

| DATE REVISED | DATE FILED | DATE REVISED | DATE FILED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|------------|--------------|------------|--------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | | 1 | 78 |

② STRAWBERRY RIVER STR. & APPRS. (S)

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

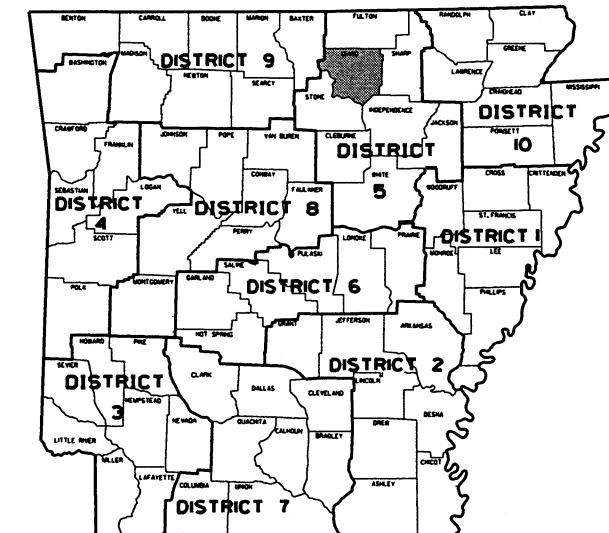
**STRAWBERRY RIVER
STR. & APPRS. (S)**

IZARD COUNTY
ROUTE 56 SECTION 2

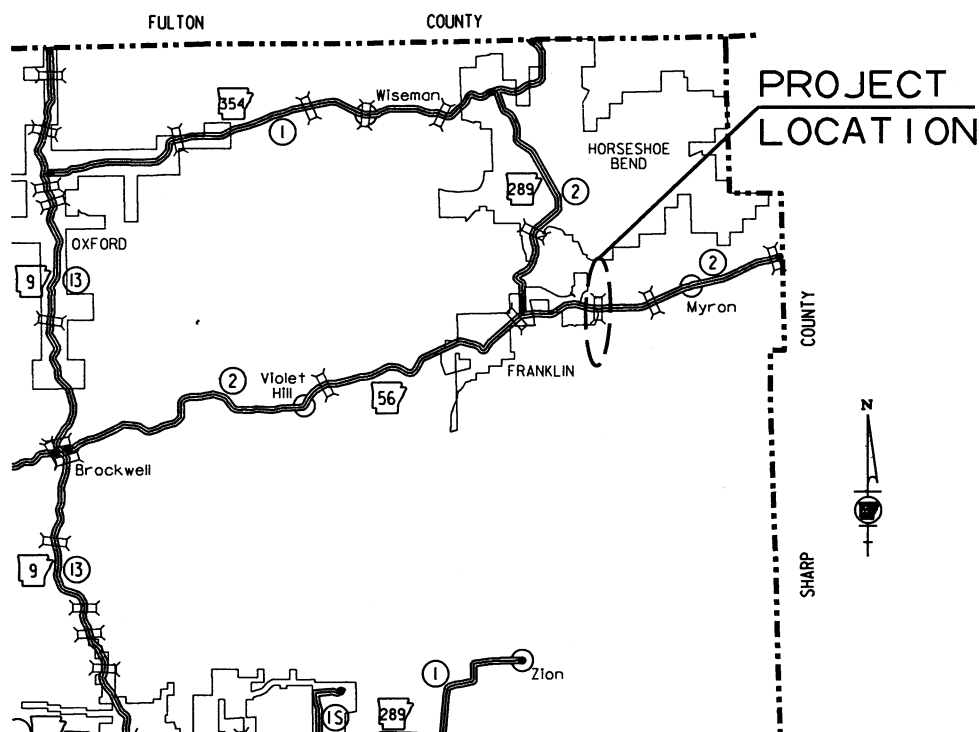
JOB 050321

FED. AID PROJ. NHPP-0033(22)

NOT TO SCALE



ARK. HWY. DIST. NO. 5



VICINITY MAP

DESIGN TRAFFIC DATA

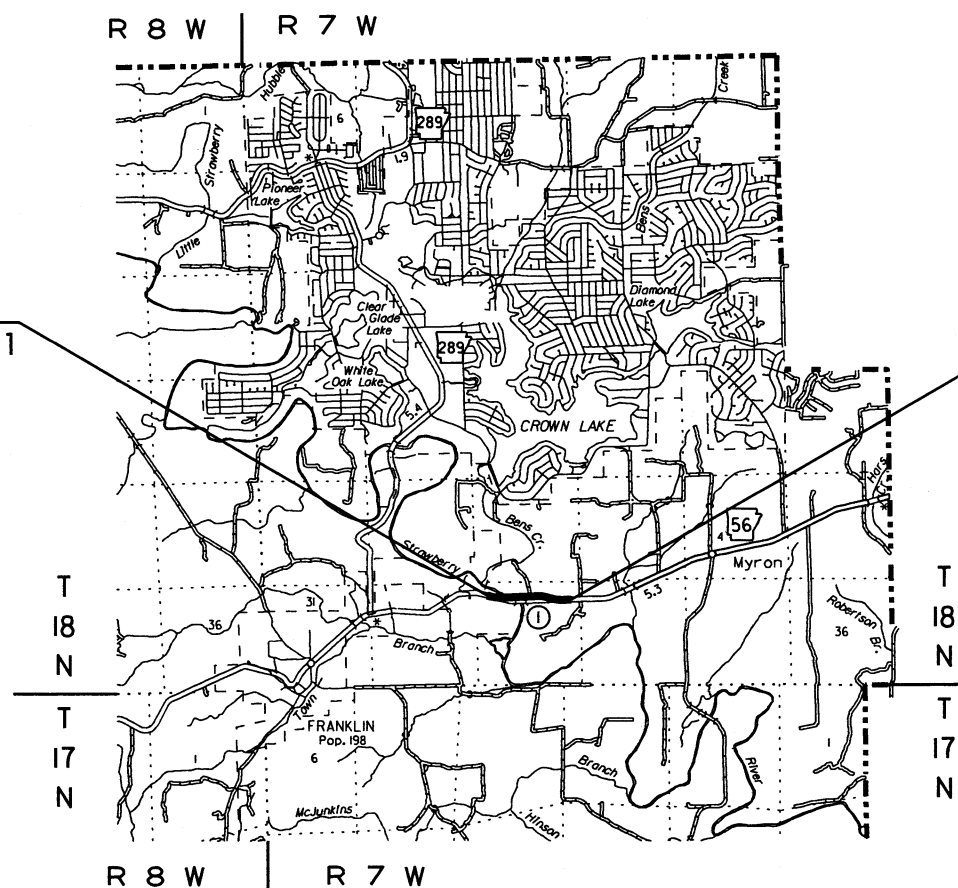
| | | |
|--------------------------|-------|--------|
| DESIGN YEAR | | 2039 |
| 2019 ADT | | 1,200 |
| 2039 ADT | | 1,500 |
| 2039 DHV | | 165 |
| DIRECTIONAL DISTRIBUTION | | 0.60 |
| TRUCKS | | 10% |
| DESIGN SPEED | | 55 MPH |

STA. 101+44.86
BEGIN JOB NO. 050321
LOG MILE 11.71

STA. 125+50.00
END JOB 050321

BRIDGE DATA

- ① STA. 109+83.92 BR. END
BR. NO. 07437
335'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (100', 135', 100')
337'-2" BRIDGE LENGTH
34'-0" CLEAR ROADWAY
STA. 113+21.08 BR. END



APPROVED



8-6-19

DEPUTY DIRECTOR
AND CHIEF ENGINEER

| BEGINNING OF PROJECT | MID POINT OF PROJECT | END OF PROJECT |
|-------------------------|-------------------------|-------------------------|
| LATITUDE = N 36°10'42" | LATITUDE = N 36°10'41" | LATITUDE = N 36°10'41" |
| LONGITUDE = W 91°44'32" | LONGITUDE = W 91°44'18" | LONGITUDE = W 91°44'03" |

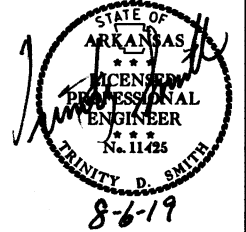
| | | | | | |
|-------------------------|---------|------|----|-------|-------|
| GROSS LENGTH OF PROJECT | 2405.14 | FEET | OR | 0.456 | MILES |
| NET ROADWAY | 2067.98 | | | 0.392 | |
| NET BRIDGES | 337.16 | | | 0.064 | |
| NET PROJECT | 2405.14 | | | 0.456 | |

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| | | | | | | JOB NO. 050321 | 2 | 78 |

INDEX OF SHEETS

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| 46 | DETAILS OF INTERMEDIATE BENTS (SHEET 2 OF 3) | 07437 | 60627 |
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| 53 | DETAILS OF 335'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 2 OF 5) | 07437 | 60634 |
| 54 | DETAILS OF 335'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 3 OF 5) | 07437 | 60635 |
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② INDEX OF SHEETS AND STANDARD DRAWINGS



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

BRIDGE STANDARD DRAWINGS

| DRWG. NO. | TITLE | DATE |
|-----------|---|----------|
| 55000 | STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS | 02-27-14 |
| 55001 | STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES | 02-27-14 |
| 55005 | STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS | 03-24-16 |
| 55006 | STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES | 09-02-15 |
| 55007 | STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES | 02-11-16 |
| 55008 | STANDARD DETAILS FOR Poured SILICONE JOINTS | 02-11-16 |
| 55010 | STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE | 01-15-19 |
| 55020 | STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASMENTS | 03-24-16 |
| 55030C | STANDARD DETAILS FOR TYPE C APPROACH GUTTERS | 02-27-14 |

ROADWAY STANDARD DRAWINGS

| DRWG. NO. | TITLE | DATE |
|-----------|--|----------|
| CDP-1 | CONCRETE DITCH PAVING | 12-08-16 |
| FES-1 | FLARED END SECTION | 10-18-96 |
| FES-2 | FLARED END SECTION | 10-18-96 |
| GR-8 | GUARD RAIL DETAILS | 11-16-17 |
| GR-8A | GUARD RAIL DETAILS | 11-16-17 |
| GR-9 | GUARD RAIL DETAILS | 04-17-08 |
| GR-9A | GUARD RAIL DETAILS | 04-17-08 |
| GR-10 | GUARD RAIL DETAILS | 11-16-17 |
| GR-11 | GUARD RAIL DETAILS | 11-16-17 |
| GR-12 | GUARD RAIL DETAILS | 11-16-17 |
| PCC-1 | CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING | 02-27-14 |
| PCM-1 | METAL PIPE CULVERT FILL HEIGHTS & BEDDING | 02-27-14 |
| PCP-1 | PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE) | 02-27-14 |
| PCP-2 | PLASTIC PIPE CULVERT (PVC F949) | 02-27-14 |
| PM-1 | PAVEMENT MARKING DETAILS | 06-01-17 |
| PU-1 | DETAILS OF PIPE UNDERDRAIN | 12-08-16 |
| SE-2 | TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC | 10-18-96 |
| TC-1 | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION | 04-13-17 |
| TC-2 | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION | 09-02-15 |
| TC-3 | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION | 07-25-19 |
| TC-4 | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER | 02-27-14 |
| TC-5 | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER | 10-15-09 |
| TEC-1 | TEMPORARY EROSION CONTROL DEVICES | 11-16-17 |
| TEC-2 | TEMPORARY EROSION CONTROL DEVICES | 06-02-94 |
| TEC-3 | TEMPORARY EROSION CONTROL DEVICES | 11-03-94 |
| WF-4 | WIRE FENCE TYPE C AND D | 08-22-02 |

GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

| NUMBER | TITLE |
|------------|---|
| ERRATA | ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS |
| FHWA-1273 | REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS |
| FHWA-1273 | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS |
| FHWA-1273 | SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140) |
| FHWA-1273 | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES |
| FHWA-1273 | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS |
| FHWA-1273 | SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS |
| FHWA-1273 | SUPPLEMENT - WAGE RATE DETERMINATION |
| 100-3 | CONTRACTOR'S LICENSE |
| 100-4 | DEPARTMENT NAME CHANGE |
| 102-2 | ISSUANCE OF PROPOSALS |
| 108-1 | LIQUIDATED DAMAGES |
| 108-2 | WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER |
| 110-1 | PROTECTION OF WATER QUALITY AND WETLANDS |
| 303-1 | AGGREGATE BASE COURSE |
| 306-1 | QUALITY CONTROL AND ACCEPTANCE |
| 400-1 | TACK COATS |
| 400-4 | DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES |
| 400-5 | PERCENT AIR VOIDS FOR ACHM MIX DESIGNS |
| 400-6 | LIQUID ANTI-STRIP ADDITIVE |
| 410-1 | CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES |
| 410-2 | DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS |
| 600-2 | INCIDENTAL CONSTRUCTION |
| 604-1 | RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES |
| 605-1 | CONCRETE DITCH PAVING |
| 606-1 | PIPE CULVERTS FOR SIDE DRAINS |
| 617-1 | GUARDRAIL TERMINAL (TYPE 2) |
| 620-1 | MULCH COVER |
| 621-1 | FILTER SOCKS |
| 800-1 | STRUCTURES |
| 802-3 | CONCRETE FOR STRUCTURES |
| 804-2 | REINFORCING STEEL FOR STRUCTURES |
| 808-1 | INSTALLATION OF ELASTOMERIC BEARINGS |
| 808-2 | ELASTOMERIC BEARINGS |
| JOB 050321 | BIDDING REQUIREMENTS AND CONDITIONS |
| JOB 050321 | BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT |
| JOB 050321 | BROADBAND INTERNET SERVICE FOR FIELD OFFICE |
| JOB 050321 | CARGO PREFERENCE ACT REQUIREMENTS |
| JOB 050321 | CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE |
| JOB 050321 | CLEARING AND GRUBBING |
| JOB 050321 | CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS |
| JOB 050321 | DELAY IN RIGHT OF WAY OCCUPANCY |
| JOB 050321 | DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES |
| JOB 050321 | DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES |
| JOB 050321 | DRILLED SHAFT FOUNDATIONS |
| JOB 050321 | EXTENSION FOR PIPE CULVERTS |
| JOB 050321 | GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION |
| JOB 050321 | MANDATORY ELECTRONIC CONTRACT |
| JOB 050321 | MANDATORY ELECTRONIC DOCUMENT SUBMITTAL |
| JOB 050321 | NESTING SITES OF MIGRATORY BIRDS |
| JOB 050321 | NONDESTRUCTIVE TESTING OF DRILLED SHAFTS |
| JOB 050321 | OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS |
| JOB 050321 | PARTNERING REQUIREMENTS |
| JOB 050321 | PLASTIC PIPE |
| JOB 050321 | PRICE ADJUSTMENT FOR ASPHALT BINDER |
| JOB 050321 | SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS |
| JOB 050321 | SHORING FOR CULVERTS |
| JOB 050321 | SOIL STABILIZATION |
| JOB 050321 | SPECIAL CLEARING REQUIREMENTS |
| JOB 050321 | STORM WATER POLLUTION PREVENTION PLAN |
| JOB 050321 | SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS |
| JOB 050321 | UTILITY ADJUSTMENTS |
| JOB 050321 | VALUE ENGINEERING |
| JOB 050321 | VEGETATED BUFFER |
| JOB 050321 | WARM MIX ASPHALT |
| JOB 050321 | WATER POLLUTION CONTROL & RESTRAINING CONDITION |
| JOB 050321 | WELLHEAD PROTECTION |

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| 9-4-19 | | | | 6 | ARK. | | | |
| | | | | | | JOB NO. 050321 | 3 | 78 |

2 GOVERNING SPECIFICATIONS & GENERAL NOTES



GENERAL NOTES

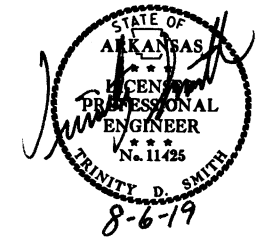
- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- 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.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
- THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- 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.

02/07/2019

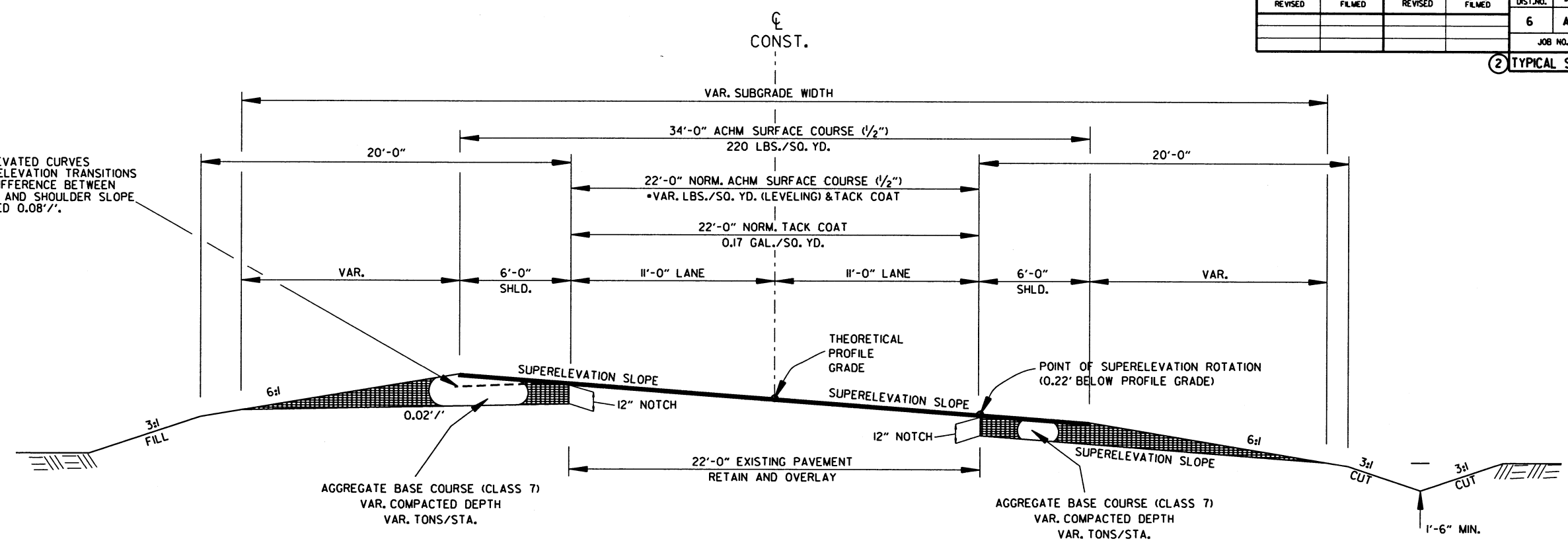
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | | 4 | 78 |

2 TYPICAL SECTIONS OF IMPROVEMENT



NOTE: ON ALL SUPERELEVATED CURVES AND THRU SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08%.



HWY. 56 - NOTCH AND WIDEN SECTION (SUPERELEVATION)
 STA. 101+44.86 TO STA. 103+95.00
 STA. 120+17.00 TO STA. 124+95.17

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

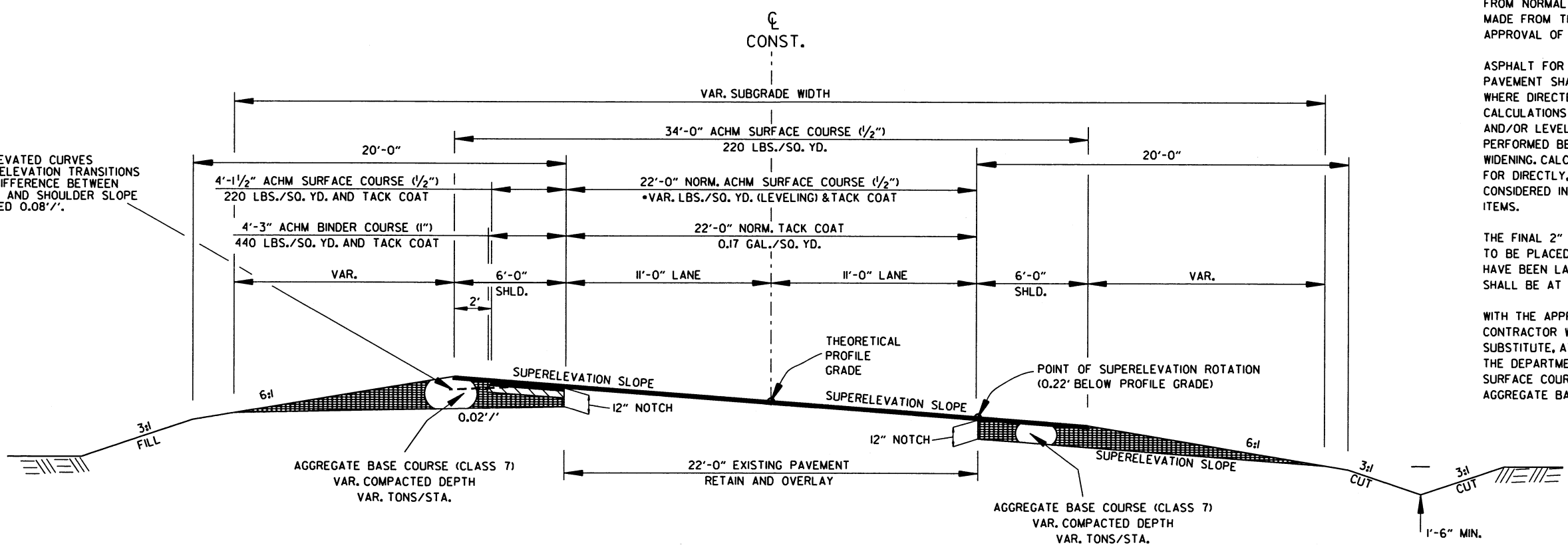
NOTES:
 REFER TO CROSS SECTIONS FOR DEVIATION FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT APPROVAL OF THE ENGINEER.

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

THE FINAL 2" OF SURFACE COURSE IS NOT TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.

WITH THE 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 (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

NOTE: ON ALL SUPERELEVATED CURVES AND THRU SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08%.



HWY. 56 - NOTCH AND WIDEN SECTION (SUPERELEVATION)
 STA. 103+95.00 TO STA. 105+00.00

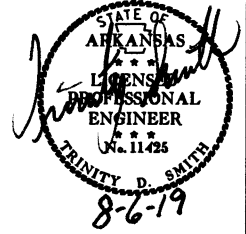
*NOTE: TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

TYPICAL SECTIONS OF IMPROVEMENT

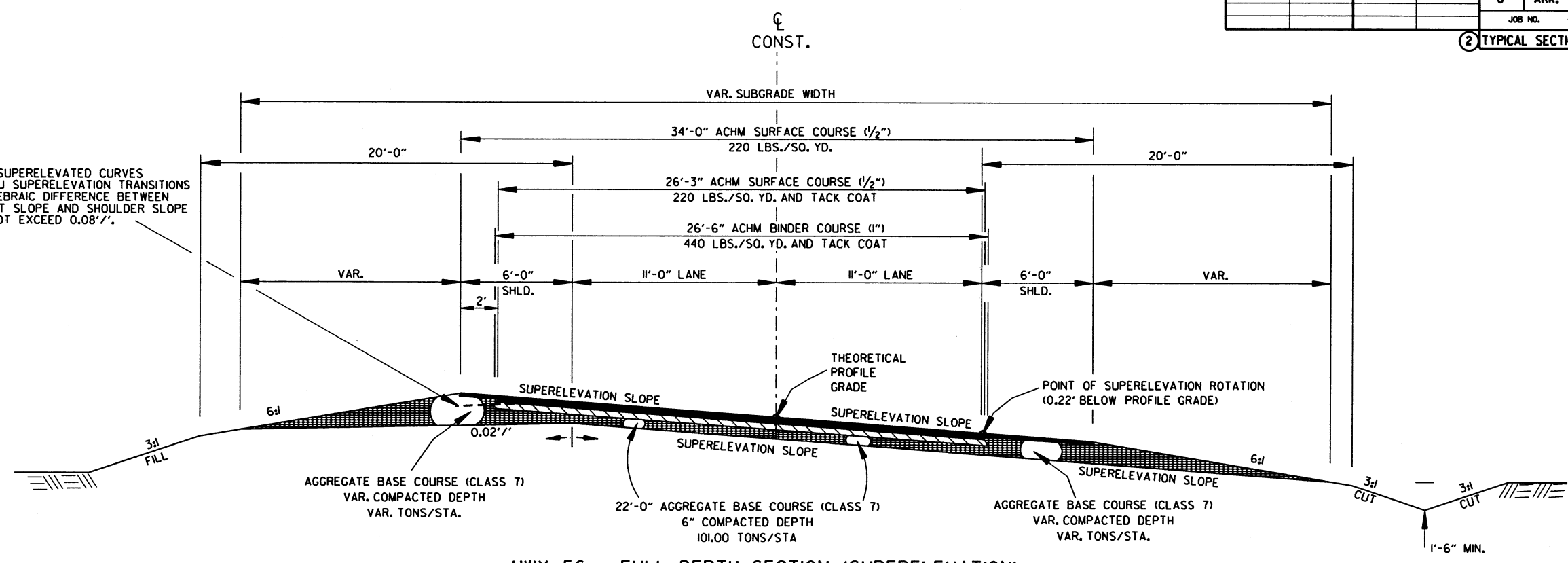
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② TYPICAL SECTIONS OF IMPROVEMENT



NOTE: ON ALL SUPERELEVATED CURVES AND THRU SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.



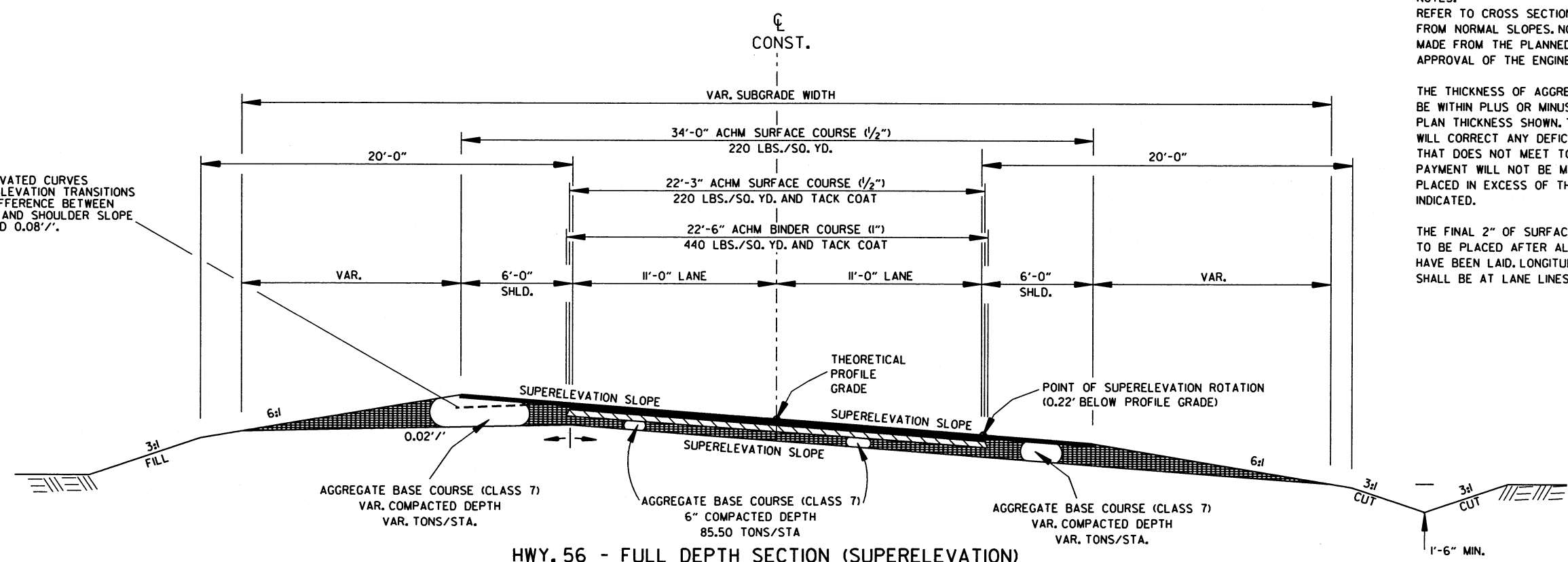
HWY. 56 - FULL DEPTH SECTION (SUPERELEVATION)
STA. 105+00.00 TO STA. 107+45.00

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

THE THICKNESS OF AGGREGATE BASE 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 NOT TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.

NOTE: ON ALL SUPERELEVATED CURVES AND THRU SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.



HWY. 56 - FULL DEPTH SECTION (SUPERELEVATION)
STA. 107+45.00 TO STA. 109+47.42
STA. 115+64.45 TO STA. 120+17.00

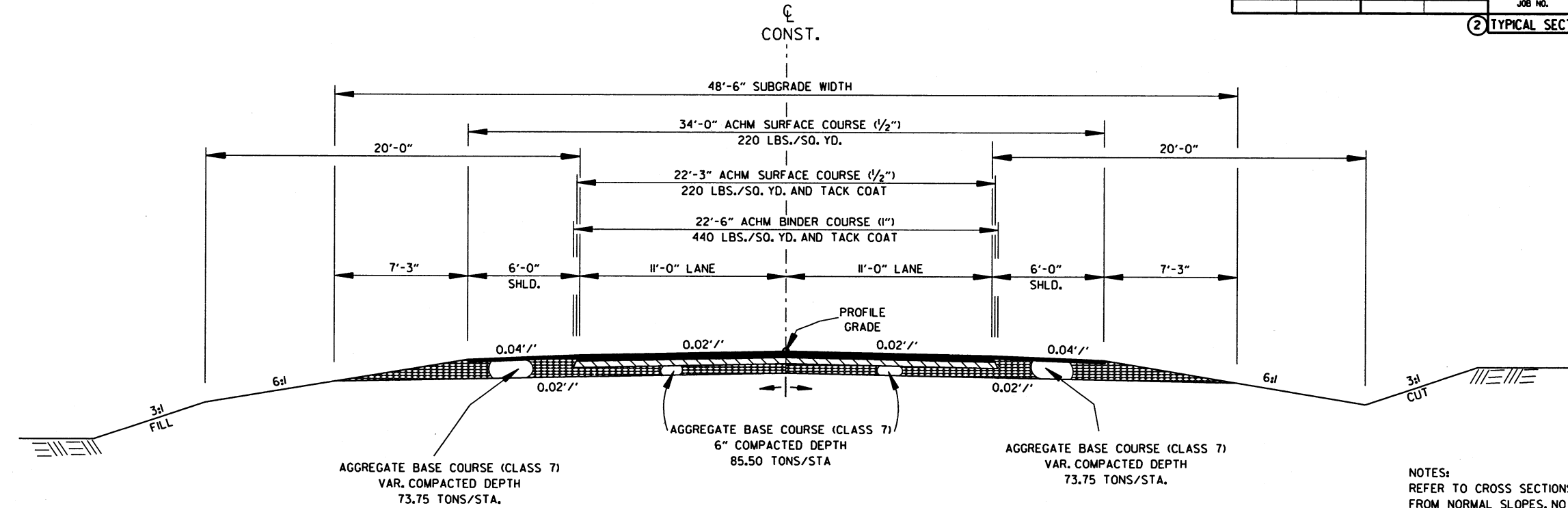
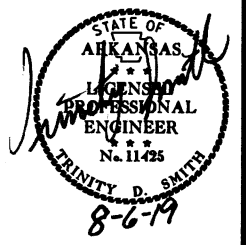
TYPICAL SECTIONS OF IMPROVEMENT

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2 TYPICAL SECTIONS OF IMPROVEMENT



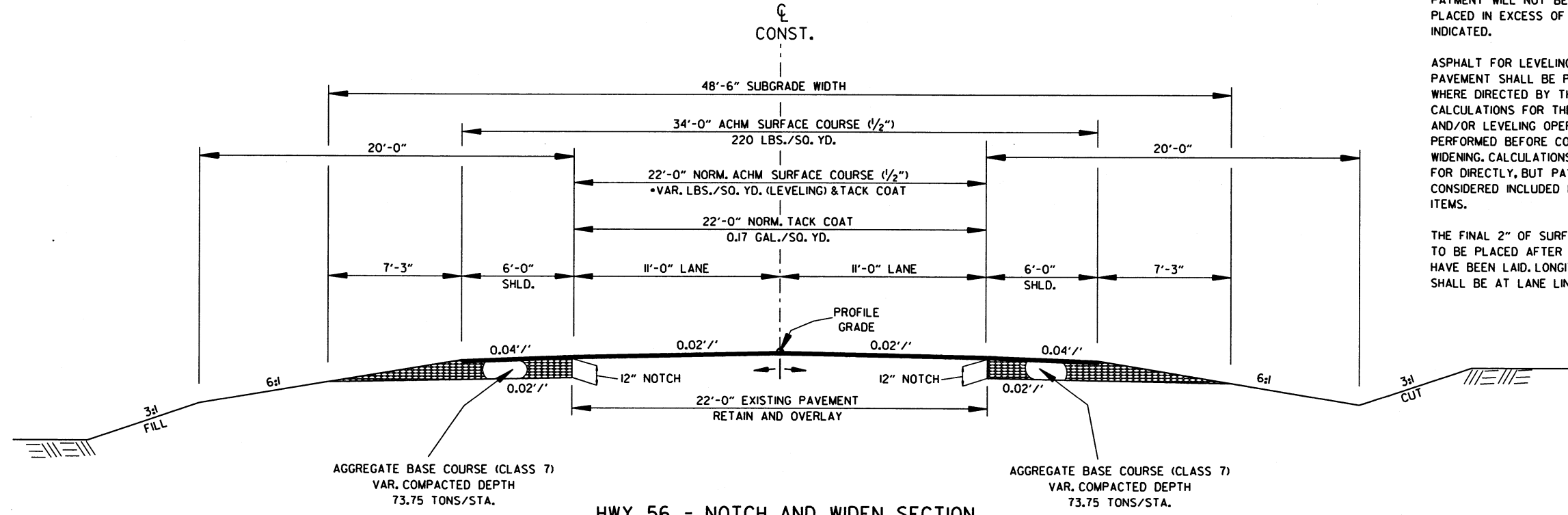
HWY. 56 - FULL DEPTH SECTION
STA. 113+57.58 TO STA. 115+64.45

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

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

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

THE FINAL 2" OF SURFACE COURSE IS NOT TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.



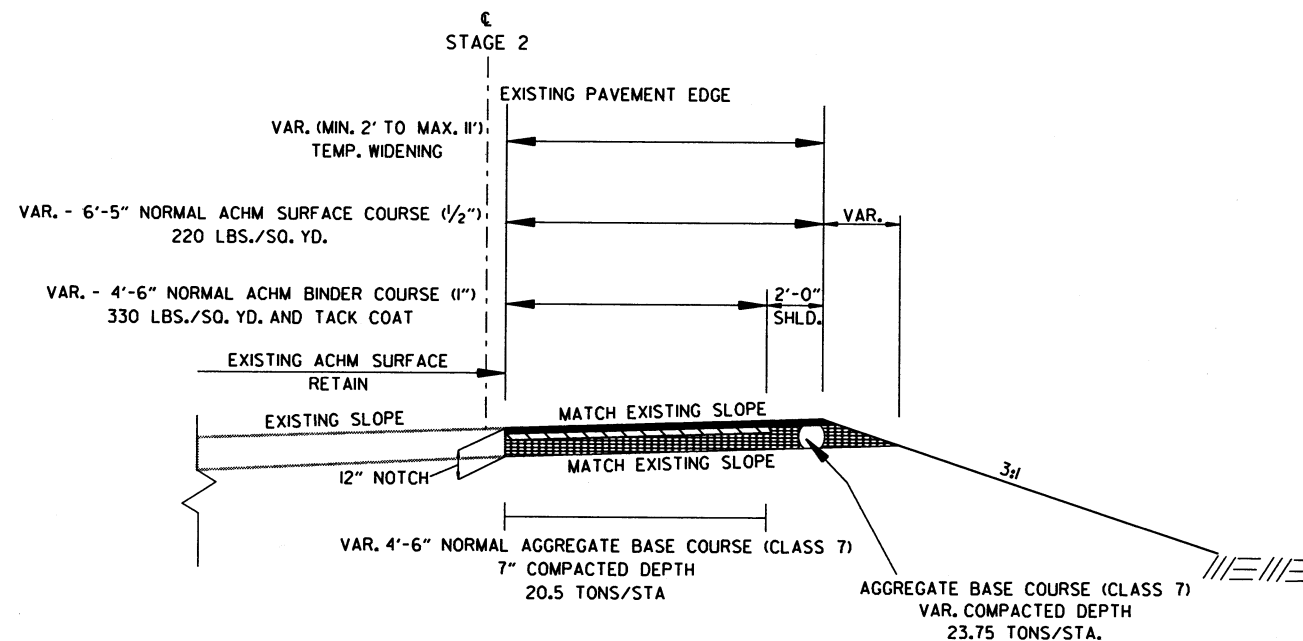
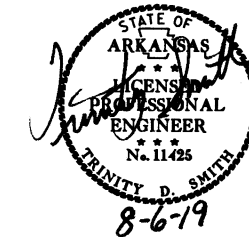
HWY. 56 - NOTCH AND WIDEN SECTION
STA. 124+95.17 TO STA. 126+00.00

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

02/20/2019
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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. | | | | | | 050321 | 7 | 78 |

② TYPICAL SECTIONS OF IMPROVEMENT



EXIST. HWY. 56 RT. SHOULDER TEMPORARY WIDENING
FOR MAINTENANCE OF TRAFFIC-STAGE I CONSTRUCTION
STA. 301+45.00 TO STA. 305+80.00

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

THE THICKNESS OF AGGREGATE BASE 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.

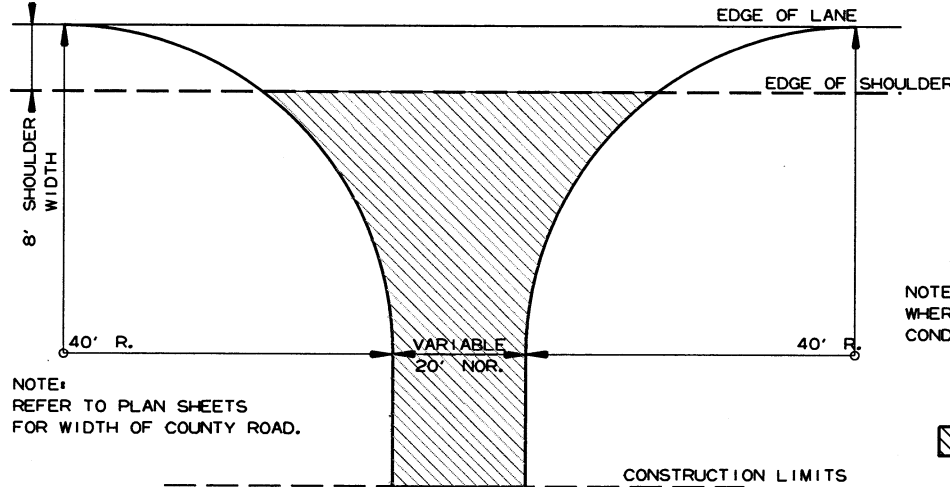
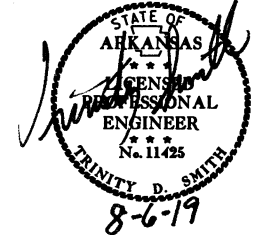
02/20/2019

R050321.DGN

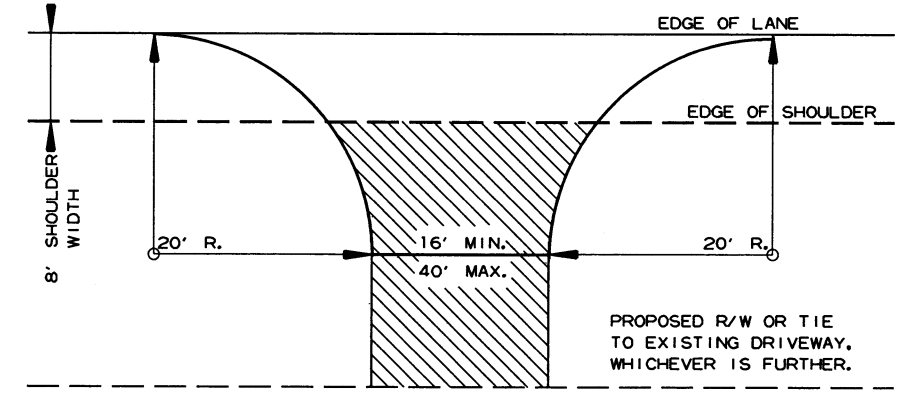
TYPICAL SECTIONS OF IMPROVEMENT

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. PROJ. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|----------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | | 8 | 78 |

2 SPECIAL DETAILS



DETAIL FOR COUNTY ROAD TURNOUTS
OPEN SHOULDER SECTION

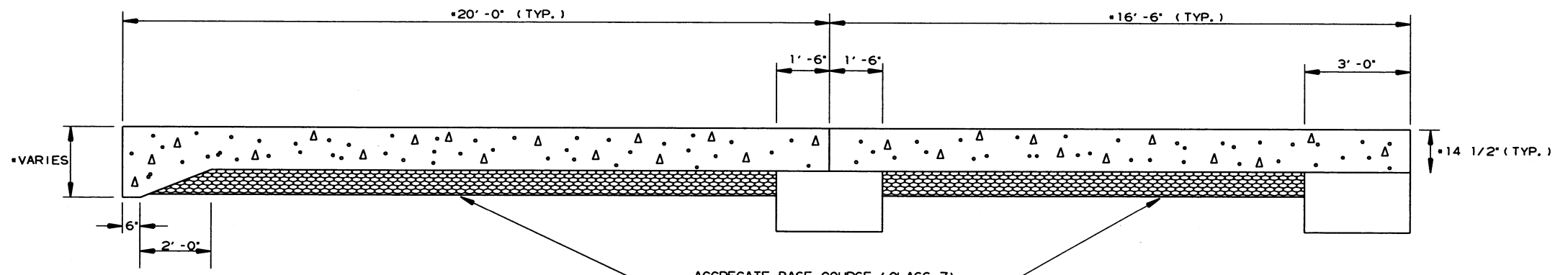


DETAIL FOR DRIVEWAY TURNOUTS
OPEN SHOULDER SECTION

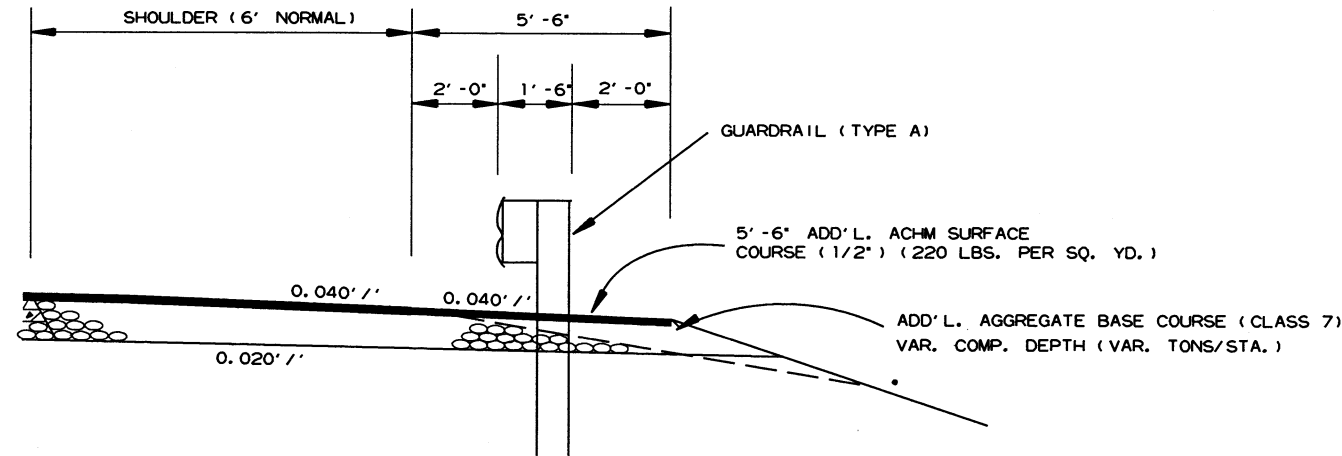
NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

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

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

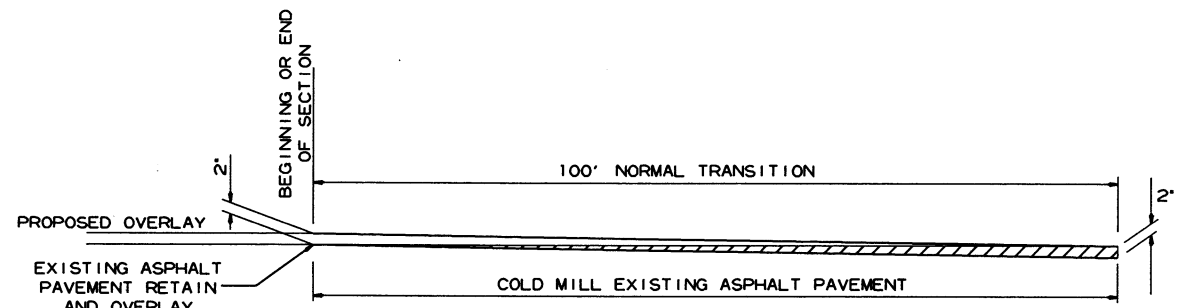


SECTION OF APPROACH SLAB



WIDENING FOR GUARDRAIL

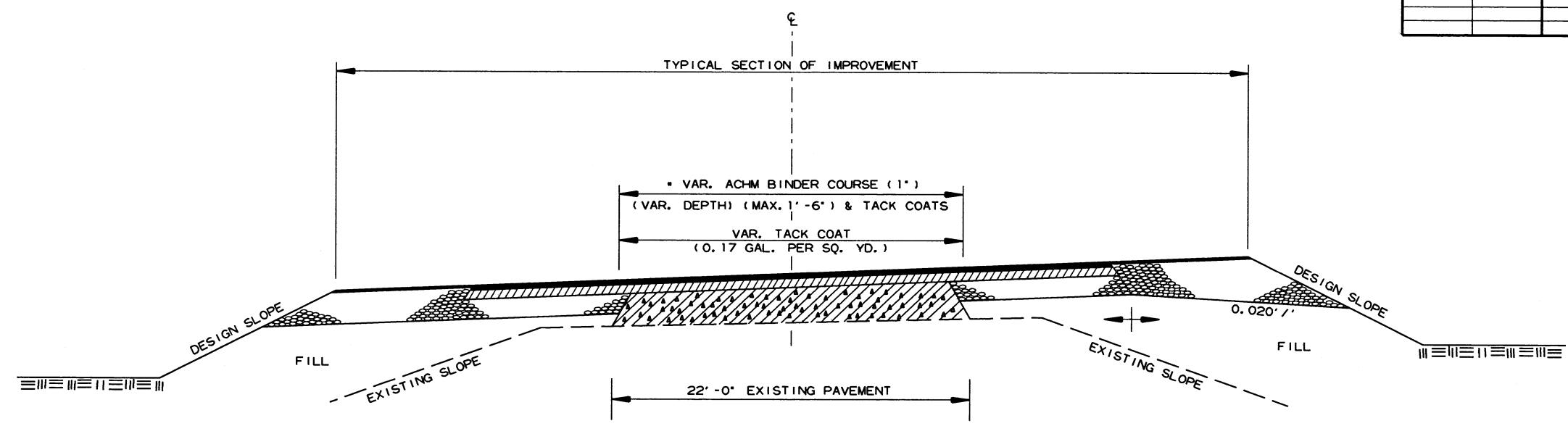
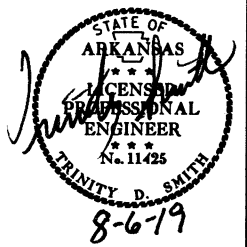
NOTE: REFER TO STD. DWG. GR-9A AND CROSS SECTIONS FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL.



DETAIL FOR TRANSITIONS

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|----------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| JOB NO. 050321 | | | | | | | 9 | 78 |

② SPECIAL DETAILS

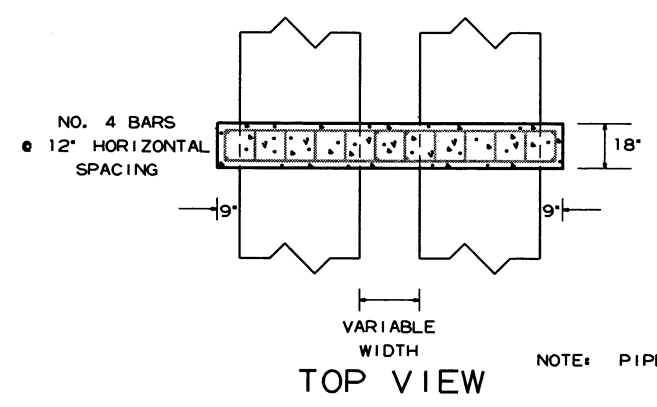


* 6" AGGREGATE BASE COURSE (CLASS 7) TO BE REPLACED WITH ACHM BINDER COURSE (1")

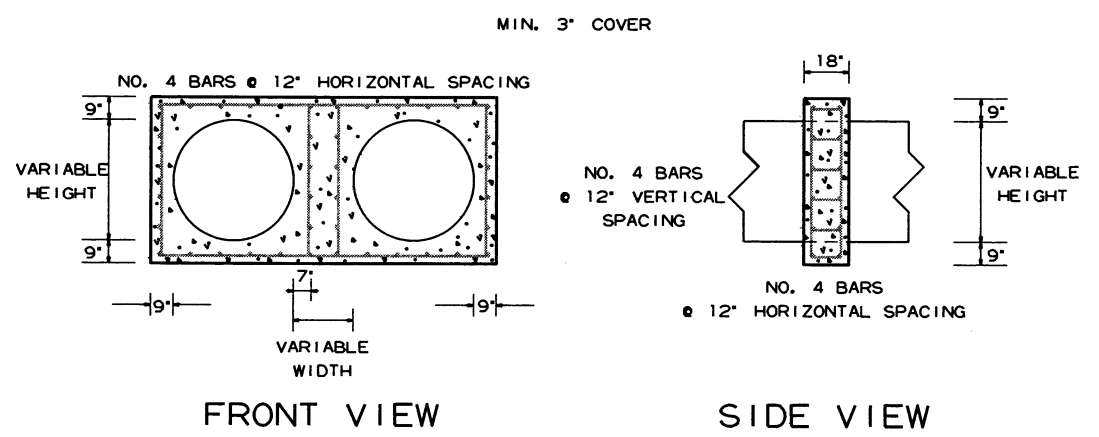
METHOD OF RAISING GRADE

NOTES:

- (1) THIS DETAIL TO BE USED ONLY WHERE DIRECTED BY THE ENGINEER.
- (2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.
- (3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09, OF THE STANDARD SPECIFICATIONS.



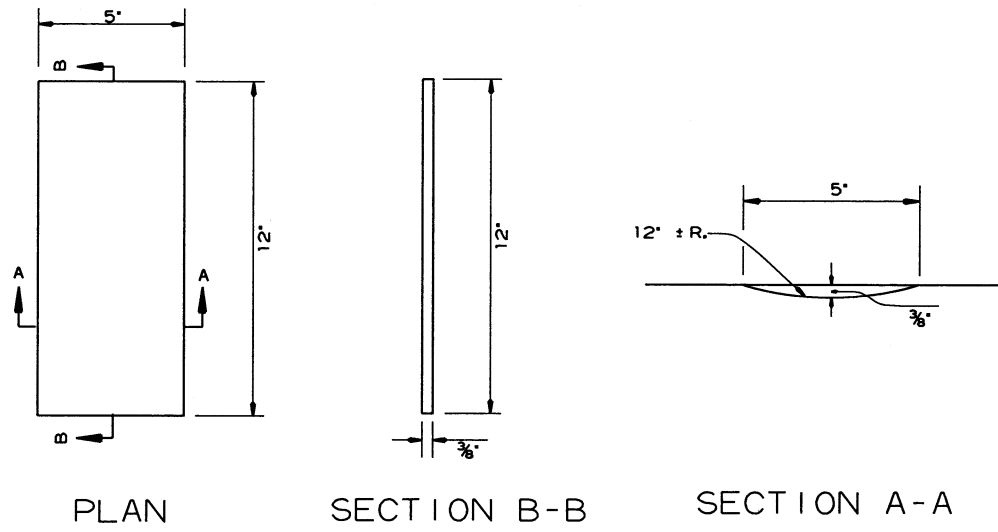
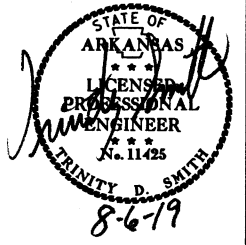
NOTE: PIPE COLLAR TO BE UTILIZED AS APPROVED BY THE ENGINEER.



PIPE EXTENSION REINFORCED CONCRETE COLLAR DETAIL

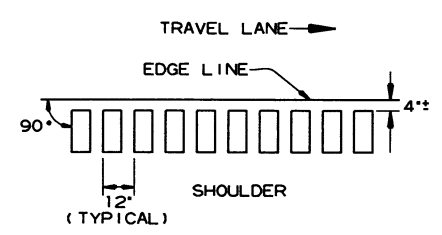
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|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | | 10 | 78 |

2 SPECIAL DETAILS

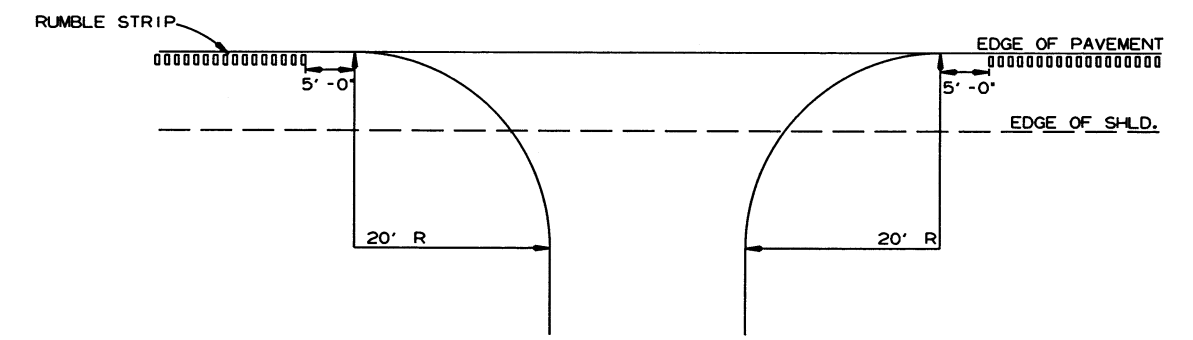


PLAN SECTION B-B SECTION A-A

DETAILS OF RUMBLE STRIPS



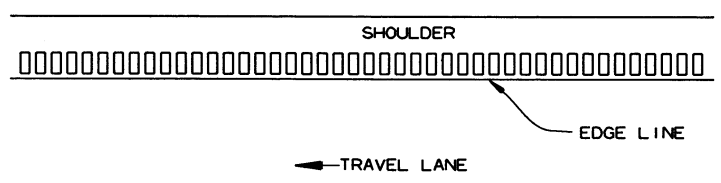
LOCATION PLAN OF RUMBLE STRIPS LEFT OR RIGHT SHOULDER



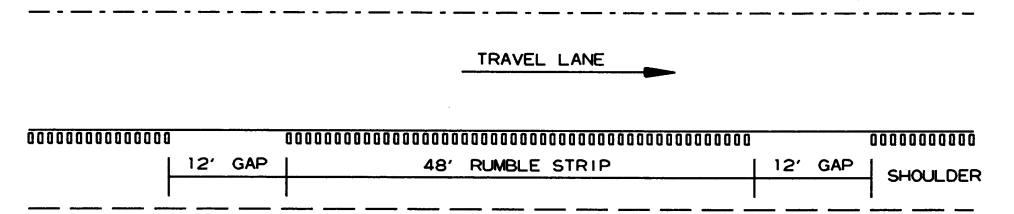
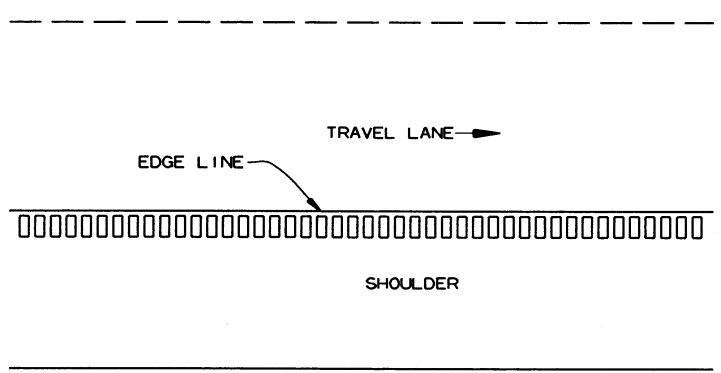
DETAIL FOR RUMBLE STRIP GAP AT DRIVEWAY TURNOUTS

GENERAL NOTES

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



PLAN VIEW

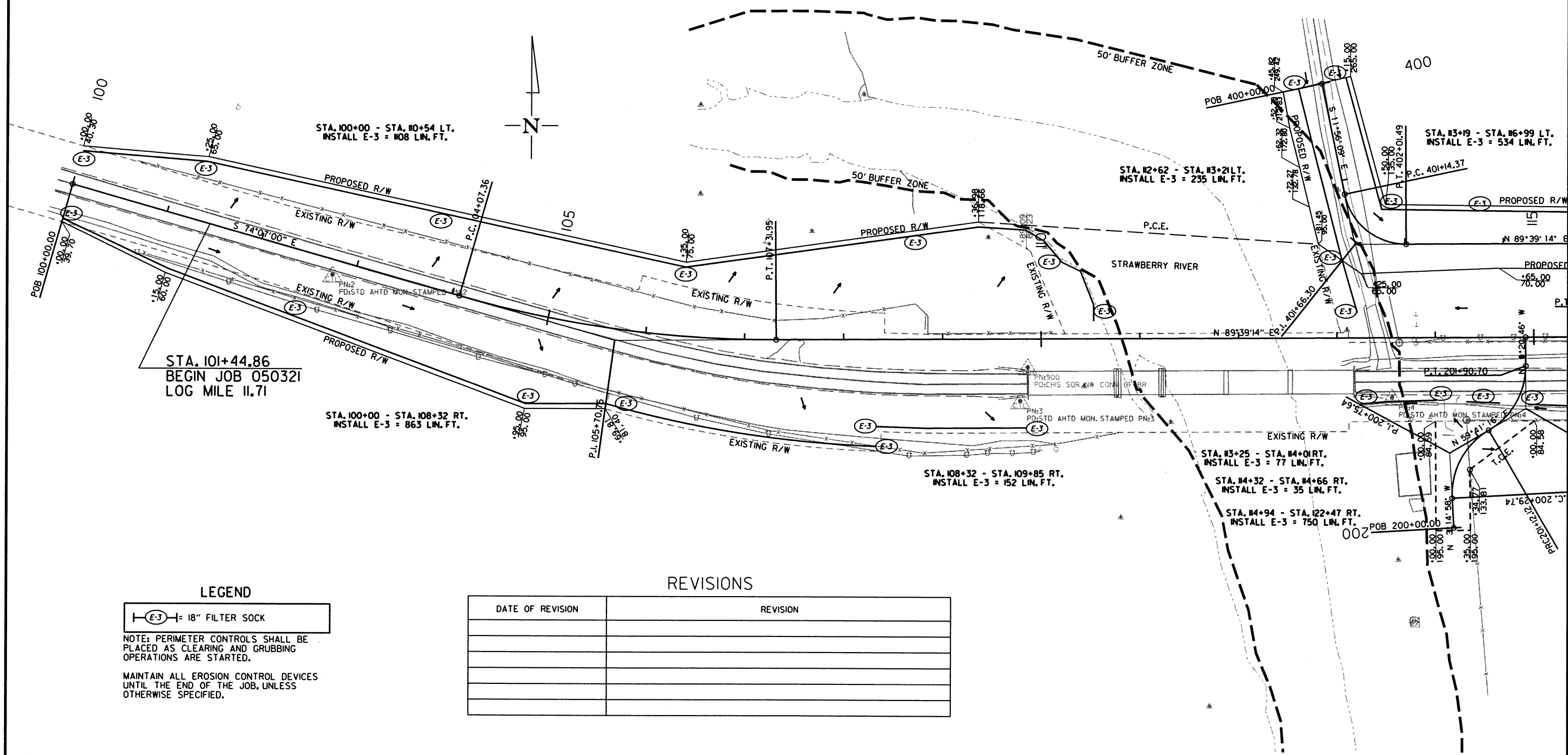
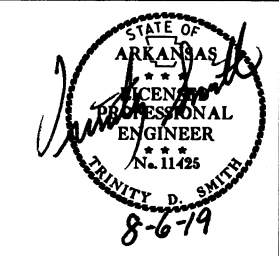


NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE FIELD ALLOWING FOR DRIVEWAYS TO SERVE AS THE GAP.

DETAIL FOR GAP PATTERN RUMBLE STRIP

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | | 11 | 78 |

② TEMPORARY EROSION CONTROL DETAILS



LEGEND
 |—(E-3)—| = 18" FILTER SOCK

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.
 MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

REVISIONS

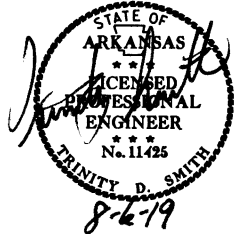
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CLEARING AND GRUBBING
 TEMPORARY EROSION CONTROL DETAILS

06/13/2019
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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. | 050321 | | 12 | 78 |

② TEMPORARY EROSION CONTROL DETAILS



LEGEND

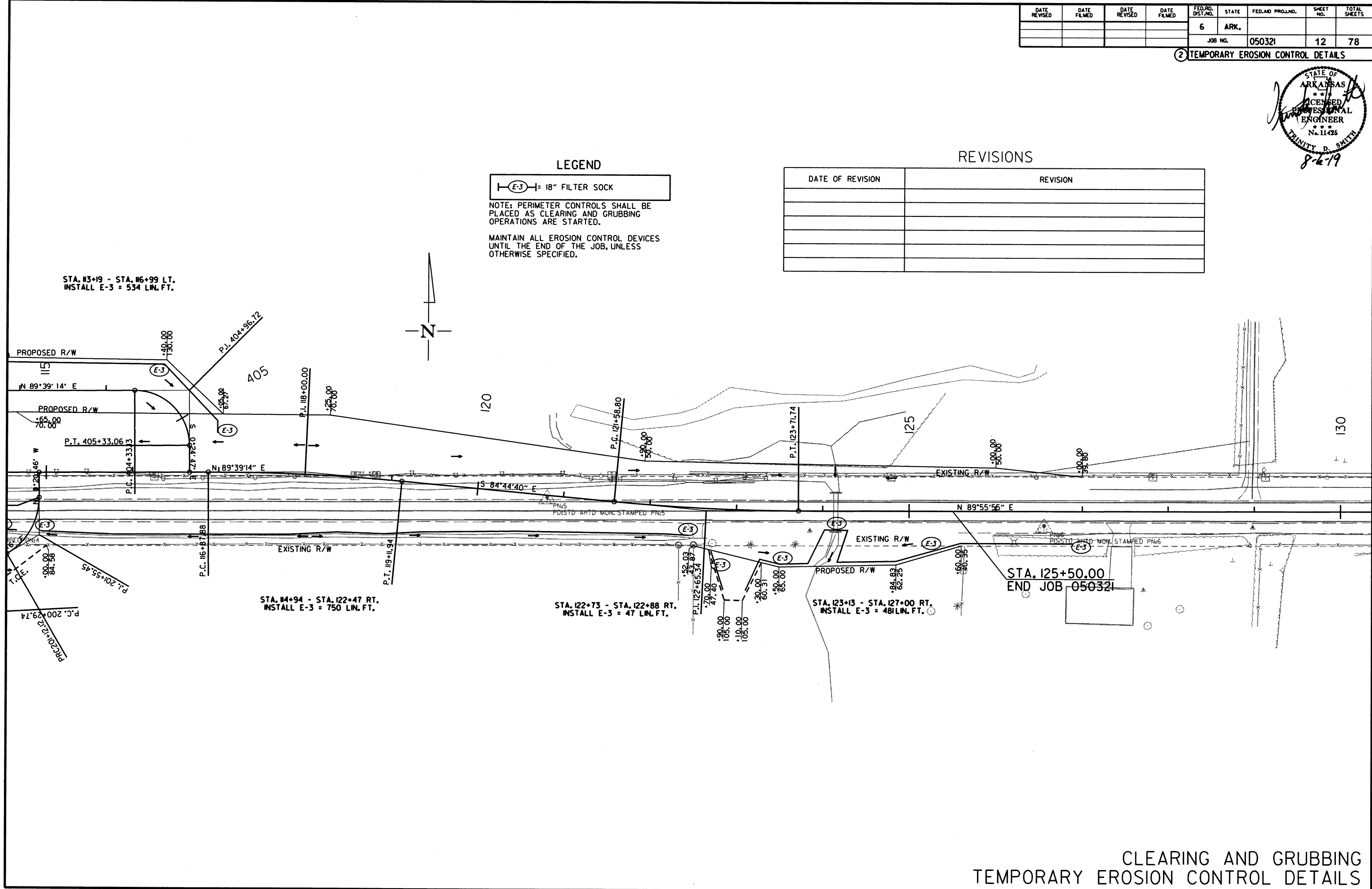


NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

REVISIONS

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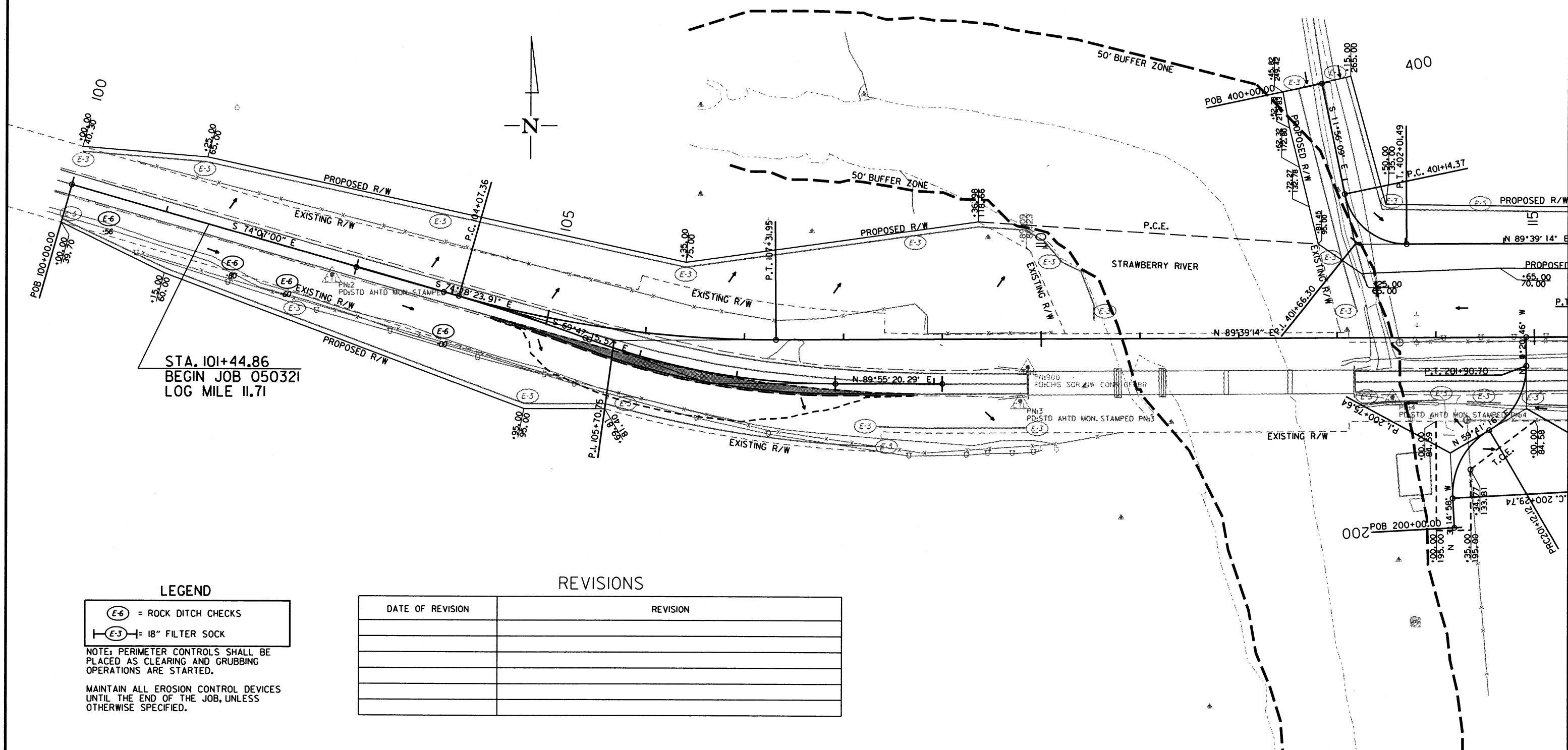
CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

06/13/2019

R050321.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. | 050321 | | 13 | 78 |

② TEMPORARY EROSION CONTROL DETAILS



STA. 101+44.86
 BEGIN JOB 050321
 LOG MILE 11.71

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-3) = 18" FILTER SOCK

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

MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

REVISIONS

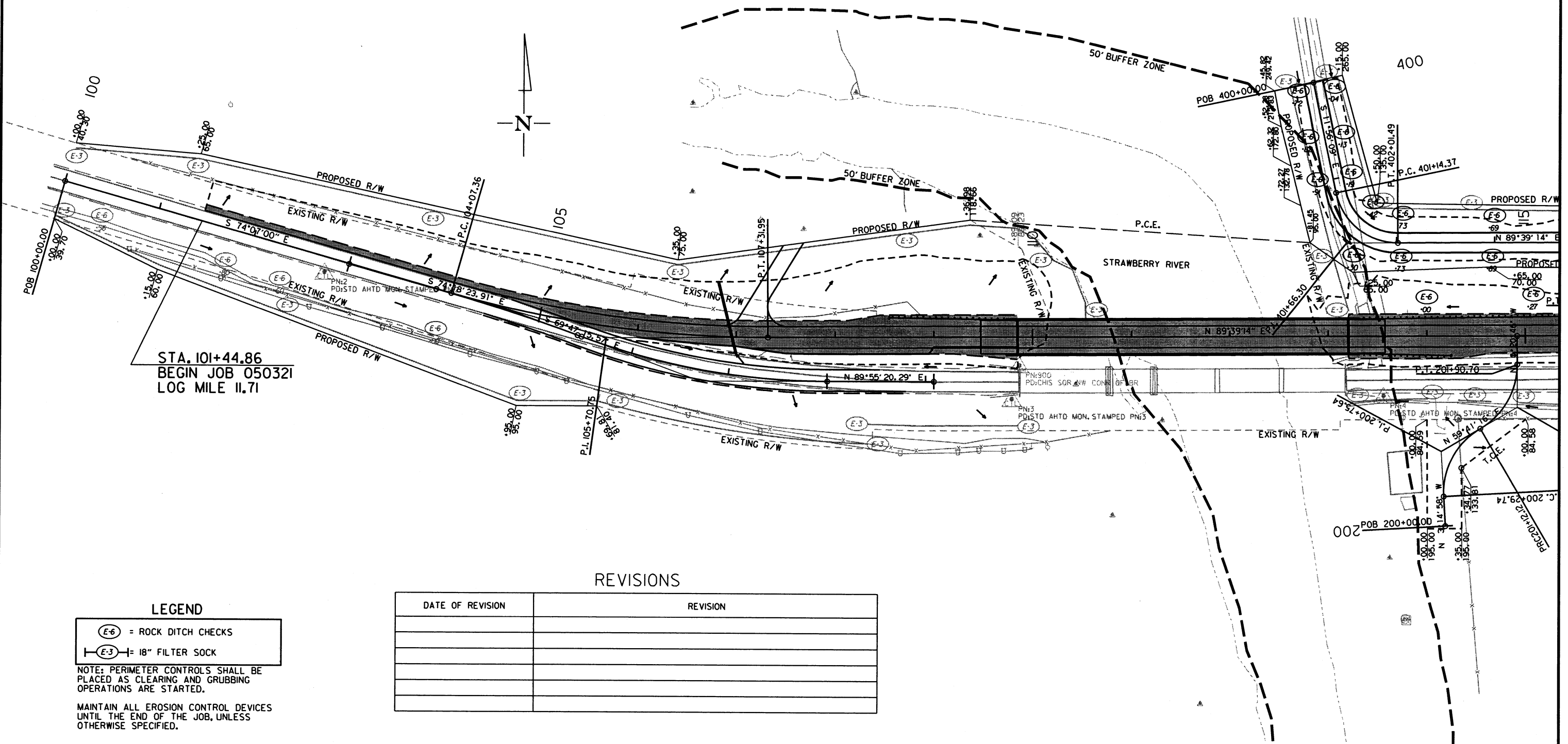
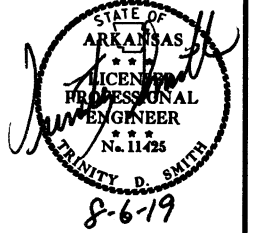
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STAGE I
 TEMPORARY EROSION CONTROL DETAILS

06/13/2019 R050321.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. | 050321 | | 14 | 78 |

2 TEMPORARY EROSION CONTROL DETAILS



STA. 101+44.86
 BEGIN JOB 050321
 LOG MILE 11.71

REVISIONS

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

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-3) = 18" FILTER SOCK

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

MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

STAGE 2
 TEMPORARY EROSION CONTROL DETAILS

06/13/2019

R050321.DGN

| DATE REVISED | DATE FILED | DATE REVISED | DATE FILED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|------------|--------------|------------|--------------------|-------|--------------------|-----------|--------------|
| 9-4-19 | | | | 6 | ARK. | | 15 | 78 |
| | | | | | | JOB NO. 050321 | 15 | 78 |

2 TEMPORARY EROSION CONTROL DETAILS



REVISIONS

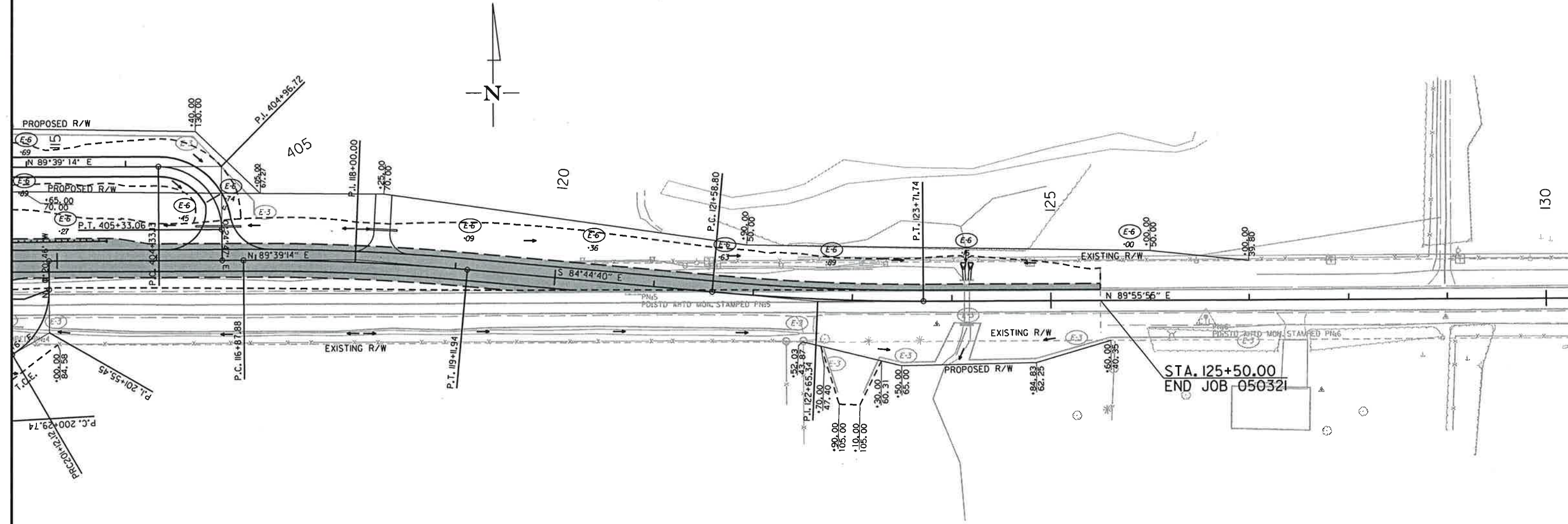
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LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-3) = 18" FILTER SOCK

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

MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

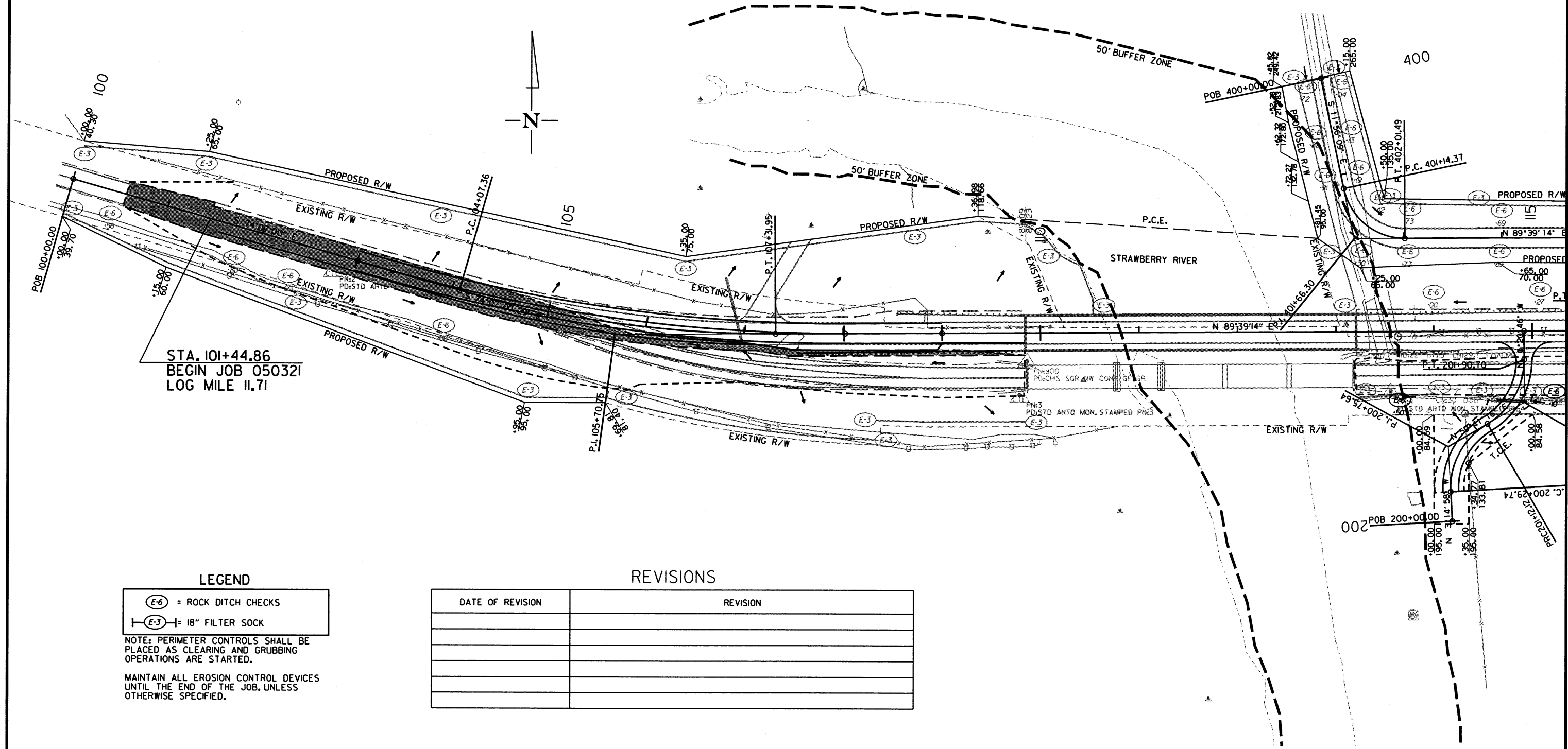
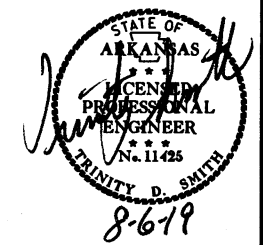


STA. 125+50.00
END JOB 050321

06/13/2019
R050321.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | | | 050321 | 16 | 78 |

2 TEMPORARY EROSION CONTROL DETAILS



STA. 101+44.86
BEGIN JOB 050321
LOG MILE 11.71

LEGEND

(E-6) = ROCK DITCH CHECKS

(E-3) = 18" FILTER SOCK

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

MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

REVISIONS

| DATE OF REVISION | REVISION |
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STAGE 3
TEMPORARY EROSION CONTROL DETAILS

06/13/2019
R050321.DGN

| DATE REVISED | DATE FILED | DATE REVISED | DATE FILED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|------------|--------------|------------|--------------------|-------|--------------------|-----------|--------------|
| 9-4-19 | | | | 6 | ARK. | | 17 | 78 |
| | | | | | | JOB NO. 050321 | 17 | 78 |

② TEMPORARY EROSION CONTROL DETAILS



LEGEND

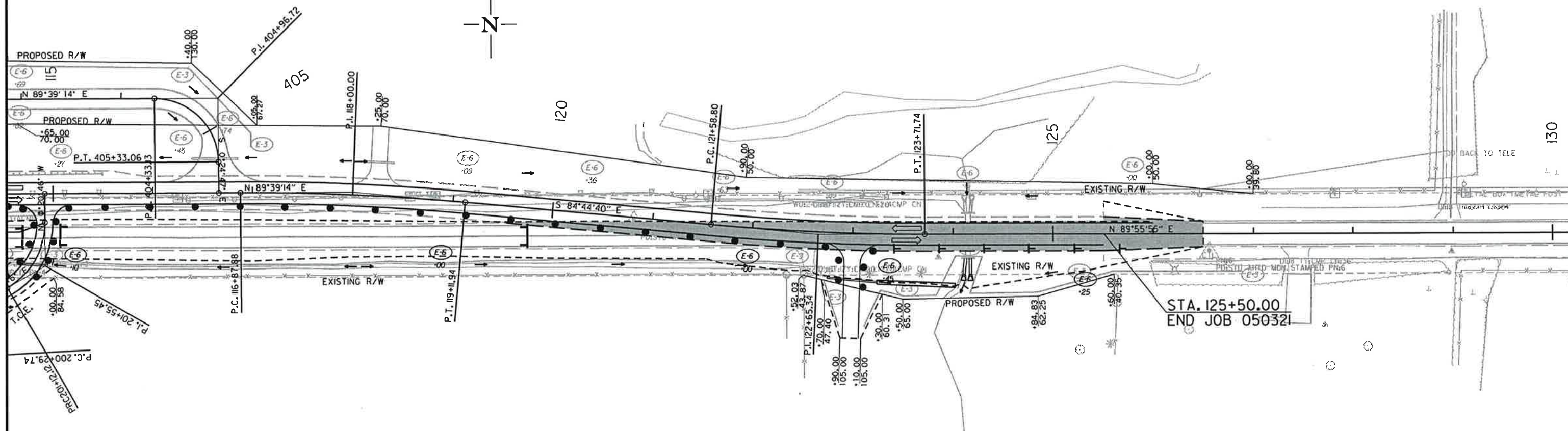
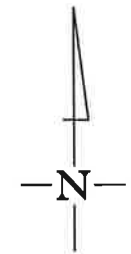
- E-6 = ROCK DITCH CHECKS
- E-3 = 18" FILTER SOCK

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

MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

REVISIONS

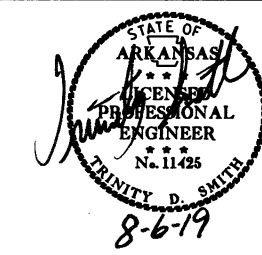
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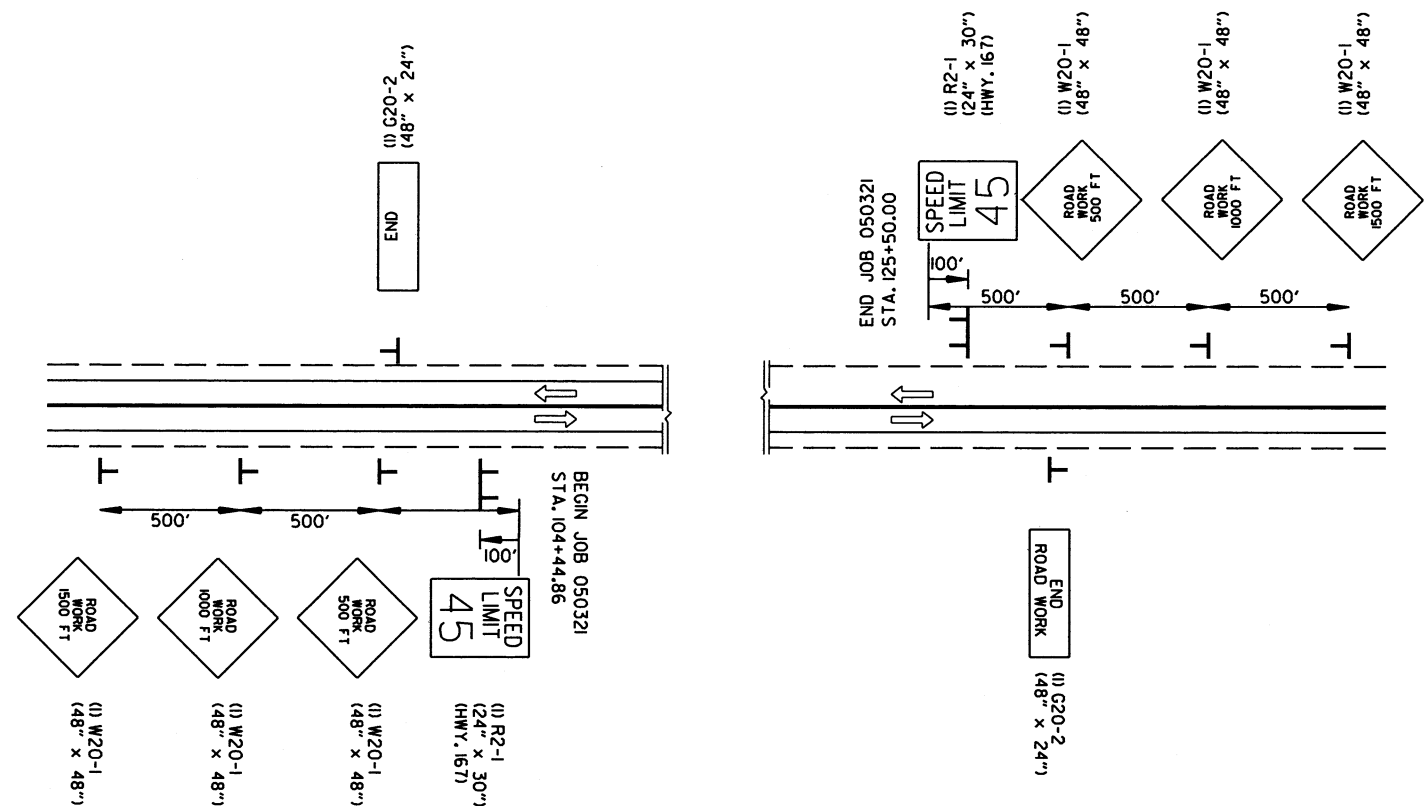
STA. 125+50.00
END JOB 050321

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | | 18 | 78 |

② MAINTENANCE OF TRAFFIC DETAILS



ADVANCE WARNING (ALL STAGES)



STAGE 1 CONSTRUCTION SEQUENCE

INSTALL ADVANCE WARNING SIGNS AS SHOWN. USE VERTICAL PANELS TO DELINEATE THE WORK ZONE.

CONSTRUCT TEMPORARY WIDENING FROM STA. 30I+45 TO STA. 305+80 AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2 CONSTRUCTION SEQUENCE

INSTALL CONSTRUCTION PAVEMENT MARKINGS, VERTICAL PANELS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS. REMOVE EXISTING PAVEMENT MARKINGS IN THE AREA. SHIFT TRAFFIC ONTO TEMPORARY WIDENING.

CONSTRUCT BRIDGE NO. 07437 AND PARTIAL PROPOSED ROADWAY THROUGH FIRST LAYER OF SURFACE COURSE. REFER TO CROSS SECTIONS FOR LOCATIONS OF TEMPORARY SLOPES.




STAGE 3 CONSTRUCTION SEQUENCE

INSTALL PRECAST BARRIER, CONSTRUCTION PAVEMENT MARKINGS, VERTICAL PANELS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS. SHIFT TRAFFIC ONTO PARTIAL PROPOSED ROADWAY CONSTRUCTED IN STAGE 2.

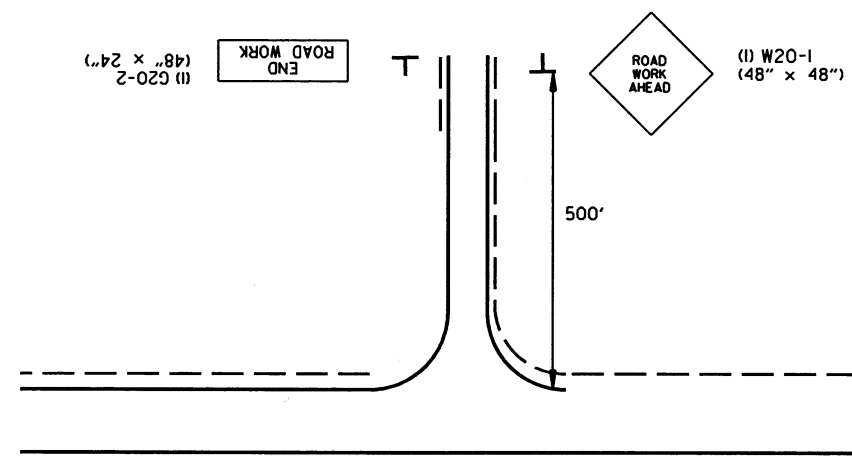
OBLITERATE EXISTING ROADWAY AND STAGE 1 TEMPORARY WIDENING AND REMOVE EXISTING BRIDGE STRUCTURE.

CONSTRUCT REMAINING PORTIONS OF PROPOSED ROADWAY IN REQUIRED LOCATIONS.

MILL OUT THE TRANSITIONS AT BOTH ENDS OF JOB AND PLACE FINAL 2" LIFT OF SURFACE COURSE. INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKINGS DETAILS.

- 
(2) W21-5a
36" X 36"
ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
- 
(2) R4-1
(24" X 30")
ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
- 
(2) W8-1
(30" X 30")
ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

ADVANCE WARNING - SIDE ROADS (ALL STAGES)

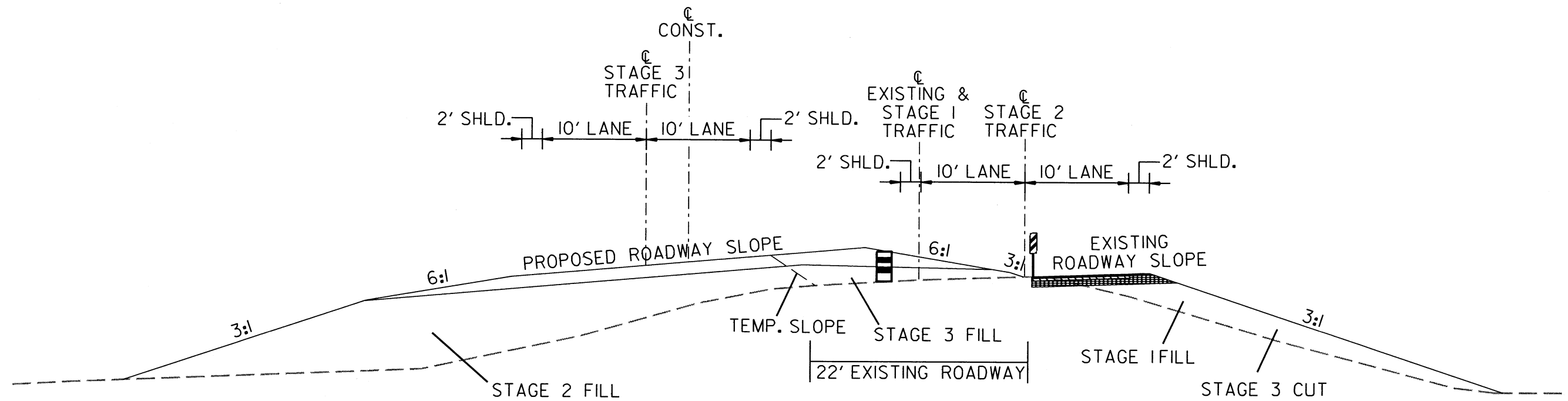
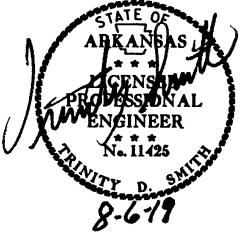


STA. 112+85.00, BENS CREEK RD.
NOTE: STATION BASED OFF PROPOSED CENTERLINE.

ADVANCE WARNING
MAINTENANCE OF TRAFFIC DETAILS

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|----------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | | 19 | 78 |

② MAINTENANCE OF TRAFFIC DETAILS



HWY. 56 - TEMPORARY WIDENING
STA. 301+45.00 TO STA. 305+80.00

NOTE:
VERTICAL PANELS TO BE USED IN
STAGE ONE FOR NOTCH AND WIDEN
CONSTRUCTION OF TEMPORARY WIDENING
(STAGE I CONSTRUCTION)

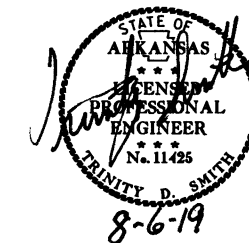
NOTE:
SEE SHEET 7 FOR
TYPICAL SECTION OF IMPROVEMENT
FOR TEMPORARY WIDENING.

