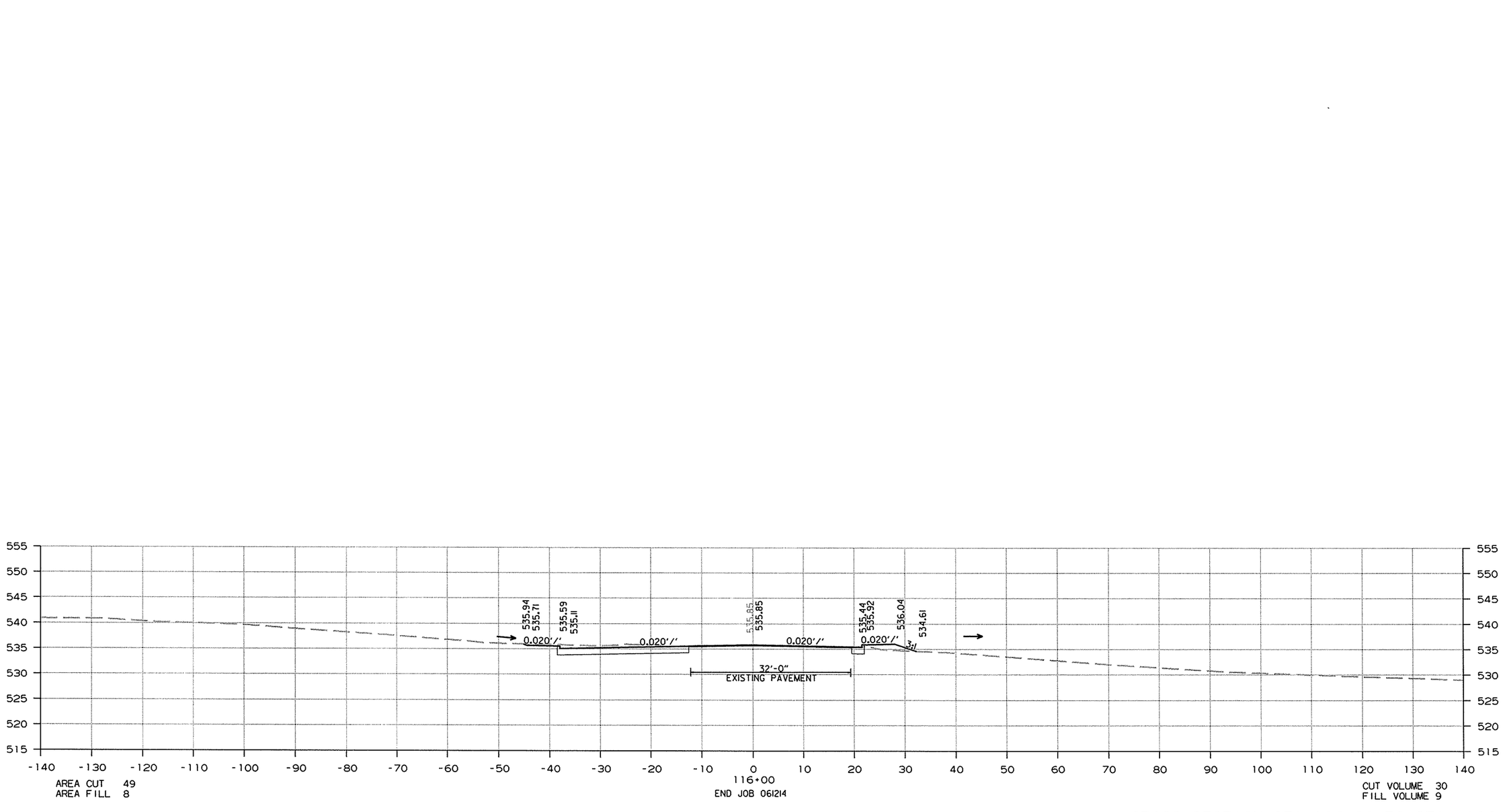
CROSS SECTION STA. 115+50 TO STA. 115+80

7/13/2014

R061214.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	87	101

(2) CROSS SECTIONS



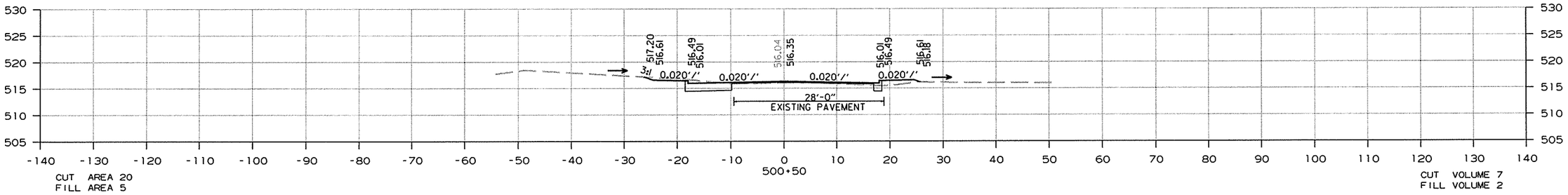
CROSS SECTION STA. 116+00 TO STA. 116+00

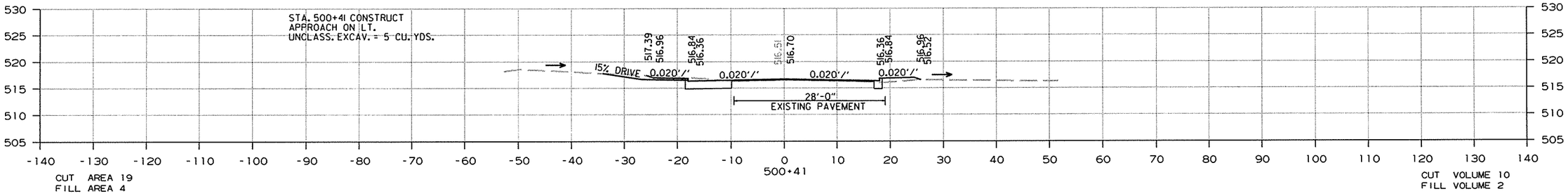
7/13/2014

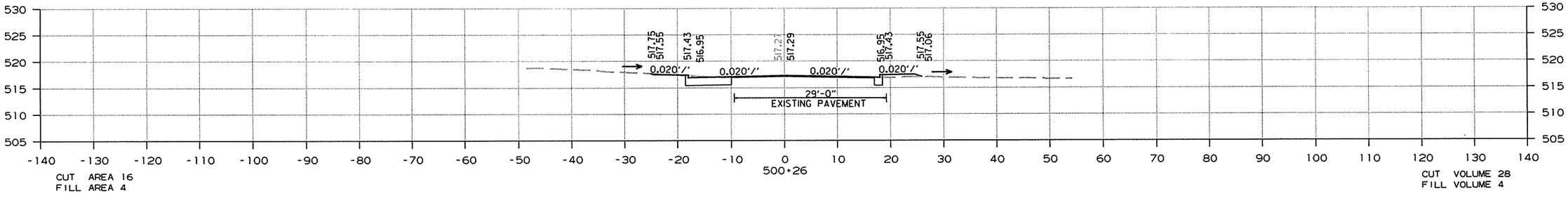
R061214.DGN

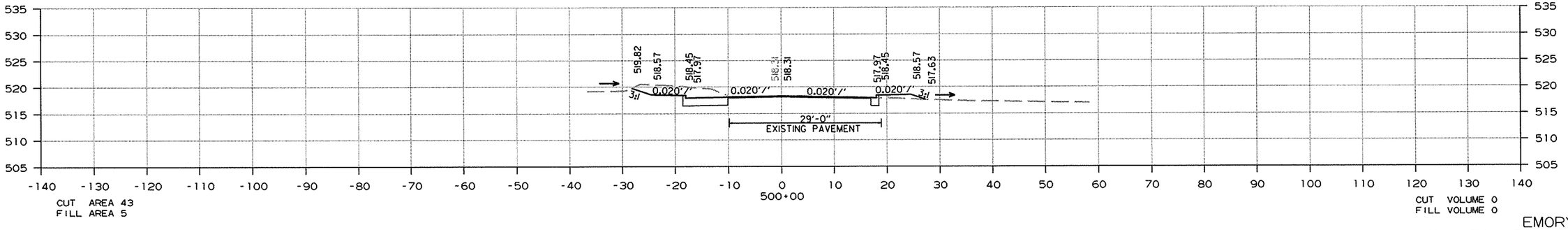
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	88	101

