| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 1 | 219 |
| | | | | 2 | BINGHAM RD. - GRANT CO. LINE (S) | | | |

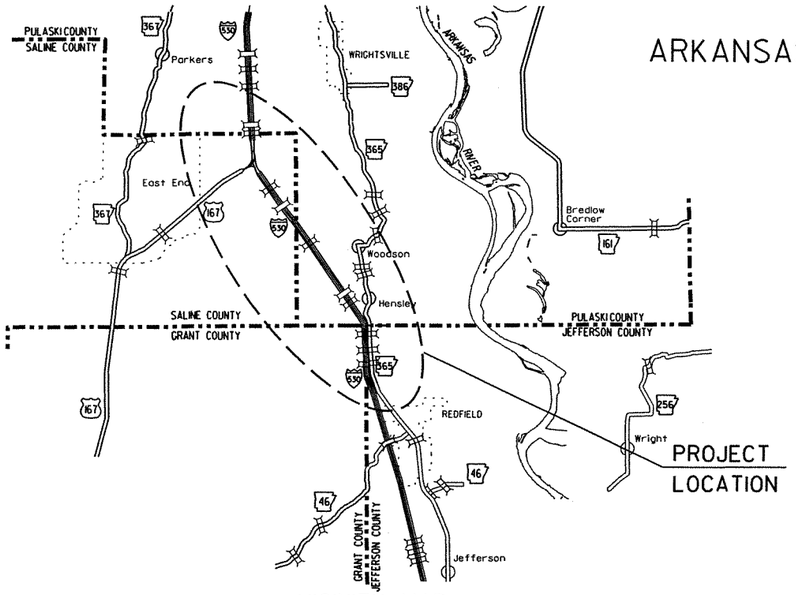
"A FULLY CONTROLLED ACCESS FACILITY"
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

# BINGHAM RD. - GRANT CO. LINE (S)

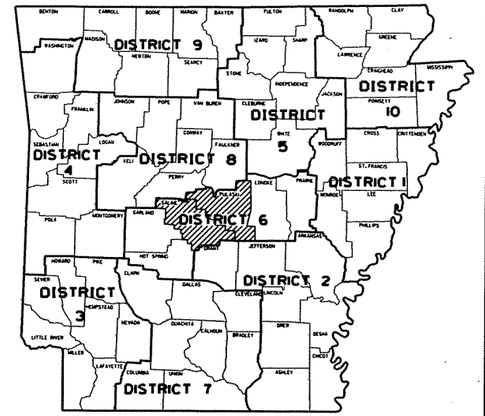
PULASKI & SALINE COUNTIES
ROUTE 530 SECTION 1, 2, & 3

## JOB BB0614

FEDERAL AID PROJ.
BIM-B530(204) & HSIP-530-1(5)9




VICINITY MAP




ARK. HWY. DIST. NO. 6

BRIDGE DATA

[2] STA. 58+55.00 BR. END
90' BRIDGE NO. B3323
40'-0" CLEAR ROADWAY
STA. 59+45.00 BR. END
REHABILITATE BRIDGE DECK-HYDRODEMOLITION

[4] STA. 175+05.97 BR. END
151'-6" CONTINUOUS R.C. SLAB UNIT (30.75' - 3 @ 30' - 30.75')
40'-0" CLEAR ROADWAY
BRIDGE NO. B7266
STA. 176+57.47 BR. END

[6] STA. 285+69.95 BR. END
90' BRIDGE NO. B3326
40'-0" CLEAR ROADWAY
STA. 286+59.95 BR. END
REHABILITATE BRIDGE DECK-HYDRODEMOLITION

[7] STA. 385+67.12 BR. END
181'-6" CONTINUOUS R.C. SLAB UNIT (30.75' - 4 @ 30' - 30.75')
48'-0" CLEAR ROADWAY
BRIDGE NO. A7267
STA. 387+48.62 BR. END

[8] STA. 385+67.12 BR. END
181'-6" CONTINUOUS R.C. SLAB UNIT (30.75' - 4 @ 30' - 30.75')
40'-0" CLEAR ROADWAY
BRIDGE NO. B7267
STA. 387+48.62 BR. END

TOTAL LENGTH OF BRIDGES
513.00' MEASURED ALONG ℄

EXCEPTIONS TO JOB BB0614 (BRIDGES)

(1) STA. 58+55.00 BR. END
90' BRIDGE NO. A3323
40'-0" CLEAR ROADWAY
STA. 59+45.00 BR. END
RETAIN

(3) STA. 175+16.67 BR. END
150.00' BRIDGE NO. A3324
40'-0" CLEAR ROADWAY
STA. 176+66.67 BR. END
RETAIN

(5) STA. 285+66.25 BR. END
90' BRIDGE NO. A3326
40'-0" CLEAR ROADWAY
STA. 286+56.25 BR. END
RETAIN

EQUATIONS

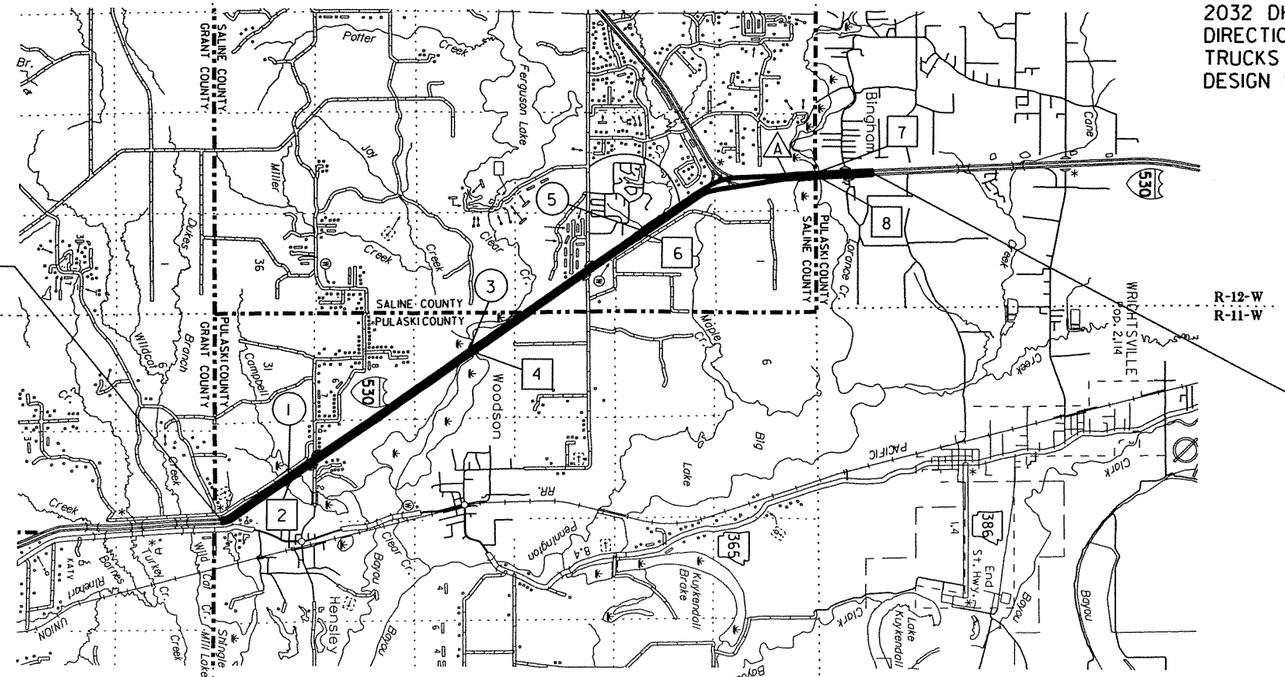
(A) STA. 349+84.42 BACK=
STA. 350+00.00 AHEAD

0 1/4 1/2 1 MILE
BAR SCALE

N

STA. 11+48.68-BEGIN
JOB BB0614
LOG MILE 16.28

STA. 406+89.93-END
JOB BB0614
LOG MILE 8.80




| BEGIN PROJECT | MID-POINT OF PROJECT | END PROJECT |
|---|---|---|
| LAT. = N 34°29'34" | LAT. = N 34°32'09" | LAT. = N 34°35'14" |
| LONG.= W 92°12'32" | LONG.= W 92°14'33" | LONG.= W 92°16'05" |

| | | | | | |
|---|---|---|---|---|---|
| GROSS LENGTH OF PROJECT | 39525.67 | FEET | OR | 7.486 | MILES |
| NET " " ROADWAY | 39012.67 | " | " | 7.389 | " |
| NET " " BRIDGES | 513.00 | " | " | 0.097 | " |
| NET " " PROJECT | 39525.67 | " | " | 7.486 | " |

P.E. JOB BB0614
NON-PART.

• DESIGN TRAFFIC DATA •

| | |
|---|---|
| DESIGN YEAR | 2012 |
| 2012 ADT | 20,000 |
| 2032 ADT | 26,000 |
| 2032 DHV | 2,860 |
| DIRECTIONAL DISTRIBUTION | 60% |
| TRUCKS | 12% |
| DESIGN SPEED | 70 MPH |

APPROVED

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 3917 FRANK VOZEL

10/23/12
DEPUTY DIRECTOR
AND CHIEF ENGINEER

r BB0614.dgn
4-12-12

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 2 | 219 |

(2) INDEX OF SHEETS

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

10-19-12

# INDEX OF SHEETS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| 2 | INDEX OF SHEETS | | | |
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| 146 | BORING "N" VALUES | B7266, A7267, B7267 | 53228 | |
| 147 | DETAILS OF END BENTS - CLEAR CREEK BRIDGE AND LORANCE CREEK BRIDGE B (SHEET 1 OF 2) | B7266, B7267 | 53229 | |
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| 149 | DETAILS OF END BENTS - LORANCE CREEK BRIDGE A (SHEET 1 OF 2) | A7267 | 53231 | |
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| 152 | DETAILS OF INTERMEDIATE BENTS - LORANCE CREEK BRIDGE A | A7267 | 53234 | |
| 153 | DETAILS OF 24" SQUARE PRESTRESSED CONCRETE PILES | B7266, A7267, B7267 | 53235 | |
| 154 | DETAILS OF TYPE SPECIAL 2 APPROACH SLAB | B7266, B7267 | 53236 | |
| 155 | DETAILS OF TYPE SPECIAL 3 APPROACH SLAB | A7267 | 53237 | |
| 156 | DETAILS OF TYPE SPECIAL 2 APPROACH GUTTERS | B7266, A7267, B7267 | 53238 | |
| 157 | 40' CLEAR ROADWAY TYPICAL SECTION - CONTINUOUS R.C. SLAB UNITS | B7266, B7267 | 53239 | |
| 158 | SLAB REINFORCING PLAN - 151'-6" CONTINUOUS R.C. SLAB UNIT | B7266 | 53240 | |
| 159 | SLAB REINFORCING PLAN - 181'-6" CONTINUOUS R.C. SLAB UNIT | B7267 | 53241 | |
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| 161 | SLAB REINFORCING PLAN - 181'-6" CONTINUOUS R.C. SLAB UNIT | A7267 | 53243 | |
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| 165 | DETAILS OF PARAPET RAILS FOR CONTINUOUS R.C. SLAB UNIT | B7266, A7267, B7267 | 53247 | |
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| 184 | GUARD RAIL DETAILS | | GR-8 | 7-14-10 |
| 185 | GUARD RAIL DETAILS | | GR-9 | 4-17-08 |
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| 190 | GUARD RAIL DETAILS | | GRT-1 | 7-14-10 |
| 191 | CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING | | PCC-1 | 12-15-11 |
| 192 | METAL PIPE CULVERT FILL HEIGHTS & BEDDING | | PCM-1 | 12-15-11 |
| 193 | PAVEMENT MARKING DETAILS | | PM-1 | 11-17-10 |
| 194 | PERMANENT PAVEMENT MARKING ON ACCESS CONTROLLED ROADWAYS | | PM-2 | 7-26-12 |
| 195 | DETAILS OF PIPE UNDERDRAIN | | PU-1 | 4-10-03 |
| 196 | REINFORCED CONCRETE BOX CULVERT DETAILS | | RCB-1 | 7-26-12 |
| 197 | EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS | | RCB-2 | 11-20-03 |
| 198 | METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS | | RCB-3 | 10-12-95 |
| 199 | TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC | | SE-1 | 1-09-87 |
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| 206 | TEMPORARY EROSION CONTROL DEVICES | | TEC-2 | 6-02-94 |
| 207 | TEMPORARY EROSION CONTROL DEVICES | | TEC-3 | 11-03-94 |
| 208 | DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS | | W-X45 | 6-15-64 |
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| 210 | DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS | | R-100X-X1 | 10-10-62 |
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9/20/2012

RBB0614.DGN

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

10-19-12

## GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2003, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

| NUMBER | TITLE |
|---|---|
| ERRATA_____ | ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS |
| FHWA-1273__ | REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS |
| FHWA-1273__ | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS |
| FHWA-1273__ | SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140) |
| FHWA-1273__ | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES |
| FHWA-1273__ | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS |
| FHWA-1273__ | SUPPLEMENT - TRAINING PROGRAM - JOB BB0614 |
| FHWA-1273__ | SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS |
| FHWA-1273__ | SUPPLEMENT - WAGE RATE DETERMINATION |
| 100-2_____ | MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) |
| 102-1_____ | BIDDING REQUIREMENTS AND CONDITIONS |
| 103-1_____ | DETERMINATION OF DBE PARTICIPATION |
| 105-1_____ | CONSTRUCTION CONTROL MARKINGS |
| 105-2_____ | EQUIPMENT AND MATERIAL STORAGE ON BRIDGE STRUCTURES |
| 105-3_____ | CONTROL OF WORK |
| 107-1_____ | WORKER VISIBILITY |
| 108-1_____ | LIQUIDATED DAMAGES |
| 110-1_____ | PROTECTION OF WATER QUALITY AND WETLANDS |
| 303-1_____ | AGGREGATE BASE COURSE |
| 404-1_____ | PRODUCTION VERIFICATION OF ASPHALT CONCRETE HOT MIX |
| 404-2_____ | DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES |
| 409-1_____ | MINERAL AGGREGATES |
| 410-3_____ | DENSITY TESTING FOR ACHM LEVELING COURSES AND BOND BREAKERS |
| 600-1_____ | WATER FOR VEGETATION |
| 603-1_____ | MAINTENANCE OF TRAFFIC |
| 604-1_____ | RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES |
| 604-2_____ | INSPECTION OF TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES |
| 606-2_____ | PIPE CULVERTS |
| 718-2_____ | REFLECTORIZED PAINT PAVEMENT MARKINGS |
| 723-1_____ | GENERAL REQUIREMENTS FOR SIGNS |
| 804-1_____ | INSTALLATION OF DOWEL BARS AND TIE BARS |
| JOB BB0614__ | APPROACH SLABS AND GUTTERS |
| JOB BB0614__ | BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT |
| JOB BB0614__ | BROADBAND INTERNET SERVICE FOR FIELD OFFICE |
| JOB BB0614__ | CHANNEL POST SIGN SUPPORT |
| JOB BB0614__ | CONCRETE DITCH PAVING |
| JOB BB0614__ | CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS |
| JOB BB0614__ | COORDINATION OF WORK |
| JOB BB0614__ | EXTENSION FOR PIPE CULVERTS |
| JOB BB0614__ | GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION |
| JOB BB0614__ | HIGH PERFORMANCE PAVEMENT MARKING |
| JOB BB0614__ | HYDRODEMOLITION |
| JOB BB0614__ | INTERNET BIDDING |
| JOB BB0614__ | LATEX MODIFIED CONCRETE OVERLAY |
| JOB BB0614__ | MAINTENANCE OF TRAFFIC |
| JOB BB0614__ | MANAGEMENT OF HYDRODEMOLITION WASTEWATER AND SOLID RESIDUE |
| JOB BB0614__ | MOBILE SPEED NOTIFICATION SYSTEM |
| JOB BB0614__ | NESTING SITES OF MIGRATORY BIRDS |
| JOB BB0614__ | PARTNERING REQUIREMENTS |
| JOB BB0614__ | REMOVAL AND DISPOSAL OF GUARDRAIL |
| JOB BB0614__ | REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIERS |
| JOB BB0614__ | REMOVAL AND DISPOSAL OF OVERHEAD SIGN STRUCTURE |
| JOB BB0614__ | SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS |
| JOB BB0614__ | SEQUENCE OF CONSTRUCTION |
| JOB BB0614__ | SIGN PANEL MATERIALS AND FABRICATION |
| JOB BB0614__ | SITE USE (A + C METHOD) |
| JOB BB0614__ | SOIL STABILIZATION |
| JOB BB0614__ | SPECIAL SAFETY REQUIREMENTS FOR OVERHEAD SIGNS |
| JOB BB0614__ | STEEL OVERHEAD SIGN STRUCTURES |
| JOB BB0614__ | STORM WATER POLLUTION PREVENTION PLAN |
| JOB BB0614__ | SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS |
| JOB BB0614__ | TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES |
| JOB BB0614__ | UTILITY ADJUSTMENTS |
| JOB BB0614__ | VALUE ENGINEERING |
| JOB BB0614__ | WARM MIX ASPHALT |
| JOB BB0614__ | WELLHEAD PROTECTION |
| JOB BB0614__ | WIRE ROPE SAFETY FENCE MAINTENANCE MATERIALS |
| JOB BB0614__ | WIRE ROPE SAFETY FENCE (WRSF) SPECIFICATIONS |
| JOB BB0614__ | WRSF TRAINING WORKSHOP |

## GENERAL NOTES

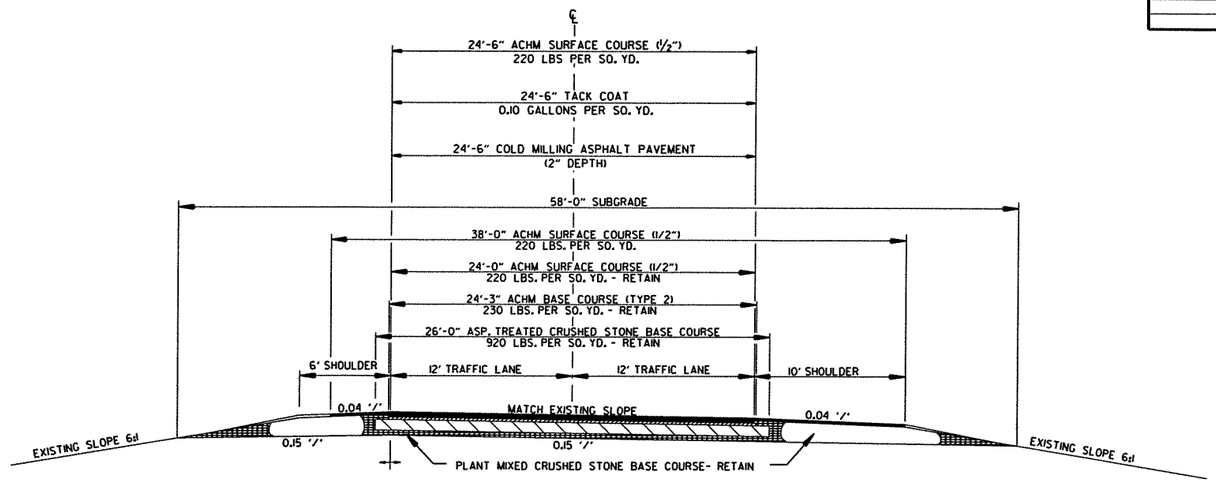
1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY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

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 4 | 219 |

## (2) TYPICAL SECTIONS OF IMPROVEMENT

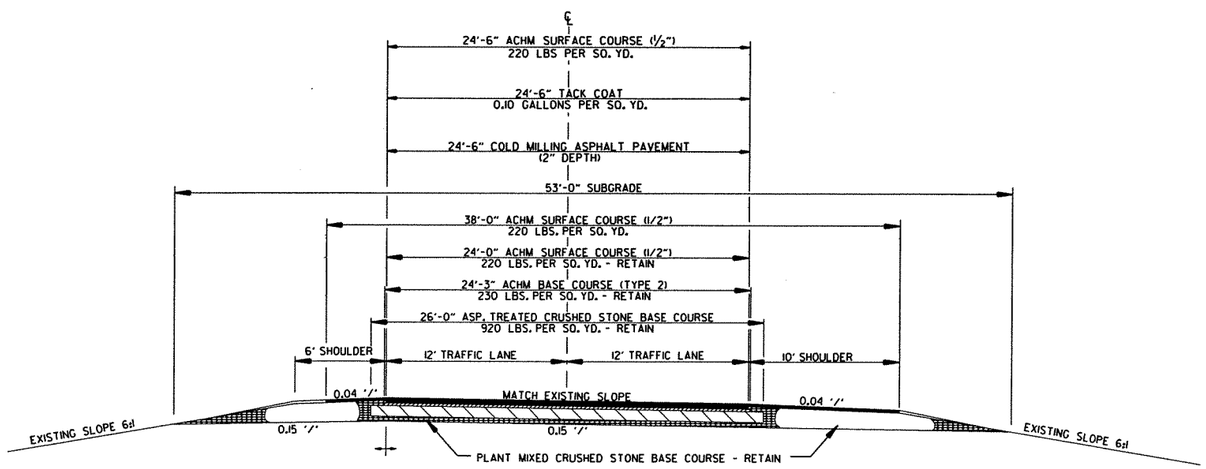
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH

10-19-12




INTERSTATE 530 - MILL & INLAY
(SHOWN IN DIRECTION OF TRAFFIC)

| LEFT MAIN LANES | RIGHT MAIN LANES |
|---|---|
| STA. 22+42.76 TO STA. 58+55.00 | STA. 22+42.76 TO STA. 58+55.00 |
| STA. 59+44.00 TO STA. 80+00.00 | STA. 59+45.00 TO STA. 80+00.00 |
| STA. 120+00.00 TO STA. 175+16.67 | STA. 120+00.00 TO STA. 175+14.97 |
| STA. 176+66.67 TO STA. 285+66.25 | STA. 176+66.67 TO STA. 285+69.95 |
| STA. 286+56.25 TO STA. 311+59.80 | STA. 286+59.95 TO STA. 311+59.80 |




INTERSTATE 530 - MILL & INLAY
(SHOWN IN DIRECTION OF TRAFFIC)

| LEFT MAIN LANES | RIGHT MAIN LANES |
|---|---|
| STA. 311+59.80 TO 406+89.93 | STA. 311+59.80 TO STA. 406+89.93 |

TYPICAL SECTIONS OF IMPROVEMENT

RBB0614.DGN 10/19/2012

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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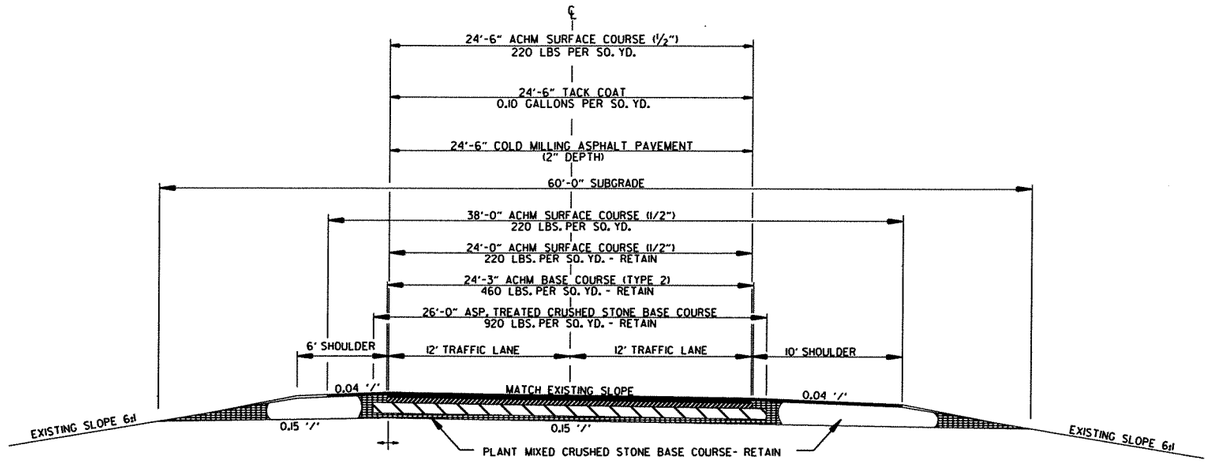
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 5 | 219 |

(2) TYPICAL SECTIONS OF IMPROVEMENT

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

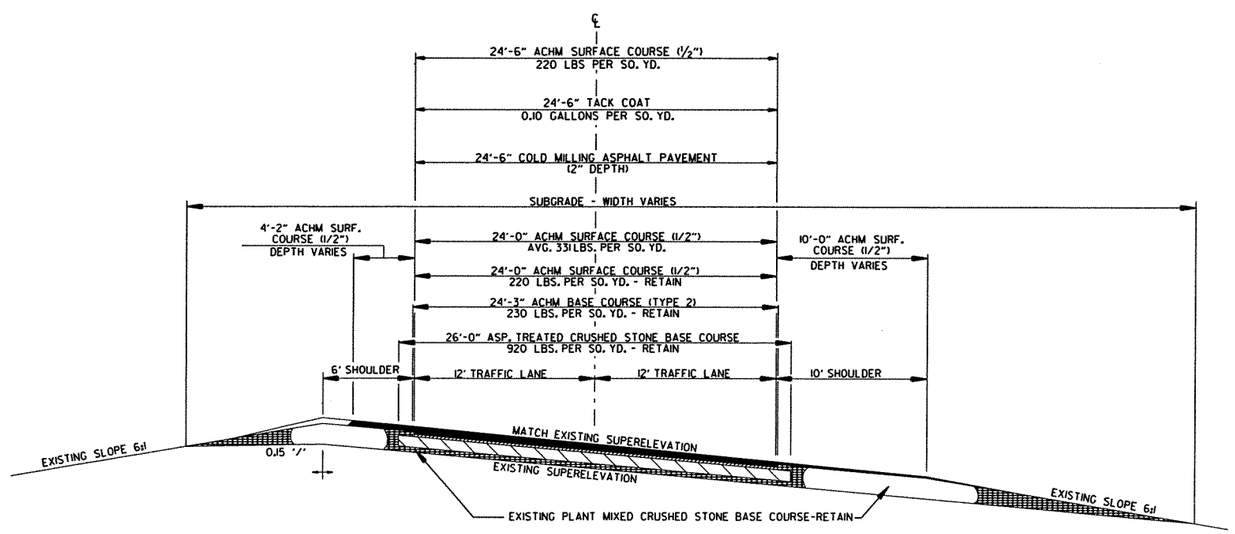
10-19-12




INTERSTATE 530 - MILL & INLAY
(SHOWN IN DIRECTION OF TRAFFIC)

LEFT MAIN LANES
STA. 80+00.00 TO STA. 120+00.00

RIGHT MAIN LANES
STA. 80+00.00 TO STA. 120+00.00




INTERSTATE 530 WITH SUPERELEVATION - MILL & INLAY

LEFT MAIN LANES
STA. 11+48.68 TO STA. 22+42.76

RIGHT MAIN LANES
STA. 11+48.68 TO STA. 22+42.76

TYPICAL SECTIONS OF IMPROVEMENT

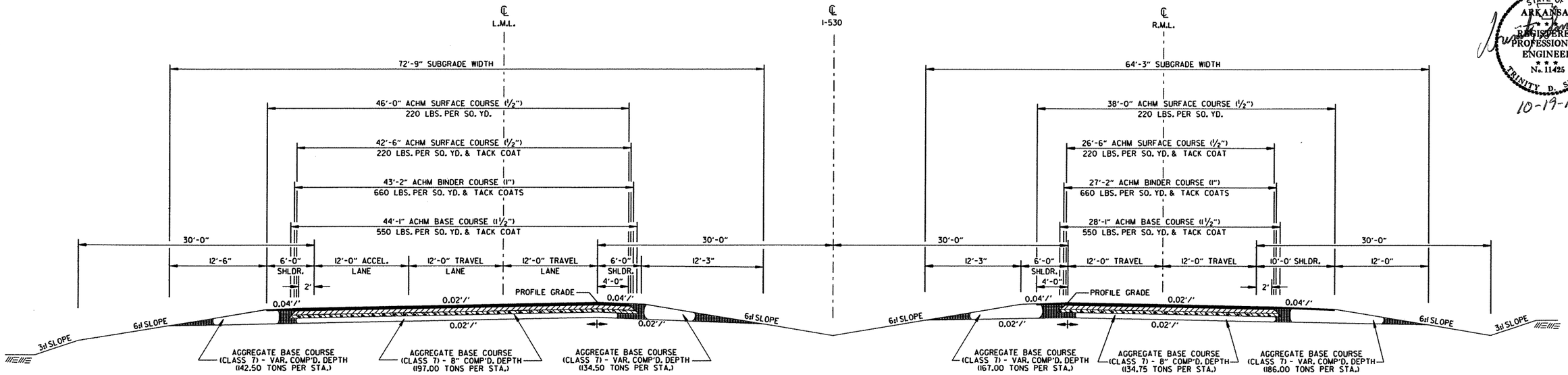
RBB0614.DGN 10/19/2012

| 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. | | BB0614 | 6 | 219 |

## (2) TYPICAL SECTIONS OF IMPROVEMENT

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

10-19-12




INTERSTATE 530 - FULL DEPTH
(APPROACH RECONSTRUCTION OVER LORANCE CREEK)

STA. 381+90.00 TO STA. 389+52.49

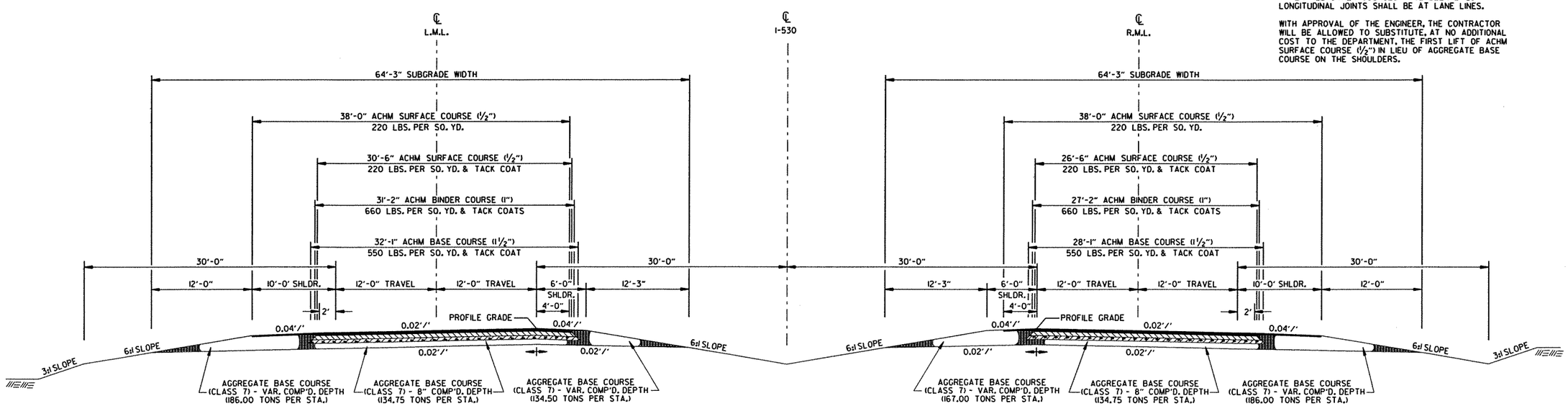
NOTES:

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.

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

WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.




INTERSTATE 530 - FULL DEPTH
(APPROACH RECONSTRUCTION OVER LORANCE CREEK)

STA. 389+52.49 TO STA. 392+80.00

10/19/2012

RBB0614.DGN

# TYPICAL SECTIONS OF IMPROVEMENT

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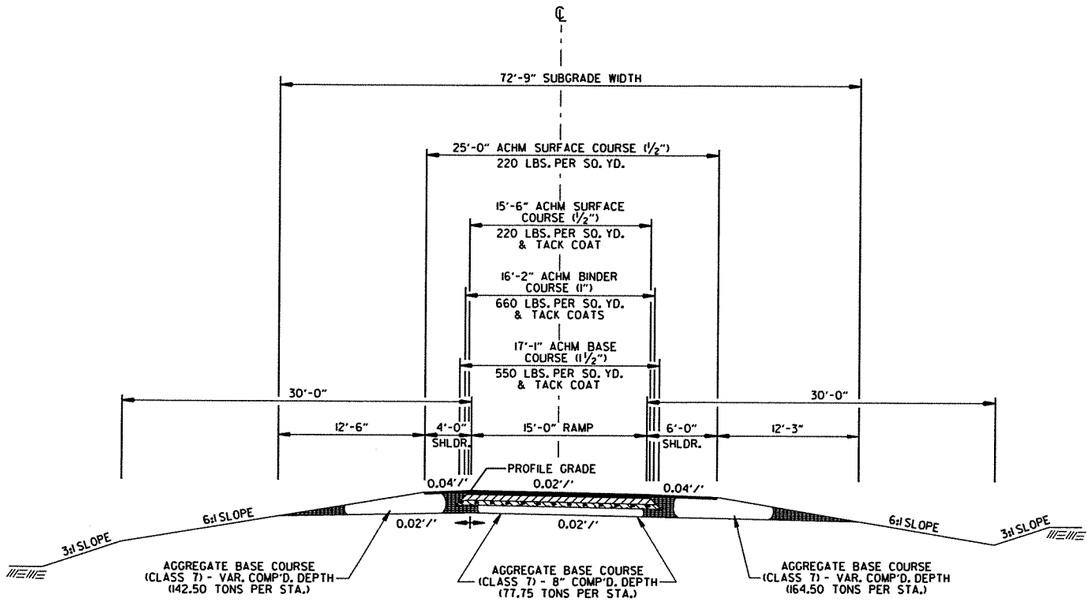
|---|---|---|---|---|---|---|---|---|
| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 7 | 219 |

(2) TYPICAL SECTIONS OF IMPROVEMENT

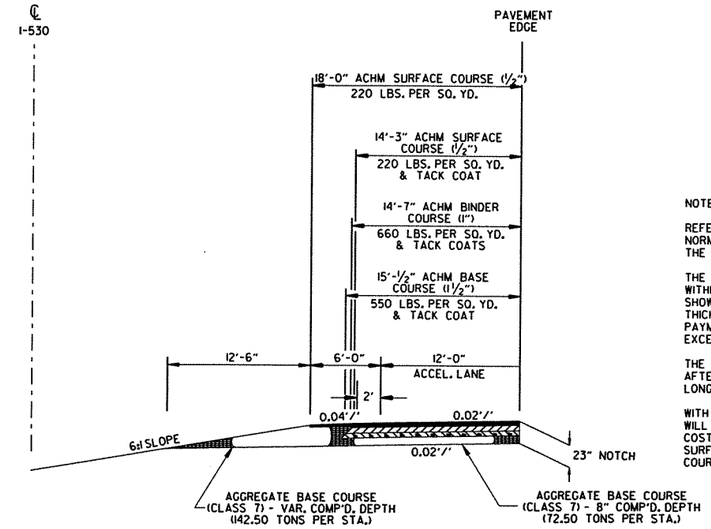
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH

11-16-12




INTERSTATE 530 ENTRANCE RAMP
AT BINGHAM RD. INTERCHANGE - RAMP 4
(SHOWN IN DIRECTION OF TRAFFIC)

STA. 389+52.49 TO STA. 397+55.95




INTERSTATE 530 N.B. ACCELERATION LANE
AT HWY. 167 INTERCHANGE
(SHOWN IN DIRECTION OF TRAFFIC)

STA. 353+32.03 TO STA. 362+84.43

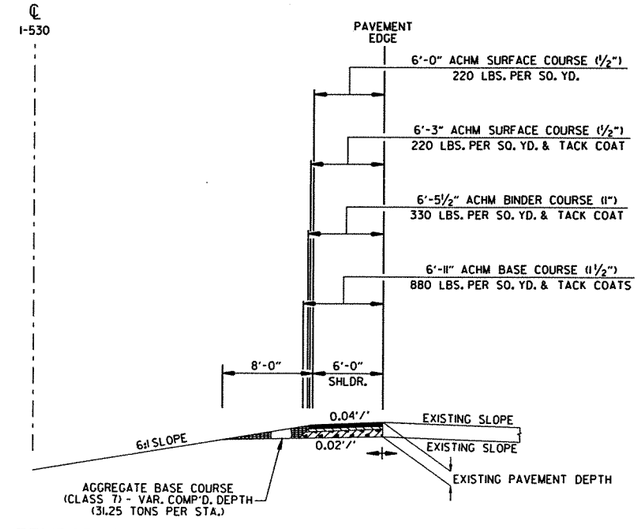
NOTES:

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.

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

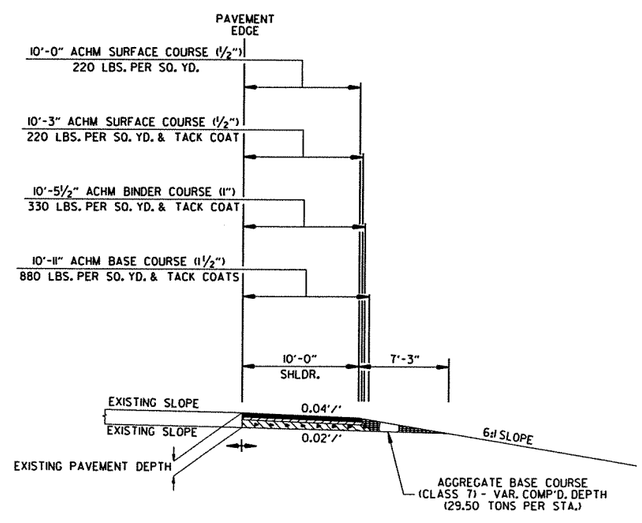
WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.




TEMPORARY SHOULDER RECONSTRUCTION FOR M.O.T.
(SHOWN IN DIRECTION OF TRAFFIC)

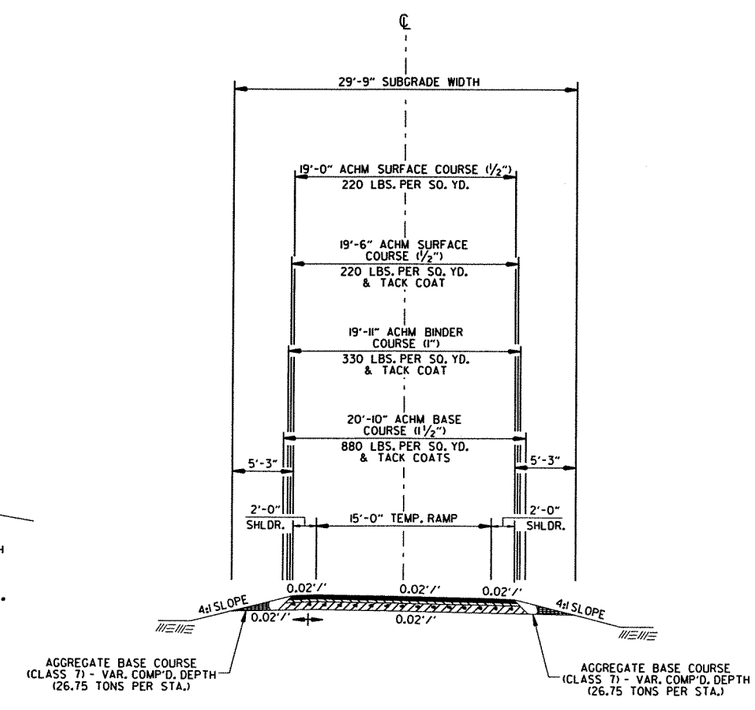
| LEFT MAIN LANES | | |
|---|---|---|
| STA. 168+00.00 | TO | STA. 175+22.96 |
| STA. 176+71.91 | TO | STA. 180+00.00 |

| RIGHT MAIN LANES | | |
|---|---|---|
| STA. 56+20.00 | TO | STA. 58+20.00 |
| STA. 59+80.00 | TO | STA. 60+60.00 |
| STA. 283+18.00 | TO | STA. 285+18.00 |
| STA. 286+80.00 | TO | STA. 287+60.00 |
| STA. 380+00.00 | TO | STA. 385+56.72 |
| STA. 394+00.00 | TO | STA. 402+00.00 |




TEMPORARY SHOULDER RECONSTRUCTION FOR M.O.T.
(SHOWN IN DIRECTION OF TRAFFIC)

| RIGHT MAIN LANES | | |
|---|---|---|
| STA. 56+20.00 | TO | STA. 58+20.00 |
| STA. 59+80.00 | TO | STA. 60+60.00 |
| STA. 283+18.00 | TO | STA. 285+18.00 |
| STA. 286+80.00 | TO | STA. 287+60.00 |




TEMPORARY RAMPS AND CROSSOVERS

# TYPICAL SECTIONS OF IMPROVEMENT

11/16/2012

RBB0614.DGN

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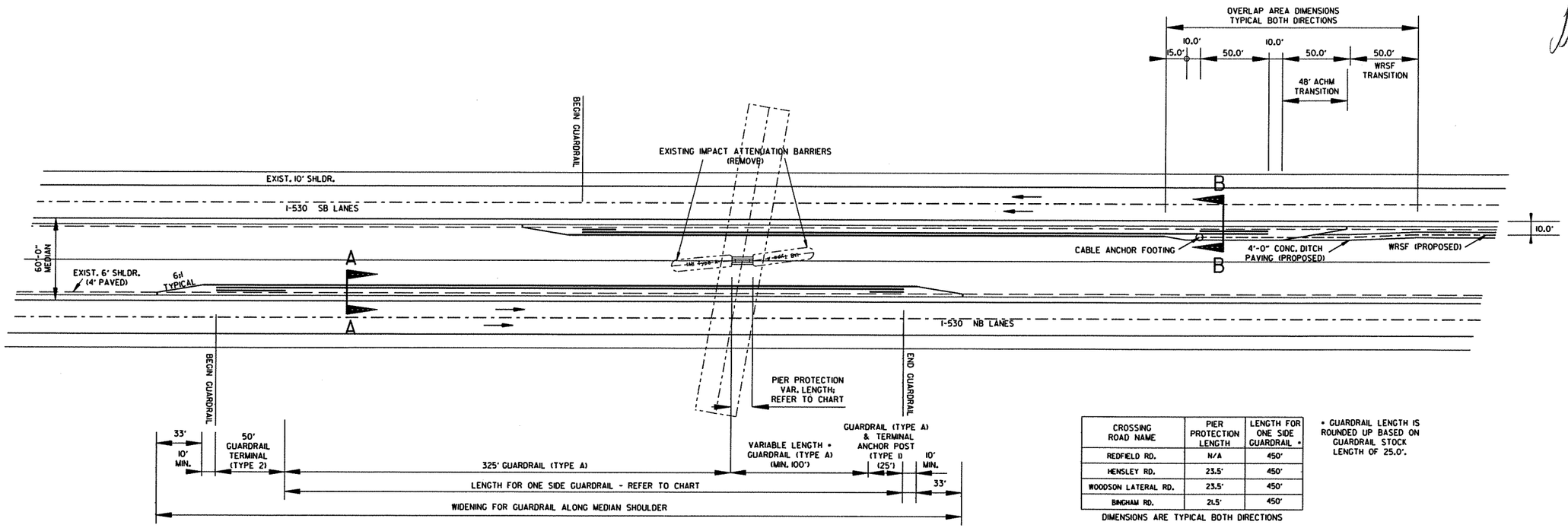
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 8 | 219 |

(2) SPECIAL DETAILS

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

10-19-12



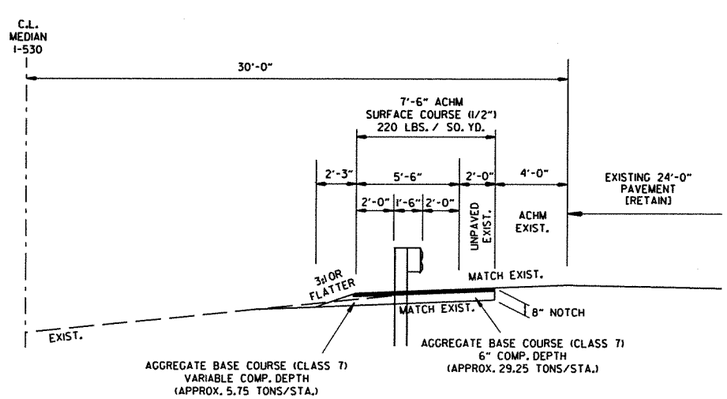

| CROSSING ROAD NAME | PIER PROTECTION LENGTH | LENGTH FOR ONE SIDE GUARDRAIL * |
|---|---|---|
| REDFIELD RD. | N/A | 450' |
| HENSLEY RD. | 23.5' | 450' |
| WOODSON LATERAL RD. | 23.5' | 450' |
| BINGHAM RD. | 21.5' | 450' |

DIMENSIONS ARE TYPICAL BOTH DIRECTIONS

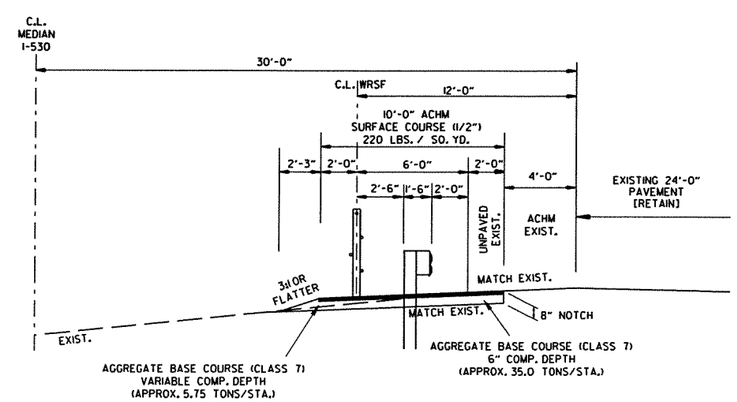
* GUARDRAIL LENGTH IS ROUNDED UP BASED ON GUARDRAIL STOCK LENGTH OF 25.0'.

# DETAIL AT OVERPASSES

NOTE: REFER TO PLAN SHEETS FOR PLACEMENT OF WIRE ROPE SAFETY FENCE ON NORTHBOUND OR SOUTHBOUND FORESLOPES.




# SECTION A-A




# SECTION B-B

RBB0614(09-19-11).DGN 9/20/2012

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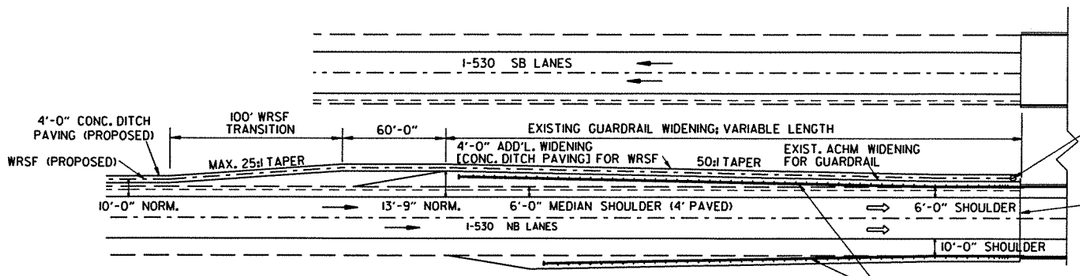
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 9 | 219 |

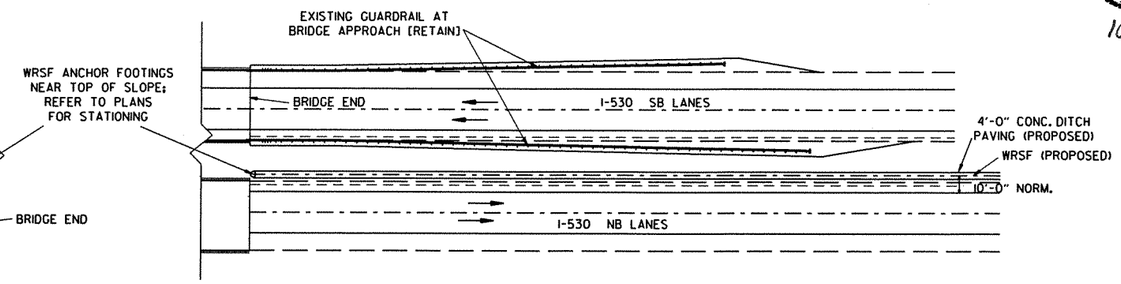
(2) SPECIAL DETAILS

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

10-19-12



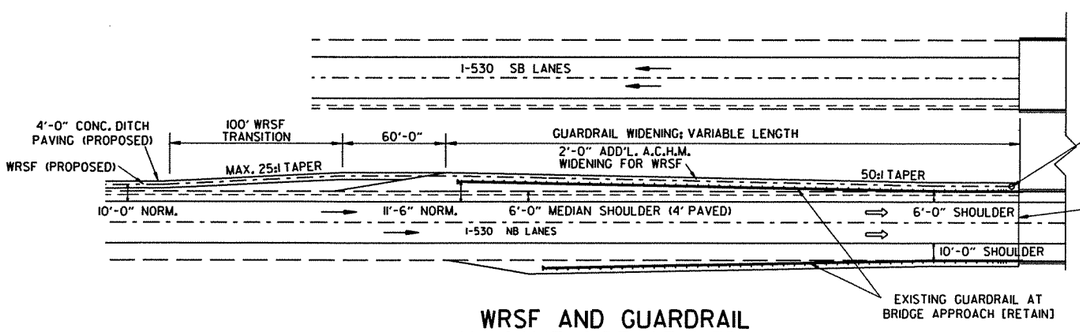

WRSF AND EXIST. GUARDRAIL ON SAME SIDE OF MEDIAN



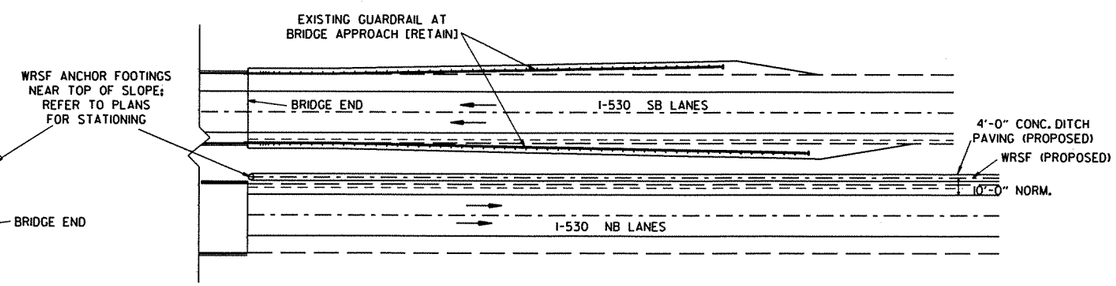

WRSF AND EXIST. GUARDRAIL ON OPPOSITE SIDES OF MEDIAN

## DETAIL OF WIRE ROPE SAFETY FENCE AT EXISTING BRIDGE ENDS

REFER TO PLANS FOR RELATIVE PLACEMENT OF GUARDRAIL AND WIRE ROPE SAFETY FENCE AT EACH BRIDGE END




WRSF AND GUARDRAIL ON SAME SIDE OF MEDIAN




WRSF AND GUARDRAIL ON OPPOSITE SIDES OF MEDIAN

## DETAIL OF WIRE ROPE SAFETY FENCE AT NEW AND REHABILITATED BRIDGE ENDS

REFER TO PLANS FOR RELATIVE PLACEMENT OF GUARDRAIL AND WIRE ROPE SAFETY FENCE AT EACH BRIDGE END

RBB0614(09-19-11).DGN 9/20/2012

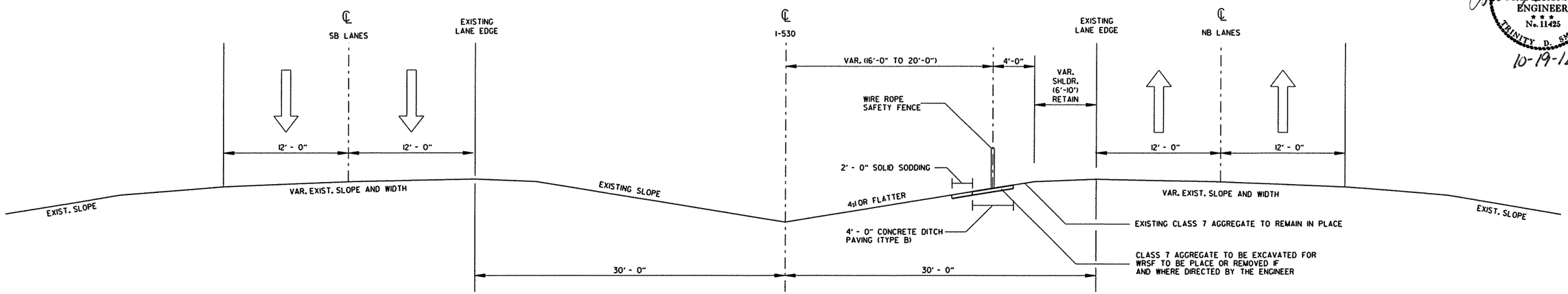
SPECIAL DETAILS

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 10 | 219 |

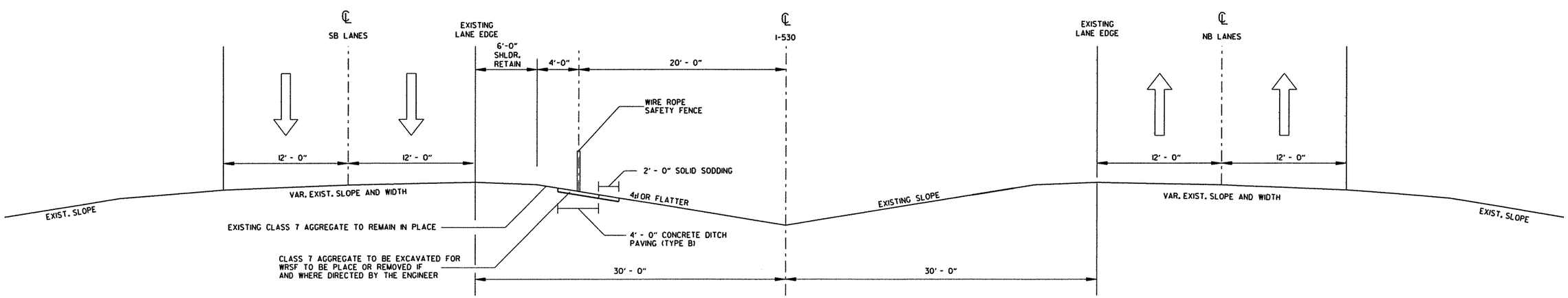
(2) SPECIAL DETAILS

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

10-19-12




TYPICAL SECTION OF IMPROVEMENT
FOR WIRE ROPE SAFETY FENCE RIGHT OF CENTERLINE




TYPICAL SECTION OF IMPROVEMENT
FOR WIRE ROPE SAFETY FENCE LEFT OF CENTERLINE

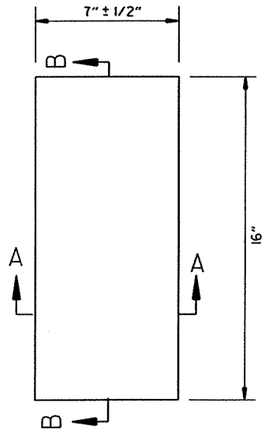
RBB0614(09-19-11).DGN 9/20/2012

| 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. | | BB0614 | 11 | 219 |

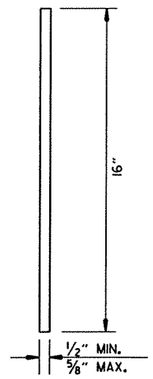
(2) SPECIAL DETAILS

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

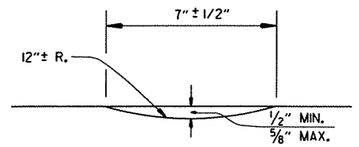
10-19-12




PLAN

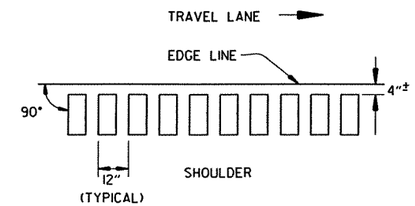



SECTION B-B

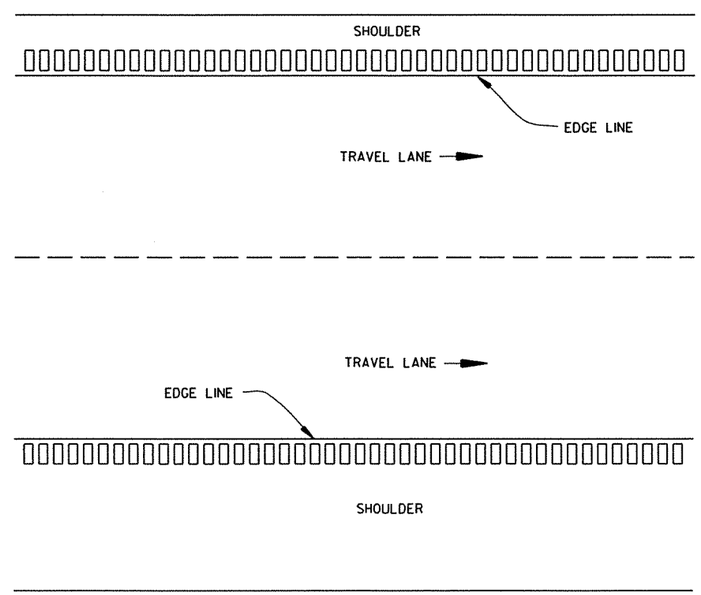



SECTION A-A

DETAILS OF RUMBLE STRIPS




LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER




PLAN VIEW

NOTES:

1. ALIGNMENT OF RUMBLE STRIPS SHALL GENERALLY BE STRAIGHT AND OFFSET APPROXIMATELY 4" FROM THE OUTER EDGE OF THE EDGE LINE. THIS OFFSET MAY BE ADJUSTED TO ACCOMMODATE VARIATIONS IN THE EDGE LINE.
2. THE 1/2" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 16" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.
3. RUMBLE STRIPS SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH SLABS, OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.

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SPECIAL DETAILS

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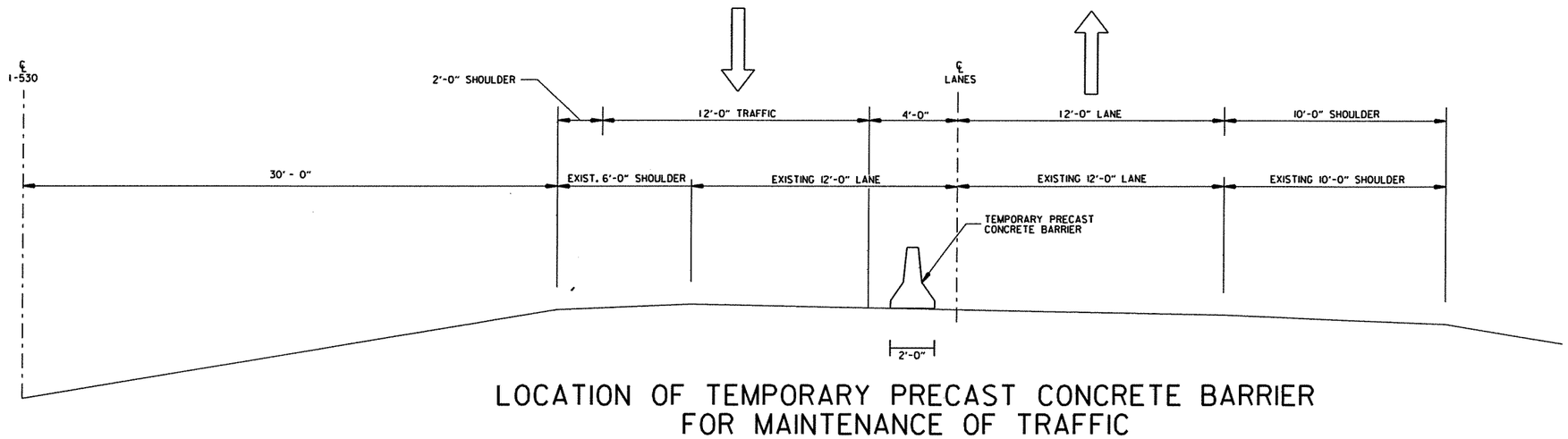
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 12 | 219 |

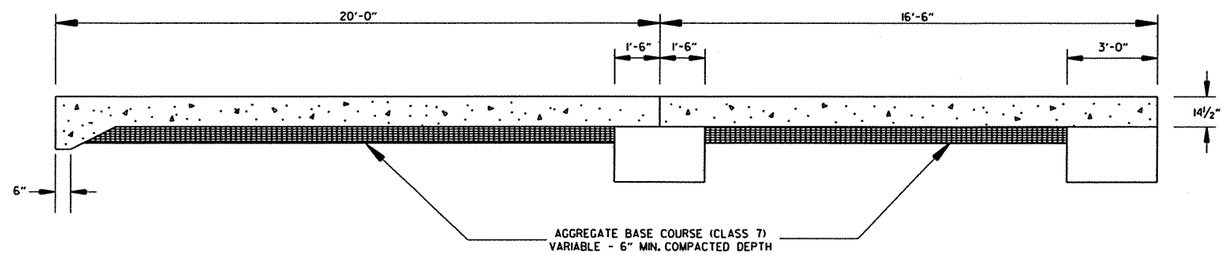
(2) SPECIAL DETAILS

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

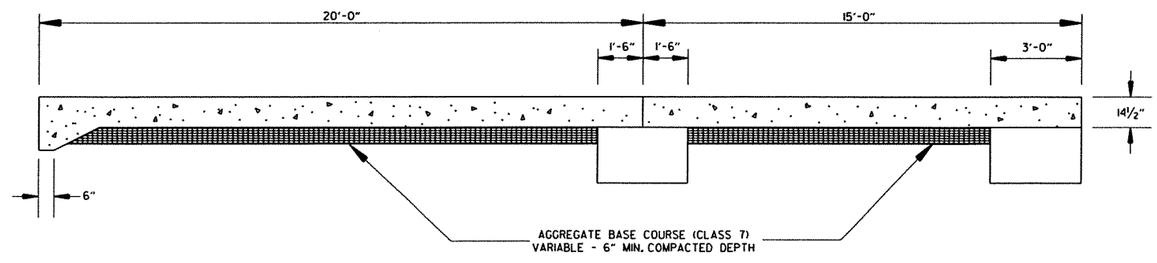
10-19-12




LOCATION OF TEMPORARY PRECAST CONCRETE BARRIER
FOR MAINTENANCE OF TRAFFIC




DETAIL OF APPROACH SLAB TYPE SPECIAL 2 & TYPE SPECIAL 3




DETAIL OF APPROACH SLAB TYPE SPECIAL 1

SPECIAL DETAILS

RBB0614(09-19-11).DGN 9/20/2012

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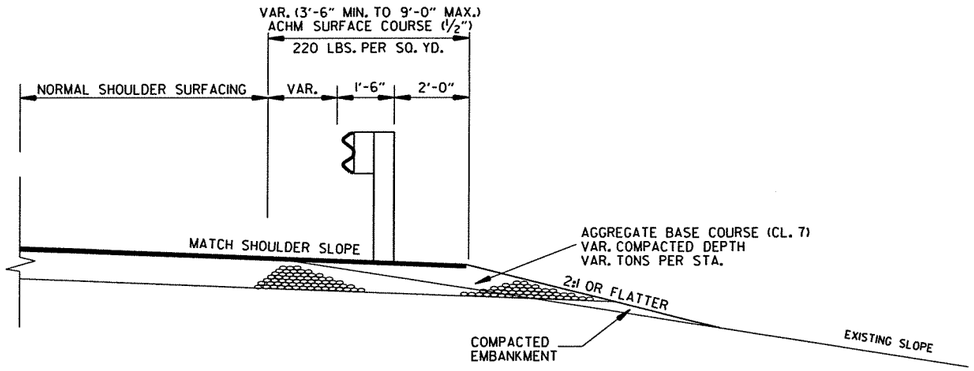
| | | | | JOB NO. | | BB0614 | 13 | 219 |

(2) SPECIAL DETAILS

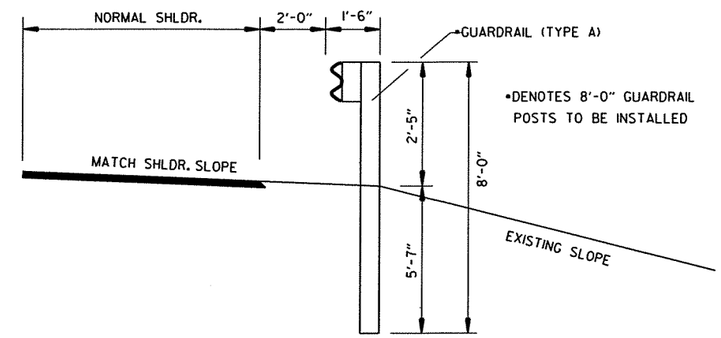
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH

10-19-12



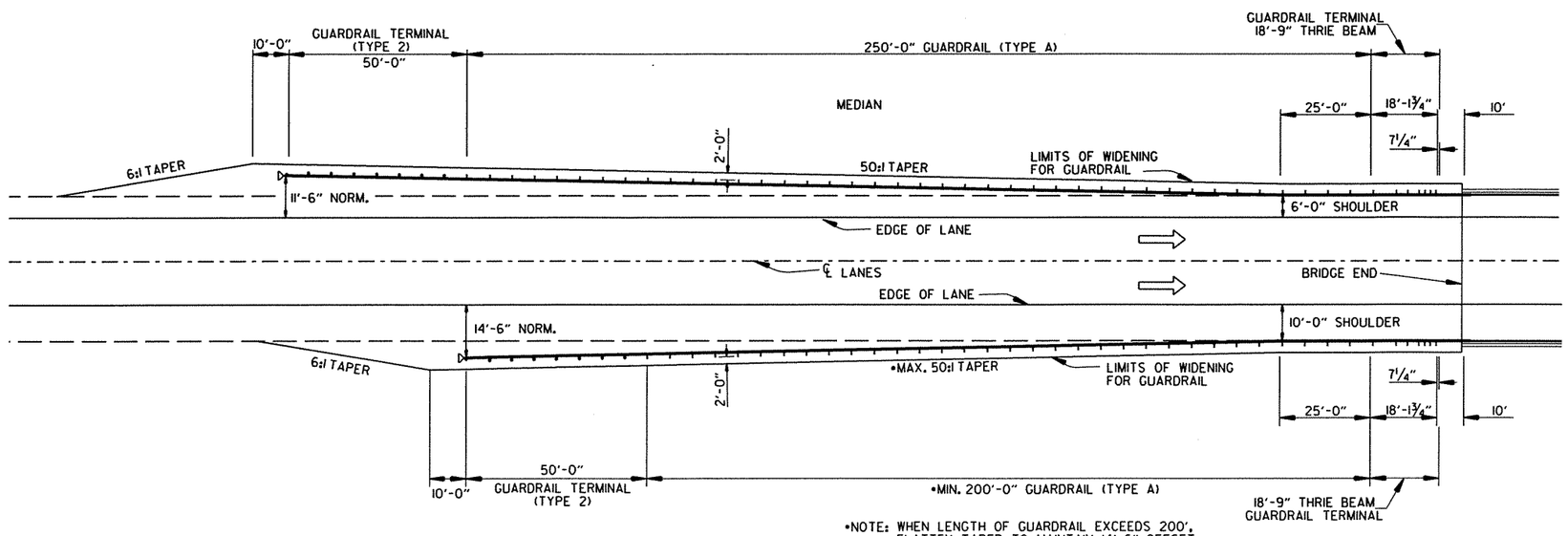

## SECTION DETAIL OF WIDENING FOR GUARDRAIL

NOTE: REFER TO STANDARD DRAWINGS, GR-8, GR-9, GR-9A, GR-10, GR-10A, & GRT-1 FOR ADDITIONAL INFORMATION.




## SECTION DETAIL OF WIDENING FOR GUARDRAIL FOR HWY. 167 OVERPASS

NOTE: REFER TO STANDARD DRAWINGS, GR-8, GR-9, GR-9A, GR-10 & GR-10A FOR ADDITIONAL INFORMATION.




•NOTE: WHEN LENGTH OF GUARDRAIL EXCEEDS 200', FLATTEN TAPER TO MAINTAIN 14'-6" OFFSET AT APPROACH END.

## TYPICAL LAYOUT OF GUARDRAIL AT BRIDGE ENDS

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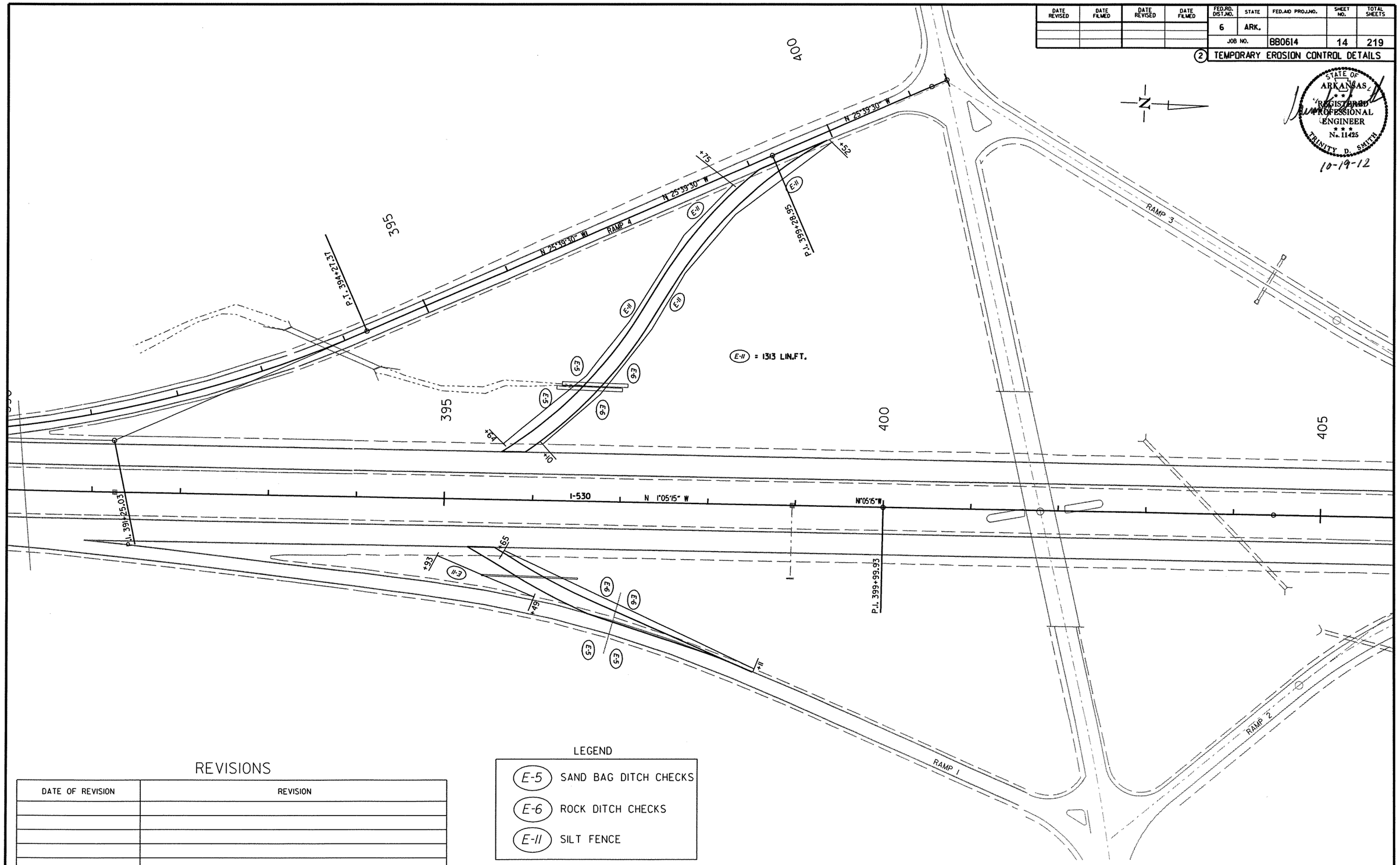
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-19-12




REVISIONS

| DATE OF REVISION | REVISION |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |

LEGEND

| | |
|---|---|
| E-5 | SAND BAG DITCH CHECKS |
| E-6 | ROCK DITCH CHECKS |
| E-11 | SILT FENCE |

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

# TEMPORARY EROSION CONTROL DETAILS STAGE IA

10/19/2012

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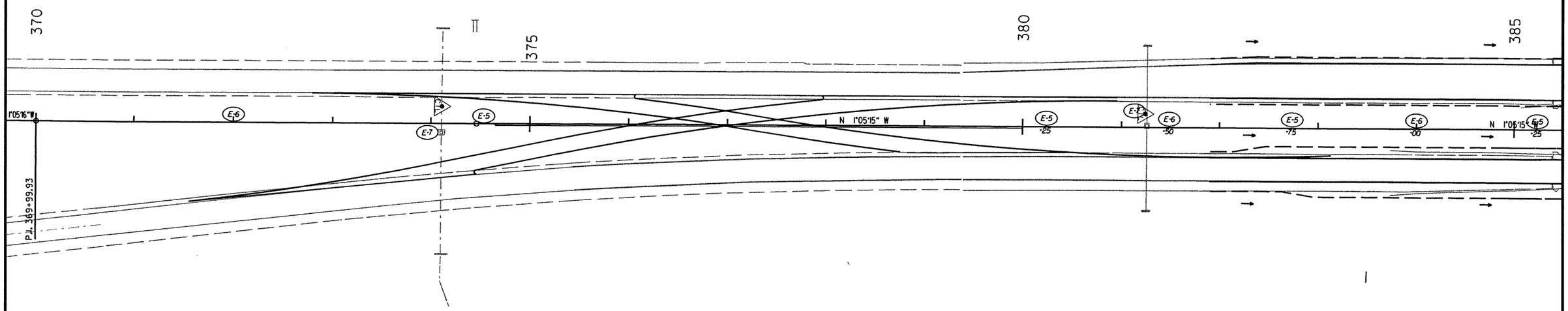
| | | | | JOB NO. | | BB0614 | 15 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-19-12




## REVISIONS

| DATE OF REVISION | REVISION |
|---|---|
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LEGEND

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

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

# TEMPORARY EROSION CONTROL DETAILS
# STAGE IB

10/19/2012

RBB0614.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. | | BB0614 | 16 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

## REVISIONS

| DATE OF REVISION | REVISION |
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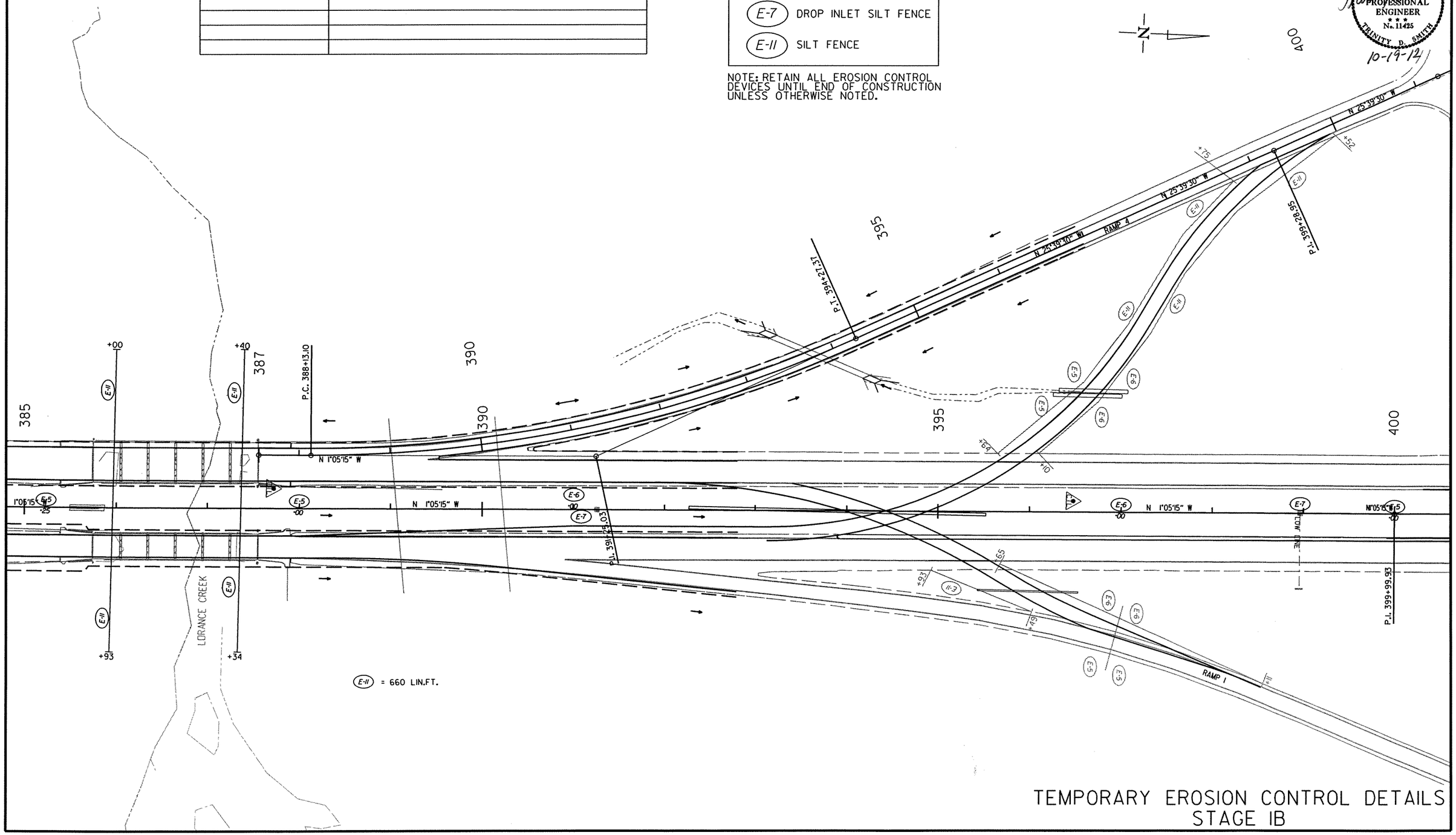
## LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-6) ROCK DITCH CHECKS
- (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

10-19-12




TEMPORARY EROSION CONTROL DETAILS
STAGE IB

10/19/2012

RBB0614.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 17 | 219 |

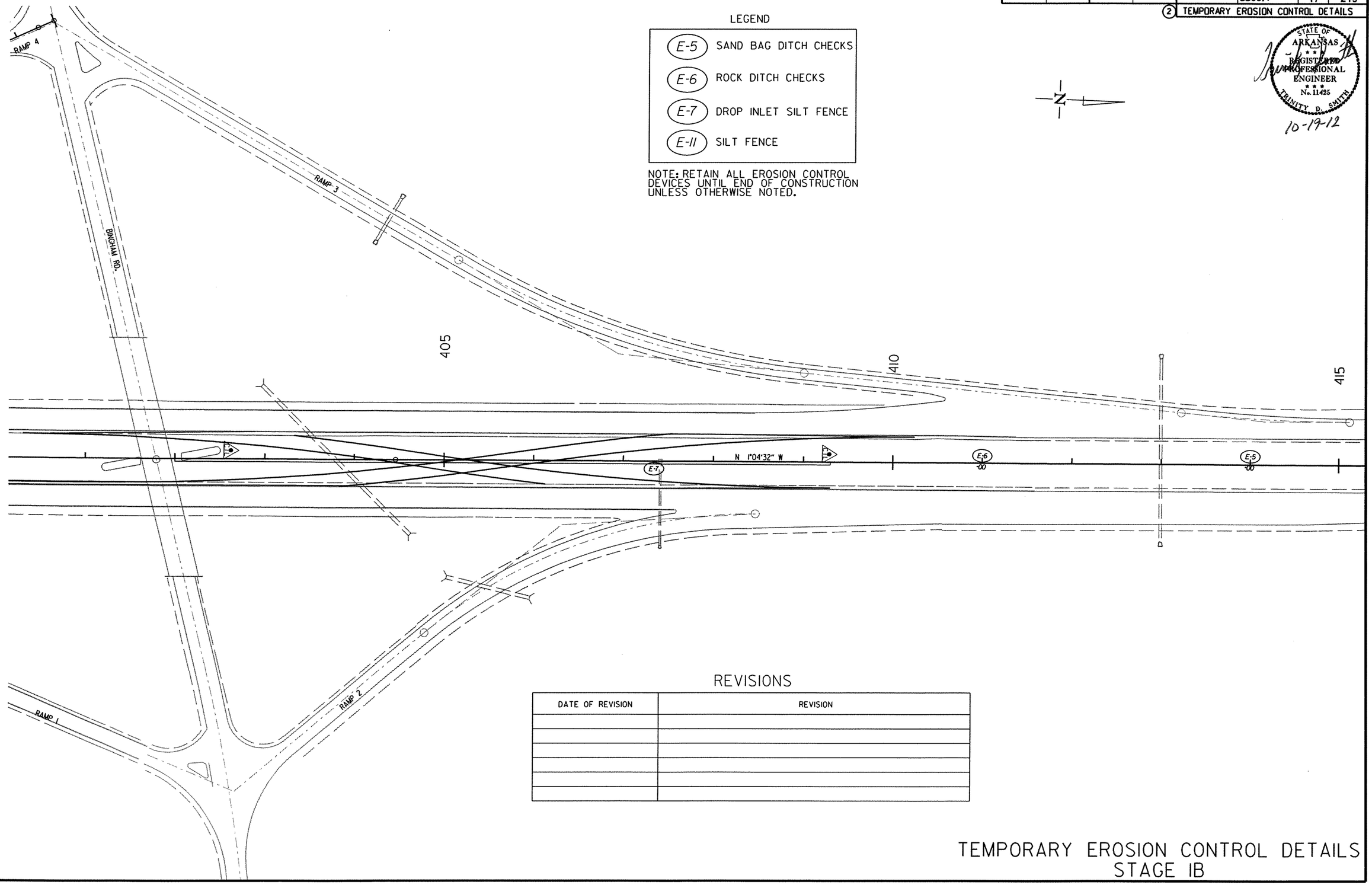
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-19-12

LEGEND

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

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

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TEMPORARY EROSION CONTROL DETAILS
STAGE IB

10/19/2012

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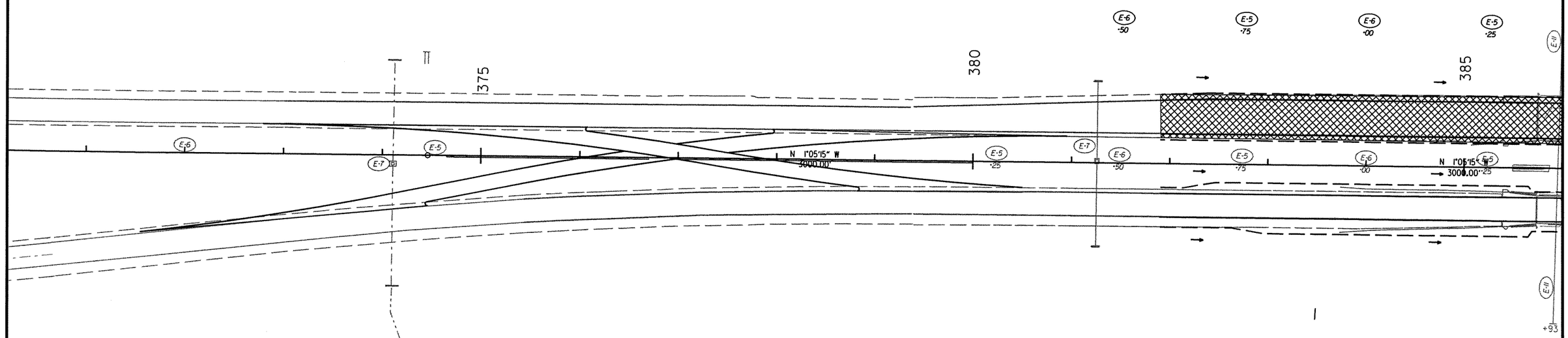
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 18 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

REVISIONS

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# TEMPORARY EROSION CONTROL DETAILS
# STAGE 2

10/19/2012

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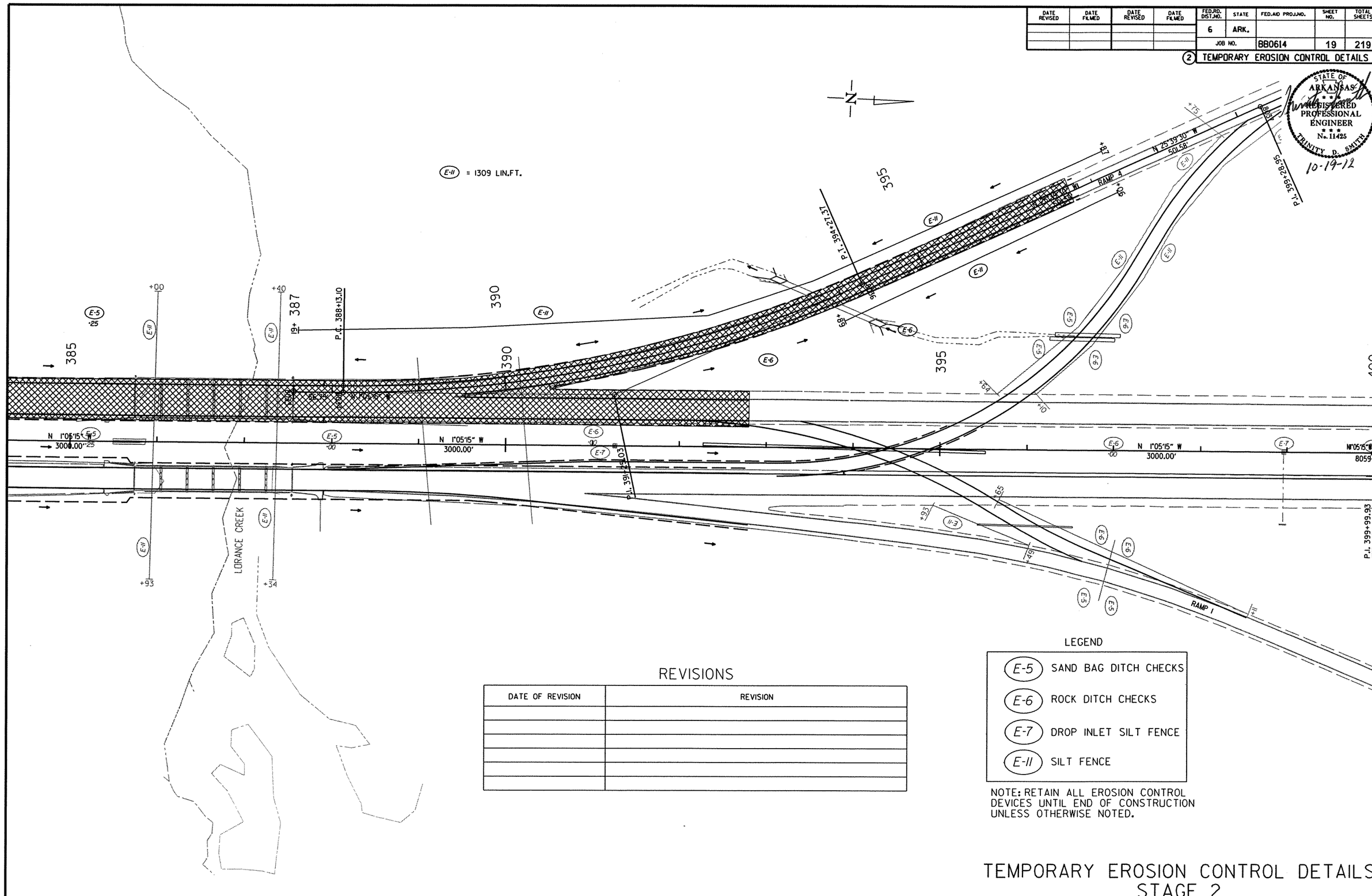
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 19 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12

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LEGEND

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

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

# TEMPORARY EROSION CONTROL DETAILS STAGE 2

RBB0614.DGN 10/19/2012

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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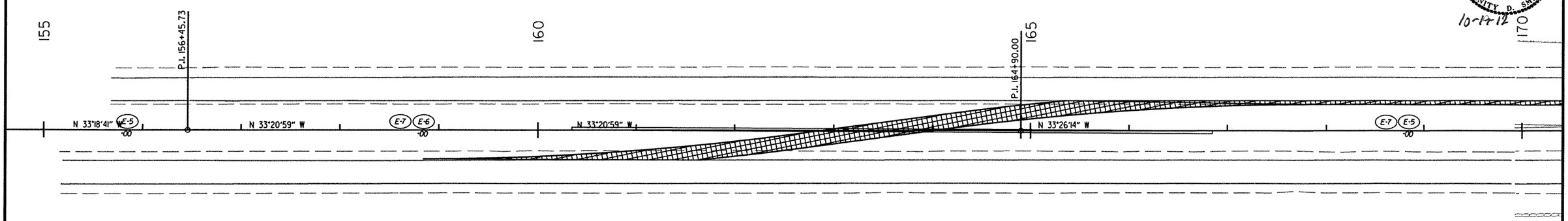
(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




## REVISIONS

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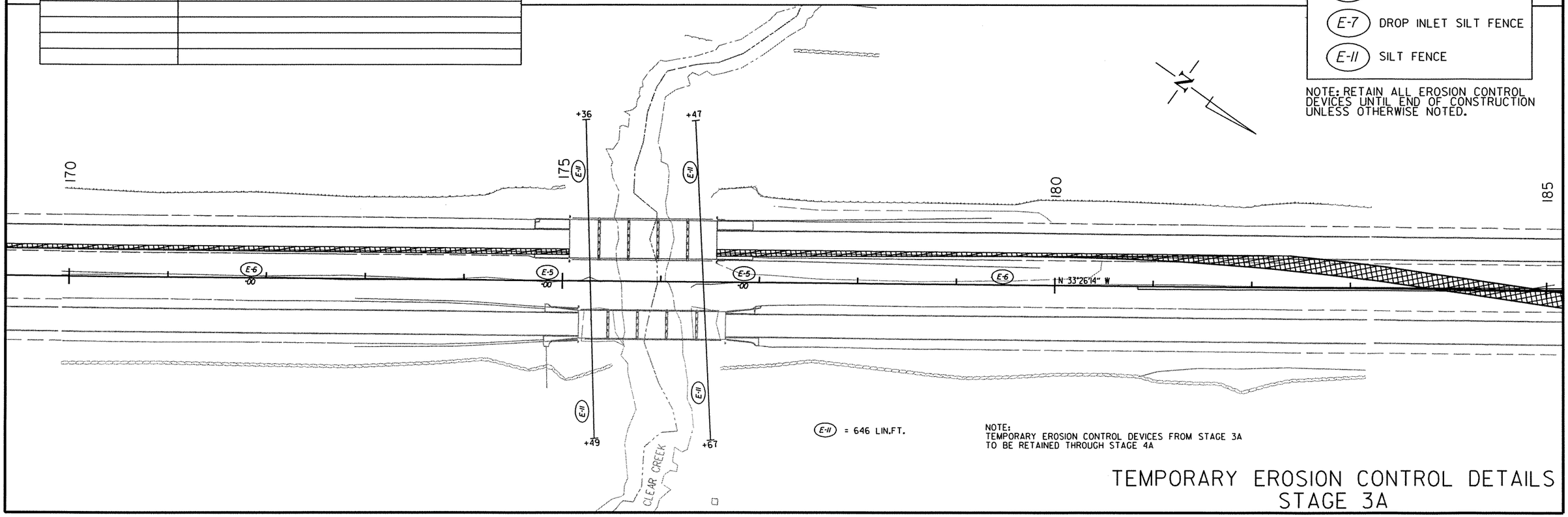
## LEGEND

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

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




(E-11) = 646 LIN.FT.

NOTE:
TEMPORARY EROSION CONTROL DEVICES FROM STAGE 3A TO BE RETAINED THROUGH STAGE 4A

# TEMPORARY EROSION CONTROL DETAILS STAGE 3A

10/19/2012

RBB0614.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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| | | | | 6 | ARK. | | | |
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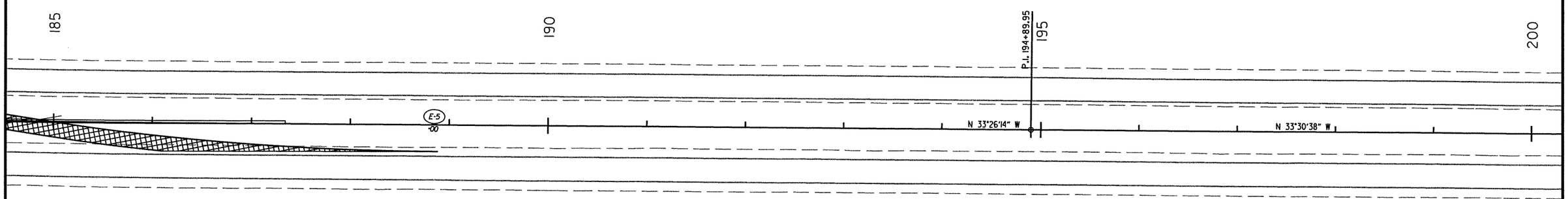
(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




NOTE:
TEMPORARY EROSION CONTROL DEVICES FROM STAGE 3A
TO BE RETAINED THROUGH STAGE 4A

REVISIONS

| DATE OF REVISION | REVISION |
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LEGEND

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

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

TEMPORARY EROSION CONTROL DETAILS
STAGE 3A

10/19/2012

RBB0614.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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| | | | | 6 | ARK. | | | |
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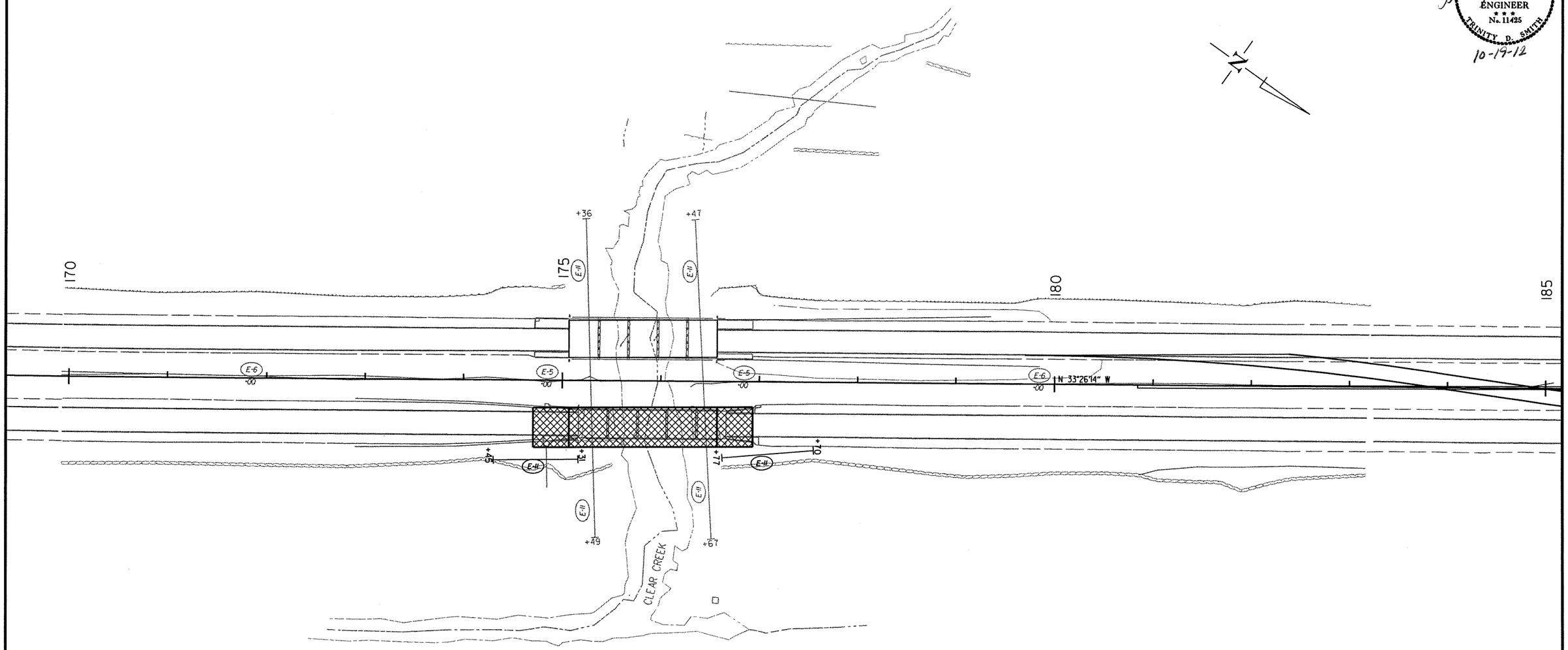
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-19-12




REVISIONS

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LEGEND

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

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

# TEMPORARY EROSION CONTROL DETAILS STAGE 3B

10/19/2012

RBB0614.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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| | | | | 6 | ARK. | | | |
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(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12

## REVISIONS

| DATE OF REVISION | REVISION |
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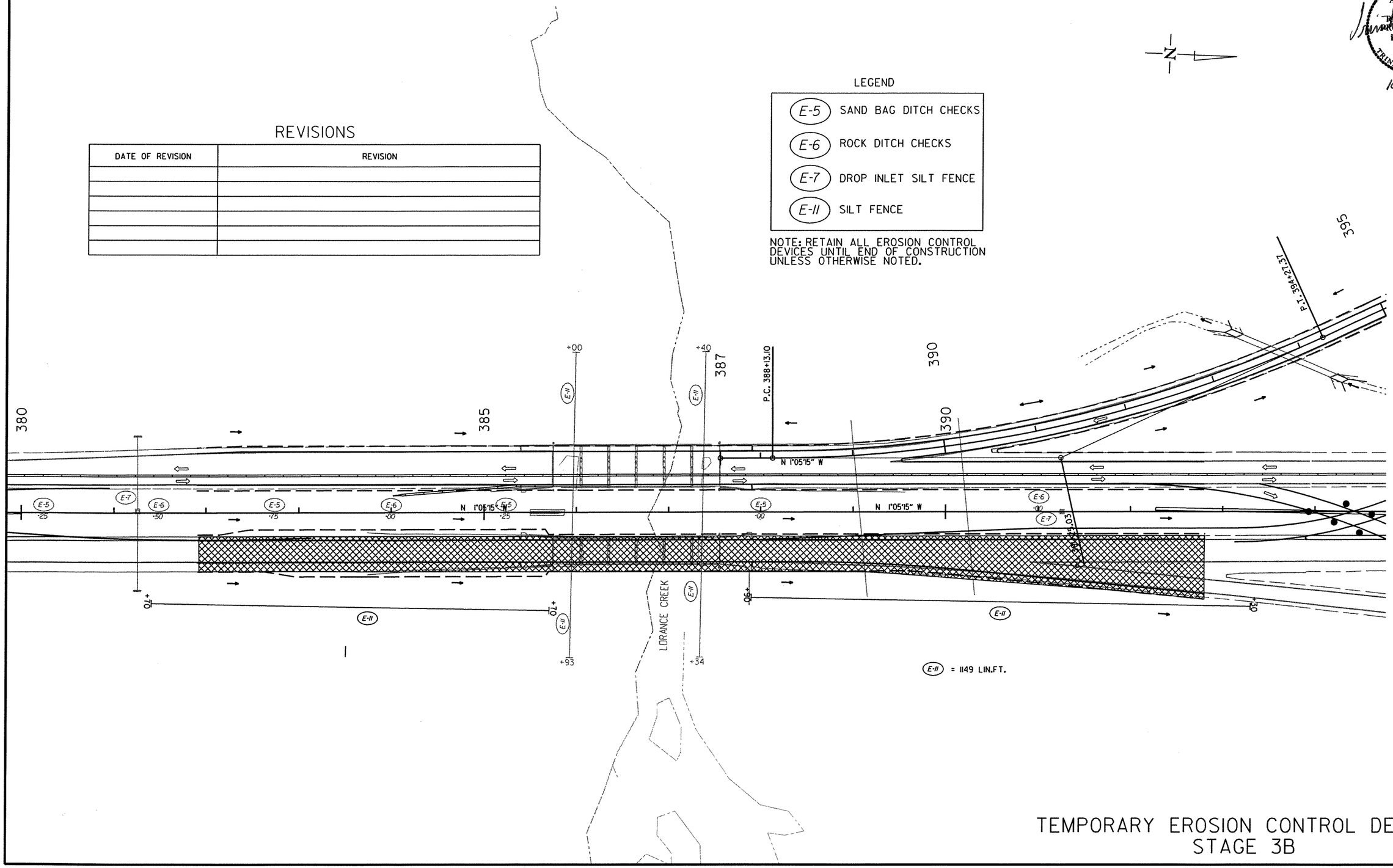
LEGEND

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

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




TEMPORARY EROSION CONTROL DETAILS
STAGE 3B

10/19/2012

RBB0614.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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| | | | | 6 | ARK. | | | |
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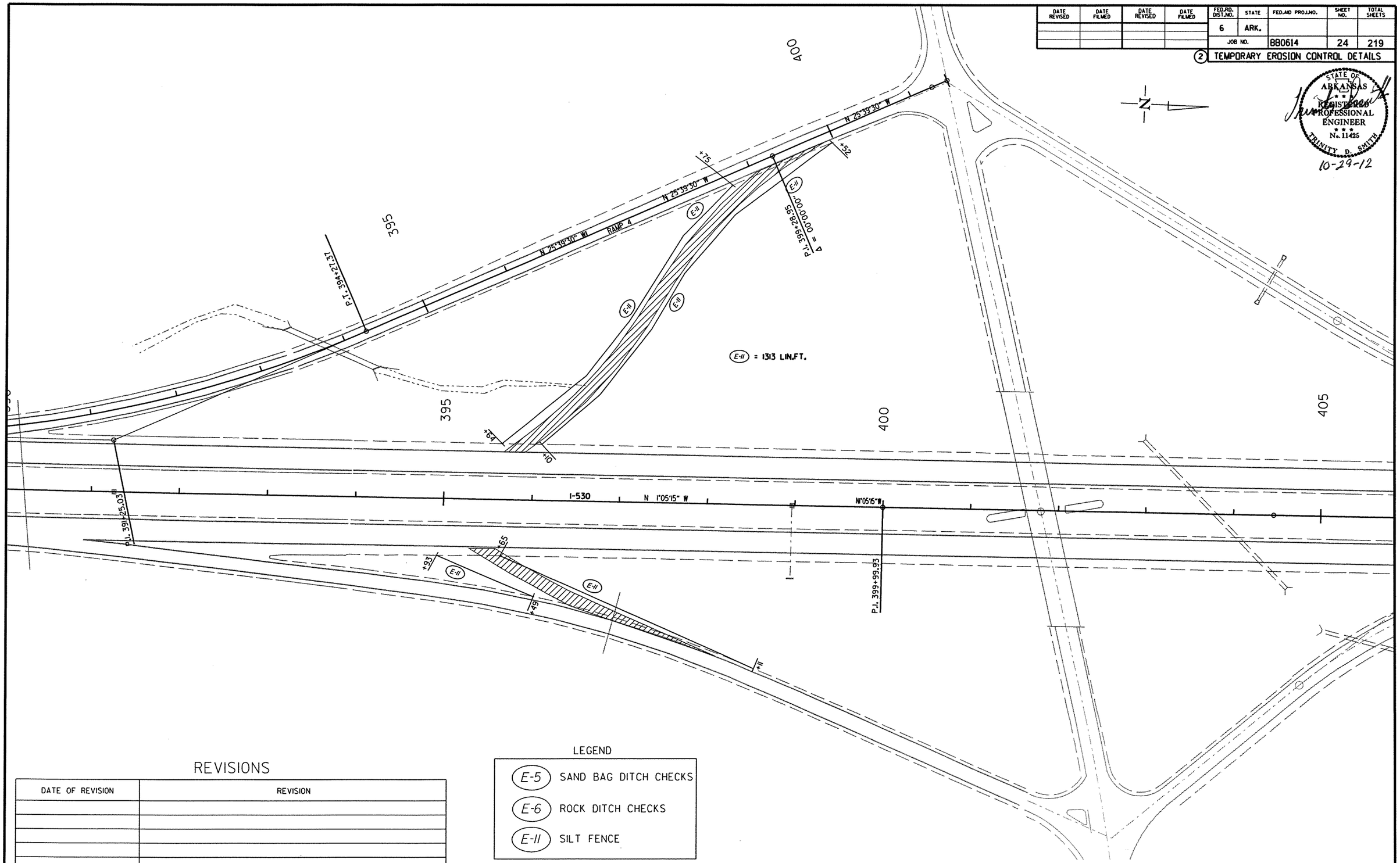
(2) TEMPORARY EROSION CONTROL DETAILS

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

10-29-12

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LEGEND

| | |
|---|---|
| E-5 | SAND BAG DITCH CHECKS |
| E-6 | ROCK DITCH CHECKS |
| E-11 | SILT FENCE |

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

# TEMPORARY EROSION CONTROL DETAILS STAGE 4B

10/23/2012

RBB0614.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 25 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12

LEGEND

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

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

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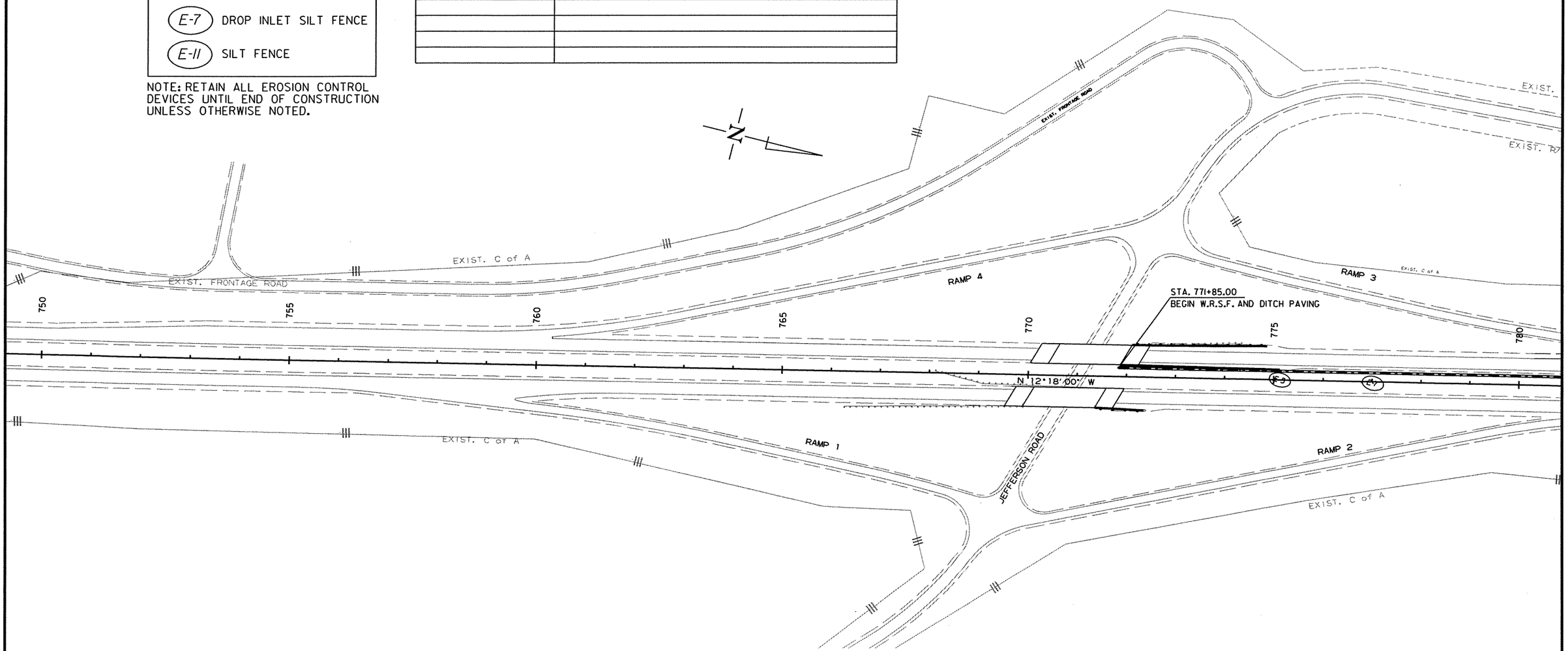


TEMPORARY EROSION CONTROL DETAILS
STAGE 5

RBB0614.DGN 10/18/2012

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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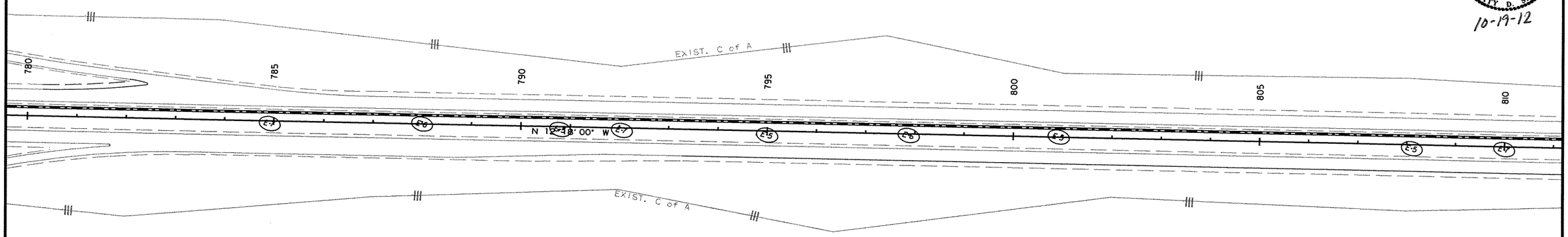
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 26 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

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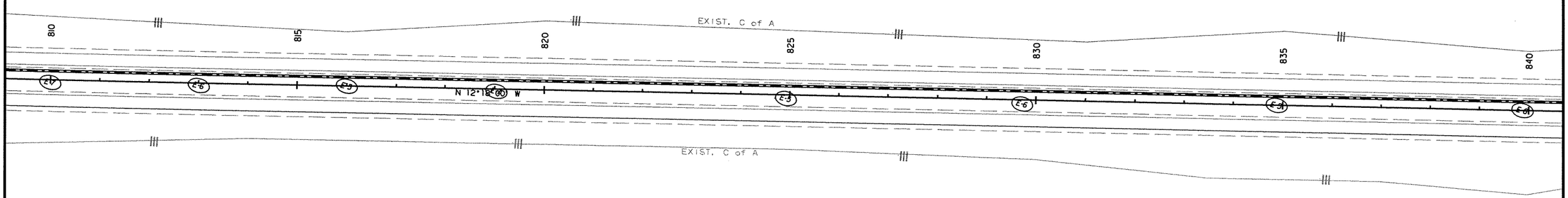


TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/18/2012

RBB0614.DGN

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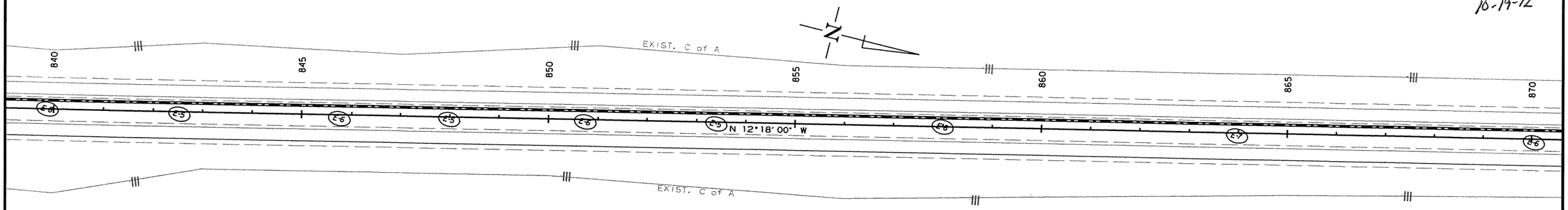
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 27 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

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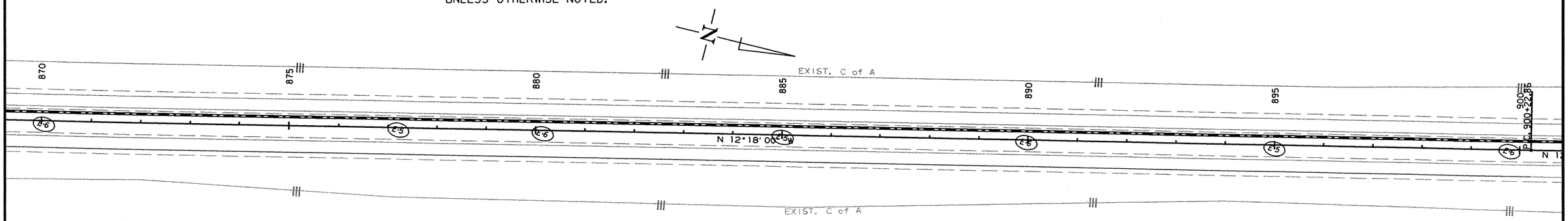


10/18/2012

RBB0614.DGN

# TEMPORARY EROSION CONTROL DETAILS
## STAGE 5

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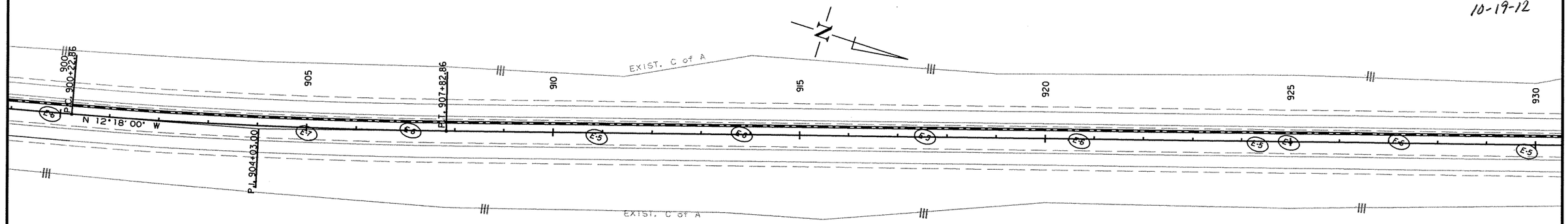
(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

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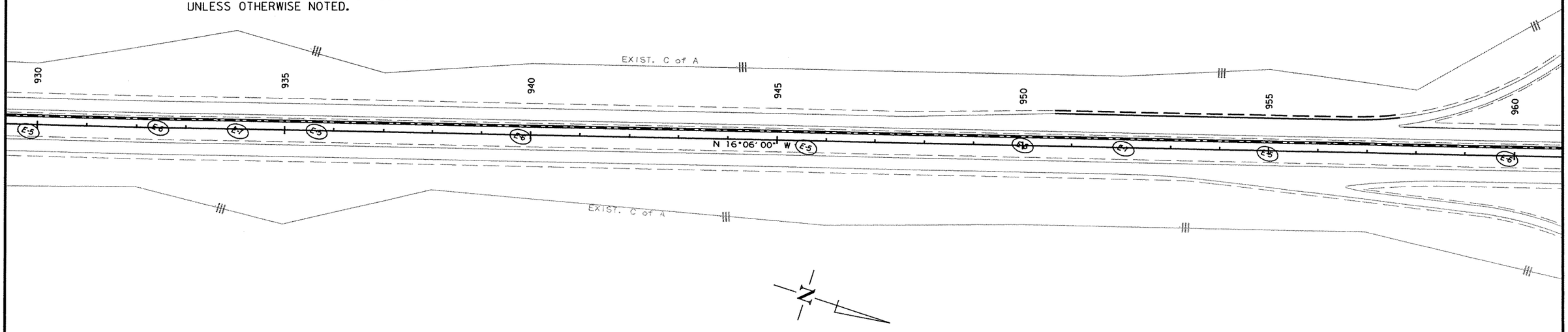


TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/18/2012

RBB0614.DGN

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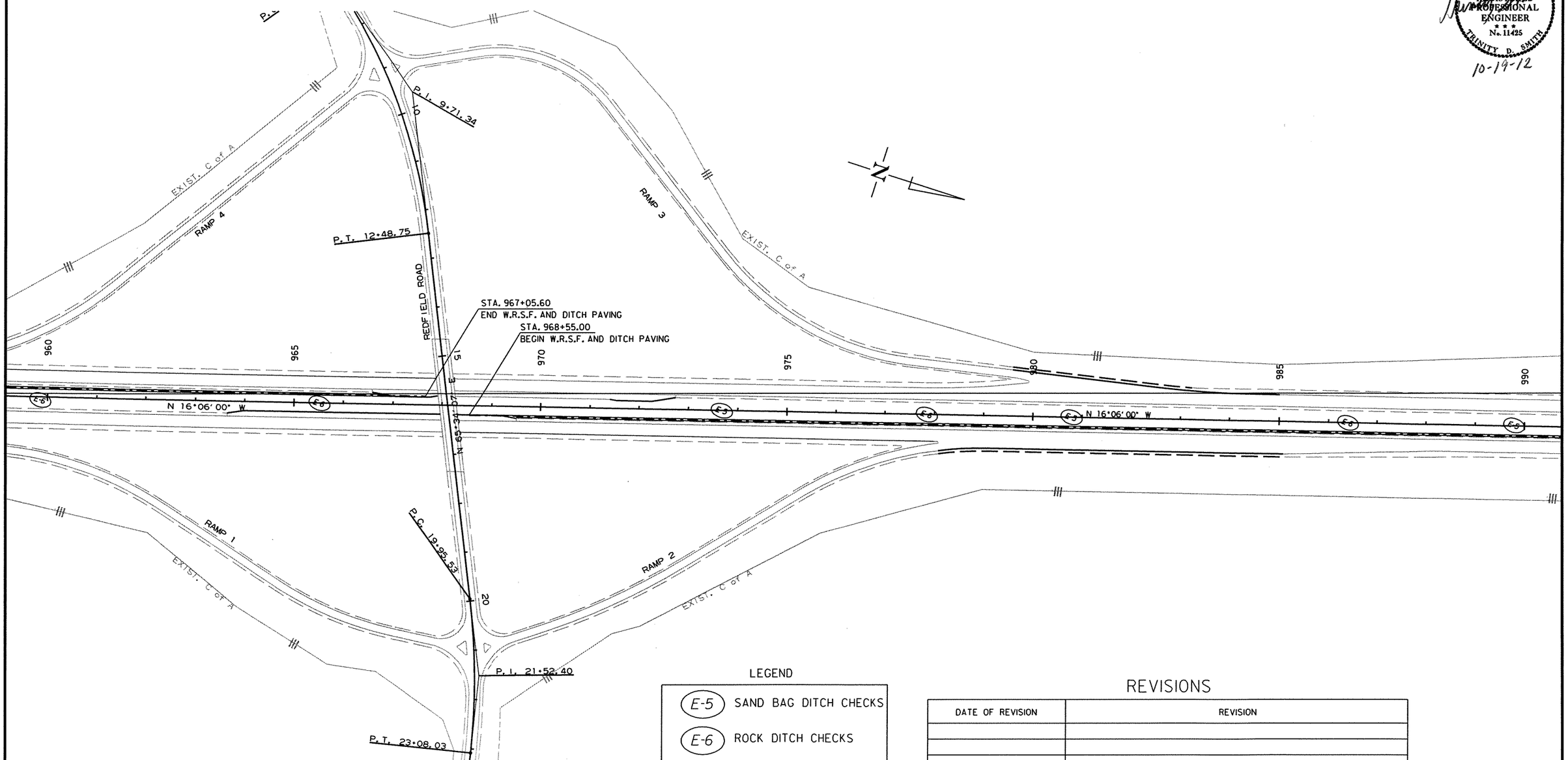
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 29 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

REVISIONS

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# TEMPORARY EROSION CONTROL DETAILS STAGE 5

10/18/2012

RBB0614.DGN

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| | | | | 6 | ARK. | | | |
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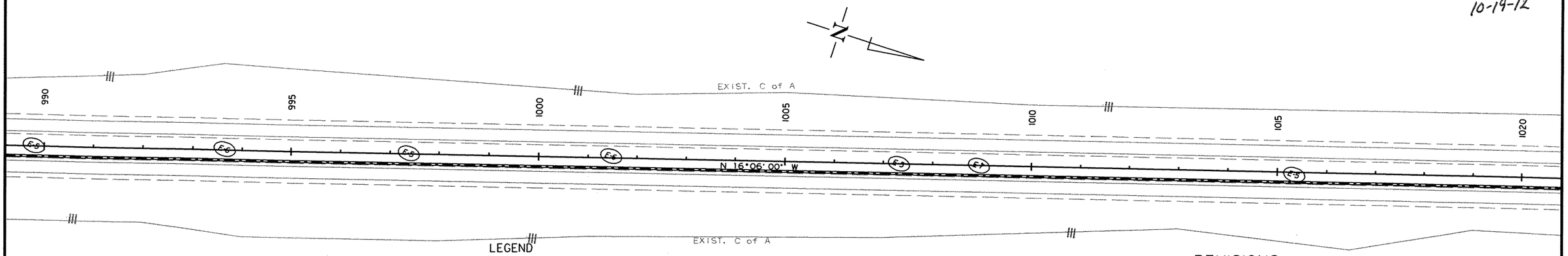
(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

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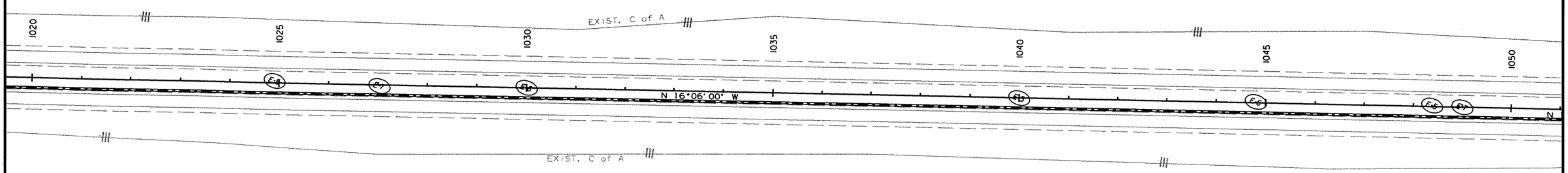


TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/18/2012

RBB0614.DGN

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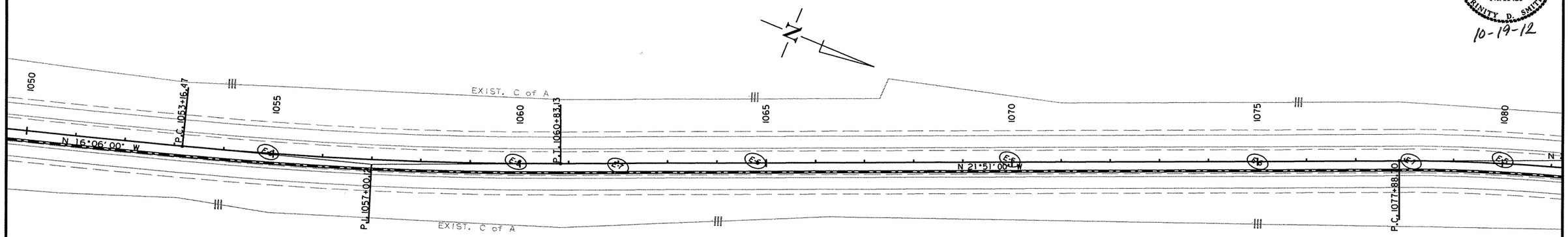
(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

REVISIONS

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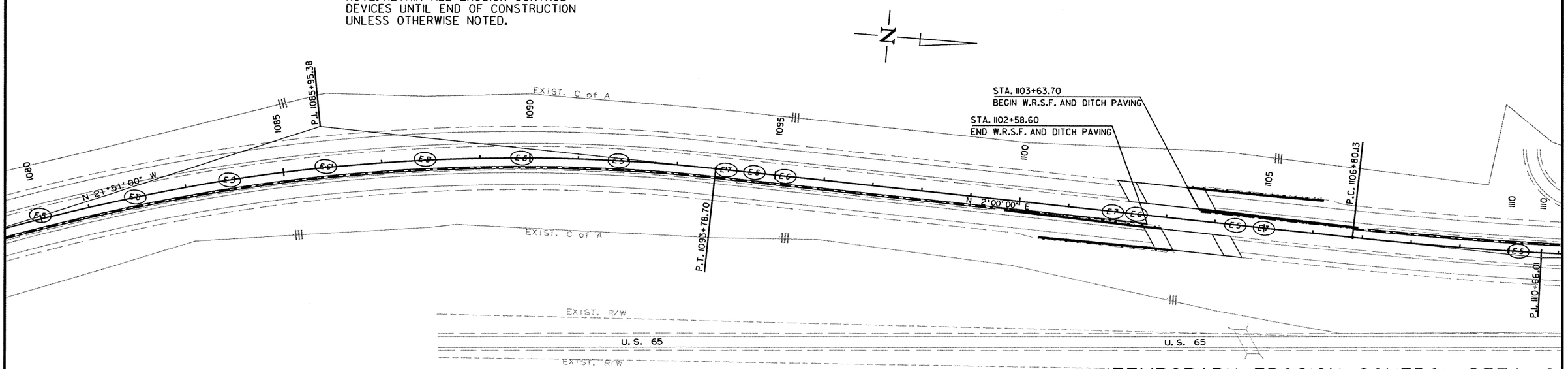



# TEMPORARY EROSION CONTROL DETAILS
## STAGE 5

10/18/2012

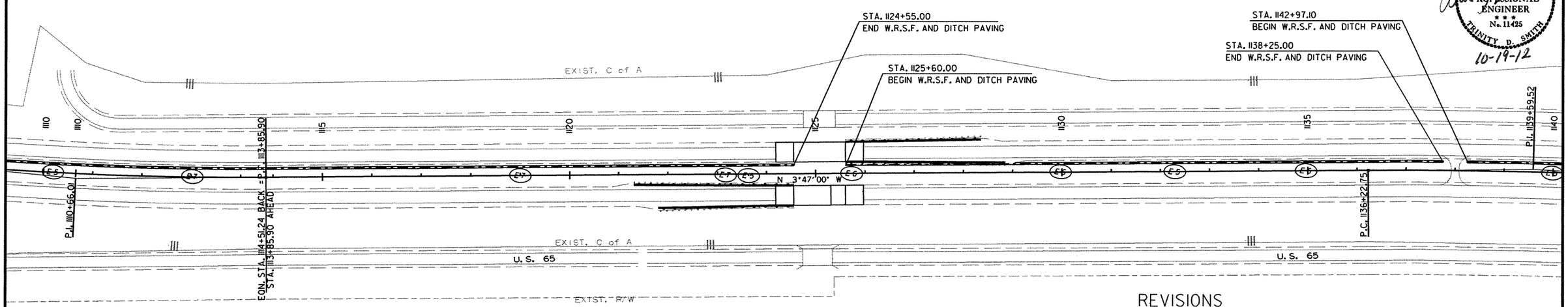
RBB0614.DGN

| 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. | | BB0614 | 32 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




## REVISIONS

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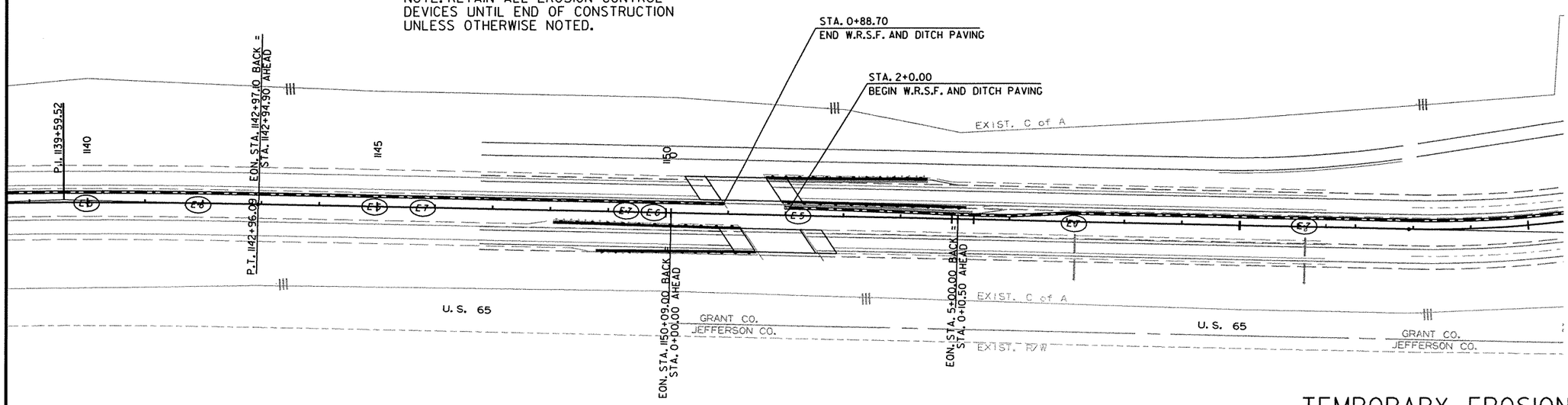
## LEGEND

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

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




# TEMPORARY EROSION CONTROL DETAILS
# STAGE 5

10/18/2012

RBB0614.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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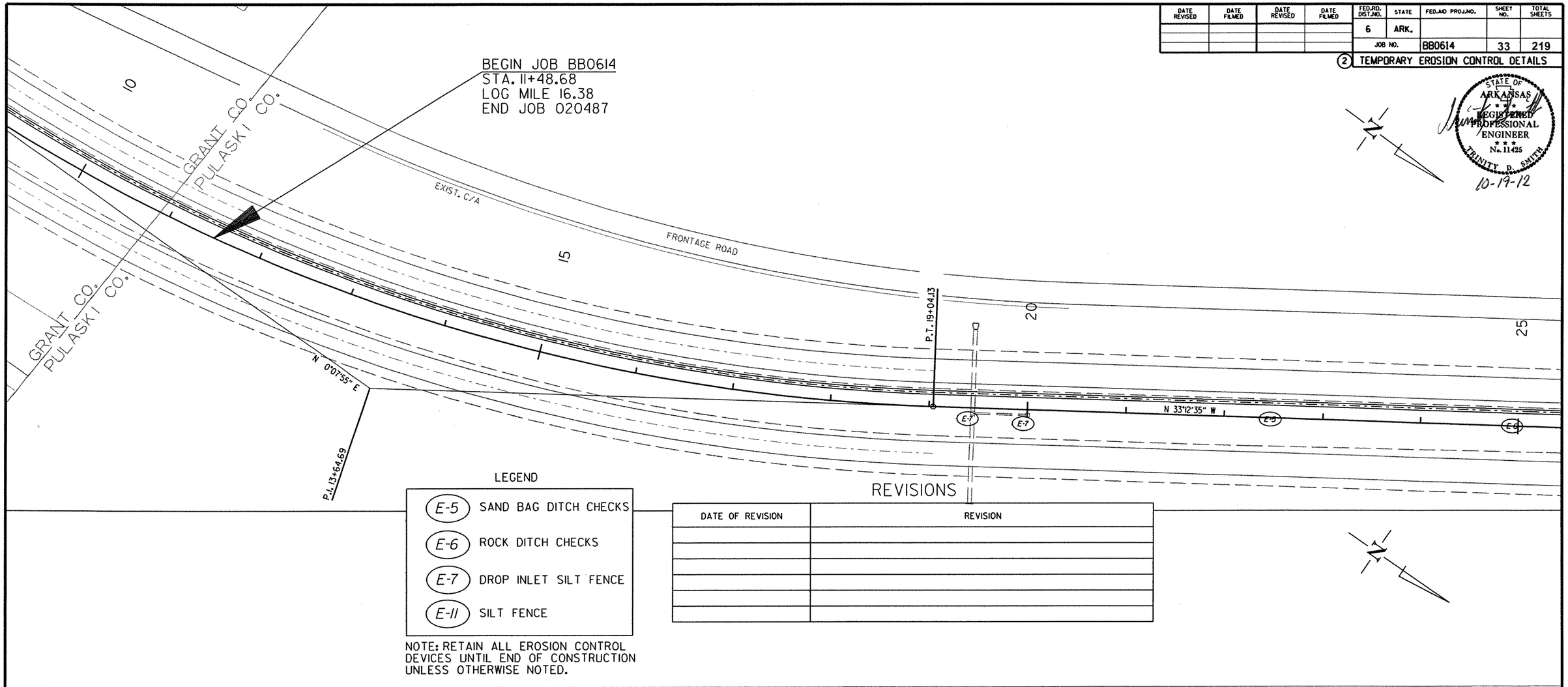
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 33 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

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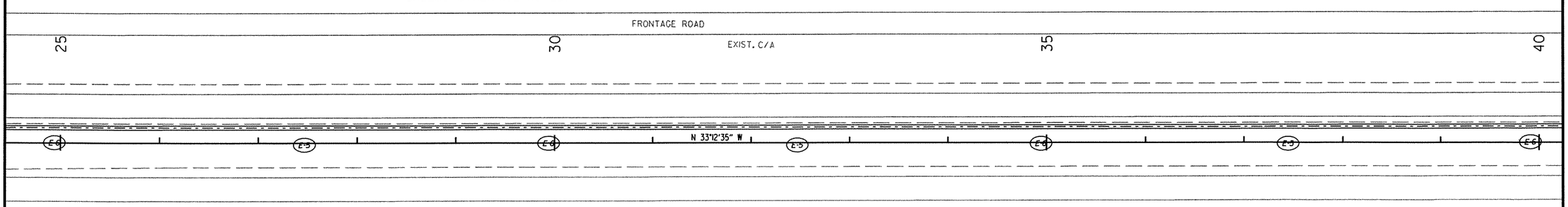


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TEMPORARY EROSION CONTROL DETAILS
STAGE 5

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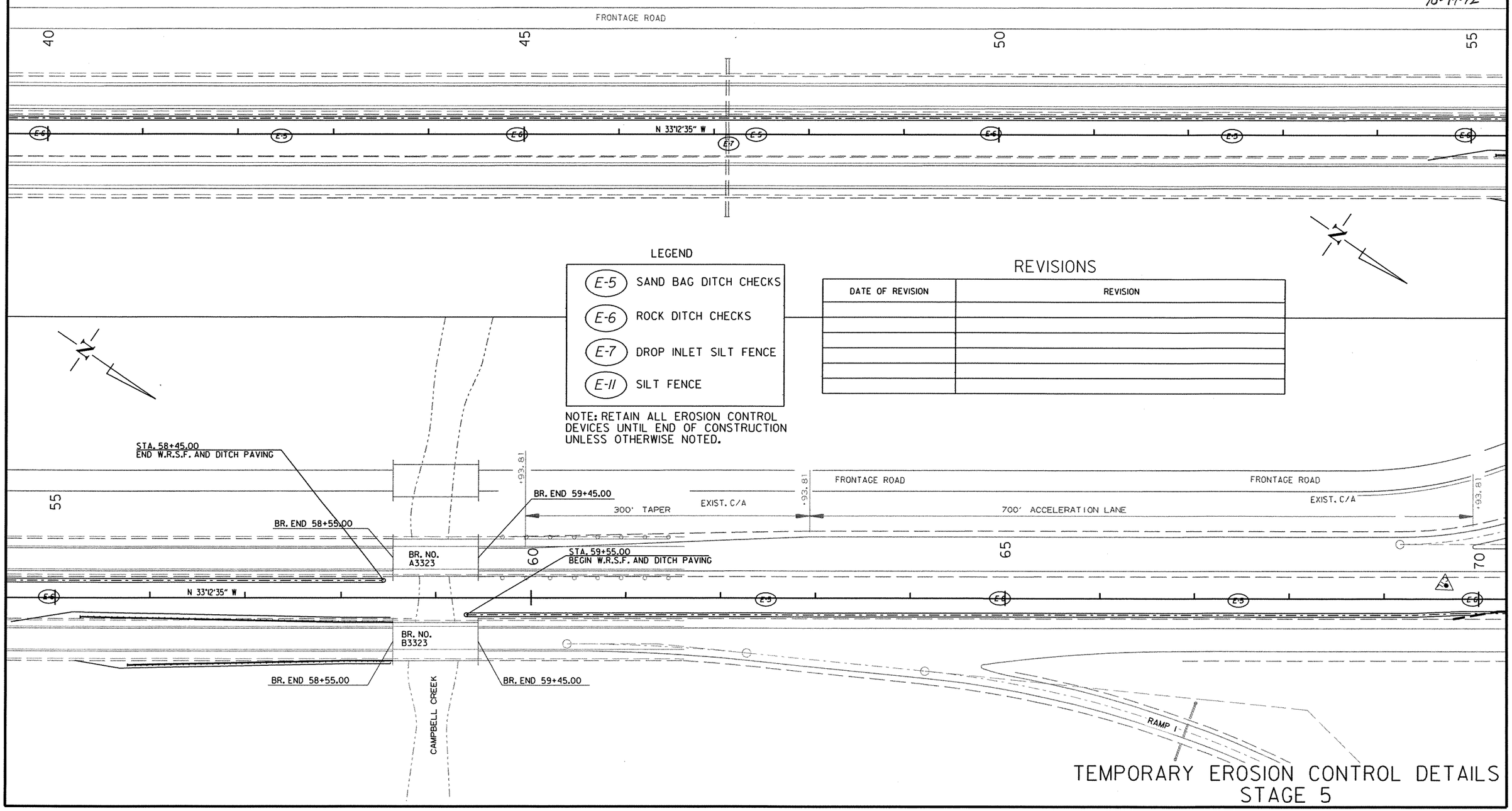
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 34 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-19-12




TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/18/2012

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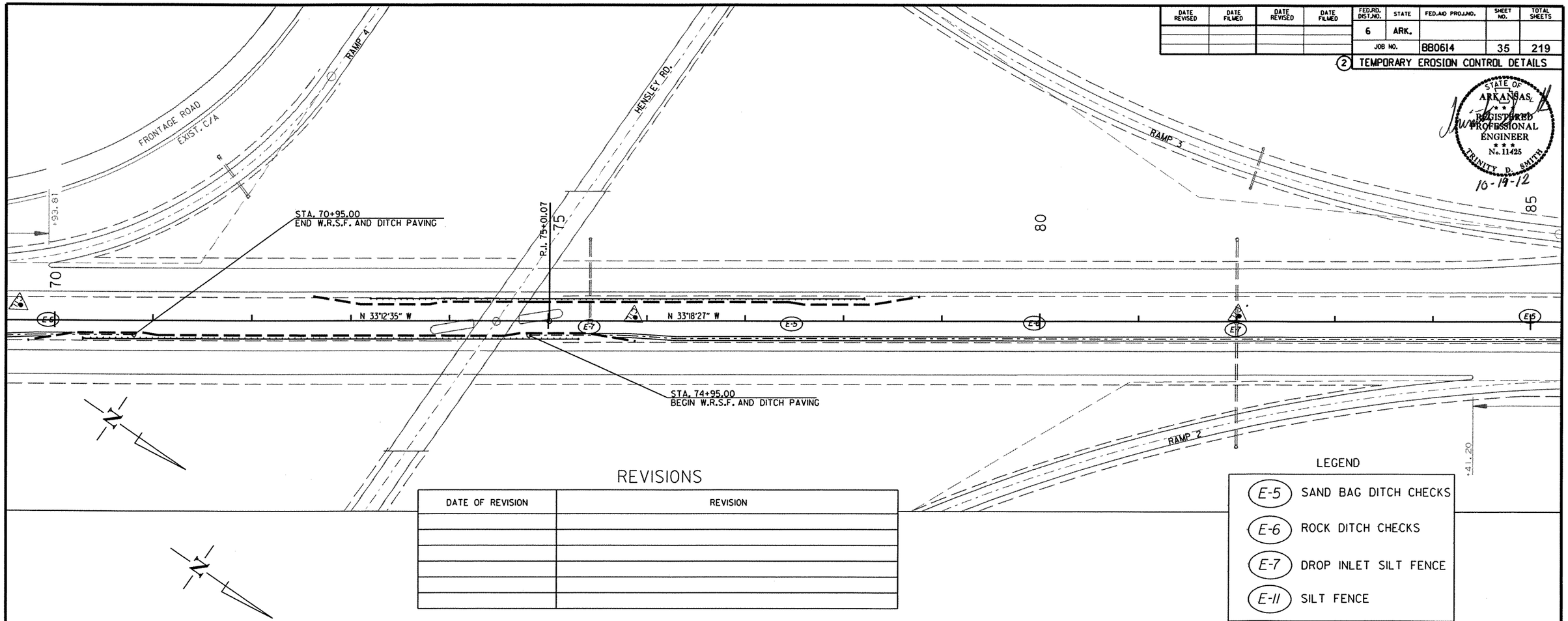
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 35 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




REVISIONS

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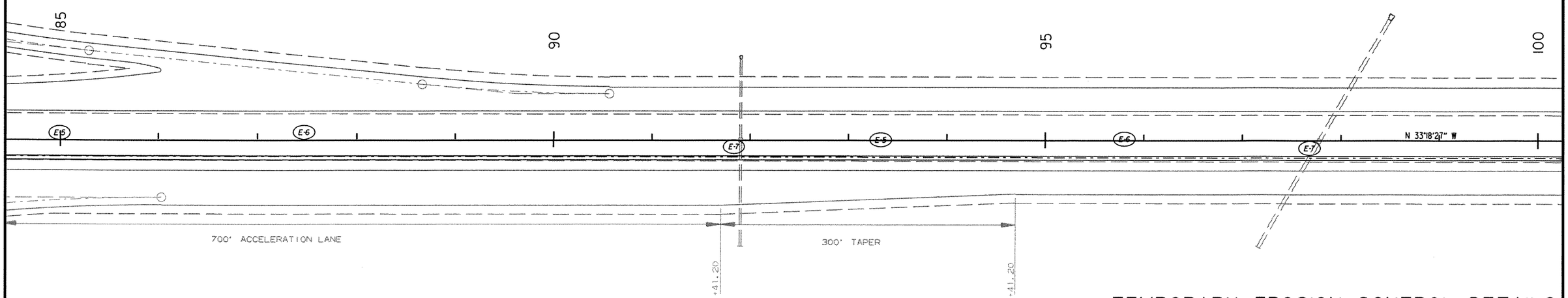
LEGEND

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

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




TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/18/2012

RBB0614.DGN

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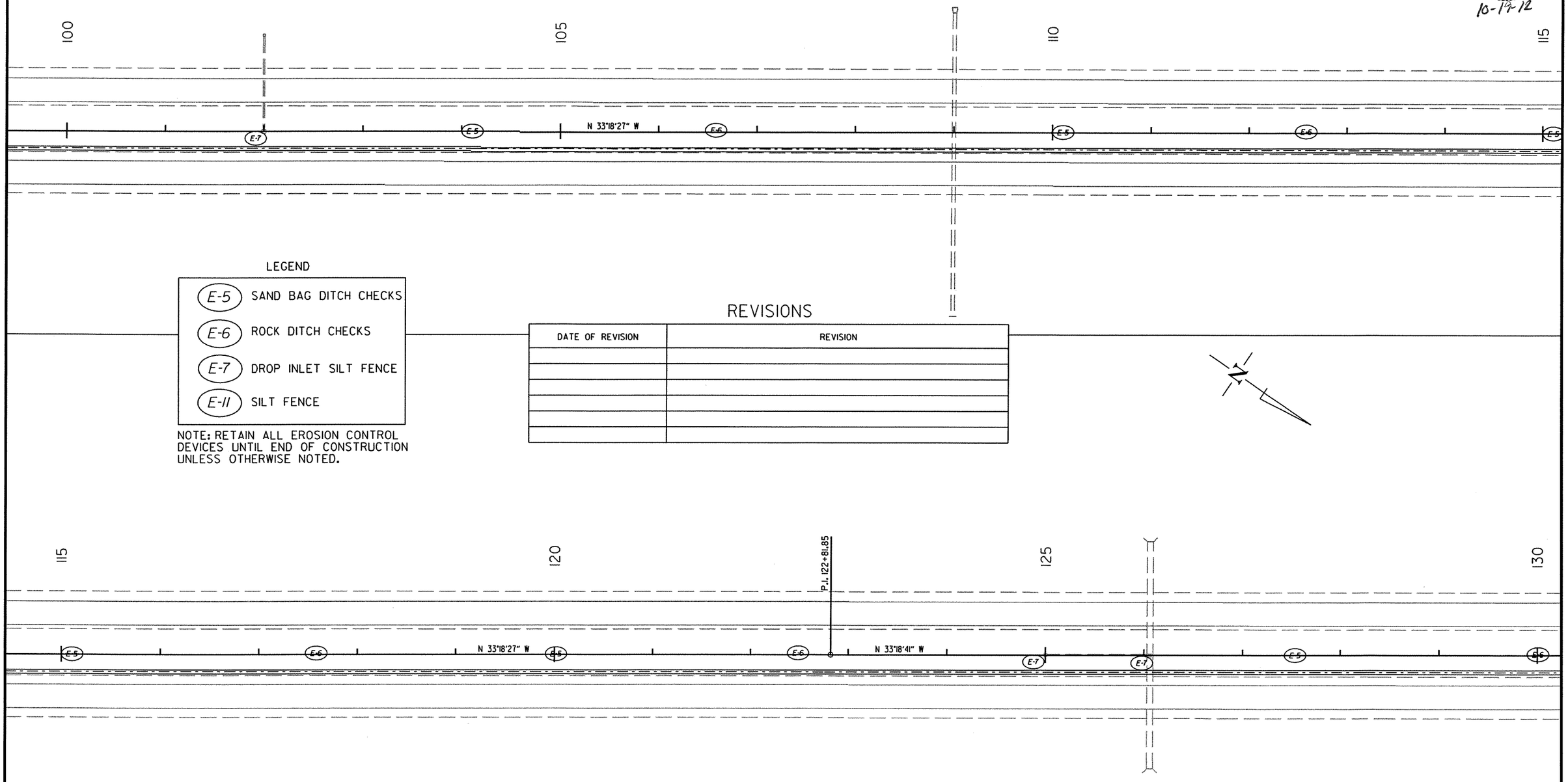
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 36 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-17-12




LEGEND

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

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

REVISIONS

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TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/18/2012

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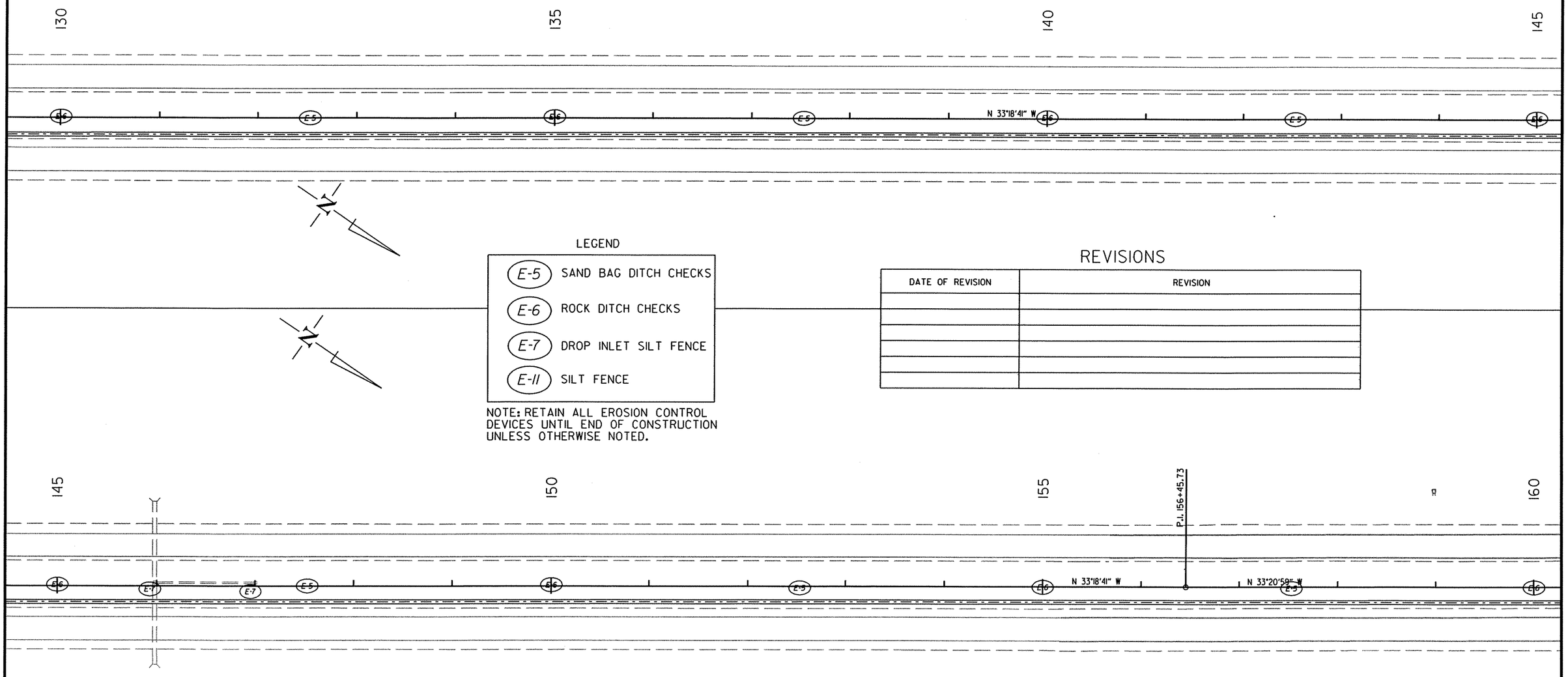
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 880614 | 37 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

REVISIONS

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TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/18/2012

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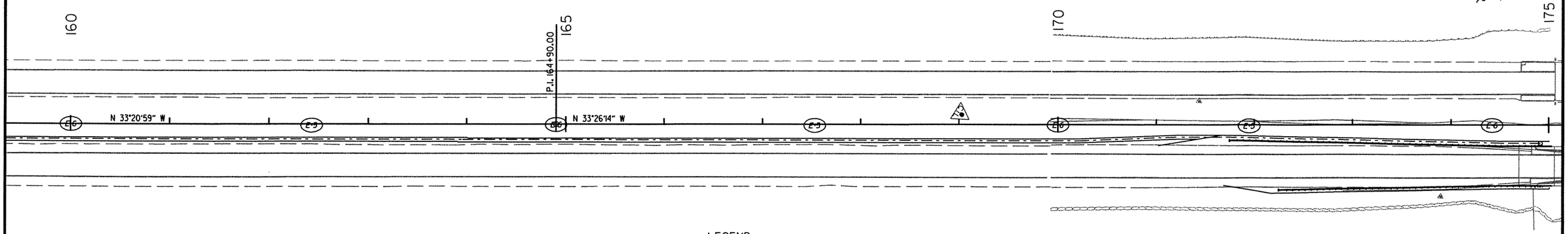
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 38 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

REVISIONS

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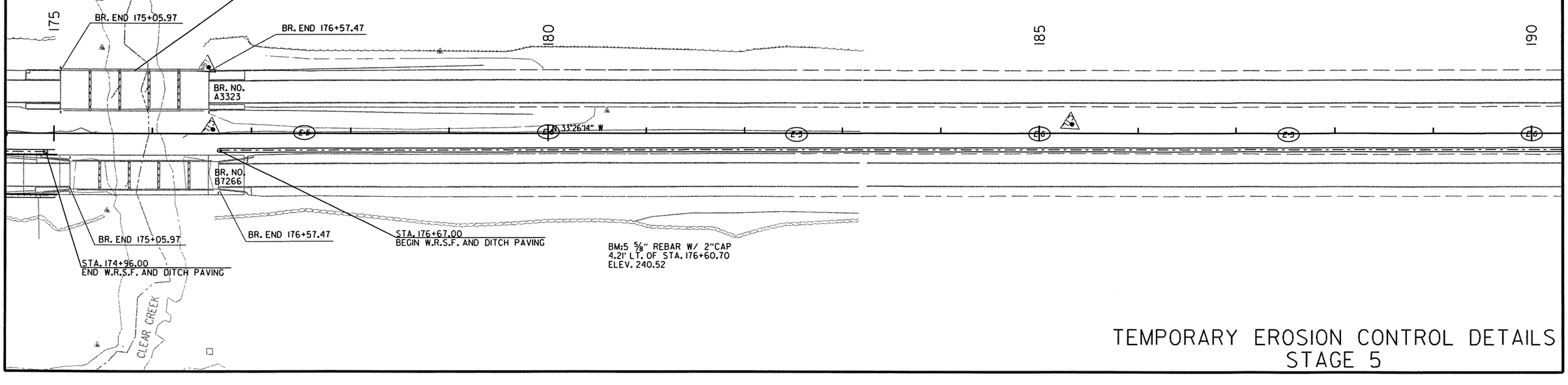
NOTE: BRIDGE NO. A3324 IS AN EXCEPTION TO JOB BB0614




TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/18/2012

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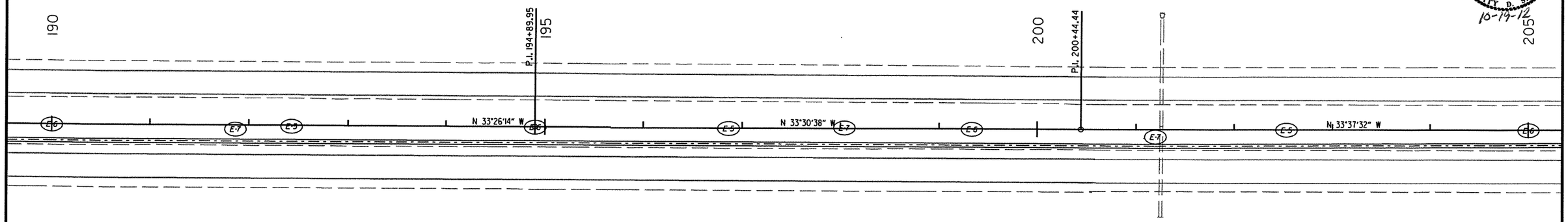
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 39 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 10-19-12




LEGEND

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

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

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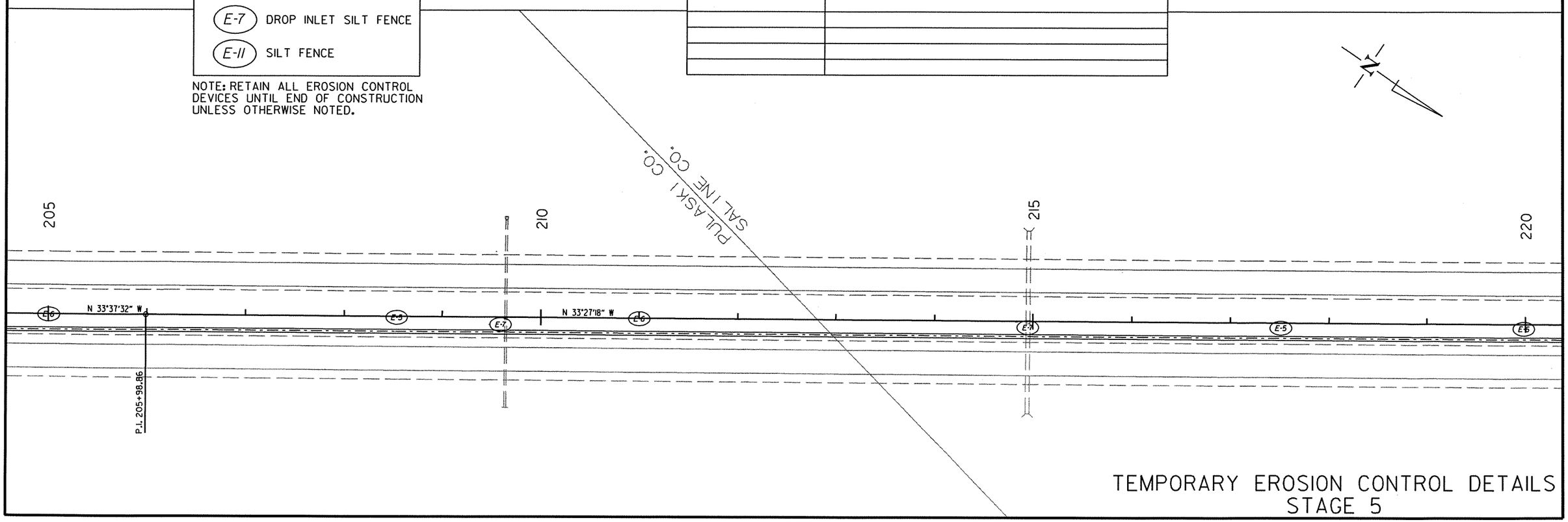


TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/19/2012

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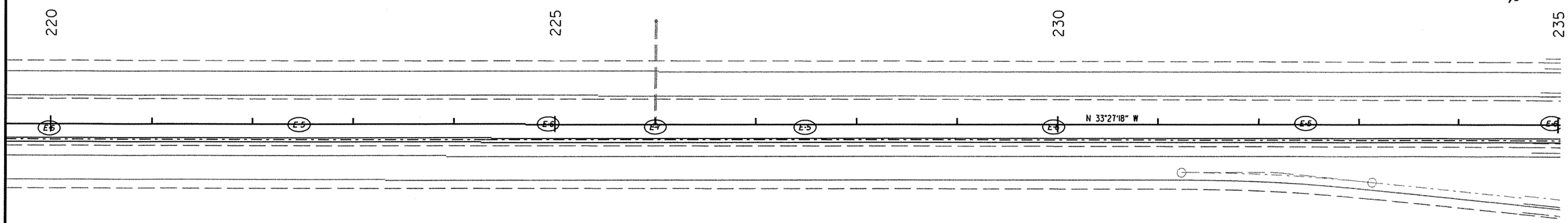
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 40 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

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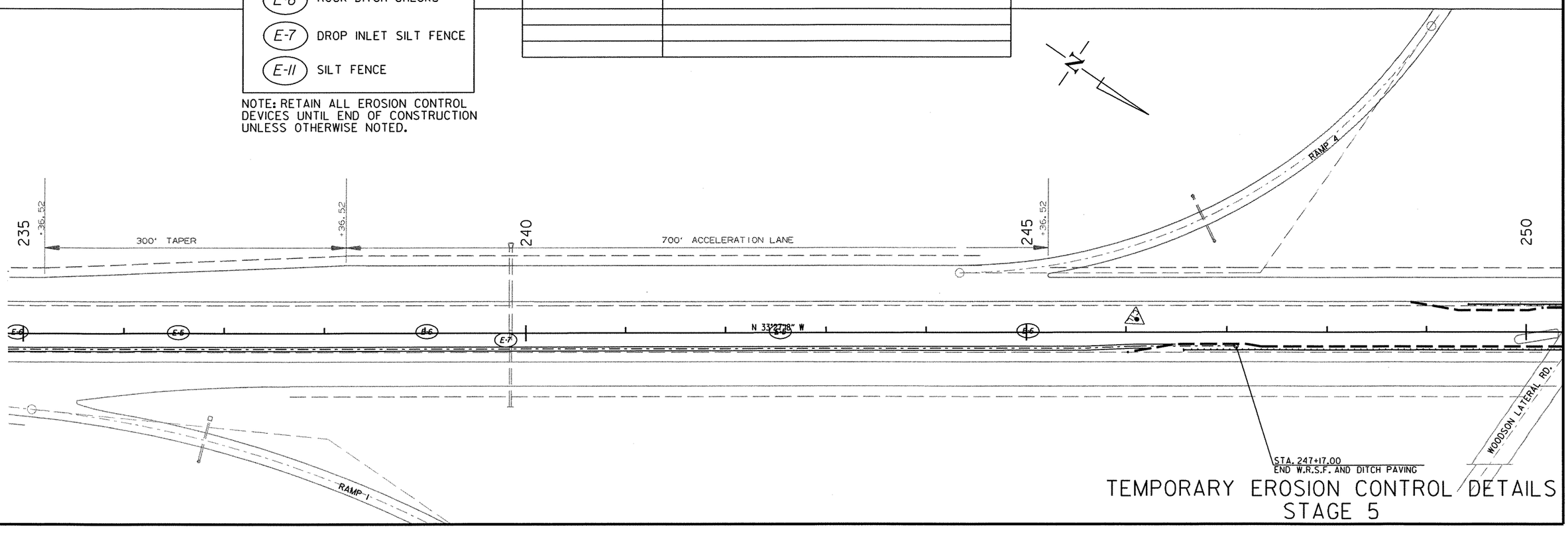


TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/18/2012

RBB0614.DGN

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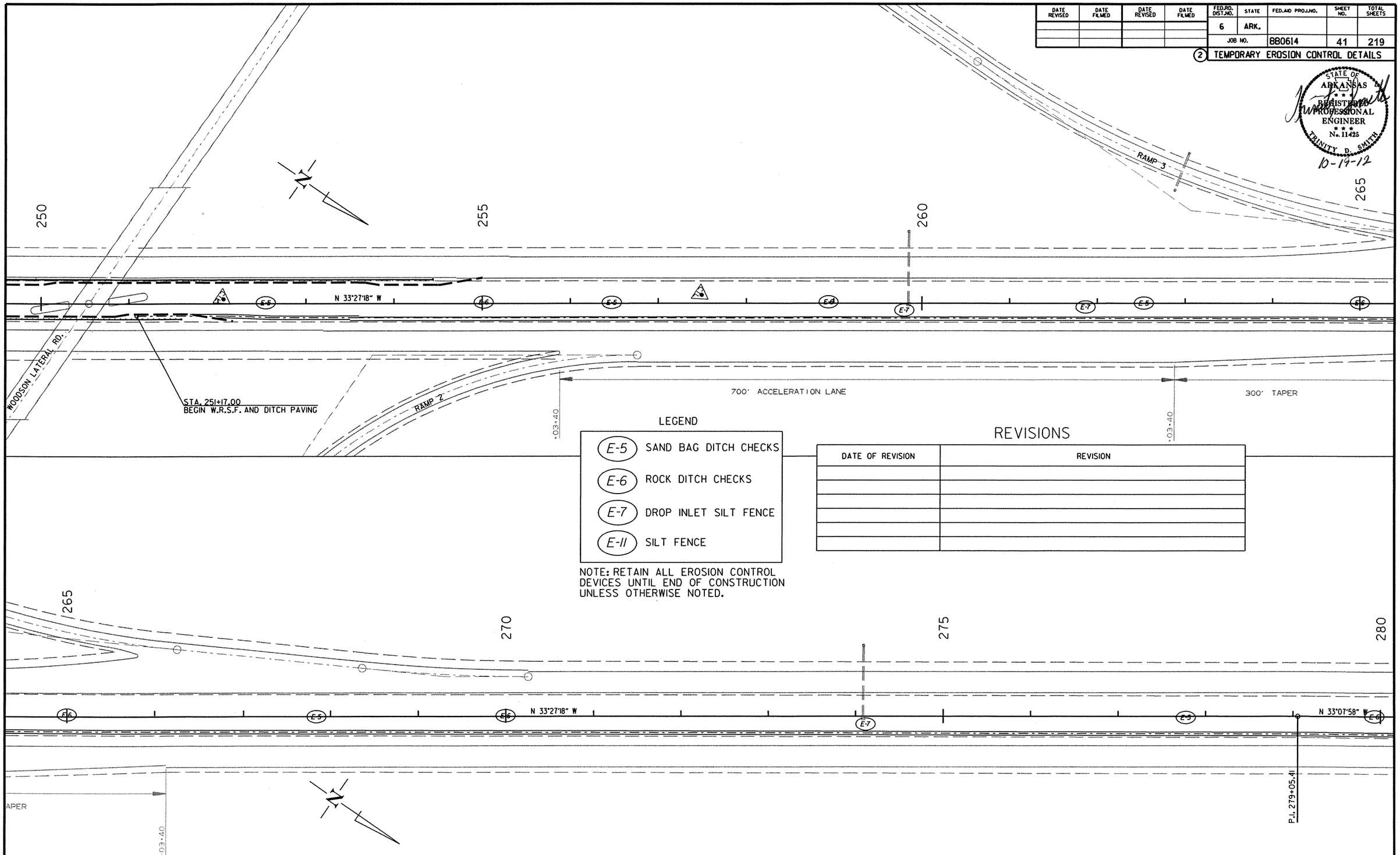
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 41 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

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TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/18/2012

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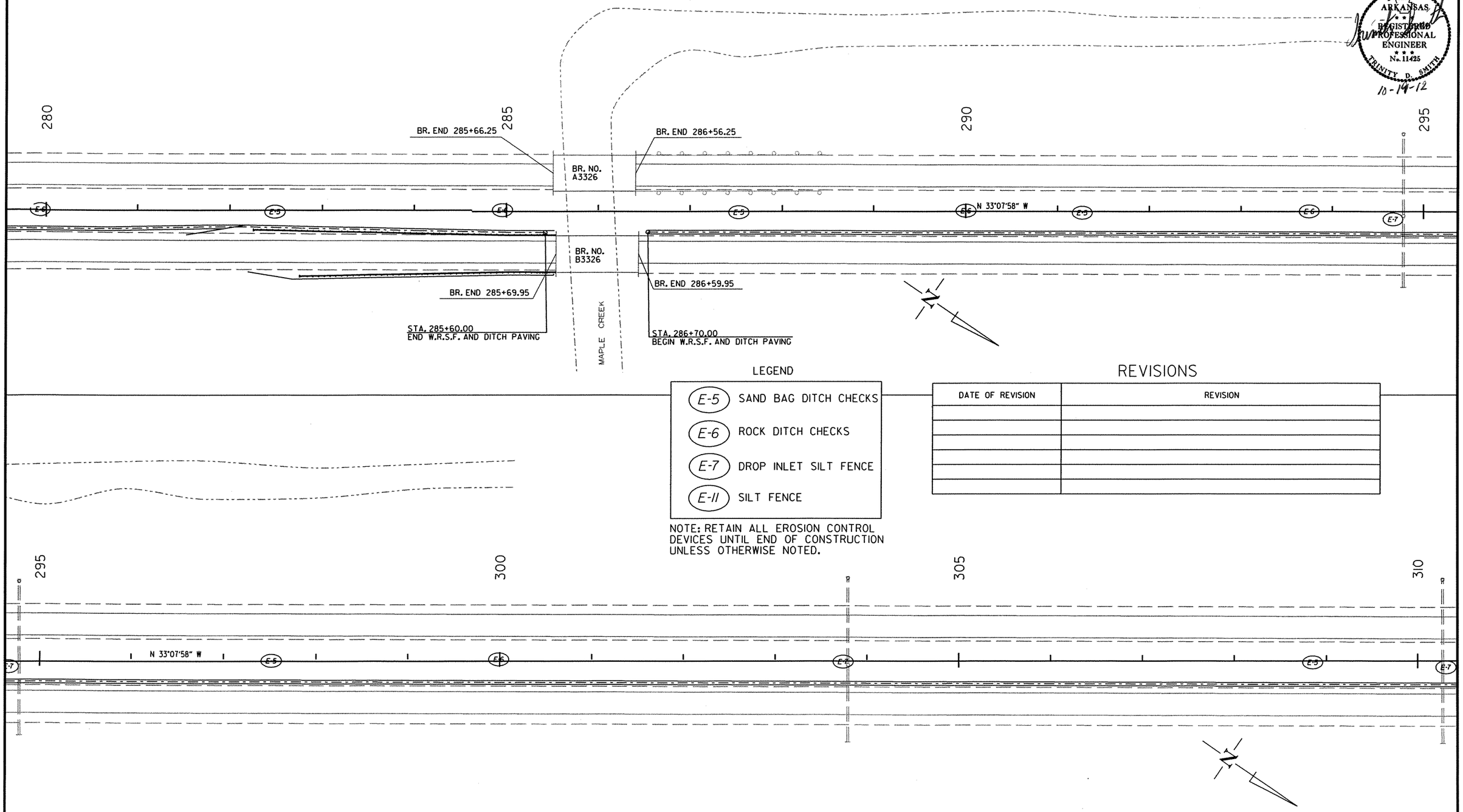
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 42 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-14-12




LEGEND

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

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

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TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/18/2012

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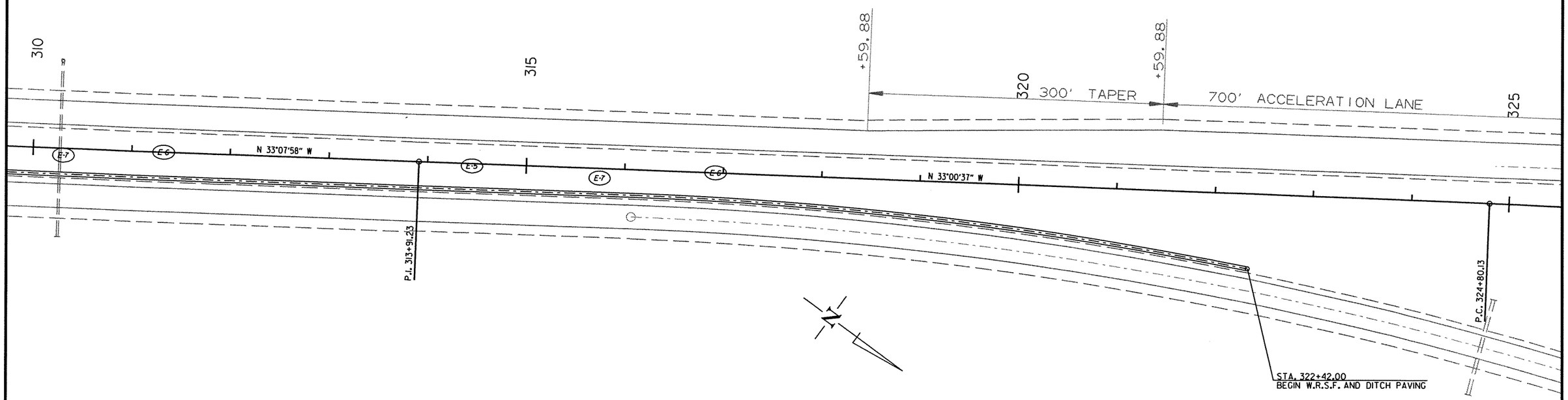
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 43 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

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# TEMPORARY EROSION CONTROL DETAILS STAGE 5

10/18/2012

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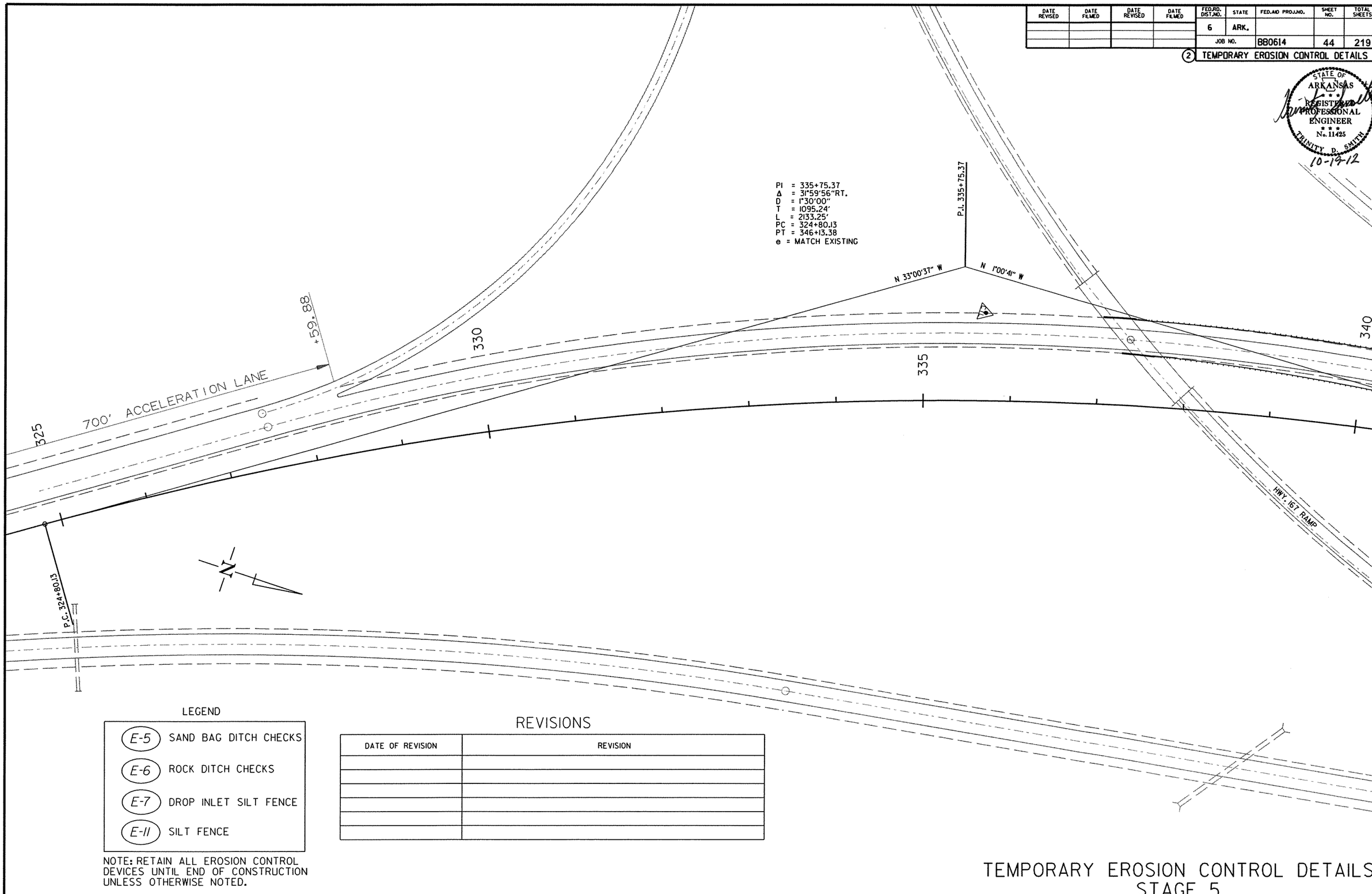
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 44 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

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TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/18/2012

RBB0614.DGN

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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 45 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
10-19-12

LEGEND

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

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

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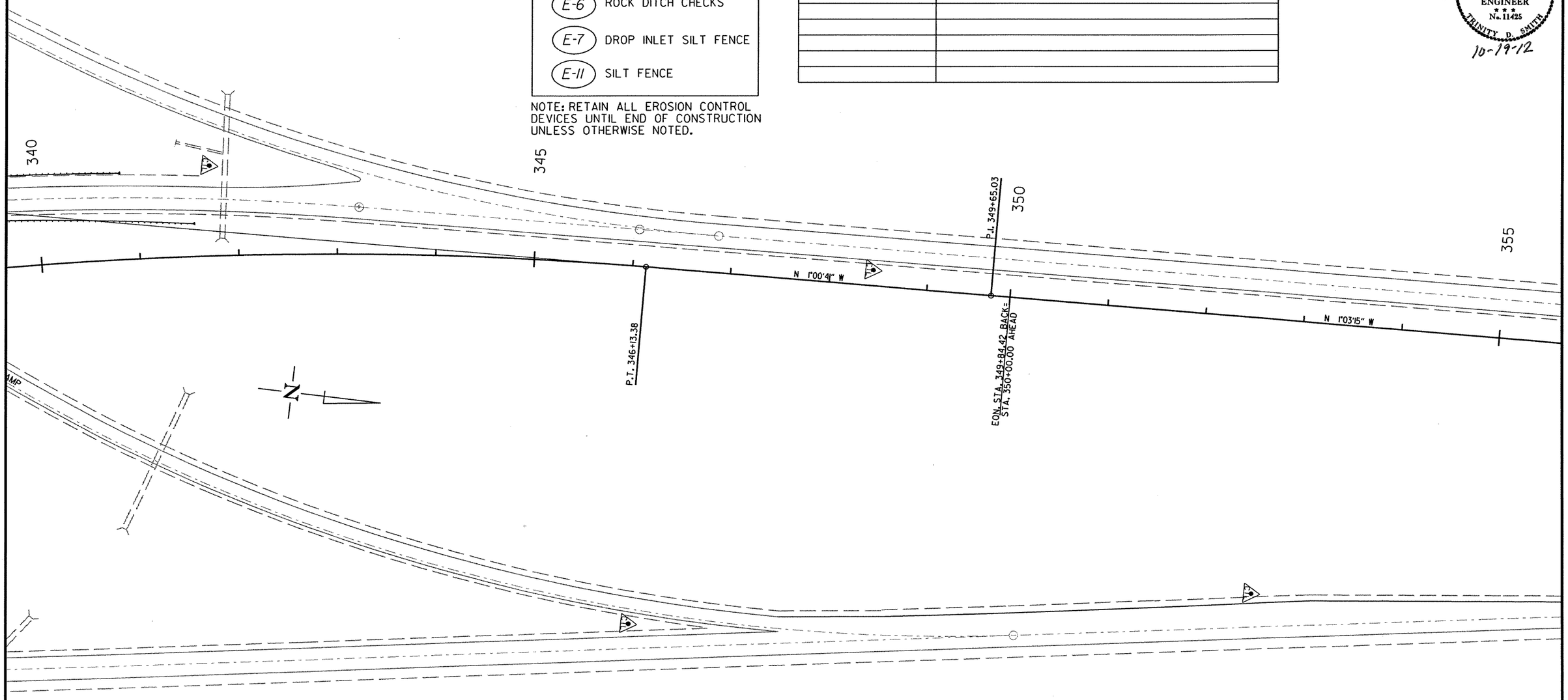


TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/18/2012

RBB0614.DGN

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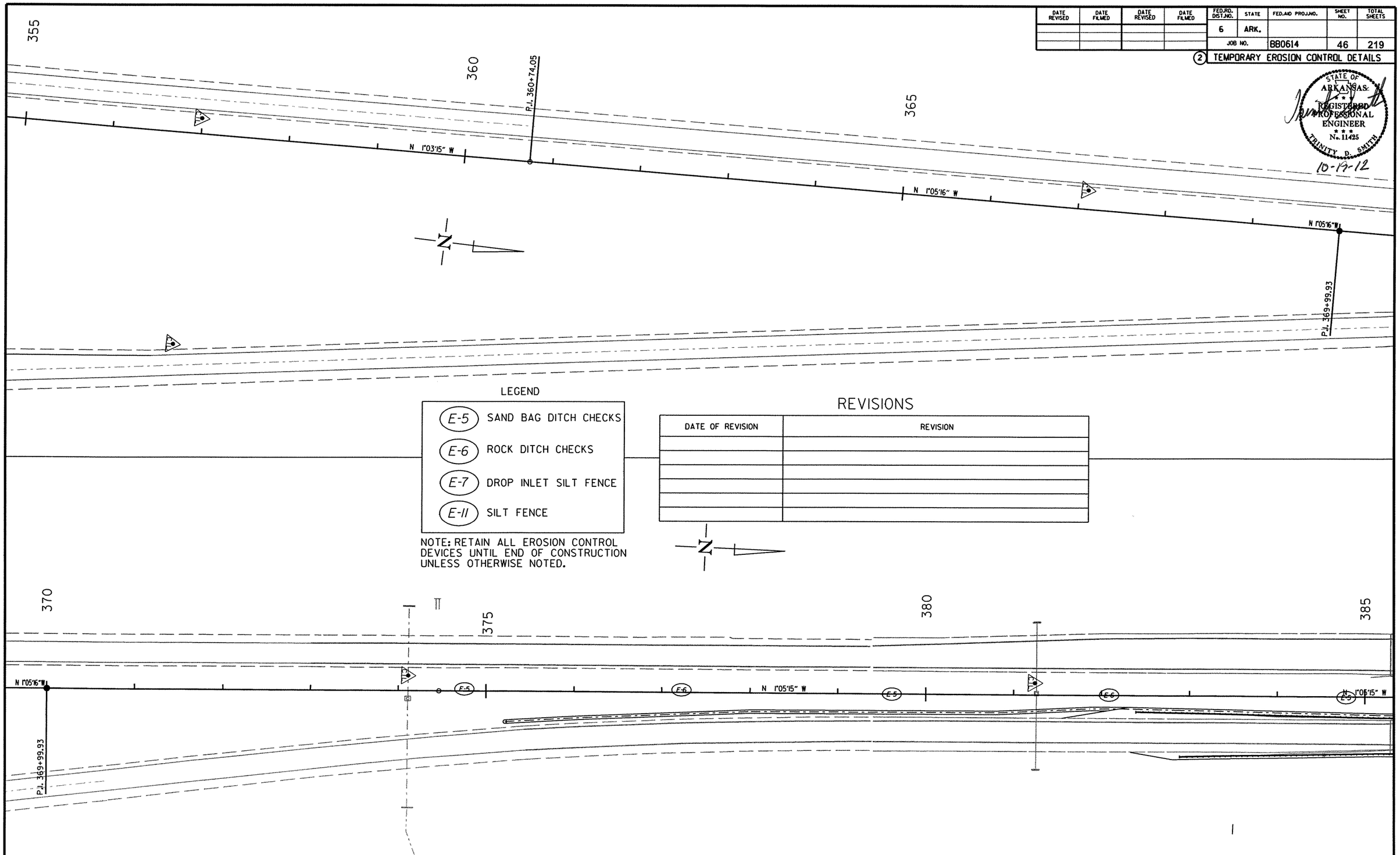
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 46 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

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TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/19/2012

RBB0614.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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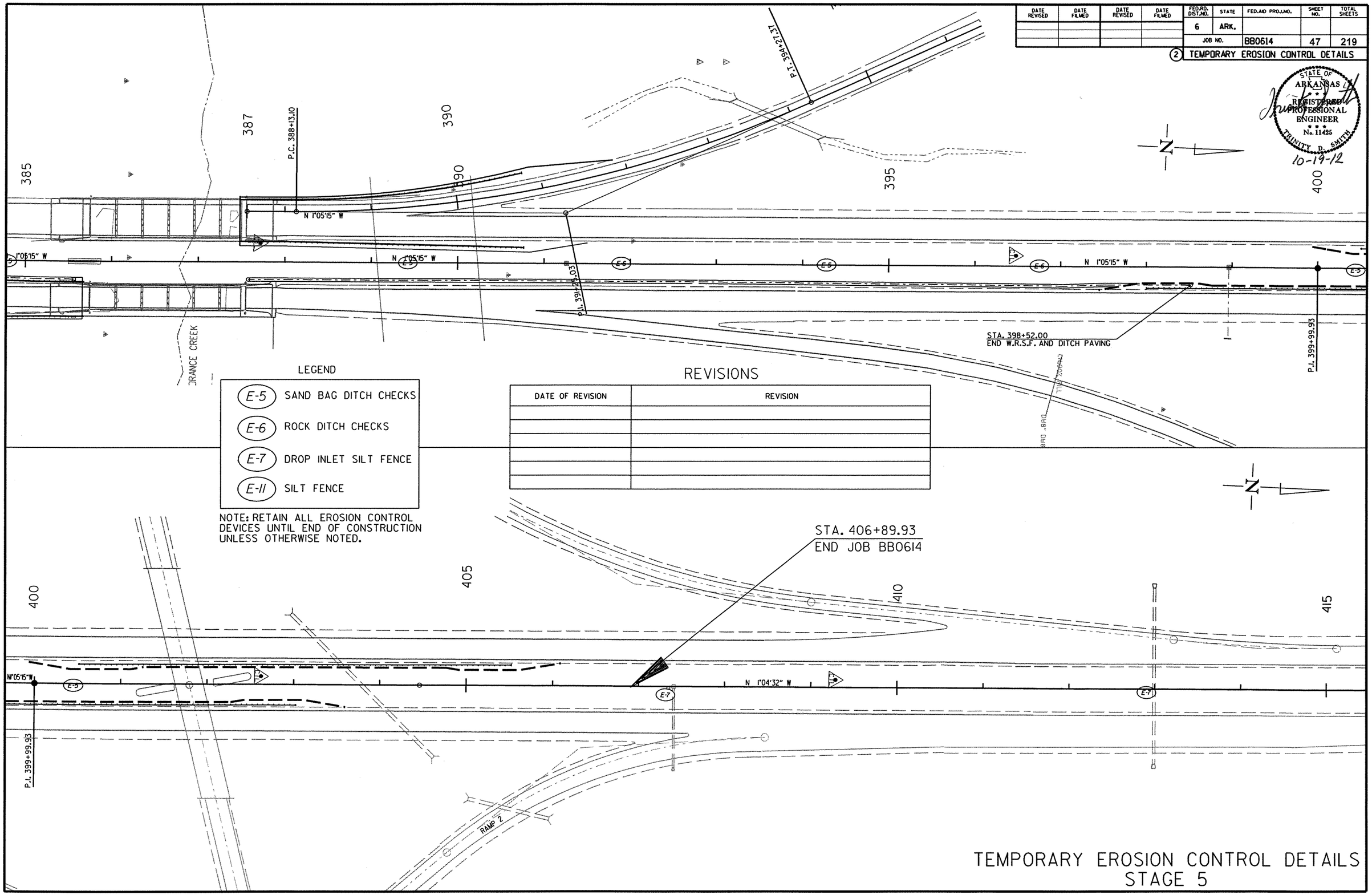
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 47 | 219 |

(2) TEMPORARY EROSION CONTROL DETAILS

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

10-19-12




LEGEND

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

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

REVISIONS

| DATE OF REVISION | REVISION |
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TEMPORARY EROSION CONTROL DETAILS
STAGE 5

10/18/2012

RBB0614.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 48 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-19-12

SEQUENCE OF CONSTRUCTION
STAGE 1A
SHIFT TRAFFIC TO INSIDE LANES AT BINGHAM RD. INTERCHANGE.
CONSTRUCT TEMPORARY RAMPS BETWEEN MAIN LANES AND RAMPS.