08/01/2019

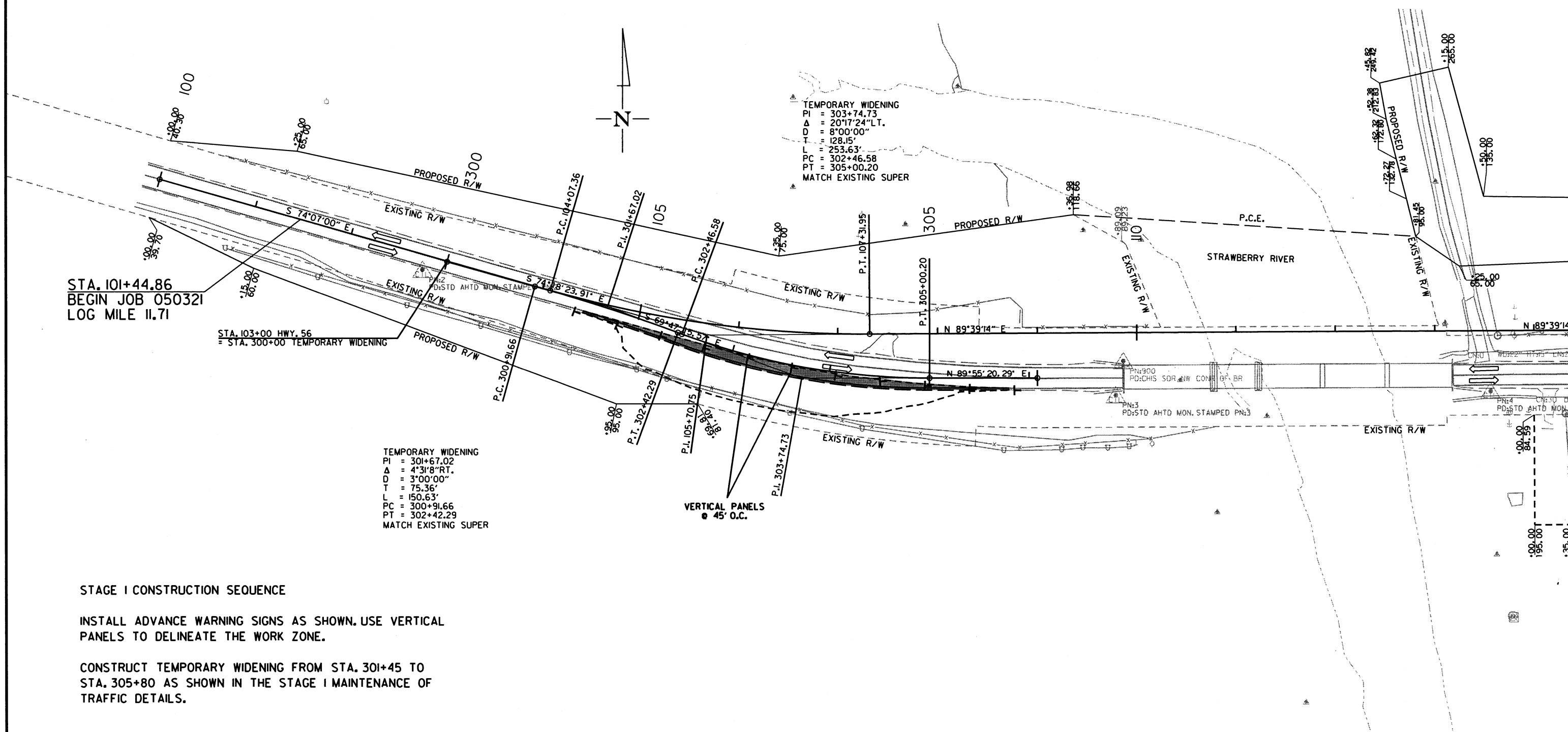
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| DATE REVISED | DATE FILED | DATE REVISED | DATE FILED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|----------------|------------|--------------|------------|--------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| JOB NO. 050321 | | | | | | | 20 | 78 |

② MAINTENANCE OF TRAFFIC DETAILS



STAGE I QUANTITIES
 SIGNS = 186.5 FT.
 VERTICAL PANELS = 11EA.



STA. 101+44.86
 BEGIN JOB 050321
 LOG MILE 11.71

STA. 103+00 HWY. 56
 = STA. 300+00 TEMPORARY WIDENING

TEMPORARY WIDENING
 PI = 301+67.02
 Δ = 4°31'8" RT.
 D = 3°00'00"
 T = 75.36'
 L = 150.63'
 PC = 300+91.66
 PT = 302+42.29
 MATCH EXISTING SUPER

VERTICAL PANELS
 @ 45' O.C.

STAGE I CONSTRUCTION SEQUENCE

INSTALL ADVANCE WARNING SIGNS AS SHOWN. USE VERTICAL PANELS TO DELINEATE THE WORK ZONE.

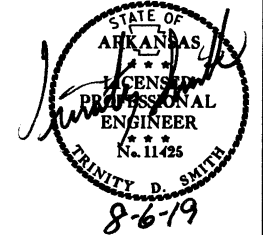
CONSTRUCT TEMPORARY WIDENING FROM STA. 301+45 TO STA. 305+80 AS SHOWN IN THE STAGE I MAINTENANCE OF TRAFFIC DETAILS.

STAGE I
 MAINTENANCE OF TRAFFIC DETAILS

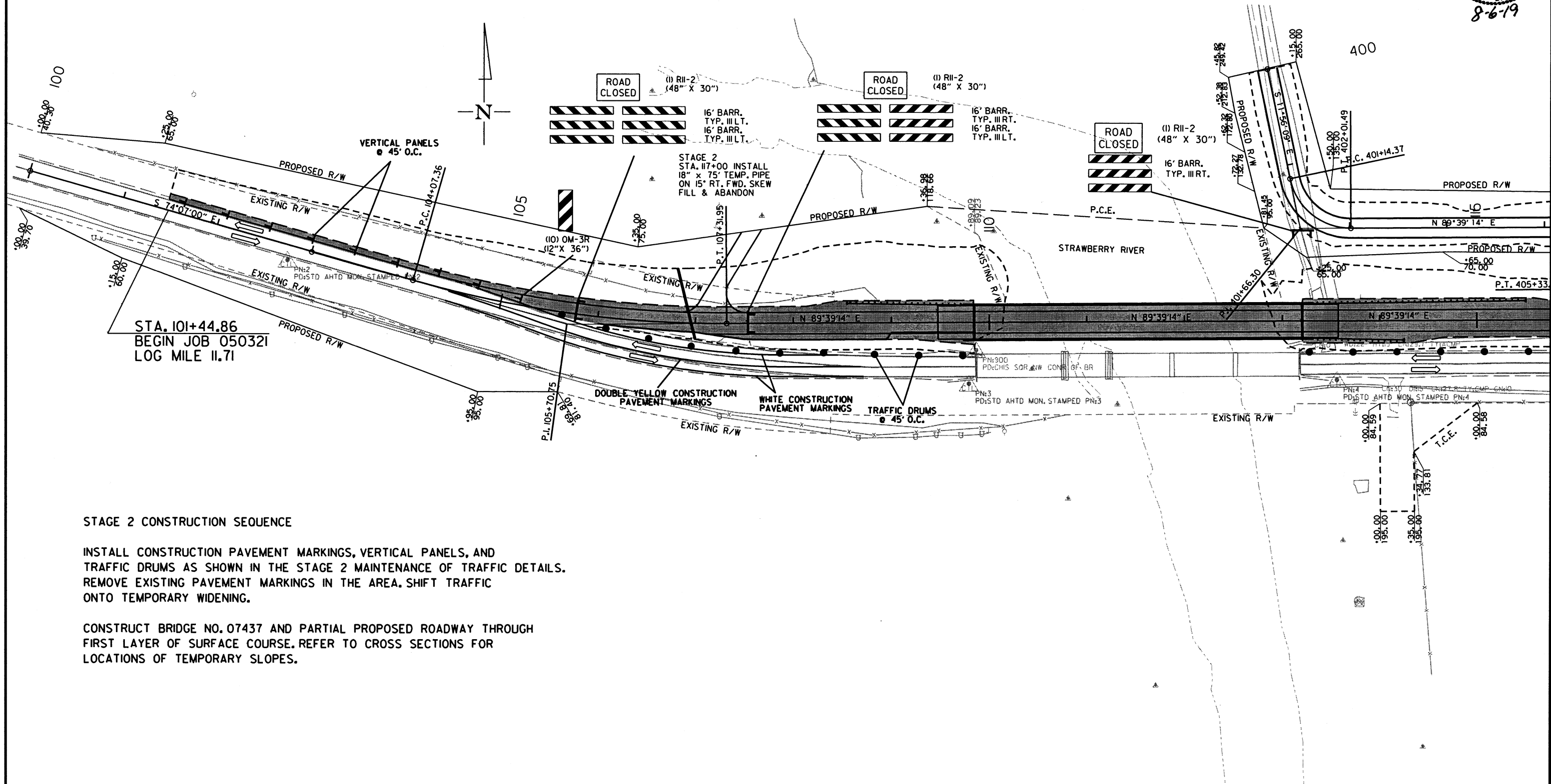
08/01/2019
 R050321.DGN

| 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. 050321 | | | | | | | 21 | 78 |

② MAINTENANCE OF TRAFFIC DETAILS



STAGE 2 QUANTITIES
 SIGNS = 246.5.5 FT.
 VERTICAL PANELS = 20 EA.
 TRAFFIC DRUMS = 41 EA.
 TYPE III BARRICADE-RT. = 5 EA.
 TYPE III BARRICADE-LT. = 4 EA.
 REMOVAL OF PERMANENT PAVEMENT MARKINGS = 1668 LIN. FT.
 CONSTRUCTION PAVEMENT MARKINGS = 1681 LIN. FT.



STAGE 2 CONSTRUCTION SEQUENCE

INSTALL CONSTRUCTION PAVEMENT MARKINGS, VERTICAL PANELS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS. REMOVE EXISTING PAVEMENT MARKINGS IN THE AREA. SHIFT TRAFFIC ONTO TEMPORARY WIDENING.

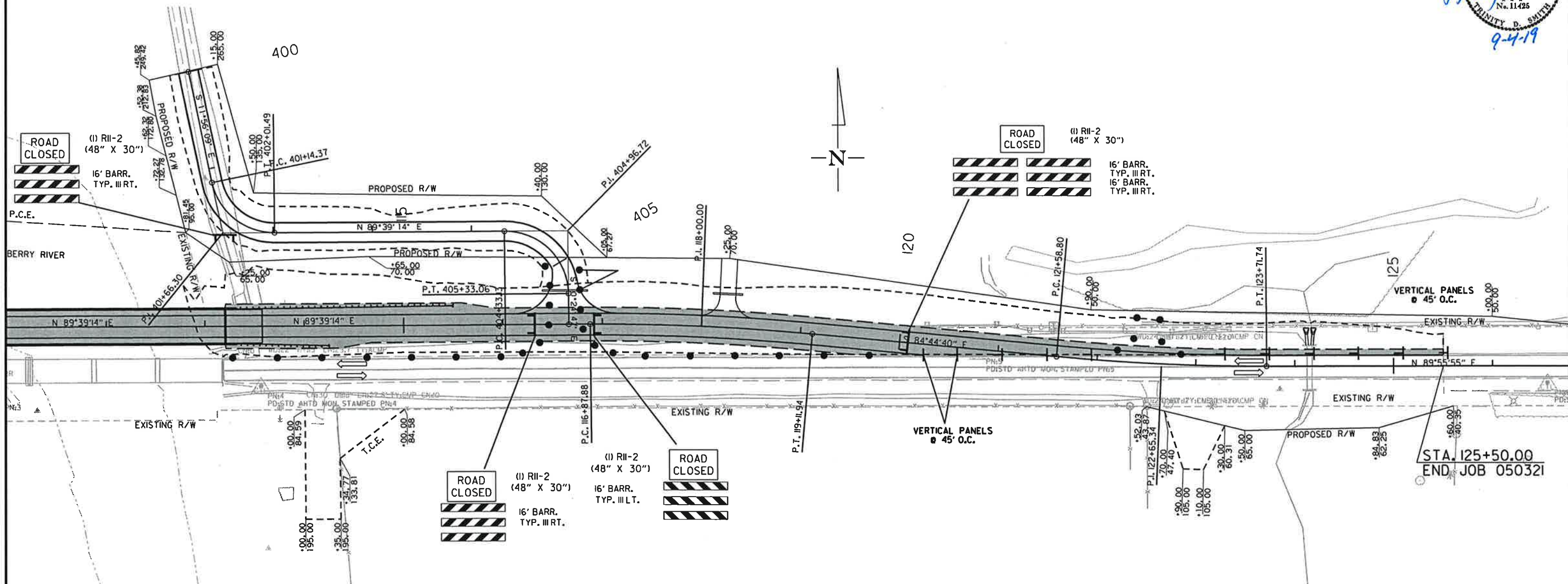
CONSTRUCT BRIDGE NO. 07437 AND PARTIAL PROPOSED ROADWAY THROUGH FIRST LAYER OF SURFACE COURSE. REFER TO CROSS SECTIONS FOR LOCATIONS OF TEMPORARY SLOPES.

STAGE 2 MAINTENANCE OF TRAFFIC DETAILS

08/01/2019 R050321.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
| 9-4-19 | | | | 6 | ARK. | | 22 | 78 |
| | | | | JOB NO. | 050321 | | | |

② MAINTENANCE OF TRAFFIC DETAILS



STAGE 2 CONSTRUCTION SEQUENCE

INSTALL CONSTRUCTION PAVEMENT MARKINGS, VERTICAL PANELS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS. REMOVE EXISTING PAVEMENT MARKINGS IN THE AREA. SHIFT TRAFFIC ONTO TEMPORARY WIDENING.

CONSTRUCT BRIDGE NO. 07437 AND PARTIAL PROPOSED ROADWAY THROUGH FIRST LAYER OF SURFACE COURSE. REFER TO CROSS SECTIONS FOR LOCATIONS OF TEMPORARY SLOPES.

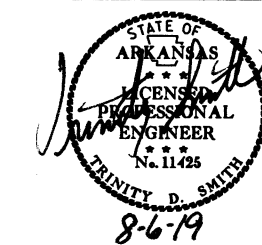
STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

09/04/2019

R050321.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. | 050321 | | 23 | 78 |

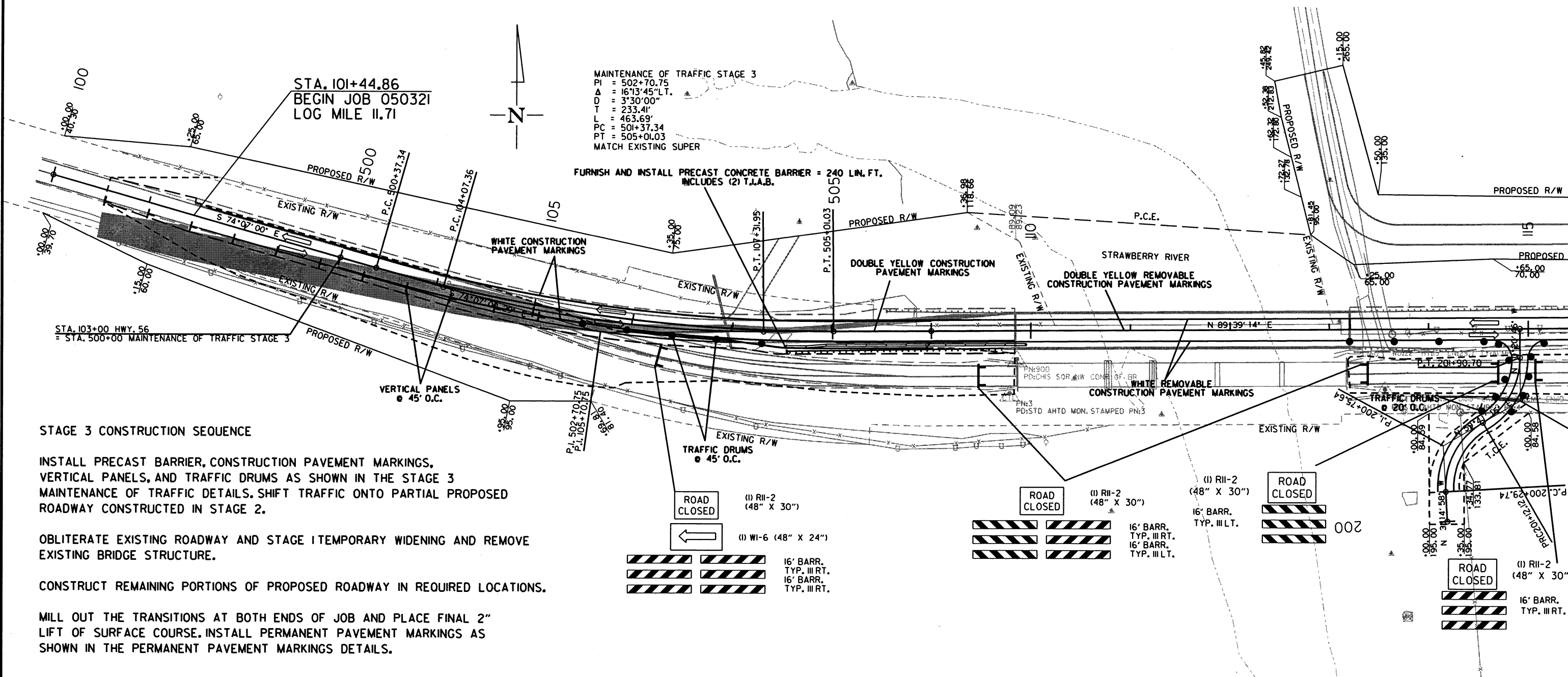
② MAINTENANCE OF TRAFFIC DETAILS



STAGE 3 QUANTITIES

SIGNS = 262.5 FT.
 VERTICAL PANELS = 17 EA.
 TRAFFIC DRUMS = 41 EA.
 TYPE III BARRICADE-RT. = 5 EA.
 TYPE III BARRICADE-LT. = 5 EA.
 FURNISH AND INSTALL PRECAST CONCRETE BARRIER = 240 LIN. FT.
 REMOVAL OF PERMANENT PAVEMENT MARKINGS = 118 LIN. FT.
 CONSTRUCTION PAVEMENT MARKINGS = 6920 LIN. FT.
 REMOVABLE CONSTRUCTION PAVEMENT MARKINGS = 1621 LIN. FT.

MAINTENANCE OF TRAFFIC STAGE 3
 PI = 502+70.75
 Δ = 16°13'45" L.T.
 D = 3°30'00"
 T = 233.41'
 L = 463.69'
 PC = 501+37.34
 PT = 505+01.03
 MATCH EXISTING SUPER



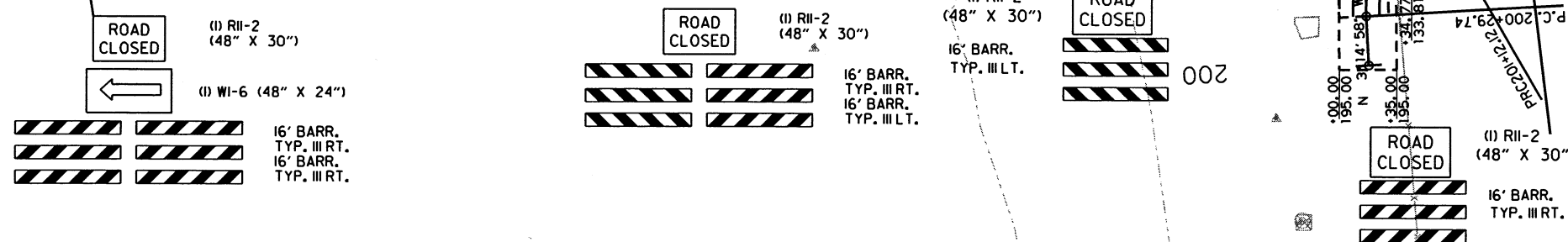
STAGE 3 CONSTRUCTION SEQUENCE

INSTALL PRECAST BARRIER, CONSTRUCTION PAVEMENT MARKINGS, VERTICAL PANELS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS. SHIFT TRAFFIC ONTO PARTIAL PROPOSED ROADWAY CONSTRUCTED IN STAGE 2.

OBLITERATE EXISTING ROADWAY AND STAGE 1 TEMPORARY WIDENING AND REMOVE EXISTING BRIDGE STRUCTURE.

CONSTRUCT REMAINING PORTIONS OF PROPOSED ROADWAY IN REQUIRED LOCATIONS.

MILL OUT THE TRANSITIONS AT BOTH ENDS OF JOB AND PLACE FINAL 2" LIFT OF SURFACE COURSE. INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKINGS DETAILS.



STAGE 3
 MAINTENANCE OF TRAFFIC DETAILS

08/01/2019 R050321.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| 9-4-19 | | | | 6 | ARK. | | 24 | 78 |
| | | | | JOB NO. 050321 | | | | |

② MAINTENANCE OF TRAFFIC DETAILS



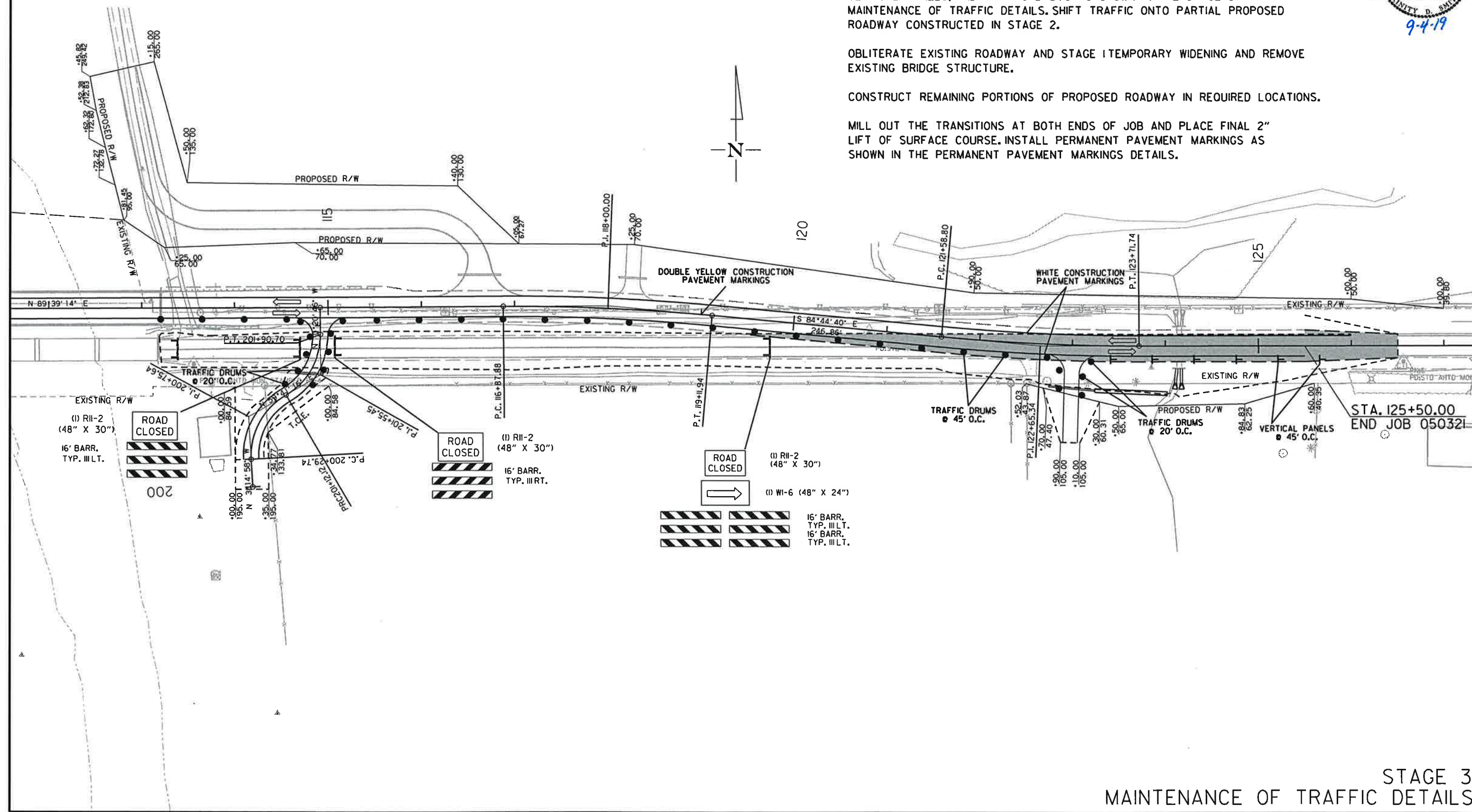
STAGE 3 CONSTRUCTION SEQUENCE

INSTALL PRECAST BARRIER, CONSTRUCTION PAVEMENT MARKINGS, VERTICAL PANELS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS. SHIFT TRAFFIC ONTO PARTIAL PROPOSED ROADWAY CONSTRUCTED IN STAGE 2.

OBLITERATE EXISTING ROADWAY AND STAGE 1 TEMPORARY WIDENING AND REMOVE EXISTING BRIDGE STRUCTURE.

CONSTRUCT REMAINING PORTIONS OF PROPOSED ROADWAY IN REQUIRED LOCATIONS.

MILL OUT THE TRANSITIONS AT BOTH ENDS OF JOB AND PLACE FINAL 2" LIFT OF SURFACE COURSE. INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKINGS DETAILS.



09/04/2019
R050321.DGN

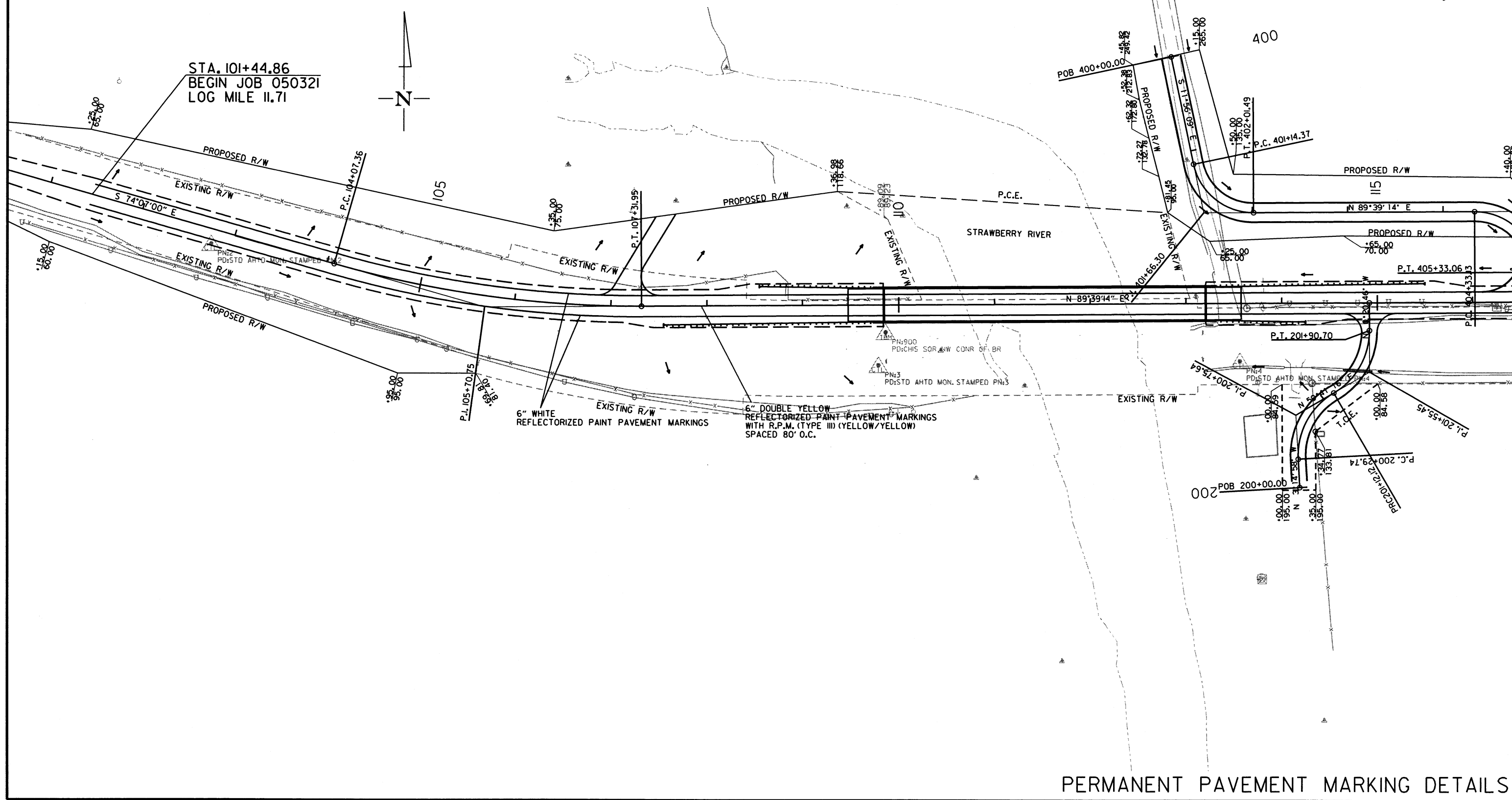
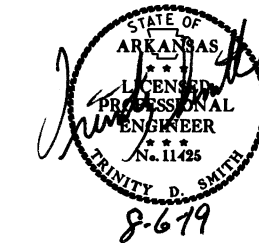
STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

| 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. | 050321 | | 25 | 78 |

② PERMANENT PAVEMENT MARKING DETAILS

PERMANENT PAVEMENT MARKINGS

REFLECTORIZED PAINT PAVEMENT MARKINGS WHITE (6") = 5288
 REFLECTORIZED PAINT PAVEMENT MARKINGS YELLOW (6") = 5288
 RAISED PAVEMENT MARKERS (TYPE III) (YELLOW/YELLOW) (80' O.C.) = 33



PERMANENT PAVEMENT MARKING DETAILS

02/11/2019

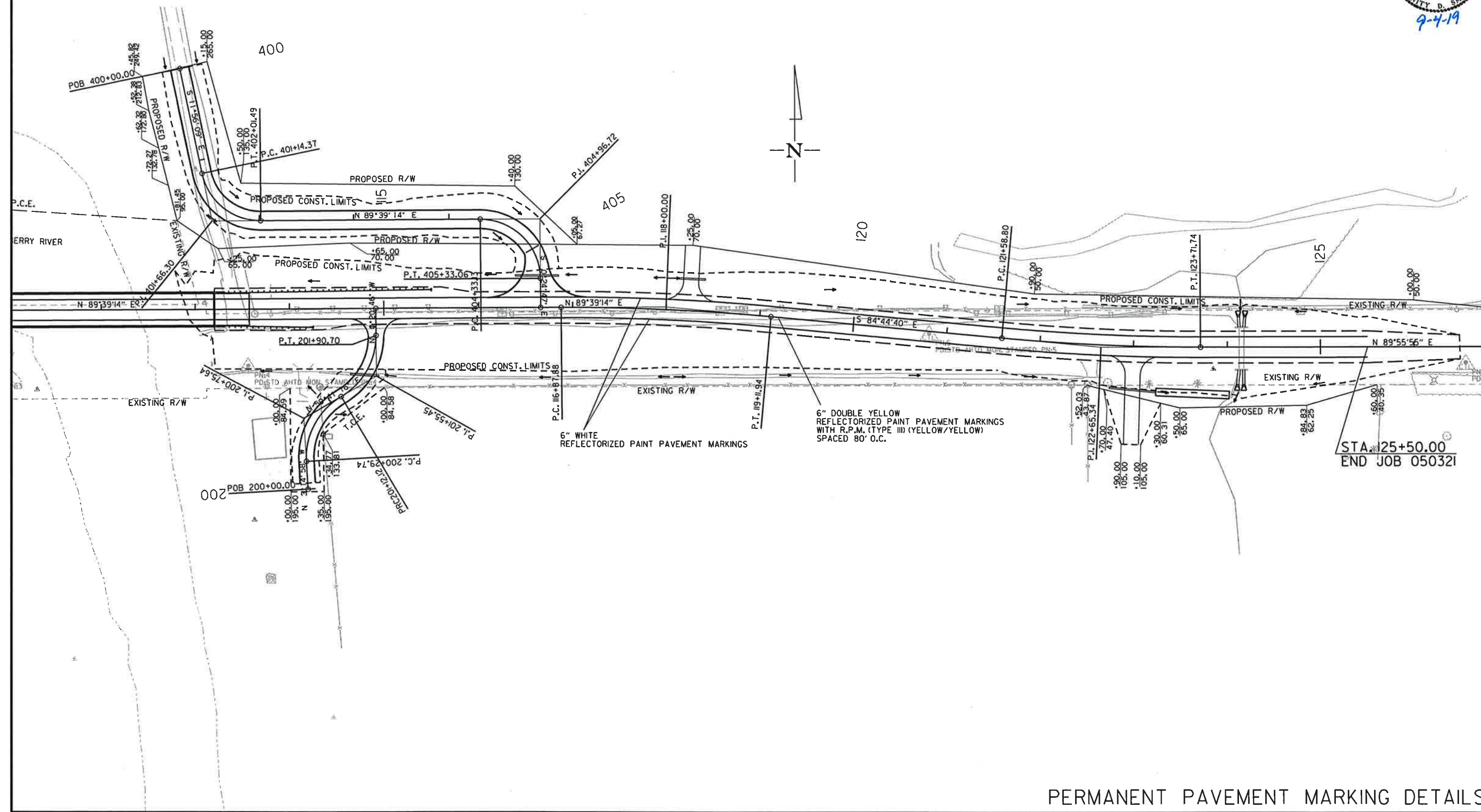
R050321.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| 9-4-19 | | | | 6 | ARK. | | | |
| | | | | | | JOB NO. 050321 | 26 | 78 |

2 PERMANENT PAVEMENT MARKING DETAILS



PERMANENT PAVEMENT MARKINGS
 REFLECTORIZED PAINT PAVEMENT MARKINGS WHITE (6") = 5288
 REFLECTORIZED PAINT PAVEMENT MARKINGS YELLOW (6") = 5288
 RAISED PAVEMENT MARKERS (TYPE III) (YELLOW/YELLOW) (80' O.C.) = 33



STA. 125+50.00
 END JOB 050321

02/11/2019
 R050321.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. | 050321 | | 27 | 78 |

② QUANTITIES



ADVANCE WARNING SIGNS AND DEVICES

| SIGN NUMBER | DESCRIPTION | SIGN SIZE | STAGE 1 | STAGE 2 | STAGE 3 | MAXIMUM NUMBER REQUIRED | TOTAL SIGNS REQUIRED | | VERTICAL PANELS | TRAFFIC DRUMS | BARRICADES (TYPE III) | | FURNISHING & INSTALLING PRECAST CONC. BARRIER | TEMPORARY IMPACT ATTENUATION BARRIER | TEMP. IMPACT ATTEN. BARR. (REPAIR) | |
|----------------|--|-----------|---------|---------|---------|-------------------------|----------------------|---------|-----------------|---------------|-----------------------|-------|---|--------------------------------------|------------------------------------|------|
| | | | | | | | NO. | SQ. FT. | | | EACH | RIGHT | | | | LEFT |
| | | | | | | | | | | | | | | | | |
| W20-1 | ROAD WORK 1500 FT. | 48"x48" | 2 | 2 | 2 | 2 | 2 | 32.0 | | | | | | | | |
| W20-1 | ROAD WORK 1000 FT. | 48"x48" | 2 | 2 | 2 | 2 | 2 | 32.0 | | | | | | | | |
| W20-1 | ROAD WORK 500 FT. | 48"x48" | 2 | 2 | 2 | 2 | 2 | 32.0 | | | | | | | | |
| W20-1 | ROAD WORK AHEAD | 48"x48" | 1 | 1 | 1 | 1 | 1 | 16.0 | | | | | | | | |
| G20-2 | END ROAD WORK | 48"x24" | 3 | 3 | 3 | 3 | 3 | 24.0 | | | | | | | | |
| R2-1 | SPEED LIMIT 45 MPH | 24"x30" | 2 | 2 | 2 | 2 | 2 | 10.0 | | | | | | | | |
| R11-2 | ROAD CLOSED | 48"x30" | | 6 | 6 | 6 | 6 | 60.0 | | | | | | | | |
| W1-6 | LARGE ARROW | 48"x24" | | | 2 | 2 | 2 | 16.0 | | | | | | | | |
| R4-1 | DO NOT PASS | 24"x30" | 2 | 2 | 2 | 2 | 2 | 10.0 | | | | | | | | |
| W21-5a | RIGHT SHOULDER CLOSED | 36"x36" | 2 | 2 | 2 | 2 | 2 | 18.0 | | | | | | | | |
| W8-1 | BUMP | 30"x30" | 2 | 2 | 2 | 2 | 2 | 12.5 | | | | | | | | |
| | VERTICAL PANELS | | 11 | 20 | 17 | 20 | | | 20 | | | | | | | |
| | TRAFFIC DRUMS | | | 41 | 41 | 41 | | | 41 | | | | | | | |
| | TYPE III BARRICADE-RT. (16') | | | 5 | 5 | 5 | | | | 80 | | | | | | |
| | TYPE III BARRICADE-LT. (16') | | | 4 | 5 | 5 | | | | | 80 | | | | | |
| | FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER | | | | 240 | 240 | | | | | | 240 | | | | |
| | TEMPORARY IMPACT ATTENUATION BARRIER | | | | 2 | 2 | | | | | | | 2 | | | |
| | TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR) | | | | 2 | 2 | | | | | | | | 2 | | |
| TOTALS: | | | | | | | | 262.5 | 20 | 41 | 80 | 80 | 240 | 2 | 2 | |

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

| DESCRIPTION | STAGE 2 | STAGE 3 | END OF JOB | REMOVAL OF PERMANENT PAVEMENT MARKINGS | CONSTRUCTION PAVEMENT MARKINGS | REMOVABLE CONSTRUCTION PAVEMENT MARKINGS | RAISED PAVEMENT MARKERS | | REFLECTORIZED PAINT PAVEMENT MARKING | |
|--|---------|---------|------------|--|--------------------------------|--|-------------------------|------|--------------------------------------|--------|
| | | | | | | | TYPE II (YELLOW/YELLOW) | EACH | 6" | |
| | | | | | | | | | WHITE | YELLOW |
| LIN. FT. - EACH | | | LIN. FT. | | LIN. FT. | | LIN. FT. | | | |
| REMOVAL OF PERMANENT PAVEMENT MARKINGS | 1668 | 1118 | | 2786 | | | | | | |
| CONSTRUCTION PAVEMENT MARKINGS | 1681 | 6920 | | | 8601 | | | | | |
| REMOVABLE CONSTRUCTION PAVEMENT MARKINGS | | 1621 | | | | 1621 | | | | |
| RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW) | | | 33 | | | | 33 | | | |
| REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") | | | 5288 | | | | | 5288 | | |
| REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6") | | | 5288 | | | | | | 5288 | |
| TOTALS: | | | | 2786 | 8601 | 1621 | 33 | 5288 | 5288 | |

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

NOTE: THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

02/06/2019

R050321.DGN

QUANTITIES

REMOVAL AND DISPOSAL OF ITEMS

| STATION | STATION | LOCATION | SIGN FOUNDATIONS | POSTS | GUARDRAIL | SIGNS |
|----------------|---------|---------------|------------------|----------|------------|----------|
| | | | EACH | EACH | LIN. FT. | EACH |
| 109+56 | 109+85 | RT OF HWY. 56 | | | 29 | |
| 109+56 | 109+85 | RT OF HWY. 56 | | | 29 | |
| 113+19 | 113+34 | RT OF HWY. 56 | | | 15 | |
| 113+19 | 113+47 | RT OF HWY. 56 | | | 28 | |
| | 114+05 | RT OF HWY. 56 | | 1 | | |
| | 114+10 | RT OF HWY. 56 | | | | 1 |
| | 114+10 | RT OF HWY. 56 | 2 | | | |
| TOTALS: | | | 2 | 1 | 101 | 1 |

NOTE: THE QUANTITY SHOWN ABOVE FOR THE REMOVAL AND DISPOSAL OF GUARDRAIL SHALL INCLUDE THE REMOVAL AND DISPOSAL OF ALL GUARDRAIL TERMINALS AND TERMINAL ANCHOR POSTS.

REMOVAL AND DISPOSAL OF CULVERTS

| STATION | DESCRIPTION | PIPE CULVERTS |
|----------------|----------------------------------|---------------|
| | | EACH |
| 113+45 | LT. OF HWY. 56 - 22" X 15" X 30' | 1 |
| 114+92 | RT. OF HWY. 56 - 18" X 28' | 1 |
| 122+50 | LT. OF HWY. 56 - 18" X 20' | 1 |
| 122+57 | RT. OF HWY. 56 - 18" X 20' | 1 |
| TOTALS: | | 4 |

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

CLEARING AND GRUBBING

| STATION | STATION | LOCATION | CLEARING | GRUBBING |
|----------------|---------|------------------------|-----------|-----------|
| | | | STATION | STATION |
| 101+45 | 109+84 | LT. AND RT. OF HWY. 56 | 9 | 9 |
| 113+21 | 125+50 | LT. AND RT. OF HWY. 56 | 13 | 13 |
| TOTALS: | | | 22 | 22 |



ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

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

BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC...25 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE

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

EARTHWORK

| STATION | STATION | LOCATION / DESCRIPTION | UNCLASSIFIED EXCAVATION | COMPACTED EMBANKMENT | * SOIL STABILIZATION |
|----------------|-----------|--|-------------------------|----------------------|----------------------|
| | | | CU. YD. | CU. YD. | TON |
| 103+00.00 | 109+00.00 | STAGE 1 - HWY. 56 | 49 | 460 | |
| 100+44.86 | 126+50.00 | STAGE 2 - HWY. 56 | 2553 | 14118 | |
| 100+44.86 | 126+50.00 | STAGE 3 - HWY. 56 | 2106 | 2823 | |
| ENTIRE PROJECT | | APPROACHES | | 979 | |
| ENTIRE PROJECT | | TEMPORARY APPROACHES | | 50 | |
| 113+13.05 | 113+21.08 | BRIDGE EXCAVATION | 702 | | |
| 400+00.00 | 405+64.13 | BENS CREEK ROAD | 423 | 42 | |
| ENTIRE PROJECT | | TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER | | | 100 |
| TOTALS: | | | 5833 | 18472 | 100 |

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

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

COLD MILLING ASPHALT PAVEMENT

| STATION | STATION | LOCATION | AVG. WIDTH | COLD MILLING ASPHALT PAVEMENT |
|---------------|-----------|----------|------------|-------------------------------|
| | | | FEET | SQ. YD. |
| 100+44.86 | 101+44.86 | HWY. 56 | 22.00 | 244.44 |
| 125+50.00 | 126+50.00 | HWY. 56 | 22.00 | 244.44 |
| TOTAL: | | | | 488.88 |

NOTE: AVERAGE MILLING DEPTH 1".

ACHM PATCHING OF EXISTING ROADWAY

| DESCRIPTION | TON |
|---|-----------|
| ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER | 10 |
| TOTAL: | 10 |

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

APPROACH GUTTERS AND SLABS

| STATION | STATION | LOCATION | APPROACH GUTTER (TYPE C) | APPROACH SLABS (TYPE SPECIAL) | REINFORCING STEEL-RDWY. (GR. 60) | AGGREGATE BASE CRS. (CLASS 7) |
|----------------|-----------|----------------|--------------------------|-------------------------------|----------------------------------|-------------------------------|
| | | | CU. YD. | CU. YD. | POUND | TON |
| 109+47.42 | 109+83.92 | LT. OF HWY. 56 | 11.55 | | 630 | 8.5 |
| 109+47.42 | 109+83.92 | HWY. 56 | | 44.49 | 5311 | 31.2 |
| 109+47.42 | 109+83.92 | RT. OF HWY. 56 | 11.55 | | 630 | 8.5 |
| 113+21.08 | 113+57.58 | LT. OF HWY. 56 | 11.55 | | 630 | 8.5 |
| 113+21.08 | 113+57.58 | HWY. 56 | | 44.49 | 5311 | 31.2 |
| 113+21.08 | 113+57.58 | RT. OF HWY. 56 | 11.55 | | 630 | 8.5 |
| TOTALS: | | | 46.20 | 88.98 | 13142 | 96.4 |

NOTE: USE T=14" FOR 6' SHOULDER.

SOIL LOG

| STATION | LATITUDE | | | LONGITUDE | | | LOCATION | DEPTH FEET | LIQUID LIMIT | PLASTICITY INDEX | AASHTO CLASSIFICATION | COLOR |
|---------|----------|-----|-------|-----------|-----|-------|----------|------------|--------------|------------------|-----------------------|-------|
| | DEG | MIN | SEC | DEG | MIN | SEC | | | | | | |
| 108+10 | 36 | 10 | 40.80 | 91 | 44 | 24.50 | 20 RT | 0-5 | 35 | 23 | A-6 (3) | BROWN |
| 108+00 | 36 | 10 | 40.90 | 91 | 44 | 24.60 | 6 RT | 0-5 | 36 | 25 | A-6 (11) | BROWN |
| 108+00 | 36 | 10 | 40.80 | 91 | 44 | 24.60 | 20 RT | 0-5 | 37 | 25 | A-6 (6) | BROWN |
| 115+00 | 36 | 10 | 41.00 | 91 | 44 | 16.30 | 6 LT | 0-5 | 49 | 33 | A-7-6 (21) | BROWN |
| 115+00 | 36 | 10 | 41.10 | 91 | 44 | 16.30 | 20 LT | 0-4Z | 54 | 36 | A-7-6 (20) | BROWN |

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

CONCRETE DITCH PAVING

| STATION | STATION | LOCATION | LENGTH | "W" | CONC. DITCH PAVING (TYPE B) | SOLID SODDING | WATER |
|----------------|-----------|----------------|----------|------|-----------------------------|---------------|-------------|
| | | | LIN. FT. | FEET | SQ. YD. | SQ. YD. | M. GAL. |
| 123+25.00 | 124+03.00 | RT. OF HWY. 56 | 78.00 | 6.00 | 52.00 | 34.67 | 0.44 |
| TOTALS: | | | | | 52.00 | 34.67 | 0.44 |

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

STRUCTURES

| STATION | DESCRIPTION | REINFORCED CONCRETE PIPE CULVERT (CLASS III) | FLARED END SECTIONS FOR R.C. PIPE CULVERTS | TEMPORARY CULVERTS | SOLID SODDING | WATER | STD. DWG. NOS. |
|----------------|------------------------------|--|--|--------------------|---------------|-------------|----------------------------|
| | | 30" LIN. FT. | 30" EACH | 18" LIN. FT. | SQ. YD. | M. GAL. | |
| 117+00 | INSTALL 18" TEMPORARY PIPE | | | 75 | 28 | 0.35 | PCC-1, PCM-1, PCP-1, PCP-2 |
| 124+15 | EXTEND DBL. 30" PIPE CULVERT | 72 | 4 | | | | FES-1, FES-2, PCC-1 |
| TOTALS: | | 72 | 4 | 75 | 28 | 0.35 | |

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.

SELECTED PIPE BEDDING

| LOCATION | SELECTED PIPE BEDDING |
|---|-----------------------|
| ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER | CU. YD. |
| | 20 |
| TOTAL: | 20 |

NOTE: QUANTITY 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 |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| 9-4-19 | | | | 6 | ARK. | | 29 | 78 |
| | | | | | | | JOB NO. | 050321 |

2 QUANTITIES



DRIVEWAYS & TURNOUTS

| STATION | SIDE | LOCATION | WIDTH | | ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22) | | AGGREGATE BASE COURSE (CLASS 7) | SIDE DRAINS 18" LIN. FT. | STANDARD DRAWINGS |
|-----------------------------------|------|----------------|-------|---------------|--|---------------|---------------------------------|--------------------------------|-------------------|
| | | | FEET | SQ. YD. | TON | TON | | | |
| 107+18 | LT. | HWY. 56 | 16 | 162.06 | 17.83 | 66.17 | | | |
| 114+92 | RT. | HWY. 56 | 16 | 355.27 | 39.08 | 145.07 | 30 | PCC-1, PCM-1, PCP-1, PCP-2 | |
| 116+66 | LT. | BENS CREEK RD. | 20 | | | | 46 | PCC-1, PCM-1, PCP-1, PCP-2 | |
| 118+25 | LT. | HWY. 56 | 16 | 100.07 | 11.01 | 40.86 | 30 | PCC-1, PCM-1, PCP-1, PCP-2 | |
| 123+00 | RT. | HWY. 56 | 16 | 162.25 | 17.85 | 66.25 | 50 | PCC-1, PCM-1, PCP-1, PCP-2 | |
| * ENTIRE PROJECT TEMPORARY DRIVES | | | | | | | 50.00 | | |
| TOTALS: | | | | 779.65 | 85.77 | 368.35 | 156 | | |

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (1/2") 94.5% MIN. AGGR 5.5% ASPHALT BINDER
 MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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

BENCH MARKS

| STATION | LOCATION | BENCH MARKS |
|---------------|------------|-------------|
| 113+21 | BRIDGE END | EACH 1 |
| TOTAL: | | 1 |

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

4" PIPE UNDERDRAIN

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

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

RUMBLE STRIPS IN ASPHALT SHOULDERS

| STATION | STATION | LOCATION | * RUMBLE STRIPS IN ASPHALT SHOULDERS LIN. FT. |
|---------------|---------|----------------|--|
| 100+45 | 109+84 | RT. OF HWY. 56 | 942 |
| 113+21 | 126+50 | RT. OF HWY. 56 | 1197 |
| 100+45 | 109+84 | LT. OF HWY. 56 | 870 |
| 113+21 | 126+50 | LT. OF HWY. 56 | 1153 |
| TOTAL: | | | 4162 |

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

FLOWABLE SELECT MATERIAL

| STATION | LOCATION | CU. YD. |
|---------------|---------------------------|-------------|
| 107+00 | HWY. 56 - FILL TEMP. PIPE | 4.91 |
| TOTAL: | | 4.91 |

GUARDRAIL

| STATION | STATION | LOCATION | GUARDRAIL (TYPE A) LIN. FT. | THRIE BEAM GUARDRAIL TERMINAL EACH | GUARDRAIL TERMINAL (TYPE 2) EACH |
|----------------|-----------|---------------------|--------------------------------|---------------------------------------|-------------------------------------|
| 107+54.77 | 109+73.52 | RT. SIDE OF HWY. 56 | 150 | 1 | 1 |
| 108+54.77 | 109+73.52 | LT. SIDE OF HWY. 56 | 50 | 1 | 1 |
| 113+31.48 | 115+50.23 | LT. SIDE OF HWY. 56 | 150 | 1 | 1 |
| 113+31.48 | 114+25.23 | RT. SIDE OF HWY. 56 | 25 | 1 | 1 |
| TOTALS: | | | 375 | 4 | 4 |

FENCING

| STATION | STATION | LOCATION | WIRE FENCE | | | * 16'-0" GATES |
|----------------|---------|----------------|------------|-------------|-------------|----------------|
| | | | (TYPE C) | (TYPE D) | (TYPE D-1) | EACH |
| 100+00 | 106+74 | RT. OF HWY. 56 | 698 | | | |
| 100+00 | 107+48 | LT. OF HWY. 56 | | | 730 | 1 |
| 107+48 | 109+82 | LT. OF HWY. 56 | | 236 | | |
| 114+35 | 115+00 | RT. OF HWY. 56 | 82 | | | |
| 113+60 | 122+42 | LT. OF HWY. 56 | | 923 | | 1 |
| 122+42 | 127+00 | LT. OF HWY. 56 | | | 456 | |
| TOTALS: | | | 780 | 1159 | 1186 | 2 |

* DENOTES ALTERNATE BID ITEM.

EROSION CONTROL

| STATION | STATION | LOCATION | PERMANENT EROSION CONTROL | | | | | TEMPORARY EROSION CONTROL | | | | | | | | | |
|--|---------|-----------------------|---------------------------|--------------|---------------------|-----------------|------------------------------------|---------------------------|---------------------|-----------------|--|---------------------------------------|---------------------------------------|---------------------------------------|--------------------------------------|-----------------------------------|--|
| | | | SEEDING ACRE | LIME TON | MULCH COVER ACRE | WATER M.GAL. | SECOND SEEDING APPLICATION ACRE | TEMPORARY SEEDING ACRE | MULCH COVER ACRE | WATER M.GAL. | WATTLE (20") DITCH CHECKS (E-1) LIN. FT. | SAND BAG DITCH CHECKS (E-5) BAG | ROCK DITCH CHECKS (E-6) CU. YD. | 18" FILTER SOCKS (E-3) LIN. FT. | DIVERSION DITCH (E-8) LIN. FT. | PIPE FOR SLOPE DRAINS LIN. FT. | * SEDIMENT REMOVAL & DISPOSAL CU. YD. |
| ENTIRE PROJECT | | CLEARING AND GRUBBING | | | | | | 9.33 | 9.33 | 190.3 | | | | | | | 159 |
| ENTIRE PROJECT | | STAGE 1 | | | | | | 0.30 | 0.30 | 6.1 | | | | | | | 4 |
| ENTIRE PROJECT | | STAGE 2 | | | | | | 3.01 | 3.01 | 61.4 | | | | | | | 25 |
| ENTIRE PROJECT | | STAGE 3 | 5.44 | 10.88 | 5.44 | 554.9 | 5.44 | 2.56 | 2.56 | 52.2 | | | | | 21 | | 7 |
| * ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. | | | 1.36 | 2.72 | 1.36 | 138.7 | 1.36 | 3.80 | 3.80 | 77.5 | 130 | 317 | 43 | | 150 | 75 | 43 |
| TOTALS: | | | 6.80 | 13.60 | 6.80 | 693.6 | 6.80 | 19.00 | 19.00 | 387.5 | 130 | 317 | 151 | 4282 | 150 | 75 | 238 |

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
 WATTLE DITCH CHECKS 9 LIN. FT. / LOCATION
 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 ESTIMATED.
 SEE SECTION 104.03 OF THE STD. SPECS.

02/06/2019

R050321.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. | | | | | | | 050321 | 30 | 78 |

2 QUANTITIES



BASE AND SURFACING

| STATION | STATION | LOCATION | LENGTH FEET | AGGREGATE BASE COURSE (CLASS 7) | | TACK COAT | | | | | | ACHM BINDER COURSE (1") | | | | ACHM SURFACE COURSE (1/2") | | | | | | | | | | | | |
|--|-----------|---------------------------|----------------|---------------------------------|---------|-------------------------|---------|--------|-------------------------|---------|--------|-------------------------|----------------|---------|----------------|----------------------------|----------------|---------|----------------|--------------|----------------|----------|----------------|--------------|--------------------|--|--------|--------|
| | | | | TON / STATION | TON | (0.05 GAL. PER SQ. YD.) | | | (0.17 GAL. PER SQ. YD.) | | | TOTAL GALLONS | AVG. WID. FEET | SQ.YD. | POUND / SQ.YD. | PG 64-22 TON | AVG. WID. FEET | SQ.YD. | POUND / SQ.YD. | PG 64-22 TON | AVG. WID. FEET | SQ.YD. | POUND / SQ.YD. | PG 64-22 TON | TOTAL PG 64-22 TON | | | |
| | | | | | | TOTAL WID. FEET | SQ.YD. | GALLON | TOTAL WID. FEET | SQ.YD. | GALLON | | | | | | | | | | | | | | | | | |
| HWY. 56 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100+44.86 | 101+44.86 | HWY. 56 TRANSITION | 100.00 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 101+44.86 | 103+95.00 | NOTCH AND WIDEN | 250.14 | 147.50 | 368.96 | 22.00 | 611.45 | 30.57 | 30.00 | 333.33 | 56.67 | 56.67 | | | | | | | | | | | | | | | | |
| 103+95.00 | 105+00.00 | NOTCH AND WIDEN | 105.00 | 138.75 | 145.69 | 30.38 | 354.43 | 17.72 | | | | 17.72 | 4.25 | 49.58 | 440.00 | 10.91 | 4.13 | 48.18 | 220.00 | 5.30 | 34.00 | 396.67 | 220.00 | 43.63 | 48.93 | | | |
| 105+00.00 | 107+45.00 | FULL DEPTH | 245.00 | 224.25 | 549.41 | 52.75 | 1435.97 | 71.80 | | | | 71.80 | 26.50 | 721.39 | 440.00 | 158.71 | 26.25 | 714.58 | 220.00 | 78.60 | 34.00 | 925.56 | 220.00 | 101.81 | 180.41 | | | |
| 107+45.00 | 109+47.42 | FULL DEPTH | 202.42 | 233.00 | 471.64 | 44.75 | 1006.48 | 50.32 | | | | 50.32 | 22.50 | 506.05 | 440.00 | 111.33 | 22.25 | 500.43 | 220.00 | 55.05 | 34.00 | 764.70 | 220.00 | 84.12 | 139.17 | | | |
| 113+57.58 | 120+17.00 | FULL DEPTH | 659.42 | 233.00 | 1536.45 | 44.75 | 3278.78 | 163.94 | | | | 163.94 | 22.50 | 1648.55 | 440.00 | 362.68 | 22.25 | 1630.23 | 220.00 | 179.33 | 34.00 | 2491.14 | 220.00 | 274.03 | 453.36 | | | |
| 120+17.00 | 125+50.00 | NOTCH AND WIDEN | 533.00 | 147.50 | 786.18 | 22.00 | 1302.89 | 65.14 | | | | 65.14 | | | | | | | | | 34.00 | 2013.56 | 220.00 | 221.49 | 221.49 | | | |
| 125+50.00 | 126+50.00 | HWY. 56 TRANSITION | 100.00 | | | | | | 30.00 | 333.33 | 56.67 | 56.67 | | | | | | | | | 30.00 | 333.33 | 220.00 | 36.67 | 36.67 | | | |
| TEMPORARY WIDENING | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 301+45.00 | 305+80.00 | TEMPORARY WIDENING | 435.00 | 44.25 | 192.49 | 4.50 | 217.50 | 10.88 | | | | 10.88 | 4.50 | 217.50 | 330.00 | 35.89 | 6.50 | 314.17 | 220.00 | 34.56 | | | | | | | | 34.56 |
| BENS CREEK RD. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 400+00.00 | 405+01.83 | COUNTY ROAD | 501.83 | 109.75 | 550.76 | | | | | | | | | | | | | | | | 20.00 | 1115.18 | 220.00 | 122.67 | 122.67 | | | |
| 405+01.83 | 405+53.13 | TURNOUT | 51.30 | VAR. | 98.48 | | | | | | | | | | | | | | | | VAR. | 207.73 | 220.00 | 22.85 | 22.85 | | | |
| ADDITIONAL FOR GUARDRAIL WIDENING | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 107+11.77 | 107+44.77 | WIDENING TAPER RT. | 33.00 | 14.75 | 4.87 | | | | | | | | | | | | | | | | 2.75 | 10.08 | 220.00 | 1.11 | 1.11 | | | |
| 107+44.77 | 109+83.92 | WIDENING RT. | 239.15 | 23.13 | 55.32 | | | | | | | | | | | | | | | | 5.50 | 146.15 | 220.00 | 16.08 | 16.08 | | | |
| 108+11.77 | 108+44.77 | WIDENING TAPER LT. | 33.00 | 14.75 | 4.87 | | | | | | | | | | | | | | | | 2.75 | 10.08 | 220.00 | 1.11 | 1.11 | | | |
| 108+44.77 | 109+83.92 | WIDENING LT. | 139.15 | 23.13 | 32.19 | | | | | | | | | | | | | | | | 5.50 | 85.04 | 220.00 | 9.35 | 9.35 | | | |
| 113+21.08 | 114+35.23 | WIDENING RT. | 114.15 | 21.25 | 24.26 | | | | | | | | | | | | | | | | 5.50 | 69.76 | 220.00 | 7.67 | 7.67 | | | |
| 114+35.23 | 114+68.23 | WIDENING TAPER RT. | 33.00 | 14.75 | 4.87 | | | | | | | | | | | | | | | | 2.75 | 10.08 | 220.00 | 1.11 | 1.11 | | | |
| 113+21.08 | 115+60.23 | WIDENING LT. | 239.15 | 23.13 | 55.32 | | | | | | | | | | | | | | | | 5.50 | 146.15 | 220.00 | 16.08 | 16.08 | | | |
| 115+60.23 | 115+93.23 | WIDENING TAPER LT. | 33.00 | 14.75 | 4.87 | | | | | | | | | | | | | | | | 2.75 | 10.08 | 220.00 | 1.11 | 1.11 | | | |
| ADDITIONAL FOR LEVELING AND GRADE RAISE | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 101+44.86 | 105+00.00 | LEVELING - EXIST. HWY. 56 | 355.14 | | | | | | 22.00 | 868.12 | 147.58 | 147.58 | | | | | | | | | | | | | | | 273.24 | |
| 105+00.00 | 106+00.00 | GRADE RAISE - HWY. 56 | 100.00 | | | | | | 22.00 | 244.44 | 41.55 | 41.55 | 22.00 | 244.44 | VAR. | 55.44 | 22.00 | 868.12 | VAR. | | | | | | | | | 273.24 |
| 120+00.00 | 125+50.00 | LEVELING - EXIST. HWY. 56 | 550.00 | | | | | | 22.00 | 1344.44 | 228.55 | 228.55 | | | | | | | | | | | | | | | 263.34 | |
| ADDITIONAL FOR SUPERELEVATION | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 101+44.86 | 103+95.00 | SUPERELEVATION TRANSITION | 250.14 | 40.75 | 101.93 | | | | | | | | | | | | | | | | | | | | | | | |
| 103+95.00 | 104+94.86 | SUPERELEVATION TRANSITION | 99.86 | 50.50 | 50.43 | | | | | | | | | | | | | | | | | | | | | | | |
| 104+94.86 | 106+33.00 | MAXIMUM SUPERELEVATION | 138.14 | 62.75 | 86.68 | | | | | | | | | | | | | | | | | | | | | | | |
| 106+33.00 | 107+45.00 | SUPERELEVATION TRANSITION | 112.00 | 50.50 | 56.56 | | | | | | | | | | | | | | | | | | | | | | | |
| 107+45.00 | 109+47.42 | SUPERELEVATION TRANSITION | 202.42 | 40.75 | 82.49 | | | | | | | | | | | | | | | | | | | | | | | |
| 115+64.45 | 117+99.91 | SUPERELEVATION TRANSITION | 235.46 | 65.50 | 154.23 | | | | | | | | | | | | | | | | | | | | | | | |
| 117+99.91 | 120+35.37 | SUPERELEVATION TRANSITION | 235.46 | 65.50 | 154.23 | | | | | | | | | | | | | | | | | | | | | | | |
| 120+35.37 | 122+65.27 | SUPERELEVATION TRANSITION | 229.90 | 61.50 | 141.39 | | | | | | | | | | | | | | | | | | | | | | | |
| 122+65.27 | 124+95.17 | SUPERELEVATION TRANSITION | 229.90 | 61.50 | 141.39 | | | | | | | | | | | | | | | | | | | | | | | |
| TOTALS: | | | | | 5855.96 | | 8207.50 | 410.37 | | 3123.66 | 531.02 | 941.39 | | 3387.51 | | 734.96 | | 5420.15 | | 889.42 | | 10013.59 | | 1101.51 | 1990.93 | | | |

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
 ACHM BINDER COURSE (1").....95.5% MIN. AGGR.....4.5% ASPHALT BINDER
 MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
 TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

02/06/2019 R050321.DGN

QUANTITIES

| | | | | | | | | |
|--------------|-------------|--------------|-------------|----------------------------|-------|--------------------|-----------|--------------|
| 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. | | 050321 | 31 | 78 |
| | | | | 07437 - QUANTITIES - 60621 | | | | |

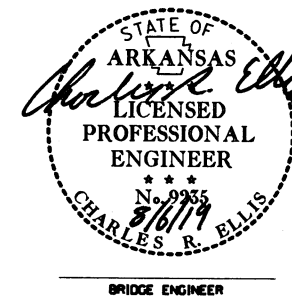
SCHEDULE OF BRIDGE QUANTITIES -JOB NO. 050321

| BRIDGE NO. | HIGHWAY | NAME PLATE TITLE | UNIT OF STRUCTURE | ITEM NO. | 205 | 801 | SS & 802 | SP, SS, & 802 | 803 | SS & 804 | SS & 804 | SS & 805 | SP, SS, & 807 | SS & 807 | SS & 808 | SS & 809 | 812 | 816 | 816 | SP JOB 050321 | SP JOB 050321 | | |
|------------|----------------------------------|------------------|-------------------------------|----------|--|--|-------------------------|-----------------------------|--------------------------------------|---|-------------------------------------|---------------------------|--|-----------------------------|----------------------|------------------------|----------------------------|---------------|----------------|--------------------------|-----------------------------------|----|----|
| | | | | ITEM | REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.) | UNCLASSIFIED EXCAVATION FOR STRUCTURE-BRIDGE | CLASS S CONCRETE-BRIDGE | CLASS S(AE) CONCRETE-BRIDGE | CLASS 2 PROTECTIVE SURFACE TREATMENT | EPOXY COATED REINFORCING STEEL (GRADE 60) | REINFORCING STEEL-BRIDGE (GRADE 60) | ① STEEL PILING (HP 12X53) | STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50W) | ② PAINTING STRUCTURAL STEEL | ELASTOMERIC BEARINGS | SILICONE JOINT SEALANT | BRIDGE NAME PLATE (TYPE D) | DUMPED RIPRAP | FILTER BLANKET | DRILLED SHAFT (72" DIA.) | PERMANENT STEEL CASING (84" DIA.) | | |
| | | | | UNIT | LUMP SUM | CU. YD. | CU. YD. | CU. YD. | SQ. YD. | LB. | LB. | LIN. FT. | LB. | TON | CU. IN. | LIN. FT. | EACH | CU. YD. | SQ. YD. | LIN. FT. | LIN. FT. | | |
| 07437 | HIGHWAY 56 OVER STRAWBERRY RIVER | | BENT 1 | | | 35.70 | | | 13.4 | | 3,500 | 145 | 711 | | 1,920.0 | 37 | | 198 | 367 | | | | |
| | | | BENT 2 | | | 51.10 | | | | | 12,401 | | | | 2,356.0 | | | | | | | | |
| | | | BENT 3 | | | 54.30 | | | | | | 13,549 | | | | 2,356.0 | | | | | | 33 | 18 |
| | | | BENT 4 | | ③ 812 | 75.40 | | | | 13.4 | | 6,130 | | 711 | | 1,920.0 | 37 | | 50 | 88 | | 33 | 18 |
| | | | 335'-0" PLATE GIRDER UNIT | | | | | | 382.80 | 1,534.3 | 87,680 | | | 433,628 | 6.3 | | | | 1 | | | | |
| | | | SITE NO. 1 (BRIDGE NO. 03219) | | 1 | | | | | | | | | | | | | | | | | | |
| | | | TOTALS FOR JOB NO. 050321 | | | ③ 812 | 216.50 | 382.80 | 1,561.1 | 87,680 | 35,580 | 145 | 435,050 | 6.3 | | 8,552.0 | 74 | 1 | 248 | 455 | 66 | 36 | |

| UNIT OF STRUCTURE | ITEM NO. | SP JOB 050321 | SP JOB 050321 |
|-------------------------------|----------|------------------------------------|----------------------|
| | ITEM | CROSSHOLE SONIC LOGGING (72" DIA.) | CORING DRILLED SHAFT |
| | | UNIT | LIN. FT. |
| BENT 1 | | | |
| BENT 2 | | 1 | |
| BENT 3 | | 1 | 33 |
| BENT 4 | | | |
| 335'-0" PLATE GIRDER UNIT | | | |
| SITE NO. 1 (BRIDGE NO. 03219) | | | |
| TOTALS FOR JOB NO. 050321 | | 2 | 33 |

THOMAS GERARD
DESIGN SECTION SUPERVISOR

- ① All steel piling shall be Grade 50 and are required to have approved driving points which will not be paid for directly, but will be considered subsidiary to the item "Steel Piling (HP 12X53)".
- ② The color of paint shall be Brown equal or close to Federal Std. 595B, Color Chip No. 30070 and as approved by the Engineer.
- ③ Rock excavation.



SCHEDULE OF BRIDGE QUANTITIES
STRAWBERRY RIVER STR. & APPRS. (S)
IZARD COUNTY

ROUTE 56 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJT DATE: 3/15/2019 FILENAME: b050321_q1.dgn
CHECKED BY: DPT DATE: 8/1/19 SCALE: No Scale
DESIGNED BY: DATE: BRIDGE NO. 07437 DRAWING NO. 60621

SUMMARY OF QUANTITIES

| ITEM NUMBER | ITEM | QUANTITY | UNIT |
|--------------------------|---|----------|----------|
| SP & 201 | CLEARING | 22 | STATION |
| SP & 201 | GRUBBING | 22 | STATION |
| 202 | REMOVAL AND DISPOSAL OF POSTS | 1 | EACH |
| 202 | REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS | 2 | EACH |
| 202 | REMOVAL AND DISPOSAL OF PIPE CULVERTS | 4 | EACH |
| 202 | REMOVAL AND DISPOSAL OF GUARDRAIL | 101 | LIN. FT. |
| 202 | REMOVAL AND DISPOSAL OF SIGNS | 1 | EACH |
| 206 | FLOWABLE SELECT MATERIAL | 5 | CU. YD. |
| 210 | UNCLASSIFIED EXCAVATION | 5833 | CU. YD. |
| 210 | COMPACTED EMBANKMENT | 18472 | CU. YD. |
| SP & 210 | SOIL STABILIZATION | 100 | TON |
| SS & 303 | AGGREGATE BASE COURSE (CLASS 7) | 6321 | TON |
| SS & 401 | TACK COAT | 961 | GAL. |
| SP, SS, & 406 | MINERAL AGGREGATE IN ACHM BINDER COURSE (1") | 702 | TON |
| SP, SS, & 406 | ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1") | 33 | TON |
| SP, SS, & 407 | MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2") | 1963 | TON |
| SP, SS, & 407 | ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2") | 114 | TON |
| 412 | COLD MILLING ASPHALT PAVEMENT | 489 | SQ. YD. |
| SP, SS, & 414 | ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC | 10 | TON |
| SP, SS, & 415 | ACHM PATCHING OF EXISTING ROADWAY | 10 | TON |
| 504 | APPROACH SLABS | 88.98 | CU. YD. |
| 504 | APPROACH GUTTERS | 46.20 | CU. YD. |
| 601 | MOBILIZATION | 1.00 | LUMP SUM |
| SP & 602 | FURNISHING FIELD OFFICE | 1 | EACH |
| 603 | MAINTENANCE OF TRAFFIC | 1.00 | LUMP SUM |
| 603 | 18" TEMPORARY CULVERT | 75 | LIN. FT. |
| SS & 604 | SIGNS | 263 | SQ. FT. |
| SS & 604 | BARRICADES | 160 | LIN. FT. |
| SS & 604 | TRAFFIC DRUMS | 41 | EACH |
| 604 | FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER | 240 | LIN. FT. |
| 604 | CONSTRUCTION PAVEMENT MARKINGS | 8601 | LIN. FT. |
| 604 | REMOVABLE CONSTRUCTION PAVEMENT MARKINGS | 1621 | LIN. FT. |
| 604 | REMOVAL OF PERMANENT PAVEMENT MARKINGS | 2786 | LIN. FT. |
| SS & 604 | VERTICAL PANELS | 20 | EACH |
| SS & 605 | CONCRETE DITCH PAVING (TYPE B) | 52 | SQ. YD. |
| 606 | 30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) | 72 | LIN. FT. |
| SP, SS, & 606 | 18" SIDE DRAIN | 156 | LIN. FT. |
| 606 | 30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS | 4 | EACH |
| 606 | SELECTED PIPE BEDDING | 20 | CU. YD. |
| SS & 611 | 4" PIPE UNDERDRAINS | 500 | LIN. FT. |
| SS & 611 | UNDERDRAIN OUTLET PROTECTORS | 4 | EACH |
| SS & 617 | GUARDRAIL (TYPE A) | 375 | LIN. FT. |
| SS & 617 | GUARDRAIL TERMINAL (TYPE 2) | 4 | EACH |
| SS & 617 | THREE BEAM GUARDRAIL TERMINAL | 4 | EACH |
| 619 | WIRE FENCE (TYPE C) | 780 | LIN. FT. |
| 619 | WIRE FENCE (TYPE D) | 1159 | LIN. FT. |
| 619 | WIRE FENCE (TYPE D-1) | 1186 | LIN. FT. |
| 619 | 16" STEEL GATES | 2 | EACH |
| 619 | 16" ALUMINUM GATES | 2 | EACH |
| 620 | LIME | 14 | TON |
| 620 | SEEDING | 6.80 | ACRE |
| SS & 620 | MULCH COVER | 25.80 | ACRE |
| 620 | WATER | 1081.9 | M. GAL. |
| 621 | TEMPORARY SEEDING | 19.00 | ACRE |
| 621 | SAND BAG DITCH CHECKS | 317 | BAG |
| 621 | DIVERSION DITCH | 150 | LIN. FT. |
| 621 | SEDIMENT REMOVAL AND DISPOSAL | 238 | CU. YD. |
| 621 | PIPE FOR SLOPE DRAINS | 75 | LIN. FT. |
| 621 | ROCK DITCH CHECKS | 151 | CU. YD. |
| SS & 621 | FILTER SOCK (18") | 4282 | LIN. FT. |
| 621 | WATTLE (20") | 130 | LIN. FT. |
| 623 | SECOND SEEDING APPLICATION | 6.80 | ACRE |
| 624 | SOLID SODDING | 63 | SQ. YD. |
| 635 | ROADWAY CONSTRUCTION CONTROL | 1.00 | LUMP SUM |
| 642 | RUMBLE STRIPS IN ASPHALT SHOULDERS | 4162 | LIN. FT. |
| 718 | REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") | 5288 | LIN. FT. |
| 718 | REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6") | 5288 | LIN. FT. |
| 721 | RAISED PAVEMENT MARKERS (TYPE II) | 33 | EACH |
| 731 | TEMPORARY IMPACT ATTENUATION BARRIER | 2 | EACH |
| 731 | TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR) | 2 | EACH |
| SS & 804 | REINFORCING STEEL-ROADWAY (GRADE 60) | 13142 | POUND |
| STRUCTURES OVER 20' SPAN | | | |
| 205 | REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1) | 1.00 | LUMP SUM |
| 636 | BRIDGE CONSTRUCTION CONTROL | 1.00 | LUMP SUM |
| 801 | UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE | 812 | CU. YD. |
| SS & 802 | CLASS S CONCRETE-BRIDGE | 216.50 | CU. YD. |
| SP, SS, & 802 | CLASS S(AE) CONCRETE-BRIDGE | 382.80 | CU. YD. |
| 803 | CLASS 2 PROTECTIVE SURFACE TREATMENT | 1561.1 | SQ. YD. |
| SS & 804 | REINFORCING STEEL-BRIDGE (GRADE 60) | 95580 | POUND |
| SS & 804 | EPOXY COATED REINFORCING STEEL (GRADE 60) | 87680 | POUND |
| SS & 805 | STEEL PILING (HP 12X53) | 145 | LIN. FT. |
| SP | CORING DRILLED SHAFT | 33 | LIN. FT. |
| SP | DRILLED SHAFT (72" DIAMETER) | 66 | LIN. FT. |
| SP | PERMANENT STEEL CASING (84" DIAMETER) | 36 | LIN. FT. |
| SP | CROSSHOLE SONIC LOGGING (72" DIAMETER) | 2 | EACH |
| SP, SS, & 807 | STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709-GR50W) | 435050 | POUND |
| SS & 807 | PAINTING STRUCTURAL STEEL | 6.3 | TON |
| SS & 808 | ELASTOMERIC BEARINGS | 8552.0 | CU. IN. |
| SS & 809 | SILICONE JOINT SEALANT | 74 | LIN. FT. |
| 812 | BRIDGE NAME PLATE (TYPE D) | 1 | EACH |
| 816 | FILTER BLANKET | 455 | SQ. YD. |
| 816 | DUMPED RIPRAP | 248 | CU. YD. |

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

| DATE | REVISION | SHEET NUMBER |
|----------|---|---|
| 9/4/2019 | CORRECTED TITLE FROM "NONDESTRUCTIVE TESTS OF DRILLED SHAFTS" TO "ELASTOMERIC BEARINGS" FOR SUPPLEMENTAL SPECIFICATION 808-2, REMOVED "COORDINATION OF WORK" SPECIAL PROVISION, ADDED "WATER POLLUTION CONTROL & RESTRAINING CONDITION" SPECIAL PROVISION AND "WELL-HEAD PROTECTION" SPECIAL PROVISION, REVISED "DELAY IN RIGHT OF WAY OCCUPANCY" SPECIAL PROVISION, CORRECTED THE ITEM NUMBER FROM "SS & 805" TO "SS & 804" FOR REINFORCING STEEL-ROADWAY (GRADE 60), MOVED DRIVEWAY FROM STA. 122+50 L.T. TO STA. 118+25 L.T. | 3, 15, 17, 22, 24, 26, 28-29, 32, 38-39, 67, 69 |

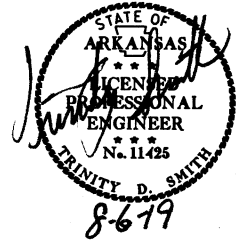
| DATE REVISED | DATE FILED | DATE REVISED | DATE FILED | FED. PROJ. NO. | STATE | FED. PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|------------|--------------|------------|----------------|-------|----------------|-----------|--------------|
| 9-4-19 | | | | 6 | ARK. | | | |

2 SUMMARY OF QUANTITIES AND REVISIONS



| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | | 33 | 78 |

2 SURVEY CONTROL DETAILS



SURVEY CONTROL COORDINATES

Project Name: s050321
Date: 11/10/2016
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL,
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

| Point Name | Northing | Easting | Elev | Feature | Description |
|------------|-------------|--------------|---------|---------|-----------------------------|
| 1 | 671847.8017 | 1387990.3546 | 540.056 | CTL | STD AHTD MON. STAMPED PN: 1 |
| 2 | 671691.1784 | 1388559.2105 | 536.834 | CTL | STD AHTD MON. STAMPED PN: 2 |
| 3 | 671565.3945 | 1389254.9905 | 541.530 | CTL | STD AHTD MON. STAMPED PN: 3 |
| 4 | 671569.9812 | 1389632.3377 | 552.879 | CTL | STD AHTD MON. STAMPED PN: 4 |
| 5 | 671605.1344 | 1390356.0118 | 555.609 | CTL | STD AHTD MON. STAMPED PN: 5 |
| 6 | 671574.0558 | 1390930.3479 | 549.387 | CTL | STD AHTD MON. STAMPED PN: 6 |
| 900 | 671599.7275 | 1389262.3748 | 542.996 | TBM | CHIS SQR NW CONR OF BR |

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.9999597673 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME s050321gi.ct1
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS BASED ON STATIC GPS PTS 1 - 6
CONVERGENCE ANGLE: 00-09-08 RIGHT AT LT: 36-10-40 LG: 091-44-18
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

TEMPORARY WIDENING

| POINT NO. | TYPE | STATION | NORTHING | EASTING |
|-----------|------|-----------|-------------|--------------|
| 8026 | POB | 300+00.00 | 671699.1762 | 1388584.0059 |
| 8027 | PC | 300+91.66 | 671674.3832 | 1388672.2489 |
| 8029 | PT | 302+42.29 | 671627.9650 | 1388815.5104 |
| 8030 | PC | 302+46.58 | 671626.4840 | 1388819.5331 |
| 8032 | PT | 305+00.20 | 671582.3802 | 1389067.9508 |
| 8033 | POE | 306+08.32 | 671582.5268 | 1389176.0673 |

BENS CREEK RD.

| POINT NO. | TYPE | STATION | NORTHING | EASTING |
|-----------|------|-----------|-------------|--------------|
| 8000 | POB | 400+00.00 | 671887.5158 | 1389559.9739 |
| 8001 | PC | 401+14.37 | 671775.6230 | 1389583.6266 |
| 8003 | PT | 402+01.49 | 671725.1286 | 1389646.2967 |
| 8004 | PC | 404+33.13 | 671726.5274 | 1389877.9350 |
| 8006 | PT | 405+33.06 | 671663.3256 | 1389941.9798 |
| 8007 | POE | 405+64.13 | 671632.2527 | 1389942.2038 |

DRIVEWAY AT STA. 114+91.92

| POINT NO. | TYPE | STATION | NORTHING | EASTING |
|-----------|------|-----------|-------------|--------------|
| 8008 | POB | 200+00.00 | 671438.3856 | 1389695.3069 |
| 8009 | PC | 200+29.74 | 671468.0729 | 1389693.6215 |
| 8011 | PRC | 201+12.12 | 671537.0706 | 1389730.6475 |
| 8013 | PT | 201+90.70 | 671602.2700 | 1389767.7926 |
| 8014 | POE | 202+19.63 | 671631.1984 | 1389767.6179 |

HWY. 56

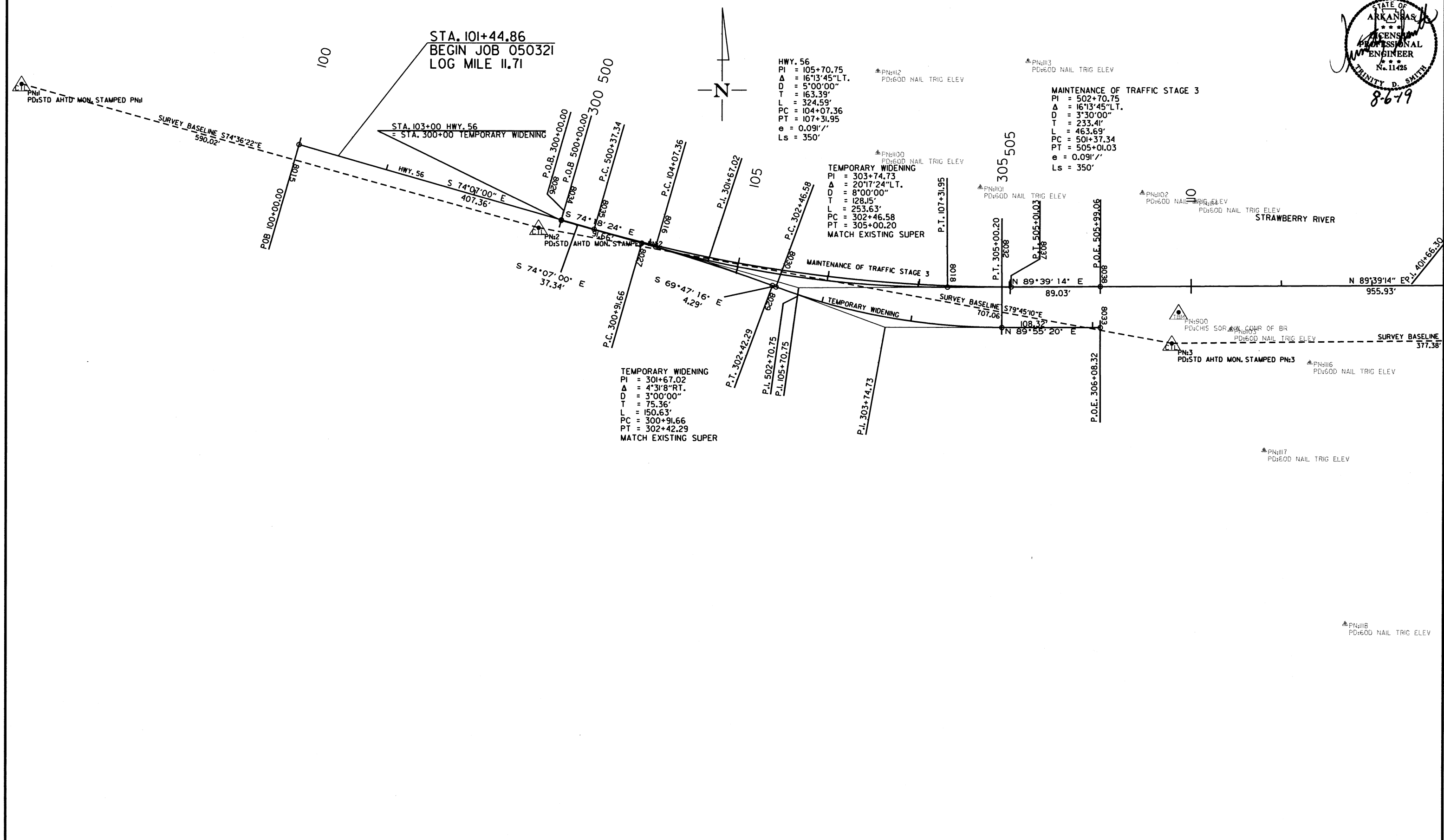
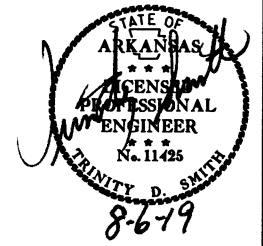
| POINT NO. | TYPE | STATION | NORTHING | EASTING |
|-----------|------|-----------|-------------|--------------|
| 8015 | POB | 100+00.00 | 671781.8259 | 1388295.6149 |
| 8016 | PC | 104+07.36 | 671670.3395 | 1388687.4253 |
| 8018 | PT | 107+31.95 | 671626.6109 | 1389007.9573 |
| 8019 | PC | 116+87.88 | 671632.3836 | 1389963.8725 |
| 8021 | PT | 119+11.94 | 671622.7908 | 1390187.6377 |
| 8022 | PC | 121+58.80 | 671600.1793 | 1390433.4576 |
| 8024 | PT | 123+71.74 | 671590.5464 | 1390646.1002 |
| 8025 | POE | 135+25.31 | 671591.9141 | 1391799.6768 |

MOT STAGE 3 ALIGNMENT

| POINT NO. | TYPE | STATION | NORTHING | EASTING |
|-----------|------|-----------|-------------|--------------|
| 8034 | POB | 500+00.00 | 671699.7224 | 1388584.1613 |
| 8035 | PC | 500+37.34 | 671689.5032 | 1388620.0759 |
| 8037 | PT | 505+01.03 | 671627.0338 | 1389077.9788 |
| 8038 | POE | 505+99.06 | 671627.6257 | 1389176.0062 |

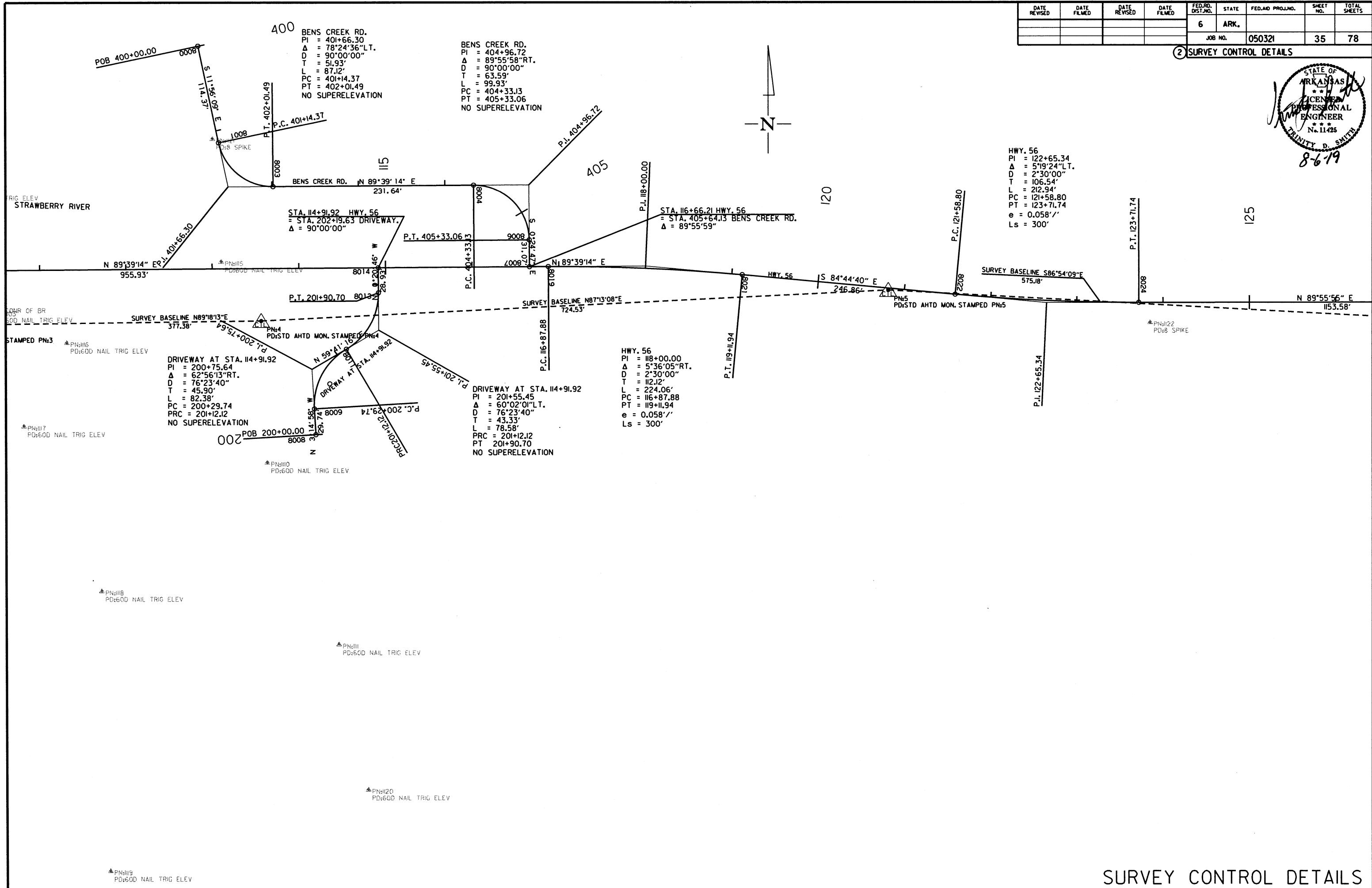
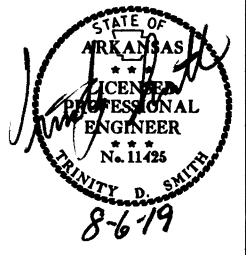
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AD PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|-------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. 050321 | | | 34 | 78 |

2 SURVEY CONTROL DETAILS



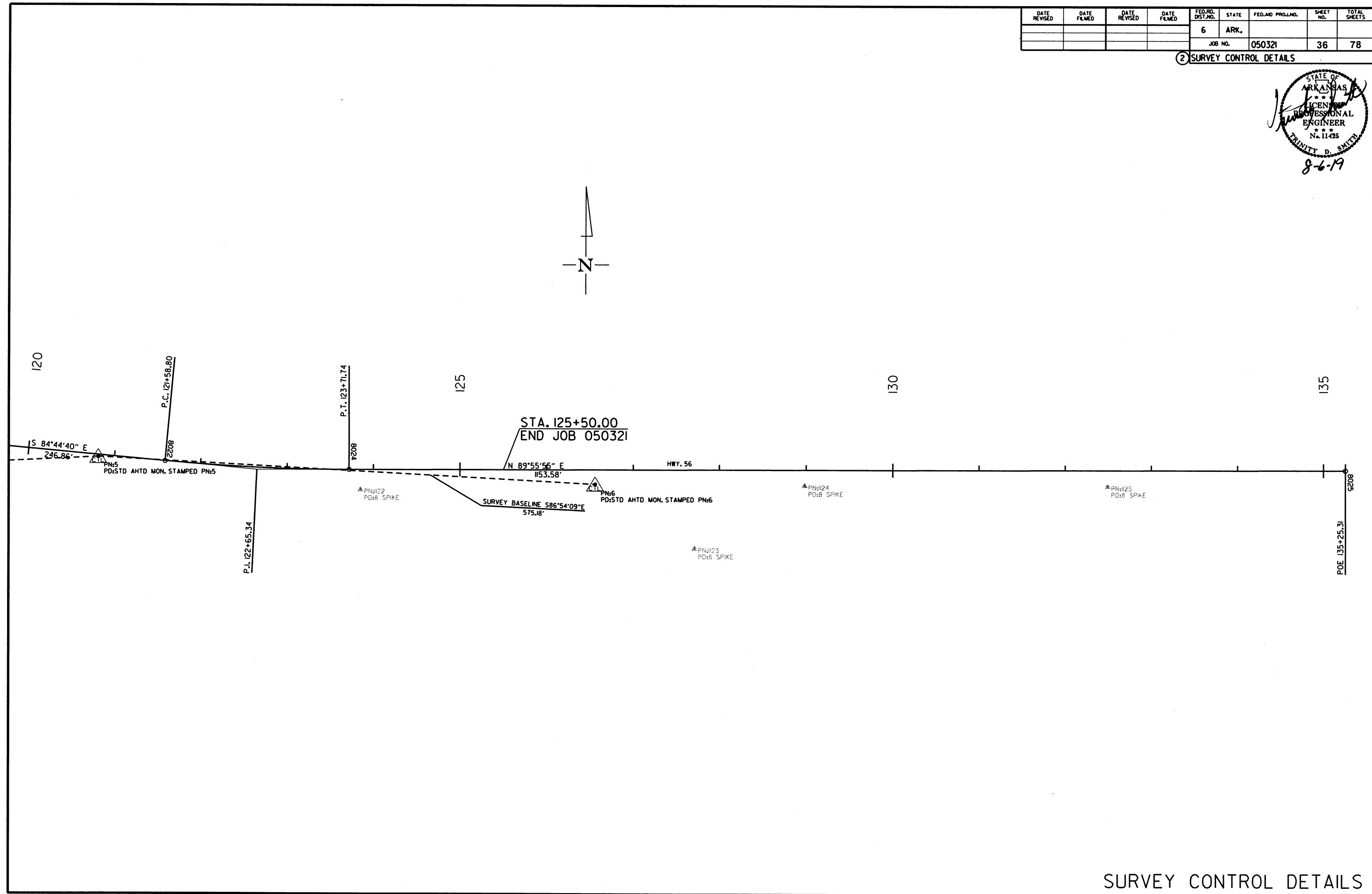
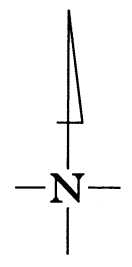
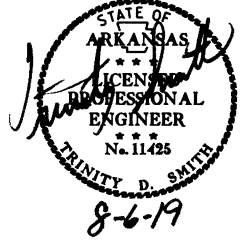
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|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | | 35 | 78 |

2 SURVEY CONTROL DETAILS



| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | | | JOB NO. 050321 | 36 | 78 |

② SURVEY CONTROL DETAILS



10/08/2018
R050321.DGN

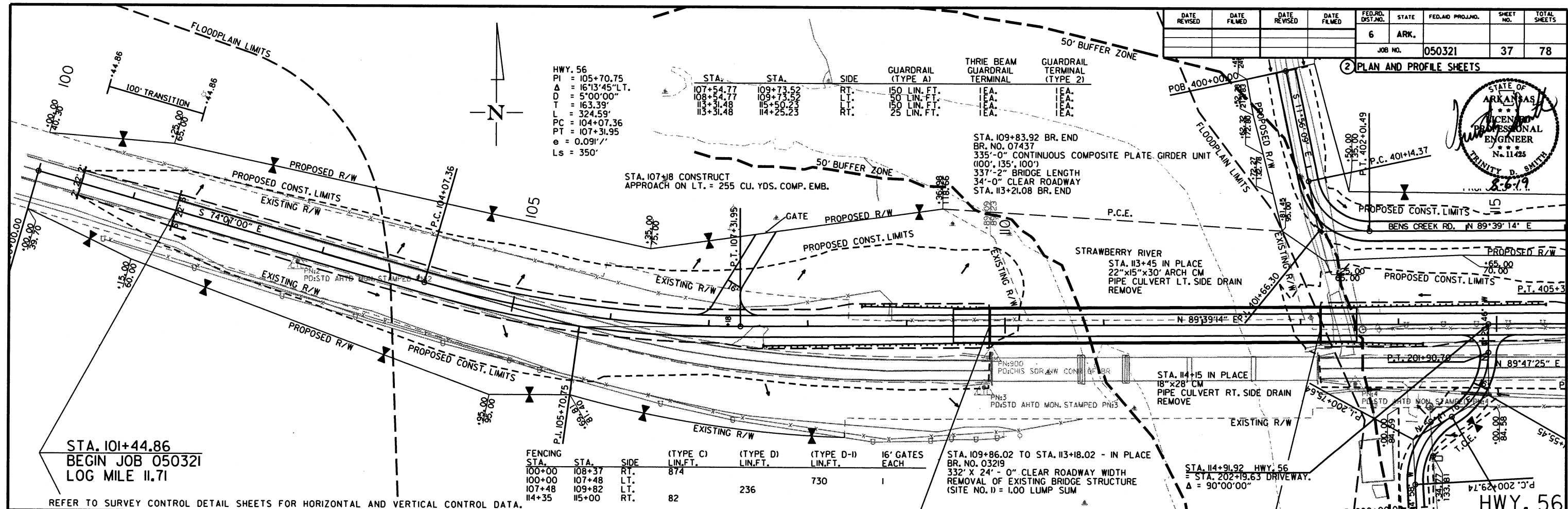
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|----------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | 37 | 78 |
| JOB NO. 050321 | | | | | | | 37 | 78 |

2 PLAN AND PROFILE SHEETS



HWY. 56
 PI = 105+70.75
 Δ = 16°13'45" LT.
 D = 5°00'00"
 T = 163.39'
 L = 324.59'
 PC = 104+07.36
 PT = 107+31.95
 e = 0.091'/'
 Ls = 350'

| STA. | STA. | SIDE | GUARDRAIL (TYPE 1) | THREE BEAM GUARDRAIL TERMINAL | GUARDRAIL TERMINAL (TYPE 2) |
|-----------|-----------|------|--------------------|-------------------------------|-----------------------------|
| 107+54.77 | 109+73.52 | RT. | 150 LIN. FT. | 1EA. | 1EA. |
| 108+24.77 | 109+73.52 | LT. | 50 LIN. FT. | 1EA. | 1EA. |
| 113+31.48 | 115+50.23 | LT. | 150 LIN. FT. | 1EA. | 1EA. |
| 113+31.48 | 114+25.23 | RT. | 25 LIN. FT. | 1EA. | 1EA. |

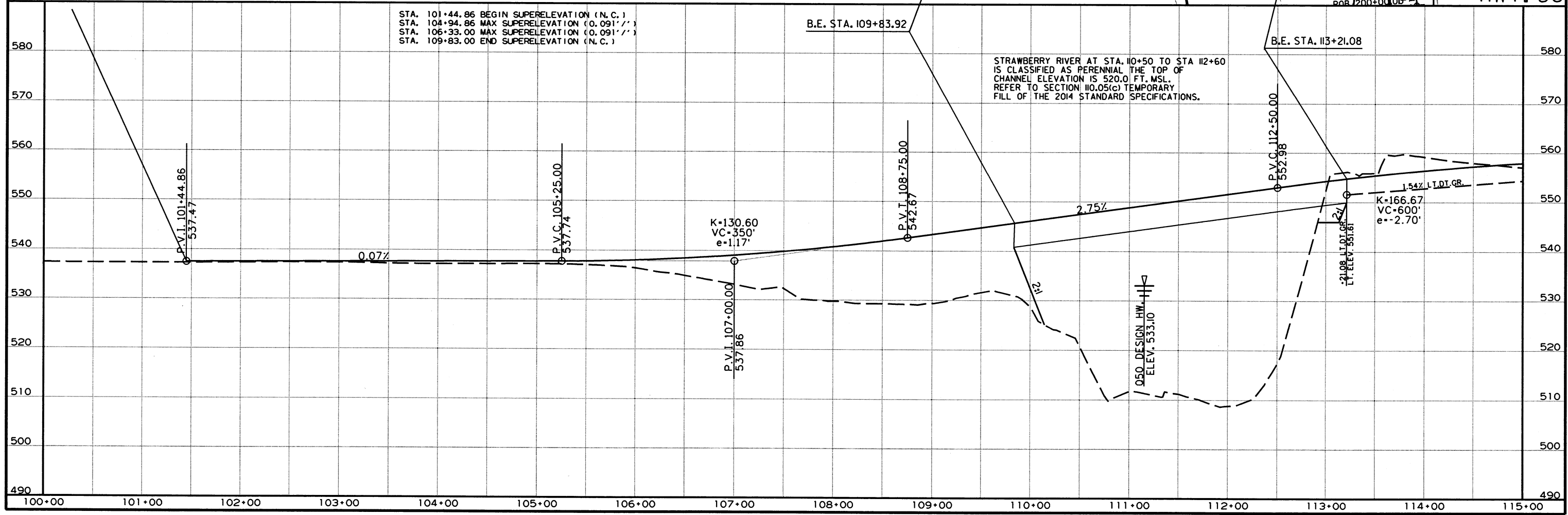


STA. 101+44.86
 BEGIN JOB 050321
 LOG MILE 11.71

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

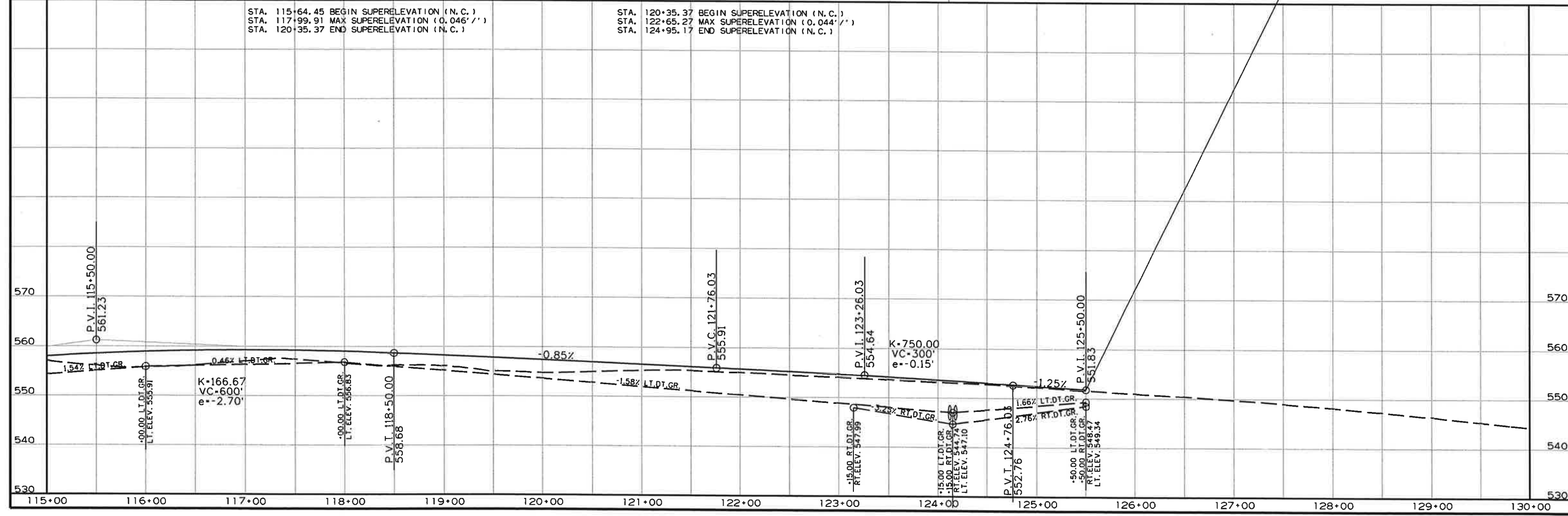
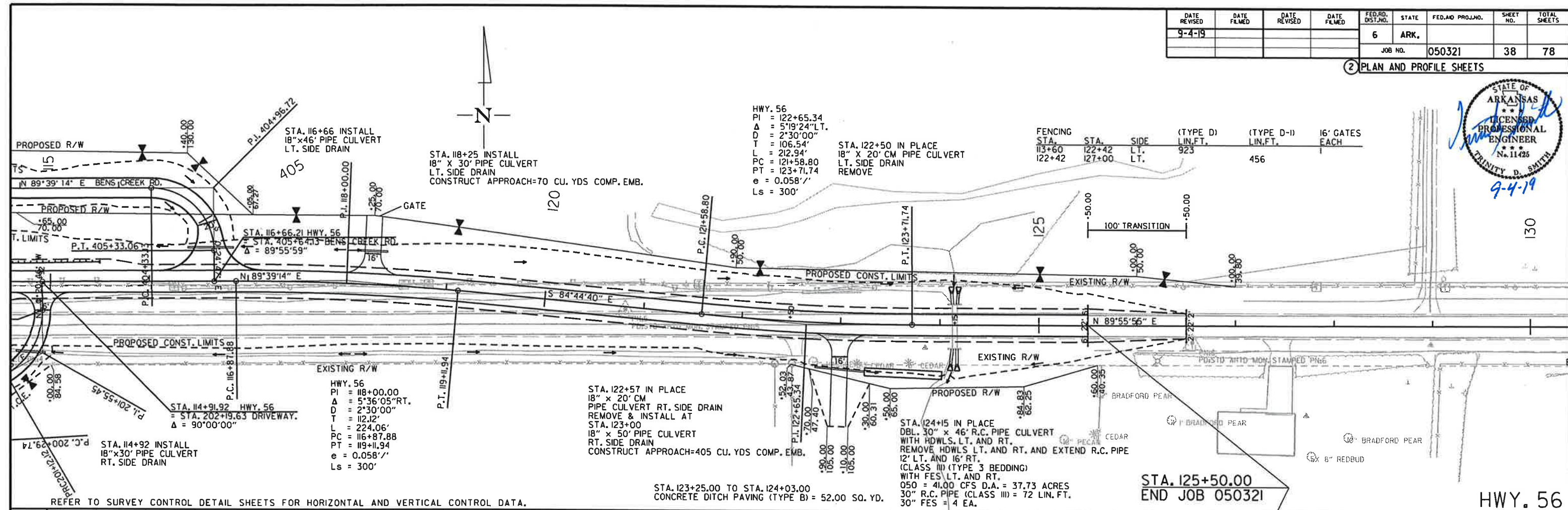
| FENCING STA. | STA. | SIDE | (TYPE C) LIN. FT. | (TYPE D) LIN. FT. | (TYPE D-1) LIN. FT. | 16' GATES EACH |
|--------------|--------|------|-------------------|-------------------|---------------------|----------------|
| 100+00 | 108+37 | RT. | 874 | | | |
| 100+00 | 107+48 | LT. | | 236 | | |
| 107+48 | 109+82 | LT. | | | 730 | |
| 114+35 | 115+00 | RT. | 82 | | | |

STA. 101+44.86 BEGIN SUPERELEVATION (N.C.)
 STA. 104+94.86 MAX SUPERELEVATION (0.091'/'')
 STA. 106+33.00 MAX SUPERELEVATION (0.091'/'')
 STA. 109+83.00 END SUPERELEVATION (N.C.)