(2) CROSS SECTIONS









7/21/2014

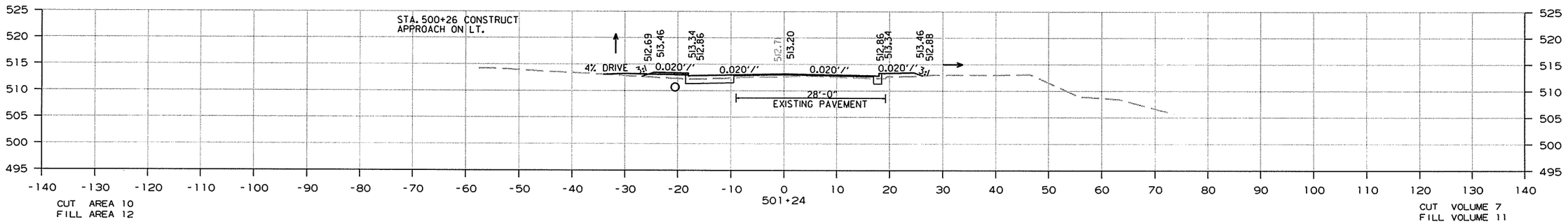
R061214.DGN

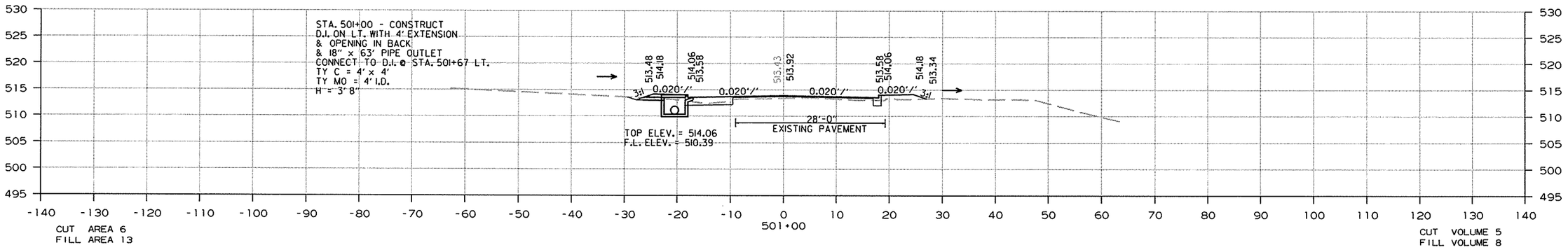
EMORY

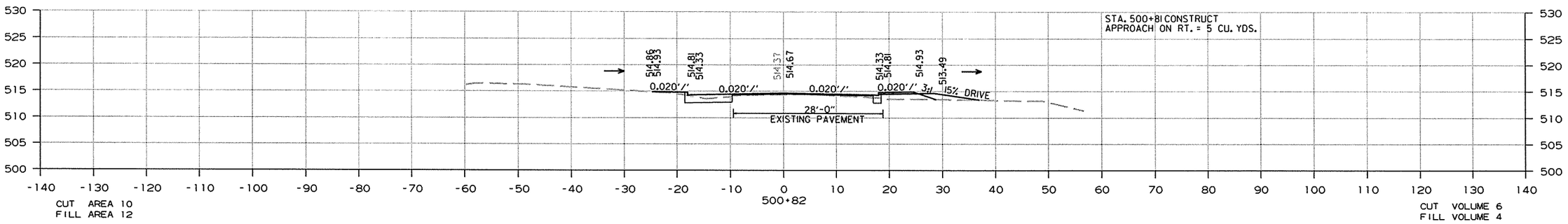
CROSS SECTION STA. 500+00 TO STA. 500+50

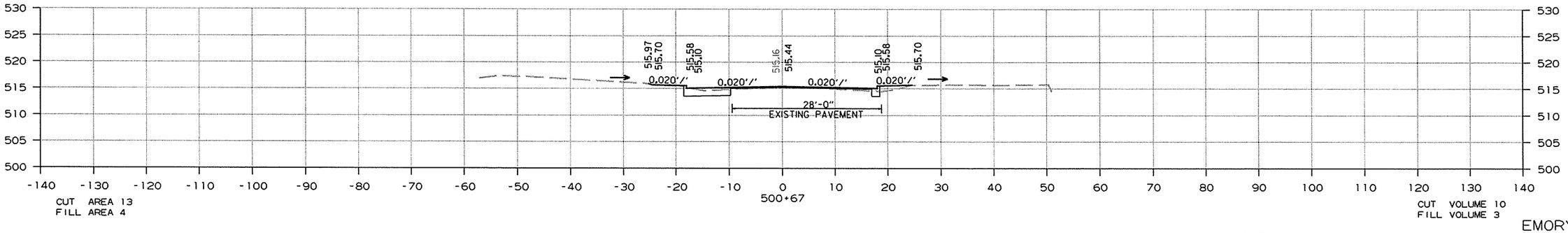
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	89	101