STAGE 1B
SHIFT TRAFFIC TO THE OUTSIDE LANES ON MAIN LANES AT BINGHAM RD. INTERCHANGE.
CONSTRUCT CROSSOVERS, TEMPORARY RAMPS, AND ACCEL. LANES IN MEDIAN AT BINGHAM RD. INTERCHANGE.
RECONSTRUCT INSIDE SHOULDERS WHERE SHOWN IN PLANS.

STAGE 2
INSTALL PRECAST CONCRETE BARRIER ONTO EXISTING NB LANES IN AREAS SHOWN.
ROUTE SB TRAFFIC TO INSIDE LANE OF NB LANES THROUGH CROSSOVERS.
RECONSTRUCT SB BRIDGE, APPROACH GUTTERS, & SLABS OVER LORANCE CREEK.
RECONSTRUCT SB LANES BETWEEN STA. 382+35 TO STA. 392+80.
RECONSTRUCT I-530 SB ENTRANCE RAMP AT BINGHAM RD. INTERCHANGE.

STAGE 3A
ROUTE SB TRAFFIC ONTO OUTSIDE OF RECONSTRUCTED SB LANES.
LEAVE NB TRAFFIC ON OUTSIDE NB LANES.
CONSTRUCT TEMPORARY CROSSOVERS IN AREAS SHOWN.

STAGE 3B
INSTALL PRECAST CONCRETE BARRIER ONTO EXISTING SB LANES IN AREAS SHOWN.
ROUTE NB TRAFFIC ONTO INSIDE OF SB LANES THROUGH CROSSOVERS.
RECONSTRUCT NB BRIDGES, APPROACH GUTTERS, & SLABS OVER LORANCE CREEK.
RECONSTRUCT NB LANES BETWEEN STA. 382+35 TO STA. 392+80.

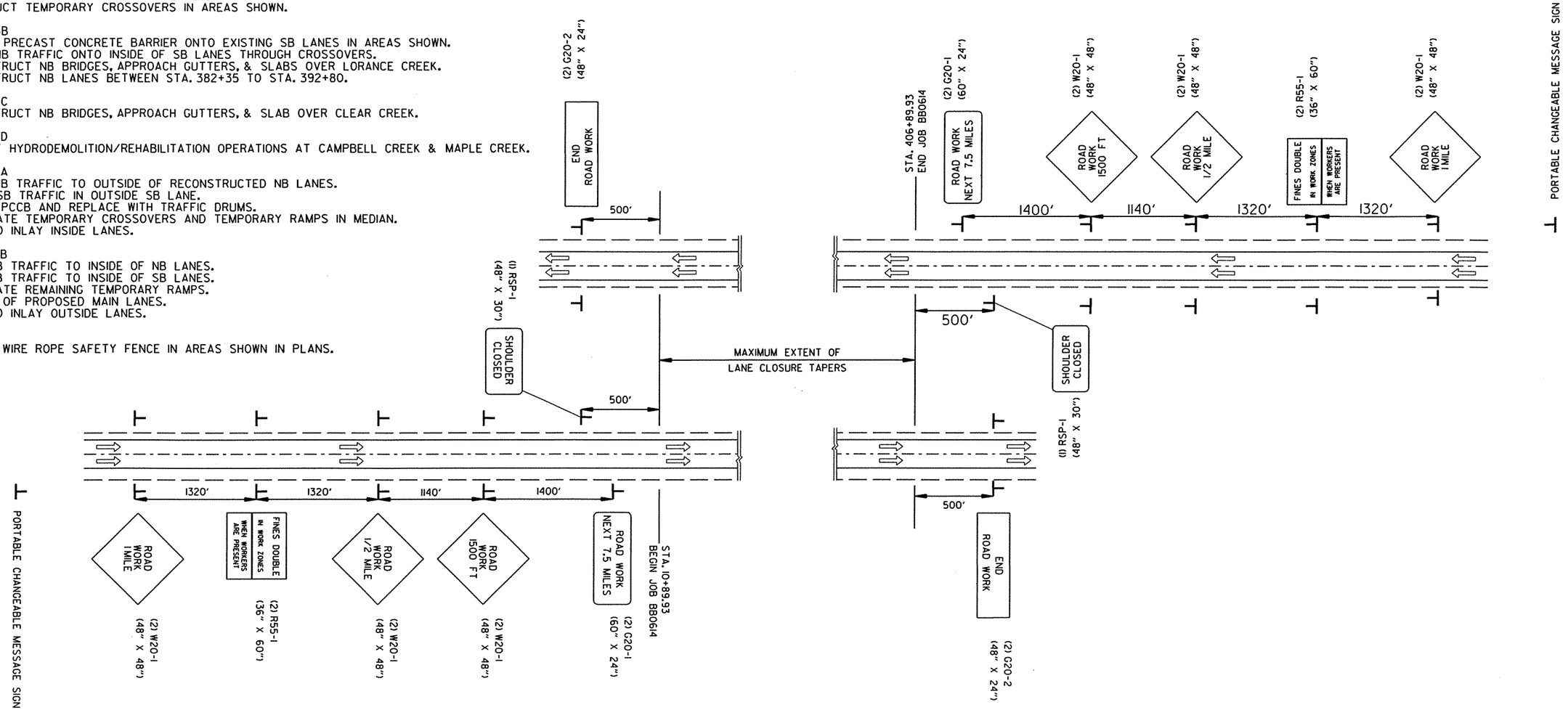
STAGE 3C
RECONSTRUCT NB BRIDGES, APPROACH GUTTERS, & SLAB OVER CLEAR CREEK.

STAGE 3D
CONDUCT HYDRODEMOLITION/REHABILITATION OPERATIONS AT CAMPBELL CREEK & MAPLE CREEK.

STAGE 4A
ROUTE NB TRAFFIC TO OUTSIDE OF RECONSTRUCTED NB LANES.
RETAIN SB TRAFFIC IN OUTSIDE SB LANE.
REMOVE PCCB AND REPLACE WITH TRAFFIC DRUMS.
OBLITERATE TEMPORARY CROSSOVERS AND TEMPORARY RAMPS IN MEDIAN.
MILL AND INLAY INSIDE LANES.

STAGE 4B
SHIFT NB TRAFFIC TO INSIDE OF NB LANES.
SHIFT SB TRAFFIC TO INSIDE OF SB LANES.
OBLITERATE REMAINING TEMPORARY RAMPS.
OUTSIDE OF PROPOSED MAIN LANES.
MILL AND INLAY OUTSIDE LANES.

STAGE 5
INSTALL WIRE ROPE SAFETY FENCE IN AREAS SHOWN IN PLANS.




MAINTENANCE OF TRAFFIC DETAILS
ADVANCE SIGNS AT JOB ENDS

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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 |
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| | | | | 6 | ARK. | | | |
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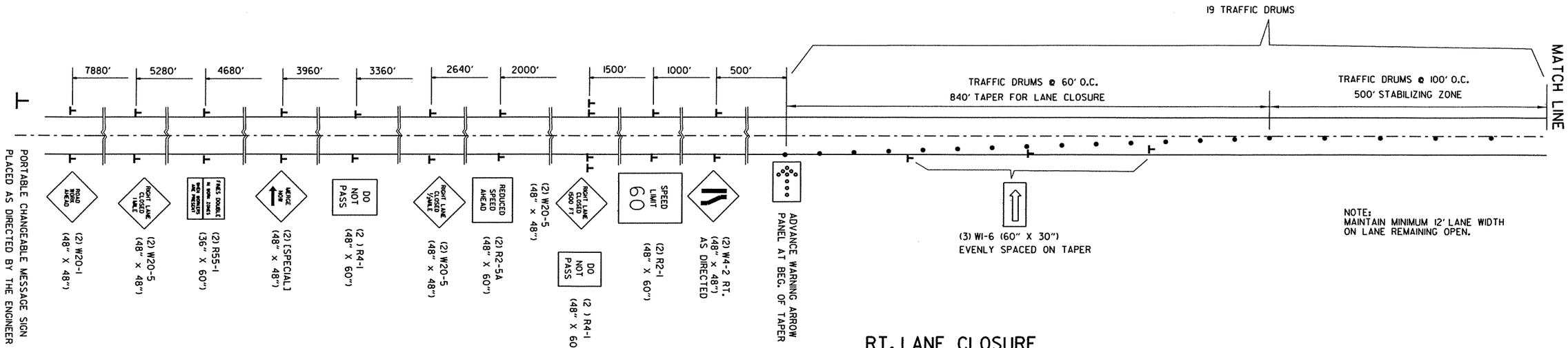
(2) MAINTENANCE OF TRAFFIC DETAILS

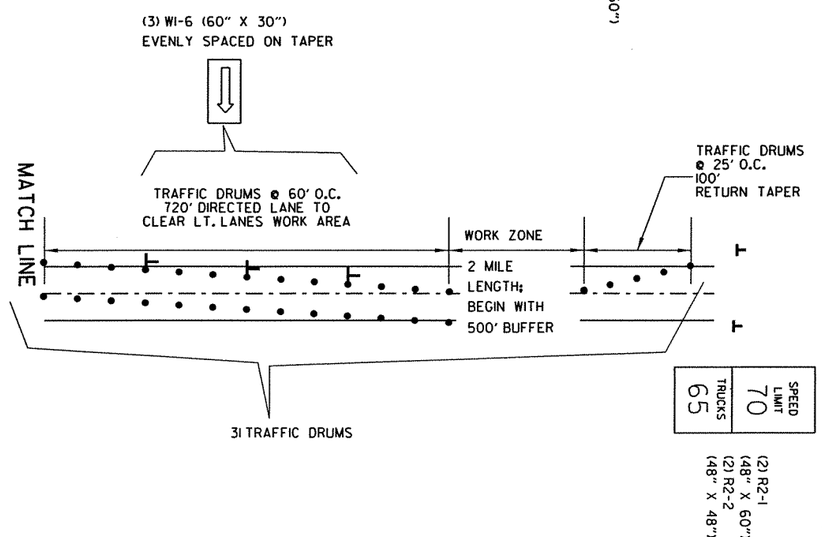
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-19-12




PORTABLE CHANGEABLE MESSAGE SIGN PLACED AS DIRECTED BY THE ENGINEER

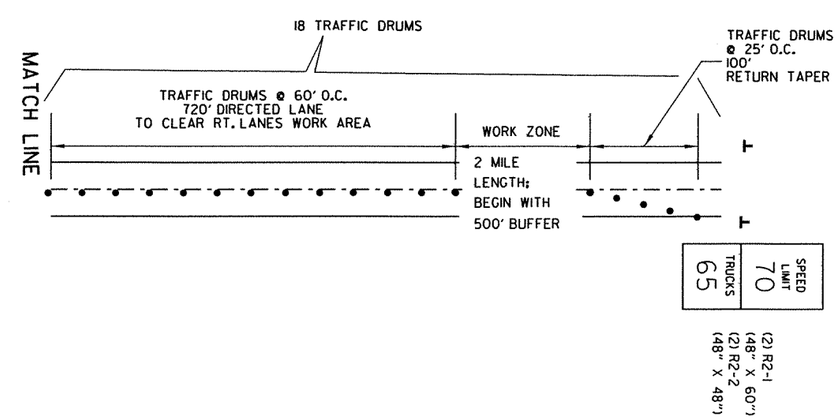
## RT. LANE CLOSURE

2 SETS OF THIS NEEDED FOR JOB BB0614.




## DIVERSION FOR LT. LANE WORK ZONE

2 SETS OF THIS NEEDED FOR JOB BB0614.




## DIVERSION FOR RT. LANE WORK ZONE

2 SETS OF THIS NEEDED FOR JOB BB0614.

# MAINTENANCE OF TRAFFIC DETAILS
# WORK ZONE - LANE CLOSURE

10/11/2012

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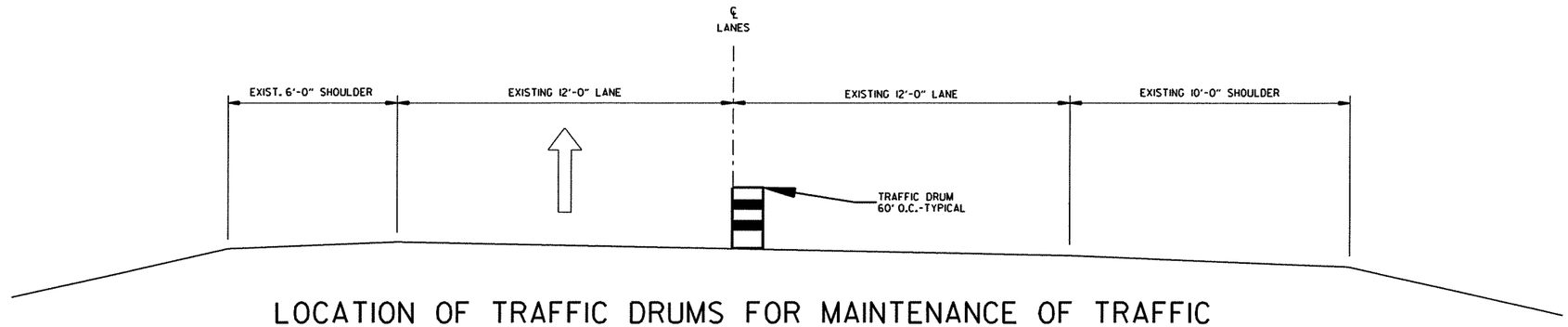
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 880614 | 50 | 219 |

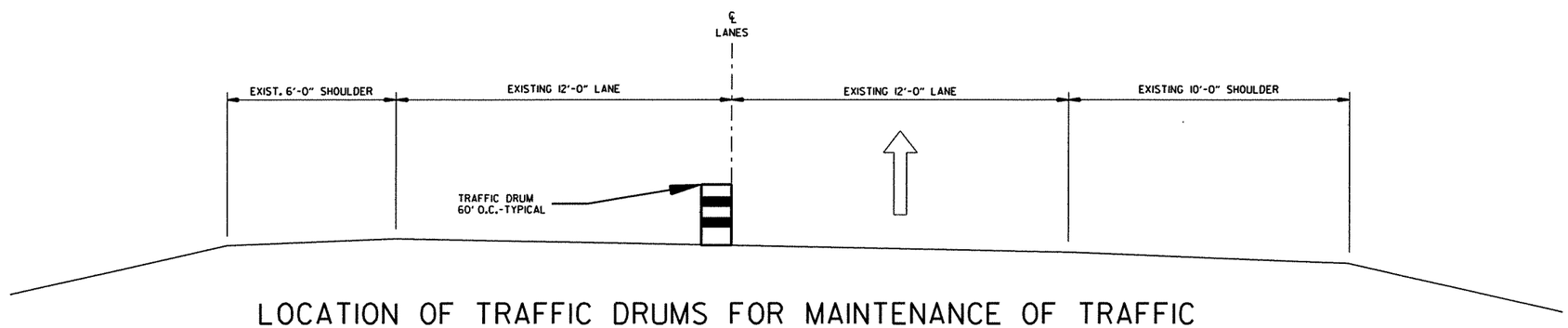
(2) MAINTENANCE OF TRAFFIC DETAILS

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

10-19-12




LOCATION OF TRAFFIC DRUMS FOR MAINTENANCE OF TRAFFIC
OUTSIDE LANE CLOSED
(SHOWN IN DIRECTION OF TRAFFIC)




LOCATION OF TRAFFIC DRUMS FOR MAINTENANCE OF TRAFFIC
INSIDE LANE CLOSED
(SHOWN IN DIRECTION OF TRAFFIC)

RBB0614.DGN 10/11/2012

MAINTENANCE OF TRAFFIC DETAILS

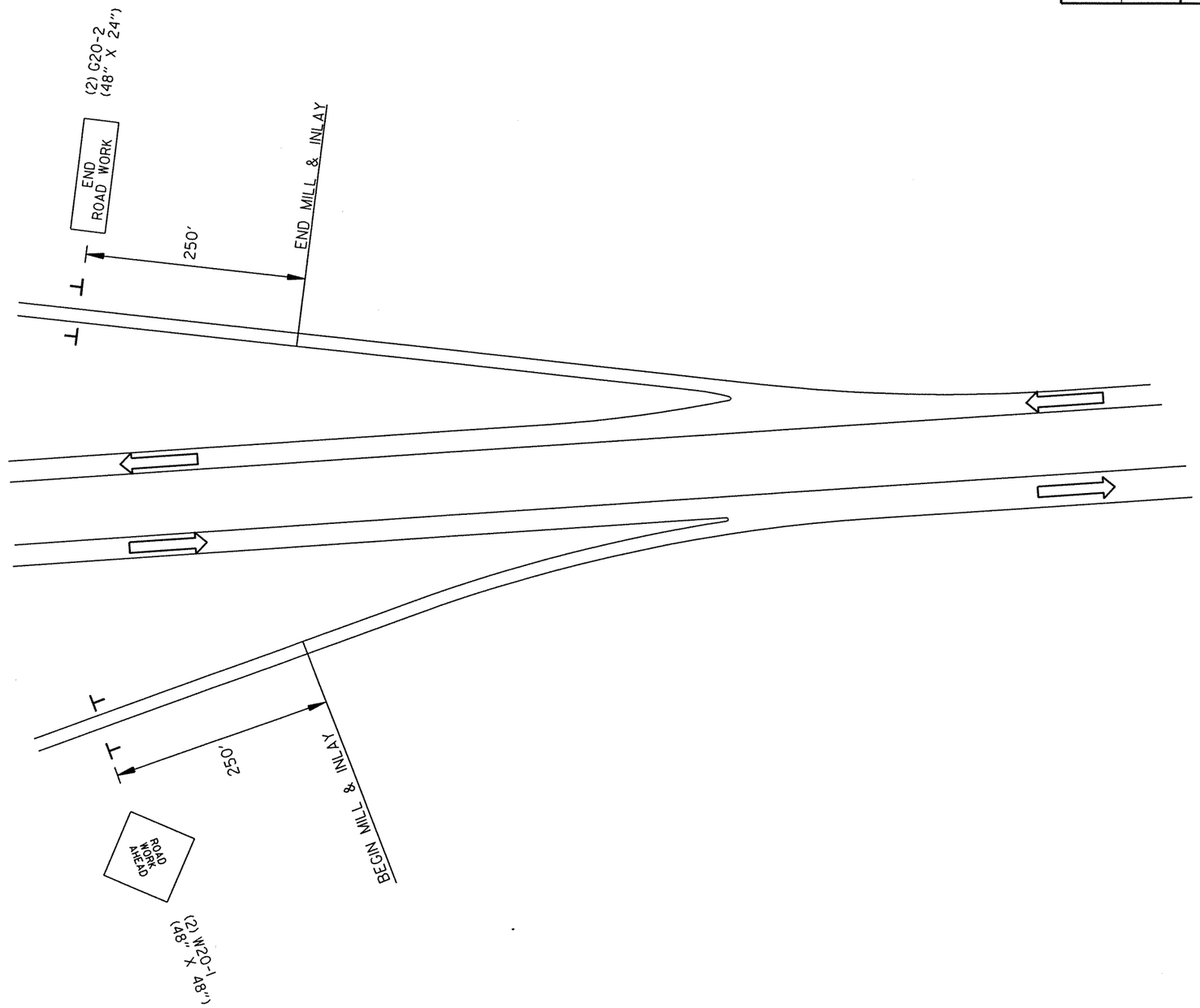
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 51 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

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

10-19-12

ADVANCE WARNING SIGNS FOR ENTRANCE AND EXIT RAMPS
ROAD WORK AHEAD (16) = 256 SQ. FT.
END ROAD WORK (16) = 128 SQ. FT.




DETAIL OF ENTRANCE AND EXIT RAMPS

1. HENSLEY RD. (2 SETS)
2. WOODSON LATERAL RD. (2 SETS)
3. HWY. 167 (1 SET)
4. BINGHAM RD. (2 SETS)

MAINTENANCE OF TRAFFIC
DETAIL OF RAMPS

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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 52 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION
STAGE IA
SHIFT TRAFFIC TO INSIDE LANES AT BINGHAM RD. INTERCHANGE.
CONSTRUCT TEMPORARY RAMPS BETWEEN MAIN LANES AND RAMPS.

STAGE IA QUANTITIES
TRAFFIC DRUMS = 168 EACH

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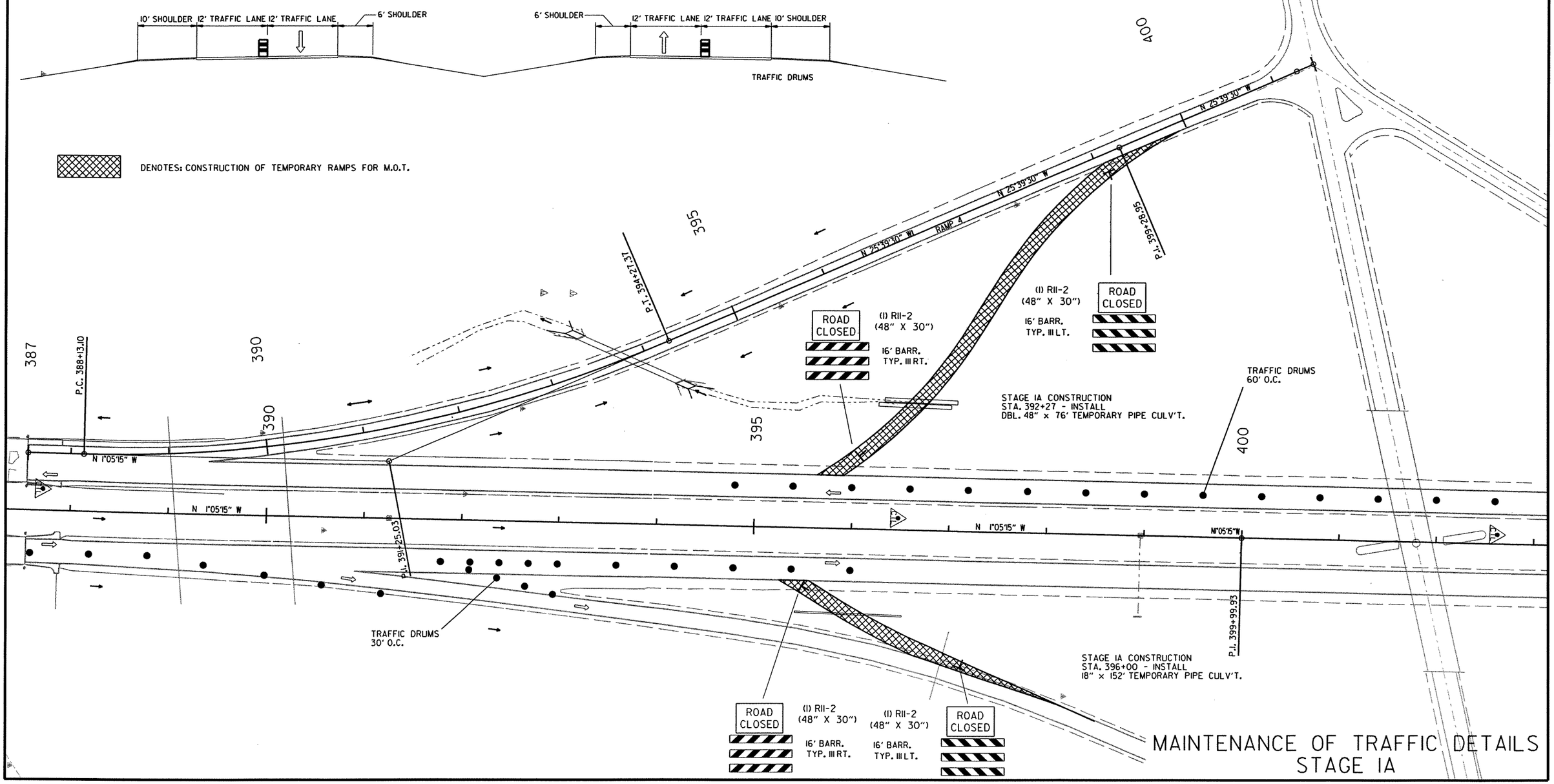


MAINTENANCE OF TRAFFIC DETAILS
STAGE IA

RBB0614_DHALL 7-27-12.DGN 8/15/2012

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| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 53 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION
STAGE IB
SHIFT TRAFFIC TO THE OUTSIDE LANES ON MAIN LANES AT BINGHAM RD. INTERCHANGE.
CONSTRUCT CROSSOVERS, TEMPORARY RAMPS, AND ACCEL. LANES IN MEDIAN AT BINGHAM RD. INTERCHANGE.
RECONSTRUCT INSIDE SHOULDERS WHERE SHOWN IN PLANS.

STAGE IB QUANTITIES
TRAFFIC DRUMS - 261 EACH

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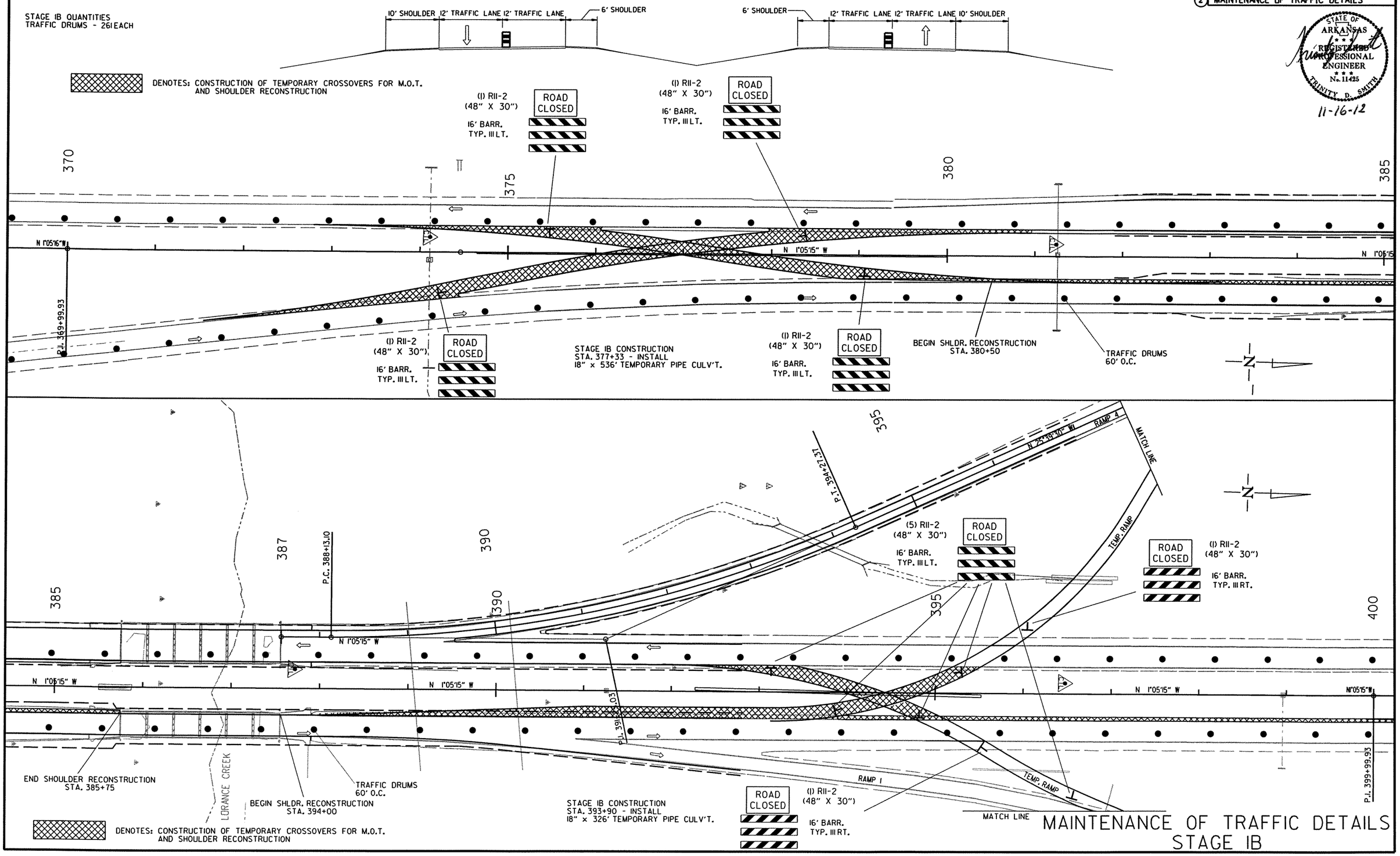


# MAINTENANCE OF TRAFFIC DETAILS
# STAGE IB

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| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 54 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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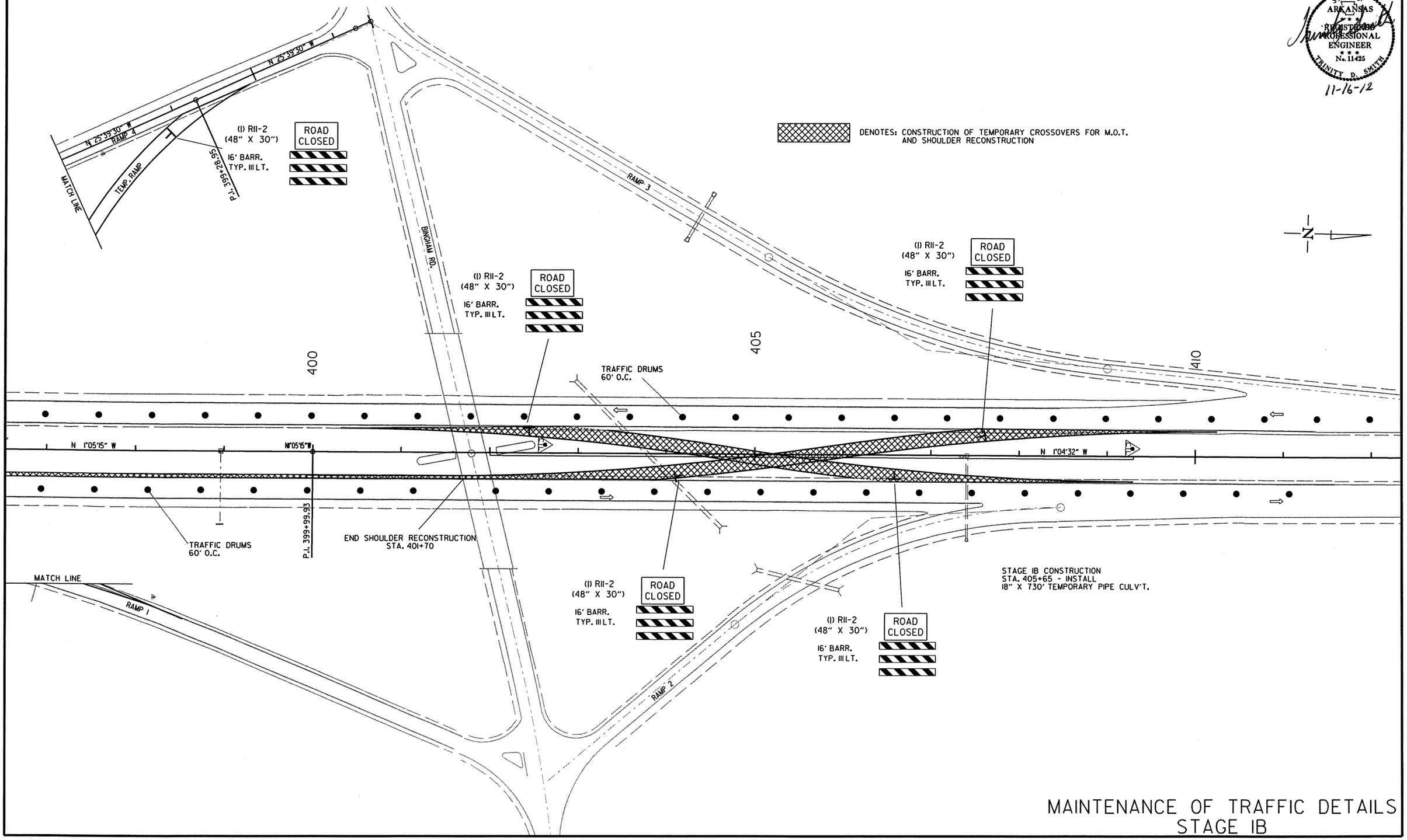
SEQUENCE OF CONSTRUCTION
STAGE IB
SHIFT TRAFFIC TO THE OUTSIDE LANES ON MAIN LANES AT BINGHAM RD. INTERCHANGE.
CONSTRUCT CROSSOVERS, TEMPORARY RAMPS, AND ACCEL. LANES IN MEDIAN AT BINGHAM RD. INTERCHANGE.
RECONSTRUCT INSIDE SHOULDERS WHERE SHOWN IN PLANS.




MAINTENANCE OF TRAFFIC DETAILS
STAGE IB

RBB0614_DHALL 7-27-12.DGN 8/17/2012

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| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 880614 | 55 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION
STAGE 2
INSTALL PRECAST CONCRETE BARRIER ONTO EXISTING NB LANES IN AREAS SHOWN.
ROUTE SB TRAFFIC TO INSIDE LANE OF NB LANES THROUGH CROSSOVERS.
RECONSTRUCT SB BRIDGE, APPROACH GUTTERS, & SLABS OVER LORANCE CREEK.
RECONSTRUCT SB LANES BETWEEN STA. 382+35 TO STA. 392+80.
RECONSTRUCT I-530 SB ENTRANCE RAMP AT BINGHAM RD. INTERCHANGE.

•NOTE: THE END OF THE 500' STABILIZATION ZONE AS SHOWN IN THE LANE CLOSURE DETAIL SHALL BE AT STATION 345+00 ON THE NORTHBOUND MAIN LANES OF I-530.

STAGE 2 QUANTITIES
TRAFFIC DRUMS = 149 EACH
FURNISH AND INSTALL PRECAST CONCRETE BARRIER WALL = 3586 LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 7762 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 16909 LIN. FT.
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS = 150 LIN. FT.

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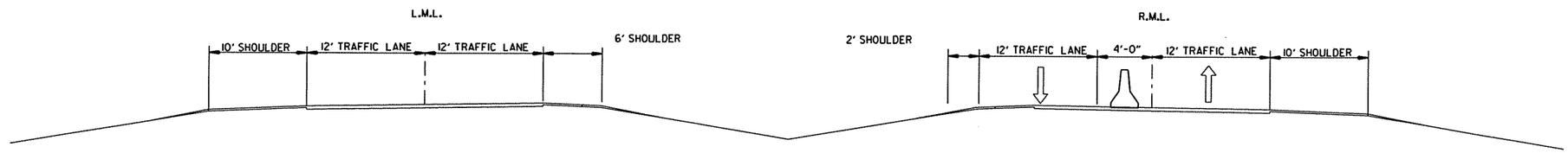


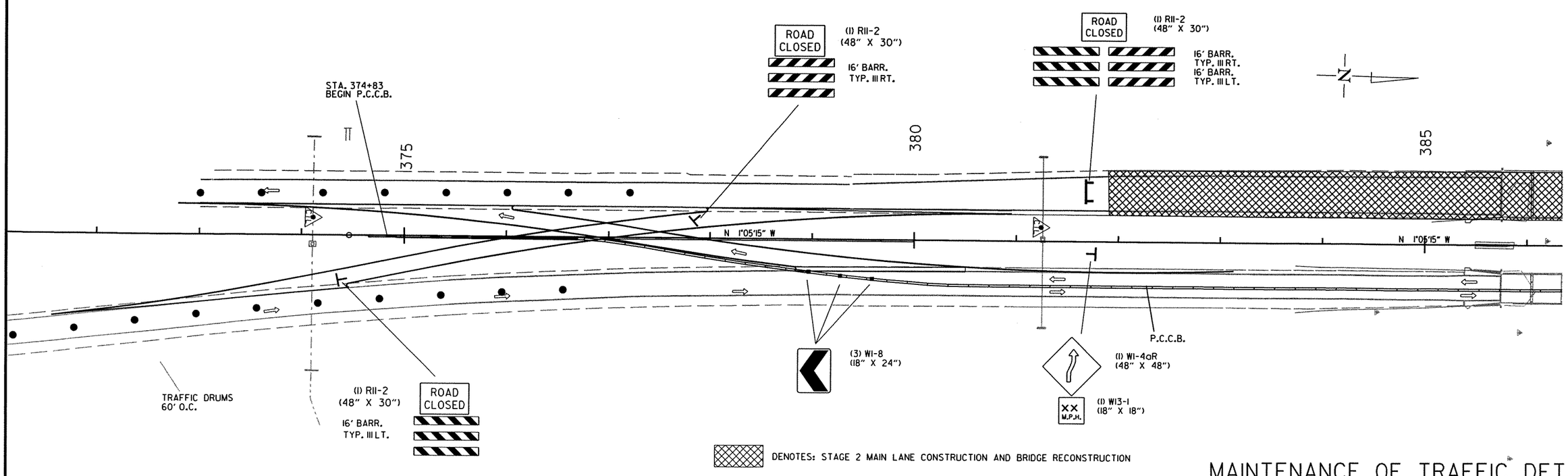


MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

8/29/2012
RBB0614.DGN

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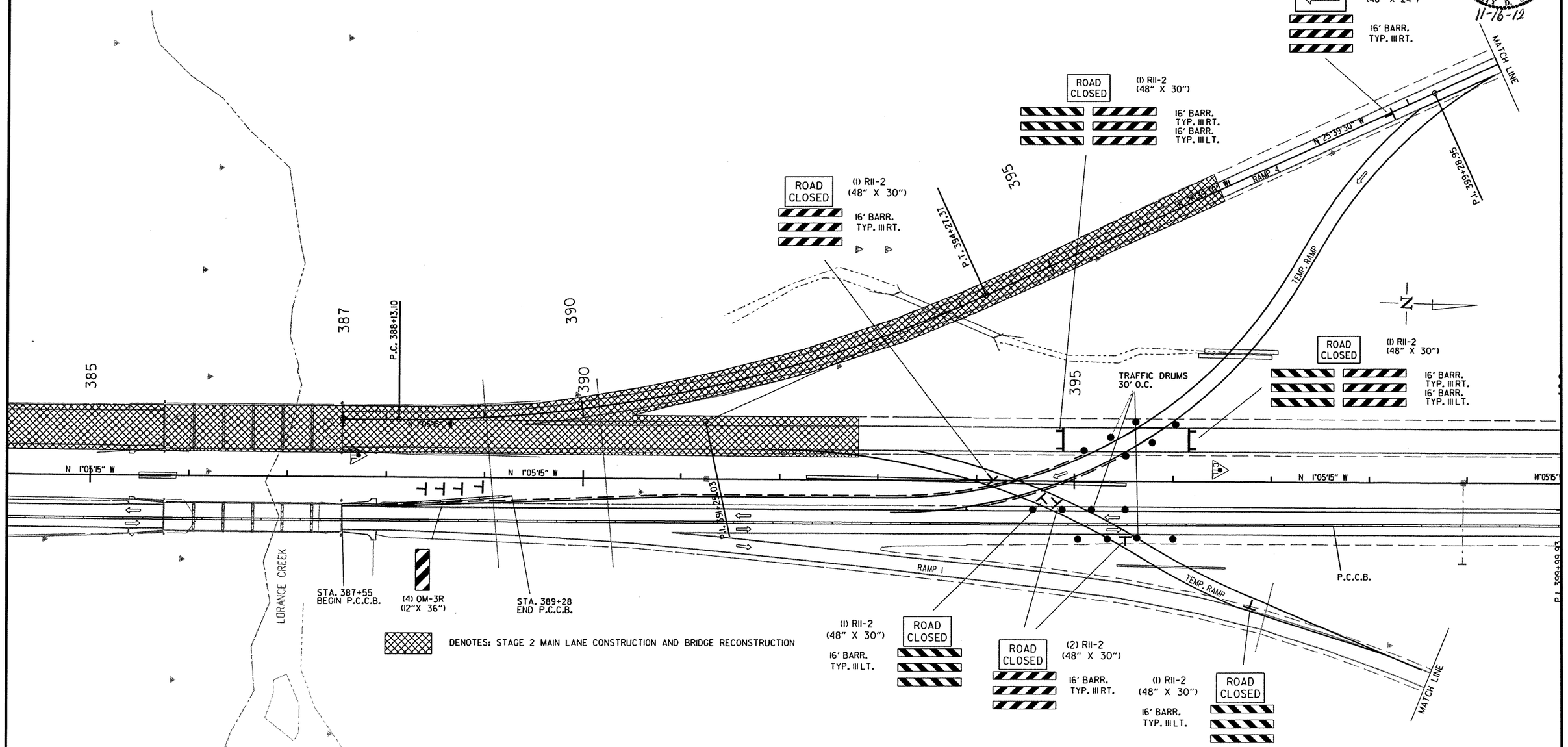
| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 56 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION
STAGE 2
INSTALL PRECAST CONCRETE BARRIER ONTO EXISTING NB LANES IN AREAS SHOWN.
ROUTE SB TRAFFIC TO INSIDE LANE OF NB LANES THROUGH CROSSOVERS.
RECONSTRUCT SB BRIDGE, APPROACH GUTTERS, & SLABS OVER LORANCE CREEK.
RECONSTRUCT SB LANES BETWEEN STA. 382+35 TO STA. 392+80.
RECONSTRUCT I-530 SB ENTRANCE RAMP AT BINGHAM RD. INTERCHANGE.




MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

8/29/2012

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| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 57 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION
STAGE 2
INSTALL PRECAST CONCRETE BARRIER ONTO EXISTING NB LANES IN AREAS SHOWN.
ROUTE SB TRAFFIC TO INSIDE LANE OF NB LANES THROUGH CROSSOVERS.
RECONSTRUCT SB BRIDGE, APPROACH GUTTERS, & SLABS OVER LORANCE CREEK.
RECONSTRUCT SB LANES BETWEEN STA. 382+35 TO STA. 392+80.
RECONSTRUCT I-530 SB ENTRANCE RAMP AT BINGHAM RD. INTERCHANGE.

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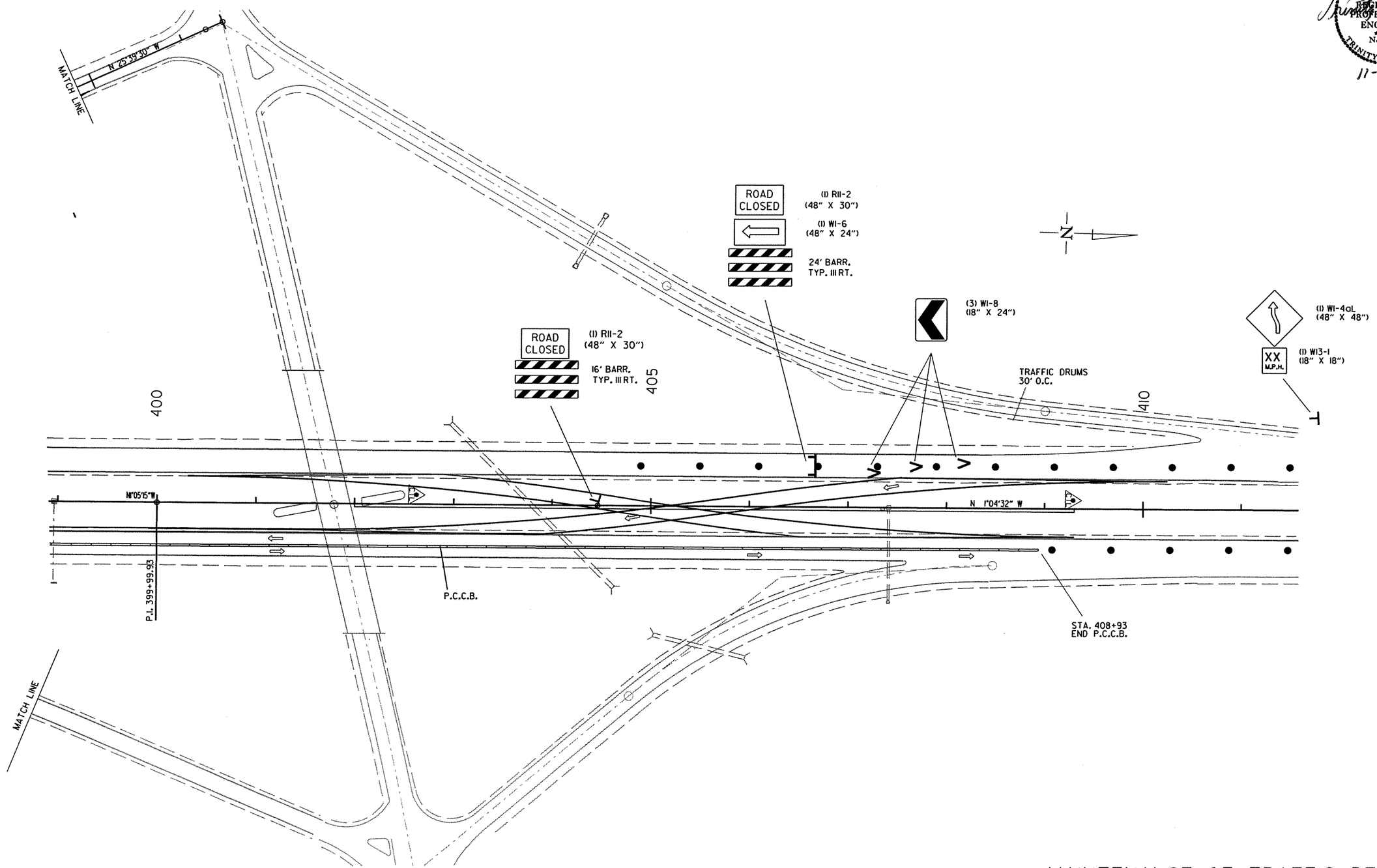


MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

8/29/2012

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| 11-16-12 | | | | 6 | ARK. | | | |
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(2) MAINTENANCE OF TRAFFIC DETAILS

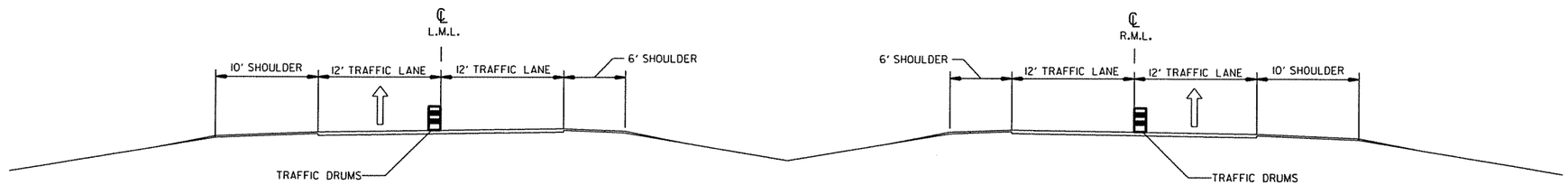
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH

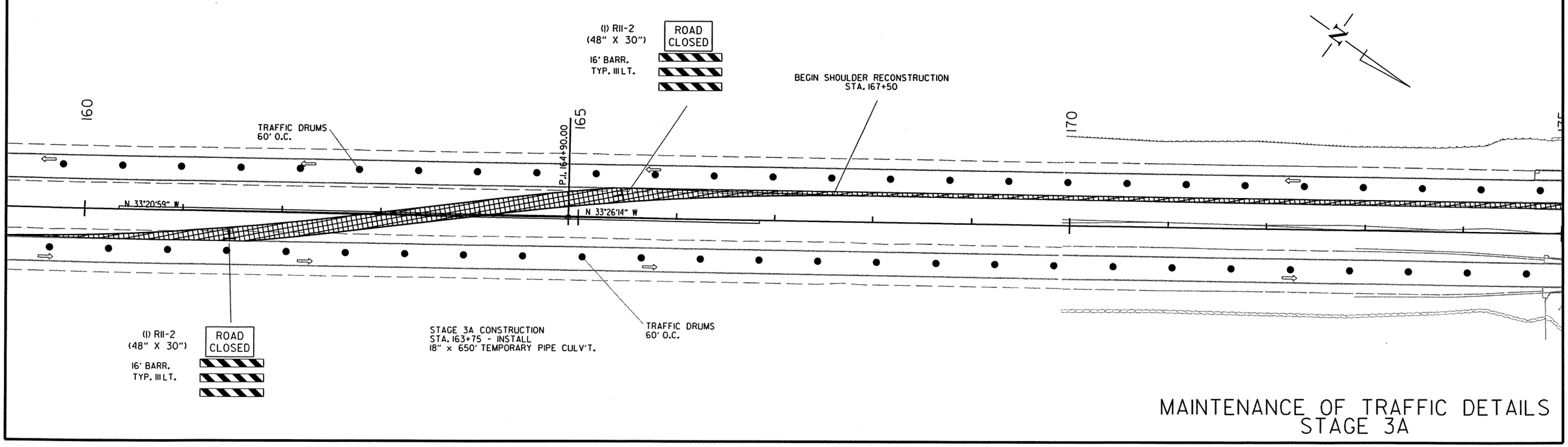
11-16-12

SEQUENCE OF CONSTRUCTION
STAGE 3A
ROUTE SB TRAFFIC ONTO OUTSIDE OF RECONSTRUCTED SB LANES.
LEAVE NB TRAFFIC ON OUTSIDE NB LANES.
CONSTRUCT TEMPORARY CROSSOVERS IN AREAS SHOWN.
RECONSTRUCT SHOULDERS IN AREAS SHOWN

STAGE 3A QUANTITIES
TRAFFIC DRUMS = 1462 EACH
NOTE: P.C.C.B. IN PLACE FROM STAGE 2

RIGHT MAIN LANE LEFT SHOULDER RECONSTRUCTION
STA. 56+20.00 TO STA. 58+20.00
STA. 59+80.00 TO STA. 60+60.00
STA. 283+18.00 TO STA. 285+18.00
STA. 286+80.00 TO STA. 287+60.00




MAINTENANCE OF TRAFFIC DETAILS
STAGE 3A

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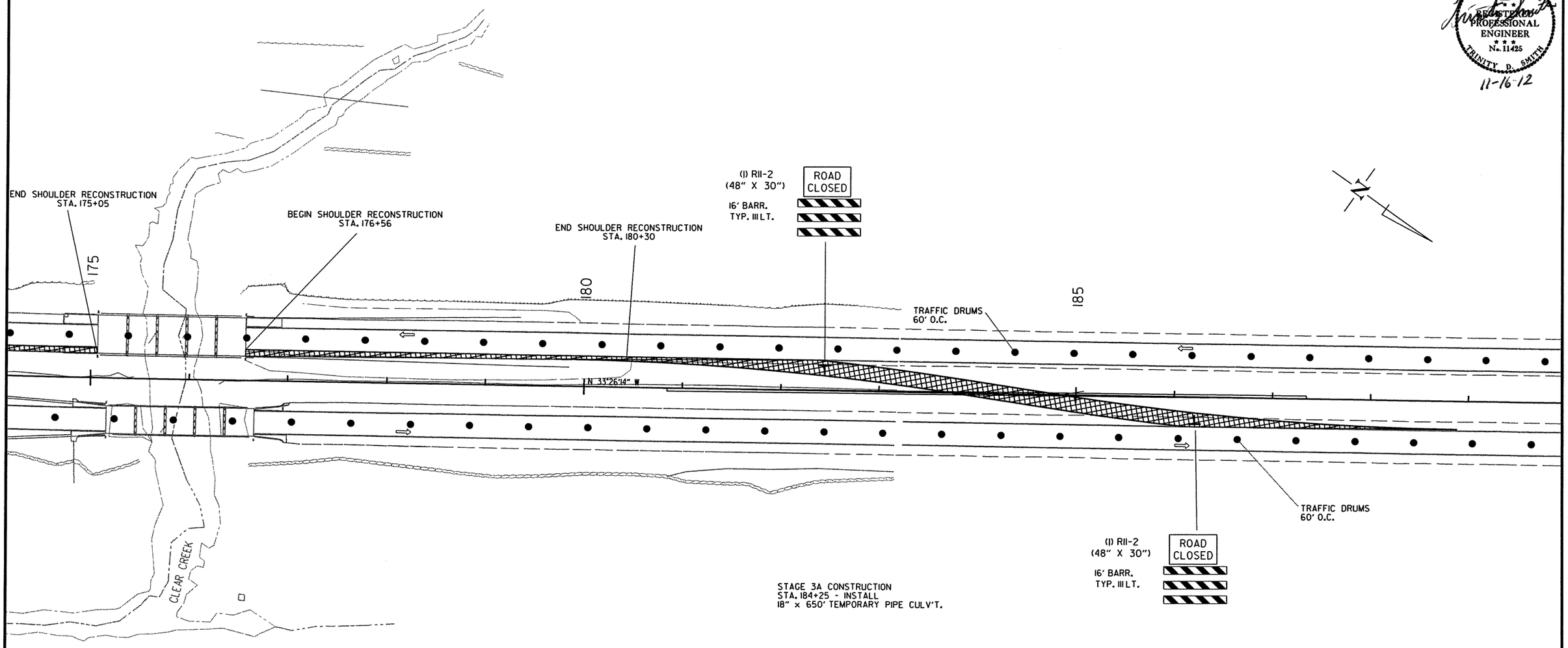
(2) MAINTENANCE OF TRAFFIC DETAILS

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

11-16-12

SEQUENCE OF CONSTRUCTION
STAGE 3A
ROUTE SB TRAFFIC ONTO OUTSIDE OF RECONSTRUCTED SB LANES.
LEAVE NB TRAFFIC ON OUTSIDE NB LANES.
CONSTRUCT TEMPORARY CROSSOVERS IN AREAS SHOWN.
RECONSTRUCT SHOULDERS IN AREAS SHOWN




# MAINTENANCE OF TRAFFIC DETAILS
# STAGE 3A

RBB0614_DHALL 7-27-12.DGN 8/17/2012

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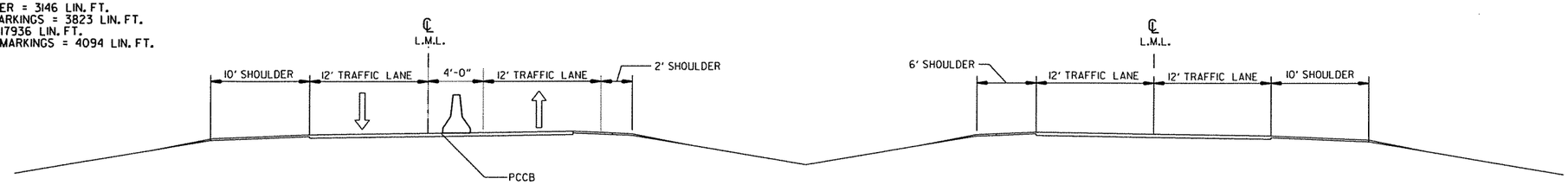
(2) MAINTENANCE OF TRAFFIC DETAILS

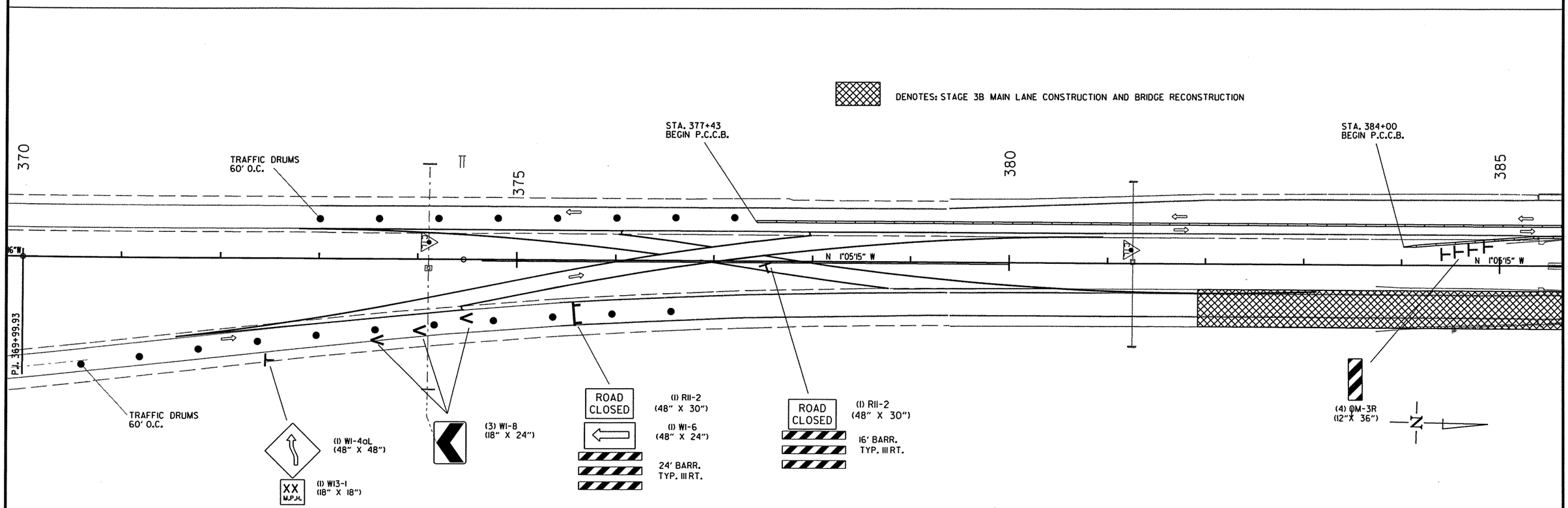
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH

11-16-12

SEQUENCE OF CONSTRUCTION
STAGE 3B
INSTALL PRECAST CONCRETE BARRIER ONTO EXISTING SB LANES IN AREAS SHOWN.
ROUTE NB TRAFFIC ONTO INSIDE OF SB LANES THROUGH CROSSOVERS.
RECONSTRUCT NB BRIDGES, APPROACH GUTTERS, & SLABS OVER LORANCE CREEK.
RECONSTRUCT NB LANES BETWEEN STA. 382+35 TO STA. 392+80.

STAGE 3B QUANTITIES
TRAFFIC DRUMS = 1326 EACH
RELOCATING PRECAST CONCRETE BARRIER = 3146 LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 3823 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 17936 LIN. FT.
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS = 4094 LIN. FT.




MAINTENANCE OF TRAFFIC DETAILS
STAGE 3B

8/28/2012

RBB0614.DGN

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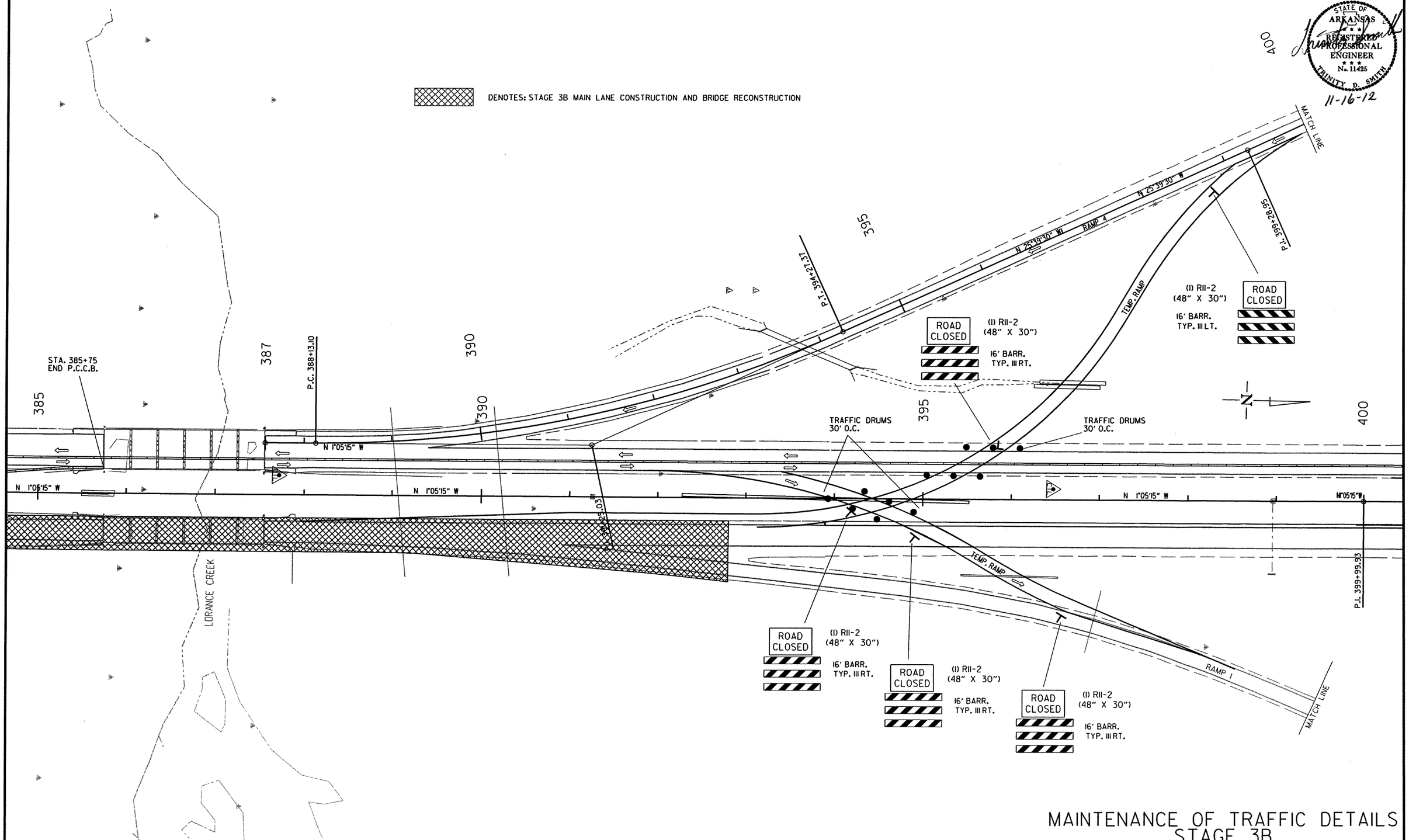
| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 61 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION
STAGE 3B
INSTALL PRECAST CONCRETE BARRIER ONTO EXISTING SB LANES IN AREAS SHOWN.
ROUTE NB TRAFFIC ONTO INSIDE OF SB LANES THROUGH CROSSOVERS.
RECONSTRUCT NB BRIDGES, APPROACH GUTTERS, & SLABS OVER LORANCE CREEK.
RECONSTRUCT NB LANES BETWEEN STA. 382+35 TO STA. 392+80.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
11-16-12




MAINTENANCE OF TRAFFIC DETAILS
STAGE 3B

8/28/2012

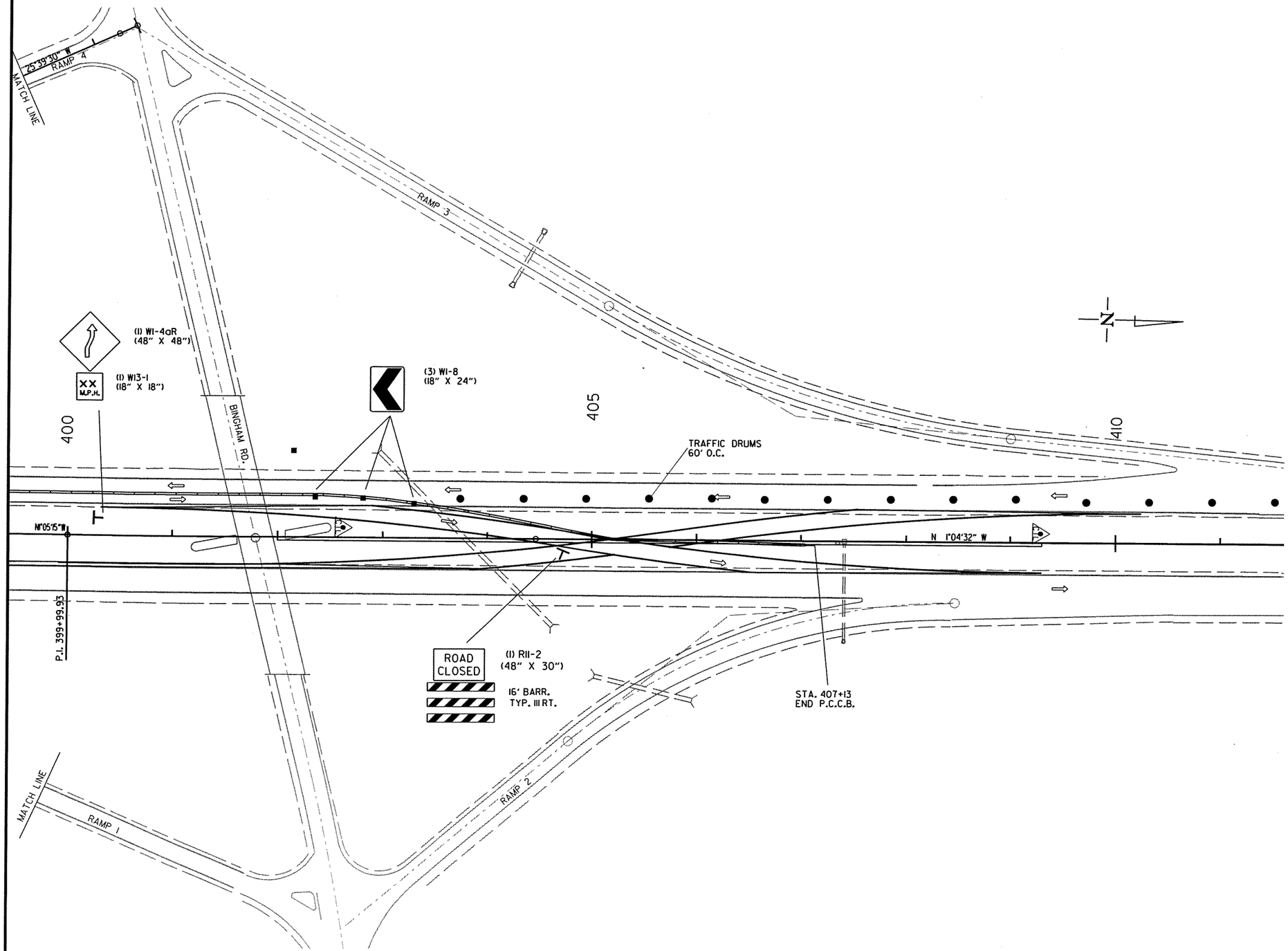
RBB0614.DGN

SEQUENCE OF CONSTRUCTION
STAGE 3B
INSTALL PRECAST CONCRETE BARRIER ONTO EXISTING SB LANES IN AREAS SHOWN.
ROUTE NB TRAFFIC ONTO INSIDE OF SB LANES THROUGH CROSSOVERS.
RECONSTRUCT NB BRIDGES, APPROACH GUTTERS, & SLABS OVER LORANCE CREEK.
RECONSTRUCT NB LANES BETWEEN STA. 382+35 TO STA. 392+80.

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 62 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
11-16-12




MAINTENANCE OF TRAFFIC DETAILS
STAGE 3B

8/28/2012

RBB0614.DGN

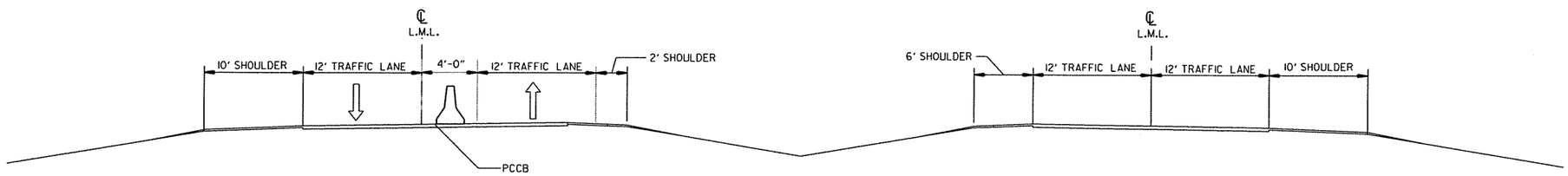
STAGE 3C
RECONSTRUCT NB BRIDGES, APPROACH GUTTERS, & SLAB OVER CLEAR CREEK.

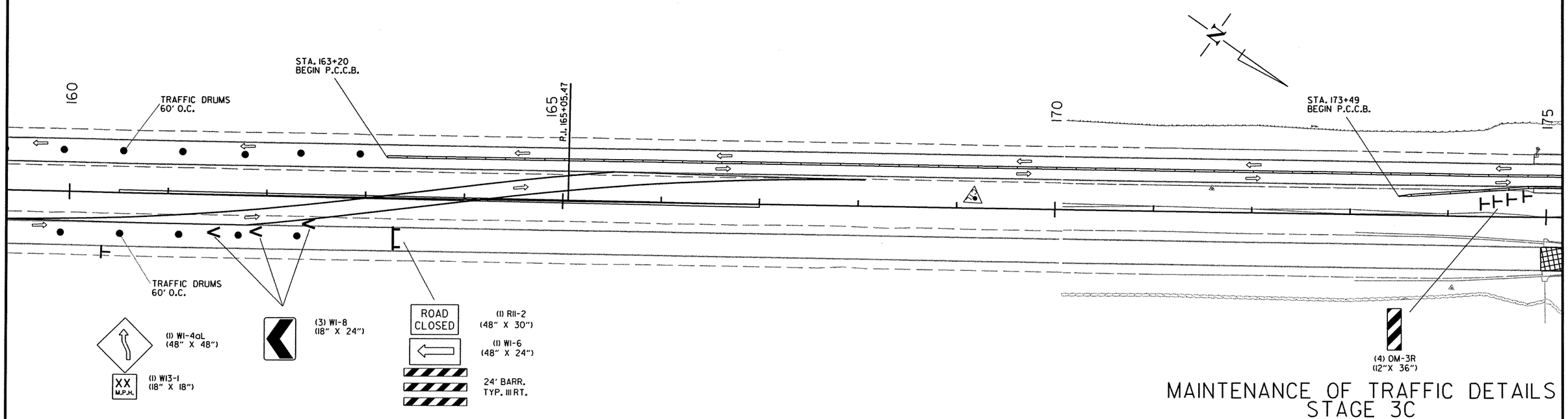
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | B80614 | 63 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
11-16-12

STAGE 3C QUANTITIES
TRAFFIC DRUMS = 1314 EACH
FURNISH AND INSTALL PRECAST CONCRETE BARRIER WALL = 2126 LIN. FT.
RELOCATING PRECAST CONCRETE BARRIER WALL = 440 LIN. FT.




MAINTENANCE OF TRAFFIC DETAILS
STAGE 3C

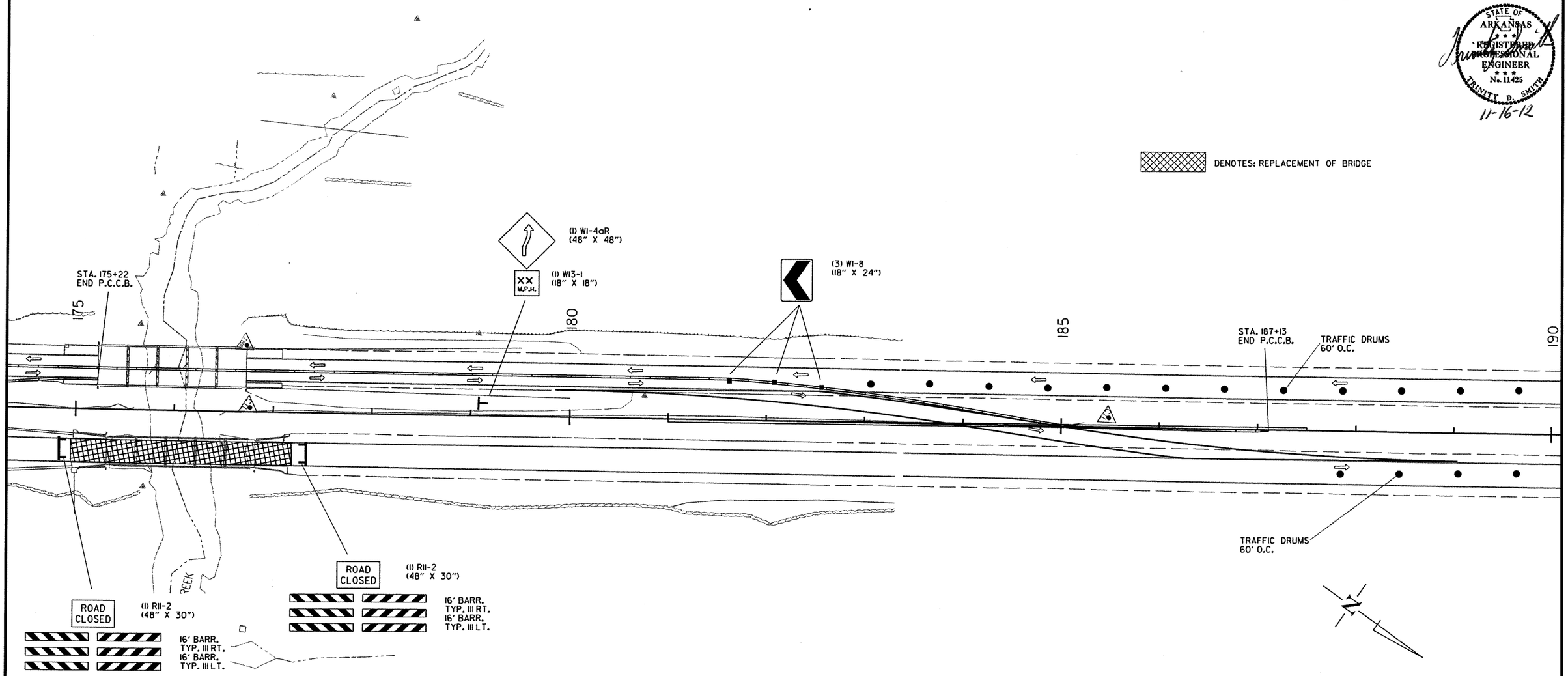
RBB0614_DHALL 7-27-12.DGN 8/17/2012

STAGE 3C
RECONSTRUCT NB BRIDGES, APPROACH GUTTERS, & SLAB OVER CLEAR CREEK.

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | B80614 | 64 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
11-16-12




MAINTENANCE OF TRAFFIC DETAILS
STAGE 3C

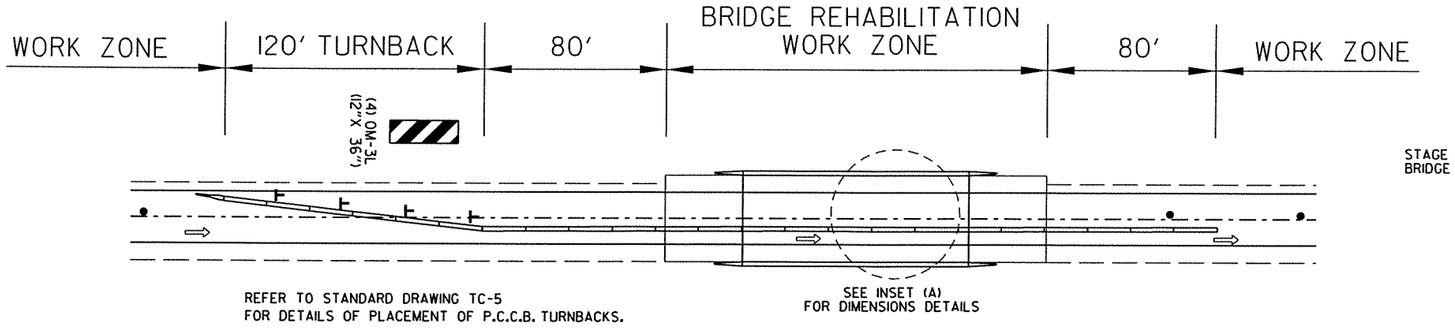
RBB0614_DHALL 7-27-12.DGN 8/17/2012

SEQUENCE OF CONSTRUCTION
STAGE 3D
CONDUCT HYDRODEMOLITION/REHABILITATION OPERATIONS AT CAMPBELL CREEK & MAPLE CREEK.

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 65 | 219 |

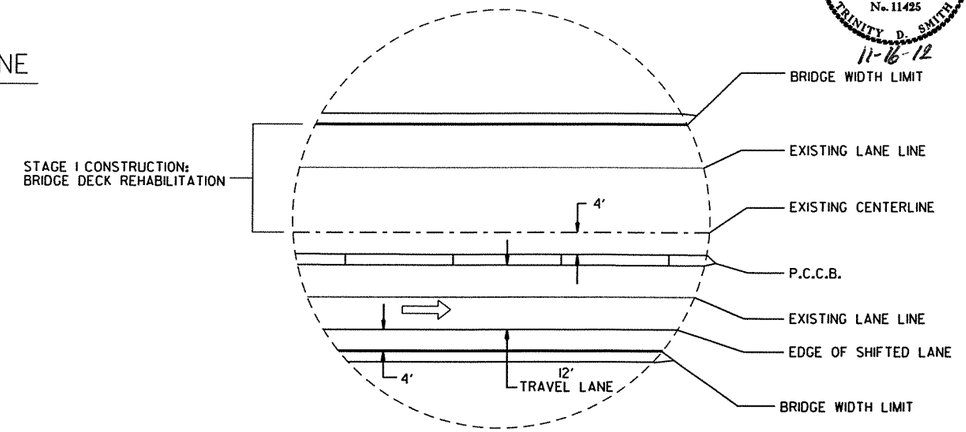
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
11-16-12

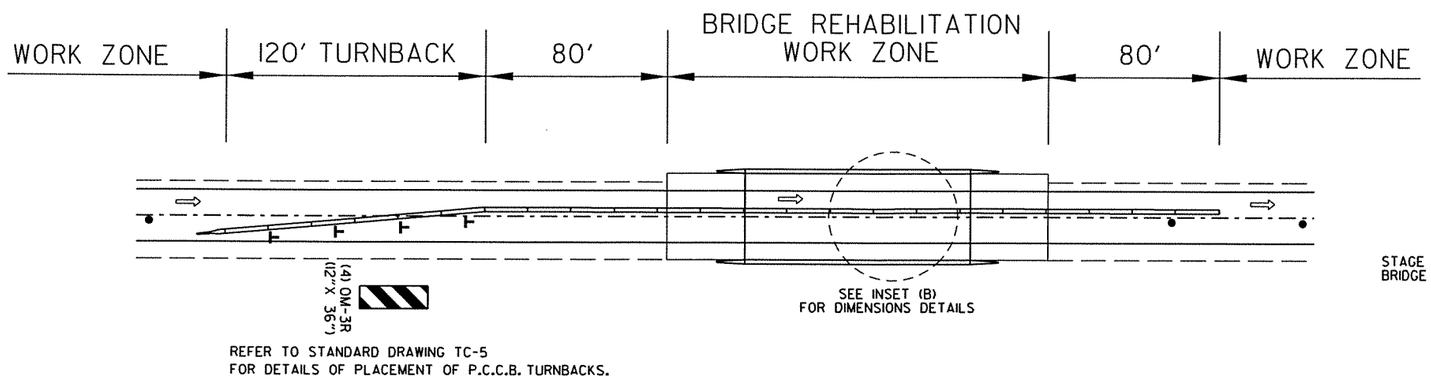



## DIVERSION FOR LT. LANE BRIDGE DECK REHABILITATION AND APPROACH GUTTER AND SLAB RECONSTRUCTION

2 SETS OF THIS NEEDED FOR JOB BB0614.

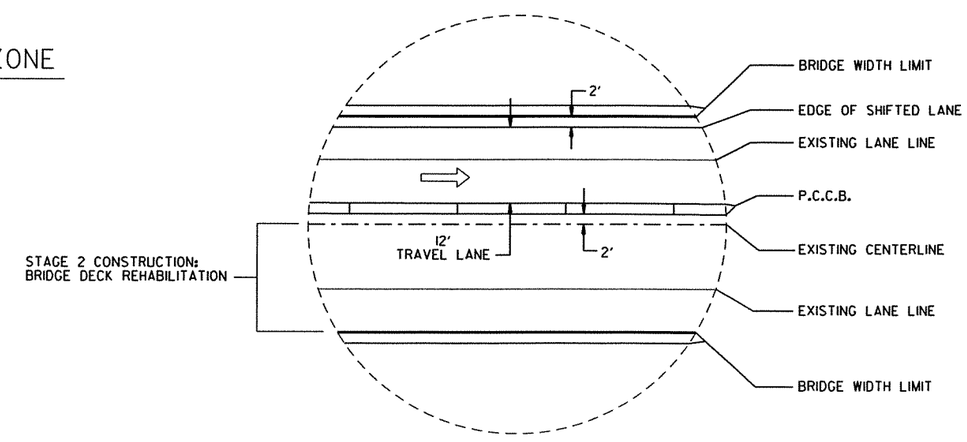



INSET A




## DIVERSION FOR RT. LANE BRIDGE DECK REHABILITATION AND APPROACH GUTTER AND SLAB RECONSTRUCTION

2 SETS OF THIS NEEDED FOR JOB BB0614.




INSET B

SHOULDER RECONSTRUCTION STATION LIMITS
NOTE: SEE SHEET 7 FOR SHOULDER RECONSTRUCTION TYPICAL SECTION

| RIGHT MAIN LANE | RIGHT SHOULDER RECONSTRUCTION |
|---|---|
| STA. 56+20.00 TO | STA. 58+20.00 |
| STA. 59+80.00 TO | STA. 60+60.00 |
| STA. 283+18.00 TO | STA. 285+18.00 |
| STA. 286+80.00 TO | STA. 287+60.00 |

# MAINTENANCE OF TRAFFIC DETAILS
# STAGE 3D
# WORK ZONE - BRIDGE DECK REHABILITATION

10/11/2012

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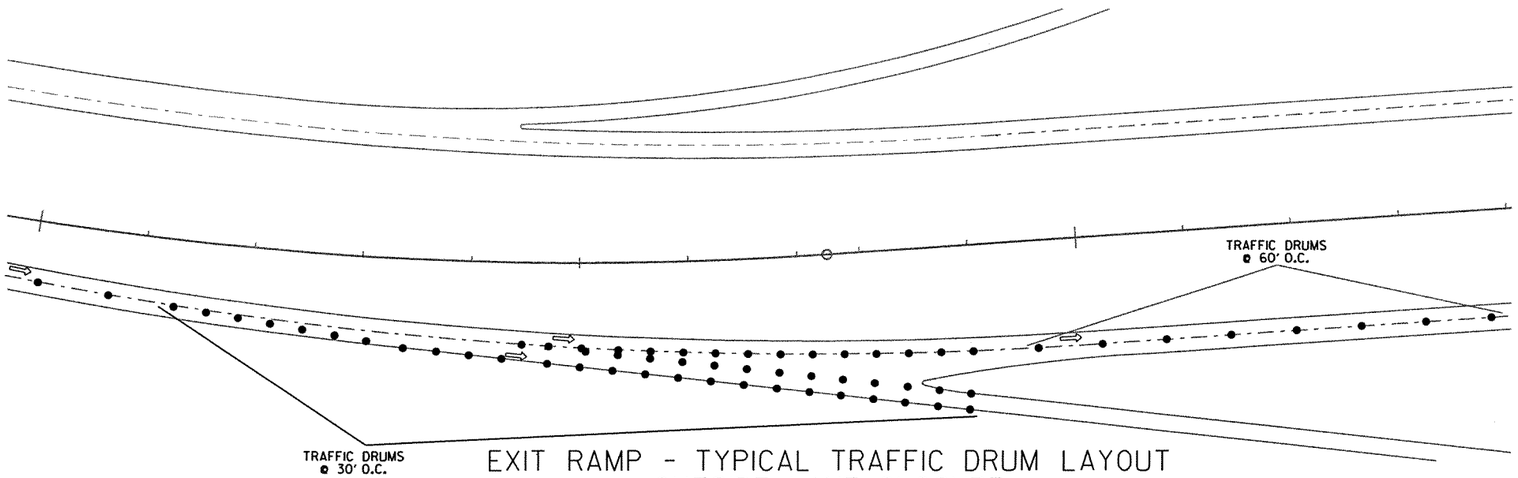
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 66 | 219 |

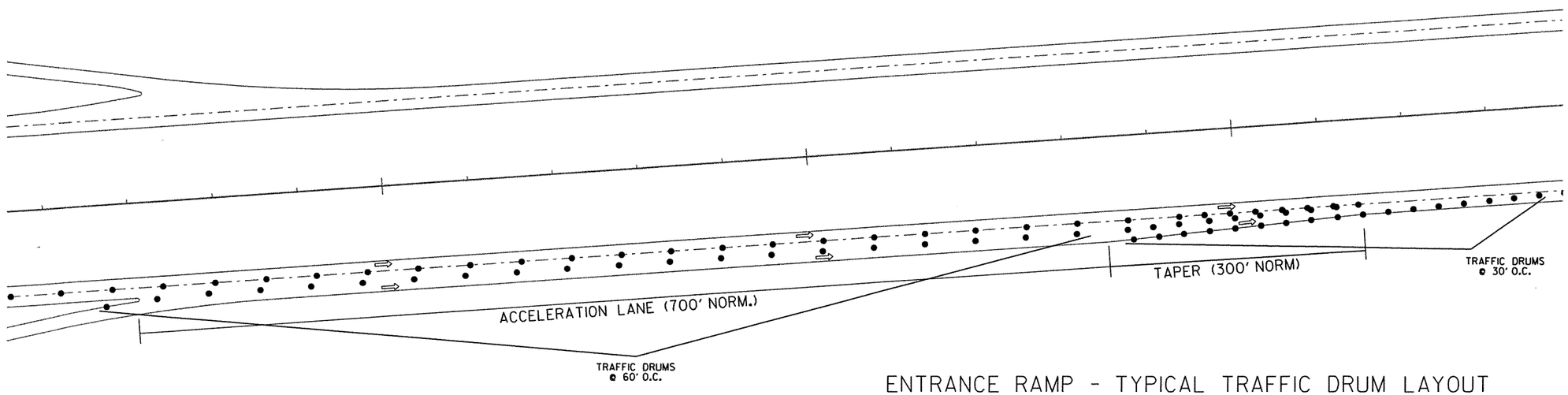
(2) MAINTENANCE OF TRAFFIC DETAILS

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

10-19-12




EXIT RAMP - TYPICAL TRAFFIC DRUM LAYOUT
OUTSIDE LANE CLOSURE




ENTRANCE RAMP - TYPICAL TRAFFIC DRUM LAYOUT
OUTSIDE LANE CLOSURE

HENSLEY RD.:
NORTHBOUND ENTRANCE = 48 TRAFFIC DRUMS
NORTHBOUND EXIT = 53 TRAFFIC DRUMS

SOUTHBOUND ENTRANCE = 48 TRAFFIC DRUMS
SOUTHBOUND EXIT = 53 TRAFFIC DRUMS

WOODSON LATERAL RD.:
NORTHBOUND ENTRANCE = 48 TRAFFIC DRUMS
NORTHBOUND EXIT = 53 TRAFFIC DRUMS

SOUTHBOUND ENTRANCE = 48 TRAFFIC DRUMS
SOUTHBOUND EXIT = 53 TRAFFIC DRUMS

HWY. 167:
NORTHBOUND ENTRANCE = 69 TRAFFIC DRUMS

SOUTHBOUND EXIT = 53 TRAFFIC DRUMS
SOUTHBOUND ENTRANCE = 48 TRAFFIC DRUMS

BINGHAM RD.:
NORTHBOUND ENTRANCE = 48 TRAFFIC DRUMS
NORTHBOUND EXIT = 53 TRAFFIC DRUMS

SOUTHBOUND ENTRANCE = 48 TRAFFIC DRUMS
SOUTHBOUND EXIT = 53 TRAFFIC DRUMS

# MAINTENANCE OF TRAFFIC
# MILL AND INLAY - STAGE 4
# DETAIL OF RAMPS WITH LANE CLOSURE

10/11/2012

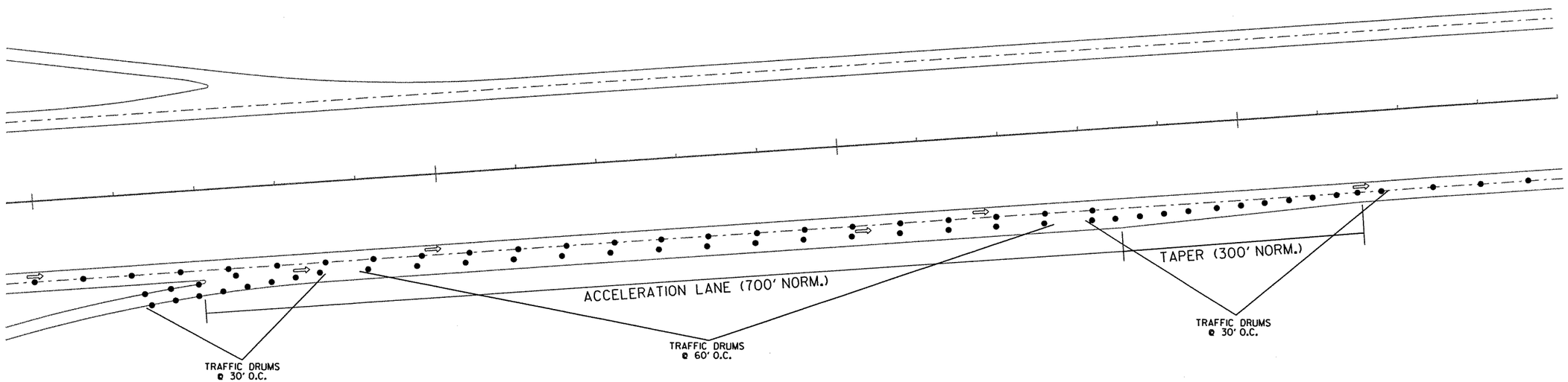
RBB0614.DGN

| 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. | | BB0614 | 67 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

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

10-19-12




ENTRANCE RAMP - TYPICAL TRAFFIC DRUM LAYOUT
ACCELERATION LANE CLOSURE

HENSLEY RD.:
NORTHBOUND ENTRANCE = 36 TRAFFIC DRUMS
SOUTHBOUND ENTRANCE = 36 TRAFFIC DRUMS

WOODSON LATERAL RD.:
NORTHBOUND ENTRANCE = 36 TRAFFIC DRUMS
SOUTHBOUND ENTRANCE = 36 TRAFFIC DRUMS

HWY. 167:
NORTHBOUND ENTRANCE = 54 TRAFFIC DRUMS
SOUTHBOUND ENTRANCE = 36 TRAFFIC DRUMS

BINGHAM RD.:
NORTHBOUND ENTRANCE = 36 TRAFFIC DRUMS
SOUTHBOUND ENTRANCE = 36 TRAFFIC DRUMS

# MAINTENANCE OF TRAFFIC
# MILL AND INLAY - STAGE 4
# DETAIL OF RAMPS WITH LANE CLOSURE

10/11/2012

RBB0614.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. | | BB0614 | 68 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION
STAGE 4A
ROUTE NB TRAFFIC TO OUTSIDE OF RECONSTRUCTED NB LANES.
RETAIN SB TRAFFIC IN OUTSIDE SB LANE.
REMOVE PCCB AND REPLACE WITH TRAFFIC DRUMS.
OBLITERATE TEMPORARY CROSSOVERS AND TEMPORARY RAMPS IN MEDIAN.
MILL AND INLAY INSIDE LANES.

STAGE 4A QUANTITIES
TRAFFIC DRUMS = 2238 EACH
CONSTRUCTION PAVEMENT MARKINGS = 100799 LIN. FT.

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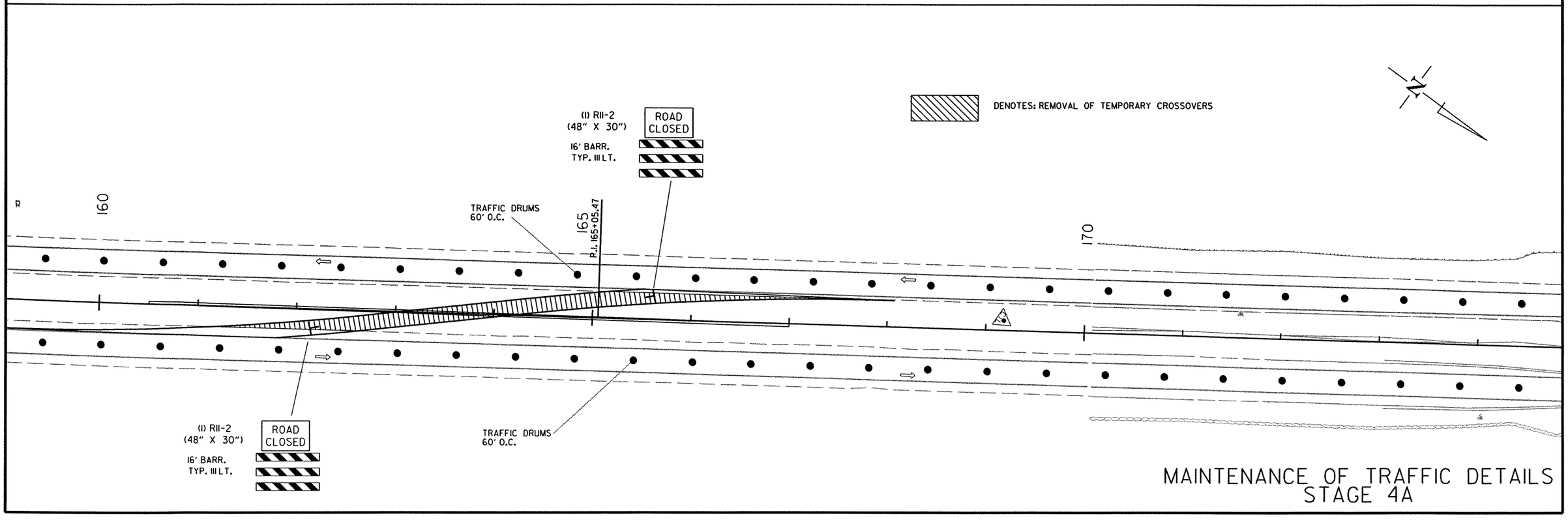



MAINTENANCE OF TRAFFIC DETAILS
STAGE 4A

8/29/2012

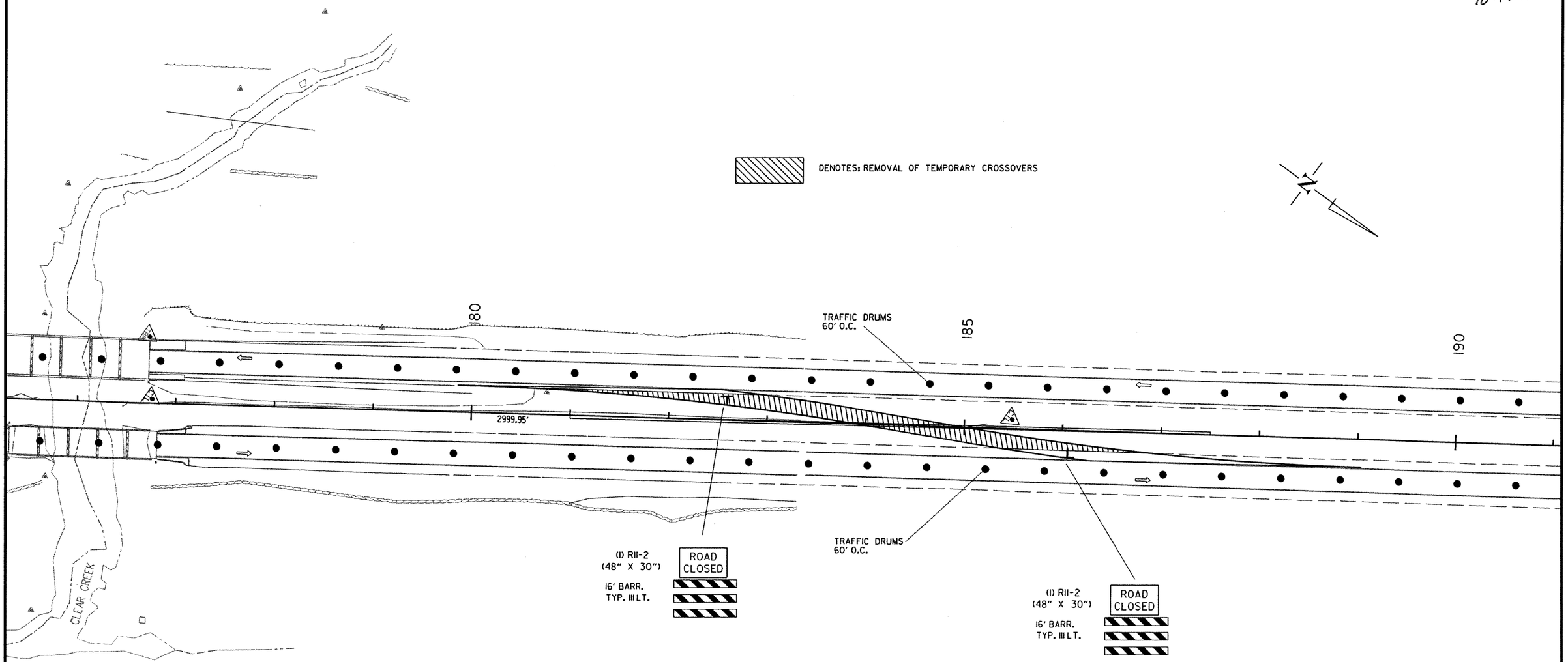
RBB0614.DGN

SEQUENCE OF CONSTRUCTION
STAGE 4A
ROUTE NB TRAFFIC TO OUTSIDE OF RECONSTRUCTED NB LANES.
RETAIN SB TRAFFIC IN OUTSIDE SB LANE.
REMOVE PCCB AND REPLACE WITH TRAFFIC DRUMS.
OBLITERATE TEMPORARY CROSSOVERS AND TEMPORARY RAMPS IN MEDIAN.
MILL AND INLAY INSIDE LANES.

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 69 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-19-12




MAINTENANCE OF TRAFFIC DETAILS
STAGE 4A

8/29/2012

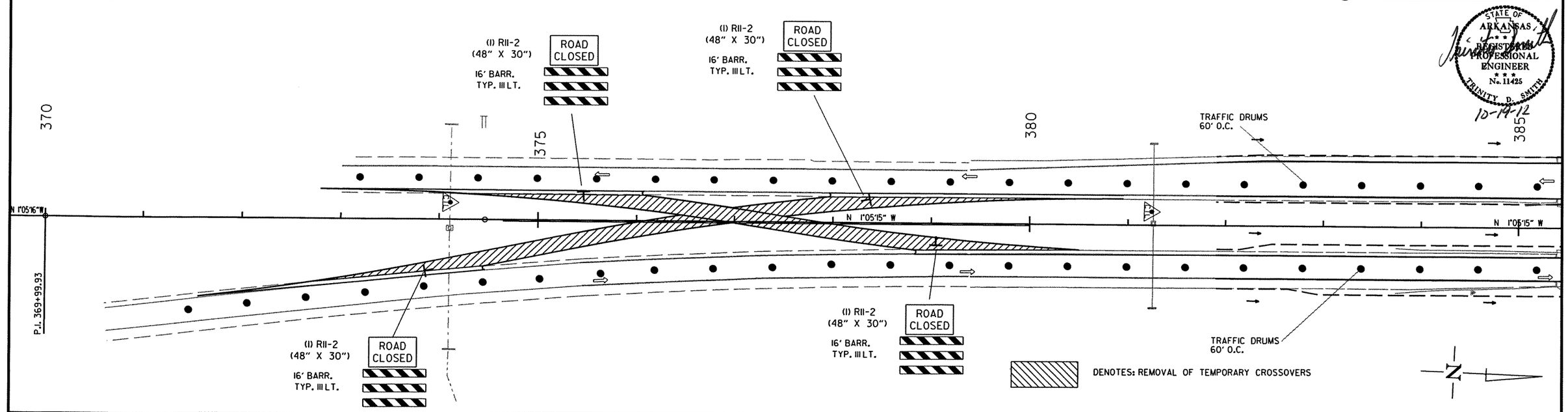
RBB0614.DGN

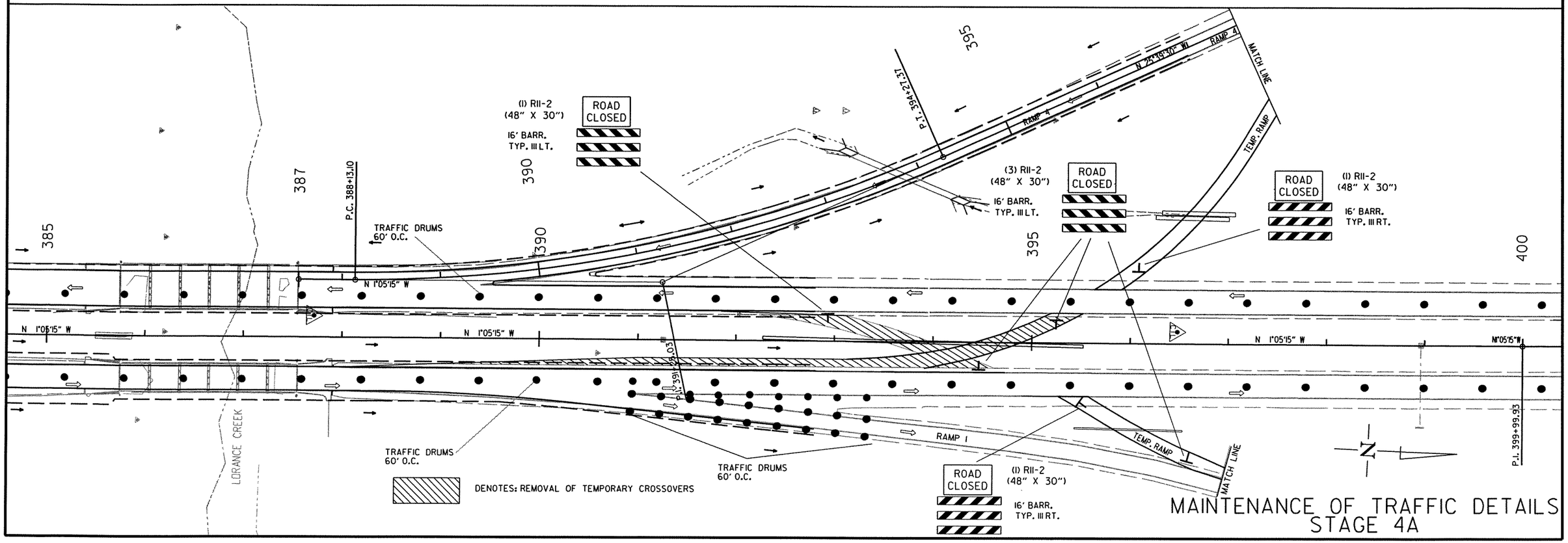
SEQUENCE OF CONSTRUCTION
STAGE 4A
ROUTE NB TRAFFIC TO OUTSIDE OF RECONSTRUCTED NB LANES.
RETAIN SB TRAFFIC IN OUTSIDE SB LANE.
REMOVE PCCB AND REPLACE WITH TRAFFIC DRUMS.
OBLITERATE TEMPORARY CROSSOVERS AND TEMPORARY RAMPS IN MEDIAN.
MILL AND INLAY INSIDE LANES.

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 70 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
10-19-12




MAINTENANCE OF TRAFFIC DETAILS
STAGE 4A

8/29/2012
RBB0614.DGN

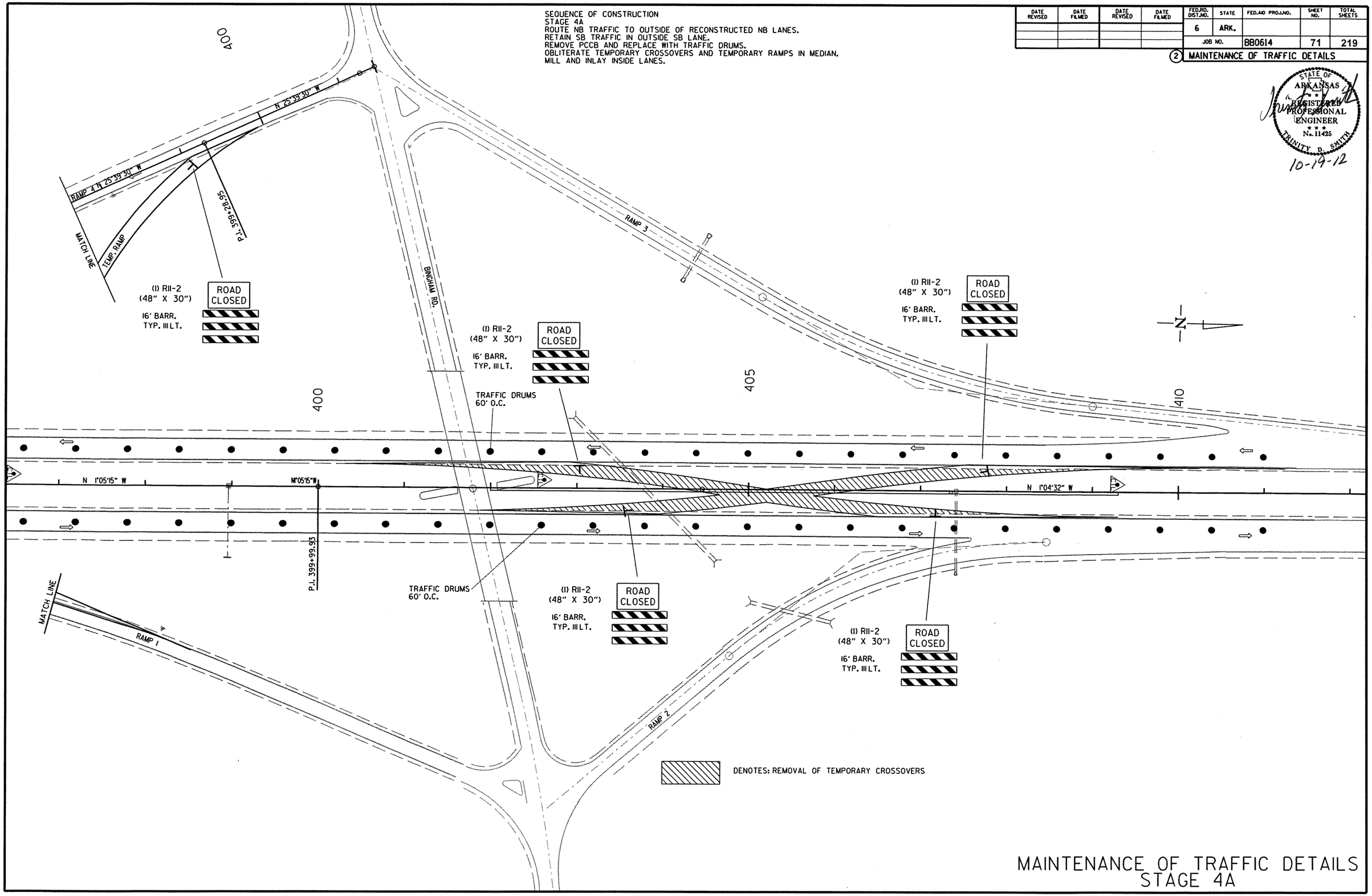
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 71 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

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

10-19-12

SEQUENCE OF CONSTRUCTION
STAGE 4A
ROUTE NB TRAFFIC TO OUTSIDE OF RECONSTRUCTED NB LANES.
RETAIN SB TRAFFIC IN OUTSIDE SB LANE.
REMOVE PCCB AND REPLACE WITH TRAFFIC DRUMS.
OBLITERATE TEMPORARY CROSSOVERS AND TEMPORARY RAMPS IN MEDIAN.
MILL AND INLAY INSIDE LANES.




MAINTENANCE OF TRAFFIC DETAILS
STAGE 4A

8/29/2012

RBB0614.DGN

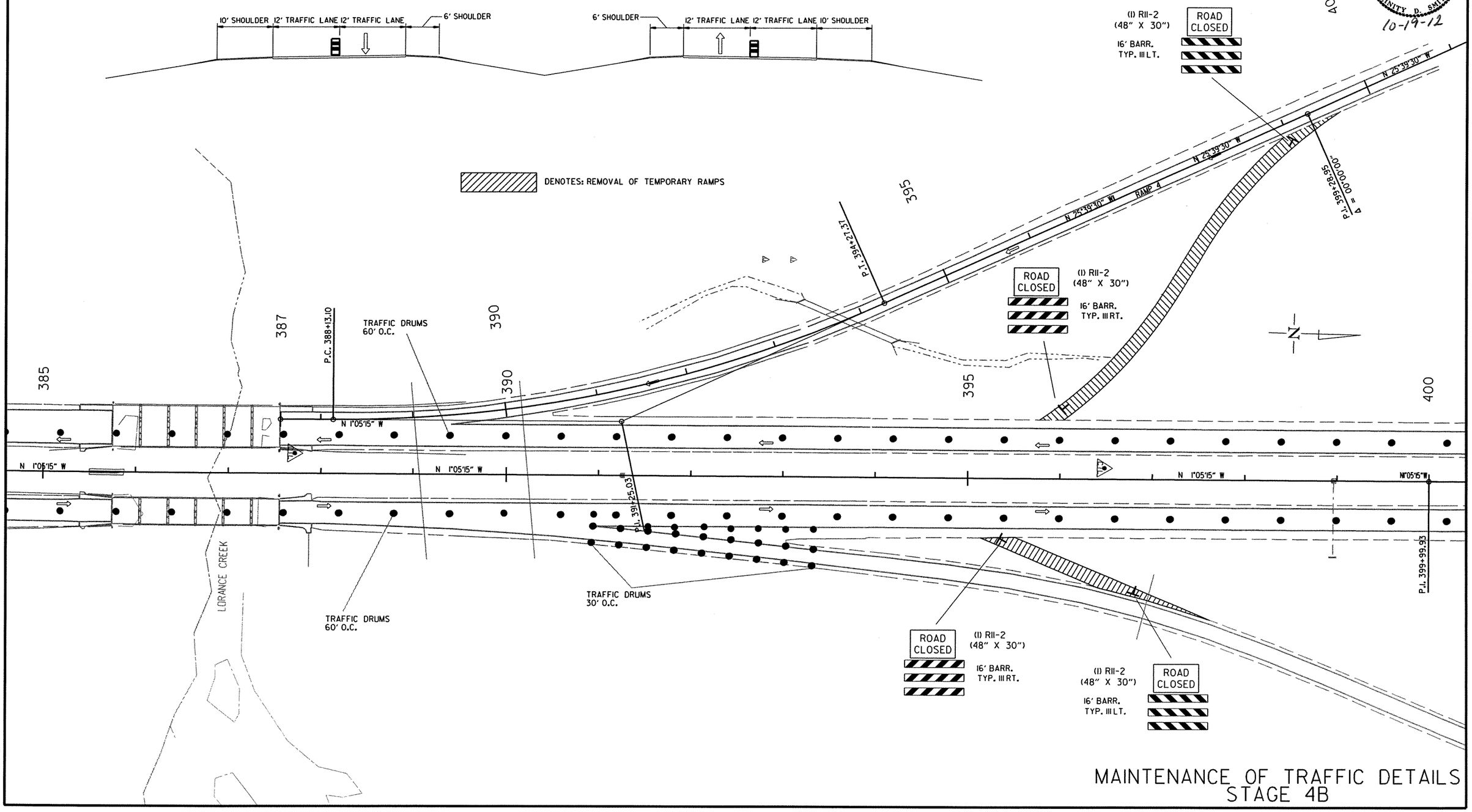
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 72 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION
STAGE 4B
SHIFT NB TRAFFIC TO INSIDE OF NB LANES.
SHIFT SB TRAFFIC TO INSIDE OF SB LANES.
OBLITERATE REMAINING TEMPORARY RAMPS.
OUTSIDE OF PROPOSED MAIN LANES.
MILL AND INLAY OUTSIDE LANES.

STAGE 4A QUANTITIES
TRAFFIC DRUMS = 1829 EACH
CONSTRUCTION PAVEMENT MARKINGS = 100799 LIN. FT.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
10-19-12




MAINTENANCE OF TRAFFIC DETAILS
STAGE 4B

10/1/2012

RBB0614.DGN

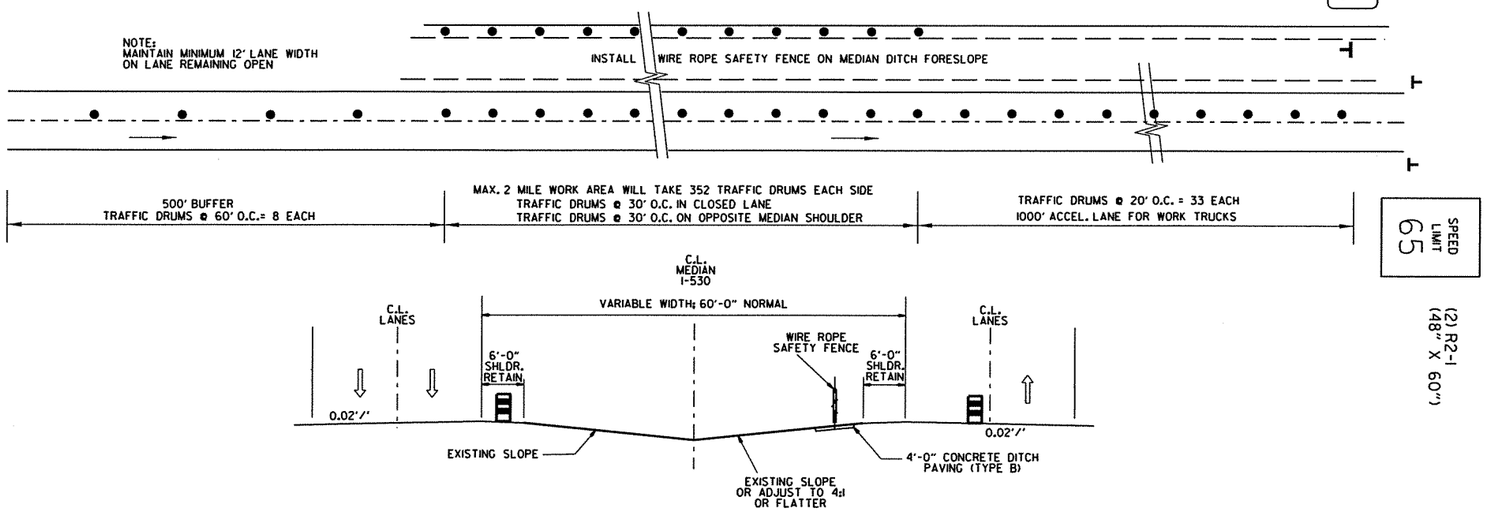
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 73 | 219 |

(2) MAINTENANCE OF TRAFFIC DETAILS

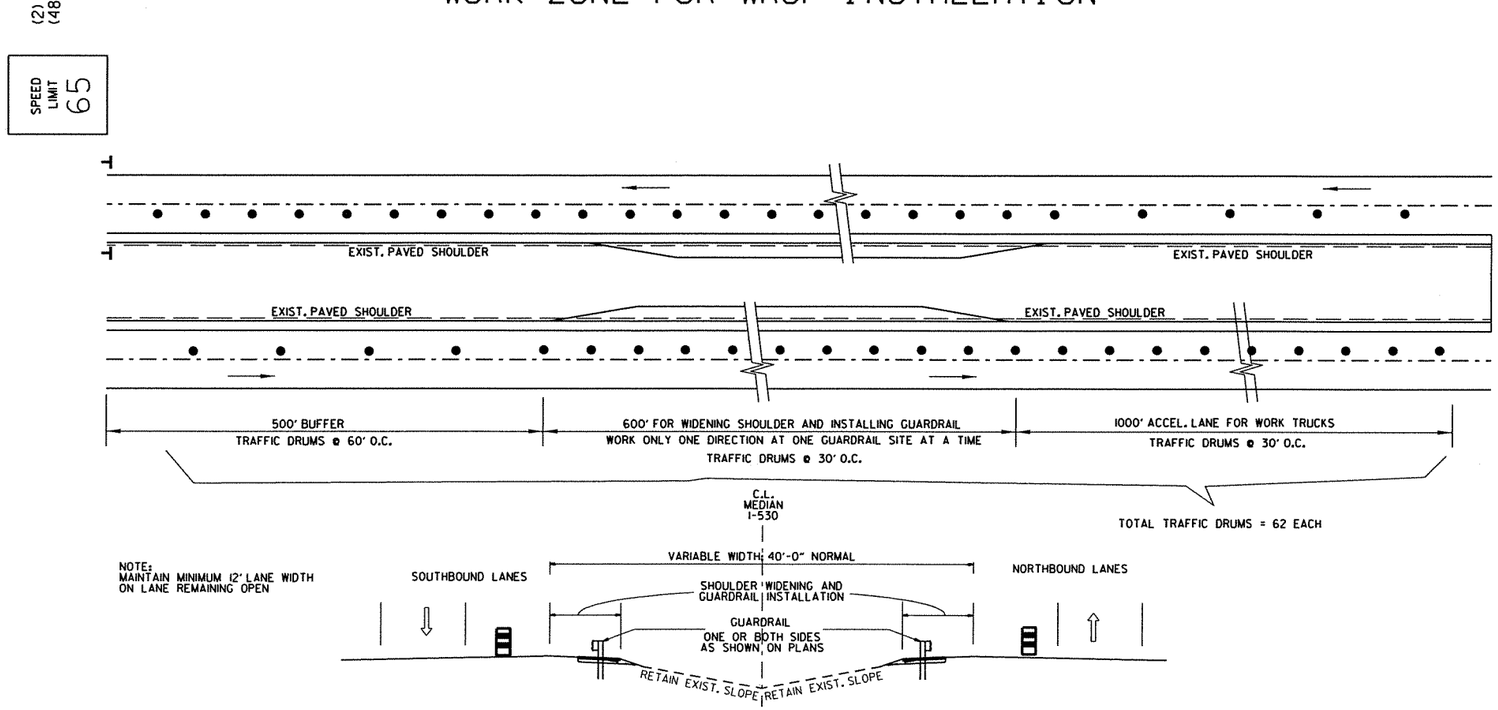
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH

10-19-12

SEQUENCE OF CONSTRUCTION
STAGE 5
INSTALL WIRE ROPE SAFETY FENCE IN AREAS SHOWN IN PLANS.




WORK ZONE FOR WRSF INSTALLATION




MOVABLE WORK ZONE FOR GUARDRAIL INSTALLATION

NOTE: REFER TO SP-MAINTENANCE OF TRAFFIC FOR LANE CLOSURE LIMITATIONS AND RESTRICTIONS.

QUANTITY OF TRAFFIC DRUMS PROVIDED IN THE CONTRACT IS THE MAXIMUM NUMBER REQUIRED FOR CLOSING ONE LANE EACH DIRECTION IN WORK AREA.

NOTE: REFER TO SHEET 49 FOR LANE CLOSURE DETAIL.


(4) W20-1 (48" X 48") ON ENTRANCE RAMPS

MAINTENANCE OF TRAFFIC
STAGE 5 - WORK ZONE FOR WRSF INSTALLATION

10/17/2012

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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 |
|---|---|---|---|---|---|---|---|---|
| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 74 | 219 |

(2) QUANTITIES

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

11-16-12

## ADVANCE WARNING SIGNS AND DEVICES

| SIGN NUMBER | DESCRIPTION | SIGN SIZE | STAGE 1A | STAGE 1B | STAGE 2 | STAGE 3A | STAGE 3B | STAGE 3C | STAGE 3D | STAGE 4A | STAGE 4B | STAGE 5 | MAXIMUM NUMBER REQUIRED | TOTAL SIGNS REQUIRED | | PORTABLE CHANGEABLE MESSAGE SIGN | ADVANCE WARNING ARROW PANEL | TRAFFIC DRUMS | BARRICADES (TYPE III) | | FURNISHING & INSTALLING PRECAST CONC. BARRIER | RELOCATING PRECAST CONCRETE BARRIER | MOBILE SPEED NOTIFICATION SYSTEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | LIN. FT. - EACH | | | | | | | | | | | NO. | SQ. FT. | WEEK | DAY | EACH | RIGHT | LEFT | LIN. FT. | | EACH |
| W20-1 | ROAD WORK 1 MILE | 48"x48" | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 64.0 | | | | | | | | |
| W20-1 | ROAD WORK 1/2 MILE | 48"x48" | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 64.0 | | | | | | | | |
| W20-1 | ROAD WORK 1500 FT. | 48"x48" | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 64.0 | | | | | | | | |
| W20-1 | ROAD WORK AHEAD | 48"x48" | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 288.0 | | | | | | | | |
| W20-5 | RIGHT LANE CLOSED 1 MILE | 48"x48" | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 64.0 | | | | | | | | |
| W20-5 | RIGHT LANE CLOSED 1/2 MILE | 48"x"48" | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 64.0 | | | | | | | | |
| W20-5 | RIGHT LANE CLOSED 1500 FT. | 48"x48" | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 64.0 | | | | | | | | |
| W4-2 RT. | RIGHT LANE CLOSING GRAPHIC | 48"x48" | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 64.0 | | | | | | | | |
| G20-2 | END ROAD WORK | 48"x24" | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 144.0 | | | | | | | | |
| G20-1 | ROAD WORK NEXT xx MILES | 60"x24" | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 20.0 | | | | | | | | |
| W1-4AR | REVERSE CURVE RT. | 48"x48" | | | 1 | | 1 | 1 | 1 | | | | 1 | 1 | 16.0 | | | | | | | | |
| W1-4AL | REVERSE CURVE LT. | 48"x48" | | | 1 | | 2 | 1 | 1 | | | | 2 | 2 | 32.0 | | | | | | | | |
| W13-1 | SPEED LIMIT (ADVISORY) | 24"x24" | | | 1 | | 2 | 2 | 2 | | | | 2 | 2 | 8.0 | | | | | | | | |
| R11-2 | ROAD CLOSED | 48"x30" | 4 | 16 | 13 | 4 | 11 | 11 | 11 | 19 | 4 | 4 | 19 | 19 | 190.0 | | | | | | | | |
| OM-3L | OBJECT MARKER | 12"x36" | | | | | | | 4 | | | | 4 | 4 | 12.0 | | | | | | | | |
| OM-3R | OBJECT MARKER | 12"x36" | | | 4 | | 4 | 4 | 4 | | | | 4 | 4 | 12.0 | | | | | | | | |
| W1-6 | LARGE ARROW | 48"x24" | 6 | 12 | 14 | 24 | 14 | 14 | 14 | 24 | 18 | 6 | 24 | 24 | 192.0 | | | | | | | | |
| W1-8 | CHEVRONS | 18"x24" | | | 6 | | 6 | 6 | 12 | | | | 12 | 12 | 36.0 | | | | | | | | |
| R4-1 | DO NOT PASS | 24"x30" | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 20.0 | | | | | | | | |
| R2-5A | REDUCED SPEED AHEAD | 48"x60" | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 80.0 | | | | | | | | |
| RSP-1 | SHOULDER CLOSED | 48"x30" | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 20.0 | | | | | | | | |
| R2-1 | SPEED LIMIT 60 | 48"x60" | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 80.0 | | | | | | | | |
| R2-1 | SPEED LIMIT 70 | 48"x60" | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 80.0 | | | | | | | | |
| R55-1 | FINES DOUBLE IN WORK ZONES | 36"x60" | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 60.0 | | | | | | | | |
| R2-2 | TRUCK SPEED LIMIT 65 | 48"x60" | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 80.0 | | | | | | | | |
| SPECIAL | MERGE NOW WITH ARROW | 48"x48" | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 64.0 | | | | | | | | |
| R1-2 | YIELD | 60"x60"x60" | | | | | | | | | | | 1 | 1 | 10.9 | | | | | | | | |
| | PORTABLE CHANGEABLE MESSAGE SIGN | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | 384 | | | | | | | |
| | ADVANCE WARNING ARROW PANEL | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | | 1344 | | | | | | |
| | TRAFFIC DRUMS | | 168 | 261 | 149 | 1462 | 1326 | 1314 | 1314 | 2238 | 1829 | 1829 | 2238 | | | | | 2238 | | | | | |
| | TYPE III BARRICADE-RT. (16') | | 2 | 2 | 9 | | 8 | 8 | 8 | 2 | 2 | 2 | 9 | | | | | | 144 | | | | |
| | TYPE III BARRICADE-LT. (16') | | 2 | 14 | 5 | 4 | 3 | 3 | 3 | 17 | 2 | 2 | 17 | | | | | | | 272 | | | |
| | TYPE III BARRICADE-RT. (24') | | | | 1 | | 2 | 2 | 2 | | | | 2 | | | | | | 48 | | | | |
| | FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER | | | | 3586 | | | 2126 | 906 | | | | 5712 | | | | | | | | 5712 | | |
| | RELOCATING PRECAST CONCRETE BARRIER | | | | | | 3146 | 440 | | | | | 3586 | | | | | | | | | 3586 | |
| | MOBILE SPEED NOTIFICATION SYSTEM | | | | | | | | | | | | 2 | | | | | | | | | | 2 |
| TOTALS: | | | | | | | | | | | | | | | 1892.9 | 384 | 1344 | 2238 | 192 | 272 | 5712 | 3586 | 2 |

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.

## CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

| DESCRIPTION | STAGE 2 | STAGE 3B | STAGE 4A | STAGE 4B | END OF JOB | REMOVAL OF PERMANENT PAVEMENT MARKINGS | CONSTRUCTION PAVEMENT MARKINGS | REMOVABLE CONSTRUCTION PAVEMENT MARKINGS | RAISED PAVEMENT MARKERS | HIGH PERFORMANCE PAVEMENT MARKINGS | | | HIGH PERFORMANCE CONTRAST PAVEMENT MARKING | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | TYPE II (WHITE/RED) | 4" | | 8" WHITE | 4" | 8" |
| | | | | | | | | | | WHITE | YELLOW | | WHITE | |
| | LIN. FT. - EACH | | | | | LIN. FT. | | | EACH | LIN. FT. | | | | |
| REMOVAL OF PERMANENT PAVEMENT MARKINGS | 7762 | 3823 | | | | 11585 | | | | | | | | |
| CONSTRUCTION PAVEMENT MARKINGS | 16909 | 17936 | 100799 | 100799 | | | 236443 | | | | | | | |
| REMOVABLE CONSTRUCTION PAVEMENT MARKINGS | 150 | 4094 | | | | | | 4244 | | | | | | |
| RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) | | | | | 1763 | | | | 1763 | | | | | |
| HIGH PERFORMANCE PAVEMENT MARKINGS WHITE (4") | | | | | 105151 | | | | | 105151 | | | | |
| HIGH PERFORMANCE PAVEMENT MARKINGS YELLOW (4") | | | | | 89382 | | | | | | 89382 | | | |
| HIGH PERFORMANCE PAVEMENT MARKINGS WHITE (8") | | | | | 5558 | | | | | | | 5558 | | |
| HIGH PERFORMANCE CONTRAST PAVEMENT MARKING WHITE (4") | | | | | 1250 | | | | | | | | 1250 | |
| HIGH PERFORMANCE CONTRAST PAVEMENT MARKING WHITE (8") | | | | | 257 | | | | | | | | | 257 |
| TOTALS: | | | | | | 11585 | 236443 | 4244 | 1763 | 105151 | 89382 | 5558 | 1250 | 257 |

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.

9/20/2012

RBB0614.DGN

QUANTITIES

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 75 | 219 |

(2) QUANTITIES

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

11-16-12

## CLEARING AND GRUBBING

| STATION | STATION | LOCATION | CLEARING | GRUBBING |
|---|---|---|---|---|
| | | | STATION | |
| 353+32 | 362+84 | I-530 N.B. ACCEL. LANE EXTENSION AT HWY. 167 | 10 | 10 |
| 381+90 | 388+00 | I-530 MAIN LANES | 7 | 7 |
| 391+00 | 392+80 | I-530 MAIN LANES | 2 | 2 |
| 390+00 | 396+97 | BINGHAM RD. RAMP 4 | 7 | 7 |
| 395+00 | 399+50 | BINGHAM RD. TEMPORARY RAMP 4 | 5 | 5 |
| | | | | |
| TOTALS: | | | 31 | 31 |

## BENCH MARKS

| STATION | LOCATION | EACH |
|---|---|---|
| 175+05 | I-530 N.B. MAIN LANES BRIDGE END | 1 |
| 385+67 | I-530 S.B. MAIN LANES BRIDGE END | 1 |
| 385+67 | I-530 N.B. MAIN LANES BRIDGE END | 1 |
| 393+38 | BINGHAM RD. INTERCHANGE RAMP 4 - R.C. BOX CULVERT - PLACE ON RT. HEADWALL | 1 |
| | | |
| | | |
| TOTAL: | | 4 |

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

## REMOVAL AND DISPOSAL OF ITEMS

| STATION | STATION | LOCATION | GUARDRAIL | TERMINAL ANCHOR POSTS | IMPACT ATTENUATION BARRIER | PIER PROTECTION | APPROACH GUTTERS |
|---|---|---|---|---|---|---|---|
| | | | LIN. FT. | EACH | EACH | LIN. FT. | EACH |
| 56+55 | 58+55 | I-530 N.B. MAIN LANE ON LEFT | 200 | 1 | | | |
| 56+55 | 58+55 | I-530 N.B. MAIN LANE ON RIGHT | 200 | 1 | | | |
| 173+15 | 175+15 | I-530 N.B. MAIN LANE ON LEFT | 200 | 1 | | | |
| 173+15 | 175+15 | I-530 N.B. MAIN LANE ON RIGHT | 200 | 1 | | | |
| 283+70 | 285+70 | I-530 N.B. MAIN LANE ON LEFT | 200 | 1 | | | |
| 283+70 | 285+70 | I-530 N.B. MAIN LANE ON RIGHT | 200 | 1 | | | |
| 337+54 | 339+64 | I-530 N.B. MAIN LANE ON RIGHT | 200 | 1 | | | |
| 337+77 | 339+87 | I-530 N.B. MAIN LANE ON LEFT | 200 | 1 | | | |
| 384+00 | 385+75 | I-530 N.B. MAIN LANE ON LEFT | 175 | 1 | | | |
| 384+00 | 385+75 | I-530 N.B. MAIN LANE ON RIGHT | 175 | 1 | | | |
| 387+65 | 389+65 | I-530 S.B. MAIN LANE ON LEFT | 200 | 1 | | | |
| 387+65 | 389+40 | I-530 S.B. MAIN LANE ON RIGHT | 175 | 1 | | | |
| | | | | | | | |
| 74+39 | | HENSLEY RD. OVERPASS | | | 2 | | |
| 250+66 | | WOODSON LATERAL RD. OVERPASS | | | 2 | | |
| 401+77 | | BINGHAM RD. OVERPASS | | | 2 | | |
| | | | | | | | |
| 337+17 | 337+54 | I-530 N.B. MAIN LANE ON RIGHT | | | | 37 | |
| 337+40 | 337+77 | I-530 N.B. MAIN LANE ON LEFT | | | | 37 | |
| | | | | | | | |
| 58+55 | | I-530 N.B. MAIN LANE ON LEFT | | | | | 1 |
| 58+55 | | I-530 N.B. MAIN LANE ON RIGHT | | | | | 1 |
| 175+06 | | I-530 N.B. MAIN LANE ON LEFT | | | | | 1 |
| 175+06 | | I-530 N.B. MAIN LANE ON RIGHT | | | | | 1 |
| 176+57 | | I-530 N.B. MAIN LANE ON LEFT | | | | | 1 |
| 176+57 | | I-530 N.B. MAIN LANE ON RIGHT | | | | | 1 |
| 285+70 | | I-530 N.B. MAIN LANE ON LEFT | | | | | 1 |
| 285+70 | | I-530 N.B. MAIN LANE ON RIGHT | | | | | 1 |
| 385+67 | | I-530 N.B. MAIN LANE ON LEFT | | | | | 1 |
| 385+67 | | I-530 N.B. MAIN LANE ON RIGHT | | | | | 1 |
| 385+67 | | I-530 S.B. MAIN LANE ON LEFT | | | | | 1 |
| 385+67 | | I-530 S.B. MAIN LANE ON RIGHT | | | | | 1 |
| 387+49 | | I-530 N.B. MAIN LANE ON LEFT | | | | | 1 |
| 387+49 | | I-530 N.B. MAIN LANE ON RIGHT | | | | | 1 |
| 387+49 | | I-530 S.B. MAIN LANE ON LEFT | | | | | 1 |
| 387+49 | | I-530 S.B. MAIN LANE ON RIGHT | | | | | 1 |
| | | | | | | | |
| | | | | | | | |
| TOTALS: | | | 2325 | 12 | 6 | 74 | 16 |

## GUARDRAIL

| STATION | STATION | LOCATION | GUARDRAIL (TYPE A) | THRIE BEAM GUARDRAIL TERMINAL | GUARDRAIL TERMINAL (TYPE 2) | TERMINAL ANCHOR POST (TYPE 1) |
|---|---|---|---|---|---|---|
| | | | LIN. FT. | EACH | | |
| 964+07.60 | 969+07.60 | I-530 N.B. MAIN LANES - INSIDE | 450 | | 1 | 1 |
| 967+15.60 | 972+15.60 | I-530 S.B. MAIN LANES - INSIDE | 450 | | 1 | 1 |
| 55+26.85 | 58+45.60 | I-530 N.B. MAIN LANES - INSIDE | 250 | 1 | 1 | |
| 55+76.85 | 58+45.60 | I-530 N.B. MAIN LANES - OUTSIDE | 200 | 1 | 1 | |
| 70+30.00 | 75+30.00 | I-530 N.B. MAIN LANES - INSIDE | 450 | | 1 | 1 |
| 73+20.00 | 78+20.00 | I-530 S.B. MAIN LANES - INSIDE | 450 | | 1 | 1 |
| 171+77.82 | 174+96.57 | I-530 N.B. MAIN LANES - INSIDE | 250 | 1 | 1 | |
| 172+27.82 | 174+96.57 | I-530 N.B. MAIN LANES - OUTSIDE | 200 | 1 | 1 | |
| 246+56.00 | 251+56.00 | I-530 N.B. MAIN LANES - INSIDE | 450 | | 1 | 1 |
| 249+42.00 | 254+42.00 | I-530 S.B. MAIN LANES - INSIDE | 450 | | 1 | 1 |
| 282+41.80 | 285+60.55 | I-530 N.B. MAIN LANES - INSIDE | 250 | 1 | 1 | |
| 282+91.80 | 285+60.55 | I-530 N.B. MAIN LANES - OUTSIDE | 200 | 1 | 1 | |
| 337+54.00 | 340+97.75 | I-530 S.B. MAIN LANES - OUTSIDE | 325 | 1 | 1 | |
| 337+77.00 | 341+70.75 | I-530 S.B. MAIN LANES - INSIDE | 275 | 1 | 1 | |
| 382+38.97 | 385+57.72 | I-530 N.B. MAIN LANES - INSIDE | 250 | 1 | 1 | |
| 382+88.97 | 385+57.72 | I-530 N.B. MAIN LANES - OUTSIDE | 200 | 1 | 1 | |
| 387+58.02 | 390+76.77 | I-530 S.B. MAIN LANES - INSIDE | 250 | 1 | 1 | |
| 387+58.02 | 390+76.77 | I-530 S.B. MAIN LANES - OUTSIDE | 250 | 1 | 1 | |
| 398+00.00 | 403+00.00 | I-530 N.B. MAIN LANES - INSIDE | 450 | | 1 | 1 |
| 400+51.00 | 405+51.00 | I-530 S.B. MAIN LANES - INSIDE | 450 | | 1 | 1 |
| | | | | | | |
| | | | | | | |
| TOTALS: | | | 6500 | 12 | 20 | 8 |

## SELECTED PIPE BEDDING

| LOCATION | SELECTED PIPE BEDDING |
|---|---|
| | CU.YD. |
| ENTIRE PROJECT TO BE USED IF | |
| AND WHERE DIRECTED BY THE | 10 |
| ENGINEER | |
| | |
| | |
| TOTAL: | 10 |

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

9/20/2012

RBB0614.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 76 | 219 |

(2) QUANTITIES

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

11-16-12

## EARTHWORK

| STATION | STATION | LOCATION / DESCRIPTION | UNCLASSIFIED EXCAVATION | COMPACTED EMBANKMENT | * SOIL STABILIZATION |
|---|---|---|---|---|---|
| | | | CU. YD. | | TON |
| ENTIRE | PROJECT | MAIN LANES | 4706 | 4855 | |
| 389+52.49 | 396+96.95 | BINGHAM RD. INTERCHANGE RAMP 4 | 1255 | 2755 | |
| | | | | | |
| 353+32.03 | 362+84.43 | N.B. ACCELERATION LANE EXTENSION AT HWY. 167 | 309 | 170 | |
| | | | | | |
| ENTIRE | PROJECT | M.O.T. CROSSOVERS | | 5300 | |
| ENTIRE | PROJECT | M.O.T. CROSSOVERS - REMOVAL | 8350 | | |
| | | | | | |
| 395+13.12 | 399+92.71 | BINGHAM RD. INTERCHANGE TEMPORARY RAMP 4 | | 1500 | |
| 395+13.12 | 399+92.71 | BINGHAM RD. INTERCHANGE TEMPORARY RAMP 4 - REMOVAL | 1820 | | |
| 395+26.92 | 398+27.06 | BINGHAM RD. INTERCHANGE TEMPORARY RAMP 1 | | 750 | |
| 395+26.92 | 398+27.06 | BINGHAM RD. INTERCHANGE TEMPORARY RAMP 1 - REMOVAL | 785 | | |
| | | | | | |
| * ENTIRE | PROJECT | TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER | | | 500 |
| | | | | | |
| | | | | | |
| **TOTALS:** | | | **17225** | **15330** | **500** |

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

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

## EROSION CONTROL

| STATION | STATION | LOCATION | PERMANENT EROSION CONTROL | | | | | TEMPORARY EROSION CONTROL | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SEEDING | LIME | MULCH COVER | WATER | SECOND SEEDING APPLICATION | TEMPORARY SEEDING | MULCH COVER | WATER | SAND BAG DITCH CHECKS (E-5) | ROCK DITCH CHECKS (E-6) | DROP INLET SILT FENCE (E-7) | SILT FENCE (E-11) | SEDIMENT BASIN (E-14) | OBLITERATION OF SEDIMENT BASIN | *SEDIMENT REMOVAL & DISPOSAL |
| | | | ACRE | TON | ACRE | M.GAL. | ACRE | ACRE | ACRE | M.GAL. | BAG | CU.YD. | LIN. FT. | LIN. FT. | CU.YD. | CU.YD. | CU. YD. |
| ENTIRE | PROJECT | STAGE 1A | | | | | | 1.00 | 1.00 | 20.4 | 88 | 12 | | 1313 | | | 49 |
| ENTIRE | PROJECT | STAGE 1B | | | | | | 6.00 | 6.00 | 122.4 | 154 | 18 | 125 | 660 | | | 37 |
| ENTIRE | PROJECT | STAGE 2 | | | | | | | | | 66 | 12 | | 1309 | | | 61 |
| ENTIRE | PROJECT | STAGE 3A | | | | | | | | | 110 | 9 | 50 | 646 | | | |
| ENTIRE | PROJECT | STAGE 3B | | | | | | | | | 44 | 12 | | 1149 | | | |
| ENTIRE | PROJECT | STAGE 4A | | | | | | | | | | | 750 | | | | |
| ENTIRE | PROJECT | STAGE 5 | | | | | | | | | 2046 | 264 | 1625 | | | | |
| ENTIRE | PROJECT | END OF JOB | 6.49 | 12.98 | 6.49 | 662.0 | 6.49 | | | | | | | | | | 7 |
| | | | | | | | | | | | | | | | | | 8 |
| *ENTIRE PROJECT | | TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER | 1.62 | 3.25 | 1.62 | 165.5 | 1.62 | 1.75 | 1.75 | 35.7 | 638 | 81 | 25 | 1269 | 400 | 400 | 448 |
| | | | | | | | | | | | | | | | | | |
| **TOTALS:** | | | **8.11** | **16.23** | **8.11** | **827.5** | **8.11** | **8.75** | **8.75** | **178.5** | **3146** | **408** | **2575** | **6346** | **400** | **400** | **610** |

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 77 | 219 |

(2) QUANTITIES

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

11-16-12

## CONCRETE DITCH PAVING

| STATION | STATION | LOCATION | F.A.P. HSIP-530-1(5)9 LENGTH | WIDTH | CONC. DITCH PAVING (TYPE B) | SOLID SODDING | F.A.P. BIM-B530(204) WATER |
|---|---|---|---|---|---|---|---|
| | | | LIN. FT. | FEET | SQ. YD. | SQ. YD. | M. GAL. |
| 771+85.00 | 967+05.60 | I-530 S.B. MAIN LANES - INSIDE | 19520.60 | 4 | 8676.00 | 4337.91 | 54.7 |
| 968+55.00 | 1102+58.60 | I-530 N.B. MAIN LANES - INSIDE | 13403.60 | 4 | 5792.00 | 2978.58 | 37.5 |
| 1103+63.70 | 1114+51.24 | I-530 S.B. MAIN LANES - INSIDE | 1087.54 | 4 | 483.00 | 241.68 | 3.0 |
| 1113+85.90 | 1124+55.00 | I-530 S.B. MAIN LANES - INSIDE | 1069.10 | 4 | 475.00 | 237.58 | 3.0 |
| 1125+60.00 | 1137+75.00 | I-530 S.B. MAIN LANES - INSIDE | 1215.00 | 4 | 540.00 | 270.00 | 3.4 |
| 1138+25.00 | 1142+97.10 | I-530 S.B. MAIN LANES - INSIDE | 472.10 | 4 | 210.00 | 104.91 | 1.3 |
| 1142+94.90 | 1150+09.00 | I-530 S.B. MAIN LANES - INSIDE | 714.10 | 4 | 317.00 | 158.69 | 2.0 |
| 0+00.00 | 00+88.70 | I-530 S.B. MAIN LANES - INSIDE | 88.70 | 4 | 39.00 | 19.71 | 0.2 |
| 02+00.00 | 5+00.00 | I-530 S.B. MAIN LANES - INSIDE | 300.00 | 4 | 133.33 | 66.67 | 0.8 |
| 0+10.50 | 5+01.32 | I-530 S.B. MAIN LANES - INSIDE | 490.82 | 4 | 218.14 | 109.07 | 1.4 |
| 5+00.00 | 58+45.00 | I-530 S.B. MAIN LANES - INSIDE | 5345.00 | 4 | 2375.56 | 1187.78 | 15.0 |
| 59+55.00 | 70+95.00 | I-530 N.B. MAIN LANES - INSIDE | 1140.00 | 4 | 506.67 | 253.33 | 3.2 |
| 74+95.00 | 174+96.00 | I-530 N.B. MAIN LANES - INSIDE | 10001.00 | 4 | 4444.89 | 2222.44 | 28.0 |
| 176+67.00 | 247+17.00 | I-530 N.B. MAIN LANES - INSIDE | 7050.00 | 4 | 3133.33 | 1566.67 | 19.7 |
| 251+17.00 | 285+60.00 | I-530 N.B. MAIN LANES - INSIDE | 3443.00 | 4 | 1530.22 | 765.11 | 9.6 |
| 286+70.00 | 322+42.00 | I-530 N.B. MAIN LANES - INSIDE | 3572.00 | 4 | 1587.56 | 793.78 | 10.0 |
| 375+21.00 | 385+56.00 | I-530 N.B. MAIN LANES - INSIDE | 1035.00 | 4 | 460.00 | 230.00 | 2.9 |
| 387+60.00 | 398+52.00 | I-530 N.B. MAIN LANES - INSIDE | 1092.00 | 4 | 485.33 | 242.67 | 3.1 |
| | | | | | | | |
| TOTALS: | | | | | 31407.03 | 15786.58 | 198.8 |

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

## WIRE ROPE SAFETY FENCE

| STATION | STATION | LOCATION | F.A.P. HSIP-530-1(5)9 WIRE ROPE SAFETY FENCE | * WRSF ANCHOR | WRSF MAINTENANCE MATERIALS |
|---|---|---|---|---|---|
| | | | LIN. FT | EACH | LUMP SUM |
| 771+85.00 | 967+05.60 | I-530 S.B. MAIN LANES - INSIDE | 19520.60 | 2 | |
| 968+55.00 | 1102+58.60 | I-530 N.B. MAIN LANES - INSIDE | 13403.60 | 2 | |
| 1103+63.70 | 1114+51.24 | I-530 S.B. MAIN LANES - INSIDE | 1087.54 | 1 | |
| 1113+85.90 | 1124+55.00 | I-530 S.B. MAIN LANES - INSIDE | 1069.10 | 1 | |
| 1125+60.00 | 1137+75.00 | I-530 S.B. MAIN LANES - INSIDE | 1215.00 | 2 | |
| 1138+25.00 | 1142+97.10 | I-530 S.B. MAIN LANES - INSIDE | 472.10 | 1 | |
| 1142+94.90 | 1150+09.00 | I-530 S.B. MAIN LANES - INSIDE | 714.10 | | |
| 0+00.00 | 00+88.70 | I-530 S.B. MAIN LANES - INSIDE | 88.70 | 1 | |
| 02+00.00 | 5+00.00 | I-530 S.B. MAIN LANES - INSIDE | 300.00 | 1 | |
| 0+10.50 | 5+01.32 | I-530 S.B. MAIN LANES - INSIDE | 490.82 | | |
| 5+00.00 | 58+45.00 | I-530 S.B. MAIN LANES - INSIDE | 5345.00 | 1 | |
| 59+55.00 | 70+95.00 | I-530 N.B. MAIN LANES - INSIDE | 1140.00 | 2 | |
| 74+95.00 | 174+96.00 | I-530 N.B. MAIN LANES - INSIDE | 10001.00 | 2 | |
| 176+67.00 | 247+17.00 | I-530 N.B. MAIN LANES - INSIDE | 7050.00 | 2 | |
| 251+17.00 | 285+60.00 | I-530 N.B. MAIN LANES - INSIDE | 3443.00 | 2 | |
| 286+70.00 | 322+42.00 | I-530 N.B. MAIN LANES - INSIDE | 3572.00 | 2 | |
| 375+21.00 | 385+56.00 | I-530 N.B. MAIN LANES - INSIDE | 1035.00 | 2 | |
| 387+60.00 | 398+52.00 | I-530 N.B. MAIN LANES - INSIDE | 1092.00 | 2 | |
| ENTIRE | PROJECT | | | | 1.00 |
| | | | | | |
| | | | | | |
| TOTALS: | | | 71039.56 | 26 | 1.00 |

* SHOWN FOR INFORMATION ONLY.

