| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 1 | 61 |
| | | PINEY CREEK STR. & APPRS. (S) | | | | |

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

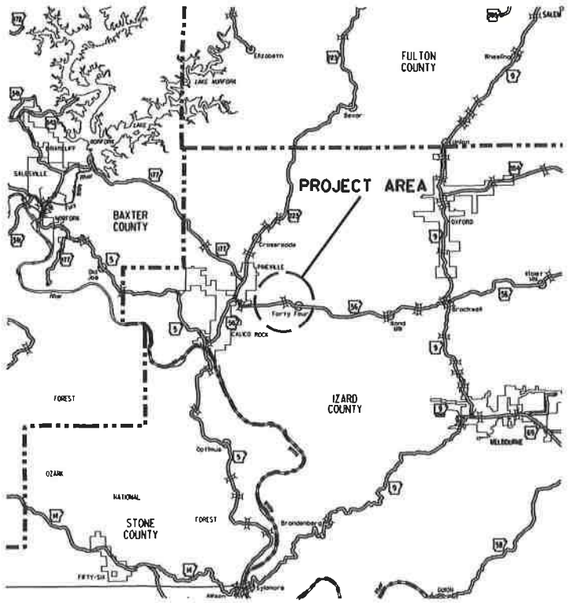
# PINEY CREEK
# STR. & APPRS. (S)

IZARD COUNTY

ROUTE 56 SECTION 1

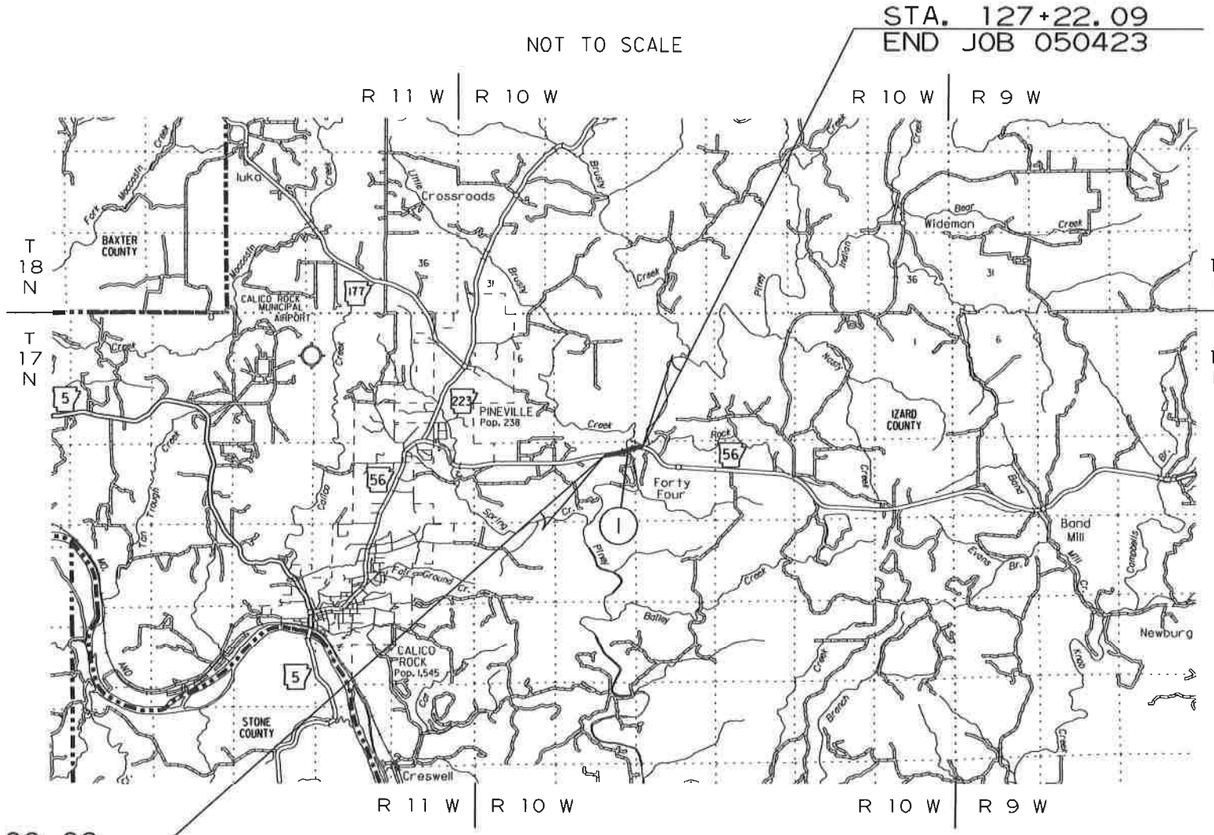
FEDERAL AID PROJ. BFP-0033(28)

JOB 050423




VICINITY MAP

NOT TO SCALE




## BRIDGE DATA

(1) BR. END STA. 116+68.90
BRIDGE NO. 07604
40'-0" CLEAR ROADWAY
362'-2½" TOTAL LENGTH
360'-0" CONT.COMP.W-BEAM UNIT
(140', 110', 110')
BR. END STA. 120+31.10


ARK. HWY. DIST. NO. 5

### DESIGN TRAFFIC DATA

| | |
|---|---|
| DESIGN YEAR | 2044 |
| 2024 ADT | 2100 |
| 2044 ADT | 2300 |
| 2044 DHV | 253 |
| DIRECTIONAL DISTRIBUTION | 0.60 |
| TRUCKS | 5% |
| DESIGN SPEED | 55 MPH |


APPROVED

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14276
JARED D. WILEY

CHIEF ENGINEER - PRECONSTRUCTION

NOV 10 2023

| | BEGIN PROJECT | MID-POINT OF PROJECT | END PROJECT |
|---|---|---|---|
| LATITUDE | N 36°08'46" | N 36°08'48" | N 36°08'50" |
| LONGITUDE | W 92°04'36" | W 92°04'21" | W 92°04'05" |

LENGTH OF PROJECT CALCULATED ALONG C.L.

| | | | | | | |
|---|---|---|---|---|---|---|
| GROSS LENGTH OF PROJECT | 2622.09 | FEET | OR | 0.497 | MILES |
| NET : : ROADWAY | 2259.88 | : | | 0.428 | MILES |
| NET : : BRIDGES | 362.21 | : | | 0.069 | MILES |
| NET : : PROJECT | 2622.09 | : | | 0.497 | MILES |

MM41715 7/18/2023
R050423.DGN 7/18/2023

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 2 | 61 |
| | | INDEX OF SHEETS AND STANDARD DRAWINGS | | | | |

# INDEX OF SHEETS

| SHEET NO. | TITLE | BRIDGE NO. | DRWG.NO. |
|---|---|---|---|
| 1 | TITLE SHEET | | |
| 2 | INDEX OF SHEETS AND STANDARD DRAWINGS | | |
| 3 | GOVERNING SPECIFICATIONS AND GENERAL NOTES | | |
| 4 - 5 | TYPICAL SECTIONS OF IMPROVEMENT | | |
| 6 - 7 | SPECIAL DETAILS | | |
| 8 - 10 | TEMPORARY EROSION CONTROL DETAILS | | |
| 11 - 13 | MAINTENANCE OF TRAFFIC DETAILS | | |
| 14 | PERMANENT PAVEMENT MARKING DETAILS | | |
| 15 - 18 | QUANTITIES | | |
| 19 | SCHEDULE OF BRIDGE QUANTITIES | 07604 | 66006 |
| 20 | SUMMARY OF QUANTITIES AND REVISIONS | | |
| 21 - 22 | SURVEY CONTROL DETAILS | | |
| 23 - 25 | PLAN AND PROFILE SHEETS | | |
| 26 | LAYOUT OF BRIDGE HIGHWAY 56 OVER PINEY CREEK (SHEET 1 OF 2) | 07604 | 66007 |
| 27 | LAYOUT OF BRIDGE HIGHWAY 56 OVER PINEY CREEK (SHEET 2 OF 2) | 07604 | 66008 |
| 28 | DETAILS OF BENT 1 (SHEET 1 OF 4) | 07604 | 66009 |
| 29 | DETAILS OF BENT 1 (SHEET 2 OF 4) | 07604 | 66010 |
| 30 | DETAILS OF BENT 1 (SHEET 3 OF 4) | 07604 | 66011 |
| 31 | DETAILS OF BENT 1 (SHEET 4 OF 4) | 07604 | 66012 |
| 32 | DETAILS OF BENT 2 (SHEET 1 OF 2) | 07604 | 66013 |
| 33 | DETAILS OF BENT 2 (SHEET 2 OF 2) | 07604 | 66014 |
| 34 | DETAILS OF BENT 3 (SHEET 1 OF 2) | 07604 | 66015 |
| 35 | DETAILS OF BENT 3 (SHEET 2 OF 2) | 07604 | 66016 |
| 36 | DETAILS OF BENT 4 (SHEET 1 OF 4) | 07604 | 66017 |
| 37 | DETAILS OF BENT 4 (SHEET 2 OF 4) | 07604 | 66018 |
| 38 | DETAILS OF BENT 4 (SHEET 3 OF 4) | 07604 | 66019 |
| 39 | DETAILS OF BENT 4 (SHEET 4 OF 4) | 07604 | 66020 |
| 40 | DETAILS OF ELASTOMERIC BEARINGS | 07604 | 66021 |
| 41 | DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT(SHEET 1 OF 8) | 07604 | 66022 |
| 42 | DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT(SHEET 2 OF 8) | 07604 | 66023 |
| 43 | DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT(SHEET 3 OF 8) | 07604 | 66024 |
| 44 | DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT(SHEET 4 OF 8) | 07604 | 66025 |
| 45 | DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT(SHEET 5 OF 8) | 07604 | 66026 |
| 46 | DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT(SHEET 6 OF 8) | 07604 | 66027 |
| 47 | DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT(SHEET 7 OF 8) | 07604 | 66028 |
| 48 | DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT(SHEET 8 OF 8) | 07604 | 66029 |
| 49 | DETAILS OF TYPE SPECIAL APPROACH SLAB | 07604 | 66030 |
| 50 - 61 | CROSS SECTIONS | | |

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

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

Digitally signed by Trinity Smith
Date: 2023.11.09 08:28:10-06'00'

## 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 | 04-14-23 |
| 55020 | STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS | 03-24-16 |
| 55030F | STANDARD DETAILS FOR TYPE F APPROACH GUTTERS | 04-08-21 |
| 55070 | STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36 | 09-27-22 |

## ROADWAY STANDARD DRAWINGS

| DRWG.NO. | TITLE | DATE |
|---|---|---|
| CDP-1 | CONCRETE DITCH PAVING | 12-08-16 |
| DR-2 | DETAILS OF DRIVEWAYS & STREET TURNOUTS | 05-19-22 |
| FES-1 | FLARED END SECTION | 10-18-96 |
| FES-2 | FLARED END SECTION | 10-18-96 |
| GR-6 | GUARDRAIL DETAILS | 05-19-22 |
| GR-8 | GUARDRAIL DETAILS | 11-07-19 |
| GR-9 | GUARDRAIL DETAILS | 11-07-19 |
| GR-10 | GUARDRAIL DETAILS | 11-07-19 |
| GR-11 | GUARDRAIL DETAILS | 11-07-19 |
| GR-12 | GUARDRAIL DETAILS | 05-14-20 |
| MB-1 | MAILBOX DETAILS | 11-18-04 |
| 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 |
| PCP-3 | PLASTIC PIPE CULVERT (POLYPROPYLENE) | 02-27-20 |
| PM-1 | PAVEMENT MARKING DETAILS | 02-27-20 |
| PU-1 | DETAILS OF PIPE UNDERDRAIN | 12-08-16 |
| SE-2 | TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC | 11-07-19 |
| SI-1 | DETAILS OF SPECIAL ITEMS | 10-25-18 |
| TC-1 | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION | 11-07-19 |
| TC-2 | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION | 05-20-21 |
| TC-3 | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION | 08-12-21 |
| TC-4 | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER | 11-07-19 |
| TC-5 | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER | 11-07-19 |
| TEC-1 | TEMPORARY EROSION CONTROL DEVICES | 11-16-17 |
| TEC-3 | TEMPORARY EROSION CONTROL DEVICES | 11-03-94 |
| WF-2 | WIRE FENCE WATER GAPS | 04-20-79 |
| WF-4 | WIRE FENCE TYPE C AND D | 08-22-02 |

MM41715 5/15/2023
R050423.DGN

INDEX OF SHEETS AND STANDARD DRAWINGS

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| 1-11-2024 | | 6 | ARK. | 050423 | 3 | 61 |
| | | GOVERNING SPECIFICATIONS & GENERAL NOTES | | | | |


## GOVERNING SPECIFICATIONS

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

| NUMBER | TITLE |
|---|---|
| ERRATA_____ | ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS |
| FHWA-1273__ | REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS |
| FHWA-1273__ | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS |
| FHWA-1273__ | SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140) |
| FHWA-1273__ | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES |
| FHWA-1273__ | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS |
| FHWA-1273__ | SUPPLEMENT - TRAINING PROGRAM - JOB 050423 |
| 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 |
| 103-2_____ | CONTACT INFORMATION FOR MOTORISTS DAMAGE CLAIMS |
| 105-4_____ | MAINTENANCE DURING CONSTRUCTION |
| 107-2_____ | RESTRAINING CONDITIONS |
| 108-1_____ | LIQUIDATED DAMAGES |
| 108-2_____ | WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER |
| 110-1_____ | PROTECTION OF WATER QUALITY AND WETLANDS |
| 210-1_____ | UNCLASSIFIED EXCAVATION |
| 303-1_____ | AGGREGATE BASE COURSE |
| 306-1_____ | QUALITY CONTROL AND ACCEPTANCE |
| 307-1_____ | CEMENT |
| 308-1_____ | CEMENT |
| 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 |
| 400-7_____ | TRACKLESS TACK |
| 404-3_____ | DESIGN OF ASPHALT MIXTURES |
| 409-2_____ | ASPHALT LABORATORY FACILITY |
| 410-1_____ | CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES |
| 410-2_____ | DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS |
| 410-4_____ | EVALUATION OF ACHM SUBLOT REPLACEMENT MATERIAL |
| 416-1_____ | RECYCLED ASPHALT PAVEMENT |
| 501-2_____ | CEMENT |
| 600-2_____ | INCIDENTAL CONSTRUCTION |
| 603-1_____ | LANE CLOSURE NOTIFICATION |
| 604-1_____ | RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES |
| 604-3_____ | TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH) |
| 605-1_____ | CONCRETE DITCH PAVING |
| 606-1_____ | PIPE CULVERTS FOR SIDE DRAINS |
| 617-1_____ | GUARDRAIL TERMINAL (TYPE 2) |
| 617-2_____ | GUARDRAIL DELINEATORS |
| 620-1_____ | MULCH COVER |
| 621-1_____ | FILTER SOCKS |
| 800-1_____ | STRUCTURES |
| 802-3_____ | CONCRETE FOR STRUCTURES |
| 802-4_____ | CEMENT |
| 804-2_____ | REINFORCING STEEL FOR STRUCTURES |
| 807-2_____ | STEEL STRUCTURES |
| 808-1_____ | INSTALLATION OF ELASTOMERIC BEARINGS |
| 808-2_____ | ELASTOMERIC BEARINGS |
| JOB 050423__ | BIDDING REQUIREMENTS AND CONDITIONS |
| JOB 050423__ | BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT |
| JOB 050423__ | BROADBAND INTERNET SERVICE FOR FIELD OFFICE |
| JOB 050423__ | BUY AMERICA - CONSTRUCTION MATERIALS |
| JOB 050423__ | CARGO PREFERENCE ACT REQUIREMENTS |
| JOB 050423__ | CAVE DISCOVERY |
| JOB 050423__ | CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE |
| JOB 050423__ | COLD MILLING – COUNTY PROPERTY |
| JOB 050423__ | CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS |
| JOB 050423__ | CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS |
| JOB 050423__ | CULVERT CLEAN OUT |
| JOB 050423__ | DESIGN AND QUALITY CONTROL ASPHALT MIXTURES |
| JOB 050423__ | DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES |
| JOB 050423__ | DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES |
| JOB 050423__ | DRILLED SHAFT FOUNDATIONS |
| JOB 050423__ | ESTABLISHING CONTRACT TIME – WORKING DAY CONTRACT |
| JOB 050423__ | FLEXIBLE BEGINNING OF WORK |
| JOB 050423__ | GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION |
| JOB 050423__ | LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS |
| JOB 050423__ | LONGITUDINAL JOINT DENSITIES FOR ACHM SURFACE COURSES |
| JOB 050423__ | MANDATORY ELECTRONIC CONTRACT |
| JOB 050423__ | MANDATORY ELECTRONIC DOCUMENT SUBMITTAL |
| JOB 050423__ | NESTING SITES OF MIGRATORY BIRDS |
| JOB 050423__ | NONDESTRUCTIVE TESTING OF DRILLED SHAFTS |
| JOB 050423__ | OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS |
| JOB 050423__ | PARTNERING REQUIREMENTS |
| JOB 050423__ | PLASTIC PIPE |
| JOB 050423__ | PRICE ADJUSTMENT FOR ASPHALT BINDER |
| JOB 050423__ | PRICE ADJUSTMENT FOR FUEL |
| JOB 050423__ | PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT |
| JOB 050423__ | SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS |
| JOB 050423__ | SHORING FOR CULVERTS |
| JOB 050423__ | SOIL STABILIZATION |
| JOB 050423__ | SPECIAL CLEARING REQUIREMENTS |
| JOB 050423__ | STORM WATER POLLUTION PREVENTION PLAN |
| JOB 050423__ | SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS |
| JOB 050423__ | TOTAL SOLAR ECLIPSE |
| JOB 050423__ | UTILITY ADJUSTMENTS |
| JOB 050423__ | VALUE ENGINEERING |
| JOB 050423__ | WARM MIX ASPHALT |
| JOB 050423__ | WATER POLLUTION CONTROL |

## GENERAL NOTES

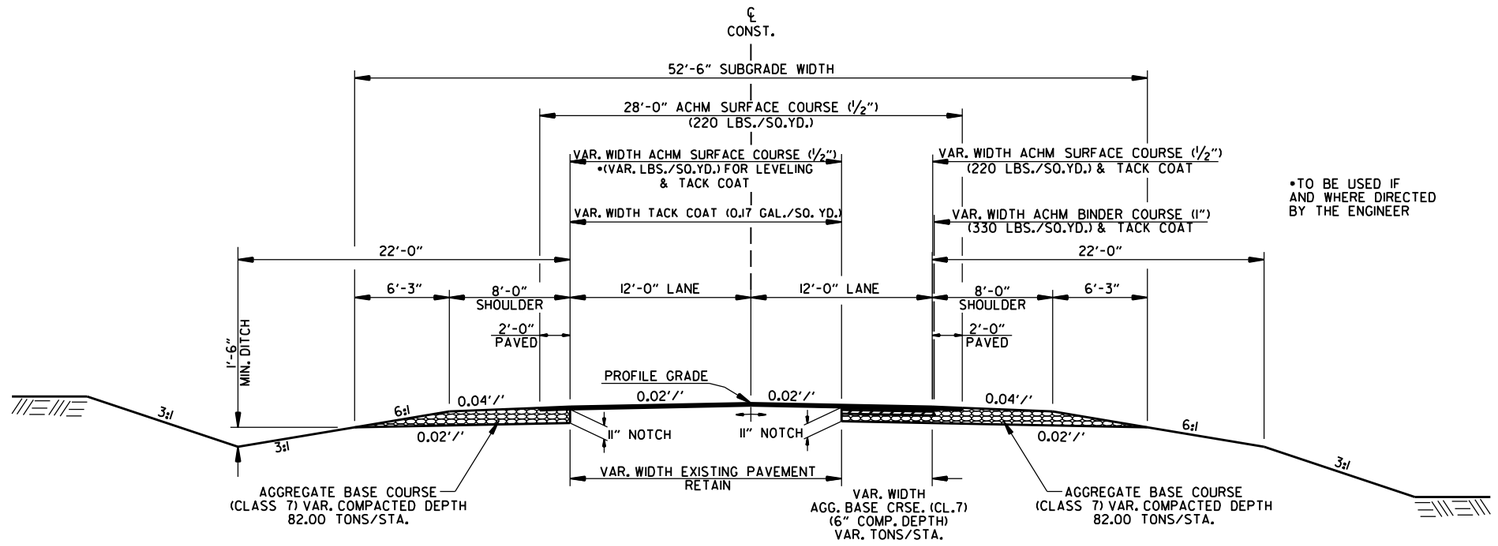
1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. 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 RESDENT ENGINEER.
9. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
10. 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.



MM41715 5/15/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 4 | 61 |
| | | TYPICAL SECTIONS OF IMPROVEMENT | | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-09-2023




HWY. 56 - NOTCH, WIDEN, AND OVERLAY SECTION
STA. 101+00.00 TO STA. 101+37.04

NOTES:

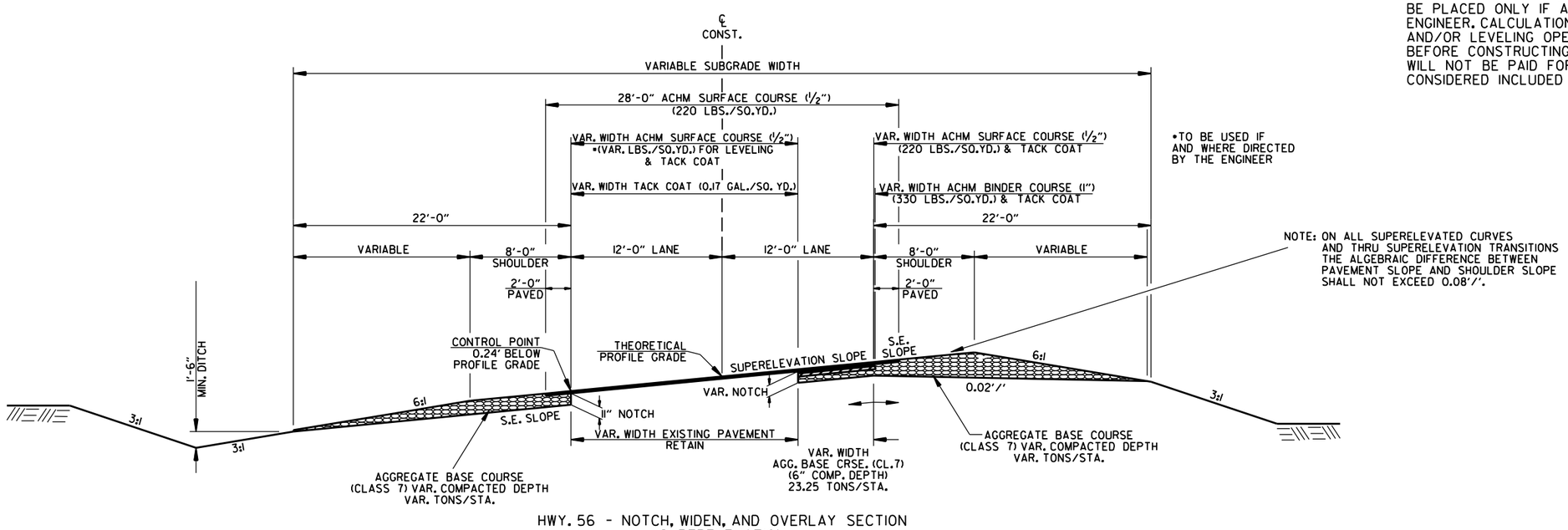
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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

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

WITH 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.

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.




HWY. 56 - NOTCH, WIDEN, AND OVERLAY SECTION
SUPERELEVATION
STA. 101+37.04 TO STA. 112+06.47
STA. 124+60.79 TO STA. 127+22.09

MM41715 5/15/2023
R050423.DGN

TYPICAL SECTIONS OF IMPROVEMENT

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
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STATE OF ARKANSAS
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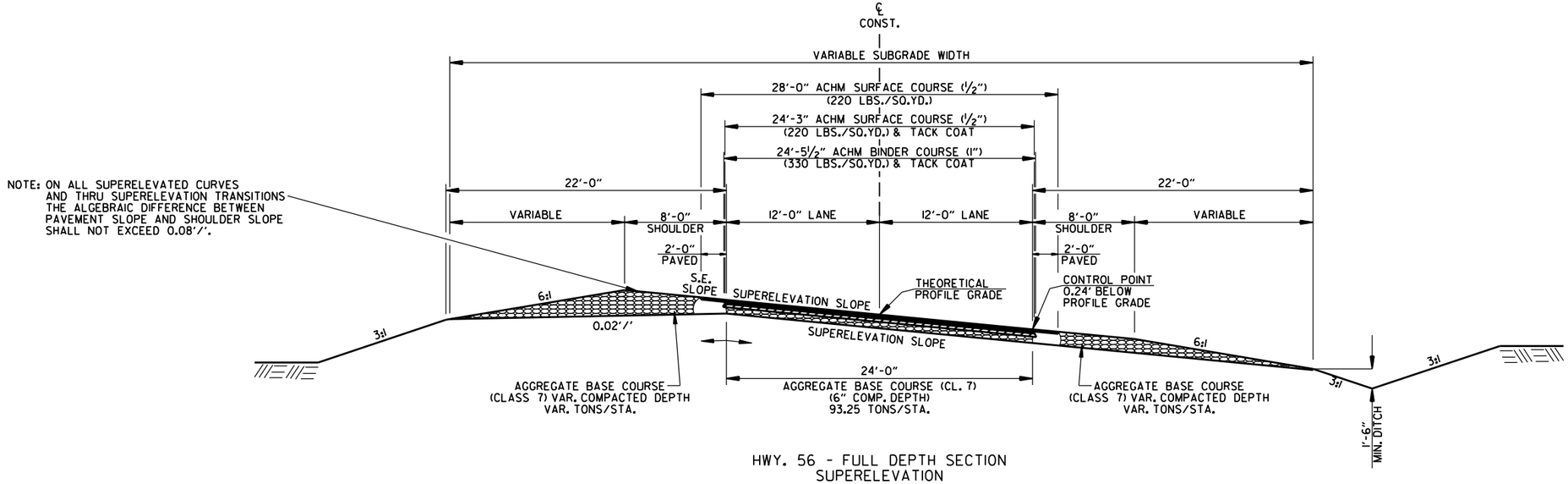


NOTE: ON ALL SUPERELEVATED CURVES AND THRU SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

HWY. 56 - FULL DEPTH SECTION
SUPERELEVATION

STA. 112+06.47 TO STA. 116+32.40
STA. 120+67.60 TO STA. 124+60.79

NOTES:

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

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

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

WITH 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.

MM41715 5/15/2023
R050423.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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|---|---|---|---|---|---|---|
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| | | SPECIAL DETAILS | | | | |

STATE OF ARKANSAS
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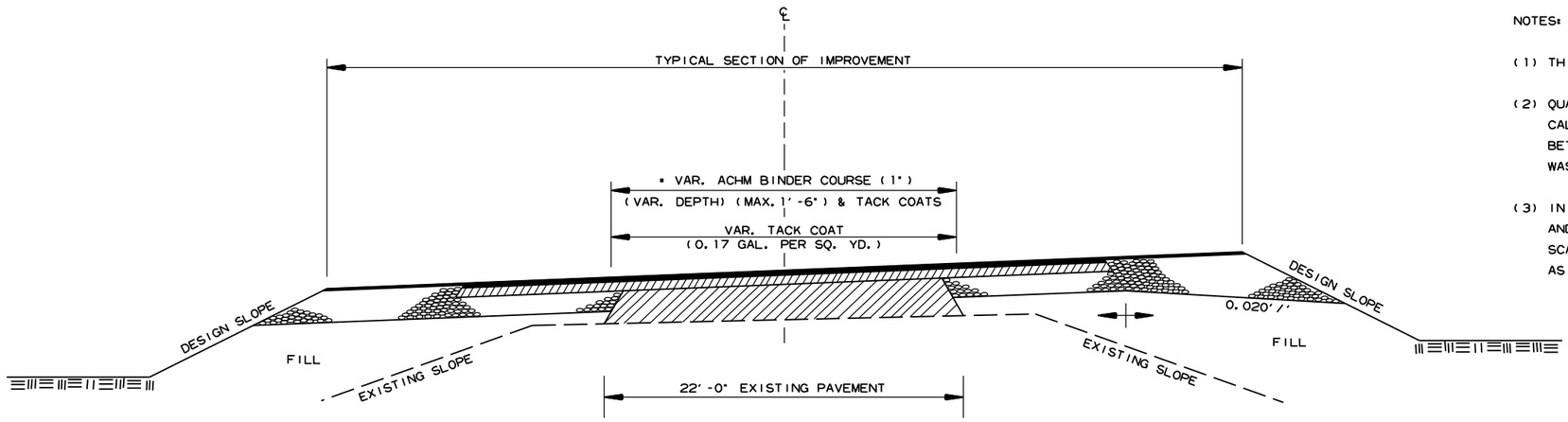
TRINITY D. SMITH

11-09-2023




* 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.

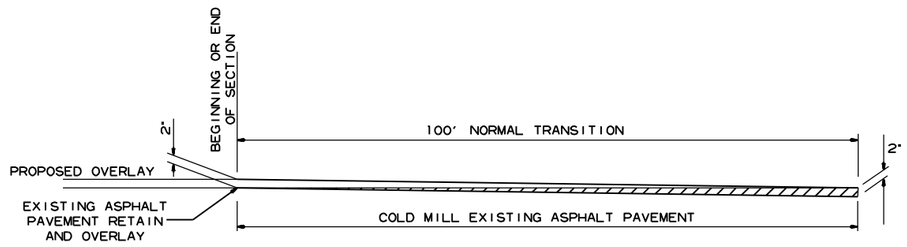
MM41715 5/16/2023
R050423.DGN

SPECIAL DETAILS

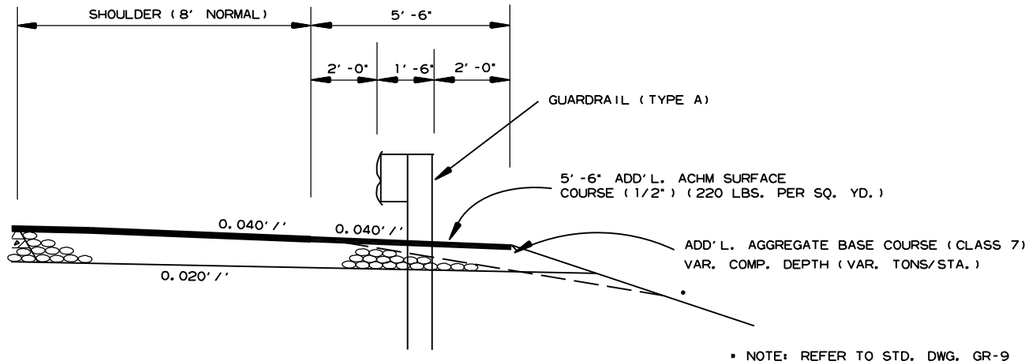
| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 7 | 61 |
| | | SPECIAL DETAILS | | | | |

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

11-09-2023

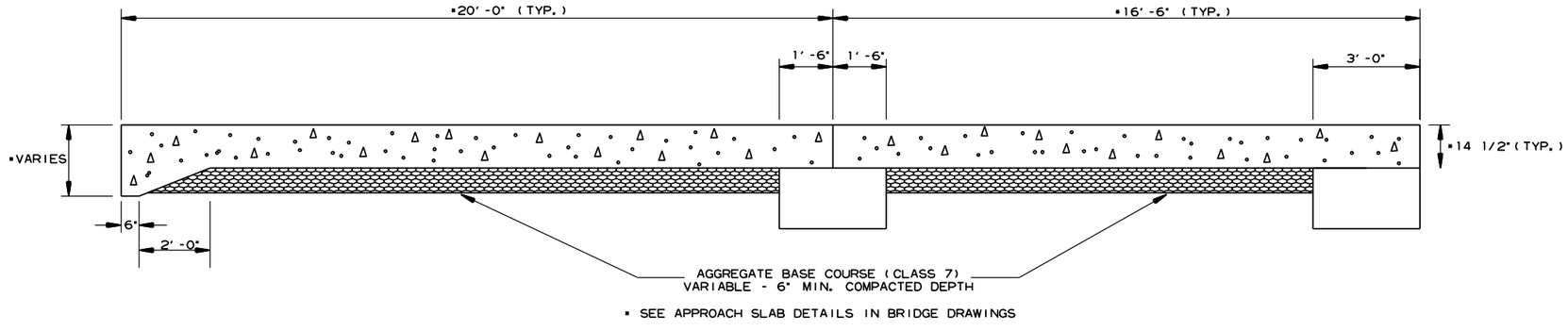



DETAIL FOR TRANSITIONS




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

WIDENING FOR GUARDRAIL




▪ SEE APPROACH SLAB DETAILS IN BRIDGE DRAWINGS

SECTION OF APPROACH SLAB

MM41715 5/16/2023
R050423.DGN

SPECIAL DETAILS

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 8 | 61 |

TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-09-2023

STA. 101+00.00
BEGIN JOB 050423
LOG MILE 5.25

100 105 110 115 120 125

P.O.B. 100+00.00
+00.00 39.55
+30.00 70.00
P.C. 103+62.04
+00.00 60.00
+63.51 79.34
+12.70 74.87
+25.00 90.00
+50.00 65.00
PROP. R/W
N 85°55'37" E
+00.00 40.45
+00.00 60.00
+80.00 60.00
+12.02 70.00
P.I. 200+54.97
P.T. 200+70.50
P.I. 109+32.98
P.O.E. 201+20.09
S 21°58'47" E
P.C. 200+31.89
N 88°01'20" E
SHOT UNDER LOW WIRE
P.T. 114+16.77
+90.00 160.00
+70.00 100.00
PINEY CR
P.I. 121+00.68
+55.00 100.18
+80.00 118.00
P.I. 300+63.12
P.R.C. 300+82.71
P.T. 301+20.02
T.C.E.
N 19°41'09" E
+70.00 70.78
+88.00
P.I. 301+03.35
N 80°45'45" E
P.C. 300+33.20
N 09°17'19" W
+30.00 45.00
P.T. 400+85.00
N 21°57'59" E
N 81°22'11" E
+32.71 60.00
+33.98 41.44
S 81°34'04" E
P.T. 125+49.17
+91.58 47.19
+27+22.09
+10.00 50.00
P.C. 127+22.09
+50.00 38.58
P.O.B. 400+00.00
+52.19 89.74
+60.00 100.00
P.C. 400+30.22
+00.00 92.00
+15.00 71.00
P.I. 400+69.89
P.T. 401+96.77
P.C. 116+27.01
UNDER LOW WIRE
25' BUFFER ZONE

## REVISIONS

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

## LEGEND

| | |
|---|---|
| E-6 | = ROCK DITCH CHECKS |
| E-13 | = FILTER SOCK |

NOTES: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.
RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

STA. 127+22.09
END JOB 050423

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 9 | 61 |

TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-09-2023

STA. 101+00.00
BEGIN JOB 050423
LOG MILE 5.25

100 105 110

P.O.B. 100+00.00
+00.00 39.55
+30.00 70.00
P.C. 103+62.04
+00.00 60.00
+63.51 79.34
+12.70 74.87
+35.00 90.00
+50.00 85.00
PROP. R/W
N 85°55'37" E
+00.00 40.45
-00.00 60.00
CONST. LIMITS
+80.00 60.00
+12.02 70.00
P.I. 200+54.97
S 71°58'47" E
P.C. 200+31.89
N 88°01'20" E
P.T. 200+70.50
P.I. 109+32.38
P.O.E. 201+20.09
SHOT UNDER LOW WIRE
P.I. 114+91.77

N

REVISIONS

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

LEGEND

E-6 = ROCK DITCH CHECKS
E-13 = FILTER SOCK

115 120 125

+70.00 105.00
CONST. LIMITS
PROP. R/W
N 66°09'25" E
P.I. 114+91.77
P.C. 116+27.01
UNDER LOW WIRE
PINEY CR.
25' BUFFER ZONE
+90.00 160.00
P.I. 121+00.68
+55.00 100.18
+80.00 118.00
P.I. 300+63.12
P.R.C. 300+82.71
P.T. 301+20.02
T.C.E.
N 19°41'09" E
+70.00 70.78
-88.00
N 80°45'45" E
P.I. 301+03.35
P.C. 300+33.20
N 09°19'15" W
P.T. 400+85.00
N 81°22'11" E
N 21°57'59" E
P.O.B. 400+00.00
+52.19 89.74
-150.00 100.00
P.C. 400+30.22
+00.00 92.00
-15.00 71.00
P.I. 400+69.89
P.T. 125+49.17
+91.58 47.19
STA. 127+22.09
END JOB 050423
+32.71 60.00
-33.98 41.44
S 81°34'04" E
+10.00 50.00
P.C. 127+22.09
+50.00 38.58

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 10 | 61 |

TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-09-2023

STA. 101+00.00
BEGIN JOB 050423
LOG MILE 5.25

STA. 127+22.09
END JOB 050423

REVISIONS

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

LEGEND

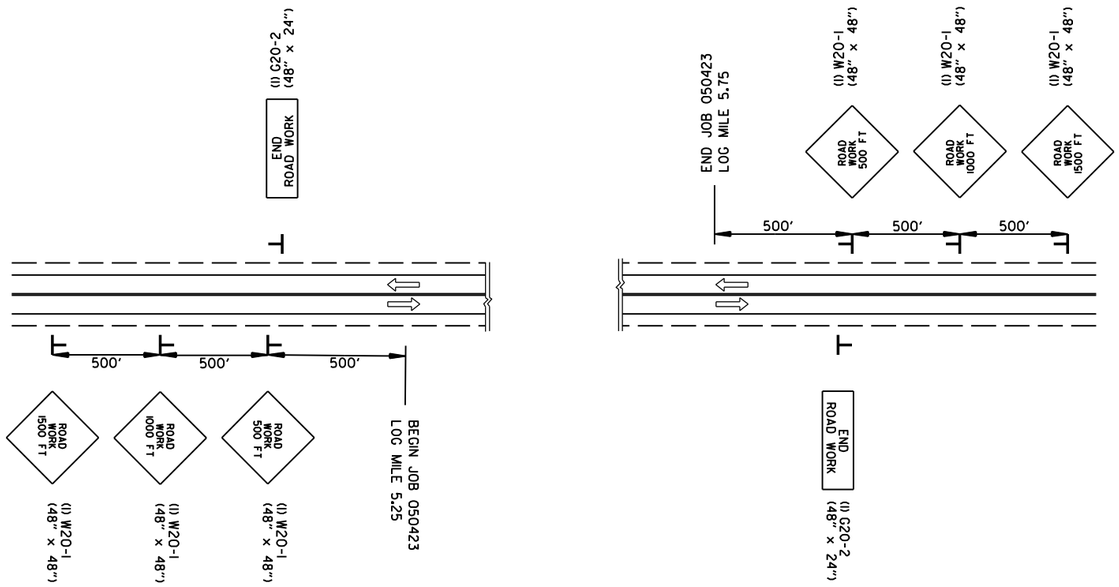
E-6 = ROCK DITCH CHECKS
E-13 = FILTER SOCK

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

MM41715 5/16/2023
R050423.DGN

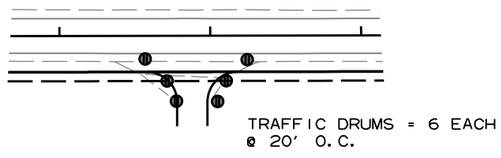
| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 11 | 61 |
| | | MAINTENANCE OF TRAFFIC DETAILS | | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-09-2023




ADVANCE WARNING (ALL STAGES)

| | | |
|---|---|---|
| RIGHT SHOULDER CLOSED | (2) W21-5a (36" x 36") | ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER |
| DO NOT PASS | (2) R4-1 (24" X 30") | ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER |
| BUMP | (4) W8-1 (30" X 30") | ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER |




DRIVEWAY/TRAFFIC DRUM DETAIL

MM41715 5/16/2023
R050423.DGN

ADVANCE WARNING
MAINTENANCE OF TRAFFIC DETAILS

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 12 | 61 |

MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-09-2023

STA. 101+00.00
BEGIN JOB 050423
LOG MILE 5.25

C.L. HWY. 56

VERTICAL PANELS SPACED 45' O.C.

ROAD CLOSED

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

16' BARR. TYP. III RT.
16' BARR. TYP. III LT.

PROP. R/W

CONST. LIMITS

N 85°55'37" E

P.O.B. 100+00.00

P.C. 103+62.04

P.I. 114+91.77

SHOT UNDER LOW WIRE

P.C. 200+31.89

N 88°01'20" E

P.I. 200+54.97

P.T. 200+70.50

P.I. 109+32.88

P.O.E. 201+20.09

TRAFFIC DRUMS SPACED 45' O.C.

STAGE 1 CONSTRUCTION SEQUENCE:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE BEGINNING AND END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAIL.

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

CONSTRUCT HWY. 56 RT. FROM STA. 100+00.00 TO STA. 109+20.00 AND HWY. 56 LT. FROM STA. 109+20.00 TO STA. 128+22.09 AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

APPLY LEVELING COURSE TO EXISTING LANES IF AND WHERE DIRECTED BY THE ENGINEER.

PINEY CREEK

C.L. HWY. 56

PROP. R/W

CONST. LIMITS

N 66°09'25" E

P.C. 116+27.01

P.I. 114+91.77

ROUTE 56 SECTION 1(LOC.MILE 5.3)

25' BUFFER ZONE

25' BUFFER ZONE

DBL. YELLOW CONSTRUCTION PAVEMENT MARKING

WHITE CONSTRUCTION PAVEMENT MARKING

TRAFFIC DRUMS SPACED 45' O.C.

ROAD CLOSED

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

16' BARR. TYP. III RT.
16' BARR. TYP. III LT.

STA. 127+22.09
END JOB 050423

VERTICAL PANELS SPACED 45' O.C.

N 80°45'45" E

P.I. 301+03.35

P.C. 300+33.20

P.T. 400+85.00

N 81°22'11" E

P.C. 400+30.27

P.I. 400+62.89

P.T. 125+49.17

N 81°34'04" E

P.C. 127+22.09

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 13 | 61 |

MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-09-2023

STA. 101+00.00
BEGIN JOB 050423
LOG MILE 5.25

C.L. HWY. 56

ROAD CLOSED

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

16' BARR. TYP. III RT.
16' BARR. TYP. III LT.

PROP. R/W

CONST. LIMITS

P.O.B. 100+00.00

P.C. 103+62.04

P.I. 121+00.68

P.I. 200+54.97

P.T. 200+70.50

P.I. 109+32.38

P.O.E. 201+20.09

P.C. 200+31.89

N 85°55'37" E

N 88°01'20" E

N 66°09'25" E

N 80°45'45" E

N 81°22'11" E

SHOT UNDER LOW WIRE

DBL. YELLOW CONSTRUCTION PAVEMENT MARKING

WHITE CONSTRUCTION PAVEMENT MARKING

TRAFFIC DRUMS SPACED 45' O.C.

VERTICAL PANELS SPACED 45' O.C.

DBL. YELLOW REMOVABLE CONSTRUCTION PAVEMENT MARKING

WHITE REMOVABLE CONSTRUCTION PAVEMENT MARKING

PINEY CREEK

25' BUFFER ZONE

ROUTE 56 SECTION 1(10) MILL & F.I.

STA. 127+22.09
END JOB 050423

STAGE 2 CONSTRUCTION SEQUENCE:

FURNISH AND INSTALL P.C.C.B. AND T.I.A.B. AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

INSTALL CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

SHIFT TRAFFIC ONTO THE PROPOSED HWY. 56 LANES.

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

CONSTRUCT HWY. 56 LT. FROM STA. 100+00 TO STA. 109+20.00 AND HWY. 56 RT. FROM STA. 109+20.00 TO STA. 128+22.09 AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS. REMOVE EXISTING BRIDGE STRUCTURE.

APPLY FINAL 2" LIFT OF ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

MM41715 5/16/2023
R050423.DGN

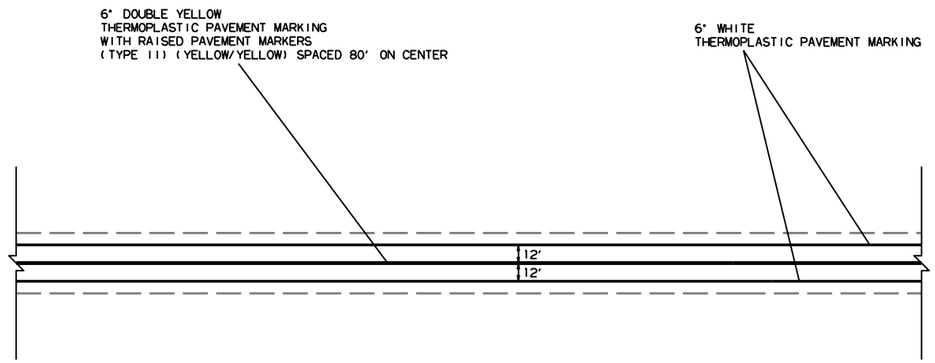
| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 14 | 61 |
| | | PERMANENT PAVEMENT MARKING DETAILS | | | | |

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

11-09-2023

PERMANENT PAVEMENT MARKINGS

RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) (80' O.C.) = 36 EACH
THERMOPLASTIC PAVEMENT MARKING WHITE (6") = 5644 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (6") = 5644 LIN. FT.




TYPICAL PERMANENT PAVEMENT MARKING LAYOUT

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.

MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 15 | 61 |
| | | QUANTITIES | | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-09-2023

## ADVANCE WARNING SIGNS AND DEVICES

| SIGN NUMBER | DESCRIPTION | SIGN SIZE | STAGE 1 | STAGE 2 | MAXIMUM NUMBER REQUIRED | TOTAL SIGNS REQUIRED | | VERTICAL PANELS | TRAFFIC DRUMS | BARRICADES (TYPE III) | | FURNISHING & INSTALLING PRECAST CONC. BARRIER | TEMPORARY IMPACT ATTENUATION BARRIER | TEMP. IMPACT ATTEN.BARR. (REPAIR) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | RIGHT | LEFT | | | |
| | | | LIN. FT. - EACH | | | NO. | SQ. FT. | EACH | | LIN. FT. | | | EACH | |
| W20-1 | ROAD WORK 1500 FT. | 48"x48" | 2 | 2 | 2 | 2 | 32.0 | | | | | | | |
| W20-1 | ROAD WORK 1000 FT. | 48"x48" | 2 | 2 | 2 | 2 | 32.0 | | | | | | | |
| W20-1 | ROAD WORK 500 FT. | 48"x48" | 2 | 2 | 2 | 2 | 32.0 | | | | | | | |
| G20-2 | END ROAD WORK | 48"x24" | 2 | 2 | 2 | 2 | 16.0 | | | | | | | |
| R11-2 | ROAD CLOSED | 48"x30" | 2 | 2 | 2 | 2 | 20.0 | | | | | | | |
| R4-1 | DO NOT PASS | 24"x30" | 2 | 2 | 2 | 2 | 10.0 | | | | | | | |
| W21-5a | RIGHT SHOULDER CLOSED | 36"x36" | 2 | 2 | 2 | 2 | 18.0 | | | | | | | |
| W8-1 | BUMP | 30"x30" | 4 | 4 | 4 | 4 | 25.0 | | | | | | | |
| | | | | | | | | | | | | | | |
| | VERTICAL PANELS | | 36 | 34 | 36 | | | 36 | | | | | | |
| | TRAFFIC DRUMS | | 22 | 9 | 22 | | | | 22 | | | | | |
| | | | | | | | | | | | | | | |
| | TYPE III BARRICADE-RT. (16') | | 2 | 2 | 2 | | | | | 32 | | | | |
| | TYPE III BARRICADE-LT. (16') | | 2 | 2 | 2 | | | | | | 32 | | | |
| | | | | | | | | | | | | | | |
| | FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER | | | 160 | 160 | | | | | | | 160 | | |
| | TEMPORARY IMPACT ATTENUATION BARRIER | | | 1 | 1 | | | | | | | | 1 | |
| | TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR) | | | 1 | 1 | | | | | | | | | 1 |
| | | | | | | | | | | | | | | |
| **TOTALS:** | | | | | | | **185.0** | **36** | **22** | **32** | **32** | **160** | **1** | **1** |

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

## CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

| DESCRIPTION | STAGE 1 | STAGE 2 | END OF JOB | CONSTRUCTION PAVEMENT MARKINGS | REMOVABLE CONSTRUCTION PAVEMENT MARKINGS | RAISED PAVEMENT MARKERS | THERMOPLASTIC PAVEMENT MARKING | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | TYPE II | 6" | |
| | | | | | | (YELLOW/YELLOW) | WHITE | YELLOW |
| | LIN. FT. - EACH | | | LIN. FT. | LIN. FT. | EACH | LIN. FT. | |
| CONSTRUCTION PAVEMENT MARKINGS | | 9547 | | 9547 | | | | |
| REMOVABLE CONSTRUCTION PAVEMENT MARKINGS | | 1741 | | | 1741 | | | |
| | | | | | | | | |
| RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW) | | | 36 | | | 36 | | |
| | | | | | | | | |
| THERMOPLASTIC PAVEMENT MARKING WHITE (6") | | | 5644 | | | | 5644 | |
| THERMOPLASTIC PAVEMENT MARKING YELLOW (6") | | | 5644 | | | | | 5644 |
| | | | | | | | | |
| | | | | | | | | |
| **TOTALS:** | | | | **9547** | **1741** | **36** | **5644** | **5644** |

NOTE: THIS IS A HIGH 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.

MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 16 | 61 |
| | | QUANTITIES | | | | |

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

11-09-2023

## CLEARING AND GRUBBING

| STATION | STATION | LOCATION | CLEARING | GRUBBING |
|---|---|---|---|---|
| | | | STATION | |
| 101+00 | 127+22 | HWY. 56 | 27 | 27 |
| | | | | |
| TOTALS: | | | 27 | 27 |

## REMOVAL AND DISPOSAL OF FENCE

| STATION | STATION | LOCATION | FENCE |
|---|---|---|---|
| | | | LIN. FT. |
| 100+10 | 116+58 | HWY. 56 - LT. | 1768 |
| 123+79 | 123+89 | HWY. 56 - RT. | 28 |
| | | | |
| | | | |
| TOTAL: | | | 1796 |

## REMOVAL AND DISPOSAL OF ITEMS

| STATION | STATION | LOCATION | GUARDRAIL |
|---|---|---|---|
| | | | LIN. FT. |
| 115+41 | 117+00 | HWY. 56 - RT. | 159 |
| 116+20 | 117+00 | HWY. 56 - LT. | 80 |
| 120+16 | 121+53 | HWY. 56 - RT. | 137 |
| 120+16 | 122+24 | HWY. 56 - LT. | 208 |
| | | | |
| | | | |
| TOTALS: | | | 584 |

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. EXISTING GUARDRAIL SHALL BE SALVAGED AND REMAIN PROPERTY OF THE DEPARTMENT.

## REMOVAL AND DISPOSAL OF CULVERTS

| STATION | DESCRIPTION | PIPE CULVERTS |
|---|---|---|
| | | EACH |
| 105+89 | 24" X 49' C.M. PIPE CULVERT | 1 |
| 108+66 | 48" X 94' R.C. PIPE CULVERT | 1 |
| 123+00 | 18" X 34' R.C LT. SIDE DRAIN | 1 |
| | | |
| TOTAL: | | 3 |

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

## SOIL STABILIZATION

| STATION | STATION | LOCATION / DESCRIPTION | SOIL STABILIZATION |
|---|---|---|---|
| | | | TON |
| ENTIRE | PROJECT | TO BE USED IF AND WHERE | 100 |
| | | DIRECTED BY THE ENGINEER. | |
| | | | |
| TOTAL: | | | 100 |

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

## EARTHWORK

| STATION | STATION | LOCATION / DESCRIPTION | UNCLASSIFIED EXCAVATION | COMPACTED EMBANKMENT |
|---|---|---|---|---|
| | | | CU. YD. | |
| ENTIRE | PROJECT | STAGE 1-MAIN LANES | 11056 | 31725 |
| ENTIRE | PROJECT | STAGE 2-MAIN LANES | 5894 | 1805 |
| ENTIRE | PROJECT | APPROACHES | | 1075 |
| ENTIRE | PROJECT | BRIDGE EXCAVATION | 455 | |
| | | | | |
| TOTALS: | | | 17405 | 34605 |

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

## 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. |
| 100+00.00 | 106+15.00 | HWY. 56 - LT. | 615.00 | 6.32 | 431.87 | 273.33 | 3.44 |
| 100+00.00 | 101+60.00 | HWY. 56 - RT. | 160.00 | 6.32 | 112.36 | 71.11 | 0.90 |
| 109+20.00 | 116+68.90 | HWY. 56 - LT. | 748.90 | 6.32 | 525.89 | 332.84 | 4.19 |
| 112+15.00 | 116+68.90 | HWY. 56 - RT. | 453.90 | 6.32 | 318.74 | 201.73 | 2.54 |
| 121+80.00 | 122+49.00 | HWY. 56 - LT. | 69.00 | 6.32 | 48.45 | 30.67 | 0.39 |
| 123+48.00 | 126+60.00 | HWY. 56 - LT. | 312.00 | 6.32 | 219.09 | 138.67 | 1.75 |
| | | | | | | | |
| TOTALS: | | | | | 1656.40 | 1048.35 | 13.21 |

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

## EROSION CONTROL

| STATION | STATION | LOCATION | PERMANENT EROSION CONTROL | | | | | TEMPORARY EROSION CONTROL | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SEEDING | LIME | MULCH COVER | WATER | SECOND SEEDING APPLICATION | TEMPORARY SEEDING | MULCH COVER | WATER | ROCK DITCH CHECKS (E-6) | FILTER SOCK (12") (E-13) | FILTER SOCK (18") (E-13) | *SEDIMENT REMOVAL & DISPOSAL |
| | | | ACRE | TON | ACRE | M.GAL. | ACRE | ACRE | ACRE | M.GAL. | CU.YD. | LIN. FT. | LIN. FT. | CU. YD. |
| ENTIRE | PROJECT | CLEARING AND GRUBBING | | | | | | 6.62 | 6.62 | 135.0 | 174 | 2000 | 480 | 58 |
| ENTIRE | PROJECT | STAGE 1 | | | | | | 3.27 | 3.27 | 66.7 | 81 | | | 27 |
| ENTIRE | PROJECT | STAGE 2 | 4.61 | 9.22 | 4.61 | 470.2 | 4.61 | 3.35 | 3.35 | 68.3 | 87 | | | 29 |
| | | | | | | | | | | | | | | |
| *ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. | | | 1.15 | 2.30 | 1.15 | 117.3 | 1.15 | 3.31 | 3.31 | 67.5 | 87 | 500 | 120 | 29 |
| | | | | | | | | | | | | | | |
| TOTALS: | | | 5.76 | 11.52 | 5.76 | 587.5 | 5.76 | 16.55 | 16.55 | 337.5 | 429 | 2500 | 600 | 143 |

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
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.

MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 17 | 61 |
| | | QUANTITIES | | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-09-2023

## BENCH MARKS

| STATION | LOCATION | BENCH MARKS |
|---|---|---|
| | | EACH |
| 116+69 | HWY. 56 - BRIDGE END | 1 |
| | | |
| TOTAL: | | 1 |

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

## CULVERT CLEAN OUT

| STATION | LOCATION | EACH |
|---|---|---|
| 127+78 | HWY. 56 | 1 |
| | | |
| TOTAL: | | 1 |

## GUARDRAIL

| STATION | STATION | LOCATION | GUARDRAIL (TYPE A) | THRIE BEAM GUARDRAIL TERMINAL | GUARDRAIL TERMINAL (TYPE 2) |
|---|---|---|---|---|---|
| | | | LIN. FT. | EACH | |
| 115+15.15 | 116+68.90 | LT. SIDE | 75 | 1 | 1 |
| 114+62.65 | 116+68.90 | RT. SIDE | 150 | 1 | 1 |
| 120+31.10 | 121+84.85 | LT. SIDE | 150 | 1 | 1 |
| 120+31.10 | 122+37.35 | RT. SIDE | 75 | 1 | 1 |
| | | | | | |
| TOTALS: | | | 450 | 4 | 4 |

## 4" PIPE UNDERDRAIN

| STATION | STATION | LOCATIONS | 4" PIPE UNDERDRAINS | UNDERDRAIN OUTLET PROTECTORS |
|---|---|---|---|---|
| | | | LIN. FT. | EACH |
| ENTIRE PROJECT TO BE USED IF AND | | | 1500 | 6 |
| WHERE DIRECTED BY THE ENGINEER | | | | |
| | | | | |
| TOTALS: | | | 1500 | 6 |

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

## DUMPED RIPRAP AND FILTER BLANKET

| STATION | LOCATION | DUMPED RIPRAP | FILTER BLANKET |
|---|---|---|---|
| | | CU. YD. | SQ. YD. |
| 110+35 | OUTLET OF PIPE CULVERT | 7 | 13 |
| | | | |
| TOTALS: | | 7 | 13 |

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

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

## APPROACH GUTTERS AND SLABS

| STATION | STATION | LOCATION | APPROACH GUTTER (TYPE F) | APPROACH SLABS | REINFORCING STEEL-RDWY. (GR. 60) | AGGREGATE BASE CRS. (CLASS 7) |
|---|---|---|---|---|---|---|
| | | | CU.YD. | CU.YD. | POUND | TON |
| 116+32.40 | 116+68.90 | LT. SIDE | 5.88 | | 294 | 102.59 |
| 116+32.40 | 116+68.90 | HWY. 56 | | 71.80 | 8660 | 403.20 |
| 116+32.40 | 116+68.90 | RT. SIDE | 5.88 | | 294 | 102.59 |
| 120+31.10 | 120+67.60 | LT. SIDE | 5.88 | | 294 | 102.59 |
| 120+31.10 | 120+67.60 | HWY.56 | | 71.80 | 8660 | 403.20 |
| 120+31.10 | 120+67.60 | RT. SIDE | 5.88 | | 294 | 102.59 |
| | | | | | | |
| TOTALS: | | | 23.52 | 143.60 | 18496 | 1216.76 |

NOTE: JSE T =13" FOR 8' SHOULDER.

## MAILBOXES

| LOCATION | MAILBOXES | MAILBOX SUPPORTS (SINGLE) |
|---|---|---|
| | EACH | |
| ENTIRE PROJECT | 1 | 1 |
| | | |
| | | |
| TOTALS: | 1 | 1 |

## FENCING

| STATION | STATION | LOCATION | WIRE FENCE (TYPE D-1) |
|---|---|---|---|
| | | | LIN. FT. |
| 100+10 | 115+88 | HWY. 56 - LT. | 1570 |
| | | | |
| | | | |
| TOTAL: | | | 1570 |

## STRUCTURES

| STATION | DESCRIPTION | REINFORCED CONCRETE PIPE CULVERT (CLASS III) 24" | REINFORCED CONCRETE PIPE CULVERT (CLASS IV) 48" | FLARED END SECTIONS FOR R.C. PIPE CULVERTS 24" | FLARED END SECTIONS FOR R.C. PIPE CULVERTS 48" | SOLID SODDING | WATER | STD. DWG. NOS. |
|---|---|---|---|---|---|---|---|---|
| | | LIN. FT. | | EACH | | SQ.YD. | M.GAL. | |
| 106+01 | CONSTRUCT 24" X 78' R.C. PIPE CULVERT | 78 | | 2 | | 16 | 0.20 | FES-1, FES-2, PCC-1 |
| 110+35 | CONSTRUCT 48" X 86' R.C. PIPE CULVERT | | 86 | | 2 | 58 | 0.73 | FES-1, FES-2, PCC-1 |
| | | | | | | | | |
| TOTALS: | | 78 | 86 | 2 | 2 | 74 | 0.93 | |

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 |
|---|---|
| | CU.YD. |
| ENTIRE PROJECT TO BE USED IF | |
| AND WHERE DIRECTED BY THE | 30 |
| ENGINEER | |
| | |
| | |
| TOTAL: | 30 |

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

MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 18 | 61 |
| | | QUANTITIES | | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-09-2023

## DRIVEWAYS

| 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" | STANDARD DRAWINGS |
|---|---|---|---|---|---|---|---|---|
| | | | FEET | SQ. YD. | TON | TON | LIN. FT. | |
| 108+71 | RT. | HWY. 56 | 16 | 181.17 | 19.93 | 73.98 | | DR-2 |
| 123+00 | LT. | HWY. 56 | 22 | 245.40 | 26.99 | 100.21 | 108 | DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3 |
| 123+93 | RT. | HWY. 56 | 28 | 305.17 | 33.57 | 124.61 | | DR-2 |
| | | | | | | | | |
| * ENTIRE PROJECT TEMPORARY DRIVES | | | | | | 30.00 | | |
| | | | | | | | | |
| **TOTALS:** | | | | **731.74** | **80.49** | **328.80** | **108** | |

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% 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.

## ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

| LOCATION | TON | TACK COAT GALLON |
|---|---|---|
| * ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER | 15 | 30 |
| | | |
| **TOTALS:** | **15** | **30** |

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

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

## ACHM PATCHING OF EXISTING ROADWAY

| DESCRIPTION | TON |
|---|---|
| ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER | 15 |
| | |
| **TOTAL:** | **15** |

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

## COLD MILLING ASPHALT PAVEMENT

| STATION | STATION | LOCATION | AVG. WIDTH | COLD MILLING ASPHALT PAVEMENT |
|---|---|---|---|---|
| | | | FEET | SQ. YD. |
| 100+00.00 | 101+00.00 | MAIN LANES | 22.00 | 244.44 |
| 127+22.09 | 128+22.09 | MAIN LANES | 22.00 | 244.44 |
| | | | | |
| | | | | |
| **TOTAL:** | | | | **488.88** |

NOTE: COORDINATE COLD MILLING STOCKPILE LOCATIONS WITH DISTRICT ENGINEER.
STOCKPILE LOCATIONS SHALL BE NO FURTHER THAN FIVE MILES FROM EACH SITE.

## PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

| STATION | LOCATION | WIDTH | LENGTH | CU.YD. |
|---|---|---|---|---|
| | | FEET | | |
| 105+89 | HWY. 56 | 8.50 | 24 | 7.6 |
| 106+01 | HWY. 56 | 8.50 | 25 | 7.9 |
| 108+66 | HWY. 57 | 10.83 | 34 | 13.6 |
| 110+35 | HWY. 56 | 10.83 | 25 | 10.0 |
| | | | | |
| **TOTAL:** | | | | **39.1** |

AVG. DEPTH = 12"

## BASE AND SURFACING

| STATION | STATION | LOCATION | LENGTH | AGGREGATE BASE COURSE (CLASS 7) | | TACK COAT (0.05 GAL. PER SQ. YD.) | | | TACK COAT (0.17 GAL. PER SQ. YD.) | | | TOTAL GALLONS | ACHM BINDER COURSE (1") | | | | ACHM SURFACE COURSE (1/2") | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TON / STATION | TON | TOTAL WID. | SQ.YD. | GALLON | TOTAL WID. | SQ.YD. | GALLON | | AVG. WID. | SQ.YD. | POUND / SQ.YD. | PG 64-22 | AVG. WID. | SQ.YD. | POUND / SQ.YD. | PG 64-22 | AVG. WID. | SQ.YD. | POUND / SQ.YD. | PG 64-22 | TOTAL PG 64-22 |
| | | | FEET | | | FEET | | | FEET | | | | FEET | | | TON | FEET | | | TON | FEET | | | TON | TON |
| **MAIN LANES** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100+00.00 | 101+00.00 | TRANSITION | 100.00 | 118.75 | 118.75 | | | | 22.00 | 244.44 | 41.55 | 41.55 | 1.46 | 16.22 | 330.00 | 2.68 | 1.25 | 13.89 | 220.00 | 1.53 | 26.00 | 288.89 | 220.00 | 31.78 | 33.31 |
| 101+00.00 | 112+06.47 | NOTCH, WIDEN, AND OVERLAY SECTION | 1106.47 | VAR. | 2090.67 | VAR. | 1664.58 | 83.23 | | | | 83.23 | VAR. | 845.10 | 330.00 | 139.44 | VAR. | 819.48 | 220.00 | 90.14 | 28.00 | 3442.35 | 220.00 | 378.66 | 468.80 |
| 112+06.47 | 116+32.40 | FULL DEPTH SECTION | 425.93 | 257.25 | 1095.70 | 48.71 | 2305.23 | 115.26 | | | | 115.26 | 24.46 | 1157.58 | 330.00 | 191.00 | 24.25 | 1147.64 | 220.00 | 126.24 | 28.00 | 1325.12 | 220.00 | 145.76 | 272.00 |
| 120+67.60 | 124+60.79 | FULL DEPTH SECTION | 393.19 | 257.25 | 1011.48 | 48.71 | 2128.03 | 106.40 | | | | 106.40 | 24.46 | 1068.60 | 330.00 | 176.32 | 24.25 | 1059.43 | 220.00 | 116.54 | 28.00 | 1223.26 | 220.00 | 134.56 | 251.10 |
| 124+60.79 | 127+22.09 | NOTCH, WIDEN, AND OVERLAY SECTION | 261.30 | VAR. | 521.50 | VAR. | 551.83 | 27.59 | | | | 27.59 | VAR. | 278.94 | 330.00 | 46.03 | VAR. | 272.89 | 220.00 | 30.02 | 28.00 | 812.93 | 220.00 | 89.42 | 119.44 |
| 127+22.09 | 128+22.09 | TRANSITION | 100.00 | 118.75 | 118.75 | | | | 22.00 | 244.44 | 41.55 | 41.55 | 1.46 | 16.22 | 330.00 | 2.68 | 1.25 | 13.89 | 220.00 | 1.53 | 26.00 | 288.89 | 220.00 | 31.78 | 33.31 |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| **ADDITIONAL FOR LEVELING & GRADE RAISE** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 101+00.00 | 112+06.47 | LEVELING | 1106.47 | | | VAR. | 5409.41 | 270.47 | VAR. | 2704.70 | 459.80 | 730.27 | | | | | VAR. | 2704.70 | VAR. | 595.03 | | | | | 595.03 |
| 121+60.79 | 121+80.79 | LEVELING | 20.00 | | | 22.00 | 48.89 | 2.44 | 22.00 | 48.89 | 8.31 | 10.75 | | | | | 22.00 | 48.89 | VAR. | 2.69 | | | | | 2.69 |
| 121+80.79 | 124+60.79 | GRADE RAISE | 280.00 | | | 88.00 | 2737.78 | 136.89 | 22.00 | 684.44 | 116.35 | 253.24 | 22.00 | 684.44 | VAR. | 501.35 | 22.00 | 684.44 | 220.00 | 75.29 | | | | | 75.29 |
| 124+60.79 | 126+10.00 | GRADE RAISE | 149.21 | | | 88.00 | 1458.94 | 72.95 | 22.00 | 364.74 | 62.01 | 134.96 | 22.00 | 364.74 | VAR. | 267.17 | 22.00 | 364.74 | 220.00 | 40.12 | | | | | 40.12 |
| 126+10.00 | 127+22.09 | LEVELING | 112.09 | | | 22.00 | 274.00 | 13.70 | 22.00 | 274.00 | 46.58 | 60.28 | | | | | 22.00 | 274.00 | VAR. | 15.07 | | | | | 15.07 |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| **ADDITIONAL FOR SUPERELEVATION** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 101+37.04 | 104+37.04 | SUPERELEVATION TRANSITION | 300.00 | 42.25 | 126.75 | | | | | | | | | | | | | | | | | | | | |
| 104+37.04 | 112+59.39 | MAX SUPERELEVATION | 822.35 | 84.50 | 694.89 | | | | | | | | | | | | | | | | | | | | |
| 112+59.39 | 115+59.39 | SUPERELEVATION TRANSITION | 300.00 | 42.25 | 126.75 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| 115+59.39 | 116+68.90 | SUPERELEVATION TRANSITION | 109.51 | 33.25 | 36.41 | | | | | | | | | | | | | | | | | | | | |
| 120+31.10 | 127+90.97 | MAX SUPERELEVATION | 759.87 | 129.50 | 984.03 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| **ADDITIONAL FOR GUARDRAIL WIDENING** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 114+19.65 | 114+52.65 | HWY. 56 - WIDENING TAPER RT. | 33.00 | 8.50 | 2.81 | | | | | | | | | | | | | | | | 5.75 | 21.08 | 220.00 | 2.32 | 2.32 |
| 114+52.65 | 116+68.90 | HWY. 56 - WIDENING RT. | 216.25 | 17.00 | 36.76 | | | | | | | | | | | | | | | | 11.50 | 276.32 | 220.00 | 30.40 | 30.40 |
| 114+72.15 | 115+05.15 | HWY. 56 - WIDENING TAPER LT. | 33.00 | 8.50 | 2.81 | | | | | | | | | | | | | | | | 5.75 | 21.08 | 220.00 | 2.32 | 2.32 |
| 115+05.15 | 116+68.90 | HWY. 56 - WIDENING LT. | 163.75 | 17.00 | 27.84 | | | | | | | | | | | | | | | | 11.50 | 209.24 | 220.00 | 23.02 | 23.02 |
| 120+31.10 | 121+94.85 | HWY. 56 - WIDENING RT. | 163.75 | 17.00 | 27.84 | | | | | | | | | | | | | | | | 11.50 | 209.24 | 220.00 | 23.02 | 23.02 |
| 121+94.85 | 122+27.85 | HWY. 56 - WIDENING TAPER RT. | 33.00 | 8.50 | 2.81 | | | | | | | | | | | | | | | | 5.75 | 21.08 | 220.00 | 2.32 | 2.32 |
| 120+31.10 | 122+47.35 | HWY. 56 - WIDENING LT. | 216.25 | 17.00 | 36.76 | | | | | | | | | | | | | | | | 11.50 | 276.32 | 220.00 | 30.40 | 30.40 |
| 122+47.35 | 122+80.35 | HWY. 56 - WIDENING TAPER LT. | 33.00 | 8.50 | 2.81 | | | | | | | | | | | | | | | | 5.75 | 21.08 | 220.00 | 2.32 | 2.32 |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TOTALS:** | | | | | **7066.12** | | **16578.69** | **828.93** | | **4565.65** | **776.15** | **1605.08** | | **4431.84** | | **1326.67** | | **7403.99** | | **1094.20** | | **8436.88** | | **928.08** | **2022.28** |

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% 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.

MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED. RD. DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 19 | 61 |
| | | 07604 - QUANTITIES - 66006 | | | | |

# SCHEDULE OF BRIDGE QUANTITES - JOB NO. 050423

| BRIDGE NO. | NAME PLATE TITLE | UNIT OF STRUCTURE | ITEM NO. | 205 | 801 | SP, SS, & 802 | SP, SS, & 802 | SP & 803 | SS & 804 | SS & 804 | SS & 805 | SS & 805 | SP, SS, & 807 | SS & 807 | SS & 808 | SS & 809 | 812 | SS & 816 | SS & 816 | SP JOB 050423 | SP JOB 050423 | SP JOB 050423 | SP JOB 050423 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ITEM | REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. _) | UNCLASSIFIED EXCAVATION FOR STRUCTURES - BRIDGE | CLASS S CONCRETE - BRIDGE | CLASS S(AE) CONCRETE - BRIDGE | CLASS 2 PROTECTIVE SURFACE TREATMENT | REINFORCING STEEL - BRIDGE (GRADE 60) | EPOXY COATED REINFORCING STEEL (GRADE 60) | STEEL PILING (HP 14X89) (1) | PREBORING | STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50W) | PAINTING STRUCTURAL STEEL | ELASTOMERIC BEARINGS | SILICONE JOINT SEALANT | BRIDGE NAME PLATE (TYPE D) | FILTER BLANKET | DUMPED RIPRAP | DRILLED SHAFT (72" DIA.) | PERMANENT STEEL CASING (84" DIA.) | CROSSHOLE SONIC LOGGING (72" DIA.) | CORING DRILLED SHAFT |
| | | | UNIT | LUMP SUM | CU. YD. | CU. YD. | CU. YD. | SQ. YD. | LB. | LB. | LIN. FT. | LIN. FT. | LB. | TON | CU. IN. | LIN. FT. | EACH | SQ. YD. | CU. YD. | LIN. FT. | LIN. FT. | EACH | LIN. FT. |
| 07604 | HIGHWAY 56 OVER PINEY CREEK | | | | | | | | | | | | | | | | | | | | | | |
| | | BENT 1 | | | 62 | 54.43 | | 11.5 | 6,135 | 790 | 329 | 247 | 853 | | 4,386.4 | 43 | 1 | 73 | 41 | | | | |
| | | BENT 2 | | | | 67.54 | | | 19,505 | | | | | | 3,485.7 | | | | | 57 | 33 | 2 | 29 |
| | | BENT 3 | | | | 68.16 | | | 19,615 | | | | | | 3,290.7 | | | | | 57 | 33 | 2 | 29 |
| | | BENT 4 | | | | 54.57 | | 11.5 | 6,145 | 790 | 315 | 233 | 853 | | 2,430.2 | 43 | | 859 | 450 | | | | |
| | | 360'-0" CONT. PLATE GIRDER UNIT | | | | | 470.40 | 1,894.5 | | 130,140 | | | 589,784 | 17.7 | | | | | | | | | |
| | | SITE NO. 1 (EXISTING BRIDGE NO. 02308) | | 1 | | | | | | | | | | | | | | | | | | | |
| TOTALS FOR BRIDGE NO. 07604 | | | | | 62 | 244.70 | 470.40 | 1,917.5 | 51,400 | 131,720 | (2) 644 | (2) 480 | 591,490 | (3) 17.7 | 13,593.0 | 86 | 1 | 932 | 491 | 114 | 66 | 4 | (2) 58 |

(1) All steel piling shall be Grade 50 and are required to have QPL-approved driving points which will not be paid for directly, but will be considered subsidiary to the items "Steel Piling (HP14x89)". All piles shall conform to Std. Dwg. No. 55020 and "TYPICAL SPLICE DETAILS" on Dwg. No. 66010 and 66018.

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

(3) The color of paint shall be Brown equal or close to Federal Std. 595B, Color Chip 30070 and as approved by the Engineer.