(2) CROSS SECTIONS









7/21/2014

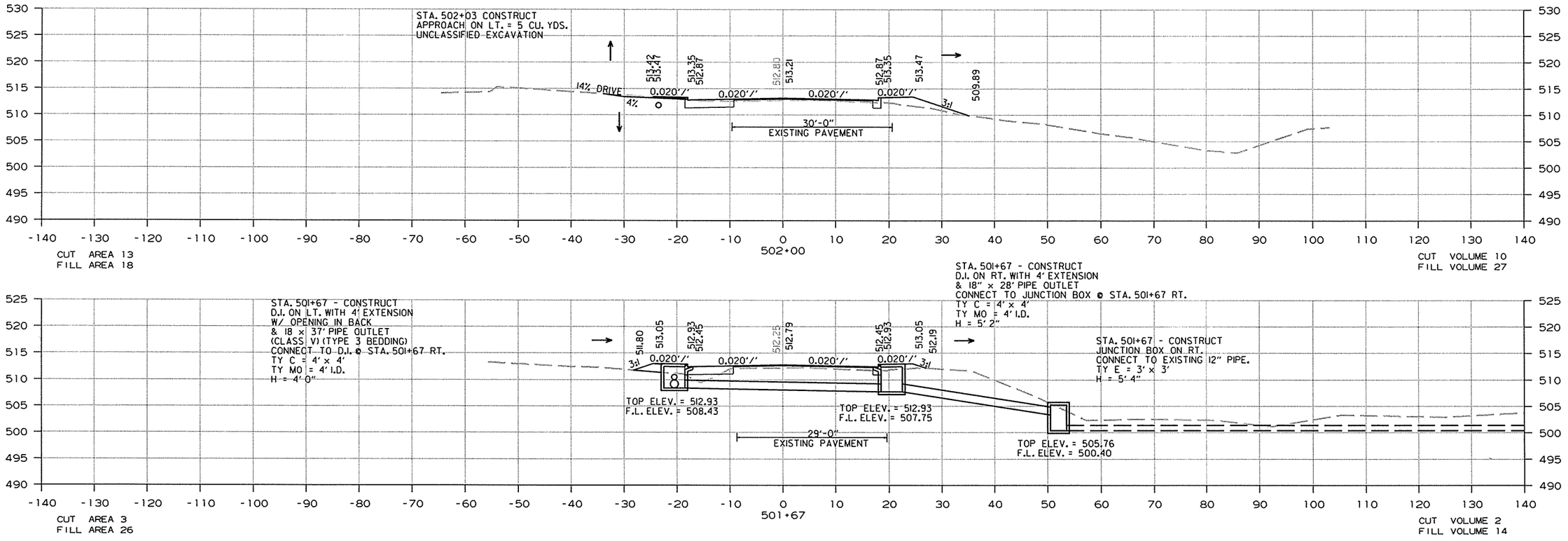
R061214.DGN

EMORY

CROSS SECTION STA. 500+67 TO STA. 501+24

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	90	101

(2) CROSS SECTIONS



7/21/2014

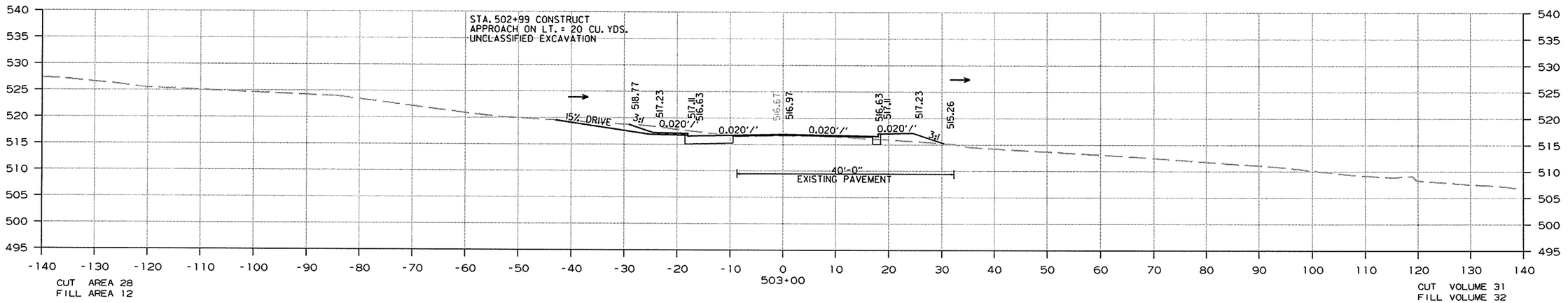
R061214.DGN

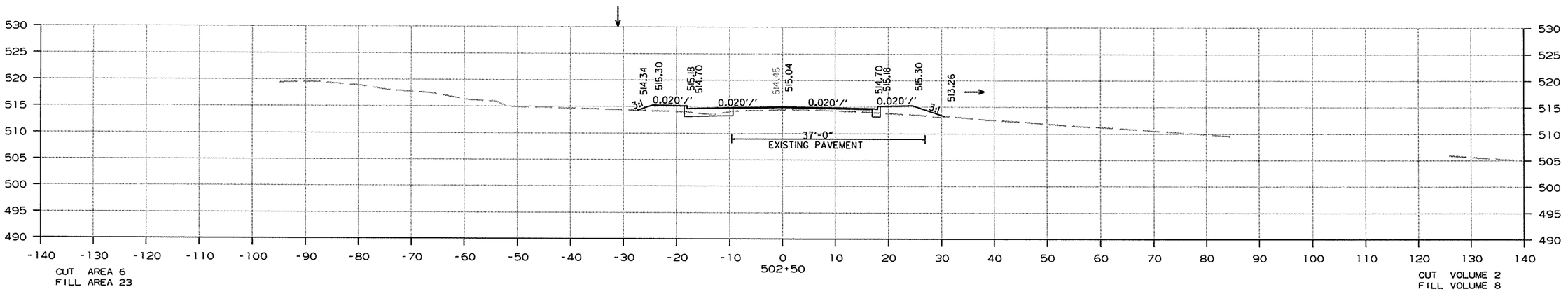
EMORY

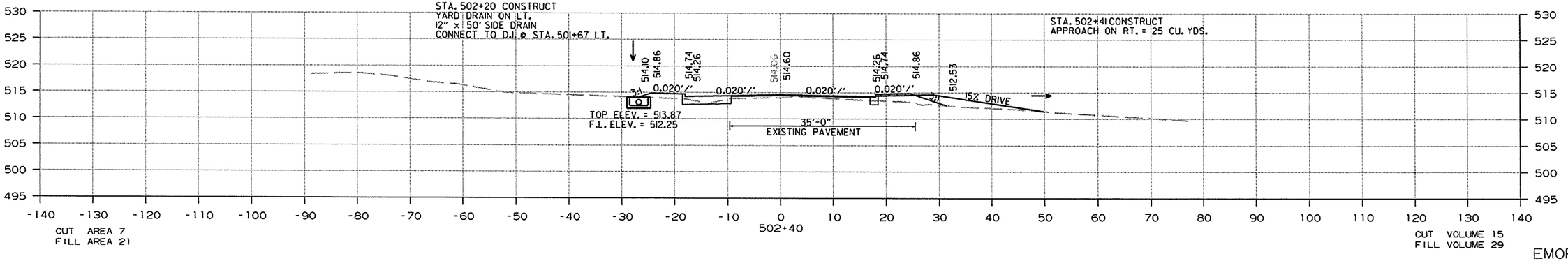
CROSS SECTION STA. 501+50 TO STA. 502+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	91	101