## 4" PIPE UNDERDRAIN

| STATION | STATION | LOCATIONS | 4" PIPE UNDERDRAINS | UNDERDRAIN OUTLET PROTECTORS |
|---|---|---|---|---|
| | | | LIN. FT. | EACH |
| * ENTIRE PROJECT TO BE USED IF AND | | | 500 | 2 |
| WHERE DIRECTED BY THE ENGINEER | | | | |
| | | | | |
| TOTALS: | | | 500 | 2 |

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

## CONCRETE BARRIER WALL

| STATION | STATION | LOCATION | PIER PROTECTION (TYPE A) |
|---|---|---|---|
| | | | LIN. FT. |
| 337+17 | 337+54 | I-530 S.B. MAIN LANE - INSIDE | 37 |
| 337+40 | 337+77 | I-530 S.B. MAIN LANE - OUTSIDE | 37 |
| | | | |
| | | | |
| TOTAL: | | | 74 |

## RUMBLE STRIPS IN ASPHALT SHOULDERS

| STATION | STATION | LOCATION | * RUMBLE STRIPS IN ASPHALT SHOULDERS |
|---|---|---|---|
| | | | LIN.FT. |
| 56+20 | 58+20 | I-530 N.B. MAIN LANE - INSIDE | 200 |
| 59+80 | 60+60 | I-530 N.B. MAIN LANE - INSIDE | 80 |
| 283+18 | 287+60 | I-530 N.B. MAIN LANE - INSIDE | 442 |
| 286+80 | 287+60 | I-530 N.B. MAIN LANE - INSIDE | 80 |
| 56+20 | 58+20 | I-530 N.B. MAIN LANE - OUTSIDE | 200 |
| 59+80 | 60+60 | I-530 N.B. MAIN LANE - OUTSIDE | 80 |
| 283+18 | 287+60 | I-530 N.B. MAIN LANE - OUTSIDE | 442 |
| 286+80 | 287+60 | I-530 N.B. MAIN LANE - OUTSIDE | 80 |
| 158+99 | 162+61 | I-530 N.B. MAIN LANE - INSIDE | 362 |
| 165+51 | 174+83 | I-530 S.B. MAIN LANE -INSIDE | 932 |
| 176+81 | 182+52 | I-530 S.B. MAIN LANE -INSIDE | 571 |
| 186+11 | 189+03 | I-530 N.B. MAIN LANE - INSIDE | 292 |
| 371+56 | 374+46 | I-530 N.B. MAIN LANE - INSIDE | 290 |
| 372+79 | 376+08 | I-530 S.B. MAIN LANE -INSIDE | 329 |
| 377+95 | 385+30 | I-530 S.B. MAIN LANE -INSIDE | 735 |
| 378+93 | 385+30 | I-530 N.B. MAIN LANE - INSIDE | 637 |
| 387+86 | 389+53 | I-530 S.B. MAIN LANE -INSIDE | 167 |
| 387+86 | 403+68 | I-530 S.B. MAIN LANE -INSIDE | 1582 |
| 387+86 | 409+30 | I-530 N.B. MAIN LANE - INSIDE | 2144 |
| 387+86 | 393+34 | I-530 N.B. MAIN LANE - INSIDE | 548 |
| 389+53 | 392+90 | I-530 S.B. MAIN LANE -INSIDE | 337 |
| 394+90 | 395+28 | I-530 N.B. MAIN LANE - INSIDE | 38 |
| 395+64 | 395+91 | I-530 S.B. MAIN LANE -INSIDE | 27 |
| 408+48 | 411+24 | I-530 S.B. MAIN LANE -INSIDE | 276 |
| | | | |
| | | | |
| | | | |
| TOTAL: | | | 10871 |

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

QUANTITIES

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 78 | 219 |

(2) QUANTITIES

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

10-29-12

## STRUCTURES

| STATION | LOCATION | DESCRIPTION | REINFORCED CONCRETE PIPE CULVERT (CLASS III) | FLARED END SECTIONS FOR R.C. PIPE CULVERTS | TEMPORARY PIPE CULVERTS | | SPAN | HEIGHT | LENGTH | CLASS S CONCRETE-ROADWAY | REINF. STEEL-ROADWAY (GRADE 60) | UNCL.EXC. FOR STR.-ROADWAY | SOLID SODDING | WATER | STD. DWG. NOS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 24" | 24" | 18" | 48" | | | | | | | | | |
| | | | LIN. FT. | EACH | LIN. FT. | | | LIN. FT. | | CU.YD. | POUND | CU.YD. | SQ.YD. | M.GAL | |
| 163+75 | I-530 TEMP. CROSSOVER | 18" TEMPORARY PIPE | | | 650 | | | | | | | | | | |
| 184+25 | I-530 TEMP. CROSSOVER | 18" TEMPORARY PIPE | | | 650 | | | | | | | | | | |
| 357+37 | HWY. 167 RAMP 1 TURNOUT | EXTEND R.C. PIPE CULVERT | 22 | 1 | | | | | | | | | 8 | 0.1 | FES-1, PCC-1 |
| 377+33 | I-530 TEMP. CROSSOVER | 18" TEMPORARY PIPE | | | 536 | | | | | | | | | | |
| 393+81 | BINGHAM RD. RAMP 4 | EXTEND R.C. BOX CULVERT | | | | | 6 | 4 | 26 | 26.12 | 2508 | 18 | 21 | 0.3 | RCB-1, RCB-2, RCB-3, R-100X-X1, W-X45, W-X453-1, R-145X-1 |
| 393+90 | I-530 TEMP. CROSSOVER | 18" TEMPORARY PIPE | | | 326 | | | | | | | | | | |
| 396+00 | BINGHAM RD. TEMP. RAMP 1 | 18" TEMPORARY PIPE | | | 110 | | | | | | | | | | |
| 396+27 | BINGHAM RD. TEMP. RAMP 4 | DBL. 48" TEMPORARY PIPE | | | | 152 | | | | | | | | | |
| 405+65 | I-530 TEMP. CROSSOVER | 18" TEMPORARY PIPE | | | 730 | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| TOTALS: | | | 22 | 1 | 3002 | 152 | | | | 26.12 | 2508 | 18 | 29 | 0.4 | |

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

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

## APPROACH GUTTERS AND SLABS

| STATION | STATION | LOCATION | APPROACH GUTTERS | | APPROACH SLABS | | | REINFORCING STEEL RDWY. (GR 60) | AGGREGATE BASE CRS. (CLASS 7) |
|---|---|---|---|---|---|---|---|---|---|
| | | | TYPE SPECIAL 1 | TYPE SPECIAL 2 | TYPE SPECIAL 1 | TYPE SPECIAL 2 | TYPE SPECIAL 3 | | |
| | | | CU.YD. | | | | | POUND | TON |
| 58+20.00 | 58+55.00 | I-530 N.B. MAIN LANES - BRIDGE NO. B3323 - INSIDE | 14.05 | | | | | 2362 | |
| 58+20.00 | 58+55.00 | I-530 N.B. MAIN LANES - BRIDGE NO. B3323 | | | 55.44 | | | 6400 | 27.00 |
| 58+20.00 | 58+55.00 | I-530 N.B. MAIN LANES - BRIDGE NO. B3323 - OUTSIDE | 20.32 | | | | | 3427 | |
| 174+69.47 | 175+05.97 | I-530 N.B. MAIN LANES - BRIDGE NO. B7266 - INSIDE | | 13.19 | | | | 1238 | |
| 174+69.47 | 175+05.97 | I-530 N.B. MAIN LANES - BRIDGE NO. B7266 | | | | 49.40 | | 5802 | 36.75 |
| 174+69.47 | 175+05.97 | I-530 N.B. MAIN LANES - BRIDGE NO. B7266 - OUTSIDE | | 19.79 | | | | 1758 | |
| 176+57.47 | 176+93.97 | I-530 N.B. MAIN LANES - BRIDGE NO. B7266 - INSIDE | | 13.19 | | | | 1238 | |
| 176+57.47 | 176+93.97 | I-530 N.B. MAIN LANES - BRIDGE NO. B7266 | | | | 49.40 | | 5802 | 36.75 |
| 176+57.47 | 176+93.97 | I-530 N.B. MAIN LANES - BRIDGE NO. B7266 - OUTSIDE | | 19.79 | | | | 1758 | |
| 285+34.95 | 285+69.95 | I-530 N.B. MAIN LANES - BRIDGE NO. B3326 - INSIDE | 14.05 | | | | | 2362 | |
| 285+34.95 | 285+69.95 | I-530 N.B. MAIN LANES - BRIDGE NO. B3326 | | | 55.44 | | | 6400 | 27.00 |
| 285+34.95 | 285+69.95 | I-530 N.B. MAIN LANES - BRIDGE NO. B3326 - OUTSIDE | 20.32 | | | | | 3427 | |
| 385+30.62 | 385+67.12 | I-530 N.B. MAIN LANES - BRIDGE NO. B7267 - INSIDE | | 13.19 | | | | 1238 | |
| 385+30.62 | 385+67.12 | I-530 N.B. MAIN LANES - BRIDGE NO. B7267 | | | | 49.40 | | 5802 | 36.75 |
| 385+30.62 | 385+67.12 | I-530 N.B. MAIN LANES - BRIDGE NO. B7267 - OUTSIDE | | 19.79 | | | | 1758 | |
| 387+48.62 | 387+85.12 | I-530 N.B. MAIN LANES - BRIDGE NO. B7267 - INSIDE | | 13.19 | | | | 1238 | |
| 387+48.62 | 387+85.12 | I-530 N.B. MAIN LANES - BRIDGE NO. B7267 | | | | 49.40 | | 5802 | 36.75 |
| 387+48.62 | 387+85.12 | I-530 N.B. MAIN LANES - BRIDGE NO. B7267 - OUTSIDE | | 19.79 | | | | 1758 | |
| 385+30.62 | 385+67.12 | I-530 S.B. MAIN LANES - BRIDGE NO. A7267 - INSIDE | | 13.19 | | | | 1238 | |
| 385+30.62 | 385+67.12 | I-530 S.B. MAIN LANES - BRIDGE NO. A7267 | | | | | 74.10 | 8663 | 42.75 |
| 385+30.62 | 385+67.12 | I-530 S.B. MAIN LANES - BRIDGE NO. A7267 - OUTSIDE | | 13.19 | | | | 1238 | |
| 387+48.62 | 387+85.12 | I-530 S.B. MAIN LANES - BRIDGE NO. A7267 - INSIDE | | 13.19 | | | | 1238 | |
| 387+48.62 | 387+85.12 | I-530 S.B. MAIN LANES - BRIDGE NO. A7267 | | | | | 74.10 | 8663 | 42.75 |
| 387+48.62 | 387+85.12 | I-530 S.B. MAIN LANES - BRIDGE NO. A7267 - OUTSIDE | | 13.19 | | | | 1238 | |
| | | | | | | | | | |
| TOTALS: | | | 68.74 | 184.68 | 110.88 | 197.60 | 148.20 | 81848 | 286.50 |

NOTE: USE T=15" FOR 6' AND 10' SHOULDERS.

## COLD MILLING ASPHALT PAVEMENT

| STATION | STATION | LOCATION | AVG. WIDTH | COLD MILLING ASPHALT PAVEMENT |
|---|---|---|---|---|
| | | | FEET | SQ. YD. |
| 11+48.68 | 58+55.00 | I-530 N.B. MAIN LANES | 24.50 | 12811.65 |
| 59+45.00 | 175+05.97 | I-530 N.B. MAIN LANES | 24.50 | 31471.53 |
| 176+57.47 | 285+69.95 | I-530 N.B. MAIN LANES | 24.50 | 29706.20 |
| 286+59.95 | 316+11.41 | I-530 N.B. MAIN LANES | 24.50 | 8034.53 |
| 316+11.41 | 349+84.42 | I-530 N.B. MAIN LANES | 24.50 | 9182.08 |
| 350+00.00 | 379+21.87 | I-530 N.B. MAIN LANES | 24.50 | 7953.98 |
| 379+21.87 | 381+90.00 | I-530 N.B. MAIN LANES | 24.50 | 729.91 |
| 392+80.00 | 406+89.93 | I-530 N.B. MAIN LANES | 24.50 | 3838.14 |
| | | | | |
| 11+48.68 | 58+55.00 | I-530 S.B. MAIN LANES | 24.50 | 12811.65 |
| 59+45.00 | 175+05.97 | I-530 S.B. MAIN LANES | 24.50 | 31471.53 |
| 176+57.47 | 285+66.25 | I-530 S.B. MAIN LANES | 24.50 | 29696.12 |
| 286+56.25 | 349+84.42 | I-530 S.B. MAIN LANES | 24.50 | 17226.69 |
| 350+00.00 | 381+90.00 | I-530 S.B. MAIN LANES | 24.50 | 8683.89 |
| 392+80.00 | 406+89.93 | I-530 S.B. MAIN LANES | 24.50 | 3838.14 |
| | | | | |
| 60+30.17 | 66+51.49 | HENSLEY RD. RAMP 1 TURNOUT | VAR. | 840.30 |
| 59+86.42 | 69+87.48 | HENSLEY RD. RAMP 4 TURNOUT/ ACCEL. LANE | VAR. | 1154.00 |
| 84+33.69 | 94+41.20 | HENSLEY RD. RAMP 2 TURNOUT/ ACCEL. LANE | VAR. | 1212.80 |
| 84+99.21 | 90+48.87 | HENSLEY RD. RAMP 3 TURNOUT/ ACCEL. LANE | VAR. | 904.40 |
| 231+14.18 | 237+71.14 | WOODSON RD. RAMP 1 TURNOUT | VAR. | 880.00 |
| 235+26.88 | 245+26.81 | WOODSON RD. RAMP 4 TURNOUT/ ACCEL. LANE | VAR. | 1155.70 |
| 255+93.91 | 265+93.81 | WOODSON RD. RAMP 2 TURNOUT/ ACCEL. LANE | VAR. | 1155.80 |
| 263+77.84 | 270+06.51 | WOODSON RD. RAMP 3 TURNOUT/ ACCEL. LANE | VAR. | 867.60 |
| 342+35.71 | 346+96.22 | HWY. 167 RAMP 1 TURNOUT | VAR. | 619.50 |
| 379+46.64 | 381+90.00 | BINGHAM RD. RAMP 4 TURNOUT/ ACCEL. LANE | VAR. | 203.90 |
| 392+80.00 | 394+82.78 | BINGHAM RD. RAMP 1 TURNOUT | VAR. | 244.40 |
| | | | | |
| TOTAL: | | | | 216694.44 |

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 11-16-12 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 79 | 219 |

(2) QUANTITIES

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

11-16-12

## BASE AND SURFACING

| STATION | STATION | LOCATION | LENGTH | AGGREGATE BASE COURSE (CLASS 7) | | TACK COAT | | | | ACHM BASE COURSE (1 1/2") | | | | ACHM BINDER COURSE (1") | | | | ACHM SURFACE COURSE (1/2") | | | | | | | | TOTAL TONS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | FEET | TON / STATION | TON | TOTAL WID. FEET | SQ. YD. | GALLONS / SQ. YD. | GALLON | AVG. WID. FEET | SQ. YD. | POUND / SQ. YD. | PG 76-22 TON | AVG. WID. FEET | SQ. YD. | POUND / SQ. YD. | PG 76-22 TON | AVG. WID. FEET | SQ. YD. | POUND / SQ. YD. | PG 76-22 TON | AVG. WID. FEET | SQ. YD. | POUND / SQ. YD. | PG 76-22 TON | |
| **MAIN LANES - MILL AND INLAY** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11+48.68 | 58+55.00 | I-530 N.B. MAIN LANES | 4706.32 | | | 24.50 | 12811.6 | 0.10 | 1281.2 | | | | | | | | | | | | | 24.50 | 12811.6 | 220 | 1409.3 | 1409.3 |
| 59+45.00 | 175+05.97 | I-530 N.B. MAIN LANES | 11560.97 | | | 24.50 | 31471.5 | 0.10 | 3147.2 | | | | | | | | | | | | | 24.50 | 31471.5 | 220 | 3461.9 | 3461.9 |
| 176+57.47 | 285+69.95 | I-530 N.B. MAIN LANES | 10912.48 | | | 24.50 | 29706.2 | 0.10 | 2970.6 | | | | | | | | | | | | | 24.50 | 29706.2 | 220 | 3267.7 | 3267.7 |
| 286+59.95 | 316+11.41 | I-530 N.B. MAIN LANES | 2951.46 | | | 24.50 | 8034.5 | 0.10 | 803.5 | | | | | | | | | | | | | 24.50 | 8034.5 | 220 | 883.8 | 883.8 |
| 316+11.41 | 349+84.42 | I-530 N.B. MAIN LANES | 3373.01 | | | 24.50 | 9182.1 | 0.10 | 918.2 | | | | | | | | | | | | | 24.50 | 9182.1 | 220 | 1010.0 | 1010.0 |
| 350+00.00 | 379+21.87 | I-530 N.B. MAIN LANES | 2921.87 | | | 24.50 | 7954.0 | 0.10 | 795.4 | | | | | | | | | | | | | 24.50 | 7954.0 | 220 | 874.9 | 874.9 |
| 379+21.87 | 381+90.00 | I-530 N.B. MAIN LANES | 268.13 | | | 24.50 | 729.9 | 0.10 | 73.0 | | | | | | | | | | | | | 24.50 | 729.9 | 220 | 80.3 | 80.3 |
| 392+80.00 | 406+89.93 | I-530 N.B. MAIN LANES | 1409.93 | | | 24.50 | 3838.1 | 0.10 | 383.8 | | | | | | | | | | | | | 24.50 | 3838.1 | 220 | 422.2 | 422.2 |
| 11+48.68 | 58+55.00 | I-530 S.B. MAIN LANES | 4706.32 | | | 24.50 | 12811.6 | 0.10 | 1281.2 | | | | | | | | | | | | | 24.50 | 12811.6 | 220 | 1409.3 | 1409.3 |
| 59+45.00 | 175+05.97 | I-530 S.B. MAIN LANES | 11560.97 | | | 24.50 | 31471.5 | 0.10 | 3147.2 | | | | | | | | | | | | | 24.50 | 31471.5 | 220 | 3461.9 | 3461.9 |
| 176+57.47 | 285+66.25 | I-530 S.B. MAIN LANES | 10908.78 | | | 24.50 | 29696.1 | 0.10 | 2969.6 | | | | | | | | | | | | | 24.50 | 29696.1 | 220 | 3266.6 | 3266.6 |
| 286+56.25 | 349+84.42 | I-530 S.B. MAIN LANES | 6328.17 | | | 24.50 | 17226.7 | 0.10 | 1722.7 | | | | | | | | | | | | | 24.50 | 17226.7 | 220 | 1894.9 | 1894.9 |
| 350+00.00 | 381+90.00 | I-530 S.B. MAIN LANES | 3190.00 | | | 24.50 | 8683.9 | 0.10 | 868.4 | | | | | | | | | | | | | 24.50 | 8683.9 | 220 | 955.2 | 955.2 |
| 392+80.00 | 406+89.93 | I-530 S.B. MAIN LANES | 1409.93 | | | 24.50 | 3838.1 | 0.10 | 383.8 | | | | | | | | | | | | | 24.50 | 3838.1 | 220 | 422.2 | 422.2 |
| **MAIN LANES - MILL AND INLAY - ADDITIONAL FOR ENTRANCE AND EXIT RAMPS** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60+30.17 | 66+51.49 | HENSLEY RD. RAMP 1 TURNOUT | 621.32 | | | VAR. | 840.3 | 0.10 | 84.0 | | | | | | | | | | | | | VAR. | 840.3 | 220 | 92.4 | 92.4 |
| 59+86.42 | 69+87.48 | HENSLEY RD. RAMP 4 TURNOUT/ ACCEL. LANE | 1001.06 | | | VAR. | 1154.0 | 0.10 | 115.4 | | | | | | | | | | | | | VAR. | 1154.0 | 220 | 126.9 | 126.9 |
| 84+33.69 | 94+41.20 | HENSLEY RD. RAMP 2 TURNOUT/ ACCEL. LANE | 1007.51 | | | VAR. | 1212.8 | 0.10 | 121.3 | | | | | | | | | | | | | VAR. | 1212.8 | 220 | 133.4 | 133.4 |
| 84+99.21 | 90+48.87 | HENSLEY RD. RAMP 3 TURNOUT/ ACCEL. LANE | 549.66 | | | VAR. | 904.4 | 0.10 | 90.4 | | | | | | | | | | | | | VAR. | 904.4 | 220 | 99.5 | 99.5 |
| 231+14.18 | 237+71.14 | WOODSON LATERAL RD. RAMP 1 TURNOUT | 656.96 | | | VAR. | 880.0 | 0.10 | 88.0 | | | | | | | | | | | | | VAR. | 880.0 | 220 | 96.8 | 96.8 |
| 235+26.88 | 245+26.81 | WOODSON LATERAL RD. RAMP 4 TURNOUT/ ACCEL. LANE | 999.93 | | | VAR. | 1155.7 | 0.10 | 115.6 | | | | | | | | | | | | | VAR. | 1155.7 | 220 | 127.1 | 127.1 |
| 255+93.91 | 265+93.81 | WOODSON LATERAL RD. RAMP 2 TURNOUT/ ACCEL. LANE | 999.90 | | | VAR. | 1155.8 | 0.10 | 115.6 | | | | | | | | | | | | | VAR. | 1155.8 | 220 | 127.1 | 127.1 |
| 263+77.84 | 270+06.51 | WOODSON LATERAL RD. RAMP 3 TURNOUT/ ACCEL. LANE | 628.67 | | | VAR. | 867.6 | 0.10 | 86.8 | | | | | | | | | | | | | VAR. | 867.6 | 220 | 95.4 | 95.4 |
| 342+35.71 | 346+96.22 | HWY. 167 RAMP 1 TURNOUT | 460.51 | | | VAR. | 619.5 | 0.10 | 62.0 | | | | | | | | | | | | | VAR. | 619.5 | 220 | 68.1 | 68.1 |
| 379+46.64 | 381+90.00 | BINGHAM RD. RAMP 4 TURNOUT/ ACCEL. LANE | 243.36 | | | VAR. | 203.9 | 0.10 | 20.4 | | | | | | | | | | | | | VAR. | 203.9 | 220 | 22.4 | 22.4 |
| 392+80.00 | 394+82.78 | BINGHAM RD. RAMP 1 TURNOUT | 202.78 | | | VAR. | 244.4 | 0.10 | 24.4 | | | | | | | | | | | | | VAR. | 244.4 | 220 | 26.9 | 26.9 |
| **MAIN LANES - FULL DEPTH CONSTRUCTION** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 353+32.03 | 362+84.43 | I-530 N.B. ACCELERATION LANE EXTENSION AT HWY. 167 | 952.40 | VAR. | 1763.02 | VAR. | 4124.5 | 0.03 | 123.7 | VAR. | 1061.3 | 550 | 291.9 | VAR. | 1028.9 | 660 | 339.5 | VAR. | 1005.4 | 220 | 110.6 | VAR. | 1480.0 | 220 | 162.8 | 273.4 |
| 381+90.00 | 382+38.84 | I-530 MAIN LANES | 48.84 | 956.75 | 467.28 | 274.10 | 1487.4 | 0.03 | 44.6 | 70.20 | 381.0 | 550 | 104.8 | 68.40 | 371.2 | 660 | 122.5 | 67.10 | 364.1 | 220 | 40.1 | 82.10 | 445.5 | 220 | 49.0 | 89.1 |
| 382+38.84 | 385+30.62 | I-530 MAIN LANES | 291.78 | 961.75 | 2806.19 | 281.85 | 9137.6 | 0.03 | 274.1 | 72.17 | 2339.8 | 550 | 643.4 | 70.34 | 2280.4 | 660 | 752.5 | 69.00 | 2237.0 | 220 | 246.1 | 84.00 | 2723.3 | 220 | 299.6 | 545.7 |
| 387+85.12 | 389+52.49 | I-530 MAIN LANES | 167.37 | 961.75 | 1609.68 | 281.85 | 5241.5 | 0.03 | 157.2 | 72.17 | 1342.1 | 550 | 369.1 | 70.34 | 1308.1 | 660 | 431.7 | 69.00 | 1283.2 | 220 | 141.2 | 84.00 | 1562.1 | 220 | 171.8 | 313.0 |
| 389+52.49 | 392+80.00 | I-530 MAIN LANES | 327.51 | 943.00 | 3088.42 | 233.85 | 8509.8 | 0.03 | 255.3 | 60.17 | 2189.6 | 550 | 602.1 | 58.34 | 2123.0 | 660 | 700.6 | 57.00 | 2074.2 | 220 | 228.2 | 76.00 | 2765.6 | 220 | 304.2 | 532.4 |
| 387+85.12 | 389+52.49 | I-530 MAIN LANES (ADD'L FOR BINGHAM RD. RAMP 4 TURNOUT) | 167.37 | VAR. | 16.63 | VAR. | 142.4 | 0.03 | 4.3 | VAR. | 35.6 | 550 | 9.8 | VAR. | 35.6 | 660 | 11.7 | VAR. | 35.6 | 220 | 3.9 | VAR. | 35.6 | 220 | 3.9 | 7.8 |
| 387+85.12 | 392+80.00 | I-530 MAIN LANES (ADD'L FOR BINGHAM RD. RAMP 1 TURNOUT) | 494.88 | VAR. | 324.26 | VAR. | 2779.2 | 0.03 | 83.4 | VAR. | 694.8 | 550 | 191.1 | VAR. | 694.8 | 660 | 229.3 | VAR. | 694.8 | 220 | 76.4 | VAR. | 694.8 | 220 | 76.4 | 152.8 |
| 389+52.49 | 397+55.95 | I-530 ENTRANCE RAMP 4 | 803.46 | 384.75 | 3091.31 | 64.92 | 5795.6 | 0.03 | 173.9 | 17.08 | 1524.8 | 550 | 419.3 | 16.17 | 1443.5 | 660 | 476.4 | 15.50 | 1383.7 | 220 | 152.2 | 25.00 | 2231.8 | 220 | 245.5 | 397.7 |
| **WIDENING FOR GUARDRAIL** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 54+16.25 | 58+45.00 | I-530 N.B. MAIN LANES - INSIDE | 428.75 | VAR. | 31.84 | | | | | | | | | | | | | | | | | VAR. | 263.6 | 220 | 29.0 | 29.0 |
| 54+48.25 | 58+45.00 | I-530 N.B. MAIN LANES - OUTSIDE | 396.75 | VAR. | 37.26 | | | | | | | | | | | | | | | | | VAR. | 599.0 | 220 | 65.9 | 65.9 |
| 70+42.86 | 75+44.82 | I-530 N.B. MAIN LANES - INSIDE | 501.96 | VAR. | 376.25 | | | | | | | | | | | | | | | | | VAR. | 498.6 | 220 | 54.8 | 54.8 |
| 73+34.17 | 78+34.68 | I-530 S.B. MAIN LANES - INSIDE | 500.51 | VAR. | 141.25 | | | | | | | | | | | | | | | | | VAR. | 545.6 | 220 | 60.0 | 60.0 |
| 170+77.82 | 174+69.47 | I-530 N.B. MAIN LANES - INSIDE | 391.65 | VAR. | 31.84 | | | | | | | | | | | | | | | | | VAR. | 263.6 | 220 | 29.0 | 29.0 |
| 171+09.82 | 174+69.47 | I-530 N.B. MAIN LANES - OUTSIDE | 359.65 | VAR. | 37.26 | | | | | | | | | | | | | | | | | VAR. | 599.0 | 220 | 65.9 | 65.9 |
| 246+64.60 | 251+66.84 | I-530 N.B. MAIN LANES - INSIDE | 502.24 | VAR. | 376.25 | | | | | | | | | | | | | | | | | VAR. | 498.6 | 220 | 54.8 | 54.8 |
| 249+56.23 | 254+56.79 | I-530 S.B. MAIN LANES - INSIDE | 500.56 | VAR. | 141.25 | | | | | | | | | | | | | | | | | VAR. | 545.6 | 220 | 60.0 | 60.0 |
| 281+41.20 | 285+69.95 | I-530 N.B. MAIN LANES - INSIDE | 428.75 | VAR. | 31.84 | | | | | | | | | | | | | | | | | VAR. | 263.6 | 220 | 29.0 | 29.0 |
| 281+73.20 | 285+69.95 | I-530 N.B. MAIN LANES - OUTSIDE | 396.75 | VAR. | 37.26 | | | | | | | | | | | | | | | | | VAR. | 599.0 | 220 | 65.9 | 65.9 |
| 381+38.97 | 385+57.72 | I-530 N.B. MAIN LANES - INSIDE | 418.75 | VAR. | 247.81 | | | | | | | | | | | | | | | | | VAR. | 263.6 | 220 | 29.0 | 29.0 |
| 381+70.97 | 385+57.72 | I-530 N.B. MAIN LANES - OUTSIDE | 386.75 | VAR. | 275.46 | | | | | | | | | | | | | | | | | VAR. | 599.0 | 220 | 65.9 | 65.9 |
| 387+58.02 | 391+76.77 | I-530 S.B. MAIN LANES - INSIDE | 418.75 | VAR. | 275.46 | | | | | | | | | | | | | | | | | VAR. | 263.6 | 220 | 29.0 | 29.0 |
| 387+58.02 | 391+76.77 | I-530 S.B. MAIN LANES - OUTSIDE | 418.75 | VAR. | 275.46 | | | | | | | | | | | | | | | | | VAR. | 263.6 | 220 | 29.0 | 29.0 |
| 397+99.92 | 403+02.07 | I-530 N.B. MAIN LANES - INSIDE | 502.15 | VAR. | 376.25 | | | | | | | | | | | | | | | | | VAR. | 498.6 | 220 | 54.8 | 54.8 |
| 400+51.48 | 405+52.44 | I-530 S.B. MAIN LANES - INSIDE | 500.96 | VAR. | 141.25 | | | | | | | | | | | | | | | | | VAR. | 545.6 | 220 | 60.0 | 60.0 |
| **TEMPORARY RAMPS, SHOULDER IMPROVEMENTS, AND CROSSOVERS** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ENTIRE PROJECT | | STAGE 1A TEMPORARY CONSTRUCTION | VAR. | VAR. | 734.25 | VAR. | 6161.6 | 0.03 | 184.8 | VAR. | 1540.4 | 880 | 677.8 | VAR. | 1540.4 | 330 | 254.2 | VAR. | 1540.4 | 220 | 169.4 | VAR. | 1540.4 | 220 | 169.4 | 338.8 |
| ENTIRE PROJECT | | STAGE 1B TEMPORARY CONSTRUCTION | VAR. | VAR. | 3338.79 | VAR. | 27287.2 | 0.03 | 818.6 | VAR. | 6821.8 | 880 | 3001.6 | VAR. | 6821.8 | 330 | 1125.6 | VAR. | 6821.8 | 220 | 750.4 | VAR. | 6821.8 | 220 | 750.4 | 1500.8 |
| ENTIRE PROJECT | | STAGE 3A (INSIDE SHOULDER RECONSTRUCTION) | VAR. | VAR. | 234.77 | VAR. | 1964.8 | 0.03 | 58.9 | VAR. | VAR. | 880 | 225.3 | VAR. | VAR. | 330 | 78.9 | VAR. | VAR. | 220 | 51.0 | VAR. | VAR. | 220 | 48.8 | 99.8 |
| ENTIRE PROJECT | | STAGE 3A TEMPORARY CONSTRUCTION | VAR. | VAR. | 1651.19 | VAR. | 10251.6 | 0.03 | 307.5 | VAR. | 2562.9 | 880 | 1127.7 | VAR. | 2562.9 | 330 | 422.9 | VAR. | 2562.9 | 220 | 281.9 | VAR. | 2562.9 | 220 | 281.9 | 563.8 |
| ENTIRE PROJECT | | STAGE 3D (OUTSIDE SHOULDER RECONSTRUCTION) | VAR. | VAR. | 196.48 | VAR. | 3148.7 | 0.03 | 94.5 | VAR. | VAR. | 880 | 355.6 | VAR. | VAR. | 330 | 127.7 | VAR. | VAR. | 220 | 83.4 | VAR. | VAR. | 220 | 81.3 | 164.7 |
| **ADDITIONAL FOR SUPERELEVATION** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 388+13.10 | 391+13.10 | I-530 ENTRANCE RAMP 4 | 300.00 | 15.63 | 46.89 | | | | | | | | | | | | | | | | | | | | | |
| 391+13.10 | 396+52.37 | I-530 ENTRANCE RAMP 4 | 539.27 | 31.25 | 168.52 | | | | | | | | | | | | | | | | | | | | | |
| 396+52.37 | 399+52.37 | I-530 ENTRANCE RAMP 4 | 300.00 | 15.63 | 46.89 | | | | | | | | | | | | | | | | | | | | | |
| **TOTALS:** | | | | | **22418.56** | | 302726.1 | | **24250.5** | | 20494.1 | | **8019.5** | | 20210.6 | | **5073.5** | | 20003.1 | | **2334.8** | | 246668.2 | | **27263.2** | **29598.0** |

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....95.0% MIN. AGGR.....5.0% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.5% MIN. AGGR.....4.5% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.1% MIN. AGGR.....3.9% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22

9/20/2012

RBB0614.DGN

QUANTITIES

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | BB0614 | | | |
| | | | | B7266,A7267&B7267 QUANTITIES 53223 | | | | |

# SCHEDULE OF BRIDGE QUANTITIES – JOB BB0614

| BRIDGE NO. / CODE NO. / NAME PLATE TITLE | UNIT OF STRUCTURE | ITEM NO. | 205 | 801 | 802 | 802 | 803 | SS & 804 | SS & 804 | 805 | 805 | 805 | 805 | 805 | 812 | 816 | 816 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ITEM | REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE _) | UNCLASSIFIED EXCAVATION FOR STRUCTURES–BRIDGE | CLASS S CONCRETE–BRIDGE | CLASS S(AE) CONCRETE–BRIDGE | CLASS 1 PROTECTIVE SURFACE TREATMENT | REINFORCING STEEL–BRIDGE (GRADE 60) | EPOXY COATED REINFORCING STEEL (GRADE 60) | CONCRETE PILING (18" IN. SQ.) | CONCRETE PILING (24" IN. SQ.) | TEST PILE (18 IN. SQ.) | TEST PILE (24 IN. SQ.) | PREBORING | BRIDGE NAME PLATE (TYPE D) | DUMPED RIPRAP | FILTER BLANKET |
| | | UNIT | LUMP SUM | CU. YD. | CU. YD. | CU. YD. | GAL. | LB. | LB. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | EACH | CU. YD. | SQ. YD. |
| B7266 X020 CLEAR CREEK | END BENT 1 | | | 489 | 19.86 | | | 2895 | 473 | 312 | | 57 | | 60 | | 334 | 669 |
| | INTERMEDIATE BENT 2 | | | | 16.92 | | | 2190 | 473 | | 396 | | | | | | |
| | INTERMEDIATE BENT 3 | | | | 16.92 | | | 2190 | 473 | | 444 | | 79 | | | | |
| | INTERMEDIATE BENT 4 | | | | 16.92 | | | 2190 | 473 | | 360 | | | | | | |
| | INTERMEDIATE BENT 5 | | | | 16.92 | | | 2190 | 473 | | 330 | | | | | | |
| | END BENT 6 | | | 400 | 19.86 | | | 2895 | 473 | 276 | | | | 60 | | 300 | 600 |
| | 151'–6" CONT. R.C. SLAB UNIT | | | | | 433.00 | 15.8 | | 110152 | | | | | | | | |
| | EXISTING BRIDGE NO. B3324 (SITE 2) | | 1 | | | | | | | | | | | | | | |
| | TOTALS FOR BRIDGE NO. B7266 | | | 889 | 107.40 | 433.00 | 15.8 | 14550 | 112990 | 588 | 1530 | 57 | 79 | 120 | 1 | 634 | 1269 |
| A7267 X020 LORANCE CREEK | END BENT 1 | | | 310 | 23.00 | | | 3330 | 552 | 364 | | 57 | | 70 | | 233 | 466 |
| | INTERMEDIATE BENT 2 | | | | 23.04 | | | 2588 | 552 | | 420 | | | | | | |
| | INTERMEDIATE BENT 3 | | | | 23.04 | | | 2588 | 552 | | 441 | | 68 | | | | |
| | INTERMEDIATE BENT 4 | | | | 23.04 | | | 2588 | 552 | | 441 | | | | | | |
| | INTERMEDIATE BENT 5 | | | | 23.04 | | | 2588 | 552 | | 378 | | | | | | |
| | INTERMEDIATE BENT 6 | | | | 23.04 | | | 2588 | 552 | | 357 | | | | | | |
| | END BENT 7 | | | 295 | 23.00 | | | 3330 | 552 | 336 | | | | 70 | | 404* | 441 |
| | 181'–6" CONT. R.C. SLAB UNIT | | | | | 608.30 | 22.1 | | 152816 | | | | | | | | |
| | EXISTING BRIDGE NO. A3327 (SITE 4) | | 1 | | | | | | | | | | | | | | |
| | TOTALS FOR BRIDGE NO. A7267 | | | 605 | 161.20 | 608.30 | 22.1 | 19600 | 156680 | 700 | 2037 | 57 | 68 | 140 | 1 | 637 | 907 |
| B7267 X020 LORANCE CREEK | END BENT 1 | | | 276 | 19.90 | | | 2895 | 473 | 312 | | | | 60 | | 207 | 414 |
| | INTERMEDIATE BENT 2 | | | | 16.92 | | | 2190 | 473 | | 360 | | | | | | |
| | INTERMEDIATE BENT 3 | | | | 16.92 | | | 2190 | 473 | | 378 | | | | | | |
| | INTERMEDIATE BENT 4 | | | | 16.92 | | | 2190 | 473 | | 378 | | | | | | |
| | INTERMEDIATE BENT 5 | | | | 16.92 | | | 2190 | 473 | | 324 | | | | | | |
| | INTERMEDIATE BENT 6 | | | | 16.92 | | | 2190 | 473 | | 306 | | | | | | |
| | END BENT 7 | | | 333 | 19.90 | | | 2895 | 473 | 288 | | | | 60 | | 250 | 499 |
| | 181'–6" CONT. R.C. SLAB UNIT | | | | | 518.70 | 18.9 | | 131529 | | | | | | | | |
| | EXISTING BRIDGE NO. B3327 (SITE 5) | | 1 | | | | | | | | | | | | | | |
| | TOTALS FOR BRIDGE NO. B7267 | | | 609 | 124.40 | 518.70 | 18.9 | 16740 | 134840 | 600 | 1746 | | | 120 | 1 | 457 | 913 |
| | TOTALS FOR JOB NO. BB0614 | | | 2103 | 393.00 | 1560.00 | (1) | 50890 | 404510 | 1888 | 5313 | 114 | 147 | 380 | 3 | 1728 | 3089 |

(1) See Dwg. No. 53224 for Job Total for this Pay Item

* Includes 183 cu. yd. scour hole repair

CERTIFICATE OF AUTHORIZATION — H. JAMES ENGSTROM & ASSOC., INC. No. 164 — ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION — MODJESKI AND MASTERS, INC. No. 2357 — ARKANSAS

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 15274 — BRUCE EDWARD PETERSON — 9/20/2012

BRIDGE ENGINEER

SHEET 1 OF 2
SCHEDULE OF BRIDGE QUANTITIES
CLEAR CREEK BRIDGE
AND LORANCE CREEK BRIDGES
BINGHAM RD. – GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE 530 SEC. 1 & 3

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Engstrom/Modjeski and Masters

DRAWN BY: DSK DATE: 9-25-12 FILENAME: BBB0614_Q1.DGN
CHECKED BY: SPC DATE: 9-25-12 SCALE: As Noted
DESIGNED BY: SPC/TPL DATE: 9-25-12

BRIDGE NO. B7266, A7267 & B7267 DRAWING NO. 53223

| 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. | | BB0614 | 81 | 219 |

(1) B3323,B3326 - QUANTITIES - 53224

## SCHEDULE OF BRIDGE QUANTITIES - JOB BB0614

| LOG MILE | UNIT OF STRUCTURE | ITEM NO. | 509 | 802 | 803 | 803 | SP JOB BB0614 | SP JOB BB0614 | SP JOB BB0614 |
|---|---|---|---|---|---|---|---|---|---|
| | | ITEM | JOINT REHABILITATION (TYPE A) | GROOVING | CLASS 1 PROTECTIVE SURFACE TREATMENT | CLASS 3 PROTECTIVE SURFACE TREATMENT | LATEX MODIFIED CONCRETE OVERLAY (1½" THICK) | LATEX MODIFIED CONCRETE (VARIABLE DEPTH) | HYDRODEMOLITION |
| | | UNIT | LIN. FT. | SQ. YD. | GAL. | LIN. FT. | SQ. YD. | CU. YD. | SQ. YD. |
| 15.36 | EXISTING BRIDGE NO. B3323 (Site 1) | | 80 | 370 | 8.0 | 270 | 401 | 12 | 400 |
| 11.07 | EXISTING BRIDGE NO. B3326 (Site 3) | | 80 | 370 | 8.0 | 270 | 401 | 12 | 400 |
| | TOTALS FOR JOB NO. BB0614 | | 160 | 740 | (1) 72.8 | 540 | 802 | (2) 24 | 800 |

(1) Includes totals from Bridge Nos. B7266, A7267, and B7267 from Dwg. No. 53233.

(2) This quantity shown is for estimating and bidding purposes only. Actual quantity, if any, will be determined in the field.

JIM TRIBO
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/8/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 2
SCHEDULE OF BRIDGE QUANTITIES
BINGHAM RD. - GRANT CO. LINE (S)
PULASKI AND SALINE COUNTIES

ROUTE 530 SEC. 2 & 3

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 9/14/12 FILENAME: bb0614_q2.dgn
CHECKED BY: SWP DATE: 10/5/12 SCALE: NO SCALE
DESIGNED BY: — DATE: —

BRIDGE NO. B3323,B3326 DRAWING NO. 53224

PRINT DATE: 19-OCT-2012

## SUMMARY OF QUANTITIES

| ITEM NUMBER | ITEM | F.A.P. BIM-B530(204) QUANTITY | F.A.P. HSIP-530-1(5)9 QUANTITY | JOB BB0614 TOTALS QUANTITY | UNIT |
|---|---|---|---|---|---|
| 201 | CLEARING | 31 | | 31 | STATION |
| 201 | GRUBBING | 31 | | 31 | STATION |
| SP & 202 | REMOVAL AND DISPOSAL OF GUARDRAIL | 2675 | | 2675 | LIN. FT. |
| 202 | REMOVAL AND DISPOSAL OF TERMINAL ANCHOR POSTS | 12 | | 12 | EACH |
| 202 | REMOVAL AND DISPOSAL OF PIER PROTECTION | 74 | | 74 | LIN. FT. |
| 202 | REMOVAL AND DISPOSAL OF APPROACH GUTTERS | 16 | | 16 | EACH |
| 210 | UNCLASSIFIED EXCAVATION | 17225 | | 17225 | CU. YD. |
| 210 | COMPACTED EMBANKMENT | 15330 | | 15330 | CU. YD. |
| SP & 210 | SOIL STABILIZATION | 500 | | 500 | TON |
| SS & 303 | AGGREGATE BASE COURSE (CLASS 7) | 22845 | | 22845 | TON |
| 401 | TACK COAT | 24251 | | 24251 | GAL. |
| SP, SS, & 405 | MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2") | 7707 | | 7707 | TON |
| SP, SS, & 405 | ASPHALT BINDER (PG 76-22) IN ACHM BASE COURSE (1 1/2") | 313 | | 313 | TON |
| SP, SS, & 406 | MINERAL AGGREGATE IN ACHM BINDER COURSE (1") | 4846 | | 4846 | TON |
| SP, SS, & 406 | ASPHALT BINDER (PG 76-22) IN ACHM BINDER COURSE (1") | 228 | | 228 | TON |
| SP, SS, & 407 | MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2") | 28150 | | 28150 | TON |
| SP, SS, & 407 | ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2") | 1482 | | 1482 | TON |
| 412 | COLD MILLING ASPHALT PAVEMENT | 216694 | | 216694 | SQ. YD. |
| SP & 504 | APPROACH SLABS | 456.68 | | 456.68 | CU. YD. |
| SP & 504 | APPROACH GUTTERS | 253.42 | | 253.42 | CU. YD. |
| 601 | MOBILIZATION | 1.00 | | 1.00 | LUMP SUM |
| SP & 602 | FURNISHING FIELD OFFICE | 1 | | 1 | EACH |
| 603 | TRAFFIC CONTROL SUPERVISOR | 1.00 | | 1.00 | LUMP SUM |
| SP, SS, & 603 | MAINTENANCE OF TRAFFIC | 1.00 | | 1.00 | LUMP SUM |
| 603 | 18" TEMPORARY CULVERT | 3002 | | 3002 | LIN. FT. |
| 603 | 48" TEMPORARY CULVERT | 152 | | 152 | LIN. FT. |
| SS & 604 | SIGNS | 1893 | | 1893 | SQ. FT. |
| SS & 604 | BARRICADES | 464 | | 464 | LIN. FT. |
| SS & 604 | TRAFFIC DRUMS | 2238 | | 2238 | EACH |
| SS & 604 | FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER | 5712 | | 5712 | LIN. FT. |
| SS & 604 | RELOCATING PRECAST CONCRETE BARRIER | 3586 | | 3586 | LIN. FT. |
| SS & 604 | CONSTRUCTION PAVEMENT MARKINGS | 236443 | | 236443 | LIN. FT. |
| 604 | REMOVABLE CONSTRUCTION PAVEMENT MARKINGS | 4244 | | 4244 | LIN. FT. |
| 604 | REMOVAL OF PERMANENT PAVEMENT MARKINGS | 11585 | | 11585 | LIN. FT. |
| SS & 604 | ADVANCE WARNING ARROW PANEL | 1344 | | 1344 | DAY |
| SP, SS, & 604 | PORTABLE CHANGEABLE MESSAGE SIGN | 384 | | 384 | WEEK |
| SP & 605 | CONCRETE DITCH PAVING (TYPE B) | | 31407 | 31407 | SQ. YD. |
| SP, SS, & 606 | 24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) | 22 | | 22 | LIN. FT. |
| 606 | 24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS | 1 | | 1 | EACH |
| 606 | SELECTED PIPE BEDDING | 10 | | 10 | CU. YD. |
| 611 | UNDERDRAIN OUTLET PROTECTORS | 2 | | 2 | EACH |
| 611 | 4" PIPE UNDERDRAINS | 500 | | 500 | LIN. FT. |
| SS & 617 | GUARDRAIL (TYPE A) | 6850 | | 6850 | LIN. FT. |
| SS & 617 | GUARDRAIL TERMINAL (TYPE 2) | 22 | | 22 | EACH |
| SS & 617 | THRIE BEAM GUARDRAIL TERMINAL | 12 | | 12 | EACH |
| SS & 617 | TERMINAL ANCHOR POSTS (TYPE 1) | 10 | | 10 | EACH |
| 620 | LIME | 16 | | 16 | TON |
| 620 | SEEDING | 8.11 | | 8.11 | ACRE |
| 620 | MULCH COVER | 16.86 | | 16.86 | ACRE |
| SS & 620 | WATER | 1205.2 | | 1205.2 | M.GAL. |
| 621 | TEMPORARY SEEDING | 8.75 | | 8.75 | ACRE |
| 621 | SILT FENCE | 6346 | | 6346 | LIN. FT. |
| 621 | SAND BAG DITCH CHECKS | 3146 | | 3146 | BAG |
| 621 | DROP INLET SILT FENCE | 2575 | | 2575 | LIN. FT. |
| 621 | SEDIMENT BASIN | 400 | | 400 | CU. YD. |
| 621 | OBLITERATION OF SEDIMENT BASIN | 400 | | 400 | CU. YD. |
| 621 | SEDIMENT REMOVAL AND DISPOSAL | 610 | | 610 | CU. YD. |
| 621 | ROCK DITCH CHECKS | 408 | | 408 | CU. YD. |
| 623 | SECOND SEEDING APPLICATION | 8.11 | | 8.11 | ACRE |
| 624 | SOLID SODDING | 29 | 15787 | 15816 | SQ. YD. |
| 631 | CONCRETE BARRIER WALL (PIER PROTECTION TYPE A) | 74 | | 74 | LIN. FT. |
| 635 | ROADWAY CONSTRUCTION CONTROL | 1.00 | | 1.00 | LUMP SUM |
| 642 | RUMBLE STRIPS IN ASPHALT SHOULDERS | 10871 | | 10871 | LIN. FT. |
| SP & 719 | INVERTED PROFILE THERMOPLASTIC PAVEMENT MARKING WHITE (4") (ALTERNATE NO. 1) | 105151 | | 105151 | LIN. FT. |
| SP | HIGH PERFORMANCE MARKING TAPE WHITE (4") (ALTERNATE NO. 2) | 105151 | | 105151 | LIN. FT. |
| SP & 719 | INVERTED PROFILE THERMOPLASTIC PAVEMENT MARKING WHITE (8") (ALTERNATE NO. 1) | 5558 | | 5558 | LIN. FT. |
| SP | HIGH PERFORMANCE MARKING TAPE WHITE (8") (ALTERNATE NO. 2) | 5558 | | 5558 | LIN. FT. |
| SP & 719 | INVERTED PROFILE THERMOPLASTIC PAVEMENT MARKING YELLOW (4") (ALTERNATE NO. 1) | 89382 | | 89382 | LIN. FT. |
| SP | HIGH PERFORMANCE MARKING TAPE YELLOW (4") (ALTERNATE NO. 2) | 89382 | | 89382 | LIN. FT. |
| SP & 719 | INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING WHITE (4") (ALTERNATE NO. 1) | 1250 | | 1250 | LIN. FT. |
| SP | HIGH PERFORMANCE CONTRAST MARKING TAPE WHITE (4") (ALTERNATE NO. 2) | 1250 | | 1250 | LIN. FT. |
| SP & 719 | INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING WHITE (8") (ALTERNATE NO. 1) | 257 | | 257 | LIN. FT. |
| SP | HIGH PERFORMANCE CONTRAST MARKING TAPE WHITE (8") (ALTERNATE NO. 2) | 257 | | 257 | LIN. FT. |
| 721 | RAISED PAVEMENT MARKERS (TYPE II) | 1763 | | 1763 | EACH |
| SS & 725 | GUIDE SIGN-ROADSIDE MOUNTED (DEMOUNTABLE LEGEND) | 1392 | | 1392 | SQ. FT. |
| SS & 725 | GUIDE SIGN-OVERHEAD MOUNTED (DEMOUNTABLE LEGEND) | 290 | | 290 | SQ. FT. |
| SP, SS, & 726 | STANDARD SIGN | 945 | | 945 | SQ. FT. |
| SS & 727 | EXIT NUMBER PANEL (TYPE A) | 250 | | 250 | SQ. FT. |
| SP & 729 | CHANNEL POST SIGN SUPPORT (TYPE U1-1) | 32 | | 32 | EACH |
| 730 | BREAKAWAY SIGN SUPPORT (TYPE G-1) | 881 | | 881 | POUND |
| 730 | BREAKAWAY SIGN SUPPORT (TYPE G-2) | 20862 | | 20862 | POUND |
| 801 | UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY | 18 | | 18 | CU. YD. |
| 802 | CLASS S CONCRETE-ROADWAY | 26.12 | | 26.12 | CU. YD. |
| SS & 804 | REINFORCING STEEL-ROADWAY (GRADE 60) | 84356 | | 84356 | POUND |
| SP | STEEL OVERHEAD SIGN STRUCTURE (OH-530-60-03) | 1 | | 1 | EACH |
| SP | REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIER | 7 | | 7 | EACH |
| SP | REMOVAL AND DISPOSAL OF OVERHEAD SIGN STRUCTURE | 2 | | 2 | EACH |
| SP | MOBILE SPEED NOTIFICATION SYSTEM | 2 | | 2 | EACH |
| SP | WIRE ROPE SAFETY FENCE | | 71040 | 71040 | LIN. FT. |
| SP | WIRE ROPE SAFETY FENCE MAINTENANCE MATERIALS | | 1.00 | 1.00 | LUMP SUM |
| | | | | | |
| | | | | | |
| | **STRUCTURES OVER 20' SPAN** | | | | |
| 205 | REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2) | 1.00 | | 1.00 | LUMP SUM |
| 205 | REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 4) | 1.00 | | 1.00 | LUMP SUM |
| 205 | REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 5) | 1.00 | | 1.00 | LUMP SUM |
| 509 | JOINT REHABILITATION (TYPE A) | 160 | | 160 | LIN. FT. |
| 636 | BRIDGE CONSTRUCTION CONTROL | 1.00 | | 1.00 | LUMP SUM |
| 801 | UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE | 2103 | | 2103 | CU. YD. |
| 802 | CLASS S CONCRETE-BRIDGE | 393.00 | | 393.00 | CU. YD. |
| 802 | CLASS S(AE) CONCRETE-BRIDGE | 1560.00 | | 1560.00 | CU. YD. |
| 802 | GROOVING | 740 | | 740 | SQ. YD. |
| 803 | CLASS 1 PROTECTIVE SURFACE TREATMENT | 72.8 | | 72.8 | GAL. |
| 803 | CLASS 3 PROTECTIVE SURFACE TREATMENT | 540 | | 540 | LIN. FT. |
| SS & 804 | REINFORCING STEEL-BRIDGE (GRADE 60) | 50890 | | 50890 | POUND |
| SS & 804 | EPOXY COATED REINFORCING STEEL (GRADE 60) | 404510 | | 404510 | POUND |
| 805 | CONCRETE PILING (18" SQUARE) | 1888 | | 1888 | LIN. FT. |
| 805 | CONCRETE PILING (24" SQUARE) | 5313 | | 5313 | LIN. FT. |
| 805 | TEST PILE (18" SQUARE) | 114 | | 114 | LIN. FT. |
| 805 | TEST PILE (24" SQUARE) | 147 | | 147 | LIN. FT. |
| 805 | PREBORING | 380 | | 380 | LIN. FT. |
| 812 | BRIDGE NAME PLATE (TYPE D) | 3 | | 3 | EACH |
| 816 | DUMPED RIPRAP | 1728 | | 1728 | CU. YD. |
| 816 | FILTER BLANKET | 3089 | | 3089 | SQ. YD. |
| SP | HYDRODEMOLITION | 800 | | 800 | SQ. YD. |
| SP | LATEX MODIFIED CONCRETE OVERLAY (1 1/2" THICK) | 802 | | 802 | SQ. YD. |
| SP | LATEX MODIFIED CONCRETE (VARIABLE DEPTH) | 24 | | 24 | CU. YD. |
| | | | | | |
| | | | | | |

*ALTERNATE BID ITEMS

## REVISIONS

| DATE | REVISION | SHEET NUMBER |
|---|---|---|
| 11/16/2012 | REVISED STAGE 2, 3B, 3C, & 3D MOT AND QUANTITIES, REVISED STAGE 1B, 2, 3A, 3B, 3C, & 3D MOT DETAILS, REVISED AND ADDED DETAILS ON SHEET 7, REVISED ACHM QUANTITIES, REVISED RUMBLE STRIPS IN ASPHALT SHOULDERS QUANTITY, REVISED ADVANCE WARNING SIGNS AND DEVICES QUANTITY, REVISED EMBANKMENT AND EXCAVATION QUANTITIES FOR TEMPORARY RAMPS AND CROSSOVERS, REVISED SLAB POURING NOTE, ADDED REMOVAL AND DISPOSAL OF APPROACH GUTTERS. | 7, 53-65, 74-77, 79, 82, 162, & 163 |
| | | |
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STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRUETT D. SMITH
11-16-12

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 11-16-12 | | | | 6 | ARK. | BB0614 | 82 | 219 |

(2) SUMMARY OF QUANTITIES AND REVISIONS

SUMMARY OF QUANTITIES AND REVISIONS

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

10-19-12

SURVEY CONTROL COORDINATES

Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL,
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

| Point Name | Northing | Easting | Elev | Feature | Description |
|---|---|---|---|---|---|
| 620026a | 1998150.7840 | 1223038.1870 | 274.759 | GPS | |
| 1 | 2010246.3840 | 1231663.2110 | 245.984 | CTL | |
| 2 | 2009370.3570 | 1231670.0800 | 247.676 | CTL | |
| 3 | 2008723.0360 | 1231690.5400 | 251.967 | CTL | |
| 4 | 1991559.3910 | 1240044.6440 | 245.330 | CTL | |
| 5 | 1990834.1470 | 1240529.5210 | 240.517 | CTL | |
| 6 | 1990198.7820 | 1240942.2530 | 241.311 | CTL | |
| 7 | 2011527.2610 | 1231642.3290 | 252.954 | CTL | |
| 8 | 2010860.9580 | 1231654.2090 | 248.506 | CTL | |
| 9 | 2008010.1960 | 1231700.5790 | 263.427 | CTL | |
| 10 | 2007309.4070 | 1231709.3760 | 270.410 | CTL | |
| 11 | 2006298.6510 | 1231732.3660 | 268.695 | CTL | |
| 12 | 2005458.7750 | 1231749.5010 | 267.335 | CTL | |
| 13 | 2004777.4870 | 1231711.5260 | 267.056 | CTL | |
| 14 | 2004172.5240 | 1231832.1980 | 266.567 | CTL | |
| 15 | 1997578.6420 | 1236064.6940 | 263.953 | CTL | |
| 16 | 1997128.1530 | 1236367.6200 | 264.349 | CTL | |
| 17 | 1996626.9520 | 1236689.5790 | 264.144 | CTL | |
| 18 | 1982931.1100 | 1245724.9860 | 253.960 | CTL | |
| 19 | 1982418.6470 | 1246064.1610 | 248.436 | CTL | |
| 20 | 1981891.9480 | 1246396.1830 | 242.950 | CTL | |
| 21 | 2005248.2730 | 1232131.2980 | 267.964 | CTL | |
| 22 | 2005874.6360 | 1232037.3710 | 268.251 | CTL | |
| 23 | 2006292.9680 | 1231990.4790 | 268.755 | CTL | |
| 620016 | 2002642.9960 | 1232762.5150 | 260.751 | GPS | |

*Note - Rebar and Cap - Standard -"- Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF WAS NOT COMPUTED ON THIS JOB DUE TO THE LENGTH OF THE JOB FOR THE GROUND COORDINATES LISTED ABOVE.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME SBB00614GI.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0302-SOUTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 620016 - 620016A, 620026 - 620026A
CONVERGENCE ANGLE: 00 00 08 28.30 LEFT AT LT: 34-54-82.76 LON: 092-25-22.73
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

BINGHAM ROAD INTERCHANGE RAMP 4

| POINT NO. | TYPE | STATION | NORTHING | EASTING |
|---|---|---|---|---|
| 8033 | POB | 387+56.35 | 2009353.6621 | 1231633.7455 |
| 8034 | PC | 388+13.10 | 2009410.4021 | 1231632.6685 |
| 8040 | PI | 391+25.03 | 2009722.2755 | 1231626.7483 |
| 8036 | PT | 394+27.37 | 2010003.4465 | 1231491.6820 |
| 8037 | PI | 399+28.95 | 2010455.5710 | 1231274.4947 |
| 8038 | PI | 401+26.67 | 2010633.7960 | 1231188.8807 |
| 8039 | POE | 401+45.38 | 2010650.6571 | 1231180.7811 |

I-530 C.L.

| POINT NO. | TYPE | STATION | NORTHING | EASTING |
|---|---|---|---|---|
| 8058 | PI | 369+99.93 | 2007599.1759 | 1231725.5577 |
| 8059 | PI | 399+99.93 | 2010598.6356 | 1231668.6256 |

BINGHAM ROAD INTERCHANGE TEMP. RAMP 4

| POINT NO. | TYPE | STATION | NORTHING | EASTING |
|---|---|---|---|---|
| 8072 | POB | 387+95.40 | 2009395.2729 | 1231729.0354 |
| 8073 | PI | 390+99.95 | 2009699.2958 | 1231711.1411 |
| 8074 | PC | 393+12.75 | 2009912.0576 | 1231707.1415 |
| 8076 | PT | 398+08.59 | 2010318.9666 | 1231464.3116 |
| 8077 | PC | 398+55.06 | 2010341.7970 | 1231423.8309 |
| 8079 | PT | 401+46.48 | 2010551.3164 | 1231227.8159 |
| 8080 | POE | 401+65.82 | 2010568.7557 | 1231219.4575 |

BINGHAM ROAD INTERCHANGE TEMP. RAMP 1

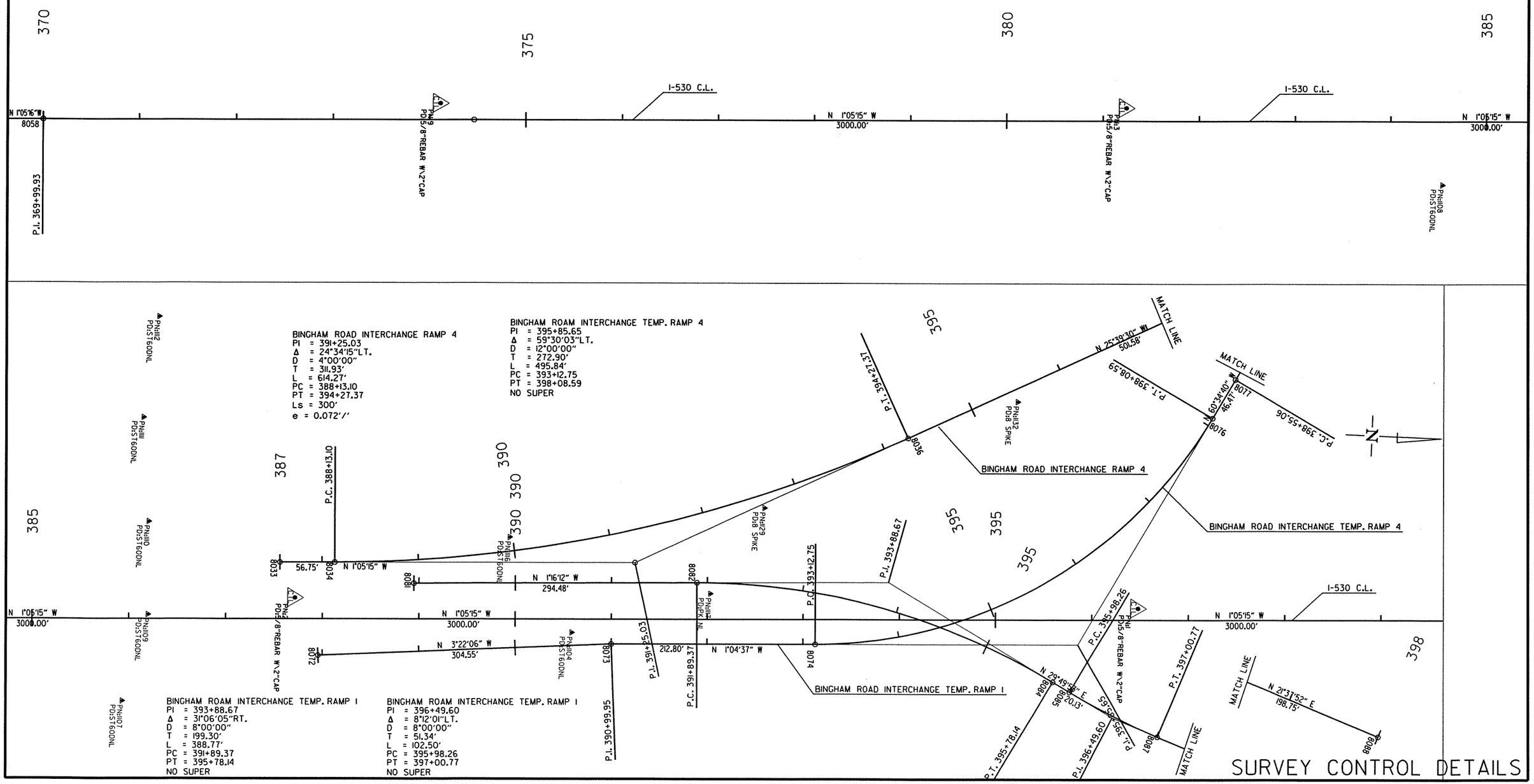
| POINT NO. | TYPE | STATION | NORTHING | EASTING |
|---|---|---|---|---|
| 8081 | POB | 388+94.89 | 2009493.0913 | 1231652.6608 |
| 8082 | PC | 391+89.37 | 2009787.4974 | 1231646.1338 |
| 8084 | PT | 395+78.14 | 2010159.6443 | 1231740.8596 |
| 8085 | PC | 395+98.26 | 2010177.1047 | 1231750.8720 |
| 8087 | PT | 397+00.77 | 2010269.3649 | 1231795.3360 |
| 8088 | POE | 398+99.52 | 2010454.1193 | 1231868.6020 |

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 84 | 219 |

(2) SURVEY CONTROL DETAILS

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

10-19-12

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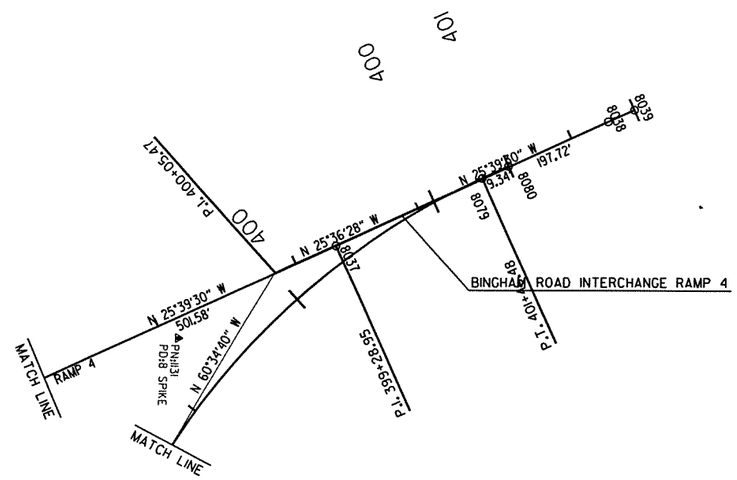
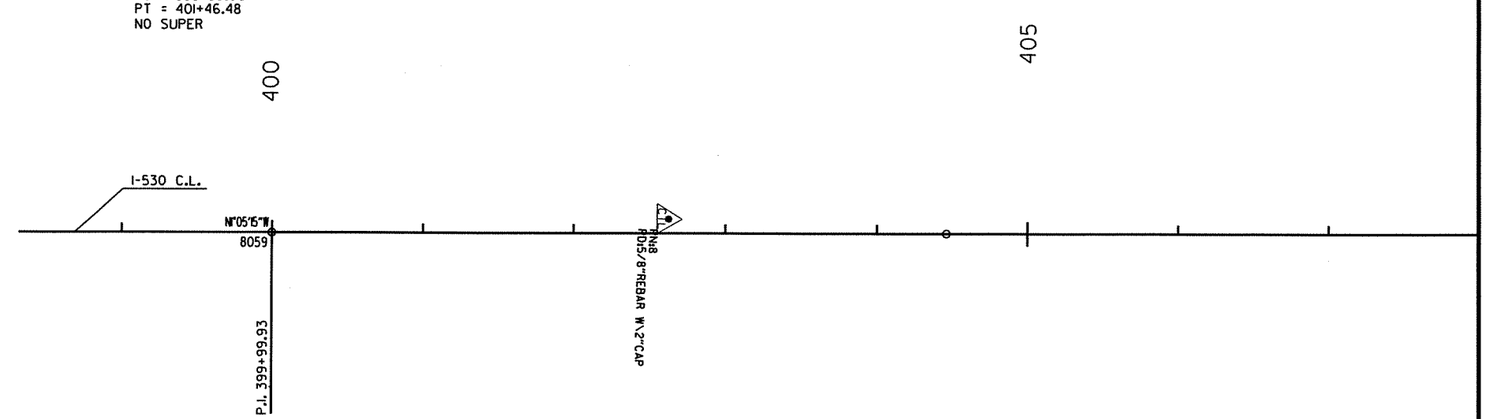
(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-19-12




BINGHAM ROAM INTERCHANGE TEMP. RAMP 4
PI = 400+05.47
Δ = 34°58'12"RT.
D = 12°00'00"
T = 150.41'
L = 291.42'
PC = 398+55.06
PT = 401+46.48
NO SUPER




9/20/2012

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SURVEY CONTROL DETAILS

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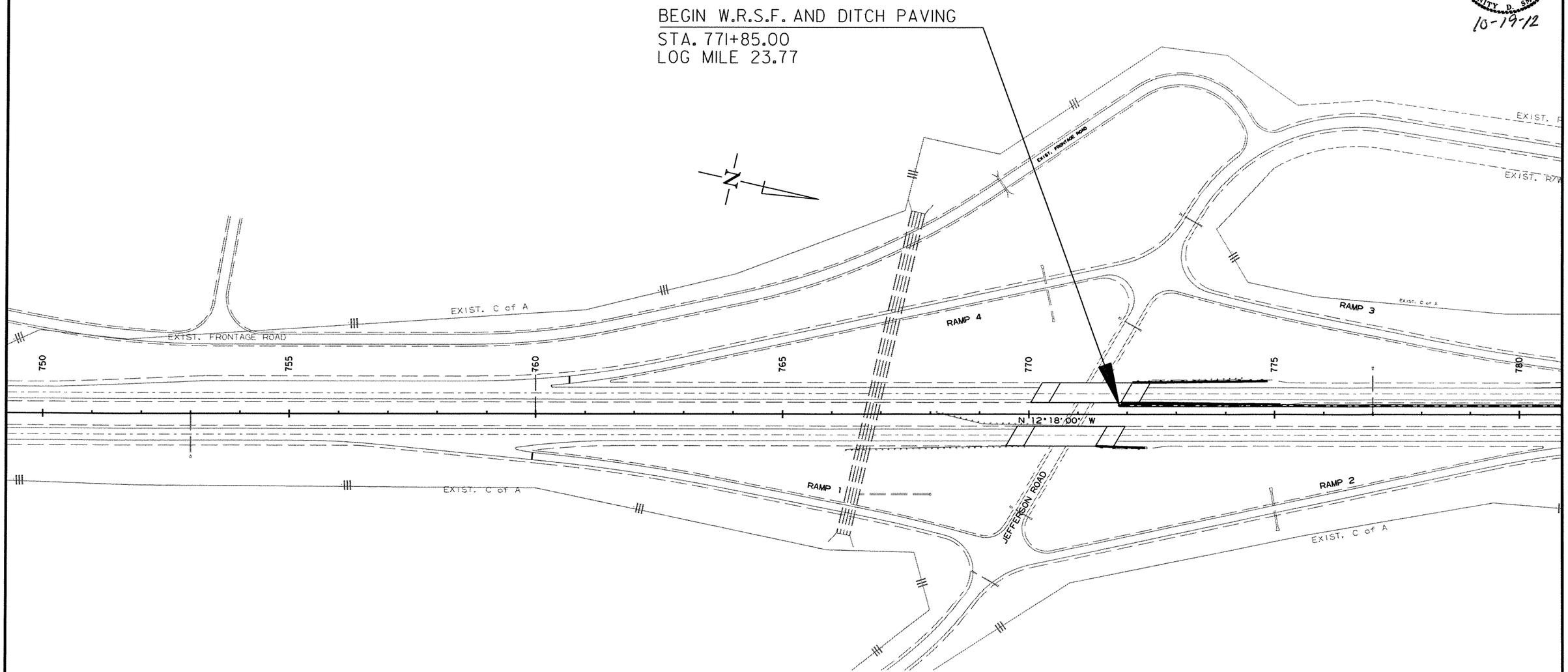
| | | | | JOB NO. | | BB0614 | 86 | 219 |

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-19-12




EXISTING GUARDRAIL - RETAIN

| STA. | STA. | LOCATION | SIDE | LIN. FT. |
|---|---|---|---|---|
| 771+36.33 | 772+36.33 | RT. MAIN LANES | RT. | 75 |
| 771+87.06 | 775+12.06 | LT. MAIN LANES | RT. | 250 |
| 772+10.16 | 774+85.16 | LT. MAIN LANES | LT. | 200 |

10/19/2012

RBB0614.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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(2) PLAN SHEETS

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

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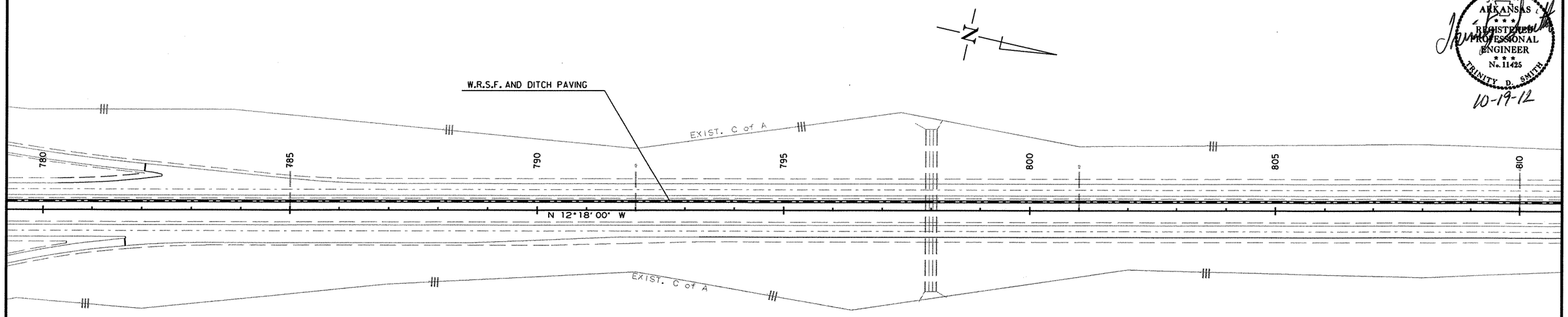


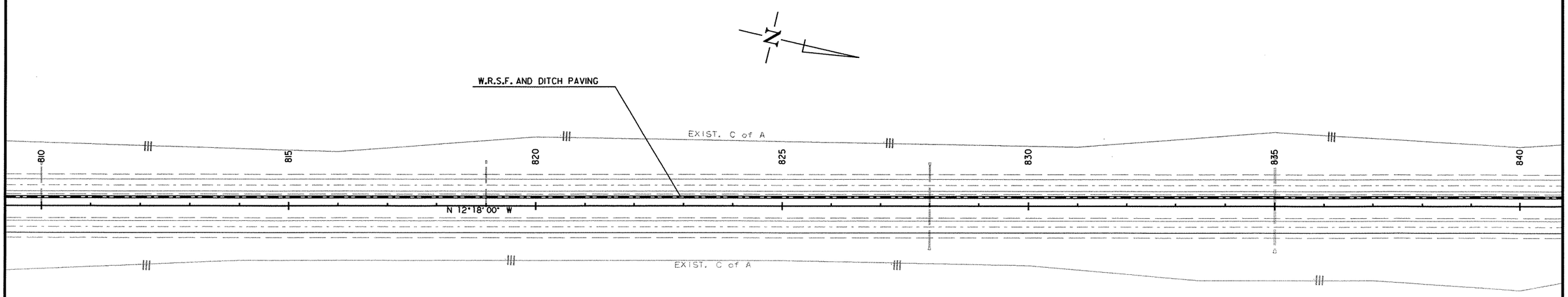


10/19/2012

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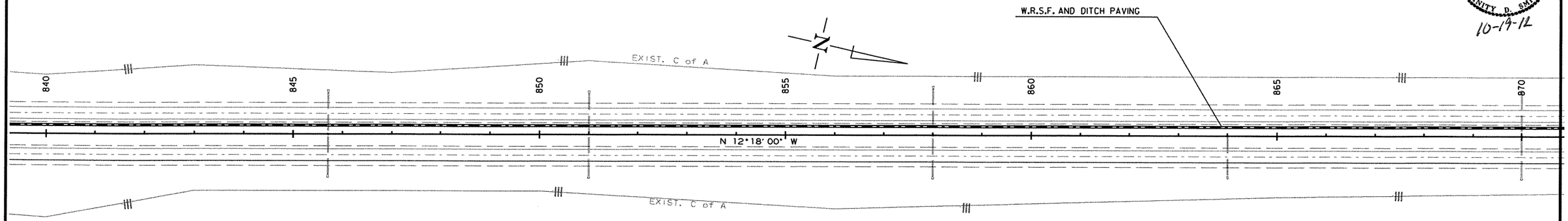
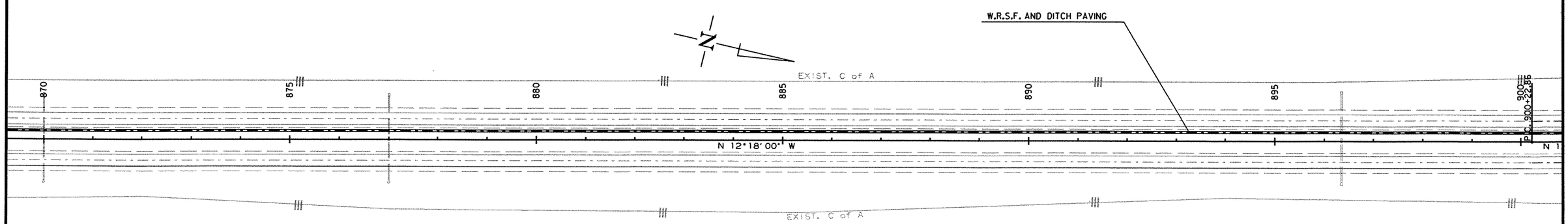
(2) PLAN SHEETS

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

10-19-12

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(2) PLAN SHEETS

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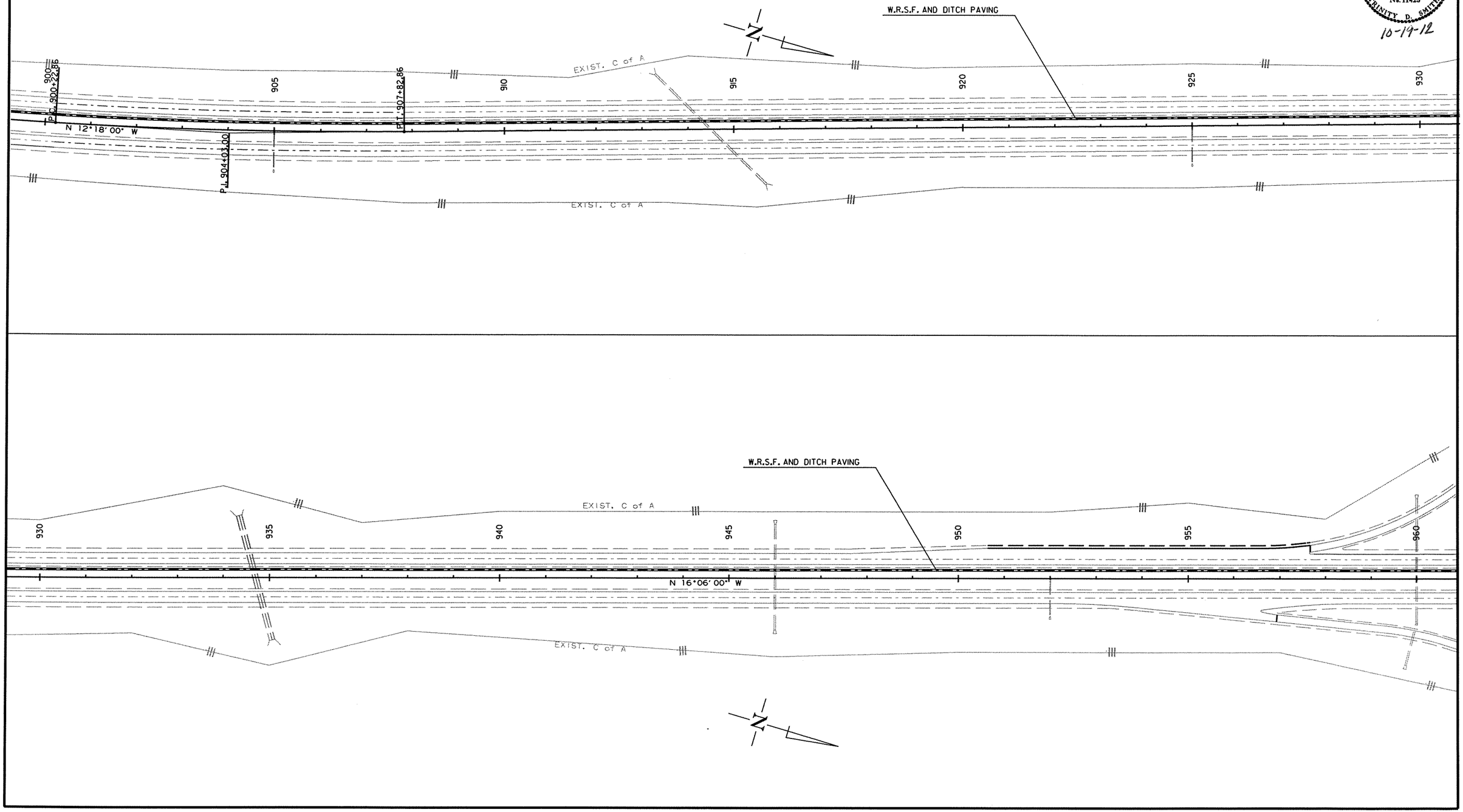
No. 11425
TRINITY D. SMITH
10-19-12

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(2) PLAN SHEETS

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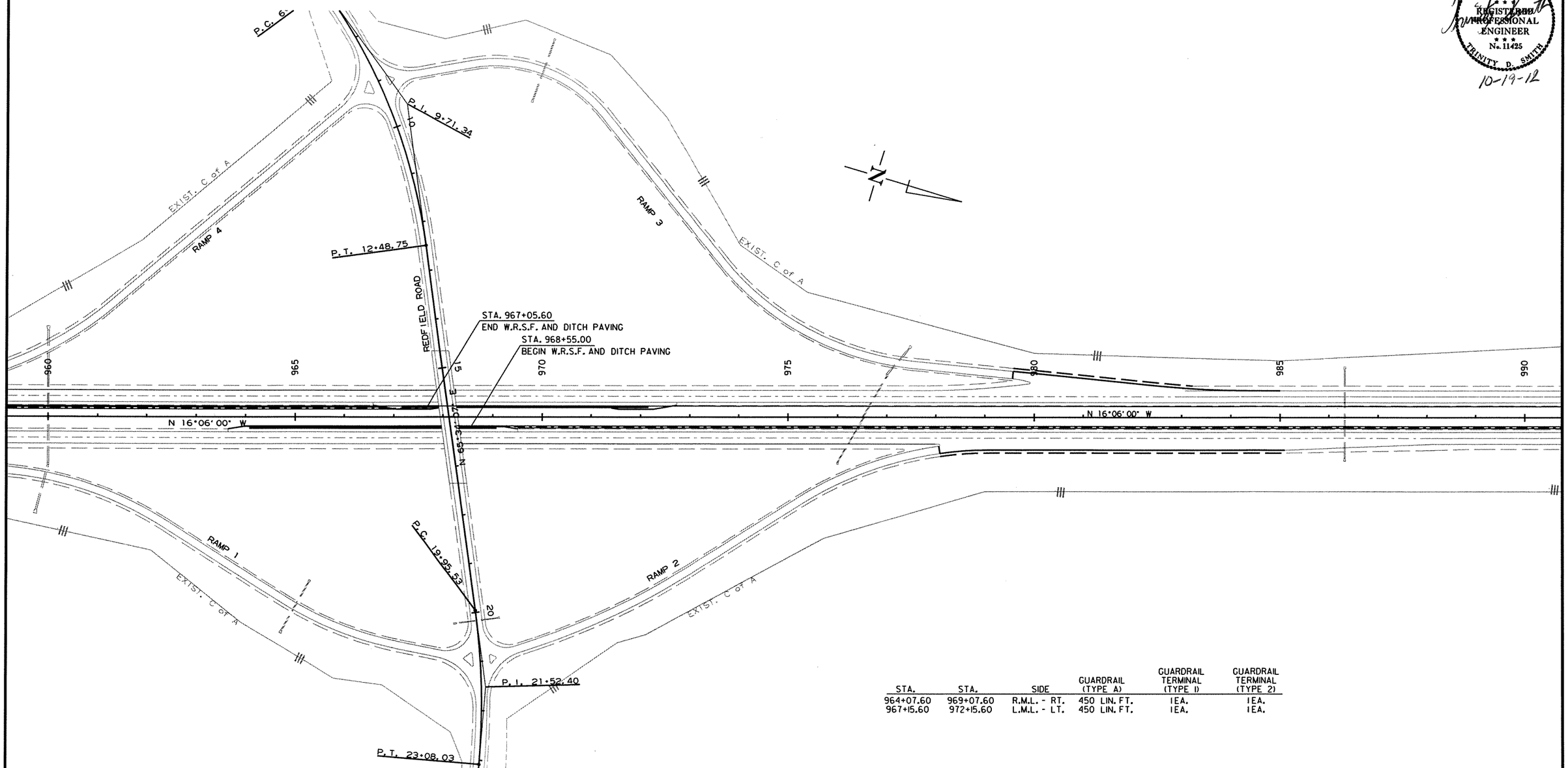


| STA. | STA. | SIDE | GUARDRAIL (TYPE A) | GUARDRAIL TERMINAL (TYPE 1) | GUARDRAIL TERMINAL (TYPE 2) |
|---|---|---|---|---|---|
| 964+07.60 | 969+07.60 | R.M.L. - RT. | 450 LIN. FT. | 1 EA. | 1 EA. |
| 967+15.60 | 972+15.60 | L.M.L. - LT. | 450 LIN. FT. | 1 EA. | 1 EA. |

10/19/2012

RBB0614.DGN

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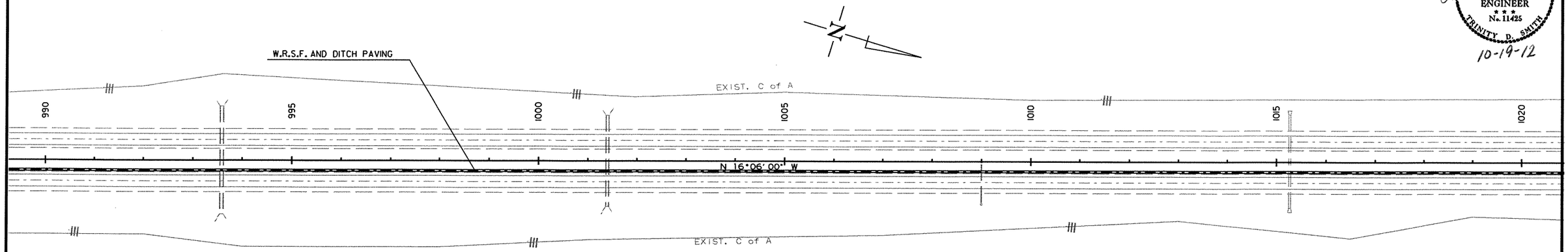
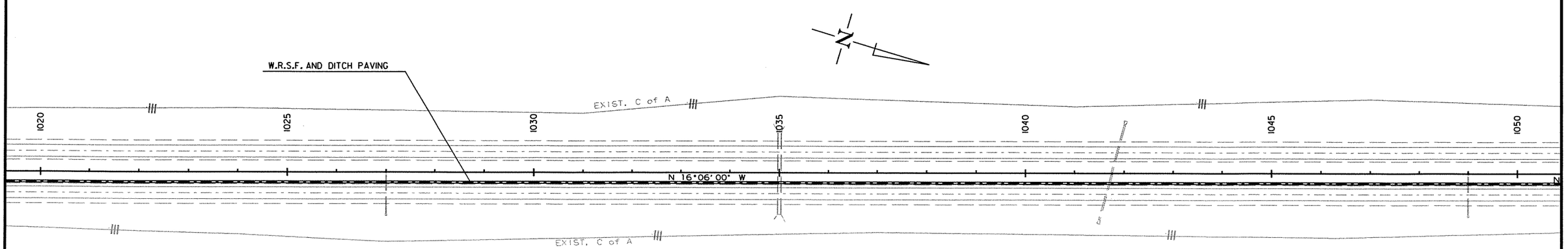
(2) PLAN SHEETS

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

10-19-12




10/19/2012

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| | | | | JOB NO. | | BB0614 | 92 | 219 |

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
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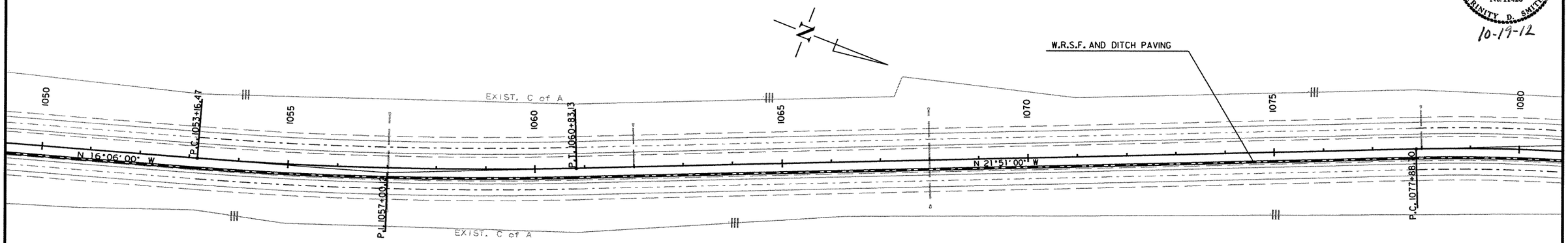
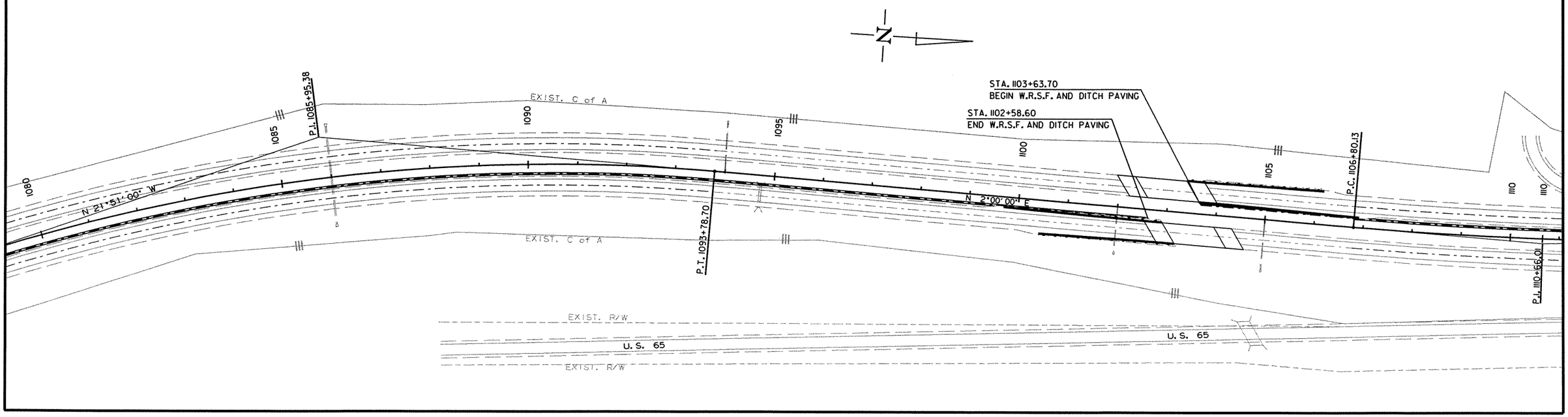
TRINITY D. SMITH
10-19-12




EXISTING GUARDRAIL - RETAIN

| STA. | STA. | LOCATION | SIDE | LIN. FT. |
|---|---|---|---|---|
| 1099+70.00 | 1102+95.00 | RT. MAIN LANES | LT. | 250 |
| 1100+45.00 | 1103+20.00 | RT. MAIN LANES | RT. | 200 |
| 1103+40.00 | 1106+15.00 | LT. MAIN LANES | LT. | 200 |
| 1103+65.00 | 1106+90.00 | LT. MAIN LANES | RT. | 250 |

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| | | | | JOB NO. | | BB0614 | 93 | 219 |

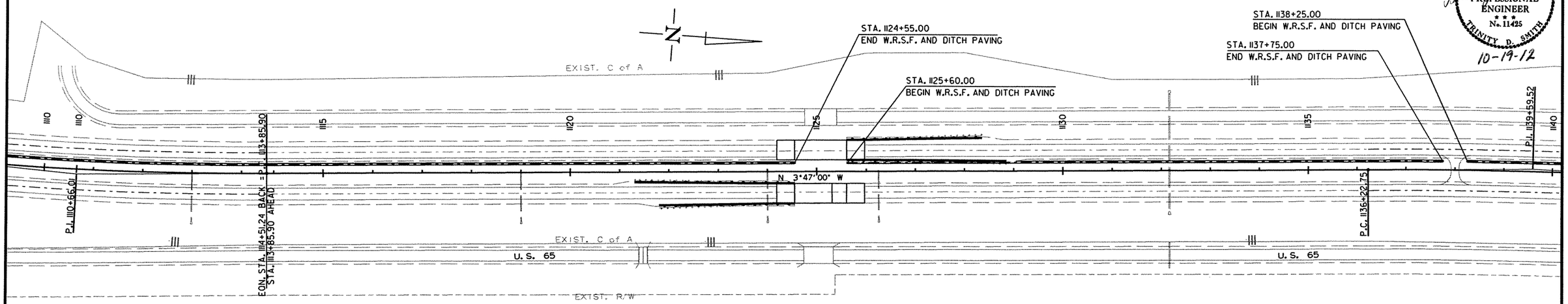
(2) PLAN SHEETS

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

10-19-12

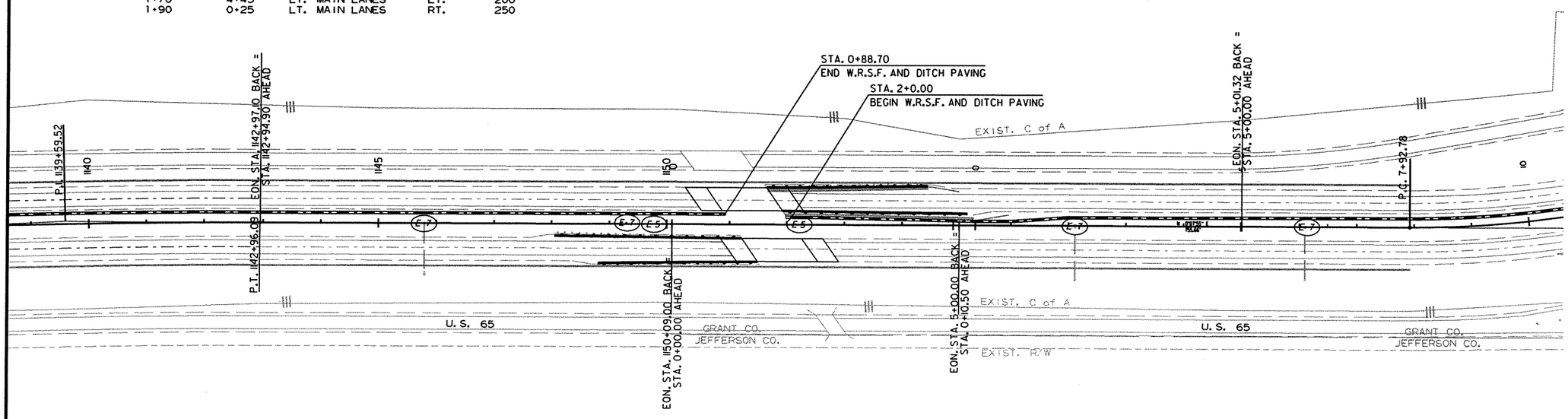
EXISTING GUARDRAIL - RETAIN

| STA. | STA. | LOCATION | SIDE | LIN. FT. |
|---|---|---|---|---|
| 1121+80 | 1124+55 | RT. MAIN LANES | RT. | 200 |
| 1121+30 | 1124+55 | RT. MAIN LANES | LT. | 250 |
| 1125+60 | 1128+35 | LT. MAIN LANES | LT. | 250 |
| 1125+60 | 1128+85 | LT. MAIN LANES | RT. | 200 |




EXISTING GUARDRAIL - RETAIN

| STA. | STA. | LOCATION | SIDE | LIN. FT. |
|---|---|---|---|---|
| 1148+05 | 1+20 | RT. MAIN LANES | LT. | 250 |
| 1148+80 | 1+45 | RT. MAIN LANES | RT. | 200 |
| 1+70 | 4+45 | LT. MAIN LANES | LT. | 200 |
| 1+90 | 0+25 | LT. MAIN LANES | RT. | 250 |

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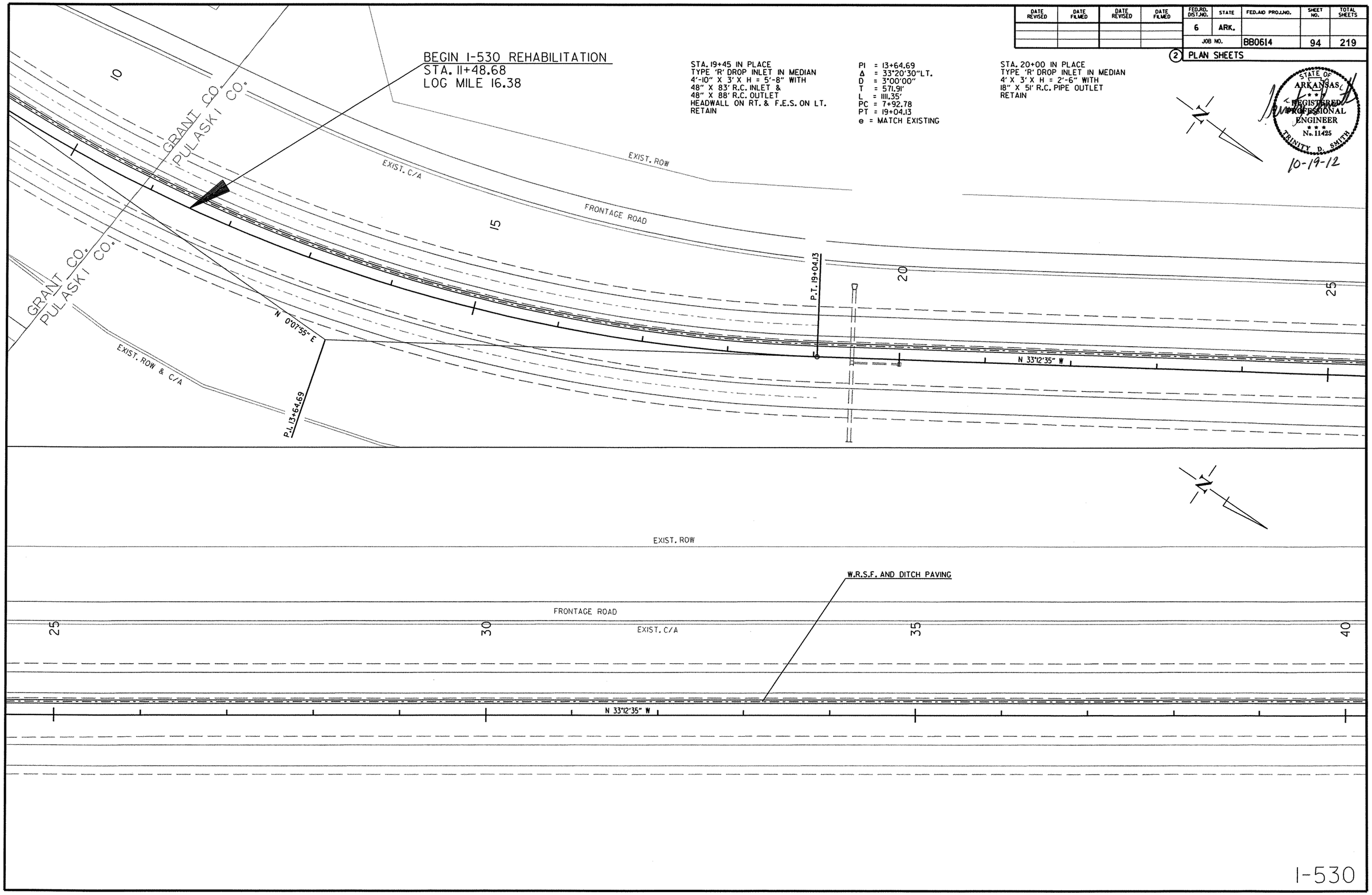
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 94 | 219 |

2 PLAN SHEETS

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I-530

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 95 | 219 |

(2) PLAN SHEETS

STATE OF ARKANSAS
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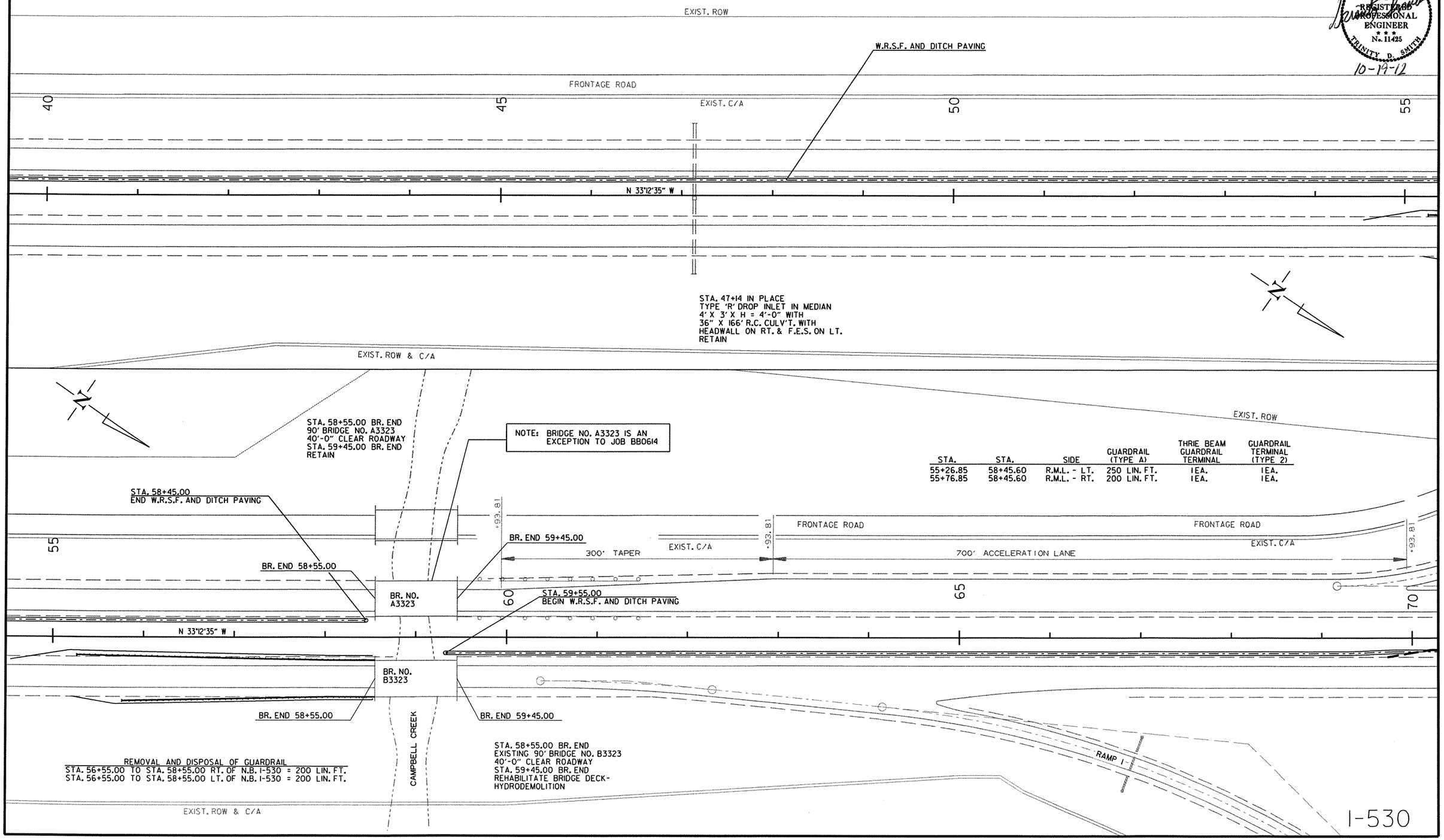
No. 11425
TRINITY D. SMITH
10-19-12




| STA. | STA. | SIDE | GUARDRAIL (TYPE A) | THRIE BEAM GUARDRAIL TERMINAL | GUARDRAIL TERMINAL (TYPE 2) |
|---|---|---|---|---|---|
| 55+26.85 | 58+45.60 | R.M.L. - LT. | 250 LIN. FT. | 1EA. | 1EA. |
| 55+76.85 | 58+45.60 | R.M.L. - RT. | 200 LIN. FT. | 1EA. | 1EA. |

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 56+55.00 TO STA. 58+55.00 RT. OF N.B. I-530 = 200 LIN. FT.
STA. 56+55.00 TO STA. 58+55.00 LT. OF N.B. I-530 = 200 LIN. FT.

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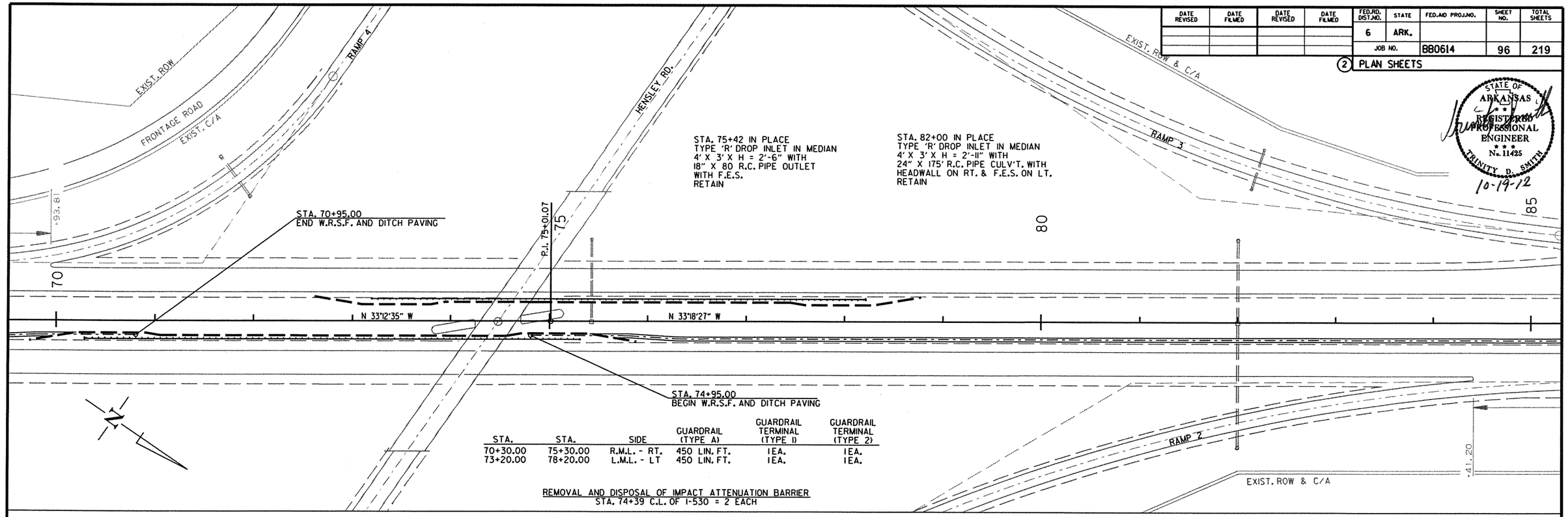
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 96 | 219 |

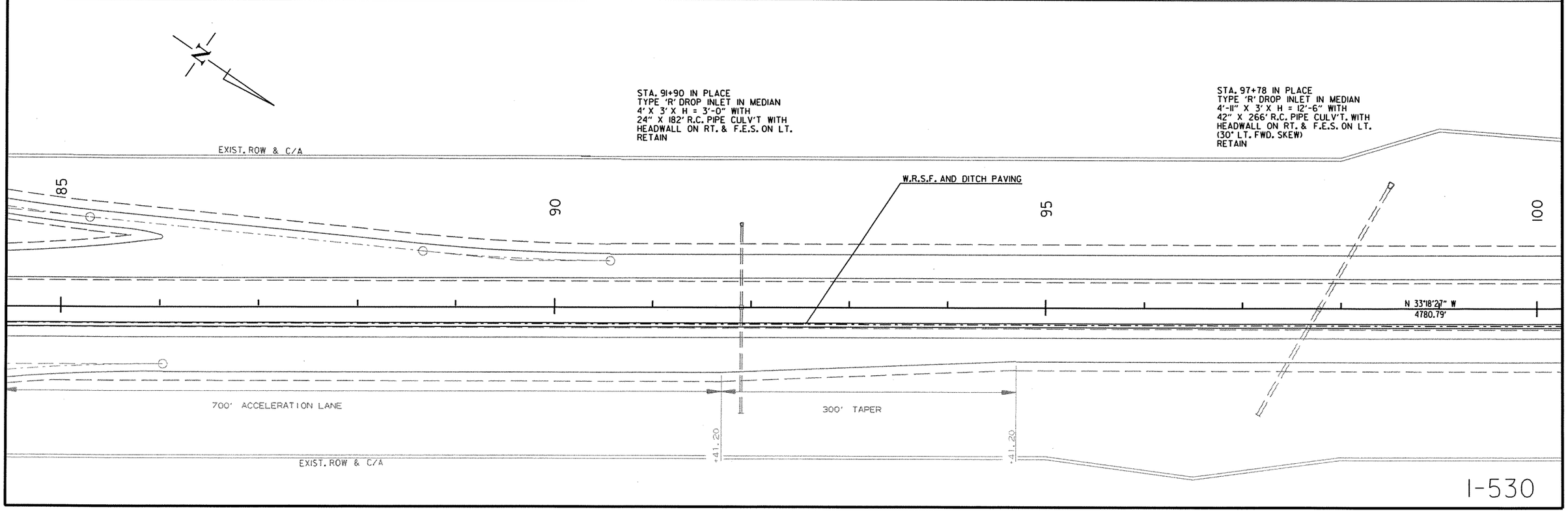
(2) PLAN SHEETS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 10-19-12




| STA. | STA. | SIDE | GUARDRAIL (TYPE A) | GUARDRAIL TERMINAL (TYPE I) | GUARDRAIL TERMINAL (TYPE 2) |
|---|---|---|---|---|---|
| 70+30.00 | 75+30.00 | R.M.L. - RT. | 450 LIN. FT. | 1EA. | 1EA. |
| 73+20.00 | 78+20.00 | L.M.L. - LT | 450 LIN. FT. | 1EA. | 1EA. |

REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIER
STA. 74+39 C.L. OF I-530 = 2 EACH

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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 97 | 219 |

(2) PLAN SHEETS

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

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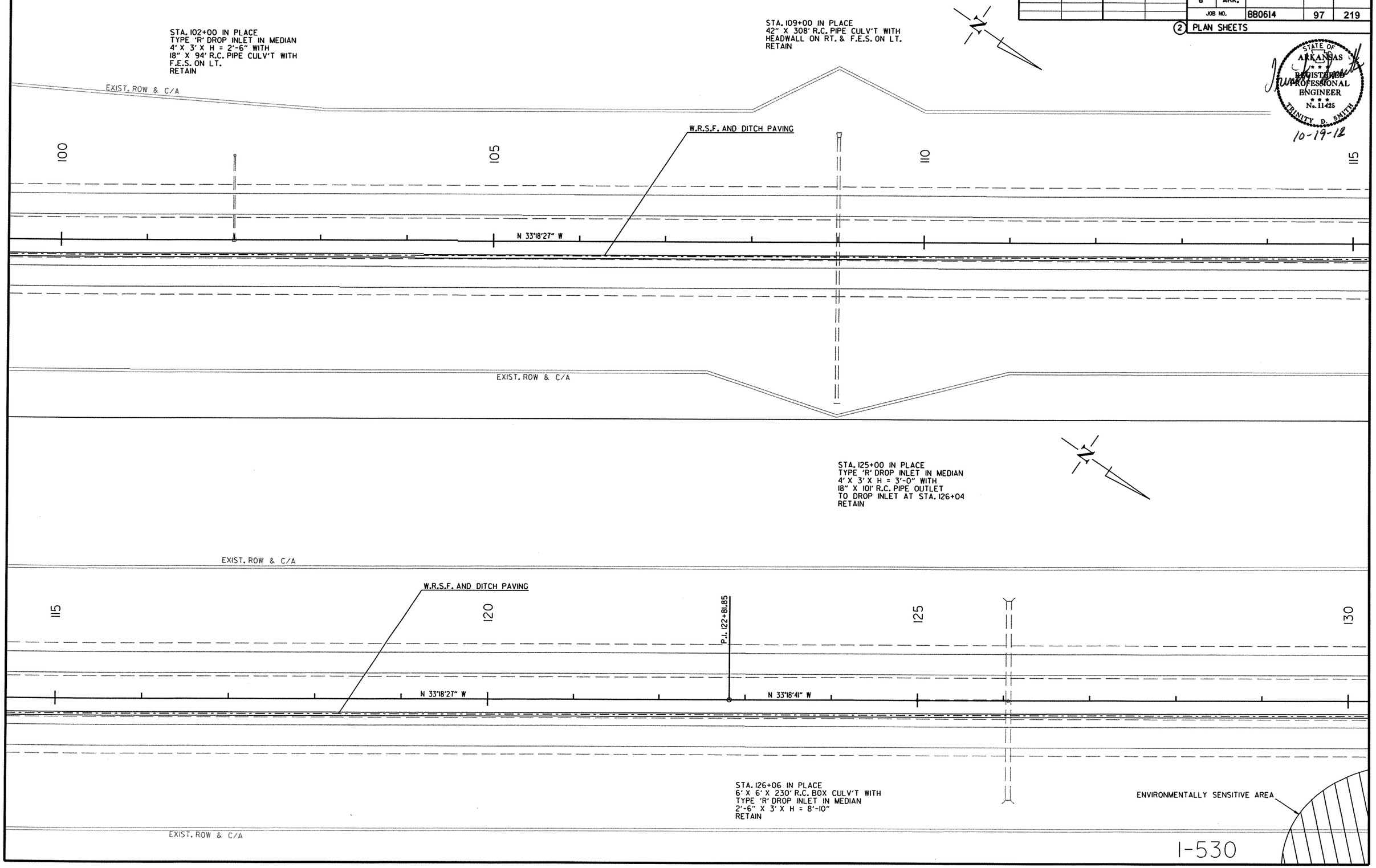


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|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 98 | 219 |

(2) PLAN SHEETS

ENVIRONMENTALLY SENSITIVE AREA
STA. 130+00.00 TO STA 133+00.00

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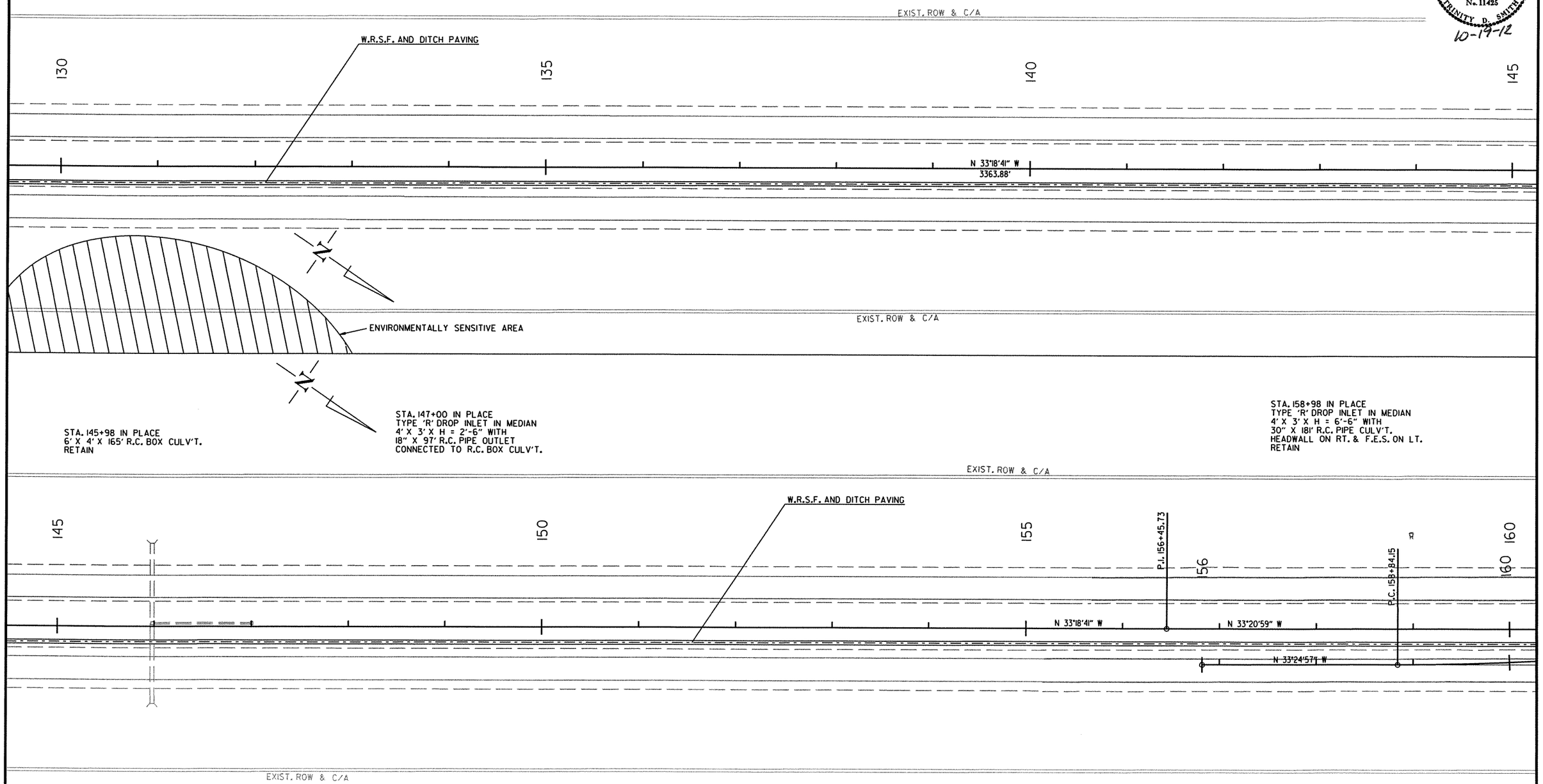


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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 99 | 219 |

(2) PLAN SHEETS

SPECIAL FLOOD HAZARD LIMITS
STA. 168+80 TO STA. 177+00

I-530 CROSSOVER
PI = 160+74.74
Δ = 7°36'44"'T.
D = 2°00'00"
T = 190.59'
L = 380.62'
PC = 158+84.15
PT = 162+64.77
NO SUPER

I-530 CROSSOVER
PI = 166+04.97
Δ = 7°36'40"RT.
D = 2°00'00"
T = 190.56'
L = 380.56'
PC = 164+14.41
PT = 167+94.97
NO SUPER

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
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STA. 169+00 IN PLACE
TYPE 'R' DROP INLET IN MEDIAN
4' X 3' X H = 9'-0" WITH
18" X 110' R.C. PIPE CULV'T.
WITH F.E.S. ON LT.
RETAIN

EXIST. ROW & C/A

W.R.S.F. AND DITCH PAVING

P.I. 160+74.74
P.T. 162+64.77
P.I. 164+90.00
P.C. 164+14.41
P.I. 166+04.97
P.T. 167+94.97

N 33°20'59" W
N 41°01'41" W
N 33°26'14" W
N 33°25'01" W

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 173+15.00 TO STA. 175+15.00 RT. OF N.B. I-530 = 200 LIN. FT.
STA. 173+15.00 TO STA. 175+15.00 LT. OF N.B. I-530 = 200 LIN. FT.

| STA. | STA. | SIDE | GUARDRAIL (TYPE A) | THRIE BEAM GUARDRAIL TERMINAL | GUARDRAIL TERMINAL (TYPE 2) |
|---|---|---|---|---|---|
| 171+77.82 | 174+96.57 | R.M.L. - LT. | 250 LIN. FT. | 1 EA. | 1 EA. |
| 172+27.82 | 174+96.57 | R.M.L. - RT. | 200 LIN. FT. | 1 EA. | 1 EA. |

NOTE: BRIDGE NO. A3324 IS AN EXCEPTION TO JOB BB0614

I-530 CROSSOVER
PI = 181+72.31
Δ = 8°05'39"RT.
D = 2°00'00"
T = 202.69'
L = 404.71'
PC = 179+69.62
PT = 183+74.33
NO SUPER

I-530 CROSSOVER
PI = 186+95.03
Δ = 7°54'04"LT.
D = 2°00'00"
T = 197.84'
L = 395.05'
PC = 184+97.19
PT = 188+92.25
NO SUPER

STA. 175+16.67 BR. END
150.00' BRIDGE NO. A3324
40'-0" CLEAR ROADWAY
STA. 176+66.67 BR. END
RETAIN

BR. END 175+05.97
BR. END 176+57.47
BR. NO. A3323
BR. NO. B7266
N 33°39'12" W
N 33°26'14" W
2999.95'
N 25°33'33" W
N 33°27'37" W
P.I. 181+72.31
P.C. 179+69.62
P.T. 183+74.33
P.C. 184+97.19
P.I. 186+95.03
P.T. 188+92.25
STA. 176+67.00
BEGIN W.R.S.F. AND DITCH PAVING
STA. 174+96.00
END W.R.S.F. AND DITCH PAVING
BM:5 5/8" REBAR W/ 2"CAP
4.21' LT. OF STA. 176+60.70
ELEV. 240.52
CLEAR CREEK

I-530 N.B. CONSTRUCT
STA. 175+05.97 BR. END
150.00' CONTINUOUS R.C.
SLAB UNIT (30.75' -
3 @ 30' - 30.75')
40'-0" CLEAR ROADWAY
BRIDGE NO. B7266
STA. 176+57.47 BR. END

STA. 175+16.67 TO STA. 176+66.67 - IN PLACE
33'-6" x 150' BRIDGE CONSISTING OF REINFORCED CONCRETE
SLAB SPAN SUPERSTRUCTURES AND PRECAST CONCRETE PILE SUBSTRUCTURES.
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 2) = 1.00 LUMP SUM

NOTE:
FOR CONSTRUCTION OF TEMPORARY WORK RAMPS
OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN
INTERMITTENT STREAM. THE STREAM BANK ELEVATION IS
230 FT. MSL. BETWEEN STATIONS 175+40 AND 176+50. REFER TO
SECTION 110.06(C) OF THE 2003 STANDARD SPECIFICATIONS.

I-530

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|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 100 | 219 |

(2) PLAN SHEETS

ENVIRONMENTALLY SENSITIVE AREA
STA. 203+00.00 TO STA 205+00.00

STA. 191+95 IN PLACE
TYPE 'R' DROP INLET IN MEDIAN
4' X 3' X H = 2'-10" WITH
24" X 106' R.C. PIPE CULV'T.
HEADWALL ON RT. & F.E.S. ON LT.
RETAIN

STA. 198+09 IN PLACE
TYPE 'R' DROP INLET IN MEDIAN
4' X 3' X H = 9'-1" WITH
24" X 202' R.C. PIPE CULV'T.
HEADWALL ON RT. & F.E.S. ON LT.
RETAIN

STA. 201+26 IN PLACE
TYPE 'R' DROP INLET IN MEDIAN
4' X 3' X H = 8'-8" WITH
36" X 202' R.C. PIPE CULV'T.
HEADWALL ON RT. & F.E.S. ON LT.
RETAIN

STATE OF ARKANSAS
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No. 11425
TRINITY D. SMITH
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EXIST. ROW & C/A

W.R.S.F. AND DITCH PAVING

ENVIRONMENTALLY SENSITIVE AREA

190 | P.I. 194+89.95 | 195 | 200 | P.I. 200+44.44 | 205

N 33°26'14" W

N 33°30'38" W
554.49'

N 33°37'32" W
554.42'

EXIST. ROW & C/A

ENVIRONMENTALLY SENSITIVE AREA

STA. 209+64 IN PLACE
TYPE 'R' DROP INLET IN MEDIAN
4' X 3' X H = 6'-0" WITH
24" X 190' R.C. PIPE CULV'T.
HEADWALL ON RT. & F.E.S. ON LT.
RETAIN

STA. 214+95 IN PLACE
4' X 4' X 185' R.C. BOX CULV'T.
TYPE 'T' DROP INLET IN MEDIAN
2'-6" X 3' X H = 3'-7"
RETAIN

EXIST. ROW & C/A

PULASKI CO.
SALINE CO.

W.R.S.F. AND DITCH PAVING

205 | 210 | 215 | 220

N 33°37'32" W

N 33°27'18" W

P.I. 205+98.86

EXIST. ROW & C/A

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|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 101 | 219 |

(2) PLAN SHEETS

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REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
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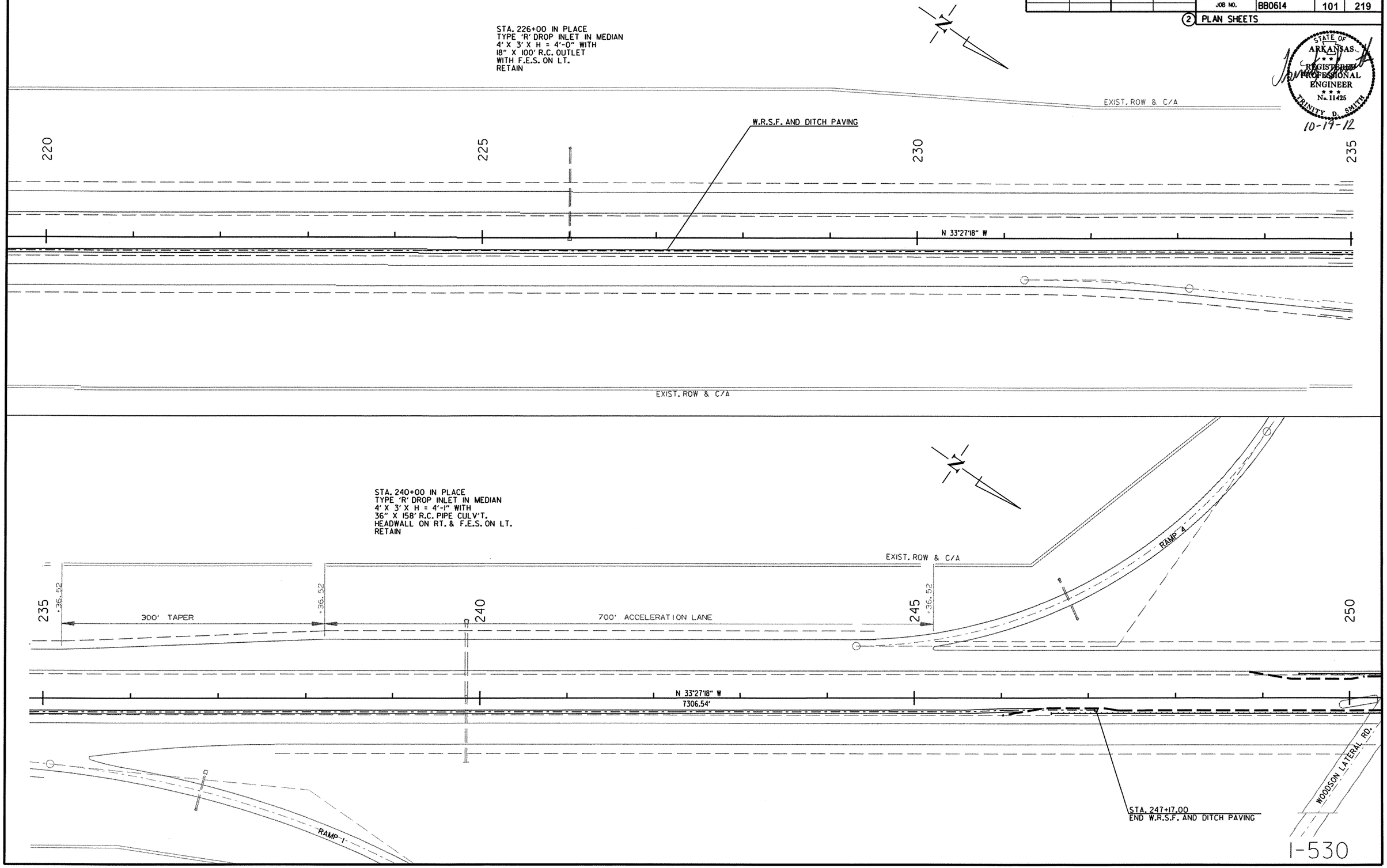


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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 102 | 219 |

(2) PLAN SHEETS

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

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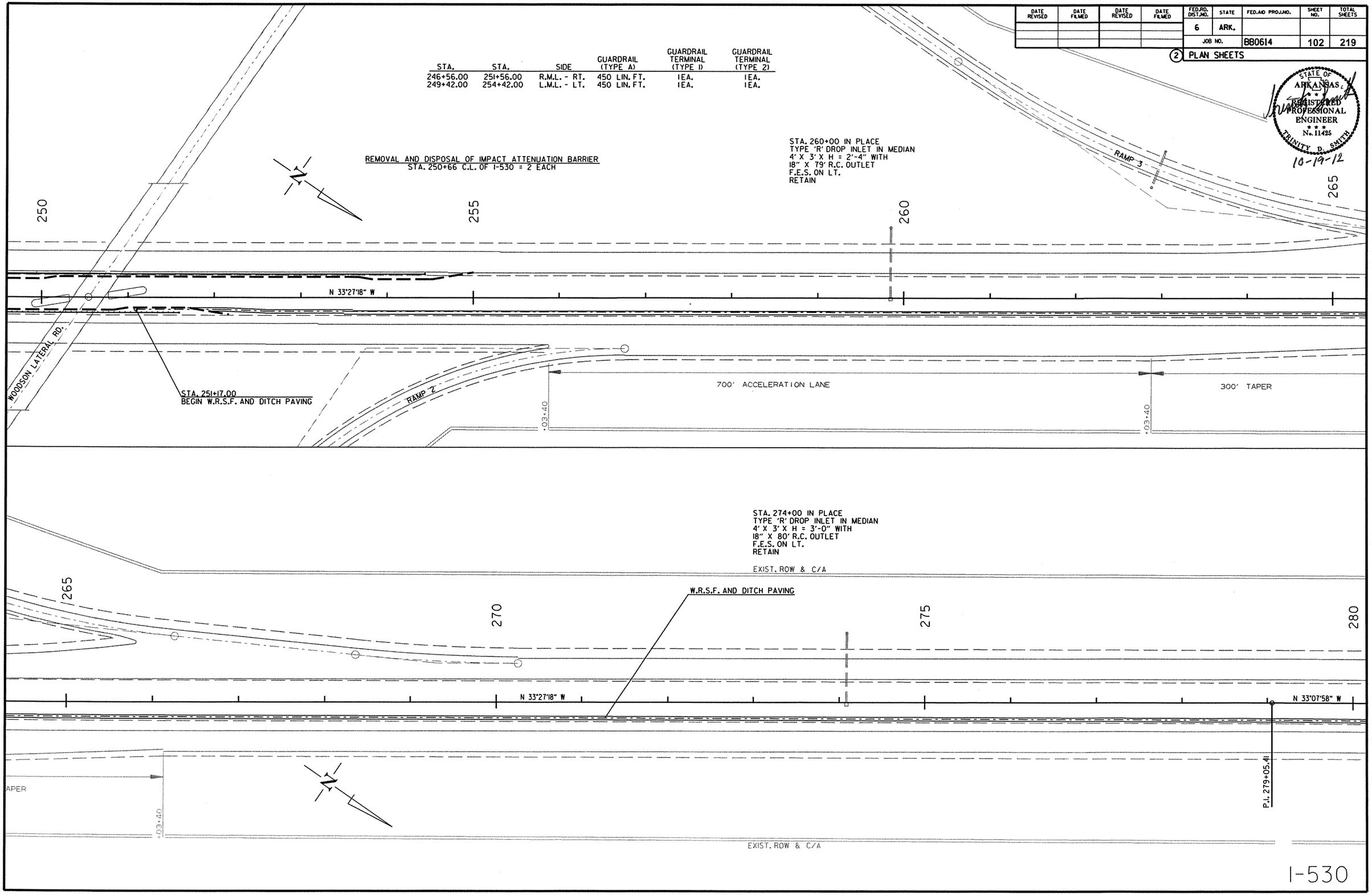
| STA. | STA. | SIDE | GUARDRAIL (TYPE A) | GUARDRAIL TERMINAL (TYPE 1) | GUARDRAIL TERMINAL (TYPE 2) |
|---|---|---|---|---|---|
| 246+56.00 | 251+56.00 | R.M.L. - RT. | 450 LIN. FT. | 1 EA. | 1 EA. |
| 249+42.00 | 254+42.00 | L.M.L. - LT. | 450 LIN. FT. | 1 EA. | 1 EA. |

REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIER
STA. 250+66 C.L. OF I-530 = 2 EACH

STA. 260+00 IN PLACE
TYPE 'R' DROP INLET IN MEDIAN
4' X 3' X H = 2'-4" WITH
18" X 79' R.C. OUTLET
F.E.S. ON LT.
RETAIN

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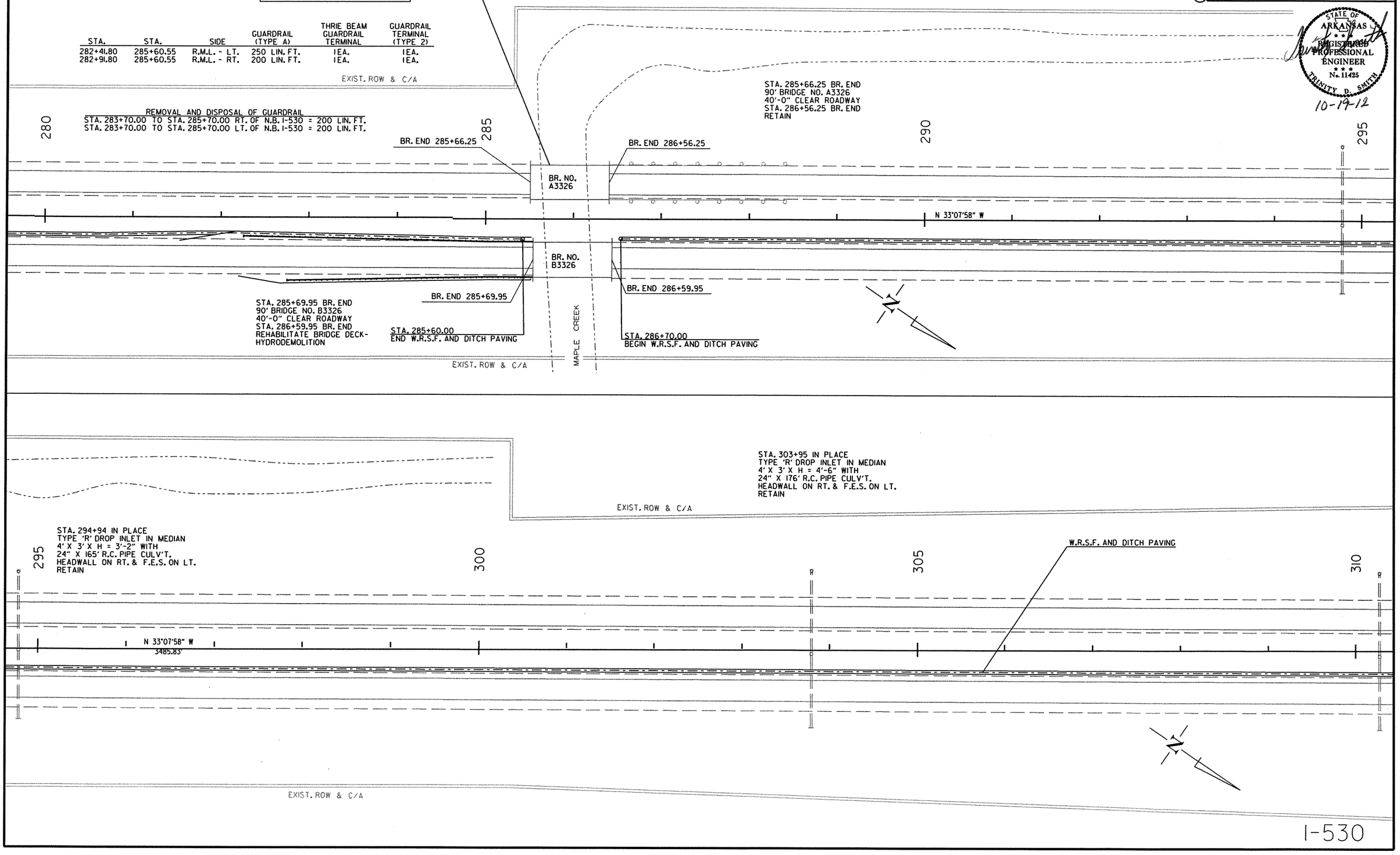
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 103 | 219 |

(2) PLAN SHEETS

NOTE: BRIDGE NO. A3326A IS AN EXCEPTION TO JOB BB0614

| STA. | STA. | SIDE | GUARDRAIL (TYPE A) | THRIE BEAM GUARDRAIL TERMINAL | GUARDRAIL TERMINAL (TYPE 2) |
|---|---|---|---|---|---|
| 282+41.80 | 285+60.55 | R.M.L. - LT. | 250 LIN. FT. | 1EA. | 1EA. |
| 282+91.80 | 285+60.55 | R.M.L. - RT. | 200 LIN. FT. | 1EA. | 1EA. |

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 283+70.00 TO STA. 285+70.00 RT. OF N.B. I-530 = 200 LIN. FT.
STA. 283+70.00 TO STA. 285+70.00 LT. OF N.B. I-530 = 200 LIN. FT.

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10-19-12

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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 104 | 219 |

(2) PLAN SHEETS

STATE OF ARKANSAS
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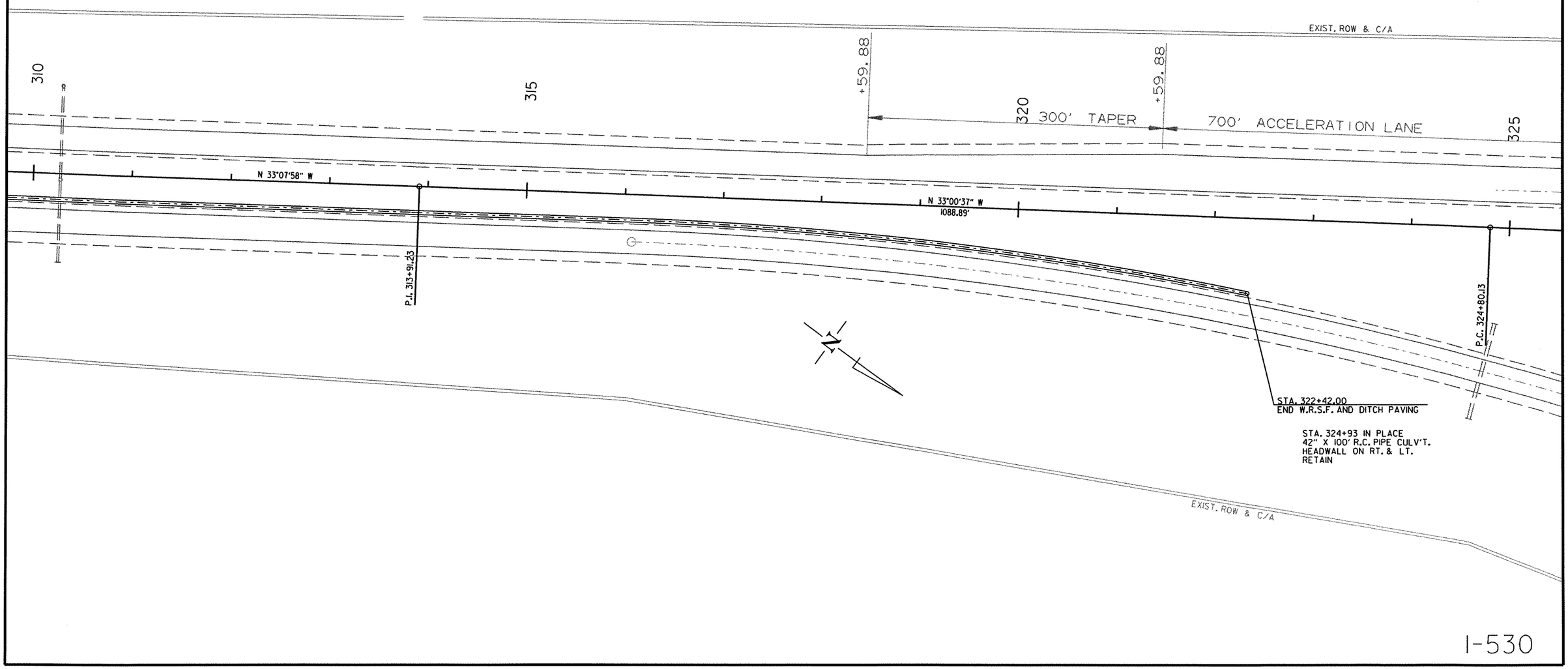
No. 11425
TRINITY D. SMITH
10-19-12

PI = 335+75.37
Δ = 31°59'56" RT.
D = 1°30'00"
T = 1095.24'
L = 2133.25'
PC = 324+80.13
PT = 346+13.38
e = MATCH EXISTING

STA. 310+43 IN PLACE
TYPE 'R' DROP INLET IN MEDIAN
4' X 3' X H = 6'-2" WITH
24" X 80' R.C. PIPE INLET &
24" X 88' R.C. PIPE OUTLET
HEADWALL ON RT. & F.E.S. ON LT.
RETAIN



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|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 105 | 219 |

(2) PLAN SHEETS

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

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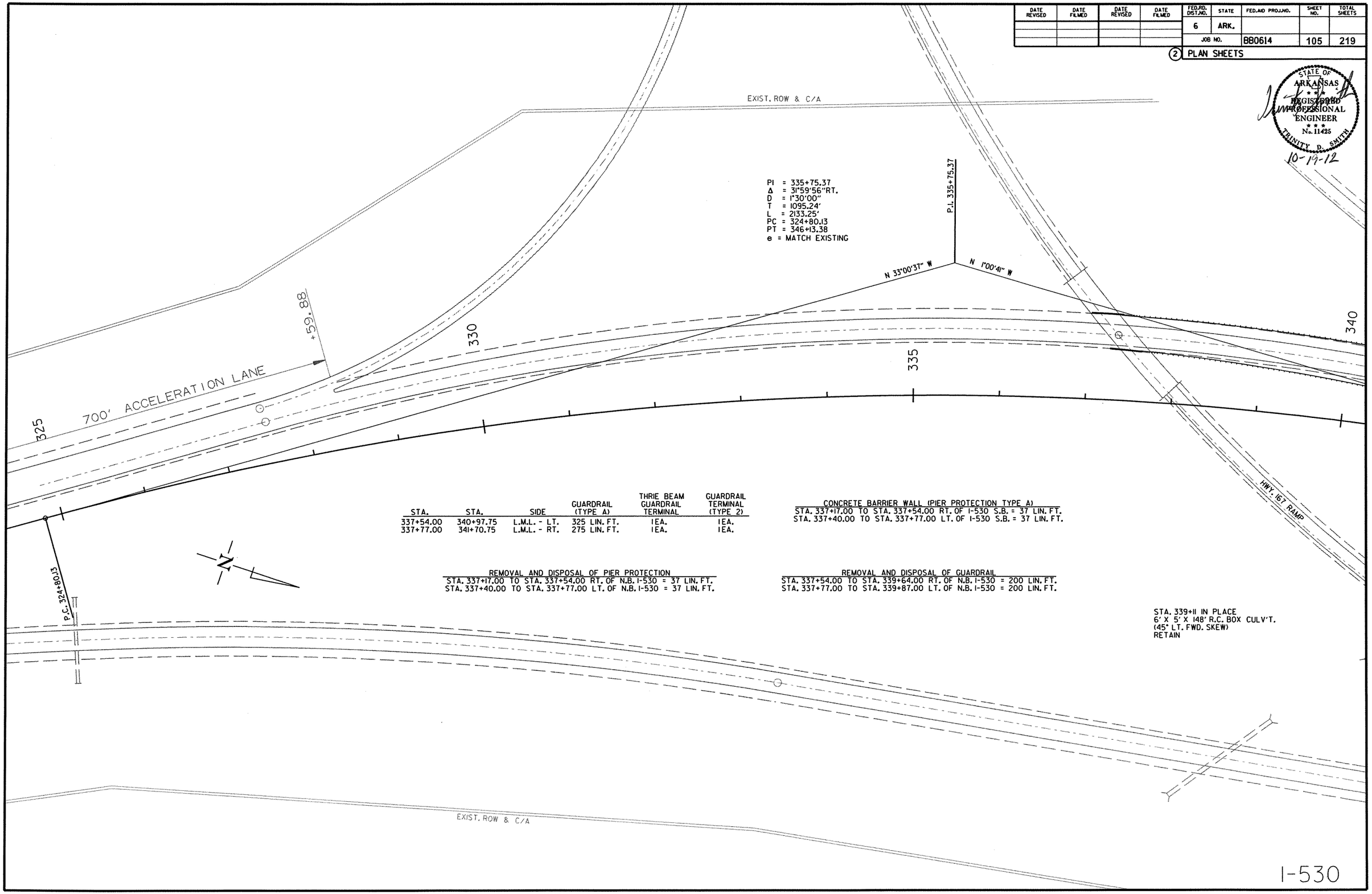


| STA. | STA. | SIDE | GUARDRAIL (TYPE A) | THRIE BEAM GUARDRAIL TERMINAL | GUARDRAIL TERMINAL (TYPE 2) |
|---|---|---|---|---|---|
| 337+54.00 | 340+97.75 | L.M.L. - LT. | 325 LIN. FT. | 1 EA. | 1 EA. |
| 337+77.00 | 341+70.75 | L.M.L. - RT. | 275 LIN. FT. | 1 EA. | 1 EA. |

CONCRETE BARRIER WALL (PIER PROTECTION TYPE A)
STA. 337+17.00 TO STA. 337+54.00 RT. OF I-530 S.B. = 37 LIN. FT.
STA. 337+40.00 TO STA. 337+77.00 LT. OF I-530 S.B. = 37 LIN. FT.

REMOVAL AND DISPOSAL OF PIER PROTECTION
STA. 337+17.00 TO STA. 337+54.00 RT. OF N.B. I-530 = 37 LIN. FT.
STA. 337+40.00 TO STA. 337+77.00 LT. OF N.B. I-530 = 37 LIN. FT.

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 337+54.00 TO STA. 339+64.00 RT. OF N.B. I-530 = 200 LIN. FT.
STA. 337+77.00 TO STA. 339+87.00 LT. OF N.B. I-530 = 200 LIN. FT.

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|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 106 | 219 |

(2) PLAN SHEETS

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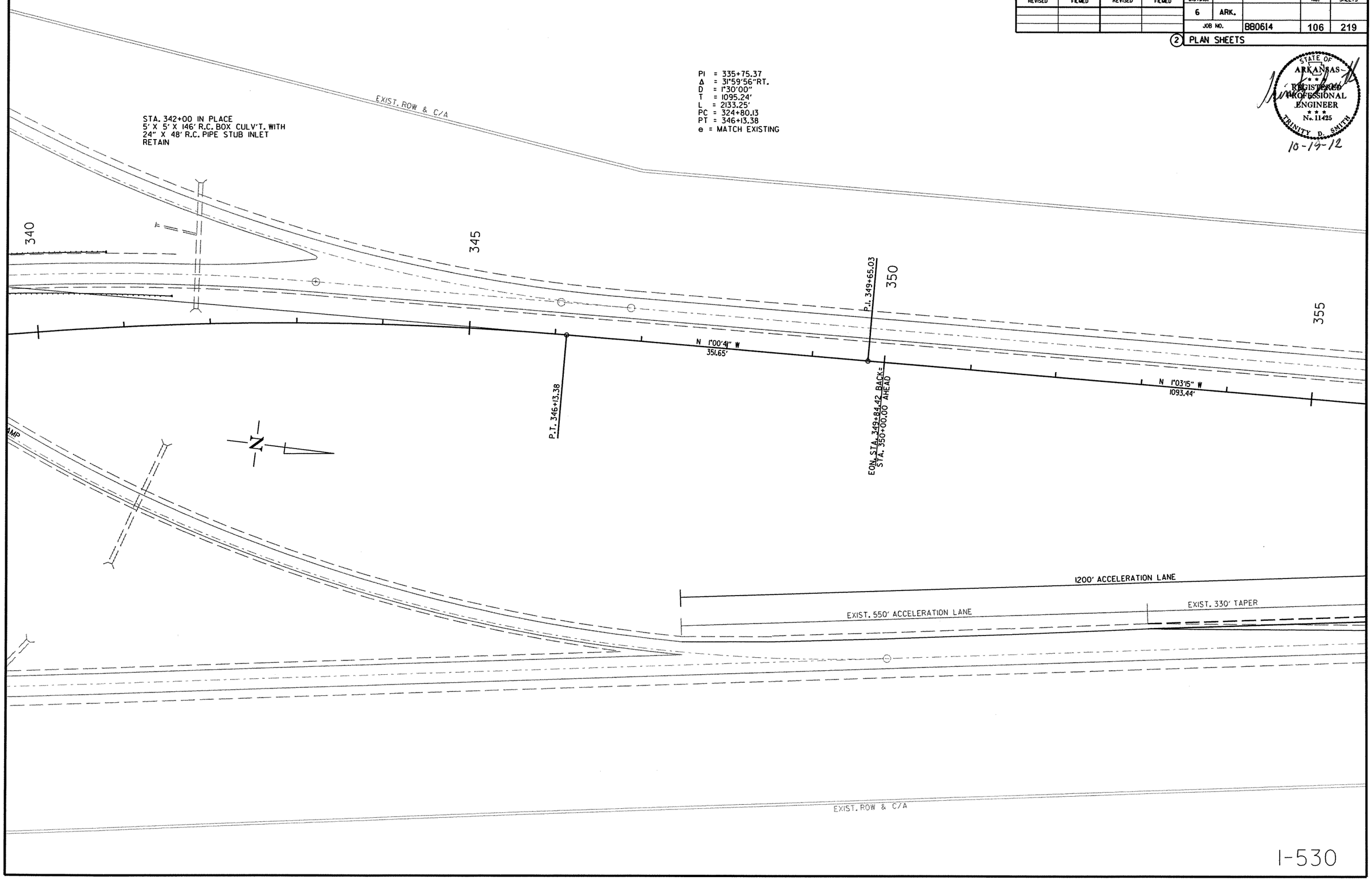


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|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 107 | 219 |

(2) PLAN SHEETS

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No. 11425
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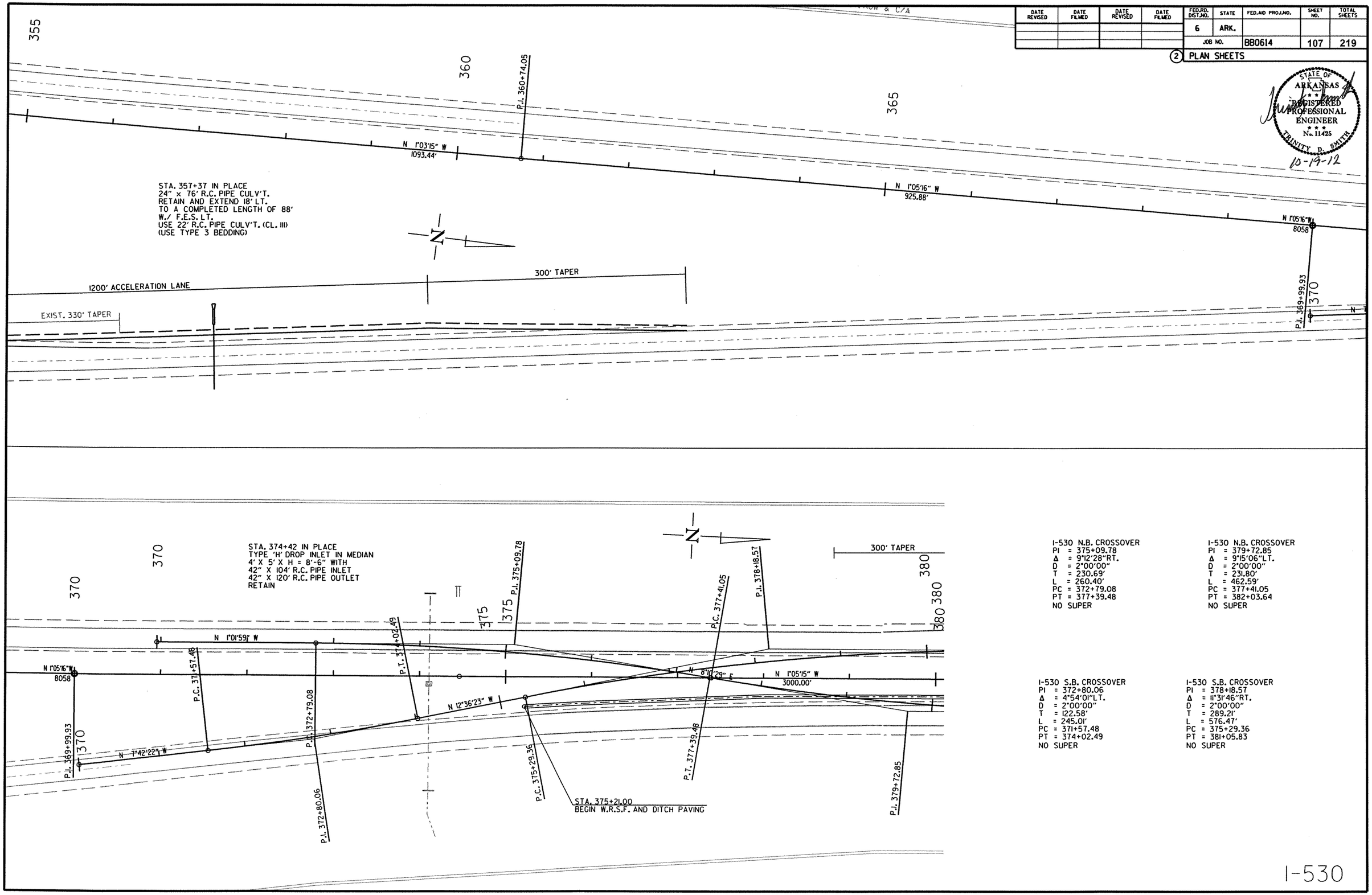



I-530 N.B. CROSSOVER
PI = 375+09.78
Δ = 9°12'28"RT.
D = 2°00'00"
T = 230.69'
L = 260.40'
PC = 372+79.08
PT = 377+39.48
NO SUPER

I-530 N.B. CROSSOVER
PI = 379+72.85
Δ = 9°15'06"LT.
D = 2°00'00"
T = 231.80'
L = 462.59'
PC = 377+41.05
PT = 382+03.64
NO SUPER

I-530 S.B. CROSSOVER
PI = 372+80.06
Δ = 4°54'01"LT.
D = 2°00'00"
T = 122.58'
L = 245.01'
PC = 371+57.48
PT = 374+02.49
NO SUPER

I-530 S.B. CROSSOVER
PI = 378+18.57
Δ = 11°31'46"RT.
D = 2°00'00"
T = 289.21'
L = 576.47'
PC = 375+29.36
PT = 381+05.83
NO SUPER

10/19/2012

RBB0614.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. | | BB0614 | 108 | 219 |

(2) PLAN AND PROFILE SHEETS

STA. 385+74.88 TO STA. 387+49.62 - IN PLACE
46'-8" X 180' BRIDGE CONSISTING OF
REINFORCED CONCRETE SLAB SPAN
SUPERSTRUCTURES AND PRECAST
CONCRETE PILE SUBSTRUCTURES.
REMOVE AS EXISTING BRIDGE STRUCTURE
BRIDGE NO. A3327
(SITE NO. 4) = 1.00 LUMP SUM

STA. 385+74.88 TO STA. 387+49.62 - IN PLACE
33'-6" X 180' BRIDGE CONSISTING OF
REINFORCED CONCRETE SLAB SPAN
SUPERSTRUCTURES AND PRECAST
CONCRETE PILE SUBSTRUCTURES.
REMOVE AS EXISTING BRIDGE STRUCTURE
BRIDGE NO. B3327
(SITE NO. 5) = 1.00 LUMP SUM

| STA. | STA. | SIDE | GUARDRAIL (TYPE A) | THRIE BEAM GUARDRAIL TERMINAL | GUARDRAIL TERMINAL (TYPE 2) |
|---|---|---|---|---|---|
| 382+37.97 | 385+56.72 | R.M.L. - LT. | 250 LIN. FT. | 1EA. | 1EA. |
| 382+87.97 | 385+56.72 | R.M.L. - RT. | 200 LIN. FT. | 1EA. | 1EA. |
| 387+59.02 | 390+77.77 | L.M.L. - LT. | 250 LIN. FT. | 1EA. | 1EA. |
| 387+59.02 | 390+77.77 | R.M.L. - RT. | 250 LIN. FT. | 1EA. | 1EA. |

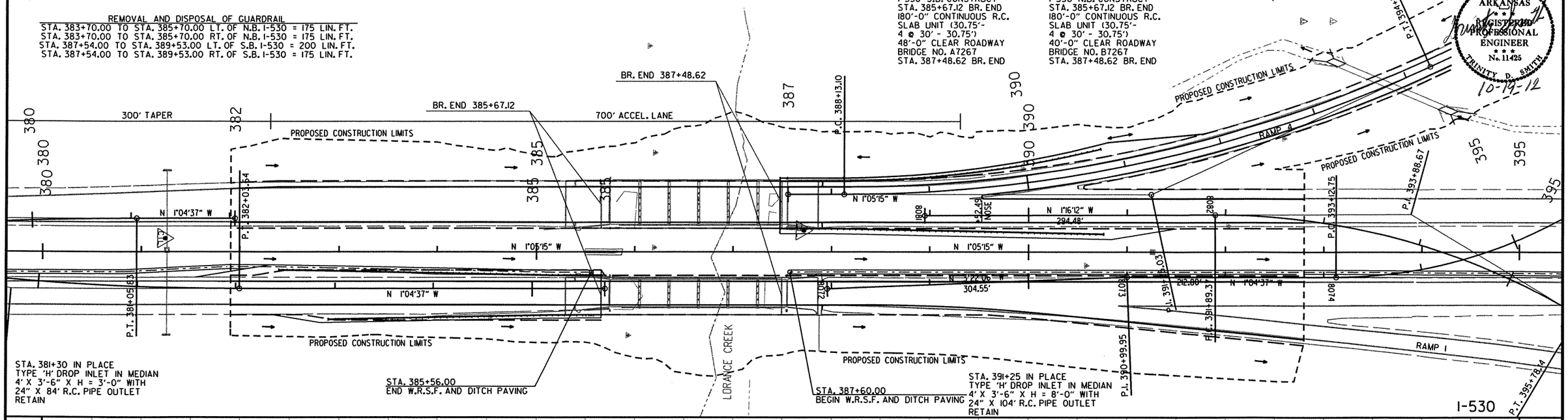
SPECIAL FLOOD HAZARD LIMITS
STA. 383+30 TO STA. 403+50

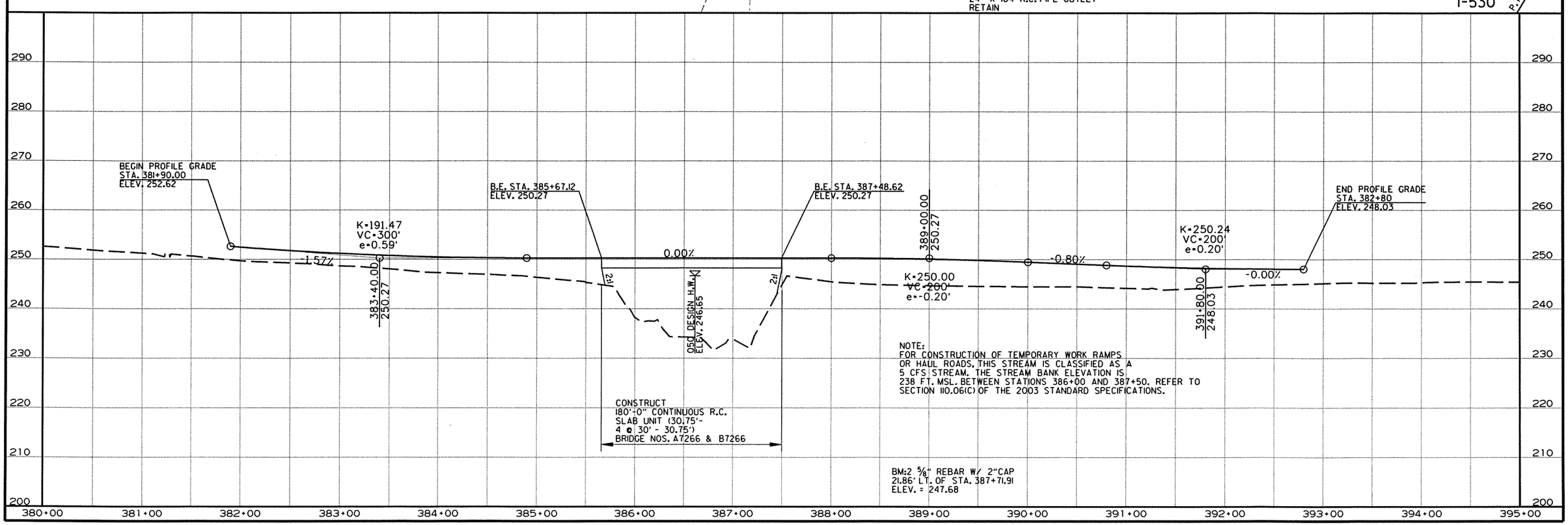
REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 383+70.00 TO STA. 385+70.00 LT. OF N.B. I-530 = 175 LIN. FT.
STA. 383+70.00 TO STA. 385+70.00 RT. OF N.B. I-530 = 175 LIN. FT.
STA. 387+54.00 TO STA. 389+53.00 LT. OF S.B. I-530 = 200 LIN. FT.
STA. 387+54.00 TO STA. 389+53.00 RT. OF S.B. I-530 = 175 LIN. FT.