08/01/2019
 R050321.DGN

| DATE REVISED | DATE FILED | DATE REVISED | DATE FILED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|------------|--------------|------------|--------------------|-------|--------------------|---------------------------|--------------|
| 9-4-19 | | | | 6 | ARK. | | | |
| | | | | | | | JOB NO. 050321 | 38 |
| | | | | | | | 2 PLAN AND PROFILE SHEETS | 78 |



09/04/2019 R050321.DGN

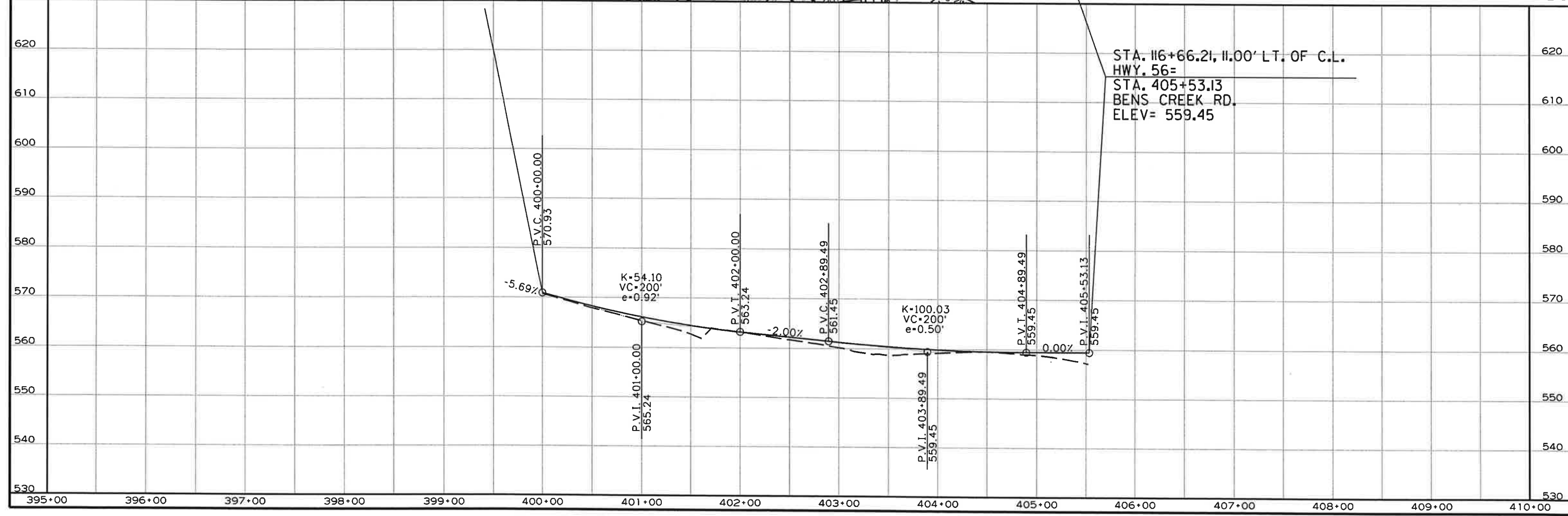
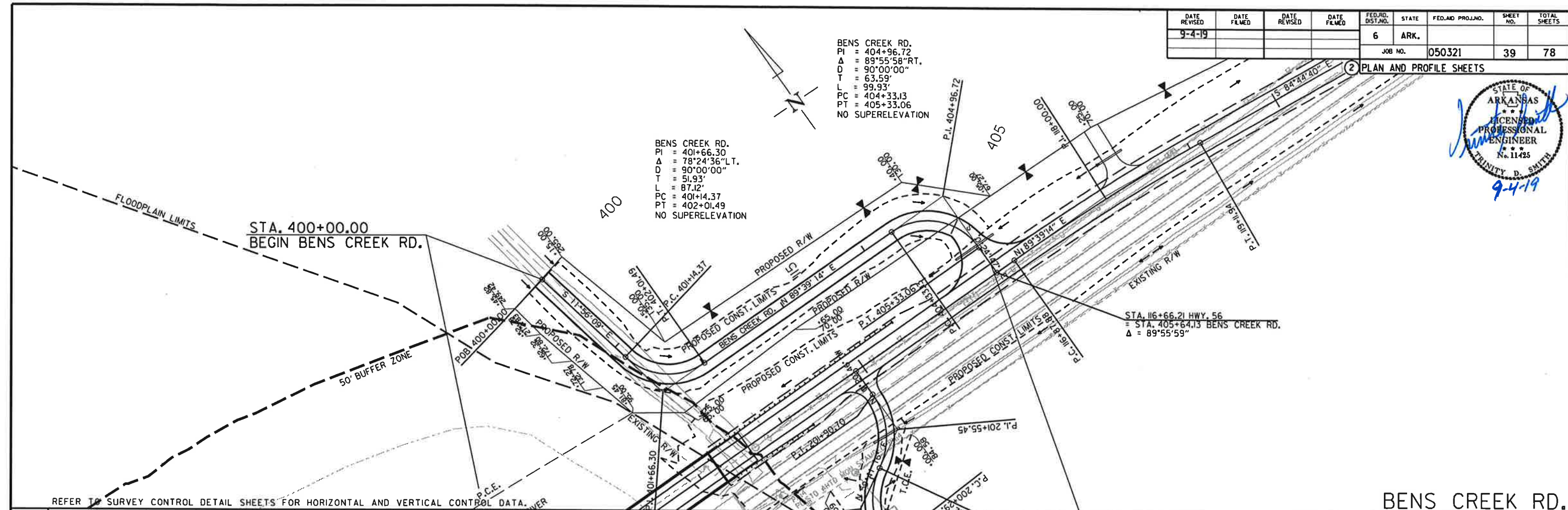
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|----------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| 9-4-19 | | | | 6 | ARK. | | | |
| JOB NO. 050321 | | | | | | | 39 | 78 |



BENS CREEK RD.
 PI = 404+96.72
 $\Delta = 89^{\circ}55'58''$ RT.
 D = 90°00'00"
 T = 63.59'
 L = 99.93'
 PC = 404+33.13
 PT = 405+33.06
 NO SUPERELEVATION

BENS CREEK RD.
 PI = 401+66.30
 $\Delta = 78^{\circ}24'36''$ LT.
 D = 90°00'00"
 T = 51.93'
 L = 87.12'
 PC = 401+14.37
 PT = 402+01.49
 NO SUPERELEVATION

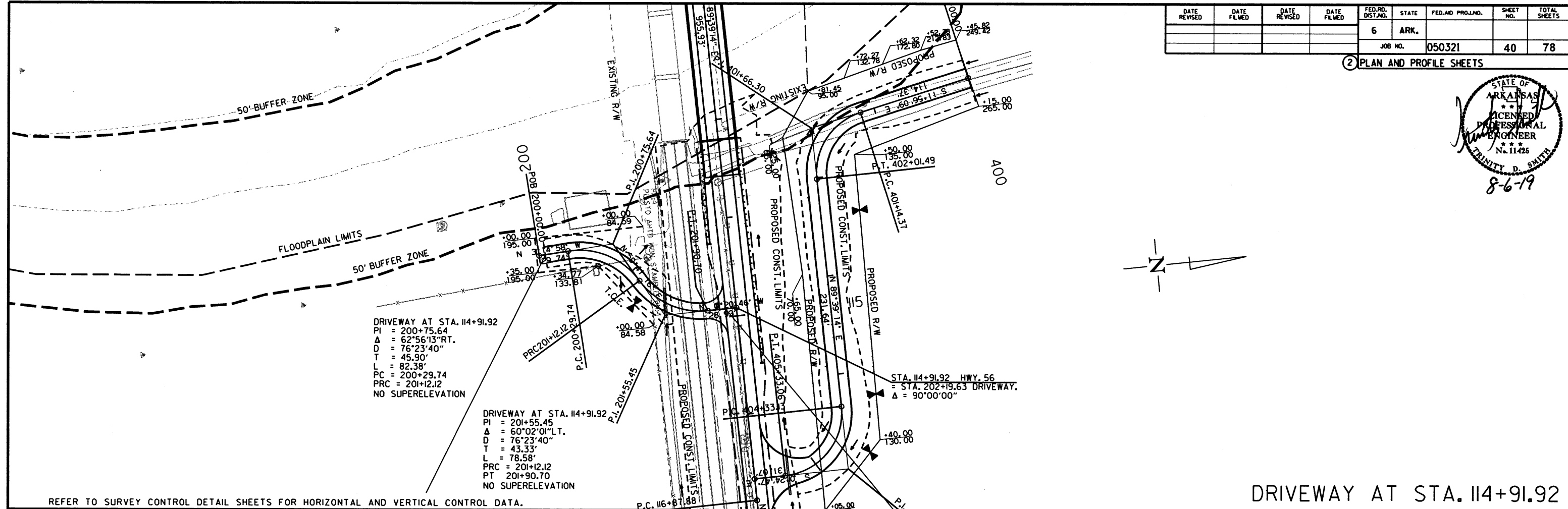
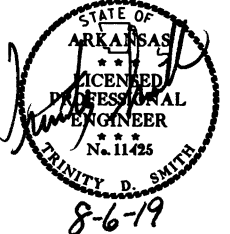
STA. 116+66.21 HWY. 56
 = STA. 405+64.13 BENS CREEK RD.
 $\Delta = 89^{\circ}55'59''$



09/04/2019 R050321.DGN

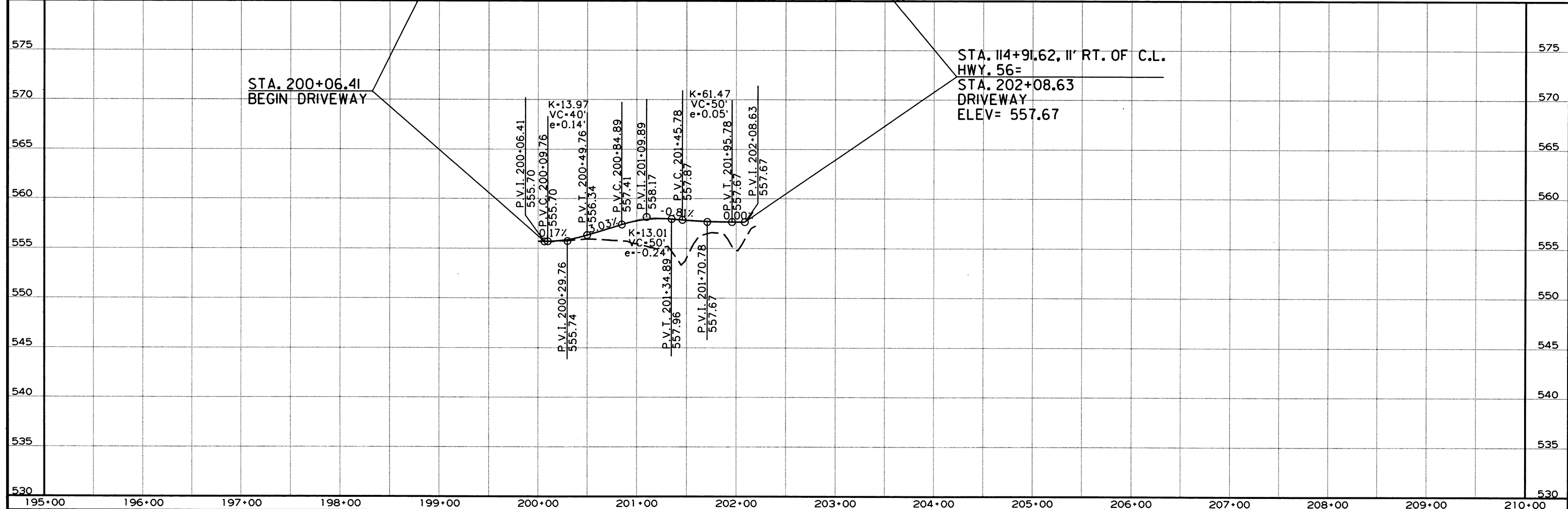
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|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | | 40 | 78 |

2 PLAN AND PROFILE SHEETS



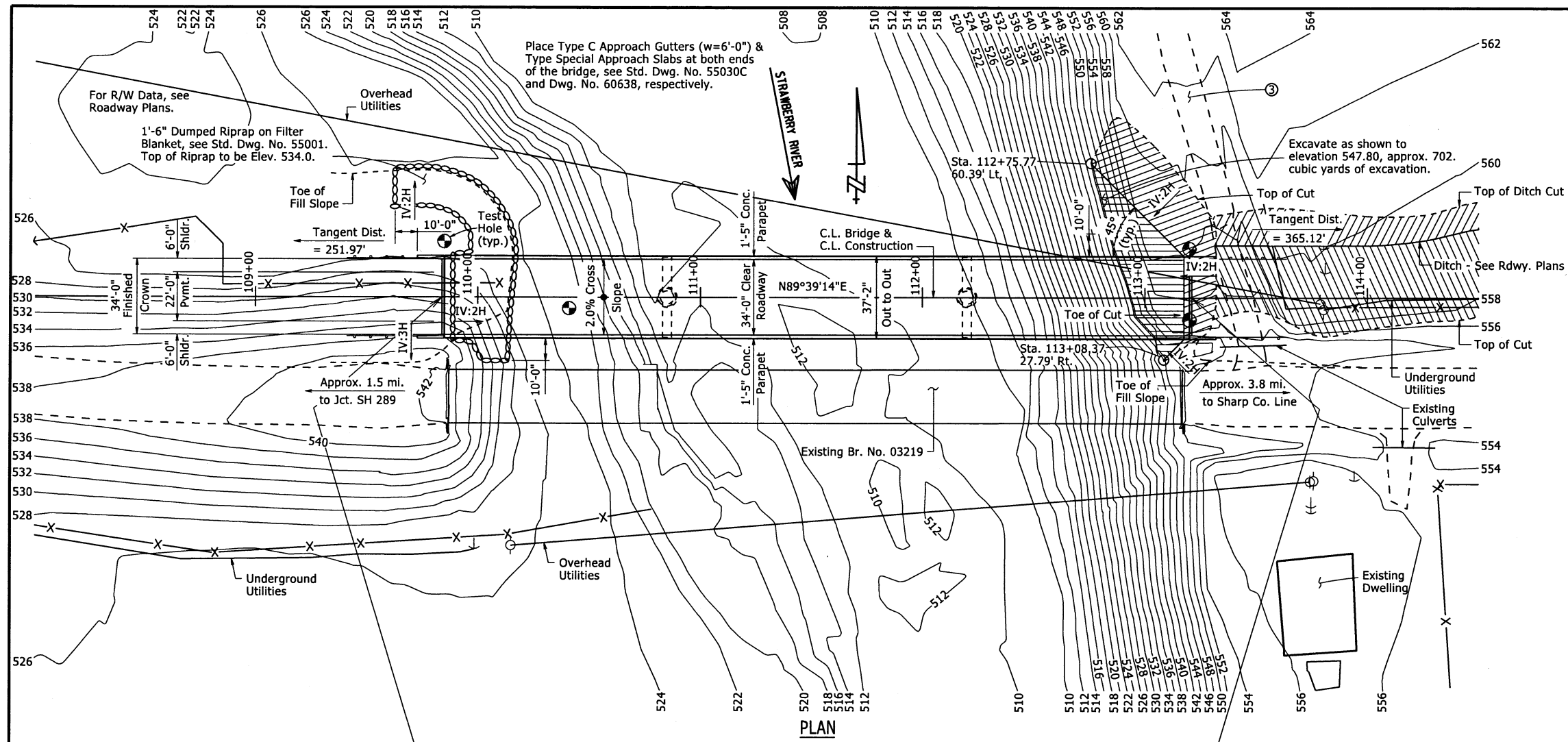
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

DRIVEWAY AT STA. 114+91.92



08/01/2019 R050321.DGN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | 050321 | 41 | 78 |
| | | | | JOB NO. 07437 - LAYOUT - 60622 | | | | |



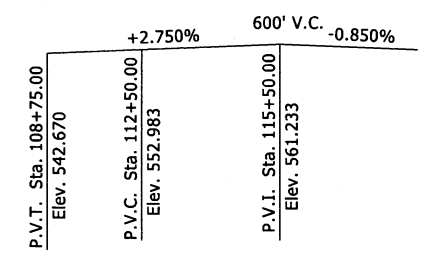
③ Existing road to be realigned, see Roadway Plans for additional information.

HYDRAULIC DATA

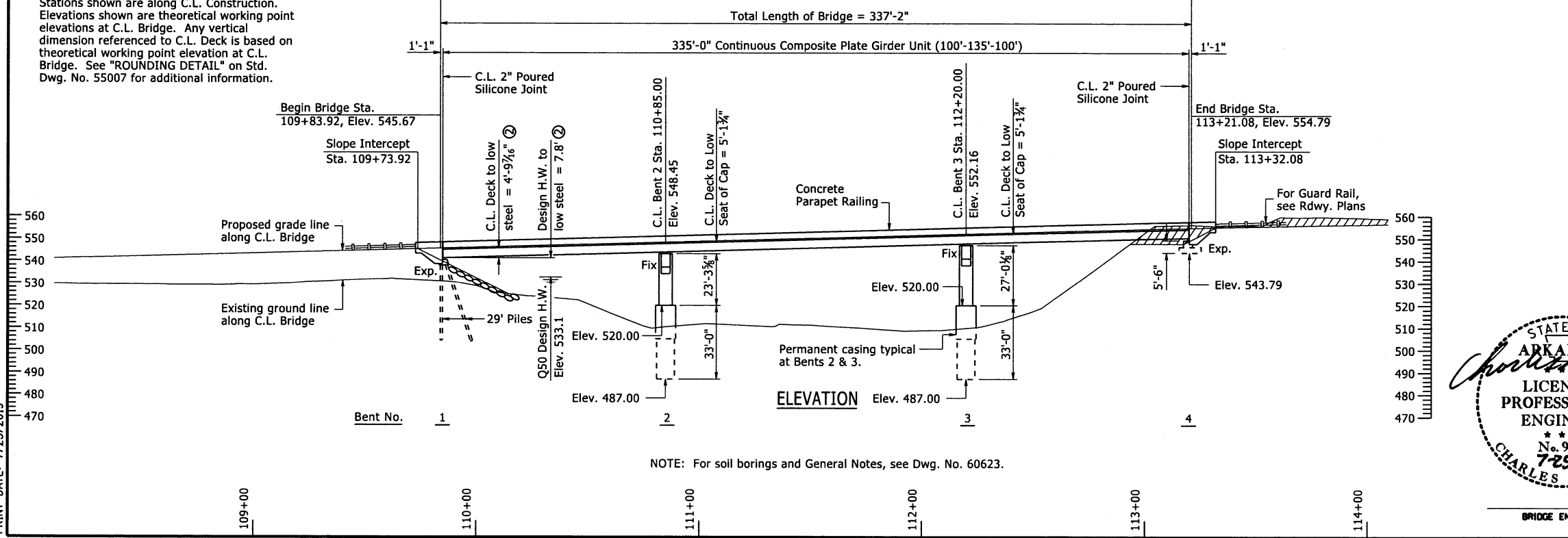
| FLOOD DESCRIPTION | FREQUENCY | DISCHARGE | NATURAL WATER SURFACE ELEVATION | WATER SURFACE ELEV. WITH BACKWATER |
|-------------------|-----------|-----------|---------------------------------|------------------------------------|
| | YEARS | CFS | FEET | FEET |
| Design | 50 | 31,400 | 533.1 | 533.1 |
| Base | 100 | 36,600 | 534.3 | 534.3 |
| Extreme | 500 | 49,600 | 537.2 | 537.2 |
| Overtopping | >500 | - | - | - |

- ① Unconstricted water surface elevation without structure or roadway approaches.
Q100 Backwater Elev. for existing structure = 534.3.
- ② Proposed Low Bridge Chord Elevation = 540.93 ft. @ Sta. 109+86.00.
- Drainage Area = 153.0 square miles.
Historical H.W. Elevation = N/A

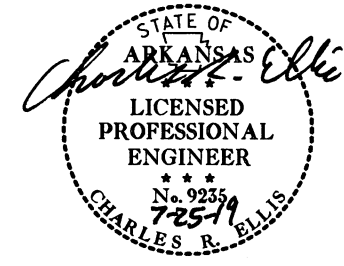
NOTE:
Stations shown are along C.L. Construction.
Elevations shown are theoretical working point elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on theoretical working point elevation at C.L. Bridge. See "ROUNDING DETAIL" on Std. Dwg. No. 55007 for additional information.



VERTICAL ALIGNMENT DATA
Along C.L. Construction



NOTE: For soil borings and General Notes, see Dwg. No. 60623.



SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 56 OVER STRAWBERRY RIVER
STRAWBERRY RIVER STR. & APPRS. (S)
IZARD COUNTY
ROUTE 56 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: CGP DATE: 8/23/17 FILENAME: b050321x1_1.dgn
CHECKED BY: LST DATE: 7/25/17 SCALE: 1" = 30'
DESIGNED BY: CMW DATE: 6/17
BRIDGE NO. 07437 DRAWING NO. 60622

PRINT DATE: 7/25/2019

BORING LEGEND

- A1-Moist, Stiff, Reddish Brown Sandy Clay
- B1-Moist, Medium Dense, Reddish Brown Sand with Clay
- C1-Dolostone
- D1-DOLOSTONE - Weathered, Moderately Hard, Frequent Fractures, Gray
- E1-DOLOSTONE - Slightly Weathered, Moderately Hard, Frequent Fractures, Gray
- F1-DOLOSTONE - Unweathered, Moderately Hard, Trace Dolomite, Gray
- G1-DOLOSTONE - Unweathered, Moderately Hard, Gray
- H1-Moist, Soft, Reddish Brown Sandy Clay with Some Gravel
- J1-No Recovery
- K1-Moist, Very Dense, Brown and Gray Clayey Sand with Gravel (Rock Fragments)
- L1-DOLOSTONE - Slightly Weathered, Moderately Hard, Occasional Fractures, Gray
- M1-DOLOSTONE - Slightly Weathered, Hard, Gray
- N1-DOLOSTONE - Slightly Weathered, Hard, Trace Dolomite, Gray
- P1-DOLOSTONE - Slightly Weathered, Hard, Frequent Shale Partings and Seams, Gray
- Q1-DOLOSTONE - Slightly Weathered, Hard, Occasional Fractures, Gray
- R1-DOLOSTONE WITH INTERBEDDED SHALE - Slightly Weathered, Hard, Gray
- S1-Sandy Clay with Gravel (Rock Fragments)
- T1-DOLOSTONE - Unweathered, Hard, Gray
- U1-DOLOSTONE - Unweathered, Medium Hard, Frequent Shale Partings, Gray
- V1-SHALE - Unweathered, Medium Hard, Occasional Dolostone Seams, Gray
- W1-DOLOSTONE INTERBEDDED WITH SHALE - Unweathered, Medium Hard, Gray

"N" VALUES

Sta. 109+85 - 25' Left of C.L. Construction

- 4.5- 5.5, N=9
- 9.5- 10.5, N=14
- 14- 14.0, N=10(0")

Sta. 110+41 - 5' Right of C.L. Construction

- 4.5- 5.5, N=2
- 9.5- 10.5, N=0
- 14.5- 14.8, N=10(9")

| 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. | 050321 |
| | | | | | | | | 42 |
| | | | | | | | | 78 |
| 07437 - LAYOUT - 60623 | | | | | | | | |

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on Survey Control Details.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Unless otherwise noted on the plans, Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, 7th Edition (2014), with 2015 interim revisions.

LIVE LOADING: HL-93

SEISMIC ZONE: 1

$S_{DI}=0.112$

SITE CLASS=B

MATERIALS AND STRENGTHS:

- Class S(AE) Concrete (Superstructure) $f_c = 4,000$ psi
- Class S Concrete (Substructure) $f_c = 3,500$ psi
- Reinforcing Steel (AASHTO M 31 or M 322, Type A) $f_y = 60,000$ psi
- Structural Steel (ASTM A709, Gr. 36) $f_y = 36,000$ psi
- Structural Steel (ASTM A709, Gr. 50W) $f_y = 50,000$ psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: All piling shall be HP 12x53 (Grade 50) and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 95 tons and into the material designated as dolostone on the boring legend. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths are to be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

SPREAD FOOTINGS: Footings shall be set a minimum of 1.5' into material designated as dolostone on the boring legend. Foundations for footings shall be prepared in accordance with Subsection 801.04. Rock excavations shall be made to neat lines of the concrete footings. Care shall be exercised to avoid shattering of rock faces by excessive blasting. Concrete in footings shall be poured directly against excavated surfaces of rock.

DRILLED SHAFTS: Drilled Shafts in Bents 2 & 3 shall be constructed in accordance with Special Provision Job No. 050321 "Drilled Shaft Foundations". Drilled shafts shall be socketed a minimum of 15' into material designated as dolostone on the boring legend. No adjustment to plan tip elevations shall be made without prior approval from the Engineer.

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed in accordance with Special Provision Job No. 050321 "Nondestructive Testing of Drilled Shafts".

PAINTING: All Grade 50W structural steel, except galvanized members, surfaces in contact with concrete, and the expansion device, within five feet of bridge deck expansion joints shall be painted as specified in Subsection 807.75. The color of paint shall be Brown equal or close to Federal Std. 595B, Color Chip No. 30070 and as approved by the Engineer. The finish system may be applied in the shop. Any damage to the paint system occurring during transport or installation shall be corrected according to the manufacturer's recommendations at no cost to the Department.

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.

PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface and to the face and top of the concrete parapet rail.

| | |
|--|--------------------|
| DETAIL DRAWINGS: | DRAWING NO. |
| End Bent 1 | 60624 & 60625 |
| Intermediate Bents | 60626-60628 |
| End Bent 4 | 60629-60631 |
| Elastomeric Bearings | 60632 |
| 335'-0" Continuous Composite Plate Girder Unit | 60633-60637 |
| Type Special Approach Slab | 60638 |
| General Notes for Steel Bridge Structures | 55006 |
| Details for Steel Bridge Structures | 55007 |
| Poured Silicone Joints | 55008 |
| Steel H Piling | 55020 |
| Type C Approach Gutters | 55030C |

EXISTING BRIDGE: Existing Bridge No. 03219 (Log Mile 11.91) is 28.5' wide (24.0' Roadway), 332.0' long and consists of three 45'-0" simple spans and three 65'-0" simple spans consisting of reinforced concrete decks on steel I-beams supported by a combination of multi-column piers with webwalls on spread footings, pile bents encased partially with spread footings, and a spread footing abutment.

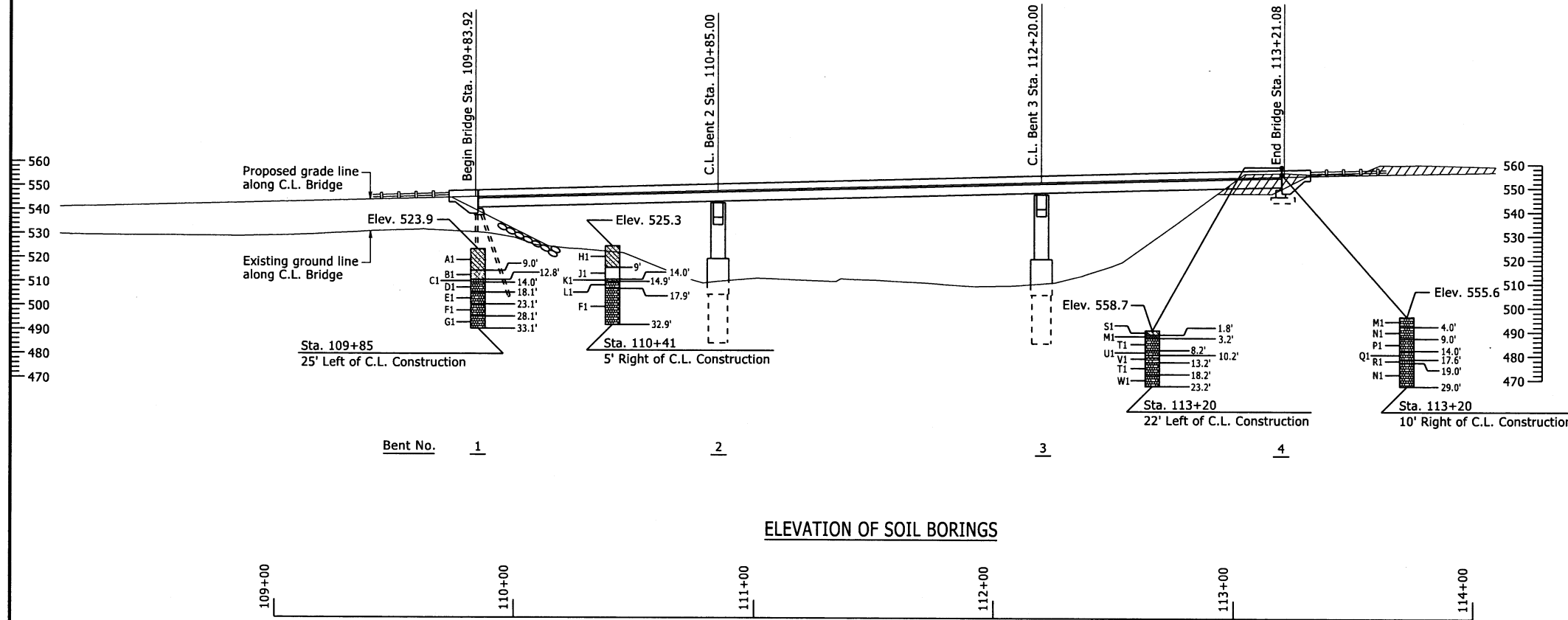
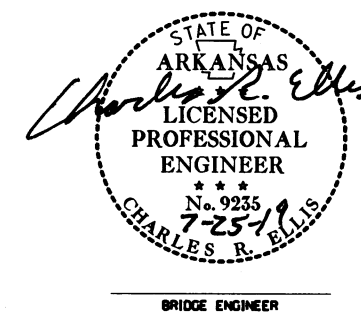
REMOVAL AND SALVAGE: After the new bridge is open to traffic, Existing Bridge No. 03219 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 56 OVER STRAWBERRY RIVER
STRAWBERRY RIVER STR. & APPRS. (S)
IZARD COUNTY

ROUTE 56 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP **DATE:** 8/23/17 **FILENAME:** b050321x1_1.dgn
CHECKED BY: KJT **DATE:** 7/25/17 **SCALE:** 1" = 30'
DESIGNED BY: CMW **DATE:** 3/17
BRIDGE NO. 07437 **DRAWING NO.** 60623

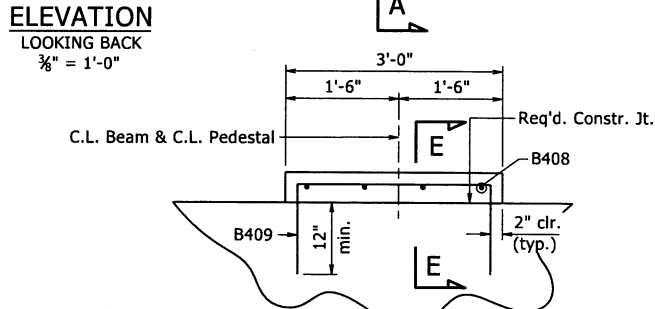
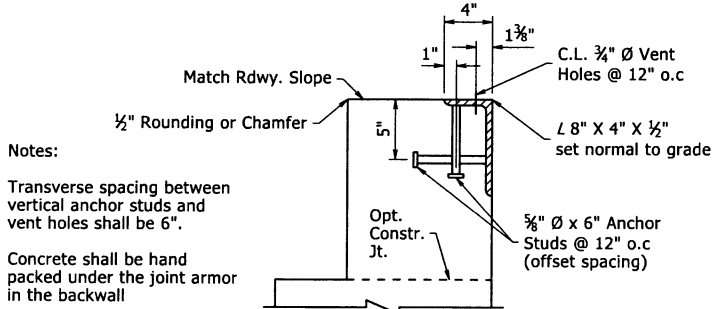
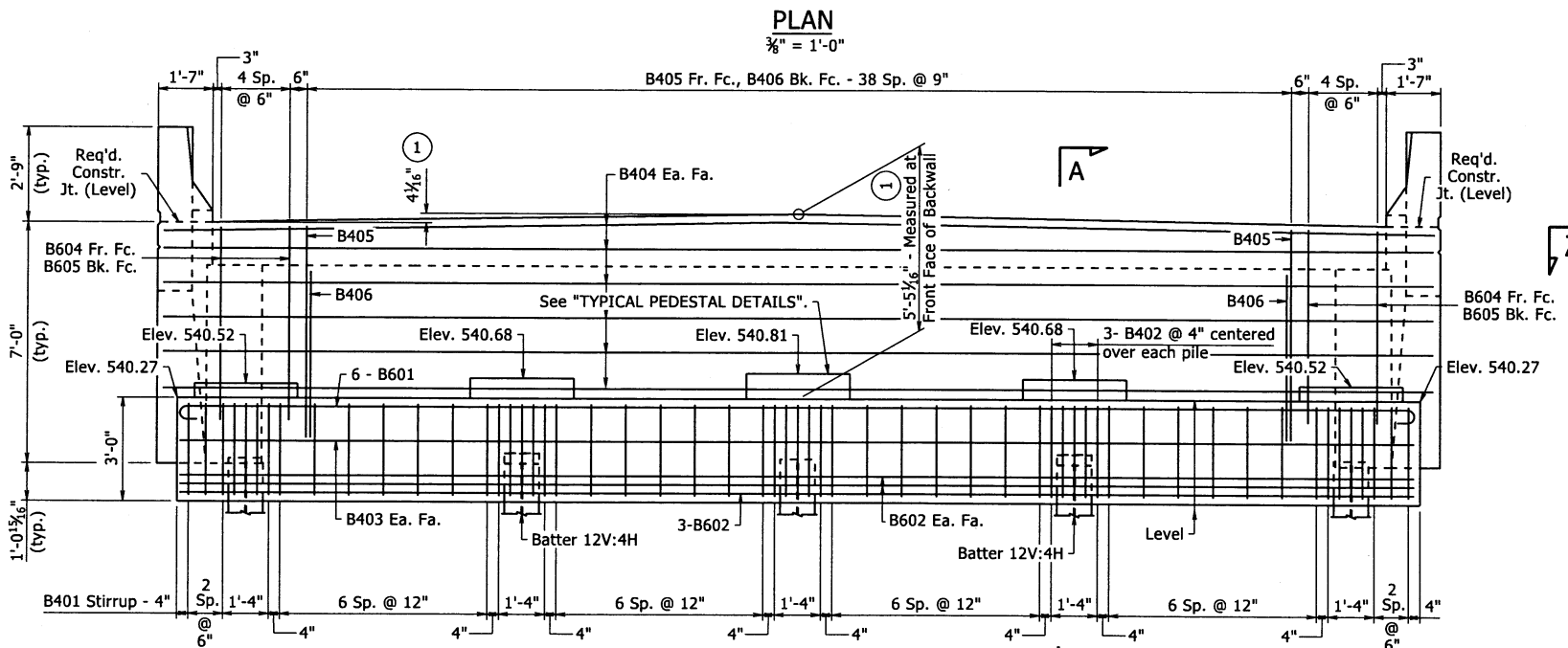
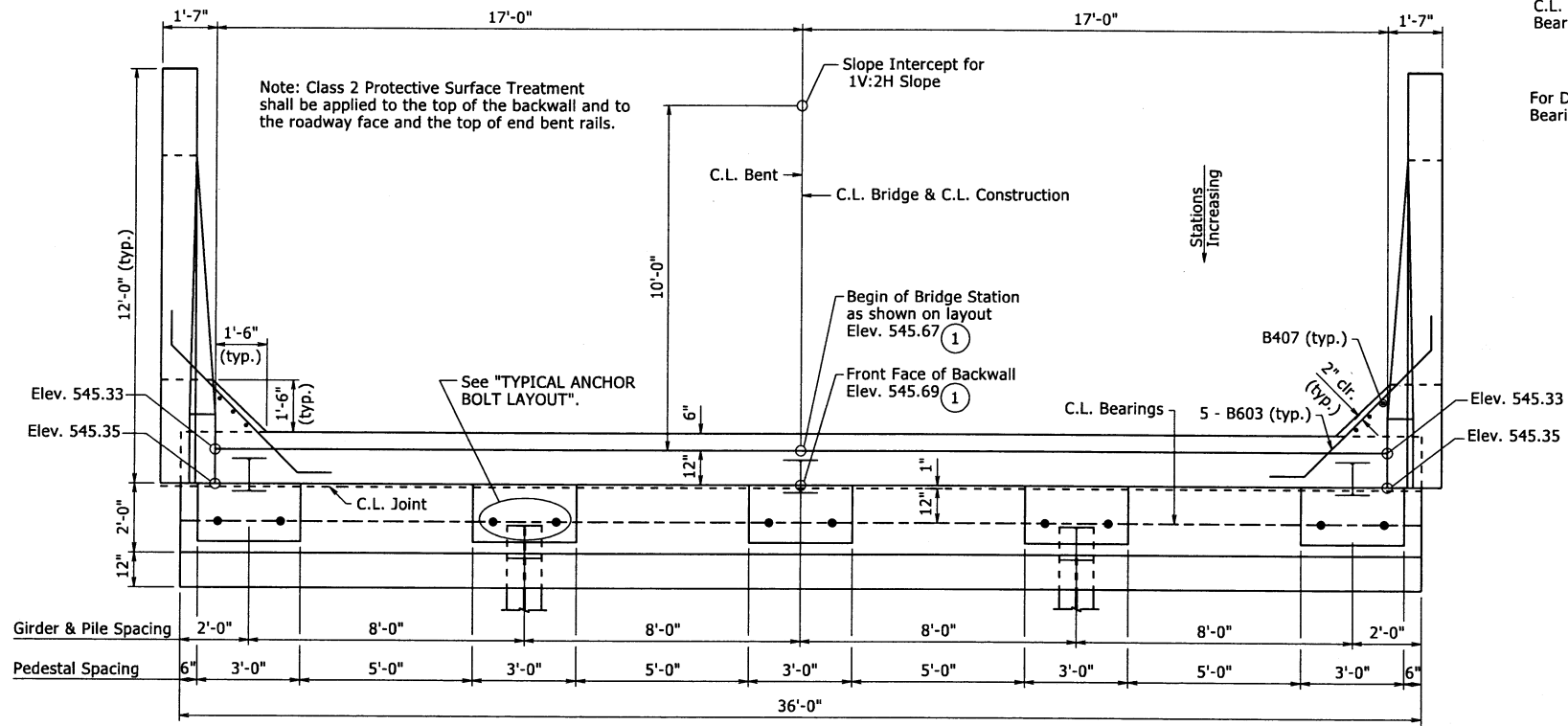


PRINT DATE: 7/25/2019

① Measured at Working Point, see "Rounding Detail" on Std. Dwg. No. 55007.

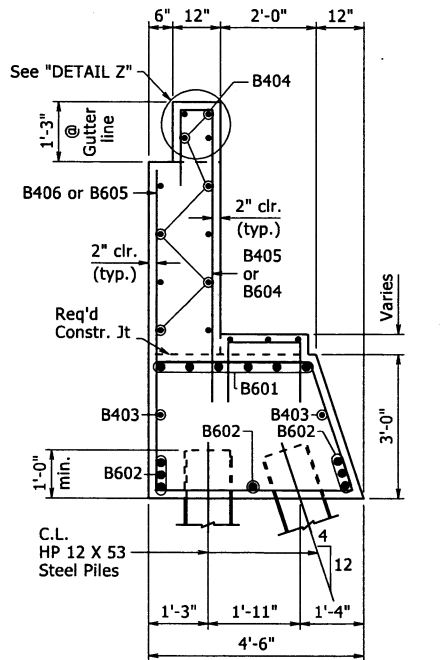
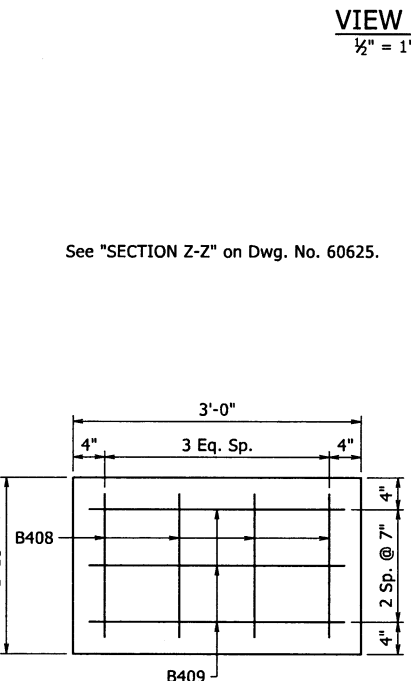
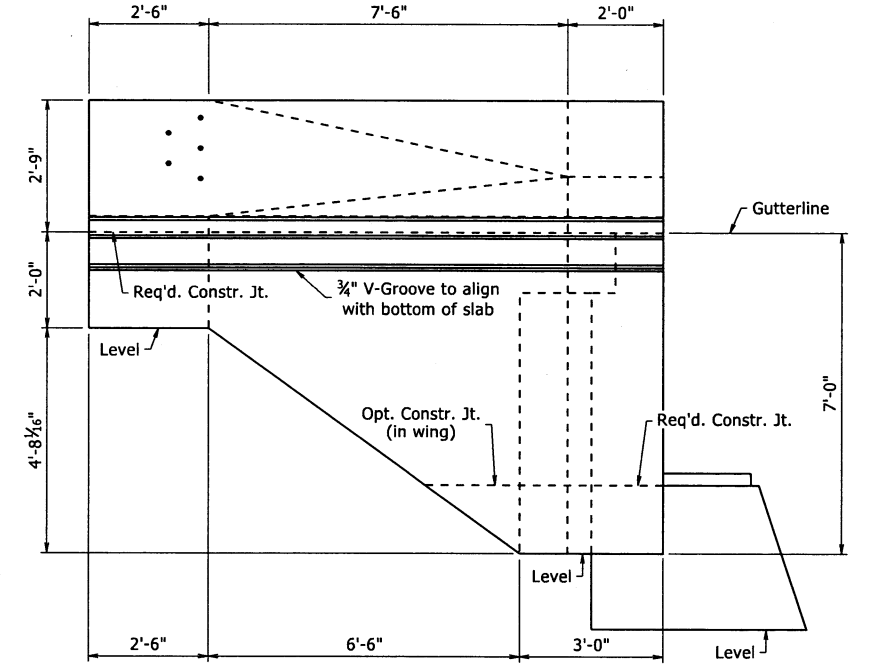
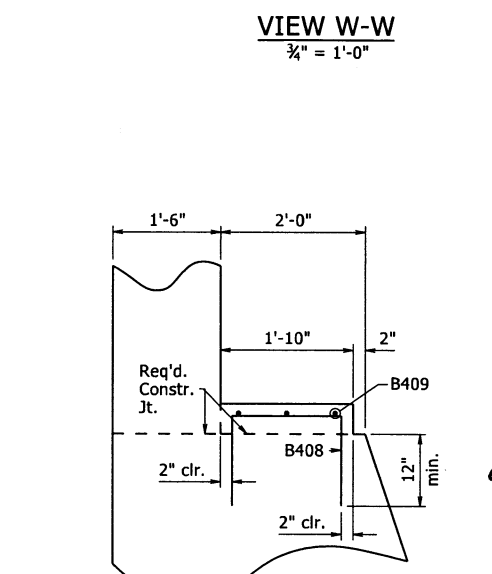
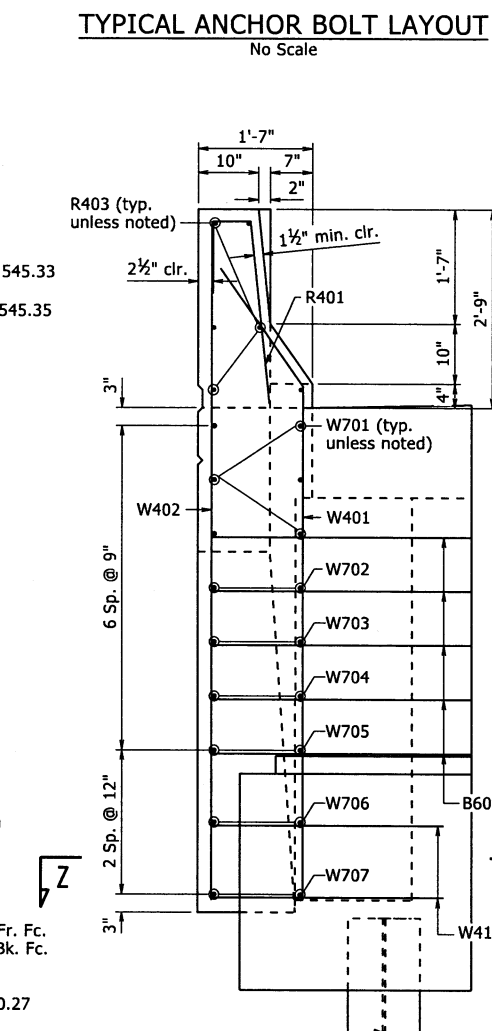
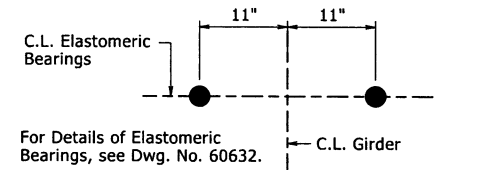
Note: For additional Details of Wing & Rail and Bar List see Dwg. No. 60625.

| 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. | 050321 | 43 | 78 | |
| ① 07437 - END BENT DETAILS - 60624 | | | | | | | | |



Notes:
 Transverse spacing between vertical anchor studs and vent holes shall be 6".
 Concrete shall be hand packed under the joint armor in the backwall.

For additional Joint Details, see Std. Dwg. No. 55008.



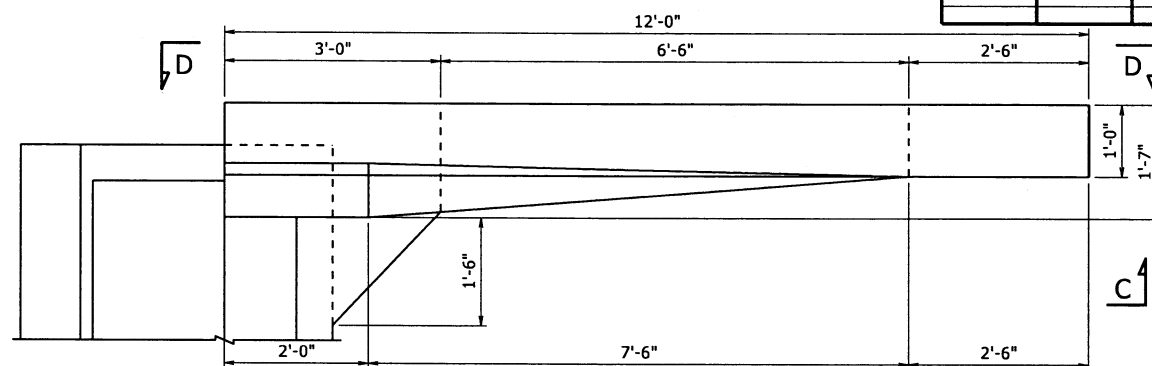
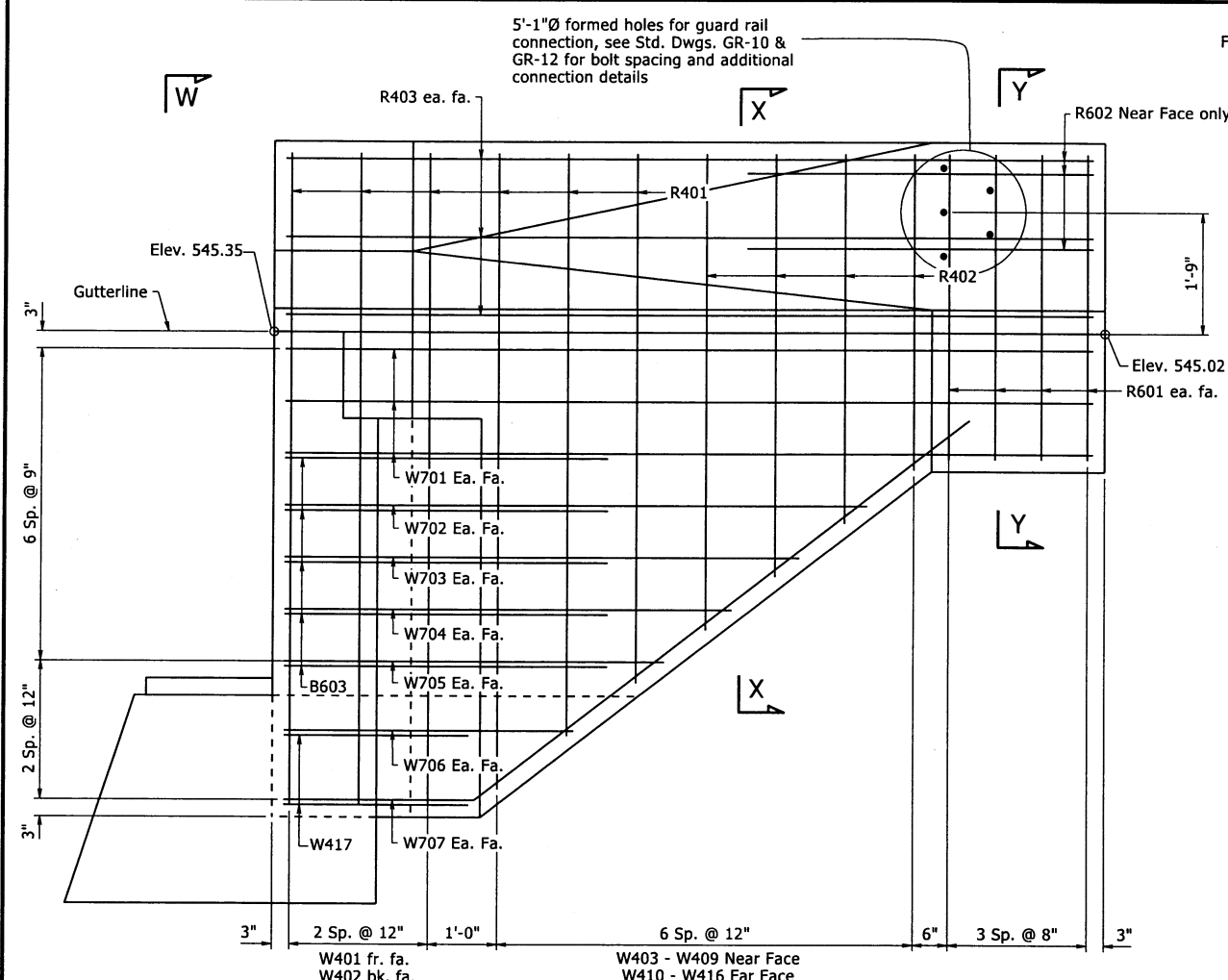
STATE OF ARKANSAS
 LICENSED PROFESSIONAL ENGINEER
 No. 9935
 7-25-19
 CHARLES R. ELLIS
 BRIDGE ENGINEER

SHEET 1 OF 2
 DETAILS OF END BENT 1
 STRAWBERRY RIVER
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: KJT DATE: 3/15/19 FILENAME: b050321_b1.dgn
 CHECKED BY: [Signature] DATE: 7/27/19 SCALE: As Shown
 DESIGNED BY: KJT DATE: 3/19
 BRIDGE NO. 07437 DRAWING NO. 60624

PRINT DATE: 7/25/2019

| 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. | 050321 | 44 | 78 | |
| | | | | 07437 - END BENT DETAILS - 60625 | | | | |

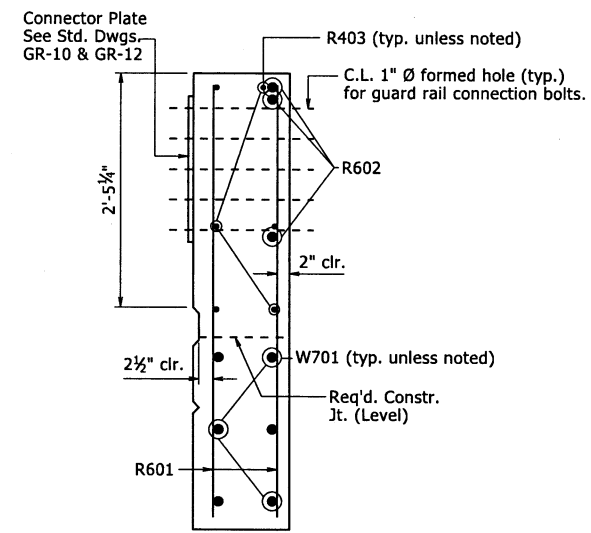
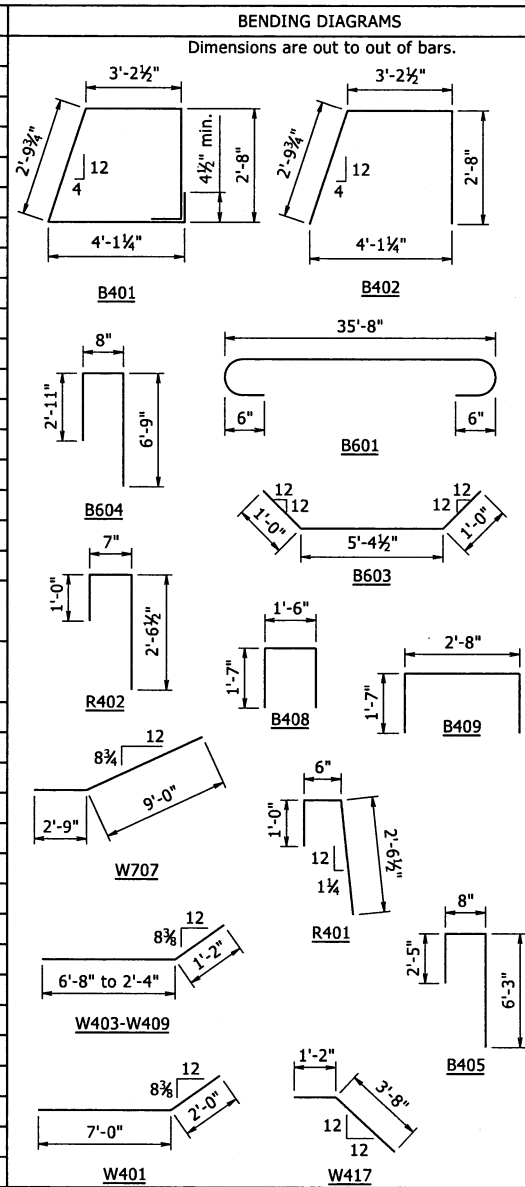
For "VIEW D-D" and "VIEW W-W", see Dwg. No. 60624.



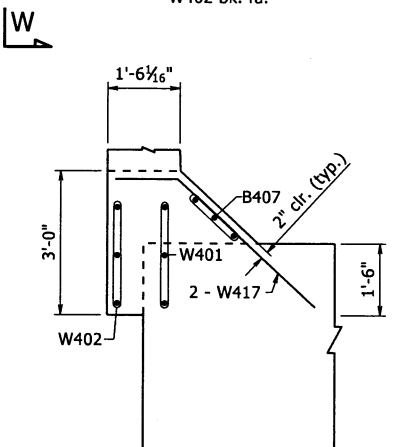
PLAN OF RAIL
3/4" = 1'-0"

BAR LIST

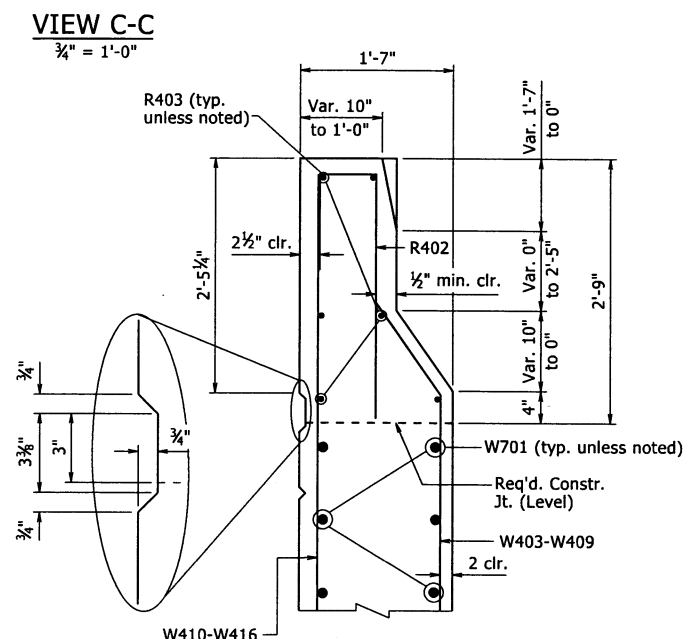
| MARK | NO. REQ'D. | LENGTH | P.D. |
|-------------|------------|-----------------|--------|
| B401 | 42 | 13'-2" | 2" |
| B402 | 15 | 8'-8" | 2" |
| B403 | 2 | 35'-8" | Str. |
| B404 | 12 | 36'-10" | Str. |
| B405 | 39 | 9'-2" | 2" |
| B406 | 39 | 4'-10" | Str. |
| B407 | 6 | 5'-5" | Str. |
| B408 | 20 | 4'-6" | 2" |
| B409 | 15 | 5'-8" | 2" |
| B601 | 6 | 37'-0" | 4 1/2" |
| B602 | 7 | 35'-8" | Str. |
| B603 | 10 | 7'-5" | 4 1/2" |
| B604 | 10 | 10'-1" | 4 1/2" |
| B605 | 10 | 5'-6" | Str. |
| W401 | 6 | 9'-0" | 2" |
| W402 | 6 | 9'-4" | Str. |
| W403 - W409 | 2 Each | 7'-10" to 3'-6" | 2" |
| W410 - W416 | 2 Each | 9'-0" to 4'-7" | Str. |
| W417 | 4 | 5'-0" | 2" |
| W701 | 12 | 11'-8" | Str. |
| W702 | 4 | 8'-7" | Str. |
| W703 | 4 | 7'-5" | Str. |
| W704 | 4 | 6'-5" | Str. |
| W705 | 4 | 5'-5" | Str. |
| W706 | 4 | 4'-1" | Str. |
| W707 | 4 | 11'-9" | 5 1/4" |
| R401 | 12 | 3'-11" | 2" |
| R402 | 8 | 4'-0" | 2" |
| R403 | 12 | 11'-8" | Str. |
| R601 | 16 | 4'-5" | Str. |
| R602 | 6 | 5'-0" | Str. |



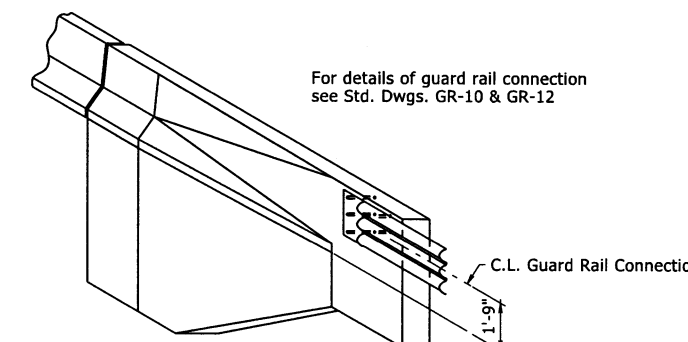
SECTION Y-Y
No Scale



SECTION Z-Z
1/2" = 1'-0"

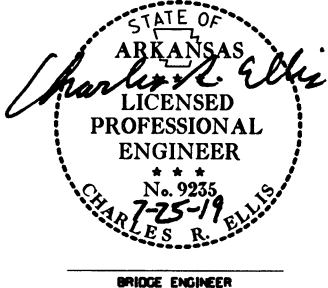


SECTION X-X
No Scale



THREE DIMENSIONAL VIEW OF WING & RAIL
No Scale

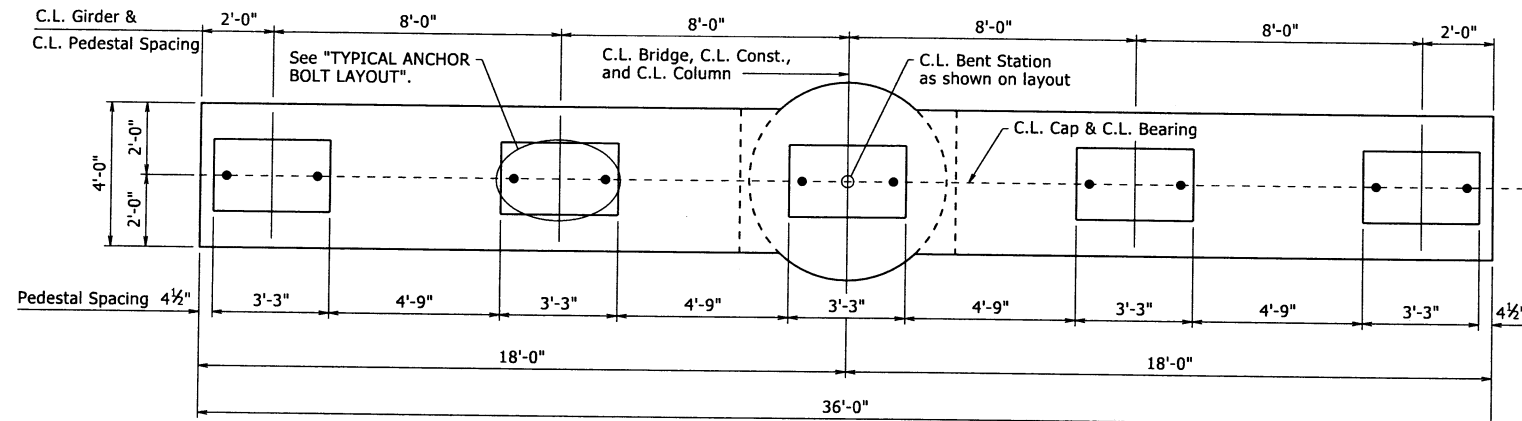
GENERAL NOTES
 For "SUBSTRUCTURE NOTES", see Std. Dwg. No. 55006.
 For details of Steel H-Piling, see Std. Dwg. No. 55020.
 Structural steel, unless noted otherwise, in end bents shall be ASTM A709, Gr. 50W and shall be paid for as "Structural Steel in Plate Girder Spans (ASTM A709, Gr. 50W)".
 No portion of the backwall shall be poured before girders are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the deck pour has been made. Refer to the "Expansion Device Installation" note, see Std. Dwg. No. 55008. No heavy construction equipment or backfill shall be allowed directly behind the backwall until the deck concrete for the adjacent span has been completed.
 For additional information, see Layout.



SHEET 2 OF 2
 DETAILS OF END BENT 1
 STRAWBERRY RIVER
 ROUTE 900 SEC. 01
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: KJT DATE: 3/15/19 FILENAME: b050321_b1.dgn
 CHECKED BY: ADT DATE: 3/15/19 SCALE: As Shown
 DESIGNED BY: KJT DATE: 3/19
 BRIDGE NO. 07437 DRAWING NO. 60625

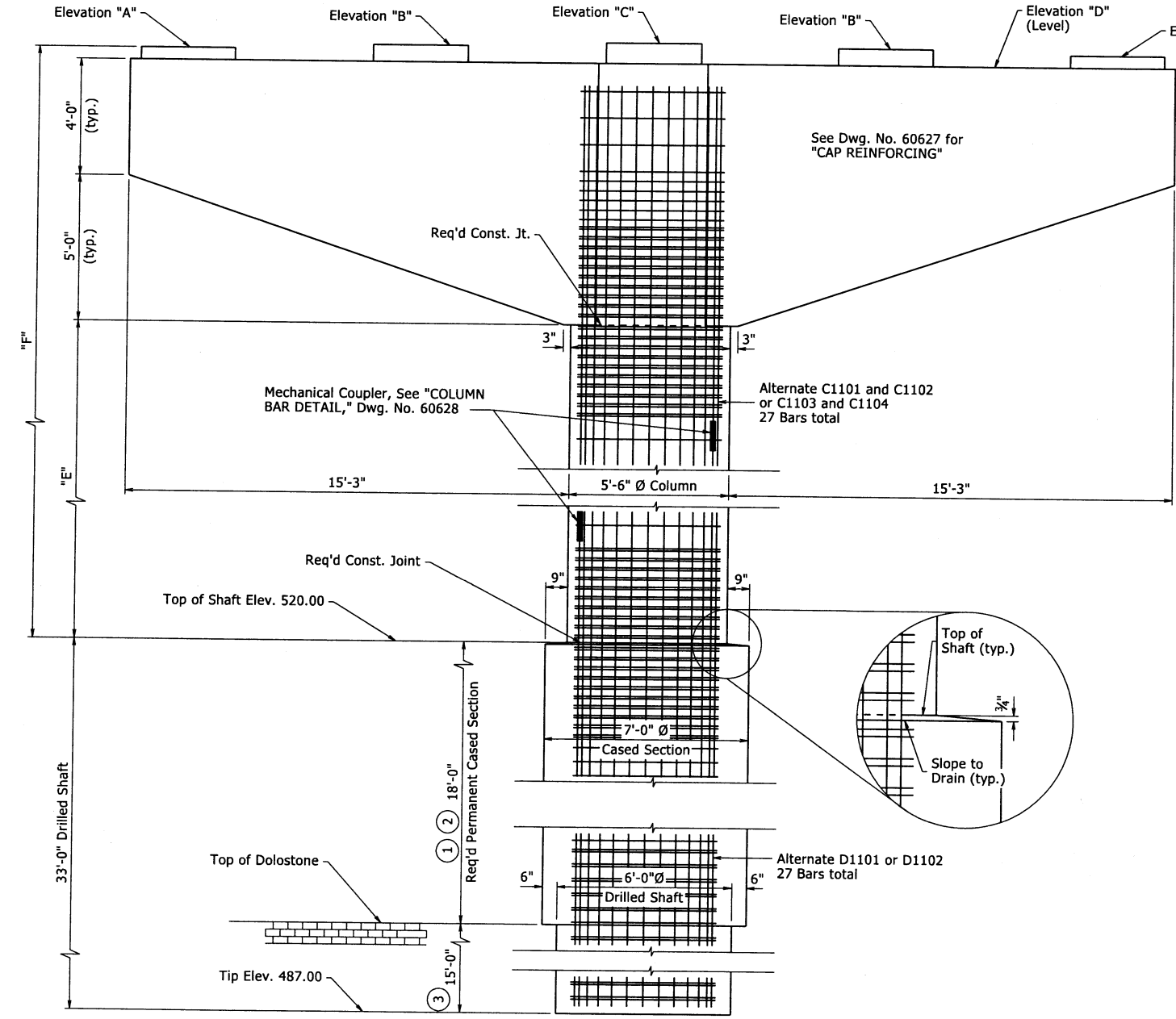
PRINT DATE: 7/25/2019

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|---------------------|-------|--------------------|-----------|----------------------------|
| | | | | 6 | ARK. | 050321 | 45 | 78 |
| | | | | | | | 1 | 07437 - INT. BENTS - 60626 |



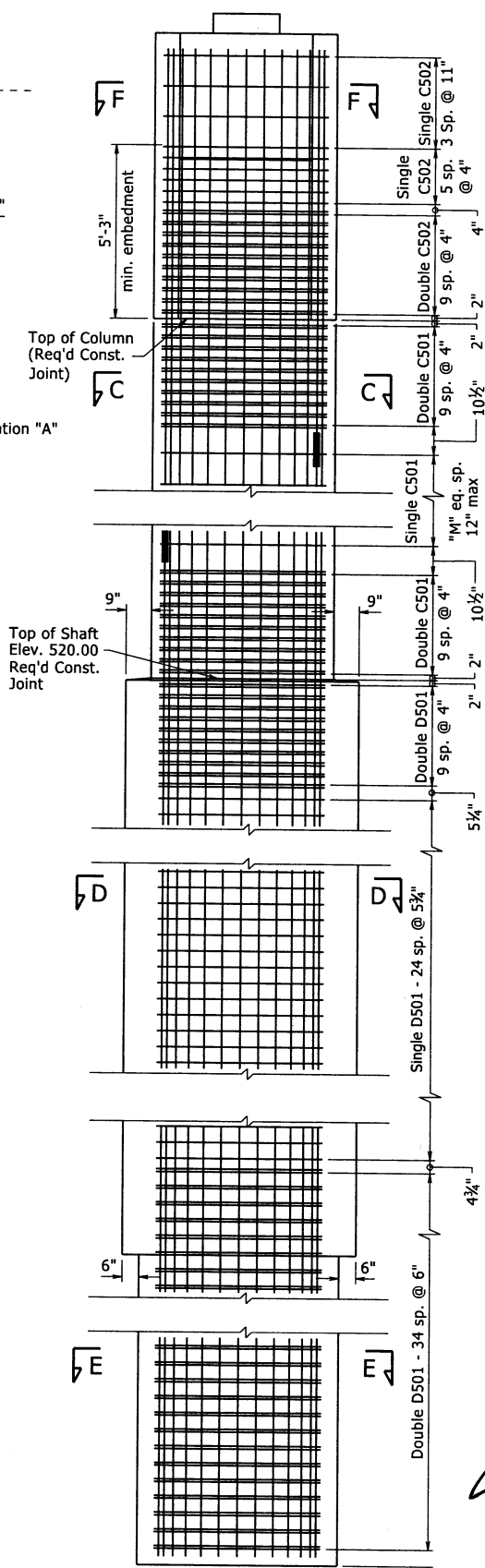
For Pedestal Details, see "TYPICAL PEDESTAL DETAILS," Dwg. No. 60627.

PLAN
3/8" = 1'-0"

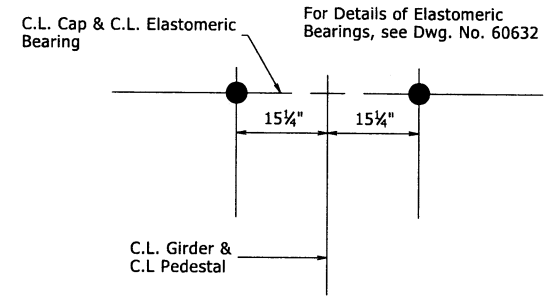


ELEVATION
3/8" = 1'-0"

Note:
See Dwg. No. 60628 for "SECTION C-C", "SECTION D-D", "SECTION E-E", and "SECTION F-F".



SIDE VIEW
3/8" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT
No Scale

GENERAL NOTES

Concrete and Reinforcing Steel placed in the Drilled Shaft will not be paid directly but shall be considered subsidiary to the unit price bid for "Drilled Shaft (72 Dia.)". No additional payment shall be made for spacers, additional splices, or bracing needed for assembly, shipping, handling, or erecting. Drilled Shafts shall conform to Special Provision Job No. 050321 "Drilled Shaft Foundations" and shall be paid for at the unit price bid for "Drilled Shaft (72" Dia.)".

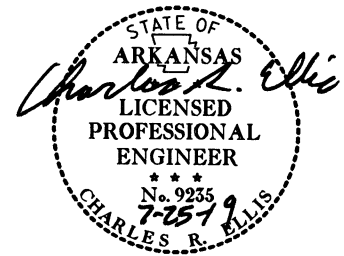
For "SUBSTRUCTURE NOTES," see Std. Dwg. No. 55006

For additional information, see Layout.

- Length of Permanent Casing shown is for estimating quantities only. Actual length is to be determined in the field. See Special Provision Job No. 050321 "Drilled Shaft Foundations." Permanent casing shall extend to material designated as Dolostone on the Boring Legend. The upper 10'-0" of permanent casing at Bent 2 and 3 shall be painted in accordance with SP Job 050321 "Drilled Shaft Foundations."
- Vibration of the concrete in the top 10'-0" of the shaft will be needed to ensure the consolidation of concrete around the reinforcing steel.
- Minimum penetration into material designated as dolostone below bottom of permanent casing.

TABLE OF VARIABLES

| Bent No. | "A" | "B" | "C" | "D" | "E" | "F" | "M" |
|----------|--------|--------|--------|--------|--------------|------------|-----|
| Bent 2 | 543.30 | 543.46 | 543.59 | 542.88 | 13'-10 1/16" | 23'-3 3/8" | 6 |
| Bent 3 | 547.01 | 547.17 | 547.30 | 546.59 | 17'-7 1/16" | 27'-0 1/8" | 10 |



SHEET 1 OF 3
DETAILS OF INTERMEDIATE BENTS
STRAWBERRY RIVER

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

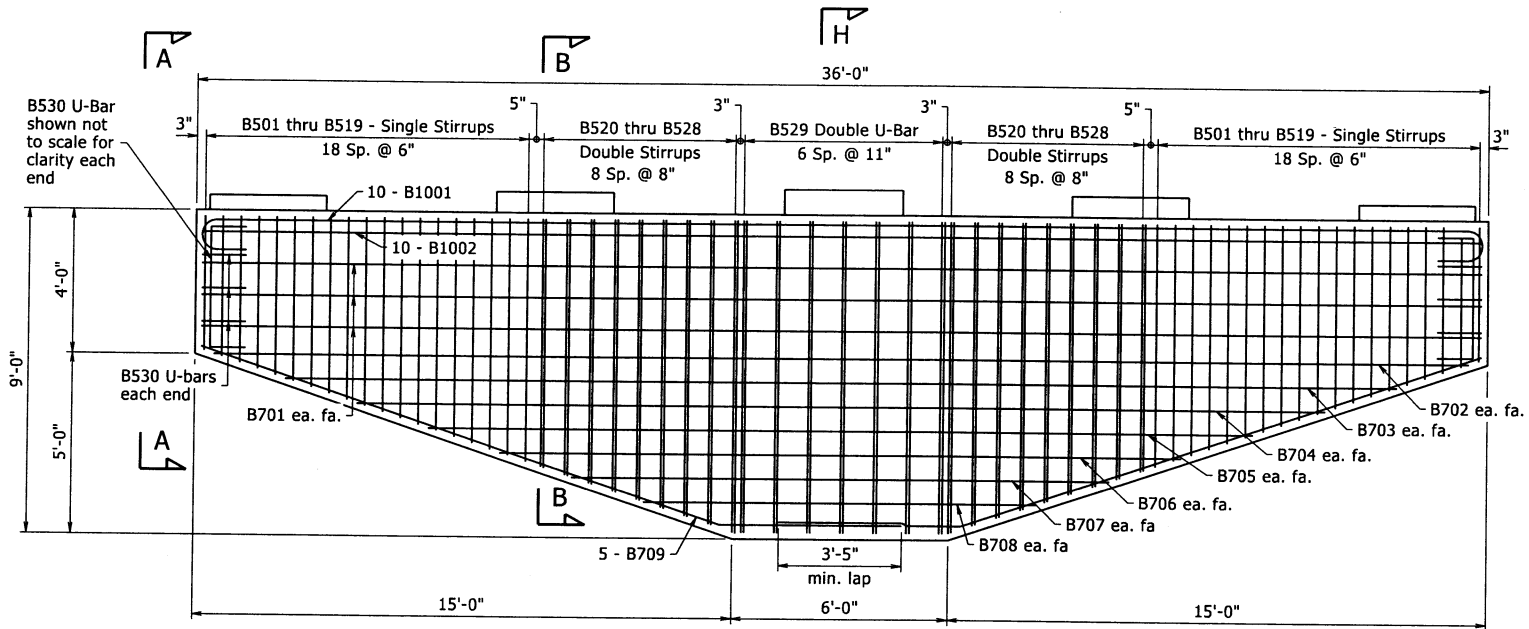
BRIDGE ENGINEER

BRIDGE NO. 07437 DRAWING NO. 60626

DRAWN BY: DPT DATE: 03/15/2019 FILENAME: b050321_b2.dgn
CHECKED BY: KJT DATE: 7/24/19 SCALE: As Shown
DESIGNED BY: KJT DATE: 3/19

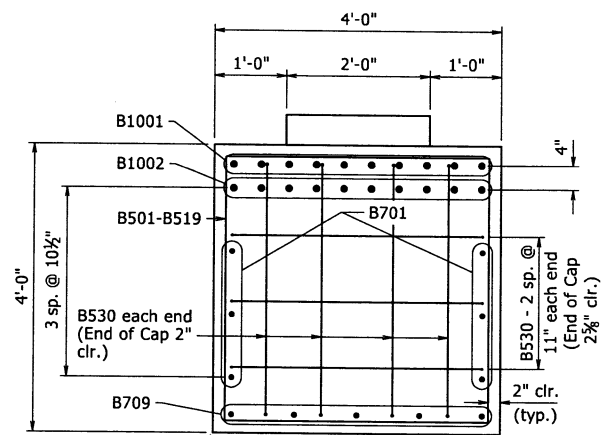
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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|----------------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | 46 | 78 | |
| | | | | 07437 - INT. BENTS - 60627 | | | | |

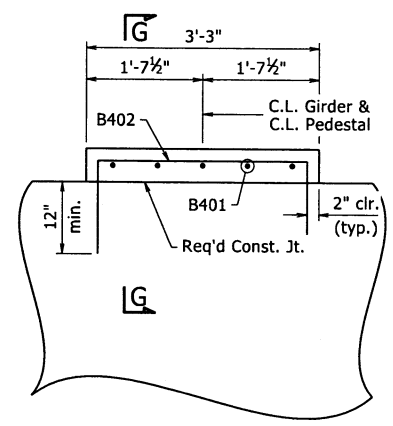


Note:
Legs of B530 U-Bars are parallel to B701.

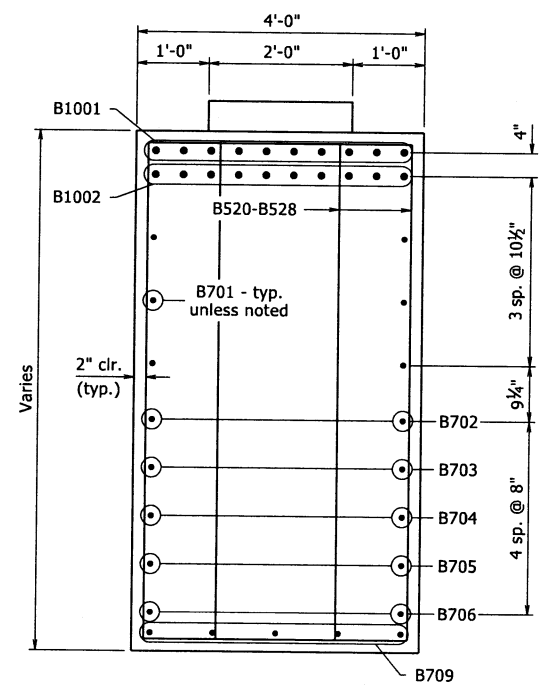
CAP REINFORCING
3/4" = 1'-0"



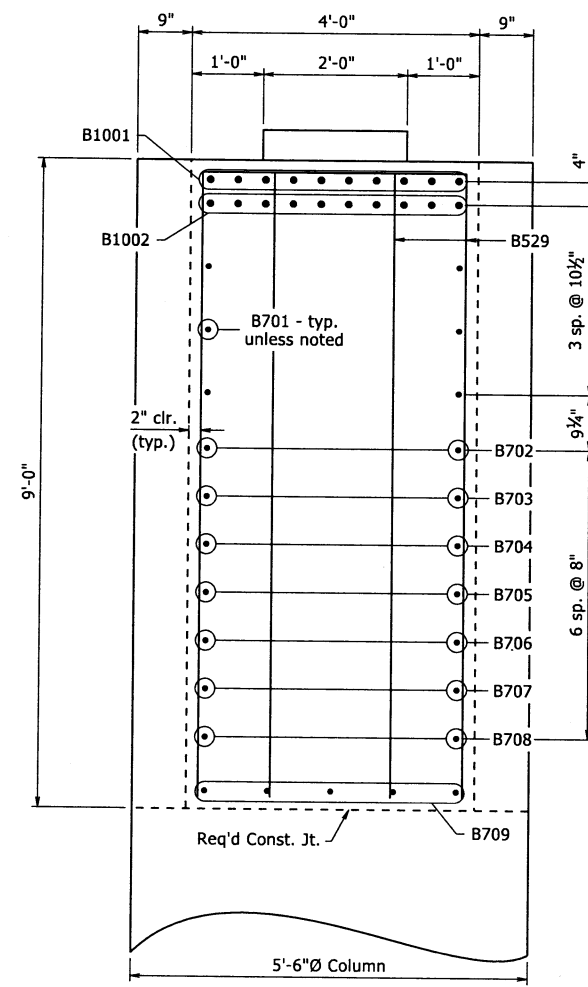
VIEW A-A
3/4" = 1'-0"



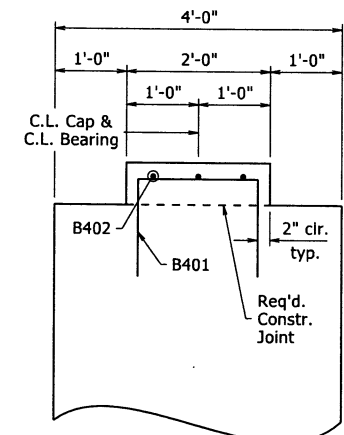
TYPICAL PEDESTAL DETAIL
3/4" = 1'-0"



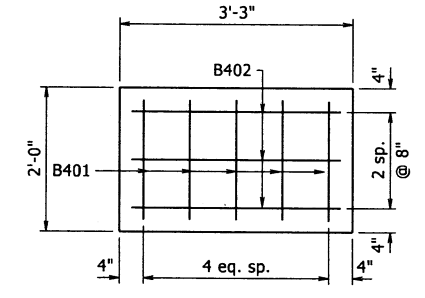
SECTION B-B
3/4" = 1'-0"



SECTION H-H
3/4" = 1'-0"

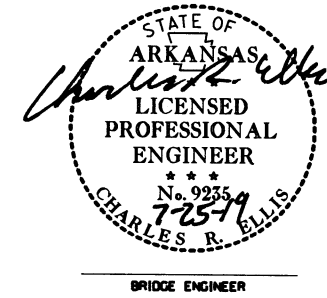


SECTION G-G
3/4" = 1'-0"



PEDESTAL PLAN
3/4" = 1'-0"

PRINT DATE: 7/24/2019

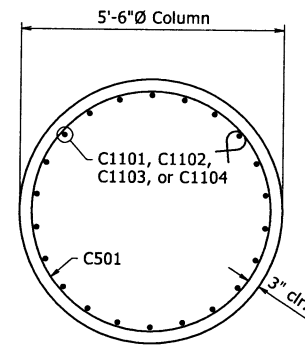


SHEET 2 OF 3
DETAILS OF INTERMEDIATE BENTS
STRAWBERRY RIVER

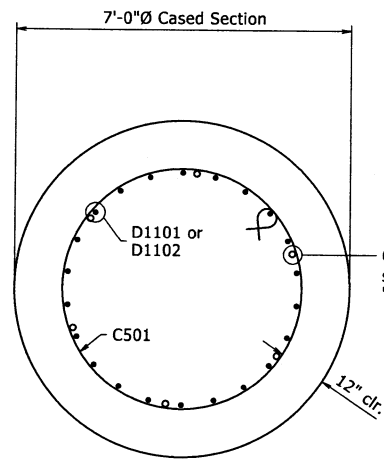
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: VST DATE: 7/24/19 SCALE: As Shown
DESIGNED BY: VST DATE: 3/16
BRIDGE NO. 07437 DRAWING NO. 60627

| 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. | 050321 | 47 | 78 | |
| 07437 - INT. BENTS - 60628 | | | | | | | | |

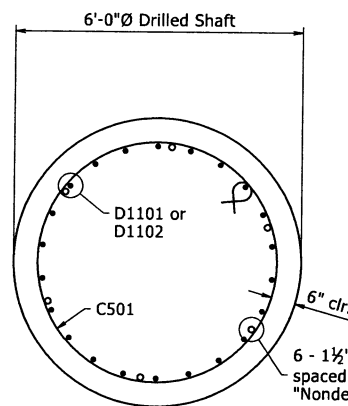


SECTION C-C
1/2" = 1'-0"



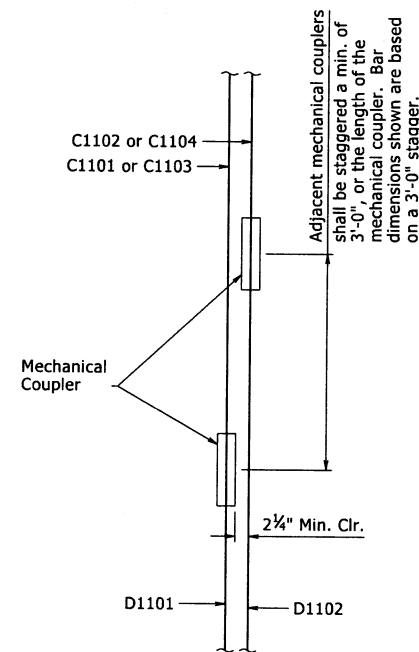
SECTION D-D
1/2" = 1'-0"

6 - 1 1/2" Schedule 40 Steel pipes equally spaced. See SP Job No. 050321 "Nondestructive Testing of Drilled Shafts."