(2) CROSS SECTIONS







7/21/2014

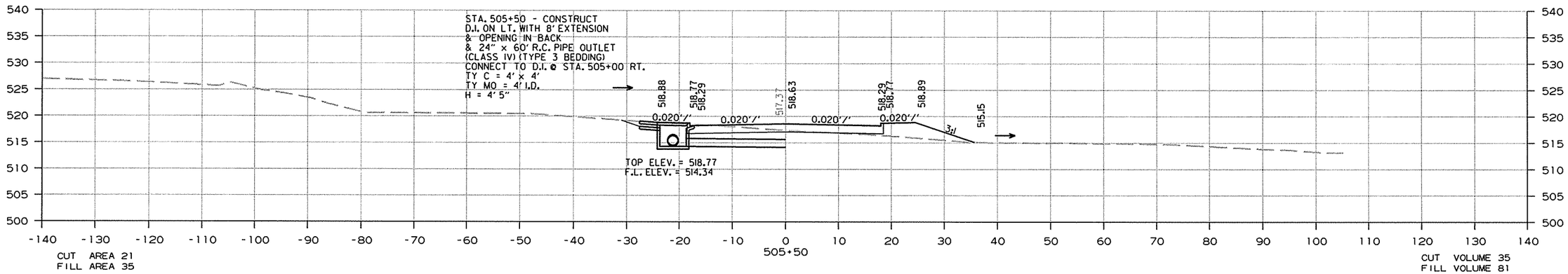
R061214.DGN

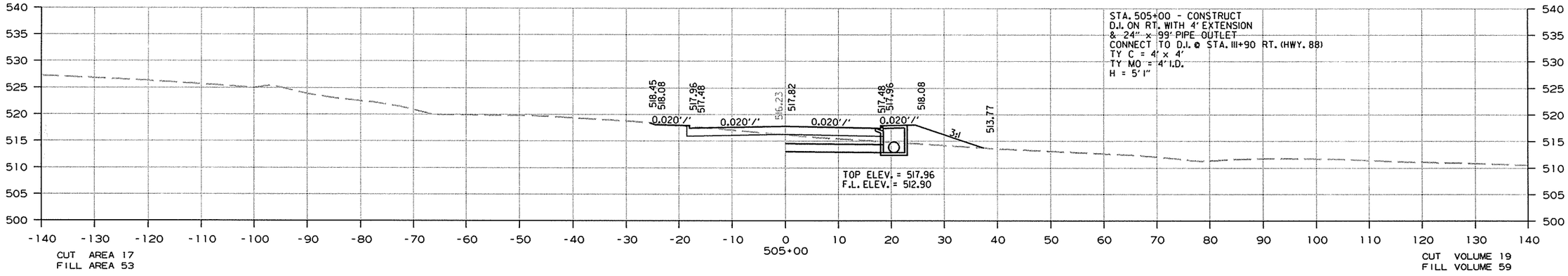
EMORY

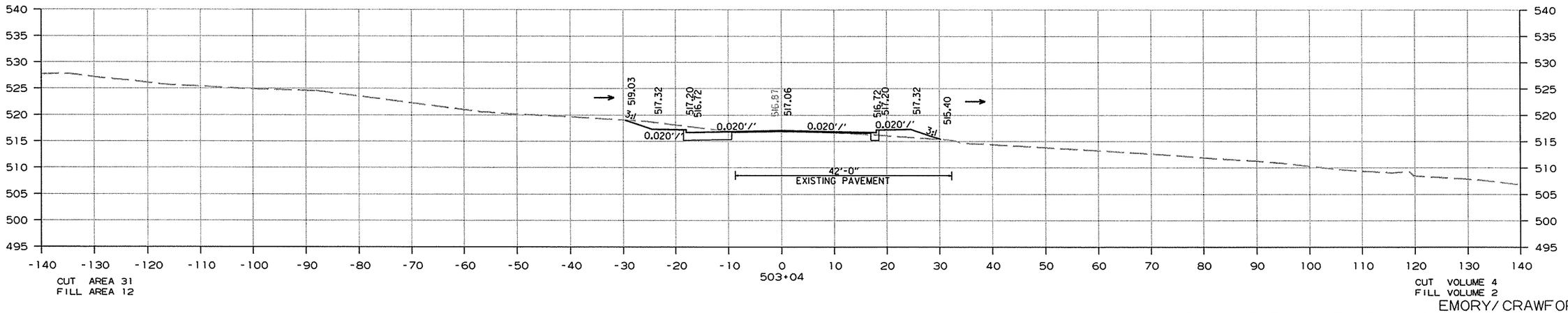
CROSS SECTION STA. 502+40 TO STA. 503+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	92	101

(2) CROSS SECTIONS







EMORY/CRAWFORD

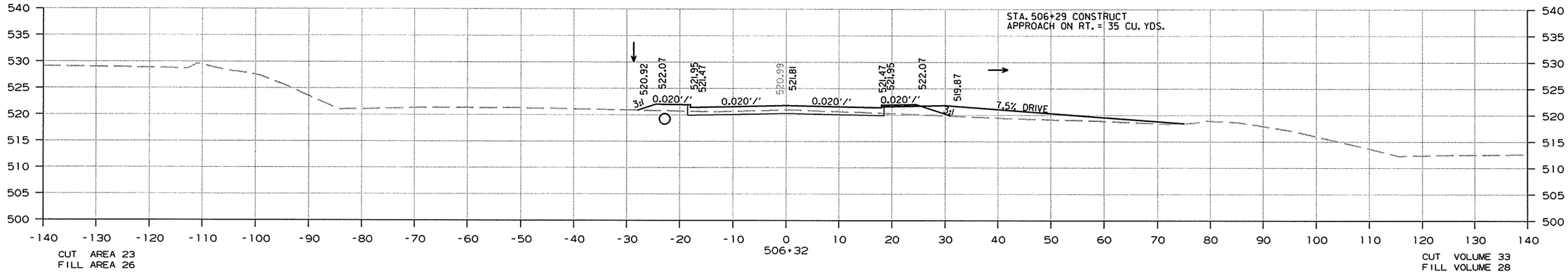
CROSS SECTION STA. 503+04 TO STA. 505+50

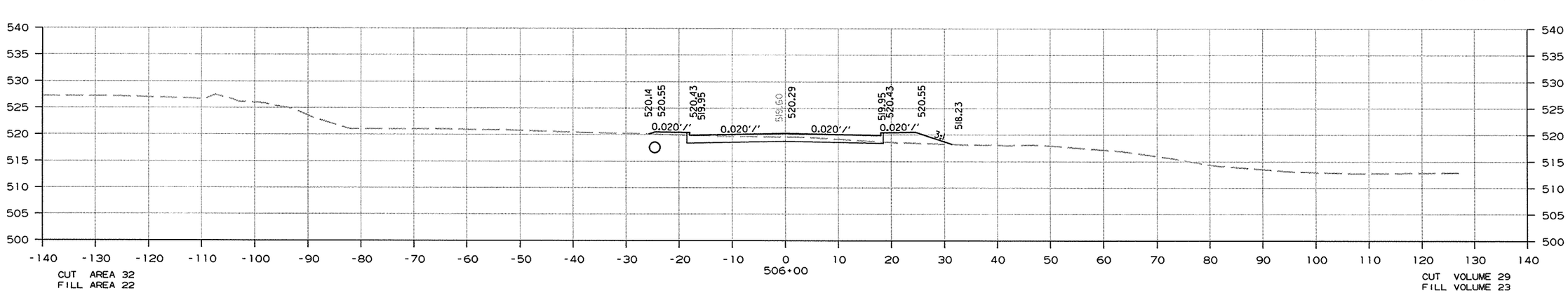
7/21/2014

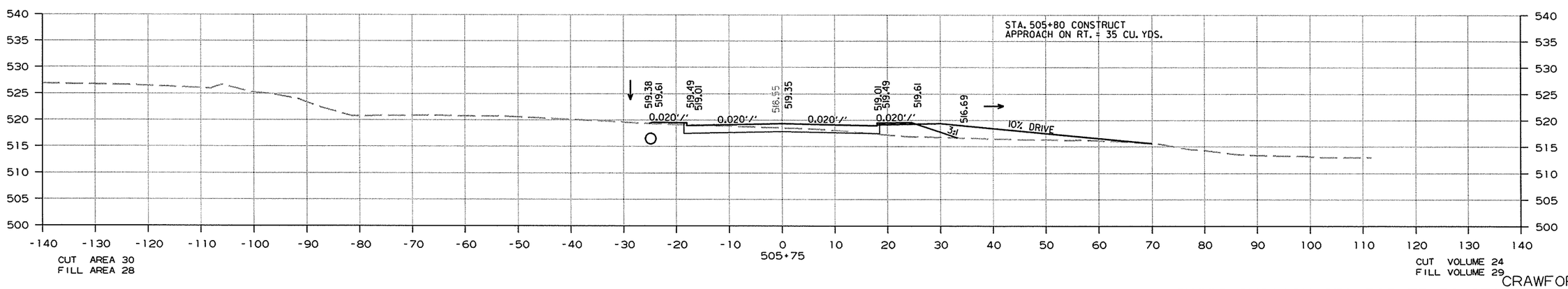
R061214.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	93	101

(2) CROSS SECTIONS







CRAWFORD

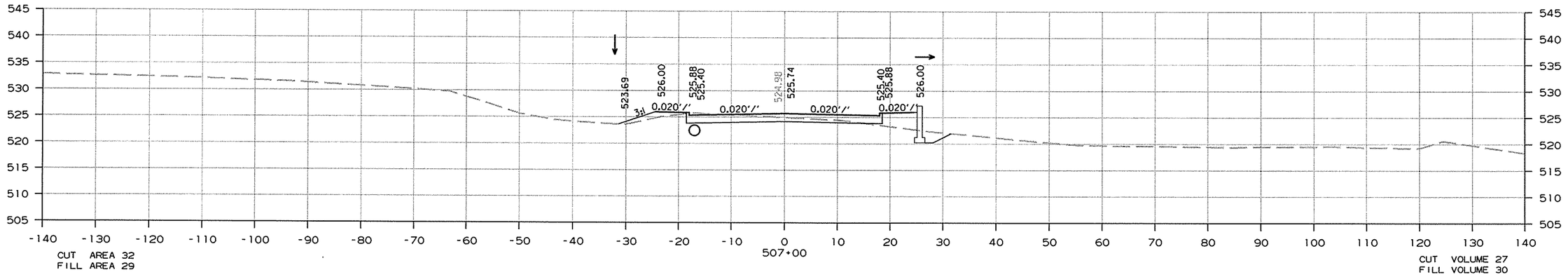
CROSS SECTION STA. 505+75 TO STA. 506+32