THOMAS GERARD
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
Apr 14 2023 12:16 PM
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
PINEY CREEK STR. & APPRS. (S)
IZARD COUNTY

ROUTE 56 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BAB DATE: 2/6/2023 FILENAME: b050423_q1.dgn
CHECKED BY: JJ DATE: 2/28/2023 SCALE: No Scale
DESIGNED BY: --- DATE: ---
BRIDGE NO. 07604 DRAWING NO. 66006

PRINT DATE: 4/11/2023

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| 1-11-2024 | | 6 | ARK. | 050423 | 20 | 61 |
| | | SUMMARY OF QUANTITIES AND REVISIONS | | | | |

## SUMMARY OF QUANTITIES

| ITEM NUMBER | ITEM | QUANTITY | UNIT |
|---|---|---|---|
| SP & 201 | CLEARING | 27 | STATION |
| SP & 201 | GRUBBING | 27 | STATION |
| 202 | REMOVAL AND DISPOSAL OF FENCE | 1796 | LIN. FT. |
| 202 | REMOVAL AND DISPOSAL OF PIPE CULVERTS | 3 | EACH |
| 202 | REMOVAL AND DISPOSAL OF GUARDRAIL | 584 | LIN. FT. |
| SP, SS, & 210 | UNCLASSIFIED EXCAVATION | 17405 | CU. YD. |
| SP & 210 | COMPACTED EMBANKMENT | 34605 | CU. YD. |
| SP & 210 | SOIL STABILIZATION | 100 | TON |
| SP, SS, & 303 | AGGREGATE BASE COURSE (CLASS 7) | 8612 | TON |
| SS & 401 | TACK COAT | 1635 | GAL. |
| SP, SS, & 406 | MINERAL AGGREGATE IN ACHM BINDER COURSE (1") | 1269 | TON |
| SP, SS, & 406 | ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1") | 58 | TON |
| SP, SS, & 407 | MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2") | 1992 | TON |
| SP, SS, & 407 | ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2") | 111 | TON |
| SP & 412 | COLD MILLING ASPHALT PAVEMENT | 489 | SQ. YD. |
| SP, SS, & 414 | ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC | 15 | TON |
| SP, SS, & 415 | ACHM PATCHING OF EXISTING ROADWAY | 15 | TON |
| SP, SS, & 504 | APPROACH SLABS | 143.60 | CU. YD. |
| SP, SS, & 504 | APPROACH GUTTERS | 23.52 | CU. YD. |
| 601 | MOBILIZATION | 1.00 | LUMP SUM |
| SP & 602 | FURNISHING FIELD OFFICE | 1 | EACH |
| SS & 603 | MAINTENANCE OF TRAFFIC | 1.00 | LUMP SUM |
| SS & 604 | SIGNS | 185 | SQ. FT. |
| SS & 604 | BARRICADES | 64 | LIN. FT. |
| SS & 604 | TRAFFIC DRUMS | 22 | EACH |
| SS & 604 | FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER | 160 | LIN. FT. |
| 604 | CONSTRUCTION PAVEMENT MARKINGS | 9547 | LIN. FT. |
| 604 | REMOVABLE CONSTRUCTION PAVEMENT MARKINGS | 1741 | LIN. FT. |
| SS & 604 | VERTICAL PANELS | 36 | EACH |
| SP, SS, & 605 | CONCRETE DITCH PAVING (TYPE B) | 1656 | SQ. YD. |
| SS & 606 | 24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) | 78 | LIN. FT. |
| SS & 606 | 48" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV) | 86 | LIN. FT. |
| SP | CULVERT CLEAN OUT | 1 | EACH |
| SP, SS, & 606 | 18" SIDE DRAIN | 108 | LIN. FT. |
| SS & 606 | 24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS | 2 | EACH |
| SS & 606 | 48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS | 2 | EACH |
| SS & 606 | SELECTED PIPE BEDDING | 30 | CU. YD. |
| SS & 611 | UNDERDRAIN OUTLET PROTECTORS | 6 | EACH |
| SS & 611 | 4" PIPE UNDERDRAINS | 1500 | LIN. FT. |
| SS & 615 | PAVEMENT REPAIR OVER CULVERTS (CONCRETE) | 39.1 | CU. YD. |
| SS & 617 | GUARDRAIL (TYPE A) | 450 | LIN. FT. |
| SS & 617 | GUARDRAIL TERMINAL (TYPE 2) | 4 | EACH |
| SS & 617 | THRIE BEAM GUARDRAIL TERMINAL | 4 | EACH |
| SS & 619 | WIRE FENCE (TYPE D-1) | 1570 | LIN. FT. |
| 620 | LIME | 12 | TON |
| 620 | SEEDING | 5.76 | ACRE |
| SS & 620 | MULCH COVER | 22.31 | ACRE |
| 620 | WATER | 939.1 | M. GAL. |
| 621 | TEMPORARY SEEDING | 16.55 | ACRE |
| 621 | SEDIMENT REMOVAL AND DISPOSAL | 143 | CU. YD. |
| 621 | ROCK DITCH CHECKS | 429 | CU. YD. |
| SS & 621 | FILTER SOCK (12") | 2500 | LIN. FT. |
| SS & 621 | FILTER SOCK (18") | 600 | LIN. FT. |
| 623 | SECOND SEEDING APPLICATION | 5.76 | ACRE |
| 624 | SOLID SODDING | 1122 | SQ. YD. |
| 635 | ROADWAY CONSTRUCTION CONTROL | 1.00 | LUMP SUM |
| 637 | MAILBOXES | 1 | EACH |
| 637 | MAILBOX SUPPORTS (SINGLE) | 1 | EACH |
| 719 | THERMOPLASTIC PAVEMENT MARKING WHITE (6") | 5644 | LIN. FT. |
| 719 | THERMOPLASTIC PAVEMENT MARKING YELLOW (6") | 5644 | LIN. FT. |
| 721 | RAISED PAVEMENT MARKERS (TYPE II) | 36 | EACH |
| SS & 731 | TEMPORARY IMPACT ATTENUATION BARRIER | 1 | EACH |
| SS & 731 | TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR) | 1 | EACH |
| SS & 804 | REINFORCING STEEL-ROADWAY (GRADE 60) | 18496 | POUND |
| SS & 816 | FILTER BLANKET | 13 | SQ. YD. |
| SS & 816 | DUMPED RIPRAP | 7 | CU. YD. |
| | | | |
| | | | |
| | **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 | 62 | CU. YD. |
| SP, SS, & 802 | CLASS S CONCRETE-BRIDGE | 244.70 | CU. YD. |
| SP, SS, & 802 | CLASS S(AE) CONCRETE-BRIDGE | 470.40 | CU. YD. |
| SP & 803 | CLASS 2 PROTECTIVE SURFACE TREATMENT | 1917.5 | SQ. YD. |
| SS & 804 | REINFORCING STEEL-BRIDGE (GRADE 60) | 51400 | POUND |
| SS & 804 | EPOXY COATED REINFORCING STEEL (GRADE 60) | 131720 | POUND |
| SS & 805 | STEEL PILING (HP 14X89) | 644 | LIN. FT. |
| SP | CORING DRILLED SHAFT | 58 | LIN. FT. |
| SP | DRILLED SHAFT (72" DIAMETER) | 114 | LIN. FT. |
| SP | PERMANENT STEEL CASING (84" DIAMETER) | 66 | LIN. FT. |
| SS & 805 | PREBORING | 480 | LIN. FT. |
| SP | CROSSHOLE SONIC LOGGING (72" DIAMETER) | 4 | EACH |
| SP, SS, & 807 | STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50W) | 591490 | POUND |
| SS & 807 | PAINTING STRUCTURAL STEEL | 17.7 | TON |
| SS & 808 | ELASTOMERIC BEARINGS | 13593.0 | CU. IN. |
| SS & 809 | SILICONE JOINT SEALANT | 86 | LIN. FT. |
| 812 | BRIDGE NAME PLATE (TYPE D) | 1 | EACH |
| SS & 816 | FILTER BLANKET | 932 | SQ. YD. |
| SS & 816 | DUMPED RIPRAP | 491 | CU. YD. |
| | | | |
| | | | |
| | | | |

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

Trinity D. Smith

01-11-2024

## REVISIONS

| DATE | REVISION | SHEET NUMBER |
|---|---|---|
| 1/11/2024 | REMOVED SECTION 404 NATIONWIDE 14 PERMIT GENERAL NOTE, ADDED SPECIAL PROVISON "SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS". | 3, 20 |
| | | |
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| | | |

MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 21 | 61 |
| | | SURVEY CONTROL DETAILS | | | | |

SURVEY CONTROL COORDINATES

Project Name: s050423
Date: 9/22/2020
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 | 659747.7818 | 1289334.4328 | 526.260 | CTL | *ARDOT STD. MON. STAMPED PN:1 |
| 2 | 659871.5702 | 1290174.0934 | 489.535 | CTL | *ARDOT STD. MON. STAMPED PN:2 |
| 3 | 659998.9243 | 1291010.2020 | 474.205 | CTL | *ARDOT STD. MON. STAMPED PN:3 |
| 4 | 660292.2856 | 1292280.2268 | 488.952 | CTL | *ARDOT STD. MON. STAMPED PN:4 |
| 5 | 659983.1478 | 1292930.4287 | 540.392 | CTL | *ARDOT STD. MON. STAMPED PN:5 |
| 6 | 659635.2741 | 1293245.6314 | 560.566 | CTL | *ARDOT STD. MON. STAMPED PN:6 |
| 7 | 659178.8506 | 1293543.9830 | 564.765 | CTL | *ARDOT STD. MON. STAMPED PN:7 |
| 8 | 658773.9416 | 1295566.6279 | 631.687 | GPS | *ARDOT STD. MON. STAMPED PN:8 |
| 9 | 658702.0571 | 1297109.4216 | 612.203 | GPS | *ARDOT STD. MON. STAMPED PN:9 |
| 10 | 660038.6896 | 1291008.6384 | 474.566 | CTL | *ARDOT STD. MON. STAMPED PN:10 |
| 11 | 660208.1941 | 1291741.6655 | 454.165 | CTL | *ARDOT GPS POINT #330008A |
| 900 | 660121.5492 | 1291297.8604 | 466.156 | TBM | *2X2 CHISELED SQUARE |
| 901 | 660266.6267 | 1292330.8014 | 492.518 | TBM | *2X2 CHISELED SQUARE |

*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 0.999963335369 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 s050423gi.ctl
HORIZONTAL DATUM: NAD 83 (2011)
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: 8 & 9
CONVERGENCE ANGLE: 0°02'26.43" LEFT AT LAT N36°08'49.39" LON W92°04'11.65"
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

STATE OF ARKANSAS
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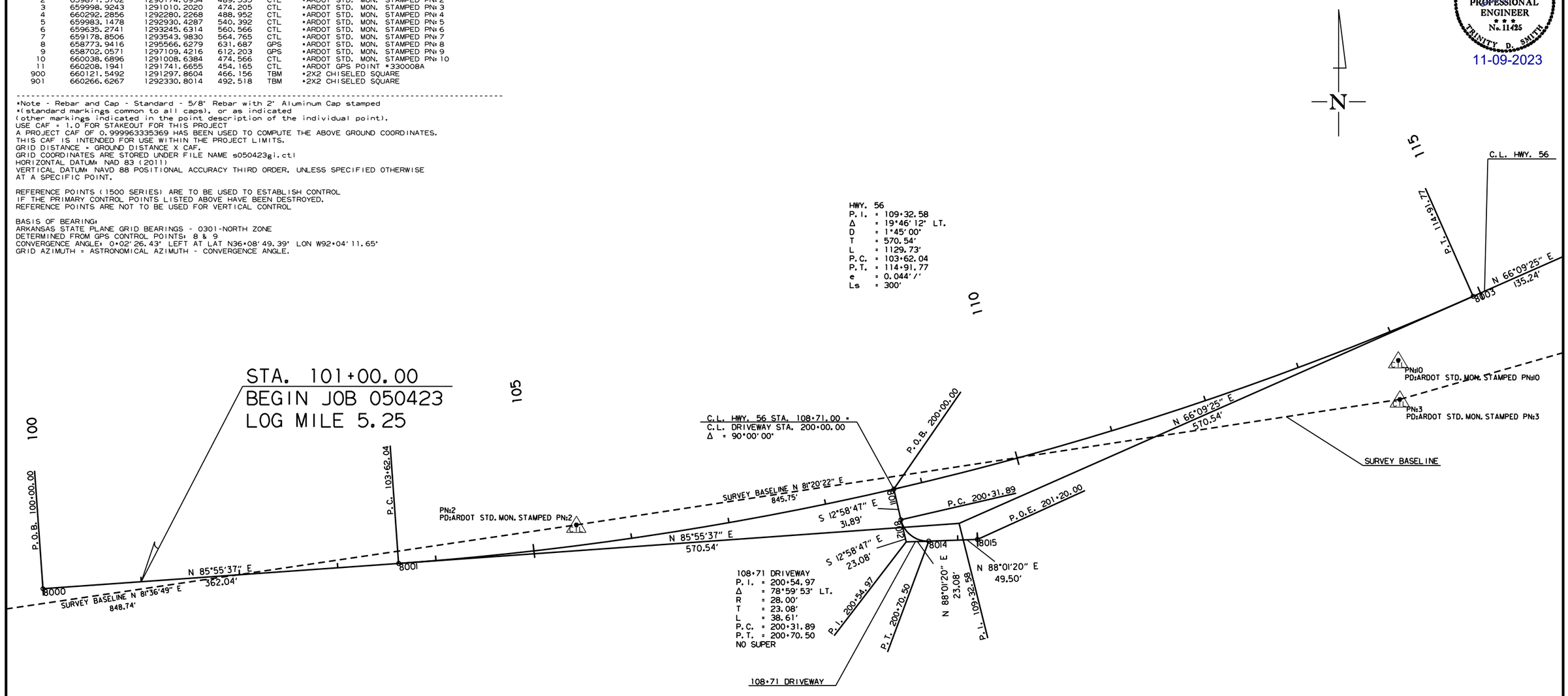
No. 11425
TRINITY D. SMITH
11-09-2023




HWY. 56

| POINT NO. | TYPE | STATION | NORTHING | EASTING |
|---|---|---|---|---|
| 8000 | POB | 100+00.00 | 659806.6712 | 1289632.5375 |
| 8001 | PC | 103+62.04 | 659832.3858 | 1289993.6663 |
| 8003 | PT | 114+91.77 | 660103.5395 | 1291084.6058 |
| 8004 | PC | 116+27.01 | 660158.2090 | 1291208.3055 |
| 8006 | PT | 125+49.17 | 660280.2244 | 1292110.0965 |
| 8007 | PC | 127+22.09 | 660254.8674 | 1292281.1495 |
| 8009 | PT | 130+59.16 | 660162.1371 | 1292604.1925 |
| 8010 | POE | 131+00.00 | 660145.7867 | 1292641.6164 |

108+71 DRIVEWAY

| POINT NO. | TYPE | STATION | NORTHING | EASTING |
|---|---|---|---|---|
| 8011 | POB | 200+00.00 | 659907.7696 | 1290496.4915 |
| 8012 | PC | 200+31.89 | 659876.6922 | 1290503.6546 |
| 8014 | PT | 200+70.50 | 659854.9978 | 1290531.9056 |
| 8015 | POE | 201+20.00 | 659856.7063 | 1290581.3781 |

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R050423.DGN

SURVEY CONTROL DETAILS

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 22 | 61 |
| | | SURVEY CONTROL DETAILS | | | | |

STATE OF ARKANSAS
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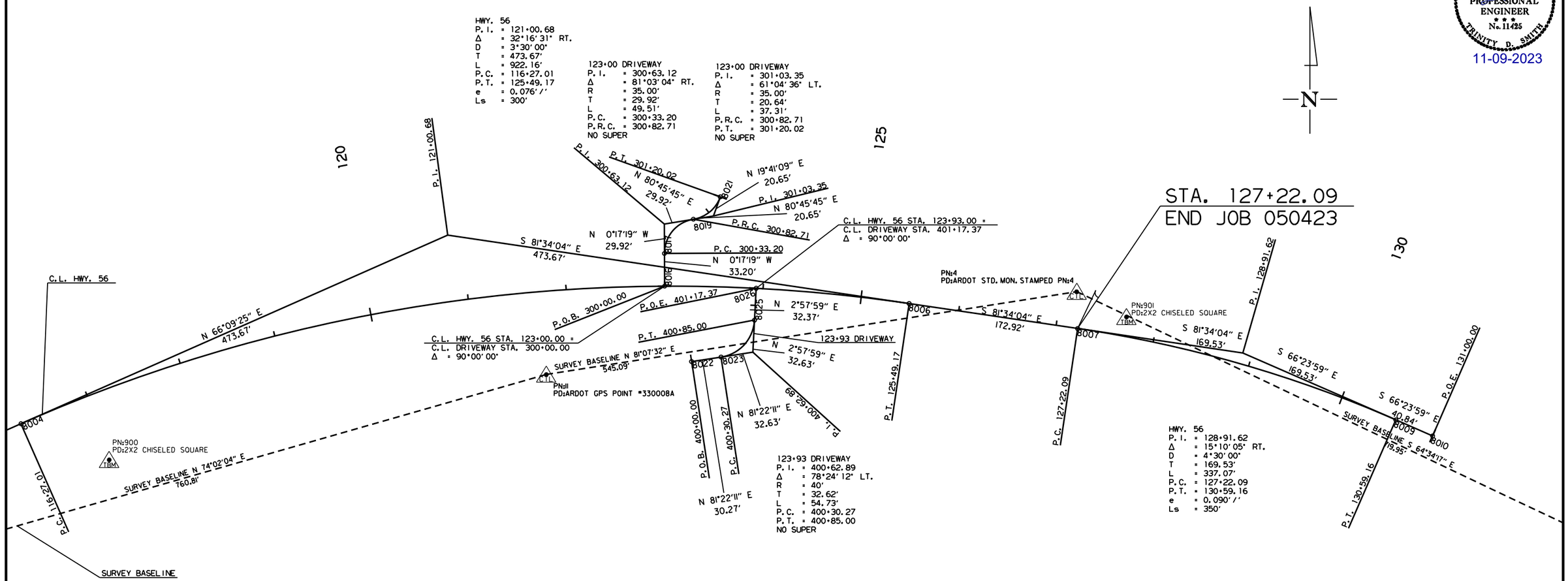
TRINITY D. SMITH
11-09-2023




## 123+00 DRIVEWAY

| POINT NO. | TYPE | STATION | NORTHING | EASTING |
|---|---|---|---|---|
| 8016 | POB | 300+00.00 | 660297.8995 | 1291861.7995 |
| 8017 | PC | 300+33.20 | 660331.0945 | 1291861.6323 |
| 8019 | PRC | 300+82.71 | 660365.8169 | 1291891.0134 |
| 8021 | PT | 301+20.02 | 660388.5728 | 1291918.3493 |

## 123+93 DRIVEWAY

| POINT NO. | TYPE | STATION | NORTHING | EASTING |
|---|---|---|---|---|
| 8022 | POB | 400+00.00 | 660221.3830 | 1291889.2185 |
| 8023 | PC | 400+30.27 | 660225.9247 | 1291919.1425 |
| 8025 | PT | 400+85.00 | 660263.4018 | 1291953.0866 |
| 8026 | POE | 401+17.37 | 660295.7268 | 1291954.7617 |

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SURVEY CONTROL DETAILS

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|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 23 | 61 |
| | | PLAN AND PROFILE SHEETS | | | | |

STATE OF ARKANSAS
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No. 11425
TRINITY D. SMITH
11-09-2023

100' TRANSITION

STA. 105+89 IN PLACE
24" X 49' C.M. PIPE CULVERT
REMOVE

STA. 106+01 CONSTRUCT
24" X 78' PIPE CULVERT
ON 15° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 21 CFS; D.A. = 16 ACRES
24" R.C. PIPE = 78 LIN. FT.
24" FES = 2 EA.

STA. 108+66 IN PLACE
48" X 94' R.C. PIPE CULVERT
WITH HDWLS LT. & RT.
REMOVE

STA. 110+35 CONSTRUCT
48" X 86' PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 11 CFS; D.A. = 8 ACRES
48" R.C. PIPE = 86 LIN. FT.
48" FES = 2 EA.

HWY. 56
P.I. = 109+32.58
Δ = 19°46'12" LT.
D = 1°45'00"
T = 570.54'
L = 1129.73'
P.C. = 103+62.04
P.T. = 114+91.77
e = 0.044'/'
Ls = 300'

STA. 100+00.00 TO STA. 106+15.00 ON LT.
CONC. DITCH PAVING (TYPE B) = 431.87 SQ. YD.

STA. 109+20.00 TO STA. 116+68.90 ON LT.
CONC. DITCH PAVING (TYPE B) = 525.89 SQ. YD.

C.L. HWY. 56 STA. 108+71.00 =
C.L. DRIVEWAY STA. 200+00.00
Δ = 90°00'00"

REMOVAL AND DISPOSAL OF FENCE

| STA. | STA. | SIDE | LIN. FT. |
|---|---|---|---|
| 100+10 | 116+58 | LT. | 1768 |
| 123+79 | 123+89 | RT. | 28 |

WIRE FENCE

| STA. | STA. | SIDE | TYPE | LIN. FT. |
|---|---|---|---|---|
| 100+10 | 116+00 | LT. | D-1 | 1570 |

STA. 100+00.00 TO STA. 101+60.00 ON RT.
CONC. DITCH PAVING (TYPE B) = 112.36 SQ. YD.

STA. 101+00.00
BEGIN JOB 050423
LOG MILE 5.25

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

STA. 108+71 CONSTRUCT
APPROACH ON RT. = 300 CU. YD.

STA. 112+15.00 TO STA. 116+68.90 ON RT.
CONC. DITCH PAVING (TYPE B) = 318.74 SQ. YD.

STA. 101+37.04 BEGIN SUPERELEVATION
STA. 104+37.04 MAX SUPERELEVATION (0.044'/')
STA. 112+59.39 MAX SUPERELEVATION (0.044'/')
STA. 115+59.39 END SUPERELEVATION

CONST. LIMITS
PROP. R/W
EXIST. R/W
N 85°55'37" E
N 88°01'20" E
N 66°0
24'
22'
8'
8'
P.C. 103+62.04
P.C. 200+31.89
P.I. 200+54.97
P.I. 109+32.58
P.O.E. 201+20.00
P.I. 114+91.77
P.T. 200+70.30
P.V.I. 101+00.00 ELEV. 509.87
P.V.C. 103+12.50 ELEV. 499.67
P.V.I. 105+00.00 ELEV. 490.67
P.V.T. 106+87.50 ELEV. 487.76
P.V.C. 108+10.00 ELEV. 485.86
P.V.I. 111+10.00 ELEV. 481.21
P.V.T. 114+10.00 ELEV. 473.53
100+00.00 509.20 RT.
101+60.00 501.52 RT.
103+50.00 494.70 LT.
105+89.00 483.89 LT.
106+15.00 485.85 LT.
106+65.00 481.79 RT.
107+25.00 481.11 RT.
108+25.00 478.41 LT.
109+20.00 477.45 LT.
110+35.00 474.00 LT.
111+00.00 477.00 LT.
112+15.00 476.70 RT.
K=115.38
VC=375'
e=1.52'
K=594.06
VC=600'
e=-0.76'
F.L. INLET LT. 483.89
F.L. OUTLET RT. 483.50
F.L. INLET LT. 474.00
F.L. OUTLET RT. 471.21
RT. DITCH GRADE -4.80%
-4.80%
LT. DITCH GRADE -4.52%
LT. D. G. -1.55%
RT. D. G. -1.14%
LT. D. G. -1.01%
LT. D. G. -3.00%
LT. D. G. 4.62%
RT. DITCH GRADE -2.91%
LT. DITCH GRADE -2.20%
-2.56%

100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00
540 530 520 510 500 490 480 470 460 450

MM41715 7/19/2023
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| | | 6 | ARK. | 050423 | 24 | 61 |
| | | PLAN AND PROFILE SHEETS | | | | |

STATE OF ARKANSAS
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No. 11425
TRINITY D. SMITH
11-09-2023

STA. 117+00 TO STA. 120+15
SPECIAL FLOOD HAZARD AREA

| STA. | STA. | SIDE | GUARDRAIL (TYPE A) LIN. FT. | GUARDRAIL TERMINAL (TYPE 2) EACH | THRIE BEAM GUARDRAIL TERMINAL EACH |
|---|---|---|---|---|---|
| 115+15.15 | 116+68.90 | LT | 75 | | |
| 114+62.65 | 116+68.90 | RT. | 150 | | |
| 120+31.10 | 121+84.85 | LT. | 150 | | |
| 120+31.10 | 122+37.35 | RT. | 75 | | |

STA. 121+80.00 TO STA. 122+49.00 ON LT.
CONC. DITCH PAVING (TYPE B) = 48.45 SQ. YD.

STA. 123+00 IN PLACE
18" X 34" R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 108" PIPE CULVERT
CONSTRUCT APPROACH ON LT. = 550 CU. YD.

C.L. HWY. 56 STA. 123+93.00 =
C.L. DRIVEWAY STA. 401+17.37
Δ = 90°00'00"

C.L. HWY. 56 STA. 123+00.00 =
C.L. DRIVEWAY STA. 300+00.00
Δ = 90°00'00"

STA. 117+00.36 - STA. 120+16.06 IN PLACE
BRIDGE NO. 02308
302' X 26.7' STEEL MULTI-BEAM
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 1) = 1.00 LUMP SUM

HWY. 56
P.I. = 121+00.68
Δ = 32°16'31" RT.
D = 3°30'00"
T = 473.67'
L = 922.16'
P.C. = 116+27.01
P.T. = 125+49.17
e = 0.076'/'
Ls = 300'

STA. 123+93 CONSTRUCT
APPROACH ON RT. = 225 CU. YD.

STA. 123+48.00 TO STA. 126+60.00 ON RT.
CONC. DITCH PAVING (TYPE B) = 219.09 SQ. YD.

STA. 127+22.09
END JOB 050423

STA. 127+78 IN PLACE
24" X 48" R.C. PIPE CULVERT
WITH HDWL LT.
RETAIN

HWY. 56
P.I. = 128+91.62
Δ = 15°10'05" RT.
D = 4°30'00"
T = 169.53'
L = 337.07'
P.C. = 127+22.09
P.T. = 130+59.16
MATCH EXIST. SUPER

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

STA. 15+59.39 BEGIN SUPERELEVATION
STA. 18+59.39 MAX SUPERELEVATION (0.076'/')
STA. 27+90.97 MAX SUPERELEVATION (0.076'/')
STA. 28+22.09 MATCH SUPERELEVATION (0.068'/')

BRIDGE END
STA. 116+68.90
ELEV. 467.03

BRIDGE END
STA. 120+31.10
ELEV. 464.93

K=115.38
VC=1050'
e=11.94'

PINEY CREEK AT STA. XXX+XX TO STA. XXX+XX IS CLASSIFIED AS X. THE TOP OF CHANNEL ELEVATION IS XXX.X FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

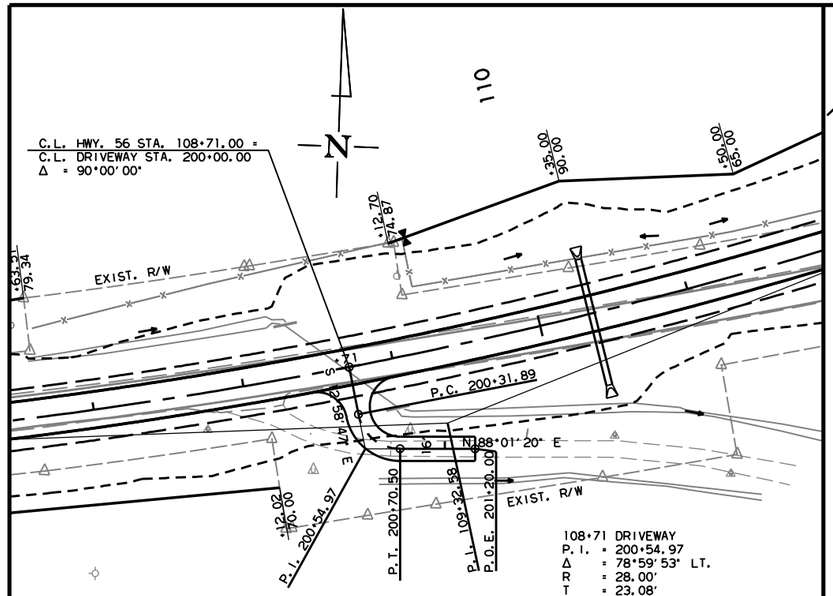
Q50 DESIGN HIGH WATER 448.20

F.L. EXIST INLET RT. 490.19
F.L. EXIST OUTLET LT. 489.29

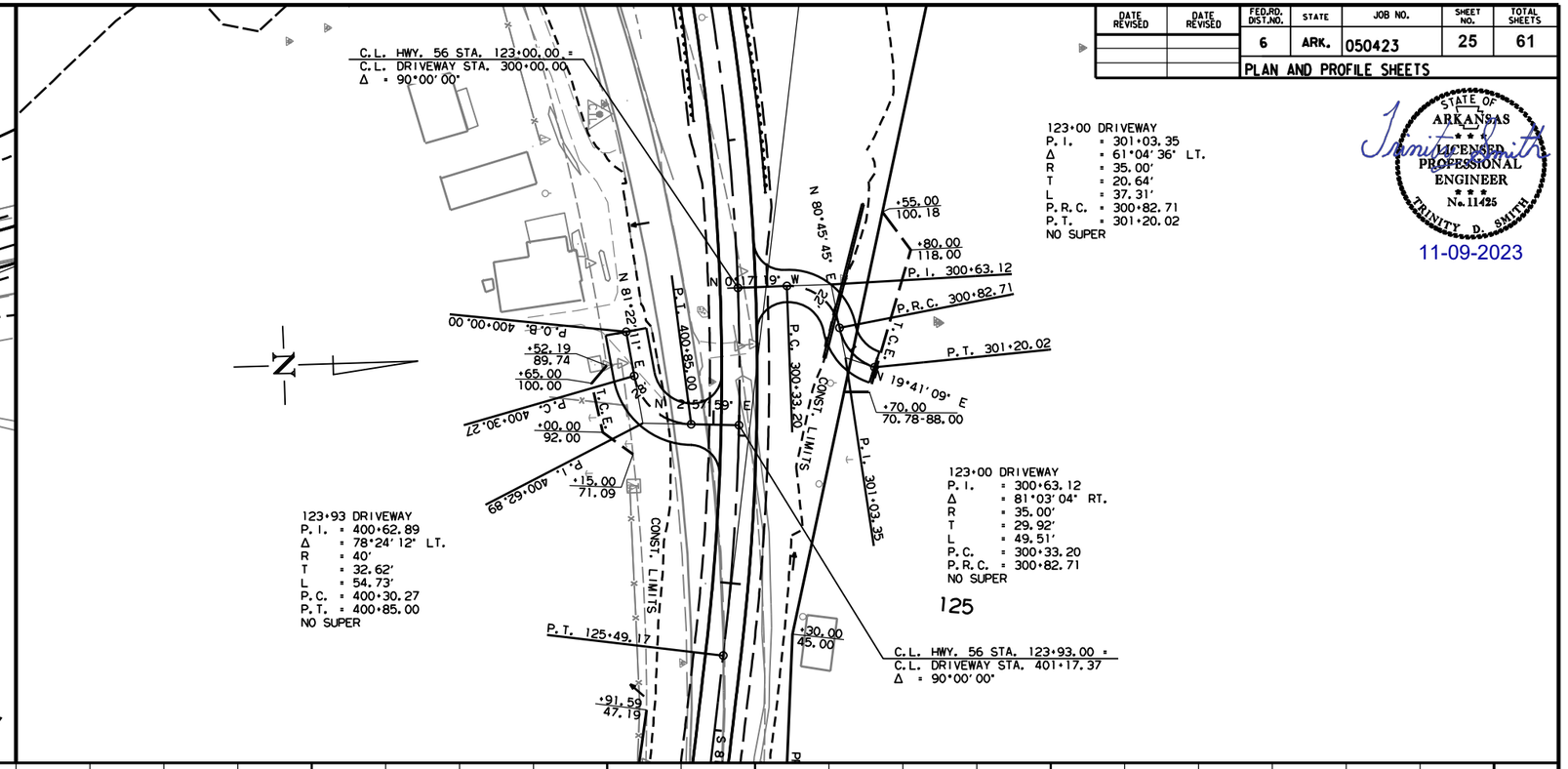
MM41715 7/19/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 25 | 61 |
| | | PLAN AND PROFILE SHEETS | | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-09-2023




108+71 DRIVEWAY
P.I. = 200+54.97
Δ = 78°59'53" LT.
R = 28.00'
T = 23.08'
L = 38.61'
P.C. = 200+31.89
P.T. = 200+70.50
NO SUPER

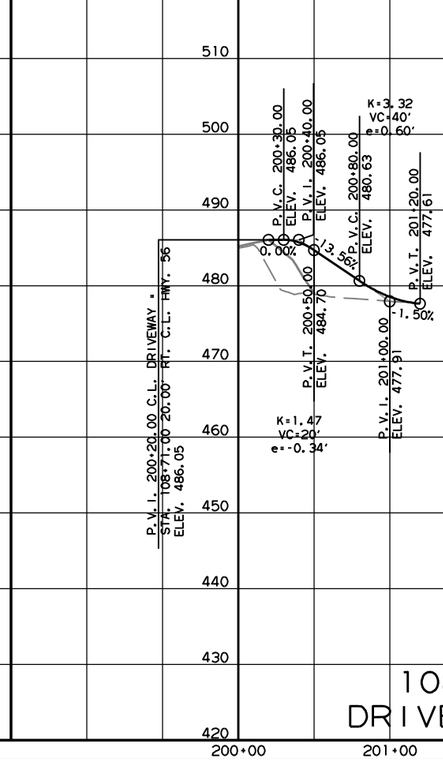



123+93 DRIVEWAY
P.I. = 400+62.89
Δ = 78°24'12" LT.
R = 40'
T = 32.62'
L = 54.73'
P.C. = 400+30.27
P.T. = 400+85.00
NO SUPER

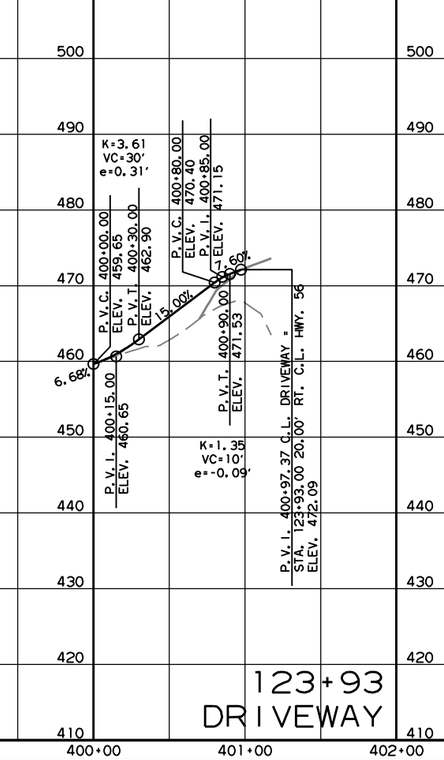
123+00 DRIVEWAY
P.I. = 300+63.12
Δ = 81°03'04" RT.
R = 35.00'
T = 29.92'
L = 49.51'
P.C. = 300+33.20
P.R.C. = 300+82.71
NO SUPER

123+00 DRIVEWAY
P.I. = 301+03.35
Δ = 61°04'36" LT.
R = 35.00'
T = 20.64'
L = 37.31'
P.R.C. = 300+82.71
P.T. = 301+20.02
NO SUPER

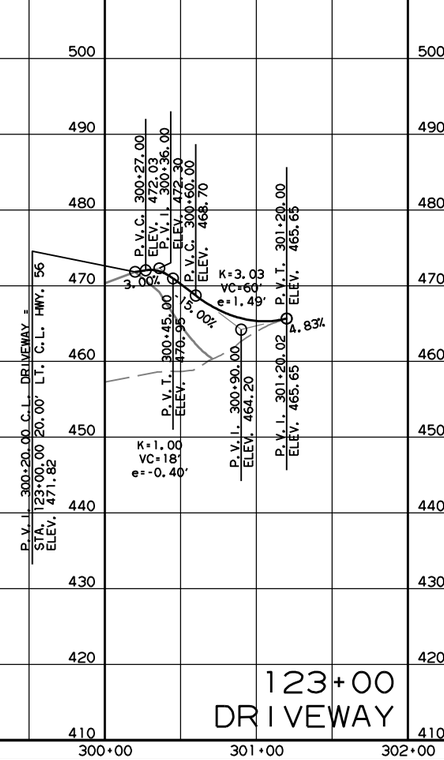
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.




108+71 DRIVEWAY




123+93 DRIVEWAY




123+00 DRIVEWAY

MM41715 7/19/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED. RD. DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
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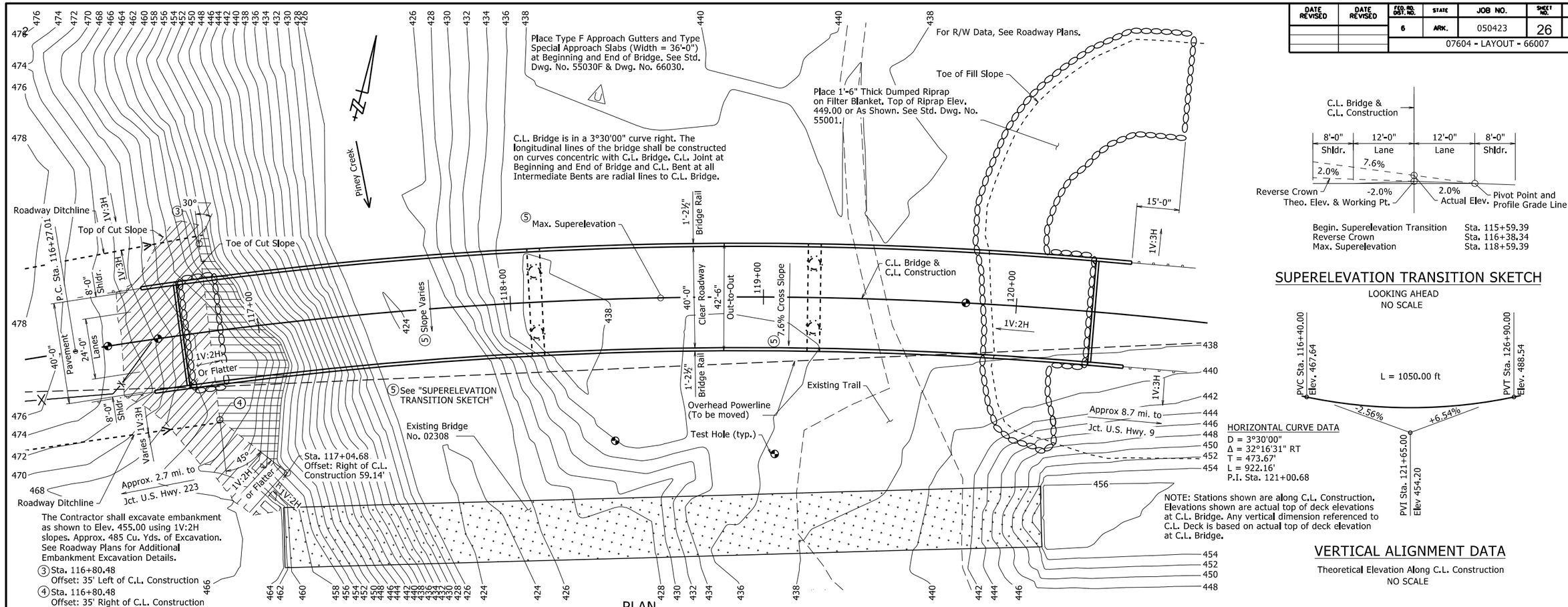
| | | 07604 - LAYOUT - 66007 | | | | |




PLAN




| | |
|---|---|
| Begin. Superelevation Transition | Sta. 115+59.39 |
| Reverse Crown | Sta. 116+38.34 |
| Max. Superelevation | Sta. 118+59.39 |

## SUPERELEVATION TRANSITION SKETCH

LOOKING AHEAD
NO SCALE

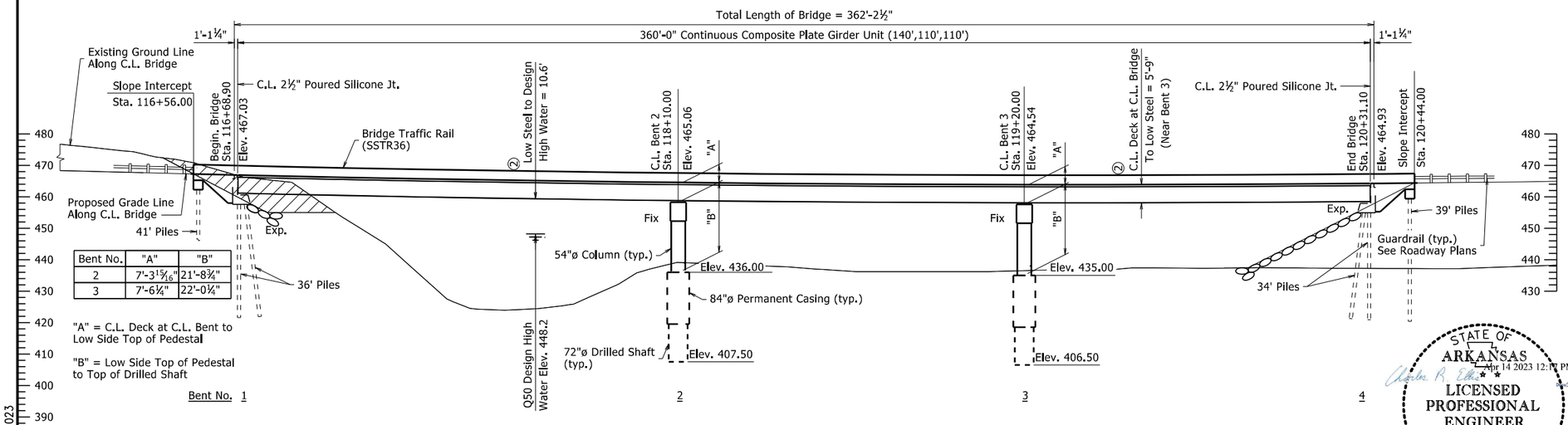



HORIZONTAL CURVE DATA
D = 3°30'00"
Δ = 32°16'31" RT
T = 473.67'
L = 922.16'
P.I. Sta. 121+00.68

NOTE: Stations shown are along C.L. Construction. Elevations shown are actual top of deck elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on actual top of deck elevation at C.L. Bridge.

## VERTICAL ALIGNMENT DATA

Theoretical Elevation Along C.L. Construction
NO SCALE




| Bent No. | "A" | "B" |
|---|---|---|
| 2 | 7'-3 15/16" | 21'-8¾" |
| 3 | 7'-6¼" | 22'-0¼" |

"A" = C.L. Deck at C.L. Bent to Low Side Top of Pedestal

"B" = Low Side Top of Pedestal to Top of Drilled Shaft

See Dwg. No. 66008 For Soil Boring Information

ELEVATION VIEW

## HYDRAULIC DATA

| FLOOD DESCRIPTION | FREQUENCY | DISCHARGE | ①NATURAL WATER SURFACE ELEVATION | WATER SURFACE ELEV. WITH BACKWATER |
|---|---|---|---|---|
| | YEARS | CFS | FEET | FEET |
| Design | 50 | 26740 | 447.5 | 448.2 |
| Base | 100 | 33070 | 449.1 | 450.3 |
| Extreme | 500 | 50140 | 452.6 | 454.9 |
| Overtopping | >500 | - | - | - |

① Unconstricted water surface elevation without structure or roadway approaches.

② Q100 backwater elevation for existing structure = 449.6 ft
Proposed Low Bridge Chord elevation = 458.78 ft @ Sta. 119+35.36
Drainage Area = 78.5 square miles
Historical H.W. Elev. = N/A

STATE OF ARKANSAS
Apr 14 2023 12:17 PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

# SHEET 1 OF 2
# LAYOUT OF BRIDGE
# HIGHWAY 56 OVER PINEY CREEK
# PINEY CREEK STR. & APPRS. (S)
# IZARD COUNTY

ROUTE 56 SEC. 1

## ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

| | | | |
|---|---|---|---|
| DRAWN BY: | RD | DATE: 12/13/2021 | FILENAME: b050423_L1.dgn |
| CHECKED BY: | MCB | DATE: 4/11/2023 | SCALE: 1" = 20'-0" |
| DESIGNED BY: | MCB | DATE: 12/13/2021 | |

BRIDGE NO. 07604 DRAWING NO. 66007

PRINT DATE: 4/11/2023

| DATE REVISED | DATE REVISED | FED. RD. DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 27 | 61 |
| | | 07604 - LAYOUT - 66008 | | | | |

GENERAL NOTES:

BENCHMARK: Vertical Control Data are shown on the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Eighth Edition (2017).

LIVE LOADING: HL-93

SEISMIC ZONE: 2 SD1: 0.17 Site Class: C

SEISMIC OPERATIONAL CLASSIFICATION: Other

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) | fy = 60,000 psi |
| Structural Steel (ASTM A709, Gr. 36) | Fy = 36,000 psi |
| Structural Steel (ASTM A709, Gr. 50 or Gr. 50W) | Fy = 50,000 psi |

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

STEEL PILING: All piles shall be HP 14X89 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 164 tons per pile into the material designated as Dolostone on the boring legend. Minimum penetration shall be 10' below natural ground for all piles in Bents 1 and 4. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths shown are for estimating quantities and for use in determining payment for cut-off and build up in accordance with Section 805. The Contractor shall use approved steel H-Pile driving points on all piles.

PREBORING: Preboring is required for all piles in Bents 1 and 4. The depth of preboring shall be to a minimum 3' depth into material designated as Dolostone on the boring legend. The actual size and depth of preboring shall be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free of debris prior to driving piles and backfilling which may require the use of temporary casings or other approved methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of the rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring".

DRILLED SHAFTS: Drilled shafts at Bents 2 and 3 shall be constructed in accordance with Special Provision "Drilled Shaft Foundations". Drilled shafts shall be socketed into material designated as Dolostone on the boring legend and to the minimum rock penetrations and tip elevations shown in the plans. No adjustment to plan tip elevations shall be made without prior approval from the Engineer. Temporary casing may be required.

NONDESTRUCTIVE TESTING: Crosshole Sonic Logging (CSL) shall be performed on each drilled shaft. Testing shall be performed in accordance with Special Provision "Nondestructive Testing of Drilled Shafts".

PAINTING: All Grade 50W structural steel, except galvanized members, surfaces in contact with concrete, and the expansion device, within ten 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. ASTM F3125, Grade A325 Type 3 bolts shall be used within these painted zones and shall be painted.

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 roadway face and top of the concrete bridge rails in accordance with Section 803.

| DETAIL DRAWINGS: | DRAWING NO. |
|---|---|
| Bent 1 | 66009-66012 |
| Intermediate Bents | 66013-66016 |
| Bent 4 | 66017-66020 |
| Elastomeric Bearings | 66021 |
| 360'-0" Cont. Plate Girder Unit | 66022-66029 |
| Type Special Approach Slab | 66030 |
| Type F Approach Gutter | 55030F |
| Dumped Riprap | 55001 |
| General Notes For Steel Bridge Structures | 55006 |
| Details For Steel Bridge Structures | 55007 |
| Poured Silicone Joints | 55008 |
| Bridge Traffic Rail | 55070 |

EXISTING BRIDGE: Existing Bridge No. 02308 (Log Mile 5.56) is 26.7' wide (24' clear roadway) and 302' long and consists of 6 - 50' steel multi-beam spans with a concrete deck, supported by reinforced concrete abutments and reinforced concrete bents with spread footings. The existing bridge is located approximately 60' downstream from the proposed new bridge. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Development Section of the Program Management Division.

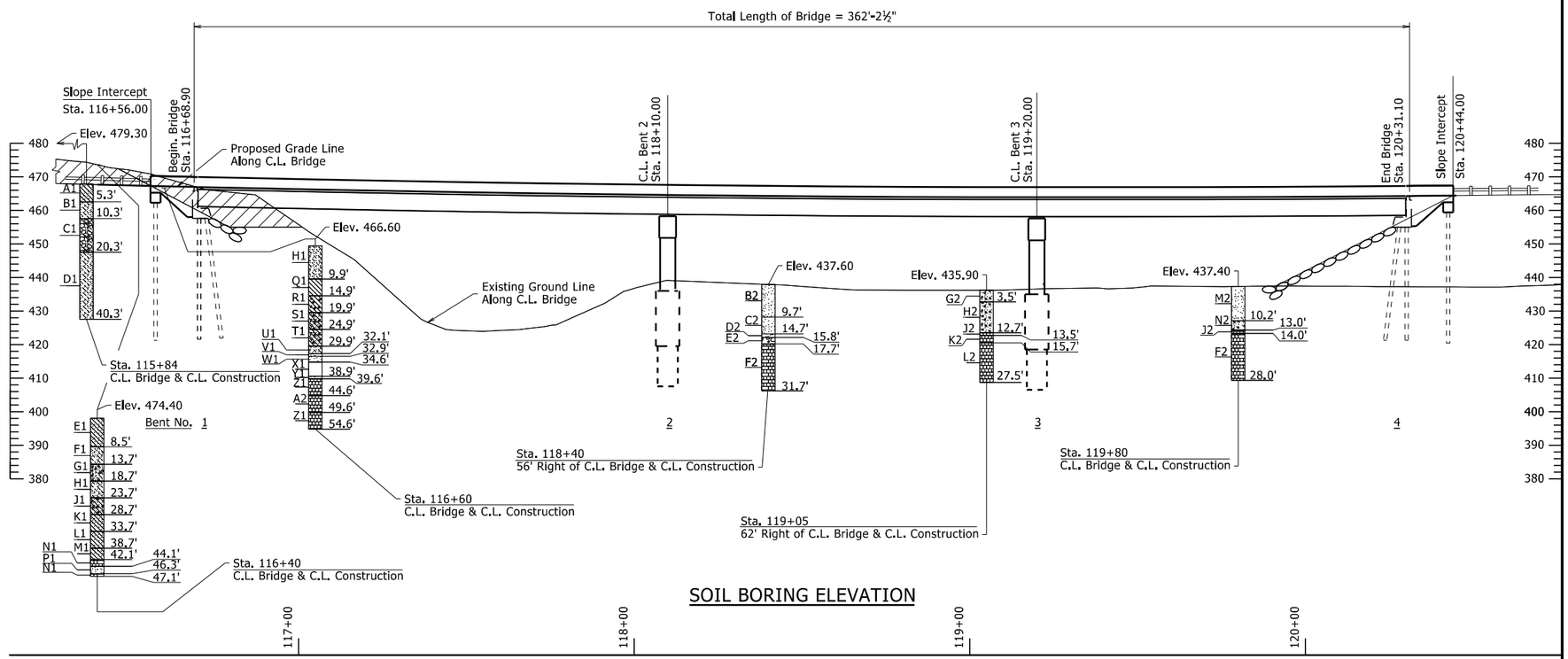
REMOVAL AND SALVAGE: After the new bridge is open to traffic, the Contractor shall remove existing Bridge No. 02308 in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor except the following which shall remain the property of the State:

12 - W30X116 beams

The Contractor shall notify the Department prior to removal to determine the specific pieces deemed salvageable. The Contractor shall provide temporary storage and on-site loading onto ARDOT equipment for removal of salvage items from the site. This work shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No. )".

MAINTENANCE OF TRAFFIC: See Roadway Plans.

PRINT DATE: 4/11/2023




## SOIL BORING ELEVATION

## BORING LEGEND

A1-Reddish Brown Sandy Clay
B1-Reddish Brown Clayey Sand
C1-Reddish Brown Clayey Sand with Gravel and Cobbles
D1-Moist, Reddish Brown Clayey Sand
E1-Moist, Hard, Reddish Brown Sandy Clay
F1-Moist, Very Dense, Reddish Brown Clayey Sand
G1-Moist, Very Dense, Reddish Brown Clayey Sand with Gravel
H1-Moist, Medium Dense, Reddish Brown Clayey Sand
J1-Moist, Stiff, Reddish Brown Sandy Clay with Gravel (Sandstone Fragments)
K1-Moist, Stiff, Reddish Brown Sandy Clay
L1-Moist, Medium Stiff, Reddish Brown Sandy Clay
M1-Wet, Soft, Reddish Brown Sandy Clay
N1-DOLOSTONE - Slightly Weathered, Moderately Hard, Occasional Fractures, Light Gray
P1-SANDSTONE - Slightly Weathered, Cemented, Calcareous, Light Gray
Q1-Moist, Very Stiff, Reddish Brown Clay
R1-Moist, Very Stiff, Reddish Brown Clay with Gravel (Sandstone Fragments)
S1-Moist, Hard, Reddish Brown Sandy Clay with Gravel (Sandstone Fragments)
T1-Moist, Medium Stiff, Reddish Brown Sandy Clay with Gravel (Sandstone Fragments)
U1-Moist, Very Loose, Reddish Brown Clayey Sand
V1-SANDSTONE
W1-SANDSTONE - Slightly Weathered, Cemented, Calcareous, Light Gray
X1-Cavity
Y1-SANDSTONE - Highly Weathered, Cemented, Gray and Reddish Brown
Z1-DOLOSTONE - Slightly Weathered, Moderately Hard, Light Gray
A2-DOLOSTONE - Slightly Weathered, Moderately Hard, Frequent Healed Fractures and Dolomite Crystals, Light Gray
B2-Moist, Loose, Brown Sand
C2-Wet, Loose, Brown Sand with Some Gravel
D2-Wet, Dense, Brown Sand with Gravel
E2-Gravel and Cobbles
F2-DOLOSTONE - Unweathered, Moderately Hard, Frequent Dolomite Crystals, Gray
G2-Sand with Gravel
H2-Wet, Medium Dense, Brown Sand with Gravel
J2-DOLOSTONE
K2-DOLOSTONE - Weathered, Moderately Hard, Occasional Fractures and Dolomite Crystals, Gray
L2-DOLOSTONE - Unweathered, Moderately Hard, Occasional Fractures and Dolomite Crystals, Gray
M2-Moist, Medium Dense, Brown Sand
N2-Wet, Loose, Brown Gravel with Sand

## "N" VALUES

Sta. 116+40 - C.L. Bridge & C.L. Construction
4.0 - 5.0, N=34
9.0 - 10.0, N = 60
14.2 - 15.2, N=59
19.2 - 20.2, N=28
24.2 - 25.2, N=14
29.2 - 30.2, N=14
34.2 - 35.2, N=6
39.2 - 40.2, N=3

Sta. 116+60 - C.L. Bridge & C.L. Construction
5.4 - 6.4, N=24
10.4 - 11.4, N=23
15.4 - 16.4, N=22
20.4 - 21.4, N=36
25.4 - 26.4, N=7
30.4 - 31.4, N=4

Sta. 118+40 - 56' Right of C.L. Bridge & C.L. Construction
5.2 - 6.2, N=9
10.2 - 11.2, N=5
15.2 - 16.2, N=36

Sta. 119+05 - 62' Right of C.L. Bridge & C.L. Construction
4.0 - 5.0, N=13
9.0 - 10.0, N=13
13.5 - 13.5, N=10

Sta. 119+80 - C.L. Bridge & C.L. Construction
5.7 - 6.7, N=15
10.7 - 11.7, N=6

STATE OF ARKANSAS
Apr 14 2023 12:17 PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

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

ROUTE 56 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: RD DATE: 12/13/2021
CHECKED BY: MCB DATE: 4/11/2023
DESIGNED BY: MCB DATE: 12/13/2021
FILENAME: b050423_L1.dgn
SCALE: 1" = 20'-0"

BRIDGE NO. 07604 DRAWING NO. 66008

| DATE REVISED | DATE REVISED | FED. RD. DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
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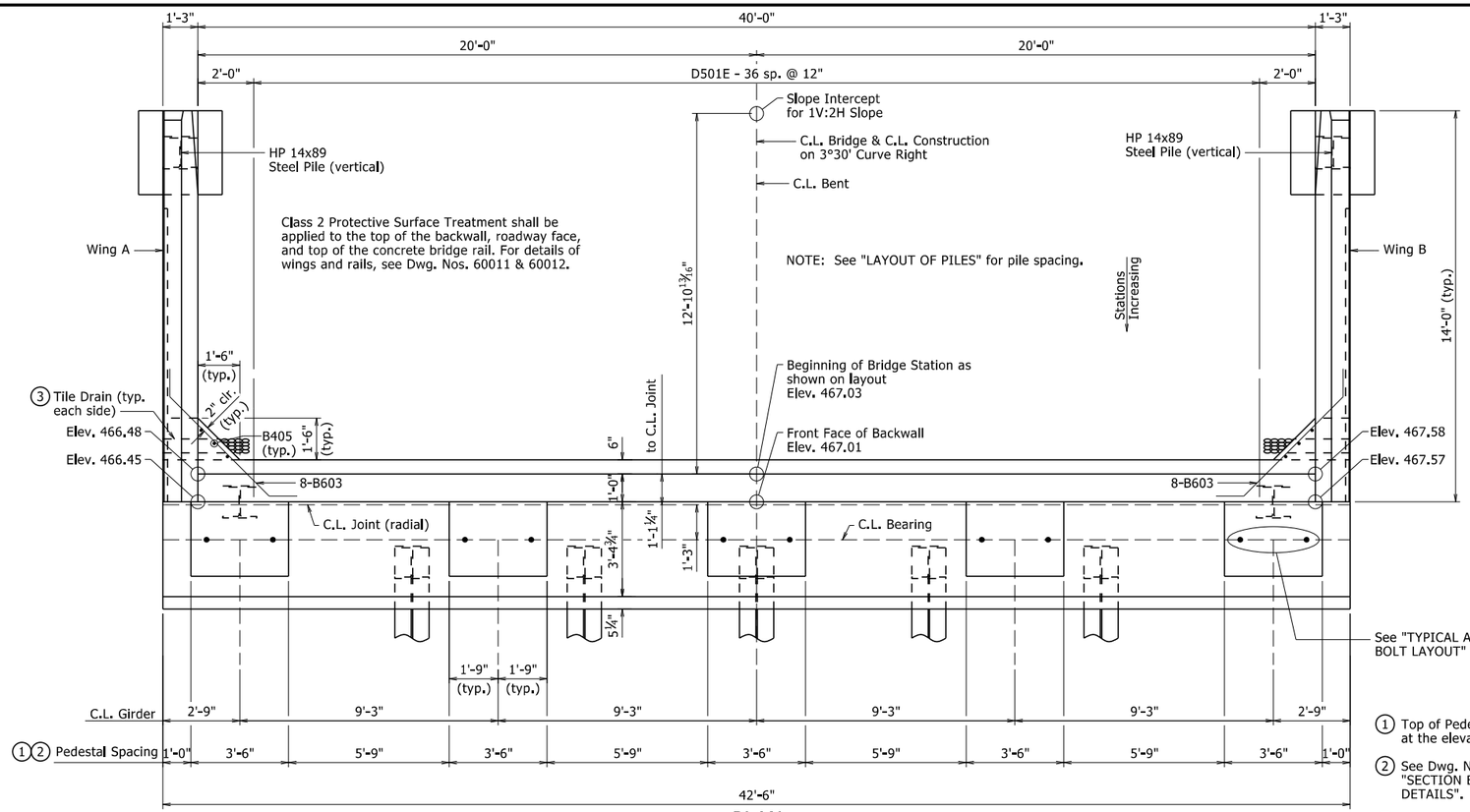
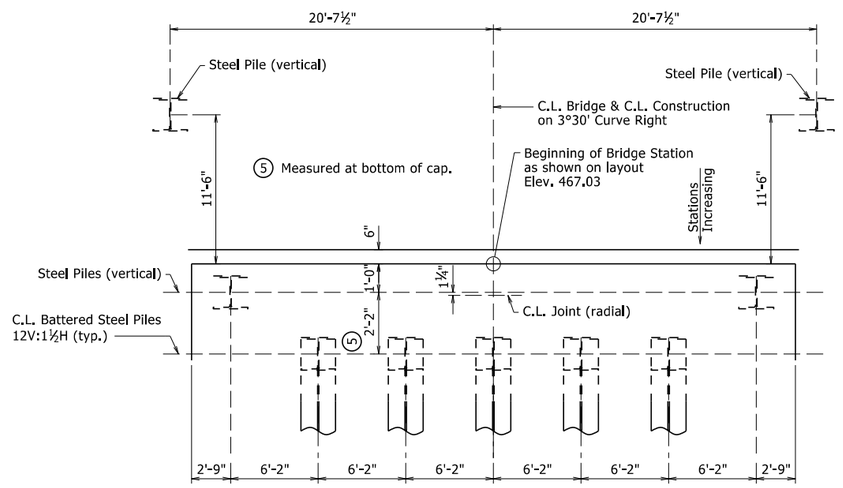
| | | 07604 - BENT 1 - 66009 | | | | |




## PLAN

LOOKING BACK
⅜"=1'-0"

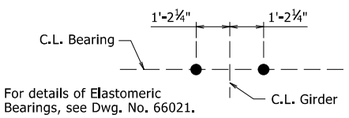



## LAYOUT OF PILES

NO SCALE

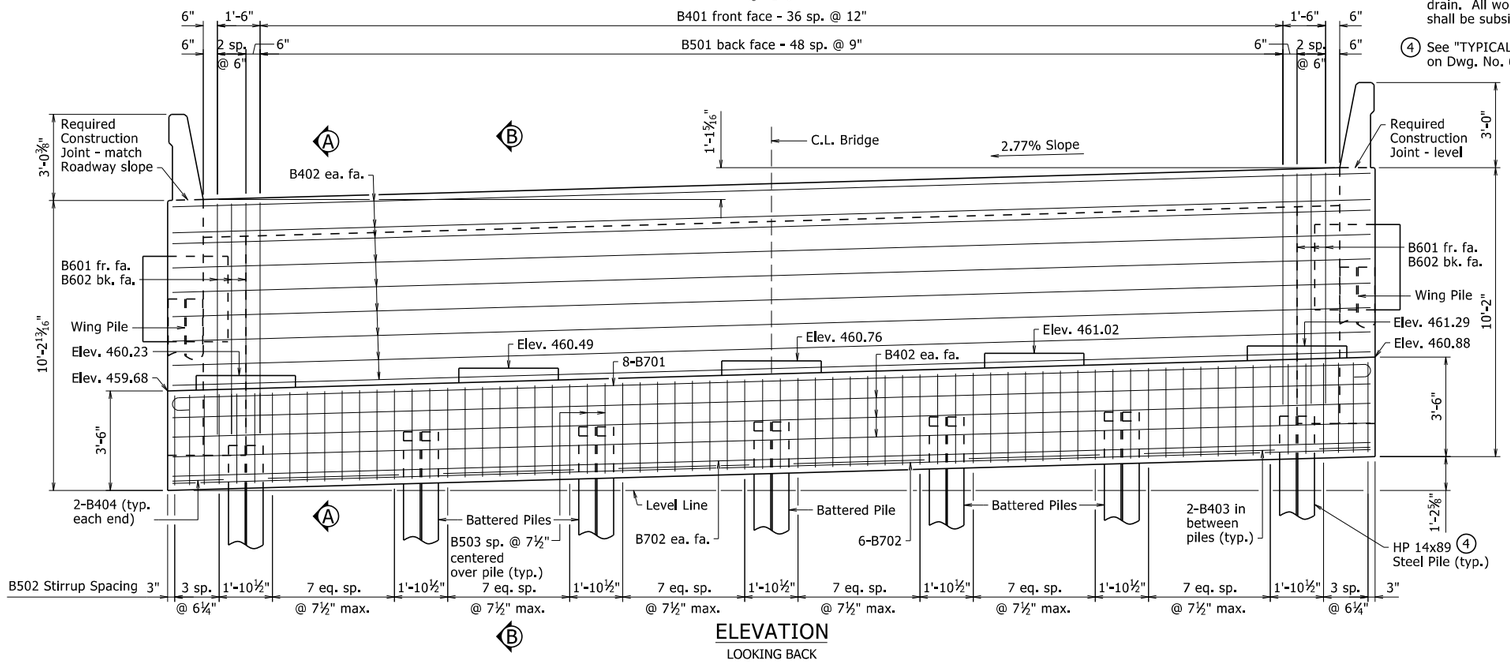
NOTE: All Piles shall be HP 14x89.

1. Top of Pedestals shall be cast level at the elevations shown.
2. See Dwg. No. 60010 for "SECTION A-A", "SECTION B-B", & "TYPICAL PEDESTAL DETAILS".
3. Place 6"ø tile drains approximately 6" above fill slope. Spread bars as required. Place 6 cu. ft. of sacked ¾" crushed rock or gravel at each drain. All work and materials to install drains shall be subsidiary to "Class S Concrete".
4. See "TYPICAL PILE DETAILS" for Pile anchorage on Dwg. No. 60010.




## TYPICAL ANCHOR BOLT LAYOUT

NO SCALE




## ELEVATION

LOOKING BACK
⅜"=1'-0"

NOTES:

For additional "GENERAL NOTES", see Std. Dwg. No. 55006.

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

All piling shall be Grade 50. For details of Steel H-Piling, see Dwg. No. 66010.

Structural steel, unless noted otherwise, in end bents shall be ASTM A709, Gr. 50W and shall be paid for as "Structural Steel in Girder Spans (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 AT END BENTS" note, see Std. Dwg. No. 55008. No heavy construction equipment shall be allowed within 10' of the backwall before the deck concrete placement for the adjacent span has been completed.

For additional information, see Layout.

STATE OF ARKANSAS
Apr 14 2023 12:17 PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF BENT 1

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 12/05/2022
CHECKED BY: DPT DATE: 02/21/2023
DESIGNED BY: DPT DATE: 11/2022
FILENAME: b050423_b1.dgn
SCALE: AS NOTED

BRIDGE NO. 07604 DRAWING NO. 66009

PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. RD. DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
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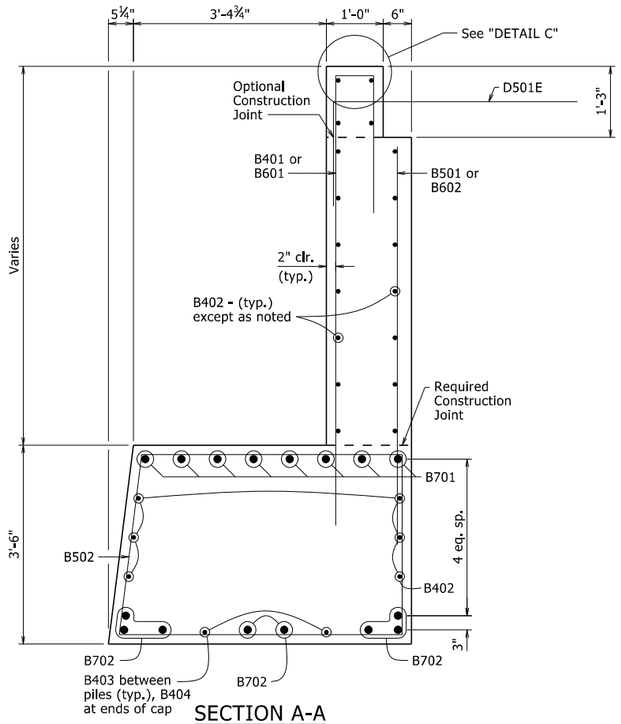
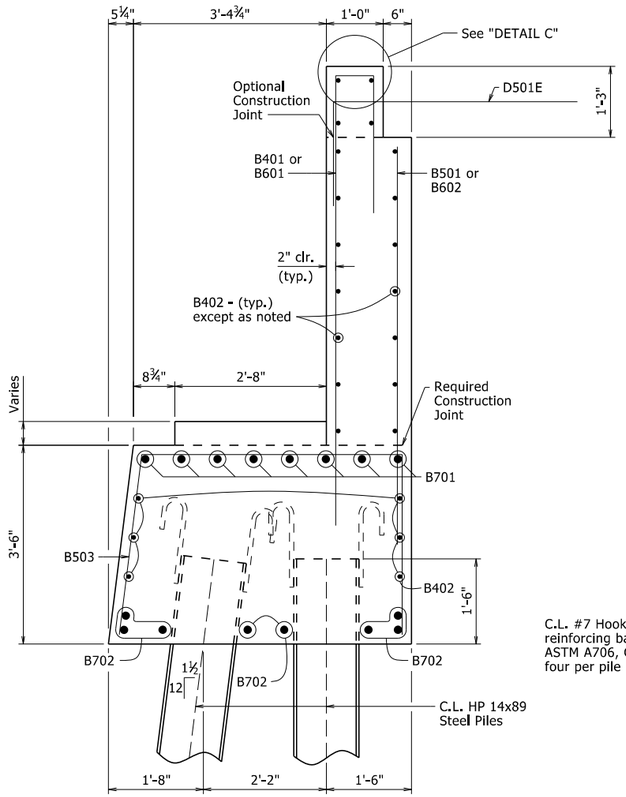
| | | 07604 - BENT 1 - 66010 | | | | |



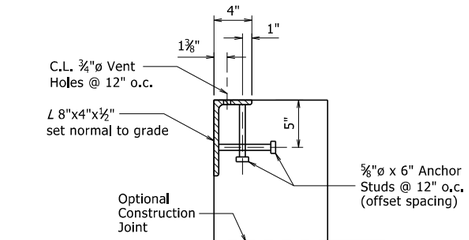

SECTION A-A

¾"=1'-0"




SECTION B-B

¾"=1'-0"




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

Concrete shall be hand packed under the joint armor.

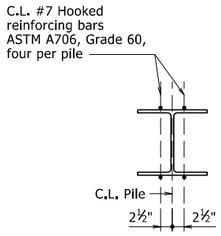
For additional joint details, see Std. Dwg. No. 55008.

DETAIL C

NO SCALE

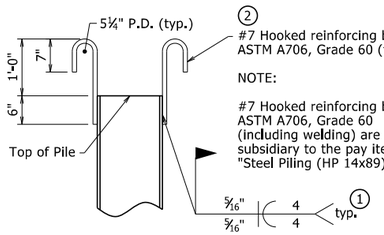
1. Welding shall comply with ANSI/AWS D1.4 Structural Welding Code-Reinforcing Steel and applicable portions of ANSI/AWS D1.5 Bridge Welding Code.

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




PILE PLAN

¾"=1'-0"



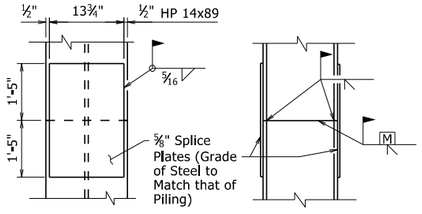

TYPICAL PILE DETAILS

¾"=1'-0"

2 #7 Hooked reinforcing bars ASTM A706, Grade 60 (typ.)

NOTE:

#7 Hooked reinforcing bars ASTM A706, Grade 60 (including welding) are subsidiary to the pay item "Steel Piling (HP 14x89)".

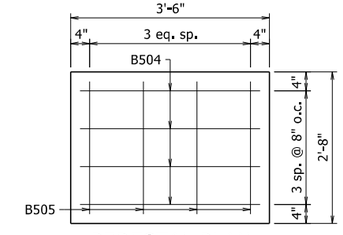



The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

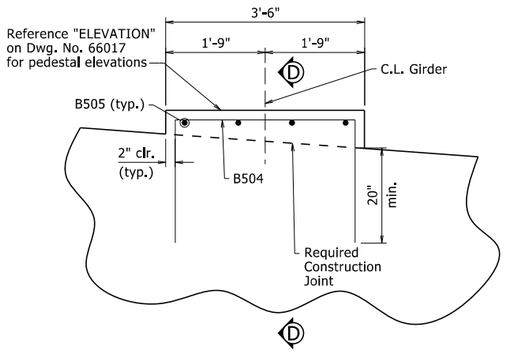
3/16"=1'-0"

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" 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. 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".




PEDESTAL PLAN

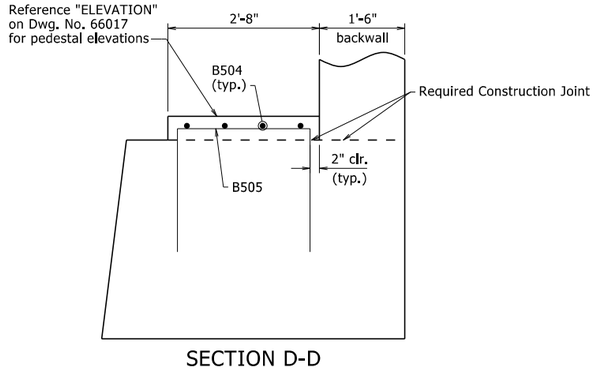
¾"=1'-0"




TYPICAL PEDESTAL DETAILS

LOOKING FORWARD

¾"=1'-0"




SECTION D-D

¾"=1'-0"

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No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 4

DETAILS OF BENT 1

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

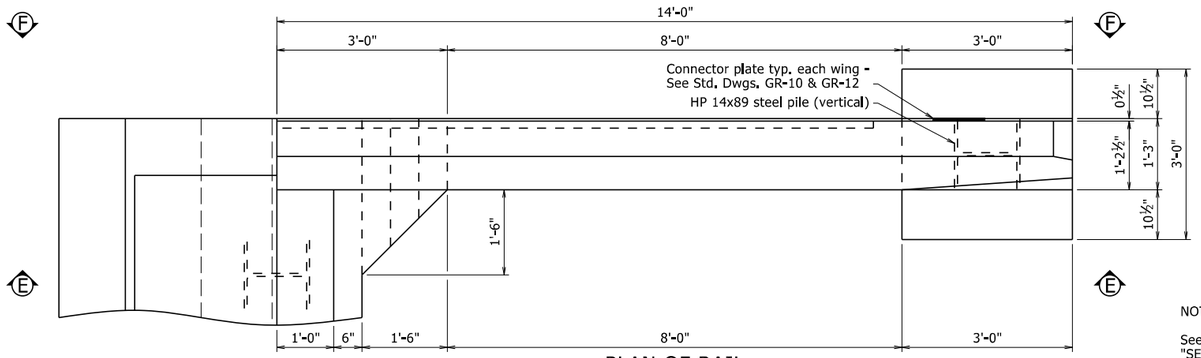
| | | | |
|---|---|---|---|
| DRAWN BY: CGP | DATE: 12/05/2022 | FILENAME: b050423_b1.dgn | |
| CHECKED BY: DPT | DATE: 02/21/2023 | SCALE: AS NOTED | |
| DESIGNED BY: DPT | DATE: 11/2022 | | |

BRIDGE NO. 07604

DRAWING NO. 66010

PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. ROAD DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 30 | 61 |
| | | 07604 - BENT 1 - 66011 | | | | |

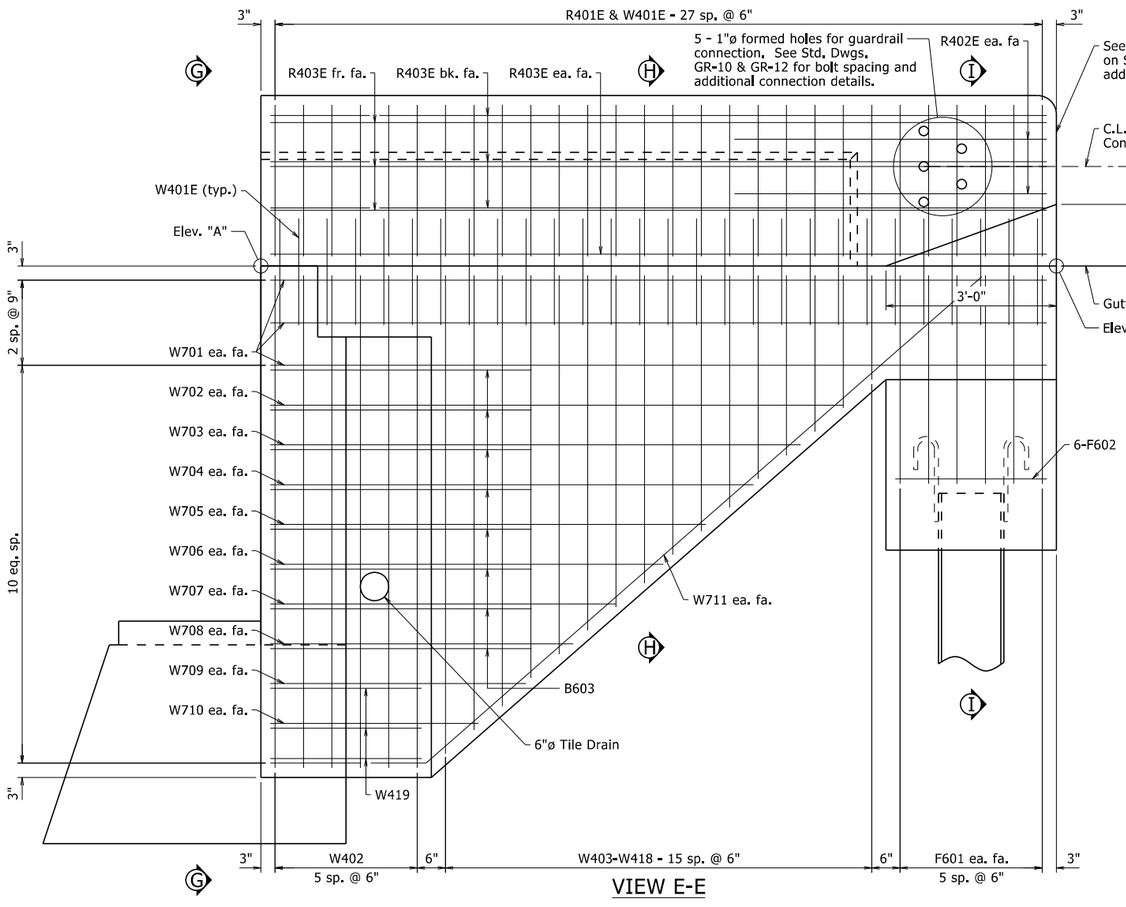



PLAN OF RAIL

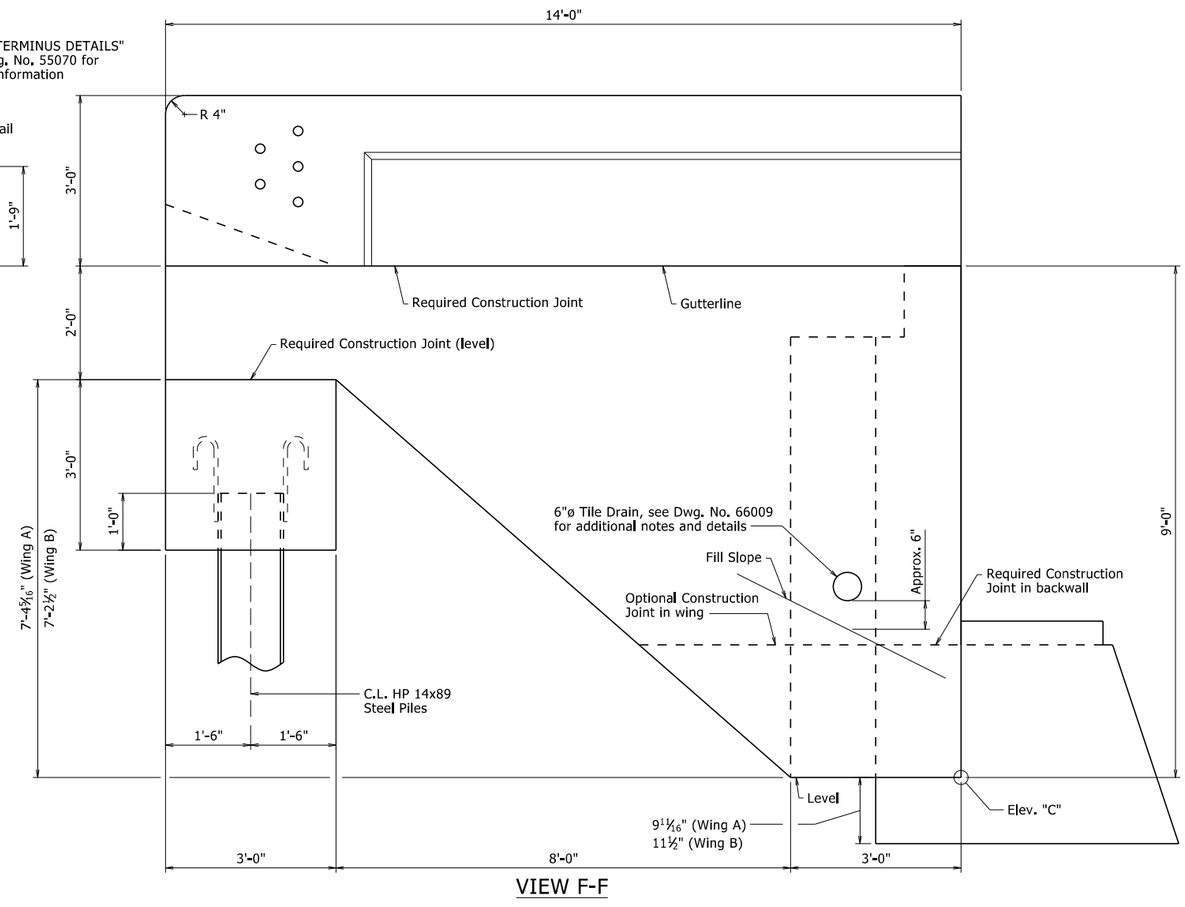
| | Elev. "A" | Elev. "B" | Elev. "C" |
|---|---|---|---|
| Wing A | 466.45 | 466.81 | 457.45 |
| Wing B | 467.57 | 467.78 | 458.57 |

NOTE:

See Dwg. No. 66012 for "VIEW G-G", "SECTION H-H", & "SECTION I-I".