I-530 S.B. CONSTRUCT
STA. 385+67.12 BR. END
180'-0" CONTINUOUS R.C.
SLAB UNIT (30.75'-
4 @ 30' - 30.75')
48'-0" CLEAR ROADWAY
BRIDGE NO. A7267
STA. 387+48.62 BR. END

I-530 N.B. CONSTRUCT
STA. 385+67.12 BR. END
180'-0" CONTINUOUS R.C.
SLAB UNIT (30.75'-
4 @ 30' - 30.75')
40'-0" CLEAR ROADWAY
BRIDGE NO. B7267
STA. 387+48.62 BR. END

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 10-19-12




10/19/2012

BB0614.DGN

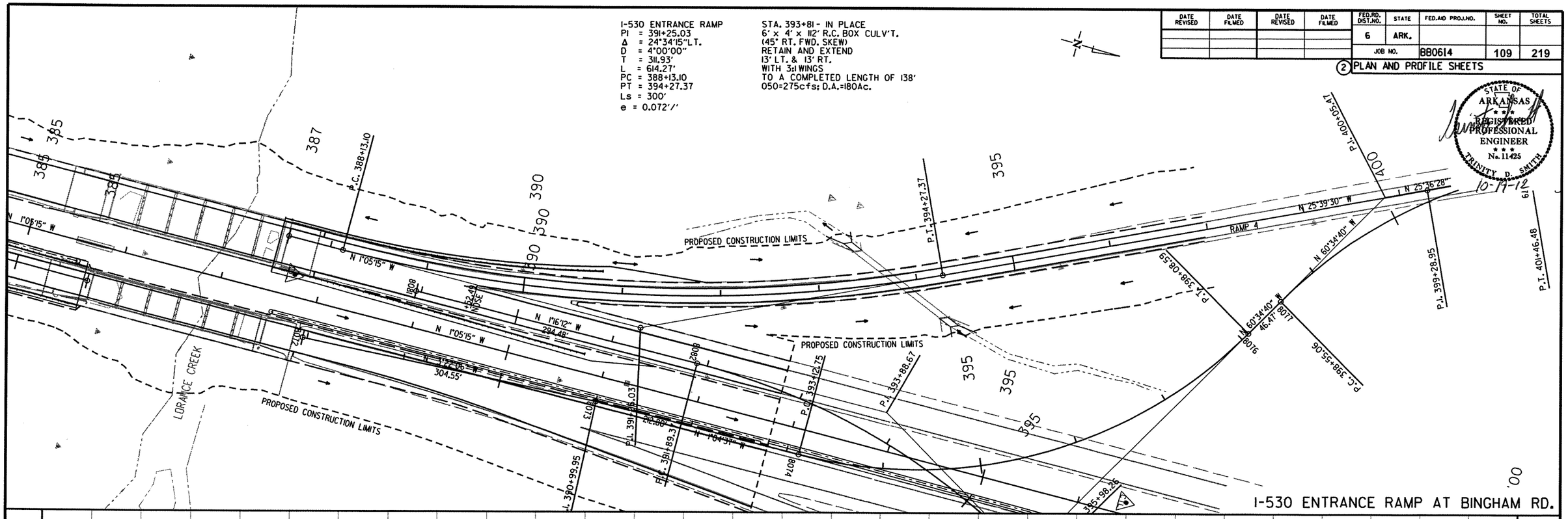
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 109 | 219 |

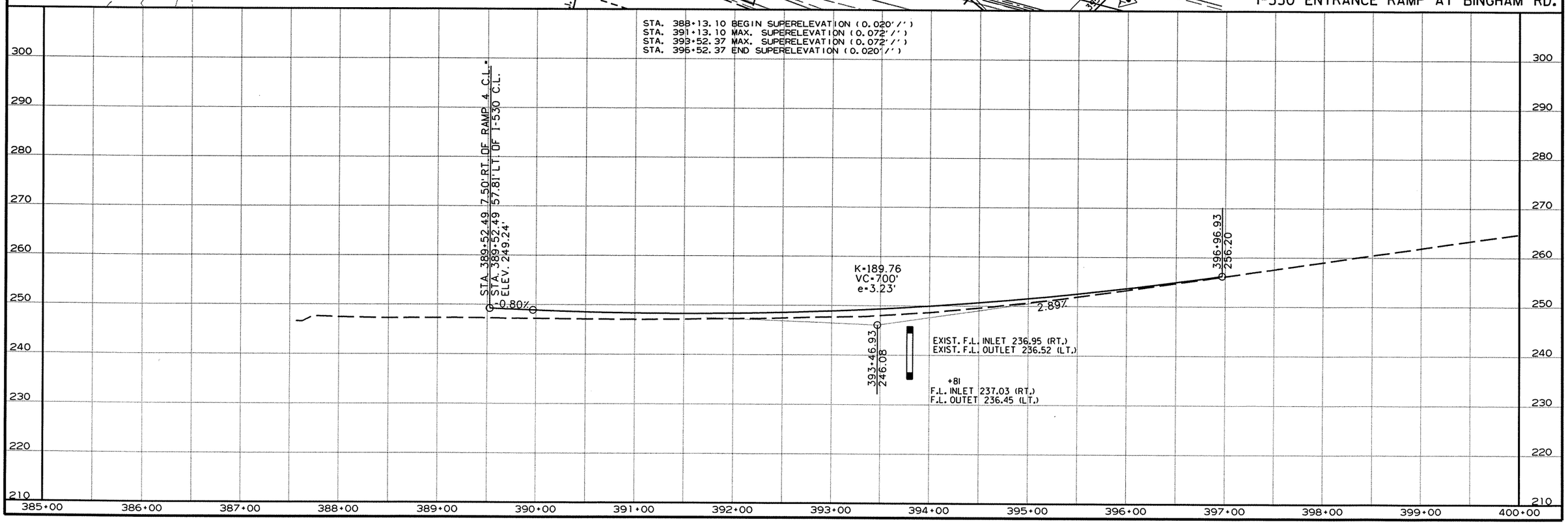
(2) PLAN AND PROFILE SHEETS

I-530 ENTRANCE RAMP
PI = 391+25.03
Δ = 24°34'15"LT.
D = 4°00'00"
T = 311.93'
L = 614.27'
PC = 388+13.10
PT = 394+27.37
Ls = 300'
e = 0.072'/'

STA. 393+81 - IN PLACE
6' x 4' x 112' R.C. BOX CULV'T.
(45° RT. FWD. SKEW)
RETAIN AND EXTEND
13' LT. & 13' RT.
WITH 3:1 WINGS
TO A COMPLETED LENGTH OF 138'
Q50=275cfs; D.A.=180Ac.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
10-17-12




RBB0614.DGN 10/18/2012

| 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. | | BB0614 | 110 | 219 |

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-19-12

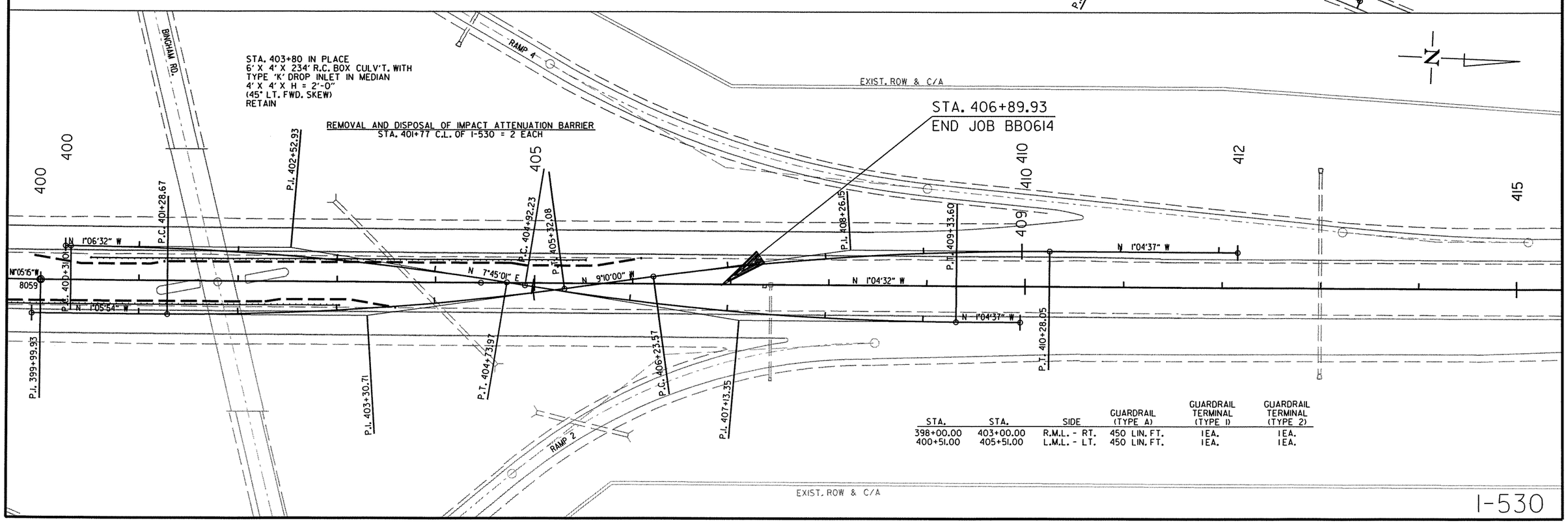
STA. 399+00 IN PLACE
TYPE 'H' DROP INLET IN MEDIAN
4' X 3'-6" X H = 3'-0" WITH
24" X 80' R.C. PIPE OUTLET
RETAIN

I-530 S.B. CROSSOVER
PI = 403+30.71
Δ = 8°04'06"LT.
D = 2°00'00"
T = 202.04'
L = 403.42'
PC = 401+28.67
PT = 405+32.08
NO SUPER

I-530 S.B. CROSSOVER
PI = 408+26.15
Δ = 8°05'23"RT.
D = 2°00'00"
T = 202.58'
L = 404.48'
PC = 406+23.57
PT = 410+28.05
NO SUPER

I-530 N.B. CROSSOVER
PI = 402+52.93
Δ = 8°51'33"RT.
D = 2°00'00"
T = 221.92'
L = 442.96'
PC = 400+31.01
PT = 404+73.97
NO SUPER

I-530 N.B. CROSSOVER
PI = 407+13.35
Δ = 8°49'38"LT.
D = 2°00'00"
T = 221.12'
L = 441.36'
PC = 404+92.23
PT = 409+33.60
NO SUPER




| STA. | STA. | SIDE | GUARDRAIL (TYPE A) | GUARDRAIL TERMINAL (TYPE I) | GUARDRAIL TERMINAL (TYPE 2) |
|---|---|---|---|---|---|
| 398+00.00 | 403+00.00 | R.M.L. - RT. | 450 LIN. FT. | 1 EA. | 1 EA. |
| 400+51.00 | 405+51.00 | L.M.L. - LT. | 450 LIN. FT. | 1 EA. | 1 EA. |

10/19/2012

RBB0614.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. | | BB0614 | 111 | 219 |
| | | | | (2) | SIGNING QUANTITIES SHEET | | | |

# SIGNING SUMMARY OF QUANTITIES

| ITEM NUMBER | ITEM | TOTAL | UNIT |
|---|---|---|---|
| SP & 202 | REMOVAL AND DISPOSAL OF GUARDRAIL | 350 | LIN. FT. |
| SP | REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIERS | 1 | EACH |
| SP | REMOVAL AND DISPOSAL OF OVERHEAD SIGN STRUCTURE | 2 | EACH |
| SS & 303 | AGGREGATE BASE COURSE (CLASS 7) | 140 | TON |
| SP, SS & 407 | MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2") | 32 | TON |
| SP, SS & 407 | ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2") | 2 | TON |
| SS & 617 | GUARDRAIL (TYPE A) | 350 | LIN FT |
| SS & 617 | TERMINAL ANCHOR POSTS (TYPE 1) | 2 | EACH |
| SS & 617 | GUARDRAIL TERMINAL (TYPE 2) | 2 | EACH |
| SP | STEEL OVERHEAD SIGN STRUCTURE (OH-530-60-03) | 1 | EACH |
| SS & 725 | GUIDE SIGN - ROADSIDE MOUNTED (DEMOUNTABLE LEGEND) | 1,392 | SQ. FT. |
| SS & 725 | GUIDE SIGN - OVERHEAD MOUNTED (DEMOUNTABLE LEGEND) | 290 | SQ. FT. |
| SP, SS & 726 | STANDARD SIGNS | 945 | SQ. FT. |
| SS & 727 | EXIT NUMBER PANEL (TYPE A) | 250 | SQ. FT. |
| SP & 729 | CHANNEL POST SIGN SUPPORT (TYPE U1-1) | 32 | EACH |
| 730 | BREAKAWAY SIGN SUPPORT (TYPE G-1) | 881 | POUND |
| 730 | BREAKAWAY SIGN SUPPORT (TYPE G-2) | 20,862 | POUND |

# REMOVAL AND DISPOSAL

| LOCATION | GUARDRAIL LIN. FT. | IMPACT ATTENUATION BARRIERS EACH | OVERHEAD SIGN STRUCTURE EACH |
|---|---|---|---|
| STA396+00 | 350 | | 1 |
| STA353+50 | | 1 | 1 |
| TOTAL: | 350 | 1 | 2 |

# MAIN LANES SIGNING QUANTITIES

| SIGN NO./ LOCATION | STRUCTURE TYPE ST | CL | OH | BM | G-2 | GUIDE SIGN Length LIN. FT. | Height LIN. FT. | SQ. FT. | BREAKAWAY SIGN SUPPORT STEEL SECT. A-572 BEAM | LBS. | SIGN POST LENGTH H-1 LIN. FT. | H-2 | H-3 | STUB POST H-1 LIN. FT. | H-2 | H-3 | FOOTINGS DIA. LIN. FT. | DEPTH | EMBED. | SIGN POST AND STUB POUND | EXIT NUMBER PANEL LEGEND | TYPE A SQ. FT. | B | C | GUARDRAIL TYPE A LIN. FT. | TERM. ANCHOR POSTS TYPE 1 EACH | GUARDRAIL TERM. TYPE 2 EACH | AGG. BASE CR (CL. 7) TON | ACHM SURF. CR. 220 LBS/SY TON |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EXIT 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ML-530-332+20NB | | | | | 1 | 11.50 | 8.00 | 92.00 | W8 | 18.00 | 15.00 | 16.00 | | 3.99 | 3.99 | | 2.00 | 5.50 | 3.66 | 701.64 | 9 | 17.50 | | | | | | | |
| ML-530-364+00NB | | | | | 1 | 11.50 | 8.00 | 92.00 | W8 | 21.00 | 15.00 | 16.00 | | 4.99 | 4.99 | | 2.50 | 7.00 | 4.66 | 860.58 | 9 | 17.50 | | | | | | | |
| ML-530-385+00NB | | | | | 1 | 14.50 | 6.00 | 87.00 | W8 | 18.00 | 13.00 | 14.00 | | 3.99 | 3.99 | | 2.50 | 5.50 | 3.66 | 629.64 | 9 | 17.50 | | | | | | | |
| ML-530-388+00NB | | | | | 1 | 7.00 | 2.00 | 14.00 | W6 | 9.00 | 9.00 | 10.00 | | 2.33 | 2.33 | | 1.50 | 3.00 | 2.00 | 212.94 | | | | | | | | | |
| ML-530-388+00SB | | | | | 1 | 7.00 | 2.00 | 14.00 | W6 | 9.00 | 9.00 | 10.00 | | 2.33 | 2.33 | | 1.50 | 3.00 | 2.00 | 212.94 | | | | | | | | | |
| ML-530-393+20NB | | | | | 1 | 6.00 | 5.00 | 30.00 | W6 | 9.00 | 12.00 | 13.00 | | 2.33 | 2.33 | | 1.50 | 3.00 | 2.00 | 266.94 | | | | | | | | | |
| ML-530-410+00SB | | | | | 1 | 6.00 | 5.00 | 30.00 | W6 | 9.00 | 12.00 | 13.00 | | 2.33 | 2.33 | | 1.50 | 3.00 | 2.00 | 266.94 | | | | | | | | | |
| LG-530-355+00NB | | | | | 1 | 18.00 | 6.50 | 117.00 | W8 | 18.00 | 13.00 | 14.00 | | 3.99 | 3.99 | | 2.50 | 5.50 | 3.66 | 629.64 | | | | | | | | | |
| OH-530-60-03 | | | 1 | | | | | | | | | | | | | | | | | | | | | | 350 | 2 | 2 | 140 | 34 |
| OH-530-62-415+00SB-A | | | | | | 14.50 | 6.00 | 87.00 | | | | | | | | | | | | | 9 | 17.50 | | | | | | | |
| OH-530-62-415+00SB-B | | | | | | 14.00 | 14.50 | 203.00 | | | | | | | | | | | | | 10 | 20.00 | | | | | | | |
| EXIT 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ML-530-343+00SB | | | | | 1 | 6.00 | 5.00 | 30.00 | W6 | 9.00 | 12.00 | 13.00 | | 2.33 | 2.33 | | 1.50 | 3.00 | 2.00 | 266.94 | | | | | | | | | |
| EXIT 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ML-530-317+00SB | | | | | 1 | 12.00 | 6.00 | 72.00 | W8 | 18.00 | 13.00 | 14.00 | | 3.99 | 3.99 | | 2.50 | 5.50 | 3.66 | 629.64 | 12 | 20.00 | | | | | | | |
| ML-530-179+00NB | | | | | 1 | 12.00 | 6.00 | 72.00 | W8 | 18.00 | 13.00 | 14.00 | | 3.99 | 3.99 | | 2.50 | 5.50 | 3.66 | 629.64 | 12 | 20.00 | | | | | | | |
| ML-530-179+00NB | | | | | 1 | 15.00 | 4.00 | 60.00 | W8 | 18.00 | 11.00 | 12.00 | | 3.99 | 3.99 | | 2.50 | 5.50 | 3.66 | 557.64 | 12 | 20.00 | | | | | | | |
| ML-530-179+00NB | | | | | 1 | 15.00 | 4.00 | 60.00 | W8 | 18.00 | 11.00 | 12.00 | | 3.99 | 3.99 | | 2.50 | 5.50 | 3.66 | 557.64 | 12 | 20.00 | | | | | | | |
| ML-530-168+00SB | | | | | 1 | 14.00 | 6.50 | 91.00 | W8 | 18.00 | 13.50 | 14.50 | | 3.99 | 3.99 | | 2.50 | 5.50 | 3.66 | 647.64 | | | | | | | | | |
| ML-530-265+00SB | | | | | 1 | 6.00 | 5.00 | 30.00 | W6 | 9.00 | 12.00 | 13.00 | | 2.33 | 2.33 | | 1.50 | 3.00 | 2.00 | 266.94 | | | | | | | | | |
| ML-530-236+00NB | | | | | 1 | 6.00 | 5.00 | 30.00 | W6 | 9.00 | 12.00 | 13.00 | | 2.33 | 2.33 | | 1.50 | 3.00 | 2.00 | 266.94 | | | | | | | | | |
| ML-530-212+90NB | | | | | 1 | 7.00 | 2.00 | 14.00 | W6 | 9.00 | 9.00 | 10.00 | | 2.33 | 2.33 | | 1.50 | 3.00 | 2.00 | 212.94 | | | | | | | | | |
| ML-530-212+90SB | | | | | 1 | 7.00 | 2.00 | 14.00 | W6 | 9.00 | 9.00 | 10.00 | | 2.33 | 2.33 | | 1.50 | 3.00 | 2.00 | 212.94 | | | | | | | | | |
| EXIT 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ML-530-144+00SB | | | | | 1 | 12.00 | 6.00 | 72.00 | W8 | 18.00 | 13.00 | 14.00 | | 3.99 | 3.99 | | 2.50 | 5.50 | 3.66 | 629.64 | 12 | 20.00 | | | | | | | |
| ML-530-5+00NB | | | | | 1 | 12.00 | 6.00 | 72.00 | W8 | 18.00 | 13.00 | 14.00 | | 3.99 | 3.99 | | 2.50 | 5.50 | 3.66 | 629.64 | 12 | 20.00 | | | | | | | |
| ML-530-92+00SB | | | | | 1 | 15.00 | 4.00 | 60.00 | W8 | 18.00 | 11.00 | 12.00 | | 3.99 | 3.99 | | 2.50 | 5.50 | 3.66 | 557.64 | 12 | 20.00 | | | | | | | |
| ML-530-58+00NB | | | | | 1 | 15.00 | 4.00 | 60.00 | W8 | 18.00 | 11.00 | 12.00 | | 3.99 | 3.99 | | 2.50 | 5.50 | 3.66 | 557.64 | 12 | 20.00 | | | | | | | |
| ML-530-35+00SB | | | | | 1 | 14.00 | 6.50 | 91.00 | W8 | 18.00 | 13.50 | 14.50 | | 3.99 | 3.99 | | 2.50 | 5.50 | 3.66 | 647.64 | | | | | | | | | |
| ML-530-85+50SB | | | | | 1 | 6.00 | 5.00 | 30.00 | W6 | 9.00 | 12.00 | 13.00 | | 2.33 | 2.33 | | 1.50 | 3.00 | 2.00 | 266.94 | | | | | | | | | |
| ML-530-65+10NB | | | | | 1 | 6.00 | 5.00 | 30.00 | W6 | 9.00 | 12.00 | 13.00 | | 2.33 | 2.33 | | 1.50 | 3.00 | 2.00 | 266.94 | | | | | | | | | |
| ML-530-10+90NB | | | | | 1 | 7.00 | 2.00 | 14.00 | W6 | 9.00 | 9.00 | 10.00 | | 2.33 | 2.33 | | 1.50 | 3.00 | 2.00 | 212.94 | | | | | | | | | |
| ML-530-10+90SB | | | | | 1 | 7.00 | 2.00 | 14.00 | W6 | 9.00 | 9.00 | 10.00 | | 2.33 | 2.33 | | 1.50 | 3.00 | 2.00 | 212.94 | | | | | | | | | |
| GUIDE SIGNS ROADSIDE MOUNTED TOTALS: | | | | | | | | 1392.00 | | | | | | | | | | | | | | | | | | | | | |
| GUIDE SIGNS OVERHEAD MOUNTED TOTALS: | | | | | | | | 290.00 | | | | | | | | | | | | | | | | | | | | | |
| TOTALS: | | | 1 | | 27 | | | 1682.00 | | | | | | | | | | | | 12012.12 | | 250.00 | | | 350 | 2 | 2 | 140 | 34 |

NOTE:
BREAKAWAY SIGN SUPPORT TOTAL IS CALCULATED BY TAKING THE LENGTH OF H-1, H-2, H-3 AND EACH STUB POST AND MULTIPLYING BY THE BEAM WEIGHT ( LBS).

BASIS OF ESTIMATE:
NMAX = 205
MINERAL AGGREGATE 94.8%
ASPHALT BINDER (PG 76-22) 5.2%

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
10/18/12
TONY SULLIVAN

# STANDARD SIGNS FLAT SHEET

| SIGN NO./ LOCATION | SIGN SUPPORTS TYPE U-1 EA. | G-1 EA. | G-2 EA. | STANDARD SIGN SQ. FT. | I-BEAM SIGN SUPPORT STEEL SECT. A-572 BEAM | LBS. | SIGN POST LENGTH H - 1 LIN. FT. | H - 2 | STUB POST H - 1 LIN. FT. | H - 2 | FOOTINGS DIA. LIN. FT. | DEPTH | EMBED. | SIGN POST AND STUB POUND |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SS-530-48+00SB | | | 1 | 20.00 | W6 | 9 | 12.00 | 13.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 260.82 |
| SS-530-105+00NB | | | 1 | 20.00 | W6 | 9 | 12.00 | 13.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 260.82 |
| SS-530-225+00SB | | | 1 | 20.00 | W6 | 9 | 12.00 | 13.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 260.82 |
| SS-530-275+00NB | | | 1 | 20.00 | W6 | 9 | 12.00 | 13.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 260.82 |
| SS-530-305+00SB | | | 1 | 20.00 | W6 | 9 | 12.00 | 13.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 260.82 |
| SS-530-371+00SB | | | 1 | 20.00 | W6 | 9 | 12.00 | 13.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 260.82 |
| SS-530-373+00NB | | | 1 | 20.00 | W6 | 9 | 12.00 | 13.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 260.82 |
| SS-530-62+00NB | | | 1 | 20.00 | W6 | 9 | 12.00 | 13.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 260.82 |
| SS-530-89+00SB | | | 1 | 20.00 | W6 | 9 | 12.00 | 13.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 260.82 |
| SS-530-232+90NB | | | 1 | 20.00 | W6 | 9 | 12.00 | 13.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 260.82 |
| SS-530-267+10SB | | | 1 | 20.00 | W6 | 9 | 12.00 | 13.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 260.82 |
| SS-530-389+50NB | | | 1 | 20.00 | W6 | 9 | 12.00 | 13.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 260.82 |
| SS-530-415+00SB | | | 1 | 20.00 | W6 | 9 | 12.00 | 13.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 260.82 |
| SS-530-100+00NB | | 1 | | 14.38 | W6 | 9 | 12.00 | | 1.99 | | 2.00 | 3.00 | 2.00 | 125.91 |
| SS-530-270+00NB | | 1 | | 14.38 | W6 | 9 | 12.00 | | 1.99 | | 2.00 | 3.00 | 2.00 | 125.91 |
| SS-530-370+00NB | | 1 | | 14.38 | W6 | 9 | 12.00 | | 1.99 | | 2.00 | 3.00 | 2.00 | 125.91 |
| SS-530-52+00SB | | 1 | | 14.38 | W6 | 9 | 12.00 | | 1.99 | | 2.00 | 3.00 | 2.00 | 125.91 |
| SS-530-231+00SB | | 1 | | 14.38 | W6 | 9 | 12.00 | | 1.99 | | 2.00 | 3.00 | 2.00 | 125.91 |
| SS-530-310+00SB | | 1 | | 14.38 | W6 | 9 | 12.00 | | 1.99 | | 2.00 | 3.00 | 2.00 | 125.91 |
| SS-530-376+00SB | | 1 | | 14.38 | W6 | 9 | 12.00 | | 1.99 | | 2.00 | 3.00 | 2.00 | 125.91 |
| SS-530-73+00NB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-80+00NB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-249+00SB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-253+00NB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-333+00SB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-396+00SB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-405+00NB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-343+00NB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-52+00NB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-66+00SB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-168+00NB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-183+00SB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-280+00NB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-293+00SB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-381+00NB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-394+00SB | | | 1 | 16.00 | W6 | 9 | 11.00 | 12.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 242.82 |
| SS-530-43+00SB | | | 1 | 36.00 | W6 | 9 | 10.00 | 11.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 224.82 |
| SS-530-110+00NB | | | 1 | 36.00 | W6 | 9 | 10.00 | 11.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 224.82 |
| SS-530-219+00SB | | | 1 | 36.00 | W6 | 9 | 10.00 | 11.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 224.82 |
| SS-530-285+00NB | | | 1 | 36.00 | W6 | 9 | 10.00 | 11.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 224.82 |
| SS-530-300+00SB | | | 1 | 36.00 | W6 | 9 | 10.00 | 11.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 224.82 |
| SS-530-366+00SB | | | 1 | 36.00 | W6 | 9 | 10.00 | 11.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 224.82 |
| SS-530-378+00NB | | | 1 | 36.00 | W6 | 9 | 10.00 | 11.00 | 1.99 | 1.99 | 2.00 | 3.00 | 2.00 | 224.82 |
| SS-530-59+45SB-A | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-59+45SB-B | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-58+55NB-A | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-58+55NB-B | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-176+66SB-A | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-176+66SB-B | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-175+16NB-A | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-175+16NB-B | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-285+69NB-A | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-285+69NB-B | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-286+56SB-A | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-286+56SB-B | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-385+74NB-A | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-385+74NB-B | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-387+64SB-A | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-387+64SB-B | 1 | | | 3.00 | | | | | | | | | | |
| SS-530-400+00NB | 1 | | | 1.25 | | | | | | | | | | |
| SS-530-400+00SB | 1 | | | 1.25 | | | | | | | | | | |
| SS-530-345+00NB | 1 | | | 1.87 | | | | | | | | | | |
| SS-530-345+00SB | 1 | | | 1.87 | | | | | | | | | | |
| SS-530-288+50SB | 1 | | | 1.87 | | | | | | | | | | |
| SS-530-288+50NB | 1 | | | 1.87 | | | | | | | | | | |
| SS-530-239+60SB | 1 | | | 1.87 | | | | | | | | | | |
| SS-530-239+60NB | 1 | | | 1.87 | | | | | | | | | | |
| SS-530-186+80SB | 1 | | | 1.87 | | | | | | | | | | |
| SS-530-186+80NB | 1 | | | 1.87 | | | | | | | | | | |
| SS-530-134+00SB | 1 | | | 1.87 | | | | | | | | | | |
| SS-530-134+00NB | 1 | | | 1.87 | | | | | | | | | | |
| SS-530-81+20SB | 1 | | | 1.87 | | | | | | | | | | |
| SS-530-81+20NB | 1 | | | 1.87 | | | | | | | | | | |
| SS-530-28+40SB | 1 | | | 1.87 | | | | | | | | | | |
| SS-530-28+40NB | 1 | | | 1.87 | | | | | | | | | | |
| TOTALS: | 32 | | | 945.34 | | | | | | | | | | 9730.89 |

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5651
10/18/23

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | BBD614 | 112 | 249 |

JOB NO.

SIGNING QUANTITIES SHEET

2

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 113 | 219 |

(2) SIGN LAYOUT SHEET

GUIDE SIGN - ROADSIDE MOUNTED (DEMOUNTABLE LEGEND)

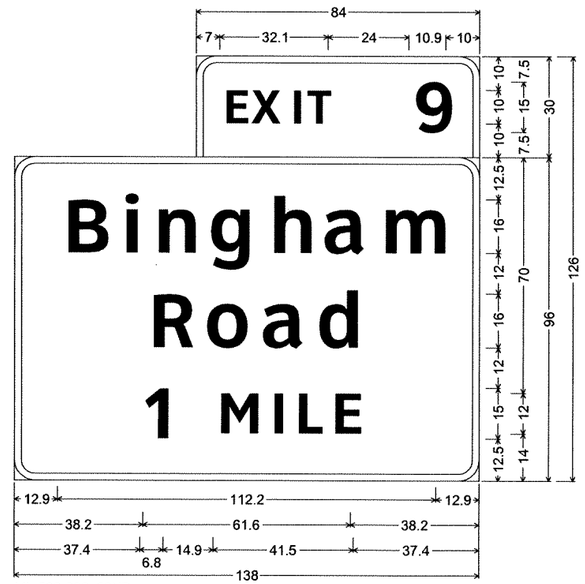
NOTES:

ALL EXISTING GUIDE SIGNS SHALL BE MAINTAINED IN SUCH A MANNER THAT THE SIGNS ARE FULLY VISIBLE, INTACT, AND ERECT FOR THE DURATION OF THE PROJECT, AND SHALL BE REMOVED WHEN THEIR USE IS NO LONGER REQUIRED. REMOVAL AND DISPOSAL OF ROADSIDE MOUNTED SIGNS, SUPPORTS AND FOUNDATIONS SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS IN THE CONTRACT.

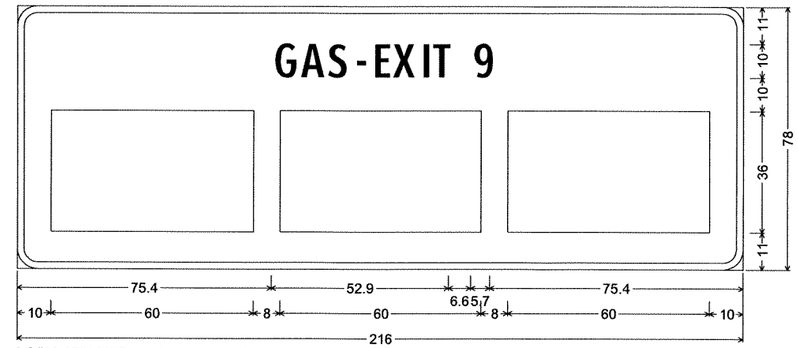
THE EXISTING SIGNS AND POSTS SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE EXISTING FOOTINGS SHALL BE REMOVED AND THE HOLES FILLED WITH A SUITABLE MATERIAL AND COMPACTED.

EXISTING LOGOS WILL BE RELOCATED TO THE NEW LOGO SIGN BY THE CONTRACTOR. THE LOGO INSTALLATION SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS IN THE CONTRACT.

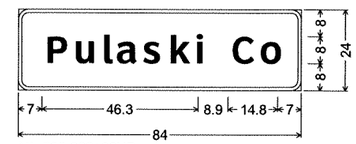
THE CLEARVIEW FONT SHALL FOLLOW THE SPACE TABLES FOR CLEARVIEW AND NOT SHS E-MODIFIED. THIS INCLUDES THE USE OF CLEARVIEW 5-W-R. FOR GENERAL GUIDANCE ON LETTER AND WORD SPACING REFER TO THE FHWA CLEARVIEW TYPEFACE SUPPLEMENT. (HTTP://MUTCD.FHWA.DOT.GOV)



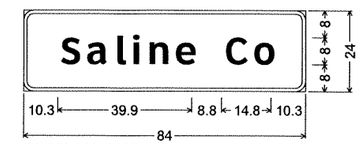

ML-530-332+20NB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [9] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, White on Green;
[Bingham] ClearviewHwy-5-W; [Road] ClearviewHwy-5-W;
[1 MILE] ClearviewHwy-5-W;



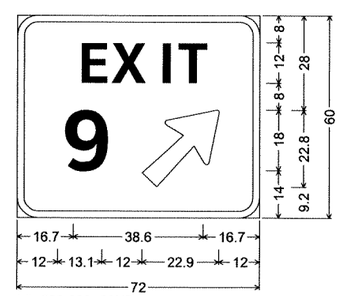

LG530-355+00NB; 6.0" Radius, 2.0" Border, White on Blue;
[GAS-EXIT 9] ClearviewHwy-2-W;



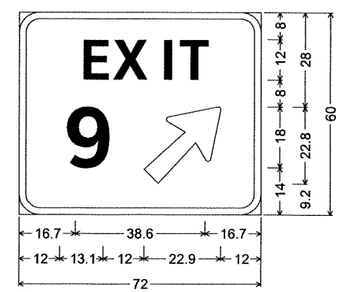

ML-530-388+00NB;
3.0" Radius, 1.0" Border, White on Green;
[Pulaski Co] ClearviewHwy-5-W;



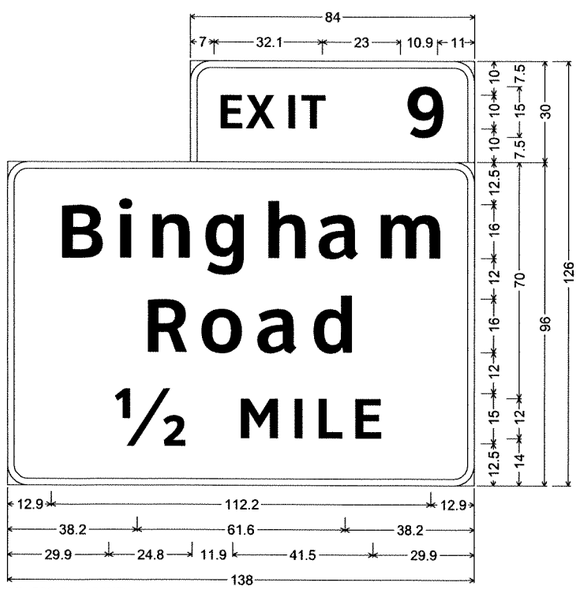

ML-530-388+00SB;
3.0" Radius, 1.0" Border, White on Green;
[Saline Co] ClearviewHwy-5-W;



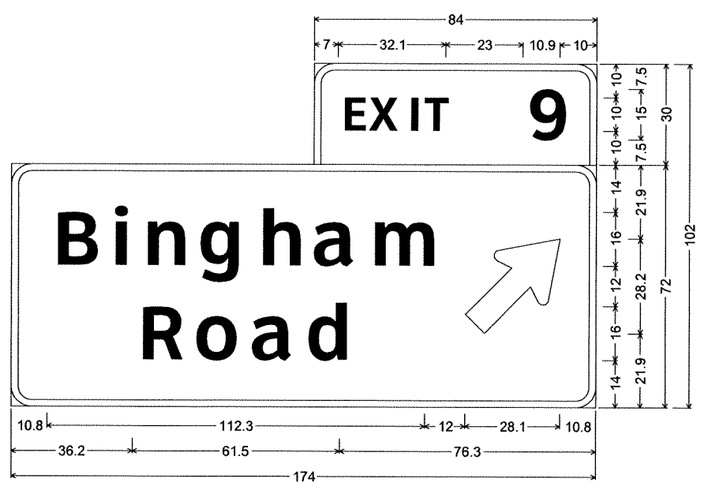

ML-530-393+20NB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W;
[9] ClearviewHwy-5-W-R;
Arrow Custom - 29.0" 45°;



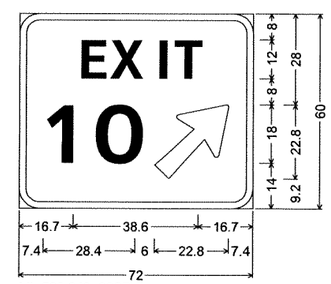

ML-530-410+00SB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W;
[9] ClearviewHwy-5-W-R;
Arrow Custom - 29.0" 45°;




ML-530-364+00NB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [9] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, White on Green;
[Bingham] ClearviewHwy-5-W; [Road] ClearviewHwy-5-W;
[½ MILE] ClearviewHwy-5-W;




ML-530-385+00NB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [9] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, White on Green;
[Bingham] ClearviewHwy-5-W; [Road] ClearviewHwy-5-W;
Standard Arrow Custom 35.8" X 21.6" 45°;



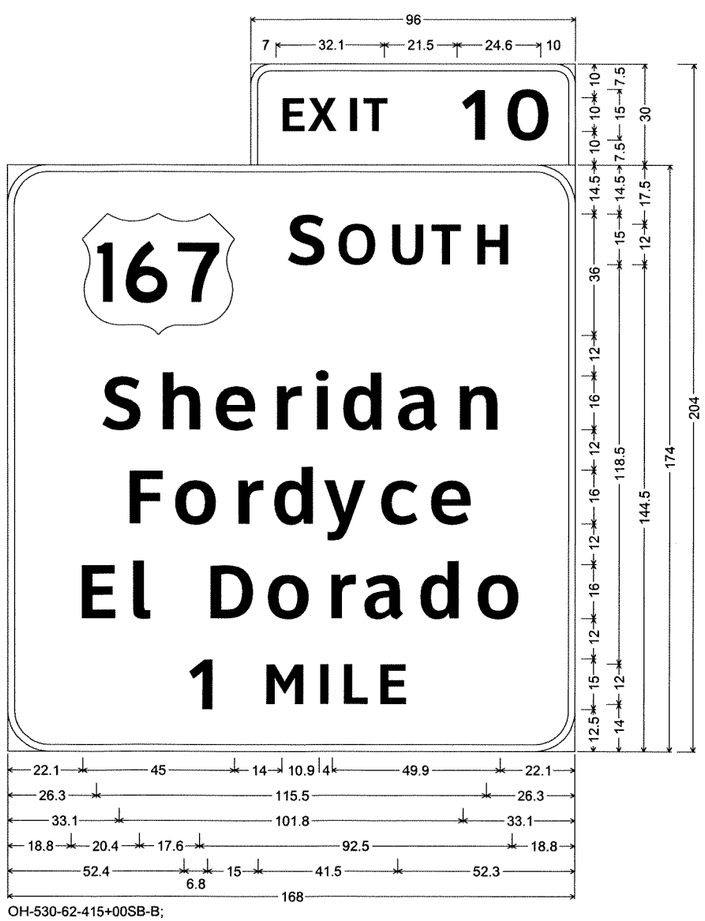

ML-530-343+00SB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W;
[10] ClearviewHwy-5-W-R;
Arrow Custom - 29.0" 45°;

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
10/1/12
TONY SULLIVAN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 14 | 217 |

(2) SIGN LAYOUT SHEET

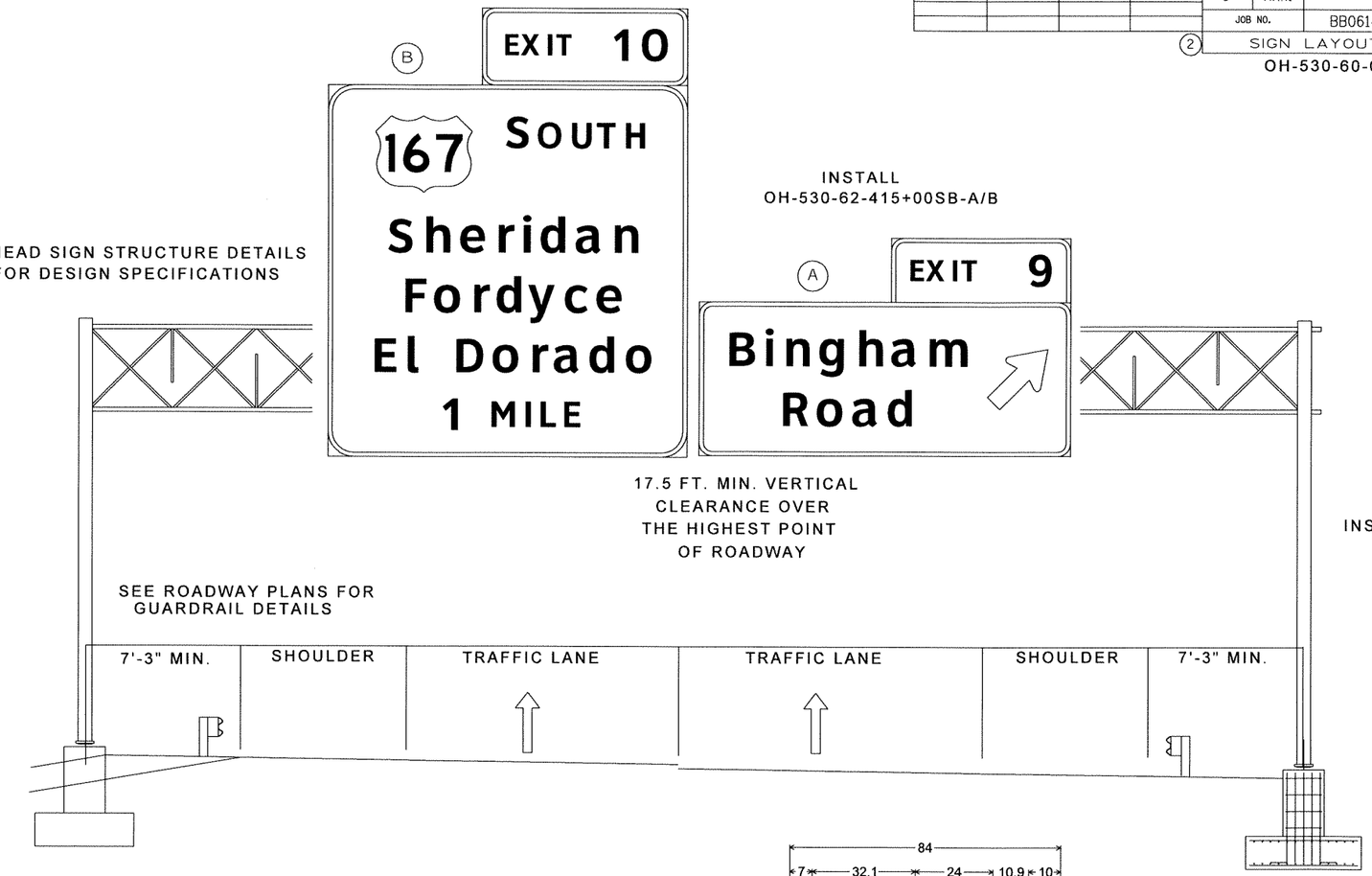
OH-530-60-03




OH-530-62-415+00SB-B;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [10] ClearviewHwy-5-W;
12.0" Radius, 2.0" Border, White on Green;
[S] ClearviewHwy-5-W; [OUTH] ClearviewHwy-5-W; [Sheridan] ClearviewHwy-5-W;
[Fordyce] ClearviewHwy-5-W; [El Dorado] ClearviewHwy-5-W;
[1] ClearviewHwy-5-W; [MILE] ClearviewHwy-5-W;

SEE OVERHEAD SIGN STRUCTURE DETAILS SHEETS FOR DESIGN SPECIFICATIONS

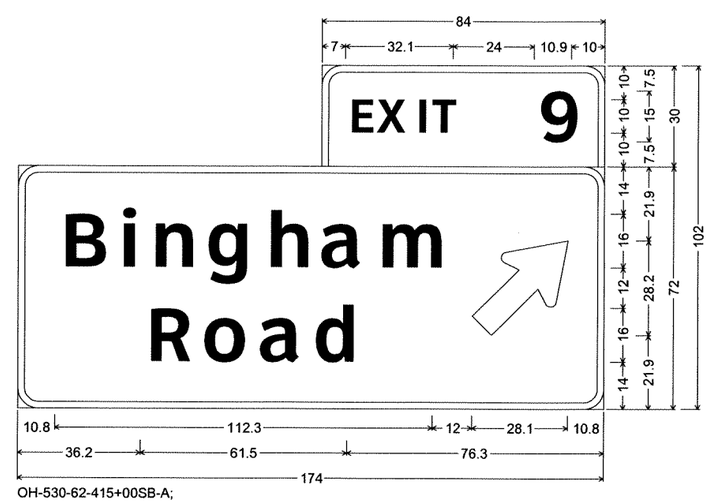
INSTALL
OH-530-62-415+00SB-A/B




17.5 FT. MIN. VERTICAL CLEARANCE OVER THE HIGHEST POINT OF ROADWAY

SEE ROADWAY PLANS FOR GUARDRAIL DETAILS

INSTALL



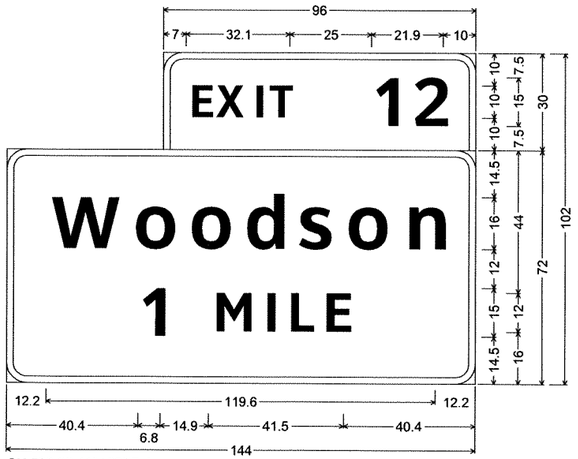

OH-530-62-415+00SB-A;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [9] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, White on Green;
[Bingham] ClearviewHwy-5-W; [Road] ClearviewHwy-5-W;
Standard Arrow Custom 35.8" X 21.6" 45°;

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
10/18/12
TONY SULLIVAN

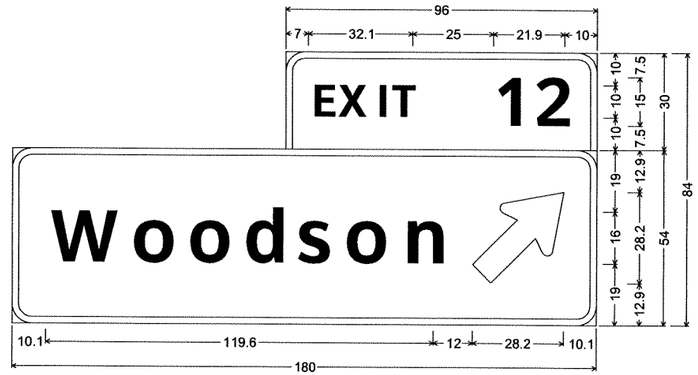
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 115 | 219 |

(2) SIGN LAYOUT SHEET

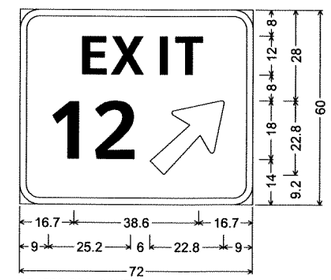
GUIDE SIGN - ROADSIDE MOUNTED
(DEMOUNTABLE LEGEND)



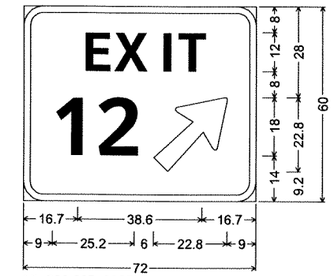

OH-530-62-415+00SB-A;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [12] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, White on Green;
[Woodson] ClearviewHwy-5-W; [1 MILE] ClearviewHwy-5-W;



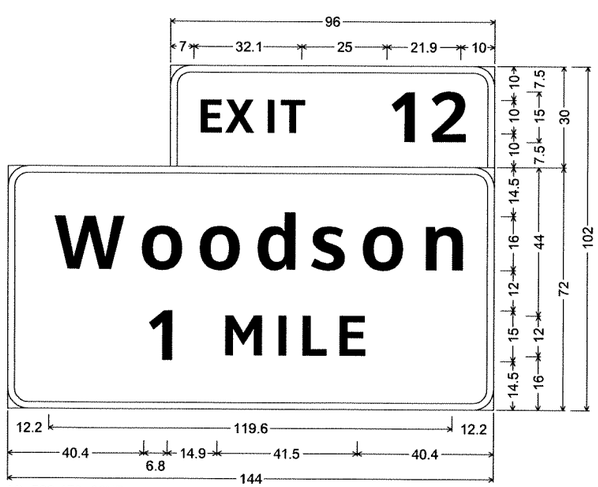

ML-530-270+00SB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [12] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, White on Green;
[Woodson] ClearviewHwy-5-W; Standard Arrow Custom 35.8" X 21.6" 45°;



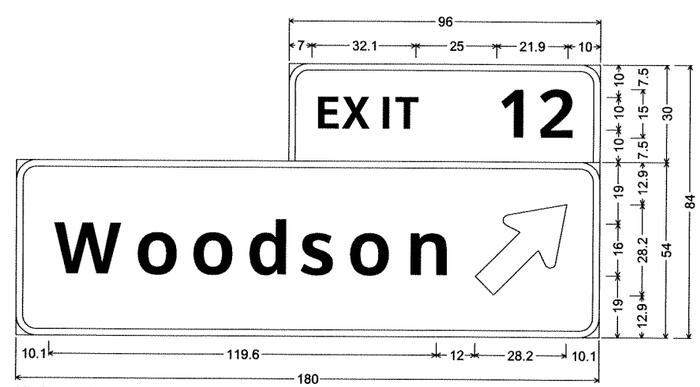

ML-530-236+00NB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W;
[12] ClearviewHwy-5-W-R;
Arrow Custom - 29.0" 45°;



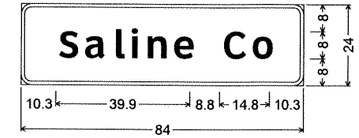

ML-530-265+00SB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W;
[12] ClearviewHwy-5-W-R;
Arrow Custom - 29.0" 45°;



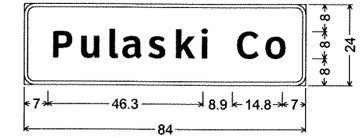

ML-530-179+00NB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [12] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, White on Green;
[Woodson] ClearviewHwy-5-W; [1 MILE] ClearviewHwy-5-W;



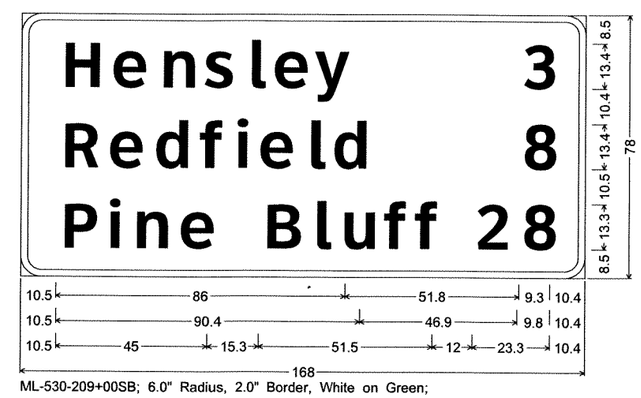

ML-530-230+00NB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [12] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, White on Green;
[Woodson] ClearviewHwy-5-W; Standard Arrow Custom 35.8" X 21.6" 45°;




ML-530-212+90NB;
3.0" Radius, 1.0" Border, White on Green;
[Saline Co] ClearviewHwy-5-W;




ML-530-212+90SB;
3.0" Radius, 1.0" Border, White on Green;
[Pulaski Co] ClearviewHwy-5-W;



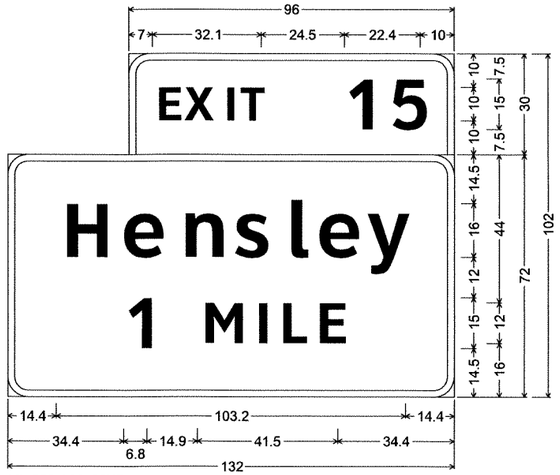

ML-530-209+00SB; 6.0" Radius, 2.0" Border, White on Green;
[Hensley] ClearviewHwy-5-W; [3] ClearviewHwy-5-W;
[Redfield] ClearviewHwy-5-W; [8] ClearviewHwy-5-W;
[Pine Bluff] ClearviewHwy-5-W; [28] ClearviewHwy-5-W;

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
10/1/12
J. TONY SULLIVAN

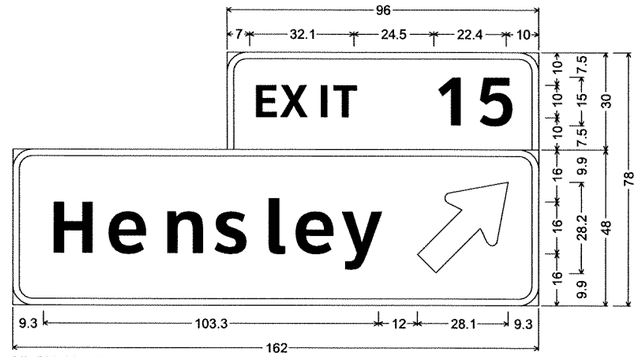
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 116 | 118 |

(2) SIGN LAYOUT SHEET

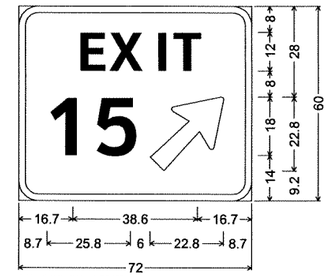
GUIDE SIGN - ROADSIDE MOUNTED
(DEMOUNTABLE LEGEND)



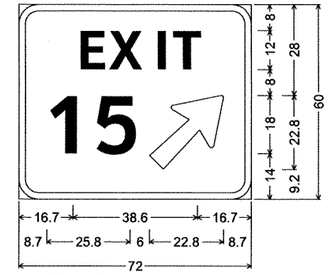

ML-530-144+00NB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [15] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, White on Green;
[Hensley] ClearviewHwy-5-W; [1 MILE] ClearviewHwy-5-W;



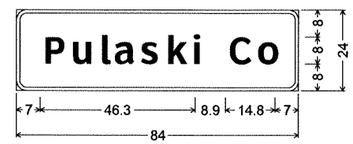

ML-530-92+00SB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [15] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, White on Green;
[Hensley] ClearviewHwy-5-W; Standard Arrow Custom 35.8" X 21.6" 45°;



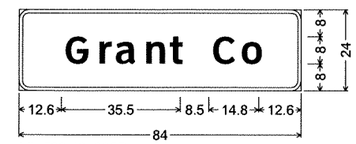

ML-530-65+10NB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W;
[15] ClearviewHwy-5-W-R;
Arrow Custom - 29.0" 45°;



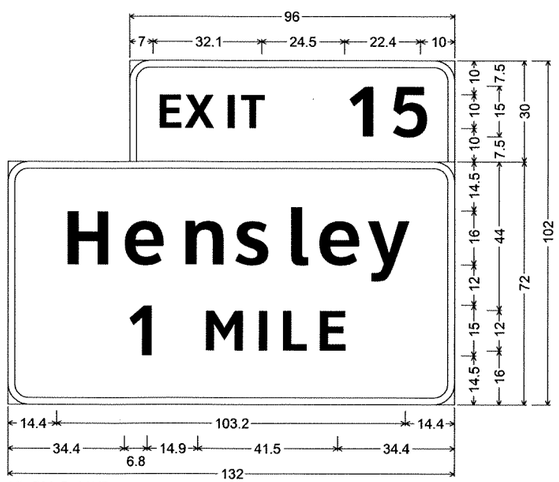

ML-530-85+50SB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W;
[15] ClearviewHwy-5-W-R;
Arrow Custom - 29.0" 45°;



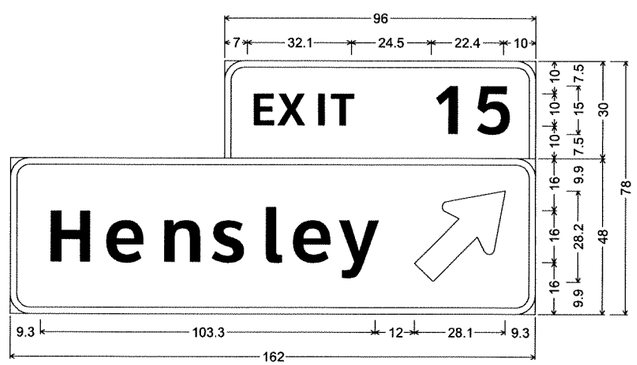

ML-530-10+90NB;
3.0" Radius, 1.0" Border, White on Green;
[Pulaski Co] ClearviewHwy-5-W;



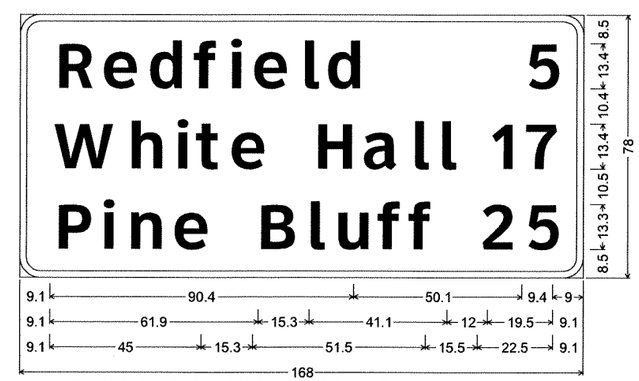

ML-530-10+90SB;
3.0" Radius, 1.0" Border, White on Green;
[Grant Co] ClearviewHwy-5-W;




ML-530-5+00NB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [15] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, White on Green;
[Hensley] ClearviewHwy-5-W; [1 MILE] ClearviewHwy-5-W;




ML-530-58+00NB;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [15] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, White on Green;
[Hensley] ClearviewHwy-5-W; Standard Arrow Custom 35.8" X 21.6" 45°;




ML-530-35+00SB; 6.0" Radius, 2.0" Border, White on Green;
[Redfield] ClearviewHwy-5-W; [5] ClearviewHwy-5-W;
[White Hall] ClearviewHwy-5-W; [17] ClearviewHwy-5-W;
[Pine Bluff] ClearviewHwy-5-W; [25] ClearviewHwy-5-W;

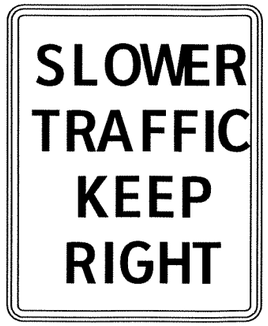
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
10/1/12
J. TONY SULLIVAN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 117 | 219 |

(2) SIGN LAYOUT SHEET

FLAT SHEET
STANDARD SIGNS

SS-530-48+00SB
SS-530-105+00NB
SS-530-225+00SB
SS-530-275+00NB
SS-530-305+00SB
SS-530-371+00SB
SS-530-373+00NB
G-2




R4-3
48"X60"

SS-530-100+00NB
SS-530-270+00NB
SS-530-370+00NB
G-1


M3-1
30"X15"

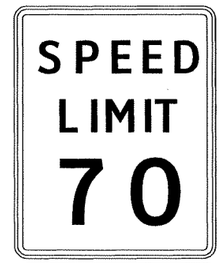
M1-1
45"X36"

SS-530-52+00SB
SS-530-231+00SB
SS-530-310+00SB
SS-530-376+00SB
G-1


M3-3
30"X15"

M1-1
45"X36"

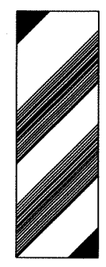
SS-530-43+00SB
SS-530-110+00NB
SS-530-219+00SB
SS-530-285+00NB
SS-530-300+00SB
SS-530-366+00SB
SS-530-378+00NB
G-2




R2-1
48"X60"


R2-2
48"X48"

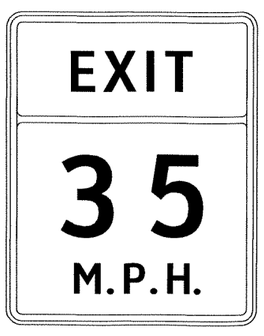
SS-530-59+45SB-A
SS-530-59+45SB-B
SS-530-58+55NB-A
SS-530-58+55NB-B
SS-530-176+66SB-A
SS-530-176+66SB-B
SS-530-175+16NB-A
SS-530-175+16NB-B
SS-530-285+69NB-A
SS-530-285+69NB-B
SS-530-286+56SB-A
SS-530-286+56SB-B
SS-530-385+74NB-A
SS-530-385+74NB-B
SS-530-387+64SB-A
SS-530-387+64SB-B
U1-1



OM-3L
12"X36"

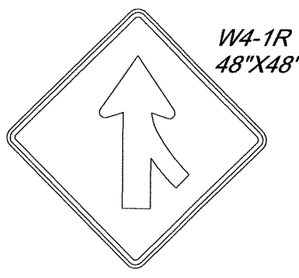
OM-3R
12"X36"

SS-530-62+00NB
SS-530-89+00SB
SS-530-232+90NB
SS-530-267+10SB
SS-530-389+50NB
SS-530-415+00SB
G-2



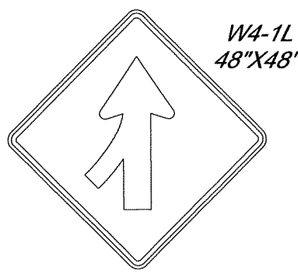

W13-3
48"X60"

SS-530-73+00NB
SS-530-80+00NB
SS-530-249+00SB
SS-530-253+00NB
SS-530-333+00SB
SS-530-396+00SB
SS-530-405+00NB
G-2



W4-1R
48"X48"

SS-530-343+00NB
G-2



W4-1L
48"X48"

SS-530-52+00NB
SS-530-66+00SB
SS-530-168+00NB
SS-530-183+00SB
SS-530-280+00NB
SS-530-293+00SB
SS-530-381+00NB
SS-530-394+00SB
G-2


W8-13
48"X48"

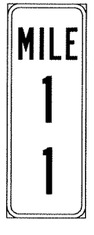
SS-530-400+00NB
SS-530-400+00SB
U1-1


D10-2
10"X18"

SS-530-345+00NB
SS-530-345+00SB
U1-1


D10-2
10"X27"

SS-530-288+50SB
SS-530-288+50NB
U1-1




D10-2
10"X27"

SS-530-239+60SB
SS-530-239+60NB
U1-1


D10-2
10"X27"

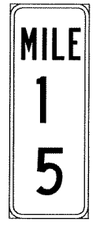
SS-530-186+80SB
SS-530-186+80NB
U1-1


D10-2
10"X27"

SS-530-134+00SB
SS-530-134+00NB
U1-1


D10-2
10X27"

SS-530-81+20SB
SS-530-81+20NB
U1-1




D10-2
10"X27"

SS-530-28+40SB
SS-530-28+40NB
U1-1


D10-2
10"X27"

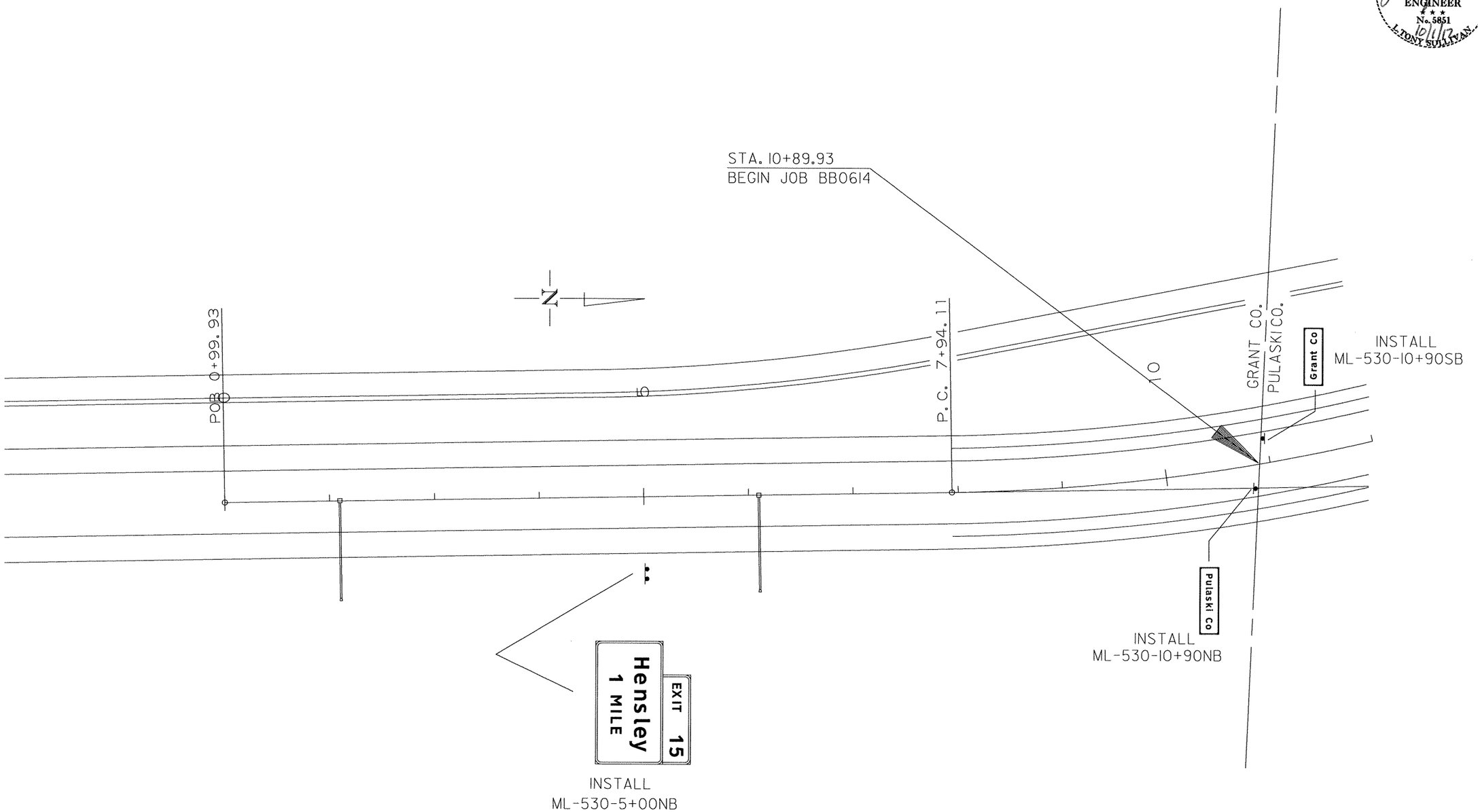
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
10/1/12
L. TONY SULLIVAN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 118 | 219 |

(2) SIGN PLACEMENT SHEET

STA 0+00 TO STA 12+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
10/1/12
L. TONY SULLIVAN

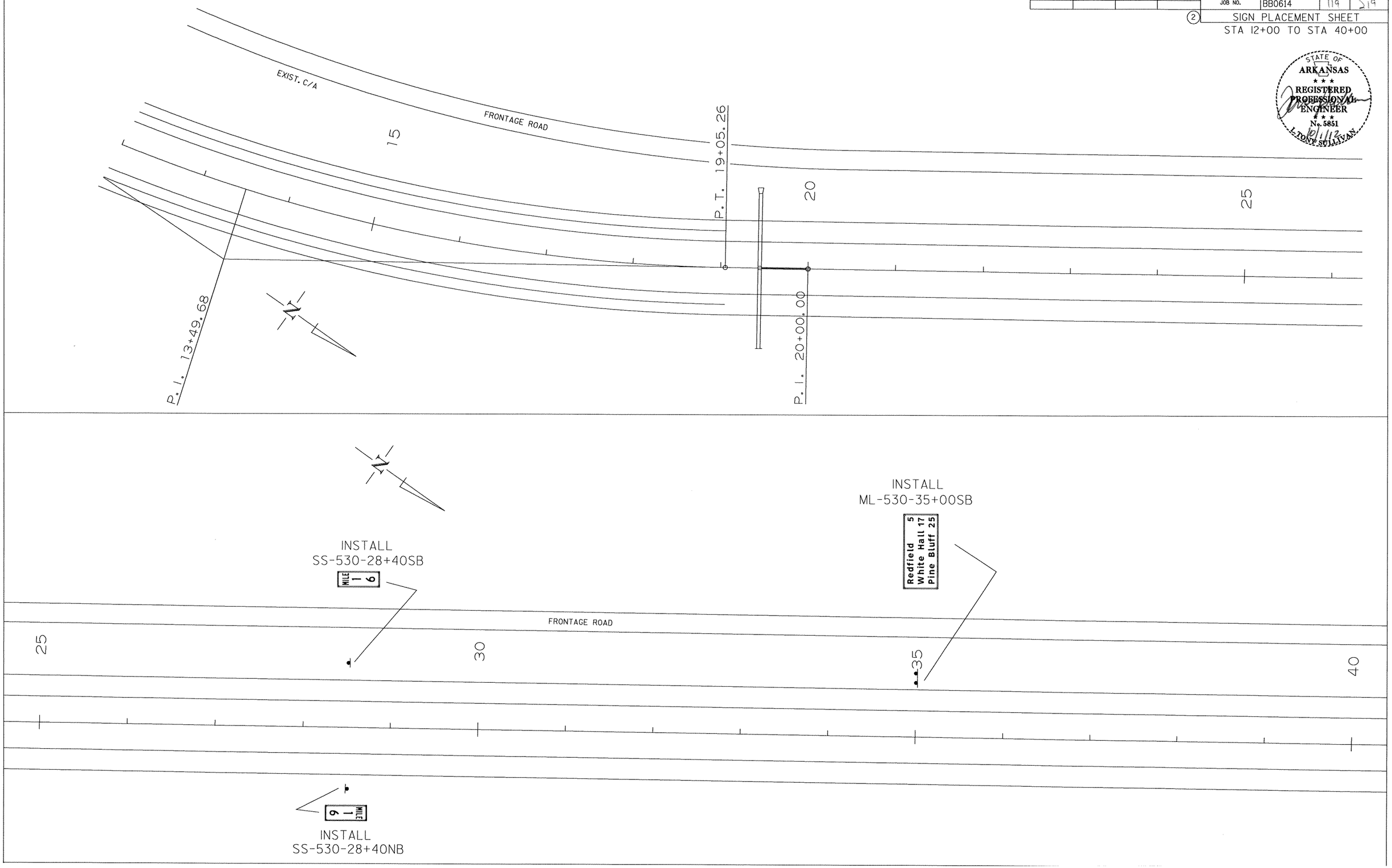


| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 119 | 219 |

(2) SIGN PLACEMENT SHEET

STA 12+00 TO STA 40+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
10/1/12
J. TONY SULLIVAN

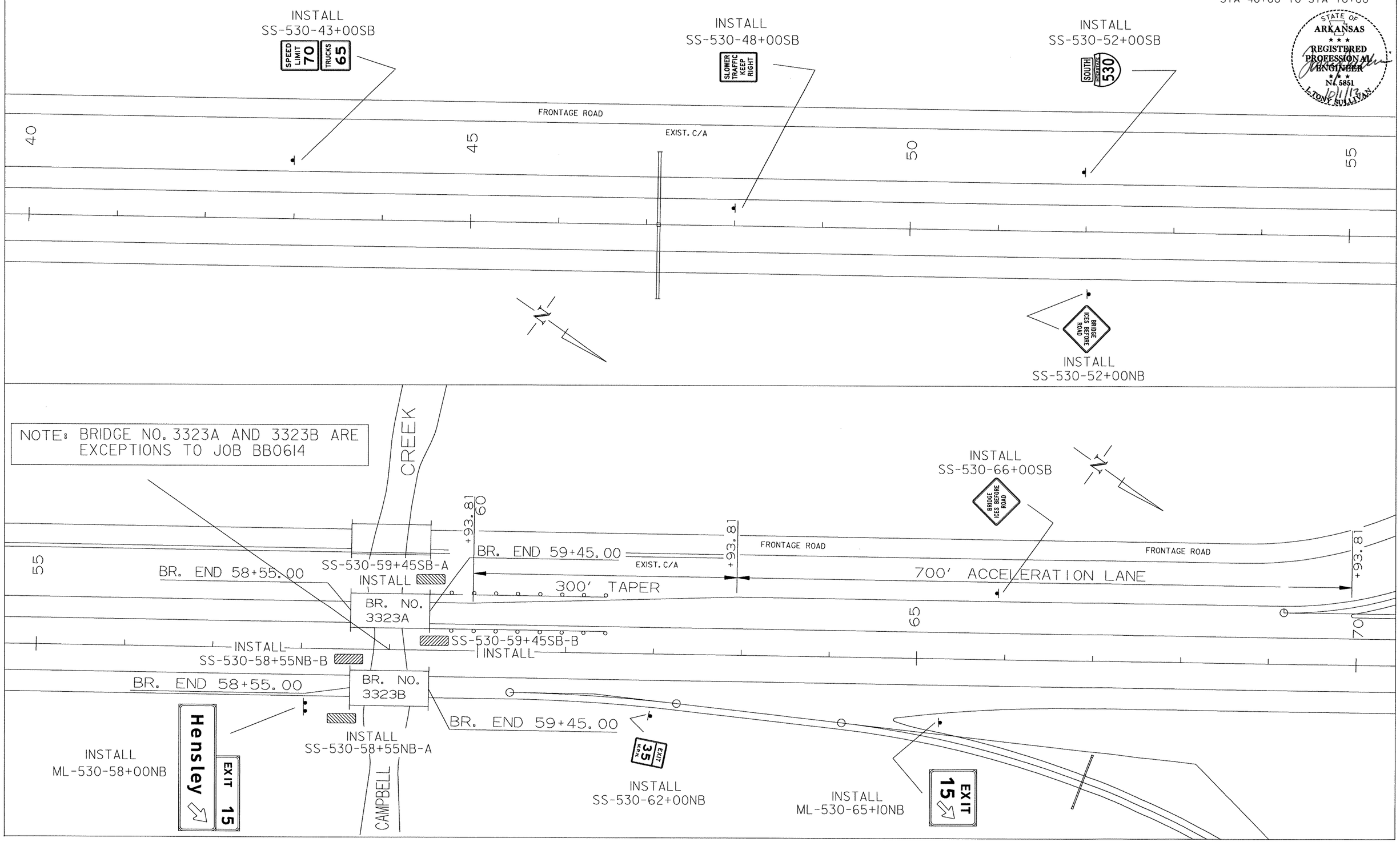


| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 120 | 219 |

(2) SIGN PLACEMENT SHEET

STA 40+00 TO STA 70+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
L. TONY SULLIVAN
10/1/12

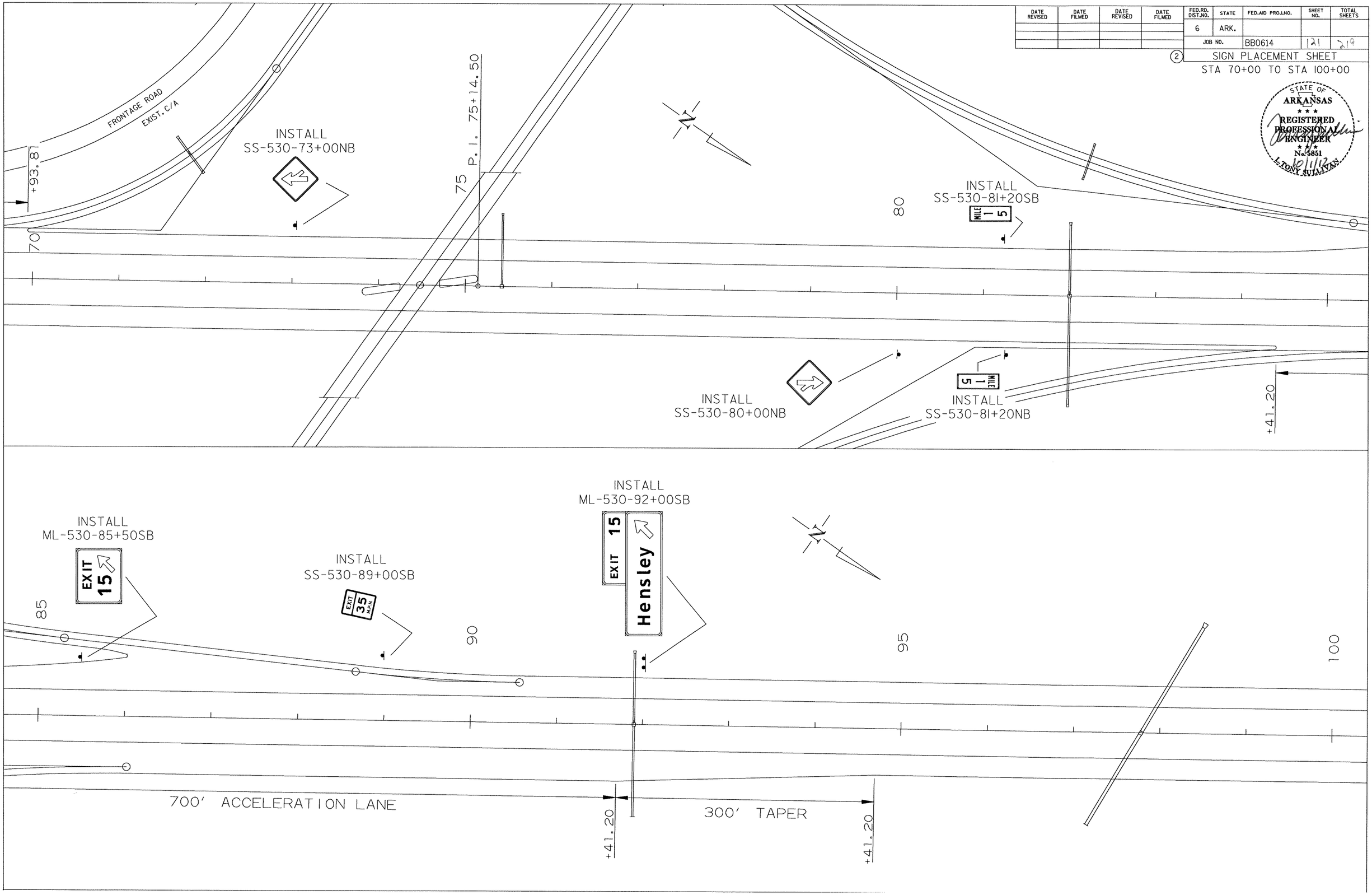


| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 121 | 219 |

(2) SIGN PLACEMENT SHEET

STA 70+00 TO STA 100+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
10/1/12
L. TONY SULLIVAN

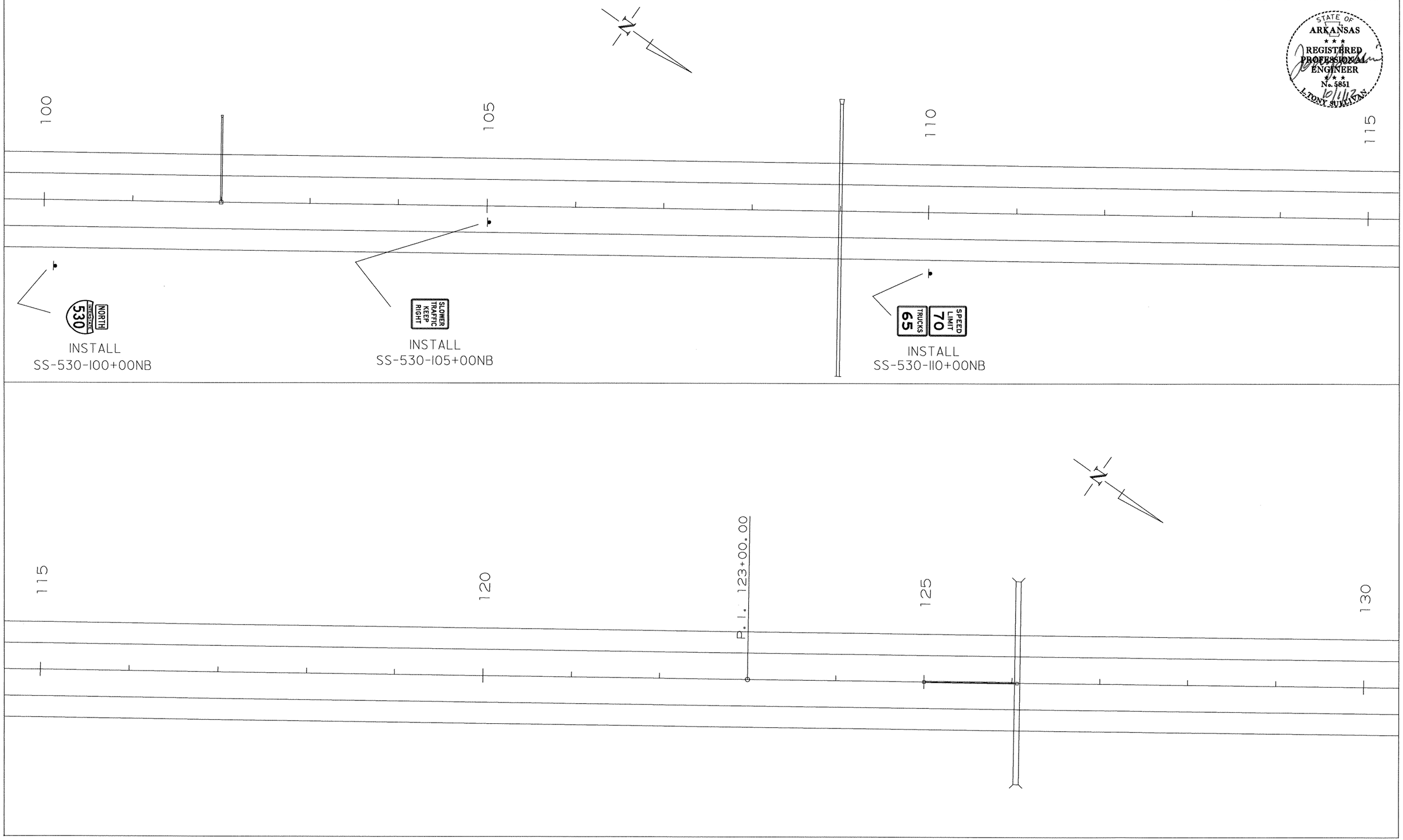


| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 122 | 219 |

(2) SIGN PLACEMENT SHEET

STA 100+00 TO STA 130+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
10/1/13
L. TONY SULLIVAN

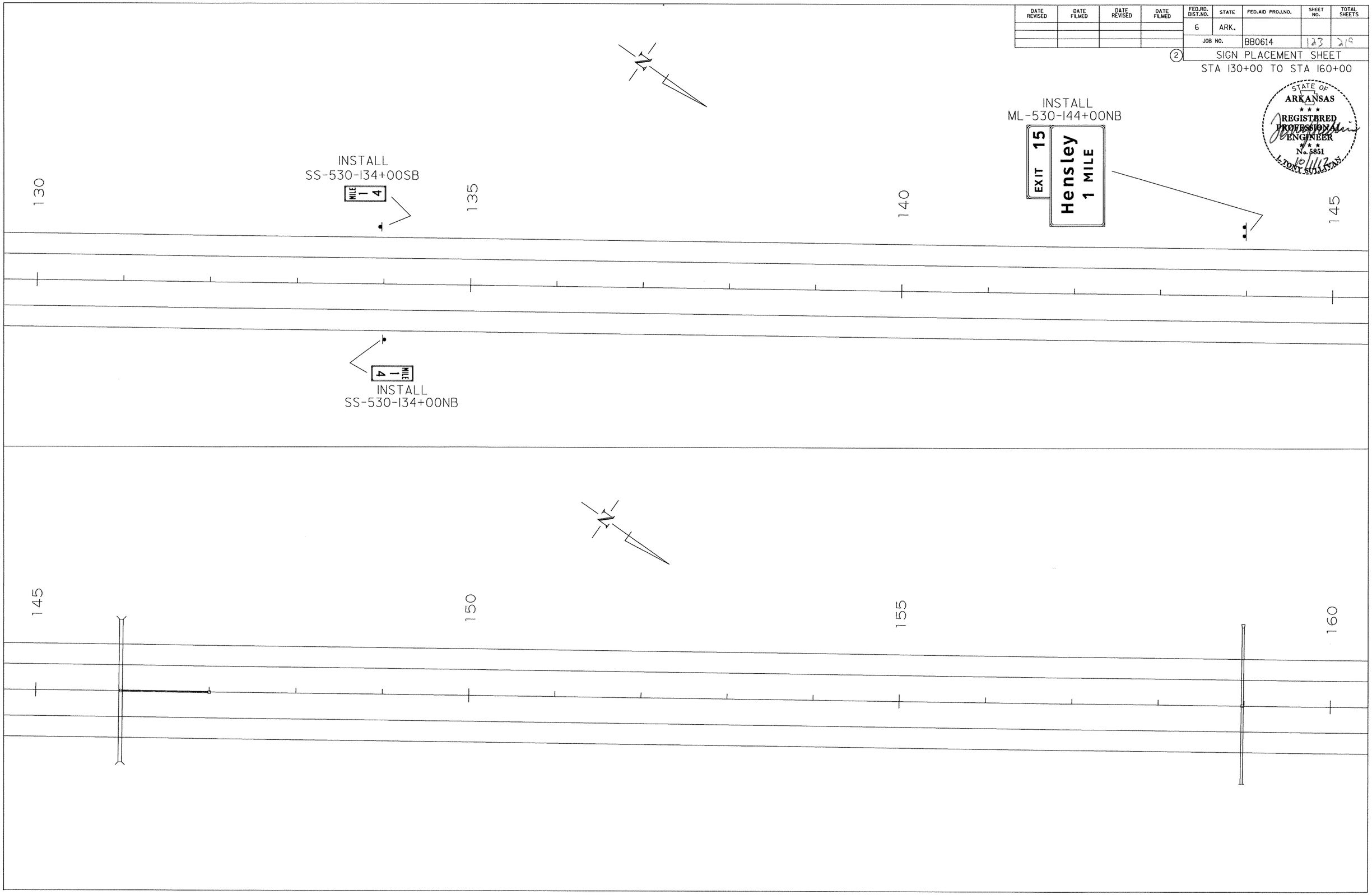


| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 123 | 219 |

(2) SIGN PLACEMENT SHEET

STA 130+00 TO STA 160+00

STATE OF ARKANSAS ★★★ REGISTERED PROFESSIONAL ENGINEER ★★★ No. 5851 10/11/12 J. TONY SULLIVAN

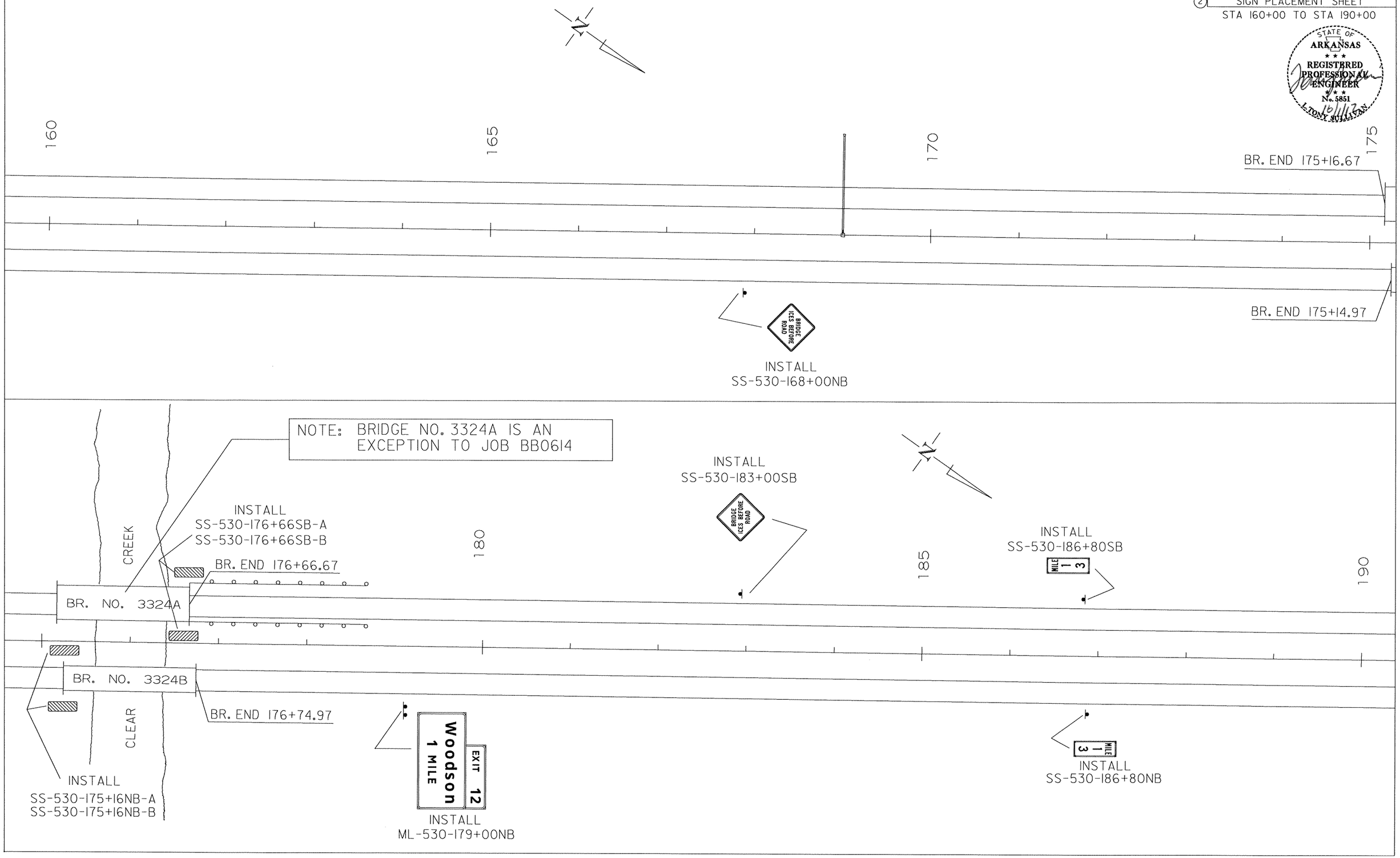


| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 124 | 219 |

(2) SIGN PLACEMENT SHEET

STA 160+00 TO STA 190+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
L. TONY SULLIVAN
10/11/23

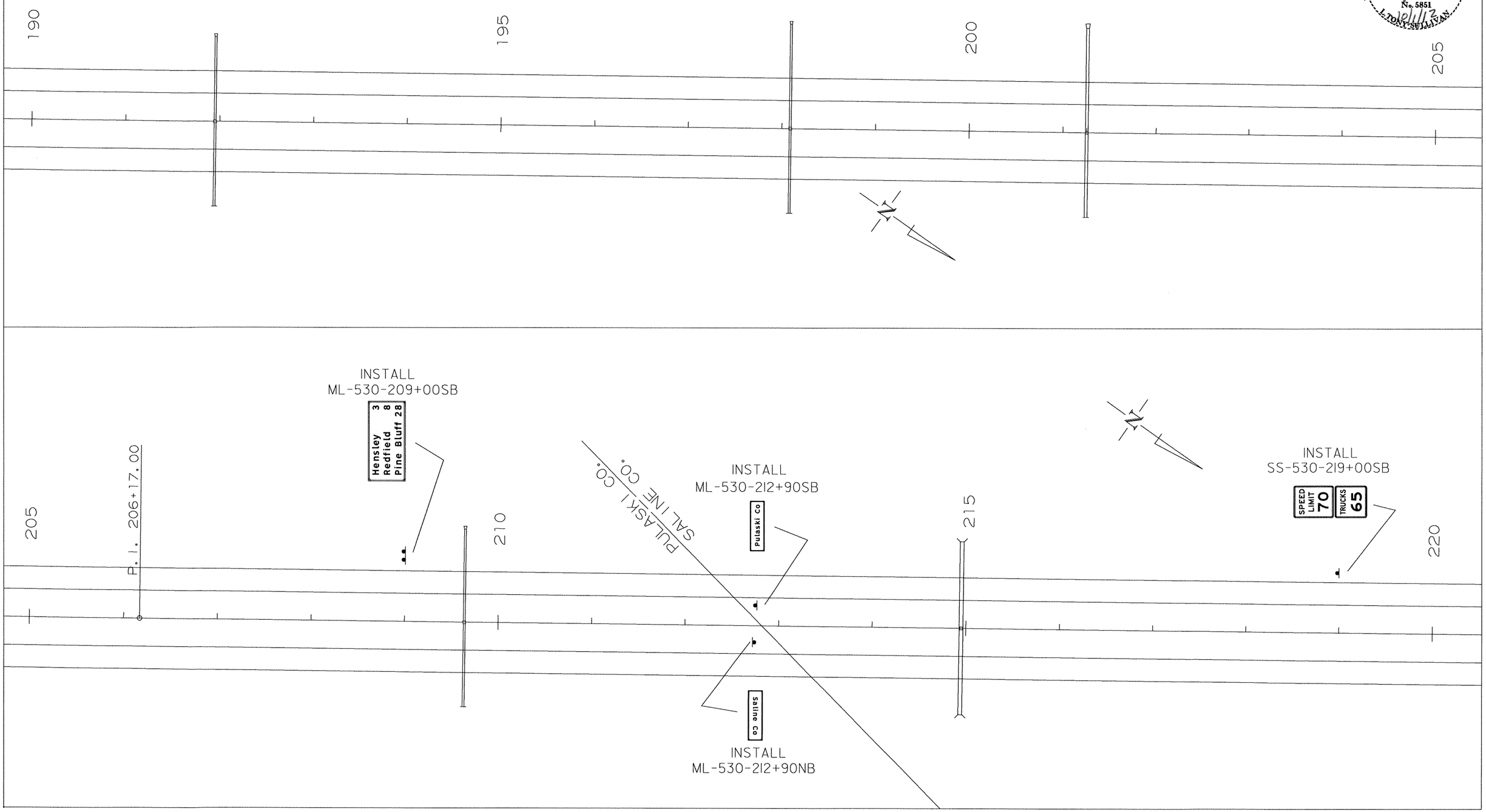


| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 125 | 219 |

(2) SIGN PLACEMENT SHEET

STA 190+00 TO STA 220+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
L. TONY SULLIVAN
10/1/12

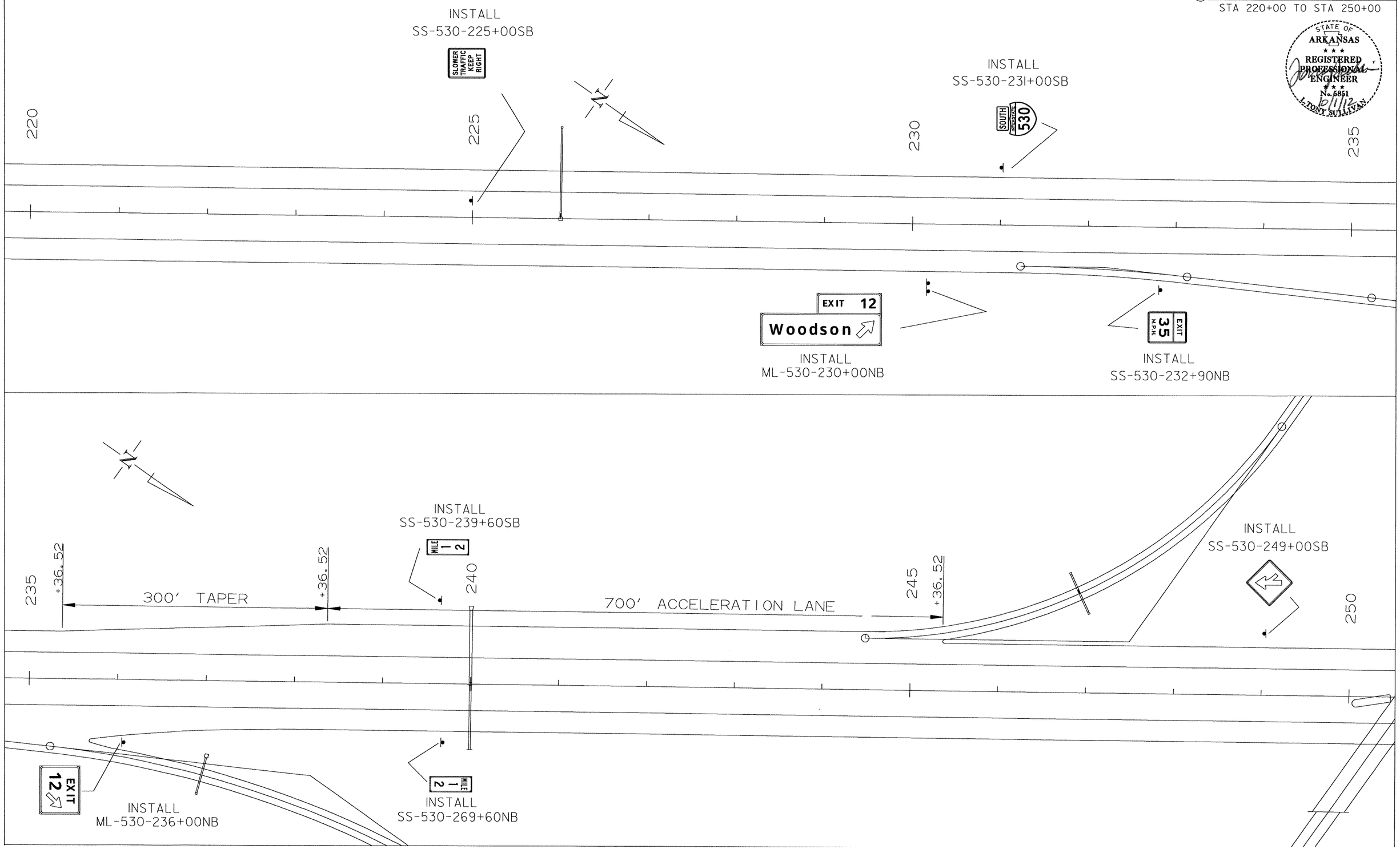


| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 126 | 219 |

(2) SIGN PLACEMENT SHEET

STA 220+00 TO STA 250+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
6/1/12
L. TONY SULLIVAN

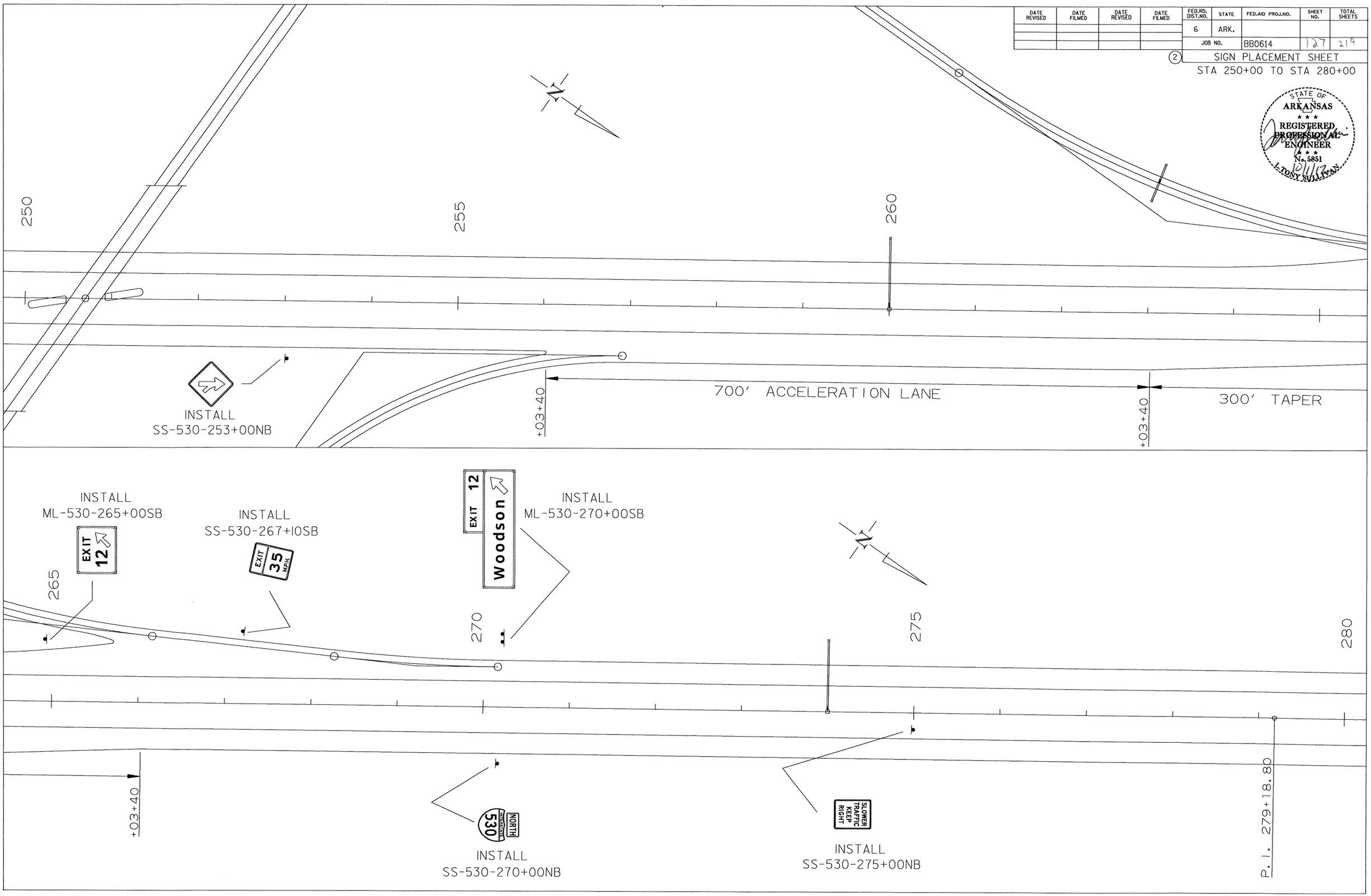


| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 127 | 219 |

(2) SIGN PLACEMENT SHEET

STA 250+00 TO STA 280+00

STATE OF ARKANSAS ★★★ REGISTERED PROFESSIONAL ENGINEER ★★★ No. 5851 10/11/12 L. TONY SULLIVAN



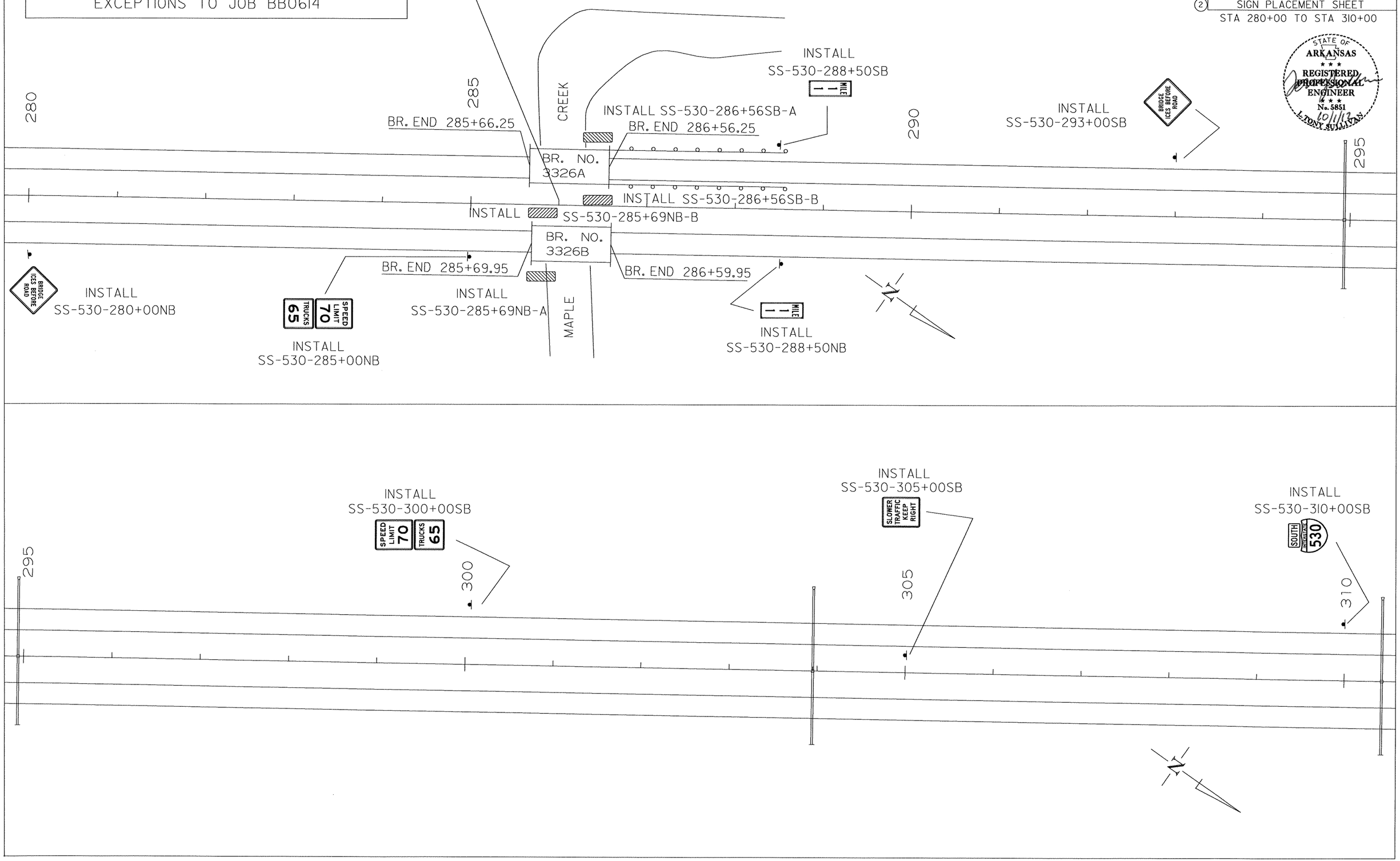
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 128 | 219 |

(2) SIGN PLACEMENT SHEET

STA 280+00 TO STA 310+00

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 5851 10/1/12 L. TONY SULLIVAN

NOTE: BRIDGE NO. 3326A & 3326B ARE EXCEPTIONS TO JOB BB0614

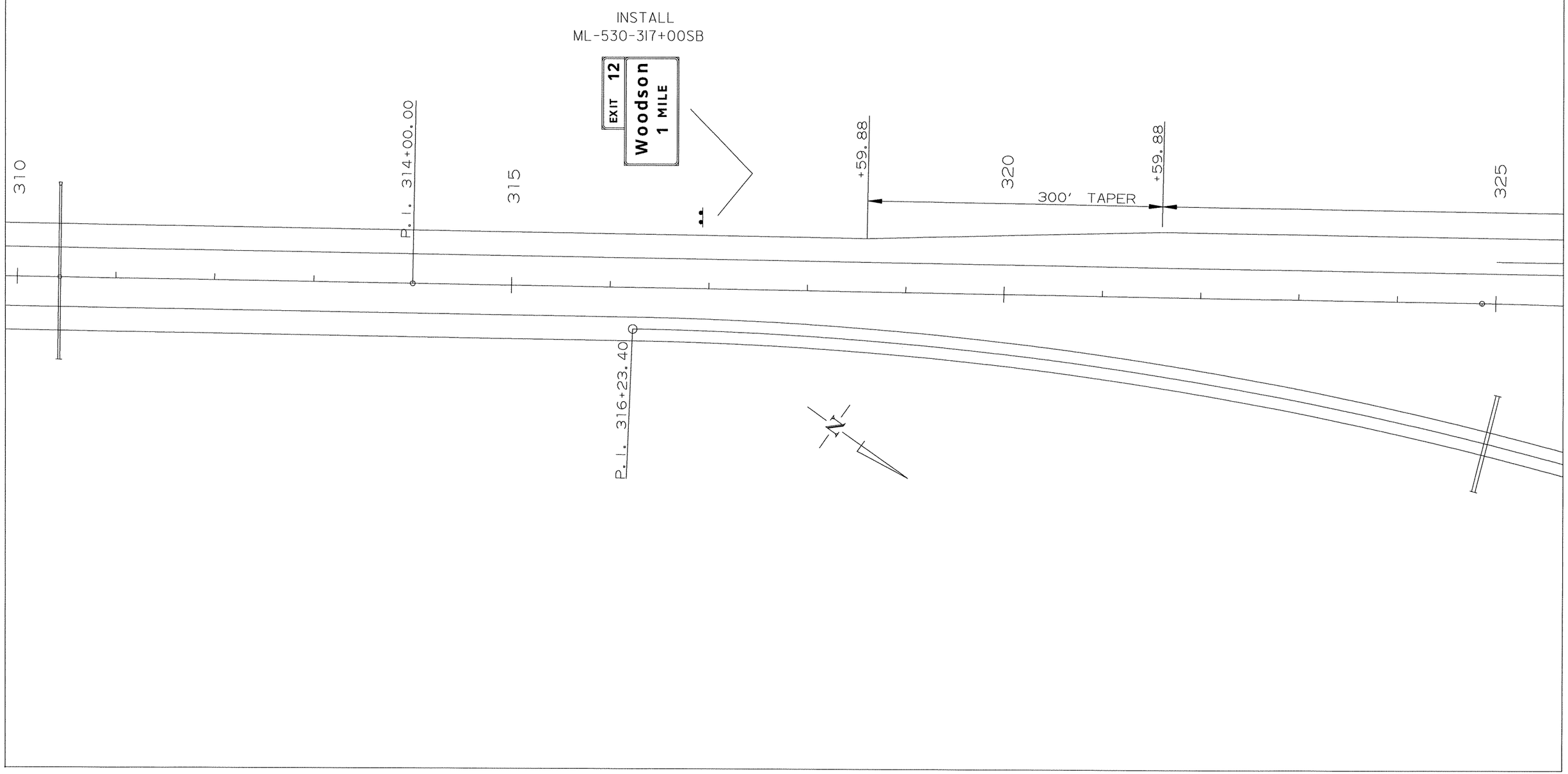


| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 129 | 219 |

(2) SIGN PLACEMENT SHEET

STA 310+00 TO STA 325+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
10/1/12
L. TONY SULLIVAN

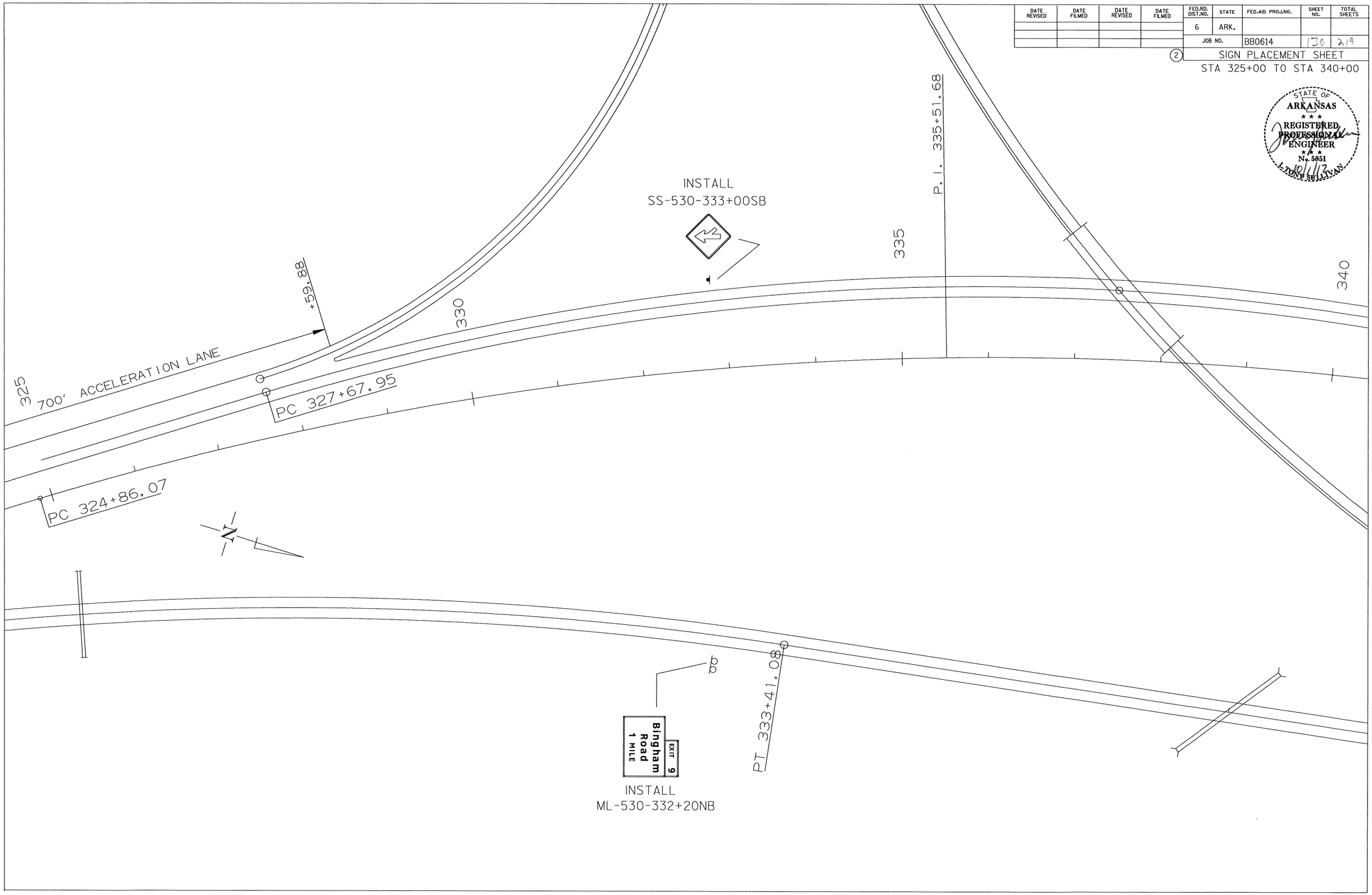


| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 130 | 219 |

2 SIGN PLACEMENT SHEET

STA 325+00 TO STA 340+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
L. TONY SULLIVAN
10/1/12

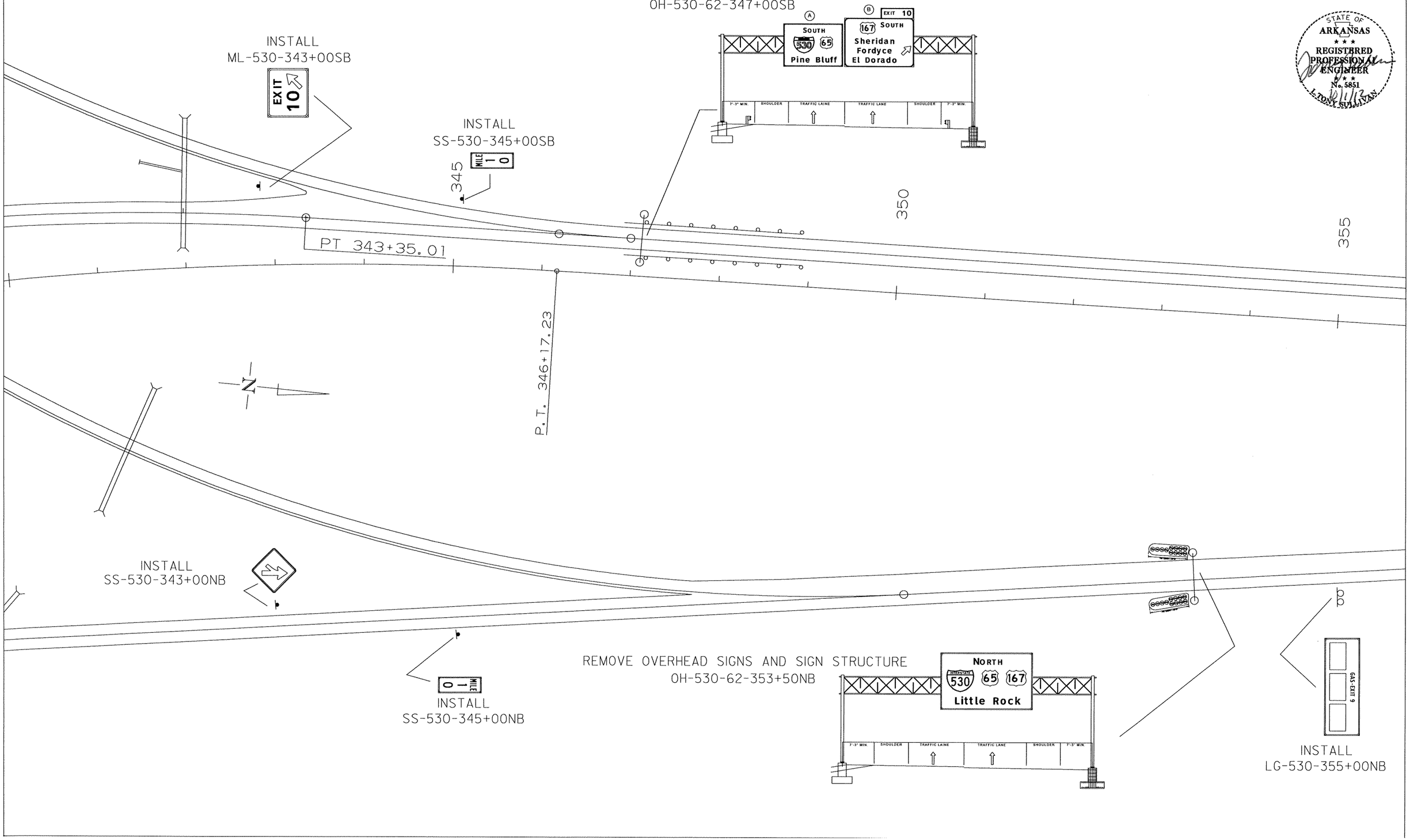


| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 131 | 219 |

(2) SIGN PLACEMENT SHEET

STA 340+00 TO STA 355+00

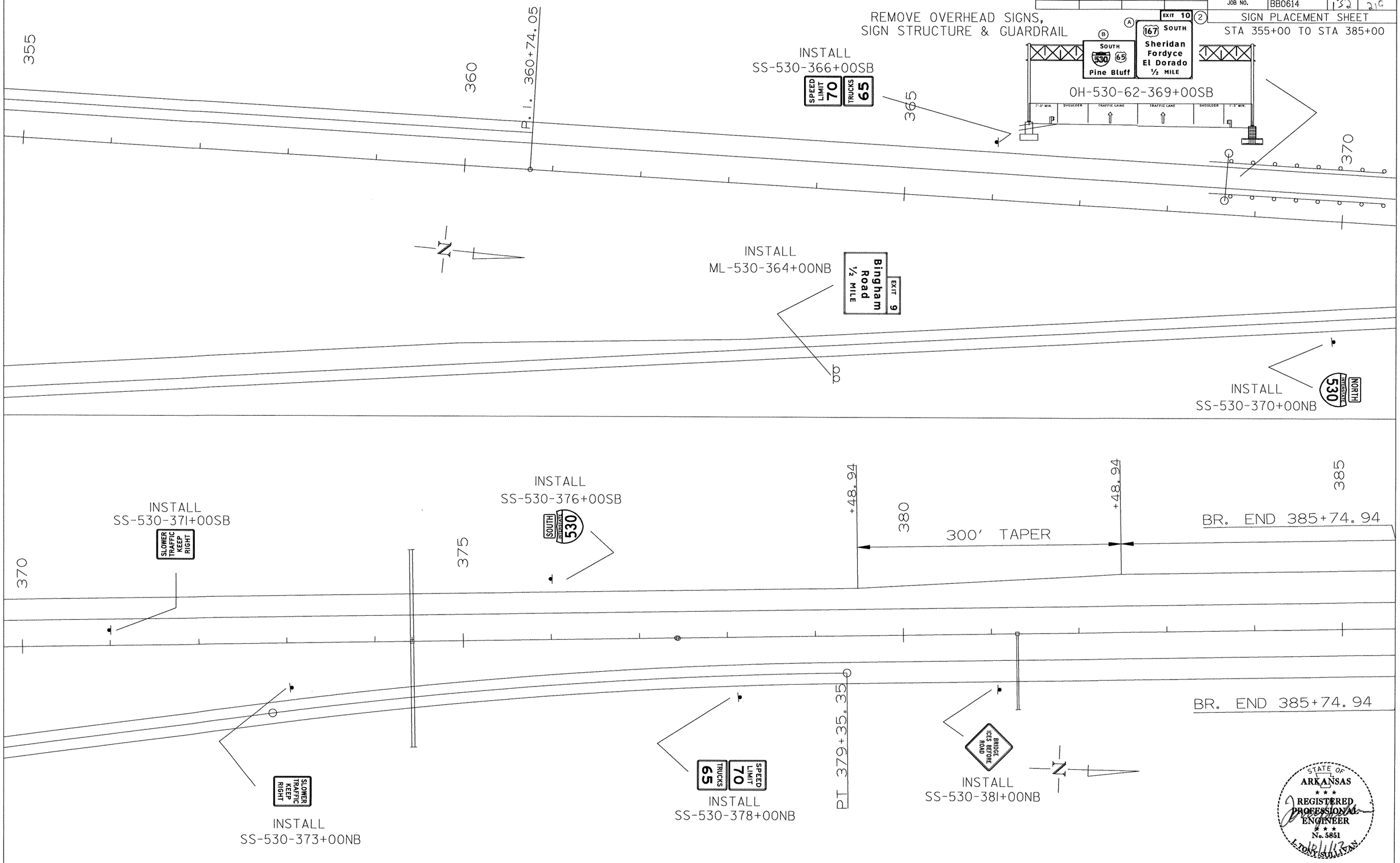
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
L. TONY SULLIVAN
10/11/13



| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 132 | 215 |

SIGN PLACEMENT SHEET

STA 355+00 TO STA 385+00

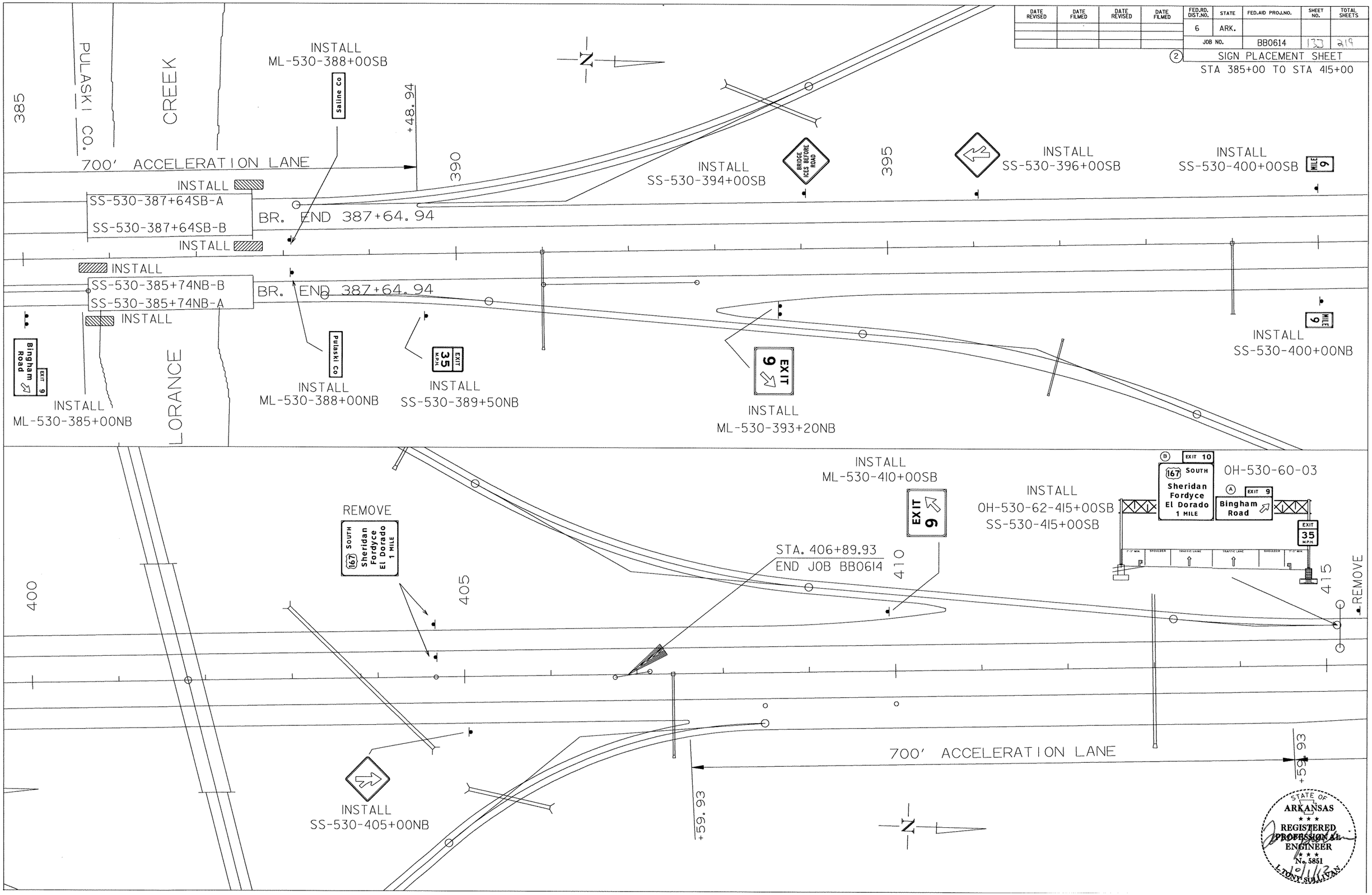



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
L. TONY SULLIVAN
06/11/13

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 133 | 219 |

(2) SIGN PLACEMENT SHEET

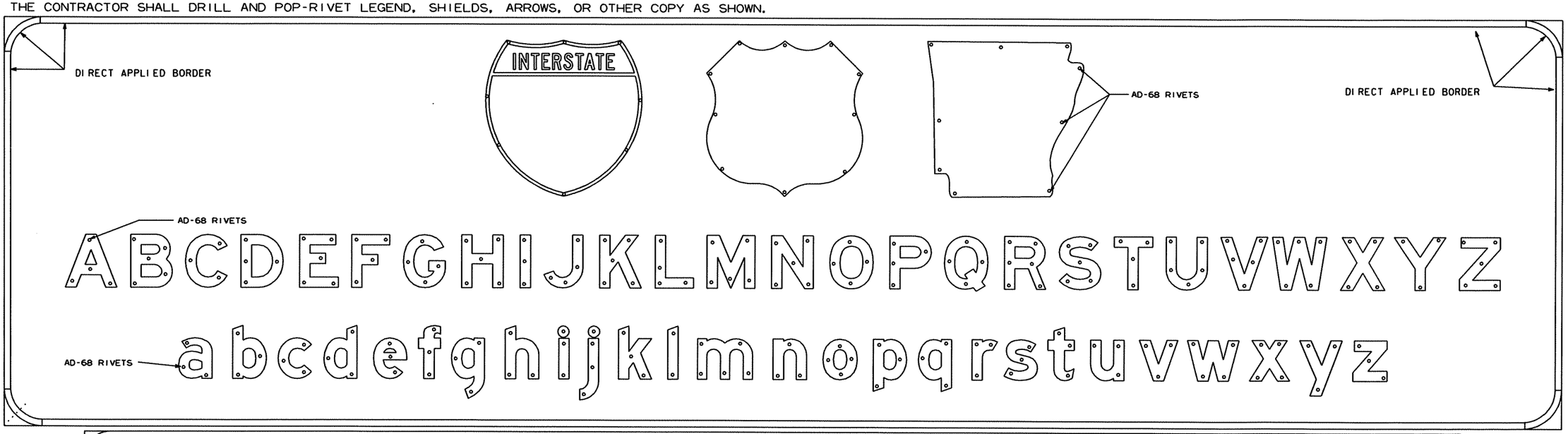
STA 385+00 TO STA 415+00

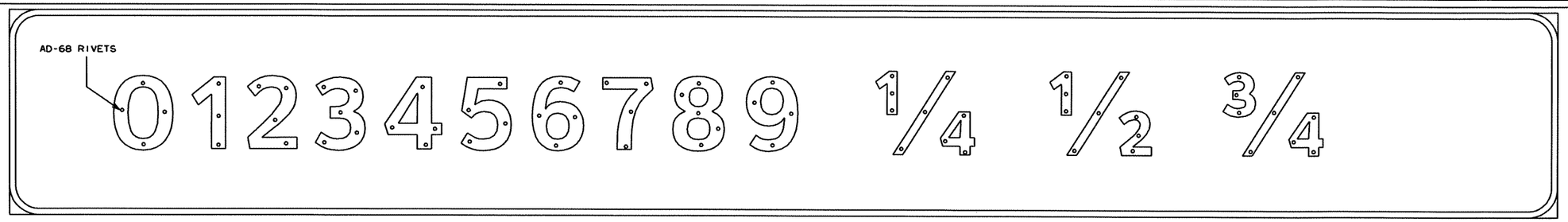


| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.RD PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 880614 | 139 | 219 |

(2) MOUNTING DETAILS FOR DEMOUNTABLE LEGEND ON GUIDE SIGNS

THE CONTRACTOR SHALL DRILL AND POP-RIVET LEGEND, SHIELDS, ARROWS, OR OTHER COPY AS SHOWN.



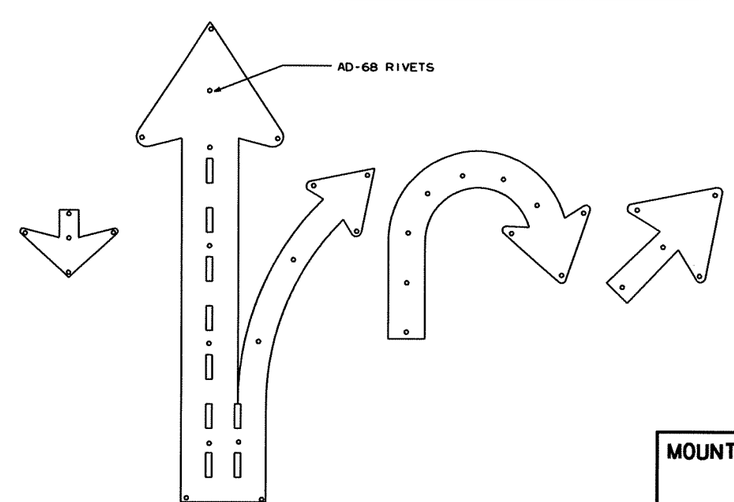




NOTE:

LEGEND ON GUIDE SIGNS ON THE MAIN LANES SHALL BE DEMOUNTABLE LEGEND.
LEGEND ON GUIDE SIGNS ON CROSS ROADS AND RAMPS SHALL BE DIRECT APPLIED.
THE DEMOUNTABLE AND DIRECT APPLIED LEGENDS SHALL BE TYPE IX SHEETING.

THE BACKGROUND ON ALL GUIDE SIGNS AND STANDARD SIGNS SHALL BE CONSTRUCTED USING TYPE III SHEETING.
TYPE IX SHEETING FOR BORDER, LEGEND, SHIELDS, ARROWS, OR OTHER COPY SHALL BE ORIENTED VERTICALLY AS PER MANUFACTURERS' DATUM MARKS, ORIENTATION MARKS, OR OTHER RECOMMENDATIONS.

SIGN LEGEND, SHIELDS, ARROWS OR OTHER COPY SHALL BE APPLIED WITH RIVETS ONLY.
NO OTHER METHOD OF APPLYING CHARACTERS IS ALLOWED.




STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
10/11/73

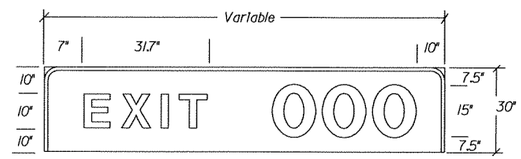
MOUNTING DETAILS FOR DEMOUNTABLE LEGEND ON GUIDE SIGNS

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 135 | 219 |

(2) EXIT PANEL DETAILS

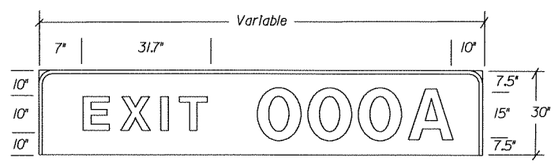

TYPICAL DETAIL

TYPE A



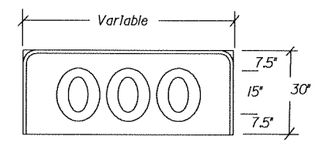

EXIT WITH 1 DIGIT 84"X30"=17.50 SF
EXIT WITH 2 DIGITS 96"X30"=20.0 SF
EXIT WITH 3 DIGITS 114"X30"=23.57 SF

TYPE B



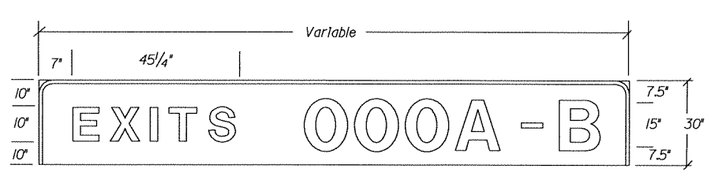

EXIT WITH 1 DIGIT PLUS "A"OR"B" 96"X30"=20.0 SF
EXIT WITH 2 DIGITS PLUS "A"OR"B" 114"X30"=23.57 SF
EXIT WITH 3 DIGITS PLUS "A"OR"B" 126"X30"=26.25 SF

TYPE D



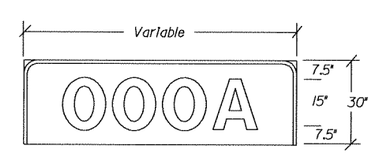

1 DIGIT 24"X30" =5.0 SF
2 DIGITS 42"X30" =8.75 SF
3 DIGITS 60"X30" =12.50 SF

TYPE C




EXITS WITH 1 DIGIT PLUS "A"&"B" 132"X30"=27.50 SF
EXITS WITH 2 DIGITS PLUS "A"&"B" 150"X30"=31.25 SF
EXITS WITH 3 DIGITS PLUS "A"&"B" 168"X30"=35.00 SF

TYPE E

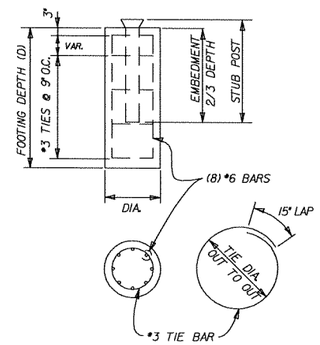


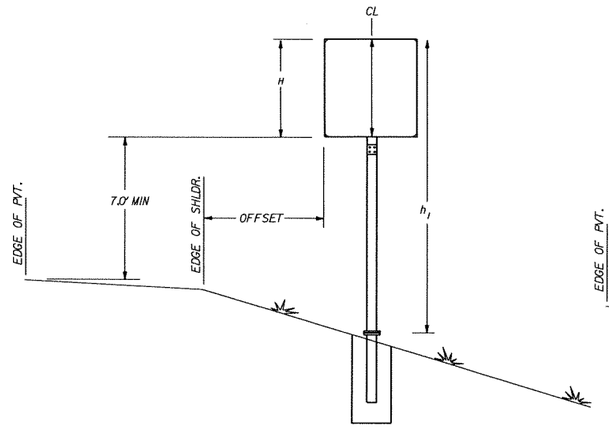

1 DIGIT PLUS "A"OR"B" 42"X30"=8.75 SF
2 DIGITS PLUS "A"OR"B" 60"X30"=12.50 SF
3 DIGITS PLUS "A"OR"B" 78"X30"=16.25 SF


EXIT PANEL DETAILS

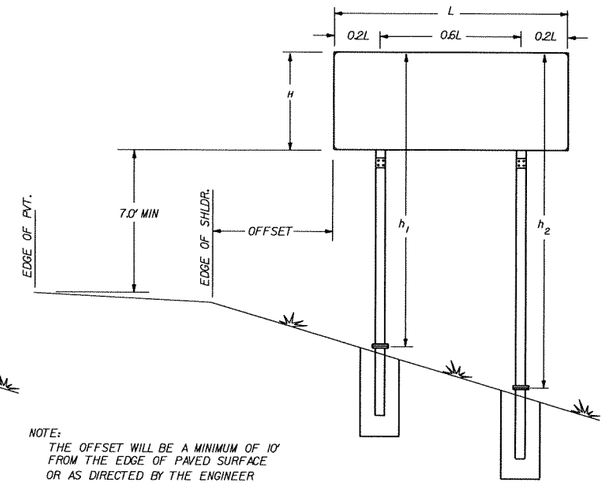
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 136 | 219 |

(2) I-BEAM SIGN SUPPORTS



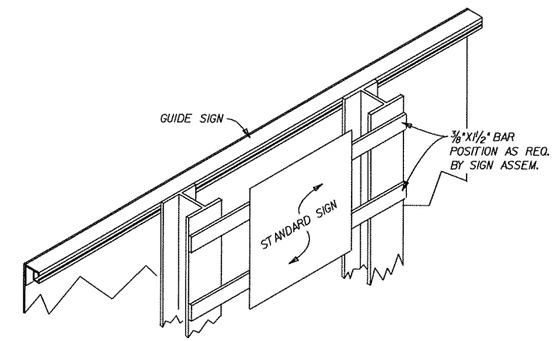




G-1

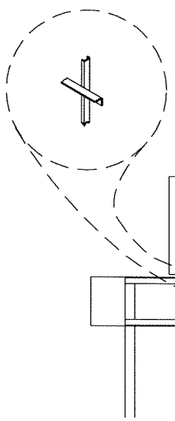



NOTE:
THE OFFSET WILL BE A MINIMUM OF 10' FROM THE EDGE OF PAVED SURFACE OR AS DIRECTED BY THE ENGINEER

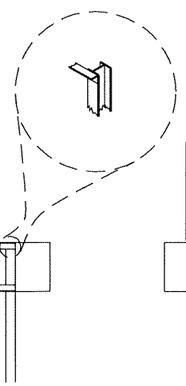
G-2



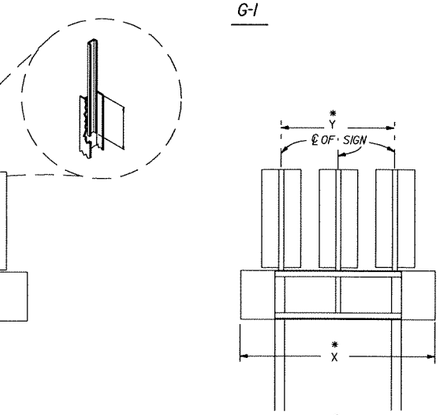

SECONDARY SIGN INSTALLATION ON BACKSIDE OF GUIDE SIGN



A



B




C

TRIPLE ASSEM.(C or D)

| * Y | * X | TYPE ASSEM. |
|---|---|---|
| 4'-4" | ≥ 7'-6" | G-1C |
| 4'-4" | < 7'-6" | G-1D |
| 4'-10" | ≥ 8'-0" | G-1C |
| 4'-10" | < 8'-0" | G-1D |
| 5'-1" | ≥ 8'-6" | G-1C |
| 5'-1" | < 8'-6" | G-1D |
| 5'-4" | ≥ 9'-0" | G-1C |
| 5'-4" | < 9'-0" | G-1D |

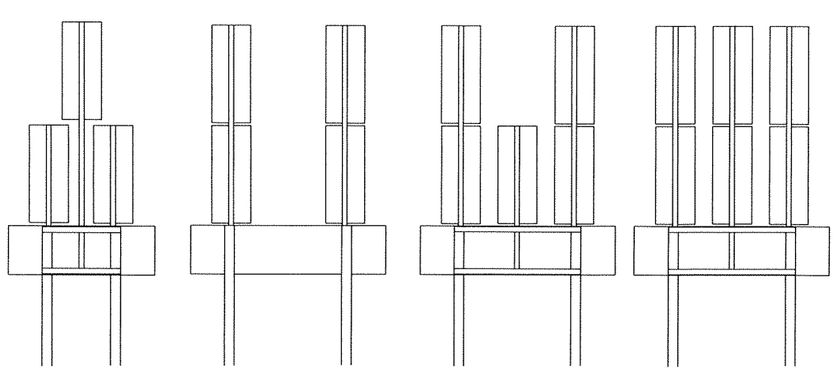
LEGEND
≥ GREATER THAN OR EQUAL TO
< LESS THAN

FOOTING QUANTITIES

| FTG. DEPTH | NO. OF TIES | STUB PROJ. | 18" DIA. | | 24" DIA. | | 30" DIA. | | 36" DIA. | | "A" |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CU.YD. | # STEEL | CU.YD. | # STEEL | CU.YD. | # STEEL | CU.YD. | # STEEL | EMBED. |
| 2'-6" | 4 | 4" | 0.16 | 30.5 | | | | | | | 1'-8" |
| 3'-0" | 4 | 4" | 0.20 | 36.6 | | | | | | | 2'-0" |
| 3'-6" | 5 | 4" | 0.23 | 44.2 | | | | | | | 2'-4" |
| 4'-0" | 6 | 4" | 0.26 | 51.8 | 0.46 | 55.4 | | | | | 2'-8" |
| 4'-6" | 7 | 4" | 0.29 | 59.5 | 0.52 | 63.6 | | | | | 3'-0" |
| 5'-0" | 7 | 4" | 0.33 | 65.5 | 0.58 | 69.6 | 0.91 | 73.8 | | | 3'-4" |
| 5'-6" | 8 | 4" | | | 0.64 | 77.9 | 1.00 | 82.6 | | | 3'-8" |
| 6'-0" | 9 | 4" | | | 0.70 | 86.7 | 1.09 | 91.5 | 1.57 | 96.5 | 4'-0" |
| 6'-6" | 9 | 4" | | | | | 1.18 | 97.5 | 1.70 | 102.6 | 4'-4" |
| 7'-0" | 10 | 4" | | | | | 1.27 | 106.3 | 1.83 | 111.9 | 4'-8" |
| 7'-6" | 11 | 4" | | | | | | | 1.96 | 121.3 | 5'-0" |
| 8'-0" | 11 | 4" | | | | | | | 2.09 | 127.3 | 5'-4" |

REINFORCING STEEL SCHEDULE

| FTG. DIA. IN. | #3 TIE BARS DIA. IN. | LGTH.-EA. FT./IN. | WEIGHT LBS. | FTG. DEPTH FT./IN. | (8) #6 BARS LGTH.-EA. FT./IN. | WEIGHT LBS. | NO. TIES EA. |
|---|---|---|---|---|---|---|---|
| 18" | 12" | 4'-4" | 1.629 | 2'-6" | 2'-0" | 24.03 | 4 |
| | | | | 3'-0" | 2'-6" | 30.04 | 4 |
| 24" | 18" | 5'-11" | 2.225 | 3'-6" | 3'-0" | 36.05 | 5 |
| | | | | 4'-0" | 3'-6" | 42.06 | 6 |
| 30" | 24" | 7'-6" | 2.820 | 4'-6" | 4'-0" | 48.06 | 7 |
| | | | | 5'-0" | 4'-6" | 54.07 | 7 |
| 36" | 30" | 9'-0" | 3.384 | 5'-6" | 5'-0" | 60.08 | 8 |
| | | | | 6'-0" | 5'-6" | 66.09 | 9 |
| | | | | 6'-6" | 6'-0" | 72.10 | 9 |
| | | | | 7'-0" | 6'-6" | 78.10 | 10 |
| | | | | 7'-6" | 7'-0" | 84.11 | 11 |
| | | | | 8'-0" | 7'-6" | 90.12 | 11 |



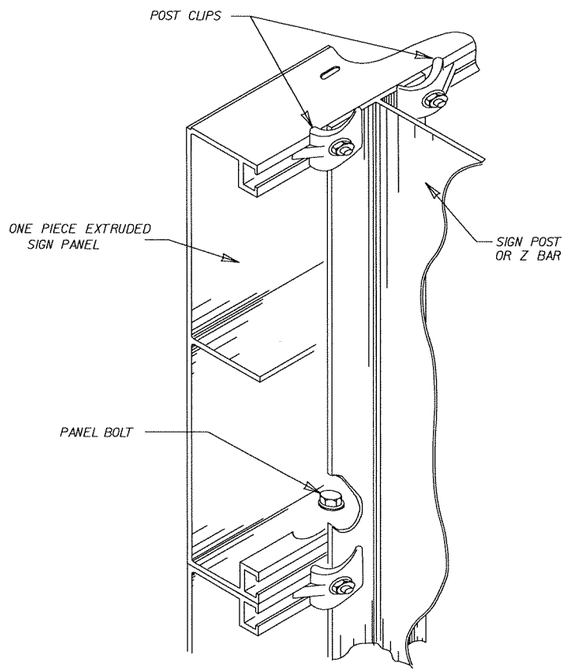
D E F G

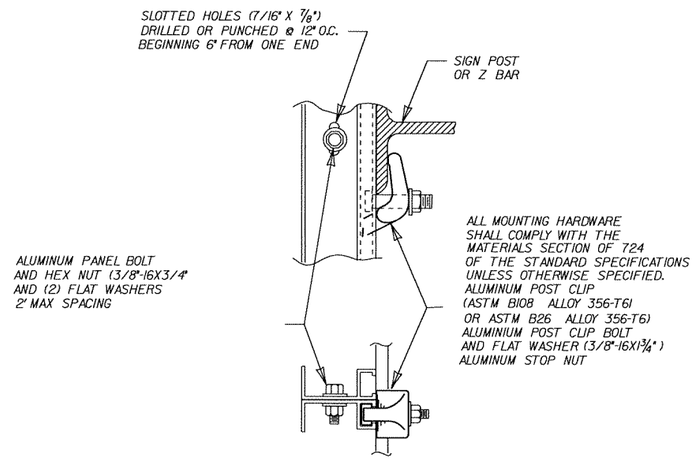
STATE OF ARKANSAS ★★★ REGISTERED PROFESSIONAL ENGINEER ★★★ No. 5851 10/11/12 TONY SULLIVAN

I-BEAM SIGN SUPPORTS

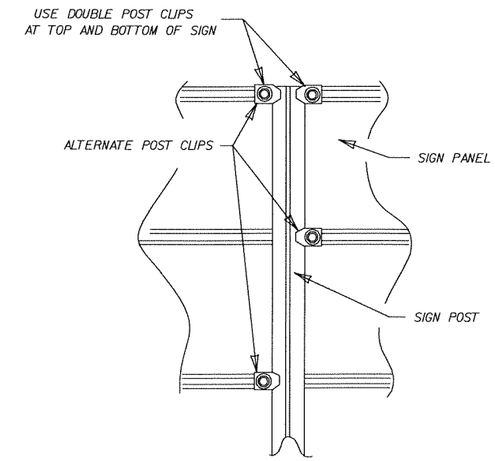
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 137 | 219 |

(2) DETAILS OF GUIDE SIGN PANELS

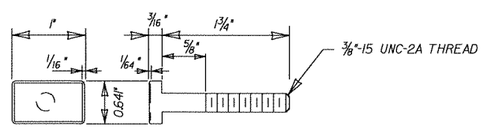


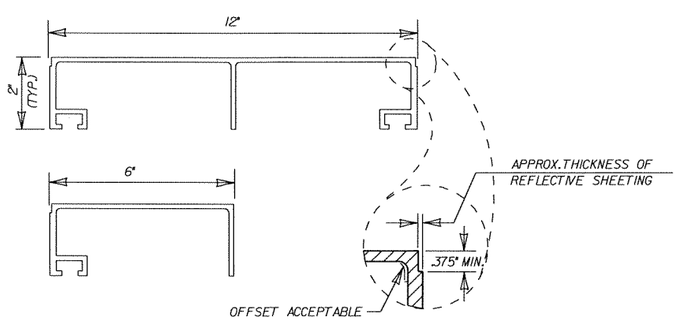

MOUNTING HARDWARE



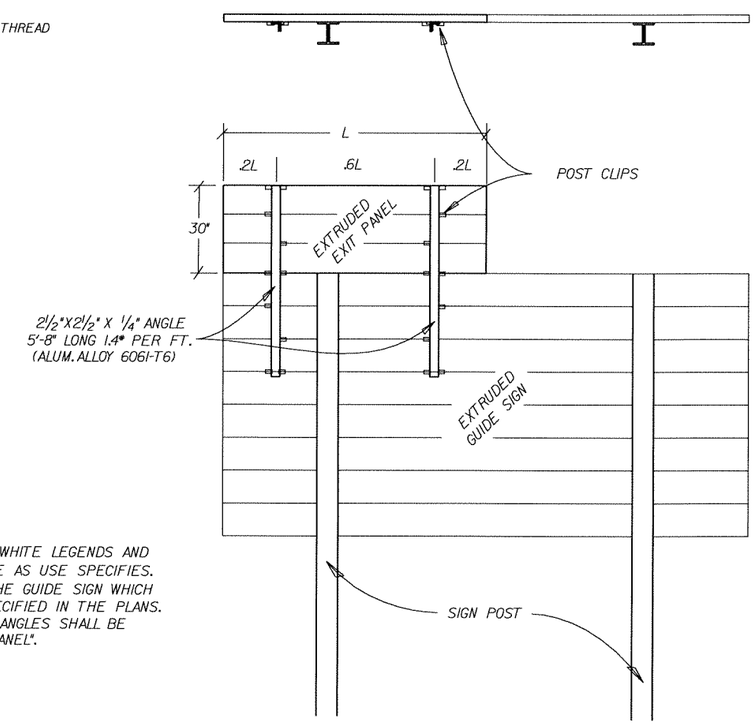

POST CLIP PLACEMENT




POST CLIP BOLT




ONE PIECE EXTRUDED SIGN PANELS




NOTE: EXIT NUMBER PANELS SHALL HAVE WHITE LEGENDS AND BORDERS. THE BACKGROUND COLOR WILL BE AS USE SPECIFIES. SHEETING TYPE WILL BE THE SAME AS THE GUIDE SIGN WHICH THE EXIT PANEL IS ATTACHED OR AS SPECIFIED IN THE PLANS. PAYMENT FOR ALL POST CLIPS, BOLTS, AND ANGLES SHALL BE SUBSIDIARY TO THE ITEM "EXIT NUMBER PANEL".

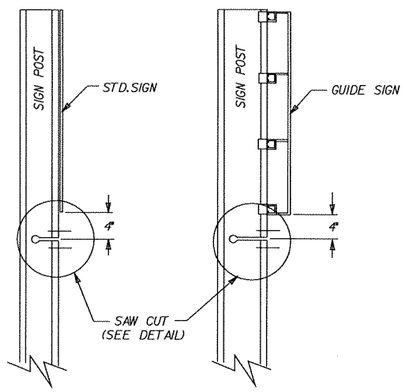
STATE OF ARKANSAS ★★★ REGISTERED PROFESSIONAL ENGINEER ★★★ No. 5851 10/18/12 L. TONY SULLIVAN

DETAILS OF GUIDE SIGN PANELS

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 138 | 219 |

(2) DETAILS OF I-BEAM SIGN SUPPORTS

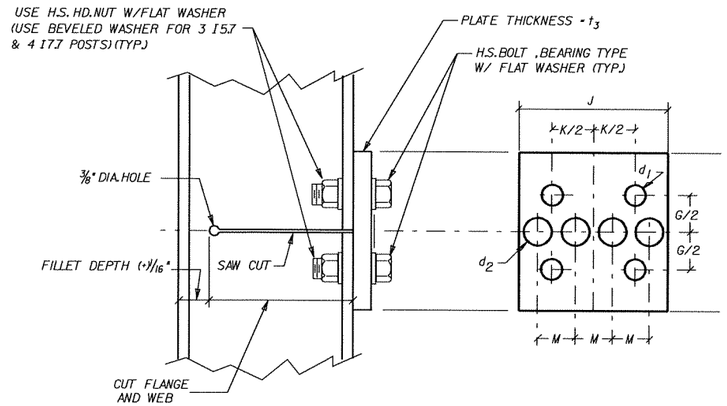
NOTE: BOLT HOLES, USED IN THE MOUNTING OF STANDARD SIGNS SHALL BE LOCATED IN THE FLANGE ADJACENT TO THE NEAR EDGE OF PAVEMENT FOR SINGLE POST ASSEMBLIES AND IN THE OUTSIDE FLANGES FOR MULTIPLE POST ASSEMBLIES.




Standard Signs — Guide Signs

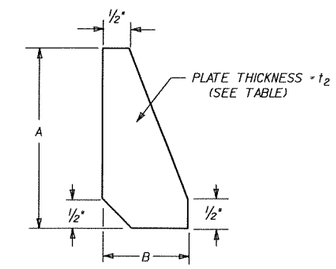
NOTE: POST SHALL BE SAW CUT AFTER GALVANIZING AND THE CUT SURFACE TREATED, AFTER PLATE IS INSTALLED AND ALL BOLTS FULLY TIGHTENED, WITH AN APPROVED ZINC SOLDER MEETING THE FEDERAL SPEC. O-G-93 (STICK ONLY).

## FUSE PLATE DETAILS



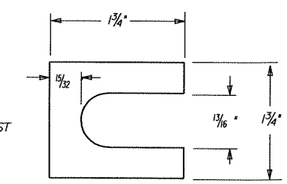

| POST SIZE F | BASE CONNECTION DATA: BOLT SIZE | BOLT TORQUE (INCH/LBS) | A | B | C | D | E | $t_1$ | $t_2$ | W | R | FUSE PLATE DATA: F | G | | J | K | M | $d_1$ | $d_2$ | $t_3$ | BOLT SIZE | WT. OF EACH FUSE PLATE LBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W 6X9 | 5/8" x 2 3/4" | 450"-680" | 5" | 2" | 1 1/4" | 2 3/4" | 1 1/8" | 3/4" | 1/2" | 1/4" | 11/32" | 4 1/4" | 2" | | 4" | 2 1/4" | 1" | 9/16" | 3/4" | 1/4" | 1/2" x 1 1/2" | 1.01 |
| W 6X12 | | | | | | | | | | | | | | | | | | | | | | |
| W 6X15 | | | | | | | | | | | | 5" | 2 1/2" | | 6" | 3 1/2" | 1 1/2" | 11/16" | 1 1/4" | 3/8" | 5/8" x 2 1/4" | 2.51 |
| W 8X18 | 3/4" x 3 1/2" | 750"-1050" | 6" | 2 1/4" | 1 3/8" | 3 1/2" | 1 1/4" | 1" | 3/4" | 5/16" | 13/32" | 5" | 2 1/2" | | 5 1/4" | 2 3/4" | 1 1/4" | 13/16" | 1 1/8" | 3/8" | 3/4" x 2 1/4" | 2.26 |
| W 8X21 | | | | | | | | | | | | 5 1/2" | 2 1/2" | | 5 1/4" | 2 3/4" | 1 1/4" | 13/16" | 1" | 1/2" | 3/4" x 2 1/4" | 3.35 |
| W 10X22 | | | | | | | | | | | | 6" | 3" | | 5 3/4" | 2 3/4" | 1 3/8" | 13/16" | 1 1/8" | 1/2" | 3/4" x 2 1/4" | 4.03 |
| W 10X26 | | | | | | | | | | | | | | | | | | | | | | |
| W 12X26 | | | | | | | | | | | | 6" | 3" | | 6 1/2" | 3 1/2" | 1 5/8" | 13/16" | 1 5/16" | 1/2" | 3/4" x 2 1/4" | 4.47 |

NOTE: USE H.S. HEX HEAD BOLTS, HEX HEAD NUTS AND BEVEL OR FLAT WASHERS (WHERE REQ.) UNDER NUTS. ALL HOLES SHALL BE DRILLED. ALL PLATE CUTS SHALL PREFERABLY BE SAW CUTS, HOWEVER FLAME CUTTING WILL BE PERMITTED PROVIDED ALL EDGES ARE GROUND. METAL PROJECTING BEYOND THE PLANE OF THE PLATE FACE WILL NOT BE PERMITTED. STEEL FUSE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM-A36, ASTM-A441, ASTM-572 GRADE 50, OR ASTM-A588 MAY BE SUBSTITUTED FOR A36 AT THE OPTION OF THE FABRICATOR. STEEL USED SHALL HAVE AN ULTIMATE TENSILE STRENGTH NOT TO EXCEED 80 KSI.




## STIFFENER PLATE DETAIL

FURNISH 2 ~ .012"+/- THICK AND 2 ~ .032"+/- THICK SHIMS PER POST




## SHIM DETAIL

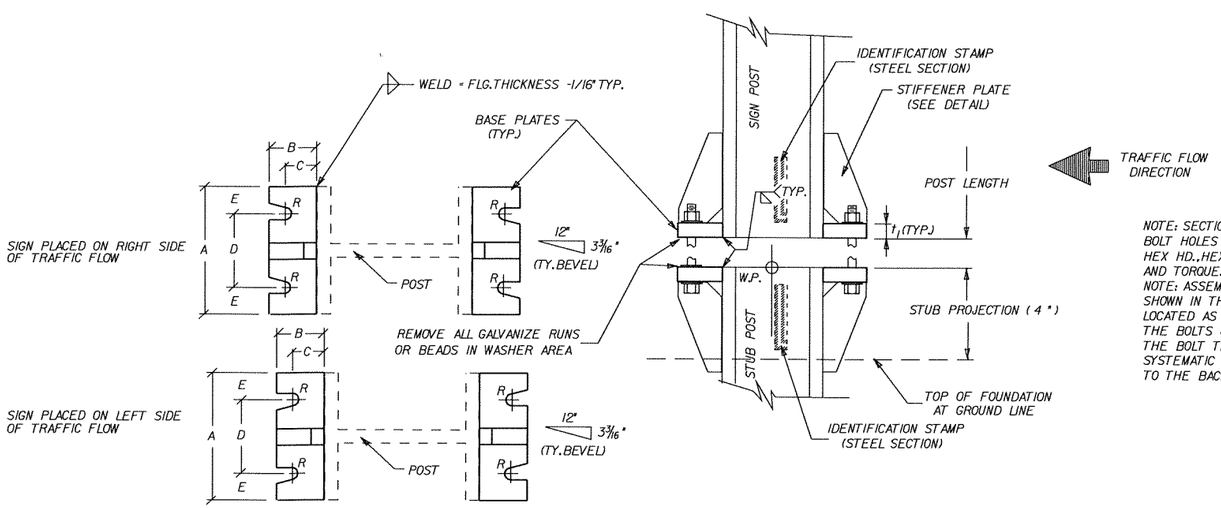
GENERAL NOTES

TIGHTEN THE HIGH STRENGTH BOLTS IN THE BASE CONNECTION ONLY TO THE TORQUE SHOWN. DO NOT OVERTIGHTEN.

BASE PLATES AND STIFFENER PLATES SHALL BE OF THE SAME MATERIAL AS THE PRIMARY SUPPORT POSTS WHICH THEY ARE WELDED.

FOR FOOTING DETAILS REFER TO PLANS.

EACH STUB POST AND SIGN POST SHALL HAVE A PERMANENT IDENTIFYING STAMP WHICH SPECIFIES THE STEEL SECTION USED. IF THE CONTRACTOR ELECTS TO SHIP THE STUB POST SEPARATE FROM THE SIGN POST A MATCH MARK SYSTEM WILL BE REQUIRED.




## SIGN POST AND STUB POST

NOTE: SECTIONS SHOWN ARE FOR INSTALLATION ON THE RIGHT SHOULDER AND IN THE GORE. BOLT HOLES IN BASE PLATE ARE SLOTTED AND BEVELED AS SHOWN. USE H.S. BOLTS WITH HEX HD., HEX NUT AND THREE FLAT WASHERS FOR EACH BOLT. SEE TABLE FOR BOLT DIA. AND TORQUE.

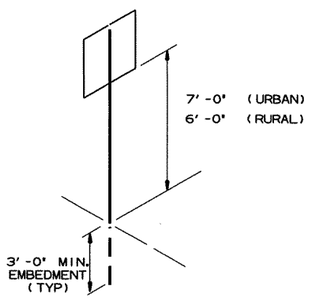
NOTE: ASSEMBLE SIGN POST TO STUB POST USING THE BOLTS SPEC. IN THE TABLE AND AS SHOWN IN THE ELEVATION DETAILS. THERE SHALL BE THREE FLAT WASHERS ON EACH BOLT LOCATED AS SHOWN IN THE ELEVATIONS. USE A SHIM TO PLUMB THE SIGN POST, THEN TIGHTEN THE BOLTS USING A 12" TO 15" WRENCH UNTIL THE WASHERS AND SHIMS ARE SEATED AND THE BOLT THREADS ARE CLEAR. THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN IN A SYSTEMATIC ORDER TO THE PRESCRIBED TORQUE (SEE TABLE). THE BURR THREADS ADJACENT TO THE BACK SIDE OF THE NUT TO PREVENT LOOSENING.