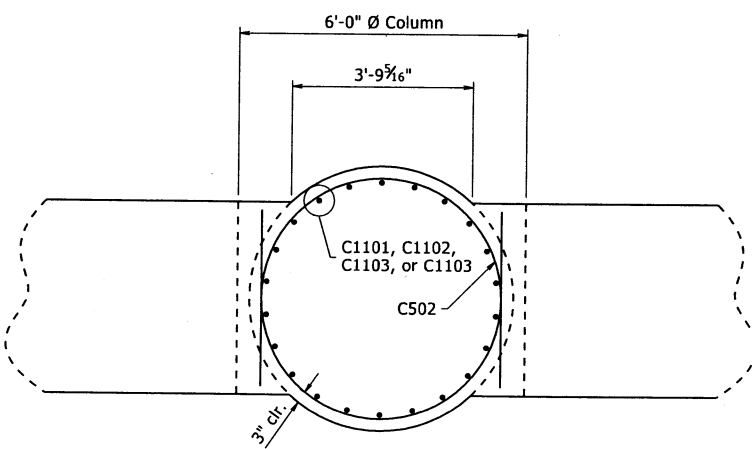
SECTION E-E
1/2" = 1'-0"

6 - 1 1/2" Schedule 40 Steel pipes equally spaced. See SP Job No. 050321 "Nondestructive Testing of Drilled Shafts."



COLUMN BAR DETAIL
3/4" = 1'-0"

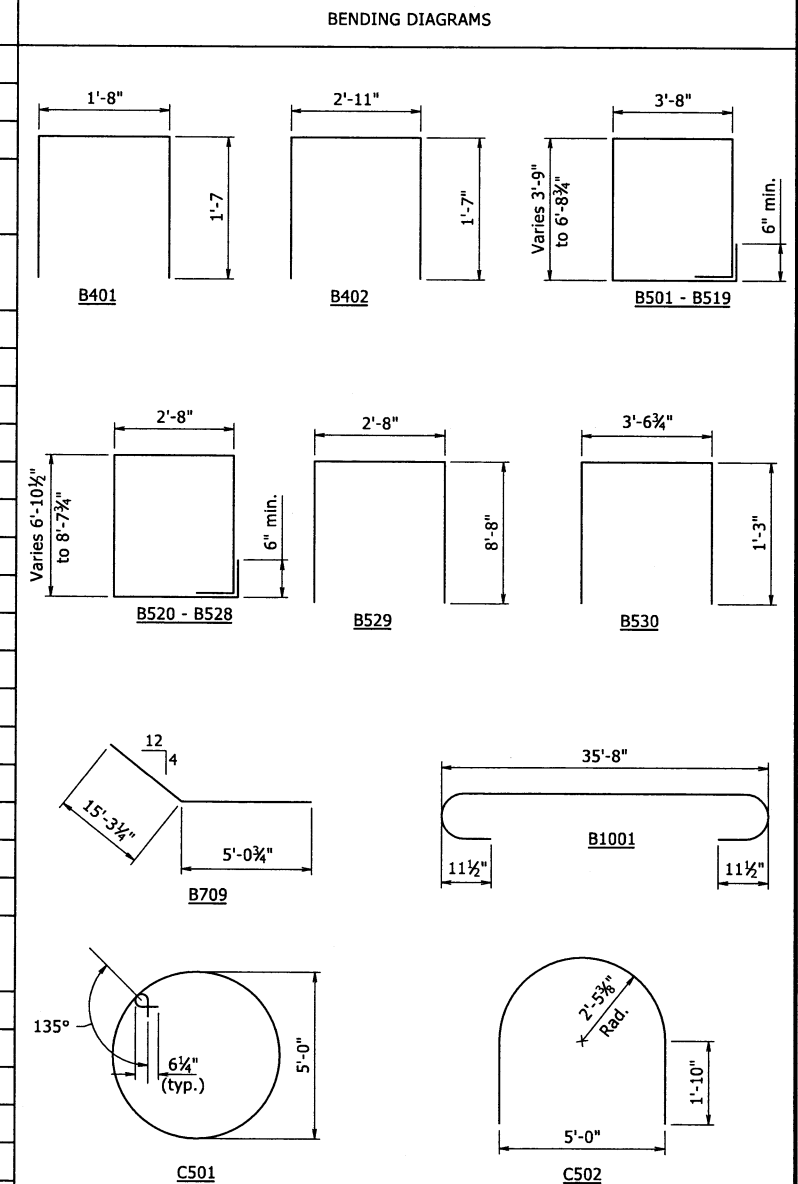
Mechanical couplers in the column shall maintain the clearances shown. Their payment shall be subsidiary to the item "Reinforcing Steel - Bridge (Grade 60)". The QPL approved couplers shall develop at least 125% of the specified yield strength of the bar.



SECTION F-F
1/2" = 1'-0"

BAR LIST

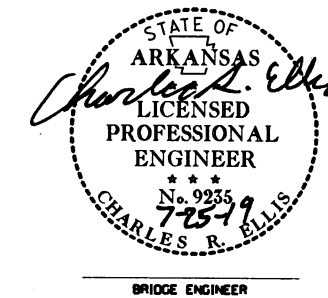
| MARK | NO. REQ'D BENT 2 | NO. REQ'D BENT 3 | LENGTH | P. D. |
|-----------|------------------|------------------|-----------------------|--------|
| B401 | 25 | 25 | 4'-8" | 2" |
| B402 | 15 | 15 | 5'-11" | 2" |
| B501-B519 | 2 ea. | 2 ea. | Var. 15'-4" to 21'-4" | 2 1/2" |
| B520-B528 | 4 ea. | 4 ea. | Var. 19'-7" to 22'-8" | 2 1/2" |
| B529 | 14 | 14 | 19'-10" | 2 1/2" |
| B530 | 14 | 14 | 5'-11" | 2 1/2" |
| B701 | 6 | 6 | 35'-8" | Str. |
| B702 | 2 | 2 | 35'-0" | Str. |
| B703 | 2 | 2 | 31'-0" | Str. |
| B704 | 2 | 2 | 27'-0" | Str. |
| B705 | 2 | 2 | 23'-0" | Str. |
| B706 | 2 | 2 | 19'-0" | Str. |
| B707 | 2 | 2 | 15'-0" | Str. |
| B708 | 2 | 2 | 11'-0" | Str. |
| B709 | 5 | 5 | 20'-4" | 5 1/4" |
| B1001 | 10 | 10 | 38'-6" | 10" |
| B1002 | 10 | 10 | 35'-8" | Str. |
| C501 | 47 | 51 | 17'-1" | 3 3/4" |
| C502 | 29 | 29 | 11'-7" | 3 3/4" |
| C1101 | 27 | - | 17'-10" | Str. |
| C1102 | 27 | - | 14'-10" | Str. |
| C1103 | - | 27 | 21'-7" | Str. |
| C1104 | - | 27 | 18'-7" | Str. |
| D1101 | 27 | - | 36'-9" | Str. |
| D1102 | - | 27 | 39'-9" | Str. |



Dimensions are out to out of bars.

② Non-pay item - Subsidiary to the pay item "Drilled Shaft (72" Dia.)."

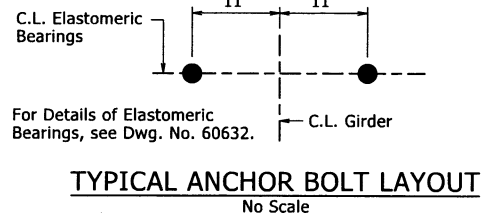
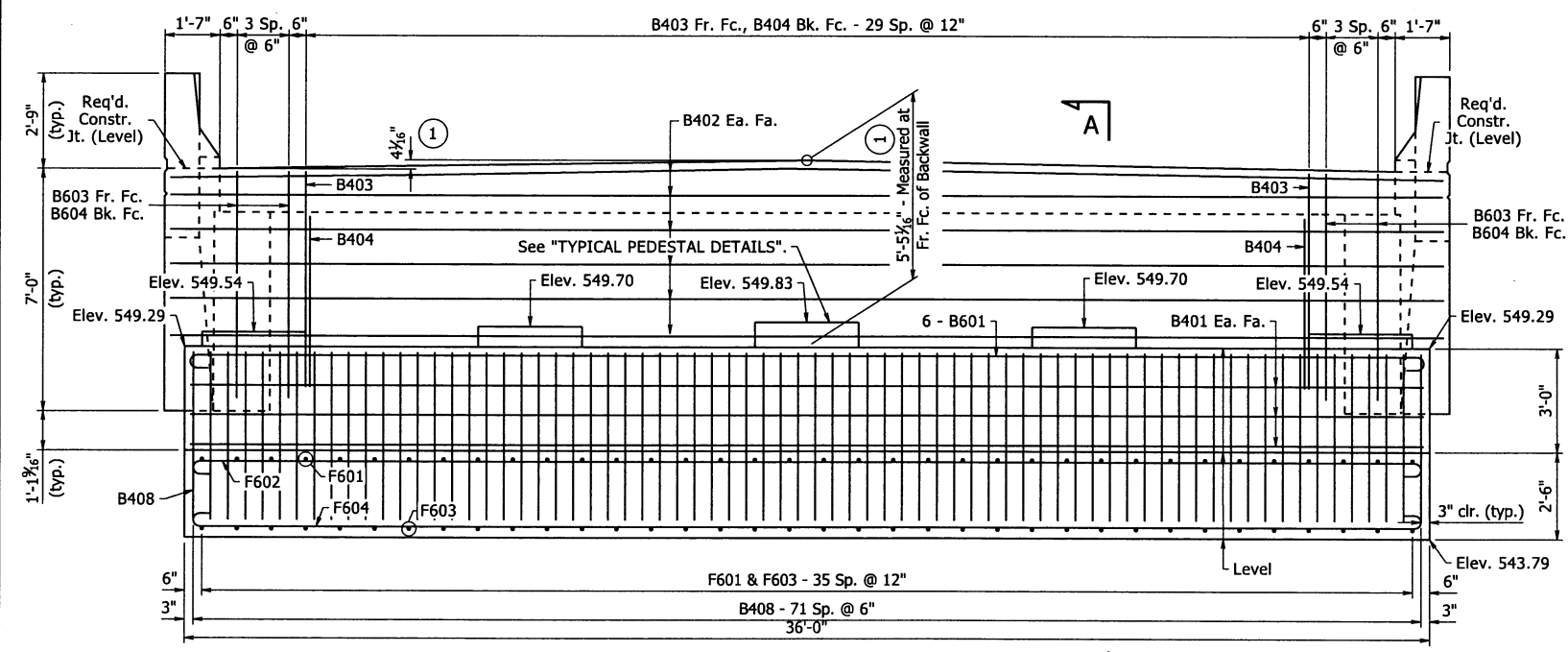
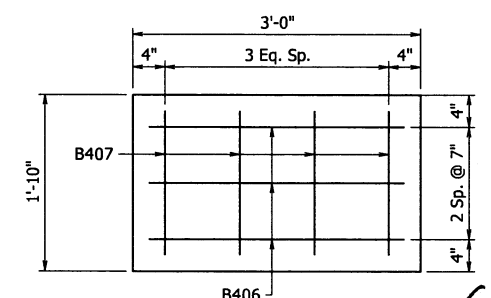
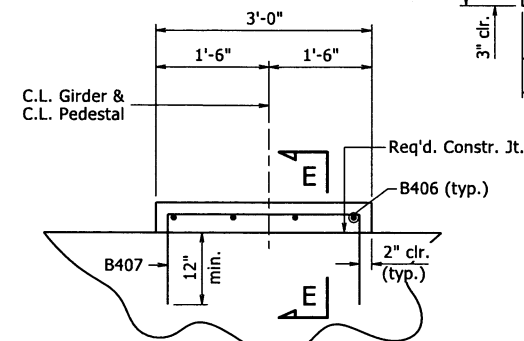
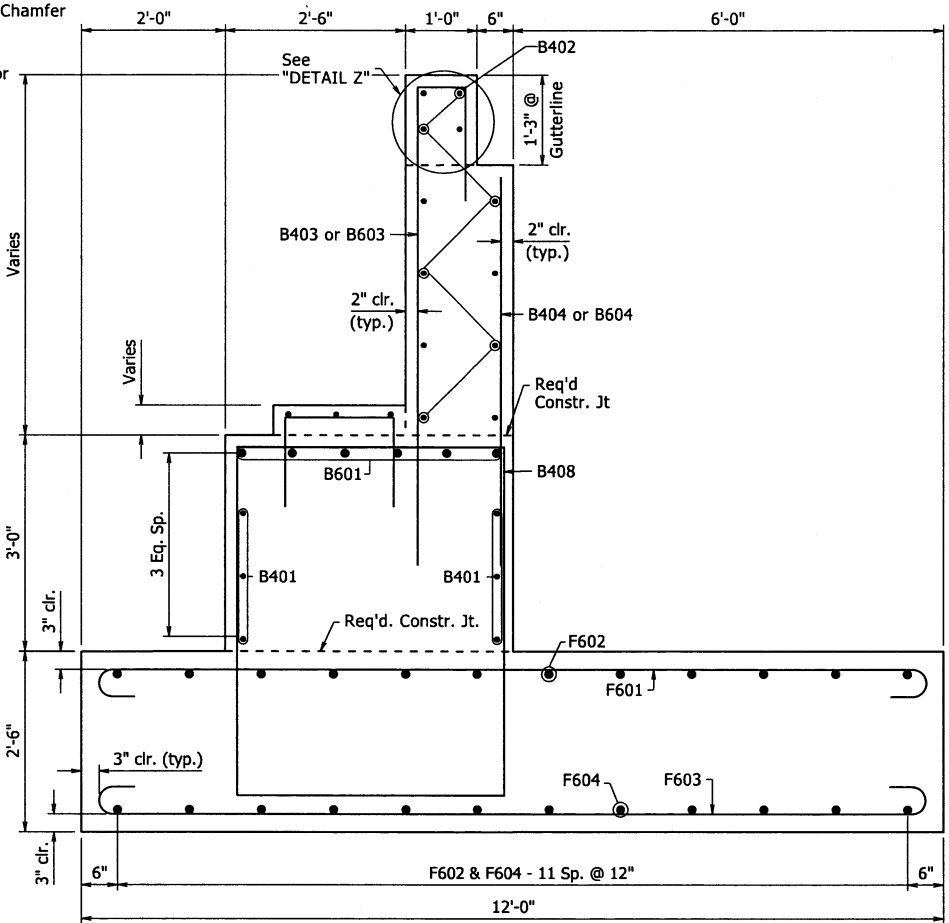
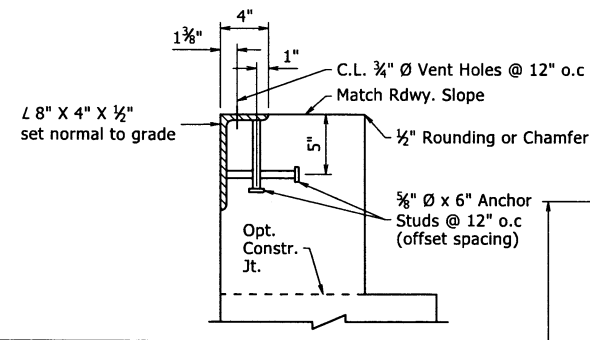
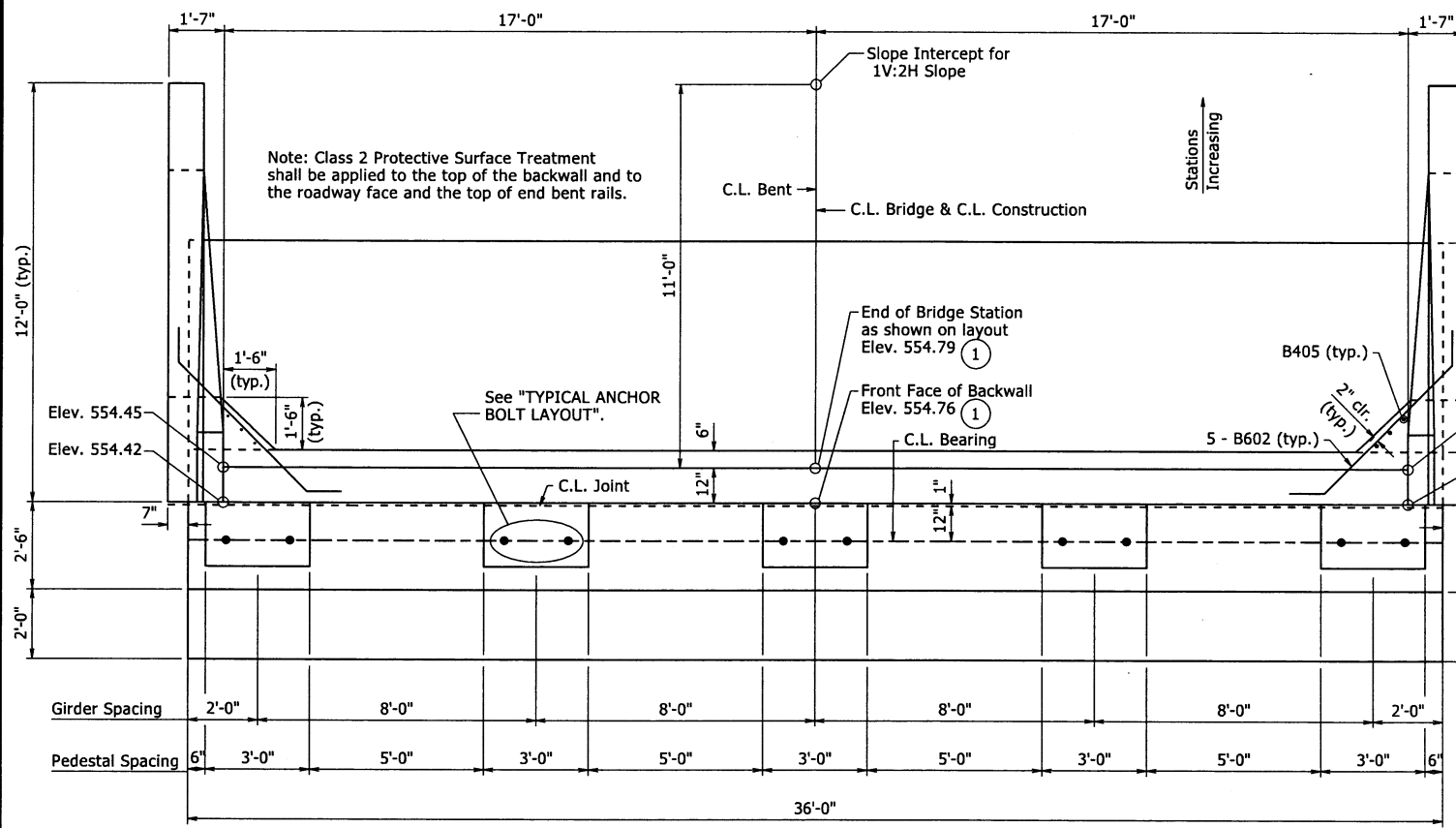
PRINT DATE: 7/24/2019



SHEET 3 OF 3
 DETAILS OF INTERMEDIATE BENTS
 STRAWBERRY RIVER
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: DPT DATE: 03/15/2019 FILENAME: b050321_b2.dgn
 CHECKED BY: [Signature] DATE: 7/24/19 SCALE: As Shown
 DESIGNED BY: [Signature] DATE: 3/19
 BRIDGE NO. 07437 DRAWING NO. 60628

① Measured at Working Point, see "Rounding Detail" on Std. Dwg. No. 55007.

| 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. | 050321 | 48 | 78 | |
| 07437 - END BENT DETAILS - 60629 | | | | | | | | |



STATE OF ARKANSAS
 LICENSED PROFESSIONAL ENGINEER
 No. 9235
 7-25-19
 CHARLES R. ELLIS
 BRIDGE ENGINEER

Note: For Details of Wing & Rail see Dwg. No. 60630.
 For the Bar List, see Dwg. No. 60631.

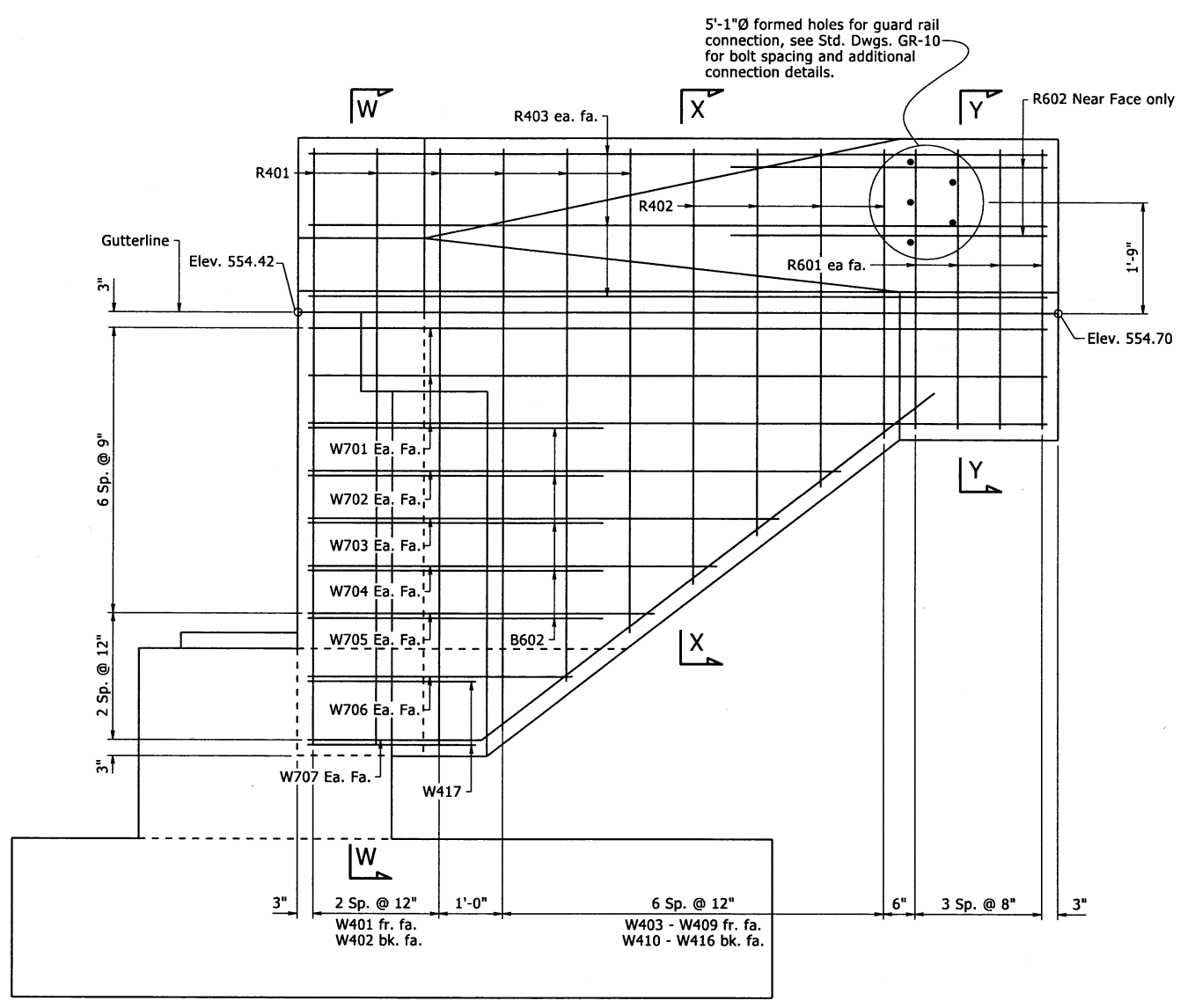
SHEET 1 OF 3
 DETAILS OF END BENT 4
 STRAWBERRY RIVER

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

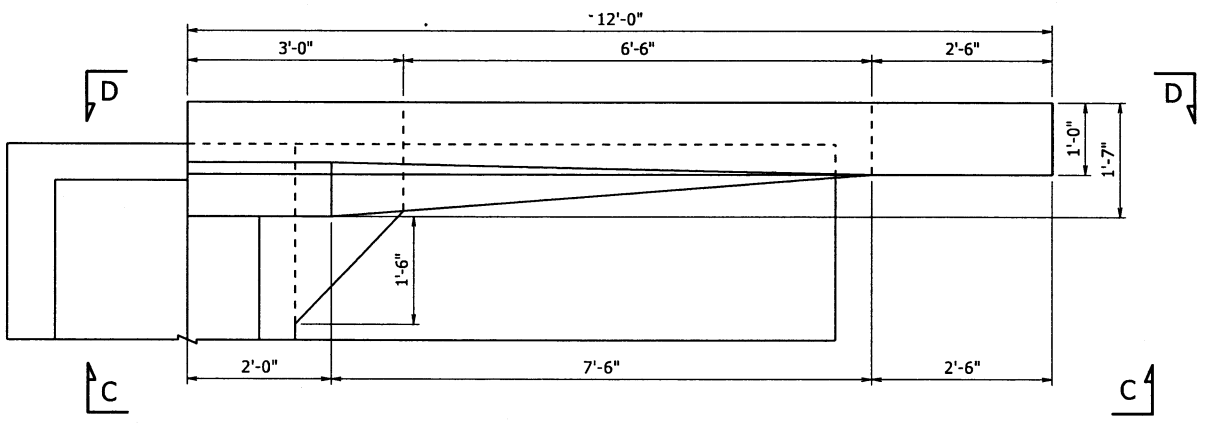
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 DESIGNED BY: KJT DATE: 7/19
 BRIDGE NO. 07437 DRAWING NO. 60629

PRINT DATE: 7/25/2019

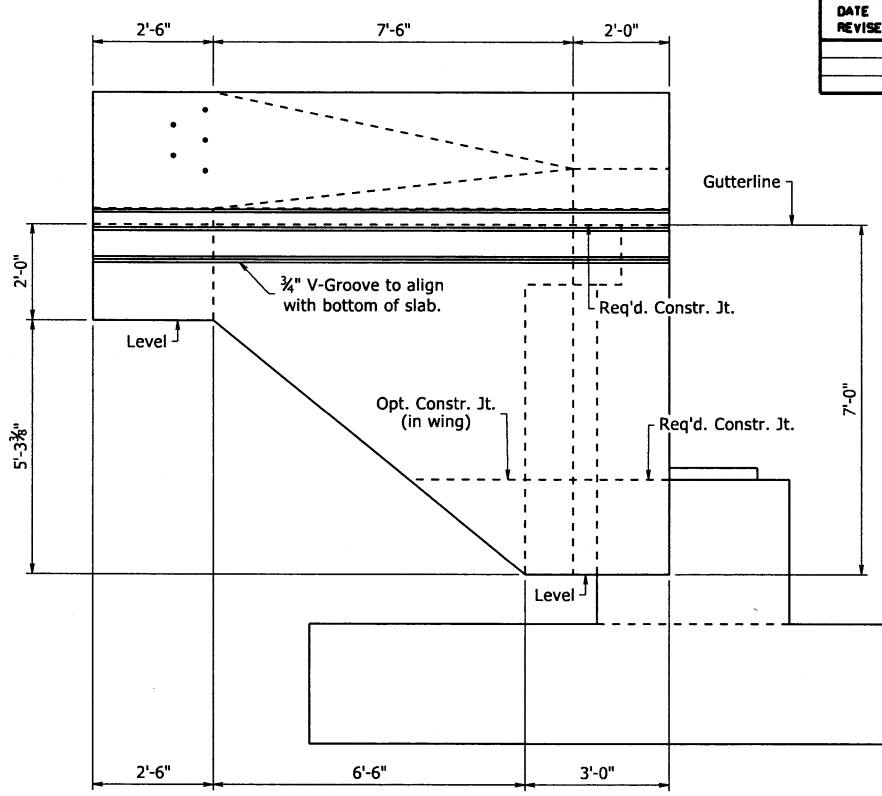
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|----------------------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 050321 | 49 | 78 |
| | | | | 07437 - END BENT DETAILS - 60630 | | | | |



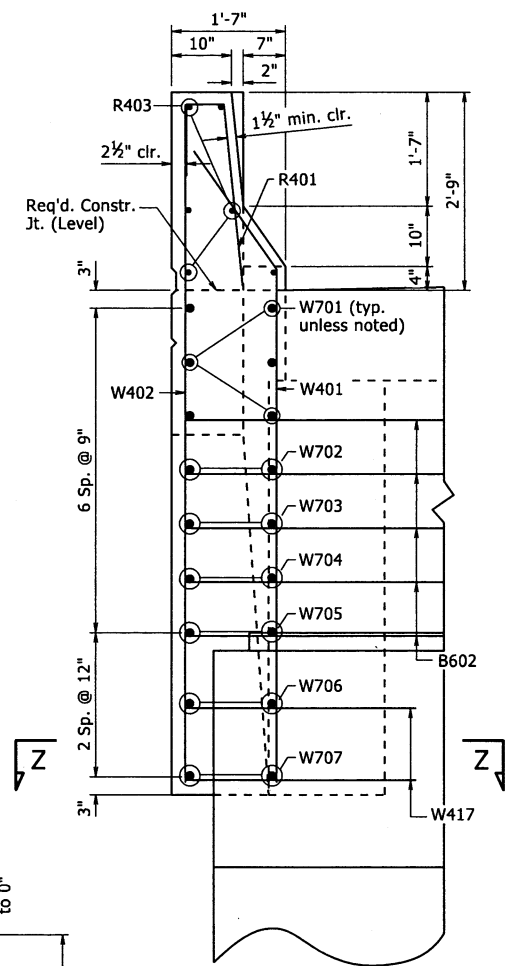
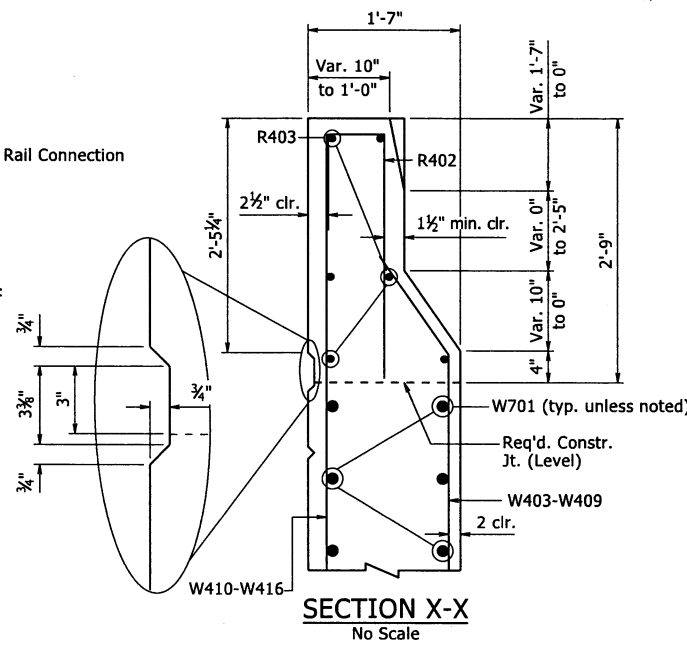
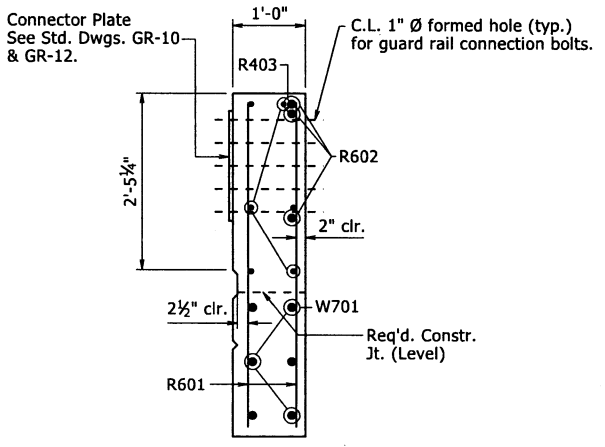
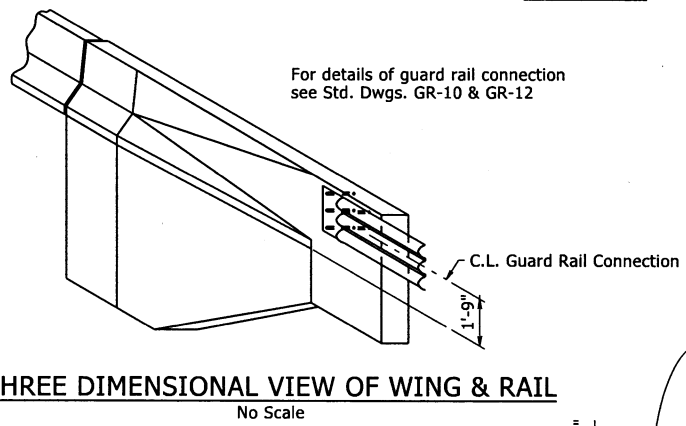
VIEW C-C
3/4" = 1'-0"



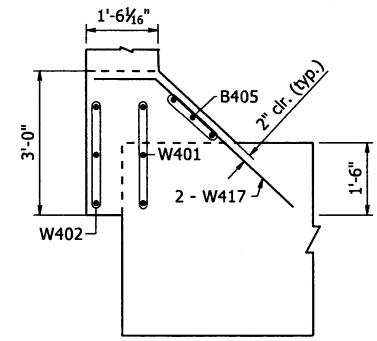
PLAN OF RAIL
3/4" = 1'-0"



VIEW D-D



VIEW W-W
3/4" = 1'-0"



STATE OF ARKANSAS
 LICENSED PROFESSIONAL ENGINEER
 No. 9235
 7-25-19
 CHARLES R. ELLIS
 BRIDGE ENGINEER

SHEET 2 OF 3
 DETAILS OF END BENT 4
 STRAWBERRY RIVER

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

DRAWN BY: KJT DATE: 7/2/19 FILENAME: b050321_b4.dgn
 CHECKED BY: DPT DATE: 7/27/19 SCALE: As Shown
 DESIGNED BY: KJT DATE: 7/19
 BRIDGE NO. 07437 DRAWING NO. 60630

PRINT DATE: 7/25/2019

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|---------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | 50 | 78 |
| | | | | JOB NO. | 050321 | | | |

07437 - END BENT DETAILS - 60631

BAR LIST

GENERAL NOTES

For "SUBSTRUCTURE NOTES", see Std. Dwg. No. 55006.

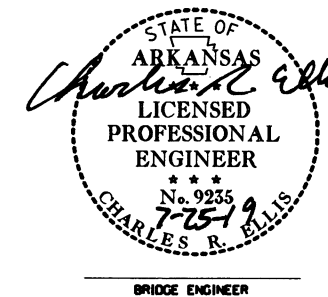
Structural steel, unless noted otherwise, in end bents shall be ASTM A709, Gr. 50W and shall be paid for as "Structural Steel in Plate Girder Spans (ASTM A709, Gr. 50W)".

No portion of the backwall shall be poured before girders are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the deck pour has been made. Refer to the "Expansion Device Installation" note, see Std. Dwg. No. 55008. No heavy construction equipment or backfill shall be allowed directly behind the backwall until the deck concrete for the adjacent span has been completed.

For additional information, see Layout.

| MARK | NO. REQ'D. | LENGTH | P.D. | BENDING DIAGRAMS |
|------------------------------------|------------|----------------|--------|------------------|
| Dimensions are out to out of bars. | | | | |
| B401 | 6 | 35'-8" | Str. | |
| B402 | 12 | 35'-10" | Str. | |
| B403 | 30 | 9'-3" | 2" | |
| B404 | 30 | 5'-1" | Str. | |
| B405 | 6 | 5'-4" | Str. | |
| B406 | 20 | 4'-6" | 2" | |
| B407 | 15 | 5'-8" | 2" | |
| B408 | 72 | 17'-4" | 2" | |
| B601 | 6 | 37'-0" | 4 1/2" | |
| B602 | 10 | 7'-5" | 4 1/2" | |
| B603 | 8 | 10'-2" | 4 1/2" | |
| B604 | 8 | 5'-7" | Str. | |
| W401 | 6 | 8'-2" | 2" | |
| W402 | 6 | 9'-5" | Str. | |
| W403 - W409 | 2 Each | 8'-2" to 4'-5" | 2" | |
| W410 - W416 | 2 Each | 9'-3" to 4'-6" | Str. | |
| W417 | 4 | 4'-9" | 2" | |
| W701 | 12 | 11'-8" | Str. | |
| W702 | 4 | 8'-4" | Str. | |
| W703 | 4 | 7'-5" | Str. | |
| W704 | 4 | 6'-5" | Str. | |
| W705 | 4 | 5'-6" | Str. | |
| W706 | 4 | 4'-3" | Str. | |
| W707 | 4 | 11'-9" | 5 1/4" | |
| R401 | 12 | 3'-11" | 2" | |
| R402 | 8 | 4'-0" | 2" | |
| R403 | 12 | 11'-8" | Str. | |
| R601 | 16 | 4'-4" | Str. | |
| R602 | 6 | 5'-0" | Str. | |
| F601 | 36 | 12'-4" | 4 1/2" | |
| F602 | 12 | 36'-10" | 4 1/2" | |
| F603 | 36 | 12'-4" | 4 1/2" | |
| F604 | 12 | 36'-10" | 4 1/2" | |

PRINT DATE: 7/24/2019

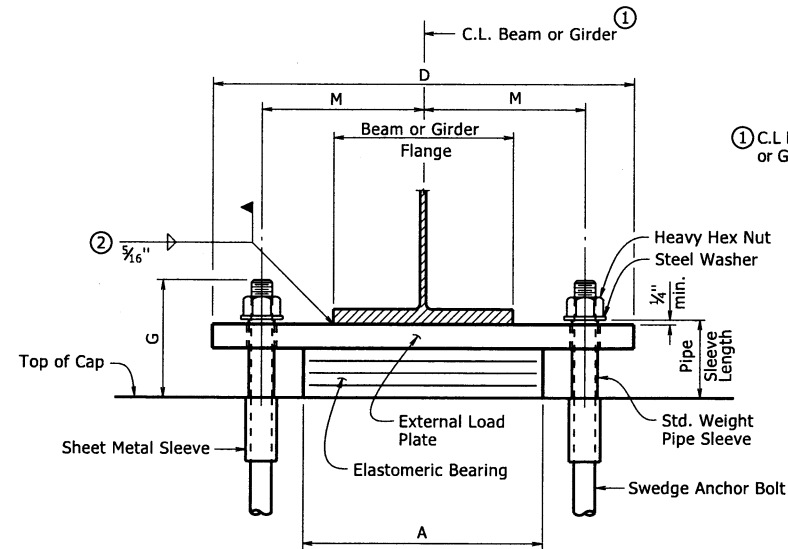


SHEET 3 OF 3
DETAILS OF END BENT 4
STRAWBERRY RIVER

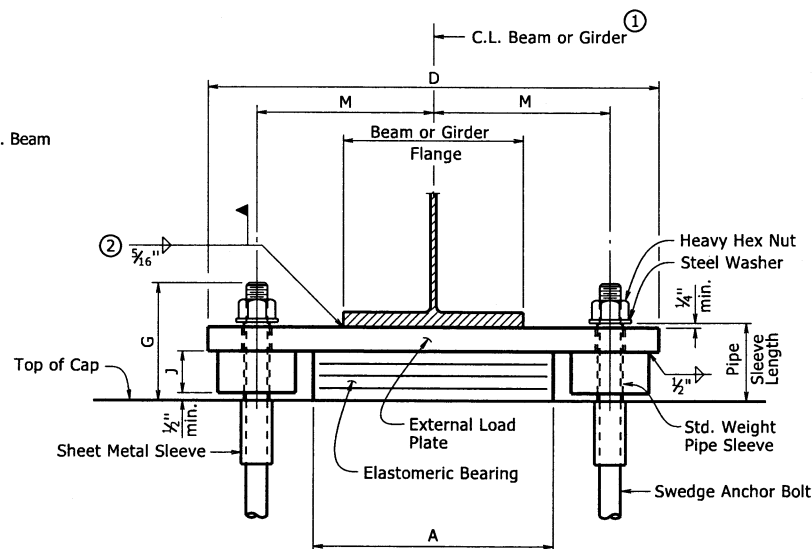
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJT DATE: 7/2/19 FILENAME: b050321_b4.dgn
 CHECKED BY: DJT DATE: 7/24/19 SCALE: As Shown
 DESIGNED BY: KJT DATE: 7/19
 BRIDGE NO. 07437 DRAWING NO. 60631

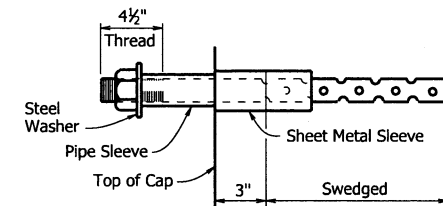
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | 51 | 78 | |
| | | | | 07437 - ELASTOMERIC BEARINGS - 60632 | | | | |



FRONT VIEW - AT BENT NOS. 1 & 4



FRONT VIEW - AT BENT NOS. 2 & 3



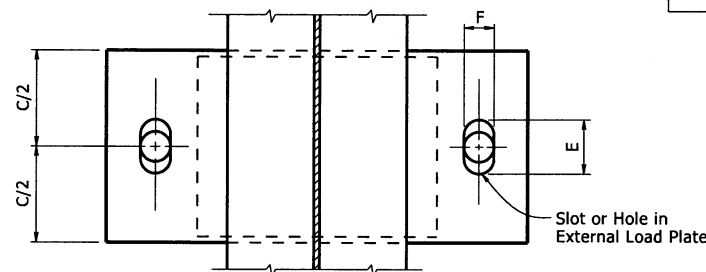
ANCHOR BOLT DETAIL

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

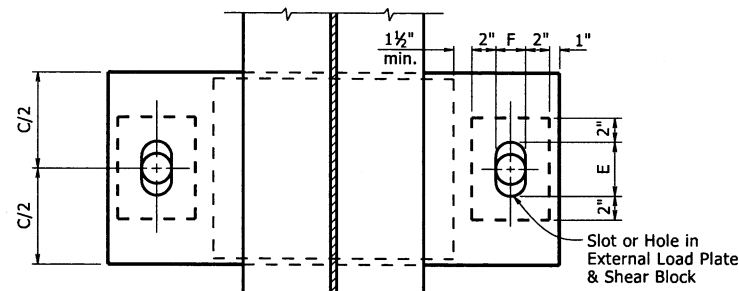
If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Plate Girder Spans (A709, Gr. 50W)"

① C.L. Elastomeric Pad shall be aligned with C.L. Beam or Girder.

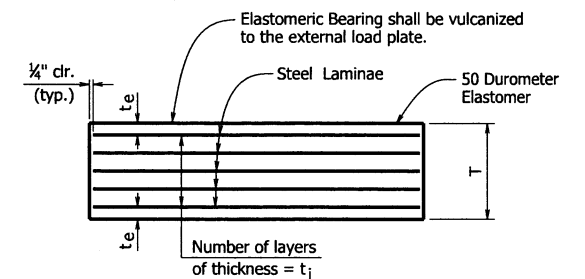
Prior to erection of the beams or girders, the Contractor shall verify the orientation of the bearings with respect to Ta and Tb.



PLAN VIEW - AT BENT NOS. 1 & 4



PLAN VIEW - AT BENT NOS. 2 & 3



te = Thickness of elastomer cover on top and bottom of pad
ti = Thickness of elastomer between steel laminae
N = Number of elastomer layers of thickness ti

ELASTOMERIC BEARING

GENERAL NOTES

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

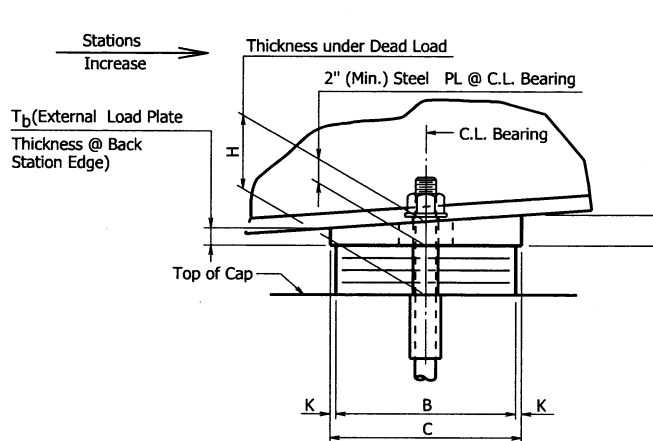
External load plates and shear blocks shall conform to ASTM A709, Gr. 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

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

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

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Plate Girder Spans (A709, Gr. 50W)". External load plates and shear blocks will not be measured or paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

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

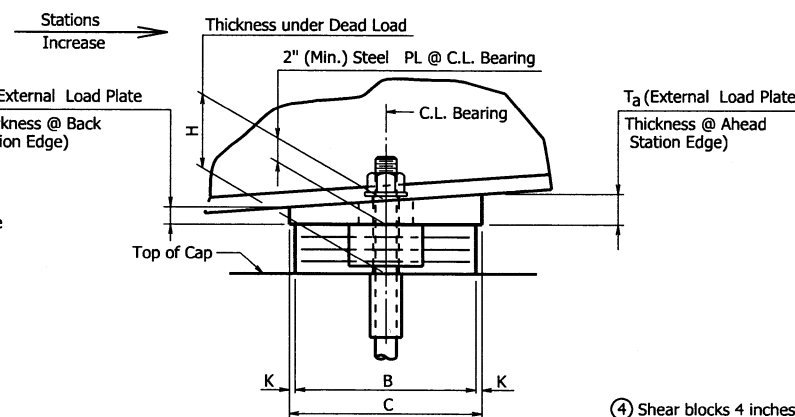


SIDE VIEW - AT BENT NOS. 1 & 4

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

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

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



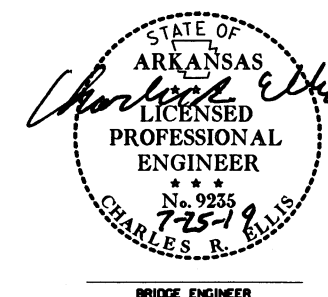
SIDE VIEW - AT BENT NOS. 2 & 3

④ Shear blocks 4 inches or thicker may be fabricated from built-up plates with a 3/16 inch groove weld on all sides. No plate shall be less than 2 inch nominal thickness.

TABLE OF FABRICATOR VARIABLES

③ Maximum Design Load = Service 1 Limit State

| BRIDGE NO. | LOCATION | BEARING TYPE | NO. OF BEARINGS EACH BENT | ③ MAXIMUM DESIGN LOAD (KIPS) | G | H | ELASTOMERIC PAD | | | | EXTERNAL LOAD PLATE | | | | | | | | ANCHOR BOLT | | | | | | | | |
|------------|----------|--------------|---------------------------|------------------------------|--------|-----------|-----------------|-----|---|------|---------------------|----------------------------------|-----------|-----|---------|--------|--------|--------|-------------|---------|-------|-------|---------------------|--------------------------|---------------------------------|--------------------------|--------|
| | | | | | | | A | B | N | ti | te | NO. & THICKNESS OF STEEL LAMINAE | T | C | D | E | F | J | K | M | Ta | Tb | ANCHOR BOLT (Ø x L) | PIPE SLEEVE SIZE (Ø x L) | SHEET METAL SLEEVE SIZE (Ø x L) | STEEL WASHER SIZE (O.D.) | |
| 07437 | 1 & 4 | All | 5 | 125 | 8 3/4" | 4 1 3/16" | 16" | 8" | 4 | 1/2" | 3/4" | 5 @ 12 ga. | 3" | 9" | 29" | 6 3/8" | 3 3/4" | NA | 1/2" | 11" | 2.12" | 1.88" | 2 1/2"Ø x 36" | 55 | 3"Ø x 5 1/4" | 4"Ø x 10" | 4 1/2" |
| | 2 & 3 | All | 5 | 354 | 7 1/2" | 3 1 3/16" | 20" | 13" | 2 | 1/2" | 3/4" | 3 @ 12 ga. | 1 1 3/16" | 14" | 39 3/4" | 3 3/8" | 3 3/8" | 1 1/4" | 1/2" | 15 1/4" | 2.17" | 1.83" | 2 1/4"Ø x 32" | 55 | 2 1/2"Ø x 4 1/8" | 4"Ø x 17" | 4" |



DETAILS OF ELASTOMERIC BEARINGS
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KJT DATE: 3/15/2019 FILENAME: b050321_e1.dgn
CHECKED BY: OBT DATE: 3/21/19 SCALE: No Scale
DESIGNED BY: KJT DATE: 3/2019
BRIDGE NO. 07437 DRAWING NO. 60632

PRINT DATE: 7/24/2019

Notes:

Class 2 Protective Surface Treatment shall be applied to the Roadway Surface and to the Roadway Face and top of the Concrete Parapet Rail.

At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices per Subsection 804.06.

The Superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) concrete.

All bars with an "E" suffix shall be Epoxy Coated.

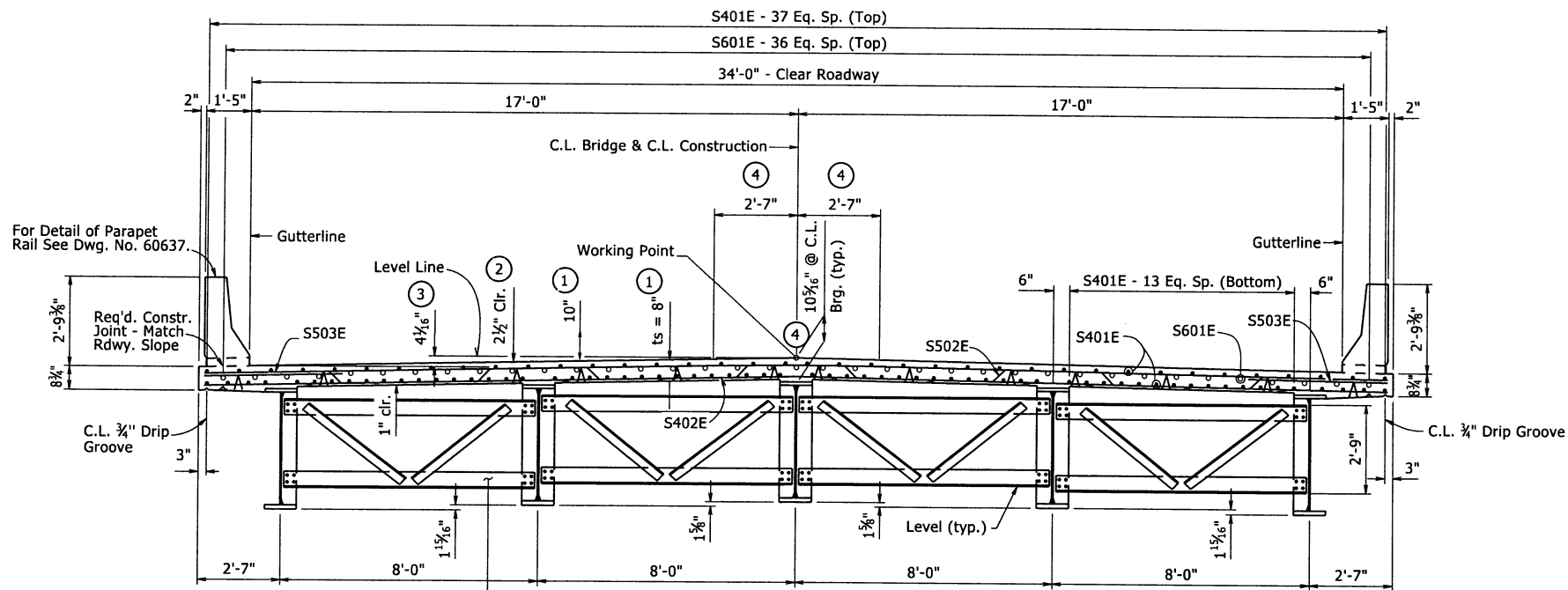
Slab Reinforcing

Longitudinal: S401E in top and bottom as shown
S601E place as shown over int. supports, see "PARTIAL REINFORCING PLAN & DECK POURING SEQUENCE" Dwg. No. 60636.

Transverse: S501E @ 12" o.c. in top, S402E @ 12" o.c. in bottom
S502E @ 12" o.c. bent up over beams
S503E @ 6" in top of overhangs (bundled with #5 bars) — Alternate

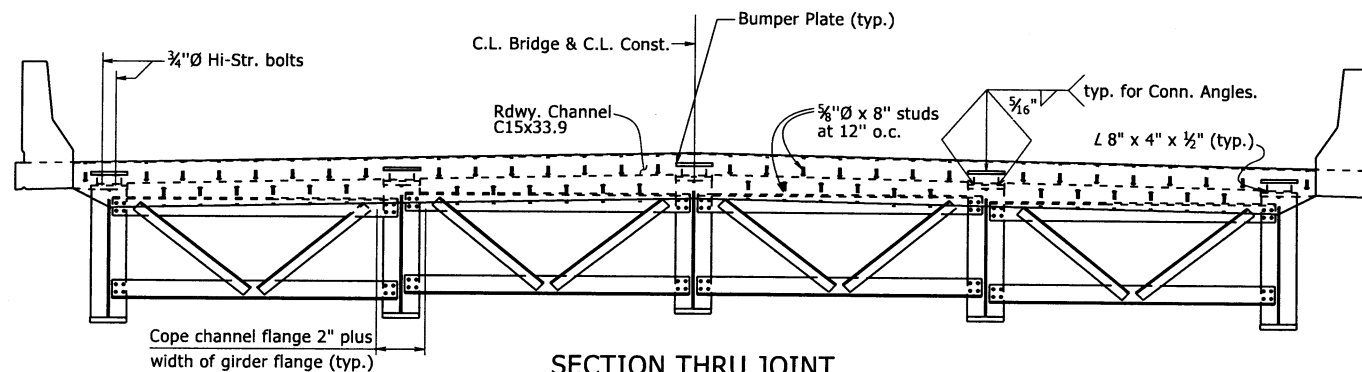
- ① See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE", Std. Dwg. No. 55007.
- ② Tolerance: Minus = 1/4"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance- See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE", See Std. Dwg. No. 55007.
- ③ Working Point to Gutterline.
- ④ For Working Point and "ROUNDING DETAIL", See Std. Dwg. No. 55007

| 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. | | 050321 | 52 | 78 |
| | | | | ① 07437 - SPAN DETAILS - 60633 | | | | |



TYPICAL ROADWAY SECTION
SCALE: 3/8" = 1'-0"

Expansion Device:
Rdwy. Channel - C15x33.9
Conn. L's 8"x4"x 1/2"
Detail Device 1/2" high & provide 1/4"
shims using 2- 1/16" & 1- 1/8" PLs



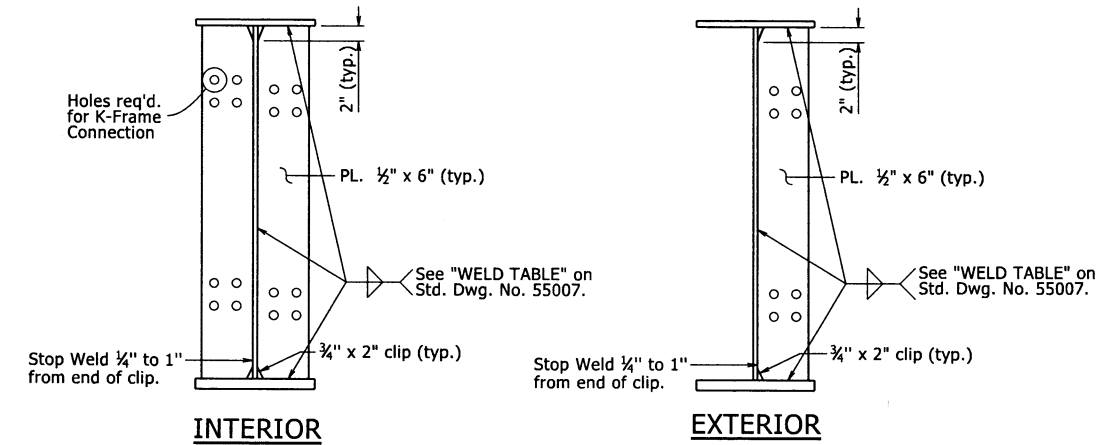
SECTION THRU JOINT
LOOKING AHEAD - BENT 1
SCALE: 3/8" = 1'-0"

SILICONE JOINT DATA

For details of poured silicone joint, see Std. Dwg. No. 55008.

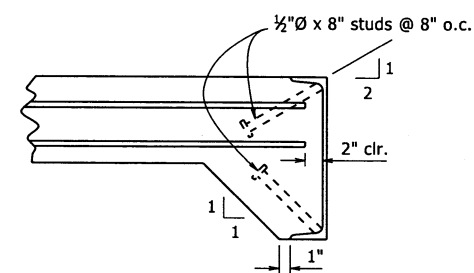
| Bent Number | "A" Width Perpendicular to Joint at 24 Hour Average Temperature Of: ⑤ | | | "B" Perpendicular to Joint at 60°F | Bumper Plate Size |
|-------------|---|------|--------|------------------------------------|-------------------|
| | 40°F | 60°F | 80°F | | |
| 1 & 4 | 2 1/4" | 2" | 1 3/4" | 2 1/4" +/- | 1" x 1" |

⑤ The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

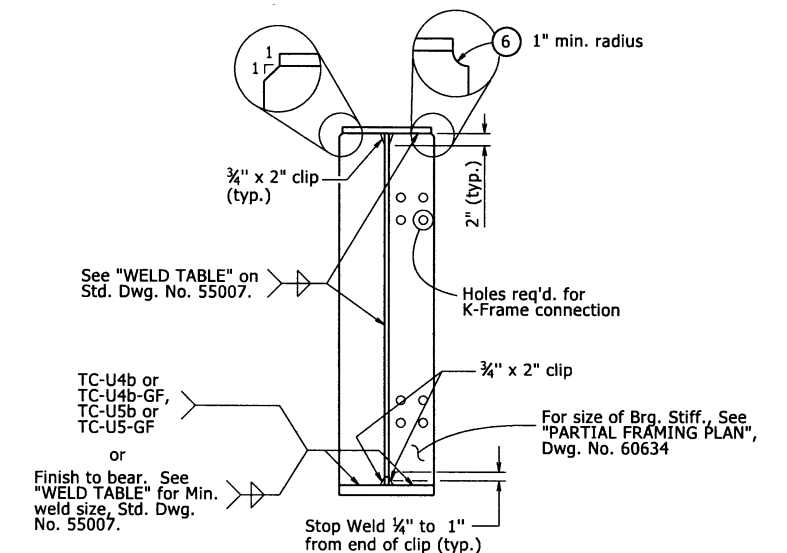


CONNECTION PLATE DETAIL
NO SCALE

⑥ If permanent steel bridge deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.
Bearing stiffeners to be fabricated so as to be vertical in their final position.



DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCING
NO SCALE



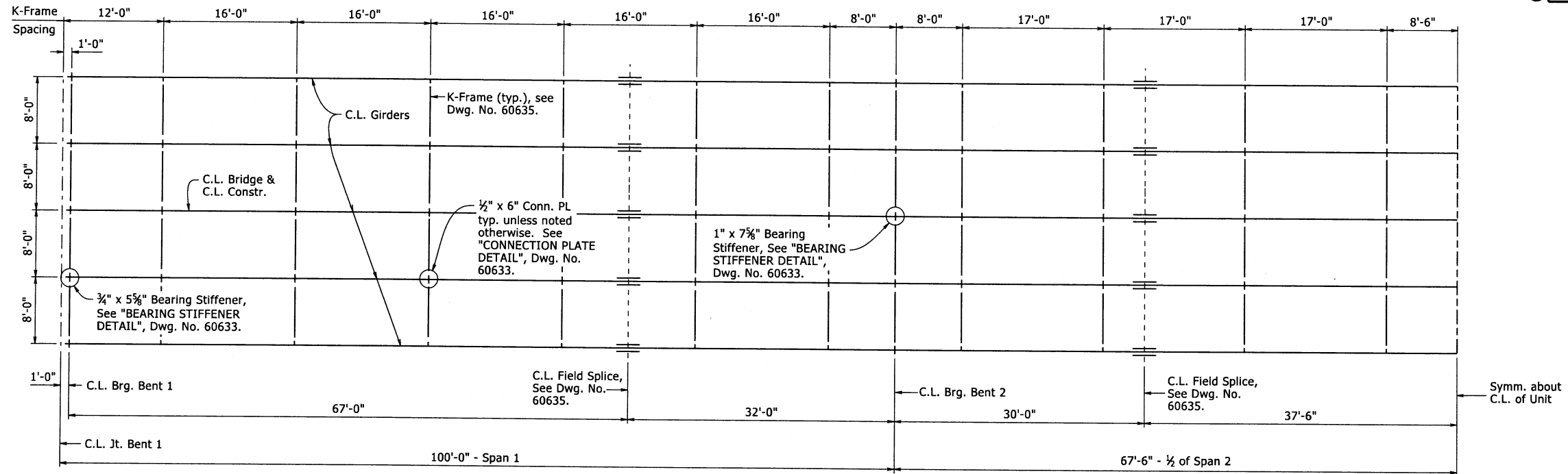
BEARING STIFFENER DETAIL
NO SCALE

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
7-25-19
CHARLES R. ELLIS
BRIDGE ENGINEER

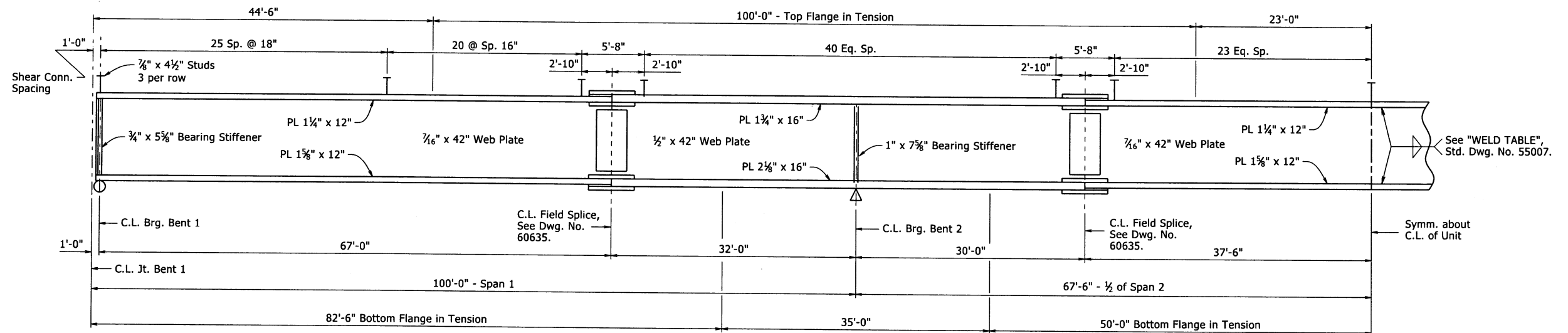
SHEET 1 OF 5
DETAILS OF 335'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
STRAWBERRY RIVER
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KJT DATE: 10/24/17 FILENAME: b050321_s1.dgn
CHECKED BY: OPT DATE: 11/24/19 SCALE: As Shown
DESIGNED BY: KJT DATE: 10/17
BRIDGE NO. 07437 DRAWING NO. 60633

| 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. | | 050321 | 53 | 78 |

07437 - SPAN DETAILS - 60634

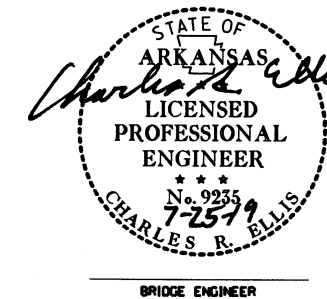


PARTIAL FRAMING PLAN
NO SCALE



PARTIAL GIRDER ELEVATION
NO SCALE

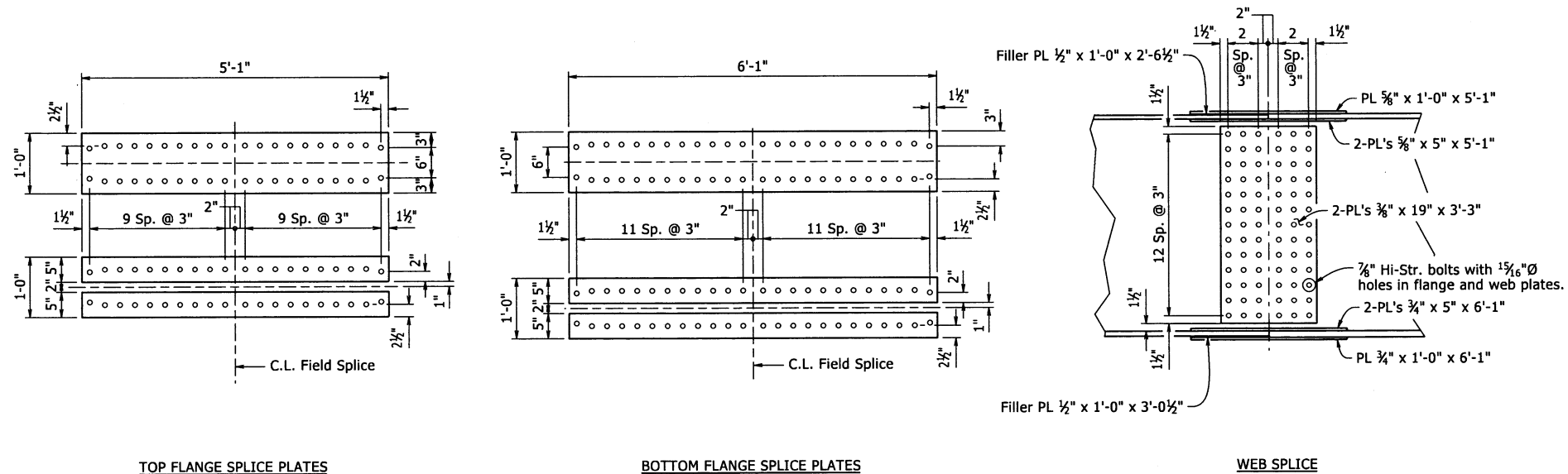
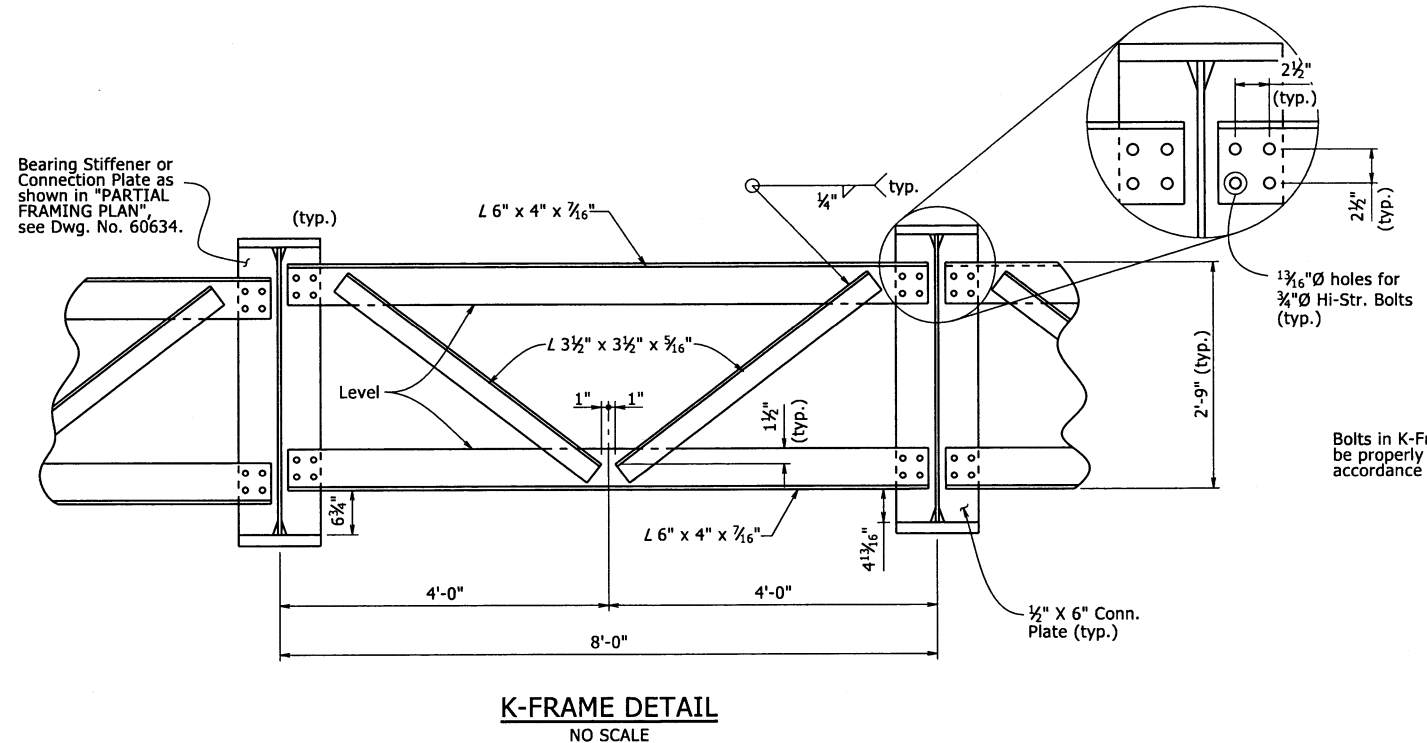
Notes:
 All Structural Steel shall be ASTM A709, Gr. 50W unless otherwise noted, and shall be paid for as "Structural Steel in Plate Girder Spans (A709, Gr. 50W).
 For additional information, see Layout.
 For General Notes, see Std. Dwg. No. 55006.
 For additional Details, see Std. Dwg. No. 55007.



SHEET 2 OF 5
 DETAILS OF 335'-0" CONTINUOUS
 COMPOSITE PLATE GIRDER UNIT
 STRAWBERRY RIVER
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: KJT DATE: 10/24/17 FILENAME: b050321_s1.dgn
 CHECKED BY: DPT DATE: 3/24/19 SCALE: As Shown
 DESIGNED BY: KJT DATE: 10/17
 BRIDGE NO. 07437 DRAWING NO. 60634

PRINT DATE: 7/24/2019

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|--------------|-------------|--------------|-------------|---------------------|-------|--------------------|-----------|------------------------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 050321 | 54 | 78 |
| | | | | | | | | 07437 - SPAN DETAILS - 60635 |

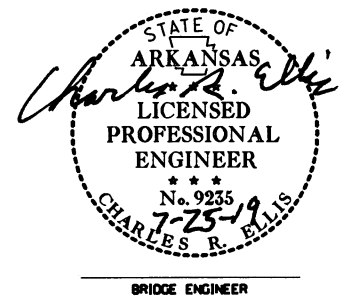


BAR LIST

| MARK | NO. REQ'D | LENGTH | P.D. | BENDING DIAGRAMS |
|-------|-----------|---------|--------|------------------|
| S401E | 918 | 39'-6" | Str. | |
| S402E | 335 | 36'-10" | Str. | |
| S501E | 335 | 36'-10" | Str. | |
| S502E | 334 | 37'-8" | 3" | |
| S503E | 1338 | 4'-4" | Str. | |
| S601E | 148 | 42'-5" | Str. | |
| P401E | 1112 | 5'-6" | 3" | |
| P402E | 240 | 4'-10" | 3" | |
| P403E | 112 | 5'-6" | Str. | |
| P404E | 112 | 17'-2" | Str. | |
| P405E | 182 | 14'-8" | Str. | |
| P501E | 1112 | 4'-8" | 3 3/4" | |

All bars with an "E" suffix shall be Epoxy Coated.

Notes:
 All Field Splice plates shall be ASTM A709, Gr. 50W. For location of field splices, See Dwg. No.60634.
 Bolted field splices may either be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.



SHEET 3 OF 5
 DETAILS OF 335'-0" CONTINUOUS
 COMPOSITE PLATE GIRDER UNIT
 STRAWBERRY RIVER

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

DRAWN BY: KJT DATE: 10/24/17 FILENAME: b050321_s1.dgn
 CHECKED BY: DPT DATE: 7/25/19 SCALE: As Shown
 DESIGNED BY: KJT DATE: 10/17
 BRIDGE NO. 07437 DRAWING NO. 60635

PRINT DATE: 7/25/2019

Pours with the same number may be placed simultaneously or separately. All pours (1) must be placed before pour (2) can be placed. Pour (2) must be placed before all pours (3) can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between the end of a pour and the start of an adjacent pour.

Any railing pours made before the entire slab unit has been placed must be approved by the Engineer.

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

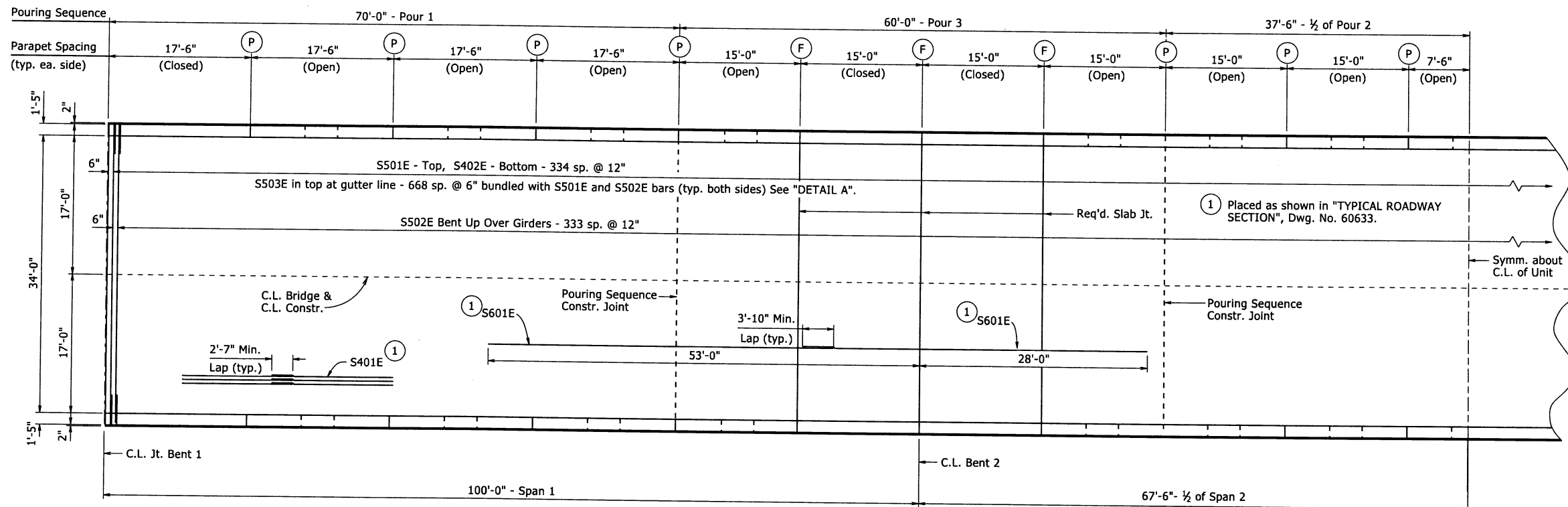
Concrete in bridge superstructure unit shall be placed, consolidated, and screeded off before any concrete has taken its initial set. This may require the use of a retarding agent.

Unless otherwise noted, required slab joints and pouring sequence construction joints shall align with parapet joints at the gutterline.

Notes:
Parapet joint types shown are typical for both sides of roadway.

- (F) C.L. Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab.
- (P) C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab.

| 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. | | 050321 | 55 | 78 |
| | | | | 07437 - SPAN DETAILS - 60636 | | | | |



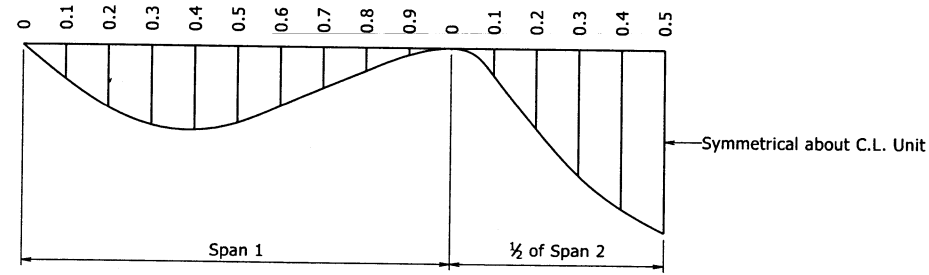
PARTIAL REINFORCING PLAN & DECK POURING SEQUENCE
NO SCALE

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

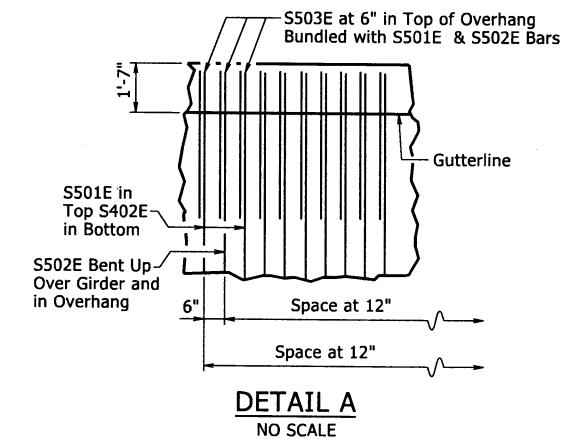
| Point of Deflection | Structural Steel | | Structural Steel + Slab | | Structural Steel + Slab + Parapet | |
|---------------------|------------------|-------------|-------------------------|-------------|-----------------------------------|-------------|
| | Int. Girder | Ext. Girder | Int. Girder | Ext. Girder | Int. Girder | Ext. Girder |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0.1 | 0.098 | 0.092 | 0.521 | 0.436 | 0.560 | 0.478 |
| 0.2 | 0.178 | 0.168 | 0.944 | 0.790 | 1.015 | 0.866 |
| 0.3 | 0.229 | 0.215 | 1.206 | 1.010 | 1.298 | 1.107 |
| 0.4 | 0.243 | 0.229 | 1.277 | 1.069 | 1.374 | 1.172 |
| 0.5 | 0.222 | 0.209 | 1.160 | 0.971 | 1.249 | 1.065 |
| 0.6 | 0.173 | 0.163 | 0.894 | 0.749 | 0.963 | 0.822 |
| 0.7 | 0.109 | 0.102 | 0.554 | 0.465 | 0.597 | 0.510 |
| 0.8 | 0.046 | 0.043 | 0.231 | 0.194 | 0.248 | 0.212 |
| 0.9 | 0.003 | 0.002 | 0.012 | 0.010 | 0.012 | 0.010 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0.1 | 0.087 | 0.082 | 0.433 | 0.364 | 0.470 | 0.403 |
| 0.2 | 0.233 | 0.220 | 1.171 | 0.983 | 1.269 | 1.086 |
| 0.3 | 0.388 | 0.366 | 1.965 | 1.648 | 2.127 | 1.818 |
| 0.4 | 0.502 | 0.474 | 2.561 | 2.147 | 2.770 | 2.367 |
| 0.5 | 0.544 | 0.513 | 2.779 | 2.330 | 3.005 | 2.568 |

Symmetrical about C.L. Unit

Note: Camber for dead load deflection plus vertical curve +/- 1/4" tolerance. Deflections shown are along C.L. Girder from a chord from C.L. Bearing to C.L. Bearing. Vertical curve corrections not included.



DEAD LOAD DEFLECTION DIAGRAM
NO SCALE

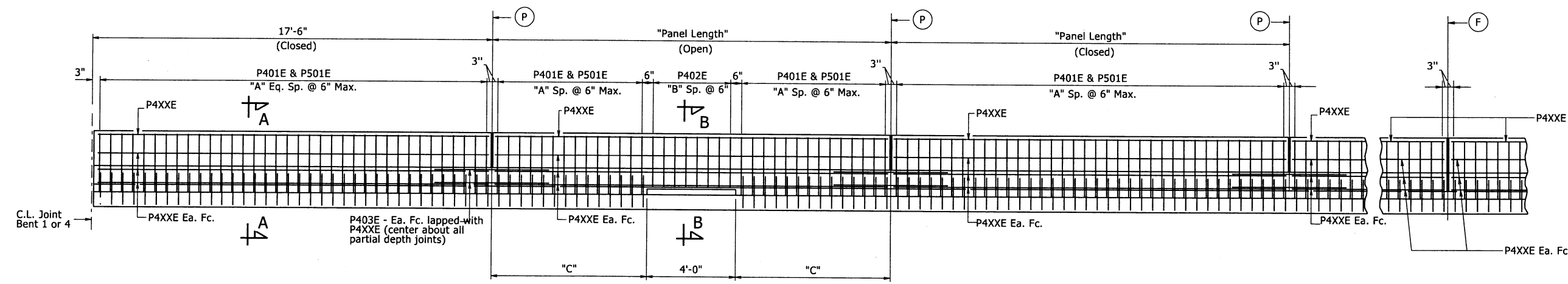


DETAIL A
NO SCALE

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
7-25-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF 335'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
STRAWBERRY RIVER
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KJT DATE: 10/24/17 FILENAME: b050321_s1.dgn
CHECKED BY: *UET* DATE: 7/25/19 SCALE: As Shown
DESIGNED BY: KJT DATE: 10/17
BRIDGE NO. 07437 DRAWING NO. 60636

| 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. | 050321 | 56 | 78 | |
| | | | | 07437 - SPAN DETAILS - 60637 | | | | |



PARAPET RAIL REINFORCING
NO SCALE

F C.L. Full -Depth Parapet Joint (1/4" to 1" max.) as shown in "PARTIAL REINFORCING PLAN & DECK POURING SEQUENCE", Dwg. No. 60636. Stop 4" from top of slab.

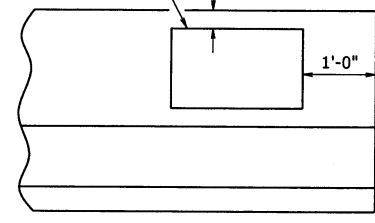
P C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) as shown in "PARTIAL REINFORCING PLAN & DECK POURING SEQUENCE", Dwg. No. 60636 Stop 1'-2" from top of slab.

TABLE OF VARIABLES

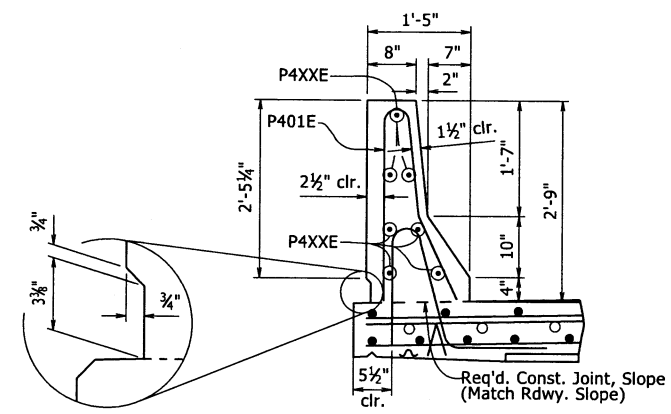
| Panel Length | Panel Type | "A" | "B" | "C" | P4XXE |
|--------------|------------|-----|-----|-------|-------|
| 17'-6" | Closed | 34 | - | - | P404E |
| 17'-6" | Open | 13 | 7 | 6'-9" | P404E |
| 15'-0" | Closed | 29 | - | - | P405E |
| 15'-0" | Open | 10 | 7 | 5'-6" | P405E |

For location of panels, see "PARTIAL REINFORCING PLAN & DECK POURING SEQUENCE", Dwg. No. 60636.

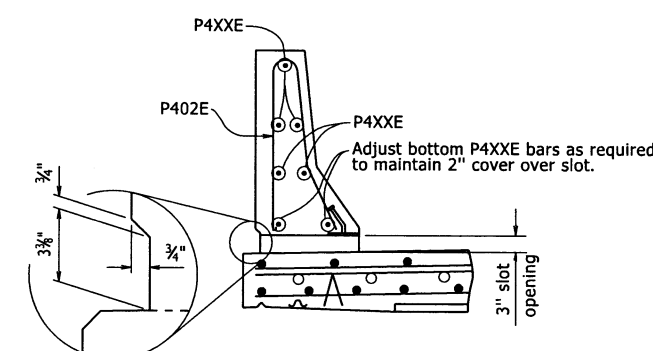
Place Type D Bridge Name Plate on front face of span rail approx. 1'-0" from beginning of bridge (Right side of bridge only). See Std. Dwg. No. 55010.



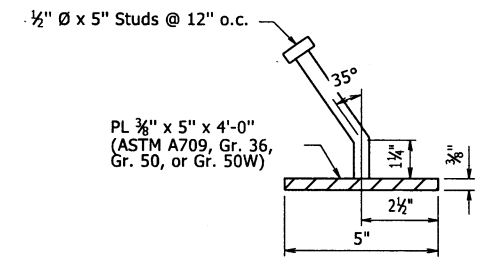
NAME PLATE DETAIL
NO SCALE



SECTION A-A
3/4" = 1'-0"



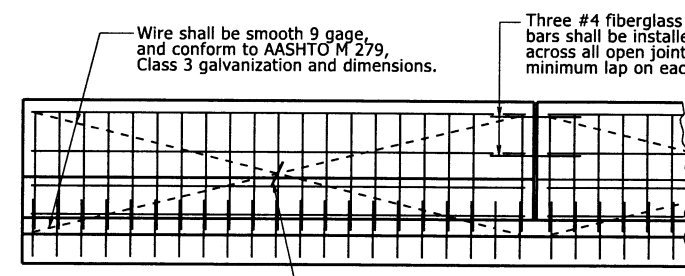
SECTION B-B
3/4" = 1'-0"



DETAIL Z
NO SCALE

NOTE:
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 "Structural Steel in Plate Girder Spans (A709, Gr. 50W)."

Parapet studs shall be 5" long, granular flux filled, solid fluxed or equal, and automatically end welded to the plate. Studs and plates shall meet the requirements of Section 807 and shall be measured and paid for as "Structural Steel in Plate Girder Spans (A709, Gr. 50W)."



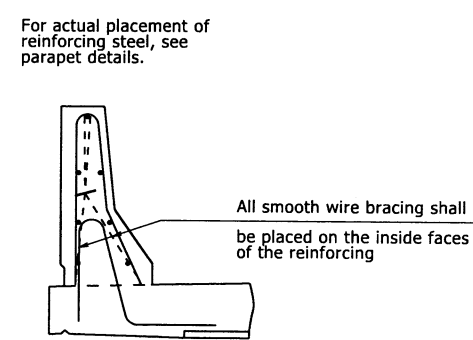
Wire shall be smooth 9 gage, and conform to AASHTO M 279, Class 3 galvanization and dimensions.

Three #4 fiberglass reinforcing bars shall be installed as shown across all open joints with a 20" minimum lap on each steel bar.

Bar to tighten smooth wire shall be fiberglass

All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 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 surface may be given a light brush finish or a class 3 Textured Coating Finish, in place of the Class 2, Rubbed Finish.



DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL
NO SCALE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
7-25-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF 335'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT STRAWBERRY RIVER

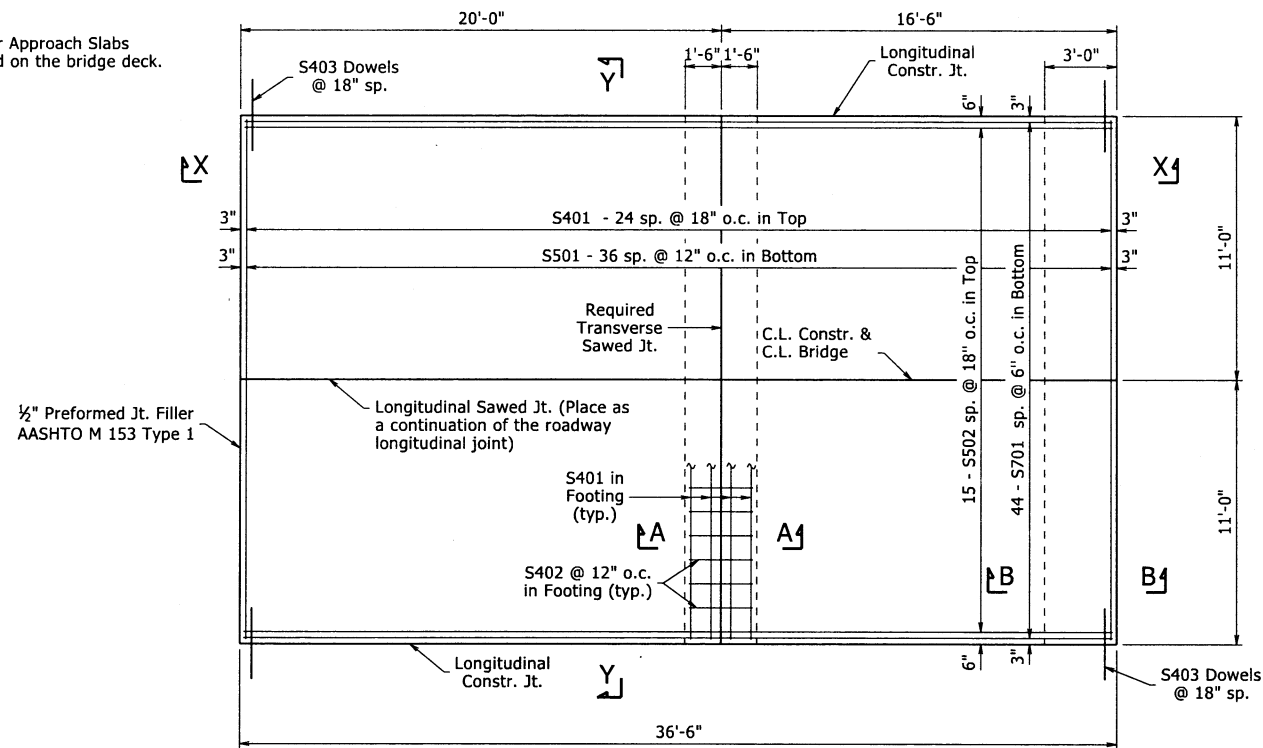
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJT DATE: 10/24/17 FILENAME: b050321_s1.dgn
CHECKED BY: DPT DATE: 7/24/19 SCALE: As Shown
DESIGNED BY: KJT DATE: 10/17
BRIDGE NO. 07437 DRAWING NO. 60637

PRINT DATE: 7/24/2019

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| | | | | 6 | ARK. | | | | |
| | | | | JOB NO. | | 050321 | 57 | 78 | |
| 07437 - APPROACH SLAB - 60638 | | | | | | | | | |

Notes:
The surface finish for Approach Slabs shall match that used on the bridge deck.



PLAN - APPROACH SLAB

1/4" = 1'-0"

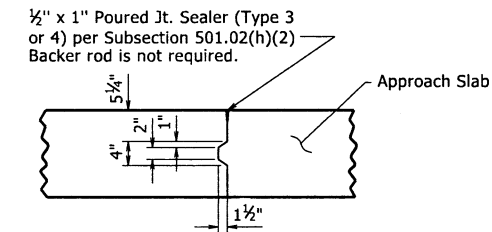
BAR LIST

| Mark | No. Req'd | Length | P.D. |
|------|-----------|--------|------|
| S401 | 33 | 21'-8" | Str. |
| S402 | 44 | 2'-8" | Str. |
| S403 | 50 | 3'-0" | Str. |
| S501 | 37 | 21'-8" | Str. |
| S502 | 15 | 36'-2" | Str. |
| S701 | 44 | 36'-2" | Str. |

QUANTITIES FOR ONE TYPE SPECIAL APPROACH SLAB

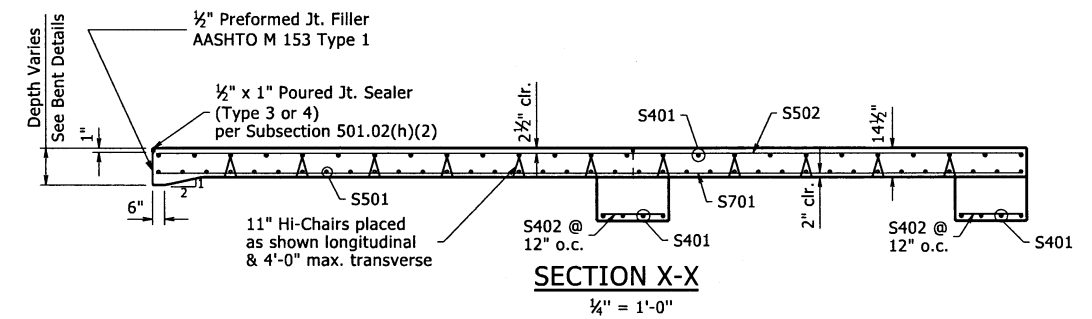
(FOR INFORMATION ONLY)

| Reinforcing Steel (lbs.) | Concrete (Cu. yds.) |
|--------------------------|---------------------|
| 5,311 | 44.49 |



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

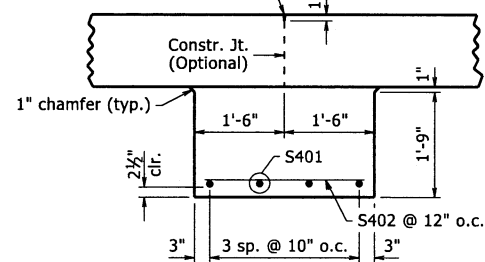
3/4" = 1'-0"



SECTION X-X

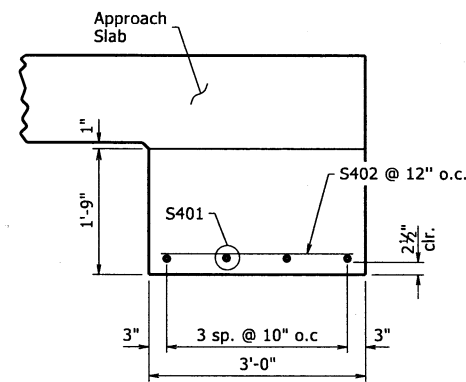
1/4" = 1'-0"

1/2" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



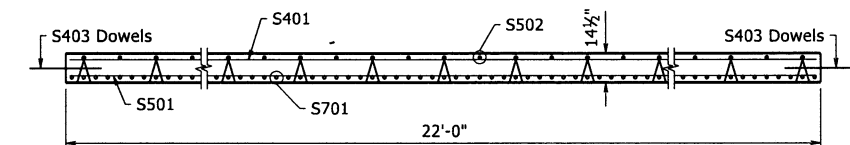
SECTION A-A

Not to Scale



SECTION B-B

AT ASPHALT APPROACH PAVEMENT
Not to Scale



SECTION Y-Y

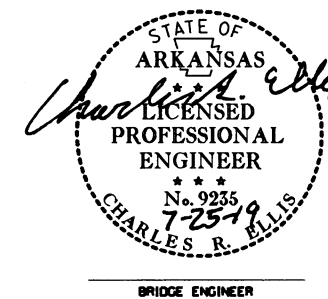
Not to Scale

GENERAL NOTES

All concrete shall be Class S (AE) with a minimum 28 day compressive strength $f'_c = 4,000$ psi and shall be poured in the dry.