7/21/2014

R061214.DGN

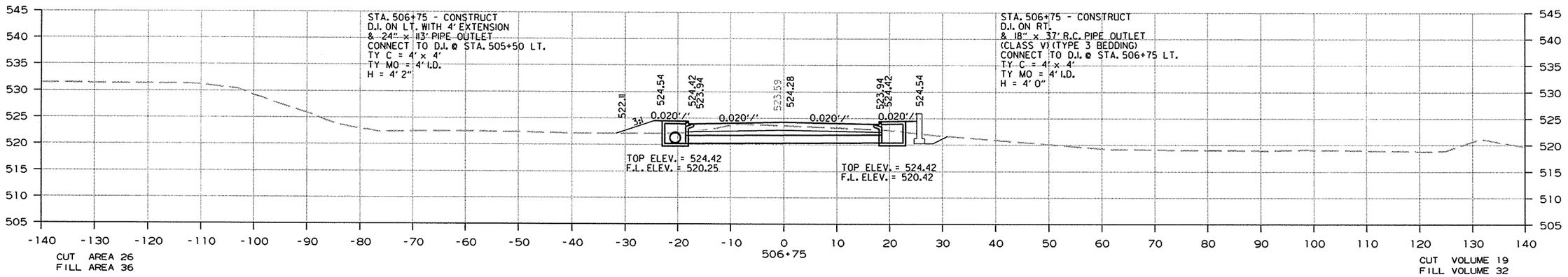
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	94	101

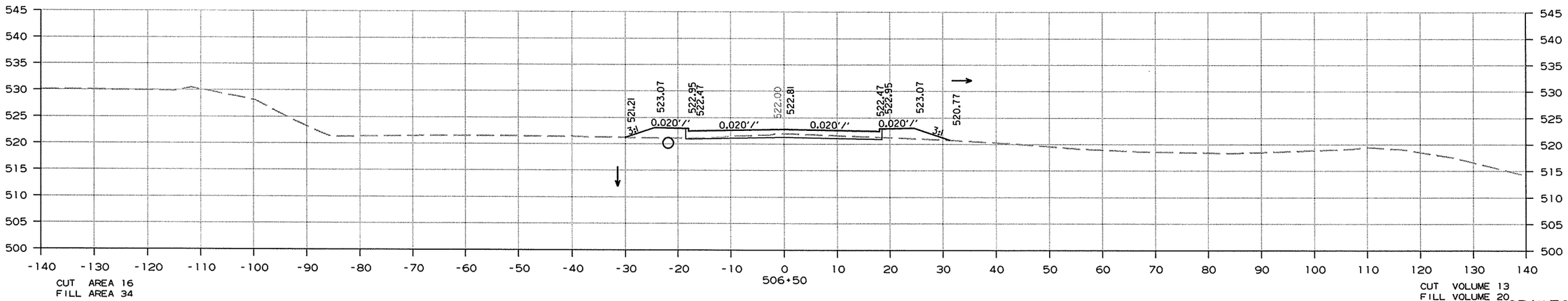
(2) CROSS SECTIONS



STA. 506+75 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 24" x 113' PIPE OUTLET
CONNECT TO D.I. @ STA. 505+50 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4' 2"

STA. 506+75 - CONSTRUCT
D.I. ON RT.
& 18" x 37' R.C. PIPE OUTLET
(CLASS V) (TYPE 3 BEDDING)
CONNECT TO D.I. @ STA. 506+75 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4' 0"





CRAWFORD

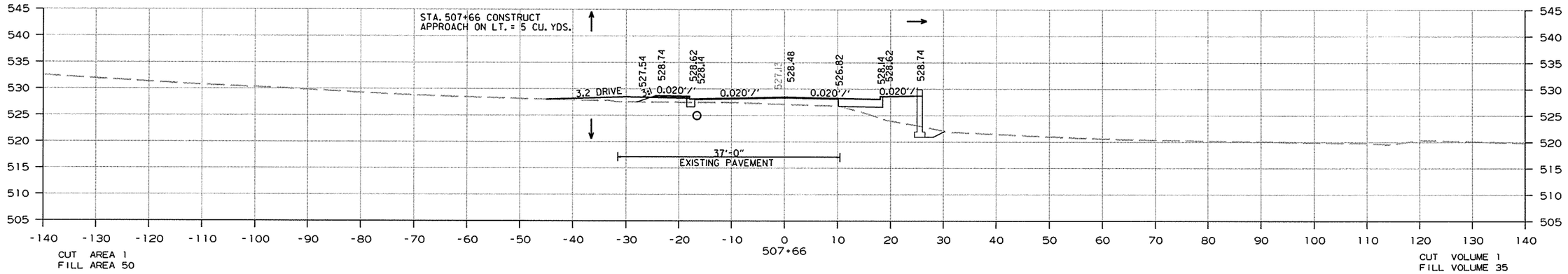
CROSS SECTION STA. 506+50 TO STA. 507+00

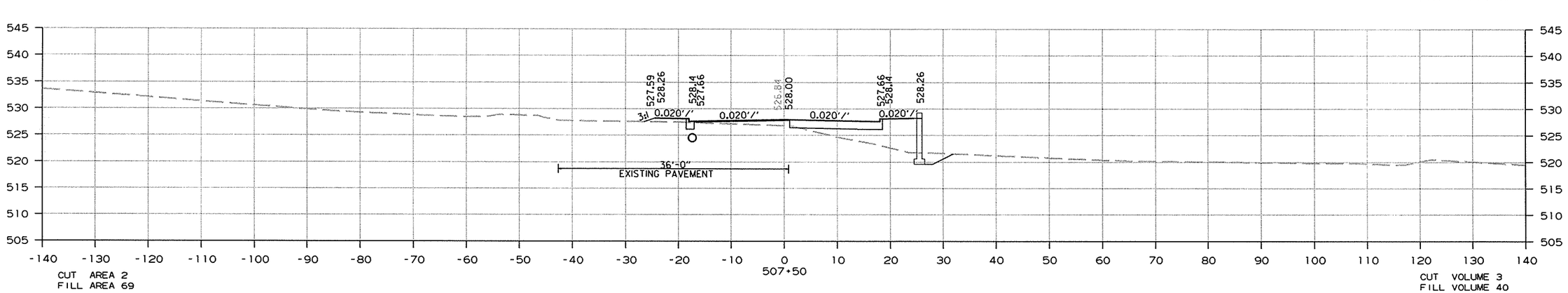
7/21/2014

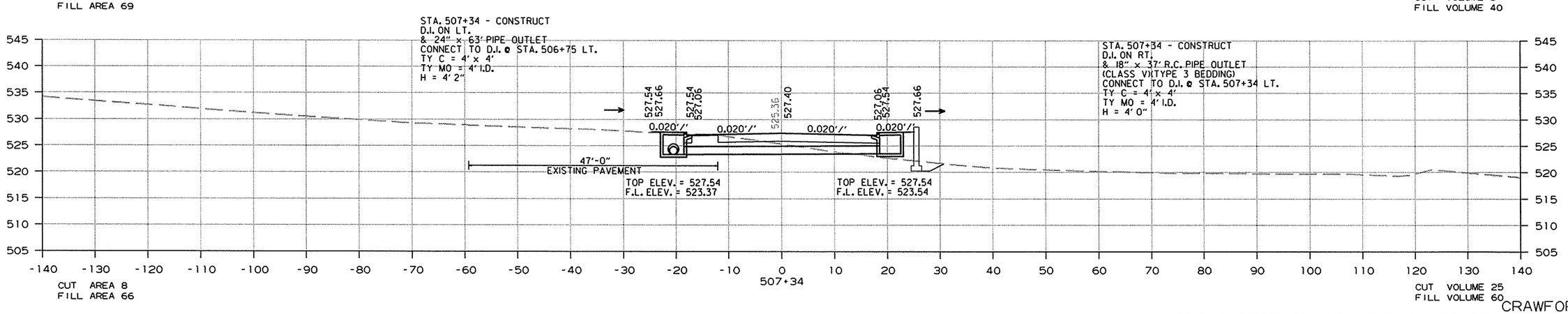
R061214.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	95	101