VIEW E-E




VIEW F-F

STATE OF ARKANSAS
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LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF BENT 1

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

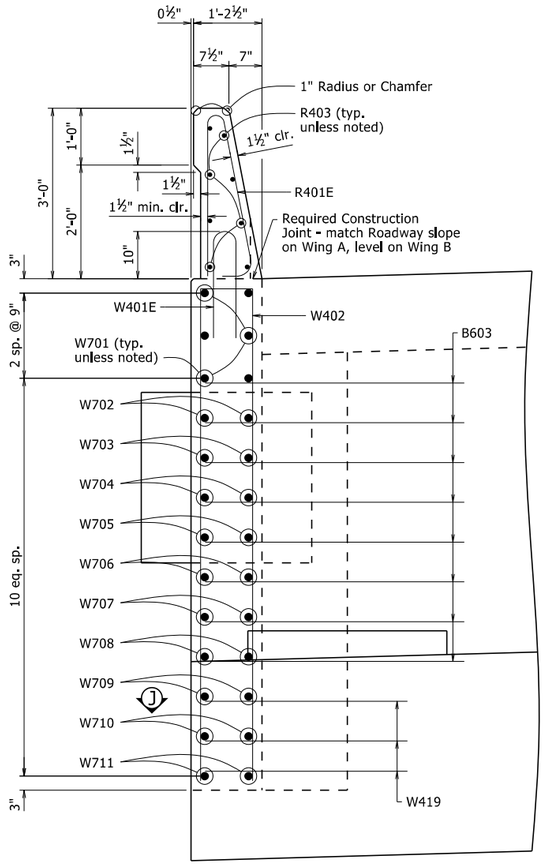
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 12/05/2022 FILENAME: b050423_b1.dgn
CHECKED BY: DPT DATE: 02/21/2023 SCALE: 3/4" = 1'-0"
DESIGNED BY: DPT DATE: 11/2022

BRIDGE NO. 07604 DRAWING NO. 66011

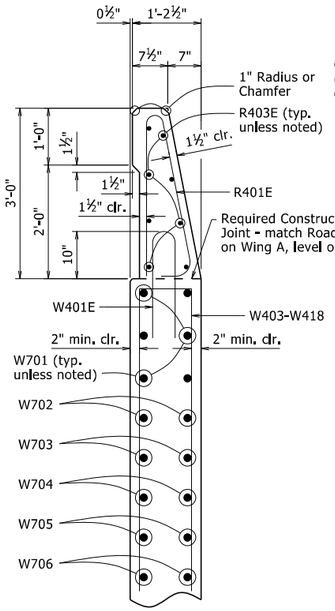
PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. ROAD DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 31 | 61 |
| | | 07604 - BENT 1 - 66012 | | | | |



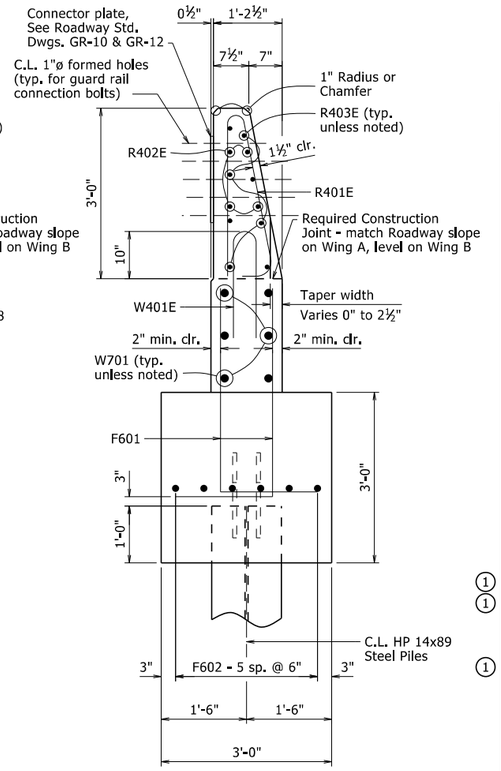

VIEW G-G

¾"=1'-0"



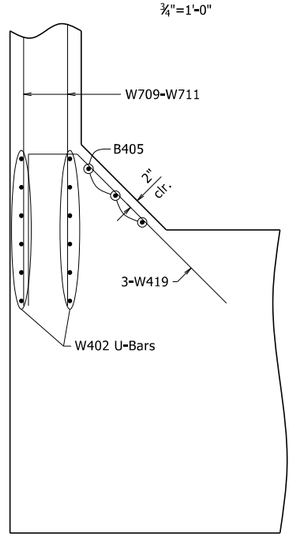

SECTION H-H

¾"=1'-0"



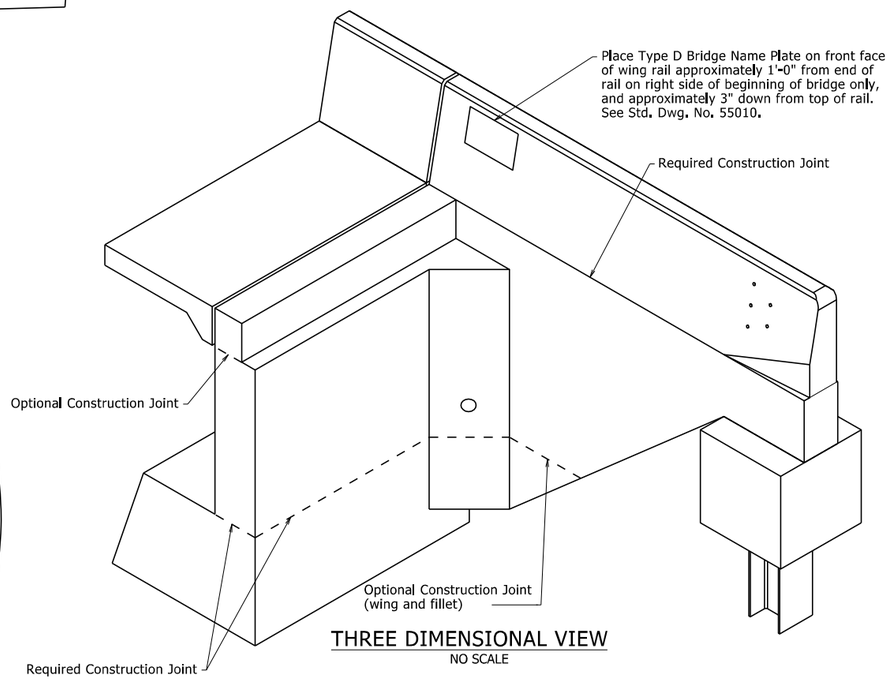

SECTION I-I

¾"=1'-0"




SECTION J-J

¾"=1'-0"



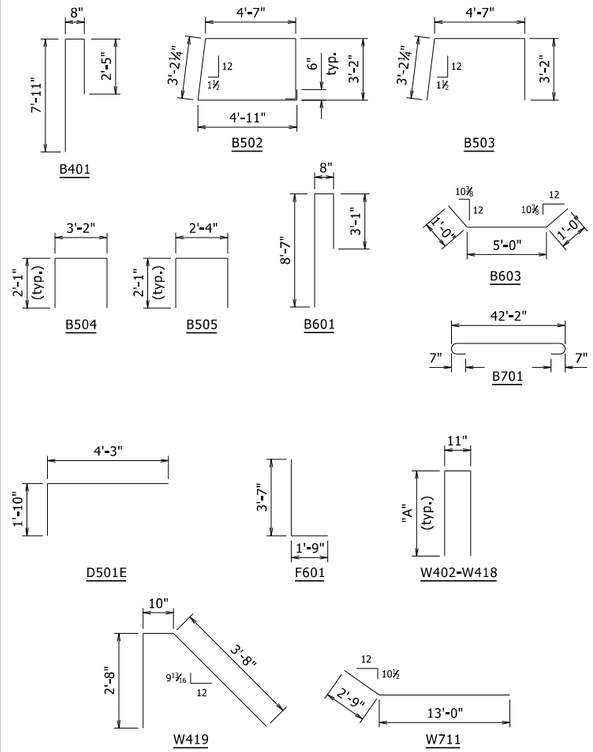

THREE DIMENSIONAL VIEW

NO SCALE

## BAR LIST

| MARK | NO. REQ'D | "A" | LENGTH | P.D. |
|---|---|---|---|---|
| B401 | 37 | | 10'-10" | 2" |
| B402 | 24 | | 42'-2" | Str. |
| B403 | 12 | | 4'-7" | Str. |
| B404 | 4 | | 1'-9" | Str. |
| B405 | 6 | | 7'-5" | Str. |
| B501 | 49 | | 7'-0" | Str. |
| B502 | 56 | | 16'-5" | 2½" |
| B503 | 14 | | 10'-9" | 2½" |
| B504 | 20 | | 7'-2" | 2½" |
| B505 | 20 | | 6'-4" | 2½" |
| B601 | 6 | | 12'-0" | 4½" |
| B602 | 6 | | 7'-5" | Str. |
| B603 | 16 | | 7'-0" | 4½" |
| B701 | 8 | | 43'-10" | 5¼" |
| B702 | 8 | | 42'-2" | Str. |
| | | | | |
| D501E | 37 | | 6'-0" | 2½" |
| | | | | |
| F601 | 24 | | 5'-3" | 4½" |
| F602 | 12 | | 2'-8" | Str. |
| | | | | |
| (1) R401E | 56 | | 6'-4" | 2½" |
| (1) R402E | 8 | | 5'-6" | Str. |
| R403E | 16 | | 13'-8" | Str. |
| | | | | |
| (1) W401E | 56 | | 3'-11" | 3¾" |
| W402 | 12 | 8'-8" | 18'-1" | 2" |
| W403 | 2 | 8'-5" | 17'-7" | 2" |
| W404 | 2 | 8'-0" | 16'-9" | 2" |
| W405 | 2 | 7'-7" | 15'-11" | 2" |
| W406 | 2 | 7'-1" | 14'-11" | 2" |
| W407 | 2 | 6'-8" | 14'-1" | 2" |
| W408 | 2 | 6'-3" | 13'-3" | 2" |
| W409 | 2 | 5'-10" | 12'-5" | 2" |
| W410 | 2 | 5'-5" | 11'-7" | 2" |
| W411 | 2 | 4'-11" | 10'-7" | 2" |
| W412 | 2 | 4'-6" | 9'-9" | 2" |
| W413 | 2 | 4'-1" | 8'-11" | 2" |
| W414 | 2 | 3'-7" | 7'-11" | 2" |
| W415 | 2 | 3'-2" | 7'-1" | 2" |
| W416 | 2 | 2'-9" | 6'-3" | 2" |
| W417 | 2 | 2'-4" | 5'-5" | 2" |
| W418 | 2 | 1'-10" | 4'-5" | 2" |
| W419 | 6 | | 7'-1" | 2" |
| W701 | 12 | | 13'-8" | Str. |
| W702 | 4 | | 10'-1" | Str. |
| W703 | 4 | | 9'-4" | Str. |
| W704 | 4 | | 8'-6" | Str. |
| W705 | 4 | | 7'-8" | Str. |
| W706 | 4 | | 6'-11" | Str. |
| W707 | 4 | | 6'-1" | Str. |
| W708 | 4 | | 5'-4" | Str. |
| W709 | 4 | | 4'-6" | Str. |
| W710 | 4 | | 3'-8" | Str. |
| W711 | 4 | | 15'-9" | 5¼" |

BENDING DIAGRAMS




Dimensions are out to out of bars.
Bars with the "E" suffix shall be epoxy coated.

(1) See Std. Dwg. No. 55070 for details of rail reinforcing, and location of bars with an "R" prefix & W401E.

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No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF BENT 1

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

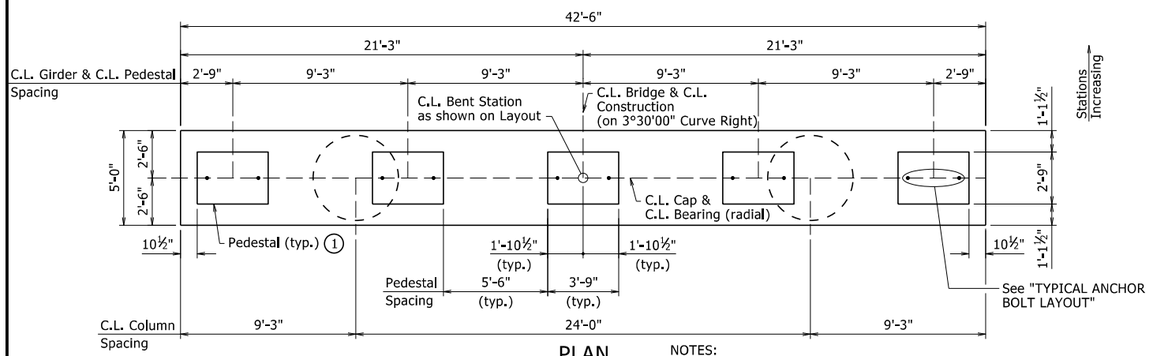
LITTLE ROCK, ARK.

| | | | |
|---|---|---|---|
| DRAWN BY: | CGP | DATE: 12/05/2022 | FILENAME: b050423_b1.dgn |
| CHECKED BY: | DPT | DATE: 02/21/2023 | SCALE: AS NOTED |
| DESIGNED BY: | DPT | DATE: 11/2022 | |

BRIDGE NO. 07604 DRAWING NO. 66012

PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. ROAD DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 32 | 61 |
| | | 07604 - BENT 2 - 66013 | | | | |



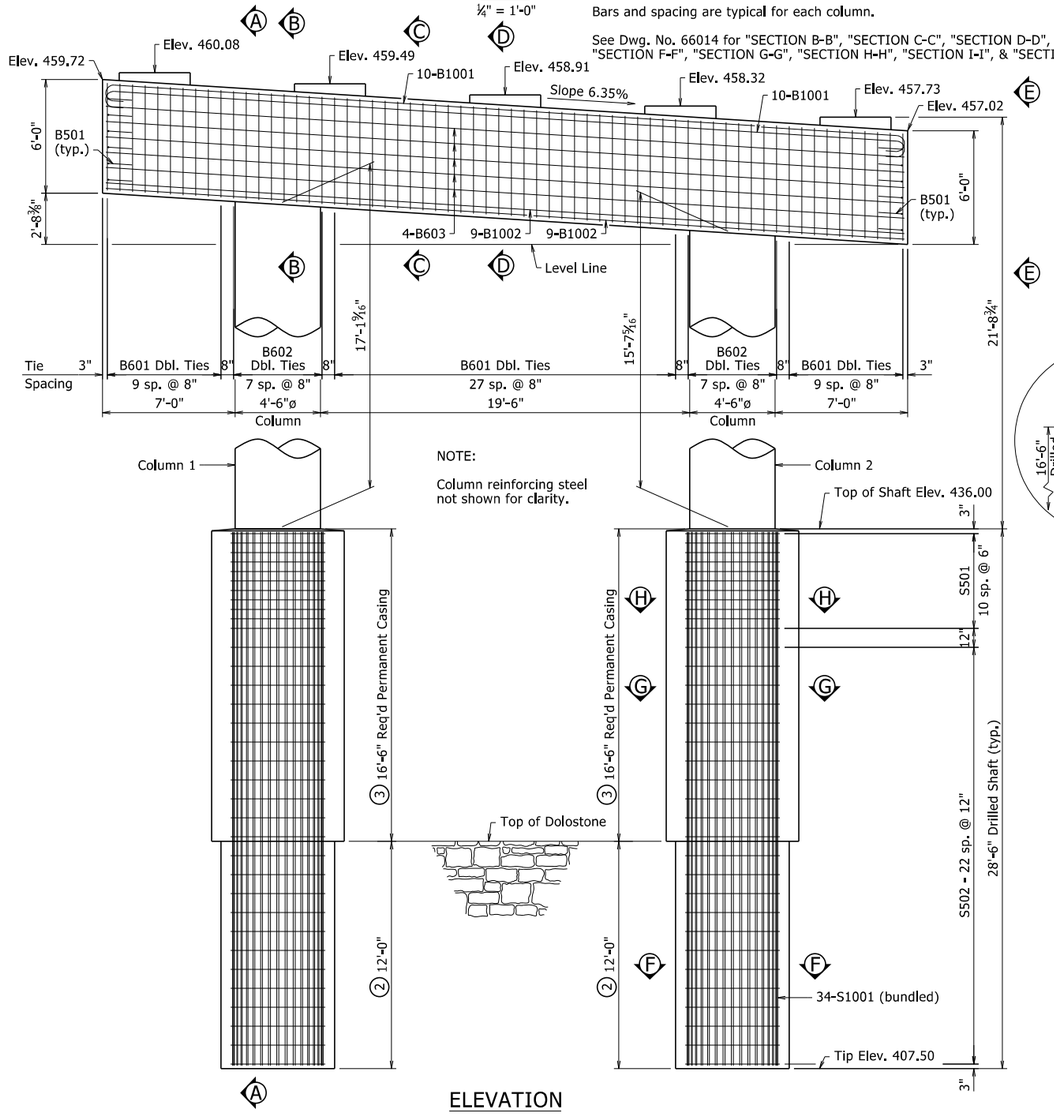

PLAN

¼" = 1'-0"

NOTES:

Bars and spacing are typical for each column.

See Dwg. No. 66014 for "SECTION B-B", "SECTION C-C", "SECTION D-D", "VIEW E-E", "SECTION F-F", "SECTION G-G", "SECTION H-H", "SECTION I-I", & "SECTION J-J".




NOTE:

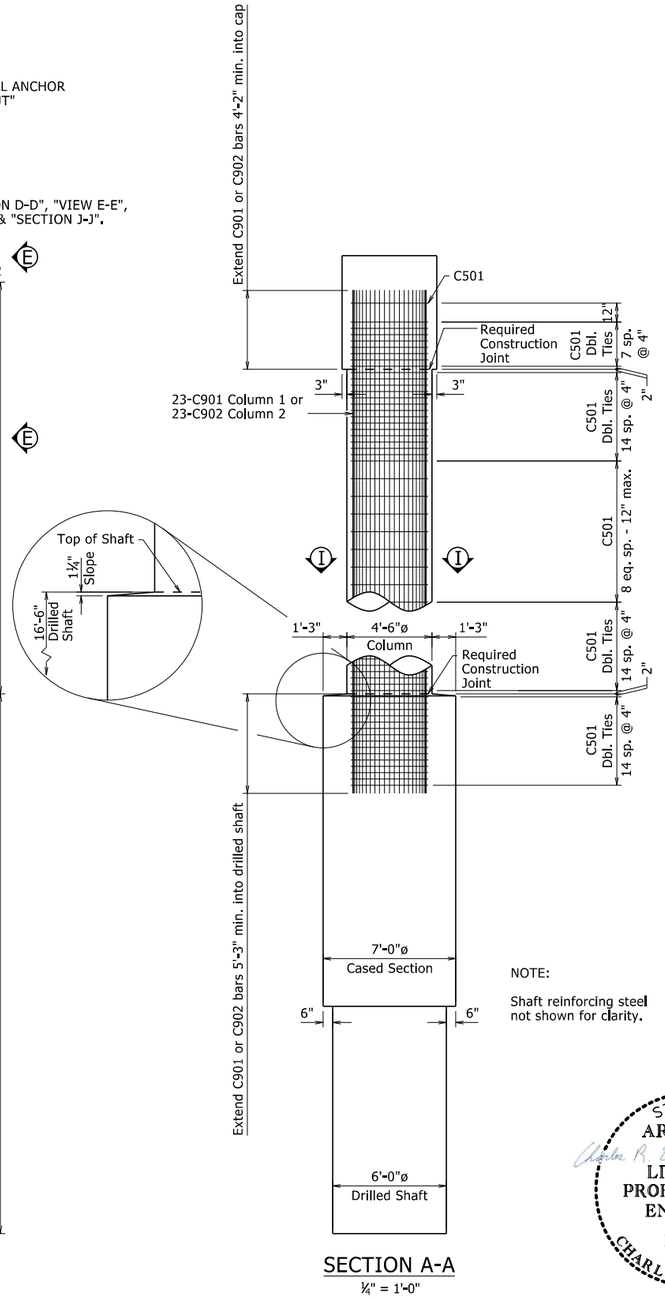
Column reinforcing steel not shown for clarity.

ELEVATION

LOOKING AHEAD

¼" = 1'-0"

1. Pedestals shall be cast level at the elevations shown in "ELEVATION". See Dwg. No. 66014 for "PEDESTAL PLAN" & "TYPICAL PEDESTAL DETAILS".
2. Minimum penetration below permanent casing into Competent Rock designated as Dolostone.
3. Length of Permanent casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. 050423 "DRILLED SHAFT FOUNDATIONS", Permanent casing shall extend to material designated as Dolostone on the Boring Legend.




NOTE:

Shaft reinforcing steel not shown for clarity.

SECTION A-A

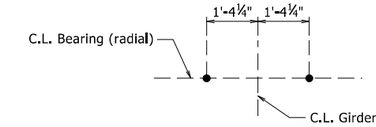
¼" = 1'-0"

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. 050423 "Drilled Shaft Foundations" and shall be paid for at the unit price bid for "Drilled Shaft (72" Dia.)".

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

For additional information, see Layout.




For details of Elastomeric Bearings, see Dwg. No. 66021.

TYPICAL ANCHOR BOLT LAYOUT

NO SCALE

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LICENSED PROFESSIONAL ENGINEER
No. 9235
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BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 2

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

| | | | |
|---|---|---|---|
| DRAWN BY: CGP | DATE: 11/03/2022 | FILENAME: b050423_b2.dgn | |
| CHECKED BY: DPT | DATE: 12/08/2022 | SCALE: AS NOTED | |
| DESIGNED BY: DPT | DATE: 10/2022 | | |

BRIDGE NO. 07604 DRAWING NO. 66013

PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. ROAD DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
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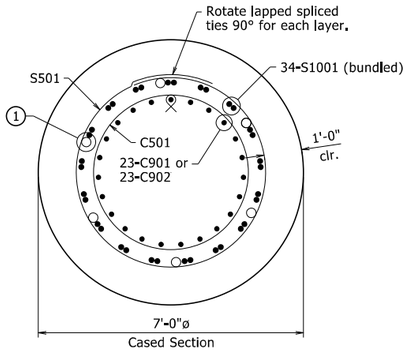
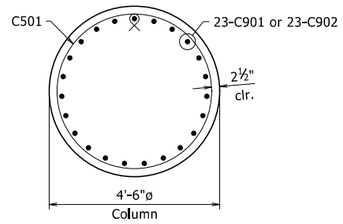
| | | 07604 - BENT 2 - 66014 | | | | |

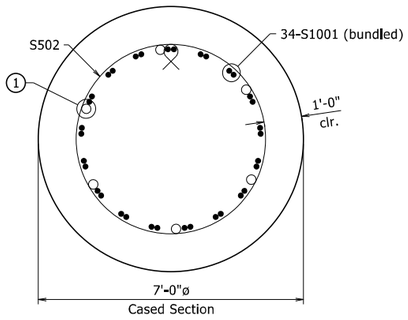



SECTION H-H

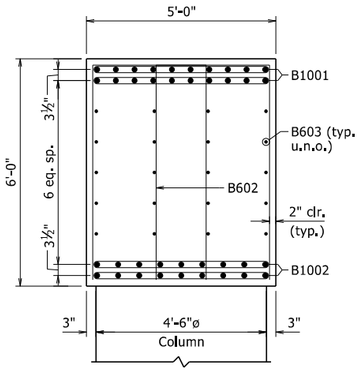



SECTION I-I

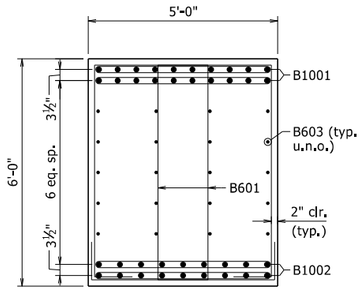
(1) 6-1½"ø min. Schedule 40 Steel Pipes equally spaced. See Job SP "NONDESTRUCTIVE TESTING OF DRILLED SHAFTS".



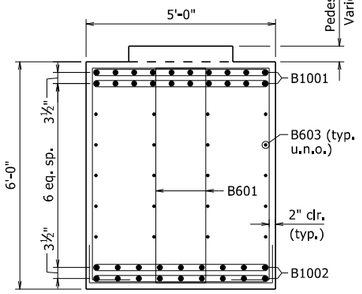

SECTION G-G



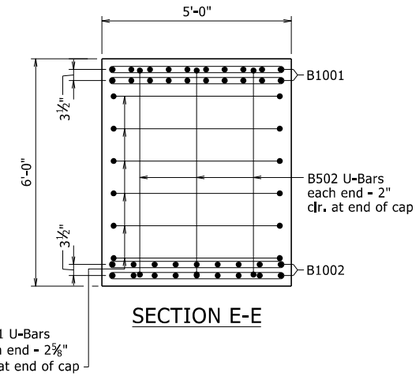

SECTION B-B




SECTION C-C




SECTION D-D

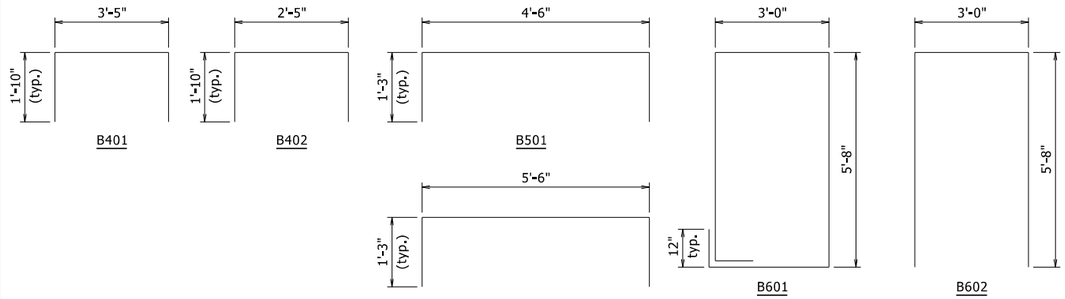


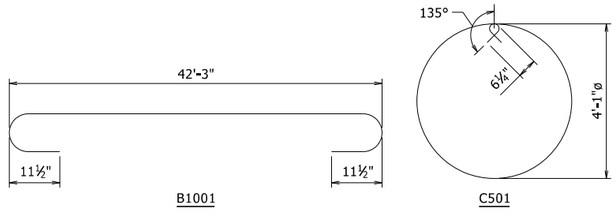

SECTION E-E

## BAR LIST

| MARK | NO. REQ'D | LENGTH | P.D. |
|---|---|---|---|
| B401 | 20 | 6'-11" | 2" |
| B402 | 25 | 5'-11" | 2" |
| B501 | 12 | 6'-10" | 2½" |
| B502 | 6 | 7'-10" | 2½" |
| B601 | 96 | 18'-6" | 4½" |
| B602 | 32 | 14'-2" | 4½" |
| B603 | 20 | 42'-3" | Str. |
| B1001 | 20 | 45'-1" | 10" |
| B1002 | 18 | 42'-3" | Str. |
| | | | |
| C501 | 228 | 14'-2" | 3¾" |
| C901 | 23 | 26'-7" | Str. |
| C902 | 23 | 25'-1" | Str. |
| | | | |
| (2) S501 | 22 | 17'-9" | 3¾" |
| (2) S502 | 46 | 17'-1" | 3¾" |
| (2) S1001 | 68 | 28'-2" | Str. |

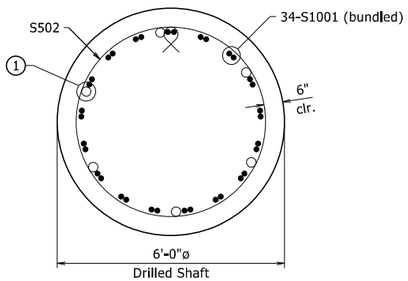
BENDING DIAGRAMS



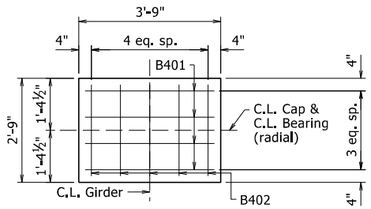




Dimensions are out to out of bars.

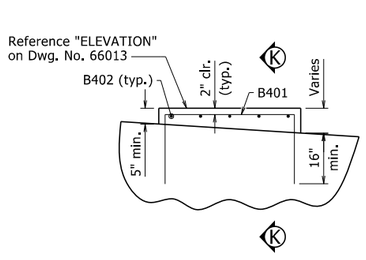
(2) Non-pay item - Subsidiary to the pay item "Drilled Shaft (72" Dia.)".



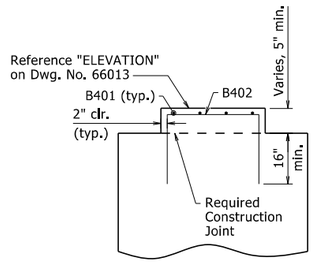

SECTION F-F




PEDESTAL PLAN




TYPICAL PEDESTAL DETAILS




SECTION K-K

STATE OF ARKANSAS
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LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 2

ROUTE SEC.

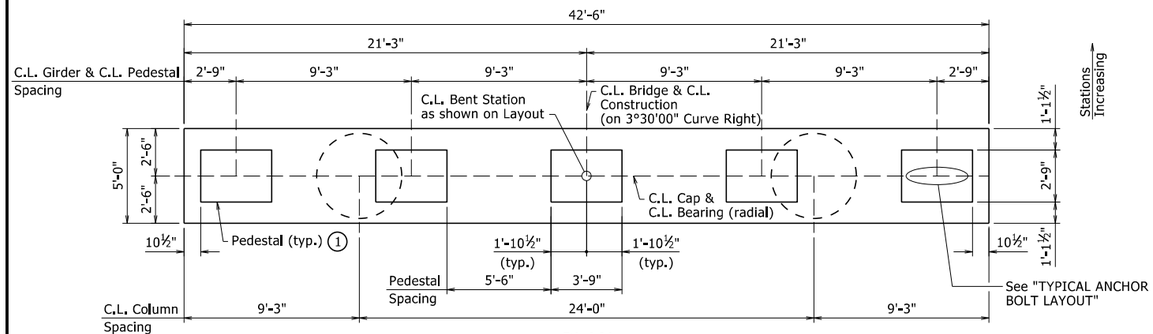
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/02/2022 FILENAME: b050423_b2.dgn
CHECKED BY: DPT DATE: 12/08/2022 SCALE: 1/2" = 1'-0"
DESIGNED BY: DPT DATE: 10/2022

BRIDGE NO. 07604 DRAWING NO. 66014

PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. ROAD DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 34 | 61 |
| | | 07604 - BENT 3 - 66015 | | | | |



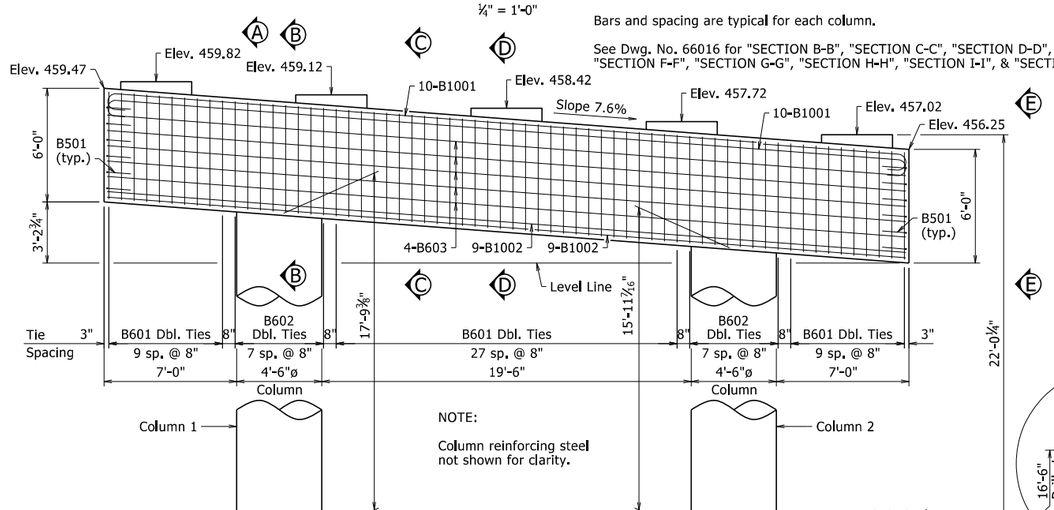

## PLAN

¼" = 1'-0"

NOTES:

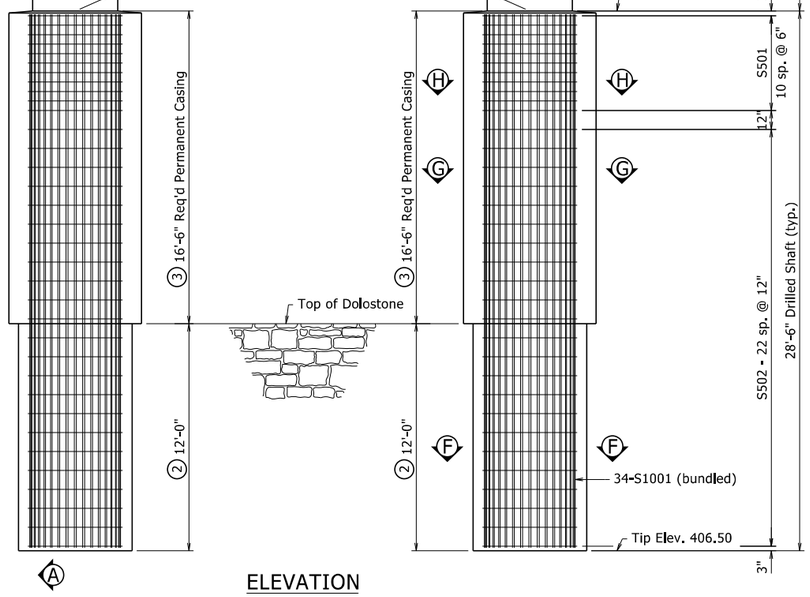
Bars and spacing are typical for each column.

See Dwg. No. 66016 for "SECTION B-B", "SECTION C-C", "SECTION D-D", "VIEW E-E", "SECTION F-F", "SECTION G-G", "SECTION H-H", "SECTION I-I", & "SECTION J-J".




NOTE:

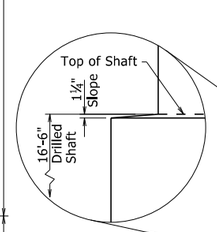
Column reinforcing steel not shown for clarity.

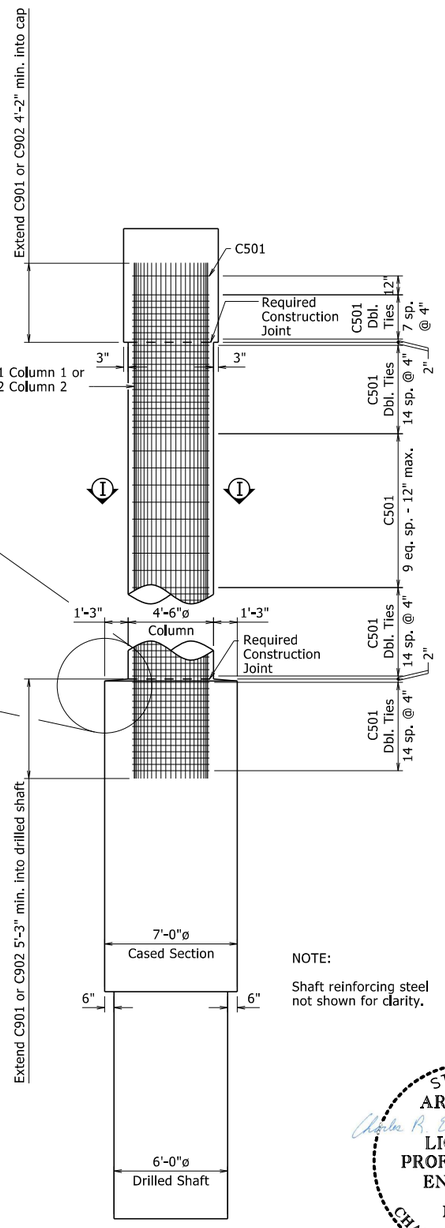



## ELEVATION

LOOKING AHEAD

¼" = 1'-0"




## SECTION A-A

¼" = 1'-0"

NOTE:

Shaft reinforcing steel not shown for clarity.

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. 050423 "Drilled Shaft Foundations" and shall be paid for at the unit price bid for "Drilled Shaft (72" Dia.)".

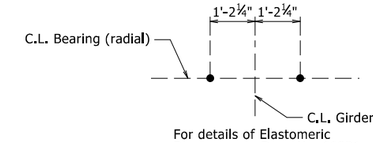
For additional "SUBSTRUCTURE NOTES," see Std. Dwg. No. 55006.

For additional information, see Layout.

1 Pedestals shall be cast level at the elevations shown in "ELEVATION". See Dwg. No. 66016 for "PEDESTAL PLAN" & "TYPICAL PEDESTAL DETAILS".

2 Minimum penetration below permanent casing into Competent Rock designated as Dolostone.

3 Length of Permanent casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. 050423 "DRILLED SHAFT FOUNDATIONS", Permanent casing shall extend to material designated as Dolostone on the Boring Legend.




For details of Elastomeric Bearings, see Dwg. No. 66021.

## TYPICAL ANCHOR BOLT LAYOUT

NO SCALE

STATE OF ARKANSAS
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LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 3

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/03/2022 FILENAME: b050423_b3.dgn
CHECKED BY: DPT DATE: 12/08/2022 SCALE: AS NOTED
DESIGNED BY: DPT DATE: 10/2022

BRIDGE NO. 07604 DRAWING NO. 66015

PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. ROAD DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
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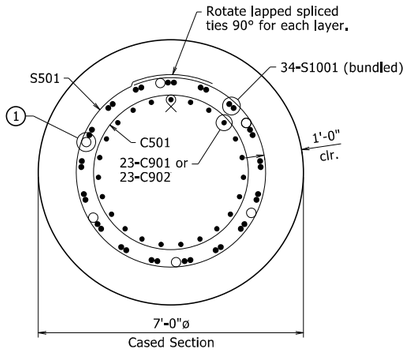
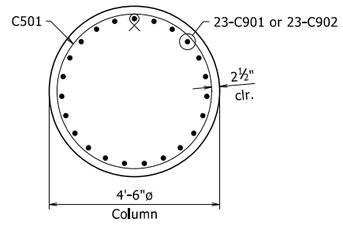
| | | 07604 - BENT 3 - 66016 | | | | |

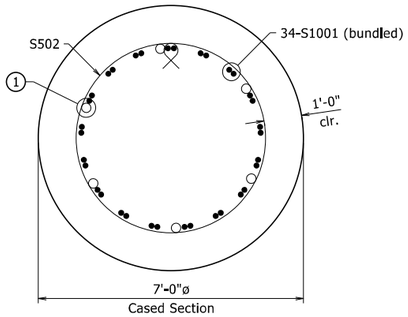



SECTION H-H

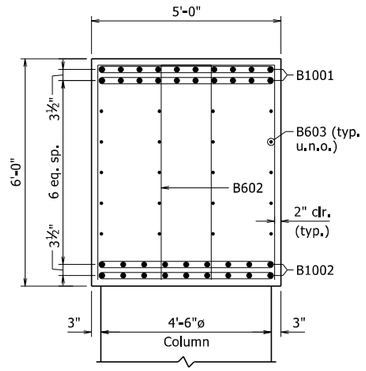



SECTION I-I

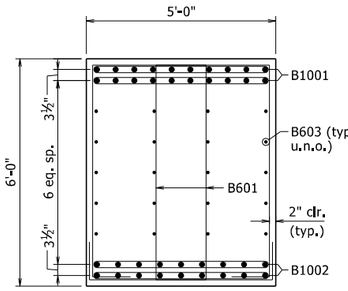
(1) 6-1½"ø min. Schedule 40 Steel Pipes equally spaced. See Job SP "NONDESTRUCTIVE TESTING OF DRILLED SHAFTS".



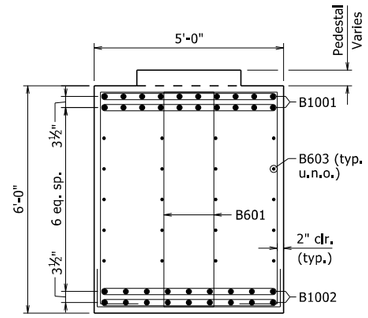

SECTION G-G



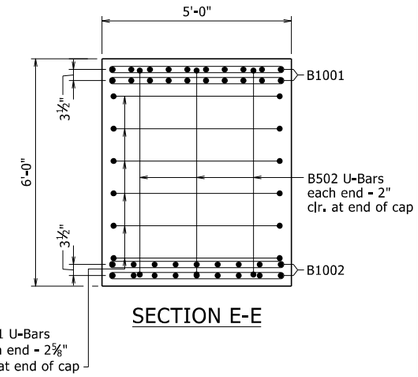

SECTION B-B




SECTION C-C




SECTION D-D

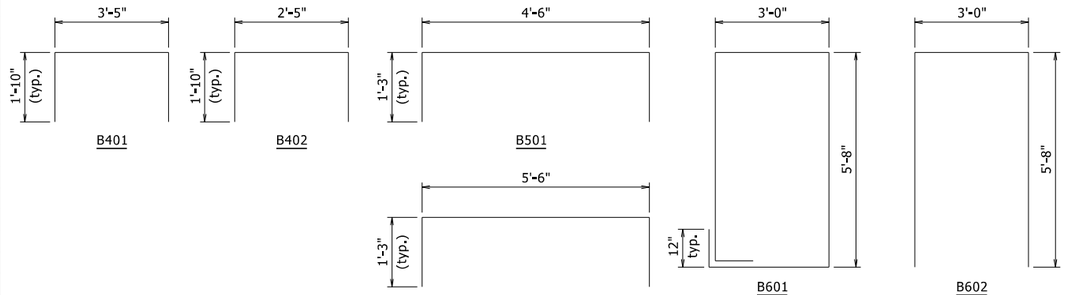


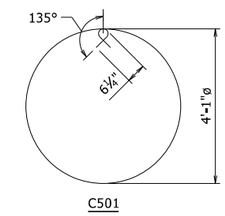

SECTION E-E

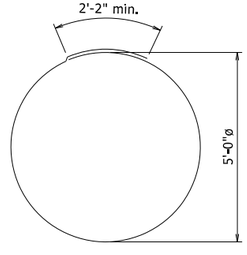
## BAR LIST

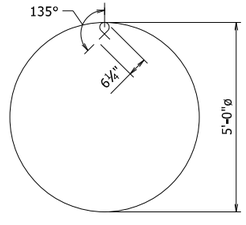
| MARK | NO. REQ'D | LENGTH | P.D. |
|---|---|---|---|
| B401 | 20 | 6'-11" | 2" |
| B402 | 25 | 5'-11" | 2" |
| B501 | 12 | 6'-10" | 2½" |
| B502 | 6 | 7'-10" | 2½" |
| B601 | 96 | 18'-6" | 4½" |
| B602 | 32 | 14'-2" | 4½" |
| B603 | 20 | 42'-3" | Str. |
| B1001 | 20 | 45'-1" | 10" |
| B1002 | 18 | 42'-3" | Str. |
| | | | |
| C501 | 230 | 14'-2" | 3¾" |
| C901 | 23 | 27'-3" | Str. |
| C902 | 23 | 25'-5" | Str. |
| | | | |
| (2) S501 | 22 | 17'-9" | 3¾" |
| (2) S502 | 46 | 17'-1" | 3¾" |
| (2) S1001 | 68 | 28'-2" | Str. |

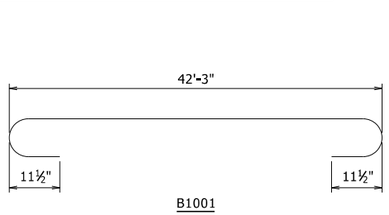
BENDING DIAGRAMS



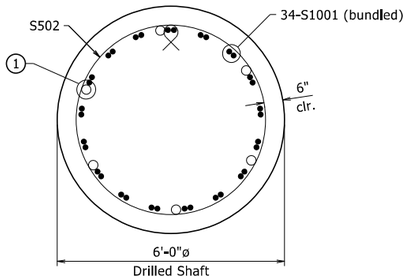



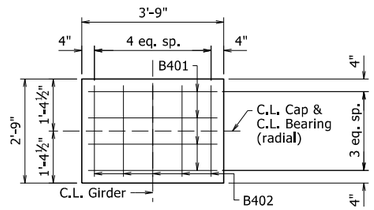




Dimensions are out to out of bars.

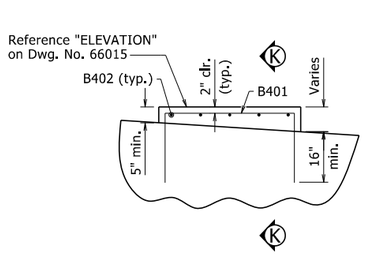
(2) Non-pay item - Subsidiary to the pay item "Drilled Shaft (72" Dia.)".



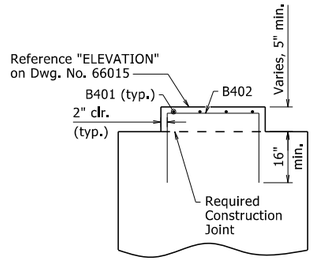

SECTION F-F




PEDESTAL PLAN




TYPICAL PEDESTAL DETAILS




SECTION K-K

STATE OF ARKANSAS
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LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 3

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/02/2022 FILENAME: b050423_b3.dgn
CHECKED BY: DPT DATE: 12/08/2022 SCALE: 1/2" = 1'-0"
DESIGNED BY: DPT DATE: 10/2022

BRIDGE NO. 07604 DRAWING NO. 66016

PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. ROAD DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
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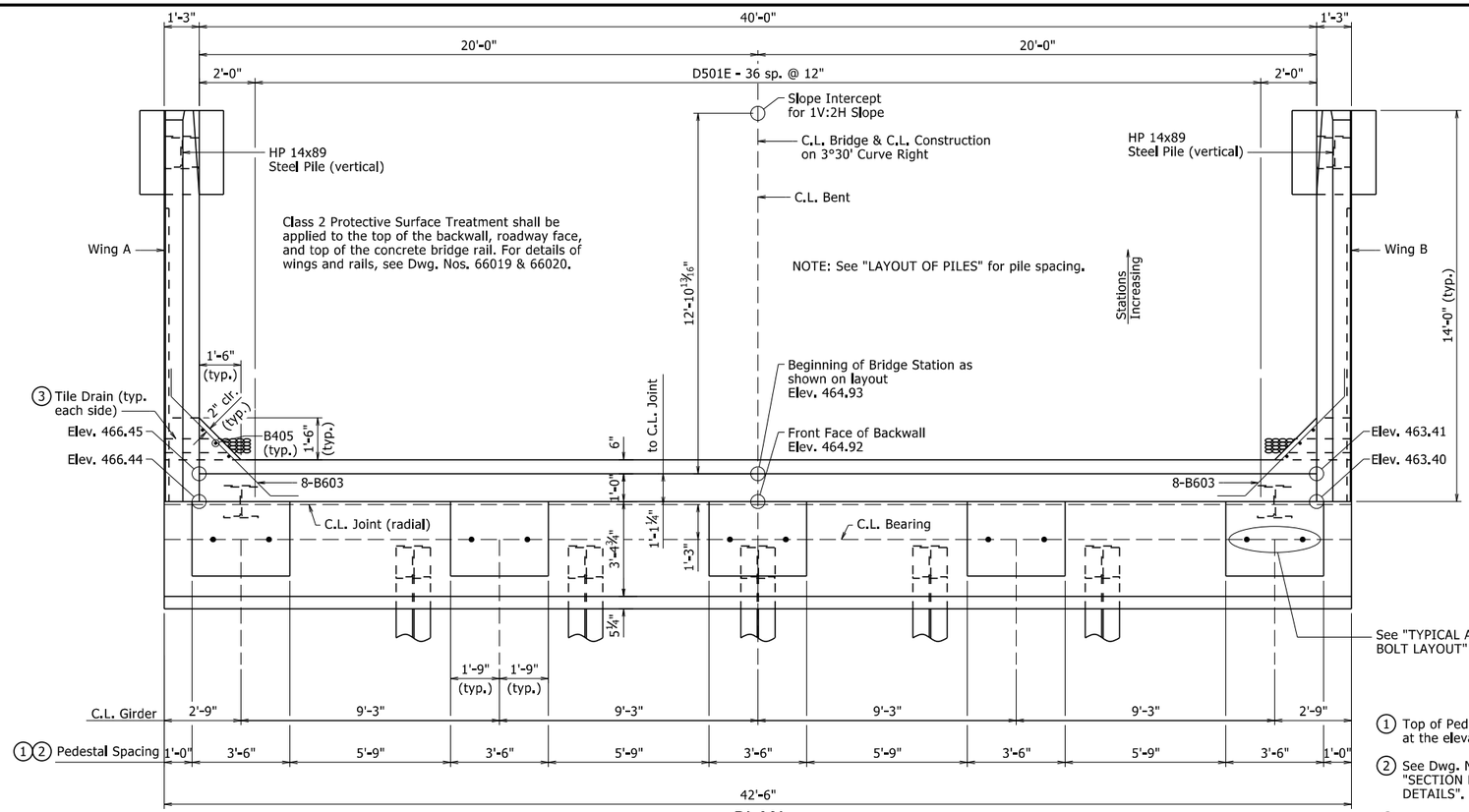
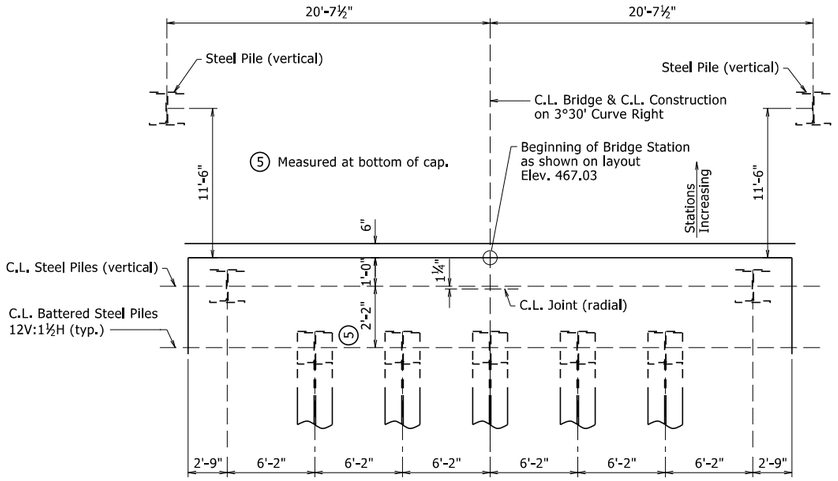
| | | 07604 - BENT 4 - 66017 | | | | |




## PLAN

LOOKING AHEAD

⅜"=1'-0"




## LAYOUT OF PILES

NO SCALE

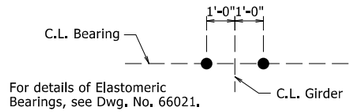
NOTE: All Piles shall be HP 14x89.

1 Top of Pedestals shall be cast level at the elevations shown.

2 See Dwg. No. 66018 for "SECTION A-A", "SECTION B-B", & "TYPICAL PEDESTAL DETAILS".

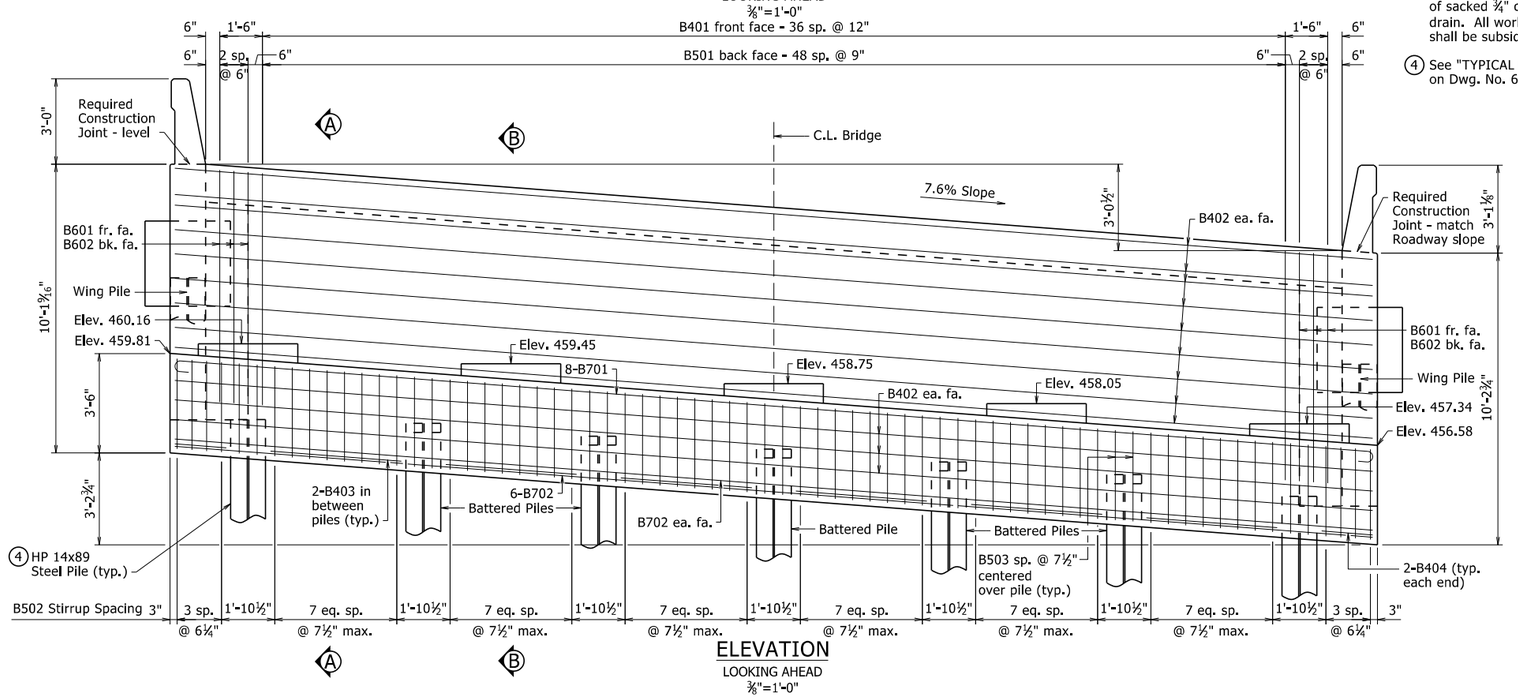
3 Place 6"ø tile drains approximately 6" above fill slope. Spread bars as required. Place 6 cu. ft. of sacked ¾" crushed rock or gravel at each drain. All work and materials to install drains shall be subsidiary to "Class S Concrete".

4 See "TYPICAL PILE DETAILS" for Pile anchorage on Dwg. No. 66018.




## TYPICAL ANCHOR BOLT LAYOUT

NO SCALE




## ELEVATION

LOOKING AHEAD

⅜"=1'-0"

NOTES:

For additional "GENERAL NOTES", see Std. Dwg. No. 55006.

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

All piling shall be Grade 50. For details of Steel H-Piling, see Dwg. No. 66018.

Structural steel, unless noted otherwise, in end bents shall be ASTM A709, Gr. 50W and shall be paid for as "Structural Steel in Girder Spans (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 AT END BENTS" note, see Std. Dwg. No. 55008. No heavy construction equipment shall be allowed within 10' of the backwall before the deck concrete placement for the adjacent span has been completed.

For additional information, see Layout.

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BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF BENT 4

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 12/05/2022 FILENAME: b050423_b4.dgn
CHECKED BY: DPT DATE: 02/21/2023 SCALE: AS NOTED
DESIGNED BY: DPT DATE: 11/2022

BRIDGE NO. 07604 DRAWING NO. 66017

PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. ROAD DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
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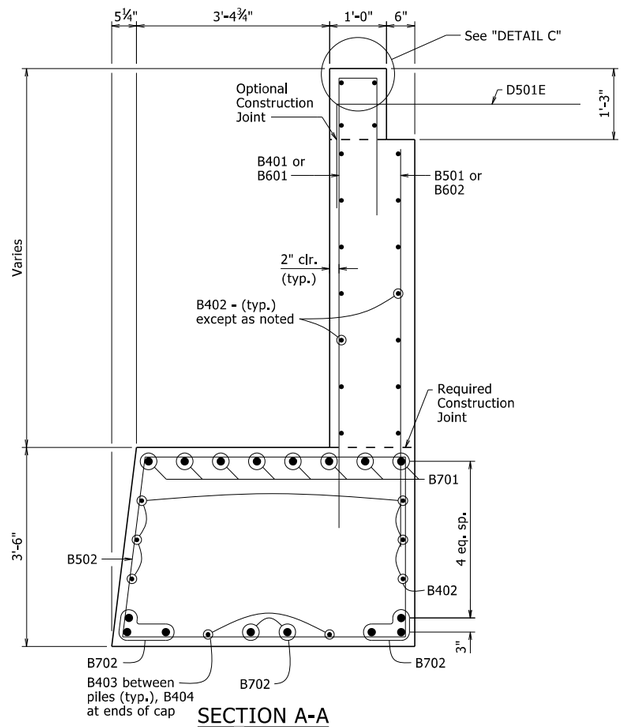
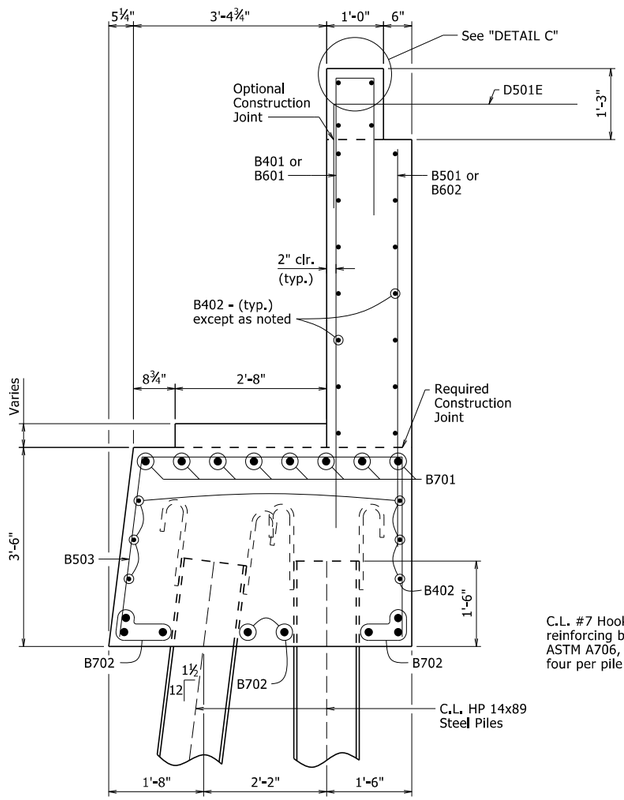
| | | 07604 - BENT 4 - 66018 | | | | |



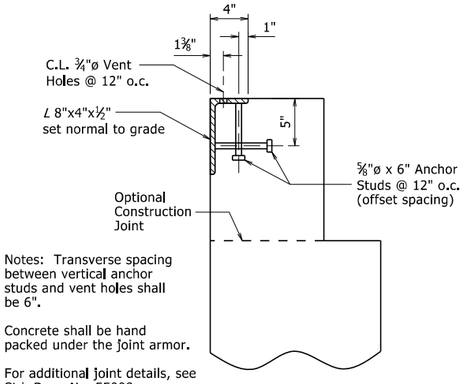

SECTION A-A

¾"=1'-0"




SECTION B-B

¾"=1'-0"




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

Concrete shall be hand packed under the joint armor.

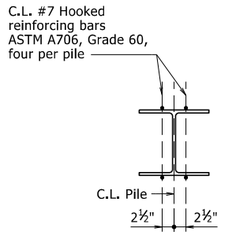
For additional joint details, see Std. Dwg. No. 55008.

DETAIL C

NO SCALE

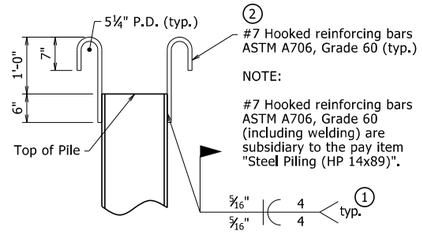
① Welding shall comply with ANSI/AWS D1.4 Structural Welding Code-Reinforcing Steel and applicable portions of ANSI/AWS D1.5 Bridge Welding Code.

② Pile anchorage shall be placed to minimize interference with anchor bolts and reinforcing in cap.




PILE PLAN

¾"=1'-0"

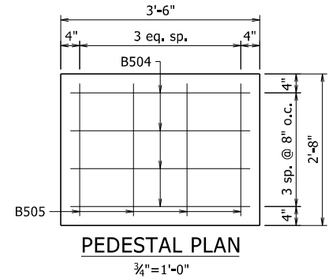



NOTE:

#7 Hooked reinforcing bars ASTM A706, Grade 60 (including welding) are subsidiary to the pay item "Steel Piling (HP 14x89)".

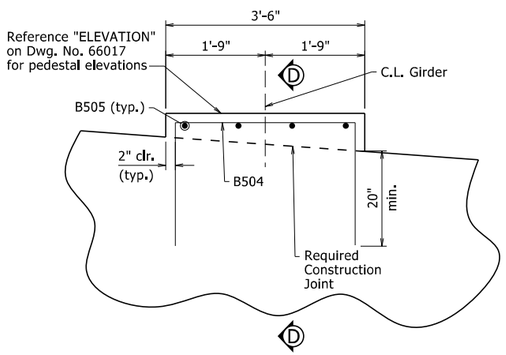
TYPICAL PILE DETAILS

¾"=1'-0"




PEDESTAL PLAN

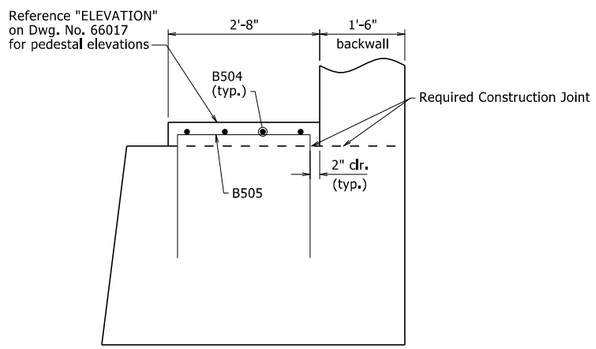
¾"=1'-0"




TYPICAL PEDESTAL DETAILS

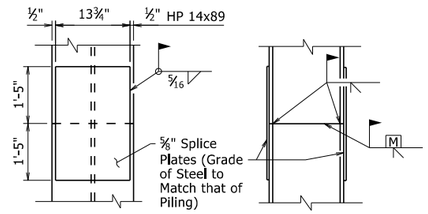
LOOKING FORWARD

¾"=1'-0"




SECTION D-D

¾"=1'-0"




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

3/16"=1'-0"

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" 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. 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".

STATE OF ARKANSAS
Apr 14 2023 12:[illegible] PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 4

DETAILS OF BENT 4

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

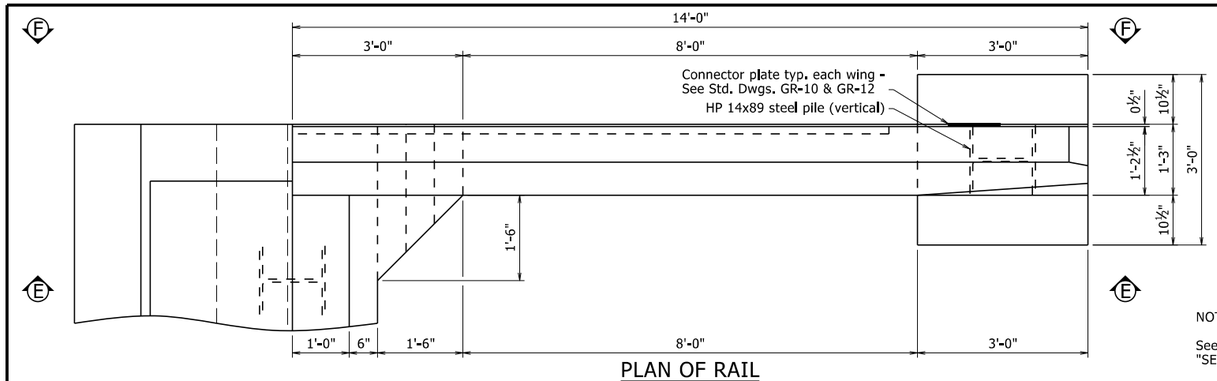
LITTLE ROCK, ARK.

| | | | |
|---|---|---|---|
| DRAWN BY: CGP | DATE: 12/05/2022 | FILENAME: b050423_b4.dgn | |
| CHECKED BY: DPT | DATE: 02/21/2023 | SCALE: AS NOTED | |
| DESIGNED BY: DPT | DATE: 11/2022 | | |

BRIDGE NO. 07604 DRAWING NO. 66018

PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. ROAD DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 38 | 61 |
| | | 07604 - BENT 4 - 66019 | | | | |

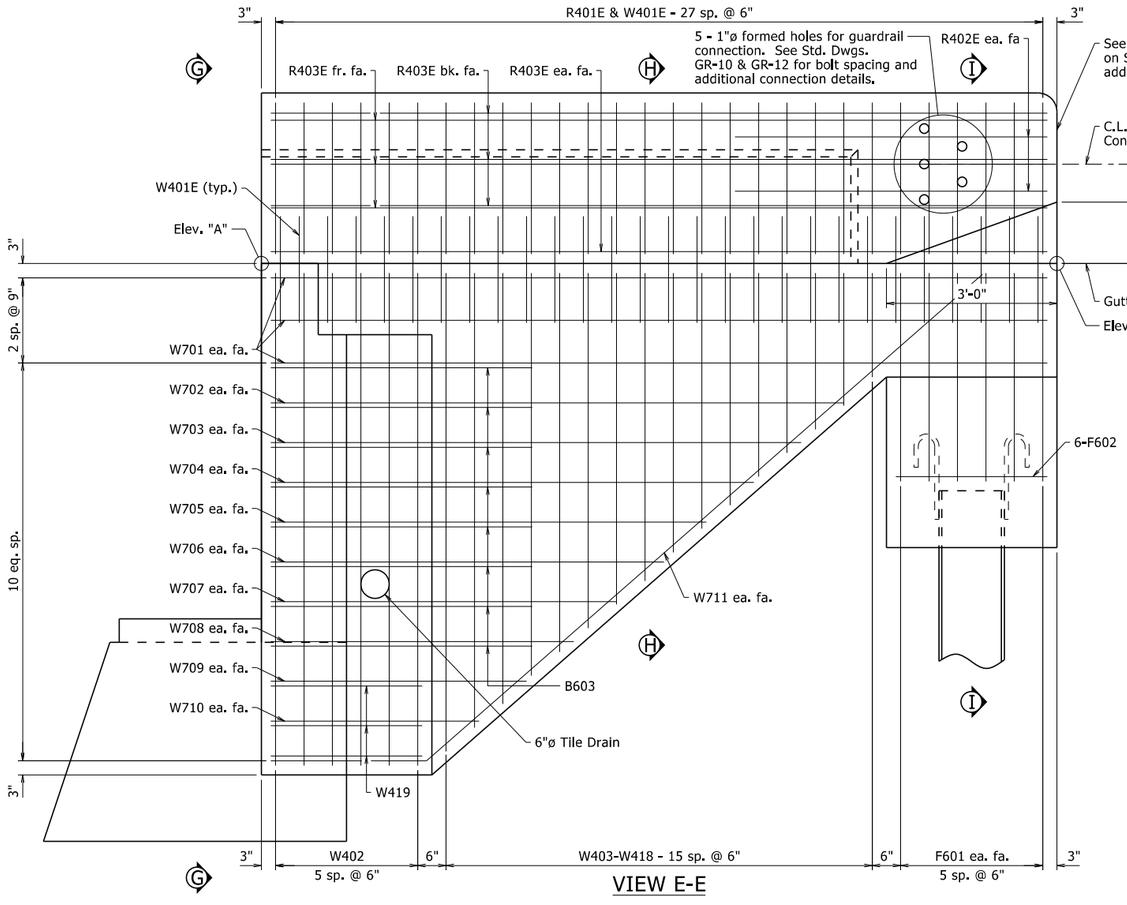



PLAN OF RAIL

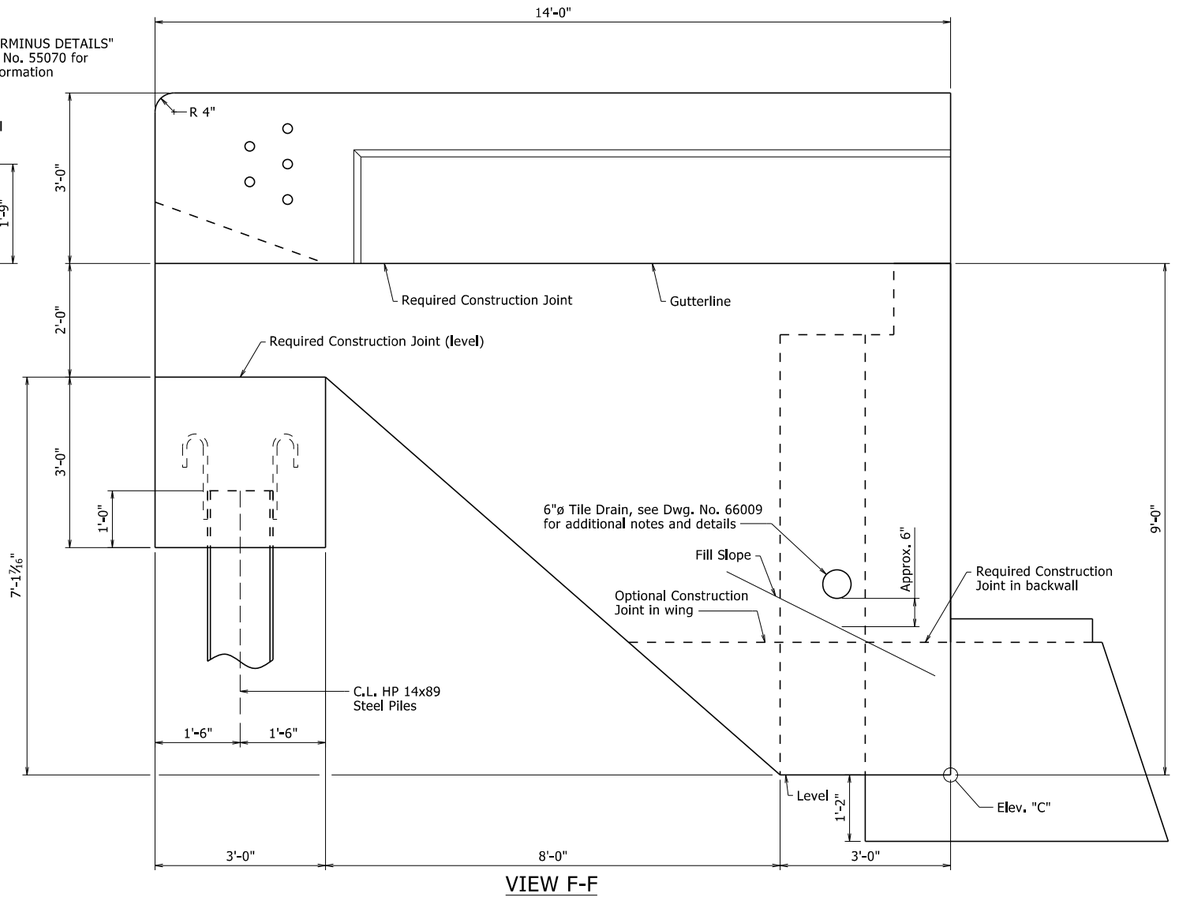
| | Elev. "A" | Elev. "B" | Elev. "C" |
|---|---|---|---|
| Wing A | 466.44 | 466.56 | 457.44 |
| Wing B | 463.40 | 463.52 | 454.40 |

NOTE:

See Dwg. No. 66020 for "VIEW G-G", "SECTION H-H", & "SECTION I-I".