STATE OF ARKANSAS ★★★ REGISTERED PROFESSIONAL ENGINEER ★★★ No. 5851 10/1/12 J. TONY SULLIVAN

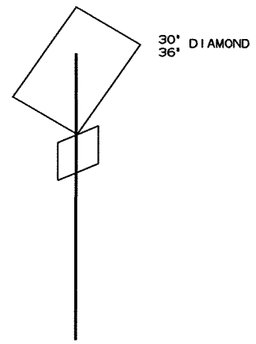
DETAILS OF I-BEAM SIGN SUPPORTS

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 139 | 219 |

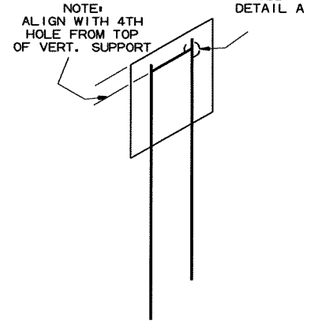
(2) U-CHANNEL POST ASSEMBLIES




U1-1




U1-2

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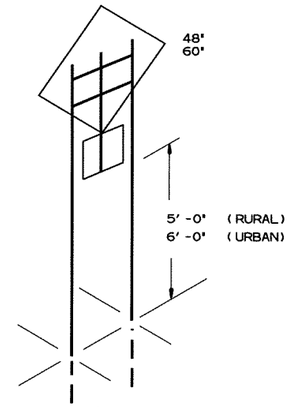


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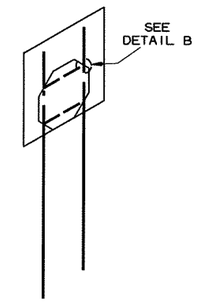


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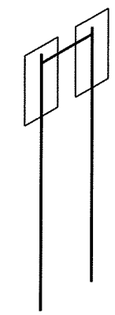

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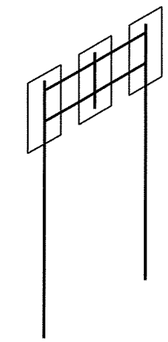

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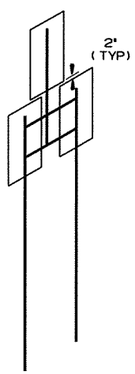
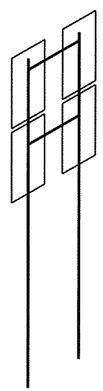



U2-6



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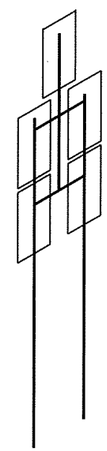

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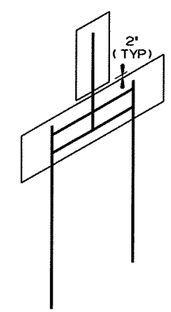


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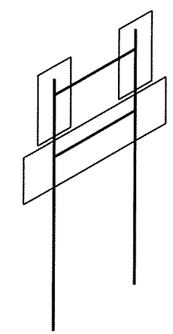

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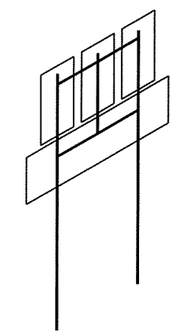

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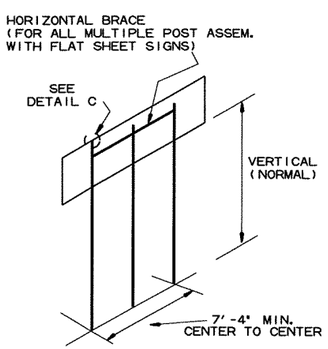
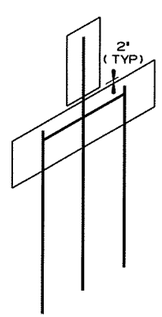
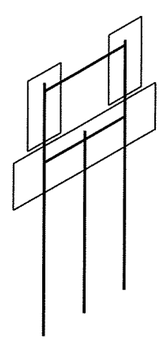


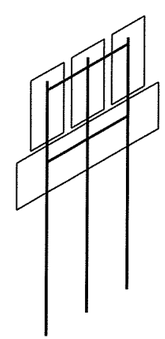

U3-1



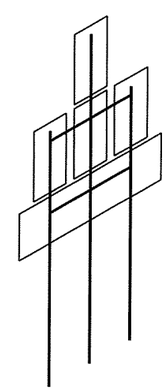

U3-2



U3-3



U3-4



U3-5

NOTES:

SIGNS AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.

SPLICES NECESSARY TO ATTAIN PROPER MOUNTING HEIGHT SHALL BE AS SHOWN IN THE U-CHANNEL POST ASSEMBLY DETAILS.

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

ALL SIGN POSTS SHALL BE PLUMB.

THE POST FOR "TYPE U" SUPPORTS SHALL BE HOT DIP GALVANIZED.

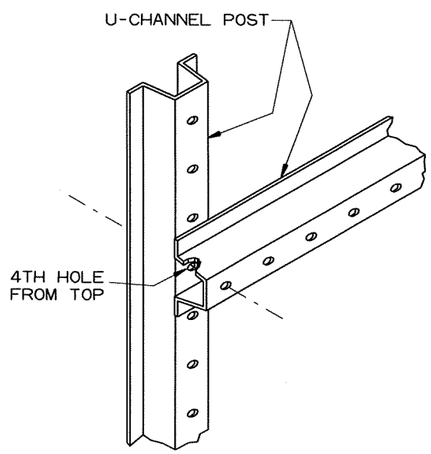
THE POSTS SHALL BE A FLANGED CHANNEL SECTION WEIGHING NOT LESS THAN 3.00 POUNDS PER FOOT (4.46 KG/M).

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
10/1/2
TONY SULLIVAN

U-CHANNEL POST ASSEMBLIES

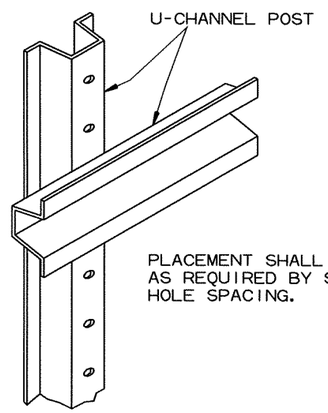
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 140 | 219 |

(2) U-CHANNEL POST ASSEMBLY DETAILS



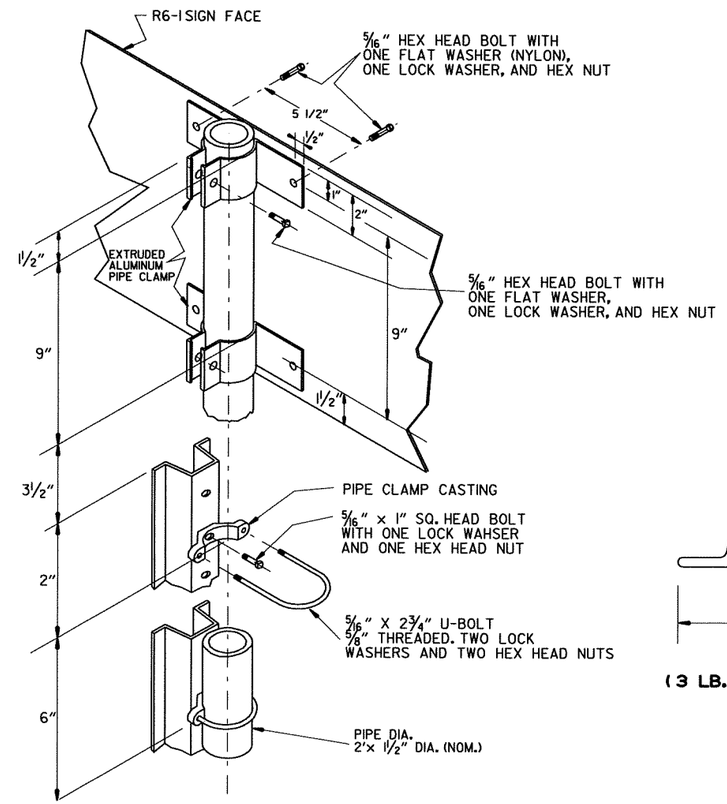

**DETAIL A**

SHOWING HORIZONTAL BRACE

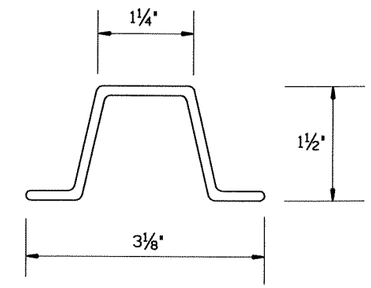



**DETAIL B**

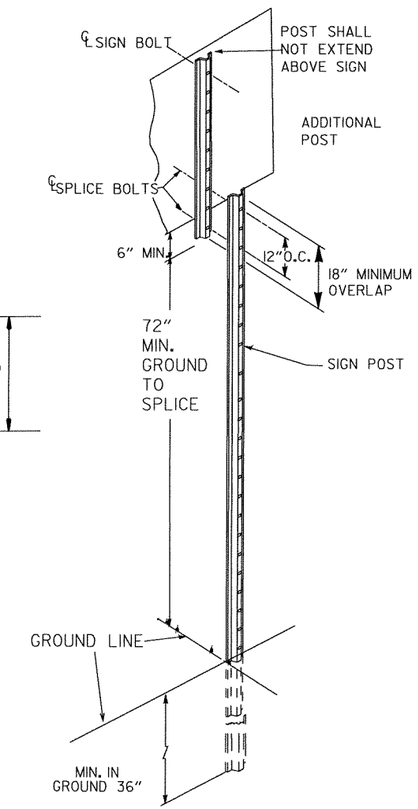
SHOWING BACK-TO-BACK INSTALLATION



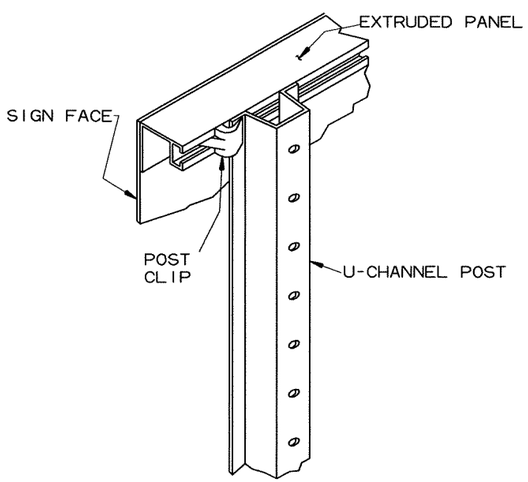

**R6-1 EXTENSION FOR U-CHANNEL POST**




**(3 LB. U-CHANNEL POST)**

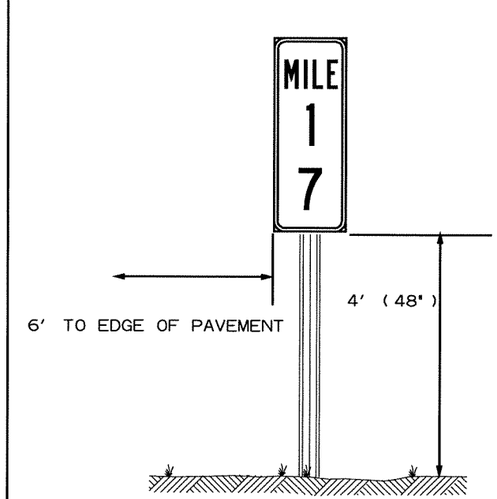



**DETAIL OF SPLICES**

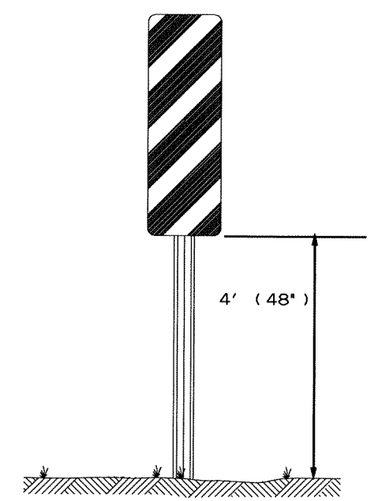



**DETAIL C**

SHOWING GUIDE SIGN MOUNTING WITH EXTRUDED PANELS




TYPICAL MILE MARKER INSTALLATION




TYPICAL OM-3 INSTALLATION AT EDGE OF OBSTRUCTION

NOTES:

USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES.

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.

THREE TWO-POUND POSTS WITHIN SEVEN FEET SHALL REQUIRE A GROUND SPLICE.

ALL SIGN POSTS SHALL BE PLUMB.

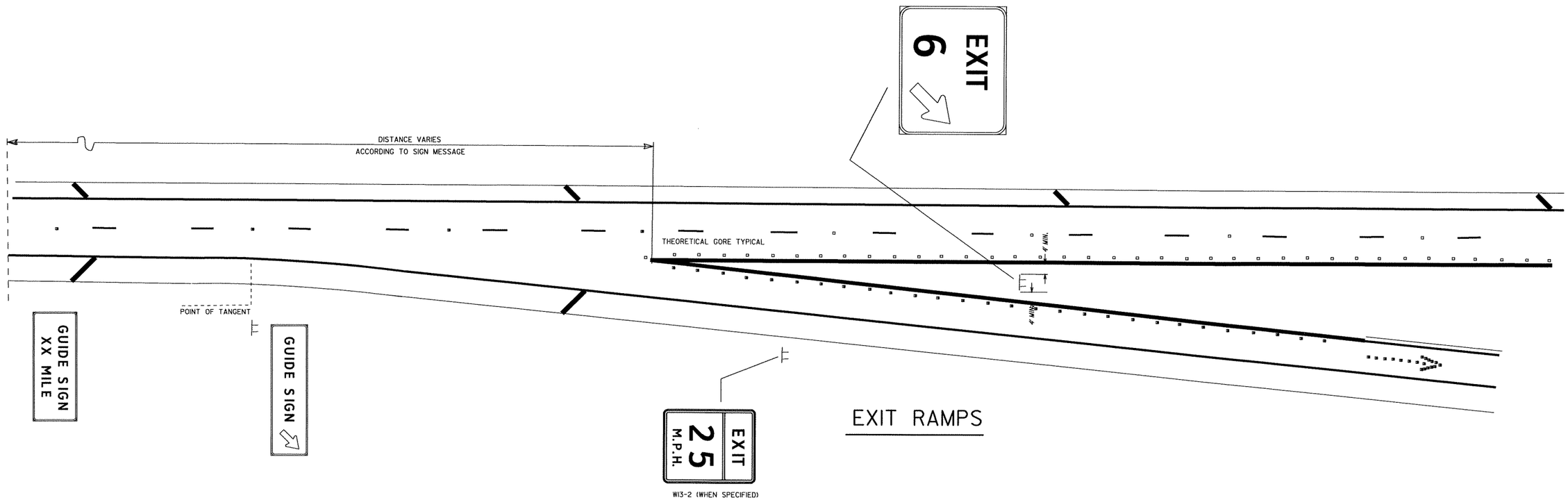
THE POSTS FOR "TYPE U" SUPPORTS SHALL BE HOT DIP GALVANIZED.

STATE OF ARKANSAS ★★★ REGISTERED PROFESSIONAL ENGINEER ★★★ No. 5851 10/1/13 TONY SULLIVAN

U-CHANNEL POST ASSEMBLY 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. | | BB0614 | 141 | 219 |

(2) DETAIL OF SIGN PLACEMENT

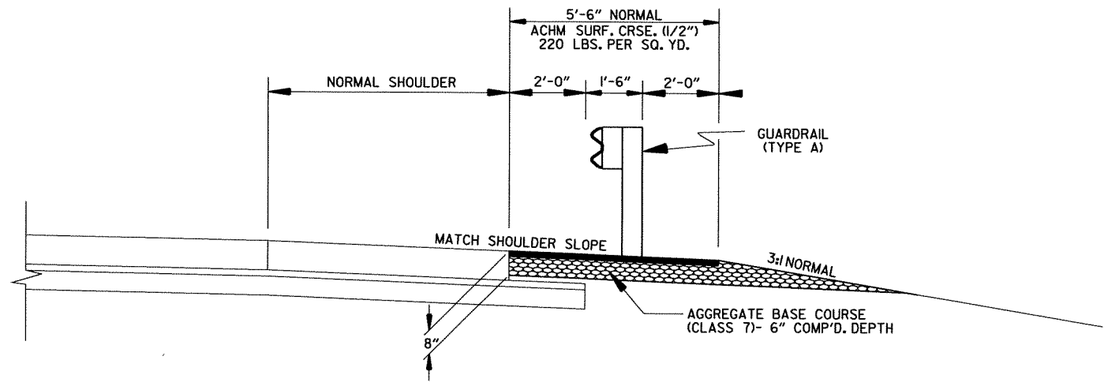



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
10/1/13
L. TONY SULLIVAN

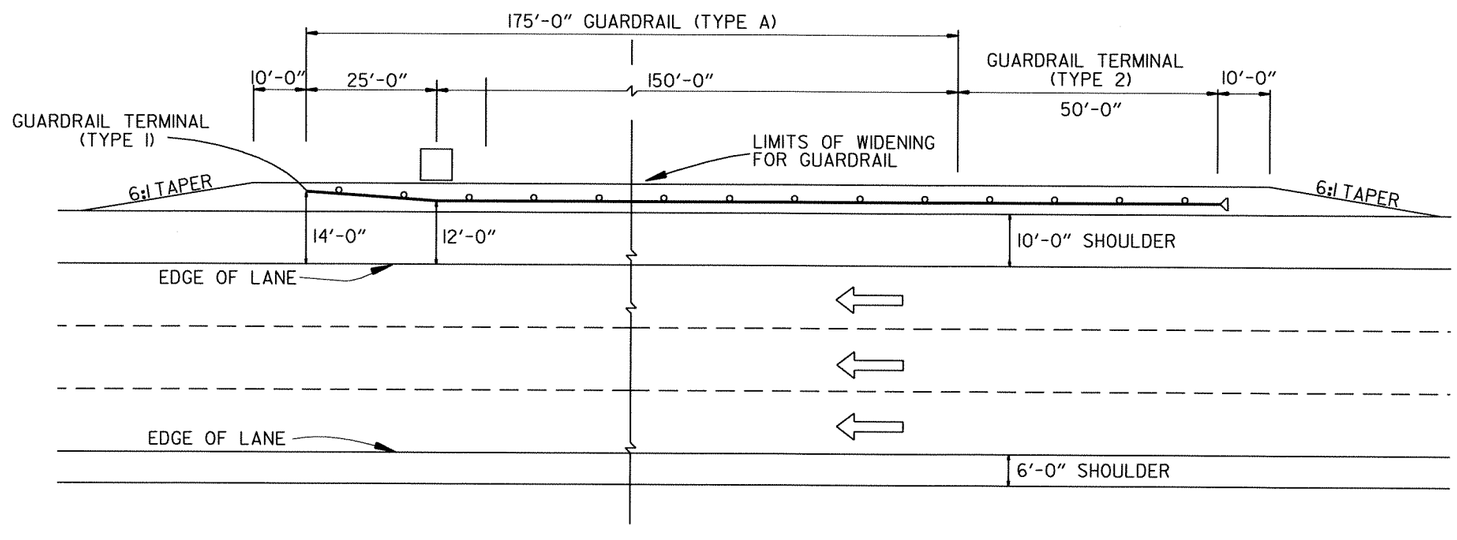
DETAIL OF SIGN PLACEMENT

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 142 | 219 |

(2) TYPICAL GUARDRAIL WIDENING (SIGN)




TYPICAL SECTION OF WIDENING FOR GUARDRAIL




TYPICAL LAYOUT OF GUARDRAIL ALONG ROADWAY

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5851
10/1/12
ANTONY SULLIVAN

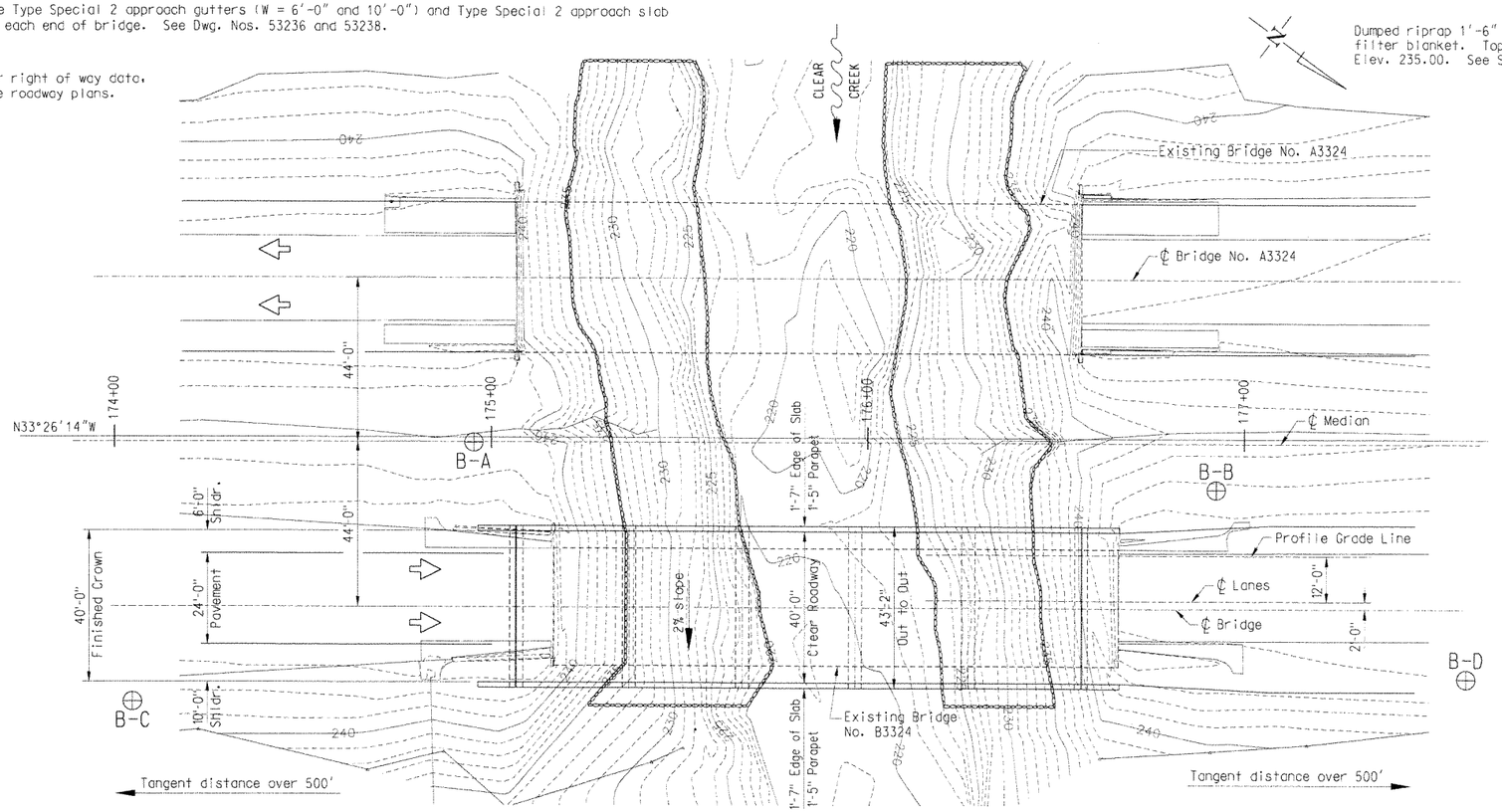
TYPICAL GUARDRAIL WIDENING (SIGN)

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 143 | 219 |
| | | | | B7266 | | LAYOUT | | 53225 |

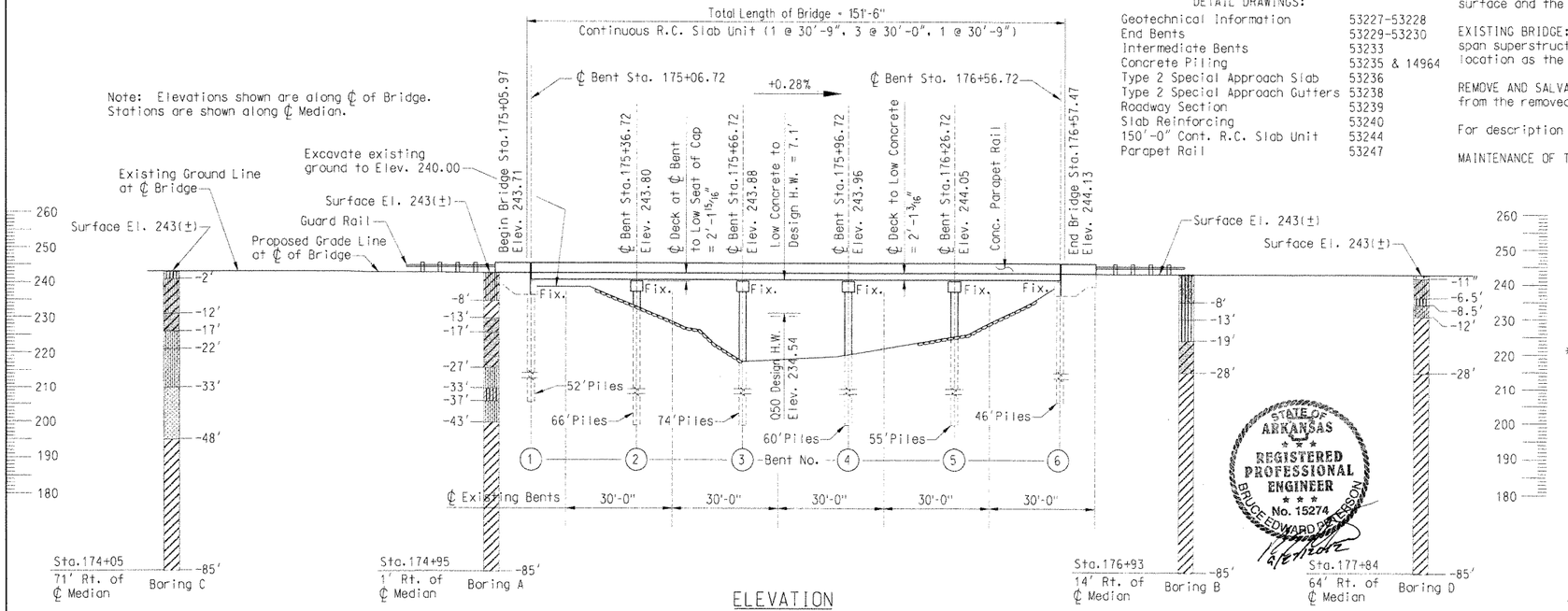
Use Type Special 2 approach gutters (W = 6'-0" and 10'-0") and Type Special 2 approach slab at each end of bridge. See Dwg. Nos. 53236 and 53238.

For right of way data, see roadway plans.

Dumped riprap 1'-6" thick placed on filter blanket. Top of riprap at Elev. 235.00. See Std. Dwg. No. 1891F.




PLAN




ELEVATION

DETAIL DRAWINGS:

| | |
|---|---|
| Geotechnical Information | 53227-53228 |
| End Bents | 53229-53230 |
| Intermediate Bents | 53233 |
| Concrete Piling | 53235 & 14964 |
| Type 2 Special Approach Slab | 53236 |
| Type 2 Special Approach Gutters | 53238 |
| Roadway Section | 53239 |
| Slab Reinforcing | 53240 |
| 150'-0" Cont. R.C. Slab Unit | 53244 |
| Parapet Rail | 53247 |

## GENERAL NOTES:

BENCH MARK: AHTD Control Point 5-2" aluminum cap on 5/8" rebar 4.21' Lt., Sta. 176+60.7, Elevation 240.52.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications 6th Edition (2012).

LIVE LOADING: HL 93 SEISMIC ZONE: 2

MATERIALS AND STRENGTHS:

Class S Concrete (substructure) f'c = 3,500 psi
Class S(AE) Concrete (superstructure) f'c = 4,000 psi
Reinforcing Steel (AASHTO M31 or M53, Gr. 60) fy = 60,000 psi

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

CONCRETE PILING: Piles for Bents 2-5 shall be 24" square precast prestressed concrete and shall be driven to a minimum ultimate bearing capacity of 117 tons per pile. Piles for Bents 1 and 6 shall be 18" square precast prestressed concrete and shall be driven to a minimum ultimate bearing capacity of 70 tons per pile. All piles shall be driven to a tip elevation of 206.0 or lower. All piling shall be driven with an approved air, steam, or diesel hammer. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are assumed for estimating quantities only. Actual lengths to be determined in the field. Drive one 79' test pile in Bent No. 3, and one 57'test pile in Bent No. 1.

The new bridge is positioned to avoid interference with the existing piling. The Contractor shall verify measurements before driving any piling. Any adjustments necessary to fit the new bridge to the existing conditions shall be submitted to the Engineer for approval.

PREBORING: Preboring is required in Bents 1 and 6 to a depth of 10' below bottom of cap. Prebored holes shall be 6" greater than the pile and shall be backfilled with sand or pea gravel after piles have been driven. The Contractor shall be responsible for keeping prebored holes free of debris prior to backfilling which may require the use of temporary casings or other methods. The required preboring will be paid for at the unit price bid for the pay item "Preboring". The method used to keep the prebored hole free from debris will not be paid for directly but will be considered subsidiary to the pay item "Preboring".

Preboring or other methods approved by the Engineer may be required in Bents 1-6 to achieve minimum penetration requirements. The Contractor shall be responsible for keeping prebored holes free of debris which may require the use of temporary casings or other methods. Preboring in Bents 2-5, preboring below the required preboring in Bents 1 and 6, and the method used to keep the prebored hole free from debris will not be paid for directly but will be considered subsidiary to the item "Concrete Piling (24" Sq.) and "Concrete Piling (18" Sq.)".

DRIVING SYSTEM: The driving system approval and ultimate bearing capacity determination for piling shall be based on the requirements of subsection 805.09(b) "Method B - Wave Equation Analysis (WEAP)". It is estimated that a minimum rated hammer energy of 27,000 foot pounds per blow for the end bents and 40,000 foot pounds per blow for the intermediate bents will be required to obtain the ultimate bearing capacity.

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

CLASS I PROTECTIVE SURFACE TREATMENT: Class I Protective Surface Treatment shall be applied to the roadway surface and the face and top of parapet rail.

EXISTING BRIDGE: Existing Bridge B3324 is 33'-6" wide and 150' long and consists of reinforced concrete slab span superstructures and precast concrete pile substructures. Existing Bridge B3324 is located at the same location as the proposed bridge.

REMOVE AND SALVAGE: Existing Bridge B3324 shall be removed in accordance with Section 205. All materials from the removed bridge shall become the property of the Contractor. Existing Bridge A3324 is to remain.

For description of boring material, see sheets 53227 - 53228.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

## HYDRAULIC DATA

| FLOOD DESCRIPTION | FREQUENCY | DISCHARGE | *NATURAL WATER SURFACE ELEV. | WATER SURFACE ELEV. WITH BACKWATER |
|---|---|---|---|---|
| | YEARS | CFS | FEET | FEET |
| DESIGN | 50 | 5,968 | 232.94 | 234.54 |
| BASE | 100 | 7,006 | 233.60 | 235.27 |
| EXTREME | 500 | 9,623 | 235.16 | 237.02 |
| OVERTOPPING | >500 | - | - | - |

* Unconstricted Water Surface without Structure or Roadway Approaches.
Drainage Area = 28.6 Square Miles.
Historical H.W. Elev. = 233.0 Ft.
Proposed low bridge chord elevation = 241.61 Ft.
Exist. 100 Yr. Elev. = 235.26 Ft.

CERTIFICATE OF AUTHORIZATION MODJESKI AND MASTERS, INC. No. 2337 ARKANSAS

CERTIFICATE OF AUTHORIZATION H. JAMES ENGSTROM & ASSOC., INC. No. 164 ARKANSAS ENGINEER

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15274 BRUCE EDWARD PETERSON

BRIDGE ENGINEER

LAYOUT OF BRIDGE OVER CLEAR CREEK
BINGHAM RD. - GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE 530 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Engstrom / Modjeski and Masters

DRAWN BY: PMR DATE: 9-25-12
CHECKED BY: SPC DATE: 9-25-12
DESIGNED BY: SPC DATE: 9-25-12
FILENAME: BBB0614B2_L1.DGN
SCALE: 1" = 20'-0"

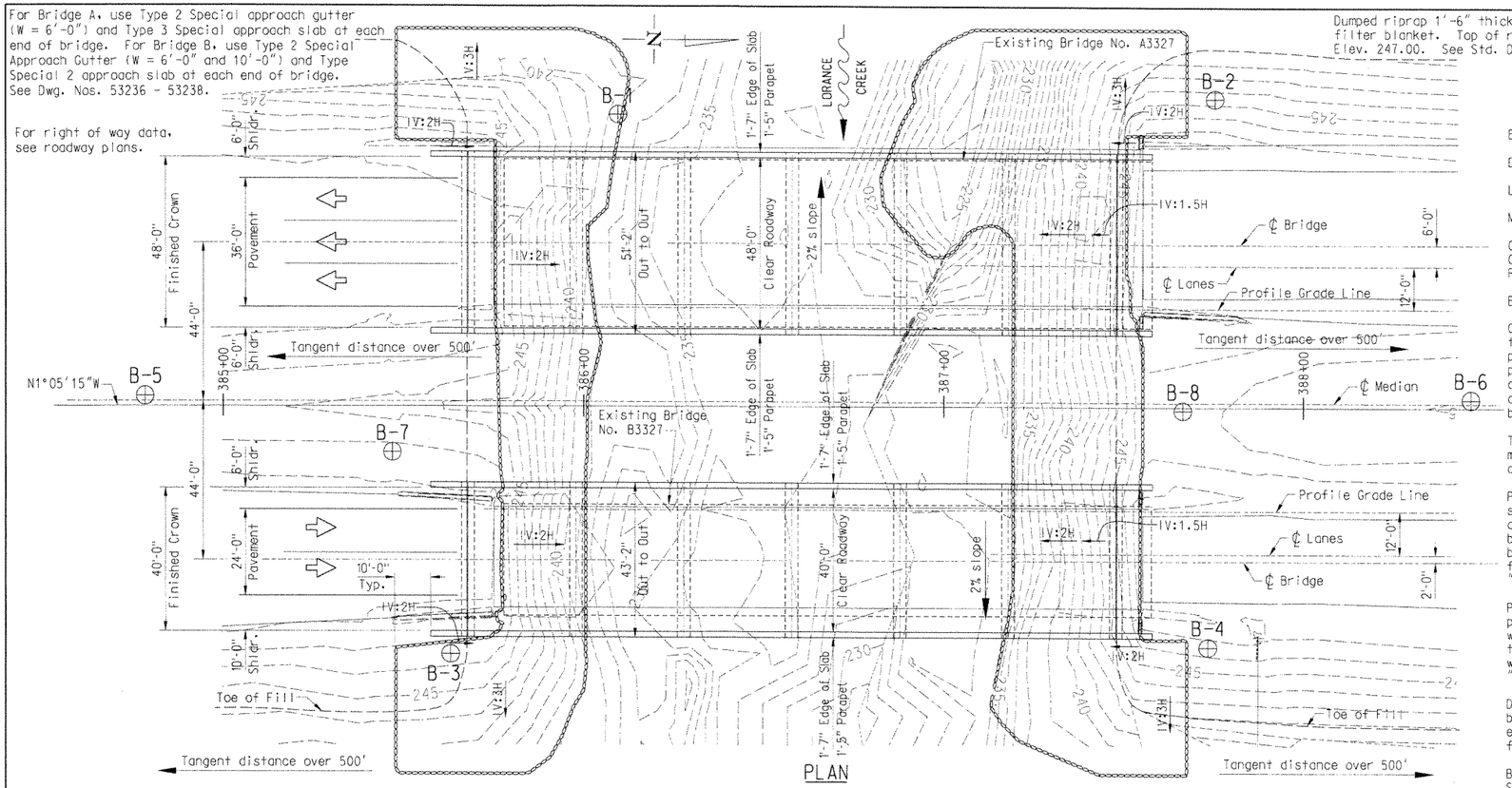
BRIDGE NO. B7266 DRAWING NO. 53225

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 149 | 219 |
| | | | | A7267 & B7267 | | LAYOUT | | 53226 |

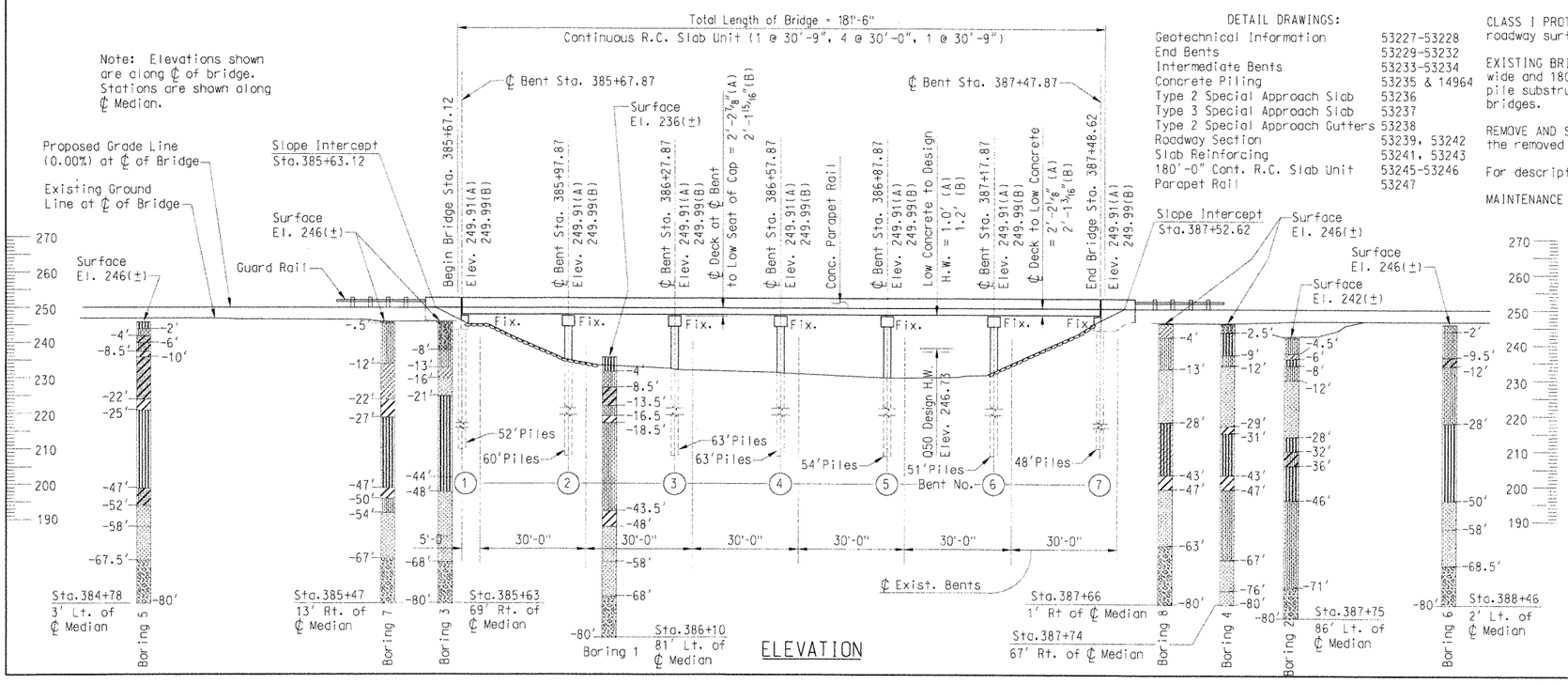
For Bridge A, use Type 2 Special approach gutter (W = 6'-0") and Type 3 Special approach slab at each end of bridge. For Bridge B, use Type 2 Special Approach Gutter (W = 6'-0" and 10'-0") and Type Special 2 approach slab at each end of bridge. See Dwg. Nos. 53236 - 53238.

For right of way data, see roadway plans.

Dumped riprap 1'-6" thick placed on filter blanket. Top of riprap at Elev. 247.00. See Std. Dwg. No. 1891F.




PLAN




ELEVATION

DETAIL DRAWINGS:

| | |
|---|---|
| Geotechnical Information | 53227-53228 |
| End Bents | 53229-53232 |
| Intermediate Bents | 53233-53234 |
| Concrete Piling | 53235 & 14964 |
| Type 2 Special Approach Slab | 53236 |
| Type 3 Special Approach Slab | 53237 |
| Type 2 Special Approach Gutters | 53238 |
| Roadway Section | 53239, 53242 |
| Slab Reinforcing | 53241, 53243 |
| 180'-0" Cont. R.C. Slab Unit | 53245-53246 |
| Parapet Rail | 53247 |

## GENERAL NOTES:

BENCH MARK: AHTD Control Point 3-2" aluminum cap on 5/8" rebar 13.7' Lt., Sta. 381+24.3, Elevation 251.97.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications 6th Edition (2012).

LIVE LOADING: HL 93 SEISMIC ZONE: 2

MATERIALS AND STRENGTHS:

| | |
|---|---|
| Class S Concrete (substructure) | f'c = 3,500 psi |
| Class S(AE) Concrete (superstructure) | f'c = 4,000 psi |
| Reinforcing Steel (AASHTO M31 or M53, Gr. 60) | fy = 60,000 psi |

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

CONCRETE PILING: Piles for Bents 2-6 shall be 24" square precast prestressed concrete and shall be driven to a minimum ultimate bearing capacity of 117 tons per pile. Piles for Bents 1 and 7 shall be 18" square precast prestressed concrete and shall be driven to a minimum ultimate bearing capacity of 70 tons per pile. All piles shall be driven to a tip elevation of 206.0 or lower. All piling shall be driven with an approved air, steam, or diesel hammer. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are assumed for estimating quantities only. Actual lengths to be determined in the field. Drive one 68' test pile in Bent No. 3, and one 57' test pile in Bent No. 1.

The new bridge is positioned to avoid interference with the existing piling. The Contractor shall verify measurements before driving any piling. Any adjustments necessary to fit the new bridge to the existing conditions shall be submitted to the Engineer for approval.

PREBORING: Preboring is required in Bents 1 and 7 to a depth of 10' below bottom of cap. Prebored holes shall be 6" greater than the pile and shall be backfilled with sand or pea gravel after piles have been driven. The Contractor shall be responsible for keeping prebored holes free of debris prior to backfilling which may require the use of temporary casings or other methods. The required preboring will be paid for at the unit price bid for the pay item "Preboring". The method used to keep the prebored hole free from debris will not be paid for directly but will be considered subsidiary to the pay item "Preboring".

Preboring or other methods approved by the Engineer may be required in Bents 1-7 to achieve minimum penetration requirements. The Contractor shall be responsible for keeping prebored holes free of debris which may require the use of temporary casings or other methods. Preboring in Bents 2-6, preboring below the required preboring in Bents 1 and 7, and the method used to keep the prebored hole free from debris will not be paid for directly but will be considered subsidiary to the item "Concrete Piling (24" Sq.) and "Concrete Piling (18" Sq.)".

DRIVING SYSTEM: The driving system approval and ultimate bearing capacity determination for piling shall be based on the requirements of subsection 805.09(b) "Method B - Wave Equation Analysis (WEAP)". It is estimated that a minimum rated hammer energy of 27,000 foot pounds per blow for the end bents and 40,000 foot pounds per blow for the intermediate bents will be required to obtain the ultimate bearing capacity.

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

CLASS I PROTECTIVE SURFACE TREATMENT: Class I Protective Surface Treatment shall be applied to the roadway surface and the face and top of parapet rail.

EXISTING BRIDGES: Existing Bridge A3327 is 46'-8" wide and 180' long. Existing Bridge B3327 is 33'-6" wide and 180' long. Both consist of reinforced concrete slab span superstructures and precast concrete pile substructures. Existing Bridges A3327 and B3327 are located at the same location as the proposed bridges.

REMOVE AND SALVAGE: Existing bridges shall be removed in accordance with Section 205. All materials from the removed existing bridges shall become the property of the Contractor.

For description of boring material, see sheets 53227 - 53228.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

## HYDRAULIC DATA

| FLOOD DESCRIPTION | FREQUENCY | DISCHARGE | *NATURAL WATER SURFACE ELEV. | WATER SURFACE ELEV. WITH BACKWATER |
|---|---|---|---|---|
| | YEARS | CFS | FEET | FEET |
| DESIGN | 50 | 11000 | 246.25 | 246.73 |
| BASE | 100 | 12400 | 246.45 | 246.98 |
| EXTREME | 500 | 14500 | 246.73 | 247.06 |
| OVERTOPPING | >500 | - | - | - |

* Unconstricted Water Surface without Structure or Roadway Approaches.
Drainage Area = 31.6 Square Miles.
Historical H.W. Elev. = 242.2 Ft.
Proposed low bridge chord elevation = 247.73 Ft.(A)
247.89 Ft.(B)
Exist.100 Yr. Elev.= 247.93 Ft.

CERTIFICATE OF AUTHORIZATION H. JAMES ENGSTROM & ASSOC., INC. No. 164 ARKANSAS ENGINEER

ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15274 BRUCE EDWARD PETERSON 4/27/2012

CERTIFICATE OF AUTHORIZATION MODJESKI AND MASTERS, INC. No. 2337 ARKANSAS

LAYOUT OF BRIDGES OVER LORANCE CREEK
BINGHAM RD. - GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE 530 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Engstrom / Modjeski and Masters

| | | | |
|---|---|---|---|
| DRAWN BY: PMR | DATE: 9-25-12 | FILENAME: BBB0614B4_L1.DGN | |
| CHECKED BY: SPC | DATE: 9-25-12 | SCALE: 1" = 20'-0" | |
| DESIGNED BY: SPC | DATE: 9-25-12 | | |

BRIDGE ENGINEER

BRIDGE NO. A7267 & B7267 DRAWING NO. 53226

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 145 | 219 |

B7266, A7267, B7267 BOR.LEG'D 53227

# BORING LEGEND

## LORANCE CREEK BRIDGE

### BORING 1

1 Very loose to loose tan fine sandy silt (temporary fill for access)
2 Loose tan and brown silty fine sand w/ organics
3 Very soft reddish tan, tan and light gray fine sandy clay w/ ferrous stains
4 Loose gray silty fine sand w/ occasional clay seams
5 Firm gray clay w/ organic stains
6 Loose gray silty fine sand w/ occasional clay laminations and seams
7 Stiff brown clay w/ organic inclusions
8 Medium dense reddish tan and tan fine sand, slightly silty w/ some clay laminations and seams and ferrous stains
9 Dense to very dense reddish tan fine to medium sand, slightly silty
10 Dense to very dense tan fine to medium sand, slightly silty w/ fine to coarse gravel

### BORING 2

1 Medium dense tan silty fine sand w/ concrete debris (fill)
2 Medium dense dark brown clayey fine sand (fill)
3 Medium dense light gray fine sandy silt, clayey (fill)
4 Medium dense tan and brown silty fine sand (probable fill)
5 Medium dense gray fine sand, slightly silty w/ trace decayed organics
6 Loose to medium dense gray fine sandy silt, slightly clayey
7 Firm to stiff gray silty clay w/ organic inclusions
8 Medium dense gray fine sandy silt w/ occasional clay laminations and seams
9 Dense reddish tan silty fine sand
10 Dense to very dense reddish tan and tan fine to coarse sand w/ some fine to coarse gravel

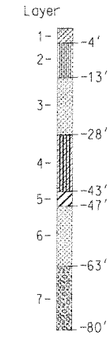
### BORING 3

1 Medium dense tan silty fine sand w/ some crushed stone and surface organics (fill)
2 Medium dense tan and gray silty fine sand w/ numerous decayed organics
3 Medium dense gray clayey fine sand, silty w/ decayed organics and fine sand seams
4 Medium dense gray fine sand, slightly silty w/ interbedded fine sand seams and layers
5 Medium dense gray fine sandy silt, clayey w/ occasional clay laminations and seams and organic inclusions
6 Dense brown fine sandy silt
7 Dense tan and reddish tan fine sand, slightly silty
8 Dense reddish tan and tan fine to coarse sand w/ some fine to coarse gravel

### BORING 4

1 Dense tan silty fine sand w/ crushed stone and surface organics (fill shoulder)
2 Medium dense tan and gray fine sandy silt, clayey (fill)
3 Very soft brown silty fine sand with trace clay and decayed organics
4 Loose gray fine sand, slightly silty w/ some organic inclusions
5 Stiff brown and gray clay w/ interbedded fine sand seams
6 Medium dense gray fine sandy silt w/ occasional clay laminations and seams
7 Stiff gray clay w/ organic inclusions
8 Dense reddish tan silty fine sand w/ occasional clay laminations
9 Dense to very dense reddish tan fine to medium sand, slightly silty w/ a little fine to coarse gravel
10 Dense to very dense tan and gray fine sand

Example




Boring 1

### BORING 5

1 Medium dense brown and tan fine sandy silt w/ organics (fill)
2 Medium dense brown and gray silty fine sand (fill)
3 Firm reddish tan and gray fine sandy clay w/ occasional ferrous nodules and stains (fill)
4 Stiff gray with tan silty clay w/ trace fine sand and ferrous stains (fill)
5 Stiff tan clay w/ fine sand partings and pockets and ferrous stains
6 Very stiff gray fine sandy clay w/ occasional clay laminations
7 Firm gray clay w/ fine sand partings and seams
8 Loose gray silt, slightly sandy w/ interbedded silty clay laminations and seams
9 Stiff gray silty clay w/ fine sand partings and seams and organic inclusions
10 Dense tan fine sand, slightly silty
11 Dense reddish tan fine sand w/ occasional clay laminations and seams
12 Dense reddish tan fine to coarse sand, slightly silty w/ fine to coarse gravel

### BORING 6

1 Medium dense reddish tan and tan silty fine sand w/ ferrous stains and organics (fill)
2 Dense reddish tan and gray silty fine sand, clayey w/ ferrous stains (fill)
3 Firm tan and gray silty clay, sandy
4 Loose gray and brown silty fine sand w/ decayed organics
5 Medium dense gray silt, sandy w/ clay seams and organic inclusions
6 Dense tan fine sand
7 Dense to very dense reddish tan fine to medium sand, slightly silty
8 Dense to very dense reddish tan and tan fine to coarse sand w/ fine to coarse gravel

### BORING 7

1 Loose dark brown fine sandy silt w/ trace organics (fill)
2 Medium dense tan silty fine sand (fill)
3 Loose light gray clayey fine sand
4 Stiff light gray clay w/ occasional silt pockets
5 Loose light gray fine sandy silt, clayey w/ interbedded silty clay seams and layers
6 Very stiff gray and brown clay w/ silt partings
7 Medium dense light gray and tan silty fine sand
8 Dense tan and reddish tan fine to medium sand, slightly silty w/ ferrous stains
9 Dense tan and reddish tan fine to coarse sand w/ fine to coarse gravel and occasional clay seams

### BORING 8

1 Medium dense reddish tan and gray clayey fine sand (fill)
2 Medium dense gray silty fine sand w/ occasional clay pockets and seams (fill)
3 Dense light gray fine sand, slightly silty
4 Soft gray clayey silt w/ clay pockets
5 Firm brown clay
6 Dense to very dense reddish tan fine sand, slightly silty
7 Dense to very dense reddish tan and tan fine to medium sand, slightly silty w/ fine to coarse gravel

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## CLEAR CREEK BRIDGE

### BORING A

1 Firm reddish tan and gray silty clay, sandy (fill)
2 Stiff gray clay
3 Soft gray fine sandy clay, silty
4 Very soft gray fine sandy clay w/ organic inclusions (wood)
5 Medium dense gray silty fine sand
6 Firm gray clayey silt w/ fine sand partings and seams
7 Medium dense gray silty fine sand w/ interbedded clay seams and layers
8 Stiff grayish brown clay w/ organic inclusions

### BORING B

1 Dense brown fine sandy silt w/ crushed stone and organics (fill)
2 Medium dense tan fine sandy silt
3 Medium dense gray silt, sandy
4 Stiff light gray fine sandy clay
5 Stiff grayish brown clay

### BORING C

1 Loose brown fine sandy silt w/ organics (fill)
2 Very stiff reddish tan and gray fine sandy clay and silty clay (fill)
3 Firm reddish tan and gray fine sandy clay, silty w/ organic inclusions
4 Medium dense gray and tan silty fine sand
5 Dense gray silty fine sand
6 Dense to very dense tan fine sand, slightly silty w/ some organic inclusions
7 Very stiff grayish brown clay

### BORING D

1 Crushed stone base w/ silty clay pockets (fill)
2 Medium dense brown fine sandy silt and silty clay w/ occasional organic inclusions (fill)
3 Medium dense brown fine sandy silt
4 Medium dense gray clayey fine sand, silty
5 Very stiff tan and gray clay, slightly sandy w/ ferrous nodules
6 Stiff grayish brown clay w/ silt pockets and occasional organic inclusions

CERTIFICATE OF AUTHORIZATION — H. JAMES ENGSTROM & ASSOC., INC. — No. 164 — ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION — MODJESKI AND MASTERS, INC. — No. 2937 — ARKANSAS

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 15274 — BRUCE EDWARD PETERSON — 9/27/2012

BRIDGE ENGINEER

BORING LEGEND
CLEAR CREEK BRIDGE AND
LORANCE CREEK BRIDGES
BINGHAM RD. - GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE 530 SEC. 1 & 3

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

Engstrom / Modjeski and Masters

DRAWN BY: PMR DATE: 9-25-12
CHECKED BY: SPC DATE: 9-25-12
DESIGNED BY: SPC DATE: 9-25-12

FILENAME: BBB0614M_SB1.DGN
SCALE: 1" = 20'-0"

BRIDGE NO. B7266, A7267 & B7267

DRAWING NO. 53227

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 146 | 219 |

B7266, A7267, B7267 "N" VALUES 53228

# BORING "N" VALUES

## LORANCE CREEK BRIDGE

### Sta. 386+10 - 81' Left of Centerline of Median

4 - 5, N=9
6 - 7, N=5
7.5 - 8.5, tube
10.5 - 11.5, N=7
12.5 - 13.5, tube
14 - 15, N=5
19 - 20, N=6
24 - 25, N=8
29 - 30, N=11
34 - 35, N=23
39 - 40, N=34
44 - 45, N=19
49 - 50, N=18
54 - 55, N=27
59 - 60, N=55
64 - 65, N=50/7"
69 - 70, N=50/8"
74 - 75, N=50/8"
79 - 80, N=50/9"

### Sta. 384+78 - 3' Lt. of Centerline of Median

0.5 - 1.5, N=17
2.5 - 3.5, N=18
4.5 - 5.5, N=7
6.5 - 7.5, N=15
9 - 10, N=18
14 - 15, N=44
19 - 20, N=9
24 - 25, N=9
29 - 30, N=8
34 - 35, N=11
39 - 40, N=19
44 - 45, N=18
49 - 50, N=16
54 - 55, N=40
59 - 60, N=50
64 - 65, N=38
69 - 70, N=43
74 - 75, N=50/9"
79 - 80, N=50

### Sta. 387+75 - 86' Left of Centerline of Median

0.5 - 1.5, N=16
2.5 - 3.5, N=15
4.5 - 5.5, N=10
6.5 - 7.5, N=11
9 - 10, N=12
14 - 15, N=11
19 - 20, N=18
24 - 25, N=18
29 - 30, N=10
34 - 35, N=10
39 - 40, N=14
44 - 45, N=14
49 - 50, N=52
54 - 55, N=50/11"
59 - 60, N=46
64 - 65, N=50/10"
69 - 70, N=50/8"
74 - 75, N=50/8"
79 - 80, N=50/7"

### Sta. 388+46 - 2' Left of Centerline of Median

0.5 - 1.5, N=27
2.5 - 3.5, N=30
4.5 - 5.5, N=32
6.5 - 7.5, N=7
9 - 10, N=9
14 - 15, N=9
19 - 20, N=24
24 - 25, N=26
29 - 30, N=12
34 - 35, N=16
39 - 40, N=6
44 - 45, N=9
49 - 50, N=13
54 - 55, N=50
59 - 60, N=50/9"
64 - 65, N=50/11"
69 - 70, N=50/10"
74 - 75, N=50/8"
79 - 80, N=50/8"

### Sta. 385+63 - 69' Right of Centerline of Median

0.5 - 1.5, N=13
2.5 - 3.5, N=17
4.5 - 5.5, N=8
6.5 - 7.5, N=14
9 - 10, N=13
14 - 15, N=20
19 - 20, N=19
24 - 25, N=1
29 - 30, N=15
34 - 35, N=6
39 - 40, N=8
44 - 45, N=47
49 - 50, N=41
54 - 55, N=50/11"
59 - 60, N=50/11"
64 - 65, N=50/10"
69 - 70, N=49
74 - 75, N=50/7"
79 - 80, N=50/4"

### Sta. 385+47 - 13' Left of Centerline of Median

0.5 - 1.5, N=13
2.5 - 3.5, N=16
4.5 - 5.5, N=18
6.5 - 7.5, N=17
9 - 10, N=13
14 - 15, N=4
19 - 20, tube
24 - 25, N=14
29 - 30, tube
34 - 35, N=4
39 - 40, N=11
44 - 45, N=16
49 - 50, N=30
54 - 55, N=35
59 - 60, N=50/11"
64 - 65, N=50
69 - 70, N=50
74 - 75, N=50/9"
79 - 80, N=50/5"

### Sta. 387+74 - 67' Right of Centerline of Median

0.5 - 1.5, N=50/9"
2.5 - 3.5, N=18
4.5 - 5.5, N=20
6.5 - 7.5, N=25
9 - 10, N=4
14 - 15, N=6
19 - 20, N=12
24 - 25, N=21
29 - 30, N=15
34 - 35, N=21
39 - 40, N=14
44 - 45, N=11
49 - 50, N=34
54 - 55, N=50/6"
59 - 60, N=50/11"
64 - 65, N=50/9"
69 - 70, N=50/9"
74 - 75, N=50/10"
79 - 80, N=50/7"

### Sta. 387+66 - 1' Rt. ofCenterline of Median

0.5 - 1.5, N=18
2.5 - 3.5, N=16
4.5 - 5.5, N=12
6.5 - 7.5, N=13
9 - 10, N=9
14 - 15, N=36
19 - 20, N=21
24 - 25, N=22
29 - 30, N=6
34 - 35, N=3
39 - 40, N=9
44 - 45, N=9
49 - 50, N=50/8"
54 - 55, N=50/10"
59 - 60, N=50/9"
64 - 65, N=50/8"
69 - 70, N=50/10"
74 - 75, N=50/8"
79 - 80, N=50/8"

## CLEAR CREEK BRIDGE

### Sta. 174+95 - 1' Rt. of Centerline of Median

0.5 - 1.5, N=7
2.5 - 3.5, N=11
4.5 - 5.5, N=13
6.5 - 7.5, N=16
9 - 10, N=17
14 - 15, N=4
19 - 20, N=2
24 - 25, N=13
29 - 30, N=11
34 - 35, N=7
39 - 40, N=24
44 - 45, N=20
49 - 50, N=23
54 - 55, N=50
59 - 60, N=45
64 - 65, N=55
69 - 70, N=53
74 - 75, N=49
79 - 80, N=50/10"
84 - 85, N=50/9"

### Sta. 174+05 - 71' Right of Centerline of Median

0.5 - 1.5, N=9
2.5 - 3.5, N=27
4.5 - 5.5, N=23
6.5 - 7.5, N=28
9 - 10, N=31
14 - 15, N=8
19 - 20, N=12
24 - 25, N=30
29 - 30, N=7
34 - 35, N=50/10"
39 - 40, N=50/11"
44 - 45, N=50/11"
49 - 50, N=32
54 - 55, N=29
59 - 60, N=34
64 - 65, N=41
69 - 70, N=39
74 - 75, N=44
79 - 80, N=44
84 - 85, N=50/2"

### Sta. 176+93 - 14' Right of Centerline of Median

0.5 - 1.5, N=30
2.5 - 3.5, N=20
4.5 - 5.5, N=12
6.5 - 7.5, N=17
9 - 10, N=11
14 - 15, N=11
19 - 20, N=17
24 - 25, N=9
29 - 30, N=17
34 - 35, N=32
39 - 40, N=30
44 - 45, N=34
49 - 50, N=33
54 - 55, N=34
59 - 60, N=50/7"
64 - 65, N=41
69 - 70, N=50/6"
74 - 75, N=45
79 - 80, N=38
84 - 85, N=42

### Sta. 177+84 - 64' Right of Centerline of Median

0.5 - 1.5, N=45
2.5 - 3.5, N=22
4.5 - 5.5, N=11
6.5 - 7.5, N=11
9 - 10, N=14
14 - 15, N=30
19 - 20, N=25
24 - 25, N=10
29 - 30, N=15
34 - 35, N=31
39 - 40, tube
44 - 45, N=32
49 - 50, tube
54 - 55, N=30
59 - 60, N=50
64 - 65, N=50
69 - 70, N=50/10"
74 - 75, N=44
79 - 80, N=50
84 - 85, N=50/4"

CERTIFICATE OF AUTHORIZATION — H. JAMES ENGSTROM & ASSOC., INC. No. 164 — ARKANSAS ENGINEER

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STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER No. 15274 — BRUCE LAWRENCE PETERSON — 9/27/2012

BRIDGE ENGINEER

BORING "N" VALUES
CLEAR CREEK BRIDGE AND
LORANCE CREEK BRIDGES
BINGHAM RD. - GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE 530 SEC. 1 & 3

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

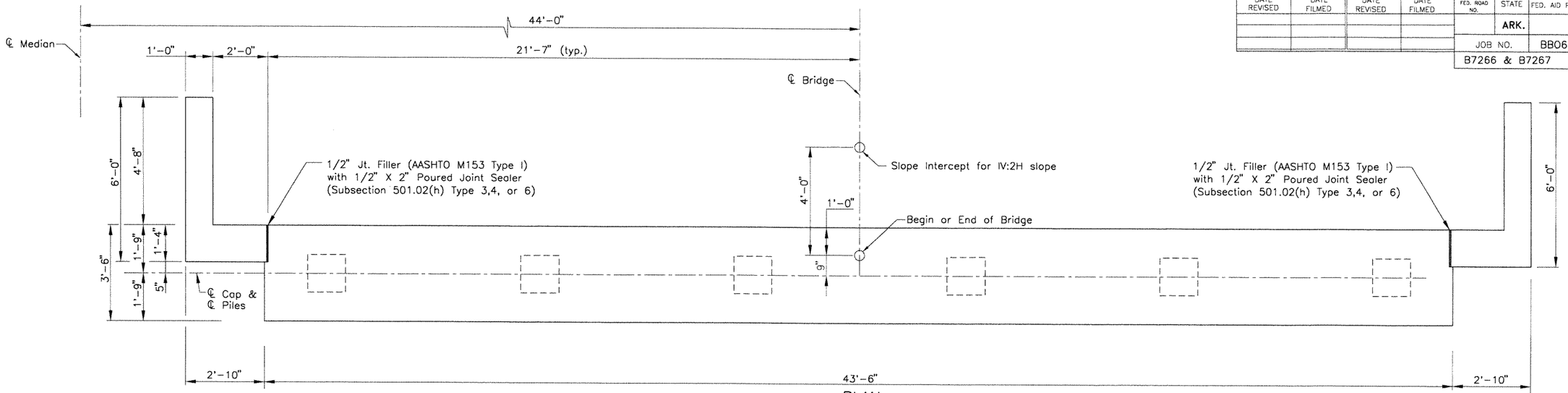
Engstrom / Modjeski and Masters

DRAWN BY: PMR DATE: 9-25-12
CHECKED BY: SPC DATE: 9-25-12
DESIGNED BY: SPC DATE: 9-25-12
FILENAME: BBB0614M_SB2.DGN
SCALE: 1" = 20'-0"

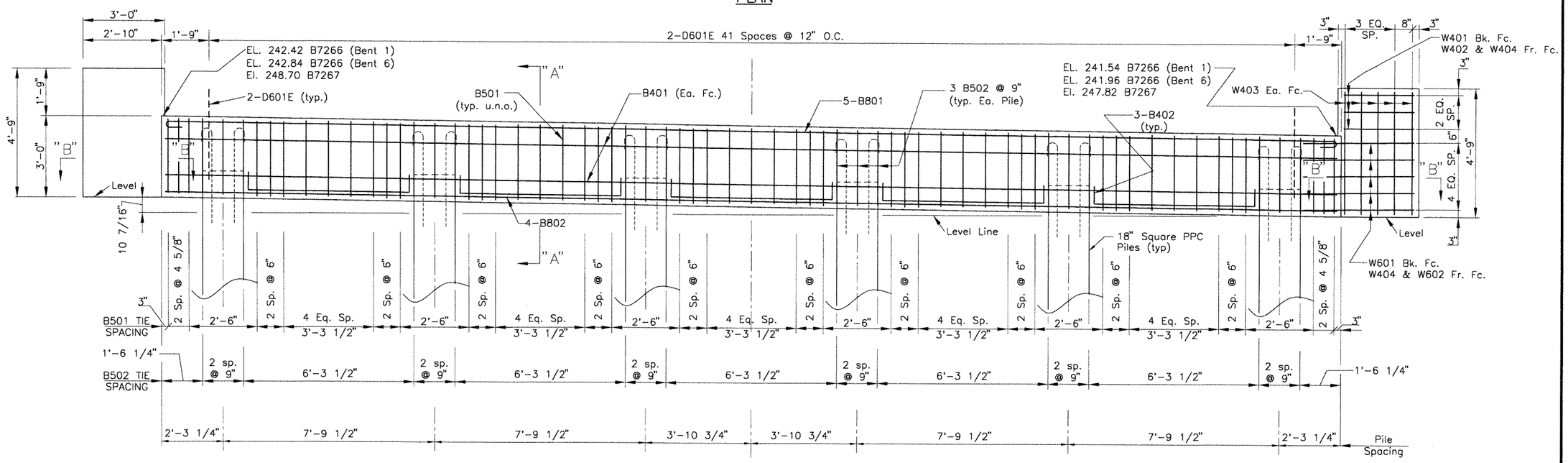
BRIDGE NO. B7266, A7267 & B7267

DRAWING NO. 53228

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 147 | 219 |
| | | | | B7266 & B7267 | INT. BENT | | 53229 | |




PLAN




END BENT ELEVATION

BRIDGE B7266
(BENT 1 - SIMILAR)
(BENT 6 - LOOKING AHEAD)
BRIDGE B7267
(BENT 1 - SIMILAR)
(BENT 7 - LOOKING AHEAD)

FOR SECTIONS SEE DRAWING NO.53230

CERTIFICATE OF AUTHORIZATION — H. JAMES ENGSTROM & ASSOC., INC. — No. 164 — ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION — MODJESKI AND MASTERS, INC. — No. 2337 — ARKANSAS

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 15274 — BRUCE EDWARD PETERSON — 9/27/2012

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF END BENTS
CLEAR CREEK BRIDGE
AND LORANCE CREEK BRIDGE B
BINGHAM ROAD - GRANT CO. LINE (S)
PULASKI COUNTY
ROUTE SEC.

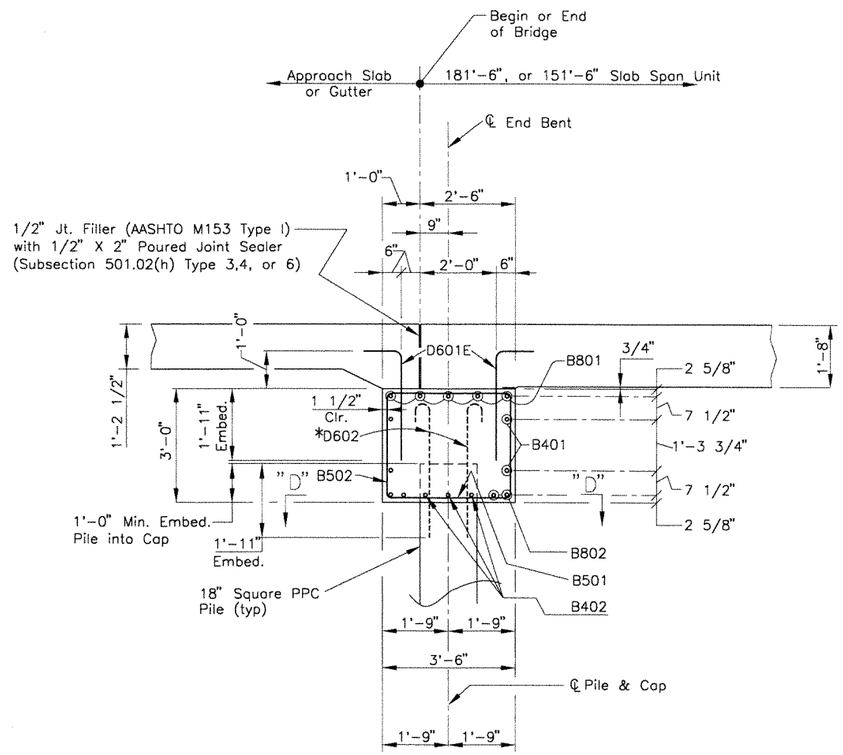
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Engstrom/Modjeski and Masters, Inc.

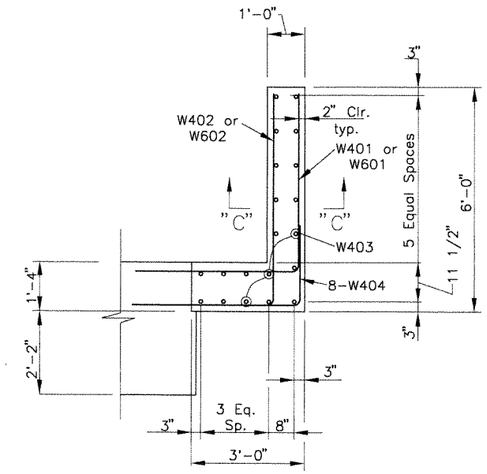
DRAWN BY: DSK DATE: 9-25-12
CHECKED BY: SPC DATE: 9-25-12
DESIGNED BY: ERD/JAM DATE: 9-25-12
FILENAME: BBB0614M_B11.DGN
SCALE: 1/2" = 1'-0"

BRIDGE NO. B7266 & B7267 DRAWING NO. 53229

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 148 | 219 |
| | | | | B7266 & B7267 | | INT. BENT | | 53230 |




Section "A-A"
No Scale

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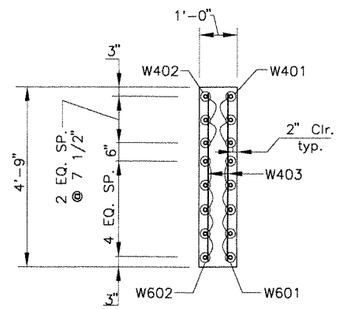


Section "C-C"
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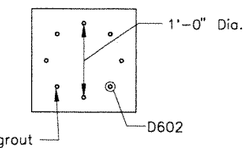


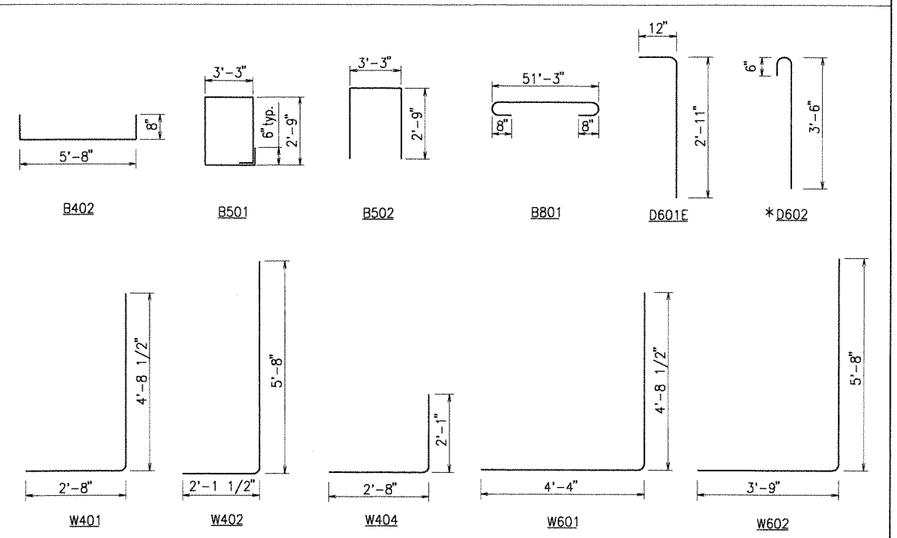

After driving, drill and grout D602 dowels 1'-11" into piles using an approved non-shrink or an epoxy grout listed on the QPL. Diameter of holes and installation procedure shall be as recommended by the grout manufacturer. Dowel bars, drilling and grout shall not be paid for directly but shall be considered subsidiary to the item "Concrete Piling (18" Square)".

Section "D-D"
No Scale

## BAR LIST-PER BENT

| Mark | No. Req'd | Length | P.D. |
|---|---|---|---|
| B501 | 51 | 13'-0" | 2 1/2" |
| B502 | 18 | 8'-5" | 2 1/2" |
| B401 | 4 | 43'-3" | Str. |
| B402 | 15 | 6'-11" | 3 |
| B801 | 5 | 44'-10" | 6" |
| B802 | 4 | 43'-3" | Str. |
| | | | |
| D601E | 84 | 3'-9" | 4 1/2" |
| *D602 | 48 | 4'-2" | 4 1/2" |
| | | | |
| W401 | 6 | 7'-4" | 2 |
| W402 | 6 | 7'-8" | 2 |
| W403 | 40 | 4'-5" | Str. |
| W404 | 16 | 4'-8" | 2 |
| W601 | 10 | 8'-11" | 4 1/2" |
| W602 | 10 | 9'-3" | 4 1/2" |

Bending Diagrams
Dimensions are out to out of bars.




NOTES:

1. All concrete shall be Class "S" with minimum 28-day Compressive Strength, f'c=3,500 psi. All exposed corners to be chamfered 3/4" unless otherwise noted. All concrete shall be poured in the dry.
2. All reinforcing steel shall conform to AASHTO M31 or M53, Gr.60.
3. For additional information, see Layout.
4. Bars with "E" suffix shall be Epoxy Coated and shall be measured and paid for as "Epoxy Coated Reinforcing Steel (Grade 60)".

*Bar D602 is a Non-Pay item and is subsidiary to item "Concrete Piling(18" Square)".

CERTIFICATE OF AUTHORIZATION — H. JAMES ENGSTROM & ASSOC., INC. No. 164 — ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION — MODJESKI AND MASTERS, INC. No. 2397 — ARKANSAS

ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15274 — RICHARD C. PETERSON — 9/27/2012

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF END BENTS
CLEAR CREEK BRIDGE
AND LORANCE CREEK BRIDGE B
BINGHAM RD. - GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Engstrom/Modjeski and Masters, Inc.

DRAWN BY: DSK DATE: 9-25-12
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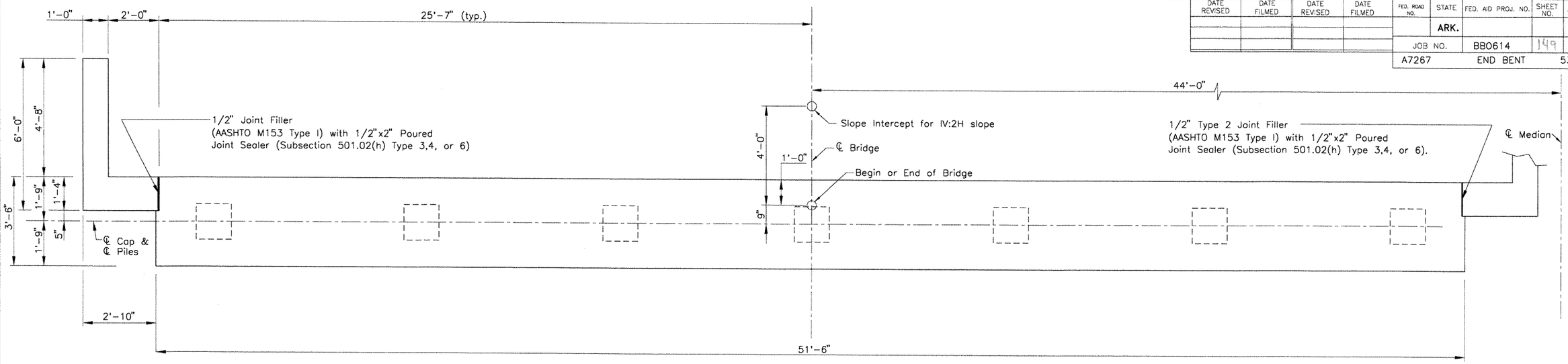
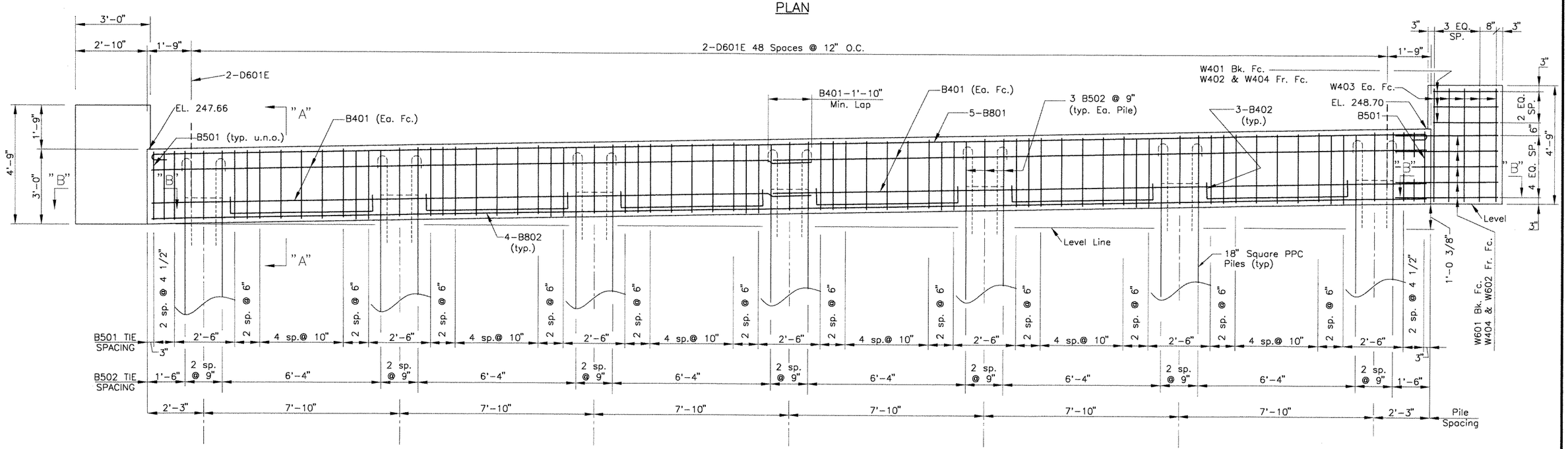
SCALE: 1/2" = 1'-0"

BRIDGE NO. B7266 & B7267 DRAWING NO. 53230

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 149 | 219 |
| | | | | A7267 | | END BENT | | 53231 |




PLAN




END BENT ELEVATION

(Looking Back-Bent No. 1)
(Bent No. 7 - Similar)

FOR SECTIONS SEE DRAWIING NO.53232

SHEET 1 OF 2
DETAILS OF END BENTS
LORANCE CREEK BRIDGE A
BINGHAM RD. - GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Engstrom/Modjeski and Masters, Inc.

CERTIFICATE OF AUTHORIZATION H. JAMES ENGSTROM & ASSOC., INC. No. 164 ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION MODJESKI AND MASTERS, INC. No. 2337 ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15274 BRUCE R. PETERSON 9/27/2012

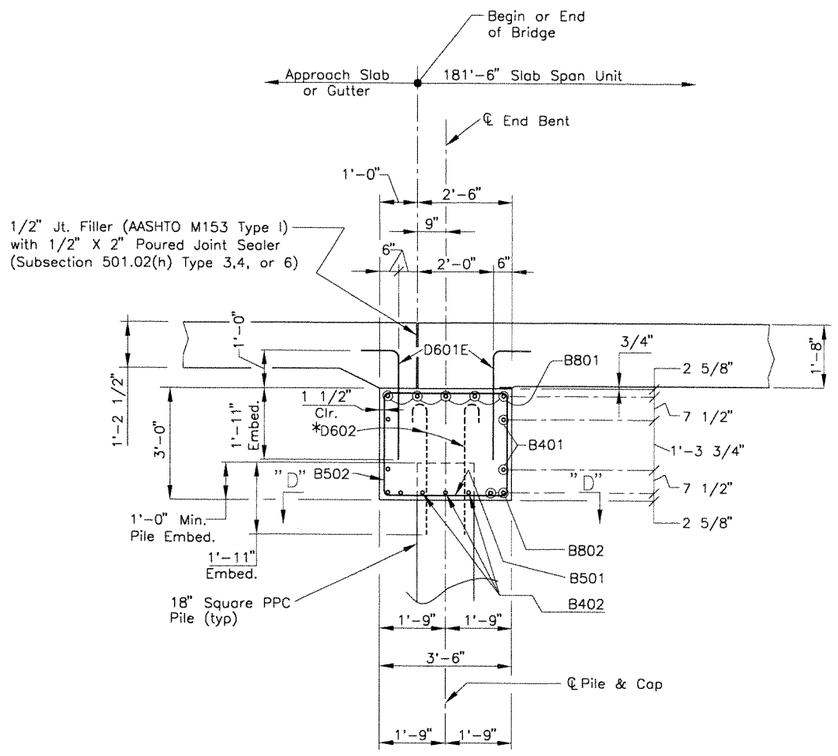
BRIDGE ENGINEER

DRAWN BY: DSK DATE: 9-25-12
CHECKED BY: SPC DATE: 9-25-12
DESIGNED BY: ERD/JAM DATE: 9-25-12

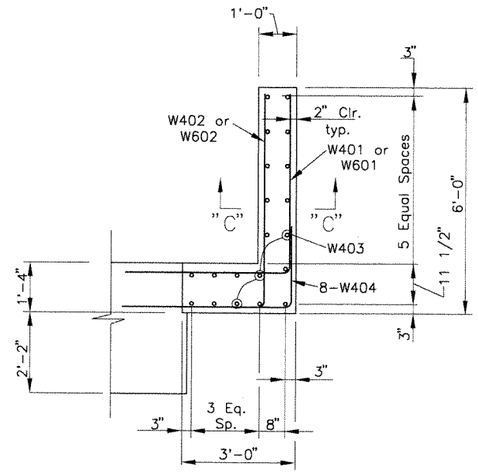
FILENAME: BBB0614A4_B11.DGN
SCALE: 1/2" = 1'-0"

BRIDGE NO. A7267 DRAWING NO. 53231

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 150 | 219 |
| | | | | A7267 | | END BENT | | 53232 |




Section "A-A"
No Scale




Section "B-B"
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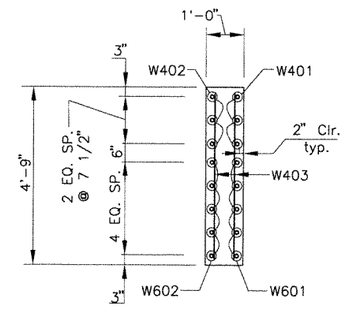
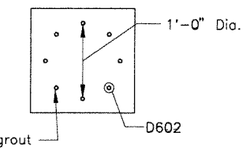



Section "C-C"
No Scale



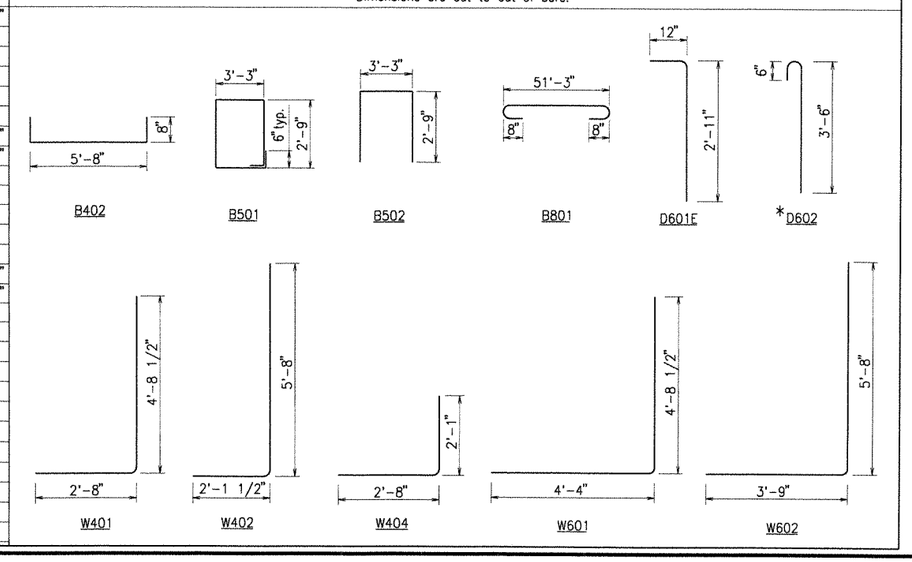

After driving, drill and grout D602 dowels 1'-11" into piles using an approved non-shrink or an epoxy grout listed on the QPL. Diameter of holes and installation procedure shall be as recommended by the grout manufacturer. Dowel bars, drilling and grout shall not be paid for directly but shall be considered subsidiary to the item "Concrete Piling (18" Square)".

Section "D-D"
No Scale

## BAR LIST-PER BENT

| Mark | No. Req'd | Length | P.D. |
|---|---|---|---|
| B501 | 60 | 13'-0" | 2 1/2" |
| B502 | 21 | 8'-5" | 2 1/2" |
| B401 | 8 | 26'-7" | Str. |
| B402 | 18 | 6'-10" | 3 |
| B801 | 5 | 53'-1" | 6" |
| B802 | 4 | 51'-3" | Str. |
| | | | |
| D601E | 98 | 3'-9" | 4 1/2" |
| *D602 | 56 | 4'-2" | 4 1/2" |
| | | | |
| W401 | 6 | 7'-4" | 2 |
| W402 | 6 | 7'-8" | 2 |
| W403 | 40 | 4'-5" | Str. |
| W404 | 16 | 4'-8" | 2 |
| W601 | 10 | 8'-11" | 4 1/2" |
| W602 | 10 | 9'-3" | 4 1/2" |

Bending Diagrams
Dimensions are out to out of bars.




NOTES:
1. All concrete shall be Class "S" with minimum 28-day Compressive Strength, f'c=3,500 psi. All exposed corners to be chamfered 3/4" unless otherwise noted. All concrete shall be poured in the dry.
2. All reinforcing steel shall conform to AASHTO M31 or M53, Gr.60.
3. For additional information, see Layout.
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CERTIFICATE OF AUTHORIZATION — H. JAMES ENGSTROM & ASSOC., INC. No. 164 — ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION — MODJESKI AND MASTERS, INC. No. 2337 — ARKANSAS

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 15274 — ERD PATERSON — 4/27/2012

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF END BENTS
LORANCE CREEK BRIDGE A
BINGHAM RD. - GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Engstrom/Modjeski and Masters, Inc.

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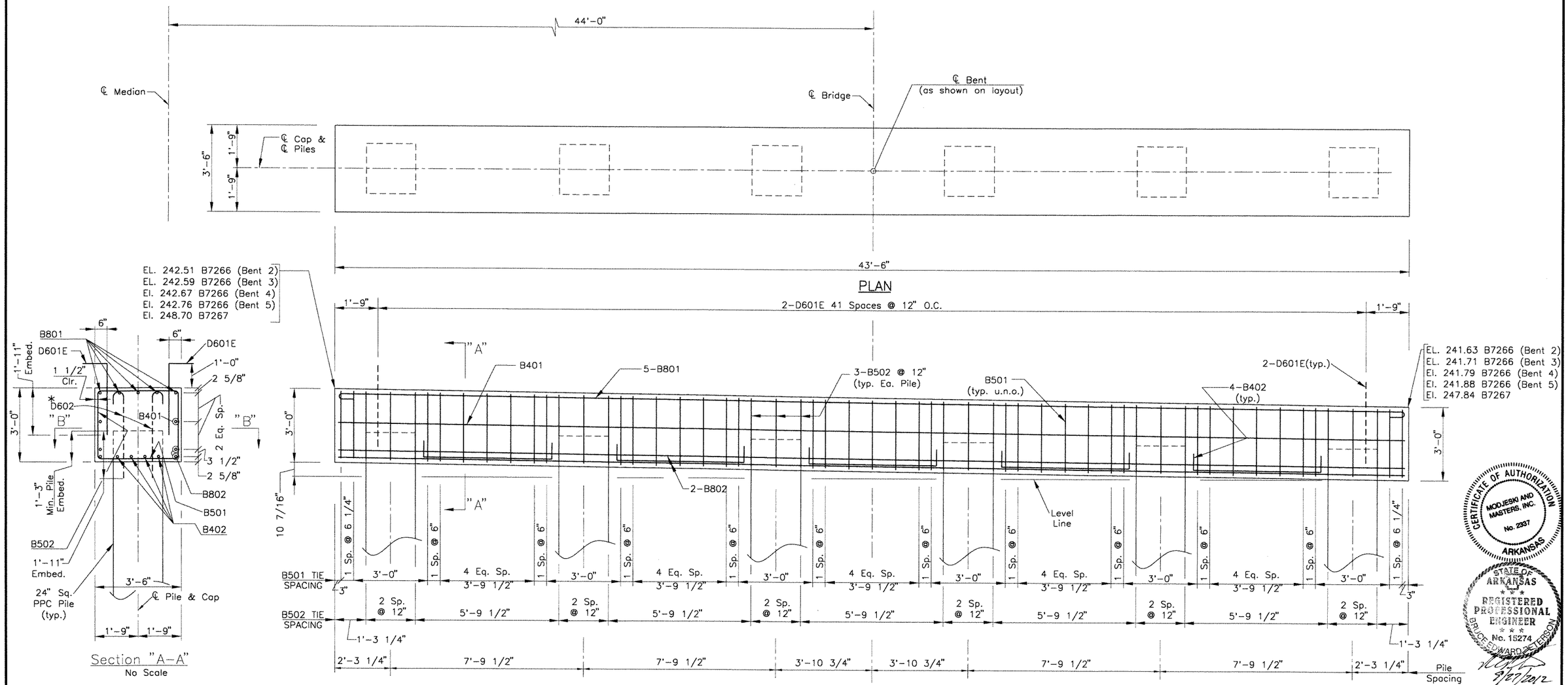
SCALE: 1/2" = 1'-0"

BRIDGE NO. A7267 DRAWING NO. 53232

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 151 | 219 |
| | | | | B7266 & B7267 INT. BENT 53233 | | | | |



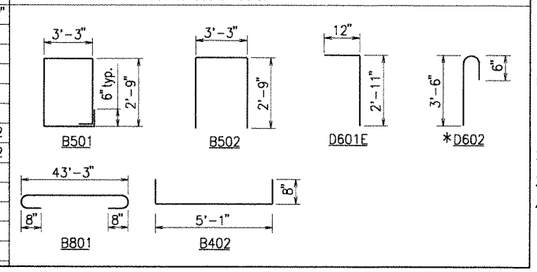

ELEVATION
Bridge B7266 and B7267
(LOOKING AHEAD)

## BAR LIST-PER BENT

| Mark | No. Req'd | Length | P.D. |
|---|---|---|---|
| B501 | 39 | 13'-0" | 2 1/2" |
| B502 | 18 | 8'-5" | 2 1/2" |
| B401 | 2 | 43'-3" | Str. |
| B402 | 20 | 6'-4" | 3 |
| B801 | 5 | 44'-10" | 6" |
| B802 | 4 | 43'-3" | Str. |
| | | | |
| D601E | 84 | 3'-9" | 4 1/2 |
| *D602 | 48 | 4'-2" | 4 1/2 |

Bending Diagrams

Dimensions are out to out of bars.




NOTES:

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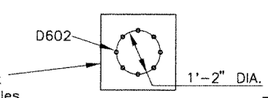


Section "B-B"
No Scale

After driving, drill and grout D602 dowels 1'-11" into piles using an approved non-shrink or an epoxy grout listed on the QPL. Diameter of holes and installation procedure shall be as recommended by the grout manufacturer. Dowel bars, drilling and grout shall not be paid for directly but shall be considered subsidiary to the item "Concrete Piling (24" Square)".

BRIDGE ENGINEER

DETAILS OF INTERMEDIATE BENTS
CLEAR CREEK BRIDGE
AND LORANCE CREEK BRIDGE B

BINGHAM ROAD – GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Engstrom/Modjeski and Masters, Inc.

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FILENAME: BBB0614M_B2.DGN
SCALE: 1/2" = 1'-0"

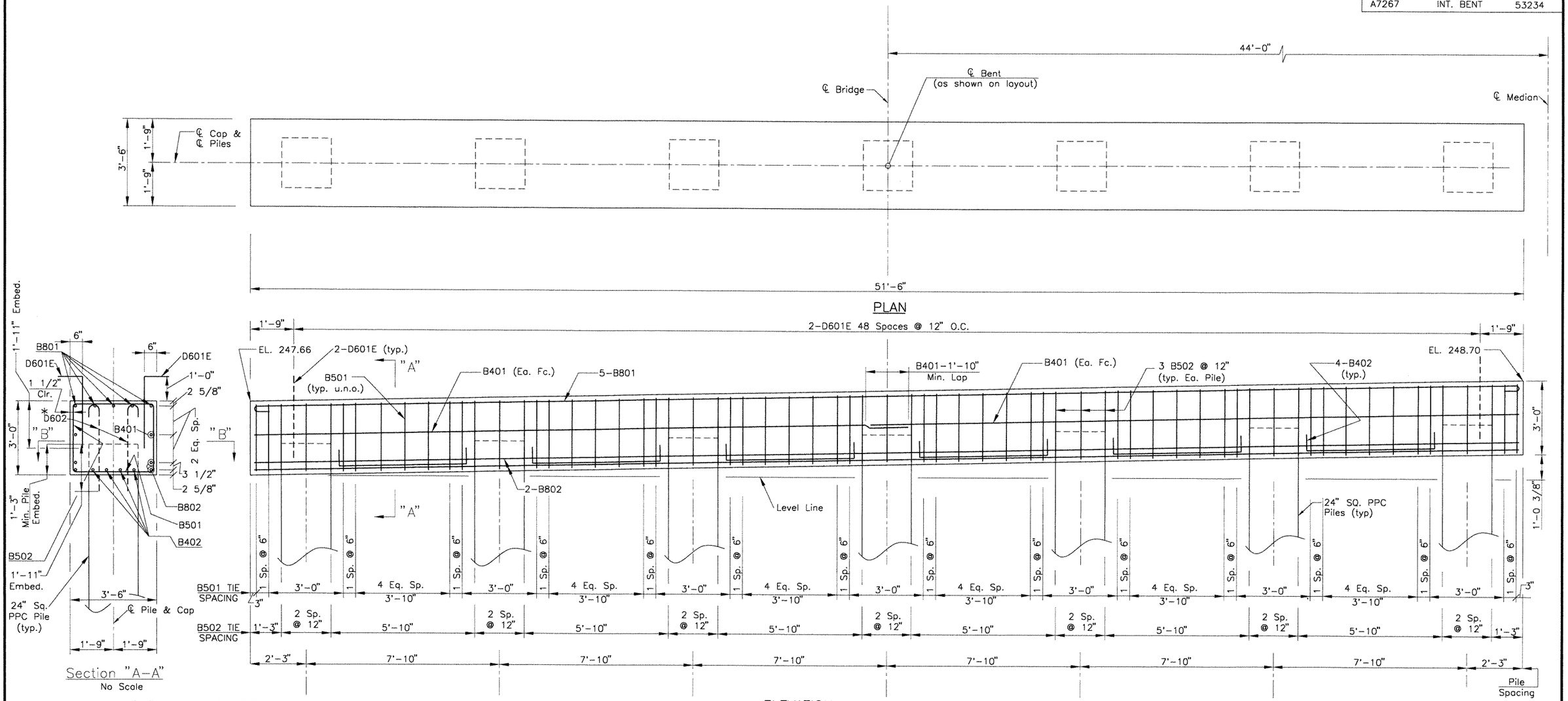
BRIDGE NO. B7266 & B7267 DRAWING NO. 53233

CERTIFICATE OF AUTHORIZATION
MODJESKI AND MASTERS, INC.
No. 2337
ARKANSAS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15274
BRIDGE EDWARD PETERSON
9/27/2012

CERTIFICATE OF AUTHORIZATION
H. JAMES ENGSTROM & ASSOC., INC.
No. 164
ARKANSAS ENGINEER

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 152 | 219 |
| | | | | A7267 | | INT. BENT | 53234 | |



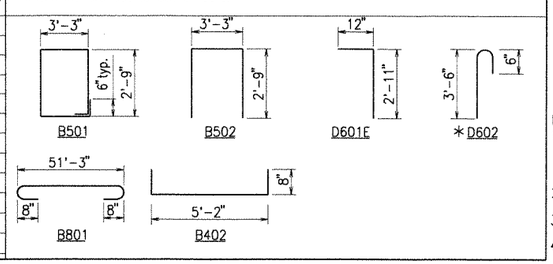

ELEVATION
BRIDGE A7267
(LOOKING AHEAD)

## BAR LIST-PER BENT

| Mark | No. Req'd | Length | P.D. |
|---|---|---|---|
| B501 | 46 | 13'-0" | 2 1/2" |
| B502 | 21 | 8'-5" | 2 1/2" |
| B401 | 4 | 26'-7" | Str. |
| B402 | 24 | 6'-4" | 3 |
| B801 | 5 | 53'-1" | 6" |
| B802 | 4 | 51'-3" | Str. |
| | | | |
| D601E | 98 | 3'-9" | 4 1/2 |
| *D602 | 56 | 4'-2" | 4 1/2 |

Bending Diagrams

Dimensions are out to out of bars.




NOTES:

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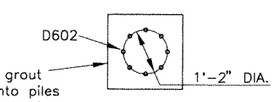
CERTIFICATE OF AUTHORIZATION — MODJESKI AND MASTERS, INC. No. 2337 ARKANSAS

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER No. 15274 — BRUCE EDWARD PETERSON — 9/27/2012

After driving, drill and grout D602 dowels 1'-11" into piles using an approved non-shrink or an epoxy grout listed on the QPL. Diameter of holes and installation procedure shall be as recommended by the grout manufacturer. Dowel bars, drilling and grout shall not be paid for directly but shall be considered subsidiary to the item "Concrete Piling (24" Square)".




Section "B-B"
No Scale

BRIDGE ENGINEER

DETAILS OF INTERMEDIATE BENTS
LORANCE CREEK BRIDGE A
BINGHAM RD. - GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Engstrom/Modjeski and Masters, Inc.

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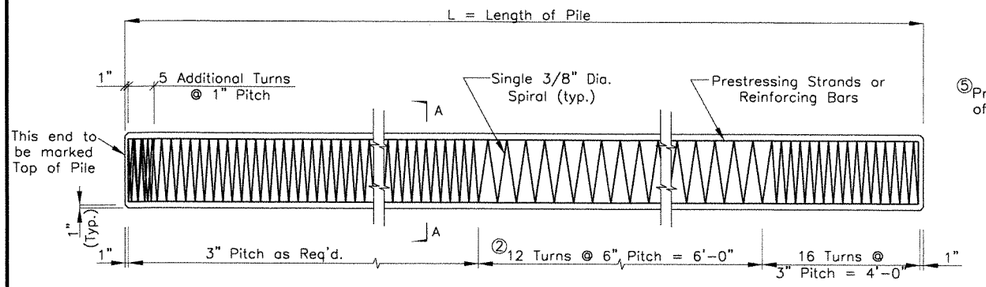
BRIDGE NO. A7627 DRAWING NO. 53234

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 157 | 219 |
| | | | | B7266,A7267&B7267 24" PILES 53235 | | | | |

Spirals terminate with 1 1/2" turns.

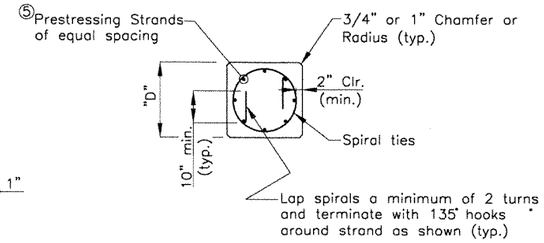
②Omit this section and use 3" pitch throughout for pile lengths of 20'-0" or less.




For anchorage of Pile to Bent, see Bent Details.

## PLAN OF PILE SHOWING SPIRAL TIE SPACING

Strand location shall be symmetrical about the axis of the Pile. Circular spiral ties are required for all Piles.




## SECTION A–A

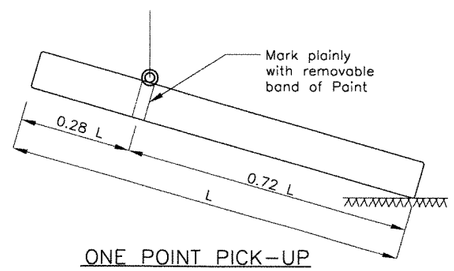
⑤See table "Prestressed Concrete Pile Properties" for actual number of strands per pile size.

Prestressed Concrete Pile Properties

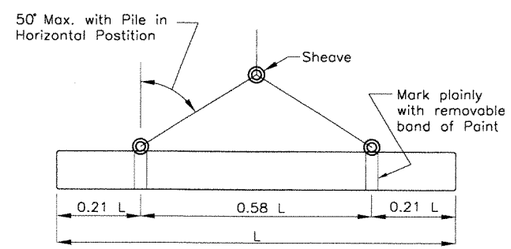
| | Grade | Strand Diameter | ①No. of Strands per Size "D" 24" Sq. | Minimum Ultimate Tensile Strength Per Strand (Lbs.) | Initial Prestressing Force Per Strand (Lbs.) |
|---|---|---|---|---|---|
| Low relaxation | 250 | 7/16" | 24 | 27,000 | 20,300 |
| | | 1/2" | 18 | 36,000 | 27,000 |
| | 270 | 7/16" | 21 | 31,000 | 23,300 |
| | | 1/2" | 16 | 41,300 | 31,000 |

①Number based on initial pre-stress force of "B" x Ultimate Tensile Stress, Prestress Losses and min. 700 psi Unit Prestress on concrete after Losses.

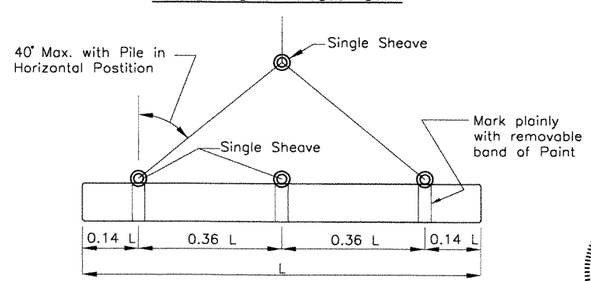
"B" – 0.75 Low Relaxation




## ONE POINT PICK-UP



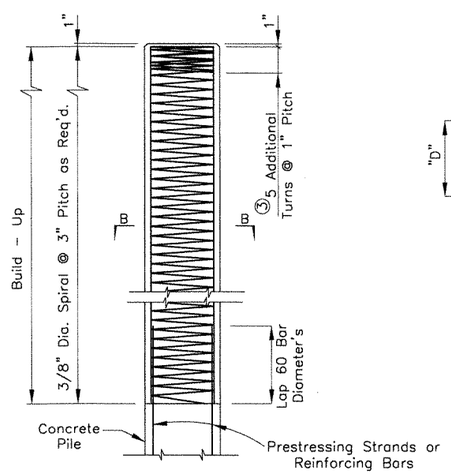

## TWO POINT PICK-UP




## THREE POINT PICK-UP

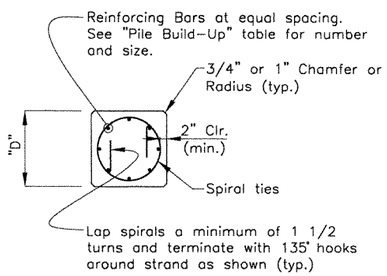
## MAXIMUM PICKUP LENGTHS "L"

| Type of Pick-Up | Prestressed 24" Sq. |
|---|---|
| One Point | 69' |
| Two Point | 104' |
| Three Point | 138' |




## BUILD – UP

③The five additional turns of spiral reinforcing may be omitted for build-up without additional driving.




## SECTION B–B

## BUILD-UP PILE REINFORCING

| Pile Size | No. Req'd. | Bar Size |
|---|---|---|
| 24" Sq. | 12 | #9 |

## PILE BUILD-UP

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 Edition) with applicable Supplemental Specifications and Special Provisions.

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

SEISMIC PERFORMANCE ZONES: 1 & 2

The Contractor shall use prestressed piles only. Piles will be measured and paid for at the contract unit price bid for "Concrete Piling".

CONCRETE: Concrete in prestressed piles shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 5,000 psi at 28 days. Compressive strength at transfer of the prestressing force shall be not less than 4,000 psi. Concrete in build-ups shall have a minimum compressive strength of 4,000 psi and shall be cured for a minimum of 10 days.

COARSE AGGREGATE: Maximum size of coarse aggregate shall be 3/4".

PRESTRESSING REINFORCING: Seven-wire low relaxation strands shall conform to the general requirements of AASHTO M 203. Broken wires within individual strands will be permitted up to 2% of the total number of wires in each pile, providing that there is not more than one broken wire per strand. Two or more broken wires per strand will be cause for replacement of the strand, even though the two broken wires are within the 2% limitation.

SPIRAL REINFORCING: Spiral reinforcing shall be steel wire meeting the requirements of AASHTO M 32 or M 225 or shall be plain round steel bars meeting the requirements of AASHTO M 31 or M 53, Gr. 60.

REINFORCING STEEL: Reinforcing Steel for pile build-up shall conform to AASHTO M 31 or M 53.

MANUFACTURE, TRANSPORTATION AND STORAGE: Shipment of piles from the plant site or pile driving will not be permitted until the required minimum compressive strength is reached, and in no case less than 10 days after pouring the concrete. Prestressed piles may be removed from the casting bed to nearby storage any time after transfer of stress. See Section 802 "Concrete for Structures" of the Standard Specifications for additional information.

Unless otherwise approved by the Engineer, all protruding or exposed pile lifting or transporting devices above the finished ground shall be removed after pile driving is complete. Removal shall be a minimum of 1" below the surface of the pile and the cavity shall be filled with a non-shrink grout listed on the Department's OPL.

FORMS: For forming exterior of piles, the use of steel forms on concrete-founded casting beds is required unless otherwise approved by the Engineer. Side forms may have a maximum drift on each side not exceeding 1/4" per foot.

TOLERANCES: Pile ends shall be plane surfaces perpendicular to the longitudinal axis of pile with a maximum tolerance of 1/8" per foot transversely.

The maximum sweep (deviation from straightness measured from end to end of the pile, while not subject to bending forces) shall not exceed 1/8" in 10 feet.

BUILD-UPS: To provide for build-ups of piles where authorized by the Engineer, concrete shall be cut back to expose the reinforcing steel for a distance sufficient to provide a lap of 60 diameters of the reinforcing bars required for build-up.

INSTALLATION, MEASUREMENT AND PAYMENT: See Section 805 "Piling" of the Standard Specifications.

CERTIFICATE OF AUTHORIZATION H. JAMES ENGSTROM & ASSOC., INC. No. 164 ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION MODJESKI AND MASTERS, INC. No. 2357 ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15274 BRUCE EDWARD PETERSON 9/27/2012

BRIDGE ENGINEER

DETAILS OF 24" SQUARE PRESTRESSED CONCRETE PILES

CLEAR CREEK BRIDGE AND LORANCE CREEK BRIDGES

BINGHAM RD. – GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE 530 SEC. 1 & 3

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

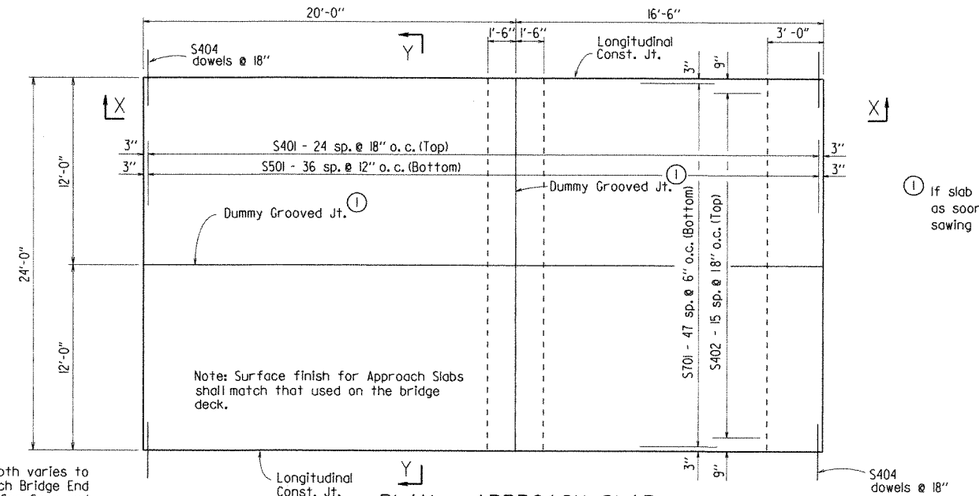
Engstrom/Modjeski and Masters

DRAWN BY: DSK DATE: 9-25-12 FILENAME: BBB0614M_CP.DGN
CHECKED BY: SPC DATE: 9-25-12 SCALE: 1/2"=1'-0"
DESIGNED BY: BEP DATE: 9-25-12

BRIDGE NO. B7266, A7267 & B7267 DRAWING NO. 53235

| 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. | | BB0614 | 154 | 219 |

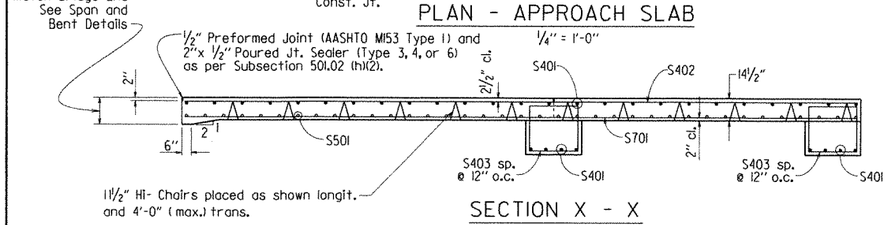
(1) B7266&B7267 - APPR. SLAB - 53236




(1) If slab joints are to be sawed, they shall be sawed as soon as the concrete has set enough to allow sawing of the joints without damaging the slab.

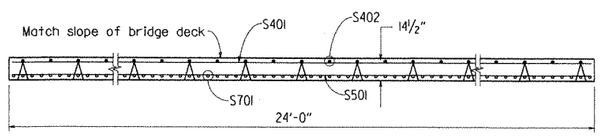
## PLAN - APPROACH SLAB

1/4" = 1'-0"




## SECTION X - X

N.T.S.




## SECTION Y - Y

N.T.S.

## BAR LIST

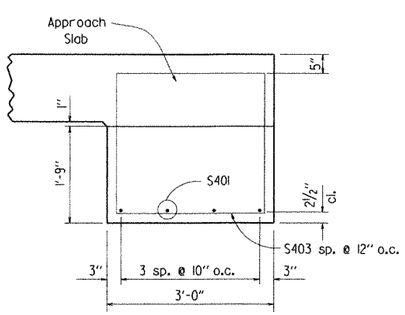
| Mark | No. Req'd. | Length | Bending Diagrams |
|---|---|---|---|
| S401 | 33 | 23'-8" | 2'-7"; 2'-5"; S403; 4 1/2" typ.; Pin. Dia. = 2"; Dimensions are out to out of bar. |
| S402 | 16 | 36'-2" | |
| S403 | 48 | 10'-4" | |
| S404 | 50 | 3'-0" | |
| S501 | 37 | 23'-8" | |
| S701 | 48 | 36'-2" | |
| | | | |

GENERAL NOTES

Concrete shall be Class S (AE) (f'c = 4,000 psi).

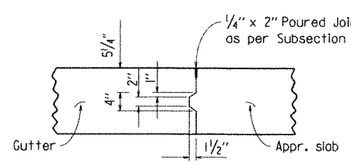
Reinforcement Steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).

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



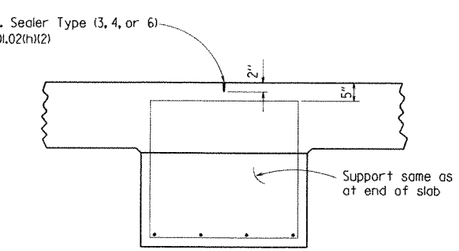

## DETAILS OF SUPPORT AT END OF SLAB

3/4" = 1'-0"




## DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

3/4" = 1'-0"




## DETAILS OF DUMMY GROOVED JOINT

3/4" = 1'-0"

## TABLE OF QUANTITIES FOR ONE APPROACH SLAB

| Slab Width | Reinforcing Steel | Concrete (Cu. Yds.) |
|---|---|---|
| 24'-0" | 5,802 lbs. | 49.40 |

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/19/11
CARL J. FUSELIER

BRIDGE ENGINEER

# DETAILS OF TYPE SPECIAL 2 APPROACH SLAB

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

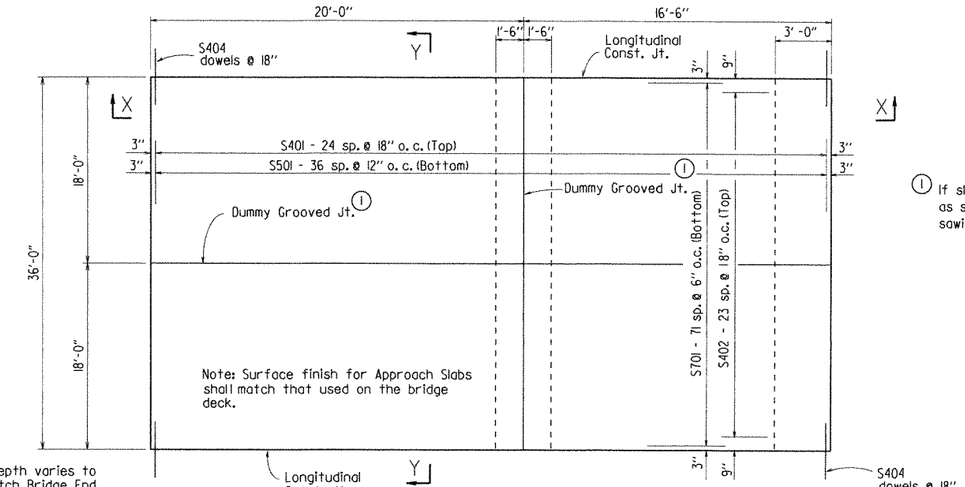
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 8/24/12 FILENAME: bb0614_asl.dgn
CHECKED BY: TMG DATE: 9/25/12 SCALE: AS SHOWN
DESIGNED BY: — DATE: —

BRIDGE NO. B7266&B7267 DRAWING NO. 53236

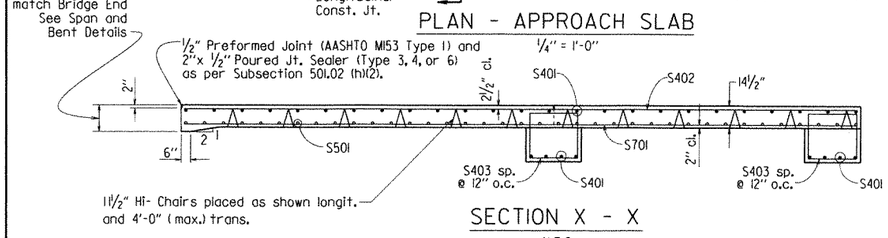
PRINT DATE: 28-SEP-2012

| 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. | | BB0614 | 155 | 219 |
| | | | | (1) A7267 - | | APPR. SLAB. - | 53237 | |



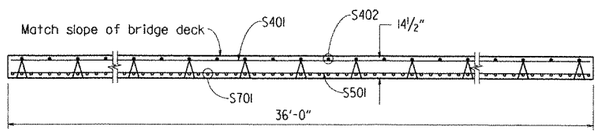

PLAN - APPROACH SLAB

(1) If slab joints are to be sawed, they shall be sawed as soon as the concrete has set enough to allow sawing of the joints without damaging the slab.




SECTION X - X

N.T.S.




SECTION Y - Y

N.T.S.

## BAR LIST

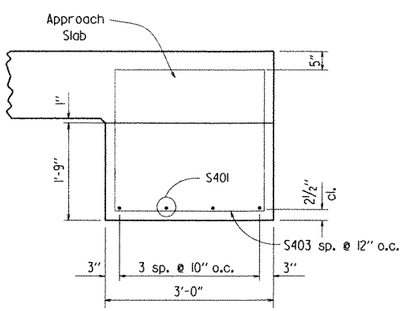
| Mark | No. Req'd. | Length | Bending Diagrams |
|---|---|---|---|
| S401 | 33 | 35'-8" | 2'-7" / 2'-5" / S403 / 4 1/2" typ. / Pin. Dia. = 2" — Dimensions are out to out of bar. |
| S402 | 24 | 36'-2" | |
| S403 | 72 | 10'-4" | |
| S404 | 50 | 3'-0" | |
| S501 | 37 | 35'-8" | |
| S701 | 72 | 36'-2" | |

GENERAL NOTES

Concrete shall be Class S (AE) ( f'c = 4,000 psi ).

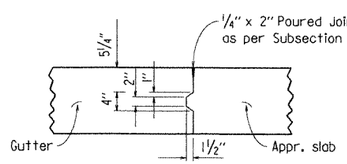
Reinforcement Steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi ).

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



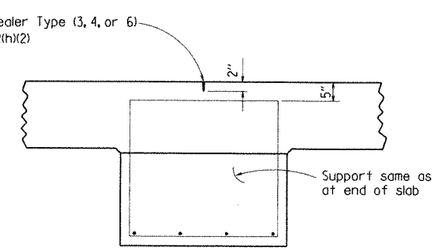

DETAILS OF SUPPORT AT END OF SLAB

3/4" = 1'-0"




DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

3/4" = 1'-0"




DETAILS OF DUMMY GROOVED JOINT

3/4" = 1'-0"

## TABLE OF QUANTITIES FOR ONE APPROACH SLAB

| Slab Width | Reinforcing Steel | Concrete (Cu. Yds.) |
|---|---|---|
| 36'-0" | 8663 lbs. | 74.10 |

STATE OF ARKANSAS
Carl T. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/9/11
CARL T. FUSELIER

BRIDGE ENGINEER

# DETAILS OF TYPE SPECIAL 3 APPROACH SLAB

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

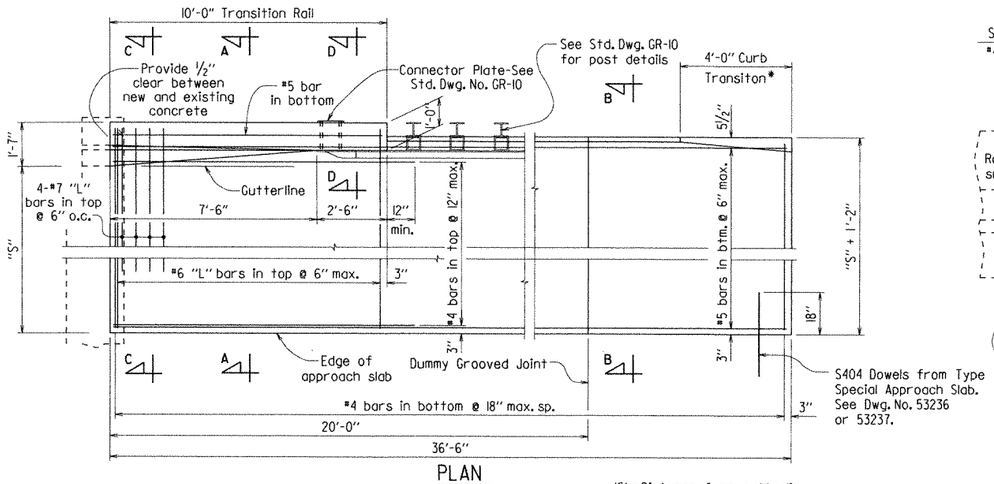
DRAWN BY: LJB DATE: 8/24/12 FILENAME: bb0614_asl.dgn
CHECKED BY: TMG DATE: 9/28/12 SCALE: AS SHOWN
DESIGNED BY: — DATE: —

BRIDGE NO. A7267 DRAWING NO. 53237

PRINT DATE: 28-SEP-2012

| 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. | | BB0614 | 156 | 219 |

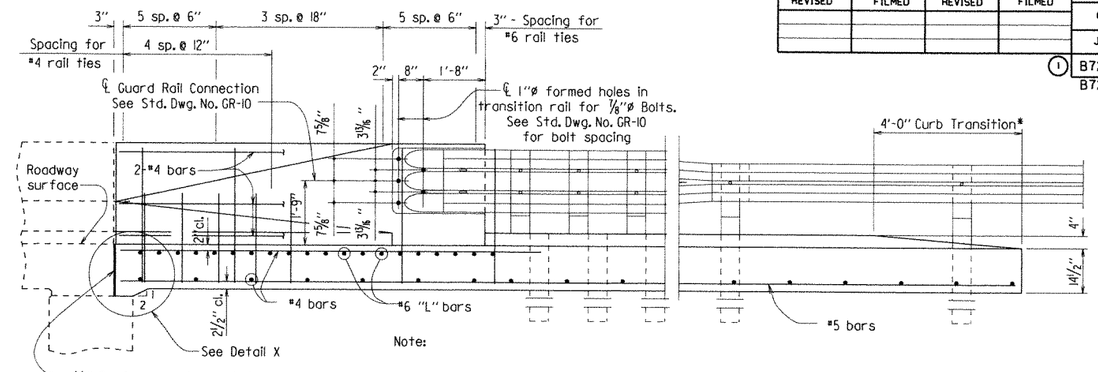
(1) B7266, A7267 - APPR. GUTTER - 53238
B7267




PLAN

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

'S' = Distance from gutterline to edge of approach slab.



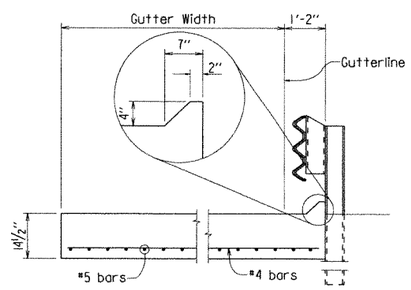

Note:

* Construct curb with height-transition as shown if drop inlet is not used at end of gutter.

Construct curb full height (no height-transition) if drop inlet is used at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.

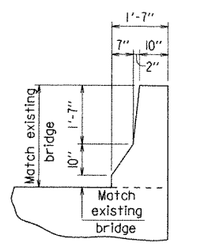
## LONGITUDINAL SECTION THRU GUTTER

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



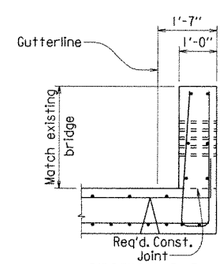

SECTION B-B

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




SECTION C-C

At End of Transition Rail
Scale: 1/2" = 1'-0"




SECTION D-D

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

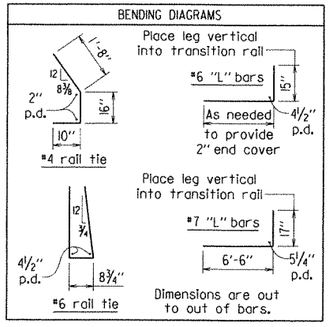
GENERAL NOTES

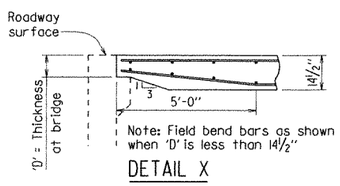
Concrete shall be Class S(AE) (f'c = 4,000 psi.)

Reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi.) Fabricate bar lengths to provide 2" minumum cover at each end.

Approach gutters will be measured and paid for in accordance with Section 504 of the Standard Specifications.

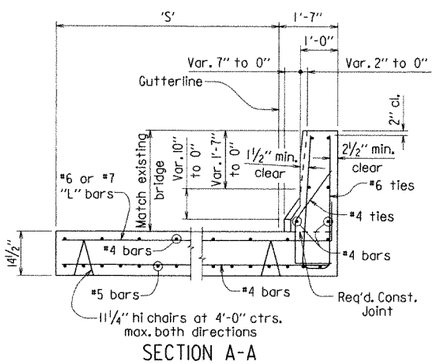
BENDING DIAGRAMS



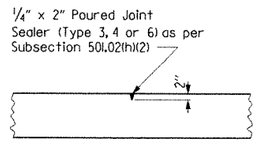

DETAIL X

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




SECTION A-A

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




DETAILS OF DUMMY GROOVED JOINT

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

QUANTITIES FOR ONE APPROACH GUTTER

| 'S' | Concrete | Reinforcing Steel |
|---|---|---|
| 6'-0" | 13.19 cu.yd. | 1238 lb. |
| 10'-0" | 19.79 cu.yd. | 1758 lb. |

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/8/12
CARL J. FUSELIER

BRIDGE ENGINEER

# DETAILS OF TYPE SPECIAL 2 APPROACH GUTTERS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

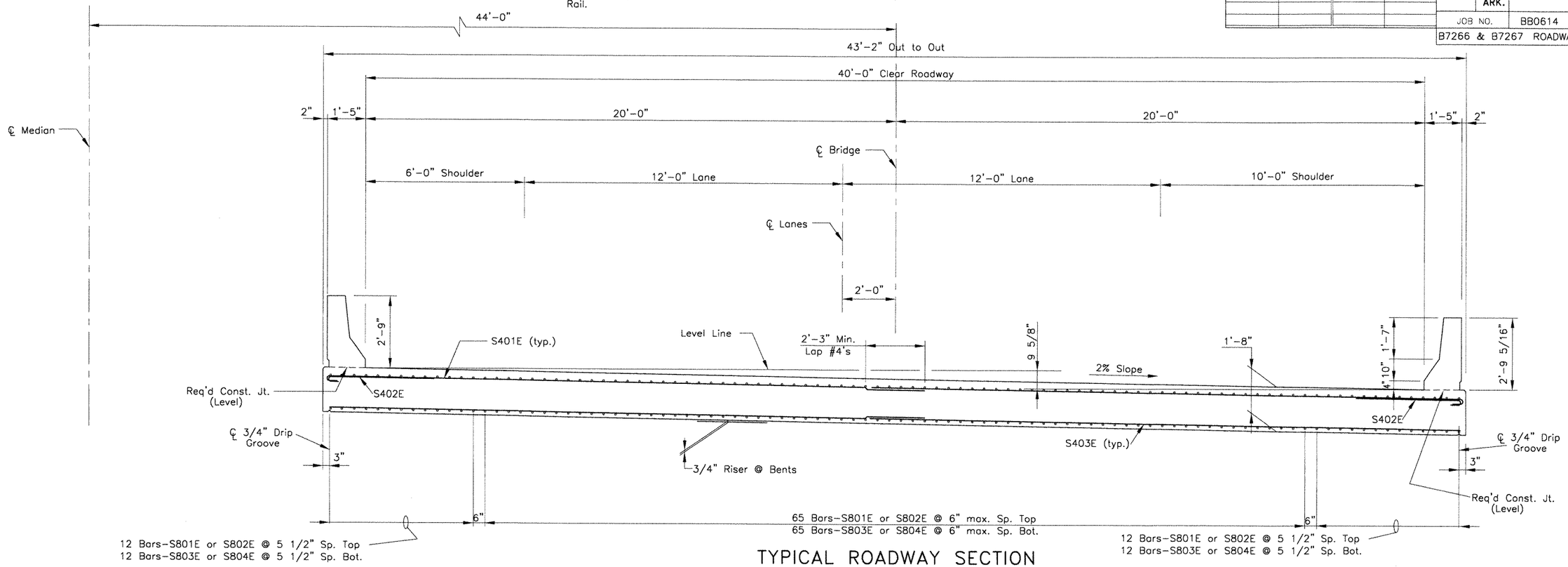
DRAWN BY: LJB DATE: 8/24/12 FILENAME: bb0614_type2gutter.dgn
CHECKED BY: TMG DATE: 9/28/12 SCALE: AS NOTED
DESIGNED BY: — DATE: —

BRIDGE NO. B7266, B7267 DRAWING NO. 53238

PRINT DATE: 28-SEP-2012

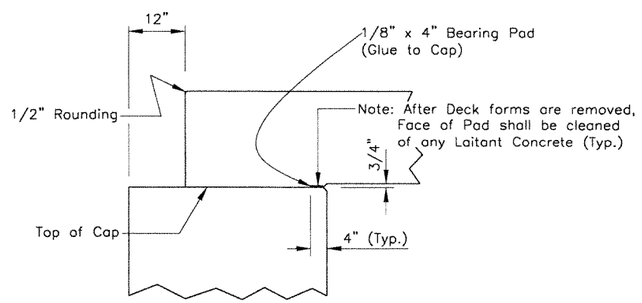
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | BB0614 | | 157 | 219 |
| | | | | B7266 & B7267 ROADWAY SECT. 53239 | | | | |

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




## TYPICAL ROADWAY SECTION

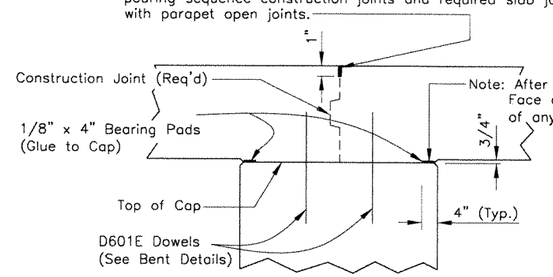
LORANCE CREEK BRIDGE "B" AND CLEAR CREEK BRIDGE "B"
Scale: 1/2" = 1'-0"




## RISER DETAIL AT END OF UNIT

Not to Scale

Use Type 3, 4, or 6 Joint Sealer. See subsections 501.02(h) and 501.05 (j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the falsework is removed and before the parapet railings are poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. Slab joints shall align with parapet open joints.



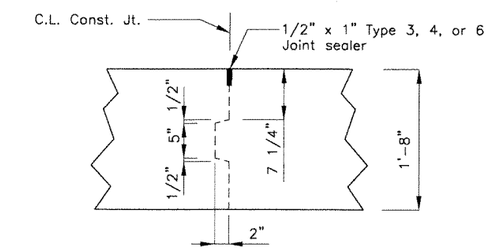

Note: Joint to be cleaned by sandblasting or other approved method before pouring joint sealer.

## RISER DETAIL AT INTERMEDIATE BENTS

Not to Scale


For General Notes, See Drawing No.53244 & 53246

BRIDGE ENGINEER




## DECK SLAB CONST. JOINT DETAIL

Not to Scale

40' CLEAR ROADWAY TYPICAL SECTION
CONTINUOUS R.C. SLAB UNITS
CLEAR CREEK BRIDGE
AND LORANCE CREEK BRIDGE B
BINGHAM RD. - GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE SEC.

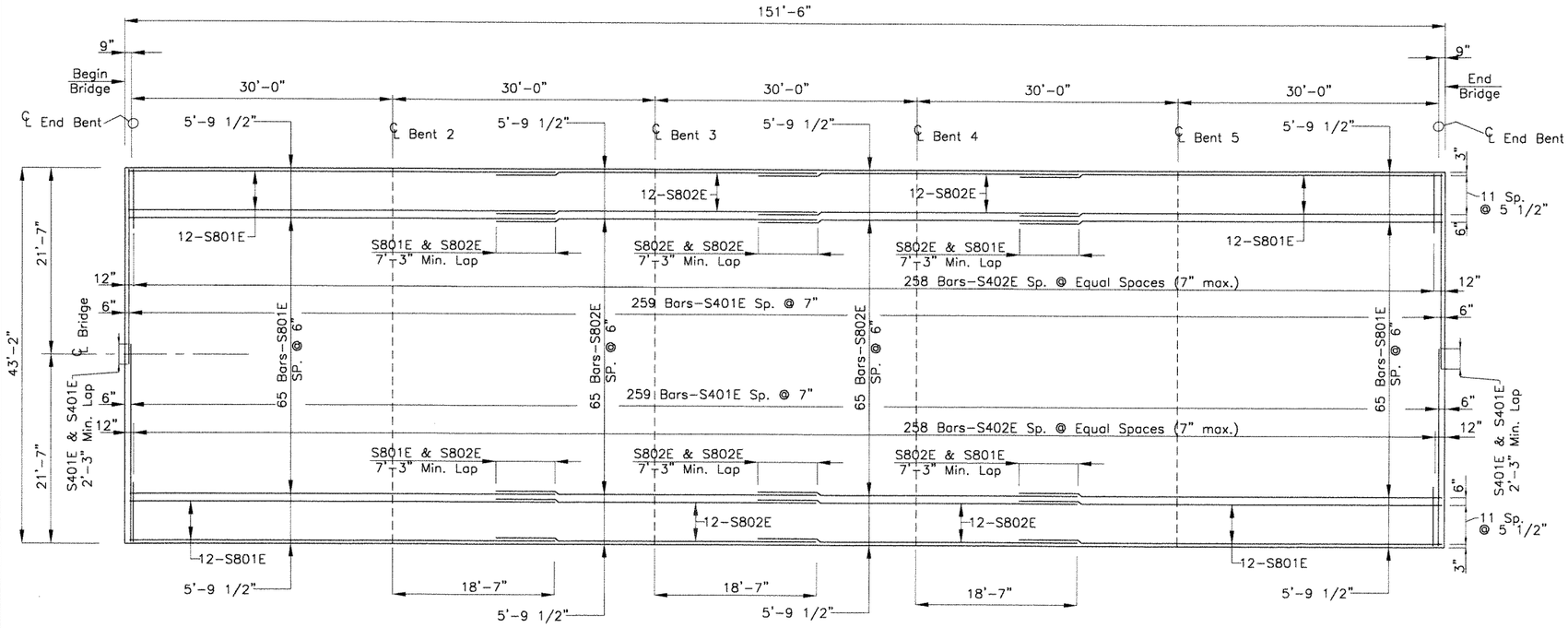
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Engstrom/Modjeski and Masters

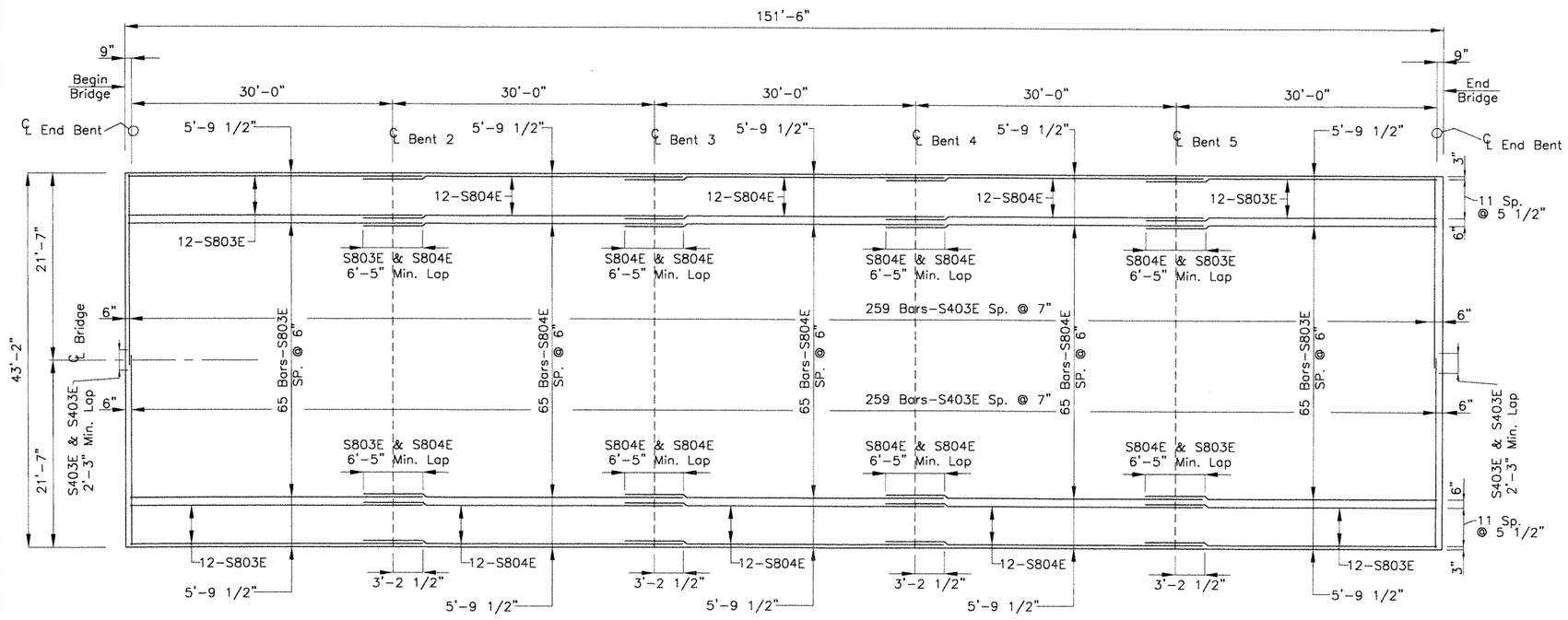
DRAWN BY: GAE DATE: 9-25-12
CHECKED BY: SPC DATE: 9-25-12
DESIGNED BY: ERD/JAM DATE: 9-25-12
FILENAME: BBB0614M_S1.DGN
SCALE: As Noted

BRIDGE NO. B7266 & B7267 DRAWING NO. 53239

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 158 | 219 |
| | | | | B7266 | SLAB REINF. PLAN | | | 53240 |




REINFORCING PLAN – TOP OF SLAB
Scale: 1/8" = 1'-0"
Clear Creek Bridge "B"

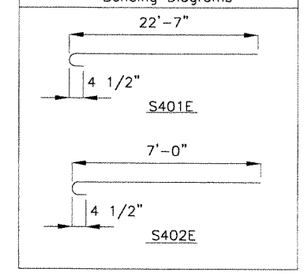



REINFORCING PLAN – BOTTOM OF SLAB
Scale: 1/8" = 1'-0"
Clear Creek Bridge "B"

## BAR LIST

| | Mark | No. Reqd. | Length | Pin Dia. |
|---|---|---|---|---|
| TOP | S401E | 518 | 23'-1" | 3" |
| | S402E | 516 | 7'-6" | 3" |
| | S801E | 178 | 48'-5" | Str. |
| | S802E | 178 | 37'-3" | Str. |
| BOTTOM | S403E | 518 | 26'-7" | Str. |
| | S803E | 178 | 33'-1" | Str. |
| | S804E | 267 | 36'-5" | Str. |
| RAILS | P401E | 568 | 5'-6" | 3" |
| | P402E | 40 | 4'-11" | 3" |
| | P403E | 80 | 5'-6" | Str. |
| | P404E | 112 | 7'-8" | Str. |
| | P405E | 70 | 13'-8" | Str. |
| | P406E | 28 | 8'-5" | Str. |
| | P501E | 568 | 6'-11" | 3 3/4" |

Bending Diagrams




For Bending Diagrams not shown, see Drawing Number 53247. Dimensions are out to out of bars. Bar Designations using "E" suffix are epoxy coated.

CERTIFICATE OF AUTHORIZATION MODJESKI AND MASTERS, INC. No. 2337 ARKANSAS

CERTIFICATE OF AUTHORIZATION H. JAMES ENGSTROM & ASSOC., INC. No. 164 ARKANSAS ENGINEER

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15274 BRUCE EDWARD PETERSON 4/27/2012

SLAB REINFORCING PLAN
151'-6" CONTINUOUS R. C. SLAB UNIT
CLEAR CREEK BRIDGE
BINGHAM RD. – GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Engstrom/Modjeski and Masters

DRAWN BY: DSK DATE: 9-25-12
CHECKED BY: SPC DATE: 9-25-12
DESIGNED BY: JAM/SPC DATE: 9-25-12
FILENAME: BBB0614B2_S1.DGN
SCALE: As Noted

BRIDGE ENGINEER

BRIDGE NO. B7266 DRAWING NO. 53240

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED |
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| FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
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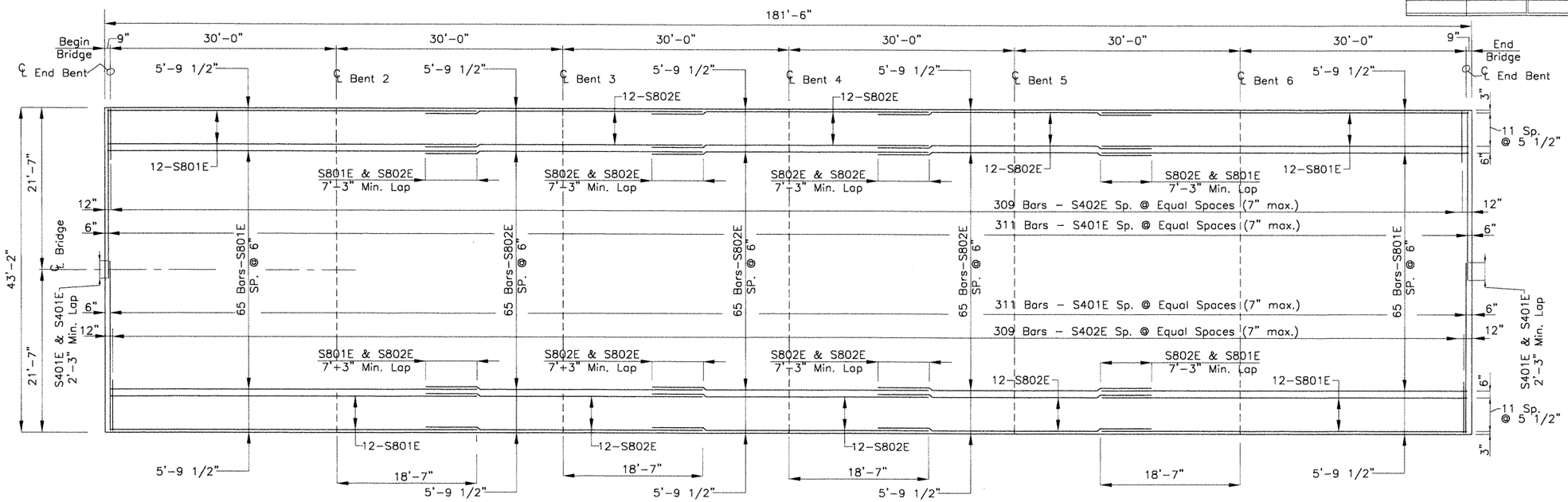
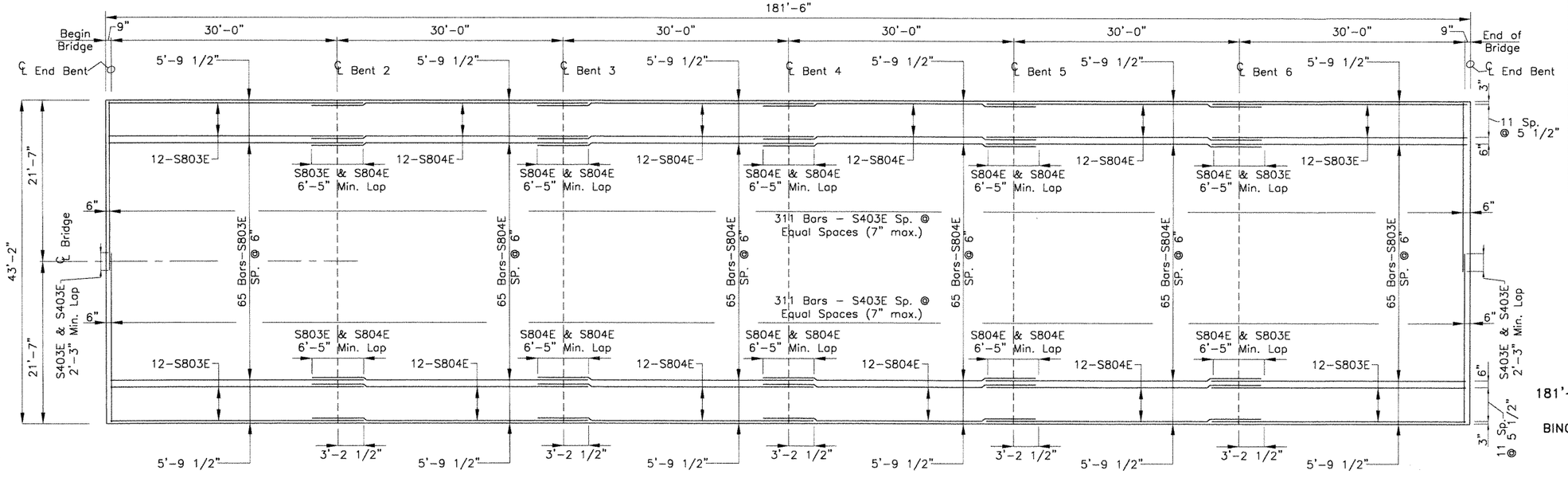
| | ARK. | | | |
| JOB NO. | | BB0614 | 159 | 319 |
| B7267 | SLAB REINF. PLAN | | | 53241 |




## REINFORCING PLAN - TOP OF SLAB

Scale: 1/8" = 1'-0"
Lorance Creek Bridge "B"
181'-6"



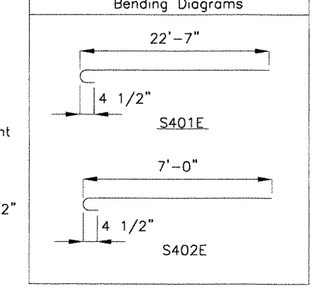

## REINFORCING PLAN - BOTTOM OF SLAB

Scale: 1/8" = 1'-0"
Lorance Creek Bridge "B"

## BAR LIST

| | Mark | No. Reqd. | Length | Pin Dia. |
|---|---|---|---|---|
| TOP | S401E | 622 | 23'-1" | 3" |
| | S402E | 618 | 7'-6" | 3" |
| | S801E | 178 | 48'-5" | Str. |
| | S802E | 267 | 37'-3" | Str. |
| BOTTOM | S403E | 622 | 22'-7" | Str. |
| | S803E | 178 | 33'-1" | Str. |
| | S804E | 356 | 36'-5" | Str. |
| RAILS | P401E | 680 | 5'-6" | 3" |
| | P402E | 48 | 4'-11" | 3" |
| | P403E | 96 | 5'-6" | Str. |
| | P404E | 140 | 7'-8" | Str. |
| | P405E | 84 | 13'-8" | Str. |
| | P406E | 28 | 8'-5" | Str. |
| | P501E | 680 | 6'-11" | 3 3/4" |

Bending Diagrams




For Bending Diagrams not shown, see Drawing Number 53247. Dimensions are out to out of bars. Bar Designations using "E" suffix are epoxy coated.

SLAB REINFORCING PLAN
181'-6" CONTINUOUS R. C. SLAB UNIT
LORANCE CREEK BRIDGE B
BINGHAM RD. - GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Engstrom/Modjeski and Masters

CERTIFICATE OF AUTHORIZATION H. JAMES ENGSTROM & ASSOC., INC. No. 164 ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION MODJESKI AND MASTERS, INC. No. 2937 ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15274 BRUCE EDWARD PETERSON 9/27/2012

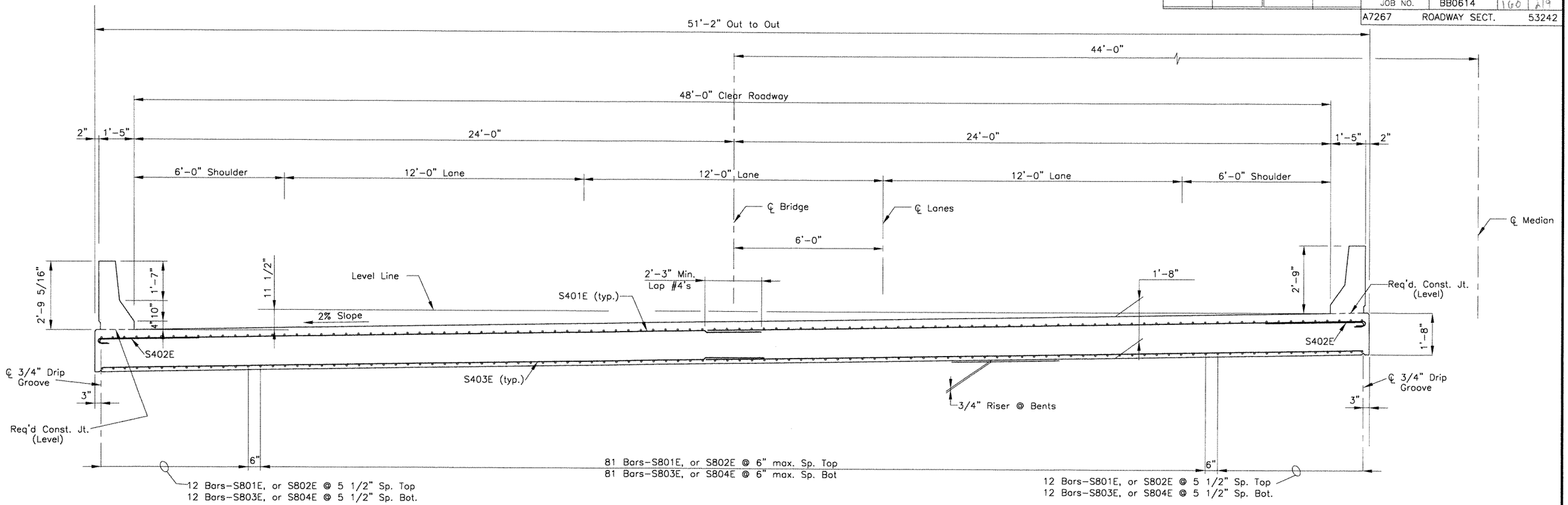
BRIDGE ENGINEER

| | | | |
|---|---|---|---|
| DRAWN BY: DSK | DATE: 9-25-12 | FILENAME: BBB0614B4_S1.DGN | |
| CHECKED BY: SPC | DATE: 9-25-12 | SCALE: As Noted | |
| DESIGNED BY: JAM/SPC | DATE: 9-25-12 | | |

BRIDGE NO. B7267 DRAWING NO. 53241

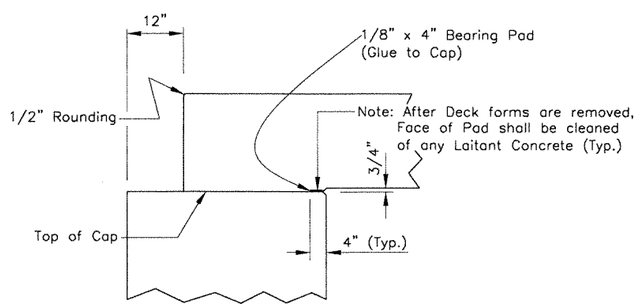
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 160 | 219 |
| | | | | A7267 | ROADWAY SECT. | | | 53242 |

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




## TYPICAL ROADWAY SECTION

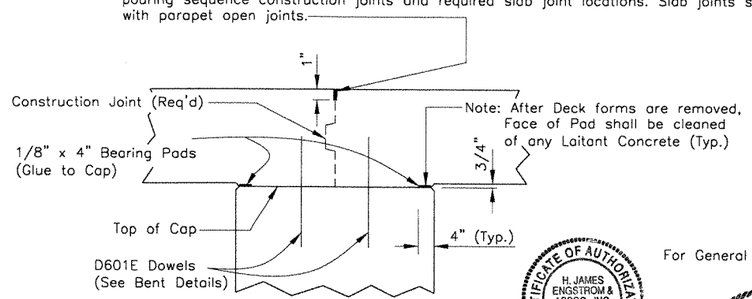
LORANCE CREEK BRIDGE "A"
Scale: 1/2" = 1'-0"




## RISER DETAIL AT END OF UNIT

Not to Scale

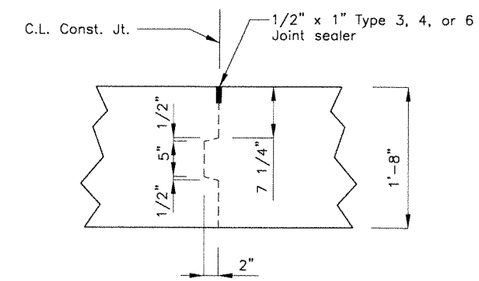
Use Type 3, 4, or 6 Joint Sealer. See subsections 501.02(h) and 501.05 (j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the falsework is removed and before the parapet railings are poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. Slab joints shall align with parapet open joints.




Note: Joint to be cleaned by sandblasting or other approved method before pouring joint sealer.

## RISER DETAIL AT INTERMEDIATE BENTS

Not to Scale




## DECK SLAB CONST. JOINT DETAIL

Not to Scale

CERTIFICATE OF AUTHORIZATION
MODJESKI AND MASTERS, INC.
No. 2337
ARKANSAS

CERTIFICATE OF AUTHORIZATION
H. JAMES ENGSTROM & ASSOC., INC.
No. 164
ARKANSAS ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15274
ERIC R. DAVIDSON
9/27/2012

For General Notes, See Drawing No.53246

BRIDGE ENGINEER

48' CLEAR ROADWAY TYPICAL SECTION
CONTINUOUS R.C. SLAB UNIT
LORANCE CREEK BRIDGE A
BINGHAM RD. – GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

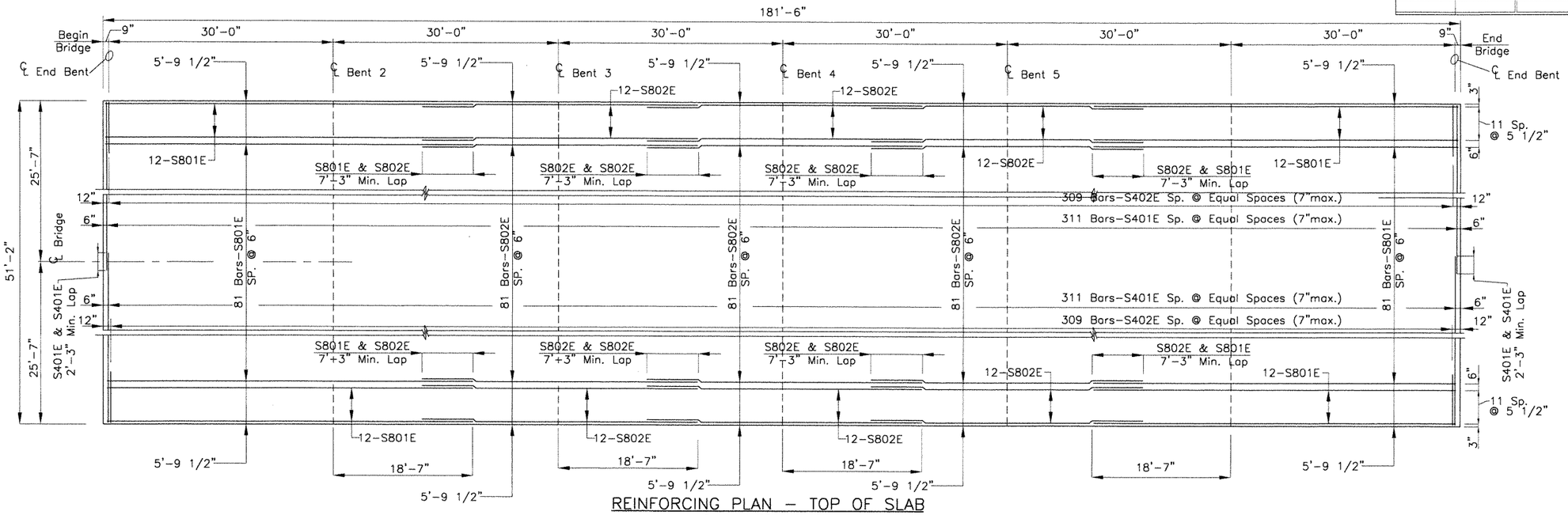
Engstrom/Modjeski and Masters

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY: | GAE | DATE: | 9-25-12 | FILENAME: | BBB0614A4_S1.DGN |
| CHECKED BY: | SPC | DATE: | 9-25-12 | SCALE: | As Noted |
| DESIGNED BY: | ERD/JAM | DATE: | 9-25-12 | | |

BRIDGE NO. A7267 DRAWING NO. 53242

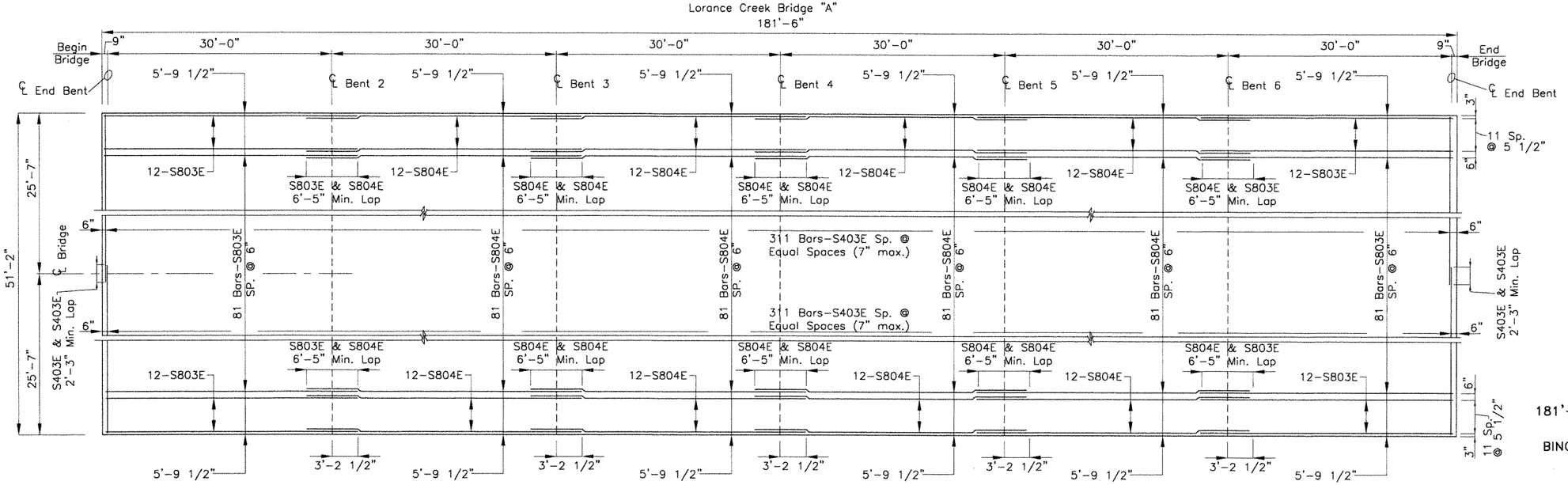
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED |
|---|---|---|---|
| | | | |

| FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| | ARK. | | | |
| JOB NO. | BB0614 | | 161 | 219 |
| A7267 | SLAB REINF. PLAN | | | 53243 |




## REINFORCING PLAN – TOP OF SLAB

Scale: 1/8" = 1'-0"
Lorance Creek Bridge "A"



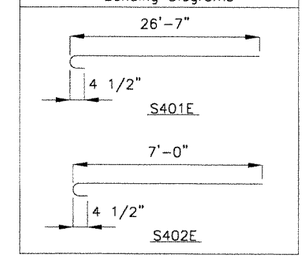

## REINFORCING PLAN – BOTTOM OF SLAB

Scale: 1/8" = 1'-0"
Lorance Creek Bridge "A"

## BAR LIST

| | Mark | No. Reqd. | Length | Pin Dia. |
|---|---|---|---|---|
| TOP | S401E | 622 | 27'-1" | 3" |
| | S402E | 618 | 7'-6" | 3" |
| | S801E | 210 | 48'-5" | Str. |
| | S802E | 315 | 37'-3" | Str. |
| BOTTOM | S403E | 622 | 26'-7" | Str. |
| | S803E | 210 | 33'-1" | Str. |
| | S804E | 420 | 36'-5" | Str. |
| RAILS | P401E | 680 | 5'-6" | 3" |
| | P402E | 48 | 4'-11" | 3" |
| | P403E | 96 | 5'-6" | Str. |
| | P404E | 140 | 7'-8" | Str. |
| | P405E | 84 | 13'-8" | Str. |
| | P406E | 28 | 8'-5" | Str. |
| | P501E | 680 | 6'-11" | 3 3/4" |

Bending Diagrams




For Bending Diagrams not shown, see Drawing Number 53247. Dimensions are out to out of bars. Bar Designations using "E" suffix are epoxy coated.

SLAB REINFORCING PLAN
181'-6" CONTINUOUS R. C. SLAB UNIT
LORANCE CREEK BRIDGE A
BINGHAM RD. – GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Engstrom/Modjeski and Masters

CERTIFICATE OF AUTHORIZATION H. JAMES ENGSTROM & ASSOC., INC. No. 164 ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION MODJESKI AND MASTERS, INC. No. 2337 ARKANSAS

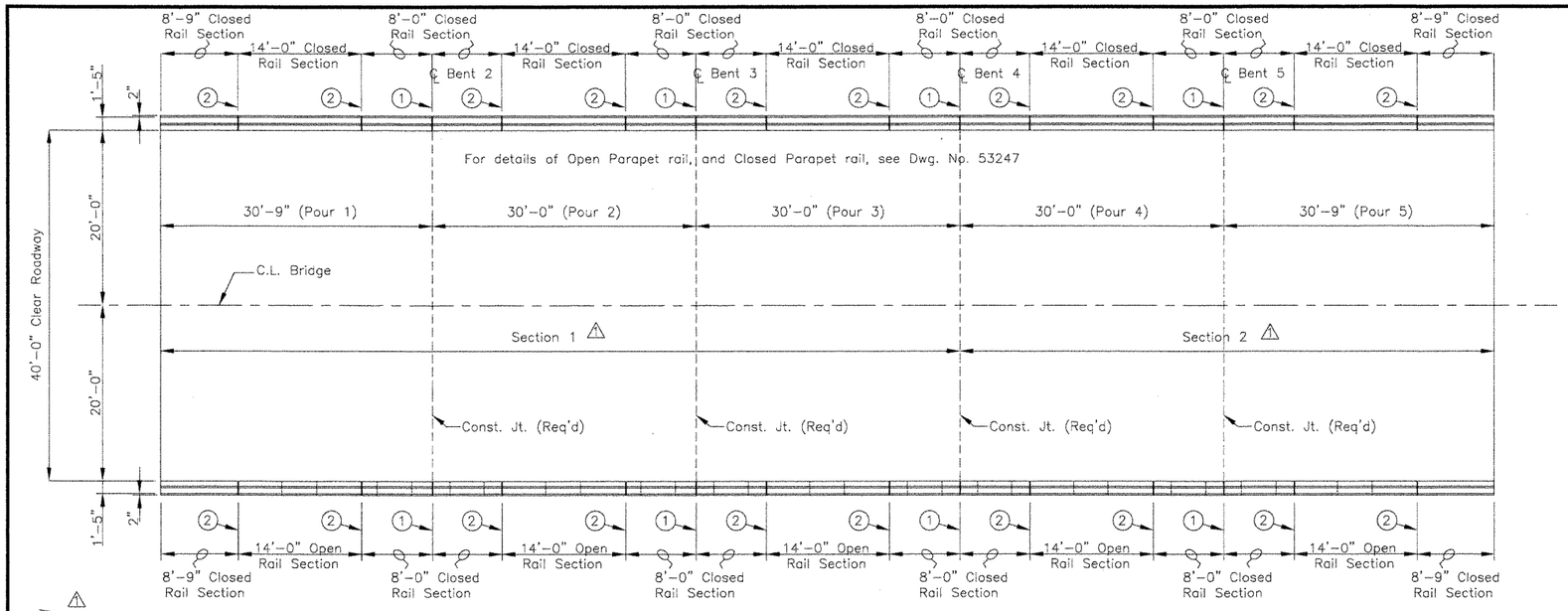
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15274 BRUCE EDWARD PATTERSON 9/27/2012

BRIDGE ENGINEER

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY: DSK | DATE: 9-25-12 | FILENAME: BBB0614A4_S2.DGN | | | |
| CHECKED BY: SPC | DATE: 9-25-12 | SCALE: As Noted | | | |
| DESIGNED BY: JAM/SPC | DATE: 9-25-12 | | | | |

BRIDGE NO. A7267 DRAWING NO. 53243

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 11-16-12 | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 162 | 219 |
| | | | | B7266 | R.C. SLAB DETAILS | | | 53244 |




△1 Note: Contractor shall pour the slab unit in sections according to the pouring sequence shown. No part of the falsework for the entire unit shall be removed until all of the concrete in the complete bridge deck slab has been placed and cured. All pours shall begin at one end of the bridge and proceed in sequence to the other end of the bridge. 72 hours shall elapse between the end of a pour and the start of the next pour.

PLAN OF RAILING AND DECK

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

Clear Creek Bridge "B"

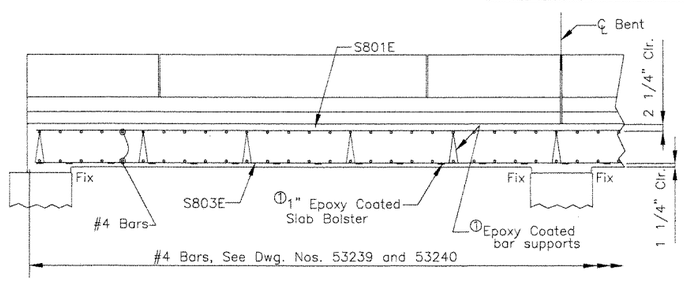
Concrete in the bridge superstructure shall be placed and consolidated for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent. The Contractor must obtain approval from the Engineer for any deviation from the pouring sequence shown and for any railing pours made before the entire bridge slab has been poured.

POURING SEQUENCE FOR CONT. R.C. SLAB UNIT

(1) C.L. Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab.

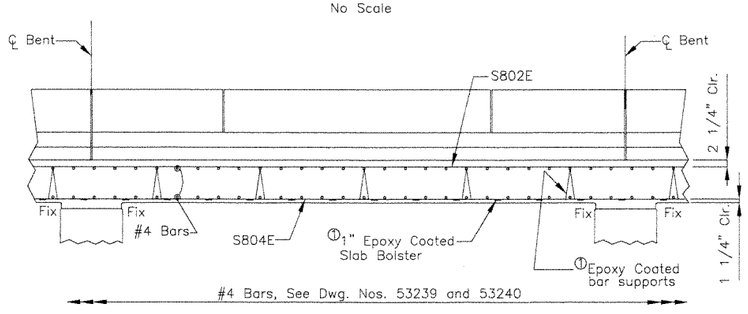
(2) C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab.