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

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



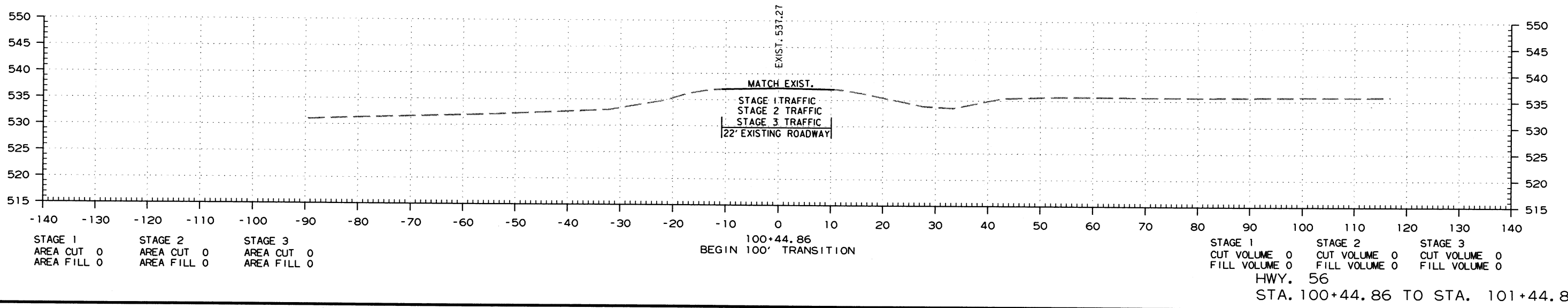
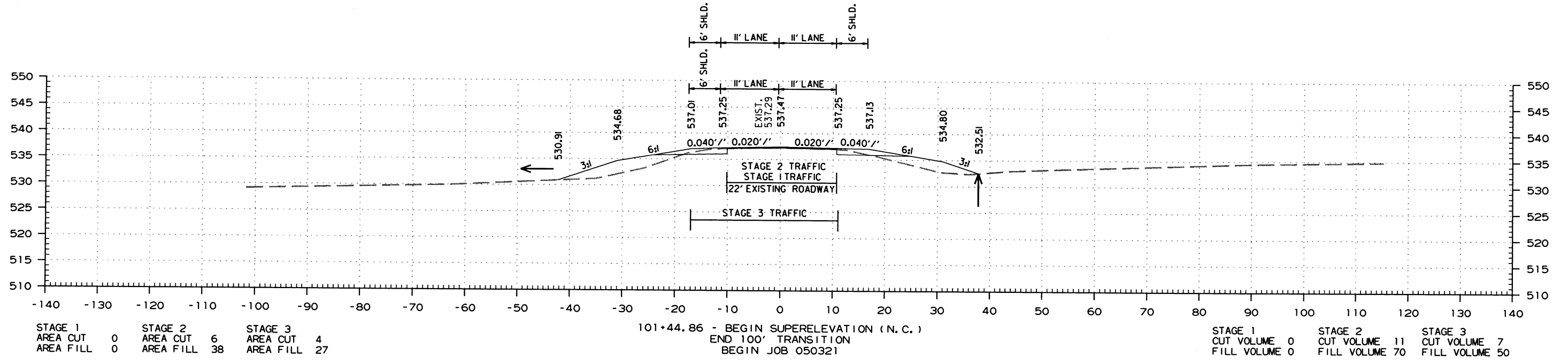
DETAILS OF
TYPE SPECIAL APPROACH SLAB
STRAWBERRY RIVER

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

DRAWN BY: DPT DATE: 4/3/2019 FILENAME: b050321_as.dgn
CHECKED BY: KJT DATE: 7/15/2019 SCALE: As Shown
DESIGNED BY: DATE:
BRIDGE NO. 07437 DRAWING NO. 60638

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|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | | 58 | 78 |

② CROSS SECTIONS

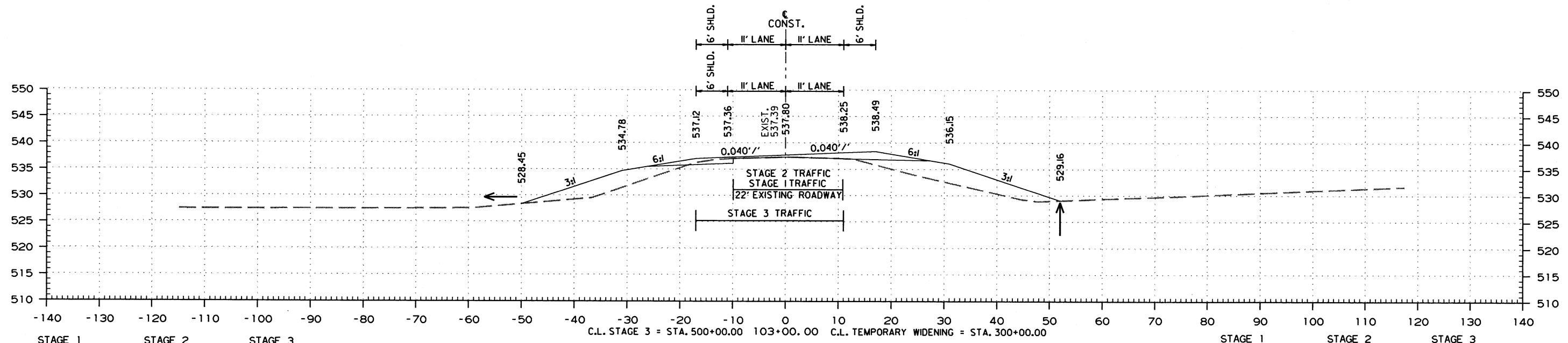


HWY. 56
 STA. 100+44.86 TO STA. 101+44.86

06/18/2019 R050321.DGN

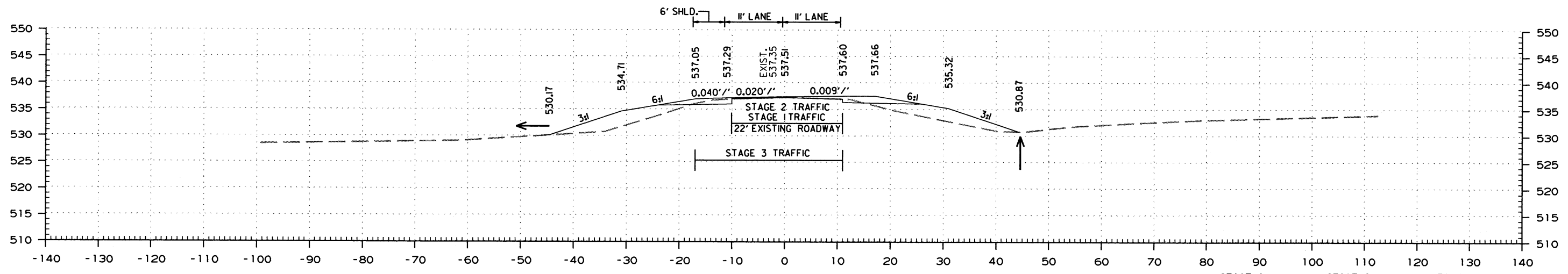
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|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | | 59 | 78 |

② CROSS SECTIONS



| STAGE 1 | STAGE 2 | STAGE 3 |
|-------------|--------------|--------------|
| AREA CUT 0 | AREA CUT 6 | AREA CUT 1 |
| AREA FILL 0 | AREA FILL 62 | AREA FILL 88 |

| STAGE 1 | STAGE 2 | STAGE 3 |
|---------------|-----------------|-----------------|
| CUT VOLUME 0 | CUT VOLUME 20 | CUT VOLUME 6 |
| FILL VOLUME 0 | FILL VOLUME 202 | FILL VOLUME 246 |



| STAGE 1 | STAGE 2 | STAGE 3 |
|-------------|--------------|--------------|
| AREA CUT 0 | AREA CUT 5 | AREA CUT 2 |
| AREA FILL 0 | AREA FILL 47 | AREA FILL 45 |

| STAGE 1 | STAGE 2 | STAGE 3 |
|---------------|----------------|----------------|
| CUT VOLUME 0 | CUT VOLUME 11 | CUT VOLUME 6 |
| FILL VOLUME 0 | FILL VOLUME 87 | FILL VOLUME 73 |

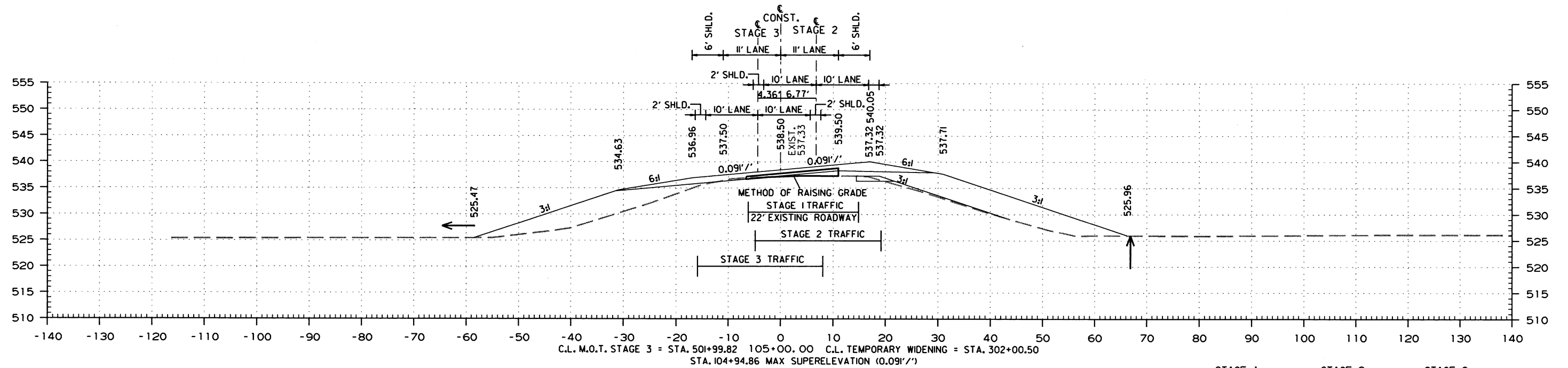
HWY. 56
STA. 102+00.00 TO STA. 103+00.00

06/18/2019

R050321.DGN

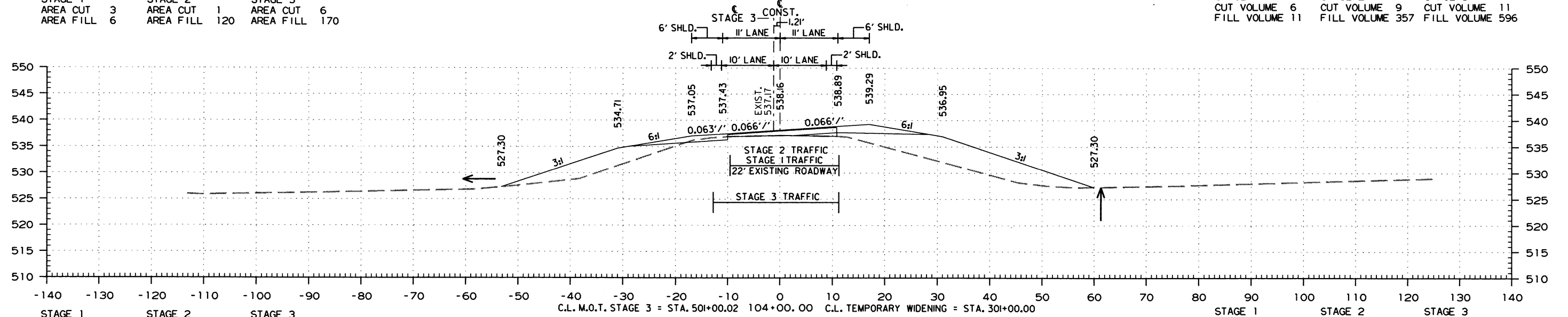
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|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | | | JOB NO. | 050321 | 60 |

2 CROSS SECTIONS



| STAGE 1 | STAGE 2 | STAGE 3 |
|-------------|---------------|---------------|
| AREA CUT 3 | AREA CUT 1 | AREA CUT 6 |
| AREA FILL 6 | AREA FILL 120 | AREA FILL 170 |

| STAGE 1 | STAGE 2 | STAGE 3 |
|----------------|-----------------|-----------------|
| CUT VOLUME 6 | CUT VOLUME 9 | CUT VOLUME 11 |
| FILL VOLUME 11 | FILL VOLUME 357 | FILL VOLUME 596 |



| STAGE 1 | STAGE 2 | STAGE 3 |
|-------------|--------------|---------------|
| AREA CUT 0 | AREA CUT 4 | AREA CUT 0 |
| AREA FILL 0 | AREA FILL 73 | AREA FILL 152 |

| STAGE 1 | STAGE 2 | STAGE 3 |
|---------------|-----------------|-----------------|
| CUT VOLUME 0 | CUT VOLUME 19 | CUT VOLUME 2 |
| FILL VOLUME 0 | FILL VOLUME 250 | FILL VOLUME 444 |

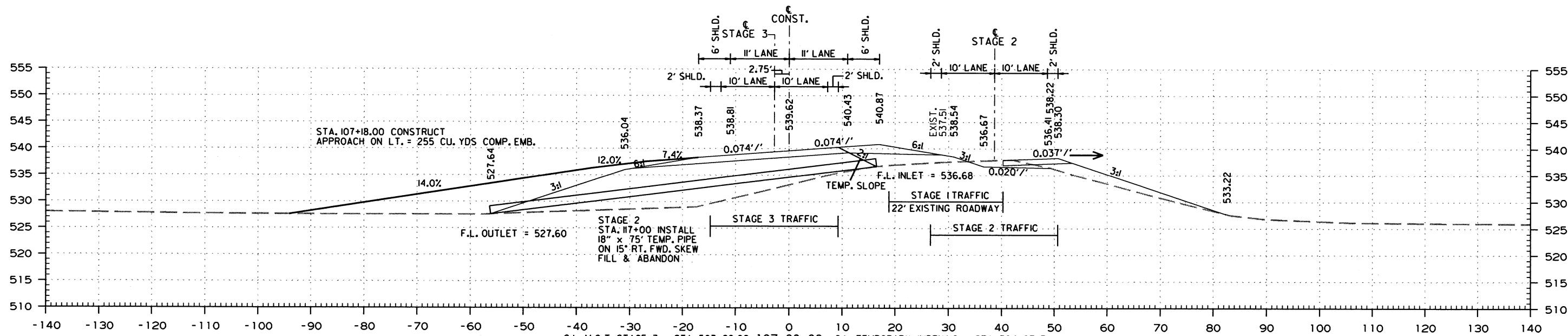
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STA. 104+00.00 TO STA. 105+00.00

06/18/2019

R050321.DGN

| DATE REVISED | DATE FILED | DATE REVISED | DATE FILED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|------------|--------------|------------|--------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | | 61 | 78 |

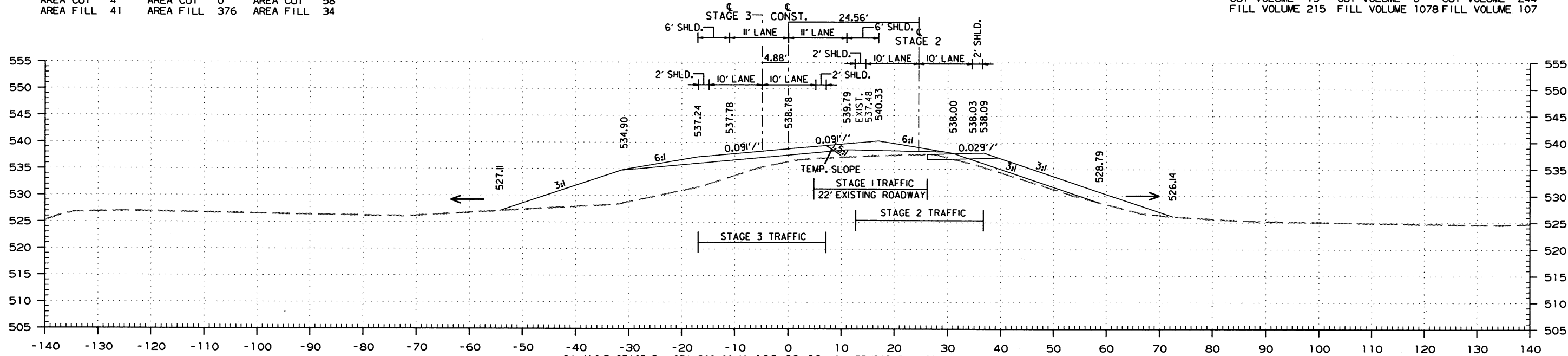
② CROSS SECTIONS



| STAGE 1 | STAGE 2 | STAGE 3 |
|--------------|---------------|--------------|
| AREA CUT 4 | AREA CUT 0 | AREA CUT 58 |
| AREA FILL 41 | AREA FILL 376 | AREA FILL 34 |

C.L. M.O.T. STAGE 3 = STA. 503+99.08 107+00.00 C.L. TEMPORARY WIDENING = STA. 304+07.17
 STA. 106+33.00 MAX SUPERELEVATION (0.091'/'')

| STAGE 1 | STAGE 2 | STAGE 3 |
|-----------------|------------------|-----------------|
| CUT VOLUME 13 | CUT VOLUME 0 | CUT VOLUME 244 |
| FILL VOLUME 215 | FILL VOLUME 1078 | FILL VOLUME 107 |



| STAGE 1 | STAGE 2 | STAGE 3 |
|--------------|---------------|--------------|
| AREA CUT 3 | AREA CUT 0 | AREA CUT 74 |
| AREA FILL 75 | AREA FILL 206 | AREA FILL 24 |

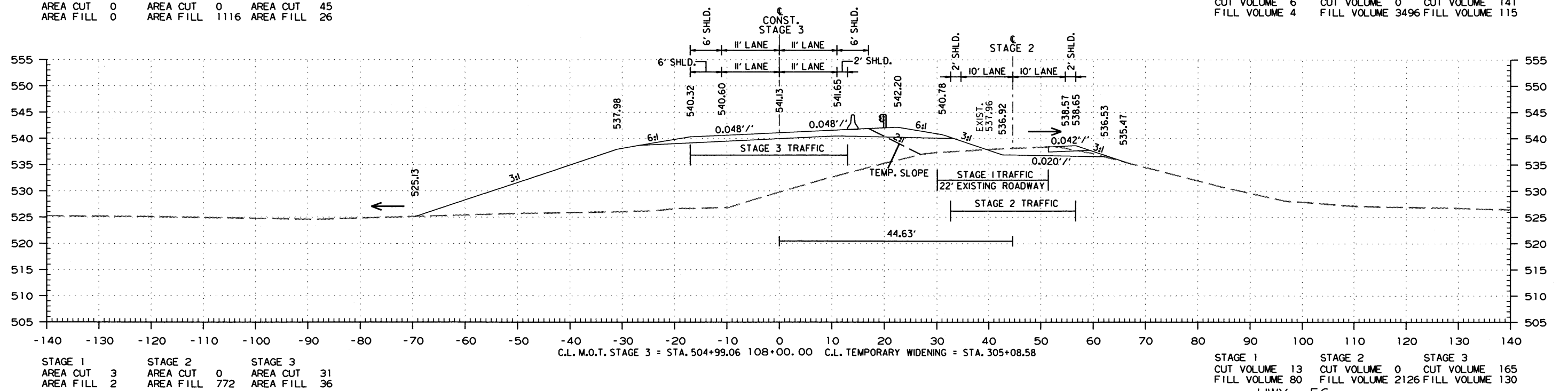
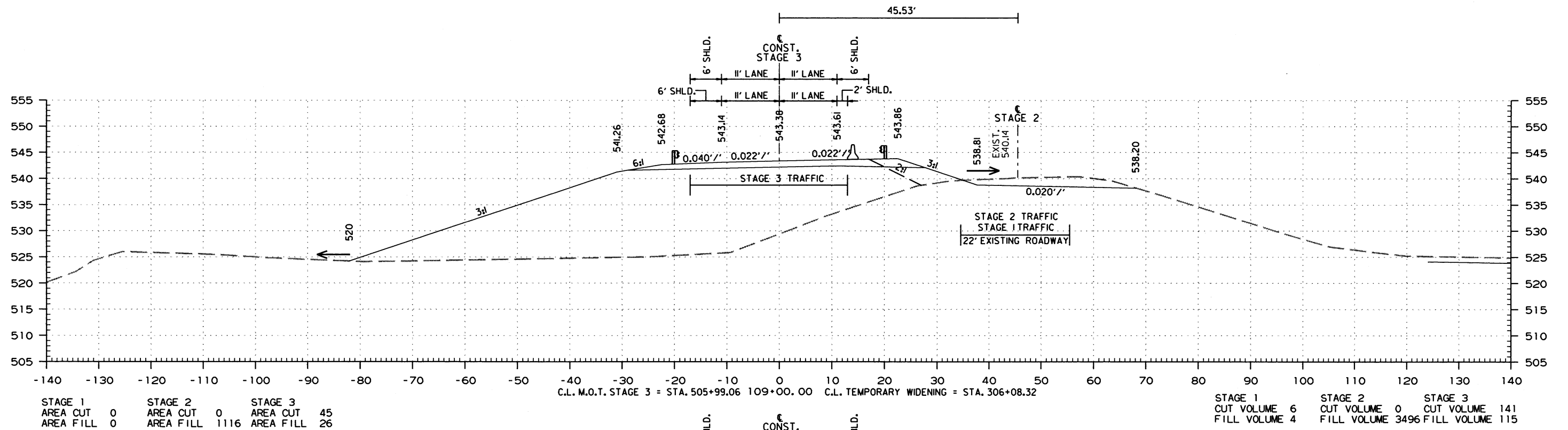
C.L. M.O.T. STAGE 3 = STA. 502+99.40 106+00.00 C.L. TEMPORARY WIDENING = STA. 303+03.41

| STAGE 1 | STAGE 2 | STAGE 3 |
|-----------------|-----------------|-----------------|
| CUT VOLUME 11 | CUT VOLUME 2 | CUT VOLUME 148 |
| FILL VOLUME 150 | FILL VOLUME 604 | FILL VOLUME 359 |

HWY. 56
 STA. 106+00.00 TO STA. 107+00.00

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. NO. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | | 62 | 78 |

2 CROSS SECTIONS



HWY. 56
STA. 108+00.00 TO STA. 109+00.00

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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | | 63 | 78 |

② CROSS SECTIONS

STAGE 1
AREA CUT 0
AREA FILL 0

STAGE 2
AREA CUT 0
AREA FILL 0

STAGE 3
AREA CUT 0
AREA FILL 0

113+13.05
TOE OF SLOPE

STAGE 1
CUT VOLUME 0
FILL VOLUME 0

STAGE 2
CUT VOLUME 0
FILL VOLUME 0

STAGE 3
CUT VOLUME 0
FILL VOLUME 0

STAGE 1
AREA CUT 0
AREA FILL 0

STAGE 2
AREA CUT 0
AREA FILL 0

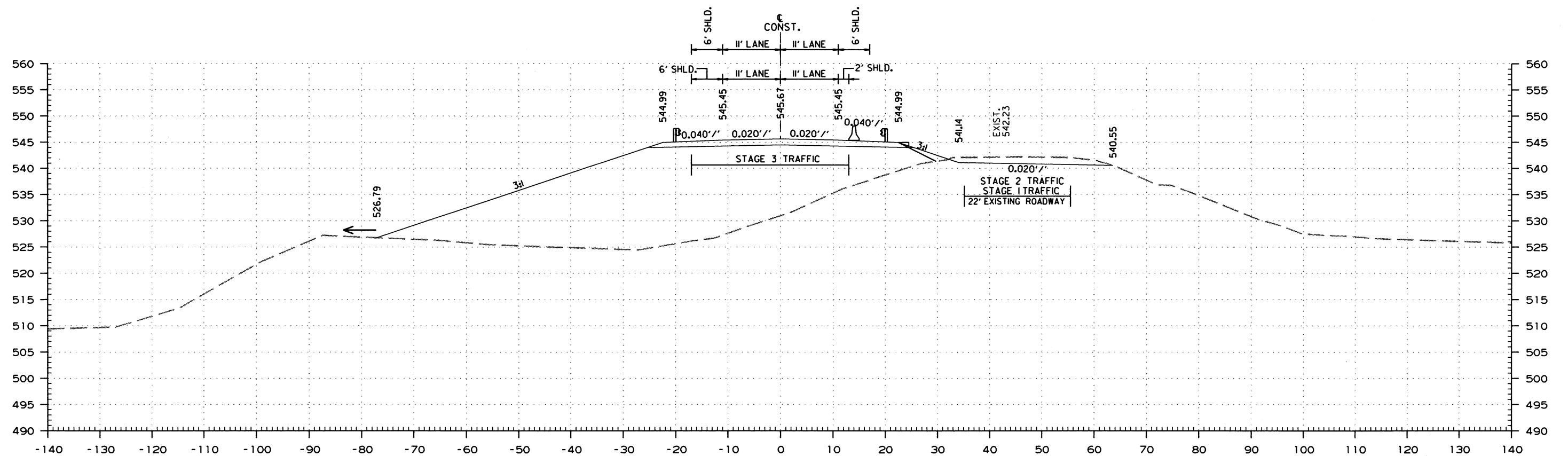
STAGE 3
AREA CUT 0
AREA FILL 0

110+13.78
TOE OF SLOPE

STAGE 1
CUT VOLUME 0
FILL VOLUME 0

STAGE 2
CUT VOLUME 0
FILL VOLUME 644

STAGE 3
CUT VOLUME 19
FILL VOLUME 0



BRIDGE END 109+83.92
STA. 109+83.00 END SUPERELEVATION (N.C.)

STAGE 1
AREA CUT 0
AREA FILL 0

STAGE 2
AREA CUT 0
AREA FILL 1163

STAGE 3
AREA CUT 35
AREA FILL 0

STAGE 1
CUT VOLUME 0
FILL VOLUME 0

STAGE 2
CUT VOLUME 0
FILL VOLUME 3541

STAGE 3
CUT VOLUME 124
FILL VOLUME 40

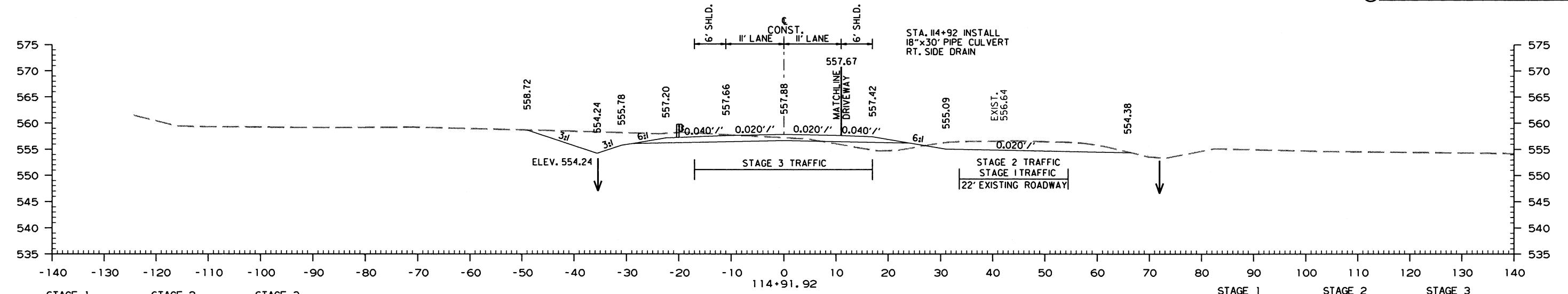
HWY. 56
STA. 109+83.92 TO STA. 113+13.05

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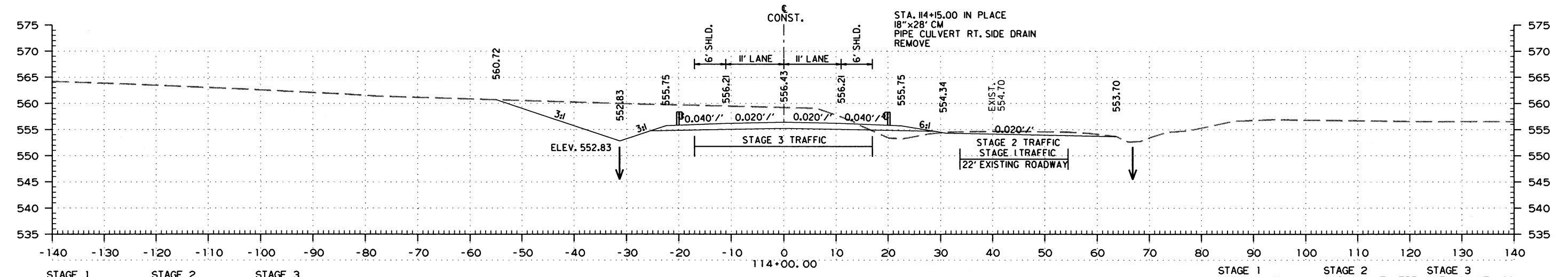
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | 050321 | 64 | 78 | |

2 CROSS SECTIONS



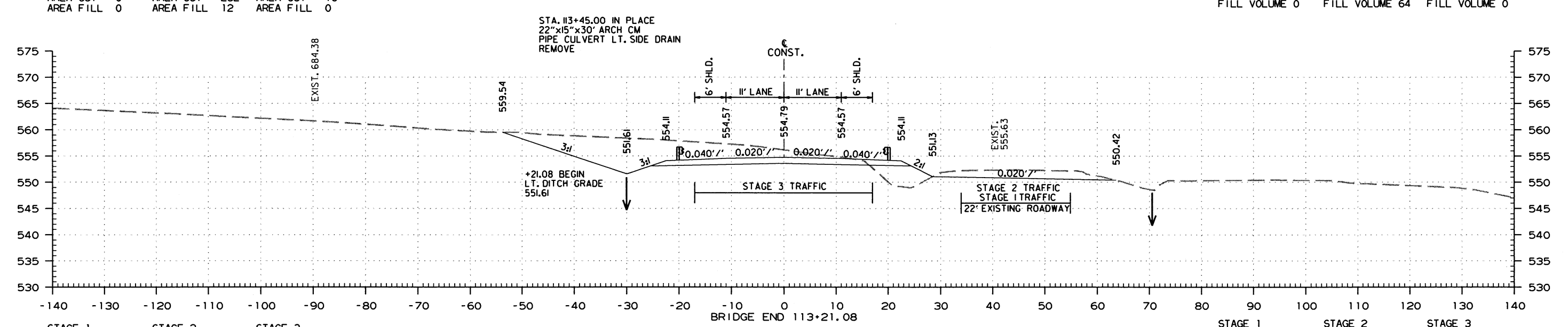
| STAGE 1 | STAGE 2 | STAGE 3 |
|-------------|--------------|-------------|
| AREA CUT 0 | AREA CUT 92 | AREA CUT 55 |
| AREA FILL 0 | AREA FILL 19 | AREA FILL 0 |

| STAGE 1 | STAGE 2 | STAGE 3 |
|---------------|----------------|----------------|
| CUT VOLUME 0 | CUT VOLUME 636 | CUT VOLUME 121 |
| FILL VOLUME 0 | FILL VOLUME 53 | FILL VOLUME 0 |



| STAGE 1 | STAGE 2 | STAGE 3 |
|-------------|--------------|-------------|
| AREA CUT 0 | AREA CUT 282 | AREA CUT 16 |
| AREA FILL 0 | AREA FILL 12 | AREA FILL 0 |

| STAGE 1 | STAGE 2 | STAGE 3 |
|---------------|----------------|---------------|
| CUT VOLUME 0 | CUT VOLUME 757 | CUT VOLUME 88 |
| FILL VOLUME 0 | FILL VOLUME 64 | FILL VOLUME 0 |



| STAGE 1 | STAGE 2 | STAGE 3 |
|-------------|--------------|-------------|
| AREA CUT 0 | AREA CUT 236 | AREA CUT 44 |
| AREA FILL 0 | AREA FILL 32 | AREA FILL 0 |

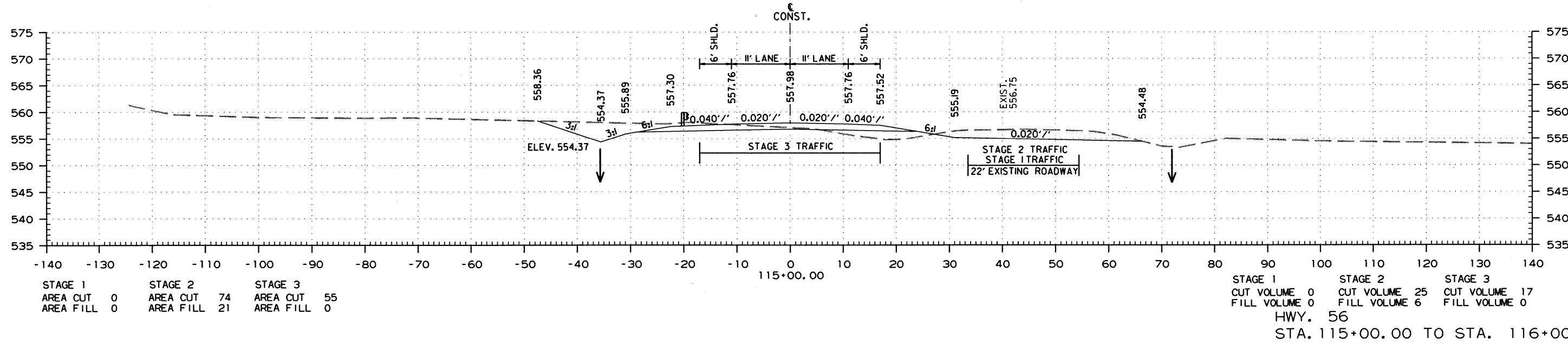
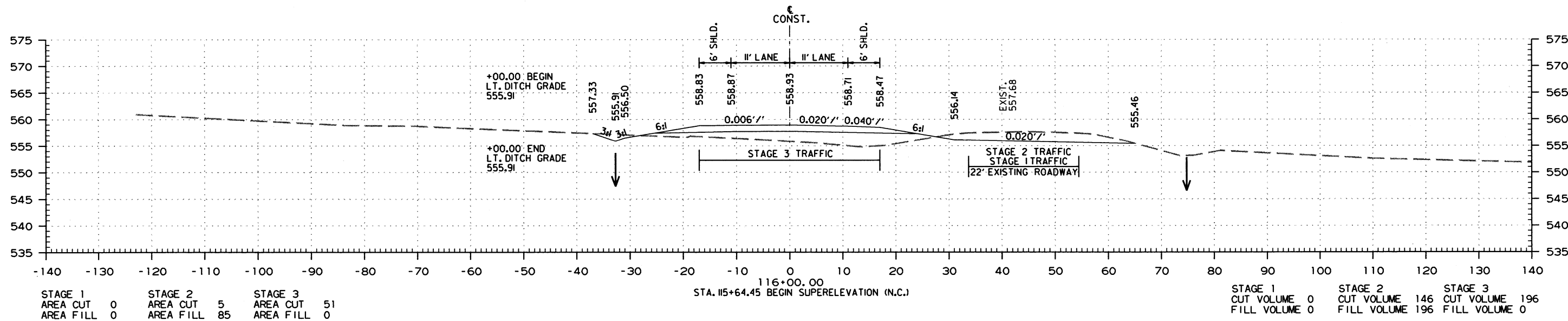
| STAGE 1 | STAGE 2 | STAGE 3 |
|---------------|---------------|---------------|
| CUT VOLUME 0 | CUT VOLUME 35 | CUT VOLUME 7 |
| FILL VOLUME 0 | FILL VOLUME 5 | FILL VOLUME 0 |

HWY. 56
 STA. 113+21.08 TO STA. 114+91.92

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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. | 050321 | | 65 | 78 |

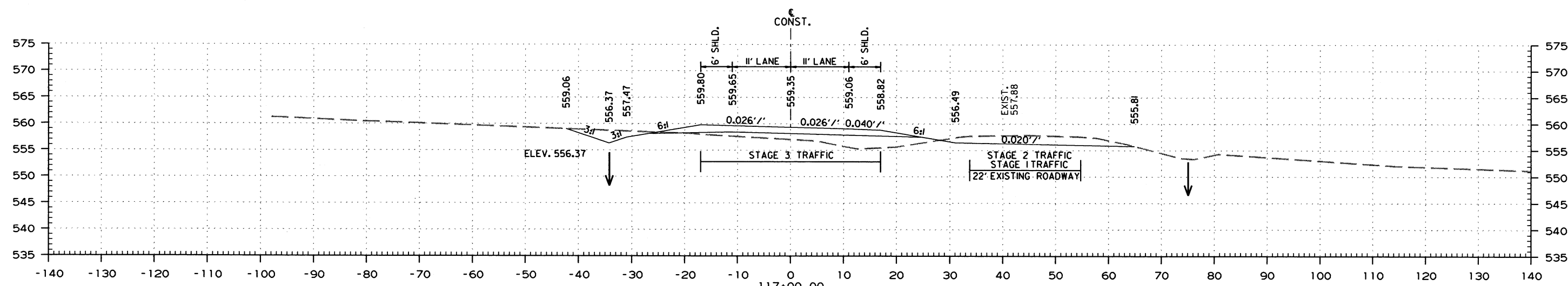
② CROSS SECTIONS



HWY. 56
STA. 115+00.00 TO STA. 116+00.00

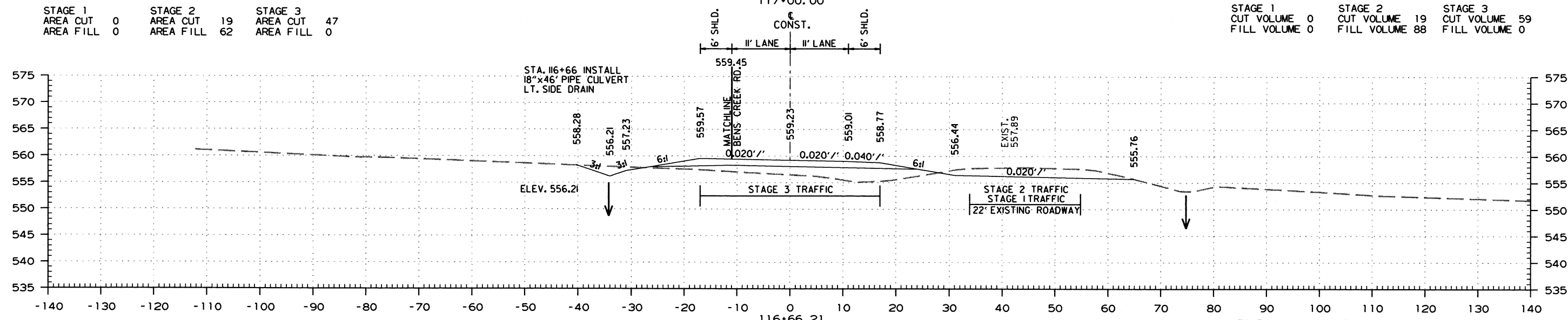
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 050321 | 66 | 78 |

2 CROSS SECTIONS



| STAGE 1 | STAGE 2 | STAGE 3 |
|-------------|--------------|-------------|
| AREA CUT 0 | AREA CUT 19 | AREA CUT 47 |
| AREA FILL 0 | AREA FILL 62 | AREA FILL 0 |

| STAGE 1 | STAGE 2 | STAGE 3 |
|---------------|----------------|---------------|
| CUT VOLUME 0 | CUT VOLUME 19 | CUT VOLUME 59 |
| FILL VOLUME 0 | FILL VOLUME 88 | FILL VOLUME 0 |



| STAGE 1 | STAGE 2 | STAGE 3 |
|-------------|--------------|-------------|
| AREA CUT 0 | AREA CUT 11 | AREA CUT 48 |
| AREA FILL 0 | AREA FILL 78 | AREA FILL 0 |

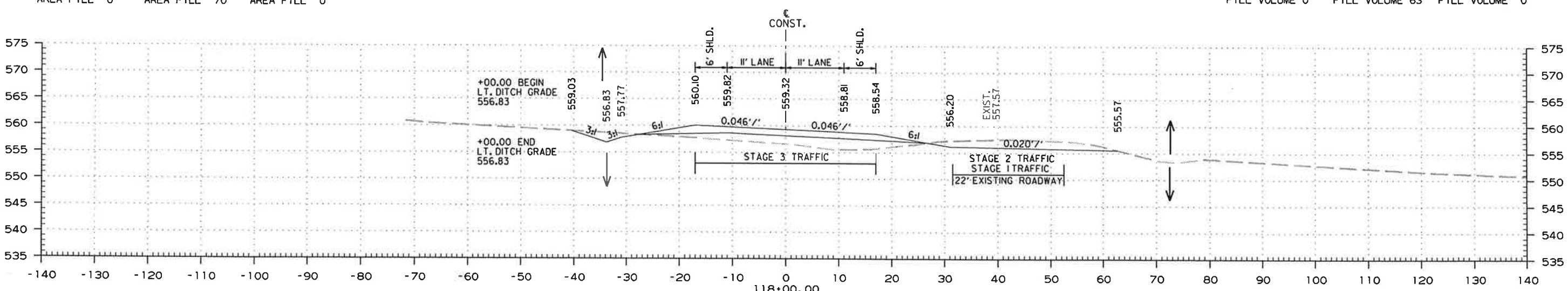
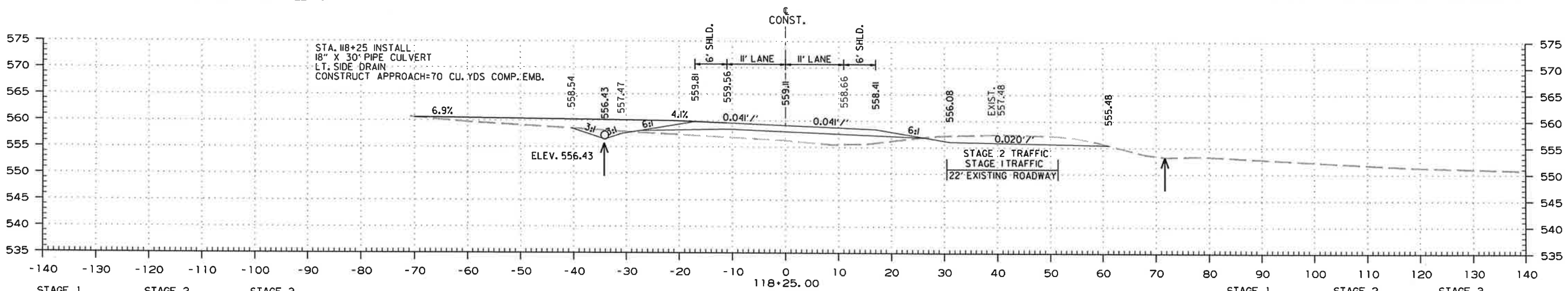
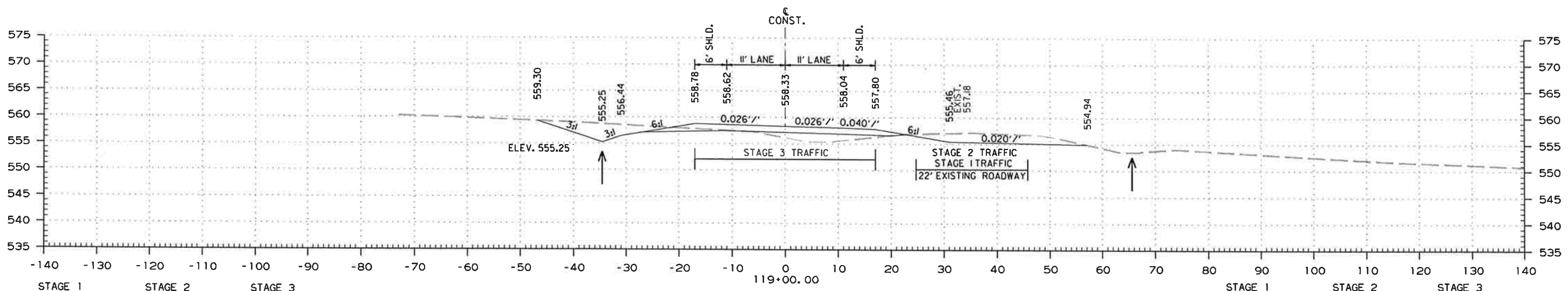
| STAGE 1 | STAGE 2 | STAGE 3 |
|---------------|-----------------|----------------|
| CUT VOLUME 0 | CUT VOLUME 20 | CUT VOLUME 121 |
| FILL VOLUME 0 | FILL VOLUME 200 | FILL VOLUME 0 |

HWY. 56
STA. 116+66.21 TO STA. 117+00.00

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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|----------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| 9-4-19 | | | | 6 | ARK. | | | |
| JOB NO. 050321 | | | | | | | 67 | 78 |

2 CROSS SECTIONS

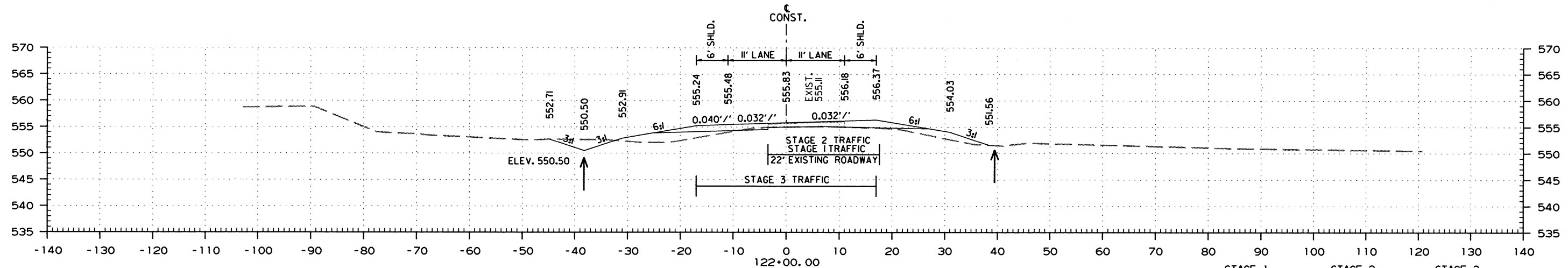


HWY. 56
STA. 118+00.00 TO STA. 119+00.00

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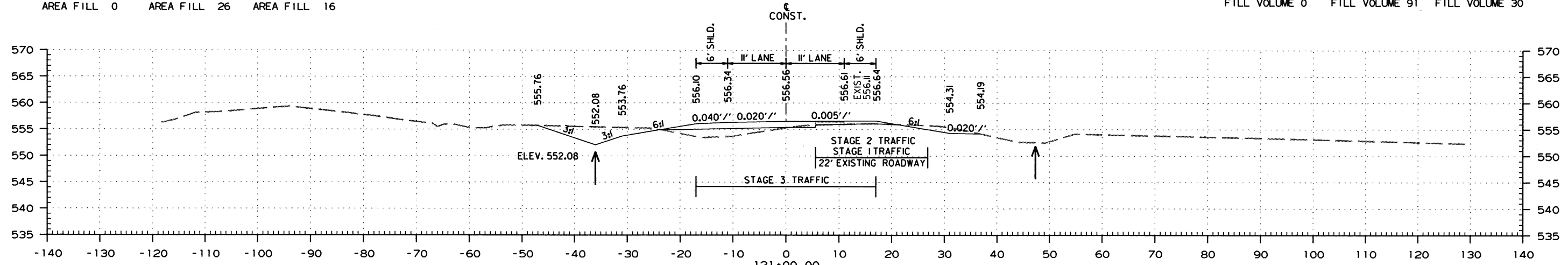
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 050321 | 68 | 78 |

2 CROSS SECTIONS



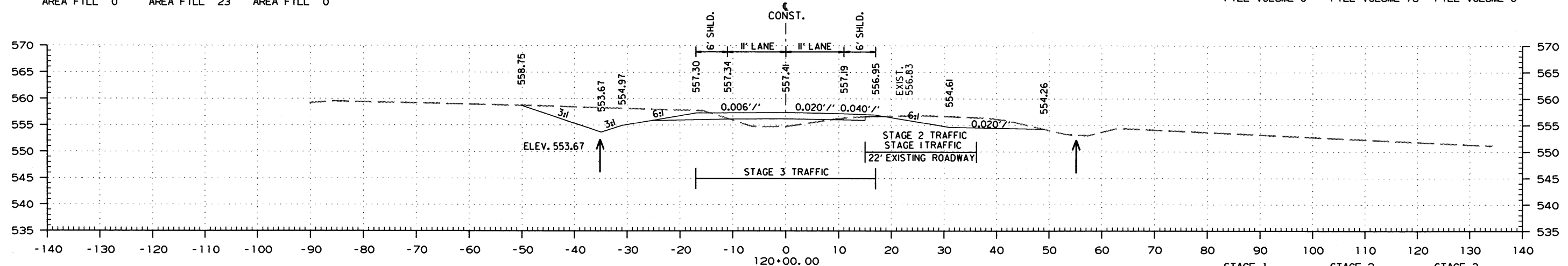
| STAGE 1 | STAGE 2 | STAGE 3 |
|-------------|--------------|--------------|
| AREA CUT 0 | AREA CUT 15 | AREA CUT 0 |
| AREA FILL 0 | AREA FILL 26 | AREA FILL 16 |

| STAGE 1 | STAGE 2 | STAGE 3 |
|---------------|----------------|----------------|
| CUT VOLUME 0 | CUT VOLUME 100 | CUT VOLUME 19 |
| FILL VOLUME 0 | FILL VOLUME 91 | FILL VOLUME 30 |



| STAGE 1 | STAGE 2 | STAGE 3 |
|-------------|--------------|-------------|
| AREA CUT 0 | AREA CUT 39 | AREA CUT 10 |
| AREA FILL 0 | AREA FILL 23 | AREA FILL 0 |

| STAGE 1 | STAGE 2 | STAGE 3 |
|---------------|----------------|---------------|
| CUT VOLUME 0 | CUT VOLUME 241 | CUT VOLUME 93 |
| FILL VOLUME 0 | FILL VOLUME 78 | FILL VOLUME 0 |



| STAGE 1 | STAGE 2 | STAGE 3 |
|-------------|--------------|-------------|
| AREA CUT 0 | AREA CUT 91 | AREA CUT 40 |
| AREA FILL 0 | AREA FILL 19 | AREA FILL 0 |

| STAGE 1 | STAGE 2 | STAGE 3 |
|---------------|----------------|----------------|
| CUT VOLUME 0 | CUT VOLUME 257 | CUT VOLUME 154 |
| FILL VOLUME 0 | FILL VOLUME 81 | FILL VOLUME 0 |

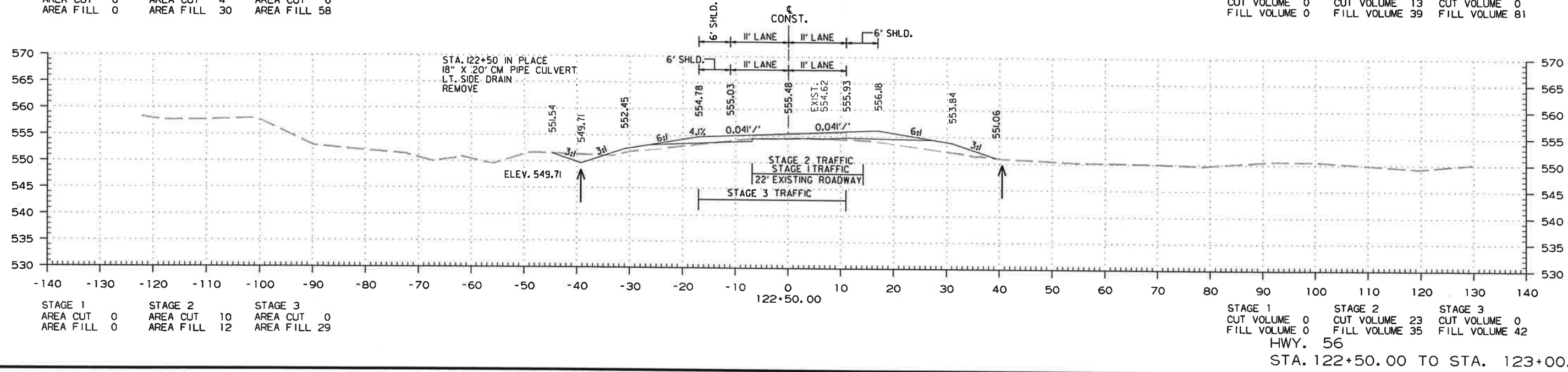
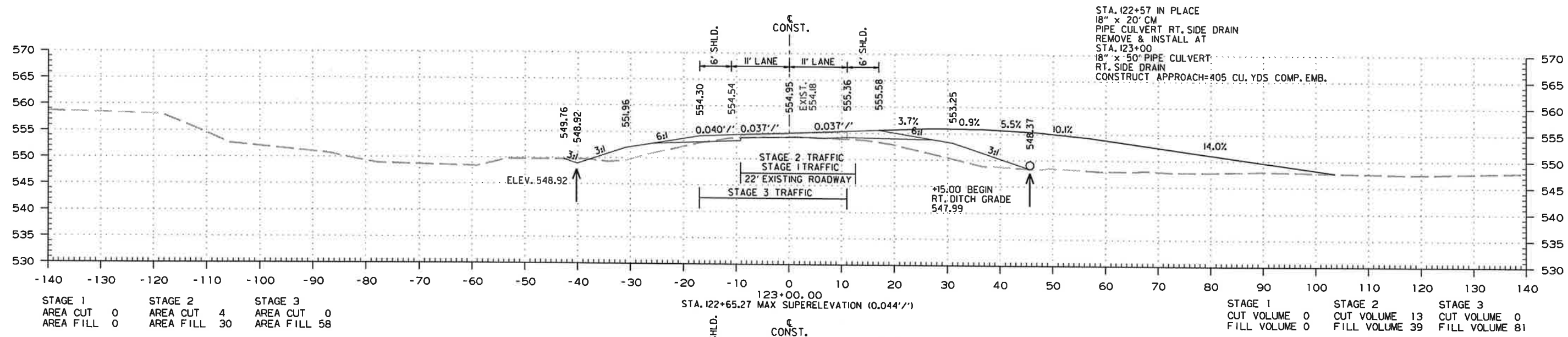
HWY. 56
STA. 120+00.00 TO STA. 122+00.00

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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| 9-4-19 | | | | 6 | ARK. | | | |
| | | | | | | JOB NO. 050321 | 69 | 78 |

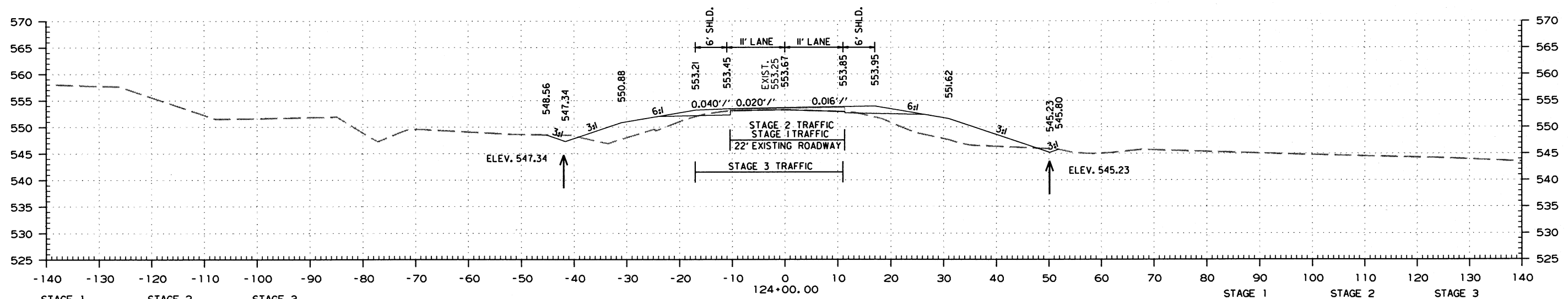
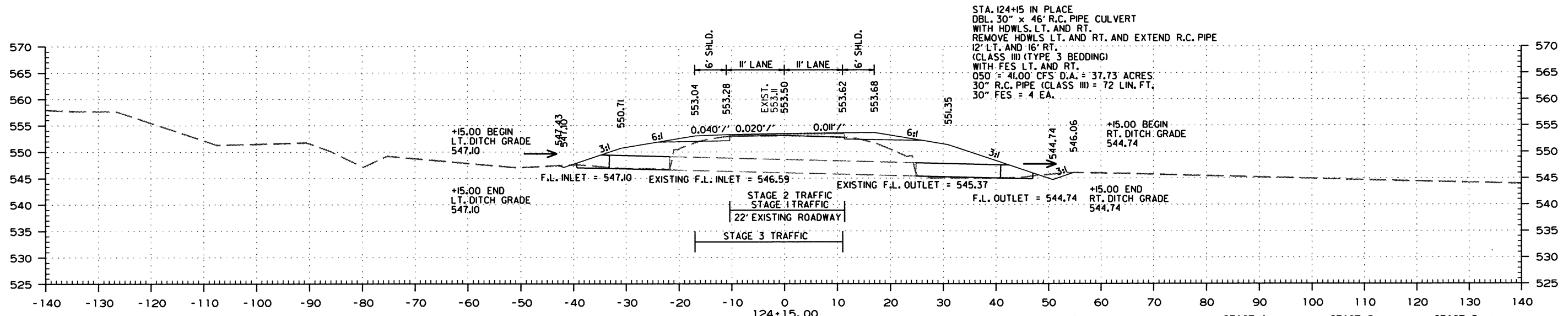
2 CROSS SECTIONS



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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. 050321 | | | | | | | 70 | 78 |

2 CROSS SECTIONS

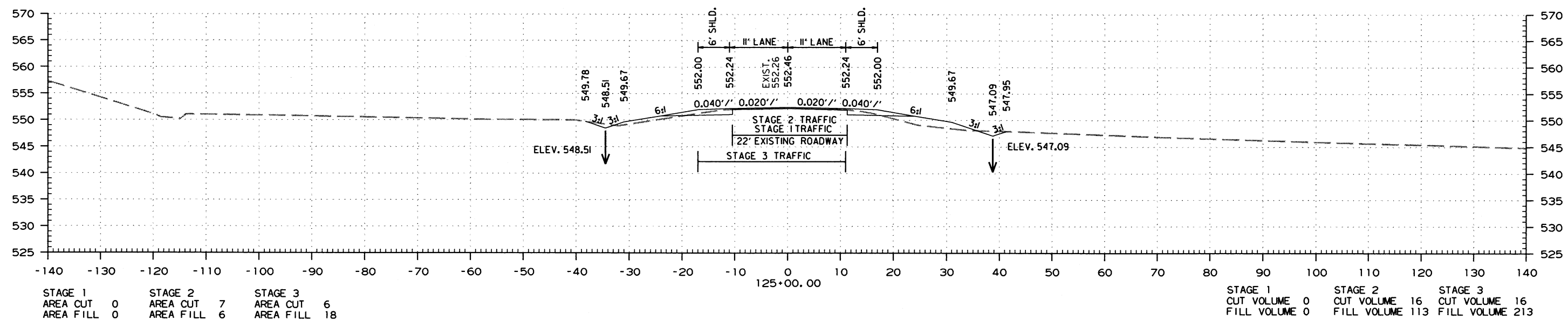
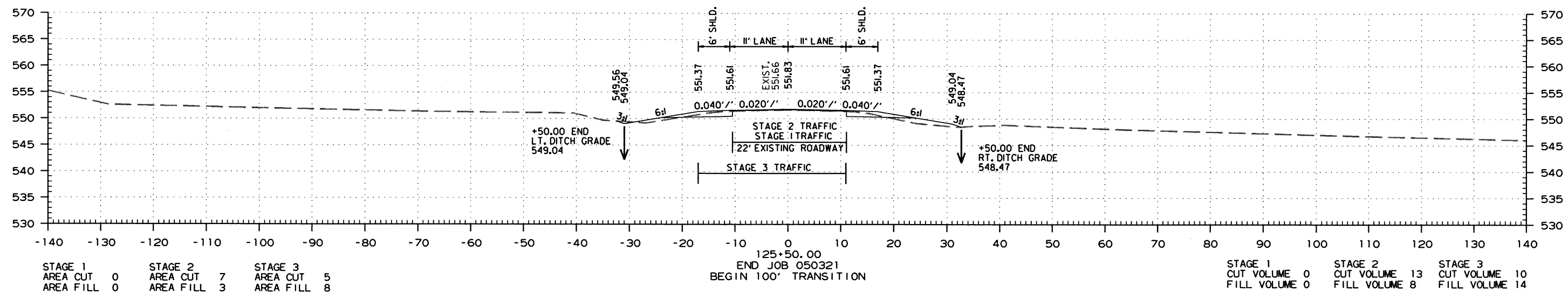


HWY. 56
 STA. 124+00.00 TO STA. 124+15.00

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 R050321.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. | 050321 | | 71 | 78 |

② CROSS SECTIONS



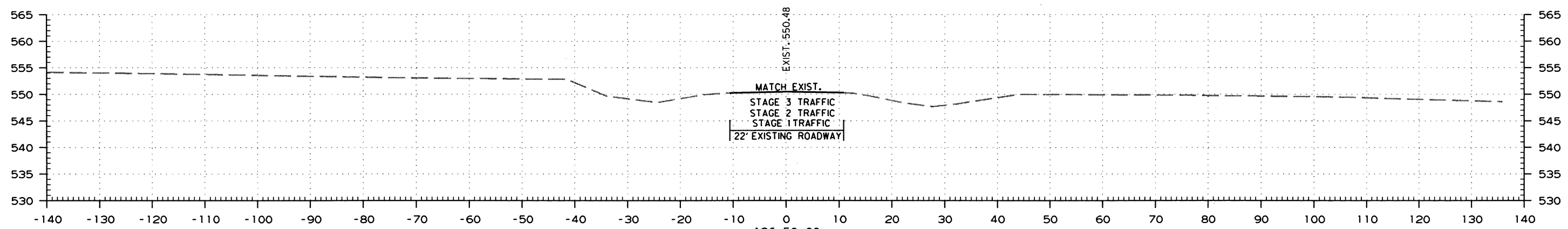
HWY. 56
STA. 125+00.00 TO STA. 125+50.00

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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 050321 | 72 | 78 |

② CROSS SECTIONS



| STAGE 1 | STAGE 2 | STAGE 3 |
|-------------|-------------|-------------|
| AREA CUT 0 | AREA CUT 0 | AREA CUT 0 |
| AREA FILL 0 | AREA FILL 0 | AREA FILL 0 |

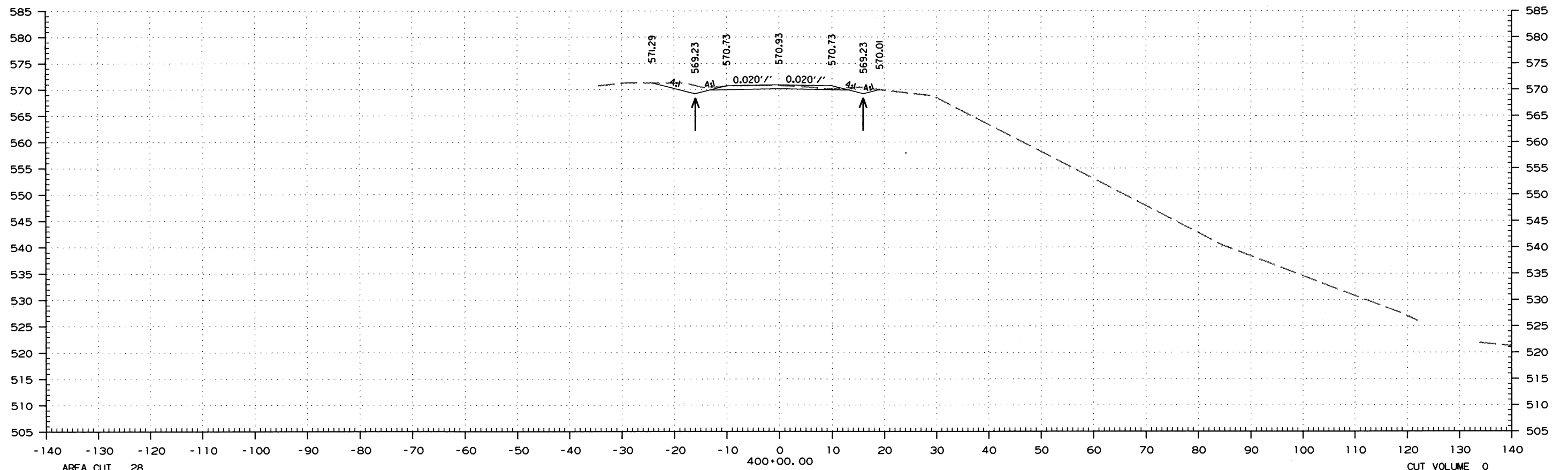
| STAGE 1 | STAGE 2 | STAGE 3 |
|---------------|---------------|----------------|
| CUT VOLUME 0 | CUT VOLUME 13 | CUT VOLUME 9 |
| FILL VOLUME 0 | FILL VOLUME 6 | FILL VOLUME 15 |

HWY. 56
STA. 126+50.00 TO STA. 126+50.00

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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| JOB NO. | | | | | | 050321 | 73 | 78 |

② CROSS SECTIONS



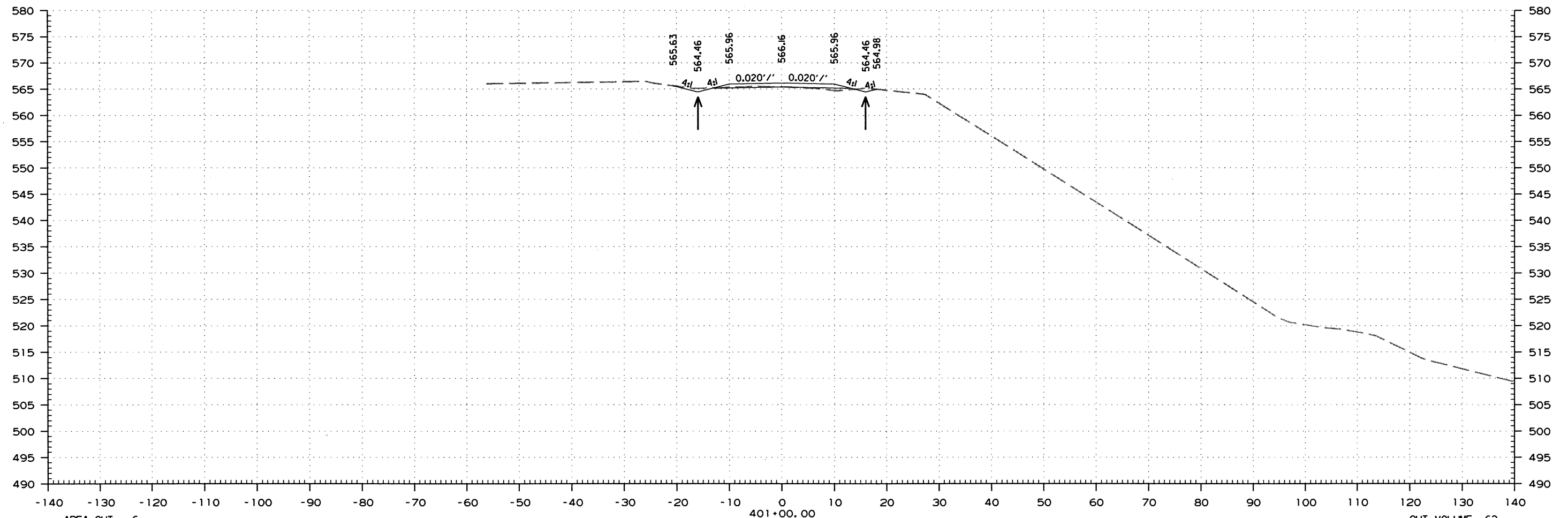
BENS CREEK RD.
STA. 400+00.00 TO STA. 400+00.00

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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 050321 | 74 | 78 |

② CROSS SECTIONS



AREA CUT 6
AREA FILL 3

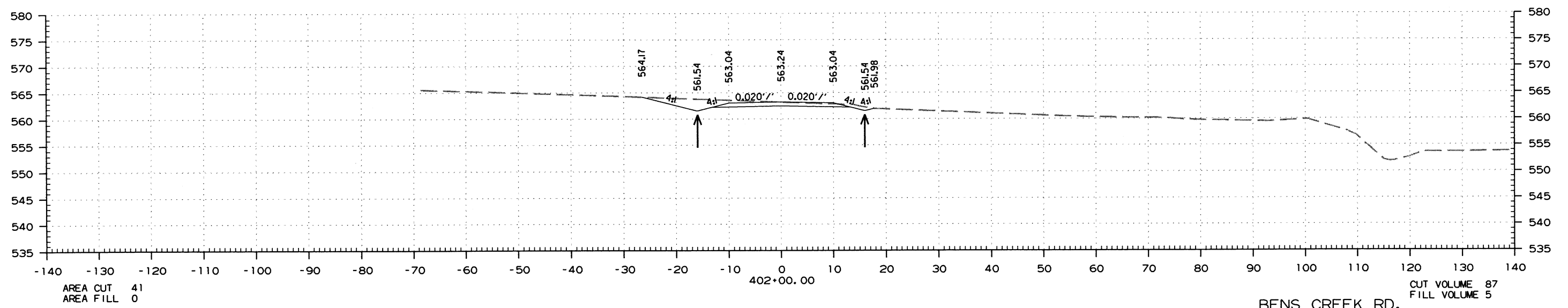
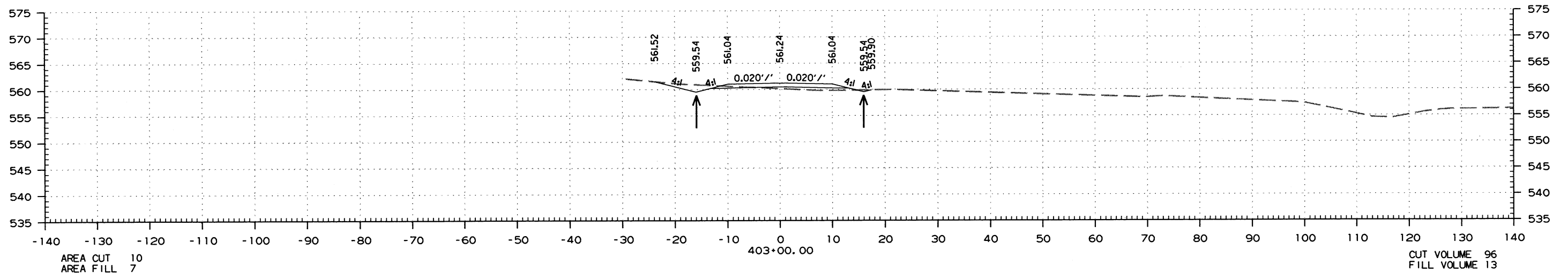
CUT VOLUME 63
FILL VOLUME 5

BENS CREEK RD.
STA. 401+00.00 TO STA. 401+00.00

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| DATE REVISED | DATE FILED | DATE REVISED | DATE FILED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|------------|--------------|------------|--------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | | | JOB NO. 050321 | 75 | 78 |

② CROSS SECTIONS

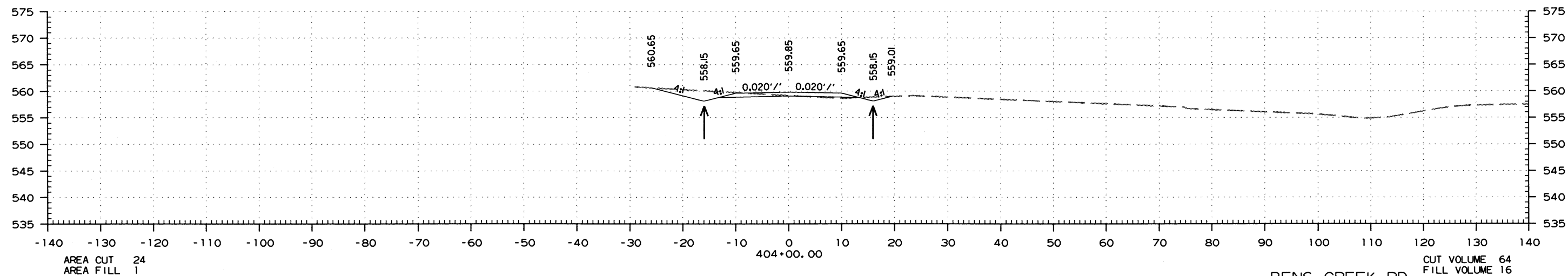
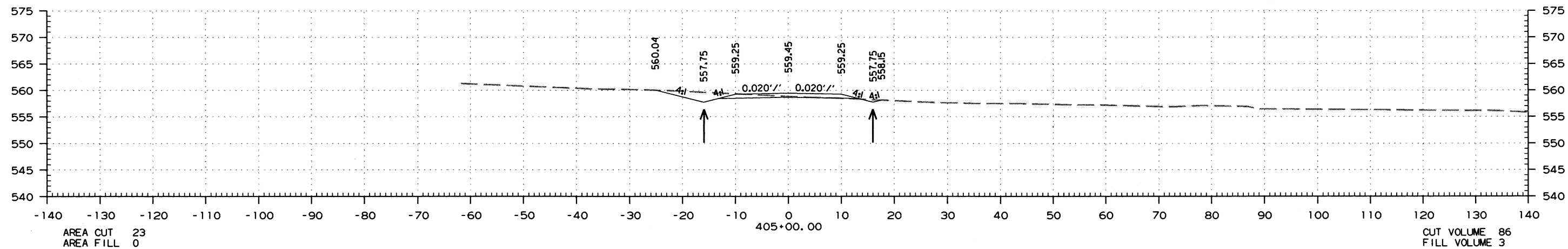
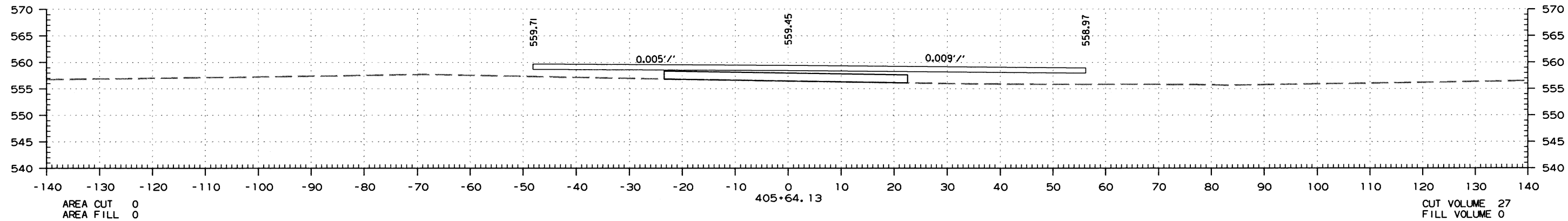


BENS CREEK RD.
STA. 402+00.00 TO STA. 403+00.00

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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | | | JOB NO. 050321 | 76 | 78 |

② CROSS SECTIONS



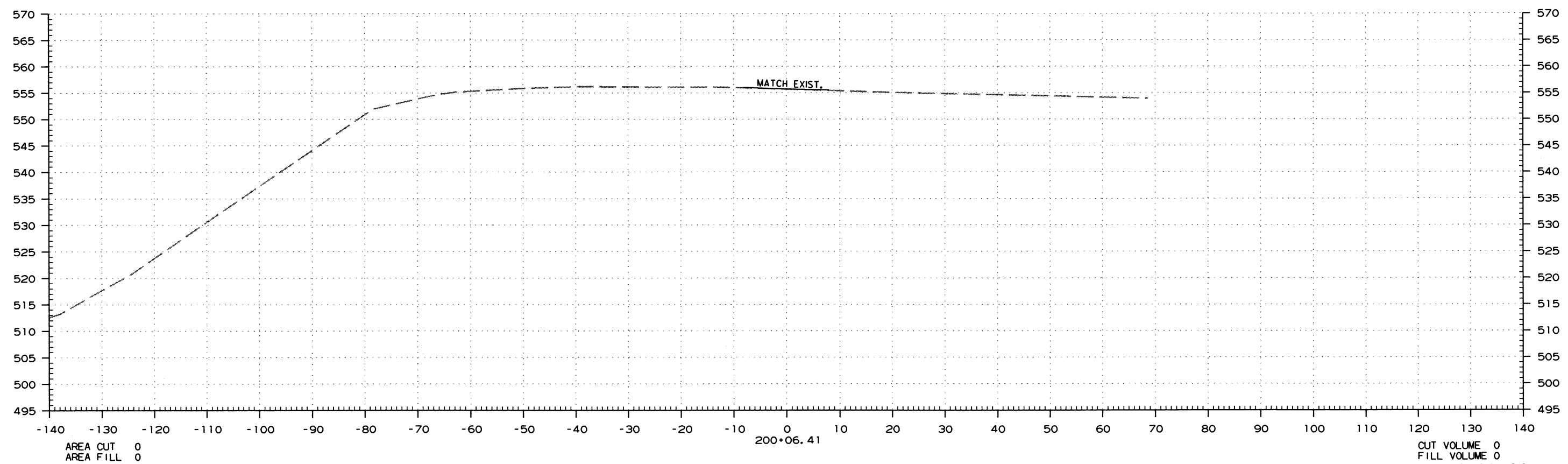
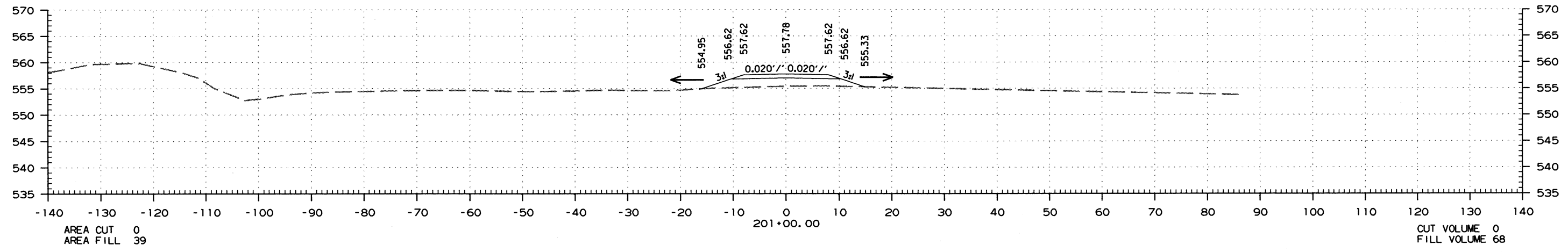
BENS CREEK RD.
STA. 404+00.00 TO STA. 405+64.13

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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. | 050321 | | 77 | 78 |

② CROSS SECTIONS

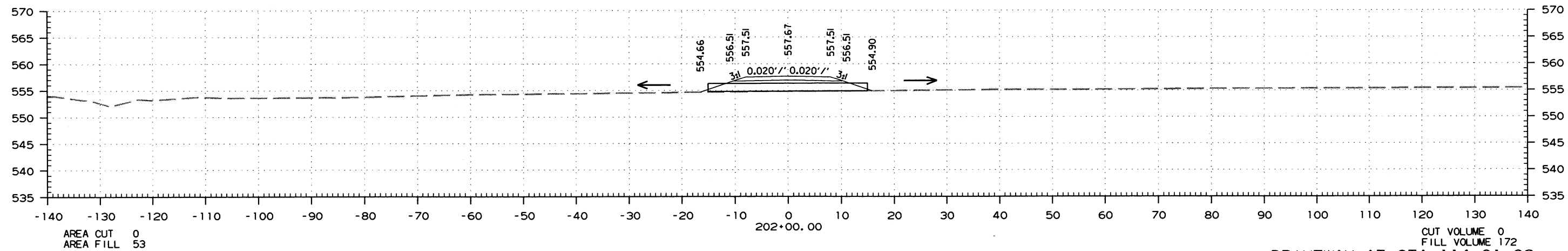
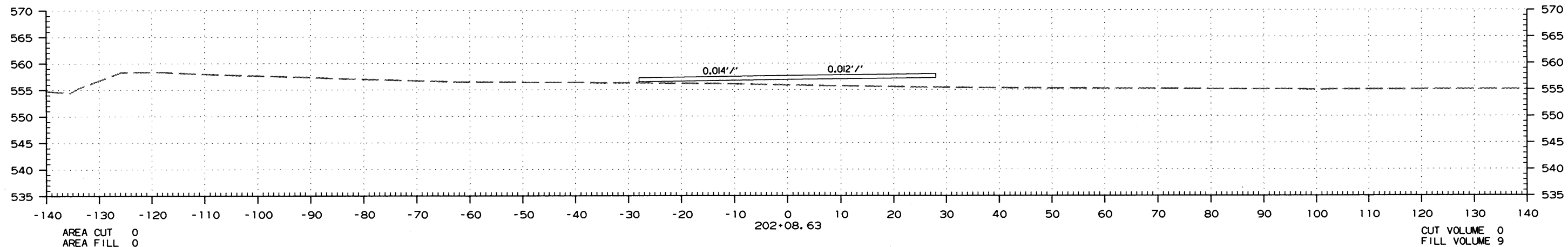


DRIVEWAY AT STA. 114+91.92
 STA. 200+06.41 TO STA. 201+00.00

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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 050321 | 78 | 78 |

② CROSS SECTIONS

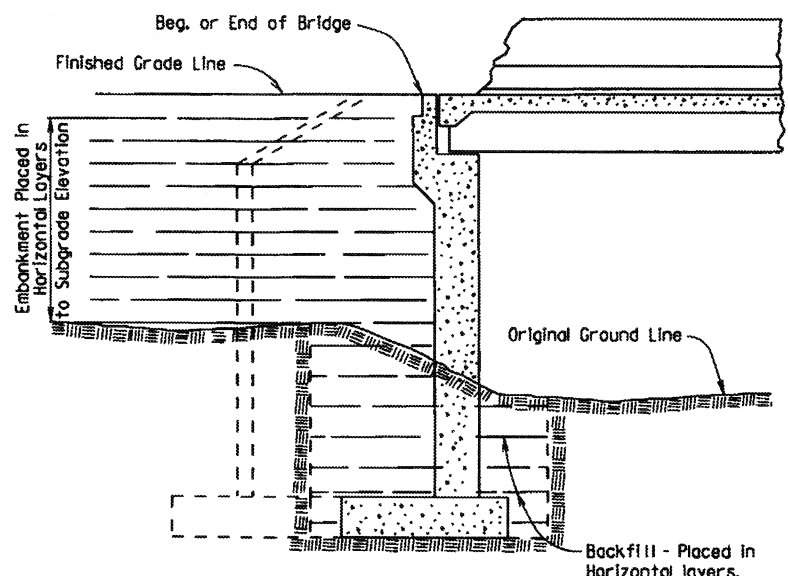


DRIVEWAY AT STA. 114+91.92
STA. 202+00.00 TO STA. 202+08.63

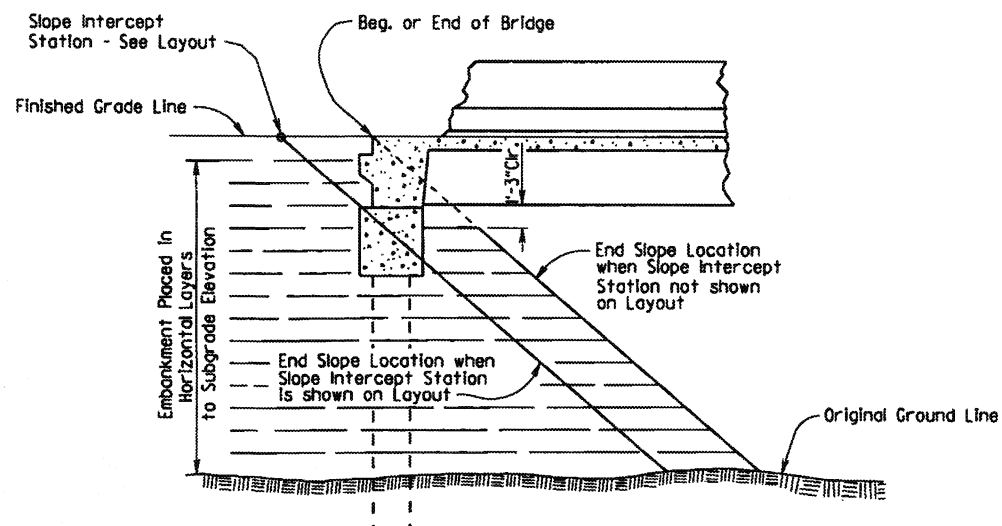
06/18/2019

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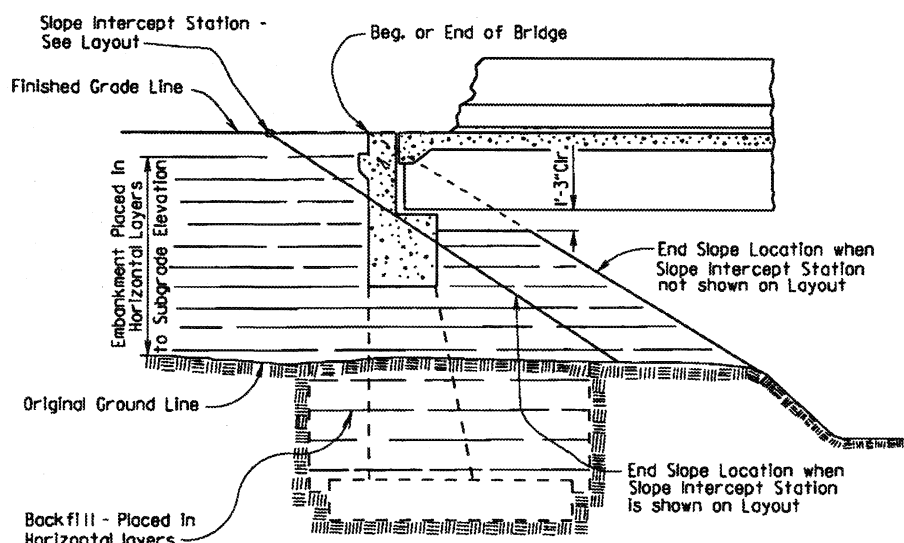
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|-------------------------|-------------|--------------|-------------|---------------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| JOB NO. | | | | | | | | |
| ① EMBANKMENT & BACKFILL | | | | | | | | 55000 |



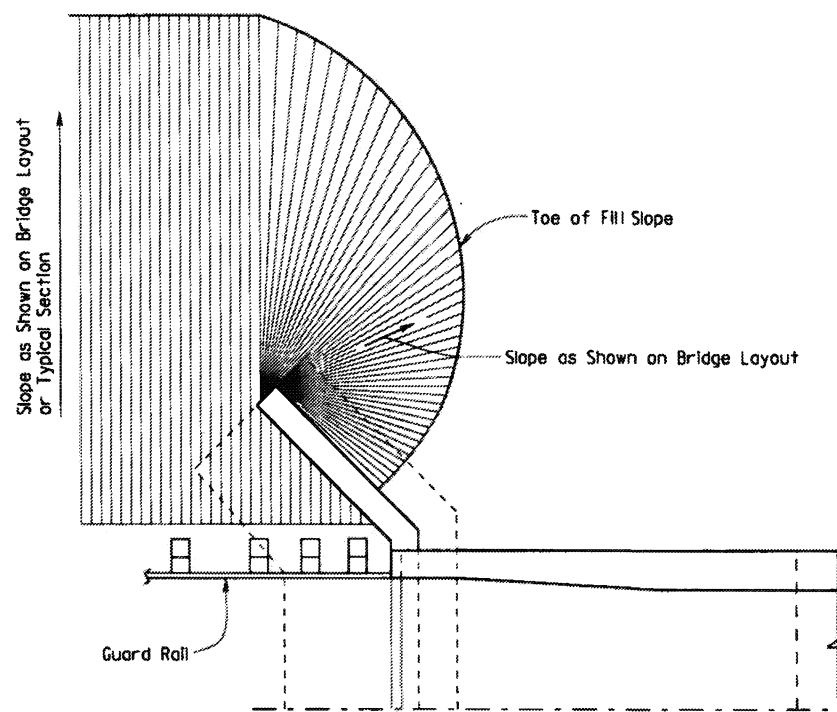
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



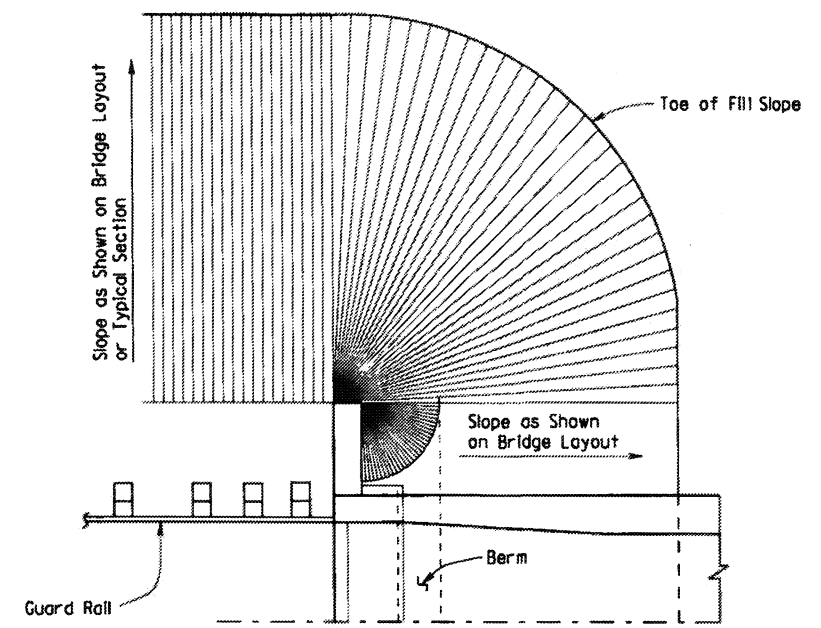
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



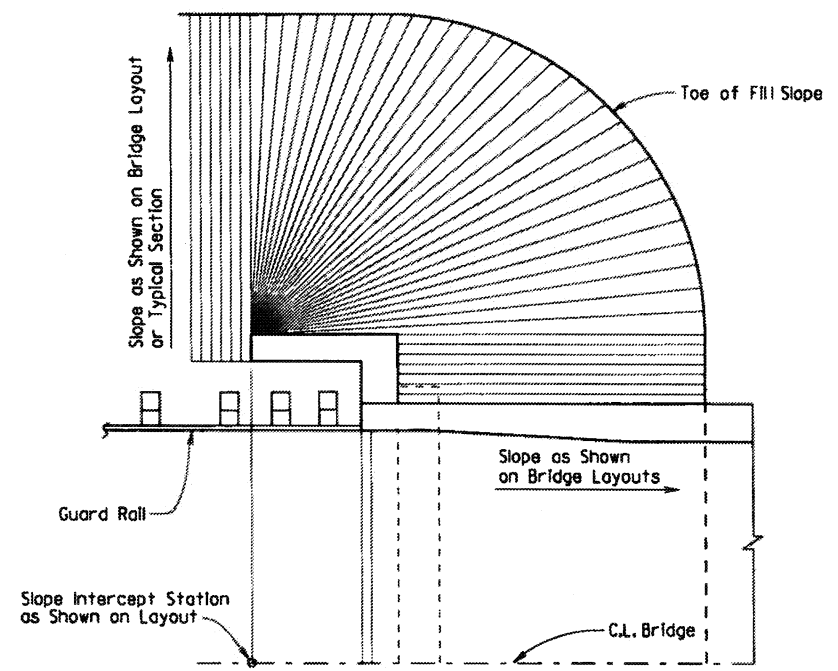
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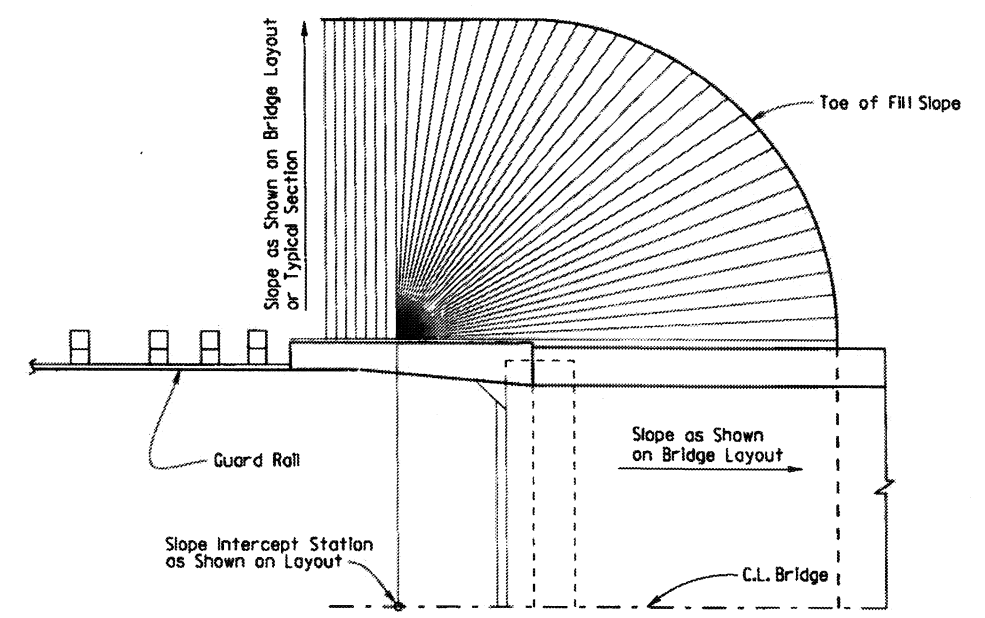
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 6 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to Subsections 210.09, 210.10 and 801.08 for construction requirements.