VIEW E-E




VIEW F-F

STATE OF ARKANSAS
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LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF BENT 4

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 12/05/2022 FILENAME: b050423_b4.dgn
CHECKED BY: DPT DATE: 02/21/2023 SCALE: 3/4" = 1'-0"
DESIGNED BY: DPT DATE: 11/2022

BRIDGE NO. 07604 DRAWING NO. 66019

PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. RD. DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
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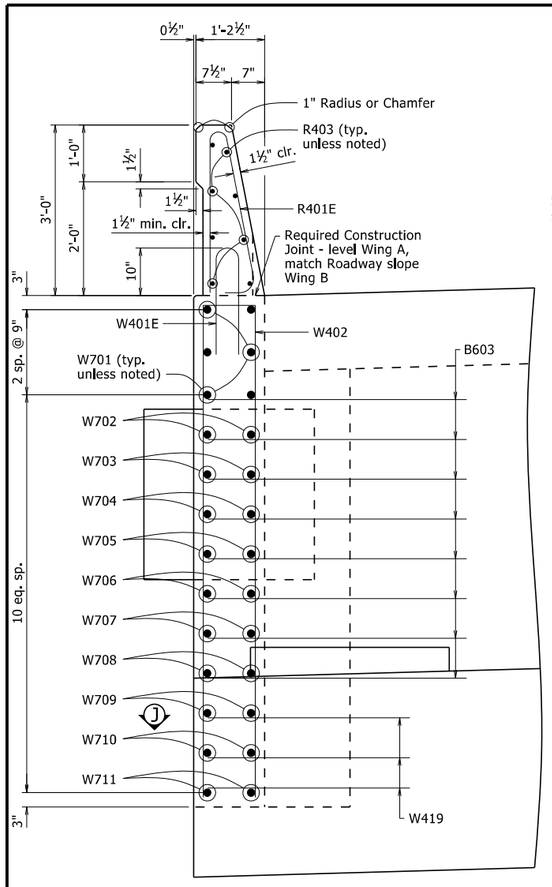
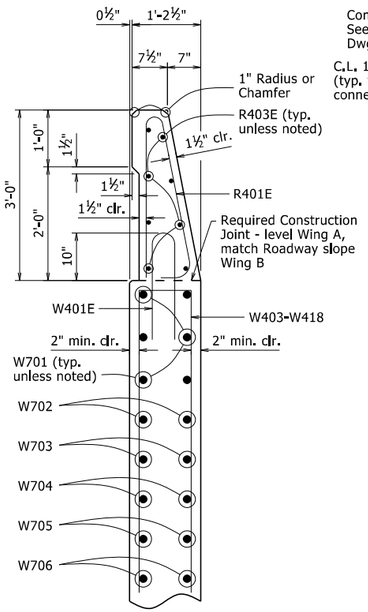
| | | 07604 - BENT 4 - 66020 | | | | |



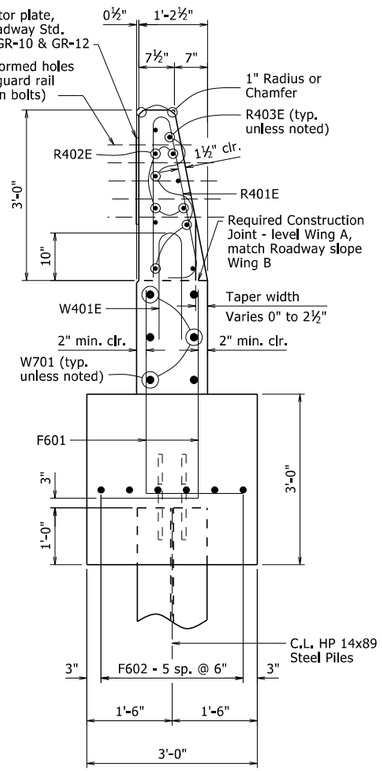

VIEW G-G

¾"=1'-0"



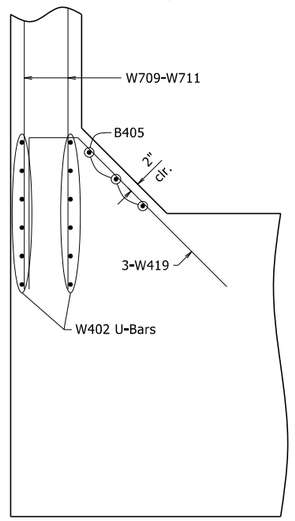

SECTION H-H

¾"=1'-0"



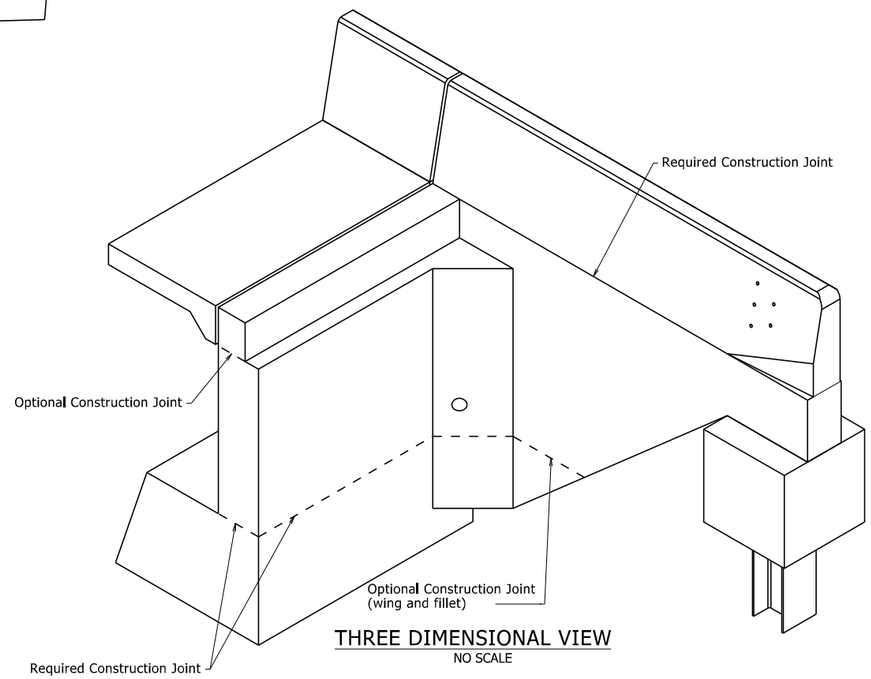

SECTION I-I

¾"=1'-0"




SECTION J-J

¾"=1'-0"



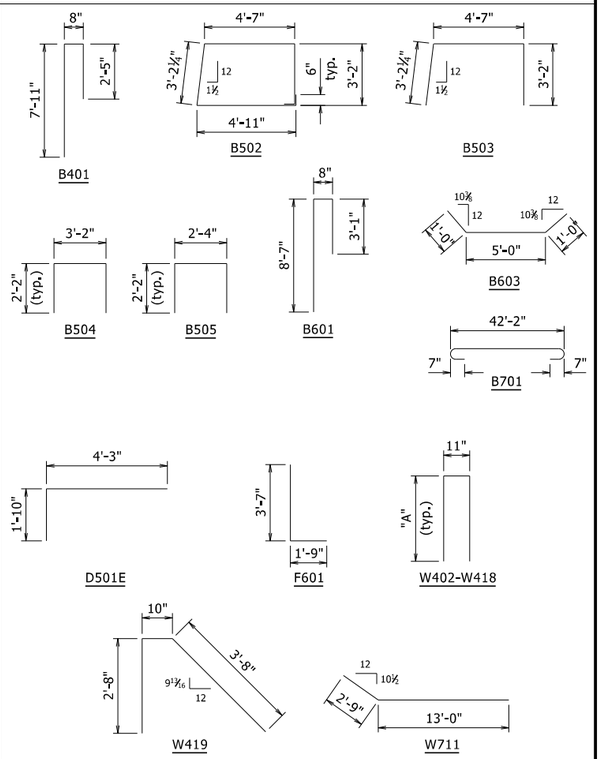

THREE DIMENSIONAL VIEW

NO SCALE

## BAR LIST

| | MARK | NO. REQ'D | "A" | LENGTH | P.D. |
|---|---|---|---|---|---|
| | B401 | 37 | | 10'-10" | 2" |
| | B402 | 24 | | 42'-2" | Str. |
| | B403 | 12 | | 4'-7" | Str. |
| | B404 | 4 | | 1'-9" | Str. |
| | B405 | 6 | | 7'-5" | Str. |
| | B501 | 49 | | 7'-0" | Str. |
| | B502 | 56 | | 16'-5" | 2½" |
| | B503 | 14 | | 10'-9" | 2½" |
| | B504 | 20 | | 7'-4" | 2½" |
| | B505 | 20 | | 6'-6" | 2½" |
| | B601 | 6 | | 12'-0" | 4½" |
| | B602 | 6 | | 7'-5" | Str. |
| | B603 | 16 | | 7'-0" | 4½" |
| | B701 | 8 | | 43'-10" | 5¼" |
| | B702 | 8 | | 42'-2" | Str. |
| | | | | | |
| | D501E | 37 | | 6'-0" | 2½" |
| | | | | | |
| | F601 | 24 | | 5'-3" | 4½" |
| | F602 | 12 | | 2'-8" | Str. |
| | | | | | |
| 1 | R401E | 56 | | 6'-4" | 2½" |
| 1 | R402E | 8 | | 5'-6" | Str. |
| | R403E | 16 | | 13'-8" | Str. |
| | | | | | |
| 1 | W401E | 56 | | 3'-11" | 3¾" |
| | W402 | 12 | 8'-8" | 18'-1" | 2" |
| | W403 | 2 | 8'-5" | 17'-7" | 2" |
| | W404 | 2 | 8'-0" | 16'-9" | 2" |
| | W405 | 2 | 7'-7" | 15'-11" | 2" |
| | W406 | 2 | 7'-1" | 14'-11" | 2" |
| | W407 | 2 | 6'-8" | 14'-1" | 2" |
| | W408 | 2 | 6'-3" | 13'-3" | 2" |
| | W409 | 2 | 5'-10" | 12'-5" | 2" |
| | W410 | 2 | 5'-5" | 11'-7" | 2" |
| | W411 | 2 | 4'-11" | 10'-7" | 2" |
| | W412 | 2 | 4'-6" | 9'-9" | 2" |
| | W413 | 2 | 4'-1" | 8'-11" | 2" |
| | W414 | 2 | 3'-7" | 7'-11" | 2" |
| | W415 | 2 | 3'-2" | 7'-1" | 2" |
| | W416 | 2 | 2'-9" | 6'-3" | 2" |
| | W417 | 2 | 2'-4" | 5'-5" | 2" |
| | W418 | 2 | 1'-10" | 4'-5" | 2" |
| | W419 | 6 | | 7'-1" | 2" |
| | W701 | 12 | | 13'-8" | Str. |
| | W702 | 4 | | 10'-1" | Str. |
| | W703 | 4 | | 9'-4" | Str. |
| | W704 | 4 | | 8'-6" | Str. |
| | W705 | 4 | | 7'-8" | Str. |
| | W706 | 4 | | 6'-11" | Str. |
| | W707 | 4 | | 6'-1" | Str. |
| | W708 | 4 | | 5'-4" | Str. |
| | W709 | 4 | | 4'-6" | Str. |
| | W710 | 4 | | 3'-8" | Str. |
| | W711 | 4 | | 15'-9" | 5¼" |

BENDING DIAGRAMS




Dimensions are out to out of bars.
Bars with the "E" suffix shall be epoxy coated.

(1) See Std. Dwg. No. 55070 for details of rail reinforcing, and location of bars with an "R" prefix & W401E.

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No. 9235
CHARLES R. ELLIS
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SHEET 4 OF 4
DETAILS OF BENT 4

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

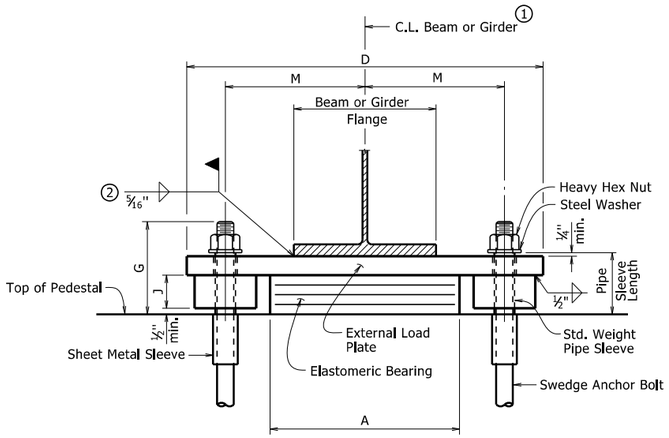
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 12/05/2022 FILENAME: b050423_b4.dgn
CHECKED BY: DPT DATE: 02/21/2023 SCALE: AS NOTED
DESIGNED BY: DPT DATE: 11/2022

BRIDGE NO. 07604 DRAWING NO. 66020

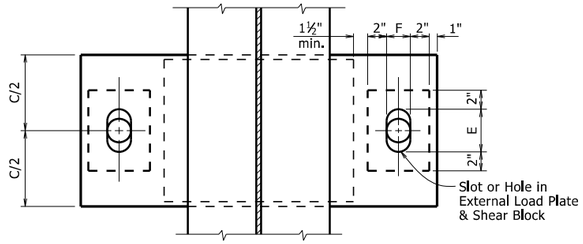
PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. ROAD DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 40 | 61 |
| | | 07604 - ELASTO. BEARINGS - 66021 | | | | |



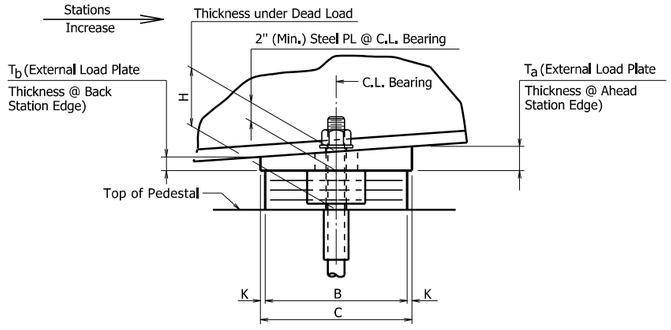

## FRONT VIEW - BENTS WITH SHEAR BLOCKS

Bents 2 & 3




## PLAN VIEW - BENTS WITH SHEAR BLOCKS

Bents 2 & 3




## SIDE VIEW - BENTS WITH SHEAR BLOCKS

Bents 2 & 3

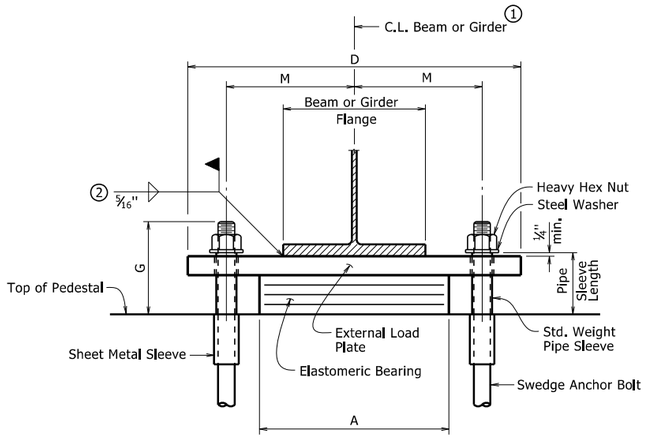
1. C.L. Elastomeric Pad shall be aligned with C.L. Beam or Girder.

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.

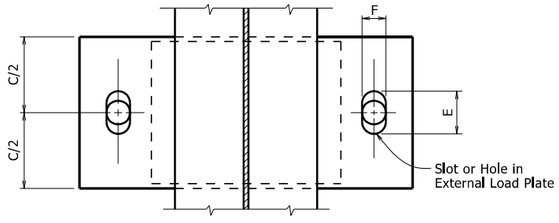
The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".

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



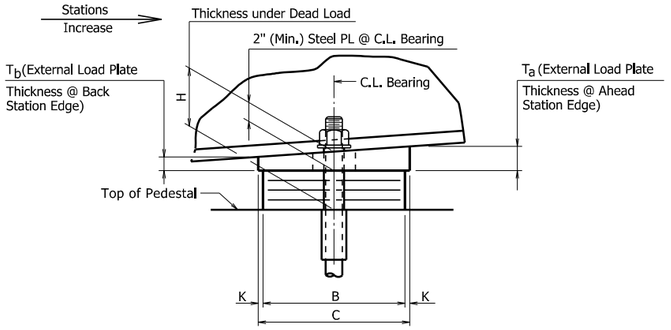

## FRONT VIEW

Typical Unless Noted Otherwise



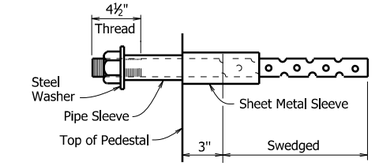

## PLAN VIEW

Typical Unless Noted Otherwise




## SIDE VIEW

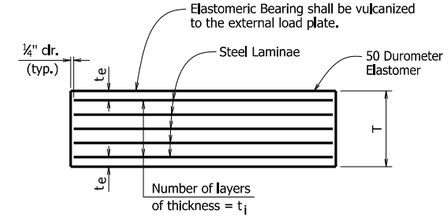
Typical Unless Noted Otherwise




## ANCHOR BOLT DETAIL

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

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the 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 shall meet the requirements of ASTM 653, CS Type B or approved equivalent, be of minimum 16 gage thickness, and be galvanized according to ASTM B695, Class 50. 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)".




$t_e$ = Thickness of elastomer cover on top and bottom of pad

$t_i$ = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness $t_i$

## ELASTOMERIC BEARING

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, Grade 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.

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.

## TABLE OF FABRICATOR VARIABLES

③ Maximum Design Load = Service 1 Limit State

| BRIDGE NO. | LOCATION: BENT NO(S). | LOCATION: BEAM OR GIRDER NO. | BEARING TYPE | NO. of BEARINGS EACH BENT | ③MAXIMUM DESIGN LOAD (KIPS) | G | H | ELASTOMERIC PAD: A | B | N | $t_i$ | $t_e$ | NO. & THICKESS OF STEEL LAMINAE | T | EXTERNAL LOAD PLATE: C | D | E | F | J | K | M | $T_a$ | $T_b$ | ANCHOR BOLT: ANCHOR BOLT (ø x L) | GRADE | PIPE SLEEVE SIZE (ø x L) | SHEET METAL SLEEVE SIZE (ø x L) | STEEL WASHER SIZE (O.D.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 07604 | 1 | All | Exp. | 5 | 205 | 9½" | 5⅝" | 22" | 11" | 5 | ½" | ¼" | 6 @ 12 ga. | 3⅜" | 12" | 35½" | 6⅞" | 3¾" | NA | ½" | 14¼" | 1.86" | 2.14" | 2½"ø x 38" | 55 | 3"ø x 5⅞" | 4"ø x 12½" | 4½" |
| | 2 | All | Fix | 5 | 450 | 8" | 4⅜" | 22" | 13" | 3 | ½" | ¼" | 4 @ 12 ga. | 2⁷⁄₁₆" | 14" | 41¾" | 3⅛" | 3⅛" | 1⅞" | ½" | 16¼" | 1.92" | 2.08" | 2¼"ø x 36" | 55 | 2½"ø 4⅝" | 4"ø x 14½" | 4" |
| | 3 | All | Fix | 5 | 356 | 7¾" | 4⅜" | 18" | 15" | 3 | ½" | ¼" | 4 @ 12 ga. | 2⁷⁄₁₆" | 16" | 37¾" | 3⅛" | 3⅛" | 1⅞" | ½" | 14¼" | 1.99" | 2.01" | 2"ø x 32" | 55 | 2½"ø 4⅝" | 4"ø x 14½" | 3¾" |
| | 4 | All | Exp. | 5 | 173 | 8½" | 4¹⁵⁄₁₆" | 18" | 9" | 4 | ½" | ¼" | 5 @ 12 ga. | 3" | 10" | 30½" | 5⅞" | 3⅛" | NA | ½" | 12" | 2.04" | 1.96" | 2¼"ø x 36" | 55 | 2½"ø 5¼" | 4"ø x 14½" | 4" |

PRINT DATE: 4/14/2023

STATE OF ARKANSAS
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LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

# DETAILS OF ELASTOMERIC BEARINGS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 01/31/2023 FILENAME: b050423_e1.dgn

CHECKED BY: DPT DATE: 01/31/2023 SCALE: NO SCALE

DESIGNED BY: DPT DATE: 01/2023

BRIDGE NO. 07604 DRAWING NO. 66021

| DATE REVISED | DATE REVISED | FED. RD. DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 41 | 61 |
| | | 07604 - 360'-0" UNIT - 66022 | | | | |

Class 2 Protective Surface Treatment shall be applied to the roadway surface, roadway face & top of the concrete bridge rail.

Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices sufficient in size and number to prevent displacement during construction, per Subsection 804.06. Placement of slab bolsters or hi-chairs with full-length lower runners directly on removable deck forms will not be allowed.

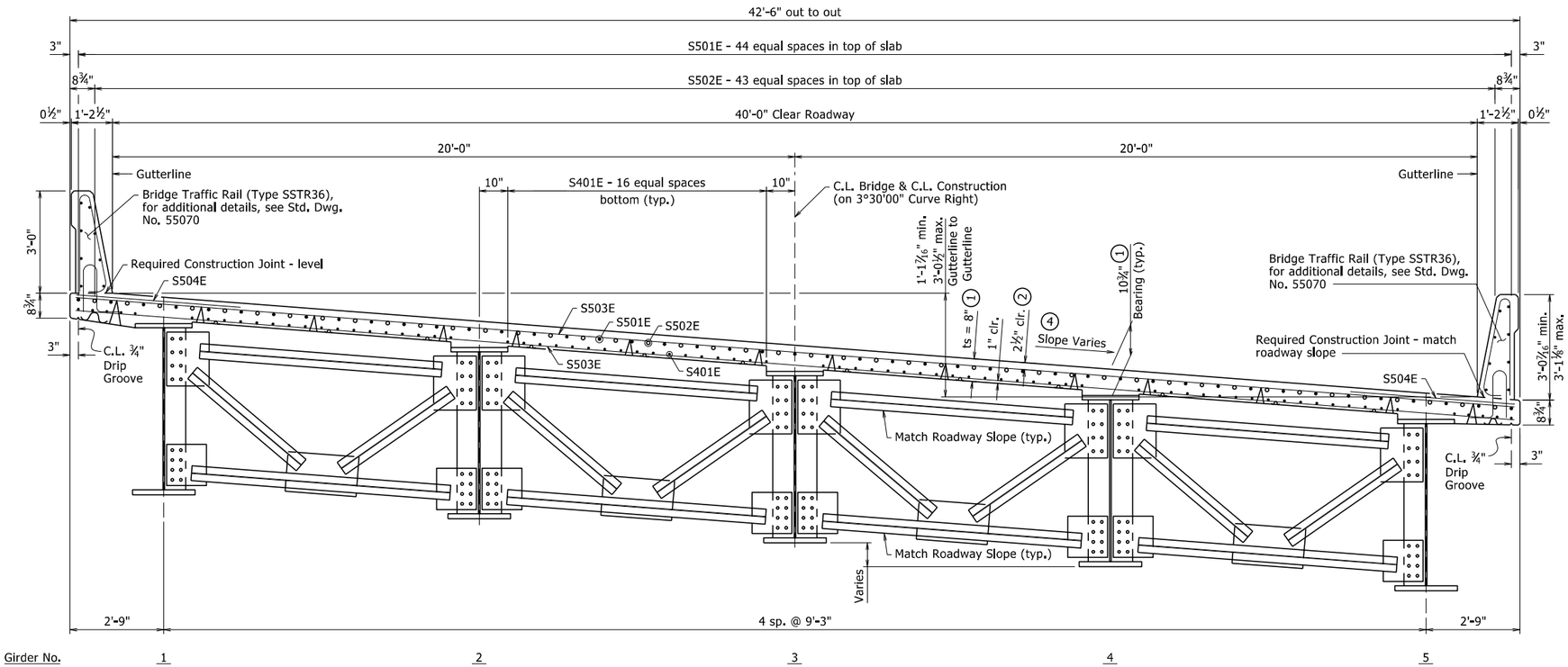
Slab Reinforcing

Longitudinal: S501E in top (place as shown)
S401E in bottom (place as shown)
S502E in top over intermediate supports, see "REINFORCING PLAN & DECK POURING SEQUENCE" Dwg. Nos. 66027 & 66028.

Transverse: S503E @ 6" o.c. in top & 6" o.c. in bottom
S504E @ 6" in top of overhangs (bundled with S503E) both sides

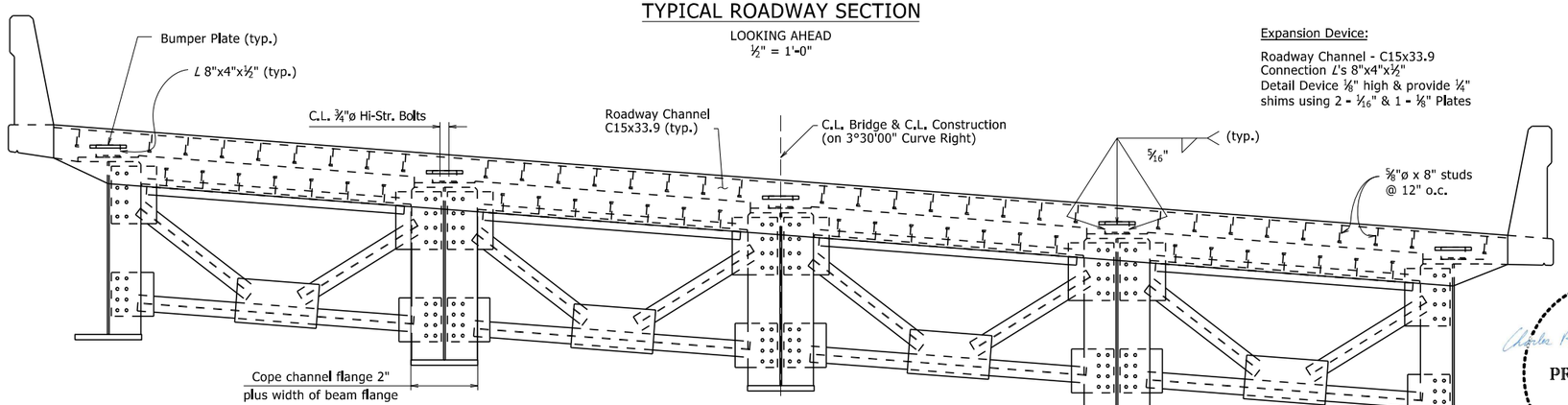
(1) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.

(2) Tolerance Minus = ¼":
Plus equal to the amount of slab thickness used to meet slab thickness tolerance.
See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.




## TYPICAL ROADWAY SECTION

LOOKING AHEAD
½" = 1'-0"




Expansion Device:

Roadway Channel - C15x33.9
Connection L's 8"x4"x½"
Detail Device ⅛" high & provide ¼" shims using 2 - 1/16" & 1 - ⅛" Plates

## TYPICAL ROADWAY SECTION THRU JOINT

LOOKING AHEAD - BENT 1
½" = 1'-0"

## TABLE OF SILICONE JOINT DATA

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

| Bent Number | "A" Width Perpendicular to Joint at 24 Hour Average Temperature (3) of: | | | "B" Perpendicular to Joint at 60°F | Bumper Plate Size |
|---|---|---|---|---|---|
| | 40°F | 60°F | 80°F | | |
| 1 & 4 | 2¾" | 2½" | 2¼" | 2½" ± | 1¼" x 1" |

(3) 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.

(4) See Dwg. No. 66007 for "SUPERELEVATION TRANSITION SKETCH".

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No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

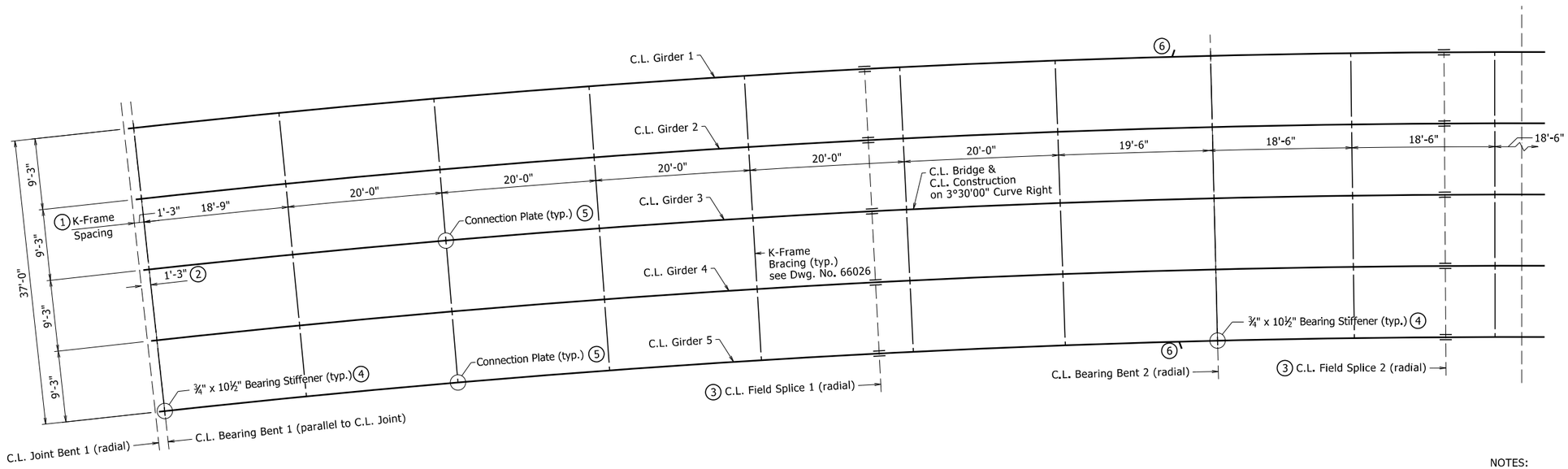
SHEET 1 OF 8
DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT

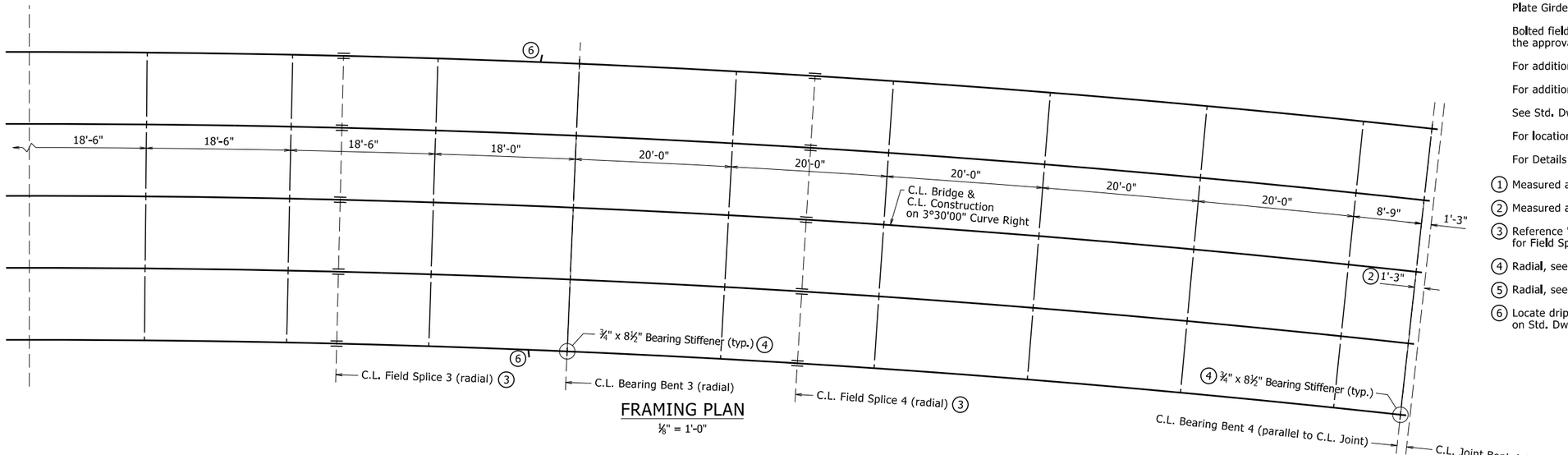
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 09/05/2022 FILENAME: b050423_s1.dgn
CHECKED BY: DPT DATE: 12/08/2022 SCALE: AS NOTED
DESIGNED BY: DPT DATE: 08/2022
BRIDGE NO. 07604 DRAWING NO. 66022

PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. RD. DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 42 | 61 |
| | | 07604 - 360'-0" UNIT - 66023 | | | | |




FRAMING PLAN
⅛" = 1'-0"

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 (ASTM A709, Gr. 50W)".

Plate Girders are concentric to C.L. Bridge. K-Frames and C.L. Field Splices are radial.

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

For additional information, see Layout.

For additional General Notes, see Std. Dwg. No. 55006.

See Std. Dwg. No. 55007 for additional details.

For locations of Field Splices, see Dwg. No. 66024.

For Details of Field Splice, see Dwg. No. 66025.

(1) Measured along C.L. Bridge

(2) Measured along each C.L. Girder

(3) Reference "TYPICAL GIRDER ELEVATION", on Dwg. No. 66024 for Field Splice locations.

(4) Radial, see "BEARING STIFFENER DETAIL", on Dwg. No. 66026.

(5) Radial, see "K-FRAME CONNECTION DETAILS", on Dwg No. 66026.

(6) Locate drip plate 5'-0" from C.L. Bearing, see "BOTTOM FLANGE DRIP PLATE" on Std. Dwg. No. 55007. Stop weld 1" from face of web.

STATE OF ARKANSAS
Mar 14 2023 12:18 PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 8
DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT

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

DRAWN BY: CGP DATE: 09/05/2022 FILENAME: b050423_s1.dgn
CHECKED BY: DPT DATE: 12/08/2022 SCALE: AS NOTED
DESIGNED BY: DPT DATE: 08/2022
BRIDGE NO. 07604 DRAWING NO. 66023

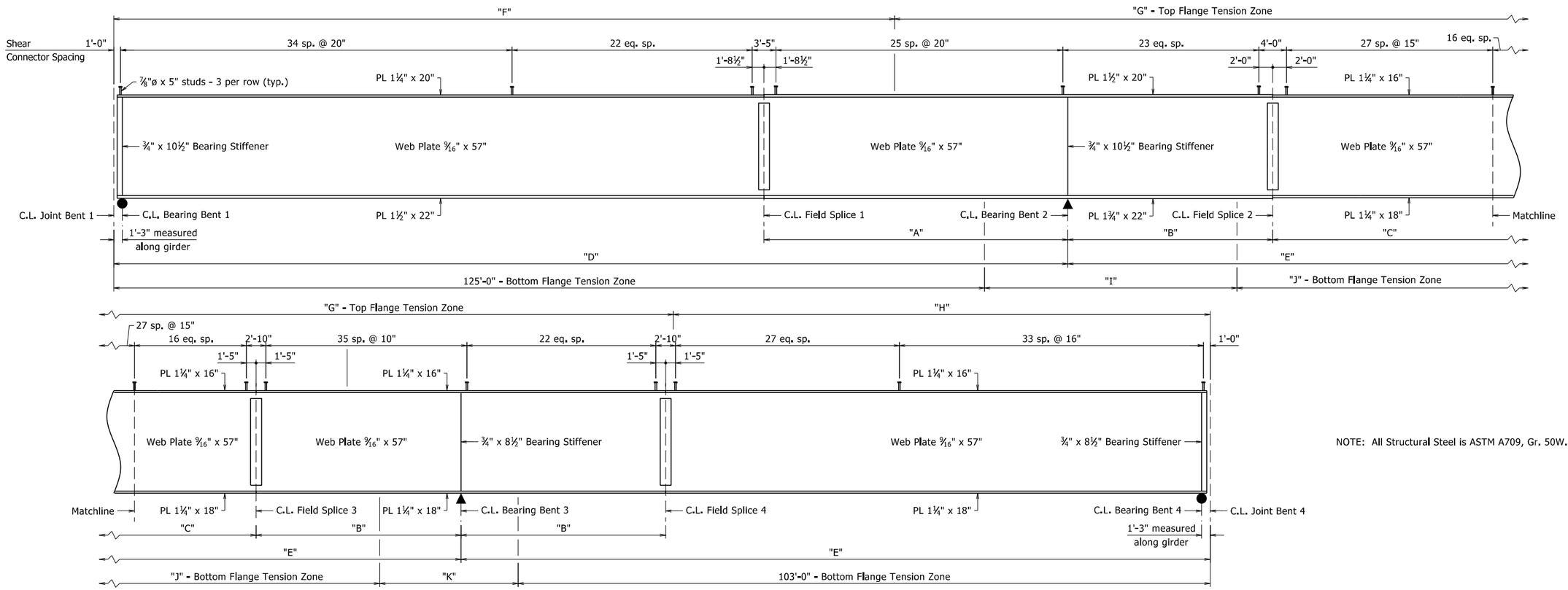
PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. ROAD DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 43 | 61 |
| | | 07604 - 360'-0" UNIT - 66024 | | | | |

## ① TABLE OF VARIABLES

| Girder No. | "A" | "B" | "C" | "D" | "E" | "F" | "G" | "H" | "I" | "J" | "K" |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 45'-0 1/16" | 30'-4 1/16" | 50'-6 3/4" | 141'-7" | 111'-2 15/16" | 100'-11 3/8" | 184'-6" | 78'-7 7/16" | 37'-9 1/4" | 75'-9" | 22'-9 9/16" |
| 2 | 44'-9" | 30'-2 1/16" | 50'-3 3/8" | 140'-9 1/2" | 110'-7 7/16" | 104'-6 1/2" | 177'-9" | 79'-8 15/16" | 36'-4 9/16" | 76'-3" | 21'-4 7/8" |
| 3 | 44'-6" | 30'-0" | 50'-0" | 140'-0" | 110'-0" | 102'-11 1/16" | 178'-0" | 79'-0 15/16" | 35'-6 3/4" | 75'-0" | 21'-5 1/4" |
| 4 | 44'-3" | 29'-9 15/16" | 49'-8 5/8" | 139'-2 1/2" | 109'-4 9/16" | 101'-9 3/8" | 178'-3" | 77'-11 1/4" | 34'-2 1/4" | 76'-0" | 19'-9 9/16" |
| 5 | 43'-11 15/16" | 29'-7 15/16" | 49'-5 5/16" | 138'-5" | 108'-9 1/16" | 99'-3 3/4" | 181'-0" | 75'-7 7/16" | 33'-3 3/8" | 74'-3" | 19'-10 13/16" |

① Distances are along C.L. Girder




TYPICAL GIRDER ELEVATION

NOTE: All Structural Steel is ASTM A709, Gr. 50W.

STATE OF ARKANSAS
Apr 14 2023 12:12 PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 8
DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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DESIGNED BY: DPT DATE: 08/2022
FILENAME: b050423_s1.dgn
SCALE: 1/8" = 1'-0"

BRIDGE NO. 07604 DRAWING NO. 66024

PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. ROAD DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
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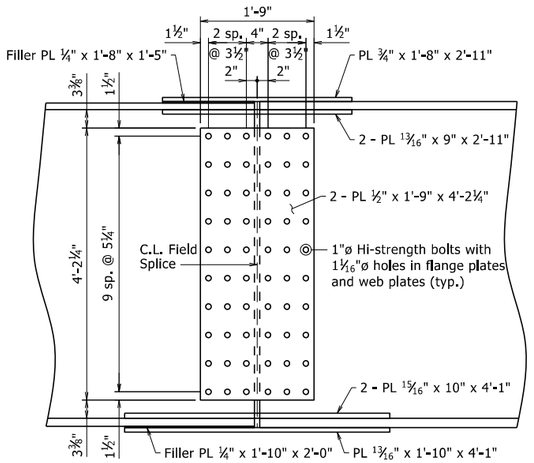
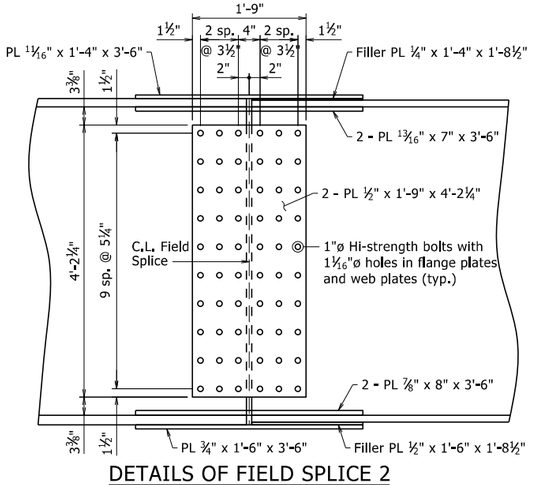
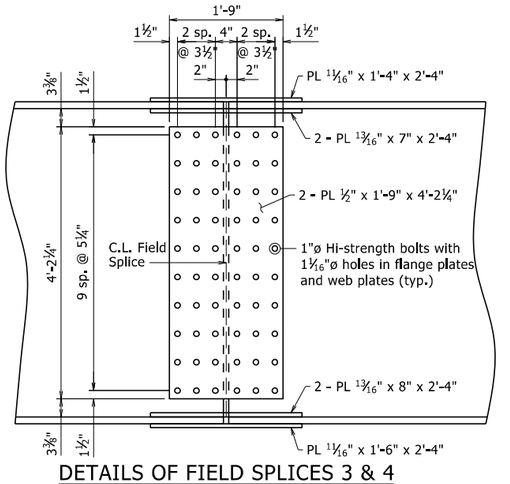
| | | 07604 - 360'-0" UNIT - 66025 | | | | |



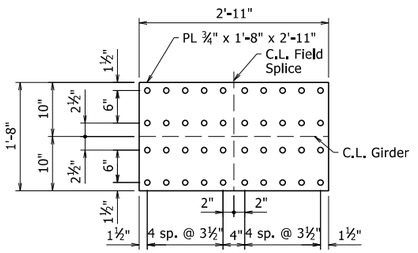

DETAILS OF FIELD SPLICE 1

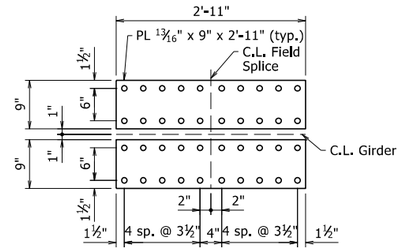



DETAILS OF FIELD SPLICE 2

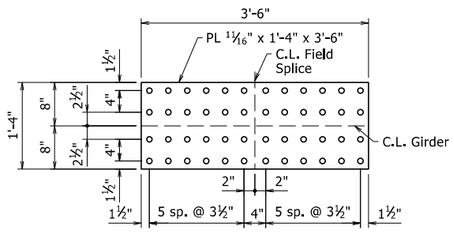


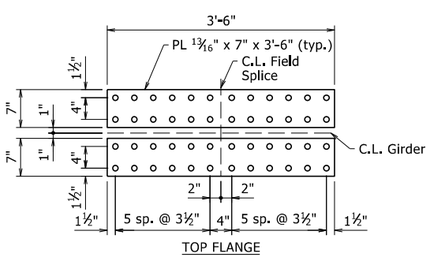

DETAILS OF FIELD SPLICES 3 & 4



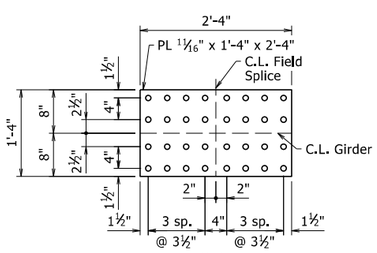



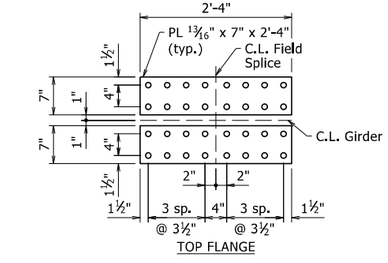

TOP FLANGE



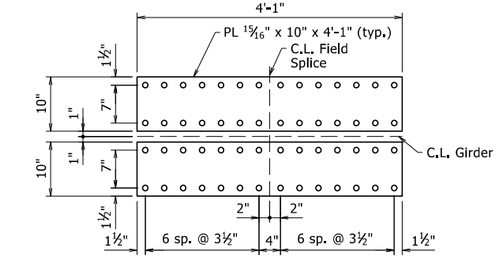



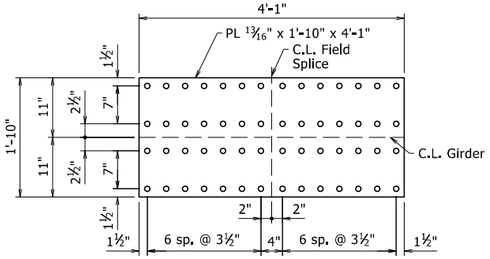

TOP FLANGE



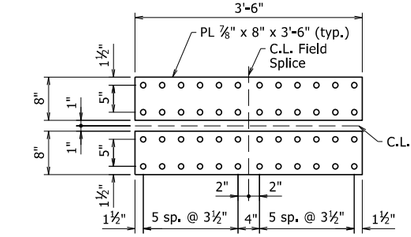



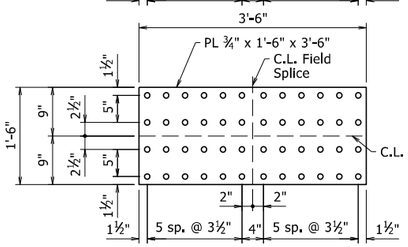

TOP FLANGE



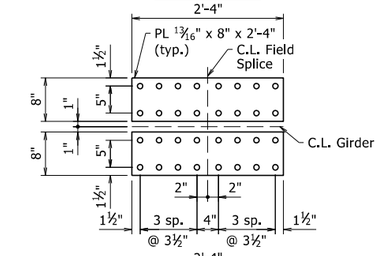



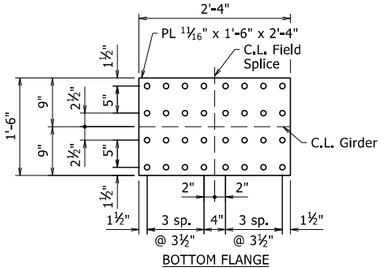

BOTTOM FLANGE




BOTTOM FLANGE




BOTTOM FLANGE

NOTE: All Splice & Filler Plates are ASTM A709, Gr. 50W.

STATE OF ARKANSAS
Apr 14 2023 12:17 PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 4 OF 8
DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT

ROUTE SEC.

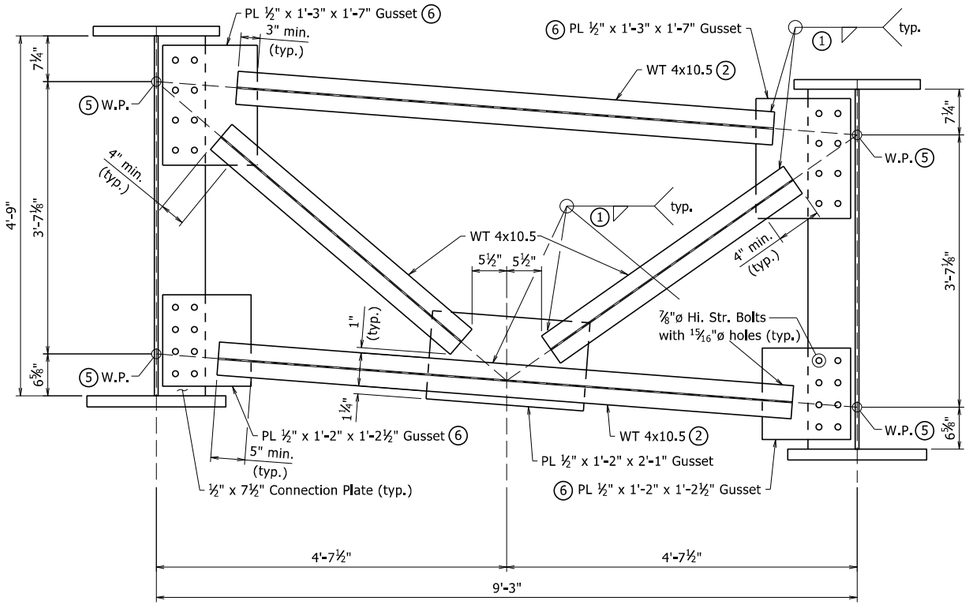
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 09/05/2022 FILENAME: b050423_s1.dgn
CHECKED BY: DPT DATE: 12/08/2022 SCALE: NO SCALE
DESIGNED BY: DPT DATE: 08/2022

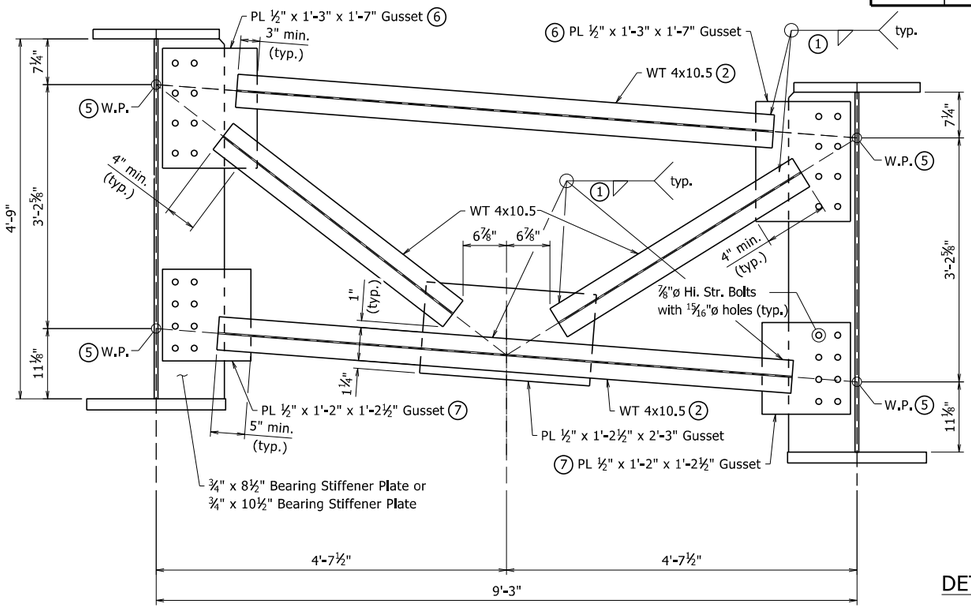
BRIDGE NO. 07604 DRAWING NO. 66025

PRINT DATE: 4/14/2023

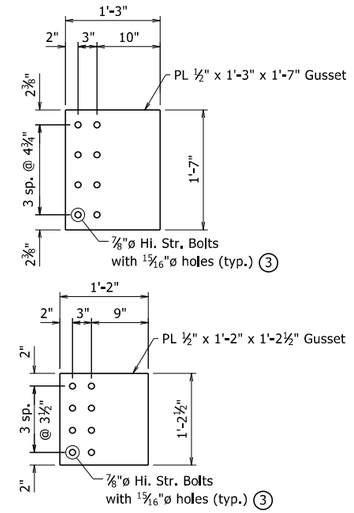
| DATE REVISED | DATE REVISED | FED. ROAD DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 45 | 61 |
| | | 07604 - 360'-0" UNIT - 66026 | | | | |




DETAIL OF K-FRAMES AT CONNECTION PLATES




DETAIL OF K-FRAMES AT BEARING STIFFENERS




DETAILS OF GUSSET PLATES

NOTES:

(1) See "WELD TABLE", Std. Dwg. No. 55007.

(2) WT 4x10.5 are to match roadway slope. Distance from flange to W.P. will be constant. Dimensions shown are applicable for a roadway slope of 7.6%.

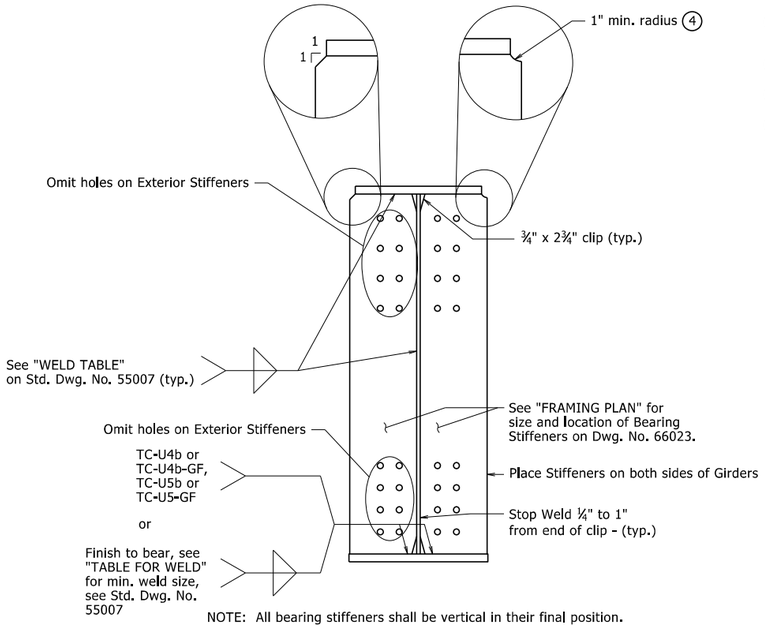
(3) Oversized holes will not be allowed on K-Frame connections.

(4) If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accommodate the deck form supports.

(5) W.P. = Working Point at C.L. of Web

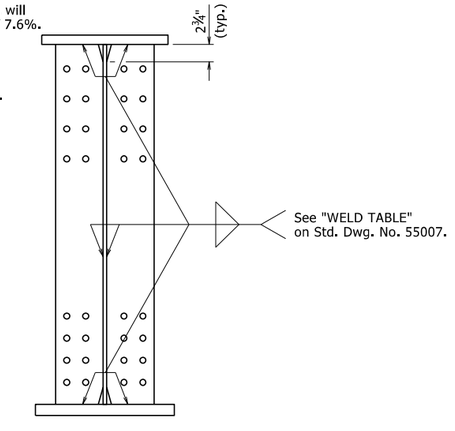
(6) Located 1½" above or below flanges.

(7) Located 6" above bottom flange.

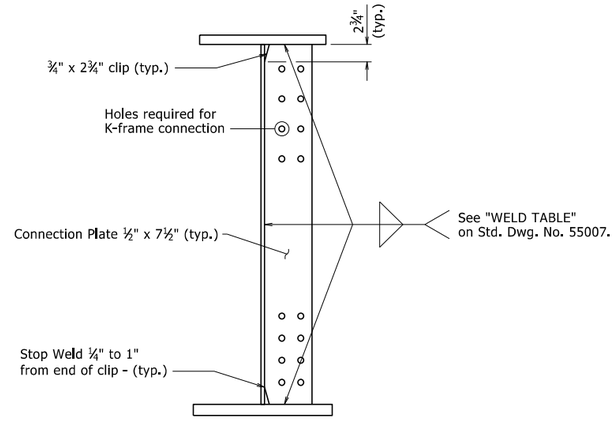



NOTE: All bearing stiffeners shall be vertical in their final position.

BEARING STIFFENER DETAIL




INTERIOR




EXTERIOR

K-FRAME CONNECTION DETAILS

STATE OF ARKANSAS
Apr 14 2023 12:17 PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 5 OF 8
DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT

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

DRAWN BY: CGP DATE: 09/05/2022 FILENAME: b050423_s1.dgn
CHECKED BY: DPT DATE: 12/08/2022 SCALE: 1" = 1'-0"
DESIGNED BY: DPT DATE: 08/2022

BRIDGE NO. 07604 DRAWING NO. 66026

PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. RD. DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
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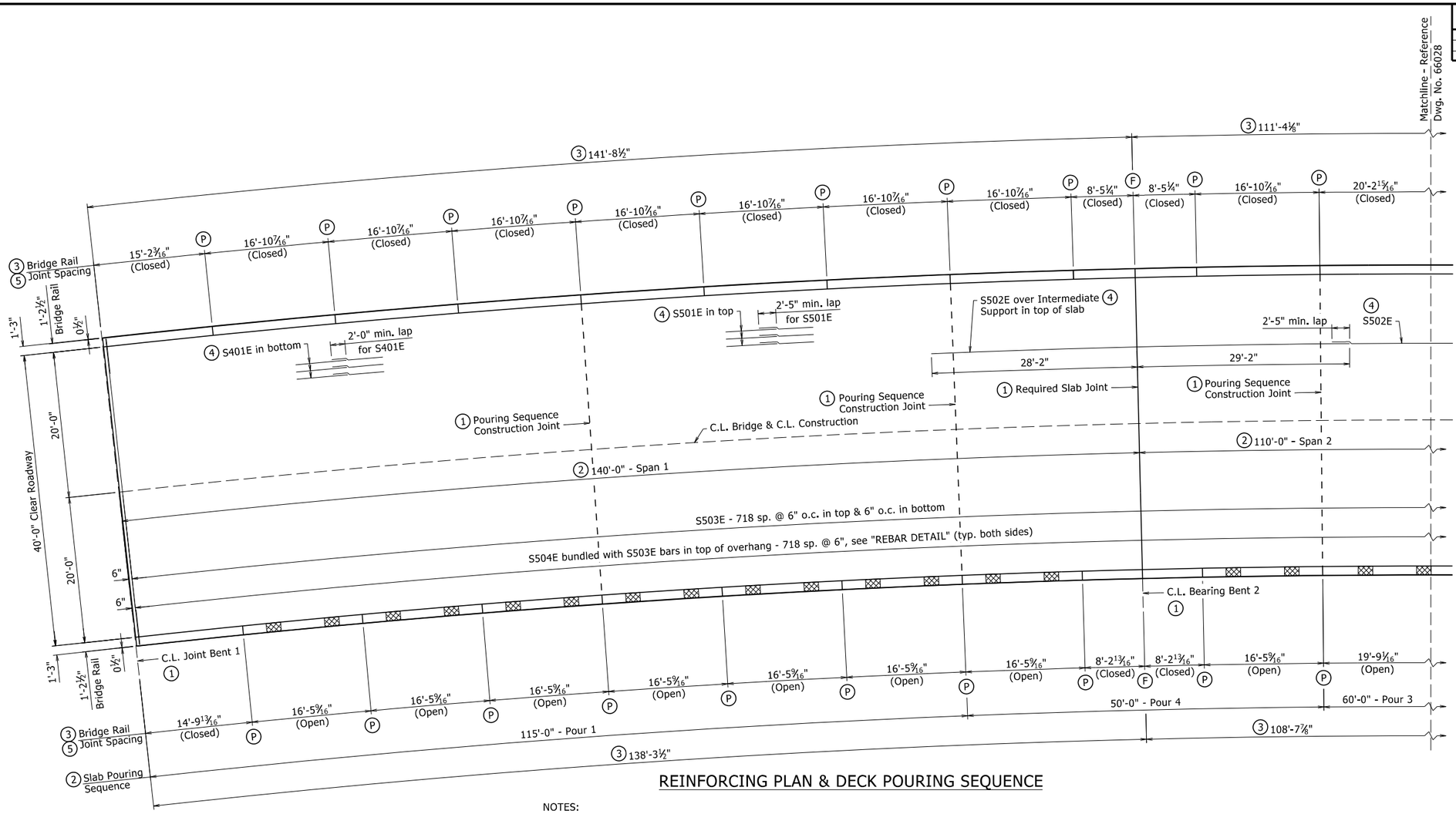
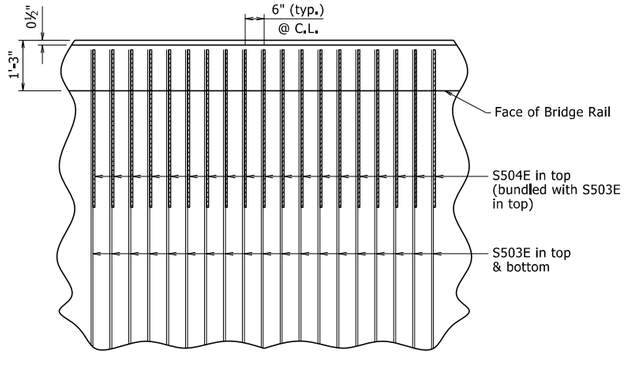
| | | 07604 - 360'-0" UNIT - 66027 | | | | |




## REINFORCING PLAN & DECK POURING SEQUENCE




REBAR DETAIL
NO SCALE

NOTES:

Pours with same number may be placed simultaneously or separately. No deviations will be allowed. All Pour(s) 1 shall be placed before Pour(s) 2 can be placed. All Pour(s) 2 shall be placed before Pour(s) 3 can be placed. All Pour(s) 3 shall be placed before Pour(s) 4 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. A minimum of 72 hours shall elapse between the completion of the bridge deck pour and start of the railing pour. Any railing pours made before the entire slab has been placed must be approved by the Engineer.

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

Required slab joints and pouring sequence construction joints shall align with rail joints at base of rail.

C.L. Bridge is in a 3°30'00" horizontal curve to the right. All longitudinal lines and longitudinal reinforcing steel shall be placed on curves concentric with C.L. Bridge. All transverse reinforcing steel shall be placed on radial lines and shall be measured along C.L. Bridge.

See "BAR LIST" on Dwg. No. 66029 for rebar quantities.

See "TABLE OF VARIABLES" on Dwg. No. 66029 for all rebar information.

(1) Radial Line

(2) Measured along C.L. Bridge

(3) Measured along Gutterline

(4) Placed as shown in "TYPICAL ROADWAY SECTION", Dwg. No. 66022.

(5) Reference Std. Dwg. No. 55070.

(F) C.L. Full-Depth Bridge Rail Joint (¼" to 1" max.) Stop 6" from top of slab.

(P) C.L. Partial-Depth Bridge Rail Joint (¼" to 1" max.) Stop 16" from top of slab.

STATE OF ARKANSAS
Apr 14 2023 12:17 PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 6 OF 8
DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT

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

DRAWN BY: CGP DATE: 09/05/2022 FILENAME: b050423_s1.dgn
CHECKED BY: DPT DATE: 12/08/2022 SCALE: 1/8" = 1'-0"
DESIGNED BY: DPT DATE: 08/2022

BRIDGE NO. 07604 DRAWING NO. 66027

PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. RD. DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
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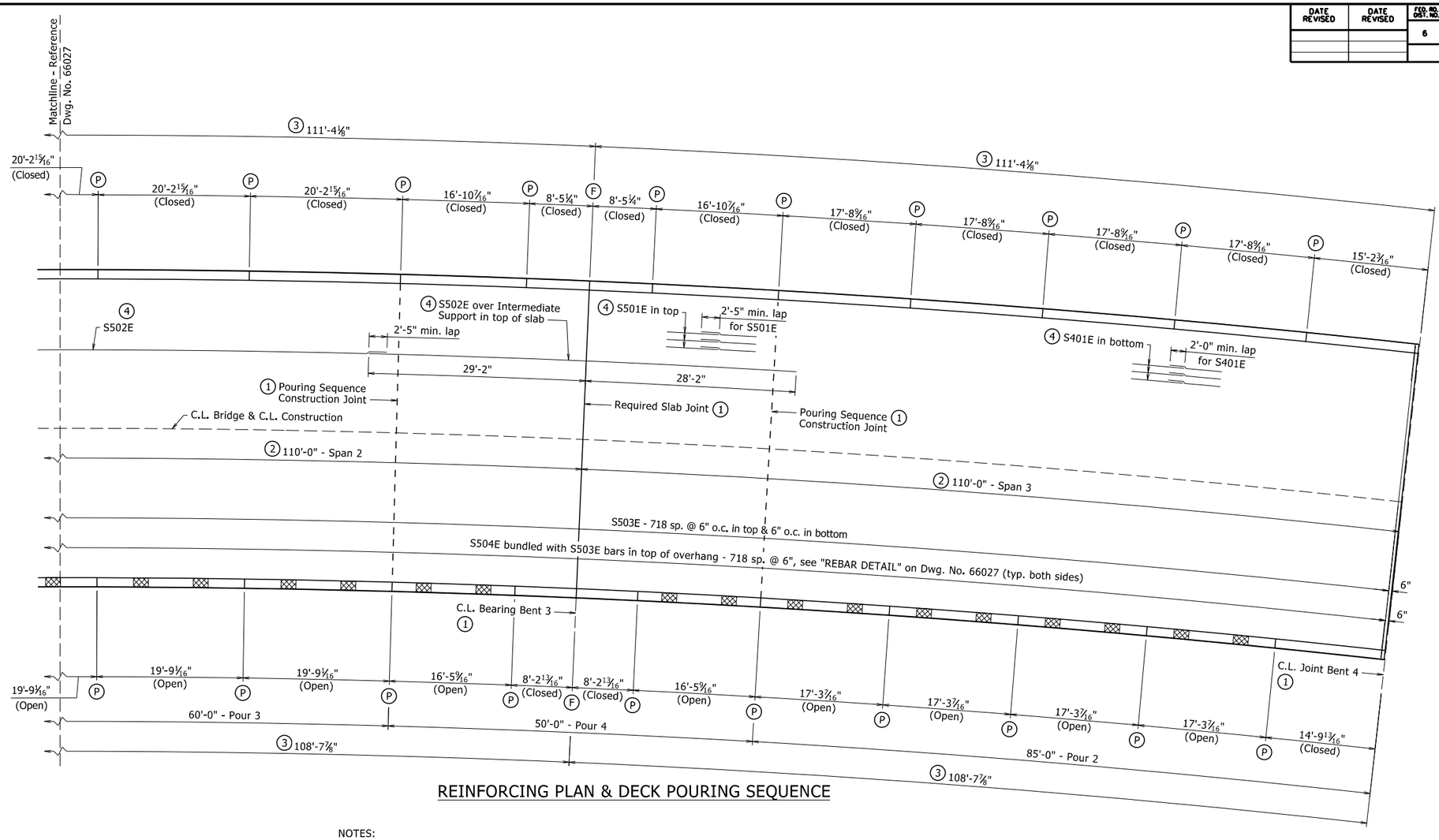
| | | 07604 - 360'-0" UNIT - 66028 | | | | |




## REINFORCING PLAN & DECK POURING SEQUENCE

NOTES:

For pouring sequence note, see Dwg. No. 66027.

(1) Radial Line

(2) Measured along C.L. Bridge

(3) Measured along Gutterline

(4) Placed as shown in "TYPICAL ROADWAY SECTION", Dwg. No. 66022.

(5) Reference Std. Dwg. No. 55070.

(F) C.L. Full-Depth Bridge Rail Joint (¼" to 1" max.) Stop 6" from top of slab.

(P) C.L. Partial-Depth Bridge Rail Joint (¼" to 1" max.) Stop 16" from top of slab.

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LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 7 OF 8
DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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BRIDGE NO. 07604 DRAWING NO. 66028

PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. ROAD DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
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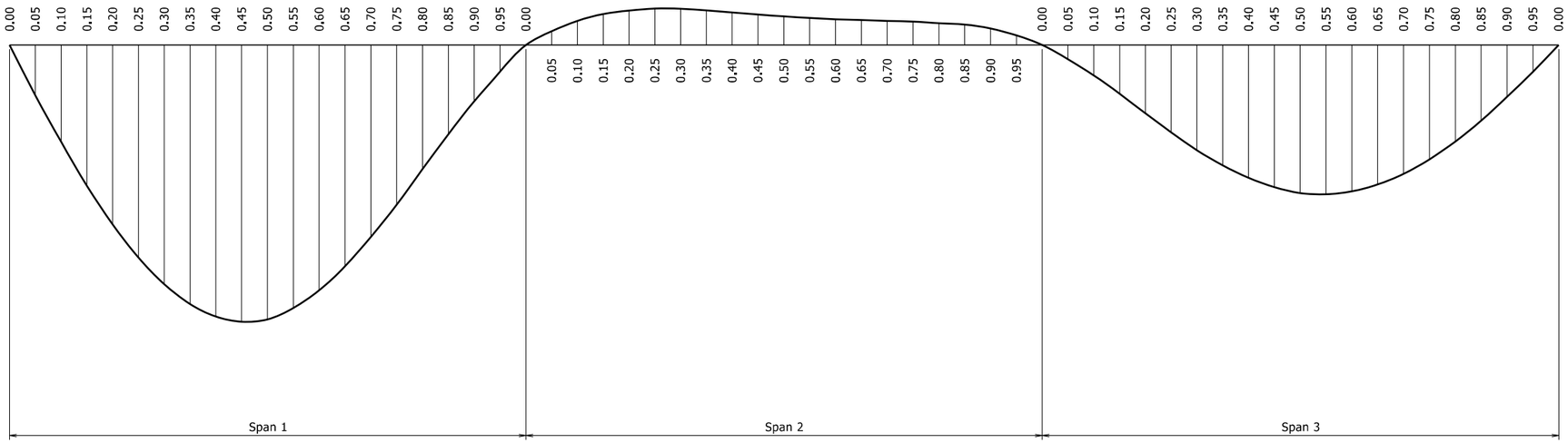
| | | 07604 - 360'-0" UNIT - 66029 | | | | |




## DEAD LOAD DEFLECTION DIAGRAM

| Span | Point of Deflection | Structural Steel | | | | | Structural Steel + Slab | | | | | Structural Steel + Slab + Rail | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Girder 1 | Girder 2 | Girder 3 | Girder 4 | Girder 5 | Girder 1 | Girder 2 | Girder 3 | Girder 4 | Girder 5 | Girder 1 | Girder 2 | Girder 3 | Girder 4 | Girder 5 |
| Span 1 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | 0.05 | 0.154 | 0.168 | 0.179 | 0.190 | 0.204 | 0.154 | 0.168 | 0.179 | 0.190 | 0.204 | 0.201 | 0.213 | 0.225 | 0.241 | 0.265 |
| | 0.10 | 0.298 | 0.324 | 0.346 | 0.367 | 0.393 | 0.298 | 0.324 | 0.346 | 0.367 | 0.393 | 0.388 | 0.411 | 0.435 | 0.466 | 0.510 |
| | 0.15 | 0.433 | 0.472 | 0.504 | 0.531 | 0.573 | 0.433 | 0.472 | 0.504 | 0.531 | 0.573 | 0.564 | 0.599 | 0.633 | 0.673 | 0.742 |
| | 0.20 | 0.551 | 0.601 | 0.641 | 0.680 | 0.729 | 0.551 | 0.601 | 0.641 | 0.680 | 0.729 | 0.718 | 0.762 | 0.805 | 0.862 | 0.944 |
| | 0.25 | 0.653 | 0.712 | 0.760 | 0.805 | 0.865 | 0.653 | 0.712 | 0.760 | 0.805 | 0.865 | 0.850 | 0.902 | 0.954 | 1.020 | 1.119 |
| | 0.30 | 0.733 | 0.800 | 0.854 | 0.907 | 0.972 | 0.733 | 0.800 | 0.854 | 0.907 | 0.972 | 0.953 | 1.013 | 1.072 | 1.148 | 1.257 |
| | 0.35 | 0.793 | 0.864 | 0.923 | 0.980 | 1.052 | 0.793 | 0.864 | 0.923 | 0.980 | 1.052 | 1.030 | 1.094 | 1.157 | 1.240 | 1.359 |
| | 0.40 | 0.829 | 0.904 | 0.966 | 1.027 | 1.101 | 0.829 | 0.904 | 0.966 | 1.027 | 1.101 | 1.076 | 1.144 | 1.210 | 1.298 | 1.421 |
| | 0.45 | 0.842 | 0.919 | 0.981 | 1.044 | 1.119 | 0.842 | 0.919 | 0.981 | 1.044 | 1.119 | 1.092 | 1.161 | 1.228 | 1.318 | 1.443 |
| | 0.50 | 0.832 | 0.908 | 0.970 | 1.032 | 1.107 | 0.832 | 0.908 | 0.970 | 1.032 | 1.107 | 1.078 | 1.146 | 1.213 | 1.302 | 1.425 |
| | 0.55 | 0.797 | 0.868 | 0.932 | 0.988 | 1.060 | 0.797 | 0.868 | 0.932 | 0.988 | 1.060 | 1.031 | 1.095 | 1.164 | 1.245 | 1.362 |
| | 0.60 | 0.743 | 0.810 | 0.866 | 0.922 | 0.989 | 0.743 | 0.810 | 0.866 | 0.922 | 0.989 | 0.960 | 1.020 | 1.080 | 1.160 | 1.269 |
| | 0.65 | 0.668 | 0.732 | 0.779 | 0.830 | 0.890 | 0.668 | 0.732 | 0.779 | 0.830 | 0.890 | 0.861 | 0.920 | 0.970 | 1.042 | 1.139 |
| | 0.70 | 0.582 | 0.634 | 0.679 | 0.724 | 0.776 | 0.582 | 0.634 | 0.679 | 0.724 | 0.776 | 0.749 | 0.795 | 0.843 | 0.907 | 0.991 |
| | 0.75 | 0.485 | 0.529 | 0.561 | 0.599 | 0.649 | 0.485 | 0.529 | 0.561 | 0.599 | 0.649 | 0.622 | 0.662 | 0.695 | 0.747 | 0.826 |
| | 0.80 | 0.378 | 0.412 | 0.442 | 0.472 | 0.507 | 0.378 | 0.412 | 0.442 | 0.472 | 0.507 | 0.483 | 0.513 | 0.546 | 0.587 | 0.642 |
| | 0.85 | 0.275 | 0.296 | 0.318 | 0.340 | 0.371 | 0.275 | 0.296 | 0.318 | 0.340 | 0.371 | 0.350 | 0.367 | 0.391 | 0.421 | 0.468 |
| | 0.90 | 0.172 | 0.188 | 0.203 | 0.218 | 0.234 | 0.172 | 0.188 | 0.203 | 0.218 | 0.234 | 0.218 | 0.232 | 0.249 | 0.269 | 0.293 |
| | 0.95 | 0.082 | 0.090 | 0.097 | 0.104 | 0.112 | 0.082 | 0.090 | 0.097 | 0.104 | 0.112 | 0.103 | 0.111 | 0.118 | 0.128 | 0.139 |
| | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Span 2 | 0.05 | -0.043 | -0.048 | -0.053 | -0.057 | -0.063 | -0.043 | -0.048 | -0.053 | -0.057 | -0.063 | -0.051 | -0.057 | -0.063 | -0.067 | -0.075 |
| | 0.10 | -0.076 | -0.085 | -0.093 | -0.102 | -0.113 | -0.076 | -0.085 | -0.093 | -0.102 | -0.113 | -0.089 | -0.100 | -0.109 | -0.120 | -0.133 |
| | 0.15 | -0.099 | -0.111 | -0.122 | -0.133 | -0.149 | -0.099 | -0.111 | -0.122 | -0.133 | -0.149 | -0.114 | -0.129 | -0.142 | -0.155 | -0.172 |
| | 0.20 | -0.111 | -0.126 | -0.140 | -0.155 | -0.175 | -0.111 | -0.126 | -0.140 | -0.155 | -0.175 | -0.124 | -0.145 | -0.162 | -0.179 | -0.200 |
| | 0.25 | -0.118 | -0.134 | -0.151 | -0.168 | -0.192 | -0.118 | -0.134 | -0.151 | -0.168 | -0.192 | -0.129 | -0.152 | -0.173 | -0.191 | -0.216 |
| | 0.30 | -0.119 | -0.136 | -0.154 | -0.174 | -0.200 | -0.119 | -0.136 | -0.154 | -0.174 | -0.200 | -0.126 | -0.152 | -0.174 | -0.196 | -0.222 |
| | 0.35 | -0.117 | -0.133 | -0.151 | -0.175 | -0.200 | -0.117 | -0.133 | -0.151 | -0.175 | -0.200 | -0.120 | -0.145 | -0.169 | -0.195 | -0.218 |
| | 0.40 | -0.110 | -0.128 | -0.146 | -0.169 | -0.198 | -0.110 | -0.128 | -0.146 | -0.169 | -0.198 | -0.108 | -0.137 | -0.161 | -0.185 | -0.212 |
| | 0.45 | -0.103 | -0.121 | -0.140 | -0.163 | -0.191 | -0.103 | -0.121 | -0.140 | -0.163 | -0.191 | -0.098 | -0.127 | -0.153 | -0.177 | -0.201 |
| | 0.50 | -0.096 | -0.113 | -0.132 | -0.155 | -0.183 | -0.096 | -0.113 | -0.132 | -0.155 | -0.183 | -0.088 | -0.117 | -0.142 | -0.166 | -0.190 |
| | 0.55 | -0.090 | -0.106 | -0.124 | -0.146 | -0.173 | -0.090 | -0.106 | -0.124 | -0.146 | -0.173 | -0.081 | -0.109 | -0.133 | -0.155 | -0.179 |
| | 0.60 | -0.084 | -0.100 | -0.116 | -0.137 | -0.162 | -0.084 | -0.100 | -0.116 | -0.137 | -0.162 | -0.075 | -0.102 | -0.124 | -0.145 | -0.166 |
| | 0.65 | -0.079 | -0.093 | -0.109 | -0.128 | -0.151 | -0.079 | -0.093 | -0.109 | -0.128 | -0.151 | -0.071 | -0.095 | -0.116 | -0.136 | -0.155 |
| | 0.70 | -0.074 | -0.087 | -0.101 | -0.118 | -0.139 | -0.074 | -0.087 | -0.101 | -0.118 | -0.139 | -0.068 | -0.090 | -0.108 | -0.126 | -0.144 |
| | 0.75 | -0.070 | -0.082 | -0.093 | -0.108 | -0.126 | -0.070 | -0.082 | -0.093 | -0.108 | -0.126 | -0.067 | -0.086 | -0.100 | -0.116 | -0.132 |
| | 0.80 | -0.064 | -0.073 | -0.084 | -0.096 | -0.110 | -0.064 | -0.073 | -0.084 | -0.096 | -0.110 | -0.063 | -0.078 | -0.092 | -0.104 | -0.117 |
| | 0.85 | -0.058 | -0.065 | -0.074 | -0.080 | -0.094 | -0.058 | -0.065 | -0.074 | -0.080 | -0.094 | -0.061 | -0.072 | -0.083 | -0.088 | -0.103 |
| | 0.90 | -0.045 | -0.051 | -0.057 | -0.063 | -0.070 | -0.045 | -0.051 | -0.057 | -0.063 | -0.070 | -0.050 | -0.057 | -0.065 | -0.071 | -0.078 |
| | 0.95 | -0.026 | -0.029 | -0.032 | -0.035 | -0.039 | -0.026 | -0.029 | -0.032 | -0.035 | -0.039 | -0.029 | -0.033 | -0.037 | -0.040 | -0.044 |
| | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Span 3 | 0.05 | 0.037 | 0.041 | 0.044 | 0.047 | 0.051 | 0.037 | 0.041 | 0.044 | 0.047 | 0.051 | 0.047 | 0.050 | 0.053 | 0.057 | 0.063 |
| | 0.10 | 0.079 | 0.086 | 0.093 | 0.099 | 0.106 | 0.079 | 0.086 | 0.093 | 0.099 | 0.106 | 0.101 | 0.106 | 0.113 | 0.122 | 0.133 |
| | 0.15 | 0.127 | 0.136 | 0.149 | 0.158 | 0.169 | 0.127 | 0.136 | 0.149 | 0.158 | 0.169 | 0.165 | 0.170 | 0.184 | 0.197 | 0.216 |
| | 0.20 | 0.174 | 0.190 | 0.203 | 0.215 | 0.229 | 0.174 | 0.190 | 0.203 | 0.215 | 0.229 | 0.227 | 0.239 | 0.252 | 0.269 | 0.295 |
| | 0.25 | 0.223 | 0.243 | 0.259 | 0.271 | 0.291 | 0.223 | 0.243 | 0.259 | 0.271 | 0.291 | 0.293 | 0.307 | 0.323 | 0.341 | 0.378 |
| | 0.30 | 0.266 | 0.290 | 0.308 | 0.325 | 0.345 | 0.266 | 0.290 | 0.308 | 0.325 | 0.345 | 0.352 | 0.368 | 0.386 | 0.412 | 0.450 |
| | 0.35 | 0.304 | 0.330 | 0.352 | 0.371 | 0.392 | 0.304 | 0.330 | 0.352 | 0.371 | 0.392 | 0.403 | 0.420 | 0.442 | 0.471 | 0.514 |
| | 0.40 | 0.334 | 0.363 | 0.386 | 0.406 | 0.430 | 0.334 | 0.363 | 0.386 | 0.406 | 0.430 | 0.445 | 0.464 | 0.486 | 0.518 | 0.565 |
| | 0.45 | 0.358 | 0.389 | 0.413 | 0.433 | 0.459 | 0.358 | 0.389 | 0.413 | 0.433 | 0.459 | 0.478 | 0.498 | 0.521 | 0.553 | 0.606 |
| | 0.50 | 0.372 | 0.403 | 0.428 | 0.450 | 0.475 | 0.372 | 0.403 | 0.428 | 0.450 | 0.475 | 0.498 | 0.517 | 0.541 | 0.576 | 0.628 |
| | 0.55 | 0.375 | 0.407 | 0.431 | 0.452 | 0.478 | 0.375 | 0.407 | 0.431 | 0.452 | 0.478 | 0.503 | 0.523 | 0.546 | 0.580 | 0.634 |
| | 0.60 | 0.368 | 0.399 | 0.422 | 0.443 | 0.469 | 0.368 | 0.399 | 0.422 | 0.443 | 0.469 | 0.494 | 0.514 | 0.535 | 0.569 | 0.623 |
| | 0.65 | 0.351 | 0.380 | 0.402 | 0.422 | 0.446 | 0.351 | 0.380 | 0.402 | 0.422 | 0.446 | 0.472 | 0.490 | 0.510 | 0.543 | 0.593 |
| | 0.70 | 0.324 | 0.351 | 0.371 | 0.389 | 0.412 | 0.324 | 0.351 | 0.371 | 0.389 | 0.412 | 0.436 | 0.453 | 0.471 | 0.501 | 0.549 |
| | 0.75 | 0.287 | 0.312 | 0.328 | 0.344 | 0.364 | 0.287 | 0.312 | 0.328 | 0.344 | 0.364 | 0.387 | 0.403 | 0.417 | 0.444 | 0.486 |
| | 0.80 | 0.243 | 0.263 | 0.277 | 0.291 | 0.308 | 0.243 | 0.263 | 0.277 | 0.291 | 0.308 | 0.328 | 0.340 | 0.352 | 0.375 | 0.411 |
| | 0.85 | 0.191 | 0.205 | 0.216 | 0.228 | 0.241 | 0.191 | 0.205 | 0.216 | 0.228 | 0.241 | 0.258 | 0.265 | 0.275 | 0.294 | 0.322 |
| | 0.90 | 0.131 | 0.142 | 0.149 | 0.156 | 0.165 | 0.131 | 0.142 | 0.149 | 0.156 | 0.165 | 0.177 | 0.183 | 0.190 | 0.201 | 0.221 |
| | 0.95 | 0.068 | 0.073 | 0.077 | 0.081 | 0.085 | 0.068 | 0.073 | 0.077 | 0.081 | 0.085 | 0.092 | 0.094 | 0.098 | 0.104 | 0.114 |
| | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

## TABLE OF VARIABLES

| Closed Rail Panels | | | Open Rail Panels | | | | | |
|---|---|---|---|---|---|---|---|---|
| Panel Length | A | R4XXE | Panel Length | B | C | D | E | R4XXE |
| 8'-2 1/16" | 16 | R404E | 16'-5 5/16" | 8 | 3'-0" | 12 | 6'-5 5/16" | R408E |
| 8'-5 1/4" | 16 | R405E | 17'-3 7/16" | 8 | 3'-0" | 14 | 7'-3 7/16" | R410E |
| 14'-9 13/16" | 29 | R406E | 19'-9 1/16" | 8 | 3'-0" | 19 | 9'-9 1/16" | R412E |
| 15'-2 3/16" | 30 | R407E | | | | | | |
| 16'-10 7/16" | 33 | R409E | | | | | | |
| 17'-8 9/16" | 35 | R411E | | | | | | |
| 20'-2 15/16" | 40 | R413E | | | | | | |

NOTES:

See "REINFORCING PLAN & DECK POURING SEQUENCE" on Dwg. Nos. 66027 & 66028 for rail panel lengths.