△1 Note: Contractor shall pour the slab unit according to the pouring sequence shown. No part of the falsework for the entire section shall be removed until all of the concrete in that section of bridge deck has been placed and cured. Falsework for span 3 shall remain in place until after section 2 is placed and cured. All pours shall begin at one end of the bridge and proceed in sequence to the other end of the bridge. 72 hours shall elapse between the end of a pour and the start of the next pour.




LONGITUDINAL SECTION ALONG C.L. BRIDGE - END SPAN

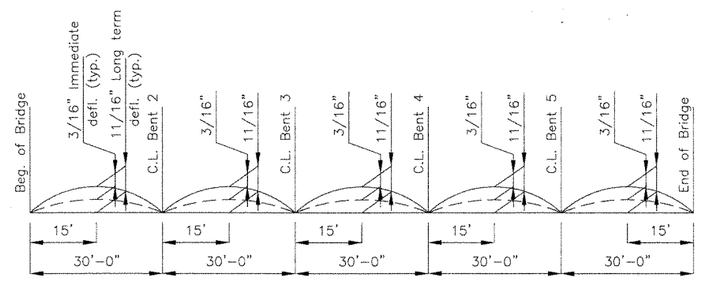
No Scale




LONGITUDINAL SECTION ALONG C.L. BRIDGE BETWEEN BENTS

No Scale

(1) Size and Spacing shall be sufficient to support reinforcing under all construction activities without deforming.




DEAD LOAD CAMBER DIAGRAM

Tolerance + 1/4 for camber and vertical alignment. Camber shown is from a chord from centerline bent to centerline bent. Vertical alignment corrections are not included.

△1 Revised Slab Pouring Notes 11-16-12.

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2003 Edition, with applicable supplemental specifications and special provisions. Unless otherwise noted in the plans Section and Subsection refer to the Standard Construction Specifications.

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

LIVE LOADING; HL-93

MATERIALS AND STRENGTHS

| | |
|---|---|
| Class S(AE) Concrete | f'c=4,000 psi |
| Reinforcing Steel (AASHTO M31 or M53, Gr. 60) | fy=60,000 psi |
| Structural Steel (AASHTO M270 Gr. 36) | fy=36,000 psi |

CONCRETE: Concrete shall be poured in the dry and all exposed corners are to be chamfered 3/4" unless otherwise noted. All concrete shall be Class S(AE) Concrete with a minimum 28 Day Compressive strength of f'c=4,000 psi.

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

The concrete deck shall be given a tine finish in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour.

BEARING PAD: The 1/8" bearing pad shall be an unreinforced pad meeting the requirements of Section 808, or shall be nylon reinforced neoprene meeting the requirements of subsection 807.20. The pad shall be furnished in one piece for the required width and full length of the bearing and glued to the bent cap with an adhesive approved by the Engineer. Pad and Adhesive will not be paid for directly, but will be considered subsidiary to the item "Class S(AE) Concrete".

REINFORCING STEEL: All reinforcing steel shall conform to AASHTO M31 or M53, Gr. 60. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (GR.60)."

STRUCTURAL STEEL. All structural steel shall be AASHTO M270, Gr.36 unless otherwise noted and will not be paid for directly, but will be considered subsidiary to the item "Class S(AE) Concrete". All exposed surfaces shall be cleaned in accordance with subsection 807.84(e) unless otherwise noted.

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

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

All welding that is done during the fabrication of the structural steel, including temporary welds, shall be detailed on the shop drawings with detailed drawings and shall be submitted to the Engineer for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval. All welding shall conform to subsection 807.26.

DETAILS OF 151'-6" CONTINUOUS
R.C. SLAB UNIT
CLEAR CREEK BRIDGE
BINGHAM RD. - GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

Engstrom/Modjeski and Masters

CERTIFICATE OF AUTHORIZATION — H. JAMES ENGSTROM & ASSOC., INC. No. 164 — ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION — MODJESKI AND MASTERS, INC. No. 2337 — ARKANSAS

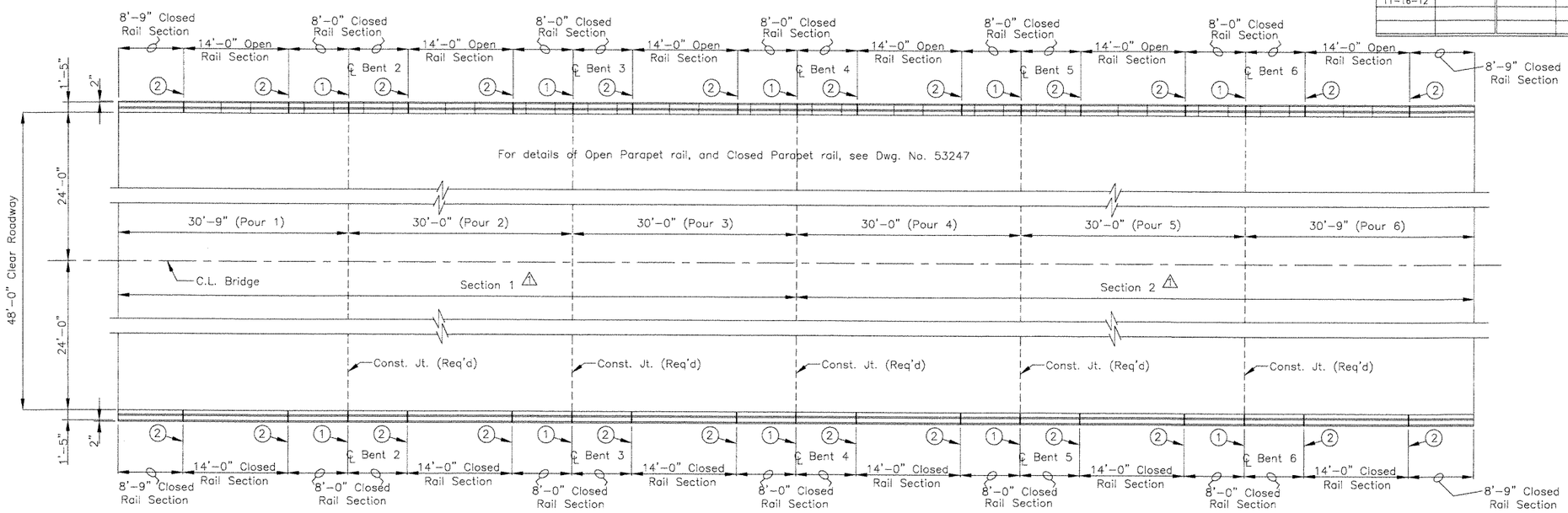
STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 15274 — BRUCE EDWARD PETERSON — 11/16/2012

BRIDGE ENGINEER

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY: DSK | DATE: 9-25-12 | FILENAME: BBB0614B2_S1.DGN | | | |
| CHECKED BY: SPC | DATE: 9-25-12 | SCALE: As Noted | | | |
| DESIGNED BY: ERD/JAM | DATE: 9-25-12 | | | | |

BRIDGE NO. B7266 DRAWING NO. 53244

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 11-16-12 | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 163 | 219 |
| | | | | A7267 & B7267 R.C. SLAB DTLS 53245 | | | | |




PLAN OF RAILING AND DECK

POURING SEQUENCE FOR CONT. R.C. SLAB UNIT

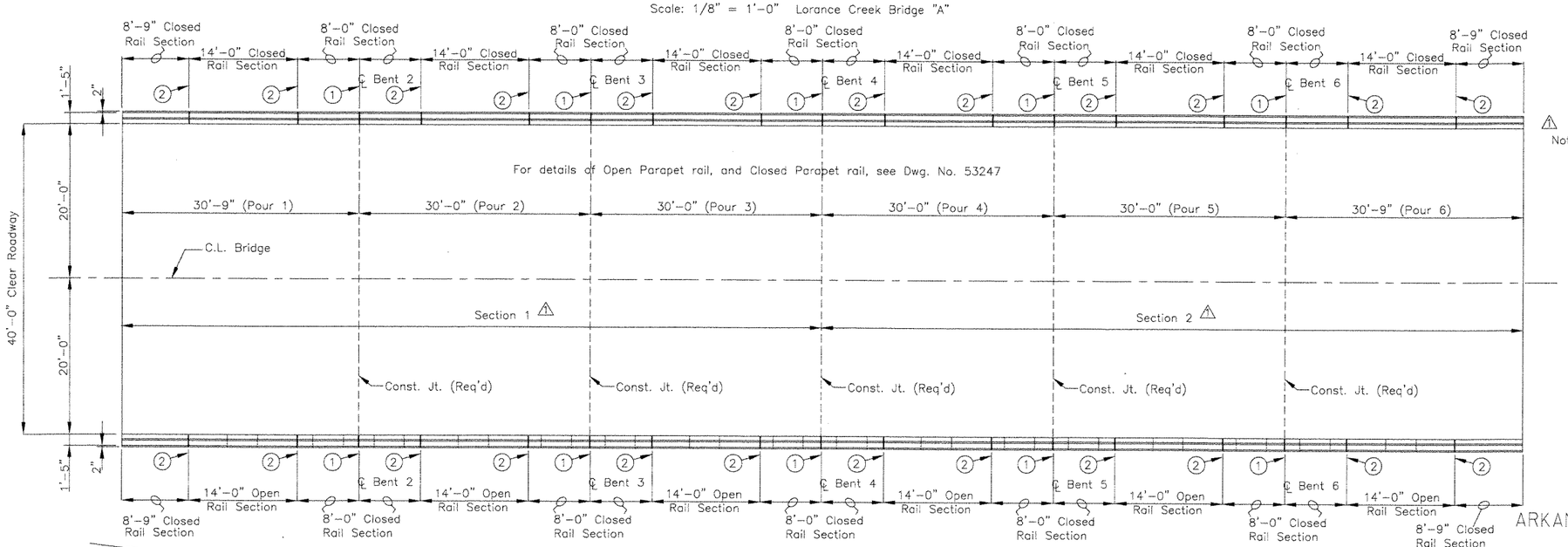
Scale: 1/8" = 1'-0" Lorance Creek Bridge "A"

Note: 1. Refer to Dwg. No. 53246 for Dead Load Camber information.

(1) C.L. Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab.

(2) C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab.

⚠ Revised Slab Pouring Notes 11-16-12.




⚠ Note: Contractor shall pour the slab unit in sections according to the pouring sequence shown. No part of the falsework for the entire unit shall be removed until all of the concrete in the complete bridge deck slab has been placed and cured. All pours shall begin at one end of the bridge and proceed in sequence to the other end of the bridge. 72 hours shall elapse between the end of a pour and the start of the next pour.

PLAN OF RAILING AND DECK

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

Lorance Creek Bridge "B"

Concrete in the bridge superstructure shall be placed and consolidated for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent. The Contractor must obtain approval from the Engineer for any deviation from the pouring sequence shown and for any railing pours made before the entire bridge slab has been poured.

BRIDGE ENGINEER

POURING SEQUENCE FOR CONT. R.C. SLAB UNIT

CERTIFICATE OF AUTHORIZATION — H. JAMES ENGSTROM & ASSOC., INC. No. 164 — ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION — MODJESKI AND MASTERS, INC. No. 2337 — ARKANSAS

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 15274 — BRUCE EDWARD PETERSON

11/16/2012

⚠ Note: Contractor shall pour the slab unit according to the pouring sequence shown. No part of the falsework for the entire section shall be removed until all of the concrete in that section of bridge deck has been placed and cured. All pours shall begin at one end of the bridge and proceed in sequence to the other end of the bridge. 72 hours shall elapse between the end of a pour and the start of the next pour.

SHEET 1 OF 2

DETAILS OF 181'-6" CONTINUOUS R.C. SLAB UNITS

LORANCE CREEK BRIDGE

BINGHAM RD. – GRANT CO. LINE (S)

PULASKI COUNTY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

Engstrom/Modjeski and Masters

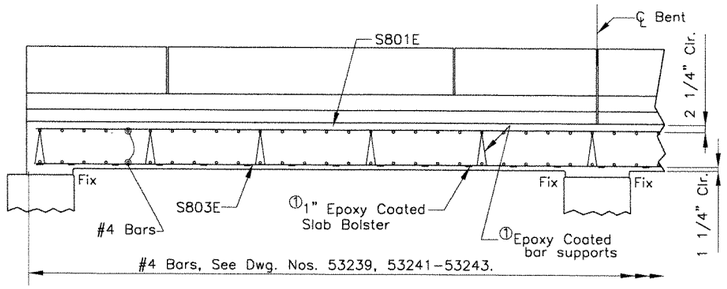
DRAWN BY: DSK DATE: 9-25-12 FILENAME: BBB0614M4_S11.DGN

CHECKED BY: SPC DATE: 9-25-12 SCALE: As Noted

DESIGNED BY: ERD/JAM DATE: 9-25-12

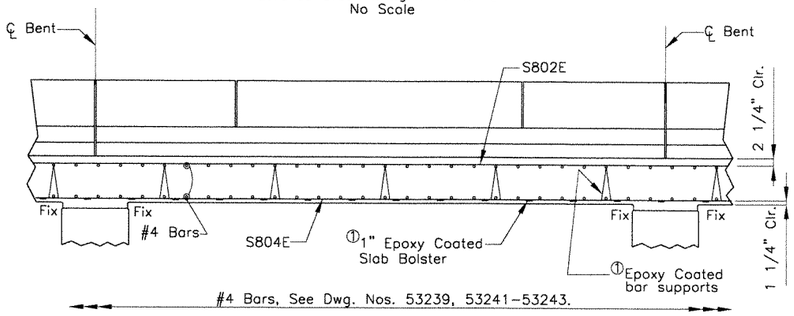
BRIDGE NO. A7267 & B7267 DRAWING NO. 53245

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 164 | 219 |
| | | | | A7267 & B7267 R.C. SLAB DTLS. 53246 | | | | |




LONGITUDINAL SECTION ALONG C.L. BRIDGE – END SPAN

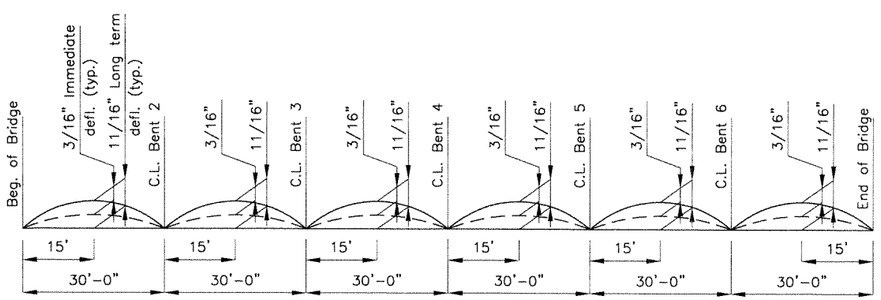
Lorance Creek Bridges "A" & "B"
No Scale




LONGITUDINAL SECTION ALONG C.L. BRIDGE BETWEEN BENTS

Lorance Creek Bridges "A" & "B"
No Scale

① Size and Spacing shall be sufficient to support reinforcing under all construction activities without deforming.




DEAD LOAD CAMBER DIAGRAM

Lorance Creek Bridges "A" & "B"

Tolerance + 1/4 for camber and vertical alignment. Camber shown is from a chord from centerline bent to centerline bent. Vertical alignment corrections are not included.

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2003 Edition, with applicable supplemental specifications and special provisions. Unless otherwise noted in the plans Section and Subsection refer to the Standard Construction Specifications.

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

LIVE LOADING; HL-93

MATERIALS AND STRENGTHS

| | |
|---|---|
| Class S(AE) Concrete | f'c=4,000 psi |
| Reinforcing Steel (AASHTO M31 or M53, Gr. 60) | fy=60,000 psi |
| Structural Steel (AASHTO M270 Gr. 36) | fy=36,000 psi |

CONCRETE: Concrete shall be poured in the dry and all exposed corners are to be chamfered 3/4" unless otherwise noted. All concrete shall be Class S(AE) Concrete with a minimum 28 Day Compressive strength of f'c=4,000 psi.

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

The concrete deck shall be given a tine finish in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour.

BEARING PAD: The 1/8" bearing pad shall be an unreinforced pad meeting the requirements of Section 808, or shall be nylon reinforced neoprene meeting the requirements of subsection 807.20. The pad shall be furnished in one piece for the required width and full length of the bearing and glued to the bent cap with an adhesive approved by the Engineer. Pad and Adhesive will not be paid for directly, but will be considered subsidiary to the item "Class S(AE) Concrete".

REINFORCING STEEL: All reinforcing steel shall conform to AASHTO M31 or M53, Gr. 60. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (GR.60)."

STRUCTURAL STEEL. All structural steel shall be AASHTO M270, Gr.36 unless otherwise noted and will not be paid for directly, but will be considered subsidiary to the item "Class S(AE) Concrete". All exposed surfaces shall be cleaned in accordance with subsection 807.84(e) unless otherwise noted.

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

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

All welding that is done during the fabrication of the structural steel, including temporary welds, shall be detailed on the shop drawings with detailed drawings and shall be submitted to the Engineer for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval. All welding shall conform to subsection 807.26.

CERTIFICATE OF AUTHORIZATION H. JAMES ENGSTROM & ASSOC., INC. No. 164 ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION MODJESKI AND MASTERS, INC. No. 2337 ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15274 BRUCE EDWARD PETERSON 9/27/2012

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF 181'-6" CONTINUOUS
R.C. SLAB UNITS
LORANCE CREEK BRIDGES
BINGHAM RD. – GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

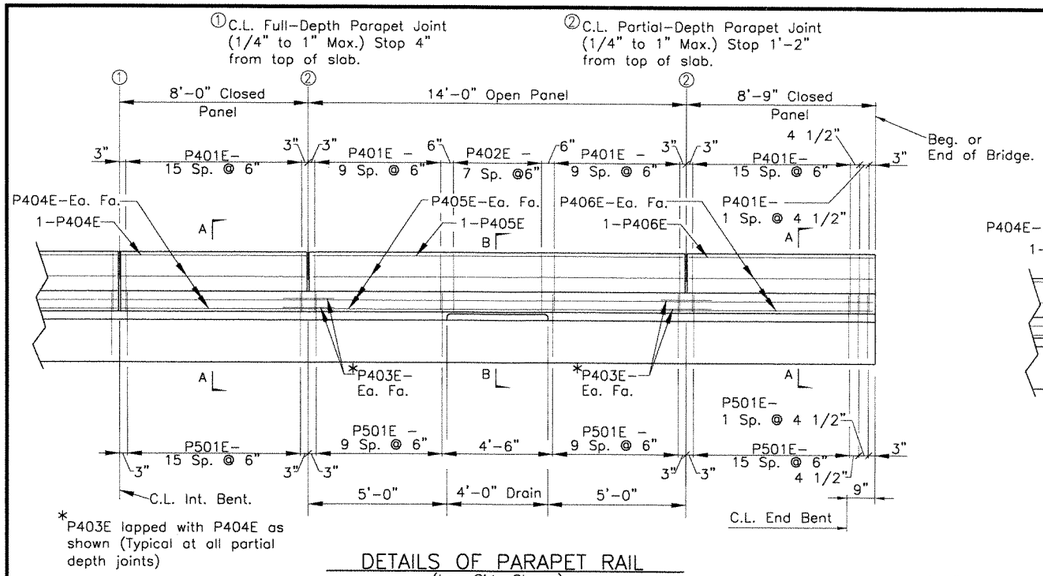
Engstrom/Modjeski and Masters

DRAWN BY: DSK DATE: 9-25-12
CHECKED BY: SPC DATE: 9-25-12
DESIGNED BY: ERD/JAM DATE: 9-25-12
FILENAME: BBB0614M4_S12.DGN
SCALE: As Noted

BRIDGE NO. A7267 & B7267 DRAWING NO. 53246

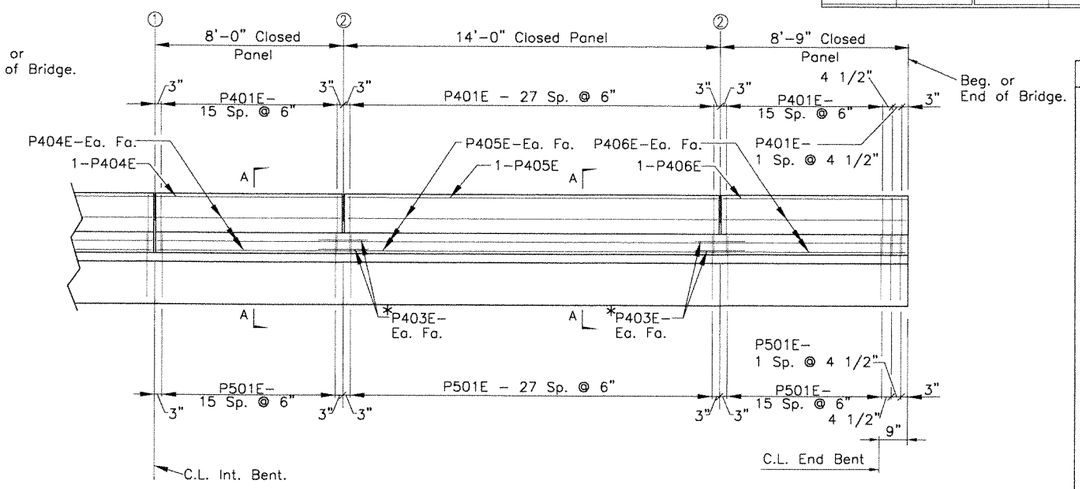
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 165 | 219 |

B7266,A7267&B7267 RAIL DETAILS 53247



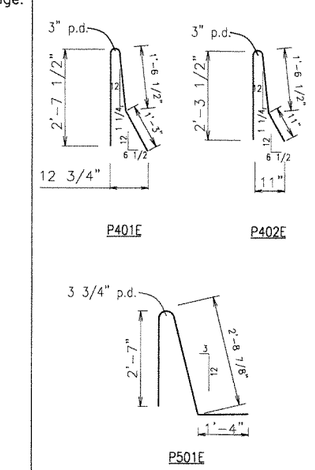

*P403E lapped with P404E as shown (Typical at all partial depth joints)

## DETAILS OF PARAPET RAIL
(Low Side Shown)
No Scale
Note: See Drawing 53240, 53241, 53243 for Bar List.

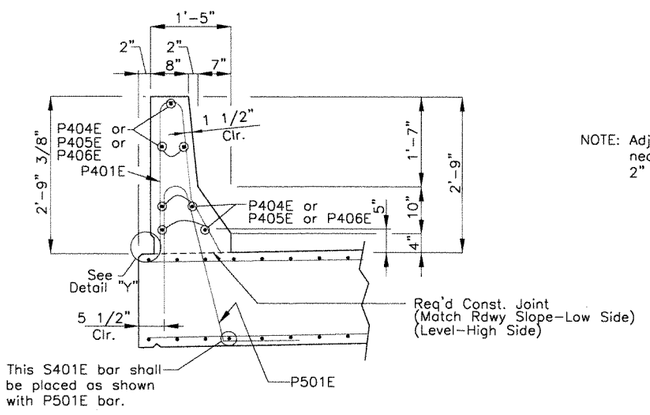



## DETAILS OF PARAPET RAIL
(High Side Shown)
No Scale
Note: See Drawing 53240, 53241, 53243 for Bar List.

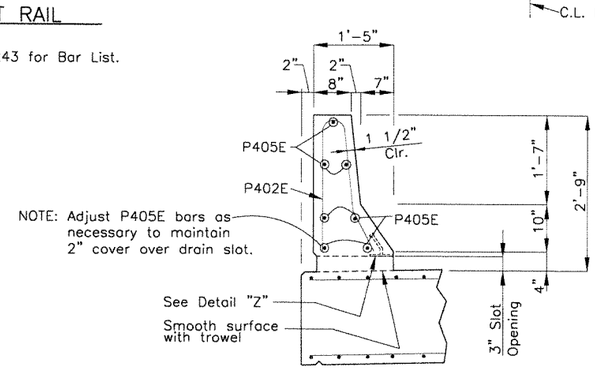
BENDING DIAGRAMS



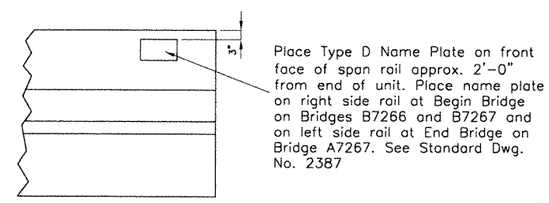

Dimensions are out to out of bars.




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

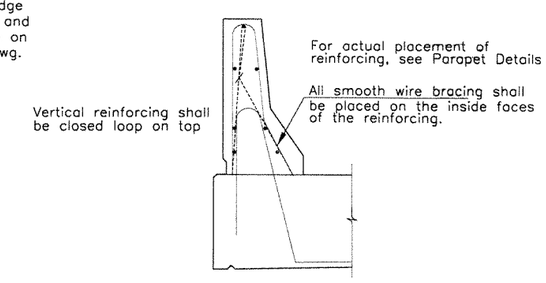



## SECTION B-B
Scale: 3/4" = 1'-0"

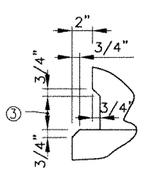



Place Type D Name Plate on front face of span rail approx. 2'-0" from end of unit. Place name plate on right side rail at Begin Bridge on Bridges B7266 and B7267 and on left side rail at End Bridge on Bridge A7267. See Standard Dwg. No. 2387

## NAME PLATE DETAIL
No Scale

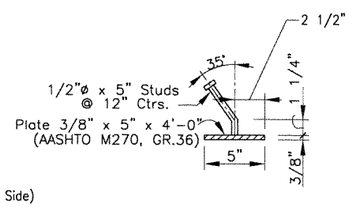



## SECTION J-J
Scale: 3/4" = 1'-0"




## DETAIL Y
N.T.S.

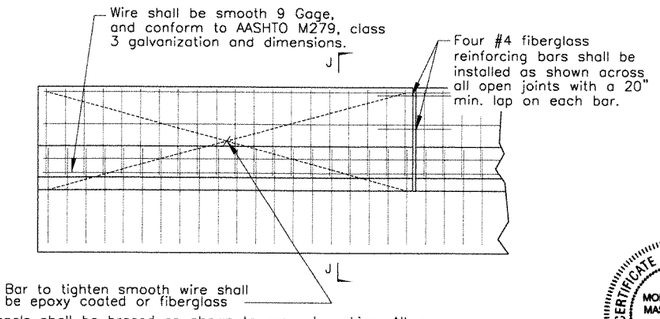
③ 3" (High Side)
3 5/16" (Low-Side)




## DETAIL Z
N.T.S.

Parapet studs shall be 5" long, granular flux filled, solid fluxed, or equal and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plates shall be measured and paid for as Class S(AE) Concrete-Bridge.

The surfaces of the 3/8" plates which will not be in contact with concrete shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to class S(AE) Concrete-Bridge.




All panels shall be braced as shown to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

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

## DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL (OPEN OR CLOSED)
1/2" = 1'-0"

CERTIFICATE OF AUTHORIZATION — H. JAMES ENGSTROM & ASSOC., INC. No. 164 — ARKANSAS ENGINEER

CERTIFICATE OF AUTHORIZATION — MODJESKI AND MASTERS, INC. No. 2337 — ARKANSAS

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 15274 — RICHARD C. PETERSON — 9/27/2012

BRIDGE ENGINEER

DETAILS OF PARAPET RAILS
FOR CONTINUOUS R.C. SLAB UNIT

CLEAR CREEK BRIDGE
AND LORANCE CREEK BRIDGES

BINGHAM RD. - GRANT CO. LINE (S)
PULASKI COUNTY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Engstrom/Modjeski and Masters

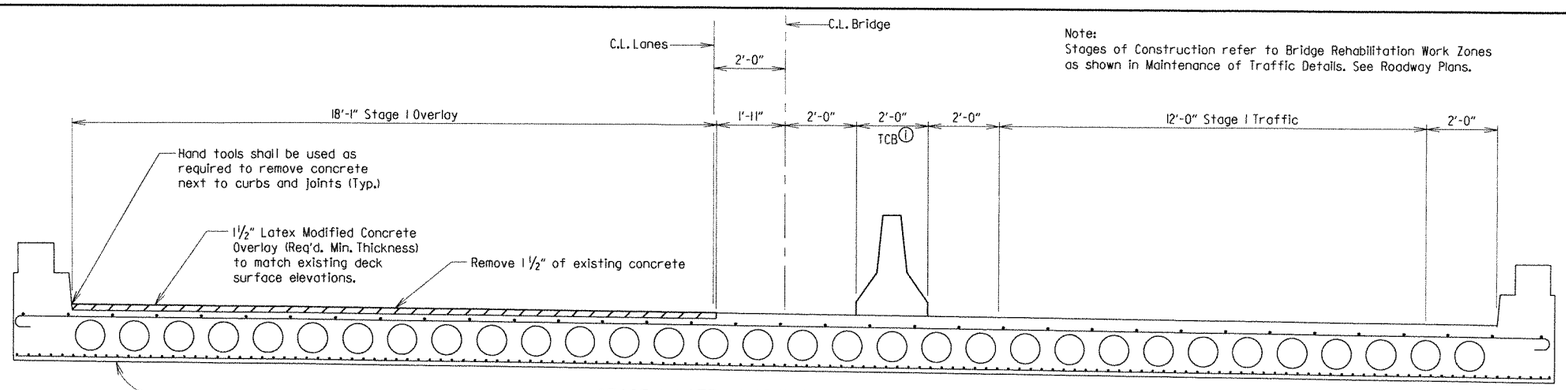
DRAWN BY: DSK DATE: 9-25-12 FILENAME: BBB0614M_P1.DGN
CHECKED BY: SPC DATE: 9-25-12 SCALE: 1/2"=1'-0"
DESIGNED BY: JAM/SPC DATE: 9-25-12

BRIDGE NO. B7266, A7267 & B7267 DRAWING NO. 53247

| 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. | | BB0614 | 106 | 219 |

(1) B3323,B3326 - LMC OVERLAY - 53249

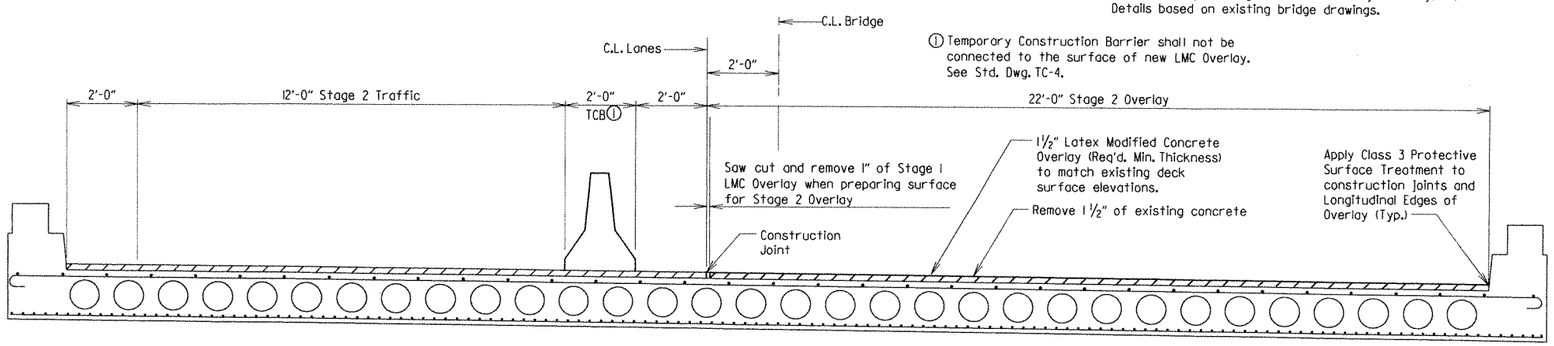
Note:
Stages of Construction refer to Bridge Rehabilitation Work Zones as shown in Maintenance of Traffic Details. See Roadway Plans.




STAGE 1 LATEX MODIFIED CONCRETE OVERLAY

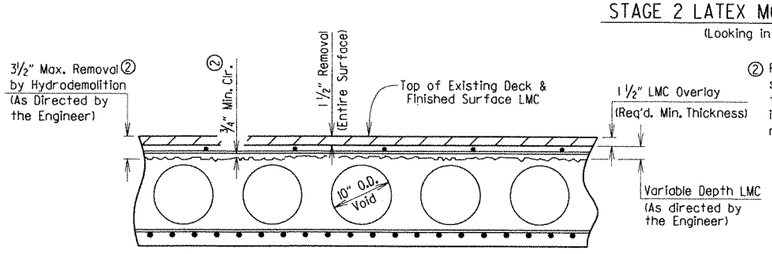
(Looking in direction of traffic)

NOTE:
The minimum pour length shall be from joint to joint. Details based on existing bridge drawings.



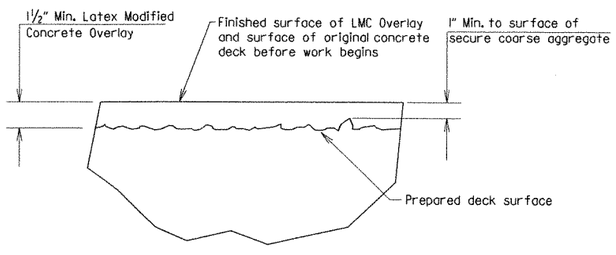

STAGE 2 LATEX MODIFIED CONCRETE OVERLAY

(Looking in direction of traffic)

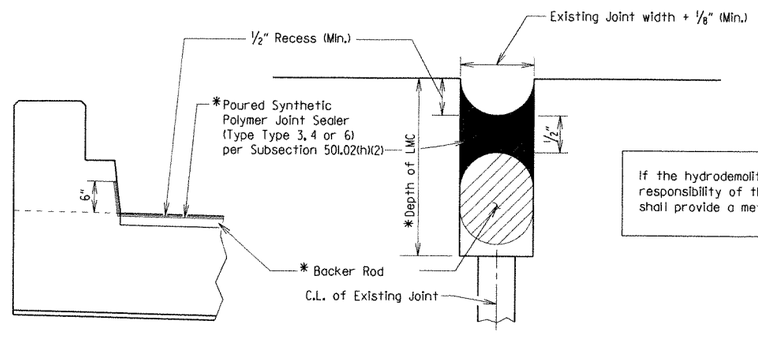



(2) Removal of unsound concrete beyond 1½" below the original surface shall be at the direction of the Engineer. If the bond between existing concrete and reinforcing steel is destroyed, then the concrete shall be removed to a minimum of ¾" clearance around the bar.

DETAILS OF HYDRODEMOLITION AND LATEX MODIFIED CONCRETE OVERLAY




LMC OVERLAY TOLERANCE




DETAILS OF TYPE A JOINT REHABILITATION

NOTE: Saw, cut or router ends of slab to achieve joint width as shown. Sawing beyond the face of curb is not required. See Section 509 for additional information & payment.

* NOTE: Depth of joint and joint installation shall be in accordance with manufacturer's recommendations.

If the hydrodemolition equipment blows through the deck or into a deck void, that area shall be the responsibility of the Contractor and shall be repaired at the Contractor's expense. The Contractor shall provide a method of handling unexpected blow through of the deck or into a deck void.

GENERAL NOTES:
CONSTRUCTION SPECIFICATIONS: Arkansas State Highway Commission Standard Specifications for Highway Construction, Edition of 2003, with applicable special provisions and Supplemental Specifications. Unless otherwise noted in the plans Section and Subsection refer to the Standard Specifications.

Drawing shows details and dimensions of existing structures based on the original bridge plans. The Contractor shall make check measurements in the field and make any adjustments necessary to meet the required clearances and fit the new work to the existing structure.

The operation or placement of equipment and, or materials on the subject bridges necessary for the completion of this work shall be subject to the provisions of SS-105-2 "Equipment and Material Storage on Bridge Structures". Certifications of the adequacy of all components for the anticipated loads shall address the capacity of the existing structure at all phases of this work.

HYDRODEMOLITION: The designated area of the existing bridge deck shall receive hydrodemolition in accordance with the Job Special Provision "Hydrodemolition" to a planned depth of 1½" below the existing bridge deck surface. Deteriorated concrete below this depth shall be removed up to the limits detailed and at the direction of the Engineer. Cold milling of the concrete deck prior to hydrodemolition will be allowed to a maximum depth of 1" unless there will be a conflict with existing reinforcing steel. These areas shall be measured by the square yard and shall be paid for at the unit price bid for the item SP Job BB0614 "Hydrodemolition."

LATEX MODIFIED CONCRETE OVERLAY: The designated area of the existing bridge deck shall receive a Latex Modified Concrete (LMC) Overlay to a planned depth of 1½" below the existing bridge deck surface, in accordance with the Job Special Provision "Latex Modified Concrete Overlay". These areas shall be measured by the square yard and shall be paid for at the unit price bid for the item SP Job BB0614 "Latex Modified Concrete Overlay (1½" Thick)". Areas of the existing bridge deck removed at the direction of the Engineer to a depth greater than 1½" below the existing bridge deck surface shall be filled with LMC concurrent to the placement of the 1½" LMC Overlay. This area shall be measured and paid for as SP Job BB0614 "Latex Modified Concrete (Variable Depth)" at the unit price bid for the item.

BRIDGE DECK: The LMC Overlay surface shall be given a grooved finish as specified for final finishing in Subsection 802.19 for Class 7 Grooved Bridge Roadway Surface Finish.

PROTECTIVE SURFACE TREATMENT: Longitudinal Construction Joints as shown on the plans and transverse and longitudinal construction joints constructed as directed by the Engineer shall be given a Class 3 Protective Surface Treatment as specified in Section 803 and in accordance with Job Special Provision "Latex Modified Concrete Overlay".

The roadway surface of the completed LMC Overlay shall be given a Class 1 Protective Surface Treatment as specified in Section 803.

TRANSVERSE JOINT REHABILITATION: After the placement of the LMC Overlay, the existing transverse slab joints at the intermediate bents shall be given a Type A Joint Rehabilitation as specified in Section 509.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/9/12
CARL J. FUSELIER

BRIDGE ENGINEER

DETAILS OF LATEX MODIFIED CONCRETE OVERLAY

ROUTE 530 SEC. 2 & 3

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 9/13/12 FILENAME: bb0614_concoverlay.dgn
CHECKED BY: SWP DATE: 10/5/12 SCALE: NO SCALE
DESIGNED BY: — DATE: —

BRIDGE NO. B3323,B3326 DRAWING NO. 53249

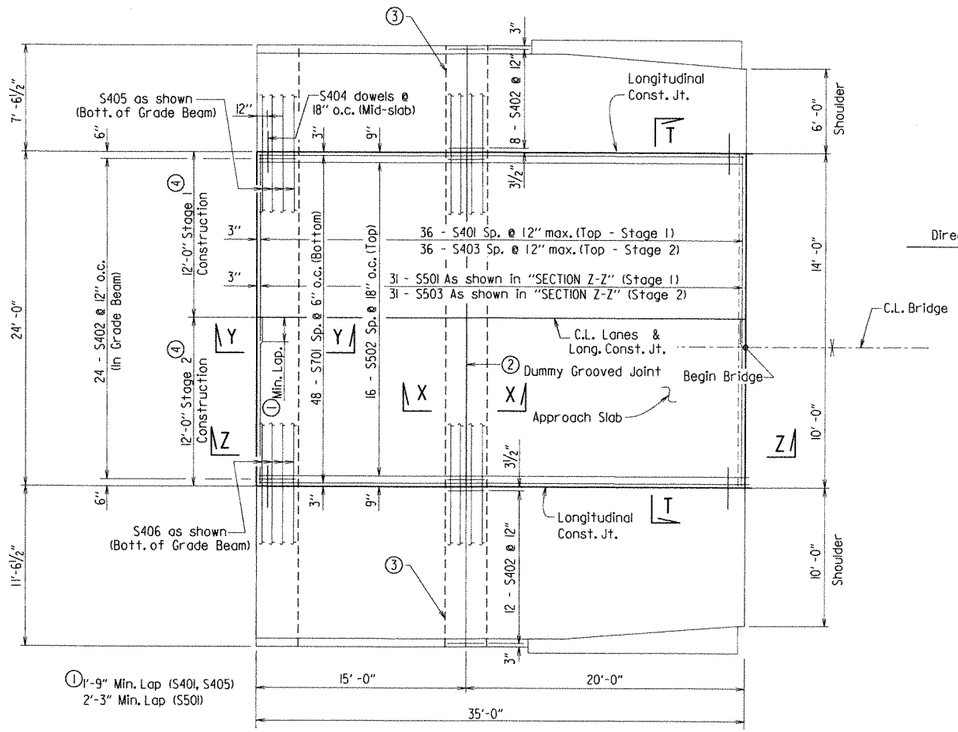
PRINT DATE: 05-OCT-2012

| 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. | | BB0614 | 167 | 219 |
| | | | | (1) B3323&B3326 - APPR. SLABS - 53250 | | | | |

(2) If slab joints are to sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab.

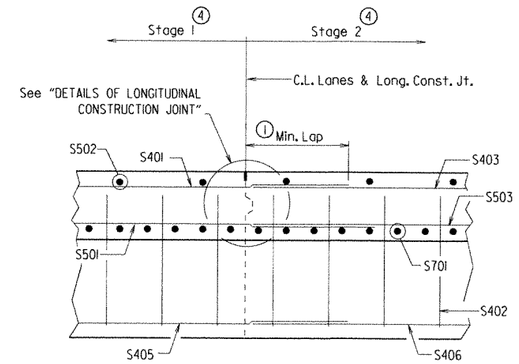
(3) Extend Grade Beam under proposed Approach Gutters. Quantities included in Approach Slab Quantities.

(4) Stages of Construction shown refer to Bridge Rehabilitation Work Zones as shown in Maintenance of Traffic Details, sheet no. XXXXX of Roadway Plans.




PLAN VIEW - APPROACH SLAB

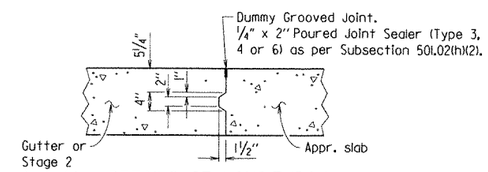
3/16" = 1'-0"




DETAILS OF STAGE CONSTRUCTION

LOOKING AHEAD

3/4" = 1'-0"




DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

3/4" = 1'-0"

## BAR LIST

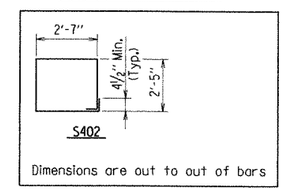
| Mark | No. Req'd. Stage 1 | No. Req'd. Stage 2 | Length | Pin Dia. |
|---|---|---|---|---|
| S401 | 36 | — | 13'-7" | Str. |
| S402 | 40 | 48 | 10'-4" | 2" |
| S403 | — | 36 | 11'-10" | Str. |
| S404 | 23 | 23 | 3'-0" | Str. |
| S405 | 8 | — | 21'-8" | Str. |
| S406 | — | 8 | 23'-4" | Str. |
| S501 | 31 | — | 14'-1" | Str. |
| S502 | 8 | 8 | 34'-8" | Str. |
| S503 | — | 31 | 11'-10" | Str. |
| S701 | 24 | 24 | 34'-8" | Str. |

## TABLE OF QUANTITIES FOR ONE APPROACH SLAB

| Slab Width | Reinforcing Steel | Concrete |
|---|---|---|
| 24'-0" | 6,400 lbs. | 55.44 Cu. Yds. |

Note: Quantities for Grade Beam under Approach Gutters Included.

## BENDING DIAGRAM




GENERAL NOTES

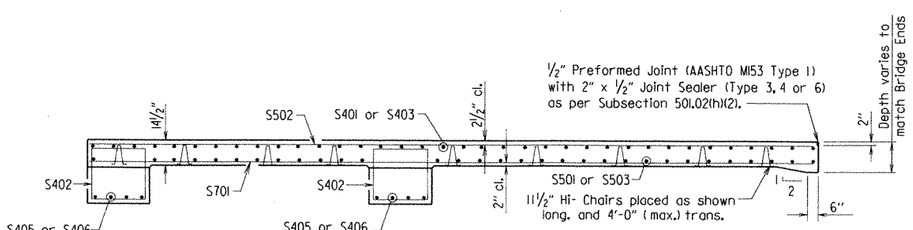
Concrete shall be Class S (AE) ( f'c = 4,000 psi ).

Reinforcement Steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).

Approach Slabs will be measured and paid for in accordance with Section 504 of the Standard Specifications.

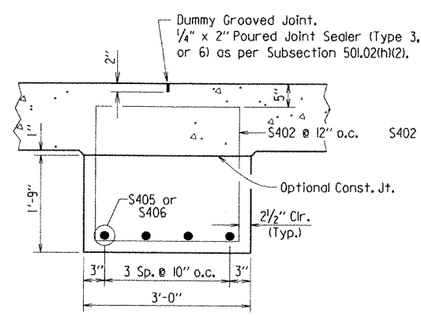
Approach Slab will be given a tined surface finish as specified in Subsection 802.19 for Class 5 Tined Bridge Roadway Finish.

See Roadway Plans for Maintenance of Traffic and additional information.



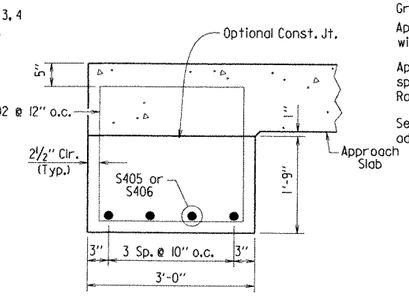

SECTION Z-Z

N.T.S.



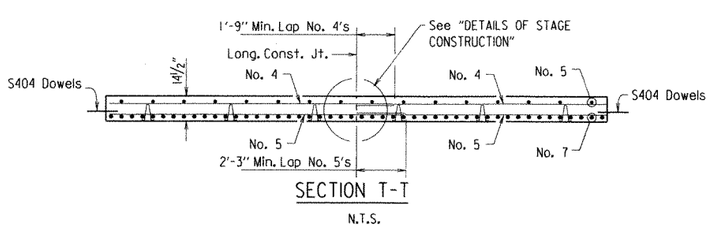

SECTION X-X

3/4" = 1'-0"




SECTION Y-Y

3/4" = 1'-0"




SECTION T-T

N.T.S.

STATE OF ARKANSAS
Carl J. Puseliier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/2/12
CARL J. PUSELIER

BRIDGE ENGINEER

# DETAILS OF TYPE SPECIAL I APPROACH SLAB

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 8/22/12 FILENAME: bb0614_typelas.dgn

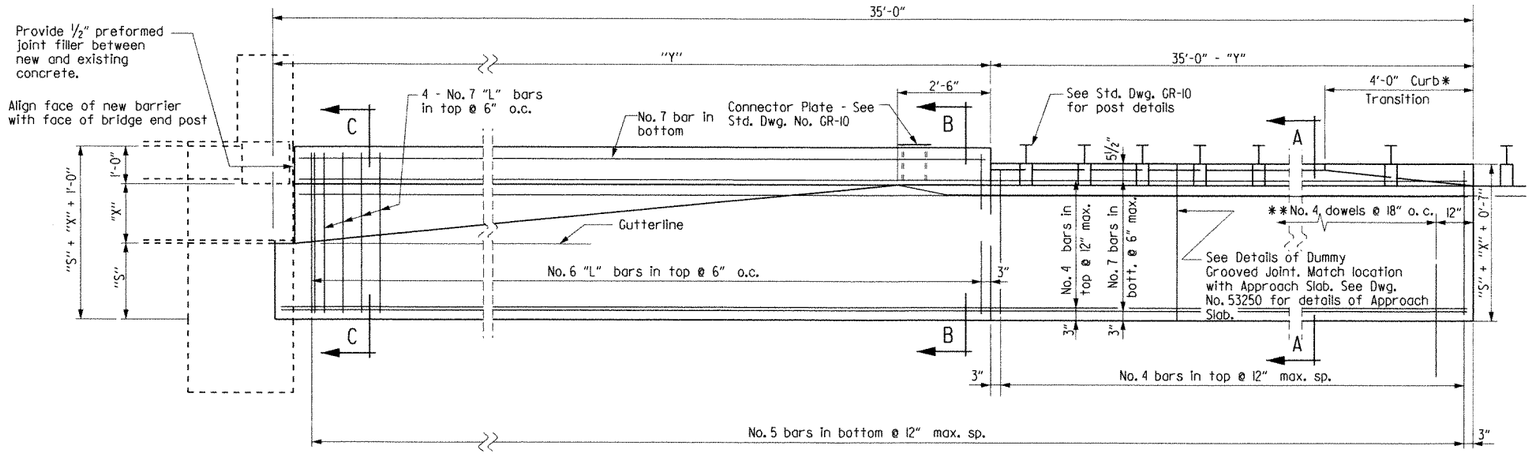
CHECKED BY: TMG DATE: 9/28/12 SCALE: AS NOTED

DESIGNED BY: — DATE: —

BRIDGE NO. B3323&B3326 DRAWING NO. 53250

PRINT DATE: 28-SEP-2012

| 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. | | BB0614 | 68 | 69 |
| | | | | (1) B3323&B3326 - APPR. GUTTERS - 53251 | | | | |



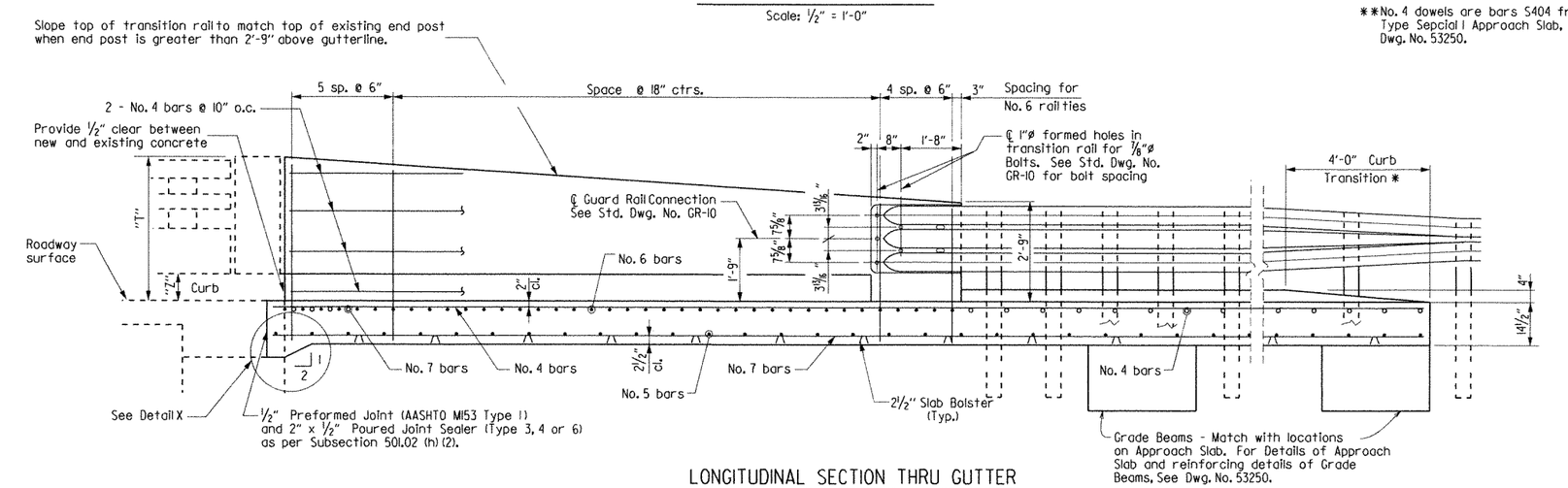

## PLAN - SQUARE BRIDGES

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

*Construct curb with height-transition as shown if drop inlet is not used at end of gutter.

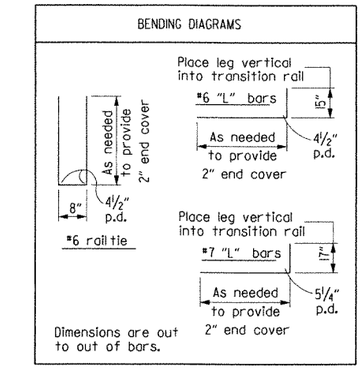
Construct curb full height (no height-transition) if drop inlet is used at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.

**No. 4 dowels are bars S404 from Type Sepcial I Approach Slab, Dwg. No. 53250.




## LONGITUDINAL SECTION THRU GUTTER

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




## TABLE OF VARIABLES

| "S" | "T" | "X" | "Y" | "Z"* | APPROX. QUANTITIES FOR INFORMATION ONLY: CONCRETE (CU. YD.) | REINFORCING STEEL (LB.) |
|---|---|---|---|---|---|---|
| 6'-0" | 3'-5" | 11 1/2" | 15'-0" | 12" | 14.05 | 2362 |
| | | | | | | |
| 10'-0" | 3'-5" | 11 1/2" | 15'-0" | 12" | 20.32 | 3427 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

NOTE: "S" = Distance from gutterline to edge of shoulder or edge of approach slab, if present, but in no case less than 3'-0".
"X" = Distance from gutterline to face of existing end post.
"Z" = Height of bridge curb.
"T" = Distance from top of end post to top of deck.

GENERAL NOTES

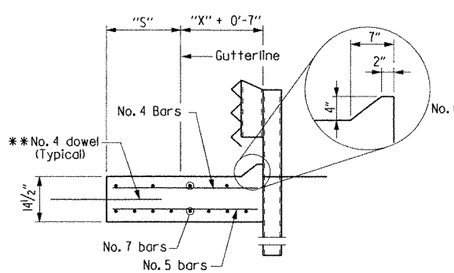
Concrete shall be Class S(AE) (f'c = 4,000 psi).

Reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi.) Fabricate bar lengths to provide 2" minimum cover at each end.

Approach gutters will be measured and paid for in accordance with Section 504 of the Standard Specifications.

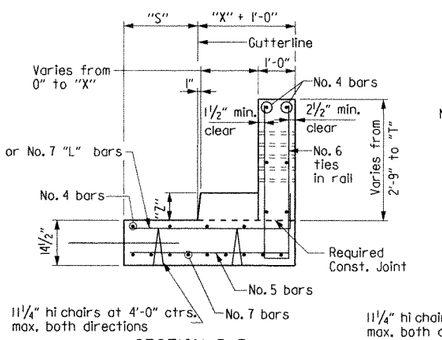
Remove existing guard rail connection post. Work and material will not be paid for separately but will be considered subsidiary to other items in the contract.

Bridge end may vary from that shown. Adjust gutter details as required to provide similar rail transition.



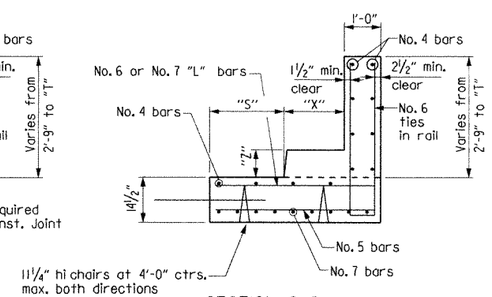

## SECTION A-A

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



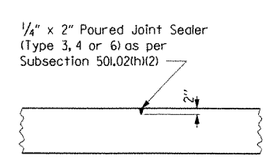

## SECTION B-B

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




## SECTION C-C

At end of Transition Rail
Scale: 1/2" = 1'-0"




## DETAILS OF DUMMY GROOVED JOINT

1/2" = 1'-0"

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/8/12
CARL J. FUSELIER

BRIDGE ENGINEER

# DETAILS OF TYPE SPECIAL I APPROACH GUTTERS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

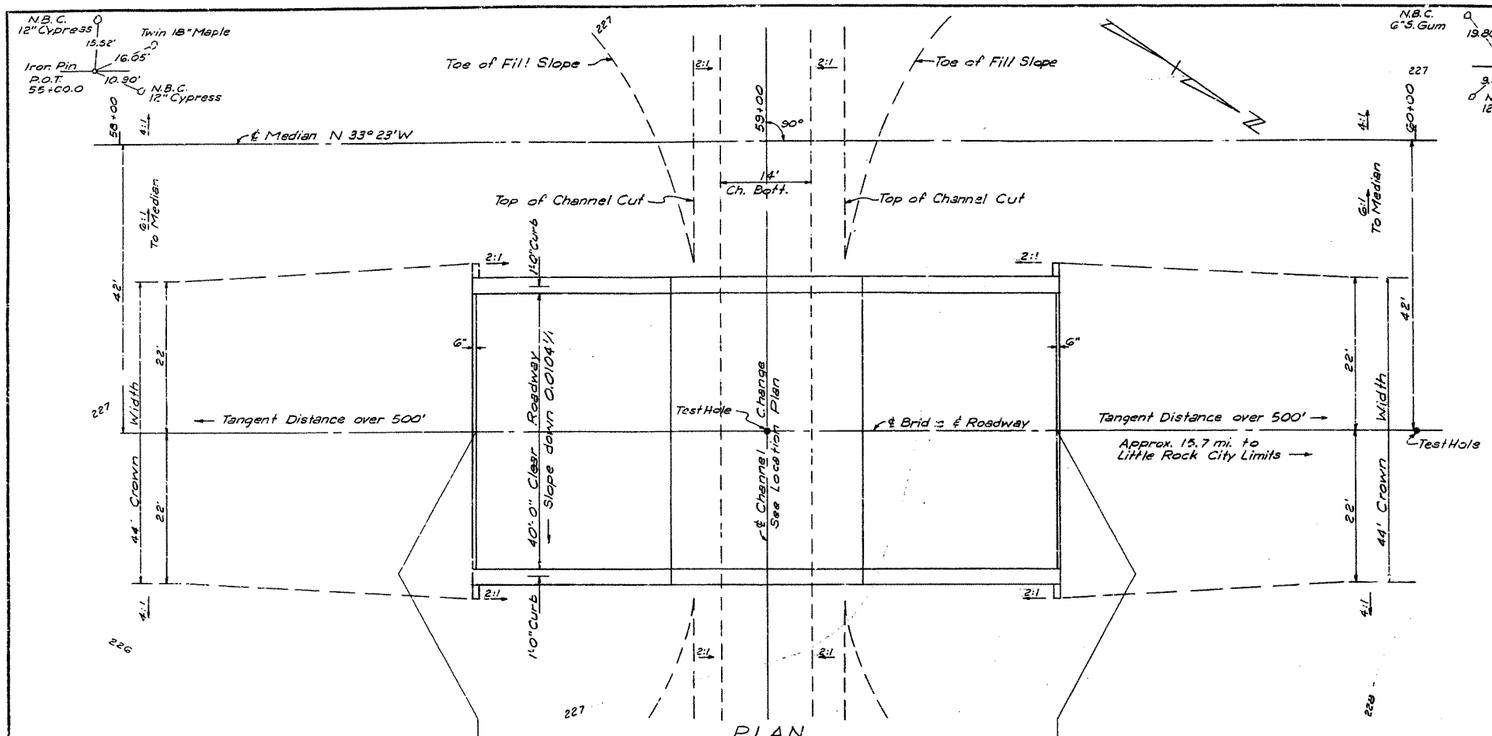
DRAWN BY: LJB DATE: 9/11/12 FILENAME: bb0614_typelgutter.dgn
CHECKED BY: TMG DATE: 9/28/12 SCALE: AS NOTED
DESIGNED BY: — DATE: —

BRIDGE NO. B3323&B3326 DRAWING NO. 53251

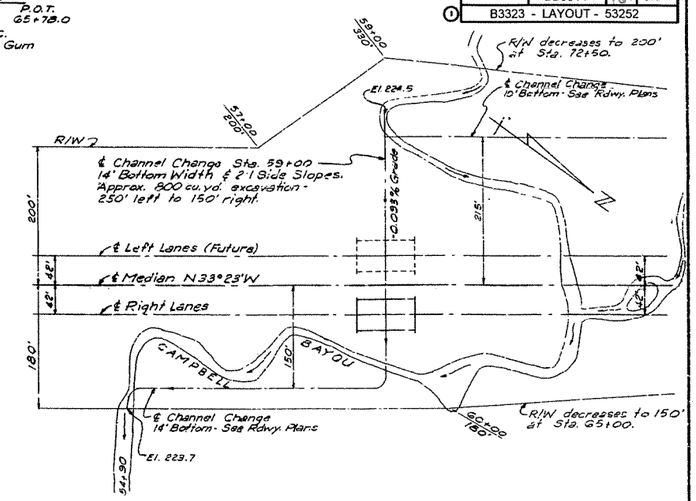
PRINT DATE: 28-SEP-2012

| FED. ROAD REG. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | BB0614 | | 16 | 21 |

B3323 - LAYOUT - 53252



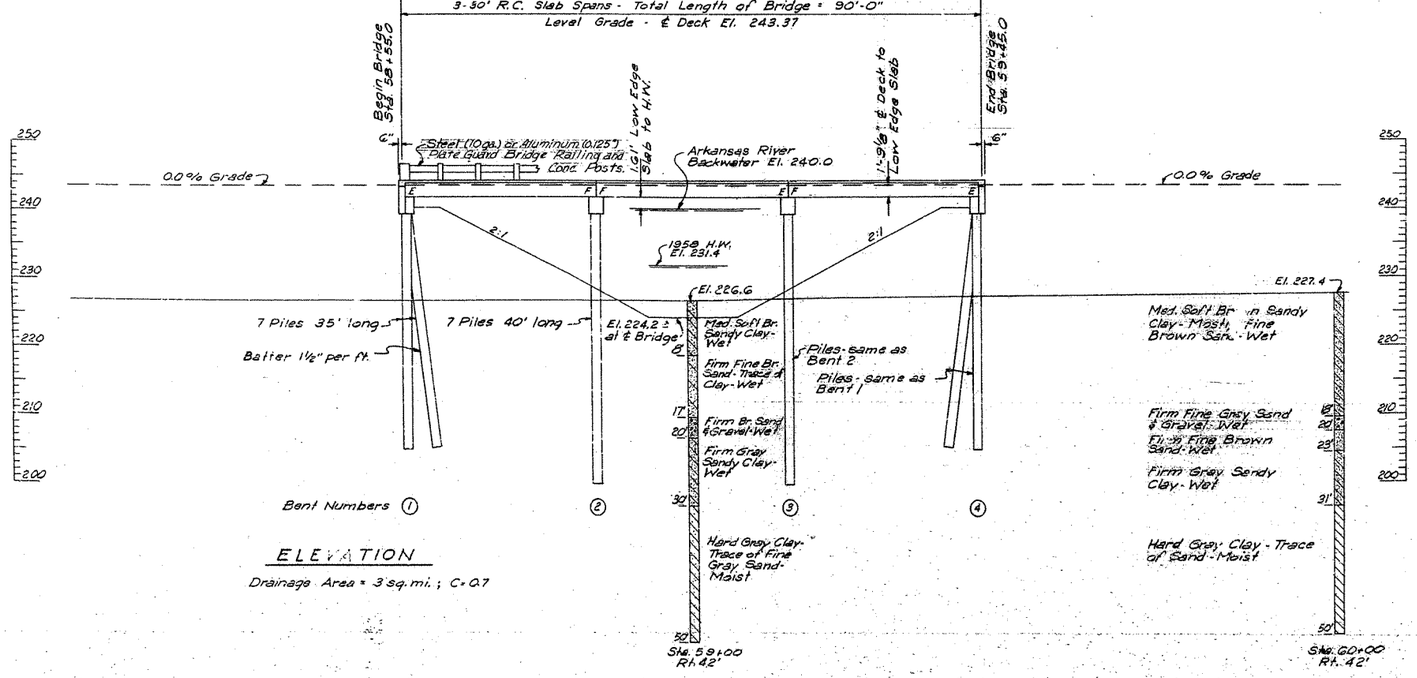

PLAN




LOCATION PLAN

Scale : 1" = :00'

3-30' R.C. Slab Spans - Total Length of Bridge = 90'-0"
Level Grade - ℄ Deck El. 243.37




ELEVATION

Drainage Area = 3 sq. mi. ; C = 0.7

## GENERAL NOTES

B.M. - Staple in side 18" Cypress 6' left Sta. 59+86; El. 229.56.

All piling to be 16" octagonal precast concrete piles driven to a minimum bearing of 35 tons per pile. Lengths of piling shown are assumed for estimating quantities only. Actual lengths to be determined in the field. Drive one 45' test pile in bent number 2. Drive end bent piles after embankment is in place.

For details of superstructure see Dwg. No. 5431B.
For details of substructure see Dwg. No. 5431A.
For details of precast piles see Dwg. No. 2382.
Specifications: Arkansas State Highway Commission Standard Specifications for Highway Construction, adopted Dec. 9, 1959.

Design Specifications: A.A.S.H.O. 1957

Design Live Loading : H20 - S16

Unit Stresses : Class S Concrete (n=10) 1200 p.s.i.
Reinforcing Steel 20,000 p.s.i.

**FOR INFORMATION ONLY**

**LAYOUT OF BRIDGE**
**OVER CAMPBELL BAYOU**
**GRANT CO. LINE — BINGHAM ROAD**
**PULASKI COUNTY**
**ROUTE 65 SEC. 12**
**ARKANSAS STATE HIGHWAY COMMISSION**
LITTLE ROCK, ARK.

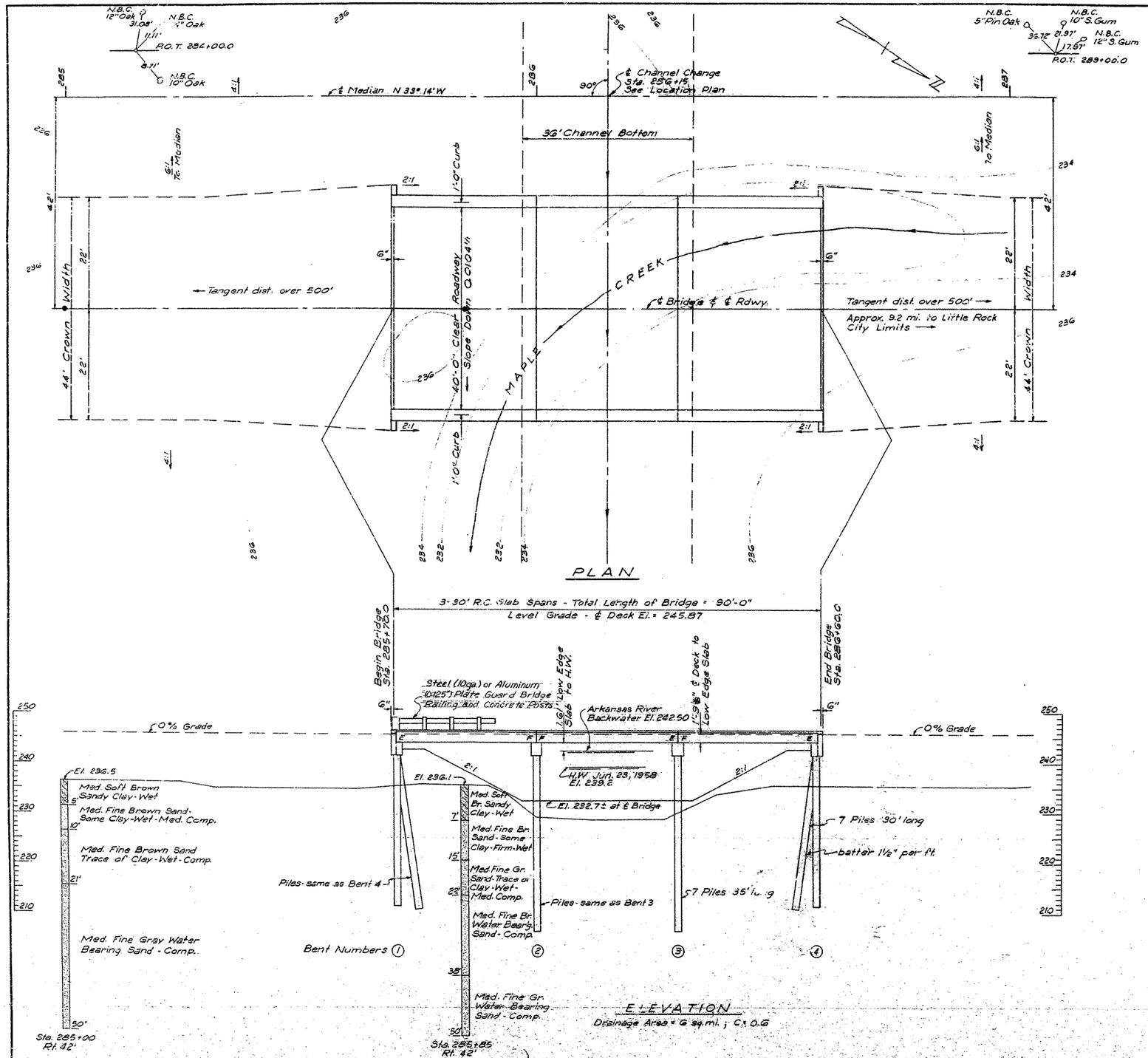
DRAWN BY: R.L.C. DATE: 1-20-59
TRACED BY: DATE:
CHECKED BY: F.D.N. DATE: 1-22-59
SCALE: 1" = 10'

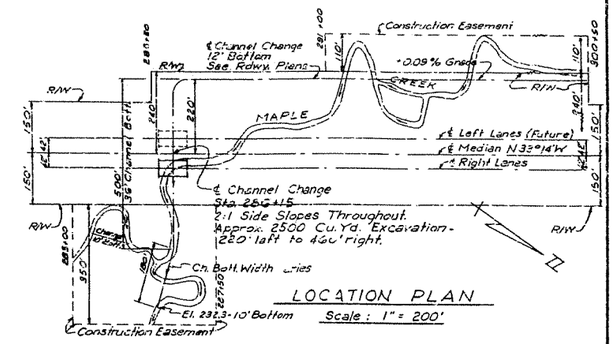
L. P. Carlson
BRIDGE ENGINEER

**BRIDGE NO. B3323** **DRAWING NO. 53252**

| FED. ROAD REGL. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | BB0614 | | 179 | 215 |

1 B3326 - LAYOUT - 53253




LOCATION PLAN

Scale: 1" = 200'

## GENERAL NOTES

B.M. - Nail in side 4" Pine 200' right Sta. 279+00; El. 244.46.

All piling to be 16" octagonal precast concrete piles driven to a minimum bearing of 35 tons per pile. Lengths of piling shown are assumed for estimating quantities only. Actual lengths to be determined in the field. Drive one 40' test pile in bent number 2. Drive end bent piles after embankment is in place.

For details of superstructure see Dwg. No. 5431 B.
For details of substructure see Dwg. No. 5431 A.
For details of precast piles see Dwg. No. 2382.
Specifications: Arkansas State Highway Commission Standard Specifications for Highway Construction, adopted Dec. 9, 1959.

Design Specifications: A.A.S.H.O. - 1957

Design Live Loading: H20-S16

Unit Stresses: Mass Concrete (n=10) 1200 p.s.i.
Reinforcing Steel 20,000 p.s.i.

**FOR INFORMATION ONLY**

**LAYOUT OF BRIDGE**
**OVER MAPLE CREEK**
**GRANT CO. LINE — BINGHAM ROAD**
**SALINE COUNTY**
**ROUTE 65 SEC. 12**
**ARKANSAS STATE HIGHWAY COMMISSION**
LITTLE ROCK, ARK.

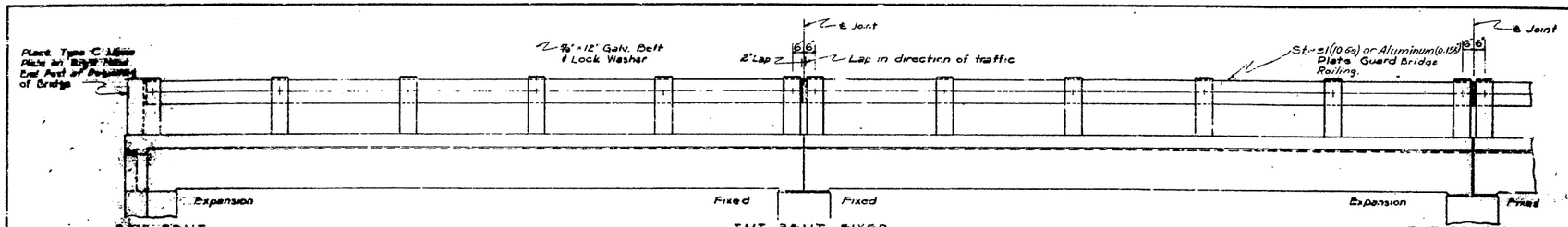
DRAWN BY: R.L.C. DATE: 1-14-59
TRACED BY: DATE:
CHECKED BY: FDH DATE: 1-20-59
SCALE: 1" = 10'

L. P. Carlson
BRIDGE ENGINEER

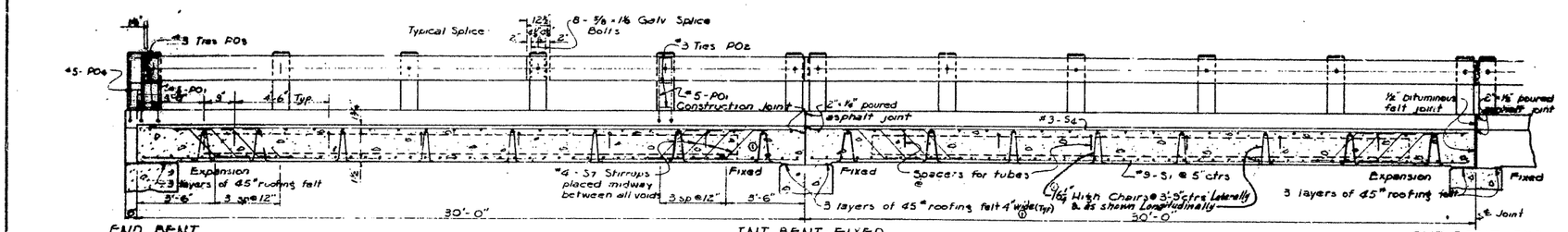
**BRIDGE NO.** B3326 **DRAWING NO.** 53253

| FED. ROAD REG. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 8 | ARK. | | | |
| JOB NO. | BB0614 | | 171 | 219 |

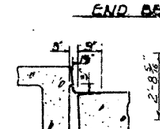
(1) B3323,B3326 - SLAB SPANS - 53254




PART SIDE ELEVATION

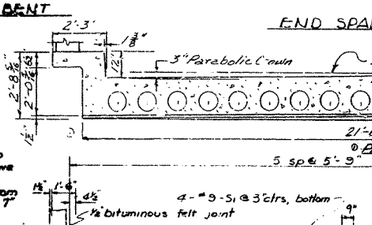



LONGITUDINAL SECTION AT ℄



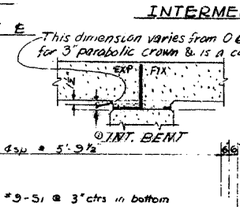

Opening to taper from 3" x 8" at top to 3½" x 7" at bottom

DRAIN DETAIL



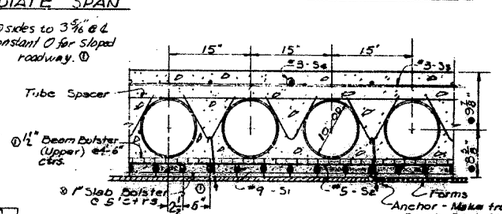

① PARABOLIC CROWN SECTION

For reinf. and details not shown see Section Hwy. Map (0.0104% Sloped Roadway).

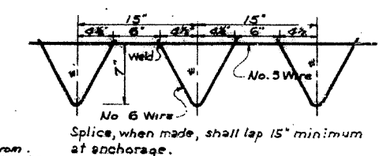



This dimension varies from 0 @ sides to 3⅝" @ ℄ for 3" parabolic crown & is a constant 0 for sloped roadway. ①

① INT. BENT



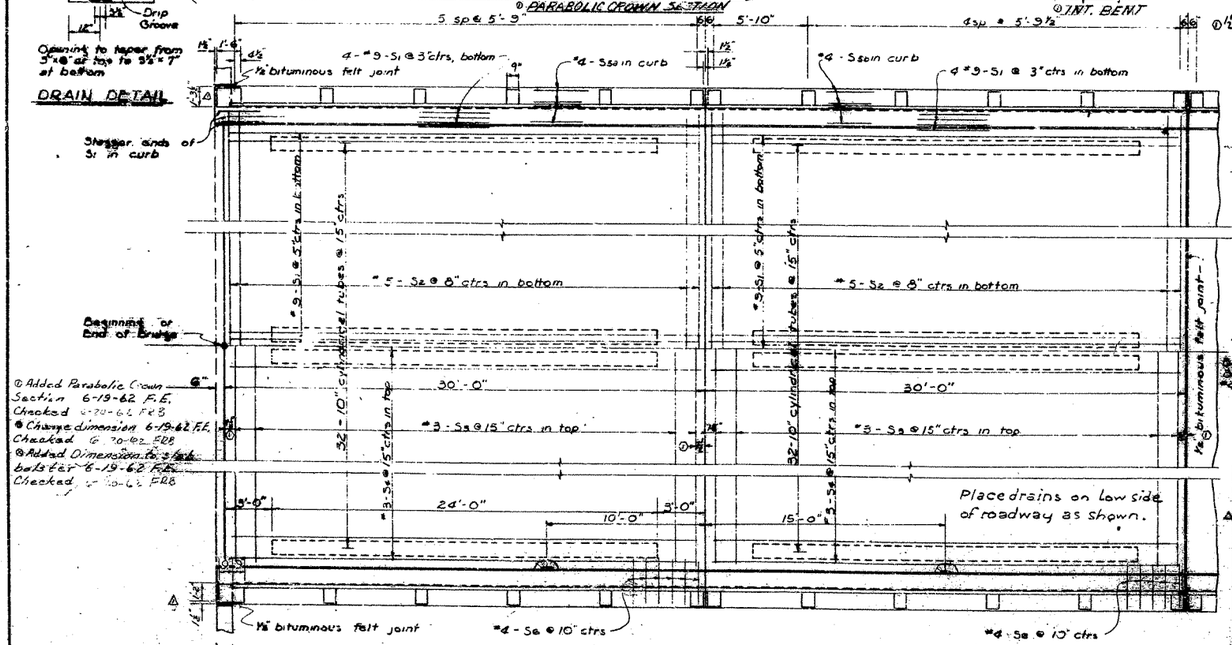

TUBE PLACING DETAIL




Splice, when made, shall lap 15" minimum at anchorage.

SPACER DETAIL

FOR INFORMATION ONLY




① Added Parabolic Crown Section 6-19-62 F.E. Checked 6-20-62 FRB
② Change dimension 6-19-62 F.E. Checked 6-20-62 FRB
③ Added Dimension to 3 Sets bolts 6-19-62 F.E. Checked 6-20-62 FRB

END SPAN

PART PLAN
Scale ¼" = 1'-0"

INT. SPAN

① Delete level and provide backwall, rap, and Bail Joint Detail A. No Accepted 4-26-63 KT + FRB 4-26-63

## DESIGN SPECIFICATIONS AASHO 1961

Design Live Loading — H20-S16 and Special Interstate Loading of H20. 24,000 axle's 4' on centers

Load distribution to slab — △ Dead Load 182 #/sf; △ Live Load 0.176 [illegible] width with 30% [illegible]

Unit Stresses — Class S Concrete (n = 10) 1250 #/□"; Reinforcing Steel 20,000 #/□"

## GENERAL NOTES

All concrete to be Class S. All exposed corners to be chamfered ¾" unless otherwise noted.

Reinforcing steel to be deformed bars of intermediate or hard grade. △ Shop lists and bending diagrams must be submitted and approval secured before fabrication is begun.

△ All cylindrical tubes used to form voids shall be moisture protection, corrugated type construction, minimum thickness 0.105", and shall be furnished complete with end closures.

All reinforcing steel and fiber tubes shall be accurately located in the forms and firmly held in place by means of steel wire supports and spacers for tubes of sufficient size and number to prevent displacement during the course of construction, but in no case of lesser design than that shown.

Wire supports for reinforcing bars will not be paid for directly but will be considered subsidiary to the item of Reinforcing Steel.

Tubes for forming voids and wire supports and spacers for tubes will not be paid for directly but will be considered subsidiary to the item of Class S Concrete.

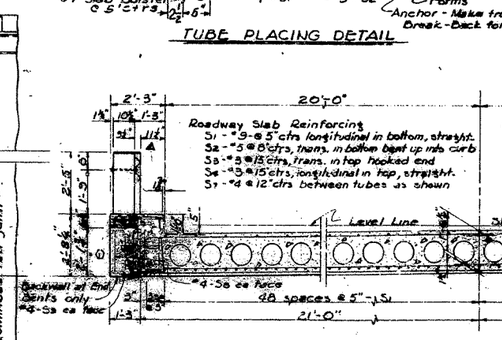
Shop lists and diagrams of wire supports and spacers for tubes shall be submitted for approval before fabrication is begun.

Roofing felt, bituminous felt and poured asphalt joints shall be measured and paid for as Class S Concrete.

The Bridge railing shall be of the type shown or an equivalent rigid type as approved by the Engineer. The plate guard railing including all concrete posts and fastenings shall be paid for at the unit price bid per linear foot for "Steel or Aluminum Plate Guard Bridge Railing".

SPECIFICATIONS: Arkansas State Highway Commission Standard Specifications for Highway Construction, Edition of 1959.

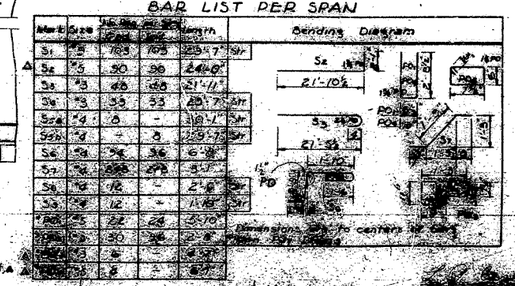
△ Revised End Post 11-2-61 RWM




SECTION THRU ROADWAY

BAR LIST PER SPAN

| Mark | Size | No. Bars Top | No. Bars Bottom | Length | Bending Diagram |
|---|---|---|---|---|---|
| S1 | #9 | 103 | 103 | 25'-7" | Str. |
| S2 | #5 | 50 | 98 | 24'-0" | |
| S3 | #3 | 66 | 66 | 21'-11" | |
| S3a | #3 | 33 | 33 | 25'-7" | Str. |
| S4a | #4 | 8 | - | 30'-1" | Str. |
| S4b | #4 | - | 8 | 29'-7" | Str. |
| S6 | #4 | 96 | 96 | 6'-8" | |
| S7 | #3 | 288 | 288 | 5'-7" | |
| S8 | #4 | 16 | - | 2'-8" | Str. |
| S9 | #4 | 12 | - | 1'-10" | Str. |
| PO1 | #5 | 22 | 28 | 3'-10" | |
| PO2 | #3 | 30 | 36 | 2'-8" | |
| PO3 | #3 | 6 | - | 4'-5" | |
| PO4 | #3 | 8 | - | 8'-7" | |




Revisions:
High chair spacing - Aug 5, 58 G.W.B.
Title Sld Specs. 6-1-60 H.B
Plate Guard Rail 6-23-60 H.B
Curb height to 12" 7-11-61 H.B

Revised: Date of Specifications
Dead & Live Load
Grade of Reinforcing Steel
Length of Bars S2, PO3, PO4

4-2-62 JAS
Ch. F.R.B. 4-2-62

## DETAILS OF STANDARD 30'-0" R.C. SLAB SPANS (WITH VOIDS)

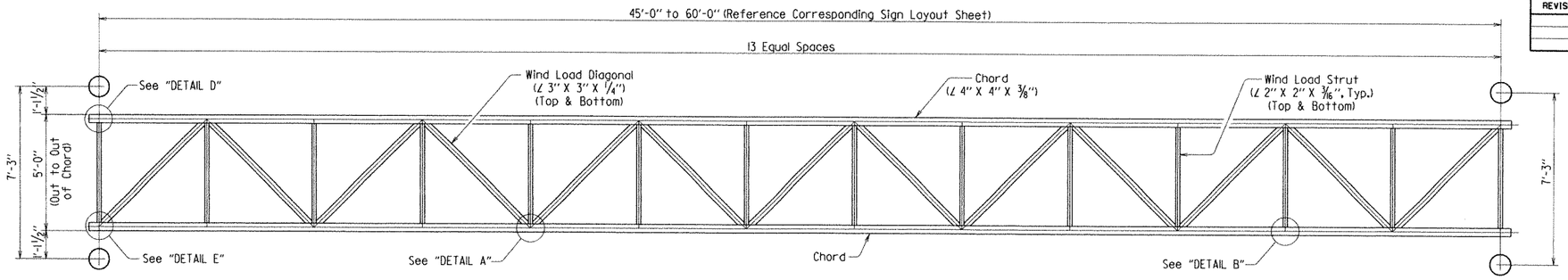
40'-0" CLEAR ROADWAY 2 CURBS @ 1'-0"

ROUTE SEC.

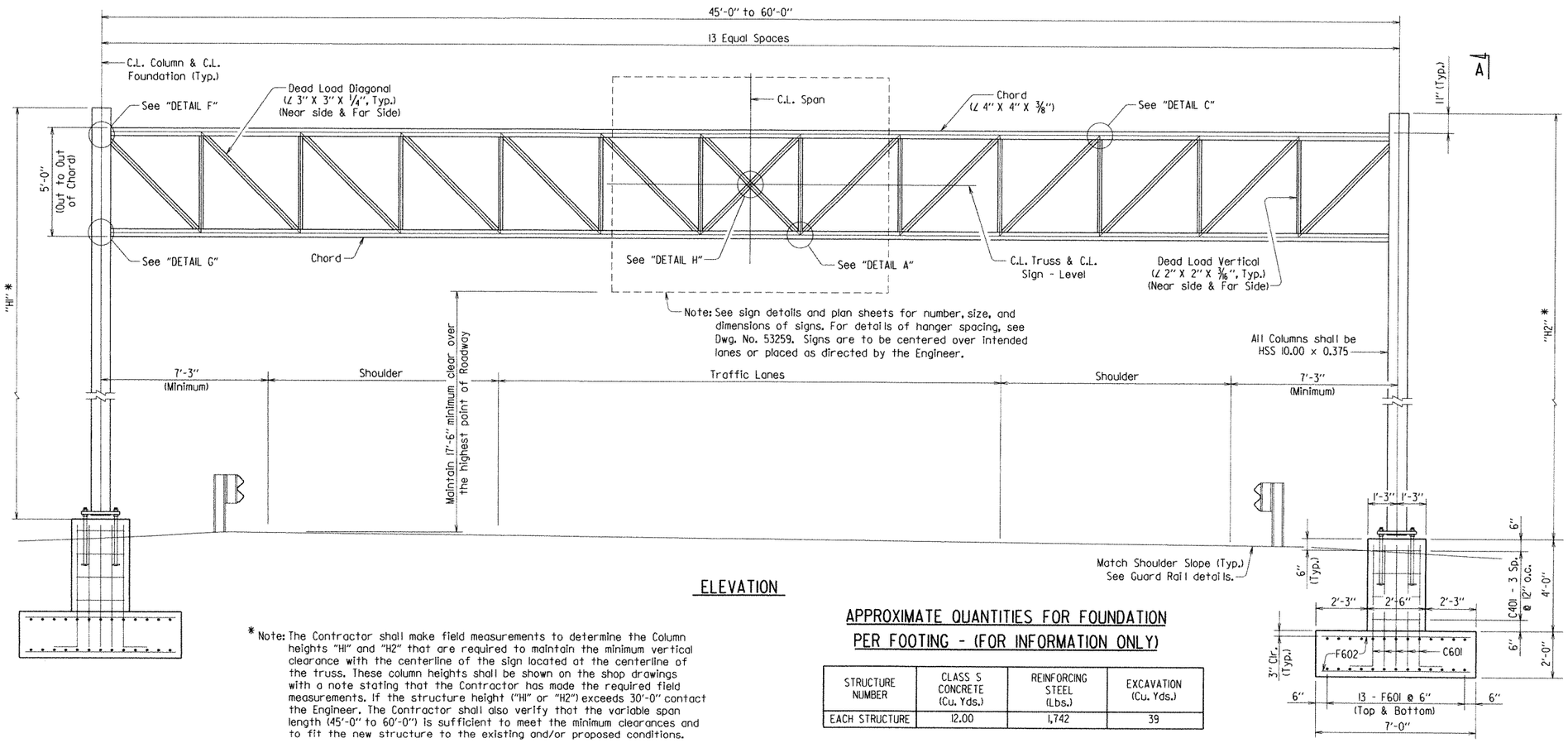
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWING NO. B3323, B3326 DRAWING NO. 53254

| 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. | | BB0614 | 172 | 219 |
| | | | | (1) OH-530-60-03 SIGN STRUCTURE 53255 | | | | |




## PLAN




## ELEVATION


## TRUSS CAMBER DIAGRAM

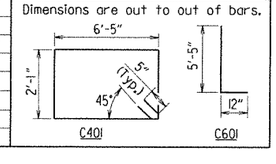
* Note: The Contractor shall make field measurements to determine the Column heights "H1" and "H2" that are required to maintain the minimum vertical clearance with the centerline of the sign located at the centerline of the truss. These column heights shall be shown on the shop drawings with a note stating that the Contractor has made the required field measurements. If the structure height ("H1" or "H2") exceeds 30'-0" contact the Engineer. The Contractor shall also verify that the variable span length (45'-0" to 60'-0") is sufficient to meet the minimum clearances and to fit the new structure to the existing and/or proposed conditions.

## APPROXIMATE QUANTITIES FOR FOUNDATION PER FOOTING - (FOR INFORMATION ONLY)

| STRUCTURE NUMBER | CLASS S CONCRETE (Cu. Yds.) | REINFORCING STEEL (Lbs.) | EXCAVATION (Cu. Yds.) |
|---|---|---|---|
| EACH STRUCTURE | 12.00 | 1,742 | 39 |

## BAR LIST-FOUNDATION - PER FOOTING

| MARK | NO. REQ'D | LENGTH | P.D. | BENDING DIAGRAMS |
|---|---|---|---|---|
| C401 | 8 | 17'-6" | 2" | Dimensions are out to out of bars. |
| C601 | 46 | 6'-4" | 4 1/2" | |
| F601 | 26 | 15'-6" | Str. | |
| F602 | 62 | 6'-6" | Str. | |




STATE OF ARKANSAS
Carl J. Puseliier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/8/12
CARL J. PUSELIER

BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS FOR 45' TO 60'
STEEL OVERHEAD SIGN STRUCTURES
BINGHAM RD. - GRANT COUNTY LINE (S)
PULASKI AND SALINE COUNTIES

ROUTE 530 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

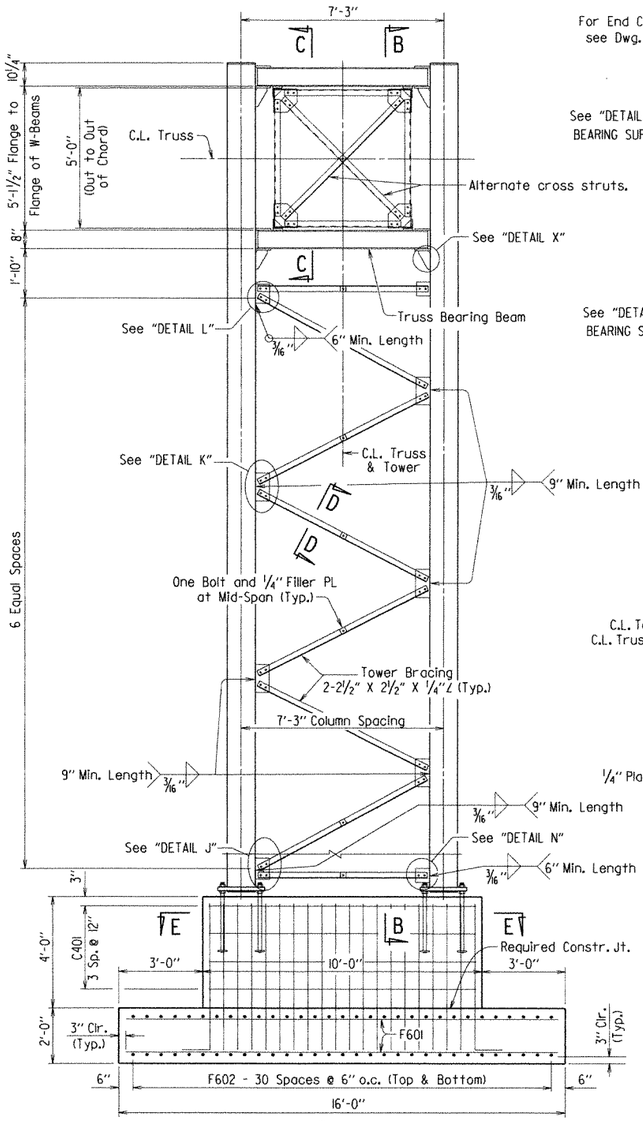
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 8/15/12 FILENAME: bb0614signdetails.dgn
CHECKED BY: CMW DATE: 9/19/12 SCALE: NOT TO SCALE
DESIGNED BY: STD DATE: —

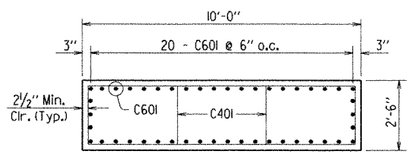
BRIDGE NO. OH-530-60-03 DRAWING NO. 53255

PRINT DATE: 28-SEP-2012

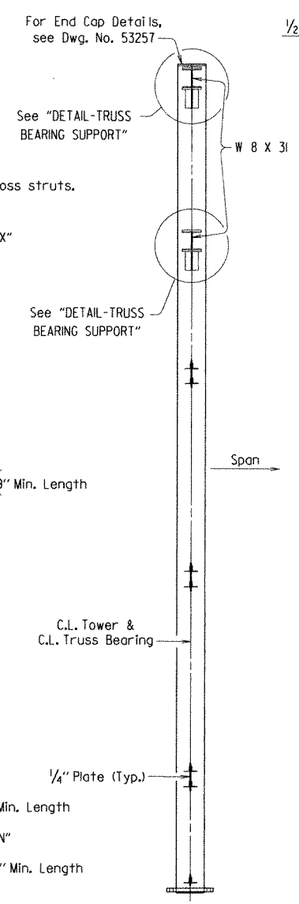
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 172 | 219 |
| | | | | (1) OH-530-60-03 | | SIGN STRUCTURE | | 53256 |



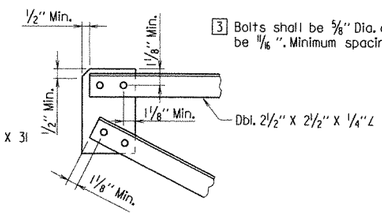

VIEW A-A




SECTION E-E

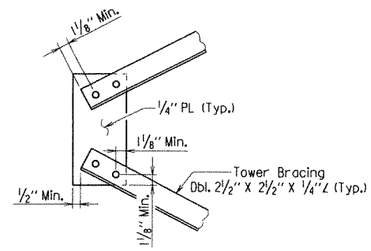



SECTION B-B

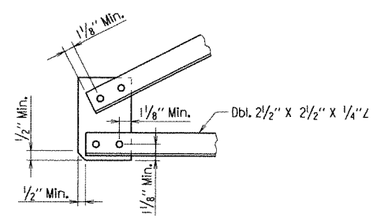



DETAIL L [3]

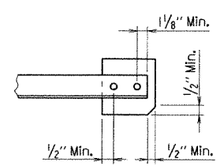
[3] Bolts shall be ⅝" Dia. and open holes shall be 11/16". Minimum spacing shall be 2¼".



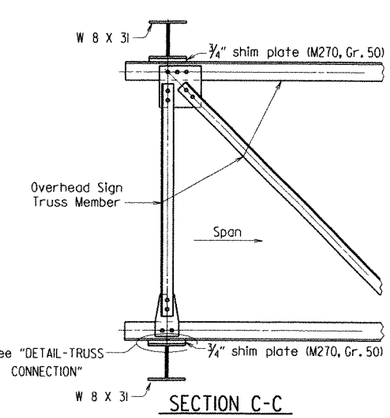

DETAIL K [3]



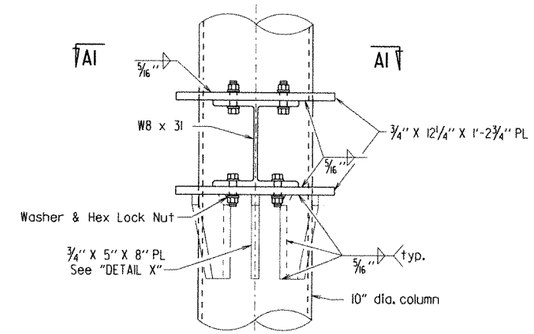

DETAIL J [3]



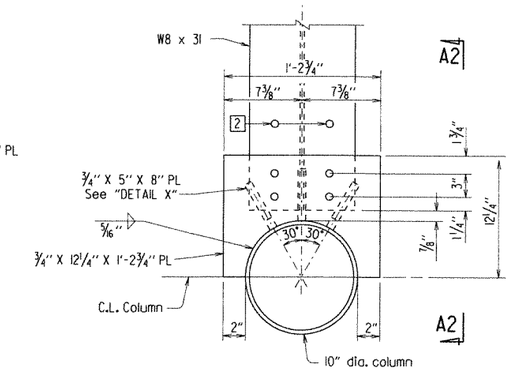

DETAIL N [3]



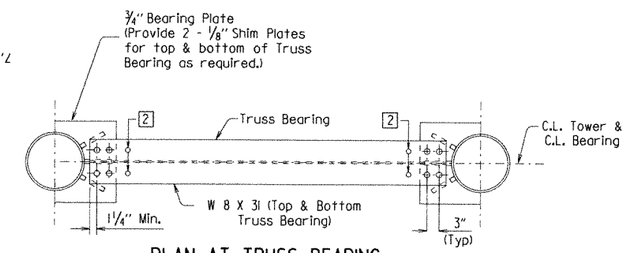

SECTION C-C



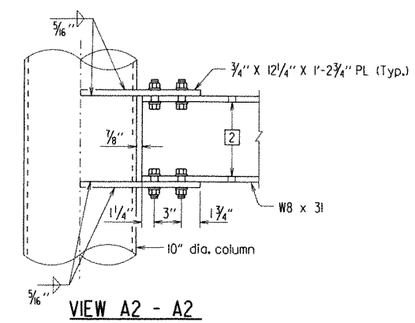

DETAIL - TRUSS BEARING SUPPORT




VIEW A1 - A1




PLAN AT TRUSS BEARING

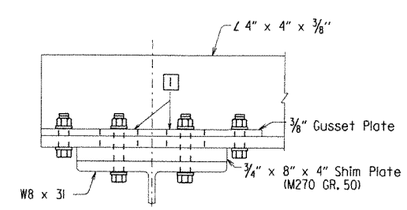



VIEW A2 - A2

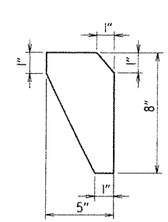
¾" X 5" X 8" Plate not shown for clarity

[1] Slotted Hole in Gusset Plate and Chord Angle 11/16" X 2". Use plate washer on Gusset plate side. 11/16" ø holes in ¾" shim plate and beam flange.

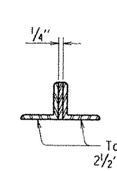
[2] 11/16" Dia. holes at top or bottom flanges as required.




DETAIL - TRUSS CONNECTION




DETAIL X




SECTION D-D

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/9/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS FOR 45' TO 60'
STEEL OVERHEAD SIGN STRUCTURES
BINGHAM RD. - GRANT COUNTY LINE (S)
PULASKI AND SALINE COUNTIES

ROUTE 530 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 8/15/12 FILENAME: bb0614signdetails.dgn
CHECKED BY: CMW DATE: 9/13/12 SCALE: NOT TO SCALE
DESIGNED BY: STD DATE: —

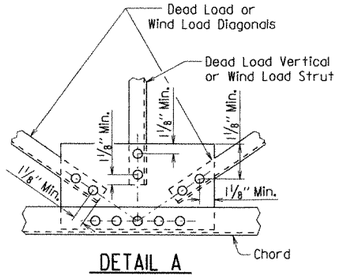
BRIDGE NO. OH-530-60-03 DRAWING NO. 53256

PRINT DATE: 28-SEP-2012

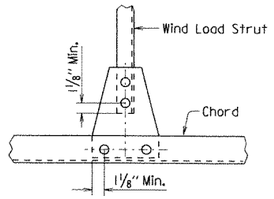
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 174 | 219 |
| | | | | (1) OH-530-60-03 | | SIGN STRUCTURE | | 53257 |

Note: All Gusset Plate thicknesses shall be 3/8".

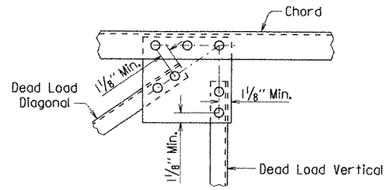
[1] Slotted Hole in Gusset Plate and Chord Angle 11/16" X 2". Use plate washer on Gusset plate side. 11/16" ø holes in 3/4" shim plate and beam flange.



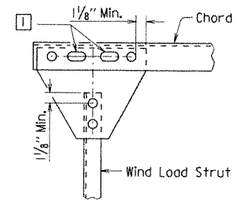

DETAIL A



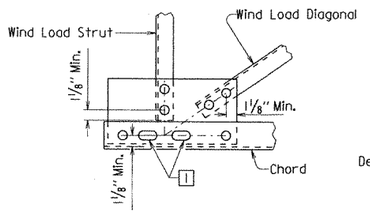

DETAIL B



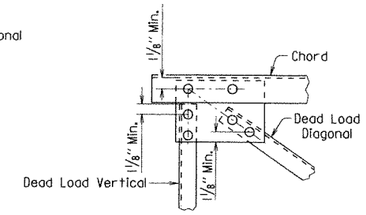

DETAIL C



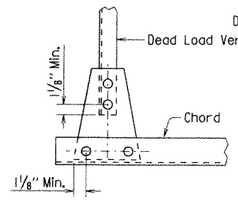

DETAIL D



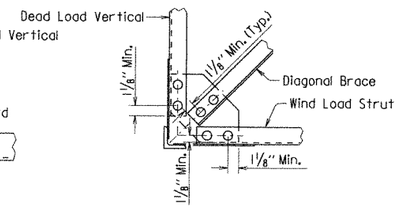

DETAIL E



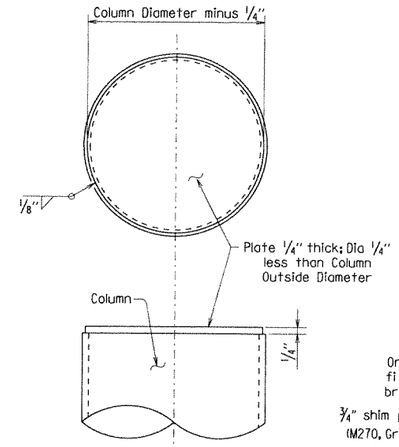

DETAIL F



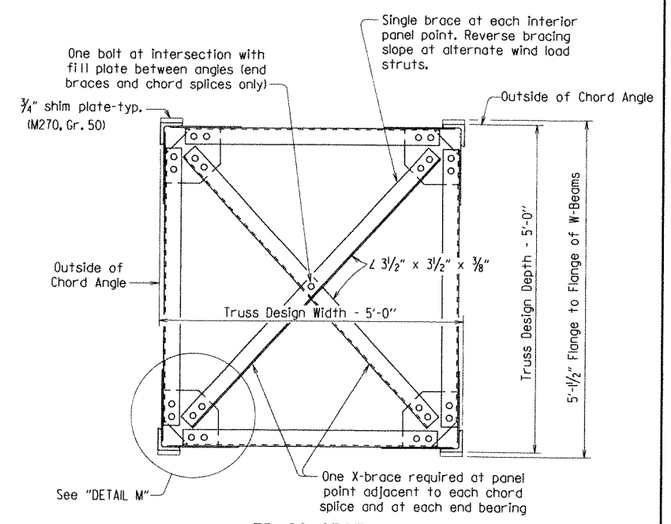

DETAIL G



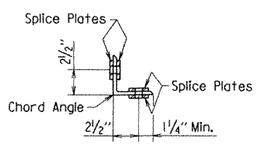

DETAIL M



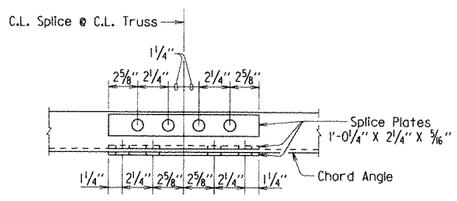

END CAP DETAILS



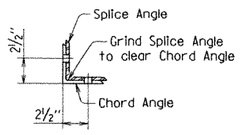

TRUSS SECTION




SECTION ON C.L. SPLICE

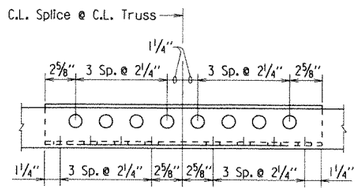



CHORD SPLICE USING PLATES




SECTION ON C.L. SPLICE

(4" ∠ Shown)

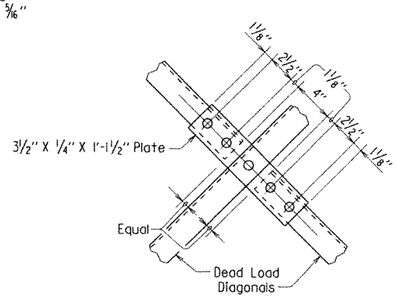



OPTIONAL CHORD SPLICE USING ANGLES

Place Splice Angle on inside of Truss

(4" ∠ Shown)

Note: Chord angles may be spliced in convenient lengths for galvanizing and sign placement.




DETAIL "H"

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/8/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS FOR 45' TO 60'
STEEL OVERHEAD SIGN STRUCTURES
BINGHAM RD. - GRANT COUNTY LINE (S)
PULASKI AND SALINE COUNTIES

ROUTE 530 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

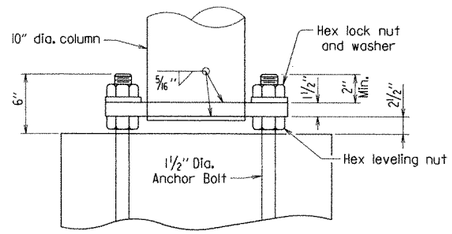
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 8/15/12 FILENAME: bb0614signdetails.dgn
CHECKED BY: CMW DATE: 9/19/12 SCALE: NOT TO SCALE
DESIGNED BY: STD. DATE: —

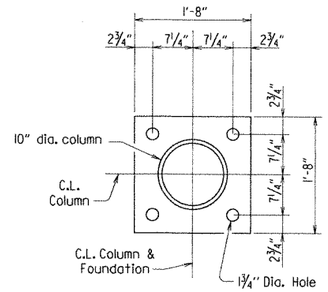
BRIDGE NO. OH-530-60-03 DRAWING NO. 53257

PRINT DATE: 28-SEP-2012

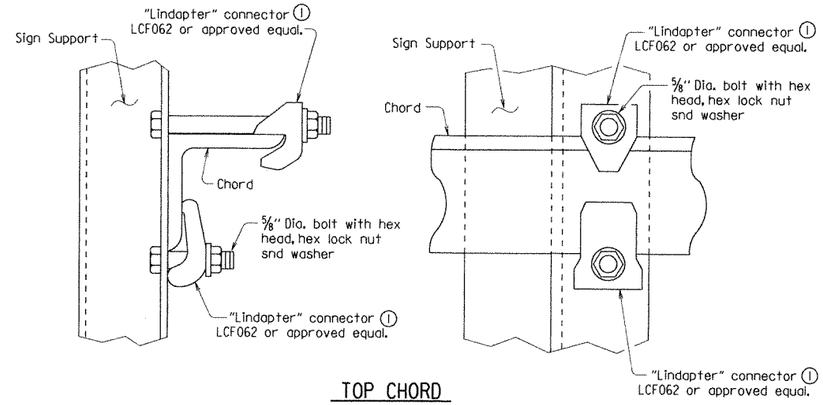
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 175 | 219 |
| | | | | (1) OH-530-60-03 SIGN STRUCTURE | | | | 53258 |



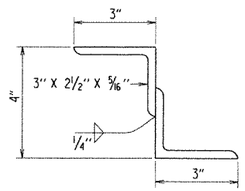

ELEVATION - COLUMN BASE




PLAN - COLUMN BASE

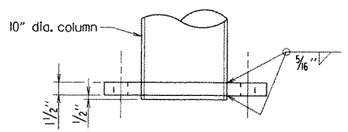



TOP CHORD



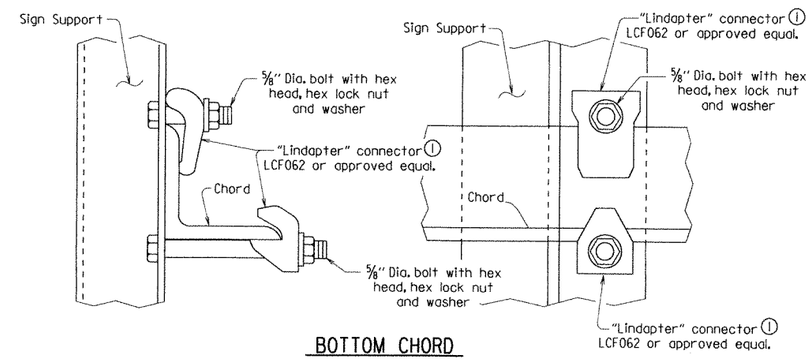

NOTE: Structural Z support may be fabricated from angles as shown.

DETAILS OF ALTERNATE Z SUPPORT




Note: Diameter of hole in base plate to be 1/8" larger than column diameter.

DETAIL OF COLUMN CONNECTION TO BASE PLATE

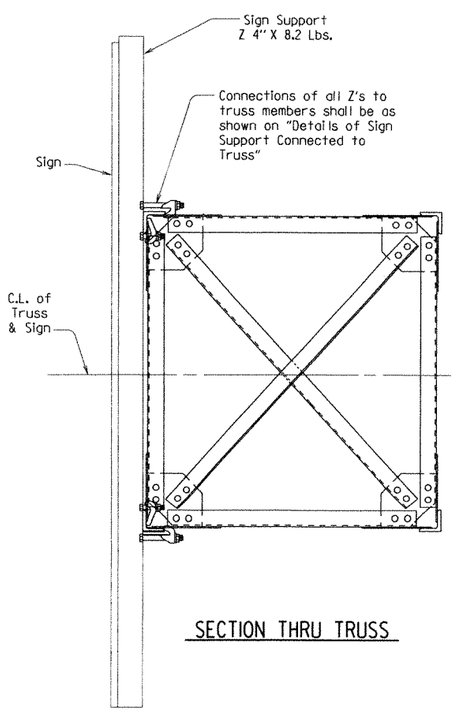



BOTTOM CHORD

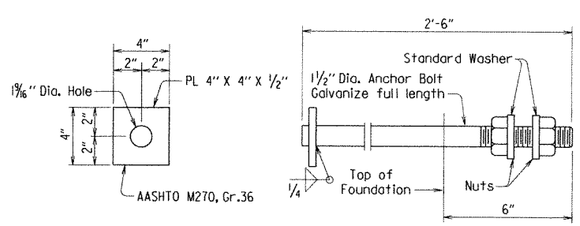
(1) Note: All "Lindapter" connectors or approved equal shall be installed according to manufacturer's recommendations. All connectors, bolts, nuts and washers shall be galvanized.

Note: Install all support connectors clear of the gusset plates and splice locations.

DETAIL OF SIGN SUPPORT CONNECTED TO TRUSS




SECTION THRU TRUSS




Anchor bolts shall comply with AASHTO M314, Grade 55, with Supplementary Requirement S1, and galvanized according to Section 807.07. Nuts for bolts shall be as specified in Section 807.07.

ANCHOR BOLT DETAIL

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7510 CARL J. FUSELIER 10/8/12

BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS FOR 45' TO 60'
STEEL OVERHEAD SIGN STRUCTURES
BINGHAM RD. - GRANT COUNTY LINE (S)
PULASKI AND SALINE COUNTIES

ROUTE 530 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 8/15/12 FILENAME: bb0614signdetails.dgn
CHECKED BY: CMN DATE: 9/19/12 SCALE: NOT TO SCALE
DESIGNED BY: STD. DATE: ——

BRIDGE NO. OH-530-60-03 DRAWING NO. 53258

PRINT DATE: 28-SEP-2012

| 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. | | BB0614 | 176 | 219 |

(1) OH-530-60-03 SIGN STRUCTURE 53259

GENERAL NOTES:
Construction Specifications: Arkansas State Highway Commission Standard Specifications for Highway Construction, Edition of 2003, with applicable special provisions and Supplemental Specifications.

Design Specifications: Standard Specifications for Structural supports for Highway Signs, Luminaries and Traffic Signals, AASHTO Fifth Edition (2009) with 2011 Interims.

Basic Wind Speed = 90 m.p.h.

This structure is approved for a sign area equivalent to 75% of the span at 15' tall. Use of additional sign area must be approved by the Engineer. If the structure height ('H1' or 'H2') exceeds 30'-0" contact the engineer.

FOUNDATION MATERIALS AND STRENGTHS:
Class S Concrete f'c = 3,500 psi.
Reinforcing Steel (AASHTO M31 or M53, Grade 60)fy = 60,000 psi.

Structural steel sign support members shall comply with the following specifications:

| | |
|---|---|
| Angles: | AASHTO M270, Grade 36 (Fy = 36,000 psi.) |
| Plate, W-Section, WT-Section: | AASHTO M270, Grade 50 (Fy = 50,000 psi.) |
| [1] Pipe: | ASTM A500 Grade B (Fy = 42,000 psi.) |
| | ASTM A501 Grade B (Fy = 50,000 psi.) |
| | ASTM A714, Class 2, Grade II, Type E or S (Fy = 50,000 psi.) |
| All grades of pipe require Heat traceability back to the original melting mill | |
| Z-Shapes: | AASHTO M270, Grade 36 (Fy = 36,000 psi.) |
| Shim Plates: | ASTM A1011, SS, Grade 36, Type 2, or Grade 40. |
| Bolts: | AASHTO M164, Type I. |
| Locknuts - Approved Type: | Meeting or exceeding AASHTO M292 |
| Washers: | AASHTO M293 |
| Nuts: | AASHTO M291 or M292, Grade 2H or Grade DH (Grade IOS) |

All steel shall be Galvanized according to section 807.19. Steel completely encased in concrete may not be Galvanized.

Drawings show general features of design only. Shop drawings shall be made in accordance with section 807.04, submitted, and approval secured before fabrication is begun.

No circumferential butt welds will be allowed in any pipe sections.

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

Connections shall be bolted with high-strength bolts. Unless noted otherwise, bolts shall be 5/8" diameter and open holes shall be 11/16". Bolt spacing shall be 2 1/4" for 5/8" diameter bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of all members.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval, If additional welds are required, whether temporary or permanent, a formal request with detailed drawings shall be submitted to the Engineer for approval. All welding shall conform to subsection 807.26.

Anchor bolts shall comply with AASHTO M314, Grade 55, with Supplementary Requirement S1, and galvanized according to Section 807.07. Nuts and washers for anchor bolts shall be furnished and galvanized in accordance with subsection 807.07. Anchor Bolts shall be pretensioned in accordance with Special Provision BB0614 "STEEL OVERHEAD SIGN STRUCTURES".

All truss frame bolts shall comply with AASHTO M164 Type I, galvanized according to Subsection 807.06, Nuts and washers for AASHTO M164 Type I bolts shall be furnished and galvanized in accordance with subsection 807.06.

Field splices shall be located In order to avoid sign panel connections, There shall be a maximum of two field splices and they shall be spaced a minimum of 15 ft. apart.

All main load carrying tension members greater than ½" in thickness shall conform to the requirements of the Longitudinal Charpy V-notch test specified for Zone I minimum service temperature. This work and materials shall be paid for in accordance with Special Provision Job BB0614 "STEEL OVERHEAD SIGN STRUCTURES".

All fillet welds of critical members shall be tested according to AWS D1.1 Structural Welding Code - Steel, using the magnetic particle method, Critical welds shall include: column to base plate and truss bottom support to column.

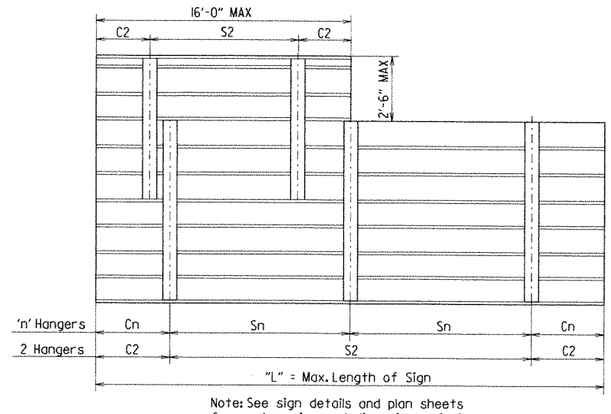
Truss field sections shall be shop assembled. Entire truss shall be fully assembled and lifted into place as one unit on to tower supports. All truss member connections shall be bolted connections.

Lock nuts to be equipped with nylon locking inserts or other approved type locking system. Locknuts to be installed according to manufacturer's recommendations.

The excavations for the footings shall be back-filled before the structure is attached to the foundations.

Galvanized Coating damaged during transport, handling, or erection shall be field repaired in accordance with section 807.88.

The Contractor shall make check measurements in the field and make any adjustments necessary to meet the required clearances and to fit the new structures to the existing conditions.




Note: See sign details and plan sheets for number, size and dimensions of signs.

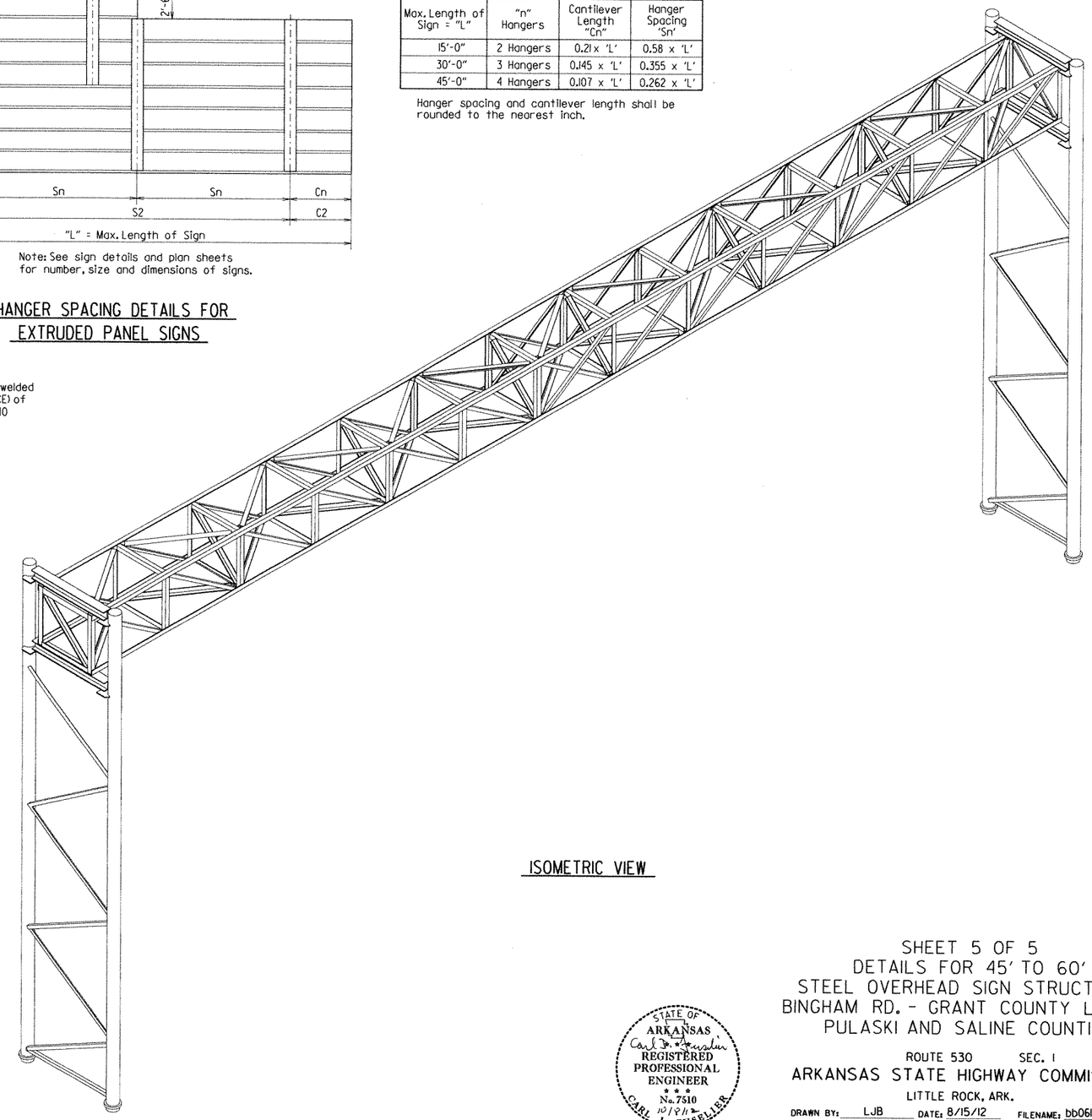
## HANGER SPACING DETAILS FOR EXTRUDED PANEL SIGNS

[1] In addition to material requirements, all pipe used for welded applications shall have a maximum carbon equivalency (CE) of 0.4 using the following equation: CE = %C + Mn/6 + %Cu/40 + %Ni/20 + %Cr/10 - %Mo/50 - %V/10

## HANGER VARIABLES

| Max. Length of Sign = "L" | "n" Hangers | Cantilever Length "Cn" | Hanger Spacing 'Sn' |
|---|---|---|---|
| 15'-0" | 2 Hangers | 0.21 x 'L' | 0.58 x 'L' |
| 30'-0" | 3 Hangers | 0.145 x 'L' | 0.355 x 'L' |
| 45'-0" | 4 Hangers | 0.107 x 'L' | 0.262 x 'L' |

Hanger spacing and cantilever length shall be rounded to the nearest inch.



## ISOMETRIC VIEW

STATE OF ARKANSAS
Carl J. Puseller
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/8/12
CARL J. PUSELLER

BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS FOR 45' TO 60'
STEEL OVERHEAD SIGN STRUCTURES
BINGHAM RD. - GRANT COUNTY LINE (S)
PULASKI AND SALINE COUNTIES

ROUTE 530 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

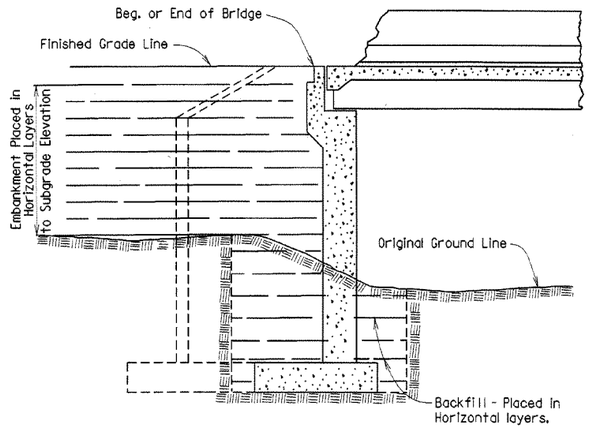
DRAWN BY: LJB DATE: 8/15/12 FILENAME: bb0614signdetails.dgn
CHECKED BY: CMW DATE: 9/19/12 SCALE: NOT TO SCALE
DESIGNED BY: STO DATE: —

BRIDGE NO. OH-530-60-03 DRAWING NO. 53259

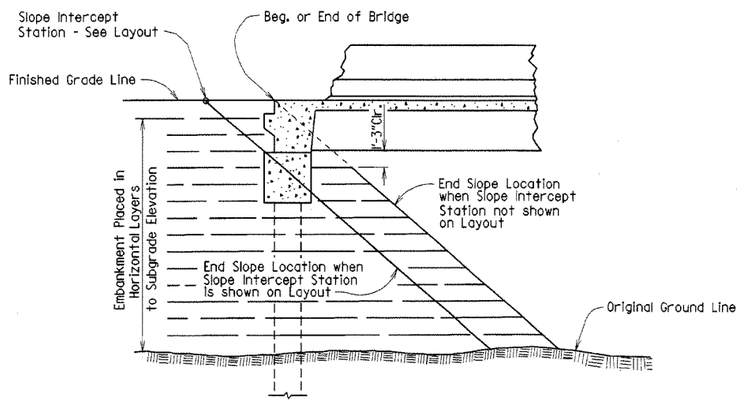
PRINT DATE: 28-SEP-2012

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 04-10-2003 | | | | 6 | ARK. | | 177 | |
| | | | | JOB NO. | | | | |

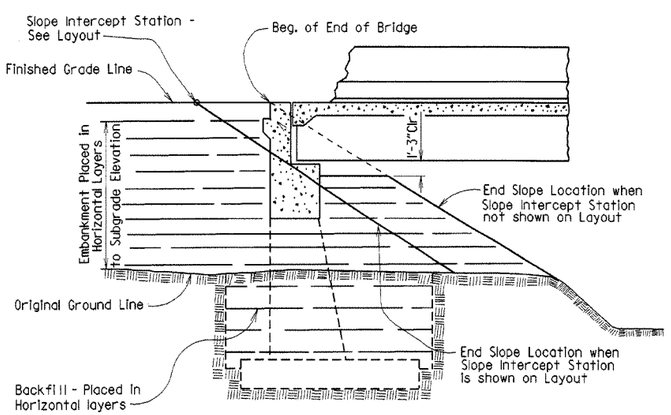
(1) EMBANKMENT & BACKFILL 1888A



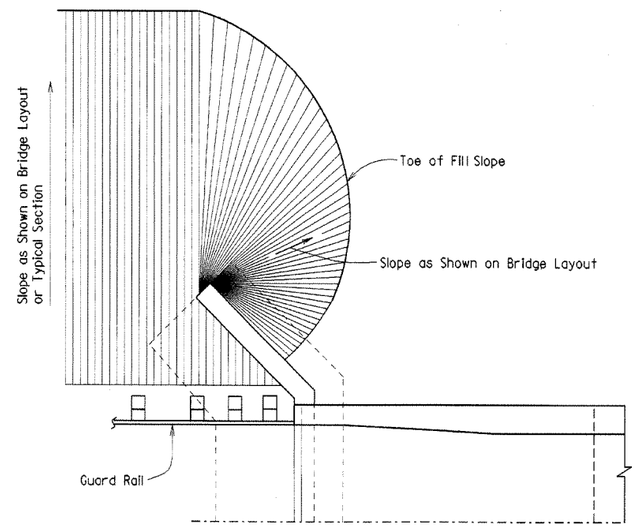

EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



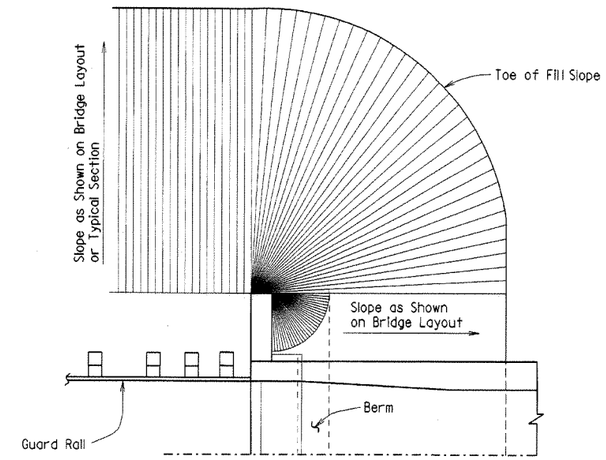

EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



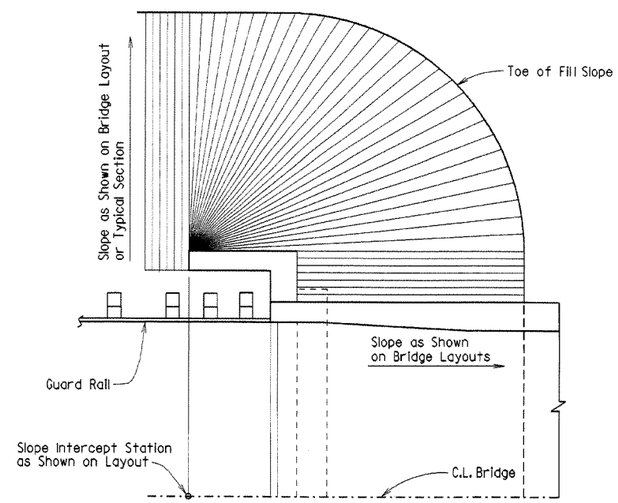

EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



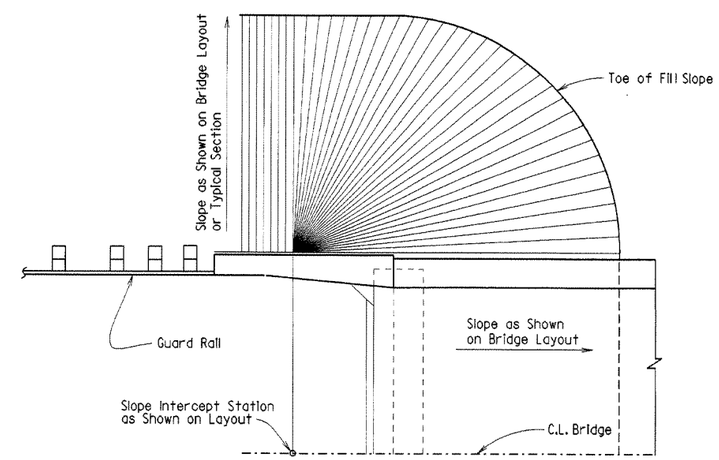

VERTICAL WALL ABUTMENTS




SPILL-THROUGH END BENTS WITH STUB WING




SPILL-THROUGH END BENTS WITH TURNBACK WING




SPILL-THROUGH END BENTS WITH TRANSITION WING

## METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 4 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to subsections 210.09, 210.10 and 801.08 of the Specifications for construction requirements.

⚠1 Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

BRIDGE ENGINEER

EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

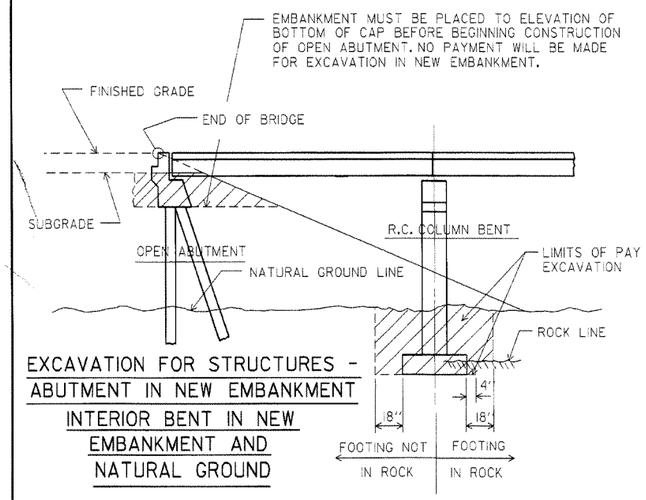
LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 04-10-2003 FILENAME: BI888A.STD
CHECKED BY: CJF DATE: 04-10-2003 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

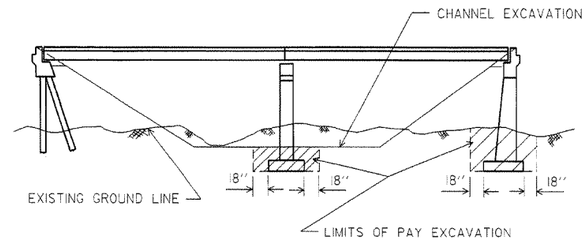
BRIDGE NO. DRAWING NO. 1888A

BI888A.STD

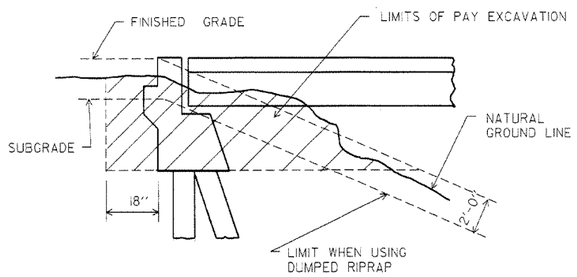
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 04-10-2003 | | | | 6 | ARK. | | 178 | |
| | | | | JOB NO. | | | | |
| | | | | | | RIP. & EXCAV. | 1891F | |



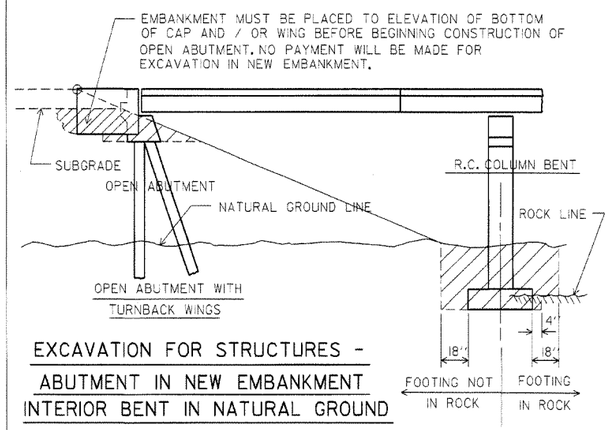

EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



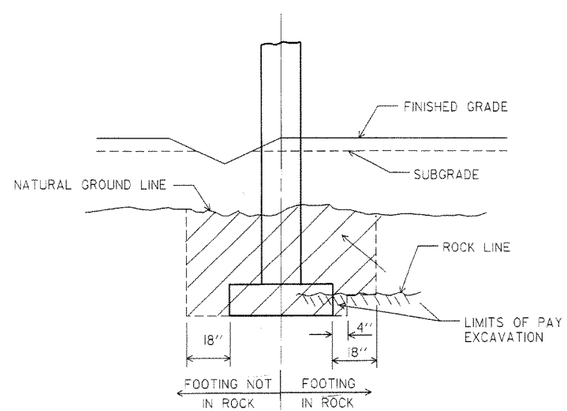

EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



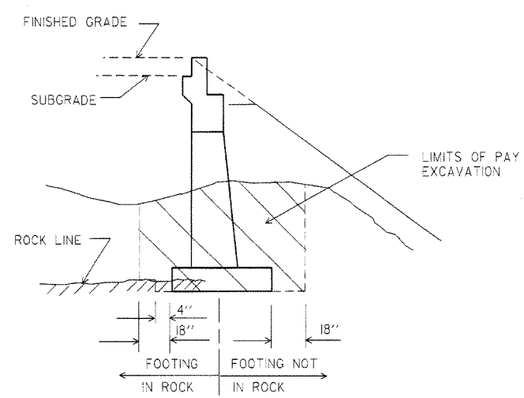

EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



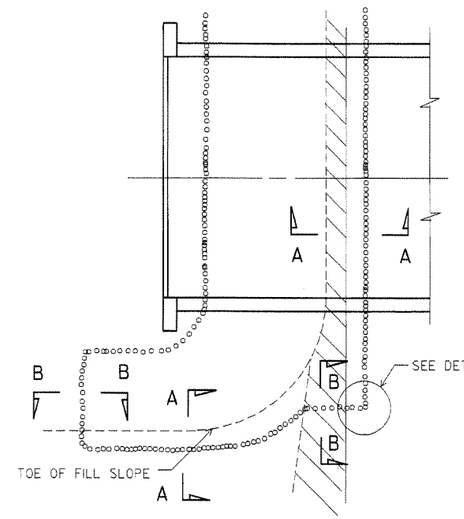

EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



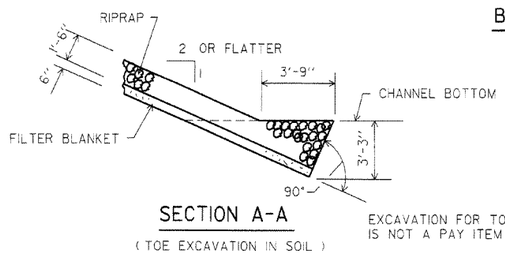

EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND




EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



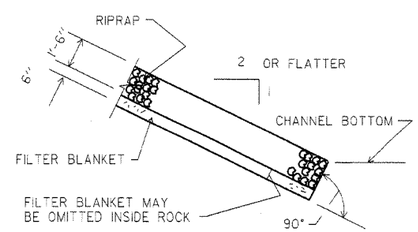

PLAN OF DUMPED RIPRAP




SECTION A-A

( TOE EXCAVATION IN SOIL )

EXCAVATION FOR TOES IS NOT A PAY ITEM



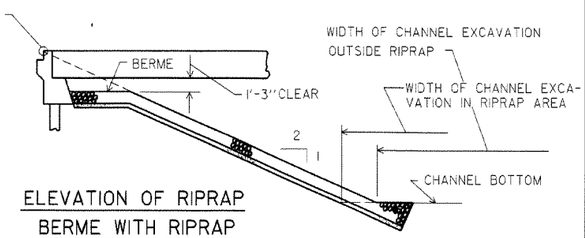

SECTION A-A

( TOE EXCAVATION IN ROCK )

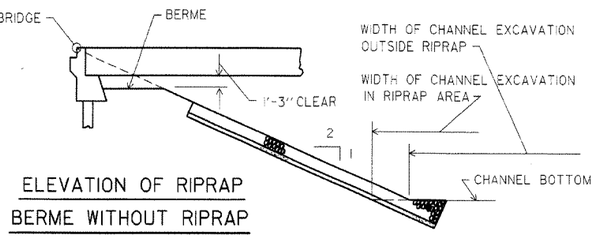
NOTE : USE THIS TYPE OF TOE WHEN ROCK IS ENCOUNTERED WHICH IS IN A STABLE CONDITION.

NOTE : IN LIEU OF AN AGGREGATE FILTER BLANKET, A SYNTHETIC FIBER GEOTEXTILE FABRIC COMPLYING WITH THE REQUIREMENTS OF SUBSECTION 816.02(e) MAY BE USED.

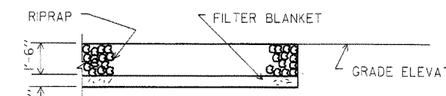
NOTE : DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES ARE INCLUDED FOR INFORMATION AS TO HOW PLAN QUANTITIES WERE CALCULATED AND FOR USE WHEN ADJUSTING QUANTITIES WHEN CHANGING FOOTING ELEVATION.



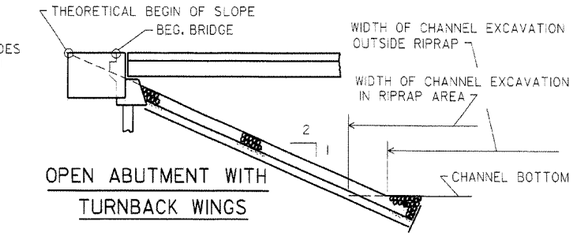

ELEVATION OF RIPRAP BERME WITH RIPRAP



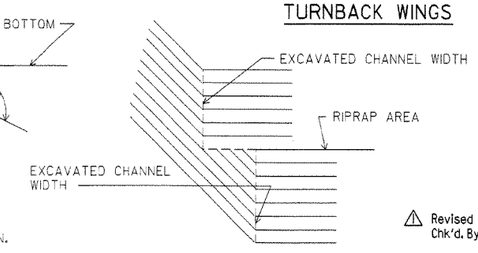

ELEVATION OF RIPRAP BERME WITHOUT RIPRAP




SECTION B-B




OPEN ABUTMENT WITH TURNBACK WINGS




DETAIL C

⚠ Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

BRIDGE ENGINEER

DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY: | MJT | DATE: | 04-10-2003 | FILENAME: | B1891F.STD |
| CHECKED BY: | CJF | DATE: | 04-10-2003 | SCALE: | NO SCALE |
| DESIGNED BY: | STD. | DATE: | — | | |

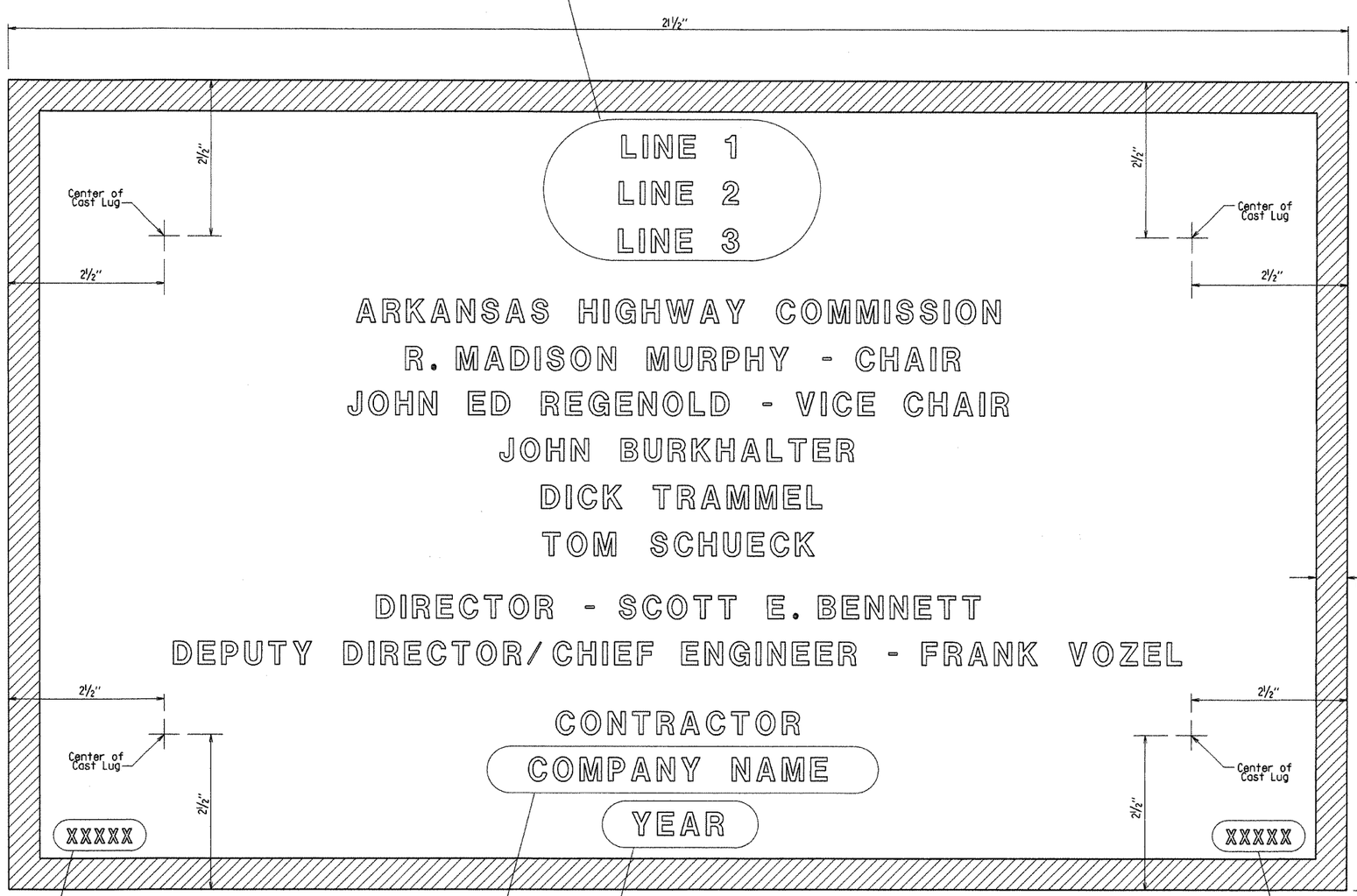
BRIDGE NO. DRAWING NO. 1891F

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 9-8-11 | | | | 6 | ARK. | | 179 | |
| | | | | JOB NO. | | | | |

1 NAME PLATE 2387

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

| | Example 1 | Example 2 | Example 3 | Example 4 |
|---|---|---|---|---|
| Line 1 | Red River | Southern | Saline | |
| Line 2 | Relief | Railroad | River | Highway 5 |
| Line 3 | | Overpass | Relief | |



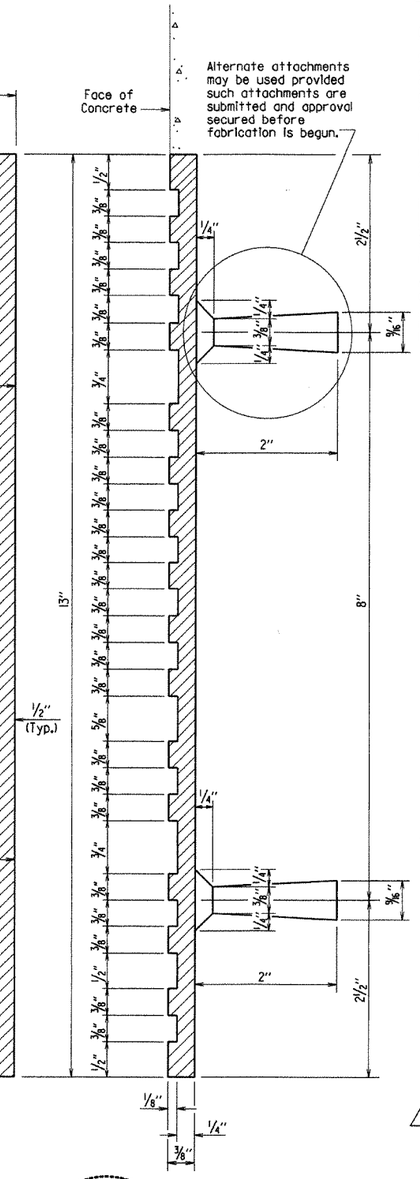

Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20 HL-93

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example : 2001

Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example : ABCD CONSTRUCTION, INC.

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples : A1234 05432

TYPICAL BRIDGE NAME PLATE




GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2003 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812 of the Standard Specifications.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 3/8"x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered. The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

1 Revised and Redrawn 9-8-11 KDH Checked By: CRE

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7510 CARL J. PUSELLER

BRIDGE ENGINEER

DETAILS OF STANDARD TYPE D BRIDGE NAME PLATE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

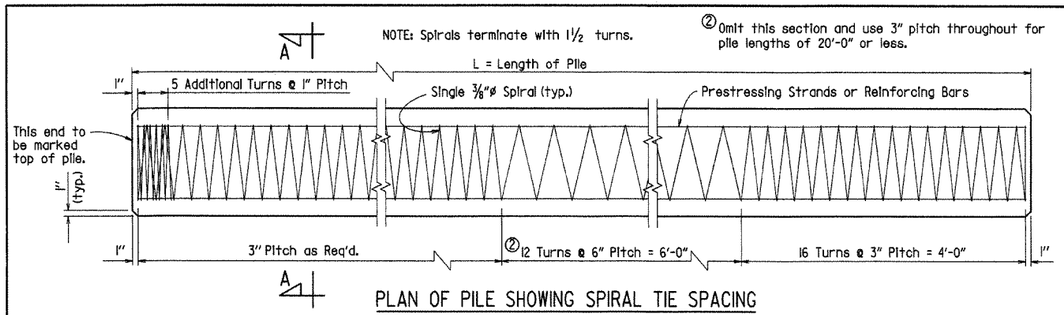
DRAWN BY: KDH DATE: 9-8-11 FILENAME: B2387.STD

CHECKED BY: CRE DATE: 9-8-11 SCALE: 1'-0" = 1'-0" OR AS NOTED

DESIGNED BY: STD. DATE: —

BRIDGE NO. DRAWING NO. 2387

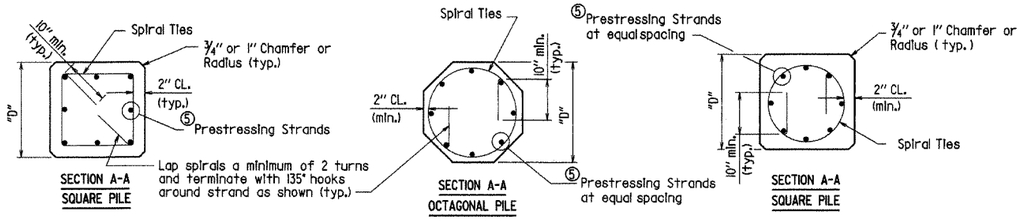
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 12-10-2009 | | | | 6 | ARK. | | 180 | |
| | | | | JOB NO. | | | | |
| | | | | ① | CONCRETE PILES | | 14964 | |




## PLAN OF PILE SHOWING SPIRAL TIE SPACING

For anchorage of pile to bent, see Bent Details.

NOTE: Strand location shall be symmetrical about the axis of the pile with no more than one strand difference between any two adjacent sides. Circular spiral ties are required for odd number of strands.




## PRESTRESSED CONCRETE PILES

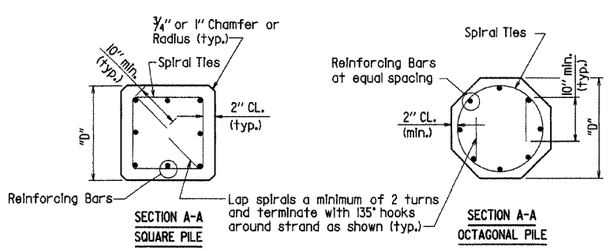
① Number based on initial prestress force of "B" x Ultimate Tensile Stress, Prestress Losses and min. 700 psi Unit Prestress on concrete after Losses.

"B" — 0.75 Low Relaxation; 0.70 Stress-Relieved

⑤ See table "Prestressed Concrete Pile Properties" for actual number of strands per pile size.

## PRESTRESSED CONCRETE PILE PROPERTIES

| | Grade | Strand Diameter | ① Number of Strands per Size "D" | | | | | Minimum Ultimate Tensile Strength Per Strand (Lbs.) | Initial Prestressing Force Per Strand (Lbs.) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 16" Oct. | 18" Oct. | ④ 14" Sq. | 16" Sq. | 18" Sq. | | |
| Stress-Relieved | 250 | 7/16" | 11 | 13 | 10 | 13 | 16 | 27,000 | 18,900 |
| | | ½" | 8 | 10 | 8 | 10 | 12 | 36,000 | 25,200 |
| | 270 | 7/16" | 9 | 11 | 8 | 12 | 14 | 31,000 | 21,700 |
| | | ½" | 7 | 9 | 6 | 8 | 10 | 41,300 | 28,900 |
| Low Relaxation | 250 | 7/16" | 9 | 11 | 8 | 11 | 14 | 27,000 | 20,200 |
| | | ½" | 7 | 9 | 6 | 8 | 10 | 36,000 | 27,000 |
| | 270 | 7/16" | 8 | 10 | 7 | 9 | 12 | 31,000 | 23,300 |
| | | ½" | 6 | 8 | 6 | 7 | 9 | 41,300 | 31,000 |

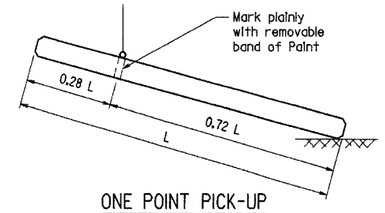



## NON-PRESTRESSED CONCRETE PILES

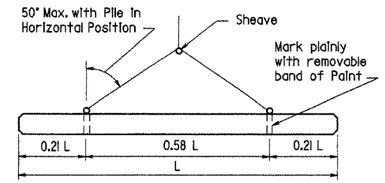
## NON-PRESTRESSED PILE REINFORCING

| Pile Size | No. Req'd. | Bar Size |
|---|---|---|
| 16" Oct. | 8 | # 7 |
| 18" Oct. | 8 | # 7 |
| ④ 14" Sq. | 8 | # 7 |
| 16" Sq. | 8 | # 7 |
| 18" Sq. | 8 | # 8 |

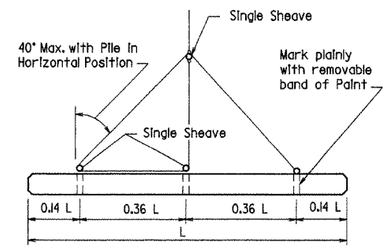
④ 14" sq. piles to be used in Seismic Performance Zone 1 only.



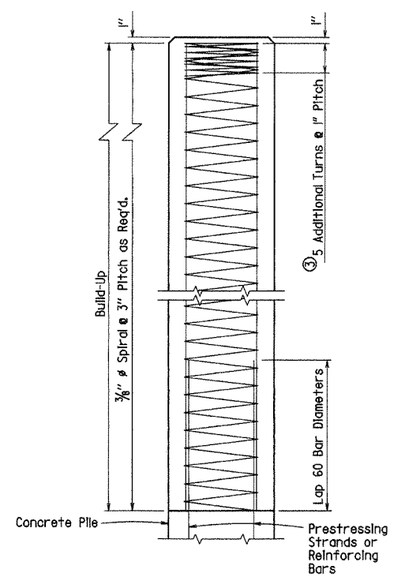

## ONE POINT PICK-UP




## TWO POINT PICK-UP




## THREE POINT PICK-UP




## BUILD-UP

③ The five additional turns of spiral reinforcing may be omitted for build-up without additional driving.

## MAXIMUM PICKUP LENGTHS "L"

| Type of Pick-Up | Prestressed | | Non-Prestressed | Prestressed | | | Non-Prestressed | | |
|---|---|---|---|---|---|---|---|---|---|
| | 16" Oct. | 18" Oct. | 16" or 18" Oct. | ④ 14" Sq. | 16" Sq. | 18" Sq. | ④ 14" Sq. | 16" Sq. | 18" Sq. |
| One Point | 52' | 55' | 46' | 55' | 59' | 63' | 52' | 51' | 55' |
| Two Point | 75' | 80' | 67' | 79' | 84' | 90' | 75' | 74' | 79' |
| Three Point | 105' | 112' | 93' | 110' | 117' | 126' | 104' | 103' | 111' |

## GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 Edition) with applicable Supplemental Specifications and Special Provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fourth Edition.

SEISMIC PERFORMANCE ZONES: 1 & 2

The Contractor may use prestressed piles or non-prestressed piles. Either type will be measured and paid for at the contract unit price bid for "Concrete Piling".

SPIRAL REINFORCING: Spiral reinforcing shall be steel wire meeting the requirements of AASHTO M 32 or M 225 or shall be plain round steel bars meeting the requirements of AASHTO M 31 or M 53, Gr. 60.

MANUFACTURE, TRANSPORTATION AND STORAGE: Shipment of piles from the plant site or pile driving will not be permitted until the required minimum compressive strength is reached, and in no case less than 10 days after pouring the concrete. Prestressed piles may be removed from the casting bed to nearby storage any time after transfer of stress. See Section 802 "Concrete for Structures" of the Standard Specifications for additional information.

⚠ Unless otherwise approved by the Engineer, all protruding or exposed pile lifting or transporting devices above the finished ground shall be removed after pile driving is complete. Removal shall be a minimum of 1" below the surface of the pile and the cavity shall be filled with a non-shrink grout listed on the Department's QPL.

FORMS: For forming exterior of piles, the use of steel forms on concrete-founded casting beds is required unless otherwise approved by the Engineer. Side forms may have a maximum drift on each side not exceeding ¼" per foot.

TOLERANCES: Pile ends shall be plane surfaces perpendicular to the longitudinal axis of pile with a maximum tolerance of ⅛" per foot transversely.

The maximum sweep (deviation from straightness measured from end to end of the pile, while not subject to bending forces) shall not exceed ⅛" in 10 feet.

BUILD-UPS: To provide for build-ups of piles where authorized by the Engineer, concrete shall be cut back to expose the reinforcing steel for a distance sufficient to provide a lap of 60 diameters of the reinforcing bars required for build-up. Reinforcing for build-ups shall be the reinforcing shown for non-prestressed piles.

INSTALLATION, MEASUREMENT AND PAYMENT: See Section 805 "Piling" of the Standard Specifications.

### ADDITIONAL NOTES FOR PRESTRESSED PILES ONLY:

CONCRETE: Concrete in prestressed piles shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 5,000 psi at 28 days. Compressive strength at transfer of the prestressing force shall be not less than 4,000 psi. Concrete in build-ups shall have a minimum compressive strength of 4,000 psi and shall be cured for a minimum of 10 days.

PRESTRESSING REINFORCING: Seven-wire stress-relieved or low relaxation strands shall conform to the general requirements of AASHTO M 203. Broken wires within individual strands will be permitted up to 2% of the total number of wires in each pile, providing that there is not more than one broken wire per strand. Two or more broken wires per strand will be cause for replacement of the strand, even though the two broken wires are within the 2% limitation.

### ADDITIONAL NOTES FOR NON-PRESTRESSED PILES ONLY:

All concrete shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 4,000 psi at 28 days.

All longitudinal reinforcing bars shall be deformed bars and shall conform to the requirements of AASHTO M 31 or M 53, GR. 60.

⚠ Added paragraph to General Notes KDH 12-10-2009
Checked by: CJF Date: 12-10-2009

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

BRIDGE ENGINEER

# STANDARD DETAILS OF CONCRETE PILES IN SEISMIC PERFORMANCE ZONES 1 & 2

ROUTE SEC.

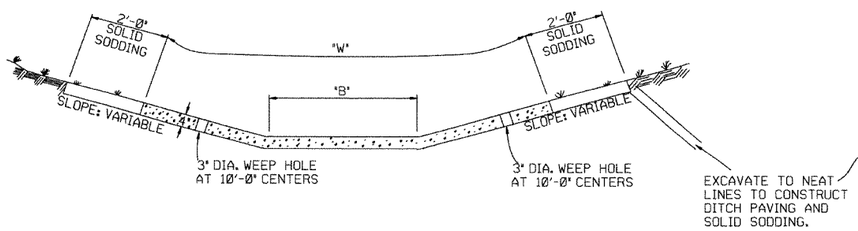
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 1-17-08 FILENAME: bl4964_std.dgn
CHECKED BY: JAC DATE: 1-17-08 SCALE: no scale
DESIGNED BY: Std. DATE: —

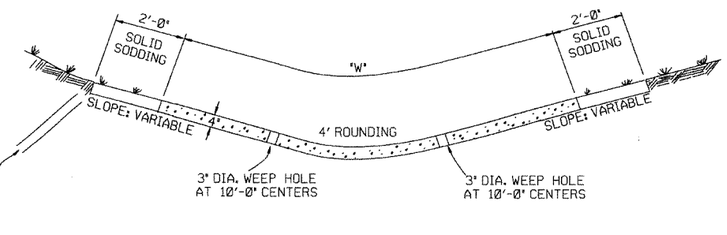
BRIDGE NO. DRAWING NO. 14964

REFER TO TABULATION OF QUANTITIES FOR 'W' & 'B' DIMENSIONS




TYPE A

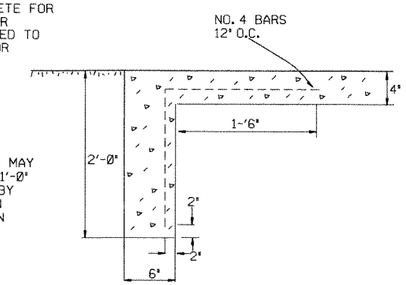
REFER TO TABULATION OF QUANTITIES FOR 'W' DIMENSIONS




EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.

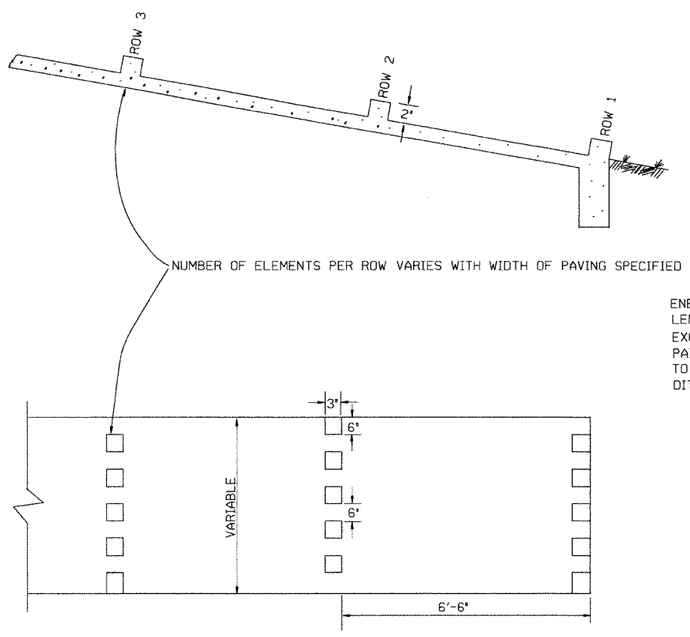
TYPE B

THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR 'CONCRETE DITCH PAVING.'




TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR CONCRETE DITCH PAVING




ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. THE DISSIPATORS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE UNCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.

ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

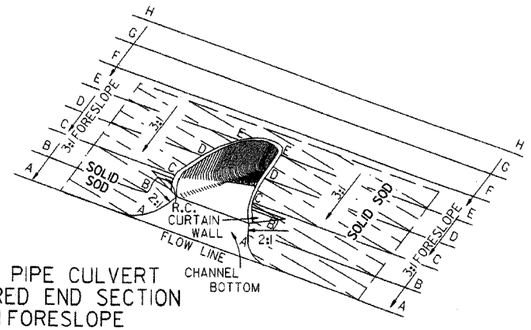
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

| DATE | REVISION | DATE FILM'D |
|---|---|---|
| 11-17-10 | ADDED GENERAL NOTE | |
| 6-2-94 | ADDED GENERAL NOTE ABOUT SOLID SODDING | |
| 11-30-8 | ELIMINATED MIN. ROWS OF ELEMENTS | 111-30-89 |
| 7-15-88 | REVISED DISSIPATOR NOTE | 653-7-15-88 |
| 4-3-87 | REVISED ENERGY DISSIPATOR | 671-4-3-87 |
| 1-9-87 | MODIFIED NOTE ON ENERGY DISS. | 532-1-9-87 |
| 11-3-86 | ADDED NOTE TO ENERGY DISS. | 599-12-1-86 |
| 11-1-84 | ENERGY DISSIPATOR DETAILS ADDED | 508-11-1-84 |
| 11-1-84 | EXCAVATION DETAILS ADDED TYPED A & B | |
| 10-2-72 | REVISED AND REDRAWN | 508-10-2-72 |

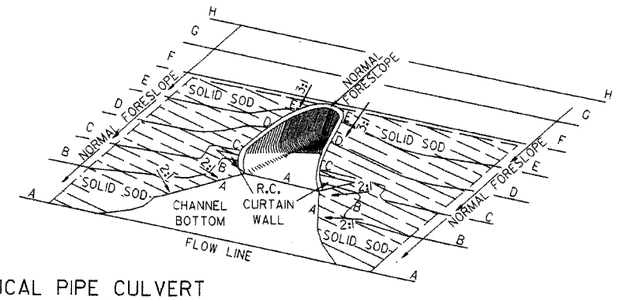
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

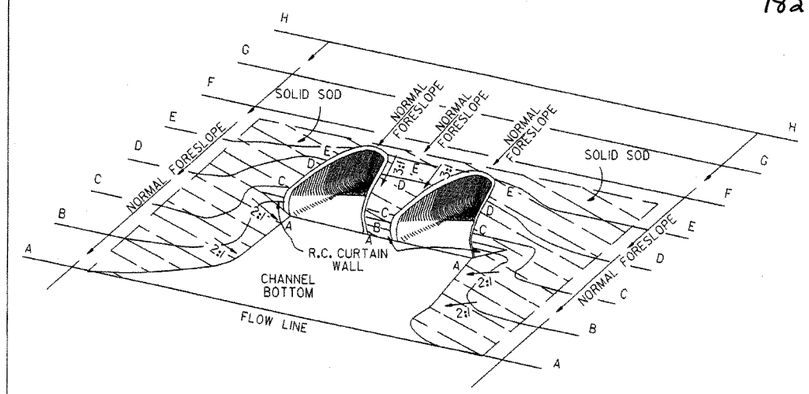
STANDARD DRAWING CDP-1



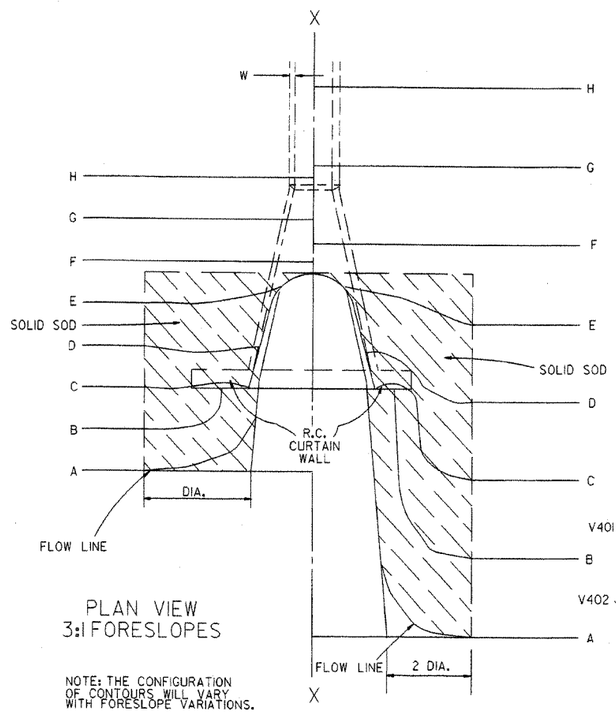

TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE




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" | 1 1/2" | 3'-5" | 8'-0" | 6'-3" | 0.31 | 27.7 | 0.45 | 39.5 |
| 24" | 1'-0 1/2" | 4'-6" | 9'-6" | 7'-6" | 0.37 | 33.4 | 0.53 | 48.0 |
| 30" | 1'-3 1/2" | 5'-7" | 11'-0" | 9'-0" | 0.45 | 39.0 | 0.67 | 59.0 |
| 36" | 1'-7" | 6'-8" | 13'-0" | 10'-6" | 0.58 | 52.6 | 0.83 | 73.9 |
| 42" | 2'-1 1/2" | 7'-3" | 15'-6" | 12'-0" | 0.82 | 77.1 | 1.10 | 100.7 |
| 48" | 2'-5" | 7'-10" | 17'-0" | 13'-0" | 0.98 | 94.9 | 1.27 | 120.4 |
| 54" | 2'-9 1/2" | 8'-5" | 18'-6" | 14'-0" | 1.16 | 115.8 | 1.47 | 143.7 |
| 60" | 3'-4" | 9'-0" | 20'-6" | 15'-6" | 1.47 | 149.7 | 1.84 | 180.3 |
| 72" | 4'-5" | 10'-2" | 25'-6" | 18'-6" | 2.31 | 232.6 | 2.73 | 271.0 |

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.