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

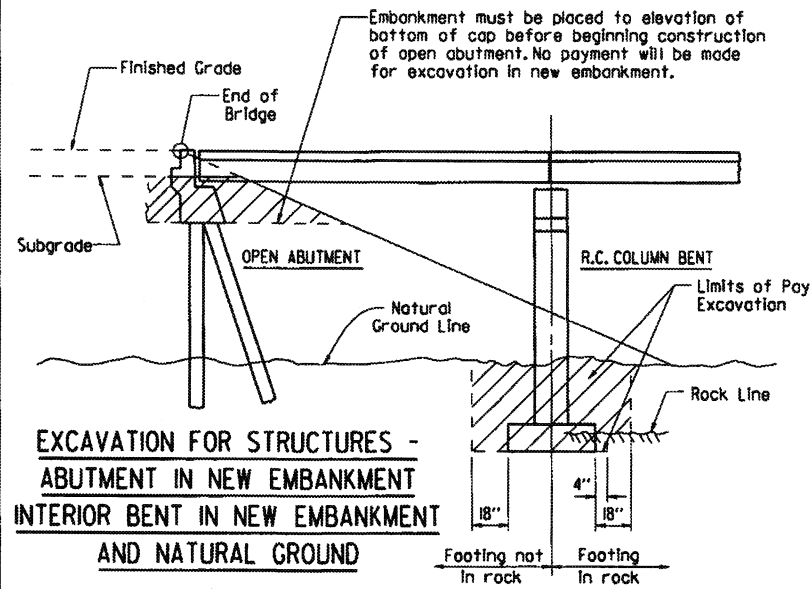
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

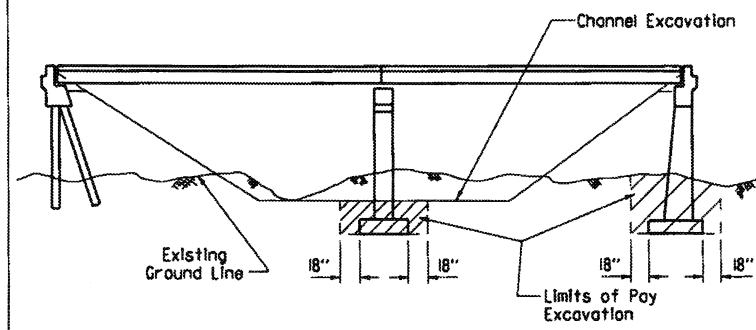
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DRAWING NO. 55000

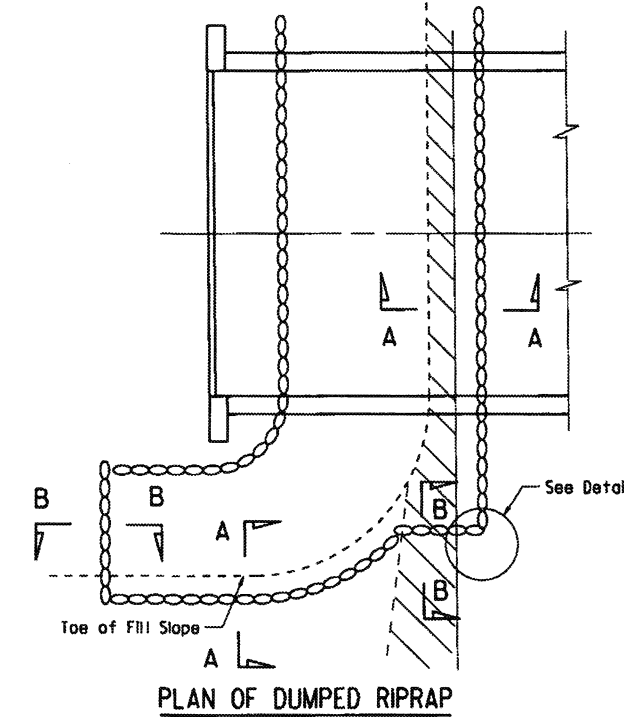
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | | | |
| | | | | ① | | RIPRAP & EXCAV. 5500I | | |



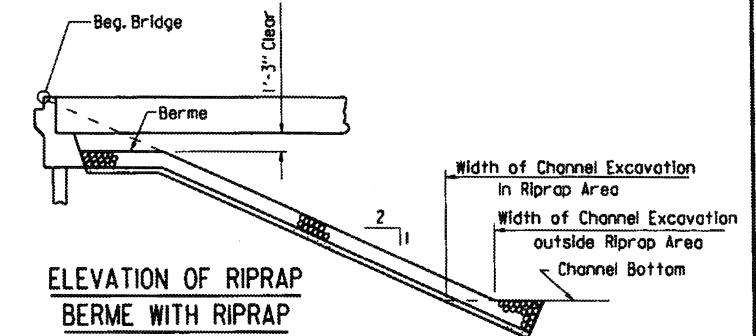
**EXCAVATION FOR STRUCTURES -
ABUTMENT IN NEW EMBANKMENT
INTERIOR BENT IN NEW EMBANKMENT
AND NATURAL GROUND**



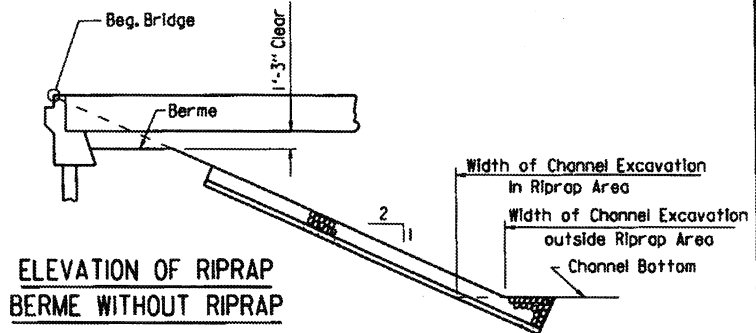
**EXCAVATION FOR STRUCTURES - BRIDGE
LOCATION WITH DESIGNATED CHANNEL CHANGE**



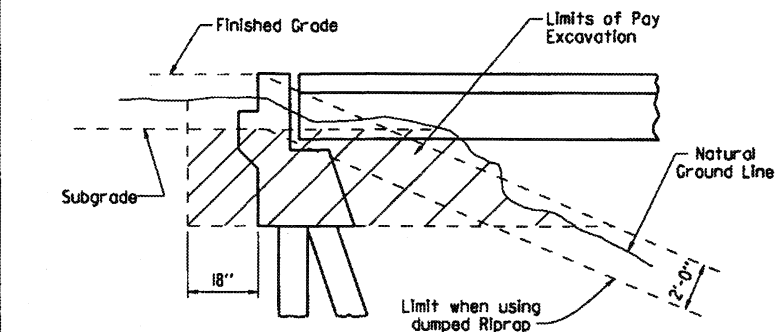
PLAN OF DUMPED RIPRAP



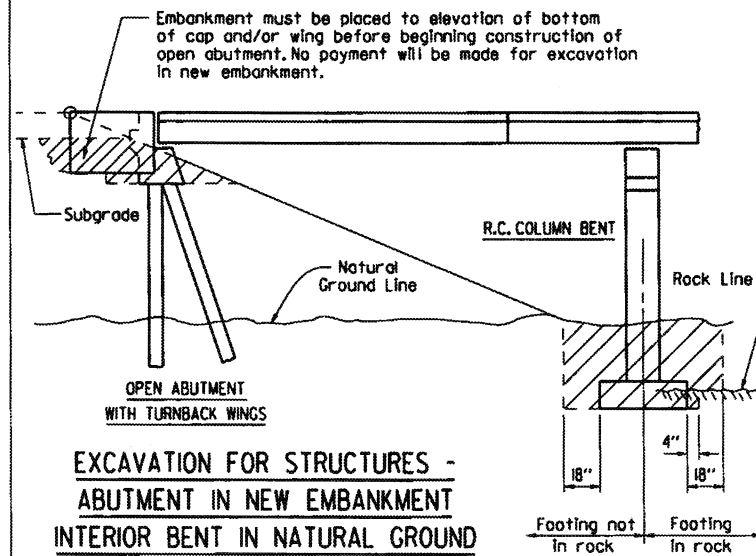
**ELEVATION OF RIPRAP
BERME WITH RIPRAP**



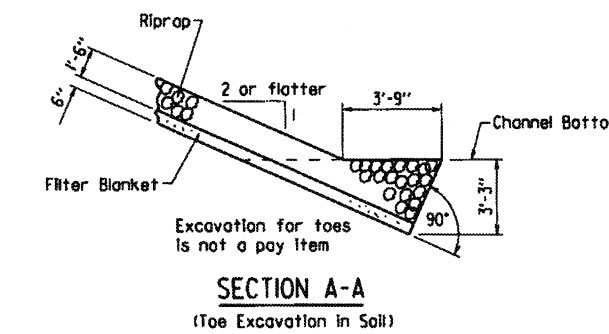
**ELEVATION OF RIPRAP
BERME WITHOUT RIPRAP**



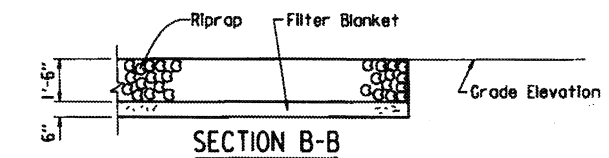
**EXCAVATION FOR STRUCTURES -
ABUTMENT IN NATURAL GROUND**



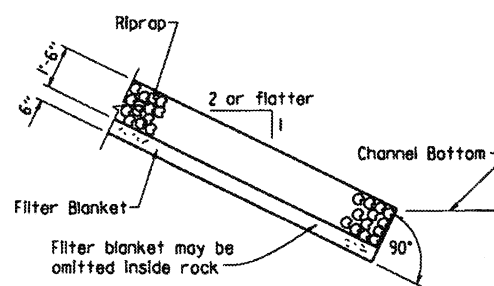
**EXCAVATION FOR STRUCTURES -
ABUTMENT IN NEW EMBANKMENT
INTERIOR BENT IN NATURAL GROUND**



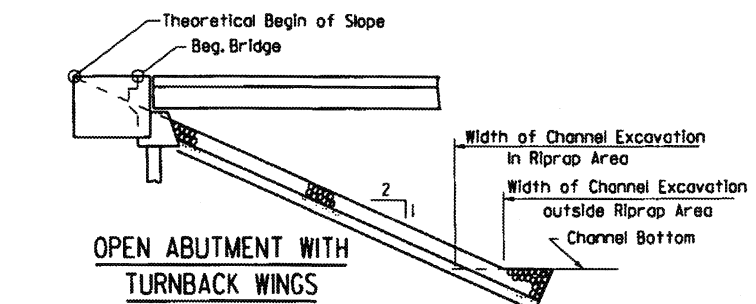
**SECTION A-A
(Toe Excavation in Soil)**



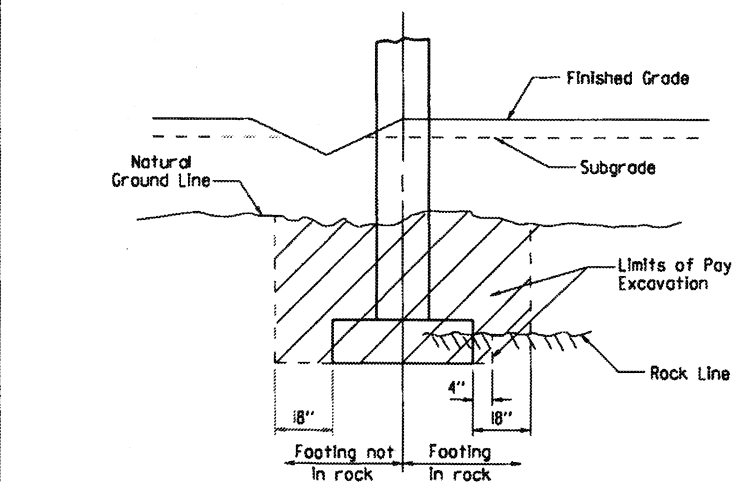
SECTION B-B



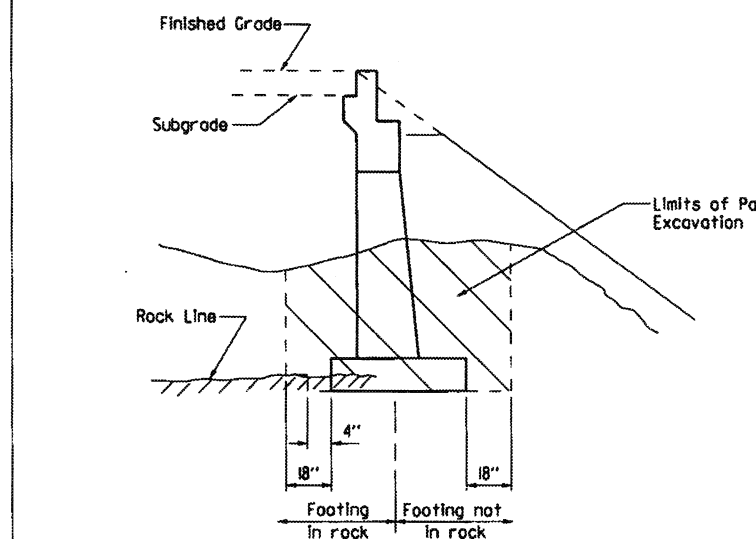
**SECTION A-A
(Toe Excavation in Rock)**



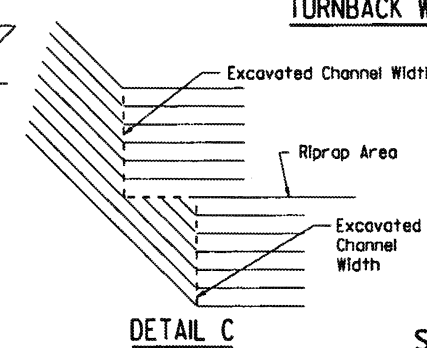
**OPEN ABUTMENT WITH
TURNBACK WINGS**



**EXCAVATION FOR STRUCTURES -
BENT IN ROADWAY FILL SECTION
AND NATURAL GROUND**



**EXCAVATION FOR STRUCTURES - ABUTMENT
IN NATURAL GROUND AND NEW EMBANKMENT**



DETAIL C

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.

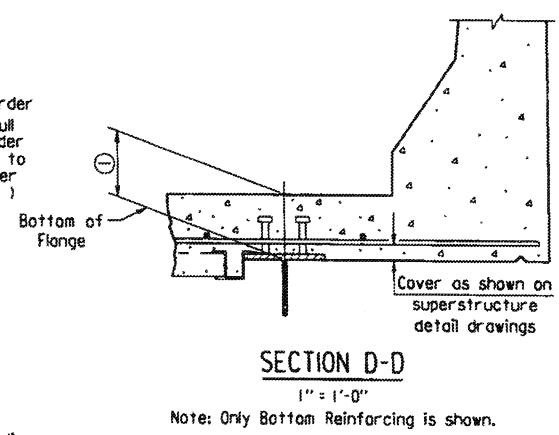
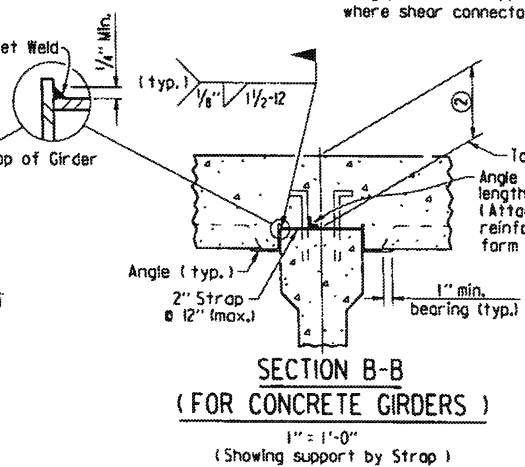
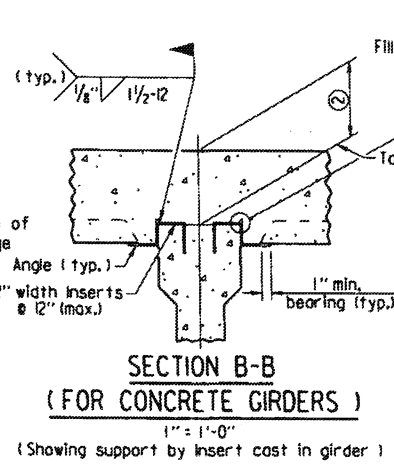
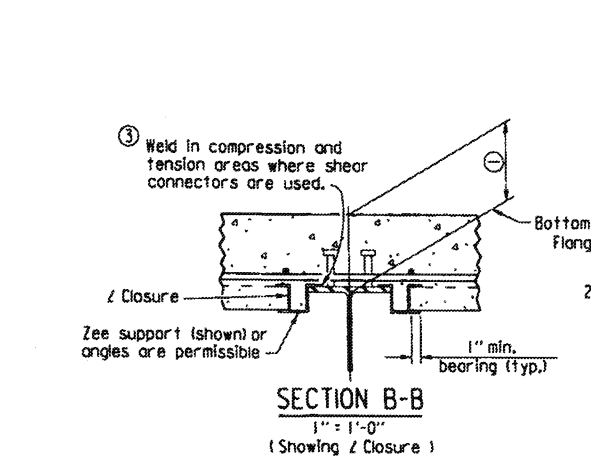
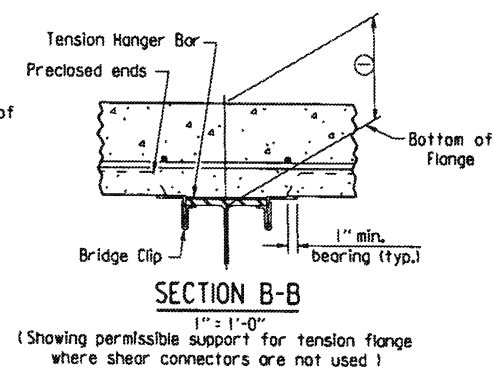
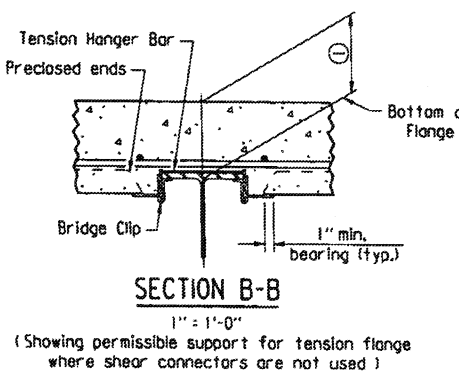
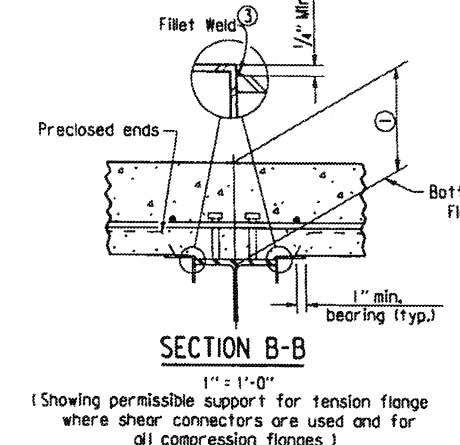
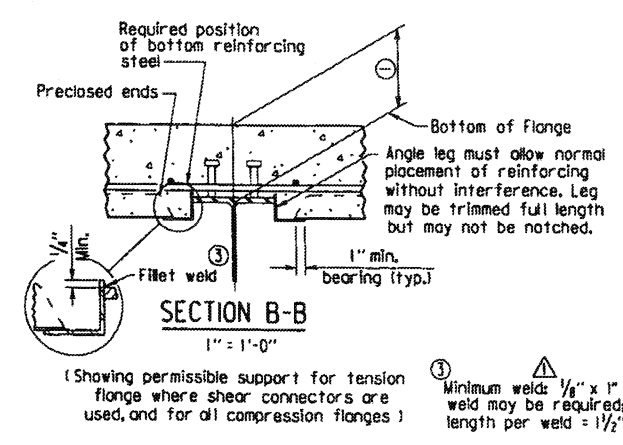
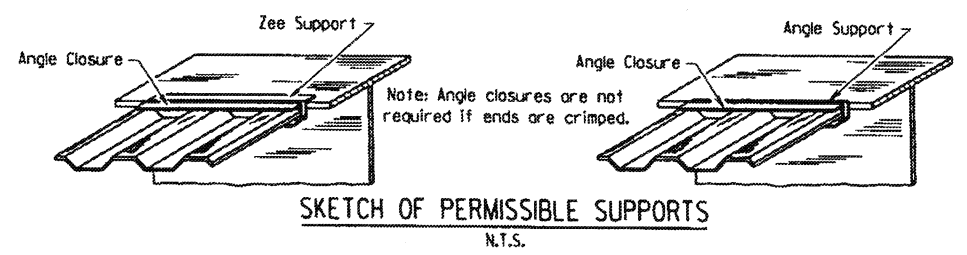
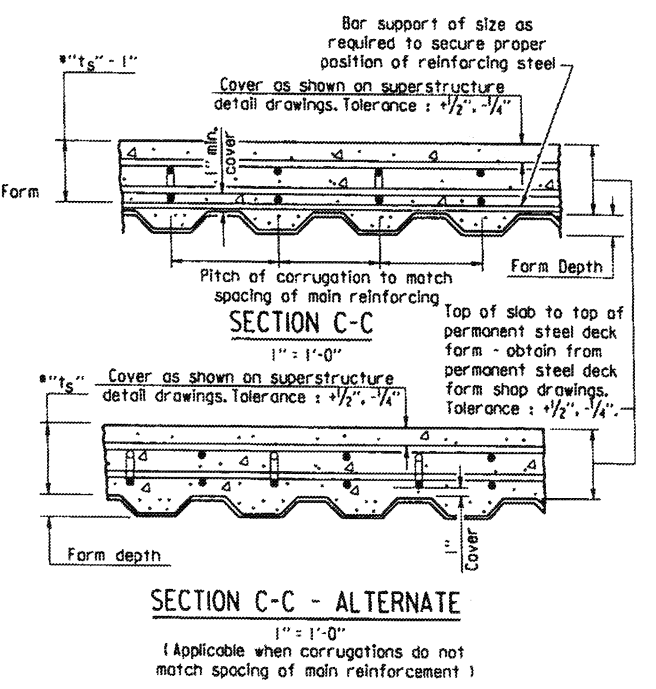
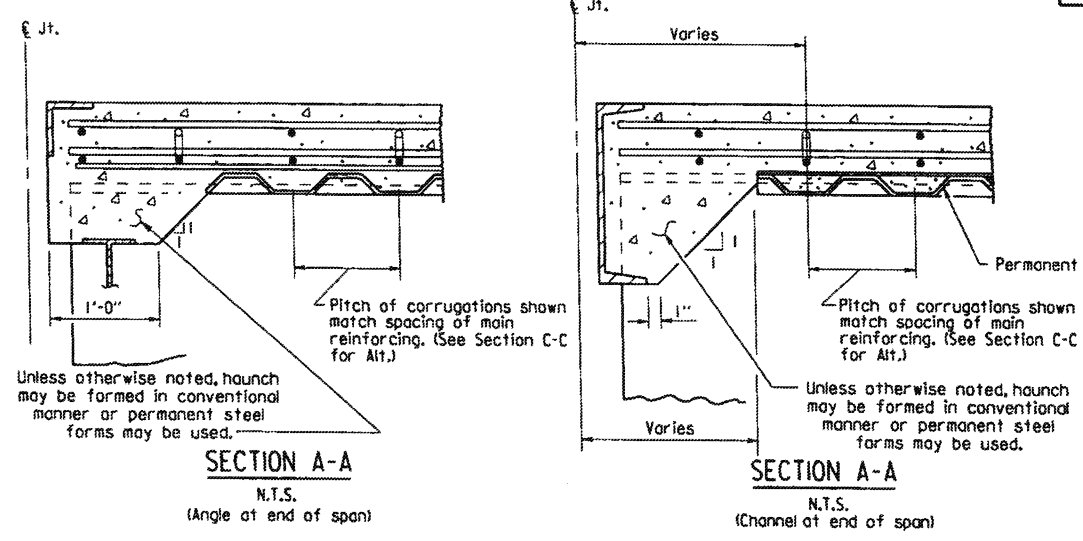
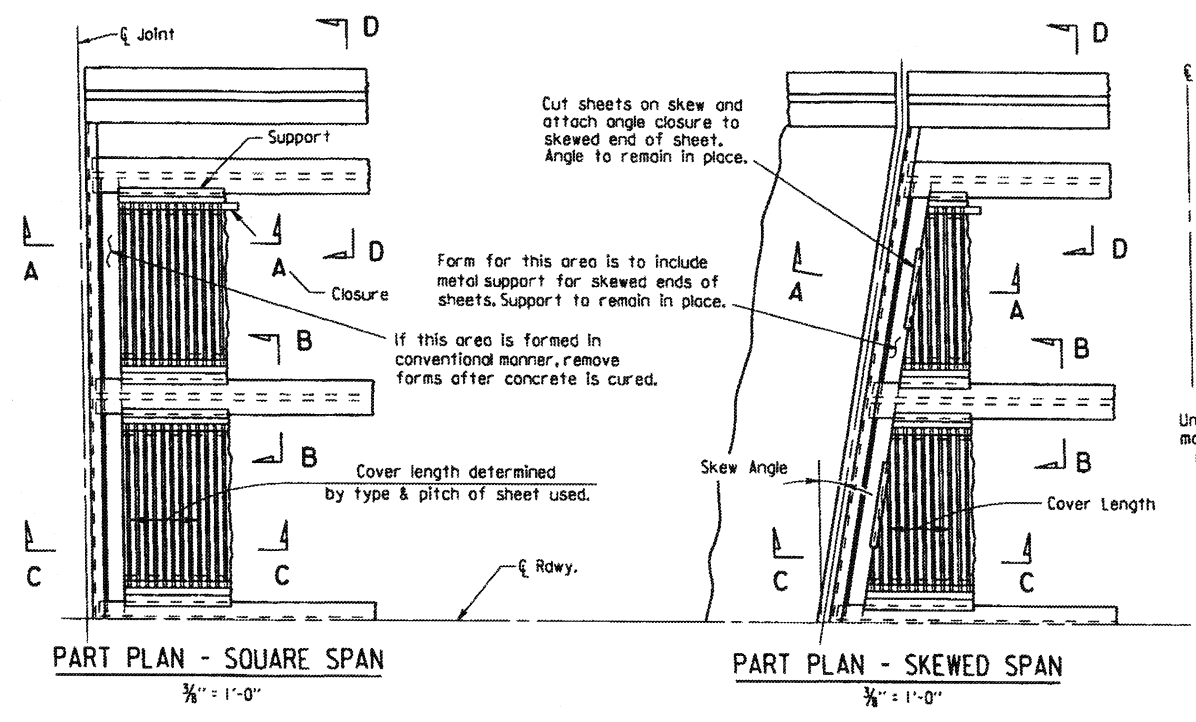
Note: Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.

**STANDARD DETAILS FOR
DUMPED RIPRAP AND FILTER BLANKET
AND COMPUTING
EXCAVATION FOR STRUCTURES**
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b5500I.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 5500I

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
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| 3/24/16 | | | | 6 | ARK. | | | |
| JOB NO. | | | | | | | | |
| BRIDGE DECK FORMS | | | | | | | 55005 | |



GENERAL NOTES

Permanent steel deck forms may be used at the Contractor's option and shall be at no additional cost to the Department. Such use may result in changes to the dead load deflection of the girder. Any cost for adjustments due to a change in the dead load deflection will be borne by the Contractor. Payment for deck concrete and structural steel will not be increased due to use of permanent steel deck forms.

Permanent steel deck forms shall conform to Subsection 802.14(b). Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or L supports to the flange must be approved by the Engineer.

Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions.

STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55005.dgn
 CHECKED BY: BEF DATE: 2-27-2014 SCALE: NONE
 DESIGNED BY: STD. DATE: —

Revised weld dimension by KWH, Ck'd. by BEF, 3/24/16.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances: Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = $t_s + 1/4"$ + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances: Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

GENERAL NOTES

These GENERAL NOTES are applicable unless otherwise shown in the Plan Details, Special Provisions, or Supplemental Specifications.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Specifications.

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

| | |
|--|--------------------|
| Class (S/AE) Concrete | $f'c = 4,000$ psi |
| Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A) | $f_y = 60,000$ psi |
| Structural Steel (AASHTO M 270, Gr. 36) | $f_y = 36,000$ psi |
| Structural Steel (AASHTO M 270, Gr. 50) | $f_y = 50,000$ psi |
| Structural Steel (AASHTO M 270, Gr. 50W) | $f_y = 50,000$ psi |
| Structural Steel (AASHTO M 270, Gr. HPS70W) | $f_y = 70,000$ psi |

See Plan Details for Grades of Structural Steel required.

CONCRETE:

All concrete shall be Class (S/AE) with a minimum 28 day compressive strength $f'c = 4,000$ psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered $\frac{3}{4}$ " unless otherwise noted.

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

Use of a longitudinal screed is not permitted on any span of a bridge deck with horizontal curvature.

The concrete deck (roadway surface) shall be given a fine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall receive a broomed finish as specified for final finishing in Subsection 802.19 for Class 6 Broomed Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam or girder. When permitted, the use of a longitudinal strike-off will require that a vertical camber adjustment be made in the strike-off to account for the future dead load deflection due to any railings, median barrier, and sidewalks.

REINFORCING STEEL:

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports and shall be epoxy coated. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL (COMMON TO W-BEAMS AND PLATE GIRDERS):

Structural steel shall be AASHTO M 270 with grade and payment as specified in the plans. Grade 50W steel shall not be painted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Grade 36 and Grade 50 steel shall be painted unless otherwise noted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36, Gr. 50 or Gr. 50W 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 to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching falsework support devices or screed roll supports to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. All welding shall conform to Subsection 807.26.

Unless otherwise noted, field connections shall be bolted with $\frac{3}{4}$ " ϕ high-strength bolts using $\frac{3}{8}$ " ϕ open holes. Holes for $\frac{3}{4}$ " ϕ high-strength bolts may be $\frac{5}{8}$ " ϕ if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

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

When painting is required, all structural steel except galvanized steel and steel completely encased in concrete shall be painted in accordance with Subsection 807.75. The color of paint shall be as specified in the plans.

STRUCTURAL STEEL (W-BEAMS):

All beams and field splice plates, and all diaphragms and connection plates attached to horizontally curved beams are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. ...)".

All beams in continuous units and simple spans with field splices shall be blocked in their true position in the shop in groups as specified in Subsection 807.54(b)(2) with the webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All beams in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

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

All beam dimensions are based on a temperature of 60 degrees F. A tolerance of $\frac{1}{4}$ " +/- is allowed for camber.

Bent plate diaphragms for horizontally curved beams shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses. Bent plate diaphragms for straight beams may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved beams.

Unless otherwise noted, diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

STRUCTURAL STEEL (PLATE GIRDERS):

All references to cross-frames shall include "X" or "K" types.

All girder web and flange plates, all field splice plates, and all diaphragms, cross-frames and connection plates attached to horizontally curved girders are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. ...)".

All girders in continuous units and simple spans with field splices shall be assembled in the shop as specified in Subsection 807.54(b)(2) and blocked in their true position with webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All girders in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

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

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

All girder dimensions are based on a temperature of 60 degrees F. A tolerance of $\frac{1}{4}$ " +/- is allowed for camber.

Groove welds in web and flange plates shall be Quality Control (Q.C.) tested by nondestructive testing, as required in Subsection 807.23(b). Fillet welds at flange to web plate connections shall be Q.C. tested by the magnetic particle method. All Q.C. testing shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. ...)".

Bent plate diaphragms for horizontally curved girders shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses. Bent plate diaphragms for straight girders may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved girders.

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

SUBSTRUCTURE NOTES:

CONCRETE:

Unless otherwise noted, concrete in caps, columns and footings (except seal footings) shall be Class "S" with a minimum 28 day compressive strength $f'c = 3,500$ psi and shall be poured in the dry. Seal Concrete for footings shall have a minimum 28 day compressive strength $f'c = 2,100$ psi.

Concrete in drilled shafts shall be Class "S" as modified by Job SP "Drilled Shaft Foundations".

All exposed corners shall be chamfered $\frac{3}{4}$ " unless otherwise noted.

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

Structural steel in end bents shall be AASHTO M 270 with grade and payment as specified in the plans.

FOR ADDITIONAL INFORMATION AND NOTES, SEE LAYOUT(S) AND PLAN DETAILS.

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
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| | | | | JOB NO. | | | | |
| 1 GENERAL NOTES | | | | | | | | 55006 |

STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES

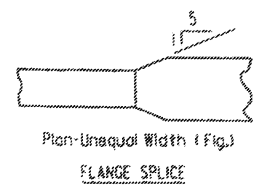
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

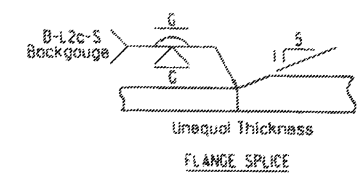
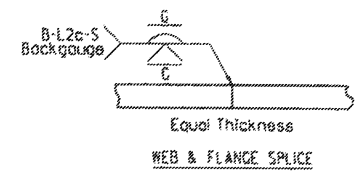
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CHECKED BY: B.E.F. DATE: 9-2-2015 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 55006

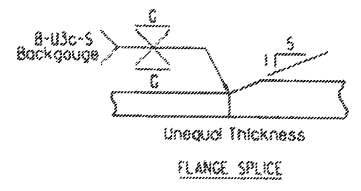
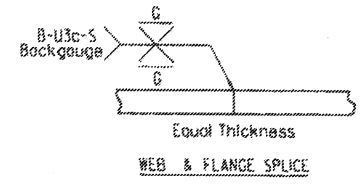
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| | | | | 6 | ARK. | | | |
| | | | | | | | 1 | STEEL BRIDGE STRUCTURES 55007 |



FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS

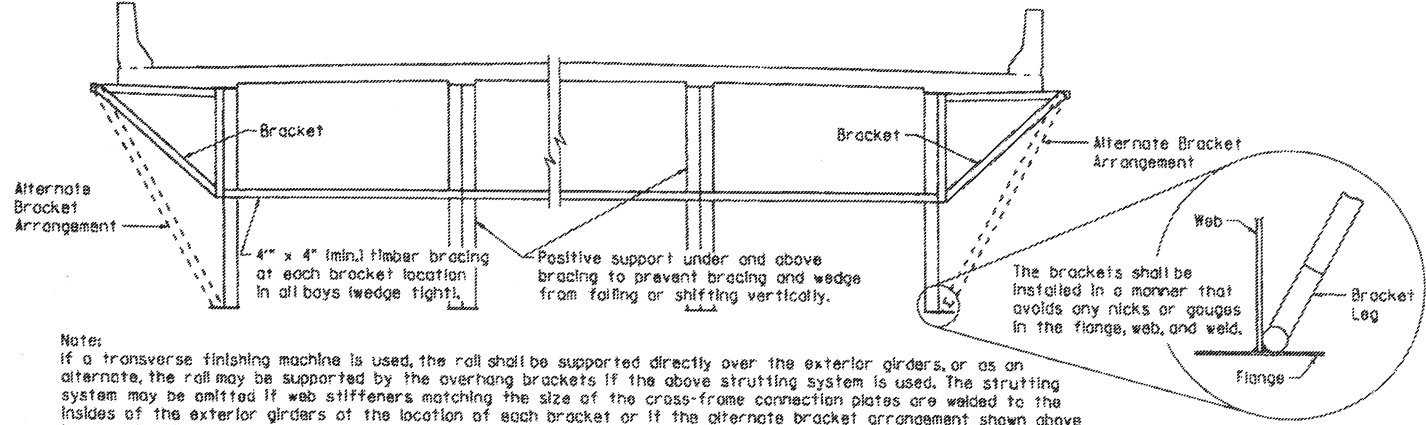


(Use when Base Metal Thickness is Equal to or Less than 2")



(Use when Base Metal Thickness is Greater than 2")

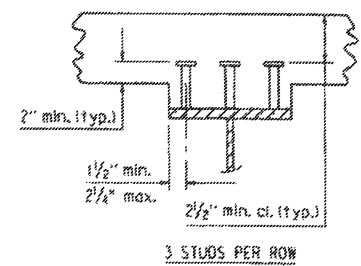
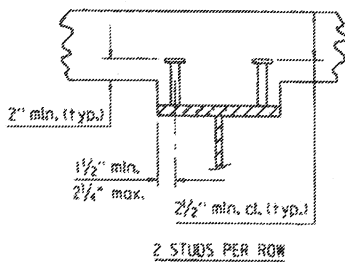
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



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

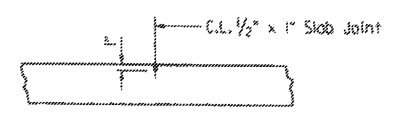
SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)



Stud Shear Connectors shall be automatically and welded to the beam or girder flange in accordance with the recommendations of the Manufacturer. See plan details for number and size.

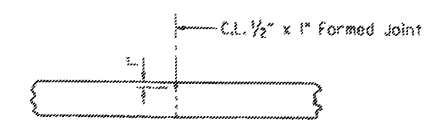
SHEAR CONNECTOR DETAIL



Use Type 3 or 4 Joint Sealer. See Subsections 504.02(h) and 504.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class SIAE Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of the parapet. Slab joints shall be installed before the parapet rolling is poured. If slab joints are to be sewed, they shall be sewed as soon as the concrete has sufficiently set to allow sewing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline.

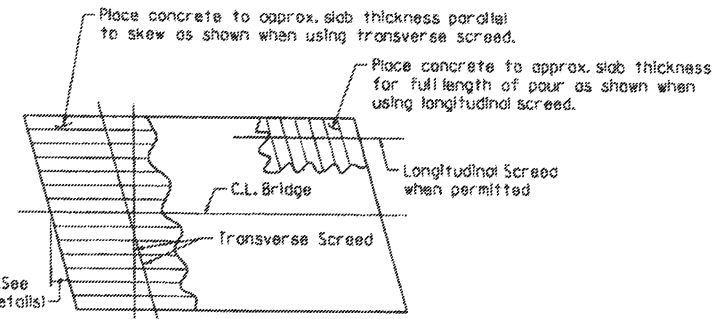
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED: Slab joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and across the top of the sidewalk or raised median to the edge of the slab. No joint sealer shall be placed on the deck slab under the sidewalk or raised median.

TRANSVERSE SLAB JOINT DETAIL



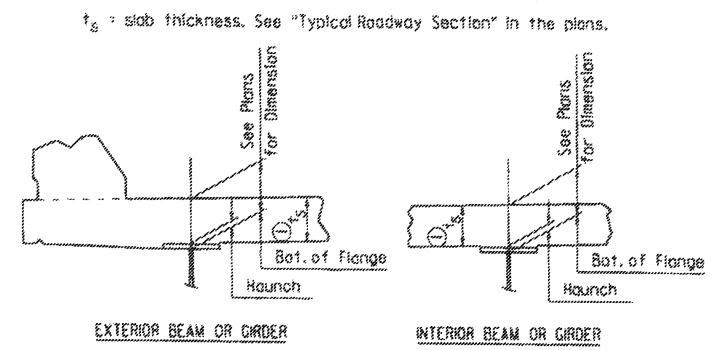
Use 1/2" x 1" Type 3 or 4 Joint Sealer. See Subsections 504.02(h) and 504.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class SIAE Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT



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

CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW

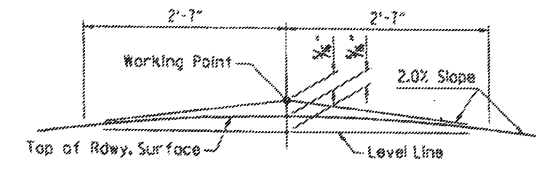


① Tolerance when removable deck forming is used is + 1/2", - 1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

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

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

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL BRIDGES IN NORMAL CROWN

WELD TABLE

| Material Thickness of Thicker Part Joined (Inches) | Minimum Size of Fillet Weld (Inches) | Single Pass Weld Must Be Used |
|--|--------------------------------------|-------------------------------|
| To 1/2" Inclusive | 1/4" | Used |
| Over 1/2" | 3/8" | |

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

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

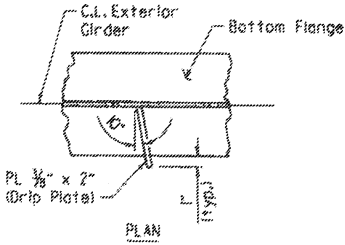
THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55007.dgn
CHECKED BY: AMS DATE: 2/11/2016 SCALE: No Scale
DESIGNED BY: STD. DATE: —

DRAWING NO. 55007



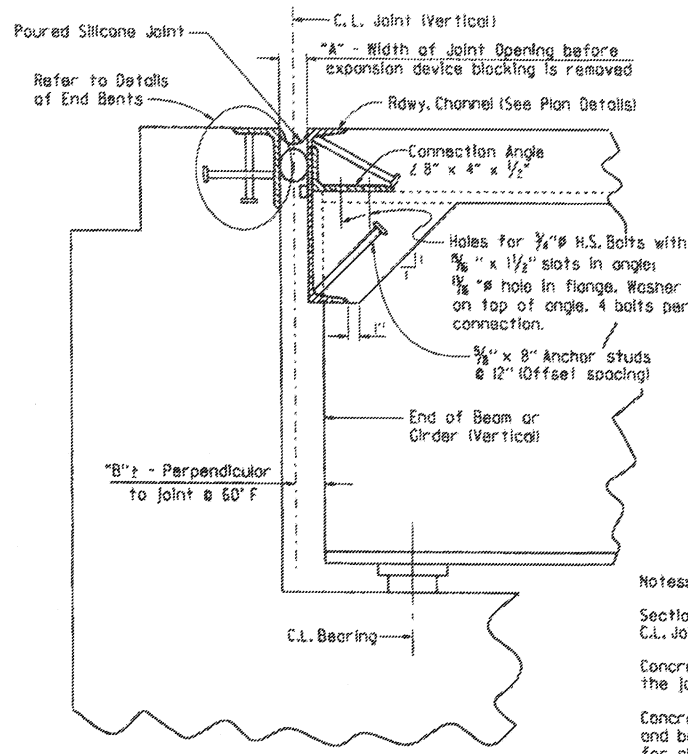
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

Locate drip plate 5'-0" from C.L. Bearing on high side of each Bent, unless otherwise noted in the plans.

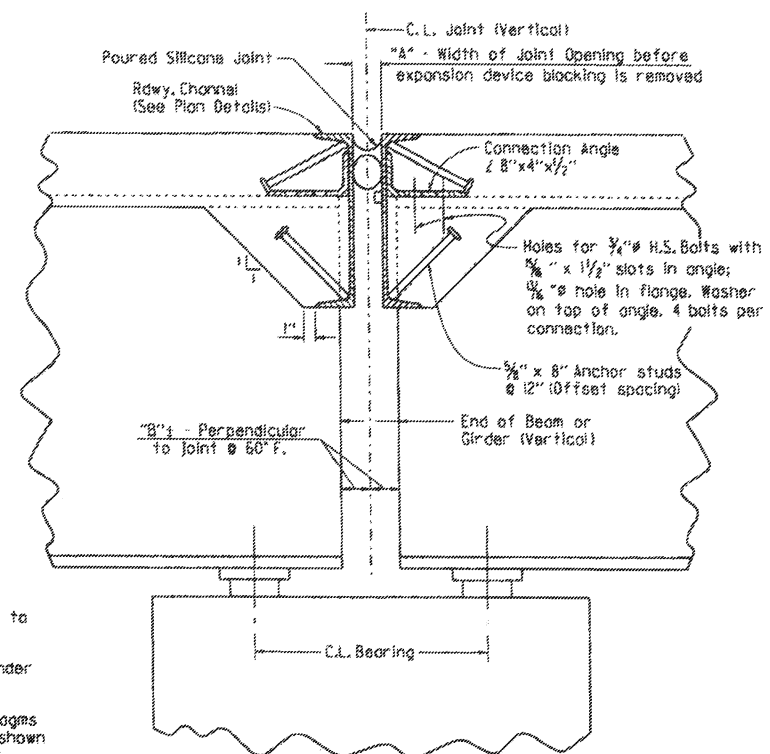
BOTTOM FLANGE DRIP PLATE

(USE WHEN WEB DEPTHS ARE 54" OR GREATER AND UNIT OR SPAN IS NOT IN LEVEL GRADE)

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. PROJ. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|-----------------------|-------------|--------------|-------------|----------------|-------|--------------------|-----------|--------------|
| | | | | 6 | ARK. | | | |
| JOB NO. | | | | | | | 1 | |
| POURED SILICONE JOINT | | | | | | | 55008 | |

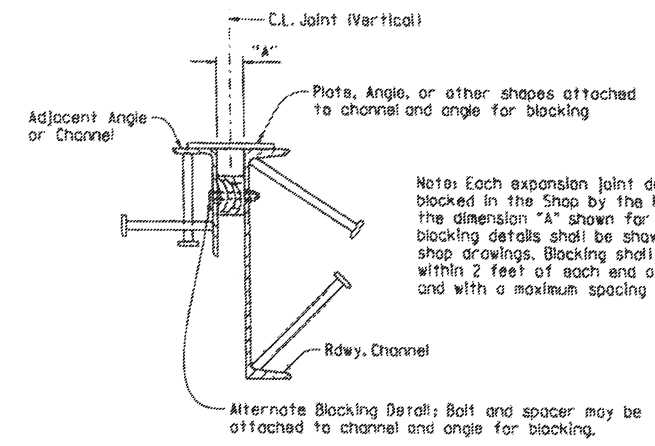


SECTION THRU JOINT AT END BENT



SECTION THRU JOINT AT INTERMEDIATE BENT

Notes:
 Sections are taken perpendicular to C.L. joint.
 Concrete shall be hand packed under the joint armor.
 Concrete diaphragms, steel diaphragms and bearing stiffeners are not shown for clarity. See plans for details.



DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:
 The Contractor may elect to install the expansion device using one of the following two alternatives:
 1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is erected. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent, immediately prior to pouring the backwall concrete, the blocking shall be removed, and the opening adjusted for temperature and grade.
 2) The backwall shall be poured to the optional construction joint after beams or girders are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent, immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature and grade.

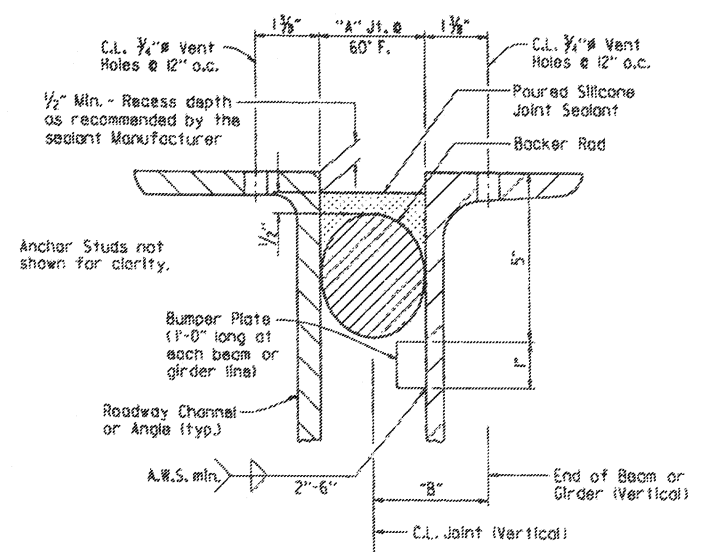
EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:
 After all beams or girders on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.
 Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).
 THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS. SEE "TABLE OF SILICONE JOINT DATA" IN PLAN DETAILS FOR VARIABLES "A" AND "B", AND BUMPER PLATE SIZE.

STANDARD DETAILS FOR
POURED SILICONE JOINTS

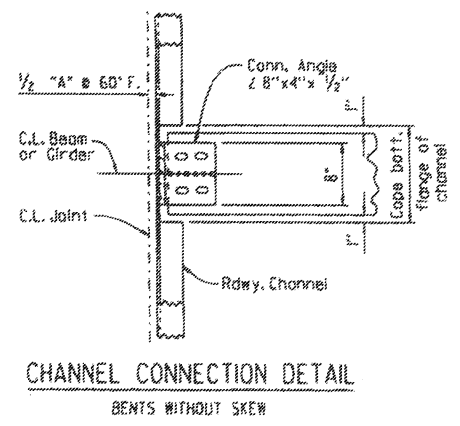
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.C.P. DATE: 2/11/2016 FILENAME: b55008.dgn
 CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale
 DESIGNED BY: STD. DATE: ---

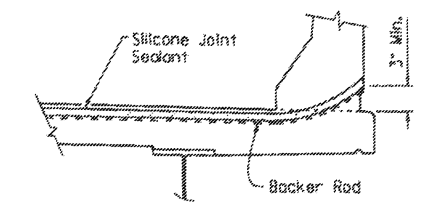


DETAIL OF POURED SILICONE JOINT

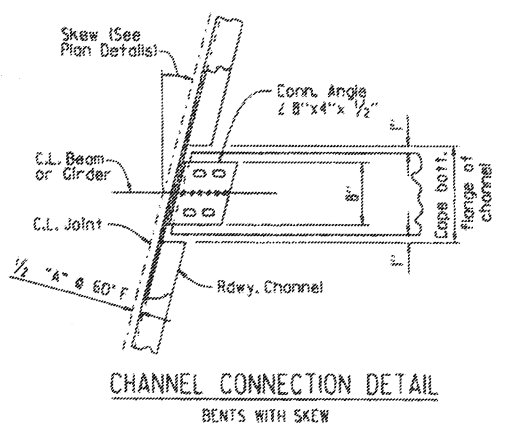
Silicone joint material and installation shall conform to Section 809. The temperature limitations recommended by the sealant Manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80° F.
 Use an appropriately sized backer rod at the depth shown in the Manufacturer's literature based on the joint width at the time of sealing. Unless otherwise noted, do not install more backer rod than can be sealed in the same day.
 The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.
 When bridge deck is constructed in stages, backer rods shall be extended beyond length of poured joint in initial construction stage so that the two pieces can be properly spliced together prior to installing sealant in subsequent stages. Manufacturer's recommendations shall be followed to prevent sealant from "running out of joint" during stage construction.



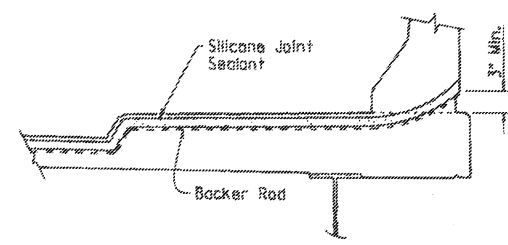
CHANNEL CONNECTION DETAIL
BENTS WITHOUT SKEW



JOINT SEAL PLACEMENT AT RAIL



CHANNEL CONNECTION DETAIL
BENTS WITH SKEW



JOINT SEAL PLACEMENT AT SIDEWALK

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|---------------------|-------|--------------------|-----------|--------------|
| 12-1-14 | | 1-15-19 | | 6 | ARK. | | | |
| 1-14-15 | | | | | | | | |
| 1-17-17 | | | | | | | | |

① TYPE D NAME PLATE 55010

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

| Line | Example 1 | Example 2 | Example 3 | Example 4 |
|--------|-----------|-----------|-----------|-----------|
| Line 1 | Red River | Southern | Saline | Highway 5 |
| Line 2 | Relief | Railroad | River | |
| Line 3 | | Overpass | Relief | |

GENERAL NOTES

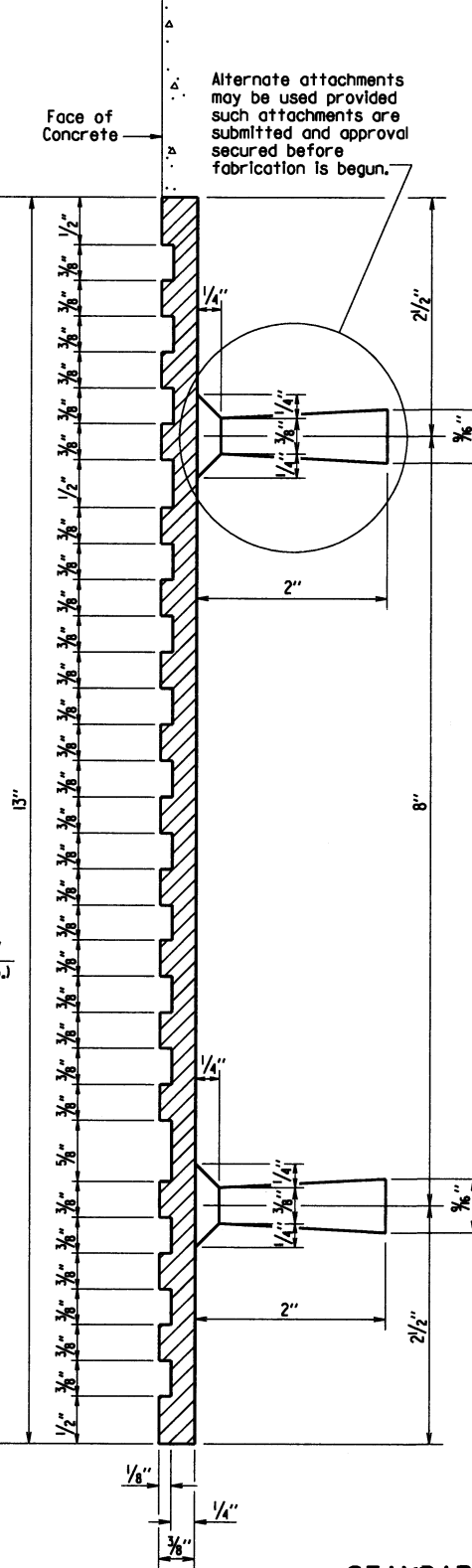
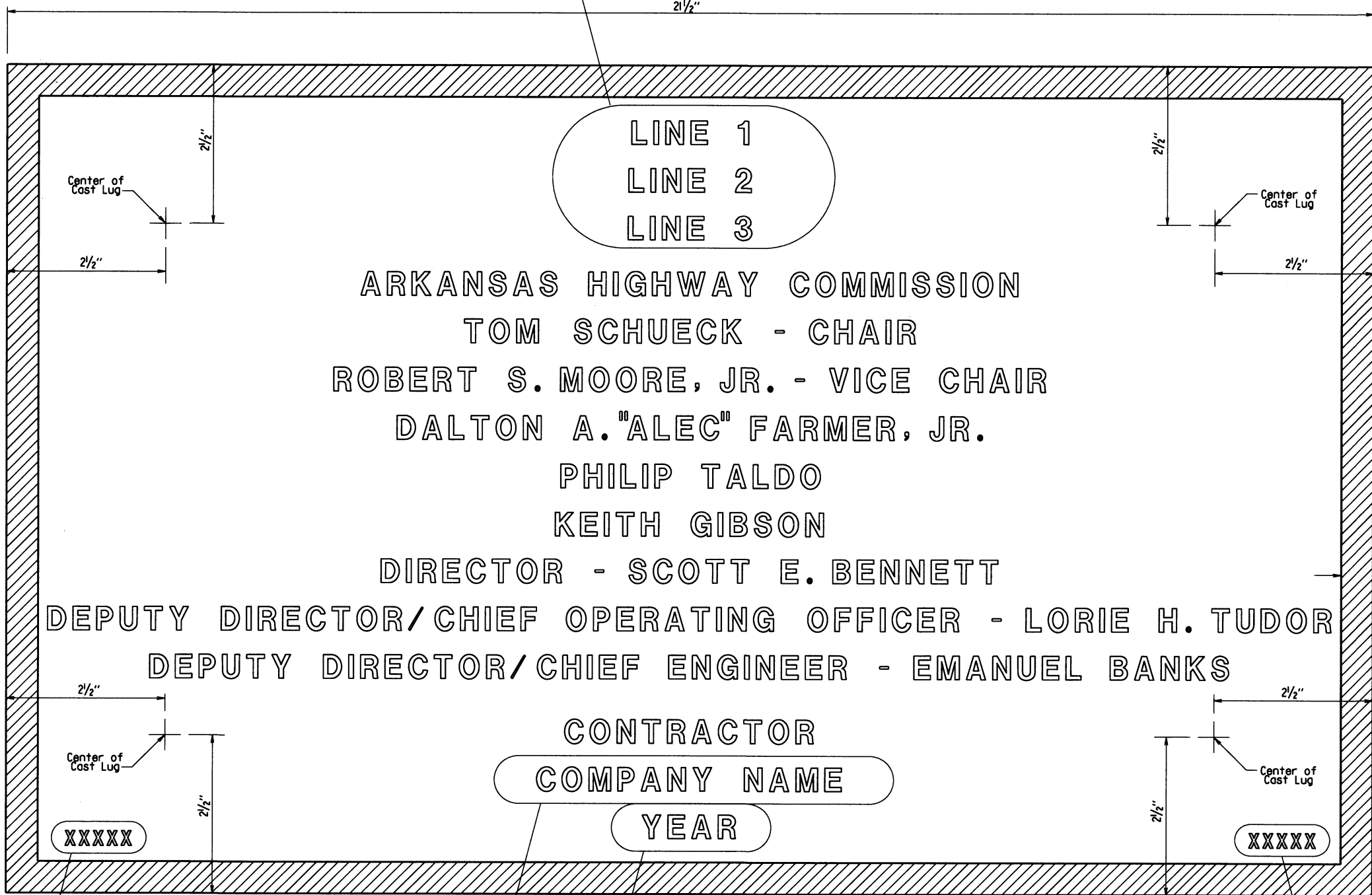
Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 5/8" 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.



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

- ▲ Revised Chair and Vice Chair Added New Commissioner
1-15-19 CGP Checked By: CRE
- ▲ Added New Commissioner
1-17-17 KDH Checked By: CRE
- ▲ Revised Chair and Vice Chair Added New Commissioner
1-14-15 KDH Checked By: CRE
- ▲ Revised Deputy Director/Chief Engineer Added Deputy Director/Chief Operating Officer
12-1-14 KDH Checked By: CRE

TYPICAL BRIDGE NAME PLATE

STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

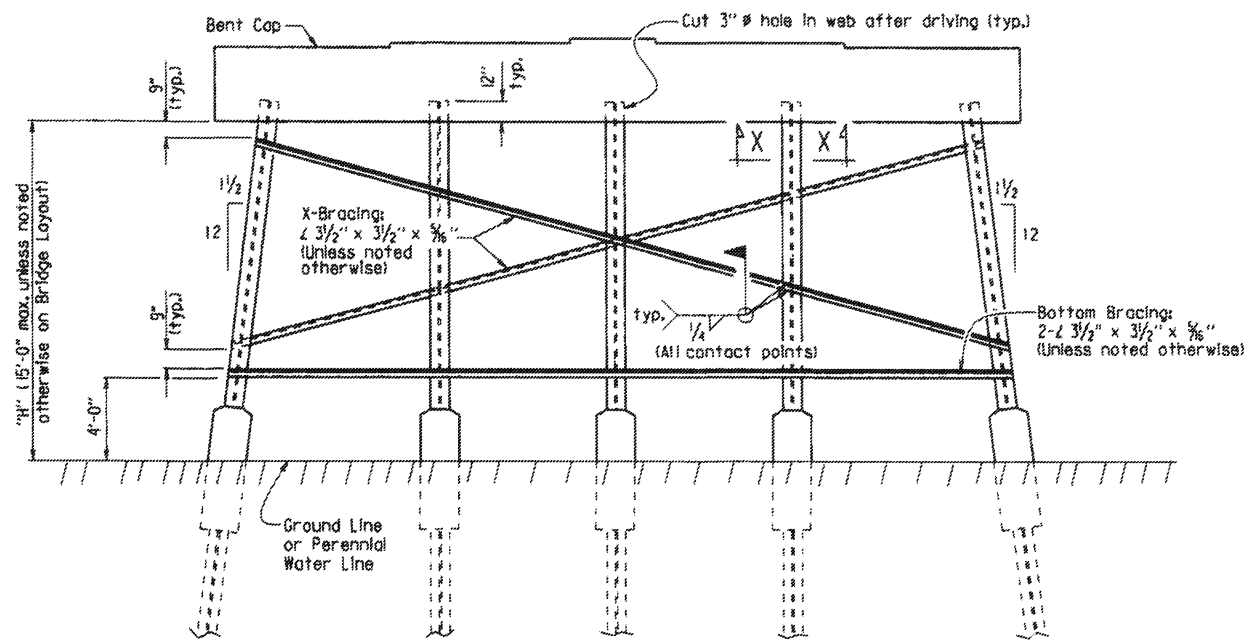
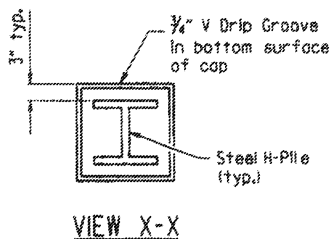
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
 CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
 DESIGNED BY: STD. DATE: _____

GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.

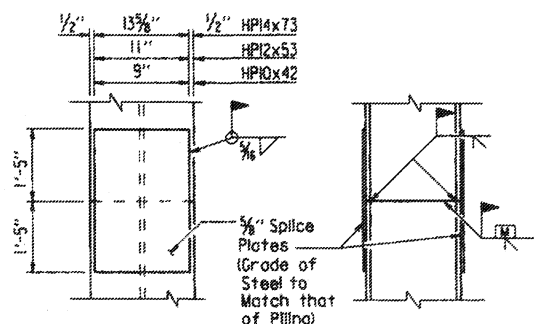
Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



Notes:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.
Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.
Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

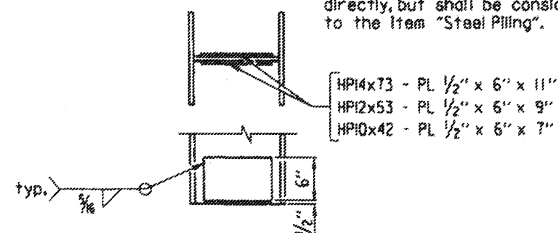
TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT
(Shown with Partial Height Encasement)



The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

H-pile splicers manufactured by Associated Pile and Fitting Corporation, LB Foster Piling, Skyline Steel or equivalent may be used in lieu of the "Typical Splice Details" shown. H-pile splicers shall match the same grade of steel specified for the piling and shall be welded to the pile with a 5/16 inch fillet weld around the entire perimeter of the splice. Flanges shall be welded with a complete penetration groove weld complying with AASHTO/AWS Joint Designation B-U4a or B-U4b. All welding shall conform to Subsection 807.26 of the AHTD Standard Specifications for Highway Construction (2014 Edition).



REINFORCING DETAIL FOR STEEL H-PILE TIP

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|---------------------|-------|--------------------|---------------|--------------|
| 3/24/16 | | | | 6 | ARK. | | | |
| JOB NO. | | | | | | | STEEL H-PILES | 55020 |

GENERAL NOTES FOR H-PILE ENCASEMENTS:

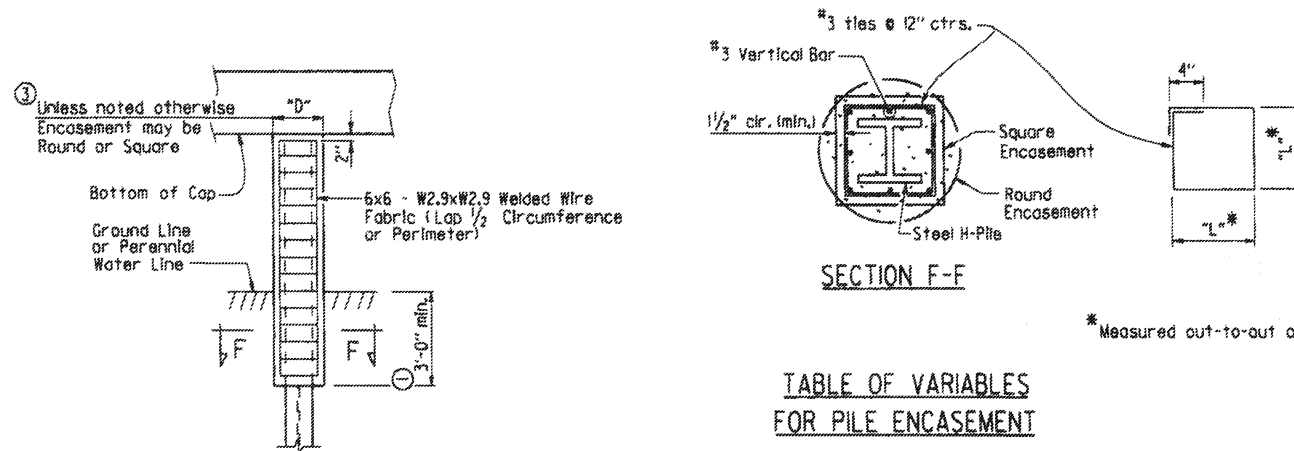
See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

All concrete shall be Class S with a minimum 28-day compressive strength, $f'_c = 3,500$ psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

Concrete, welded wire fabric or reinforcing steel and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



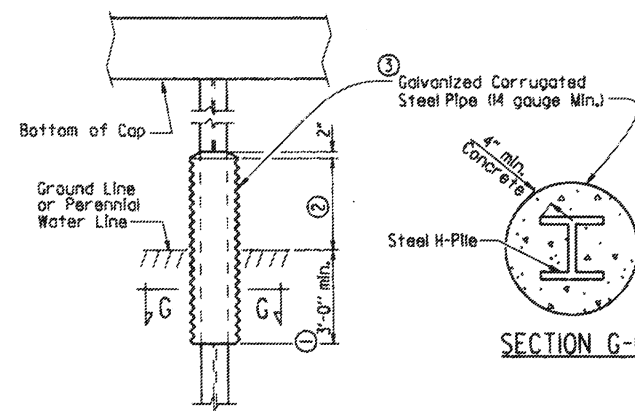
PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Encasement to Bottom of Cap)

TABLE OF VARIABLES FOR PILE ENCASEMENT

| Pile Size | "D" | | "L"* |
|-----------|---------------|--------------|-------|
| | Square Encmt. | Round Encmt. | |
| HPI0x42 | 1'-7" | 2'-0" | 1'-4" |
| HPI2x53 | 1'-8" | 2'-2" | 1'-5" |
| HPI4x73 | 1'-11" | 2'-6" | 1'-8" |

* Measured out-to-out of bar.

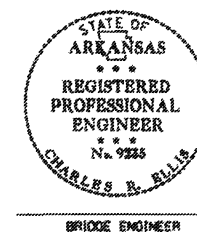


ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

- Unless otherwise noted on Bridge Layout.
- 3'-0" minimum or as shown on Bridge Layout.
- Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1 1/2" and a minimum clearance of 1/4" from the pile.
- Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

Added alternate method of splicing H-piles and revised pile encasement note. 3/24/2016 AMS



This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

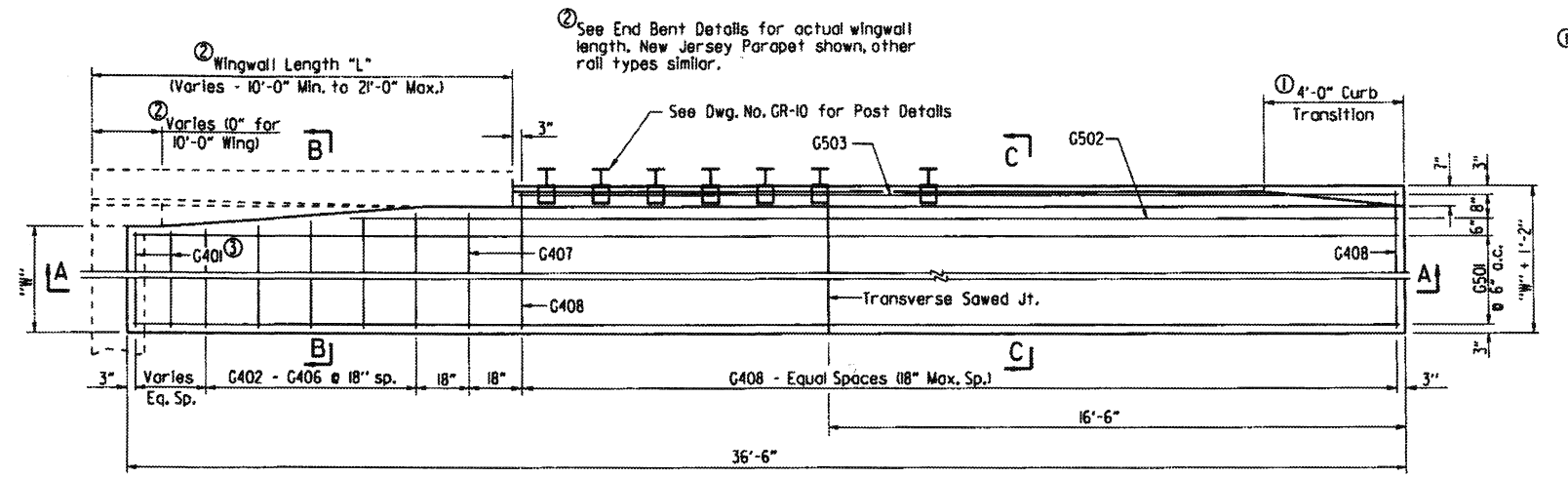
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

BRIDGE ENGINEER

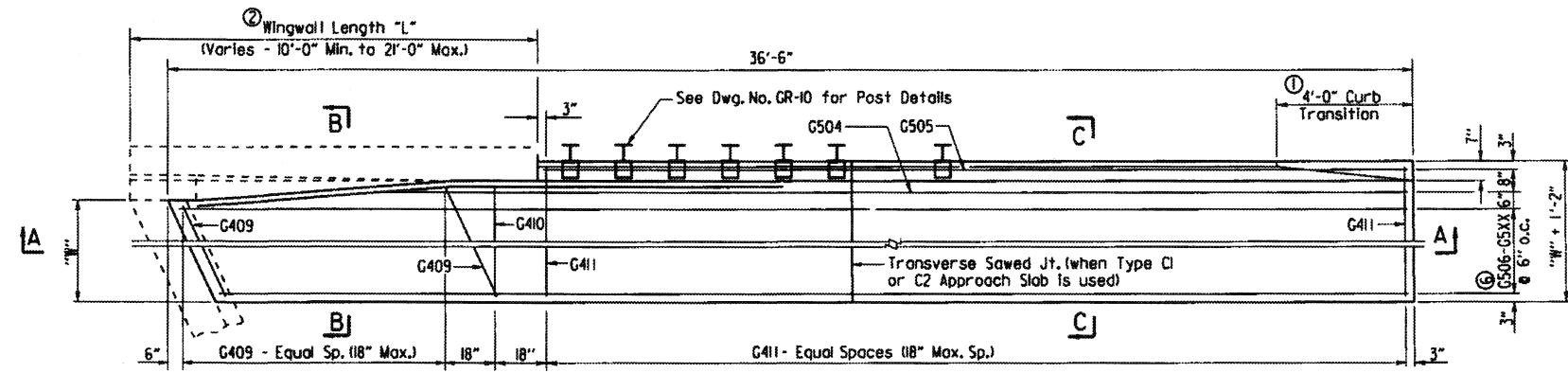
DRAWING NO. 55020

| 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. | | | | | | | TYPE C GUTTERS | 55030C |

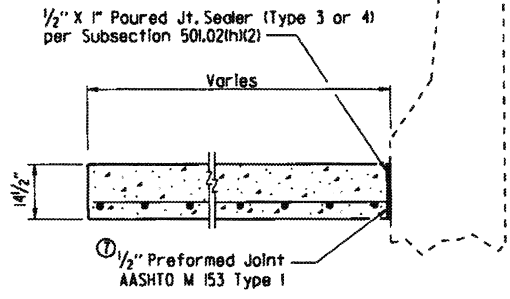


HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE

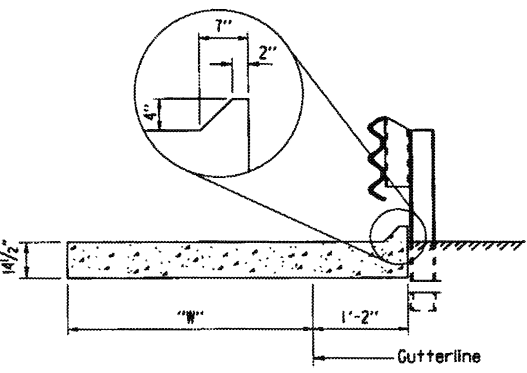
③ Provide G401 bars @ 18" max. spacing. Number of G401 bars vary with wingwall length. No G401 bars required for 10'-0" wingwalls.



PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE

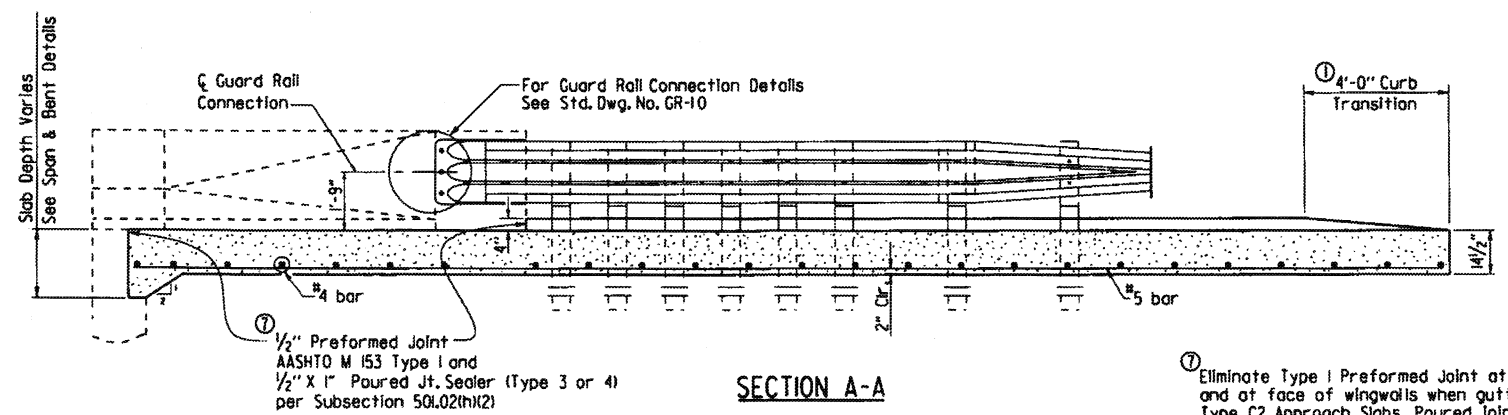


SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.
Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION A-A

① Eliminate Type 1 Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type C2 Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

Note:
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

BAR LIST FOR ONE TYPE C GUTTER

| Mark | No. Req'd. for Width "W" | | | | Length |
|-----------|--------------------------|--------|--------|--------|----------------------|
| | 4'-0" | 6'-0" | 8'-0" | 10'-0" | |
| G401 | 4 | 4 | 4 | 4 | "W" - 4" |
| G402-G406 | 1 each | 1 each | 1 each | 1 each | "W" - 3" to "W" + 2" |
| G407 | 1 | 1 | 1 | 1 | "W" + 3" |
| G408 | 4 | 4 | 4 | 4 | "W" + 10" |
| G501 | 8 | 12 | 16 | 20 | 36'-2" |
| G502 | 1 | 1 | 1 | 1 | (4" - 1") - "L" |
| G503 | 1 | 1 | 1 | 1 | (37'-2") - "L" |
| G409 | 4 | 4 | 4 | 4 | 5 |
| G410 | 1 | 1 | 1 | 1 | "W" + 3" |
| G411 | 4 | 4 | 4 | 4 | "W" + 10" |
| G504 | 1 | 1 | 1 | 1 | 5 |
| G505 | 1 | 1 | 1 | 1 | 5 |
| G506-G5XX | 1 each | 1 each | 1 each | 1 each | 5 |

- ④ No. Req'd. varies with Skew and Wingwall Length.
- ⑤ Bar Lengths vary with Skew and Wingwall Length.
- ⑥ G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'
G525 for "W" = 10'

QUANTITIES FOR ONE SQUARE APPROACH GUTTER (FOR INFORMATION ONLY)

| "W" Width (ft.) | Reinforcing Steel (Lbs.) | Concrete (Cu. Yds.) |
|-----------------|--------------------------|---------------------|
| 4 | 445 | 8.30 |
| 6 | 630 | 11.55 |
| 8 | 810 | 14.80 |
| 10 | 995 | 18.10 |

Quantities are based on "L" = 10'-0".

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.
Approach Gutters will be measured and paid for in accordance with Section 504.

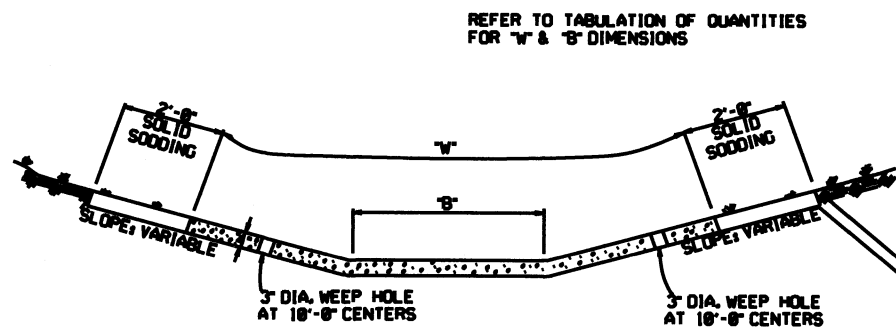
STANDARD DETAILS FOR TYPE C APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

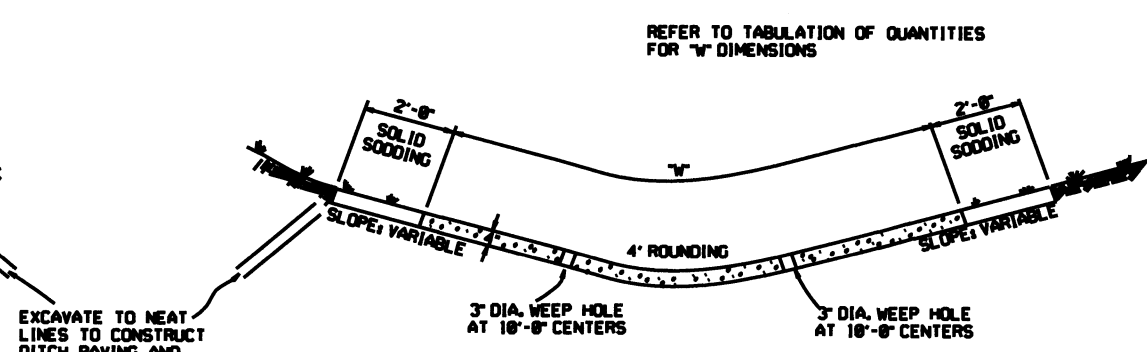
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030c.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: 1/4" = 1'-0"
DESIGNED BY: STD. DATE: or As Shown

DRAWING NO. 55030C



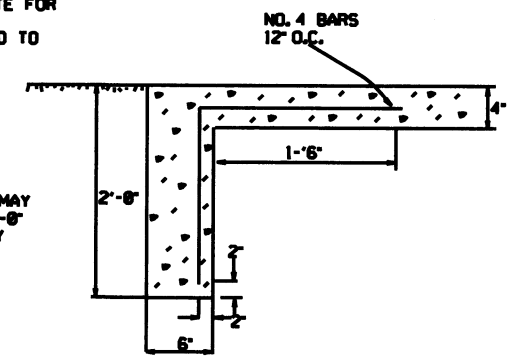
TYPE A



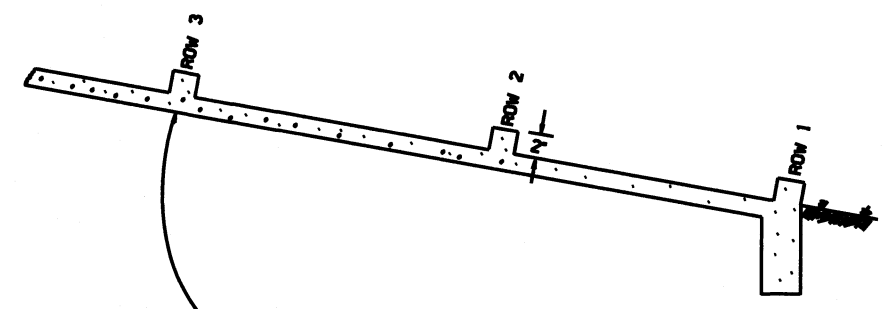
TYPE B

EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.

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."

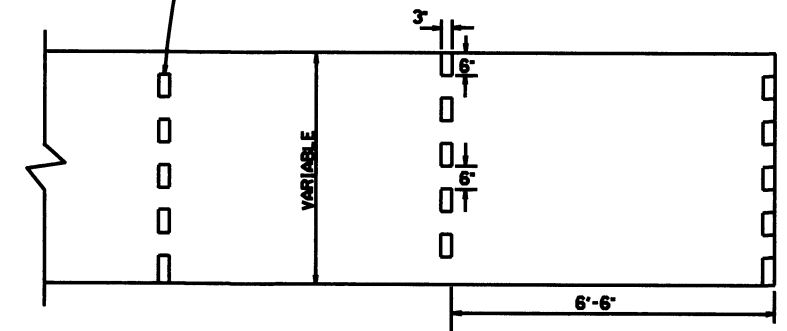


TOE WALL DETAIL FOR CONCRETE DITCH PAVING



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

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 INCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

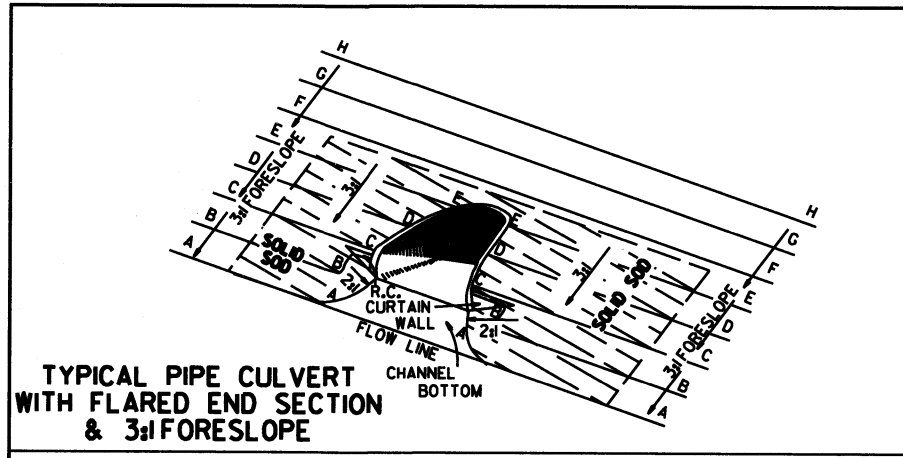
- THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.
- TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.
- SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.
- 1' WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

| NO. | DATE | REVISION | DATE FILED |
|----------|------|--|-------------|
| 11-2-15 | | CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE | |
| 11-17-16 | | ADDED GENERAL NOTE | |
| 6-2-24 | | ADDED GENERAL NOTE ABOUT SOLID SODDING | |
| 11-30-23 | | ESTIMATED CNR, ROWS OF ELEMENTS | 1111-30-89 |
| 7-15-88 | | REVISED DISSIPATOR NOTE | 683-7-15-88 |
| 4-8-87 | | REVISED ENERGY DISSIPATOR | 671-4-3-87 |
| 1-8-87 | | REVISED NOTE ON ENERGY DISS. | 682-1-3-87 |
| 11-1-86 | | ADDED NOTE TO ENERGY DISS. | 682-12-1-86 |
| 11-1-84 | | ENERGY DISSIPATOR DETAILS ADDED | 608-11-1-84 |
| 11-1-84 | | EXCAVATION DETAILS ADDED | |
| | | TYPED A & B | |
| 10-2-72 | | REVISED AND REDRAWN | 608-10-2-72 |
| | | DATE | DATE FILED |

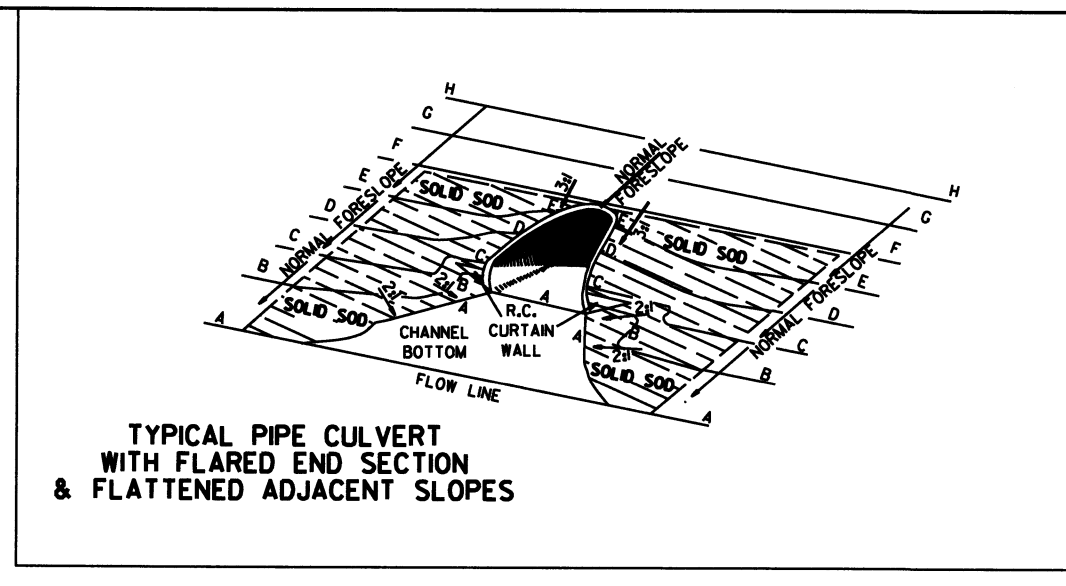
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

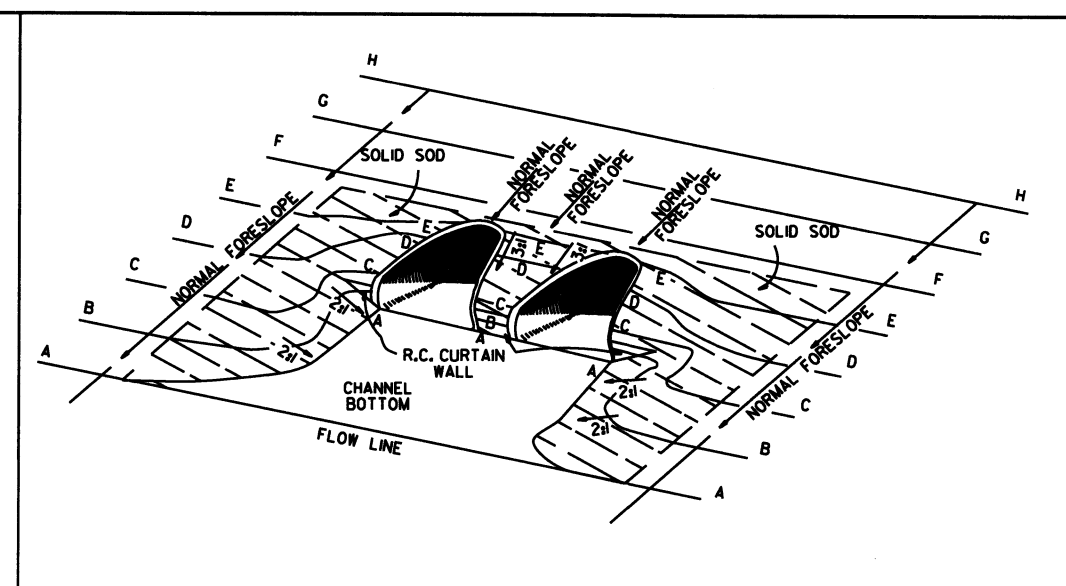
STANDARD DRAWING CDP-1



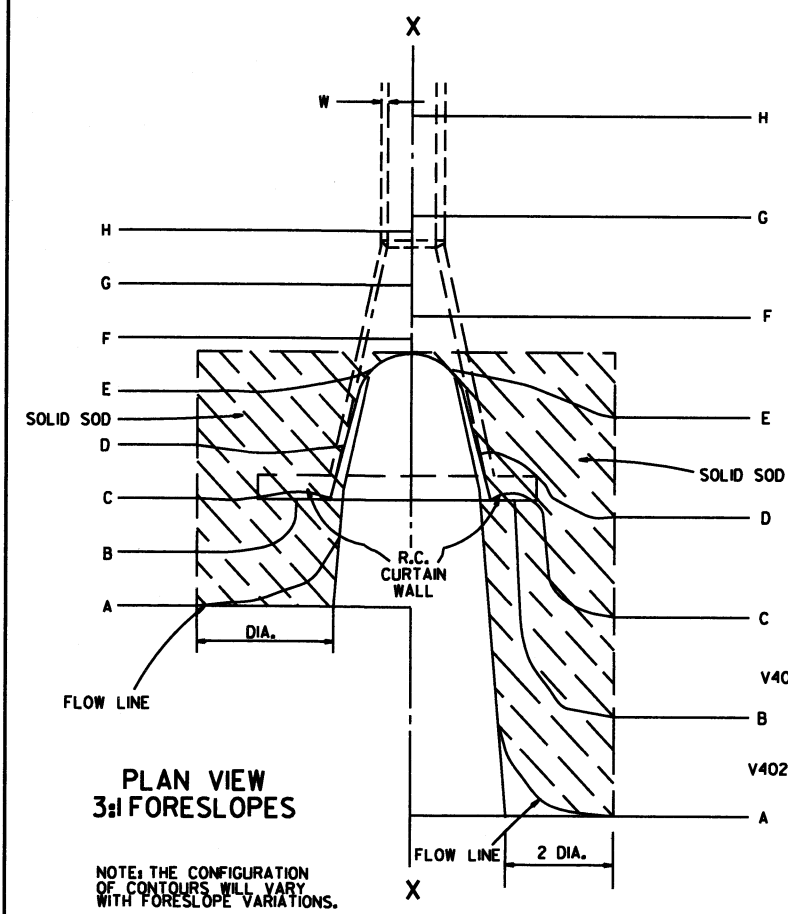
TYPICAL PIPE CULVERT WITH FLARED END SECTION & 3:1 FORESLOPE



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

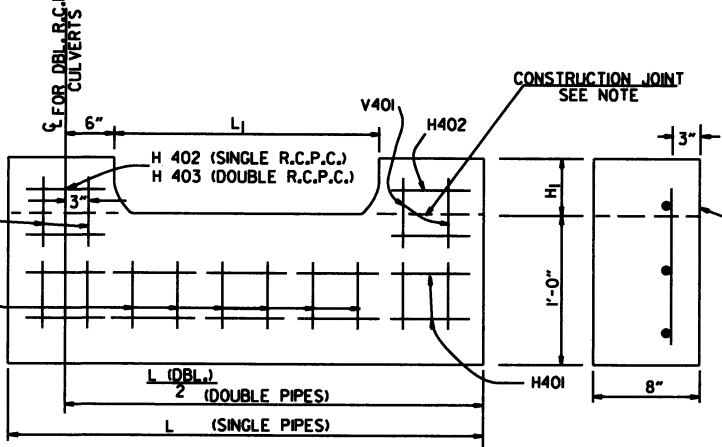
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

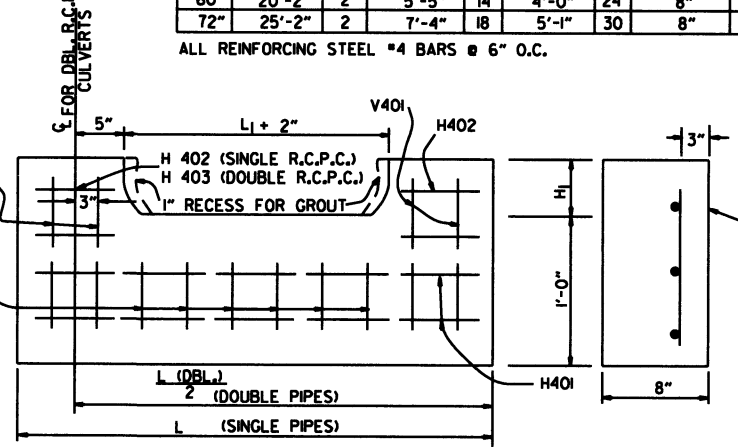
| PIPE DIA. | H ₁ | L ₁ | L | L (DBL.) 2 | SINGLE R.C.P.C. | | DOUBLE R.C.P.C. | |
|-----------|----------------|----------------|--------|---------------|-----------------|--------------|-----------------|--------------|
| | | | | | CONC. | REINF. STEEL | CONC. | REINF. STEEL |
| | | | | | CU. YDS. | LBS. | CU. YDS. | LBS. |
| 18" | 1 1/2" | 3'-5" | 8'-0" | 6'-3" | 0.31 | 27.7 | 0.45 | 39.5 |
| 24" | 1'-0 1/2" | 4'-6" | 9'-6" | 7'-6" | 0.37 | 33.4 | 0.53 | 48.0 |
| 30" | 1'-3 1/2" | 5'-7" | 11'-0" | 9'-0" | 0.45 | 39.0 | 0.67 | 59.0 |
| 36" | 1'-7" | 6'-8" | 13'-0" | 10'-6" | 0.58 | 52.6 | 0.83 | 73.9 |
| 42" | 2'-1 1/2" | 7'-3" | 15'-6" | 12'-0" | 0.82 | 77.1 | 1.10 | 100.7 |
| 48" | 2'-5" | 7'-10" | 17'-0" | 13'-0" | 0.98 | 94.9 | 1.27 | 120.4 |
| 54" | 2'-9 1/2" | 8'-5" | 18'-6" | 14'-0" | 1.16 | 115.8 | 1.47 | 143.7 |
| 60" | 3'-4" | 9'-0" | 20'-6" | 15'-6" | 1.47 | 149.7 | 1.84 | 180.3 |
| 72" | 4'-5" | 10'-2" | 25'-6" | 18'-6" | 2.31 | 232.6 | 2.73 | 271.0 |

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.



CAST-IN-PLACE

NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



PRECAST

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

R.C. CURTAIN WALL DETAILS

REINFORCING STEEL SCHEDULE

| PIPE DIA. | SINGLE R.C. PIPE CULVERT | | | | | | | | DOUBLE R.C. PIPE CULVERT | | | | | | | | | |
|-----------|--------------------------|-----|-----------|-----|-----------|-----|------|-----|--------------------------|-----|-----------|-----|------|-----|-----------|-----|----|----|
| | H401 | | H402 | | V401 | | V402 | | H401 | | H403 | | V401 | | V402 | | | |
| | L | NO. | L | NO. | L | NO. | L | NO. | L | NO. | L | NO. | L | NO. | L | NO. | | |
| 18" | 7'-8" | 2 | 1'-11/2" | 4 | 1'-7 1/2" | 8 | 8" | 8 | 12'-2" | 2 | 1'-11/2" | 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'-11/2" | 10 | 8" | 12 | 17'-8" | 2 | 2'-4 1/2" | 4 | 8" | 2 | 1'-11/2" | 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 |

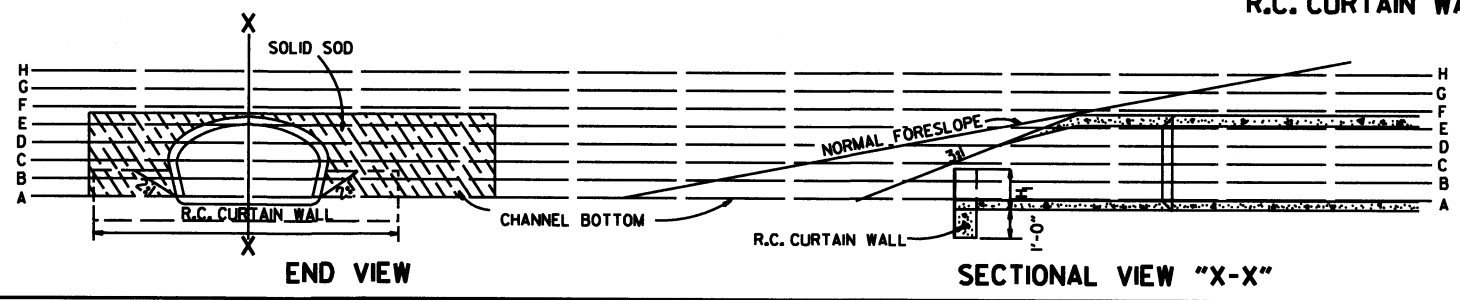
ALL REINFORCING STEEL #4 BARS @ 6" O.C.

SOLID SODDING

| PIPE DIA. | SINGLE R.C.P.C. | | | | | | DOUBLE R.C.P.C. | | | | | |
|-----------|-----------------|----------|----------|----------|----------|----------|-----------------|----------|----------|----------|----------|-----|
| | 3:1 | | 4:1 | | 6:1 | | 3:1 | | 4:1 | | 6:1 | |
| | SO. YDS. | SO. YDS. | SO. YDS. | SO. YDS. | SO. YDS. | SO. YDS. | SO. YDS. | SO. YDS. | SO. YDS. | SO. YDS. | SO. YDS. | |
| 18" | 5 | 12 | 12 | 6 | 8 | 13 | 5 | 12 | 12 | 6 | 8 | 13 |
| 24" | 8 | 17 | 15 | 9 | 13 | 20 | 8 | 17 | 15 | 9 | 13 | 20 |
| 30" | 13 | 25 | 25 | 14 | 19 | 30 | 13 | 25 | 25 | 14 | 19 | 30 |
| 36" | 17 | 35 | 41 | 18 | 28 | 43 | 17 | 35 | 41 | 18 | 28 | 43 |
| 42" | 23 | 48 | 55 | 25 | 37 | 57 | 23 | 48 | 55 | 25 | 37 | 57 |
| 48" | 29 | 65 | 75 | 31 | 48 | 70 | 29 | 65 | 75 | 31 | 48 | 70 |
| 54" | 35 | 85 | 95 | 37 | 59 | 87 | 35 | 85 | 95 | 37 | 59 | 87 |
| 60" | 45 | 110 | 125 | 48 | 75 | 107 | 45 | 110 | 125 | 48 | 75 | 107 |
| 72" | 64 | 150 | 175 | 67 | 105 | 159 | 64 | 150 | 175 | 67 | 105 | 159 |

NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.