See Std. Dwg. No. 55070 for details of rail reinforcing, and location of bars with an "R" prefix.

## BAR LIST

| MARK | NO. REQ'D | LENGTH | P.D. |
|---|---|---|---|
| R400E | 136 | 5'-3" | 2½" |
| R401E | 1421 | 6'-4" | (1) |
| R402E | 160 | 5'-6" | Str. |
| R403E | 1421 | 3'-6" | (1) |
| R404E | 32 | 7'-11" | Str. |
| R405E | 32 | 8'-1" | Str. |
| R406E | 16 | 14'-6" | Str. |
| R407E | 16 | 14'-10" | Str. |
| R408E | 80 | 16'-2" | Str. |
| R409E | 80 | 16'-7" | Str. |
| R410E | 32 | 17'-0" | Str. |
| R411E | 32 | 17'-5" | Str. |
| R412E | 24 | 19'-5" | Str. |
| R413E | 24 | 19'-11" | Str. |
| | | | |
| S401E | 702 | 42'-3" | Str. |
| S501E | 315 | 54'-1" | Str. |
| S502E | 132 | 57'-4" | Str. |
| S503E | 1438 | 42'-2" | Str. |
| S504E | 1438 | 4'-10" | Str. |
| Bars with an "E" suffix are to be epoxy coated. | | | |

(1) See Bending Diagram on Std. Dwg. No. 55070.

Note:
Camber for Dead Load Deflection +/- ¼" tolerance. Deflections shown are along centerline of beam/girder from the plane perpendicular to the web extending from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above plane. Vertical curve corrections not included. Superelevation transition corrections not included.

Dead load deflections shown include an assumed loading of 18 psf to account for stay-in-place metal deck forms. Revisions to the deflection table may be necessary upon review of the Contractor's submitted forming details.

STATE OF ARKANSAS
Apr 14 2023 12:12 PM
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 8 OF 8
DETAILS OF 360'-0" CONTINUOUS PLATE GIRDER UNIT

ROUTE SEC.

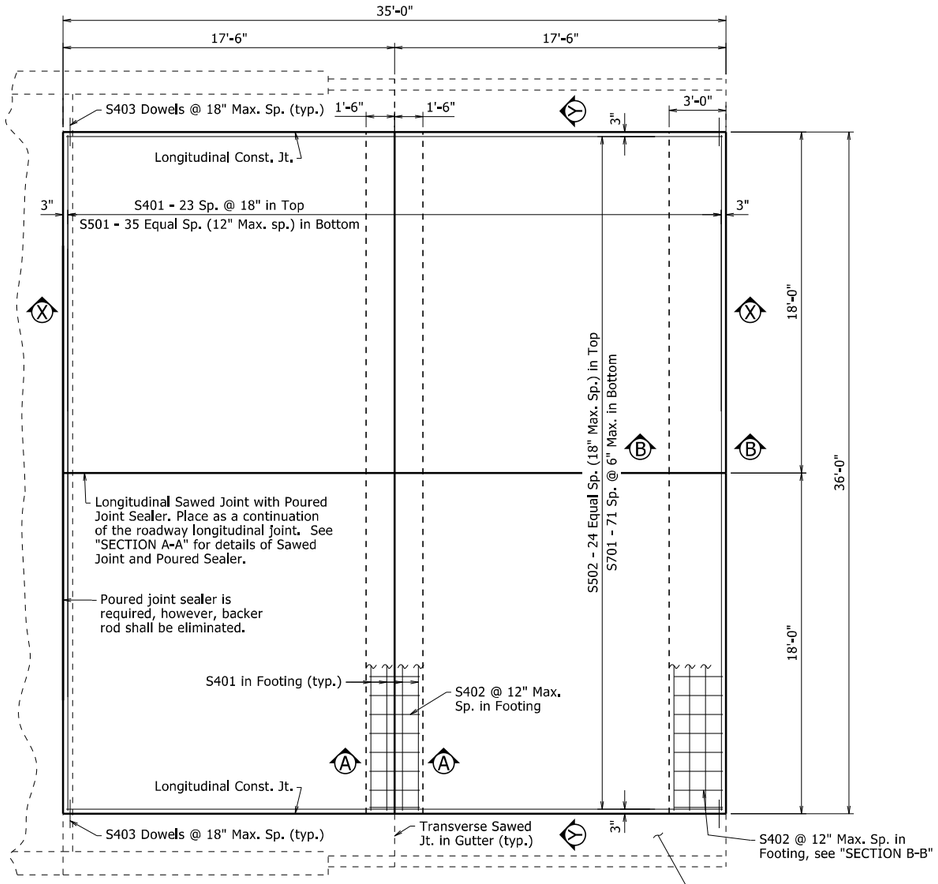
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 09/05/2022 FILENAME: b050423_s1.dgn
CHECKED BY: DPT DATE: 12/08/2022 SCALE: NO SCALE
DESIGNED BY: DPT DATE: 08/2022

BRIDGE NO. 07604 DRAWING NO. 66029

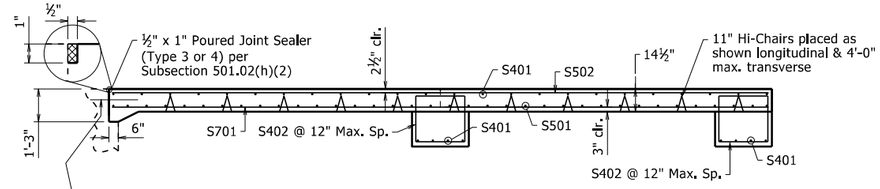
PRINT DATE: 4/14/2023

| DATE REVISED | DATE REVISED | FED. RD. DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 49 | 61 |
| | | 07604 - Approach Slab - 66030 | | | | |



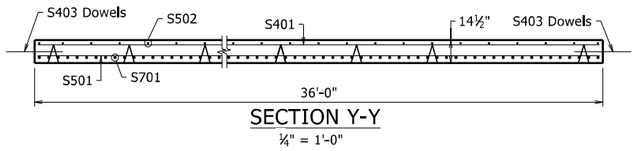

PLAN - APPROACH SLAB

¼" = 1'-0"




SECTION X-X

¼" = 1'-0"




SECTION Y-Y

¼" = 1'-0"

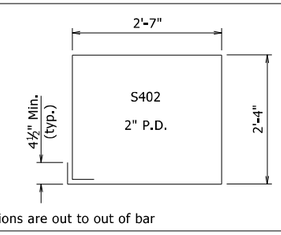
## TABLE OF QUANTITIES FOR ONE APPROACH SLAB

(For Information Only)

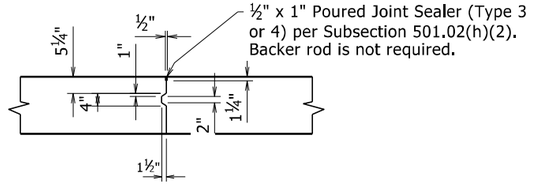
| Reinforcing Steel (Lbs.) | Concrete (Cu. Yds.) |
|---|---|
| 8,660 | 71.80 |

## BAR LIST - PER APPROACH SLAB

| Mark | No. Req'd. | Length | Bending Diagram |
|---|---|---|---|
| S401 | 32 | 35' - 8" | |
| S402 | 74 | 10' - 2" | |
| S403 | 48 | 1' - 6" | |
| | | | |
| S501 | 36 | 35' - 8" | |
| S502 | 25 | 34' - 8" | |
| S701 | 72 | 34' - 8" | |
| | | | |
| | | | |
| | | | |
| | | | |

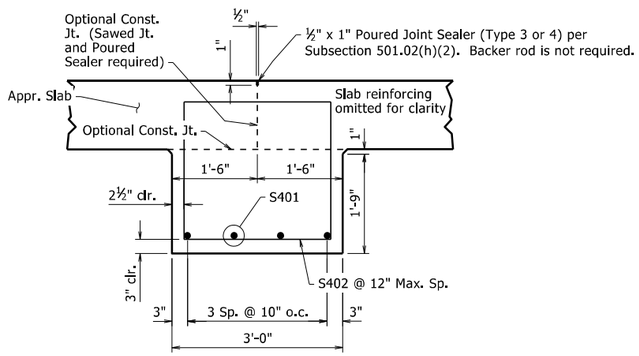



Dimensions are out to out of bar



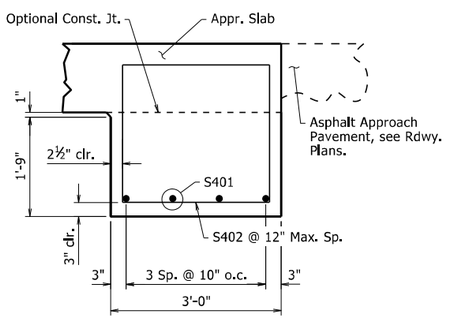

## DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

½" = 1'-0"




SECTION A-A

¾" = 1'-0"




SECTION B-B

¾" = 1'-0"

## 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.

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

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.

STATE OF ARKANSAS
Charles R. Ellis
May 14 2023 12:11 PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

## DETAILS OF TYPE SPECIAL APPROACH SLAB

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

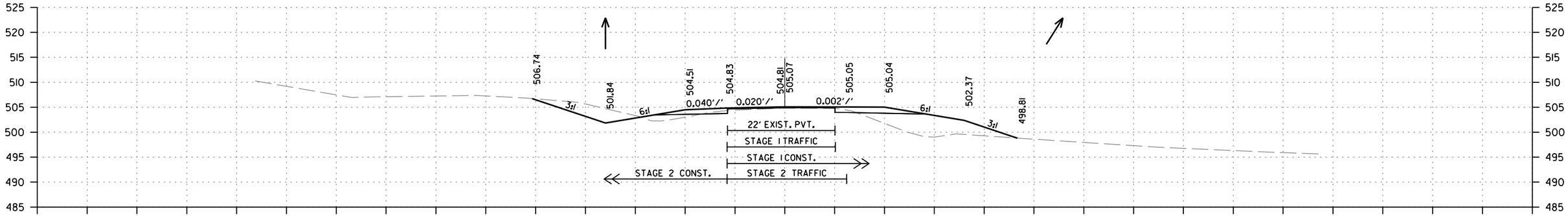
LITTLE ROCK, ARK.

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY: | DPT | DATE: | 02/22/2023 | FILENAME: | b050423_as.dgn |
| CHECKED BY: | TMG | DATE: | 02/25/2022 | SCALE: | As Noted |
| DESIGNED BY: | STD | DATE: | --- | | |

BRIDGE NO. 07604 DRAWING NO. 66030

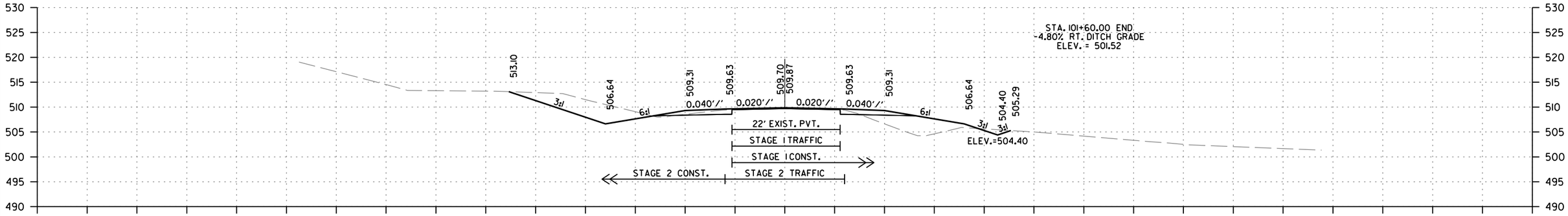
PRINT DATE: 4/12/2023

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 50 | 61 |
| | | CROSS SECTIONS | | | | |



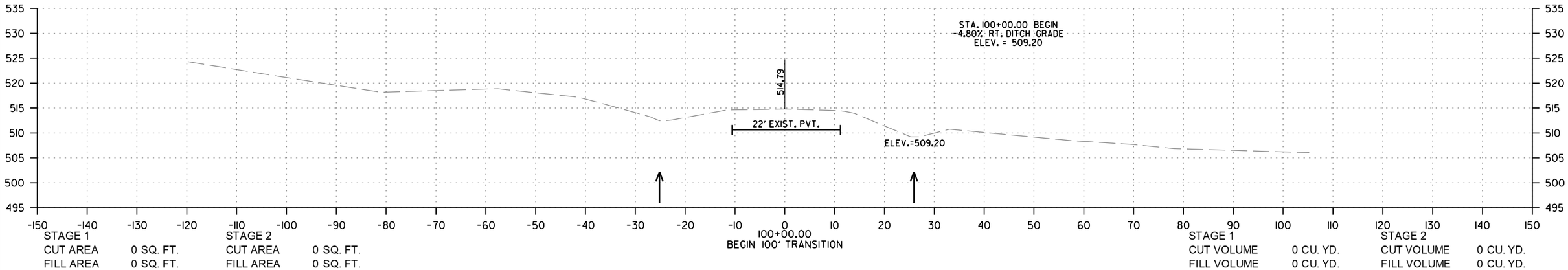

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 2 SQ. FT. | CUT AREA | 37 SQ. FT. |
| FILL AREA | 78 SQ. FT. | FILL AREA | 9 SQ. FT. |

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 15 CU. YD. | CUT VOLUME | 202 CU. YD. |
| FILL VOLUME | 233 CU. YD. | FILL VOLUME | 19 CU. YD. |




| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 6 SQ. FT. | CUT AREA | 72 SQ. FT. |
| FILL AREA | 48 SQ. FT. | FILL AREA | 1 SQ. FT. |

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 11 CU. YD. | CUT VOLUME | 133 CU. YD. |
| FILL VOLUME | 89 CU. YD. | FILL VOLUME | 2 CU. YD. |



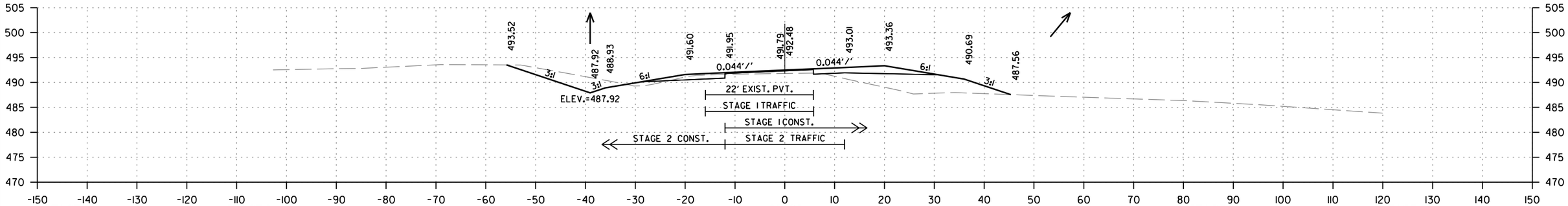

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 0 SQ. FT. | CUT AREA | 0 SQ. FT. |
| FILL AREA | 0 SQ. FT. | FILL AREA | 0 SQ. FT. |

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 0 CU. YD. | CUT VOLUME | 0 CU. YD. |
| FILL VOLUME | 0 CU. YD. | FILL VOLUME | 0 CU. YD. |

HWY. 56
STA. 100+00 TO STA. 102+00

MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 51 | 61 |
| | | CROSS SECTIONS | | | | |



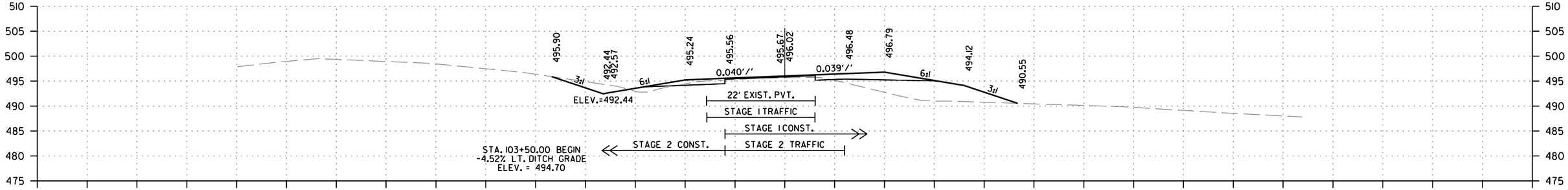

STAGE 1
CUT AREA 1 SQ. FT.
FILL AREA 86 SQ. FT.

STAGE 2
CUT AREA 47 SQ. FT.
FILL AREA 4 SQ. FT.

105+00

STAGE 1
CUT VOLUME 4 CU. YD.
FILL VOLUME 320 CU. YD.

STAGE 2
CUT VOLUME 124 CU. YD.
FILL VOLUME 17 CU. YD.



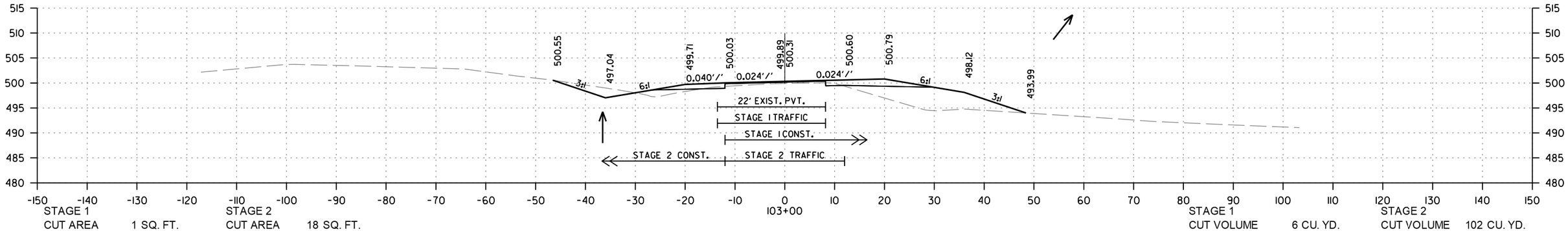

STAGE 1
CUT AREA 1 SQ. FT.
FILL AREA 87 SQ. FT.

STAGE 2
CUT AREA 20 SQ. FT.
FILL AREA 5 SQ. FT.

104+00

STAGE 1
CUT VOLUME 4 CU. YD.
FILL VOLUME 331 CU. YD.

STAGE 2
CUT VOLUME 70 CU. YD.
FILL VOLUME 26 CU. YD.




STAGE 1
CUT AREA 1 SQ. FT.
FILL AREA 92 SQ. FT.

STAGE 2
CUT AREA 18 SQ. FT.
FILL AREA 9 SQ. FT.

103+00

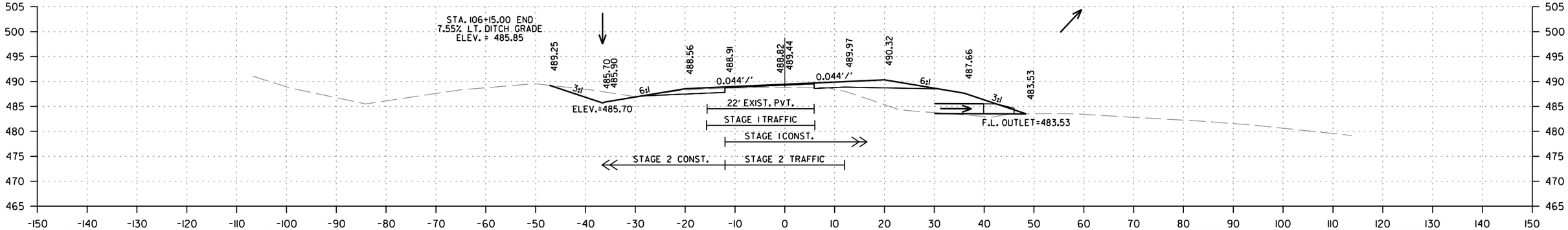
STAGE 1
CUT VOLUME 6 CU. YD.
FILL VOLUME 315 CU. YD.

STAGE 2
CUT VOLUME 102 CU. YD.
FILL VOLUME 33 CU. YD.

HWY. 56
STA. 103+00 TO STA. 105+00

MM41715 5/16/2023
R050423.DGN

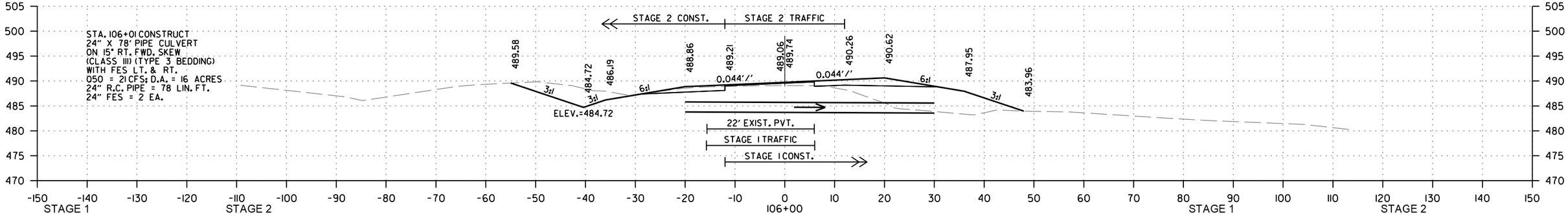
| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 52 | 61 |
| | | CROSS SECTIONS | | | | |




106+13

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 1 SQ. FT. | CUT AREA | 30 SQ. FT. |
| FILL AREA | 119 SQ. FT. | FILL AREA | 0 SQ. FT. |

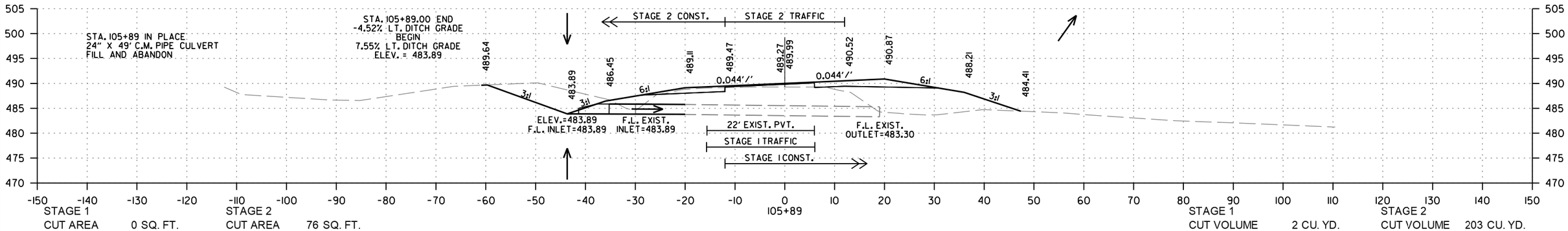
| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 0 CU. YD. | CUT VOLUME | 22 CU. YD. |
| FILL VOLUME | 57 CU. YD. | FILL VOLUME | 0 CU. YD. |




106+00

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 0 SQ. FT. | CUT AREA | 60 SQ. FT. |
| FILL AREA | 119 SQ. FT. | FILL AREA | 0 SQ. FT. |

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 0 CU. YD. | CUT VOLUME | 28 CU. YD. |
| FILL VOLUME | 50 CU. YD. | FILL VOLUME | 3 CU. YD. |




105+89

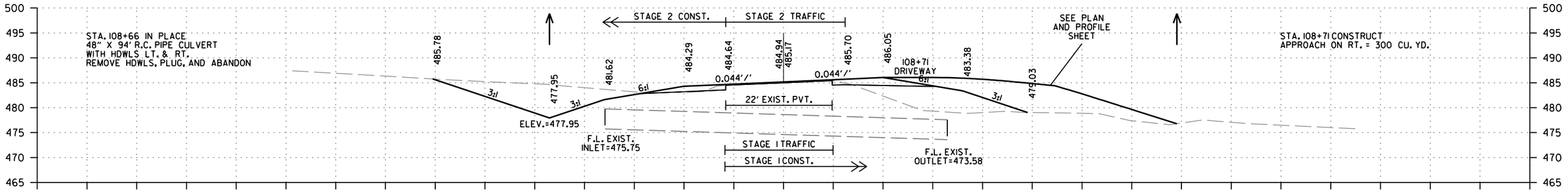
| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 0 SQ. FT. | CUT AREA | 76 SQ. FT. |
| FILL AREA | 128 SQ. FT. | FILL AREA | 15 SQ. FT. |

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 2 CU. YD. | CUT VOLUME | 203 CU. YD. |
| FILL VOLUME | 353 CU. YD. | FILL VOLUME | 31 CU. YD. |

HWY. 56
STA. 105+89 TO STA. 106+13

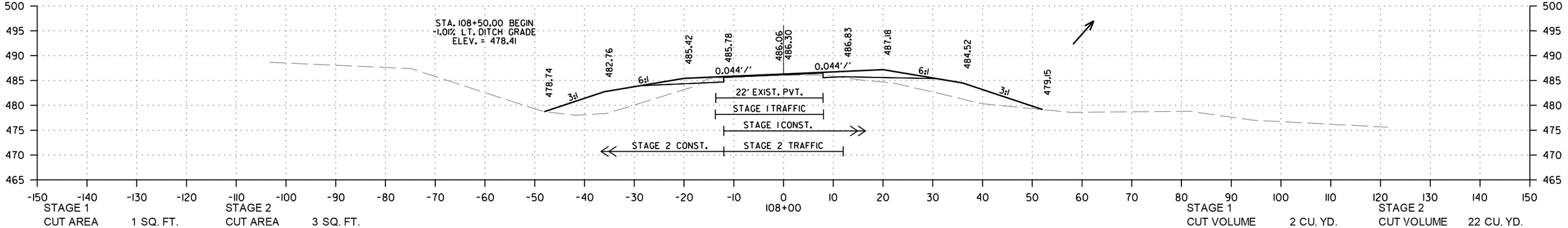
MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 53 | 61 |
| | | CROSS SECTIONS | | | | |



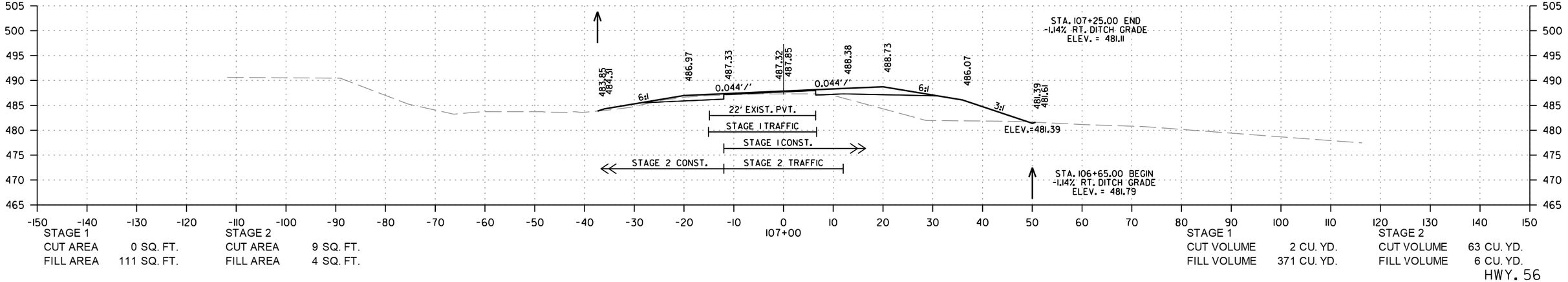

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 2 SQ. FT. | CUT AREA | 138 SQ. FT. |
| FILL AREA | 101 SQ. FT. | FILL AREA | 1 SQ. FT. |

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 4 CU. YD. | CUT VOLUME | 185 CU. YD. |
| FILL VOLUME | 225 CU. YD. | FILL VOLUME | 109 CU. YD. |




| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 1 SQ. FT. | CUT AREA | 3 SQ. FT. |
| FILL AREA | 70 SQ. FT. | FILL AREA | 82 SQ. FT. |

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 2 CU. YD. | CUT VOLUME | 22 CU. YD. |
| FILL VOLUME | 335 CU. YD. | FILL VOLUME | 159 CU. YD. |



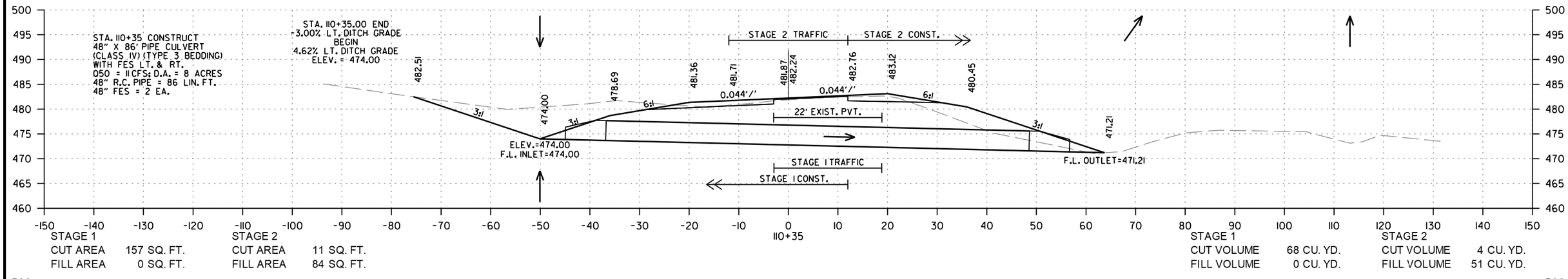

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 0 SQ. FT. | CUT AREA | 9 SQ. FT. |
| FILL AREA | 111 SQ. FT. | FILL AREA | 4 SQ. FT. |

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 2 CU. YD. | CUT VOLUME | 63 CU. YD. |
| FILL VOLUME | 371 CU. YD. | FILL VOLUME | 6 CU. YD. |

HWY. 56
STA. 107+00 TO STA. 108+71

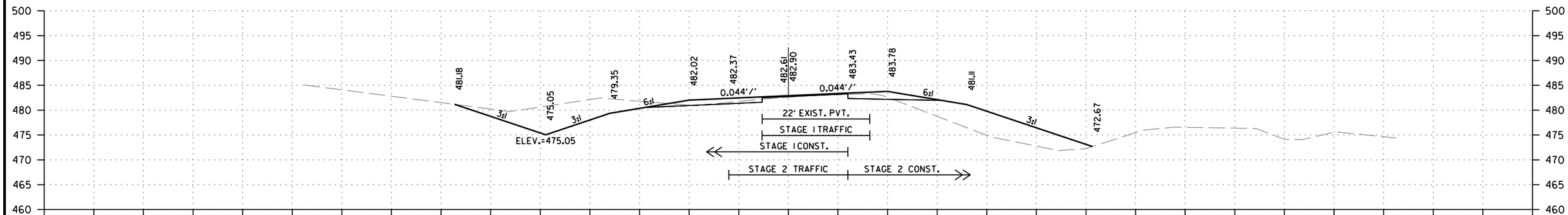
MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 54 | 61 |
| | | CROSS SECTIONS | | | | |



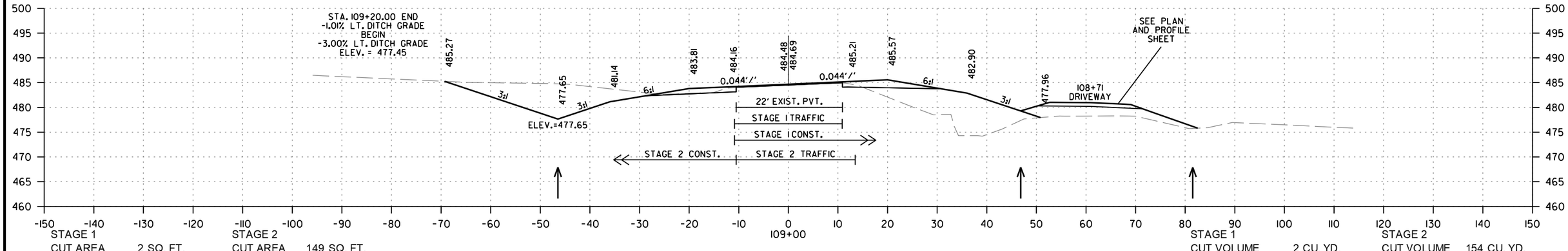

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 157 SQ. FT. | CUT AREA | 11 SQ. FT. |
| FILL AREA | 0 SQ. FT. | FILL AREA | 84 SQ. FT. |

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 68 CU. YD. | CUT VOLUME | 4 CU. YD. |
| FILL VOLUME | 0 CU. YD. | FILL VOLUME | 51 CU. YD. |




| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 124 SQ. FT. | CUT AREA | 7 SQ. FT. |
| FILL AREA | 0 SQ. FT. | FILL AREA | 127 SQ. FT. |

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 233 CU. YD. | CUT VOLUME | 289 CU. YD. |
| FILL VOLUME | 274 CU. YD. | FILL VOLUME | 235 CU. YD. |



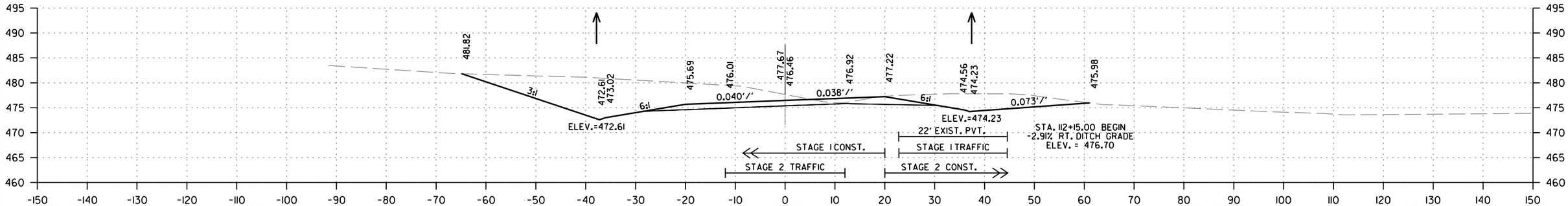

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 2 SQ. FT. | CUT AREA | 149 SQ. FT. |
| FILL AREA | 148 SQ. FT. | FILL AREA | 0 SQ. FT. |

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 2 CU. YD. | CUT VOLUME | 154 CU. YD. |
| FILL VOLUME | 134 CU. YD. | FILL VOLUME | 1 CU. YD. |

HWY. 56
STA. 109+00 TO STA. 110+35

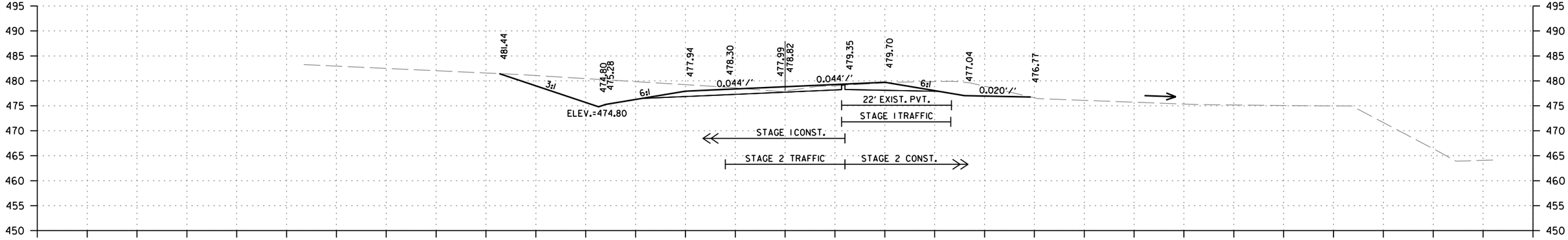
MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 55 | 61 |
| | | CROSS SECTIONS | | | | |



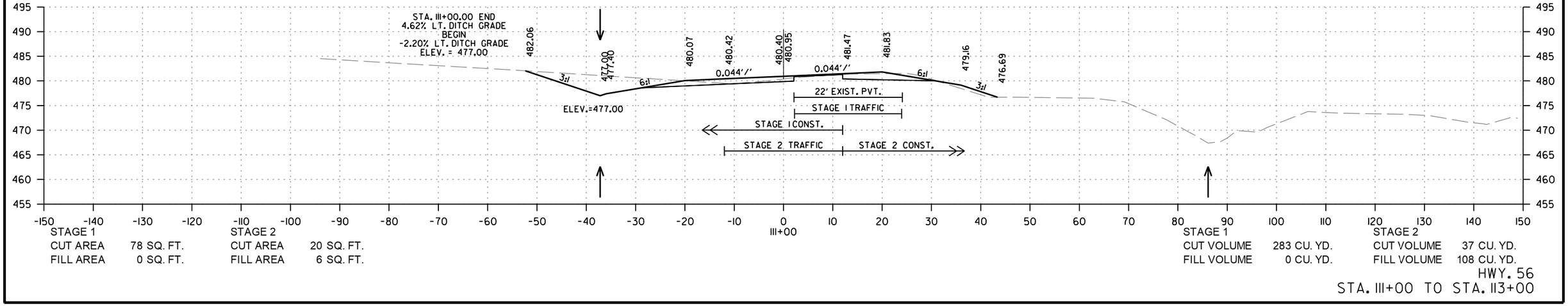

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 311 SQ. FT. | CUT AREA | 108 SQ. FT. |
| FILL AREA | 0 SQ. FT. | FILL AREA | 0 SQ. FT. |

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 854 CU. YD. | CUT VOLUME | 311 CU. YD. |
| FILL VOLUME | 0 CU. YD. | FILL VOLUME | 0 CU. YD. |




| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 150 SQ. FT. | CUT AREA | 60 SQ. FT. |
| FILL AREA | 0 SQ. FT. | FILL AREA | 0 SQ. FT. |

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 422 CU. YD. | CUT VOLUME | 148 CU. YD. |
| FILL VOLUME | 0 CU. YD. | FILL VOLUME | 11 CU. YD. |



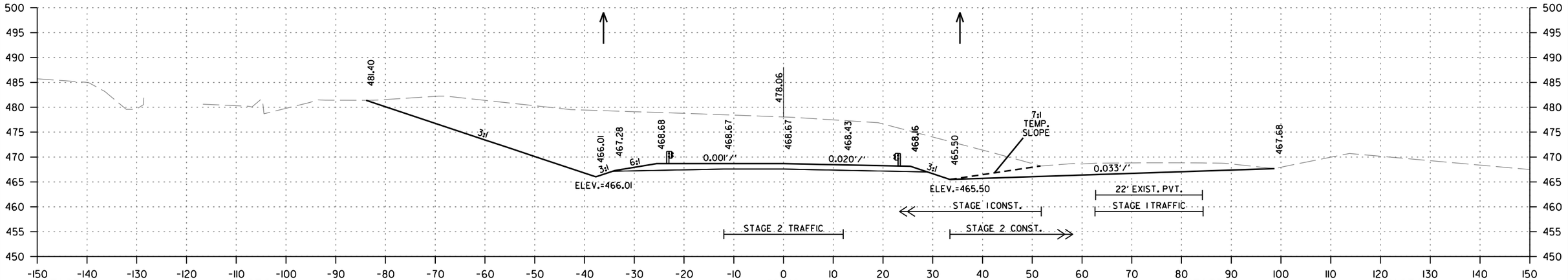

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 78 SQ. FT. | CUT AREA | 20 SQ. FT. |
| FILL AREA | 0 SQ. FT. | FILL AREA | 6 SQ. FT. |

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 283 CU. YD. | CUT VOLUME | 37 CU. YD. |
| FILL VOLUME | 0 CU. YD. | FILL VOLUME | 108 CU. YD. |

HWY. 56
STA. 111+00 TO STA. 113+00

MM41715 5/16/2023
R050423.DGN

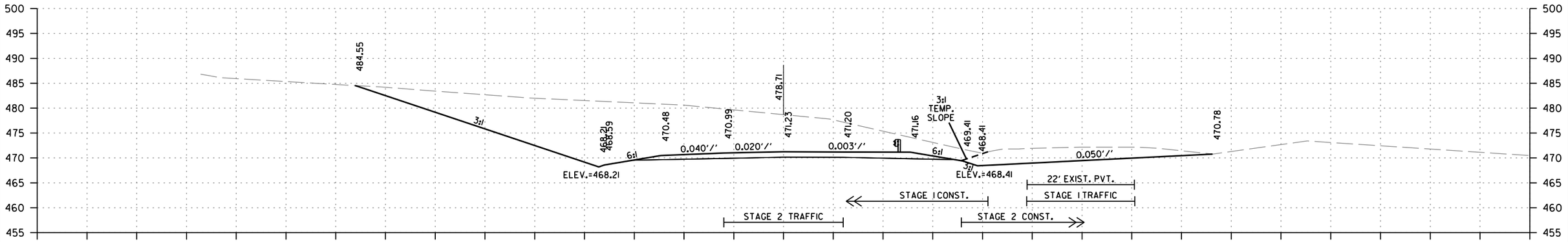
| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 56 | 61 |
| | | CROSS SECTIONS | | | | |




| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 1083 SQ. FT. | CUT AREA | 100 SQ. FT. |
| FILL AREA | 0 SQ. FT. | FILL AREA | 0 SQ. FT. |

116+00

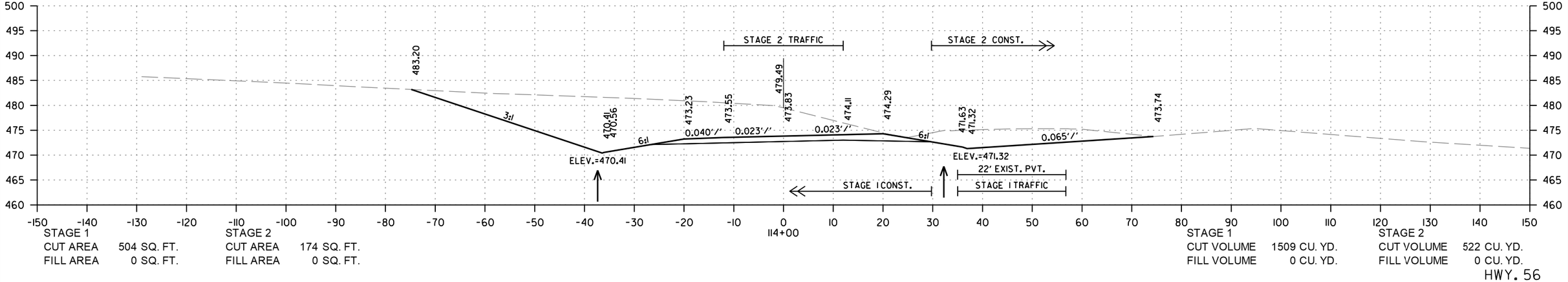
| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 3598 CU. YD. | CUT VOLUME | 389 CU. YD. |
| FILL VOLUME | 0 CU. YD. | FILL VOLUME | 0 CU. YD. |




| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 860 SQ. FT. | CUT AREA | 110 SQ. FT. |
| FILL AREA | 0 SQ. FT. | FILL AREA | 0 SQ. FT. |

115+00

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 2526 CU. YD. | CUT VOLUME | 526 CU. YD. |
| FILL VOLUME | 0 CU. YD. | FILL VOLUME | 0 CU. YD. |




| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT AREA | 504 SQ. FT. | CUT AREA | 174 SQ. FT. |
| FILL AREA | 0 SQ. FT. | FILL AREA | 0 SQ. FT. |

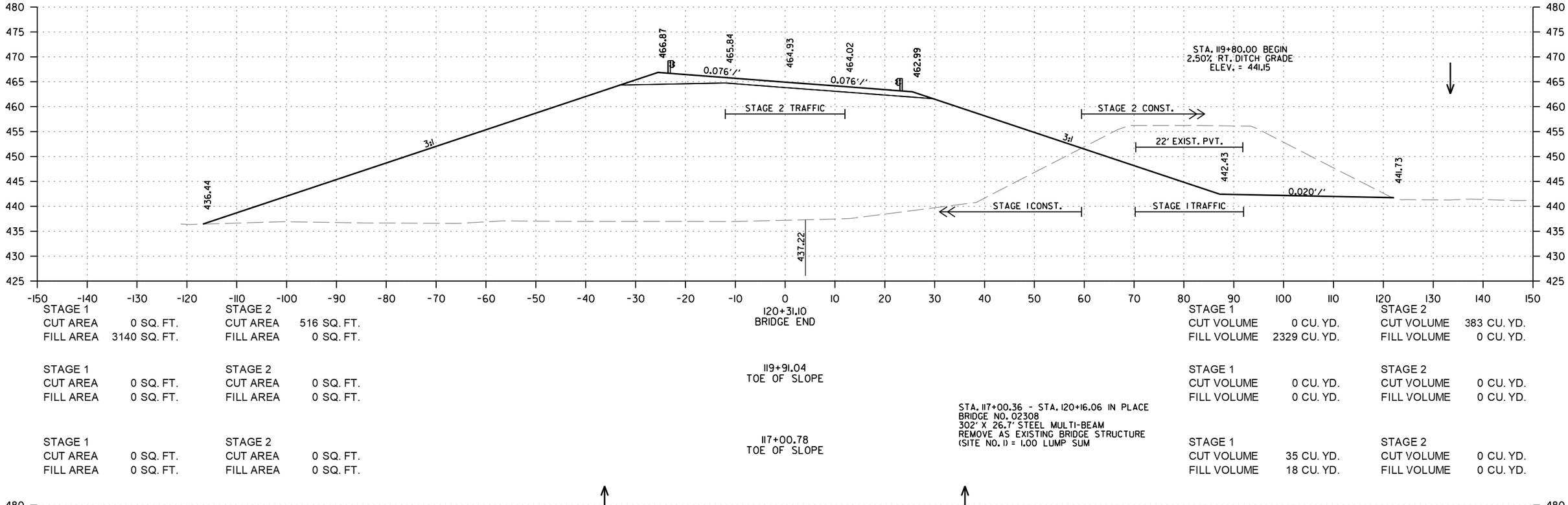
114+00

| STAGE 1 | | STAGE 2 | |
|---|---|---|---|
| CUT VOLUME | 1509 CU. YD. | CUT VOLUME | 522 CU. YD. |
| FILL VOLUME | 0 CU. YD. | FILL VOLUME | 0 CU. YD. |

HWY. 56
STA. 114+00 TO STA. 116+00

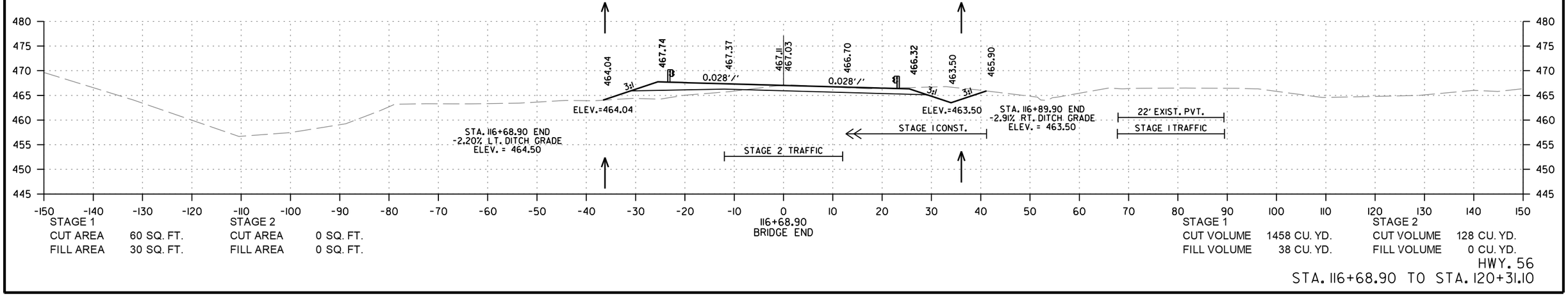
MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 57 | 61 |
| | | CROSS SECTIONS | | | | |




| STAGE 1 | | STAGE 2 | | 120+31.10 BRIDGE END | STAGE 1 | | STAGE 2 | |
|---|---|---|---|---|---|---|---|---|
| CUT AREA | 0 SQ. FT. | CUT AREA | 516 SQ. FT. | | CUT VOLUME | 0 CU. YD. | CUT VOLUME | 383 CU. YD. |
| FILL AREA | 3140 SQ. FT. | FILL AREA | 0 SQ. FT. | | FILL VOLUME | 2329 CU. YD. | FILL VOLUME | 0 CU. YD. |
| STAGE 1 | | STAGE 2 | | 119+91.04 TOE OF SLOPE | STAGE 1 | | STAGE 2 | |
| CUT AREA | 0 SQ. FT. | CUT AREA | 0 SQ. FT. | | CUT VOLUME | 0 CU. YD. | CUT VOLUME | 0 CU. YD. |
| FILL AREA | 0 SQ. FT. | FILL AREA | 0 SQ. FT. | | FILL VOLUME | 0 CU. YD. | FILL VOLUME | 0 CU. YD. |
| STAGE 1 | | STAGE 2 | | 117+00.78 TOE OF SLOPE | STAGE 1 | | STAGE 2 | |
| CUT AREA | 0 SQ. FT. | CUT AREA | 0 SQ. FT. | | CUT VOLUME | 35 CU. YD. | CUT VOLUME | 0 CU. YD. |
| FILL AREA | 0 SQ. FT. | FILL AREA | 0 SQ. FT. | | FILL VOLUME | 18 CU. YD. | FILL VOLUME | 0 CU. YD. |

STA. 117+00.36 - STA. 120+16.06 IN PLACE
BRIDGE NO. 02308
302' X 26.7' STEEL MULTI-BEAM
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 1) = 1.00 LUMP SUM

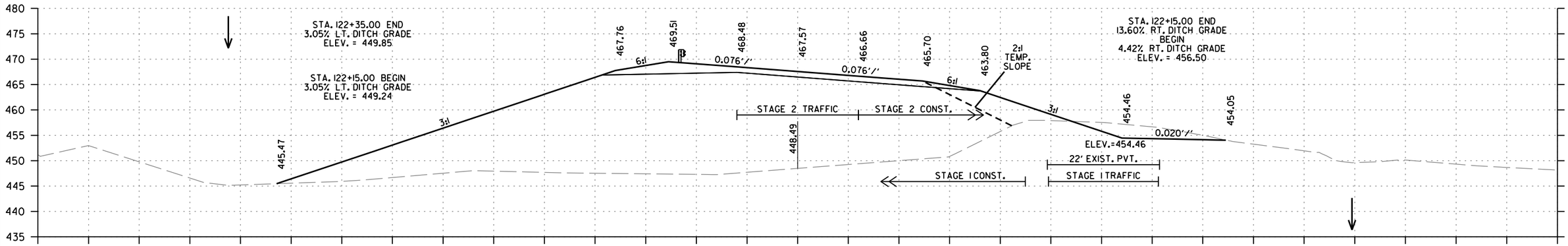


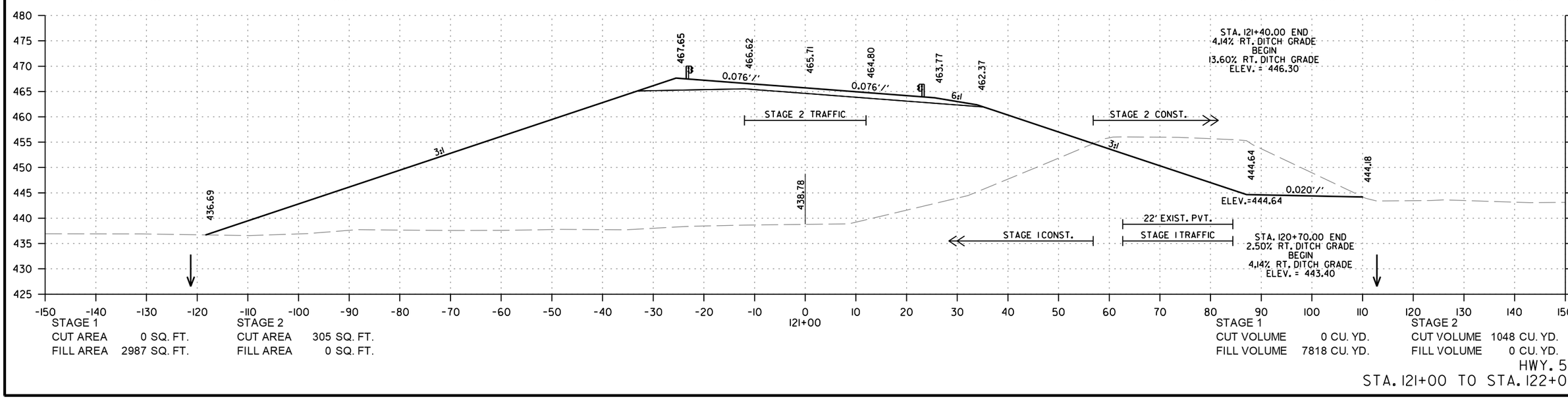

| STAGE 1 | | STAGE 2 | | 116+68.90 BRIDGE END | STAGE 1 | | STAGE 2 | |
|---|---|---|---|---|---|---|---|---|
| CUT AREA | 60 SQ. FT. | CUT AREA | 0 SQ. FT. | | CUT VOLUME | 1458 CU. YD. | CUT VOLUME | 128 CU. YD. |
| FILL AREA | 30 SQ. FT. | FILL AREA | 0 SQ. FT. | | FILL VOLUME | 38 CU. YD. | FILL VOLUME | 0 CU. YD. |

HWY. 56
STA. 116+68.90 TO STA. 120+31.10

MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 58 | 61 |
| | | CROSS SECTIONS | | | | |

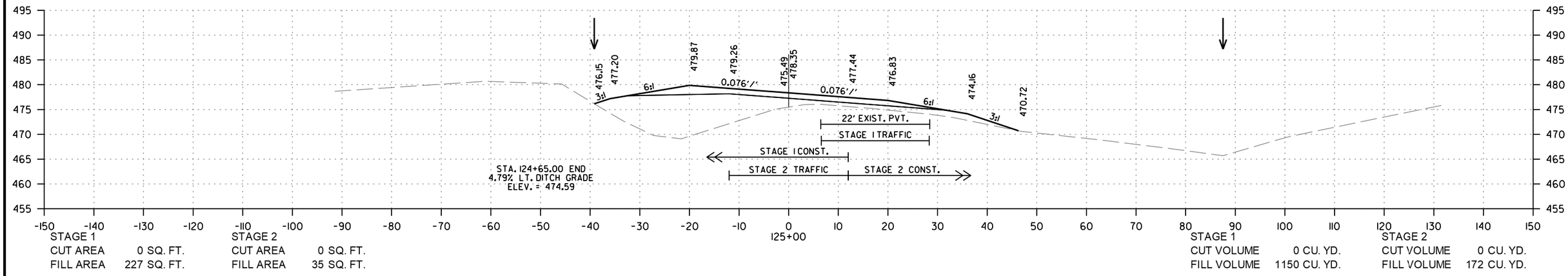



HWY. 56
STA. 121+00 TO STA. 122+00

MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 59 | 61 |
| | | CROSS SECTIONS | | | | |

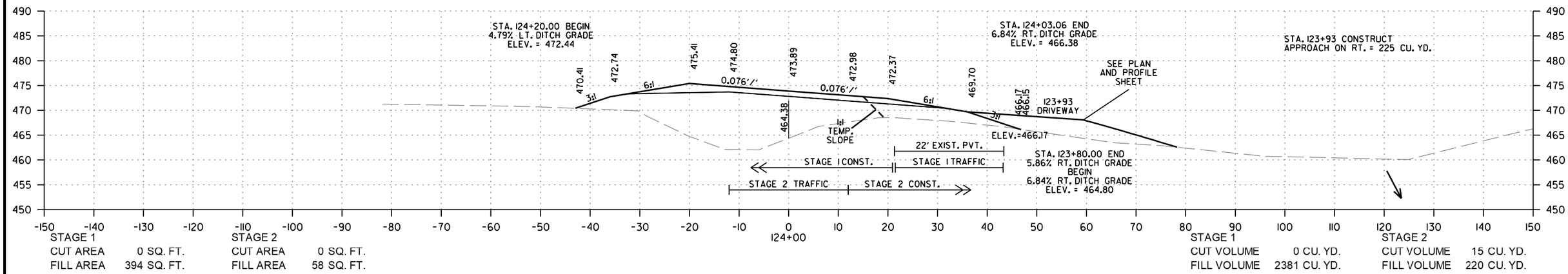



STAGE 1
CUT AREA 0 SQ. FT.
FILL AREA 227 SQ. FT.

STAGE 2
CUT AREA 0 SQ. FT.
FILL AREA 35 SQ. FT.

STAGE 1
CUT VOLUME 0 CU. YD.
FILL VOLUME 1150 CU. YD.

STAGE 2
CUT VOLUME 0 CU. YD.
FILL VOLUME 172 CU. YD.

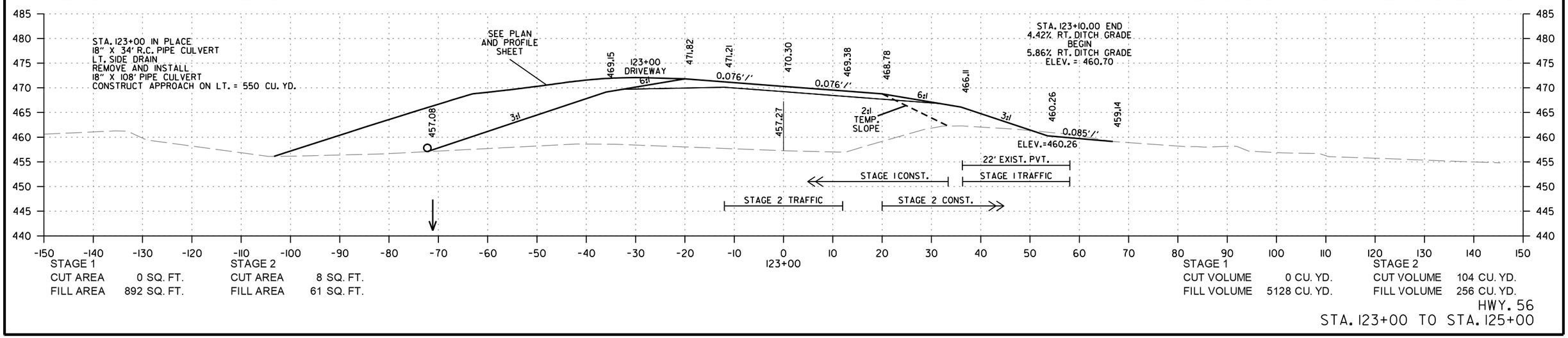



STAGE 1
CUT AREA 0 SQ. FT.
FILL AREA 394 SQ. FT.

STAGE 2
CUT AREA 0 SQ. FT.
FILL AREA 58 SQ. FT.

STAGE 1
CUT VOLUME 0 CU. YD.
FILL VOLUME 2381 CU. YD.

STAGE 2
CUT VOLUME 15 CU. YD.
FILL VOLUME 220 CU. YD.




STAGE 1
CUT AREA 0 SQ. FT.
FILL AREA 892 SQ. FT.

STAGE 2
CUT AREA 8 SQ. FT.
FILL AREA 61 SQ. FT.

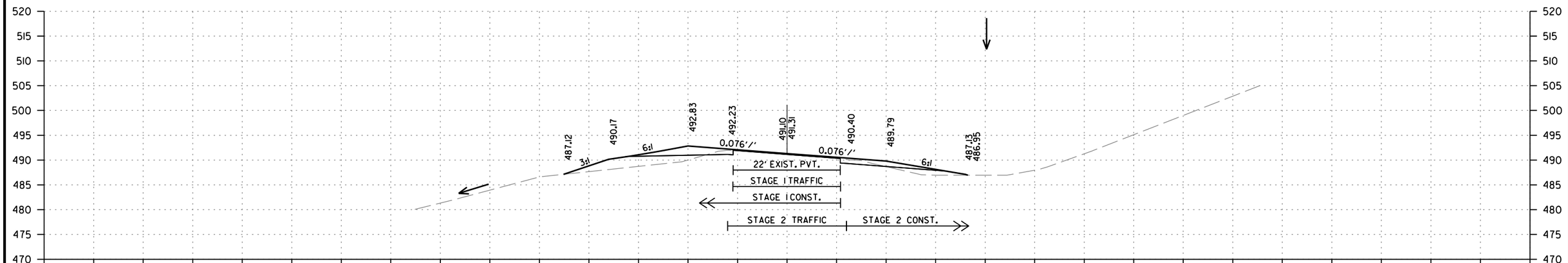
STAGE 1
CUT VOLUME 0 CU. YD.
FILL VOLUME 5128 CU. YD.

STAGE 2
CUT VOLUME 104 CU. YD.
FILL VOLUME 256 CU. YD.

HWY. 56
STA. 123+00 TO STA. 125+00

MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 60 | 61 |
| | | CROSS SECTIONS | | | | |



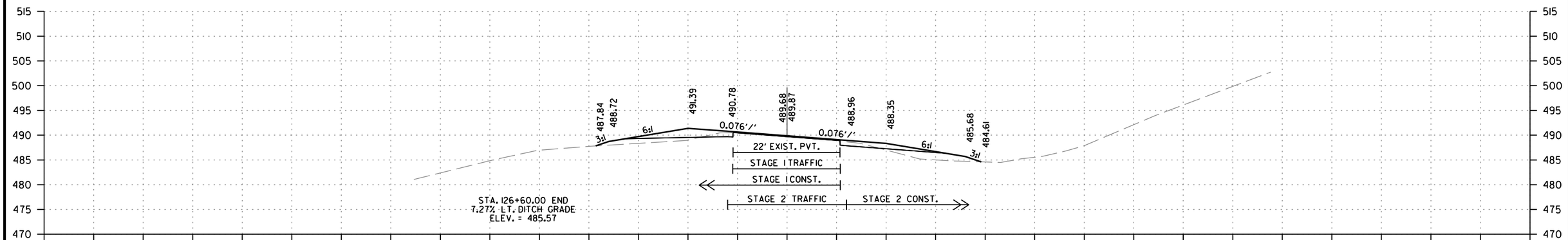

STAGE 1
CUT AREA 3 SQ. FT.
FILL AREA 40 SQ. FT.

STAGE 2
CUT AREA 5 SQ. FT.
FILL AREA 11 SQ. FT.

127+22.09
END JOB 050423
BEGIN 100' TRANSITION

STAGE 1
CUT VOLUME 3 CU. YD.
FILL VOLUME 22 CU. YD.

STAGE 2
CUT VOLUME 4 CU. YD.
FILL VOLUME 13 CU. YD.



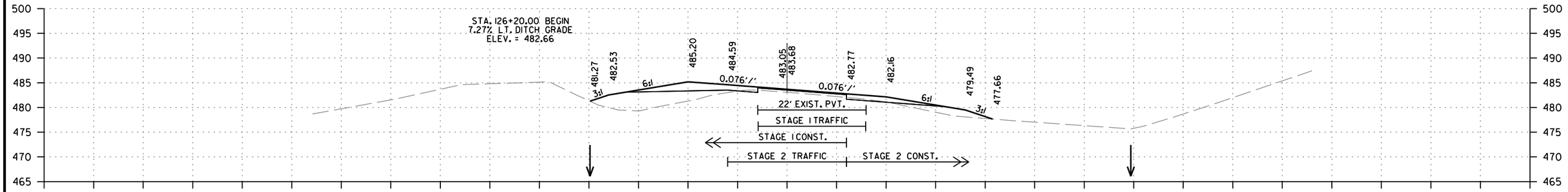

STAGE 1
CUT AREA 4 SQ. FT.
FILL AREA 15 SQ. FT.

STAGE 2
CUT AREA 5 SQ. FT.
FILL AREA 21 SQ. FT.

127+00

STAGE 1
CUT VOLUME 9 CU. YD.
FILL VOLUME 148 CU. YD.

STAGE 2
CUT VOLUME 13 CU. YD.
FILL VOLUME 74 CU. YD.




STAGE 1
CUT AREA 1 SQ. FT.
FILL AREA 65 SQ. FT.

STAGE 2
CUT AREA 2 SQ. FT.
FILL AREA 19 SQ. FT.

126+00

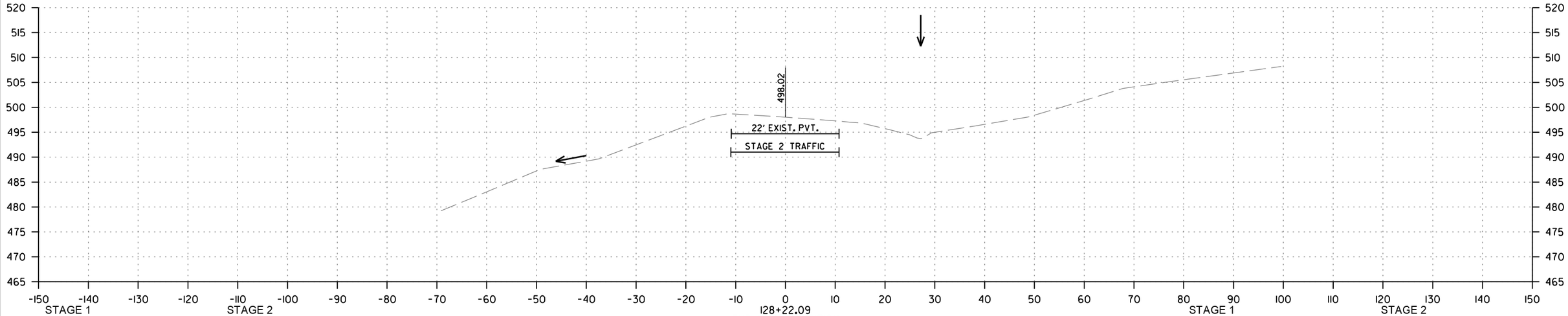
STAGE 1
CUT VOLUME 2 CU. YD.
FILL VOLUME 541 CU. YD.

STAGE 2
CUT VOLUME 4 CU. YD.
FILL VOLUME 100 CU. YD.

HWY. 56
STA. 126+00 TO STA. 127+22.09

MM41715 5/16/2023
R050423.DGN

| DATE REVISED | DATE REVISED | FED.RD. DIST.NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | 6 | ARK. | 050423 | 61 | 61 |
| | | CROSS SECTIONS | | | | |



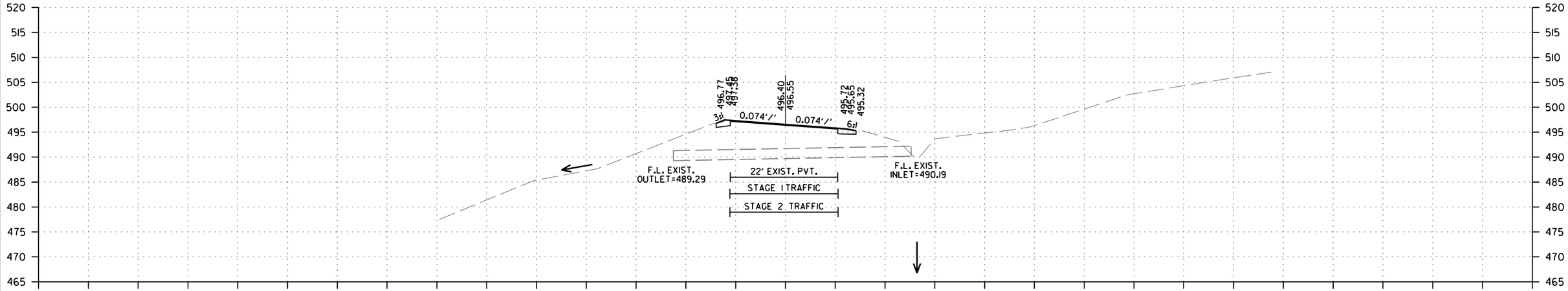

STAGE 1
CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.

STAGE 2
CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.

128+22.09
END 100' TRANSITION

STAGE 1
CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD.

STAGE 2
CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD.




STAGE 1
CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.

STAGE 2
CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.

128+00

STAGE 1
CUT VOLUME 4 CU. YD.
FILL VOLUME 58 CU. YD.

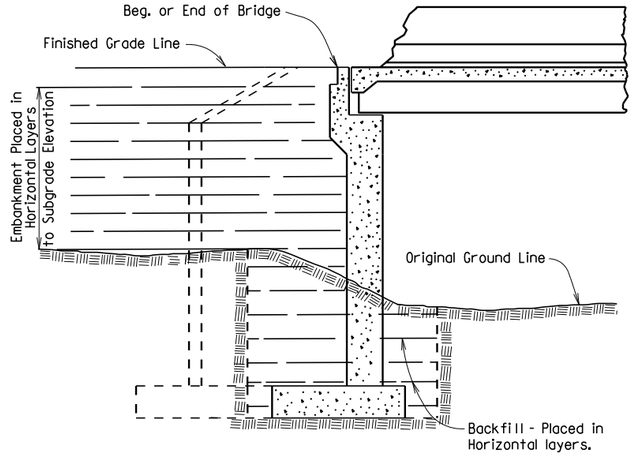
STAGE 2
CUT VOLUME 7 CU. YD.
FILL VOLUME 16 CU. YD.