(2) CROSS SECTIONS







7/21/2014

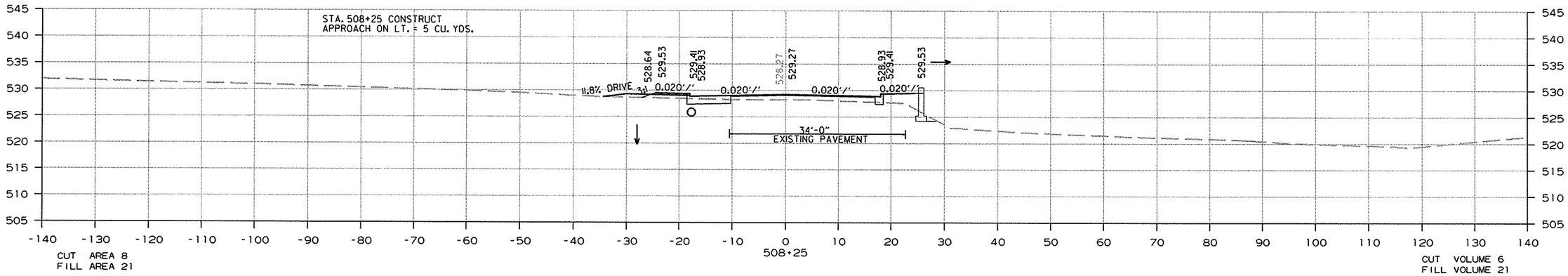
R061214.DGN

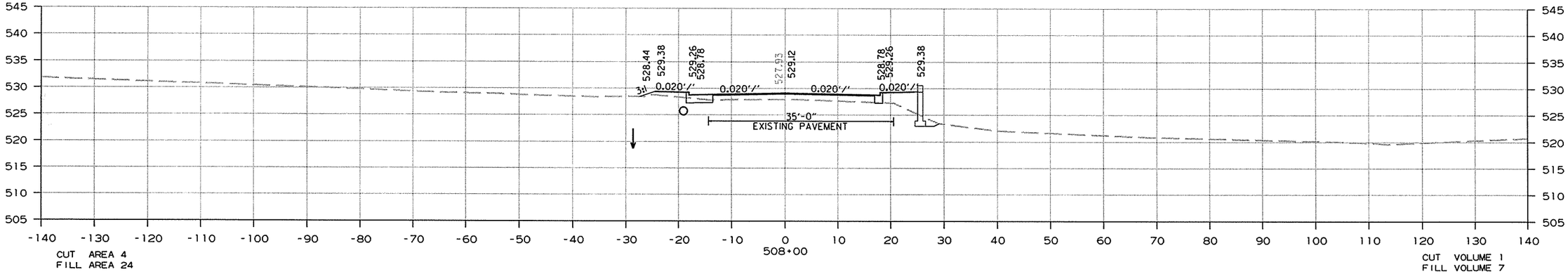
CRAWFORD

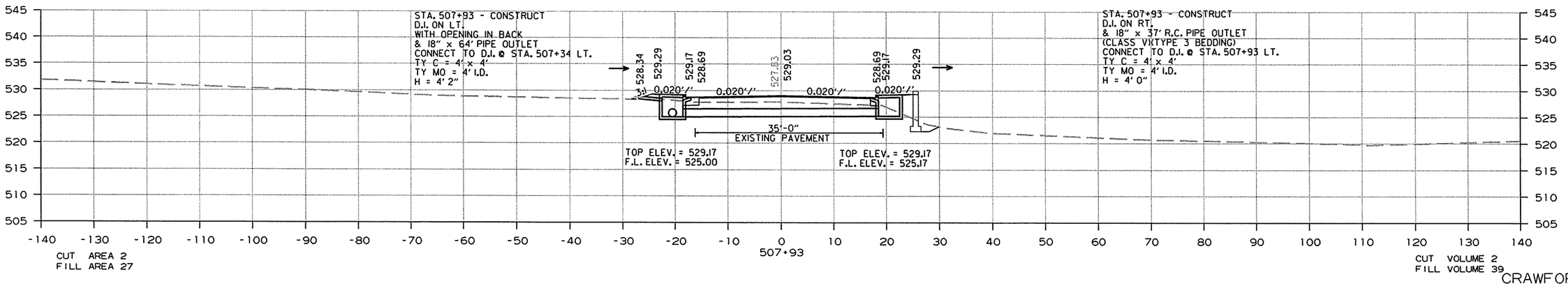
CROSS SECTION STA. 507+34 TO STA. 507+66