- GENERAL NOTES
- 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.
 - ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
 - 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.
 - WELDED WIRE MESH 3 x 3 W/10 x W/10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

SECTIONAL VIEW "X-X"

| | |
|--|-----------------------------------|
| 10-18-96 ADDED NOTE TO SOLID SODDING | ARKANSAS STATE HIGHWAY COMMISSION |
| 10-12-95 CORRECTED SPELLING | |
| 11-1-94 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 | |
| DATE | REVISION |
| | FILMED |
| | STANDARD DRAWING FES-1 |

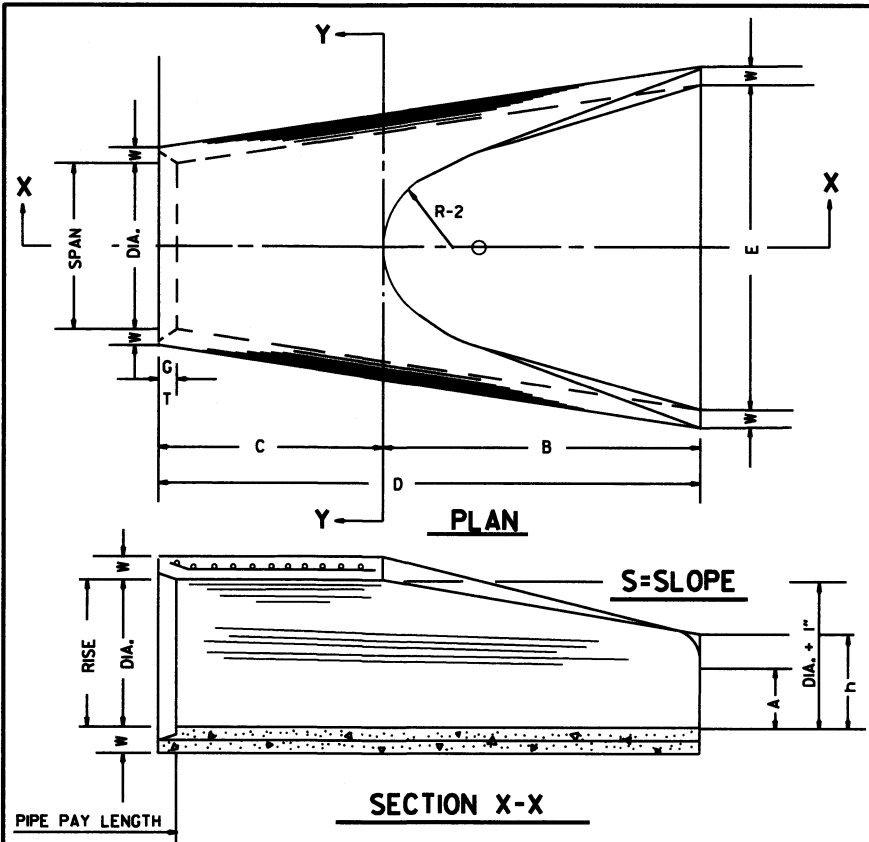


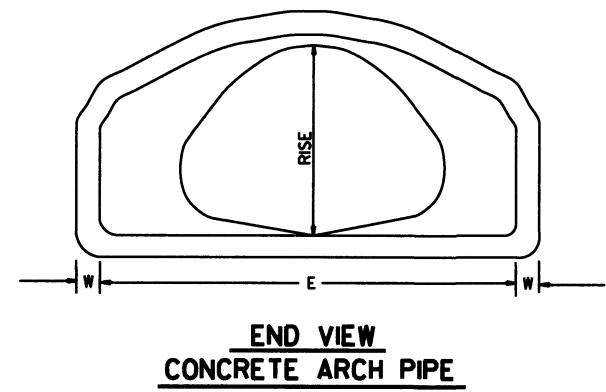
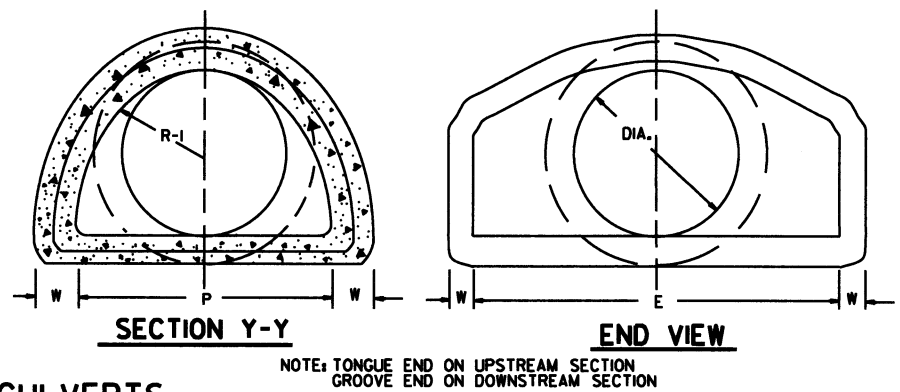
TABLE OF DIMENSIONS

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

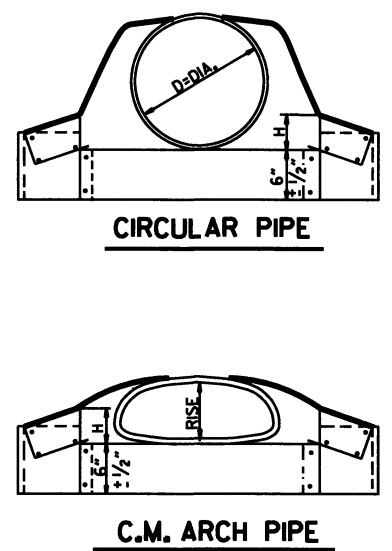
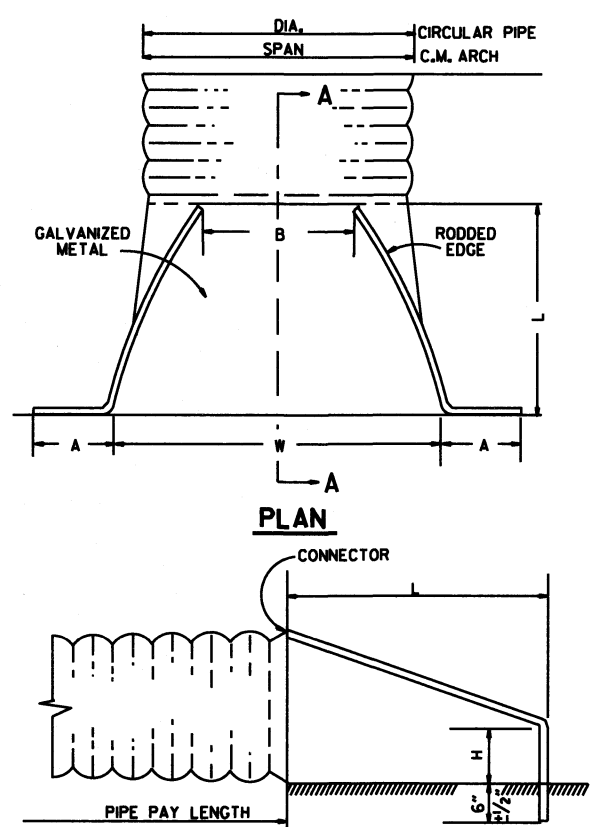
ARCH PIPE

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

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



END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

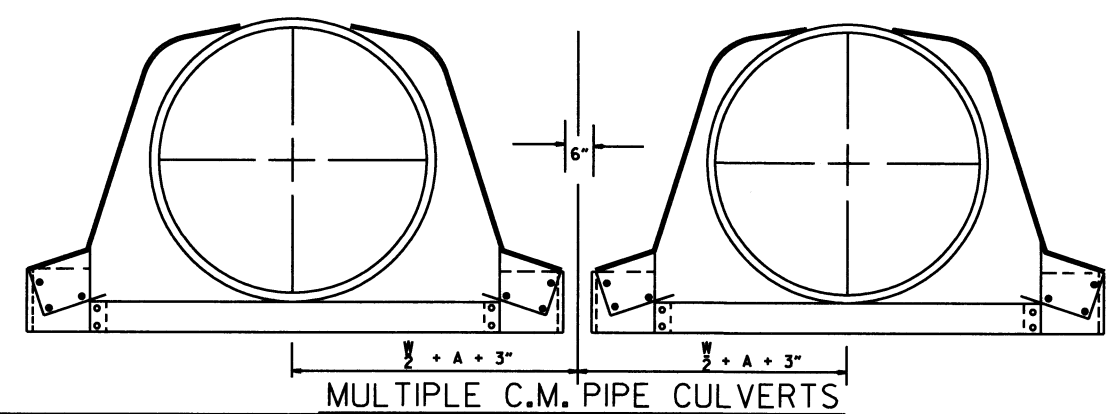
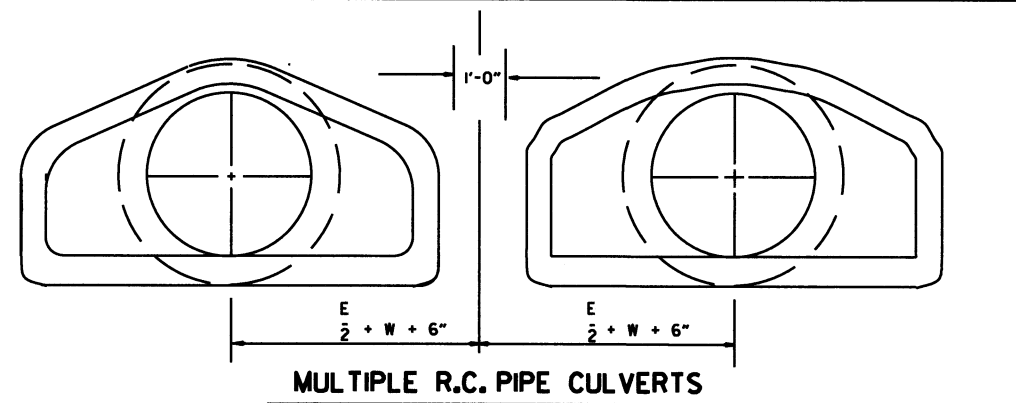


CIRCULAR PIPE

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

C.M. ARCH PIPE

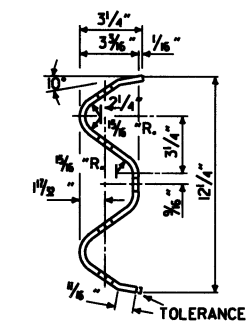
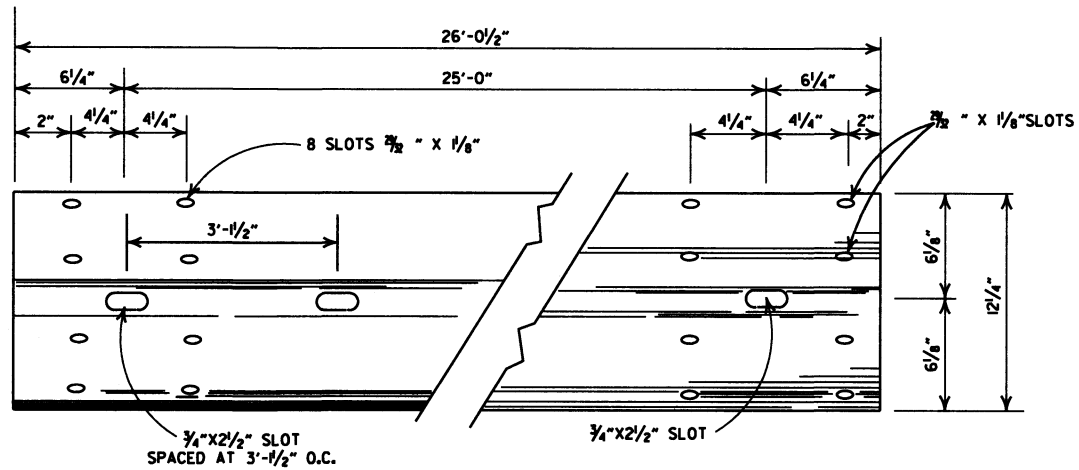
| EQUIV. DIA. | SPAN | RISE | A 1" ± | B. MAX. | H 1" ± | L 1/2" ± | W ± | S | GAUGE |
|-------------|------|------|--------|---------|--------|----------|-----|---------|-------|
| 15" | 17 | 13 | 7 | 9 | 6 | 19 | 30 | 2 1/2#1 | 16 |
| 18" | 21 | 15 | 7 | 10 | 6 | 23 | 36 | 2 1/2#1 | 16 |
| 21" | 24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

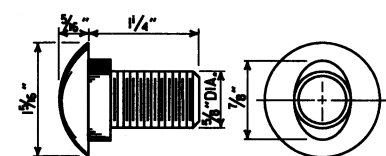
END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS

| | | | |
|----------|---|-------------|-----------------------------------|
| 10-18-96 | REVISED ASTM REF. TO AASHTO | | |
| 5-15-80 | REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S. | 664-5-15-80 | ARKANSAS STATE HIGHWAY COMMISSION |
| 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 | FLARED END SECTION |
| 12-5-74 | REMOVED NOTE RE REIN. 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 | STANDARD DRAWING FES-2 |
| DATE | REVISION | FILE NO. | |

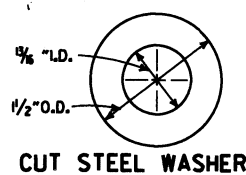


DETAILS OF W-BEAM GUARD RAIL

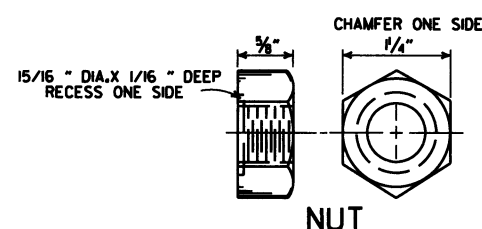
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



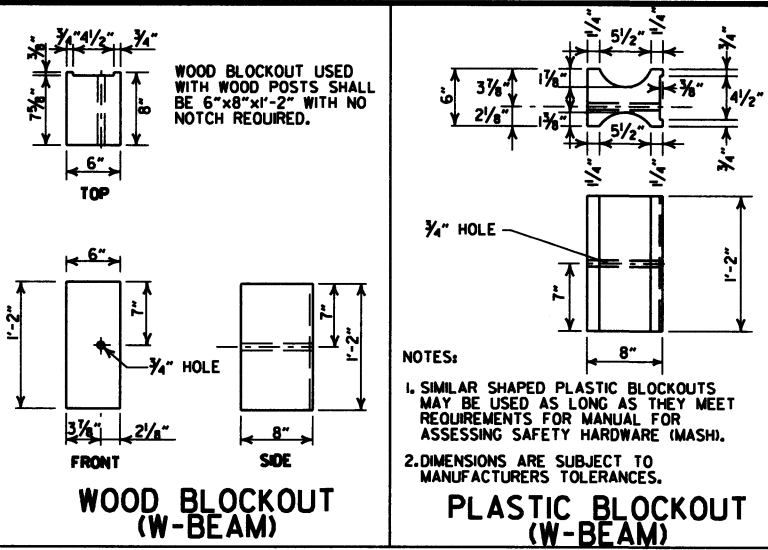
**SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH**



CUT STEEL WASHER



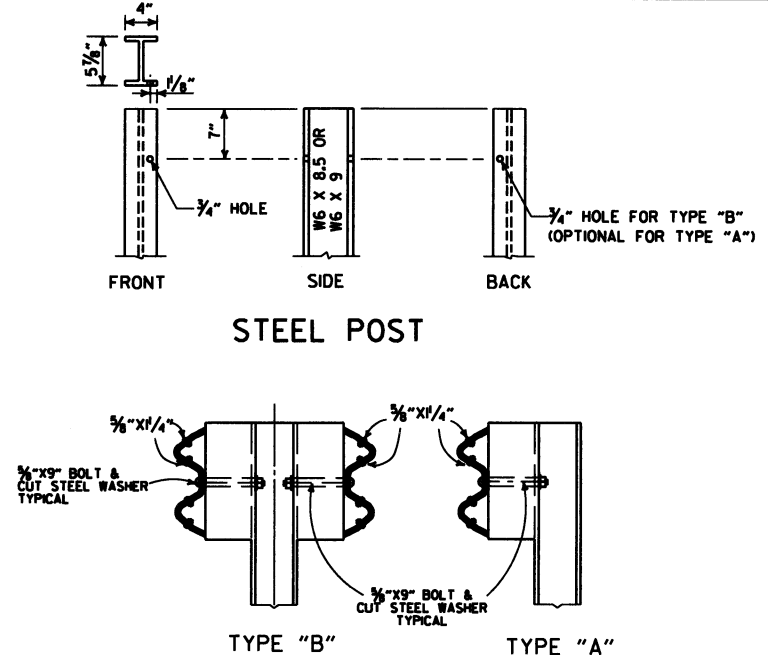
NUT



WOOD BLOCKOUT (W-BEAM)

PLASTIC BLOCKOUT (W-BEAM)

NOTES:
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.



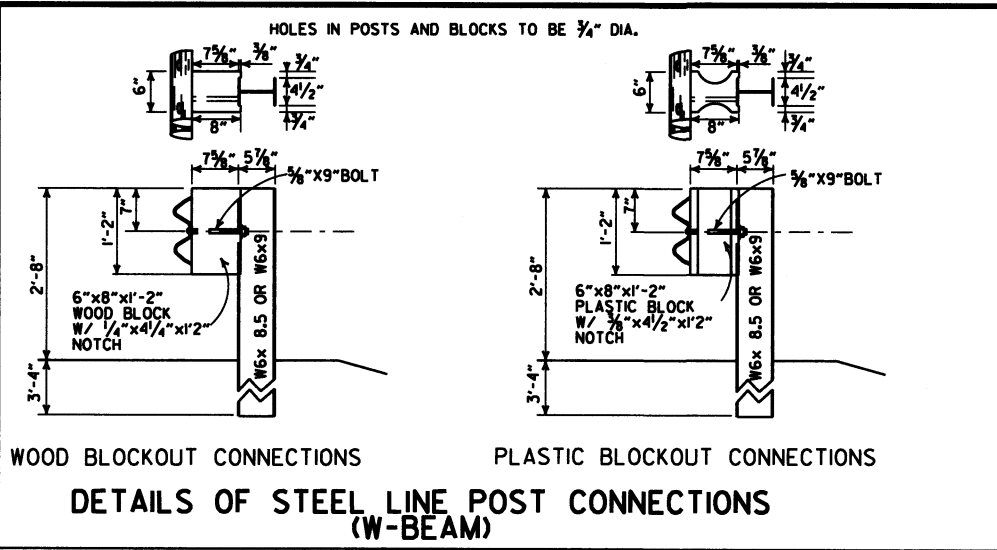
STEEL POST

TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

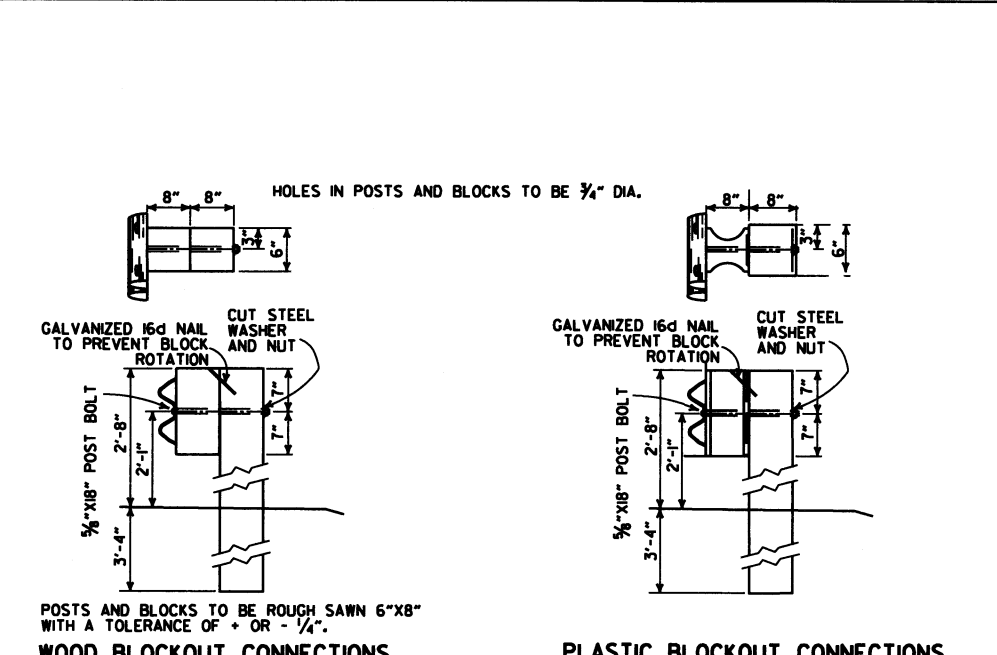
ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 1/4" BEYOND IT.
WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.
W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST.
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 REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.



WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

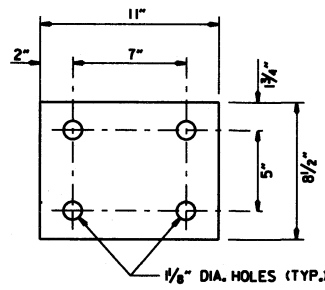
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

| | | |
|----------|---|--------------|
| 11-16-17 | REVISED GENERAL NOTES AND RAISED GUARD RAIL HEIGHT 3" | |
| 07-14-10 | RAISED HEIGHT OF GUARD RAIL 1" | |
| 10-15-09 | ADDED REFERENCE TO MASH | |
| 04-10-03 | REVISED GENERAL NOTES | |
| 08-22-02 | REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & STEEL POST | |
| 11-16-01 | REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS | |
| 03-30-00 | REMOVED GUARD RAIL AT BRIDGE ENDS | |
| 01-12-00 | ADDED PLASTIC BLOCKOUT | |
| 08-12-98 | 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 CONC. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES | |
| 04-03-97 | REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS | |
| 10-18-96 | REVISED WOOD POST NOTE | |
| 06-02-94 | ADDED ALT. STEEL POST SIZE | |
| 08-02-93 | REVISED STEEL POST SIZE | 8-5-93 |
| 10-01-92 | REDRAWN & REVISED | 10-1-92 |
| 08-15-91 | REVISED WASHER NOTE | 8-15-91 |
| 08-02-90 | REV. GEN. NOTE & DEPTH OF ANC. POST IN ROCK | 8-2-90 |
| 07-15-88 | REVISED SECTION 3 & GENERAL NOTES | |
| 03-04-88 | REV. ANCHOR POST ELEV. NOTES & POST IN ROCK | 780-3-4-88 |
| 10-30-87 | REVISED WOOD LINE POST DETAIL | 546-10-30-87 |
| 10-09-87 | REDRAWN & REVISED | 802-10-9-87 |
| DATE | REVISION | FILED |

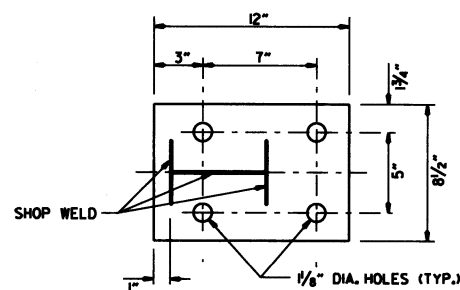
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8

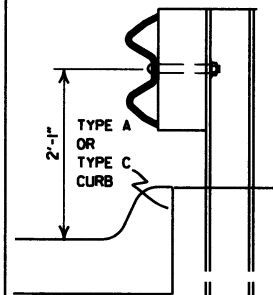


WASHER PLATE

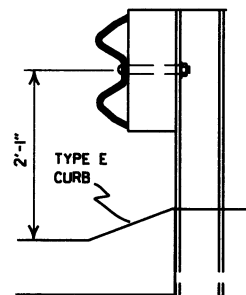


BASE PLATE

Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.



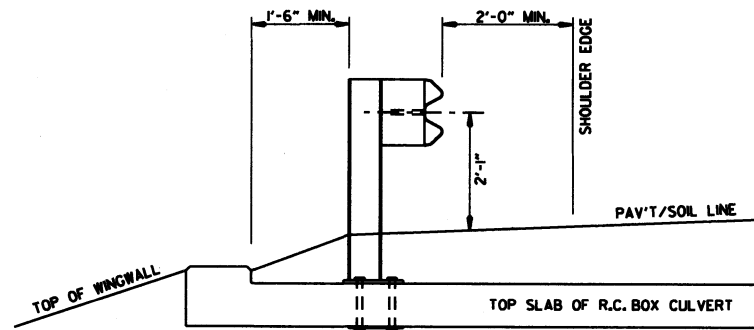
FOR DESIGN SPEEDS OF 50 MPH OR LESS
ALIGN FACE OF GUARD RAIL WITH FACE OF CURB.



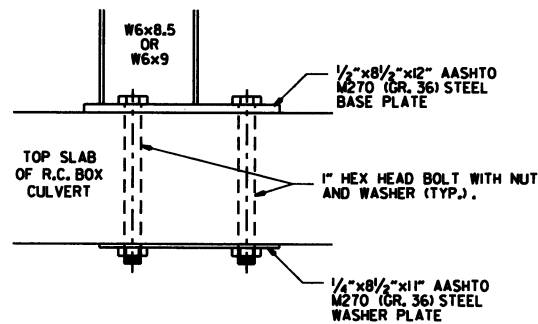
FOR DESIGN SPEEDS OF 55 MPH OR MORE
PLACE GUARD RAIL POSTS AGAINST BACK OF CURB.

DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

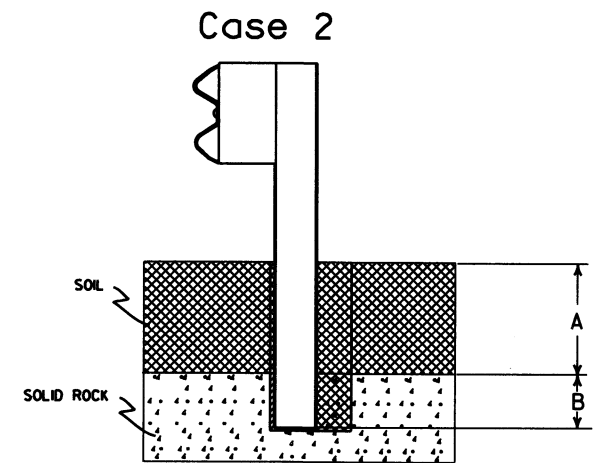
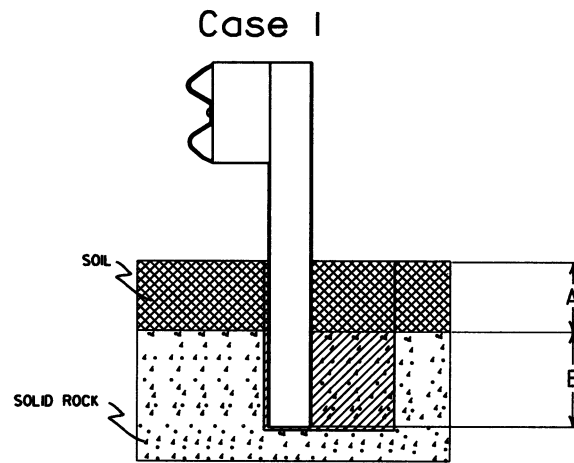
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A

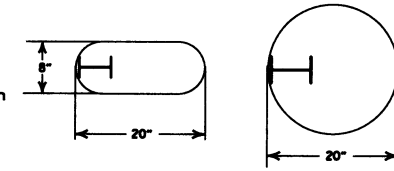


DETAIL OF CONNECTION



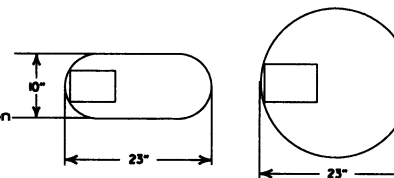
Plan View Steel Posts

Either hole configuration acceptable



Plan View Wood Posts

Either hole configuration acceptable



Note: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

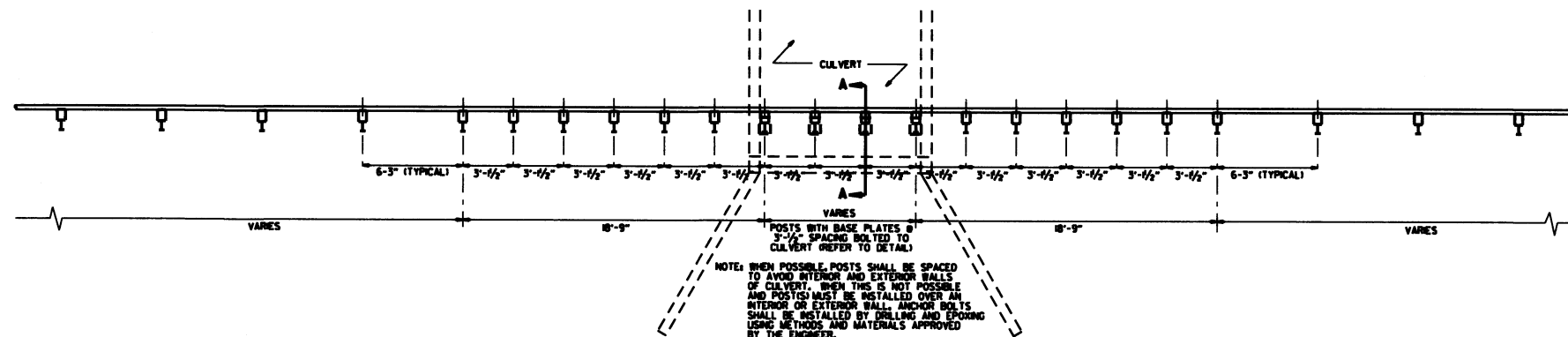
Zone A: Backfill according to Section 617.03(a).

Zone B: Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.

Note: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

Zone A & B: Backfill according to Section 617.03(a).

DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)



PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

Note: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DRWG. GR-8.

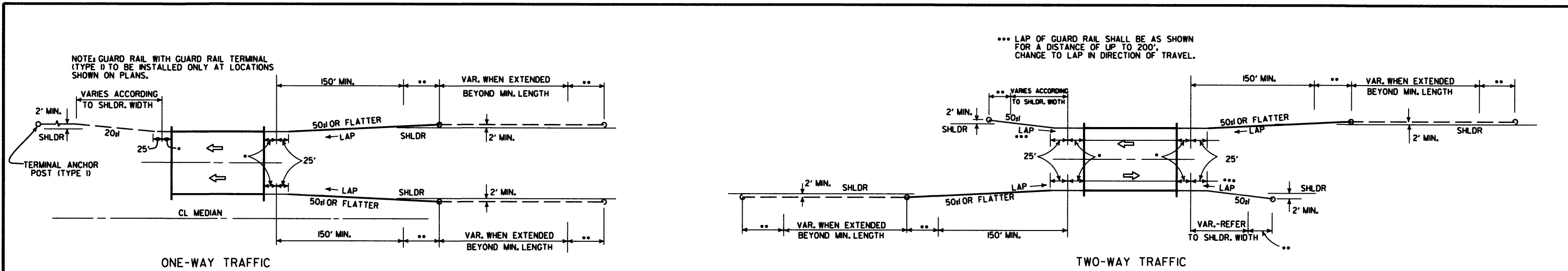
NOTE: WHEN POSSIBLE, POSTS SHALL BE SPACED TO AVOID INTERIOR AND EXTERIOR WALLS OF CULVERT. WHEN THIS IS NOT POSSIBLE AND POSTS MUST BE INSTALLED OVER AN INTERIOR OR EXTERIOR WALL, ANCHOR BOLTS SHALL BE INSTALLED BY DRILLING AND EPOXYING USING METHODS AND MATERIALS APPROVED BY THE ENGINEER.

| DATE | REVISION | FILMED |
|----------|--|--------------|
| 11-16-17 | REVISED GUARD RAIL HEIGHT | |
| 07-14-10 | RAISED HEIGHT OF GUARD RAIL 1" | |
| 04-12-07 | REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB | |
| 11-10-05 | ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION | |
| 11-18-04 | REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS | |
| 03-30-00 | REMOVED CONCRETE INSERT ANCHOR | |
| 08-12-98 | CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADDED DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULV'T., DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POSTPLACE. IN SOLID ROCK | |
| 04-03-96 | PLACED ARROWS AT CUT STEEL WASHERS | 4-3-96 |
| 10-18-95 | REV. ASTM REF. TO AASHTO | |
| 11-23-95 | ADDED OPTIONAL HOLES | |
| 06-02-94 | REVISED ALTERNATE POST SIZE | |
| 08-05-93 | REVISED STEEL POST SIZE | |
| 10-01-92 | REDRAWN & REVISED | 10-1-92 |
| 08-02-90 | DEL. WASHER ON ANCHOR ASSEMBLY | 8-2-90 |
| 07-15-88 | CONFORMED TO 1988 SPECS | |
| 03-04-88 | REVISED ANCHOR NOTE | |
| 10-30-87 | REVISED ANCHOR ASSEMBLY | 712-10-30-87 |
| 10-30-87 | REVISED PLACEMENT BEHIND CURB | 547-10-30-87 |
| 10-09-87 | REDRAWN & REVISED | 803-10-9-87 |

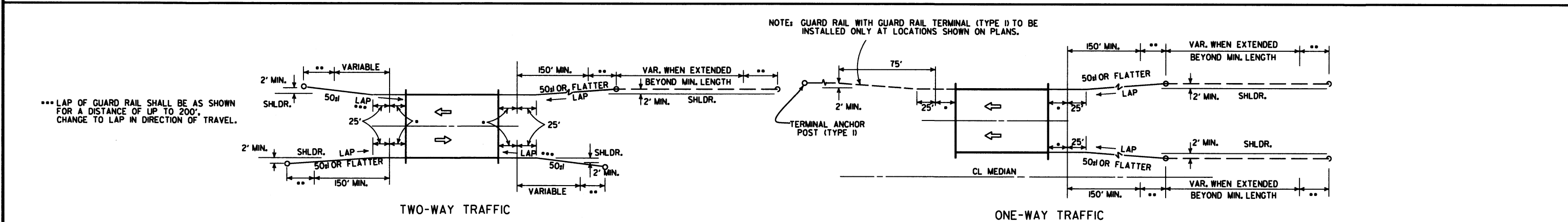
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

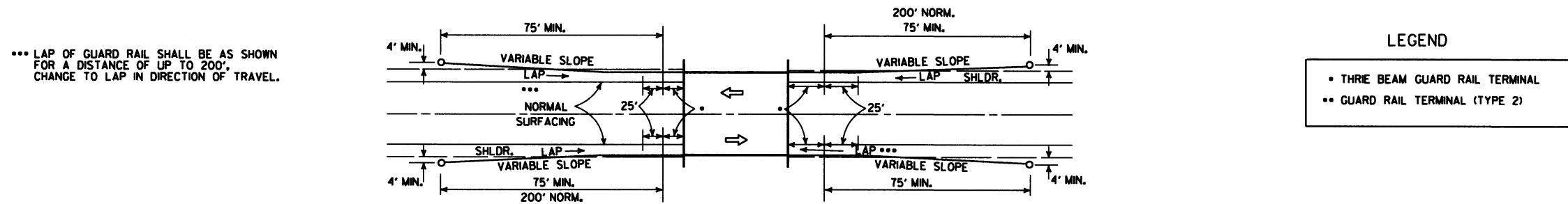
STANDARD DRAWING GR-8A



METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

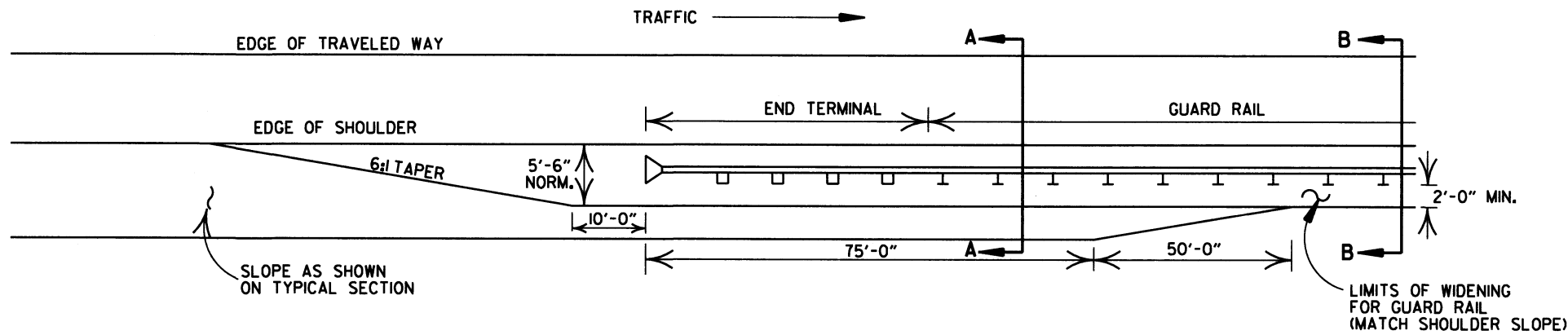


METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

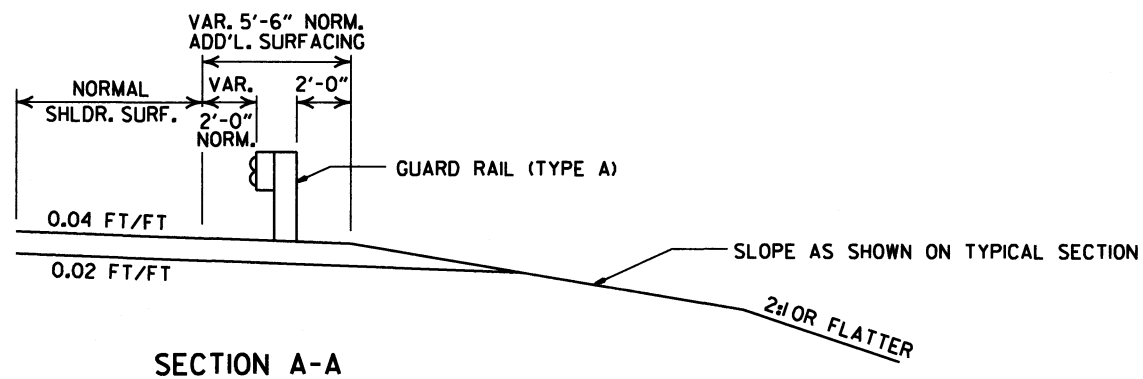


METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

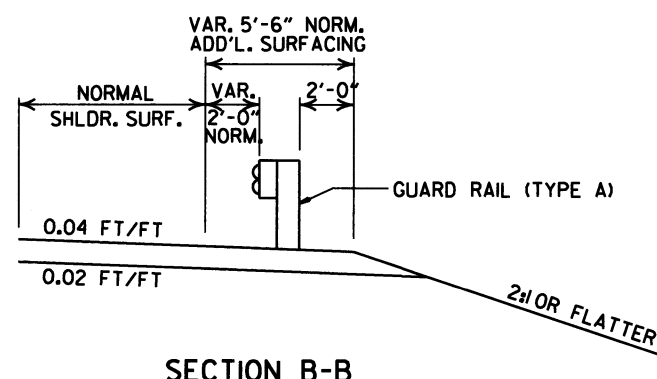
| | | |
|-----------------------------------|--|-----------|
| ARKANSAS STATE HIGHWAY COMMISSION | | |
| GUARD RAIL DETAILS | | |
| STANDARD DRAWING GR-9 | | |
| 4-17-08 | REVISED LAYOUTS | |
| 8-10-05 | REMOVED GUARD RAIL NOTES AND DETAILS | |
| 8-16-01 | DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. 1) | |
| 1-12-00 | ADDED CONSTRUCTION NOTE | 1-12-00 |
| 6-26-97 | REVISED LAYOUT | |
| 10-1-92 | REDRAWN & REVISED | 10-1-92 |
| 10-9-87 | ADDED NOTE | |
| 10-9-87 | REDRAWN & REVISED | |
| DATE | REVISION | DATE FILM |



NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

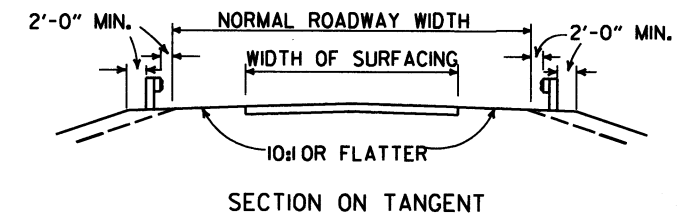


SECTION A-A

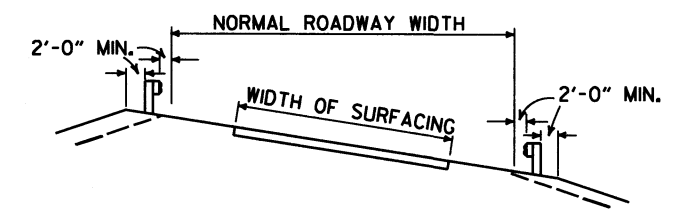


SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

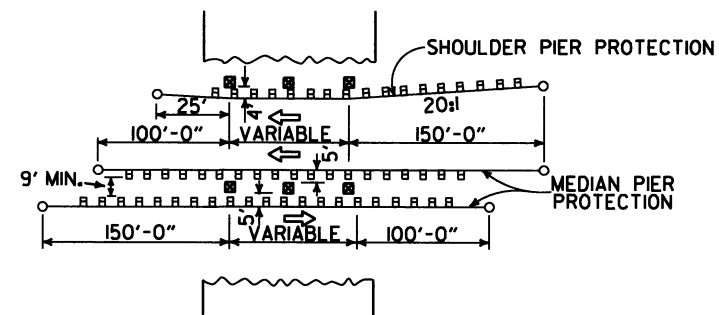


SECTION ON TANGENT



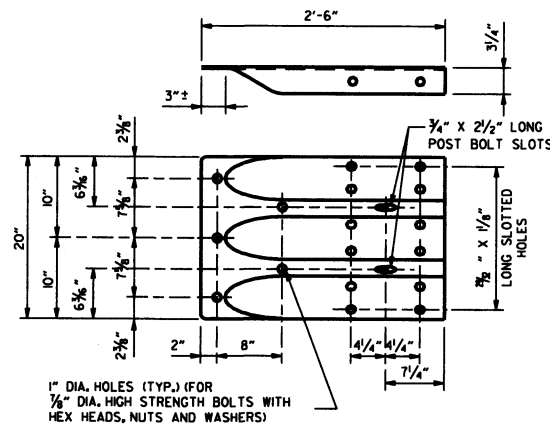
SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY

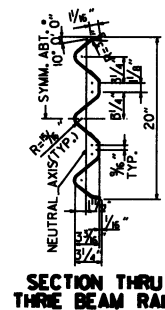


METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

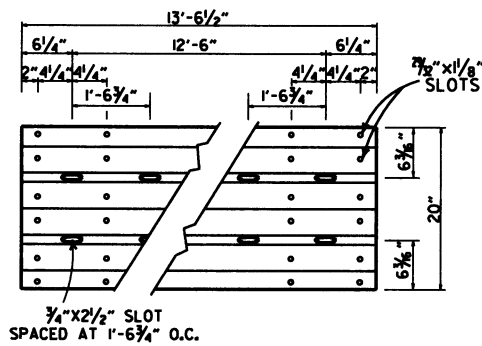
| | | | | | |
|----------|----------------|--|--|-----------------------------------|------|
| | | | | ARKANSAS STATE HIGHWAY COMMISSION | |
| | | | | GUARD RAIL DETAILS | |
| | | | | STANDARD DRAWING GR-9A | |
| 4-17-08 | MINOR REVISION | | | | |
| 11-10-05 | DRAWN | | | | |
| DATE | REVISION | | | DATE | FILM |



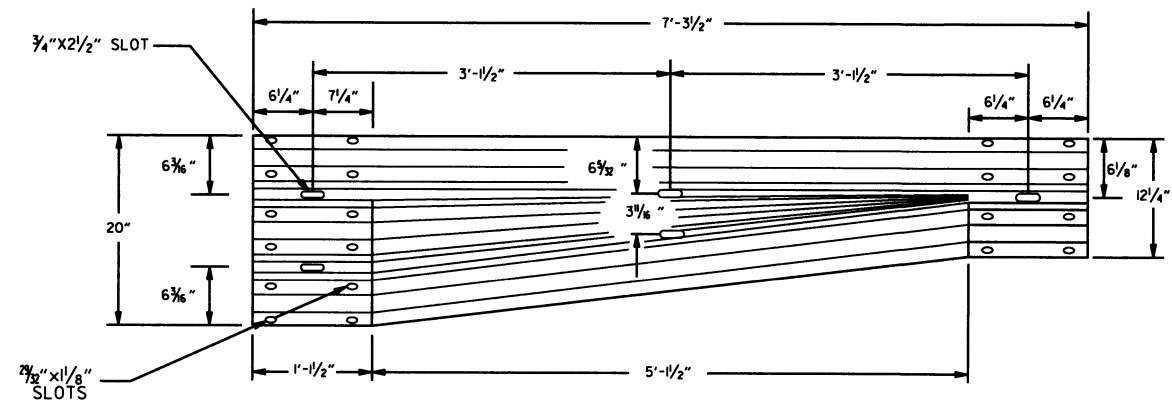
SPECIAL END SHOE



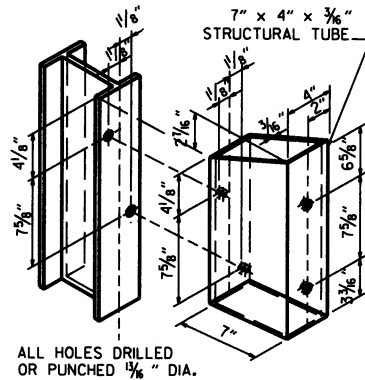
SECTION THRU THREE BEAM RAIL



THREE BEAM RAIL

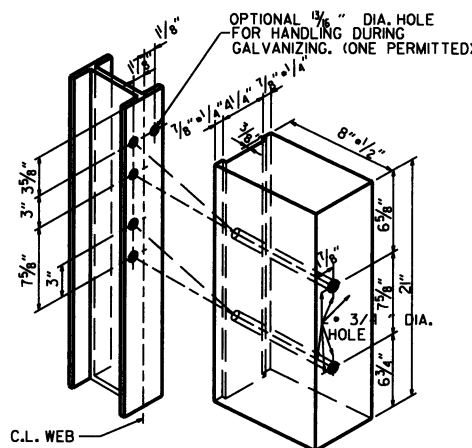


TRANSITION SECTION



ATTACH BLOCKOUT TO POST USING 3/8" DIA. HEX HEAD BOLTS WITH 1/2" O.D. CUT STEEL WASHERS AND NUT.

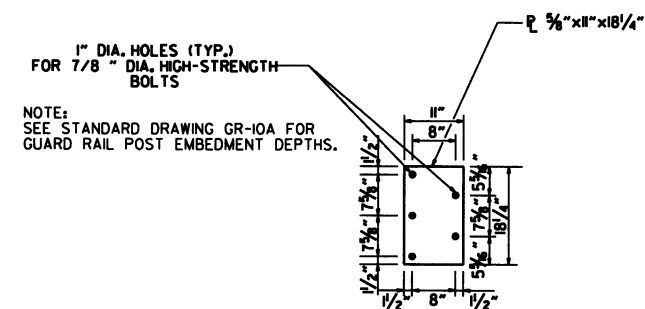
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 3/8" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

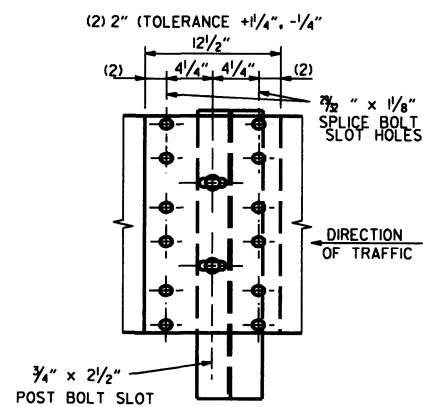
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



NOTE: SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.

CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING 3/8" 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.



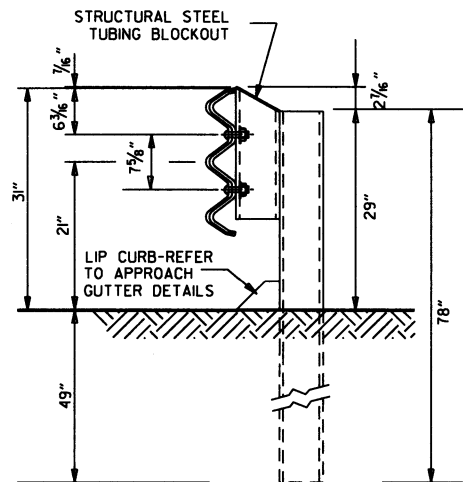
THREE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

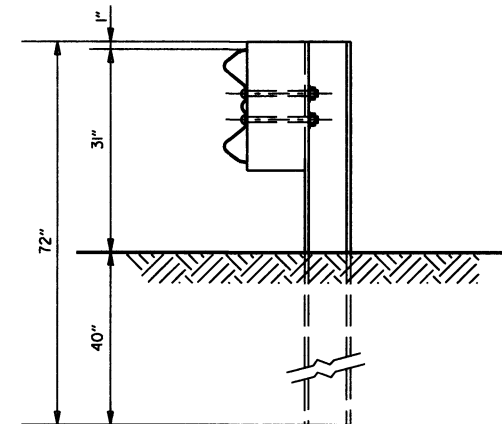
- THE THREE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I.
- RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.
- ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3"4" BEYOND IT.
- ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-13.
- REFER TO STD. DRWG. GR-11 FOR POST DETAILS.
- USE THREE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.
- THREE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.
- WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7F (400 F) OR NO. 1 1350 F SOUTHERN PINE.

| DATE | REVISION | FILED |
|----------|--|-------|
| 11-16-17 | REVISED TRANSITION SECTION, GUARD RAIL HEIGHT, AND GENERAL NOTES; MOVED THREE BEAM GUARD RAIL CONNECTIONS AT BRIDGE ENDS TO STD. DRWG. GR-12 | |
| 07-14-10 | 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 | |
| 04-10-03 | REVISED GENERAL NOTES | |
| 08-22-02 | REVISED NOTE (2) | |
| 06-29-00 | MOVED DIMENSION LINES | |
| 05-18-00 | ADDED NOTE | |
| 03-30-00 | DRAWN & ISSUED | |

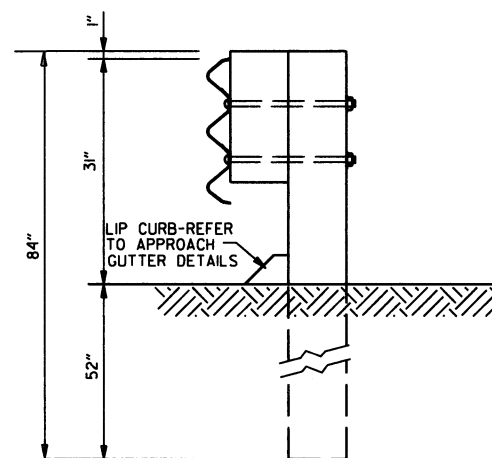
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|-----------------------------------|
| ARKANSAS STATE HIGHWAY COMMISSION |
| GUARD RAIL DETAILS |
| STANDARD DRAWING GR-10 |



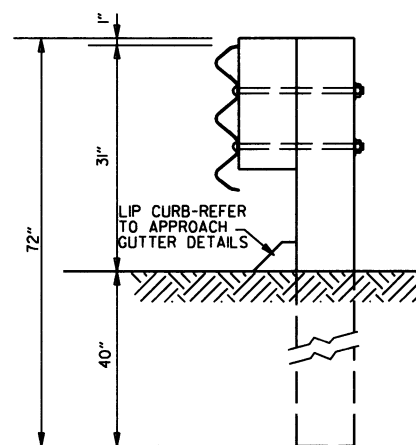
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT AND STEEL POST
POSTS 1-7



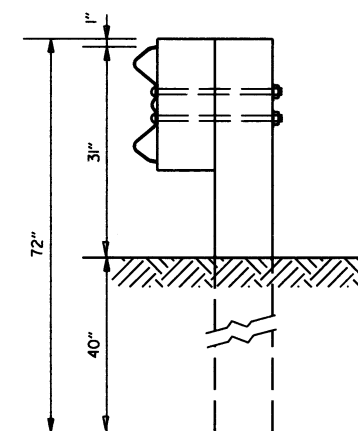
W-BEAM TO THRIE BEAM TRANSITION RAIL WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



THRIE BEAM RAIL WITH WOOD OR PLASTIC BLOCKOUTS & WOOD POSTS
POSTS 1-6



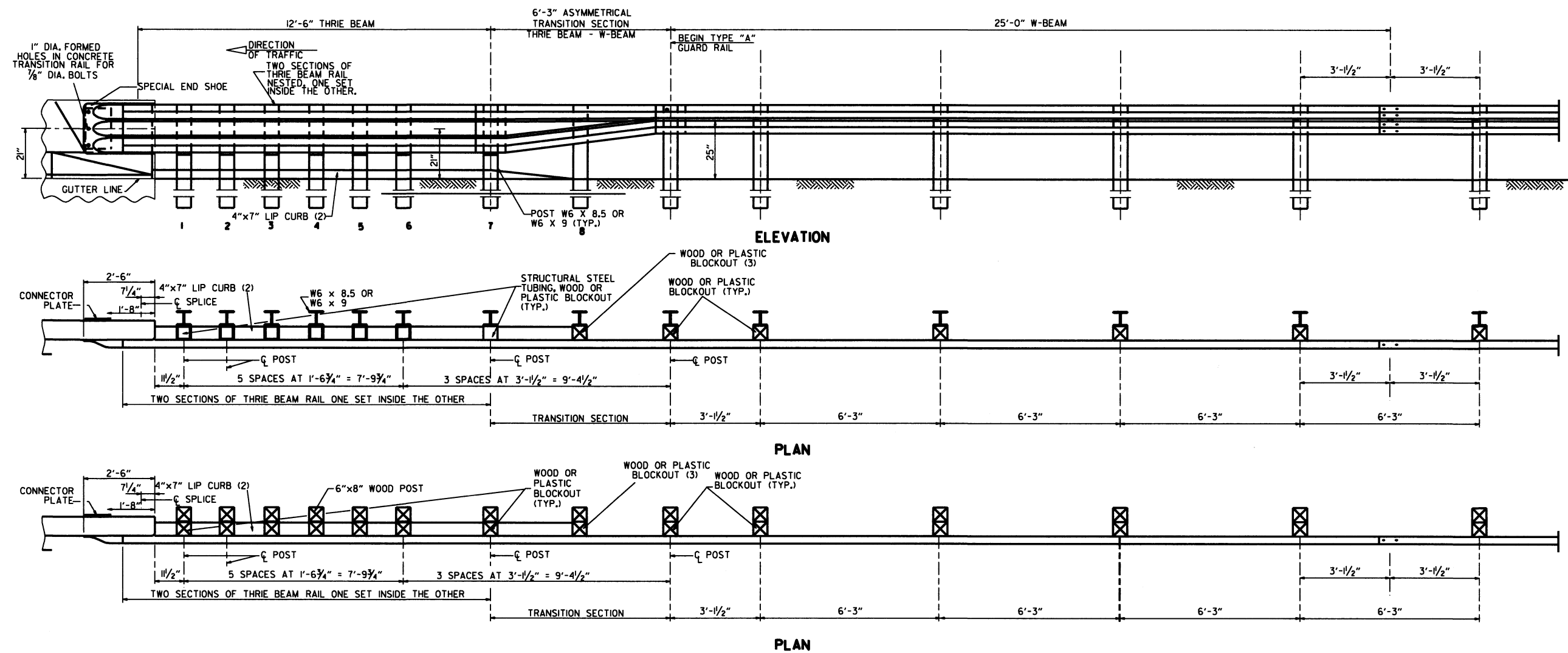
THRIE BEAM RAIL WITH WOOD OR PLASTIC BLOCKOUT & WOOD POST
POST 7



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.

| | | | |
|----------|--|-------|-----------------------------------|
| | | | ARKANSAS STATE HIGHWAY COMMISSION |
| | | | GUARD RAIL DETAILS |
| | | | STANDARD DRAWING GR-II |
| 1-16-17 | REVISED GUARD RAIL HEIGHT, CHANGED STD. DWG. NUMBER FROM GR-10A TO GR-II | | |
| 07-14-10 | REVISED POST 8 DIMENSIONS | | |
| 1-29-07 | ADDED PLASTIC BLOCKOUTS | | |
| 08-22-02 | REVISED LIP CURB NOTE | | |
| 03-30-00 | DRAWN & ISSUED | | |
| DATE | REVISION | FILED | |



- (1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
- (2) REFER TO APPROACH GUTTER DETAILS.
- (3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE 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 3"4" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-13.

REFER TO STD. DRWG. GR-11 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.

POSTS SHALL BE PLACED AT THE MID-SPAN OF THE W-BEAM.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

| | | | |
|---------|---|-------|-----------------------------------|
| | | | ARKANSAS STATE HIGHWAY COMMISSION |
| | | | GUARD RAIL DETAILS |
| 8-16-17 | RE-DRAWN FROM STD. DRWG. GR-10 & ISSUED | | STANDARD DRAWING GR-12 |
| DATE | REVISION | FLMED | |

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

| EQUIV. DIA. INCHES | SPAN | | RISE | |
|-----------------------|--------------|--------------|--------------|--------------|
| | AASHTO M 206 | AHTD NOMINAL | AASHTO M 206 | AHTD NOMINAL |
| 15 | 18 | 18 | 11 | 11 |
| 18 | 22 | 22 | 13 1/2 | 14 |
| 21 | 26 | 26 | 15 1/2 | 16 |
| 24 | 28 1/2 | 29 | 18 | 18 |
| 30 | 36 1/4 | 36 | 22 1/2 | 23 |
| 36 | 43 3/8 | 44 | 26 5/8 | 27 |
| 42 | 51 1/8 | 51 | 31 5/16 | 31 |
| 48 | 58 1/2 | 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 | 77 1/2 | 77 |
| 108 | 138 | 138 | 87 1/8 | 87 |
| 120 | 154 | 154 | 96 5/8 | 97 |
| 132 | 168 3/4 | 169 | 106 1/2 | 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. INCHES | AASHTO M 207 | |
|-----------------------|--------------|------|
| | SPAN | RISE |
| 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)(i).

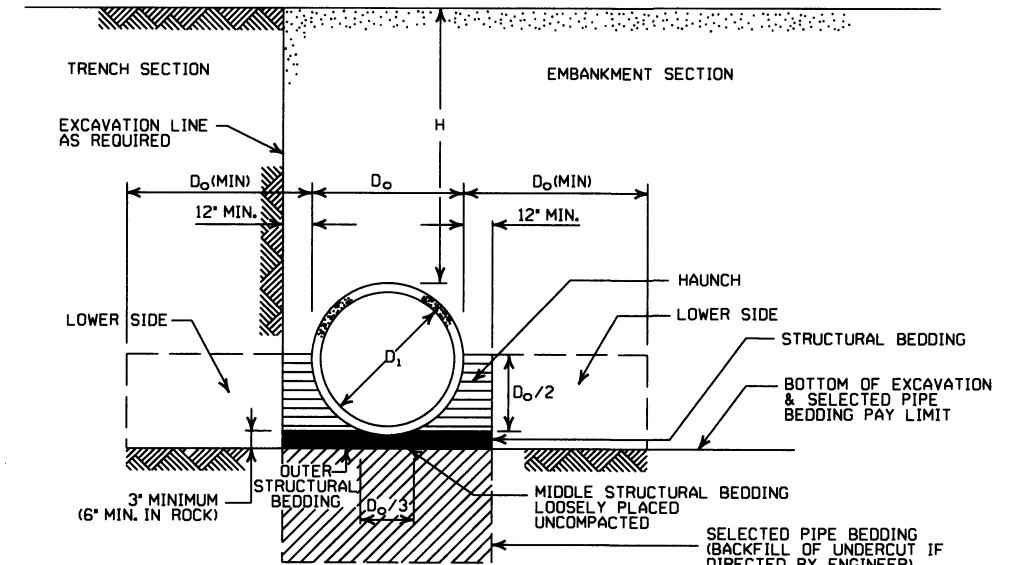
NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

- LEGEND -

- D_i = NORMAL INSIDE DIAMETER OF PIPE
- D_o = OUTSIDE DIAMETER OF PIPE
- H = FILL COVER HEIGHT OVER PIPE (FEET)
- MIN. = MINIMUM
- [Symbol] = UNDISTURBED SOIL

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

- * SM-3 WILL NOT BE ALLOWED.
- ** MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

| INSTALLATION TYPE | CLASS OF PIPE | | | |
|-------------------|---------------|--------|-----|-----|
| | 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 |
| 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 |
| 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 |
| TYPE 2 | 13 | 21 |
| TYPE 3 | 10 | 16 |

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1



CORRUGATED STEEL PIPE (ROUND)

| PIPE DIAMETER (INCHES) | ① MINIMUM 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 |
| 2 3/8 INCH BY 1/2 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 |

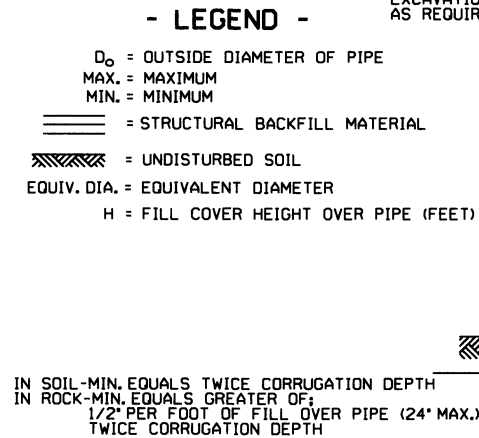
CONSTRUCTION SEQUENCE

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.



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. INSTALLATION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2 3/8" x 1/2" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" x 1" OR 5" x 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

CORRUGATED ALUMINUM PIPE (ROUND)

| PIPE DIAMETER (INCHES) | ① MINIMUM 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 3/8 INCH BY 1/2 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 |

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 |

CORRUGATED METAL PIPE ARCHES

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

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 2/3" x 1/2" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

| DATE | REVISION | DATE FILMED |
|----------|-------------------------------|-------------|
| 2-27-14 | REVISED GENERAL NOTE 1 | |
| 12-15-11 | REVISED FOR LRFD DESIGN SPECS | |
| 3-30-00 | REVISED INSTALLATIONS | |
| 11-06-97 | ISSUED | |

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1



| | |
|-------------------|---|
| INSTALLATION TYPE | •• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING |
| TYPE 2 | •SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4) |

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.
 - SM3 WILL NOT BE ALLOWED.
 - STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1/4 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.
- STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

| PIPE DIAMETER | TRENCH WIDTH (FEET) | |
|---------------|---------------------|-----------------|
| | "H" < 10'-0" | "H" >OR= 10'-0" |
| 18" | 4'-6" | 4'-6" |
| 24" | 5'-0" | 6'-0" |
| 30" | 5'-6" | 7'-0" |
| 36" | 6'-0" | 9'-0" |
| 42" | 7'-0" | 10'-6" |
| 48" | 8'-0" | 12'-0" |

NOTE:
 18" MIN. (18" - 30" DIAMETERS)
 24" MIN. (36" - 48" DIAMETERS)
 MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

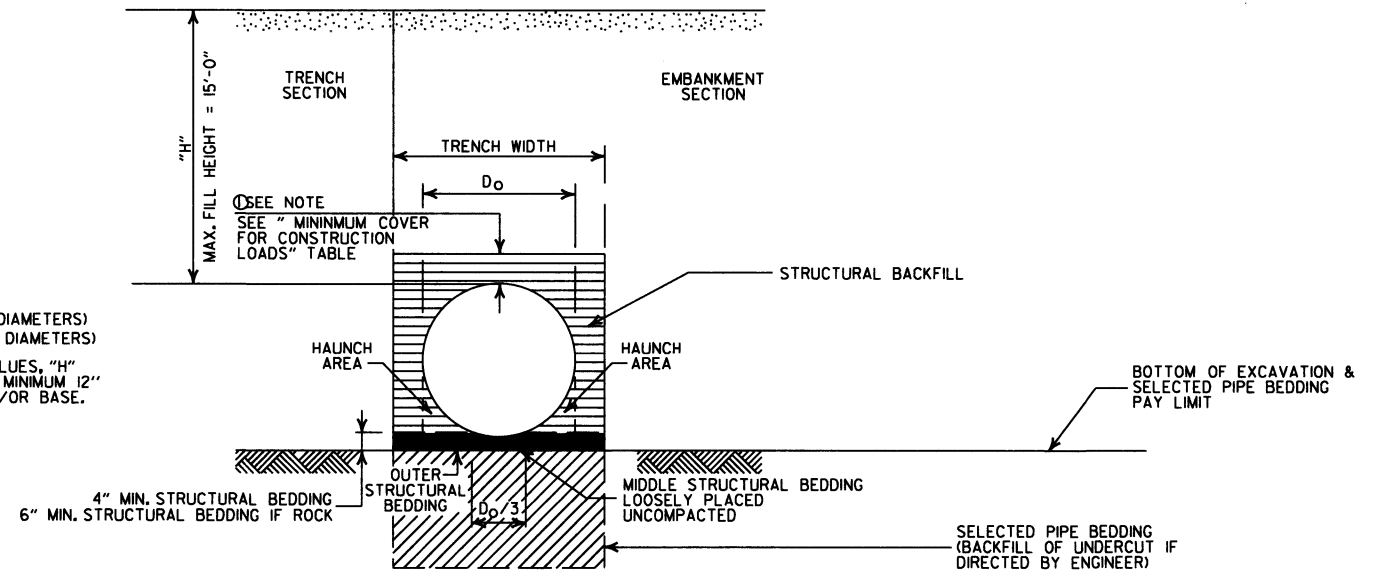
MINIMUM COVER FOR CONSTRUCTION LOADS

| PIPE DIAMETER | MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS | | | |
|----------------|--|------------------|-------------------|--------------------|
| | 18.0-50.0 (KIPS) | 50.0-75.0 (KIPS) | 75.0-110.0 (KIPS) | 110.0-175.0 (KIPS) |
| 36" OR LESS | 2'-0" | 2'-6" | 3'-0" | 3'-0" |
| 42" OR GREATER | 3'-0" | 3'-0" | 3'-6" | 4'-0" |

MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

| PIPE DIAMETER | CLEAR DISTANCE BETWEEN PIPES |
|---------------|------------------------------|
| 18" | 1'-6" |
| 24" | 2'-0" |
| 30" | 2'-6" |
| 36" | 3'-0" |
| 42" | 3'-6" |
| 48" | 4'-0" |



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

- STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

- PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
- INSTALL PIPE TO GRADE.
- COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
- THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
- PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

- LEGEND -

H = FILL HEIGHT (FT.)
 D_o = OUTSIDE DIAMETER OF PIPE
 MAX. = MAXIMUM
 MIN. = MINIMUM

==== = STRUCTURAL BACKFILL MATERIAL
 ===== = UNDISTURBED SOIL

GENERAL NOTES

- PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
- PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
- THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
- 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.
- 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."
- WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
- FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
- HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
- JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

| DATE | REVISION | DATE FILMED |
|----------|--|-------------|
| 2-27-14 | REVISED GENERAL NOTE 1. | |
| 12-15-11 | REVISED GENERAL NOTES & MINIMUM COVER NOTE | |
| 11-17-10 | ISSUED | |

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT
(HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1



| | |
|-------------------|---|
| INSTALLATION TYPE | ** MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING |
| TYPE 2 | *SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) |

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL. SM3 WILL NOT BE ALLOWED.
 - STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1/4 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.
- STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF PVC PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

| PIPE DIAMETER | TRENCH WIDTH (FEET) | |
|---------------|---------------------|-----------------|
| | "H" < 10'-0" | "H" >OR= 10'-0" |
| 18" | 4'-6" | 4'-6" |
| 24" | 5'-0" | 6'-0" |
| 30" | 5'-6" | 7'-6" |
| 36" | 6'-0" | 9'-0" |

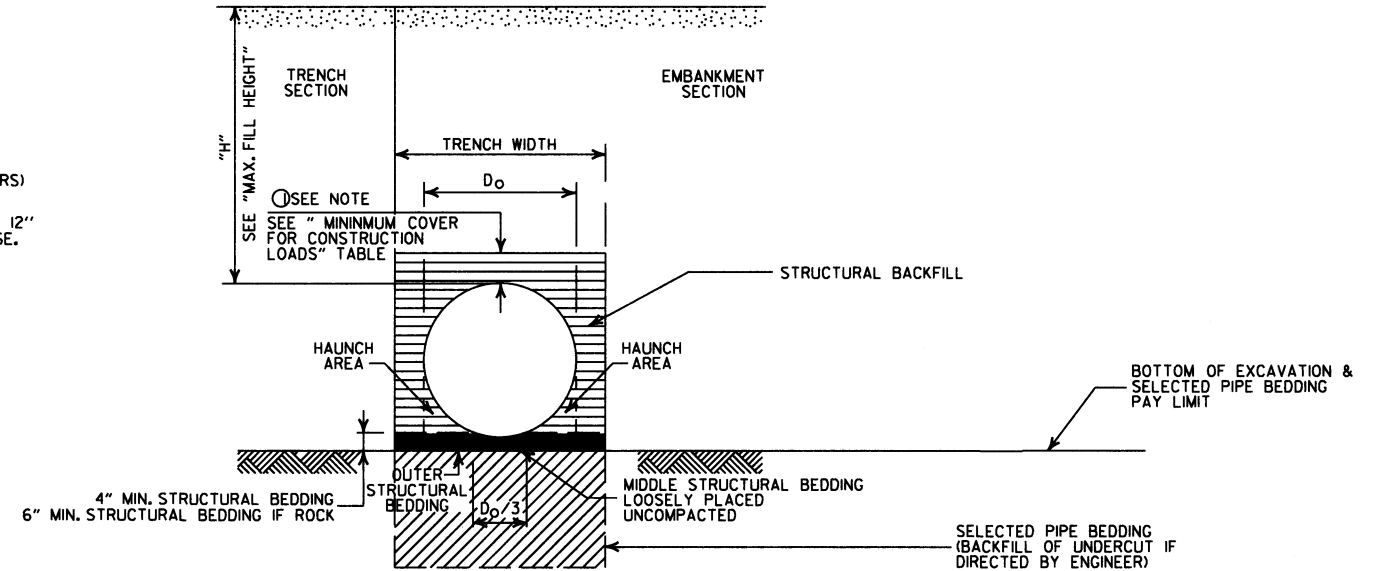
MULTIPLE INSTALLATION OF PVC PIPES

| PIPE DIAMETER | CLEAR DISTANCE BETWEEN PIPES |
|---------------|------------------------------|
| 18" | 1'-6" |
| 24" | 2'-0" |
| 30" | 2'-6" |
| 36" | 3'-0" |

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

| PIPE DIAMETER | "H" |
|---------------|--------|
| 18" | 45'-0" |
| 24" | 45'-0" |
| 30" | 40'-0" |
| 36" | 40'-0" |

- NOTE:
 1. 12" MIN. (18" - 36" DIAMETERS) MINIMUM COVER VALUE, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

- PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
- INSTALL PIPE TO GRADE.
- COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
- THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
- PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

- LEGEND -

H = FILL HEIGHT (FT.)
 D_o = OUTSIDE DIAMETER OF PIPE
 MAX. = MAXIMUM
 MIN. = MINIMUM

==== = STRUCTURAL BACKFILL MATERIAL
 ===== = UNDISTURBED SOIL

GENERAL NOTES

- PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
- PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
- THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
- 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.
- 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."
- WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
- FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
- PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
- JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

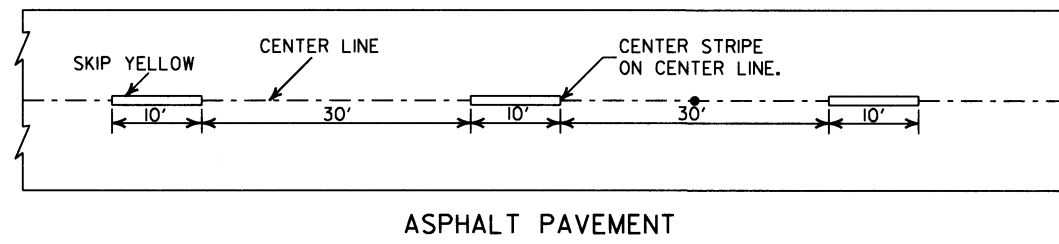
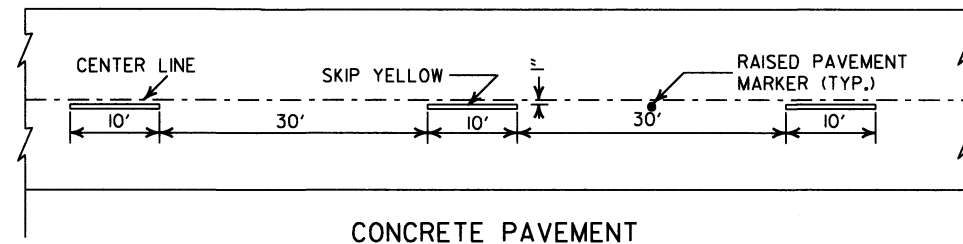
| DATE | REVISION | DATE FILMED |
|----------|--|-------------|
| 2-27-14 | REVISED GENERAL NOTE 1. | |
| 12-15-11 | REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL | |
| 11-17-10 | ISSUED | |

ARKANSAS STATE HIGHWAY COMMISSION

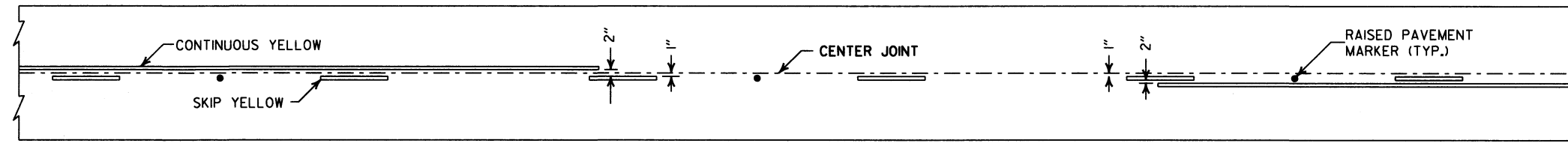
PLASTIC PIPE CULVERT
(PVC F949)

STANDARD DRAWING PCP-2

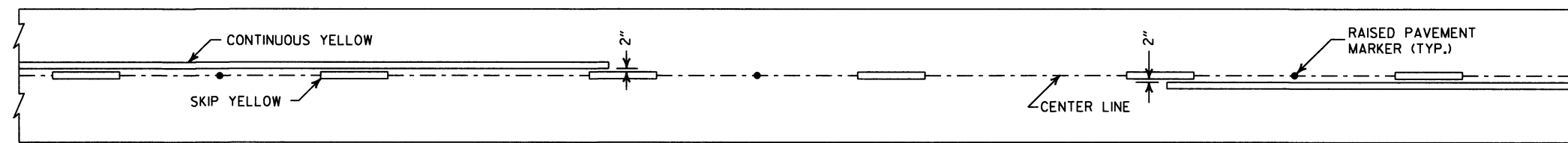




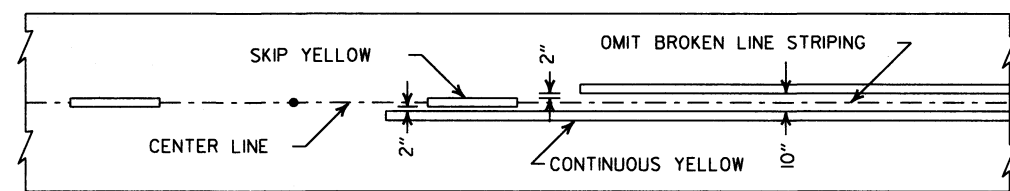
BROKEN LINE STRIPING



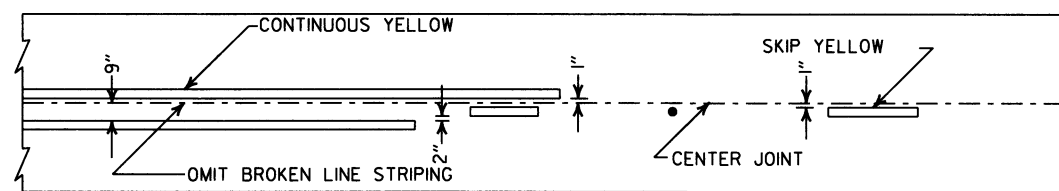
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

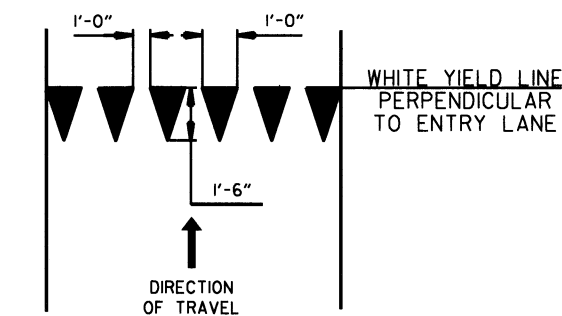


ASPHALT PAVEMENT

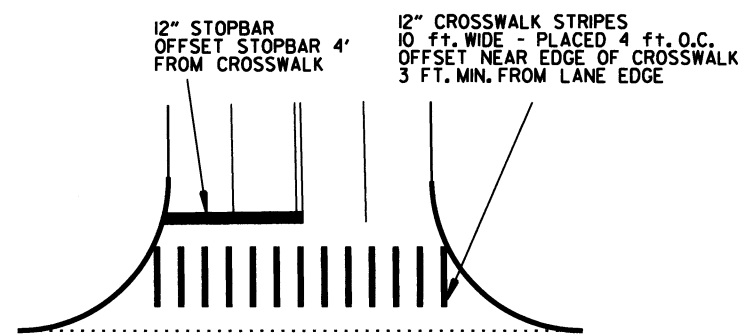


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES



YIELD LINE DETAIL

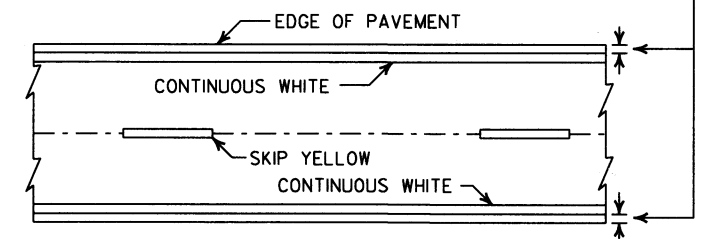


CROSSWALK AND STOPBAR DETAILS

NOTES:

1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.

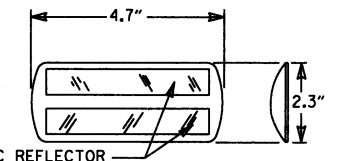
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING

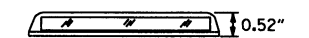
NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



PRISMATIC REFLECTOR

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.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

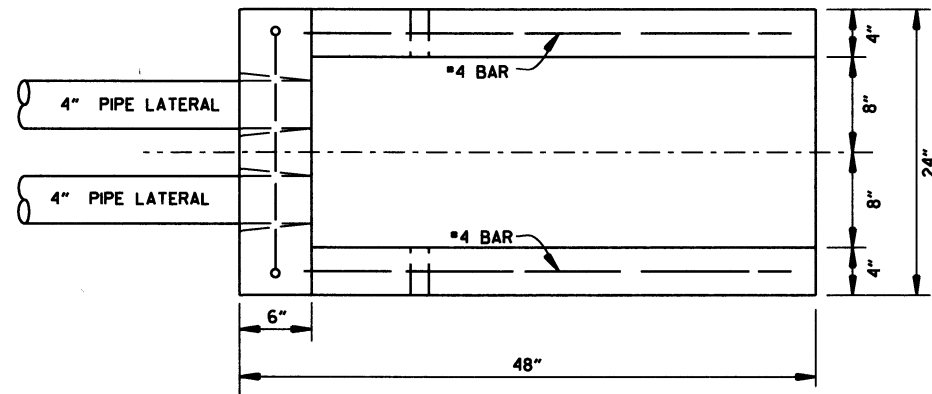
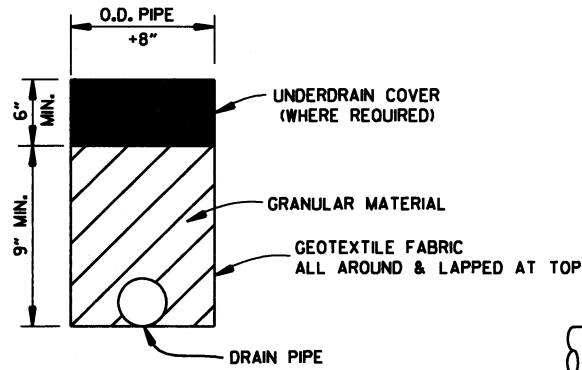
| DATE | REVISION | FILMED |
|----------|---|-----------|
| 6-1-17 | ADDED YIELD LINE DETAIL | |
| 5-12-16 | REVISED LINE WIDTHS, SPACING, & NOTES | |
| 9-12-13 | REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS | |
| 11-17-10 | REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS | |
| 11-18-04 | REVISED NOTE 2 & GENERAL NOTES | |
| 8-22-02 | ADDED CROSSWALK & STOPBAR DTLS. | |
| 7-02-98 | ADDED DETAILS OF STD. RAISED PAV'T. MARKERS | |
| 4-26-96 | REV. NOTES 3&4; ADDED R.P.M. | |
| 9-30-80 | DRAWN | 1-9-30-80 |

ARKANSAS STATE HIGHWAY COMMISSION

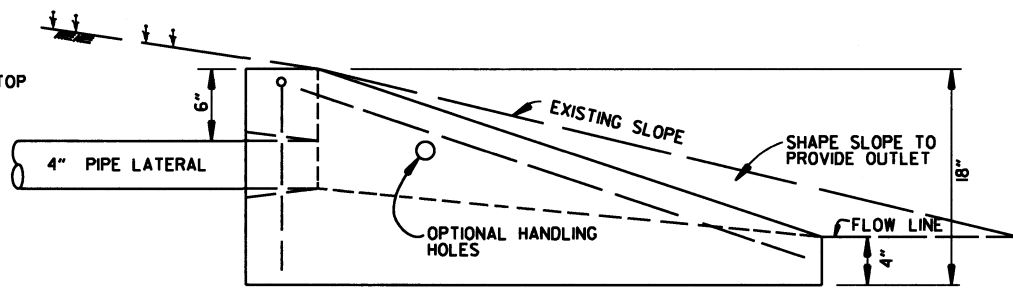
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

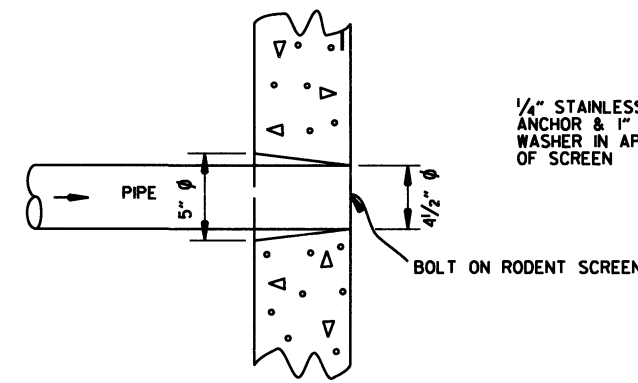
NOTE:
 1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
 2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC, LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



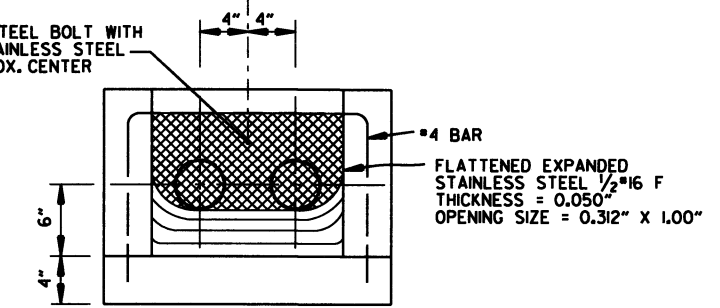
PLAN VIEW



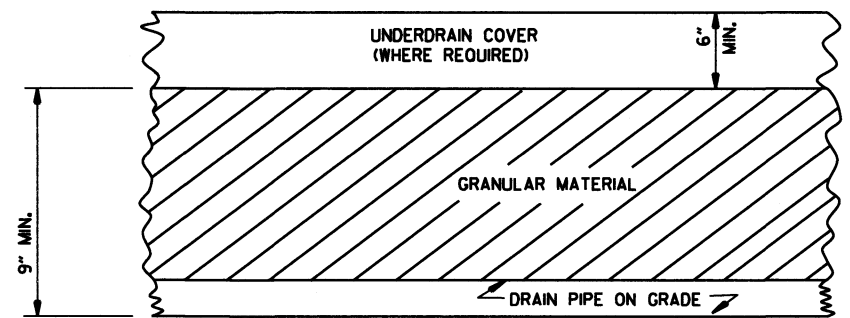
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE

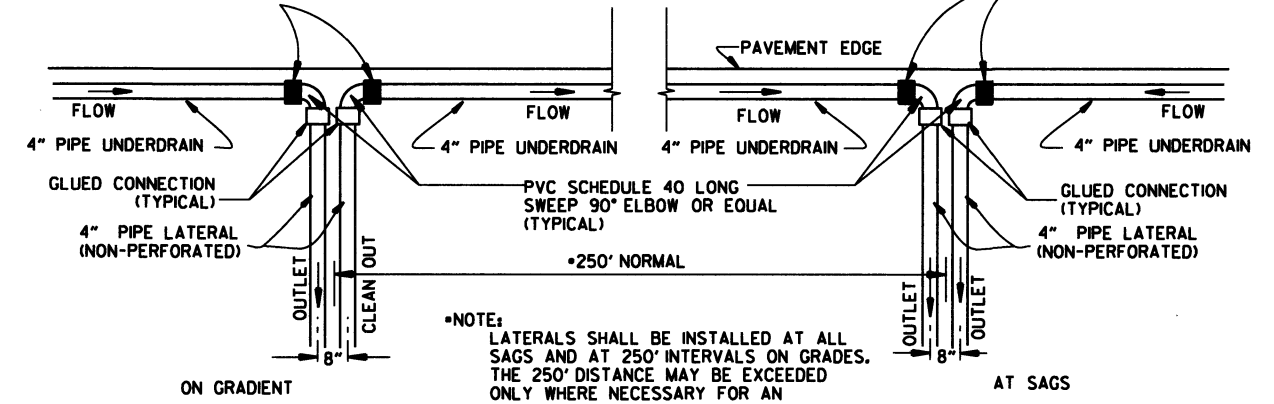


FRONT VIEW (DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS
 FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DI OR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)
 FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DI OR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)



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.

NOTES FOR PIPE UNDERDRAINS

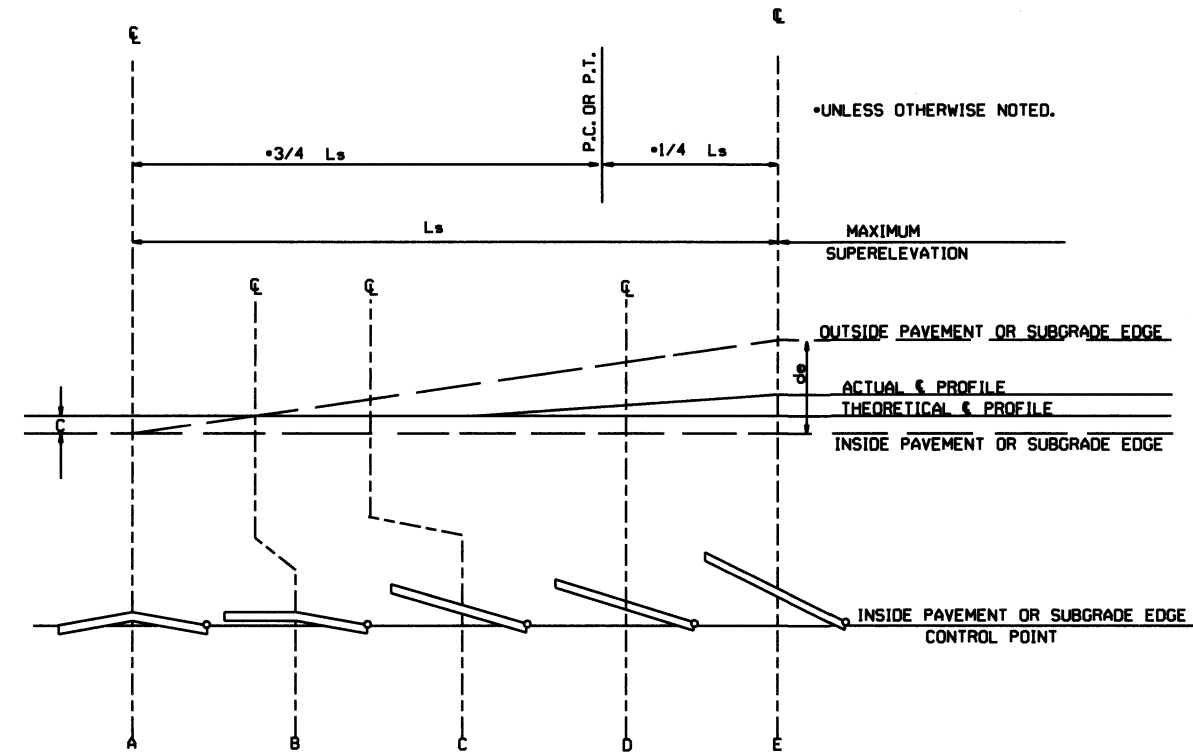
1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 610 OF THE STANDARD SPECIFICATIONS.
2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 610 OF THE STANDARD SPECIFICATIONS.
3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.
5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."
6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."
7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

| | | |
|----------|--|-------------|
| 12-8-16 | ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC | |
| 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: 5 1/2" 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 POLYETHYLENE 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 |
| DATE | REVISION | DATE FILMED |

ARKANSAS STATE HIGHWAY COMMISSION
 DETAILS OF PIPE UNDERDRAIN
 STANDARD DRAWING PU-1

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

| DEGREE OF CURVE | 30 MPH | | 40 MPH | | 50 MPH | | 55 MPH | | 60 MPH | | 70 MPH | |
|-----------------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
| | Ls (FT) | | Ls (FT) | | Ls (FT) | | Ls (FT) | | Ls (FT) | | Ls (FT) | |
| | MINIMUM | DESIRABLE | MINIMUM | DESIRABLE | MINIMUM | DESIRABLE | MINIMUM | DESIRABLE | MINIMUM | DESIRABLE | MINIMUM | DESIRABLE |
| 0° 15' | N.C. | | N.C. | | N.C. | | N.C. | | N.C. | | N.C. | |
| 0° 30' | N.C. | | N.C. | | N.C. | | N.C. | | N.C. | | N.C. | |
| 0° 45' | N.C. | | N.C. | | N.C. | | N.C. | | N.C. | | N.C. | |
| 1° 00' | N.C. | | N.C. | | 0.021 | | 0.022 | | 0.023 | | 0.028 | |
| 1° 15' | N.C. | | N.C. | | 0.025 | | 0.026 | | 0.030 | | 0.037 | |
| 1° 30' | N.C. | | N.C. | | 0.031 | | 0.032 | | 0.037 | | 0.045 | |
| 1° 45' | N.C. | | N.C. | | 0.036 | | 0.037 | | 0.043 | | 0.052 | |
| 2° 00' | N.C. | | N.C. | | 0.040 | | 0.041 | | 0.049 | | 0.059 | |
| 2° 15' | N.C. | | N.C. | | 0.045 | | 0.046 | | 0.055 | | 0.070 | |
| 2° 30' | N.C. | | N.C. | | 0.049 | | 0.050 | | 0.061 | | 0.078 | |
| 2° 45' | N.C. | | N.C. | | 0.053 | | 0.054 | | 0.067 | | 0.085 | |
| 3° 00' | N.C. | | N.C. | | 0.057 | | 0.058 | | 0.072 | | 0.091 | |
| 3° 15' | N.C. | | N.C. | | 0.061 | | 0.062 | | 0.077 | | 0.096 | |
| 3° 30' | N.C. | | N.C. | | 0.065 | | 0.066 | | 0.082 | | 0.098 | |
| 3° 45' | N.C. | | N.C. | | 0.069 | | 0.070 | | 0.088 | | 0.098 | |
| 4° 00' | N.C. | | N.C. | | 0.072 | | 0.073 | | 0.093 | | 0.100 | |
| 4° 15' | N.C. | | N.C. | | 0.076 | | 0.077 | | 0.095 | | | |
| 4° 30' | N.C. | | N.C. | | 0.080 | | 0.081 | | 0.099 | | | |
| 4° 45' | N.C. | | N.C. | | 0.084 | | 0.085 | | 0.100 | | | |
| 5° 00' | N.C. | | N.C. | | 0.088 | | 0.089 | | | | | |
| 5° 15' | N.C. | | N.C. | | 0.092 | | 0.093 | | | | | |
| 5° 30' | N.C. | | N.C. | | 0.096 | | 0.097 | | | | | |
| 5° 45' | N.C. | | N.C. | | 0.100 | | 0.100 | | | | | |
| 6° 00' | N.C. | | N.C. | | | | | | | | | |
| 6° 15' | N.C. | | N.C. | | | | | | | | | |
| 6° 30' | N.C. | | N.C. | | | | | | | | | |
| 6° 45' | N.C. | | N.C. | | | | | | | | | |
| 7° 00' | N.C. | | N.C. | | | | | | | | | |
| 7° 15' | N.C. | | N.C. | | | | | | | | | |
| 7° 30' | N.C. | | N.C. | | | | | | | | | |
| 7° 45' | N.C. | | N.C. | | | | | | | | | |
| 8° 00' | N.C. | | N.C. | | | | | | | | | |
| 8° 15' | N.C. | | N.C. | | | | | | | | | |
| 8° 30' | N.C. | | N.C. | | | | | | | | | |
| 8° 45' | N.C. | | N.C. | | | | | | | | | |
| 9° 00' | N.C. | | N.C. | | | | | | | | | |
| 9° 15' | N.C. | | N.C. | | | | | | | | | |
| 9° 30' | N.C. | | N.C. | | | | | | | | | |
| 9° 45' | N.C. | | N.C. | | | | | | | | | |
| 10° 00' | N.C. | | N.C. | | | | | | | | | |
| 10° 15' | N.C. | | N.C. | | | | | | | | | |
| 10° 30' | N.C. | | N.C. | | | | | | | | | |
| 10° 45' | N.C. | | N.C. | | | | | | | | | |
| 11° 00' | N.C. | | N.C. | | | | | | | | | |
| 11° 15' | N.C. | | N.C. | | | | | | | | | |
| 11° 30' | N.C. | | N.C. | | | | | | | | | |
| 11° 45' | N.C. | | N.C. | | | | | | | | | |
| 12° 00' | N.C. | | N.C. | | | | | | | | | |
| 12° 15' | N.C. | | N.C. | | | | | | | | | |
| 12° 30' | N.C. | | N.C. | | | | | | | | | |
| 12° 45' | N.C. | | N.C. | | | | | | | | | |
| 13° 00' | N.C. | | N.C. | | | | | | | | | |
| 13° 15' | N.C. | | N.C. | | | | | | | | | |
| 13° 30' | N.C. | | N.C. | | | | | | | | | |
| 13° 45' | N.C. | | N.C. | | | | | | | | | |
| 14° 00' | N.C. | | N.C. | | | | | | | | | |
| 14° 15' | N.C. | | N.C. | | | | | | | | | |
| 14° 30' | N.C. | | N.C. | | | | | | | | | |
| 14° 45' | N.C. | | N.C. | | | | | | | | | |
| 15° 00' | N.C. | | N.C. | | | | | | | | | |
| 15° 15' | N.C. | | N.C. | | | | | | | | | |
| 15° 30' | N.C. | | N.C. | | | | | | | | | |
| 15° 45' | N.C. | | N.C. | | | | | | | | | |
| 16° 00' | N.C. | | N.C. | | | | | | | | | |
| 16° 15' | N.C. | | N.C. | | | | | | | | | |
| 16° 30' | N.C. | | N.C. | | | | | | | | | |
| 16° 45' | N.C. | | N.C. | | | | | | | | | |
| 17° 00' | N.C. | | N.C. | | | | | | | | | |
| 17° 15' | N.C. | | N.C. | | | | | | | | | |
| 17° 30' | N.C. | | N.C. | | | | | | | | | |
| 17° 45' | N.C. | | N.C. | | | | | | | | | |
| 18° 00' | N.C. | | N.C. | | | | | | | | | |
| 18° 15' | N.C. | | N.C. | | | | | | | | | |
| 18° 30' | N.C. | | N.C. | | | | | | | | | |
| 18° 45' | N.C. | | N.C. | | | | | | | | | |
| 19° 00' | N.C. | | N.C. | | | | | | | | | |
| 19° 15' | N.C. | | N.C. | | | | | | | | | |
| 19° 30' | N.C. | | N.C. | | | | | | | | | |
| 19° 45' | N.C. | | N.C. | | | | | | | | | |
| 20° 00' | N.C. | | N.C. | | | | | | | | | |
| 20° 15' | N.C. | | N.C. | | | | | | | | | |
| 20° 30' | N.C. | | N.C. | | | | | | | | | |
| 20° 45' | N.C. | | N.C. | | | | | | | | | |
| 21° 00' | N.C. | | N.C. | | | | | | | | | |
| 21° 15' | N.C. | | N.C. | | | | | | | | | |
| 21° 30' | N.C. | | N.C. | | | | | | | | | |
| 21° 45' | N.C. | | N.C. | | | | | | | | | |
| 22° 00' | N.C. | | N.C. | | | | | | | | | |
| 22° 15' | N.C. | | N.C. | | | | | | | | | |
| 22° 30' | N.C. | | N.C. | | | | | | | | | |
| 22° 45' | N.C. | | N.C. | | | | | | | | | |
| 23° 00' | N.C. | | N.C. | | | | | | | | | |
| 23° 15' | N.C. | | N.C. | | | | | | | | | |
| 23° 30' | N.C. | | N.C. | | | | | | | | | |
| 23° 45' | N.C. | | N.C. | | | | | | | | | |
| 24° 00' | N.C. | | N.C. | | | | | | | | | |



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

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

ABBREVIATIONS

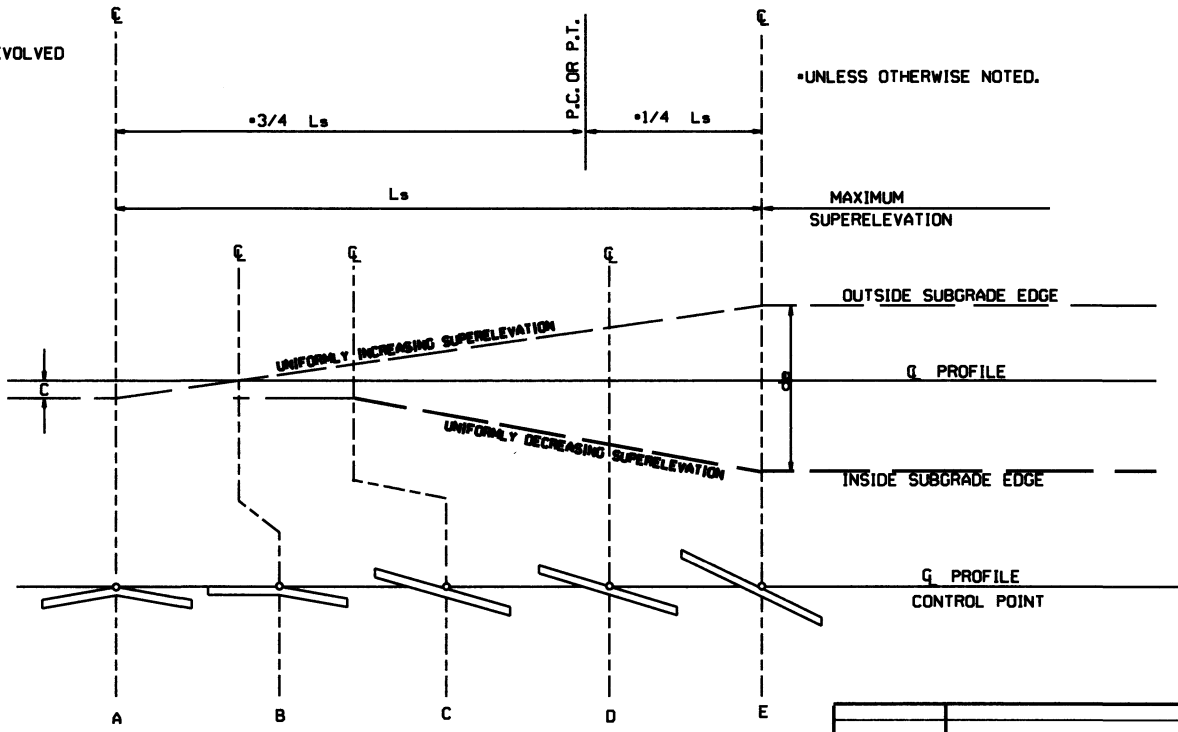
- NC - NORMAL CROWN
- RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
- e - RATE OF SUPERELEVATION (FT. PER FT.)
- Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
- L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
- d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
- C - NORMAL CROWN (FT.)