HWY. 56
STA. 128+00 TO STA. 128+22.09

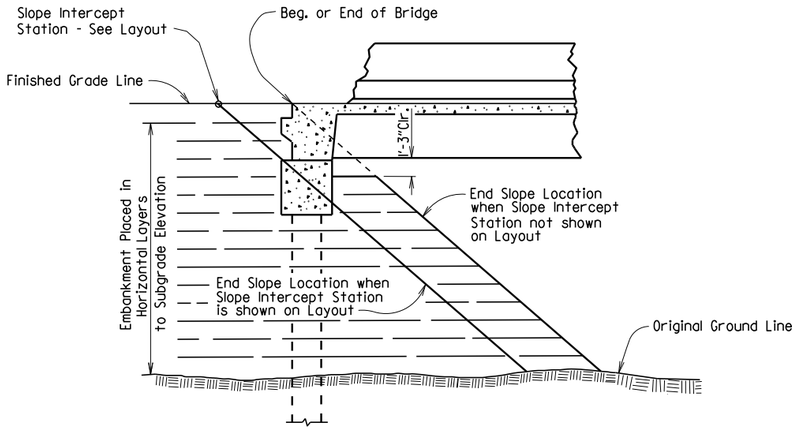
MM41715 5/16/2023
R050423.DGN

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

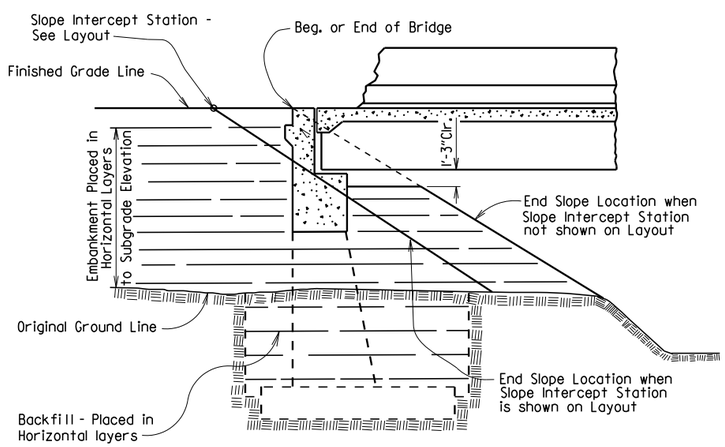
1 EMBANKMENT & BACKFILL 55000



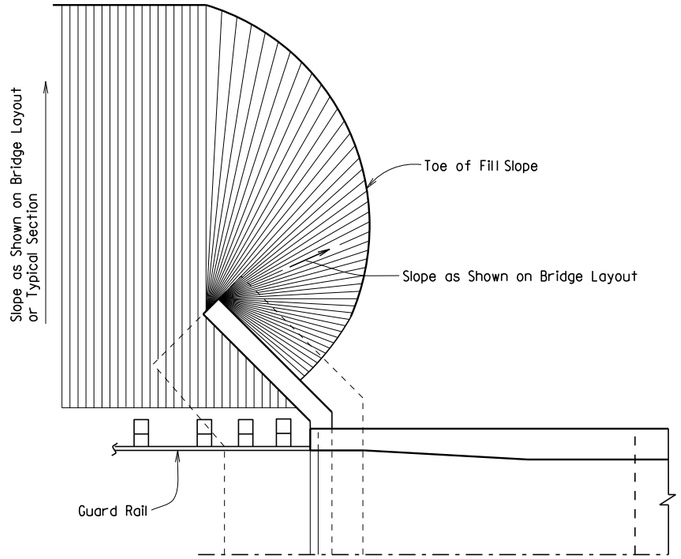

EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



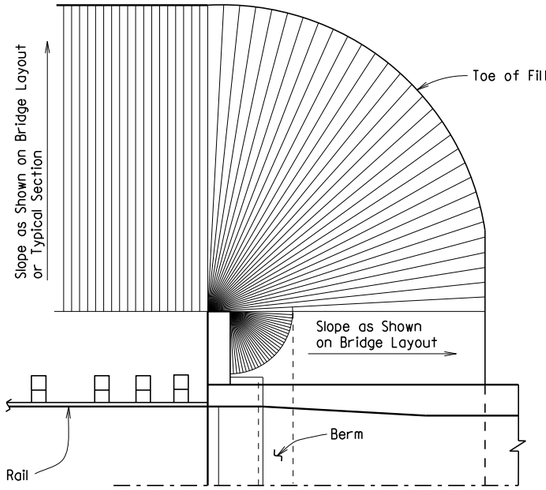

EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



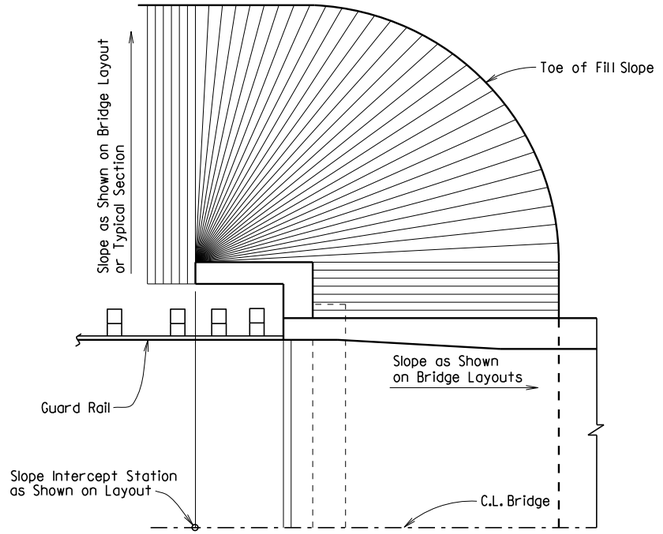

EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



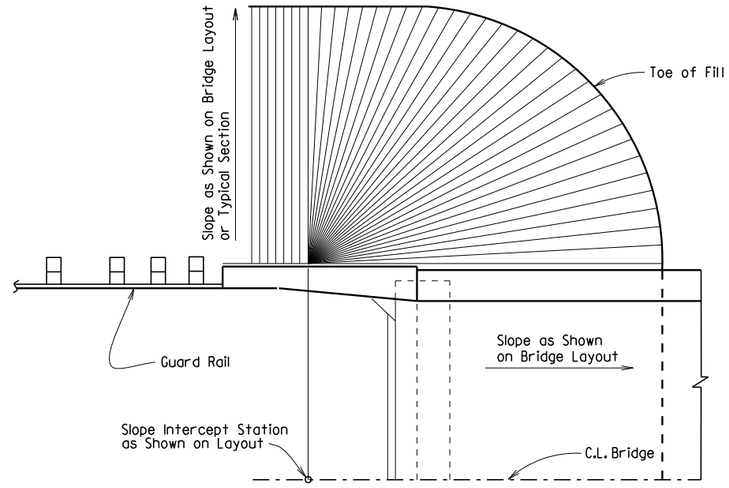

VERTICAL WALL ABUTMENTS




SPILL-THROUGH END BENTS WITH STUB WING




SPILL-THROUGH END BENTS WITH TURNBACK WING




SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

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

# STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

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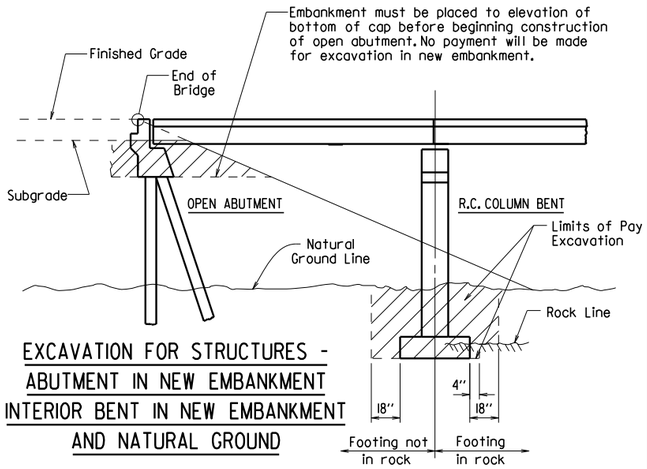
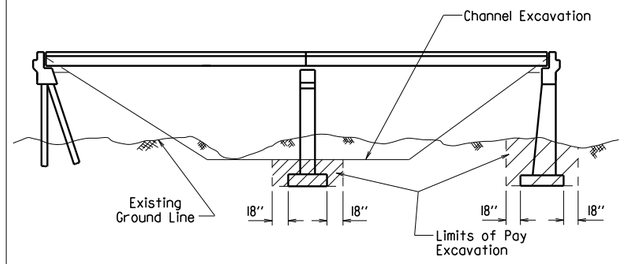
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | | | |

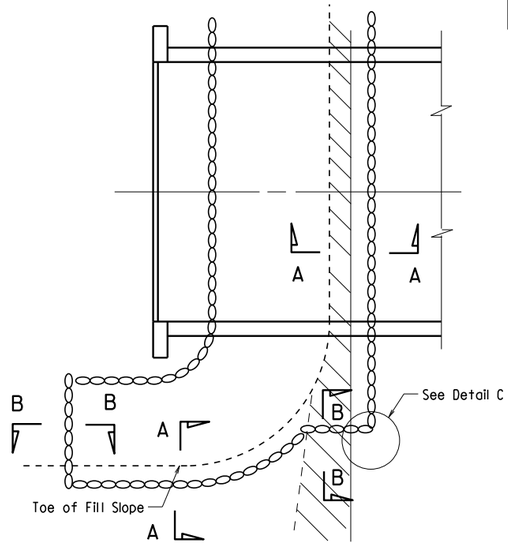
1 RIPRAP & EXCAV. 55001



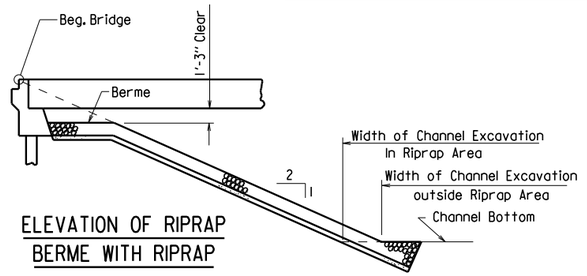

EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



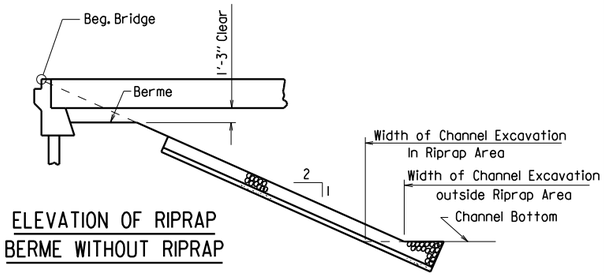

EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



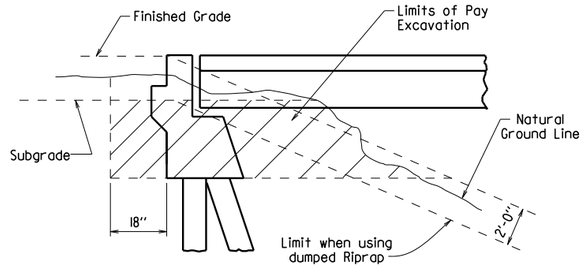

PLAN OF DUMPED RIPRAP



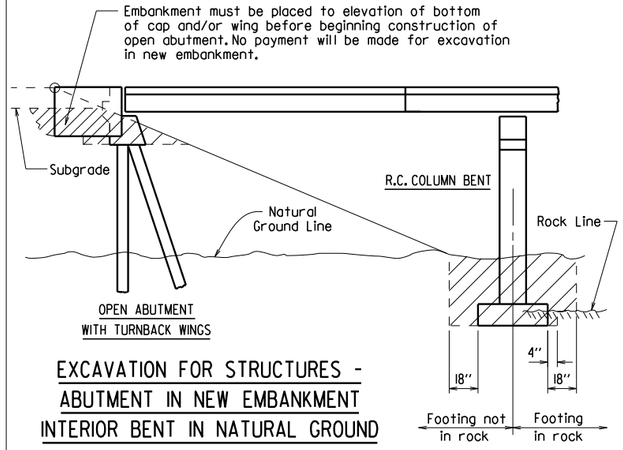

ELEVATION OF RIPRAP BERME WITH RIPRAP



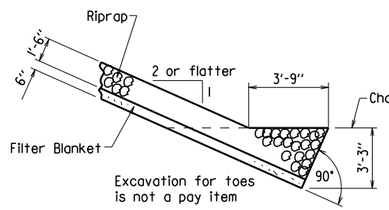

ELEVATION OF RIPRAP BERME WITHOUT RIPRAP




EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND




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

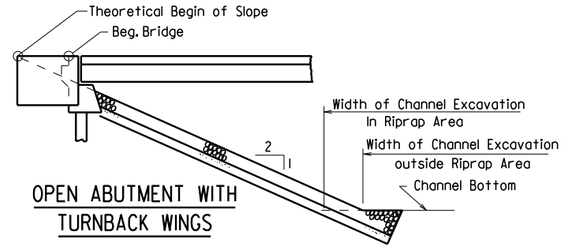



SECTION A-A

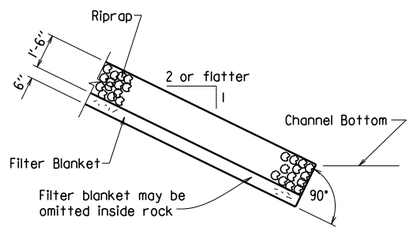
(Toe Excavation in Soil)




SECTION B-B




OPEN ABUTMENT WITH TURNBACK WINGS



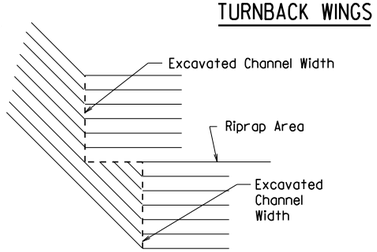

SECTION A-A

(Toe Excavation in Rock)

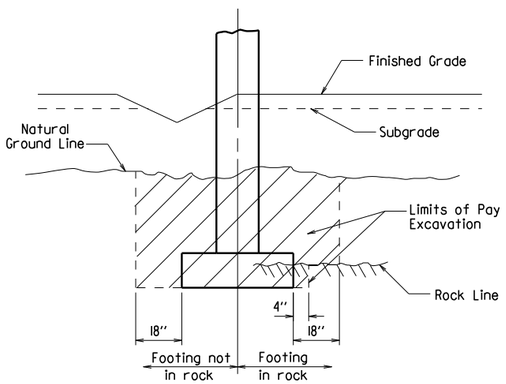
Note : Use this type of toe when rock is encountered which is in a stable condition.

Note : In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

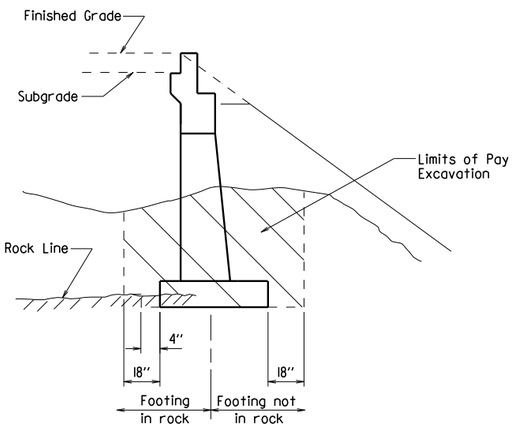
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.




DETAIL C




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




EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

# STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

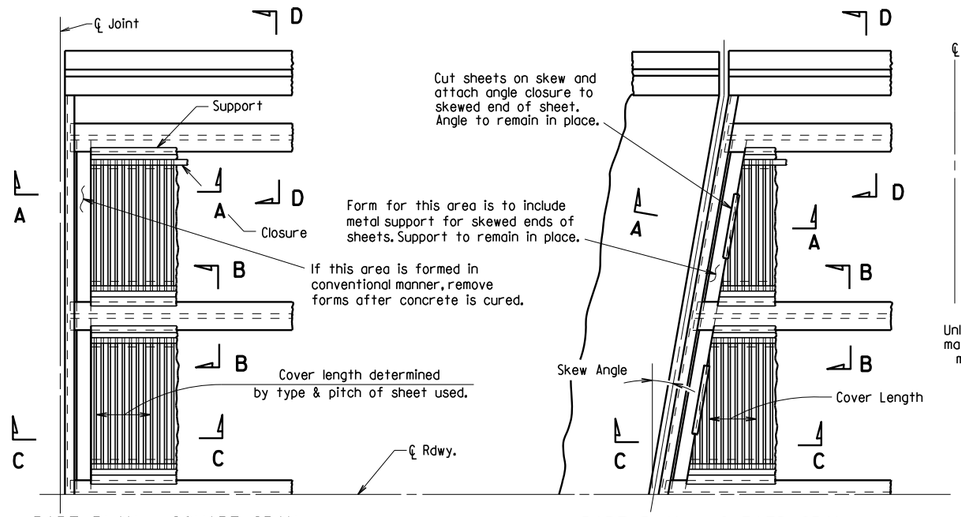
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b5500l.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 3/24/16 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | | | |
| | | | | ① | BRIDGE DECK FORMS | | 55005 | |



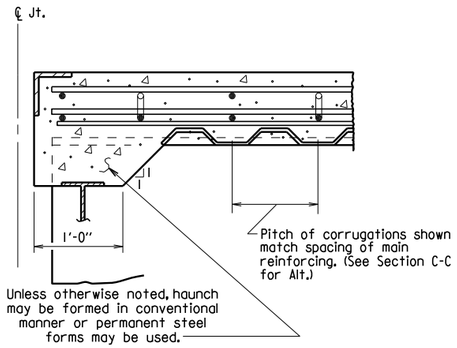

## PART PLAN - SQUARE SPAN

3/8" = 1'-0"



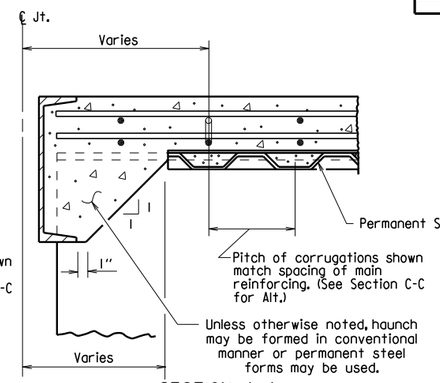

## PART PLAN - SKEWED SPAN

3/8" = 1'-0"



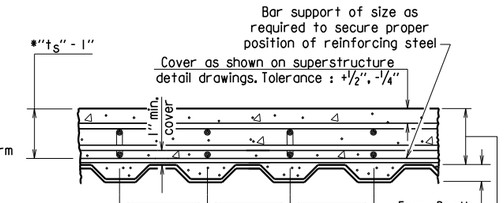

## SECTION A-A

N.T.S.
(Angle at end of span)



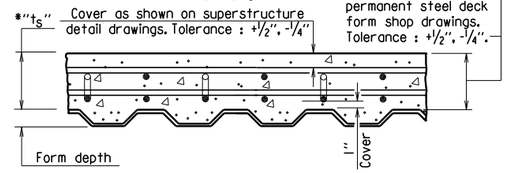

## SECTION A-A

N.T.S.
(Channel at end of span)



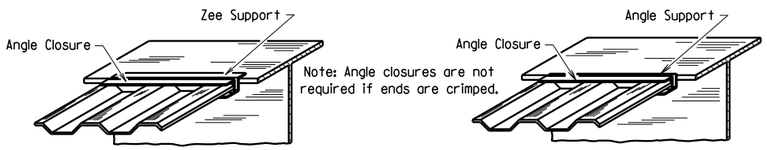

## SECTION C-C

1" = 1'-0"




## SECTION C-C - ALTERNATE

1" = 1'-0"
(Applicable when corrugations do not match spacing of main reinforcement)




## SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

*$t_s$ = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

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

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

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

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

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

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

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

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




## SECTION B-B

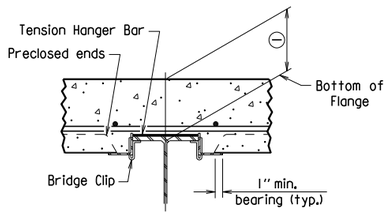
1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

③ ⚠ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



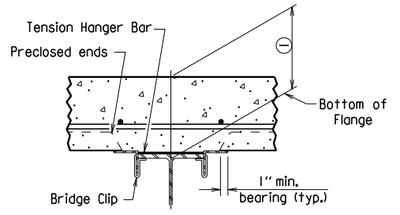

## SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



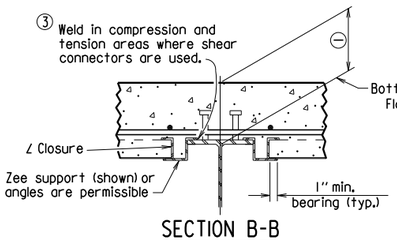

## SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



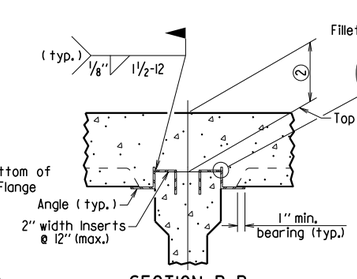

## SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



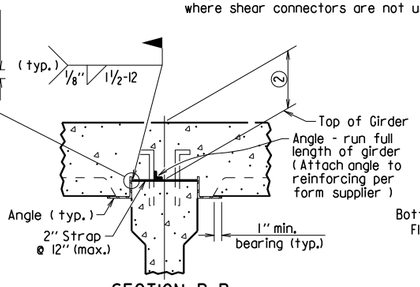

## SECTION B-B

1" = 1'-0"
(Showing ∠ Closure)



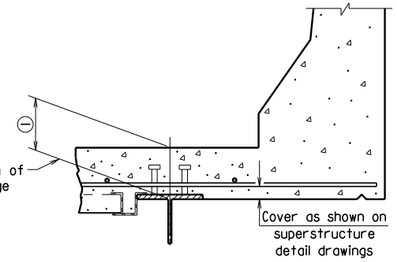

## SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Insert cast in girder)




## SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Strap)




## SECTION D-D

1" = 1'-0"
Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = $t_S$ + 1 3/4" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

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

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

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

## ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

DRAWING NO. 55005

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | | | |
| | | | | ① | | GENERAL NOTES | | 55006 |

# 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) | fy = | 60,000 psi |
| Structural Steel (AASHTO M 270, Gr. 36) | Fy = | 36,000 psi |
| Structural Steel (AASHTO M 270, Gr. 50) | Fy = | 50,000 psi |
| Structural Steel (AASHTO M 270, Gr. 50W) | Fy = | 50,000 psi |
| Structural Steel (AASHTO M 270, Gr. HPS70W) | Fy = | 70,000 psi |

See Plan Details for Grade(s) 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 ¾" 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 tine 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 rail supports to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. All welding shall conform to Subsection 807.26.

Unless otherwise noted, field connections shall be bolted with ¾" ø high-strength bolts using 13/16 " ø open holes. Holes for ¾" ø high-strength bolts may be 15/16 " ø if a washer is supplied for use under both the nut and head of the bolt. 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 ¼" +/- 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 ¼" +/- 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 ¾" 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.

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

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

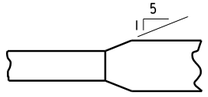
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 9-2-2015 FILENAME: b55006.dgn
CHECKED BY: B.E.F. DATE: 9-2-2015 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 55006

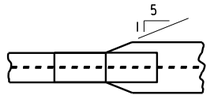
PRINT DATE: 11/7/2019

| 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. | | | | |
| | | | | ① | STEEL BRIDGE STRUCTURES 55007 | | | |

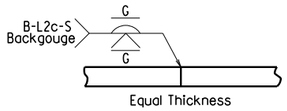



Plan-Unequal Width ( Flg.)

FLANGE SPLICE

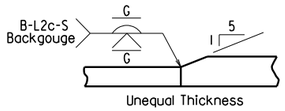



## FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS




Equal Thickness

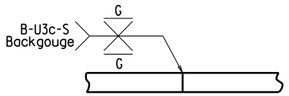
WEB & FLANGE SPLICE




Unequal Thickness

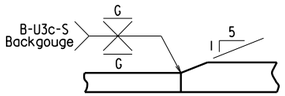
FLANGE SPLICE

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




Equal Thickness

WEB & FLANGE SPLICE

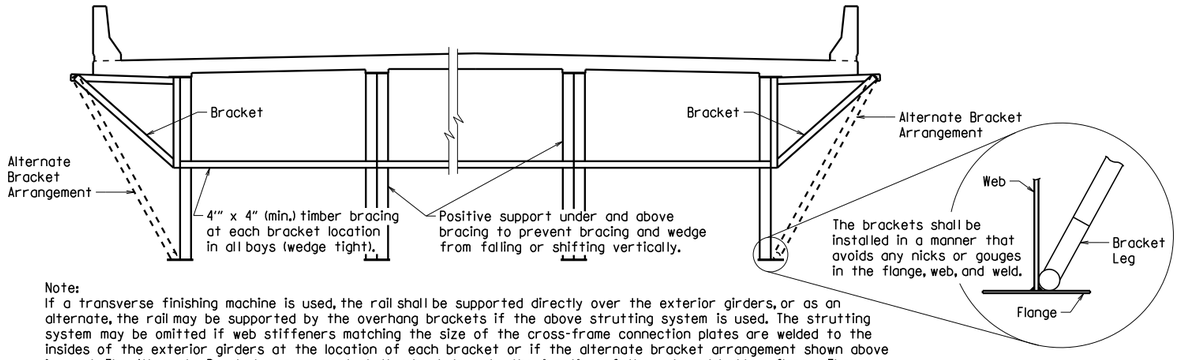



Unequal Thickness

FLANGE SPLICE

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

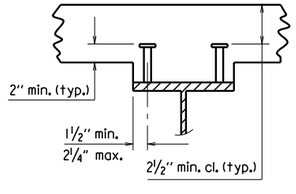
## DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



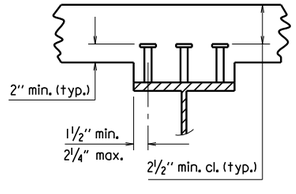

Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the 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)



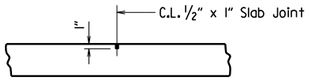

2 STUDS PER ROW




3 STUDS PER ROW

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

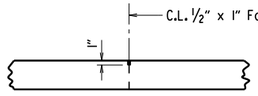
## SHEAR CONNECTOR DETAIL




Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of the parapet. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline.

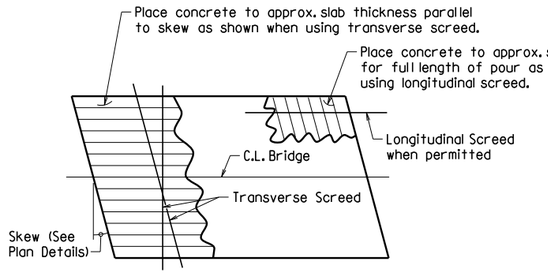
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and acrosss the top of the sidwalk 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



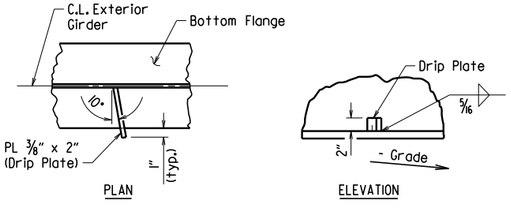

Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

## 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




PLAN

ELEVATION

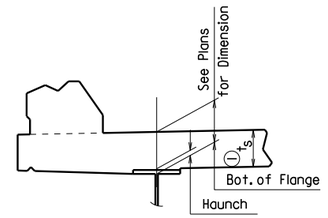
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

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

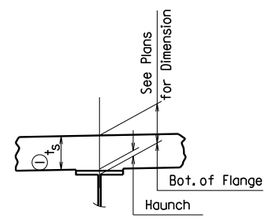
## BOTTOM FLANGE DRIP PLATE

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

$t_s$ = slab thickness. See "Typical Roadway Section" in the plans.




EXTERIOR BEAM OR GIRDER




INTERIOR BEAM OR GIRDER

① Tolerance when removable deck forming is used is + ½", - ¼". 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 1¾" 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 ¾" Inclusive | ¼" | |
| Over ¾" | ⅝" | |

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.

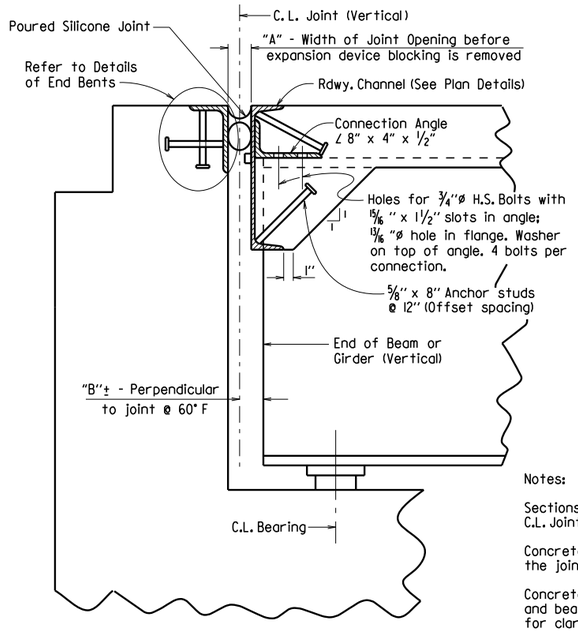
DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55007.dgn

CHECKED BY: AMS DATE: 2/11/2016 SCALE: No Scale

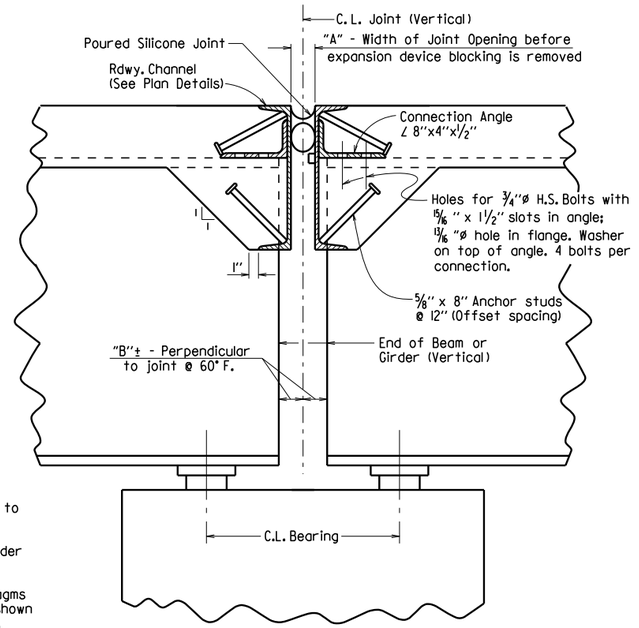
DESIGNED BY: STD. DATE: —

DRAWING NO. 55007

| 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 | POURED SILICONE JOINT | | | 55008 |




## SECTION THRU JOINT AT END BENT



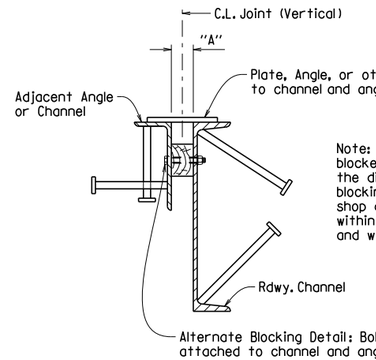

## SECTION THRU JOINT AT INTERMEDIATE BENT

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.




Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

## DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

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

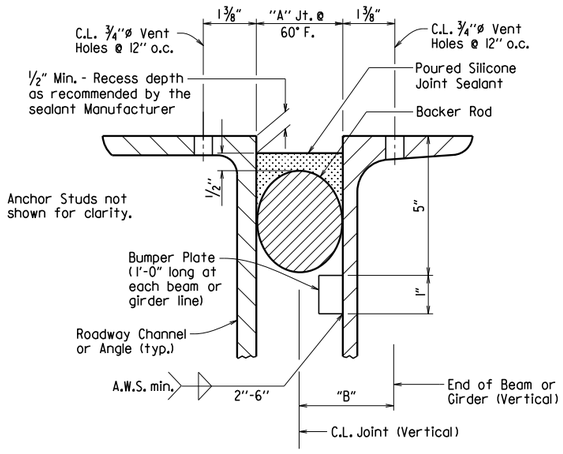
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior 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.



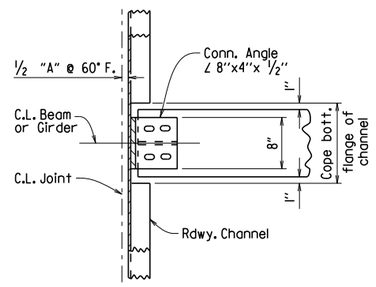

## DETAIL OF POURED SILICONE JOINT

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.

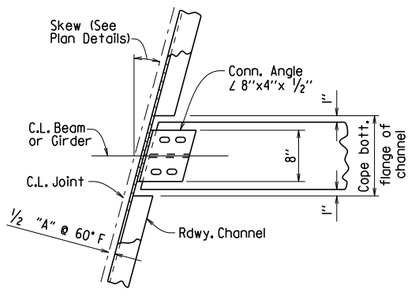
The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.

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.



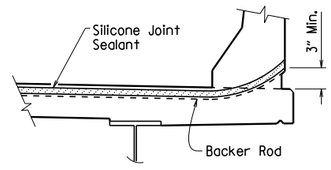

## CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW

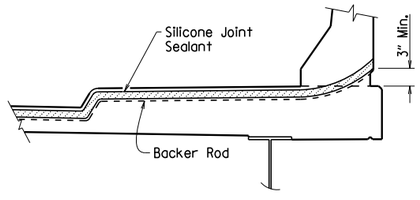



## CHANNEL CONNECTION DETAIL

BENTS WITH SKEW




## JOINT SEAL PLACEMENT AT RAIL




## JOINT SEAL PLACEMENT AT SIDEWALK

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

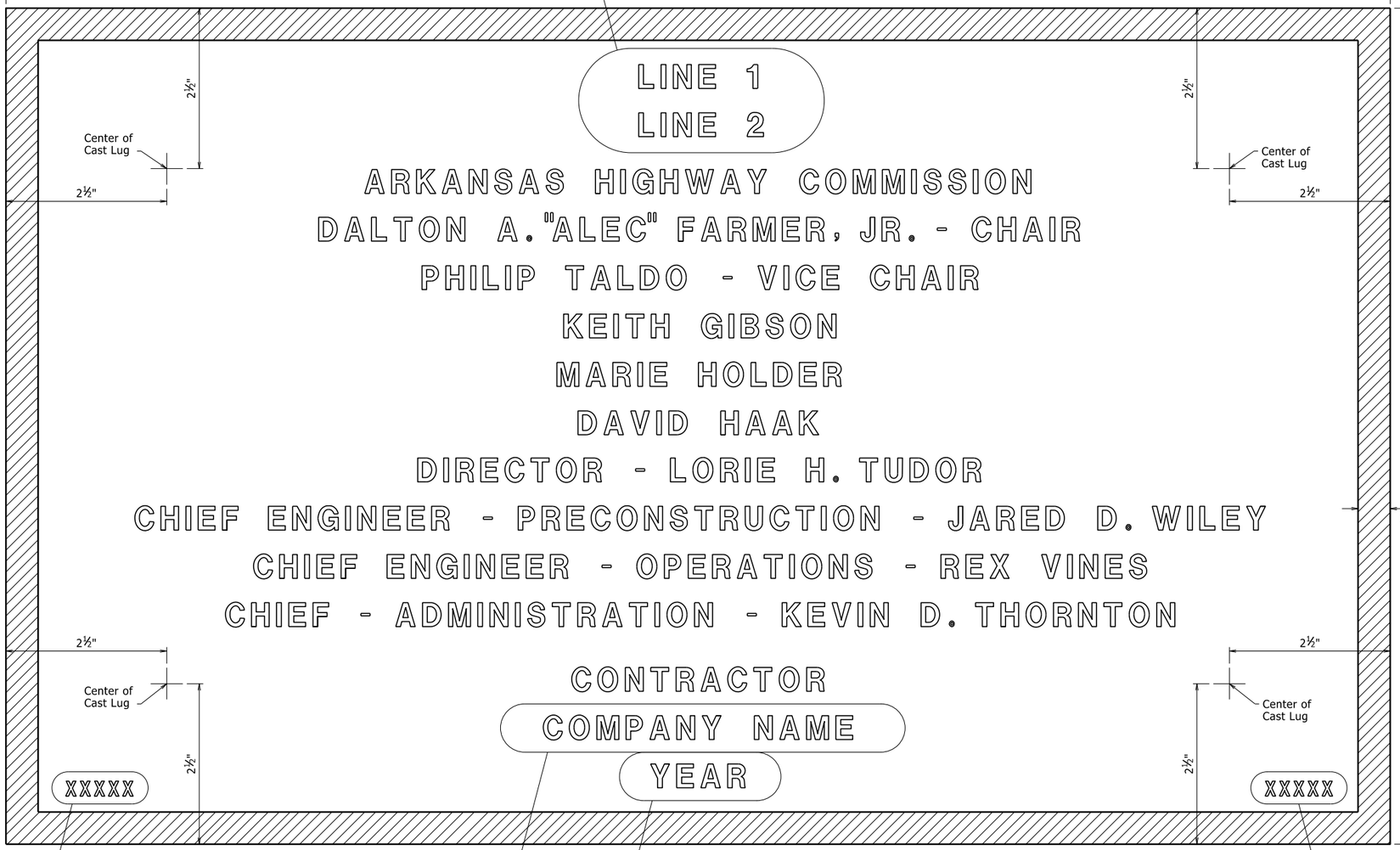
DESIGNED BY: STD. DATE: —

DRAWING NO. 55008

| DATE REVISED | DATE REVISED | FED. RD. DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| 4-14-23 | | 6 | ARK. | | | |
| | | TYPE D NAME PLATE - 55010 | | | | |

The name of the bridge as shown on the plans shall be placed on Lines 1 & 2 using ⅛" raised letters and numerals ⅜" high.

| | Example 1 | Example 2 | Example 3 | Example 4 |
|---|---|---|---|---|
| Line 1 | RED RIVER | SOUTHERN RAILROAD | SALINE RIVER | HIGHWAY 5 |
| Line 2 | RELIEF | OVERPASS | RELIEF | |



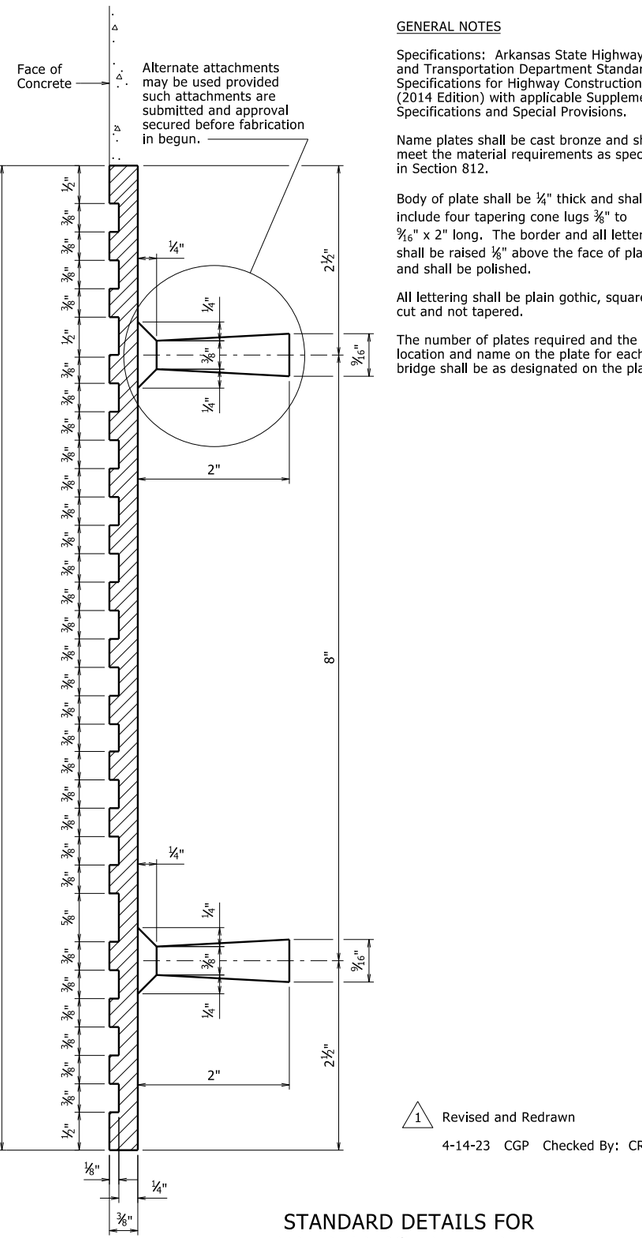

Place the design live loading here using ⅛" raised letters and numerals ¼" high. Examples: HS20, HL-93

Place the Year in which Contract was awarded here using ⅛" raised numerals ⅜" high. Example: 2001

Place the name of the company awarded the construction contract here using ⅛" raised letters and numerals ⅜" high. Example: ABCD CONSTRUCTION, INC.

Place the Bridge number here using ⅛" raised letters and numerals ¼" high. Examples: A1234, 05432

TYPICAL BRIDGE NAME PLATE




GENERAL NOTES

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

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

Body of plate shall be ¼" thick and shall include four tapering cone lugs ⅜" to 9/16" x 2" long. The border and all lettering shall be raised ⅛" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

1 Revised and Redrawn
4-14-23 CGP Checked By: CRE

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

DRAWING NO. 55010

PRINT DATE: 4/20/2023

| 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. | | | | |
| | | | | ① | | STEEL H-PILES | | 55020 |

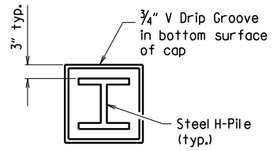
## GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

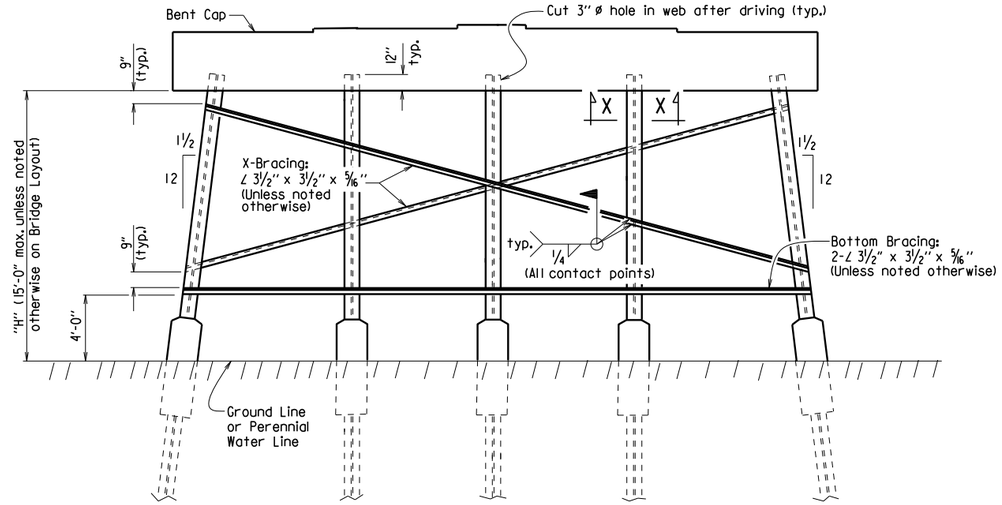
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

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

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




VIEW X-X




Notes:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.

Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.

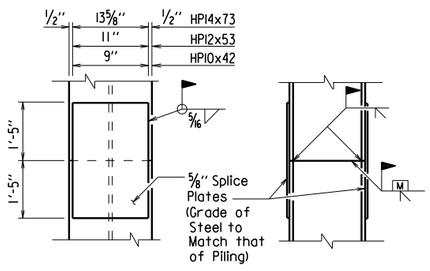
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.

Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

## TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)



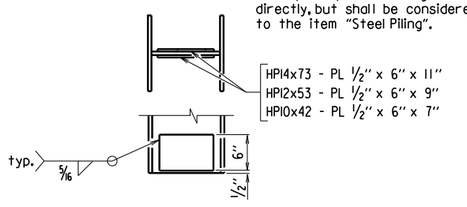

The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

## 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" 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 Specifcations for Highway Construction (2014 Edition).

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".




## REINFORCING DETAIL FOR STEEL H-PILE TIP

## GENERAL NOTES FOR H-PILE ENCASEMENTS:

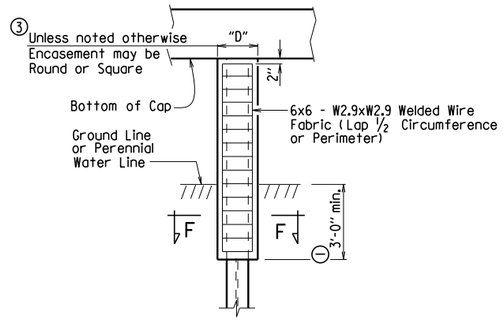
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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.

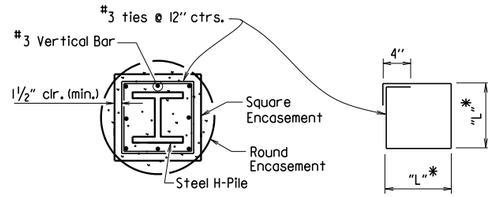
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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

④ (Shown with Encasement to Bottom of Cap)

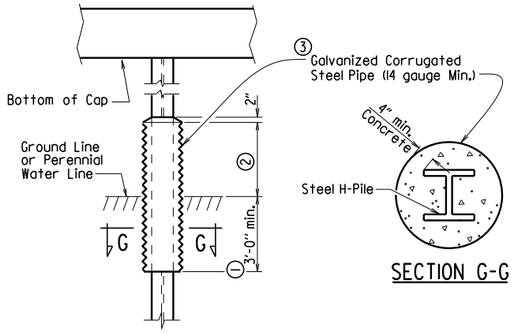



SECTION F-F

*Measured out-to-out of bar.

## TABLE OF VARIABLES FOR PILE ENCASEMENT

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




SECTION G-G

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1½" and a minimum clearance of 1¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

## ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

⚠ 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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

# STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

## ARKANSAS STATE HIGHWAY COMMISSION

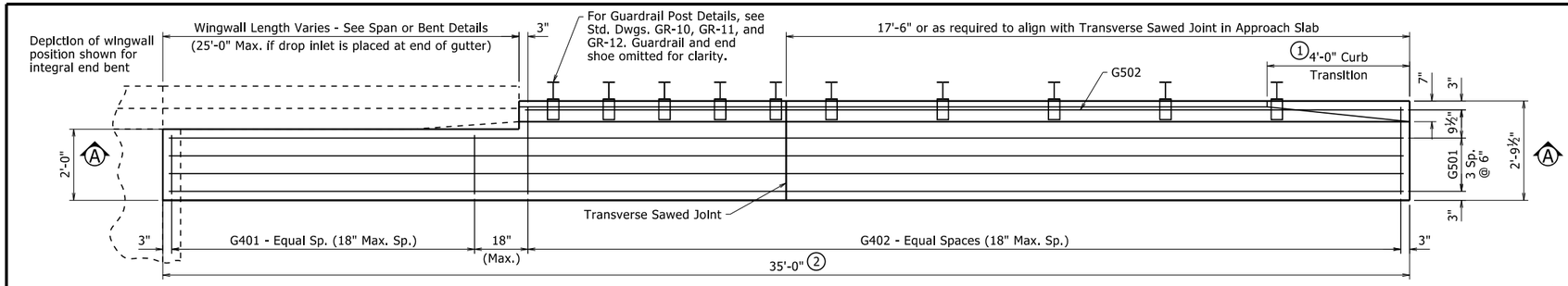
LITTLE ROCK, ARK.

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

DRAWING NO. 55020

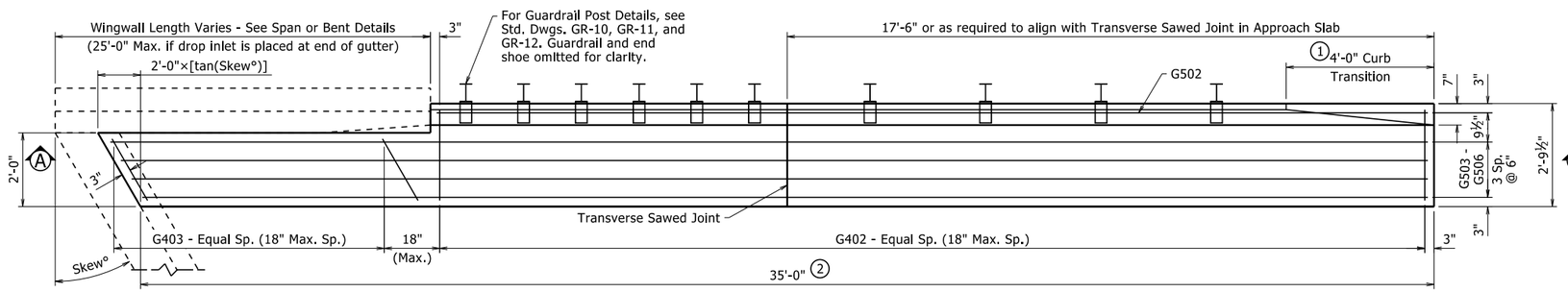
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | | | |

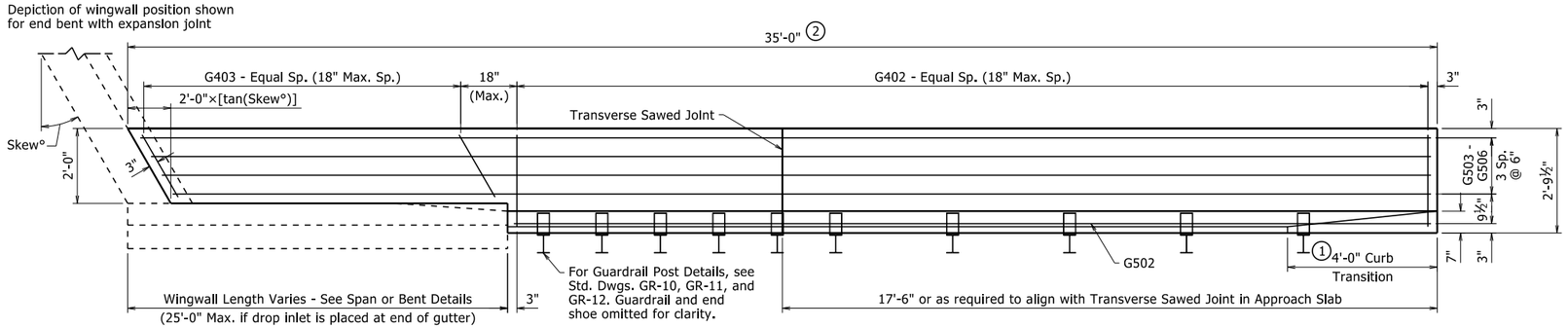
(1) Type F Approach Gutters - 55030F




## HALF PLAN OF APPROACH GUTTERS FOR SQUARE END BENT

½" = 1'-0"




## PLAN OF SKEWED APPROACH GUTTERS FOR SKEWED END BENT

½" = 1'-0"

## QUANTITIES FOR ONE APPROACH GUTTER

(For Information Only)

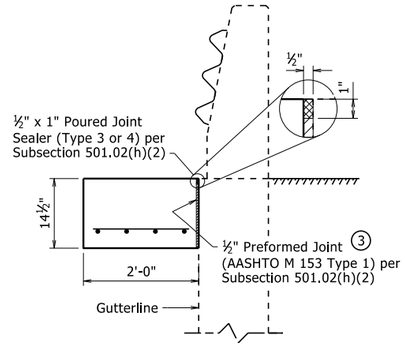
| Reinforcing Steel (Lbs.) | Concrete (Cu. Yds.) |
|---|---|
| 210 | 4.20 |

Quantities are based on one gutter for a square, integral end bent and a wingwall length of 10'-0"

## BAR LIST FOR ONE APPROACH GUTTER

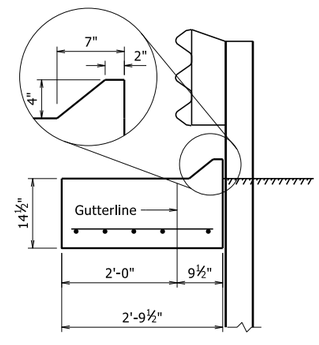
| | Mark | No. Req'd. | Length |
|---|---|---|---|
| Square End Bent | G401 | (4) | 1'-8" |
| | G402 | (4) | 2'-5½" |
| | G501 | 4 | 34'-8" |
| | G502 | 1 | (4) |
| | | | |
| Skewed End Bent | G402 | (4) | 2'-5½" |
| | G403 | (4) | (4) |
| | G502 | 1 | (4) |
| | G503 - G506 | 1 ea. | (4) |

(4) Varies with Skew and/or Wingwall Length



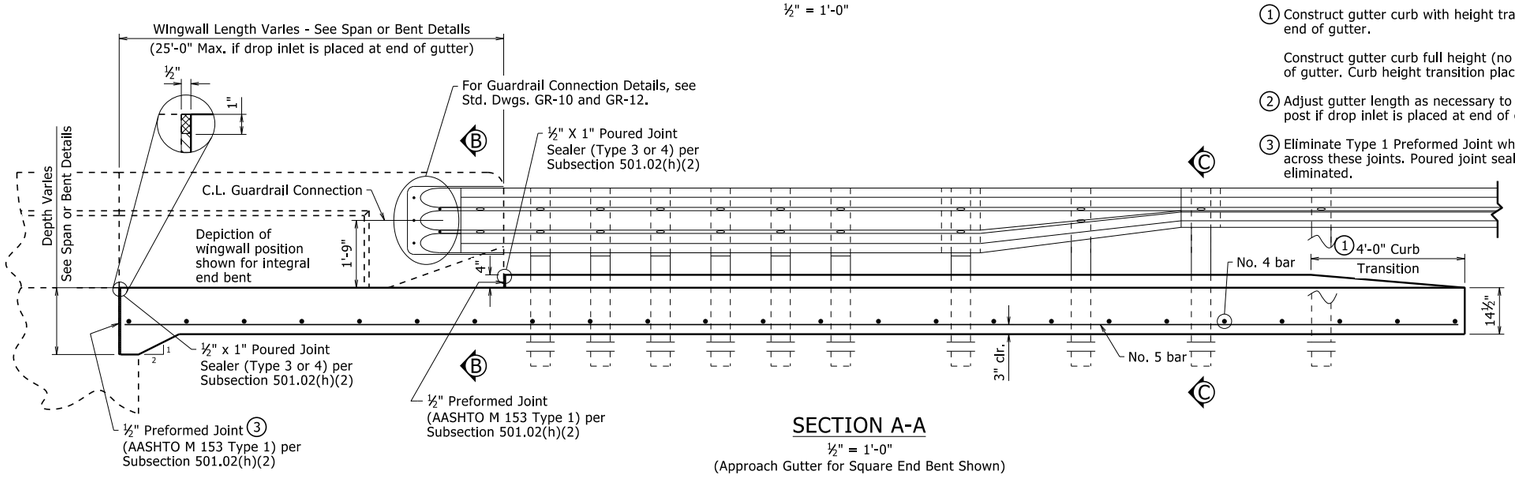

## SECTION B-B

¾" = 1'-0"




## SECTION C-C

¾" = 1'-0"




## SECTION A-A

½" = 1'-0"

(Approach Gutter for Square End Bent Shown)

(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.

(2) Adjust gutter length as necessary to avoid outlet pipe interference with guardrail post if drop inlet is placed at end of gutter.

(3) Eliminate Type 1 Preformed Joint when bridge details show reinforcing dowels across these joints. Poured joint sealer is required, however, backer rod shall be eliminated.

## 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 Gutters will be measured and paid for in accordance with Section 504.

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.

Scales shown are for 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

# STANDARD DETAILS FOR TYPE F APPROACH GUTTERS

## ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

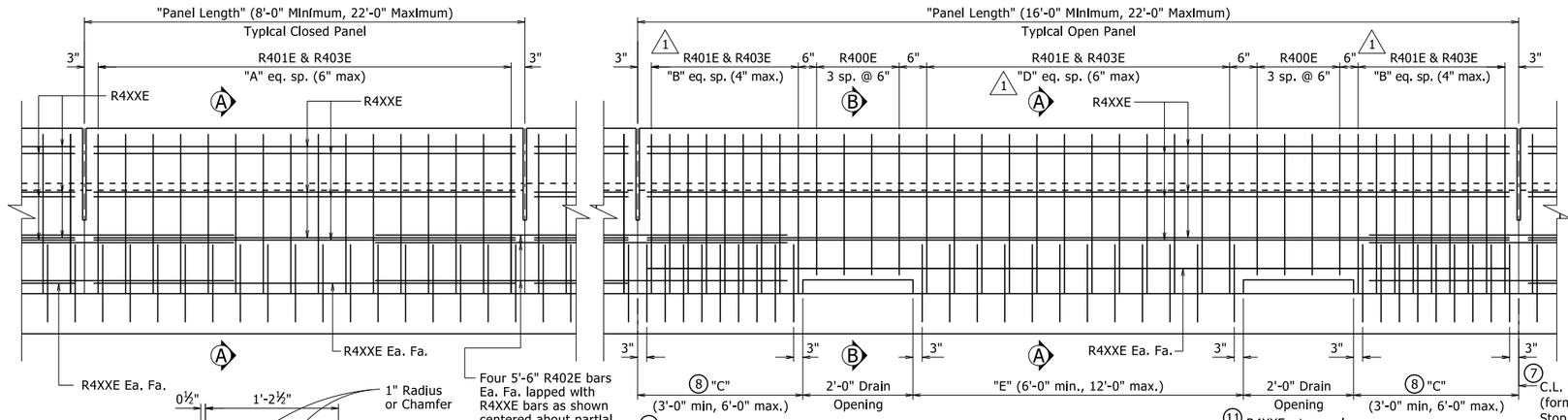
| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY: | NAC | DATE: | 4-8-2021 | FILENAME: | b55030f.dgn |
| CHECKED BY: | LJB | DATE: | 4-8-2021 | SCALE: | AS NOTED |
| DESIGNED BY: | STD | DATE: | - | | |

DRAWING NO. 55030F

PRINT DATE: 4/9/2021

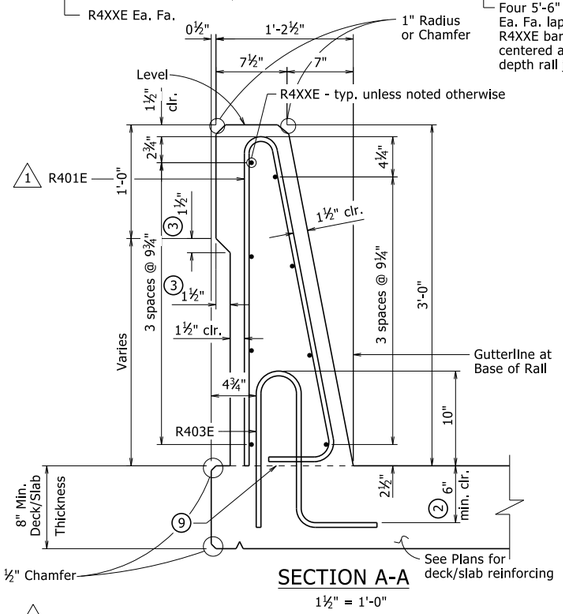
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 09/27/2022 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | | | |

TYPE SSTR36 - 55070



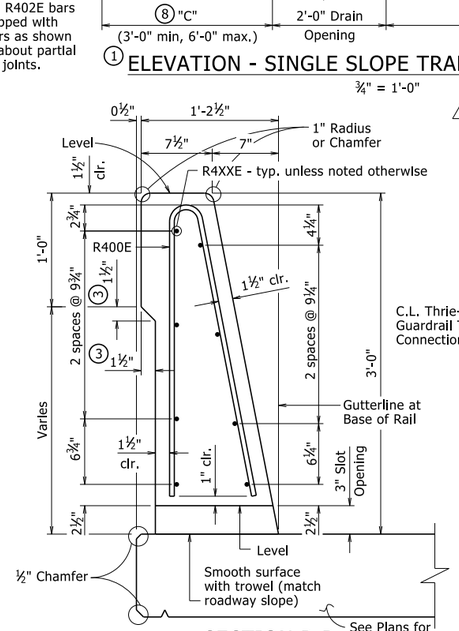

## ① ELEVATION - SINGLE SLOPE TRAFFIC RAIL

¾" = 1'-0"



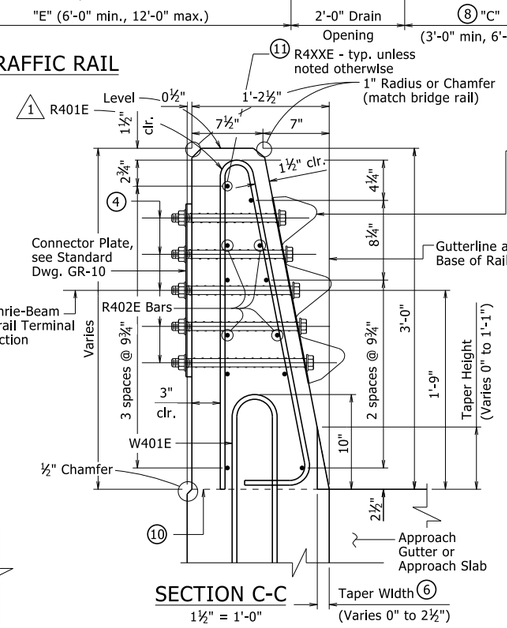

## SECTION A-A

1½" = 1'-0"



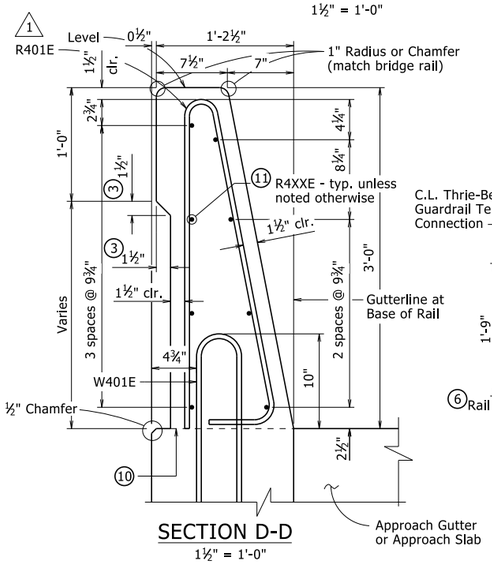

## SECTION B-B

1½" = 1'-0"



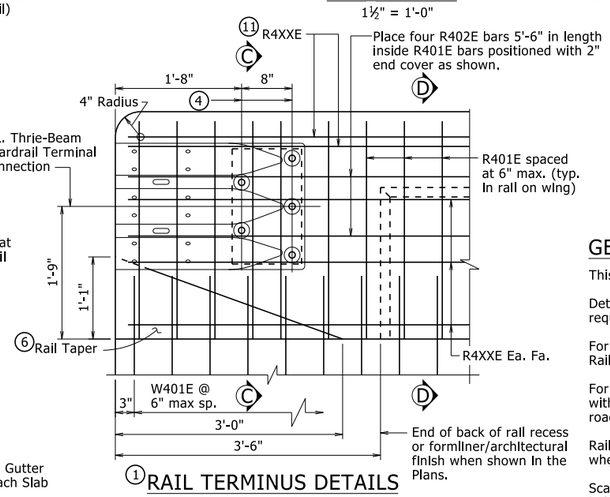

## SECTION C-C

1½" = 1'-0"




## SECTION D-D

1½" = 1'-0"




## ① RAIL TERMINUS DETAILS

1" = 1'-0"

⑦ C.L. Full-Depth Rail Joint (formed width ¼" to 1" max). Stop 6" from top of deck/slab or sidewalk. Place at all intermediate bents locations where rail is continuous.

⑦ C.L. Partial-Depth Rail Joint (formed width ¼" to 1" max). Stop 16" from top of deck/slab or sidewalk. Place at all remaining locations other than at intermediate bents.

① All measurements shown are along gutterline at base of rail.

② Minimum embedment into deck/slab.

③ Eliminate recess when formliner with architectural finish is used. See Plans for additional information.

④ C.L. 1" ø formed holes for ⅞" ø bolts. See Standard Drawings GR-10 and GR-12 for additional information.

⑤ Only applicable for bridges with rail cast directly on bridge deck/slab surface. Increase height as necessary for sidewalks, see Plans for additional information.

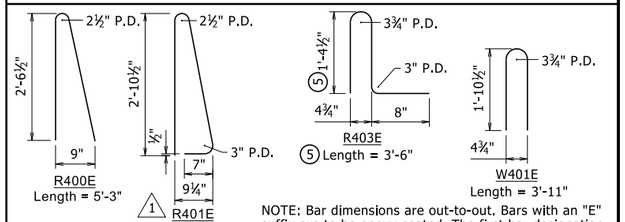
⑥ Field bend front leg of R401E bar as required to maintain minimum 1½" front face clearance within limits of taper.

⑦ When optional slip forming is used: to control cracking, all rail joints must be V-grooved around the perimeter of the rail prior to concrete set and sawing. Depth of V-groove shall be ½". Sawing of the joints shall be done as soon as practical to a width of ¼", and must be controlled so it will follow the V-Groove.

⑧ End posts shall be the same length within a panel.

Bolt Special End Shoe to face of rail as shown. Tapered washers are not required between the head of the bolts and the sloped face of the rail. Tighten the five terminal connection bolts in a well distributed pattern to prevent damage or distortion of the thrie-beam connection. Cut bolts off after installation so as to extend no more than ¾" beyond nut. Paint ends of cut-off bolts with zinc-rich paint. This work and material will not be paid for directly but shall be considered subsidiary to associated contract items.

### BENDING DIAGRAM




NOTE: Bar dimensions are out-to-out. Bars with an "E" suffix are to be epoxy coated. The first bar designation number indicates the reinforcing bar size.

⑨ Required Construction Joint. Level where water flows away from rail, match roadway slope where water flows toward rail.

⑩ Top of Abutment Wing & Required Construction Joint (match bridge deck/slab construction joint slope). See Plans for Wing reinforcing.

⑪ These bars will not be included in the "Table of Variables". See Plans for details.

## TABLE OF VARIABLES

| Closed Rail Panels | | | Open Rail Panels | | | | | |
|---|---|---|---|---|---|---|---|---|
| Panel Length | A | R4XXE | Panel Length | B | C | D | E | R4XXE |
| | | | | | | | | |

See Plans for table with values.

## GENERAL NOTES

This rail has been successfully evaluated by full-scale crash test to meet MASH TL-4 criteria.

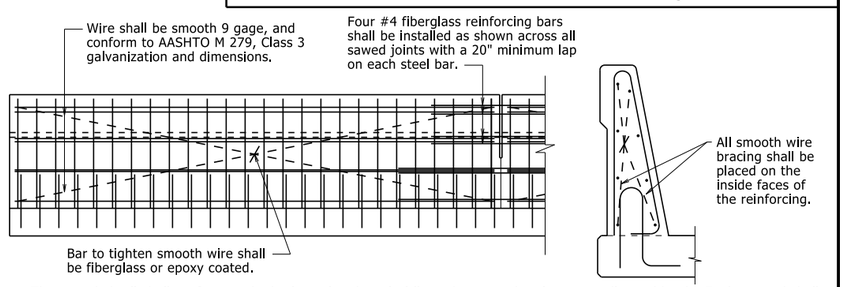
Details shown are general for bridges without sidewalks. See Plans for additional details and requirements specific to bridges with sidewalks.

For Table of Variables, Rail Bar List, locations of Full and Partial Depth Rail Joints, and Wing & Rail Bar Lists, see Plans.

For location of drain openings, see Plans. Drain openings shown are not applicable for bridges with sidewalks. Drain openings will not be allowed over Railroad Right of Way, travelled roadways, and protected waterways.

Rail Terminus details, including Rail Taper, are not applicable for bridges with sidewalks or when bridge railing is continuous with roadway railing.

Scales shown are for 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.




The extruded rail 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. Unless otherwise noted, exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish in place of Class 2, Rubbed Finish.

All panels shall be braced as required to prevent racking.

Slip forming will not be allowed on bridges where formliner with architectural treatment is used unless approval from the Engineer is obtained.

## DETAILS OF OPTIONAL SLIP FORMING OF BRIDGE TRAFFIC RAIL

No Scale

△1 Modified bending diagram and spacing for R401E bar.

By: CGP, Checked by: CMW 09/27/2022



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

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

# STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36

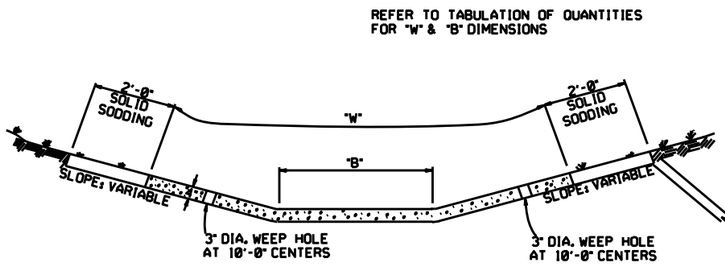
## ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 11/5/2020
CHECKED BY: LJB DATE: 11/5/2020
DESIGNED BY: STD. DATE: -----
FILENAME: b55070.dgn
SCALE: As Noted

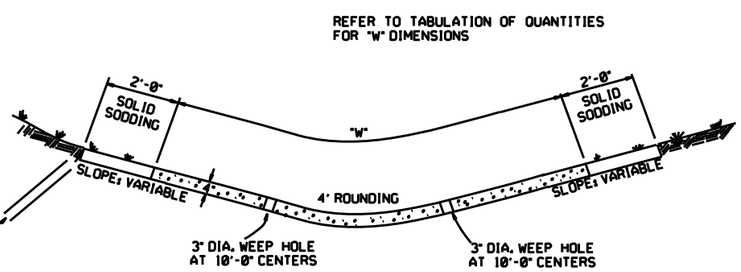
DRAWING NO. 55070

PRINT DATE: 10/6/2022




TYPE A

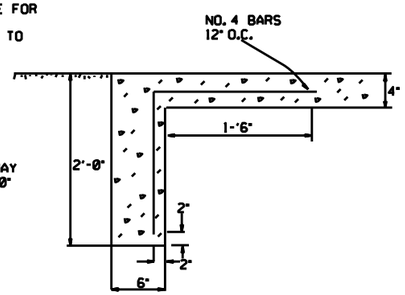
EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.



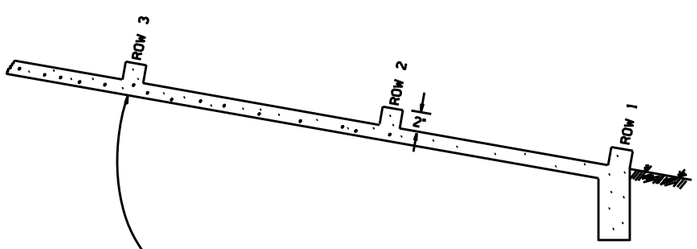

TYPE B

THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."

TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

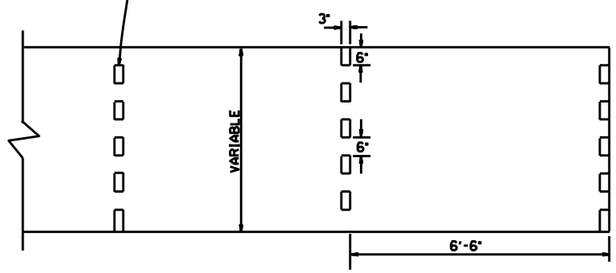



TOE WALL DETAIL FOR CONCRETE DITCH PAVING




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.

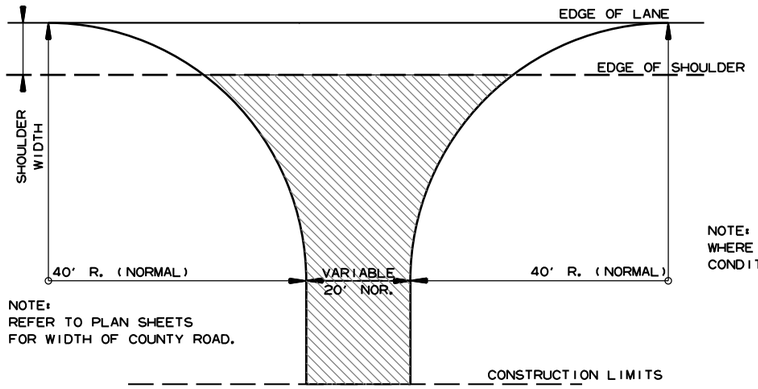
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45° INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

| DATE | REVISION | DATE FILM'D |
|---|---|---|
| 12-8-16 | CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE | |
| 11-17-10 | ADDED GENERAL NOTE | |
| 6-2-94 | ADDED GENERAL NOTE ABOUT SOLID SODDING | |
| 11-30-8 | ELIMINATED MIN. ROWS OF ELEMENTS | 111-30-89 |
| 7-15-88 | REVISED DISSIPATOR NOTE | 653-7-15-88 |
| 4-3-87 | REVISED ENERGY DISSIPATOR | 671-4-3-87 |
| 1-9-87 | MODIFIED NOTE ON ENERGY DISS. | 532-1-9-87 |
| 11-3-86 | ADDED NOTE TO ENERGY DISS. | 599-12-1-86 |
| 11-1-84 | ENERGY DISSIPATOR DETAILS ADDED | 508-11-1-84 |
| 11-1-84 | EXCAVATION DETAILS ADDED TYPED A & B | |
| 10-2-72 | REVISED AND REDRAWN | 508-10-2-72 |

ARKANSAS STATE HIGHWAY COMMISSION

# CONCRETE DITCH PAVING

STANDARD DRAWING CDP-1

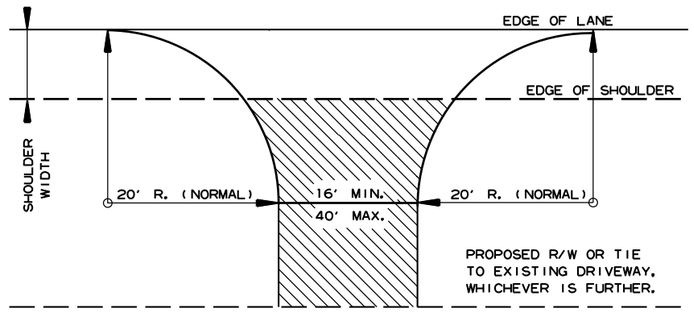



NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

NOTE: TURNOUTS 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, UNLESS OTHERWISE
SPECIFIED IN PLANS.

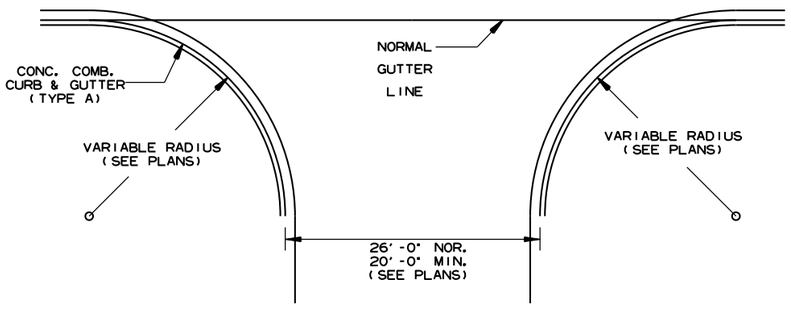
## DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION




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

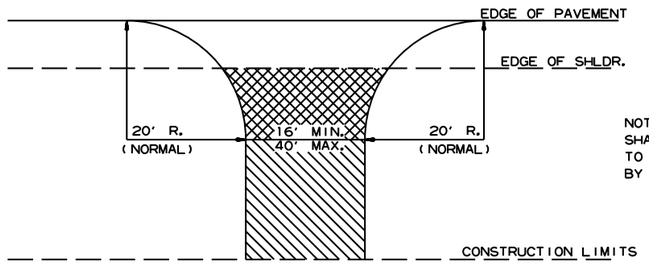
ACHM SURFACE COURSE (1/2")
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT OR
GRAVEL DRIVE EXISTING; OR 6"
CONCRETE IF CONCRETE DRIVE
EXISTING.

## DETAIL FOR DRIVEWAY TURNOUTS OPEN SHOULDER SECTION (ARTERIALS)




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

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




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

ASPHALT CONCRETE HOT MIX SURFACE
COURSE (220 LBS. PER SQ. YD.)
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT DRIVE EXIST OR
6" CONCRETE IF CONCRETE DRIVE EXIST.

AGGREGATE BASE COURSE (CLASS 7)
9" COMP. DEPTH OR CONFORM
TO EXISTING DRIVEWAY

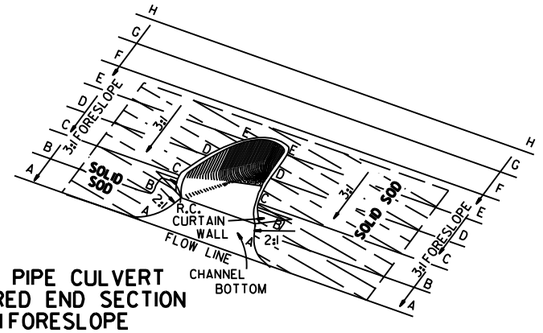
## DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)

| DATE REV | DATE FILMED | DESCRIPTION |
|---|---|---|
| 5-19-22 | | ISSUED |

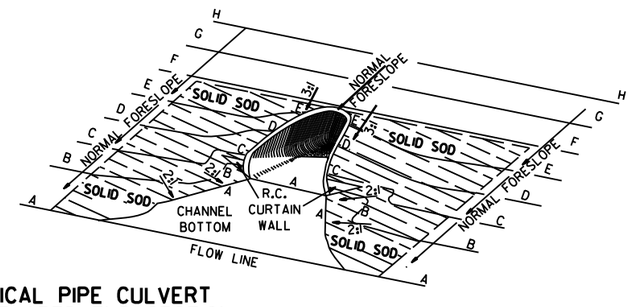
ARKANSAS STATE HIGHWAY COMMISSION

# DETAILS OF DRIVEWAYS & STREET TURNOUTS

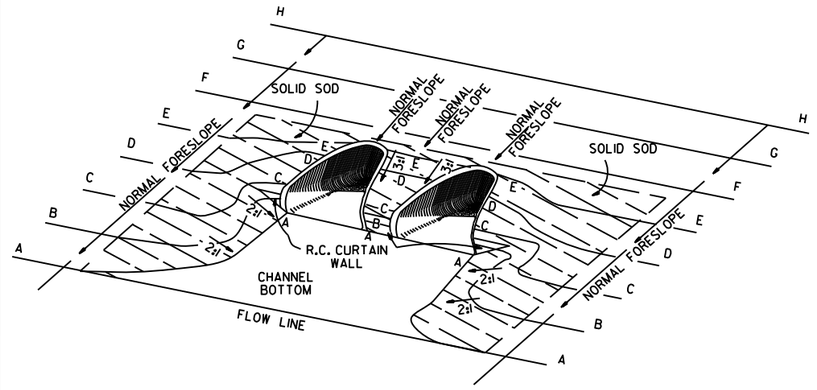
STANDARD DRAWING DR-2



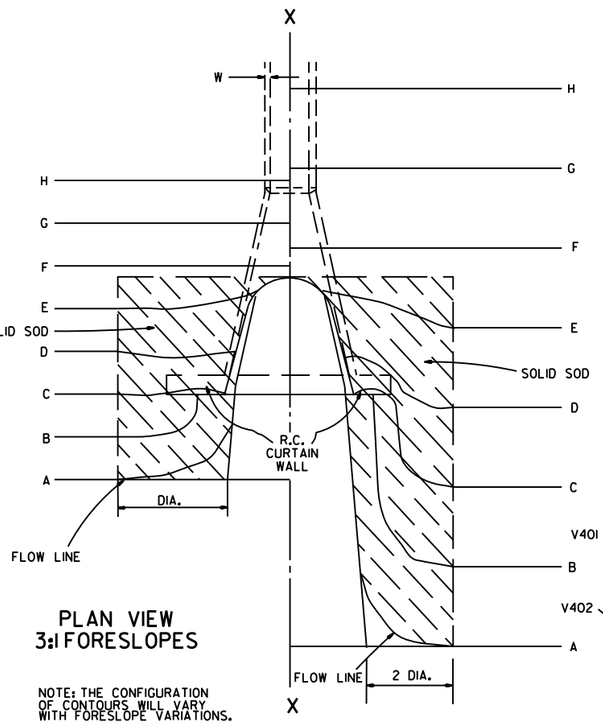

TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE




TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES




TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES




PLAN VIEW
3:1 FORESLOPES

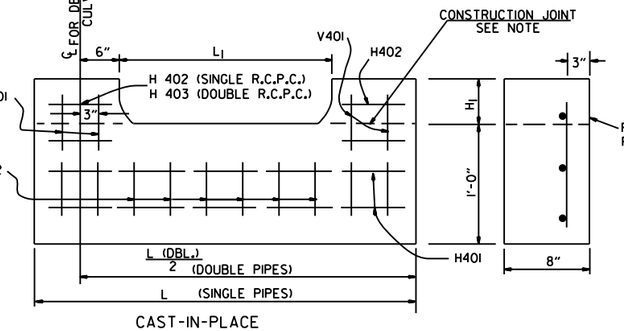
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

## R.C. CURTAIN WALL
## DIMENSIONS & QUANTITIES

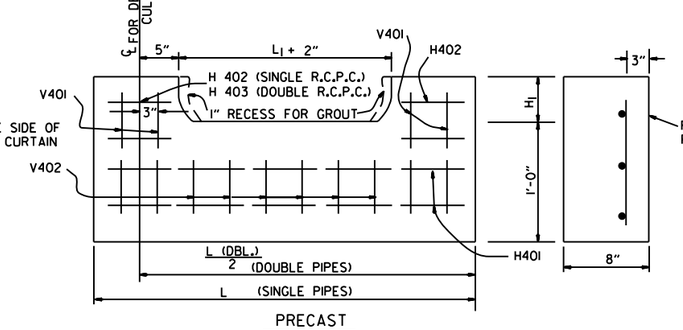
| PIPE DIA. | $H_1$ | $L_1$ | L | L (DBL.) / 2 | SINGLE R.C.P.C. CONC. | SINGLE R.C.P.C. REINF. STEEL | DOUBLE R.C.P.C. CONC. | DOUBLE R.C.P.C. REINF. STEEL |
|---|---|---|---|---|---|---|---|---|
| | | | | | CU. YDS. | LBS. | CU. YDS. | LBS. |
| 18" | 1'-11½" | 3'-5" | 8'-0" | 6'-3" | 0.31 | 27.7 | 0.45 | 39.5 |
| 24" | 1'-0½" | 4'-6" | 9'-6" | 7'-6" | 0.37 | 33.4 | 0.53 | 48.0 |
| 30" | 1'-3½" | 5'-7" | 11'-0" | 9'-0" | 0.45 | 39.0 | 0.67 | 59.0 |
| 36" | 1'-7" | 6'-8" | 13'-0" | 10'-6" | 0.58 | 52.6 | 0.83 | 73.9 |
| 42" | 2'-1½" | 7'-3" | 15'-6" | 12'-0" | 0.82 | 77.1 | 1.10 | 100.7 |
| 48" | 2'-5" | 7'-10" | 17'-0" | 13'-0" | 0.98 | 94.9 | 1.27 | 120.4 |
| 54" | 2'-9½" | 8'-5" | 18'-6" | 14'-0" | 1.16 | 115.8 | 1.47 | 143.7 |
| 60" | 3'-4" | 9'-0" | 20'-6" | 15'-6" | 1.47 | 149.7 | 1.84 | 180.3 |
| 72" | 4'-5" | 10'-2" | 25'-6" | 18'-6" | 2.31 | 232.6 | 2.73 | 271.0 |

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




CAST-IN-PLACE

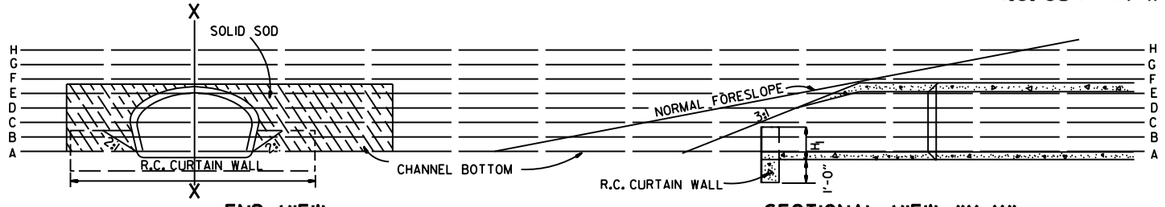
NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.