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	96	101

(2) CROSS SECTIONS







7/21/2014

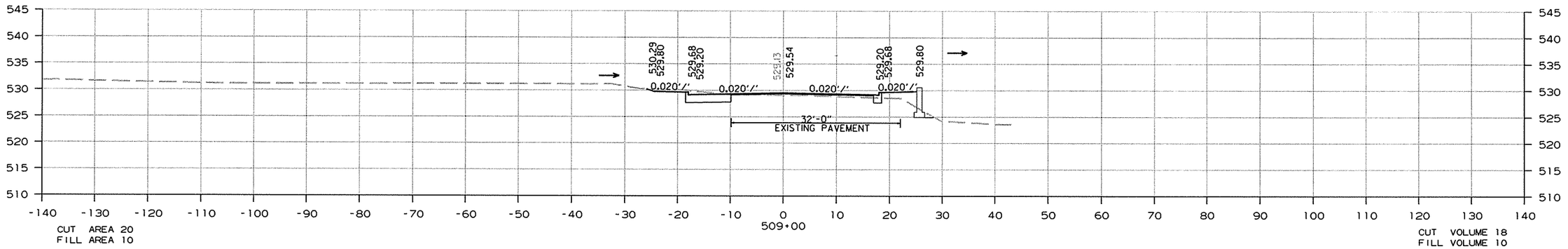
R061214.DGN

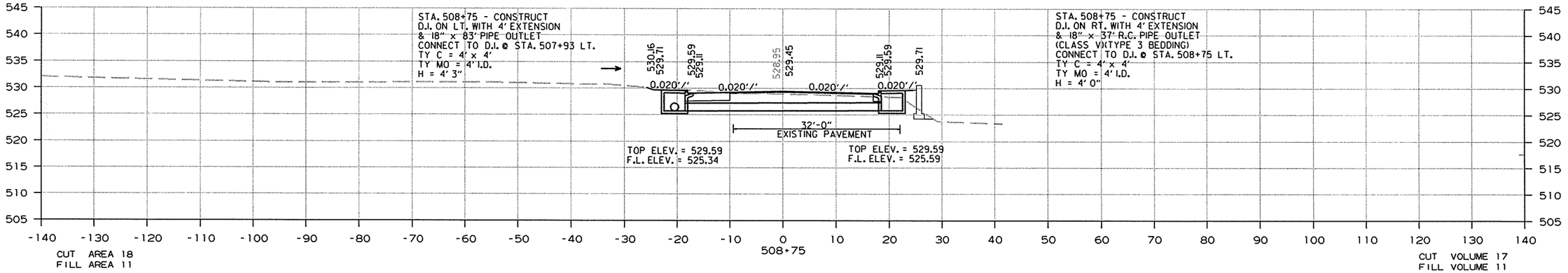
CRAWFORD

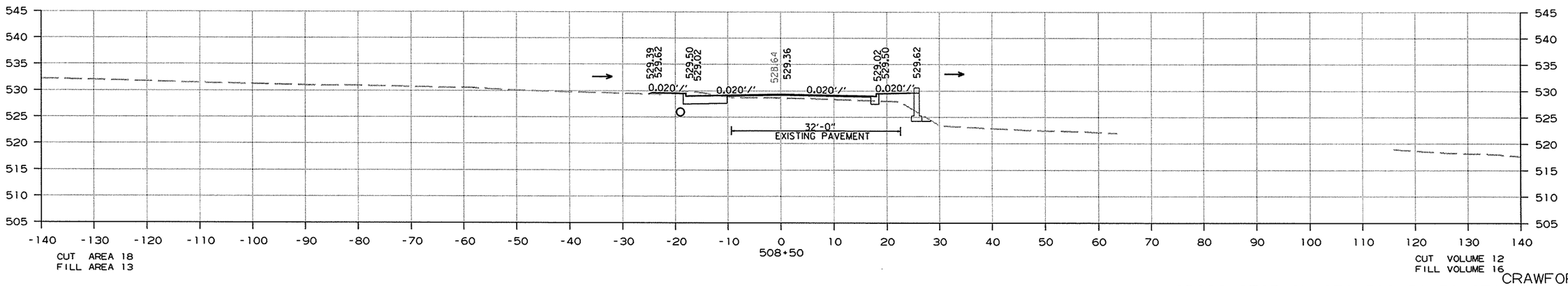
CROSS SECTION STA. 507+93 TO STA. 508+25

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	97	101

(2) CROSS SECTIONS







7/21/2014

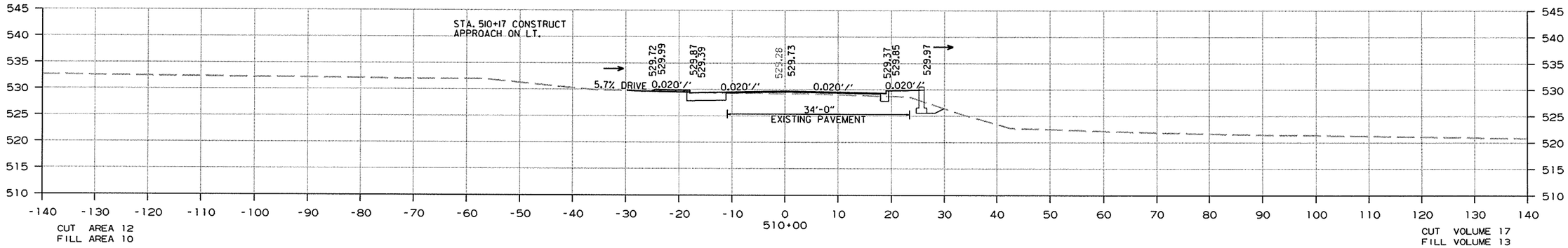
R061214.DGN

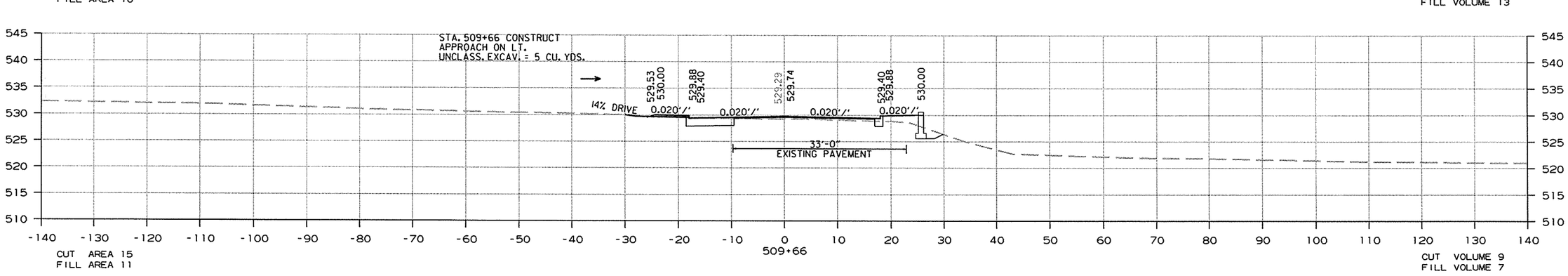
CRAWFORD

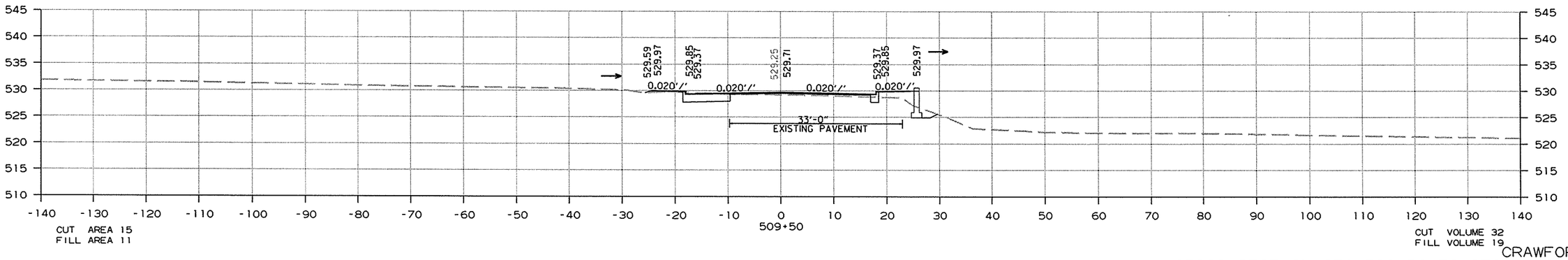
CROSS SECTION STA. 508+50 TO STA. 509+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	98	101

(2) CROSS SECTIONS







7/21/2014

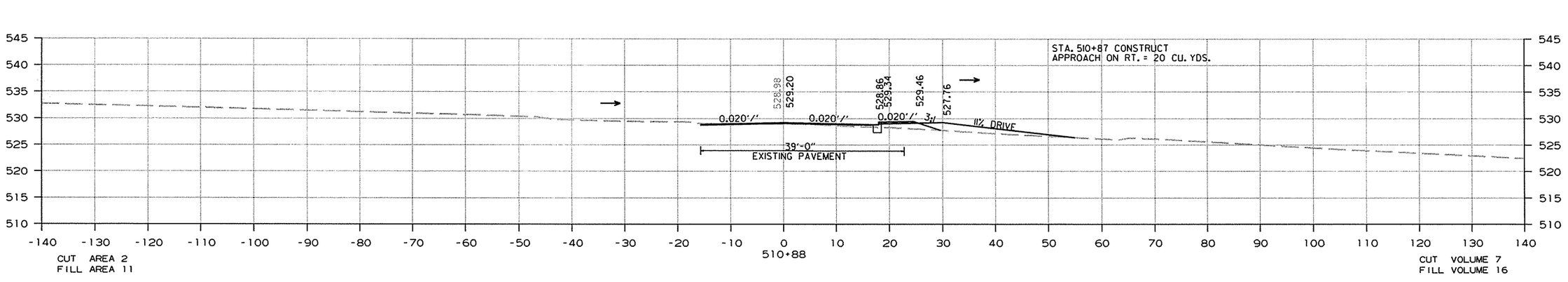
R061214.DGN

CRAWFORD

CROSS SECTION STA. 509+50 TO STA. 510+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	99	101