## REINFORCING STEEL SCHEDULE

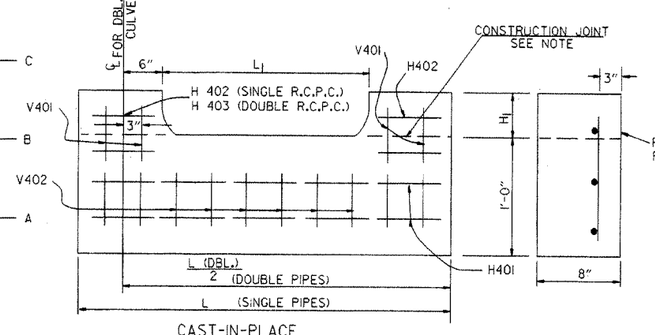
| PIPE DIA. | SINGLE R.C. PIPE CULVERT H401 L | NO. | H402 L | NO. | V401 L | NO. | V402 L | NO. | DOUBLE R.C. PIPE CULVERT H401 L | NO. | H402 L | NO. | H403 L | NO. | V401 L | NO. | V402 L | NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18" | 7'-8" | 2 | 1'-11 1/2" | 4 | 1'-7 1/2" | 8 | 8" | 8 | 12'-2" | 2 | 1'-11 1/2" | 4 | 8" | 2 | 1'-7 1/2" | 10 | 8" | 14 |
| 24" | 9'-2" | 2 | 2'-2" | 4 | 1'-8 1/2" | 10 | 8" | 9 | 14'-8" | 2 | 2'-2" | 4 | 8" | 2 | 1'-8 1/2" | 12 | 8" | 18 |
| 30" | 10'-8" | 2 | 2'-4 1/2" | 4 | 1'-11 1/2" | 10 | 8" | 12 | 17'-8" | 2 | 2'-4 1/2" | 4 | 8" | 2 | 1'-11 1/2" | 14 | 8" | 22 |
| 36" | 12'-8" | 2 | 2'-10" | 6 | 2'-3" | 12 | 8" | 14 | 20'-8" | 2 | 2'-10" | 6 | 8" | 3 | 2'-3" | 14 | 8" | 28 |
| 42" | 15'-2" | 2 | 3'-9 1/2" | 8 | 2'-9 1/2" | 16 | 8" | 15 | 23'-8" | 2 | 3'-9 1/2" | 8 | 8" | 4 | 2'-9 1/2" | 18 | 8" | 30 |
| 48" | 16'-8" | 2 | 4'-3" | 10 | 3'-1" | 18 | 8" | 16 | 25'-8" | 2 | 4'-3" | 10 | 8" | 5 | 3'-1" | 20 | 8" | 32 |
| 54" | 18'-2" | 2 | 4'-8 1/2" | 12 | 3'-5 1/2" | 20 | 8" | 17 | 27'-8" | 2 | 4'-9" | 12 | 8" | 6 | 3'-5 1/2" | 22 | 8" | 34 |
| 60" | 20'-2" | 2 | 5'-5" | 14 | 4'-0" | 24 | 8" | 18 | 30'-8" | 2 | 5'-5" | 14 | 8" | 7 | 4'-0" | 26 | 8" | 36 |
| 72" | 25'-2" | 2 | 7'-4" | 18 | 5'-1" | 30 | 8" | 20 | 36'-8" | 2 | 7'-4" | 18 | 8" | 9 | 5'-1" | 33 | 8" | 40 |

ALL REINFORCING STEEL #4 BARS @ 6" O.C.

## SOLID SODDING

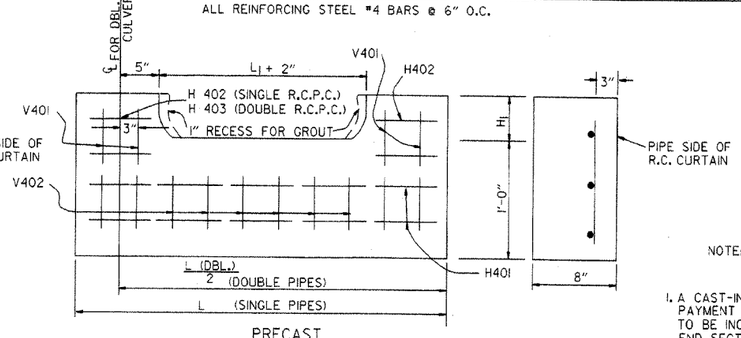
| PIPE DIA. | SINGLE R.C.P.C. 3:1 | SINGLE R.C.P.C. 4:1 | SINGLE R.C.P.C. 6:1 | DOUBLE R.C.P.C. 3:1 | DOUBLE R.C.P.C. 4:1 | DOUBLE R.C.P.C. 6:1 |
|---|---|---|---|---|---|---|
| | SQ. YDS. | | | SQ. YDS. | | |
| 18" | 5 | 7 | 12 | 6 | 8 | 13 |
| 24" | 8 | 12 | 19 | 9 | 13 | 20 |
| 30" | 13 | 18 | 29 | 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 | 51 | 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.




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.



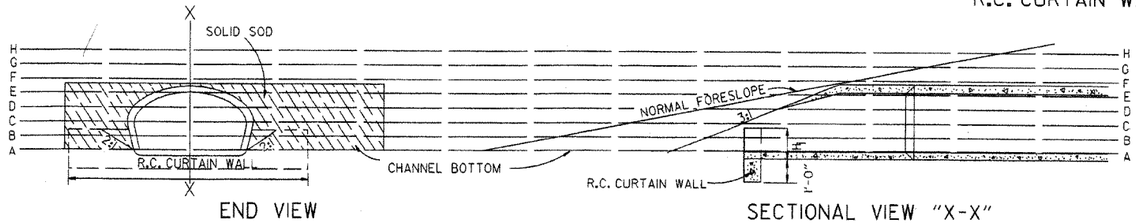

PRECAST

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

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W/10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.




END VIEW

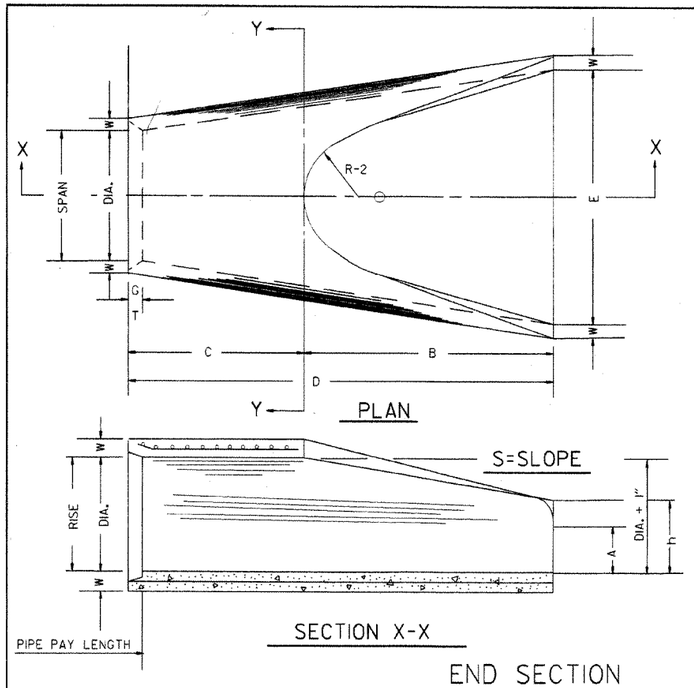
SECTIONAL VIEW "X-X"

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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1



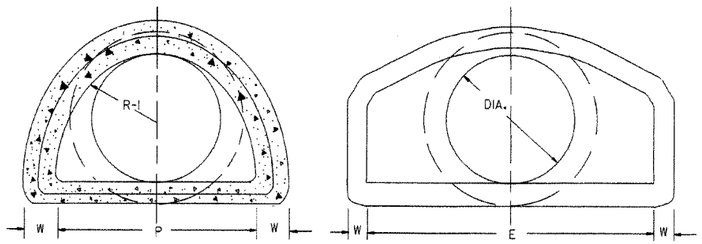

## TABLE OF DIMENSIONS

| DIA. | WALL | A | B | C | D | E | S | DIA. + 1" | P | R-1 | R-2 | G-T | WT. | h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18" | 2½" | 9" | 2'-3" | 3'-10" | 6'-1" | 3'-0" | 3:1 | 19" | 29" | 15½" | 12" | 2" | 1000 | 1'-0½" |
| 24" | 3" | 9½" | 3'-7½" | 2'-6" | 6'-1½" | 4'-0" | 3:1 | 25" | 33 3/16" | 16 13/16" | 14" | 2½" | 1600 | 1'-1½" |
| 30" | 3½" | 1'-0" | 4'-6" | 1'-7¾" | 6'-1¾" | 5'-0" | 3:1 | 31" | 37" | 18½" | 15" | 3¼" | 1940 | 1'-4⅝" |
| 36" | 4" | 1'-3" | 5'-3" | 2'-10¼" | 8'-1¼" | 6'-0" | 3:1 | 37" | 47 11/16" | 24 5/16" | 20" | 3½" | 4100 | 1'-8" |
| 42" | 4½" | 1'-9" | 5'-3" | 2'-11" | 8'-2" | 6'-6" | 3:1 | 43" | 53⅞" | 27½" | 22" | 3½" | 5380 | 2'-2½" |
| 48" | 5" | 2'-0" | 6'-0" | 2'-2" | 8'-2" | 7'-0" | 3:1 | 49" | 56½" | 28½" | 22" | 3½" | 6550 | 2'-6" |
| 54" | 5½" | 2'-4" | 6'-6" | 1'-10" | 8'-4" | 7'-6" | 3:1 | 55" | 65½" | 33⅛" | 24" | 4" | 8750 | 2'-10½" |
| 60" | 6" | 2'-10" | 6'-6" | 1'-10" | 8'-4" | 8'-0" | 3:1 | 61" | 72½" | 36 11/16" | 24" | 4" | 9270 | 3'-5" |
| 72" | 7" | 3'-10" | 6'-6" | 1'-10" | 8'-4" | 9'-0" | 3:1 | 73" | 77 13/16" | 38 15/16" | 24" | 5" | 13250 | 4'-6" |

## ARCH PIPE

| EQUIV. DIA. | • SPAN AASHTO M 206 | • SPAN AHD NOMINAL | • RISE AASHTO M 206 | • RISE AHD NOMINAL | W | A | B | C | D | E | P | R2 | G-T | S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INCHES | | | | | | | | | | | | | | |
| 15 | 18 | 18 | 11 | 11 | 2" | 4" | 2'-0" | 4'-0" | 6'-0" | 3'-0" | 29" | 12" | 1½" | 2½:1 |
| 18 | 22 | 22 | 13½ | 14 | 2½" | 5" | 2'-0" | 4'-1" | 6'-1" | 3'-6" | 32⅛" | 13" | 2½" | 2½:1 |
| 21 | 26 | 26 | 15½ | 16 | 2¾" | 7" | 2'-3" | 3'-10" | 6'-1" | 4'-0" | 34⅛" | 14" | 2½" | 2½:1 |
| 24 | 28½ | 29 | 18 | 18 | 3" | 9" | 2'-3" | 3'-10" | 6'-1" | 5'-0" | 36 13/16" | 15" | 2½" | 2½:1 |
| 30 | 36¼ | 36 | 22½ | 23 | 3½" | 10" | 3'-1" | 3'-0½" | 6'-1½" | 6'-0" | 47 13/16" | 20" | 3" | 2½:1 |
| 36 | 43¾ | 44 | 26⅝ | 27 | 4" | 10½" | 4'-0" | 2'-1½" | 6'-1½" | 6'-6" | 54 5/16" | 22" | 3½" | 2½:1 |
| 42 | 51⅛ | 51 | 31 5/16 | 31 | 4½" | 11½" | 4'-7" | 1-10¼" | 6'-5¼" | 7'-2" | 59½" | 23" | 3¾" | 2½:1 |
| 48 | 58½ | 59 | 36 | 36 | 5" | 1'-3" | 5'-3" | 2'-10¾" | 8'-1¾" | 7'-10" | 70 5/16" | 24" | 4¼" | 2½:1 |
| 54 | 65 | 65 | 40 | 40 | 5½" | 1'-7" | 5'-3" | 2'-11" | 8'-2" | 8'-6" | 72 1/16" | 24" | 4¾" | 2¼:1 |
| 60 | 73 | 73 | 45 | 45 | 6" | 1'-10" | 5'-6" | 2'-8" | 8'-2" | 9'-0" | 77 13/16" | 24" | 5" | 2¼:1 |

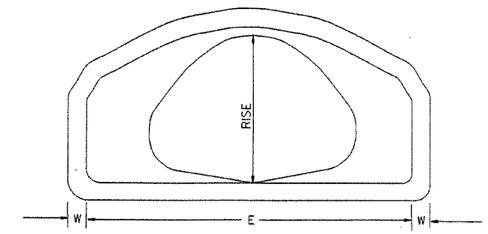
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.




SECTION Y-Y

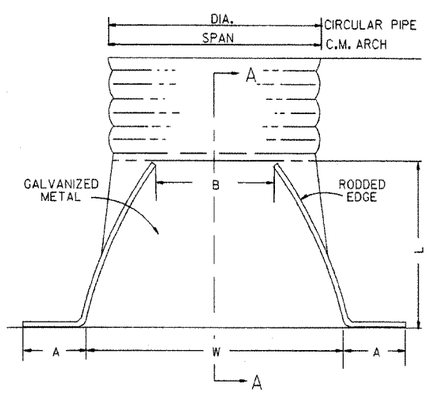
END VIEW

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

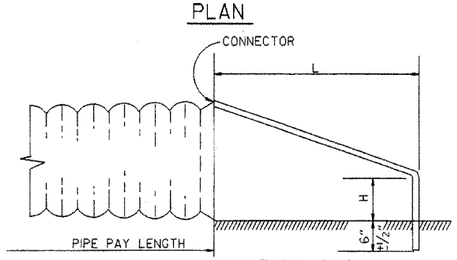



END VIEW
CONCRETE ARCH PIPE

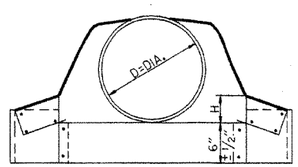
END SECTION
FOR REINFORCED CONCRETE PIPE CULVERTS



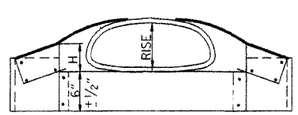

PLAN




SECTION A-A




CIRCULAR PIPE




C.M. ARCH PIPE

## CIRCULAR PIPE

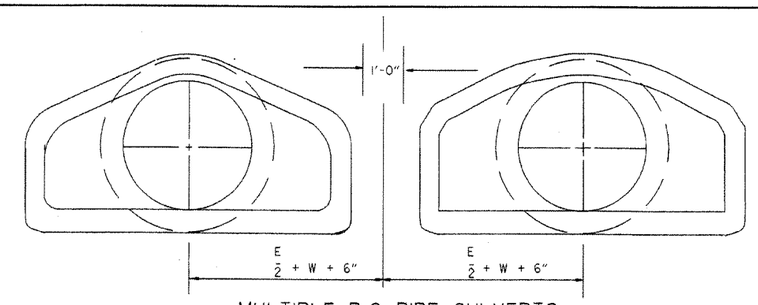
| D. DIA. | GAUGE | A 1" ± | B. MAX. | H 1" ± | L 1½" ± | W 2" ± | S |
|---|---|---|---|---|---|---|---|
| | | INCHES | | | | | |
| 12 | 16 | 6 | 6 | 6 | 21 | 24 | 2½:1 |
| 15 | 16 | 7 | 8 | 6 | 26 | 30 | 2½:1 |
| 18 | 16 | 8 | 10 | 6 | 31 | 36 | 2½:1 |
| 21 | 16 | 9 | 12 | 6 | 36 | 42 | 2½:1 |
| 24 | 16 | 10 | 13 | 6 | 41 | 48 | 2½:1 |
| 30 | 14 | 12 | 16 | 8 | 51 | 60 | 2½:1 |
| 36 | 14 | 14 | 19 | 9 | 60 | 72 | 2½:1 |
| 42 | 12 | 16 | 22 | 11 | 69 | 84 | 2½:1 |
| 48 | 12 | 18 | 27 | 12 | 78 | 90 | 2½:1 |
| 54 | 12 | 18 | 30 | 12 | 84 | 102 | 2:1 |
| 60 | 12 | 18 | 33 | 12 | 87 | 114 | 1¾:1 |
| 66 | 2 | 18 | 36 | 12 | 87 | 120 | 1½:1 |
| 72 | 12 | 18 | 39 | 12 | 87 | 126 | 1 1/3:1 |

## C.M. ARCH PIPE

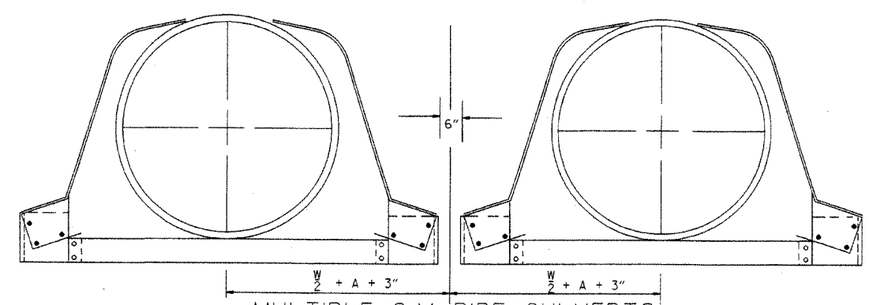
| EQUIV. DIA. | SPAN | RISE | A 1" ± | B MAX. | H 1" ± | L 1½" ± | W 2" ± | S | GAUGE |
|---|---|---|---|---|---|---|---|---|---|
| | INCHES | | | | | | | | |
| 15" | 17 | 13 | 7 | 9 | 6 | 19 | 30 | 2½:1 | 16 |
| 18" | 21 | 15 | 7 | 10 | 6 | 23 | 36 | 2½:1 | 16 |
| 21" | 24 | 18 | 8 | 12 | 6 | 28 | 42 | 2½:1 | 16 |
| 24" | 28 | 20 | 9 | 14 | 6 | 32 | 48 | 2½:1 | 16 |
| 30" | 35 | 24 | 10 | 16 | 6 | 39 | 60 | 2½:1 | 14 |
| 36" | 42 | 29 | 12 | 18 | 8 | 46 | 75 | 2½:1 | 14 |
| 42" | 49 | 33 | 13 | 21 | 9 | 53 | 85 | 2½:1 | 12 |
| 48" | 57 | 38 | 18 | 26 | 12 | 63 | 90 | 2½:1 | 12 |
| 54" | 64 | 43 | 18 | 30 | 12 | 70 | 102 | 2¼:1 | 12 |
| 60" | 71 | 47 | 18 | 33 | 12 | 77 | 114 | 2¼:1 | 12 |

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS




MULTIPLE R.C. PIPE CULVERTS




MULTIPLE C.M. PIPE CULVERTS

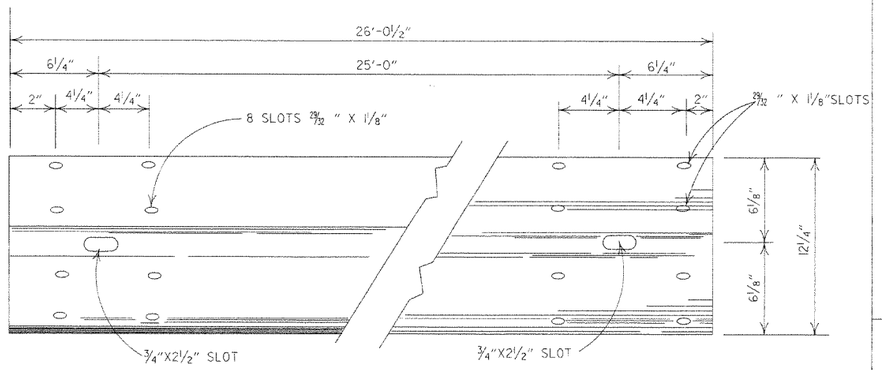
| DATE | REVISION | FILMED |
|---|---|---|
| 10-18-96 | REVISED ASTM REF. TO AASHTO | 10-18-96 |
| 5-15-80 | REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S. | 664-5-15-80 |
| 7-14-78 | C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES | 752-7-14-78 |
| 8-22-75 | ADDED MULTIPLE PIPE CULVERTS | 517-8-22-75 |
| 12-5-74 | REMOVED NOTE RE REINF. FOR R.C. F.E.S. | 500-12-5-74 |
| 5-24-73 | CMP END SECTION, SHOW PIPE PAY LENGTH | 627-5-24-73 |
| 10-2-72 | REVISED AND REDRAWN | 760-10-2-72 |

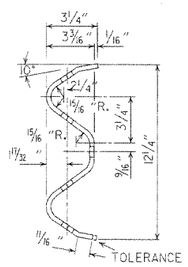
ARKANSAS STATE HIGHWAY COMMISION

FLARED END SECTION

STANDARD DRAWING FES-2

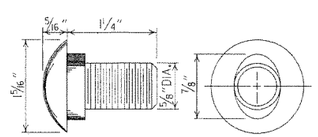
stdfes2.dgn



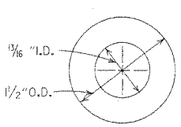




DETAILS OF
W-BEAM GUARD RAIL

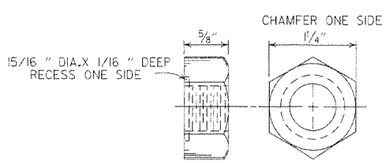
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



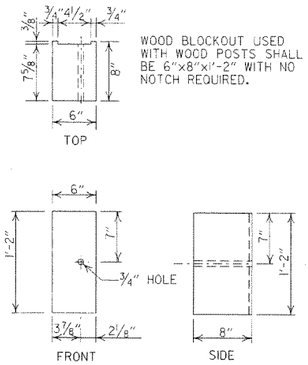

SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH




CUT STEEL WASHER

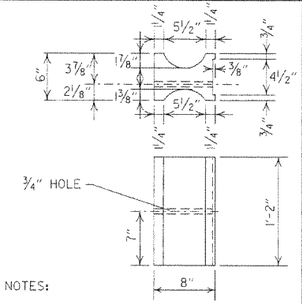



NUT




WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

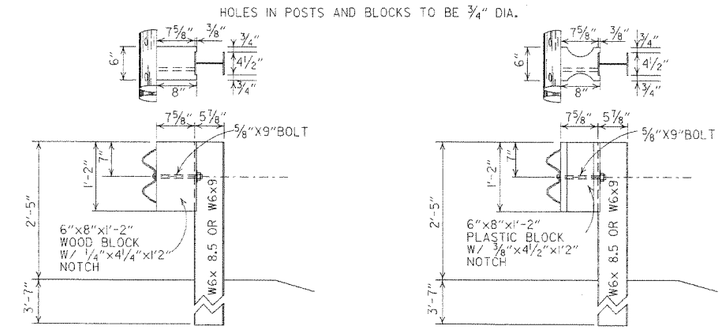
WOOD BLOCKOUT
(W-BEAM)




NOTES:

1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

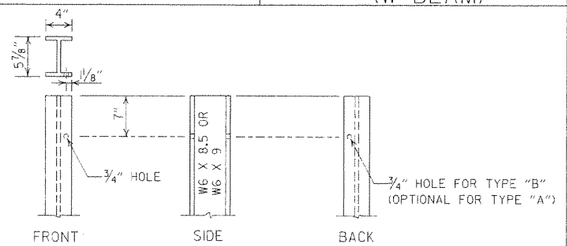
PLASTIC BLOCKOUT
(W-BEAM)



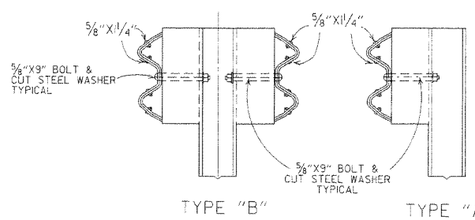

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

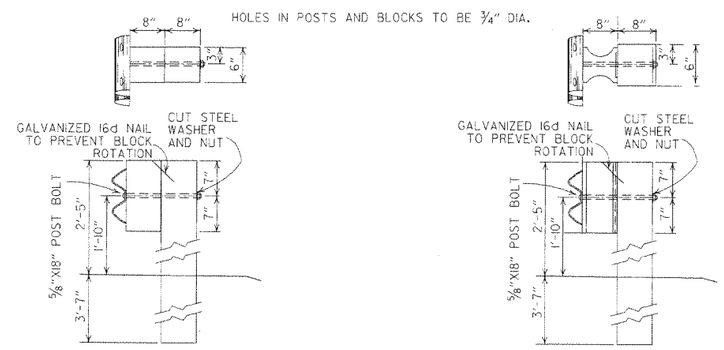
DETAILS OF STEEL LINE POST CONNECTIONS
(W-BEAM)




STEEL POST




DETAILS OF STEEL LINE POST CONNECTIONS
(W-BEAM)




WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS
(W-BEAM)

## -GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

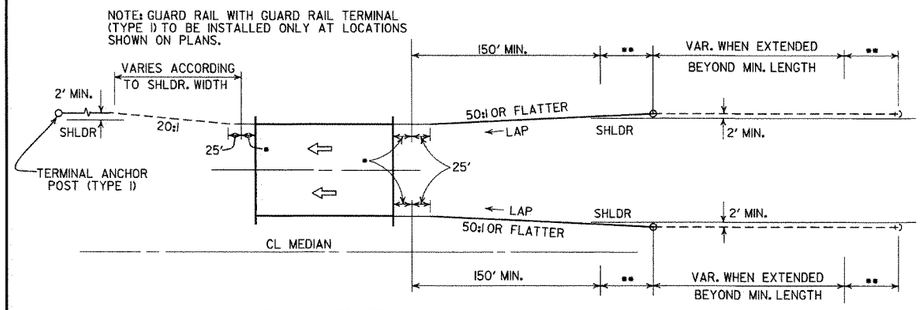
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

| DATE | REVISION | DATE FILM |
|---|---|---|
| 7-14-10 | RAISED HEIGHT OF GUARD RAIL 1" | |
| 10-15-09 | ADDED REFERENCE TO MASH | |
| 4-10-03 | REVISED GENERAL NOTES | |
| 8-22-02 | REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST | |
| 11-16-01 | REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS | |
| 3-30-00 | REMOVED GUARD RAIL AT BRIDGE ENDS | |
| 1-12-00 | ADDED PLASTIC BLOCKOUT | |
| 8-12-98 | REV. BLOCKOUTS TO WOOD. DELETED CONC. POST & REV. GENERAL NOTE. DELETED DET. OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK. & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE. REVISED HOLES IN STEEL POLES | |
| 4-3-97 | REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS | |
| 10-18-96 | REVISED WOOD POST NOTE | |
| 6-2-94 | ADDED ALT. STEEL POST SIZE | |
| 8-5-93 | REVISED STEEL POST SIZE | 8-5-93 |
| 10-1-92 | REDRAWN & REVISED | 10-1-92 |
| 8-15-91 | REVISED WASHER NOTE | 8-15-91 |
| 8-2-90 | REV. GEN. NOTE & DEPHT OF ANC. POST IN ROCK | 8-2-90 |
| 7-15-88 | REVISED SECTION 3 & GENERAL NOTES | |
| 3-4-88 | REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK | 780-3-4-88 |
| 10-30-87 | REVISED WOOD LINE POST DETAIL | 546-10-30-87 |
| 10-9-87 | REDRAWN & REVISED | 802-10-9-87 |

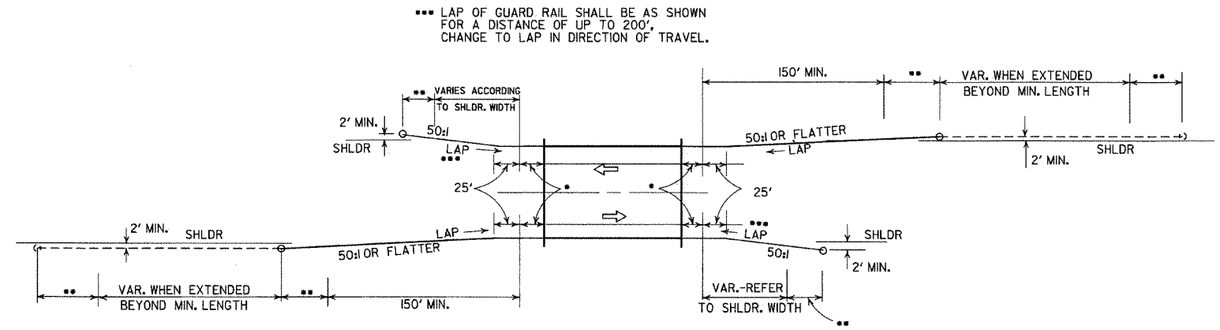
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8



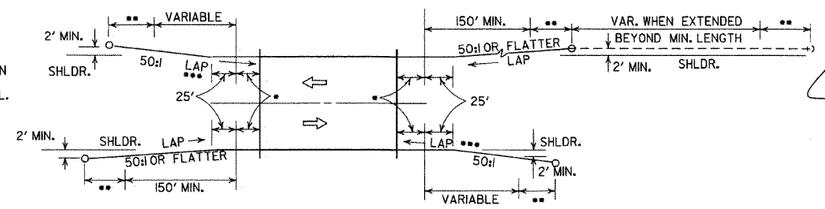

ONE-WAY TRAFFIC



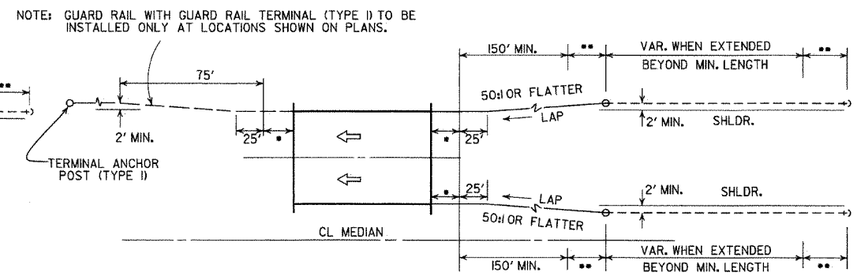

TWO-WAY TRAFFIC

METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



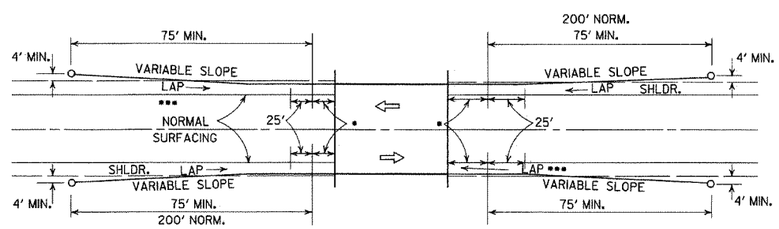

TWO-WAY TRAFFIC




ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.




METHOD OF INSTALLATION OF GUARD RAIL
USING GUARD RAIL TERMINAL (TYPE I)
(FULL SHOULDER WIDTH OR LESS BRIDGES)

LEGEND

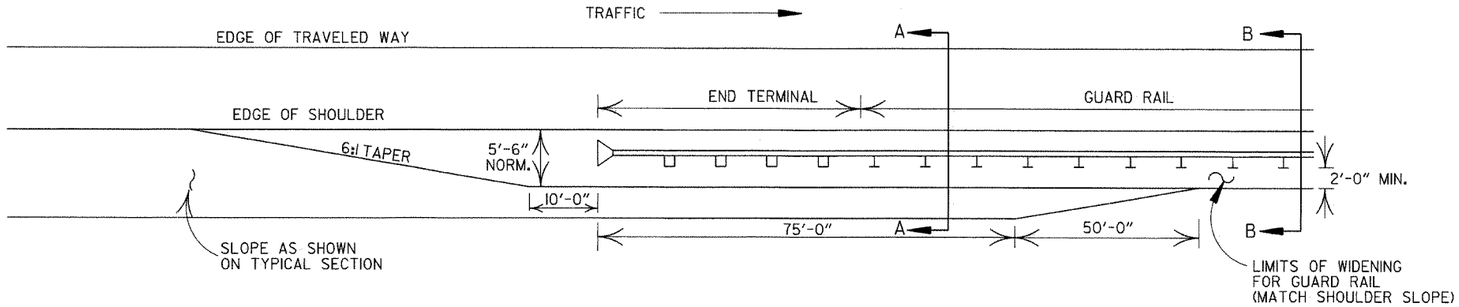
- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

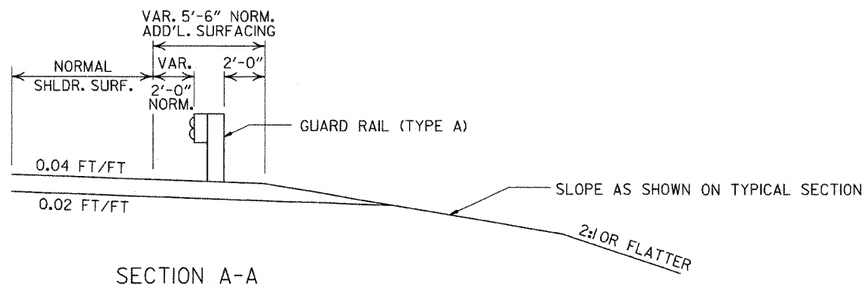
| DATE | REVISION | DATE FILM |
|---|---|---|
| 4-17-08 | REVISED LAYOUTS | |
| 11-10-05 | REMOVED GUARD RAIL NOTES AND DETAILS | |
| 11-16-01 | DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I) | |
| 1-12-00 | ADDED CONSTRUCTION NOTE | 1-12-00 |
| 6-26-97 | REVISED LAYOUT | |
| 10-1-92 | REDRAWN & REVISED | 10-1-92 |
| | ADDED NOTE | |
| 10-9-87 | REDRAWN & REVISED | |

ARKANSAS STATE HIGHWAY COMMISSION

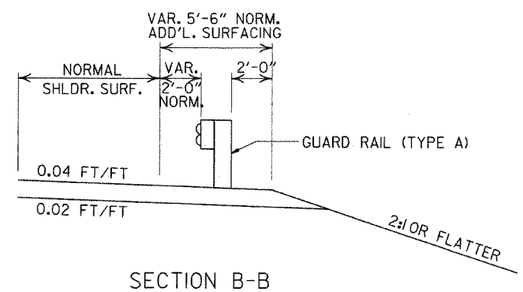
GUARD RAIL DETAILS

STANDARD DRAWING GR-9



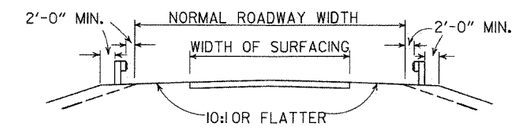

SECTION A-A



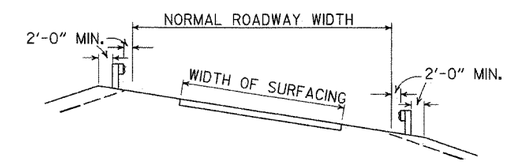

SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

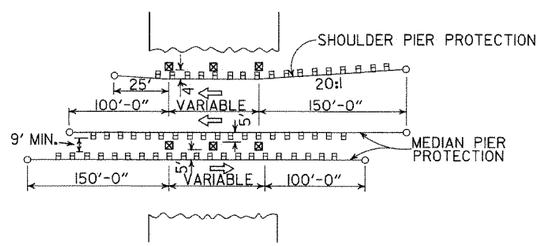



SECTION ON TANGENT




SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



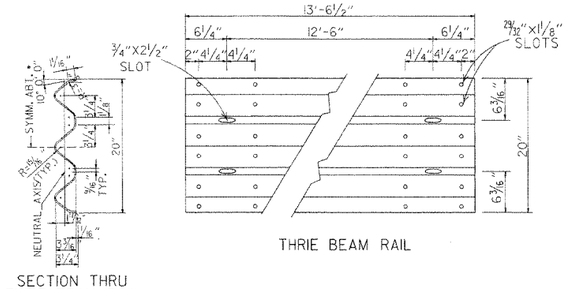

METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

| DATE | REVISION | DATE FILM |
|---|---|---|
| 4-17-08 | MINOR REVISION | |
| 11-10-05 | DRAWN | |

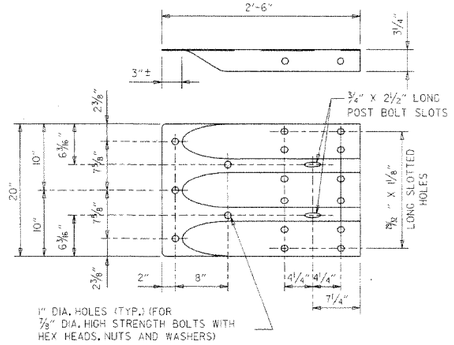
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

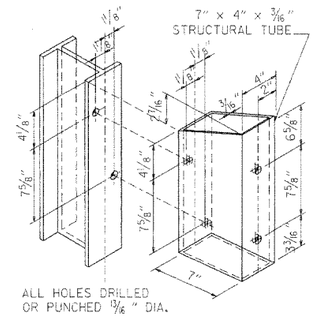
STANDARD DRAWING GR-9A




SECTION THRU THRIE BEAM RAIL

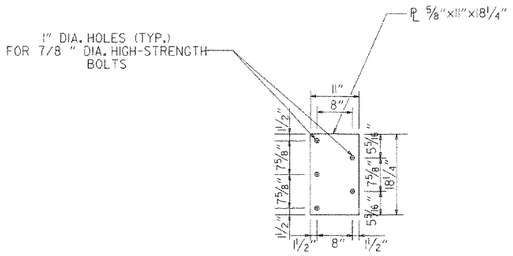



SPECIAL END SHOE



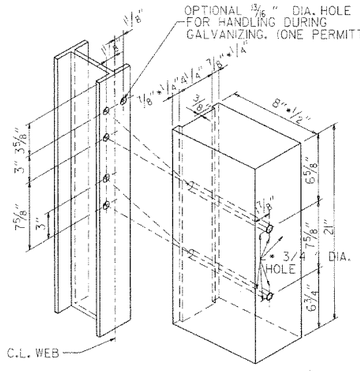

ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

STRUCTURAL STEEL TUBING BLOCKOUT DETAIL




CONNECTOR PLATE

NOTE:
SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.

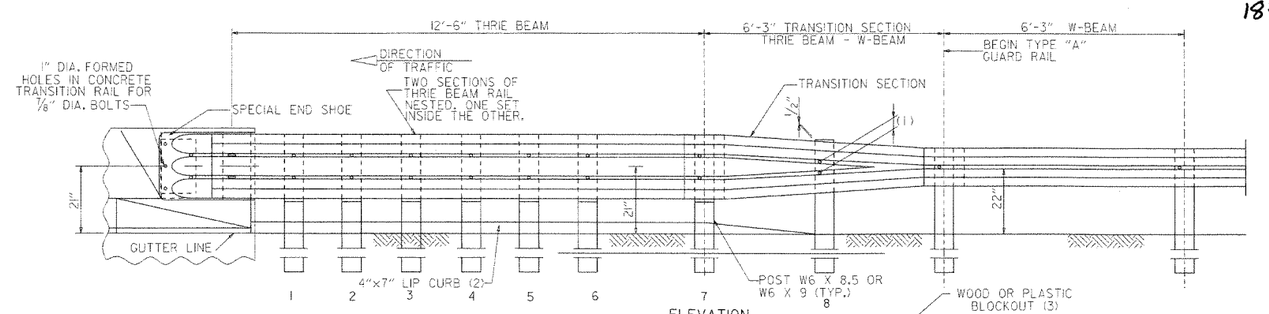


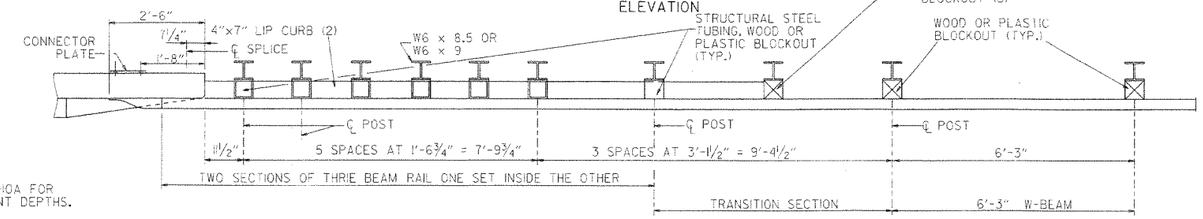

ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

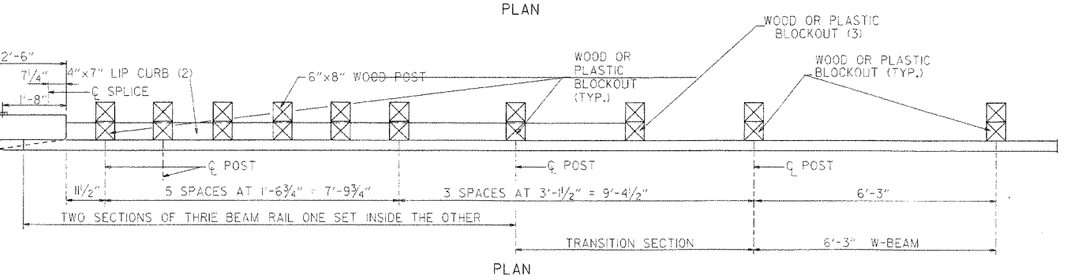
HOLE PUNCHING DETAIL
FOR STEEL POST & WOOD
OR PLASTIC BLOCKOUTS

NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.

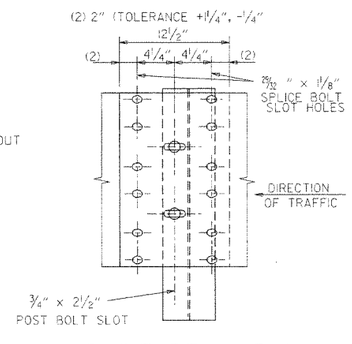


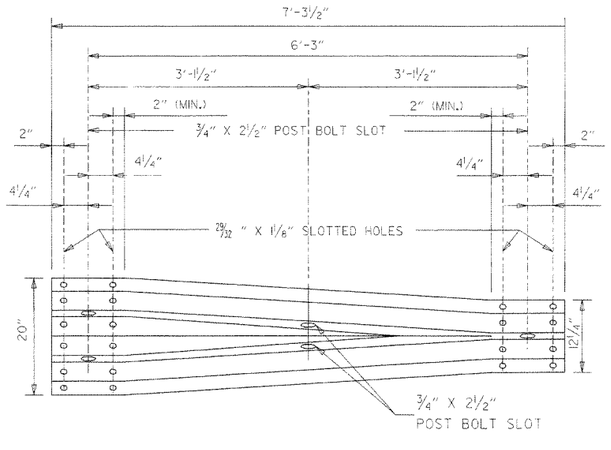




(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS




THRIE BEAM RAIL
SPLICE AT POST




TRANSITION SECTION

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-11.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO. 1 (1350 f) SOUTHERN PINE.

REFER TO STD. DRWG. GR-10A FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

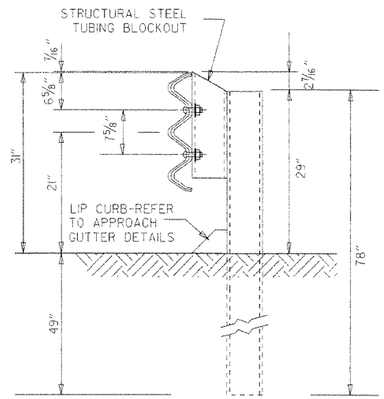
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

| DATE | REVISION | DATE FILM |
|---|---|---|
| 7-14-10 | RAISED HEIGHT OF W-BEAM 1" | |
| 11-29-07 | ADDED PLASTIC BLOCKOUTS | |
| 11-10-05 | ADDED NOTE FOR ATTACHING STEEL BLOCKOUT | |
| 11-18-04 | REVISED GENERAL NOTES | |
| 10-9-03 | REVISED GENERAL NOTES | |
| 4-10-03 | REVISED GENERAL NOTES | |
| 8-22-02 | REVISED NOTE (2) | |
| 6-29-00 | MOVED DIMENSION LINES | |
| 5-18-00 | ADDED NOTE | |
| 3-30-00 | DRAWN & ISSUED | |

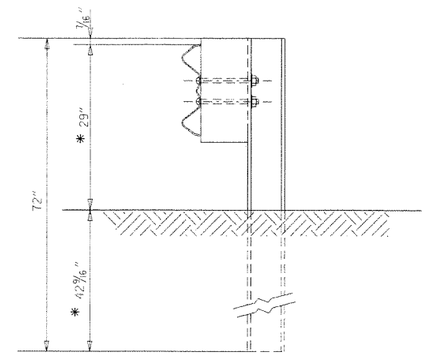
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

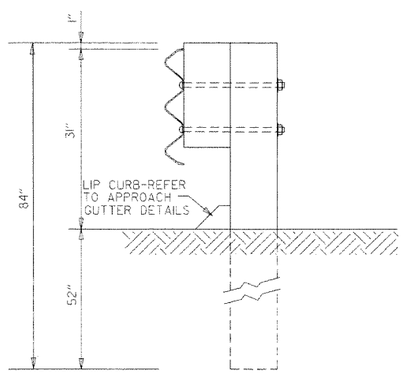



THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

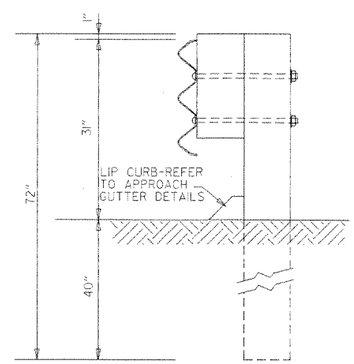



W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

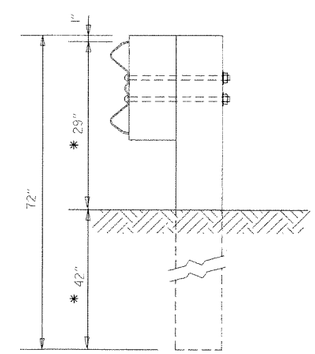
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.




THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6




THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7




W-BEAM TO THRIE BEAM
TRANSITION RAIL WITH WOOD OR
PLASTIC BLOCKOUT & WOOD POST
POST 8

GENERAL NOTES:

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

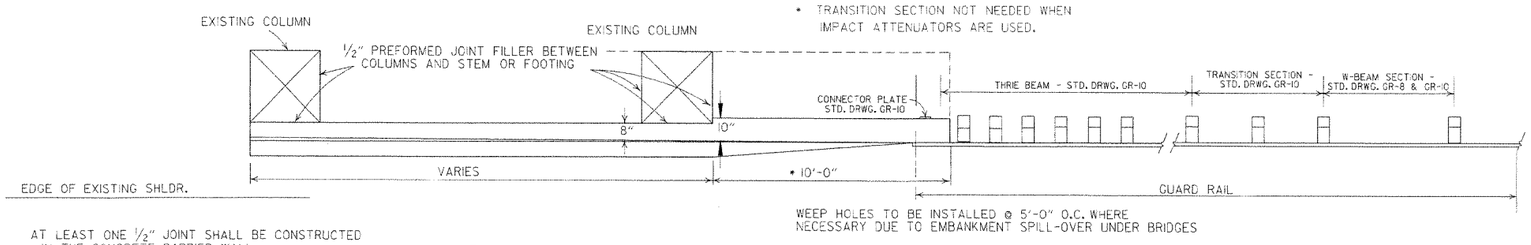
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 (1350 f) SOUTHERN PINE.

| DATE | REVISION | DATE FILM |
|---|---|---|
| | | |
| | | |
| | | |
| 7-14-10 | REVISED POST 8 DIMENSIONS | |
| 11-29-07 | ADDED PLASTIC BLOCKOUTS | |
| 8-22-02 | REVISED LIP CURB NOTE | |
| 3-30-00 | DRAWN & ISSUED | |

ARKANSAS STATE HIGHWAY COMMISSION

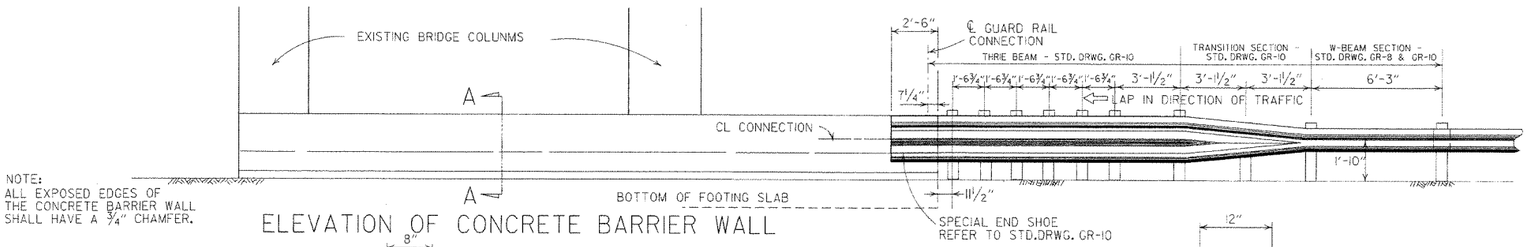
GUARD RAIL DETAILS

STANDARD DRAWING GR-10A



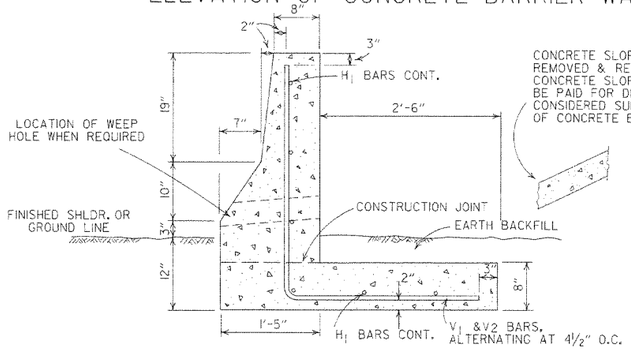

AT LEAST ONE 1/2" JOINT SHALL BE CONSTRUCTED IN THE CONCRETE BARRIER WALL. JOINTS SHALL BE EQUALLY SPACED AT A MAXIMUM OF 25'-0" O.C. FILL JOINT WITH PREFORMED JOINT FILLER.

PLAN OF CONCRETE BARRIER WALL



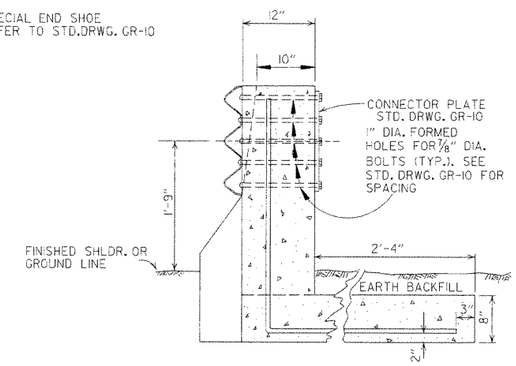

NOTE:
ALL EXPOSED EDGES OF THE CONCRETE BARRIER WALL SHALL HAVE A ¾" CHAMFER.

ELEVATION OF CONCRETE BARRIER WALL

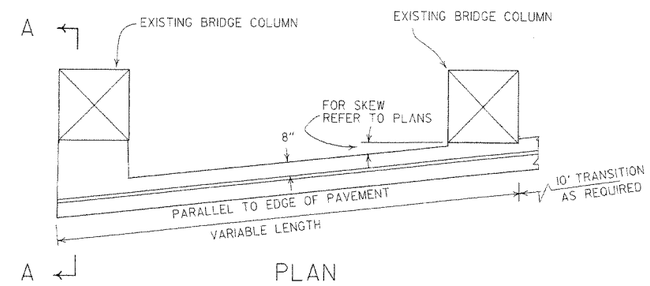



CONCRETE SLOPE PAVING TO BE REMOVED & REPLACED WHERE REQ'D. CONCRETE SLOPE PAVING WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO THE ITEM OF CONCRETE BARRIER WALL.

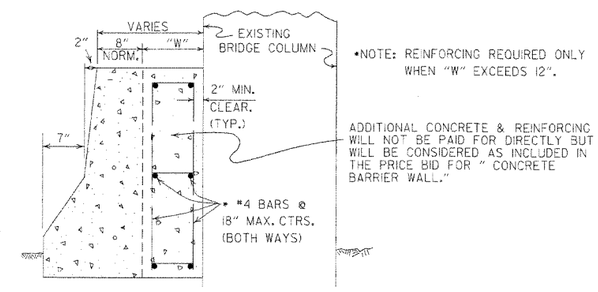
SECTION A-A




SECTION THRU CONNECTION




PLAN



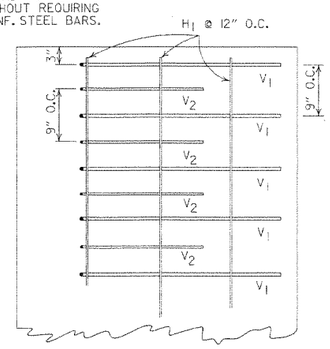

*NOTE: REINFORCING REQUIRED ONLY WHEN "W" EXCEEDS 12".

ADDITIONAL CONCRETE & REINFORCING WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED AS INCLUDED IN THE PRICE BID FOR " CONCRETE BARRIER WALL."

SECTION A-A

DETAILS OF CONCRETE BARRIER WALL WHEN PIERS ARE SKEWED TO ROADWAY

IF FOR ANY REASON IT IS NECESSARY TO CONSTRUCT THE FOOTING AT A LOWER ELEVATION THAN IS SHOWN, THE STEM MAY BE LENGTHENED 1'-0" BETWEEN FIN. SHLDR. AND TOP OF FOOTING WITHOUT REQUIRING HEAVIER REINF. STEEL BARS.

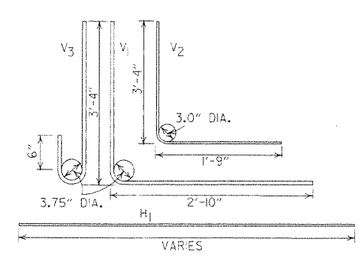



PLAN OF REINFORCING STEEL IN FOOTING

BAR LIST

| MARK | NO. | SIZE | LENGTH |
|---|---|---|---|
| V1 | | #5 | 6'-2¼" |
| V2 | | #4 | 5'-1" |
| V3 | | #5 | 4'-1⅛" |
| | | | |
| | | | |
| H1 | 6 | 4 | VAR. |
| | | | |
| | | | |
| | | | |

THE V3 BARS SHALL BE USED IN PLACE OF THE V1 & V2 BARS IN FRONT OF PIERS.



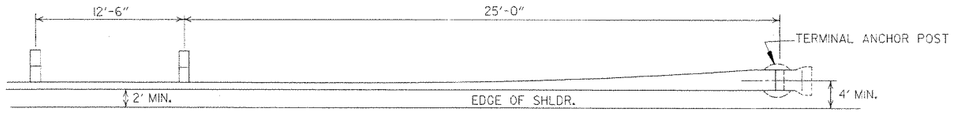

BEND DIAGRAMS

| DATE | REVISION | DATE FILM |
|---|---|---|
| 7-14-10 | RAISED HEIGHT OF W-BEAM 1" | |
| 8-22-02 | REV. SECTION A-A OF DETAILS OF CONCRETE BARRIER WALL | |
| 6-29-00 | MOVED DIMENSION LINE | |
| 5-18-00 | ADDED NOTE | |
| 3-30-00 | REVISED TO INCLUDE THRIE BEAM | |
| 6-2-94 | ADDED TRANSITION SECTION NOTE | |
| 10-1-92 | REDRAWN & REVISED | 10-1-92 |
| 8-15-91 | REVISED DRAWING PLAN CONC. BARR. | 8-15-91 |
| 2-16-89 | ADDED SKEWED DETAILS | 594-2-16-89 |
| 7-14-88 | CHANGED TITLE | |
| 10-9-87 | REDRAWN & REVISED | |

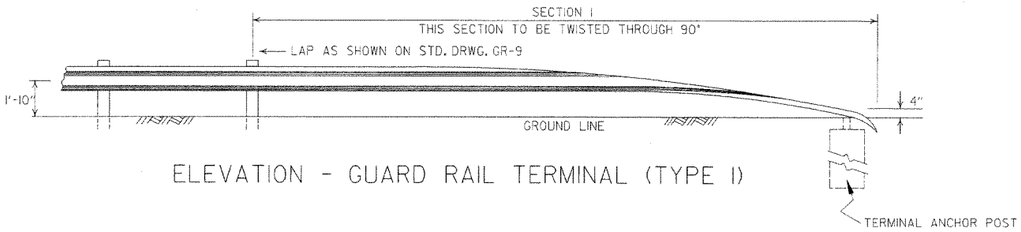
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE BARRIER WALL
(PIER PROTECTION TYPE A)

STANDARD DRAWING GR-11

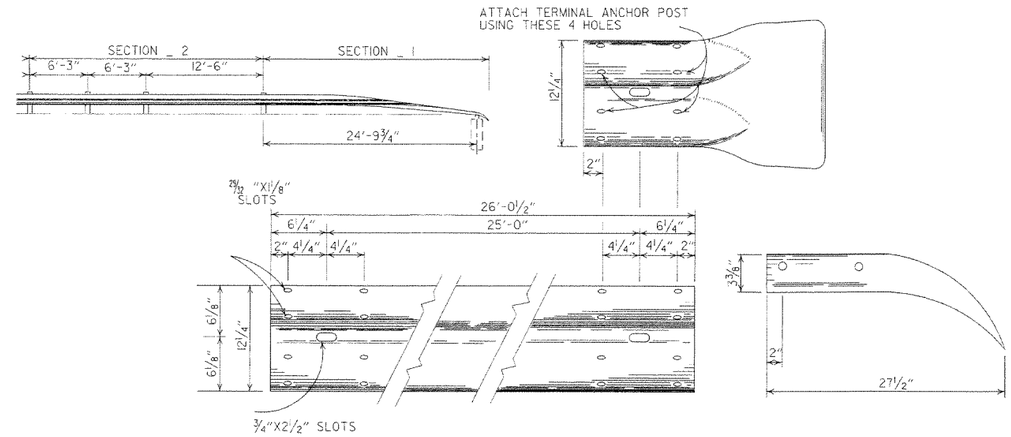



PLAN - GUARD RAIL TERMINAL (TYPE I)



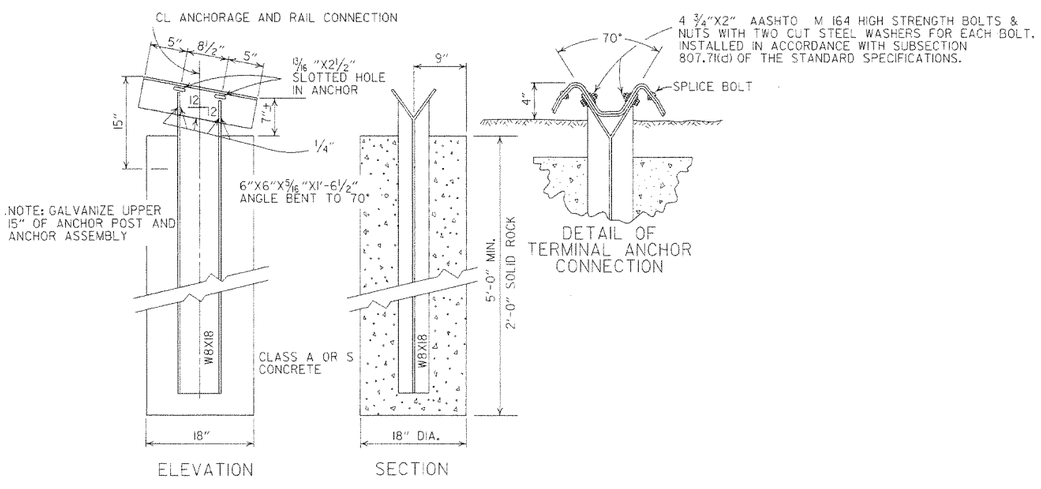

ELEVATION - GUARD RAIL TERMINAL (TYPE I)

NOTE:
SECTIONS 1 AND 2 OF GUARD RAIL TERMINAL SHALL BE PAID FOR AT THE PRICE BID PER LINEAR FOOT OF THE TYPE OF GUARD RAIL SPECIFIED.




SECTION 1

TERMINAL SECTION




ELEVATION

SECTION

DETAIL OF TERMINAL ANCHOR CONNECTION

NOTE: RAIL MEMBERS MAY BE BOLTED TO ANGLE AT TERMINAL ANCHOR AND THE TWO ASSEMBLIES POSITIONED TO PROPER ALIGNMENT PRIOR TO PLACING CONCRETE AROUND 8 WF 17 POST IF CONTRACTOR SO DESIRES.

DETAIL OF TERMINAL ANCHOR POST (TYPE I)

| DATE | REVISION | DATE FILM |
|---|---|---|
| 7-14-10 | RAISED HEIGHT OF GUARD RAIL 1" | |
| 6-26-97 | REVISED LAP NOTE | |
| 10-18-96 | REVISED ASTM REF. TO AASHTO | |
| 11-3-94 | DIMENSION TERMINAL DETAIL | |
| 11-11-92 | ADDED NOTE FOR PAYMENT | 11-11-92 |
| 10-1-92 | DRAWN & ISSUED | 10-1-92 |

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GRT-1

## 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 | 43¾ | 44 | 26⅝ | 27 |
| 42 | 51⅛ | 51 | 31 5/16 | 31 |
| 48 | 58½ | 59 | 36 | 36 |
| 54 | 65 | 65 | 40 | 40 |
| 60 | 73 | 73 | 45 | 45 |
| 72 | 88 | 88 | 54 | 54 |
| 84 | 102 | 102 | 62 | 62 |
| 90 | 115 | 115 | 72 | 72 |
| 96 | 122 | 122 | 77½ | 77 |
| 108 | 138 | 138 | 87⅛ | 87 |
| 120 | 154 | 154 | 96⅞ | 97 |
| 132 | 168¾ | 169 | 106½ | 107 |

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

## REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

| EQUIV. DIA. | AASHTO M 207 | |
|---|---|---|
| | SPAN | RISE |
| INCHES | INCHES | |
| 18 | 23 | 14 |
| 24 | 30 | 19 |
| 27 | 34 | 22 |
| 30 | 38 | 24 |
| 33 | 42 | 27 |
| 36 | 45 | 29 |
| 39 | 49 | 32 |
| 42 | 53 | 34 |
| 48 | 60 | 38 |
| 54 | 68 | 43 |
| 60 | 76 | 48 |
| 66 | 83 | 53 |
| 72 | 91 | 58 |
| 78 | 98 | 63 |
| 84 | 106 | 68 |

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

## CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(1).

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

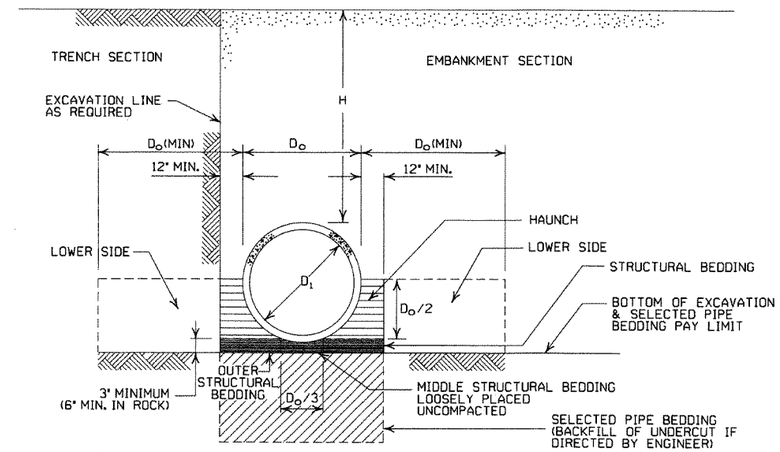
## - LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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




## EMBANKMENT AND TRENCH INSTALLATIONS

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

## 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.

## GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 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."

| DATE | REVISION | DATE FILMED |
|---|---|---|
| 12-15-11 | REVISED FOR LRFD DESIGN SPECIFICATIONS | |
| 5-18-00 | REVISED TYPE 3 BEDDING & ADDED NOTE | |
| 3-30-00 | REVISED INSTALLATIONS | |
| 11-06-97 | ISSUED | |

ARKANSAS STATE HIGHWAY COMMISSION

# CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

## CORRUGATED STEEL PIPE (ROUND)

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

## CORRUGATED ALUMINUM PIPE (ROUND)

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

## CORRUGATED METAL PIPE ARCHES

| EQUIV. DIA. (INCHES) | PIPE DIMENSION SPAN X RISE (INCHES) | MINUMUM CORNER RADIUS (INCHES) | STEEL: MIN. THICKNESS REQUIRED INCHES | STEEL: ① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1 | STEEL: MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1 | ALUMINUM: MIN. THICKNESS REQUIRED INCHES | ALUMINUM: ① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1 | ALUMINUM: MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1 |
|---|---|---|---|---|---|---|---|---|
| | | | 2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM | | | 2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM | | |
| 15 | 17x13 | 3 | 0.064 | 2 | 15 | 0.060 | 2 | 15 |
| 18 | 21x15 | 3 | 0.064 | 2 | 15 | 0.060 | 2 | 15 |
| 21 | 24x18 | 3 | 0.064 | 2.25 | 15 | 0.060 | 2.25 | 15 |
| 24 | 28x20 | 3 | 0.064 | 2.5 | 15 | 0.075 | 2.5 | 15 |
| 30 | 35x24 | 3 | 0.079 | 3 | 12 | 0.075 | 3 | 12 |
| 36 | 42x29 | 3½ | 0.079 | 3 | 12 | 0.105 | 3 | 12 |
| 42 | 49x33 | 4 | 0.079 | 3 | 12 | 0.105 | 3 | 12 |
| 48 | 57x38 | 5 | 0.109 | 3 | 13 | 0.135 | 3 | 13 |
| 54 | 64x43 | 6 | 0.109 | 3 | 14 | 0.135 | 3 | 14 |
| 60 | 71x47 | 7 | 0.138 | 3 | 15 | 0.164 | 3 | 15 |
| 66 | 77x52 | 8 | 0.168 | 3 | 15 | | | |
| 72 | 83x57 | 9 | 0.168 | 3 | 15 | | | |

| EQUIV. DIA. (INCHES) | PIPE DIMENSION SPAN X RISE (INCHES) | MINUMUM CORNER RADIUS (INCHES) | STEEL: MIN. THICKNESS REQUIRED INCHES | STEEL: ① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 2 | STEEL: ① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1 | STEEL: MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 2 | STEEL: MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1 |
|---|---|---|---|---|---|---|---|
| | | | ② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM | | | | |
| 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

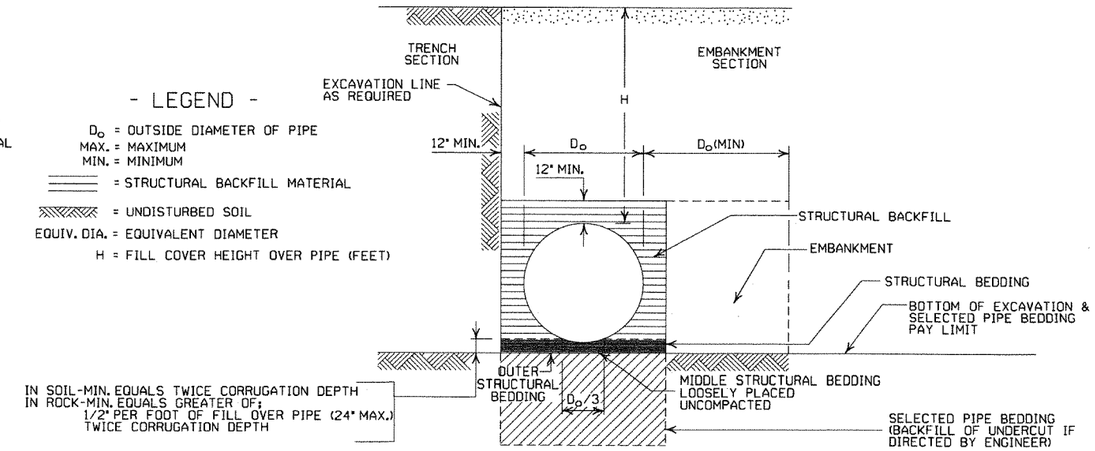
| METAL THICKNESS IN INCHES | | | GAUGE NUMBER |
|---|---|---|---|
| STEEL | | | |
| ZINC COATED | UNCOATED | ALUMINUM | |
| 0.064 | 0.0598 | 0.060 | 16 |
| 0.079 | 0.0747 | 0.075 | 14 |
| 0.109 | 0.1046 | 0.105 | 12 |
| 0.138 | 0.1345 | 0.135 | 10 |
| 0.168 | 0.1644 | 0.164 | 8 |

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.

- LEGEND -

$D_o$ = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL
EQUIV. DIA. = EQUIVALENT DIAMETER
H = FILL COVER HEIGHT OVER PIPE (FEET)




## EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

## GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 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."

| DATE | REVISION | DATE FILMED |
|---|---|---|
| 12-15-11 | REVISED FOR LRFD DESIGN SPECS | |
| 3-30-00 | REVISED INSTALLATIONS | |
| 11-06-97 | ISSUED | |

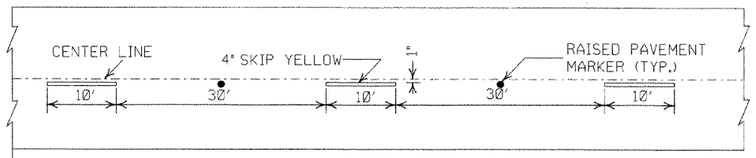
ARKANSAS STATE HIGHWAY COMMISSION

# METAL PIPE CULVERT FILL HEIGHTS & BEDDING

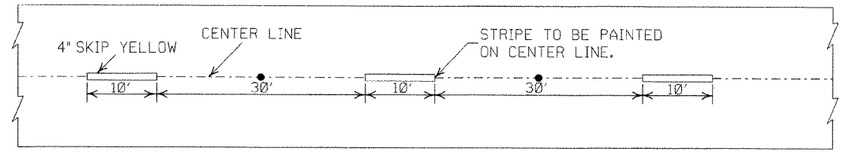
STANDARD DRAWING PCM-1

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.

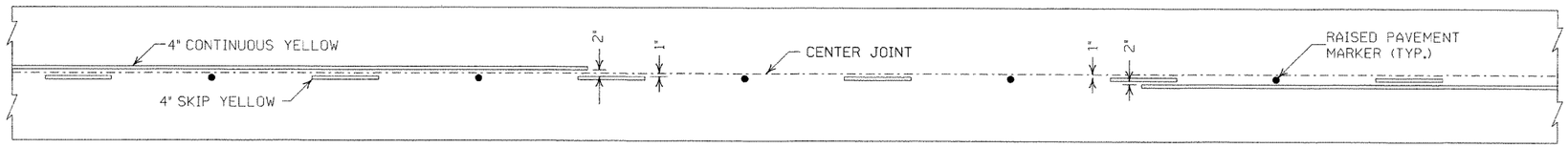



CONCRETE PAVEMENT

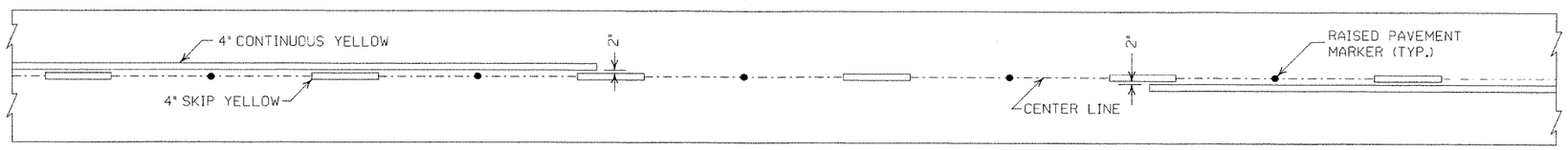



ASPHALT PAVEMENT

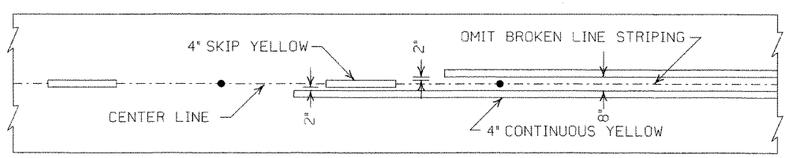
## BROKEN LINE STRIPING



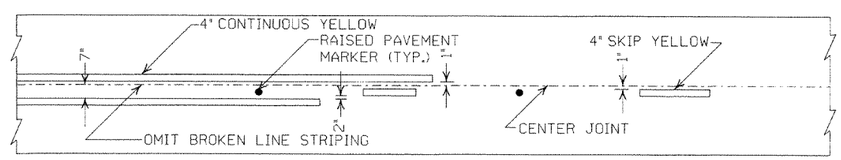

## SOLID LINE STRIPING ON CONCRETE PAVEMENT




## SOLID LINE STRIPING ON ASPHALT PAVEMENT

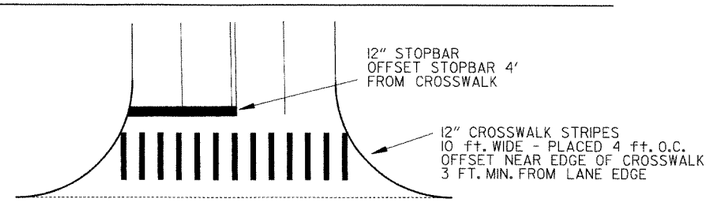



ASPHALT PAVEMENT

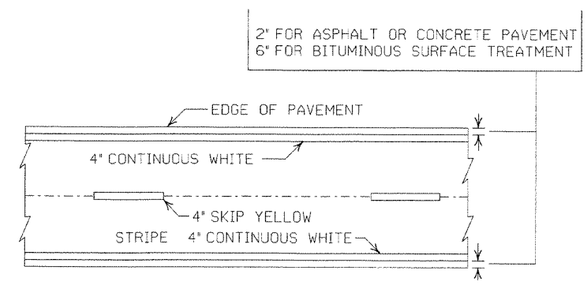



CONCRETE PAVEMENT

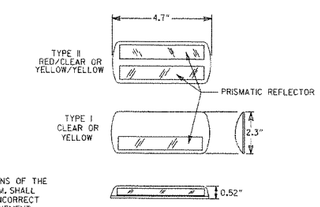
## STRIPING AT ADJACENT NO PASSING LANES




## CROSSWALK AND STOPBAR DETAILS




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

ARKANSAS STATE HIGHWAY COMMISSION

# PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

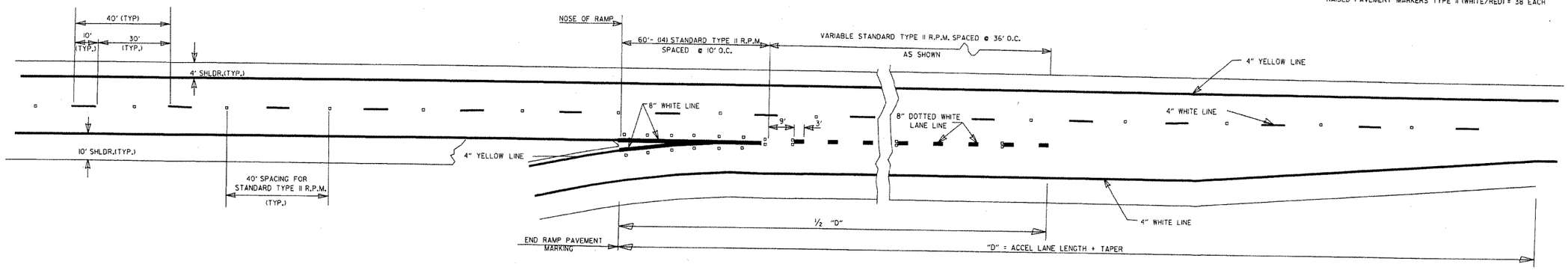
PAVEMENT MARKING QUANTITIES
(BASED ON 700' ACCEL. LANE + 300' TAPER)

ENTRANCE RAMP

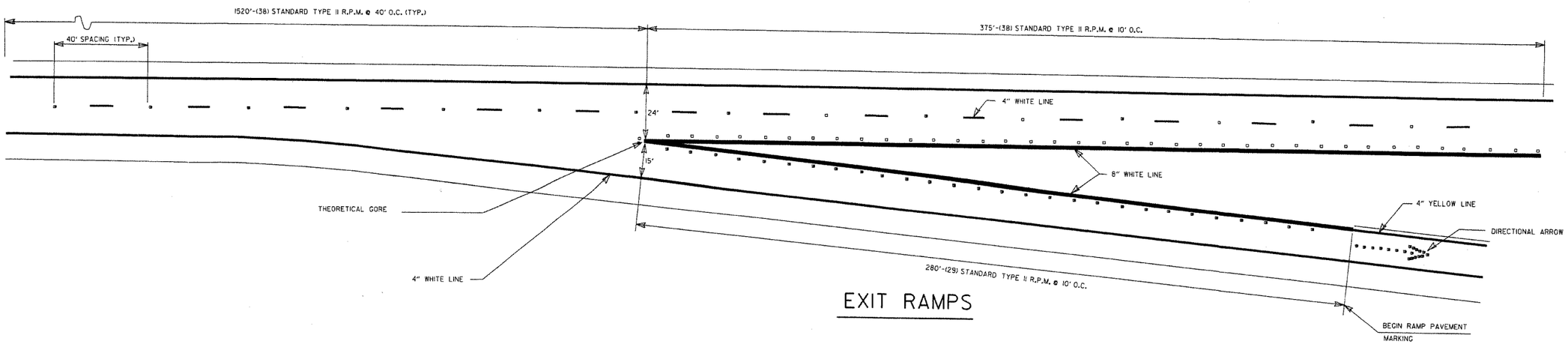
8" WHITE = 228 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH

EXIT RAMP

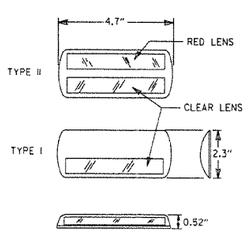
4" WHITE = 280 LIN. FT.
8" WHITE = 655 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 48 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH




## ENTRANCE RAMPS

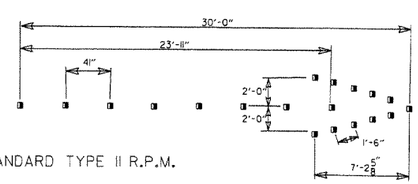



## EXIT RAMPS




DETAIL OF
STANDARD
RAISED PAVEMENT MARKERS

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




(19) STANDARD TYPE II R.P.M.

DIRECTIONAL ARROWS

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

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

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

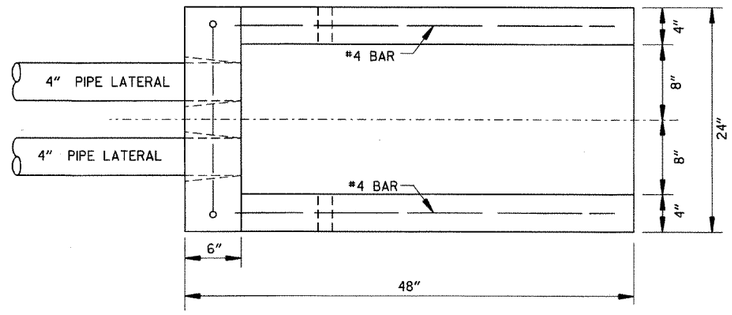
| DATE | REVISION | FILMED |
|---|---|---|
| 7/26/12 | REVISED RPM NOTATION | |
| 12-15-11 | REVISED RPMs ACCORDING TO LATEST POLICY | |
| 11-17-10 | REMOVED PLOWABLE PAVEMENT MARKERS | |
| 6-3-10 | REVISED PER 2009 MUTCD | |
| 11-18-04 | REVISED NOTES | |
| 8-22-02 | ADDED & REVISED NOTES; REV. ENTRANCE & EXIT RAMPS | |
| 5-18-00 | REMOVED HASHMARKS | |
| 7-02-98 | CHANGED TYPES TO ROMAN NUMERALS | |
| 4-26-96 | ADDED DIMENSIONS & QUANTITIES; REVISED LANE WIDTH ON EXIT RAMP | |
| 2-2-95 | PLACED IN USE | 2-2-95 |

ARKANSAS STATE HIGHWAY COMMISSION

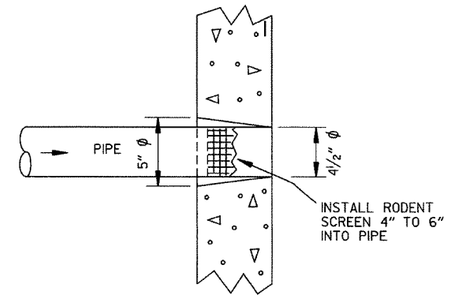
# PERMANENT PAVEMENT MARKING ON ACCESS CONTROLLED ROADWAYS

STANDARD DRAWING PM-2

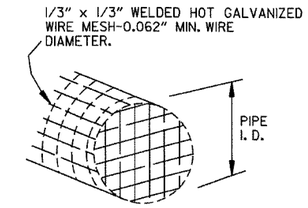
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.
2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



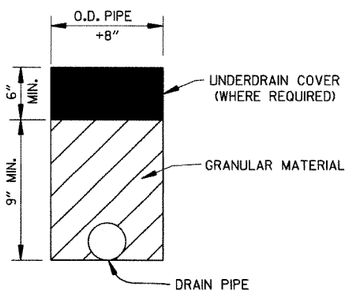

PLAN VIEW

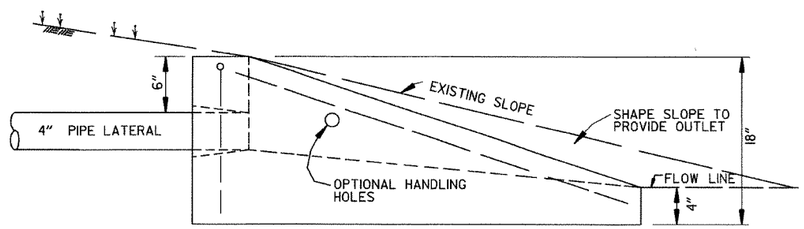



DETAIL OF HOLE FOR 4" PIPE

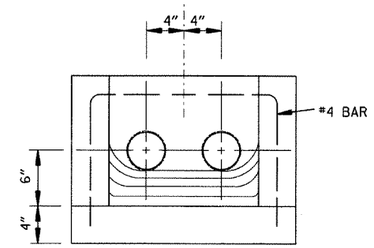



DETAIL OF RODENT SCREEN

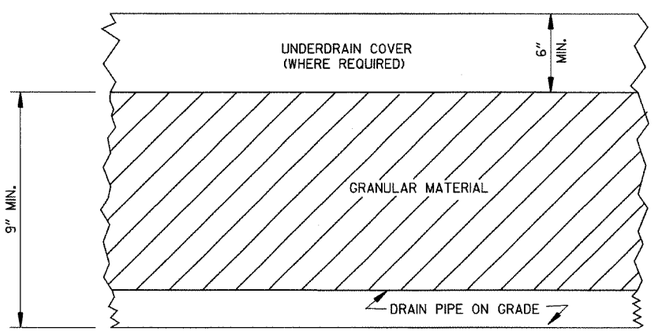



SIDE VIEW

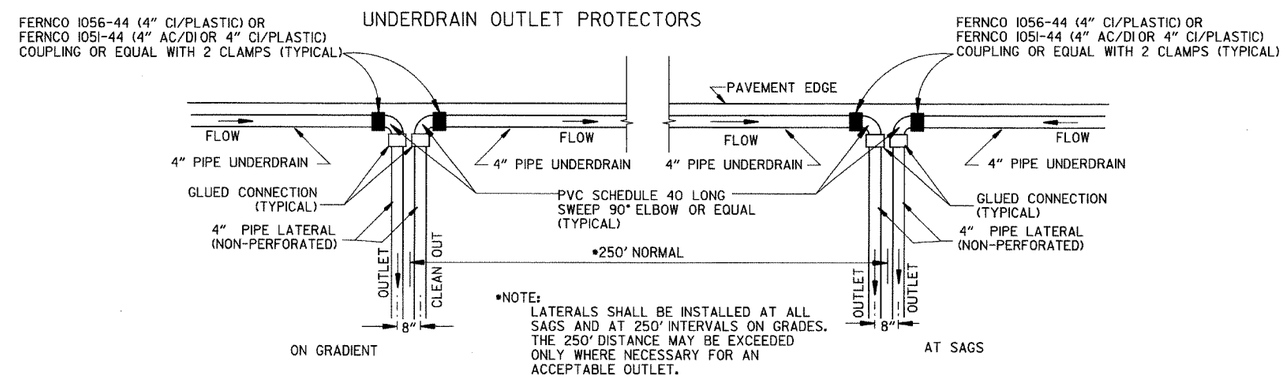



FRONT VIEW




DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS




DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

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

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

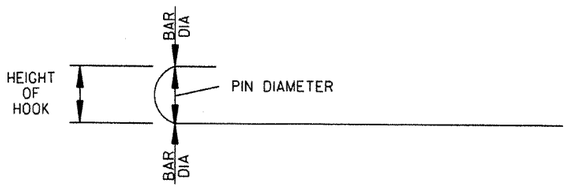
STANDARD DRAWING PU-1

7-20-95 INSTD.PUI

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

| BAR SIZE | PIN DIAMETER | HOOK EXTENSION "K" |
|---|---|---|
| 3 | 2¼" | 4" |
| 4 | 3 " | 4½" |
| 5 | 3¾" | 5" |
| 6 | 4½" | 6" |
| 7 | 5¼" | 7" |
| 8 | 6" | 8" |

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.




NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

## OVERALL HEIGHT OF HOOKED BAR DIAGRAM

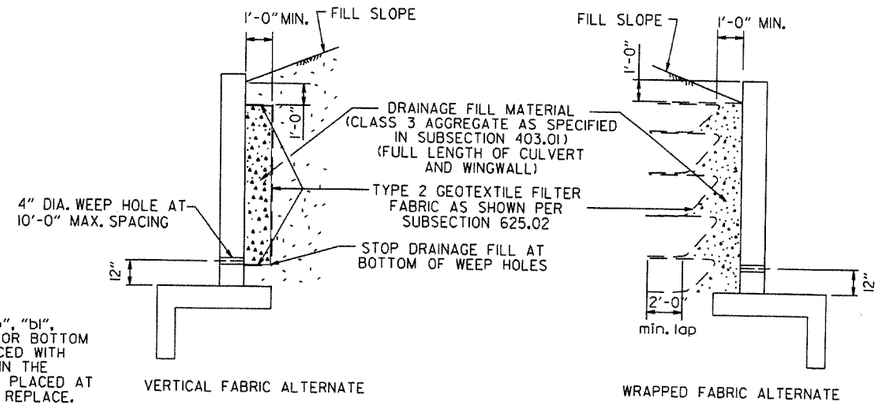
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

## REPLACEMENT BAR LENGTHS TABLE

| BAR SIZE: "b", "b1", "b2" OR "b3" | LENGTH OF HOOKED BAR | LENGTH OF STRAIGHT BAR |
|---|---|---|
| #4 | L + 1' - 0" | SEE "c" BAR LENGTH |
| #5 | L + 1' - 2" | SEE "c" BAR LENGTH |
| #6 | L + 1' - 4" | SEE "c" BAR LENGTH |
| #7 | L + 1' - 8" | SEE "c" BAR LENGTH |
| #8 | L + 1' - 10" | SEE "c" BAR LENGTH |
| #9 | L + 2' - 6" | SEE "c" BAR LENGTH |

L = "OW" - 3 INCHES




## WINGWALL & CULVERT DRAINAGE DETAIL

## REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

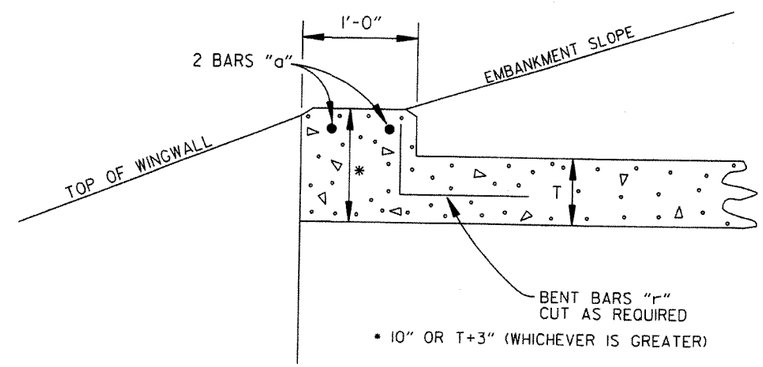
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.




NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

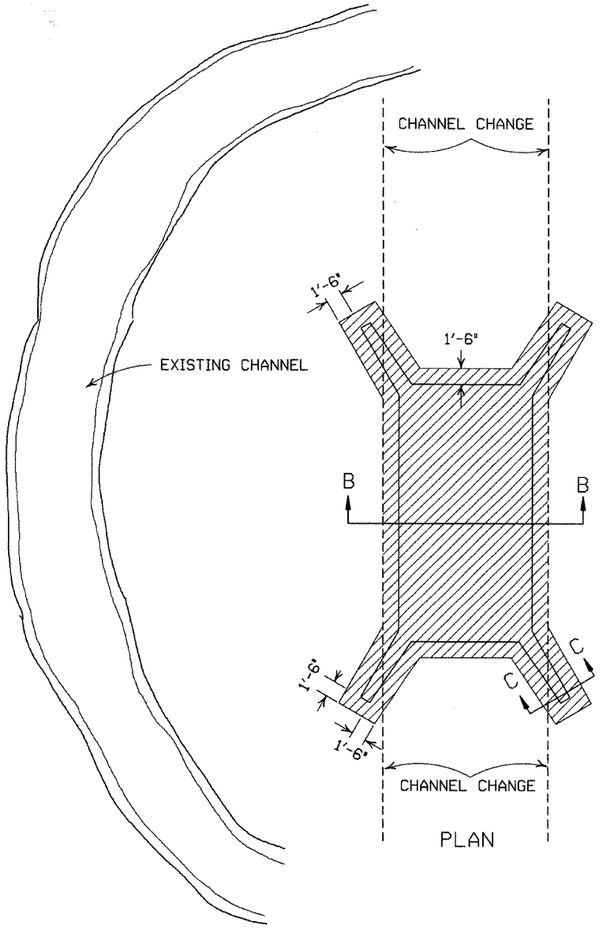
## R.C. BOX CULVERT HEADWALL MODIFICATIONS

| DATE | REVISION | DATE FILMED |
|---|---|---|
| 7/26/12 | REV. DRAINAGE FILL MATERIAL & DETAIL | |
| 12/15/11 | REQUIRE WEEP HOLES IN BOX CULVERT WALLS | |
| 5-25-06 | REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM | |
| 11-16-01 | ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES | |
| 10-18-96 | REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM | |
| 10-12-95 | MOVED SOLID SODDING DETAIL TO RCB-2 | |
| 6-2-94 | ADDED SOLID SODDING PLAN DETAIL | |
| 8-5-93 | REVISED PIN DIAMETER TO SPECS. | |
| 8-15-91 | DRAWN AND ISSUED | |

ARKANSAS STATE HIGHWAY COMMISSION

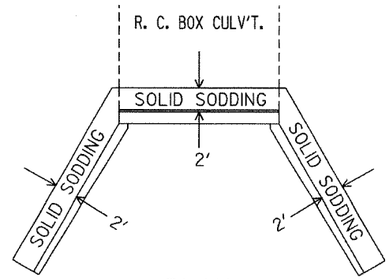
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1




PLAN

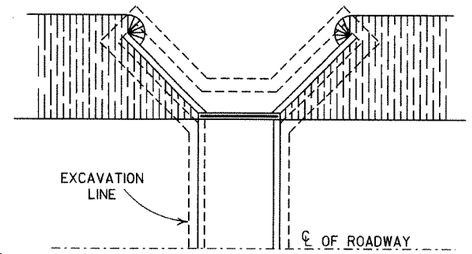
SOLID SODDING



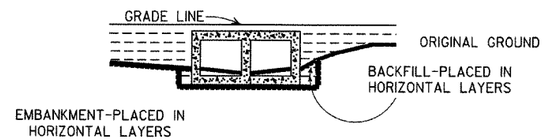

PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

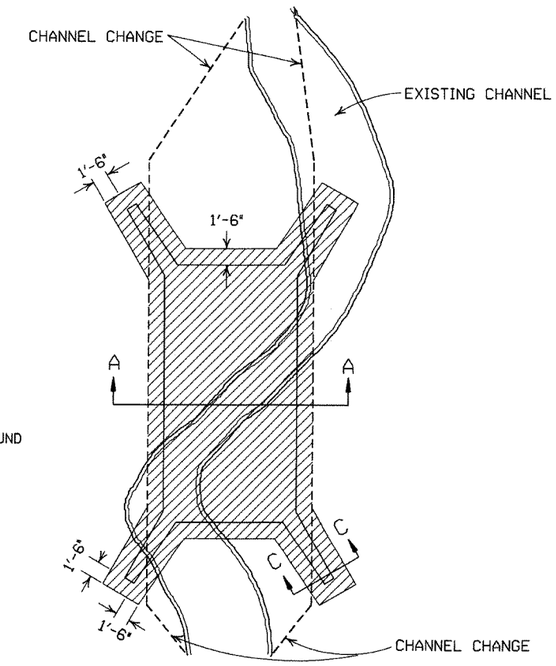



PLAN

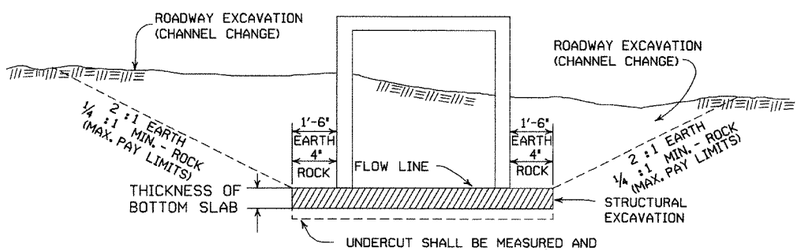



LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

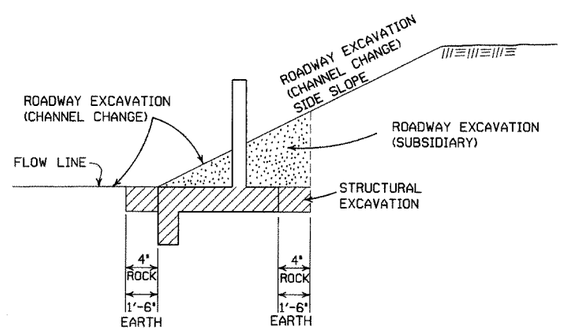



PLAN

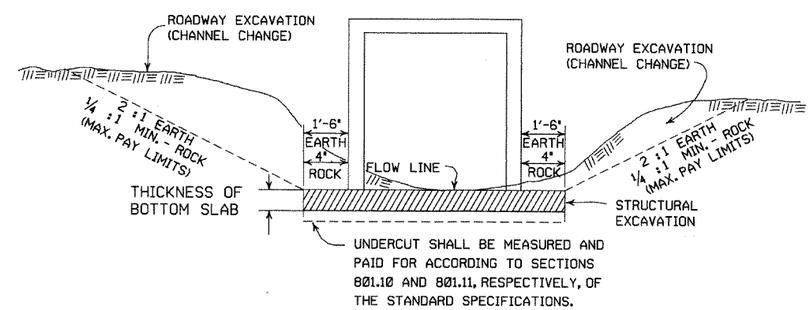



SECTION B-B

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.

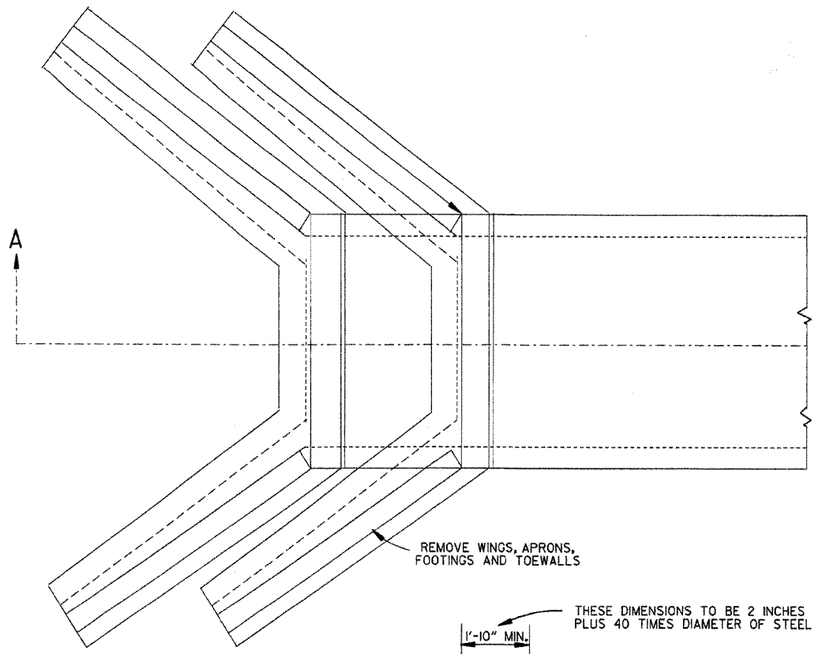
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

| 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 |

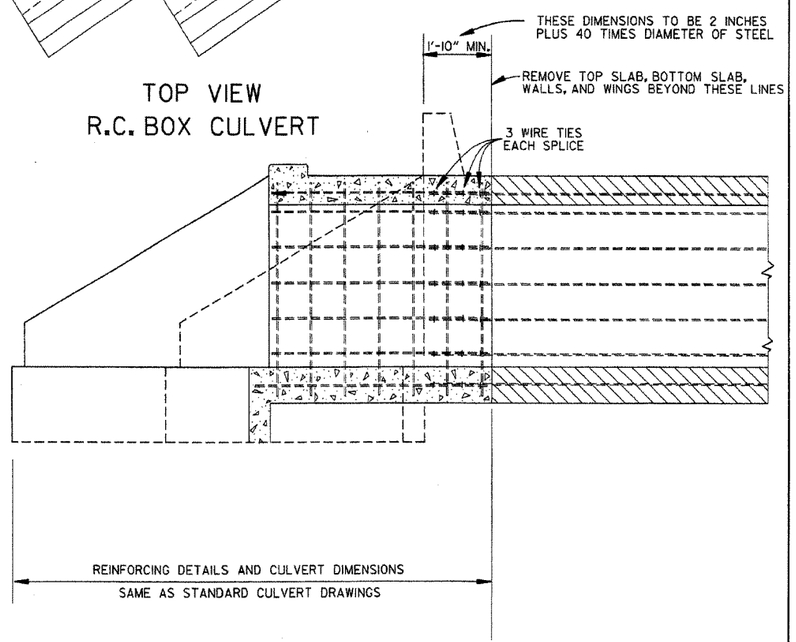
ARKANSAS STATE HIGHWAY COMMISSION

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

STANDARD DRAWING RCB-2

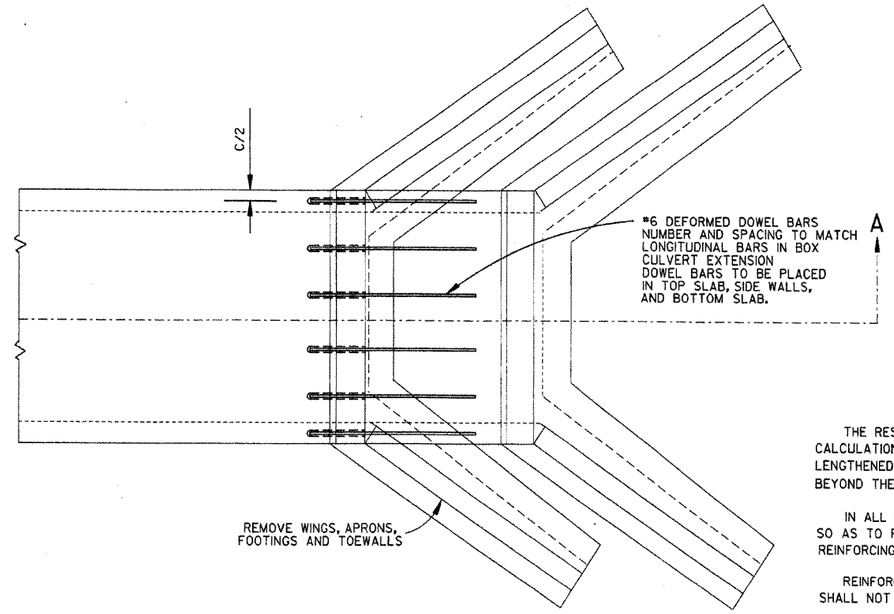



TOP VIEW
R.C. BOX CULVERT

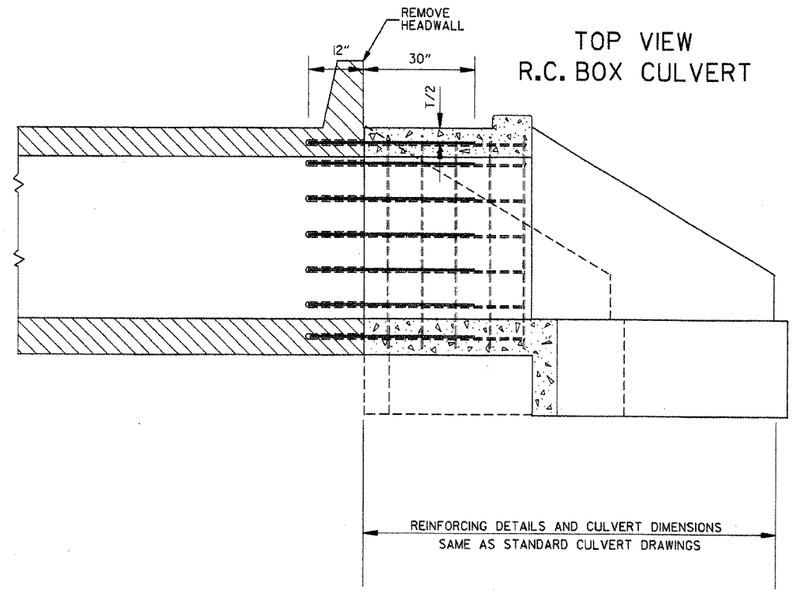



SECTION A-A

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 | |

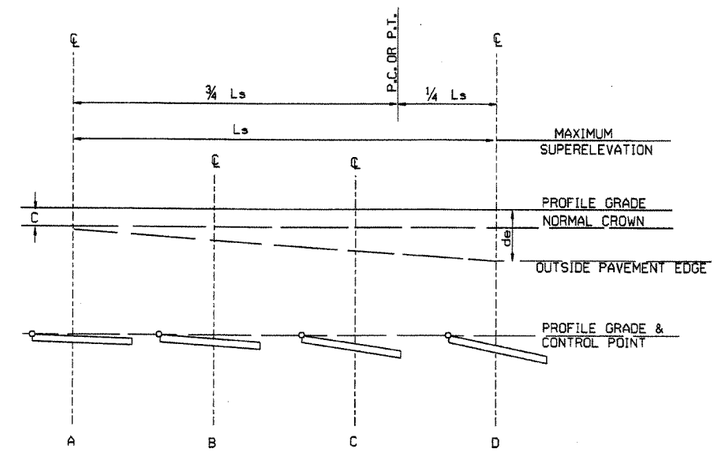
ARKANSAS STATE HIGHWAY COMMISSION

METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3

## SUPERELEVATION TABLE FOR ONE - 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 | 65 MPH e | 65 MPH Ls (FT) MINIMUM | 65 MPH Ls (FT) DESIRABLE | 70 MPH e | 70 MPH Ls (FT) MINIMUM | 70 MPH Ls (FT) DESIRABLE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° 15′ | N.C. | 150 | 250 | N.C. | 175 | 250 | N.C. | 200 | 300 | N.C. | 225 | 350 | N.C. | 250 | 350 | N.C. | 250 | 350 | N.C. | 275 | 350 |
| 0° 30′ | N.C. | | | N.C. | | | N.C. | | | N.C. | | | N.C. | | | N.C. | | | N.C. | | |
| 0° 45′ | N.C. | | | N.C. | | | R.C. | | | 0.022 | | | 0.023 | | | 0.025 | | | 0.028 | | |
| 1° 00′ | N.C. | | | N.C. | | | 0.021 | | | 0.026 | | | 0.030 | | | 0.033 | | | 0.037 | | |
| 1° 15′ | N.C. | | | R.C. | | | 0.026 | | | 0.032 | | | 0.037 | | | 0.041 | | | 0.046 | | |
| 1° 30′ | N.C. | | | 0.021 | | | 0.031 | | | 0.037 | | | 0.043 | | | 0.048 | | | 0.054 | | |
| 1° 45′ | N.C. | | | 0.025 | | | 0.036 | | | 0.043 | | | 0.049 | | | 0.055 | | | 0.062 | | |
| 2° 00′ | R.C. | | | 0.028 | | | 0.040 | | | 0.048 | | | 0.055 | | | 0.062 | | | 0.070 | | |
| 2° 15′ | R.C. | | | 0.031 | | | 0.045 | | | 0.053 | | | 0.061 | | | 0.069 | 265 | | 0.078 | 300 | |
| 2° 30′ | 0.021 | | | 0.034 | | | 0.049 | | | 0.058 | | | 0.067 | | | 0.075 | 280 | 400 | 0.085 | 315 | 400 |
| 2° 45′ | 0.023 | | | 0.037 | | | 0.053 | | | 0.063 | | | 0.072 | | | 0.081 | 300 | | 0.091 | 335 | |
| 3° 00′ | 0.025 | | | 0.040 | | | 0.057 | | | 0.067 | 230 | | 0.077 | 260 | | 0.087 | 315 | | 0.096 | 350 | |
| 3° 15′ | 0.027 | | | 0.043 | | | 0.061 | | | 0.072 | 245 | | 0.082 | 275 | | 0.090 | 325 | | 0.098 | 360 | 450 |
| 3° 30′ | 0.029 | | | 0.046 | | | 0.065 | 205 | | 0.076 | 255 | | 0.086 | 285 | | 0.095 | 340 | | 0.100 | 360 | |
| 3° 45′ | 0.031 | | | 0.049 | | | 0.069 | 215 | | 0.080 | 265 | | 0.090 | 295 | | 0.097 | 345 | | | | |
| 4° 00′ | 0.033 | | | 0.051 | | | 0.072 | 225 | | 0.083 | 270 | | 0.093 | 305 | 400 | 0.099 | 350 | | | | |
| 4° 30′ | 0.037 | | | 0.056 | | | 0.078 | 240 | | 0.087 | 280 | | 0.096 | 315 | | | | | | | |
| 5° 00′ | 0.040 | | | 0.061 | | | 0.083 | 250 | | 0.091 | 295 | 400 | 0.098 | 320 | | | | | | | |
| 5° 30′ | 0.043 | | | 0.066 | 185 | | 0.088 | 260 | | 0.094 | 300 | | | | | | | | | | |
| 6° 00′ | 0.046 | | | 0.070 | 190 | | 0.092 | 270 | | 0.096 | 305 | | | | | | | | | | |
| 6° 30′ | 0.050 | | | 0.074 | 200 | | 0.095 | 280 | 350 | 0.100 | 315 | | | | | | | | | | |
| 7° 00′ | 0.053 | | | 0.078 | 210 | | 0.098 | 285 | | | | | | | | | | | | | |
| 7° 30′ | 0.056 | | | 0.081 | 215 | | 0.099 | 290 | | | | | | | | | | | | | |
| 8° 00′ | 0.058 | | | 0.084 | 220 | 300 | 0.100 | 290 | | | | | | | | | | | | | |
| 8° 30′ | 0.061 | | | 0.087 | 225 | | | | | | | | | | | | | | | | |
| 9° 00′ | 0.063 | | | 0.089 | 230 | | | | | | | | | | | | | | | | |
| 10° 00′ | 0.068 | 160 | | 0.094 | 235 | | | | | | | | | | | | | | | | |
| 11° 00′ | 0.072 | 170 | | 0.097 | 250 | | | | | | | | | | | | | | | | |
| 12° 00′ | 0.076 | 175 | | 0.099 | 250 | | | | | | | | | | | | | | | | |
| 13° 00′ | 0.080 | 180 | | 0.100 | 250 | | | | | | | | | | | | | | | | |
| 14° 00′ | 0.083 | 190 | | | | | | | | | | | | | | | | | | | |
| 15° 00′ | 0.086 | 195 | | | | | | | | | | | | | | | | | | | |
| 16° 00′ | 0.089 | 200 | | | | | | | | | | | | | | | | | | | |
| 17° 00′ | 0.091 | 200 | | | | | | | | | | | | | | | | | | | |
| 18° 00′ | 0.093 | 205 | | | | | | | | | | | | | | | | | | | |
| 19° 00′ | 0.095 | 210 | | | | | | | | | | | | | | | | | | | |
| 20° 00′ | 0.097 | 215 | 300 | | | | | | | | | | | | | | | | | | |
| 21° 00′ | 0.098 | 215 | | | | | | | | | | | | | | | | | | | |
| 22° 00′ | 0.099 | 215 | | | | | | | | | | | | | | | | | | | |
| 23° 00′ | 0.099 | 215 | | | | | | | | | | | | | | | | | | | |
| 24° 00′ | 0.100 | 220 | | | | | | | | | | | | | | | | | | | |
| D MAX = 24° 45′ | | | | D MAX = 13° 15′ | | | D MAX = 8° 15′ | | | D MAX = 6° 30′ | | | D MAX = 5° 15′ | | | D MAX = 4° 15′ | | | D MAX = 3° 30′ | | |




ONE-WAY TRAFFIC
INSIDE LANE

SUPERELEVATION FORMULA = $S = -\frac{L(de-C)}{Ls} - C$

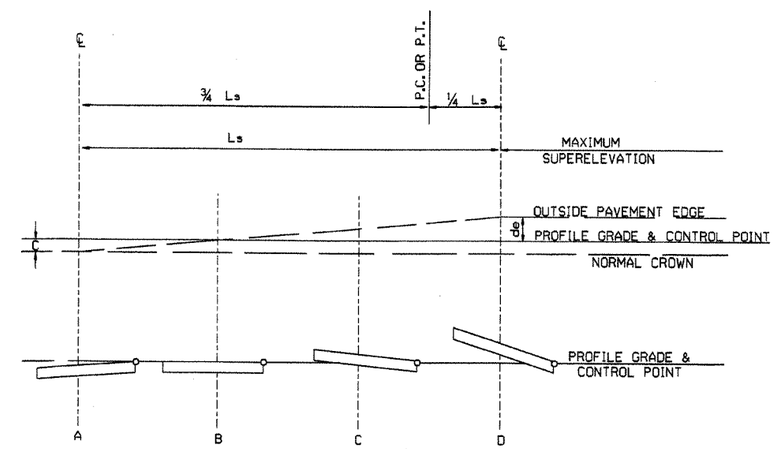
### ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
S - SUPERELEVATION
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT
e - MAXIMUM RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
C - NORMAL CROWN (FT.)

### GENERAL NOTES

1. ON PAVEMENT WITH ONE-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE PROFILE GRADE POINT.
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR Ls MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. MINIMUM Ls VALUES MAY BE USED FOR RAMPS; DESIRABLE VALUES SHALL APPLY TO MAIN LANES.
5. DIVIDED PAVEMENTS WIDER THAN 4 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLOWS:

6 LANE DIVIDED---------+20%
8 LANE DIVIDED---------+50%




ONE-WAY TRAFFIC
OUTSIDE LANE

SUPERELEVATION FORMULA = $S = +\frac{L(de+C)}{Ls} - C$

| DATE | REVISION | DATE FILMED |
|---|---|---|
| 01-09-87 | ISSUED | 578-1-15-87 |

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC

STANDARD DRAWING SE-1

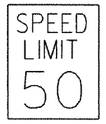
R1-1


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

R1-2

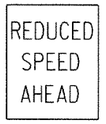

STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1




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

R2-5A




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

R2-5C


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

R4-1


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

R4-2


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

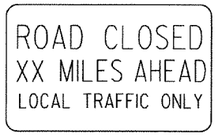
R5-1


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

R11-2

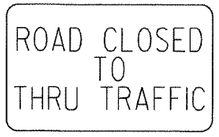

48"X30"

R11-3A




60"X30"

R11-4

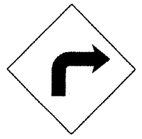



60"X30"

RSP-1


48"X30"

W1-1



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

W1-2

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

W1-3

STD. 48"X48"

W1-4

STD. 48"X48"

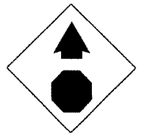
W1-6

STD. 48"X24"
SPECIAL 60"X30"

W1-8

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

W3-1

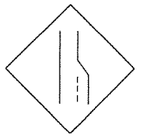


STD. 36"X36"
SPECIAL 48"X48"

W3-2

STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1


STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7


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

W9-2


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

W13-1


STD. 24"X24"

W20-1


STD. 48"X48"

W20-2


STD. 48"X48"

W20-3


STD. 48"X48"

W20-4


STD. 48"X48"

W20-5


STD. 48"X48"

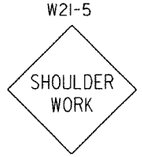
W20-7a


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

W21-2


STD. 30"X30"
SPECIAL 36"X36"

W21-5




STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

W1-4b

STD. 48"X48"

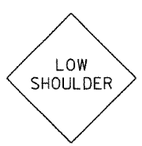
R56-1


STD. 18"X18"

W8-11

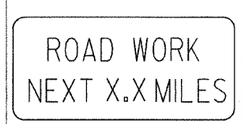

STD. 36"X36"
FWY. 48"X48"

W8-9



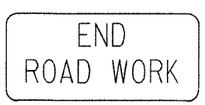

STD. 36"X36"
FWY. 48"X48"

G20-1



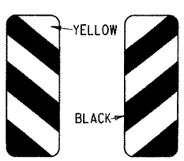

60"X24"

G20-2




48"X24"

OM-3L OM-3R




12"X36"

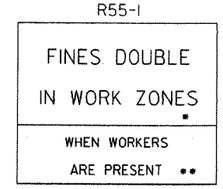
M4-9


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

M4-10


48"X18"

R55-1




36"X60"

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

ADVANCE DISTANCES
(XXXX)

| | |
|---|---|
| 500 FT | 1/2 MILE |
| 1000 FT | 3/4 MILE |
| 1500 FT | 1 MILE |
| | AHEAD |

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

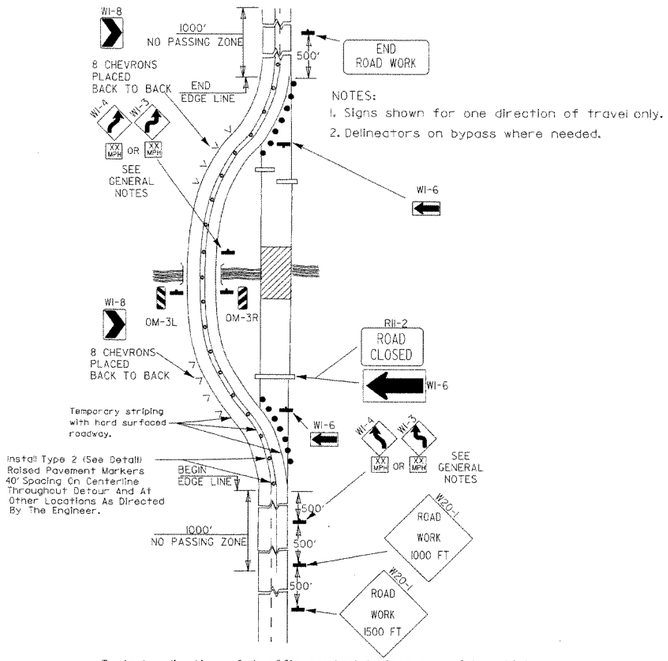
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

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

ARKANSAS STATE HIGHWAY COMMISSION

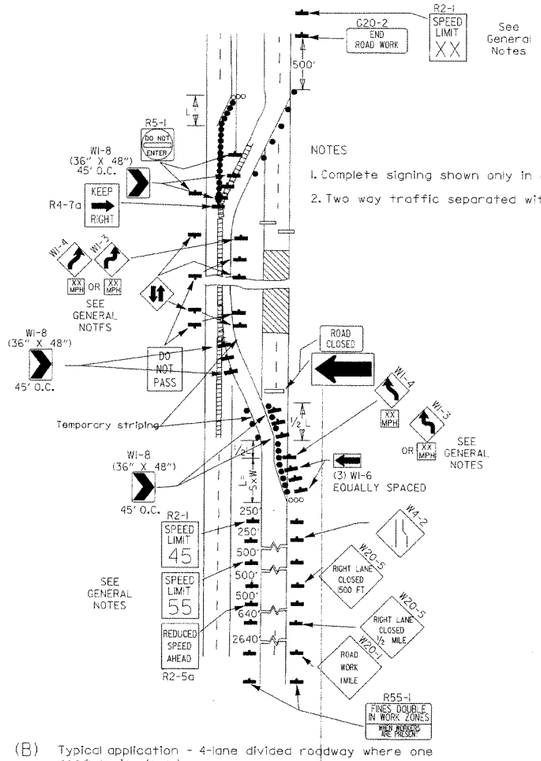
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



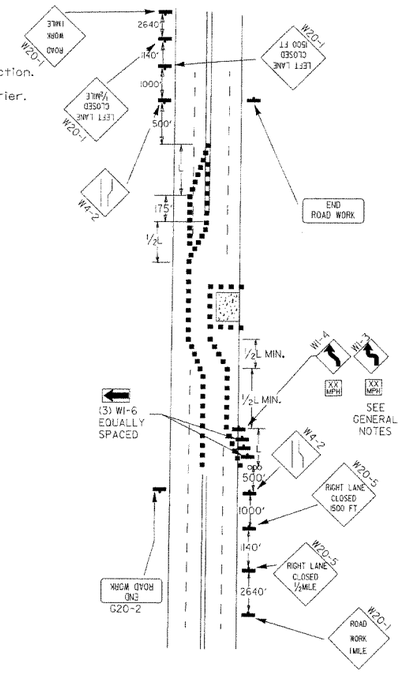

NOTES:
1. Signs shown for one direction of travel only.
2. Delineators on bypass where needed.

(A) Typical application of traffic control devices on a 2-lane highway where the entire roadway is closed and a bypass detour is provided.

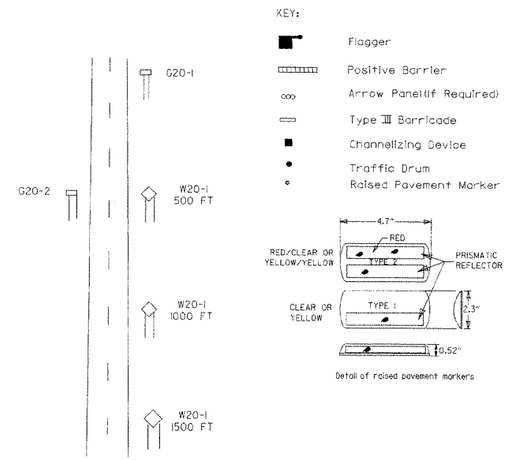



NOTES
1. Complete signing shown only in crossover direction.
2. Two way traffic separated with positive barrier.

(B) Typical application - 4-lane divided roadway where one roadway is closed.




(C) Typical application - 4-lane undivided roadway where half of the roadway is closed.




Typical advance warning sign placement

Taper formulae:

L=SxW for speeds of 45mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40mph or less.

Where:

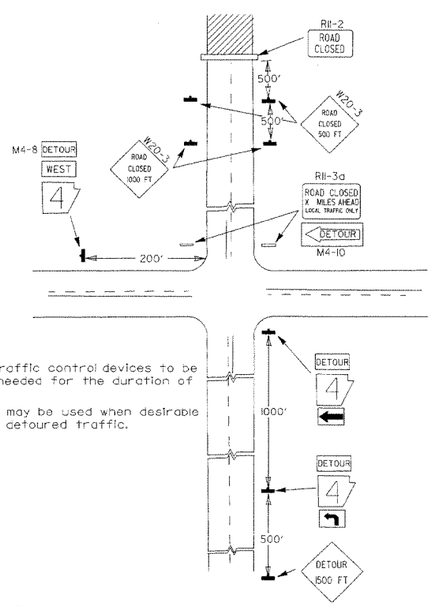
L= Minimum length of taper.

S= Numerical value of posted speed limit prior to work or 85th percentile speed.

W= Width of offset.

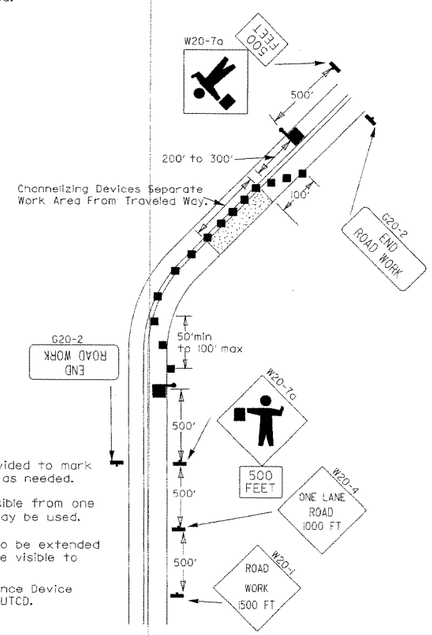
GENERAL NOTES:

1. Advisory speed posted on W1-3 or W1-4 curve warning signs to be determined at site. Use W1-4 when speed is greater than 30mph and W1-3 when 30mph or less.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 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.



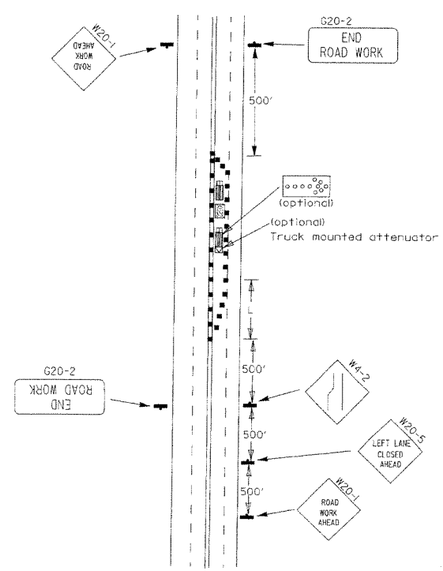

NOTES:
1. Regulatory traffic control devices to be modified as needed for the duration of the detour.
2. Street names may be used when desirable for directing detoured traffic.

(D) Typical application - roadway closed beyond detour point.




NOTES:
1. Flood lights should be provided to mark flagger stations at night as needed.
2. If entire work area is visible from one station, a single flagger may be used.
3. Channelizing devices are to be extended to a point where they are visible to approaching traffic.
4. Automated Flagger Assistance Device (AFAD) optional. Refer to MUTCD.

(E) Typical application of traffic control devices on 2-lane highway where one lane is closed and flagging is provided.



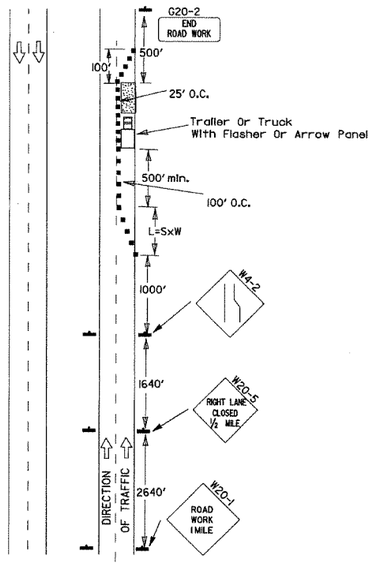

(F) Typical application - 4-lane undivided roadway with inside lane closed.

| DATE | REVISION | FILMED |
|---|---|---|
| 3-11-10 | ADDED (AFAD) | |
| 11-20-08 | REVISED SIGN DESIGNATIONS | |
| 11-18-04 | ADDED GENERAL NOTE | |
| 10-18-96 | ADDED R55-1 | |
| 4-26-96 | CORRECTED (a) BEHIND G20-2 | |
| 6-8-95 | CORRECTED SIGN IDENT. ON W1-4A | 6-8-95 |
| 2-2-95 | REVISED PER PART VI, MUTCD, SEPT. 3, 1993 | |
| 8-15-91 | DRAWN AND PLACED IN USE | |

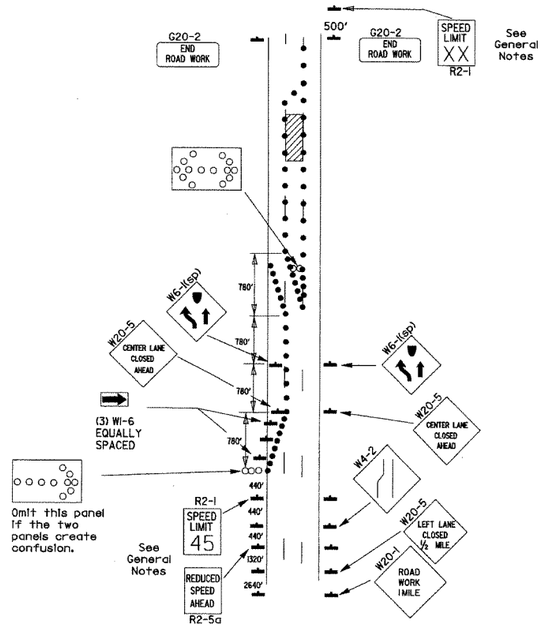
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

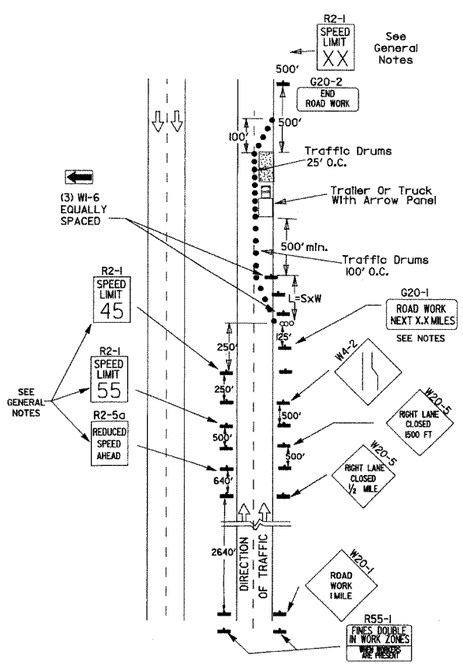
STANDARD DRAWING TC-2




(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.




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




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

KEY:

ooo Arrow Panel (if Required)

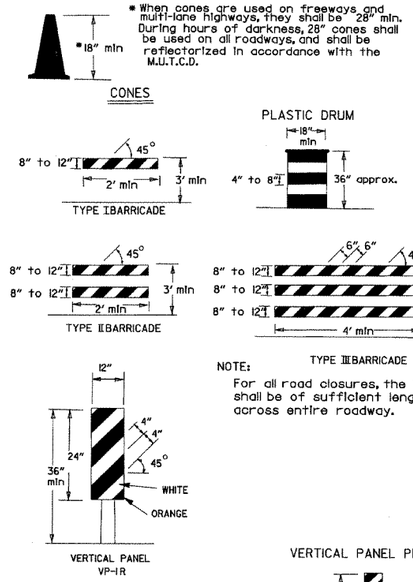
■ Channelizing Device

● 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 1,25' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

Channelizing devices




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

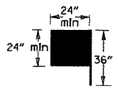
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

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

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

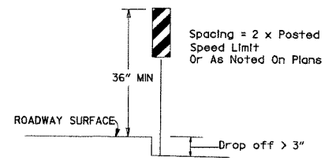
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG

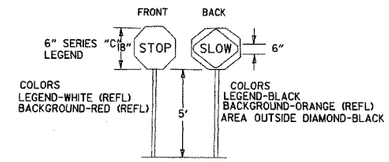


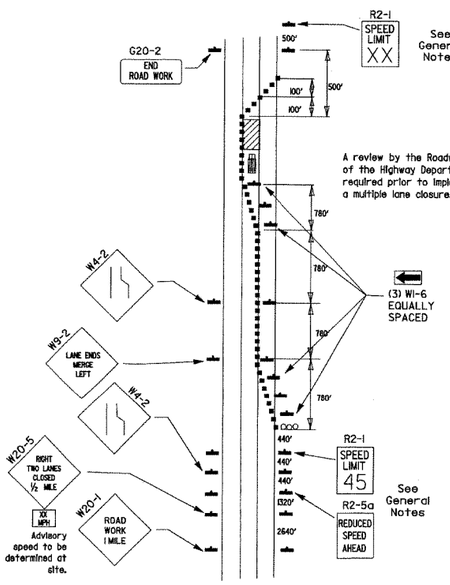

Flag shall be of good grade red material

VERTICAL PANEL PLACEMENT




STOP SLOW PADDLE



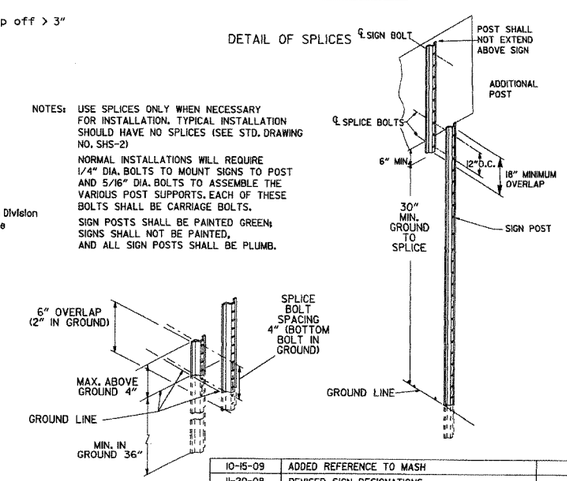

(D) Typical application - closing multiple lanes of a multilane highway.

DETAIL OF SPLICES

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

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

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




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

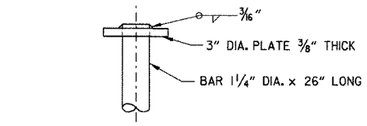
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

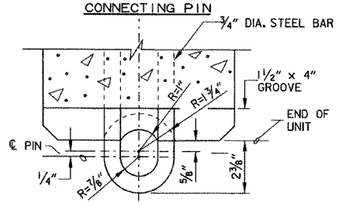
STANDARD DRAWING TC-3

## REINFORCING BAR TABLE PER BARRIER UNIT

| MARK | LOCATION | BAR SIZE | (NO. BARS) | SKETCH |
|---|---|---|---|---|
| H-1 | HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS | #5 | (6) | 19'-3" |
| H-2 | CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY | #5 | (6) | 6'-6" |
| H-3 | TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1 | #4 | (2) | 1'-6" |
| S-1 | OVER LIFT HOLES | #4 | (2) | 2'-5", 90°, 3 3/8" R, LIFTING HOLE |
| S-2 | HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS | #4 | (2) | 1 1/2" R, SLOTS, 7", 1" MIN. CLEAR TO BAR, 1'-6", 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP |
| V-1 | VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS | #5 | (16) | TOTAL LENGTH 4'-9", 2 3/16" R, 12°, 9 1/2", 2'-1 3/8", 4 3/8" |

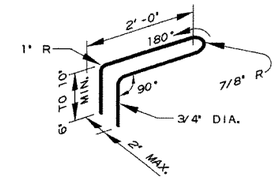



CONNECTING PIN

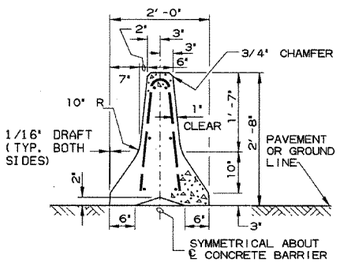



SECTION E-E

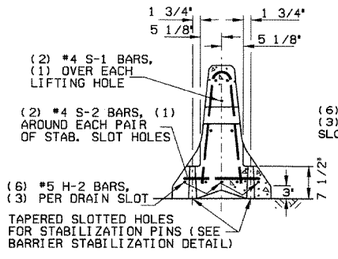
CONNECTION DETAILS



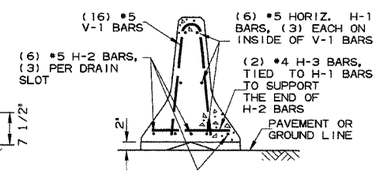

CONNECTION LOOP



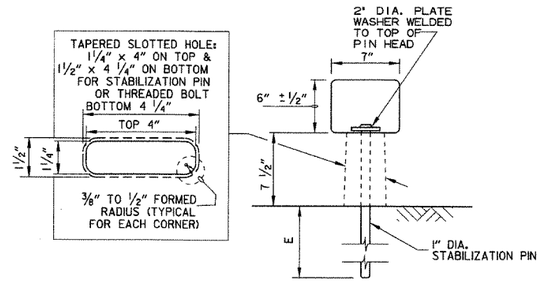

SECTION A-A




SECTION B-B



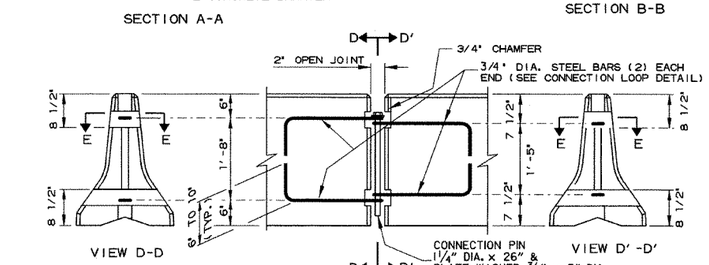

SECTION C-C



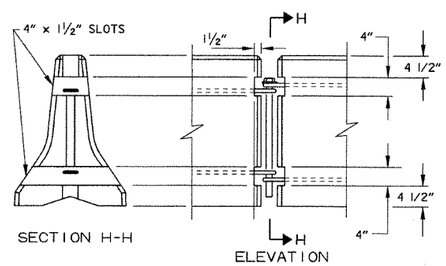

BARRIER STABILIZATION DETAIL

ROADWAY SECTION

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



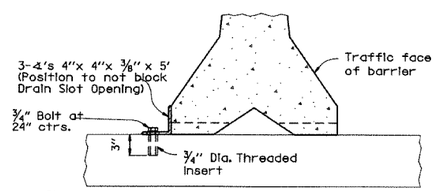

ELEVATION




SECTION H-H

ELEVATION

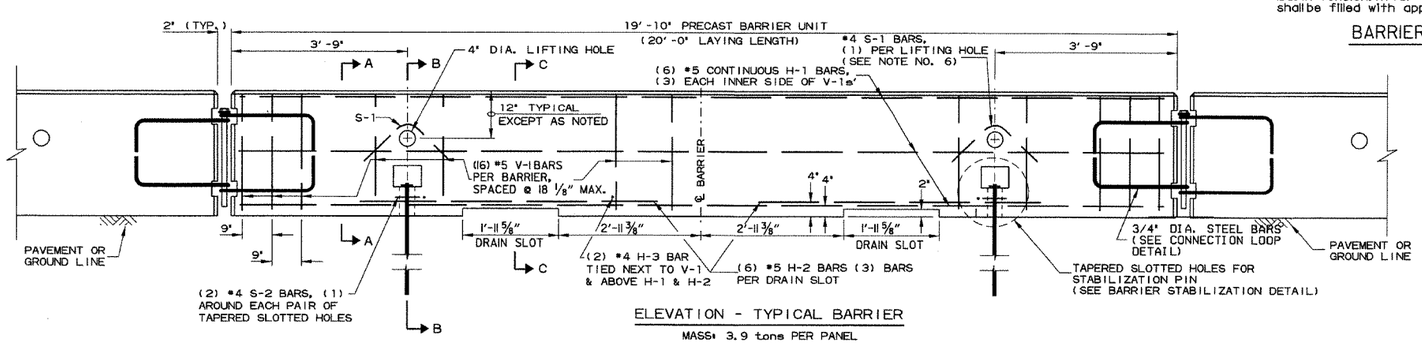
BARRIER REMOVAL SLOT DETAILS




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

BARRIER STABILIZATION DETAIL

BRIDGE DECKS




ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

### General Notes

1. The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.

2. Materials shall meet the following minimum requirements:
   Concrete: 2500 psi compressive strength at 28 days.
   Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
   Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.
   Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

   In applications where barrier wall is within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
   Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
   Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.

3. Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.

4. Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.

5. Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.

6. A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

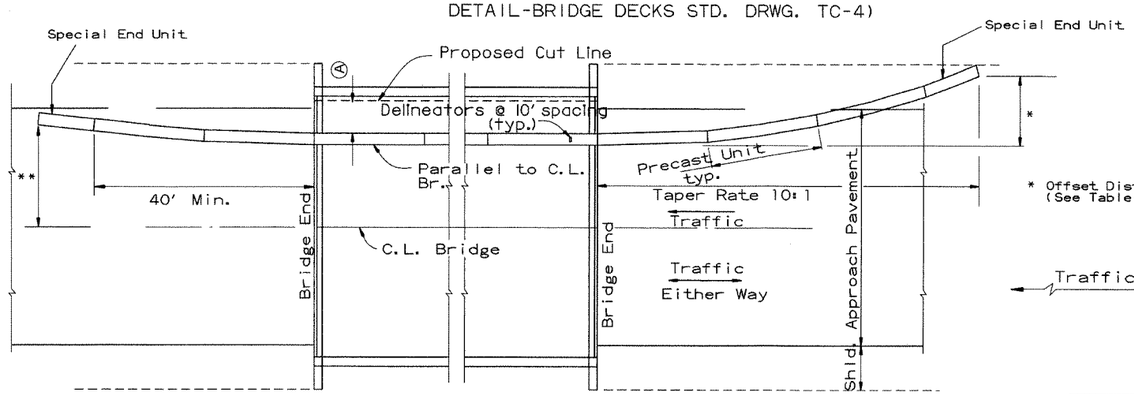
| DATE | REVISION | FILMED |
|---|---|---|
| 10-15-09 | ADDED REFERENCE TO MASH | |
| 8-5-09 | REV. NOTE 3 CONCERNING DRAIN SLOTS | |
| 11-29-07 | REVISED NOTE 3 | |
| 5-25-06 | DELETED GENERAL NOTE 7 | |
| 11-18-04 | REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS | |
| 4-10-03 | REVISED GENERAL NOTE 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)

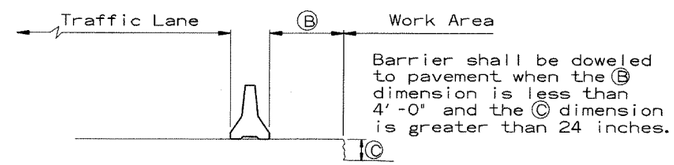



* Offset Distance (See Table)

BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

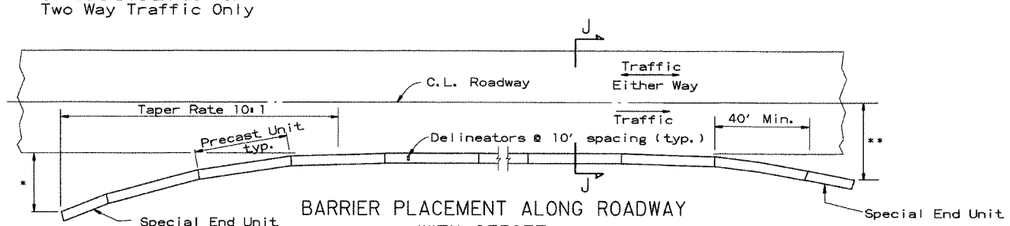
** Offset Distance for Two Way Traffic Only




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




BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

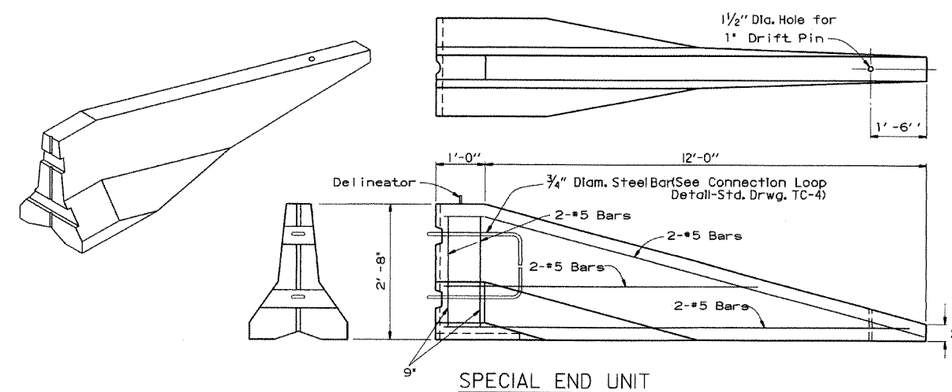
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

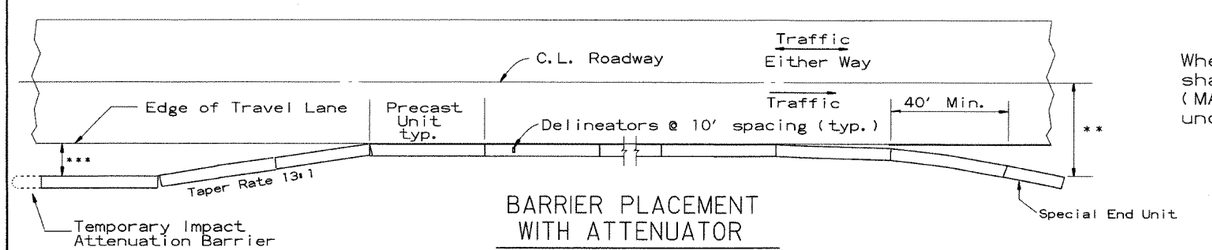
| Speed (MPH) | Offset Distance (FT.) |
|---|---|
| ≤ 45 | 12 |
| > 45 | 18 |

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




SPECIAL END UNIT

No Scale




BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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

## 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 | |

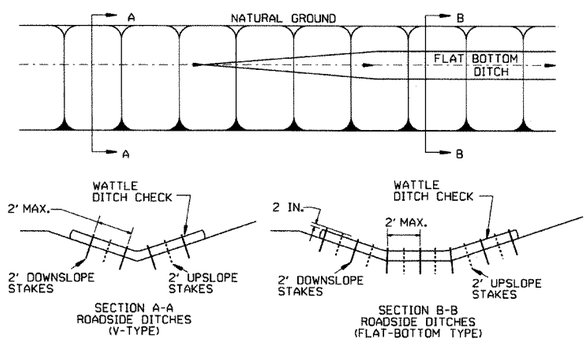
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

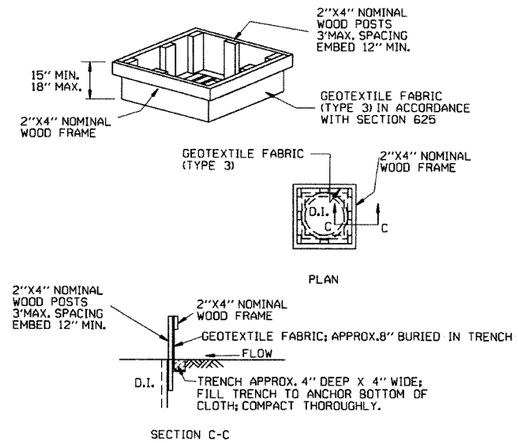
STANDARD DRAWING TC-5

GENERAL NOTES

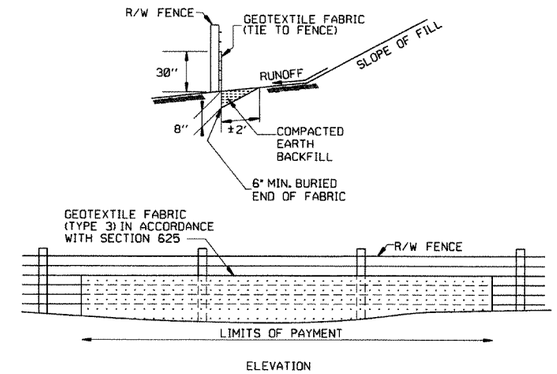
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.




WATTLE DITCH CHECK (E-1)




DROP INLET SILT FENCE (E-7)



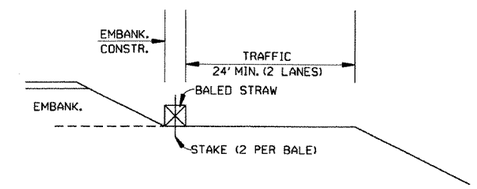

SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

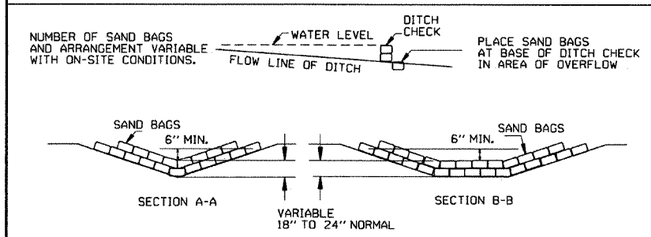
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

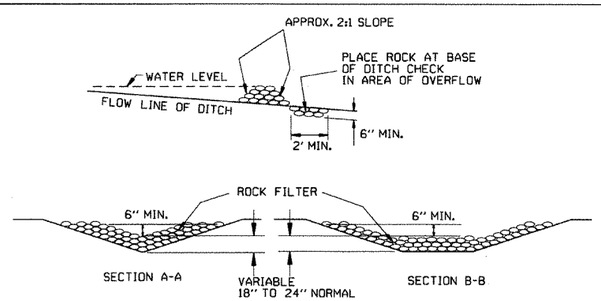
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
2. NO GAPS SHALL BE LEFT BETWEEN BALES.
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED 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.



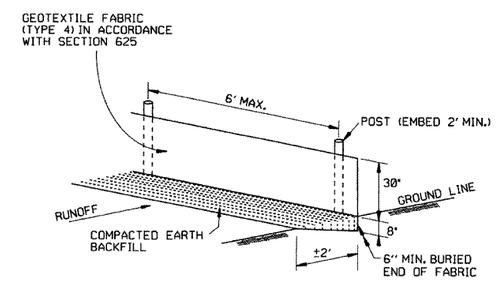

BALED STRAW FILTER BARRIER (E-2)




SAND BAG DITCH CHECK (E-5)




ROCK DITCH CHECK (E-6)




SILT FENCE (E-11)

GENERAL NOTES

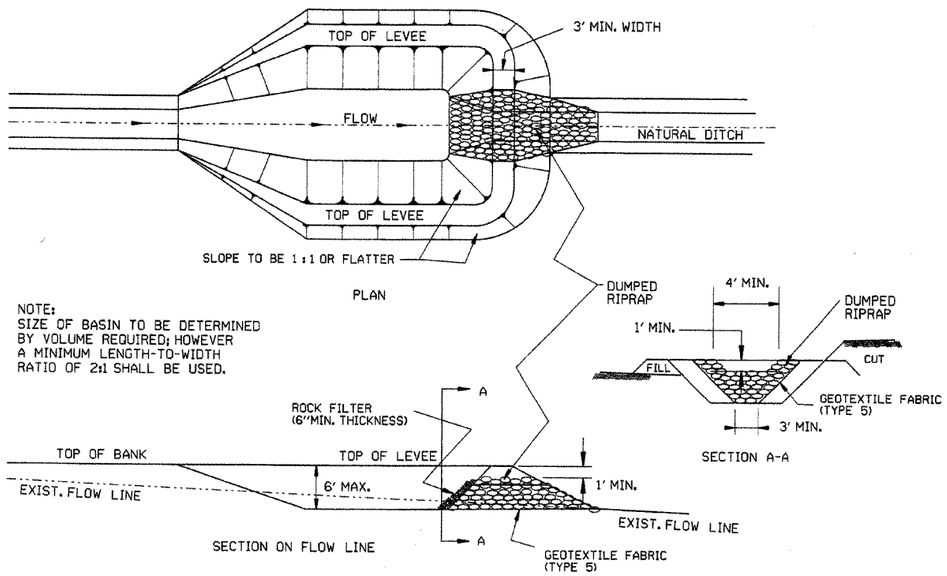
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

| 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

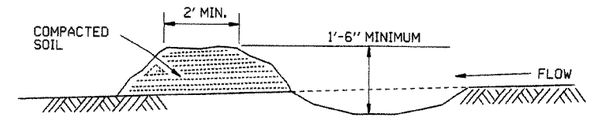
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-1



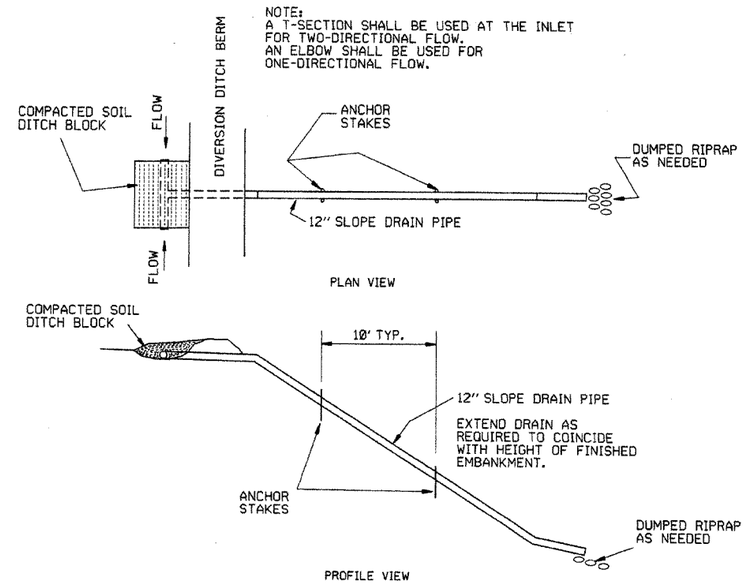

NOTE:
SIZE OF BASIN TO BE DETERMINED BY VOLUME REQUIRED; HOWEVER A MINIMUM LENGTH-TO-WIDTH RATIO OF 2:1 SHALL BE USED.

SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)

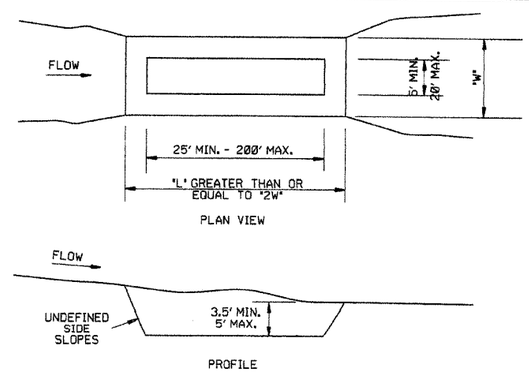



DIVERSION DITCH (E-8)

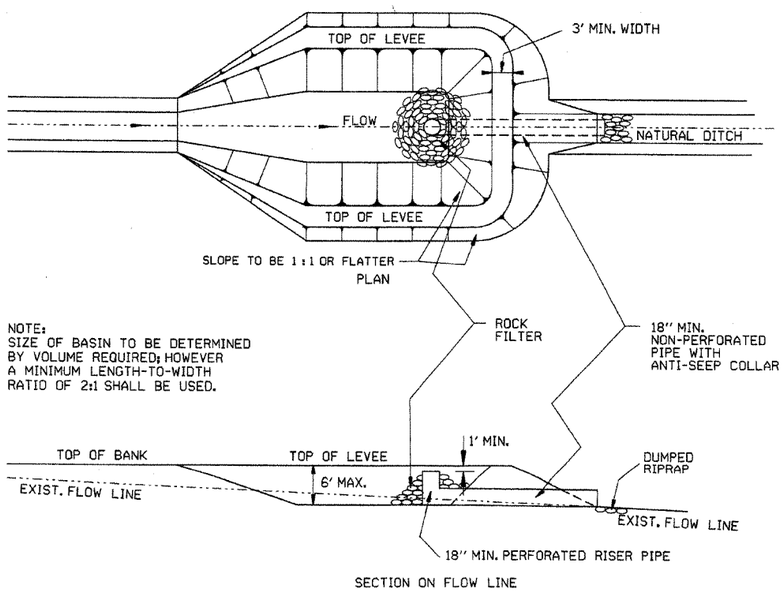
NOTE:
A T-SECTION SHALL BE USED AT THE INLET FOR TWO-DIRECTIONAL FLOW.
AN ELBOW SHALL BE USED FOR ONE-DIRECTIONAL FLOW.




SLOPE DRAIN (E-12)




SEDIMENT BASIN (E-14)




NOTE:
SIZE OF BASIN TO BE DETERMINED BY VOLUME REQUIRED; HOWEVER A MINIMUM LENGTH-TO-WIDTH RATIO OF 2:1 SHALL BE USED.

SEDIMENT BASIN WITH PIPE OUTLET (E-10)

| 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

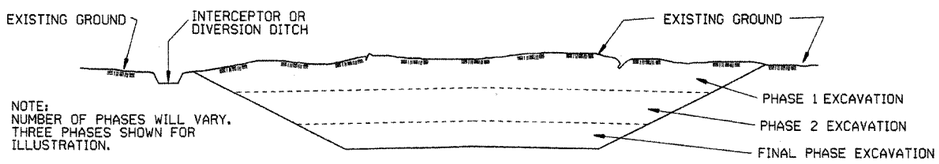
207

# CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

# EXCAVATION



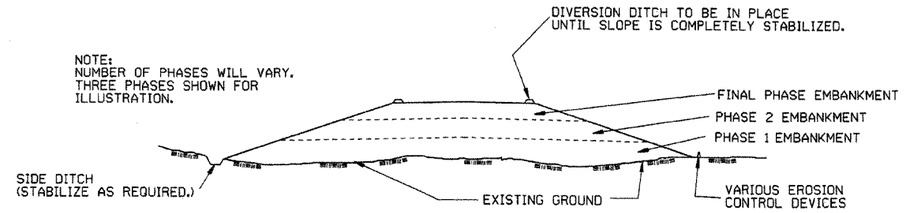

GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

# EMBANKMENT




GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

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

ARKANSAS STATE HIGHWAY COMMISSION

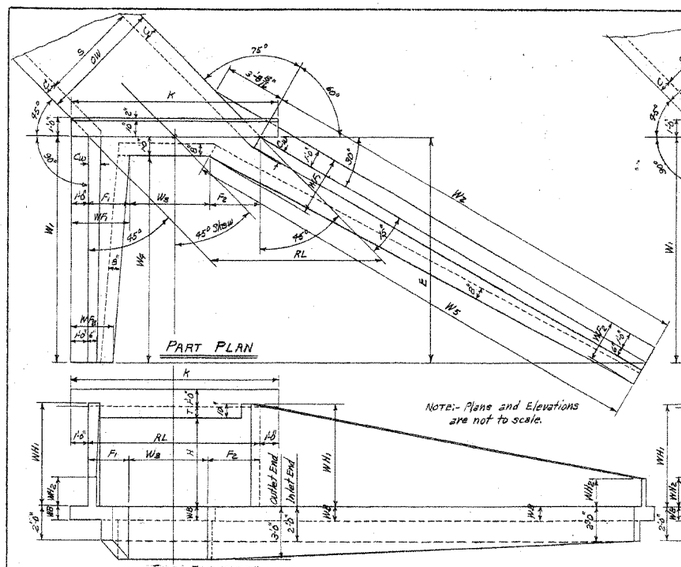
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

stdtec3.dgn

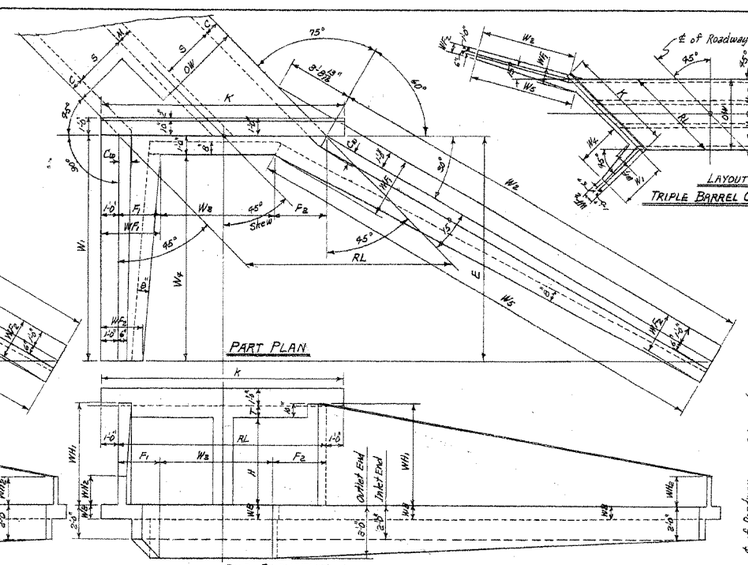
Reshot 3-8-93

| FED. ROAD No. | STATE | FED. AID PROJECT | FISCAL YEAR | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 6 | ARK. | | | 208 | |
| JOB No. | | | | | |



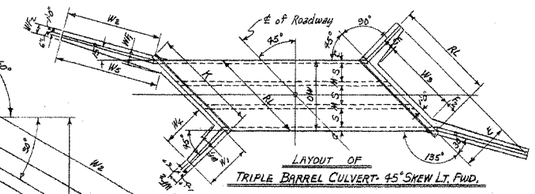

SINGLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

Details of Culvert with 45° Skew Left Forward is reversed, see Layout below.

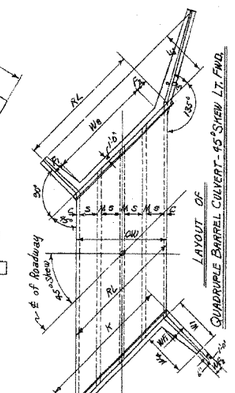



DOUBLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

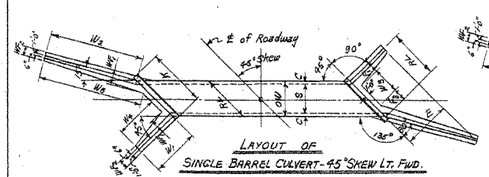
Details of Culvert with 45° Skew Left Forward is reversed, see Layout below.



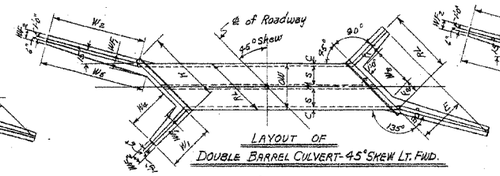

LAYOUT OF TRIPLE BARREL CULVERT - 45° SKEW LT. FWD.



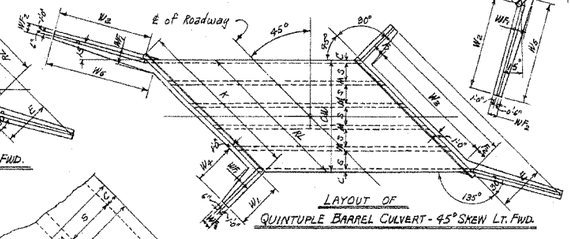

LAYOUT OF QUADRUPLE BARREL CULVERT - 45° SKEW LT. FWD.



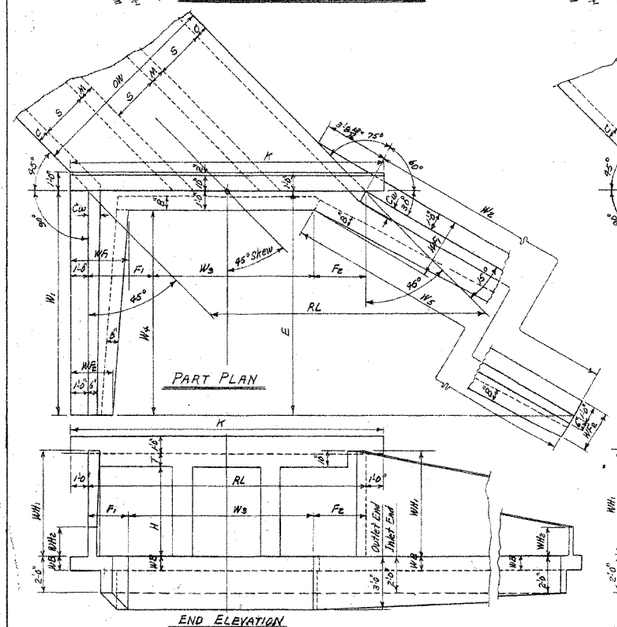

LAYOUT OF SINGLE BARREL CULVERT - 45° SKEW LT. FWD.




LAYOUT OF DOUBLE BARREL CULVERT - 45° SKEW LT. FWD.

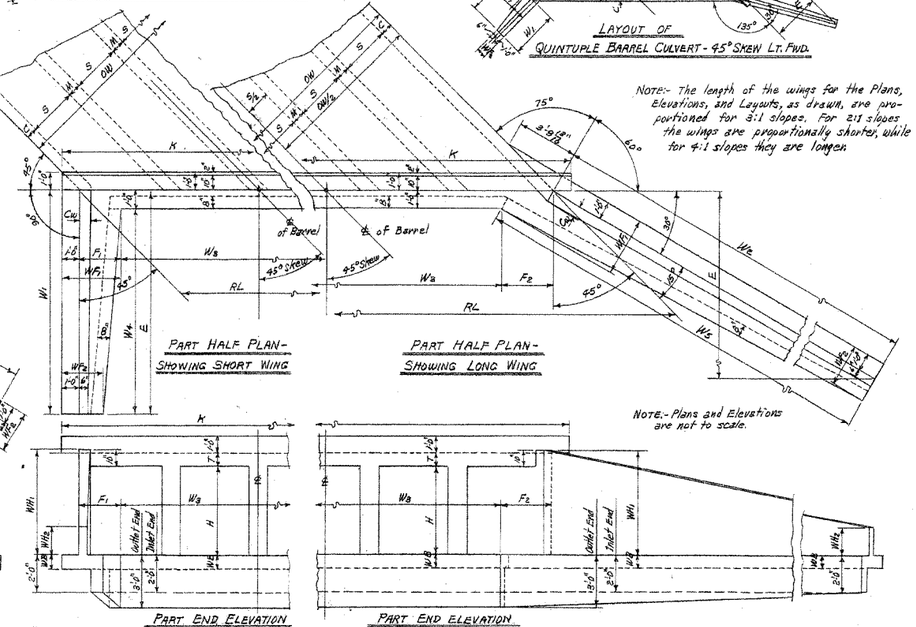



LAYOUT OF QUINTUPLE BARREL CULVERT - 45° SKEW LT. FWD.




TRIPLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

Details of Culvert with 45° Skew Left Forward is reversed, see Layout at top center of sheet.




QUADRUPLE BARREL CULVERT - 45° SKEW RT. FWD.

Details of Culvert with 45° Skew Left Forward is reversed, see Layout at above center.