PRECAST

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

R.C. CURTAIN WALL DETAILS




END VIEW




SECTIONAL VIEW "X-X"

## REINFORCING STEEL SCHEDULE

| PIPE DIA. | SINGLE R.C. PIPE CULVERT H401 L | H401 NO. | H402 L | H402 NO. | V401 L | V401 NO. | V402 L | V402 NO. | DOUBLE R.C. PIPE CULVERT H401 L | H401 NO. | H402 L | H402 NO. | H403 L | H403 NO. | V401 L | V401 NO. | V402 L | V402 NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18" | 7'-8" | 2 | 1'-11½" | 4 | 1'-7½" | 8 | 8" | 8 | 12'-2" | 2 | 1'-11½" | 4 | 8" | 2 | 1'-7½" | 10 | 8" | 14 |
| 24" | 9'-2" | 2 | 2'-2" | 4 | 1'-8½" | 10 | 8" | 9 | 14'-8" | 2 | 2'-2" | 4 | 8" | 2 | 1'-8½" | 12 | 8" | 18 |
| 30" | 10'-8" | 2 | 2'-4½" | 4 | 1'-11½" | 10 | 8" | 12 | 17'-8" | 2 | 2'-4½" | 4 | 8" | 2 | 1'-11½" | 14 | 8" | 22 |
| 36" | 12'-8" | 2 | 2'-10" | 6 | 2'-3" | 12 | 8" | 14 | 20'-8" | 2 | 2'-10" | 6 | 8" | 3 | 2'-3" | 14 | 8" | 28 |
| 42" | 15'-2" | 2 | 3'-9½" | 8 | 2'-9½" | 16 | 8" | 15 | 23'-8" | 2 | 3'-9½" | 8 | 8" | 4 | 2'-9½" | 18 | 8" | 30 |
| 48" | 16'-8" | 2 | 4'-3" | 10 | 3'-1" | 18 | 8" | 16 | 25'-8" | 2 | 4'-3" | 10 | 8" | 5 | 3'-1" | 20 | 8" | 32 |
| 54" | 18'-2" | 2 | 4'-8½" | 12 | 3'-5½" | 20 | 8" | 17 | 27'-8" | 2 | 4'-9" | 12 | 8" | 6 | 3'-5½" | 22 | 8" | 34 |
| 60" | 20'-2" | 2 | 5'-5" | 14 | 4'-0" | 24 | 8" | 18 | 30'-8" | 2 | 5'-5" | 14 | 8" | 7 | 4'-0" | 26 | 8" | 36 |
| 72" | 25'-2" | 2 | 7'-4" | 18 | 5'-1" | 30 | 8" | 20 | 36'-8" | 2 | 7'-4" | 18 | 8" | 9 | 5'-1" | 33 | 8" | 40 |

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

## SOLID SODDING

| PIPE DIA. | SINGLE R.C.P.C. 3:1 | 4:1 | 6:1 | DOUBLE R.C.P.C. 3:1 | 4:1 | 6:1 |
|---|---|---|---|---|---|---|
| | SQ. YDS. | | | SQ. YDS. | | |
| 18" | 5 | 7 | 12 | 6 | 8 | 13 |
| 24" | 8 | 12 | 19 | 9 | 13 | 20 |
| 30" | 13 | 18 | 29 | 14 | 19 | 30 |
| 36" | 17 | 26 | 41 | 18 | 28 | 43 |
| 42" | 23 | 35 | 55 | 25 | 37 | 57 |
| 48" | 29 | 46 | 68 | 31 | 48 | 70 |
| 54" | 35 | 57 | 85 | 37 | 59 | 87 |
| 60" | 45 | 62 | 104 | 48 | 65 | 107 |
| 72" | 64 | 92 | 156 | 67 | 95 | 159 |

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

GENERAL NOTES

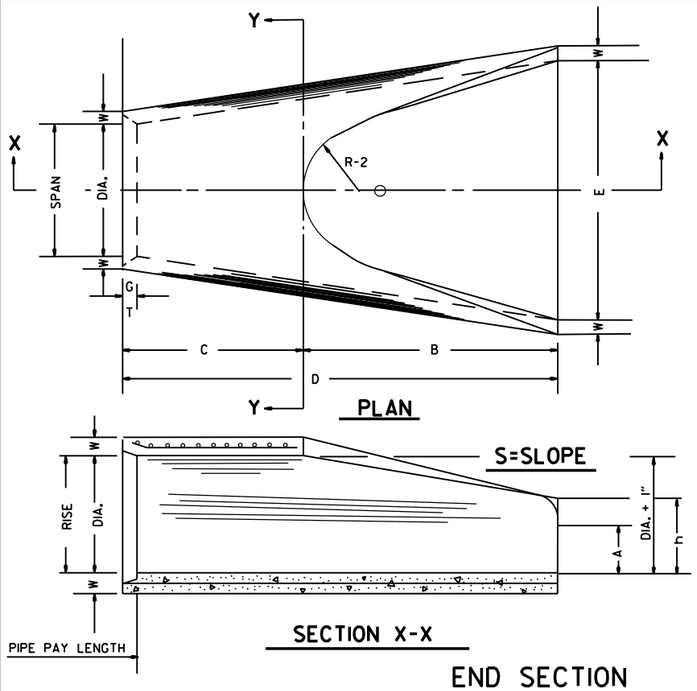
1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.

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

ARKANSAS STATE HIGHWAY COMMISSION

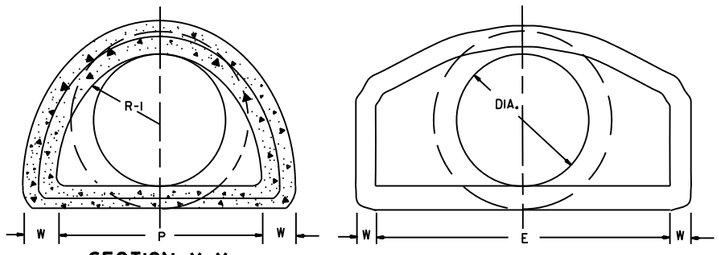
# FLARED END SECTION

STANDARD DRAWING FES-1




## TABLE OF DIMENSIONS

| DIA. | WALL | A | B | C | D | E | S | DIA. + 1" | P | R-1 | R-2 | G-T | WT. | h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18" | 2½" | 9" | 2'-3" | 3'-10" | 6'-1" | 3'-0" | 3:1 | 19" | 29" | 15½" | 12" | 2" | 1000 | 1'-0½" |
| 24" | 3" | 9½" | 3'-7½" | 2'-6" | 6'-1½" | 4'-0" | 3:1 | 25" | 33 3/16" | 16 15/16" | 14" | 2½" | 1600 | 1'-1½" |
| 30" | 3½" | 1'-0" | 4'-6" | 1'-7 3/4" | 6'-1 3/4" | 5'-0" | 3:1 | 31" | 37" | 18½" | 15" | 3¼" | 1940 | 1'-4 5/8" |
| 36" | 4" | 1'-3" | 5'-3" | 2'-10 3/4" | 8'-1 3/4" | 6'-0" | 3:1 | 37" | 47 13/16" | 24 5/16" | 20" | 3½" | 4100 | 1'-8" |
| 42" | 4½" | 1'-9" | 5'-3" | 2'-11" | 8'-2" | 6'-6" | 3:1 | 43" | 53⅞" | 27½" | 22" | 3½" | 5380 | 2'-2½" |
| 48" | 5" | 2'-0" | 6'-0" | 2'-2" | 8'-2" | 7'-0" | 3:1 | 49" | 56½" | 28½" | 22" | 3½" | 6550 | 2'-6" |
| 54" | 5½" | 2'-4" | 6'-6" | 1'-10" | 8'-4" | 7'-6" | 3:1 | 55" | 65½" | 33⅛" | 24" | 4" | 8750 | 2'-10½" |
| 60" | 6" | 2'-10" | 6'-6" | 1'-10" | 8'-4" | 8'-0" | 3:1 | 61" | 72½" | 36 11/16" | 24" | 4" | 9270 | 3'-5" |
| 72" | 7" | 3'-10" | 6'-6" | 1'-10" | 8'-4" | 9'-0" | 3:1 | 73" | 77 13/16" | 38 15/16" | 24" | 5" | 13250 | 4'-6" |

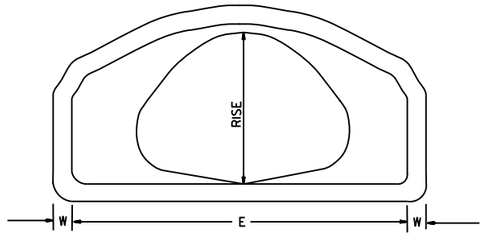



NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

## ARCH PIPE

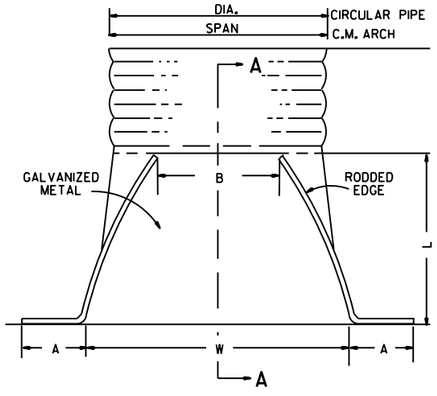
| EQUIV. DIA. | • SPAN AASHTO M 206 | • SPAN AHD NOMINAL | • RISE AASHTO M 206 | • RISE AHD NOMINAL | W | A | B | C | D | E | P | R2 | G-T | S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | INCHES | | | | | | | | | | | | | |
| 15 | 18 | 18 | 11 | 11 | 2" | 4" | 2'-0" | 4'-0" | 6'-0" | 3'-0" | 29" | 12" | 1½" | 2½:1 |
| 18 | 22 | 22 | 13½ | 14 | 2½" | 5" | 2'-0" | 4'-1" | 6'-1" | 3'-6" | 32⅛" | 13" | 2½" | 2½:1 |
| 21 | 26 | 26 | 15½ | 16 | 2¾" | 7" | 2'-3" | 3'-10" | 6'-1" | 4'-0" | 34⅛" | 14" | 2½" | 2½:1 |
| 24 | 28½ | 29 | 18 | 18 | 3" | 9" | 2'-3" | 3'-10" | 6'-1" | 5'-0" | 36 11/16" | 15" | 2½" | 2½:1 |
| 30 | 36¼ | 36 | 22½ | 23 | 3½" | 10" | 3'-1" | 3'-0½" | 6'-1½" | 6'-0" | 47 11/16" | 20" | 3" | 2½:1 |
| 36 | 43¾ | 44 | 26⅜ | 27 | 4" | 10½" | 4'-0" | 2'-11½" | 6'-1½" | 6'-6" | 54 5/16" | 22" | 3½" | 2½:1 |
| 42 | 51⅛ | 51 | 31 5/16 | 31 | 4½" | 11½" | 4'-7" | 1-10¼" | 6'-5¼" | 7'-2" | 59½" | 23" | 3¾" | 2½:1 |
| 48 | 58½ | 59 | 36 | 36 | 5" | 1'-3" | 5'-3" | 2'-10¾" | 8'-1¾" | 7'-10" | 70 5/16" | 24" | 4¼" | 2½:1 |
| 54 | 65 | 65 | 40 | 40 | 5½" | 1'-7" | 5'-3" | 2'-11" | 8'-2" | 8'-6" | 72 1/16" | 24" | 4¾" | 2¼:1 |
| 60 | 73 | 73 | 45 | 45 | 6" | 1'-10" | 5'-6" | 2'-8" | 8'-2" | 9'-0" | 77 1/16" | 24" | 5" | 2¼:1 |

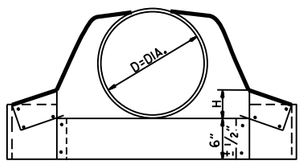
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



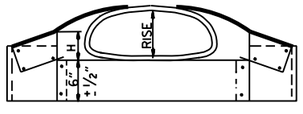

END VIEW
CONCRETE ARCH PIPE

# END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS




CIRCULAR PIPE




C.M. ARCH PIPE

## CIRCULAR PIPE

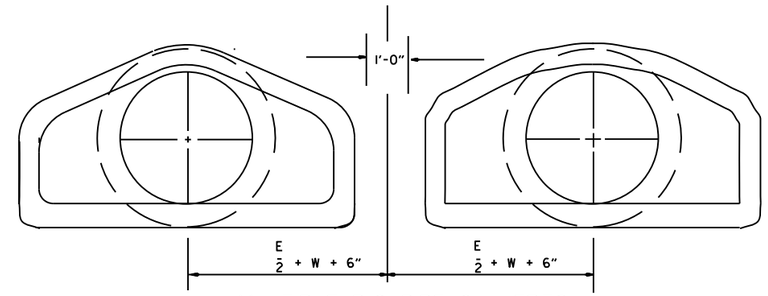
| D. DIA. | GAUGE | A 1" ± | B. MAX. | H 1" ± | L 1½" ± | W 2" ± | S |
|---|---|---|---|---|---|---|---|
| | | INCHES | | | | | |
| 12 | 16 | 6 | 6 | 6 | 21 | 24 | 2½:1 |
| 15 | 16 | 7 | 8 | 6 | 26 | 30 | 2½:1 |
| 18 | 16 | 8 | 10 | 6 | 31 | 36 | 2½:1 |
| 21 | 16 | 9 | 12 | 6 | 36 | 42 | 2½:1 |
| 24 | 16 | 10 | 13 | 6 | 41 | 48 | 2½:1 |
| 30 | 14 | 12 | 16 | 8 | 51 | 60 | 2½:1 |
| 36 | 14 | 14 | 19 | 9 | 60 | 72 | 2½:1 |
| 42 | 12 | 16 | 22 | 11 | 69 | 84 | 2½:1 |
| 48 | 12 | 18 | 27 | 12 | 78 | 90 | 2½:1 |
| 54 | 12 | 18 | 30 | 12 | 84 | 102 | 2:1 |
| 60 | 12 | 18 | 33 | 12 | 87 | 114 | 1¾:1 |
| 66 | 12 | 18 | 36 | 12 | 87 | 120 | 1½:1 |
| 72 | 12 | 18 | 39 | 12 | 87 | 126 | 1 1/3:1 |

## C.M. ARCH PIPE

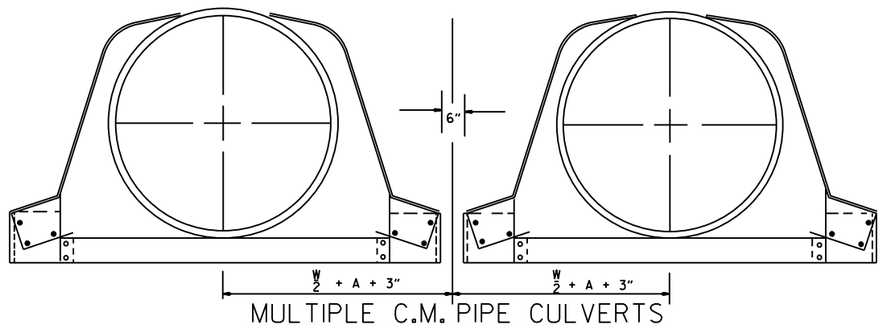
| EQUIV. DIA. | SPAN | RISE | A 1" ± | B MAX. | H 1" ± | L 1½" ± | W 2" ± | S | GAUGE |
|---|---|---|---|---|---|---|---|---|---|
| | INCHES | | | | | | | | |
| 15" | 17 | 13 | 7 | 9 | 6 | 19 | 30 | 2½:1 | 16 |
| 18" | 21 | 15 | 7 | 10 | 6 | 23 | 36 | 2½:1 | 16 |
| 21" | 24 | 18 | 8 | 12 | 6 | 28 | 42 | 2½:1 | 16 |
| 24" | 28 | 20 | 9 | 14 | 6 | 32 | 48 | 2½:1 | 16 |
| 30" | 35 | 24 | 10 | 16 | 6 | 39 | 60 | 2½:1 | 14 |
| 36" | 42 | 29 | 12 | 18 | 8 | 46 | 75 | 2½:1 | 14 |
| 42" | 49 | 33 | 13 | 21 | 9 | 53 | 85 | 2½:1 | 12 |
| 48" | 57 | 38 | 18 | 26 | 12 | 63 | 90 | 2½:1 | 12 |
| 54" | 64 | 43 | 18 | 30 | 12 | 70 | 102 | 2¼:1 | 12 |
| 60" | 71 | 47 | 18 | 33 | 12 | 77 | 114 | 2¼:1 | 12 |

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

# END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS




MULTIPLE R.C. PIPE CULVERTS




MULTIPLE C.M. PIPE CULVERTS

| DATE | REVISION | FILMED |
|---|---|---|
| 10-18-96 | REVISED ASTM REF. TO AASHTO | |
| 5-15-80 | REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S. | 664-5-15-80 |
| 7-14-78 | C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES | 752-7-14-78 |
| 8-22-75 | ADDED MULTIPLE PIPE CULVERTS | 517-8-22-75 |
| 12-5-74 | REMOVED NOTE RE REINF. FOR R.C. F.E.S. | 500-12-5-74 |
| 5-24-73 | CMP END SECTION, SHOW PIPE PAY LENGTH | 627-5-24-73 |
| 10-2-72 | REVISED AND REDRAWN | 760-10-2-72 |

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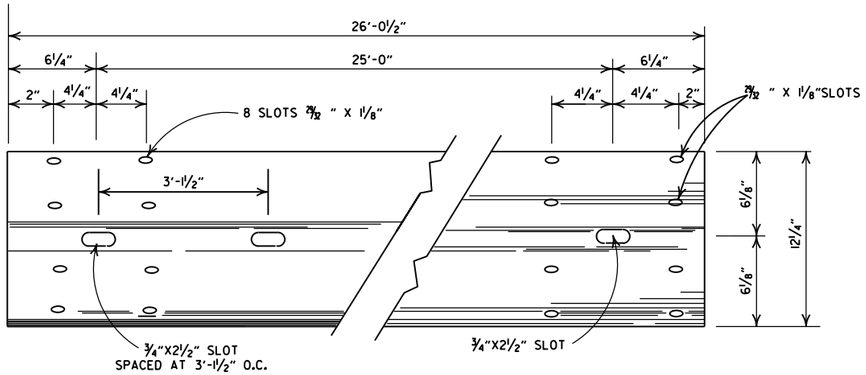
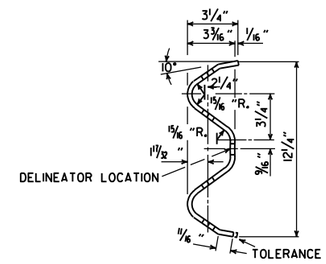
FLARED END SECTION

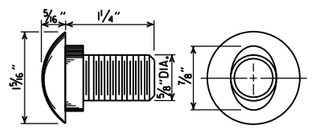
STANDARD DRAWING FES-2



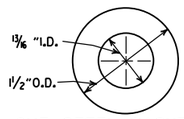




## DETAILS OF W-BEAM GUARDRAIL

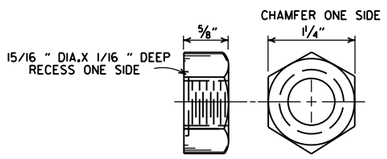
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



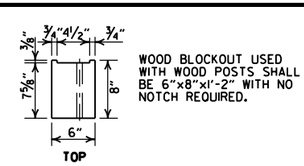

## SPLICE BOLT
## POST BOLT - SAME EXCEPT LENGTH




## CUT STEEL WASHER

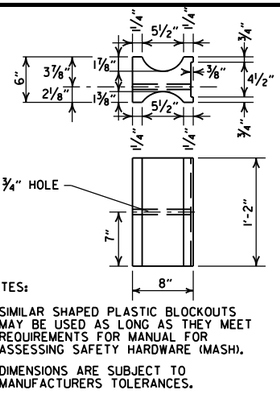



## NUT




WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

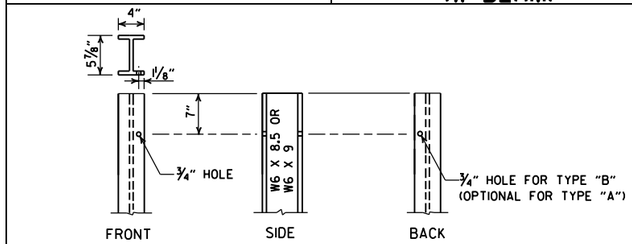
## WOOD BLOCKOUT (W-BEAM)



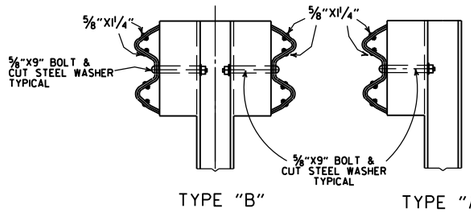

NOTES:

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

## PLASTIC BLOCKOUT (W-BEAM)




## STEEL POST




## 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 ¾" BEYOND IT.

WHERE W-BEAM GUARDRAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W-BEAM GUARDRAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

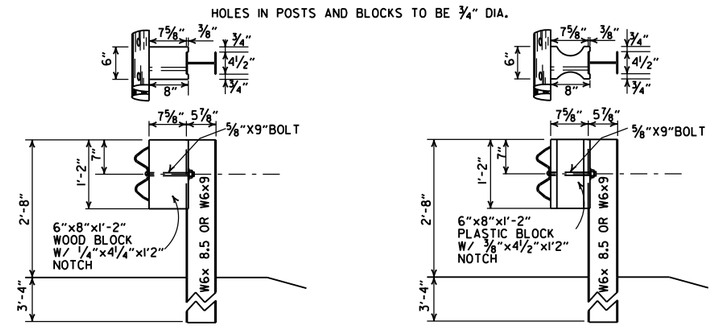
USE W-BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARDRAIL, W-BEAM GUARDRAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

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

CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARDRAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARDRAIL.

DELINEATORS SHALL BE MOUNTED AT 37.5' SPACING ON THE FRONT FACE OF THE GUARDRAIL. SPACING MAY BE REDUCED IN CURVES, AS DIRECTED BY THE ENGINEER. COLOR SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR DELINEATORS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID PER LIN. FT. FOR GUARDRAIL.




WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

## DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)




POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - ¼".

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

## DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

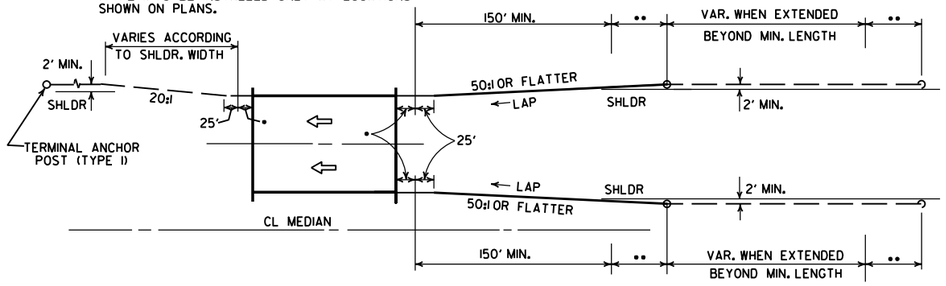
| DATE | REVISION | FILMED |
|---|---|---|
| 05-19-22 | REVISED GENERAL NOTES, ADDED DELINEATOR LOCATION. | |
| 11-07-19 | RENUMBERED AND RENAMED | |
| 11-16-17 | REVISED GENERAL NOTES AND RAISED GUARDRAIL HEIGHT 3" | |
| 07-14-10 | RAISED HEIGHT OF GUARDRAIL 1" | |
| 10-15-09 | ADDED REFERENCE TO MASH | |
| 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 GUARDRAIL 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 GUARDRAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES | |
| 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 | |
| 08-05-93 | 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 |

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

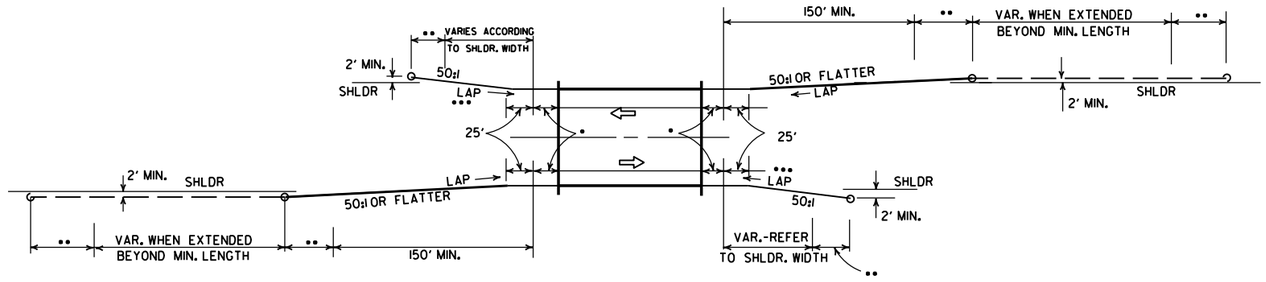
STANDARD DRAWING GR-6

NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.




ONE-WAY TRAFFIC

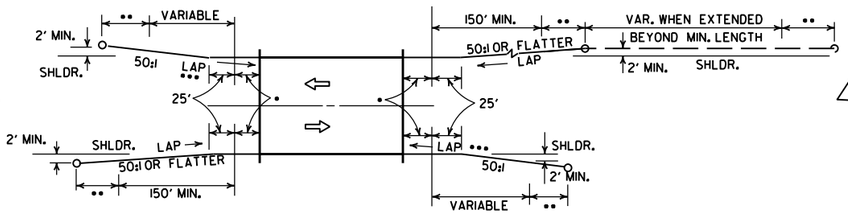
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.




TWO-WAY TRAFFIC

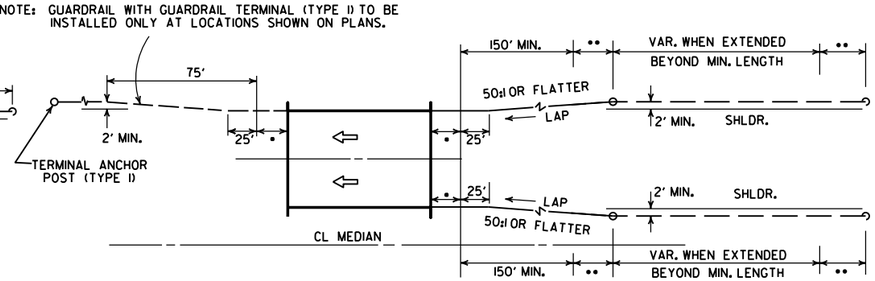
## METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.




TWO-WAY TRAFFIC

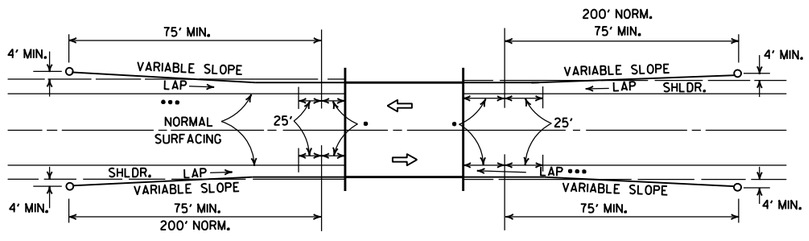
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.




ONE-WAY TRAFFIC

## METHOD OF INSTALLATION OF GUARDRAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.




## METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

LEGEND

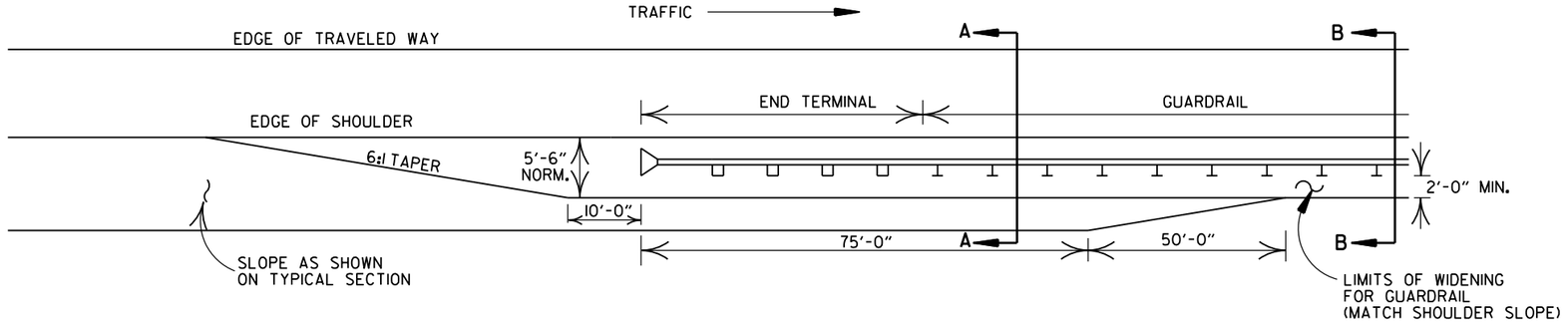
- • THRIE BEAM GUARDRAIL TERMINAL
- •• GUARDRAIL TERMINAL (TYPE 2)

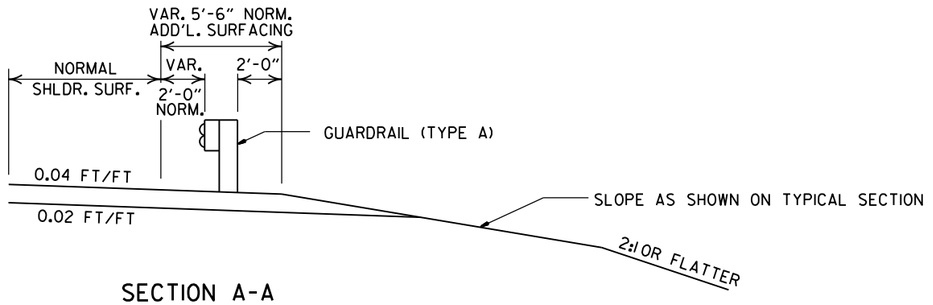
| DATE | REVISION | DATE FILM |
|---|---|---|
| | | |
| | | |
| | | |
| 11-07-19 | RENUMBERED AND RENAMED | |
| 4-17-08 | REVISED LAYOUTS | |
| 11-10-05 | REMOVED GUARDRAIL NOTES AND DETAILS | |
| 11-16-01 | DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1) | |
| 1-12-00 | ADDED CONSTRUCTION NOTE | 1-12-00 |
| 6-26-97 | REVISED LAYOUT | |
| 10-1-92 | REDRAWN & REVISED | 10-1-92 |
| | ADDED NOTE | |
| 10-9-87 | REDRAWN & REVISED | |

ARKANSAS STATE HIGHWAY COMMISSION

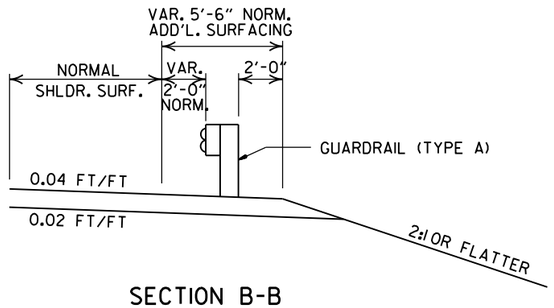
# GUARDRAIL DETAILS

STANDARD DRAWING GR-8



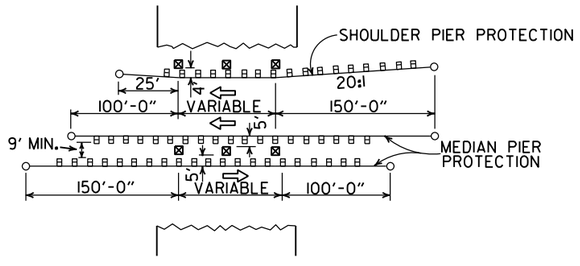




SECTION A-A



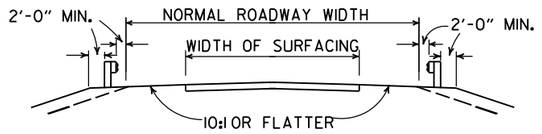

SECTION B-B

## DETAILS OF WIDENING FOR GUARDRAIL

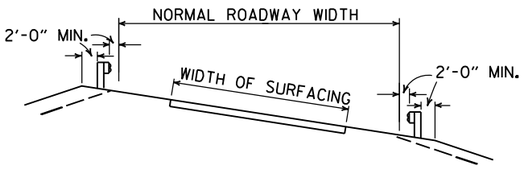



## METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

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




SECTION ON TANGENT




SECTION ON CURVE

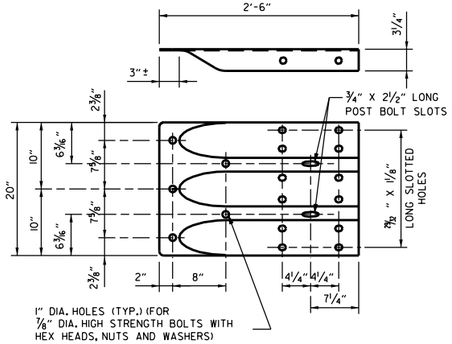
## DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

| DATE | REVISION | DATE FILM |
|---|---|---|
| 11-07-19 | RENUMBERED AND RENAMED | |
| 4-17-08 | MINOR REVISION | |
| 11-10-05 | DRAWN | |

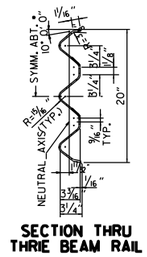
ARKANSAS STATE HIGHWAY COMMISSION

# GUARDRAIL DETAILS

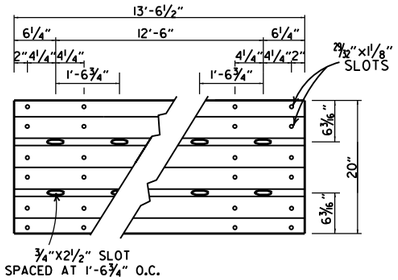
STANDARD DRAWING GR-9



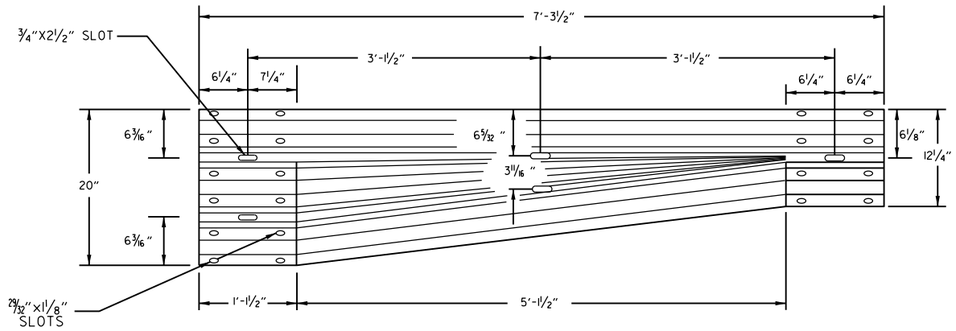

## SPECIAL END SHOE



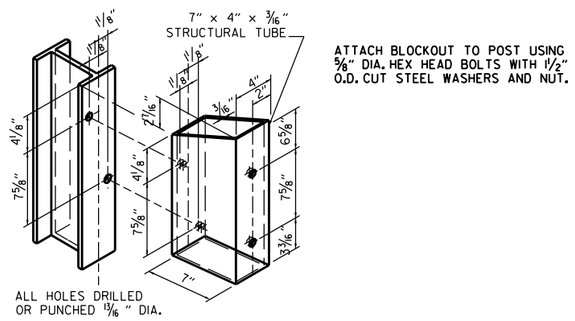

SECTION THRU THRIE BEAM RAIL



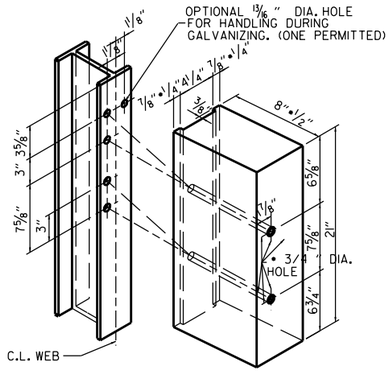

## THRIE BEAM RAIL




## TRANSITION SECTION



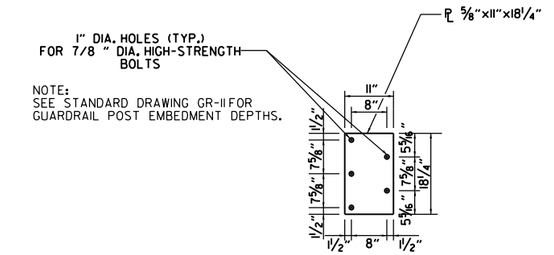

## STRUCTURAL STEEL TUBING BLOCKOUT DETAIL




ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

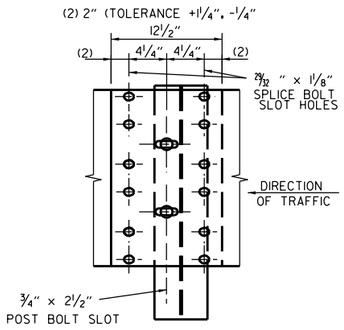
## HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

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




## CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.




## THRIE BEAM RAIL SPLICE AT POST

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 1.

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-8 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

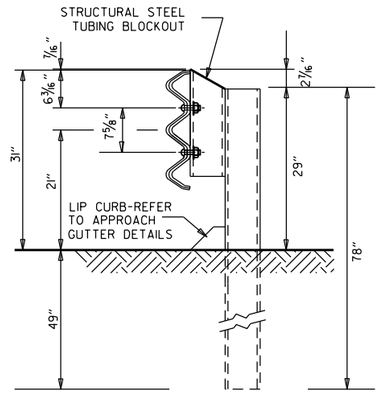
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

| DATE | REVISION | FILMED |
|---|---|---|
| 11-07-19 | RENAMED AND REVISED REFERENCES | |
| 11-16-17 | REVISED TRANSITION SECTION, GUARD RAIL HEIGHT, AND GENERAL NOTES; MOVED THRIE BEAM GUARD RAIL CONNECTIONS AT BRIDGES 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 | |

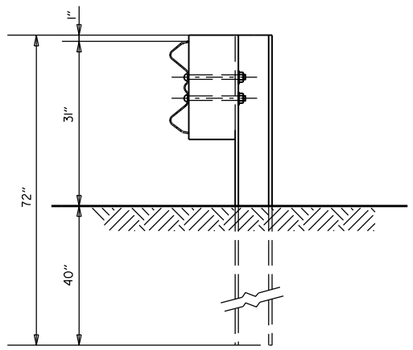
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

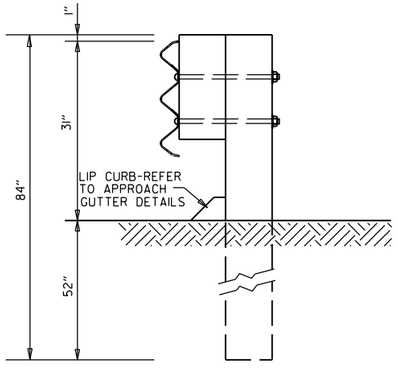
STANDARD DRAWING GR-10



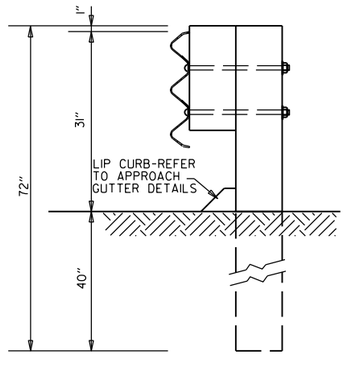

THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



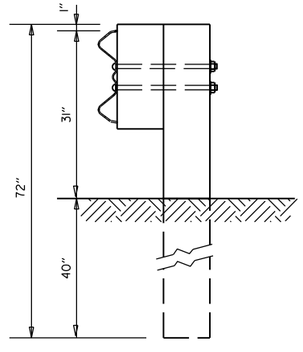

W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8




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.

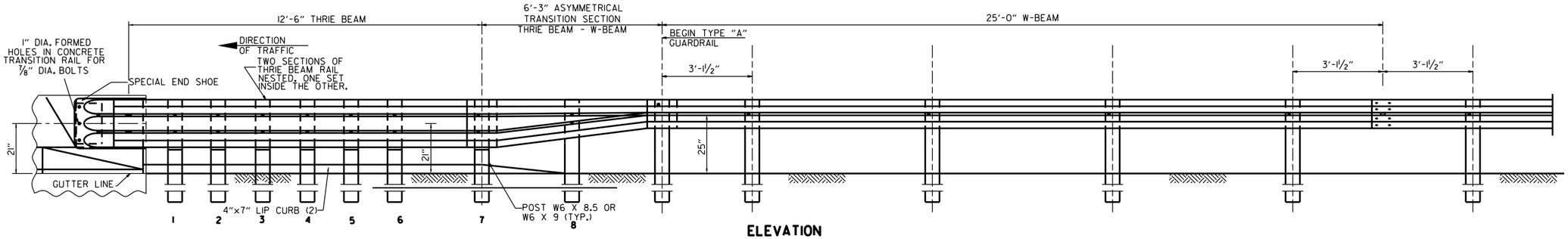
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO.1 1350 f SOUTHERN PINE.

| DATE | REVISION | FILMED |
|---|---|---|
| | | |
| | | |
| | | |
| 11-07-19 | RENAMED | |
| 11-16-17 | REVISED GUARDRAIL HEIGHT, CHANGED STD. DWG. NUMBER FROM GR-10A TO GR-11 | |
| 07-14-10 | REVISED POST 8 DIMENSIONS | |
| 11-29-07 | ADDED PLASTIC BLOCKOUTS | |
| 08-22-02 | REVISED LIP CURB NOTE | |
| 03-30-00 | DRAWN & ISSUED | |

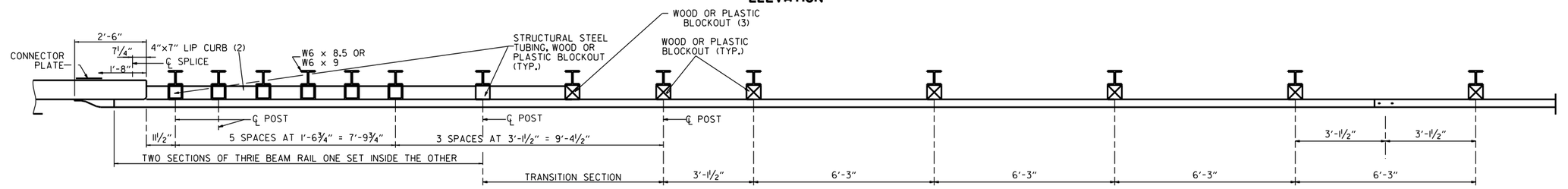
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

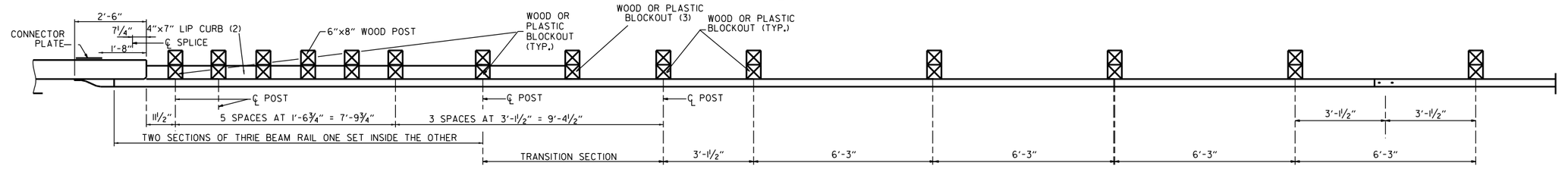
STANDARD DRAWING GR-11




**ELEVATION**




**PLAN**




**PLAN**

(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 GUARDRAIL 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-8 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

POSTS SHALL NOT BE PLACED AT SPLICE LOCATIONS ALONG W-BEAM RAILS.

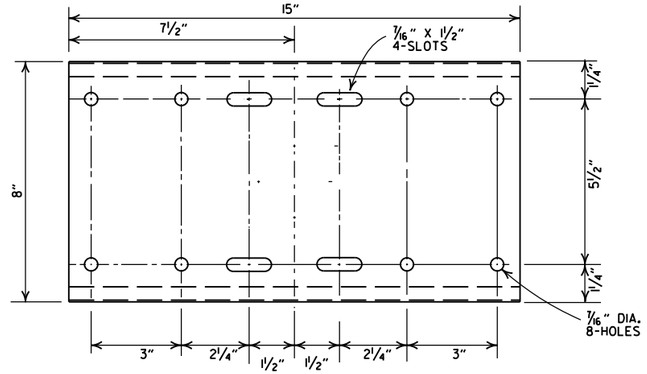
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

| DATE | REVISION | FILMED |
|---|---|---|
| 05-14-20 | REVISED NOTES | |
| 11-07-19 | RENAMED & REVISED REFERENCES | |
| 11-16-17 | RE-DRAWN FROM STD. DWG. GR-10 & ISSUED | |

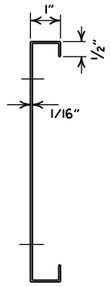
ARKANSAS STATE HIGHWAY COMMISSION

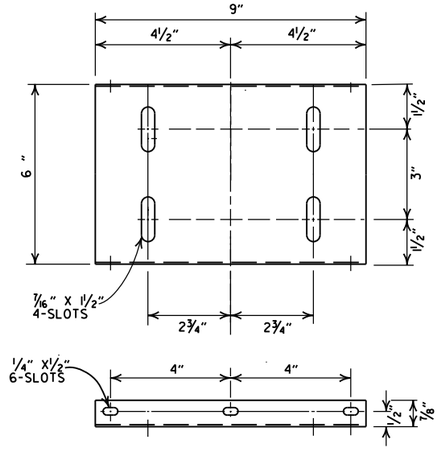
GUARDRAIL DETAILS

STANDARD DRAWING GR-12

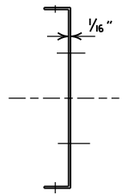


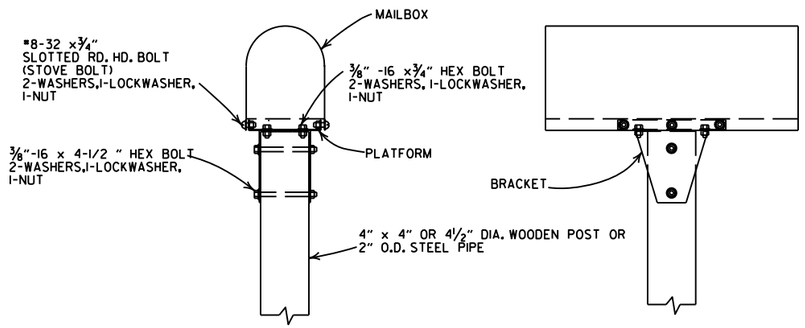

SHELF



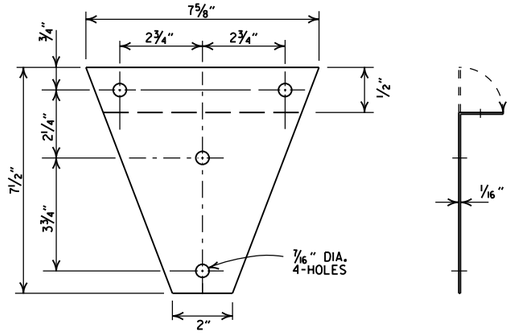




PLATFORM



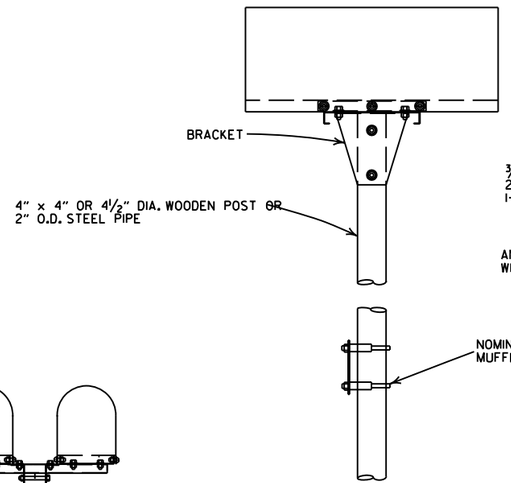

SINGLE INSTALLATION



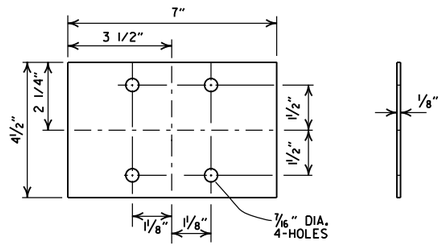

BRACKET

**GENERAL NOTES**

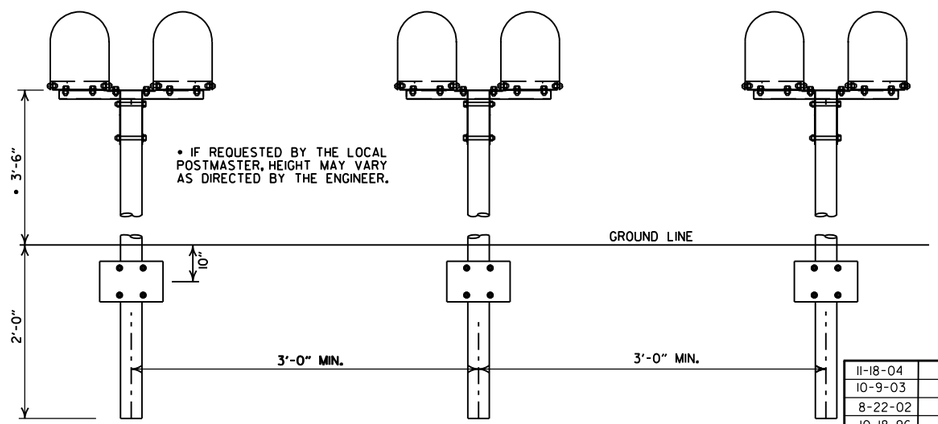
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



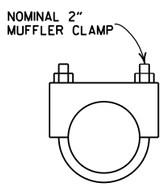

DOUBLE INSTALLATION



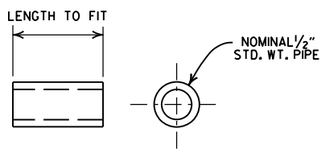

ANTI-TWIST PLATE




SPACING FOR MULTIPLE POST INSTALLATION




CLAMP




SPACER

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

ARKANSAS STATE HIGHWAY COMMISSION

# MAILBOX DETAILS

STANDARD DRAWING MB-1

## REINFORCED CONCRETE ARCH PIPE DIMENSIONS

| EQUIV. DIA. | SPAN | | RISE | |
|---|---|---|---|---|
| | AASHTO M 206 | ARDOT NOMINAL | AASHTO M 206 | ARDOT NOMINAL |
| INCHES | INCHES | | | |
| 15 | 18 | 18 | 11 | 11 |
| 18 | 22 | 22 | 13½ | 14 |
| 21 | 26 | 26 | 15½ | 16 |
| 24 | 28½ | 29 | 18 | 18 |
| 30 | 36¼ | 36 | 22½ | 23 |
| 36 | 43⅜ | 44 | 26⅝ | 27 |
| 42 | 51⅛ | 51 | 31⅜ | 31 |
| 48 | 58½ | 59 | 36 | 36 |
| 54 | 65 | 65 | 40 | 40 |
| 60 | 73 | 73 | 45 | 45 |
| 72 | 88 | 88 | 54 | 54 |
| 84 | 102 | 102 | 62 | 62 |
| 90 | 115 | 115 | 72 | 72 |
| 96 | 122 | 122 | 77½ | 77 |
| 108 | 138 | 138 | 87⅛ | 87 |
| 120 | 154 | 154 | 96⅞ | 97 |
| 132 | 168¾ | 169 | 106½ | 107 |

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

## REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

| EQUIV. DIA. | AASHTO M 207 | |
|---|---|---|
| | SPAN | RISE |
| INCHES | INCHES | |
| 18 | 23 | 14 |
| 24 | 30 | 19 |
| 27 | 34 | 22 |
| 30 | 38 | 24 |
| 33 | 42 | 27 |
| 36 | 45 | 29 |
| 39 | 49 | 32 |
| 42 | 53 | 34 |
| 48 | 60 | 38 |
| 54 | 68 | 43 |
| 60 | 76 | 48 |
| 66 | 83 | 53 |
| 72 | 91 | 58 |
| 78 | 98 | 63 |
| 84 | 106 | 68 |

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

## CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(1).

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

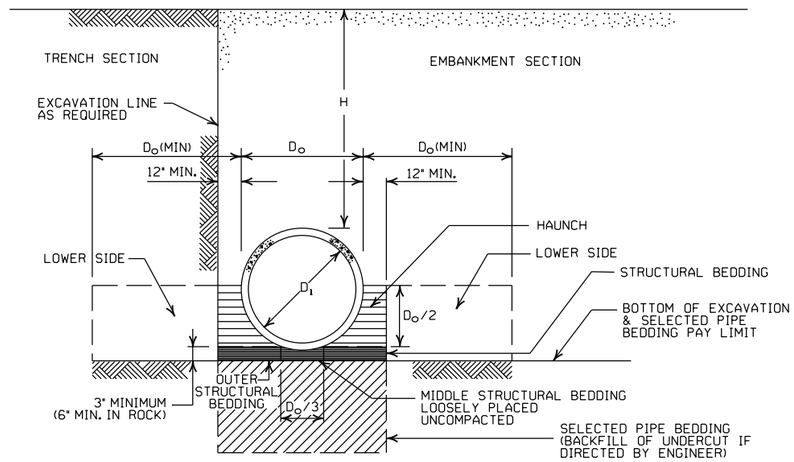
## - LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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




## EMBANKMENT AND TRENCH INSTALLATIONS

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

## GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

# CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

## CORRUGATED STEEL PIPE (ROUND)

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

## CORRUGATED ALUMINUM PIPE (ROUND)

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

## CONSTRUCTION SEQUENCE

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

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

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

③ SM-3 WILL NOT BE ALLOWED.

## EQUIVALENT METAL THICKNESSES AND GAUGES

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

## CORRUGATED METAL PIPE ARCHES

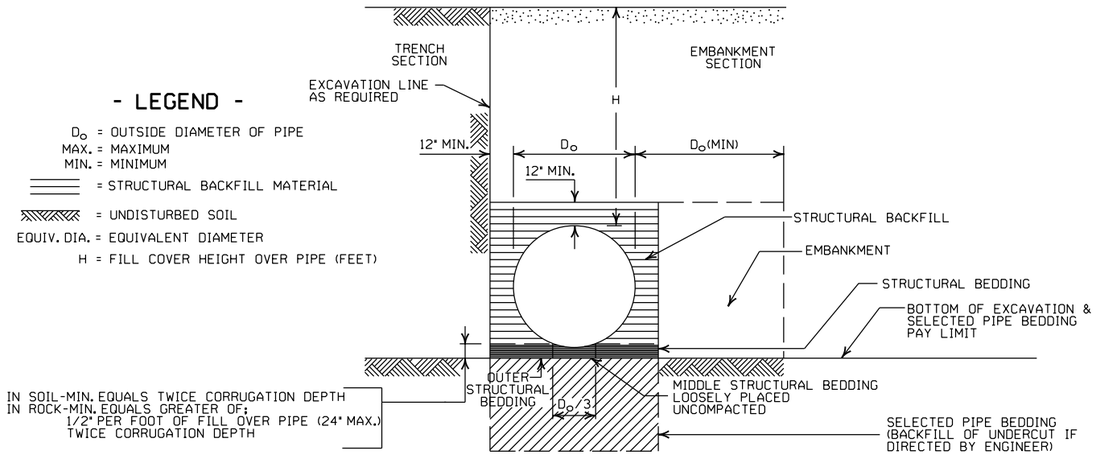
| EQUIV. DIA. (INCHES) | PIPE DIMENSION SPAN X RISE (INCHES) | MINUMUM CORNER RADIUS (INCHES) | STEEL | | | | ALUMINUM | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | MIN. THICKNESS REQUIRED INCHES | ① MIN. HEIGHT OF FILL, "H" (FT.) | MAX. HEIGHT OF FILL, "H" (FT.) | | MIN. THICKNESS REQUIRED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

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

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

- LEGEND -

$D_o$ = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL
EQUIV. DIA. = EQUIVALENT DIAMETER
H = FILL COVER HEIGHT OVER PIPE (FEET)




## EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

## GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION 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."

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

ARKANSAS STATE HIGHWAY COMMISSION

# METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

## MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

## MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

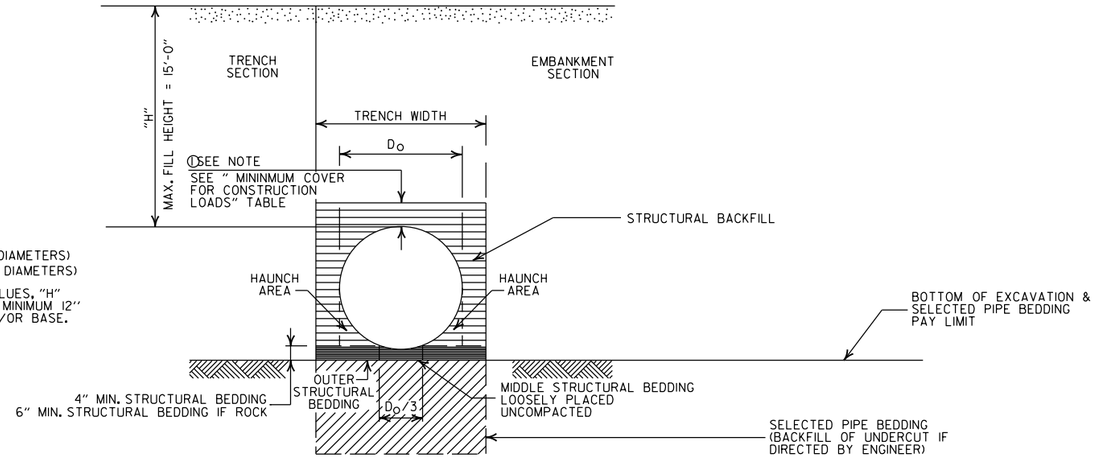
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

## MINIMUM COVER FOR CONSTRUCTION LOADS

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

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.




## TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

## CONSTRUCTION SEQUENCE

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

## GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

## - LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

# PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

## MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

## MULTIPLE INSTALLATION OF PVC PIPES

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

## MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

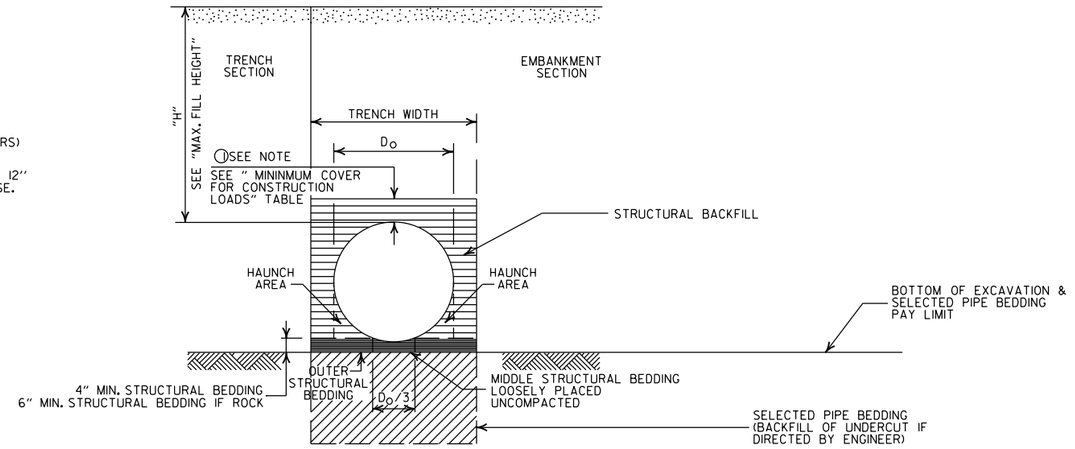
| PIPE DIAMETER | "H" |
|---|---|
| 18" | 45'-0" |
| 24" | 45'-0" |
| 30" | 40'-0" |
| 36" | 40'-0" |

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

## MINIMUM COVER FOR CONSTRUCTION LOADS

| PIPE DIAMETER | ② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS | | | |
|---|---|---|---|---|
| | 18.0-50.0 (KIPS) | 50.0-75.0 (KIPS) | 75.0-110.0 (KIPS) | 110.0-175.0 (KIPS) |
| 18" THRU 36" | 2'-0" | 2'-6" | 3'-0" | 3'-0" |

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.




## TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

## CONSTRUCTION SEQUENCE

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

## GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

## - LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

# PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

| 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 |

*SM3 WILL NOT BE ALLOWED.

** STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

## MULTIPLE INSTALLATION OF POLYPROPYLENE 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" |
| 60" | 5'-0" |

## MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

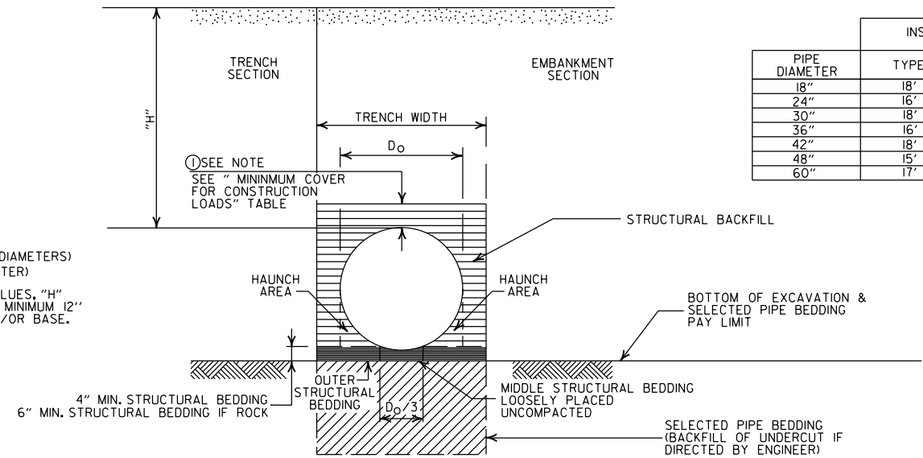
| PIPE DIAMETER | TRENCH WIDTH (FEET) | |
|---|---|---|
| | "H" < 10'-0" | "H" >OR= 10'-0" |
| 18" | 4'-6" | 4'-6" |
| 24" | 5'-0" | 6'-0" |
| 30" | 5'-6" | 7'-6" |
| 36" | 6'-0" | 9'-0" |
| 42" | 7'-0" | 10'-6" |
| 48" | 8'-0" | 12'-0" |
| 60" | 10'-0" | 15'-0" |

①NOTE:
12" MIN. (18" - 42" DIAMETERS)
24" MIN. (60" DIAMETER)

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

## MAXIMUM HEIGHT OF FILL "H"

| PIPE DIAMETER | INSTALLATION TYPE | |
|---|---|---|
| | TYPE 1 | TYPE 2 |
| 18" | 18' | 14' |
| 24" | 16' | 12' |
| 30" | 18' | 14' |
| 36" | 16' | 12' |
| 42" | 18' | 13' |
| 48" | 15' | 11' |
| 60" | 17' | 12' |




## MINIMUM COVER FOR CONSTRUCTION LOADS

| PIPE DIAMETER | ② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS | | | |
|---|---|---|---|---|
| | 18.0-50.0 (KIPS) | 50.0-75.0 (KIPS) | 75.0-110.0 (KIPS) | 110.0-150.0 (KIPS) |
| 36" OR LESS | 2'-0" | 2'-6" | 3'-0" | 3'-0" |
| 42" OR GREATER | 3'-0" | 3'-0" | 3'-6" | 4'-0" |

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.

## EMBANKMENT AND TRENCH INSTALLATIONS

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

## CONSTRUCTION SEQUENCE

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

## GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M330, TYPE S, INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SIXTH EDITION (2012) WITH 2013 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. POLYPROPYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR POLYPROPYLENE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN SECTION 26.4.2.4 AND 30.4.2 OF THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS 3RD EDITION (2010) WITH 2012 INTERIMS. JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

## - LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

| DATE | REVISION | DATE FILMED |
|---|---|---|
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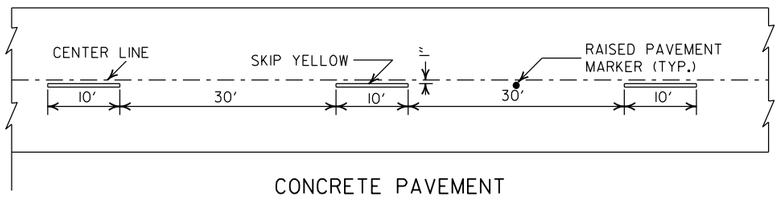
| | | |
| 02-27-20 | REVISED | |
| 11-07-19 | ISSUED | |

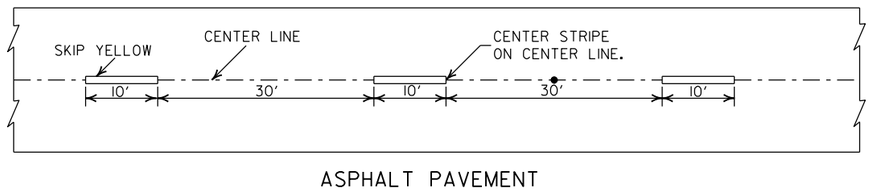
ARKANSAS STATE HIGHWAY COMMISSION

# PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

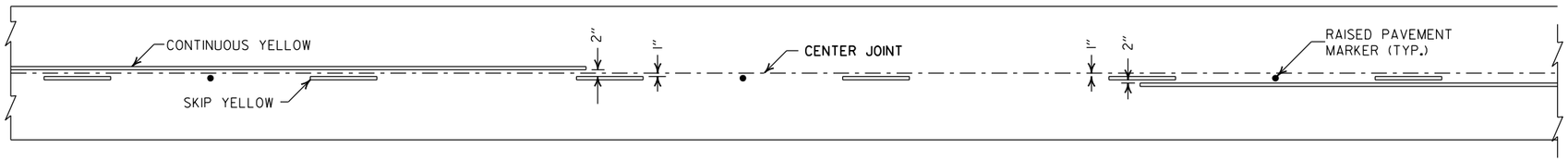



CONCRETE PAVEMENT

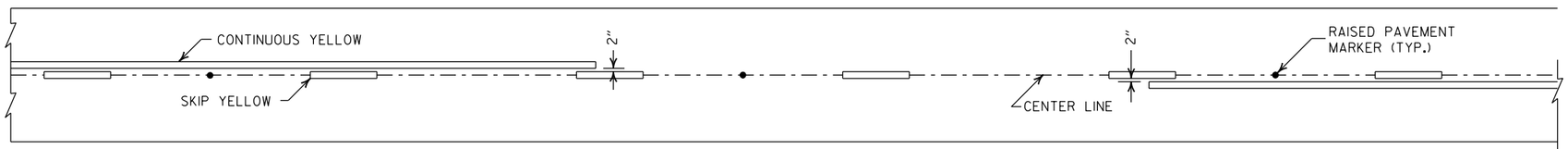



ASPHALT PAVEMENT

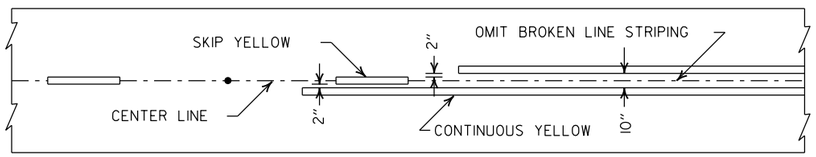
## BROKEN LINE STRIPING



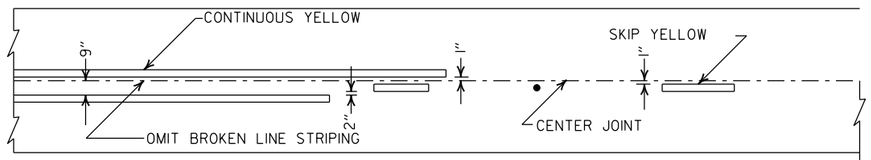

## SOLID LINE STRIPING ON CONCRETE PAVEMENT




## SOLID LINE STRIPING ON ASPHALT PAVEMENT

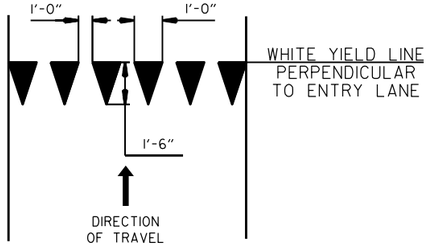



ASPHALT PAVEMENT

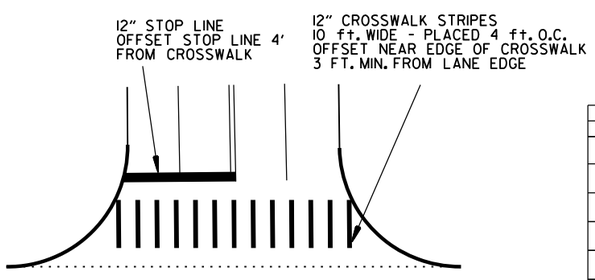



CONCRETE PAVEMENT

## STRIPING AT ADJACENT NO PASSING LANES

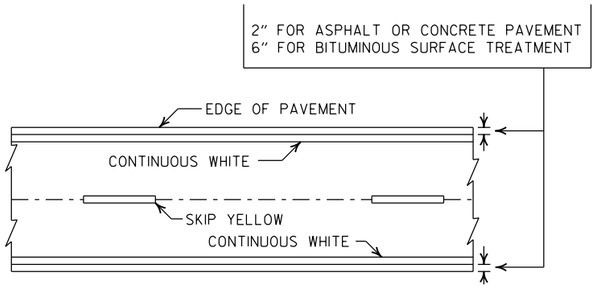



## YIELD LINE DETAIL




## CROSSWALK AND STOP LINE DETAILS

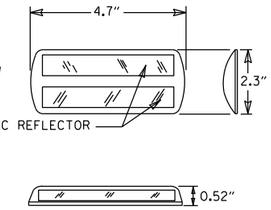
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.




## 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




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 ARDOT QUALIFIED PRODUCTS LIST.

## DETAIL OF STANDARD RAISED PAVEMENT MARKERS

| DATE | REVISION | FILMED |
|---|---|---|
| 2-27-20 | REVISED STOP LINE DETAILS | |
| 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

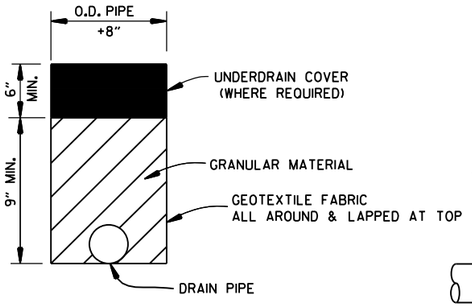
# PAVEMENT MARKING DETAILS

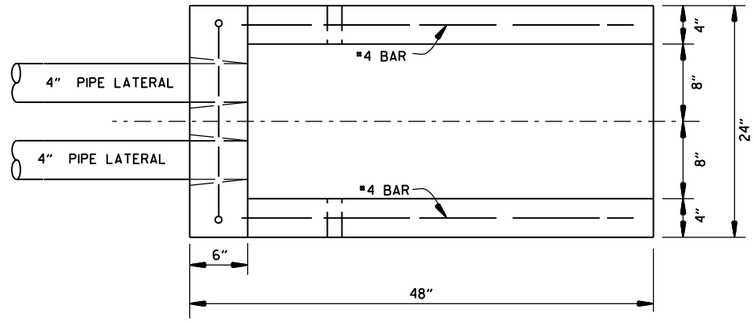
STANDARD DRAWING PM-1

NOTE:

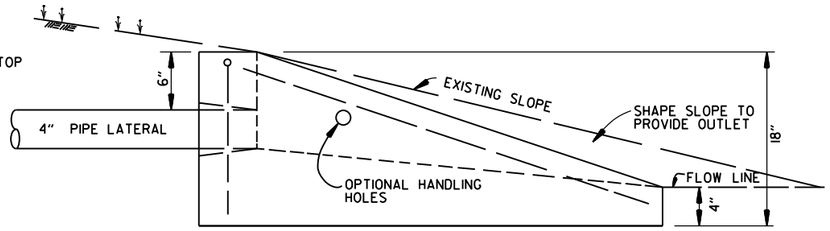
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

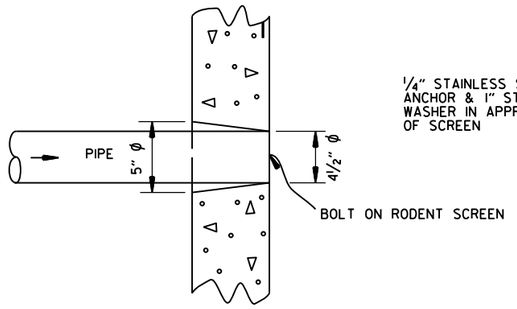


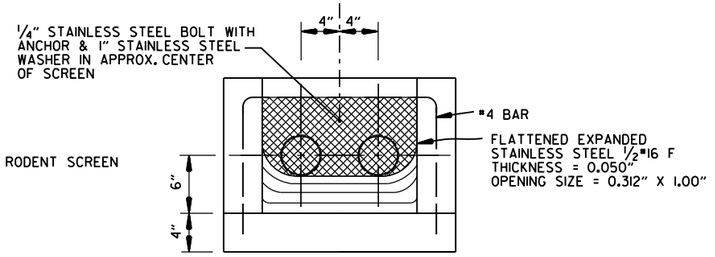

PLAN VIEW



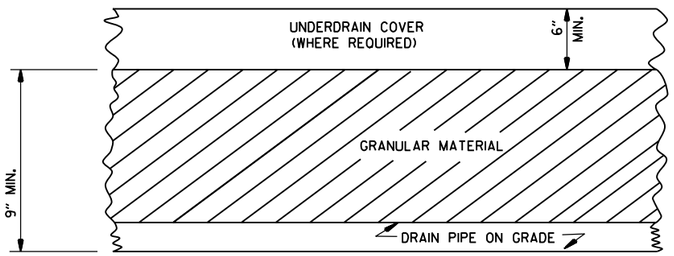

SIDE VIEW




DETAIL OF HOLE
FOR 4" PIPE




FRONT VIEW
(DETAIL OF RODENT SCREEN)




DETAILS OF PIPE UNDERDRAIN

## NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE 1. 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 611 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 611 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."

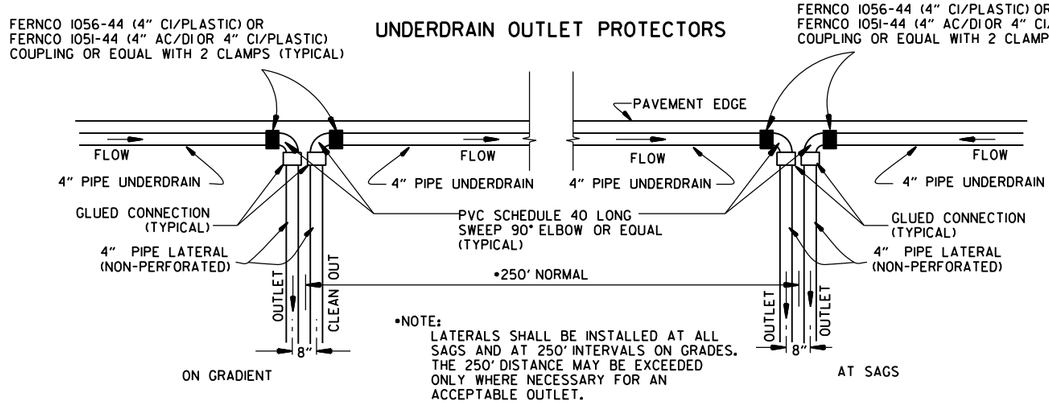
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

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.