GENERAL NOTES

1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

- 3 LANE UNDIVIDED - - - - +20%
- 4 LANE UNDIVIDED - - - - +50%
- 5 LANE UNDIVIDED - - - - +80%
- 6 LANE UNDIVIDED - - - - +100%

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.
RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.


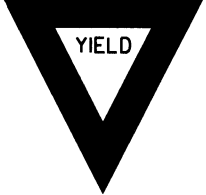
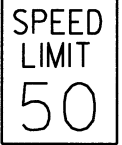



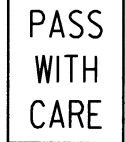


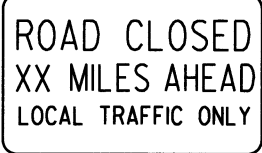


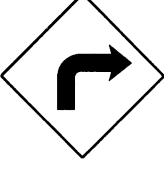





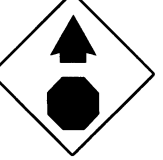
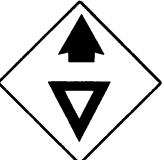
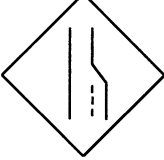


















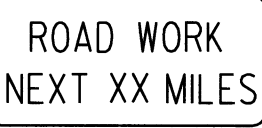
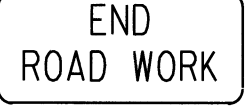
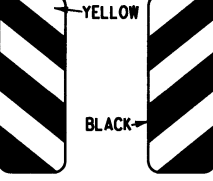


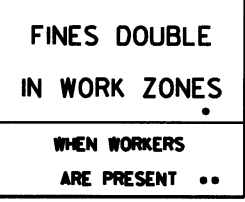


STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

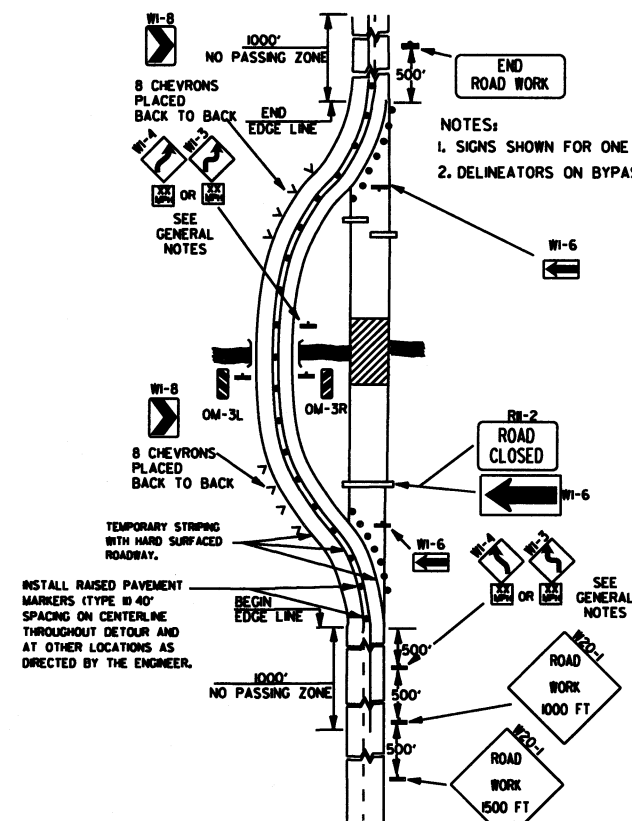
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

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

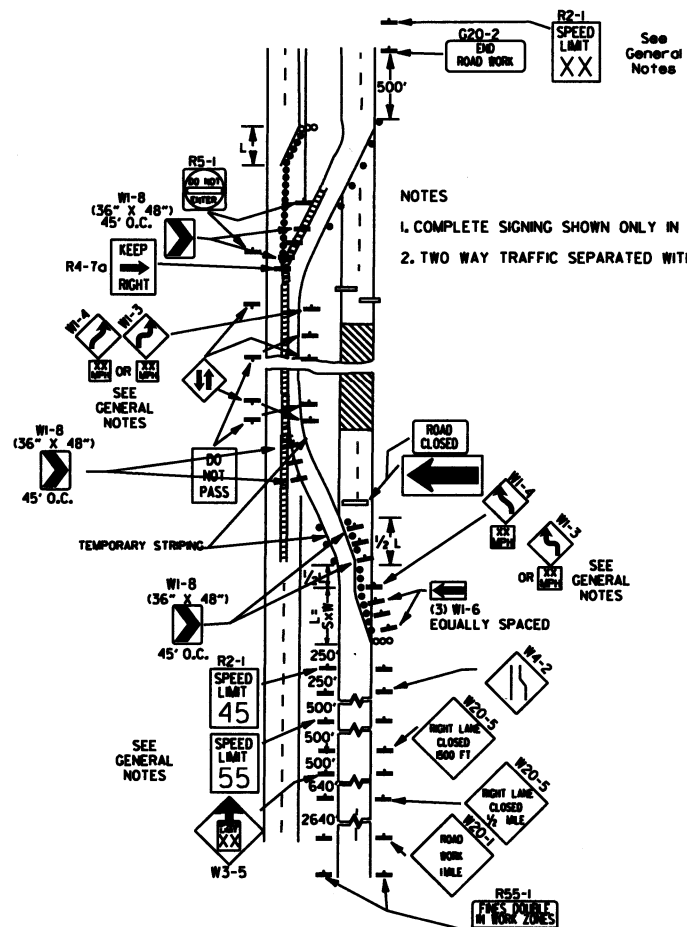
ARKANSAS STATE HIGHWAY COMMISSION
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC
STANDARD DRAWING SE-2

| | | | | | | | |
|--|---|---|---|--|---|---|---|
| <p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p> | <p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p> | <p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p> | <p>W3-5</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p> | <p>W3-5a</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p> | <p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p> | <p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p> | <p>ADVANCE DISTANCES (XXXX)</p> <p>500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD</p> <p>GENERAL NOTES:</p> <ol style="list-style-type: none"> 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. 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. 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. 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. 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. 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. 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. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS. 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. 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. <p>* 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.</p> |
| <p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p> | <p>R11-2</p>  <p>48"x30"</p> | <p>R11-3A</p>  <p>60"x30"</p> | <p>R11-4</p>  <p>60"x30"</p> | <p>W21-5a</p>  <p>STD. 36"x36" FWY. 48"x48"</p> | <p>W1-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p> | <p>W1-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p> | |
| <p>W1-3</p>  <p>STD. 48"x48"</p> | <p>W1-4</p>  <p>STD. 48"x48"</p> | <p>W1-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p> | <p>W1-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p> | <p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p> | <p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p> | <p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p> | |
| <p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p> | <p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p> | <p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p> | <p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p> | <p>W13-1</p>  <p>STD. 24"x24"</p> | <p>W20-1</p>  <p>STD. 48"x48"</p> | <p>W20-2</p>  <p>STD. 48"x48"</p> | <p>W20-3</p>  <p>STD. 48"x48"</p> |
| <p>W20-4</p>  <p>STD. 48"x48"</p> | <p>W20-5</p>  <p>STD. 48"x48"</p> | <p>W20-7a</p>  <p>STD. 36"x36" FWY. 48"x48"</p> | <p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p> | <p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p> | <p>W24-1</p>  <p>STD. 36"x36"</p> | <p>W1-4b</p>  <p>STD. 48"x48"</p> | <p>R56-1</p>  <p>STD. 18"x18"</p> |
| <p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p> | <p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p> | <p>G20-1</p>  <p>60"x24"</p> | <p>G20-2</p>  <p>48"x24"</p> | <p>OM-3L OM-3R</p>  <p>12"x36"</p> | <p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p> | <p>M4-10</p>  <p>48"x18"</p> | <p>R55-1</p>  <p>36"x60"</p> <ul style="list-style-type: none"> USE 6" C LETTERS USE 4" D LETTERS |

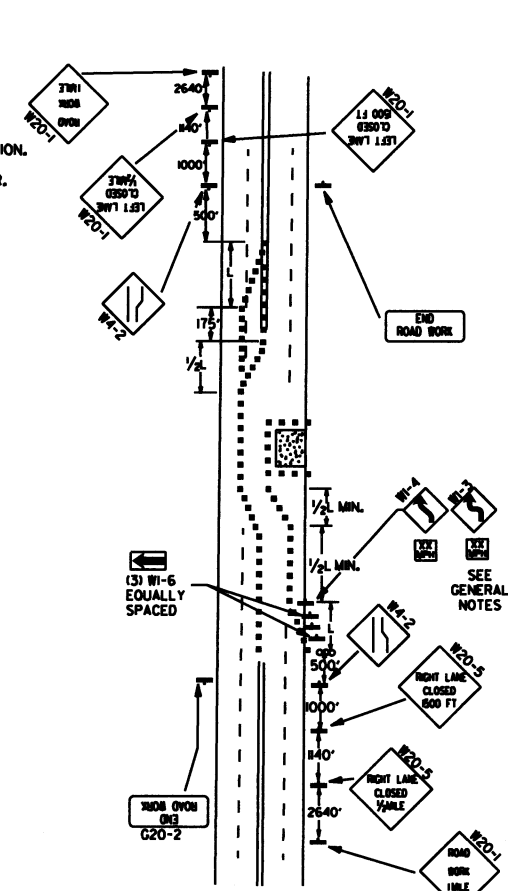
| | | |
|----------|---|--------|
| 4-13-17 | DELETED RSP-1 & ADDED W21-5a | |
| 9-2-15 | REVISED REDUCED SPEED LIMIT AHEAD SIGNS | |
| | REVISED ROAD WORK NEXT XX MILES | |
| 12-15-11 | REVISED W24-1 | |
| 1-17-10 | DELETED W8-9a & ADDED W8-9 | |
| 10-15-09 | ADDED REFERENCE TO MASH & ADDED SIGN W24-1 | |
| 4-17-08 | REVISED SIGN DESIGNATIONS | |
| 1-18-04 | REVISED NOTES | |
| 10-9-03 | REVISED NOTE 1 | |
| 1-16-01 | REVISED NOTE 7 | |
| 9-28-00 | REVISED NOTE | |
| 1-18-98 | 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 | |
| DATE | REVISION | FILMED |



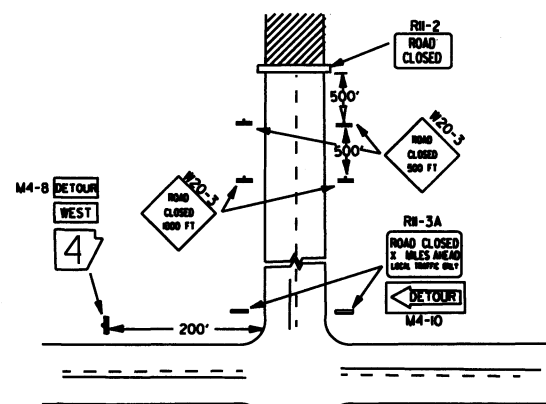
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



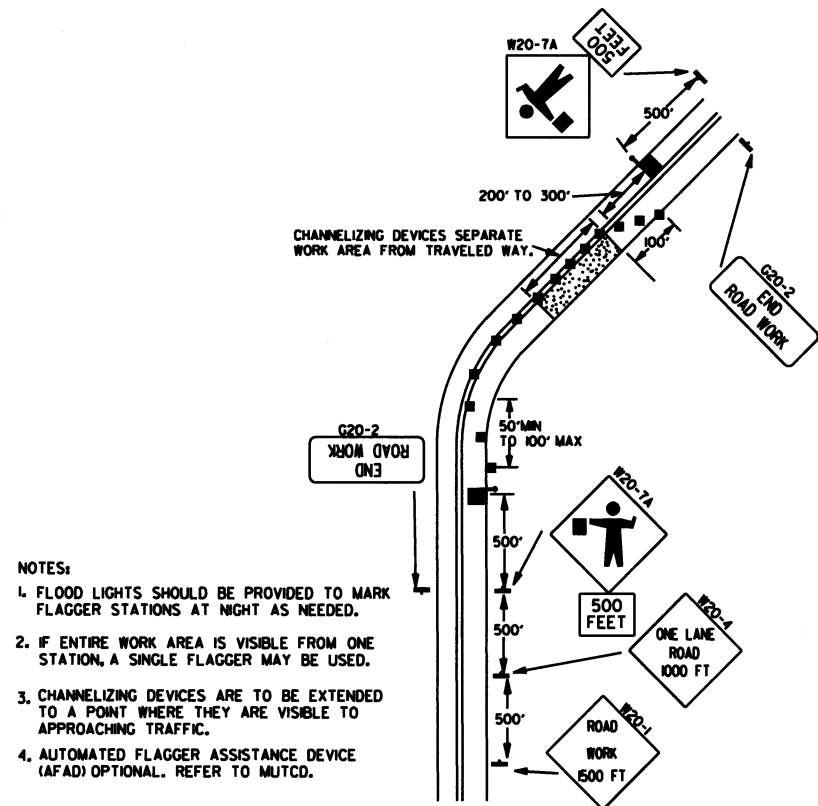
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



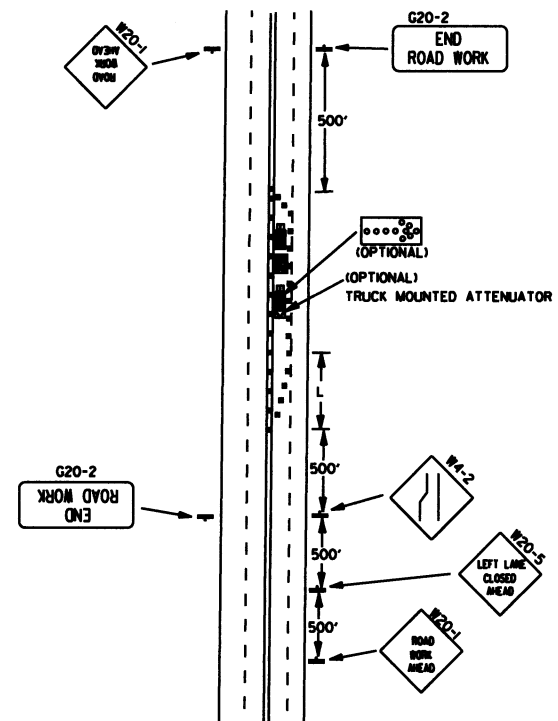
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



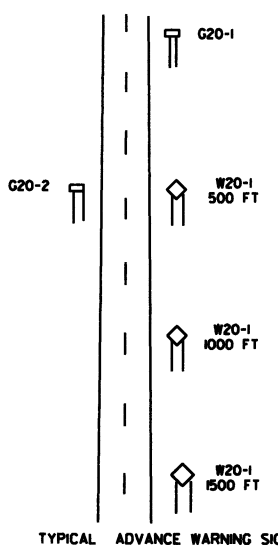
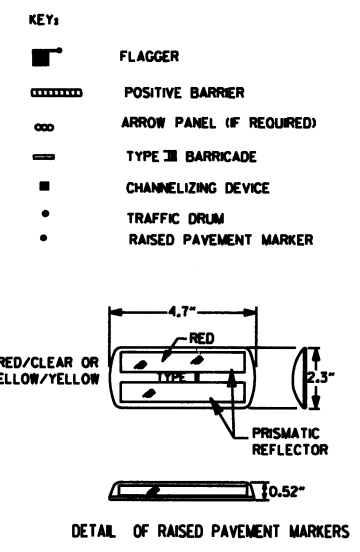
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



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



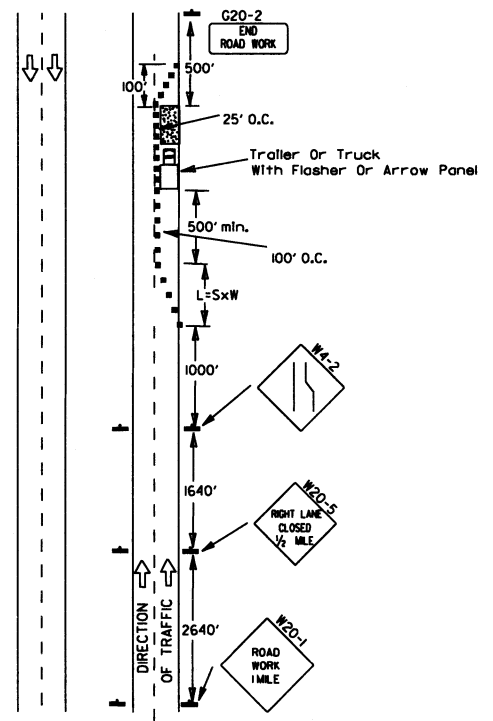
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.



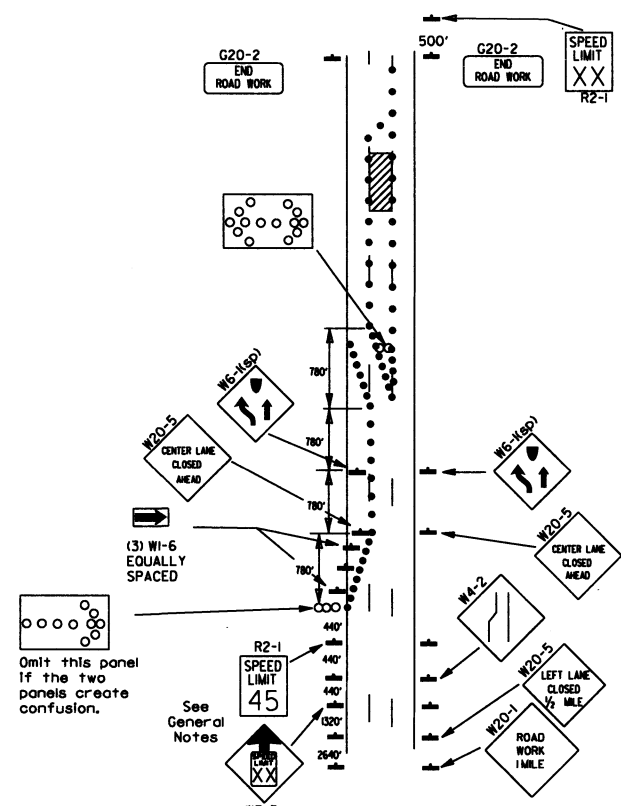
TAPER FORMULAE:
 $L = SXW$ FOR SPEEDS OF 45MPH OR MORE.
 $L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.
 WHERE:
 L = MINIMUM LENGTH OF TAPER.
 S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
 W = WIDTH OF OFFSET.

- GENERAL NOTES:
 1. ADVISORY SPEED POSTED ON 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, THE R2-K55 SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXXI 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-K45I SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXXI 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.
 8. 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.

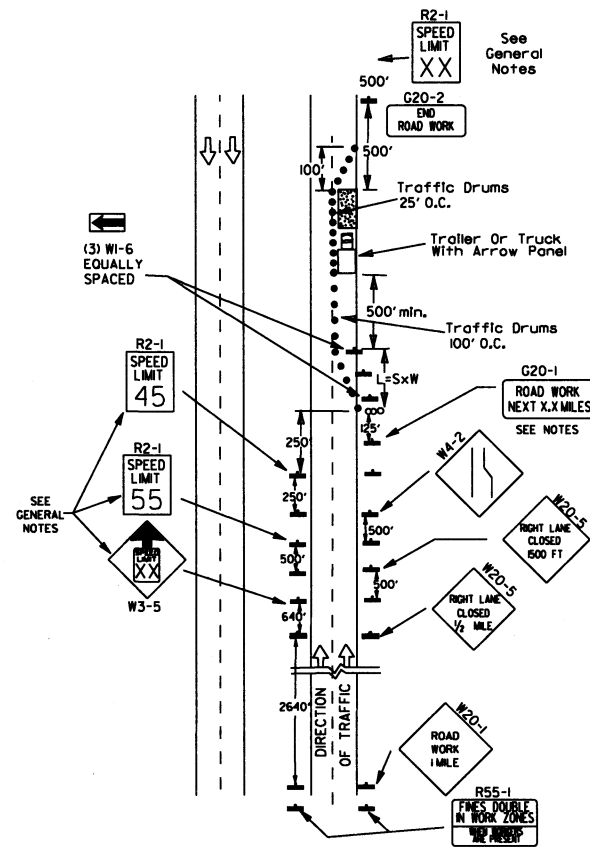
| | | |
|----------|--|--------|
| 9-2-85 | REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5 | |
| 9-12-83 | REVISED DETAIL OF RAISED PAVEMENT MARKERS | |
| 3-8-80 | ADDED (AFAD) | |
| 8-20-08 | REVISED SIGN DESIGNATIONS | |
| 8-18-04 | ADDED GENERAL NOTE | |
| 10-18-96 | 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 | |
| DATE | REVISION | FILMED |



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.

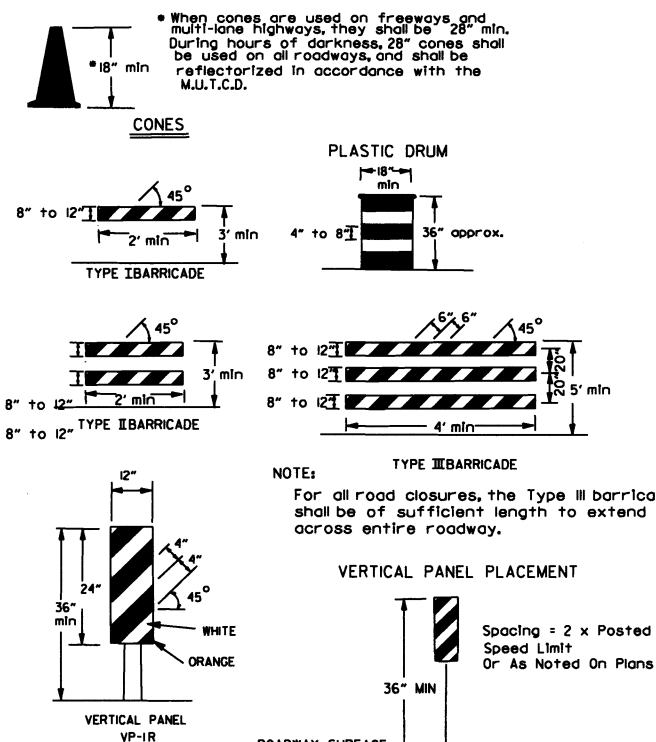


(B) Typical application - 3-lane one-way roadway where center lane is closed.

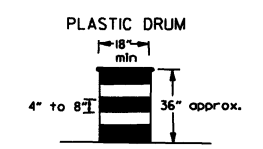


(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

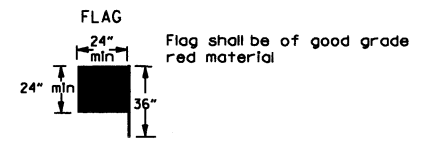
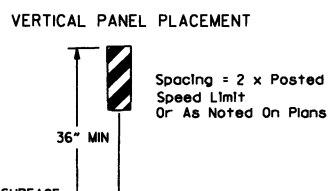
Channelizing devices



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



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

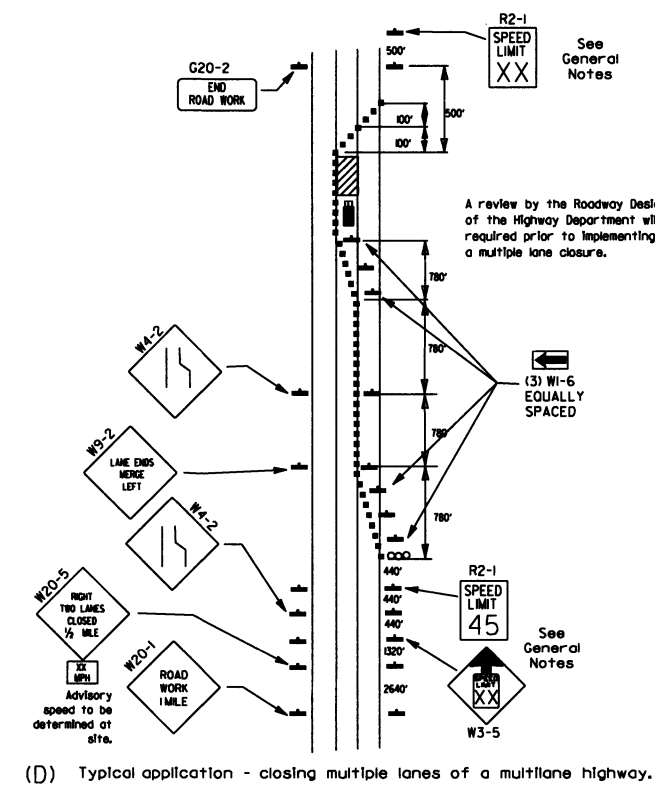


FLAG shall be of good grade red material

- KEY:
- Arrow Panel (if Required)
 - Channelizing Device
 - Traffic drum

GENERAL NOTES:

- A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
- 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 W3-5 shall be installed at that location. Additional R2-1(45) speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
- When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(65) shall be omitted. Additional R2-1(55) speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
- 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.
- Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
- Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
- The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1(1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
- Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
- All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual for Assessing Safety Hardware (MASH).
- 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.



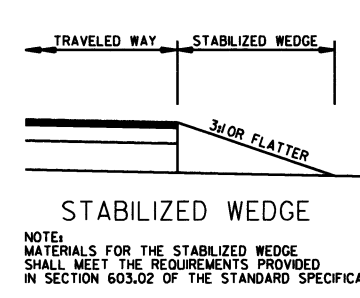
(D) Typical application - closing multiple lanes of a multilane highway.

| TRAFFIC CONTROL DEVICES | | | |
|-------------------------|---|---|---|
| NON-INTERSTATE | | | |
| VERTICAL DIFFERENTIAL | LOCATION | TRAFFIC CONTROL | |
| | | ≤ 45 MPH | > 45 MPH |
| ≤ 2" | CENTERLINE | W8-11 AND LANE STRIPING | W8-11 AND LANE STRIPING |
| > 2" | CENTERLINE | STANDARD LANE CLOSURE | STANDARD LANE CLOSURE |
| ≤ 3" | EDGE OF TRAVELED LANE OR EDGE OF SHOULDER | W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS | W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS |
| > 3" | EDGE OF TRAVELED LANE OR EDGE OF SHOULDER | W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS | W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS |
| ≤ 6" | EDGE OF TRAVELED LANE OR EDGE OF SHOULDER | W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽¹⁾ | W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾ |
| > 6" | EDGE OF TRAVELED LANE OR EDGE OF SHOULDER | W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽¹⁾ | W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾ |
| > 12" | EDGE OF TRAVELED LANE OR EDGE OF SHOULDER | W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽¹⁾ | PRECAST CONCRETE BARRIER ⁽³⁾ & EDGE LINES |
| > 24" | EDGE OF TRAVELED LANE OR EDGE OF SHOULDER | PRECAST CONCRETE BARRIER ⁽³⁾ & EDGE LINES | PRECAST CONCRETE BARRIER ⁽³⁾ & EDGE LINES |

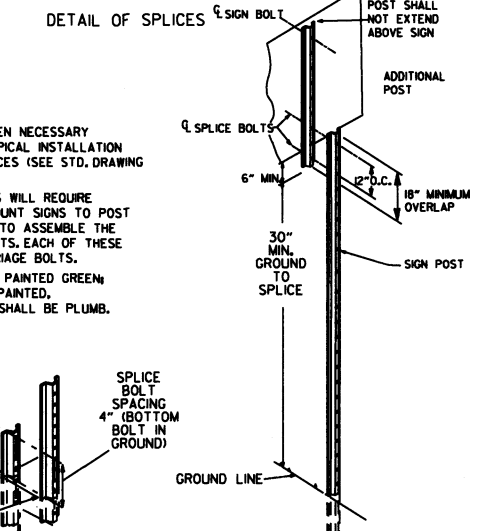
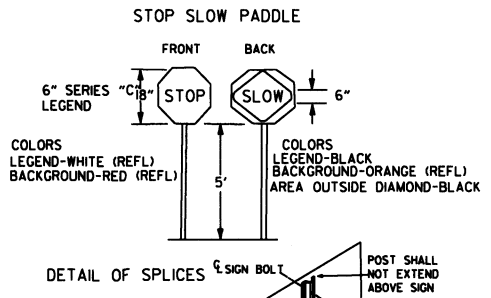
| INTERSTATE | | |
|-----------------------|---|---|
| VERTICAL DIFFERENTIAL | LOCATION | TRAFFIC CONTROL |
| | | |
| ≤ 2" | CENTERLINE | W8-11 AND LANE STRIPING |
| ≤ 2" | EDGE OF TRAVELED LANE OR EDGE OF SHOULDER | W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾ |
| > 2" | EDGE OF TRAVELED LANE OR EDGE OF SHOULDER | W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾ |
| ≤ 6" | EDGE OF TRAVELED LANE OR EDGE OF SHOULDER | PRECAST CONCRETE BARRIER & EDGE LINES |

| INTERSTATE AND NON-INTERSTATE | | |
|-------------------------------|--------|--------------------------|
| FORESLOPE | HEIGHT | TRAFFIC CONTROL |
| 1:1 | > 2 FT | PRECAST CONCRETE BARRIER |
| 2:1 | ≤ 5 FT | TRAFFIC DRUMS |
| 2:1 | > 5 FT | PRECAST CONCRETE BARRIER |
| Flatter than 2:1 | N/A | TRAFFIC DRUMS |

- GENERAL NOTES:
- WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
 - WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED. A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL, IF AND WHERE DIRECTED BY THE ENGINEER.
 - W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBTSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.



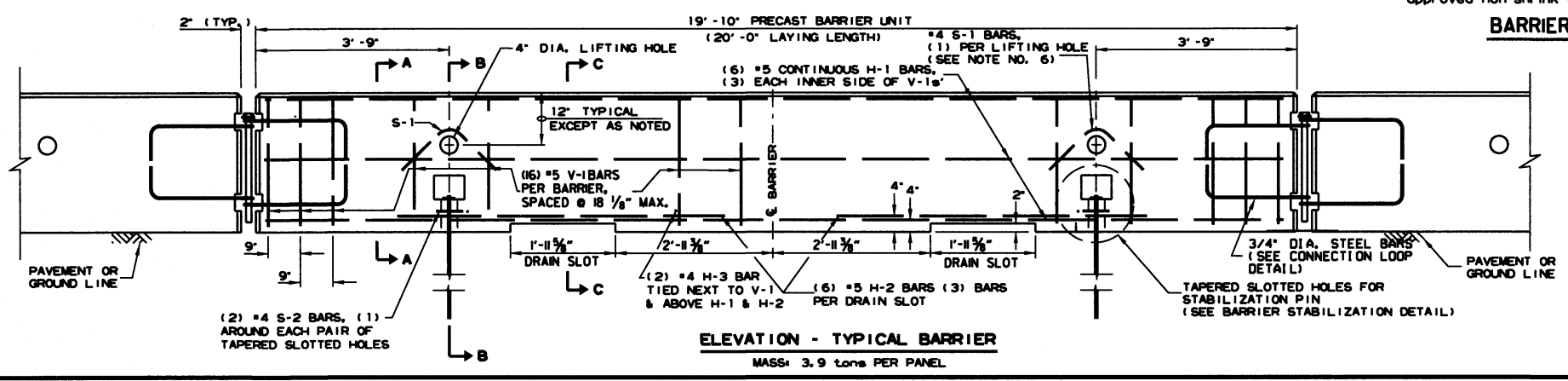
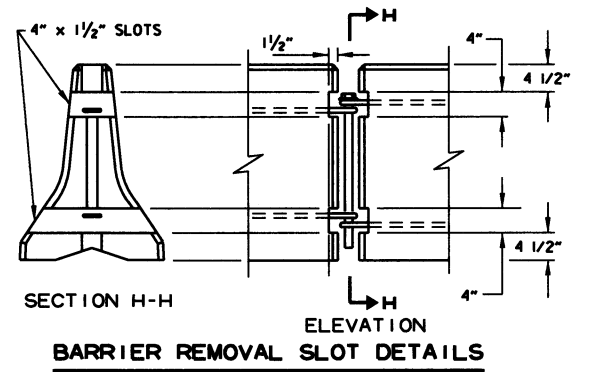
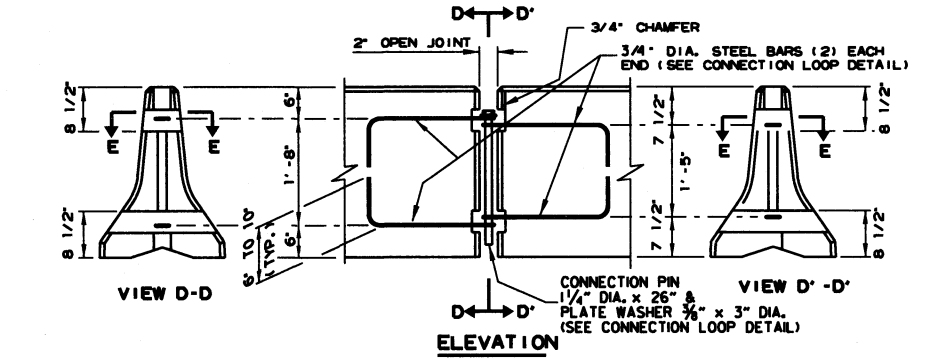
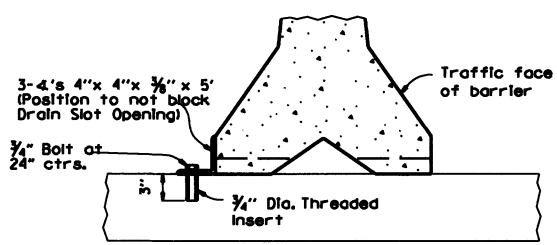
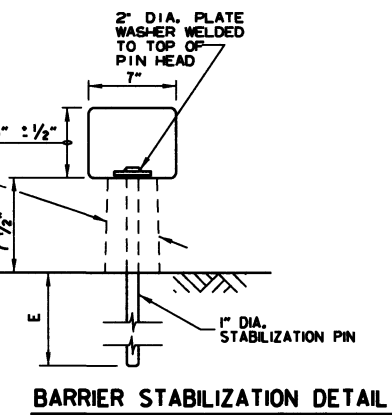
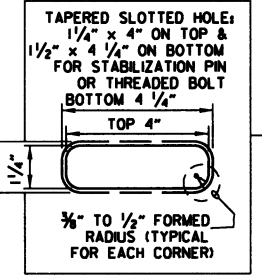
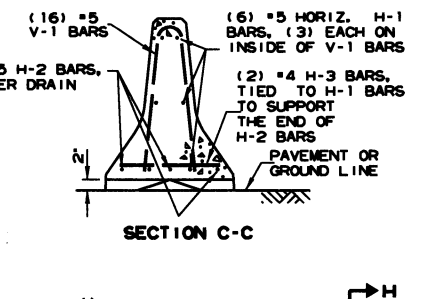
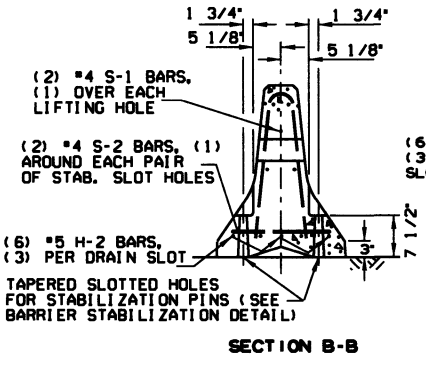
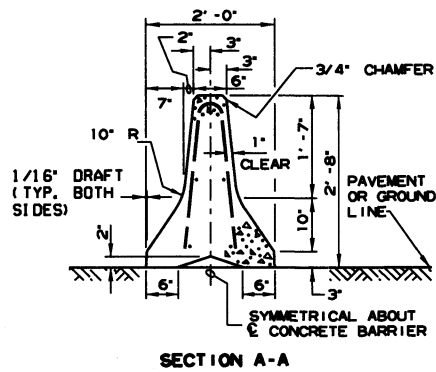
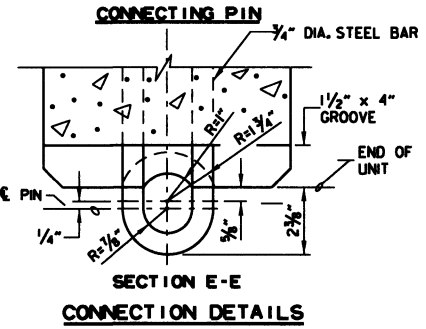
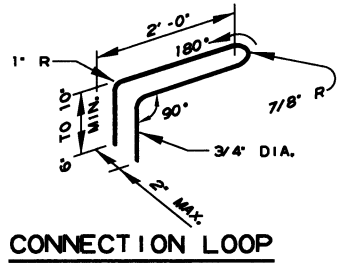
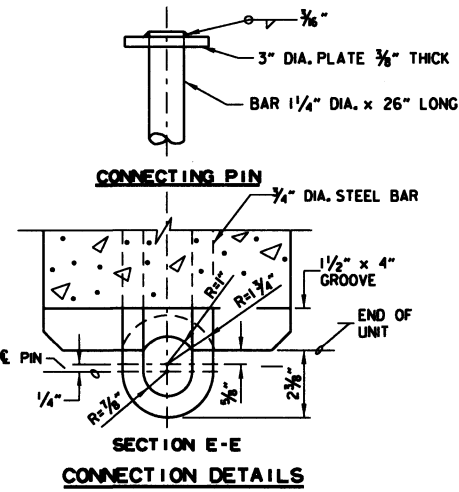
NOTE: MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.



- 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 | FILED |
|----------|---|--------|
| 7-25-19 | REVISED TRAFFIC CONTROL DEVICES DETAILS | |
| 9-2-15 | REVISED NOTE 2 & REPLACED R2-5A WITH W3-5 | |
| 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 | |

| REINFORCING BAR TABLE PER BARRIER UNIT | | | |
|--|--|----------|------------|
| MARK | LOCATION | BAR SIZE | (NO. BARS) |
| H-1 | HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS | #5 | (6) |
| H-2 | CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY | #5 | (6) |
| H-3 | TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1 | #4 | (2) |
| S-1 | OVER LIFT HOLES | #4 | (2) |
| S-2 | HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS | #4 | (2) |
| V-1 | VERTICAL IN BARRIER (3) EACH END & (2) AT EACH DRAIN SLOTS | #5 | (16) |



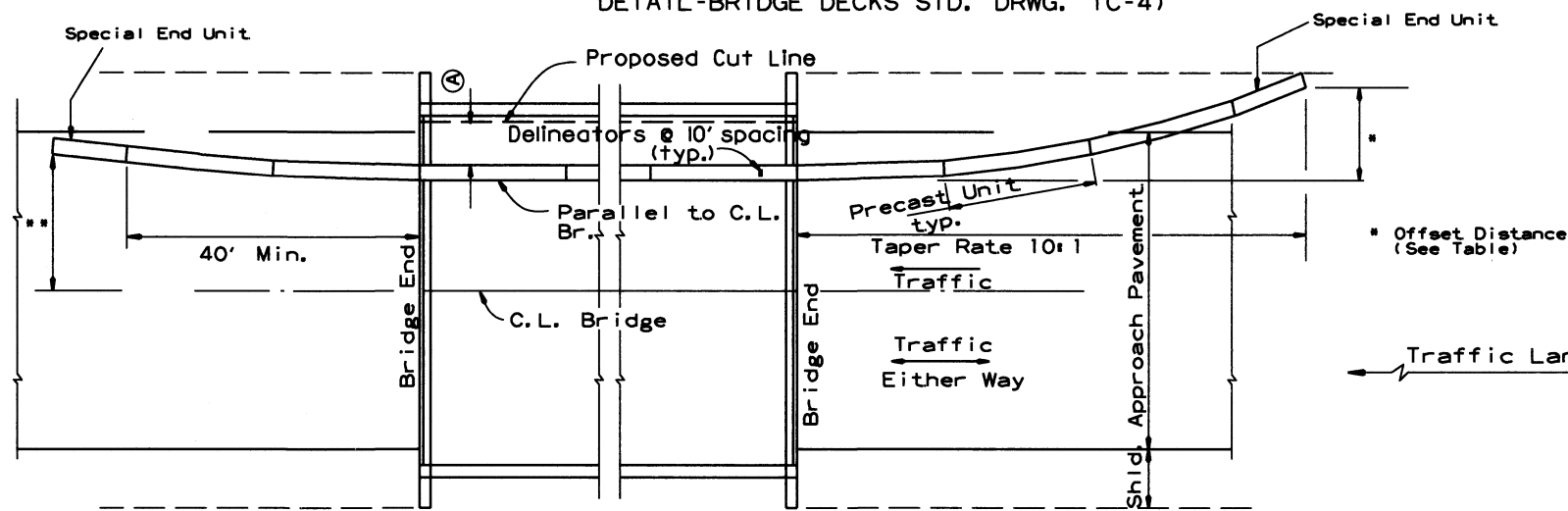
- General Notes**
- The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.
 - Materials shall meet the following minimum requirements:
Concrete: 2500 psi compressive strength at 28 days.
Reinforcing Steels AASHTO M 31 or M 53, Grade 60
Structural Steels AASHTO M 270 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 walls 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 Uniform Traffic Control Devices. Payment for delineators shall be considered included in the price bid per Ln. 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.
 - 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.
 - 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.
 - Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.
 - 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 | FILED |
|----------|---|-------|
| 2-27-04 | REVISED BARRIER STABILIZATION DETAIL | |
| 10-05-09 | ADDED REFERENCE TO MASH | |
| 8-5-09 | REV. NOTE 3 CONCERNING DRAIN SLOTS | |
| 8-29-07 | REVISED NOTE 3 | |
| 5-25-06 | DELETED GENERAL NOTE 7 | |
| 1-8-04 | 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

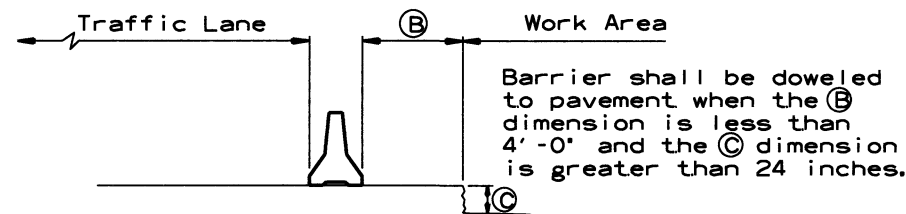
(A) 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

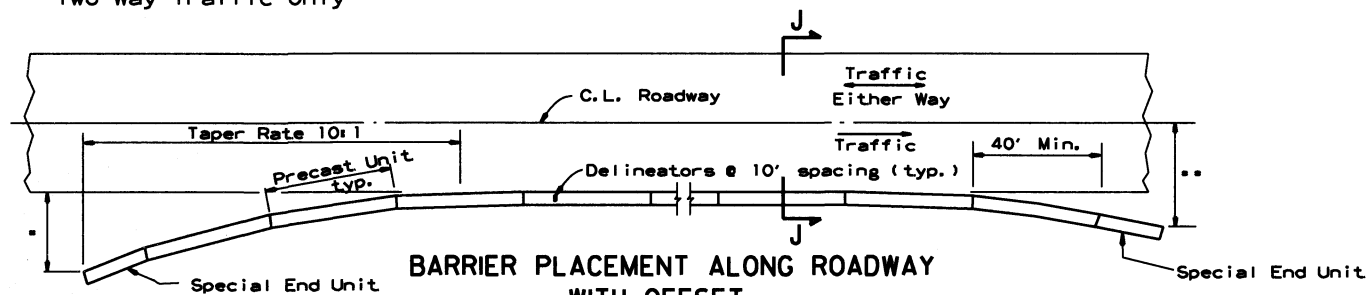
No Scale

** Offset Distance for Two Way Traffic Only



SECTION J-J

No Scale



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

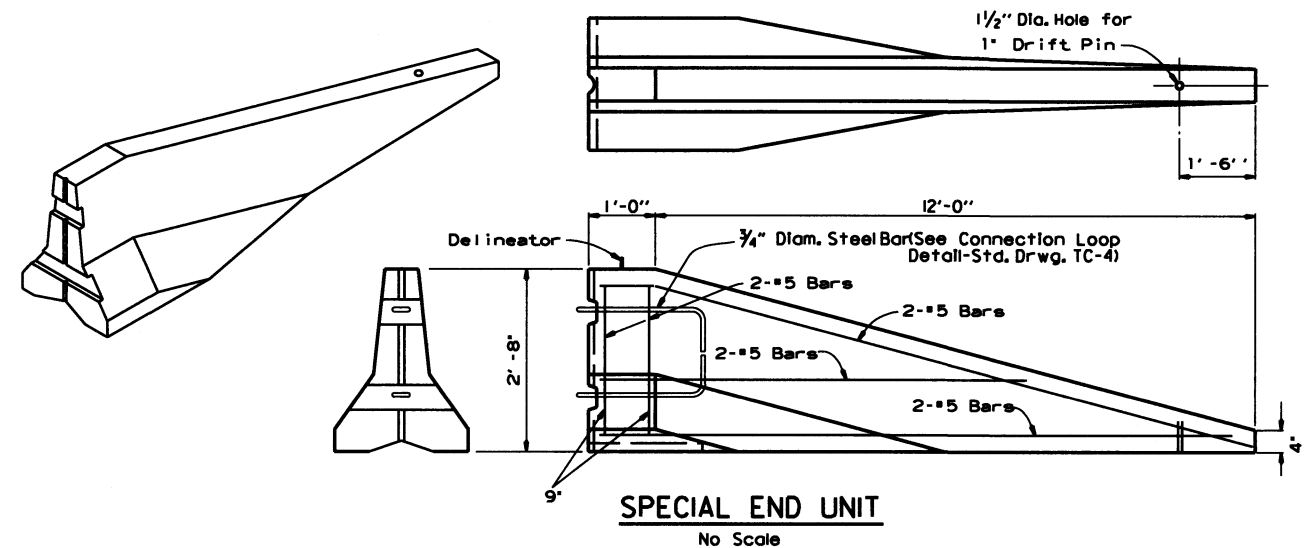
** Offset Distance for Two Way Traffic Only

* Offset Distance (See Table)

Offset Distance Table

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

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

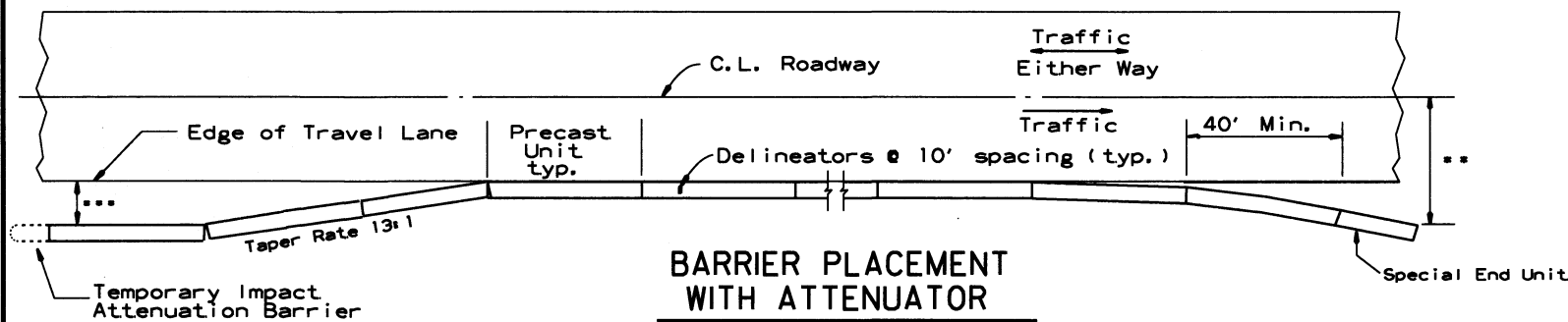


SPECIAL END UNIT

No Scale

General Notes

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



BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance for Two Way Traffic Only

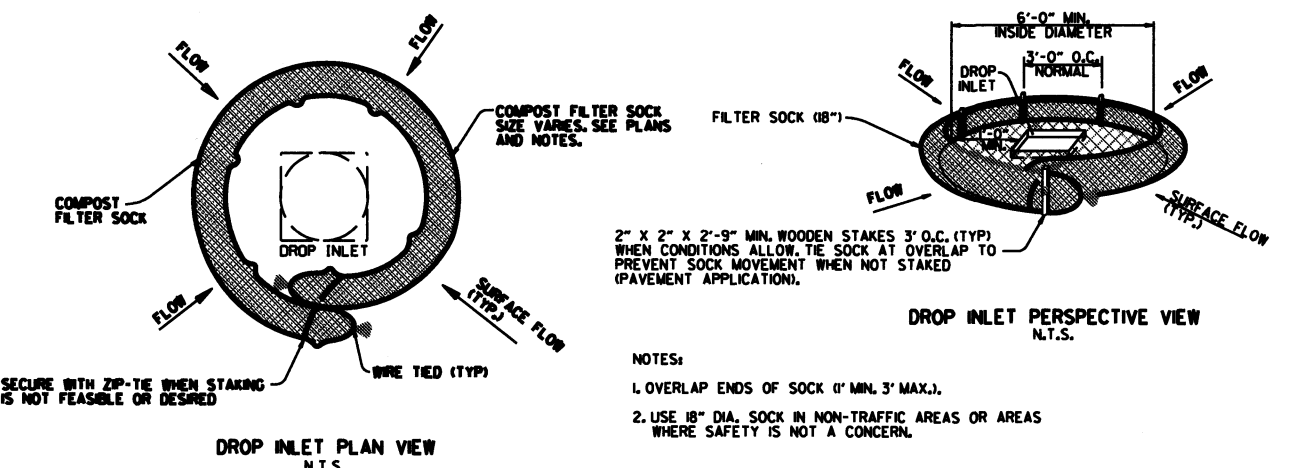
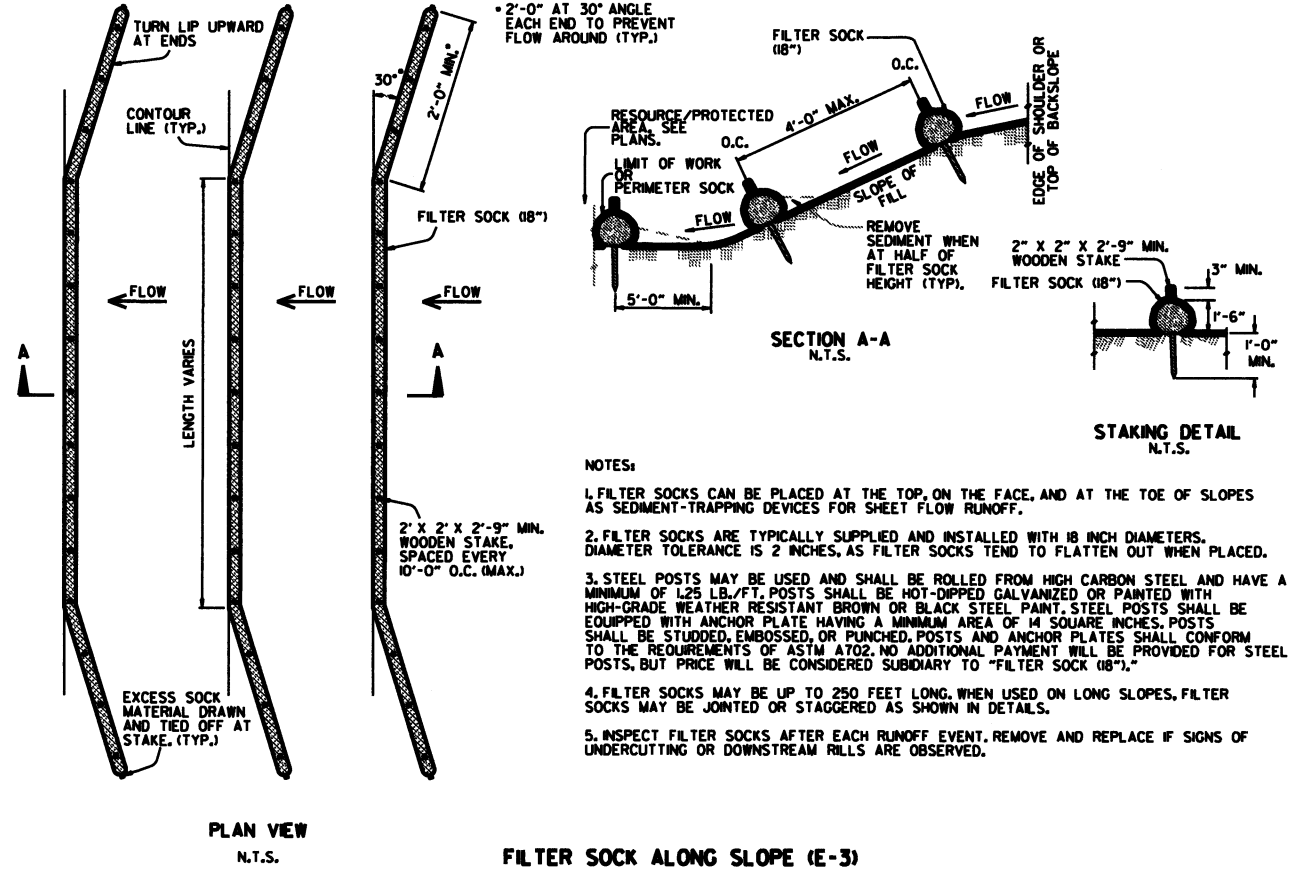
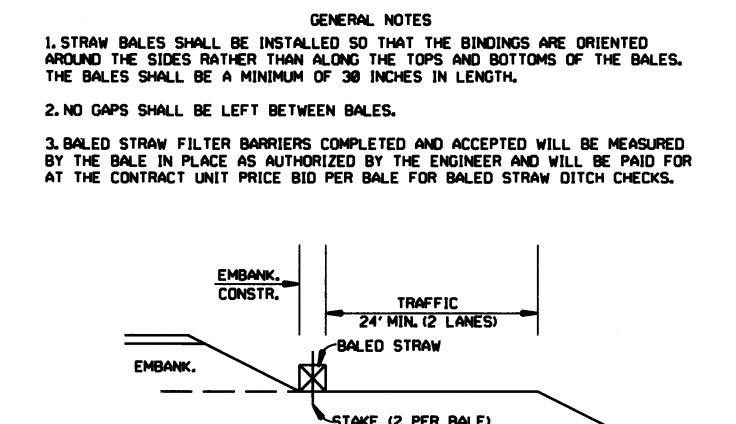
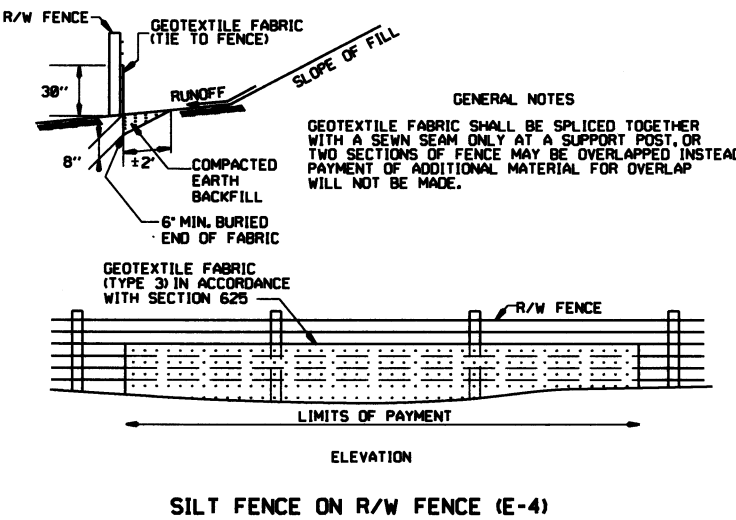
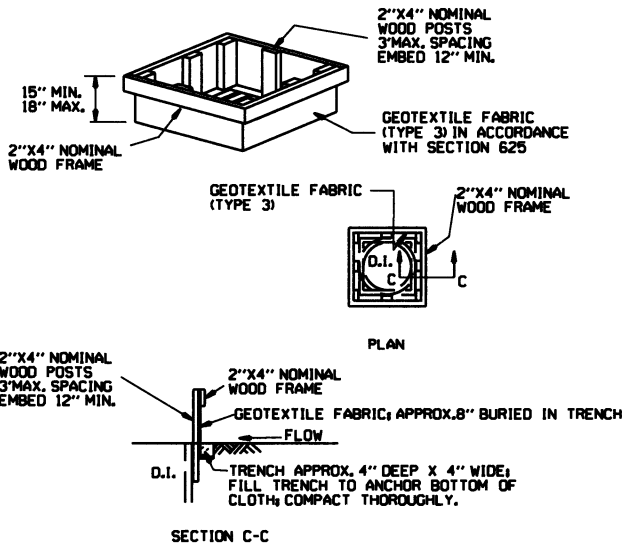
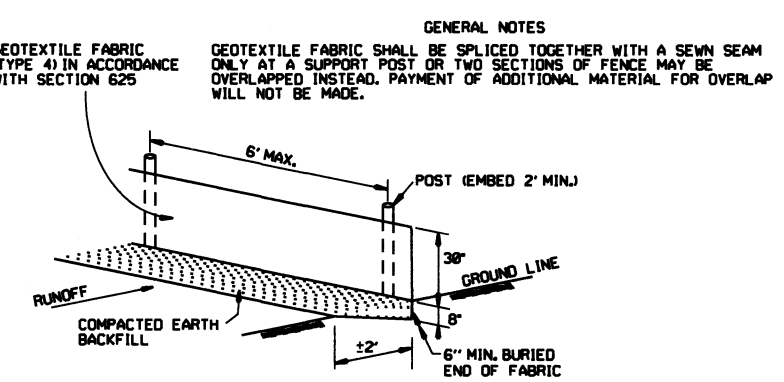
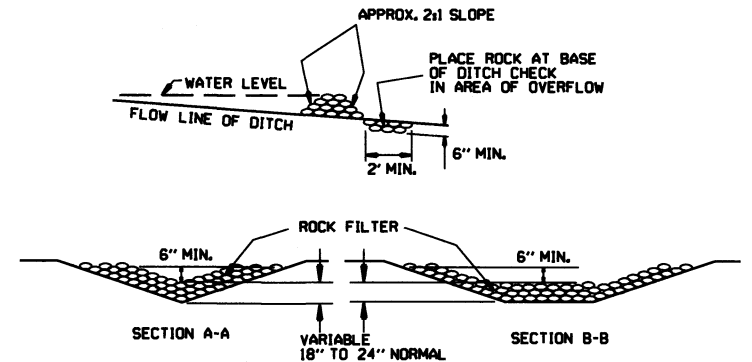
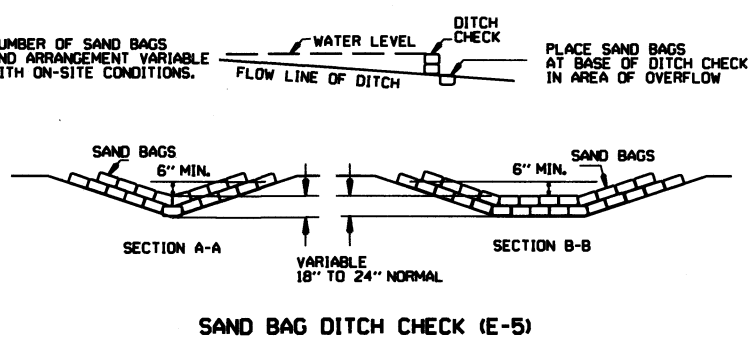
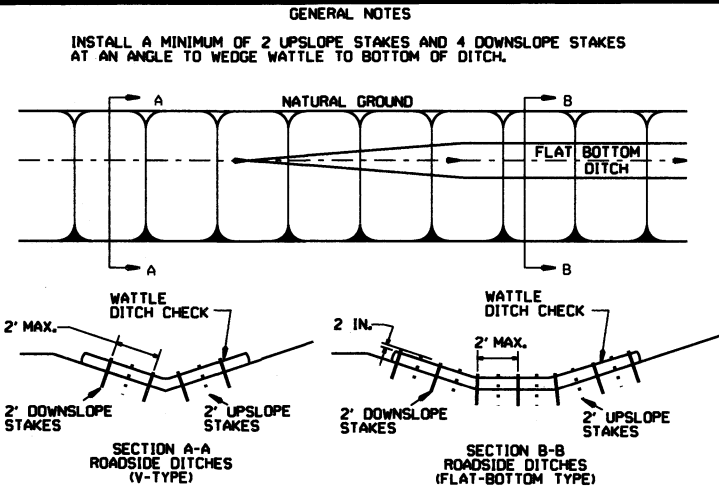
*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

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

ARKANSAS STATE HIGHWAY COMMISSION

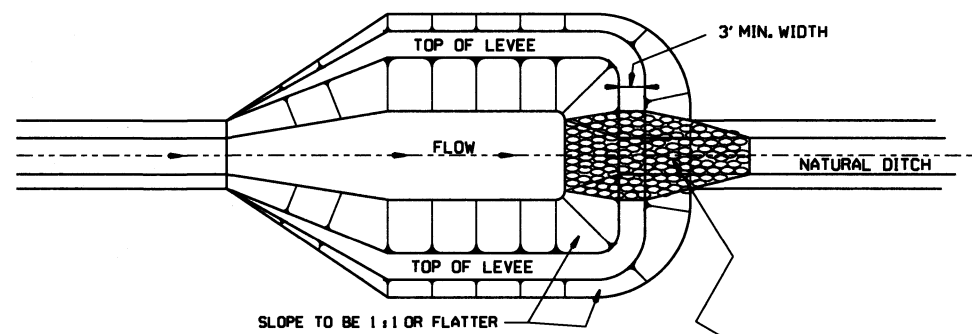
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-5

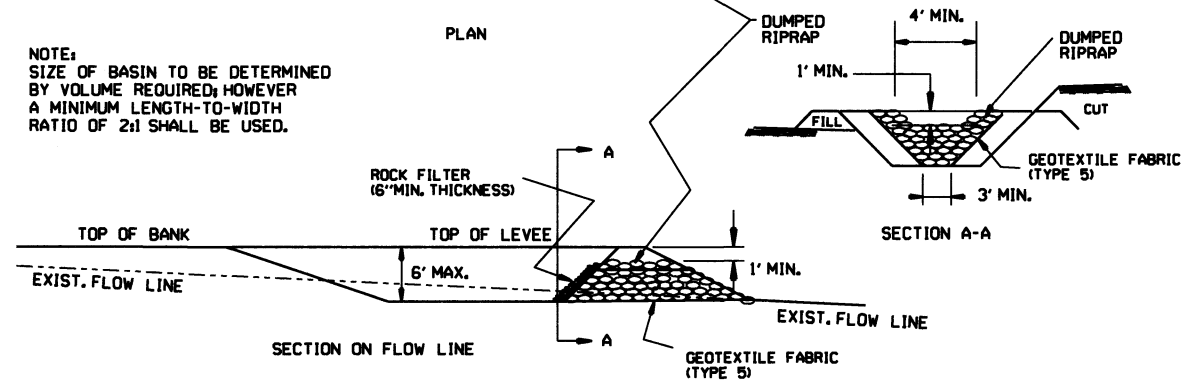


| DATE | REVISION | FILED |
|----------|--|-------------|
| 11-15-17 | ADDED FILTER SOCK E-3 AND E-13 | |
| 12-15-18 | DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK | |
| 11-18-98 | ADDED NOTES | |
| 07-20-98 | ADDED BALED STRAW FILTER BARRIER (E-2) | |
| 07-20-95 | REVISED SILTS FENCE E-4 AND E-11 | 7-20-95 |
| 07-15-94 | REV. E-4 & E-11 MIN. 15" BURIED END OF FABRIC | |
| 06-02-94 | REVISED E-1, 4, 7 & 8 DELETED E-2 & 3 | 6-2-94 |
| 04-01-93 | REDRAWN | |
| 10-01-92 | REDRAWN | |
| 08-02-76 | ISSUED R.O.M. | 238-7-28-76 |

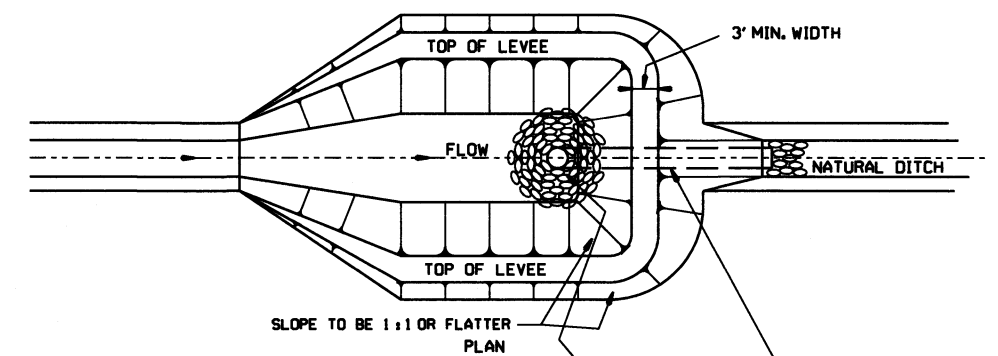
ARKANSAS STATE HIGHWAY COMMISSION
TEMPORARY EROSION CONTROL DEVICES
STANDARD DRAWING TEC-1



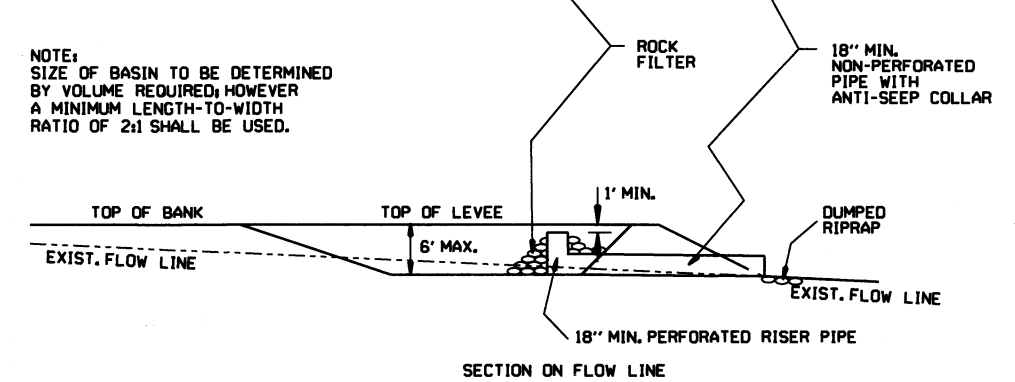
NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.



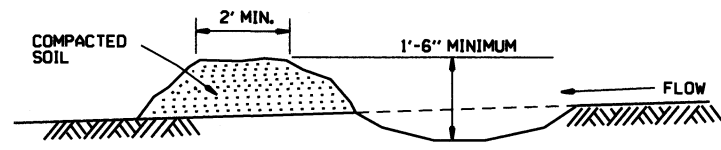
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



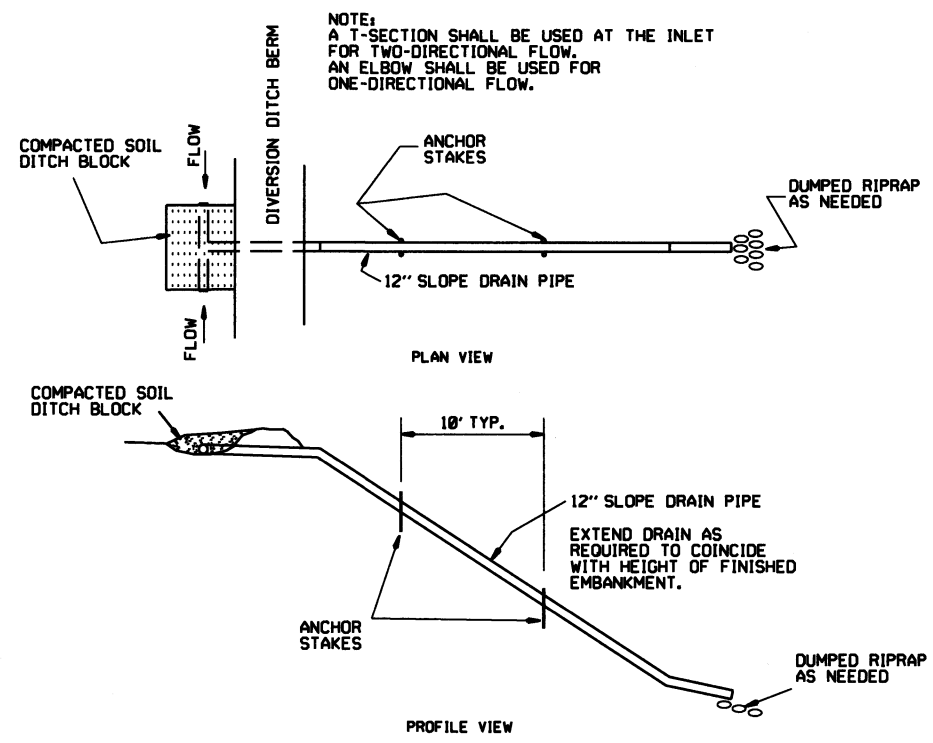
NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.



SEDIMENT BASIN WITH PIPE OUTLET (E-10)

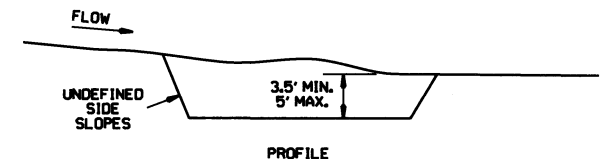
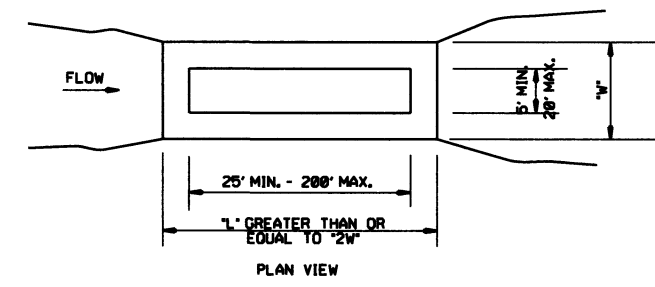


DIVERSION DITCH (E-8)



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)

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

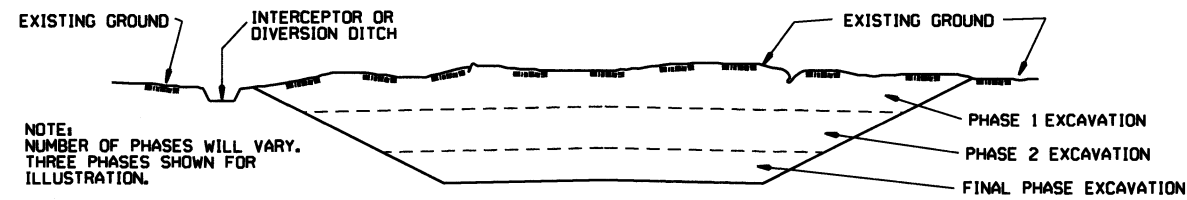
ARKANSAS STATE HIGHWAY COMMISSION
**TEMPORARY EROSION
CONTROL DEVICES**
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



NOTE:
NUMBER OF PHASES WILL VARY.
THREE PHASES SHOWN FOR
ILLUSTRATION.

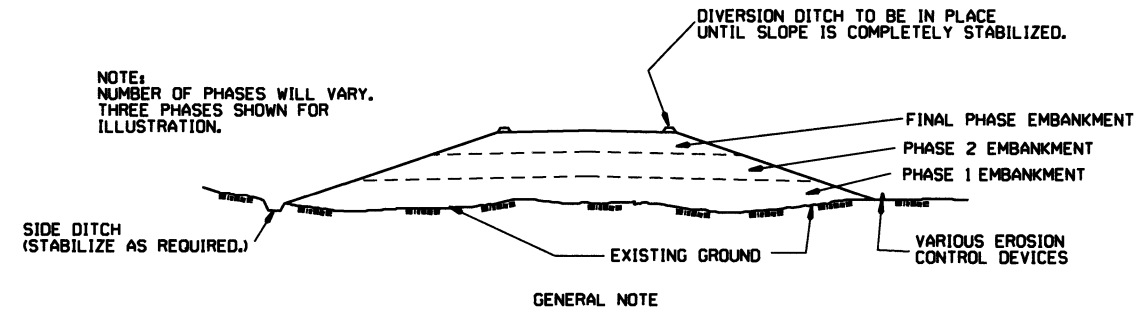
GENERAL NOTE

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



NOTE:
NUMBER OF PHASES WILL VARY.
THREE PHASES SHOWN FOR
ILLUSTRATION.

GENERAL NOTE

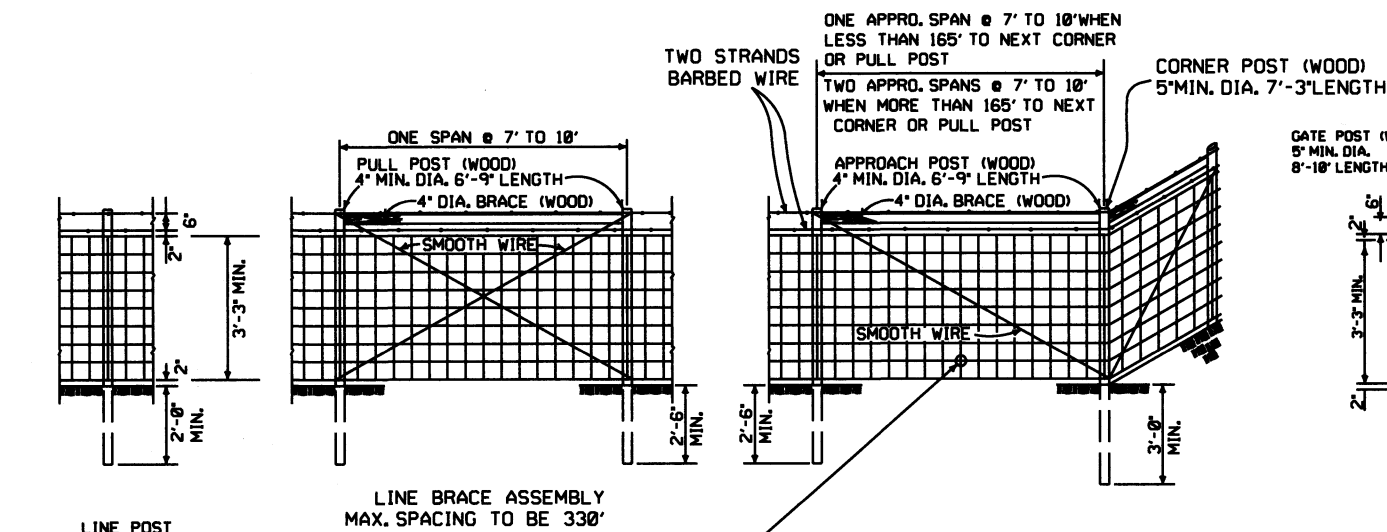
ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

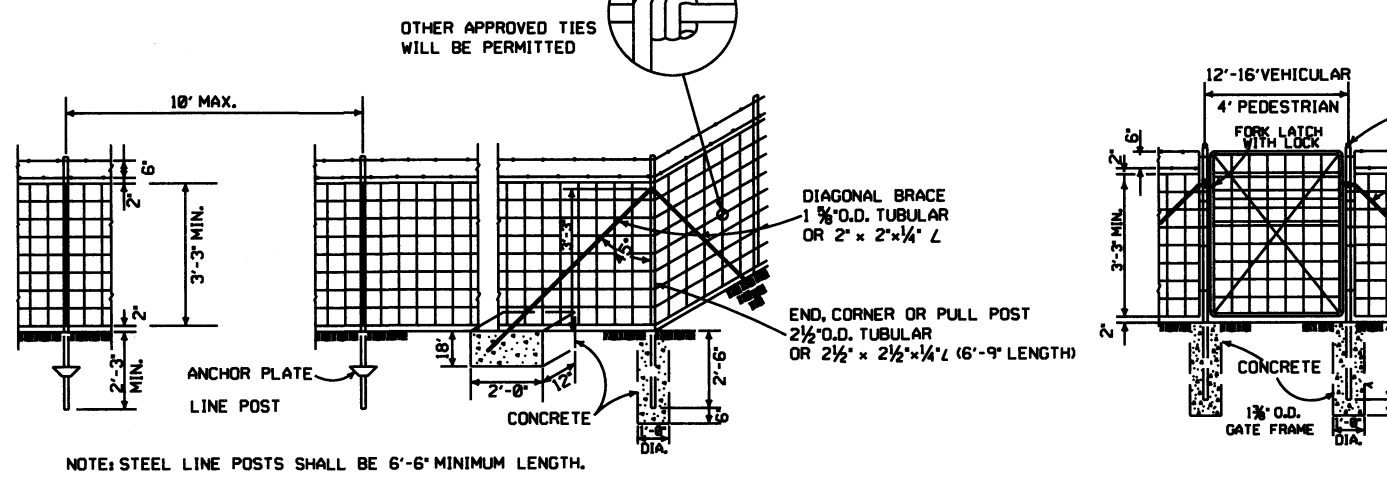
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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.

| | | |
|-----------------------------------|--------------------|--------|
| ARKANSAS STATE HIGHWAY COMMISSION | | |
| TEMPORARY EROSION CONTROL DEVICES | | |
| 11-03-94 | CORRECTED SPELLING | 6-2-94 |
| 6-2-94 | Drawn & Issued | FILMED |
| DATE | REVISION | |

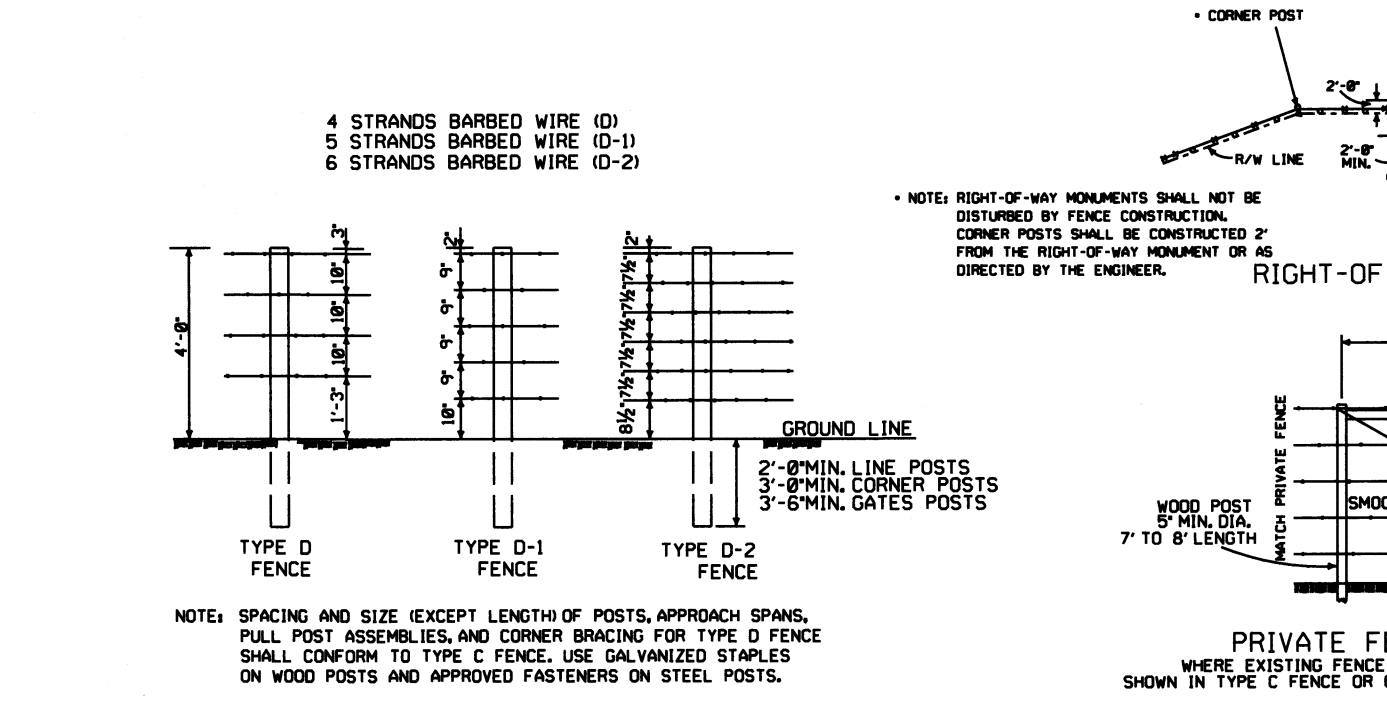
STANDARD DRAWING TEC-3



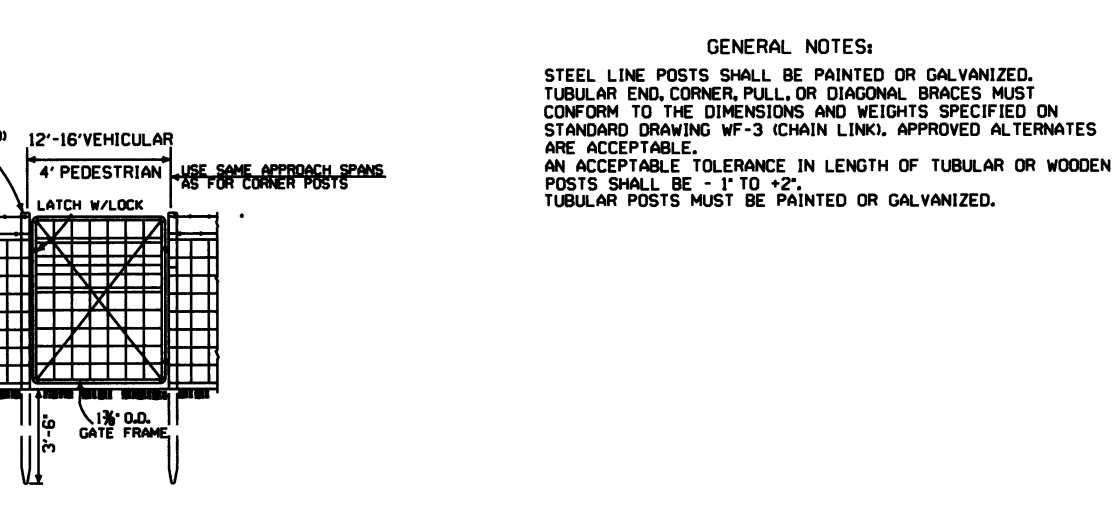
TYPE C FENCE (WOOD POSTS)



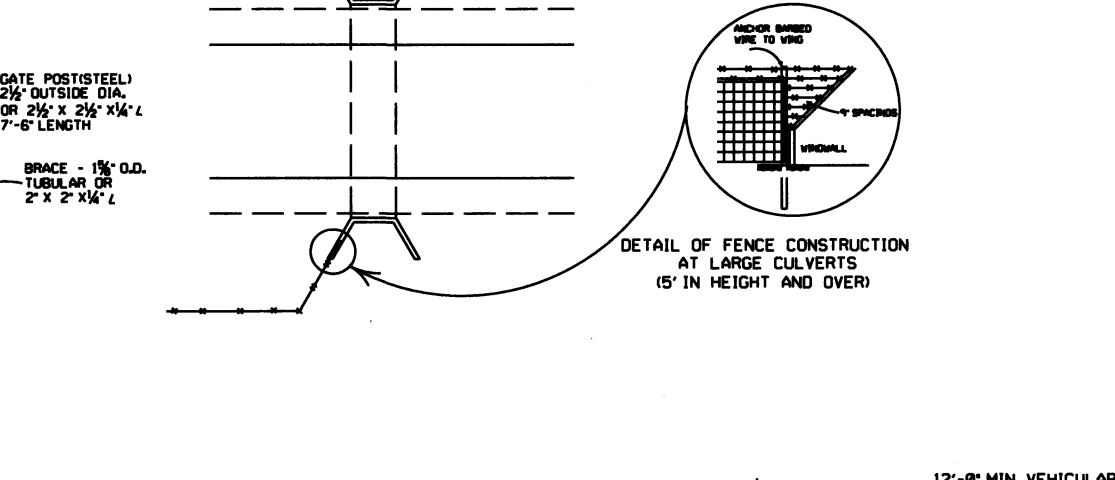
TYPE C FENCE (STEEL POSTS)



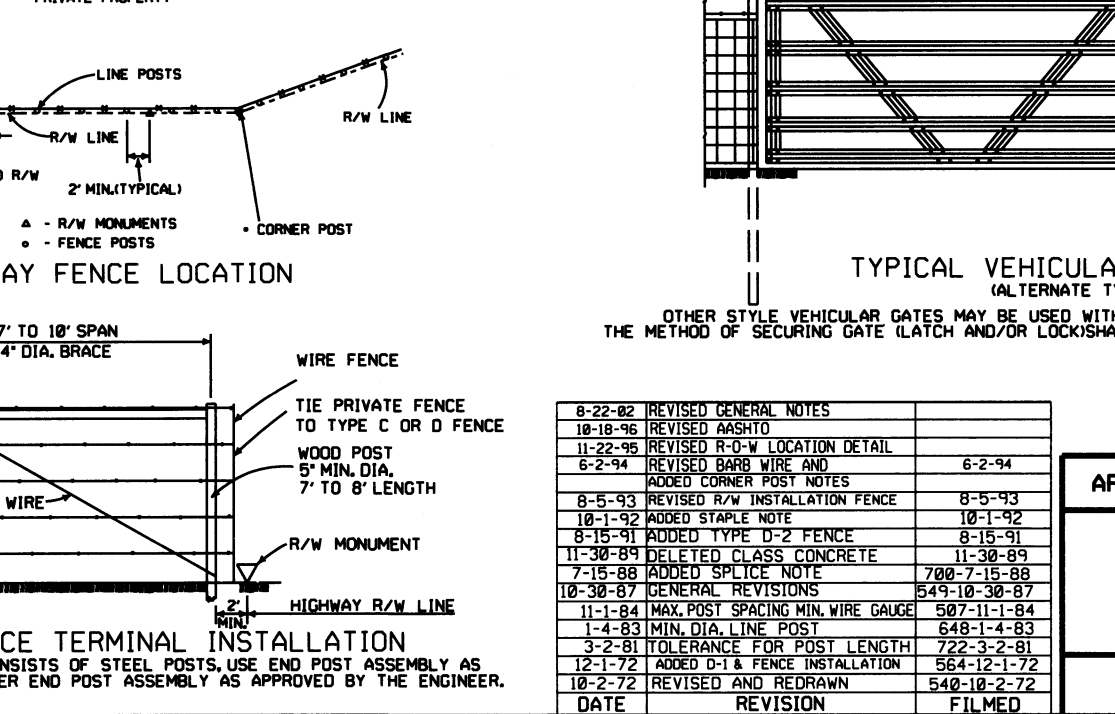
TYPE D FENCE



TYPICAL VEHICULAR GATES (ALTERNATE TYPE)



RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION

GENERAL NOTES:
 STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED. TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
 AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE -1" TO +2". TUBULAR POSTS MUST BE PAINTED OR GALVANIZED.

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

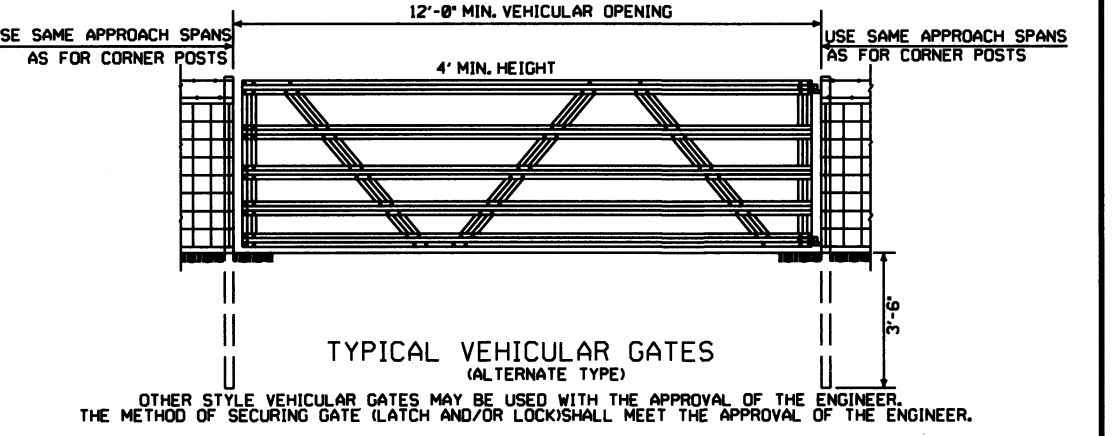
DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS, WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD, WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE 'EYE METHOD' AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP, THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE 'WESTERN UNION METHOD' AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.



| DATE | REVISION | FILMED |
|----------|---|--------------|
| 8-22-82 | REVISED GENERAL NOTES | |
| 10-18-96 | REVISED AASHTO | |
| 11-22-96 | REVISED R-O-W LOCATION DETAIL | |
| 6-2-94 | REVISED BARB WIRE AND ADDED CORNER POST NOTES | 6-2-94 |
| 8-5-93 | REVISED R/W INSTALLATION FENCE | 8-5-93 |
| 10-1-92 | ADDED STAPLE NOTE | 10-1-92 |
| 8-15-91 | ADDED TYPE D-2 FENCE | 8-15-91 |
| 11-30-89 | DELETED CLASS CONCRETE | 11-30-89 |
| 7-15-88 | ADDED SPLICE NOTE | 700-7-15-88 |
| 10-30-87 | GENERAL REVISIONS | 549-10-30-87 |
| 11-1-84 | MAX. POST SPACING MIN. WIRE GAUGE | 507-11-1-84 |
| 1-4-83 | MIN. DIA. LINE POST | 648-1-4-83 |
| 3-2-81 | TOLERANCE FOR POST LENGTH | 722-3-2-81 |
| 12-1-72 | ADDED D-1 & FENCE INSTALLATION | 564-12-1-72 |
| 10-2-72 | REVISED AND REDRAWN | 540-10-2-72 |

ARKANSAS STATE HIGHWAY COMMISSION
**WIRE FENCE
 TYPE C AND D**
 STANDARD DRAWING WF-4