QUINTUPLE BARREL CULVERT - 45° SKEW RT. FWD.

Details of Culvert with 45° Skew Left Forward is reversed, see Layout above.

ROADWAY LENGTH RL — HEADWALL LENGTH K — APRON DIMENSION $W_3$

$RL = OW \times 1.414221$ — $K = RL + (2'0")$ — $W_3 = RL - (F_1 + F_2)$

| USE WITH DRAWING No. | CLEAR SPAN S | CLEAR HEIGHT H | SUM OF FILLS $F_1$ & $F_2$ | SINGLE BARREL CULVERT OW | RL | K | $W_3$ | DOUBLE BARREL CULVERT OW | RL | K | $W_3$ | TRIPLE BARREL CULVERT OW | RL | K | $W_3$ | QUADRUPLE BARREL CULVERT OW | RL | K | $W_3$ | QUINTUPLE BARREL CULVERT OW | RL | K | $W_3$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-X452-1, W-X453-1 OR W-X454-1 (FOR H=8'0" OR LESS) | 4' | 2' 3 1/8" | 5'-0" | 7'-0 7/8" | 9'-0 7/8" | 4'-9 3/8" | 9'-8" | 13'-8" | 15'-8" | 11'-4 5/8" | 14'-4" | 20'-3 1/8" | 22'-3 1/8" | 18'-8" | 19'-0" | 26'-10 1/8" | 28'-10 1/8" | 24'-7 7/8" | 23'-8" | 33'-5 5/8" | 35'-5 5/8" | 31'-2 1/2" |
| | | 3' | 3' 3 1/8" | 5'-0" | " | " | 2'-3 3/8" | 9'-8" | " | " | 10'-4 3/8" | 14'-4" | " | " | 17'-0" | 19'-0" | " | " | 23'-7 1/8" | 23'-8" | " | " | 30'-2 1/8" |
| | | 4' | 4' 3 1/8" | 5'-0" | " | " | 2'-3 3/8" | 9'-8" | " | " | 9'-4 3/8" | 14'-4" | " | " | 16'-0" | 19'-0" | " | " | 22'-7 1/8" | 23'-8" | " | " | 29'-2 1/8" |
| | | 5' | 5' 3 1/8" | 5'-0" | 7'-0 7/8" | 9'-0 7/8" | 1'-9 3/8" | 9'-8" | 13'-8" | 15'-8" | 8'-4 3/8" | 14'-4" | 20'-3 1/8" | 22'-3 1/8" | 15'-0" | 19'-0" | 26'-10 1/8" | 28'-10 1/8" | 21'-7 1/8" | 23'-8" | 33'-5 5/8" | 35'-5 5/8" | 28'-2 1/8" |
| | | 6' | 6' 3 1/8" | 5'-0" | 7'-3 3/8" | 9'-3 3/8" | 1'-0 1/8" | 9'-11" | 14'-0 3/8" | 16'-0 3/8" | 7'-0 1/8" | 14'-8" | 20'-8 1/8" | 22'-8" | 14'-5 3/8" | 19'-5" | 27'-5 5/8" | 29'-5 5/8" | 21'-2 1/8" | 26'-2" | 36'-2 1/8" | 36'-2" | 27'-10 3/8" |
| | 5' | 3' | 3' 3 1/8" | 6'-0" | 8'-5 3/8" | 10'-0 3/8" | 5'-2 1/8" | 11'-8" | 16'-6" | 18'-6" | 13'-2 3/8" | 17'-4" | 24'-1 1/8" | 26'-1 1/8" | 21'-3" | 23'-0" | 32'-6 3/8" | 34'-6 3/8" | 29'-3" | 28'-8" | 40'-4 1/2" | 42'-1 1/2" | 37'-3 1/2" |
| | | 4' | 4' 3 1/8" | 6'-0" | " | " | 4'-2 3/8" | 11'-8" | " | " | 12'-2 3/8" | 17'-4" | " | " | 20'-3" | 23'-0" | " | " | 28'-3" | 28'-8" | " | " | 36'-3 1/2" |
| | | 5' | 5' 3 1/8" | 6'-0" | 8'-5 3/8" | 10'-5 3/8" | 3'-2 1/8" | 11'-8" | 16'-6" | 18'-6" | 11'-2 3/8" | 17'-4" | 24'-6 1/8" | 26'-6 1/8" | 19'-3" | 23'-0" | 32'-6 3/8" | 34'-6 3/8" | 27'-8" | 28'-8" | 40'-4 1/2" | 42'-1 1/2" | 35'-3 1/2" |
| | | 6' | 6' 3 1/8" | 6'-2" | 8'-8 3/8" | 10'-8 3/8" | 2'-5 3/8" | 11'-11" | 16'-10 1/2" | 18'-10 1/2" | 10'-7" | 17'-8" | 24'-11 1/8" | 27'-0" | 18'-8 3/8" | 23'-5" | 33'-1 3/8" | 35'-1 3/8" | 26'-10 1/8" | 29'-2" | 41'-3" | 43'-3" | 34'-11 3/8" |
| | | 7' | 7' 3 1/8" | 6'-3" | 8'-10 3/8" | 10'-10 3/8" | 1'-10 3/8" | 12'-1" | 17'-1" | 19'-1" | 9'-13 3/8" | 17'-11" | 25'-4" | 27'-4" | 17'-6 3/8" | 23'-10" | 33'-7" | 35'-7" | 26'-9 3/8" | 29'-7" | 41'-10" | 43'-10" | 34'-10 3/8" |
| | 6' | 3' | 3' 3 1/8" | 7'-0" | 9'-10 3/8" | 11'-10 3/8" | 6'-7 3/8" | 13'-8" | 19'-3 3/8" | 21'-4" | 16'-0 1/8" | 20'-4" | 28'-9 1/8" | 30'-9" | 25'-5 3/8" | 27'-0" | 38'-2 1/2" | 40'-12 1/2" | 34'-11" | 33'-8" | 47'-7 1/8" | 49'-7 1/8" | 44'-4" |
| | | 4' | 4' 3 1/8" | 7'-0" | " | " | 5'-7 3/8" | 13'-8" | " | " | 15'-10 3/8" | 20'-4" | " | " | 28'-5 3/8" | 27'-0" | " | " | 33'-11" | 33'-8" | " | " | 43'-4" |
| | | 5' | 5' 3 1/8" | 7'-0" | 9'-10 3/8" | 11'-10 3/8" | 4'-7 3/8" | 13'-8" | 19'-3 3/8" | 21'-4" | 14'-10 3/8" | 20'-4" | 28'-9 1/8" | 30'-9" | 23'-5 3/8" | 27'-0" | 38'-2 1/2" | 40'-12 1/2" | 32'-11" | 33'-8" | 47'-7 1/8" | 49'-7 1/8" | 42'-4" |
| | | 6' | 6' 3 1/8" | 7'-2" | 10'-1 3/8" | 12'-1 3/8" | 3'-10 3/8" | 13'-11" | 19'-10 1/2" | 21'-10 1/2" | 13'-5" | 20'-8" | 29'-2 1/8" | 31'-2 1/8" | 22'-11 1/8" | 27'-5" | 38'-9 1/2" | 40'-9 1/2" | 32'-4" | 34'-2" | 48'-2 1/2" | 50'-2 1/2" | 42'-10 1/2" |
| | | 7' | 7' 3 1/8" | 7'-3" | 10'-3" | 12'-3" | 2'-5 3/8" | 14'-1" | 19'-11" | 21'-11" | 12'-1 3/8" | 20'-11" | 29'-7" | 31'-7" | 21'-9 3/8" | 27'-8" | 39'-1" | 41'-1" | 31'-5 3/8" | 34'-7" | 49'-10 1/2" | 50'-11" | 41'-11 3/8" |
| | | 8' | 8' 3 1/8" | 7'-4" | 10'-4 1/2" | 12'-4 1/2" | 1'-1 1/2" | 14'-2" | 20'-0 3/8" | 22'-0 3/8" | 10'-9 1/2" | 21'-0" | 29'-8 1/8" | 31'-8 1/8" | 20'-5 3/8" | 27'-10" | 39'-9 1/2" | 41'-9 1/2" | 30'-1" | 34'-8" | 49'-10 1/2" | 51'-0 1/2" | 39'-9" |
| | 7' | 4' | 4' 3 1/8" | 8'-0" | 11'-3 3/8" | 13'-3 3/8" | 7'-0 1/2" | 15'-8" | 22'-1 1/2" | 24'-1 1/2" | 17'-10 1/2" | 23'-4" | 33'-0" | 35'-0" | 28'-8 3/8" | 31'-0" | 43'-10 1/2" | 45'-10" | 39'-6 3/8" | 38'-8" | 54'-8 1/2" | 56'-8 1/2" | 50'-5" |
| | | 5' | 5' 3 1/8" | 8'-0" | 11'-3 3/8" | 13'-3 3/8" | 6'-0 1/2" | 15'-8" | 22'-1 1/2" | 24'-1 1/2" | 16'-10 1/2" | 23'-4" | 33'-0" | 35'-0" | 27'-8 3/8" | 31'-0" | 43'-10 1/2" | 45'-10" | 38'-6 3/8" | 38'-8" | 54'-8 1/2" | 56'-8 1/2" | 49'-5" |
| | | 6' | 6' 3 1/8" | 8'-2" | 11'-6 1/2" | 13'-6 1/2" | 5'-3 1/2" | 15'-11" | 22'-6 1/2" | 24'-6" | 16'-2" | 23'-8" | 33'-5 1/2" | 35'-5 1/2" | 27'-2 1/2" | 31'-5" | 44'-3 1/2" | 46'-3 1/2" | 38'-2" | 39'-2" | 55'-4 1/2" | 57'-4 1/2" | 49'-1 1/2" |
| | | 7' | 7' 3 1/8" | 8'-3" | 11'-8" | 13'-8" | 4'-3 1/2" | 16'-1" | 22'-9" | 24'-9" | 14'-11 1/2" | 23'-11" | 33'-9" | 35'-9" | 26'-1 1/2" | 31'-7" | 44'-10 1/2" | 46'-10 1/2" | 37'-11 1/2" | 39'-7" | 55'-10 1/2" | 57'-11 1/2" | 48'-12 1/2" |
| | | 8' | 8' 3 1/8" | 8'-4" | 11'-9 1/2" | 13'-9 1/2" | 2'-6 1/2" | 16'-2" | 22'-10 1/2" | 24'-10 1/2" | 13'-7" | 24'-0" | 33'-11 1/2" | 35'-11 1/2" | 24'-8" | 31'-10" | 45'-0 1/2" | 47'-0 1/2" | 35'-9" | 39'-8" | 56'-1 1/2" | 58'-1 1/2" | 46'-10" |
| | 8' | 4' | 4' 3 1/8" | 9'-0" | 12'-9 1/2" | 14'-9 1/2" | 8'-5 1/2" | 17'-8" | 24'-11 1/2" | 26'-11 1/2" | 20'-8 1/2" | 26'-4" | 37'-1 1/2" | 39'-1" | 32'-11 1/2" | 35'-0" | 49'-6" | 51'-6" | 45'-12 1/2" | 43'-8" | 61'-9" | 63'-9" | 57'-5 1/2" |
| | | 5' | 5' 3 1/8" | 9'-2" | 12'-11 1/2" | 14'-11 1/2" | 7'-8 1/2" | 17'-11" | 25'-1" | 27'-1" | 20'-0 1/2" | 26'-8" | 37'-8 1/2" | 39'-8" | 32'-1 1/2" | 35'-5" | 50'-1" | 52'-1" | 44'-9 1/2" | 44'-12" | 62'-5" | 64'-5" | 57'-12 1/2" |
| | | 6' | 6' 3 1/8" | 9'-2" | 12'-11 1/2" | 14'-11 1/2" | 6'-10 1/2" | 17'-11" | 25'-1" | 27'-1" | 19'-0 1/2" | 26'-8" | 37'-8 1/2" | 39'-8" | 31'-5 1/2" | 35'-5" | 50'-1" | 52'-1" | 43'-10 1/2" | 44'-12" | 62'-5" | 64'-5" | 57'-2 1/2" |
| | | 7' | 7' 3 1/8" | 9'-3" | 13'-1" | 15'-1" | 5'-9 1/2" | 18'-1" | 25'-6 1/2" | 27'-7" | 17'-10 1/2" | 26'-11" | 38'-1" | 40'-0" | 30'-3 1/2" | 35'-9" | 50'-6 1/2" | 52'-6 1/2" | 42'-8 1/2" | 44'-9" | 62'-10 1/2" | 65'-0" | 55'-3 1/2" |
| | | 8' | 8' 3 1/8" | 9'-4" | 13'-2 1/2" | 15'-2 1/2" | 3'-11 1/2" | 18'-2" | 25'-8 1/2" | 27'-8 1/2" | 16'-5" | 27'-0" | 38'-2 1/2" | 40'-0 1/2" | 28'-11" | 35'-10" | 50'-8" | 52'-8" | 41'-5" | 44'-8" | 63'-2" | 65'-2" | 53'-10 1/2" |
| | 9' | 5' | 5' 3 1/8" | 10'-2" | 14'-1 1/2" | 16'-1 1/2" | 9'-1 1/2" | 19'-4" | 28'-2" | 30'-2" | 22'-10 1/2" | 28'-8" | 41'-11 1/2" | 43'-11 1/2" | 36'-8 1/2" | 39'-5" | 55'-10 1/2" | 57'-9" | 50'-5 1/2" | 49'-2" | 69'-10 1/2" | 71'-6" | 64'-3 1/2" |
| | | 6' | 6' 3 1/8" | 10'-3" | 14'-4" | 16'-4" | 8'-2 1/2" | 20'-1" | 28'-4 1/2" | 30'-4 1/2" | 22'-1 1/2" | 29'-11" | 42'-3 1/2" | 44'-3 1/2" | 34'-2 1/2" | 39'-9" | 56'-2 1/2" | 58'-12 1/2" | 49'-11 1/2" | 49'-7" | 70'-1 1/2" | 72'-1 1/2" | 63'-10 1/2" |
| | | 7' | 7' 3 1/8" | 10'-3" | 14'-4" | 16'-4" | 6'-8 1/2" | 20'-1" | 28'-4 1/2" | 30'-4 1/2" | 20'-7 1/2" | 29'-11" | 42'-3 1/2" | 44'-3 1/2" | 32'-4 1/2" | 39'-9" | 56'-2 1/2" | 58'-12 1/2" | 48'-5 1/2" | 49'-7" | 70'-1 1/2" | 72'-1 1/2" | 62'-11 1/2" |
| | | 8' | 8' 3 1/8" | 10'-4" | 14'-7 1/2" | 16'-7 1/2" | 5'-5 1/2" | 20'-2" | 28'-6 1/2" | 30'-6 1/2" | 19'-3" | 30'-0" | 42'-5 1/2" | 44'-5 1/2" | 30'-2" | 39'-10" | 56'-4" | 58'-4" | 47'-0 1/2" | 49'-8" | 70'-6 1/2" | 72'-3" | 60'-11 1/2" |
| | 10' | 5' | 5' 3 1/8" | 11'-2" | 15'-9 1/2" | 17'-9 1/2" | 10'-6 1/2" | 21'-11" | 31'-0" | 33'-0" | 25'-8 1/2" | 32'-8" | 46'-2 1/2" | 48'-2 1/2" | 40'-11" | 43'-5" | 61'-4 1/2" | 63'-4 1/2" | 56'-1 1/2" | 54'-2" | 76'-7 1/2" | 78'-7 1/2" | 71'-4" |
| | | 6' | 6' 3 1/8" | 11'-3" | 15'-11" | 17'-11" | 9'-2 1/2" | 22'-1" | 31'-2 1/2" | 33'-2 1/2" | 24'-1" | 32'-11" | 46'-4 1/2" | 48'-4 1/2" | 39'-2 1/2" | 43'-9" | 61'-10 1/2" | 63'-10 1/2" | 55'-0 1/2" | 54'-7" | 77'-2 1/2" | 79'-2 1/2" | 69'-5" |
| | | 7' | 7' 3 1/8" | 11'-3" | 15'-11" | 17'-11" | 8'-1 1/2" | 22'-1" | 31'-2 1/2" | 33'-2 1/2" | 22'-5" | 32'-11" | 46'-4 1/2" | 48'-4 1/2" | 38'-10 1/2" | 43'-9" | 61'-10 1/2" | 63'-10 1/2" | 54'-1 1/2" | 54'-7" | 77'-2 1/2" | 79'-2 1/2" | 68'-5" |
| | | 8' | 8' 3 1/8" | 11'-4" | 16'-2 1/2" | 18'-2 1/2" | 6'-9 1/2" | 22'-2" | 31'-4 1/2" | 33'-4 1/2" | 22'-1" | 33'-0" | 46'-8" | 48'-8" | 37'-10 1/2" | 43'-10" | 61'-11 1/2" | 63'-10" | 52'-8 1/2" | 54'-8" | 77'-3 1/2" | 79'-3 1/2" | 68'-0 1/2" |
| | 11' | 6' | 6' 3 1/8" | 12'-4" | 17'-5 1/2" | 19'-5 1/2" | 11'-2 1/2" | 24'-2" | 34'-3 1/2" | 36'-3" | 27'-11" | 36'-0" | 50'-11" | 52'-11" | 44'-7 1/2" | 47'-10" | 67'-7 1/2" | 69'-7 1/2" | 61'-4 1/2" | — | — | — | — |
| | | 7' | 7' 3 1/8" | 12'-4" | " | " | 8'-8 1/2" | 24'-2" | " | " | 24'-5" | 36'-0" | " | " | 43'-7 1/2" | 47'-10" | " | " | 53'-10 1/2" | — | — | — | — |
| | | 8' | 8' 3 1/8" | 12'-5" | " | " | 8'-2 1/2" | 24'-2" | " | " | 24'-11" | 36'-0" | " | " | 41'-7 1/2" | 47'-10" | " | " | 58'-10 1/2" | — | — | — | — |
| | 12' | 6' | 6' 3 1/8" | 13'-4" | 18'-10 1/2" | 20'-10 1/2" | 12'-7 1/2" | 26'-2" | 37'-0 1/2" | 39'-0" | 30'-8 1/2" | 38'-8" | 55'-1 1/2" | 57'-1 1/2" | 48'-10 1/2" | 51'-10" | 73'-3 1/2" | 75'-3 1/2" | 67'-0 1/2" | — | — | — | — |
| | | 7' | 7' 3 1/8" | 13'-4" | " | " | 11'-1 1/2" | 26'-2" | " | " | 29'-2 1/2" | 39'-0" | " | " | 47'-4 1/2" | 51'-10" | " | " | 65'-4 1/2" | — | — | — | — |
| | | 8' | 8' 3 1/8" | 13'-4" | " | " | 9'-7 1/2" | 26'-2" | " | " | 27'-10 1/2" | 39'-0" | " | " | 45'-10 1/2" | 51'-10" | " | " | 69'-10 1/2" | — | — | — | — |
| W-X452-2, W-X453-2 OR W-X454-2 (FOR H=9'0" & OVER) | 7' | 9' | 10'-9 1/8" | 8'-6" | 12'-0 1/2" | 14'-0 1/2" | 1'-3" | 16'-5" | 23'-5 1/2" | 25'-5 1/2" | 12'-5 1/2" | 24'-4" | 34'-5" | 36'-5" | 23'-7 1/2" | 32'-3" | 45'-7 1/2" | 47'-7 1/2" | 34'-10" | 40'-2" | 56'-3 1/2" | 58'-3 1/2" | 41'-10 1/2" |
| | 8' | 9' | 10'-9 1/8" | 9'-6" | 13'-1 1/2" | 15'-1 1/2" | 2'-8" | 18'-5" | 26'-0 1/2" | 28'-0 1/2" | 15'-1 1/2" | 27'-4" | 38'-7 1/2" | 40'-7 1/2" | 27'-10 1/2" | 36'-3" | 51'-3 1/2" | 53'-3 1/2" | 40'-1" | 45'-2" | 63'-10 1/2" | 65'-10 1/2" | 53'-1 1/2" |
| | | 10' | 12'-3 1/2" | 9'-8" | 13'-8" | 15'-8" | 1'-9 1/2" | 18'-8" | 26'-9 1/2" | 28'-9 1/2" | 14'-1 1/2" | 27'-8" | 39'-1 1/2" | 41'-1 1/2" | 26'-10 1/2" | 36'-8" | 51'-10 1/2" | 53'-10 1/2" | 38'-7" | 45'-8" | 64'-7" | 66'-7" | 52'-3 1/2" |
| | 9' | 9' | 10'-9 1/8" | 10'-6" | 14'-10 1/2" | 16'-10 1/2" | 4'-1" | 20'-5" | 28'-10 1/2" | 30'-10 1/2" | 18'-1 1/2" | 30'-4" | 42'-10 1/2" | 44'-10 1/2" | 32'-1 1/2" | 40'-3" | 56'-11 1/2" | 58'-11" | 44'-1 1/2" | 50'-2" | 70'-11 1/2" | 72'-11 1/2" | 60'-2 1/2" |
| | | 10' | 12'-3 1/2" | 10'-8" | 15'-1" | 17'-1" | 2'-9 1/2" | 20'-8" | 29'-3 1/2" | 31'-2 1/2" | 16'-11 1/2" | 30'-8" | 43'-3 1/2" | 45'-3 1/2" | 31'-1 1/2" | 40'-8" | 57'-6 1/2" | 59'-6 1/2" | 45'-3" | 50'-8" | 71'-7 1/2" | 73'-7 1/2" | 59'-10 1/2" |
| | | 11' | 13'-9 1/2" | 10'-10" | 15'-3 1/2" | 17'-3 1/2" | 1'-6 1/2" | 20'-10" | 29'-5 1/2" | 31'-5 1/2" | 15'-8 1/2" | 30'-10" | 43'-7 1/2" | 45'-7 1/2" | 29'-10" | 40'-10" | 57'-9" | 59'-9" | 43'-11 1/2" | 50'-10" | 71'-10 1/2" | 73'-10 1/2" | 58'-1 1/2" |
| | 10' | 9' | 10'-9 1/8" | 11'-6" | 16'-3 1/2" | 18'-3 1/2" | 5'-4" | 22'-5" | 31'-8 1/2" | 33'-8 1/2" | 20'-11 1/2" | 33'-4" | 47'-1 1/2" | 49'-1 1/2" | 34'-4 1/2" | 44'-3" | 62'-7" | 64'-7" | 51'-9 1/2" | 55'-2" | 78'-10 1/2" | 80'-10 1/2" | 67'-5" |
| | | 10' | 12'-3 1/2" | 11'-8" | 16'-6" | 18'-6" | 4'-2 1/2" | 22'-8" | 32'-0 1/2" | 34'-0 1/2" | 19'-9 1/2" | 33'-8" | 47'-7 1/2" | 49'-7 1/2" | 33'-1 1/2" | 44'-8" | 63'-2" | 65'-2" | 50'-10 1/2" | 55'-8" | 78'-10 1/2" | 80'-10 1/2" | 66'-2 1/2" |
| | | 11' | 13'-9 1/2" | 11'-10" | 16'-8 1/2" | 18'-8 1/2" | 2'-11 1/2" | 22'-10" | 32'-3 1/2" | 34'-3 1/2" | 18'-6 1/2" | 33'-11" | 47'-10 1/2" | 49'-10 1/2" | 31'-1" | 44'-11" | 63'-5" | 65'-5" | 49'-7 1/2" | 55'-11" | 78'-11 1/2" | 80'-11 1/2" | 65'-2 1/2" |
| | | 12' | 15'-3 1/2" | 12'-0" | 16'-11 1/2" | 18'-11 1/2" | 1'-8 1/2" | 23'-0" | 32'-5 1/2" | 34'-5 1/2" | 17'-3" | 34'-3" | 48'-1" | 50'-1" | 32'-9 1/2" | 45'-0" | 63'-7 1/2" | 65'-7 1/2" | 48'-4 1/2" | 56'-0" | 79'-2 1/2" | 81'-2 1/2" | 63'-11 1/2" |
| | 11' | 9' | 10'-9 1/8" | 12'-6" | 17'-8 1/2" | 19'-8 1/2" | 6'-10 1/2" | 24'-5" | 34'-8 1/2" | 36'-8 1/2" | 23'-9 1/2" | 36'-4" | 51'-2 1/2" | 53'-2 1/2" | 40'-7 1/2" | 49'-8" | 68'-12 1/2" | 70'-12 1/2" | 57'-5 1/2" | — | — | — | — |
| | | 10' | 12'-3 1/2" | 12'-8" | 17'-11" | 19'-11" | 5'-7 1/2" | 24'-8" | 34'-10 1/2" | 36'-10 1/2" | 22'-1 1/2" | 36'-8" | 51'-10 1/2" | 53'-10 1/2" | 39'-1" | 49'-8" | 68'-12 1/2" | 70'-12" | 54'-6 1/2" | — | — | — | — |
| | | 11' | 13'-9 1/2" | 12'-10" | 18'-1 1/2" | 20'-1 1/2" | 4'-4 1/2" | 24'-10" | 35'-1 1/2" | 37'-1 1/2" | 21'-4 1/2" | 36'-11" | 52'-1 1/2" | 54'-1" | 38'-3 1/2" | 49'-10" | 69'-1 1/2" | 71'-1 1/2" | 53'-3 1/2" | — | — | — | — |
| | | 12' | 15'-3 1/2" | 13'-0" | 18'-4 1/2" | 20'-4 1/2" | 3'-1 1/2" | 25'-0" | 35'-4 1/2" | 37'-4 1/2" | 20'-1" | 37'-0" | 52'-3 1/2" | 54'-3" | 37'-0 1/2" | 49'-10" | 69'-3" | 71'-3" | 51'-12" | — | — | — | — |
| | 12' | 9' | 10'-9 1/8" | 13'-6" | 19'-1 1/2" | 21'-1" | 9'-3 1/2" | 26'-5" | 37'-0 1/2" | 39'-0 1/2" | 26'-7" | 39'-4" | 55'-1 1/2" | 57'-1 1/2" | 44'-6 1/2" | 52'-3" | 73'-10 1/2" | 75'-10 1/2" | 63'-1 1/2" | — | — | — | — |
| | | 10' | 12'-3 1/2" | 13'-8" | 19'-3 1/2" | 21'-3" | 7'-8 1/2" | 26'-8" | 37'-2 1/2" | 39'-2 1/2" | 25'-5 1/2" | 39'-8" | 56'-1 1/2" | 58'-1" | 43'-1 1/2" | 52'-8" | 74'-5 1/2" | 76'-5 1/2" | 62'-12" | — | — | — | — |
| | | 11' | 13'-9 1/2" | 13'-10" | 19'-6 1/2" | 21'-6 1/2" | 6'-5 1/2" | 26'-10" | 37'-5 1/2" | 39'-11 1/2" | 24'-2" | 39'-10" | 56'-4" | 58'-4" | 42'-2 1/2" | 52'-10" | 74'-8 1/2" | 76'-8 1/2" | 60'-11 1/2" | — | — | — | — |
| | | 12' | 15'-3 1/2" | 14'-0" | 19'-9 1/2" | 21'-9 1/2" | 4'-6 1/2" | 27'-0" | 38'-2 1/2" | 40'-2 1/2" | 22'-11" | 40'-0" | 56'-6 1/2" | 58'-6 1/2" | 41'-3 1/2" | 53'-0" | 74'-11 1/2" | 76'-11 1/2" | 59'-8 1/2" | — | — | — | — |

NOTE:- This drawing to be used in conjunction with Standard Wing Drawings for 45° Skews for each slope as listed below.

| 2:1 Slopes | 3:1 Slopes | 4:1 Slopes |
|---|---|---|
| W-X452-1 or W-X452-2 | W-X453-1 or W-X453-2 | W-X454-1 or W-X454-2. |

NOTE:-
This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos.-

| SINGLES | DOUBLES | TRIPLES | QUADRUPLES | QUINTUPLES |
|---|---|---|---|---|
| R-145X-0 | R-245X-01 | R-345X-01 | R-445X-01 | R-545X-01 |
| | R-245X-02 | R-345X-02 | R-445X-02 | R-545X-02 |
| R-145X-1 | R-245X-1 | R-345X-1 | R-445X-1 | |
| | R-245X-2 | R-345X-2 | | |

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 45° SKEW

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 2:1, 3:1 & 4:1 SLOPES

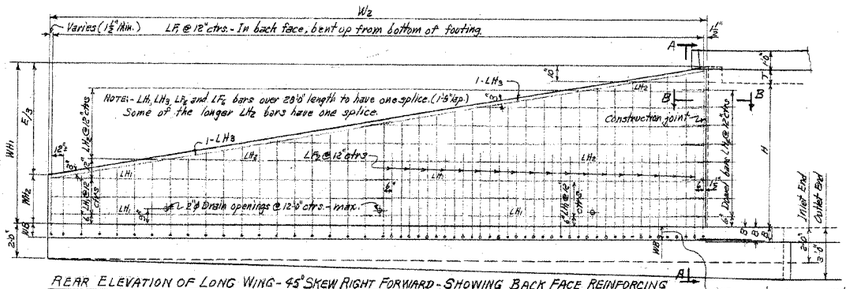
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES — ALL DEPTHS OF COVER H = 2', 3', 4', 5', 6', 7', 8', 9', 10', 11' & 12'

STANDARD DRAWING No. W-X45

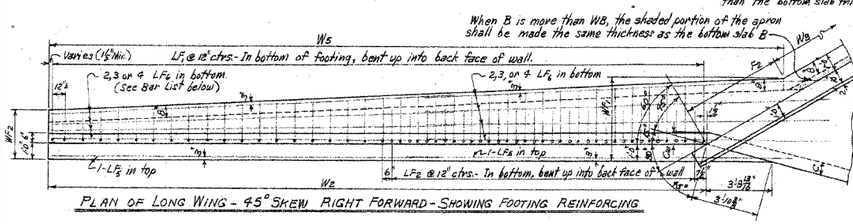
Designed by:- W.C.M. 5-16-63 Checked by:- Checked by:-
Drawn by:- W.C.H. 6-15-63 Checked by:- J.E.M. 6-23-64
Quantities by:-

Reshot 3-8-93 352

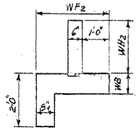
| FED. ROAD No. | STATE | FED. AID PROJECT | FISCAL YEAR | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 6 | ARK. | | | 209 | |
| JOB No. | | | | | |



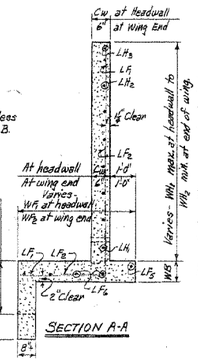

REAR ELEVATION OF LONG WING - 45° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



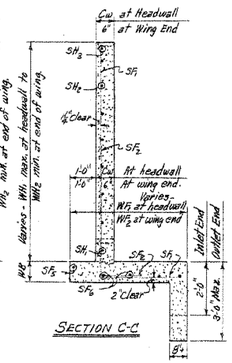

PLAN OF LONG WING - 45° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING



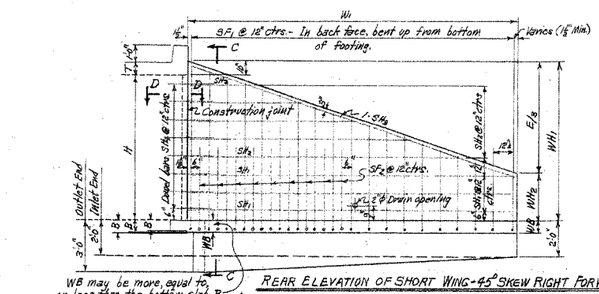
TYPICAL END VIEW OF WING




SECTION A-A

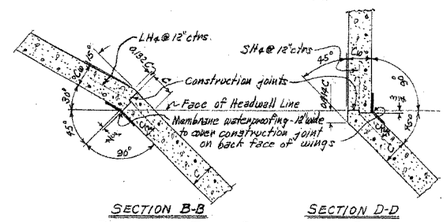



SECTION C-C




WB may be more, equal to, or less than the bottom slab B

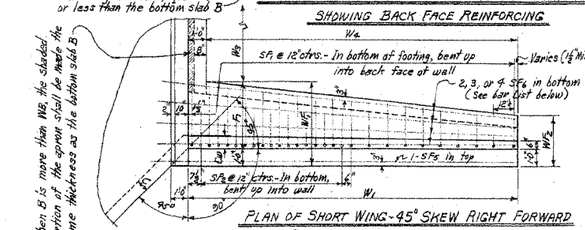
REAR ELEVATION OF SHORT WING - 45° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



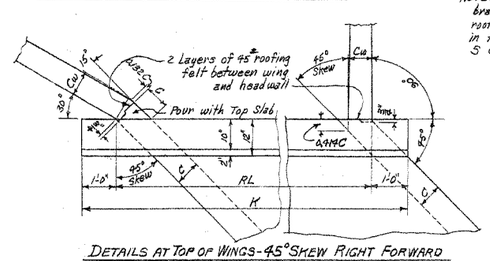

SECTION B-B

SECTION D-D

SECTIONS THRU CONSTRUCTION JOINTS




PLAN OF SHORT WING - 45° SKEW RIGHT FORWARD SHOWING FOOTING REINFORCING




DETAILS AT TOP OF WINGS - 45° SKEW RIGHT FORWARD

NOTE:- Payment for the membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

## REGULAR WING DIMENSIONS - 3:1 SLOPES

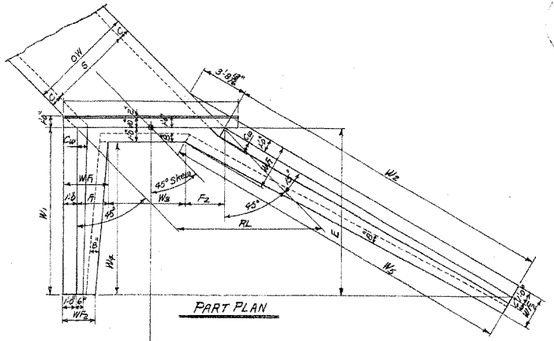
| CLEAR HEIGHT OF BOX | THICKNESS OF WING FOOTING | THICKNESS OF WING AT HEADWALL | WINGWALL HEIGHTS AT HEADWALL | WINGWALL HEIGHTS AT END OF WING | WIDTHS OF WING FOOTINGS AT HEADWALL | WIDTHS OF WING FOOTINGS AT END OF WING | FOOTING DIMENSION - PARALLEL WITH HEADWALL SHORT WING | FOOTING DIMENSION - PARALLEL WITH HEADWALL LONG WING | PERPENDICULAR DISTANCE FROM HEADWALL TO END OF WING | LENGTHS OF WINGWALLS SHORT WING | LENGTHS OF WINGWALLS LONG WING | INSIDE FOOTING DIMENSION SHORT WING | INSIDE FOOTING DIMENSION LONG WING | * QUANTITY PER WING - CLASS S CONCRETE - INLET END SHORT WING | INLET END LONG WINGS | OUTLET END SHORT WING | OUTLET END LONG WING |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H | WB | Cw | WH₁ | WH₂ | WF₁ | WF₂ | F₁ | F₂ | E | W₁ | W₂ | W₃ | W₅ | CU.YD. | CU.YD. | CU.YD. | CU.YD. |
| 2' | 7" | 6" | 2'-10" | 0'-8" | 2'-4" | 2'-8" | 1'-4" | 0'-11½" | 6'-6" | 6'-6" | 13'-0" | 5'-6" | 13'-3 5/16" | 0.793 | 1.572 | 0.829 | 1.741 |
| 3' | 7" | 6" | 3'-10" | 1'-0" | 2'-8" | 2'-11½" | 1'-8" | 1'-7½" | 8'-6" | 8'-6" | 17'-0" | 7'-6" | 17'-10 3/16" | 1.120 | 2.364 | 1.229 | 2.590 |
| 4' | 7" | 6" | 4'-10" | 1'-4" | 3'-0" | 2'-13" | 2'-0" | 2'-3½" | 10'-6" | 10'-6" | 21'-0" | 9'-6" | 22'-5 1/16" | 1.567 | 3.295 | 1.700 | 3.577 |
| 5' | 7" | 6" | 5'-10" | 1'-8" | 3'-4" | 2'-4 1/16" | 2'-4" | 2'-11½" | 12'-6" | 12'-6" | 25'-0" | 11'-6" | 27'-0 9/16" | 2.082 | 4.367 | 2.241 | 4.705 |
| | | 7" | 5'-10" | 1'-8" | 3'-4" | 2'-4 9/16" | 2'-4" | 2'-11½" | 12'-6" | 12'-6" | 25'-0" | 11'-6" | 27'-0 9/16" | 2.166 | 4.551 | 2.325 | 4.889 |
| 6' | 8" | 7" | 6'-10" | 2'-0" | 3'-8" | 2'-6" | 2'-8" | 3'-7½" | 14'-6" | 14'-6" | 29'-0" | 13'-6" | 31'-7½" | 2.894 | 6.055 | 3.078 | 6.460 |
| | | 7½" | 6'-10" | 2'-0" | 3'-8" | 2'-6" | 2'-8" | 3'-7½" | 14'-6" | 14'-6" | 29'-0" | 13'-6" | 31'-7½" | 2.952 | 6.180 | 3.135 | 6.575 |
| | | 8" | 6'-10" | 2'-0" | 3'-8" | 2'-6" | 2'-8" | 3'-7½" | 14'-6" | 14'-6" | 29'-0" | 13'-6" | 31'-7½" | 3.009 | 6.305 | 3.192 | 6.700 |
| 7' | 8½" | 7½" | 7'-10" | 2'-4" | 4'-2" | 2'-7½" | 3'-2" | 4'-7½" | 16'-6" | 16'-6" | 33'-0" | 15'-6" | 36'-5 3/16" | 3.794 | 7.930 | 4.003 | 8.385 |
| | | 8" | 7'-10" | 2'-4" | 4'-2" | 2'-7½" | 3'-2" | 4'-7½" | 16'-6" | 16'-6" | 33'-0" | 15'-6" | 36'-5 3/16" | 3.870 | 8.093 | 4.078 | 8.598 |
| 8' | 9" | 8" | 8'-10" | 2'-8" | 4'-6" | 2'-9" | 3'-6" | 5'-7½" | 18'-6" | 18'-6" | 37'-0" | 17'-6" | 41'-9 3/16" | 4.855 | 10.186 | 5.088 | 10.651 |

* Quantity per wing does not include headwall or that portion of apron or toewall for the length $W_5$.

## QUANTITIES

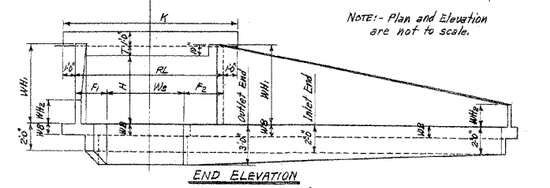
| CLEAR SPAN S | CLEAR HEIGHT H | THICKNESS OF WING AT HEADWALL Cw | THICKNESS OF WING FOOTING WB | REINFORCING STEEL - LB. ⊕ | CLASS S CONCRETE - 4 WINGS - HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS: SINGLE BARREL CULVERT | DOUBLE BARREL CULVERT | TRIPLE BARREL CULVERT | QUADRUPLE BARREL CULVERT | QUINTUPLE BARREL CULVERT |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | CU.YD. | CU.YD. | CU.YD. | CU.YD. | CU.YD. |
| 4' | 2' | 6" | 7" | 192 | 6.15 | 7.50 | 8.86 | 10.22 | 11.58 |
| | 3' | 6" | 7" | 214 | 8.44 | 9.79 | 11.14 | 12.50 | 13.86 |
| | 4' | 6" | 7" | 328 | 11.13 | 12.48 | 13.84 | 15.20 | 16.56 |
| | 5' | 6" | 7" | 468 | 14.25 | 15.60 | 16.96 | 18.32 | 19.68 |
| | 6' | 7" | 8" | 763 | 19.23 | 20.62 | 22.02 | 23.41 | 24.81 |
| 5' | 3' | 6" | 7" | 214 | 8.74 | 10.38 | 12.03 | 13.67 | 15.32 |
| | 4' | 6" | 7" | 328 | 11.93 | 13.07 | 14.72 | 16.37 | 18.02 |
| | 5' | 6" | 7" | 463 | 14.55 | 16.19 | 17.84 | 19.49 | 21.14 |
| | 6' | 7" | 8" | 763 | 19.53 | 21.21 | 22.90 | 24.59 | 26.28 |
| | 7' | 7½" | 8½" | 1975 | 24.95 | 26.69 | 28.91 | 30.14 | 31.86 |
| 6' | 3' | 6" | 7" | 214 | 9.03 | 10.99 | 12.91 | 14.86 | 16.79 |
| | 4' | 6" | 7" | 328 | 11.75 | 13.69 | 15.60 | 17.54 | 19.48 |
| | 5' | 6" | 7" | 463 | 14.85 | 16.80 | 18.72 | 20.68 | 22.60 |
| | 6' | 7" | 8" | 763 | 19.93 | 21.82 | 23.79 | 25.98 | 27.74 |
| | 7' | 7½" | 8½" | 1975 | 25.28 | 27.30 | 29.31 | 31.33 | 33.35 |
| | 8' | 8" | 9" | 1872 | 31.70 | 33.74 | 35.75 | 37.79 | 39.81 |
| 7' | 4' | 6" | 7" | 328 | 12.04 | 14.21 | 16.54 | 18.81 | 21.02 |
| | 5' | 6" | 7" | 463 | 15.15 | 17.43 | 19.65 | 21.93 | 24.13 |
| | 6' | 7" | 8" | 763 | 20.14 | 22.44 | 24.69 | 26.99 | 29.29 |
| | 7' | 7½" | 8½" | 1975 | 25.59 | 27.91 | 30.21 | 32.53 | 34.83 |
| | 8' | 8" | 9" | 1872 | 32.02 | 34.36 | 36.66 | 38.99 | 41.31 |
| 8' | 4' | 6" | 7" | 328 | 12.35 | 14.95 | 17.49 | 20.08 | 22.57 |
| | 5' | 7" | 7" | 463 | 16.05 | 18.67 | 21.28 | 23.96 | 26.37 |
| | 6' | 7" | 8" | 763 | 21.95 | 23.07 | 25.64 | 28.26 | 30.77 |
| | 7' | 7½" | 8½" | 1975 | 25.90 | 28.54 | 31.18 | 33.78 | 36.32 |
| | 8' | 8" | 9" | 1872 | 32.33 | 34.97 | 37.56 | 40.21 | 42.80 |
| 9' | 5' | 7" | 7" | 463 | 16.37 | 19.32 | 22.18 | 25.02 | 27.91 |
| | 6' | 7½" | 8" | 763 | 21.16 | 24.13 | 27.02 | 29.89 | 32.81 |
| | 7' | 7½" | 8½" | 1975 | 26.21 | 29.18 | 32.08 | 34.94 | 37.86 |
| | 8' | 8" | 9" | 1872 | 32.63 | 35.61 | 38.51 | 41.37 | 44.29 |
| 10' | 5' | 7" | 7" | 463 | 16.69 | 19.86 | 23.14 | 26.27 | 29.47 |
| | 6' | 7½" | 8" | 763 | 21.48 | 24.77 | 27.99 | 31.13 | 34.36 |
| | 7' | 7½" | 8½" | 1975 | 26.53 | 29.82 | 33.04 | 36.19 | 39.42 |
| | 8' | 8" | 9" | 1872 | 32.95 | 36.25 | 39.46 | 42.62 | 45.85 |
| 11' | 6' | 8" | 8" | 763 | 22.18 | 25.88 | 29.35 | 32.84 | — |
| | 7' | 8" | 8½" | 1975 | 27.33 | 30.99 | 34.51 | 38.01 | — |
| | 8' | 8" | 9" | 1872 | 33.86 | 36.91 | 40.43 | 43.93 | — |
| 12' | 6' | 8" | 8" | 763 | 22.50 | 26.51 | 30.55 | 34.19 | — |
| | 7' | 8" | 8½" | 1975 | 27.66 | 31.66 | 35.49 | 39.36 | — |
| | 8' | 8" | 9" | 1872 | 33.58 | 37.58 | 41.41 | 45.27 | — |

⊕ For reinforcing steel in Headwalls and Aprons, see Drawing Nos. of Barrel Sections listed below.




PART PLAN

NOTE:- Plan and Elevation are not to scale.




END ELEVATION

SINGLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

Details of Culvert with 45° Skew Left Forward is reversed, see Drawing No. W-X45.

## TYPICAL WING DETAILS

NOTE:-
For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X45.
For values of RL, K and $W_3$ for each box, see above Std. also.

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three mappings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

GENERAL NOTES:-

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

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

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

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

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

NOTE:-
This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos.-

| SINGLES | DOUBLES | TRIPLES | QUADRUPLES | QUINTUPLES |
|---|---|---|---|---|
| R-145X-0 | R-245X-01 | R-345X-01 | R-445X-01 | R-545X-01 |
| | R-245X-02 | R-345X-02 | R-445X-02 | R-545X-02 |
| R-145X-1 | R-245X-1 | R-345X-1 | R-445X-1 | |
| | R-245X-2 | R-345X-2 | | |

CLASS S CONCRETE

## BAR LIST FOR ONE SHORT AND ONE LONG WING - 2 EACH REQUIRED

| CLEAR HEIGHT H | WING LOCATION | SF₁ & LF₁ BENT: In bottom of footing, bent up into back face of wing. One bar (or two bars) of each length. SIZE | SPACING | No. REQD | LENGTHS VARY MIN. | MAX. | X MIN. | MAX. | Y MIN. | MAX. | SF₂ & LF₂ BENT: In bottom of footing, bent up into back face of wing. Alt. with F₁ bars. SIZE | SPACING | No. REQD | LENGTH | X | Y | SF₃ & LF₃ STRAIGHT: Longitudinal in top of wing footing heel. SIZE | No. REQD | LENGTH | SF₄ & LF₄ STRAIGHT: Longitudinal in bottom of wing footing toe. SIZE | No. REQD | LENGTH | SH₁ & LH₁ STRAIGHT: Horizontal in back face of wing. SIZE | SPACING | No. REQD | LENGTH | SH₂ & LH₂ STRAIGHT: Horizontal in back face of wing. One bar of each length. ✱ SIZE | SPACING | No. REQD | LENGTHS VARY MAX. | MIN. | SH₃ & LH₃ STRAIGHT: In back face of wing at top-on slope SIZE | No. REQD | LENGTH | SH₄ & LH₄ BENT: Dowels thru construction joint at headwall. SIZE | SPACING | No. REQD | LENGTH | X |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2' | Short | #3 | 12" | 7 | 1'-7" | 3'-11" | 0'-8" | 1'-0" | 1'-0" | 3'-0" | — | — | — | — | — | — | #3 | 1 | 8'-0" | #3 | 2 | 8'-0" | #3 | 12" | 1 | 6'-8" | #3 | 12" | 1 | — | 3'-3" | #3 | 1 | 6'-7" | #3 | 12" | 2 | 2'-8" | 1'-9" |
| | Long | #3 | 12" | 14 | 1'-5" | 5'-11" | 0'-8" | 1'-0" | 0'-10" | 3'-0" | — | — | — | — | — | — | #3 | 1 | 17'-6" | #3 | 2 | 15'-6" | #3 | 12" | 1 | 12'-8" | #3 | 12" | 2 | 6'-6" | #3 | 1 | 12'-11" | #3 | 12" | 2 | " | " |
| 3' | Short | #3 | 12" | 9 | 2'-1" | 5'-3" | 0'-10" | 1'-4" | 1'-9" | 4'-0" | — | — | — | — | — | — | #3 | 1 | 10'-6" | #3 | 2 | 10'-0" | #3 | 12" | 1 | 8'-8" | #3 | 12" | 2 | 6'-3" | 3'-3" | #3 | 1 | 8'-8" | #3 | 12" | 3 | " | " |
| | Long | #3 | 12" | 18 | 1'-11" | 5'-3" | 0'-10" | 1'-9" | 1'-2" | 4'-0" | — | — | — | — | — | — | #5 | 1 | 21'-6" | #3 | 2 | 20'-6" | #3 | 12" | 1 | 16'-9" | #3 | 12" | 2 | 12'-6" | 6'-6" | #3 | 1 | 16'-0" | #3 | 12" | 3 | " | " |
| 4' | Short | #3 | 12" | 11 | 2'-6" | 6'-7" | 0'-11" | 1'-8" | 1'-8" | 5'-0" | — | — | — | — | — | — | #3 | 1 | 12'-9" | #3 | 3 | 12'-0" | #3 | 12" | 1 | 10'-9" | #3 | 12" | 3 | 9'-8" | 3'-3" | #3 | 1 | 10'-9" | #3 | 12" | 4 | " | " |
| | Long | #3 | 12" | 22 | 2'-4" | 6'-6" | 0'-11" | 1'-7" | 1'-6" | 5'-0" | — | — | — | — | — | — | #3 | 1 | 25'-6" | #3 | 3 | 24'-0" | #3 | 12" | 1 | 20'-8" | #3 | 12" | 3 | 18'-6" | 6'-6" | #3 | 1 | 21'-0" | #3 | 12" | 4 | " | " |
| 5' | Short | #3 | 12" | 13 | 2'-11" | 7'-11" | 0'-10" | 2'-0" | 2'-0" | 6'-0" | #3 | 12" | 3 | 8'-6" | 1'-4" | 2'-6" | #3 | 1 | 14'-6" | #3 | 3 | 14'-0" | #3 | 12" | 2 | 12'-8" | #3 | 12" | 3 | 9'-3" | 3'-3" | #3 | 1 | 12'-11" | #3 | 12" | 5 | " | " |
| | Long | #3 | 12" | 26 | 2'-9" | 7'-10" | 0'-10" | 1'-11" | 1'-10" | 6'-0" | #3 | 12" | 6 | 8'-6" | 1'-4" | 2'-6" | #3 | 2 | 15'-8" | #3 | 6 | 15'-7" | #3 | 12" | 2 | 24'-8" | #3 | 12" | 3 | 18'-6" | 6'-6" | #3 | 1 | 25'-11" | #3 | 12" | 5 | " | " |
| 6' | Short | #4 | 12" | 15 | 3'-6" | 9'-4" | 1'-2" | 2'-4" | 2'-5" | 7'-1" | #3 | 12" | 3 | 9'-6" | 1'-4" | 3'-3" | #3 | 1 | 16'-6" | #3 | 3 | 15'-7" | #3 | 12" | 2 | 14'-3" | #5 | 12" | 4 | 12'-3" | 3'-3" | #3 | 1 | 15'-0" | #3 | 12" | 6 | " | " |
| | Long | #4 | 12" | 30 | 3'-4" | 9'-3" | 1'-2" | 2'-3" | 2'-3" | 7'-1" | #3 | 12" | 6 | 9'-6" | 1'-4" | 3'-3" | #3 | 2 | 17'-6" | #3 | 6 | 18'-0" | #3 | 12" | 4 | 15'-6" | #3 | 12" | 4 | 24'-6" | 6'-6" | #3 | 2 | 15'-5" | #3 | 12" | 6 | 2'-8" | 1'-4" |
| 7' | Short | #4 | 12" | 17 | 3'-11" | 10'-10" | 1'-3" | 2'-10" | 2'-9" | 8'-1" | #4 | 12" | 6 | 5'-6" | 1'-7" | 4'-0" | #4 | 1 | 18'-6" | #4 | 4 | 18'-0" | #4 | 12" | 2 | 16'-9" | #4 | 12" | 5 | 15'-3" | 3'-3" | #4 | 1 | 17'-11" | #4 | 12" | 7 | 3'-6" | 1'-9" |
| | Long | #4 | 12" | 34 | 3'-9" | 10'-9" | 1'-3" | 2'-8" | 2'-7" | 8'-1" | #4 | 12" | 12 | 5'-6" | 1'-7" | 4'-0" | #4 | 2 | 19'-8" | #4 | 8 | 20'-9" | #4 | 12" | 4 | 17'-2" | #4 | 12" | 5 | *36'-6" | 6'-6" | #4 | 2 | 17'-5" | #4 | 12" | 7 | " | " |
| 8' | Short | #4 | 12" | 19 | 4'-6" | 12'-5" | 1'-5" | 3'-6" | 3'-8" | 9'-2" | #4 | 12" | 9 | 6'-6" | 1'-10" | 4'-9" | #4 | 1 | 20'-4" | #4 | 4 | 20'-0" | #4 | 12" | 3 | 18'-3" | #4 | 12" | 5 | 15'-3" | 3'-3" | #4 | 1 | 19'-8" | #4 | 12" | 8 | " | " |
| | Long | #4 | 12" | 38 | 4'-4" | 12'-8" | 1'-5" | 3'-8" | 3'-10" | 9'-2" | #4 | 12" | 18 | 6'-6" | 1'-10" | 4'-9" | #4 | 2 | 21'-8" | #4 | 8 | 22'-8" | #4 | 12" | 6 | 19'-2" | #4 | 12" | 5 | *30'-6" | 6'-6" | #4 | 2 | 19'-6" | #4 | 12" | 8 | 3'-6" | 1'-9" |

BAR BENDING DIAGRAM: SF₁ & SF₂, LF₁ & LF₂, 3' Pin; SH₄; LH₄; 12; 45°; X; Y

NOTE:- Dimensions are to bar centers.

| QUANTITY: REINFORCING STEEL PER WING - LBS. | SHORT WING | LONG WING |
|---|---|---|
| | 29.4 | 46.3 |
| | 36.8 | 70.3 |
| | 56.9 | 107.9 |
| | 77.7 | 153.7 |
| | 127.6 | 253.9 |
| | 246.5 | 491.1 |
| | 312.5 | 623.6 |

NOTE:- Bars for short wing shall be marked with prefix letter "S", while those for long wing shall be marked with letter "L".

✱ Length without splice. Bars over 28'-0" length may be spliced. (1'-8" lap)

REVISIONS:- Membrane Added. 5-10-66 W.C.H.

Designed By:- W.C.H. 5-13-63 Checked By:- J.C.M. 7-21-64
Drawn By:- W.C.H. 6-5-64 Checked By:- J.C.M. 7-21-64
Quantities By:- W.C.H. 7-2-64 Checked By:- J.C.M. 7-21-64

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD WINGS
FOR
REINFORCED CONCRETE BOX CULVERTS
45° SKEW

4, 5, 6, 7, 8, 9, 10, 11 & 12' SPANS — 3:1 SLOPES
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING No. W-X453-1

RESHOT 3-4-93

| FED. ROAD No. | STATE | FED. AID PROJECT | FISCAL YEAR | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 6 | ARK. | | | 210 | |
| JOB No. | | | | | |

## BAR LIST FOR VARIOUS SECTIONS OF BARREL

| SECTION & BAR GROUP | LENGTH OF SECTIONS | DEPTH OF COVER | CLEAR SPAN | CLEAR HEIGHT | "a" bars | | | | | "b" bars | | | | | | "d" bars | | | | "$d_1$" bars | | | | "e" bars | | | | "f" bars | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | STRAIGHT | | | | | BENT- See Diagram at Right | | | | | | STRAIGHT | | | | | | | | | | | | STRAIGHT | | | | |
| | | | | | In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall-Each. | | | | | In Top and Bottom Slabs of Barrel Alternate with "a" bars. | | | | | | Longitudinal in Top Slab of Barrel | | | | Longitudinal in Sidewalls | | | | Longitudinal in Bottom Slab of Barrel | | | | Verticals in Sidewalls | | | | |
| | | D | S | H | SIZE | SPACING | NUMBER REQ'D 3:1 | NUMBER REQ'D 4:1 | LENGTH | SIZE | SPACING | NUMBER REQ'D 3:1 | NUMBER REQ'D 4:1 | LENGTH | X | SIZE | SPACING | NO. REQ'D | LENGTH | SIZE | SPACING | NO. REQ'D | LENGTH | SIZE | SPACING | NO. REQ'D | LENGTH | SIZE | SPACING | NUMBER REQ'D 3:1 | NUMBER REQ'D 4:1 | LENGTH |
| SECTION "A" & BAR GROUP "A" | 4:1 = 32'-0"<br>3:1 = 22'-0" | 0' TO 10'-0" | 1 @ 4' | 3' | #4 | 12" | 48 | 68 | 4'-9" | #4 | 12" | 44 | 64 | 5'-7" | 4'-8½" | #4 | 12" | 5 | 33'-3" for 32'-0" Section | #4 | 12" | 6 | 33'-3" for 32'-0" Section | #4 | 12" | 5 | 34'-3" for 32'-0" Section | #4 | 12" | 44 | 64 | 3'-10" |
| | | | | 4' | | | 48 | 68 | 4'-9" | | | 44 | 64 | 5'-7" | 4'-8½" | | | 5 | | | | 8 | | | | 5 | | | | 44 | 64 | 4'-10" |
| | | | | 5' | | | 48 | 68 | 4'-9" | | | 44 | 64 | 5'-7" | 4'-8½" | | | 5 | | | | 10 | | | | 5 | | | | 44 | 64 | 5'-10" |
| | | | | 6' | | | 48 | 68 | 4'-11" | | | 44 | 64 | 5'-9" | 4'-10½" | | | 5 | | | | 12 | | | | 5 | | | | 44 | 64 | 6'-10" |
| | | | 1 @ 5' | 3' | #5 | 12" | 48 | 68 | 5'-9" | #5 | 12" | 44 | 64 | 6'-8" | 5'-8½" | #4 | 12" | 6 | | #4 | 12" | 6 | | #4 | 12" | 6 | | #4 | 12" | 44 | 64 | 3'-11" |
| | | | | 4' | | | 48 | 68 | 5'-9" | | | 44 | 64 | 6'-8" | 5'-8½" | | | 6 | | | | 8 | | | | 6 | | | | 44 | 64 | 4'-11" |
| | | | | 5' | | | 48 | 68 | 5'-9" | | | 44 | 64 | 6'-8" | 5'-8½" | | | 6 | | | | 10 | | | | 6 | | | | 44 | 64 | 5'-11" |
| | | | | 6' | | | 48 | 68 | 5'-11" | | | 44 | 64 | 6'-10" | 5'-10½" | | | 6 | | | | 12 | | | | 6 | | | | 44 | 64 | 6'-11" |
| | | | | 7' | | | 48 | 68 | 6'-0" | | | 44 | 64 | 6'-11" | 5'-11½" | | | 6 | | | | 14 | | | | 6 | | | 10" | 54 | 78 | 7'-11" |
| | | | 1 @ 6' | 4' | #5 | 12" | 48 | 68 | 6'-9" | #6 | 12" | 44 | 64 | 7'-10" | 6'-8" | #4 | 12" | 7 | | #4 | 12" | 8 | | #4 | 12" | 7 | | #4 | 12" | 44 | 64 | 5'-0" |
| | | | | 5' | | | 48 | 68 | 6'-9" | | | 44 | 64 | 7'-10" | 6'-8" | | | 7 | | | | 10 | | | | 7 | | | | 44 | 64 | 6'-0" |
| | | | | 6' | | | 48 | 68 | 6'-11" | | | 44 | 64 | 8'-0" | 6'-10" | | | 7 | | | | 12 | | | | 7 | | | | 44 | 64 | 7'-0" |
| | | | | 7' | | | 48 | 68 | 7'-0" | | | 44 | 64 | 8'-1" | 6'-11" | | | 7 | | | | 14 | | | | 7 | | | 10" | 54 | 78 | 8'-0" |
| | | | | 8' | | | 48 | 68 | 7'-1" | | | 44 | 64 | 8'-2" | 7'-0" | | | 7 | | | | 16 | | | | 7 | | #5 | 11" | 48 | 70 | 9'-0" |
| SECTION "B" & BAR GROUP "B" | 4:1 = 16'-0"<br>3:1 = 11'-0" | 10'-0" TO 15'-0" | 1 @ 4' | 3' | #4 | 12" | 22 | 32 | 4'-9" | #5 | 12" | 22 | 32 | 5'-8" | 4'-8½" | #4 | 12" | 5 | 34'-3" for 33'-0" Length Section | #4 | 12" | 6 | 34'-3" for 33'-0" Length Section | #4 | 12" | 5 | 34'-3" for 33'-0" Length Section | #4 | 12" | 22 | 32 | 3'-10" |
| | | | | 4' | | | 22 | 32 | 4'-9" | | | 22 | 32 | 5'-8" | 4'-8½" | | | 5 | | | | 8 | | | | 5 | | | | 22 | 32 | 4'-10" |
| | | | | 5' | | | 22 | 32 | 4'-9" | | | 22 | 32 | 5'-8" | 4'-8½" | | | 5 | | | | 10 | | | | 5 | | | | 22 | 32 | 5'-10" |
| | | | | 6' | | | 22 | 32 | 4'-11" | | | 22 | 32 | 5'-10" | 4'-10½" | | | 5 | | | | 12 | | | | 5 | | | 10" | 28 | 40 | 6'-10" |
| | | | 1 @ 5' | 3' | #5 | 12" | 22 | 32 | 5'-9" | #6 | 12" | 22 | 32 | 6'-10" | 5'-8" | #4 | 12" | 6 | | #4 | 12" | 6 | | #4 | 12" | 6 | | #4 | 12" | 22 | 32 | 3'-11" |
| | | | | 4' | | | 22 | 32 | 5'-9" | | | 22 | 32 | 6'-10" | 5'-8" | | | 6 | | | | 8 | | | | 6 | | | | 22 | 32 | 4'-11" |
| | | | | 5' | | | 22 | 32 | 5'-9" | | | 22 | 32 | 6'-10" | 5'-8" | | | 6 | | | | 10 | | | | 6 | | | | 22 | 32 | 5'-11" |
| | | | | 6' | | | 22 | 32 | 5'-11" | | | 22 | 32 | 7'-0" | 5'-10" | | | 6 | | | | 12 | | | | 6 | | | 11" | 24 | 36 | 6'-11" |
| | | | | 7' | | | 22 | 32 | 6'-0" | | | 22 | 32 | 7'-1" | 5'-11" | | | 6 | | | | 14 | | | | 6 | | #5 | 12" | 22 | 32 | 7'-11" |
| | | | 1 @ 6' | 4' | #6 | 12" | 22 | 32 | 6'-9" | #6 | 12" | 22 | 32 | 7'-10" | 6'-8" | #4 | 12" | 7 | | #4 | 12" | 8 | | #4 | 12" | 7 | | #4 | 12" | 22 | 32 | 5'-1" |
| | | | | 5' | | | 22 | 32 | 6'-9" | | | 22 | 32 | 7'-10" | 6'-8" | | | 7 | | | | 10 | | | | 7 | | | | 22 | 32 | 6'-1" |
| | | | | 6' | | | 22 | 32 | 6'-11" | | | 22 | 32 | 8'-0" | 6'-10" | | | 7 | | | | 12 | | | | 7 | | | 10" | 28 | 40 | 7'-1" |
| | | | | 7' | | | 22 | 32 | 7'-0" | | | 22 | 32 | 8'-1" | 6'-11" | | | 7 | | | | 14 | | | | 7 | | #5 | 11" | 24 | 34 | 8'-1" |
| | | | | 8' | | | 22 | 32 | 7'-1" | | | 22 | 32 | 8'-2" | 7'-0" | | | 7 | | | | 16 | | | | 7 | | #6 | 12" | 22 | 32 | 9'-1" |
| SECTION "C" & BAR GROUP "C" | 4:1 = 16'-0"<br>3:1 = 11'-0" | 15'-0" TO 20'-0" | 1 @ 4' | 3' | #5 | 12" | 22 | 32 | 4'-9" | #5 | 12" | 22 | 32 | 5'-8" | 4'-8½" | #4 | 12" | 5 | | #4 | 12" | 6 | | #4 | 12" | 5 | | #4 | 12" | 22 | 32 | 3'-10" |
| | | | | 4' | | | 22 | 32 | 4'-9" | | | 22 | 32 | 5'-8" | 4'-8½" | | | 5 | | | | 8 | | | | 5 | | | | 22 | 32 | 4'-10" |
| | | | | 5' | | | 22 | 32 | 4'-9" | | | 22 | 32 | 5'-8" | 4'-8½" | | | 5 | | | | 10 | | | | 5 | | | 10" | 28 | 40 | 5'-10" |
| | | | | 6' | | | 22 | 32 | 4'-11" | | | 22 | 32 | 5'-10" | 4'-10½" | | | 5 | | | | 12 | | | | 5 | | #5 | 12" | 22 | 32 | 6'-10" |
| | | | 1 @ 5' | 3' | #5 | 11" | 24 | 36 | 5'-9" | #6 | 11" | 24 | 34 | 6'-10" | 5'-8" | #4 | 12" | 6 | | #4 | 12" | 6 | | #4 | 12" | 6 | | #4 | 12" | 22 | 32 | 4'-0" |
| | | | | 4' | | | 24 | 36 | 5'-9" | | | 24 | 34 | 6'-10" | 5'-8" | | | 6 | | | | 8 | | | | 6 | | | | 22 | 32 | 5'-0" |
| | | | | 5' | | | 24 | 36 | 5'-9" | | | 24 | 34 | 6'-10" | 5'-8" | | | 6 | | | | 10 | | | | 6 | | | 11" | 24 | 36 | 6'-0" |
| | | | | 6' | | | 24 | 36 | 5'-11" | | | 24 | 34 | 7'-0" | 5'-10" | | | 6 | | | | 12 | | | | 6 | | #5 | 12" | 22 | 32 | 7'-0" |
| | | | | 7' | | | 24 | 36 | 6'-0" | | | 24 | 34 | 7'-1" | 5'-11" | | | 6 | | | | 14 | | | | 6 | | #6 | 12" | 22 | 32 | 8'-0" |
| | | | 1 @ 6' | 4' | #6 | 11" | 24 | 36 | 6'-9" | #6 | 11" | 24 | 34 | 7'-10" | 6'-8" | #4 | 12" | 7 | | #4 | 12" | 8 | | #4 | 12" | 7 | | #4 | 12" | 22 | 32 | 5'-2" |
| | | | | 5' | | | 24 | 36 | 6'-9" | | | 24 | 34 | 7'-10" | 6'-8" | | | 7 | | | | 10 | | | | 7 | | | | 22 | 32 | 6'-2" |
| | | | | 6' | | | 24 | 36 | 6'-11" | | | 24 | 34 | 8'-0" | 6'-10" | | | 7 | | | | 12 | | | | 7 | | #5 | 12" | 22 | 32 | 7'-2" |
| | | | | 7' | | | 24 | 36 | 7'-0" | | | 24 | 34 | 8'-1" | 6'-11" | | | 7 | | | | 14 | | | | 7 | | #6 | 12" | 22 | 32 | 8'-2" |
| | | | | 8' | | | 24 | 36 | 7'-1" | | | 24 | 34 | 8'-2" | 7'-0" | | | 7 | | | | 16 | | | | 7 | | | 10" | 26 | 38 | 9'-2" |
| SECTION "D" & BAR GROUP "D" | 4:1 = 16'-0"<br>3:1 = 11'-0" | 20'-0" TO 25'-0" | 1 @ 4' | 3' | #5 | 11" | 24 | 36 | 4'-9" | #5 | 11" | 24 | 34 | 5'-8" | 4'-8½" | #4 | 12" | 5 | | #4 | 12" | 6 | | #4 | 12" | 5 | | #4 | 12" | 22 | 32 | 3'-11" |
| | | | | 4' | | | 24 | 36 | 4'-9" | | | 24 | 34 | 5'-8" | 4'-8½" | | | 5 | | | | 8 | | | | 5 | | | | 22 | 32 | 4'-11" |
| | | | | 5' | | | 24 | 36 | 4'-9" | | | 24 | 34 | 5'-8" | 4'-8½" | | | 5 | | | | 10 | | | | 5 | | #5 | 12" | 22 | 32 | 5'-11" |
| | | | | 6' | | | 24 | 36 | 4'-11" | | | 24 | 34 | 5'-10" | 4'-10½" | | | 5 | | | | 12 | | | | 5 | | | 10" | 26 | 38 | 6'-11" |
| | | | 1 @ 5' | 3' | #6 | 12" | 22 | 32 | 5'-9" | #6 | 12" | 22 | 32 | 6'-10" | 5'-8" | #4 | 12" | 6 | | #4 | 12" | 6 | | #4 | 12" | 6 | | #4 | 12" | 22 | 32 | 4'-1" |
| | | | | 4' | | | 22 | 32 | 5'-9" | | | 22 | 32 | 6'-10" | 5'-8" | | | 6 | | | | 8 | | | | 6 | | | | 22 | 32 | 5'-1" |
| | | | | 5' | | | 22 | 32 | 5'-9" | | | 22 | 32 | 6'-11" | 5'-9" | | | 6 | | | | 10 | | | | 6 | | | 11" | 24 | 34 | 6'-1" |
| | | | | 6' | | | 22 | 32 | 5'-11" | | | 22 | 32 | 7'-1" | 5'-11" | | | 6 | | | | 12 | | | | 6 | | #5 | 11" | 24 | 34 | 7'-1" |
| | | | | 7' | | | 22 | 32 | 6'-1" | | | 22 | 32 | 7'-2" | 6'-0" | | | 6 | | | | 14 | | | | 6 | | #6 | 12" | 22 | 32 | 8'-1" |
| | | | 1 @ 6' | 4' | #7 | 12" | 22 | 32 | 6'-9" | #6 | 12" | 22 | 32 | 7'-10" | 6'-8" | #4 | 12" | 7 | | #4 | 12" | 8 | | #4 | 12" | 7 | | #4 | 12" | 22 | 32 | 5'-4" |
| | | | | 5' | | | 22 | 32 | 6'-10" | | | 22 | 32 | 7'-11" | 6'-9" | | | 7 | | | | 10 | | | | 7 | | | | 22 | 32 | 6'-4" |
| | | | | 6' | | | 22 | 32 | 6'-11" | | | 22 | 32 | 8'-1" | 6'-11" | | | 7 | | | | 12 | | | | 7 | | #5 | 12" | 22 | 32 | 7'-4" |
| | | | | 7' | | | 22 | 32 | 7'-1" | | | 22 | 32 | 8'-2" | 7'-0" | | | 7 | | | | 14 | | | | 7 | | #6 | 12" | 22 | 32 | 8'-4" |
| | | | | 8' | | | 22 | 32 | 7'-2" | | | 22 | 32 | 8'-4" | 7'-2" | | | 7 | | | | 16 | | | | 7 | | | 10" | 26 | 40 | 9'-4" |
| SECTION "E" & BAR GROUP "E" | 4:1 = 16'-0"<br>3:1 = 11'-0" | 25'-0" TO 30'-0" | 1 @ 4' | 3' | #6 | 12" | 22 | 32 | 4'-9" | #5 | 12" | 22 | 32 | 5'-8" | 4'-8½" | #4 | 12" | 5 | | #4 | 12" | 6 | | #4 | 12" | 5 | | #4 | 12" | 22 | 32 | 4'-0" |
| | | | | 4' | | | 22 | 32 | 4'-9" | | | 22 | 32 | 5'-8" | 4'-8½" | | | 5 | | | | 8 | | | | 5 | | | | 22 | 32 | 5'-0" |
| | | | | 5' | | | 22 | 32 | 4'-10" | | | 22 | 32 | 5'-9" | 4'-9½" | | | 5 | | | | 10 | | | | 5 | | #5 | 12" | 22 | 32 | 6'-0" |
| | | | | 6' | | | 22 | 32 | 5'-0" | | | 22 | 32 | 5'-11" | 4'-11½" | | | 5 | | | | 12 | | | | 5 | | #6 | 12" | 22 | 32 | 7'-0" |
| | | | 1 @ 5' | 3' | #6 | 11" | 24 | 34 | 5'-9" | #6 | 11" | 24 | 36 | 6'-10" | 5'-8" | #4 | 12" | 6 | | #4 | 12" | 6 | | #4 | 12" | 6 | | #4 | 12" | 22 | 32 | 4'-3" |
| | | | | 4' | | | 24 | 34 | 5'-9" | | | 24 | 36 | 6'-10" | 5'-8" | | | 6 | | | | 8 | | | | 6 | | | | 22 | 32 | 5'-3" |
| | | | | 5' | | | 24 | 34 | 5'-10" | | | 24 | 36 | 7'-0" | 5'-10" | | | 6 | | | | 10 | | | | 6 | | | 10" | 28 | 40 | 6'-3" |
| | | | | 6' | | | 24 | 34 | 6'-0" | | | 24 | 36 | 7'-2" | 6'-0" | | | 6 | | | | 12 | | | | 6 | | #5 | 11" | 24 | 36 | 7'-3" |
| | | | | 7' | | | 24 | 34 | 6'-2" | | | 24 | 36 | 7'-3" | 6'-1" | | | 6 | | | | 14 | | | | 6 | | #6 | 11" | 24 | 34 | 8'-3" |
| | | | 1 @ 6' | 4' | #7 | 11" | 24 | 34 | 6'-9" | #6 | 11" | 24 | 36 | 7'-10" | 6'-8" | #4 | 11" | 8 | | #4 | 12" | 8 | | #4 | 11" | 8 | | #4 | 12" | 22 | 32 | 5'-5" |
| | | | | 5' | | | 24 | 34 | 6'-11" | | | 24 | 36 | 8'-0" | 6'-10" | | | 8 | | | | 10 | | | | 8 | | | 11" | 24 | 36 | 6'-5" |
| | | | | 6' | | | 24 | 34 | 7'-1" | | | 24 | 36 | 8'-2" | 7'-0" | | | 8 | | | | 12 | | | | 8 | | #5 | 12" | 22 | 32 | 7'-5" |
| | | | | 7' | | | 24 | 34 | 7'-2" | | | 24 | 36 | 8'-4" | 7'-2" | | | 8 | | | | 14 | | | | 8 | | #6 | 12" | 22 | 32 | 8'-5" |
| | | | | 8' | | | 24 | 34 | 7'-4" | | | 24 | 36 | 8'-5" | 7'-3" | | | 8 | | | | 16 | | | | 8 | | | 10" | 26 | 38 | 9'-5" |
| SECTION "F" & BAR GROUP "F" | 4:1 = 16'-0"<br>3:1 = 11'-0" | 30'-0" TO 35'-0" | 1 @ 4' | 3' | #6 | 13" | 20 | 30 | 4'-9" | #6 | 13" | 20 | 30 | 5'-10" | 4'-8" | #4 | 12 | 5 | | #4 | 12" | 6 | | #4 | 12" | 5 | | #4 | 12" | 22 | 32 | 4'-1" |
| | | | | 4' | | | 20 | 30 | 4'-9" | | | 20 | 30 | 5'-10" | 4'-8" | | | 5 | | | | 8 | | | | 5 | | | | 22 | 32 | 5'-1" |
| | | | | 5' | | | 20 | 30 | 4'-11" | | | 20 | 30 | 6'-0" | 4'-10" | | | 5 | | | | 10 | | | | 5 | | #5 | 12" | 22 | 32 | 6'-1" |
| | | | | 6' | | | 20 | 30 | 5'-1" | | | 20 | 30 | 6'-2" | 5'-0" | | | 5 | | | | 12 | | | | 5 | | #6 | 12" | 22 | 32 | 7'-1" |
| | | | 1 @ 5' | 3' | #7 | 12" | 22 | 32 | 5'-9" | #6 | 12" | 22 | 32 | 6'-10" | 5'-8" | #4 | 10½" | 7 | | #4 | 12" | 6 | | #4 | 10½" | 7 | | #4 | 12" | 22 | 32 | 4'-4" |
| | | | | 4' | | | 22 | 32 | 5'-9" | | | 22 | 32 | 6'-11" | 5'-9" | | | 7 | | | | 8 | | | | 7 | | | | 22 | 32 | 5'-4" |
| | | | | 5' | | | 22 | 32 | 5'-11" | | | 22 | 32 | 7'-1" | 5'-11" | | | 7 | | | | 10 | | | | 7 | | | 10" | 26 | 36 | 6'-4" |
| | | | | 6' | | | 22 | 32 | 6'-1" | | | 22 | 32 | 7'-3" | 6'-1" | | | 7 | | | | 12 | | | | 7 | | #5 | 11" | 24 | 34 | 7'-4" |
| | | | | 7' | | | 22 | 32 | 6'-3" | | | 22 | 32 | 7'-4" | 6'-2" | | | 7 | | | | 14 | | | | 7 | | #6 | 11" | 24 | 36 | 8'-4" |
| | Varies with Length of Barrel | 30'-0" | 1 @ 6' | 4' | #7 | 12" | Varies with Length of Barrel | Varies with Length of Barrel | 6'-10" | #7 | 12" | Varies with Length of Barrel | Varies with Length of Barrel | 8'-1" | 6'-9" | #4 | 9½" | 9 | Varies with Length of Barrel | #4 | 12" | 8 | Varies with Length of Barrel | #4 | 9½" | 9 | Varies with Length of Barrel | #4 | 12" | Varies with Length of Barrel | Varies with Length of Barrel | 5'-7" |
| | | | | 5' | | | | | 7'-0" | | | | | 8'-3" | 6'-11" | | | 9 | | | | 10 | | | | 9 | | | 10" | | | 6'-7" |
| | | | | 6' | | | | | 7'-2" | | | | | 8'-5" | 7'-1" | | | 9 | | | | 12 | | | | 9 | | #5 | 12" | | | 7'-7" |
| | | | | 7' | | | | | 7'-4" | | | | | 8'-7" | 7'-3" | | | 9 | | | | 14 | | | | 9 | | #6 | 12" | | | 8'-7" |
| | | | | 8' | | | | | 7'-5" | | | | | 8'-8" | 7'-4" | | | 9 | | | | 16 | | | | 9 | | | 10" | | | 9'-7" |
| SECTION "G" & BAR GROUP "G" | | 35'-0" TO 40'-0" | 1 @ 4' | 3' | #6 | 12" | | | 4'-9" | #6 | 12" | | | 5'-10" | 4'-8" | #4 | 10½" | 6 | | #4 | 12" | 6 | | #4 | 10½" | 6 | | #4 | 12" | | | 4'-2" |
| | | | | 4' | | | | | 4'-10" | | | | | 5'-11" | 4'-9" | | | 6 | | | | 8 | | | | 6 | | | | | | 5'-2" |
| | | | | 5' | | | | | 5'-0" | | | | | 6'-1" | 4'-11" | | | 6 | | | | 10 | | | | 6 | | #5 | 12" | | | 6'-2" |
| | | | | 6' | | | | | 5'-2" | | | | | 6'-3" | 5'-1" | | | 6 | | | | 12 | | | | 6 | | #6 | 12" | | | 7'-2" |
| | | | 1 @ 5' | 3' | #7 | 11" | | | 5'-9" | #6 | 11" | | | 6'-10" | 5'-8" | #4 | 10½" | 7 | | #4 | 12" | 6 | | #4 | 10½" | 7 | | #4 | 12" | | | 4'-5" |
| | | | | 4' | | | | | 5'-10" | | | | | 7'-0" | 5'-10" | | | 7 | | | | 8 | | | | 7 | | | | | | 5'-5" |
| | | | | 5' | | | | | 6'-0" | | | | | 7'-2" | 6'-0" | | | 7 | | | | 10 | | | | 7 | | | 10" | | | 6'-5" |
| | | | | 6' | | | | | 6'-2" | | | | | 7'-4" | 6'-2" | | | 7 | | | | 12 | | | | 7 | | #5 | 11" | | | 7'-5" |
| | | | | 7' | | | | | 6'-4" | | | | | 7'-5" | 6'-3" | | | 7 | | | | 14 | | | | 7 | | #6 | 11" | | | 8'-5" |

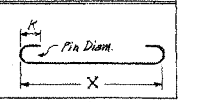
NOTE:- Bars for each Section to be marked with the Section Letter, thus for Section B, the bars should be marked Ba, Bb, Bd, Bd1, Be and Bf.

Designed By:- W.C.H. 9-5-62 Checked By:- RHS 11-8-62
Drawn By:- W.C.H. 10-10-62 Checked By:- J.E.M. 11-12-62
Quantities By:- W.C.H. 11-7-62 Checked By:- J.E.M. 11-16-62

## DIMENSIONS    QUANTITIES

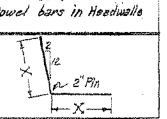
| MAX. DESIGN DEPTH OF COVER | BARREL DIMENSIONS | | | | | | | | UNIT QUANTITIES | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CLEAR SPAN | CLEAR HEIGHT | SQ. FT. OPENING | OVERALL WIDTH | THICKNESS OF TOP SLAB | THICKNESS OF SIDEWALLS | THICKNESS OF BOTTOM SLAB | OVERALL HEIGHT | CLASS S CONC. PER LIN. FT. OF BARREL | REINFORCING STEEL PER LIN. FT. OF BARREL | REINFORCING STEEL ADDITIONAL PER LAP | REINFORCING STEEL ADDITIONAL TWO HEADWALLS & APRONS |
| D | S | H | A | OW | T | C | B | OH | CU.YD. | LB. | LB. | LB. |
| SECTION "A" - 10'-0" | 1 @ 4' | 3' | 12 | 5'-0" | 6½" | 6" | 6½" | 4'-1" | 0.312 | 29.62 | 13.36 | 51.44 |
| | | 4' | 16 | 5'-0" | | 6" | | 5'-1" | 0.349 | 32.29 | 15.03 | 51.44 |
| | | 5' | 20 | 5'-0" | | 6" | | 6'-1" | 0.386 | 34.96 | 16.70 | 51.44 |
| | | 6' | 24 | 5'-2" | | 7" | | 7'-1" | 0.467 | 38.08 | 18.37 | 52.33 |
| | 1 @ 5' | 3' | 15 | 6'-0" | 7" | 6" | 7" | 4'-2" | 0.370 | 43.16 | 15.03 | 79.37 |
| | | 4' | 20 | 6'-0" | | 6" | | 5'-2" | 0.407 | 45.83 | 16.70 | 79.37 |
| | | 5' | 25 | 6'-0" | | 6" | | 6'-2" | 0.444 | 48.50 | 18.37 | 79.37 |
| | | 6' | 30 | 6'-2" | | 7" | | 7'-2" | 0.526 | 51.87 | 20.04 | 80.77 |
| | | 7' | 35 | 6'-3" | | 7½" | | 8'-2" | 0.594 | 57.00 | 21.71 | 81.46 |
| | 1 @ 6' | 4' | 24 | 7'-0" | 7½" | 6" | 7½" | 5'-3" | 0.472 | 58.99 | 18.37 | 93.29 |
| | | 5' | 30 | 7'-0" | | 6" | | 6'-3" | 0.509 | 61.66 | 20.04 | 93.29 |
| | | 6' | 36 | 7'-2" | | 7" | | 7'-3" | 0.591 | 65.18 | 21.71 | 94.68 |
| | | 7' | 42 | 7'-3" | | 7½" | | 8'-3" | 0.660 | 70.41 | 23.38 | 95.37 |
| | | 8' | 48 | 7'-4" | | 8" | | 9'-3" | 0.735 | 79.83 | 25.05 | 96.07 |
| SECTION "B" - 15'-0" | 1 @ 4' | 3' | 12 | 5'-0" | 6½" | 6" | 6½" | 4'-1" | 0.312 | 33.98 | 13.36 | |
| | | 4' | 16 | 5'-0" | | 6" | | 5'-1" | 0.349 | 36.65 | 15.03 | |
| | | 5' | 20 | 5'-0" | | 6" | | 6'-1" | 0.386 | 39.32 | 16.70 | |
| | | 6' | 24 | 5'-2" | | 7" | | 7'-1" | 0.467 | 44.39 | 18.37 | |
| | 1 @ 5' | 3' | 15 | 6'-0" | 7" | 6" | 7" | 4'-2" | 0.370 | 49.78 | 15.03 | |
| | | 4' | 20 | 6'-0" | | 6" | | 5'-2" | 0.407 | 52.45 | 16.70 | |
| | | 5' | 25 | 6'-0" | | 6" | | 6'-2" | 0.444 | 55.12 | 18.37 | |
| | | 6' | 30 | 6'-2" | | 7" | | 7'-2" | 0.526 | 59.48 | 20.04 | |
| | | 7' | 35 | 6'-3" | | 7½" | | 8'-2" | 0.594 | 67.68 | 21.71 | |
| | 1 @ 6' | 4' | 24 | 7'-0" | 8" | 6" | 8¼" | 5'-4¼" | 0.499 | 65.30 | 18.37 | |
| | | 5' | 30 | 7'-0" | | 6" | | 6'-4¼" | 0.536 | 66.63 | 20.04 | |
| | | 6' | 36 | 7'-2" | | 7" | | 7'-4¼" | 0.619 | 73.58 | 21.71 | |
| | | 7' | 42 | 7'-3" | | 7½" | | 8'-4¼" | 0.688 | 82.91 | 23.38 | |
| | | 8' | 48 | 7'-4" | | 8" | | 9'-4¼" | 0.763 | 93.14 | 25.05 | |
| SECTION "C" - 20'-0" | 1 @ 4' | 3' | 12 | 5'-0" | 6½" | 6" | 6¾" | 4'-1¼" | 0.316 | 37.54 | 13.36 | |
| | | 4' | 16 | 5'-0" | | 6" | | 5'-1¼" | 0.353 | 40.21 | 15.03 | |
| | | 5' | 20 | 5'-0" | | 6" | | 6'-1¼" | 0.390 | 44.44 | 16.70 | |
| | | 6' | 24 | 5'-2" | | 7" | | 7'-1¼" | 0.471 | 51.38 | 18.37 | |
| | 1 @ 5' | 3' | 15 | 6'-0" | 7½" | 6" | 7¾" | 4'-3¼" | 0.394 | 52.85 | 15.03 | |
| | | 4' | 20 | 6'-0" | | 6" | | 5'-3¼" | 0.431 | 55.52 | 16.70 | |
| | | 5' | 25 | 6'-0" | | 6" | | 6'-3¼" | 0.468 | 58.92 | 18.37 | |
| | | 6' | 30 | 6'-2" | | 7" | | 7'-3¼" | 0.550 | 67.04 | 20.04 | |
| | | 7' | 35 | 6'-3" | | 7½" | | 8'-3¼" | 0.618 | 78.27 | 21.71 | |
| | 1 @ 6' | 4' | 24 | 7'-0" | 8½" | 6" | 9" | 5'-5½" | 0.526 | 69.39 | 18.37 | |
| | | 5' | 30 | 7'-0" | | 6" | | 6'-5½" | 0.563 | 72.06 | 20.04 | |
| | | 6' | 36 | 7'-2" | | 7" | | 7'-5½" | 0.646 | 81.20 | 21.71 | |
| | | 7' | 42 | 7'-3" | | 7½" | | 8'-5½" | 0.716 | 92.67 | 23.38 | |
| | | 8' | 48 | 7'-4" | | 8" | | 9'-5½" | 0.791 | 103.06 | 25.05 | |
| SECTION "D" - 25'-0" | 1 @ 4' | 3' | 12 | 5'-0" | 6¾" | 6" | 7¼" | 4'-2" | 0.327 | 39.63 | 13.36 | |
| | | 4' | 16 | 5'-0" | | 6" | | 5'-2" | 0.364 | 42.30 | 15.03 | |
| | | 5' | 20 | 5'-0" | | 6" | | 6'-2" | 0.401 | 49.41 | 16.70 | |
| | | 6' | 24 | 5'-2" | | 7" | | 7'-2" | 0.483 | 55.14 | 18.37 | |
| | 1 @ 5' | 3' | 15 | 6'-0" | 8" | 6" | 8½" | 4'-4½" | 0.417 | 55.28 | 15.03 | |
| | | 4' | 20 | 6'-0" | | 6" | | 5'-4½" | 0.454 | 57.95 | 16.70 | |
| | | 5' | 25 | 6'-0½" | | 6¼" | | 6'-4½" | 0.501 | 61.61 | 18.37 | |
| | | 6' | 30 | 6'-2½" | | 7¼" | | 7'-4½" | 0.585 | 71.20 | 20.04 | |
| | | 7' | 35 | 6'-4" | | 8" | | 8'-4½" | 0.668 | 81.45 | 21.71 | |
| | 1 @ 6' | 4' | 24 | 7'-0" | 9¼" | 6" | 9¾" | 5'-7" | 0.559 | 72.95 | 18.37 | |
| | | 5' | 30 | 7'-1" | | 6½" | | 6'-7" | 0.616 | 76.21 | 20.04 | |
| | | 6' | 36 | 7'-2½" | | 7¼" | | 7'-7" | 0.691 | 85.22 | 21.71 | |
| | | 7' | 42 | 7'-4" | | 8" | | 8'-7" | 0.776 | 97.23 | 23.38 | |
| | | 8' | 48 | 7'-5½" | | 8¾" | | 9'-7" | 0.869 | 108.02 | 25.05 | |
| SECTION "E" - 30'-0" | 1 @ 4' | 3' | 12 | 5'-0" | 7¼" | 6" | 7¾" | 4'-3" | 0.343 | 42.12 | 13.36 | |
| | | 4' | 16 | 5'-0" | | 6" | | 5'-3" | 0.380 | 44.79 | 15.03 | |
| | | 5' | 20 | 5'-1" | | 6½" | | 6'-3" | 0.436 | 52.39 | 16.70 | |
| | | 6' | 24 | 5'-3" | | 7½" | | 7'-3" | 0.521 | 63.09 | 18.37 | |
| | 1 @ 5' | 3' | 15 | 6'-0" | 8¾" | 6" | 9¼" | 4'-6" | 0.444 | 58.94 | 15.03 | |
| | | 4' | 20 | 6'-0" | | 6" | | 5'-6" | 0.481 | 61.61 | 16.70 | |
| | | 5' | 25 | 6'-1½" | | 6¾" | | 6'-6" | 0.549 | 66.77 | 18.37 | |
| | | 6' | 30 | 6'-3½" | | 7¾" | | 7'-6" | 0.637 | 75.68 | 20.04 | |
| | | 7' | 35 | 6'-5" | | 8½" | | 8'-6" | 0.724 | 88.37 | 21.71 | |
| | 1 @ 6' | 4' | 24 | 7'-0" | 10" | 6" | 10½" | 5'-8½" | 0.591 | 79.04 | 20.04 | |
| | | 5' | 30 | 7'-2" | | 7" | | 6'-8½" | 0.669 | 83.78 | 21.71 | |
| | | 6' | 36 | 7'-4" | | 8" | | 7'-8½" | 0.760 | 92.53 | 23.38 | |
| | | 7' | 42 | 7'-5½" | | 8¾" | | 8'-8½" | 0.850 | 104.59 | 25.05 | |
| | | 8' | 48 | 7'-7" | | 9½" | | 9'-8½" | 0.949 | 115.61 | 26.72 | |
| SECTION "F" - 35'-0" | 1 @ 4' | 3' | 12 | 5'-0" | 7¾" | 6" | 8¼" | 4'-4" | 0.358 | 45.49 | 13.36 | |
| | | 4' | 16 | 5'-0" | | 6" | | 5'-4" | 0.395 | 48.16 | 15.03 | |
| | | 5' | 20 | 5'-2" | | 7" | | 6'-4" | 0.471 | 56.32 | 16.70 | |
| | | 6' | 24 | 5'-4" | | 8" | | 7'-4" | 0.560 | 67.17 | 18.37 | |
| | 1 @ 5' | 3' | 15 | 6'-0" | 9¼" | 6" | 9¾" | 4'-7" | 0.463 | 63.18 | 16.70 | |
| | | 4' | 20 | 6'-0½" | | 6¼" | | 5'-7" | 0.509 | 66.11 | 18.37 | |
| | | 5' | 25 | 6'-2½" | | 7¼" | | 6'-7" | 0.588 | 71.65 | 20.04 | |
| | | 6' | 30 | 6'-4½" | | 8¼" | | 7'-7" | 0.679 | 80.70 | 21.71 | |
| | | 7' | 35 | 6'-6" | | 9" | | 8'-7" | 0.770 | 93.59 | 23.38 | |
| | 1 @ 6' | 4' | 24 | 7'-1" | 10¾" | 6½" | 11¼" | 5'-10" | 0.641 | 85.81 | 21.71 | |
| | | 5' | 30 | 7'-3" | | 7½" | | 6'-10" | 0.724 | 91.60 | 23.38 | |
| | | 6' | 36 | 7'-5" | | 8½" | | 7'-10" | 0.818 | 99.56 | 25.05 | |
| | | 7' | 42 | 7'-7" | | 9½" | | 8'-10" | 0.925 | 112.23 | 26.72 | |
| | | 8' | 48 | 7'-8½" | | 10¼" | | 9'-10" | 1.030 | 123.01 | 28.39 | |
| SECTION "G" - 40'-0" | 1 @ 4' | 3' | 12 | 5'-0" | 8¼" | 6" | 8¾" | 4'-5" | 0.373 | 49.38 | 15.03 | |
| | | 4' | 16 | 5'-1" | | 6½" | | 5'-5" | 0.427 | 52.56 | 16.70 | |
| | | 5' | 20 | 5'-3" | | 7½" | | 6'-5" | 0.507 | 60.85 | 18.37 | |
| | | 6' | 24 | 5'-5" | | 8½" | | 7'-5" | 0.599 | 71.86 | 20.04 | |
| | 1 @ 5' | 3' | 15 | 6'-0" | 9¾" | 6" | 10¼" | 4'-8" | 0.481 | 67.30 | 16.70 | |
| | | 4' | 20 | 6'-1½" | | 6¾" | | 5'-8" | 0.545 | 70.89 | 18.37 | |
| | | 5' | 25 | 6'-3½" | | 7¾" | | 6'-8" | 0.628 | 76.56 | 20.04 | |
| | | 6' | 30 | 6'-5½" | | 8¾" | | 7'-8" | 0.723 | 85.78 | 21.71 | |
| | | 7' | 35 | 6'-7" | | 9½" | | 8'-8" | 0.817 | 98.84 | 23.38 | |

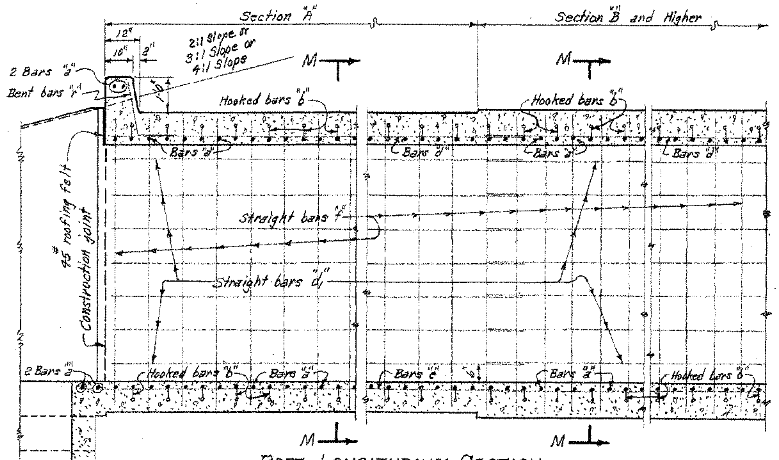
NOTE:- For details of wings and bar lists, see Drawing Nos. W-X002-1, W-X003-1, and W-X004-1.

| BAR SIZE | PIN DIAM. | K | ADD FOR 2 HOOKS | Bars "b" |
|---|---|---|---|---|
| #4 | 2" | 4" | 0'-10½" |  K<br>Pin Diam.<br>X |
| #5 | 2½" | 4½" | 0'-11½" | |
| #6 | 3" | 5" | 1'-2" | |
| #7 | 3½" | 5¾" | 1'-4" | |

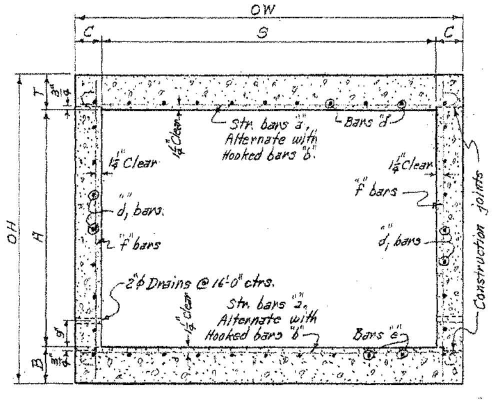
NOTE:- Dimensions are to centers of bars.

### DOWEL BARS FOR TWO HEADWALLS

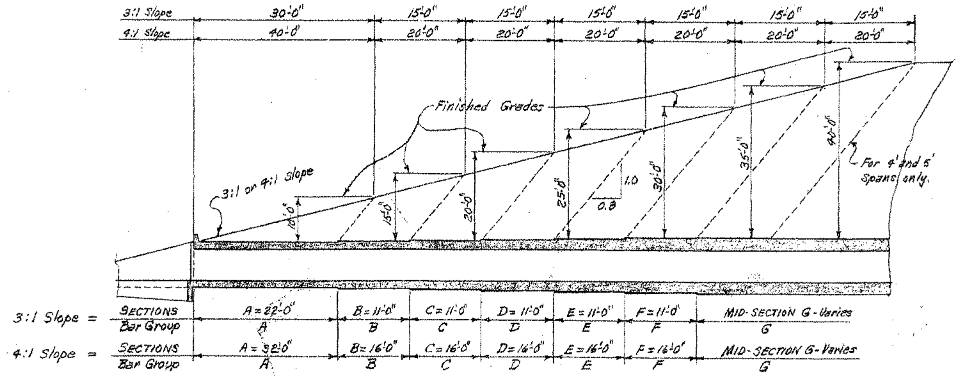
| SPAN | SIZE | SPACING | No. REQ'D | LENGTH | X | Bars "r" Dowel bars in Headwalls |
|---|---|---|---|---|---|---|
| 4' | #4 | 11"± | 12 | 2'-5" | 1'-2½" |  X<br>2<br>12<br>2" Pin<br>X |
| 5' | #4 | 11½"± | 14 | 2'-6" | 1'-3" | |
| 6' | #4 | 12"± | 16 | 2'-7" | 1'-3½" | |



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M



| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3:1 Slope = | SECTIONS | A = 22'-0" | B = 11'-0" | C = 11'-0" | D = 11'-0" | E = 11'-0" | F = 11'-0" | MID-SECTION G - Varies |
| | Bar Group | A | B | C | D | E | F | G |
| 4:1 Slope = | SECTIONS | A = 32'-0" | B = 16'-0" | C = 16'-0" | D = 16'-0" | E = 16'-0" | F = 16'-0" | MID-SECTION G - Varies |
| | Bar Group | A | B | C | D | E | F | G |

TYPICAL LONGITUDINAL SECTION-SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections, with Bar Groups to be shown on Cross Section Sheets.

### SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

| DEPTHS OF COVER | SECTIONS & BAR GROUPS FOR END SECTIONS | | | | | | MID-SECTION AND BAR GROUP |
|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | |
| 5.0' to 9.5' | ✓ | | | | | | A |
| 10.0' to 14.5' | ✓ | | | | | | B |
| 15.0' to 19.5' | ✓ | ✓ | | | | | C |
| 20.0' to 24.5' | ✓ | ✓ | ✓ | | | | D |
| 25.0' to 29.5' | ✓ | ✓ | ✓ | ✓ | | | E |
| 30.0' to 34.5 | ✓ | ✓ | ✓ | ✓ | ✓ | | F |
| 35.0' to 40.0 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | G |

### LENGTH OF SECTIONS FOR SKEWED CULVERTS

| SKEW ANGLE | SEC. OF SKEW ANGLE | 3:1 SLOPES SECTIONS | | 4:1 SLOPES SECTIONS | |
|---|---|---|---|---|---|
| | | A | B,C,D,E, or F | A | B,C,D,E, or F |
| 0° | 1.0 | 22.0' | 11.0' | 32.0' | 16.0' |
| 15° | 1.0353 | 22.776' | 11.388' | 33.129' | 16.564' |
| 30° | 1.1547 | 25.403' | 12.702' | 36.950' | 18.475' |
| 45° | 1.4142 | 31.113' | 15.556' | 45.255' | 22.627' |

### GENERAL NOTES:-

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

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

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

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

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

### DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-

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

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

CLASS S CONCRETE

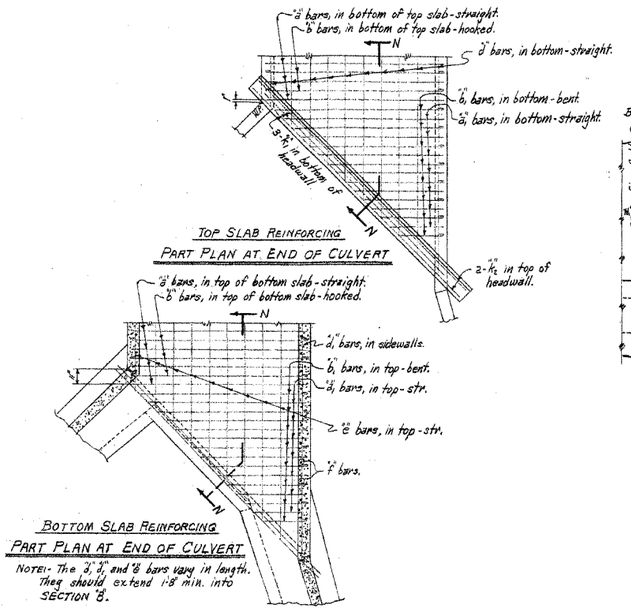
## ARKANSAS STATE HIGHWAY COMMISSION

## DETAILS OF STANDARD BARREL SECTIONS
FOR
REINFORCED CONCRETE BOX CULVERTS

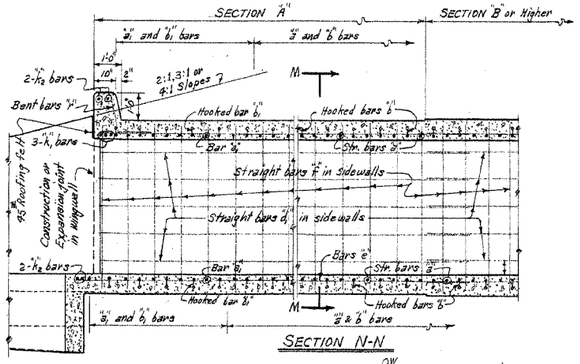
4', 5' & 6' SPANS    3:1 OR 4:1 SLOPES
SINGLES    OVER 5'-0" COVER

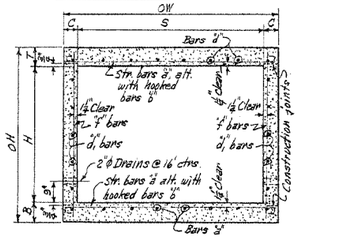
STANDARD DRAWING NO. R-100X-X1

| FED. ROAD No. | STATE | FED. AID PROJECT | FISCAL YEAR | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 6 | ARK. | | | 211 | |
| JOB No. | | | | | |

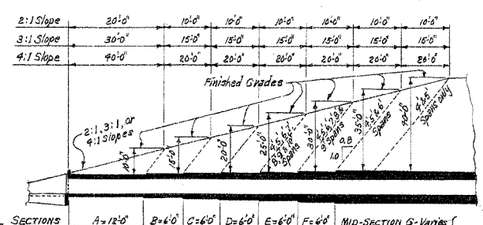



NOTE:- The "d", "d₁" and "e" bars vary in length. They should extend 1'-8" min. into SECTION "B".




TYPICAL SECTION M-M



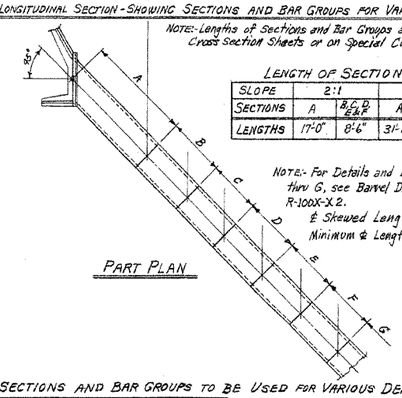

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2:1 Slope | | 20'-0" | 10'-0" | 10'-0" | 10'-0" | 10'-0" | 10'-0" | 10'-0" | |
| 3:1 Slope | | 30'-0" | 15'-0" | 15'-0" | 15'-0" | 15'-0" | 15'-0" | 15'-0" | |
| 4:1 Slope | | 40'-0" | 20'-0" | 20'-0" | 20'-0" | 20'-0" | 20'-0" | 20'-0" | |
| 2:1 Slope = | SECTIONS | A=12'-0" | B=6'-0" | C=6'-0" | D=6'-0" | E=6'-0" | F=6'-0" | MID-SECTION G-Varies | These lengths are perpendicular to ℄ of roadway. See Table of Skew Lengths below. |
| | Bar Group | A | B | C | D | E | F | G | |
| 3:1 Slope = | SECTIONS | A=22'-0" | B=11'-0" | C=11'-0" | D=11'-0" | E=11'-0" | F=11'-0" | MID-SECTION G-Varies | |
| | Bar Group | A | B | C | D | E | F | G | |
| 4:1 Slope = | SECTIONS | A=32'-0" | B=16'-0" | C=16'-0" | D=16'-0" | E=16'-0" | F=16'-0" | MID-SECTION G-Varies | |
| | Bar Group | A | B | C | D | E | F | G | |

TYPICAL LONGITUDINAL SECTION-SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.

LENGTH OF SECTIONS ON 45° SKEW

| SLOPE | 2:1 | | 3:1 | | 4:1 | |
|---|---|---|---|---|---|---|
| SECTIONS | A | B, C, D & E, F | A | B, C, D & E, F | A | B, C, D & E, F |
| LENGTHS | 17'-0" | 8'-6" | 31'-1½" | 15'-6½" | 45'-3" | 22'-7½" |




PART PLAN

NOTE:- For Details and Bar Lists for SECTIONS B thru G, see Barrel Drawing Nos. R-100X-X.1 or R-100X-X.2.

℄ Skewed Length of A = 1.41421 x A.
Minimum ℄ Length on Skew = (0.5 OW + 1').

BAR LIST FOR SECTION "A" ON 45° SKEW - ONE END ONLY.

| SECTION & BAR GROUP | LENGTH OF SECTION | DEPTH OF COVER | CLEAR SPAN | CLEAR HEIGHT | "a" bars STRAIGHT In Top and Bottom Slabs of Barrel. | "a₁" bars STRAIGHT In Top and Bottom Slab of Barrel-hooked. (two of each Length) | "b" bars BENT - See Diagrams at Right. In Top and Bottom Slabs of Barrel-Alternate with "a" bars. | "b₁" bars In Top and Bottom Slabs of Barrel-one end hooked, (two of each Length) Alternate with "a" bars. | "d" bars STRAIGHT Longitudinal in Top Slab of Barrel | "d₁" bars STRAIGHT Longitudinal in Sidewalls | "e" bars STRAIGHT Longitudinal in Bottom Slab of Barrel. | "f" bars STRAIGHT Verticals in Sidewalls. | "h" bars STRAIGHT In Bottom of Headwall. | "h₁" bars STRAIGHT In Top of Headwall and Apron. (2 Each). |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | D | G | H | SIZE / SPACING / NUMBER REQ'D 2:1 3:1 4:1 / LENGTH | SIZE / SPACING / NO. REQ'D / LENGTH | SIZE / SPACING / NUMBER REQ'D 2:1 3:1 4:1 / LENGTH X | SIZE / SPACING / NO. REQ'D / LENGTH MAX. MIN. / X MAX. MIN. | SIZE / SPACING / NO. REQ'D / LENGTH | SIZE / SPACING / NO. REQ'D / LENGTH | SIZE / SPACING / NO. REQ'D / LENGTH | SIZE / SPACING / NUMBER REQ'D 2:1 3:1 4:1 / LENGTH | SIZE / NO. REQ'D / LENGTH | SIZE / NO. REQ'D / LENGTH |
| SECTION "A" = 10'-0" — SECTION "A" to BAR GROUP "A", 2:1 = 17'-0", 3:1 = 31'-1½", 4:1 = 45'-3"; 0'-0" TO 10'-0" MAXIMUM. | | 5'-0" to 10'-0" | #4 @ 4' | 2' | 31 59 87 4'-9" | 4 3'-9" 2'-9" | 29 59 87 5'-7" 4'-9½" | 6 4'-7" 2'-7" 4'-2" 2'-2" | 5 | 4 | 5 | 35 63 91 2'-10" | 3 6'-9" | 4 8'-10" |
| | | | | 3' | 31 59 87 " | 4 " " | 29 59 87 " " | 6 " " | 5 | 4 | 5 | 35 63 91 3'-10" | 3 " | 4 " |
| | | | | 4' | 31 59 87 " | 4 " " | 29 59 87 " " | 6 " " | 5 | 4 | 5 | 35 63 91 4'-10" | 3 " | 4 " |
| | | | | 5' | 31 59 87 " | 4 " " | 29 59 87 " " | 6 " " | 5 | 4 | 5 | 35 63 91 5'-10" | 3 " | 4 " |
| | | | | 6' | 31 59 87 4'-11" 2'-11" | 4 3'-11" 2'-11" | 29 57 87 5'-9" 4'-10½" | 6 4'-9" 2'-9" 4'-1" 2'-1" | 5 | 12 | 5 | 35 63 91 6'-10" | 3 6'-11" | 4 9'-0" |
| | | | #4 @ 4' | 3' | 29 59 87 5'-9" | 6 4'-9" 2'-9" | 29 57 85 6'-8" 5'-8½" | 8 5'-8" 2'-8" 5'-2" 2'-2" | 6 | 12 | 6 | 35 63 91 3'-11" | 3 8'-1" | 4 10'-3" |
| | | | | 4' | 29 59 87 " | 6 " " | 29 57 85 " " | 8 " " " " | 6 | 12 | 6 | 35 63 91 4'-11" | 3 " | 4 " |
| | | | | 5' | 29 59 87 " | 6 " " | 29 57 85 " " | 8 " " " " | 6 | 12 | 6 | 35 63 91 5'-11" | 3 " | 4 " |
| | | | | 6' | 29 57 87 5'-11" | 6 4'-11" 2'-11" | 29 57 85 6'-10" 5'-10½" | 8 5'-10" 2'-10" 5'-4" 2'-4" | 6 | 12 | 6 | 35 63 91 6'-11" | 3 8'-14" | 4 10'-5" |
| | | | | 7' | 29 57 87 6'-0" | 6 5'-0" 3'-0" | 29 57 85 6'-11" 5'-11½" | 8 5'-11" 2'-11" 5'-5" 2'-5" | 6 | 14 | 6 | 35 63 91 7'-11" | 3 8'-5" | 4 10'-7" |
| | | | #4 @ 6' | 3' | 29 57 85 6'-8" | 8 5'-8" 2'-8" | 27 57 85 7'-6" 6'-6" | 10 6'-9" 2'-9" 6'-2" 2'-2" | 7 | 12 | 7 | 35 63 91 4'-0" | 3 9'-6" | 4 11'-7" |
| | | | | 4' | 29 57 85 " | 8 " " | 27 57 85 " " | 10 " " " " | 7 | 12 | 7 | 35 63 91 5'-0" | 3 " | 4 " |
| | | | | 5' | 29 57 85 6'-11" | 8 5'-11" 2'-11" | 27 55 85 8'-6" 6'-10" | 10 6'-11" 2'-11" 6'-4" 2'-4" | 7 | 12 | 7 | 35 63 91 6'-0" | 3 9'-9" | 4 11'-10" |
| | | | | 6' | 29 57 85 7'-0" | 8 6'-0" 3'-0" | 27 55 85 8'-11" 6'-11" | 10 7'-0" 3'-0" 6'-5" 2'-5" | 7 | 14 | 7 | 35 63 91 7'-0" | 3 9'-10" | 4 12'-0" |
| | | | | 7' | 29 57 85 7'-1" | 8 6'-1" 3'-1" | 27 55 85 8'-12" 7'-0" | 10 7'-1" 3'-1" 6'-6" 2'-6" | 7 | 16 | 7 | 35 63 91 7'-11" | 3 10'-6" | 4 12'-1" |
| | | #4 @ 4' | #5 12" | 4' | 27 57 85 7'-9" | 8 6'-9" 2'-9" | 27 55 83 8'-10" 7'-8" | 12 7'-9" 2'-9" 7'-2" 2'-2" | 8 | 8 | 8 | 35 63 91 5'-1" | 3 10'-11" | 4 13'-0" |
| | | | | 5' | 27 57 85 " | 10 " " | 27 55 88 " " | 12 " " " " | 8 | 10 | 8 | 35 63 91 6'-1" | 3 " | 4 " |
| | | | | 6' | 27 55 85 7'-11" | 10 6'-11" 2'-11" | 27 55 83 9'-0" 7'-10" | 12 7'-11" 2'-11" 7'-4" 2'-4" | 8 | 12 | 8 | 35 63 91 7'-1" | 3 11'-2" | 4 13'-9" |
| | | #4 @ 6' | #5 12" | 7' | 27 55 85 8'-0" | 10 7'-0" 3'-0" | 27 55 83 9'-1" 7'-11" | 12 8'-0" 3'-0" 7'-5" 2'-5" | 8 | 14 | 8 | 35 63 91 8'-1" | 3 11'-3" | 4 13'-9" |
| | | | | 8' | 27 55 85 8'-1" | 10 7'-1" 3'-1" | 27 55 83 9'-2" 8'-0" | 12 8'-1" 3'-1" 7'-6" 2'-6" | 8 | 14 | 8 | 35 63 91 9'-1" | 3 11'-4" | 4 13'-6" |
| | | | | 9' | 27 55 85 8'-3" | 10 7'-3" 3'-3" | 27 55 83 9'-4" 8'-2" | 12 8'-3" 3'-3" 7'-8" 2'-8" | 8 | 18 | 8 | 35 63 91 10'-1" | 3 11'-7" | 4 13'-9" |
| | | #4 @ 8' | #6 12" | 3' | 27 55 83 8'-9" | 12 7'-9" 2'-9" | 27 55 83 9'-10" 8'-8" | 14 8'-9" 2'-9" 8'-2" 2'-2" | 9 | 8 | 9 | 35 63 91 5'-2" | 3 12'-4" | 4 14'-5" |
| | | | | 5' | 27 55 83 8'-11" | 12 7'-11" 2'-11" | 27 55 83 10'-0" 8'-10" | 14 " " " " | 9 | 10 | 9 | 35 63 91 6'-2" | 3 12'-7" | 4 14'-8" |
| | | | | 6' | 27 55 83 " | 12 " " | 27 55 83 10'-1" 8'-11" | 14 8'-10" 2'-10" 8'-3" 2'-3" | 9 | 12 | 9 | 35 63 91 7'-2" | 3 " | 4 " |
| | | | | 7' | 27 55 83 9'-0" | 12 8'-0" 3'-0" | 27 55 83 10'-2" 9'-0" | 14 8'-11" 2'-11" 8'-4" 2'-4" | 9 | 14 | 9 | 35 63 91 8'-2" | 3 12'-8" | 4 14'-10" |
| | | | | 8' | 27 55 83 9'-1" | 12 8'-1" 3'-1" | 27 55 83 10'-3" 9'-1" | 14 9'-0" 3'-0" 8'-5" 2'-5" | 9 | 16 | 9 | 12" 35 63 91 9'-2" | 3 12'-10" | 4 14'-11" |
| | | | | 9' | 27 55 83 9'-3" | 12 8'-3" 3'-3" | 27 53 81 10'-4" 9'-2" | 14 9'-2" 3'-2" 8'-7" 2'-7" | 9 | 18 | 9 | 12" 35 63 91 10'-2" | 3 13'-0" | 4 15'-2" |
| | | | | 10' | 27 55 83 9'-5" | 14 8'-5" 2'-5" | 27 53 81 10'-6" 9'-4" | 14 9'-4" 3'-4" 8'-9" 2'-9" | 9 | 20 | 9 | 10" 41 75 109 11'-3" | 3 13'-5" | 4 15'-5" |
| | | #4 @ 4' | #6 12" | 5' | 27 59 89 9'-11" | 16 9'-0" 2'-9" | 27 57 89 11'-2" 9'-10" | 16 10'-1" 3'-8" 9'-5" 3'-0" | 10 | 10 | 10 | 35 63 91 6'-5" | 3 14'-0" | 4 16'-1" |
| | | | | 6' | 27 59 89 10'-0" | 16 9'-1" 2'-8" | 27 57 89 11'-3" 9'-11" | 16 10'-2" 3'-9" 9'-6" 3'-1" | 10 | 12 | 10 | 35 63 91 7'-5" | 3 14'-1" | 4 16'-3" |
| | | | | 7' | 27 59 89 " | 16 " " | 27 57 89 " " | 16 " " " " | 10 | 14 | 10 | 35 63 91 8'-5" | 3 " | 4 " |
| | | | #4 @ 8' | 8' | 27 59 89 10'-1" | 16 9'-2" 2'-8" | 27 57 89 11'-4" 10'-0" | 16 10'-8" 3'-10" 9'-7" 3'-2" | 10 | 16 | 10 | 12" 35 63 91 9'-5" | 3 14'-4" | 4 16'-4" |
| | | | | 9' | 27 59 89 10'-3" | 16 9'-4" 2'-11" | 27 57 89 11'-6" 10'-2" | 18 10'-5" 3'-11" 9'-9" 2'-5" | 10 | 18 | 10 | 12" 35 63 91 10'-5" | 3 14'-5" | 4 16'-7" |
| | | | | 10' | 27 59 89 10'-5" | 16 9'-6" 3'-1" | 27 57 87 11'-8" 10'-4" | 18 10'-7" 3'-3" 9'-11" 2'-7" | 10 | 20 | 10 | 10" 41 75 109 11'-5" | 3 14'-8" | 4 16'-10" |
| | | | | 11' | 27 57 89 10'-7" | 16 9'-8" 3'-3" | 27 57 87 11'-10" 10'-6" | 18 10'-9" 3'-5" 10'-1" 2'-9" | 10 | 22 | 10 | 12" 35 63 91 12'-5" | 3 14'-11" | 4 17'-0" |
| | | #4 @ 10' | #7 12" | 5' | 25 53 82 10'-11" | 16 9'-11" 2'-11" | 23 51 81 12'-2" 10'-10" | 18 11'-8" 3'-0" 10'-4" 2'-9" | 11 | 10 | 11 | 35 63 91 6'-7" | 3 15'-5" | 4 17'-6" |
| | | | | 6' | 25 53 82 11'-0" | 16 10'-0" 3'-0" | 23 51 81 12'-3" 10'-11" | 18 11'-9" 3'-1" 10'-5" 2'-5" | 11 | 12 | 11 | 35 63 91 7'-7" | 3 15'-6" | 4 17'-8" |
| | | | | 7' | 25 53 82 " | 16 " " | 23 51 81 " " | 18 " " " " | 11 | 14 | 11 | 12" 35 63 91 8'-7" | 3 " | 4 " |
| | | | #4 @ 10' | 8' | 25 53 82 11'-1" | 16 10'-1" 3'-1" | 23 51 81 12'-4" 11'-0" | 18 11'-2" 3'-2" 10'-6" 2'-6" | 11 | 16 | 11 | 12" 35 63 91 9'-7" | 3 15'-7" | 4 17'-9" |
| | | | | 9' | 25 53 82 11'-3" | 16 10'-3" 3'-3" | 23 51 79 12'-6" 11'-2" | 18 11'-4" 3'-4" 10'-8" 2'-8" | 11 | 18 | 11 | 12" 35 63 91 10'-7" | 3 15'-10" | 4 18'-0" |
| | | | | 10' | 25 53 82 11'-5" | 16 10'-5" 3'-5" | 23 51 79 12'-8" 11'-4" | 18 11'-6" 3'-6" 10'-10" 2'-10" | 11 | 20 | 11 | 10" 41 75 109 11'-7" | 3 16'-1" | 4 18'-3" |
| | | | | 11' | 25 53 82 11'-7" | 16 10'-7" 3'-7" | 23 51 79 12'-10" 11'-6" | 18 11'-8" 3'-8" 11'-0" 3'-0" | 11 | 22 | 11 | 12" 35 63 91 12'-7" | 3 16'-4" | 4 18'-5" |
| | | | | 12' | 25 53 82 11'-9" | 18 10'-9" 3'-9" | 23 51 79 13'-0" 11'-8" | 18 11'-10" 3'-10" 11'-2" 3'-2" | 11 | 24 | 11 | 10" 38 69 99 13'-7" | 3 16'-7" | 4 18'-8" |

These bars are in the skewed portion of barrel only. The length of "a" bars and overall length "X" of "b" bars vary by 1'-0" for 12" spacing and 0'-11" for 11" spacing.

Lengths Vary - Average Length; 2:1 = 18'-7", 3:1 = 32'-9", 4:1 = 44'-10"

Lengths Vary - Average Length; 2:1 = 19'-11", 3:1 = 34'-1", 4:1 = 48'-2"

Designed by:- W.C.H. 9-5-62. Checked by:- R.H.S. 11-8-62
Drawn by:- W.C.H. 8-10-64. Checked by:-
Quantities by:- W.C.H. 10-22-64. Checked by:-

| MAX. DESIGN DEPTH OF COVER | BARREL DIMENSIONS: CLEAR SPANS | CLEAR HEIGHT | OVERALL WIDTH | THICKNESS OF TOP SLAB | THICKNESS OF SIDEWALLS | THICKNESS OF BOTTOM SLAB | OVERALL HEIGHT | ROADWAY LENGTH | LENGTH OF HEADWALL | * QUANTITIES - ONE SECTION "A": CLASS S CONCRETE, BARREL ONLY 2:1 | 3:1 | 4:1 | REINFORCING STEEL, BARREL, APRON AND HEADWALL 2:1 | 3:1 | 4:1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | S | H | A | OW | T | C | B | OH | PL | K | CU.YD. | CU.YD. | CU.YD. | LB. | LB. | LB |
| SECTION "A" = 10'-0" | 4 @ 4' | 2' | 8'-5'-0" | 6½" | | 6" | 6½" | 3'-1" | 7'-0⅞" | 9'-0⅞" | 4.67 | 8.56 | 12.94 | 555 | 931 | 1321 |
| | | 3' | 12' | 5'-0" | | 6" | | 4'-1" | " | " | 5.30 | 9.71 | 14.12 | 998 | 1017 | 1496 |
| | | 4' | 16' | 5'-0" | | 6" | | 5'-1" | " | " | 5.93 | 10.86 | 15.79 | 641 | 1103 | 1571 |
| | | 5' | 20' | 5'-0" | | 6" | | 6'-1" | " | " | 6.56 | 12.01 | 17.47 | 680 | 1189 | 1694 |
| | | 6' | 24' | 5'-2" | | 7" | | 7'-1" | 7'-3⅝" | 9'-3⅝" | 7.94 | 14.54 | 21.18 | 747 | 1282 | 1893 |
| | 1 @ 5' | 3' | 15' | 6'-0" | | 6" | | 4'-2" | 8'-5⅝" | 10'-5⅝" | 6.29 | 11.52 | 16.74 | 867 | 1985 | 2106 |
| | | 4' | 20' | 6'-0" | | 6" | | 5'-2" | " | " | 6.92 | 12.67 | 18.42 | 915 | 1571 | 2216 |
| | | 5' | 25' | 6'-0" | 7" | 6" | 7" | 6'-2" | " | " | 7.55 | 13.82 | 20.09 | 969 | 1657 | 2341 |
| | | 6' | 30' | 6'-2" | | 7" | | 7'-2" | 8'-8⅝" | 10'-8⅝" | 8.94 | 16.37 | 23.80 | 1026 | 1755 | 2515 |
| | | 7' | 35' | 6'-3" | | 7½" | | 8'-2" | 8'-10⅝" | 10'-10⅝" | 10.10 | 18.49 | 26.88 | 1114 | 1917 | 2755 |
| | 1 @ 6' | 3' | 18' | 7'-0" | | 6" | | 4'-3" | 9'-10⅝" | 11'-10⅝" | 7.40 | 13.54 | 19.68 | 1108 | 1922 | 2729 |
| | | 4' | 24' | 7'-0" | | 6" | | 5'-3" | " | " | 8.02 | 14.69 | 21.36 | 1156 | 2008 | 2859 |
| | | 5' | 30' | 7'-0" | 7½" | 6" | 7½" | 6'-3" | " | " | 8.65 | 15.84 | 23.03 | 1205 | 2094 | 2979 |
| | | 6' | 36' | 7'-2" | | 7" | | 7'-3" | 10'-1⅝" | 12'-1⅝" | 10.05 | 18.39 | 26.74 | 1271 | 2187 | 3146 |
| | | 7' | 42' | 7'-3" | | 7½" | | 8'-3" | 10'-3" | 12'-3" | 11.22 | 20.54 | 29.86 | 1361 | 2352 | 3389 |
| | | 8' | 48' | 7'-6" | | 8" | | 9'-3" | 10'-9⅝" | 12'-9⅝" | 12.50 | 22.88 | 33.26 | 1532 | 2657 | 3836 |
| | 1 @ 7' | 4' | 28' | 8'-0" | | 6" | | 5'-4" | 11'-3⅝" | 13'-3⅝" | 9.45 | 17.30 | 25.13 | 1339 | 2275 | 3214 |
| | | 5' | 35' | 8'-0" | | 6" | | 6'-4" | " | " | 10.08 | 18.46 | 26.83 | 1387 | 2361 | 3339 |
| | | 6' | 42' | 8'-2" | | 7" | 8" | 7'-4" | 11'-6⅝" | 13'-6⅝" | 11.98 | 21.01 | 30.54 | 1455 | 2443 | 3508 |
| | | 7' | 49' | 8'-3" | | 7½" | 8½" | 8'-4" | 11'-8" | 13'-8" | 12.65 | 23.16 | 33.67 | 1530 | 2597 | 3698 |
| | | 8' | 56' | 8'-4" | | 8" | | 9'-4" | 11'-9⅝" | 13'-9⅝" | 13.92 | 25.49 | 37.06 | 1623 | 2812 | 4044 |
| | | 9' | 63' | 8'-6" | | 9" | | 10'-4" | 12'-0⅝" | 14'-0⅝" | 15.86 | 29.04 | 42.22 | 1803 | 3094 | 4391 |
| | 1 @ 8' | 4' | 32' | 9'-0" | | 6" | | 5'-6" | 12'-8⅝" | 14'-8⅝" | 11.02 | 20.17 | 29.32 | 1643 | 2749 | 3815 |
| | | 5' | 40' | 9'-2" | | 7" | | 6'-6" | 12'-11⅝" | 14'-11⅝" | 12.33 | 22.57 | 32.81 | 1711 | 2859 | 4088 |
| | | 6' | 48' | 9'-2" | | 7" | | 7'-6" | " | " | 13.07 | 23.94 | 34.80 | 1759 | 2945 | 4213 |
| | | 7' | 56' | 9'-3" | 8½" | 7½" | 9½" | 8'-6" | 13'-1" | 15'-1" | 14.85 | 26.08 | 37.92 | 1820 | 3049 | 4364 |
| | | 8' | 64' | 9'-6" | | 8" | | 9'-6" | 13'-2⅝" | 15'-2⅝" | 15.54 | 28.45 | 41.36 | 2001 | 3372 | 4830 |
| | | 9' | 72' | 9'-6" | | 9" | | 10'-6" | 13'-5⅝" | 15'-5⅝" | 17.98 | 32.00 | 46.52 | 2117 | 3582 | 5095 |
| | | 10' | 80' | 9'-8" | | 10" | | 11'-6" | 13'-8" | 15'-8" | 19.62 | 35.38 | 52.22 | 2293 | 3814 | 5440 |
| | 1 @ 9' | 5' | 45' | 10'-2" | | 7" | | 6'-8" | 14'-3⅝" | 16'-3⅝" | 14.35 | 26.27 | 38.19 | 2228 | 3793 | 5398 |
| | | 6' | 54' | 10'-3" | | 7½" | | 7'-8" | 14'-6" | 16'-6" | 15.97 | 28.32 | 41.18 | 2291 | 3903 | 5556 |
| | | 7' | 63' | 10'-3" | | 7½" | | 8'-8" | " | " | 16.27 | 29.78 | 43.30 | 2333 | 3989 | 5681 |
| | | 8' | 72' | 10'-4" | 9½" | 8" | 10½" | 9'-8" | 14'-7⅝" | 16'-7⅝" | 17.54 | 32.15 | 46.74 | 2525 | 4321 | 6160 |
| | | 9' | 81' | 10'-6" | | 9" | | 10'-9" | 14'-10⅝" | 16'-10⅝" | 19.52 | 35.78 | 51.95 | 2642 | 4556 | 6486 |
| | | 10' | 90' | 10'-8" | | 10" | | 11'-8" | 15'-1" | 17'-1" | 21.69 | 39.72 | 57.74 | 2809 | 4809 | 6808 |
| | | 11' | 99' | 10'-10" | | 11" | | 12'-8" | 15'-3⅝" | 17'-3⅝" | 24.07 | 44.07 | 64.07 | 3012 | 5134 | 7321 |
| | 1 @ 10' | 5' | 50' | 11'-2" | | 7" | | 6'-10" | 15'-9⅝" | 17'-9⅝" | 16.56 | 30.32 | 44.07 | 2505 | 4252 | 6096 |
| | | 6' | 60' | 11'-3" | | 7½" | | 7'-10" | 15'-11" | 17'-11" | 17.71 | 32.43 | 47.15 | 2569 | 4263 | 6257 |
| | | 7' | 70' | 11'-3" | | 7½" | | 8'-10" | " | " | 18.50 | 33.86 | 49.23 | 2635 | 4484 | 6428 |
| | | 8' | 80' | 11'-4" | 10½" | 8" | 11½" | 9'-10" | 16'-0⅝" | 18'-0⅝" | 19.81 | 36.26 | 52.72 | 2807 | 4787 | 6869 |
| | | 9' | 90' | 11'-6" | | 9" | | 10'-10" | 16'-3⅝" | 18'-3⅝" | 21.78 | 39.87 | 57.97 | 2901 | 4948 | 7098 |
| | | 10' | 100' | 11'-8" | | 10" | | 11'-10" | 16'-6" | 18'-6" | 23.95 | 43.86 | 63.76 | 3077 | 5264 | 7506 |
| | | 11' | 110' | 11'-10" | | 11" | | 12'-10" | 16'-9⅝" | 18'-9⅝" | 26.33 | 48.29 | 70.19 | 3258 | 5497 | 8098 |
| | | 12' | 120' | 12'-0" | | 12" | | 13'-10" | 16'-11⅝" | 18'-11⅝" | 28.97 | 53.09 | 77.11 | 3424 | 5957 | 8480 |

* For remainder of quantities see Std. Wing and Barrel Drawings listed below. Total steel quantities listed above include one lap of longitudinal bars, plus an add'l lap for 4:1 slopes.

| BAR SIZE | PIN DIAM. | K | ADD FOR 2 HOOKS | BENDING DIAGRAM FOR BARS "b" |
|---|---|---|---|---|
| #4 | 2" | 4" | 0'-10⅛" | K, Pin diam, X |
| #5 | 2½" | 4⅝" | 0'-11⅞" | |
| #6 | 3" | 5" | 1'-2" | |
| #7 | 3½" | 5⅝" | 1'-4" | |

NOTE:- Dimensions are to centers of bars. ("b" and "b₁")

| BAR SIZE | PIN DIAM. | K | ADD FOR 1 HOOK | BENDING DIAGRAM FOR BARS "b₁" |
|---|---|---|---|---|
| #4 | 2" | 4" | 0'-5⅝" | K, Pin diam, X |
| #5 | 2½" | 4⅝" | 0'-5¾" | |
| #6 | 3" | 5" | 0'-7" | |
| #7 | 3½" | 5⅝" | 0'-8" | |

DOWEL BARS FOR ONE HEADWALL

| SPAN | SIZE | SPACING | No. REQ'D | LENGTH | X |
|---|---|---|---|---|---|
| 4' | #4 | 12" | 8 | 2'-5" | 1'-2½" |
| 5' | #4 | 12" | 9 | 2'-6" | 1'-3" |
| 6' | #4 | 12" | 11 | 2'-7" | 1'-3¾" |
| 7' | #4 | 12" | 12 | 2'-8" | 1'-4" |
| 8' | #4 | 12" | 14 | 2'-10" | 1'-5" |
| 9' | #4 | 12" | 15 | 3'-0" | 1'-6" |
| 10' | #4 | 12" | 17 | 3'-2" | 1'-7" |

Dowel bars "X" in One Headwall

To longitudinal bars of 4:1 slopes add one splice for each "d", "d₁" and "e" bar. (1'-3" lap).

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

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

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.
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.

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X452-1 or W-X452-2; W-X453-1 or W-X453-2, and W-X454-1 or W-X454-2. Also W-X45.
For Barrels of 4', 5' & 6' Spans, See Drawing No. R-100X-X.1.
For Barrels of 7', 8', 9' & 10' Spans, See Drawing No. R-100X-X.2.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

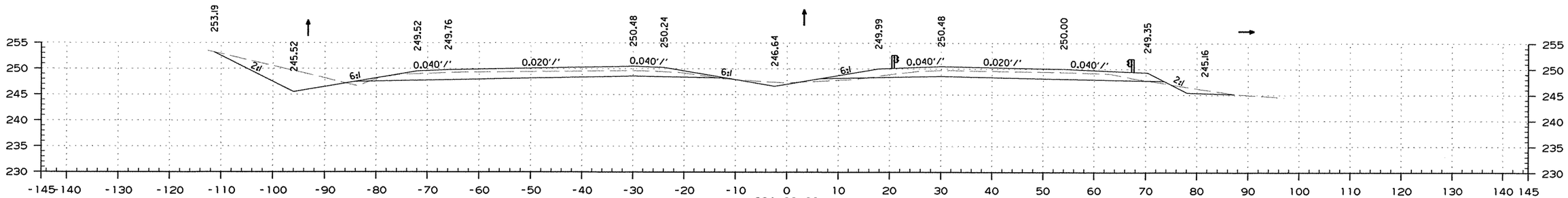
DETAILS OF STANDARD BARREL SECTIONS
FOR
REINFORCED CONCRETE BOX CULVERTS
45° SKEW SECTIONS "A" ONLY

4', 5', 6', 7', 8', 9' & 10' SPANS SINGLES
2:1, 3:1 OR 4:1 SLOPES OVER 5'-0" COVER

STANDARD DRAWING No. R-145X-1

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 212 | 219 |

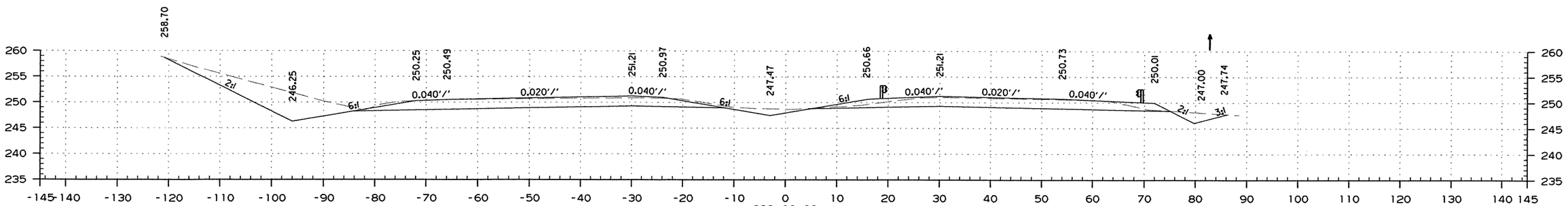
## (2) CROSS SECTIONS




AREA CUT 189
AREA FILL 12

384+00.00

CUT VOLUME 954
FILL VOLUME 23

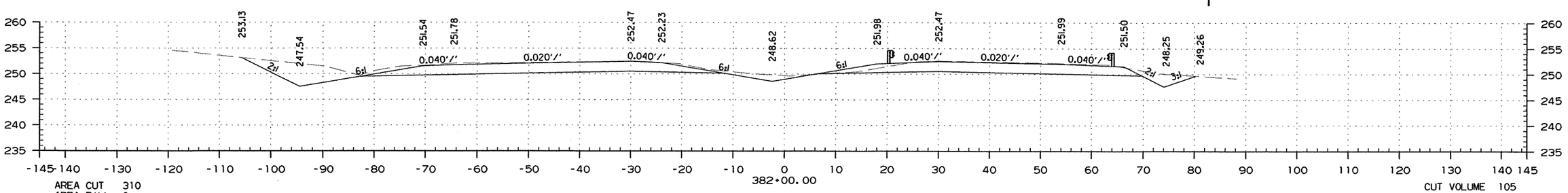



AREA CUT 326
AREA FILL 0

383+00.00

CUT VOLUME 1178
FILL VOLUME 0

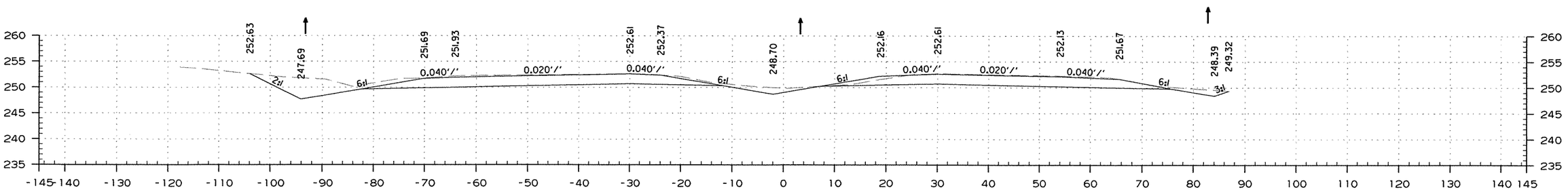
+37.97 BEGIN GUARDRAIL WIDENING




AREA CUT 310
AREA FILL 0

382+00.00

CUT VOLUME 105
FILL VOLUME 0




AREA CUT 306
AREA FILL 0

+38.97 BEGIN GUARDRAIL WIDENING

+70.97 BEGIN GUARDRAIL WIDENING

CUT VOLUME 0
FILL VOLUME 0

STA. 381+90.00
BEGIN I-530 PROFILE GRADE

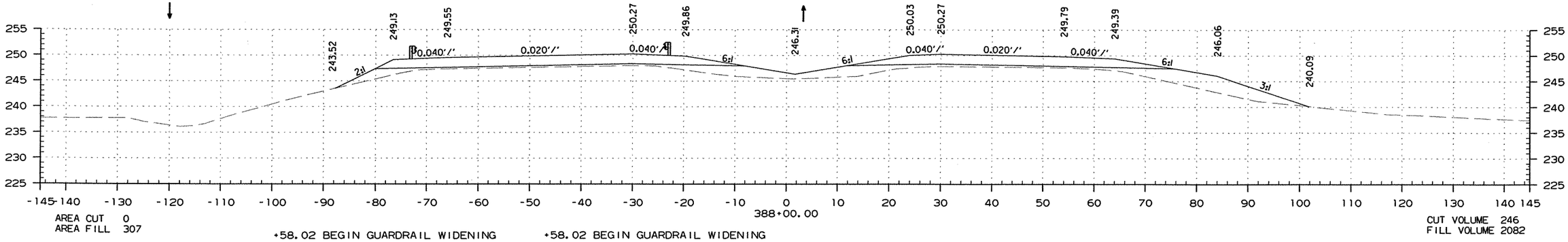
STA. 381+90.00 TO STA. 384+00.00

10/8/2012

RBB0614.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. | | BB0614 | 213 | 219 |

(2) CROSS SECTIONS




AREA CUT 0
AREA FILL 307

CUT VOLUME 246
FILL VOLUME 2082

+58.02 BEGIN GUARDRAIL WIDENING

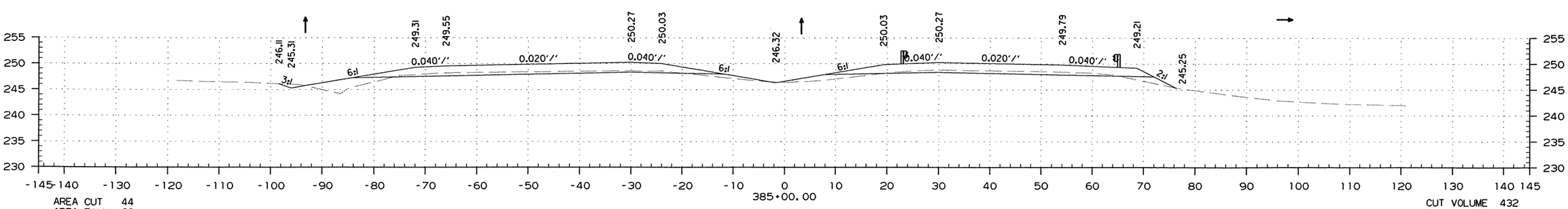
+58.02 BEGIN GUARDRAIL WIDENING

BRIDGE END 387+49.62
TOE OF SLOPE 387+19.62

TOE OF SLOPE 385+97.87
BRIDGE END 385+66.12

+57.72 END GUARDRAIL WIDENING

+57.72 END GUARDRAIL WIDENING




AREA CUT 44
AREA FILL 68

CUT VOLUME 432
FILL VOLUME 148

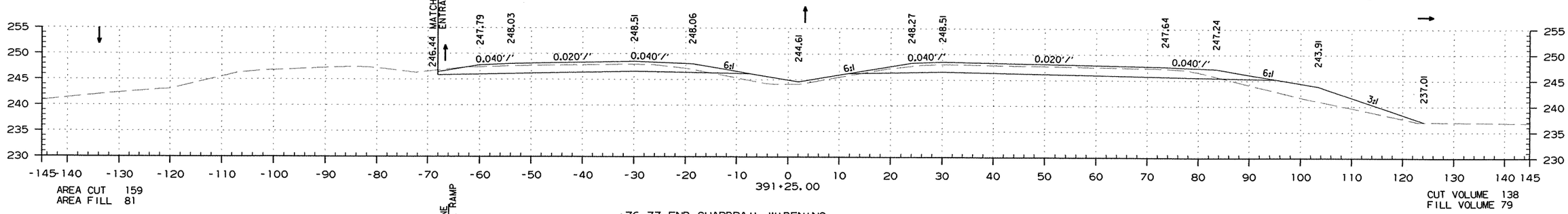
STA. 385+00.00 TO STA. 388+00.00

10/8/2012

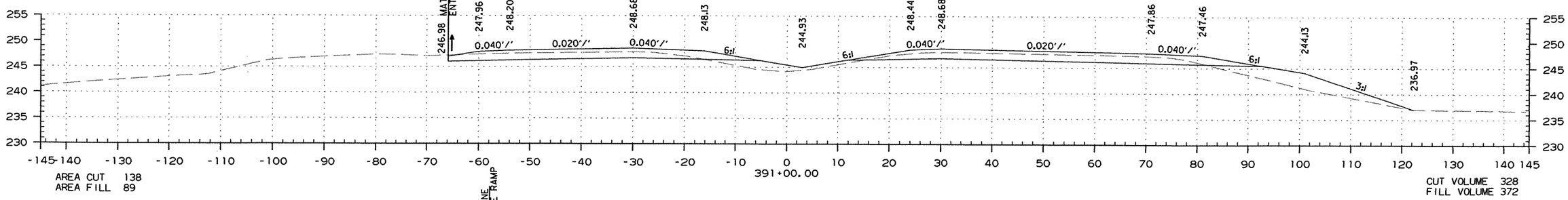
RBB0614.DGN

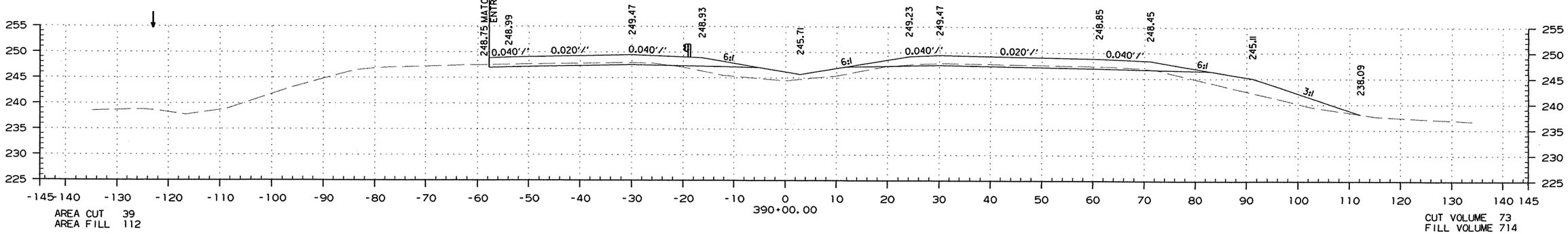
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 214 | 219 |

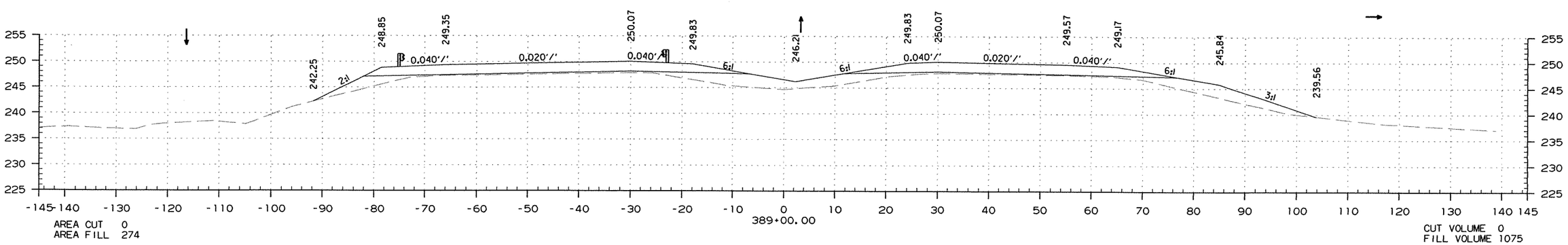
## (2) CROSS SECTIONS




+76.77 END GUARDRAIL WIDENING



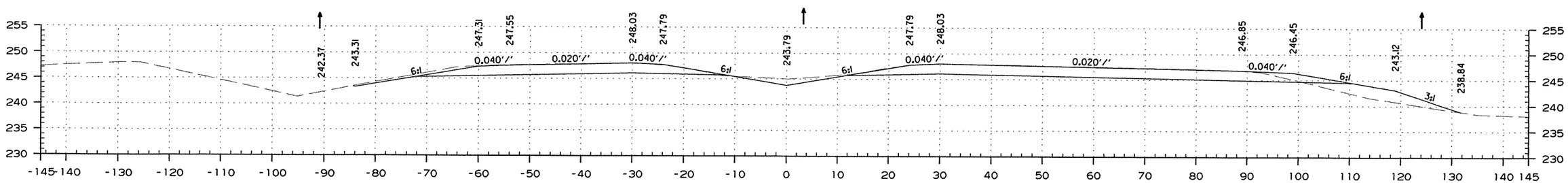

STA. 389+00.00 TO STA. 391+25.00

10/8/2012

RBB0614.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. | | BB0614 | 215 | 219 |

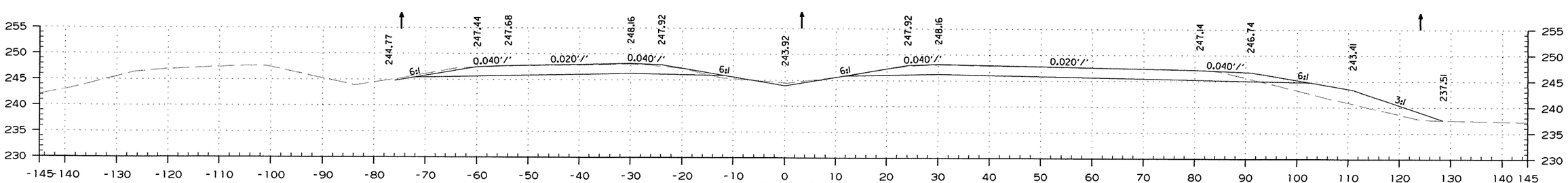
## (2) CROSS SECTIONS




AREA CUT 266
AREA FILL 45

STA. 392+80.00
END I-530 PROFILE GRADE

CUT VOLUME 722
FILL VOLUME 161




AREA CUT 222
AREA FILL 64

392+00.00

CUT VOLUME 530
FILL VOLUME 201

STA. 392+00.00 TO STA. 392+80.00

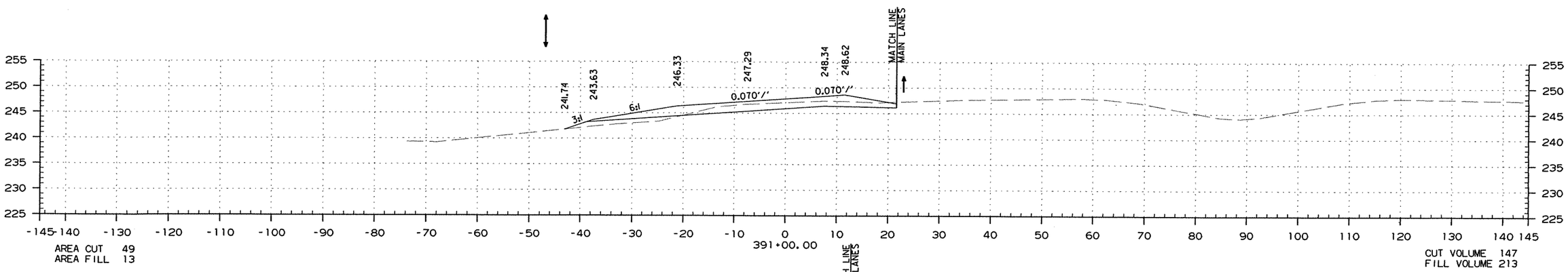
10/8/2012

RBB0614.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. | | BB0614 | 216 | 219 |

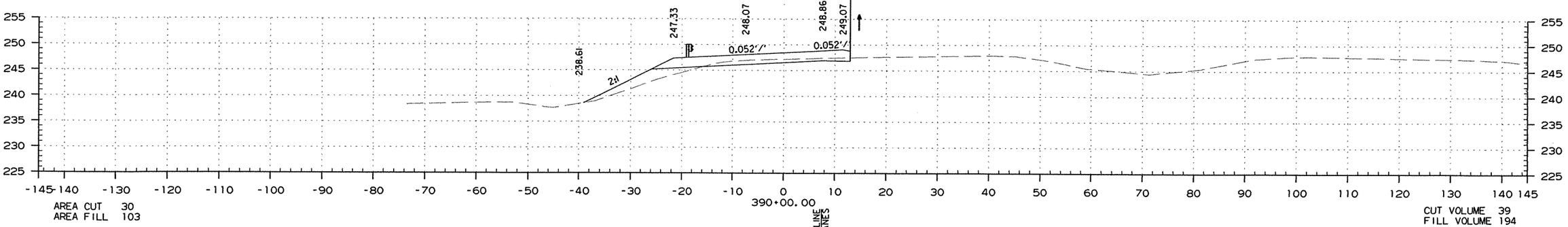
(2) CROSS SECTIONS

+76.77 END GUARDRAIL WIDENING



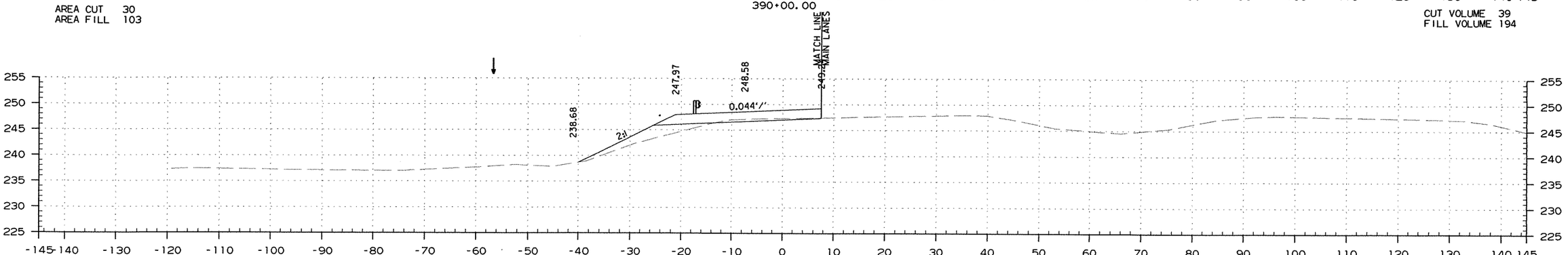

AREA CUT 49
AREA FILL 13

CUT VOLUME 147
FILL VOLUME 213




AREA CUT 30
AREA FILL 103

CUT VOLUME 39
FILL VOLUME 194




AREA CUT 15
AREA FILL 117

STA. 389+52.49
BEGIN BINGHAM RD. RAMP 4

STA. 388+13.10
BEGIN SUPERELEVATION

CUT VOLUME 0
FILL VOLUME 0

STA. 389+52.49 TO STA. 391+00.00

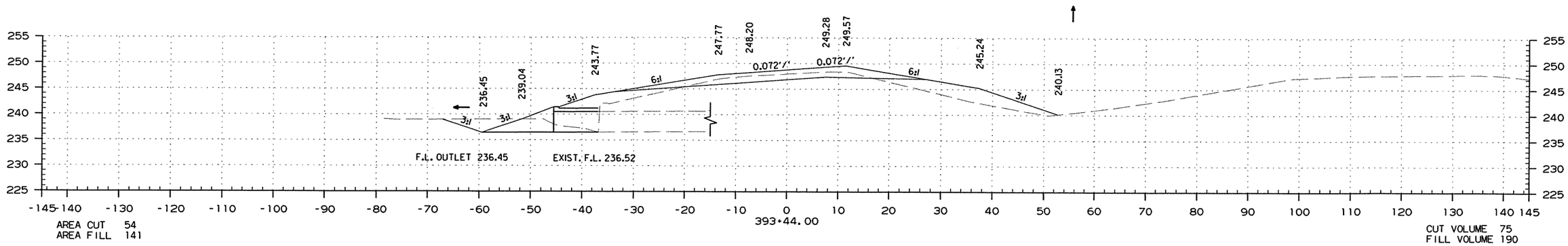
10/8/2012

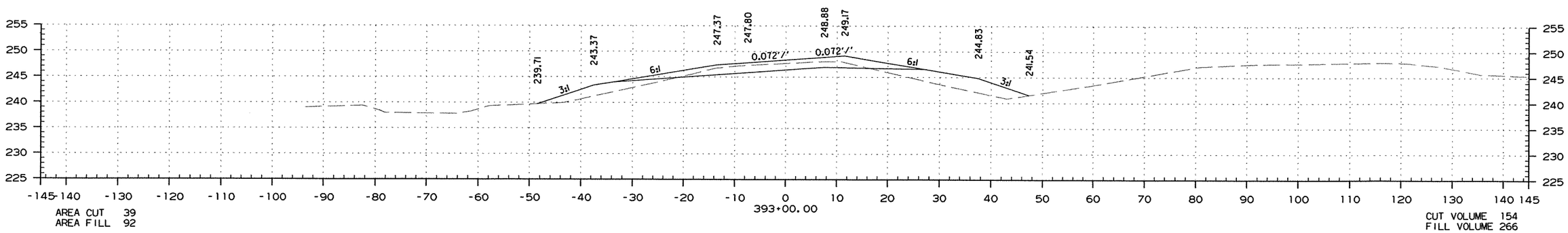
RBB0614.DGN

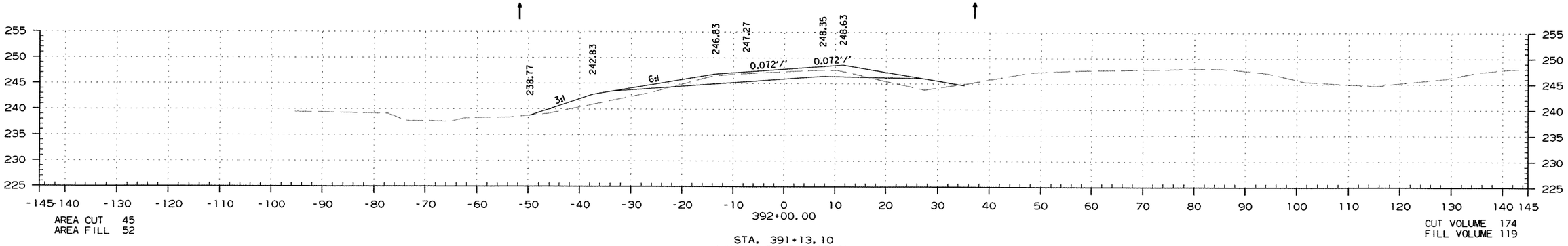
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 217 | 219 |

(2) CROSS SECTIONS

STA3. 393+52.37
MAX. SUPERELEVATION




STA. 391+13.10
MAX. SUPERELEVATION

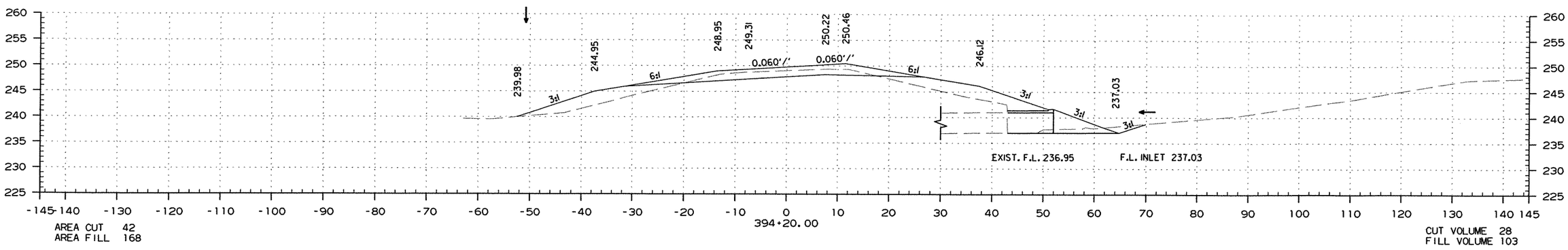
STA. 392+00.00 TO STA. 393+44.00

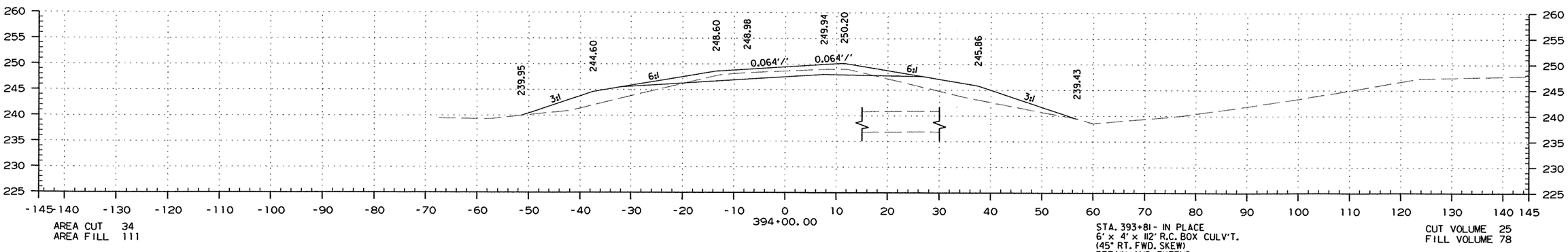
10/8/2012

RBB0614.DGN

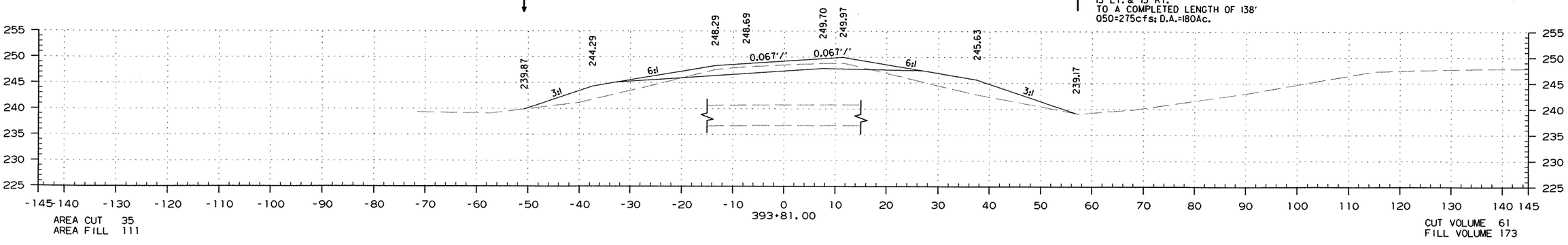
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | BB0614 | 218 | 219 |

(2) CROSS SECTIONS




STA. 393+81- IN PLACE
6' x 4' x 112' R.C. BOX CULV'T.
(45° RT. FWD. SKEW)
RETAIN AND EXTEND
13' LT. & 13' RT.
TO A COMPLETED LENGTH OF 138'
Q50=275cfs; D.A.=180Ac.



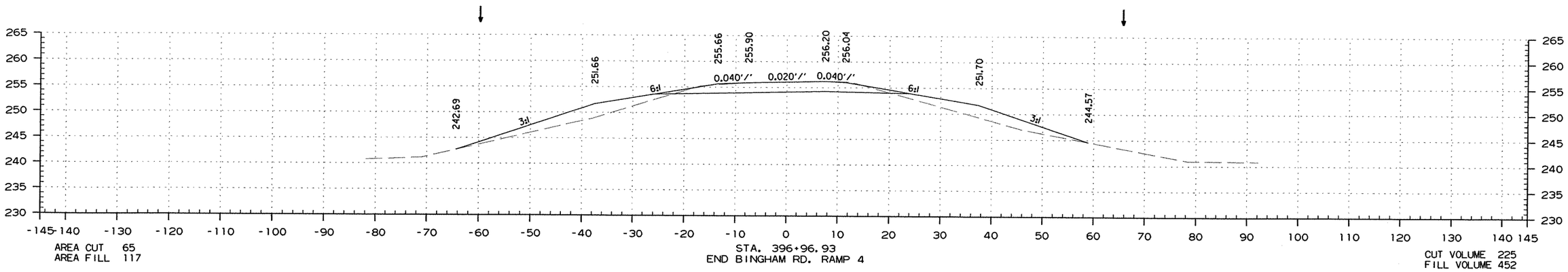

STA. 393+81.00 TO STA. 394+20.00

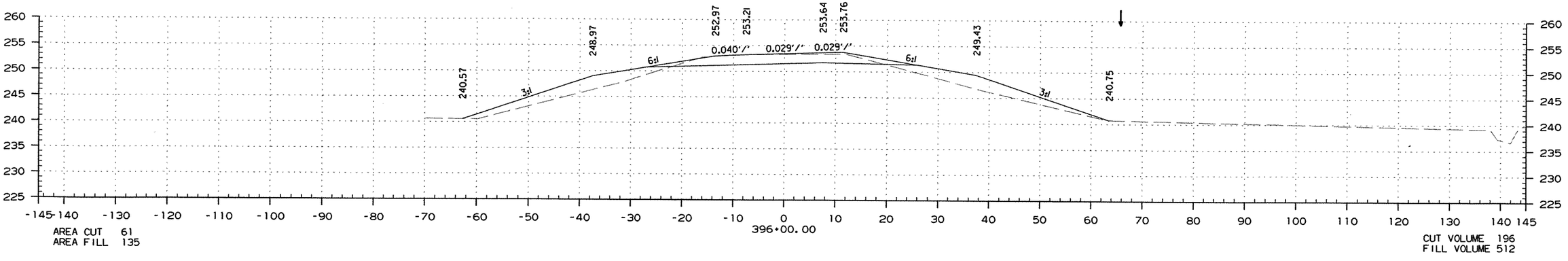
10/8/2012

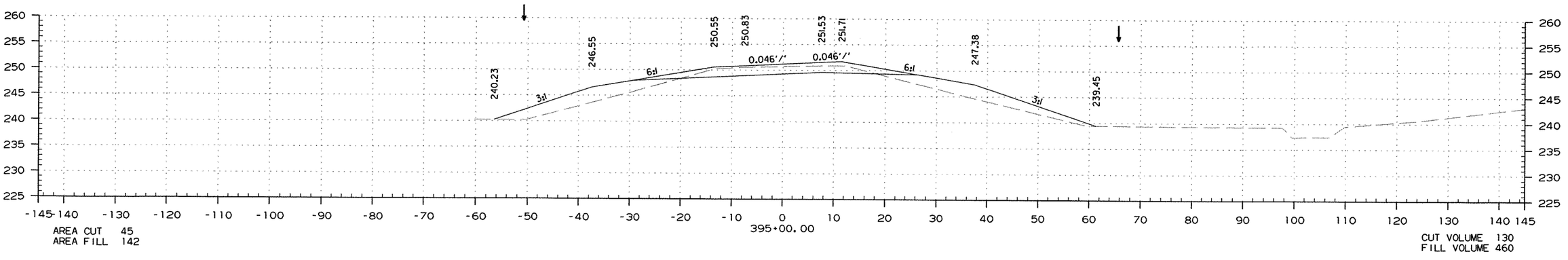
RBB0614.DGN

| 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. | | BB0614 | 219 | 219 |

2 CROSS SECTIONS




STA. 395+00.00 TO STA. 396+96.93

10/8/2012

RBB0614.DGN