## UNDERDRAIN OUTLET PROTECTORS




DETAIL OF PIPE UNDERDRAIN LATERALS
WHEN PLACED ALONG PAVEMENT EDGE

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

| DATE | REVISION | DATE FILMED |
|---|---|---|
| 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; 5½" TO 5" | |
| 11-22-95 | REVISED LATERALS | |
| 7-20-95 | REVISED LATERALS & ADDED NOTE | |
| 11- 3-94 | REVISED FOR DUAL LATERALS | 11- 3-94 |
| 10- 1-92 | SUBSTITUTED GEOTEXTILE | 10- 1-92 |
| 8-15-91 | ADDED POLYEDTHYLENE PIPE | 8-15-91 |
| 11- 8-90 | DELETED ALTERNATE NOTE | 11- 8-90 |
| 1-25-90 | ADDED 4" SNAP ADAPTER | 1-25-90 |
| 11-30-89 | DEL. (SUBGRADE); ADDED (WHERE REQUIRED) | 11-30-89 |
| 7-15-88 | ISSUED P.L.M. | 647-7-15-88 |

ARKANSAS STATE HIGHWAY COMMISSION

# DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

## SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

| DEGREE OF CURVE | 30 MPH | | | 35 MPH | | | 40 MPH | | | 45 MPH | | | 50 MPH | | | 55 MPH | | | 60 MPH | | | 65 MPH | | | 70 MPH | | | 75 MPH | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | e | Ls (FT) | | e | Ls (FT) | | e | Ls (FT) | | e | Ls (FT) | | e | Ls (FT) | | e | Ls (FT) | | e | Ls (FT) | | e | Ls (FT) | | e | Ls (FT) | | e | Ls (FT) | |
| | | MINIMUM | DESIRABLE | | MINIMUM | DESIRABLE | | MINIMUM | DESIRABLE | | MINIMUM | DESIRABLE | | MINIMUM | DESIRABLE | | MINIMUM | DESIRABLE | | MINIMUM | DESIRABLE | | MINIMUM | DESIRABLE | | MINIMUM | DESIRABLE | | MINIMUM | DESIRABLE |
| 0° 15' | NC | | | NC | | | NC | | | NC | | | NC | | | NC | | | NC | | | NC | | | NC | | | NC | | |
| 0° 30' | NC | | | NC | | | NC | | | NC | | | NC | | | NC | | | RC | 96 | | RC | 96 | | RC | 96 | | 0.022 | 101 | |
| 0° 45' | NC | | | NC | | | NC | | | NC | | | RC | 96 | | RC | 96 | | 0.024 | 106 | | 0.026 | 110 | | 0.030 | 120 | | 0.032 | 125 | |
| 1° 00' | NC | | | NC | | | NC | | | RC | 90 | | 0.022 | 101 | | 0.026 | 110 | | 0.030 | 120 | | 0.034 | 130 | | 0.038 | 139 | 300 | 0.042 | 149 | 300 |
| 1° 15' | NC | | | NC | | | RC | 84 | | 0.022 | 95 | | 0.028 | 115 | | 0.032 | 125 | | 0.038 | 139 | | 0.042 | 149 | | 0.046 | 158 | | 0.052 | 173 | |
| 1° 30' | NC | | | RC | 78 | | 0.022 | 88 | | 0.028 | 108 | | 0.032 | 125 | | 0.038 | 139 | | 0.044 | 154 | | 0.050 | 168 | 300 | 0.056 | 182 | | 0.062 | 197 | |
| 1° 45' | RC | 72 | | RC | 78 | | 0.026 | 97 | | 0.030 | 113 | | 0.036 | 134 | | 0.044 | 154 | | 0.050 | 168 | 300 | 0.056 | 182 | | 0.064 | 202 | | 0.070 | 216 | |
| 2° 00' | RC | 72 | | 0.024 | 86 | | 0.028 | 101 | | 0.034 | 122 | | 0.042 | 149 | | 0.048 | 163 | | 0.056 | 182 | | 0.064 | 202 | | 0.070 | 216 | | 0.080 | 240 | |
| 2° 15' | RC | 72 | | 0.026 | 90 | | 0.032 | 109 | | 0.038 | 131 | | 0.046 | 158 | | 0.054 | 178 | 300 | 0.062 | 197 | | 0.070 | 216 | | 0.078 | 235 | 350 | 0.088 | 259 | 350 |
| 2° 30' | 0.022 | 75 | | 0.028 | 94 | | 0.034 | 113 | | 0.042 | 140 | | 0.050 | 168 | | 0.058 | 187 | | 0.068 | 211 | | 0.076 | 230 | | 0.086 | 254 | | 0.096 | 278 | |
| 2° 45' | 0.024 | 79 | | 0.030 | 98 | | 0.038 | 122 | | 0.046 | 149 | 200 | 0.054 | 178 | | 0.064 | 202 | | 0.072 | 221 | | 0.082 | 245 | | 0.092 | 269 | | 0.100 | 288 | 400 |
| 3° 00' | 0.026 | 83 | | 0.034 | 105 | | 0.040 | 126 | | 0.050 | 158 | | 0.058 | 187 | 250 | 0.068 | 211 | | 0.078 | 235 | | 0.088 | 259 | | 0.098 | 283 | 400 | D MAX = 2° 45' | | |
| 3° 15' | 0.028 | 86 | | 0.036 | 109 | | 0.044 | 134 | | 0.052 | 162 | | 0.062 | 197 | | 0.072 | 221 | | 0.082 | 245 | | 0.092 | 269 | | 0.100 | 288 | | | | |
| 3° 30' | 0.030 | 90 | | 0.038 | 113 | | 0.046 | 139 | 200 | 0.056 | 171 | | 0.066 | 206 | | 0.076 | 230 | | 0.086 | 254 | | 0.096 | 278 | 350 | D MAX = 3° 30' | | | | | |
| 3° 45' | 0.032 | 93 | | 0.040 | 117 | | 0.050 | 147 | | 0.058 | 176 | | 0.070 | 216 | | 0.080 | 240 | | 0.090 | 264 | | 0.098 | 283 | | | | | | | |
| 4° 00' | 0.034 | 97 | | 0.042 | 121 | 200 | 0.052 | 151 | | 0.062 | 185 | | 0.072 | 221 | | 0.084 | 250 | | 0.094 | 274 | 350 | 0.100 | 288 | | | | | | | |
| 4° 15' | 0.036 | 100 | | 0.044 | 125 | | 0.054 | 155 | | 0.064 | 189 | | 0.076 | 230 | | 0.086 | 254 | 350 | 0.096 | 278 | | D MAX = 4° 15' | | | | | | | | |
| 4° 30' | 0.036 | 100 | | 0.046 | 129 | | 0.056 | 160 | | 0.068 | 198 | | 0.078 | 235 | | 0.090 | 264 | | 0.098 | 283 | | | | | | | | | | |
| 4° 45' | 0.038 | 104 | 200 | 0.048 | 133 | | 0.060 | 168 | | 0.070 | 203 | | 0.082 | 245 | | 0.092 | 269 | | 0.100 | 288 | | | | | | | | | | |
| 5° 00' | 0.040 | 108 | | 0.050 | 137 | | 0.062 | 172 | | 0.072 | 207 | | 0.084 | 250 | | 0.094 | 274 | | D MAX = 5° 15' | | | | | | | | | | |
| 5° 30' | 0.044 | 115 | | 0.054 | 144 | | 0.066 | 181 | | 0.078 | 221 | 250 | 0.088 | 259 | | 0.098 | 283 | | | | | | | | | | | | |
| 6° 00' | 0.046 | 119 | | 0.058 | 152 | | 0.070 | 189 | | 0.082 | 230 | | 0.092 | 269 | | 0.100 | 288 | | | | | | | | | | | | |
| 6° 30' | 0.050 | 126 | | 0.062 | 160 | | 0.074 | 198 | | 0.086 | 239 | | 0.096 | 278 | 300 | D MAX = 6° 30' | | | | | | | | | | | | | |
| 7° 00' | 0.052 | 130 | | 0.064 | 164 | | 0.078 | 206 | | 0.090 | 248 | | 0.098 | 283 | | | | | | | | | | | | | | | |
| 7° 30' | 0.054 | 133 | | 0.068 | 172 | | 0.080 | 210 | | 0.092 | 252 | | 0.100 | 288 | | | | | | | | | | | | | | | |
| 8° 00' | 0.058 | 140 | | 0.070 | 176 | | 0.084 | 219 | | 0.094 | 257 | 300 | D MAX = 8° 25' | | | | | | | | | | | | | | | | |
| 8° 30' | 0.060 | 144 | | 0.072 | 179 | | 0.086 | 223 | 250 | 0.096 | 261 | | | | | | | | | | | | | | | | | | |
| 9° 00' | 0.062 | 148 | | 0.076 | 187 | | 0.088 | 227 | | 0.098 | 266 | | | | | | | | | | | | | | | | | | |
| 9° 30' | 0.064 | 151 | | 0.078 | 191 | | 0.092 | 235 | | 0.100 | 270 | | | | | | | | | | | | | | | | | | |
| 10° 00' | 0.066 | 155 | | 0.080 | 195 | | 0.094 | 240 | | D MAX = 10° 30' | | | | | | | | | | | | | | | | | | | |
| 11° 00' | 0.070 | 162 | | 0.084 | 203 | | 0.096 | 244 | | | | | | | | | | | | | | | | | | | | | |
| 12° 00' | 0.074 | 169 | | 0.088 | 211 | 250 | 0.098 | 248 | | | | | | | | | | | | | | | | | | | | | |
| 13° 00' | 0.076 | 173 | | 0.090 | 215 | | 0.100 | 252 | 300 | D MAX = 13° 45' | | | | | | | | | | | | | | | | | | | |
| 14° 00' | 0.080 | 180 | | 0.094 | 222 | | | | | | | | | | | | | | | | | | | | | | | | |
| 15° 00' | 0.082 | 184 | | 0.096 | 226 | | | | | | | | | | | | | | | | | | | | | | | | |
| 16° 00' | 0.086 | 191 | | 0.098 | 230 | | | | | | | | | | | | | | | | | | | | | | | | |
| 17° 00' | 0.088 | 194 | | 0.100 | 234 | | | | | | | | | | | | | | | | | | | | | | | | |
| 18° 00' | 0.090 | 198 | 250 | D MAX = 19° 30' | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19° 00' | 0.092 | 202 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20° 00' | 0.094 | 205 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21° 00' | 0.096 | 209 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22° 00' | 0.096 | 209 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23° 00' | 0.098 | 212 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24° 00' | 0.098 | 212 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25° 00' | 0.100 | 216 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D MAX = 28° 30' | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

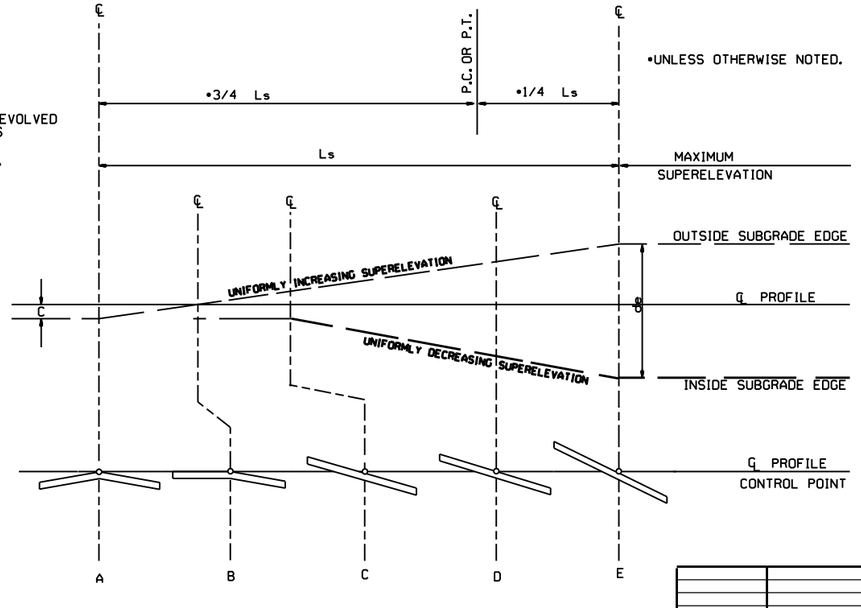
1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED 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%

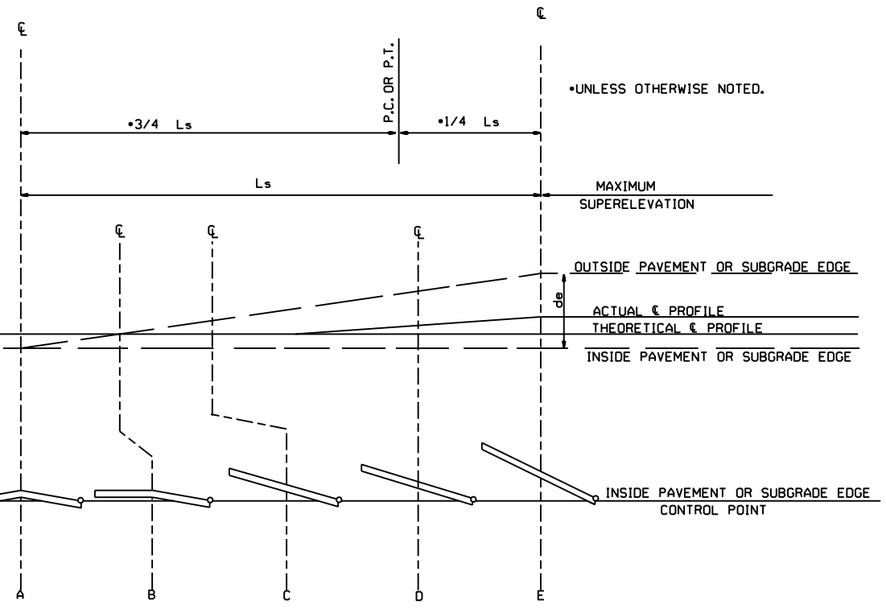
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.

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




STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE




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

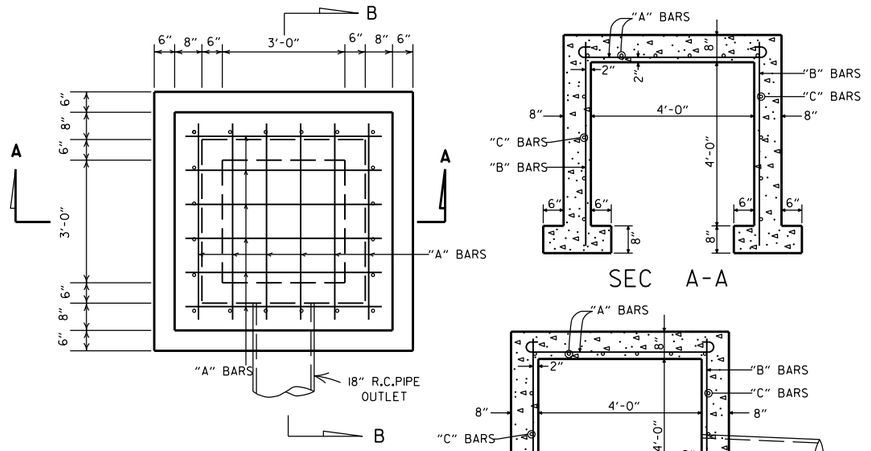
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

| DATE | REVISION | DATE FILLMED |
|---|---|---|
| 11-07-19 | REVISED SUPERELEVATION TABLE | |
| 10-18-96 | ADDED FORMULA | |
| 01-09-87 | ISSUED | 534-1-9-87 |

ARKANSAS STATE HIGHWAY COMMISSION

# TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2







SEC A-A



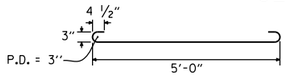

SEC B-B

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

STEEL SCHEDULE

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

ALL STEEL TO BE #4 BARS




"A" BARS

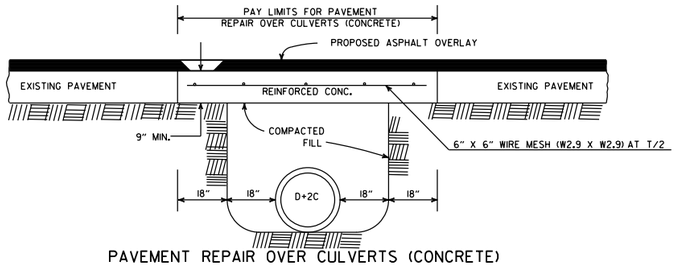
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

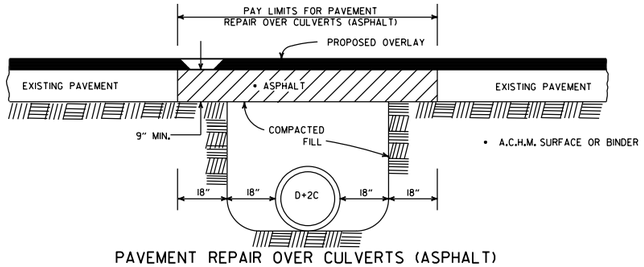
GENERAL NOTE:

THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

## REINFORCED CONCRETE SPRING BOX



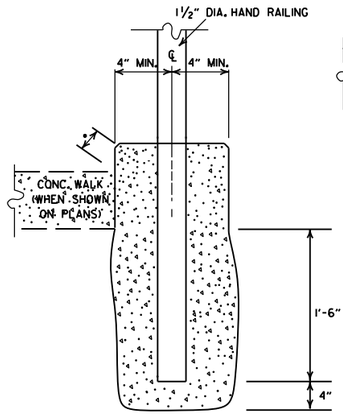

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



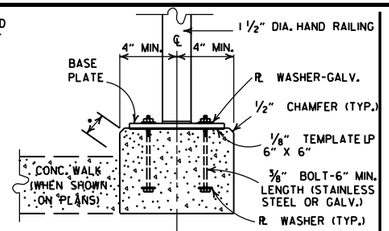

PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

## DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

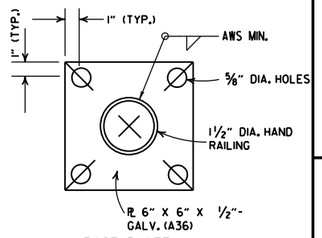
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.




DETAIL OF HAND RAILING SET IN CONCRETE

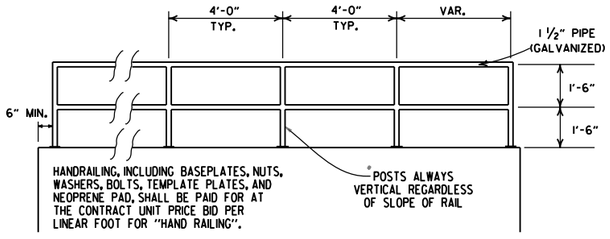



POST CONNECTION TO WALL

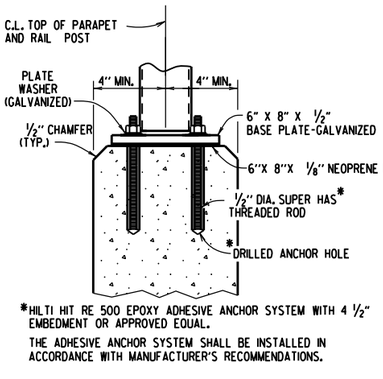



BASE PLATE

## POST CONNECTION DETAILS



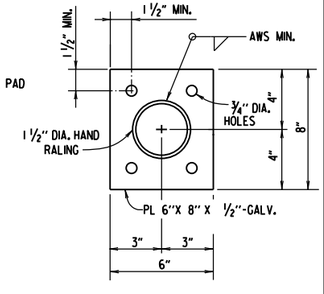

HAND RAILING SHALL CONFORM TO SECTION 633.




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

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

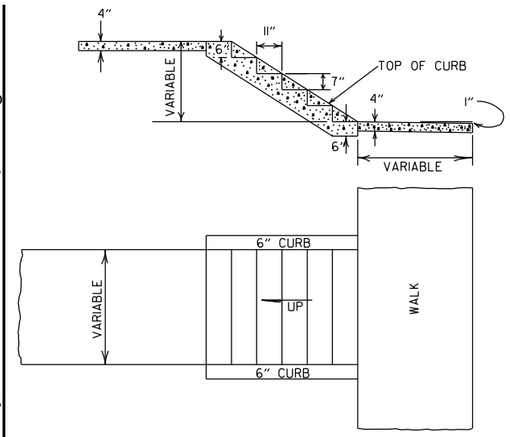
POST CONNECTION TO WALL




BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

## HAND RAILING DETAILS




GENERAL NOTES

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

## DETAILS OF CONCRETE STEPS & WALKS

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

ARKANSAS STATE HIGHWAY COMMISSION

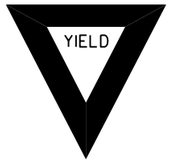
# DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI - 1

R1-1


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

R1-2




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

R2-1


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

W3-5


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

W3-5a


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

R4-1


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

R4-2


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

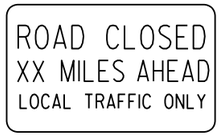
R5-1


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

R11-2


48"X30"

R11-3A




60"X30"

R11-4


60"X30"

W21-5a


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

W1-1

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

W1-2

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

W1-3

STD. 48"X48"

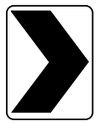
W1-4

STD. 48"X48"

W1-6

STD. 48"X24"
SPECIAL 60"X30"

W1-8



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

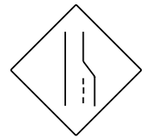
W3-1

STD. 36"X36"
SPECIAL 48"X48"

W3-2

STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1


STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7


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

W9-2


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

W13-1


STD. 24"X24"

W20-1


STD. 48"X48"

W20-2


STD. 48"X48"

W20-3


STD. 48"X48"

W20-4


STD. 48"X48"

W20-5


STD. 48"X48"

W20-7a


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

W21-2


STD. 30"X30"
SPECIAL 36"X36"

W21-5


STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

W1-4b

STD. 48"X48"

R56-1


STD. 18"X18"

W8-11


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

W8-9


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

G20-1


60"X24"

G20-2




48"X24"

OM-3L OM-3R




12"X36"

M4-9




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

M4-10




48"X18"

R55-1




36"X60"

• USE 6" C LETTERS
•• USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

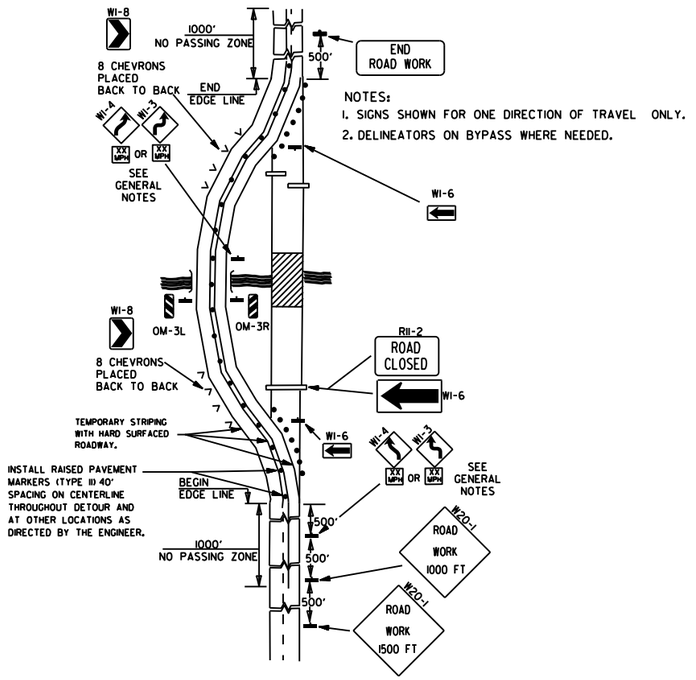
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

| DATE | REVISION | FILMED |
|---|---|---|
| 11-07-19 | REVISED FOR MASH | |
| 4-13-17 | DELETED RSP-1 & ADDED W21-5a | |
| 9-2-15 | REVISED REDUCED SPEED LIMIT AHEAD SIGNS<br>REVISED ROAD WORK NEXT XX MILES | |
| 12-15-11 | REVISED W24-1 | |
| 11-17-10 | DELETED W8-9a & ADDED W8-9 | |
| 10-15-09 | ADDED REFERENCE TO MASH & ADDED SIGN W24-1 | |
| 4-17-08 | REVISED SIGN DESIGNATIONS | |
| 11-18-04 | REVISED NOTES | |
| 10-9-03 | REVISED NOTE 1 | |
| 11-16-01 | REVISED NOTE 7 | |
| 9-28-00 | REVISED NOTE | |
| 11-18-98 | ADDED NOTE | |
| 6-26-97 | REVISED NOTE 5 | |
| 4-03-97 | REVISED NOTE 5 | |
| 10-18-96 | ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7 | |
| 10-12-95 | ADDED R55-1 | |
| 6-8-95 | REVISED TO CORRECT SIGN ILLUSTRATIONS | 6-8-95 |
| 2-2-95 | REVISED PER PART VI, MUTCD SEPT. 3, 1993 | |
| 8-15-91 | DRAWN AND PLACED IN USE | |

ARKANSAS STATE HIGHWAY COMMISSION

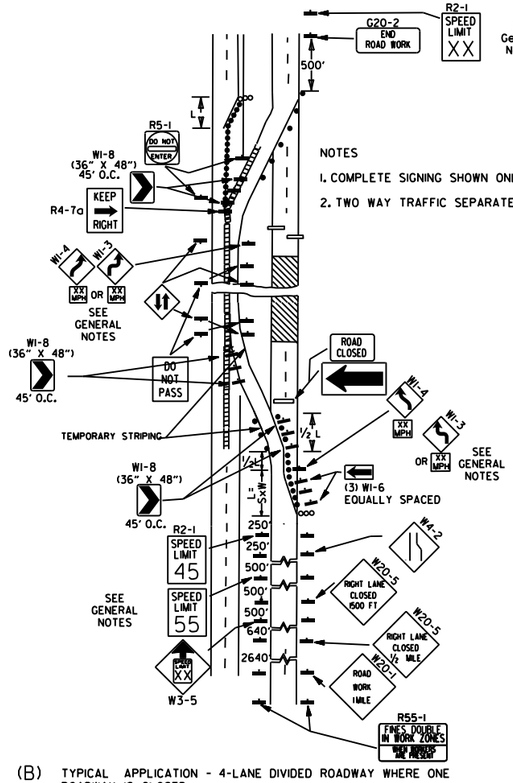
# STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



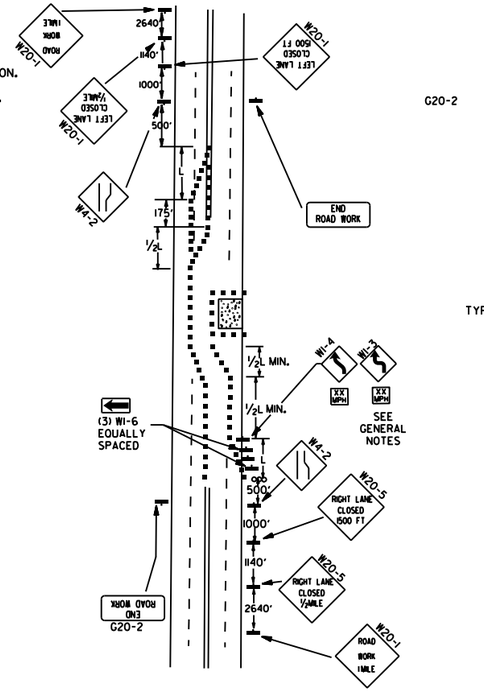

NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

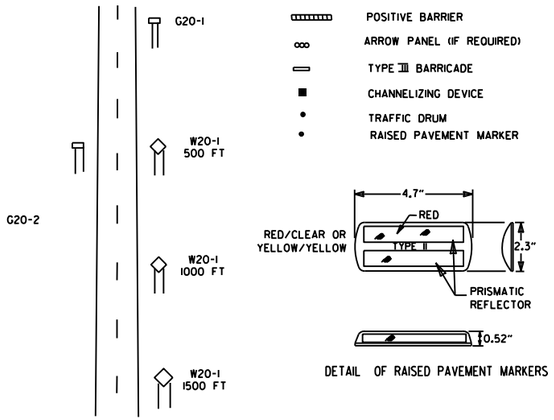



NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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




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




DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

WHERE:

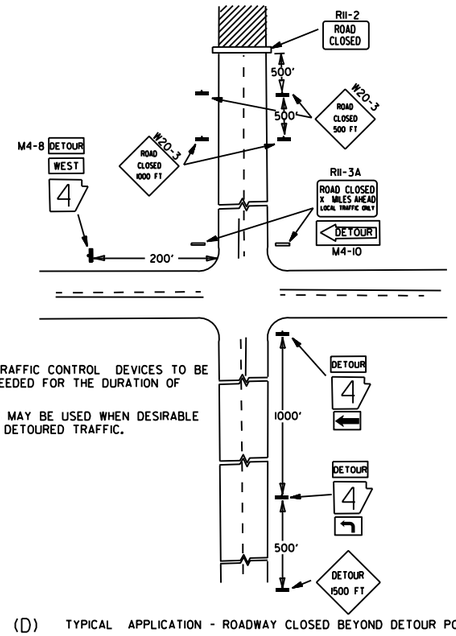
L= MINIMUM LENGTH OF TAPER.

S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.

W= WIDTH OF OFFSET.

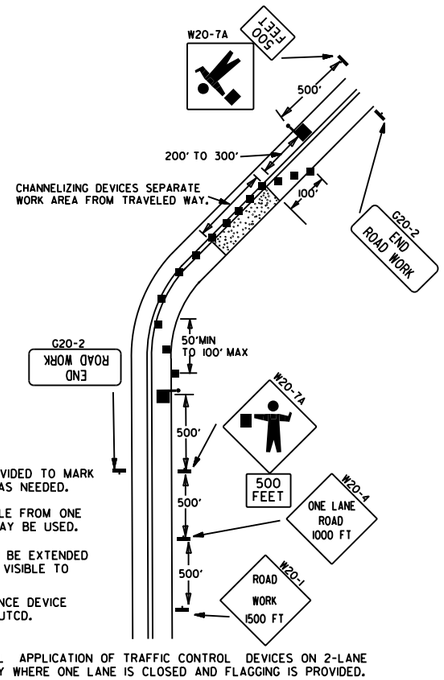
GENERAL NOTES:

1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON WI-3 OR WI-4 CURVE WARNING SIGNS. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-3 WHEN 30MPH OR LESS
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE 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 R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.
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 ARDOT QUALIFIED PRODUCTS LIST.
9. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



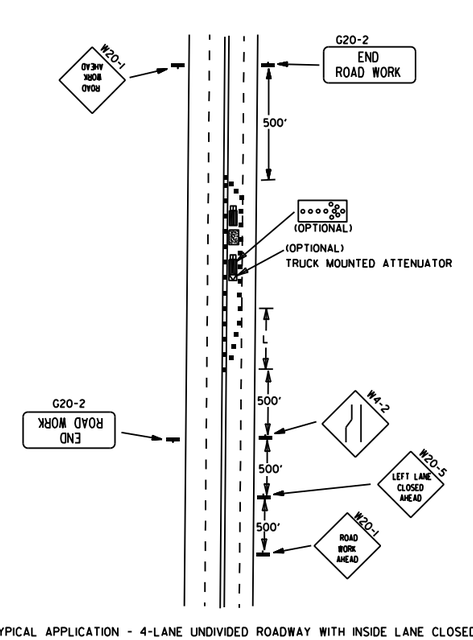

NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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




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

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



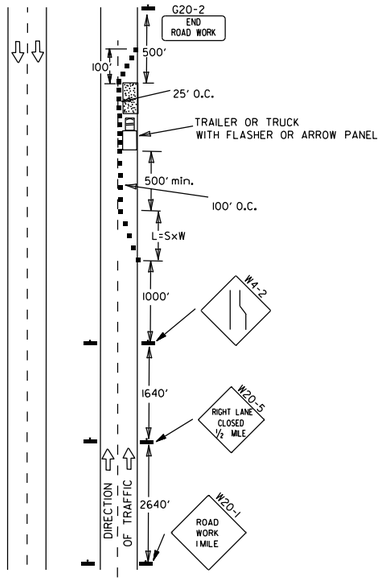

(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

| DATE | REVISION | FILMED |
|---|---|---|
| 05-20-21 | REVISED NOTE 7 | |
| 11-07-19 | REVISED NOTE 1, ADDED NOTE 9 | |
| 9-2-15 | REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5 | |
| 9-12-13 | REVISED DETAIL OF RAISED PAVEMENT MARKERS | |
| 3-11-10 | ADDED (AFAD) | |
| 11-20-08 | REVISED SIGN DESIGNATIONS | |
| 11-18-04 | ADDED GENERAL NOTE | |
| 10-18-96 | ADDED R55-1 | |
| 4-26-96 | CORRECTED (a) BEHIND G20-2 | |
| 6-8-95 | CORRECTED SIGN IDENT. ON W1-4A | 6-8-95 |
| 2-2-95 | REVISED PER PART VI, MUTCD, SEPT. 3, 1993 | |
| 8-15-91 | DRAWN AND PLACED IN USE | |

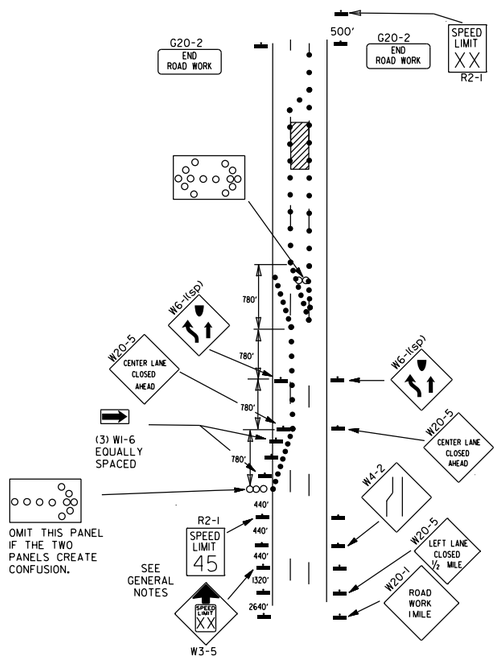
ARKANSAS STATE HIGHWAY COMMISSION

# STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-2




(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.




(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.

KEY:

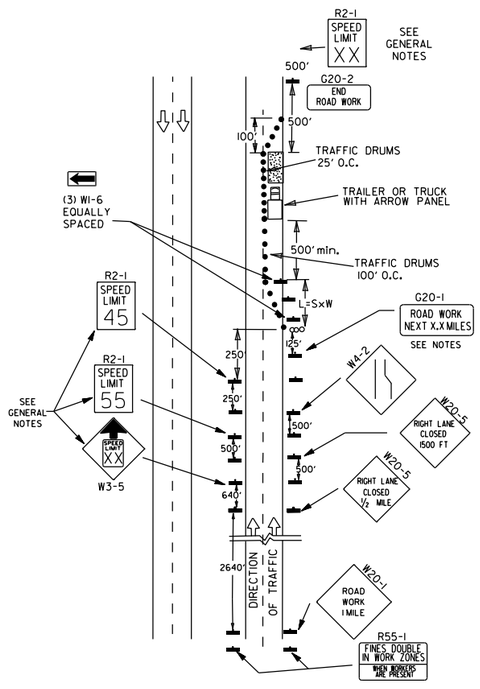
ARROW PANEL (IF REQUIRED)

■ CHANNELIZING DEVICE

● TRAFFIC DRUM

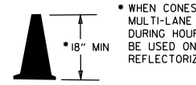
GENERAL NOTES:

1. A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS, AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. THE G20-1 SIGN WILL BE REQUIRED ON JOBS OF OVER TWO MILES IN LENGTH. WHEN THE LANE CLOSURE IS NOT AT THE BEGINNING OF THE PROJECT, THE G20-1 SIGN SHALL BE ERECTED 125' IN ADVANCE OF THE JOB LIMIT. ADDITIONAL W20-1 (1 MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
8. FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
10. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.
11. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).




(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

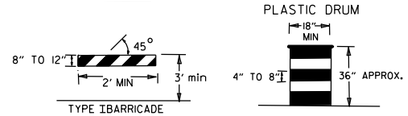
## CHANNELIZING DEVICES



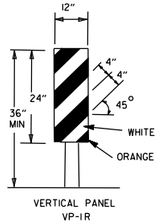

* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

CONES

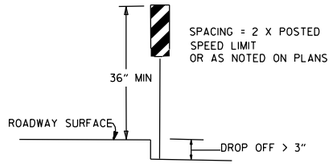
PLASTIC DRUM



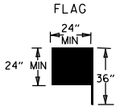

NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.




VERTICAL PANEL PLACEMENT




FLAG




FLAG SHALL BE OF GOOD GRADE RED MATERIAL

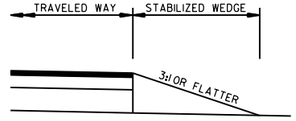
| TRAFFIC CONTROL DEVICES | | | |
|---|---|---|---|
| NON-INTERSTATE | | | |
| VERTICAL DIFFERENTIAL | LOCATION | TRAFFIC CONTROL | |
| | | ≤ 45 MPH | > 45 MPH |
| ≤ 1" | CENTERLINE | W8-11 | W8-11 |
| > 1" ≤ 3" | CENTERLINE | W8-11 AND CENTERLINE LANE STRIPING | W8-11 AND CENTERLINE LANE STRIPING |
| > 3" | CENTERLINE | STANDARD LANE CLOSURE[6] | STANDARD LANE CLOSURE[6] |
| ≤ 3" | EDGE OF TRAVELED LANE OR EDGE OF SHOULDER | W8-9 AND TRAFFIC DRUMS[1] | W8-9 AND TRAFFIC DRUMS[1] |
| > 3" ≤ 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[1] |
| > 6" ≤ 18" | 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] |
| > 18" ≤ 24" | EDGE OF TRAVELED LANE OR EDGE OF SHOULDER | W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[1] | A STABILIZED WEDGE, W8-17, EDGE LINE STRIPING AND TRAFFIC DRUMS[3] |
| > 24" | EDGE OF TRAVELED LANE OR EDGE OF SHOULDER | PRECAST CONCRETE BARRIER[4] & EDGE LINES | PRECAST CONCRETE BARRIER[4] & EDGE LINES |

| INTERSTATE | | |
|---|---|---|
| VERTICAL DIFFERENTIAL | LOCATION | TRAFFIC CONTROL |
| ≤ 3" | CENTERLINE | W8-11 AND LANE STRIPING |
| ≤ 3" | EDGE OF TRAVELED LANE OR EDGE OF SHOULDER | W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS[2] |
| > 3" ≤ 6" | 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:

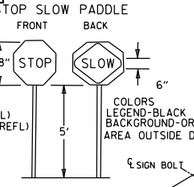
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
3. PRECAST CONCRETE BARRIER WALL CAN BE USED IN LIEU OF A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS, IF AND WHERE DIRECTED BY THE ENGINEER.
4. 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.
5. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.
6. TIME LIMITATIONS MUST CONFORM TO SECTION 603 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).

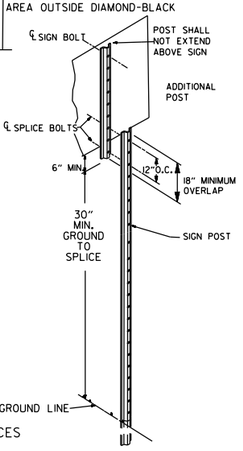



STABILIZED WEDGE

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

STOP SLOW PADDLE

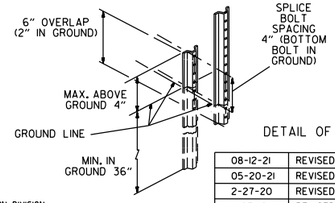


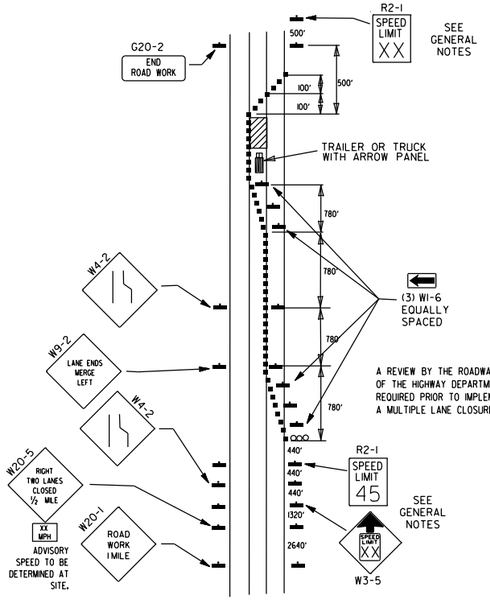

NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

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.




DETAIL OF SPLICES




A REVIEW BY THE ROADWAY DESIGN DIVISION OF THE HIGHWAY DEPARTMENT WILL BE REQUIRED PRIOR TO IMPLEMENTING A MULTIPLE LANE CLOSURE.

(D) TYPICAL APPLICATION - CLOSING MULTIPLE LANES OF A MULTILANE HIGHWAY.

| DATE | REVISION | FILMED |
|---|---|---|
| 08-12-21 | REVISED TRAFFIC CONTROL DEVICES AND NOTES | |
| 05-20-21 | REVISED NOTE 10 | |
| 2-27-20 | REVISED TRAFFIC CONTROL DEVICES DETAILS | |
| 11-07-19 | REVISED NOTE 9, ADDED NOTE 11 | |
| 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 | |

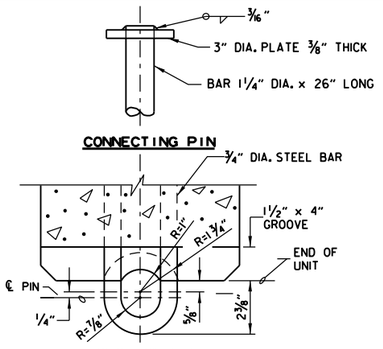
ARKANSAS STATE HIGHWAY COMMISSION

# STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

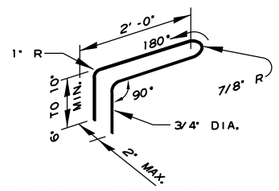
## REINFORCING BAR TABLE PER BARRIER UNIT

| MARK | LOCATION | BAR SIZE | (NO. BARS) | SKETCH |
|---|---|---|---|---|
| H-1 | HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS | #5 | (6) | 19'-3" |
| H-2 | CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY | #5 | (6) | 6'-6" |
| H-3 | TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1 | #4 | (2) | 1'-6" |
| S-1 | OVER LIFT HOLES | #4 | (2) | 2'-5", LIFTING HOLE, 90°, 3 3/8" R |
| S-2 | HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS | #4 | (2) | 1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP |
| V-1 | VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS | #5 | (16) | TOTAL LENGTH 4'-9"; 2 3/16" R; 12°; 1 1/2"; 9"; 2'-1 3/8"; 4 3/8" |

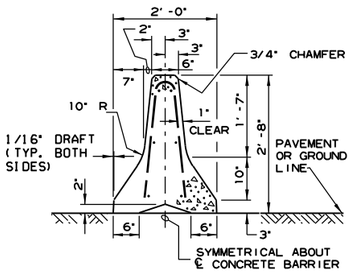



SECTION E-E

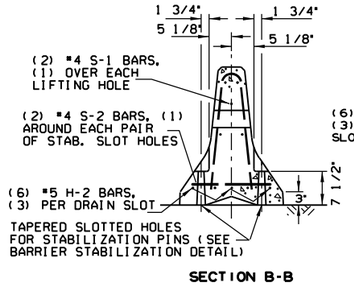
CONNECTION DETAILS



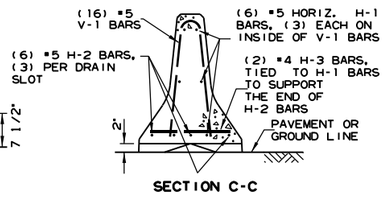

CONNECTION LOOP



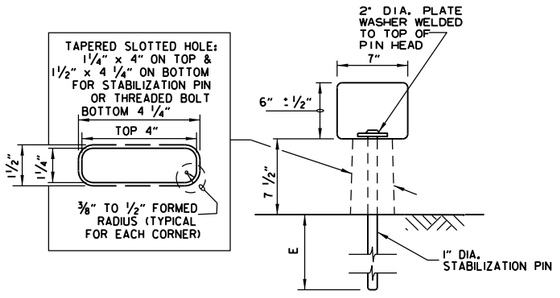

SECTION A-A




SECTION B-B



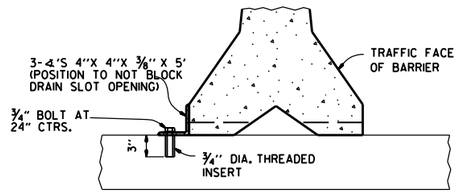

SECTION C-C




BARRIER STABILIZATION DETAIL

ROADWAY SECTION

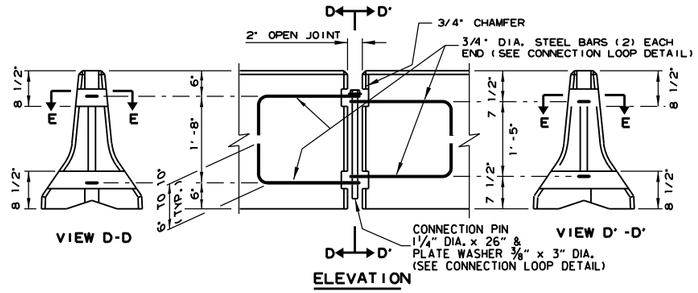
(E) 4" - CONCRETE PAVEMENT
8" - ASPHALT PAVEMENT
12" - SHOULDER AREAS



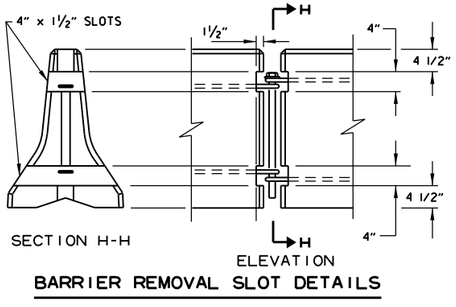

NOTE: " THREADED INSERTS SHALL BE CAST IN PLACE FOR ALL NEW BRIDGE DECKS AND DRILLED AND GROUTED FOR EXISTING BRIDGE DECKS. INSERTS SHALL HAVE A MINIMUM ULTIMATE LOAD CAPACITY OF 8000 LBS. IN TENSION. AFTER REMOVAL OF BARRIER, BOLTS, AND ANGLES, THE INSERTS SHALL BE FILLED WITH APPROVED NON-SHRINK EPOXY.

BARRIER STABILIZATION DETAIL

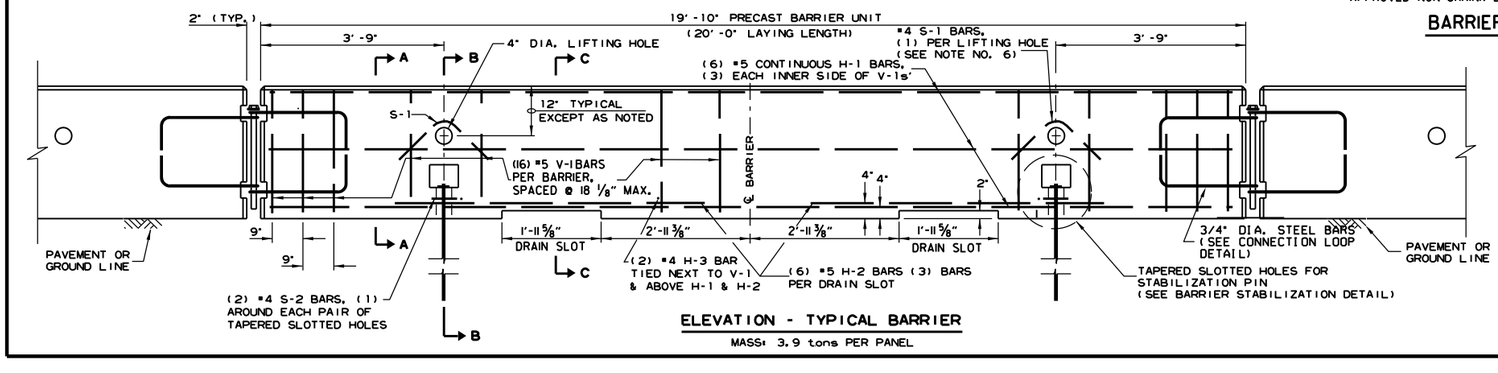
BRIDGE DECKS




ELEVATION




BARRIER REMOVAL SLOT DETAILS




ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

### GENERAL NOTES

(1) THE CONTRACTOR SHALL FURNISH THE PRECAST CONCRETE BARRIER UNITS AND SHALL BE RESPONSIBLE FOR THE MANUFACTURE, SHIPMENT, STORAGE, PLACEMENT AND REMOVAL. AT THE COMPLETION OF THE PROJECT, THE PRECAST UNITS WILL REMAIN THE PROPERTY OF THE CONTRACTOR.

(2) MATERIALS SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:
CONCRETE: 2500 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
REINFORCING STEEL: AASHTO M 31 OR M 53, GRADE 60
STRUCTURAL STEEL: AASHTO-M270 GRADE 36 SHALL BE USED FOR THE CONNECTION PIN, CONNECTION LOOPS, AND STABILIZATION PINS. A ONE PIECE PIN WITH A 3" ROUNDED TOP MAY BE USED IN PLACE OF THE DETAILED CONNECTION PIN.
DELINEATORS: DELINEATORS SHALL BE MOUNTED AT 10' SPACING ON TOP OF PRECAST BARRIER.

IN APPLICATIONS WHERE BARRIER WALL IS WITHIN 6 FEET OF A TRAFFIC LANE, ADDITIONAL DELINEATORS SHALL BE PLACED ON THE BARRIER AT 10' SPACING APPROXIMATELY ONE (1) FOOT FROM THE TOP OF THE BARRIER. DELINEATORS SHALL BE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR CONSTRUCTION CONCRETE BARRIER MARKERS.
DELINEATOR COLOR SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
PAYMENT FOR DELINEATORS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID PER LIN. FT. FOR "FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER". THE CONTRACTOR SHALL CERTIFY TO THE ENGINEER THAT THE MATERIAL AND THE DESIGN USED IN THE PRECAST BARRIER UNITS MEETS THE REQUIREMENTS AS SHOWN ON THIS STANDARD DRAWING.

(3) OTHER PRECAST CONCRETE BARRIERS THAT HAVE BEEN CRASH TESTED AND APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION TO MEET THE REQUIREMENTS OF 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 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 MANUAL FOR ASSESSING SAFETY HARDWARE (MASH). MIXING OF SHAPES WILL NOT BE ALLOWED IN A CONTINUOUS LINE OF UNITS.

(4) DOWEL HOLES IN PAVEMENT OR BRIDGE SLABS THAT ARE TO REMAIN IN PLACE SHALL BE FILLED. HOLES IN CONCRETE PAVEMENT AND BRIDGE SLABS SHALL BE FILLED WITH AN APPROVED NON-SHRINK EPOXY GROUT. HOLES IN ASPHALT PAVEMENT SHALL BE FILLED WITH AN APPROVED ASPHALT JOINT FILLER. PAYMENT FOR DRILLING AND FILLING HOLES TO BE INCLUDED IN THE PRICE FOR VARIOUS BARRIER ITEMS.

(5) ATTACH UNITS TO ROADWAY SURFACE WITH STABILIZATION PINS AND TO DECK SLABS USING BOLTS WHEN REQUIRED.

(6) A 4" WHITE PVC SLEEVE MAY BE USED TO FORM THE LIFTING HOLE AND IF USED THE SLEEVE IS TO BE LEFT IN PLACE.

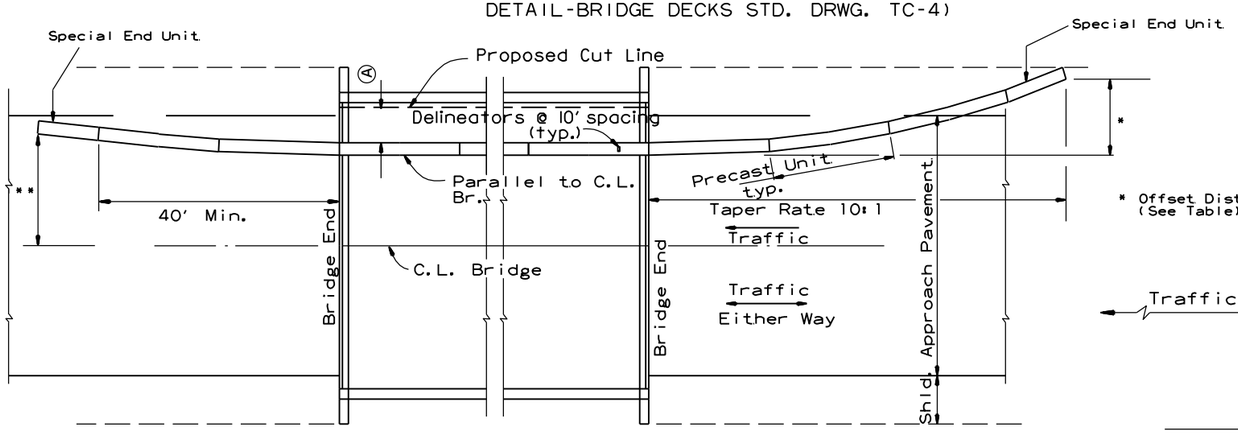
| DATE | REVISION | FILMED |
|---|---|---|
| 11-07-19 | REVISED NOTE 3 | |
| 2-27-14 | REVISED BARRIER STABILIZATION DETAIL | |
| 10-15-09 | ADDED REFERENCE TO WASH | |
| 8-5-09 | REV. NOTE 3 CONCERNING DRAIN SLOTS | |
| 11-29-07 | REVISED NOTE 3 | |
| 5-25-06 | DELETED GENERAL NOTE 7 | |
| 11-18-04 | REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS | |
| 4-10-03 | REVISED GENERAL NOTE 2 | |
| 8-22-02 | ISSUED NEW DRAWING | |

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

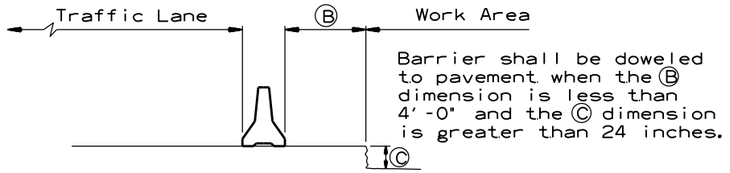
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)




* Offset Distance (See Table)

## BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

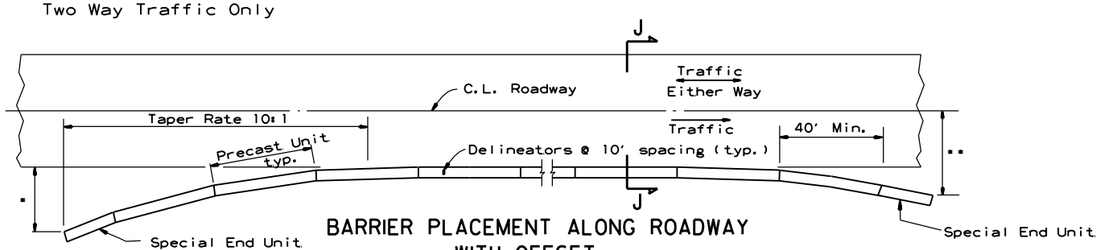



Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

## SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only




## BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

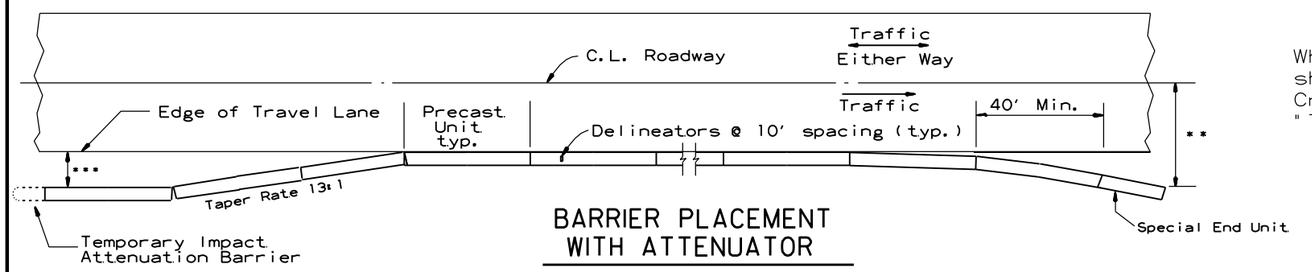
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

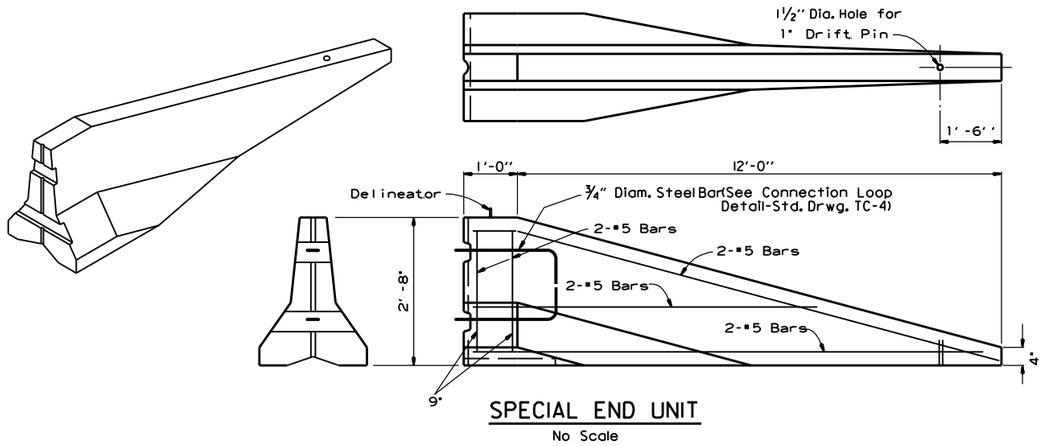



## BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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




## SPECIAL END UNIT

No Scale

### General Notes

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

| DATE | REVISION | FILMED |
|---|---|---|
| 11-07-19 | REVISED NOTE | |
| 10-15-09 | ADDED REFERENCE TO MASH | |
| 5-25-06 | REVISED BARRIER PLACEMENT | |
| 8-22-02 | ISSUED NEW DRAWING | |

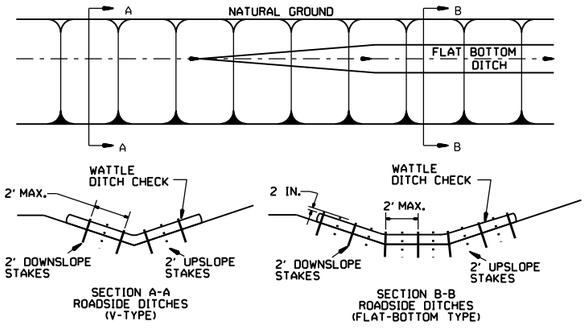
**ARKANSAS STATE HIGHWAY COMMISSION**

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

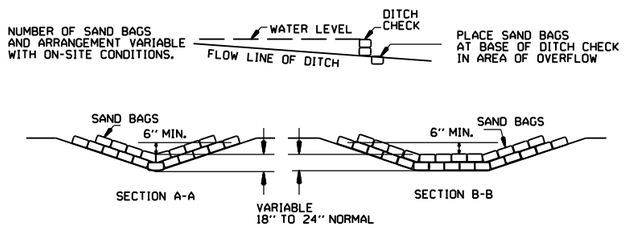
STANDARD DRAWING TC-5

GENERAL NOTES

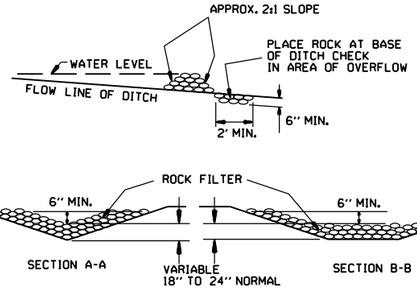
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.




## WATTLE DITCH CHECK (E-1)




## SAND BAG DITCH CHECK (E-5)

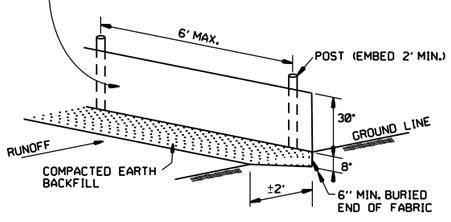



## ROCK DITCH CHECK (E-6)

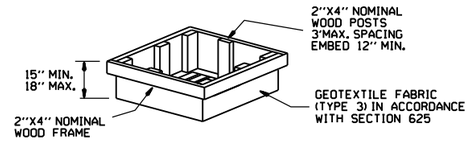
GENERAL NOTES

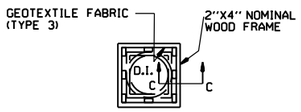
GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

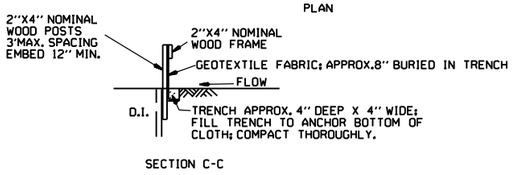
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



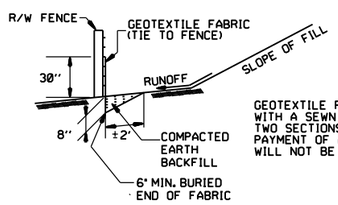

## SILT FENCE (E-11)



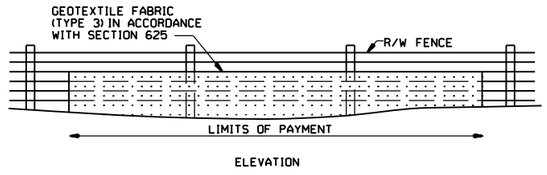




## DROP INLET SILT FENCE (E-7)




GENERAL NOTES

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



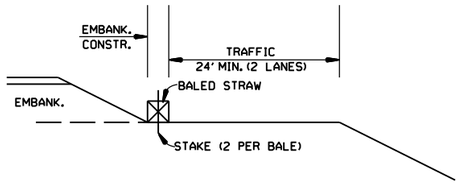

## SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

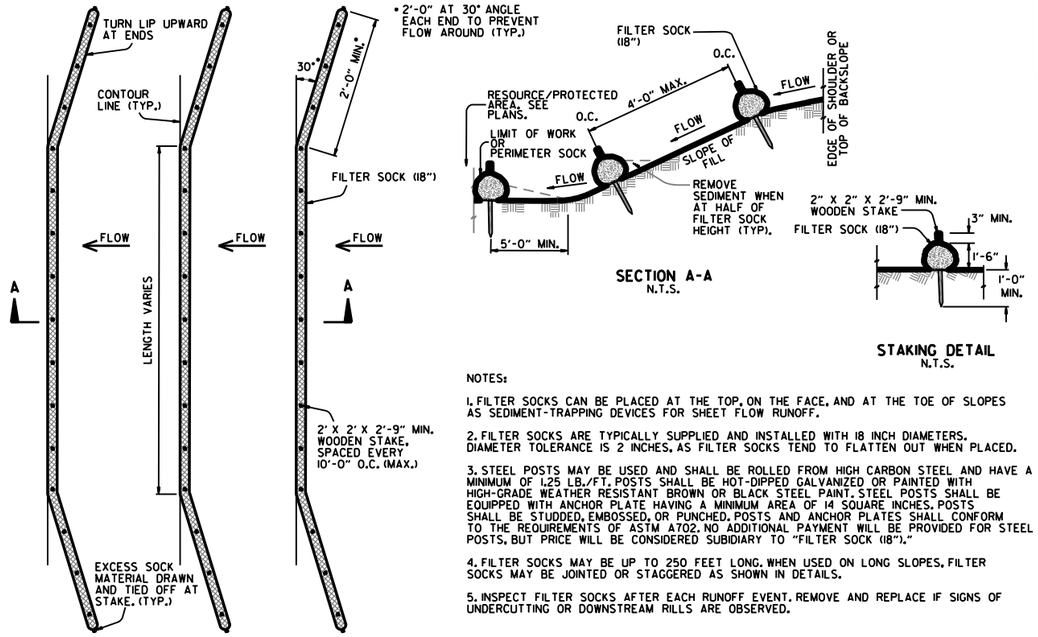
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

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




## BALED STRAW FILTER BARRIER (E-2)




NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.

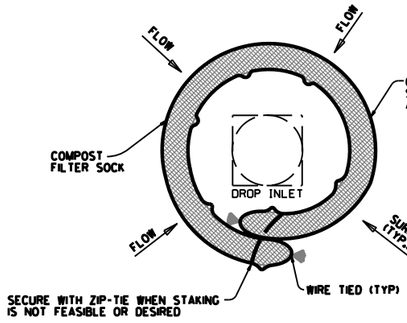
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBIDIARY TO "FILTER SOCK (18")."

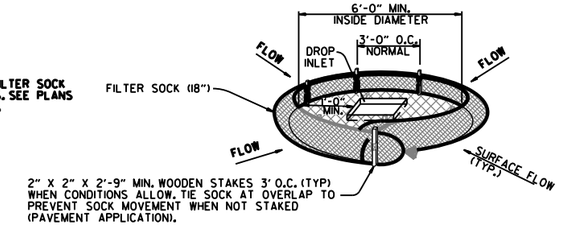
4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.

## FILTER SOCK ALONG SLOPE (E-3)




## DROP INLET PLAN VIEW
N.T.S.




## DROP INLET PERSPECTIVE VIEW
N.T.S.

NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).

2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

## COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

| DATE | REVISION | FILMED |
|---|---|---|
| 11-16-17 | ADDED FILTER SOCK E-3 AND E-13 | |
| 12-15-11 | DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK | |
| 11-18-98 | ADDED NOTES | |
| 07-02-98 | ADDED BALED STRAW FILTER BARRIER (E-2) | |
| 07-20-95 | REVISED SILT FENCE E-4 AND E-11 | 7-20-95 |
| 07-15-94 | REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC | |
| 06-02-94 | REVISED E-1,4,7 & 11; DELETED E-2 & 3 | 6-2-94 |
| 04-01-93 | REDRAWN | |
| 10-01-92 | REDRAWN | |
| 08-02-76 | ISSUED R.D.M. | 298-7-28-76 |

ARKANSAS STATE HIGHWAY COMMISSION

# TEMPORARY EROSION CONTROL DEVICES

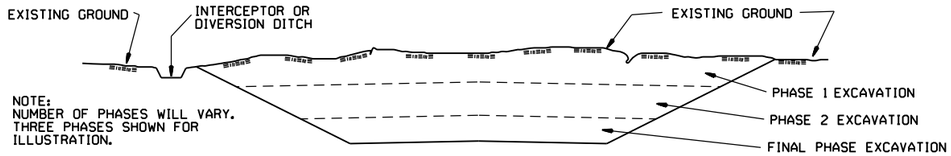
STANDARD DRAWING TEC-1

# CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

# EXCAVATION



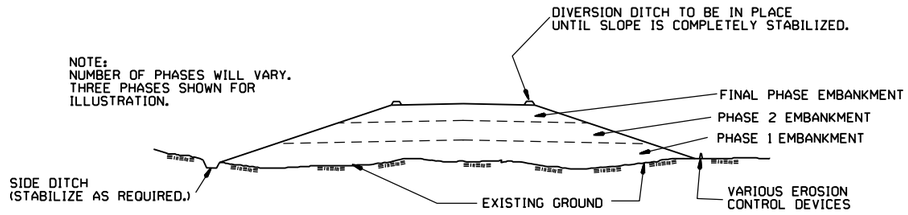

GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

# EMBANKMENT




GENERAL NOTE

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

CONSTRUCTION SEQUENCE

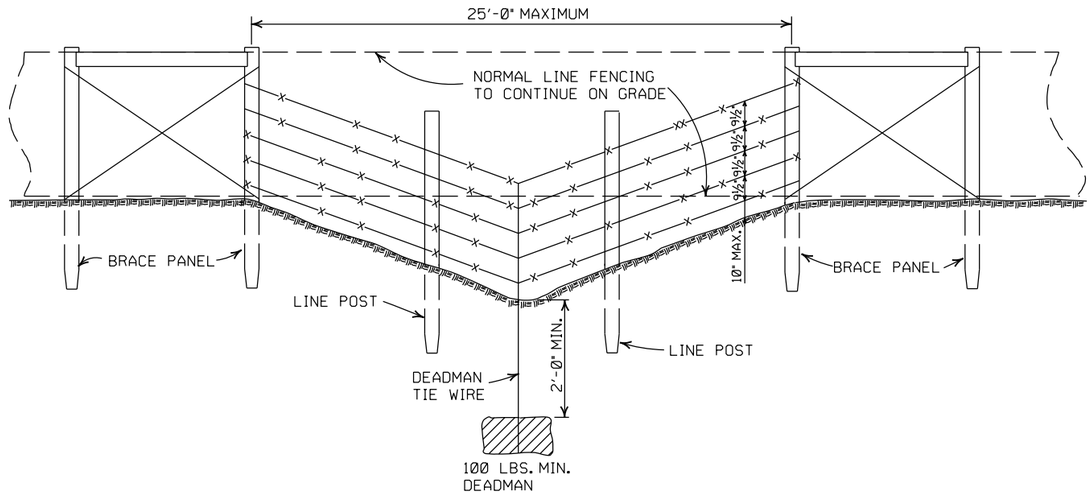
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD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

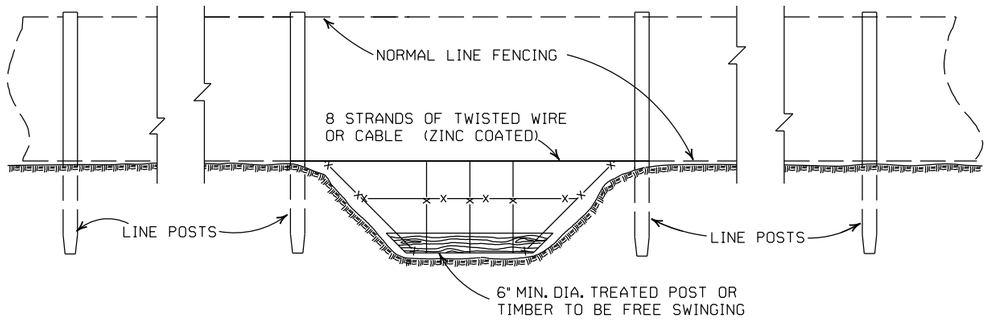
| | | |
|---|---|---|
| 11-03-94 | CORRECTED SPELLING | |
| 6-2-94 | Drawn & Issued | 6-2-94 |
| DATE | REVISION | FILMED |

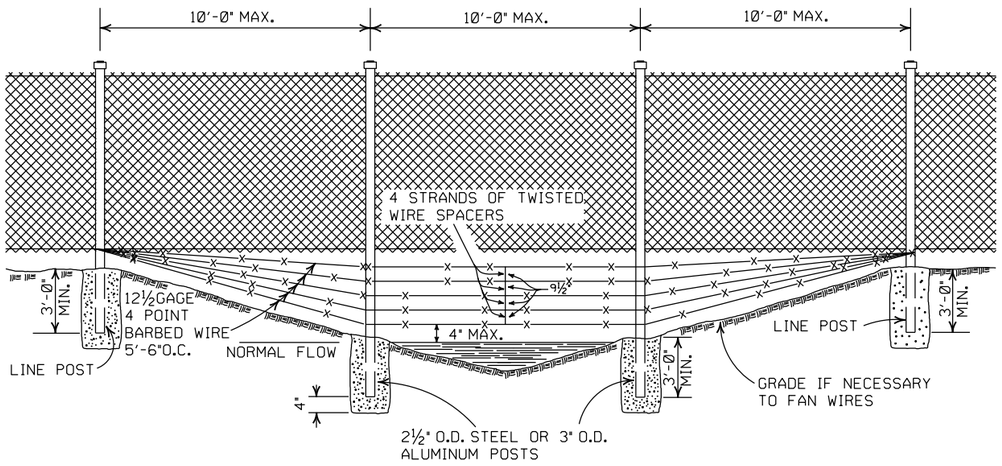
ARKANSAS STATE HIGHWAY COMMISSION

# TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3




GENERAL NOTES:

THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION. INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER.

WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.

IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN.

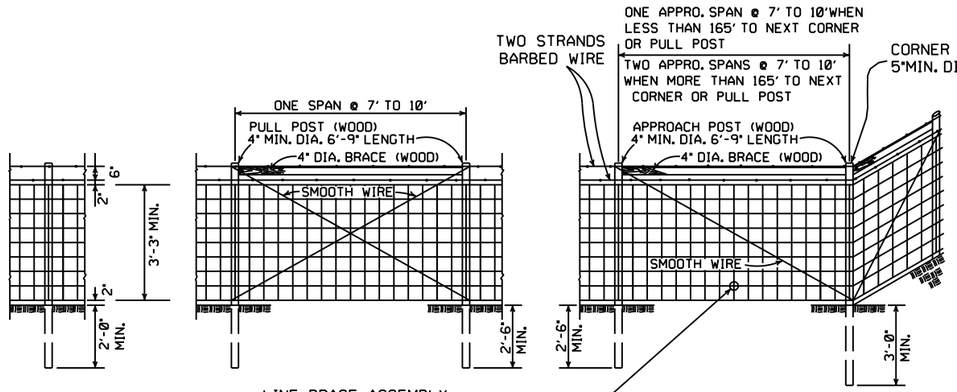
PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

| DATE | REVISION | FILMED |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| 4-20-79 | REVISED TOP RAIL & TENSION WIRE | 696-4-20-79 |
| 10-2-72 | REVISED AND REDRAWN | 529-10-2-72 |

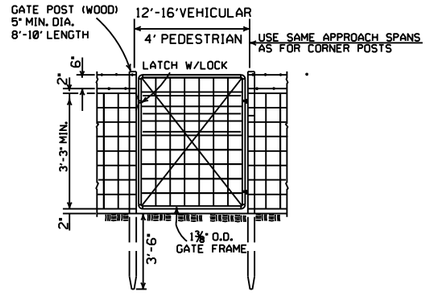
ARKANSAS STATE HIGHWAY COMMISSION

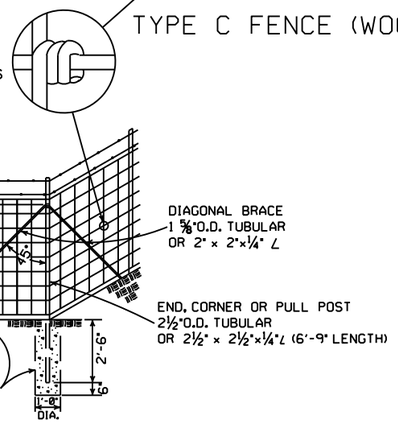
# WIRE FENCE WATER GAPS

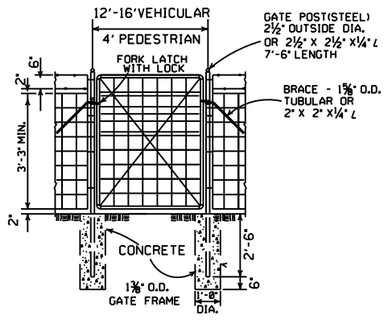
STANDARD DRAWING WF-2




## TYPE C FENCE (WOOD POSTS)

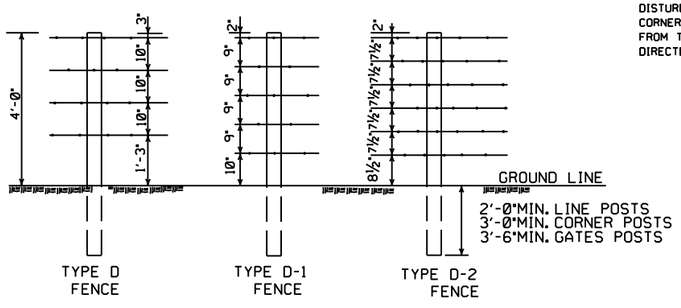


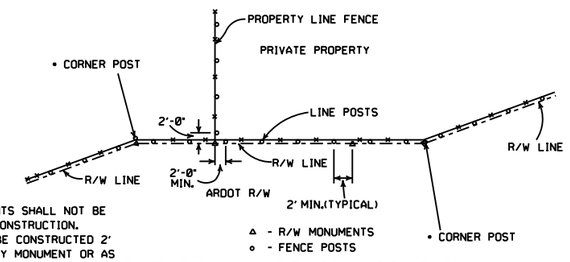




NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.

## TYPE C FENCE (STEEL POSTS)

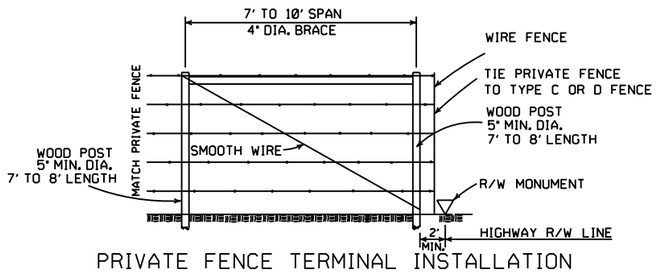



NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



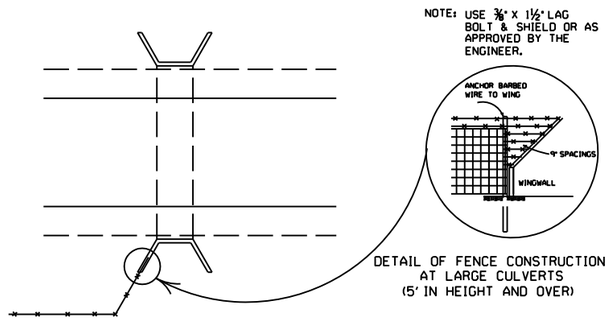

• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

## RIGHT-OF-WAY FENCE LOCATION

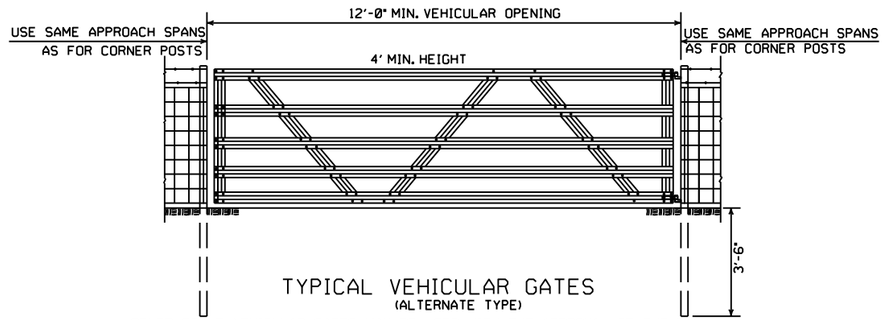



## PRIVATE FENCE TERMINAL INSTALLATION

WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.




DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)




## TYPICAL VEHICULAR GATES

(ALTERNATE TYPE)

OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK)SHALL MEET THE APPROVAL OF THE ENGINEER.

### 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 |
|---|---|---|
| 8-22-02 | REVISED GENERAL NOTES | |
| 10-18-96 | REVISED AASHTO | |
| 11-22-95 | 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