(2) CROSS SECTIONS



7/21/2014

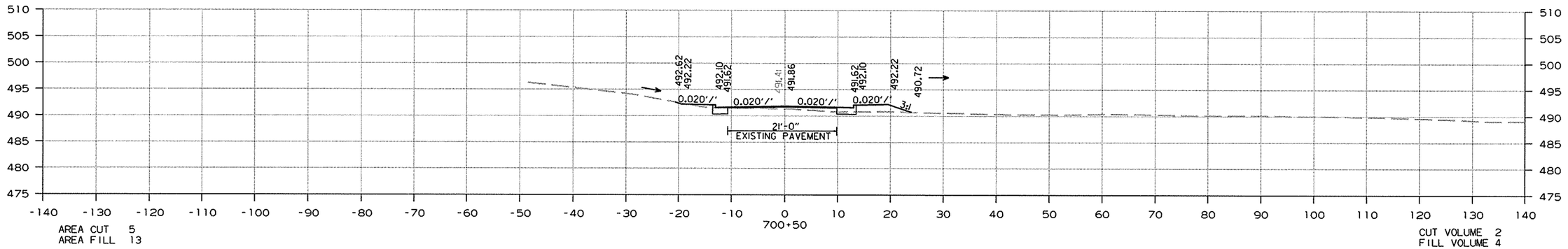
R061214.DGN

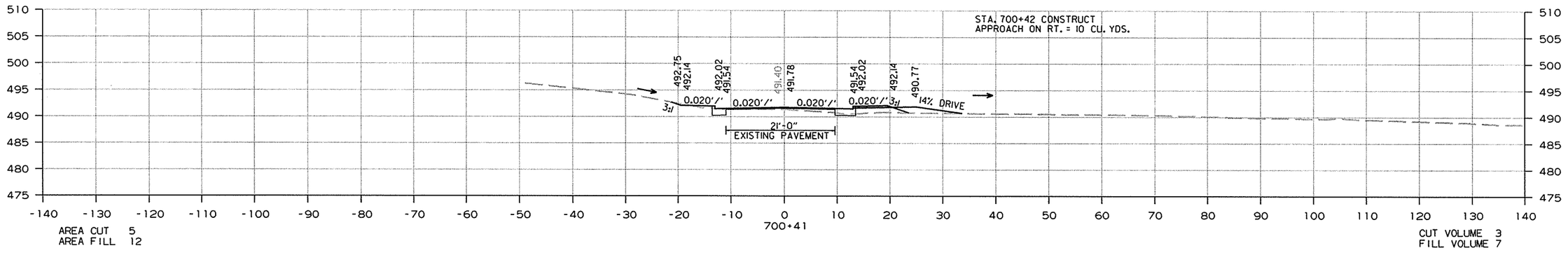
CRAWFORD

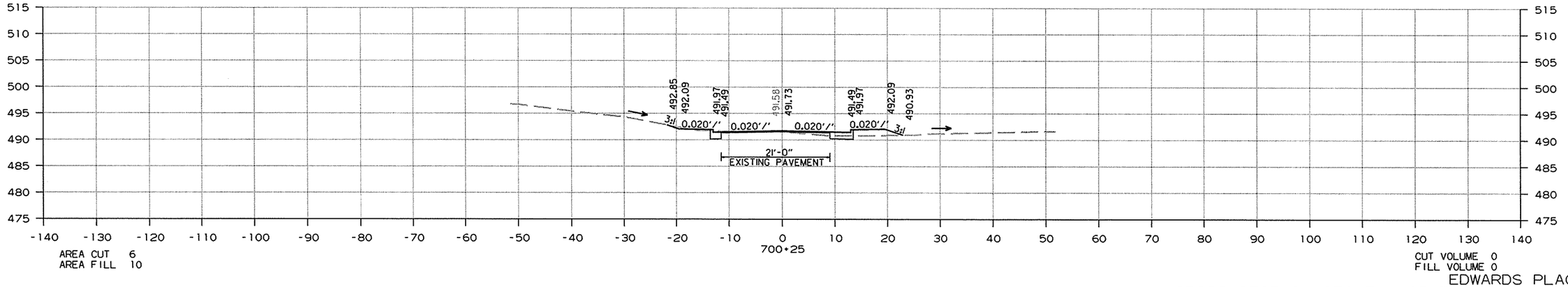
CROSS SECTION STA. 510+50 TO STA. 510+88

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061214	100	101

(2) CROSS SECTIONS







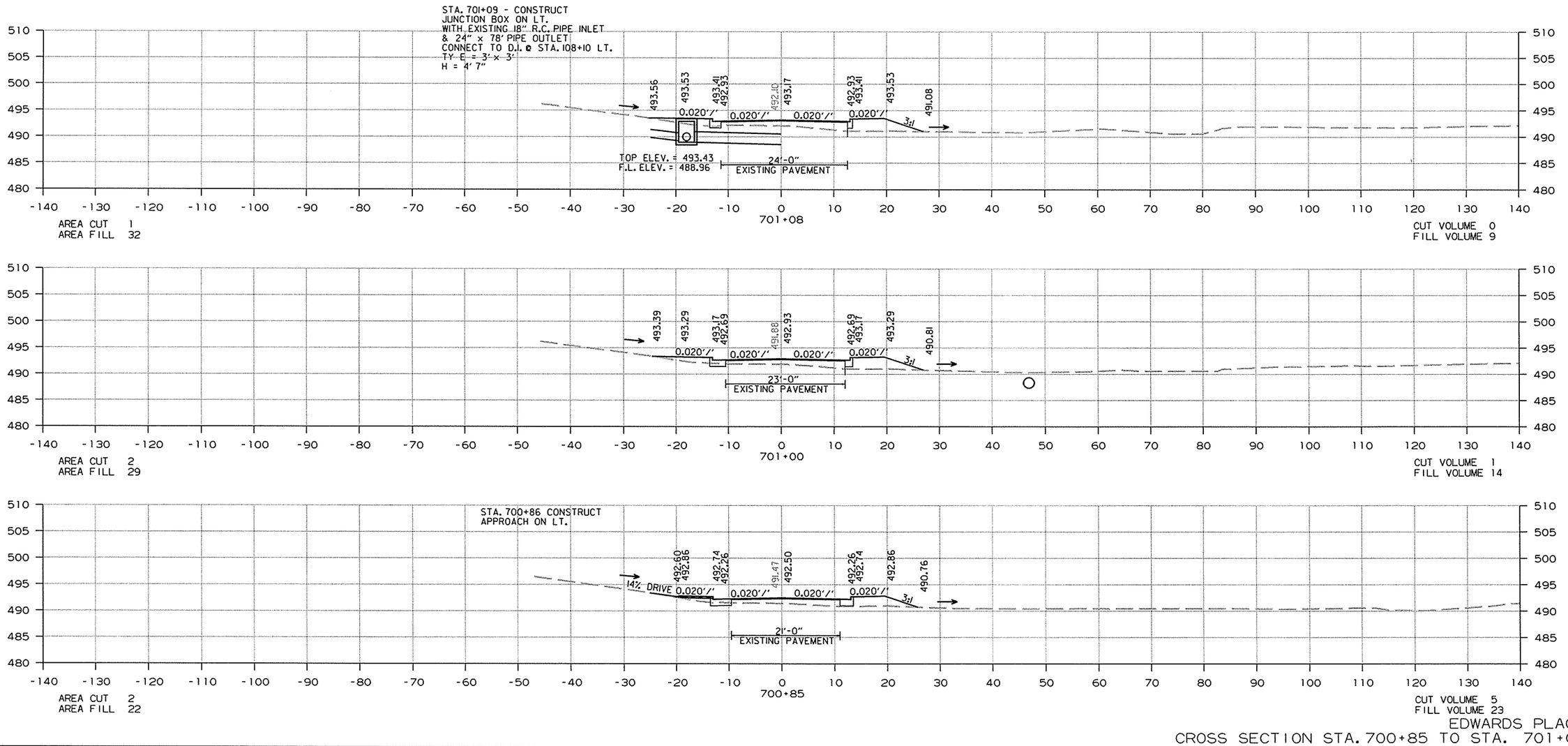
EDWARDS PLACE
CROSS SECTION STA. 700+25 TO STA. 700+50

7/21/2014

R061214.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/25/14				6	ARK.			
				JOB NO.		061214	101	101

(2) CROSS SECTIONS



EDWARDS PLACE
CROSS SECTION STA. 700+85 TO STA. 701+08

7/21/2014

R061214.DGN